

Project Manual Woodcrest Biochar-and Iron-Enhanced Sand Filter

Prepared for:

COON CREEK WATERSHED DISTRICT

13632 Van Buren Street Northeast
Ham Lake, MN 55304

Prepared by:

WENCK ASSOCIATES, INC.

7500 Olson Memorial Highway
Suite 300
Golden Valley, MN 55427
(763) 252-6800

Project Funded by:



Administered By:



SECTION 00 01 05

PROFESSIONAL CERTIFICATIONS

PROJECT MANUAL

Woodcrest Biochar- and Iron-Enhanced Sand Filter

Prepared For: **Coon Creek Watershed District**

13632 Van Buren Street NE
Ham Lake, MN 55304
Telephone: (763) 755-0975

Prepared By: **WENCK ASSOCIATES, INC.**

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August 2019

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

Signature:  Typed or Printed Name: Ed A. Matthiesen

Date: 08-26-2019 Lic. No. 16800

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**SECTION 00 11 13
ADVERTISEMENT FOR BIDS**

NOTICE TO CONTRACTORS

Sealed Bid Proposals will be received by the District at its office, 13632 Van Buren Street NE, Ham Lake, Minnesota 55304, until 12:00 p.m. (noon) Friday, October 4, 2019 at which time such bids will be publicly opened and read aloud.

The work, in accordance with Drawings and Specifications prepared by Wenck Associates, Inc., consists of the following major items of work:

670 CY	Excavation – Offsite
1,700 CY	Excavation – Onsite
680 CY	Iron-Enhanced Sand
130 CY	Biochar
706 CY	Coarse Filter Aggregate
1,166 LF	Slotted Draintile
135 LF	Directionally Drilled 14" HDPE Pipe
0.70 AC	Clearing and Grubbing
6 EA	Tree Removal
2,600 SF	Bituminous Trail

Together with selective demolition, traffic control, erosion controls, seeding, and other related appurtenances.

A Pre-bid meeting is scheduled at the Woodcrest Biochar- and Iron-Enhanced Sand Filter project site (Woodcrest Pond, 901 103rd Ave NW, Coon Rapids, MN 55433) for 9:00 a.m. Wednesday, September 11, 2019. Attendance is not required.

Each bid proposal shall be accompanied by a "Bid Security" in the form of a certified check made payable to the "COON CREEK WATERSHED DISTRICT" (OWNER) in the amount not less than five percent (5%) of the total bid, or a surety bond in the same amount, running to the OWNER, with the surety company thereon duly authorized to do business in the State of Minnesota. Such Bid Security to be a guarantee that the bidder will not, without the consent of the OWNER, withdraw their bid for a period of ninety (90) days after the opening of bids, and if awarded a contract, will enter into a contract with the OWNER; and the amount of the certified check will be retained or the bond enforced by the OWNER in case the bidder fails to do so. All bid securities except those of the three lowest bidders will be returned within five days after the opening of bids.

Eligible Bidders for this project must meet the Minimum Criteria as defined in the Responsible Contractor Requirement in accordance with Minnesota Statutes § 16C.285, subdivision 3, and additional criteria required by the OWNER.

Bid Proposals shall be submitted on forms furnished for that purpose. Bids shall be submitted in sealed envelopes clearly inscribed on the outside: "Bid Proposal for Woodcrest Biochar- and Iron-Enhanced Sand Filter Project, Coon Creek Watershed District.". No bidder shall withdraw their bid, without the consent of the OWNER, for

a period of ninety (90) days after the date for the opening thereof. The OWNER, however, reserves the right to reject any or all bids and to waive any minor irregularities, informalities or discrepancies. A work history detailing qualifications and past experience must be provided within 7 days if requested by OWNER.

READ CAREFULLY THE WAGE SCALES AND DIVISION A OF THE SPECIAL PROVISIONS AS THEY AFFECT THIS PROJECT

The Project Manual is available on QuestCDN (www.questcdn.com). You may download the digital plan documents for \$20.00 by inputting Quest Project #6490211 on the website's project search page. Please contact QuestCDN at 952-233-1632 or info@questcdn.com for assistance in free membership registration, downloading, and working with this digital project information.

The Project Manual is also on file for inspection at Coon Creek Watershed District Office, and the office of Wenck Associates, Inc. Project Manual/Plan Set available with non-refundable deposit of \$50.00 check per set payable to "Wenck Associates, Inc." at:

Wenck Associates, Inc.
7500 Olson Memorial Highway
Suite 300
Golden Valley, MN 55427
Telephone: (763) 252-6800

Direct inquiries to Engineer's Project Manager Ed Matthiesen at (763) 252-6851.

Tim Kelly, District Administrator
Coon Creek Watershed District

PUBLISHED: QuestCDN.com: expected to be available on August 28, 2019

SECTION 00 21 13
INSTRUCTION TO BIDDERS

Forms included in the Contract Documents are not to be detached, filled out, or executed. Separate copies of Bid Form are furnished for the purpose of submission of bids. In submitting a Bid, bidders shall comply with the following instructions that shall control as to the submission of bids.

1. SCOPE OF BIDDING: The intent of the Contract Documents is to prescribe a complete project of work or improvement. The Contract shall be based upon and include by reference the Contract Documents, and all addenda as herewith provided; all bids must be based upon a full compliance of the Contract Documents. Should there be some item or items not shown on the Drawings or described in the Specifications which are required for the Work, these items and the furnishing of all related labor, materials and equipment shall be considered incidental to the Work and no additional compensation will be provided.
2. DETERMINATION OF APPROVED EQUALS AS TO EQUIPMENT AND MATERIALS: Certain types of equipment and kinds of material are described in the specifications by means of trade names and catalog numbers and/or manufacturers' names. In each instance where this occurs it is not intended to exclude from consideration such types of equipment and kinds of material bearing other trade names, catalog numbers and/or manufacturers' names, capable of accomplishing the purpose of the types of equipment and kinds of material specifically indicated. Such types of equipment and kinds of material will be acceptable to the OWNER if equivalence can be determined by ENGINEER.

Any types of equipment or kinds of material a Bidder proposes to use that are different than those specifically indicated in the Drawings or Specifications are, by definition, Substitutions and must be approved in writing by the ENGINEER and be agreed upon by the OWNER. In general, substitutions by CONTRACTOR should only be proposed where CONTRACTOR can provide a product that can meet the specified purpose and that equals or exceeds the specified quality, at a reduced cost to the OWNER, for which a Change Order can be written to pass the savings to the OWNER. However, no determinations regarding substitutions will be made until after Notice of Award, and Bidders should base their bid on the exact equipment that is specified.

3. BID SECURITY: Together with bidder's Bid Form, the Bidder shall submit Bid Security in the form of a certified check as specified in Section 00 11 13 Advertisement for Bids. The Bid Security shall be given to guarantee that the bidder will not, without consent of the OWNER, withdraw its Bid for the period of days as specified in Section 00 11 13, after the opening of bids and, if the successful bidder, that it will enter into a contract with the OWNER and in connection therewith give Performance Bond and Payment Bond in form as set forth in this Project Manual.

The Bid Securities of the three (3) lowest responsible bidders shall be retained by the OWNER until the contract is executed, but in no event longer than the number of days specified in Section 00 11 13 after the opening of bids, provided, however, that the Bid Security of the successful bidder shall in any event be retained until a contract is executed. The Bid Securities of the other bidders shall

be returned the number of days after the opening of bids as specified in Section 00 11 13.

4. PRE-BID MEETING: The pre-bid meeting information is included in Section 00 11 13 Advertisement for Bids.
5. ADDENDA: No oral interpretation will be made to any bidder as to the meaning of the Specification or of the Drawings incorporated therein by reference or otherwise. Every request for such an interpretation shall be made in writing to:

Mr. Ed Matthiesen, P.E.
Wenck Associates, Inc.
7500 Olson Memorial Highway
Suite 300
Golden Valley, MN 55427

Any inquiry received five (5) or more calendar days (deadline is September 29, 2019) prior to time for opening of bids will be considered. Every interpretation by the ENGINEER shall be in the form of an addendum that will be filed at the District Office: 13632 Van Buren, Ham Lake, Minnesota 55304 and at the aforesaid office of the ENGINEER, at least two (2) calendar days (October 2, 2019) before the date for opening bids. In addition, such addenda will be mailed to all those procuring a set of drawings and specifications, but it shall be **the bidder's responsibility to make inquiry as to the addenda issued**, and all bids shall be considered and the contract let to the successful bidder upon the basis of all such addenda whether or not in fact received by the bidders. Only interpretations and clarifications issued by Addenda will be binding. Any Addenda issued during the bidding period shall be made a part of the Bidding Documents. Receipt of each Addendum shall be acknowledged on the Bid Form.

6. SUBCONTRACTING: No part of the Work shall be subcontracted except with the prior consent of OWNER. All subcontractors shall be contractors of recognized standing having a record of satisfactory performance. The CONTRACTOR shall be prepared to provide qualification information on their subcontractors of previous work performed similar to proposed work shall at the request of the OWNER.
7. CONTRACT DOCUMENTS: The "Contract Documents" are listed in the Agreement Form in Section 00 52 00.
8. ALTERNATES: An Alternate is certain work defined in the Bidding Requirements that may be added to or deducted from the Base Bid amount if the OWNER decides to accept a corresponding change in either the amount of construction to be completed, or in the products, materials, equipment, systems, or installation methods described in the Contract Documents. The cost or credit for each Alternate is the net addition to or deduction from the Contract Sum to incorporate the Alternate into the Work. No other adjustments are made to the Contract Sum. Immediately following the award of the Contract, OWNER will notify CONTRACTOR and ENGINEER, in writing, of the status of each Alternate and will indicate whether Alternates have been accepted, rejected, or deferred for later consideration. CONTRACTOR shall complete accepted Alternates under the same conditions as other Work of this Contract. Specifications sections will contain requirements for materials necessary to perform the Work described under each Alternate.

9. QUALIFICATIONS OF BIDDER: To demonstrate qualifications to perform the Work, the low Bidder, if requested by the OWNER, shall submit to OWNER (with copy to ENGINEER) within seven (7) calendar days following the request by the OWNER written documentation which demonstrates the Bidder's ability to complete the Work as specified. This documentation may include a description of present commitments; a description of the Bidder's equipment, key personnel, resources, and material supplies which demonstrate the Bidder's ability to furnish and install materials within the time frames specified and successfully complete the Work; a list of subcontractors Bidder proposes to use; description of the Bidder's project experience in the past five (5) years, including nature of project, with three (3) projects completed by the CONTRACTOR involving work of similar type and complexity; and such other information the OWNER believes is necessary. The project experience list shall include the following information as a minimum:

- Names, addresses, and telephone number of Owner.
- Name of project.
- Location of project.
- Brief description of the work performed.
- Contract amount and name of bonding company.
- Date of completion of the project.
- Name, address, and telephone of the engineer or architect for the work.
- Name of the Owner's project engineer.

The OWNER reserves the right to reject any bid if evidence submitted by, or investigation of, such bidder fails to satisfy the OWNER that such bidder is properly qualified to carry out the obligations of the Contract and to complete work contemplated therein.

Before any subcontractor may commence work, the successful Bidder must file with the ENGINEER and the OWNER satisfactory certificates, in duplicate, from the involved insurance companies, showing insurance coverage to the same extent and the amounts as required by the successful Bidder.

Neither the successful Bidder nor any subcontractor will be permitted to commence work until authorization by the ENGINEER to proceed is received in writing by the successful Bidder.

10. COMPLETION OF BID: Complete sets of the Bidding Documents must be used in preparing Bids. Neither OWNER nor ENGINEER assumes any responsibility for errors or misinterpretations resulting from the use of incomplete sets of the Bidding Documents.

All blank spaces in the Bid form shall be filled in with ink or by typewriter and any alteration, correction or deletion must be initialed as approved by the Bidder, or in the case of a corporate bidder, by its duly authorized officer.

The price shall be in writing and in figures; in case of conflict, the former shall apply.

Bidder shall not include in the Bid any condition not contemplated by and included in the drawings, specifications and Bid form.

11. SUBMISSION OF BID: The bidder shall deliver to the District Office at 13632 Van Buren, Ham Lake, Minnesota 55304, not later than time and date indicated on Advertisement for Bids, its Bid, together with its bid security, all securely sealed in an envelope addressed to the OWNER at the above address, on the outside of which the following shall be clearly inscribed:
- Name of Bidder, and
 - Name of Project, "Bid for: Woodcrest Biochar- and Iron-Enhanced Sand Filter Project, Coon Creek Watershed District."

The submission of a Bid will constitute an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Section 00 21 13 and that without exception the Bid is premised upon performing and furnishing the Work required by the Bidding Documents and by such means, methods, techniques, sequences or procedures of construction as determined by the Bidder, subject to the provisions of the Bidding Documents, and that the Bidding Documents are sufficient in scope and detail to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

12. WITHDRAWAL OF BID: No bid shall be withdrawn except with the consent of the OWNER for the period of days specified in Section 00 11 13 after the date the bids are opened or until a contract is let and executed by the successful bidder.
13. BASIS OF AWARD: The OWNER shall award a contract to the lowest responsible bidder meeting specifications based on the Base Bid amount and any selected alternates. The OWNER, however, reserves the right to reject any or all bids and to waive any minor irregularities, informalities, or discrepancies.
14. AWARD OF CONTRACT: The OWNER's acceptance of the Bid will be in the form of a written "Notice of Intent to Award" letter, which will specify that the CONTRACTOR execute the Contract and submit the required certificates of insurance coverage, Payment Bond and Performance Bond within ten (10) days from the date of Notice of Intent to Award. The OWNER will not execute the Contract until all of these required items are submitted and have been approved.

The Notice of Intent to Award letter will not be an order to proceed. The CONTRACTOR will have no authority to perform work under this Contract until all Contract Documents as indicated above are properly completed and placed on file at the OWNER'S office.

A Notice to Proceed with the Work under this project will be mailed to the CONTRACTOR upon satisfaction of the above-indicated requirements. A pre-construction conference will be scheduled thereafter.

15. EXECUTION OF BID: If the Bid is signed by individual or partnership bidders, it shall be signed by bidder or bidders individually; if signed for a corporate bidder, by the duly authorized officer or officers of a corporate bidder signing for and on behalf of their corporation; or, if signed by attorney-in-fact for a bidder, power of attorney evidencing authority of individual signing shall accompany Bid.
16. SUPPORTING DATA: The bidders shall, on request, submit prior to letting of contract all or any of the following:

- a. Such catalogs, photographs, drawings, specifications, descriptive information and other details as to special equipment or materials bidder proposes to furnish for the work, to permit evaluation or the merits thereof and determination whether such special equipment or materials comply with the Specifications.
- b. A properly executed Affidavit of Authority and Non-Collusion.
- c. A statement setting forth all items of work that the bidder proposes to sublet, and names of the subcontractors to whom such items will be sublet.

17. PRE-CONSTRUCTION CONFERENCE: Following execution of a Contract and prior to starting construction, a Pre-Construction Conference will be held with representatives of the OWNER and ENGINEER. The CONTRACTOR and any proposed subcontractors shall have a responsible person present with authority to represent it in all matters relative to scheduling, coordination of trades, safety procedures.

18. TIME OF COMPLETION: See Section 00 52 00.

END OF SECTION

**SECTION 00 31 00
AVAILABLE PROJECT INFORMATION**

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes existing condition information, geotechnical data, and/or environmental data.

1.2 TECHNICAL DATA

- A. Bidders are responsible for their own interpretation, verification, and use of the technical data contained herein. The data is made available for Bidders' convenience and information, but are not a warranty of existing conditions. The attachments to this Section include:
 - 1. Geotechnical Data
 - a. A geotechnical report prepared for OWNER by Haugo Geotechnical Services dated June 26, 2019 is included as available project information following this Section.
 - b. Data Use Limitations: The firm reporting the sub-surface conditions based on the borings, do not warrant the conditions below the depths of the borings or that the strata logged from the borings are necessarily typical of the entire site.
 - c. Bidder Responsibility: Persons using information described herein shall accept full responsibility for its use in preparing Bids and obtain additional geotechnical information, which may be required.
 - d. Extra Payment: No consideration for extra payment will be given for conditions occurring which could have been anticipated for the geotechnical information. If conditions occur resulting in extra work, which could not have been anticipated or reasonably inferred from the geotechnical information, the Conditions of the Contract shall apply.

END OF SECTION

June 26, 2019

Project Number: 19-0316

Mr. Erik Megow
Wenck Associates, Inc.
1800 Pioneer Creek Center P.O Box 249
Maple Plain, MN 55359-0249

RE: Geotechnical Exploration Report, Proposed CCWD Filtration Basins, 2 Sites, Coon Rapids and Blaine, Minnesota

Dear Mr. Megow:

We have completed the geotechnical exploration report for the proposed filtration basins in Coon Rapids and Blaine. Specific details regarding our procedures, results and recommendations are presented in the attached geotechnical exploration report.

Thank you for the opportunity to assist you on this project. If you have any questions or need additional information, please contact Paul Gionfriddo at 612-271-8185.

Sincerely,

Haugo GeoTechnical Services, LLC



Paul S. Gionfriddo, P.E.
Senior Engineer

GEOTECHNICAL EXPLORATION REPORT

PROJECT:

Proposed CCWD Filtration Basins
Woodcrest Pond, Coon Rapids, Minnesota
Pleasure Creek Pond, Blaine, Minnesota

PREPARED FOR:

Wenck Associates, Inc.
1800 Pioneer Creek Center P.O Box 249
Maple Plain, MN 55359-0249

PREPARED BY:

Haugo GeoTechnical Services
2825 Cedar Avenue S
Minneapolis, MN 55407

Haugo GeoTechnical Services Project: 19-0316

June 26, 2019

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
Expires June 2020



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1.0 INTRODUCTION

1.1 Project Description

Wenck Associates, Inc. (Wenck), on behalf of the Coon Creek Watershed District (CCWD) requested a quote for subsurface exploration and geotechnical engineering recommendations for the proposed Woodcrest Pond and Pleasure Creek Iron-Enhanced Sand Filter projects. The proposed stormwater improvements will include; excavation, iron-enhanced sand filters, and filtration basins. The specific number of soil borings and scope of services for each pond was outlined in a “Request for Quotes” (RFQ) prepared by Wenck and dated April 16, 2018. Very briefly the RFP requested a cost for 5 soil borings, and a geotechnical report summarizing the investigation results, a characterization of soil and groundwater conditions, and discussion of construction considerations for iron sand filters and underground storage systems, recommendations for trenching, excavation, dewatering, backfill, compaction and drainage and R-Value of the subgrade materials sampled.

1.2 Purpose

The purpose of this geotechnical exploration was to provide the information requested in the Wenck RFQ as described in section 1.1 above.

1.3 Site Description

Woodcrest Pond Woodcrest pond is located within Woodcrest Park and on the west side of Woodcrest Drive NW and approximately located between 103rd Avenue NW and 104th Avenue NW in Coon Rapids, Minnesota. The pond was estimated to be about 2 acres in size. The proposed filtration basin/system will be located on the north side of the pond.

Pleasure Creek Pond Pleasure Creek Pond is an irregularly shaped man-made pond generally located north of 99th Avenue NE between Polk Street NE and University Avenue NE in Blaine Minnesota. Pleasure Creek Parkway (East and West) circle most of the pond. The proposed filtration basin/system will be located in a grass covered area between the pond and Pleasure Creek Parkway and approximately between Clover Leaf Parkway NE and Washington Street NE.

1.4 Scope of Services

Our services were performed in accordance with “Attachment D – Quote Form” included in the Wenck RFQ dated April 16, 2019.

Our scope of services was limited to the following tasks:

- Completing two (2) standard penetration soil borings each to a nominal depth of 14 ½ feet within the proposed filtration basin at Woodcrest Pond.
- Completing three (3) standard penetration soil borings each to a nominal depth of 14 ½ feet within the proposed filtration basin at Pleasure Creek Pond.
- Obtaining GPS coordinates and ground surface elevations at the soil boring locations.

- Abandoning the boreholes in accordance with Minnesota Department of Health (MDH) regulations.
- Visually classifying the samples recovered from the soil borings.
- Preparing soil boring logs describing the soil types/classifications and results of water level measurements.
- Preparing and engineering report characterizing soil and groundwater conditions, providing a discussion of construction considerations for iron sand filters and underground storage systems, recommendations for trenching, excavation, dewatering, backfill, compaction and drainage and R-Value of the subgrade materials sampled.

Wenck eliminated the need to provide an R-Value of the subgrade material. However, Wenck requested moisture content testing of the soils (peat) encountered in the soil borings taken at the Pleasure Creek Pond site.

1.5 Documents Provided

We were provided a 14-page "Request for Quotes" (RFQ) prepared by Wenck and dated April 16, 2019. The RPF provided a description of the specific scope of services, pond locations, schematics of the filtration systems, soil boring locations, soil boring tabulation, Quote Form and insurance requirements.

1.6 Locations and Elevations

The soil boring locations were selected by Wenck. Haugo GeoTechnical Services (HGTS) staked the boring locations in the field and modified their locations based on site access. HGTS obtained ground surface elevations and GPS coordinates at the boring locations using GPS measuring equipment. The GPS measurements were based on the MN County Coordinate System (Anoka County) in US Survey Feet using a Trimble GPS unit. The approximate locations of the soil borings are shown on Figure 1, "Soil Boring Location Sketch", in the Appendix. The GPS Soil Boring locations are shown on Figure 2 in the Appendix.

2.0 FIELD PROCEDURES

The standard penetration test borings were advanced on May 15, 2019 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 log. The samples were sealed in containers and provided to HGTS for testing and soil classification.

Soil samples recovered from the borings were classified in general accordance with ASTM 2488, "Description and Identification of Soils (Visual/Manual Procedures).

A field log of each boring was prepared by the HGTS drill crew. 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 represent 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 logs 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 Soil Conditions

Woodcrest Pond Soil borings SB-1A and SB-2A were completed at Woodcrest pond. These soil borings found about 1 foot of clayey topsoil with organic material or decaying plant matter at the surface. The topsoil and decaying plant matter was black in color.

Below the topsoil the borings found predominantly clayey alluvial deposits consisting of sandy lean clay or silty clay that extended to the termination depths of the boring SB-2 encountered an approximate 3 foot layer of poorly graded sand with silt below the topsoil/decaying plant matter. The sand layer was not encountered in soil boring SB-1A.

The penetration resistance value (N-Value), shown as blows per foot (bpf) on the boring logs, within the sand was 6 bpf indicating the sand had a loose relative density. N-Values within the clayey alluvium ranged from 2 to 21 bpf however most of the values ranged from 2 to 7 bpf. These values indicate clayey alluvium had a soft to very stiff consistency but was mostly soft to medium.

Pleasure Creek Pond Soil borings SB-2A, SB-2B and SB-3B were completed at the Pleasure Creek Pond. These borings encountered a relatively thin layer of topsoil at the surface underlain by peat (swamp deposits) that extended to depths ranging from about 9 to 14 feet below the ground surface. Below the peat the borings encountered native alluvial soils consisting of poorly graded sand and poorly graded sand with silt.

N-Values within the peat ranged from 7 to 2 bpf. N-Values within the native sands ranged from 5 to 17 bpf indicating a loose to medium dense relative density.

3.2 Groundwater

Woodcrest Pond Groundwater was not encountered in the borings completed at Woodcrest Pond.

Pleasure Creek Pond Groundwater was encountered in soil borings completed at Pleasure Creek Pond at depths ranging from about 9 to 12 feet below the ground surface corresponding to elevations ranging from about 884 ½ to 888 ½ feet above mean sea level. Water levels are summarized in Table 1.

Table 1. Summary of Groundwater Levels

Boring Number	Surface Elevation (feet)	Approximate Depth to Groundwater (feet)*	Approximate Groundwater Elevation (feet) *
SB-1B	897.4	9 - 12	888 ½ - 885 ½
SB-2B	897.9	10 - 11	888 - 887
SB-3B	896.7	10 ½ - 12	886 ½ - 884 ½

* = Depths and elevations were rounded to the nearest ½ foot.

Groundwater measurements were made as noted and shown on the boring logs. Groundwater monitoring wells or piezometers would be required to more accurately determine water levels. Seasonal and annual fluctuations in the groundwater levels should be expected.

3.5 Laboratory Tests

Laboratory grain size analyses, moisture content and organic content tests were performed on selected samples recovered from the soil borings. Table 2 below summarizes the results of the laboratory tests. Laboratory results are shown on the boring logs adjacent to the sample tested.

Table 2. Summary of Laboratory Tests

Boring Number	Sample Number	Depth (feet)	Moisture Content (%)*	Organic Content (%)*	P-200 (%)*
Crestwood Pond					
SB-1A	S-103	5	-	-	79 ½
SB-2A	S-111	7 ½	-	-	92
Pleasure Creek Pond					
SB-1B	S-2	2 ½	51 ½	-	-
SB-1B	S-3	5	82	25	-
SB-1B	S-4	7 ½	190	-	-
SB-2B	S-9	2 ½	70	-	-
SB-2B	S-11	7 ½	346 ½	98	-
SB-2B	S-13	12 ½	48	-	-
SB-3B	S-17	2 ½	47	-	-
SB-3B	S-19	7 ½	34	-	-
SB-3B	S-20	10	209	70 ½	-

*Moisture Content, Organic Content and P-200 Contents were rounded to the nearest ½ percent

3.5 OSHA Soil Classification

Woodcrest Pond The soils encountered in soil borings SB-1A and SB-2A consisted predominantly of clayey soils with lesser amounts of sand (granular soils). The clayey soils consisted of sandy lean clay and silty clay meeting the ASTM Classification CL. These soils would typically be Type B soil under Department of Labor Occupational Safety and Health Administration (OSHA) guidelines. However the soils exhibited decreasing N-Values with depth and had a soft consistency at depth. Because of that it is our opinion that the clayey soils should be considered Type C soil under OSHA guidelines.

The sand encountered in the boring(s) will generally be Type C soil under Department of Labor Occupational Safety and Health Administration (OSHA) guidelines.

Pleasure Creek Pond Soil borings SB-1B thru SB-3B completed at Pleasure Creek Pond encountered organic soils (peat/swamp deposits) that do not meet the OSHA guidelines for Type A, B or C soils. Excavations in the organic soils will likely require side-slopes flatter than those for Type A, B or C soils.

The alluvial sand encountered below the peat consisted of sands meeting the ASTM Classification SP or SP-SM. The sands will generally be Type C soils under OSHA guidelines.

4.0 DISCUSSION AND RECOMMENDATIONS

4.1 Proposed Construction

Woodcrest Pond Based on Figure 1 included in the RFQ we understand the filtration system at Woodcrest Pond will generally be located within the pond on the north side of the pond. The filtration system will consist of series of both perforated and solid/non-perforated pipe installed in an approximate 1 foot thick layer of gravel. Approximately 1 foot of iron enhanced sand will then be placed above the pipe and gravel layer. Water from the pond will flow down through the iron enhanced sand and will be collected in the pipe within the gravel layer. Filtered water from the pipe will then be discharged into an existing outlet control structure on the west side of the pond. We further understand that the bottom of the gravel layer is anticipated to bear at or near elevation 860 feet msl.

Pleasure Creek Pond Based on Figure 2 included in the RFQ we understand the filtration system at the Pleasure Creek Pond will consist of a piping system similar to that of the Woodcrest Pond site as described above except that the filtration piping system will be located in a "green" area on the south side of the pond. The gravel layer, piping and enhanced iron sand will be installed in an impermeable PVC liner with the bottom of the liner and gravel layer bearing at approximate elevation 894.

Since the filtration system will be located away from the Pleasure Creek Pond, a lift station, manhole(s), valve vaults and the associated piping will be installed to transfer untreated and treated water to the appropriate treatment and discharge points.

We anticipate the lift station, manholes, and valve vaults could consist of pre-cast concrete sections or cast in-place concrete structures. We were not provided any information regarding invert elevations for these structures but based on Figure 2 we anticipate effluent pipe invert elevations ranging from about 894 to 890 and anticipate the base of the lift station, manholes and valve vault will likely bear near or below elevation 890.

Based on the anticipated construction we anticipate that soil bearing pressures ranging from about 1,000 to 1,500 pounds per square foot (psf) will be required for lift station, manhole and valve vault support.

We have attempted to describe our understanding of the project. If the proposed loads exceed these values or if the design or location of the proposed construction changes, we should be informed. Additional analyses and revised recommendations may be necessary.

4.2 Discussion

Woodcrest Pond The soil encountered in soil borings SB-1A and SB-2A at the anticipated bottom of the gravel layer (elevation 860) consisted of lean clay or sandy lean clay that had a medium consistency. It is our opinion that the soils encountered at that elevation are suitable for support of the proposed filtration system.

Groundwater was not encountered in soil boring SB-1A or SB-2A and we do not anticipate that groundwater will be encountered and do not anticipate that dewatering will be required.

It must be noted that it appears that a portion of the filtration system will extend into the existing pond. Removing water from the pond, (i.e. draining the pond) could be required to facilitate construction. Alternately caissons could be installed and the water removed with sumps and pumps to create a working platform. With the water removed soft soil conditions and/or organic soils could be encountered and some soil corrections to remove those materials could be required.

We do not anticipate significant changes in site grades following system installation so that site grades after system installation are expected to be the same as existing site grades. We anticipate the unit weight of the gravel and enhanced iron sand will be similar to, and possibly less than, the unit weight of the clayey soils encountered in the borings. For these reasons we do not anticipate significant soil settlement due to installation of the system.

Pleasure Creek Pond

General The soil borings completed at the Pleasure Creek Pond encountered peat that extended to depths ranging from about 11 to 14 feet below the ground surface. The peat is a highly compressible material and can settle/consolidate unfavorably under the loads associated with the concrete manholes, lift station and valve vaults. The peat or other organic soils are not suitable for foundation support and we do not recommend supporting those structures in or on the peat or other organic soils. The underlying native sands encountered in the boing are generally suitable for foundation support.

Soil Corrections We do not recommend supporting the manholes, lift station or valve vaults on the peat or other organic soils. Soil corrections are often a cost-effective approach to preparing a suitable pad for foundation support. With this method the organic soils are removed and replaced with suitable compacted engineered fill. If this approach is selected, we anticipate excavations extending to depth ranging from about 11 to 14 feet below the ground surface. At typical excavation side-slopes of 1:1 the excavation will extend about 11 to 14 feet in each lateral direction. In addition, the soils could slough further increasing those distances. If site constraints will limit excavations with these dimensions shoring will likely be required.

Groundwater was encountered in the borings at depth ranging from about 9 to 12 feet below the ground surface. With excavations anticipated to extend to 14 feet groundwater will likely be encountered and dewatering will likely be required.

Filtration Layer We were not provided any information regarding the unit weight of the gravel or iron enhanced sand but estimate that unit weights will range from about 115 to 125 pounds per cubic foot (pcf) and anticipate its unit weight will be greater than the unit weight of the peat. Because of that there is the potential that the peat will consolidate/settle under the weight of the iron enhanced sand, gravel layer and piping. Settlement will likely not be uniform which could result in dips in the piping which could reduce or impede flow through the pipes.

N-Values in the peat ranged from about 7 to 2 bpf (decreasing with depth) which suggest it does have some strength and it might be possible to "float" the iron enhanced sand, gravel and piping layer over the peat. We do not recommend this approach but if it is selected the Coon Creek Watershed District must be made aware of the risks associate with this approach and be willing to accept those risks.

Surcharging Surcharging the peat may be an option for reducing post-construction settlement of structures placed on compressible soils. With this method excess fill soils are placed over the site which accelerates the rate of settlement of the underlying compressible materials. Settlement/survey plates are installed and measured on a periodic basis to monitor soil settlement. Wick drains or weep holes can also be installed to further accelerate the rate of settlement. Once the desired level of consolidation/settlement has occurred the excess soil is removed and the filtration system. The duration of the surcharge and excess fill required to achieve the desired settlement is dependent on specific site and material conditions. Additional soil borings and laboratory consolidation testing will likely be required to develop a surcharge plan for the site.

Helical Anchors Because of the relatively deep correction depths along with the potential for dewatering and shoring, supporting manholes, lift station and valve vaults on helical anchors could potentially reduce or eliminate the need for shoring and dewatering and could be more cost effective. 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 organic soil and any soft or loose soils and bear on the underlying denser stiffer soils at depth to support the foundations.

The following paragraphs provide recommendations for supporting the proposed lift station, manholes and valve vaults on compacted engineered fill following soil corrections or on helical anchors.

4.3 Lift Station, Manhole and Valve Vaults

Excavations We recommend that all vegetation, peat, organic soils, and any other soft or unsuitable materials, if any, be removed from the proposed lift station, valve vaults and manholes and oversize areas. Table 3 below summarizes the anticipated excavation depths at the soil boring locations. Excavation depths may vary and could be deeper.

Table 3. Anticipated Excavation Depths

Boring Number	Measured Surface Elevation (feet)	Anticipated Excavation Depth (feet)*	Anticipated Excavation Elevation (feet)*	Anticipated Groundwater Elevation (feet)*
Woodcrest Pond				
SB-1A	863.3	3 ½	860	NE
SB-1B	866.2	6	860	NE
Pleasure Creek Pond				
SB-1B	897.4	9	888 ½	888 ½
SB-2B	897.9	14	884	887
SB-3B	896.7	12	884 ½	886 ½

NE = Not Encountered. *Excavation depths and elevation were rounded to the nearest ½ foot.

Oversizing and Shoring If the excavation extends below the proposed footing 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 foundation.

Excavation for soil corrections are anticipated to extend to depths up to about 14 feet below the ground surface. At a typical 1:1 backslope, the excavation could extend up to about 14 feet beyond the edges of the structure(s). The excavations will likely be in organic soils which likely required side slopes flatter than 1:1 further increasing the horizontal limits of the excavation. If site constraints will limit the excavation, temporary shoring may be required.

Fill Material Fill required to attain site grades and may consist of any debris-free, non-organic mineral soil. The exception being where material are placed in wet excavations and in thicker (10 feet or greater) fill areas, we recommend that granular soil with less than 5 percent passing the 200 sieve and at least 50 percent retained on the number 40 sieve be used for ease in compaction and to minimize the construction delay associated with thick fills.

Excavation are anticipated to extend below the water table and unstable soil conditions could be encountered. Unstable soil, if encountered, may need to be subcut and replaced with stabilizing aggregate (clear rock).

The peat, organic soil, topsoil and other soils that are black in color are not suitable for use as structural fill.

Backfilling We recommend that backfill placed to attain foundation grades be compacted to a minimum of 98 percent of its standard Proctor density (ASTM D 698). We recommend that backfill placed to attain floor slab grades be compacted to a minimum of 95 percent of its standard Proctor density. The exceptions are where fill depths exceed 10 feet and in the upper 3 feet of pavement areas, if any, where the compaction should be increased to a minimum of 100 percent. Fill soils should be placed within 3 percentage points above and 1 percentage point below its optimum moisture content as determined by the standard Proctor. 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. 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 we recommend that compaction levels be increased to minimum of 100 percent of the materials standard Proctor density and that granular soil be used as fill. Even with the increased compaction levels a construction delay may be appropriate to allow for post construction settlement of the fill mass. Placing clean sands will minimize or eliminate the required construction delay.

Fill and backfill placed on slopes, if any, 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.

Foundations We recommend the perimeter footings bear a minimum of 42 inches below the exterior grade for frost protection. Interior footings may be placed immediately below the slab provided construction does not occur during below freezing weather conditions. Foundation elements in unheated areas should bear at least 5 feet below exterior grade for frost protection.

With soils corrected as recommended, we anticipate the footings will bear on compacted engineered fill or native sands. It is our opinion the footings can be designed for a net allowable bearing pressure up to 2,000 pounds per square foot (psf).

We anticipate total and differential settlement of the foundations will be less than 1 inch.

4.4 Dewatering

Excavations at the Pleasure Creek Pond site will likely extend to or below the groundwater table and we anticipate that dewatering will be required. The soil at the anticipated excavation depths will likely consist of sand meeting the ASTM Classification SP or SP-SM.

Where 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.

We recommend that a dewatering contractor be consulted to review the soil boring logs, develop a dewatering plan and evaluate the impact of dewatering on adjacent structures.

4.5 Below-Grade Wall Design

The lift station, manholes and valve vaults will extend below grade and will have lateral loads transmitted to them from the surrounding soils. We recommend any structures extending below the water table be designed resist the appropriate uplift/buoyant forces.

We recommend 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.

Clay may be used to make up the balance of the wall backfill. However consolidation of the clay under its own weight can be expected to continue even after construction. If not accommodated for, structures supported on the clay backfill could settle unfavorably or be damaged.

Active earth pressures can be used to design the below grade walls if the walls are allowed to rotate slightly. If wall rotation cannot be tolerated then below grade wall design should be based on at-rest earth pressures. We recommend soil parameters found below in Table 4, be used for below grade/retaining wall design. These design 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. 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	120	32	55	35	390
Clay	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 Exterior Slabs

We do not anticipate that any exterior slabs (patios, sidewalks, equipment slabs etc.) will be constructed as part of this project.

4.7 Utilities

Open Cut We anticipate that new utilities will be supported on the compacted engineered fill following soil corrections. We recommend removing all organic soils, soft or other unsuitable soil, if any, beneath utilities prior to placement.

We recommend bedding material be thoroughly compacted around the pipes. We recommend trench backfill above the pipes be compacted to a minimum of 95 percent beneath slabs and pavements, the exception being within 3 feet of the proposed pavement subgrade, where 100 percent of standard Proctor density is required. In landscaped areas we recommend a minimum compaction of 90 percent.

5.0 HELICAL ANCHORS

Because of the relatively deep correction depths along with the potential for dewatering and shoring, supporting manholes, lift station and valve vaults on helical anchors could potentially reduce or eliminate the need for shoring and dewatering and could be more cost effective. 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 organic soil and any soft or loose soils and bear on the underlying denser stiffer soils at depth to support the foundations.

The soil boring completed for this project likely did not extend deep enough for helical anchor design but may be sufficient of preliminary design. Additional deeper soil borings could be performed to further evaluate the soil conditions for the design of the deep foundations.

If a helical anchor system is chosen to support the proposed structures, we recommend a specialty contractor be consulted for anchor installations. Mr. Mike Moeller with Atlas Foundation Company at 763-428-2261, Mr. Greg Norris with Veit Companies at 763-428-2242, Mr. Todd Planting with Bolander & Sons at 651-224-6299, or Mr. Corey Scherber with Scherber Companies at 612-282-7403 are available to provide helical anchors.

6.0 CONSTRUCTION CONSIDERATIONS

6.1 Excavation

Woodcrest Pond The soils encountered in soil borings SB-1A and SB-2A consisted predominantly of clayey soils with lesser amounts of sand (granular soils). The clayey soils consisted of sandy lean clay and silty clay meeting the ASTM Classification CL. These soils would typically be Type B soil under Department of Labor Occupational Safety and Health Administration (OSHA) guidelines. However, the soils exhibited decreasing N-Values with depth and had a soft consistency at depth. Because of that it is our opinion that the clayey soils should be considered Type C soil under OSHA guidelines.

The sand encountered in the boring(s) will generally be Type C soil under Department of Labor Occupational Safety and Health Administration (OSHA) guidelines.

Pleasure Creek Pond Soil borings SB-1B thru SB-3B completed at Pleasure Creek Pond encountered organic soils (peat/swamp deposits) that do not meet the OSHA guidelines for

Type A, B or C soils. Excavations in the organic soils will likely require side-slopes flatter than those for Type A, B or C soils.

The alluvial sand encountered below the peat consisted of sands meeting the ASTM Classification SP or SP-SM. The sands will generally be Type C soils under 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.

6.2 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.

6.3 Backfill and Fills

The peat and other organic soil, if any, excavated during soil corrections are not suitable for reuse as structural fill or backfill but it may be possible to reuse these materials in green areas such as landscaping berms.

Site sandy and clayey soils that will be excavated and reused as backfill and fill appear to be above their assumed optimum moisture content. We anticipate it will be necessary to moisture condition (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.

6.4 Testing

We recommend density tests of backfill and fills placed during construction and renovation of the facility. 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).

6.5 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.

7.0 PROCEDURES

7.1 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 soils engineer. Samples will be retained for a period of 30 days.

7.2 Groundwater Observations

Immediately after taking the final samples in the bottom of the boring, the hole was checked for the presence of groundwater. Immediately after removing the augers from the borehole the hole was once again checked and the depth to water and cave-in depths were noted.

8.0 GENERAL

8.1 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.

8.2 Review of Design

This report is based on the design of the proposed structure 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.

8.3 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.

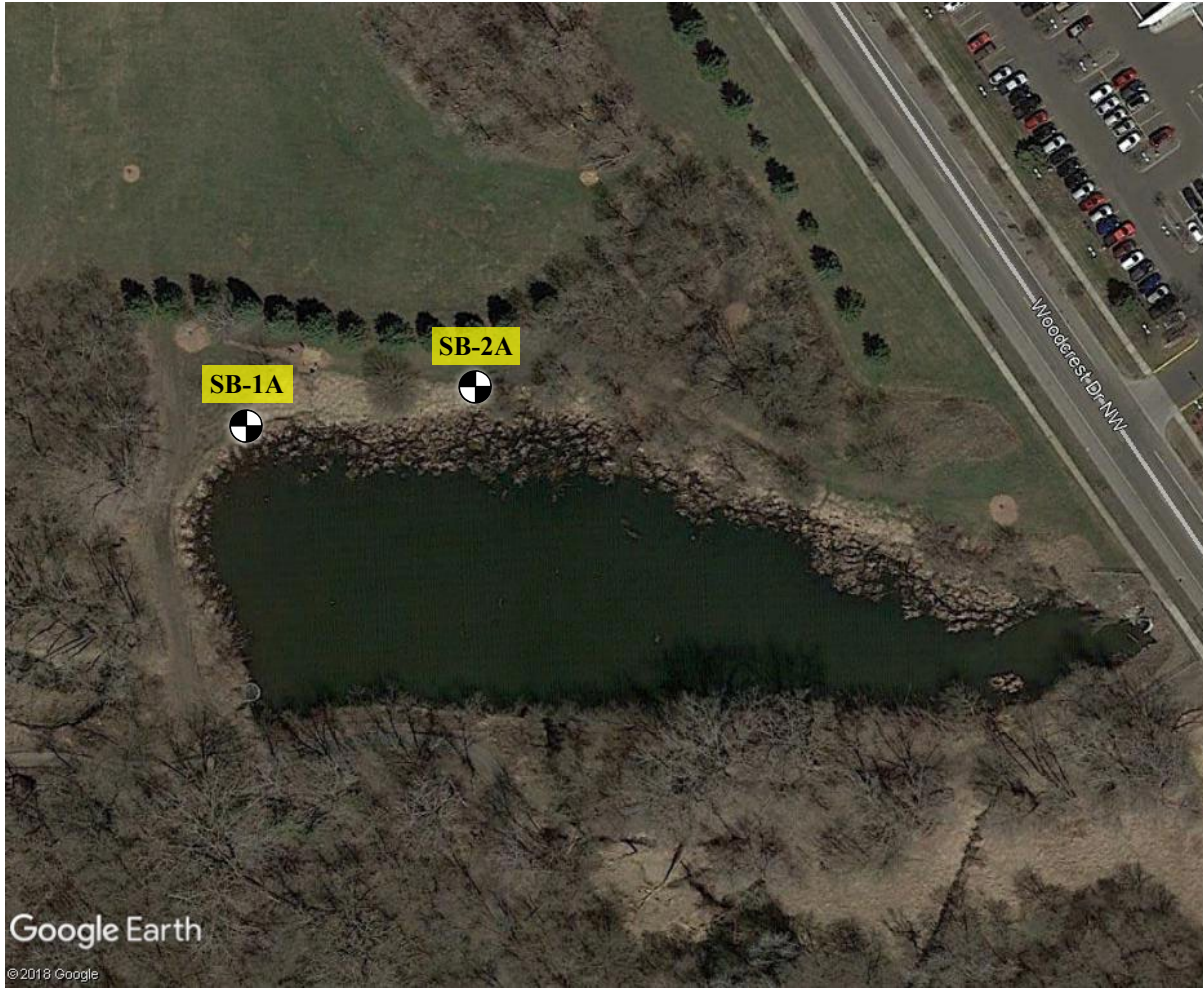
8.4 Use of Report

This report is for the exclusive use Wenck Associates and their design team to use to design the proposed structure 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.


8.5 Level of Care

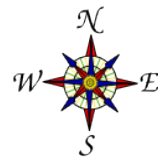
Haugo GeoTechnical Services, LLC has used the degree of skill and care ordinarily exercised under similar circumstance by members of the profession currently practicing in this locality. No warranty expressed or implied is made.

APPENDIX



Legend

 Approximate Soil Boring Location



GPS Boring Locations

Boring Number	Elevation (US Survey Feet)	Northing Coordinate	Easting Coordinate
SB-1A	863.3	144915.609	494926.944
SB-2A	866.2	144938.789	495071.189

Referencing Minnesota County Coordinates Basis – Anoka County (GEOID09 Conus model)

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

Soil Boring Location Sketch
 Coon Rapids, Minnesota

Figure #: 1
 Drawn By: NA
 Date: 5/2/19
 Scale: None
 Project #: 19-0316



Haugo GTS
 2825 Cedar Ave South
 Minneapolis, MN 55407
 Telephone: 612-729-2959

BORING NUMBER SB-1A

CLIENT Wenck
PROJECT NUMBER 19-0316
DATE STARTED 5/15/19 **COMPLETED** 5/15/19
DRILLING CONTRACTOR HGTS - 750
DRILLING METHOD Hollow Stem Auger/Split Spoon
LOGGED BY NA **CHECKED BY** PG
NOTES _____

PROJECT NAME CCWD Filtration Basins
PROJECT LOCATION Coon Rapids/Blaine, MN
GROUND ELEVATION 863.3 ft **HOLE SIZE** 3 1/4 inches
GROUND WATER LEVELS:
AT TIME OF DRILLING --- Not Encountered
AT END OF DRILLING --- Not Encountered
AFTER DRILLING --- Not Encountered

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	MOISTURE CONT. (%)	NOTES	▲ SPT N VALUE ▲		
								20	40	60
0		Sandy Lean Clay, with Organics, black, wet. (Topsoil)	AU 101							
		(CL) Sandy Lean Clay, slightly Organic, black and grey, wet, medium. (Alluvium)	SS 102		1-2-5 (7)					
5		(CL) Sandy Lean Clay, grey, wet, medium. (Alluvium) P-200 = 79.5%	SS 103		2-3-4 (7)					
			SS 104		1-3-4 (7)					
10		(CL-ML) Silty Clay, with Poorly Graded Sand seam, grey, moist, very stiff. (Alluvium)	SS 105		3-11-10 (21)					
		(CL) Sandy Lean Clay, trace Gravel, grey, moist, soft. (Alluvium)	SS 106		1-1-2 (3)					
			SS 107		1-1-1 (2)					

Bottom of borehole at 14.5 feet.

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Haugo GTS
 2825 Cedar Ave South
 Minneapolis, MN 55407
 Telephone: 612-729-2959

BORING NUMBER SB-2A

CLIENT Wenck
PROJECT NUMBER 19-0316
DATE STARTED 5/15/19 **COMPLETED** 5/15/19
DRILLING CONTRACTOR HGTS - 750
DRILLING METHOD Hollow Stem Auger/Split Spoon
LOGGED BY NA **CHECKED BY** PG
NOTES _____

PROJECT NAME CCWD Filtration Basins
PROJECT LOCATION Coon Rapids/Blaine, MN
GROUND ELEVATION 866.2 ft **HOLE SIZE** 3 1/4 inches
GROUND WATER LEVELS:
AT TIME OF DRILLING --- Not Encountered
AT END OF DRILLING --- Not Encountered
AFTER DRILLING --- Not Encountered

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	MOISTURE CONT. (%)	NOTES	▲ SPT N VALUE ▲			
								20	40	60	80
0		Decomposing Plant Matter, black, wet. (Swamp Deposit)	AU 108								
		(SP-SM) Poorly Graded Sand with Silt, fine to medium grained, grey, waterbearing, loose. (Alluvium)	SS 109		4-5-3 (8)						
5		(CL) Lean Clay, with Poorly Graded Sand, grey, wet, rather soft to medium. (Alluvium)	SS 110		2-3-2 (5)						
		P-200 = 92%	SS 111		2-2-3 (5)						
10		(CL) Sandy Lean Clay, trace Gravel, grey, wet, rather soft to soft. (Alluvium)	SS 112		2-2-4 (6)						
			SS 113		3-2-2 (4)						
			SS 114		1-1-1 (2)						

Bottom of borehole at 14.5 feet.

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Work Sheet for Sieve Analysis of Granular Material

See Grading & Base Manual, Fig. 1 5-692.215

Project No: 19-0316	Date: 5/28/2019	Test No: SB - 2A @ 7'
Material Type:	Station:	Depth From Grading Grade:
Total Wt. of Sample 1.0 lbs (kg)		Tester Name or Certification No:

Coarse Sieves:				(1) Indiv. Weights	(2) Sieve Size	(3) Cumulative Wts. Passing	(4) Total % Passing	Gradation Requirements
*Pass		Sieve, Ret.	1 1/2" ▼ Sieve					
*Pass	1 1/2" ▼	Sieve, Ret.	1" ▼ Sieve		1 1/2"			
*Pass	1" ▼	Sieve, Ret.	3/4" ▼ Sieve		1"			
*Pass	3/4" ▼	Sieve, Ret.	1/2" ▼ Sieve		3/4"			
*Pass	1/2" ▼	Sieve, Ret.	3/8" ▼ Sieve		1/2"			
*Pass	3/8" ▼	Sieve, Ret.	#4 ▼ Sieve		3/8"			
*Pass	#4 ▼	Sieve, Ret.	Bottom	1.0	#4	1.0	100%	
Check Total -				1.0	- Shall Check Total Wt. Within 0.2lbs (0.1 kg)			

*Enter necessary sieve sizes for class of material to be tested.
 Column (1) Enter weights of material between each set of sieves individually.
 Column (2) Enter the passing sieves size.
 Column (3) Add column (1) from the bottom up to get cumulative weights passing each sieve.
 Column (4) Divide column (3) by check total of sample to get total % passing.

Fine Sieves:

- (A) Take two samples identical in condition and damp weight from "passing _____ #4 _____ material".
- (B) Dry one sample and record weight. 178.4
- (C) Wash and dry other sample and record weight. 14.5
- (D) Loss in washing (B-C) (Enter Below) 163.9

				(5) Indiv. Weights	(6) Sieve Size	(7) Cumulative Wts. Passing	(8) Cum. % Passing	(9) % Passing of Total Pass.	Gradation Requirements
*Pass		Sieve, Ret.	#4 ▼ Sieve						
*Pass	#4 ▼	Sieve, Ret.	#10 ▼ Sieve	0.0	#4	178.4	100.0%	100%	
*Pass	#10 ▼	Sieve, Ret.	#16 ▼ Sieve	0.0	#10	178.4	100.0%	100%	
*Pass	#16 ▼	Sieve, Ret.	#40 ▼ Sieve	0.2	#16	178.4	100.0%	100%	
*Pass	#40 ▼	Sieve, Ret.	#60 ▼ Sieve	1.1	#40	178.2	99.9%	100%	
*Pass	#60 ▼	Sieve, Ret.	#100 ▼ Sieve	5.0	#60	177.1	99.3%	99%	
*Pass	#100 ▼	Sieve, Ret.	#200 ▼ Sieve	7.8	#100	172.1	96.5%	96%	
*Pass	#200 ▼	Sieve, Ret.	Bottom	0.4	#200	164.3	92.1%	92.1%	
Loss by washing-				163.9					
Check Total -				178.4	- Shall Check total Wt. Within 5.0 grams				
Percent Passing #200 Sieve Divided by Percent Passing 1 in. Sieve (if specified)									

Column (5) Enter weights of material between each set of sieves and loss by washing (DO NOT OVERLOAD SIEVES)
 Column (6) Enter the passing sieve size.
 Column (7) Add column (5) from bottom up to get cumulative weights passing each sieve. Be sure to add loss by washing to weight of material passing #200 sieve to get first entry at bottom of column (7).
 Column (8) Divide column (7) by check total dry weight of fine sample (Column 5) to get cumulative % passing.
 Column (9) Multiply column (8) by % passing final sieve from column (4) to get "Percent Passing" based on total sample.



Work Sheet for Sieve Analysis of Granular Material

See Grading & Base Manual, Fig. 1 5-692.215

Project No: 19-0435	Date: 5/28/2019	Test No: SB 1A @ 5'
Material Type:	Station:	Depth From Grading Grade:
Total Wt. of Sample 1.0 lbs (kg)		Tester Name or Certification No:

Coarse Sieves:				(1) Indiv. Weights	(2) Sieve Size	(3) Cumulative Wts. Passing	(4) Total % Passing	Gradation Requirements
*Pass		Sieve, Ret.	1 1/2" ▼ Sieve					
*Pass	1 1/2" ▼	Sieve, Ret.	1" ▼ Sieve		1 1/2"			
*Pass	1" ▼	Sieve, Ret.	3/4" ▼ Sieve		1"			
*Pass	3/4" ▼	Sieve, Ret.	1/2" ▼ Sieve		3/4"			
*Pass	1/2" ▼	Sieve, Ret.	3/8" ▼ Sieve		1/2"			
*Pass	3/8" ▼	Sieve, Ret.	#4 ▼ Sieve		3/8"			
*Pass	#4 ▼	Sieve, Ret.	Bottom	1.0	#4	1.0	100%	
Check Total -				1.0	- Shall Check Total Wt. Within 0.2lbs (0.1 kg)			

*Enter necessary sieve sizes for class of material to be tested.
 Column (1) Enter weights of material between each set of sieves individually.
 Column (2) Enter the passing sieves size.
 Column (3) Add column (1) from the bottom up to get cumulative weights passing each sieve.
 Column (4) Divide column (3) by check total of sample to get total % passing.

Fine Sieves:


- (A) Take two samples identical in condition and damp weight from "passing _____ #4 _____ material".
- (B) Dry one sample and record weight. 186.1
- (C) Wash and dry other sample and record weight. 38.4
- (D) Loss in washing (B-C) (Enter Below) 147.7

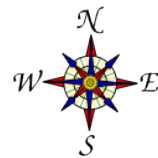
				(5) Indiv. Weights	(6) Sieve Size	(7) Cumulative Wts. Passing	(8) Cum. % Passing	(9) % Passing of Total Pass.	Gradation Requirements
*Pass		Sieve, Ret.	#4 ▼ Sieve						
*Pass	#4 ▼	Sieve, Ret.	#10 ▼ Sieve	0.0	#4	186.0	100.0%	100%	
*Pass	#10 ▼	Sieve, Ret.	#16 ▼ Sieve	0.0	#10	186.0	100.0%	100%	
*Pass	#16 ▼	Sieve, Ret.	#40 ▼ Sieve	2.1	#16	186.0	100.0%	100%	
*Pass	#40 ▼	Sieve, Ret.	#60 ▼ Sieve	5.6	#40	183.9	98.9%	99%	
*Pass	#60 ▼	Sieve, Ret.	#100 ▼ Sieve	16.2	#60	178.3	95.9%	96%	
*Pass	#100 ▼	Sieve, Ret.	#200 ▼ Sieve	14.2	#100	162.1	87.2%	87%	
*Pass	#200 ▼	Sieve, Ret.	Bottom	0.2	#200	147.9	79.5%	79.5%	
Loss by washing-				147.7					
Check Total -				186.0	- Shall Check total Wt. Within 5.0 grams				
Percent Passing #200 Sieve Divided by Percent Passing 1 in. Sieve (if specified)									

Column (5) Enter weights of material between each set of sieves and loss by washing (DO NOT OVERLOAD SIEVES)
 Column (6) Enter the passing sieve size.
 Column (7) Add column (5) from bottom up to get cumulative weights passing each sieve. Be sure to add loss by washing to weight of material passing #200 sieve to get first entry at bottom of column (7).
 Column (8) Divide column (7) by check total dry weight of fine sample (Column 5) to get cumulative % passing.
 Column (9) Multiply column (8) by % passing final sieve from column (4) to get "Percent Passing" based on total sample.



Legend

 Approximate Soil Boring Location



GPS Boring Locations

Boring Number	Elevation (US Survey Feet)	Northing Coordinate	Easting Coordinate
SB-1B	897.4	142418.134	502267.797
SB-2B	897.9	142402.352	502400.425
SB-3B	896.7	142447.766	502394.027

Referencing Minnesota County Coordinates Basis – Anoka County (GEOID09 Conus model)

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

Soil Boring Location Sketch
 Blaine, Minnesota

Figure #: 1
 Drawn By: NA
 Date: 5/2/19
 Scale: None
 Project #: 19-0316



Haugo GTS
 2825 Cedar Ave South
 Minneapolis, MN 55407
 Telephone: 612-729-2959

BORING NUMBER SB-1B

CLIENT Wenck
PROJECT NUMBER 19-0316
DATE STARTED 5/15/19 **COMPLETED** 5/15/19
DRILLING CONTRACTOR HGTS - 750
DRILLING METHOD Hollow Stem Auger/Split Spoon
LOGGED BY NA **CHECKED BY** PG
NOTES _____

PROJECT NAME CCWD Filtration Basins
PROJECT LOCATION Coon Rapids/Blaine, MN
GROUND ELEVATION 897.4 ft **HOLE SIZE** 3 1/4 inches
GROUND WATER LEVELS:
 ▽ **AT TIME OF DRILLING** 12.00 ft / Elev 885.40 ft
 ▼ **AT END OF DRILLING** 8.90 ft / Elev 888.50 ft
 ▼ **AFTER DRILLING** 8.90 ft / Elev 888.50 ft with Cave In Depth of 9 feet

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	MOISTURE CONT. (%)	NOTES	▲ SPT N VALUE ▲						
								20	40	60	80			
0		Peat and Organic Silt, black, wet. (Topsoil)	AU 1											
		Peat, with Poorly Graded Sand, black and grey, moist to wet. (Swamp Deposit)	SS 2		2-2-4 (6)	51.5								
		Peat, black, wet. (Swamp Deposit)												
5		Organic Content = 25%	SS 3		1-3-3 (6)	82								
		Peat, Decomposed, grey, wet. (Swamp Deposit)	SS 4		1-1-1 (2)	190								
		(SP-SM) Poorly Graded Sand with Silt, fine to medium grained, trace Organics, grey, wet, loose. (Alluvium)	SS 5		1-2-5 (7)									
10		(SP) Poorly Graded Sand, fine to medium grained, brown, waterbearing, medium dense. (Alluvium)	SS 6		3-4-7 (11)									
			SS 7		2-7-10 (17)									

Bottom of borehole at 14.5 feet.

GEOTECH BH PLOTS - GINT STD US LAB.GDT - 6/26/19 14:53 - C:\USERS\PUBLIC\DOCUMENTS\BENTLEY\GINT\PROJECTS\19-0316 CCWD FILTRATION BASINS.GPJ



Haugo GTS
 2825 Cedar Ave South
 Minneapolis, MN 55407
 Telephone: 612-729-2959

BORING NUMBER SB-2B

CLIENT Wenck
PROJECT NUMBER 19-0316
DATE STARTED 5/15/19 **COMPLETED** 5/15/19
DRILLING CONTRACTOR HGTS - 750
DRILLING METHOD Hollow Stem Auger/Split Spoon
LOGGED BY NA **CHECKED BY** PG
NOTES _____

PROJECT NAME CCWD Filtration Basins
PROJECT LOCATION Coon Rapids/Blaine, MN
GROUND ELEVATION 897.9 ft **HOLE SIZE** 3 1/4 inches
GROUND WATER LEVELS:
 ▽ **AT TIME OF DRILLING** 9.90 ft / Elev 888.00 ft
 ▼ **AT END OF DRILLING** 10.90 ft / Elev 887.00 ft
AFTER DRILLING --- Not Encountered with Cave-In Depth of 9.6 feet

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	MOISTURE CONT. (%)	NOTES	▲ SPT N VALUE ▲						
								20	40	60	80			
0		Silty Sand, fine grained, brown, wet. (FILL) Peat, black, wet. (Swamp Deposit)	AU 8											
5			SS 9		2-3-4 (7)	70								
		P-200 = 98%	SS 10		1-2-4 (6)									
			SS 11		1-1-1 (2)	346.5								
10			SS 12		1-1-1 (2)									
		Peat, Decomposed, grey, wet. (Swamp Deposit)	SS 13		1-1-2 (3)	48								
15		(SP) Poorly Graded Sand, fine to medium grained, brown, waterbearing, loose to medium dense. (Alluvium)	SS 14		1-2-3 (5)									
			SS 15		2-6-7 (13)									

Bottom of borehole at 19.5 feet.

GEOTECH BH PLOTS - GINT STD US LAB.GDT - 6/26/19 14:53 - C:\USERS\PUBLIC\DOCUMENTS\BENTLEY\GINT\PROJECTS\19-0316 CCWD FILTRATION BASINS.GPJ



Haugo GTS
 2825 Cedar Ave South
 Minneapolis, MN 55407
 Telephone: 612-729-2959

BORING NUMBER SB-3B

CLIENT Wenck
PROJECT NUMBER 19-0316
DATE STARTED 5/15/19 **COMPLETED** 5/15/19
DRILLING CONTRACTOR HGTS - 750
DRILLING METHOD Hollow Stem Auger/Split Spoon
LOGGED BY NA **CHECKED BY** PG
NOTES _____

PROJECT NAME CCWD Filtration Basins
PROJECT LOCATION Coon Rapids/Blaine, MN
GROUND ELEVATION 896.7 ft **HOLE SIZE** 3 1/4 inches
GROUND WATER LEVELS:
 ▽ **AT TIME OF DRILLING** 12.00 ft / Elev 884.70 ft
 ▼ **AT END OF DRILLING** 10.30 ft / Elev 886.40 ft
AFTER DRILLING --- Not Encountered with Cave In Depth 10 feet

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	MOISTURE CONT. (%)	NOTES	▲ SPT N VALUE ▲		
								20	40	60
0								PL MC LL 20 40 60 80 <input type="checkbox"/> FINES CONTENT (%) <input type="checkbox"/>		
0 - 1		Peat, black, wet. (Swamp Deposit)	AU 16							
1 - 3		Peat, with Poorly Graded Sand, black and brown, wet. (Swamp Deposit)	SS 17		1-3-3 (6)	47				
3 - 5		Peat, black, wet. (Swamp Deposit)	SS 18		1-1-2 (3)					
5 - 7			SS 19		1-1-1 (2)	34				
7 - 10			SS 20		1-1-1 (2)	207.5				
10		▼ P-200 = 70.5%								
10 - 15		(SP-SM) Poorly Graded Sand with Silt, fine to medium grained, grey, waterbearing, loose. (Alluvium)	SS 21		1-1-4 (5)					
15 - 17			SS 22		3-4-4 (8)					
17 - 19			SS 23		3-3-4 (7)					

Bottom of borehole at 19.5 feet.

GEOTECH BH PLOTS - GINT STD US LAB.GDT - 6/26/19 14:53 - C:\USERS\PUBLIC\DOCUMENTS\BENTLEY\GINT\PROJECTS\19-0316 CCWD FILTRATION BASINS.GPJ

**SECTION 00 41 00
BID FORM**

Woodcrest Biochar- and Iron-Enhanced Sand Filter

To: Coon Creek Watershed District (OWNER)
District Office
13632 Van Buren NE
Ham Lake, MN 55304
Office (763) 755-0975

Bid of _____
name

address

Pursuant to the Advertisement for Bids for the above-named project to furnish all necessary machinery, equipment, tools, labor and other means of construction and deliver materials and to perform all work at rates and at a total price or prices as hereinafter set forth and in accordance with Drawings and Specifications, and addenda thereto on file in the office of the aforesaid OWNER and the office of Wenck Associates, Inc.

First: In submitting this Bid, the undersigned bidder understands and agrees that the Instruction to Bidders and, without limiting the foregoing, that this Bid is based upon the following undertakings:

1. That bidder has inspected the site(s) of the work, existing construction in the areas of the proposed work, and has informed itself as to the condition thereof as the same bears on the work to be performed.
2. That bidder has received and examined the Project Manual, and has informed itself of all addenda thereto, the forms of the contract, and the Performance Bond and Payment Bond to be furnished in the event the Bidder is the successful bidder and is awarded the contract.
3. Certain types of equipment and kinds of material are described in the specifications by means of trade names and catalog numbers and/or manufacturer's names. In each instance where this occurs, it is not intended to exclude from consideration such types or equipment and kinds of material bearing other trade names, catalog numbers and/or manufacturer's names, capable of accomplishing the purpose of the types of equipment or kinds of material to be used, if not as specifically indicated in the specifications, must be approved in writing by ENGINEER and be agreed upon by owner prior to letting of the contract. No substitution will be allowed after the letting of the contract except in unusual circumstances such as supplier's strikes, etc. Bidder acknowledges that this proposal is submitted in strict accord with specified requirements.

4. Sealed Bid Proposals will be publicly opened at the time and location specified in Section 00 11 13 and only Bid Proposals received prior thereto will be considered.
4. That the OWNER intends to award a contract as specified in Section 00 21 13.
5. That this bid and the Bid Security submitted herewith may not, except with the consent of the aforesaid OWNER, be withdrawn for the period of days specified in Section 00 11 13 after the day the bids are opened.

Second: The undersigned bidder agrees, if the successful bidder, to execute the contract in the form as set forth in the specifications and to furnish the required certificates of insurance and Performance Bond and Payment Bond in forms as set forth in the Project Manual within the number of days specified in Section 00 21 13 from the date of Notice of Intent to Award of contract from the OWNER.

Third: The undersigned bidder further agrees to begin work on receipt of an executed contract and to prosecute said work so as to complete the same as specified in the Supplemental General Conditions, subject to Liquidated Damages, if they apply.

Fourth: The undersigned bidder further agrees to guarantee performance of all work in accordance with the Project Manual and in a good and workmanlike manner, and to renew or repair any work that may be rejected due to defective materials or workmanship prior to final completion and acceptance of the material and installation by the OWNER.

Fifth: The undersigned bidder further agrees, prior to execution of the contract by the OWNER, to provide Supporting Data as specified in Section 00 21 13.

Sixth: Following is a tabulation of the undersigned bidder's bid for all work to be performed to carry out the aforementioned construction project including, where required, alternate bids, it being understood that this bid contemplates all machinery, equipment, tools, labor, and other means of construction and all materials and times specified in accordance with the Project Manual and all Addenda thereto. At the opening of Bid, the bidders' names and bid prices will be read out loud. The undersigned bidder proposes to do all unclassified work required to complete the contemplated improvement at the unit prices given in this Bid.

Seventh: This bid is genuine and not made in the interest or on behalf of any undisclosed person, firm, or corporation and is not submitted in conformity with any agreement or rules of any group, association, organization, or corporation; bidder has not directly or indirectly induced or solicited any other bidder to submit a false or sham bid; bidder has not solicited or induced any person, firm, or a corporation to refrain from bidding; and bidder has not sought by collusion to obtain for itself any advantage over any other bidder or over OWNER.

Eighth: The total bid price represents the material, labor, equipment, all other costs to the bidder, and the bidder's profit to complete the project as specified, in the timeframe anticipated.

Ninth: The undersigned bidder agrees that the Work will be substantially completed on or before the date listed in Section 00 52 00, and completed and ready for final payment in accordance with Paragraph 14.07 of the General Conditions on or before the date listed in Section 00 52 00.

OWNER anticipates, but in no way guarantees the following anticipated sequence of events:

- 12:00 p.m. (noon) October 4, 2019 – Bids Received and Opened
- October 14th, 2019 – Project Award by OWNER
- November 1st, 2019 – Anticipated issuance of Notice to Proceed

Tenth: Be prepared to provide qualifications requested by OWNER in accordance with Section 00 21 13.

Eleventh: The undersigned bidder has reviewed, and satisfies, the Minimum Criteria set forth in the Responsible Contractor documents as included as part of the project documents, and has acknowledged compliance of these criteria, by notarized signature, on the Responsible Contractor Verification form provided in this Bid Proposal Section.

ADDENDUM ACKNOWLEDGMENT

Addendum No. 1 _____
Addendum No. 2 _____
Addendum No. 3 _____
Addendum No. 4 _____

Contractor _____
Print Name _____
Title _____
Signature _____
Date _____

Enclosed herewith is Bid Security in the form of

-) a) Certified check in the amount of
-) _____
-) Dollars
-) (\$ _____) payable to COON CREEK WATERSHED DISTRICT.
-)
-) or
-)
-) b) Bid Bond in the amount of
-) Dollars (\$ _____) to COON CREEK WATERSHED DISTRICT as obligee.

The amount of the Bid Security being five percent (5%) of the total amount of this Bid as required by the Advertisement for Bids and by the Instruction to Bidders.

WITNESS Our hands and seals this _____ day of _____, 20__

Individual) _____
 or) _____
 Partnership) _____
 Execution) _____
) Co-partners doing business under the name and style of:
) _____
) _____
) _____
) _____
) _____
 A Corporation of the State of _____

Corporate) _____
 Execution) _____
) By _____
) _____
) Title _____

Corporate) _____
 Seal) _____
) By _____
) _____
) Title _____

BID FORM
 COON CREEK WTERSHED DISTRICT
 Woodcrest Biochar- and Iron-Enhanced Sand Filter Project

ITEM NO.	DESCRIPTION	UNITS	QUANTITY	UNIT PRICE	SUBTOTAL
1	MOBILIZATION	LS	1		
2	TRAFFIC CONTROL	LS	1		
3	TREE PROTECTION FENCE	LF	680		
4	CLEARING	AC	0.70		
5	GRUBBING	AC	0.70		
6	TREE REMOVAL	EA	6		
7	COMMON EXCAVATION - ONSITE (EV) (P)	CY	1,700		
8	COMMON EXCAVATION - OFFSITE (EV) (P)	CY	660		
9	ADDITIONAL SUBCUT - OFFSITE (LV)	CY	100		
10	CLAY FILL (LV)	CY	100		
11	SALVAGE AND RESPREAD TOPSOIL	SY	240		
12	TEMPORARY DEWATERING	LS	1		
13	STREET SWEEPER W/ PICKUP BROOM	HR	15		
14	TEMPORARY CONSTRUCTION ENTRANCE - MAINTAINED	EA	1		
15	INLET PROTECTION - MAINTAINED	EA	4		
16	SILT FENCE - MAINTAINED	LF	2,700		
17	FLOATATION SILT CURTAIN	LF	15		
18	EROSION CONTROL BLANKET CATEGORY 3N, TYPE STRAW 2S	SY	3,050		
19	COIR EROSION CONTROL MAT	SY	235		
20	COARSE FILTER AGGREGATE (P)	CY	706		
21	BIOCHAR FOR FILTER	CY	130		
22	IRON/FINE FILTER AGGREGATE (MODIFIED) (P)	CY	680		
23	RIP RAP CLASS III	TON	10		
24	6" SLOTTED PVC SCH 40 PIPE	LF	1,166		
25	8" SOLID PVC SCH 40 PIPE	LF	144		
26	10" SOLID PVC SCH 40 PIPE	LF	155		
27	PVC SCH 40 FITTINGS (WYE)	EA	2		
28	CLEANOUT W/ VENT SCREEN	EA	17		
29	SAMPLE PORTS	EA	3		
30	14" HDPE STORM SEWER PIPE	LF	135		
31	OUTLET CONTROL STRUCTURE	EA	1		
32	GATE VALVE	EA	3		
33	Mn/DOT SEED MIXTURE 34-261	LB	20		
34	MN STATE SEED MIXTURE 33-262	LB	10		
35	SEEDING	ACRE	0.6		
36	PEA ROCK (COARSE FILTER AGGREGATE (P))	CY	35		
37	COMMON EXCAVATION FOR BITUMINOUS TRAIL	CY	70		
38	HAUL, PLACE, AND GRADE GRAVEL AGG. BASE FOR TRAIL	CY	40		
39	TYPE 9.5 WEARING COURSE MIXTURE (2,E) FOR TRAIL	TON	35		
TOTAL BASE BID:					

Total Written Amount for Base Bid

Responsible Contractor Verification

I am an owner or officer of _____ [name of bidder] ("Bidder"). I hereby verify that Bidder is in compliance with the minimum criteria required of a "responsible contractor" as that term is defined in Minnesota Statutes § 16C.285, subdivision 3, and as explained in the attached document entitled "Responsible Contractor Requirement."

I further agree that Bidder has received a signed statement under oath from each subcontractor and motor carrier that Bidder intends to use to perform work on the project verifying that the subcontractor and motor carrier meets the minimum criteria under Minn. Stat. § 16C.285, and that Bidder will furnish such statements to the contracting authority upon request. Bidder intends to retain the following first-tier subcontractors and motor carriers for work on this project:

If Bidder is awarded the contract for the project, I further agree that Bidder will submit the attached document entitled "Additional Subcontractor and Motor Carrier List" as required.

Signed this _____ day of _____, 20____

By: _____ [printed name]

_____ [title] of _____ [name of bidder]

STATE OF MINNESOTA)
) ss.
COUNTY OF _____)

Signed and sworn to before me on _____, 20____, by
_____.

Notary Public

(stamp)

ADDITIONAL SUBCONTRACTORS AND MOTOR CARRIERS LIST

PROJECT TITLE: Woodcrest Biochar- and Iron-Enhanced Sand Filter

Pursuant to Minn. Stat. § 16C.285, subd. 5, the prime contractor must submit this form within 14 days of retaining additional subcontractors and motor carriers on the project. This form must be submitted to the Project Manager or individual as identified in the solicitation document.

Additional Subcontractors

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

By signing this document, I certify that I am an owner or officer of the company, and I swear under oath that all additional subcontractors and motor carriers listed on this Additional Subcontractor List have verified through a signed statement under oath by an owner or officer that they meet the minimum criteria to be a responsible contractor as defined in Minn. Stat. § 16C.285.

Signed this _____ day of _____, 20____

By: _____ [printed name]

_____ [title] of _____ [name of company]

STATE OF MINNESOTA)
) ss.
COUNTY OF _____)

Signed and sworn to before me on _____, 20____, by
_____.

