

Hoffman Estates District

Hoffman Estates, Illinois

Birch Park

Concrete Contractor

Project Manual

Bid Proposal and Specifications

January 22, 2021

Bids are due and will be opened and read aloud on March 3, 2021 at 10:30 AM at the Hoffman Estates Park District's Triphahn Center which is located at 1685 West Higgins Road in Hoffman Estates, Illinois.



Engineering • Design • Consulting

**2675 Pratum Avenue
Hoffman Estates, IL 60192
(224) 293-6333 Fax (224) 293-6444**

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Bidder Name: _____

Address: _____

Telephone #: _____

Facsimile: _____

NAME OF PROJECT

Concrete at Birch Park

BID DATE: 3/3/21

BID TIME: 10:30AM

PREPARED BY:

HOFFMAN ESTATES PARK DISTRICT
1685 W. Higgins Road
Hoffman Estates, IL 60169-2998
Telephone: (847) 885-7500
Facsimile: (847) 885-7523

February 20, 2020

Dear Bidder:

Enclosed you will find the plans, specifications and bidding materials for **Concrete at Birch Park**. All pertinent information is included in the attached package. Please submit the Proposal Forms, Certification, References, and Bid Bonds. Please copy your proposal and retain one copy for your records.

Bidders will be required to meet all State bidding requirements.

I look forward to reviewing your bid proposal and working with you on this project. If you have further questions or need to meet at the site, please contact me 847-285-5465. I can be reached Monday through Friday from 7:00 a.m. until 4:00 p.m.

Sincerely,
Dustin Hugen

Dustin Hugen

Director of Parks, Planning & Maintenance

INVITATION TO BIDS

Sealed bids for the **Concrete at Birch Park** will be received by the Hoffman Estates Park District at our office; 1685 West Higgins Road, Hoffman Estates, Illinois 60169 until **exactly 10:30A.M., 3/3/2021** and then publicly opened and read. Bids submitted after the closing time will be returned unopened. No oral or telephone proposals or modifications will be considered.

The Hoffman Estates Park District Board of Commissioners will make the final award.

Proposals shall be submitted on the attached Form of Proposal and returned in the envelope, if provided. No bidder may withdraw his proposal after the hour set for the opening thereof, or before award of the contract, unless said award is delayed for a period exceeding sixty (60) calendar days.

The Hoffman Estates Park District requires all bidders to comply with all provisions of the Park District Prevailing Wage Ordinance O. This ordinance specifies that no less than the general prevailing rate of wages as found by the Park District or Department of Labor or determined by a court on review shall be paid each draft type of worker or mechanic needed to execute the contract or perform the work.

The Hoffman Estates Park District may reject any or all of the bids on any basis and without disclosure of a reason. The failure to make such a disclosure shall not result in accrual of any right, claim, or cause of action by any unsuccessful Bidder against the Hoffman Estates Park District.

Bid results and the award of the bid will be published on the Hoffman Estates Park District website www.heparks.org.

Sincerely,

Dustin Hugen

Dustin Hugen
Director of Parks, Planning & Maintenance
Hoffman Estates Park District
dhugen@heparks.org
847-285-5465

HOFFMAN ESTATES PARK DISTRICT

INSTRUCTIONS TO BIDDERS

1. Identification of Project

The official name and location of the project shall henceforth be known as:

**Concrete at Birch Park
1045 Ash Road
Hoffman Estates, IL 60169**

The official name and address of the project owner shall henceforth be known as:

HOFFMAN ESTATES PARK DISTRICT
1685 West Higgins Road
Hoffman Estates, IL 60169-2998

Bid Opening: DATES **3/3/2021 @10:30AM**

Committee Approval: DATES **3/16/2021**

Board Approval: DATES **3/23/2021**

Contract Awarded: DATES **3/30/2021**

Commencement of Work: Commencement of paperwork shall begin immediately upon notification of award. Actual work shall commence immediately after contract is awarded (weather dependent) according to timelines set by HEPD (owner).

Construction Timeline: **May 3, 2020 – August 20, 2021**

100 % Completion Date: **August 20,2021**

HOFFMAN ESTATES PARK DISTRICT
Hoffman Estates, Illinois

FORM OF PROPOSAL

Proposal of _____, hereinafter called the
"BIDDER", (a) / (an) _____,
(Corporation, Partnership,
individual) doing business as _____, to Hoffman Estates
Park District, hereinafter called the "OWNER."

* * *

The Bidder, in response to your advertisement for bids for **Concrete at Birch Park** having examined the Specifications and other Documents and being familiar with all of the conditions surrounding the proposed work (purchase/sale) including availability of materials and labor, hereby proposes to furnish all labor, materials and supplies and to construct the project in accordance with the Contract Documents, within the time set forth therein and at the prices stated below. These prices are to cover all expenses incurred in performing the work required under the Contract Documents of which this proposal is a part.

Bidder acknowledges receipt of the following Addenda, which are a part of the Contract

Document: Numbers: _____, _____, _____, _____.

HOFFMAN ESTATES PARK DISTRICT

COMPANY _____

BY: _____
(Sign and Date)

ADDRESS _____

PHONE _____

EMAIL: _____

BY: _____

CERTIFICATION

I, _____ (Officer), having been first duly sworn on Oath, state that I am the duly authorized principal, officer or agent of _____ (Name of Contractor) and do hereby certify to Hoffman Estates Park District, its Commissioners, Officers and Employees that neither I nor _____ (Name of Contractor) are barred from bidding on the Contract for which this bid is submitted, and as a result of violation of either Section 33E-3 (Bid-rigging") or Section 33E-4 ("Bid-rotating") of Article 33E of the Criminal Code of 1961 of the State of Illinois approved July 28,1961, as amended.

On behalf of Contractor

Subscribed and sworn to before me

this _____ day of _____, 20____

- Notary Public -

My Commission Expires:

SUBCONTRACTORS

The following list includes all Subcontractors who will perform work representing five percent (5%) or more of the total base bid. The Bidder represents that the Subcontractors are qualified to perform the work required.

Category	Subcontractor Name	Address
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		

REFERENCES

Hoffman Estates IL 60169

References for:

1. Company Name: _____
Address: _____
City-state: _____
Phone Number: _____
Contact Person: _____
2. Company Name: _____
Address: _____
City/State: _____
Phone Number: _____
Contact Person: _____
3. Company Name: _____
Address: _____
City/State: _____
Phone Number: _____
Contact Person: _____
4. Company Name: _____
Address: _____
City/State: _____
Phone Number: _____
Contact Person: _____

STATEMENT OF EXPERIENCE

The Bidder shall list all recent projects for which he provided services of a similar nature to the subject project.

Project/Location	Contract Amount	Reference/Phone #
1. _____		
2. _____		
3. _____		
4. _____		
5. _____		
6. _____		
7. _____		
8. _____		
9. _____		
10. _____		
11. _____		
12. _____		
13. _____		
14. _____		
15. _____		

HOFFMAN ESTATES PARK DISTRICT
Hoffman Estates, Illinois

Please list all of the equipment you will be using on this specific job.

- 1. _____
- 2. _____
- 3. _____
- 4. _____
- 5. _____
- 6. _____
- 7. _____
- 8. _____
- 9. _____
- 10. _____
- 11. _____
- 12. _____
- 13. _____
- 14. _____
- 15. _____

SUSTAINABILITY STATEMENT

Introduction

The Hoffman Estates Park District is committed to green and sustainable practices and good environmental stewardship. Consequently, we are asking bidders to provide a Statement of Sustainability to ensure our bidders are also incorporating sustainability into their firm's practices.

Instructions

Provide a clear description of your firm's sustainable practices, policies or procedures to the below sections or attach a copy of your practice. These practices may include but are not limited to:

Waste Minimization within the office or facilities through recycling programs, double-sided copying, electronic internal communications, recycled content in materials, reusable cups, limited printing, electronic document management, green purchasing policies, green cleaning supplies or reduced packaging in materials procured or supplied. _____

Energy Efficiency within office, facilities or firm through lighting retrofits, photo sensor switches for lighting, use of day lighting, Energy Star rated appliance or equipment, alternative fuel or efficient fleet, anti-idling policy, or indoor temperature management.

Water Efficiency in office, facilities or firm through faucet or fixture retrofits, switch individual bottled water to office water coolers or drinking fountains, drought tolerant landscaping. _____

Staff are encouraged to be sustainable and supported by your firm through public transit benefits, bicycle accommodations, telecommuting options, support to attend green seminars, US Green Building Council LEED accredited or the creation of an internal green team. _____

Education of your staff about green practices, your business peers of your green accomplishments, your community of your sustainability, or any environmental awards your firm has achieved. _____

_____.

2. Contract Documents

The Notice to Bidders, the Instructions to Bidders, the Supplementary Conditions, Drawings, and Specifications, the supplied Form of Proposal, the accepted Bid Sheet and certification comprise the Contract Documents. Copies of these documents can be obtained in person from the office of the Hoffman Estates Park District, 1685 W. Higgins Road, Hoffman Estates IL 60169-2998.

3. Explanation to Bidders

Any explanation desired by a bidder regarding the meaning or interpretation of the invitation for bids, drawings, specifications, etc., must be requested in writing and with sufficient time allowed for a reply to reach bidders before the submission of their bids.

Any interpretation made will be in the form of an amendment of the invitation for bids, drawings, specifications, etc., and will be furnished to all prospective bidders. Its receipt by the bidder must be acknowledged in the space provided on the Bid Form or by letter or telegram received before the time set for opening of bids. Oral explanations or instructions given before the award of the contract will not be binding.

4. Conditions Affecting the Work

Bidders should visit the site and take such other steps as may be reasonably necessary to ascertain the nature and location of the Work, the general and local conditions, which can affect the Work or the cost thereof. Failure to do so will not relieve bidders from responsibility for estimating properly the difficulty or cost of successfully performing the Work.

5. Bid Guarantee, Bonds and Required Paperwork

- A. A Bid Guarantee, five (5%) percent, is required by the invitation for bids. Failure to furnish a Bid Guarantee in the proper form and amount by the time set for opening of bids may be cause for rejection of the bid in the absolute discretion of the Owner.
- B. A Bid Guarantee shall be the form of a bid bond, postal money order, certified check, or cashier's check made payable to the Owner. Bid guarantees, other than those stated, will be returned to the bidder upon opening of bids. Such bids will not be considered for award (a) to unsuccessful bidders as soon as practical after the award of the job, and (b) to the successful bidder upon execution of such further contractual documents and bonds as may be required by the bid as accepted.
- C. The successful bidder, upon being given a "Written Notice to Proceed", will have five (5) calendar days to provide the required Labor and Material Payment Bond, Performance Bond, and Insurance Policies or certificates for same, and commence with the Work. Failure to comply with the conditions set forth in the Contract Documents shall result in the termination of the contract for default. In such event, the Contractor may be liable for any costs of performing the work which exceed the amount of his bid, and the Bid Guarantee shall be available toward offsetting such difference, if not previously returned to the Contractor.

6. Preparation and Submission of Bids

Before submitting proposal, each bidder shall carefully examine all documents pertaining to the Work and visit the site to verify conditions under which Work will be performed.

Submission of bid will be considered presumptive evidence that the Bidder has visited the site and is conversant with local facilities and difficulties, the requirements of the documents and of pertinent State or Local Codes, State of Labor and Material Markets, and has made due allowance in his bid for all contingencies. Include in bid all costs of labor, material, equipment, contractor's license, permits, guarantees, applicable taxes (sales tax does not apply), insurance and contingencies, with

overhead and profit necessary to produce a completed project, or to complete those portions of the Work necessary to produce a completed project, or to complete those portions of the Work covered by the specifications on which proposal is made, including all trades, without further cost to the Owner. The Owner shall be responsible for the building permit fee.

No compensation will be allowed by reason of any difficulties which the Bidder could have discovered reasonably, prior to bidding.

All proposals must be made upon the Proposal Form furnished by the Owner attached hereto and should give the amounts bid for work, in numbers, and must be signed and acknowledged by the contractor. The Proposal should be enclosed in the envelope marked "Bid Proposal for Hoffman Estates Park District **“Concrete at Birch Park”** to be received until **10:30A.M., March 3, 2021** showing the return address of the sender and addressed to: Hoffman Estates Park District, 1685 W. Higgins Road, Hoffman Estates, Illinois 60169. Bids should be sealed, marked and addressed as directed above. Failure to do so may result in a premature opening of or a failure to open such bid.

The proposal submitted must not contain erasures, inter-lineations, or other corrections unless each correction is suitably authenticated by affixing in the margin immediately opposite the correction the surname or surnames of the person or persons signing the bid.

Modifications of bids already submitted will be considered if received at the office designated in the invitation for bids by the time set for opening of bids. Telegraphic modifications will be considered, but should not reveal the amount of the original or reversed bid.

7. Prices

The prices are to include the furnishing of all materials, equipment, tools, insurance, bonds, warranties, and all other facilities, and the performance of all labor and services necessary for the proper completion of the Work except as may be otherwise expressly provided in the Contract Documents.

8. Time Schedule

The timely execution of any project is extremely important. The successful bidder shall take every means to meet the completion date stated above except for extensions granted by the Owner in writing for circumstances beyond the control of the Bidder.

9. Late Bids and Modifications or Withdrawals

Bids and modifications or withdrawals thereof received at the office designated in the invitation for bids after the exact time set for opening of bids will not be considered.

10. Withdrawal of Bids

Bids may be withdrawn by written or telegraphic request received from bidders prior to the time set for opening of bids.

11. Public Opening of Bids

Bids will be publicly opened at the time set for opening in the invitation for bids. Their content will be made public for the information of bidders and others interested, who may be present either in person or by representative.

12. Award of Contract

- A. Award of Contract will be made to the lowest responsible bidder, as determined by the Board of Commissioners of the Hoffman Estates Park District, whose bid conforms to the invitation for bid.
- B. The Board of Park Commissioners may reject any or all of the bids on any basis and without disclosure of a reason. The failure to make such a disclosure shall not result in accrual of any right, claim, or cause of action by any unsuccessful bidder against the Hoffman Estates Park District.

13. Contract and Insurance

The written contract between the accepted bidder and the Owner shall be considered finalized and entered into between the parties upon the Park District Board's approval and award of the contract to the accepted bidder and the Park District's execution of the accepted bidder's Form of Proposal, and said written contract shall be comprised by the Contract Documents. The accepted bidder shall provide the Owner with a Labor and Material Payment Bond, Performance Bond, and copies of applicable Insurance Policies and endorsements and certificates for same within five (5) calendar days of the "Written Notice to Proceed" and prior to the commencement of work.

14. Postponement of Date for Opening Proposals

The Owner reserves the right to postpone the date of presentation and opening of proposals and will give telegraphic notice of any such postponement to each interested party.

SUPPLEMENTARY CONDITIONS

SECTION I – GENERAL

1. Application

These Supplementary Conditions shall be used in conjunction with and are a part of any and all Sections of the Specifications and all Contracts and Subcontracts that may be made for the completion of the work in all its parts as identified and described in the Contract Documents.

2. Definitions

Owner: The Hoffman Estates Park District, Board of Commissioners, Staff and its appointed Owner's representative.

Contractor: A firm, corporation or individual with whom the Owner makes a direct Contract for the construction of all or any portion of the work.

Architect/Engineer: The authorized representative of the Owner.

Subcontractor: A firm, corporation or individual other than employees of a Contractor with whom a Contractor or Subcontractor makes a contract to furnish labor, and/or materials, and/or services in connection with the project.

Owner Representative: An employee of the Hoffman Estates Park District responsible for the coordination of the work involved on the project.

The words "approve", "equal to", "as directed", etc., are interpreted and will be taken to mean "to the satisfaction of the Owner." Samples shall be submitted and approvals shall be requested in ample time to avoid any delays should resubmission of an item be necessary.

3. Contract Documents

The Contract Documents shall consist of the Notice to Bidders, the Instructions to Bidders, the Supplementary Conditions, the Drawings, the Specifications, the supplied Form of Proposal, and the accepted Bid Sheet and certification.

4. Bonds

- A. With proposal, and attached hereto, each Bidder shall furnish Bid Security payable to the Owner in the amount of 5% of bid.
- B. Include allowance in Lump Sum Proposal for Performance Bond and Labor and Materials Payment Bond in the amount of 100% of Contract Price.
 - 1. The Contractor, before commencing the Work, shall furnish a Performance Bond and a Labor and Material Bond. 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 obligation of the Contract Documents, 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 standard AIA Documents, issued by the American Institute of Architect/Engineers, shall be issued by a surety satisfactory to the Owner, and shall name the Owner as a primary co-obligee. The cost of the bonds is to be included in the Bid Proposal. The Performance Bond and Labor and Material Payment Bond will become a part of the Contract. Each Bidder shall list the name of the surety company that will be furnishing the Bonds on its Bid Proposal. The failure of a Bidder to list the name of its surety company on its Bid Proposal shall be a non-responsive bid. The failure of the successful Bidder to supply the required Bonds within five (5) days after the Notice of Award or within such extended period as the Owner may grant if the forms do not meet its approval shall constitute a default, and the Owner may either award the Contract to the next responsible, responsive Bidder or re-advertise for bids. A charge against the defaulting Bidder may be made for the difference between the amount of the bid and the amount for which a contract for the work is subsequently executed, irrespective of whether the amount thus due exceeds the amount of the bid guarantee.

2. The Contractor shall deliver the required bonds to the Owner not later than five (5) days following the date the Agreement is entered into, or if the Work is to be commenced prior thereto in response to a letter of intent, the Contractor shall, prior to the commencement of the Work, submit evidence satisfactory to the owner that such bonds will be furnished.
3. The contractor shall require the attorney-in-fact who executed the required bonds on behalf of the surety to affix thereto a certified and current copy of the power of attorney.
4. Whenever the Contractor shall be and is declared by Owner to be in default under the Contract, the Surety and the Contractor are each responsible to make full payment to the Owner or any and all extra Work incurred by the Landscape Architect as a result of the Contractor's default, and to pay to Owner all attorney's fees and court costs incurred by Owner as a result of the Contractor's default, and in protecting Owner's rights under the Agreement to remedy Contractor's default.
5. The Contractor shall (i) furnish all Surety Company's bonds through Surety Company's local agents approved by and/or as directed by Owner; (ii) fully covered and guarantee with said bond the faithful performance and completion of the entire Contract, including without limitation, the faithful performance of prevailing wage requirements; and (iii) guarantee with said bond payment in all cases by the Contractor or by the Surety Company for all labor performed, material and supplies furnished with the entire Work in the Contract. Said Bond shall remain in full force and effect during the entire period of all general guarantees given by the Contractor with the Contract as called for in the Specifications and Contract, except in cases where other bonds are specifically called for in the specifications and Contract in connection with special guarantees.

