VILLAGE OF DOWNERS GROVE
Report for the Village Council Meeting
6/7/2022

SUBJECT:	SUBMITTED BY:
Facilities Replacement & Sustainability Plan: Emergency Communications Tower Construction Contract	Mike Baker Deputy Village Manager

SYNOPSIS
A motion is requested to approve a contract with Impirium Group, Inc., of Carol Stream, IL, in the amount of $712,800 (which includes a 10% ($64,800) contingency) for construction of the new emergency communications tower and demolition of the existing communications tower as part of the Facility Replacement and Sustainability Plan (FRSP).

STRATEGIC PLAN ALIGNMENT
The goals for 2021-2023 include *Exceptional Municipal Services* and *Top Quality Infrastructure.*

FISCAL IMPACT
The total project budget for the FRSP project is $59 million. The portion of the budget allocated for the tower relocation is $800,000, which includes the scope of this contract plus additional infrastructure and utility work to be performed by other contractors. A portion of this work will occur in 2022 and has been included in the FY2022 Major Buildings Fund budget (MB-101). The FY2023 and 2024 Major Buildings Fund budgets will reflect expenses planned to be incurred at that time.

RECOMMENDATION
Staff recommends approval on the June 7, 2022 consent agenda.

BACKGROUND
The Village owns and operates seven major buildings that must be properly maintained. Five buildings are in a maintainable condition of Excellent, Good or Fair. The 43 year-old Police Station and 90+ year-old Village Hall are in Below Average condition and do not provide modern work spaces that allow for efficient and effective interactions among employees and customers. Both facilities have outdated major building systems and are in need of replacement.

The Village has prepared a Facility Replacement and Sustainability Plan (FRSP) to provide long-term solutions that address the conditions of these two facilities. Additional information about the FRSP is available here: http://www.downers.us/facilities

The implementation of the FRSP calls for construction of the following on the Civic Center site:

- A new combined facility to house the Police Station and Village Hall functions
- Approx. 5,000 square feet of space in the combined facility to accommodate School District 58 administrative offices
- Parking for visitors, employees, Village vehicles and commuters
- Safety improvements to Washington/Burlington crossing area

- Landscaped pedestrian/cycling paths along with public plaza spaces
- Sale of 1.3 acres of the property that would allow for construction of an apartment building development
- Relocation of the public safety and private provider telecommunications tower from the existing location in the fleet maintenance lot to a new location 270 feet to the east

The majority of the construction work on the FRSP project will be performed by Leopardo Construction. The construction management contract with Leopardo does not include primary construction of the telecommunications tower. As a result, the Village is responsible for engaging the firm that will construct the telecommunications tower.

A Request for Proposals (RFP) was issued on April 13, 2022 in accordance with the Village's purchasing policy. The proposal received from Impirium, in the not-to-exceed amount of $648,000, was the only proposal received. The requested 10% contingency will only be used if approved by staff, should unforeseen conditions or unexpected changes in scope arise.

The Village has not worked with Impirium previously, but they have successfully completed the construction of similar communications towers and have received positive references. Staff believes that Impirium is qualified to successfully complete this project.

ATTACHMENTS
Contract

VILLAGE OF DOWNERS GROVE

COUNCIL ACTION SUMMARY

INITIATED: Village Attorney (Name) **DATE:** June 7, 2022

RECOMMENDATION FROM: _____ (Board or Department) **FILE REF:** _____

NATURE OF ACTION:

__ Ordinance

__ Resolution

_X_ Motion

__ Other

STEPS NEEDED TO IMPLEMENT ACTION:

Motion to authorize execution of a contract for the emergency communications tower project in the amount of $648,000 plus a 10% contingency in the amount of $64,800 for a total not-to-exceed $712,800.

SUMMARY OF ITEM:

Adoption of this motion shall authorize execution of a contract for the emergency communications tower project in the amount of $648,000 plus a 10% contingency in the amount of $64,800 for a total not-to-exceed $712,800.

RECORD OF ACTION TAKEN:

_____

_____

_____

Village of Downers Grove

REQUEST FOR PROPOSAL

Name of Proposing Company: Empirium Group, Inc.

Project Name: EMERGENCY COMMUNICATIONS TOWER CONSTRUCTION

Proposal No.: N/A

Proposal Due: April 27, 2022 @ 10:00 A.M.

Pre-Proposal Conference: Wednesday, April 20, 2022 @ 2:00 P.M

Required of All Proposers:
Deposit: YES (5%)
Letter of Capability of Acquiring Performance Bond: YES

Required of Awarded Contractor:
Performance Bond/Letter of Credit: YES
Certificate of Insurance: YES

Legal Advertisement Published: YES
Date Issued: April 13, 2022
This document consists of 31 pages.

Return **one (1) original, one (1) duplicate copy, and one PDF (on a flash drive)** of proposal in a **sealed envelope** marked with the Proposal Number as noted above to:

DAVID MOODY
VILLAGE OF DOWNERS GROVE
PUBLIC WORKS DEPARTMENT
5101 WALNUT AVENUEDOWNERS GROVE, IL 60515
PHONE: 630/434-5460
FAX: 630/434-5495
EMAIL: DMOODY@DOWNERS.US
www.downers.us

The VILLAGE OF DOWNERS GROVE ("OWNER") will receive proposals Monday thru Friday, 8:00 A.M. to 5:00 P.M. at the Village Hall, 801 Burlington Avenue, Downers Grove, IL 60515.