Notary Public

(stamp)

**SECTION 00 43 13
BID BOND FORM**

**COON CREEK WTERSHED DISTRICT
Woodcrest Biochar-and-Iron-Enhanced Sand Filter Project**

KNOW ALL PERSONS BY THESE PRESENTS that we, _____
_____ as principal, and _____

_____ as surety, are held and firmly bound unto the OWNER as obligee, in the sum of

_____ (\$ _____) Dollars, lawful money of the United States of America, for payment of which sum well and truly to be made we bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally and firmly by these presents.

The condition of this obligation is such that whereas the principal has submitted the accompanying Bid dated _____, for construction work to construct the Woodcrest Biochar-and-Iron-Enhanced Sand Filter Project for the OWNER.

NOW, THEREFORE, if the aforesaid principal shall not withdraw their Bid for a period of ninety (90) days after the opening of bids, and if awarded a contract upon said Bid shall enter into a contract with the OWNER, and give Performance Bond and Payment Bond as required by law and in form specified by the OWNER, then this obligation shall be null and void; otherwise the principal and surety will pay unto the obligee, the sum

of _____

not as a penalty, but as liquidated damages sustained by the OWNER, as a result of such failure.

Signed and dated this _____ day of _____, 20__

Surety

Principal Attorney in Fact

INDIVIDUAL AND CO-PARTNERSHIP ACKNOWLEDGMENT

STATE OF MINNESOTA)
)SS
COUNTY OF)

On this _____ day of _____, 20__, before me personally appeared .
_____, to me known to be the person described in and who
executed the foregoing bond, and acknowledged that he (she) executed the same as
his (her) own free act and deed.

CORPORATE ACKNOWLEDGMENT FOR PRINCIPAL

STATE OF MINNESOTA)
)SS
COUNTY OF)

On this _____ day of _____, 20__, before me appeared to me
personally known, who, being duly sworn, did say that they are respectively _____
_____ and _____ of _____, a corporation;
that the seal affixed to the foregoing instrument is the corporate seal of the corporation,
and that said instrument was executed in behalf of the corporation, and that said
instrument was executed in behalf of the corporation by authority of its Board of
Directors; and they acknowledge said instrument to be free act and deed of the
corporation.

AFFIX HERE ACKNOWLEDGMENT OF CORPORATE SURETY

The form of this bond has been prescribed by the OWNER.

NOTICE OF CORPORATE SURETIES: This bond will not be accepted unless executed or countersigned by a Minnesota Agent, resident officers, or attorney in fact whose names and address must be noted in the space hereinafter provided. The corporate surety's form of corporate acknowledgment should be attached in the place provided on this form.

Full Name of Surety Company _____

Name of Attorney In Fact _____

Name of Local Agency _____

If this bond is executed outside of the State of Minnesota, it must be countersigned by a Minnesota Resident Agency of the Surety Company.

Name of Agency and Agent affixing countersignature _____

Address _____

Signature _____

END OF SECTION

**SECTION 00 45 19
AFFIDAVIT OF AUTHORITY AND NON-COLLUSION**

**COON CREEK WTERSHED DISTRICT
Woodcrest Biochar-and-Iron-Enhanced Sand Filter Project**

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

1. That I am the bidder (if the bidder is an individual), a partner of the bidder (if the bidder is a partnership), or an officer or employee of the bidding corporation (if the bidder is a corporation), having authority to sign on his, hers, or its behalf and if awarded the contract to enter into such contract;
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 Advertisement for Bids, 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; and
4. That I have fully informed myself regarding the accuracy of the statements made in this affidavit.

[Insert Name of Contractor]

By _____

Its _____

By _____

Its _____

**SECTION 00 45 49
RESPONSIBLE CONTRACTOR LAW**

Minimum Criteria

To be eligible to be awarded this contract, each bidder must submit a signed statement, under oath, verifying that it is a "responsible contractor." A responsible contractor is one that meets the definition provided in Minnesota Statutes § 16C.285, subdivision 3, and additional criteria required by the OWNER. To be a "responsible contractor," a contractor must be in compliance with the following minimum criteria:

- (1) the contractor:
 - (i) is in compliance with workers' compensation and unemployment insurance requirements;
 - (ii) is in compliance with Department of Revenue and the Department of Employment and Economic Development registration requirements if it has employees;
 - (iii) has a valid federal tax identification number or a valid Social Security number if an individual; and
 - (iv) has filed a certificate of authority to transact business in Minnesota with the secretary of state if a foreign corporation or cooperative;

- (2) the contractor or related entity is in compliance with and, during the three-year period before submitting the verification, has not violated Minnesota Statutes sections 177.24, 177.25, 177.41 to 177.44, 181.13, 181.14, or 181.722, and has not violated the United States Code, title 29, sections 201 to 219, or United States Code, title 40, sections 3141 to 3148. For purposes of this clause, a violation occurs when a contractor or related entity:
 - (i) repeatedly fails to pay statutorily required wages or penalties on one or more separate projects for a total underpayment of \$25,000 or more within the three-year period, provided that a failure to pay is "repeated" only if it involves two or more separate and distinct occurrences of underpayment during the three-year period;
 - (ii) has been issued an order to comply by the commissioner of labor and industry that has become final;
 - (iii) has been issued at least two determination letters within the three-year period by the Department of Transportation finding an underpayment by the contractor or related entity to its own employees;
 - (iv) has been found by the commissioner of labor and industry to have repeatedly or willfully violated any of the sections referenced in this clause pursuant to section 177.27;
 - (v) has been issued a ruling or findings of underpayment by the administrator of the Wage and Hour Division of the United States Department of Labor that have become final or have been upheld by an administrative law judge or the Administrative Review Board; or
 - (vi) has been found liable for underpayment of wages or penalties or misrepresenting a construction worker as an independent contractor in an action brought in a court having jurisdiction.

Provided that, if the contractor or related entity contests a determination of underpayment by the Department of Transportation in a contested case proceeding, a violation does not occur until the contested case proceeding has

concluded with a determination that the contractor or related entity underpaid wages or penalties;

(3) the contractor or related entity is in compliance with and, during the three-year period before submitting the verification, has not violated Minnesota Statutes section 181.723 or chapter 326B. For purposes of this clause, a violation occurs when a contractor or related entity has been issued a final administrative or licensing order;

(4) the contractor or related entity has not, more than twice during the three-year period before submitting the verification, had a certificate of compliance under Minnesota Statutes section 363A.36 revoked or suspended based on the provisions of section 363A.36, with the revocation or suspension becoming final because it was upheld by the Office of Administrative Hearings or was not appealed to the office;

(5) the contractor or related entity has not received a final determination assessing a monetary sanction from the Department of Administration or Transportation for failure to meet targeted group business, disadvantaged business enterprise, or veteran-owned business goals, due to a lack of good faith effort, more than once during the three-year period before submitting the verification;

(6) the contractor or related entity is not currently suspended or debarred by the federal government or the state of Minnesota or any of its departments, commissions, agencies, or political subdivisions that have authority to debar a contractor;

(7) during the three-year period before submitting the verification, the contractor or related entity has not been sanctioned by the Minnesota Pollution Control Agency or the United States Environmental Protection Agency for violation of state or federal environmental laws or regulations enforced by those agencies, including but not limited to administrative enforcement orders, fines, damages or other civil penalties, injunctions, or criminal penalties;

(8) during the three-year period before submitting the verification, the contractor or related entity has not unlawfully failed to pay its subcontractors or suppliers or violated the prompt payment requirements of Minnesota Statutes section 471.425, as determined by a court proceeding, arbitration panel, or other binding adjudication;

(9) during the three-year period before submitting the verification, no construction contract awarded to the contractor or a related entity has been lawfully terminated because of the default of the contractor or related entity; and

(10) all subcontractors that the contractor intends to use to perform project work have verified to the contractor through a signed statement under oath by an owner or officer that they meet the minimum criteria listed in clauses (1) to (9).

Any violations, suspensions, revocations, or sanctions, as defined in clauses (2) to (5) and (7) through (10), occurring prior to July 1, 2014, shall

not be considered in determining whether a contractor or related entity meets the minimum criteria.

Any prime contractor, subcontractor, or motor carrier that does not meet the minimum criteria in Minn. Stat. § 16C.285, subd. 3, which section is set forth above, fails to verify compliance with any one of the required minimum criteria, or makes a false statement under oath verifying compliance is not a "responsible contractor" and is not eligible to be awarded a construction contract for the project or to perform work on the project.

A false statement under oath verifying compliance with any of the minimum criteria may result in termination of a contract awarded to a prime contractor, subcontractor, or motor carrier that submits a false statement.

A prime contractor or subcontractor shall include in its verification of compliance under subdivision 4 a list of all of its first-tier subcontractors that it intends to retain for work on the project. Prior to execution of a construction contract, and as a condition precedent to the execution of a construction contract, the apparent successful prime contractor shall submit to the contracting authority a supplemental verification under oath confirming compliance with subdivision 3, clause (7). Each contractor or subcontractor shall obtain from all subcontractors with which it will have a direct contractual relationship a signed statement under oath by an owner or officer verifying that they meet all of the minimum criteria in subdivision 3 prior to execution of a construction contract with each subcontractor. If a prime contractor or any subcontractor retains additional subcontractors on the project after submitting its verification of compliance, the prime contractor or subcontractor shall obtain verification of compliance from each additional subcontractor with which it has a direct contractual relationship and shall submit a supplemental verification confirming compliance with subdivision 3, clause (7), within 14 days of retaining the additional subcontractors.

A prime contractor shall submit to the contracting authority upon request copies of the signed verifications of compliance from all subcontractors of any tier pursuant to Minn. Stat. § 16C.285, subd. 3(7).

Contractor warrants under oath that Contractor is in compliance with the minimum criteria required of a "responsible contractor" as that term is defined in Minnesota Statutes § 16C.285, subd. 3. Contractor has provided to OWNER a list of all of its first-tier subcontractors and motor carriers that it intends to retain for work on the project. The Contractor has obtained from all subcontractors and motor carriers with which it will have a direct contractual relationship a signed statement under oath by an owner or officer verifying that the subcontractor or motor carrier meets all of the minimum criteria in § 16C.285, subd. 3. If Contractor retains additional subcontractors or motor carriers on the project after submitting its verification of compliance, the Contractor shall obtain verification of compliance from each additional subcontractor and motor carrier with which it has a direct contractual relationship and shall submit to the OWNER a supplemental verification confirming the subcontractor's and motor carrier's compliance with subdivision 3, clause (7), within 14 days of retaining the additional subcontractors or motor carriers. Contractor shall submit to the OWNER upon request copies of the signed verifications of compliance from all subcontractors and motor carriers of any tier pursuant to Minn. Stat. § 16C.285, subd. 3(7). A false statement under oath, by Contractor, subcontractor, or motor carrier, verifying compliance with any of the minimum criteria may result in termination of the Contract.

A Responsible Contractor Verification form is provided with the bid documents. Each bidder must submit the form with its proposal.

END OF SECTION

**SECTION 00 51 00
NOTICE OF AWARD**

To:

Date:

Project Title: Woodcrest Biochar-and-Iron-Enhanced Sand Filter Project

Project Description: The WORK, in accordance with the Project Manual, consists of all labor, materials, tools, permits, bonds, machinery, equipment, and services including utility and transportation services necessary for the construction of the Woodcrest Biochar-and-Iron-Enhanced Sand Filter Project.

The OWNER has considered the Bid submitted by you for the above-described work in response to its Advertisement of Bids dated _____, 20__, and Instructions to Bidders.

You are hereby notified that your Bid has been accepted for items in the Amount of \$_____.

You are required by the Instructions to Bidders to execute the Agreement and furnish the required CONTRACTOR'S Performance Bond and Payment Bond, and certificates of insurance within ten (10) calendar days from the date of this notice to you.

If you fail to execute said agreement and to furnish said bonds and certificates within ten (10) calendar days from the date of this notice, said OWNER will be entitled to consider all your rights arising out of the OWNER'S acceptance of your bid as abandoned and as a forfeiture of your Bid Bond. The OWNER will be entitled to such other rights as may be granted by law.

This Notice of Award is NOT a notice to proceed with the work. CONTRACTOR shall not commence work (other than as specified above) until a Notice to Proceed is issued by OWNER.

You are required to return an acknowledged copy of this Notice of Award to the OWNER.

Dated this the ___ day of _____, 20__.

COON CREEK WATERSHED DISTRICT
(OWNER)

By: _____

Title: _____

ACCEPTANCE OF NOTICE

Receipt of the above Notice of Award is hereby acknowledged by _____
_____ this the ____ day of _____, 20__.

By: _____

Title: _____

**SECTION 00 52 00
AGREEMENT FORM**

THIS AGREEMENT is by and between

Coon Creek Watershed District, Minnesota

("Owner") and

("Contractor").

Owner and Contractor hereby agree as follows:

ARTICLE 1 – WORK

- 1.01 Contractor shall complete all Work as specified or indicated in the Contract Documents. The Work is generally described as follows: construction of a biochar-and-iron-enhanced sand filter along with stormwater piping, erosion control, and site restoration.

ARTICLE 2 – THE PROJECT

- 2.01 The Project for which the Work under the Contract Documents may be the whole or only a part is generally described as follows: Woodcrest Biochar-and-Iron-Enhanced Filter.

ARTICLE 3 – ENGINEER

- 3.01 The Project has been designed by Wenck Associates (Engineer), who is to act as the Owner's representative, assume all duties and responsibilities, and have the rights and authority assigned to Engineer in the Contract Documents in connection with the completion of the Work in accordance with the Contract Documents.

ARTICLE 4 – CONTRACT TIMES

4.01 *Time of the Essence*

- A. All time limits for Milestones, if any, Substantial Completion, and completion and readiness for Final Payment as stated in the Contract Documents are of the essence in the Contract.

4.02 *Dates for Substantial Completion and Final Payment*

- A. The Work will be substantially completed on or before March 15, 2020. Substantial completion shall be defined as the completion of the following items:
1. Installation of biochar-and-iron-enhanced sand filter
 2. Installation of stormwater utilities
 3. Site restoration
 4. Revegetation

- B. All of the Work of the Project shall be completed and ready for Final Payment in accordance with Paragraph 14.07 of the General Conditions on or before March 30, 2020

4.03 *Liquidated Damages*

- A. Contractor and Owner recognize that time is of the essence as stated in Paragraph 4.01 above and that Owner will suffer financial loss if the Work is not completed within the times specified in Paragraph 4.02 above, plus any extensions thereof allowed in accordance with Article 12 of the General Conditions. The parties also recognize the delays, expense, and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by Owner if the Work is not completed on time. Accordingly, instead of requiring any such proof, Owner and Contractor agree that as liquidated damages for delay (but not as a penalty), Contractor shall be assessed the sum of \$500 for each calendar day that expires after the time specified in Paragraph 4.02 above for Substantial Completion until the Work is substantially complete.
- B. After Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Time specified in Paragraph 4.02 above or any extension thereof granted by Owner in accordance with Article 12 of the General Conditions, Contractor shall be assessed the sum of \$500 for each calendar day that expires after Substantial Completion until the Work is completed and ready for Final Payment. Assessed Liquidated Damages will be withheld from progress payments.

ARTICLE 5 – CONTRACT PRICE

- 5.01 Owner shall pay Contractor for completion of the Work in accordance with the Contract Documents an amount in current funds as set forth in the Bid Form.

ARTICLE 6 – PAYMENT PROCEDURES

6.01 *Submittal and Processing of Payments*

- A. Contractor shall submit Applications for Payment in accordance with Article 14 of the General Conditions as may be modified by the Supplementary Conditions. Applications for Payment will be processed by Engineer as provided in the General Conditions as may be modified by the Supplementary Conditions.

6.02 *Progress Payments; Retainage*

- A. Owner shall make progress payments on account of the Contract Price on the basis of Contractor's Applications for Payment on or about the 25th day of each month during performance of the Work as provided in Paragraph 6.02.A.1 below. All such payments will be measured by the schedule of values established as provided in Paragraph 2.07.A of the General Conditions (and in the case of Unit Price Work based on the number of units completed) or, in the event there is no schedule of values, as provided in the General Requirements.
 - 1. Prior to Substantial Completion, progress payments will be made in an amount equal to the percentage indicated below but, in each case, less the aggregate of payments previously made and less such amounts as Engineer may determine

or Owner may withhold, including but not limited to liquidated damages, in accordance with Paragraph 14.02 of the General Conditions.

- a. 95 percent of Work completed (with the balance being retainage). If the Work has been 50 percent completed as determined by Engineer, and if the character and progress of the Work have been satisfactory to Owner and Engineer, then as long as the character and progress of the Work remain satisfactory to Owner and Engineer, there will be no additional retainage; and
 - b. 95 percent of cost of materials and equipment incorporated in the Work (with the balance being retainage).
- B. Upon Substantial Completion, Owner shall pay an amount sufficient to increase total payments to Contractor to 100 percent of the Work completed, less such amounts as Engineer shall determine in accordance with Paragraph 14.02.B.5 of the General Conditions and less 200 percent of Engineer's estimate of the value of Work to be completed or corrected as shown on the tentative list of items to be completed or corrected attached to the certificate of Substantial Completion.

6.03 *Final Payment*

- A. Upon final completion and acceptance of the Work in accordance with Paragraph 14.07 of the General Conditions, Owner shall pay the remainder of the Contract Price as recommended by Engineer as provided in said Paragraph 14.07.

ARTICLE 7 – INTEREST

7.01 Payment due dates and calculation of interest for monies not paid when due as provided in ARTICLE 14 of the General Conditions, shall be determined in accordance with the provisions of the Minnesota Prompt Pay Law, Minnesota Statutes §471.425.

ARTICLE 8 – CONTRACTOR'S REPRESENTATIONS

8.01 By signing this Agreement, Contractor makes the following representations:

- A. Contractor has examined and carefully studied the Contract Documents and the other related data identified in the Contract Documents.
- B. Contractor has visited the Site and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, performance, or furnishing of the Work.
- C. Contractor is familiar with and is satisfied as to all federal, state, and local Laws and Regulations that may affect cost, progress, performance, or furnishing of the Work.
- D. Contractor has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities), if any, that have been identified in Paragraph SC-4.02 of the Supplementary Conditions as containing reliable "technical data".
- E. Contractor has considered the information known to Contractor; information commonly known to contractors doing business in the locality of the Site; information

and observations obtained from visits to the Site; the Contract Documents; and the Site-related reports and drawings identified in the Contract Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, including any specific means, methods, techniques, sequences, and procedures of construction expressly required by the Contract Documents; and (3) Contractor's safety precautions and programs.

- F. Based on the information and observations referred to in Paragraph 8.01.E above, Contractor does not consider that further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract Documents.
- G. Contractor is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Contract Documents.
- H. Contractor has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Bidding Documents prior to the due date for submitting such notice and has submitted this Bid in reliance only on the Bidding Documents and any Addenda issued by the Engineer prior to the due date.
- I. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

ARTICLE 9 – CONTRACT DOCUMENTS

9.01 *Contents*

- A. The Contract Documents consist of the following:
 - 1. Written Amendments, Modifications, Change Orders, and other documents amending, modifying, or supplementing the Contract Documents pursuant to Paragraphs 3.04 of the General Conditions, as modified by the Supplementary Conditions, after the date of execution of this Agreement shall become incorporated into, attached to, and made a part of this Agreement on the effective date of such document.
 - 2. Agreement.
 - 3. Bid Form.
 - 4. Affidavit of Authority and Non-Collusion.
 - 5. Instructions to Bidders.
 - 6. Contract Drawings – Woodcrest Biochar-and-Iron-Enhanced Sand Filter
 - 7. Project Manual – Woodcrest Biochar-and-Iron-Enhanced Sand Filter

8. Supplementary Conditions.
 9. General Conditions.
 10. Performance Bond.
 11. Payment Bond.
 12. Bid Bond.
 13. Advertisement for Bids
- B. The documents listed in Paragraph 9.01.A are attached to and made a part of this Agreement.
 - C. There are no Contract Documents other than those listed above in this Article 9.
 - D. In case of discrepancy in the Contract Documents, the order listed above shall be the order of precedence for the Contract Documents, that is, the governing document shall be Change Order(s) followed by the Agreement, and so forth.
 - E. The Contract Documents may only be amended, modified, or supplemented as provided in Paragraph 3.04 of the General Conditions, and as modified by the Supplementary Conditions.

ARTICLE 10 – MISCELLANEOUS

10.01 Terms

- A. Terms used in this Agreement will have the meanings stated in the General Conditions and the Supplementary Conditions.
- B. If there is a discrepancy between a definition in the General Conditions, as modified by the Supplementary Conditions, and a definition in the Contract Documents, the provision most favorable to the Owner shall prevail.

10.02 Indemnification

- A. Contractor shall indemnify, hold harmless and defend Owner, its officers, officials, agents, and employees against any and all liability, losses, costs, damages, expenses, claims, or actions, including attorney's fees, which Owner, its officers, officials, agents, or employees may hereafter sustain, incur, or be required to pay, arising out of or by reason of any act or omission of Contractor or its subcontractors, or Contractor's or subcontractors' officers, agents, subcontractors, or employees, in the execution, performance, or failure to adequately perform Contractor's obligations pursuant to this Agreement.

10.03 Assignment of Contract

- A. No assignment by a party hereto of any rights under or interests in this Agreement will be binding on the other party hereto without the written consent of the party sought to be bound; and, specifically but without limitation, moneys that may become due and moneys that are due may not be assigned without such consent

(except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under this Agreement.

10.04 *Successors and Assigns*

- A. Owner and Contractor each binds itself, its partners, officers, officials, successors, assigns, and legal representatives to the other party hereto, its partners, officers, officials, successors, assigns, and legal representatives in respect to all covenants, agreements, and obligations contained in this Agreement.

10.05 *Severability*

- A. Any provision or part of this Agreement held to be void or unenforceable under any Law or Regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon Owner and Contractor, who agree that this Agreement shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

10.06 *Contractor's Certifications*

- A. Contractor certifies that it has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for or in executing the Contract. For the purposes of this Paragraph 10.06:
 - 1. "corrupt practice" means the offering, giving, receiving, or soliciting of any thing of value likely to influence the action of a public official in the bidding process or in the Contract execution;
 - 2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process or the execution of the Contract to the detriment of Owner, (b) to establish Bid or Contract prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;
 - 3. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish Bid prices at artificial, non-competitive levels; and
 - 4. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

10.07 *Other Provisions*

- A. This Agreement shall be governed by the laws of the State of Minnesota.
- B. There are no other provisions.

IN WITNESS WHEREOF, Owner and Contractor have signed this Agreement in duplicate. One counterpart has been delivered to Owner and Contractor. All portions of the Contract Documents have been signed or have been identified by Owner and Contractor or on their behalf.

This Agreement will be effective on _____ (which is the Effective Date of the Agreement).

OWNER:

CONTRACTOR

Coon Creek Watershed District _____

By: _____

By: _____

Title: _____

Title: _____

(If Contractor is a corporation, a partnership, or a joint venture, attach evidence of authority to sign.)

Attest
: _____

Attest: _____

Title: _____

Title: _____

Address for giving notices:

Address for giving notices:

13632 Van Buren Street NE _____

Ham Lake, MN 55304 _____

License No.: _____

(Where applicable)

Designated Representative:

Designated Representative:

Name: _____

Name: _____

Title: _____

Title: _____

Address: _____

Address: _____

Phone: _____

Phone: _____

Facsimile: _____

Facsimile: _____

**SECTION 00 55 00
NOTICE TO PROCEED**

To:

Date:

Project Title: Woodcrest Biochar -and Iron-Enhanced Sand Filter

You are hereby notified to commence WORK in accordance with the Agreement dated _____, 20__, on or before _____, 20__, and you are to complete the WORK within _____ consecutive calendar days thereafter. The date of completion of all work is therefore _____, 20__.

Coon Creek Watershed District
(OWNER)

By: _____

Title: _____

ACCEPTANCE OF NOTICE

Receipt of the above Notice of Proceed is hereby acknowledged by
_____ this the ____ day of _____,
20__.

By: _____

Title: _____

END OF SECTION

**SECTION 00 61 13.13
PERFORMANCE BOND FORM**

Any singular reference to CONTRACTOR, SURETY, OWNER, or other party shall be considered plural where applicable.

CONTRACTOR (Name and Address)

SURETY (Name and Principal Place of Business)

_____	_____
_____	_____
_____	_____
_____	_____

OWNER (Name and Address)
Coon Creek Watershed District
13632 Van Buren Street NE
Ham Lake, MN 55304

CONSTRUCTION CONTRACT

DATE: _____, 20__

AMOUNT: _____

(Written

Amount) _____

Description (Project Name and Location):

Woodcrest Biochar-and-Iron-Enhanced Sand Filter Project, Coon Rapids, MN

BOND

DATE: _____, 20__

AMOUNT: _____

(Written Amount)

Contractor (Corporate Seal)

Surety (Corporate Seal)

Company Name: _____

Company Name: _____

By: _____
(Signature)

By: _____
(Signature)

Name:(Typewritten)

Name:(Typewritten)

ITS: _____
(Title)

ITS: _____
(Title)

On this ____ day of _____, 20__, before me personally
appeared _____ and

_____, on behalf of the CONTRACTOR and SURETY named in this
Performance Bond above, respectively, and each of them, as their free act and deed, caused
this Performance Bond to be executed as of this date.

Notary Public

ATTACH POWER OF ATTORNEY FROM SURETY TO THIS BOND

For Information Only (Name, Address and Telephone)

Agent or Broker:

Owner's Representative (Engineer)

1. Contractor and the Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Owner for the performance of the Construction Contract, which is incorporated herein by reference.
2. If the Contractor performs the Construction Contract, the Surety and the Contractor shall have no obligation under this Bond, except to participate in conferences as provided in Subparagraph 3.1.
3. If there is no Owner Default, the Surety's obligation under this Bond shall arise after:
 - 3.1. The Owner has notified the Contractor and the Surety at its address described in Paragraph 10 below, that the Owner is considering declaring a Contractor Default and has requested and attempted to arrange a conference with the Contractor and the Surety to be held not later than fifteen days after receipt of such notice to discuss methods of performing the Construction Contract. If the Owner, the Contractor and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement shall not waive the Owner's right, if any, subsequently to declare a Contractor Default; and
 - 3.2. The Owner has declared a Contractor Default and formally terminated the Contractor's right to complete the contract. Such Contractor Default shall not be declared earlier than twenty days after the Contractor and the Surety have received notice as provided in Subparagraph 3.1: and
 - 3.3. The Owner has agreed to pay the Balance of the Contract Price to the Surety in accordance with the terms of the Construction Contract or to a contractor selected to perform the Construction Contract in accordance with the terms of the contract with the Owner.
4. When the Owner has satisfied the conditions of Paragraph 3, the Surety shall promptly and at the Surety's expense take one of the following actions:
 - 4.1. Arrange for the Contractor, with consent of the Owner, to perform and complete the Construction Contract; or
 - 4.2. Undertake to perform and complete the Construction Contract itself, through its agents or through independent contractors: or
 - 4.3. Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and the contractor selected with the Owner's concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Paragraph 6 in excess of the Balance of the Contract Price incurred by the Owner resulting from the Contractor's default: or
 - 4.5. Waive its right to perform and complete, arrange for completion, or obtain a new contractor and with reasonable promptness under the circumstances:
 1. After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, tender payment therefor to the Owner; or
 2. Deny liability in whole or in part and notify the Owner citing reasons therefor.
5. If the Surety does not proceed as provided in Paragraph 4 with reasonable promptness, the Surety shall be deemed to be in default on this Bond fifteen days after receipt of

an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Subparagraph 4.4, and the Owner refuses the payment tendered or the Surety has denied liability, in whole or in part, without further notice the Owner shall be entitled to enforce any remedy available to the Owner.

6. After the Owner has terminated the Contractor's right to complete the Construction Contract, and if the Surety elects to act under Subparagraph 4.1, 4.2, or 4.3 above, then the responsibilities of the Surety to the Owner shall not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety shall not be greater than those of the Owner under the Construction Contract. To the limit of the amount of this Bond, but subject to commitment by the Owner of the Balance of the Contract Price to mitigation of costs and damages on the Construction Contract, the Surety is obligated without duplication for:
 - 6.1. The responsibilities of the contractor for correction of defective work and completion of the Construction Contract;
 - 6.2. Additional legal, design professional and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Paragraph 4; and
 - 6.3. Liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.
7. The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Construction Contract, and the Balance of the Contract Price shall not be

reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators, or successors.

8. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders and other obligations.
9. Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and shall be instituted within two years after Contractor Default or within two years after the Contractor ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this Paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.
10. Notice to the Surety, the Owner or the Contractor shall be mailed or delivered to the address shown on the signature page.
11. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. The intent is that this Bond shall be construed as a statutory bond and not as a common law bond.
12. Definitions.
 - 12.1. Balance of the Contract Price:
The total amount payable by the Owner to the Contractor under the Construction Contract after all proper adjustments have been made, including allowance to the Contractor of any amounts

received or to be received by the Owner in settlement of insurance or other claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Construction Contract.

12.2. Construction Contract: The agreement between the Owner and the Contractor identified in the signature page, including all Contract Documents and changes thereto.

12.3. Contractor Default: Failure of the Contractor, which has neither been remedied nor waived, to perform or otherwise to comply with the terms of the Construction Contract.

12.4. Owner Default: Failure of the Owner, which has neither been remedied nor waived, to pay the Contractor as required by the Construction Contract or to perform and complete or comply with the other terms thereof.

END OF SECTION

**SECTION 00 61 13.16
PAYMENT BOND FORM**

Any singular reference to CONTRACTOR, SURETY, OWNER, or other party shall be considered plural where applicable.

CONTRACTOR (Name and Address)

SURETY (Name and Principal Place of Business)

_____	_____
_____	_____
_____	_____
_____	_____

OWNER (Name and Address)
Coon Creek Watershed District
13632 Van Buren Street NE
Ham Lake, MN 55304

CONSTRUCTION CONTRACT

DATE: _____, 20__

AMOUNT: _____

(Written

Amount) _____

Description (Project Name and Location):

Woodcrest Biochar-and-Iron-Enhanced Sand Filter Project, Coon Rapids, MN

BOND

DATE: _____, 20__

AMOUNT: _____

(Written Amount)

Contractor (Corporate Seal)

Surety (Corporate Seal)

Company Name: _____

Company Name: _____

By: _____
(Signature)

By: _____
(Signature)

Name:(Typewritten)

Name:(Typewritten)

ITS: _____
(Title)

ITS: _____
(Title)

On this ____ day of _____, 20____, before me personally
appeared _____ and

_____, on behalf of the CONTRACTOR and SURETY named in this
Payment Bond above, respectively, and each of them, as their free act and deed, caused
this Payment Bond to be executed as of this date.

Notary Public

ATTACH POWER OF ATTORNEY FROM SURETY TO THIS BOND

For Information Only (Name, Address and Telephone)

Agent or Broker:

Owner's Representative (Engineer)

1. The Contractor and the Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Owner to pay for labor, materials and equipment furnished for use in the performance of the Construction Contract, which is incorporated herein by reference.
2. With respect to the Owner, this obligation shall be null and void if the Contractor:
 - 2.1. Promptly makes payment, directly or indirectly, for all sums due Claimants, and
 - 2.2. Defends, indemnifies and holds harmless the Owner from all claims, demands, liens or suits by any person or entity who furnished labor, materials or equipment for use in the performance of the Construction Contract, provided the Owner has promptly notified the Contractor and the Surety (at the address described in Paragraph 12) of any claims, demands, liens or suits and tendered defense of such claims, demands liens or suits to the Contractor and the Surety, and provided there is no Owner Default.
3. With respect to Claimants, this obligation shall be null and void if the Contractor promptly makes payment, directly or indirectly, for all sums due.
4. The Surety shall have no obligation to Claimants under this Bond until:
 - 4.1. Claimants who are employed by or have direct contract with the Contractor have given notice to the Surety (at the address described in Paragraph 12) and send a copy, or notice thereof, to the Owner, stating that a claim is being made under this Bond and, with substantial accuracy, the amount of the claim.
 - 4.2. Claimants who do not have a direct contract with the Contractor:
 1. Have furnished written notice to the Contractor and sent a copy, or notice thereof, to the Owner, within 90 days after having last performed labor or last furnished materials or equipment included in the claim stating, with substantial accuracy, the amount of the claim and the name of the party to whom the materials were furnished or supplied or for whom the labor was done or performed: and
2. Have either received a rejection in whole or in part from the Contractor, or not received within 30 days of furnishing the above notice any communication from the Contractor by which the Contractor has indicated the claim will be paid directly or indirectly; and
3. Not having been paid within the above 30 days, have send a written notice to the Surety (at the address described in Paragraph 12) and sent a copy, or notice thereof, to the Owner, stating that a claim is being made under this Bond and enclosing a copy of the previous written notice furnished to the Contractor.
5. If a notice required by Paragraph 4 is given by the Owner to the Contractor or to the Surety, that is sufficient compliance.
6. When the Claimant has satisfied the conditions of Paragraph 4, the Surety shall promptly and at the Surety's expense take the following actions:
 - 6.1. Send an answer to the Claimant, with a copy to the Owner within 45 days after receipt of the claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed.
 - 6.2. Pay or arrange for payment of any undisputed amounts.
7. The Surety's total obligation shall not exceed the amount of this Bond, and the amount of this Bond shall be credited for any payments made in good faith by the Surety.
8. Amounts owed by the Owner to the Contractor under the Construction

Contract shall be used for the performance of the construction Contract and to satisfy claims, if any, under any Construction Performance Bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the Contractor in the performance of the Construction Contract are dedicated to satisfy obligations of the contractor and the Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the work.

9. The Surety shall not be liable to the Owner, Claimants or others for obligations of the Contractor that are unrelated to the Construction Contract. The Owner shall not be liable for payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligations to make payments to, give notices on behalf of, or otherwise have obligations to Claimants under this Bond.
10. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders and other obligations.
11. No suite or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the location in which the work or part of the work is located or after the expiration of one year from the date (1) on which the Claimant gave the notice required by Subparagraph 4.1 or Clause 4.2 (iii), or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.
12. Notice to the Surety, the Owner or the Contractor shall be mailed or delivered

to the address shown on the signature page. Actual receipt of notice by Surety, the Owner or the Contractor, however accomplished, shall be sufficient compliance as of the date received at the address shown on the signature page.

13. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. The intent is, that this Bond shall be construed as a statutory bond and not as a common law bond.
14. Upon request by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor shall promptly furnish a copy of this Bond or shall permit a copy to be made.
15. DEFINITIONS
 - 15.1. Claimant: An individual or entity having a direct contract with the Contractor or with a subcontractor of the Contractor to furnish labor, materials or equipment for use in the performance of the Contract. The intent of this Bond shall be to include without limitation in the terms "labor, materials or equipment" that part of water, gas, power, light, heat, oil, gasoline, telephone service or rental equipment used in the Construction Contract, architectural and engineering services required for performance of the work of the Contractor and the Contractor's subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials or equipment were furnished.
 - 15.2. Construction Contract: The agreement between the Owner and the Contractor identified on

the signature page, including all
Contract Documents and changes
thereto.
15.3 Owner Defaults: Failure of the
Owner, which has neither been

remedied nor waived, to pay the
Contractor as required by the
Construction Contract or to
perform and complete or comply
with the other terms thereof.

END OF SECTION

**SECTION 00 62 76
APPLICATION FOR PAYMENT FORM**

OWNER: Coon Creek Watershed District
PROJECT: Woodcrest Biochar- and Iron-Enhanced Sand Filter
CONTRACTOR: _____

PAY ESTIMATE NO. _____

Original Contract Amount	\$.....
Contract Changes approved to Date (List Change Order Numbers)	\$.....
Revised Contract Price	\$.....
Work Completed to Date (attached)	\$.....
Retainage to Date, 5%	\$.....
Work Completed to Date Less Retainage to Date	\$.....
Total Amount Previously Certified	\$.....
Payment Request This Estimate	\$.....

I declare under penalty of perjury that this account, claim, or demand is just and correct and that no part of it has been paid.

CONTRACTOR

CERTIFICATE OF CONTRACTOR

I hereby certify that the work and the materials supplied to date, as shown on the request for payment, represents the actual value of accomplishment under the terms of the contract dated

_____, 20__ between the Coon Creek Watershed District
(OWNER)

and _____ (CONTRACTOR) and all authorized changes thereto.

By _____

Title _____

Approval:

(CONTRACTOR) _____ Date _____

WENCK ASSOCIATES, INC. _____ Date _____
Ed Matthiesen, P.E.

COON CREEK WATERSHED DISTRICT _____ Date _____

END OF SECTION

**SECTION 00 63 63
CHANGE ORDER FORM**

Change Order No. _____

Date _____

Agreement Date _____

Name of Project: Woodcrest Biochar- and Iron-Enhanced Sand Filter

Owner: Coon Creek Watershed District

Contractor: _____

The following changes are hereby made to the Contract Documents:

Justification: _____

Original Contract Price: \$ _____

Current Contract Price adjusted to previous Change Order: \$ _____

The Contract Price due to this Change Order will be (increased) (decreased) by

\$ _____.

The new Contract Price including this Change Order will be \$ _____

Original Contract-Required Completion Date: _____

Current Contract Completion Date adjusted to previous Change Order: _____

The Contract Time will be (increased) (decreased) by _____ calendar days.

The revised Contract Completion Date for completion of Work will be _____

Approvals Required:

To be effective, this Order must be approved by the Owner and the Contractor if it changes the scope of objective of the Project, or as may otherwise be required by the Supplemental General Conditions.

Requested by: _____
Ed Matthiesen, P.E.

Ordered by: _____
Tim Kelly

Accepted by: _____
(Contractor)

END OF SECTION

This document has important legal consequences; consultation with an attorney is encouraged with respect to its use or modification. This document should be adapted to the particular circumstances of the contemplated Project and the controlling Laws and Regulations.

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared by

ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

and

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CONSTRUCTION SPECIFICATIONS INSTITUTE

These General Conditions have been prepared for use with the Suggested Forms of Agreement Between Owner and Contractor (EJCDC C-520 or C-525, 2007 Editions). Their provisions are interrelated and a change in one may necessitate a change in the other. Comments concerning their usage are contained in the Narrative Guide to the EJCDC Construction Documents (EJCDC C-001, 2007 Edition). For guidance in the preparation of Supplementary Conditions, see Guide to the Preparation of Supplementary Conditions (EJCDC C-800, 2007 Edition).

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STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

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ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

- A. Wherever used in the Bidding Requirements or Contract Documents and printed with initial capital letters, the terms listed below will have the meanings indicated which are applicable to both the singular and plural thereof. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.
1. *Addenda*—Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.
 2. *Agreement*—The written instrument which is evidence of the agreement between Owner and Contractor covering the Work.
 3. *Application for Payment*—The form acceptable to Engineer which is to be used by Contractor during the course of the Work in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.
 4. *Asbestos*—Any material that contains more than one percent asbestos and is friable or is releasing asbestos fibers into the air above current action levels established by the United States Occupational Safety and Health Administration.
 5. *Bid*—The offer or proposal of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.
 6. *Bidder*—The individual or entity who submits a Bid directly to Owner.
 7. *Bidding Documents*—The Bidding Requirements and the proposed Contract Documents (including all Addenda).
 8. *Bidding Requirements*—The advertisement or invitation to bid, Instructions to Bidders, Bid security of acceptable form, if any, and the Bid Form with any supplements.
 9. *Change Order*—A document recommended by Engineer which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, issued on or after the Effective Date of the Agreement.
 10. *Claim*—A demand or assertion by Owner or Contractor seeking an adjustment of Contract Price or Contract Times, or both, or other relief with respect to the terms of the Contract. A demand for money or services by a third party is not a Claim.
 11. *Contract*—The entire and integrated written agreement between the Owner and Contractor concerning the Work. The Contract supersedes prior negotiations, representations, or agreements, whether written or oral.

12. *Contract Documents*—Those items so designated in the Agreement. Only printed or hard copies of the items listed in the Agreement are Contract Documents. Approved Shop Drawings, other Contractor submittals, and the reports and drawings of subsurface and physical conditions are not Contract Documents.
13. *Contract Price*—The moneys payable by Owner to Contractor for completion of the Work in accordance with the Contract Documents as stated in the Agreement (subject to the provisions of Paragraph 11.03 in the case of Unit Price Work).
14. *Contract Times*—The number of days or the dates stated in the Agreement to: (i) achieve Milestones, if any; (ii) achieve Substantial Completion; and (iii) complete the Work so that it is ready for final payment as evidenced by Engineer's written recommendation of final payment.
15. *Contractor*—The individual or entity with whom Owner has entered into the Agreement.
16. *Cost of the Work*—See Paragraph 11.01 for definition.
17. *Drawings*—That part of the Contract Documents prepared or approved by Engineer which graphically shows the scope, extent, and character of the Work to be performed by Contractor. Shop Drawings and other Contractor submittals are not Drawings as so defined.
18. *Effective Date of the Agreement*—The date indicated in the Agreement on which it becomes effective, but if no such date is indicated, it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.
19. *Engineer*—The individual or entity named as such in the Agreement.
20. *Field Order*—A written order issued by Engineer which requires minor changes in the Work but which does not involve a change in the Contract Price or the Contract Times.
21. *General Requirements*—Sections of Division 1 of the Specifications.
22. *Hazardous Environmental Condition*—The presence at the Site of Asbestos, PCBs, Petroleum, Hazardous Waste, or Radioactive Material in such quantities or circumstances that may present a substantial danger to persons or property exposed thereto.
23. *Hazardous Waste*—The term Hazardous Waste shall have the meaning provided in Section 1004 of the Solid Waste Disposal Act (42 USC Section 6903) as amended from time to time.
24. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.
25. *Liens*—Charges, security interests, or encumbrances upon Project funds, real property, or personal property.
26. *Milestone*—A principal event specified in the Contract Documents relating to an intermediate completion date or time prior to Substantial Completion of all the Work.

27. *Notice of Award*—The written notice by Owner to the Successful Bidder stating that upon timely compliance by the Successful Bidder with the conditions precedent listed therein, Owner will sign and deliver the Agreement.
28. *Notice to Proceed*—A written notice given by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work under the Contract Documents.
29. *Owner*—The individual or entity with whom Contractor has entered into the Agreement and for whom the Work is to be performed.
30. *PCBs*—Polychlorinated biphenyls.
31. *Petroleum*—Petroleum, including crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute), such as oil, petroleum, fuel oil, oil sludge, oil refuse, gasoline, kerosene, and oil mixed with other non-Hazardous Waste and crude oils.
32. *Progress Schedule*—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising the Contractor's plan to accomplish the Work within the Contract Times.
33. *Project*—The total construction of which the Work to be performed under the Contract Documents may be the whole, or a part.
34. *Project Manual*—The bound documentary information prepared for bidding and constructing the Work. A listing of the contents of the Project Manual, which may be bound in one or more volumes, is contained in the table(s) of contents.
35. *Radioactive Material*—Source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954 (42 USC Section 2011 et seq.) as amended from time to time.
36. *Resident Project Representative*—The authorized representative of Engineer who may be assigned to the Site or any part thereof.
37. *Samples*—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and which establish the standards by which such portion of the Work will be judged.
38. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements to support scheduled performance of related construction activities.
39. *Schedule of Values*—A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

40. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information which are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work.
41. *Site*—Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements for access thereto, and such other lands furnished by Owner which are designated for the use of Contractor.
42. *Specifications*—That part of the Contract Documents consisting of written requirements for materials, equipment, systems, standards and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable thereto.
43. *Subcontractor*—An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work at the Site.
44. *Substantial Completion*—The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms “substantially complete” and “substantially completed” as applied to all or part of the Work refer to Substantial Completion thereof.
45. *Successful Bidder*—The Bidder submitting a responsive Bid to whom Owner makes an award.
46. *Supplementary Conditions*—That part of the Contract Documents which amends or supplements these General Conditions.
47. *Supplier*—A manufacturer, fabricator, supplier, distributor, materialman, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or Subcontractor.
48. *Underground Facilities*—All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.
49. *Unit Price Work*—Work to be paid for on the basis of unit prices.
50. *Work*—The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction, and furnishing, installing, and incorporating all materials and equipment into such construction, all as required by the Contract Documents.
51. *Work Change Directive*—A written statement to Contractor issued on or after the Effective Date of the Agreement and signed by Owner and recommended by Engineer ordering an

addition, deletion, or revision in the Work, or responding to differing or unforeseen subsurface or physical conditions under which the Work is to be performed or to emergencies. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the change ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order following negotiations by the parties as to its effect, if any, on the Contract Price or Contract Times.

1.02 *Terminology*

A. The words and terms discussed in Paragraph 1.02.B through F are not defined but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.

B. *Intent of Certain Terms or Adjectives:*

1. The Contract Documents include the terms “as allowed,” “as approved,” “as ordered,” “as directed” or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives “reasonable,” “suitable,” “acceptable,” “proper,” “satisfactory,” or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action, or determination will be solely to evaluate, in general, the Work for compliance with the information in the Contract Documents and with the design concept of the Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility contrary to the provisions of Paragraph 9.09 or any other provision of the Contract Documents.

C. *Day:*

1. The word “day” means a calendar day of 24 hours measured from midnight to the next midnight.

D. *Defective:*

1. The word “defective,” when modifying the word “Work,” refers to Work that is unsatisfactory, faulty, or deficient in that it:
 - a. does not conform to the Contract Documents; or
 - b. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or
 - c. has been damaged prior to Engineer’s recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 14.04 or 14.05).

E. *Furnish, Install, Perform, Provide:*

1. The word “furnish,” when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.
2. The word “install,” when used in connection with services, materials, or equipment, shall mean to put into use or place in final position said services, materials, or equipment complete and ready for intended use.
3. The words “perform” or “provide,” when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.
4. When “furnish,” “install,” “perform,” or “provide” is not used in connection with services, materials, or equipment in a context clearly requiring an obligation of Contractor, “provide” is implied.

F. Unless stated otherwise in the Contract Documents, words or phrases that have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

ARTICLE 2 – PRELIMINARY MATTERS

2.01 Delivery of Bonds and Evidence of Insurance

- A. When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner such bonds as Contractor may be required to furnish.
- B. *Evidence of Insurance:* Before any Work at the Site is started, Contractor and Owner shall each deliver to the other, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance which either of them or any additional insured may reasonably request) which Contractor and Owner respectively are required to purchase and maintain in accordance with Article 5.

2.02 Copies of Documents

- A. Owner shall furnish to Contractor up to ten printed or hard copies of the Drawings and Project Manual. Additional copies will be furnished upon request at the cost of reproduction.

2.03 Commencement of Contract Times; Notice to Proceed

- A. The Contract Times will commence to run on the thirtieth day after the Effective Date of the Agreement or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Agreement. In no event will the Contract Times commence to run later than the sixtieth day after the day of Bid opening or the thirtieth day after the Effective Date of the Agreement, whichever date is earlier.

2.04 *Starting the Work*

- A. Contractor shall start to perform the Work on the date when the Contract Times commence to run. No Work shall be done at the Site prior to the date on which the Contract Times commence to run.

2.05 *Before Starting Construction*

- A. *Preliminary Schedules:* Within 10 days after the Effective Date of the Agreement (unless otherwise specified in the General Requirements), Contractor shall submit to Engineer for timely review:
 - 1. a preliminary Progress Schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract Documents;
 - 2. a preliminary Schedule of Submittals; and
 - 3. a preliminary Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

2.06 *Preconstruction Conference; Designation of Authorized Representatives*

- A. Before any Work at the Site is started, a conference attended by Owner, Contractor, Engineer, and others as appropriate will be held to establish a working understanding among the parties as to the Work and to discuss the schedules referred to in Paragraph 2.05.A, procedures for handling Shop Drawings and other submittals, processing Applications for Payment, and maintaining required records.
- B. At this conference Owner and Contractor each shall designate, in writing, a specific individual to act as its authorized representative with respect to the services and responsibilities under the Contract. Such individuals shall have the authority to transmit instructions, receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

2.07 *Initial Acceptance of Schedules*

- A. At least 10 days before submission of the first Application for Payment a conference attended by Contractor, Engineer, and others as appropriate will be held to review for acceptability to Engineer as provided below the schedules submitted in accordance with Paragraph 2.05.A. Contractor shall have an additional 10 days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to Contractor until acceptable schedules are submitted to Engineer.
 - 1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on

Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of the Work, nor interfere with or relieve Contractor from Contractor's full responsibility therefor.

2. Contractor's Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.
3. Contractor's Schedule of Values will be acceptable to Engineer as to form and substance if it provides a reasonable allocation of the Contract Price to component parts of the Work.

ARTICLE 3 – CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

3.01 *Intent*

- A. The Contract Documents are complementary; what is required by one is as binding as if required by all.
- B. It is the intent of the Contract Documents to describe a functionally complete project (or part thereof) to be constructed in accordance with the Contract Documents. Any labor, documentation, services, materials, or equipment that reasonably may be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the indicated result will be provided whether or not specifically called for, at no additional cost to Owner.
- C. Clarifications and interpretations of the Contract Documents shall be issued by Engineer as provided in Article 9.

3.02 *Reference Standards*

- A. Standards, Specifications, Codes, Laws, and Regulations
 1. Reference to standards, specifications, manuals, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, shall mean the standard, specification, manual, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Agreement if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.
 2. No provision of any such standard, specification, manual, or code, or any instruction of a Supplier, shall be effective to change the duties or responsibilities of Owner, Contractor, or Engineer, or any of their subcontractors, consultants, agents, or employees, from those set forth in the Contract Documents. No such provision or instruction shall be effective to assign to Owner, Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the Contract Documents.

3.03 *Reporting and Resolving Discrepancies*

A. *Reporting Discrepancies:*

1. *Contractor's Review of Contract Documents Before Starting Work:* Before undertaking each part of the Work, Contractor shall carefully study and compare the Contract Documents and check and verify pertinent figures therein and all applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy which Contractor discovers, or has actual knowledge of, and shall obtain a written interpretation or clarification from Engineer before proceeding with any Work affected thereby.
2. *Contractor's Review of Contract Documents During Performance of Work:* If, during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents, or between the Contract Documents and (a) any applicable Law or Regulation, (b) any standard, specification, manual, or code, or (c) any instruction of any Supplier, then Contractor shall promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 6.16.A) until an amendment or supplement to the Contract Documents has been issued by one of the methods indicated in Paragraph 3.04.
3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor had actual knowledge thereof.

B. *Resolving Discrepancies:*

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the Contract Documents shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between the provisions of the Contract Documents and:
 - a. the provisions of any standard, specification, manual, or code, or the instruction of any Supplier (whether or not specifically incorporated by reference in the Contract Documents); or
 - b. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.04 *Amending and Supplementing Contract Documents*

- A. The Contract Documents may be amended to provide for additions, deletions, and revisions in the Work or to modify the terms and conditions thereof by either a Change Order or a Work Change Directive.
- B. The requirements of the Contract Documents may be supplemented, and minor variations and deviations in the Work may be authorized, by one or more of the following ways:

1. A Field Order;
2. Engineer's approval of a Shop Drawing or Sample (subject to the provisions of Paragraph 6.17.D.3); or
3. Engineer's written interpretation or clarification.

3.05 *Reuse of Documents*

- A. Contractor and any Subcontractor or Supplier shall not:
1. have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or its consultants, including electronic media editions; or
 2. reuse any such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or adaptation by Engineer.
- B. The prohibitions of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein shall preclude Contractor from retaining copies of the Contract Documents for record purposes.

3.06 *Electronic Data*

- A. Unless otherwise stated in the Supplementary Conditions, the data furnished by Owner or Engineer to Contractor, or by Contractor to Owner or Engineer, that may be relied upon are limited to the printed copies (also known as hard copies). Files in electronic media format of text, data, graphics, or other types are furnished only for the convenience of the receiving party. Any conclusion or information obtained or derived from such electronic files will be at the user's sole risk. If there is a discrepancy between the electronic files and the hard copies, the hard copies govern.
- B. Because data stored in electronic media format can deteriorate or be modified inadvertently or otherwise without authorization of the data's creator, the party receiving electronic files agrees that it will perform acceptance tests or procedures within 60 days, after which the receiving party shall be deemed to have accepted the data thus transferred. Any errors detected within the 60-day acceptance period will be corrected by the transferring party.
- C. When transferring documents in electronic media format, the transferring party makes no representations as to long term compatibility, usability, or readability of documents resulting from the use of software application packages, operating systems, or computer hardware differing from those used by the data's creator.

ARTICLE 4 – AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS; REFERENCE POINTS

4.01 Availability of Lands

- A. Owner shall furnish the Site. Owner shall notify Contractor of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work. Owner will obtain in a timely manner and pay for easements for permanent structures or permanent changes in existing facilities. If Contractor and Owner are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, as a result of any delay in Owner's furnishing the Site or a part thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.
- B. Upon reasonable written request, Owner shall furnish Contractor with a current statement of record legal title and legal description of the lands upon which the Work is to be performed and Owner's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.
- C. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

4.02 Subsurface and Physical Conditions

- A. *Reports and Drawings:* The Supplementary Conditions identify:
 - 1. those reports known to Owner of explorations and tests of subsurface conditions at or contiguous to the Site; and
 - 2. those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities).
- B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:
 - 1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto; or
 - 2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or
 - 3. any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions, or information.

4.03 *Differing Subsurface or Physical Conditions*

- A. *Notice:* If Contractor believes that any subsurface or physical condition that is uncovered or revealed either:
1. is of such a nature as to establish that any “technical data” on which Contractor is entitled to rely as provided in Paragraph 4.02 is materially inaccurate; or
 2. is of such a nature as to require a change in the Contract Documents; or
 3. differs materially from that shown or indicated in the Contract Documents; or
 4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except as aforesaid) until receipt of written order to do so.

- B. *Engineer’s Review:* After receipt of written notice as required by Paragraph 4.03.A, Engineer will promptly review the pertinent condition, determine the necessity of Owner’s obtaining additional exploration or tests with respect thereto, and advise Owner in writing (with a copy to Contractor) of Engineer’s findings and conclusions.

C. *Possible Price and Times Adjustments:*

1. The Contract Price or the Contract Times, or both, will be equitably adjusted to the extent that the existence of such differing subsurface or physical condition causes an increase or decrease in Contractor’s cost of, or time required for, performance of the Work; subject, however, to the following:
 - a. such condition must meet any one or more of the categories described in Paragraph 4.03.A; and
 - b. with respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraphs 9.07 and 11.03.
2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times if:
 - a. Contractor knew of the existence of such conditions at the time Contractor made a final commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract; or
 - b. the existence of such condition could reasonably have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and

contiguous areas required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such final commitment; or

- c. Contractor failed to give the written notice as required by Paragraph 4.03.A.
3. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, a Claim may be made therefor as provided in Paragraph 10.05. However, neither Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors shall be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.

4.04 *Underground Facilities*

A. *Shown or Indicated:* The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the Site is based on information and data furnished to Owner or Engineer by the owners of such Underground Facilities, including Owner, or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:

1. Owner and Engineer shall not be responsible for the accuracy or completeness of any such information or data provided by others; and
2. the cost of all of the following will be included in the Contract Price, and Contractor shall have full responsibility for:
 - a. reviewing and checking all such information and data;
 - b. locating all Underground Facilities shown or indicated in the Contract Documents;
 - c. coordination of the Work with the owners of such Underground Facilities, including Owner, during construction; and
 - d. the safety and protection of all such Underground Facilities and repairing any damage thereto resulting from the Work.

B. *Not Shown or Indicated:*

1. If an Underground Facility is uncovered or revealed at or contiguous to the Site which was not shown or indicated, or not shown or indicated with reasonable accuracy in the Contract Documents, Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), identify the owner of such Underground Facility and give written notice to that owner and to Owner and Engineer. Engineer will promptly review the Underground Facility and determine the extent, if any, to which a change is required in the Contract Documents to reflect and document the

consequences of the existence or location of the Underground Facility. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.

2. If Engineer concludes that a change in the Contract Documents is required, a Work Change Directive or a Change Order will be issued to reflect and document such consequences. An equitable adjustment shall be made in the Contract Price or Contract Times, or both, to the extent that they are attributable to the existence or location of any Underground Facility that was not shown or indicated or not shown or indicated with reasonable accuracy in the Contract Documents and that Contractor did not know of and could not reasonably have been expected to be aware of or to have anticipated. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment in Contract Price or Contract Times, Owner or Contractor may make a Claim therefor as provided in Paragraph 10.05.

4.05 *Reference Points*

- A. Owner shall provide engineering surveys to establish reference points for construction which in Engineer's judgment are necessary to enable Contractor to proceed with the Work. Contractor shall be responsible for laying out the Work, shall protect and preserve the established reference points and property monuments, and shall make no changes or relocations without the prior written approval of Owner. Contractor shall report to Engineer whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

4.06 *Hazardous Environmental Condition at Site*

- A. *Reports and Drawings:* The Supplementary Conditions identify those reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at the Site.
- B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:
 1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by Contractor and safety precautions and programs incident thereto; or
 2. other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings; or
 3. any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions or information.

- C. Contractor shall not be responsible for any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work. Contractor shall be responsible for a Hazardous Environmental Condition created with any materials brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible.
- D. If Contractor encounters a Hazardous Environmental Condition or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, Contractor shall immediately: (i) secure or otherwise isolate such condition; (ii) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 6.16.A); and (iii) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to permit Owner to timely obtain required permits and provide Contractor the written notice required by Paragraph 4.06.E.
- E. Contractor shall not be required to resume Work in connection with such condition or in any affected area until after Owner has obtained any required permits related thereto and delivered written notice to Contractor: (i) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work; or (ii) specifying any special conditions under which such Work may be resumed safely. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by Contractor, either party may make a Claim therefor as provided in Paragraph 10.05.
- F. If after receipt of such written notice Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of an adjustment in Contract Price or Contract Times as a result of deleting such portion of the Work, then either party may make a Claim therefor as provided in Paragraph 10.05. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 7.
- G. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition: (i) was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be included within the scope of the Work, and (ii) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.G shall obligate Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

- H. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.H shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- I. The provisions of Paragraphs 4.02, 4.03, and 4.04 do not apply to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 5 – BONDS AND INSURANCE

5.01 Performance, Payment, and Other Bonds

- A. Contractor shall furnish performance and payment bonds, each in an amount at least equal to the Contract Price as security for the faithful performance and payment of all of Contractor's obligations under the Contract Documents. These bonds shall remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 13.07, whichever is later, except as provided otherwise by Laws or Regulations or by the Contract Documents. Contractor shall also furnish such other bonds as are required by the Contract Documents.
- B. All bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in the list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. All bonds signed by an agent or attorney-in-fact must be accompanied by a certified copy of that individual's authority to bind the surety. The evidence of authority shall show that it is effective on the date the agent or attorney-in-fact signed each bond.
- C. If the surety on any bond furnished by Contractor is declared bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirements of Paragraph 5.01.B, Contractor shall promptly notify Owner and Engineer and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which shall comply with the requirements of Paragraphs 5.01.B and 5.02.

5.02 Licensed Sureties and Insurers

- A. All bonds and insurance required by the Contract Documents to be purchased and maintained by Owner or Contractor shall be obtained from surety or insurance companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue bonds or insurance policies for the limits and coverages so required. Such surety and insurance companies shall also

meet such additional requirements and qualifications as may be provided in the Supplementary Conditions.

5.03 *Certificates of Insurance*

- A. Contractor shall deliver to Owner, with copies to each additional insured and loss payee identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Owner or any other additional insured) which Contractor is required to purchase and maintain.
- B. Owner shall deliver to Contractor, with copies to each additional insured and loss payee identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Contractor or any other additional insured) which Owner is required to purchase and maintain.
- C. Failure of Owner to demand such certificates or other evidence of Contractor's full compliance with these insurance requirements or failure of Owner to identify a deficiency in compliance from the evidence provided shall not be construed as a waiver of Contractor's obligation to maintain such insurance.
- D. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor.
- E. The insurance and insurance limits required herein shall not be deemed as a limitation on Contractor's liability under the indemnities granted to Owner in the Contract Documents.

5.04 *Contractor's Insurance*

- A. Contractor shall purchase and maintain such insurance as is appropriate for the Work being performed and as will provide protection from claims set forth below which may arise out of or result from Contractor's performance of the Work and Contractor's other obligations under the Contract Documents, whether it is to be performed by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable:
 - 1. claims under workers' compensation, disability benefits, and other similar employee benefit acts;
 - 2. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees;
 - 3. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees;
 - 4. claims for damages insured by reasonably available personal injury liability coverage which are sustained:

- a. by any person as a result of an offense directly or indirectly related to the employment of such person by Contractor, or
 - b. by any other person for any other reason;
5. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom; and
 6. claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance or use of any motor vehicle.
- B. The policies of insurance required by this Paragraph 5.04 shall:
1. with respect to insurance required by Paragraphs 5.04.A.3 through 5.04.A.6 inclusive, be written on an occurrence basis, include as additional insureds (subject to any customary exclusion regarding professional liability) Owner and Engineer, and any other individuals or entities identified in the Supplementary Conditions, all of whom shall be listed as additional insureds, and include coverage for the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of all such additional insureds, and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby;
 2. include at least the specific coverages and be written for not less than the limits of liability provided in the Supplementary Conditions or required by Laws or Regulations, whichever is greater;
 3. include contractual liability insurance covering Contractor's indemnity obligations under Paragraphs 6.11 and 6.20;
 4. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other additional insured identified in the Supplementary Conditions to whom a certificate of insurance has been issued (and the certificates of insurance furnished by the Contractor pursuant to Paragraph 5.03 will so provide);
 5. remain in effect at least until final payment and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work in accordance with Paragraph 13.07; and
 6. include completed operations coverage:
 - a. Such insurance shall remain in effect for two years after final payment.
 - b. Contractor shall furnish Owner and each other additional insured identified in the Supplementary Conditions, to whom a certificate of insurance has been issued, evidence satisfactory to Owner and any such additional insured of continuation of such insurance at final payment and one year thereafter.

5.05 *Owner's Liability Insurance*

- A. In addition to the insurance required to be provided by Contractor under Paragraph 5.04, Owner, at Owner's option, may purchase and maintain at Owner's expense Owner's own liability insurance as will protect Owner against claims which may arise from operations under the Contract Documents.

5.06 *Property Insurance*

- A. Unless otherwise provided in the Supplementary Conditions, Owner shall purchase and maintain property insurance upon the Work at the Site in the amount of the full replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). This insurance shall:
1. include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as a loss payee;
 2. be written on a Builder's Risk "all-risk" policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, falsework, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire, lightning, extended coverage, theft, vandalism and malicious mischief, earthquake, collapse, debris removal, demolition occasioned by enforcement of Laws and Regulations, water damage (other than that caused by flood), and such other perils or causes of loss as may be specifically required by the Supplementary Conditions.
 3. include expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects);
 4. cover materials and equipment stored at the Site or at another location that was agreed to in writing by Owner prior to being incorporated in the Work, provided that such materials and equipment have been included in an Application for Payment recommended by Engineer;
 5. allow for partial utilization of the Work by Owner;
 6. include testing and startup; and
 7. be maintained in effect until final payment is made unless otherwise agreed to in writing by Owner, Contractor, and Engineer with 30 days written notice to each other loss payee to whom a certificate of insurance has been issued.
- B. Owner shall purchase and maintain such equipment breakdown insurance or additional property insurance as may be required by the Supplementary Conditions or Laws and Regulations which will include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors,

members, partners, employees, agents, consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as a loss payee.

- C. All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with this Paragraph 5.06 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other loss payee to whom a certificate of insurance has been issued and will contain waiver provisions in accordance with Paragraph 5.07.
- D. Owner shall not be responsible for purchasing and maintaining any property insurance specified in this Paragraph 5.06 to protect the interests of Contractor, Subcontractors, or others in the Work to the extent of any deductible amounts that are identified in the Supplementary Conditions. The risk of loss within such identified deductible amount will be borne by Contractor, Subcontractors, or others suffering any such loss, and if any of them wishes property insurance coverage within the limits of such amounts, each may purchase and maintain it at the purchaser's own expense.
- E. If Contractor requests in writing that other special insurance be included in the property insurance policies provided under this Paragraph 5.06, Owner shall, if possible, include such insurance, and the cost thereof will be charged to Contractor by appropriate Change Order. Prior to commencement of the Work at the Site, Owner shall in writing advise Contractor whether or not such other insurance has been procured by Owner.

5.07 *Waiver of Rights*

- A. Owner and Contractor intend that all policies purchased in accordance with Paragraph 5.06 will protect Owner, Contractor, Subcontractors, and Engineer, and all other individuals or entities identified in the Supplementary Conditions as loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) in such policies and will provide primary coverage for all losses and damages caused by the perils or causes of loss covered thereby. All such policies shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any of the insureds or loss payees thereunder. Owner and Contractor waive all rights against each other and their respective officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them for all losses and damages caused by, arising out of or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Subcontractors and Engineer, and all other individuals or entities identified in the Supplementary Conditions as loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) under such policies for losses and damages so caused. None of the above waivers shall extend to the rights that any party making such waiver may have to the proceeds of insurance held by Owner as trustee or otherwise payable under any policy so issued.
- B. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them for:

1. loss due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other perils whether or not insured by Owner; and
 2. loss or damage to the completed Project or part thereof caused by, arising out of, or resulting from fire or other insured peril or cause of loss covered by any property insurance maintained on the completed Project or part thereof by Owner during partial utilization pursuant to Paragraph 14.05, after Substantial Completion pursuant to Paragraph 14.04, or after final payment pursuant to Paragraph 14.07.
- C. Any insurance policy maintained by Owner covering any loss, damage or consequential loss referred to in Paragraph 5.07.B shall contain provisions to the effect that in the event of payment of any such loss, damage, or consequential loss, the insurers will have no rights of recovery against Contractor, Subcontractors, or Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them.

5.08 *Receipt and Application of Insurance Proceeds*

- A. Any insured loss under the policies of insurance required by Paragraph 5.06 will be adjusted with Owner and made payable to Owner as fiduciary for the loss payees, as their interests may appear, subject to the requirements of any applicable mortgage clause and of Paragraph 5.08.B. Owner shall deposit in a separate account any money so received and shall distribute it in accordance with such agreement as the parties in interest may reach. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the moneys so received applied on account thereof, and the Work and the cost thereof covered by an appropriate Change Order.
- B. Owner as fiduciary shall have power to adjust and settle any loss with the insurers unless one of the parties in interest shall object in writing within 15 days after the occurrence of loss to Owner's exercise of this power. If such objection be made, Owner as fiduciary shall make settlement with the insurers in accordance with such agreement as the parties in interest may reach. If no such agreement among the parties in interest is reached, Owner as fiduciary shall adjust and settle the loss with the insurers and, if required in writing by any party in interest, Owner as fiduciary shall give bond for the proper performance of such duties.

5.09 *Acceptance of Bonds and Insurance; Option to Replace*

- A. If either Owner or Contractor has any objection to the coverage afforded by or other provisions of the bonds or insurance required to be purchased and maintained by the other party in accordance with Article 5 on the basis of non-conformance with the Contract Documents, the objecting party shall so notify the other party in writing within 10 days after receipt of the certificates (or other evidence requested) required by Paragraph 2.01.B. Owner and Contractor shall each provide to the other such additional information in respect of insurance provided as the other may reasonably request. If either party does not purchase or maintain all of the bonds and insurance required of such party by the Contract Documents, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage. Without prejudice to any other right or remedy, the other party may elect to obtain equivalent bonds or insurance to protect such other party's

interests at the expense of the party who was required to provide such coverage, and a Change Order shall be issued to adjust the Contract Price accordingly.

5.10 *Partial Utilization, Acknowledgment of Property Insurer*

- A. If Owner finds it necessary to occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in Paragraph 14.05, no such use or occupancy shall commence before the insurers providing the property insurance pursuant to Paragraph 5.06 have acknowledged notice thereof and in writing effected any changes in coverage necessitated thereby. The insurers providing the property insurance shall consent by endorsement on the policy or policies, but the property insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy.

ARTICLE 6 – CONTRACTOR’S RESPONSIBILITIES

6.01 *Supervision and Superintendence*

- A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction. Contractor shall not be responsible for the negligence of Owner or Engineer in the design or specification of a specific means, method, technique, sequence, or procedure of construction which is shown or indicated in and expressly required by the Contract Documents.
- B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who shall not be replaced without written notice to Owner and Engineer except under extraordinary circumstances.

6.02 *Labor; Working Hours*

- A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall at all times maintain good discipline and order at the Site.
- B. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site shall be performed during regular working hours. Contractor will not permit the performance of Work on a Saturday, Sunday, or any legal holiday without Owner’s written consent (which will not be unreasonably withheld) given after prior written notice to Engineer.

6.03 *Services, Materials, and Equipment*

- A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start-up, and completion of the Work.

- B. All materials and equipment incorporated into the Work shall be as specified or, if not specified, shall be of good quality and new, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specifications shall expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.
- C. All materials and equipment shall be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

6.04 *Progress Schedule*

- A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.07 as it may be adjusted from time to time as provided below.
 - 1. Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.07) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times. Such adjustments will comply with any provisions of the General Requirements applicable thereto.
 - 2. Proposed adjustments in the Progress Schedule that will change the Contract Times shall be submitted in accordance with the requirements of Article 12. Adjustments in Contract Times may only be made by a Change Order.

6.05 *Substitutes and "Or-Equals"*

- A. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the specification or description is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or-equal" item or no substitution is permitted, other items of material or equipment or material or equipment of other Suppliers may be submitted to Engineer for review under the circumstances described below.
 - 1. "*Or-Equal*" Items: If in Engineer's sole discretion an item of material or equipment proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, it may be considered by Engineer as an "or-equal" item, in which case review and approval of the proposed item may, in Engineer's sole discretion, be accomplished without compliance with some or all of the requirements for approval of proposed substitute items. For the purposes of this Paragraph 6.05.A.1, a proposed item of material or equipment will be considered functionally equal to an item so named if:
 - a. in the exercise of reasonable judgment Engineer determines that:
 - 1) it is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;

- 2) it will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole; and
 - 3) it has a proven record of performance and availability of responsive service.
- b. Contractor certifies that, if approved and incorporated into the Work:
- 1) there will be no increase in cost to the Owner or increase in Contract Times; and
 - 2) it will conform substantially to the detailed requirements of the item named in the Contract Documents.

2. *Substitute Items:*

- a. If in Engineer's sole discretion an item of material or equipment proposed by Contractor does not qualify as an "or-equal" item under Paragraph 6.05.A.1, it will be considered a proposed substitute item.
- b. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is essentially equivalent to that named and an acceptable substitute therefor. Requests for review of proposed substitute items of material or equipment will not be accepted by Engineer from anyone other than Contractor.
- c. The requirements for review by Engineer will be as set forth in Paragraph 6.05.A.2.d, as supplemented by the General Requirements, and as Engineer may decide is appropriate under the circumstances.
- d. Contractor shall make written application to Engineer for review of a proposed substitute item of material or equipment that Contractor seeks to furnish or use. The application:
 - 1) shall certify that the proposed substitute item will:
 - a) perform adequately the functions and achieve the results called for by the general design,
 - b) be similar in substance to that specified, and
 - c) be suited to the same use as that specified;
 - 2) will state:
 - a) the extent, if any, to which the use of the proposed substitute item will prejudice Contractor's achievement of Substantial Completion on time,
 - b) whether use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item, and

- c) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty;
 - 3) will identify:
 - a) all variations of the proposed substitute item from that specified, and
 - b) available engineering, sales, maintenance, repair, and replacement services; and
 - 4) shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including costs of redesign and claims of other contractors affected by any resulting change.
- B. *Substitute Construction Methods or Procedures:* If a specific means, method, technique, sequence, or procedure of construction is expressly required by the Contract Documents, Contractor may furnish or utilize a substitute means, method, technique, sequence, or procedure of construction approved by Engineer. Contractor shall submit sufficient information to allow Engineer, in Engineer's sole discretion, to determine that the substitute proposed is equivalent to that expressly called for by the Contract Documents. The requirements for review by Engineer will be similar to those provided in Paragraph 6.05.A.2.
- C. *Engineer's Evaluation:* Engineer will be allowed a reasonable time within which to evaluate each proposal or submittal made pursuant to Paragraphs 6.05.A and 6.05.B. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No "or equal" or substitute will be ordered, installed or utilized until Engineer's review is complete, which will be evidenced by a Change Order in the case of a substitute and an approved Shop Drawing for an "or equal." Engineer will advise Contractor in writing of any negative determination.
- D. *Special Guarantee:* Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.
- E. *Engineer's Cost Reimbursement:* Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor pursuant to Paragraphs 6.05.A.2 and 6.05.B. Whether or not Engineer approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.
- F. *Contractor's Expense:* Contractor shall provide all data in support of any proposed substitute or "or-equal" at Contractor's expense.

6.06 *Concerning Subcontractors, Suppliers, and Others*

- A. Contractor shall not employ any Subcontractor, Supplier, or other individual or entity (including those acceptable to Owner as indicated in Paragraph 6.06.B), whether initially or as a replacement, against whom Owner may have reasonable objection. Contractor shall not be

required to employ any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against whom Contractor has reasonable objection.