5. Payment

The Contractor may present estimate of work for which he desires payment no later than the first Monday of each month, based on cost of labor and material incorporated into the work. Estimate shall be a Sworn Statement and shall show relative amount of each item completed. Submit Partial Waivers of Lien, including for first payout, from Contractors, Subcontractors and Material Suppliers with Sworn Statement for monthly payout. Payments will be made within approximately thirty (30) days after review by the Owner. Notwithstanding, anything to the contrary contained in the Contract Documents, payouts are to be made by checks payable to the Contractor. The Contractor will be required to submit a sworn payroll statement according to the Illinois Department of Labor documenting his compliance with the Illinois Prevailing Wage Act.

Final Payment will be made within approximately thirty (30) days of final inspection and approval and receipt of all waivers, sworn statements, guarantee statements, and other documents set forth in the Contract Documents.

6. Preparation of Bids

Before submitting proposal, each bidder shall examine carefully all documents pertaining to the work and visit the sites to verify conditions under which work will be performed. Submittal of the Bid Proposal by the Contractor is a representation by the Contractor, that the Contract Documents are full and complete, are sufficient to enable the Contractor to determine the cost of the Work and that the Contract Documents are sufficient to enable it to construct the Work outlined therein, in accordance with applicable laws and regulations, and otherwise to fulfill all its obligations hereunder, including, but not limited to, Contractor's obligations to construct the Work for an amount not in excess of the contract Sum on or before the date(s) of Completion established in the Agreement. The Contractor further acknowledges and declares that it has visited and examined the Project site, examined all physical and other conditions affecting the Work and is fully familiar with all of the conditions thereon and thereunder affecting the same. In connection therewith, Contractor specifically represents and warrants to Owner that prior to the submission of its bid it has: (a) thoroughly examined the location of the work to be performed, is familiar with local conditions, and has read and thoroughly understands the Contract Documents as they relate to the physical conditions prevalent or likely to be encountered in the performance of the work at such location; (2) examined the nature, location and character of the general area in which the Project is located, including without limitation, its climatic conditions, available labor supply and labor costs, and available equipment supply and equipment costs; and (3) examined the quality and quantity of all materials, supplies, tools, equipment, labor, and professional services necessary to complete the Work in the manner and within the cost and time frame required by the Contract Documents.

Submission of bid will be considered presumptive evidence that the Bidder has visited the site and is conversant with local facilities and difficulties, the requirements of the documents and of pertinent State, County or Local Codes, State of Labor and Material Markets, and has made due allowance in his bid for all contingencies.

Include in bid all costs of labor, material, equipment, allowance, fees, permits, guarantees, applicable taxes (**sales tax does not apply**), insurance and contingencies, with overhead and profit necessary to complete those portions of the work covered by the specifications on which proposal is made, including all trades, without further cost to the Owner. Obtain all permits and arrange for all inspections. Pay all fees, permits and costs incurred.

No compensation will be allowed by reason of any difficulties, which the Bidder could have discovered prior to bidding.

7. Fees and Inspection

The Contractor is responsible for all license fees and arrangements for all inspections required by State, County, Local and other authorities having lawful jurisdiction. The Owner is responsible for all building permit fees associate with the Work.

8. Subcontracts

Contractors operating under direct Contracts with the Owner may let Subcontracts for the performance of such portions of the work as are usually executed by special trades. All such Subcontracts shall be based on conformance with all pertinent conditions set forth in the Contract Documents, including the Supplementary Conditions as well as the detailed requirements of the portions of the drawings and specifications which depict or describe the work (labor and materials) covered by the Subcontract.

No Work may be sublet without approval of the Owner, who reserves the right to disapprove any proposed Subcontractor whose record does not establish his experience, competence, and financial ability to perform the work.

9. Materials

Materials shall conform to the drawings, specifications, manufacturer's specifications for all products incorporated into the work, and all applicable standards and guidelines.

Some specific equipment and materials have been specified for use on this project to establish minimum performance requirements or desired features. To receive consideration of alternate equipment or materials, the Bidder must submit

all appropriate product data and receive pre-bid approval from the Owner. All materials are subject to the approval by the Owner both before and after incorporation in the project.

All condemned material or work shall be removed from the premises and properly disposed of.

10. Law Compliance

All project construction work shall comply with all State and Municipal Laws and Regulation, and with all Local Ordinances and Rules pertaining to this work. Such Laws, Regulations, Ordinances and Rules shall be considered a part of these specifications.

- A. The Contractor warrants that it is familiar with and shall comply with Federal, State and local laws, statutes, ordinances, rules and regulations and the orders and decrees of any courts or administrative bodies or tribunals in any manner affecting the performance of the Contract including without limitation Workers Compensation Laws, minimum salary and wage statutes and regulations, laws with respect to permits and licenses and fees in connection therewith, laws regarding maximum working hours. No plea of misunderstanding or ignorance thereof will be considered.
- B. Whenever required, the Contractor or Subcontractor shall furnish the Architect/Engineer and Owner with satisfactory proof of compliance with said Federal, State and local laws, statutes, ordinances, rules, regulations, orders, and decrees.
- C. Contractor shall carefully examine the Occupational Safety and health Act as issued by the Federal Register (OSHA), and the specific regulations governing procedures, techniques, safety precautions, equipment design, and the configuration of the same as required under this Act and shall comply with all terms of the Act and to perform and complete in a workmanlike manner all work required in full compliance with said Act.
- D. Contractor shall comply with all terms of the Illinois Preference Act and all terms of the Equal Employment Opportunity Clause of the Illinois Fair Employment Practices Commission.
- E. At all times Contractor shall remain in compliance with the Illinois Public Works Employment Discrimination Act (775 ILCS 10/1, et seq.), and the Illinois Human Rights Act (775 ILCS 5/2-101, et seq.), and in addition shall at all times comply with Section 2-105 of the Illinois Human Rights Act requiring a written sexual harassment policy as defined therein.
- F. Contractor and all subcontractors shall be solely responsible for complying with the Substance Abuse Prevention on Public Works Projects Act, Public Act 095-06345.
- G. Contractor agrees to maintain all records and documents for projects of the District in compliance with the Freedom of Information Act, 5 ILCS 140/1 et seq. In addition, Contractor shall produce records which are responsive to a

- request received by the District under the Freedom of Information Act so that the District may provide records to those requesting them within the time frames required. If additional time is necessary to compile records in response to a request, then Contractor shall so notify the District and if possible, the District shall request an extension so as to comply with the Act. In the event that the District is found to have not complied with the Freedom of Information Act due to Contractor's failure to produce documents or otherwise appropriately respond to a request under the Act, then Contractor shall indemnify and hold the District harmless, and pay all amounts determined to be due including but not limited to fines, costs, attorney's fees and penalties.
- H. Contractor understands, represents and warrants to the Owner that the Contractor and its Subcontractors (for which the Contractor takes responsibility to insure that they comply with the above-mentioned Acts) are in compliance with all requirements provided by the Acts set forth in Article 15 and that they will remain in compliance for the entirety of the Work. A violation of any of the Acts set forth in this Article is cause for the immediate cancellation of the Contract. However, any forbearance or delay by the Owner in canceling this Contract shall not be considered as, and does not constitute, Owners consent to such violation and a waiver of any rights the Owner may have, including without limitation, cancellation of this Contract.
- I. Contractor and each of its Subcontractors shall pay prevailing wages as established by the Illinois Department of Labor for each craft or type of work needed to execute the contract in accordance with 820 ILCS 130/.01 et seq. The Contractor shall prominently post the current schedule of prevailing wages at the Contract site and shall notify immediately in writing all of its Subcontractors, of all changes in the schedule of prevailing wages. Any increases in costs to the Contractor due to changes in the prevailing rate of wage during the terms of any contract shall be at the expense of the Contractor and not at the expense of the Owner. The change order shall be computed using the prevailing wage rates applicable at the time the change order work is scheduled to be performed. The Contractor shall be solely responsible to maintain accurate records as required by the prevailing wage statute and shall be solely liable for paying the difference between prevailing wages and any wages actually received by laborers, workmen and/or mechanics engaged in the Work

11. Supervision

The Contractor shall maintain a highly qualified technician on the job site at all times. The Contractor shall enforce strict discipline and good order among his employees and the Subcontractors at all times work is in progress. The

Contractor shall not employ any unfit person or anyone not skilled in the work assigned to him.

12. Equipment and Tools

Furnish and maintain all equipment tools and apparatus, scaffolding, and all temporary work and materials necessary to perform the work.

13. Expediting

Place orders for materials and equipment immediately upon receipt of Contract or Notice to Proceed and follow up vigorously to insure adequate and timely supply to the work. Perform all tracings and expediting actions and arrange to get workmen in the job at the proper time to avoid delays.

14. Sanitary

The Contractor shall provide suitable, temporary toilet facilities at a specified location, for workmen on the project, complying in every respect with Local and County requirements. Unit shall be chemically treated, serviced at regular intervals, and maintained in a sanitary condition at all times.

15. Existing Utilities

The Contractor shall be responsible for locating and protecting all existing utilities, public and private, for the duration of the job. Prior to the commencement of any work, the Contractor shall notify all public and private utilities for the purpose of verifying, marking, and recording the locations of all underground or overhead utilities, temporary or permanent. Any repair/replacement costs or associated damage will be the responsibility of the Contractor.

16. Testing and Observations

The Contractor shall give the Owner, Village Inspector, and Manufacturer's Representative proper notice of readiness of Work for all required observations, tests, or reviews.

If Laws or Regulations of any public body having jurisdiction requires any Work (or part thereof) to specifically observe or tested, Contractor shall assume full responsibility therefor, pay all costs in connection therewith and furnish Engineer with the required certificates of inspection, testing, or approval. Contractor shall be responsible for and pay all costs in connection with any inspection or testing required in connection with Owner's or Manufacturer's agreed to Supplier of materials or equipment proposed to be incorporated into the Work, or of

materials or equipment submitted for approval prior to the Contractor's purchase thereof for incorporation in the Work.

The cost of all observations, tests, and approvals in addition to the above which are required by the Contract Documents shall be paid by the Owner (unless otherwise specified).

All observations, tests, or reviews other than those required by Laws or Regulations of any public body having jurisdiction shall be performed by organizations agreed to by Owner and Contractor (or Manufacturer if so specified).

Should testing reveal deficiencies due to Contractor error, subsequent testing costs shall be paid by Contractor.

If any work (including the work of others) that is to be observed or tested is covered without the written concurrence of the Owner, it must, if requested by the Landscape Architect, be uncovered of observation. Such uncovering shall be at the expense of the Contractor unless Contractor has given Owner or Village Inspector timely notice of Contractor's intention to cover such work and the Landscape Architect has not acted with reasonable promptness in response to such notice. Neither observations by Owner nor observations, tests, nor reviews by others shall relieve the Contractor from his obligations to perform the work in accordance with the Contract Documents.

17. Acceptance Preceding Work (if applicable)

Before starting any operation, the Contractor and Subcontractors shall examine work performed by others to which his work adjoins or is applied and report any condition that will prevent satisfactory accomplishment of his Contract. Failure to notify the Owner in writing of deficiencies or faults in preceding work will constitute acceptance thereof and waiver of any claims and its unsuitability.

18. Cutting and Patching

When necessary to cut or alter completed work to accommodate another trade, the Contractor or Subcontractor for work in places, shall do all cutting for and repair of portions of the work so disturbed. Where cutting is necessitated by fault or negligence of another Contractor, all costs of cutting and repairing shall be borne by the party at fault.

19. Damage to Current

Each Contractor shall adequately protect all preceding work from damage caused by him or his works. All breakage or damage will be repaired by trade

concerned at the cost of the party causing damage. Each Contractor, however, shall be responsible for adequate protection of his own work against normal construction risks.

20. Housekeeping

Keep site of operations free from accumulations of rubbish and waste materials at all times. See that Subcontractors remove and dispose of their rubbish. Arrangements for removal and disposition of rubbish will be made by Contractors concerned at no cost to the Owner.

Should any Contractor or Subcontractor allow rubbish or waste material to accumulate on any portion of the site or in any portion of the building to such extent that the accumulation constitutes a hazard or obstructs the prosecution of the work in any way. The Owner may, if Contractor or Subcontractor at fault fails to remove such rubbish or waste materials within three (3) days after written notice to clear up the accumulation, engage prior labor or services of another Contractor to make necessary removal and disposition and to charge cost against monies due to Contractor or Subcontractor at fault.

21. Protection

- A. Property: Each Contractor and Subcontractor shall take such precaution as are necessary adequately to protect from damage or deterioration and to safeguard from theft or pilferage, all materials, tools and equipment pertaining to his work which is on the site, whether stored or incorporated in the structure.
- B. Safety: Provide all barricades or other temporary protection as may be required by local authorities having lawful jurisdiction, or be considered of general safety, around all openings in floors and walls of the structure, and around all open pits or trenches in its vicinity.
- C. Weather: Each Contractor and Subcontractor shall at all times provide protection against rain, snow, wind storms, frost or heat so as to maintain all work, materials, apparatus, and fixtures, free from injury or damage.

At the end of each day's work, all new work subject to damage by the elements and all points where water or frost may enter any part of the structure or work shall be covered.

- D. Water: General Contractor shall at all times protect excavations, trenches, and building from damage from rain water, snow, spring water, ground water backing up of drains or sewers and all other water. He shall provide all pumps and equipment enclosures required for such protection.

He shall also construct and maintain any temporary drainage necessary to direct or lead water away from the work and shall do all pumping necessary to keep excavation and lowest floor free of water at all times.

- E. Damage: All work damaged by failure to provide protection shall be removed and replaced with new work at the expense of the Contractor at fault.

22. Guarantee

The Contractor and/or manufacturer shall provide a minimum of one (1) year warranty for all materials and workmanship associated with the project or work performed under the Contract.

23. Insurance

- **Worker's Compensation**
 - State: Statutory
 - Applicable Federal (e.g., Longshoremen's): Statutory
 - Employer's Liability
 - \$1,000,000.00 Per Occurrence
 - \$500,000.00 Disease, Policy Limit
 - \$500,000.00 Disease, Each Employee
- If written under **Commercial General Liability Policy** Form
 - \$2,000,000.00 General Aggregate
 - \$1,000,000.00 Products Completed Operations Aggregate
 - \$1,000,000.00 Personal and Advertising Injury
 - \$1,000,000.00 Each Occurrence
 - \$ 50,000.00 Fire Damage (any one fire)
 - \$ 50,000.00 Medical Expense (any one person)
- **Business Automobile Liability** (including owned, non-owned and hired vehicles):
 - Bodily Injury
 - \$1,000,000.00 Per Person
 - \$1,000,000.00 Per Accident
 - Property Damage
 - \$1,000,000.00 Per Occurrence
- **Umbrella Excess Liability**
 - \$2,000,000.00 over Primary Insurance
 - \$2,000,000.00 Retention for Self-Insured Hazards Each Occurrence

- A. General: The Contractor shall not commence work under the Contract until he has obtained all insurance required, and it has been approved by the Owner, nor shall Contractor allow any Subcontractor to commence work on any portion of the work until all insurance required of the Subcontractor and Sub-subcontractor has been similarly approved by the Owner.

All such insurance shall be purchased only from companies licensed and duly authorized by the Department of Insurance of the State of Illinois to do business in Illinois and to write the types of insurance policies as herein specified. Insurance companies must have a minimum policy holder's rating of A+ and a financial rating of AAAAA as stated in the latest edition of Best's Insurance Guide.

The insurance coverages must be maintained by the Contractor and the Subcontractor until all work is completed by the Contractor and accepted by the Owner. If the policy is written on claims made basis, then the Contractor shall purchase such additional insurance as may be necessary to provide specified coverage to the District for a period of not less than five (5) years from the completion of the work.

- B. Automobile Liability: Contractor shall obtain at his expense and keep in force at all times during the performance of the work, Comprehensive Automobile Liability Insurance providing for bodily injury, personal injury and property damage, limits of an amount not less than \$1,000,000 per occurrence and \$2,000,000 per annual aggregate.
- C. General Liability Insurance: Contractor shall obtain at his expense and keep in force at all times during the performance of the work, Comprehensive General Liability Insurance providing for bodily injury, personal injury and property damage, limits of not less than \$1,000,000 per occurrence and \$2,000,000 annual aggregate.
- D. Worker's Compensation and Employer's Liability Insurance: Contractor shall obtain at his expense and keep in force at all times during the performance of work, worker's compensation and related insurance coverage at amounts required by statute and employer's liability with limits of not less than \$1,000,000 per occurrence.
- E. Certificates of Insurance: Within five (5) calendar days after receipt of the "Written Notice to Proceed", the Contractor shall file with the Owner, a Certificate of Insurance and Policy Endorsement showing complete coverage of all insurance required by this Section signed by the insurance companies or their authorized agents, certifying to the name and address of the party insured, the description of the work covered by such insurance, the insurance policy numbers, the limits of liability of the policies and the dates of their expirations, with a further certification from said insurance companies that their policies will not be modified, amended, changed, cancelled or terminated without thirty (30) business days prior written notice to the Owner. If any form of umbrella or excess coverage policy is utilized by the Contractor, the Owner reserves the right to require a copy of the entire policy.

- F. All policies of insurance purchased or maintained in fulfillment of this paragraph 24 shall name the Owner and Architect/Engineer as additional insureds thereunder.
- G. Failure of Owner to demand any certificate, endorsement or other evidence of full compliance with these insurance requirements or failure of Owner to identify a deficiency from evidence that is provided shall not be construed as a waiver of Contractor's obligation to maintain such insurance. The Contractor agrees that the obligation to provide the insurance required by these documents are solely its responsibility and that this is a requirement which cannot be waived by any conduct, action, inaction or omission by the Owner.
- H. Nothing contained in the insurance requirements of the Contract Documents is to be construed as limiting the liability of the Contractor, the liability of any Subcontractor or any tier or either of their respective insurance carriers. The Owner, does not in any way, represent that the coverages or limits of insurance specified is sufficient or adequate to protect the Owner, Contractor, Architect/Engineer, or any Subcontractor's interests or liabilities but are merely at minimums. The obligation of the Contractor, the Architect/Engineer, and any Subcontractor of any tier to purchase insurance, shall not, in any way, limit their obligations to the Owner in the event the Owner should suffer an injury or loss in excess of the amount recoverable through insurance, or any loss or portion of the loss which is not covered by either the Contractors or any Subcontractor insurance.
- I. On the Certificate of Insurance, delete in the cancellation provision the following words, "Endeavor to" and "but failure to mail such notice shall impose no obligation or liability of any kind upon the company, its agents or representatives."
- J. All the insurance required of the Contractor shall state that the coverage afforded to the additional insureds shall be primary insurance of the additional insureds with respect to claims arising out of operations performed by or on their behalf. If the additional insureds have other insurance or self-insured coverage which is applicable to the loss, it shall be on an excess or contingent basis.
- K. All insurance required of the Contractor shall provide that any failure to comply with reporting provisions of the policies shall not affect coverage provided to the Owner or Architect/Engineer or any of their officers, directors, commissioners, officials, employees, consultants, volunteers, or agents. I. All insurance required of the Contractor shall provide that the insurance shall apply separately to each insured against whom claim is made or suit is brought, except with respect to the limits of the insurer's liability.