SPECIFICATIONS MUST BE MET AT THE TIME THE PROPOSAL IS DUE.

The Village Council reserves the right to accept or reject any and all Proposals, to waive technicalities and to accept or reject any item of any Proposal.

The documents constituting component parts of this contract are the following:

I. REQUEST FOR PROPOSALS

II. TERMS & CONDITIONS

III. DETAILED SPECIFICATIONS

IV. PROPOSER'S RESPONSE TO RFP

V. PROPOSAL/CONTRACT FORM

DO NOT DETACH ANY PORTION OF THIS DOCUMENT. INVALIDATION COULD RESULT.

Proposers MUST submit an original, and 2 additional paper copies of the total Proposal. Upon formal award of the Proposal, the successful Proposer will receive a copy of the executed contract.

I. REQUEST FOR PROPOSALS

1. GENERAL

1.1 Notice is hereby given that the Village of Downers Grove will receive sealed Proposals up to the time and date set forth on the cover page of this Request for Proposals.

1.2 Proposals must be received at the Village of Downers Grove by the time and date specified. Proposals received after the specified time and date will not be accepted and will be returned unopened to the Proposer.

1.3 Proposal forms shall be sent to the Village of Downers Grove, ATTN: David Moody, in a sealed envelope marked "SEALED PROPOSAL". The envelope shall be marked with the name of the project, date, and time set for receipt of Proposals.

1.4 All Proposals must be submitted on the forms supplied by the Village and signed by a proper official of the company submitting the Proposal. Telephone, email and fax proposals will not be accepted.

1.5 By submitting this Proposal, the Proposer certifies under penalty of perjury that they have not acted in collusion with any other Proposer or potential Proposer.

2. PREPARATION OF PROPOSAL

2.1 It is the responsibility of the Proposer to carefully examine the specifications and proposal documents and to be familiar with all of the requirements, stipulations, provisions, and conditions surrounding the proposed services.

2.2 No oral or telephone interpretations of specifications shall be binding upon the Village. All requests for interpretations or clarifications shall be made in writing and received by the Village at least five (5) business days prior to the date set for receipt of Proposals. All changes or interpretations of the specifications shall be made by the Village in a written addendum to the Village's proposers of record.

2.3 In case of error in the extension of prices in the Proposal, the hourly rate or unit price will govern. In case of discrepancy in the price between the written and numerical amounts, the written amount will govern.

2.4 All costs incurred in the preparation, submission, and/or presentation of any Proposal including any Proposer's travel or personal expenses shall be the sole responsibility of the Proposer and will not be reimbursed by the Village.

2.5 The Proposer hereby affirms and states that the prices quoted herein constitute the total cost to the Village for all work involved in the respective items and that this cost also includes all insurance, bonds, royalties, transportation charges, use of all tools and equipment, superintendence, overhead expense, all profits and all other work, services and conditions necessarily involved in the work to be done and materials to be furnished in

accordance with the requirements of the Contract Documents considered severally and collectively.

3. PRE- PROPOSAL CONFERENCE

3.1 A pre-proposal conference may be offered to provide additional information, inspection or review of current facilities or equipment, and to provide an open forum for questions from Proposers. This pre-proposal conference is not mandatory (unless stated "Required" on the cover of this document), but attendance by Proposers is strongly advised as this will be the last opportunity to ask questions concerning the Proposal.

3.2 Questions may be posed in writing to the Village (faxed and emailed questions are acceptable), but must be received by the Village prior to the scheduled time for the pre-proposal conference. Questions received will be considered at the conference. An addendum may be issued as a result of the pre-proposal conference. Such an addendum is subject to the provisions for issuance of an addendum as set forth in Section 2.2 above.

4. MODIFICATION OR WITHDRAWAL OF PROPOSALS

4.1 A Proposal that is in the possession of the Village may be altered by a letter bearing the signature or name of the person authorized for submitting a Proposal, provided that it is received prior to the time and date set for the Proposal opening. Telephone, email or verbal alterations of a Proposal will not be accepted.

4.2 A Proposal that is in the possession of the Village may be withdrawn by the Proposer, up to the time set for the Proposal opening, by a letter bearing the signature or name of the person authorized for submitting Proposals. Proposals may not be withdrawn after the Proposal opening and shall remain valid for a period of ninety (90) days from the date set for the Proposal opening, unless otherwise specified.

5. SECURITY FOR PERFORMANCE

5.1 The awarded contractor, within thirteen (13) calendar days after acceptance of the Proposer's Proposal by the Village, shall furnish security for performance acceptable to the Village when required under the documents. Such security shall be either a satisfactory performance bond (bonding company must be licensed to do business in Illinois) or a letter of credit on the form provided by the Village and available from the Village's Purchasing Manager. Any bond shall include a provision as will guarantee faithful performance of the Illinois Prevailing Wage Act, 820 ILCS 130/1 et seq. **NOTE: As evidence of capability to provide such security for performance, each Proposer shall submit with the Proposal either a letter executed by its surety company indicating the Proposer's performance bonding capability, or a letter from a bank or savings and loan within twenty-five miles of the corporate boundaries of the Village indicating its willingness and intent to provide a letter of credit for the Proposer.**

6. DELIVERY

6.1 All proposal prices are to be quoted, delivered F.O.B. Village of Downers Grove, 801 Burlington, Downers Grove, IL 60515.