- B. If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers, or other individuals or entities to be submitted to Owner in advance for acceptance by Owner by a specified date prior to the Effective Date of the Agreement, and if Contractor has submitted a list thereof in accordance with the Supplementary Conditions, Owner's acceptance (either in writing or by failing to make written objection thereto by the date indicated for acceptance or objection in the Bidding Documents or the Contract Documents) of any such Subcontractor, Supplier, or other individual or entity so identified may be revoked on the basis of reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity, and the Contract Price will be adjusted by the difference in the cost occasioned by such replacement, and an appropriate Change Order will be issued. No acceptance by Owner of any such Subcontractor, Supplier, or other individual or entity, whether initially or as a replacement, shall constitute a waiver of any right of Owner or Engineer to reject defective Work.
- C. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as Contractor is responsible for Contractor's own acts and omissions. Nothing in the Contract Documents:
1. shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between Owner or Engineer and any such Subcontractor, Supplier or other individual or entity; nor
 2. shall create any obligation on the part of Owner or Engineer to pay or to see to the payment of any moneys due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.
- D. Contractor shall be solely responsible for scheduling and coordinating the Work of Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work under a direct or indirect contract with Contractor.
- E. Contractor shall require all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work to communicate with Engineer through Contractor.
- F. The divisions and sections of the Specifications and the identifications of any Drawings shall not control Contractor in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.
- G. All Work performed for Contractor by a Subcontractor or Supplier will be pursuant to an appropriate agreement between Contractor and the Subcontractor or Supplier which specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer. Whenever any such agreement is with a Subcontractor or Supplier who is listed as a loss payee on the property insurance provided in Paragraph 5.06, the agreement between the Contractor and the Subcontractor or Supplier will contain provisions whereby the Subcontractor or Supplier waives all rights against Owner,

Contractor, Engineer, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) for all losses and damages caused by, arising out of, relating to, or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work. If the insurers on any such policies require separate waiver forms to be signed by any Subcontractor or Supplier, Contractor will obtain the same.

6.07 *Patent Fees and Royalties*

- A. Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in 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 Engineer, 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.
- B. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, and its officers, directors, members, partners, employees, agents, consultants, and subcontractors from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court or arbitration or other dispute resolution costs) arising out of or relating to 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 specified in the Contract Documents, but not identified as being subject to payment of any license fee or royalty to others required by patent rights or copyrights.
- C. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to 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.

6.08 *Permits*

- A. Unless otherwise provided in the Supplementary Conditions, Contractor shall obtain and pay for all construction permits and licenses. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of opening of Bids, or, if there are no Bids, on the Effective Date of the Agreement. Owner shall pay all charges of utility owners for connections for providing permanent service to the Work.

6.09 *Laws and Regulations*

- A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.
- B. If Contractor performs any Work knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work. However, it shall not be Contractor's responsibility to make certain that the Specifications and Drawings are in accordance with Laws and Regulations, but this shall not relieve Contractor of Contractor's obligations under Paragraph 3.03.
- C. Changes in Laws or Regulations not known at the time of opening of Bids (or, on the Effective Date of the Agreement if there were no Bids) having an effect on the cost or time of performance of the Work shall be the subject of an adjustment in Contract Price or Contract Times. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

6.10 *Taxes*

- A. Contractor shall pay all sales, consumer, use, and other similar taxes required to be paid by Contractor in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the Work.

6.11 *Use of Site and Other Areas*

A. *Limitation on Use of Site and Other Areas:*

1. Contractor shall confine construction equipment, the storage of materials and equipment, and the operations of workers to the Site and other areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and other areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof, or of any adjacent land or areas resulting from the performance of the Work.
2. Should any claim be made by any such owner or occupant because of the performance of the Work, Contractor shall promptly settle with such other party by negotiation or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law.
3. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought

by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused by or based upon Contractor's performance of the Work.

- B. *Removal of Debris During Performance of the Work:* During the progress of the Work Contractor shall keep the Site and other areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris shall conform to applicable Laws and Regulations.
- C. *Cleaning:* Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor shall remove from the Site all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.
- D. *Loading Structures:* Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent property to stresses or pressures that will endanger it.

6.12 *Record Documents*

- A. Contractor shall maintain in a safe place at the Site one record copy of all Drawings, Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, and written interpretations and clarifications in good order and annotated to show changes made during construction. These record documents together with all approved Samples and a counterpart of all approved Shop Drawings will be available to Engineer for reference. Upon completion of the Work, these record documents, Samples, and Shop Drawings will be delivered to Engineer for Owner.

6.13 *Safety and Protection*

- A. Contractor shall be solely responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:
 - 1. all persons on the Site or who may be affected by the Work;
 - 2. all the Work and materials and 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, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.
- B. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and

shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall notify owners of adjacent property and of Underground Facilities and other utility owners when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property.

- C. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. The Supplementary Conditions identify any Owner's safety programs that are applicable to the Work.
- D. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply while at the Site.
- E. All damage, injury, or loss to any property referred to in Paragraph 6.13.A.2 or 6.13.A.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).
- F. Contractor's duties and responsibilities for safety and for protection of the Work shall continue until such time as all the Work is completed and Engineer has issued a notice to Owner and Contractor in accordance with Paragraph 14.07.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

6.14 *Safety Representative*

- A. Contractor shall designate a qualified and experienced safety representative at the Site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs.

6.15 *Hazard Communication Programs*

- A. Contractor shall be responsible for coordinating any exchange of material safety data sheets or other hazard communication information required to be made available to or exchanged between or among employers at the Site in accordance with Laws or Regulations.

6.16 *Emergencies*

- A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, Contractor is obligated to act to prevent threatened damage, injury, or loss. Contractor shall give Engineer prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby or are required as a result thereof. If Engineer determines that a change in the Contract Documents is

required because of the action taken by Contractor in response to such an emergency, a Work Change Directive or Change Order will be issued.

6.17 *Shop Drawings and Samples*

A. Contractor shall submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals (as required by Paragraph 2.07). Each submittal will be identified as Engineer may require.

1. *Shop Drawings:*

- a. Submit number of copies specified in the General Requirements.
- b. Data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to provide and to enable Engineer to review the information for the limited purposes required by Paragraph 6.17.D.

2. *Samples:*

- a. Submit number of Samples specified in the Specifications.
- b. Clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the submittal for the limited purposes required by Paragraph 6.17.D.

B. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.

C. *Submittal Procedures:*

1. Before submitting each Shop Drawing or Sample, Contractor shall have:

- a. reviewed and coordinated each Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;
- b. determined and verified all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;
- c. determined and verified the suitability of all materials offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and
- d. determined and verified all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto.

2. Each submittal shall bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review and approval of that submittal.
3. With each submittal, Contractor shall give Engineer specific written notice of any variations that the Shop Drawing or Sample may have from the requirements of the Contract Documents. This notice shall be both a written communication separate from the Shop Drawings or Sample submittal; and, in addition, by a specific notation made on each Shop Drawing or Sample submitted to Engineer for review and approval of each such variation.

D. *Engineer's Review:*

1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the Schedule of Submittals acceptable to Engineer. Engineer's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.
2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction (except where a particular means, method, technique, sequence, or procedure of construction is specifically and expressly called for by the Contract Documents) or to safety precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.
3. Engineer's review and approval shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 6.17.C.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer's review and approval shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 6.17.C.1.

E. *Resubmittal Procedures:*

1. Contractor shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous submittals.

6.18 *Continuing the Work*

- A. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, except as permitted by Paragraph 15.04 or as Owner and Contractor may otherwise agree in writing.

6.19 *Contractor's General Warranty and Guarantee*

- A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer and its officers, directors, members, partners, employees, agents, consultants, and subcontractors shall be entitled to rely on representation of Contractor's warranty and guarantee.
- B. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:
 - 1. abuse, modification, or improper maintenance or operation by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or
 - 2. normal wear and tear under normal usage.
- C. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents:
 - 1. observations by Engineer;
 - 2. recommendation by Engineer or payment by Owner of any progress or final payment;
 - 3. the issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;
 - 4. use or occupancy of the Work or any part thereof by Owner;
 - 5. any review and approval of a Shop Drawing or Sample submittal or the issuance of a notice of acceptability by Engineer;
 - 6. any inspection, test, or approval by others; or
 - 7. any correction of defective Work by Owner.

6.20 *Indemnification*

- A. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the performance of the Work, provided that any such claim, cost, loss, or damage is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work or anyone for whose acts any of them may be liable .

- B. In any and all claims against Owner or Engineer or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 6.20.A shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.
- C. The indemnification obligations of Contractor under Paragraph 6.20.A shall not extend to the liability of Engineer and Engineer's officers, directors, members, partners, employees, agents, consultants and subcontractors arising out of:
 - 1. the preparation or approval of, or the failure to prepare or approve maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or
 - 2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

6.21 *Delegation of Professional Design Services*

- A. Contractor will not be required to provide professional design services unless such services are specifically required by the Contract Documents for a portion of the Work or unless such services are required to carry out Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. Contractor shall not be required to provide professional services in violation of applicable law.
- B. If professional design services or certifications by a design professional related to systems, materials or equipment are specifically required of Contractor by the Contract Documents, Owner and Engineer will specify all performance and design criteria that such services must satisfy. Contractor shall cause such services or certifications to be provided by a properly licensed professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to Engineer.
- C. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy and completeness of the services, certifications or approvals performed by such design professionals, provided Owner and Engineer have specified to Contractor all performance and design criteria that such services must satisfy.
- D. Pursuant to this Paragraph 6.21, Engineer's review and approval of design calculations and design drawings will be only for the limited purpose of checking for conformance with performance and design criteria given and the design concept expressed in the Contract Documents. Engineer's review and approval of Shop Drawings and other submittals (except design calculations and design drawings) will be only for the purpose stated in Paragraph 6.17.D.1.

- E. Contractor shall not be responsible for the adequacy of the performance or design criteria required by the Contract Documents.

ARTICLE 7 – OTHER WORK AT THE SITE

7.01 Related Work at Site

- A. Owner may perform other work related to the Project at the Site with Owner’s employees, or through other direct contracts therefor, or have other work performed by utility owners. If such other work is not noted in the Contract Documents, then:
 - 1. written notice thereof will be given to Contractor prior to starting any such other work; and
 - 2. if Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times that should be allowed as a result of such other work, a Claim may be made therefor as provided in Paragraph 10.05.
- B. Contractor shall afford each other contractor who is a party to such a direct contract, each utility owner, and Owner, if Owner is performing other work with Owner’s employees, proper and safe access to the Site, provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work, and properly coordinate the Work with theirs. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering such work; provided, however, that Contractor may cut or alter others' work with the written consent of Engineer and the others whose work will be affected. The duties and responsibilities of Contractor under this Paragraph are for the benefit of such utility owners and other contractors to the extent that there are comparable provisions for the benefit of Contractor in said direct contracts between Owner and such utility owners and other contractors.
- C. If the proper execution or results of any part of Contractor’s Work depends upon work performed by others under this Article 7, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor’s Work. Contractor’s failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor’s Work except for latent defects and deficiencies in such other work.

7.02 Coordination

- A. If Owner intends to contract with others for the performance of other work on the Project at the Site, the following will be set forth in Supplementary Conditions:
 - 1. the individual or entity who will have authority and responsibility for coordination of the activities among the various contractors will be identified;
 - 2. the specific matters to be covered by such authority and responsibility will be itemized; and
 - 3. the extent of such authority and responsibilities will be provided.

- B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

7.03 *Legal Relationships*

- A. Paragraphs 7.01.A and 7.02 are not applicable for utilities not under the control of Owner.
- B. Each other direct contract of Owner under Paragraph 7.01.A shall provide that the other contractor is liable to Owner and Contractor for the reasonable direct delay and disruption costs incurred by Contractor as a result of the other contractor's wrongful actions or inactions.
- C. Contractor shall be liable to Owner and any other contractor under direct contract to Owner for the reasonable direct delay and disruption costs incurred by such other contractor as a result of Contractor's wrongful action or inactions.

ARTICLE 8 – OWNER'S RESPONSIBILITIES

8.01 *Communications to Contractor*

- A. Except as otherwise provided in these General Conditions, Owner shall issue all communications to Contractor through Engineer.

8.02 *Replacement of Engineer*

- A. In case of termination of the employment of Engineer, Owner shall appoint an engineer to whom Contractor makes no reasonable objection, whose status under the Contract Documents shall be that of the former Engineer.

8.03 *Furnish Data*

- A. Owner shall promptly furnish the data required of Owner under the Contract Documents.

8.04 *Pay When Due*

- A. Owner shall make payments to Contractor when they are due as provided in Paragraphs 14.02.C and 14.07.C.

8.05 *Lands and Easements; Reports and Tests*

- A. Owner's duties with respect to providing lands and easements and providing engineering surveys to establish reference points are set forth in Paragraphs 4.01 and 4.05. Paragraph 4.02 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of subsurface conditions and drawings of physical conditions relating to existing surface or subsurface structures at the Site.

8.06 *Insurance*

- A. Owner's responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 5.

8.07 *Change Orders*

A. Owner is obligated to execute Change Orders as indicated in Paragraph 10.03.

8.08 *Inspections, Tests, and Approvals*

A. Owner's responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 13.03.B.

8.09 *Limitations on Owner's Responsibilities*

A. The Owner shall not supervise, direct, or have control or authority over, nor be responsible for, Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Owner will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

8.10 *Undisclosed Hazardous Environmental Condition*

A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 4.06.

8.11 *Evidence of Financial Arrangements*

A. Upon request of Contractor, Owner shall furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract Documents.

8.12 *Compliance with Safety Program*

A. While at the Site, Owner's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Owner has been informed pursuant to Paragraph 6.13.D.

ARTICLE 9 – ENGINEER'S STATUS DURING CONSTRUCTION

9.01 *Owner's Representative*

A. Engineer will be Owner's representative during the construction period. The duties and responsibilities and the limitations of authority of Engineer as Owner's representative during construction are set forth in the Contract Documents.

9.02 *Visits to Site*

A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or

continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.

- B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 9.09. Particularly, but without limitation, during or as a result of Engineer's visits or observations of Contractor's Work, Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

9.03 *Project Representative*

- A. If Owner and Engineer agree, Engineer will furnish a Resident Project Representative to assist Engineer in providing more extensive observation of the Work. The authority and responsibilities of any such Resident Project Representative and assistants will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in Paragraph 9.09. If Owner designates another representative or agent to represent Owner at the Site who is not Engineer's consultant, agent or employee, the responsibilities and authority and limitations thereon of such other individual or entity will be as provided in the Supplementary Conditions.

9.04 *Authorized Variations in Work*

- A. Engineer may authorize minor variations in the Work from the requirements of the Contract Documents which do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. These may be accomplished by a Field Order and will be binding on Owner and also on Contractor, who shall perform the Work involved promptly. If Owner or Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, or both, and the parties are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

9.05 *Rejecting Defective Work*

- A. Engineer will have authority to reject Work which Engineer believes to be defective, or that Engineer believes will not produce a completed Project that conforms to the Contract Documents or that will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Engineer will also have authority to require special inspection or testing of the Work as provided in Paragraph 13.04, whether or not the Work is fabricated, installed, or completed.

9.06 *Shop Drawings, Change Orders and Payments*

- A. In connection with Engineer's authority, and limitations thereof, as to Shop Drawings and Samples, see Paragraph 6.17.
- B. In connection with Engineer's authority, and limitations thereof, as to design calculations and design drawings submitted in response to a delegation of professional design services, if any, see Paragraph 6.21.
- C. In connection with Engineer's authority as to Change Orders, see Articles 10, 11, and 12.
- D. In connection with Engineer's authority as to Applications for Payment, see Article 14.

9.07 *Determinations for Unit Price Work*

- A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer's written decision thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, subject to the provisions of Paragraph 10.05.

9.08 *Decisions on Requirements of Contract Documents and Acceptability of Work*

- A. Engineer will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the Work thereunder. All matters in question and other matters between Owner and Contractor arising prior to the date final payment is due relating to the acceptability of the Work, and the interpretation of the requirements of the Contract Documents pertaining to the performance of the Work, will be referred initially to Engineer in writing within 30 days of the event giving rise to the question.
- B. Engineer will, with reasonable promptness, render a written decision on the issue referred. If Owner or Contractor believes that any such decision entitles them to an adjustment in the Contract Price or Contract Times or both, a Claim may be made under Paragraph 10.05. The date of Engineer's decision shall be the date of the event giving rise to the issues referenced for the purposes of Paragraph 10.05.B.
- C. Engineer's written decision on the issue referred will be final and binding on Owner and Contractor, subject to the provisions of Paragraph 10.05.
- D. When functioning as interpreter and judge under this Paragraph 9.08, Engineer will not show partiality to Owner or Contractor and will not be liable in connection with any interpretation or decision rendered in good faith in such capacity.

9.09 *Limitations on Engineer's Authority and Responsibilities*

- A. Neither Engineer's authority or responsibility under this Article 9 or under any other provision of the Contract Documents nor any decision made by Engineer in good faith either to exercise or not

exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.

- B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.
- C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.
- D. Engineer's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Paragraph 14.07.A will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals that the results certified indicate compliance with, the Contract Documents.
- E. The limitations upon authority and responsibility set forth in this Paragraph 9.09 shall also apply to the Resident Project Representative, if any, and assistants, if any.

9.10 *Compliance with Safety Program*

- A. While at the Site, Engineer's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Engineer has been informed pursuant to Paragraph 6.13.D.

ARTICLE 10 – CHANGES IN THE WORK; CLAIMS

10.01 *Authorized Changes in the Work*

- A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work by a Change Order, or a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved which will be performed under the applicable conditions of the Contract Documents (except as otherwise specifically provided).
- B. If Owner and Contractor are unable to agree on entitlement to, or on the amount or extent, if any, of an adjustment in the Contract Price or Contract Times, or both, that should be allowed as a result of a Work Change Directive, a Claim may be made therefor as provided in Paragraph 10.05.

10.02 *Unauthorized Changes in the Work*

- A. Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents as amended, modified, or supplemented as provided in Paragraph 3.04, except in the case of an emergency as provided in Paragraph 6.16 or in the case of uncovering Work as provided in Paragraph 13.04.D.

10.03 *Execution of Change Orders*

- A. Owner and Contractor shall execute appropriate Change Orders recommended by Engineer covering:
 - 1. changes in the Work which are: (i) ordered by Owner pursuant to Paragraph 10.01.A, (ii) required because of acceptance of defective Work under Paragraph 13.08.A or Owner's correction of defective Work under Paragraph 13.09, or (iii) agreed to by the parties;
 - 2. changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive; and
 - 3. changes in the Contract Price or Contract Times which embody the substance of any written decision rendered by Engineer pursuant to Paragraph 10.05; provided that, in lieu of executing any such Change Order, an appeal may be taken from any such decision in accordance with the provisions of the Contract Documents and applicable Laws and Regulations, but during any such appeal, Contractor shall carry on the Work and adhere to the Progress Schedule as provided in Paragraph 6.18.A.

10.04 *Notification to Surety*

- A. If the provisions of any bond require notice to be given to a surety of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times), the giving of any such notice will be Contractor's responsibility. The amount of each applicable bond will be adjusted to reflect the effect of any such change.

10.05 *Claims*

- A. *Engineer's Decision Required:* All Claims, except those waived pursuant to Paragraph 14.09, shall be referred to the Engineer for decision. A decision by Engineer shall be required as a condition precedent to any exercise by Owner or Contractor of any rights or remedies either may otherwise have under the Contract Documents or by Laws and Regulations in respect of such Claims.
- B. *Notice:* Written notice stating the general nature of each Claim shall be delivered by the claimant to Engineer and the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto. The responsibility to substantiate a Claim shall rest with the party making the Claim. Notice of the amount or extent of the Claim, with supporting data

shall be delivered to the Engineer and the other party to the Contract within 60 days after the start of such event (unless Engineer allows additional time for claimant to submit additional or more accurate data in support of such Claim). A Claim for an adjustment in Contract Price shall be prepared in accordance with the provisions of Paragraph 12.01.B. A Claim for an adjustment in Contract Times shall be prepared in accordance with the provisions of Paragraph 12.02.B. Each Claim shall be accompanied by claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant believes it is entitled as a result of said event. The opposing party shall submit any response to Engineer and the claimant within 30 days after receipt of the claimant's last submittal (unless Engineer allows additional time).

- C. *Engineer's Action:* Engineer will review each Claim and, within 30 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any, take one of the following actions in writing:
1. deny the Claim in whole or in part;
 2. approve the Claim; or
 3. notify the parties that the Engineer is unable to resolve the Claim if, in the Engineer's sole discretion, it would be inappropriate for the Engineer to do so. For purposes of further resolution of the Claim, such notice shall be deemed a denial.
- D. In the event that Engineer does not take action on a Claim within said 30 days, the Claim shall be deemed denied.
- E. Engineer's written action under Paragraph 10.05.C or denial pursuant to Paragraphs 10.05.C.3 or 10.05.D will be final and binding upon Owner and Contractor, unless Owner or Contractor invoke the dispute resolution procedure set forth in Article 16 within 30 days of such action or denial.
- F. No Claim for an adjustment in Contract Price or Contract Times will be valid if not submitted in accordance with this Paragraph 10.05.

ARTICLE 11 – COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

11.01 *Cost of the Work*

- A. *Costs Included:* The term Cost of the Work means the sum of all costs, except those excluded in Paragraph 11.01.B, necessarily incurred and paid by Contractor in the proper performance of the Work. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, the costs to be reimbursed to Contractor will be only those additional or incremental costs required because of the change in the Work or because of the event giving rise to the Claim. Except as otherwise may be agreed to in writing by Owner, such costs shall be in amounts no higher than those prevailing in the locality of the Project, shall not include any of the costs itemized in Paragraph 11.01.B, and shall include only the following items:

1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor. Such employees shall include, without limitation, superintendents, foremen, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits, which shall include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by Owner.
2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts shall accrue to Owner. All trade discounts, rebates and refunds and returns from sale of surplus materials and equipment shall accrue to Owner, and Contractor shall make provisions so that they may be obtained.
3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, who will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 11.01.
4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed for services specifically related to the Work.
5. Supplemental costs including the following:
 - a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.
 - b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.
 - c. Rentals of all construction equipment and machinery, and the parts thereof whether rented from Contractor or others in accordance with rental agreements approved by Owner with the advice of Engineer, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of

said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.

- d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, as imposed by Laws and Regulations.
- e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.
- f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of property insurance established in accordance with Paragraph 5.06.D), provided such losses and damages have resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses shall be included in the Cost of the Work for the purpose of determining Contractor's fee.
- g. The cost of utilities, fuel, and sanitary facilities at the Site.
- h. Minor expenses such as telegrams, long distance telephone calls, telephone service at the Site, express and courier services, and similar petty cash items in connection with the Work.
- i. The costs of premiums for all bonds and insurance Contractor is required by the Contract Documents to purchase and maintain.

B. *Costs Excluded:* The term Cost of the Work shall not include any of the following items:

1. Payroll costs and other compensation of Contractor's officers, executives, principals (of partnerships and sole proprietorships), general managers, safety managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 11.01.A.1 or specifically covered by Paragraph 11.01.A.4, all of which are to be considered administrative costs covered by the Contractor's fee.
2. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.
3. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.
4. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not

limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.

5. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraphs 11.01.A.
- C. *Contractor's Fee:* When all the Work is performed on the basis of cost-plus, Contractor's fee shall be determined as set forth in the Agreement. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, Contractor's fee shall be determined as set forth in Paragraph 12.01.C.
- D. *Documentation:* Whenever the Cost of the Work for any purpose is to be determined pursuant to Paragraphs 11.01.A and 11.01.B, Contractor will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to Engineer an itemized cost breakdown together with supporting data.

11.02 *Allowances*

- A. It is understood that Contractor has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums and by such persons or entities as may be acceptable to Owner and Engineer.
- B. *Cash Allowances:*
 1. Contractor agrees that:
 - a. the cash allowances include the cost to Contractor (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and
 - b. Contractor's costs for unloading and handling on the Site, labor, installation, overhead, profit, and other expenses contemplated for the cash allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment on account of any of the foregoing will be valid.
- C. *Contingency Allowance:*
 1. Contractor agrees that a contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.
- D. Prior to final payment, an appropriate Change Order will be issued as recommended by Engineer to reflect actual amounts due Contractor on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

11.03 *Unit Price Work*

- A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to

the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.

- B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Determinations of the actual quantities and classifications of Unit Price Work performed by Contractor will be made by Engineer subject to the provisions of Paragraph 9.07.
- C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.
- D. Owner or Contractor may make a Claim for an adjustment in the Contract Price in accordance with Paragraph 10.05 if:
 - 1. the quantity of any item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement; and
 - 2. there is no corresponding adjustment with respect to any other item of Work; and
 - 3. Contractor believes that Contractor is entitled to an increase in Contract Price as a result of having incurred additional expense or Owner believes that Owner is entitled to a decrease in Contract Price and the parties are unable to agree as to the amount of any such increase or decrease.

ARTICLE 12 – CHANGE OF CONTRACT PRICE; CHANGE OF CONTRACT TIMES

12.01 Change of Contract Price

- A. The Contract Price may only be changed by a Change Order. Any Claim for an adjustment in the Contract Price shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.
- B. The value of any Work covered by a Change Order or of any Claim for an adjustment in the Contract Price will be determined as follows:
 - 1. where the Work involved is covered by unit prices contained in the Contract Documents, by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 11.03); or
 - 2. where the Work involved is not covered by unit prices contained in the Contract Documents, by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 12.01.C.2); or
 - 3. where the Work involved is not covered by unit prices contained in the Contract Documents and agreement to a lump sum is not reached under Paragraph 12.01.B.2, on the basis of the Cost of the Work (determined as provided in Paragraph 11.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 12.01.C).

C. *Contractor's Fee*: The Contractor's fee for overhead and profit shall be determined as follows:

1. a mutually acceptable fixed fee; or
2. if a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:
 - a. for costs incurred under Paragraphs 11.01.A.1 and 11.01.A.2, the Contractor's fee shall be 15 percent;
 - b. for costs incurred under Paragraph 11.01.A.3, the Contractor's fee shall be five percent;
 - c. where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraphs 12.01.C.2.a and 12.01.C.2.b is that the Subcontractor who actually performs the Work, at whatever tier, will be paid a fee of 15 percent of the costs incurred by such Subcontractor under Paragraphs 11.01.A.1 and 11.01.A.2 and that any higher tier Subcontractor and Contractor will each be paid a fee of five percent of the amount paid to the next lower tier Subcontractor;
 - d. no fee shall be payable on the basis of costs itemized under Paragraphs 11.01.A.4, 11.01.A.5, and 11.01.B;
 - e. the amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in cost will be the amount of the actual net decrease in cost plus a deduction in Contractor's fee by an amount equal to five percent of such net decrease; and
 - f. when both additions and credits are involved in any one change, the adjustment in Contractor's fee shall be computed on the basis of the net change in accordance with Paragraphs 12.01.C.2.a through 12.01.C.2.e, inclusive.

12.02 *Change of Contract Times*

- A. The Contract Times may only be changed by a Change Order. Any Claim for an adjustment in the Contract Times shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.
- B. Any adjustment of the Contract Times covered by a Change Order or any Claim for an adjustment in the Contract Times will be determined in accordance with the provisions of this Article 12.

12.03 *Delays*

- A. Where Contractor is prevented from completing any part of the Work within the Contract Times due to delay beyond the control of Contractor, the Contract Times will be extended in an amount equal to the time lost due to such delay if a Claim is made therefor as provided in Paragraph 12.02.A. Delays beyond the control of Contractor shall include, but not be limited to, acts or

neglect by Owner, acts or neglect of utility owners or other contractors performing other work as contemplated by Article 7, fires, floods, epidemics, abnormal weather conditions, or acts of God.

- B. If Owner, Engineer, or other contractors or utility owners performing other work for Owner as contemplated by Article 7, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times, or both. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.
- C. If Contractor is delayed in the performance or progress of the Work by fire, flood, epidemic, abnormal weather conditions, acts of God, acts or failures to act of utility owners not under the control of Owner, or other causes not the fault of and beyond control of Owner and Contractor, then Contractor shall be entitled to an equitable adjustment in Contract Times, if such adjustment is essential to Contractor's ability to complete the Work within the Contract Times. Such an adjustment shall be Contractor's sole and exclusive remedy for the delays described in this Paragraph 12.03.C.
- D. Owner, Engineer, and their officers, directors, members, partners, employees, agents, consultants, or subcontractors shall not be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.
- E. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delays within the control of Contractor. Delays attributable to and within the control of a Subcontractor or Supplier shall be deemed to be delays within the control of Contractor.

ARTICLE 13 – TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

13.01 Notice of Defects

- A. Prompt notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor. Defective Work may be rejected, corrected, or accepted as provided in this Article 13.

13.02 Access to Work

- A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and governmental agencies with jurisdictional interests will have access to the Site and the Work at reasonable times for their observation, inspection, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's safety procedures and programs so that they may comply therewith as applicable.

13.03 *Tests and Inspections*

- A. Contractor shall give Engineer timely notice of readiness of the Work for all required inspections, tests, or approvals and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.
- B. Owner shall employ and pay for the services of an independent testing laboratory to perform all inspections, tests, or approvals required by the Contract Documents except:
 - 1. for inspections, tests, or approvals covered by Paragraphs 13.03.C and 13.03.D below;
 - 2. that costs incurred in connection with tests or inspections conducted pursuant to Paragraph 13.04.B shall be paid as provided in Paragraph 13.04.C; and
 - 3. as otherwise specifically provided in the Contract Documents.
- C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.
- D. Contractor shall be responsible for arranging and obtaining and shall pay all costs in connection with any inspections, tests, or approvals required for Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work; or acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work. Such inspections, tests, or approvals shall be performed by organizations acceptable to Owner and Engineer.
- E. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, Contractor shall, if requested by Engineer, uncover such Work for observation.
- F. Uncovering Work as provided in Paragraph 13.03.E shall be at Contractor's expense unless Contractor has given Engineer timely notice of Contractor's intention to cover the same and Engineer has not acted with reasonable promptness in response to such notice.

13.04 *Uncovering Work*

- A. If any Work is covered contrary to the written request of Engineer, it must, if requested by Engineer, be uncovered for Engineer's observation and replaced at Contractor's expense.
- B. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, furnishing all necessary labor, material, and equipment.

- C. If it is found that the uncovered Work is defective, Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05.
- D. If the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.

13.05 *Owner May Stop the Work*

- A. If the Work is defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, Owner may order Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of Owner to stop the Work shall not give rise to any duty on the part of Owner to exercise this right for the benefit of Contractor, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

13.06 *Correction or Removal of Defective Work*

- A. Promptly after receipt of written notice, Contractor shall correct all defective Work, whether or not fabricated, installed, or completed, or, if the Work has been rejected by Engineer, remove it from the Project and replace it with Work that is not defective. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or removal (including but not limited to all costs of repair or replacement of work of others).
- B. When correcting defective Work under the terms of this Paragraph 13.06 or Paragraph 13.07, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.

13.07 *Correction Period*

- A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the terms of any applicable special guarantee required by the Contract Documents) or by any specific provision of the Contract Documents, any Work is found to be defective, or if the repair of any damages to the land or areas made available for Contractor's use by Owner or permitted by Laws and Regulations as contemplated in Paragraph 6.11.A is found to be defective, Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:

1. repair such defective land or areas; or
 2. correct such defective Work; or
 3. if the defective Work has been rejected by Owner, remove it from the Project and replace it with Work that is not defective, and
 4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others or other land or areas resulting therefrom.
- B. If Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others) will be paid by Contractor.
- C. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications.
- D. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this Paragraph 13.07, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.
- E. Contractor's obligations under this Paragraph 13.07 are in addition to any other obligation or warranty. The provisions of this Paragraph 13.07 shall not be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

13.08 *Acceptance of Defective Work*

- A. If, instead of requiring correction or removal and replacement of defective Work, Owner (and, prior to Engineer's recommendation of final payment, Engineer) prefers to accept it, Owner may do so. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Engineer as to reasonableness) and for the diminished value of the Work to the extent not otherwise paid by Contractor pursuant to this sentence. If any such acceptance occurs prior to Engineer's recommendation of final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work, and Owner shall be entitled to an appropriate decrease in the Contract Price, reflecting the diminished value of Work so accepted. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05. If the acceptance occurs after such recommendation, an appropriate amount will be paid by Contractor to Owner.

13.09 *Owner May Correct Defective Work*

- A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work, or to remove and replace rejected Work as required by Engineer in accordance with Paragraph 13.06.A, or if Contractor fails to perform the Work in accordance with the Contract Documents, or if Contractor fails to comply with any other provision of the Contract Documents, Owner may, after seven days written notice to Contractor, correct, or remedy any such deficiency.
- B. In exercising the rights and remedies under this Paragraph 13.09, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, take possession of Contractor's tools, appliances, construction equipment and machinery at the Site, and incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this Paragraph.
- C. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 13.09 will be charged against Contractor, and a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount of the adjustment, Owner may make a Claim therefor as provided in Paragraph 10.05. Such claims, costs, losses and damages will include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.
- D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 13.09.

ARTICLE 14 – PAYMENTS TO CONTRACTOR AND COMPLETION

14.01 *Schedule of Values*

- A. The Schedule of Values established as provided in Paragraph 2.07.A will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments on account of Unit Price Work will be based on the number of units completed.

14.02 *Progress Payments*

A. *Applications for Payments:*

- 1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an

Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that Owner has received the materials and equipment free and clear of all Liens and evidence that the materials and equipment are covered by appropriate property insurance or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.

2. Beginning with the second Application for Payment, each Application shall include an affidavit of Contractor stating that all previous progress payments received on account of the Work have been applied on account to discharge Contractor's legitimate obligations associated with prior Applications for Payment.
3. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

B. Review of Applications:

1. Engineer will, within 10 days after receipt of each Application for Payment, either indicate in writing a recommendation of payment and present the Application to Owner or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.
2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations of the executed Work as an experienced and qualified design professional, and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:
 - a. the Work has progressed to the point indicated;
 - b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, the results of any subsequent tests called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 9.07, and any other qualifications stated in the recommendation); and
 - c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.
3. By recommending any such payment Engineer will not thereby be deemed to have represented that:
 - a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or

involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract Documents; or

- b. there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.
4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:
 - a. to supervise, direct, or control the Work, or
 - b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or
 - c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work, or
 - d. to make any examination to ascertain how or for what purposes Contractor has used the moneys paid on account of the Contract Price, or
 - e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.
 5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 14.02.B.2. Engineer may also refuse to recommend any such payment or, because of subsequently discovered evidence or the results of subsequent inspections or tests, revise or revoke any such payment recommendation previously made, to such extent as may be necessary in Engineer's opinion to protect Owner from loss because:
 - a. the Work is defective, or completed Work has been damaged, requiring correction or replacement;
 - b. the Contract Price has been reduced by Change Orders;
 - c. Owner has been required to correct defective Work or complete Work in accordance with Paragraph 13.09; or
 - d. Engineer has actual knowledge of the occurrence of any of the events enumerated in Paragraph 15.02.A.

C. Payment Becomes Due:

1. Ten days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended will (subject to the provisions of Paragraph 14.02.D) become due, and when due will be paid by Owner to Contractor.

D. *Reduction in Payment:*

1. Owner may refuse to make payment of the full amount recommended by Engineer because:
 - a. claims have been made against Owner on account of Contractor's performance or furnishing of the Work;
 - b. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens;
 - c. there are other items entitling Owner to a set-off against the amount recommended; or
 - d. Owner has actual knowledge of the occurrence of any of the events enumerated in Paragraphs 14.02.B.5.a through 14.02.B.5.c or Paragraph 15.02.A.
2. If Owner refuses to make payment of the full amount recommended by Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and promptly pay Contractor any amount remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, when Contractor remedies the reasons for such action.
3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by Paragraph 14.02.C.1 and subject to interest as provided in the Agreement.

14.03 *Contractor's Warranty of Title*

- A. Contractor warrants and guarantees that title to all Work, materials, and equipment covered by any Application for Payment, whether incorporated in the Project or not, will pass to Owner no later than the time of payment free and clear of all Liens.

14.04 *Substantial Completion*

- A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete (except for items specifically listed by Contractor as incomplete) and request that Engineer issue a certificate of Substantial Completion.
- B. Promptly after Contractor's notification, Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.
- C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a tentative certificate of Substantial Completion which shall fix the date of Substantial Completion. There shall be attached to the certificate a tentative list of items to be completed or corrected before

final payment. Owner shall have seven days after receipt of the tentative certificate during which to make written objection to Engineer as to any provisions of the certificate or attached list. If, after considering such objections, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the tentative certificate to Owner, notify Contractor in writing, stating the reasons therefor. If, after consideration of Owner's objections, Engineer considers the Work substantially complete, Engineer will, within said 14 days, execute and deliver to Owner and Contractor a definitive certificate of Substantial Completion (with a revised tentative list of items to be completed or corrected) reflecting such changes from the tentative certificate as Engineer believes justified after consideration of any objections from Owner.

- D. At the time of delivery of the tentative certificate of Substantial Completion, Engineer will deliver to Owner and Contractor a written recommendation as to division of responsibilities pending final payment between Owner and Contractor with respect to security, operation, safety, and protection of the Work, maintenance, heat, utilities, insurance, and warranties and guarantees. Unless Owner and Contractor agree otherwise in writing and so inform Engineer in writing prior to Engineer's issuing the definitive certificate of Substantial Completion, Engineer's aforesaid recommendation will be binding on Owner and Contractor until final payment.
- E. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to remove its property and complete or correct items on the tentative list.

14.05 *Partial Utilization*

- A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions:
 - 1. Owner at any time may request Contractor in writing to permit Owner to use or occupy any such part of the Work which Owner believes to be ready for its intended use and substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor, Owner, and Engineer will follow the procedures of Paragraph 14.04.A through D for that part of the Work.
 - 2. Contractor at any time may notify Owner and Engineer in writing that Contractor considers any such part of the Work ready for its intended use and substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.
 - 3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 14.04 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.

4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 5.10 regarding property insurance.

14.06 *Final Inspection*

- A. Upon written notice from Contractor that the entire Work or an agreed portion thereof is complete, Engineer will promptly make a final inspection with Owner and Contractor and will notify Contractor in writing of all particulars in which this inspection reveals that the Work is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

14.07 *Final Payment*

A. *Application for Payment:*

1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance, certificates of inspection, marked-up record documents (as provided in Paragraph 6.12), and other documents, Contractor may make application for final payment following the procedure for progress payments.
2. The final Application for Payment shall be accompanied (except as previously delivered) by:
 - a. all documentation called for in the Contract Documents, including but not limited to the evidence of insurance required by Paragraph 5.04.B.6;
 - b. consent of the surety, if any, to final payment;
 - c. a list of all Claims against Owner that Contractor believes are unsettled; and
 - d. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of or Liens filed in connection with the Work.
3. In lieu of the releases or waivers of Liens specified in Paragraph 14.07.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (i) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (ii) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner might in any way be responsible, or which might in any way result in liens or other burdens on Owner's property, have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien.

B. *Engineer's Review of Application and Acceptance:*

1. If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying

documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract Documents have been fulfilled, Engineer will, within ten days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of payment and present the Application for Payment to Owner for payment. At the same time Engineer will also give written notice to Owner and Contractor that the Work is acceptable subject to the provisions of Paragraph 14.09. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.

C. *Payment Becomes Due:*

1. Thirty days after the presentation to Owner of the Application for Payment and accompanying documentation, the amount recommended by Engineer, less any sum Owner is entitled to set off against Engineer's recommendation, including but not limited to liquidated damages, will become due and will be paid by Owner to Contractor.

14.08 *Final Completion Delayed*

- A. If, through no fault of Contractor, final completion of the Work is significantly delayed, and if Engineer so confirms, Owner shall, upon receipt of Contractor's final Application for Payment (for Work fully completed and accepted) and recommendation of Engineer, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance to be held by Owner for Work not fully completed or corrected is less than the retainage stipulated in the Agreement, and if bonds have been furnished as required in Paragraph 5.01, the written consent of the surety to the payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by Contractor to Engineer with the Application for such payment. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

14.09 *Waiver of Claims*

- A. The making and acceptance of final payment will constitute:
 1. a waiver of all Claims by Owner against Contractor, except Claims arising from unsettled Liens, from defective Work appearing after final inspection pursuant to Paragraph 14.06, from failure to comply with the Contract Documents or the terms of any special guarantees specified therein, or from Contractor's continuing obligations under the Contract Documents; and
 2. a waiver of all Claims by Contractor against Owner other than those previously made in accordance with the requirements herein and expressly acknowledged by Owner in writing as still unsettled.

ARTICLE 15 – SUSPENSION OF WORK AND TERMINATION

15.01 *Owner May Suspend Work*

- A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by notice in writing to Contractor and Engineer which will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be granted an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension if Contractor makes a Claim therefor as provided in Paragraph 10.05.

15.02 *Owner May Terminate for Cause*

- A. The occurrence of any one or more of the following events will justify termination for cause:
1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the Progress Schedule established under Paragraph 2.07 as adjusted from time to time pursuant to Paragraph 6.04);
 2. Contractor's disregard of Laws or Regulations of any public body having jurisdiction;
 3. Contractor's repeated disregard of the authority of Engineer; or
 4. Contractor's violation in any substantial way of any provisions of the Contract Documents.
- B. If one or more of the events identified in Paragraph 15.02.A occur, Owner may, after giving Contractor (and surety) seven days written notice of its intent to terminate the services of Contractor:
1. exclude Contractor from the Site, and take possession of the Work and of all Contractor's tools, appliances, construction equipment, and machinery at the Site, and use the same to the full extent they could be used by Contractor (without liability to Contractor for trespass or conversion);
 2. incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere; and
 3. complete the Work as Owner may deem expedient.
- C. If Owner proceeds as provided in Paragraph 15.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Owner arising out of or relating to completing the Work, such excess will be paid to Contractor. If such claims, costs, losses, and damages exceed such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when

so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this Paragraph, Owner shall not be required to obtain the lowest price for the Work performed.

- D. Notwithstanding Paragraphs 15.02.B and 15.02.C, Contractor's services will not be terminated if Contractor begins within seven days of receipt of notice of intent to terminate to correct its failure to perform and proceeds diligently to cure such failure within no more than 30 days of receipt of said notice.
- E. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue. Any retention or payment of moneys due Contractor by Owner will not release Contractor from liability.
- F. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 5.01.A, the termination procedures of that bond shall supersede the provisions of Paragraphs 15.02.B and 15.02.C.

15.03 *Owner May Terminate For Convenience*

- A. Upon seven days written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):
 - 1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;
 - 2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses;
 - 3. all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred in settlement of terminated contracts with Subcontractors, Suppliers, and others; and
 - 4. reasonable expenses directly attributable to termination.
- B. Contractor shall not be paid on account of loss of anticipated profits or revenue or other economic loss arising out of or resulting from such termination.

15.04 *Contractor May Stop Work or Terminate*

- A. If, through no act or fault of Contractor, (i) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (ii) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (iii) Owner fails for 30 days

to pay Contractor any sum finally determined to be due, then Contractor may, upon seven days written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the Contract and recover from Owner payment on the same terms as provided in Paragraph 15.03.

- B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, seven days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The provisions of this Paragraph 15.04 are not intended to preclude Contractor from making a Claim under Paragraph 10.05 for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to Contractor's stopping the Work as permitted by this Paragraph.

ARTICLE 16 – DISPUTE RESOLUTION

16.01 Methods and Procedures

- A. Either Owner or Contractor may request mediation of any Claim submitted to Engineer for a decision under Paragraph 10.05 before such decision becomes final and binding. The mediation will be governed by the Construction Industry Mediation Rules of the American Arbitration Association in effect as of the Effective Date of the Agreement. The request for mediation shall be submitted in writing to the American Arbitration Association and the other party to the Contract. Timely submission of the request shall stay the effect of Paragraph 10.05.E.
- B. Owner and Contractor shall participate in the mediation process in good faith. The process shall be concluded within 60 days of filing of the request. The date of termination of the mediation shall be determined by application of the mediation rules referenced above.
- C. If the Claim is not resolved by mediation, Engineer's action under Paragraph 10.05.C or a denial pursuant to Paragraphs 10.05.C.3 or 10.05.D shall become final and binding 30 days after termination of the mediation unless, within that time period, Owner or Contractor:
1. elects in writing to invoke any dispute resolution process provided for in the Supplementary Conditions; or
 2. agrees with the other party to submit the Claim to another dispute resolution process; or
 3. gives written notice to the other party of the intent to submit the Claim to a court of competent jurisdiction.

ARTICLE 17 – MISCELLANEOUS

17.01 Giving Notice

- A. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if:

1. delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended; or
2. delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice.

17.02 *Computation of Times*

- A. When any period of time is referred to in the Contract Documents by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

17.03 *Cumulative Remedies*

- A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Contract Documents. The provisions of this Paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

17.04 *Survival of Obligations*

- A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract Documents, as well as all continuing obligations indicated in the Contract Documents, will survive final payment, completion, and acceptance of the Work or termination or completion of the Contract or termination of the services of Contractor.

17.05 *Controlling Law*

- A. This Contract is to be governed by the law of the state in which the Project is located.

17.06 *Headings*

- A. Article and paragraph headings are inserted for convenience only and do not constitute parts of these General Conditions.

**SECTION 00 73 00
SUPPLEMENTARY CONDITIONS**

PART I - AMENDMENTS TO GENERAL CONDITIONS

These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract (EJCDC Document No. C-700, 2007 edition) and other provisions of the Contract Documents as indicated below. All provisions which are not so amended or supplemented remain in full force and effect.

The terms used in these Supplementary Conditions which are defined in the General Conditions have the meanings assigned to the General Conditions.

ARTICLE 1. DEFINITIONS AND TERMINOLOGY

SC-1.01.A.12.

Delete paragraph 1.01.A.12 of the General Conditions in its entirety and insert the following in its place:

SC-1.01.A.12 *Contract Documents* – The documents that comprise the Contract Documents are set forth in the Instruction to Bidders.

SC-1.01.A.19

Add a new sentence at the end of Paragraph 1.01.A.19 to read as follows:

The project has been designed by Wenck Associates, Inc. 7500 Olson Memorial Highway Suite 300 Golden Valley, Minnesota 55427 who will act as ENGINEER in connection with completion of the Work in accordance with the Contract Documents.

SC-1.01.A.29

Add a new sentence at the end of Paragraph 1.01.A.29 to read as follows:

Any reference to "OWNER" in these Bid Documents should be construed as synonymous with the Coon Creek Watershed District.

SC-1.01.A.52

Add the following new definition after paragraph 1.01.A.51:

SC-1.01.A.52

Utilities - All pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, poles or other such facilities or attachments and supports, and any encasements containing such facilities which have been installed above or underground to furnish any of the following services or materials: electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, sewage and drainage removal, traffic or other control systems or water.

ARTICLE 2. PRELIMINARY MATTERS

SC-2.01

Delete paragraph 2.01.B of the General Conditions in its entirety and insert the following in its place:

SC-2.01.B *Evidence of Insurance:*

Before any Work at the site is started, CONTRACTOR shall deliver to OWNER, with copies to ENGINEER and each additional insured identified in Article 5 of the Supplementary Conditions, certificates of insurance (and other evidence requested by OWNER) which CONTRACTOR is required to purchase and maintain in accordance with the requirements of Article 5.

SC-2.02

Delete the word "ten" from the first sentence of paragraph 2.02A and insert the word "three" in place of "ten."

SC-2.03

Delete paragraph 2.03.A of the General Conditions in its entirety and insert the following in its place:

SC-2.03.A

A Notice to Proceed may be given at any time within thirty days after the Effective Date of the Agreement. The Contract Time will commence at the time specified in the Notice to Proceed or, if no such notice is given, thirty days following the Effective Date of the Agreement, provided the Notice to Proceed may not specify a time of commencement later than sixty days after the Effective Date of the Agreement.

SC-2.05.

Add a new paragraph immediately after 2.05.A.3 of the General Conditions to read as follows:

SC-2.05.A.4

A list of Subcontractors and major suppliers.

SC-2.06.

Add a new sentence at the end of Paragraph 2.06.A to read as follows:

The CONTRACTOR will also be prepared to discuss his/her proposed methods of complying with the Contract Documents.

ARTICLE 3. CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

SC-3.01

Add a new paragraph immediately after Paragraph 3.01.A of the General Conditions which is to read as follows:

SC-3.01.A.1.

Each and every provision of law and clause required by law to be inserted in these Contract Documents shall be deemed to be inserted herein, and they shall be read and enforced as though it were included herein, and if through mistake or otherwise, any such provision is not inserted, or if not correctly inserted, then upon the application of either party, the Contract Documents shall forthwith be physically amended to make such insertion.

Add the following language prior to the last sentence of paragraph 3.01.B of the General Conditions:

If there is any conflict between the provisions of the Contract Documents and any such referenced provisions, the language of the Contract Documents will take precedence over that of any standard specification, manual or code.

ARTICLE 4. AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; REFERENCE POINTS

SC-4.01.

Add a new paragraph immediately after paragraph 4.01.C of the General Conditions which is to read as follows:

SC-4.01.D.

If all lands and rights-of-way are not obtained as herein contemplated before construction begins, CONTRACTOR shall begin the Work upon such land and rights-of-way as OWNER has previously acquired.

SC-4.05.

Add a new paragraph immediately after paragraph 4.05.A. of the General Conditions which is to read as follows:

SC-4.05.B.

ENGINEER may check the lines, elevations, reference marks, batter boards, etc., set by CONTRACTOR, and CONTRACTOR shall correct any errors disclosed by such check. Such a check shall not be considered as approval of CONTRACTOR's work and shall not relieve CONTRACTOR of the responsibility for accurate construction of the entire Work. CONTRACTOR shall furnish personnel to assist ENGINEER in checking lines and grades.

SC-4.06

ARTICLE 5. INSURANCE AND BONDS

SC-5.01.

Delete the first sentence of paragraph 5.01.A. of the General Conditions in its entirety and replace with the following:

SC-5.01.A.

Unless otherwise exempted in these Contract Documents, the Contractor shall furnish a Performance Bond and a Labor and Material Payment Bond (individually a "Bond" and collectively "Bonds") to the Owner. The Performance Bond shall be in an amount equal to 100% of the full amount of the Contract sum as security for the faithful performance of the Contract, and the Labor and Material Payment Bond shall be in an amount equal to 100% of the full amount of the Contract sum as security for the payment of all persons performing labor and furnishing materials in connection with the Contract Documents. Such Bonds shall be on forms approved by or provided by the Owner and shall name the Owner as primary Obligee.

The surety issuing the Bonds shall be satisfactory to the Owner, be licensed to issue Bonds in the State of Minnesota, shall be rated by A.M. Best an A-(minus) or better.

SC-5.04.

Add new paragraphs immediately after paragraph 5.04.B which are to read as follows:

SC-5.04.C. COMMERCIAL GENERAL LIABILITY

Contractor shall maintain insurance to cover claims arising from operations under this Contract, whether such operations are by the Contractor, Subcontractor, Sub-Subcontractor or by anyone directly or indirectly employed under this Contract. Unless otherwise specified, the insurance **minimum** limits of liability shall be as follows:

\$2,000,000 – Per Occurrence

\$2,000,000 – Annual Aggregate applying per project or location

\$2,000,000 – Annual Aggregate applying to Products and Completed Operations

\$50,000 – Fire Damage (any one fire)

\$5,000 – Medical Expense (any one person per occurrence)

The following coverages shall be included:

- Premises and Operations Bodily Injury and Property Damage

- Personal Injury & Advertising Injury
- Products and Completed Operations Liability, to be maintained for at least 3 years after completion of the work under this contract.
- Contractual Liability as provided in ISO form CG 00 01 10 01 or its equivalent
- Pollution exclusion with standard exception as per Insurance Services Office (ISO) Commercial
- General Liability Coverage Form – CG 00 01 10 01 or equivalent
- Independent Contractors – Let or Sublet work
- Explosion, Collapse, and Underground (XCU) perils
- Broad Form PD
- Waiver of Subrogation in favor of the State of Minnesota

Officers and Employees of the Owner, the Engineer and its agents shall be named as Additional Insureds, by endorsement, ISO Forms CG 20 10 and CG 20 37 or their equivalent for claims arising out of the Contractor’s negligence or the negligence of those for whom the Contractor is responsible.

INDEMNIFICATION

To the fullest extent permitted by law and to the extent claims, damages, losses or expenses are not covered by insurance purchased by the Contractor in accordance with SC-5.04, the Contractor shall indemnify and hold harmless the Owner, Owner’s Representatives, Engineer, Engineer’s consultants, and agents and employees of any of them from and against claims, damages, losses and expenses, including but not limited to attorneys’ fees, arising out of or resulting from performance of the Work, provided that such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), but only to the extent caused by the negligent acts or omissions of the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity which would otherwise exist as to a party or person described in these Indemnification requirements.

In claims against any person or entity indemnified under these Indemnification requirements by an employee of the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, the indemnification obligation under the paragraph above shall not be limited by a limitation on amount or type of damages, compensation or benefits payable by or for the Contractor or a Subcontractor under workers’ compensation acts, disability benefit acts or other employee benefit acts.

The obligations of the Contractor under these Indemnification requirements shall not negate, abridge or reduce the liability of the Engineer, the Engineer’s consultants and agents and employees of any of them.

SC-5.04.D. BUSINESS AUTOMOBILE LIABILITY

Contractor shall maintain insurance to cover liability arising out of the operations, use, or maintenance of all owned, non-owned and hired vehicles. Unless otherwise specified, the insurance **minimum** limits shall be as follows:

\$2,000,000 – Per Occurrence combined Single Limit Bodily Injury and Property Damage.

The following coverages shall be included:

- Owned Automobiles
- Hired Automobiles
- Non-owned Automobiles
- CA 9948 Endorsement – Pollution Liability – Broadened Coverage (or equivalent)

CA 9948 is an endorsement that is attached to an Automobile Liability policy for Contractors who are handling pollutants. This endorsement extends the Automobile Liability policy to cover liabilities incurred as a result of the discharge, dispersal, seepage, migration, release or escape of pollutants that are part of the contract work, which are being transported, towed by, handled, stored, disposed of or processed in or upon a covered vehicle, if they are upset or overturned.

- MCS 90 Endorsement

MCS-90 is an endorsement that is attached to the Automobile Liability policy of motor carriers as set forth by the Motor Carrier Act of 1980. The endorsement assures compliance by the insured, within the limits stated therein, with Sections 29 and 30 of the Motor Carrier Act of 1980 and the rules and regulations of the Federal Highway Administration (FHWA) and the Interstate Commerce Commission (ICC).

In addition, such insurance shall include a waiver of subrogation in favor of the Owner.

SC-5.04.E. WORKER'S COMPENSATION

Contractor shall provide the statutory requirements for workers compensation insurance. Minimum shall be as follows:

- \$100,000 – Bodily Injury by Disease per employee
- \$500,000 – Bodily Injury by Disease aggregate
- \$100,000 – Bodily Injury by Accident

Evidence of Subcontractor insurance shall be filed with the Contractor.

SC-5.04.F. UMBRELLA OR EXCESS LIABILITY

An Umbrella or Excess Liability insurance policy may be used to supplement the Contractor's policy limit to satisfy the full policy limits required by the Contract.

ADDITIONAL INSURANCE CONDITIONS

SC-5.04.G. Primary and Non-Contributory – Contractor's policy(ies) shall be primary and non-contributory insurance to any other valid and collectible insurance available to the State of Minnesota or self-insurance maintained by the State of Minnesota with respect to any claim arising out of this Contract.

SC-5.04.H. Contractor is responsible for payment of contract related insurance premiums and deductibles.

SC-5.04.I. Insurance Companies must have an AM Best rating of A-(minus) and a Financial Size Category of VII, or better, and be authorized to do business in the State of Minnesota.

SC-5.04.J. The above establishes minimum insurance requirements. It is the sole responsibility of the Contractor to determine the need for and to procure additional insurance that may be needed in connection with this contract.

SC-5.04.K. Certificates of Insurance acceptable to the Owner shall be submitted prior to commencement of the work under this contract. Such Certificates and the insurance policies required under SC-5.04 shall contain a provision that coverage afforded under these policies shall not be cancelled without at least thirty (30) days advanced written notice to the Owner. Upon written request of the Owner, the Contractor shall provide a true copy of any policy, and endorsement thereof that is part of this Contract. The failure of the State of Minnesota to obtain Certificate(s) of Insurance, for the policy(ies) required under SC-5.04 or renewals thereof, shall not constitute a waiver by the Owner to the Contractor to provide such insurance.

SC-5.04.L. Owner's Liability Insurance: The Owner will be responsible for maintaining its own liability insurance or self insurance program and, at its option, may purchase and

maintain such insurance as will protect the Owner against claims which may arise from operations under the Contract.

ARTICLE 6. CONTRACTOR'S RESPONSIBILITIES

SC-6.03. Add the following to the end of Paragraph 6.03.B. of the General Conditions: Preference will be given to Minnesota manufactured products where quality and cost considerations are equal and the products are in compliance with the specifications.

Requests for substitutions must be received by the ENGINEER at least 10 days prior to the bid opening in order to be considered for pre-bid approval. Requests after this date will not be considered until after the award of the Contract.

SC-6.06.

Delete Paragraphs 6.06.A and 6.06.B of the General Conditions in their entirety and insert the following in its place:

SC-6.06.A CONTRACTOR shall not employ any Subcontractor, Supplier or other person or organization, (including those who are to furnish the principal items of materials or equipment), whether initially or as a substitute, against whom OWNER may have reasonable objection. Acceptance of any Subcontractor, other person or organization by OWNER shall not constitute a waiver of any right of OWNER to reject defective Work. CONTRACTOR shall not be required to employ any Subcontractor, other person or organization against whom CONTRACTOR has reasonable objection.

The Contractor shall not sublet, sell, transfer, assign, or otherwise dispose of the Contract or Contracts or any portion thereof, or of right, title, or interest therein, without written consent of the Owner. In case consent is given, the Contractor will be permitted to sublet a portion thereof, but the Contractor's organization shall perform work amounting to not less than 50 percent of the total original Contract cost. Items designated in the Contract as "specialty items" may be subcontracted and the cost or any specialty items performed by subcontract will be deducted from the total cost before computing the amount of work required to be performed by the Contractor's own organization.

SC-6.06.B. OWNER or ENGINEER may furnish to any such Subcontractor, Supplier or other person or organization, to the extent practicable, information about amounts paid on their behalf to CONTRACTOR in accordance with CONTRACTOR's Applications for Payment.

Add a new paragraph after paragraph 6.06.G of the General Conditions which is to read as follows:

SC-6.06.H. The prime CONTRACTOR is required to make payments to the Subcontractor(s) in the same manner that the OWNER is required to make payments to the prime CONTRACTOR.

1. Prompt Payment: In accordance with MN Stat. 16A. 1245, the prime CONTRACTOR shall, within 10 days of receipt of a progress payment, pay all Subcontractors and suppliers having an interest in the contract their pro rata share of the payment for all undisputed services provided by the Subcontractors on any undisputed amount not paid on time.

If the prime CONTRACTOR does not pay any Subcontractor or supplier on time, the prime CONTRACTOR must pay interest of 1 1/2% per month or any part of a month on any undisputed amount not paid on time. The minimum monthly interest penalty payment for an unpaid balance of \$100.00 or more is \$10.00. For an unpaid balance of less than \$100.00, the prime CONTRACTOR shall pay the actual penalty due the Subcontractor.

Any Subcontractor who prevails in a civil action to collect interest penalties from a prime

CONTRACTOR must be awarded its costs and disbursements, including attorney's fees incurred bringing the action.

2. **Retainage:** The prime CONTRACTOR may withhold as retainage from Subcontractor(s) progress payments in an amount not to exceed five (5) percent of the payment. The prime CONTRACTOR shall reduce or eliminate the retainage for a Subcontractor in the same manner that the OWNER reduces or eliminates the retainage for the prime CONTRACTOR.
3. **Enforcement:** The enforcement of these conditions shall be the responsibility of the Subcontractor(s) working through the prime CONTRACTOR and the prime CONTRACTOR's surety. To facilitate the resolution of any problems relating to these provisions, the prime CONTRACTOR shall furnish the Subcontractor(s) with the name, address and telephone number of the prime CONTRACTOR's surety within ten (10) days of the date on which the prime CONTRACTOR signs a Contract with the OWNER.

The attention of the Subcontractor is directed to the State Requirement that each CONTRACTOR be required to file a bond with the State in the amount of the Contract price.

Minnesota Statute 574.31 provides a limit of time to bring an action on any such bond.

For the benefit of all parties we quote the section in its entirety:

574.31 LIMIT OF TIME TO BRING ACTION

No action shall be maintained on any such bond unless within 90 days after the completion of the Contract and acceptance thereof by the proper public authorities, the claimant shall file a written notice specifying the nature and amount of his/her claim and the date of furnishing the last item thereof in the office of the Commissioner of Insurance, in case the contract is for the performance of work for the State or any department thereof, and, in case the contract is let by any County, Municipal corporation, in which such Municipal Corporation, Public Board or body is situate, and if situate in two or more counties, then such notice shall be filed in the office of the auditor of each County; nor unless action is begun within one year after the filing of such notice. The County auditor shall enter the time of filing every notice in a book kept for that purpose, which shall be properly indexed.

"Subd. 2. **Claims on payment bonds.** (a) In the event of a claim on a payment bond by a person furnishing labor and materials, no action shall be maintained on the payment bond unless, within **90 days** after completion, delivery, or provision by the person of its last item of labor and materials, for the public work, the person serves written notice of claim under the payment bond personally or by certified mail upon the surety that issued the bond and the contractor on whose behalf the bond was issued at their addresses as stated in the bond specifying the nature and amount of the claim and the date the claimant furnished its last item of labor and materials for the public work. For the purpose of this section, notice is sufficient if served personally or via certified mail to the addresses of the contractor and surety listed on the bond."

The form of the notice is contained in Minn. Stat. 574.31, subd. 2.

SC-6.09

Add new paragraphs immediately after paragraph 6.09.C. of the General Conditions to read as follows:

SC-6.09.D. The CONTRACTOR shall conform with and agree to provisions of Minnesota Statutes section 181.59 which prohibits discrimination in the hiring of labor by reason of race, creed or color, which section is reproduced below:

SC-6.10.

Add a new paragraph immediately after paragraph 6.10.A. of the General Conditions to read as follows:

SC-6.10.B. All Contractors and subcontractors shall comply with the provisions of Minnesota Statutes 290.92 relative to the withholding of income tax on wages and no final settlement with any Contractor shall be made until said Contractor has offered satisfactory proof of compliance with the provisions of the withholding section of the statute.

SC-6.20.

Add a new paragraph immediately after paragraph 6.20.C. to read as follows:

SC-6.20.D If through the acts of neglect on the part of CONTRACTOR, any other Contractor or any other Subcontractor shall suffer loss or damage on the Work, CONTRACTOR shall settle with such other Contractor or Subcontractor by agreement or arbitration if such other Contractor or Subcontractor will so settle. If such other Contractor or Subcontractor shall assert any claim against OWNER on account of any damage alleged to have been sustained, OWNER shall notify CONTRACTOR, who shall indemnify and save harmless OWNER against any such claims.

ARTICLE 8. OWNER'S RESPONSIBILITIES

SC-8.06.

Delete Paragraph 8.06 of the General Conditions in its entirety.

ARTICLE 9. ENGINEER'S STATUS DURING CONSTRUCTION

SC-9.03.

Add a new paragraph immediately after paragraph 9.03.A. of the General Conditions which is to read as follows:

SC-9.03.B Resident Project Representative (RPR) will be ENGINEER'S employee or agent at the Site, will act as directed by and under the supervision of ENGINEER, and will confer with ENGINEER regarding RPR'S actions.

RPR'S dealings in matters pertaining to the on-site Work shall in general be with ENGINEER and CONTRACTOR keeping OWNER advised as necessary. RPR'S dealings with Subcontractors shall only be through or with the full knowledge and approval of CONTRACTOR. RPR shall generally communicate with OWNER with the knowledge of and under the direction of ENGINEER.

1. Duties and Responsibilities to RPR:

- a. Schedules: Review the progress schedule, schedule of Shop Drawing and Sample submittals and schedule of values prepared by CONTRACTOR and consult with ENGINEER concerning acceptability.
- b. Conferences and Meetings: Attend meetings with CONTRACTOR, such as pre-construction conferences, progress meetings, job conferences and other project-related meetings, and prepare and circulate copies of minutes thereof.
- c. Liaison:
 - 1) Serve as ENGINEER'S liaison with CONTRACTOR, working principally through CONTRACTOR'S superintendent and assist in providing understanding of the intent of the Contract Documents; and assist ENGINEER in serving as OWNER'S liaison with CONTRACTOR when CONTRACTOR'S operations affect OWNER'S operations on the Site.

- 2) Assist in obtaining from Owner additional details or information, when required for proper execution of the Work.
- d. Shop Drawings and Samples:
 - 1) Record date of receipt of Shop Drawings and Samples, which are received at the Site.
 - 2) Receive Samples which are furnished at the Site by CONTRACTOR, and notify ENGINEER of availability of Samples for examination.
 - 3) Advise ENGINEER and CONTRACTOR of the commencement of any Work requiring a Shop Drawing or Sample if the submittal has not been approved by ENGINEER.
- e. Review Work, Rejection of Defective Work, Inspections and Tests:
 - 1) Conduct observation of the Work in progress on the Site to assist ENGINEER in determining if the work is in general proceeding in accordance with the Contract Documents.
 - 2) Report to ENGINEER whenever RPR believes that any Work is unsatisfactory, faulty or defective or does not conform to the Contract Documents, or has been damaged, or does not meet the requirements of any inspection, test or approval required to be made; and advise ENGINEER of Work that RPR believes should be corrected or rejected or should be uncovered for observations, or requires special testing, inspection or approval.
 - 3) Verify that tests, equipment and systems startups and operating and maintenance training are conducted in the presence of appropriate personnel, and that CONTRACTOR maintains adequate records thereof; and observe, record and report to ENGINEER appropriate details relative to the test procedures and startups.
 - 4) Accompany visiting inspectors representing public or other agencies having jurisdiction over the Project, record the results of these inspections and report to ENGINEER.
- f. Interpretation of Contract Documents: Report to ENGINEER when clarifications and interpretations of the Contract Documents are needed and transmit to CONTRACTOR clarifications and interpretations as issued by ENGINEER.
- g. Modifications: Consider and evaluate CONTRACTOR'S suggestions for modifications in Drawings or Specifications and report with RPR'S recommendations to ENGINEER. Transmit to CONTRACTOR decisions as issued by ENGINEER.
- h. Records:
 - 1) Maintain at the Site orderly files for correspondence, reports of job conferences, Shop Drawings and Samples, and reproductions of original Contract Documents including all Addenda, Change Orders, Field Orders, additional Drawings issued subsequent to the execution of the Agreement. ENGINEER'S clarifications and interpretations of the Contract documents, progress reports, and other Project related documents.
 - 2) Keep a record, recording CONTRACTOR hours on the Site, weather conditions, and data relative to questions on Change Orders or changed conditions, list of visitors to the site, daily activities, decisions, observation in general, and specific observations in more detail as in the case of observing test procedures; and send copies to ENGINEER.
 - 3) Record names, address and telephone numbers of all CONTRACTORS, subcontractors and major suppliers of materials and equipment.
- i. Reports:
 - 1) Furnish ENGINEER periodic reports as required of progress of the Work and of CONTRACTOR'S compliance with the progress schedule and schedule of Shop Drawings and Sample submittals.
 - 2) Consult with ENGINEER in advance of scheduled major tests, inspections or start of important phases of the Work .
 - 3) Draft proposed Change Orders, obtaining backup material from CONTRACTOR and recommend to ENGINEER Change Orders and Field Orders.
 - 4) Report immediately to ENGINEER and OWNER upon the occurrence of any accident.

- j. Payment Requests:
Review applications for payment with CONTRACTOR for compliance with the established procedure for their submission and submit recommendations to ENGINEER, noting particularly the relationship of the payment requested to the schedule of values, Work completed and materials and equipment delivered at the site but not incorporated in the Work.
- k. Certificates, Maintenance and Operation Manuals:
During the course of the Work, verify that certificates, maintenance and operation manuals and other data required to be assembled and furnished by CONTRACTOR are applicable to the items actually installed and in accordance with the Contract Documents, and have this material delivered to ENGINEER for review and forwarding to OWNER prior to final payment for the Work.
- l. Completion:
 - 1) Before ENGINEER issues a Certificate of Substantial Completion, submit to CONTRACTOR a list of observed items requiring completion or correction.
 - 2) Conduct final inspection in the company of ENGINEER, OWNER and CONTRACTOR and prepare a final list of items to be completed or corrected.
 - 3) Observe that all items on final list have been completed or corrected and make recommendations to ENGINEER concerning acceptance.

2. Limitations of Authority of RPR:

RPR shall not:

- a. Authorize any deviation from the Contract or Documents or substitution of materials or equipment, unless authorized by ENGINEER.
- b. Exceed limitations of ENGINEER'S authority as set forth in the Agreement or the Contract Documents.
- c. Undertake any of the responsibilities of CONTRACTOR, subcontractor or CONTRACTOR'S superintendent.
- d. Advise on, issue directions relative to or assume control over any aspect of the means, methods, techniques, sequences or procedures of construction unless such advice or directions are specifically required by the Contract Documents.
- e. Advise on, issue directions regarding or assume control over safety precautions and programs in connection with the Work.
- f. Accept Shop Drawings or Sample submittals from anyone other than CONTRACTOR.
- g. Authorize Owner to occupy the Project in whole or in part.
- h. Participate in specialized field of laboratory tests or inspections conducted by others except as specifically authorized by ENGINEER.

ARTICLE 11. COST OF WORK; CASH ALLOWANCE; UNIT PRICE WORK

SC-11.03 Delete paragraph 11.03.C. in its entirety and replace with the following:

SC-11.03.C. The unit price of an item of Unit Price Work shall be subject to re-evaluation and adjustment under the following conditions:

- 1. if the total cost of a particular item of Unit Price Work amount to 5 percent or more of the Contract Price and the variation in the quantity of that particular item of Unit Price Work performed by CONTRACTOR differs by more than 15 percent from the estimated quantity of such item indicated in the Agreement; and
- 2. if there is no corresponding adjustment with respect to any other item of Work; and
- 3. if CONTRACTOR believes that CONTRACTOR has incurred additional expense as a result thereof; or if OWNER believes that the quantity variation entitles OWNER to an adjustment in the unit price, either OWNER or CONTRACTOR may make a claim for an adjustment in the contract Price in accordance with Article 12 if the parties are unable to agree as to the effect of any such variation in the quantity of Unit Price Work performed.

ARTICLE 12. CHANGE OF CONTRACT PRICE; CHANGE OF CONTRACT TIMES

SC-12.01.

Delete paragraph 12.01.B.3. in its entirety and insert the following in its place:

SC-12.01.B.3 where the Work involved is not covered by unit prices contained in the Contract Documents and agreement to a lump sum is not reached under paragraph 12.01B.2, on the basis of the actual cost of materials and labor on the job site with a maximum CONTRACTOR'S fee of **10 percent on materials and labor for total overhead and profit including the cost of insurance and field supervision..** If the Work is done by a Subcontractor, the CONTRACTOR'S fee shall not exceed **10 percent for its general overhead and profit. In preparing the Change Order, the following documentation must be provided:**

- 1) An itemized breakdown of materials, an hourly breakdown of labor, and other direct costs must be shown on each supplement submitted for the general contractor, the subcontractor and sub-subcontractors.**
- 2) All supporting documents must be included with the OWNER'S copy of the Supplemental Agreement.**
- 3) Corrections must be dated and initialed by the contractor and Consultant.**
- 4) The Contractor summary must be complete and adequate justification and supporting documentation must be included with each supplement.**
- 5) The extent to which the contract time increases or decreases as a result of the Supplemental Agreement.**

Delete paragraph 12.01.C.1 of the General Conditions in its entirety.

In paragraph 12.01.C.2.b, directly before the semi-colon, add the following language: "based on Subcontractors Cost of the work".

ARTICLE 13. TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

SC-13.05.

Add a new paragraph immediately after paragraph 13.05.A of the General Conditions to read as follows:

13.05.B. If the OWNER stops Work under Paragraph 13.05.A. CONTRACTOR shall be entitled to **no** extension of Contract Time or increase in Contract Price.

SC-13.07.

Amend the first sentence of Paragraph 13.07.A by striking out the words "one year" and inserting the words "two years".

ARTICLE 14. PAYMENTS TO THE CONTRACTOR AND COMPLETION

SC-14.02.B. Add the following new paragraphs immediately after paragraph 14.02.B.1. of the General Conditions which are to read as follows:

Should CONTRACTOR neglect to pay any undisputed claims, made in writing to OWNER within thirty days after completion of the Work, but continuing unsatisfied for a period of ninety days, OWNER may pay such claim and deduct the amount thereof from the balance due CONTRACTOR. OWNER may also, with the written consent of CONTRACTOR, use any

moneys retained, due, or to become due under this Contract for the purpose of paying for both labor and materials for the Work, for which claims have not been filed.

Security is provided both by the Payment Bond and the power of OWNER to retain any moneys for claims, but payment by one shall in no way impair or discharge the liability of the other.

Any and all liens for work and materials may be paid off by OWNER within a reasonable time after filing for record in accordance with State and local laws, a notice of such liens except where the claim on which the lien is filed is being litigated by CONTRACTOR, and in such case OWNER may pay the amount of any final judgment or decree or any such claim within a reasonable time after such final judgment or decree shall be rendered.

All moneys paid by OWNER in settlement of liens as aforesaid, with the costs and expenses incurred by OWNER in connection therewith, shall be charged to CONTRACTOR, shall bear interest at the rate of three percentage points above the rediscount rate then charged by the Federal Reserve Bank, and shall be deducted from the next payment due CONTRACTOR under the terms of this Contract.

SC-14.02.C Amend the first sentence of paragraph 14.02.C.1. by striking out the word "Ten" and inserting the word "thirty" in its place, and as so amended, paragraph 14.02.C.1. remains in effect.

SC-14.03.

Add the following new paragraphs immediately after paragraph 14.03.A of the General Conditions which are to read as follows:

No materials or supplies for the Work shall be purchased by CONTRACTOR or Subcontractor subject to any chattel mortgage or under a conditional sale contract or other agreement by which an interest is retained by the seller. CONTRACTOR warrants that he/she has good title to all materials and supplies used by him/her in the Work, free from all liens, claims or encumbrances.