L. In the event the Contractor fails to furnish and maintain the insurance required by this contract, the Owner may purchase such insurance on behalf of the Contractor, and the Contractor shall pay the cost thereof to the Owner upon demand or shall have such cost deducted from any payments due the Contractor. The Contractor agrees to furnish to the Owner the information needed to obtain such insurance.

M. In order to protect the Owner and Architect/Engineer the Contractor shall require that all its Subcontractors purchase insurance protecting the Owner and Architect/Engineer to the same extent they are protected by the insurance required herein from the Contractor.

N. Owner's Liability Insurance

1. The Contractor shall purchase and maintain insurance covering the Owner's liability for claims which may arise from operations under the Contract and that will protect the Owner and the Architect/Engineer and their agents and employees from and against all claims, damages, losses and expenses including attorney's fees arising out of or resulting from the performance of the work, provided that any such claim, damage, loss or expense (1) is attributable to bodily injury, sickness, disease or death, or to injury or to destruction of tangible property (other than the work itself) including the loss of use resulting therefrom and (2) is cause in whole or in part by any negligent act of omission of the Contractor, and Subcontractor, anyone directly or indirectly employed by any of them, or anyone for whose acts any of them may be liable, regardless of whether or not it is caused in part by a party to whom insurance is afforded pursuant to this paragraph. The minimum limits of liability purchased for such coverage shall be equal to the aggregate of the limits required for the Contractor's Liability Insurance under 24 above.
2. In any and all claims against the Owner or the Landscape Architect or any of their agents or employees by any employee of the Contractor, any Subcontractor, anyone directly or indirectly employed by any of them, or anyone for whose acts any of them may be liable, the insurance obligation under this paragraph shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for the Contractor or any Subcontractor under Workmen's Compensation Acts, disability benefit acts or other employee benefit acts.
3. The insurance obligations of the Contractor under this paragraph shall not extend to the liability of the Landscape Architect, his agents or employees arising out of (1) the preparation or approval of maps, drawings, opinions, reports, surveys, change orders, designs or specifications or (2) the giving of or failure to give directions or instruction by the Landscape Architect, his agents or employees provided that such giving or failure to give is the primary cause of the injury damage.
4. The Contractor shall provide the Owner with the Original policy and shall furnish the Architect/Engineer a memorandum copy of said policy. The

named insured in the Protective Liability Policy shall be: Hoffman Estates
Park District

24. Indemnification

To the fullest extent permitted by law, the Contractor shall waive any right of contribution against the Owner and shall indemnify and hold harmless the Owner and the Landscape Architect and their officers, officials, employees, volunteers and agents from and against all claims, damages losses and expenses, including, but not limited to, legal fees (attorney's and paralegal's fees, expert fees and court costs), arising out of or resulting from the performance of the Contractor's work provided that any such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or injury to or destruction of property, other than the work itself, including the loss of use resulting therefrom, or is attributable to misuse or improper use of trademark or copyright protected material or otherwise protected intellectual property, to the extent it is caused in whole or in part by any wrongful or negligent act or omission of the Contractor, any Subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable. Such obligation shall not be construed to negate, abridge or otherwise reduce any other right to indemnity which the Owner would otherwise have. The Contractor shall similarly, protect, indemnify and hold and save harmless, the Owner, its officers, officials, employee, volunteers and agents against and from any and all claims, costs, causes, actions and expenses, including, but not limited to, legal fees, incurred by reason of Contractor's breach of any of its obligations under, or Contractor's default of any provisions of the Contract. The indemnification obligations under this paragraph shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for the Contractor or any subcontractor under Workers' Compensation or Disability Benefit Acts or Employee Benefit Acts

25. Labor Law

The Contractor and each and every Subcontractor performing work at the site of the project to which this Contract relates shall comply with applicable and provisions of all pertinent Federal, State, and Local Labor Laws.

26. Final Cleaning

Just prior to delivery of the job to the Owner, the Contractor shall perform a final cleaning of the equipment and haul away from the job site all debris created by his work on the site and surrounding area.

27. Time Schedule/Major Repairs

Work under the Contract shall commence within five (5) calendar days after given "Written Notice to Proceed" by Owners (or date specified) and shall continue with due diligence until due completion.

Each Contractor or Subcontractor shall and does hereby agree that he will start and prosecute his work so as to cause no delay to the Contractor and that he will complete all work under his Contract coincidentally with completion of Contractor's work.

The Contractor shall submit an estimated time schedule setting up order of procedure and time allowed for each branch of work. Contractor shall make every effort to adhere to these schedules, but reasonable modifications will be permitted from time to time to compensate for delays due to strikes or conditions beyond Contractor's control, exclusive of weather.

28. Avoidance of Delays (Major Repairs)

Each Contractor and Subcontractor shall be furnished a copy of the "Time Schedule" referred to above, and each shall so prosecute his work that he not only maintains his progress in accordance with the said Time Schedule but also shall cause no delays to other Contractors, either in person or through a Subcontractor, fail to maintain progress according to the approved Time Schedule or cause delay to another Contractor or Subcontractor, he shall furnish such additional labor and/or services or work such overtime as may be necessary to bring his operation up to schedule with no additional cost to Owner. Failure to maintain schedule or to the above steps to regain the agreed time schedule shall constitute default within the terms of the Contract and grounds on which the Owner may have recourse to the Contractor's Surety for remedial action.

29. Unit Prices and Measurement (if applicable)

Upon completion of the work, a final measurement will be conducted by the Contractor and Owner. Unit prices included in the bid proposal will be applied to the units measured to determine the final/total price of the work.

30. Assignment

The Contractor or any Subcontractor shall not assign the Contract nor any monies due to become due to him hereunder, to any Person, Firm, or Corporation without previous written consent of the Owner.

31. Extras

No extra work shall be allowed or paid for unless a Change Order is made and accepted by the Owner in writing.

32. Examination of Site

Before submitting proposal, contractors shall examine site. Such an examination will be presumed and no allowance will be made for extra labor or materials due to Contractor's failure to do so. Any information furnished by the Owner shall not constitute a representation concerning site conditions and the Contractor shall bear, solely and exclusively, all costs due to concealed, unknown, unusual or otherwise unforeseen conditions at the site. Contractor is aware that all such risk concerning site conditions is borne by it, has considered such in making its bid, and therefore freely waives all of its rights under the Illinois Public Construction Contract Act of 1999 .

33. Safety

The Contractor is responsible for the safe passage of pedestrian traffic for the duration of the job. Any precautionary measures, necessary warning signs, barricades, etc., required to inform the general public of potential hazards or dangers and as necessary to assist the Contractor in the performance of the work, shall be at his expense and provided for in his quoted price. **Public safety is a foremost concern of the Owner, therefore failure by the Contractor to take a pro-active approach to safety is unacceptable. If necessary, the Owner will take whatever steps deemed appropriate, at the cost of the Contractor, to ensure the safety of the general public and our employees.**

34. Personnel

If any person employed on the work site be, in the opinion of the Owner, intemperate, disorderly, incompetent, willfully negligent or dishonest in the performance of his duties, he shall be directed to cease work and vacate the job site immediately.

35. Liens

No payment shall become due until the Contractor, if required, shall deliver to Owner a complete release of all liens arising out of this Contract, or receipts in full in lieu thereof and, if required in either case, an affidavit that so far as he has knowledge or information, the releases and receipts include all the labor and material for which a lien could be filed. If any lien remains unsatisfied after all payments are made, the Contractor shall refund to the Owner all monies that the latter may be compelled to pay in discharging such a lien, including all costs and a reasonable attorney's fee.

36. Default

In case of default by the Contractor, the Owner may procure the articles or services from other sources and hold the Contractor responsible for any excess cost occasioned thereby.

37. Cancellation of Contract

If the Contractor or any of his Sub-contractors shall, in the judgment of the Hoffman Estates Park District, be unable to carry on the work satisfactorily, or if the Contractor or any of his Sub-contractors shall violate any of the provisions of this contract, or in case of bankruptcy of the Contractor, or failure of the Contractor to pay for supplies or workmen, or a work-stoppage, or a failure by the Contractor to provide sufficient workmen or sufficient material for the job, the Owner may serve written notice upon the Contractor and his Surety of his intention to terminate the Contract, and, if within seven (7) days after the service of such notice, the Contractor or the Sub-contractor or the Surety have not proceeded to carry on the work in accordance with this Contract and to the satisfaction of the Owner, this Contract shall cease and terminate and the Owner shall have the right to take over the work and prosecute the same to completion by Contract for the account and at the expense of the Contractor and the Surety; and the Contractor and Surety shall be liable to the Owner for any excess costs occasioned by the Owner thereby, and in such event the Owner may take possession of and utilize in completing the work such materials, appliances, and plants as may be on the site of the work and necessary therefore; provided, however, that in the event the Owner determines that the failure of the Contractor, Sub-contractor or Surety to carry on the work in accordance with this Contract has resulted in an emergency which will require that the Owner take over the work immediately, to avoid loss or waste of a substantial part of the work already performed, the Owner may immediately take over the work and prosecute the same at the expense of the Contractor and Surety to the extent necessary to avoid damage, and may prosecute the same at the expense of the Contractor and Surety to the extent necessary to avoid damage, and may prosecute the same to completion at the expense of the Contractor and the Surety unless within seven (7) days after the services of the above described notice, the Contractor, Sub-contractor or Surety has proceeded to carry on the work in accordance with this Contract and to the satisfaction of the Hoffman Estates Park District.

38. Lien Waivers (if applicable)

Neither by partial nor final payment will the Owner be deemed to have waived any remedy for defective work or negligence on the part of the Contractor or any other portion of the Contract which, by its nature, survives after time of payment.

Supporting partial Waivers of Lien for each Subcontractor, supplier and prime contractor must accompany each request for progress payment.

Waivers must spell out exact description of work performed for which Waiver is issued and state whether dollar amount is full amount received or amount of work less retainage, held by prime contractor.

For final payment it is necessary to submit final waivers in the full amount of the Contracts for all Subcontractors, suppliers and prime contractors.

Waivers must be accompanied by a sworn statement listing Subcontractors and suppliers, the amount of their Contracts and the amount requested.

39. Line and Grade Stakes (if applicable)

Stakes for lines and grades shall be provided once by the Owner. Costs for replacement of damaged stakes shall be paid by the Contractor. Prior to commencing work and before pouring or finally adjusting any structure or closing any excavation, the Contractor shall verify the correctness of any grades so as to conform to the Contract Documents.

40. Construction Observation

A Consultant may be called upon to observe the work on behalf of the Owner and will provide general assistance during construction insofar as proper interpretation of the Contract Documents is affected. The consultant shall not be responsible for the acts or omissions of the Contractor's superintendent or other employees.

All materials used and all completed work by the Contractor shall be subject to the observation of the Owner/Owner's representative. The Contractor shall furnish such samples of materials for examination and tests as may be requested by the Owner and shall furnish any information required concerning the nature or source of any materials or equipment, which he proposes to use. Any material, equipment, or work which does not satisfactorily meet the Contract Documents may be rejected by the Owner by giving written notice to the Contractor. All rejected materials, equipment, or work shall be promptly removed and replaced at the Contractor's expense.

41. Field Representatives

Field representatives may be appointed by the Owner, Landscape Architect to see that the work is performed in accordance with the Contract Documents. Field representatives shall have the authority to condemn and/or reject defective work materials. Only the Owner shall have authority to suspend work. Field representatives shall have no authority to permit deviation from the Contract

Documents and Owner; the Contractor shall be liable for any deviations made without a written order from the Landscape Architect

Bid Instructions for Concrete Contractor

The Hoffman Estates Park District will receive sealed bids for the Birch Park Project. The project includes a new parking lot with curb, new concrete sidewalks, asphalt path, new basketball court with net, and a new picnic shelter. The concrete contractor will be responsible for all concrete installation including the foundations for the basketball net, shelter, curbing, concrete sidewalks, etc.

Note: the Hoffman Estates Park District will be construction managing the overall project.

Bids are due and will be opened and read aloud on March 3, 2021 at 10:30 AM at the Hoffman Estates Park District's Triphahn Center which is located at 1685 West Higgins Road in Hoffman Estates, Illinois.

A Certified Check, Cashier's Check or Bid Bond payable to the Hoffman Estates Park District for not less than five (5) percent of the total bid amount will be required for each bid.

The successful bidder will be required to furnish a satisfactory Performance Bond and Labor and Material Payment Bond for the total Contract Amount. The successful bidder will also be required to execute AIA Form A101 – 2017 as the contract between the parties.

All questions should be directed to Dustin Hugen at the Hoffman Estates Park District via email at dhugen@heparks.org.

In all work performed under this Contract, the Contractor and all of its subcontractors shall comply with the current provisions of the Prevailing Wage Act of the Illinois Revised Statutes, Chapter 48, Sections 39s-1 *et seq.*

No bids will be withdrawn without the written consent of the Hoffman Estates Park District. If a Bid is withdrawn, the Bidder will not be permitted to submit another Bid for the same project. Only bids in compliance with the provisions of the Bid Documents will be considered. Bids will be considered firm for a period of ninety (90) days. The Streamwood Park District reserves the right to reject any or all bids or portions of bids/portions of work and to waive any technicalities in the bidding if it should be deemed in the public interest.

Bid Instructions

Preparation of Bid Proposals

The bidder shall submit his prices on the attached proposal forms. The proposal shall be executed properly and all writing shall be with blue or black ink.

The bidder shall specify in figures, in the places provided, a price for each of the separate items called for in the proposal forms.

The bidder shall return all of the project manual “specifications” with the bid, and **no sheets shall be detached from any part of the bid documents.**

Scope of Work

The scope of work includes the installation of all proposed concrete improvements including but not limited to concrete curbs, foundations (with the exception of the playground equipment), pavements, sidewalk, slabs, etc.

Beginning and Completion Dates

Begin Construction: May 3, 2021

End Construction: July 30, 2021 (Substantial Completion)

100 % Completion August 20, 2021

Project Contact
Mr. Dustin Hugen
(847) 285-5465
dhugen@heparks.org

Please Submit All Technical Questions in Writing to Above Email Address

Special Conditions

Specification or Information Conflicts

Should any Specifications, Information, Directives, Notes, Tags or Provisions contained in the Construction Documents conflict with any other Specification, Information, Directives, Notes, Tags or Provisions contained in the Construction Documents, then the more stringent Specification, Information, Directive, Note, Tags or Provision shall apply.

Limit of Construction

Construction traffic and material staging shall be permitted only within the Limit of Construction area as shown on the Construction Plans. The Contractor shall repair, at no additional cost to the Owner, any areas disturbed outside of this limit. Turf repairs will be made with sod.

Excess Materials and Debris

All excess materials and debris etc., generated by this work, shall be considered an incidental item to the Bid, and hauled from the site. Large amounts of debris will not be permitted to accumulate on the site and must be hauled from the site on a continuous basis.

Construction Access

Construction access shall be permitted only through the access point as shown on the plan. No other access will be permitted. The Contractor shall be responsible for protection of existing curbs and pavements and for replacement of any damage, at no additional expense to the Owner.

Existing Utility Structures and Utility Lines

The Contractor will be responsible for locating all existing utility structures and utility lines prior to any excavation or demolition. These include but are not limited to water, sanitary, drainage, telephone, fiber optics, cable television, natural gas, and electrical structures and lines. Contact J.U.L.I.E., the Village of Hoffman Estates prior to construction. Private site underground utility locating services shall be provided as specified on the plans.

Traffic Control

The Contractor will be responsible for controlling traffic when construction vehicles are entering or exiting the site. The Contractor will be responsible for the erection and maintenance of barricades, signage and miscellaneous traffic control measures to insure that vehicular traffic flows smoothly and safely within the site and on the streets surrounding the site.

Dust and Noise Control

The Contractor will be responsible for control of dust throughout the duration of the project. The Contractor will also be required to conform with any applicable Village of Hoffman Estates noise ordinances.

Street Cleaning

The Contractor will be responsible for cleaning surrounding streets of any mud or debris at the end of each workday. Street sweeping equipment may be used to fulfill this requirement.

Hold Harmless

The Contractor agrees to indemnify, save harmless and defend the Hoffman Estates Park District, its consultants, agents and employees, and each of them against and hold it and them harmless from any and all lawsuits, claims, demands, liabilities, losses or expenses, including court costs and attorney's fees, for or on account of any injury to any person, or any death at any time resulting from such injury, or any damage to any property, which may arise or which may be alleged to have arisen out of or in connection with the work covered by this contract. The foregoing indemnity shall apply except if such injury, death or damage is caused directly by the negligence or fault of the Hoffman Estates Park District, its consultants, agents, servants, or employees or any other person indemnified hereunder.

Prevailing Wage

In all work performed under this Contract, the Contractor and all of its subcontractors shall comply with the current provisions of the Prevailing Wage Act of the Illinois Revised Statutes, Chapter 48, Sections 39s-1 *et seq.* Certified Payrolls are to be delivered to the Owner with each Application for Payment. Union labor per say is not required by the Park District, however prevailing wage is required. It is the contractor's responsibility to ensure that construction delays are avoided due to union issues.

Sexual Harassment

The Contractor and all of its subcontractors shall comply with the Sexual Harassment provisions of the Illinois Human Rights Act (775 ILCS 5/1-101 *et seq.*). Certified Payrolls are to be delivered to the Owner with each Application for Payment.

Equal Opportunity

In all work performed under this Contract, the Contractor and all of its subcontractors shall certify that they are an "Equal Opportunity Employer" as defined by Section 2000 (e) of Chapter 21, Title 42 of the United States Code, Annotated and Federal Executive Orders #11246 and #11375.

Licenses and Permits

The Contractor will be responsible for obtaining a Contractor's License and all applicable Permits from the Village of Hoffman Estates, and any other regulatory agencies or governmental bodies, prior to beginning any work on this project. Contractor shall contact the village to determine what fees will be required for inspections and the appropriate licenses, and shall include these costs within the bid.