7. TAX EXEMPTION

7.1 The Village is exempt from Illinois sales or use tax for direct purchases of materials and supplies. A copy of the Illinois Sales Tax Exemption Form will be issued upon request. The Village's federal identification will also be provided to selected vendor.

8. RESERVED RIGHTS

8.1 The Village reserves the exclusive right to waive sections, technicalities, irregularities and informalities and to accept or reject any and all Proposals and to disapprove of any and all subcontractors as may be in the best interest of the Village. Time and date requirements for receipt of Proposals will not be waived.

II. TERMS AND CONDITIONS

9. VILLAGE ORDINANCES

9.1 The successful Proposer will strictly comply with all ordinances of the Village of Downers Grove and laws of the State of Illinois.

10 USE OF VILLAGE'S NAME

10.1 The Proposer is specifically denied the right of using in any form or medium the name of the Village for public advertising unless express permission is granted by the Village.

11. SPECIAL HANDLING

11.1 Prior to delivery of any product which is caustic, corrosive, flammable or dangerous to handle, the Proposer will provide written directions as to methods of handling such products, as well as the antidote or neutralizing material required for its first aid before delivery. Proposer shall also notify the Village and provide material safety data sheets for all substances used in connection with this Contract which are defined as toxic under the Illinois Toxic Substances Disclosure to Employees Act.

12. INDEMNITY AND HOLD HARMLESS AGREEMENT

12.1 To the fullest extent permitted by law, the Proposer shall indemnify, keep and save harmless the Village and its agents, officers, and employees, against all injuries, deaths, losses, damages, claims, suits, liabilities, judgments, costs and expenses, which may arise directly or indirectly from any negligence or from the reckless or willful misconduct of the Proposer, its employees, or its subcontractors, and the Proposer shall at its own expense, appear, defend and pay all charges of attorneys and all costs and other expenses arising therefrom or incurred in connection therewith, and, if any judgment shall be rendered against the Village in any such action, the Proposer shall, at its own expense, satisfy and discharge the same. This agreement shall not be construed as requiring the Proposer to indemnify the Village for its own negligence. The Proposer shall indemnify, keep and save harmless the Village only where a loss was caused by the negligent, willful or reckless acts or omissions of the Proposer, its employees, or its subcontractors.

13. NONDISCRIMINATION

13.1 Proposer shall, as a party to a public contract:

(a) Refrain from unlawful discrimination in employment and undertake affirmative action to assure equality of employment opportunity and eliminate the effects of past discrimination;

(b) By submission of this Proposal, the Proposer certifies that it is an "equal opportunity employer" as defined by Section 2000(e) of Chapter 21, Title 42, U.S. Code Annotated and Executive Orders #11246 and #11375, which are incorporated herein by reference. The Equal Opportunity clause, Section 6.1 of the Rules and Regulations of the Department of Human Rights of the State of Illinois, is a material part of any contract awarded on the basis of this Proposal.

13.2 It is unlawful to discriminate on the basis of race, color, religion, sex, marital status, national origin or ancestry, age, physical or mental disability unrelated to ability, military status, order of protection status, sexual orientation, sexual identity, or an unfavorable discharge from military service. Proposer shall comply with standards set forth in Title VII of the Civil Rights Act of 1964, 42 U.S.C. Sec. 2000 et seq., The Human Rights Act of the State of Illinois, 775 ILCS 5/1-101et. seq., and The Americans With Disabilities Act, 42 U.S.C. Sec. 12101 et. seq.

14. SEXUAL HARASSMENT POLICY

14.1 The Proposer, as a party to a public contract, shall have a written sexual harassment policy that:

14.1.1 Notes the illegality of sexual harassment;
14.1.2 Sets forth the State law definition of sexual harassment;
14.1.3 Describes sexual harassment utilizing examples;
14.1.4 Describes the Proposer's internal complaint process including penalties;
14.1.5 Describes the legal recourse, investigative and complaint process available through the Illinois Department of Human Rights and the Human Rights Commission and how to contact these entities; and
14.1.6 Describes the protection against retaliation afforded under the Illinois Human Rights Act.

15. EQUAL EMPLOYMENT OPPORTUNITY

15.1 In the event of the Proposer's non-compliance with the provisions of this Equal Employment Opportunity Clause, the Illinois Human Rights Act or the Rules and Regulations of the Illinois Department of Human Rights ("Department"), the Proposer may be declared ineligible for future contracts or subcontracts with the State of Illinois or any of its political subdivisions or municipal corporations, and the contract may be canceled or voided in whole or in part, and such other sanctions or penalties may be imposed or remedies invoked as provided by statute or regulation. During the performance of this Contract, the Proposer agrees as follows:

15.1.1 That it will not discriminate against any employee or applicant for employment because of race, color, religion, sex, marital status, national origin or ancestry, age, physical or mental disability unrelated to ability, military status, order of protection status, sexual orientation, sexual identity or an unfavorable discharge from military service; and further that it will examine all job classifications to determine if minority persons or women are underutilized and will take appropriate affirmative action to rectify any such underutilization.

15.1.2 That, if it hires additional employees in order to perform this Contract or any portion thereof, it will determine the availability (in accordance with the Department's Rules and Regulations) of minorities and women in the area(s) from which it may reasonably recruit and it will hire for each job classification for which employees are hired in such a way that minorities and women are not underutilized.