CONTRACTOR shall indemnify and save OWNER harmless from all claims growing out of the lawful demands of Subcontractors, laborers, workmen, mechanics, materialmen, and furnishers of machinery and parts thereof, equipment, power tools, and all supplies, including commissary, incurred in the furtherance of the performance of this Contract. CONTRACTOR shall at OWNER'S request, furnish satisfactory evidence that all obligations of the nature hereinabove designated have been paid, discharged, or waived. If CONTRACTOR fails to do so, then OWNER may, after having served written notice on the said CONTRACTOR either pay unpaid bills, of which OWNER has written notice, direct, or withhold from the CONTRACTOR'S unpaid compensation a sum of money deemed reasonably sufficient to pay any and all such lawful claims until satisfactory evidence is furnished that all liabilities have been fully discharged whereupon payment to CONTRACTOR shall be resumed, in accordance with the terms of this Contract, but in no event shall the provisions of this sentence be construed to impose any obligations upon OWNER to either CONTRACTOR or his/her Surety. In paying any unpaid bills of the CONTRACTOR, OWNER shall be deemed the agent of CONTRACTOR and any payment so made by OWNER, shall be considered as payment made under the Contract by OWNER to CONTRACTOR and OWNER shall not be liable to CONTRACTOR for any such payment made in good faith.

SC-14.07.

Delete paragraph 14.07.B. of the General Conditions in its entirety and insert the following in its place:

SC-14.07.B. If, on the basis of ENGINEER'S observation of the Work during construction and final inspection, and ENGINEER'S review of the final Application for Payment and accompanying documentation - all as required by the Contract Documents, ENGINEER is

satisfied that the Work has been completed and CONTRACTOR'S other obligations under the Contract Documents have been fulfilled, ENGINEER will indicate in writing his/her recommendation of payment and present the Application to OWNER for payment. Thereupon ENGINEER will give written notice to OWNER and CONTRACTOR that the Work is acceptable subject to the provisions of paragraph 14.09. Otherwise, ENGINEER will return the Application to CONTRACTOR, indicating in writing the reasons for refusing to recommend final payment, in which case CONTRACTOR shall make the necessary corrections and resubmit the Application. If the Application and accompanying documentation are appropriate as to form and substance, OWNER shall, within sixty-five days after receipt thereof pay CONTRACTOR the amount recommended by ENGINEER.

ARTICLE 15. SUSPENSION OF WORK AND TERMINATION

SC-15.02.

Add a new paragraph immediately after paragraph 15.02.A.4. of the General Conditions which is to read as follows:

15.02.A.5. If CONTRACTOR abandons the Work, or sublets this Contract or any part thereof, without the previous written consent of OWNER, or if the Contract or any claim thereunder shall be assigned by CONTRACTOR otherwise than as herein specified;

ARTICLE 17. MISCELLANEOUS

Add new paragraphs immediately after paragraph 17.06 which are to read as follows:

SC-17.07 Overcharge Claims:

A. The CONTRACTOR certifies that they have not, either directly or indirectly, entered into any agreement or participated in any collusion or otherwise taken any action in restraint of free competition; that no attempt has been made to induce any other person or firm to submit or not to submit a solicitation response; that this solicitation response has been independently arrived at without collusion with any other vendor, competitor, or potential competitor; that this solicitation response has not been knowingly disclosed prior to the opening of solicitation responses of any other vendor or competitor; and that the above statement is accurate under penalty of perjury.

END OF SECTION

**SECTION 00 73 40
FUNDING AGENCY REQUIREMENTS**

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes basic requirements set by funding agency.

1.2 REQUIREMENTS

- A. Comply with the attached requirements set by the Funding Agency.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 LIST OF ATTACHMENTS

- A. Special Provisions Division A – Labor
- B. Prevailing Wages for State Funded Construction Projects (Region 9)
- C. Truck Rental Rates (Region 9)

END OF SECTION

SPECIAL PROVISIONS DIVISION A – LABOR

PREVAILING WAGES/HOURS OF LABOR

Pursuant to Minnesota Statutes 177.41 to 177.44 and corresponding Rules 5200.1000 to 5200.1120, this contract is subject to the prevailing wages as established by the Minnesota Department of Labor and Industry (provided in Exhibit A attached to and made part of this agreement). Specifically, all contractors and subcontractors must pay all laborers and mechanics the established prevailing wages for work performed under the contract. Failure to comply with the aforementioned may result in civil or criminal penalties. The applicable wage determination must be incorporated into proposals and all contracts.

Payrolls/Records

The contractor and subcontractor shall furnish to the OWNER copies of any or all payrolls not more than 14 days after the end of each pay period. The payrolls must contain all of the data required by Minnesota Statutes Section 177.30.

Subcontractors must furnish payrolls to the contractor. The OWNER may examine all records relating to wages paid laborers or mechanics on work to which Minnesota Statutes Sections 177.41 to 177.44 apply.

Posting of Wage Rates/Required Posters

Each contractor and subcontractor performing work on a public project shall post on the project the applicable prevailing wage rates and hourly basic rates of pay for the county or area within which the project is being performed, including the effective date of any changes thereof, in at least one conspicuous place for the information of the employees working on the project. The information so posted shall include a breakdown of contributions for health and welfare benefits, vacation benefits, pension benefits, and any other economic benefits required to be paid.

For more information regarding prevailing wage and its application, contact:

Minnesota Department of Labor and Industry
Prevailing Wage unit
443 Lafayette Road N.
St. Paul, MN 55155
Phone: (651) 284-5091
E-mail: dli.prevwage@state.mn.us
Web: www.DOLI.state.mn.us

**MINNESOTA DEPARTMENT OF LABOR AND INDUSTRY PREVAILING WAGES FOR STATE FUNDED
CONSTRUCTION PROJECTS**



THIS NOTICE MUST BE POSTED ON THE JOBSITE IN A CONSPICUOUS PLACE

Construction Type: Highway and Heavy

Region Number: 09

Counties within region:

- ANOKA-02
- CARVER-10
- CHISAGO-13
- DAKOTA-19
- HENNEPIN-27
- RAMSEY-62
- SCOTT-70
- WASHINGTON-82

Effective: 2018-11-14 Revised: 2018-12-03

This project is covered by Minnesota prevailing wage statutes. Wage rates listed below are the minimum hourly rates to be paid on this project.

All hours worked in excess of eight (8) hours per day or forty (40) hours per week shall be paid at a rate of one and one half (1 1/2) times the basic hourly rate.

Violations should be reported to:

Department of Transportation
Office of Construction
Transportation Building MS650
John Ireland Blvd
St. Paul, MN 55155
(651) 366-4209

Refer questions concerning the prevailing wage rates to:

Department of Labor and Industry
Prevailing Wage Section
443 Lafayette Road N
St Paul, MN 55155
(651) 284-5091
DLI.PrevWage@state.mn.us

LABOR CODE AND CLASS	EFFECT DATE	BASIC RATE	FRINGE RATE	TOTAL RATE
LABORERS (101 - 112) (SPECIAL CRAFTS 701 - 730)				
101 LABORER, COMMON (GENERAL LABOR WORK)	2018-11-14	31.65	19.64	51.29
	2019-05-01	32.80	20.44	53.24
102 LABORER, SKILLED (ASSISTING SKILLED CRAFT JOURNEYMAN)	2018-11-14	31.65	19.64	51.29
	2019-05-01	32.80	20.44	53.24
103 LABORER, LANDSCAPING (GARDENER, SOD LAYER AND NURSERY OPERATOR)	2018-11-14	23.02	15.99	39.01
	2019-05-01	24.00	16.96	40.96
104 FLAG PERSON	2018-11-14	31.65	19.64	51.29
	2019-05-01	32.80	20.44	53.24
105 WATCH PERSON	2018-11-14	28.25	19.09	47.34
	2019-05-01	29.40	19.89	49.29
106 BLASTER	2018-11-14	22.08	6.87	28.95
107 PIPELAYER (WATER, SEWER AND GAS)	2018-11-14	34.15	19.64	53.79
	2019-05-01	35.30	20.44	55.74
108 TUNNEL MINER	2018-11-14	32.35	19.64	51.99
	2019-05-01	33.50	20.44	53.94
109 UNDERGROUND AND OPEN DITCH LABORER (EIGHT FEET BELOW STARTING GRADE LEVEL)	2018-11-14	32.35	19.64	51.99
	2019-05-01	33.50	20.44	53.94
110 SURVEY FIELD TECHNICIAN (OPERATE TOTAL STATION, GPS RECEIVER, LEVEL, ROD OR RANGE POLES, STEEL TAPE MEASUREMENT; MARK AND DRIVE STAKES; HAND OR POWER DIGGING FOR AND	2018-11-14	31.65	19.64	51.29

IDENTIFICATION OF MARKERS OR MONUMENTS;
 PERFORM AND CHECK CALCULATIONS; REVIEW AND
 UNDERSTAND CONSTRUCTION PLANS AND LAND
 SURVEY MATERIALS). THIS CLASSIFICATION DOES
 NOT APPLY TO THE WORK PERFORMED ON A
 PREVAILING WAGE PROJECT BY A LAND SURVEYOR
 WHO IS LICENSED PURSUANT TO MINNESOTA
 STATUTES, SECTIONS 326.02 TO 326.15.

2019-05-01 32.80 20.44 53.24

111 TRAFFIC CONTROL PERSON (TEMPORARY SIGNAGE) 2018-11-14 31.65 19.64 51.29
 2019-05-01 32.80 20.44 53.24

112 QUALITY CONTROL TESTER (FIELD AND COVERED
 OFF-SITE FACILITIES; TESTING OF AGGREGATE,
 ASPHALT, AND CONCRETE MATERIALS); LIMITED TO
 MN DOT HIGHWAY AND HEAVY CONSTRUCTION
 PROJECTS WHERE THE MN DOT HAS RETAINED
 QUALITY ASSURANCE PROFESSIONALS TO REVIEW
 AND INTERPRET THE RESULTS OF QUALITY CONTROL
 TESTERS. SERVICES PROVIDED BY THE CONTRACTOR. 2018-11-14 16.28 4.07 20.35

SPECIAL EQUIPMENT (201 - 204)

201 ARTICULATED HAULER 2018-11-14 36.04 20.30 56.34
 2019-05-01 37.79 20.50 58.29

202 BOOM TRUCK 2018-11-14 36.04 20.30 56.34
 2019-05-01 37.79 20.50 58.29

203 LANDSCAPING EQUIPMENT, INCLUDES HYDRO
 SEEDER OR MULCHER, SOD ROLLER, FARM TRACTOR
 WITH ATTACHMENT SPECIFICALLY SEEDING,
 SODDING, OR PLANT, AND TWO-FRAMED FORKLIFT
 (EXCLUDING FRONT, POSIT-TRACK, AND SKID STEER
 LOADERS), NO EARTHWORK OR GRADING FOR
 ELEVATIONS 2018-11-14 23.02 15.99 39.01
 2019-05-01 24.00 16.96 40.96

204 OFF-ROAD TRUCK 2018-11-14 36.04 20.30 56.34
 2019-05-01 37.79 20.50 58.29

205	PAVEMENT MARKING OR MARKING REMOVAL EQUIPMENT (ONE OR TWO PERSON OPERATORS); SELF-PROPELLED TRUCK OR TRAILER MOUNTED UNITS.	2018-11-14	32.04	21.26	53.30
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HIGHWAY/HEAVY POWER EQUIPMENT OPERATOR

GROUP 2		2018-11-14	36.89	20.30	57.19
		2019-05-01	38.64	20.50	59.14

302	HELICOPTER PILOT (HIGHWAY AND HEAVY ONLY)				
303	CONCRETE PUMP (HIGHWAY AND HEAVY ONLY)				
304	ALL CRANES WITH OVER 135-FOOT BOOM, EXCLUDING JIB (HIGHWAY AND HEAVY ONLY)				
305	DRAGLINE, CRAWLER, HYDRAULIC BACKHOE (TRACK OR WHEEL MOUNTED) AND/OR OTHER SIMILAR EQUIPMENT WITH SHOVEL-TYPE CONTROLS THREE CUBIC YARDS AND OVER MANUFACTURER.S RATED CAPACITY INCLUDING ALL ATTACHMENTS. (HIGHWAY AND HEAVY ONLY)				
306	GRADER OR MOTOR PATROL				
307	PILE DRIVING (HIGHWAY AND HEAVY ONLY)				
308	TUGBOAT 100 H.P. AND OVER WHEN LICENSE REQUIRED (HIGHWAY AND HEAVY ONLY)				

GROUP 3		2018-11-14	36.34	20.30	56.64
		2019-05-01	38.09	20.50	58.59

309	ASPHALT BITUMINOUS STABILIZER PLANT				
310	CABLEWAY				
311	CONCRETE MIXER, STATIONARY PLANT (HIGHWAY AND HEAVY ONLY)				
312	DERRICK (GUY OR STIFFLEG)(POWER)(SKIDS OR STATIONARY) (HIGHWAY AND HEAVY ONLY)				
313	DRAGLINE, CRAWLER, HYDRAULIC BACKHOE (TRACK OR WHEEL MOUNTED) AND/OR SIMILAR EQUIPMENT WITH SHOVEL-TYPE CONTROLS, UP TO THREE CUBIC YARDS MANUFACTURER.S RATED CAPACITY INCLUDING ALL ATTACHMENTS (HIGHWAY AND HEAVY ONLY)				
314	DREDGE OR ENGINEERS, DREDGE (POWER) AND ENGINEER				
315	FRONT END LOADER, FIVE CUBIC YARDS AND OVER INCLUDING ATTACHMENTS. (HIGHWAY AND HEAVY ONLY)				
316	LOCOMOTIVE CRANE OPERATOR				
317	MIXER (PAVING) CONCRETE PAVING, ROAD MOLE, INCLUDING MUCKING OPERATIONS, CONWAY OR SIMILAR TYPE				
318	MECHANIC . WELDER ON POWER EQUIPMENT (HIGHWAY AND HEAVY ONLY)				
319	TRACTOR . BOOM TYPE (HIGHWAY AND HEAVY ONLY)				

- 320 TANDEM SCRAPER
- 321 TRUCK CRANE . CRAWLER CRANE (HIGHWAY AND HEAVY ONLY)
- 322 TUGBOAT 100 H.P AND OVER (HIGHWAY AND HEAVY ONLY)

GROUP 4	2018-11-14	36.04	20.30	56.34
	2019-05-01	37.79	20.50	58.29

- 323 AIR TRACK ROCK DRILL
- 324 AUTOMATIC ROAD MACHINE (CMI OR SIMILAR) (HIGHWAY AND HEAVY ONLY)
- 325 BACKFILLER OPERATOR
- 326 CONCRETE BATCH PLANT OPERATOR (HIGHWAY AND HEAVY ONLY)
- 327 BITUMINOUS ROLLERS, RUBBER TIRED OR STEEL DRUMMED (EIGHT TONS AND OVER)
- 328 BITUMINOUS SPREADER AND FINISHING MACHINES (POWER), INCLUDING PAVERS, MACRO SURFACING AND MICRO SURFACING, OR SIMILAR TYPES (OPERATOR AND SCREED PERSON)
- 329 BROKK OR R.T.C. REMOTE CONTROL OR SIMILAR TYPE WITH ALL ATTACHMENTS
- 330 CAT CHALLENGER TRACTORS OR SIMILAR TYPES PULLING ROCK WAGONS, BULLDOZERS AND SCRAPERS
- 331 CHIP HARVESTER AND TREE CUTTER
- 332 CONCRETE DISTRIBUTOR AND SPREADER FINISHING MACHINE, LONGITUDINAL FLOAT, JOINT MACHINE, AND SPRAY MACHINE
- 333 CONCRETE MIXER ON JOBSITE (HIGHWAY AND HEAVY ONLY)
- 334 CONCRETE MOBIL (HIGHWAY AND HEAVY ONLY)
- 335 CRUSHING PLANT (GRAVEL AND STONE) OR GRAVEL WASHING, CRUSHING AND SCREENING PLANT
- 336 CURB MACHINE
- 337 DIRECTIONAL BORING MACHINE
- 338 DOPE MACHINE (PIPELINE)
- 339 DRILL RIGS, HEAVY ROTARY OR CHURN OR CABLE DRILL (HIGHWAY AND HEAVY ONLY)
- 340 DUAL TRACTOR
- 341 ELEVATING GRADER
- 342 FORK LIFT OR STRADDLE CARRIER (HIGHWAY AND HEAVY ONLY)
- 343 FORK LIFT OR LUMBER STACKER (HIGHWAY AND HEAVY ONLY)
- 344 FRONT END, SKID STEER OVER 1 TO 5 C YD
- 345 GPS REMOTE OPERATING OF EQUIPMENT
- 346 HOIST ENGINEER (POWER) (HIGHWAY AND HEAVY ONLY)
- 347 HYDRAULIC TREE PLANTER
- 348 LAUNCHER PERSON (TANKER PERSON OR PILOT LICENSE)
- 349 LOCOMOTIVE (HIGHWAY AND HEAVY ONLY)

- 350 MILLING, GRINDING, PLANNING, FINE GRADE, OR TRIMMER MACHINE
- 351 MULTIPLE MACHINES, SUCH AS AIR COMPRESSORS, WELDING MACHINES, GENERATORS, PUMPS (HIGHWAY AND HEAVY ONLY)
- 352 PAVEMENT BREAKER OR TAMPING MACHINE (POWER DRIVEN) MIGHTY MITE OR SIMILAR TYPE
- 353 PICKUP SWEEPER, ONE CUBIC YARD AND OVER HOPPER CAPACITY(HIGHWAY AND HEAVY ONLY)
- 354 PIPELINE WRAPPING, CLEANING OR BENDING MACHINE
- 355 POWER PLANT ENGINEER, 100 KWH AND OVER (HIGHWAY AND HEAVY ONLY)
- 356 POWER ACTUATED HORIZONTAL BORING MACHINE, OVER SIX INCHES
- 357 PUGMILL
- 358 PUMPCRETE (HIGHWAY AND HEAVY ONLY)
- 359 RUBBER-TIRED FARM TRACTOR WITH BACKHOE INCLUDING ATTACHMENTS (HIGHWAY AND HEAVY ONLY)
- 360 SCRAPER
- 361 SELF-PROPELLED SOIL STABILIZER
- 362 SLIP FORM (POWER DRIVEN) (PAVING)
- 363 TIE TAMPER AND BALLAST MACHINE
- 364 TRACTOR, BULLDOZER (HIGHWAY AND HEAVY ONLY)
- 365 TRACTOR, WHEEL TYPE, OVER 50 H.P. WITH PTO UNRELATED TO LANDSCAPING (HIGHWAY AND HEAVY ONLY)
- 366 TRENCHING MACHINE (SEWER, WATER, GAS) EXCLUDES WALK BEHIND TRENCHER (HIGHWAY AND HEAVY ONLY)
- 367 TUB GRINDER, MORBARK, OR SIMILAR TYPE
- 368 WELL POINT DISMANTLING OR INSTALLATION (HIGHWAY AND HEAVY ONLY)

GROUP 5	2018-11-14	33.00	20.30	53.30
	2019-05-01	34.75	20.50	55.25

- 369 AIR COMPRESSOR, 600 CFM OR OVER (HIGHWAY AND HEAVY ONLY)
- 370 BITUMINOUS ROLLER (UNDER EIGHT TONS)
- 371 CONCRETE SAW (MULTIPLE BLADE) (POWER OPERATED)
- 372 FORM TRENCH DIGGER (POWER)
- 373 FRONT END, SKID STEER UP TO 1C YD
- 374 GUNITE GUNALL (HIGHWAY AND HEAVY ONLY)
- 375 HYDRAULIC LOG SPLITTER
- 376 LOADER (BARBER GREENE OR SIMILAR TYPE)
- 377 POST HOLE DRIVING MACHINE/POST HOLE AUGER
- 378 POWER ACTUATED AUGER AND BORING MACHINE

- 379 POWER ACTUATED JACK
- 380 PUMP (HIGHWAY AND HEAVY ONLY)
- 381 SELF-PROPELLED CHIP SPREADER (FLAHERTY OR SIMILAR)
- 382 SHEEP FOOT COMPACTOR WITH BLADE . 200 H.P. AND OVER
- 383 SHOULDERING MACHINE (POWER) APSCO OR SIMILAR TYPE INCLUDING SELF-PROPELLED SAND AND CHIP SPREADER
- 384 STUMP CHIPPER AND TREE CHIPPER
- 385 TREE FARMER (MACHINE)

GROUP 6	2018-11-14	31.79	20.30	52.09
	2019-05-01	33.54	20.50	54.04

- 387 CAT, CHALLENGER, OR SIMILAR TYPE OF TRACTORS, WHEN PULLING DISK OR ROLLER
- 388 CONVEYOR (HIGHWAY AND HEAVY ONLY)
- 389 DREDGE DECK HAND
- 390 FIRE PERSON OR TANK CAR HEATER (HIGHWAY AND HEAVY ONLY)
- 391 GRAVEL SCREENING PLANT (PORTABLE NOT CRUSHING OR WASHING)
- 392 GREASER (TRACTOR) (HIGHWAY AND HEAVY ONLY)
- 393 LEVER PERSON
- 394 OILER (POWER SHOVEL, CRANE, TRUCK CRANE, DRAGLINE, CRUSHERS, AND MILLING MACHINES, OR OTHER SIMILAR HEAVY EQUIPMENT) (HIGHWAY AND HEAVY ONLY)
- 395 POWER SWEEPER
- 396 SHEEP FOOT ROLLER AND ROLLERS ON GRAVEL COMPACTION, INCLUDING VIBRATING ROLLERS
- 397 TRACTOR, WHEEL TYPE, OVER 50 H.P., UNRELATED TO LANDSCAPING

TRUCK DRIVERS

GROUP 1	2018-11-14	31.25	17.50	48.75
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- 601 MECHANIC . WELDER
- 602 TRACTOR TRAILER DRIVER
- 603 TRUCK DRIVER (HAULING MACHINERY INCLUDING OPERATION OF HAND AND POWER OPERATED WINCHES)

GROUP 2	2018-11-14	30.70	17.50	48.20
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- 604 FOUR OR MORE AXLE UNIT, STRAIGHT BODY TRUCK

GROUP 3	2018-11-14	30.60	17.50	48.10
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605	BITUMINOUS DISTRIBUTOR DRIVER				
606	BITUMINOUS DISTRIBUTOR (ONE PERSON OPERATION)				
607	THREE AXLE UNITS				
GROUP 4		2018-11-14	30.35	17.50	47.85
608	BITUMINOUS DISTRIBUTOR SPRAY OPERATOR (REAR AND OILER)				
609	DUMP PERSON				
610	GREASER				
611	PILOT CAR DRIVER				
612	RUBBER-TIRED, SELF-PROPELLED PACKER UNDER 8 TONS				
613	TWO AXLE UNIT				
614	SLURRY OPERATOR				
615	TANK TRUCK HELPER (GAS, OIL, ROAD OIL, AND WATER)				
616	TRACTOR OPERATOR, UNDER 50 H.P.				
SPECIAL CRAFTS					
701	HEATING AND FROST INSULATORS	2018-11-14	43.90	23.05	66.95
702	BOILERMAKERS	2018-11-14	37.22	27.14	64.36
		2019-01-01	38.33	27.43	65.76
703	BRICKLAYERS	2018-11-14	36.05	19.68	55.73
704	CARPENTERS	2018-11-14	38.01	21.08	59.09
		2019-05-01	39.96	21.08	61.04
705	CARPET LAYERS (LINOLEUM)	FOR RATE CALL 651-284-5091 OR EMAIL DLI.PRE VWAGE@STATE.MN.US			
706	CEMENT MASONS	2018-11-14	38.55	20.07	58.62
707	ELECTRICIANS	2018-11-14	42.28	29.07	71.35
		2019-05-01	45.23	29.07	74.30
711	GROUND PERSON	2018-11-14	31.48	15.66	47.14

		2019-04-01	32.42	16.23	48.65
712	IRONWORKERS	2018-11-14	37.10	27.85	64.95
713	LINEMAN	2018-11-14	44.97	19.44	64.41
		2019-04-01	46.32	20.12	66.44
714	MILLWRIGHT	2018-11-14	35.13	24.98	60.11
715	PAINTERS (INCLUDING HAND BRUSHED, HAND SPRAYED, AND THE TAPING OF PAVEMENT MARKINGS)	2018-11-14	38.25	21.24	59.49
716	PILEDRIIVER (INCLUDING VIBRATORY DRIVER OR EXTRACTOR FOR PILING AND SHEETING OPERATIONS)	2018-11-14	38.01	21.08	59.09
		2019-05-01	39.96	21.08	61.04
717	PIPEFITTERS . STEAMFITTERS	2018-11-14	47.04	26.05	73.09
719	PLUMBERS	2018-11-14	46.91	23.79	70.70
		2019-05-01	49.66	23.79	73.45
721	SHEET METAL WORKERS	2018-11-14	40.88	25.10	65.98
723	TERRAZZO WORKERS	FOR RATE CALL 651-284-5091 OR EMAIL DLI.PRE VWAGE@STATE.MN.US			
724	TILE SETTERS	2018-11-14	34.76	23.29	58.05
725	TILE FINISHERS	FOR RATE CALL 651-284-5091 OR EMAIL DLI.PRE VWAGE@STATE.MN.US			
727	WIRING SYSTEM TECHNICIAN	2018-11-14	38.97	17.14	56.11
		2019-07-01	40.17	17.14	57.31
728	WIRING SYSTEMS INSTALLER	2018-11-14	27.30	14.31	41.61

2019-07-01 28.14 14.31 42.45

729 ASBESTOS ABATEMENT WORKER

2018-11-14 31.68 18.71 50.39

2019-01-01 32.68 19.66 52.34

730 SIGN ERECTOR

FOR RATE CALL 651-284-5091 OR
EMAIL
DLI.PREVWAGE@STATE.MN.US

Notice of truck rental rate certification and effective date

The commissioner has certified the minimum truck rental rates for state-funded highway projects effective Dec. 31, 2018. This certification follows the publication of the Notice of Truck Rental Rate Determination in the *State Register* on Dec. 3, 2018, and the informal conference held pursuant to Minnesota Rules, part 5200.1105, on Dec. 17, 2018.

According to Minnesota Rules, part 5200.1105, the purpose of the informal conference was for the Department of Labor and Industry to obtain further input regarding the determined rates prior to the certification. Some driver wage rates have been updated to the current certified rate based on input at the informal conference.

The truck rental rate is determined for each equipment type by adding the average hourly cost of operating the vehicle to the certified prevailing-wage rate for the driver. The average hourly operating costs are determined by voluntary survey of truck owner operators, trucking contractors and trucking firms.

The determination of the minimum truck rental rates by region are as follows.

Three-axle units

Region	Effective date	607 driver rate	Operating cost	Truck rental rate
Region 1	Certification date	\$45.02	\$37.35	\$82.37
Region 2	Certification date	\$41.36	\$37.35	\$78.71
Region 3	Certification date	\$41.36	\$37.35	\$78.71
Region 4	Certification date	\$45.90	\$37.35	\$83.25
Region 5	Certification date	\$48.10	\$37.35	\$85.45
Region 6	Certification date	\$44.70	\$37.35	\$82.05
Region 7	Certification date	\$44.01	\$37.35	\$81.36
Region 8	Certification date	\$30.50	\$37.35	\$67.85

Region	Effective date	607 driver rate	Operating cost	Truck rental rate
Region 9	Certification date	\$48.10	\$37.35	\$85.45
Region 10	Certification date	\$40.00	\$37.35	\$77.35

Four-or-more-axle units

Region	Effective date	604 driver rate	Operating cost	Truck rental rate
Region 1	Certification date	\$47.80	\$52.85	\$100.65
Region 2	Certification date	\$41.51	\$52.85	\$94.36
Region 3	Certification date	\$33.42	\$52.85	\$86.27
Region 4	Certification date	\$35.66	\$52.85	\$88.51
Region 5	Certification date	\$48.20	\$52.85	\$101.05
Region 6	Certification date	\$38.90	\$52.85	\$91.75
Region 7	Certification date	\$37.40	\$52.85	\$90.25
Region 8	Certification date	\$33.00	\$52.85	\$85.85
Region 9	Certification date	\$48.20	\$52.85	\$101.05
Region 10	Certification date	\$27.00	\$52.85	\$79.85

Tractors

Region	Effective date	602 driver rate	Operating cost	Tractor-only truck rental rate	Plus trailer operating cost	Tractor trailer rental rate
Region 1	Certification date	\$48.35	\$53.54	\$101.89	\$11.46	\$113.35
Region 2	Certification date	\$42.02	\$53.54	\$95.56	\$11.46	\$107.02
Region 3	Certification date	\$42.02	\$53.54	\$95.56	\$11.46	\$107.02
Region 4	Certification date	\$46.55	\$53.54	\$100.09	\$11.46	\$111.55
Region 5	Certification date	\$31.80	\$53.54	\$85.34	\$11.46	\$96.80
Region 6	Certification date	\$39.45	\$53.54	\$92.99	\$11.46	\$104.45
Region 7	Certification date	\$37.40	\$53.54	\$90.94	\$11.46	\$102.40
Region 8	Certification date	\$39.02	\$53.54	\$92.56	\$11.46	\$104.02
Region 9	Certification date	\$48.75	\$53.54	\$102.29	\$11.46	\$113.75
Region 10	Certification date	\$36.75	\$53.54	\$90.29	\$11.46	\$101.75

The minimum truck rental rate for these four types of trucks in the state's 10 highway and heavy construction areas will be effective for all Minnesota Department of Transportation highway construction work financed in whole or part with state funds advertised for bid on or after the day the notice of certification is published in the *State Register*.

Ken B. Peterson
Commissioner

**SECTION 01 11 00
SUMMARY OF WORK**

PART 1 - GENERAL

1.1 CONTRACT DOCUMENTS

- A. The Contract Documents are as defined in Section 00 52 00 AGREEMENT FORM. The terms of the contract documents apply to these Specifications as fully as though repeated herein. The CONTRACTOR shall coordinate material supply, material delivery/unloading, construction, and inspection to assure efficient and orderly completion of the Work.
- B. The format of these Specifications is based upon the CSI MASTERFORMAT. However, differences in format and subject matter location do exist. It is the CONTRACTOR'S sole responsibility to thoroughly read and understand these Specifications and request written clarification of these portions which are unclear.
- C. Division of the Work as made in this Project Manual is for the purpose of specifying and describing work which is to be completed. There has been no attempt to make a classification according to trade or agreements which may exist between CONTRACTOR, SUBCONTRACTORS, or trade unions or other organizations. Such division and classification of the Work shall be the CONTRACTOR'S sole responsibility.

1.2 WORK COVERED BY CONTRACT DOCUMENTS

- A. Work of this Contract comprises general construction including excavation, clearing and grubbing, construction of Biochar-and-Iron-Enhanced sand filter and associated piping and stormwater utilities, and site restoration in Anoka County, City of Coon Rapids.
- B. Work specifically included in this contract includes:

670 CY	Excavation – Offsite
1,700 CY	Excavation – Onsite
680 CY	Iron-Enhanced Sand
130 CY	Biochar
706 CY	Coarse Filter Aggregate
1,166 LF	Slotted Drintile
135 LF	Directionally Drilled 14" HDPE Pipe
0.70 AC	Clearing and Grubbing
6 EA	Tree Removal
2,600 SF	Bituminous Trail

Together with selective demolition, traffic control, erosion controls, seeding, and other related appurtenances.

- C. It is the intent of the Project Manual to cover all aspects of the Project. Should there be some item or items not shown on the Drawings or not described in these Specifications which are required for the Work, those items and the

furnishing of all labor, materials, and equipment shall be considered incidental to the Work and no additional compensation will be provided.

- D. The Work includes the furnishing of all labor, equipment, tools, machinery, materials, and other items required for the construction of a complete Project as specified. Equipment furnished shall be in safe operating condition and of adequate size, capacity, and condition for the performance of the Work. CONTRACTOR shall obtain all measurements necessary for the Work and shall be responsible for establishing all dimensions, levels, and layout of the Work.
- E. CONTRACTOR shall be solely responsible for the coordination of its activities with regard to the Project and the activities of SUBCONTRACTORS and OWNER.

1.3 FORM OF SPECIFICATIONS

- A. Some Work described in these specifications use systems approach to identify systems of structure or facility. System components either specified in system specifications or by reference to another section.
- B. Term "provide" or "provided" shall mean "furnish and install in-place."

1.4 CONTRACTS

- A. Perform Work based on estimated quantities and unit prices with OWNER and shall be full compensation for labor, equipment, materials, and other items (not specifically mentioned) required to complete the Work in accordance with the Plans and Specifications for the base bid Work. Daily meetings may be held at OWNER or ENGINEER's discretion.

1.5 PERMITS AND LICENSES

- A. See Section 01 41 00.

1.6 CONTRACTOR USE OF PREMISES

- A. Definition of Site: The Site is defined as the area within the property lines and construction limits shown on the Contract Documents. CONTRACTOR shall limit operations, including material and equipment storage to within construction limits.
- B. CONTRACTOR shall keep driveways, roads, and entrances serving the site clear and available to OWNER and OWNER'S employees at all times. Do not use these areas for parking or storage of materials. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on site.
- C. Hours of Operation:
 - 1. CONTRACTOR'S operations shall be limited to the hours of local time as required by the City of Coon Rapids and the property Owner, unless prior arrangements are made with the OWNER and at least 48 hours in advance of proposed change and change is approved by the City and property Owner. CONTRACTOR'S operations shall be limited to Monday through Friday between 7:00 AM and 6:00 PM. No work is to be done on Saturday, Sundays and legal holidays. However, emergency Work may be done without prior permission. The CONTRACTOR shall make a

reasonable effort to notify OWNER and ENGINEER of emergency Work as soon as possible.

2. CONTRACTOR shall reimburse the OWNER for additional engineering and/or inspection costs incurred as a result of overtime work in excess of the regular working hours stipulated herein. At OWNER'S option, overtime costs may either be deducted from the CONTRACTOR'S monthly payment request or deducted from the CONTRACTOR'S retention prior to release of final payment. Overtime costs for the OWNER'S personnel shall be based on the individual's current overtime wage rate. Overtime costs for personnel employed by the ENGINEER or OWNER'S independent testing laboratory shall be calculated in accordance with the terms of their respective contracts with the OWNER.
- D. Protection and Repair of Existing Facilities and Utilities: CONTRACTOR shall perform operations carefully and in such a manner as to protect existing facilities and utilities. Obstructions not shown on the Drawings may exist and shall be exposed by CONTRACTOR without damage. CONTRACTOR shall be responsible for damage to existing facilities and utilities resulting from CONTRACTOR'S operations, and shall repair or replace damaged items to OWNER'S satisfaction. Groundwater monitoring wells shall be protected during construction.
 - E. Unfavorable Construction Conditions: When unfavorable weather, soil, drainage, or other unsuitable construction conditions exist, CONTRACTOR shall confine operations to work which will not be adversely affected by such conditions. No portion of the Work shall be constructed under conditions which would adversely affect the quality of the Work, unless special means or precautions are taken to perform the Work in a proper and satisfactory manner.
 - F. CONTRACTOR shall, at all times, conduct operations to ensure least inconvenience to OWNER, other contractors, and general public.
 - G. Coordinate use of premises under direction of OWNER.
 - H. Assume full responsibility for protection and safekeeping of materials and equipment under this Contract.
 - I. Obtain and pay for use of additional storage or Work areas needed for operations at no additional cost to OWNER.

1.7 SEQUENCE OF WORK

- A. CONTRACTOR shall determine the sequence of Work to meet the requirement of these Contract Documents.

1.8 RESPONSIBILITY OF THE CONTRACTOR

- A. The CONTRACTOR shall be responsible for the scheduling and general management of the work of the Project and for the acts and omissions of all of their employees; all SUBCONTRACTORS, their agents and employees; and all other persons performing any of the Work under a contract with the CONTRACTOR either above or below ground or water.

- B. The CONTRACTOR shall supervise and direct the Work, using its best skills and attention. It shall be solely responsible for all construction means, methods, techniques and procedures and for coordinating all portions of the Work under this Contract.
- C. The CONTRACTOR shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work.
- D. A CONTRACTOR representative who speaks English shall be on-site at all times.

1.9 COMMENCING WORK

- A. The CONTRACTOR shall not commence work nor allow any SUBCONTRACTOR to commence work until the OWNER has issued a Notice to Proceed.
- B. Work shall not commence without the approval of the ENGINEER, acting on behalf of the OWNER.
- C. Work shall not commence until all utility companies have been contacted and any and all buried utility lines have been marked.

1.10 SURVEYING AND CONSTRUCTION OBSERVATION

- A. See Section 01 71 23 for surveying and construction staking information and requirements.
- B. Provide ENGINEER a minimum of 48-hour notice in advance of the need for observation of Work.

1.11 PROJECT MANUAL

- A. CONTRACTOR shall have a complete Project Manual on site for the duration of the project. If CONTRACTOR does not have a complete Project Manual on site, a fine of \$1,000 per occurrence shall be deducted from the CONTRACTOR'S next invoice.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

**SECTION 01 20 00
PRICE AND PAYMENT PROCEDURES**

PART 1 - GENERAL

1.1 SUMMARY

- A. Work under this section includes descriptions of the measurement and payment methods for each bid item including directing the CONTRACTOR which work items shall have their prices merged and which are considered incidental to the project. The CONTRACTOR shall coordinate material supply, material delivery/unloading, construction, and inspection to assure efficient and orderly completion of the Work.

1.2 MEASUREMENT AND PAYMENT

- A. General
1. Work under the following specification sections are considered incidental to the project, and no further compensation will be made.
 - a. Section 01 11 00 – Summary of Work
 - b. Section 01 25 00 – Substitution Procedures
 - c. Section 01 31 00 – Project Management and Coordination
 - d. Section 01 33 00 – Submittal Procedures
 - e. Section 01 35 31 – Health and Safety Requirements
 - f. Section 01 41 00 – Regulatory Requirements
 - g. Section 01 42 00 – References
 - h. Section 01 45 29 – Testing Laboratory Services
 - i. Section 01 50 00 – Temporary Facilities and Controls
 - j. Section 01 55 00 – Site Access and Storage
 - k. Section 01 57 21 – Air, Land and Water Pollution Control
 - l. Section 01 57 29 – Protection of Existing Facilities
 - m. Section 01 60 00 – Product Requirements
 - n. Section 01 70 00 – Execution and Closeout Requirements
 - o. Section 01 71 23 – Field Engineering
 - p. Section 01 78 39 – Project Record Documents
 - q. Section 31 23 13 – Subgrade Preparation
 - r. Section 33 05 97 – Identification and Signage for Utilities
 2. Measurement and payment criteria applicable to portions of the work performed.
 3. Defect assessment and non-payment for rejected work.
 4. Unit Quantities Specified:
 - a. Quantities and measurements indicated in the Bid Form are for bidding and contract purposes.
 - b. A Change Order may be submitted if the scope of work changes. Change Order approval will be required from the OWNER.
 5. Measurement and Quantities:

- a. Measurement of quantities expressed as volume are based upon a neat plan line protection to the work limits as determined on the Bid Form for each item with no additional allowances for shrinkage, swelling, or creep.
 - b. Measurements of quantities expressed as area shall be based upon square dimensions using mean length and width or radius.
 - c. Measurement of quantities expressed as linear foot shall be based on the length projected in plan view based on survey points (i.e., slopes projected flat).
 - d. Lump Sum/Price Measurement: Items measured by volume, area, or linear means or combinations, as appropriate, as a completed item or unit of work.
6. Payment:
- a. Payment for each lump sum and unit price stated in the itemized bill shall constitute full compensation for all required labor, products, tools, equipment, plant, transportation, services, and incidentals: erections, application on installation of an item of the work required to complete all work specified under that particular item including cleanup, and all costs for doing related work as set forth in these specifications and/or on the Drawings or implied in carrying out their intent.
 - 1) The price bid sum stated in the itemized bid shall be deemed to include an allowance for overhead and profit.
 - b. Final payment for work governed will be made on the basis of bid quantities accepted by OWNER.
 - c. Requests for payment shall be in accordance with the General Conditions of the Construction Agreement.
 - d. Payment will be made to the limits as specified in the Contract Documents and as shown on the Drawings.
 - e. No partial payments shall be made for the installation of items which have not been tested and approved.
 - f. No partial payment shall be made for material delivered to the site and stored until installation.
 - g. Payment for unit price items will be made monthly until completion of each unit price based on quantity estimated by CONTACTOR, and verified by OWNER. Final payment will be based on actual field measured quantities.
7. Defect Assessment:
- a. Replace the work, or portions of the work, not conforming to specified requirements.
 - b. If, in the opinion of OWNER, it is not practical to remove and replace the work, OWNER will direct one of the following remedies:
 - 1) The defective work may remain, but the unit/price will be adjusted to a new sum/price at the discretion of OWNER.
 - 2) The defective work will be partially repaired to the instructions of OWNER, and the unit/sum price will be adjusted to a new sum/price at the discretion of the OWNER.
 - c. The individual specification sections may modify these options or may identify a specific formula or percentage sum/price reduction.

- d. The authority of OWNER to assess the defect and identify payment adjustment is final.
- 8. Non-Payment for Rejected Products:
 - a. Payment will not be made for any of the following:
 - 1) Products wasted or disposed of in a manner that is not acceptable.
 - 2) Products determined as unacceptable before or after placement.
 - 3) Products not completely unloaded from the transporting vehicle.
 - 4) Products placed beyond the lines and levels of the required work.
 - 5) Products remaining on hand after completion of the work.
 - 6) Loading, hauling, and disposing of rejected products.

B. Bid Items:

- 1. Mobilization and Demobilization – Section 01 71 13
 - a. Basis of Measurement: By lump sum.
 - b. Basis of Payment: At the unit price per lump sum.
 - c. Includes: Unit price includes, but is not limited to, materials, equipment, labor for movement to and from the project site, permits, bonds, contractor temporary facilities, and other miscellaneous items.
 - d. Payment Schedule: Item will be paid in accordance with Mn/DOT Spec 2021 Table 2021-1
- 2. Traffic Control – Section 01 55 26
 - a. Basis of Measurement: By lump sum.
 - b. Basis of Payment: At the unit price per lump sum.
 - c. Includes: Unit price includes, but is not limited to, materials, equipment, labor for providing traffic control layout(s) and detour layout(s) (if necessary), furnishing, installing, maintaining, relocating, and removing the individual traffic control devices as required for the entire project. Traffic control bid item also includes all necessary signage and markings required for sidewalk/trail/boardwalk closures.
 - d. Payment Schedule:
 - 1) Partial payment of the Lump Sum Bid Item "Traffic Control" will be made using a percentage based on the following:

Cumulative Percent

First Partial Payment	50
Percent of original contract earned – 25	70
Percent of original contract earned – 50	90
Percent of original contract earned – 100	100

- 3. Tree Protection –31 10 00
 - a. Basis of Measurement: By lump sum.
 - b. Basis of Payment: At the unit price per lump sum.
 - c. Includes: Unit price includes, but is not limited to, materials, equipment, labor necessary to provide tree protection as noted on the Drawings.
- 4. Clearing – Section 31 10 00

- a. Basis of Measurement: By the acre of cleared brush and small trees in accordance with Mn/DOT Spec 2101.
 - b. Basis of Payment: At the unit price per acre of cleared brush and small trees.
 - c. Includes: Unit price includes, but is not limited to, material, equipment, labor necessary for removal and disposal of small trees and brush.
5. Grubbing – Section 31 10 00
- a. Basis of Measurement: By the acre of grubbed trees in accordance with Mn/DOT Spec 2101.
 - b. Basis of Payment: At the unit price per acre of grubbed trees.
 - c. Includes: Unit price includes, but is not limited to, material, equipment, labor necessary for removal and disposal of tree stumps.
6. Clear Trees – Section 31 10 00
- a. Basis of Measurement: By each tree cleared having a diameter of more than 6 inches at a point 24 inches above the ground surface.
 - b. Basis of Payment: At the unit price per each tree cleared.
 - c. Includes: Unit price includes, but is not limited to, material, equipment, labor necessary for removal and disposal of trees.
7. Common Excavation – Onsite (EV) (P) – Section 31 23 00
- a. Basis of Measurement: By cubic yard of material excavated from the project site and borrow areas from its original position, based on pre-construction survey information and the design grading grade as computed by the Engineer. Quantity paid shall be Drawing quantity with no adjustment to the volume unless the scope of the soil moved has changed from that shown on the Drawings. The volume was computed based on Excavated Volume (EV).
 - b. Basis of Payment: At the unit price per cubic yard of material excavated.
 - c. Includes, but is not limited to: Unit price includes material, equipment, and labor required to excavate, load, haul, place, compact, and fine grade suitable material to the grades shown on the Drawings.
8. Common Excavation – Offsite (EV) (P) – Section 31 23 00
- a. Basis of Measurement: By cubic yard of material excavated from the project site from its original position, based on pre-construction and design grading grade as computed by the Engineer. Quantity paid shall be Drawing quantity with no adjustment to the volume unless the scope of the soil moved has changed from that shown on the Drawings. The volume was computed based on Excavated Volume (EV).
 - b. Basis of Payment: At the unit price per cubic yard of material excavated.
 - c. Includes, but is not limited to: Unit price includes material, equipment, and labor required to excavate, load, fine grade, haul, and dispose offsite.
9. Additional Subcut (LV) – Offsite – Section 31 23 00
- a. Basis of Measurement: The Engineer will measure Additional Subcut (LV) by cubic yard of material based on truck tickets delivered to the Engineer. Contractor shall provide 48 hours notification prior to hauling material off site to allow for truck measurement verification.
 - b. Basis of Payment: At the unit price per cubic yard of material hauled.

- c. Includes, but is not limited to: Unit price includes material, equipment, and labor required to excavate, load, scarify and compact subgrade, fine grade, haul, and dispose offsite. Quantity subject to change. Material to be hauled off site with approval from Engineer.
10. Clay Fill (LV) – Section 31 23 00
- a. Basis of Measurement: The Engineer will measure Clay Fill (LV) by cubic yard of material based on truck tickets delivered to the Engineer. Contractor shall provide 48 hours notification prior to hauling material on site to allow for measurement verification.
 - b. Basis of Payment: At the unit price per cubic yard of material imported and compacted.
 - c. Includes, but is not limited to: Unit price includes materials, equipment, and labor required to import, place, compact, and fine grade the clay fill material. Quantity subject to change. Material to be hauled on site with approval from Engineer.
11. Salvage and Respread Topsoil – Section 31 10 00
- a. Basis of Measurement: By the square yard of topsoil salvaged and respread onsite assuming a minimum thickness of 6 inches. No additional reimbursement will be made for thickness over the minimum.
 - b. Basis of Payment: At the unit price per square yard of topsoil salvaged and respread.
 - c. Includes, but is not limited to: Unit price includes materials, equipment, and labor required to salvage, stockpile, and respread existing topsoil.
12. Temporary Dewatering – Section 31 23 19
- a. Basis of Measurement: By lump sum.
 - b. Basis of Payment: At the unit price per lump sum.
 - c. Includes, but is not limited to: Unit price includes materials, equipment, and labor required to dewater the site as specified in accordance with permitting requirements.
13. Street Sweeper (With Pickup Broom) – Section 31 25 00
- a. Basis of Measurement: By the hour for a sweeper and operator.
 - b. Basis of Payment: At the unit price per hour for sweeper and operator.
 - c. Includes, but is not limited to: Unit price includes materials, equipment, and labor required to perform the sweeping operation and disposal of the material as specified.
14. Temporary Rock Construction Entrance - Maintained – Section 31 25 00
- a. Basis of Measurement: By each temporary entrance installed and maintained.
 - b. Basis of Payment: At the unit price per each temporary entrance installed.
 - c. Includes, but is not limited to: Unit price includes materials, equipment, and labor required to furnish, install, and maintain temporary construction entrance for the duration of the project as specified.
 - d. Payment Schedule: 80-percent payment will be made upon installation and 20-percent will be made upon removal and restoration.
15. Storm Drain Inlet Protection - Maintained – Section 31 25 00
- a. Basis of Measurement: By each inlet protection installed and maintained.
 - b. Basis of Payment: At the unit price per each inlet protection installed.

- c. Includes, but is not limited to: Unit price includes materials, equipment, and labor required to furnish, install, and maintain inlet protection for the duration of the project as specified.
 - d. Payment Schedule: 80-percent payment will be made upon installation and 20-percent will be made upon removal and restoration.
16. Silt Fence, Type MS - Maintained – Section 31 25 00
- a. Basis of Measurement: By the lineal foot of silt fence installed and maintained.
 - b. Basis of Payment: At the unit price per lineal foot of silt fence installed.
 - c. Includes, but is not limited to: Unit price includes materials, equipment, and labor required to furnish, install, and maintain silt fence for the duration of the project as specified.
 - d. Payment Schedule: 80-percent payment will be made upon installation and 20-percent will be made upon removal and restoration.
17. Flotation Silt Curtain Type Moving Water – Maintained – Section 31 25 00
- a. Basis of Measurement: By the lineal foot of silt curtain installed and maintained.
 - b. Basis of Payment: At the unit price per lineal foot of silt curtain installed.
 - c. Includes, but is not limited to: Unit price includes materials, equipment, and labor required to furnish, install, and maintain flotation silt curtain for the duration of the project as specified.
 - d. Payment Schedule: 80-percent payment will be made upon installation and 20-percent will be made upon removal and restoration.
18. Erosion Control Blanket Category 3N, Straw 2S – Section 31 25 00
- a. Basis of Measurement: By the square yard of erosion control blanket installed, without regard to overlap.
 - b. Basis of Payment: At the unit price per square yard of erosion control blanket installed.
 - c. Includes, but is not limited to: Unit price includes materials, equipment, and labor required to furnish, install, and maintain erosion control blanket with preparation of topsoil, watering, and maintenance as specified.
19. Coir Erosion Control Mat – Section 31 25 00
- a. Basis of Measurement: By square yard of erosion control mat installed, without regard to overlap.
 - b. Basis of Payment: At the unit price per square yard of coir erosion control mat installed.
 - c. Includes, but is not limited to: Unit price includes materials, equipment, and labor required to furnish and install coir erosion control mat with 2' hardwood stakes, anchors, and other appurtenances.
20. Coarse Filter Aggregate (CV) – Section 33 41 00
- a. Basis of Measurement: By cubic yard of material imported and compacted, based on pre-construction survey information and the design grading grade. Quantity paid shall be Drawing quantity with no adjustment to the volume unless the scope of the material moved has changed from that shown on the Drawings.

- b. Basis of Payment: At the unit price per cubic yard of material imported and compacted.
 - c. Includes, but is not limited to: Unit price includes materials, equipment, and labor required to import, place, compact, and fine grade the coarse filter aggregate material.
21. Biochar Filter Media – Section 33 44 23
- a. Basis of Measurement: By cubic yard of material imported and placed. Quantity paid shall be Drawing quantity with no adjustment to the volume unless the scope of the material location or depth has changed from that shown on the Drawings.
 - b. Basis of Payment: At the unit price per cubic yard imported and placed.
 - c. Includes, but is not limited to: Unit price includes materials, equipment, and labor required to furnish and install biochar filter media.
22. Iron/Fine Filter Aggregate (Modified) (P) – Section 33 44 23
- a. Basis of Measurement: By cubic yard of material imported and placed. Quantity paid shall be Drawing quantity with no adjustment to the volume unless the scope of the material location or depth has changed from that shown on the Drawings.
 - b. Basis of Payment: At the unit price per cubic yard imported and placed.
 - c. Includes, but is not limited to: Unit price includes materials, equipment, and labor required to furnish and install premixed iron/fine filter aggregate.
23. Random Riprap Class III – Section 31 37 00
- a. Basis of Measurement: By the ton of material placed and accepted as determined from weight tickets delivered to the Engineer.
 - b. Basis of Payment: At the unit price per ton of riprap placed.
 - c. Includes, but is not limited to: Unit price includes materials, equipment, and labor required to furnish and install riprap.
24. 6" Slotted PVC Sch 40 Drain Tile Pipe – Section 33 41 00
- a. Basis of Measurement: By the lineal foot of piping installed, measured along the axis, without regard to intervening fittings.
 - b. Basis of Payment: At the unit price per lineal foot of storm sewer pipe installed.
 - c. Includes, but is not limited to: Unit price includes materials, equipment, and labor required to furnish and install pipe with connections, fittings, tracer wire, excavation, backfill, and compaction.
25. 8" Solid PVC Sch 40 Storm Sewer Pipe – Section 33 40 00
- a. Basis of Measurement: By the lineal foot of piping installed, measured along the axis, from center of structure to center of structure or pipe end at free outlet, not including flared ends or aprons.
 - b. Basis of Payment: At the unit price per lineal foot of storm sewer pipe installed.
 - c. Includes, but is not limited to: Unit price includes materials, equipment, and labor required to furnish and install pipe with connections, fittings, tracer wire, excavation, bedding, backfill, and compaction.
26. 10" Solid PVC Sch 40 Storm Sewer Pipe – Section 33 40 00

- a. Basis of Measurement: By the lineal foot of piping installed, measured along the axis, from center of structure to center of structure or pipe end at free outlet, not including flared ends or aprons.
 - b. Basis of Payment: At the unit price per lineal foot of storm sewer pipe installed.
 - c. Includes, but is not limited to: Unit price includes materials, equipment, and labor required to furnish and install pipe with connections, fittings, tracer wire, excavation, bedding, backfill, and compaction.
27. 8" PVC Wye – Section 33 40 00
- a. Basis of Measurement: By each wye installed.
 - b. Basis of Payment: At the unit price per each wye installed.
 - c. Includes, but is not limited to: Unit price includes materials, equipment, and labor required to furnish and install wye complete in place with excavation, bedding, backfilling, and compaction.
28. Cleanout W/ Vented Screen – Section 33 40 00
- a. Basis of Measurement: By each cleanout installed.
 - b. Basis of Payment: At the unit price per each cleanout installed.
 - c. Includes, but is not limited to: Unit price includes materials, equipment, and labor required to furnish and install the cleanout with vented screen, piping, fittings, and other appurtenances. According to the unit bid price as stated on the bid form.
29. Monitoring Standpipe w/ Threaded Cap – Section 33 40 00
- a. Basis of Measurement: By each monitoring standpipe installed.
 - b. Basis of Payment: At the unit price per each monitoring standpipe installed.
 - c. Includes, but is not limited to: Unit price includes materials, equipment, and labor required to furnish and install the monitoring standpipe with threaded cap, piping, fittings, and other appurtenances. According to the unit bid price as stated on the bid form.
30. 14" HDPE SDR-11 Storm Sewer Pipe (Directionally Drilled) – Section 33 40 00
- a. Basis of Measurement: By the lineal foot of piping installed, measured along the axis, from center of structure to center of structure or pipe end at free outlet, not including flared ends or aprons.
 - b. Basis of Payment: At the unit price per lineal foot of storm sewer pipe installed.
 - c. Includes, but is not limited to: Unit price includes materials, equipment, and labor required to furnish and install pipe with connections, fittings, tracer wire, excavation, bedding, backfill, and compaction.
31. 4' Diameter Storm Sewer Outlet Control Structure – Section 33 40 00
- a. Basis of Measurement: By each structure installed, regardless of build height.
 - b. Basis of Payment: At the unit price per each structure installed.
Includes, but is not limited to: Unit price includes materials, equipment, and labor required to furnish and install structure complete in place with casting, frame, cover, adjustment rings, grouting, connections, excavation, dewatering, bedding, backfill, and compaction.
32. 10" Gate Valve – Section 33 40 00

- a. Basis of Measurement: By each valve installed.
 - b. Basis of Payment: At the unit price per each valve installed.
 - c. Includes, but is not limited to: Unit price includes materials, equipment, and labor required to furnish and install gate valve with joint restraints, extension stems, flexible couplings, PVC pipe valve box with threaded cap, and other appurtenances.
33. MnDOT Seed Mixture 34-261 – Section 32 92 19
- a. Basis of Measurement: By pound of pure live seed (PLS) installed.
 - 1) Quantities are based on seeding rate of 31.5 lbs/acre.
 - b. Basis of Payment: At the unit price per pound of pure live seed installed.
 - c. Includes, but is not limited to: Unit price includes materials, equipment, and labor required to furnish and install seed with preparing topsoil, and preparation of seedbed.
34. MN State Seed Mixture 33-262 – Section 32 92 19
- a. Basis of Measurement: By pound of pure live seed (PLS) installed.
 - 1) Quantities are based on seeding rate of 44.0 lbs/acre.
 - b. Basis of Payment: At the unit price per pound of pure live seed installed.
 - c. Includes, but is not limited to: Unit price includes materials, equipment, and labor required to furnish and install seed with preparing topsoil, and preparation of seedbed.
35. Seeding – Section 32 92 19
- a. Basis of Measurement: By the acre of seeding installed and maintained regardless of the seed mixture or quantity of seed used.
 - b. Basis of Payment: At the unit price per acre of seeding installed and maintained.
 - c. Includes, but is not limited to: Unit price includes materials, equipment, and labor required for preparation of seedbed and all correlated activity specified with leaf blowing to expose soil for installing seed and other activities as required for installation.
36. Pea Gravel - Coarse Filter Aggregate (CV) – Section 31 23 00
- a. Basis of Measurement: By cubic yard of material imported and compacted, based on pre-construction survey information and the design grading grade. Quantity paid shall be Drawing quantity with no adjustment to the volume unless the scope of the material moved has changed from that shown on the Drawings.
 - b. Basis of Payment: At the unit price per cubic yard of material imported and compacted.
 - c. Includes, but is not limited to: Unit price includes materials, equipment, and labor required to load, import, place, compact, and fine grade the coarse filter aggregate material from the City of Coon Rapids Public Works.
37. Common Excavation for Trail – Offsite (EV) (P) – Section 31 23 00
- a. Basis of Measurement: By cubic yard of material excavated from the project site from its original position, based on pre-construction and design grading grade as computed by the Engineer. Quantity paid shall be Drawing quantity with no adjustment to the volume unless the scope

of the soil moved has changed from that shown on the Drawings. The volume was computed based on Excavated Volume (EV).

- b. Basis of Payment: At the unit price per cubic yard of material excavated.
 - c. Includes, but is not limited to: Unit price includes material, equipment, and labor required to excavate, load, scarify and compact subgrade, fine grade, haul, and dispose offsite.
38. Gravel Aggregate Base (CV) (P) – Section 32 11 23
- a. Basis of Measurement: By the cubic yard of material imported and compacted in place as determined from weight tickets delivered to the Engineer.
 - 1) If the aggregate base material is being wasted or placed excessively thick, the Owner reserves the right to deduct quantities that are in excess of Drawing thickness. Said quantities shall be based on material weighing 110 pounds per square yard of area per inch of thickness.
 - b. Basis of Payment: At the unit price per cubic yard of material imported and compacted.
 - c. Includes, but is not limited to: Unit price includes materials, equipment, and labor required to import, place, compact, and fine grade aggregate base material. Subgrade preparation shall be considered incidental to the project cost.
39. Type 9.5 Wearing Course Mixture (2,E) – Section 32 12 00
- a. Basis of Measurement: By the ton of material placed as determined from weight tickets delivered to the Engineer.
 - b. Basis of Payment: At the unit price per ton of material placed.
 - c. Includes, but is not limited to: Unit price includes materials, equipment, and labor required to furnish and install wearing course mixture with asphalt binder materials. Cleaning of debris and dirt from the previous bituminous surfaces prior to placement of tack coat is considered incidental.
 - 1) All bituminous wearing courses are to be constructed in 2020. All costs associated with the required bituminous construction phasing shall be considered incidental to the Project.
 - d. Payment Schedule: Partial payment will not exceed 70 percent of the total calculated payment until the required testing and documentation is received and found to be acceptable to the Engineer.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

**SECTION 01 25 00
SUBSTITUTION PROCEDURES**

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes basic procedures for request for consideration of proposed substitutions after the bidding period.

1.2 SUBMITTALS

- A. Submit enclosed Substitution request form
 - 1. Attachment 1: After Contract Award
- B. Procedures for Contractors request for consideration of substitute as an "Approved Equivalent"
 - 1. To consider products of other manufacturers as "Approved Equivalent" CONTRACTOR shall demonstrate the substitution is equal to or better than the specified item. Factors to be addressed are:
 - a. Environment (ambient conditions, climate, etc)
 - b. Quality
 - c. Dependability
 - d. Durability
 - e. Strength
 - f. Performance
 - g. Operation Efficiency
 - h. Maintenance
 - i. Warranty
 - j. Overall Cost Effectiveness
 - 2. CONTRACTOR shall submit only proposed items that duplicate the intended design or function that are currently in satisfactory use at other similar sites. The CONTRACTOR may be asked to provide references to other sites where the proposed substitutions have been installed.
 - 3. Basis of Acceptance: The CONTRACTOR'S provided data as stated in paragraphs 1 and 2 above shall become the basis for accepting the proposed substitution. Substitutions shall not be accepted without the approval of the ENGINEER. Substitutions prior to bid opening are only allowed if issued in an addendum.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

Attachment 1 to Section 01 25 00
REQUEST FOR DETERMINATION OF APPROVED EQUIVALENT - AFTER CONTRACT AWARD

Project: _____ Substitution Request Number: _____

From: _____
To: _____ Date: _____

Re: _____ Wenck Project #: _____

Specification Title: _____ Description: _____
Drawing #: _____ Detail #: _____
Section: _____ Page: _____ Article/Paragraph: _____

Proposed Substitution: _____
Manufacturer: _____ Address: _____ Phone: _____
Trade Name: _____ Model No.: _____
Installer: _____ Address: _____ Phone: _____
History: New Product 2-5 years old 5-10 years old More than 10 years old
Differences between proposed substitution and specified product: _____

 Point-by-point comparative data attached – REQUIRED BY SECTION 01 25 00

Reason for not providing specified item: _____
Similar Installation:
Project: _____ Engineer: _____
Address: _____ Owner: _____
Date Installed: _____

Proposed substitution affects other parts of Work: No Yes, explain _____

Savings to Owner for accepting substitution: _____ (\$_____).
Proposed substitution changes Contract Time: No Yes _____ days.

Supporting Data Attached: Drawings Product Data Samples Tests Reports

Attachment 1 to Section 01 25 00
SUBSTITUTION REQUEST (Page 2 of 2) - After Contract Award

The Undersigned certifies:

- Proposed substitution has been fully investigated and determined to be equal or superior in all respects to specified product.
- Same warranty will be furnished for proposed substitution as for specified product.
- Same maintenance service and source of replacement parts, as applicable, is available.
- Proposed substitution will have no adverse effect on other trades and will not affect or delay progress schedule.
- Cost data as stated above is complete. Claims for additional costs related to accepted substitution which may subsequently become apparent are to be waived.
- Proposed substitution does not affect dimensions and functional clearances.
- Payment will be made for changes to building design, including engineering design, detailing, and construction costs caused by the substitution.
- Coordination, installation, and changes in the Work as necessary for accepted substitution will be complete in all respects.

Submitted by: _____

Signature: _____

Firm: _____

Address: _____

Telephone: _____

Attachments: _____

ENGINEERS REVIEW AND ACTION

- Substitution approved – Make submittals in accordance with Specification Section 01 33 00.
 Substitution rejected – Use specified materials.
 Substitution Request received too late – Use specified materials.

Signed by: _____ Date: _____

Additional Comments: Contractor Subcontractor Supplier Manufacturer

Engineer

**SECTION 01 31 00
PROJECT MANAGEMENT AND COORDINATION**

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes requirements for Project Meetings and coordination of construction activities.

1.2 COORDINATION

- A. The CONTRACTOR shall coordinate material supply, material delivery/unloading, construction, and inspection to assure efficient and orderly completion of the Work.
- B. The CONTRACTOR shall notify the OWNER, in writing, when coordination of the OWNER'S or other CONTRACTOR'S activities are required.

1.3 PROJECT PERSONNEL

- A. The OWNER is:

Tim Kelly
Coon Creek Watershed District
13632 Van Buren Street NE
Ham Lake, MN
Telephone: 763-392-8840

- B. The ENGINEER is:

Ed Matthiesen, P.E.
Wenck Associates, Inc.
7500 Olson Memorial Highway
Suite 300
Golden Valley, Minnesota 55427
Telephone: (763) 252-6800

1.4 PRECONSTRUCTION MEETING

- A. ENGINEER will schedule and conduct a preconstruction meeting to be held prior to beginning work.

1.5 WEEKLY PROGRESS MEETINGS

- A. Weekly progress meeting to be held as needed on an agreed upon day by OWNER, ENGINEER, and CONTRACTOR.
- B. Daily meetings may be held at OWNER or ENGINEER'S discretion.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 PRECONSTRUCTION MEETING

- A. Notice of preconstruction meeting received by attendees a minimum of five (5) calendar days prior to meeting date.
- B. Attendees at the preconstruction meeting.
 - 1. OWNER
 - 2. ENGINEER
 - 3. CONTRACTOR'S superintendent and foreman.
- C. Notice to include
 - 1. Date
 - 2. Time
 - 3. Agenda
 - a. Safety programs.
 - b. Review submittals.
 - c. Review the responsibilities of each party.
 - d. Address CONTRACTORS' questions.
 - e. Review lines of authority and communication.
 - f. Review principal features of Work.
 - g. Review methods for documenting and reporting, and for distributing documents and reports.
 - h. Make additional appropriate modifications to the CQA Plan if needed.
 - i. Establish protocols for testing.
 - j. Establish protocols for handling deficiencies, repairs, and retesting.
 - k. Review the time schedule for construction.
 - l. Review progress schedules.
 - m. Payrolls and labor relations.
 - n. Environmental protection.
 - o. Payment and procurement of materials.
 - p. Establish soil stockpiling locations (if any).
- D. Attendance:
 - 1. CONTRACTOR'S superintendent.
 - 2. Quality control supervisor.
 - 3. Safety personnel.
 - 4. Major subcontractors' job superintendents.
 - 5. OWNER
 - 6. CONTRACTOR's Health and Safety Manager
 - 7. ENGINEER

- E. Specifics of CONTRACTOR'S health, safety, and emergency plan shall be discussed so emergency procedures and safety requirements are understood by those directly related to site Work.

3.2 PROGRESS MEETINGS

- A. ENGINEER shall schedule and administer progress meetings as needed or as requested by OWNER.
- B. Attendance:
 - 1. OWNER or ENGINEER
 - 2. CONTRACTOR'S superintendent
 - 3. CONTRACTOR'S quality control supervisor
 - 4. CONTRACTOR'S safety and emergency coordinator
 - 5. Subcontractors as appropriate to agenda
 - 6. Suppliers as appropriate to agenda
- C. General Meeting Requirements:
 - 1. OWNER shall administer following general requirements for progress meetings.
 - a. Prepare agenda for meetings
 - b. Make physical arrangements for meetings
 - c. Preside at meetings
 - d. Record significant proceedings and decisions of meeting
 - 2. The OWNER will reproduce and distribute copies of meeting record within three (3) days after each meeting to participants in meeting and to parties affected by decisions made at meeting. Furnish three (3) copies of minutes to OWNER.
- D. Typical Agenda:
 - 1. Review and approval of record of previous meeting
 - 2. Review of Work progress since previous meeting
 - 3. Field observations, problems, and conflicts
 - 4. Problems impeding Work schedule
 - 5. Review of off-site delivery schedules
 - 6. Corrective measures and procedures to regain projected schedule
 - 7. Revisions to project schedule
 - 8. Planned progress during Work period
 - 9. Coordination of schedule
 - 10. Review submittal schedules; expedite as required
 - 11. Maintenance of quality and safety standards
 - 12. Pending changes and substitutions
 - 13. Review proposed changes for effect on construction schedule and completion date, and other contracts of project
 - 14. Other business

END OF SECTION

**SECTION 01 33 00
SUBMITTAL PROCEDURES**

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes requirements for submittals of construction progress schedules, Shop Drawings, test results, construction photographs, and other submittals required by Contract Documents.
- B. Submittal for Review:
 - 1. Submit required materials for ENGINEER'S review in accordance with requirements of Contract Documents.
- C. Submittal for Record:
 - 1. Submit required materials for inclusion into OWNER'S records. Submittal materials may or may not be reviewed by ENGINEER or OWNER.

1.2 REQUIRED SUBMITTALS

- A. Construction Schedule
 - 1. See paragraph 1.3.
- B. Construction Operations Plan
 - 1. At the pre-construction conference, the CONTRACTOR shall submit to the OWNER and ENGINEER a Construction Operations Plan. The plan will detail the CONTRACTOR'S approach to the project, and should include the following at a minimum.
 - a. Detailed Staging and Sequencing Plan
 - b. Dewatering Plan
 - c. Excavated Materials Management Plan
 - d. Traffic Control
 - 2. The Construction Operations Plan shall be reviewed by the OWNER and ENGINEER, and approved if acceptable. The CONTRACTOR shall not mobilize equipment to the site before the Construction Operations Plan is approved.
- C. Health and Safety Plan (HASP)
 - 1. See Section 01 35 31
- D. Construction Materials
 - 1. All Materials used for construction.
- E. Record Drawings
 - 1. See Section 01 78 39.

1.3 CONSTRUCTION PROGRESS SCHEDULES

- A. Prepare and submit construction progress schedule in accordance with requirements of General Conditions.
- B. Comply with Section 01 11 00 for working hours.
- C. Prepare schedules in form of horizontal bar chart, and submit within 1 week of notice to proceed or at the pre-construction meeting.
 - 1. Provide separate horizontal bar for each operation.
 - 2. Horizontal Time Scale: Identify first Work day of each week.
 - 3. Scale and spacings to allow space for notations and future revisions.
 - 4. Arrange listings in order of start of each item of Work.
- D. Construction Progress Schedule:
 - 1. Show complete sequence of construction by activity.
 - 2. Show dates for beginning and completion of each major element of construction and installation dates for major items. Elements shall include, but not be limited to, the following:
 - a. Site preparation.
 - b. Shop Drawing receipt from supplier/manufacturer, submittal to ENGINEER, review and return to supplier/manufacturer.
 - c. Material and equipment order, manufacturer, delivery.
 - d. Performance tests and supervisory services activity.
 - e. Each Bid Item.
 - f. Subcontractor's items of Work.
 - g. Final cleanup
 - h. Allowance for inclement weather.
 - i. Miscellaneous items.
 - 3. Show projected percentage of completion for each item as of first day of each month.
- E. Schedule Revisions
 - 1. Every 30 days to reflect changes in progress of Work.
 - 2. Indicate progress of each activity at date of submittal.
 - 3. Show changes occurring since previous submittal of schedule.
 - a. Major changes in scope.
 - b. Activities modified since previous submittals.
 - c. Revised projections of progress and completion.
 - d. Other identifiable changes.
 - 4. Provide narrative report as needed to define:
 - a. Problem areas, anticipated delays, and impact on schedule.
 - b. Corrective action recommended and its effect.
 - c. Effect of changes on schedule of other CONTRACTORS.

1.4 SHOP DRAWINGS AND SAMPLES

- A. Submit Shop Drawings and samples required in individual specification sections. This includes all materials used for construction for review prior to being delivered on site to ensure they meet both specification and aesthetic quality.
- B. CONTRACTOR'S responsibilities shall include:
 - 1. Review Shop Drawings and samples prior to submittal.
 - 2. Determine and verify:
 - a. Field measurements.
 - b. Field construction criteria.
 - c. Catalog numbers and similar data.
 - d. Conformance with specifications
 - 3. Coordinate each submittal with requirements of Work and of Contract Documents.
 - 4. Notify ENGINEER in writing, at time of submittal, of deviations in submittals from requirements of Contract Documents.
 - 5. Begin no fabrication or Work that requires submittals until return of submittals with ENGINEER approval.
 - 6. Designate in construction progress schedule, dates for submittal and receipt of reviewed shop Drawings and samples.
- C. Submittals shall contain:
 - 1. Date of submittal and dates of previous submittals.
 - 2. Project title and number.
 - 3. Contract identification.
 - 4. Names of:
 - a. CONTRACTOR
 - b. Supplier
 - c. Manufacturer
 - 5. Identification of product, with identification numbers, and Drawings and specification section numbers.
 - 6. Field dimensions, clearly identified.
 - 7. Identify details required on Drawings and in specifications.
 - 8. Show manufacturer and model number, give dimensions, and provide clearances.
 - 9. Relation to adjacent or critical features of Work or materials.
 - 10. Applicable standards, such as ASTM or Federal Specification numbers.
 - 11. Identification of deviations from Contract Documents.
 - 12. Identification of revisions on resubmittals.
 - 13. 8-inch by 3-inch blank space for CONTRACTOR or ENGINEER stamps.
 - 14. CONTRACTOR'S stamp, signed, certifying to review of submittal, verification of products, field measurement, field construction criteria, and coordination of information within submittal with requirements of Work and Contract Documents.

- D. Resubmittal requirements shall include:
 - 1. Corrections or changes in submittals required by ENGINEER. Resubmittals are required until approved.
 - 2. Shop Drawings and product data:
 - a. Revise initial Drawings or data and resubmit as specified for initial submittal.
 - b. Indicate changes which have been made other than those requested by ENGINEER.
 - 3. Submit new samples as required for initial submittal.
- E. Distribute reproductions of shop Drawings and copies of product data which carry ENGINEER'S stamp approval to:
 - 1. Record documents file.
 - 2. Subcontractors.
 - 3. Supplier or fabricator.
- F. ENGINEER'S duties include:
 - 1. Review submittals with reasonable promptness and in accordance with schedule.
 - 2. Affix stamp and signature, and indicate requirements for resubmittal, if required.
 - 3. Return submittals to CONTRACTOR for distribution or for resubmittal.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 SUBMITTAL REQUIREMENTS

- A. Provide complete copies of required submittals as follows:
 - 1. Construction progress schedule:
 - a. Two copies of initial schedule
 - b. Two copies of each revision
 - 2. HASP: Three copies.
 - 3. Construction Operations Plan: Three copies.
 - 4. Shop Drawings: Six copies
 - 5. Test results: Three copies
 - 6. Other required submittals:
 - a. Six copies if required for review
 - b. Three copies if required for record
 - 7. Deliver required copies of submittals to ENGINEER.

END OF SECTION

**SECTION 01 35 31
HEALTH AND SAFETY REQUIREMENTS**

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes health and safety requirements for the Project.
- B. CONTRACTOR shall be responsible for implementation and enforcement of safe Work practices, including, but not limited to personnel monitoring, use of trenching, sheeting, and shoring, scaffolding; materials handling and drilling; operation of equipment; and safety of public during progress of Work.