Protection of Existing Trees

The Contractor shall be responsible for protection of all existing trees to remain on the project site. The Contractor may, at his own cost, fence any trees that may be in danger of damage or be near active construction. Any damage to an existing tree will result in a back-charge to the Contract of \$100 per caliper inch of the damaged tree. The caliper of the damaged tree will be measured 1.0' above existing grade.

Concrete Testing

The Contractor will be required to provide samples of all concrete used for this project. One test cylinder will be required from each truckload of concrete delivered to the site. Each test cylinder must be clearly marked with the date of the pour, load ticket number, the name of the concrete supplier and the location where the concrete was used. The Owner, at their own cost, will test these cylinders to determine if concrete meets project specifications. The Contractor will be responsible for disposing of all untested cylinders.

Protection of Existing Features

The Contractor will be responsible for protecting all existing features in the work area including walks, pavements, curbs, site furnishings, and utilities, etc. Damage to any existing features will be repaired or replaced by the Contractor at no additional expense to the Owner. Turf repairs will be made with sod.

Grading and Compaction

All grading performed for this project shall conform to the specifications. Mechanical compacting devices as outlined in the specifications must be utilized to perform the compacting that is necessary for this project.

Employer Liability

The Contractor (and each subcontractor and sub-subcontractor into whose subcontracts this clause shall be incorporated) agrees to assume the entire liability for all personal injury claims suffered by its own employees, including but without limitation claims under the Illinois Structural Work Act, asserted by persons allegedly injured on the Project; waives any limitation of liability defense based upon Worker's Compensation Act, court interpretation of said Act or otherwise; agrees to indemnify and defend Owner, Engineer, Construction Manager and their agents, employees and consultants (the "Indemnitees") from and against all such loss, expense, damage or injury, including reasonable attorney's

fees, that the Indemnitees may sustain as a result of such claims, except to the extent that Illinois Law prohibits indemnity for the Indemnitees' own negligence.

Bid Document Review

Bidders are encouraged to review the Bid Documents immediately upon receipt. The Owner and Engineer will be available to make interpretations regarding the Bid Documents and answer any questions that may arise during the Bid process. No inquiries will be accepted by the Engineer within two (2) working days of the Bid Opening. All questions shall be submitted in writing to the following email address:

dhugen@heparks.com

Reservation of Rights

Hoffman Estates Park District reserves the right to act in its own best interest and award the work to the Contractor, or Contractors it deems best able to complete the work in an appropriate and timely manner.

Construction Layout

All construction staking will be the responsibility of the contractor.

AIA General Conditions and AIA Contract Forms

The General Conditions of this contract are the American Institute of Architects' Standard Document No. A-201, "General Conditions of the Contract for Construction," 2017, as modified by the Supplementary General Conditions. The document is hereby specifically made apart of the contract documents with the same force and effect as though set forth in full. The Contract for this project is the American Institute of Architects' Standard Document No. A-101, "Standard form of Agreement Between Owner and Contractor, where the basis of payment is a Stipulated Sum", 2017. The document is hereby specifically made apart of the contract documents with the same force and effect as though set forth in full.

Copies of these documents are on file at the office of the Engineer and maybe referred to at any time during normal business hours.

The Contractor is directed to the Supplementary Conditions, which modify the General Conditions.

2021 Hoffman Estates Park District Birch Park

CONTRACTOR'S CERTIFICATION

As required under Article 33E of The Criminal Code of
1961 (Ill. Rev. Stat. Ch 38, Paras. 33E-1 through 33E-11)

_____ a _____
Name of Contractor Corporation, Partnership, etc.

as part of its bid on the above sole referenced Contract, hereby certifies that the Contractor is not barred from bidding on the above referenced Contract as a result of a violation of either Section 33E-3 (Bid-Rigging) or 33E-4 (Bid-Stating) of Article 33E of the Illinois Criminal Code of 1961, as amended.

Dated: _____

Contractor:

By: _____

As its: _____

STATE OF ILLINOIS)
) SS.
COUNTY OF COOK)

I, the undersigned, a notary public in and for the State and County aforesaid, hereby certify that _____ appeared before me this day in person, and being first duly sworn an oath, acknowledged that he/she executed the foregoing certification as his/her free act and deed.

Dated: _____ Notary Public: _____

Project References

(Failure to complete will result in disqualification of Bid.)

Please submit at least five (5) references for similar projects completed within the past two (2) years.

1. Project Name: _____

Contact Person/Title/Phone: _____

Project Cost : _____ Date of Completion: _____

2. Project Name: _____

Contact Person/Title/Phone: _____

Project Cost : _____ Date of Completion: _____

3. Project Name: _____

Contact Person/Title/Phone: _____

Project Cost : _____ Date of Completion: _____

4. Project Name: _____

Contact Person/Title/Phone: _____

Project Cost : _____ Date of Completion: _____

5. Project Name: _____

Contact Person/Title/Phone: _____

Project Cost : _____ Date of Completion: _____

Company Name: _____

Bidder's Signature: _____

Title

Sub-Contractor and Supplier List

(Failure to complete will result disqualification of Bid.)

The sub-contractors and suppliers listed below will be involved in this contract work in the assignments listed. We understand that any deviation from this list must be requested in writing and approved by the Owner one (1) week prior to the start of the work that is involved.

Sub-Contractor
(Including Address & Phone Number)

Work Performed

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

Material Supplier

Material Supplied

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

Company Name:_____

Bidders Signature:_____

Title

Bid Proposal Form – Concrete Contractors

Base Bid

Bid Price

Concrete Paving Scope - Scope includes furnishing and installing all concrete pavement, concrete curbs, concrete foundations, concrete sidewalk, concrete slabs on the site and offsite as well as any re-grading required to meet the proposed finished grades (note the earthwork contractor will be bringing the site to subgrade). Providing and installing ADA detectable warning panels.

\$ _____

The concrete contractor shall also install all subbase material (IE all CA-6, CA-7, etc.) for all concrete construction. The concrete contractor shall also coordinate utility location penetrations into curbs, foundations, etc. with the utility contractor.

The concrete contractor will be responsible for the installation of the foundations for the proposed basketball net and shelter as well as the concrete slabs associated with the shelter. The concrete contractor shall install the proposed basketball net. The Park District will install the shelter. The concrete contractor shall coordinate the shelter foundation installation with the Park District. **The contractor shall obtain foundation sizing from the shelter manufacturer and shall provide signed and sealed shop drawings for review as part of the shop drawing submittals.**

Unit Prices

Bid Price

Unit Price #1 – Provide and install new 5” concrete sidewalk per the detail.

\$ _____ /Sq. Yd.

Unit Price #3 – Provide and install B6.12 Curb and Gutter per the detail.

\$ _____ /L.F.

Unit Price #4 – Provide and install new concrete monolithic curb and sidewalk.

\$ _____ /Sq. Yd.

\$ _____ /L.F.

Unit Price #5 – Provide and install new playground curb.

Bidder Information

Company Name: _____

Address: _____

City/State/Zip: _____

Telephone: _____ Fax: _____

E-Mail Address: _____

Bidder's
Signature: _____

Title

Bidder's Name:
(Printed) _____

SECTION 2050

GENERAL SITE CONDITIONS

Locating Existing Utilities: It is the Contractors responsibility to have all existing utilities located before construction begins. This information can be obtained by calling JULIE (Joint Utilities Locating Information for Excavators) toll free at 1-800-892-0123, the Village of Hoffman Estates Water Department for water lines and shut-off location and for street light cables, the Village's Traffic Engineer's office.

Permits: The Contractor shall obtain and pay for all necessary permits and shall make all necessary arrangements for carrying out the work with the utility companies and any authorities involved.

Street Light Cables During progress of the work, constant contact should be maintained with the Village of Hoffman Estates Engineering Department for the purpose of locating buried cables. Cables shall be maintained in service.

A. PLANT MATERIALS

All existing trees, shrubs, lawns and other plant material, unless otherwise specified, shall be protected from mechanical injury. There shall be full protection of all plants including all limbs, trunks and exposed roots, and relief from soil compaction.

Any trees damaged during the course of construction by either the General Contractor or a qualified nurseryman shall repair any of his subcontractors at the Contractor's expense. All repairs must be done to the satisfaction of the Superintendent.

If any tree is damaged beyond repair, it shall be removed by the Contractor and replaced with a new tree of equivalent size and species as designated by the Superintendent of Parks at the cost of the Contractor.

The Contractor shall repair all tracks and ruts in the lawn left by his vehicle or the vehicles of his subcontractors. All repairs shall be done to the satisfaction of the Superintendent

B. PAVEMENTS AND WALKS

Any pavement areas damaged by the Contractor during the construction operation shall be replaced to the satisfaction of the Superintendent at Contractor's expense.

C. TRAFFIC SIGNS

The Contractor when authorized by the Village's Traffic Engineer may remove any traffic sign within the limits of construction, which interferes with construction operations. Any traffic sign which has been removed shall be re-erected immediately by the Contractor at the temporary location designated by the Traffic Engineer, and as soon as construction operations permit, the sign shall be set at its permanent location. The cost of all materials required and all labor necessary to comply with this provision will not be paid for separately but shall be considered as incidental to contract.

The Contractor shall replace at his own expense any traffic signs or posts, which have been damaged due to his operations.

Any traffic sign designated as critical by the traffic sign owner shall not be disturbed and no additional compensation will be allowed the Contractor for any delays, inconvenience, or damage sustained by him due to any special construction methods required in prosecuting his work due to the existence of such traffic signs.

END OF SECTION 02050

SECTION 2100 - SITE PREPARATION

1.0 GENERAL

1.1 Description

This work shall consist of the complete removal of all items called for in the plans and specifications or as otherwise implied in a safe and orderly manner creating as little disturbance as possible.

All areas indicated for construction of any kind shall be cleared of any debris, undergrowth, weeds, stumps, roots, and marked trees which might interfere with the progress of that work. Unmarked trees or any plant material indicated to be saved by the Owner or owner's representative shall be given special protection as specified.

2.0 PRODUCTS (not applicable)

3.0 EXECUTION

3.1 Safety of Operations

During removal operations, proper signs and security fence shall be installed by the Contractor prior to commencing work. Barricades shall be used to warn and protect the public against hazards. If a street must be temporarily closed to traffic, it shall be the Contractor's obligation to make arrangements for permission from the Village Traffic Engineer. After such approval is obtained, the Contractor shall notify both the Village Police and Fire Departments of actual times and dates of closure.

3.2 Protection of Items to Remain

Extreme care shall be utilized when removing any item adjacent to structures, utilities, paving, vegetation or any item not indicated for removal or relocation. These items shall be properly protected as required to keep them from damage or other disturbance of any kind during the course of work. Existing utilities to remain shall be protected and maintained to prevent leakage, settlement or other damage. Damage to any of the above shall be repaired or replaced to former condition as required by the utility company or Owner at the Contractor's expense. Repair of damaged utility shall be completed within 48 hours of damage occurring.

During the excavation for any new walks, pavements and the play area, it can be assumed that some root structure from the nearby existing trees will be encountered. Before cutting major roots exceeding 3 inches in diameter, notify the Owner's representative for approval. Care must be exercised during the excavation to minimize damage to existing trees.

The contractor shall protect all existing trees to remain by clearly identifying each tree. No traffic, excavation or filling shall take place within the drip line of each tree unless indicated on plan.

3.3 Plant Damage Compensation

The contractor will be penalized \$100 per diameter inch for any tree damaged during construction. Diameter shall be measured twelve inches (12") above grade.

3.4 Removal Responsibility

All debris, trees, stumps, sod or soil to be cleared and removed from the project area shall be legally disposed of off site at the arrangement and expense of the Contractor. No materials will be stockpiled on site for future disposal; materials used for fill or topsoil may be stored on site. No excavation areas will be left in unsafe or unsightly conditions at days end.

The Contractor will be responsible for all transportation and disposal fees associated with this work. Burning of any materials on site is prohibited.

As a result of Public Act 90-761, which amends the Environmental Protection Act concerning general construction or demolition debris, new restrictions have been placed on material that is removed within the limits of a construction contract.

The revisions to the Act place specific requirements on construction or demolition debris, clean or general, or uncontaminated soil generated during construction, remodeling, repair, and demolition of utilities, structures and roads that is not commingled with any waste. When this material is removed from a job site and disposed of, certain criteria must be met as follows:

1. Either the Local Agency or the Contractor must ensure that load tickets and manifests that document the transfer, disposal, or other disposition of all debris leaving the construction site are completed.

2. The load ticket and manifest shall:

- a. Identify the hauler, generator, and place of generation of the debris or soil.
- b. Identify the weight or volume of the debris or soil.
- c. Identify the location, owner, and operator of the facility where the debris or soil was transferred, disposed, recycled, or treated.

3. The generator, transporter or recycler must maintain this documentation for 3 years.

A sample form has been attached that may be used to monitor all construction and demolition debris leaving the job site.

In accordance with Section 107.01 of the "Standard Specifications for Road and Bridge Construction", a Contractor is required to observe and comply with all Federal and State laws, local laws, ordinances, and regulations when performing contract construction.

If a local agency desires to assign the documentation responsibility to the Contractor, the attached Special Provision should be inserted into the contract plans.

END OF SECTION 02100

Section 012200-Unit Prices

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for unit prices.
- B. Related Sections:
 - 1. Division 01 Section "Contract Modification Procedures" for procedures for submitting and handling Change Orders.
 - 2. Division 01 Section "Quality Requirements" for general testing and inspecting requirements.

1.3 DEFINITIONS

- A. Unit price is an amount incorporated in the Agreement, applicable during the duration of the Work as a price per unit of measurement for materials, equipment, or services, or a portion of the Work, added to or deducted from the Contract Sum by appropriate modification, if the scope of Work or estimated quantities of Work required by the Contract Documents are increased or decreased.

1.4 PROCEDURES

- A. Unit prices include all necessary material, plus cost for delivery, installation, insurance, applicable taxes, overhead, and profit.
- B. Measurement and Payment: Refer to individual Specification Sections for work that requires establishment of unit prices. Methods of measurement and payment for unit prices are specified in those Sections.
- C. Owner reserves the right to reject Contractor's measurement of work-in-place that involves use of established unit prices and to have this work measured, at Owner's expense, by an independent surveyor acceptable to Contractor.
- D. List of Unit Prices: A schedule of unit prices is included in the bid proposal form. Specification Sections referenced in the schedule contain requirements for materials described under each unit price.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 SCHEDULE OF UNIT PRICES

1. See bid proposal form for the unit prices.

END OF SECTION

SECTION 033000 - CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawing and general provisions of the Contract, including General and Supplemental Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes cast-in-place concrete, including formwork, reinforcement, concrete materials, mixture design, placement procedures, and finishes.
- B. Related Sections:
 - 1. Division 31 Section "Earth Moving" for drainage fill under slabs-on-grade.
 - 2. Division 32 Section "Concrete Paving"

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Design Mixtures: For each concrete mixture.
- C. Steel Reinforcement Shop Drawings: Placing drawings that detail fabrication, bending, and placement.
- D. Formwork Shop Drawings: Prepared by or under the supervision of a qualified professional engineer detailing fabrication, assembly, and support of formwork.
- E. Welding certificates.
- F. Material certificates.
- G. Material test reports.
- H. Floor surface flatness and levelness measurements.
- I. Field quality-control test and inspection reports.

1.4 QUALITY ASSURANCE

- A. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.
 - 1. Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities."
- B. Testing Agency Qualifications: An independent agency, qualified according to ASTM C 1077 and ASTM E 329 for testing indicated.
- C. Welding Qualifications: Qualify procedures and personnel according to AWS D1.4/D 1.4M, "Structural Welding Code - Reinforcing Steel."
- D. ACI Publications: Comply with the following unless modified by requirements in the Contract Documents:
 - 1. ACI 301, "Specifications for Structural Concrete,"
 - 2. ACI 117, "Specifications for Tolerances for Concrete Construction and Materials."
- E. Concrete Testing Service: Engage a qualified independent testing agency to perform material evaluation tests and to design concrete mixtures.
- F. Preinstallation Conference: Conduct conference at **[Project site]**.

PART 2 - PRODUCTS

2.1 FORM-FACING MATERIALS

- A. Smooth-Formed Finished Concrete: Form-facing panels that will provide continuous, true, and smooth concrete surfaces. Furnish in largest practicable sizes to minimize number of joints.
- B. Rough-Formed Finished Concrete: Plywood, lumber, metal, or another approved material. Provide lumber dressed on at least two edges and one side for tight fit.

2.2 STEEL REINFORCEMENT

- A. Reinforcing Bars: ASTM A 615/A 615M, **Grade 60** (Grade 420), deformed.
- B. Plain-Steel Welded Wire Reinforcement: ASTM A 185/A 185M, plain, fabricated from as-drawn steel wire into flat sheets.

2.3 CONCRETE MATERIALS

- A. Cementitious Material: Use the following cementitious materials, of the same type, brand, and source, throughout Project:
 - 1. Portland Cement: ASTM C 150, **[Type I]**, **[gray]**.**[Supplement with the following:]**
 - a. Fly Ash: ASTM C 618, **[Class F]**.
 - b. Ground Granulated Blast-Furnace Slag: ASTM C 989, Grade 100 or 120.
- B. Normal-Weight Aggregates: ASTM C 33, graded.
 - 1. Maximum Coarse-Aggregate Size **[1 inch (25 mm)]** nominal.
 - 2. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.
- C. Water: ASTM C 94/C 94M **[and potable]**.

2.4 ADMIXTURES

- A. Air-Entraining Admixture: ASTM C 260.
- B. Chemical Admixtures: Provide admixtures certified by manufacturer to be compatible with other admixtures and that will not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.
 - 1. Water-Reducing Admixture: ASTM C 494/C 494M, Type A.
 - 2. Retarding Admixture: ASTM C 494/C 494M, Type B.
 - 3. Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type D.
 - 4. High-Range, Water-Reducing Admixture: ASTM C 494/C 494M, Type F.
 - 5. High-Range, Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type G.
 - 6. Plasticizing and Retarding Admixture: ASTM C 1017/C 1017M, Type II.

2.5 FIBER REINFORCEMENT

- A. Synthetic Micro-Fiber: **[Monofilament]** polypropylene micro-fibers engineered and designed for use in concrete, complying with ASTM C 1116/C 1116M, Type III, **[1/2 to 1-1/2 inches (13 to 38 mm)]** long.

2.6 VAPOR RETARDERS

- A. Sheet Vapor Retarder: ASTM E 1745, Class **[A]** **[B]** **[C]**. Include manufacturer's recommended adhesive or pressure-sensitive tape.