15.1.3 That, in all solicitations or advertisements for employees placed by it or on its behalf, it will state that all applicants will be afforded equal opportunity without discrimination because of race, color, religion, sex, marital status, national origin or ancestry, age, physical or mental disability unrelated to ability, military status, order of protection status, sexual orientation, or an unfavorable discharge from military services.

15.1.4 That it will send to each labor organization or representative of workers with which it has or is bound by a collective bargaining or other agreement or understanding, a notice advising such labor organization or representative of the Proposer's obligations under the Illinois Human Rights Act and the Department's Rules and Regulations. If any such labor organization or representative fails or refuses to cooperate with the Proposer in its efforts to comply with such Act and Rules and Regulations, the Proposer will promptly so notify the Department and the contracting agency and will recruit employees from other sources when necessary to fulfill its obligations thereunder.

15.1.5 That it will submit reports as required by the Department's Rules and Regulations, furnish all relevant information as may from time to time be requested by the Department or the contracting agency, and in all respects comply with the Illinois Human Rights Act and the Department's Rules and Regulations.

15.1.6 That it will permit access to all relevant books, records, accounts and work sites by personnel of the contracting agency and the Department for purpose of investigation to ascertain compliance with the Illinois Human Rights Act and the Department's Rules and Regulations.

15.1.7 That it will include verbatim or by reference the provisions of this clause in every subcontract it awards under which any portion of the contract obligations are undertaken or assumed, so that such provisions will be binding upon such subcontractor. In the same manner as with other provisions of this Contract, the Proposer will be liable for compliance with applicable provisions of this clause by

such subcontractors; and further it will promptly notify the contracting agency and the Department in the event any subcontractor fails or refuses to comply therewith. In addition, the Proposer will not utilize any subcontractor declared by the Illinois Human Rights Commission to be ineligible for contracts or subcontracts with the State of Illinois or any of its political subdivisions or municipal corporations.

16. DRUG FREE WORKPLACE

Proposer, as a party to a public contract, certifies and agrees that it will provide a drug free workplace by:

16.1 Publishing a statement: (1) Notifying employees that the unlawful manufacture, distribution, dispensation, possession or use of a controlled substance, including cannabis, is prohibited in the Village's or Proposer's workplace. (2) Specifying the actions that will be taken against employees for violations of such prohibition. (3) Notifying the employee that, as a condition of employment on such contract or grant, the employee will: (A) abide by the terms of the statement; and (B) notify the employer of any criminal drug statute conviction for a violation occurring in the workplace no later than five (5) days after such conviction.

16.2 Establishing a drug free awareness program to inform employees about: (1) the dangers of drug abuse in the workplace; (2) the Village's or Proposer's policy of maintaining a drug free workplace; (3) any available drug counseling, rehabilitation and employee assistance programs; (4) the penalties that may be imposed upon employees for drug violations.

16.3 Providing a copy of the statement required above to each employee engaged in the performance of the contract or grant and to post the statement in a prominent place in the workplace.

16.4 Notifying the contracting or granting agency within ten (10) days after receiving notice of any criminal drug statute conviction for a violation occurring in the workplace from an employee or otherwise receiving actual notice of such conviction.

16.5 Imposing a sanction on, or requiring the satisfactory participation in a drug abuse assistance or rehabilitation program by, any employee who is so convicted as required by section 5 of the Drug Free Workplace Act.

16.6 Assisting employees in selecting a course of action in the event drug counseling, treatment and rehabilitation is required and indicating that a trained referral team is in place.

16.7 Making a good faith effort to continue to maintain a drug free workplace through implementation of the Drug Free Workplace Act.

17. PATRIOT ACT COMPLIANCE

17.1 The Proposer represents and warrants to the Village that neither it nor any of its principals, shareholders, members, partners, or affiliates, as applicable, is a person or entity named as a Specially Designated National and Blocked Person (as defined in Presidential Executive

Order 13224) and that it is not acting, directly or indirectly, for or on behalf of a Specially Designated National and Blocked Person. The Proposer further represents and warrants to the Village that the Proposer and its principals, shareholders, members, partners, or affiliates, as applicable are not, directly or indirectly, engaged in, and are not facilitating, the transactions contemplated by this Contract on behalf of any person or entity named as a Specially Designated National and Blocked Person. The Proposer hereby agrees to defend, indemnify and hold harmless the Village, and its elected or appointed officers, employees, agents, representatives, engineers and attorneys, from and against any and all claims, damages, losses, risks, liabilities and expenses(including reasonable attorney's fees and costs) arising from or related to any breach of the foregoing representations and warranties.

18. INSURANCE REQUIREMENTS

18.1 Prior to starting the work, Contractor and any Subcontractors shall procure, maintain and pay for such insurance as will protect against claims for bodily injury or death, or for damage to property, including loss of use, which may arise out of operations by the Contractor or Subcontractor or any Sub-Sub Contractor or by anyone employed by any of them, or by anyone for whose acts any of them may be liable. Such insurance shall not be less than the greater of coverages and limits of liability specified below or any coverages and limits of liability specified in the Contract Documents or coverages and limits required by law unless otherwise agreed to by the Village.