1.2 QUALITY ASSURANCE

- A. Requirements of Regulatory Agencies:
 - 1. CONTRACTOR shall plan for and ensure personnel comply with basic provisions of OSHA Safety and Health Standards (29 CFR 1910) and General Construction Standards (29 CFR 1926) as appropriate.
 - 2. CONTRACTOR shall comply with all applicable Laws and Regulations of any public body having jurisdiction for safety of persons or property.

1.3 OPERATIONS AND EQUIPMENT SAFETY

- A. CONTRACTOR shall be responsible for initiating, maintaining, and supervising safety precautions and programs in connection with Work. CONTRACTOR shall take necessary precautions for safety of employees on project site and other persons and organizations who may be affected by the project.
- B. CONTRACTOR'S duties and responsibilities for safety in connection with Work shall continue until such time as all Work is completed and ENGINEER has issued notice to CONTRACTOR that Work is complete.

1.4 HEALTH AND SAFETY

- A. CONTRACTOR is responsible for implementation and enforcement of health and safety requirements and shall take necessary precautions and provide protection for:
 - 1. All personnel working on or visiting project site, irrespective of employer.
 - 2. Work and materials or equipment to be incorporated in Work area whether on- or off-site.
 - 3. Other property at or adjacent to project site.
 - 4. Public exposed to job-related operations or potential release of toxic or hazardous materials.
- B. CONTRACTOR shall prepare a site-specific Health And Safety Plan (HASP). If CONTRACTOR does not have the capability to prepare HASP, CONTRACTOR shall employ consultants with appropriate capability. CONTRACTOR is solely responsible for the adequacy of the HASP's preparation, monitoring,

management, and enforcement. At a minimum, CONTRACTOR'S HASP shall address the following:

1. Site description and history
 2. Project activities and coordination with other CONTRACTORS.
 3. Hazard evaluation.
 4. On-site safety responsibilities.
 5. Work zones.
 6. Personnel training.
 7. Personal protection, clothing, and equipment.
 8. Emergency procedures.
- C. If OWNER contracts with others for Work on the site, CONTRACTOR shall amend the HASP to include provisions for Work of others. CONTRACTOR shall also manage, enforce, and monitor the health and safety activities of other CONTRACTORS during duration of other CONTRACTORS' Work.
- D. CONTRACTOR shall conduct an on-site safety meeting to review safety procedures with all workers prior to the beginning of construction.

1.5 ENGINEER RESPONSIBILITIES

- A. The ENGINEER is anticipated to be present on Project Site during construction activities. The ENGINEER will comply with CONTRACTOR'S safety plans, programs, and procedures.
- B. If ENGINEER determines CONTRACTOR'S safety plans, programs, and procedures do not provide adequate protection for ENGINEER, ENGINEER may direct its employees to leave Project Site or implement additional safeguards for ENGINEER protection. If taken, these actions will be in furtherance of ENGINEER responsibility to its employees only, and ENGINEER will not assume responsibility for protection of any other persons affected by Work.
- C. If ENGINEER observes situations that appear to have potential for immediate and serious injury to persons, ENGINEER may warn persons who appear to be affected by such situations. Such warnings, if issued, shall be given based on general humanitarian concerns, and ENGINEER will not, by issuance of any such warning, assume any responsibility to issue future warnings or any general responsibility for protection of persons affected by Work.

1.6 SUBMITTALS

- A. Submit copies of HASP to OWNER and ENGINEER.
1. Submit HASP to OWNER and ENGINEER within 7 days after Notice to Proceed. Work on-site shall not proceed until the HASP has been submitted to ENGINEER.
 - a. Submittal of CONTRACTOR'S Health and Safety Plan to ENGINEER is to inform ENGINEER and OWNER so they can comply with HASP during performance of their on-site responsibilities as described in Contract Documents.
 - b. Submittal of CONTRACTOR'S Health and Safety Plan shall neither impose on ENGINEER'S responsibility for adequacy of HASP nor relieve CONTRACTOR from full responsibility therefore.

- B. Submit with HASP list of personnel to perform work on Site and documentation of personnel safety training required.
 - 1. Personnel who supervise on-site work and have the potential to come in contact with waste, hazards or toxic environment shall be safety trained as required under OSHA 29 CFR 1910.120. This does not include personnel whose sole responsibility is the transport of such from one site to another. Such personnel shall remain in vehicle at all times until vehicle loading is complete.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

**SECTION 01 41 00
REGULATORY REQUIREMENTS**

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes permit and easement information and requirements for the Project.

1.2 PERMITS & EASEMENTS

- A. Permits and easements will be acquired by the OWNER, except as listed in Section 1.2.C. The CONTRACTOR shall be responsible for acquiring the listed permits and approvals prior to Notice to Proceed. The CONTRACTOR will be required to pay any associated fees.
- B. The Contractor shall conduct his operations in accordance with the provisions of all permits, whether obtained by the CONTRACTOR or provided by the OWNER. Any violations or fines will be the sole responsibility of the CONTRACTOR.
- C. The CONTRACTOR shall be responsible to acquire the following permits and approvals that are specific to the construction methods and equipment to be employed by CONTRACTOR:
 - 1. MPCA NPDES Construction Activity Permit (Co-Submittal between Owner and Contractor).
 - 2. Any additional approvals required by the City of Coon Rapids and Anoka County.
 - 3. Any additional approvals from the City of Coon Rapids, Anoka County and OWNER for haul routes, traffic control, operating hours, construction methods, staging, material and equipment storage, etc.
 - 4. Any additional approvals required for dewatering activities as required by CONTRACTOR'S proposed methods of construction.
 - 5. CONTRACTOR shall apply for, obtain, and comply with other permits, licenses, and approvals which may be required for the Project

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

**SECTION 01 42 00
REFERENCES**

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes information on typical definitions, abbreviations, and acronyms used in the Contract Documents.
 - 1. Basic definitions are provided in the General Conditions.
 - 2. Additional technical definitions are provided in appropriate sections of these Specifications.
 - 3. Abbreviations and acronyms are sometimes used in the Specifications to identify reference standards. Implied words and meanings shall be interpreted as appropriate.
 - 4. When a standard is specified by reference, the CONTRACTOR shall comply with requirements and recommendations stated in that standard, except when requirements are modified by the Contract Documents, or when applicable codes established more strict standards.
 - 5. When published standards are referenced, the publication in effect on the date of issue of Contract Documents shall apply, unless specified otherwise.

1.2 ABBREVIATIONS, NAMES, AND ADDRESSES OF ORGANIZATIONS

- A. The CONTRACTOR shall obtain copies of referenced standards, direct from the publication source, when needed for proper performance of Work, or when required for submittal by Contract Documents.
 - 1. AASHTO American Association of State Highway and Transportation Officials
44 North Capital Street, NW
Washington, DC 20001
 - 2. ASTM American Society for Testing and Materials
1916 Race Street
Philadelphia, PA 19103
 - 3. GRI Geosynthetic Research Institute
475 Kedron Avenue
Folsom, PA 19033-1208
 - 4. Mn/DOT Minnesota Department of Transportation
395 John Ireland Blvd
St. Paul, MN 55155-1899
 - 5. CEAM City Engineers Association of Minnesota
145 University Avenue West
St. Paul, MN 55103
 - 6. ACI American Concrete Institute
38800 Country Club Drive
Farmington Hills, MI 48331
 - 7. AWS American Welding Society

8669 NW 36 Street, #130
Miami, FL 33166

8. CRSI Concrete Reinforcing Steel Institute
933 North Plum Grove Road
Schaumburg, IL 60173

1.3 OTHER DEFINITIONS

- A. Furnish: Supply and deliver to the Project Site, ready for unloading, unpacking, assembly, installation, and similar operations.
- B. Install: Operations at the Project Site, including unloading, unpacking, assembly, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.
- C. Provide: To furnish and install in-place, complete and ready for the intended use.
- D. Installer: The CONTRACTOR or another entity engaged by the CONTRACTOR, either as an employee, subcontractor, or contractor of lower tier, to perform a particular construction activity, including installation, erection, application, and similar operations. Installers are required to be experienced in the operations they are engaged to perform.
 - 1. The term experienced, when used with the term Installer, means having a minimum of five previous projects similar in size and scope to this Project, being familiar with the special requirements indicated, and having complied with requirements of the authorities having jurisdiction.
- E. Project Site or Project or Site: Is the space available for performing construction activities, either exclusively or in conjunction, with others performing work as part of the Project. The extent of the Project Site is shown on the Drawings and may or may not be identical with the description of the land on which the Project is to be built.
- F. Standard Specifications or Mn/DOT Spec: Minnesota Department of Transportation "Standard Specifications for Construction" latest edition with revisions and supplements.
- G. OWNER & ENGINEER: as discussed in Section 01 31 00.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 01 45 29
TESTING LABORATORY SERVICES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes requirements for in place and source testing.

1.2 TESTING SERVICES

- A. OWNER will employ and pay for services of an independent testing laboratory to perform specified IN PLACE testing as described in respective sections of specifications.
 - 1. CONTRACTOR shall coordinate and cooperate to facilitate execution of its required services.
- B. CONTRACTOR shall employ and pay for services of an independent testing laboratory to perform specified SOURCE TESTING as described in respective sections.
- C. Related requirements in other parts of project Manual:
 - 1. Inspections and testing required by laws, ordinances, rules, regulations, orders, or approvals of public authorities: Conditions of Contract.

1.3 CONTRACTOR RESPONSIBILITIES

- A. Cooperate with laboratory personnel and provide access to Work.
- B. Provide laboratory preliminary design mix proposed to be used for concrete and bituminous materials, or any other material mixes which require control by testing laboratory.
- C. Furnish copies of product test reports.
- D. Furnish Labor and Facilities:
 - 1. To provide access to Work to be tested.
 - 2. To assist in obtaining samples at project site
 - 3. To facilitate inspections and tests.
 - 4. For storage and curing of test samples.
- E. Notify laboratory and ENGINEER sufficiently in advance of operations to allow for laboratory assignment of personnel and scheduling of tests.
 - 1. When tests or inspections cannot be performed after such notice, reimburse OWNER for laboratory personnel and travel expenses incurred due to CONTRACTOR'S negligence.
- F. Make arrangements with laboratory and pay for additional samples and tests required for CONTRACTOR'S convenience.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

**SECTION 01 50 00
TEMPORARY FACILITIES AND CONTROLS**

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes requirements for CONTRACTOR supplied field office and temporary utilities.

1.2 PROTECTION OF MATERIALS AND WORK

- A. Security:
 - 1. The CONTRACTOR shall provide temporary fencing, applicable signage, and security sufficient to protect the Site at all times, including unoccupied shift times, nights and weekends
 - 2. The CONTRACTOR shall control site security and activity at all times.

1.3 PARKING, MATERIALS STORAGE, AND STAGING AREAS

- A. Coordination:
 - 1. The CONTRACTOR shall coordinate the location of storage areas, staging areas and dumpster locations with the OWNER, Owner's representative and other Contractors working on the site.

1.4 UTILITY REQUIREMENTS

- A. Electrical
 - 1. CONTRACTOR to provide temporary power supply as may be required for construction activities and appurtenances.
 - 2. Cost of temporary power supply shall be paid by the CONTRACTOR.
 - 3. The CONTRACTOR to provide any temporary GFCI panels associated with the work.
- B. Water
 - 1. No water supply available at site for CONTRACTOR'S use.
 - 2. CONTRACTOR to obtain and supply water for usage at site.
 - 3. CONTRACTOR to supply potable water for personnel use at site.
- C. Sanitary facilities
 - 1. CONTRACTOR to provide sanitary facilities for personnel at the site.
- D. Fire Protection
 - 1. CONTRACTOR shall make all arrangements necessary to assure that the Site and the Work have adequate fire protection services throughout the duration of the Work. Any special fees or charges imposed by the local governmental units or other organization to provide such services shall be paid by CONTRACTOR.
- E. Lighting

1. CONTRACTOR shall provide such temporary lighting as may be required to perform the Work.
- F. Telephone
1. CONTRACTOR to provide cell phone service to supervisory personnel on site.

1.5 SITE MAINTENANCE

- A. Maintenance:
1. The CONTRACTOR shall maintain the Project Site in a clean and orderly condition free of waste and debris resulting from the Work.
- B. Trash Disposal:
1. The CONTRACTOR shall be responsible for collecting and properly disposing of all trash and debris. Trash, debris, and waste shall not be allowed to accumulate.
- C. Completion of Work:
1. The CONTRACTOR shall remove all equipment, materials, waste and debris resulting from the Work.
 2. The CONTRACTOR shall leave all Work areas and areas occupied during the Work in a clean condition.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 GENERAL

- A. Examine and verify site acceptability to receive and construct temporary utilities.
- B. Connect to utilities provided by CONTRACTOR.
- C. Provide utilities required for project Work.
- D. Remove personnel sanitary sewer facilities upon project completion.

END OF SECTION

**SECTION 01 55 00
SITE ACCESS AND STORAGE**

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes requirements for site access, storage, staging, parking, traffic control and temporary crossings.

1.2 SITE ACCESS

- A. During the execution of this project, all access, movement of construction equipment, and storage of materials shall be within the work limits identified in the Contract Documents. The CONTRACTOR'S material storage and parking areas shall be as approved by the OWNER and ENGINEER.
- B. The CONTRACTOR's staging, storage, and equipment parking areas shall be restored before final acceptance of the work
- C. The CONTRACTOR shall be solely responsible for making arrangements for any necessary off-site storage or shop areas.
- D. The CONTRACTOR shall notify the OWNER of any activities that may disrupt access to businesses or facilities or parking areas at the Preconstruction Conference. Additional notification to the OWNER shall occur at least 48 hours prior to activity.
- E. The CONTRACTOR is responsible for keeping streets and roadways clean of dust, dirt, mud and debris both inside and outside the work area.
 - 1. This may require measures to clean trucks before leaving the site and sweeping paved areas.
 - 2. Roadways shall be cleaned by a pickup sweeper within 24 hours of direction by the OWNER.
- F. Protect pavements and curb from damage with protection measures/surface treatment as required. Damaged pavement or curb from construction activities shall be replaced at the expense of the CONTRACTOR.

1.3 SITE RESTORATION

- A. Restore site access and staging area with Mn/DOT Seed Mix 34-261 and Erosion Control Blanket Category 3N, Type Straw 2S to preconstruction conditions at completion of the project. Scarify and loosen soil as required or as directed by the OWNER and ENGINEER for installation of seed and straw blanket.

1.4 HIGHWAY LIMITATIONS

- A. The CONTRACTOR shall make an investigation of the condition of available public and private roads and of clearances, restrictions, bridge load limits, and other limitations affecting transportation and ingress and egress to the project. It shall be the CONTRACTOR'S responsibility to construct, maintain, and restore any haul roads required for its construction operations in accordance with the provisions of Section 2051.4 of MN/DOT's "Standard Specifications for Construction", latest Edition

with revisions and supplements. CONTRACTOR shall obtain all permits and pay all fees required for oversize loads.

1.5 TEMPORARY LANE CLOSURE

- A. CONTRACTOR shall provide, submit, and obtain approval from OWNER, ENGINEER, City of Coon Rapids and Anoka County for traffic control plans implemented by the CONTRACTOR.
- B. CONTRACTOR shall comply with all required permits.

1.6 TRAFFIC CONTROL

- A. In addition to the traffic control procedures required in the traffic control plan, this section of traffic control requirements is applicable to any other traffic control devices required to complete the work.
- B. For the protection of traffic in public or private streets and ways, the CONTRACTOR shall provide, place, and maintain all necessary barricades, traffic cones, warning signs, lights, and other safety devices in accordance with the requirements of the "Manual of Uniform Traffic Control Devices, Part VI - Traffic Controls for Street and Highway Construction and Maintenance Operations," published by U.S. Department of Transportation, Federal Highway Administration (ANSI D6.1).
- C. The CONTRACTOR shall take all necessary precautions for the protection of the WORK and for the safety of the public. All barricades and obstructions shall be illuminated at night, from sunset until sunrise. The CONTRACTOR shall station such guards or flag persons and shall conform to such special safety regulations relating to traffic control as may be required by the public authorities within their respective jurisdictions. All signs, signals, and barricades shall conform to the requirements of Subpart G, Part 1926, of the OSHA Safety and Health Standards for Construction.
- D. The CONTRACTOR shall remove traffic control devices when no longer needed, repair all damage caused by installation of the devices, and shall remove post settings and backfill the resulting holes to match grade.
- E. Traffic control shall also include all necessary signage and markings required for sidewalk, trail, and boardwalk closures and detours.

1.7 TEMPORARY CROSSINGS

- A. General: The CONTRACTOR shall provide continuous, unobstructed, safe, and adequate pedestrian and vehicular access to fire hydrants; sidewalks and trails; commercial, residential, and industrial establishments; agricultural field entrances; and parking lots, as applicable. The CONTRACTOR shall cooperate with parties involved in the delivery of mail and removal of trash and garbage so as to maintain existing schedules for such services. Vehicular access to residential and agricultural driveways shall be maintained, except when necessary construction precludes such access for reasonable periods of time.
- B. Temporary Bridges: Wherever necessary, the CONTRACTOR shall provide suitable temporary bridges or steel plates over unfilled excavations, except in such cases where the CONTRACTOR has secured the written consent of the individuals or authorities of jurisdiction to omit such temporary bridges or steel plates. Such written consent shall be delivered to the ENGINEER prior to excavation. All such

bridges or steel plates shall be maintained in service until access is provided across the backfilled excavation. Temporary bridges or steel plates for street and highway crossing shall conform to the requirements of the authority having jurisdiction in each case, and the CONTRACTOR shall adopt designs furnished by said authority for such bridges or steel plates, or shall submit designs to said authority for approval, as may be required.

- C. Fire Hydrants: Fire hydrants on or adjacent to the WORK shall be kept accessible to fire-fighting equipment at all times.
- D. Drainage: Temporary provisions shall be made by the CONTRACTOR to assure the proper functioning of all drainage facilities including but not limited to natural waterways, ditches, culverts, etc.

1.8 PARKING

- A. The CONTRACTOR shall:
 - 1. Direct its employees to park in areas that do not obstruct local traffic or sight lines.
 - 2. Maintain traffic and parking areas in a sound condition, free of excavated material, construction equipment, mud, and construction materials.
 - 3. Repair potholes, low areas that collect standing water, and other deficiencies.
 - 4. Not allow overnight parking of any vehicles or equipment on City, County, Township, or State jurisdictional roadways and streets.
 - 5. Keep roads clean and free of debris, sediment, mud and other material generated or caused by construction activities.

1.9 MEASUREMENT AND PAYMENT

- A. Refer to Section 01 20 00 – Price and Payment Procedures.
- B. All other work and costs associated with completing the work as specified on the Drawings and in the Specifications shall be included in the total project cost.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 MAINTENANCE AND RESTORATION OF ON-SITE AND OFF-SITE ACCESS ROADS

- A. While hauling operations are in progress, CONTRACTOR shall maintain haul roads in condition satisfactory to the ENGINEER. Work shall include any or all of the following items:
 - 1. Application of water
 - 2. Bituminous material
 - 3. Calcium chloride
 - 4. Sweeping
 - 5. Others as necessary
- B. When hauling operations are completed, CONTRACTOR shall:

1. Restore to condition that existed at the time hauling operations were started;
or
 2. Compensate the local road authority in the amount satisfactory to that road authority.
- C. The ENGINEER shall make the determination as to the kind and amount of Work required to restore the haul road to a condition equal to the time hauling operations began.
- D. When hauling operations are complete and restoration is complete to the satisfaction of the ENGINEER, the CONTRACTOR will be relieved of any additional obligation in connection to the maintenance and restoration of the haul road.

END OF SECTION

**SECTION 01 55 26
TRAFFIC CONTROL**

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes traffic control requirements for the Project.

1.2 QUALITY ASSURANCE

- A. All traffic control devices shall conform and be installed in accordance to the "Minnesota Manual on Uniform Traffic Control Devices" (MN MUTCD) and Part 6, "Field Manual for Temporary Traffic Control Zone Layouts", the "Guide to Establishing Speed Limits in Highway Work Zones", the Minnesota Flagging Handbook, the provisions of Mn/DOT 1404 AND 1710, The Minnesota Standard Signs Manual, the Traffic Engineering Manual, the Traffic Control Layouts/Typical Traffic Control Layouts in the Plan, and these Special Provisions.
- B. The CONTRACTOR shall furnish, install, maintain, and remove all traffic control devices required to provide safe movement of vehicular traffic through the Project during the life of the Contract from the start of Contract operations to the final completion thereof. The ENGINEER will have the right to modify the requirement for traffic control as deemed necessary due to field conditions.
- C. The CONTRACTOR shall conduct operations so as to maintain traffic at all times.
- D. The CONTRACTOR shall submit a traffic control plan to be reviewed and approved by the OWNER, ENGINEER, and agencies having jurisdiction prior to implementation of any traffic control devices and construction activities. Traffic control plan shall include:
 - 1. Location of devices
 - 2. Device type/description
 - 3. Traffic control phasing/lane shifts
 - 4. Contractor responsible for maintaining traffic control
 - 5. Contact name/number for responsible party
 - 6. Detour(s), if applicable

1.3 MEASUREMENT AND PAYMENT

- A. Refer to Section 01 20 00 – Price and Payment Procedures.
- B. All other work and costs associated with completing the work as specified on the Drawings and in the Specifications shall be included in the total project cost.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 GENERAL TRAFFIC CONTROL

- A. The CONTRACTOR shall be responsible for the immediate repair or replacement of all traffic control devices that become damaged, moved or destroyed, of all lights that cease to function properly, and of all barricade weights that are damaged, destroyed, or otherwise fail to stabilize the barricades. The CONTRACTOR shall further provide sufficient surveillance of all traffic control devices at least once every 24 hours.
 - 1. The CONTRACTOR shall furnish the ENGINEER names, addresses, and phone numbers of at least two (2) local persons responsible for all traffic control devices.
- B. The CONTRACTOR shall submit a proposed Traffic Control Layout to the OWNER, ENGINEER and agencies having jurisdiction, including all traffic control devices required to provide for the traffic control layout and sequence shown in the plans, for approval, at least fourteen (14) days prior to the start of construction for that area. At least 24 hours prior to placement, all traffic control devices shall be available on the Project for inspection by the ENGINEER. The CONTRACTOR shall modify their proposed traffic control layout and/or devices as deemed necessary by the ENGINEER.
- C. The CONTRACTOR shall notify the ENGINEER in writing at least 72 hours prior to the start of any construction operation that will necessitate lane closure or internal traffic control signing.
- D. The CONTRACTOR shall inspect, on a daily basis, all traffic control devices, which the CONTRACTOR has furnished and installed, and verify that the devices are placed in accordance with the Traffic Control Layouts, these specifications, and/or the MN MUTCD. Any discrepancy between the placement and the required placement shall be immediately corrected.
 - 1. The CONTRACTOR shall be required to respond immediately to any call from the ENGINEER or his designated representative concerning any request for improving or correcting traffic control devices. If the CONTRACTOR is negligent in correcting the deficiency within one hour of notification, the CONTRACTOR shall be subject to an hourly charge assessed at a rate of \$250.00 per hour for each hour or any portion thereof with which the ENGINEER determines that the CONTRACTOR has not complied.
- E. The person performing the inspection in paragraph (D) above shall be required to make a daily log. This log shall also include the date and time any changes in the stages, phases, or portions thereof go into effect. The log shall identify the location and verify that the devices are placed as directed or corrected in accordance with the Plan. All entries in the log shall include the date and time of the entry and be signed by the person making the inspection. The ENGINEER reserves the right to request copies of the logs as deemed necessary.
 - 1. The CONTRACTOR shall be required to provide copies of the inspection logs, within the time frame agreed upon, when requested by the ENGINEER. If the CONTRACTOR is negligent in providing the inspection logs within the time frame agreed upon, the CONTRACTOR shall be subject to an hourly charge assessed

at a rate of \$250.00 per hour for each hour or any portion thereof with which the ENGINEER determines that the CONTRACTOR has not complied.

- F. The CONTRACTOR may request that through traffic be detoured. The request shall contain all information needed to justify the request and select the routes to be established. If arrangements can be made that are satisfactory to the agencies having jurisdiction over the roads to be used, the contracting authority may then, at its sole discretion, establish an approved detour subject to the following conditions:
 - 1. The CONTRACTOR, at the CONTRACTOR's expense, shall design, provide, install, maintain, and remove all the necessary traffic control devices on the detour roads.
 - 2. The CONTRACTOR shall reimburse the City for all expenses incurred in maintaining and restoring the detour roads, except for snow removal.
 - 3. The CONTRACTOR shall fulfill their obligations for maintenance of local traffic by furnishing, placing, and maintaining all traffic control devices and other traffic protection measures required of them on the roads undergoing improvements.
- G. If, at any time, the CONTRACTOR fails to, in a timely manner, properly furnish, install, maintain or remove any of the required traffic control devices, the ENGINEER reserves the right to properly correct the deficiency. Each time the ENGINEER takes such corrective action, the costs thereof, including mobilization, plus \$5,000 will be deducted from monies due or coming due the CONTRACTOR.

3.2 VEHICLE SAEFTY LIGHTING SPECIFICATION

- A. All CONTRACTORS', SUBCONTRACTORS' and suppliers' mobile equipment, operating within the limits of the Project with potential exposure to passing traffic, shall be equipped with operable warning lights which meet the appropriate requirements of the SAE specifications. This would include closed roads that are open to local traffic only. This also includes any vehicle which enters the traveled roadway at any time. The SAE specification requirements are as follows:
 - 1. 360 Degree Rotating Lights -SAE Specification J845
 - 2. Flashing Lights -SAE Specification J595
 - 3. Flashing Strobe Lights -SAE Specification J1318
- B. Lights shall be mounted SD that at least one light is visible at all times when viewed from a height of 3.5 feet and from a 60 foot radius about the equipment. In order to meet the 360 degree at 60 foot radius requirements supplemental lighting may be used in addition to the lights on the Approved Products List. All supplemental lights must be SAE Class 1 certified. This specification is to be used for both day and night time operations. All costs incurred to provide warning lights shall be at no cost to the OWNER. These warning lights shall also be operating and visible when a vehicle decelerates to enter a construction work zone and again when a vehicle leaves the work zone and enters the traveled traffic lane.
- C. CONTRACTOR shall equip their vehicles with lights that are on the MnDOT Approved Products List which can be found at:
<http://www.dot.state.mn.us/products/vehiclighting/index.html>.

3.3 FLAGGER TRAINING

- A. Any person acting as a flagger on this Project shall have attended a training session taught by a CONTRACTOR's qualified trainer. The CONTRACTOR's qualified trainer shall have completed a "MnDOT Flagger Train the Trainer Session" in the five years previous to the start date of this Contract and shall be on file as a qualified Flagger Trainer with Mn/DOT. The Flagger Trainer's name and Qualification Number shall be furnished by the CONTRACTOR at the pre-construction meeting. The CONTRACTOR shall provide all flaggers with the Mn/DOT Flagger Handbook and shall observe the rules and regulations contained therein. This handbook shall be in the possession of all flaggers while flagging on the Project. The CONTRACTOR shall obtain handbooks from Mn/DOT. Flaggers shall not be assigned other duties while working as authorized flaggers. The "Checklist for Flagger training" form shall be furnished to the ENGINEER any time a new flagger reports to work on the Project. The "Checklist for Flagger Training" form can be found at:
<http://www.dot.state.mn.us/const/wzs/documents/flaggertrainingchecklist.pdf>
- B. The ENGINEER will have the right to waive the above requirements.

3.4 TEMPORARY LANE CLOSURE REQUIREMENTS

- A. Unless otherwise approved by the ENGINEER, any temporary lane closure that is adjacent to traffic, and is extending to or beyond 1,000 feet shall have a minimum of one Type III barricade, Dr 3 drums, placed in the closed lane for every 300 m [1,000 feet] of extension. Any lane closure that is adjacent to traffic and in place 3 days or more, shall use the Type III barricade only.
- B. All temporary lane closures shall have Type B Channelizers (drums, Type I Dr Type II barricades, vertical panel or Direction Indicator Barricades) in the lane closure taper and also in any shifts in traffic alignment.
- C. Short Term Duration lane closures will not be permitted during inclement weather, nor any other time when, in the opinion of the ENGINEER, the lane closure will be a greater than normal hazard to traffic.
- D. Temporary lane closures or other restrictions by the CONTRACTOR, during work hours and consistent with the time restrictions, will be permitted during those hours and at those locations approved by the ENGINEER. Requests for temporary lane closures shall be made at least 24 hours prior to such closures. When a temporary lane closure is used by the CONTRACTOR, the closure shall be incidental work and no direct compensation will be made therefore.
- E. Temporary lane restrictions shall be in accordance with the Contract Documents.

3.5 GENERAL REQUIRMENTS

- A. All portable sign assemblies shall be perpendicular to the ground. No traffic control device (signs, channelizing devices, arrowboards, etc.) shall be weighted so they become hazardous to motorists and workers. The approved ballast system for devices mounted on temporary portable supports is sandbags, unless it is designed, crash tested, and approved for the specific device. During freezing conditions, the sand for bags shall be mixed with a de-icer to prevent the sand from freezing. The sandbags shall be placed and maintained at the base of the traffic control device to the satisfaction of the ENGINEER.

1. When signs will remain in the same location for more than 30 consecutive days the signs shall be post mounted. This would not include portable signs which are set up and taken down at the beginning and end of each work shift.
- B. When signs are installed, they shall be mounted on posts driven into the ground at the proper height and lateral offset as detailed in the MN MUTCD. When signs are removed, the sign posts and stub posts shall also be removed from the Right of Way within two (2) weeks or the CONTRACTOR shall be subject to a daily charge assessed at a rate of \$100.00 per day for each day or portion thereof with which the ENGINEER determines that the CONTRACTOR has not complied.
- C. The CONTRACTOR shall coordinate with the City to cover or remove all traffic control devices which may be inconsistent with traffic patterns during all traffic switches. See Maintenance and Staging of Traffic Control.
- D. The CONTRACTOR shall provide protective devices necessary to protect traffic from excavations, drop-offs, falling objects, splatter or other hazards that may exist during construction. This work shall be an incidental cost to the CONTRACTOR.
- E. The CONTRACTOR will not be permitted to park vehicles or construction equipment so as to obstruct any traffic control device. The parking of workers' private vehicles will not be allowed within the Project limits unless so approved by the ENGINEER.
- F. The CONTRACTOR will not be allowed to store materials or equipment within 10 m [30 feet] of through traffic unless approved by the ENGINEER. If materials or equipment must be stored within 10m [30 feet] of through traffic, the CONTRACTOR shall provide Type B channelizers, barricades or barriers, placed near the object to warn and protect traffic.
- G. All personnel working within the Right-of-Way shall wear reflectorized safety vests. All personnel shall adhere to the following HIGH VISIBILITY PERSONAL PROTECTIVE EQUIPMENT SPECIFICATION.
 1. Each worker exposed to or working adjacent to moving motor vehicles as part of the workers assigned job shall be provided with and required to wear a high visibility warning vest or other high visibility garment. A high visibility garment is defined as being a Class 2 garment or greater as specified by ANSI/ISEA Standard 107-1999.
 2. If the high visibility personal protective equipment becomes faded, torn, dirty, worn, or defaced, reducing the equipment's performance below the manufacturer's recommendations, the high visibility personal equipment shall be immediately removed from service and replaced.
 3. The CONTRACTOR will be subject to a non-compliant charge for failure to adhere to the clothing requirements as listed above. Non-compliant charges, for each incident, will be assessed at a rate of \$500.00 per incident that the ENGINEER determines that the CONTRACTOR has not complied.
- H. When work will be performed between the official hours of sunset and sunrise, all appropriate practices for night work will apply.
 1. The CONTRACTOR shall provide sufficient numbers of light plants to adequately illuminate the work area as determined by the ENGINEER. All costs incurred to provide such light plants shall be incidental to the lump sum traffic control.
 2. All CONTRACTOR's personnel, except operators who will remain in their vehicles at all times, shall wear reflectively striped (approximately 10m [33 feet]) of

striping), highly visible, short sleeved one or two piece coveralls (color and striping pattern to be determined by the District Traffic ENGINEER), at all times while working on the project these coveralls shall be considered an incidental expense for which no direct compensation will be made. Any CONTRACTOR's employee found on the project not wearing the prescribed reflective coveralls will be immediately ordered off the Project by the ENGINEER.

3. The CONTRACTOR shall provide a sufficient amount of 50 mm [2 inch] wide highly reflective vehicle marking tape to be applied to CONTRACTOR vehicles and equipment, as directed by the ENGINEER, and as provided by the manufacturer's instructions. This tape shall be considered an incidental expense for which no direct compensation will be made and shall be on the qualified products list for conspicuity vehicle sign sheeting as found at: <http://www.dotstate.mn.us/trafficeng/qpl/Signing.pdf> Vehicle examples to be marked with tape are CONTRACTOR rollers, paver, millers and other equipment normally found in the lane closure.
- I. The CONTRACTOR shall exercise reasonable care against damage to or the loss of City owned signs. Any damage caused by the CONTRACTOR will be billed directly to the CONTRACTOR. The CONTRACTOR shall be responsible for installation of sign post bases in new concrete walks and center islands or placement of concrete median barriers where directed.
- J. Lane closures will not be initiated until after the morning rush hour, during periods of inclement weather or at other times when, in the opinion of the ENGINEER, the lane closure would be a hazard to traffic.
- K. The CONTRACTOR shall conduct their construction activities to minimize disruption to local traffic and access. Routes shall be maintained so that emergency vehicles can gain access to within a distance of no greater than 150 feet of all buildings. The ENGINEER may require the CONTRACTOR to restore certain streets prior to closing additional streets and/or provide a temporary roadway for cross streets or cross alleys to facilitate traffic movement

3.6 MAINTENANCE AND STAGING OF TRAFFIC CONTROL

- A. Continuous pedestrian traffic shall be maintained and guided through the Project at all times. Pedestrian accessibility shall be in accordance with MN MUTCD Part
- B. Pedestrian access to all building entrances shall be maintained at all times during the work unless otherwise approved by the City.
- C. Pedestrian traffic shall be maintained on no less than one side of any street at all times unless otherwise approved by the City.
- D. The City may ban parking within the construction limits. All necessary signing is the responsibility of the CONTRACTOR and shall be installed, as directed by the ENGINEER, 24 hours prior to the parking ban. The CONTRACTOR shall remove that signing as soon as the work, or that part of the work, in the area has been completed.
- E. All signs installed on roads open to traffic that are not consistent with traffic operations shall be covered as directed by the ENGINEER. The cover should be a plate of solid material covering the entire legend or all of that part of the legend that is inappropriate. This cover shall be bolted to the sign and shall use a minimum of 3 mm [1/8 inch] plastic washers between the sign face and the cover. See Figures 8.2A, 8.2B and 8.2C of the Traffic Engineering Manual for details.

- F. No access to or from any public road will be permitted for the CONTRACTOR's equipment, material deliveries, the hauling of excavated materials of any kind, or employees' private vehicles, except at in place public road intersections, or at locations and in such manner as approved by the ENGINEER.
- G. As each road is completed, the CONTRACTOR shall install the final signing and pavement markings required to safely open that road to traffic. This work shall be completed on or before the date of opening as approved by the ENGINEER.
- H. The CONTRACTOR shall at all times maintain a lane width of not less than 12 feet.
- I. Street identification signage shall be maintained at all times. Where the only existing signs are small city signs located at the intersection, street names and address numbers shall be maintained by temporary installations as required by the ENGINEER. This is necessary to maintain the 911 emergency system.
- J. The CONTRACTOR shall maintain advance signage for any block or intersection undergoing construction, as well as two (2) blocks prior to construction site. This signage shall give notice to motorists and pedestrians approaching from all directions open to traffic.

END OF SECTION

SECTION 01 57 21
AIR, LAND, AND WATER POLLUTION CONTROL

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes general requirements for the control of pollution from construction sites and related activities.

1.2 REFERENCES

- A. MnDOT Spec 1717 - Air, Land, and Water Pollution

1.3 QUALITY ASSURANCE

- A. Regulatory Requirements:
 - 1. Conduct all operations to prevent, control and abate the pollution of air, land, and water in accordance with MnDOT Spec 1717 and all rules, regulations and standards adopted and established by governing agencies, including, but not limited to:
 - a. Minnesota Pollution Control Agency.
 - b. Minnesota Department of Natural Resources.
 - c. U.S. Army Corps of Engineers.
 - d. U.S. Environmental Protection Agency.

1.4 SCHEDULING

- A. Schedule and conduct all operations to minimize soil erosion and prevent siltation and the resultant turbidity of public waters

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 GENERAL

- A. Review all local conditions and regulations pertaining to air, land, and water pollution prior to commencing operations.

3.2 PROTECTION OF WATERS

- A. Prevent pollution of flowing or impounded waters from particulate or liquid matter that may be harmful to fish and wildlife or detrimental to public use.
- B. Remove sediment from aggregate wash operations by filtration or settlement prior to discharge into public waters.
- C. Do not discharge wash water or waste from concrete mixing operations into live streams.

- D. Fueling operations shall be conducted in a manner to not cause any pollution.
- E. Street sweeping is required daily during trucking operations or as required by OWNER.

END OF SECTION

SECTION 01 57 29
PROTECTION OF EXISTING FACILITIES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes requirements for protection of existing facilities not designated for removal.

1.2 PROTECTION REQUIREMENTS

- A. The CONTRACTOR shall protect all existing utilities and improvements not designated for removal and shall restore, at CONTRACTOR'S expense, damaged or temporarily relocated utilities and improvements to a condition equal to or better than they were prior to such damage or temporary relocation.
- B. The CONTRACTOR shall verify the exact locations and depths of all utilities that may interfere with the WORK and, if necessary, shall make exploratory excavations of the interfering utilities. All such exploratory excavations shall be performed as soon as practicable after award of the contract and, in any event, a sufficient time in advance of construction to avoid delays of the CONTRACTOR'S work. When such exploratory excavations shall show the utility location as shown to be in error, the CONTRACTOR shall so notify the ENGINEER.
- C. The CONTRACTOR is responsible for protecting existing trees, sprinkler systems and other improvements. Any tree roots damaged shall be neatly cut perpendicular to the root.
- D. The CONTRACTOR shall report to the OWNER in writing any undesirable conditions, such as silt or sand in manholes and valve boxes, damaged castings and valve boxes, etc., prior to commencing work on any street. Once work has commenced it will be assumed that all damage to underground installations except that reported above, has been caused by the CONTRACTOR'S operations and it will be the CONTRACTOR'S responsibility to make necessary repairs.

1.3 PROTECTION OF MARKERS (SURVEY, STREET, ROADWAY)

- A. The CONTRACTOR shall not destroy, remove, or otherwise disturb any existing private or public survey markers, or existing street or roadway markers, without proper authorization. No excavation shall be started until all survey or other permanent marker points that may be disturbed by the construction operations have been properly referenced. All survey markers disturbed by the CONTRACTOR shall be restored by a land surveyor, registered in the state in which the project is located, at CONTRACTOR'S expense. All street or roadway markers and other public or private signage disturbed by the CONTRACTOR shall be restored at CONTRACTOR'S expense.

1.4 EXISTING UTILITY OPERATIONS

- A. Existing utilities shall not be disrupted during construction.
- B. All underground utilities including manholes and valve boxes shall be maintained in a condition that allows access in case emergency use is required.

- C. Underground utilities shall be maintained in an operable condition. All debris or sediment shall be removed immediately.

1.5 PAVEMENT RESTORATION

- A. General: Utility crossings under roads or driveways that are shown on the Drawings as jacking or boring locations must be installed by the CONTRACTOR without disturbing the pavement/shouldering of such roads/driveways. All paved areas that are specified to be open cut, or that are damaged by the CONTRACTOR during construction, shall be replaced with similar materials and of equal thickness to match the existing adjacent undisturbed areas, except where specific resurfacing requirements have been called for in these Contract Documents or in the requirements of the agency issuing the permit. CONTRACTOR shall assist the ENGINEER in coordinating the Work with the affected pavement owner. The joint between new pavement and existing pavement shall be saw cut in straight lines.
- B. Temporary Resurfacing: The CONTRACTOR shall place temporary surfacing promptly after backfilling trenches located in streets, drives, or roadways and shall maintain such surfacing for the period of time fixed by the owner of said streets, drives, or roadways before proceeding with the final restoration of improvements.
- C. Permanent Resurfacing: In order to obtain a satisfactory junction with adjacent surfaces, the CONTRACTOR shall saw cut the existing surface to provide a clean, sound, vertical joint before permanent replacement of an excavated or damaged portion of pavement. Damaged edges of pavement along excavations and elsewhere shall be trimmed back by saw cutting in straight lines. All pavement restoration and other facilities restoration shall be constructed to finish grades compatible with adjacent undisturbed pavement.
- D. Restoration of Sidewalks or Private Driveways: Wherever private roads, driveways, or field entrances have been removed or damaged for purposes of construction, the CONTRACTOR shall place suitable temporary replacements after trench backfilling and shall maintain them in satisfactory condition until the final restoration thereof has been made.

1.6 NOTIFICATION BY THE CONTRACTOR

- A. Prior to any excavation in the vicinity of any existing underground facilities, including all water, sewer, storm drain, gas, petroleum products, or other pipelines; all buried electric power, communications, or television cables; all traffic signal and street lighting facilities; and all roadway and state highway rights-of-way, the CONTRACTOR shall notify the owner's or agencies responsible for such facilities not less than 3 days nor more than 7 days prior to excavation so that a representative of said owner's or agencies can be present during such work if they so desire. The CONTRACTOR shall also contact Gopher State One Call (1-800-252-1166) for locations and physically locate utilities before any excavation is initiated.
- B. Prior to any excavation in the vicinity of any existing aboveground facilities, including all electric power, communications, lines, poles, or television cables; all traffic signal and street lighting facilities; public and private signs, structures, and property; the CONTRACTOR shall notify the respective authorities representing the owner's or agencies responsible for such facilities not less than 3 days nor more than 7 days prior to excavation so that a representative of said owner's or agencies can present during such work if they so desire.

1.7 RESTORATION OF VEGETATION AND LANDSCAPING

- A. The CONTRACTOR shall not destroy, remove, or otherwise disturb any vegetation or landscaping without proper authorization and shall minimize such disturbances to only as much as is reasonably required for completion of the Work. All vegetation and landscaping disturbed by the CONTRACTOR shall be restored at CONTRACTOR'S expense and shall be completed in accordance with the Drawings and Specifications and with the CONTRACTOR'S erosion control plan. Where requirements for restoration are not specifically stated in these Contract Documents, CONTRACTOR shall restore to pre-existing conditions or better.

1.8 PROTECTION OF CONSTRUCTION IN PROGRESS

- A. Clean and protect construction in progress and adjoining materials in place, during handling and installation. Apply protective covering where required to assure protection from damage and deterioration when project is complete.
- B. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to assure operability without damaging effects.
- C. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging or otherwise deleterious exposure during the construction period. Where applicable, such exposures include, but are not limited to, the following:
 - 1. Excessive static or dynamic loading.
 - 2. Heavy traffic.
 - 3. Soiling, staining, and corrosion.
 - 4. Unusual wear or other misuse.
 - 5. Destructive testing.
 - 6. Excessive weathering.
 - 7. Unprotected storage.
 - 8. Improper shipping or handling.
 - 9. Theft.
 - 10. Vandalism.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

**SECTION 01 60 00
PRODUCT REQUIREMENTS**

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes requirements for material and equipment incorporated into Work.

1.2 QUALITY ASSURANCE

- A. Manufactured and Fabricated Materials and Equipment:
 - 1. Conform to applicable specifications and standards.
 - 2. Comply with size, make, type, and quality specified or as specifically approved.
 - 3. Design, fabricate, and assemble in accordance with engineering and shop practices standard with industry.
 - 4. Material and equipment shall be suitable for service conditions.
- B. Do not use material or equipment for purpose other than for which it is designed or specified.

1.3 MANUFACTURER'S INSTRUCTIONS

- A. Installation of materials shall comply with manufacturer's instructions. Obtain and distribute printed copies of such instructions to parties involved in installation, including 3 copies to OWNER.
 - 1. Maintain one set of complete instructions at job site during installation until completion of entire Project.
- B. Handle, store, install, connect, clean, condition, and adjust materials in accordance with manufacturer's written instructions and in conformance with Specifications.
 - 1. If job conditions or specified requirements conflict with manufacturer's instructions, consult ENGINEER for further instructions.
 - a. Do not proceed with Work without written instructions.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

**SECTION 01 70 00
EXECUTION AND CLOSEOUT REQUIREMENTS**

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes requirements for execution of the Work and closeout of the Contract for final payment

1.2 FINAL CLEANUP

- A. The CONTRACTOR shall promptly remove from the vicinity of the completed WORK, all rubbish, unused materials, concrete forms, construction equipment, and temporary facilities and erosion control used during construction. Final acceptance by the OWNER will be withheld until the CONTRACTOR has satisfactorily performed the final cleanup.
- B. Each Contract item will not be finally accepted until it's associated cleanup is performed.
- C. Until each item's cleanup is completed, the OWNER may withhold partial payments or deduct the estimated cleanup cost from the partial payment value.

1.3 FINAL SUBMITTALS

- A. The CONTRACTOR, prior to requesting final payment, shall obtain and submit the following items to the ENGINEER for transmittal to the OWNER:
 - 1. Certificates of inspection and acceptance by any local governing agencies having jurisdiction.
 - 2. Releases from all parties who are entitled to claims against the subject project, property, or improvement pursuant to the provisions of law.
 - 3. Form IC-134 as required per Minnesota Statute §290.97.

1.4 MAINTENANCE AND WARRANTY

- A. The CONTRACTOR shall comply with the maintenance and warranty requirements contained in the General Conditions and Supplementary Conditions. The CONTRACTOR shall warrant workmanship and materials, including settling for two years following final acceptance by the OWNER.
- B. Replacement of earth fill or backfill or replacement of roadway, where it has settled below the required finish elevations, shall be considered as a part of such required correction, and any repair or resurfacing constructed by the CONTRACTOR which becomes necessary by reason of such settlement shall likewise be considered as a part of such correction.
- C. The CONTRACTOR shall make all corrections promptly upon receipt of a written order from the OWNER. If the CONTRACTOR fails to make such corrections promptly, the OWNER reserves the right to do the WORK and the CONTRACTOR and its surety shall be liable to the OWNER for the cost thereof.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 01 71 13
MOBILIZATION/DEMobilIZATION

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes mobilization and demobilization requirements.
- B. Mobilization and Demobilization shall consist of the following work, but not limited to:
 - 1. Mobilization of materials and equipment to the site.
 - 2. Preparation of all necessary permits, submittals, notifications and other documentation.
 - 3. Temporary Controls and Facilities
 - 4. Temporary Access Roads
 - 5. Utility Property & Service
 - 6. Construction Fencing
 - 7. Final site clean-up
 - 8. Demobilization of all of materials and equipment from the site.
 - 9. Any other items required to complete the construction not otherwise measured and paid for and not a part of another bid item.

1.2 INCORPORATION OF STANDARD SPECIFICATION

- A. Mobilization shall be performed in accordance with the provisions of Mn/DOT Spec 2021 Mobilization, Spec 1407 Final Cleanup, and as described herein.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 GENERAL

- A. Construction limits, access and staging areas are noted on the plans. All materials and equipment shall be located within the construction and staging limits.
- B. CONTRACTOR shall coordinate with OWNER for construction trailer location (See Section 01 50 00) if necessary.
- C. CONTRACTOR shall provide a billboard for displaying the project permits.
- D. Final Site Cleanup will require ALL disturbed areas of the site to be restored to pre-construction condition or better as determined by the OWNER. This may include but not be limited to concrete or bituminous surface repair.

END OF SECTION

**SECTION 01 71 23
FIELD ENGINEERING**

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes requirements for surveying and construction staking of the proposed Work.

1.2 PRIMARY CONTROL MONUMENT

- A. Benchmarks will be provided by ENGINEER to establish primary vertical control.
- B. Monuments or references for primary horizontal control will be provided by ENGINEER for construction of Work.
- C. CONTRACTOR shall preserve and maintain primary control monuments.

1.3 PRIMARY LINE AND GRADE

- A. Primary line and grade will be provided and established by CONTRACTOR
- B. CONTRACTOR shall:
 - 1. Arrange operations to avoid interference with primary lines and grades.
 - 2. Check accuracy of line and grade by visual inspection, checks between stakes, and periodic checks (with surveying equipment) between primary control monuments and stakes.
 - 3. Verify all grades, lines, levels, elevations and dimensions shown on the drawings. CONTRACTOR shall report errors and inconsistencies to the Engineer prior to commencing work.
 - 4. Responsible for protection and preservation of stakes.
- C. Following the staking of work, the ENGINEER may make field-based adjustments to the layout as necessary to meet current site conditions.
- D. CONTRACTOR shall conduct operations so as to preserve benchmarks, survey reference points, and stakes existing or established by OWNER for the construction. CONTRACTOR will be charged the expense of repairing or replacing survey markers and shall be responsible for mistakes or lost time that result due to damage or destruction of survey markers due to CONTRACTOR'S operations.

1.4 CONSTRUCTION LINE AND GRADE

- A. CONTRACTOR shall bear sole responsibility for correct transfer of construction lines and grades from primary line and grade points and for correct alignment and grade of completed Work based upon lines and grades shown on Drawings.

- B. CONTRACTOR shall transfer line and grade for open cut construction of utilities from primary line and grade stakes to Work by means of grade boards, laser beam or other approved methods.

1.5 LOT CORNERS AND SURVEY MONUMENTS

- A. Provide services of registered land surveyor to replace lot corners and survey monument disturbed by construction operations.

1.6 SUBMITTALS

- A. When requested by ENGINEER, CONTRACTOR shall submit a statement certifying elevations and locations of work are in conformance with Contract Documents, explain all deviations.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 GENERAL

- A. The CONTRACTOR shall make no changes or relocations to control points without prior written approval from the OWNER.
- B. The CONTRACTOR shall report to the OWNER when any reference point is lost or destroyed, or requires relocation because of necessary changes in grades or locations.
- C. The CONTRACTOR shall replace Project control points, which are lost or destroyed at no additional cost to OWNER. Replacement shall be re-established based on original survey control.
- D. The CONTRACTOR shall establish and maintain all lines and levels, located and laid out, by instrumentation and similar appropriate means, as required to efficiently complete all Work indicated by the Drawings and Specifications.
- E. As construction proceeds, the CONTRACTOR shall check every element for line, level, and plumb.
- F. Locations of existing sewers, culverts, and other utilities shown on the Drawings are approximate and shall be field-verified by the CONTRACTOR, prior to construction, as required to complete the Work.
- G. CONTRACTOR shall notify ENGINEER a minimum of 48 hours in advance when requesting survey work.

END OF SECTION

**SECTION 01 78 39
PROJECT RECORD DOCUMENTS**

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes requirements for Project Record Documents to be provided by the CONTRACTOR.

1.2 MAINTENANCE OF DOCUMENTS AND SAMPLES

- A. Store documents and samples in a secure location apart from documents used for construction.
 - 1. Provide files and racks for storage of documents
 - 2. Provide secure storage space for storage of samples
- B. Maintain documents in clean, dry, legible condition and in good order. Do not use record documents for construction purposes.
- C. Make documents and samples available at all times for inspection by OWNER and ENGINEER.
- D. Failure to properly maintain record documents may be reason to delay a portion of progress payments until records comply with Contract Documents.

1.3 RECORD DOCUMENTS

- A. Maintain record set of Drawings and Specifications legibly changed to transfer approved modifications in completed Work that differ from Contract Documents. Record documents shall include:
 - 1. Drawings.
 - 2. Specifications.
 - 3. Addenda.
 - 4. Change orders and other modifications to Contract.
 - 5. OWNER and ENGINEER field orders, written instructions or clarifications.
 - 6. Approved submittals.
 - 7. Field test records.
 - 8. Construction photographs.
 - 9. Associated permits.
 - 10. Certificates of inspection and approvals.
- B. Label each document "PROJECT RECORD" in neat, large printed letters.
- C. Record information concurrently with construction progress.
 - 1. Do not conceal Work until required information is recorded.
 - 2. Record changes made by Written Amendment, Field Order, Change Order, or Work Directive Change.
- D. Drawings
 - 1. General:

- a. Horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
 - b. Location of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of structure.
 - c. Field changes.
 - d. Details not on original Drawings.
 - e. Location and identification of piping.
- E. Specifications
- 1. General:
 - a. Manufacturer, trade name, catalog number, and supplier of each product and item actually installed.
 - b. Product alternates or substitutions used.
 - c. Field changes.
 - d. Other products not originally specified.

1.4 SUBMITTALS

- A. At Substantial Completion
 - 1. Deliver Project Record Documents to OWNER.
- B. Accompany submittals with transmittal letter in duplicate, containing following.
 - 1. Date.
 - 2. Project title and number.
 - 3. CONTRACTOR's name and address.
 - 4. Title of record document.
 - 5. Signature of CONTRACTOR or AUTHORIZED REPRESENTATIVE.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

**SECTION 31 10 00
SITE CLEARING**

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes removal and disposal of trees and stumps, windfalls, logs, roots, vegetation and stripping and stockpiling of topsoil.

1.2 SEQUENCING AND SCHEDULING

- A. Coordinate Work with others performing work at project site.
- B. Notify the OWNER and ENGINEER prior to the start of clearing.
- C. Notify Gopher State One Call (800-252-1166) to mark locations of utilities prior to beginning the Work.
- D. Coordinate marking of clearing/removal limits with ENGINEER prior to commencing work. Approximate limits are shown on the Drawings; however, actual limits will be determined in the field by the ENGINEER.

1.3 QUALITY ASSURANCE

- A. Site Clearing Contractor Qualifications: Tree removal shall be completed by qualified personnel/businesses and according to accepted horticulture practices.

1.4 MEASUREMENT AND PAYMENT

- A. All work and costs associated with completing the work as specified on the Drawings and in the Specifications shall be included in the total project cost.
- B. Refer to Section 01 20 00 – Price and Payment Procedures.

PART 2 - PRODUCTS

2.1 WOUND DRESSING

- A. Asphalt base tree paint.
- B. Other acceptable materials per ENGINEER'S approval.

2.2 TREE PROTECTION FENCING

- A. Orange mesh construction fencing: 4 feet high with stakes every 10 feet.

PART 3 - EXECUTION

3.1 GENERAL

- A. Perform clearing and grubbing in accordance with Mn/DOT Spec 2101 Clearing and Grubbing and as described herein.
- B. Dispose of all debris offsite, unless otherwise provided written permission from the City and local fire marshal to burn onsite.
- C. Review clearing/removal limits with ENGINEER prior to commencing Work.
- D. Stockpile soil to eliminate contamination with other onsite materials.
- E. Perimeter protection for stockpiles shall be placed prior to stripping of materials.
- F. Clearing and grubbing consists and cutting and disposing of trees, brush, windfalls, logs, and other vegetation, and removing and disposing of roots, stumps, stubs, grubs, logs, and other timber.
- G. Do not trim trees unless approved by OWNER. Trim in accordance with generally accepted horticultural practices when partial removal of roots necessitates trimming to save trees, and paint cut limbs greater than 1 inch in diameter with asphalt base tree paint.

3.2 PREPARATION

- A. Conduct operations within the limits of construction and in accordance with the staked removal/clearing limits.
- B. Conduct operations in such a manner that does not damage protected trees and vegetation outside of limits of removal/clearing or construction.
- C. Install all required traffic control and erosion and sediment control devices prior to commencing Work.
- D. Do not close or obstruct walkways or roadways. Do not store or place materials in passageways or other means of egress. Conduct operations with minimum traffic interference.
- E. Provide all necessary barriers, warning signs and traffic control for each removal case.

3.3 CLEARING AND GRUBBING

- A. Clearing Trees:
 - 1. Cut and remove trees, brush, shrubs, windfalls, logs, stumps, roots, fallen timber, and other vegetation in the areas designated for clearing.
 - 2. Prune and remove any low hanging, unsafe or broken branches.
 - 3. When grubbing not required, the cutoff point shall be 6 inches above the ground.
- B. Grubbing:

1. Root wads to remain intact for Root Wads. All other stumps to remain in ground and cut flush at ground level.
2. Remove and dispose of designated stumps, roots and other remains.
3. Backfill depressions with native soils and compact backfill as directed by the ENGINEER.

3.4 TOPSOIL STRIPPING

- A. Following clearing and grubbing operations, strip topsoil and vegetation to a distance 3 feet beyond areas of grading, utility improvements, structures or pavement improvements.
- B. Do not strip within drip line (branch spread) of trees identified to remain.
- C. Utilize salvaged topsoil as embankment where appropriate on back slopes, below specified topsoil. Remove excess salvaged material and dispose of offsite.
- D. See Section 31 23 00 – Excavation and Fill for additional requirements.

3.5 DISPOSAL

- A. Consider Beneficial Use Designations for unadulterated wood, wood chips, bark and sawdust.
- B. Dispose of all associated debris resulting from clearing and grubbing offsite, unless noted otherwise, at a location determined by the CONTRACTOR, in accordance with all codes, laws, rules, regulations, statutes, etc.
- C. Burying of cleared and grubbed waste within the limits of construction shall be prohibited.
- D. Dispose of all unused topsoil and vegetation offsite in a legal manner.
- E. Provide to the ENGINEER and OWNER an Emerald Ash Borer compliance agreement with the Minnesota Department of Agriculture. Dispose of ash, pine, elm, and oak wilt infected trees in accordance with proper forestry disposal standards that prevent spreading insects and disease pests.
- F. Consider chipping or tub grinding of trees designated for removal using the mulch for nearby existing areas associated with the frisbee golf course.

3.6 PROTECTION

- A. Protect all trees and plant materials not designated for removal. No vehicles or stripping shall occur within dripline (branch spread) of trees identified to remain.
- B. Provide silt fence or orange mesh fencing 4 feet high with stakes every 10 feet 5 feet outside the drip line of trees to be protected/preserved. Do not perform actions within the protected area that may harm the tree and compact the soil, including, but not limited to excavation, storing materials, parking and traffic during construction.

END OF SECTION

**SECTION 31 23 00
EXCAVATION AND FILL**

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes all excavation and fill for roadways, building, parking lots, driveways, walks, ponds and other grading areas.

1.2 DEFINITIONS

- A. Influence Zone Under Foundations, Pavements, or Sidewalks: Area below foundation or pavement and sidewalk as bounded by 1 horizontal to 1 vertical slope extending outward from 1 foot beyond outer edges of foundation, pavement, or sidewalk.
- B. Influence Zone Around Piping or Electrical Ducts: Area below limits bounded by line 12 inches above pipe or duct and by 1 horizontal to 2 vertical slope extending outward from that line 1 foot beyond outer edge of pipe or duct.
- C. Unsuitable Material: Topsoil, peat, organic soils, soft clay soils, and materials containing slag, cinders, foundry sand, debris, and rubble or soil with less than required bearing capacity.
- D. Grading Grade: Bottom of the aggregate base as shown on the Drawings.
- E. Common Excavation: All excavation required between the existing surface and the proposed subgrade elevation, excluding bituminous material. Excavations will not be classified for payment by different classifications of material excavated. All excavations, except rock excavation, are defined as Common Excavation.
- F. Rock Excavation: Material that requires drilling, blasting, or ripping before excavation. This includes boulders and other detached rock larger than 1 cubic yard.
- G. Material suitable for use as topsoil shall be as defined in Section 32 92 00.

1.3 SUBMITTALS

- A. Submit in accordance with Section 01 33 00 – Submittal Procedures.
- B. Imported and Onsite Material Data: Data for each imported material type to be used
 1. Location of material source.
 2. USCS soil classification.
 3. Standard Proctor maximum dry density and optimum moisture test results.
 4. Gradation report/grain size analysis.
 5. Name, address, telephone number and contact person of independent soils laboratory conducting the above tests.
 6. Method of offsite source soils material sampling and analyses.
- C. Samples: One sample of each imported material specified, representing actual material if requested by ENGINEER or OWNER.

1.4 SEQUENCING AND SCHEDULING

- A. Coordinate construction staking of the site with the ENGINEER prior to starting the Work.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Delivery: Notify the ENGINEER of the delivery schedule in advance so borrow and planting media may be inspected upon arrival at the Site. Remove unacceptable material from the Site immediately.
- B. Storage: Stockpile material to eliminate contamination with other onsite materials.

1.6 MEASUREMENT AND PAYMENT

- A. All work and costs associated with completing the work as specified on the Drawings and in the Specifications shall be included in the total project cost.
- B. Refer to Section 01 20 00 – Price and Payment Procedures.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Common Excavation: See paragraph 1.2 of this Section.
- B. Topsoil: See Section 32 92 19.
- C. Clay Fill: Import material conforming to USCS classification CL, CH or SC. Free of vegetation, sticks, debris, and rocks greater than 4 inches in diameter. A minimum of three gradation samples from a Certified Materials Testing Laboratory shall be submitted to verify suitability of potential clay fill soil for berm construction.

PART 3 - EXECUTION

3.1 GENERAL

- A. Conform to Mn/DOT Spec 2105.3.A, and as modified herein:
 - 1. Establish erosion control devices prior to excavation work as indicated on the Drawings.
 - 2. Notify utility companies of progress schedule so they can accomplish relocations, removals, and holding of lines.
- B. Examine and verify acceptability and condition of surfaces to perform Work. Perform utility locates as required prior to excavation.

3.2 PREPARATION

- A. Sample, test, and submit test results of onsite and import soils.
- B. Prepare surfaces to receive materials to lines and grades shown on Drawings prior to placement.
- C. Confine excavations to as defined on the Drawings and as directed by the ENGINEER.

- D. CONTRACTOR may encounter groundwater and upward seepage during construction and is responsible for dewatering.
 - 1. Keep excavations free from water.
 - 2. Maintain groundwater minimum of 12 inches below excavations.
 - 3. Remove soil disturbed by pressure or flow of groundwater and replace with free-draining material.
 - 4. Maintain dewatering system to prevent uplifting of structures.
 - 5. Protect adjacent properties from damage resulting from dewatering operations.
 - 6. Dewatering wells shall be drilled, maintained, and abandoned in accordance with federal, state, and local ordinances.
 - 7. Keep surface water from ponding near or flowing into sub-soils below backwash holding pond liner system.
- E. Keep construction site free-draining.
- F. Fill settled areas where excavations or trenches were backfilled and holes made by demolition, tree removal, and site preparation work.
- G. Remove all topsoil, organic material, and soft, wet, or loose soils below proposed berms, structures, and roadway areas.
- H. Prepare subgrade in accordance with Section 31 23 13 – Subgrade Preparation.
- I. Conform to Mn/DOT Spec 2105.3.C Preparation of Embankment Foundation, and as modified herein:
 - 1. ENGINEER’s approval is required for all areas where preparation work has been performed prior to the placement of the embankment or fill material.
 - 2. Where embankment is to be constructed over swamp, marsh, or other locations where the foundation material is unstable, the foundation material shall be excavated to remove all or part of the unstable material.

3.3 TOPSOIL SALVAGE AND RESPREAD

- A. See Section 31 10 00 – Site Clearing for additional requirements.
- B. Topsoil shall be stripped and stockpiled separately from the underlying clay substratum. “Subsoil” here is defined as any clay layer of soil immediately below the dark topsoil and within five feet of the surface. After pipe installation and backfilling to proper subgrade levels, these soils shall be replaced in the uppermost layers to facilitate re-vegetation and an approximation of pre-construction infiltrative capacity.
- C. Temporary erosion and sediment control measures such as silt fence, staked hay bales, sediment filters and traps, erosion control matting, mulching, and crushed rock pads will be utilized as shown on the Drawings and as directed by the ENGINEER in the field. All disturbed areas shall be seeded with seed mixes and mulched as specified and shown on the drawings as soon as practical after the pipe installation work has been completed.

3.4 EXCAVATION OPERATIONS

- A. Conform to Mn/DOT Spec. 2105.3.D Excavating Operations, and as modified herein.

1. Perform excavations to the alignments, cross sections, lines, and grades needed to complete the Work as shown on the Drawings or as directed by ENGINEER.
 - a. Excavations beyond those lines and grades without the OWNER'S or ENGINEER's authorization will be considered unauthorized work.
2. Method of excavation shall be consistent with soil types encountered and result in competent subgrade. Excavation shall be to the required depth. Replace unsuitable materials encountered at the planned subgrade with controlled native soil fill material.
3. Oversize excavations horizontally a minimum of 1-foot beyond extents of proposed structures and pavement areas.
4. Oversize the excavation area extending below structures as needed or determined in the field by the ENGINEER, in order to provide subgrade with adequate bearing support.
5. Unsupported excavation sides slopes shall be maintained at a gradient no steeper than 1.5H:1V and in compliance with OSHA requirements.
6. Notify the ENGINEER immediately of any unsuitable material encountered at subgrade elevation.
7. Notify the ENGINEER immediately of any large boulders or ledge rocks encountered.
8. Provide and maintain temporary drainage facilities until permanent facilities are completed.
9. Do not excavate within influence zone of existing footings, foundations, pavements, or piping without prior approval of ENGINEER.
10. Upon completion of excavation, notify ENGINEER before proceeding with further work.

3.5 SUBGRADE EXCAVATION

- A. Excavation of existing subgrade material shall conform to the lines and grades as shown on the Drawings, and as confirmed based on field testing onsite during construction.
- B. Suitable subgrade materials may be reinstalled and compacted in 8-inch lifts to the specified density to specified subgrade elevation.

3.6 STOCKPILING OF SUITABLE MATERIALS

- A. Excavated material suitable for use as topsoil or controlled fill may be stockpiled onsite.
- B. Onsite stockpiles shall be graded to drain.
- C. Prevent storm water runoff from stockpile areas in accordance with NPDES Permit for Construction Activity and the project SWPPP.

3.7 DISPOSITION OF EXCAVATED/UNSUITABLE MATERIALS

- A. Conform to Mn/DOT Spec 2105.3.I Disposition of Excavated Material, and as modified herein:
 1. Excavated materials unsuitable for use as topsoil or controlled fill will be disposed off-site at no expense to the OWNER.

2. No disposition of bituminous millings will be permitted.

3.8 PLACING EMBANKMENTS/CONTROLLED FILL

- A. Conform to Mn/DOT Spec. 2105.3.E Placing Embankment Materials, and as modified herein:
 1. Notify OWNER prior to placing fill material.
 2. Do not use frozen material or place fill on frozen subgrade.
 3. Where pipes or electrical conduits leave structures, protect by backfilling pipe or duct influence zone down to undisturbed soil with controlled fill.
 4. Place fill simultaneously on both sides of free-standing structures
 5. Controlled fill shall be placed according to the type and location shown on the Drawings and according to the Specifications.
 6. Topsoil shall be placed in a uniform layer following approval of the grade by the ENGINEER in areas as indicated on the Drawings.
 7. Controlled fill subgrade material shall be placed and compacted in maximum 8-inch lifts.
 8. Base aggregate material shall be placed and compacted in maximum 6-inch lifts.

3.9 COMPACTING EMBANKMENTS/CONTROLLED FILL

- A. Conform to Mn/DOT Spec 2105.3.F Compacting Embankments, and as modified herein:
 1. Compaction required for embankment/fill materials shall conform to the Specified Density Method with the testing location and rates being determined by the ENGINEER.
 2. Clayey or silty soil used as fill will need to be placed at a water content sufficient to attain compaction (near the "optimum water content" defined in ASTM D698). If the CONTRACTOR wishes to use soils which are not at the needed water content, it is the responsibility of the CONTRACTOR to moisture condition the soil (wet or dry) to a uniform condition such that the entire profile (lift thickness) attains the minimum specified compaction level. Some onsite soils will be wet (or could be dry) and the CONTRACTOR shall not claim that this is a changed condition.
 3. Moisture condition fill material to reach the recommended water content if soils selected to be used are too wet or too dry. Suitable onsite materials may be too wet, or too dry, and will not be considered a changed condition.
 4. Protect the moisture condition of fill materials during construction. Wet weather conditions shall be accounted for by managing site drainage and compaction during construction.
 5. The CONTRACTOR recognizes that inclement weather (sometimes heavy) occurs during the construction season and the CONTRACTOR shall be responsible for protecting the moisture condition of soils during the construction phase. Such protection measures include sloping of exposed surfaces to promote runoff (avoid ponding) and compacting exposed surfaces prior to rain events to minimize infiltration.
 6. Provide mechanical compaction for cohesive material and vibratory compaction for granular materials. When approved by OWNER, jetting, flooding, puddling, or vibroflotation methods may be used for compacting if CONTRACTOR

furnishes test results to confirm required degree of compaction being obtained uniformly throughout entire mass.

7. Controlled Fill Compaction: Compact each layer by mechanical means until it meets the requirements of Mn/DOT Spec 2105.3.F.1 "Specified Density" Method, except as modified herein.

Location	Relative Compaction (%) Standard Proctor Density	Moisture Content (% variance from optimum)	
		Granular Controlled Fill (P200 < 12%)	Cohesive Controlled Fill (P200 > 12%)
Below Foundations/Slabs	98*	+/- 3	-1 to +3
With 3 feet below pavement aggregate base material	100	+/- 3	-1 to +3
Greater than 3 feet below pavement aggregate base material	95	+/- 3	+/- 3
Below landscaped/green areas	90	+/- 5	+/- 4
Aggregate base material	100	+/- 3	N/A

* In areas where fill depths will exceed 10 feet, compaction levels shall be increased to a minimum of 100 percent Standard Proctor Density.

8. Mechanical compaction around gate valve boxes, structures and private and public utility crossings shall be required. Lift thickness shall be consistent with requirements of this section

3.10 FINISH GRADING/TOLERANCES

- A. Conform to Mn/DOT Spec 2105.3.H Finishing Operations, and as modified herein:
 1. Finish grading of subgrade prior to placement of aggregate base courses shall not vary by more than 0.05 feet above or below the design, or ENGINEER adjusted grade.
 2. Finish grading of embankment, below proposed topsoil areas, shall be reviewed and approved by the ENGINEER prior to topsoil installation.
 3. Turf establishment shall conform to Contract Documents.

3.11 RESTORATION AND CLEANUP

- A. Stockpile areas will be restored to conditions equal to or better than conditions prior to stockpiling.
- B. CONTRACTOR shall clean all material spilled and tracked onto haul roads.

3.12 MATERIAL BALANCE

- A. The Site is not necessarily designed to balance. Any excess material shall become the property of the CONTRACTOR and moved off site. The CONTRACTOR is responsible to dispose of it in accordance with all applicable laws.

END OF SECTION

**SECTION 31 23 13
SUBGRADE PREPARATION**

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes scarifying, grading, shaping, and compacting subgrade prior to placement of base aggregate, or surface course.

1.2 SEQUENCING AND SCHEDULING

- A. Coordinate construction staking of the site with the ENGINEER prior to starting the Work.
- B. Verify soil correction has been completed as shown on the Drawings and according to the Specifications.
- C. Subgrade preparation shall be performed prior to placement of the aggregate base course.
- D. Complete subgrade preparation for streets, walks, and driveways immediately after installation of pipe as part of trench backfill and compaction.
- E. Coordinate test rolling per Mn/DOT Spec. 2111 with ENGINEER. Test rolling shall be completed maximum of 24-hours prior to placement of aggregate base course.
- F. Coordinate/schedule compaction testing a minimum two business days in advance.

1.3 MEASUREMENT AND PAYMENT

- A. No Bid Item has been provided for subgrade preparation. Subgrade preparation and all related work shall be considered incidental to the Project with no direct compensation made therefore.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 GENERAL

- A. Grade subgrade to produce the required density, grade, and cross-section according the Construction Documents.
- B. Maintain the recommended moisture content and density.
- C. Any unsuitable material encountered at base of the proposed excavation shall be scarified and recompacted or sub-cut a minimum of two feet, backfilled with suitable controlled fill material, and compacted under the direction of the ENGINEER. Unsuitable material includes material containing organics, tree roots or wood, rocks larger than 4 inches in diameter, demolition rubble, soft or high plasticity clay (USCS classification CH), and uncontrolled fill. Verify any unsuitable subgrade has been corrected according to Section 31 23 00 Excavation and Fill.

Unsuitable material includes material containing organics, tree roots or wood, rocks larger than 4 inches in diameter, demolition rubble, soft or high plasticity clay (USCS classification CH), and uncontrolled fill

- D. Scarify existing suitable material a minimum of 6 inches, moisture condition as necessary, and recompact to required density and moisture content.
- E. Mechanically compact subgrade with hand tamper as necessary to meet density requirements.

3.2 COMPACTION

- A. Conform to Spec. 2105.3.F.1. Specified Density, and as modified herein:
 - 1. The CITY will sample and test the soils to determine the Standard Proctor maximum dry density and optimum moisture.
 - 2. Compact subgrade to minimum percent Standard Proctor maximum dry densities shown below with a moisture content of -1/+3 percent of optimum moisture.

Area	Minimum Standard Proctor Dry Density (%)	Minimum Density Testing Frequency
Pavement Construction Area	100%	1 test per 100 LF
Retaining Wall Area	95%	1 test per 100 LF
Green Area	90%	None

3.3 FINISH GRADING/TOLERANCES

- A. Subgrade tolerance shall conform to Mn/DOT Spec. 2105.3.H Finishing Operations, or as modified herein:
 - 1. Not vary by more than 0.10 feet above or below the prescribed elevation at any 1 point where a measurement is made.
 - 2. Shall be fine rolled with smooth drum roller.

END OF SECTION

**SECTION 31 23 19
DEWATERING**

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes provision and maintenance of an adequate dewatering system to remove and dispose of all surface and groundwater entering the excavation, trenches, and other parts of the Work.

1.2 SUBMITTALS

- A. Submit in accordance with Section 01 33 00 – Submittal Procedures.
- B. Temporary Dewatering Plan: Submit for ENGINEER review.
 - 1. The CONTRACTOR'S Temporary dewatering plan must clearly indicate the method and location of dewatering and the means of disposal of excess water.
 - a. Include the design of all proposed structural components that may be required.
 - b. Maintain flow of water during all construction related activities.
 - 2. Discharges to the sanitary sewer shall be prohibited.