- B. Sheet Vapor Retarder: Polyethylene sheet, ASTM D 4397, not less than **10 mils (0.25 mm)** thick.

2.7 CURING MATERIALS

- A. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately **9 oz./sq. yd. (305 g/sq. m)** when dry.
- B. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.
- C. Water: Potable.

2.8 RELATED MATERIALS

- A. Expansion- and Isolation-Joint-Filler Strips: **[ASTM D 1751, asphalt-saturated cellulosic fiber]**.

2.9 CONCRETE MIXTURES

- A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 301.
- B. Cementitious Materials: Use fly ash, pozzolan, ground granulated blast-furnace slag, and silica fume as needed to reduce the total amount of portland cement, which would otherwise be used, by not less than 40 percent.
- C. Admixtures: Use admixtures according to manufacturer's written instructions.
 - 1. Use **[water-reducing] [high-range water-reducing] [or] [plasticizing]** admixture in concrete, as required, for placement and workability.
 - 2. Use water-reducing and retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.
 - 3. Use water-reducing admixture in pumped concrete, concrete for heavy-use industrial slabs and parking structure slabs, concrete required to be watertight, and concrete with a water-cementitious materials ratio below 0.50.
- D. Proportion normal-weight concrete mixture as follows:
 - 1. Minimum Compressive Strength: **[4500 psi (31 MPa)]** at 28 days.
 - 2. Maximum Water-Cementitious Materials Ratio: **[0.44]**.
 - 3. Slump Limit: **[8 inches (200 mm) for concrete with verified slump of 2 to 4 inches (50 to 100 mm) before adding high-range water-reducing admixture or plasticizing admixture] <Insert dimension>**, plus or minus **1 inch (25 mm)**.
 - 4. Air Content: **[6]** percent, plus or minus 1.5 percent at point of delivery for **1-1/2-inch (38-mm)** nominal maximum aggregate size.
 - 5. Air Content: **[6] <Insert number>** percent, plus or minus 1.5 percent at point of delivery for **[3/4-inch (19-mm)]** nominal maximum aggregate size.

6. Air Content: Do not allow air content of trowel-finished floors to exceed 3 percent.
7. Synthetic Micro-Fiber: Uniformly disperse in concrete mixture at manufacturer's recommended rate, but not less than [1.5 lb/cu. yd. (0.90 kg/cu. m)].

2.10 FABRICATING REINFORCEMENT

- A. Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice."

2.11 CONCRETE MIXING

- A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94/C 94M[and **ASTM C 1116/C 1116M**], and furnish batch ticket information.
 1. When air temperature is between 85 and 90 deg F (30 and 32 deg C), reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F (32 deg C), reduce mixing and delivery time to 60 minutes.

PART 3 - EXECUTION

3.1 FORMWORK

- A. Design, erect, shore, brace, and maintain formwork, according to ACI 301, to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until structure can support such loads.
- B. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117.

3.2 EMBEDDED ITEMS

- A. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.

3.3 VAPOR RETARDERS

- A. Sheet Vapor Retarders: Place, protect, and repair sheet vapor retarder according to ASTM E 1643 and manufacturer's written instructions.
 1. Lap joints 6 inches (150 mm) and seal with manufacturer's recommended tape.

3.4 STEEL REINFORCEMENT

- A. General: Comply with CRSI's "Manual of Standard Practice" for placing reinforcement.

1. Do not cut or puncture vapor retarder. Repair damage and reseal vapor retarder before placing concrete.

3.5 JOINTS

- A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.
- B. Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Architect.
- C. Contraction Joints in Slabs-on-Grade: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least **[one-fourth]** of concrete thickness as follows:
 1. Grooved Joints: Form contraction joints after initial floating by grooving and finishing each edge of joint to a radius of **1/8 inch (3.2 mm)**. Repeat grooving of contraction joints after applying surface finishes. Eliminate groover tool marks on concrete surfaces.
 2. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut **1/8-inch- (3.2-mm-)** wide joints into concrete when cutting action will not tear, abrade, or otherwise damage surface and before concrete develops random contraction cracks.
- D. Isolation Joints in Slabs-on-Grade: After removing formwork, install joint-filler strips at slab junctions with vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.
- E. Waterstops: Install in construction joints and at other joints indicated according to manufacturer's written instructions.

3.6 CONCRETE PLACEMENT

- A. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections have been performed.
- B. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete will be placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as indicated. Deposit concrete to avoid segregation.
 1. Consolidate placed concrete with mechanical vibrating equipment according to ACI 301.
- C. Cold-Weather Placement: Comply with ACI 306.1.
- D. Hot-Weather Placement: Comply with ACI 301.

3.7 FINISHING FORMED SURFACES

- A. Broom Finish: Apply a broom finish to exterior concrete platforms, steps, ramps, and elsewhere as indicated.

3.8 CONCRETE PROTECTING AND CURING

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and ACI 301 for hot-weather protection during curing.
- B. Evaporation Retarder: Apply evaporation retarder to unformed concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching $0.2 \text{ lb/sq. ft.} \times h$ ($1 \text{ kg/sq. m} \times h$) before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.
- C. Cure concrete according to ACI 308.1, by one or a combination of the following methods:
 - 1. Moisture Curing: Keep surfaces continuously moist for not less than seven days.
 - 2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches (300 mm), and sealed by waterproof tape or adhesive. Cure for not less than seven days. Immediately repair any holes or tears during curing period using cover material and waterproof tape.
 - 3. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.
 - a. Removal: After curing period has elapsed, remove curing compound without damaging concrete surfaces by method recommended by curing compound manufacturer[**unless manufacturer certifies curing compound will not interfere with bonding of floor covering used on Project**].
 - 4. Curing and Sealing Compound: Apply uniformly to floors and slabs indicated in a continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Repeat process 24 hours later and apply a second coat. Maintain continuity of coating and repair damage during curing period.

3.9 CONCRETE SURFACE REPAIRS

- A. Defective Concrete: Repair and patch defective areas when approved by Engineer. Remove and replace concrete that cannot be repaired and patched to Engineer's approval.

3.10 FIELD QUALITY CONTROL

- A. Testing and Inspecting: Owner will engage a qualified testing and inspecting agency to perform field tests and inspections and prepare test reports.

END OF SECTION 033000

SECTION 312319 - DEWATERING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes construction dewatering.
- B. Related Sections:
 - 1. Division 01 Section "Construction Progress Documentation" for recording preexisting conditions and dewatering system progress.
 - 2. Division 31 Section "Earth Moving" for excavating, backfilling, site grading, and for site utilities.
 - 3. Division 31 Section "Excavation Support and Protection" for shoring, bracing, and sheet piling of excavations.

1.3 PERFORMANCE REQUIREMENTS

- A. Dewatering Performance: Design, furnish, install, test, operate, monitor, and maintain dewatering system of sufficient scope, size, and capacity to control hydrostatic pressures and to lower, control, remove, and dispose of ground water and permit excavation and construction to proceed on dry, stable subgrades.
 - 1. Delegated Design: Design dewatering system, including comprehensive engineering analysis by a qualified professional engineer, using performance requirements and design criteria indicated.
 - 2. Continuously monitor and maintain dewatering operations to ensure erosion control, stability of excavations and constructed slopes, that excavation does not flood, and that damage to subgrades and permanent structures is prevented.
 - 3. Prevent surface water from entering excavations by grading, dikes, or other means.
 - 4. Accomplish dewatering without damaging existing buildings, structures, and site improvements adjacent to excavation.
 - 5. Remove dewatering system when no longer required for construction.

1.4 SUBMITTALS

- A. Shop Drawings: For dewatering system. Show arrangement, locations, and details of wells and well points; locations of risers, headers, filters, pumps, power units, and discharge lines; and means of discharge, control of sediment, and disposal of water.
 - 1. Include layouts of piezometers and flow-measuring devices for monitoring performance of dewatering system.
 - 2. Include a written plan for dewatering operations including control procedures to be adopted if dewatering problems arise.
- B. Field quality-control reports.
- C. Other Informational Submittals:
 - 1. Photographs: Show existing conditions of adjoining construction and site improvements that might be misconstrued as damage caused by dewatering operations.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: An experienced installer that has specialized in design of dewatering systems and dewatering work.
- B. Regulatory Requirements: Comply with governing EPA notification regulations before beginning dewatering. Comply with hauling and disposal regulations of authorities having jurisdiction.
- C. Preinstallation Conference: Conduct conference at Project site.
 - 1. Review methods and procedures related to dewatering including, but not limited to, the following:
 - a. Inspection and discussion of condition of site to be dewatered including coordination with temporary erosion control measures and temporary controls and protections.
 - b. Geotechnical report.
 - c. Proposed site clearing and excavations.
 - d. Existing utilities and subsurface conditions.
 - e. Coordination for interruption, shutoff, capping, and continuation of utility services.
 - f. Construction schedule. Verify availability of Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
 - g. Testing and monitoring of dewatering system.

1.6 PROJECT CONDITIONS

- A. Interruption of Existing Utilities: Do not interrupt any utility serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility according to requirements indicated:
 - 1. Notify Architect and Owner no fewer than two days in advance of proposed interruption of utility.
 - 2. Do not proceed with interruption of utility without Architect's or Owner's written permission.
- B. Project-Site Information: A geotechnical report has been prepared for this Project and is available for information only. The opinions expressed in this report are those of geotechnical engineer and represent interpretations of subsoil conditions, tests, and results of analyses conducted by geotechnical engineer. Owner will not be responsible for interpretations or conclusions drawn from this data.
 - 1. Make additional test borings and conduct other exploratory operations necessary for dewatering.
 - 2. The geotechnical report is included elsewhere in the Project Manual.
- C. Survey Work: Engage a qualified land surveyor or professional engineer to survey adjacent existing buildings, structures, and site improvements, establishing exact elevations at fixed points to act as benchmarks. Clearly identify benchmarks and record existing elevations.
 - 1. During dewatering, regularly resurvey benchmarks, maintaining an accurate log of surveyed elevations for comparison with original elevations. Promptly notify Architect if changes in elevations occur or if cracks, sags, or other damage is evident in adjacent construction.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 PREPARATION

- A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by dewatering operations.
 - 1. Prevent surface water and subsurface or ground water from entering excavations, from ponding on prepared subgrades, and from flooding site and surrounding area.
 - 2. Protect subgrades and foundation soils from softening and damage by rain or water accumulation.

- B. Install dewatering system to ensure minimum interference with roads, streets, walks, and other adjacent occupied and used facilities.
 - 1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by authorities having jurisdiction.
- C. Provide temporary grading to facilitate dewatering and control of surface water.
- D. Monitor dewatering systems continuously.
- E. Promptly repair damages to adjacent facilities caused by dewatering.
- F. Protect and maintain temporary erosion and sedimentation controls, which are specified in Division 31 Section "Site Clearing" during dewatering operations.

3.2 INSTALLATION

- A. Install dewatering system utilizing wells, well points, or similar methods complete with pump equipment, standby power and pumps, filter material gradation, valves, appurtenances, water disposal, and surface-water controls.
 - 1. Space well points or wells at intervals required to provide sufficient dewatering.
 - 2. Use filters or other means to prevent pumping of fine sands or silts from the subsurface.
- B. Before excavating below ground-water level, place system into operation to lower water to specified levels. Operate system continuously until drains, sewers, and structures have been constructed and fill materials have been placed or until dewatering is no longer required.
- C. Provide an adequate system to lower and control ground water to permit excavation, construction of structures, and placement of fill materials on dry subgrades. Install sufficient dewatering equipment to drain water-bearing strata above and below bottom of foundations, drains, sewers, and other excavations.
 - 1. Do not permit open-sump pumping that leads to loss of fines, soil piping, subgrade softening, and slope instability.
- D. Reduce hydrostatic head in water-bearing strata below subgrade elevations of foundations, drains, sewers, and other excavations.
 - 1. Maintain piezometric water level a minimum of 24 inches (1500 mm) below surface of excavation.
- E. Dispose of water removed by dewatering in a manner that avoids endangering public health, property, and portions of work under construction or completed. Dispose of water and sediment in a manner that avoids inconvenience to others. Provide sumps,

sedimentation tanks, and other flow-control devices as required by authorities having jurisdiction.

- F. Provide standby equipment on site, installed and available for immediate operation, to maintain dewatering on continuous basis if any part of system becomes inadequate or fails. If dewatering requirements are not satisfied due to inadequacy or failure of dewatering system, restore damaged structures and foundation soils at no additional expense to Owner.
 - 1. Remove dewatering system from Project site on completion of dewatering. Plug or fill well holes with sand or cut off and cap wells a minimum of 36 inches (900 mm) below overlying construction.
- G. Damages: Promptly repair damages to adjacent facilities caused by dewatering operations.

3.3 FIELD QUALITY CONTROL

- A. Observation Wells: Provide, take measurements, and maintain at least the minimum number of observation wells or piezometers indicated; additional observation wells may be required by authorities having jurisdiction.
 - 1. Observe and record daily elevation of ground water and piezometric water levels in observation wells.
 - 2. Repair or replace, within 24 hours, observation wells that become inactive, damaged, or destroyed. In areas where observation wells are not functioning properly, suspend construction activities until reliable observations can be made. Add or remove water from observation-well risers to demonstrate that observation wells are functioning properly.
 - 3. Fill observation wells, remove piezometers, and fill holes when dewatering is completed.
- B. Provide continual observation to ensure that subsurface soils are not being removed by the dewatering operation.

END OF SECTION 312319

SECTION 321313 - CONCRETE PAVING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:

- 1. Driveways.
- 2. Parking lots.
- 3. Walks.

- B. Related Sections:

- 1. Division 03 Section "Cast-in-Place Concrete" for general building applications of concrete.
- 2. Division 32 Section "Concrete Paving Joint Sealants" for joint sealants in expansion and contraction joints within concrete paving and in joints between concrete paving and asphalt paving or adjacent construction.

1.3 DEFINITIONS

- A. Cementitious Materials: Portland cement alone or in combination with one or more of blended hydraulic cement, fly ash and other pozzolans, and ground granulated blast-furnace slag.

1.4 QUALITY ASSURANCE

- A. Detectable Warning Installer Qualifications: An employer of workers trained and approved by manufacturer of stamped concrete paving systems.
- B. Ready-Mix-Concrete Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.
 - 1. Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities" (Quality Control Manual - Section 3, "Plant Certification Checklist").

- C. Testing Agency Qualifications: Qualified according to ASTM C 1077 and ASTM E 329 for testing indicated.
 - 1. Personnel conducting field tests shall be qualified as ACI Concrete Field Testing Technician, Grade 1, according to ACI CP-1 or an equivalent certification program.
- D. Concrete Testing Service: Engage a qualified testing agency to perform material evaluation tests and design concrete mixtures.

PART 2 - PRODUCTS

2.1 FORMS

- A. Form Materials: Plywood, metal, metal-framed plywood, or other approved panel-type materials to provide full-depth, continuous, straight, and smooth exposed surfaces.
 - 1. Use flexible or uniformly curved forms for curves with a radius of 100 feet (30.5 m) or less.
- B. Form-Release Agent: Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and that will not impair subsequent treatments of concrete surfaces.

2.2 STEEL REINFORCEMENT

- A. Plain-Steel Welded Wire Reinforcement: ASTM A 185/A 185M, fabricated from as-drawn steel wire into flat sheets.
- B. Deformed-Steel Welded Wire Reinforcement: ASTM A 497/A 497M, flat sheet.
- C. Epoxy-Coated Welded Wire Reinforcement: ASTM A 884/A 884M, Class A, plain steel.
- D. Reinforcing Bars: ASTM A 615/A 615M, Grade 60 (Grade 420); deformed.
- E. Galvanized Reinforcing Bars: ASTM A 767/A 767M, Class II zinc coated, hot-dip galvanized after fabrication and bending; with ASTM A 615/A 615M, Grade 60 (Grade 420) deformed bars.
- F. Epoxy-Coated Reinforcing Bars: ASTM A 775/A 775M or ASTM A 934/A 934M; with ASTM A 615/A 615M, Grade 60 (Grade 420) deformed bars.
- G. Steel Bar Mats: ASTM A 184/A 184M; with ASTM A 615/A 615M, Grade 60 (Grade 420), deformed bars; assembled with clips.
- H. Plain-Steel Wire: ASTM A 82/A 82M, as drawn.
- I. Deformed-Steel Wire: ASTM A 496/A 496M.

- J. Joint Dowel Bars: ASTM A 615/A 615M, **Grade 60** (**Grade 420**) plain-steel bars. Cut bars true to length with ends square and free of burrs.
- K. Epoxy-Coated, Joint Dowel Bars: ASTM A 775/A 775M; with ASTM A 615/A 615M, **Grade 60** (**Grade 420**), plain-steel bars.
- L. Tie Bars: ASTM A 615/A 615M, **Grade 60** (**Grade 420**), deformed.
- M. Hook Bolts: **ASTM A 307, Grade A** (**ASTM F 568M, Property Class 4.6**), internally and externally threaded. Design hook-bolt joint assembly to hold coupling against paving form and in position during concreting operations, and to permit removal without damage to concrete or hook bolt.
- N. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars, welded wire reinforcement, and dowels in place. Manufacture bar supports according to CRSI's "Manual of Standard Practice" from steel wire, plastic, or precast concrete of greater compressive strength than concrete specified, and as follows:
 - 1. Equip wire bar supports with sand plates or horizontal runners where base material will not support chair legs.
 - 2. For epoxy-coated reinforcement, use epoxy-coated or other dielectric-polymer-coated wire bar supports.
- O. Epoxy Repair Coating: Liquid, two-part, epoxy repair coating, compatible with epoxy coating on reinforcement.
- P. Zinc Repair Material: ASTM A 780.

2.3 CONCRETE MATERIALS

- A. Cementitious Material: Use the following cementitious materials, of same type, brand, and source throughout Project:
 - 1. Portland Cement: ASTM C 150, gray portland cement Type II
- B. Exposed Aggregate: Selected, hard, and durable; washed; free of materials with deleterious reactivity to cement or that cause staining; from a single source, with gap-graded coarse aggregate as follows:
 - 1. Aggregate Sizes: **3/4 to 1 inch** (**19 to 25 mm**) **1/2 to 3/4 inch** (**13 to 19 mm**) **3/8 to 5/8 inch** (**10 to 16 mm**) nominal.
- C. Water: Potable and complying with ASTM C 94/C 94M.
- D. Air-Entraining Admixture: ASTM C 260.
- E. Chemical Admixtures: Admixtures certified by manufacturer to be compatible with other admixtures and to contain not more than 0.1 percent water-soluble chloride ions by mass of cementitious material.