Workers Compensation	$500,000	Statutory
Employers Liability	$1,000,000 $1,000,000 $1,000,000	Each Accident Disease Policy Limit Disease Each Employee
Comprehensive General Liability	$2,000,000 $2,000,000	Each Occurrence Aggregate ***(Applicable on a Per Project Basis)***
Commercial Automobile Liability	$1,000,000	Each Accident
Professional Errors & Omissions (pursuant to section 18.9 below)	$2,000,000 $2,000,000	Each Claim Annual Aggregate
Umbrella Liability	$ 5,000,000	

18.2 Commercial General Liability Insurance required under this paragraph shall be written on an occurrence form and shall include coverage for Products/Completed Operations, Personal Injury with Employment Exclusion (if any) deleted, Blanket XCU and Blanket Contractual Liability insurance applicable to defense and indemnity obligations and other

contractual indemnity assumed under the Contract Documents. The limit must be on a "Per Project Basis".

18.3 Comprehensive Automobile Liability Insurance required under this paragraph shall include coverage for all owned, hired and non-owned automobiles.

18.4 Workers Compensation coverage shall include a waiver of subrogation against the Village.

18.5 Comprehensive General Liability, Employers Liability and Commercial Automobile Liability Insurance may be arranged under single policies for full minimum limits required, **or** by a combination of underlying policies with the balance provided by Umbrella and/or Excess Liability policies.

18.6 Contractor and all Subcontractors shall have their respective Comprehensive General Liability (including products/completed operations coverage), Employers Liability, Commercial Automobile Liability, and Umbrella/Excess Liability policies endorsed to add the "Village of Downers Grove, its officers, officials, employees and volunteers" as "additional insureds" with respect to liability arising out of operations performed; claims for bodily injury or death brought against the Village by any Contractor or Subcontractor employees, or the employees of Subcontractor's subcontractors of any tier, however caused, related to the performance of operations under the Contract Documents. Such insurance afforded to the Village shall be endorsed to provide that the insurance provided under each policy shall be ***Primary and Non-Contributory***.

18.7 Contractor and all Subcontractors shall maintain in effect all insurance coverages required by the Contract Documents at their sole expense and with insurance carriers licensed to do business in the State of Illinois and having a current A. M. Best rating of no less than A-VIII. In the event that the Contractor or any Subcontractor fails to procure or maintain any insurance required by the Contract Documents, the Village may, at its option, purchase such coverage and deduct the cost thereof from any monies due to the Contractor or Subcontractor, or withhold funds in an amount sufficient to protect the Village, or terminate this Contract pursuant to its terms.

18.8 All insurance policies shall contain a provision that coverages and limits afforded hereunder shall not be canceled, materially changed, non-renewed or restrictive modifications added, without thirty (30) days prior written notice to the Village. Renewal certificates shall be provided to the Village not less than five (5) days prior to the expiration date of any of the required policies. All Certificates of Insurance shall be in a form acceptable to Village and shall provide satisfactory evidence of compliance with all insurance requirements. The Village shall not be obligated to review such certificates or other evidence of insurance, or to advise Contractor or Subcontractor of any deficiencies in such documents, and receipt thereof shall not relieve the Contractor or Subcontractor from, nor be deemed a waiver of the right to enforce the terms of the obligations hereunder. The Village shall have the right to examine any policy required and evidenced on the Certificate of Insurance.

18.9 Only in the event that the Work under the Contract Documents includes design, consultation, or any other professional services, Contractor or the Subcontractor shall procure, maintain, and pay for Professional Errors and Omissions insurance with limits of not less than $2,000,000 per claim and $2,000,000 annual aggregate. If such insurance is written on a claim made basis, the retrospective date shall be prior to the start of the Work under the Contract Documents. Contractor and all Subcontractors agree to maintain such coverage for three (3) years after final acceptance of the Project by the Village or such longer period as the Contract Documents may require. Renewal policies during this period shall maintain the same retroactive date.

18.10 Any deductibles or self-insured retentions shall be the sole responsibility of the Insured. At the option of the Village, either: the insurer shall reduce or eliminate such deductibles or self-insured retentions as respects the Village, its officers, officials, employees and volunteers; or the Proposer shall procure a bond guaranteeing payment of losses and related investigations, claim administration and defense expenses.

19. COPYRIGHT/PATENT INFRINGEMENT

19.1 The Proposer agrees to indemnify, defend, and hold harmless the Village against any suit, claim, or proceeding brought against the Village for alleged use of any equipment, systems, or services provided by the Proposer that constitutes a misuse of any proprietary or trade secret information or an infringement of any patent or copyright.

20. COMPLIANCE WITH OSHA STANDARDS

20.1 Equipment supplied to the Village must comply with all requirements and standards as specified by the Occupational Safety and Health Act. All guards and protectors as well as appropriate markings will be in place before delivery. Items not meeting any OSHA specifications will be refused.

21. CERCLA INDEMNIFICATION

21.1 In the event this is a contract that has environment aspects, the Proposer shall, to the maximum extent permitted by law, indemnify, defend, and hold harmless the Village, its officers, employees, agents, and attorneys from and against any and all liability, including without limitation, costs of response, removal, remediation, investigation, property damage, personal injury, damage to natural resources, health assessments, health settlements, attorneys' fees, and other related transaction costs arising under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, 42 U.S.C.A. Sec. 9601, et seq., as amended, and all other applicable statutes, regulations, ordinances, and under common law for any release or threatened release of the waste material collected by the Proposer, both before and after its disposal.