1.3 QUALITY ASSURANCE

- A. The CONTRACTOR shall design the dewatering systems needed to perform the work, obtain the permission of the landowners of the dewatering and discharge sites, where discharge is on or affects private property, and obtain the necessary dewatering permits.
- B. The CONTRACTOR shall be solely responsible for proper design, installation, operation, maintenance, and failure of any component of the system.

1.4 SITE CONDITIONS

- A. Soil borings were taken for this project by Haugo Geotechnical Services. The Geotechnical Report and associated groundwater information are included in Section 00 31 00.
- B. Data indicated on the subsurface conditions are not intended as representations, warranties of accuracy, or continuity between soil borings. The OWNER and ENGINEER shall not be responsible for interpretations or conclusions drawn from these reports. The information is made available for the convenience of the CONTRACTOR.
- C. CONTRACTOR shall be responsible for determining to the CONTRACTOR's own satisfaction the nature and location of subsurface obstacles and the nature of soil and water conditions.
- D. CONTRACTOR may perform additional test borings or other exploratory tests at CONTRACTOR's own expense. CONTRACTOR shall make arrangements for any additional soils investigation with the OWNER.

- E. No claim for additional payment will be accepted due to the nature of subsurface conditions in which the work is to be performed.

1.5 SEQUENCING AND SCHEDULING

- A. Approval of the dewatering plan shall be confirmed in writing by the ENGINEER prior to scheduling the dewatering operations.
- B. Notify the ENGINEER 48 hours prior to commencing dewatering construction.

1.6 PERMITS AND LICENSES

- A. The CONTRACTOR shall be responsible for obtaining all necessary permits related to dewatering and water discharge and to comply with all stipulations of such permits.
 - 1. MnDNR Water Appropriations Permit.
- B. Dewatering shall not commence until the dewatering plan has been approved and all necessary permits have been received.
- C. See Section 01 41 00 – Regulatory Requirements for additional requirements.

1.7 MEASUREMENT AND PAYMENT

- A. Refer to Section 01 20 00 – Price and Payment Procedures.
- B. All work and costs associated with completing the work as specified on the Drawings and in the Specifications shall be included in the total project cost.

PART 2 - PRODUCTS

2.1 EQUIPMENT

- A. The CONTRACTOR shall be responsible for furnishing, installing, and operating all equipment necessary for dewatering.

PART 3 - EXECUTION

3.1 APPLICATION

- A. The CONTRACTOR shall coordinate with OWNER to draw down pond and open sluice gate valve at existing outlet control structure.
- B. The CONTRACTOR shall ensure that discharge water is free of sediment, shall not appear turbid, and shall comply with any Department of Natural Resources, OWNER, and MPCA Construction Stormwater General Permit conditions.
- C. The CONTRACTOR shall be responsible and liable for all damages which may result from failure to keep excavations adequately dewatered.
- D. The CONTRACTOR shall be responsible for the maintaining the flow of water from upstream to downstream during construction.

3.2 GENERAL

- A. Each excavation shall be kept dry during the course of all work, including subgrade preparation, pipe installation, and backfilling. All excavations shall be dewatered to a depth of at least two feet below the bottom of the exposed surface, concrete base, or pipe to be installed.
- B. The CONTRACTOR may use any method or combination of methods for dewatering, provided those methods are consistent with all other provisions contained in the Specifications. Dewatering methods or equipment found to be ineffective, according to the opinion of the ENGINEER, at either dewatering or treating dewatering discharge, shall be abandoned, improved, replaced, or otherwise altered to achieve effective dewatering.
- C. The CONTRACTOR shall provide all power, pumps, materials, and equipment necessary for dewatering and treating dewatering discharge. The CONTRACTOR is responsible for disposing of the dewatering discharge in a manner that will not interfere with other Work and will not damage public or private property. Any damage to pipes, conduit, ditch, channel, or natural watercourse utilized for drainage purposes shall be repaired at no cost to the OWNER.
- D. The CONTRACTOR shall provide all equipment necessary for dewatering and shall have on hand, at all times, sufficient pumping equipment and machinery in good working condition along with competent workmen for the operation of the pumping equipment. Adequate standby equipment/power shall be kept available at all times to ensure efficient dewatering and maintenance of dewatering fully operation during power failure.
- E. Dewatering excavation shall commence when water is first encountered, and shall be continuous until such times as water can be allowed to rise in accordance with the provisions of these specifications.
- F. The CONTRACTOR shall grade the site so that at all times:
 - 1. Surface runoff is diverted from the excavation.
 - 2. Water entering the excavation from surface runoff is collected in shallow ditches around the perimeter of the excavation, drained to sumps, and pumped or drained by gravity away from the excavation so that a bottom free from standing water is maintained.
- G. The CONTRACTOR shall dewater the excavation in such a manner as to preserve the undisturbed bearing capacity of the subgrade soils at the bearing points of the pipe or structure to be installed.
- H. If foundation soils subside, are disturbed or loosened by the upward seepage of water or an uncontrolled flow of water, the CONTRACTOR shall consult with ENGINEER before proceeding.
- I. If sumps are used for dewatering, the CONTRACTOR shall prevent pumping of fine sands or silts from the subsurface by adequately spacing the sumps or using sandpacking or other means to provide the necessary dewatering.
- J. The CONTRACTOR shall release the water to its static level in such a manner as to maintain the undisturbed state of the natural foundation soils and to protect the newly constructed improvements.

- K. The CONTRACTOR shall construct the improvements in such a fashion to maintain the existing flow of water from upstream to downstream.

3.3 CORRECTIVE ACTION

- A. The CONTRACTOR shall be responsible for, and shall repair without cost to the OWNER, any damage to work in place, other contractor's equipment, and the excavation that may result from the CONTRACTOR's negligence, inadequate or improper design and operation of the dewatering system, and any mechanical or electrical failure of the dewatering system.
- B. The CONTRACTOR shall install appropriate best management erosion control measures and maintain them as required.

3.4 REMOVAL

- A. Prior to removal of the system, ensure compliance with regulatory permits.
- B. All wells installed as part of the dewatering system shall be sealed in accordance with all applicable regulations.
- C. Dewatering system shall be shutoff at such a rate to prevent a quick upsurge of groundwater.

END OF SECTION

**SECTION 31 25 00
EROSION AND SEDIMENTATION CONTROLS**

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes installation of erosion and sedimentation controls, including silt fence, erosion control blanket, rock construction entrances, riprap, inlet protection, ditch checks, sediment control logs, and other similar materials as shown on the Drawings.

1.2 SUBMITTALS

- A. Submit in accordance with Section 01 33 00 – Submittal Procedures.
- B. Product Data: Manufacturer's data sheets on each product to be used
 - 1. Preparation instructions and recommendations
 - 2. Storage and handling requirements and recommendations
 - 3. Manufacturer's certificates indicating specification conformance test results of furnished material.
- C. Erosion Control Schedule and Erosion Control Plan
 - 1. Conform to Mn/DOT Spec. 1717.2.B Erosion and Sediment Control Schedule and Mn/DOT Spec 1717.2.C Site Management Plan.
 - 2. Submit when requested by ENGINEER.

1.3 SEQUENCING AND SCHEDULING

- A. Sediment control measures (silt fence, bioroll, etc.) must be in place prior to removals and grading activities.
- B. Coordinate construction operations so that erosion and sediment control measures (temporary or permanent) are installed and maintained concurrently with the remaining work of the project.
- C. Infiltration areas and constructed infiltration systems should not be constructed until the contributing drainage area and/or adjacent construction has been completely stabilized. When the timing of construction is not possible, the CONTRACTOR shall ensure sediment from exposed soil areas does not enter into the infiltration area or system.
- D. If the CONTRACTOR fails to install erosion or sediment measures, the ENGINEER may withhold payment from related work until the control measures are in place by the CONTRACTOR.
 - 1. If the CONTRACTOR fails to take action ordered by the ENGINEER to remedy erosion or sediment control problems, the ENGINEER shall issue a Written Order to the CONTRACTOR.
 - 2. The CONTRACTOR shall respond within 24 hours with sufficient personnel, equipment, materials, and conduct the required work or be subject to a \$1,000 per calendar day deduction for noncompliance.

1.4 QUALITY ASSURANCE

- A. Erosion Control Contractor Qualifications:
 - 1. Erosion Control Supervisor
 - a. Provide a Supervisor responsible for directing the erosion control operations and ensure erosion and sedimentation controls are implemented according to the specifications and in compliance with all Federal, State, and Local Ordinances and regulations.
 - 2. Certified Installer
 - a. Provide a certified installer to install or direct installation of erosion and sediment control practices.
 - b. Certified by the University of Minnesota Erosion Control Inspector/Installer Certification Program or approved equal.

1.5 PERMITS AND LICENSES

- A. Project disturbs 1 or more acres of total land area. Co-submittal with OWNER of a completed NPDES application form for the MPCA's General Storm Water Permit for Construction Activity is required. Submit a copy of the completed, signed, and dated application to the OWNER. OWNER to pay required permit fee.
- B. See Section 01 41 00 – Regulatory Requirements for additional requirements.

1.6 MEASUREMENT AND PAYMENT

- A. Refer to Section 01 20 00 – Price and Payment Procedures.
- B. All other work and costs associated with completing the work as specified on the Drawings and in the Specifications shall be included in the total project cost.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Silt Fence: Conform to Mn/DOT Specs 2573 Storm Water Management 3886 Silt Fence, Type MS Machine Sliced.
- B. Erosion Control Blanket: Conform to Mn/DOT Specs 2575 Establishing Vegetation and Controlling Erosion and 3885 Rolled Erosion Control Product, Category 3N Straw 2S (natural netting only).
- C. Coir Erosion Control Mat: BioD-Mat 40 woven bristle coir erosion control mat by Rolanka International, Inc. or approved equal.
- D. Temporary Seed: Conform to 92 13 – Seeding and Restoration.
- E. Temporary Construction Entrance: Conform the details on the Drawings.
- F. Inlet Protection: Inlet protection for exposed surfaces and paved streets with concrete curb and gutter. Conform to the details on the Drawings and as required to for compatibility with each inlet type.
- G. Culvert Protection: Conform to the details on the Drawings.

- H. Riprap: See Section 31 37 00 – Riprap.
- I. Flotation Silt Curtain: Conform to Mn/DOT Specs 2573 Storm Water Management and 3887 Flotation Silt Curtain, Type Moving Water.

PART 3 - EXECUTION

3.1 GENERAL

- A. Conform to Mn/DOT Specs 2573.3.A General and 2575.3.A General.
- B. Install necessary erosion and sedimentation controls prior to beginning excavation and grading activities.
- C. Install erosion and sedimentation controls at the locations shown on the Drawings.
- D. Comply with all applicable laws, ordinances, regulations, permit requirements, orders pertaining to erosion and sediment control and stormwater discharge.
- E. Take necessary precautions to prevent offsite damage resulting from work conducted on the project related to stormwater runoff.

3.2 INSTALLATION

- A. Install temporary stormwater management and sediment control devices in conformance with the details, typical sections, and elevations shown on the Drawings.
- B. The location of the temporary stormwater and sediment control devices may be adjusted to accommodate actual field conditions and increase the effectiveness of the installation.
- C. Slope (Cat) Tracking
 - 1. Slope tracking consists of operating a dozer up and down slopes so that the cleats of the tracks create grooves perpendicular to the slope.
 - 2. Required on all slopes equal to or greater than 3:1 (H:V).
- D. Silt Fence
 - 1. Conform to Mn/DOT Spec 2573.B Silt Fence Installation.
 - 2. Install at locations shown on the Drawings or as directed by the ENGINEER.
 - 3. Install silt fence downgradient of grading activities.
 - 4. Install silt fence or sediment control log around the perimeter of soil stockpiles.
- E. Erosion Control Blanket
 - 1. Conform to Mn/DOT Spec 2575.3.G.2 Erosion Control Blankets.
 - 2. Install erosion control blanket on disturbed slopes greater than 5H:1V or as shown on the Drawings.
 - 3. Install blanket parallel to the direction of flow.
 - 4. Install in accordance with Manufacturer's recommendations.
 - 5. Where multiple erosion control blanket lengths are required, they shall be placed with the longest dimension parallel to the direction of water flow. If

not seamed, splices and joints shall be overlapped a minimum of 18 inches, except underwater the overlap shall be 36 inches. The joint laps shall be shingled (both in the flow direction) so as to direct water flow over the joint without undermining. In lieu of joint overlapping, multiple fabric pieces may be sewn to conform to Mn/DOT Spec 2105.3.K Geotextile Requirements. Upgrade edges of the fabric area shall be buried sufficiently to direct water flow over the fabric without undermining.

- F. Coir Erosion Control Mat
 - 1. Install per manufacturer requirements.
- G. Temporary Seed
 - 1. Conform to Mn/DOT Spec 2575.3.B Placing Seed.
- H. Temporary Construction Entrance
 - 1. Conform to Mn/DOT Spec 2573.3.K Construction Exit Controls.
 - 2. Install at the locations shown on the Drawings or at other location(s) determined by CONTRACTOR with approval of the ENGINEER.
- I. Inlet Protection
 - 1. Conform to Mn/DOT Spec 2573.3.M Storm Drain Inlet Protection.
 - 2. Provide effective storm drain inlet protection over the course of the project until all sources with potential for discharging to inlets have been stabilized.
 - 3. Place devices so the driving hazards or obstructions are minimized. The devices shall be cleaned regularly and all devices must have an emergency overflow to reduce the potential for local flooding.
 - 4. Install inlet protection at all storm sewer structures downgradient of grading activities which could receive stormwater discharge from construction areas.
- J. Riprap
 - 1. See Section 31 37 00 – Riprap.
- K. Flotation Silt Curtain
 - 1. Conform to Mn/DOT Spec 2573.3.I Flotation Silt Curtain Installation.
 - 2. Install at locations shown on the Drawings or as directed by the ENGINEER.

3.3 MAINTENANCE

- A. Conform to Mn/DOT Spec. 2573.3.P Maintenance and 2575.3.K Maintenance and as follows:
 - 1. Inspect, maintain, and repair any washouts or accumulations of sediment that occur as a result of construction.
 - 2. Inspection of all erosion and sediment control items shall take place in accordance with NPDES construction stormwater permit requirements, immediately after each runoff event and at least daily during prolonged rainfall. Any required repairs shall be made immediately.
 - 3. Sediment Removal: If an erosion control device has been reduced in capacity by 30 percent or more, the CONTRACTOR shall restore such features to their original condition.
 - 4. The CONTRACTOR shall maintain the items until they are no longer required and removed.

3.4 CLEANUP

- A. Acceptance of the work shall be in accordance with Mn/DOT Spec 2575.3.N Acceptance of Work.
- B. Upon final acceptance the CONTRACTOR shall remove temporary sediment control devices after completion of construction in accordance with Mn/DOT Spec 2573.3.R Removal of Temporary Devices.
- C. Restoration shall be in accordance with Mn/DOT Spec 2575.3.O Restoration.

END OF SECTION

**SECTION 31 37 00
RIPRAP**

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes use of imported riprap for riprap aprons, vegetated riprap, and toe reinforcement.

1.2 SUBMITTALS

- A. Submit in accordance Section 01 33 00 – Submittal Procedures.
- B. Riprap Product Data:
 - 1. Location of offsite source of riprap and granular filter material.
 - 2. Gradation test results/report for each source and class of riprap and granular filter material.
 - 3. Testing certificates from a qualified testing agency shall be submitted prior to acceptance of the rock source to verify the conformity to the requirements of the Contract Documents.

1.3 METHOD OF MEASUREMENT AND PAYMENT

- A. Refer to Section 01 20 00 – Price and Payment Procedures.
- B. All other work and costs associated with completing the work as specified on the Drawings and in the Specifications shall be included in the total project cost.

PART 2 - PRODUCTS

2.1 RIPRAP

- A. Riprap shall consist of dense, natural rock fragments that are comprised of fractured granite or other igneous/metamorphic stone. Riprap shall be resistant to weathering and to water action and shall be free from overburden, spoil, shale, and organic material. Limestone, volcanic-based, or dolomite-based riprap is NOT allowed. Riprap shall conform to the size types as follows:
 - 1. In accordance with Mn/DOT Spec 3601 Riprap Material, Class III.
- B. The acceptability of the stones or boulders will be determined by the ENGINEER prior to placement.
- C. Individual rock fragments shall be dense, sound and free from cracks, seams and other debris conducive to accelerated weathering.

PART 3 - EXECUTION

3.1 RIPRAP INSTALLATION

- A. The riprap shall be placed so as to avoid damage to existing stormsewer. Stones shall not be dropped from a height greater than 3 feet, nor shall large stones be allowed to roll downslope.
- B. The CONTRACTOR shall place riprap as shown on Drawings and in accordance with Mn/DOT Spec 2511 Riprap.

3.2 TRANSPORTATION AND HAUL ROADS

- A. Observe State, County, and Local traffic rules and weight restrictions.
- B. All vehicle trips loaded or unloaded shall be on designated haul roads only.
- C. CONTRACTOR to coordinate selection of haul roads with the appropriate governing body and acquire any necessary permits.

3.3 INSPECTION AND MAINTENANCE

- A. Inspect installation after significant rainstorms to check for erosion, undermining or loosening of plants and stakes. Any failure during the installation or maintenance period shall be repaired immediately.

END OF SECTION

**SECTION 32 11 23
AGGREGATE BASE COURSES**

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes requirements for aggregate base course.

1.2 SUBMITTALS

- A. Submit in accordance with Section 01 33 00 – Submittal Procedures.
- B. Material Data:
 - 1. Location/source of material.
 - 2. Source gradation test results/report (ASTM D6913).
 - 3. Standard Proctor maximum dry density and optimum moisture test results (ASTM D698).

1.3 SEQUENCING AND SCHEDULING

- A. Construct aggregate base only after all of the following have been completed:
 - 1. Subgrade has been corrected for instability problems and successfully passed a test roll performed by the CONTRACTOR and witnessed by the ENGINEER, where applicable.
 - 2. Subgrade had been checked for conformance to line and grade tolerances (string line).
 - 3. ENGINEER has given approval to place aggregate.

1.4 MEASUREMENT AND PAYMENT

- A. Refer to Section 01 20 00 – Price and Payment Procedures.
- B. All other work and costs associated with completing the work as specified on the Drawings and in the Specifications shall be included in the total project cost.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Aggregate Base: Conform to Mn/DOT Spec 3138 Aggregate for Surface and Base Courses, Class 5 aggregate base, except as modified below:
 - 1. 100% crushed
 - 2. < 2% organic content
 - 3. CONTRACTOR may substitute recycled aggregates for virgin aggregates, if meeting the requirements of Mn/DOT Specs 3138.2.C Recycled Materials and 3138.2.E Gradation Requirements.
- B. Gravel Aggregate Base: Coordinate with City of Coon Rapids to determine location of source gravel for bituminous trail.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Subgrade to be completed and approved by the ENGINEER prior to installation of aggregate base.

3.2 CONSTRUCTION REQUIREMENTS

- A. Conform to Mn/DOT Spec. 2211.3 Construction Requirements, except where modified herein.
- B. At the end of each day the CONTRACTOR shall eliminate surface indentations, including those caused by sheep's foot rollers and tractor cleats, and roll the surface with a steel drum or rubber tired roller.
- C. The depth of the aggregate base to be constructed shall be as shown on the Drawings.
- D. Place and compact aggregate in maximum 6-inch lifts.
- E. All aggregate base shall be compacted using mechanical means to a minimum of 100% of the maximum Standard Proctor density, +/- 3% of optimum moisture content.
- F. Water shall be added as necessary to achieve required moisture content and density.
- G. Deliver weight tickets to ENGINEER.

3.3 FIELD QUALITY CONTROL

- A. Prior to construction, the CONTRACTOR's independent testing laboratory shall submit the following laboratory analysis for the proposed base aggregate source material:
 - 1. Three Grain Size Distribution analyses (ASTM D6913).
 - 2. Three Standard Proctor moisture/density relationship analyses (ASTM D698).
- B. A test roll may be required at the ENGINEER's discretion if during the placement of aggregate base material, the gravel shows signs of failure (incidental
- C. Testing and frequency shall conform to Mn/DOT Schedule of Materials Control, latest edition.

3.4 TOLERANCES

- A. Line and Grade Tolerance:
 - 1. The final aggregate base surface will be checked for conformance to specified tolerances by the "string line" method prior to approval to pave the surface. Grade shall be ± 0.05 feet of grade.
 - 2. The final aggregate surfacing grade will be checked for conformance to specified tolerances by the "string line" method. Grade shall be ± 0.05 feet of grade

3.5 PROTECTION

- A. Protect aggregate base until it is covered by surface pavement.
- B. Keep aggregate base free of ruts and irregularities until covered by surface paving.
- C. Place water on aggregate base for dust control as required to eliminate nuisance conditions for adjacent properties.

END OF SECTION

**SECTION 32 12 00
FLEXIBLE PAVING**

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes hot plant mixed asphalt aggregate mixtures for wearing and non-wearing pavement courses, and bituminous tack coat.

1.2 SUBMITTALS

- A. Submit in accordance with Section 01 33 00 – Submittal Procedures.
- B. Shop Drawings:
 - 1. Mixture Design Report in accordance with Mn/DOT Spec 2360.2.
 - 2. Submit mixture design report to the ENGINEER.
- C. Submit Q/C results in accordance with Mn/DOT Spec 2360.2 and Mn/DOT's Materials Control Schedule latest edition.

1.3 SEQUENCING AND SCHEDULING

- A. Aggregate base to be completed and approved by the ENGINEER prior to placement of bituminous surfaces.
- B. Install pavement within 24 hours of aggregate base being installed to existing utilities on existing roadways.
- C. Provide a 48-hour notice for scheduling prior to paving.
- D. Bituminous cores, where required, for testing shall be taken 12 to 48 hours after paving operations

1.4 MEASUREMENT AND PAYMENT

- A. Refer to Section 01 20 00 – Price and Payment Procedures.
- B. All other work and costs associated with completing the work as specified on the Drawings and in the Specifications shall be included in the total project cost.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Mixture Designs: Conform to Mn/DOT Spec 2360
 - 1. Wearing Course: SPWEA240E
- B. Bituminous Tack Coat
 - 1. Bituminous material: Conform to Mn/DOT Spec 2357, Emulsified Asphalt, Cationic, CSS-1 or CSS-1H.

- C. Mixture Quality Management (QC/QA): Conform to Mn/DOT Spec 2360.2.G

PART 3 - EXECUTION

3.1 GENERAL

- A. Conform to Mn/DOT Spec. 2360, except as modified herein.
- B. The CONTRACTOR shall review the proposed paving sequence with the ENGINEER prior to placement of each bituminous course (lift).
 - 1. The proposed sequence shall address longitudinal seams, compaction, traffic control, hauling routes, and placement of pavement markings.
- C. The maximum allowable lift of bituminous shall be 2 inches
- D. Joints: Where new construction meets existing bituminous surfacing, the existing surface shall be uniformly milled or saw-cut straight and bituminous tack coat applied prior to placement of each bituminous course (lift). For joint construction, an existing bituminous surface shall be considered to include any bituminous surface not paved on the same day as the new construction.
- E. Bituminous tack coat shall be installed between lifts, unless wear course is placed in the same day as the base course.
- F. Preparation of Bituminous Course:
 - 1. Final cleanup of bituminous surface with the use of a power pickup broom and front end loader

3.2 RESTRICTIONS

- A. Conform to Mn/DOT Spec 2360.3.A, except as modified herein.
- B. All aggregate base surfaces shall be checked and approved by the ENGINEER prior to paving.
- C. Existing bituminous surfaces must be dry prior to and during placement of any bituminous pavements.
- D. Wearing course shall not be placed when the air temperature in the shade and away from artificial heat is 50 degrees or less, unless otherwise approved by the ENGINEER.

3.3 EQUIPMENT

- A. Conform to Mn/DOT Spec 2360.3.B, except as modified herein.

3.4 TREATMENT OF SURFACE

- A. Conform to Mn/DOT Spec 2357, except as modified herein.
- B. Restrictions
 - 1. The tack coat shall not be applied when the road surface is wet or when the weather conditions are unsuitable.

2. The area for tack coat application shall be limited as directed by the ENGINEER.
 3. The CONTRACTOR shall have sole responsibility of claims of tack coat on personal property due to lack of notification or signage of the area being tack coated.
- C. Equipment
1. Conform to Mn/DOT Spec. 2357.3.B.
- D. Application
1. At a uniform rate conforming to Mn/DOT Spec. 2357.3.D, of 0.05 gallon per square yard.
 2. Along edges of existing bituminous pavement to which the new bituminous will be placed along or against.

3.5 SURFACE REQUIREMENTS

- A. Conform to Mn/DOT Spec 2360.3.E, except as modified herein:

3.6 PAVEMENT SURFACE SMOOTHNESS

- A. Conform to Mn/DOT Spec 2399, except as modified herein:
1. Pavement smoothness requirements of 2399 will not apply on this Project.

3.7 FIELD QUALITY CONTROL

- A. Testing and frequency shall conform to Mn/DOT Schedule of Materials Control latest edition.

END OF SECTION

**SECTION 32 90 19
SEEDING AND RESTORATION**

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes restoration of construction access, work area by installation of topsoil, seed, and erosion control.

1.2 REFERENCES

- A. Minnesota Department of Transportation, (Mn/DOT), Standard Specifications for Construction, Latest Edition with Supplements:
 - 1. 2575 – Establishing Turf and Controlling Erosion.
 - 2. 3876 – Seed
- B. Minnesota Department of Transportation Seeding Manual (Mn/DOT Seeding Manual), Latest Edition.
- C. MN BWSR Native Vegetation Establishment and Enhancement Guidelines, Latest Edition.

1.3 SUBMITTAL

- A. Submit in accordance with Section 01 33 00 – Submittal Procedures.
- B. Product Data:
 - 1. Seed source and invoice.
 - 2. Producer's certificate of compliance – Written documentation verifying compliance of mixture of seed furnished. Include percentage of various seed species, year of production, germination rate, seed bag tags, and weed seed content. Submit to ENGINEER at least 5 days prior to delivery.
- C. Qualification Data:
 - 1. List of installers experience conforming to paragraph 1.5.A.
 - 2. Proof of qualified supervisor experienced conforming to paragraph 1.5.B.2.

1.4 SEQUENCING AND SCHEDULING

- A. Notification of Unsatisfactory Conditions
 - 1. CONTRACTOR shall examine and evaluate grades, soils, and water levels, observe conditions under which work is to be performed, and notify ENGINEER of unsatisfactory conditions. CONTRACTOR shall not proceed with the work until unsatisfactory conditions have been corrected in an acceptable manner.
 - 2. If conditions detrimental to installation or plant growth are encountered, such as rubble fill, adverse drainage conditions, or obstructions, CONTRACTOR shall notify ENGINEER before planting.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: Work shall conform to State Horticultural Standards, local municipal requirements, and BWSR and DNR guidelines for landscape plantings. CONTRACTOR shall have successfully completed 3 projects similar to that of this project within the last 2 years.
- B. Quality Control Procedures
 - 1. Substitutions shall not be made without written approval of the ENGINEER. If specified material is not obtainable, CONTRACTOR shall submit to ENGINEER written proof on non-availability and a written proposal for use of equivalent material.

1.6 METHOD OF MEASUREMENT AND PAYMENT

- A. Refer to Section 01 20 00 – Price and Payment Procedures.
- B. All other work and costs associated with completing the work as specified on the Drawings and in the Specifications shall be included in the total project cost.

PART 2 - PRODUCTS

2.1 TOPSOIL

- A. Previously stripped and stockpiled topsoil shall be used for restoration (no import of topsoil).

2.2 SEED MIXTURES

- A. Applicable Conditions: The following applies to all CONTRACTOR supplied seeds.
 - 1. Seeds shall be blended by the vendor and the mixture and ratio shall be guaranteed in writing to be as specified by percentage or weight in the Seed Lists. This is a submittal required of the CONTRACTOR prior to final payout.
- B. Seed Requirements: All seeds shall conform to the following requirements.
 - 1. All legumes shall be inoculated with the proper rhizobia and at the appropriate time prior to planting.
 - 2. All seed shall be packed and covered in such a manner as to insure adequate protection against damage and maintain dormancy while in transit, storage or during planting operations.
 - 3. All seeds shall have the proper stratification and/or scarification to break seed dormancy for other than fall planting.
 - 4. All seeds shall be true to their name as specified. Their origin shall be known to be local within a 200-mile radius of the project location and species and subspecies native to the area in the project location's county. Seed origins beyond a 200-mile radius shall be approved in writing by the ENGINEER.
 - 5. Species and quantities to be planted shall be those specified on the vegetation plan. Seed mixtures shall be proportioned by seed count and seed count percentages. Seed mixtures and any substitutions or changes shall be submitted in writing to project the ENGINEER for approval.

6. Seeds shall be free of the Minnesota DNR identified noxious weed seeds and Reed Canary Grass (*Phragmites rundinacea*), Giant Reed Grass (*Phragmites australis*), Cattails (*Typha spp.*) and Purple Loosestrife (*Lythrum salicaria*).
- C. Seed Mixes - Seed as designated on the plans and in the Contract Documents.
1. Conform to Mn/DOT Spec 3876 and the Mn/DOT Seeding Manual.
 - a. Mn/DOT Seed Mix 34-261 Riparian South & West Mix
 - 1) Seeding rate: 31.5 lbs/acre PLS
 - b. MN State Seed Mix 33-262 Dry Swale/Pond Mix from Shooting Star Native Seeds or equivalent.
 - 1) Seeding rate: 44.0 lbs/acre PLS

2.3 EROSION CONTROL BLANKET

- A. Refer to Section 31 25 00 Erosion and Sediment Control.

PART 3 - EXECUTION

3.1 GENERAL EXAMINATION/PREPARATION FOR SEEDING

- A. Finish grade to be inspected and approved by the ENGINEER prior to start of restoration
- B. Topsoil
1. Scarify subgrade to depth of 3 inches for bonding of subsoil with topsoil.
 2. No topsoil shall be placed or worked in frozen or muddy condition.
 3. Topsoil should be re-spread at a uniform thickness. The minimum thickness of re-spread topsoil is 6 inches.
 4. Prepare areas to be seeded to required depth of approximately 3 inches by disking, rototilling, harrowing or other approved means.
 5. Remove and dispose of rock, trash, or other materials brought to surface from preparation activities.

3.2 SEEDING SCHEDULE

- A. Seeding Plan
1. At least three weeks prior to beginning work, CONTRACTOR shall submit a seeding and planting plan for approval by the ENGINEER. This plan shall include proposed methods of planting, species, quantities, types of propagules, proposed surface preparation and equipment.
- B. Site Preparation for all native seeding areas
1. At least 6 weeks prior to seeding and planting of any kind, sites shall be sprayed to kill herbaceous weeds. The following species are considered herbaceous weeds:
 - a. Kentucky Bluegrass - *Poa pratensis*, Purple Loosestrife - *Lythrum salicaria*, Reed Canary Grass - *Phalaris arundinacea*, Smooth Brome - *Bromus inermis*, Crown Vetch - *Coronilla varia*, Bird's Foot Trefoil - *Lotus corniculatus*, Yellow Sweet Clover - *Melilotus officinalis*, White Sweet Clover - *Melilotus alba*, Canada Thistle - *Cirsium arvense*, Curly Dock -

Rumex crispus, Giant Ragweed - Ambrosia trifida, Common Ragweed - Ambrosia artemisiifolia, Foxtail - Setaria spp., Leafy Spurge - Euphorbia esula, Japanese Knotweed - Polygonum cuspidatum, Garlic Mustard - Alliaria petiolata, Narrow-leaved and Hybrid Cattail -Typha angustifolia and T. Xglauca, Buckthorns - Rhamnus spp., Honeysuckles - Exotic Lonicera spp., Asian Mulberry - Morus alba.

2. Conditions shall be 12 hours dry – no precipitation or dew, above 50 Degrees Fahrenheit wind less than 3 miles per hour.
3. There shall be up to 5 applications 10-14 days apart. In between applications, treated and dead vegetation taller than 12 inches shall be mowed to no more than 6 inches in height before next herbicide application.
4. Obtain written approval by ENGINEER before seeding. ENGINEER will approve seeding when no live unacceptable species are visible to ENGINEER within 10 days of herbiciding.
5. Application rates per acre:
 - a. 5-quart concentrated herbicide (Use wetland & aquatic safe herbicide only within 20' of water bodies).
 - b. Surfactant in all applications, per manufacturer's specifications.
6. Install warning signs to alert public of herbicide use.

3.3 SEEDING

A. Seeding Dates

1. Seeding for this project shall be within the dates set forth in the Mn/DOT Seeding Manual.
2. ENGINEER shall be notified 24 hours prior to beginning the seeding operations.

B. Broadcast Seeding

1. Seeding will take place using a broadcast method. Mechanical broadcasting equipment shall be equipped with an agitator that effectively prevents seed from bridging or plugging. Seed shall be broadcast twice over each area to help ensure even distribution. The seeded area shall be hand-raked or dragged with an implement to the extent necessary to cover a majority of the seed with 1/8 inch to ¼ inch of soil.
2. Cover crop shall be sown separately from forbs, sedges and grasses.
3. Within 12 hours, if conditions permit or as soon thereafter as practical, all seeded areas shall be rolled perpendicular to the line of run-off with an approved type roller or cultipacker to compact the seedbed to place the seed in contact with the soil.
4. No fertilizer shall be applied to any seeded areas for any reason.
5. Erosion control blanket or hydro mulch shall be installed over the seeded areas immediately following seeding activities as shown on the Drawings.

3.4 SEED PROTECTION

- A. No machinery shall run across seeded area after seeding operations have been completed. Observance of machinery on seeded areas after seeding operations have been completed will result in a \$250 fine per occurrence, deducted from the CONTRACTOR's next invoice.

3.5 CLEAN-UP AND PROTECTION

- A. During landscape work, CONTRACTOR shall store materials and equipment where directed, keeping pavements clean and work areas and adjoining areas in an orderly condition.
- B. CONTRACTOR shall protect landscape work and materials from damage due to landscape operations, operations by other trades and trespassers. CONTRACTOR shall maintain protection during installation and maintenance periods, and shall treat, repair or replace damaged landscape work as directed by ENGINEER.

3.6 INSPECTION

- A. ENGINEER reserves the right to inspect seeds, either at place of growth or at site before planting, for compliance with requirements for name, variety, size, quantity, quality and mix proportion.
- B. CONTRACTOR shall supply written affidavit certifying composition of CONTRACTOR supplied seed mixtures with respect to species, variety and source.

3.7 FIELD QUALITY CONTROL

- A. Provide the ENGINEER with seed bag tags used for identification purposes.

3.8 FINAL CLEAN-UP

- A. Upon completion of the work and before preliminary acceptance and final installation payment will be made, the CONTRACTOR shall clean and remove from the site of the work surplus and discarded materials, temporary structures, and debris of every kind.
- B. The CONTRACTOR shall leave the site of the work in a neat and orderly condition equal or better than that which originally existed.
- C. Surplus materials removed from the site of the work shall be disposed of at locations approved by the ENGINEER.

END OF SECTION

**SECTION 33 05 05
TRENCHING AND BACKFILLING**

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes trenching, backfilling, and compacting for the placement of structures and piping installation.

1.2 SUBMITTALS

- A. Submit in accordance with Section 01 33 00 – Submittal Procedures.
- B. Imported/Borrow and Onsite Material Data: Data for each imported material type to be used
 - 1. Location of material source.
 - 2. USCS soil classification.
 - 3. Standard Proctor maximum dry density and optimum moisture test results.
 - 4. Gradation report/grain size analysis.
 - 5. Name, address, telephone number and contact person of independent soils laboratory conducting the above tests.
 - 6. Method of offsite source soils material sampling and analyses.
- C. Soil testing results for each type of imported and native soils to be used for backfilling and bedding per Mn/DOT Schedule of Materials Control.
- D. Samples: One sample of each imported material specified, representing actual material if requested by ENGINEER or OWNER.

1.3 SEQUENCING AND SCHEDULING

- A. Coordinate construction, trenching, backfilling, and compacting within influence zone of existing or future structures.
- B. Verify control monuments and intended elevations for Work as shown on Drawings.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Delivery: Notify the ENGINEER of the delivery schedule in advance so borrow may be inspected upon arrival at the Site. Remove unacceptable material from the Site immediately.
- B. Storage: Stockpile material to eliminate contamination with other onsite materials.

1.5 MEASUREMENT AND PAYMENT

- A. All work and costs associated with completing the work as specified on the Drawings and in the Specifications shall be included in the total project cost.

PART 2 - PRODUCTS

2.1 PIPE BEDDING

- A. Granular Bedding: Comply with Mn/DOT Spec 3149.2.B.1

2.2 BACKFILL

- A. Native soils material: Native soils classified as CL, SM, SC, or SP in the Unified Soils Classification System, free of organic and other deleterious material, and free from roots, debris, and stones larger than six (6) inches.
- B. Unsuitable material, not to be used for backfill, shall be hauled from the site.
- C. See Section 33 40 00 – Storm Drainage Utilities and Drawings for structure specific backfill material requirements.

PART 3 - EXECUTION

3.1 GENERAL

- A. Conform to Mn/DOT Spec 2503.3.A, and as modified herein:
 - 1. Establish erosion control devices prior to excavation work as indicated on the Drawings.
 - 2. Notify utility companies of progress schedule so they can accomplish relocations, removals, and holding of lines.
- B. Examine and verify acceptability and condition of surfaces to perform Work. Perform utility locates as required prior to excavation.

3.2 TRENCHING

- A. Trenching Excavation:
 - 1. Excavate so pipes, ducts, and conduits can be laid straight at uniform grade, without sags or humps, between elevations shown on Drawings.
 - 2. Where trench width for that portion of trench depth between trench bottom and outside top of pipe barrel, for any reason within CONTRACTOR'S control, exceeds specified limits, CONTRACTOR, at his expense, shall furnish pipe with strength adequate for actual trench width.
- B. Correct any part of the trench that is inadvertently excavated below grade with approved material compacted to 100-Percent Standard Proctor Density.
- C. Do not excavate for manholes and other structures until scheduled for construction.
- D. Excavate to elevations, dimensions, and in locations as shown on Drawings.
- E. Upon completion of excavation, notify ENGINEER before proceeding with further Work.
- F. Segregate soils in the excavated material that are not suitable for trench backfill and dispose of in a manner that is consistent with the requirements specified within this Section.

- G. Crossing Existing Utility Lines:
 - 1. Use extreme care when excavating in the vicinity of underground utility lines to avoid damage to protective coatings or surfaces.
 - 2. Where possible, and as authorized by the utility, temporarily remove the utility line, install new pipe, and reinstall the utility line.
 - 3. Where existing line cannot be removed or is not feasible to remove, securely support, excavate under, backfill under and around the utility line to 100-Percent Standard Proctor Density.
 - 4. Report and repair damaged lines prior to backfilling trench.

3.3 BEDDING

- A. Install bedding for pipes and structures in accordance with Mn/DOT Specs 2503 and 2506, and as modified herein.
- B. PVC, HDPE, and Corrugated Polyethylene Pipe: Bed in accordance with ASTM D2321, manufacturer requirements, and the Drawings.

3.4 BACKFILLING AND COMPACTION

- A. Notify ENGINEER prior to placing fill material.
- B. Do not use frozen material or place fill on frozen subgrade.
- C. Install and compact backfill material in 8-inch maximum layers.
- D. Place fill simultaneously on both sides of free-standing structures.
- E. Water Control:
 - 1. Dewater the ground as necessary to excavate the trench and install the pipe.

3.5 RESTRICTED TRENCH WIDTH

- A. Restrict width of trench to prevent damage to specimen trees, adjacent structures, adjacent pavement or to avoid work and disturbance on adjacent properties as necessary to adhere to drawings or as directed by ENGINEER.
- B. CONTRACTOR to choose method of restricting trench width, and comply with health and safety requirements.

3.6 FIELD QUALITY CONTROL

- A. Testing for conformance performed by CONTRACTOR's independent testing laboratory. Testing methods and frequencies for characterization of native soils to be used as backfill, and in-place density and moisture content testing, shall be in accordance with Mn/DOT Schedule of Materials Control, except as modified herein:
 - 1. Standard Proctor Test: One proctor test each below manhole, with additional proctor test(s) for each major soil type and each granular material onsite or imported.

END OF SECTION

**SECTION 33 05 07.13
UTILITY DIRECTIONAL DRILLING**

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes pipe installation by Horizontal Directional Drilling.

1.2 SUBMITTALS

- A. Submit in accordance with Section 01 33 00 – Submittal Procedures.
- B. Shop Drawings: Submit shop drawings including layout, materials, and dimensions for piping connections; controls; environmental Class and Division rating; and other pertinent data not specifically mentioned here.
- C. Certification: Manufacturer's certificates indicating conformance test results of furnished material to Specifications.
- D. Product Data: Provide information where applicable as follows:
 - 1. Manufacturer's name.
 - 2. Nominal pipe size.
 - 3. Pipe classification and applicable ASTM standards.
 - 4. Use for each type and size of pipe.
 - 5. Extrusion date.
 - 6. Lot number.
- E. Stock density, melt flow, flexural modulus tensile strength, coloration, resin type and cell classification where applicable.
- F. Provide instructions on special handling during transportation and storage.
- G. Drawings/written procedures describing drilling method including, but not limited to:
 - 1. Size, capacity and arrangement of equipment.
 - 2. Anticipate locations and sizes of tie-in locations between adjacent drilling segments.
 - 3. Planned method for pilot hole drilling, reaming, pipe pull-back, etc.
 - 4. Method of monitoring and controlling line and grade.
 - 5. Drilling mud to be used.
 - 6. Method and location for disposal of drilling fluid and spoils.

1.3 DELIVERY, STORAGE, AND HANDLING

- A. Handle and protect product to ensure product is not damaged.
- B. Elevate material above grade.
- C. Store and handle in such a manner as to prevent soil or vermin from entering or becoming lodged in the pipe.

- D. Provide protection for flanges and fittings by storing inside or packaging with impermeable opaque material.
- E. Notify ENGINEER of any cracked, flawed, or otherwise defective material.

1.4 MEASUREMENT AND PAYMENT

- A. Refer to Section 01 20 00 – Price and Payment Procedures.
- B. All other work and costs associated with completing the work as specified on the Drawings and in the Specifications shall be included in the total project cost.

PART 2 - PRODUCTS

2.1 HIGH-DENSITY POLYETHYLENE PIPE AND FITTINGS (DIPS)

- A. Polyethylene Plastic Pipe shall be high-density polyethylene pipe and meet the applicable requirements of ASTM D3350 and shall conform to ASTM D3035 and AWWA C901 (for 0.5 inch to 3-inch diameters) and ASTM F714 and AWWA C906 (for 4 inch to 65 inch diameters). Polyethylene pipe and fittings shall be PE 3608 or PE 4710 for potable water transmission and pressure rating of one hundred sixty (160) psi or greater, unless otherwise provided in the special provisions. The pipe and fittings shall be manufactured from the same resin type, grade, and cell classification. Unless otherwise specified, the dimensions and tolerances of the pipe barrel should conform to Ductile Iron pipe equivalent outside diameters for pipe diameters greater than three inches (3 inch). The method of joining material shall be by the Thermal Butt- Fusion Method in accordance with ASTM D3261.
 - 1. Install new pipe size as specified.
 - 2. The new pipe shall be homogenous throughout and shall be free of visible cracks, holes, foreign material, blisters, or other deleterious faults.
 - 3. Dimension ratios: The wall thickness (SDR-11) of the new HDPE pipe shall conform to the recommendations of the pipe manufacturer or as approved by the ENGINEER.
- B. Fittings:
 - 1. HDPE to HDPE connections: Shall be molded fittings, with a wall thickness of SDR-11.

2.2 DRILLING FLUID (FOR DIRECTIONAL DRILLING)

- A. Bentonite Slurry when used or required in the design prepared by the CONTRACTOR
 - 1. Bentonite shall be API Specification 13A, high swelling montmorillonite, capable of mixing with water to form a stable homogeneous suspension.
 - 2. Water shall be clean, potable, containing no more than 500-ppm chlorides.

2.3 TRACER WIRE

- A. Refer to Section 33 05 97.
- B. Install 1-inch PVC conduit for tracer wire if completed by trenchless installation methods. Depth of conduit to match utility pipe centerline.

2.4 EQUIPMENT

- A. Certified by manufacturer for intended purpose, diameter of pipe, and expected loadings.

PART 3 - EXECUTION

3.1 GENERAL

- A. Water Control
 - 1. Keep drilling pits free from ground and surface waters during operations. Confirm ground water elevations prior to commencing drilling operations and provide adequate equipment to maintain pits free from ground water.
 - 2. Direct discharge from dewatering operations into approved receiving basins in accordance with all applicable regulatory requirements.
- B. Operations
 - 1. It is not necessary to complete drilling in 1 continuous, non-stop, operation. Restoration and fitting quantities were based on entry and receiving pits being located at fitting locations. Actual entry and receiving pit locations shall be at the discretion of the CONTRACTOR, provided the following:
 - a. Entry and receiving pit locations shall be reviewed and approved by ENGINEER prior to work commencing.
 - b. Restoration and fitting quantity additions resulting from the CONTRACTORs entry and receiving pit locations shall be the responsibility of the CONTRACTOR, with no additional cost to the OWNER.
 - c. Tree and landscaping impacts must be minimized at each entry and receiving pit location. The CONTRACTOR shall make necessary adjustments to accommodate trees to be saved as directed by the ENGINEER in the field.
 - 2. If the Work is interrupted or stopped prior to completion at the CONTRACTOR's discretion without prior OWNER approval, the CONTRACTOR shall bear all costs related to the stoppage and restarting operations without additional payment.

3.2 HDPE PIPE INSTALLATION

- A. Locations, lines, and grades as shown on Drawings.
- B. Welded joints.
 - 1. Weld in accordance with manufacturer's recommendations for butt fusion methods.
 - 2. Butt fusion equipment used in joining procedures capable of meeting conditions recommended by manufacturer, including, but not limited to: temperature required, alignment, and fusion pressures.
- C. No defective pipe shall be installed. Defective pipe shall be removed from site and replaced at CONTRACTOR'S expense.
- D. Lay out and assemble pipe in a manner that does not obstruct adjacent roads, commercial and residential access adjacent to the Site.

- E. Install with tracer wire. Refer to Section 33 05 97 for tracer wire specification.

3.3 DIRECTIONAL DRILLING REQUIREMENTS

- A. Determine drilling length and equipment pull strength for type of soil encountered
- B. Control line and grade throughout the drilling process
 - 1. Provide and maintain instrumentation that accurately locates pilot hole.
 - 2. Include electronic monitoring of the horizontal and vertical drilling head location.
 - 3. Obtain an accuracy range within 1-inch of actual position of the pipeline. Record horizontal and vertical position readings at a maximum of 25 foot intervals.
 - 4. Furnish ENGINEER tabulations of horizontal and vertical alignment with reference stationing, if requested.
- C. Maintain close observation to detect settlement or displacement of surface and adjacent facilities
 - 1. Notify ENGINEER immediately if settlement or displacement is detected.
 - 2. Act to maintain safe conditions and prevent damage.
- D. Drilling Fluids
 - 1. Maintain drilling fluid in bore hole to increase stability of the surrounding soil and reduce drag on pulled pipe.
 - 2. Provide clean water for drilling.
 - 3. Provide containment around entry and receiving pits to prevent the migration of drilling fluid beyond the pits as necessary.
- E. Pilot Hole Drilling
 - 1. As pilot hole is advanced, plot actual horizontal and vertical alignment of pilot hole at intervals not exceeding 25 feet. Provide ENGINEER with position and inclination of pilot bore.
 - 2. Use drilling fluid under pressure or other method designed by the CONTRACTOR to control ground water and to keep the pilot hole open.
 - 3. Alignment Requirements
 - a. Keep the grade to no shallower than the profile shown and with no intermediate high points that might trap air in pipe after installation. Keep grade tolerances to +0 and -2 inches from that shown.
 - b. Keep curvature of completed pilot hole less than that which will produce wall stresses at 0.50 of yield stress in the pipe after it is installed and subject to maximum working pressure.
 - c. Return pilot hole that is deviating from designed horizontal and vertical alignment to proper alignment with no abrupt changes and at a rate not exceeding 1 foot per 50 feet of pilot hole advance.
 - d. Horizontal Alignment of Pilot Hole: Within 3 feet of plan data.
 - 4. Acceptance: If pilot hole alignment fails to conform to specified requirements, drill new pilot hole with alignment meeting specified requirements.
- F. Handling and Disposal of Drilling Fluid and Cuttings

1. Make adequate provisions for handling and containing muddy water, drilling fluid, and cuttings during drilling operations. Do not discharge these contaminants into waterways. Handle water and materials to conform with requirements of the agency(s) with regulatory jurisdiction.
2. Construct drilling fluid pits at entry and exit points in manner that completely contains mud and prevents its escape.
3. When on Site provisions for storing muddy water, drilling fluid, or cuttings on Site are exceeded, haul contaminants away to suitable legal disposal site.
4. Transport excess fluids and other spoils to an off-site disposal site, in accordance with applicable laws, ordinances, rules and regulations. No on-site disposal is allowed and any spillage shall be cleaned up promptly by CONTRACTOR.
5. Conduct directional drilling operation in such a manner that drilling mud is not forced into waterways, wetlands, or the ground surface.

3.4 FIELD QUALITY CONTROL

- A. Pipe may be rejected for failure to conform to specification, or:
 1. Fractures or cracks passing through pipe wall, except single crack not exceeding 2 inches in length at either end of pipe which could be cut off and discarded. Pipes within one shipment will be rejected if defects exist in more than 5 percent of shipment or delivery.
 2. Cracks sufficient to impair strength, durability or serviceability of pipe.
 3. Defects indicating improper proportioning, mixing, and molding.
 4. Damaged ends, where damage would prevent making satisfactory joint.
- B. Acceptance of fittings, stubs or other specially fabricated pipe sections based on visual inspection at site and documentation that they conform to these specifications.
- C. Tracer Wire Continuity
 1. See Section 33 05 97.

END OF SECTION

SECTION 33 05 17
ADJUST MISCELLANEOUS STRUCTURES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes adjustment of various utility structures.

1.2 SUBMITTALS

- A. Submit in accordance with Section 01 33 00 – Submittal Procedures.
- B. Product Data: Manufacturer’s data sheet on each product to be used.

1.3 SEQUENCING AND SCHEDULING

- A. Inspect all existing structures prior to beginning construction.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Deliver Materials to project in Manufacturer’s original unopened packing, with labels clearly identifying product name, Manufacturer, and expiration date.
- B. Deliver, store and handle materials and products in strict compliance with manufacturer’s instructions and recommendations and industry standards.
- C. Store in cool, dry place, out of the sun. Protect products from damage. Handle materials to avoid damage.
- D. Store materials as recommended by the Manufacturer. Protect against damage, weather, vandalism, and theft.

1.5 MEASUREMENT AND PAYMENT

- A. All work and costs associated with completing the work as specified on the Drawings and in the Specifications shall be included in the total project cost.

PART 2 - PRODUCTS

2.1 ADJUSTMENT RINGS

- A. Concrete
 - 1. Size to match cone or opening in top slab.
 - 2. Concrete compressive strength: Minimum 3,000 psi.
 - 3. Reinforcing: Single hoop 8-gauge steel wire.
 - 4. Thickness: 2 inches.

2.2 ADHESION MATERIAL

- A. Concrete Rings:
 - 1. Mortar

- a. Standard Portland Cement: Type I, ASTM C150.
- b. Finishing Hydrated Lime: ASTM C206.
- c. Hydraulic Hydrated Lime for Structural Purposes: ASTM C141.
- d. Mix Proportions: 1-part cement to 3-parts mortar sand; lime may be added to mixture: maximum amount 15 percent by volume.

2.3 CASTINGS

- A. Manhole and Catch Basin Frames and Covers:
 - 1. All casting assemblies shall meet the certification requirements of the Minnesota Department of Transportation and be manufactured by a Mn/DOT approved source.
 - 2. General: ASTM A48.
 - 3. Material: Class 35 cast iron. Best grade. Free from injurious defects and flaws.
 - 4. Finish Preparation: Sandblast.
 - 5. Machine cover and frame contact surface for non-rocking protection.
 - 6. Type and Style:
 - a. As shown on the Drawings.
 - b. Neenah or approved equal, to be reviewed and approved by ENGINEER.
 - c. Storm Sewer Covers without grate openings shall be stamped "STORM SEWER" with 2 concealed pick holes of approved design.

PART 3 - EXECUTION

3.1 GENERAL

- A. The frame shall be raised or lowered to match the street or gutter.
- B. Protect existing structures from damage.
- C. Prevent sand, concrete, or any other debris from entering the structures.

3.2 INSTALL RINGS AND CASTING

- A. Remove all dirt, debris, dust, and other deleterious material from surface prior to placement of first adjustment ring.
- B. Concrete Adjustment Ring
 - 1. Mortar on top and bottom surfaces of all concrete adjustment rings; between surface of top slab or cone and bottom ring; between surface of top ring and casting; on entire surface area of ring with no gaps. Mortar thickness ¼ to ½ inch.
 - 2. No shims of any material allowed.
 - 3. Required cross slope of casting to be achieved by varying thickness of mortar.
 - 4. Do not plaster the inside of surface rings.
 - 5. Wipe clean all excess mortar from the joints inside all rings and frame.
 - 6. Remove all mortar spills from the structure.
 - 7. Minimum of 2, maximum of 4 adjustment rings allowed.

8. Seal outside of rings with a minimum of 6 inches of concrete.
9. Install mortar on rings to fill all voids and provide a sloped surface for water to shed from the rings.

3.3 FIELD QUALITY CONTROL

- A. Secure manholes and structures immediately after completion or before suspension of operations at the end of the working day with castings or suitable alternative devices.

END OF SECTION

**SECTION 33 05 97
IDENTIFICATION AND SIGNAGE FOR UTILITIES**

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes tracer wire system to be installed with appropriate utility.

1.2 SUBMITTALS

- A. Submit in accordance with Section 01 33 00 – Submittal Procedures.
- B. Product Data: Manufacturer’s data sheets on each product to be used, including but not limited to the following.
 - 1. Tracer Wire (all applicable sizes and types)
 - 2. Tracer Wire Access Boxes
 - 3. Above Ground Test Stations
 - 4. Outdoor Rated PVC Conduit
 - 5. Connectors
 - 6. Grounding Anodes

1.3 DELIVERY, STORAGE, AND HANDLING

- A. Deliver Materials to project in Manufacturer’s original unopened packing, with labels clearly identifying product name, Manufacturer, and expiration date.
- B. Deliver, store and handle materials and products in strict compliance with manufacturer’s instructions and recommendations and industry standards.
- C. Store in cool, dry place, out of the sun. Protect products from damage. Handle materials to avoid damage.
- D. Store materials as recommended by the Manufacturer. Protect against damage, weather, vandalism, and theft.

1.4 MEASUREMENT AND PAYMENT

- A. All work and costs associated with completing the work as specified on the Drawings and in the Specifications shall be included in the total project cost.

PART 2 - PRODUCTS

2.1 TRACER WIRE

- A. Directional Drilling/Boring: 12 AWG Copper Clad Steel core wire designed for pipe bursting or directional drilling application is required for trenchless service installations. Minimum 30 mil HDPE/HMWPE insulation thickness with jacket color in accordance with APWA Color Code. Minimum break load shall be 1,150 lbs.
- B. Tracer wire shall be rated for 30 Volts.

- C. Outside Identification: Volts (or V), AWG size, and designation (ex. "tracer wire").
- D. Tracer wire shall be made in the USA.
- E. Shall be Underwriters Laboratories (UL) listed for use in direct burial applications (e.g. USE, UF, or tracer wire).
- F. APWA Color Codes:
 - 1. Watermain: Blue
 - 2. Sanitary Sewer: Green
 - 3. Storm Sewer: Green
 - 4. Irrigation and Reclaimed Water: Purple

2.2 GROUNDING ANODES

- A. Minimum of 1 lb. drive-in anodes with minimum 20 foot wire lead are to be installed at every tracer wire access box, above ground test stations, connections to existing tracer wire and all dead ends/stubs.

2.3 TRACER WIRE ACCESS BOXES

- A. Valvco, SnakePit, or approved equal traffic rated tracer wire access boxes shall be placed next to every curb stop, valve box (for service lines, out of roadway), cleanout, sanitary or storm service line at edge of right-of-way, at building exterior where utility enters the building, and at edge of road right-of-way (out of the roadway) for long-runs in excess of 500 lineal feet without a service lateral or hydrant. Access boxes for long-runs shall also be delineated using a minimum 48-inch tall polyethylene marker post, color coded per APWA standard for the utility being marked.
- B. Access boxes shall be installed so the top of the cover is flush with finish grade.
- C. Access box shall be installed a maximum of 1 foot from curb stop, cleanout, service line, or valve box, and located adjacent to curb stop, cleanout, or valve box.
- D. Access boxes shall be appropriately identified with "sewer" or "water" cast into the cap and be color coded.

2.4 OUTDOOR RATED PVC CONDUIT

- A. Outdoor rated PVC conduit shall be installed from the bottom of the above ground test station to a depth 2 feet below finish grade.

2.5 CONNECTORS

- A. Connectors shall be DryConn Direct Bury Lug Aqua, PRO-TRACE TW, Copperhead 3-Way Locking Connector Part #LSC1230 or approved equal. Non-locking friction fit, twist on, wire nut type, or taped connectors are not allowed.

PART 3 - EXECUTION

3.1 TRACER WIRE INSTALLATION

- A. Two tracer wires shall be laid with the pipe. The use of two wires will count as only one wire length.
- B. Tracer wire shall be affixed (tape or plastic ties) to carrier pipe at intervals not to exceed 5 feet.
- C. Tracer wire shall be affixed to the lower half of pipe, fittings, and hydrants.
- D. Tracer wire shall be properly grounded as specified.
- E. Extend tracer wire vertically along the outside of curb boxes, cleanouts, hydrants, and valve boxes.
- F. Main line splices should be avoided when possible.
- G. Splices are not allowed on segments to be pipe burst or directionally drilled/bored.
- H. Pipe bursting and directionally drilled/bored segments must use continuous wire with no splice.
- I. Splices shall not be more frequent than 1 splice per 250 feet.
- J. Splices and connectors, if required, shall be approved connectors. No looping or coiling of wire is allowed.
- K. Mainline tracer wire shall not be connected to existing conductive pipes. Treat as a mainline dead end, ground using an approved connection but the same depth as the tracer wire.
- L. All service line tracer wire shall be a single wire, connected to the mainline tracer wire using a mainline to lateral lug connector, installed without cutting/splicing the mainline tracer wire.
- M. In occurrences where an existing tracer wire is encountered on an existing utility that is being extended or tied into, the new tracer wire and existing tracer wire shall be connected using approved spliced connectors, and shall be properly grounded at the splice location.

3.2 TRACER WIRE TERMINATIONS

- A. Above ground tracer wire test stations are to be mounted at each fire hydrant. Each test station shall have at least 2 common terminals. The tracer wire and anode wire shall be brought into test station through a minimum of 2 feet of weather rated PVC conduit. The lowest terminal shall be connected to a grounding/drive-in anode to serve as a ground. The tracer wire shall be connected to the other terminal(s).
- B. Traffic rated tracer wire boxes shall be placed adjacent to all curb stops and dead ends. Tracer box terminals shall also be placed a minimum of every 500 feet along the water main alignment. The anode lead wire and tracer wire shall both be brought into the tracer wire access box and connected together at the surface. There shall be a minimum of 2 feet of each wire as slack from finished grade inside the access box.

- C. At main line dead ends/stubs, tracer wire shall go to ground using an approved connection to grounding anode rod, buried at the same depth as the tracer wire.

3.3 GROUNDING ANODE INSTALLATION

- A. Tracer wire must be properly grounded at all dead ends/stubs. The grounding anode shall be installed in a direction 180 degrees opposite the tracer wire, at the maximum distance possible.
- B. Grounding/drive-in anodes at curb stops, valve boxes, hydrants, dead ends shall be orientated to provide the greatest distance from the main and shall be installed at the depth of the utility line.
- C. Where ground the tracer wire in areas where the tracer wire is continuous and neither the mainline tracer wire or the grounding anode will be terminated at/above grade, install grounding anode directly beneath and in-line with the tracer wire. Do not coil excess wire from the grounding anode. In this installation method, the grounding anode wire shall be trimmed to an appropriate length before connecting to tracer wire with a mainline lateral lug connector.

3.4 STORM WATER SYSTEMS

- A. A mainline tracer wire shall be installed with all service line tracer wires properly connected to the mainline tracer wire.
- B. Install mainline tracer wire continuously, by-passing around the outside of manholes/structures on the north or east side.
- C. Tracer wire on all storm service lines must terminate at tracer wire access boxes directly above the service line.
- D. Storm lines installed outside of the public right-of-way shall also be located and include all storm lines, draintile lines, and underground systems (filtration, infiltration, storage, etc.). Tracer wire for the underground systems shall follow the perimeter of the system/structure.

3.5 FIELD QUALITY CONTROL

- A. Test to be completed on the tracer wire after installation of all Project utilities and prior to final acceptance.
- B. Tracer wire conductivity shall be conducted in the presence of the ENGINEER and OWNER.
- C. Test all lines including hydrant leads, water services, sewer services and stubs.
- D. Confirm continuity between all hydrants on the applicable system.
- E. Test: Physically locate all pipes with use of an electronic utility locating device such as a "Metrotech".
- F. Continuity testing in lieu of actual line tracing shall not be accepted.

END OF SECTION

**SECTION 33 40 00
STORM DRAINAGE UTILITIES**

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes storm sewer pipe, fittings, drainage structures, and all other appurtenances.

1.2 SUBMITTALS

- A. Submit in accordance with Section 01 33 00 – Submittal Procedures.
- B. Product Data: Manufacturer’s data sheets, specification, installation procedures, and maintenance manuals on each product to be used, including but not limited to the following:
 - 1. Pipe and Fittings
 - 2. Filter Manholes
 - 3. Stormwater Gate Valve
 - 4. Miscellaneous Accessories
- C. Shop Drawings:
 - 1. Indicate profiles, sizes, connections, size and type of manholes and other structures and systems.
 - 2. Field Verified Measurements: Verify dimensions indicated on Drawings.
- D. Independent third-party certification or test report demonstrating conformance to applicable pipe specifications, before pipe is installed, for the following:
 - 1. All pipe material
 - a. Structural performance
 - b. Material performance
 - c. Joint performance
 - d. Certification of lay length
 - e. Certification of adherence to applicable standard

1.3 SEQUENCING AND SCHEDULING

- A. Verify the location and invert of the storm sewer connection point(s) matches the design drawings prior to beginning work. Notify ENGINEER immediately if the connection point does not match the design drawings.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Deliver Materials to project in Manufacturer’s original unopened packing, with labels clearly identifying product name, Manufacturer, and expiration date.
- B. Deliver, store and handle materials and products in strict compliance with manufacturer’s instructions and recommendations and industry standards. Protect against damage, weather, vandalism, and theft.
- C. All pipe and fittings shall be delivered to the site and unloaded with handling that conforms to the manufacturer’s instructions for reasonable care. Pipe shall not be

rolled or dragged over gravel or rock during handling. The CONTRACTOR shall take necessary precautions to ensure the method used in lifting or placing the pipe does not induce stress fatigue in the pipe.

- D. Handling and job site storage of manholes, catchbasin, and other systems and structures shall be done in accordance with manufacturer's written rigging and handling instructions.

1.5 MEASUREMENT AND PAYMENT

- A. Refer to Section 01 20 00 – Price and Payment Procedures.
- B. All other work and costs associated with completing the work as specified on the Drawings and in the Specifications shall be included in the total project cost.

PART 2 - PRODUCTS

2.1 POLY VINYL CHLORIDE (PVC) SCHEDULE 40 PLASTIC PIPE AND FITTINGS

- A. General: Pipe and fittings shall be made of compounds conforming to ASTM D1784 in accordance with the material requirements of ASTM D1785 and ASTM D2665.
- B. Design: Schedule 40.
- C. Joints: solvent cement used to join pipe and fittings shall meet the requirements of ASTM D2564
- D. Fittings: PVC fittings shall conform to ASTM D2665 and be of the same class and grade as specified for the pipe, unless otherwise specified. Belled end pipe shall have tapered sockets conforming to ASTM D2672.
- E. Tracer Wire: Include utility trace wire for all buried piping in accordance with Section 33 05 97 – Identification and Signage for Utilities.
- F. Cleanouts: Cleanouts and accompanying materials shall conform to the details shown on the Drawings.

2.2 HIGH-DENSITY POLYETHYLENE PIPE AND FITTINGS (DIPS OR IPS)

- A. General: Pipe and fittings shall be made of compounds conforming to ASTM D3350 in accordance with the material requirements of ASTM D2239, ASTM D2737, ASTM D3035, ASTM F714. HDPE fittings shall be molded from polyethylene compound having cell classification equal or exceeding compound used in pipe to insure compatibility of resins and made from the same manufacturer of the pipe. Pipe and fittings shall be made from a resin classified as a Type III, Grade P34, Class C, Category 5 under ASTM D3350.
- B. The new pipe shall be homogenous throughout and shall be free of visible cracks, holes, foreign material, blisters, or other deleterious faults.
- C. Dimension ratios: The wall thickness (SDR-21) of the new HDPE pipe shall conform to the recommendations of the pipe manufacturer or as approved by the ENGINEER.
- D. Pipe joints shall be made by thermal fusion butt welding.

- E. Tracer Wire: Include utility trace wire for all buried piping in accordance with Section 33 05 97 – Identification and Signage for Utilities.
- F. Transition Fittings: Provide transition fittings between HDPE and other piping materials. Fittings shall have a maximum working pressure rating at minimum equal to the rating of the pipe. Fittings shall be compression/threaded type, constructed completely with non-metallic/stainless steel materials, manufactured by Central Plastics or approved equal.

2.3 PRECAST CONCRETE MANHOLES AND CATCH BASINS

- A. Standard Precast Manholes and Catch Basins
 - 1. General Requirements: ASTM C478 and details on the Drawings.
 - 2. Structures and bases shall be of precast concrete.
 - 3. Manhole Joints: Rubber o-ring gasket type meeting ASTM C443.
 - 4. Pipe to Manhole Connections: Connections shall be watertight and comply with MN Plumbing Code Chapter 719.6.
- B. Manhole Design:
 - 1. It is the CONTRACTOR'S responsibility to have the manhole sections and top and bottom slabs designed and the detailed drawings prepared by a Professional Engineer experienced in precast concrete manhole design, who is registered in the State of Minnesota.
 - 2. The design of the manhole shall conform to a minimum factor of safety of 1.3 for buoyancy and flotation. The hydrostatic loading (water table elevations) shall be determined from the top of the structure.
 - 3. The design of the manhole base slab, perimeter walls, and top slab shall be designed for shear strength, flexural strength, and other applicable strengths due to hydrostatic loading. The hydrostatic loading (water table elevations) shall be determined from the soil borings, unless noted otherwise on the Drawings.
 - 4. The design computations and the plans shall be certified by the Professional Engineer and submitted to the OWNER and ENGINEER for their permanent record. The design shall be per the most current ACI 318, AASHTO, and the Mn/DOT Standard Specifications for Construction, except as noted.
 - 5. All shop drawings shall clearly identify the name of the responsible engineering firm and the name of the person certifying the plan. Each drawing shall be certified.
 - 6. Provide report certifying that the quality assurance requirements were completed as required.
- C. Mortar Materials:
 - 1. Cement: Use Type 1 Standard Portland Cement conforming to ASTM C150.
 - 2. Lime: Use normal finishing hydrated lime meeting the requirements of ASTM C206.
 - 3. Mix Proportions:
 - a. Mix Proportions: 1-part cement to 3-parts mortar sand; lime may be added to mixture: maximum amount 15 percent by volume.
 - b. 1-part Portland cement to 2 parts of sand to which lime or mortar mix may be added, but not to exceed 15 percent by volume for mortar used for laying concrete block.
- D. Castings

1. Refer to Section 33 05 17 – Adjusting Miscellaneous Structures.
 - a. Type and Style: Per details on the Drawings.
 - b. Storm Sewer Covers without grate openings shall be stamped “STORM SEWER” with 2 concealed pick holes of approved design.

E. Adjusting Rings

1. Refer to Section 33 05 17 – Adjusting Miscellaneous Structures.

2.4 BEDDING MATERIAL

- A. See project drawings and Section 33 05 05 – Trenching and Backfilling.

2.5 FILTER AGGREGATE

- A. See Section 33 41 00 – Subdrainage.

2.6 TRACER WIRE

- A. See project Drawings and Section 33 05 97 – Identification and Signage for Utilities.

2.7 RIPRAP

- A. See project Drawings and Section 31 37 00 – Riprap.

2.8 STORMWATER FILTER GATE VALVE

- A. General: 10-inch Knife Valve by Valterra or approved equal. Valve assembly shall include extension stem, flexible couplers (Fernco or approved equal) as recommended by the manufacturer and solid PVC pipe valve box with threaded cap.

PART 3 - EXECUTION

3.1 GENERAL

- A. Locations and elevations of existing storm sewer to be verified in the field. CONTRACTOR shall anticipate possible changes to pipe elevation and grade. ENGINEER shall be notified immediately of elevation differences and to direct in field.
- B. Perform trenching and bedding in conformance with Section 33 05 05 – Trenching and Backfilling.
- C. Subgrade shall be re-shaped and re-compacted after the installation of storm sewer utilities to shed water off the site. Any subgrade corrections needed as a result of improper grading shall be corrected by the CONTRACTOR at no expense to the OWNER.

3.2 INSTALLATION

- A. Pipe Installation
 1. Lay and maintain pipe appurtenances to the alignment, grade, and location shown on the Drawings and/or staked in the field. No deviation from the Drawing and/or staked alignment, grade, or location is allowed, unless

approved by ENGINEER. Deviation from grade in excess of 0.05 percent may be cause for removal and relaying pipe at the CONTRACTOR's expense.

2. General Pipe Installation Procedures:
 - a. Wipe joints clean; apply the manufacturer's recommended lubricant compound over the entire joint surface; center spigot in bell and push spigot home; take care to prevent dirt from entering the joint space; bring pipe to proper line and grade, and secure pipe in place by properly bedding.
3. Lay pipe upgrade with spigot ends pointing in the direction of flow.
4. All joints must be watertight.
5. Remove any foreign matter or dirt from inside the pipe. Keep the bell and spigot clean during and after installation. Take care to prevent dirt from entering the joint space. Remove any superfluous material from inside the pipe after pipe installation by means of an approved follower or scraper.
6. Where cut-ins make it impossible to construct bell and spigot joints or when dissimilar pipe materials are joined, a reinforced concrete collar shall be placed completely surrounding the joint or the connection shall be made by using an approved adapter.
7. Any pipe which has been disturbed after being laid must be taken up, the joint cleaned and properly re-laid as directed by ENGINEER.
8. Where a sewer line outlets to grade or where the line is terminated with a flared end section:
 - a. Fasten at least the last 3 joints together using 2 "U" bolt fasteners per joint approved and as recommended by the pipe manufacturers.
 - b. Pipe bedding within 10 feet of the flared end section shall consist of clay material.
9. Where a sewer line outlets to grade or where the line is terminated with a flared end section on each end:
 - a. Fasten all joints together using 2 "U" bolt fasteners per joint approved and as recommended by the pipe manufacturers.
 - b. Pipe bedding within 10 feet of the flared end section shall consist of clay material.
10. Install pipe in accordance with Section 33 05 05 – Trenching and Backfilling.
11. Install riprap at flared ends where shown on the Drawings.

B. Structures and Appurtenances Installation

1. Furnish and install structures in accordance with the Drawings.
2. Excavate to depth and size as shown in the Drawings.
3. Prefomed inverts are not allowed.
4. Pour inverts shaped to the half section of equivalent size pipe to the inlet and outlet pipe so as to allow for a free, uninterrupted flow with all surfaces sloping to the flow line.
5. All concrete pipes entering manholes must be cut with a concrete saw.
6. For structures with an eccentric cone, position vertical wall of the eccentric cone over the stairs or if no stairs are present on the downstream side.
7. On structures with a build that contains more than 1 barrel section, the section immediately below the precast top slab shall be maximum 16 inch height.
8. Lift holes neatly mortared up.

9. Install Adjustment Rings and Adjust Casting. Maximum number of and/or height of precast concrete adjusting rings shall be as shown on the Drawings.
- C. Drintile Installation
1. See Section 33 41 00 – Subdrainage
- D. Cleanout and Fittings
1. Construct at locations and elevations determined by ENGINEER or as shown on the Drawings.
 2. Cleanouts shall extend 1 foot above finish ground elevation until restoration is complete. Following approval of restoration, lower cleanouts to 1/2 inch below finish ground elevation, and install Cleanout Casting.
 3. Tie out all cleanout locations and submit ties to ENGINEER.

3.3 TOLERANCES

- A. Storm sewer and services shall be installed to meet the following tolerances:
1. Horizontal: Within 0.50 feet of alignment shown.
 2. Vertical: Zero plus and 0.08 feet minus elevation shown with no intermediate high points, level sections, or reverse invert slope.
 3. Joint Deflection: No more than 75 Percent of the maximum allowable, as recommended by manufacturers of pipe and joint material.

3.4 FIELD QUALITY CONTROL

- A. Secure manholes and structures immediately after completion or before suspension of operations at the end of working day with castings or suitable alternative device.
- B. Provide for adequate storm water conveyance during construction.
- C. Lamping:
1. Verify installation is to true line and grade.
 2. Verify installed pipe is structurally sound.
 3. Verify there are no broken or deflective pipes.
 4. Verify that joints are all pushed home.
 5. Verify structures conform to specified requirements.
- D. Do not backfill trench until the pipe has been inspected and approved by the ENGINEER.
- E. Deflection Testing: Deflection testing shall be performed in accordance with CEAM 2621.3.F and as required by the MN Plumbing Code.
- F. Tracer Wire Continuity
1. See Section 33 05 97 – Identification and Signage for Utilities.
- G. Settlement: Settlement shall be defined as horizontal or vertical change in structure location between original placement and 1 year after original placement. Structure and pipe shall not settle greater than 0.05 feet in any direction following original placement. Settlement greater than 0.05 feet within 1 year of original placement of structure or pipe, shall warrant removal and replacement of the structure or pipe at the expense of the CONTRACTOR pending review by OWNER and ENGINEER.