1. Water-Reducing Admixture: ASTM C 494/C 494M, Type A.
2. Retarding Admixture: ASTM C 494/C 494M, Type B.
3. Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type D.
4. High-Range, Water-Reducing Admixture: ASTM C 494/C 494M, Type F.
5. High-Range, Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type G.
6. Plasticizing and Retarding Admixture: ASTM C 1017/C 1017M, Type II.

2.4 CURING MATERIALS

- A. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. (305 g/sq. m) dry.
- B. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.
- C. Water: Potable.
- D. Evaporation Retarder: Waterborne, monomolecular, film forming, manufactured for application to fresh concrete.
 1. Products:
 - a. Axim Italcementi Group, Inc.; Caltexol CIMFILM.
 - b. BASF Construction Chemicals, LLC; Confilm.
 - c. ChemMasters; Spray-Film.
 - d. Conspec by Dayton Superior; Aquafilm.
 - e. Dayton Superior Corporation; Sure Film (J-74).
 - f. Edoco by Dayton Superior; BurkeFilm.
 - g. Euclid Chemical Company (The), an RPM company; Eucobar.
 - h. Kaufman Products, Inc.; VaporAid.
 - i. Lambert Corporation; LAMBCO Skin.
 - j. L&M Construction Chemicals, Inc.; E-CON.
 - k. Meadows, W. R., Inc.; EVAPRE.
 - l. Metalcrete Industries; Waterhold.
 - m. Nox-Crete Products Group; MONOFILM.
 - n. Sika Corporation, Inc.; SikaFilm.
 - o. Symons by Dayton Superior; Finishing Aid.
 - p. Vexcon Chemicals Inc.; Certi-Vex EnvioAssist.
- E. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, dissipating.
 1. Products:
 - a. Anti-Hydro International, Inc.; A-H Curing Compound #2 DR WB.
 - b. ChemMasters; Safe-Cure Clear.
 - c. Conspec by Dayton Superior; Resin Cure.
 - d. Dayton Superior Corporation; Day-Chem Rez Cure (J-11-W).
 - e. Edoco by Dayton Superior; Resin Emulsion Cure V.O.C. (Type II).

- f. Euclid Chemical Company (The), an RPM company; Kurez W VOX.
 - g. Kaufman Products, Inc.; Thinfilm 420.
 - h. Lambert Corporation; AQUA KURE - CLEAR.
 - i. L&M Construction Chemicals, Inc.; L&M CURE R.
 - j. Meadows, W. R., Inc.; 1100-CLEAR SERIES.
 - k. Nox-Crete Products Group; Resin Cure E.
 - l. Symons by Dayton Superior; Resi-Chem Clear.
 - m. Tamms Industries, Inc., Euclid Chemical Company (The); TAMMSCURE WB 30C.
 - n. Vexcon Chemicals Inc.; Certi-Vex Enviocure 100.
- F. White, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 2, Class B, dissipating.
- 1. Products:
 - a. Anti-Hydro International, Inc.; A-H Curing Compound #2 WP WB.
 - b. ChemMasters; Safe-Cure 2000.
 - c. Conspec by Dayton Superior; Resin Cure.
 - d. Dayton Superior Corporation; Day-Chem White Pigmented Cure (J-10-W).
 - e. Edoco by Dayton Superior; Resin Emulsion Cure V.O.C. (Type II).
 - f. Euclid Chemical Company (The), an RPM company; Kurez VOX White Pigmented.
 - g. Kaufman Products, Inc.; Thinfilm 450.
 - h. Lambert Corporation; AQUA KURE - WHITE.
 - i. L&M Construction Chemicals, Inc.; L&M CURE R-2.
 - j. Meadows, W. R., Inc.; 1100-WHITE SERIES.
 - k. Symons by Dayton Superior; Resi-Chem White.
 - l. Vexcon Chemicals Inc.; Certi-Vex Enviocure White 100.

2.5 RELATED MATERIALS

- A. Joint Fillers: ASTM D 1751, asphalt-saturated cellulosic fiber in preformed strips.
- B. Bonding Agent: ASTM C 1059, Type II, non-redispersible, acrylic emulsion or styrene butadiene.
- C. Epoxy Bonding Adhesive: ASTM C 881/C 881M, two-component epoxy resin capable of humid curing and bonding to damp surfaces; of class suitable for application temperature, of grade complying with requirements, and of the following types:
 - 1. Types IV and V, load bearing, for bonding hardened or freshly mixed concrete to hardened concrete.
- D. Chemical Surface Retarder: Water-soluble, liquid, set retarder with color dye, for horizontal concrete surface application, capable of temporarily delaying final hardening of concrete to a depth of 1/8 to 1/4 inch (3 to 6 mm).
 - 1. Products:

- a. ChemMasters; Exposee.
 - b. Conspec by Dayton Superior; Delay S.
 - c. Euclid Chemical Company (The), an RPM company; Surface Retarder Formula S.
 - d. Kaufman Products, Inc.; Expose.
 - e. Metalcrete Industries; Surfard.
 - f. Nox-Crete Products Group; CRETE-NOX TA.
 - g. Scofield, L. M. Company; LITHOTEX Top Surface Retarder.
 - h. Sika Corporation, Inc.; Rugasol-S.
 - i. Vexcon Chemicals Inc.; Certi-Vex Envioset.
- E. Rock Salt: Sodium chloride crystals, kiln dried, coarse gradation with 100 percent passing **3/8-inch (9.5-mm)** sieve and 85 percent retained on a **No. 8 (2.36-mm)** sieve.

2.6 PAVEMENT MARKINGS

- A. Pavement-Marking Paint: Alkyd-resin type, lead and chromate free, ready mixed, complying with AASHTO M 248, Type N; colors complying with FS TT-P-1952.
 - 1. Color: As indicated.
- B. Glass Beads: AASHTO M 247, Type 1.

2.7 CONCRETE MIXING

- A. Ready-Mixed Concrete: Measure, batch, and mix concrete materials and concrete according to ASTM C 94/C 94M and ASTM C 1116/C 1116M. Furnish batch certificates for each batch discharged and used in the Work.
 - 1. When air temperature is between **85 and 90 deg F** reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above **90 deg F** reduce mixing and delivery time to 60 minutes.
- B. Project-Site Mixing: Measure, batch, and mix concrete materials and concrete according to ASTM C 94/C 94M. Mix concrete materials in appropriate drum-type batch machine mixer.
 - 1. For concrete batches of **1 cu. yd.** or smaller, continue mixing at least 1-1/2 minutes, but not more than 5 minutes after ingredients are in mixer, before any part of batch is released.
 - 2. For concrete batches larger than **1 cu. yd.** increase mixing time by 15 seconds for each additional **1 cu. yd.**
 - 3. Provide batch ticket for each batch discharged and used in the Work, indicating Project identification name and number, date, mixture type, mixing time, quantity, and amount of water added.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine exposed subgrades and subbase surfaces for compliance with requirements for dimensional, grading, and elevation tolerances.
- B. Proof-roll prepared subbase surface below concrete paving to identify soft pockets and areas of excess yielding.
 - 1. Completely proof-roll subbase in one direction and repeat in perpendicular direction. Limit vehicle speed to **3 mph**.
 - 2. Proof-roll with a pneumatic-tired and loaded, 10-wheel, tandem-axle dump truck weighing not less than **15 tons**.
 - 3. Correct subbase with soft spots and areas of pumping or rutting exceeding depth of [**1/2 inch** according to requirements in Division 31 Section "Earth Moving."
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Remove loose material from compacted subbase surface immediately before placing concrete.

3.3 EDGE FORMS AND SCREED CONSTRUCTION

- A. Set, brace, and secure edge forms, bulkheads, and intermediate screed guides to required lines, grades, and elevations. Install forms to allow continuous progress of work and so forms can remain in place at least 24 hours after concrete placement.
- B. Clean forms after each use and coat with form-release agent to ensure separation from concrete without damage.

3.4 STEEL REINFORCEMENT

- A. General: Comply with CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.
- B. Clean reinforcement of loose rust and mill scale, earth, ice, or other bond-reducing materials.
- C. Arrange, space, and securely tie bars and bar supports to hold reinforcement in position during concrete placement. Maintain minimum cover to reinforcement.
- D. Install welded wire reinforcement in lengths as long as practicable. Lap adjoining pieces at least one full mesh, and lace splices with wire. Offset laps of adjoining widths to prevent continuous laps in either direction.

- E. Zinc-Coated Reinforcement: Use galvanized-steel wire ties to fasten zinc-coated reinforcement. Repair cut and damaged zinc coatings with zinc repair material.
- F. Epoxy-Coated Reinforcement: Use epoxy-coated steel wire ties to fasten epoxy-coated reinforcement. Repair cut and damaged epoxy coatings with epoxy repair coating according to ASTM D 3963/D 3963M.
- G. Install fabricated bar mats in lengths as long as practicable. Handle units to keep them flat and free of distortions. Straighten bends, kinks, and other irregularities, or replace units as required before placement. Set mats for a minimum **2-inch** overlap of adjacent mats.

3.5 JOINTS

- A. General: Form construction, isolation, and contraction joints and tool edges true to line, with faces perpendicular to surface plane of concrete. Construct transverse joints at right angles to centerline unless otherwise indicated.
 - 1. When joining existing paving, place transverse joints to align with previously placed joints unless otherwise indicated.
- B. Construction Joints: Set construction joints at side and end terminations of paving and at locations where paving operations are stopped for more than one-half hour unless paving terminates at isolation joints.
 - 1. Continue steel reinforcement across construction joints unless otherwise indicated. Do not continue reinforcement through sides of paving strips unless otherwise indicated.
 - 2. Provide tie bars at sides of paving strips where indicated.
 - 3. Butt Joints: Use bonding agent at joint locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.
 - 4. Keyed Joints: Provide preformed keyway-section forms or bulkhead forms with keys unless otherwise indicated. Embed keys at least **1-1/2 inches** into concrete.
 - 5. Doweled Joints: Install dowel bars and support assemblies at joints where indicated. Lubricate or coat with asphalt one-half of dowel length to prevent concrete bonding to one side of joint.
- C. Isolation Joints: Form isolation joints of preformed joint-filler strips abutting concrete curbs, catch basins, manholes, inlets, structures, other fixed objects, and where indicated.
 - 1. Locate expansion joints at intervals of **50 feet** unless otherwise indicated.
 - 2. Extend joint fillers full width and depth of joint.
 - 3. Terminate joint filler not less than **1/2 inch** or more than **1 inch** below finished surface if joint sealant is indicated.
 - 4. Place top of joint filler flush with finished concrete surface if joint sealant is not indicated.
 - 5. Furnish joint fillers in one-piece lengths. Where more than one length is required, lace or clip joint-filler sections together.

6. During concrete placement, protect top edge of joint filler with metal, plastic, or other temporary preformed cap. Remove protective cap after concrete has been placed on both sides of joint.
- D. Contraction Joints: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of the concrete thickness, as follows:
1. Grooved Joints: Form contraction joints after initial floating by grooving and finishing each edge of joint with grooving tool to a radius. Repeat grooving of contraction joints after applying surface finishes. Eliminate grooving-tool marks on concrete surfaces.
 2. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut **1/8-inch** wide joints into concrete when cutting action will not tear, abrade, or otherwise damage surface and before developing random contraction cracks.
 3. Doweled Contraction Joints: Install dowel bars and support assemblies at joints where indicated. Lubricate or coat with asphalt one-half of dowel length to prevent concrete bonding to one side of joint.
- E. Edging: After initial floating, tool edges of paving, gutters, curbs, and joints in concrete with an edging tool to a **3/8-inch** radius. Repeat tooling of edges after applying surface finishes. Eliminate edging-tool marks on concrete surfaces.

3.6 CONCRETE PLACEMENT

- A. Before placing concrete, inspect and complete formwork installation, steel reinforcement, and items to be embedded or cast-in.
- B. Remove snow, ice, or frost from subbase surface and steel reinforcement before placing concrete. Do not place concrete on frozen surfaces.
- C. Moisten subbase to provide a uniform dampened condition at time concrete is placed. Do not place concrete around manholes or other structures until they are at required finish elevation and alignment.
- D. Comply with **ACI 301** requirements for measuring, mixing, transporting, and placing concrete.
- E. Do not add water to concrete during delivery or at Project site. Do not add water to fresh concrete after testing.
- F. Deposit and spread concrete in a continuous operation between transverse joints. Do not push or drag concrete into place or use vibrators to move concrete into place.
- G. Consolidate concrete according to **ACI 301** by mechanical vibrating equipment supplemented by hand spading, rodding, or tamping.

1. Consolidate concrete along face of forms and adjacent to transverse joints with an internal vibrator. Keep vibrator away from joint assemblies, reinforcement, or side forms. Use only square-faced shovels for hand spreading and consolidation. Consolidate with care to prevent dislocating reinforcement dowels and joint devices.
- H. Screed paving surface with a straightedge and strike off.
- I. Commence initial floating using bull floats or darbies to impart an open-textured and uniform surface plane before excess moisture or bleed water appears on the surface. Do not further disturb concrete surfaces before beginning finishing operations or spreading surface treatments.
- J. Curbs and Gutters: Use design mixture for automatic machine placement. Produce curbs and gutters to required cross section, lines, grades, finish, and jointing.
- K. Slip-Form Paving: Use design mixture for automatic machine placement. Produce paving to required thickness, lines, grades, finish, and jointing.
1. Compact subbase and prepare subgrade of sufficient width to prevent displacement of slip-form paving machine during operations.
- L. Cold-Weather Placement: Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing, or low temperatures. Comply with ACI 306.1 and the following:
1. When air temperature has fallen to or is expected to fall below 40 deg F uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 50 deg F and not more than 80 deg F at point of placement.
 2. Do not use frozen materials or materials containing ice or snow.
 3. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in design mixtures.
- M. Hot-Weather Placement: Comply with ACI 301 and as follows when hot-weather conditions exist:
1. Cool ingredients before mixing to maintain concrete temperature below 90 deg F at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated in total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.
 2. Cover steel reinforcement with water-soaked burlap so steel temperature will not exceed ambient air temperature immediately before embedding in concrete.
 3. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade moisture uniform without standing water, soft spots, or dry areas.

3.7 FLOAT FINISHING

- A. General: Do not add water to concrete surfaces during finishing operations.

- B. Float Finish: Begin the second floating operation when bleed-water sheen has disappeared and concrete surface has stiffened sufficiently to permit operations. Float surface with power-driven floats or by hand floating if area is small or inaccessible to power units. Finish surfaces to true planes. Cut down high spots and fill low spots. Refloat surface immediately to uniform granular texture.
1. Burlap Finish: Drag a seamless strip of damp burlap across float-finished concrete, perpendicular to line of traffic, to provide a uniform, gritty texture.
 2. Medium-to-Fine-Textured Broom Finish: Draw a soft-bristle broom across float-finished concrete surface perpendicular to line of traffic to provide a uniform, fine-line texture.
 3. Medium-to-Coarse-Textured Broom Finish: Provide a coarse finish by striating float-finished concrete surface **1/16 to 1/8 inch (1.6 to 3 mm)** deep with a stiff-bristled broom, perpendicular to line of traffic.

3.8 CONCRETE PROTECTION AND CURING

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures.
- B. Comply with ACI 306.1 for cold-weather protection.
- C. Evaporation Retarder: Apply evaporation retarder to concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching **0.2 lb/sq. ft. x h (1 kg/sq. m x h)** before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete but before float finishing.
- D. Begin curing after finishing concrete but not before free water has disappeared from concrete surface.
- E. Curing Methods: Cure concrete by moisture curing, moisture-retaining-cover curing, and curing compound or a combination of these as follows:
1. Moisture Curing: Keep surfaces continuously moist for not less than seven days with the following materials:
 - a. Water.
 - b. Continuous water-fog spray.
 - c. Absorptive cover, water saturated and kept continuously wet. Cover concrete surfaces and edges with **12-inch** lap over adjacent absorptive covers.
 2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover, placed in widest practicable width, with sides and ends lapped at least **12 inches (300 mm)** and sealed by waterproof tape or adhesive. Immediately repair any holes or tears occurring during installation or curing period using cover material and waterproof tape.
 3. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas that have

been subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating, and repair damage during curing period.

3.9 PAVING TOLERANCES

A. Comply with tolerances in ACI 117 and as follows:

1. Elevation: **1/4 inch.**
2. Thickness: Plus **3/8 inch**, minus **1/4 inch.**
3. Surface: Gap below **10-foot-** long, unlevel straightedge not to exceed **1/2 inch.**
4. Alignment of Tie-Bar End Relative to Line Perpendicular to Paving Edge: **1/4 inch per 12 inches** of tie bar.
5. Lateral Alignment and Spacing of Dowels: **1 inch.**
6. Vertical Alignment of Dowels: **1/4 inch.**
7. Alignment of Dowel-Bar End Relative to Line Perpendicular to Paving Edge: **1/4 inch per 12 inches** of dowel.
8. Joint Spacing: **3 inches**
9. Contraction Joint Depth: Plus **1/4 inch** no minus.
10. Joint Width: Plus **1/8 inch**, no minus.