22. CAMPAIGN DISCLOSURE

22.1 Any contractor, proposer, bidder or vendor who responds by submitting a bid or proposal to the Village of Downers Grove shall be required to submit with its submission, an executed Campaign Disclosure Certificate, attached hereto.

22.2 The Campaign Disclosure Certificate is required pursuant to the Village of Downers Grove Council Policy on Ethical Standards and is applicable to those campaign contributions made to any member of the Village Council.

22.3 Said Campaign Disclosure Certificate requires any individual or entity bidding to disclose campaign contributions, as defined in Section 9-1.4 of the Election Code (10 ILCS 5/9-1.4), made to current members of the Village Council within the five (5) year period preceding the date of the bid or proposal release.

22.4 By signing the bid or proposal documents, contractor/proposer/bidder/vendor agrees to refrain from making any campaign contributions as defined in Section 9-1.4 of the Election Code (10 ILCS 5/9-1.4) to any Village Council member and any challengers seeking to serve as a member of the Downers Grove Village Council.

23. SUBLETTING OF CONTRACT

23.1 No contract awarded by the Village shall be assigned or any part subcontracted without the written consent of the Village Manager. In no case shall such consent relieve the Contractor from their obligation or change the terms of the contract.

All approved subcontracts shall contain language which incorporates the terms and conditions of this Contract.

24. TERM OF CONTRACT

24.1 This Contract may be extended no more than twice for subsequent annual periods (two annual extensions) by mutual agreement of both parties, providing such agreement complies with Village purchasing policies and the availability of funds. However, if this Contract is not one that is subject to extension, such information will be available in the detailed specifications or special conditions section.

25. TERMINATION OF CONTRACT

25.1 The Village reserves the right to terminate the whole or any part of this Contract, upon written notice to the Contractor, for any reason and/or in the event that sufficient funds to complete the Contract are not appropriated by the Village.

25.2 The Village further reserves the right to terminate the whole or any part of this Contract, upon written notice to the Contractor, in the event of default by the Contractor. Default is defined as failure of the Contractor to perform any of the provisions of this Contract or failure to make sufficient progress so as to endanger performance of this Contract in accordance with its terms. In the event that the Contractor fails to cure the default upon notice, and the Village declares default and termination, the Village may procure, upon such terms and in such manner as the Village may deem appropriate, supplies or services similar to those so terminated. The Contractor shall be liable for any excess costs for such similar supplies or services unless acceptable evidence is submitted to the Village that failure to perform the Contract was due to causes beyond the control and without the fault or negligence of the Contractor. Any such excess costs incurred by the Village may be set-off against any monies due and owing by the Village to the Contractor.

26. BILLING & PAYMENT PROCEDURES

26.1 Payment will be made upon receipt of an invoice referencing Village purchase order number. Once an invoice and receipt of materials or service have been verified, the invoice will be processed for payment in accordance with the Village payment schedule. The Village will comply with the Local Government Prompt Payment Act, 50 ILCS 505/1 et seq., in that any bill approved for payment must be paid or the payment issued to the Proposer within 60 days of receipt of a proper bill or invoice. If payment is not issued to the Proposer within this 60 day period, an interest penalty of 1.0% of any amount approved and unpaid shall be added for each month or fraction thereof after the end of this 60 day period, until final payment is made.

26.2 The Village shall review in a timely manner each bill or invoice after its receipt. If the Village determines that the bill or invoice contains a defect making it unable to process the payment request, the Village shall notify the Contractor requesting payment as soon as possible after discovering the defect pursuant to rules promulgated under 50 ILCS 505/1 et seq. The notice shall identify the defect and any additional information necessary to correct the defect.

26.3 If this Contract is for work defined as a "fixed public work" project under the Illinois Prevailing Wage Act, 820 ILCS 130/2, any contractor or subcontractor is required to submit certified payroll records along with the invoice. No invoice shall be paid without said records.

26.4 Please send all invoices to the attention of Village of Downers Grove, Accounts Payable, 801 Burlington, Downers Grove, IL 60515.

27. RELATIONSHIP BETWEEN THE PROPOSER AND THE VILLAGE

27.1 The relationship between the Village and the Proposer is that of a buyer and seller of professional services and it is understood that the parties have not entered into any joint venture or partnership with the other.

28. STANDARD OF CARE

28.1. Services performed by Proposer under this Contract will be conducted in a manner consistent with that level of care and skill ordinarily exercised by members of the profession currently practicing in the same locality under similar conditions. No other representations express or implied, and no warranty or guarantee is included or intended in this Contract, or in any report, opinions, and documents or otherwise.

29.2 If the Proposer fails to meet the foregoing standard, Proposer will perform at its own cost, and without reimbursement from the Village, the professional services necessary to correct errors and omissions caused by Proposer's failure to comply with the above standard and reported to Proposer within one (1) year from the completion of Proposer's services for the Project.

29.3 For Professional Service Agreements (i.e. Engineer, Consultant): Project site visits by Proposer during construction or equipment installation or the furnishing of Project representatives shall not make Proposer responsible for: (i) constructions means, methods, techniques, sequences or procedures; (ii) for construction safety precautions or programs; or (iii) for any construction contractor(s') failure to perform its work in accordance with contract documents.

30. GOVERNING LAW

30.1 This Contract will be governed by and construed in accordance with the laws of the State of Illinois without regard for the conflict of laws provisions. Venue is proper only in the County of DuPage and the Northern District of Illinois.