3.5 PROTECTION

- A. Implement erosion control measures.
- B. Mark structures to avoid being damaged by construction related traffic during construction.

END OF SECTION

**SECTION 33 41 00
SUBDRAINAGE**

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes draintile, fittings, aggregates and all appurtenances.

1.2 SUBMITTALS

- A. Submit in accordance with Section 01 33 00 – Submittal Procedures.
- B. Product Data: Manufacturer’s data sheets, specification, installation procedures, and maintenance manuals on each product to be used, including but not limited to the following:
 - 1. Pipe and Fittings
 - a. Product Specifications
 - b. Installation procedures

1.3 SEQUENCING AND SCHEDULING

- A. Verify the location and invert of the storm sewer connection point matches the design drawings prior to beginning work. Notify ENGINEER immediately if the connection point does not match the design drawings.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. All pipe, fittings, and accessories shall be delivered to the site and unloaded with handling that conforms to the manufacturer’s instructions for reasonable care. Pipe shall not be rolled or dragged over gravel or rock during handling. The CONTRACTOR shall take necessary precautions to ensure the method used in lifting or placing the pipe does not induce stress fatigue in the pipe.
- B. Deliver Materials to project in Manufacturer’s original unopened packing, with labels clearly identifying product name, Manufacturer, and expiration date.
- C. Deliver, store and handle materials and products in strict compliance with manufacturer’s instructions and recommendations and industry standards. Protect against damage, weather, vandalism, and theft.

1.5 MEASUREMENT AND PAYMENT

- A. Refer to Section 01 20 00 – Price and Payment Procedures.
- B. All other work and costs associated with completing the work as specified on the Drawings and in the Specifications shall be included in the total project cost.

PART 2 - PRODUCTS

2.1 PVC SCHEDULE 40 PLASTIC PIPE AND FITTINGS

- A. General: Pipe and fittings shall be made of compounds conforming to ASTM D1784 in accordance with the material requirements of D1785 and ASTM D2665. PVC DWV fittings shall conform to ASTM D2665. Belled end pipe shall have tapered sockets conforming to ASTM D2672.
- B. Design: Integral belled pipe with a minimum wall thickness conforming to Schedule 40.
- C. Solvent Cement Joints: The solvent cement used to join pipe and fittings shall meet the requirements of ASTM D2564.
- D. Slotted Walls: Slotted with minimum 2 square inches of open area per lineal foot of pipe.

2.2 CLEANOUTS

- A. Cleanouts: Cleanouts and accompanying materials shall conform to the details shown on the Drawings.

2.3 FILTER AGGREGATE MATERIAL

- A. Comply with Mn/DOT Spec 3149.2H "Coarse Filter Aggregate" in areas indicated on Drawings to receive Coarse Filter Aggregate.

2.4 TRACER WIRE

- A. See Section 33 05 97 – Identification and Signage for Utilities.

PART 3 - EXECUTION

3.1 GENERAL

- A. The location and alignment of the subsurface drains and outlets are shown in a general manner on the Drawings. Exact location and alignment to be determined by the ENGINEER.

3.2 INSTALLATION

- A. Conform to details on the Drawings.
- B. Construct to locations and elevations determined by ENGINEER or as shown on the Drawings.
- C. Pipe bedding: Filter aggregate as shown on the Drawings.
- D. Grade: Unless otherwise specified or shown on the Drawings, the grade of pipes shall not be flatter than 1:250.
- E. Plug upstream end of the pipe during installation.
- F. Sections of drain tile shall be firmly jointed.

- G. Perforations shall be oriented as shown on the Drawings or designated by the ENGINEER.
- H. Connections: Drain tile shall be connected to stormwater structures via the provided hole and sealed with mortar. If a hole is not provided, a hole shall be core drilled at the required location.
- I. Compaction: Comply with Section 33 05 05 – Trenching and Backfilling.
- J. Flushing: After installation is complete, pipes shall be flushed with sufficient water to remove material that has entered the pipes during construction.
- K. Cleanouts shall be installed per the details shown on the Drawings. Threaded plug, and casting are required to be furnished and installed on all cleanouts as shown in Drawings.

3.3 CLEANOUT AND FITTINGS

- A. Construct at locations and elevations determined by ENGINEER or as shown on the drawings.
- B. Cleanouts shall extend 2 feet above finish ground elevation until restoration is complete. Following approval of restoration, lower cleanouts according to the Drawing details.
- C. Tie out all cleanout locations and submit ties to ENGINEER.

3.4 FIELD QUALITY CONTROL

- A. Do not backfill trench until the pipe has been inspected and approved by the ENGINEER.
- B. Protect installed draitile from surface runoff and contamination. Remove and reinstall draitile that has been exposed to surface runoff.
- C. Tracer Wire Continuity
 - 1. See Section 33 05 97 – Identification and Signage for Utilities.

END OF SECTION

**SECTION 33 44 23
INLINE STORMWATER FILTERS**

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes iron enhanced sand filtration, biochar, and accessories.

1.2 SUBMITTALS

- A. Submit in accordance with Section 01 33 00 – Submittal Procedures.
- B. Product Data: Manufacturer’s data sheets, specifications, sieve analysis, installation procedures, and maintenance manuals on each product to be used, including but not limited to the following:
 - 1. Iron/Fine Filter Aggregate
 - 2. Biochar
 - 3. Miscellaneous Accessories

1.3 SEQUENCING AND SCHEDULING

- A. Verify the location and invert of the storm sewer connection point matches the design drawings prior to beginning work. Notify ENGINEER immediately if the connection point does not match the design drawings.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. All pipe and fittings shall be delivered to the site and unloaded with handling that conforms to the manufacturer’s instructions for reasonable care. Pipe shall not be rolled or dragged over gravel or rock during handling. The CONTRACTOR shall take necessary precautions to ensure the method used in lifting or placing the pipe does not induce stress fatigue in the pipe.
- B. Deliver Materials to project in Manufacturer’s original unopened packing, with labels clearly identifying product name, Manufacturer, and expiration date.
- C. Deliver, store and handle materials and products in strict compliance with manufacturer’s instructions and recommendations and industry standards. Protect against damage, weather, vandalism, and theft.

1.5 MEASUREMENT AND PAYMENT

- A. Refer to Section 01 20 00 – Price and Payment Procedures.
- B. All other work and costs associated with completing the work as specified on the Drawings and in the Specifications shall be included in the total project cost.

PART 2 - PRODUCTS

2.1 IRON/FINE FILTER AGGREGATE (Modified)

- A. Iron Filings: Iron Aggregate ETI CC-1004 Connelly-GPM, Inc. or approved equal.

- B. Fine Filter Aggregate (Modified):
1. Conform to MnDOT Spec. 3149.2J.2 and as modified below.

SIEVE SIZE	PARTICAL SIZE	% PASSING LIMITS	
3/8in	9.5mm	100	100
No. 4	4.75mm	95	100
No. 8	2.36mm	85	100
No. 16	1.18mm	65	85
No. 30	600µm	35	60
No. 50	300µm	10	25
No. 100	150µm	0	5
No. 200	75µm	0	3

Uniformity Coefficient shall be less than 4, where the uniformity coefficient (Cu) = D60/D10

- C. Mix proportions shall be five (7) percent iron filings to 93 percent fine filter aggregate by weight premixed by Plaisted Companies or approved equal.
- D. The mixed iron/fine filter aggregate shall not contain any topsoil or unwashed filter aggregate.

2.2 COARSE FILTER AGGREGATE

- A. See Section 33 41 00 – Subdrainage.

2.3 BIOCHAR

- A. Biochar: Phosphorus Absorbing (Woodchip) Biochar by American Biochar Company or National Carbon Technologies, or approved equal.

American Biochar Company

P.O. Box 962
 Niles, MI 49120
 Phone: 269.663.2224

National Carbon Technologies

1 Imation Way,
 Oakdale, MN 55128
 Phone: 612.308.4738

1. Source of wood: Mixed Hardwood or other, approved by ENGINEER
2. Temperature of Pyrolysis: 500 to 700°C.

2.4 PERFORATED AND SOLID WALL PIPE

- A. See Section 33 41 00 – Subdrainage.

2.5 CLEANOUTS

- A. Cleanouts: Cleanouts and accompanying materials shall conform to the details shown on the Drawings.

2.6 MONITORING STANDPIPE w/ THREADED CAP (SAMPLING PORTS)

- A. Sampling Ports: Sampling Ports and accompanying materials shall conform to the details shown on the Drawings.

2.7 STORMWATER FILTER GATE VALVES

- A. See Section 33 40 00 – Storm Drainage Utilities.

PART 3 - EXECUTION

3.1 IRON ENHANCED SAND FILTER CELL INSTALLATION

- A. Pump down work area until the work is completed. Divert flows to keep work area dry. Coordinate with OWNER on drawing down pond via sluice gate at existing outlet controls structure.
- B. Care must be taken to avoid contamination of engineered soils with sediment, in-situ or topsoil during and after installation. Materials must remain segregated to avoid contamination. After grading commences, the CONTRACTOR is required to maintain sufficient material quantities onsite to complete the installation and stabilize exposed soil areas without delay.
- C. Excavate trench and construct filter per the detail on the Drawings.
- D. Install slotted pipe inside the filter trench.
- E. Install solid pipe inside the filter trench.
- F. Place coarse filter aggregate. Coarse filter aggregate shall not contain any topsoil or unwashed filter aggregate.
- G. Place premixed iron/fine filter aggregate.
- H. Stabilize surrounding area. No seeding or topsoil on iron enhanced sand filter.

3.2 IRON ENHANCED SAND/BIOCHAR FILTER CELL INSTALLATION

- A. Pump down work area until the work is completed. Divert flows to keep work area dry. Coordinate with OWNER on drawing down pond via sluice gate at existing outlet controls structure.
- B. Care must be taken to avoid contamination of engineered soils with sediment, in-situ or topsoil during and after installation. Materials must remain segregated to avoid contamination. After grading commences, the CONTRACTOR is required to maintain sufficient material quantities onsite to complete the installation and stabilize exposed soil areas without delay.
- C. Excavate trench and construct filter per the detail on the Drawings.
- D. Install slotted pipe inside the filter trench.

- E. Install solid pipe inside the filter trench.
- F. Place coarse filter aggregate. Coarse filter aggregate shall not contain any topsoil or unwashed filter aggregate.
- G. Place layer of premixed iron/fine filter aggregate at 0.3 foot thickness, then layer of biochar at 0.3 foot thickness, then layer of premixed iron/fine filter aggregate to bring total sand/biochar filter layer to a thickness of 1.0 feet, as shown on plans.
- H. Stabilize surrounding area. No seeding or topsoil on iron enhanced sand filter.

END OF SECTION

OWNER

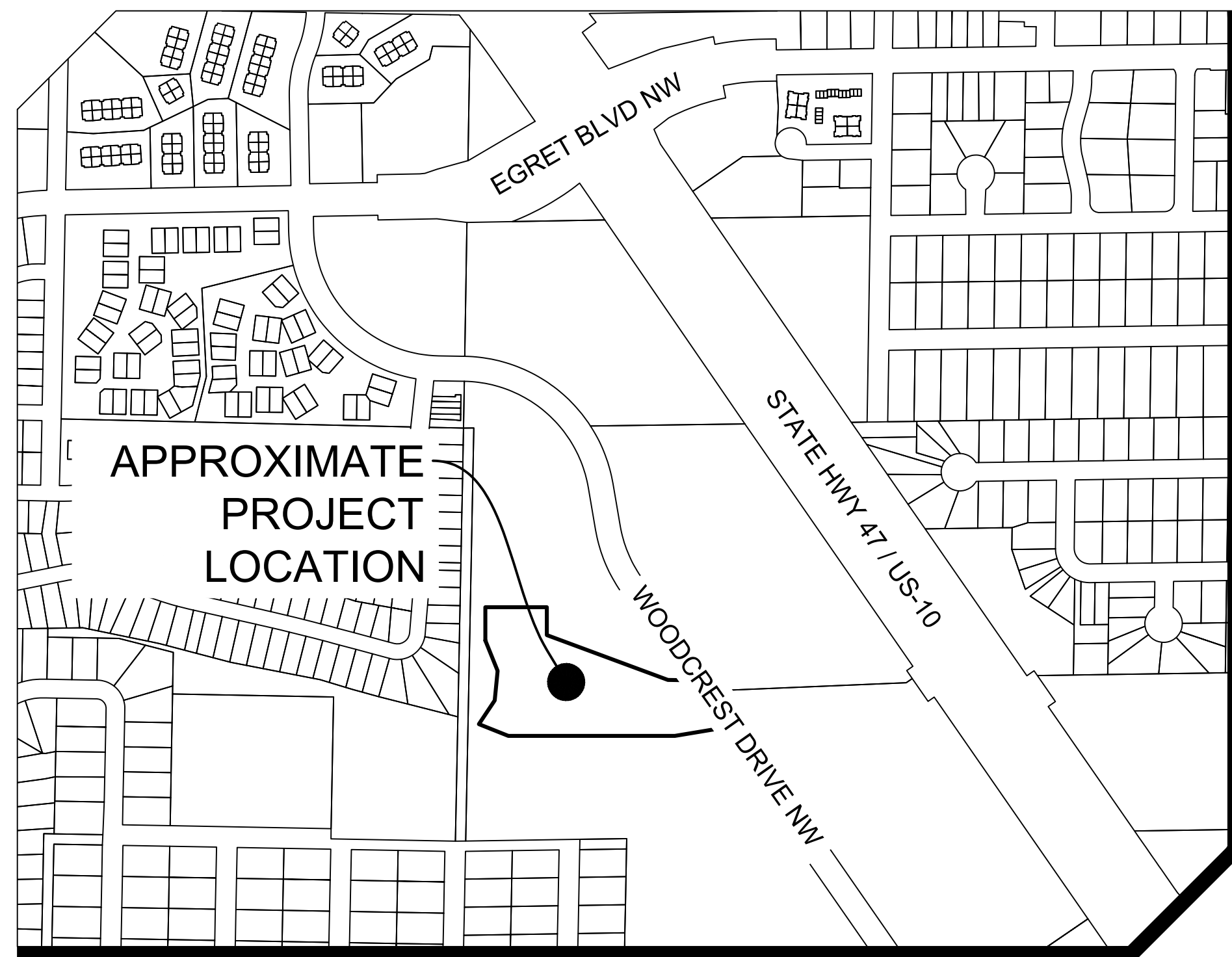


COON CREEK WATERSHED DISTRICT
 13632 VANBUREN STREET NE
 HAM LAKE, MN 55304
 (P) - 763-755-0975
 CONTACT: JON JANKE

ENGINEER



WENCK ASSOCIATES, INC.
 7500 OLSON MEMORIAL HWY
 SUITE 300
 GOLDEN VALLEY, MN 55427
 (P) - 763-252-6800
 CONTACT: ED MATTHIESEN, P.E.



PROJECT VICINITY MAP
 NOT TO SCALE

CONSTRUCTION PLANS

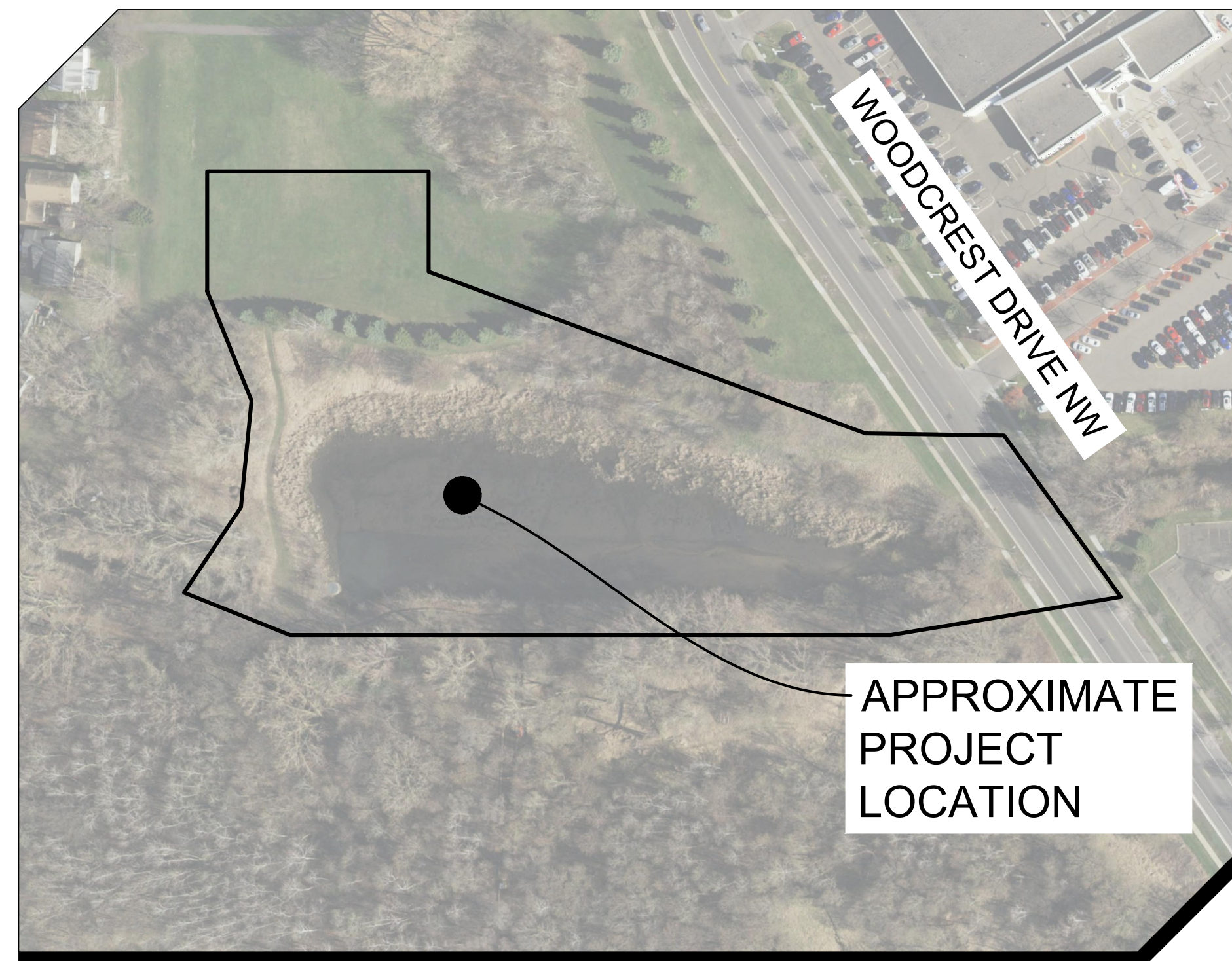
FOR

WOODCREST POND BIOCHAR- AND IRON-ENHANCED SAND FILTER

AUGUST 2019

COON CREEK WATERSHED DISTRICT
 CITY OF COON RAPIDS
 ANOKA COUNTY, MINNESOTA

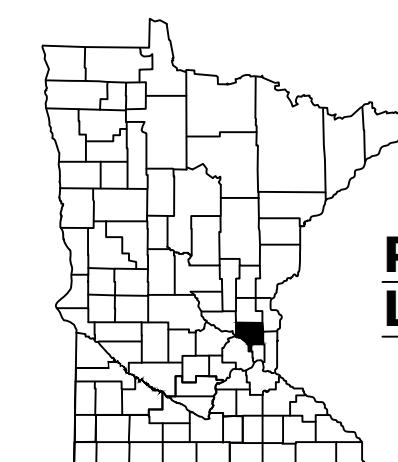
PARTNER



PROJECT LOCATION MAP
 NOT TO SCALE

SHEET INDEX	
Sheet Number	Sheet Title
G-101	COVER SHEET
C-100	SWPPP
C-101	EXISTING CONDITIONS
C-201	PRE CONSTRUCTION EROSION CONTROL AND DEMOLITION PLANS
C-202	POST CONSTRUCTION EROSION CONTROL PLAN
C-301	GRADING AND UTILITY PLAN
C-302	IRON-ENHANCED SAND FILTER PLAN
C-800	DETAILS
C-801	DETAILS

THIS PLAN SET CONTAINS 9 SHEETS



PROJECT LOCATION
 CITY: COON RAPIDS
 COUNTY: ANOKA

WARNING:

THE CONTRACTOR SHALL BE RESPONSIBLE FOR CALLING FOR LOCATIONS OF ALL EXISTING UTILITIES. THEY SHALL COOPERATE WITH ALL UTILITY COMPANIES IN MAINTAINING THEIR SERVICE AND/OR RELOCATION OF LINES.

THE CONTRACTOR SHALL CONTACT GOPHER STATE ONE CALL AT 651-454-0002 AT LEAST 48 HOURS IN ADVANCE FOR THE LOCATIONS OF ALL UNDERGROUND WIRES, CABLES, CONDUITS, PIPES, MANHOLES, VALVES OR OTHER BURIED STRUCTURES BEFORE DIGGING. THE CONTRACTOR SHALL REPAIR OR REPLACE THE ABOVE WHEN DAMAGED DURING CONSTRUCTION AT NO COST TO THE OWNER.

CALL BEFORE YOU DIG
 GOPHER STATE ONE CALL
 TWIN CITY AREA: 651-454-0002
 TOLL FREE 1-800-252-1166



Responsive partner.
 Exceptional outcomes.
 7500 OLSON MEMORIAL HWY
 SUITE 300
 GOLDEN VALLEY, MN 55427
 PHONE: 763-252-6800
 FAX: 952-831-1268
 WWW.WENCK.COM

CLIENT:



13632 VANBUREN STREET NE
 HAM LAKE, MN 55304
 PHONE: 763-755-0975
 WWW.COONCREEKWD.ORG

PROJECT TITLE:
WOODCREST POND BIOCHAR- AND IRON-ENHANCED SAND FILTER
 COON RAPIDS
 ANOKA COUNTY

ISSUE NO.	DATE	DESCRIPTION
1	8/26/2019	CONSTRUCTION PLANS

CERTIFICATION:
 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.

Ed Matthesen
 ED MATTHIESEN
 LICENSE NO.: 16800
 DATE: 8/26/2019

PROJECT NO.:	1239-0100				
DWN BY:	BMB	CHK'D BY:	ERM	APP'D BY:	EAM
ISSUE DATE:	8/26/2019				
ISSUE NO.:	1				
SHEET TITLE:	COVER SHEET				
SHEET NO.:	G-101				

PROJECT INFORMATION

PROJECT NAME: WOODCREST POND BIOCHAR- AND IRON-ENHANCED SAND FILTER
PROJECT LOCATION: COON RAPIDS, ANOKA COUNTY
PROJECT TYPE: GRADING, BIO-CHAR AND IRON-ENHANCED SAND FILTER INSTALLATION, AND RESTORATION.

TOTAL AREA DISTURBED BY CONSTRUCTION: APPROXIMATELY 1.46 ACRES.
THE TOTAL SITE AREA IS APPROXIMATELY 4.63 ACRES.
ESTIMATED CONSTRUCTION DATES: FALL 2019-SPRING 2020
CUMULATIVE IMPERVIOUS SURFACE/PERMANENT STORMWATER MANAGEMENT REQUIREMENTS:

THERE IS CURRENTLY APPROXIMATELY 0.01 ACRES OF EXISTING IMPERVIOUS SURFACE IN THE PROJECT AREA. THE PROPOSED AREA OF IMPERVIOUS IS APPROXIMATELY 0.07 ACRES RESULTING IN A 0.06 ACRE NET INCREASE IN IMPERVIOUS SURFACE.

THE SITE ULTIMATELY DRAINS TO, AND IS WITHIN 1 MILE OF, COON CREEK, WHICH IS LISTED AS AN IMPAIRED WATER FOR BENTHIC MACROINVERTEBRATE BIOASSESSMENTS AND E. COLI. THERE IS AN EPA APPROVED TMDL OR WLA FOR THE WATERBODY.

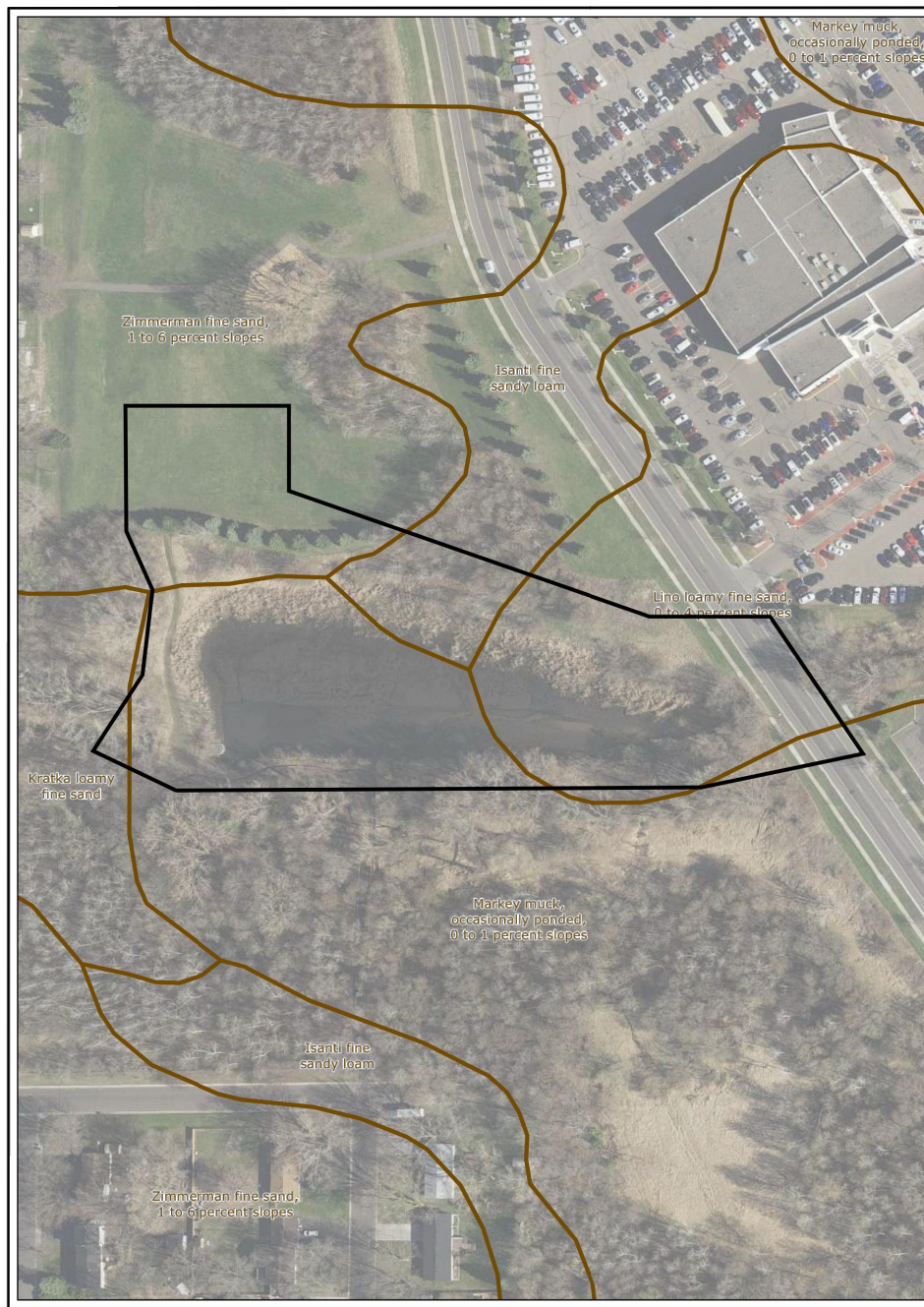
THE PERMANENT STORMWATER MANAGEMENT SYSTEM CONSISTS OF EXISTING AND PROPOSED STORM SEWER, AND PROPOSED IRON-ENHANCED SAND FILTER WITH BIOCHAR.

PARTY RESPONSIBLE FOR LONG TERM OPERATION AND MAINTENANCE OF THE SITE (OWNER): CITY OF COON RAPIDS
CONTACT: MARK HANSEN
CONTACT PHONE: (763) 767-6465
CONTACT EMAIL: MHANSEN@COONRAPIDSMN.GOV

PARTY RESPONSIBLE FOR APPLICATION OF NPDES PERMIT AND IMPLEMENTATION OF THE SWPPP (CONTRACTOR):

TBD - CONTRACTOR SHALL PROVIDE A CHAIN OF RESPONSIBILITY WITH ALL OPERATORS ON THE SITE FOR INCORPORATION INTO THIS SWPPP DOCUMENT TO ENSURE THAT THE SWPPP WILL BE IMPLEMENTED AND STAY IN EFFECT UNTIL THE CONSTRUCTION PROJECT IS COMPLETE (THROUGH FINAL STABILIZATION AND NOT SUBMITTAL). CONTRACTOR SHALL ALSO PROVIDE DOCUMENTATION OF PERSONNEL TRAINING IN ACCORDANCE WITH THE PERMIT FOR INCORPORATION INTO THIS SWPPP DOCUMENT AS SOON AS THE PERSONNEL FOR THE PROJECT HAVE BEEN DETERMINED. CONTRACTOR IS RESPONSIBLE FOR KEEPING A FINAL SWPPP DOCUMENT, CONTAINING THE INFORMATION REQUIRED ABOVE, AT THE CONSTRUCTION SITE FOR THE DURATION OF THE PROJECT.

SOIL MAP



COON CREEK WATERSHED DISTRICT
WOODCREST POND SOILS MAP
Figure 1

CERTIFICATION

IN ACCORDANCE WITH SECTIONS 5.20 AND 21.2 OF THE 2018 GENERAL PERMIT AUTHORIZATION TO DISCHARGE STORMWATER ASSOCIATED WITH CONSTRUCTION ACTIVITY UNDER THE NPDES, THE PREPARER OF THIS DOCUMENT WAS TRAINED UNDER THE UNIVERSITY OF MINNESOTA EROSION AND SEDIMENT CONTROL CERTIFICATION PROGRAM. ERIC OSTERDYK'S CERTIFICATION IN DESIGN OF SWPPP IS VALID THROUGH MAY 31, 2021.

EROSION AND SEDIMENT CONTROL

PRIOR TO ANY SITE DISTURBANCE, AND AS REQUIRED AS CONSTRUCTION PROGRESSES, ANY PERMIT REQUIRED EROSION PREVENTION MEASURES AND THE SEDIMENT CONTROL DEVICES (INLET PROTECTION, CULVERT PROTECTION, CONSTRUCTION ENTRANCE, SILT FENCE, EROSION CONTROL BLANKET, TREE PROTECTION) SHOWN ON THE CONSTRUCTION DRAWINGS WILL BE INSTALLED AT THE SITE.

ALL EXPOSED SOIL AREAS WITHIN THE CONSTRUCTION LIMITS WILL BE STABILIZED WITHIN 7 DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS TEMPORARILY (WILL NOT RESUME FOR A PERIOD EXCEEDING 7 CALENDAR DAYS) OR PERMANENTLY CEASED. STABILIZATION WILL BE INITIATED IMMEDIATELY. EXPOSED SOIL AREAS MUST HAVE TEMPORARY EROSION PROTECTION (SLASH MULCH, EROSION CONTROL BLANKET, SEED) OR PERMANENT COVER YEAR ROUND.

CONTRACTOR SHALL IMPLEMENT APPROPRIATE CONSTRUCTION PHASING, VEGETATIVE BUFFER STRIPS, HORIZONTAL SLOPE GRADING, AND OTHER CONSTRUCTION PRACTICES THAT MINIMIZE EROSION WHEN PRACTICAL. THE NORMAL WETTED PERIMETER OF ANY TEMPORARY OR PERMANENT DRAINAGE DITCH THAT DRAINS WATER FROM A CONSTRUCTION SITE, OR DIVERTS WATER AROUND A SITE, MUST BE STABILIZED WITHIN 200 LINEAL FEET FROM THE PROPERTY EDGE, OR FROM THE POINT OF DISCHARGE TO ANY SURFACE WATER. STABILIZATION MUST BE COMPLETED WITHIN 24 HOURS OF CONNECTING TO A SURFACE WATER. PIPE OUTLETS MUST BE PROVIDED WITH TEMPORARY OR PERMANENT ENERGY DISSIPATION WITHIN 24 HOURS OF CONNECTION TO A SURFACE WATER.

SWPPP IMPLEMENTATION, PHASING, AND SEQUENCE OF CONSTRUCTION

BMP AND EROSION CONTROL INSTALLATION SEQUENCE SHALL BE AS FOLLOWS:

- 1. CONSTRUCT STABILIZED CONSTRUCTION ENTRANCE, CONCRETE WASHOUT CONTAINMENT, AND INSTALL SILT FENCE.
2. INSTALL INLET PROTECTION AT EXISTING STORMWATER CULVERTS AND INLETS.
3. PREPARE TEMPORARY STORAGE, PARKING, AND PHASING AREAS.
4. CONSTRUCT AND STABILIZE DIVERSIONS AND TEMPORARY SEDIMENT TRAPS/BASINS.
5. PERFORM CLEARING AND GRUBBING OF THE SITE, IF APPLICABLE.
6. PERFORM MASS GRADING, ROUGH GRADE TO ESTABLISH PROPOSED DRAINAGE PATTERNS.
7. BEGIN EXCAVATION OF PERMANENT STORMWATER BASIN AREAS. SEE SEQUENCING BELOW FOR ADDITIONAL INFORMATION.
8. START CONSTRUCTION OF THE BUILDING PAD AND STRUCTURES.
9. TEMPORARILY SEED WITH PURE LIVE SEED THROUGHOUT CONSTRUCTION DISTURBED AREAS THAT WILL BE INACTIVE FOR 7 DAYS OR MORE AS REQUIRED BY NPDES PERMIT.

IRON-ENHANCED SAND FILTER SEQUENCING NOTES:

- 1. CONTRACTOR SHALL STAGE CONSTRUCTION APPROPRIATELY AND INSTALL ALL NECESSARY EROSION CONTROL TO PREVENT SEDIMENT WASHING INTO THE IRON-ENHANCED SAND FILTER.
2. FINAL GRADING OF THE BASIN SHALL BE ACCOMPLISHED USING LOW-IMPACT EARTH MOVING EQUIPMENT TO PREVENT COMPACTION. SMALL TRACKED DOZERS AND SKID STEERS ARE RECOMMENDED.
3. IN THE EVENT THAT SEDIMENT IS INTRODUCED INTO THE IRON-ENHANCED SAND FILTER, THIS MATERIAL WILL NEED TO BE REMOVED PRIOR TO PROCEEDING WITH CONSTRUCTION. IRON-ENHANCED SAND FILTER SHALL BE FREE AND CLEAR OF SEDIMENT UPON FINAL COMPLETION OF CONSTRUCTION.
4. ALL SLOPES WITHIN PERMANENT STORMWATER SYSTEM (INCLUDING SWALES, BASINS, AND PONDS) SHALL BE STABILIZED WITH AN EROSION CONTROL BLANKET.
5. THE PROJECT AREA MUST BE STAKED OFF AND MARKED TO KEEP ALL CONSTRUCTION TRAFFIC, EQUIPMENT AND MATERIAL STOCKPILES OUT OF THE PROPOSED FILTRATION AREAS.
6. FILTRATION PRACTICES SHALL NOT BE EXCAVATED UNTIL THE CONTRIBUTING DRAINAGE AREAS WITH EXPOSED SOIL HAVE BEEN FULLY STABILIZED AND BITUMINOUS BASE COURSE INSTALLED ON CONTRIBUTING PAVEMENT AREAS. DIVERT UPLAND DRAINAGE AREAS TO PREVENT RUNOFF FROM ENTERING THE EXCAVATED CELL OR INTO THE WORK AREA. DO NOT USE FILTRATION CELLS AS TEMPORARY SEDIMENT BASINS OR ALLOW CONSTRUCTION RUNOFF INTO THE CELL, WHEN ALTERNATE DRAINAGE ROUTES ARE FEASIBLE.
7. CARE MUST BE TAKEN TO AVOID CONTAMINATION OF IRON-ENHANCED SAND FILTER WITH SEDIMENT, IN-SITU OR TOPSOIL DURING AND AFTER INSTALLATION. MATERIALS MUST BE SEGREGATED.
8. KEEP FILTRATION SYSTEMS OFF-LINE BY RESTRICTING STORM WATER INFLOW UNTIL VEGETATION IS WELL ESTABLISHED IN THE CELL AND ALL UP GRADIENT AREAS HAVE BEEN STABILIZED AND IMPERVIOUS SURFACES CLEARED OF CONSTRUCTION SEDIMENT.
9. PROVIDE TOPSOIL AND SEED IN ACCORDANCE WITH THE EROSION CONTROL PLAN, LANDSCAPE PLAN, AND NPDES PERMIT.

SEDIMENT CONTROL PRACTICES MUST MINIMIZE SEDIMENT FROM ENTERING SURFACE WATERS, INCLUDING CURB AND GUTTER SYSTEMS AND STORM SEWER INLETS. THE FOLLOWING MEASURES WILL BE TAKEN AS SEDIMENT CONTROL PRACTICES IN ORDER TO MINIMIZE SEDIMENTS FROM ENTERING SURFACE WATERS:

- 1. INSTALLATION OF SEDIMENT CONTROL PRACTICES ON ALL DOWN GRADIENT PERIMETERS PRIOR TO LAND DISTURBING ACTIVITIES.
2. SILT FENCING, BIOLOGS, OR OTHER SEDIMENT CONTROL SURROUNDING TEMPORARY SOIL STOCKPILES.
3. VEHICLE TRACKING BMP AT CONSTRUCTION SITE ENTRANCE/EXIT.

STREET SWEEPING SHALL BE PERFORMED IF VEHICLE TRACKING BMPS ARE NOT ADEQUATE TO PREVENT SEDIMENT TRACKING. TRACKED SEDIMENT MUST BE REMOVED FROM ALL PAVED SURFACES BOTH ON AND OFFSITE WITHIN 24 HOURS OF DISCOVERY PER THE PERMIT.

THE FOLLOWING GUIDELINES WILL BE USED TO DETERMINE IF POLLUTION CONTROL DEVICES REQUIRE MAINTENANCE, REPAIR, OR REPLACEMENT:

- IF SEDIMENT CONTROL DEVICES SUCH AS SILT FENCE ARE FILLED TO 1/3 THE HEIGHT OF THE FENCE, REMOVE ALL SEDIMENT WITHIN 24 HOURS OF DETECTION OR NOTIFICATION.
-IF INLET PROTECTION DEVICES APPEAR PLUGGED WITH SEDIMENT, ARE FILLED TO 1/3 CAPACITY, OR HAVE STANDING WATER AROUND THEM, REMOVE THE SEDIMENT AND CLEAN OR REPLACE THE FILTER WITHIN 24 HOURS OF DETECTION OR NOTIFICATION.
-IF THE GRAVEL CONSTRUCTION ENTRANCE(S) ARE FILLED WITH SEDIMENT EITHER REPLACE THE ENTRANCE OR ADD ADDITIONAL GRAVEL WITH 24 HOURS OF DETECTION OR NOTIFICATION.
-IF SEDIMENT FROM THE SITE IS OBSERVED ON ADJACENT STREETS OR OTHER PROPERTIES, THE INSPECTOR SHALL IDENTIFY THE SOURCE AND DISCHARGE LOCATION OF THE SEDIMENT AND INSTRUCT TO IMPLEMENT ADDITIONAL EROSION AND SEDIMENT CONTROLS AT THOSE LOCATIONS TO PREVENT FUTURE DISCHARGES.
-IF BUILDING MATERIALS, CHEMICALS, OR GENERAL REFUSE IS BEING USED, STORED, DISPOSED OF, OR OTHERWISE MANAGED INAPPROPRIATELY, CORRECT SUCH DEFECTS WITHIN 24 HOURS OF DETECTION OR NOTIFICATION.
-IF EXCESSIVE SEDIMENTS OR DEBRIS ARE OBSERVED AT THE FLARED END SECTION OUTFALLS, THE INSPECTOR SHALL DETERMINE THE SOURCE AND DISCHARGE LOCATIONS OF SUCH MATERIALS. IF THE DISCHARGE HAS OCCURRED ON THE PROPERTY, REMOVE THE SEDIMENTS AND DEBRIS WITHIN 24 HOURS OF NOTIFICATION AND CORRECT THE SOURCE OF SUCH MATERIALS AS DIRECTED BY THE INSPECTOR

POLLUTION PREVENTION MEASURES

SOLID WASTE

SOLID WASTE, INCLUDING BUT NOT LIMITED TO, COLLECTED ASPHALT AND CONCRETE MILLINGS, FLOATING DEBRIS, PAPER, PLASTIC, FABRIC, CONSTRUCTION AND DEMOLITION DEBRIS AND OTHER WASTE MUST BE DISPOSED OF PROPERLY AND MUST COMPLY WITH MPCA DISPOSAL REQUIREMENTS.

HAZARDOUS MATERIALS

HAZARDOUS MATERIALS, INCLUDING BUT NOT LIMITED TO OIL, GASOLINE, PAINT AND ANY HAZARDOUS SUBSTANCE MUST BE PROPERLY STORED INCLUDING SECONDARY CONTAINMENTS, TO PREVENT SPILLS, LEAKS OR OTHER DISCHARGE. RESTRICTED ACCESS TO STORAGE AREAS MUST BE PROVIDED TO PREVENT VANDALISM. STORAGE AND DISPOSAL OF HAZARDOUS WASTE MUST BE IN COMPLIANCE WITH MPCA REGULATIONS.

CONSTRUCTION EQUIPMENT/VEHICLES

EXTERNAL WASHING OF TRUCKS AND OTHER CONSTRUCTION VEHICLES MUST BE LIMITED TO A DEFINED AREA OF THE SITE. RUNOFF MUST BE CONTAINED AND WASTE PROPERLY DISPOSED OF. NO ENGINE DEGREASING IS ALLOWED ON SITE. REASONABLE STEPS TO PREVENT THE DISCHARGE OF SPILLED OR LEAKED CHEMICALS SHALL BE TAKEN. ADEQUATE SUPPLIES MUST BE AVAILABLE AT ALL TIMES TO CLEAN UP DISCHARGED MATERIALS: CONDUCT FUELING IN A CONTAINED AREA UNLESS INFEASIBLE.

CONCRETE WASHOUT AREA

CONCRETE WASHOUT WILL BE PERMITTED ON-SITE: CONTRACTOR SHALL FOLLOW ALL PERMIT REQUIREMENTS FOR CONCRETE WASHOUT. THE CONTRACTOR SHALL PROVIDE EFFECTIVE CONTAINMENT FOR ALL LIQUID AND SOLID WASTES GENERATED BY WASHOUT OPERATIONS. LIQUID AND SOLID WASHOUT WASTES MUST NOT CONTACT THE GROUND AND THE CONTAINMENT MUST BE DESIGNED TO PROHIBIT RUNOFF FROM THE WASHOUT OPERATIONS/AREAS. LIQUID AND SOLID WASTES MUST BE DISPOSED OF PROPERLY AND IN COMPLIANCE WITH MPCA RULES. A SIGN MUST BE INSTALLED ADJACENT TO EACH WASHOUT FACILITY THAT REQUIRES SITE PERSONNEL TO UTILIZE THE PROPER FACILITIES FOR CONCRETE WASHOUT AND DISPOSAL OF WASHOUT WASTES. CONTRACTOR SHALL REVISE SWPPP TO INDICATE WASHOUT LOCATION ONCE THE LOCATION HAS BEEN DETERMINED.

FERTILIZERS AND LANDSCAPE MATERIALS MUST BE UNDER COVER TO PREVENT THE DISCHARGE OF POLLUTANTS OR PROTECTED BY SIMILARLY EFFECTIVE MEANS DESIGNED TO MINIMIZE CONTACT WITH STORMWATER.

PORTABLE TOILETS MUST BE POSITIONED SO THAT THEY ARE SECURE AND WILL NOT BE TIPPED OR KNOCKED OVER - SANITARY WASTE MUST BE DISPOSED OF PROPERLY.

GENERAL SWPPP NOTES

DEWATERING IS ANTICIPATED TO BE REQUIRED DURING TRENCHING FOR UTILITY CONSTRUCTION. IN THE EVENT THAT DEWATERING IS NECESSARY CONTRACTOR SHALL COMPLY WITH PERMIT SECTION 10.1 REQUIREMENTS FOR DEWATERING.

THIS SWPPP SHALL BE AMENDED BY THE CONTRACTOR IN

ACCORDANCE WITH THE PERMIT AS NECESSARY TO INCLUDE ADDITIONAL REQUIREMENTS TO CORRECT PROBLEMS IDENTIFIED OR ADDRESS SITUATIONS PER SECTION 6.1 OF THE PERMIT.

FINAL STABILIZATION

ALL PERVIOUS AREAS DISTURBED BY CONSTRUCTION AS DESIGNATED WILL RECEIVE VEGETATIVE COVER ACCORDING TO THE PLANS AND SPECIFICATIONS AND WITHIN THE SPECIFIED VEGETATIVE TIME SCHEDULE. FINAL STABILIZATION WILL OCCUR WHEN THE SITE HAS A UNIFORM VEGETATIVE COVER WITH A DENSITY OF 70% OVER THE RESTORED PERVIOUS AREAS. ALL TEMPORARY SYNTHETIC EROSION PREVENTION AND SEDIMENT CONTROL BMPS (SUCH AS SILT FENCE) MUST BE REMOVED AS PART OF THE SITE FINAL STABILIZATION. ALL SEDIMENT MUST BE CLEANED OUT OF CONVEYANCES AND TEMPORARY SEDIMENTATION BASINS IF APPLICABLE. NOTICE OF TERMINATION (NOT) MUST BE SUBMITTED WITHIN 30 DAYS OF FINAL STABILIZATION.

IMPAIRED WATERS, SPECIAL WATERS, AND WETLANDS

THIS PROJECT IS LOCATED WITHIN ONE MILE OF, AND ULTIMATELY DISCHARGES TO, AN IMPAIRED WATER. COON CREEK IS LOCATED WEST OF THE PROJECT LOCATION AND IS LISTED AS AN IMPAIRED WATER FOR BENTHIC MACROINVERTEBRATE BIOASSESSMENTS AND E. COLI. DISCHARGE TO AN IMPAIRED WATER REQUIRES IMPLEMENTATION OF PARTS SECTIONS 23.1 THROUGH 23.14 OF THE PERMIT AS INCORPORATED INTO THIS SWPPP DOCUMENT.

THE PROJECT SITE, WOODCREST POND, DISCHARGES WEST TO WOODCREST CREEK. WOODCREST CREEK FLOWS WEST AND IS A TRIBUTARY TO COON CREEK. THE PROJECT WILL NOT IMPACT WETLANDS.

SITE SOILS - SITE SOILS ARE SHOWN ON THIS SHEET. THIS PROJECT IS NOT LOCATED IN A KARST AREA.

SWPPP DOCUMENTS

THE SWPPP IS COMPOSED OF, BUT NOT LIMITED TO, THE BELOW PROJECT DOCUMENTS. THESE DOCUMENTS SHALL BE KEPT ON THE PROJECT SITE AT ALL TIMES THROUGHOUT CONSTRUCTION. THE SWPPP SHALL BE AMENDED BY INDIVIDUALS DESCRIBED IN SECTIONS 21.2.A, 21.2.B OR ANOTHER QUALIFIED INDIVIDUAL. CHANGES INVOLVING THE USE OF A LESS STRINGENT BMP MUST INCLUDE A JUSTIFICATION DESCRIBING HOW THE REPLACEMENT BMP IS EFFECTIVE FOR THE SITE CHARACTERISTICS.

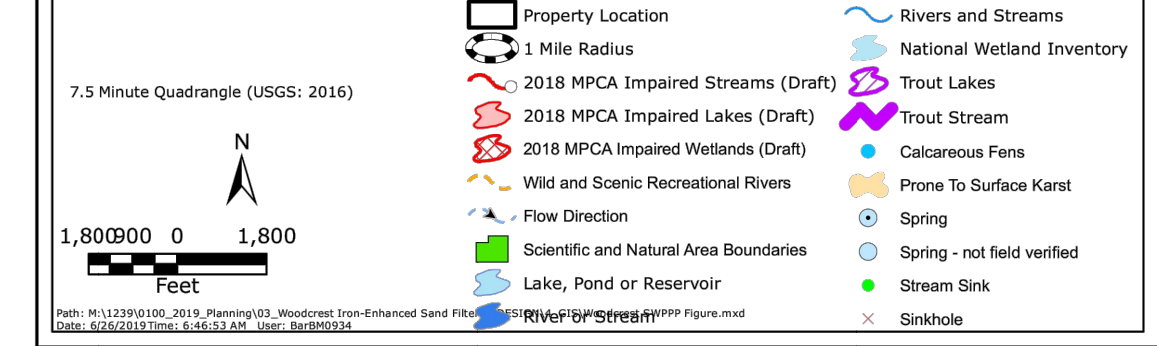
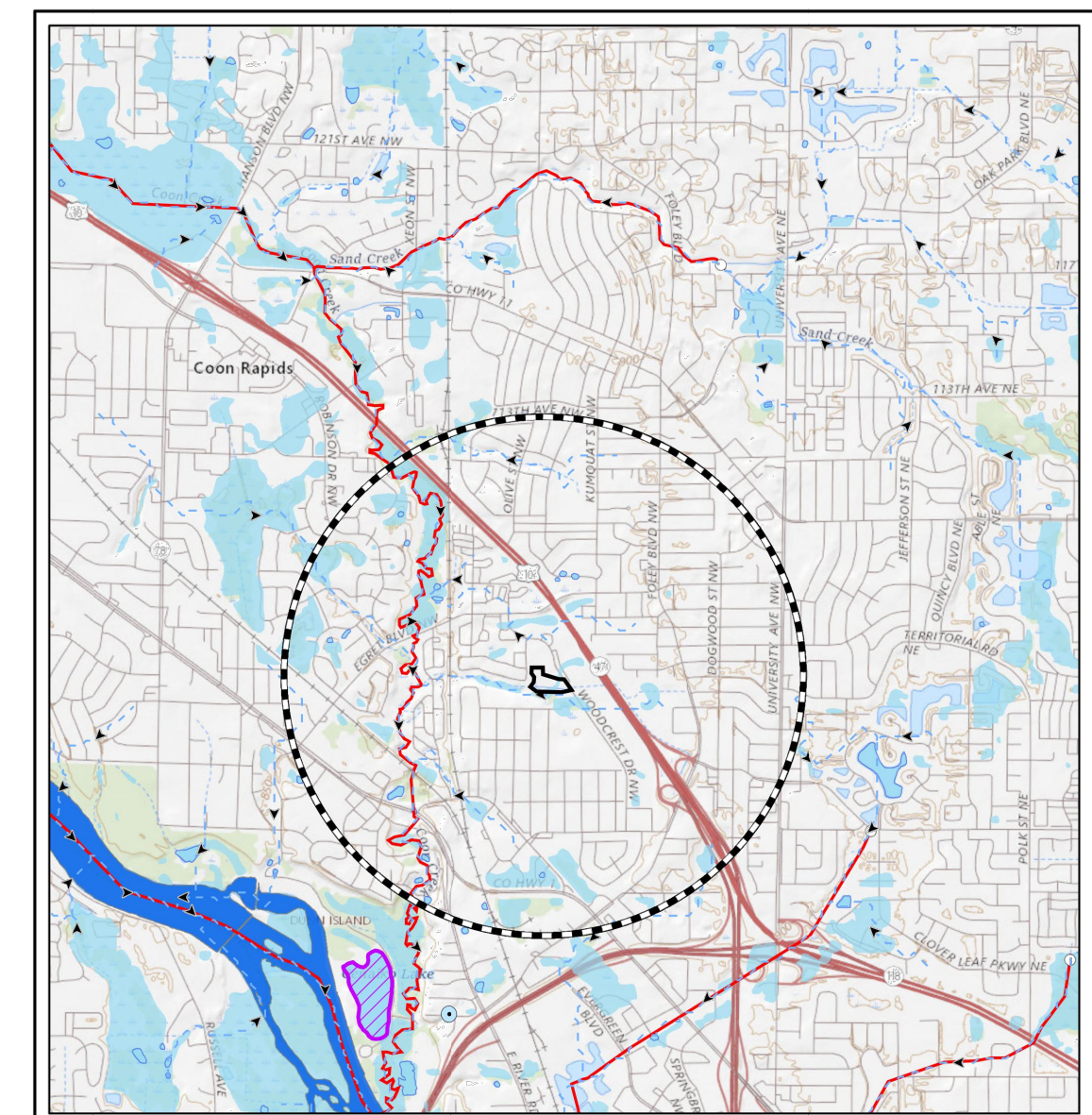
CIVIL CONSTRUCTION DRAWINGS BY WENCK ASSOCIATES DATED AUGUST 2019

RECORD RETENTION - THE SWPPP, ALL CHANGES TO IT, AND INSPECTION AND MAINTENANCE RECORDS MUST BE KEPT ON-SITE DURING CONSTRUCTION; THE CONSTRUCTION DRAWINGS ARE INCORPORATED HEREIN BY REFERENCE, AND A COPY OF THE PLAN SET SHOULD BE KEPT ON-SITE WITH THE SWPPP RECORDS. THE OWNER MUST RETAIN A COPY OF THE SWPPP ALONG WITH THE FOLLOWING RECORDS FOR THREE (3) YEARS AFTER SUBMITTAL OF THE NOTICE OF TERMINATION:
1. ANY OTHER PERMITS REQUIRED FOR THE PROJECT;
2. RECORDS OF ALL INSPECTION AND MAINTENANCE CONDUCTED DURING CONSTRUCTION;
3. ALL PERMANENT OPERATIONS AND MAINTENANCE AGREEMENTS THAT HAVE BEEN IMPLEMENTED, INCLUDING ALL RIGHT OF WAY, CONTRACT, COVENANTS AND OTHER BINDING REQUIREMENTS REGARDING PERPETUAL MAINTENANCE; AND
4. ALL REQUIRED CALCULATIONS FOR DESIGN OF THE TEMPORARY AND PERMANENT STORMWATER MANAGEMENT SYSTEMS.

ESTIMATED BMP QUANTITIES AND INSTALLATION SCHEDULE

THE ADJACENT TABLE INDICATES THE ESTIMATED MATERIAL QUANTITIES NECESSARY TO IMPLEMENT THE TEMPORARY AND PERMANENT EROSION PREVENTION AND SEDIMENT CONTROL BMPS IDENTIFIED IN THIS SWPPP AND ON THE CONSTRUCTION DRAWINGS. TEMPORARY AND PERMANENT EROSION PREVENTION AND SEDIMENT CONTROL BMPS WILL BE INSTALLED/CONSTRUCTED WHEN NECESSARY AS CONSTRUCTION ACTIVITIES PROGRESS AND IN ACCORDANCE WITH THE NPDES PERMIT REQUIREMENTS.

Table with 2 columns: BMP Name and Quantity. Includes: INLET PROTECTION: 4 EACH, SILT FENCE: 2,700 LF, SEED MIX 34-261: 20 LBS, SEED MIX 33-262: 10 LBS, PEA ROCK (COARSE FILTER AGGREGATE): 35 CY, RIP RAP CLASS III: 10 TON, EROSION CONTROL BLANKET: 3,050 SY, COIR EROSION CONTROL MAT: 235 SY, TEMPORARY CONSTRUCTION ENTRANCE: 1 EACH



INSPECTIONS

THE INSPECTION LOG WILL BE COMPLETED BY THE CONTRACTOR FOR THE CONSTRUCTION SITE. INSPECTOR(S): TBD - TRAINING DOCUMENTATION (PER SECTIONS 5.20 AND 21.2 OF THE PERMIT) WILL BE INCORPORATED INTO THIS SWPPP AS SOON AS THE PERSONNEL FOR THE PROJECT HAVE BEEN DETERMINED. THE CONTRACTOR WILL MAKE CORRECTIONS OR REPAIRS REQUIRED TO COMPLY WITH THE PERMIT.

INSPECTIONS AT THE SITE WILL BE COMPLETED IN ACCORDANCE WITH THE PERMIT AS FOLLOWS: ONCE EVERY SEVEN (7) DAYS DURING ACTIVE CONSTRUCTION AND, WITHIN 24 HOURS AFTER A RAINFALL EVENT GREATER THAN 0.5 INCHES IN 24 HOURS.

- 1. THE INDIVIDUAL PERFORMING INSPECTIONS MUST BE TRAINED AS REQUIRED BY SECTIONS 5.20 AND 21.2 OF THE PERMIT. TRAINING DOCUMENTATION SHALL BE PROVIDED BY THE CONTRACTOR FOR INCORPORATION INTO THE SWPPP. INSPECTIONS MUST INCLUDE STABILIZED AREAS, EROSION PREVENTION AND SEDIMENT CONTROL BMPS, AND INFILTRATION AREAS. CORRECTIVE ACTIONS MUST BE IDENTIFIED AND DATE OF CORRECTION MUST BE NOTED AS IDENTIFIED IN SECTION 11.1 OF THE PERMIT. ANY OFFSITE DISCHARGE MUST BE DOCUMENTED AS IDENTIFIED IN SECTION 11.1 OF THE PERMIT. ANY AMENDMENTS TO THE SWPPP PROPOSED AS A RESULT OF THE INSPECTION MUST BE DOCUMENTED WITHIN SEVEN (7) CALENDAR DAYS. AN INSPECTION LOG IS ALSO ATTACHED; THE INSPECTION LOG AND SWPPP MUST BE KEPT ON-SITE FOR THE DURATION OF THE CONSTRUCTION PROJECT.

AT A MINIMUM, THE FOLLOWING SHALL BE COMPLETED DURING EACH INSPECTION:

- RECORD DATE AND TIME OF INSPECTION.
-RECORD RAINFALL RECORDS SINCE THE MOST RECENT INSPECTION.
-INSPECT THE SITE FOR EXCESS EROSION AND SEDIMENTATION.
-INSPECT THE SITE FOR DEBRIS, TRASH, AND SPILLS.
-INSPECT TEMPORARY EROSION AND SEDIMENTATION CONTROL DEVICES.
-INSPECT CONSTRUCTION ENTRANCES FOR SEDIMENT TRACKING ONTO PUBLIC STREETS.
-RECORD RECOMMENDED REPAIRS AND MODIFICATIONS TO EROSION AND SEDIMENT CONTROLS.
-RECOMMEND ANY NECESSARY CHANGES TO THIS SWPPP.
-RECORD REPAIRS AND MODIFICATIONS IMPLEMENTED SINCE PREVIOUS INSPECTIONS.
-INSPECT THE ADJACENT STREETS AND CURB AND GUTTER FOR SEDIMENT, LITTER, AND CONSTRUCTION DEBRIS.

THE GC MUST UPDATE THE SWPPP, INCLUDING THE JOBSITE BINDER AND SITE MAPS, TO REFLECT THE PROGRESS OF CONSTRUCTION ACTIVITIES AND GENERAL CHANGES TO THE PROJECT SITE. UPDATES SHALL BE MADE DAILY TO TRACK PROGRESS WHEN ANY OF THE FOLLOWING ACTIVITIES OCCUR: BMP INSTALLATION, MODIFICATION OR REMOVAL, CONSTRUCTION ACTIVITIES (E.G. PAVING, SEWER INSTALLATION, ETC), CLEARING, GRUBBING, GRADING, OR TEMPORARY AND PERMANENT STABILIZATION.

THE CONTRACTOR MAY UPDATE OR MODIFY THE SWPPP WITHOUT ENGINEER APPROVAL IN AN EMERGENCY SITUATION TO PREVENT SEDIMENT DISCHARGE OR PROTECT WATER QUALITY. THE CONTRACTOR IS ULTIMATELY RESPONSIBLE TO ENSURE COMPLIANCE WITH THE PERMIT AND PROTECTION OF DOWNSTREAM WATER QUALITY.

WENCK logo and contact information: Responsive partner. Exceptional outcomes. 7500 OLSON MEMORIAL HWY SUITE 300 GOLDEN VALLEY, MN 55427 PHONE: 763-252-6800 FAX: 952-831-1268 WWW.WENCK.COM

Coon Creek Watershed District logo and address: 13632 VANBUREN STREET NE HAM LAKE, MN 55304 PHONE: 763-755-0975 WWW.COONCREEKWID.ORG

PROJECT TITLE: WOODCREST POND BIOCHAR- AND IRON-ENHANCED SAND FILTER COON RAPIDS ANOKA COUNTY

Table with columns: DATE, DESCRIPTION, ISSUE NO., and rows for construction plans.

CERTIFICATION: 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. ED MATTHIESSEN LICENSE NO.: 16800 DATE: 8/26/2019 PROJECT NO.: 1239-0100

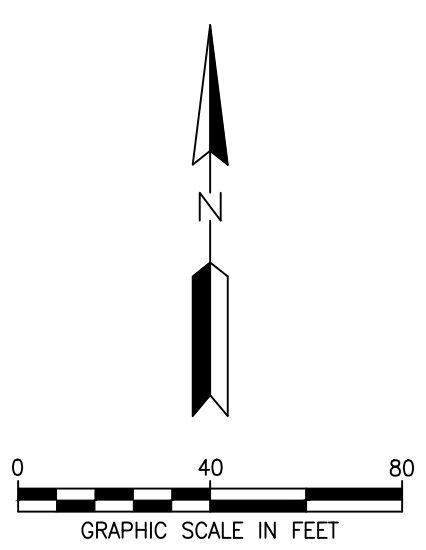
Table with columns: DWN BY, CHKD BY, APPD BY, ISSUE DATE, and rows for BMB, ERM, EAM.

SHEET TITLE: SWPPP SHEET NO.: C-100



EXISTING CONDITIONS

- — — — — PROPERTY LINE
- — — — — CONSTRUCTION LIMITS
- 901 --- EXISTING MINOR CONTOUR
- 900 --- EXISTING MAJOR CONTOUR
- — — — — EXISTING CURB AND GUTTER
- — — — — EXISTING EDGE OF PAVEMENT
- — — — — EXISTING TREE LINE
- x — x — EXISTING CYCLONE FENCE
- — — — — EXISTING FRISBEE GOLF POST
- — — — — EXISTING FRISBEE GOLF TEE BOX
- — — — — EXISTING STORM SEWER
- — — — — EXISTING SANITARY SEWER
- F/O — F/O — EXISTING CENTURYLINK FIBER OPTIC
- — — — — EXISTING WATER MAIN
- — — — — EXISTING CENTERPOINT ENERGY GAS
- — — — — EXISTING FLARED END SECTION
- — — — — EXISTING STRUCTURE
- — — — — EXISTING SANITARY MANHOLE
- — — — — EXISTING HYDRANT
- — — — — EXISTING LIGHT POLE
- — — — — EXISTING TREE
- — — — — EXISTING BOLLARD/POST



GENERAL NOTES

1. EXISTING CONDITIONS SHOWN ARE FROM A TOPOGRAPHIC SURVEY COMPLETED BY WENCK ASSOCIATES DATED APRIL 29, 2019. EXISTING FEATURES MAY NOT BE EXACT TO THEIR LOCATION. CONTRACTOR RESPONSIBLE FOR VERIFYING THE CONDITIONS OF THE SITE AND MUST IMMEDIATELY NOTIFY THE ENGINEER OF DISCREPANCIES OR VARIATIONS FROM THE DRAWINGS.
2. SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF C/ASCE 38-2 ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA". EXACT LOCATION/DEPTH OF SUBSURFACE UTILITIES SUCH AS GAS, TELEPHONE, FIBER OPTIC, SEWER, WATER, PIPELINES, ELECTRICAL, AND CABLE TV ARE UNKNOWN AND THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE.
3. CONTRACTOR RESPONSIBLE FOR CONTACTING GOPHER STATE ONE CALL (1-800-252-1166) A MINIMUM OF 48 HOURS IN ADVANCE (EXCLUDING HOLIDAYS AND WEEKENDS) BEFORE STARTING WORK FOR LOCATIONS OF UNDERGROUND UTILITIES.
4. QUANTITIES ARE APPROXIMATE, AND MAY VARY TO ALLOW COMPLETION OF WORK.
5. WORK AND MATERIALS MUST COMPLY WITH CITY, COUNTY, STATE, AND FEDERAL (INCLUDING OSHA) REGULATIONS AND CODES.
6. CONTRACTOR SHALL COORDINATE AND MAINTAIN STORMWATER DRAINAGE CONVEYANCE THROUGHOUT CONSTRUCTION (BOTH PIPED AND OVERLAND FLOW).
7. CONTRACTOR SHALL PRESERVE AND PROTECT EXISTING PAVEMENT, SITE FEATURES, UTILITIES, TREES, ETC., UNLESS NOTED OR SHOWN OTHERWISE.
8. EXISTING PAVEMENT AND SITE CONDITIONS HAVE BEEN DOCUMENTED AND ANY DAMAGE TO THE EXISTING PAVEMENT, CURBING, STRIPING, OR OTHER SITE FEATURE TO REMAIN MUST BE REPLACED BY THE CONTRACTOR, TO OWNER'S SATISFACTION, AT NO ADDITIONAL COST TO THE OWNER.
9. CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO AVOID PROPERTY DAMAGE TO ADJACENT PROPERTIES DURING CONSTRUCTION AND WILL BE HELD SOLELY RESPONSIBLE FOR ANY DAMAGES.
10. CONTRACTOR MUST IMMEDIATELY NOTIFY THE OWNER AND ENGINEER OF DISCREPANCIES OR CONFLICTS IN THE CONTRACT DOCUMENTS BEFORE COMMENCING WORK. NO FIELD CHANGES OR DEVIATIONS ARE TO BE MADE WITHOUT PRIOR APPROVAL FROM THE OWNER AND ENGINEER. FAILURE TO NOTIFY OWNER AND ENGINEER OF AN IDENTIFIABLE CONFLICT BEFORE PROCEEDING WITH INSTALLATION RELIEVES OWNER OF ANY OBLIGATION TO PAY FOR A RELATED CHANGE ORDER.
11. CONTRACTOR SHALL HAVE ONE COPY OF EACH REQUIRED CONSTRUCTION PERMIT AND ONE COPY OF THE MOST CURRENT AND COMPLETE SET OF CONSTRUCTION DOCUMENTS (INCLUDING PLANS, SPECIFICATIONS, GEOTECHNICAL REPORT AND SPECIAL CONDITIONS AND PROVISIONS) AVAILABLE AT THE PROJECT SITE AT ALL TIMES.
12. CONTRACTOR SHALL PLAN FOR AND ENSURE PERSONNEL COMPLY WITH BASIC PROVISIONS OF OSHA SAFETY AND HEALTH STANDARDS (29 CFR 1910) AND GENERAL CONSTRUCTION STANDARDS (29 CFR 1926) AS APPROPRIATE.
13. CONTRACTOR SHALL BE RESPONSIBLE FOR INITIATING, MAINTAINING, AND SUPERVISING SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH WORK. CONTRACTOR SHALL TAKE NECESSARY PRECAUTIONS FOR SAFETY OF EMPLOYEES ON PROJECT SITE AND OTHER PERSONS AND ORGANIZATIONS WHO MAY BE AFFECTED BY THE PROJECT. CONTRACTOR'S DUTIES AND RESPONSIBILITIES FOR SAFETY IN CONNECTION WITH WORK SHALL CONTINUE UNTIL SUCH TIME AS ALL WORK IS COMPLETED, AND ENGINEER HAS ISSUED NOTICE TO CONTRACTOR THAT WORK IS COMPLETE.

HORIZONTAL AND VERTICAL CONTROL NOTES

1. HORIZONTAL DATUM: ANOKA COUNTY COORDINATE SYSTEM NAD83(11)
2. VERTICAL DATUM: NAVD88
3. BENCHMARK: MNDOT CONTROL STATION BR02031 ELEVATION=902.09'

WARNING:

THE CONTRACTOR SHALL BE RESPONSIBLE FOR CALLING FOR LOCATIONS OF ALL EXISTING UTILITIES. THEY SHALL COOPERATE WITH ALL UTILITY COMPANIES IN MAINTAINING THEIR SERVICE AND/OR RELOCATION OF LINES.

THE CONTRACTOR SHALL CONTACT GOPHER STATE ONE CALL AT 651-454-0002 AT LEAST 48 HOURS IN ADVANCE FOR THE LOCATIONS OF ALL UNDERGROUND WIRES, CABLES, CONDUITS, PIPES, MANHOLES, VALVES OR OTHER BURIED STRUCTURES BEFORE DIGGING. THE CONTRACTOR SHALL REPAIR OR REPLACE THE ABOVE WHEN DAMAGED DURING CONSTRUCTION AT NO COST TO THE OWNER.

CALL BEFORE YOU DIG

GOPHER STATE ONE CALL
 TWIN CITY AREA: 651-454-0002
 TOLL FREE 1-800-252-1166

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GOLDEN VALLEY, MN 55427
PHONE: 763-252-6800
FAX: 952-831-1268
WWW.WENCK.COM

CLIENT:

13632 VANBUREN STREET NE
HAM LAKE, MN 55304
PHONE: 763-755-0975
WWW.COONCREEKWD.ORG

PROJECT TITLE:
**WOODCREST POND BIOCHAR-
AND IRON-ENHANCED SAND
FILTER
COON RAPIDS
ANOKA COUNTY**

DATE:	DESCRIPTION:	ISSUE NO.:
8/26/2019	CONSTRUCTION PLANS	1

CERTIFICATION:
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Ed Mathiesen
ED MATHIESEN
LICENSE NO.: 16800
DATE: 8/26/2019

PROJECT NO.: 1239-0100

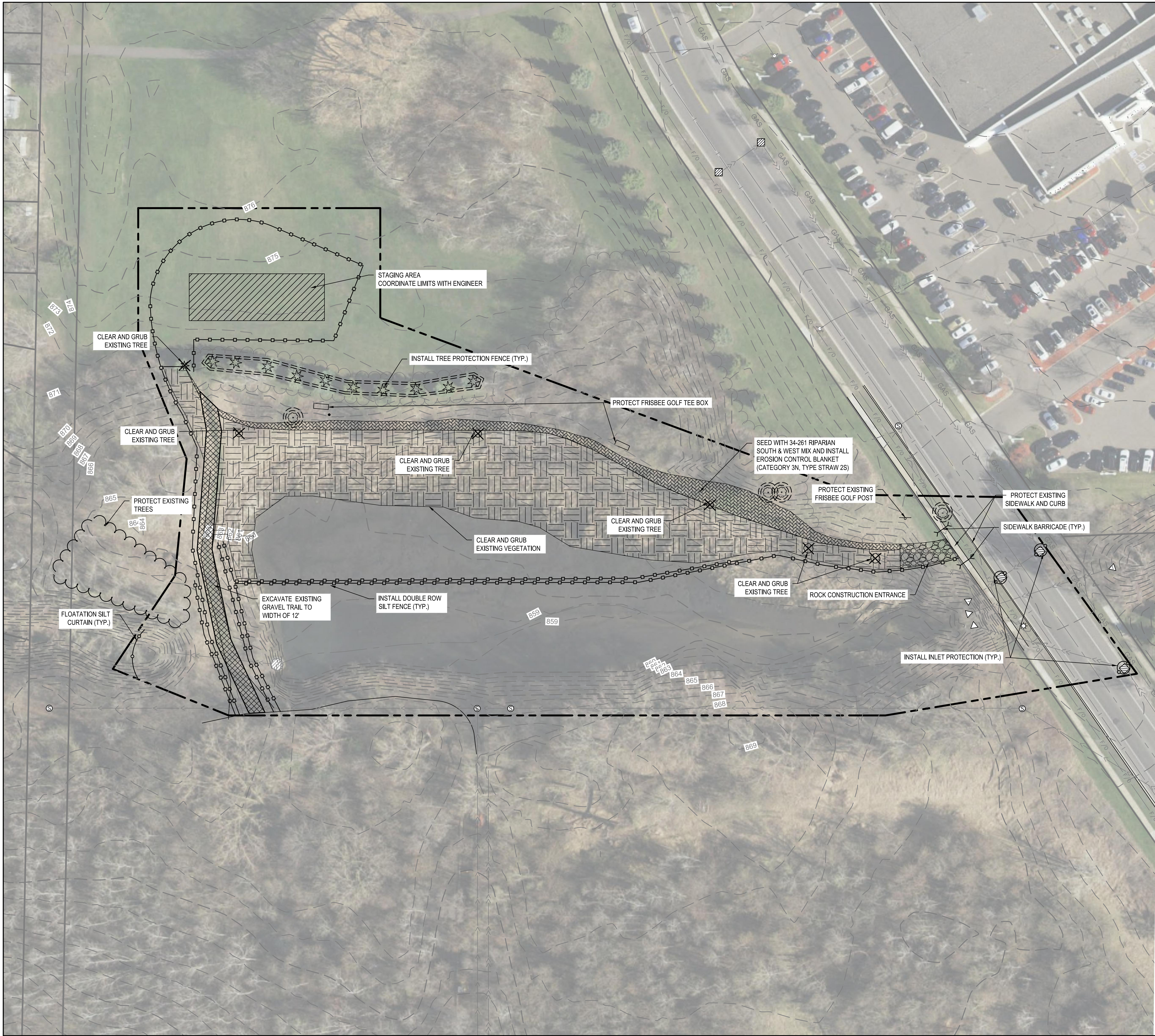
DWN BY:	CHK'D BY:	APP'D BY:
BMB	ERM	EAM

ISSUE DATE: 8/26/2019

ISSUE NO.: 1

SHEET TITLE:
EXISTING CONDITIONS

SHEET NO.:
C-101



EROSION CONTROL AND DEMOLITION LEGEND

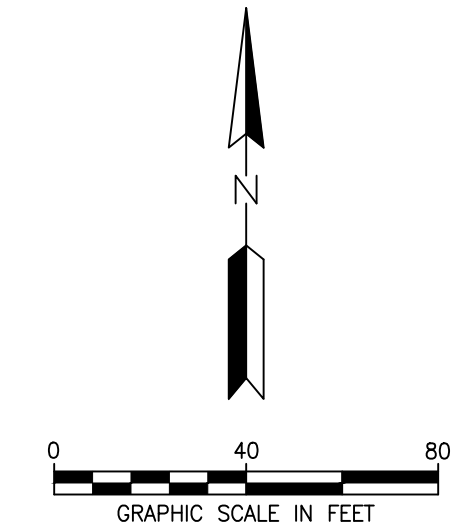
- — — — — PROPERTY LINE
- — — — — LIMITS OF CONSTRUCTION
- - - - - 901 - - - - - EXISTING MINOR CONTOUR
- - - - - 900 - - - - - EXISTING MAJOR CONTOUR
- □ — □ — SILT FENCE
- ○ — ○ — FLOATATION SILT CURTAIN
- INLET PROTECTION
- ▨ ROCK CONSTRUCTION ENTRANCE
- ▩ EROSION CONTROL BLANKET (CATEGORY 3N, TYPE STRAW 2S) WITH 34-261 RIPARIAN SOUTH & WEST MIX
- ▧ CLEAR AND GRUB CONSTRUCTION ACCESS AREA
- ▣ EXCAVATE EXISTING GRAVEL TRAIL
- TREE PROTECTION
- ✖ REMOVED TREE WITH NO MITIGATION REQUIRED
- |— SIDEWALK BARRICADE
- |— EXISTING CURB AND GUTTER
- |— EXISTING EDGE OF PAVEMENT
- |— EXISTING TREE LINE
- x — x — EXISTING CYCLONE FENCE
- |— EXISTING FRISBEE GOLF POST
- |— EXISTING FRISBEE GOLF TEE BOX
- |— EXISTING STORM SEWER
- |— EXISTING SANITARY SEWER
- F/O — F/O — EXISTING CENTURYLINK FIBER OPTIC
- |— EXISTING WATER MAIN
- GAS — EXISTING CENTERPOINT ENERGY GAS
- △ EXISTING FLARED END SECTION
- ▨ EXISTING STRUCTURE
- EXISTING SANITARY MANHOLE
- EXISTING HYDRANT
- EXISTING LIGHT POLE
- EXISTING TREE
- EXISTING BOLLARD/POST

- NOTE:**
- CONTRACTOR TO ENSURE ALL AREAS RECEIVING CONSTRUCTION STORMWATER RUNOFF TO BE PROTECTED PER NPDES PERMIT.
 - SIDEWALK TO BE CLOSED DURING CONSTRUCTION. CONTRACTOR TO PROVIDE SIDEWALK DETOUR.
 - STREET SWEEPING SHALL TAKE PLACE AS NEEDED, AND AT THE DIRECTION/REQUEST OF THE CITY.
 - PROTECT EXISTING TREES THAT ARE NOT REMOVED. INSTALL ORANGE MESH FENCING, 4 FEET HIGH, WITH STAKES EVERY 10 FEET, 5 FEET OUTSIDE OF THE DRIPLINE OF ALL PRESERVED TREES. DO NOT PERFORM ACTIONS WITHIN THE PROTECTED AREA THAT MAY HARM THE TREE AND COMPACT THE SOIL, INCLUDING, BUT NOT LIMITED TO, EXCAVATION, STORING MATERIALS, PARKING AND TRAFFIC DURING CONSTRUCTION. WHERE CONSTRUCTION REQUIRES DISTURBANCE WITHIN THE PROTECTED AREAS, DISTURB THE ROOT ZONE AS LITTLE AS POSSIBLE. ALL TREE PROTECTION MEASURES SHALL BE DIRECTED AND VERIFIED BY OWNER AND ENGINEER PRIOR TO STARTING CONSTRUCTION.
 - ALL TREE PROTECTION FENCING MUST BE IN PLACE PRIOR TO BEGINNING CONSTRUCTION AND TREE REMOVALS.
 - OAK TREES SHALL BE PROTECTED WITH CONSTRUCTION FENCING A MINIMUM DISTANCE EQUAL TO 1.5 FEET TIMES THE TREE DIAMETER IN INCHES AT 4.5 FEET ABOVE GROUND (I.E. 12 INCH DIAMETER OAK TREE WOULD HAVE FENCING PLACED A MINIMUM OF 18 FOOT RADIUS AROUND THE TREE).
 - WHEN TREE ROOTS ARE ENCOUNTERED THAT MUST BE REMOVED, CUT ROOTS CLEANLY AS FAR FROM THE TREE AS POSSIBLE AND IMMEDIATELY WATER AND BACKFILL OVER THE ROOTS TO PREVENT DRYING.
 - WATER IN WOODCREST POND WILL BE DRAWN DOWN BY CITY (OR WATERSHED DISTRICT) BY OPENING THE DOWNSTREAM SLUICE GATE. SOME STANDING WATER MAY BE PRESENT AND INFLOW WATER MAY CONTINUE INTO THE POND. CONTRACTOR SHALL DEWATER AS NECESSARY FOR CONSTRUCTION.