3.10 PAVEMENT MARKING

- A. Do not apply pavement-marking paint until layout, colors, and placement have been verified with Architect.
- B. Allow concrete paving to cure for a minimum of 28 days and be dry before starting pavement marking.
- C. Sweep and clean surface to eliminate loose material and dust.
- D. Apply paint with mechanical equipment to produce markings of dimensions indicated with uniform, straight edges. Apply at manufacturer's recommended rates to provide a minimum wet film thickness of **15 mils**
1. Apply graphic symbols and lettering with paint-resistant, die-cut stencils, firmly secured to concrete surface. Mask an extended area beyond edges of each stencil to prevent paint application beyond stencil. Apply paint so that it cannot run beneath stencil.
 2. Broadcast glass beads uniformly into wet markings at a rate of **6 lb/gal.**

3.11 FIELD QUALITY CONTROL

- A. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections.
- B. Testing Services: Testing of composite samples of fresh concrete obtained according to ASTM C 172 shall be performed according to the following requirements:

1. Testing Frequency: Obtain at least one composite sample for each 100 cu. yd. or fraction thereof of each concrete mixture placed each day.
 - a. When frequency of testing will provide fewer than five compressive-strength tests for each concrete mixture, testing shall be conducted from at least five randomly selected batches or from each batch if fewer than five are used.
 2. Slump: ASTM C 143/C 143M; one test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mixture. Perform additional tests when concrete consistency appears to change.
 3. Air Content: ASTM C 231, pressure method; one test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
 4. Concrete Temperature: ASTM C 1064/C 1064M; one test hourly when air temperature is 40 deg F and below and when it is 80 deg F and above, and one test for each composite sample.
 5. Compression Test Specimens: ASTM C 31/C 31M; cast and laboratory cure one set of three standard cylinder specimens for each composite sample.
 6. Compressive-Strength Tests: ASTM C 39/C 39M; test one specimen at seven days and two specimens at 28 days.
 - a. A compressive-strength test shall be the average compressive strength from two specimens obtained from same composite sample and tested at 28 days.
- C. Strength of each concrete mixture will be satisfactory if average of any three consecutive compressive-strength tests equals or exceeds specified compressive strength and no compressive-strength test value falls below specified compressive strength by more than 500 psi.
- D. Test results shall be reported in writing to Architect, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design compressive strength at 28 days, concrete mixture proportions and materials, compressive breaking strength, and type of break for both 7- and 28-day tests.
- E. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Architect but will not be used as sole basis for approval or rejection of concrete.
- F. Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Architect.
- G. Concrete paving will be considered defective if it does not pass tests and inspections.
- H. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

3.12 REPAIRS AND PROTECTION

- A. Remove and replace concrete paving that is broken, damaged, or defective or that does not comply with requirements in this Section. Remove work in complete sections from joint to joint unless otherwise approved by Architect.
- B. Drill test cores, where directed by Architect, when necessary to determine magnitude of cracks or defective areas. Fill drilled core holes in satisfactory paving areas with portland cement concrete bonded to paving with epoxy adhesive.
- C. Protect concrete paving from damage. Exclude traffic from paving for at least 14 days after placement. When construction traffic is permitted, maintain paving as clean as possible by removing surface stains and spillage of materials as they occur.
- D. Maintain concrete paving free of stains, discoloration, dirt, and other foreign material. Sweep paving not more than two days before date scheduled for Substantial Completion inspections.

END OF SECTION 321313

SECTION 321373 - CONCRETE PAVING JOINT SEALANTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Cold-applied joint sealants.
 - 2. Hot-applied joint sealants.
- B. Related Sections:
 - 1. Division 32 Section "Asphalt Paving" for constructing joints between concrete and asphalt pavement.
 - 2. Division 32 Section "Concrete Paving" for constructing joints in concrete pavement.

1.3 QUALITY ASSURANCE

- A. Installer Qualifications: Manufacturer's authorized representative who is trained and approved for installation of units required for this Project.
- B. Source Limitations: Obtain each type of joint sealant from single source from single manufacturer.
- C. Product Testing: Test joint sealants using a qualified testing agency.
 - 1. Testing Agency Qualifications: An independent testing agency qualified according to ASTM C 1021 to conduct the testing indicated.

1.4 PROJECT CONDITIONS

- A. Do not proceed with installation of joint sealants under the following conditions:
 - 1. When ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer or are below 40 deg F (5 deg C).
 - 2. When joint substrates are wet.

3. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.
4. Where contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Compatibility: Provide joint sealants, backing materials, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer based on testing and field experience.
- B. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range.

2.2 COLD-APPLIED JOINT SEALANTS

- A. Single-Component, Nonsag, Silicone Joint Sealant for Concrete: ASTM D 5893, Type NS.
 1. Products:
 - a. Crafcro Inc., an ERGON company; RoadSaver Silicone.
 - b. Dow Corning Corporation; 888.
 - c. Pecora Corporation; 301 NS.
- B. Single-Component, Self-Leveling, Silicone Joint Sealant for Concrete: ASTM D 5893, Type SL.
 1. Products:
 - a. Crafcro Inc., an ERGON company; RoadSaver Silicone SL.
 - b. Dow Corning Corporation; 890-SL.
 - c. Pecora Corporation; 300 SL.

2.3 HOT-APPLIED JOINT SEALANTS

- A. Hot-Applied, Single-Component Joint Sealant for Concrete: ASTM D 3406.
 1. Products:
 - a. Crafcro Inc., an ERGON company; Superseal 444/777.
- B. Hot-Applied, Single-Component Joint Sealant for Concrete and Asphalt: ASTM D 6690, Types I, II, and III.

1. Products:

- a. Meadows, W. R., Inc.; Sealtight Hi-Spec Sealtight 3405.
- b. Right Pointe; D-3405 Hot Applied Sealant.

2.4 JOINT-SEALANT BACKER MATERIALS

- A. General: Provide joint-sealant backer materials that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by joint-sealant manufacturer based on field experience and laboratory testing.
- B. Round Backer Rods for Cold- and Hot-Applied Joint Sealants: ASTM D 5249, Type 1, of diameter and density required to control sealant depth and prevent bottom-side adhesion of sealant.
- C. Round Backer Rods for Cold-Applied Joint Sealants: ASTM D 5249, Type 3, of diameter and density required to control joint-sealant depth and prevent bottom-side adhesion of sealant.
- D. Backer Strips for Cold- and Hot-Applied Joint Sealants: ASTM D 5249; Type 2; of thickness and width required to control joint-sealant depth, prevent bottom-side adhesion of sealant, and fill remainder of joint opening under sealant.

2.5 PRIMERS

- A. Primers: Product recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint-sealant performance.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions.
- B. Joint Priming: Prime joint substrates where indicated or where recommended in writing by joint-sealant manufacturer, based on preconstruction joint-sealant-substrate tests or

prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.

3.3 INSTALLATION OF JOINT SEALANTS

- A. General: Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated unless more stringent requirements apply.
- B. Joint-Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.
- C. Install joint-sealant backings of kind indicated to support joint sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.
 - 1. Do not leave gaps between ends of joint-sealant backings.
 - 2. Do not stretch, twist, puncture, or tear joint-sealant backings.
 - 3. Remove absorbent joint-sealant backings that have become wet before sealant application and replace them with dry materials.
- D. Install joint sealants using proven techniques that comply with the following and at the same time backings are installed:
 - 1. Place joint sealants so they directly contact and fully wet joint substrates.
 - 2. Completely fill recesses in each joint configuration.
 - 3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.
- E. Tooling of Nonsag Joint Sealants: Immediately after joint-sealant application and before skinning or curing begins, tool sealants according to the following requirements to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint:
 - 1. Remove excess joint sealant from surfaces adjacent to joints.
 - 2. Use tooling agents that are approved in writing by joint-sealant manufacturer and that do not discolor sealants or adjacent surfaces.
- F. Provide joint configuration to comply with joint-sealant manufacturer's written instructions unless otherwise indicated.

3.4 CLEANING

- A. Clean off excess joint sealant or sealant smears adjacent to joints as the Work progresses, by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

3.5 PROTECTION

- A. Protect joint sealants, during and after curing period, from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately and replace with joint sealant so installations in repaired areas are indistinguishable from the original work.

3.6 PAVEMENT-JOINT-SEALANT SCHEDULE

- A. Joint-Sealant Application: Joints within cement concrete pavement.
 - 1. Joint Location:
 - a. Expansion and isolation joints in cast-in-place concrete pavement.
 - b. Contraction joints in cast-in-place concrete slabs.
 - c. Other joints as indicated.
 - 2. Silicone Joint Sealant for Concrete: Single component, nonsag.
 - 3. Urethane Joint Sealant for Concrete: Multicomponent, pourable, traffic-grade
 - 4. Hot-Applied Joint Sealant for Concrete: Single component.
 - 5. Joint-Sealant Color: As selected by Architect from manufacturer's full range.
- B. Joint-Sealant Application: Fuel-resistant joints within cement concrete pavement.
 - 1. Joint Location:
 - a. Expansion and isolation joints in cast-in-place concrete pavement.
 - b. Contraction joints in cast-in-place concrete slabs.
 - c. Other joints as indicated.
 - 2.
 - 3. Joint-Sealant Color: As selected by Architect from manufacturer's full range.
- C. Joint-Sealant Application: Joints between cement concrete and asphalt pavement.
 - 1. Joint Location:
 - a. Joints between concrete and asphalt pavement.
 - b. Joints between concrete curbs and asphalt pavement.
 - c. Other joints as indicated.
 - 2. Hot-Applied Joint Sealant for Concrete and Asphalt: Single component.
 - 3. Joint-Sealant Color: As selected by Architect from manufacturer's full range.

END OF SECTION 321373



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November 16, 2002
File No. 25515

Mr. Todd Abrams
WT Group
2675 Pratum Avenue
Hoffman Estate, IL 60192

Re: Geotechnical Investigation
Birch Park Improvements
Hoffman Estates, Illinois

Dear Mr. Abrams:

The following is our report of findings for the geotechnical investigation completed at Birch Park in the Village of Hoffman Estates, Illinois.

The investigation was requested to determine current subsurface soil and water conditions at select boring locations. The findings of the field investigation and the results of laboratory testing are intended to assist in the planning, design and construction of proposed site improvements.

PROPOSED IMPROVEMENTS

We understand it is proposed to construct a picnic shelter supported on shallow depth foundations. Additional improvements are expected to include a detention basin, parking lot, basketball court, and walking path.

SCOPE OF THE INVESTIGATION

The field investigation included obtaining 6 borings at the locations requested and as indicated on the enclosed location sketch. The boring locations were established using field taping methods and accuracy. Surface elevations were estimated to the nearest 0.5 feet using data from the provided topographic survey.

We auger drilled the 6 borings to depths of 5.0 feet to 15.0 feet below existing surface elevations. Soil samples were obtained using a split barrel sampler advanced utilizing an automatic SPT hammer. Soil profiles were determined in the field and soil samples returned to our laboratory for additional testing including determination of moisture content. Cohesive soils obtained by split barrel sampling were tested further to determine dry unit weight and unconfined compressive strength.

The results of all field determinations and laboratory testing are included in summary with this report.

8 W. COLLEGE DR. • SUITE C • ARLINGTON HEIGHTS, IL 60004

SOIL BORINGS • SITE INVESTIGATIONS • PAVEMENT INVESTIGATIONS • GEOTECHNICAL ENGINEERING
TESTING OF • SOIL • ASPHALT • CONCRETE • MORTAR • STEEL

RESULTS OF THE INVESTIGATION

Enclosed are boring logs indicating the soil conditions encountered at each location. Site surface conditions include vegetation, topsoil and fill soil conditions. The topsoil is classified as dark brown to black silt/clay mixtures with traces of roots usually present.

Fill soil conditions were encountered at each boring except for boring B-4. Composition of the fill includes the presence of topsoil along with moderately to well-compacted sand/gravel/silt/clay, clay/silt, sand/gravel and sand mixtures extending to depths of 1.0 feet to 5.0+ feet at these boring locations. The limits of fill placement were not determined within the scope of this investigation. Larger debris may also be present within the fill but was not encountered during the investigation. The fill soil conditions are found to overlie the apparent natural topsoil at boring B-5 extending to a depth of 4.0 feet.

Underlying natural soil conditions include the presence of cohesive soils. These are classified as very tough to hard clay/silt mixtures with lesser portions of sand and gravel.

Non-cohesive soils were also encountered as indicated at borings B-1 and B-3. These include very loose to loose sand and sand/gravel mixtures. The non-cohesive granular soils are often in a very damp to saturated condition. Cobbles and boulders may be present within the site soils at any elevation, although none were encountered while drilling.

The following table summarizes depth ranges below existing grade, the magnitude of soil strength within these ranges and other information:

<u>Boring</u>	<u>Surface Elevation (feet)</u>	<u>Depth Range Below Existing Surface (feet)</u>	<u>Soil Strength (lbs./sq.ft.)</u>	<u>Recorded Water Levels, W.D./A.D. (feet)</u>
<u>Picnic Shelter</u>				
1	755.5	1.5 to 5.0	*1,000	9.0/8.0
		5.0 to 10.5	2,000	
		10.5 to 12.0	8,000	

* Not recommended for support of foundations.

It is expected that foundations can be supported on undisturbed natural soils located at any elevation within the depth ranges indicated in the above table, except as noted. Above the noted depth ranges the soils are not considered able to support foundations, even at reduced design bearing values, due to long-term settlement considerations.

SUBSURFACE WATER

The boring logs and the above table indicate the depth at which subsurface water was encountered in the bore holes at the time of the drilling operations and during the period of these readings. It is expected that fluctuations from the water levels recorded will occur over a

period of time due to variations in rainfall, temperature, subsurface soil conditions, soil permeability and other factors not evident at the time of the water level measurements.

The levels recorded at boring B-1 indicate a perched water condition. Perched water is primarily surface precipitation falling on this site or adjacent properties and which becomes trapped in pervious soil that is underlain by relatively impervious soil. This water often flows laterally along a path of least resistance such as non-cohesive soil strata or other permeable medium. This water will also drain from the embankments of open excavations.

The detention pond is planned in the area of boring B-2. We would estimate the seasonal high groundwater at this location to be at EL. 741.5 feet where the gray clay was encountered.

FOUNDATIONS

Based on the results of this investigation it is our opinion that continuous and/or isolated footing foundations may be considered for support of the picnic shelter. These foundations can be supported on undisturbed natural soils located below all topsoil, debris, unsuitable fill soils, low strength soils and other unsuitable conditions which may be encountered. Soil strength values and the depths at which they are expected to be encountered at these boring locations are indicated in the above table. A net allowable bearing value of 2,000 lbs./sq.ft. is available for design. This value can be used to size foundations for support of structure dead and live loads.

Foundations for unprotected improvements should extend at least 48.0 inches below exposed surface elevations. We recommend providing adequate reinforcing steel in foundation walls and piers to minimize the effects of long-term differential settlement.

Weak soil conditions are expected to be discovered locally at design foundation elevations and may require extending the foundation to a deeper elevation. Alternately, removal of the weak soil followed by replacement with properly compacted coarse crushed granular fill (CA01) may be feasible. When removal is approved by the Soil Engineer, the removal of the weak soil should also extend beyond the face of footings and/or piers to a distance at least equal to the depth of fill that will be present beneath the footings and/or piers. A capping layer of finer crushed granular fill (CA06) can be utilized to establish a working surface.

DEWATERING

Excavations may require dewatering due to subsurface water seepage and/or surface precipitation. This water can likely be removed to depths of several feet by standard sump and pump operations. Soils exposed at foundation, slab or undercut elevations should not be permitted to become saturated. Loss of bearing strength and stability may occur, requiring additional soil excavation.

Filled soils, organic soils, non-cohesive soils and others can be unstable when saturated. These soils tend to cave or run when submerged or disturbed. The stability of exposed embankments is minimal to non-existent as confining soil pressures are removed. Proper drainage within excavations is necessary at all times, particularly when excavations extend below anticipated water levels and below saturated soils.

The contractor should be made responsible for designing and constructing stable temporary excavations. Also, the contractor should shore, slope, bench or restrain the sides of the excavations as required to maintain stability of both the excavation sides and bottom. In no case, should the slope, slope heights, or excavation depth exceed those in the local, state, and federal safety regulations.

SUBGRADE SOIL PREPARATION

Subgrade soil preparation should be accomplished where needed within the picnic shelter area prior to excavation for foundations. The procedure in all areas of subgrade supported improvements should include the removal of unsuitable surface conditions including vegetation, topsoil, unsuitable fill soils, significant debris, weak or unstable soils, and other deleterious conditions which may be encountered. Above grade areas should be cut to design subgrade elevations. Exposed subgrade soils should be leveled, compacted and proof-rolled in the presence of the Soil Engineer.

Proof-rolling may reveal areas of unstable soil conditions. Aeration of high moisture content soils can be effective to depths of up to 1.0 foot, depending upon the equipment utilized. Removal of unstable soils may be necessary if high moisture content conditions extend to depths greater than the effective depth of aeration. If the depth of undercut appears to be significant, it may be economical to limit the depth of undercut to that needed to establish adequate support of slabs and remediate weak soil conditions at foundation elevations at the time of foundation construction.

Soft or unstable soil conditions in pavement areas can often be bridged by use of an effective depth of crushed granular material. The placement of the crushed granular bridging material, possibly in conjunction with the use of an appropriate geotextile fabric, should only proceed after review of the proof-roll conditions by the Soil Engineer. Long-term settlement of pavement surfaces may occur locally as the bridged soils desiccate.

Structural fill can be placed on soils prepared to the satisfaction of the Soil Engineer. The fill should be placed in lifts not to exceed 8.0 inches when uncompacted. Each lift should exceed minimum compaction requirements prior to placement of the next lift. We recommend a minimum of 95% compaction based on the modified Proctor test, ASTM D-1557, be achieved within building areas. A minimum of 90% compaction should be achieved beneath exterior improvements such as pavements and sidewalks. Compaction requirements also apply to backfill placement around foundations and within trench excavations located below subgrade supported improvements.

FILL SOURCES

The onsite non-organic soils are generally suitable for reuse as fill. Offsite sources may also be used provided they are approved in advance by the Soil Engineer. Aeration may be necessary to reduce soil moisture content prior to compaction. Soil borrowed from near the surface where seasonal fluctuations in soil moisture content occur may require particular attention. The moisture content of fill soils should be within approximately 3.0% of optimum moisture content

as determined by the modified Proctor test for the soils to meet or exceed minimum compaction requirements.

SOIL INFILTRATION RATES

Grain-size analysis testing was performed on a selected soil sample near the proposed bottom of the detention basin at boring B-2 to determine a USDA soil classification and estimated infiltration rate. The grain size analysis determinations and estimated infiltration rate is shown in the below table:

Boring	Depth	USDA Soil Classification	Estimated Infiltration Rate
B-2	3.5' to 5.0'	Clay	0.07 inches per hour

Estimated design infiltration rates were taken from
Table 3-1 of City of Chicago Stormwater Ordinance Manual.

CONCLUSION

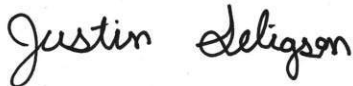
The information within this report is intended to provide initial information concerning subsurface soil and water conditions on the site. Variations in subsurface conditions are expected to be present between boring locations due to naturally changing and filled soil conditions.

Our understanding of the proposed improvements is based on limited information available to us at the writing of this report. The findings of the investigation and the recommendations presented are not considered applicable to significant changes in the scope of the improvements or applicable to alternate site uses. We recommend that proposed foundation, pavement and grading plans be reviewed by our office to determine if additional considerations are necessary to address anticipated subsurface conditions. Soil conditions encountered at foundation elevations are recommended to be tested to verify the presence of design soil strength prior to concrete placement.

If you have any questions concerning the findings or recommendations presented in this report, please let me know.

Very truly yours,

SOIL AND MATERIAL CONSULTANTS, INC.