31. SUCCESSORS AND ASSIGNS

31.1 The terms of this Contract will be binding upon and inure to the benefit of the parties and their respective successors and assigns; provided, however, that neither party will assign this Contract in whole or in part without the prior written approval of the other. The Proposer will provide a list of key staff, titles, responsibilities, and contact information to include all expected subcontractors.

32. WAIVER OF CONTRACT BREACH

32.1 The waiver by one party of any breach of this Contract or the failure of one party to enforce at any time, or for any period of time, any of the provisions hereof will be limited to the particular instance and will not operate or be deemed to waive any future breaches of this Contract and will not be construed to be a waiver of any provision except for the particular instance.

33. AMENDMENT

33.1 This Contract will not be subject to amendment unless made in writing and signed by all parties.

34. NOT TO EXCEED CONTRACT

34.1 The contract price is a "not-to-exceed" cost. At any time additional work is necessary or requested, and the not-to-exceed price is increased thereby, any change, addition or price increase must be agreed to in writing by all parties who have executed the initial contract.

35. SEVERABILITY OF INVALID PROVISIONS

35.1 If any provisions of this Contract are held to contravene or be invalid under the laws of any state, country or jurisdiction, contravention will not invalidate the entire Contract, but it will be construed as if not containing the invalid provision and the rights or obligations of the parties will be construed and enforced accordingly.

36. NOTICE

36.1 Any notice will be in writing and will be deemed to be effectively served when deposited in the mail with sufficient first class postage affixed, and addressed to the party at the party's place of business. Notices shall be addressed to the Village as follows:

Village Manager
Village of Downers Grove
801 Burlington Ave.
Downers Grove, IL 60515

And to the Proposer as designated in the Contract Form.

37. COOPERATION WITH FOIA COMPLIANCE

37.1 Contractor acknowledges that the Freedom of Information Act may apply to public records in possession of the Contractor or a subcontractor. Contractor and all of its subcontractors shall cooperate with the Village in its efforts to comply with the Freedom of Information Act. 5 ILCS 140/1 et seq.

38. PREVAILING WAGE ACT

38.1 Contractor agrees to comply with the Illinois Prevailing Wage Act, 820 ILCS 130/1 *et seq.*, for all work completed under this Contract. Contractor agrees to pay the prevailing wage and require that all of its subcontractors pay prevailing wage to any laborers, workers or mechanics who perform work pursuant to this Contract or related subcontract. For applicable rates, go to the State of Illinois – Department of Labor website (www.state.il.us/agency/idol/rates/rates.HTM) and use the most current DuPage County rate. The Department revises the prevailing wage rates and the Contractor or subcontractor has an obligation to check the Department's website for revisions to prevailing wage rates throughout the duration of this Contract.

38.2 Contractor and each subcontractor shall keep or cause to be kept accurate records of all laborers, mechanics and other workers employed by them on the public works project, which records must include each worker's name, address, telephone number when available, the last four digits of the worker's social security number, gender, race, ethnicity, veteran's status, skill level, classification, hourly wage paid (including itemized hourly cash and fringe benefits paid in each pay period), number of hours worked each day, the starting and ending times of work each day, the worker's hourly wage rate, the worker's hourly overtime wage rate, the worker's hourly fringe benefit rates, the name and address of each fringe benefit fund, the plan sponsor of each fringe benefit, if applicable, and the plan administrator of each fringe benefit, if applicable. These records shall be open to inspection at all reasonable hours by any representative of the Village or the Illinois Department of Labor and must be preserved for five (5) years from the date of the last payment on the public work.

38.3 Since this is a contract for a public works project, as defined in 820 ILCS 130/2, Contractor agrees to post at the job site in an easily accessible place, the prevailing wages for each craft or type of worker or mechanic needed to execute the contract or work to be performed.

38.4 Because this is a public works project as defined under the Prevailing Wage Act, 820 ILCS 130/2, any and all contractors and subcontractors shall submit certified payroll records to the Illinois Department of Labor no later than the fifteenth (15^{th}) day of each calendar month for the immediately preceding month in which construction on a public works

project has occurred. Contractor shall then provide an IDOL certification and case number to the Village. WITHOUT THIS PAPERWORK, NO INVOICE SHALL BE PAID BY THE VILLAGE. Filing false records is a Class A misdemeanor.

38.5 In the event that this is a construction project where Motor Fuel tax monies or state grant monies are used in the construction, maintenance and extension of municipal streets, traffic control signals, street lighting systems, storm sewers, pedestrian subways or overhead crossings, sidewalks and off-street parking facilities, and the like, the Village will require an Apprenticeship and Training Certification, attached after the Bidder's Certification.

38.6 Any bond furnished as security for performance shall include a provision that guarantees faithful performance of the Illinois Prevailing Wage Act, 820 ILCS 130/1 et seq.

III. DETAIL SPECIFICATIONS

Intent and General Information

The Village of Downers Grove seeks the professional services of a qualified, turn-key contractor that is licensed to conduct business in Illinois to construct and erect a new emergency communications tower located at the Village of Downers Grove Fleet Services building (700 Curtiss Street, Downers Grove, IL 60515). In addition, the Village of Downers Grove seeks the decommission and removal of the existing emergency communications tower at the Village of Downers Grove Village Hall (801 Burlington Avenue, Downers Grove, IL 60515) upon completion of, and transfer of services to the new emergency communications tower. This project will also include the construction of a shelter to house the tower equipment, a permanent diesel and all conduit, wiring, etc. necessary for a fully functional installation.