WARNING:
 THE CONTRACTOR SHALL BE RESPONSIBLE FOR CALLING FOR LOCATIONS OF ALL EXISTING UTILITIES. THEY SHALL COOPERATE WITH ALL UTILITY COMPANIES IN MAINTAINING THEIR SERVICE AND/OR RELOCATION OF LINES.

THE CONTRACTOR SHALL CONTACT GOPHER STATE ONE CALL AT 651-454-0002 AT LEAST 48 HOURS IN ADVANCE FOR THE LOCATIONS OF ALL UNDERGROUND WIRES, CABLES, CONDUITS, PIPES, MANHOLES, VALVES OR OTHER BURIED STRUCTURES BEFORE DIGGING. THE CONTRACTOR SHALL REPAIR OR REPLACE THE ABOVE WHEN DAMAGED DURING CONSTRUCTION AT NO COST TO THE OWNER.

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 WWW.WENCK.COM

CLIENT:

13632 VANBUREN STREET NE
 HAM LAKE, MN 55304
 PHONE: 763-755-0975
 WWW.COONCREEKWD.ORG

PROJECT TITLE:
**WOODCREST POND BIOCHAR-
 AND IRON-ENHANCED SAND
 FILTER**
 COON RAPIDS
 ANOKA COUNTY

ISSUE NO.	DESCRIPTION	DATE
1	CONSTRUCTION PLANS	8/26/2019

CERTIFICATION:
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[Signature]
 ED MATTHIASEN
 LICENSE NO.: 16800
 DATE: 8/26/2019

PROJECT NO.: 1239-0100

DWN BY: BMB CHK'D BY: ERM APP'D BY: EAM
 ISSUE DATE: 8/26/2019

ISSUE NO.: 1

SHEET TITLE:
**PRE CONSTRUCTION
 EROSION CONTROL AND
 DEMOLITION PLANS**

SHEET NO.:
C-201



Responsive partner. Exceptional outcomes.

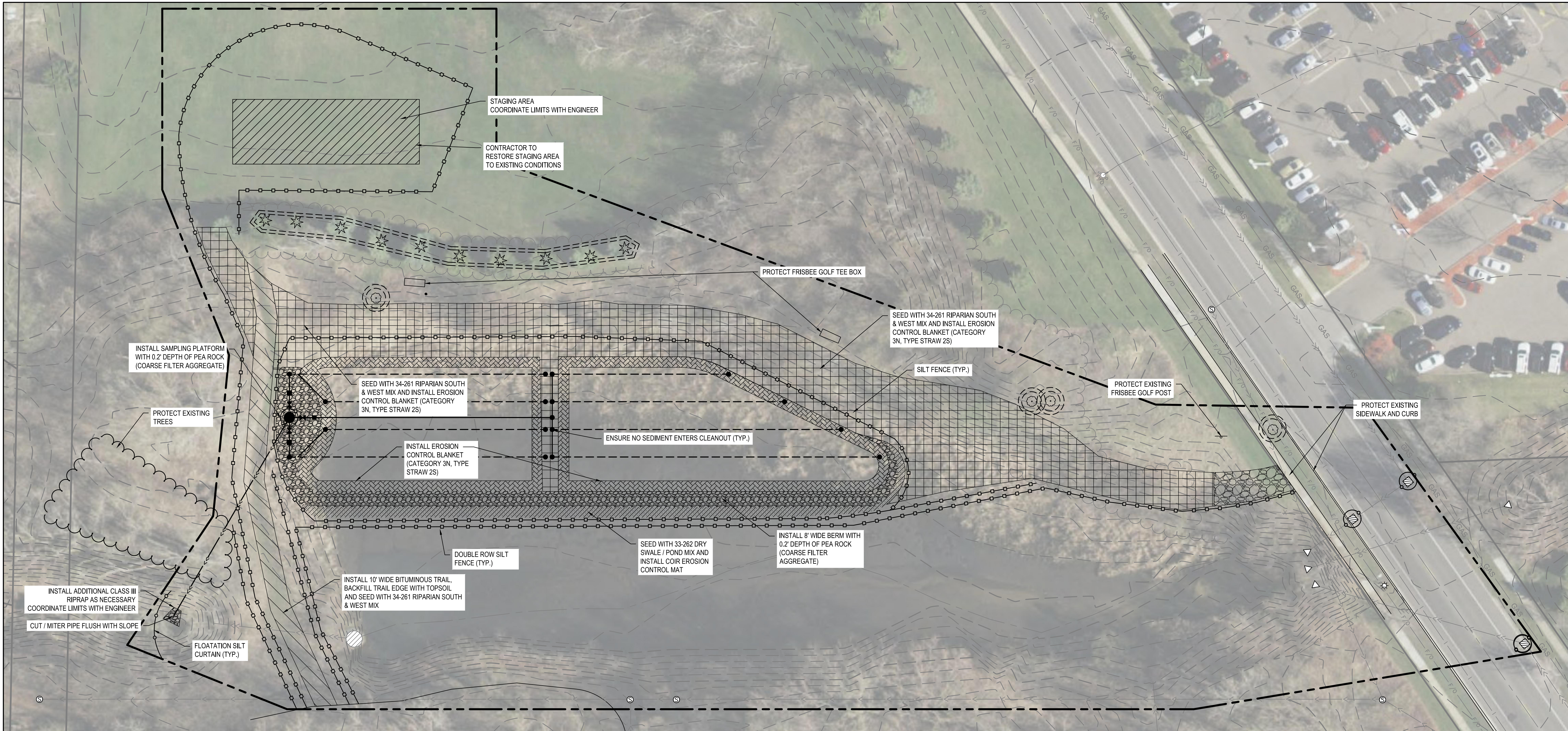
7500 OLSON MEMORIAL HWY SUITE 300 GOLDEN VALLEY, MN 55427 PHONE: 763-252-6800 FAX: 952-831-1268 WWW.WENCK.COM

CLIENT:



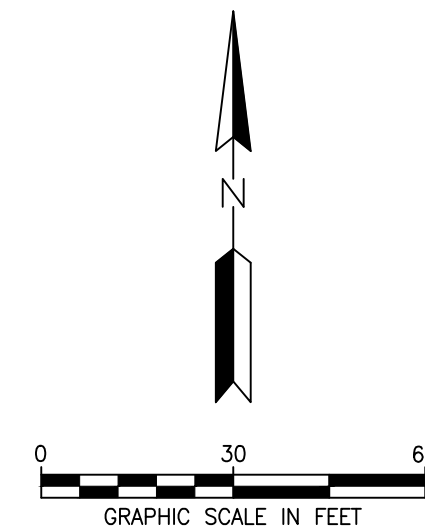
13632 VANBUREN STREET NE HAM LAKE, MN 55304 PHONE: 763-755-0975 WWW.COONCREEKWD.ORG

WOODCREST POND BIOCHAR- AND IRON-ENHANCED SAND FILTER COON RAPIDS ANOKA COUNTY



EROSION CONTROL AND DEMOLITION LEGEND

- LIMITS OF CONSTRUCTION
- EXISTING MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- SILT FENCE
- FLOATATION SILT CURTAIN
- INLET PROTECTION
- ROCK CONSTRUCTION ENTRANCE
- EROSION CONTROL BLANKET (CATEGORY 3N, TYPE STRAW 2S) WITH 34-261 RIPARIAN SOUTH & WEST MIX
- EROSION CONTROL BLANKET (CATEGORY 3N, TYPE STRAW 2S) WITHOUT SEED
- COIR EROSION CONTROL MAT WITH 33-262 DRY SWALE / POND MIX
- PROPOSED BITUMINOUS TRAIL
- TREE PROTECTION



- GENERAL NOTES:**
- CONTRACTOR TO ENSURE ALL AREAS RECEIVING CONSTRUCTION STORMWATER RUNOFF TO BE PROTECTED PER NPDES PERMIT.
 - AFTER INITIAL GRADING COMPLETELY SURROUND BIOCHAR- AND IRON-ENHANCED SAND FILTER WITH HAND PLACED SILT FENCE TO PREVENT SEDIMENT FROM ENTERING AND CLOGGING.
 - CONTRACTOR TO ENSURE NO SEDIMENT ENTERS CLEANOUTS OR SAMPLE PORTS. IF SEDIMENT ENTERS CLEANOUTS OR SAMPLE PORTS, CONTRACTOR IS RESPONSIBLE FOR REMOVAL OF SEDIMENT.
 - CONTRACTOR TO ENSURE NO SEDIMENT ENTERS THE BIOCHAR- AND IRON-ENHANCED SAND FILTERS. IF SEDIMENT ENTERS THE FILTERS, CONTRACTOR IS RESPONSIBLE FOR REMOVAL OF SEDIMENT.
 - PROTECT EXISTING TREES THAT ARE NOT REMOVED. INSTALL ORANGE MESH FENCING, 4 FEET HIGH, WITH STAKES EVERY 10 FEET, 5 FEET OUTSIDE OF THE DRIPLINE OF ALL PRESERVED TREES. DO NOT PERFORM ACTIONS WITHIN THE PROTECTED AREA THAT MAY HARM THE TREE AND COMPACT THE SOIL, INCLUDING, BUT NOT LIMITED TO, EXCAVATION, STORING MATERIALS, PARKING AND TRAFFIC DURING CONSTRUCTION. WHERE CONSTRUCTION REQUIRES DISTURBANCE WITHIN THE PROTECTED AREAS, DISTURB THE ROOT ZONE AS LITTLE AS POSSIBLE. ALL TREE PROTECTION MEASURES SHALL BE DIRECTED AND VERIFIED BY OWNER AND ENGINEER PRIOR TO STARTING CONSTRUCTION.
 - ALL TREE PROTECTION FENCING MUST BE IN PLACE PRIOR TO BEGINNING CONSTRUCTION AND TREE REMOVALS.
 - OAK TREES SHALL BE PROTECTED WITH CONSTRUCTION FENCING A MINIMUM DISTANCE EQUAL TO 1.5 FEET TIMES THE TREE DIAMETER IN INCHES AT 4.5 FEET ABOVE GROUND (I.E. 12 INCH DIAMETER OAK TREE WOULD HAVE FENCING PLACED A MINIMUM OF 18 FOOT RADIUS AROUND THE TREE).
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 - WATER IN WOODCREST POND WILL BE DRAWN DOWN BY CITY (OR WATERSHED DISTRICT) BY OPENING THE DOWNSTREAM SLUICE GATE. SOME STANDING WATER MAY BE PRESENT AND INFLOW WATER MAY CONTINUE INTO THE POND. CONTRACTOR SHALL DEWATER AS NECESSARY FOR CONSTRUCTION.

- TRAIL SURFACING NOTES:**
- EXCAVATE TRAIL TO A WIDTH OF 12 FEET (70 CY).
 - HAUL IN RECLAIM GRAVEL FROM CITY PUBLIC WORKS (40 CY)
 - INSTALL 10 FOOT WIDE TRAIL.
 - 4 INCHES OF GRAVEL AGGREGATE BASE.
 - 2 INCHES OF BITUMINOUS WEAR SURFACING.
 - TAMP EDGES OF BITUMINOUS SURFACE.
 - BACKFILL TRAIL EDGE WITH TOPSOIL.
 - SEED WITH 34-261 RIPARIAN SOUTH & WEST MIX.

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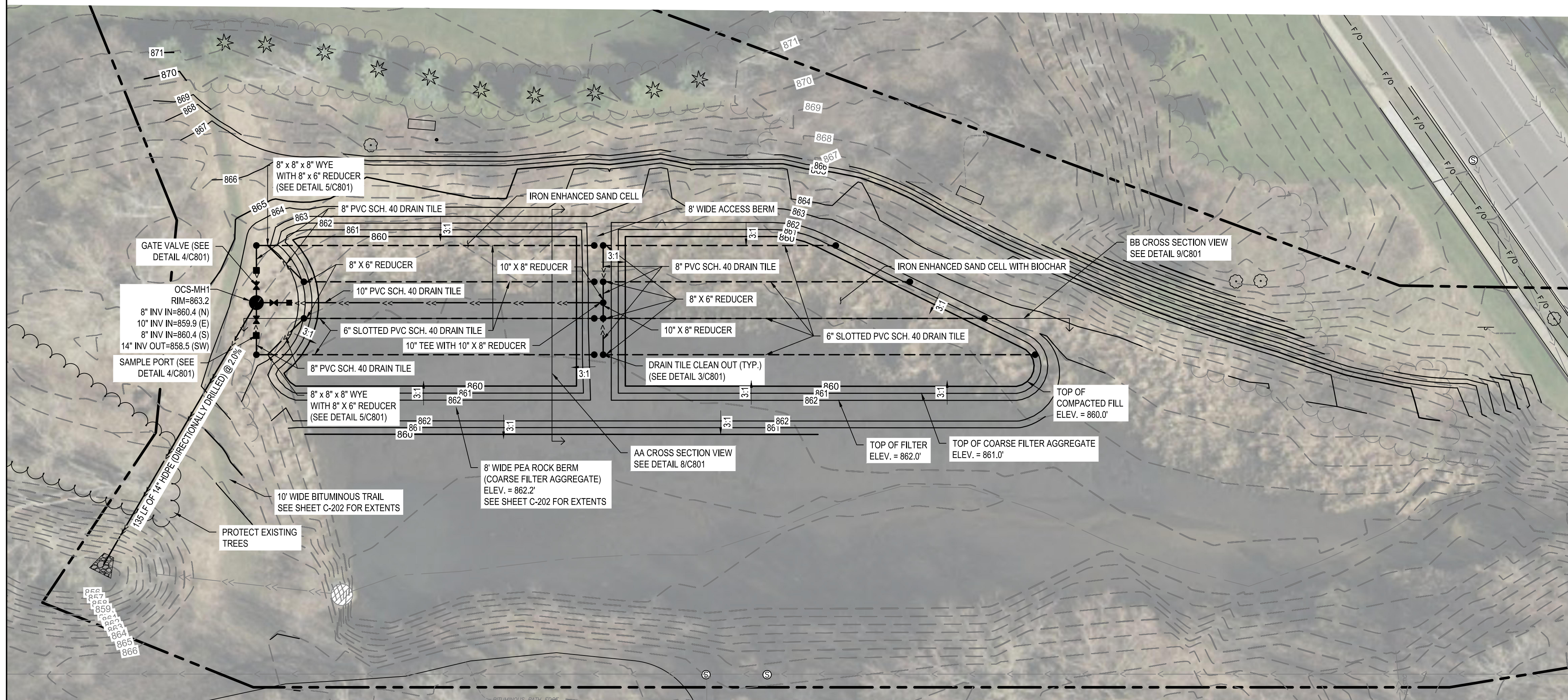
DESCRIPTION	DATE	ISSUE NO.
CONSTRUCTION PLANS	8/26/2019	1

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Ed Matthesen
ED MATTHESEN
LICENSE NO.: 16800
DATE: 8/26/2019

PROJECT NO.: 1239-0100
DWN BY: BMB CHKD BY: ERM APP'D BY: EAM
ISSUE DATE: 8/26/2019
ISSUE NO.: 1

SHEET TITLE: POST CONSTRUCTION EROSION CONTROL PLAN
SHEET NO.: **C-202**

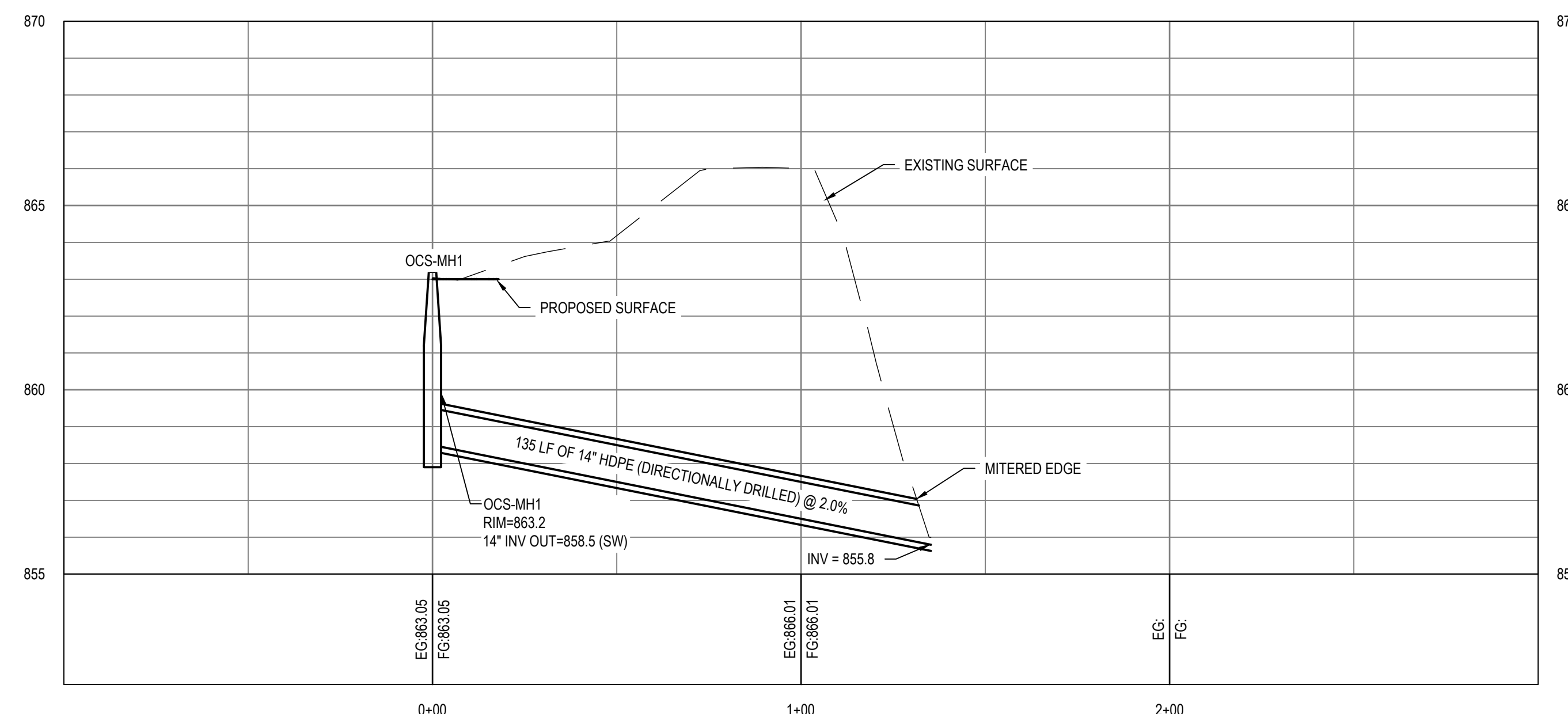


GRADING AND UTILITY LEGEND

- LIMITS OF CONSTRUCTION
- SOLID DRAIN TILE
- PERFORATED DRAIN TILE
- 9XX EXISTING CONTOUR
- 9XX PROPOSED CONTOUR
- PROPOSED STORM SEWER
- PROPOSED CATCH BASIN
- PROPOSED MANHOLE
- PROPOSED DRAIN TILE SAMPLE PORT
- PROPOSED DRAIN TILE CLEAN OUT
- ✕ PROPOSED GATE VALVE

- GENERAL NOTES:
- CONTOURS WITHIN THE FILTER CELLS BELOW ELEVATION 862 SHOW SLOPING OF CLAY MATERIAL. FINISHED SURFACE/TOP OF FILTERS IS 862.00.
 - SUBCUT BERM AND FILTER CONSTRUCTION AREA A MINIMUM OF 12-INCHES BELOW PROPOSED ELEVATIONS IN AREAS WHERE CONTOURS ARE 862.0 OR LESS. UNSUITABLE MATERIAL ENCOUNTERED AT THE BASE OF THE EXCAVATION SHALL BE SUBCUT AS DIRECTED BY THE ENGINEER AND REPLACED WITH ON-SITE SUITABLE CLAY MATERIAL OR IMPORTED CLAY FILL (IF NECESSARY). FOLLOWING ANY REQUIRED SOIL REPLACEMENT, THE BASE OF THE EXCAVATION SHALL BE SCARIFIED AND RECOMPACTED. THE COMPLETED BASE GRADE MUST BE APPROVED BY THE ENGINEER PRIOR TO ON-SITE OR IMPORTED CLAY FILL PLACEMENT.

STORM SEWER PROFILE VIEW



WARNING:

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THE CONTRACTOR SHALL CONTACT GOPHER STATE ONE CALL AT 651-454-0002 AT LEAST 48 HOURS IN ADVANCE FOR THE LOCATIONS OF ALL UNDERGROUND WIRES, CABLES, CONDUITS, PIPES, MANHOLES, VALVES OR OTHER BURIED STRUCTURES BEFORE DIGGING. THE CONTRACTOR SHALL REPAIR OR REPLACE THE ABOVE WHEN DAMAGED DURING CONSTRUCTION AT NO COST TO THE OWNER.

CALL BEFORE YOU DIG

GOPHER STATE ONE CALL

TWIN CITY AREA: 651-454-0002
TOLL FREE 1-800-252-1166

DATE	DESCRIPTION	ISSUE NO.
8/26/2019	CONSTRUCTION PLANS	1

CERTIFICATION:
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.

Ed Mathiesen
ED MATHIESEN

LICENSE NO.: 16800
DATE: 8/26/2019

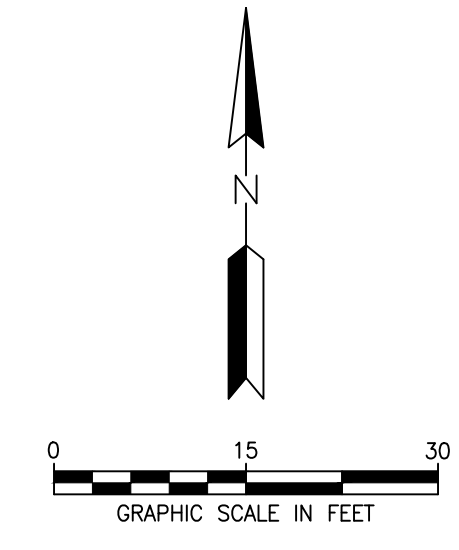
PROJECT NO.: 1239-0100

DWN BY: BMB CHKD BY: ERM APP'D BY: EAM
ISSUE DATE: 8/26/2019

ISSUE NO.: 1

SHEET TITLE:
GRADING AND UTILITY PLAN

SHEET NO.:
C-301



GRADING AND UTILITY LEGEND

- LIMITS OF CONSTRUCTION
- > SOLID DRAIN TILE
- - - PERFORATED DRAIN TILE
- - - 9XX EXISTING CONTOUR
- 9XX PROPOSED CONTOUR
- > PROPOSED STORM SEWER
- PROPOSED CATCH BASIN
- PROPOSED MANHOLE
- PROPOSED DRAIN TILE SAMPLE PORT
- PROPOSED DRAIN TILE CLEAN OUT
- ◀ PROPOSED GATE VALVE

GENERAL NOTES:
 1. CONTOURS WITHIN THE FILTER CELLS BELOW ELEVATION 862 SHOW SLOPING OF CLAY MATERIAL. FINISHED SURFACE/TOP OF FILTERS IS 862.00.

Responsive partner.
 Exceptional outcomes.

7500 OLSON MEMORIAL HWY
 SUITE 300
 GOLDEN VALLEY, MN 55427
 PHONE: 763-252-6800
 FAX: 952-831-1268
 WWW.WENCK.COM

CLIENT:

13632 VANBUREN STREET NE
 HAM LAKE, MN 55304
 PHONE: 763-755-0975
 WWW.COONCREEKWD.ORG

PROJECT TITLE:
**WOODCREST POND BIOCHAR-
 AND IRON-ENHANCED SAND
 FILTER**
 COON RAPIDS
 ANOKA COUNTY

ISSUE NO.	DESCRIPTION	DATE
1	CONSTRUCTION PLANS	8/26/2019

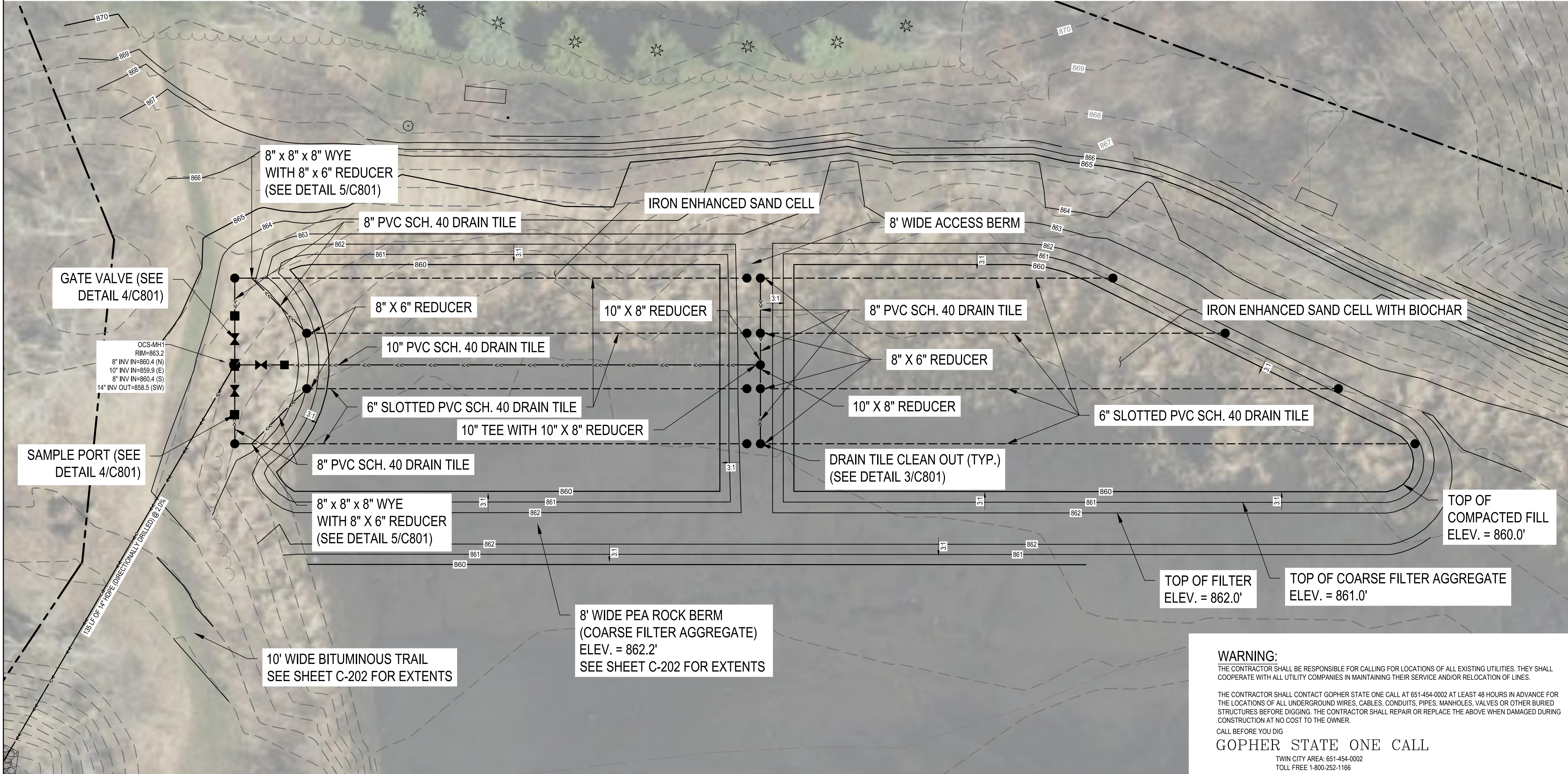
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 LICENSE NO.: 16800
 DATE: 8/26/2019

PROJECT NO.: 1239-0100

DWN BY: BMB	CHK'D BY: ERM	APP'D BY: EAM
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ISSUE DATE: 8/26/2019
 ISSUE NO.: 1
 SHEET TITLE:
**IRON-ENHANCED SAND
 FILTER PLAN**
 SHEET NO.:
C-302



WARNING:
 THE CONTRACTOR SHALL BE RESPONSIBLE FOR CALLING FOR LOCATIONS OF ALL EXISTING UTILITIES. THEY SHALL COOPERATE WITH ALL UTILITY COMPANIES IN MAINTAINING THEIR SERVICE AND/OR RELOCATION OF LINES.

THE CONTRACTOR SHALL CONTACT GOPHER STATE ONE CALL AT 651-454-0002 AT LEAST 48 HOURS IN ADVANCE FOR THE LOCATIONS OF ALL UNDERGROUND WIRES, CABLES, CONDUITS, PIPES, MANHOLES, VALVES OR OTHER BURIED STRUCTURES BEFORE DIGGING. THE CONTRACTOR SHALL REPAIR OR REPLACE THE ABOVE WHEN DAMAGED DURING CONSTRUCTION AT NO COST TO THE OWNER.

CALL BEFORE YOU DIG
GOPHER STATE ONE CALL
 TWIN CITY AREA: 651-454-0002
 TOLL FREE 1-800-252-1166

8' WIDE PEA ROCK BERM
 (COARSE FILTER AGGREGATE)
 ELEV. = 862.2'
 SEE SHEET C-202 FOR EXTENTS

10' WIDE BITUMINOUS TRAIL
 SEE SHEET C-202 FOR EXTENTS

TOP OF FILTER
 ELEV. = 862.0'

TOP OF COARSE FILTER AGGREGATE
 ELEV. = 861.0'

TOP OF
 COMPACTED FILL
 ELEV. = 860.0'

8" x 8" x 8" WYE
 WITH 8" x 6" REDUCER
 (SEE DETAIL 5/C801)

8" x 8" x 8" WYE
 WITH 8" x 6" REDUCER
 (SEE DETAIL 5/C801)

GATE VALVE (SEE
 DETAIL 4/C801)

OCS-MH1
 RIM=863.2
 8" INV IN=860.4 (N)
 10" INV IN=859.9 (E)
 8" INV IN=860.4 (S)
 14" INV OUT=858.5 (SW)

SAMPLE PORT (SEE
 DETAIL 4/C801)

135' LP OF 14" DPE (DIRECTIONALLY DRILLED) @ 2.0%

CASTING - NEENAH FOUNDRY NO. R-1733 SERIES MANHOLE FRAME OR APPROVED EQUAL. CASTING & RINGS TO HAVE INFI-SHIELD INSTALLED.

COVER - ESS BROTHER 301-CP LID, OR EQUAL WITH RUBBER GASKET ON THE BOTTOM OF THE LID.

NEENAH R1733-5044 NEENAH R1733-5044

NOTE: ALL LIDS MUST HAVE RUBBER GASKET ON THE BOTTOM OF THE LID.

COON RAPIDS STANDARD MANHOLE CASTINGS

DATE: 2/27/2018 SCALE: NONE PLATE NO: STM-6

STANDARD CASTING

CONCRETE ADJUSTMENT RINGS MIN. 2, MAX. 5

GROUT RINGS (1/4" MIN.) AND WRAP WITH FABRIC FOR STORM SEWER AND INFI-SHIELD FOR SANITARY SEWER.

SLAB TOP TYPE 2 OR APPROVED EQUAL

STEPS-DOWNSTREAM SIDE OF STRUCTURE

PRECAST CONCRETE SECTIONS WITH RUBBER GASKETS (ASTM 4443)

BRICK AND GROUT

ALL PIPE LEADS SHALL EXTEND INTO STRUCTURE 6" MINIMUM.

PRECAST CONCRETE BASE

FOUR CONCRETE BOTTOM TO 1/2 PIPE

SLOPE INVERT TO PROVIDE SMOOTH FLOW TO OUTLET 0.05" MIN. FALL

6" MIN. (PER MNDOT DETAIL 401E).

NOTES:

- THIS TYPE SHALL BE USED WHEN SPECIFIED OR WHEN MANHOLE DEPTH IS LESS THAN 6"
- SLOPE BENCH TO INVERT. TOP OF BENCH TO BE AT HALF THE HEIGHT OF DOWN STREAM PIPE DIAMETER. (DO NOT ADD FILTERS BEFORE POURING BENCH)
- FILL VOID BETWEEN STRUCTURE AND PIPE WITH BRICK AND GROUT BETWEEN THEM AND ACROSS THE FACE. CONTRACTOR SHALL USE "SPECIAL UNDERGROUND UTILITY MORTAR". (SEE SPECIFICATION 9.05)
- STRUCTURE TO BE PRECAST UNLESS APPROVED BY CITY ENGINEER.

COON RAPIDS SLAB TOP MANHOLE

DATE: 1/7/2019 SCALE: NONE PLATE NO: STM-1

NOTE: FOR USE WITH BOTH STYLE OF CURB BOX

(2) HDPE INSERT BASKETS SHOWN W/OUT FILTER BAGS 400 MICRON FILTER BAGS REQUIRED INSIDE BASKETS APPROXIMATE FULL WEIGHT 45LBS/BASKET

27" HDPE FRAME INSERT

EMERGENCY OVERFLOW PORTS

MEETS MNDOT SPECIFICATION 3891.F "STORM DRAIN INLET PROTECTION-FILTER BAG INSERT" DESIGNED FOR NEENAH R-3250-A OR R-3250-1 (MNDOT 801) FRAME CASTING

GENERAL NOTES:

- PRODUCT DESIGN DOES NOT INTERFERE WITH LOAD BEARING CAPACITY OF FRAMES.
- MADE OF UV RESISTANT MATERIAL.
- DURABLE ECO-FRIENDLY HDPE PROVIDES A LIGHTWEIGHT AND STRONG PRODUCT THAT CAN EASILY BE RE-USED NEXT PROJECT.
- FLOW RATES COMPARE TO OR EXCEED FLOW RATES OF COMMONLY USED GRATES.
- BASKET DESIGN PROVIDES LARGER FILTER AREA AND PROMOTES EASY CLEANING, REDUCING OVERFLOW INSTANCES AND SEDIMENT LOAD ON THE SEWER SYSTEM.
- DESIGNED TO FIT NEENAH R-3250-1 (Mndot 801).

FILTER AREA	5.65 FT ²
OVERFLOW AREA	0.42 FT ²
MAXIMUM OVERFLOW RATE (Ø 7" HEAD)	1.99 CFS
MAXIMUM OVERFLOW RATE (Ø 13" HEAD)	2.79 CFS
BASKET WEIGHT (EMPTY)	1 LB
BASKET WEIGHT (FULL-APPROX.)	45 LBS

COON RAPIDS INFRSAFE 27" DIA. INLET PROTECTION DEVICE

DATE: 3/4/2019 SCALE: NONE PLATE NO: EC-1

STAINLESS STEEL SUPPORT FOR EXTRA STRENGTH AND DURABILITY

REUSABLE 400 MICRON FILTER BAG IN EACH BASKET

(3) INDIVIDUAL BASKETS FOR EASE OF MAINTENANCE. APPROXIMATE FULL WEIGHT 70LBS/BASKET

GENERAL NOTES:

- PRODUCT DESIGN DOES NOT INTERFERE WITH LOAD BEARING CAPACITY OF FRAMES.
- MADE OF UV RESISTANT MATERIAL.
- DURABLE ECO-FRIENDLY HDPE PROVIDES A LIGHTWEIGHT AND STRONG PRODUCT THAT CAN EASILY BE RE-USED NEXT PROJECT.
- FLOW RATES COMPARE TO OR EXCEED FLOW RATES OF COMMONLY USED GRATES.
- BASKET DESIGN PROVIDES LARGER FILTER AREA AND PROMOTES EASY CLEANING, REDUCING OVERFLOW INSTANCES AND SEDIMENT LOAD ON THE SEWER SYSTEM.
- DESIGNED TO FIT NEENAH R-3067 OR R-3290 SERIES.

FILTER AREA	6.5 FT ²
OVERFLOW AREA	0.6 FT ²
MAXIMUM OVERFLOW RATE (Ø 7" HEAD)	3.00 CFS
MAXIMUM OVERFLOW RATE (Ø 13" HEAD)	4.00 CFS
BASKET WEIGHT (EMPTY)	1 LB
BASKET WEIGHT (FULL-APPROX.)	70 LBS

COON RAPIDS INFRSAFE 2'X3' INLET PROTECTION DEVICE

DATE: 3/1/2019 SCALE: NONE PLATE NO: EC-2

NOTE: FOR PIPE SIZE GREATER THAN OR EQUAL TO 30", USE 1.5 FEET

NOTE: GEOTEXTILE FILTER BLANKET UNLESS OTHERWISE SPECIFIED IN THE PLANS. THE FABRIC SHOULD COVER THE AREA OF THE RIPRAP AND EXTEND UNDER THE FLARED END SECTION TO THE TOP OF RIPRAP.

TABLE OF QUANTITIES FOR RIPRAP (RIPRAP TO BE FIELD STONE OR GRANITE)

DIA. OF PIPE (IN.)	LENGTH (FEET)	WIDTH (FEET)	EX. WIDTH 12" DEPTH 0.1 F.F.S. (LBS.) (RIPRAP/100 LBS.)	Q. #
12	8	10	24	2.8
15	8	10.5	30	3.6
18	10	12	36	4.3
21	10	12.5	42	5.0
24	12	14	48	5.8
27	12	14.5	54	6.5
30	14	16	60	7.3
36	16	18	72	8.2
42	18	19.5	78	10.0
48	22	21	84	12.9

PIPE SIZES LARGER THAN THOSE SHOWN REQUIRE A SPECIAL DESIGN

COON RAPIDS RIPRAP DETAIL (NO MOW STRIP)

DATE: 11/28/2018 SCALE: NONE PLATE NO: STM-12

WENCK

Responsive partner. Exceptional outcomes.

7500 OLSON MEMORIAL HWY SUITE 300 GOLDEN VALLEY, MN 55427 PHONE: 763-252-6800 FAX: 952-831-1288 WWW.WENCK.COM

CLIENT:

Coon Creek Watershed District

13632 VANBUREN STREET NE HAM LAKE, MN 55304 PHONE: 763-755-0975 WWW.COONCREEKWD.ORG

1 FLOATION SILT CURTAIN NOT TO SCALE

CONNECT ADJACENT PIECES OF FLOATION SILT CURTAIN WITH 3/8" NYLON ROPE THROUGH GROMETS PER MANUFACTURER'S SPECIFICATIONS

MAX. 1' FROM STREAMBED BOTTOM TO BOTTOM OF SILT CURTAIN

PROFILE

2 SILT FENCE MACHINE SLICED NOT TO SCALE

MINIMUM EMBEDEDMENT

3 EROSION CONTROL BLANKET INSTALLATION NOT TO SCALE

ANCHOR TRENCH

- DIG 6" X 6" TRENCH
- LAY BLANKET IN TRENCH
- STAPLE AT 15" INTERVALS
- BACKFILL WITH NATURAL SOIL AND COMPACT

4 CONSTRUCTION ENTRANCE NOT TO SCALE

NOTE: FILTER FABRIC SHALL BE PLACED UNDER ROCK TO STOP MUD MIGRATION THROUGH ROCK. ENTRANCE MUST BE MAINTAINED TO PREVENT SEDIMENTATION ON PUBLIC ROADWAYS. FUGITIVE ROCKS WILL BE REMOVED FROM ADJACENT ROADWAYS DAILY OR MORE FREQUENTLY AS NECESSARY.

5 SLOPE TRACKING NOT TO SCALE

NOTE: ALL SLOPES WITH A GRADE EQUAL TO OR STEEPER THAN 3:1 REQUIRE SLOPE TRACKING. SLOPES WITH A GRADE MORE GRADUAL THAN 3:1 REQUIRE SLOPE TRACKING IF THE STABILIZATION METHOD IS EROSION CONTROL BLANKET OR HYDROMULCH.

PROJECT TITLE: WOODCREST POND BIOCHAR- AND IRON-ENHANCED SAND FILTER COON RAPIDS ANOKA COUNTY

ISSUE NO.: 1

DESCRIPTION: CONSTRUCTION PLANS

DATE: 8/26/2019

CERTIFICATION:

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ED MATTHIASEN

LICENSE NO.: 16800

DATE: 8/26/2019

PROJECT NO.: 1239-0100

DWN BY: BMB CHKD BY: ERM APPD BY: EAM

ISSUE DATE: 8/26/2019

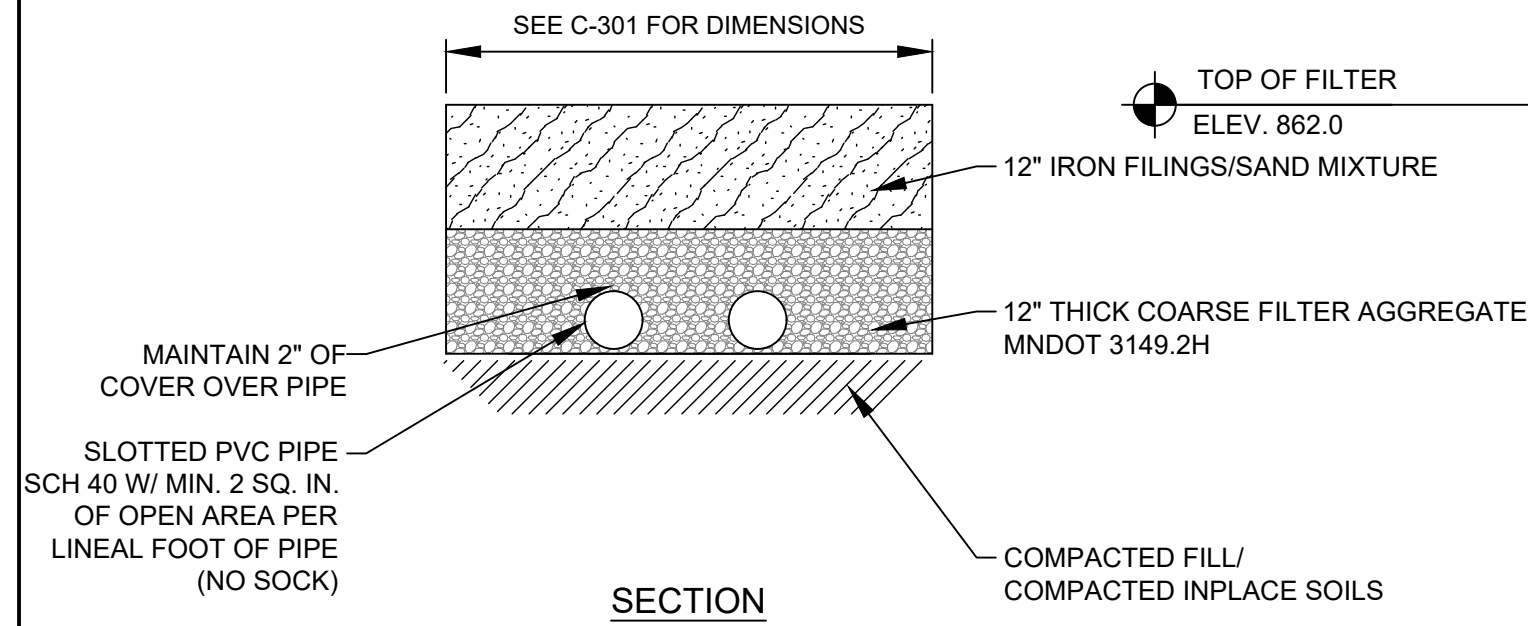
ISSUE NO.: 1

SHEET TITLE: DETAILS

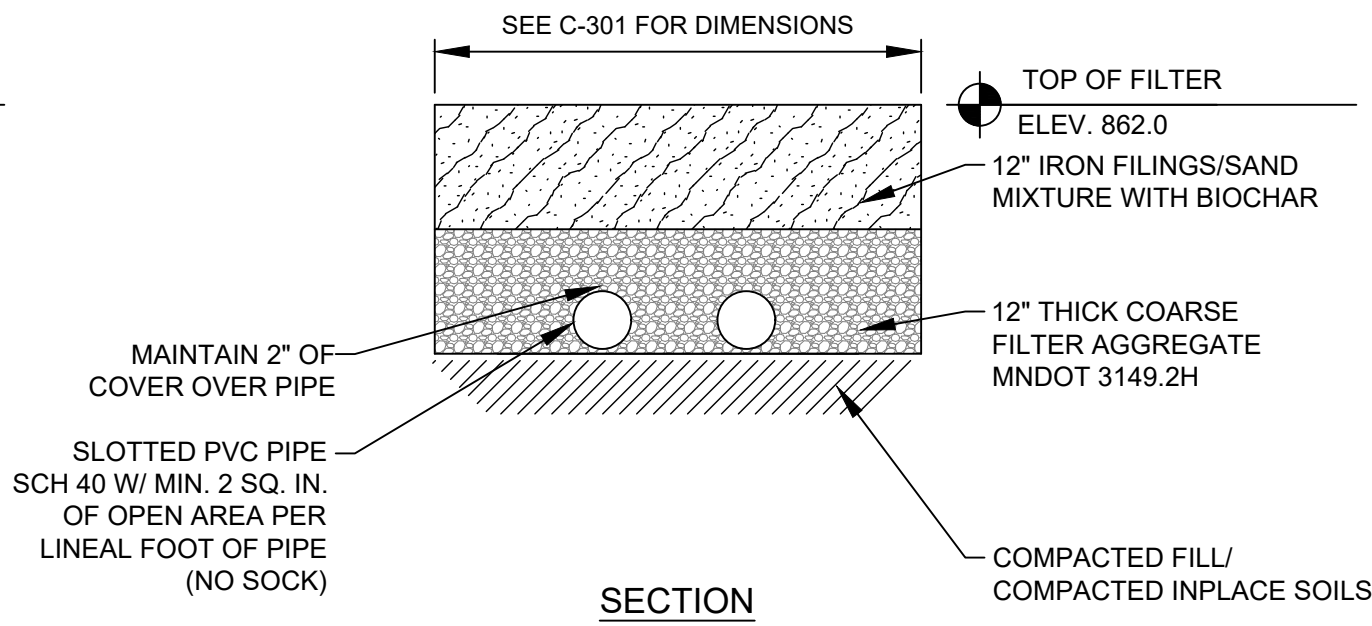
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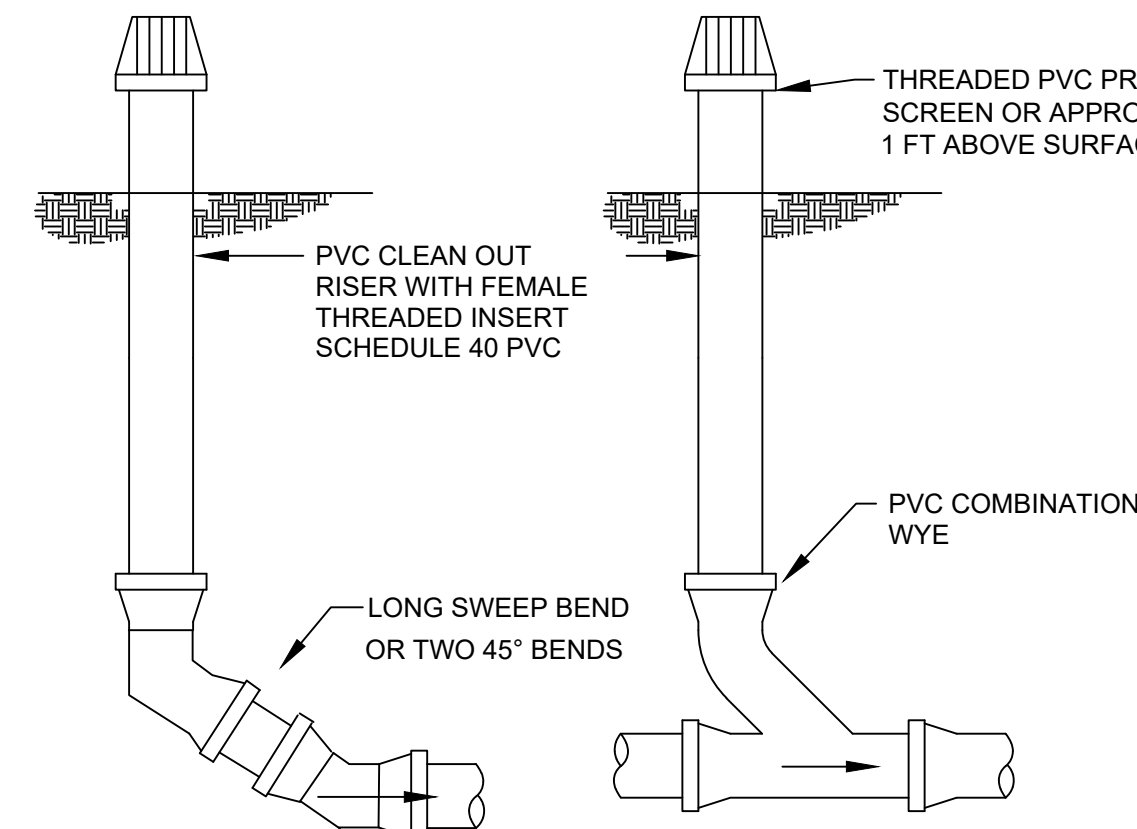
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1 IRON ENHANCED SAND FILTER DETAIL
C801 NOT TO SCALE

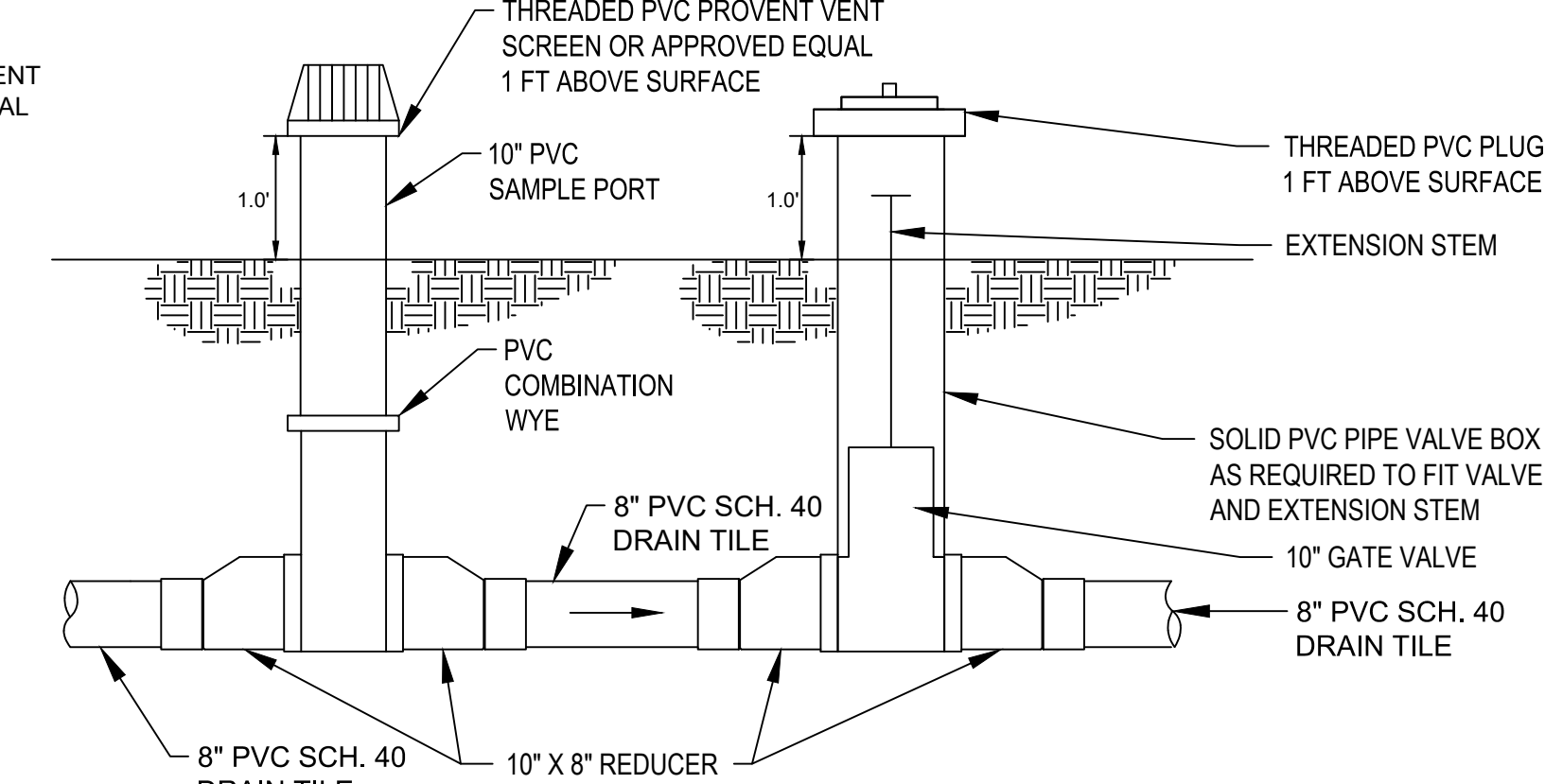


2 IRON ENHANCED SAND FILTER WITH BIOCHAR DETAIL
C801 NOT TO SCALE

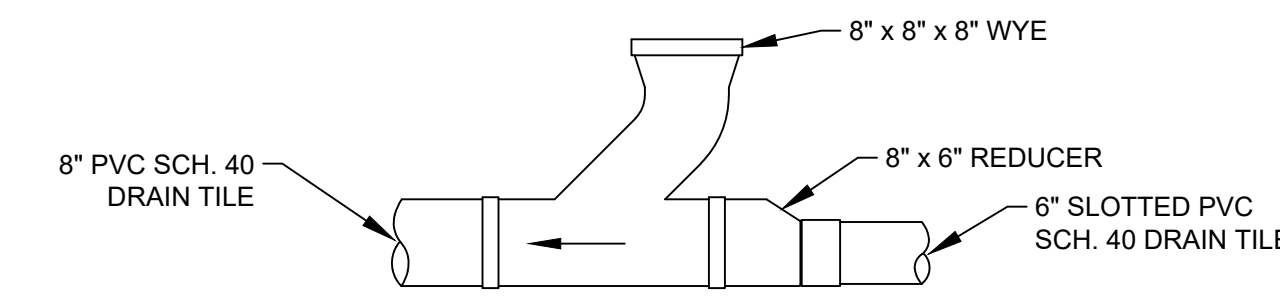


3 CLEANOUT DETAIL
C801 NOT TO SCALE

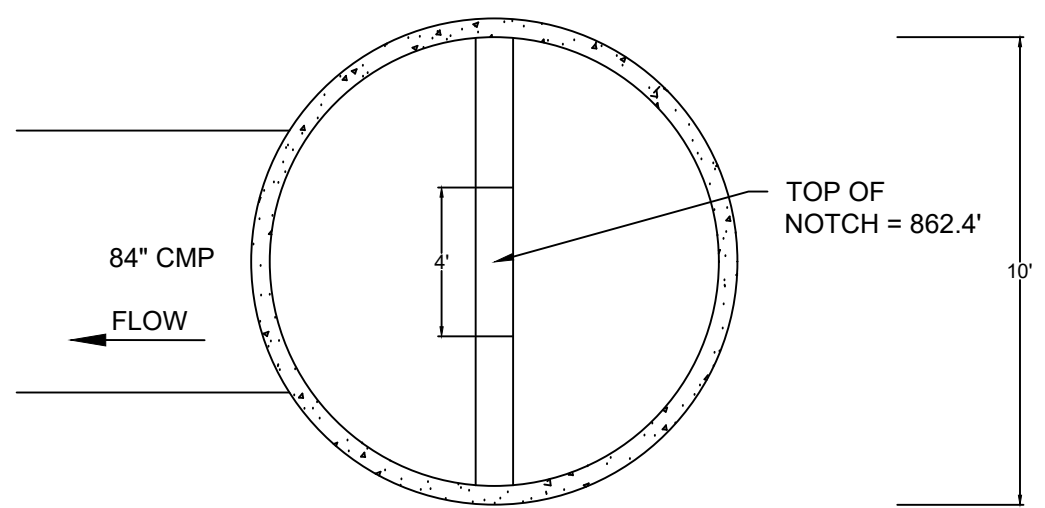
4 GATE VALVE WITH SAMPLE PORT
C801 NOT TO SCALE



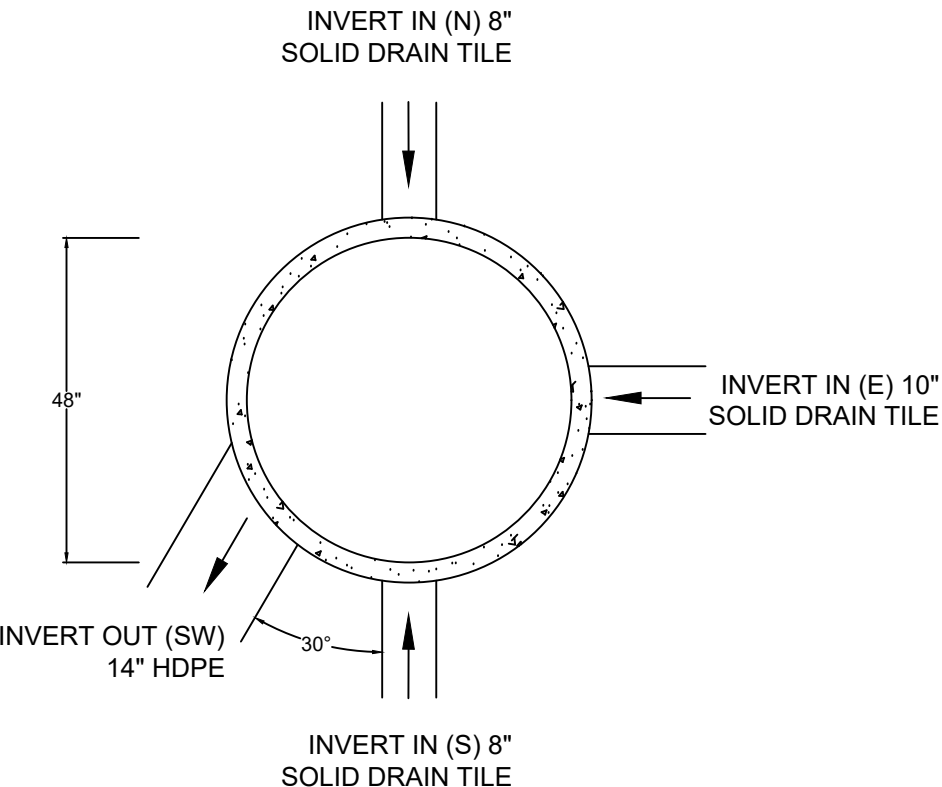
4 GATE VALVE WITH SAMPLE PORT
C801 NOT TO SCALE



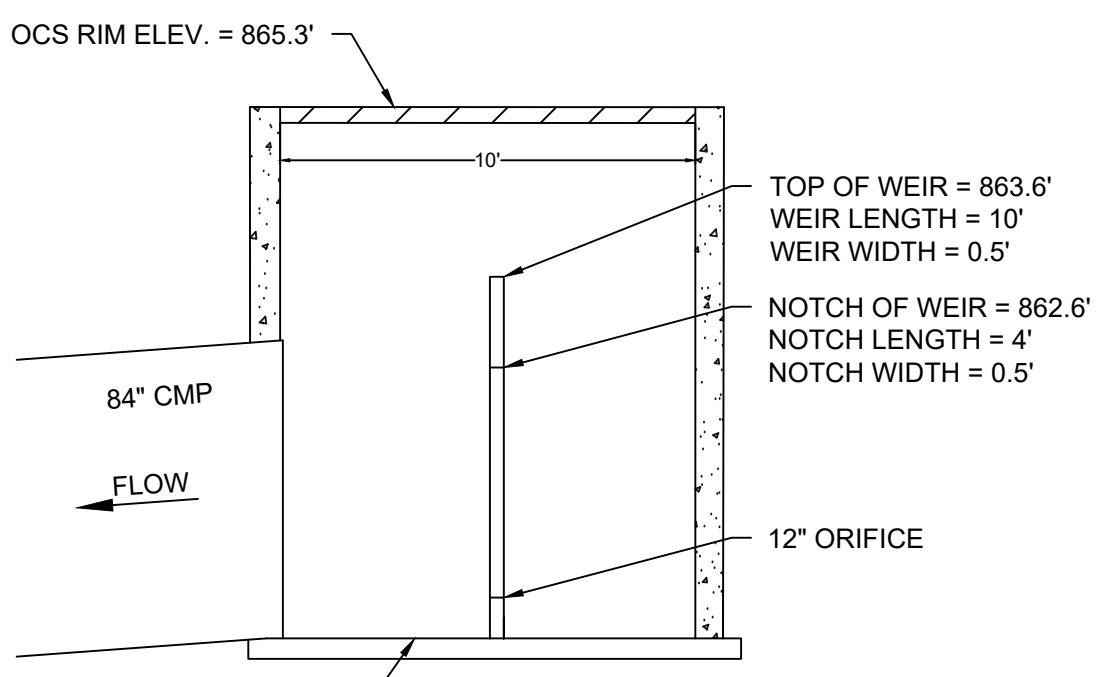
5 8" x 8" x 8" WYE WITH 8" x 6" REDUCER
C801 NOT TO SCALE



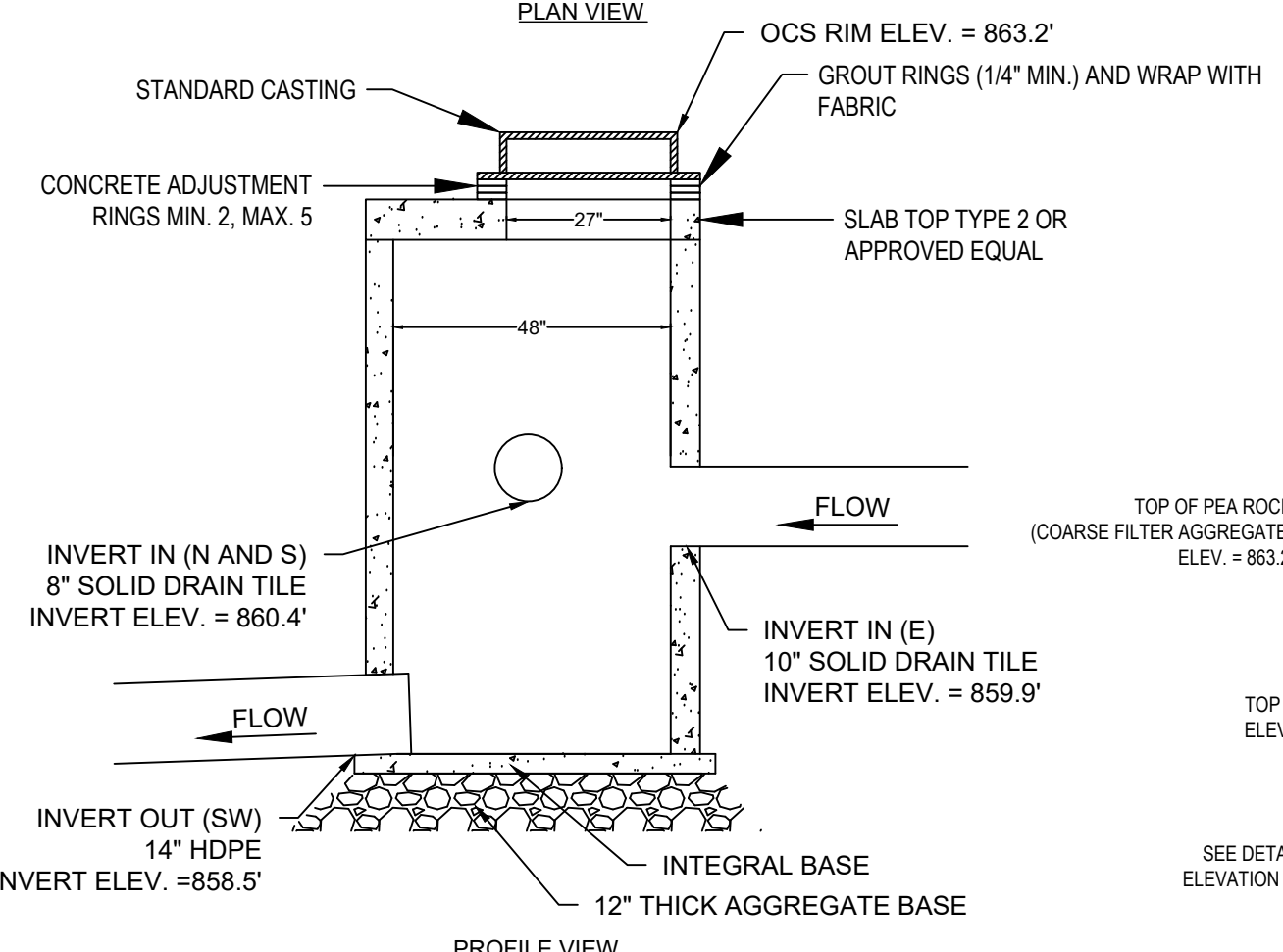
PLAN VIEW



PLAN VIEW



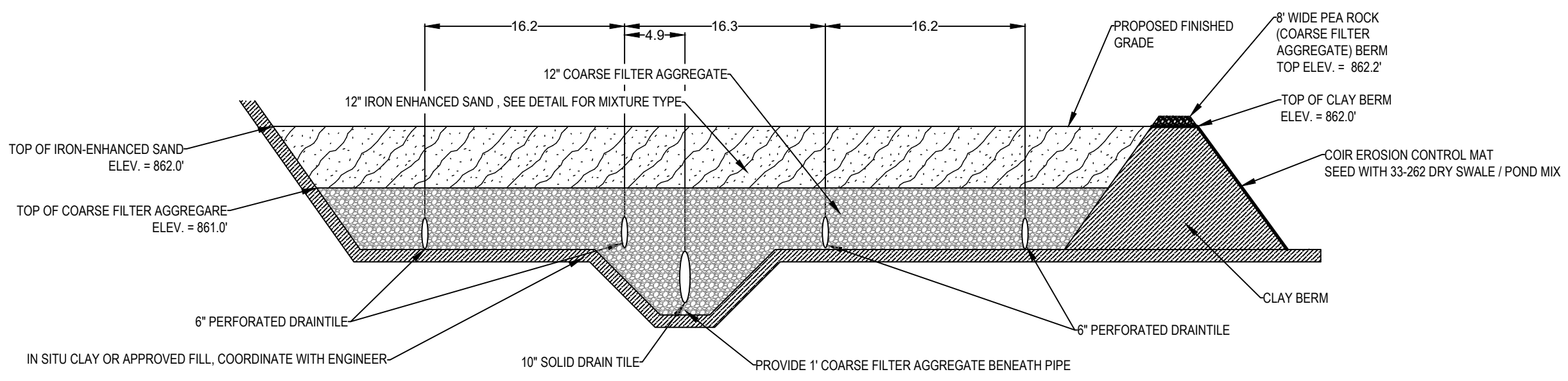
PROFILE VIEW



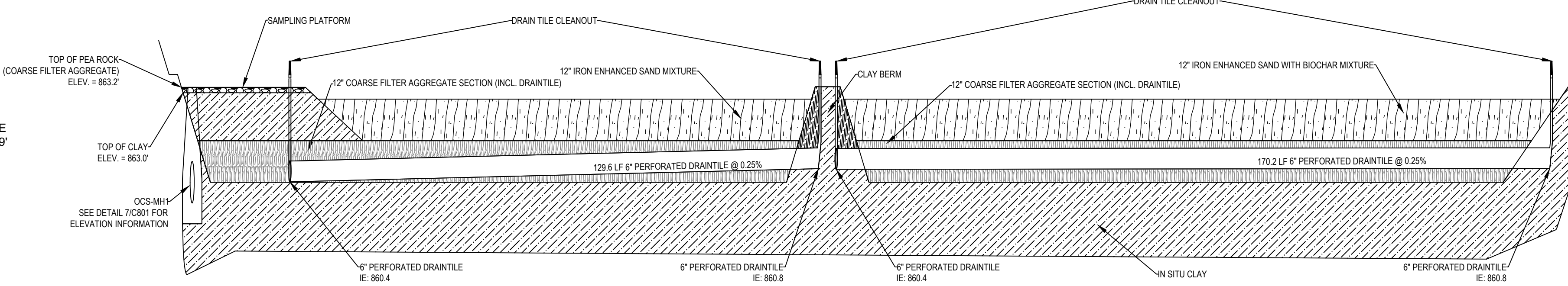
PROFILE VIEW

6 EXISTING OUTLET CONTROL STRUCTURE (FOR REFERENCE ONLY)
C801 NOT TO SCALE

7 OCS-MH1 OUTLET CONTROL STRUCTURE
C801 NOT TO SCALE



8 AA CROSS SECTION VIEW
C801 NOT TO SCALE



9 BB CROSS SECTION VIEW
C801 NOT TO SCALE

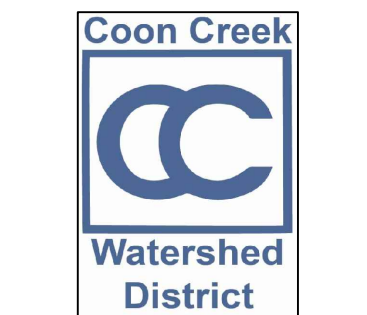
NOTE:
ENSURE MIN. 2" COARSE AGGREGATE FILTER COVER OVER ALL DRAINTILE



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7500 OLSON MEMORIAL HWY
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WOODCREST POND BIOCHAR-
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ANOKA COUNTY

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SHEET TITLE:
DETAILS

SHEET NO.:
C-801