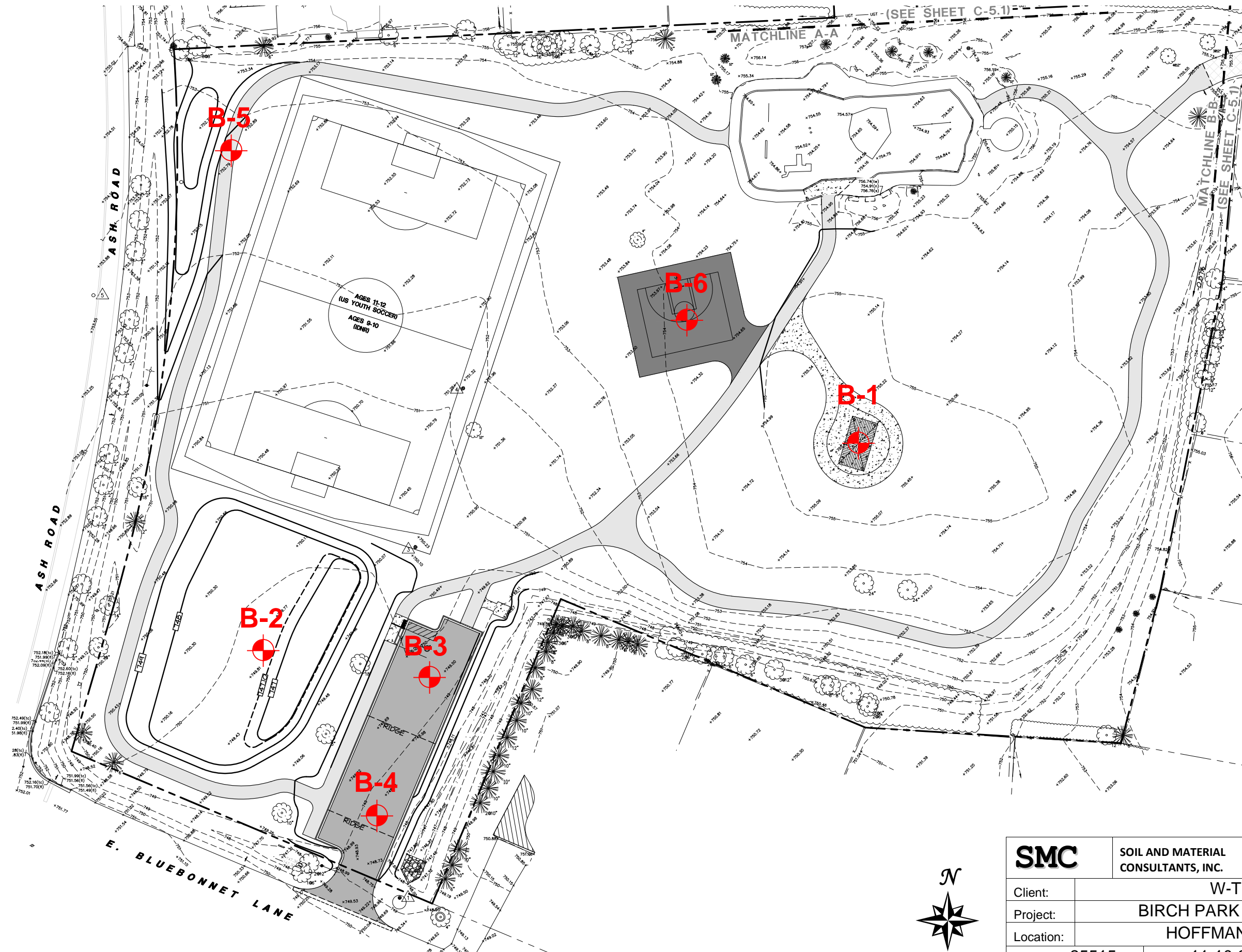


Justin Seligson, E.I.T.
Project Engineer



Thomas P. Johnson, P.E.
President

JMS:TPJ
Enc.



SMC		SOIL AND MATERIAL CONSULTANTS, INC.	LOCATION SKETCH
Client:	W-T GROUP		
Project:	BIRCH PARK IMPROVEMENTS		
Location:	HOFFMAN ESTATES, IL		
File No.	25515	Date: 11-10-20	Scale: 1" ≈ 60'

8 W. COLLEGE DR. • SUITE C • ARLINGTON HEIGHTS, IL 60004

SOIL BORING LOG 2

Logged By: CS Page: 1 of 1

Client: WT Group

File No. 25515 Date Drilled: 11/10/20

Reference: Birch Park Improvements
Hoffman Estates, IL

Comments:

depth, ft.	Equipment: <input checked="" type="checkbox"/> CME 45B <input type="checkbox"/> CME 55 <input type="checkbox"/> Hand Auger <input type="checkbox"/> Other	standard penetration	moisture content	dry unit weight lbs./cu.ft.	unconfined compressive strength	<div>○ unconfined compressive strength, tons/sq. ft.</div> <div>● penetrometer reading, tons/sq. ft.</div> <div>1.0 2.0 3.0 4.0</div>			
	CLASSIFICATION					<div>× standard penetration "N", blows/ft.</div> <div>△ moisture content, %</div> <div>10 20 30 40</div>			
	Elevation 750.0' Existing Surface	×	△	⌘	○				
	(a) see below								
	Brown-gray to brown clay, some silt, trace sand & gravel, damp, hard	9	21.4	105.8	6.1	×	△		4.1
5		11	20.7	110.7	6.4	×	△		4.1
		13	19.4	110.5	6.2	×	△		4.1
10	Gray clay, some silt, trace sand & gravel, damp, hard	13	19.5	110.5	6.2	×	△		4.1
		13	18.9	112.3	5.0	×	△	●	5.8
	Gray clay, some silt, trace sand & gravel, damp, very tough	10	22.3	104.7	3.3	×	△	○	
15		11	19.1	110.5	3.2	×	△	●	○
	End of Boring								
20	(a) Dark brown-black silt, some clay, trace sand, roots & gravel, damp, (topsoil) - Fill								
25									
30									
35									
40									

Water encountered at feet during drilling operations (W.D.)
 Water recorded at dry feet on completion of drilling operations (A.D.)
 Water recorded at dry feet hours after completion of drilling operations (A.D.)



SOIL BORING LOG_____3

File No. 25515 **Date Drilled:** 11/10/20

Comments:110.

G-303d

SOIL BORING LOG 4

Logged By: CS Page: 1 of 1

Client: WT Group

File No. 25515 Date Drilled: 11/10/20

Reference: Birch Park Improvements
Hoffman Estates, IL

Comments:

depth, ft.	Equipment: <input checked="" type="checkbox"/> CME 45B <input type="checkbox"/> CME 55 <input type="checkbox"/> Hand Auger <input type="checkbox"/> Other	standard penetration X	moisture content Δ	dry unit weight lbs./cu. ft. γ	unconfined compressive strength O	<div> ○ unconfined compressive strength, tons/sq. ft. ● penetrometer reading, tons/sq. ft. 1.0 2.0 3.0 4.0 </div>			
	CLASSIFICATION					<div> X standard penetration "N", blows/ft. Δ moisture content, % 10 20 30 40 </div>			
	Elevation 749.0' Existing Surface								
	Black silt, some clay, trace sand & roots damp (topsoil)								
1-	Brown clay, some silt, trace sand & gravel, damp, very tough		18.6				Δ		
2-									
3-		8	19.1	110.0	3.7	X	Δ		○
4-									
5-		11	21.9	106.1	3.7	X	Δ		○
	End of Boring								
6-									
7-									
8-									
9-									
10-									

Water encountered at dry feet during drilling operations (W.D.)
Water recorded at dry feet on completion of drilling operations (A.D.)
Water recorded at feet hours after completion of drilling operations (A.D.)

SOIL BORING LOG 5

Logged By: CS

Page: 1 of 1

Client: WT Group

File No. 25515 Date Drilled: 11/10/20

Reference: Birch Park Improvements
Hoffman Estates, IL

Comments:

depth, ft.	Equipment: <input checked="" type="checkbox"/> CME 45B <input type="checkbox"/> CME 55 <input type="checkbox"/> Hand Auger <input type="checkbox"/> Other	standard penetration X	moisture content Δ	dry unit weight lbs./cu.ft. γ	unconfined compressive strength O	<div> <input type="radio"/> unconfined compressive strength, tons/sq. ft. <input checked="" type="radio"/> penetrometer reading, tons/sq. ft. 1.0 2.0 3.0 4.0 </div>			
	CLASSIFICATION					<div> X standard penetration "N", blows/ft. Δ moisture content, % 10 20 30 40 </div>			
	Elevation 753.0' Existing Surface								
1	Brown fine sand, some silt, damp - Fill		13.9				Δ		
2	Brown-dark brown-black clay, some silt, trace sand & gravel, damp, hard - Fill								
3	Black silt, some clay, trace sand & roots damp, loose (topsoil)	8	18.6	110.2	5.1		Δ		5.1 O
4	Dark brown-dark gray clay, some silt, trace sand & gravel, damp, very tough		26.9					Δ	
5	End of Boring	9	27.3	94.3	2.4	X		O Δ	
6									
7									
8									
9									
10									

Water encountered at dry feet during drilling operations (W.D.)
Water recorded at dry feet on completion of drilling operations (A.D.)
Water recorded at dry feet hours after completion of drilling operations (A.D.)

SOIL BORING LOG 6

Logged By: CS Page: 1 of 1

Client: WT Group

File No. 25515 Date Drilled: 11/10/20

Reference: Birch Park Improvements
Hoffman Estates, IL

Comments:

depth, ft.	Equipment: <input checked="" type="checkbox"/> CME 45B <input type="checkbox"/> CME 55 <input type="checkbox"/> Hand Auger <input type="checkbox"/> Other	standard penetration X	moisture content Δ	dry unit weight lbs./cu.ft. γ	unconfined compressive strength O	<div> O unconfined compressive strength, tons/sq. ft. ● penetrometer reading, tons/sq. ft. 1.0 2.0 3.0 4.0 </div>				<div> X standard penetration "N", blows/ft. Δ moisture content, % 10 20 30 40 </div>			
	CLASSIFICATION												
	Elevation 754.0' Existing Surface												
	Black silt, some clay, trace sand, roots & gravel, damp (topsoil) - Fill		26.3										
1	Brown-dark brown clay, some silt, trace sand & gravel, damp, hard - Fill												
2													
3		7	21.4	104.2	4.0	X		Δ					
4	Brown-dark brown clay, some silt, trace sand & gravel, damp, very tough - Fill												
5	End of Boring	8	23.7	101.7	2.2	X		Δ					
6													
7													
8													
9													
10													

Water encountered at dry feet during drilling operations (W.D.)
 Water recorded at dry feet on completion of drilling operations (A.D.)
 Water recorded at feet hours after completion of drilling operations (A.D.)

GENERAL NOTES

SAMPLE CLASSIFICATION

Soil sample classification is based on the Unified Soil Classification System, the Standard Practice for Description and Identification Soils (Visual-Manual Procedure), ASTM D-2488, the Standard Test Method for Classification of Soils for Engineering Purposes, ASTM D-2487 (when applicable), and the modifiers noted below.

CONSISTENCY OF COHESIVE SOILS

Term	Qu-tons./sq.ft.	N (unreliable)
Very soft	0.00 – 0.25	0 – 2
Soft	0.26 – 0.49	3 – 4
Stiff	0.50 – 0.99	5 – 8
Tough	1.00 – 1.99	9 – 15
Very Tough	2.00 – 3.99	16 – 30
Hard	4.00 – 7.99	30 +
Very Hard	8.00 +	

RELATIVE DENSITY OF GRANULAR SOILS

Term	N – blows/foot
Very Loose	0 – 4
Loose	5 – 9
Medium Dense	10 – 29
Dense	30 – 49
Very Dense	50 +

IDENTIFICATION AND TERMINOLOGY

Term	Size Range
Boulder	over 8 in.
Cobble	3 in. to 8 in.
Gravel - coarse	1 in. to 3 in.
- medium	3/8 in. to 1 in.
- fine	#4 sieve to 3/8 in.
Sand - coarse	#10 sieve to #4 sieve
- medium	#40 sieve to #10 sieve
- fine	#200 sieve to #40 sieve
Silt	0.002 mm to #200 sieve
Clay	smaller than 0.002mm

Modifying Term Percent by Weight

Trace	1 – 10
Little	11 – 20
Some	21 – 35
And	36 – 50

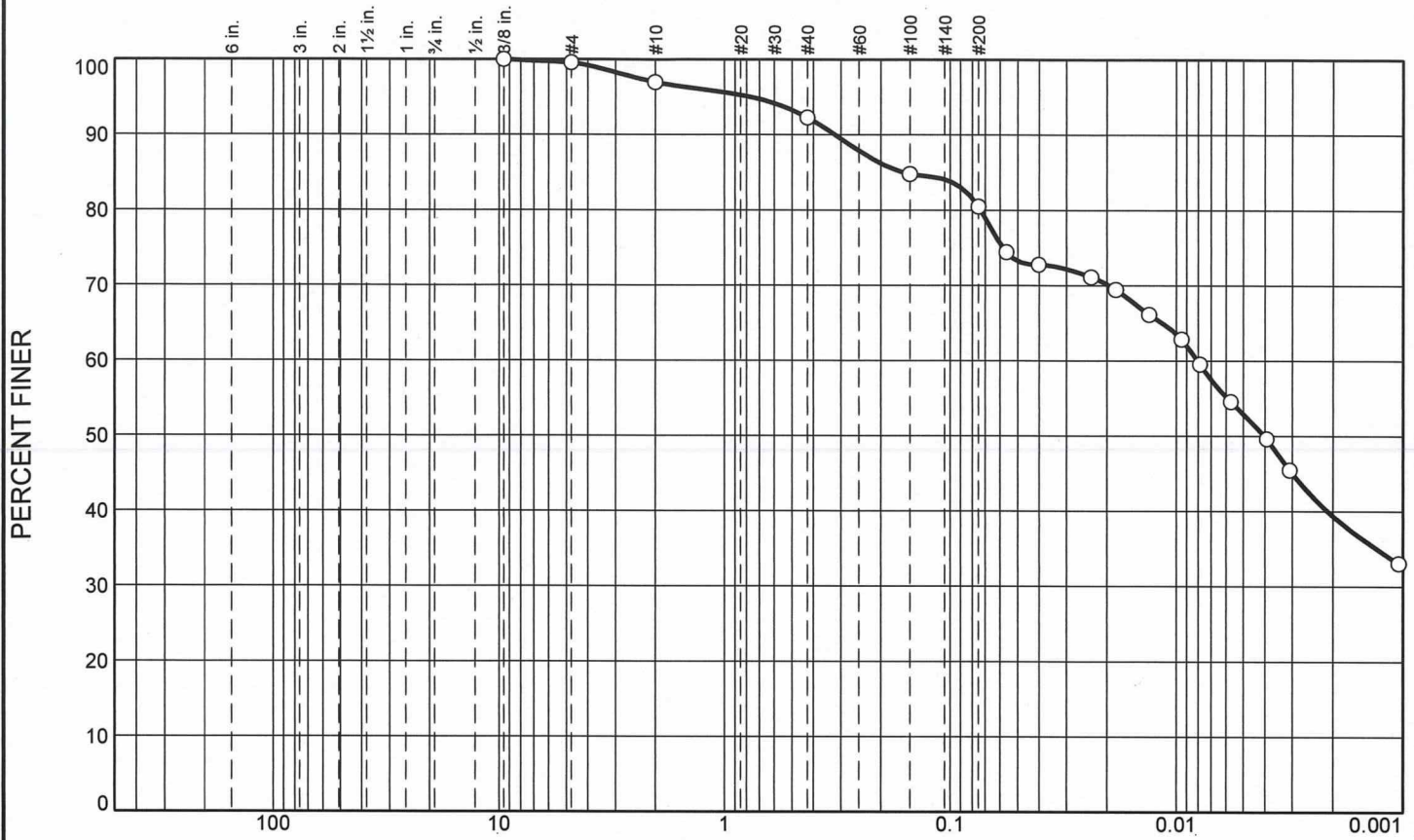
Moisture Content

Dry
Damp
Very Damp
Saturated

DRILLING, SAMPLING & SOIL PROPERTY SYMBOLS

CF	- Continuous Flight Auger
HS	- Hollow Stem Auger
HA	- Hand Auger
RD	- Rotary Drilling
AX	- Rock Core, 1-3/16 in. diameter
BX	- Rock Core, 1-5/8 in. diameter
NX	- Rock Core, 2-1/8 in. diameter
S	- Sample Number
T	- Type of Sample
J	- Jar
AS	- Auger Sample
SS	- Split Spoon (2 in. O.D. with 1-3/8 in. I.D.)
ST	- Shelby Tube (2 in. O.D. w/1-7/8 in. I. D.)
R	- Recovery Length, in.
B	- Blows/6 in. interval, Standard Penetration Test (SPT)
N	- Blows/foot to drive 2 in. O.D. split-spoon sampler with 140 lb. hammer falling 30 in., (STP)
Pen.	- Pocket Penetrometer readings, tons/sq.ft.
W	- Water Content, % dry weight
Uw	- Dry Unit Weight of soil, lbs./cu.ft.
Qu	- Unconfined Compressive Strength, tons/sq.ft.
Str	- % Strain at Qu.
WL	- Water Level
WD	- While Drilling
AD	- After Drilling
DCI	- Dry Cave-in.
WCI	- Wet Cave-in.
LL	- Liquid Limit, %
PL	- Plastic Limit, %
PI	- Plasticity Index (LL-PL)
LI	- Liquidity Index [(W-PL)/PI]

Particle Size Distribution Report



GRAIN SIZE - mm.

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.4	2.6	4.7	11.8	41.1	39.4

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8	100.0		
#4	99.6		
#10	97.0		
#40	92.3		
#100	84.8		
#200	80.5		

* (no specification provided)

Material Description

Clay

PL= **Atterberg Limits** LL= PI=

Coefficients

D₉₀= 0.3183 D₈₅= 0.1595 D₆₀= 0.0081
D₅₀= 0.0040 D₃₀= D₁₅=
D₁₀= C_u= C_c=

Classification

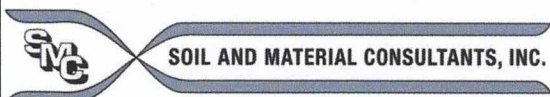
USCS= AASHTO=

Remarks

Location: Boring 2
Sample Number: 3

Depth: 3.5' - 5.0'

Date:



Client: WT GROUP
Project: Birch Park Improvements
Hoffman Estates, IL
Project No: 25515

Figure