The intent behind the Request for Proposal is for the Village to have one responsible consultant/contractor provide all services needed to complete all required construction, coordination with all existing tower occupants (cellular, etc.), permitting, construction engineering, inspections, and other project management assistance needed to construct the new emergency communications tower, as well as the decommissioning and removal of the existing emergency communications tower.

This project is subject to Illinois prevailing wage requirements.

Qualifications

The prospective consultant must have particular expertise in the permitting and construction of emergency communication towers of similar height. Please provide examples of at least three (3) projects of a similar scope that have been completed in the last five (5) years.

Project Background

The Village of Downers Grove currently owns and operates a 3-legged lattice style Emergency Communications tower. This tower currently houses Village of Downers Grove emergency communication equipment and microwave wide-area network radios, DuPage Public Safety Communications emergency communication equipment, and equipment and antennas for AT&T, Verizon and McKay Brothers. The construction of a new tower, and removal of the existing tower are part of a new Civic Center construction project for the Village of Downers Grove.

Project Delivery

All work shall be coordinated with the Civic Center overall project schedule developed by the Village's Construction Manager (Leopardo Companies, Inc.). The Village expects this project to advance as rapidly as possible. While the Village expects rapid progress, thorough attention to detail shall not be overlooked during the process. The new tower and related site construction and installation of equipment must be completed in coordination with the construction of the new Village Hall/Police Station building, and prior to demolition of the existing Village Hall and Police Station. The demolition work is estimated to begin no later than April 15, 2024.

Proposer shall submit a tentative schedule of work, including at a minimum the following tasks/milestones.

- Permitting
- Coordination with Cellular Companies
- Anticipated Receipt of All Permits
- Start of Construction
- Installation of New Equipment
- Conduit/Wiring
- Transfer of Comms from Old Tower to New Tower
- Substantial Completion of New Tower
- Decommissioning/Demolition of Old Tower
- Project Completion

General Scope of Work

Proposers are to develop, and submit to the Village, a detailed design/build scope of services and methodology to complete the Village's objectives for the communications tower construction project. The Village has identified a general scope of services as described below. These services must be managed by a professional engineer licensed to conduct business in Illinois that is experienced in all phases of construction of radio communications towers, shelters, and all related components.

The scope of work required for this Project includes, but is not necessarily limited to, the following activities:

DOWNERS GROVE MULTI USE TOWER
SCOPE OF WORK

Tower, Generator & Shelter to be provided by selected contractor:

1. One each 190' Sabre Monopole or like kind, based upon pre-determined design.
2. One each 10' x 20' Fiberbond shelter or like kind with standard 911 specifications.
3. One diesel 36 kW Generator & Transfer Switch for Downers Grove.

To Be Provided by Others:

1. Demolition of existing salt storage roof, floor and walls as necessary.
2. Relocation of electric and gas lines from the Fleet Garage to the Storage Garages away from the tower area as needed.
3. Geotechnical soil boring to a depth of 50'.
4. Waste characterization for proper disposal of earth spoils.

Scope of Work – Successful Proposer (Contractor). Engineering after bid award

1. A&E Drawings "Permitting Drawings" (Zoning/Bid drawings available)
2. NEPA / SHPO Reports
3. FCC & FAA Applications
4. 1A survey
5. Additional soil field boring and report per tower manufacturer specs if required.
6. Tower final design including foundation – contractor shall coordinate with Leopardo and FGMA for Com Ed, AT&T Fiber & Comcast Fiber to determine final routings and coordination of obtaining utilities.
7. Contractor shall communicate with MidAmerica and with all current tenants to determine needs on new tower and determine timelines for them to install onto the new tower. (AT&T, Verizon Wireless, McKay Brothers, DU-COMM & the Village of Downers Grove).
8. Adjust final tower loading based on discussions with the tenants.
9. Liaison permitting process with the Village of Downers Grove.

Scope of Work – Successful Bidder (Contractor). Materials & Labor - Construction

1. Pre-construction walk to discuss project, safety & coordination.
2. Provide & Install silt fencing and other safety measures as needed.
3. Provide & Install Caisson Foundation – tower, soil engineer must be onsite to monitor construction, verify soils & test concrete. Test reports based upon 7- & 28-day results.
4. Provide & Install Shelter Foundation, soil engineer must be onsite to monitor construction & test concrete. Test reports based upon 7- & 28-day results.
5. Provide & Install tower area grounding system.
6. Electrical: 6 each 200 Amp, Single phase circuits are needed within the tower area.
    a. Provide & Install Utility H Frame including 1 each six gang electric panel, (200-amp X 6) and 1 each 36" x 36" NEMA outdoor Fiber general pull box.
    b. Provide and install electric primary feeders from six gang meter to Com Ed power pole at the corner of Curtiss St. & Mackie Place, approximately 600' away. (This is an assumed feeder location and Contractor must consult with Com Ed for final determination).
    c. Provide & install 36 kW generator and transfer switch. Provide start up, tuning & training of diesel generator (Assume Cummins or approved equal).
7. Fiber: Fiber Connectivity is needed from all current IT rooms in the existing tower, Village hall and Police Station, as well as all proposed IT locations in the new Village Hall/Police Station and the Village-owned shelter at the new tower.
    a. Leopardo will provide and install 4 each 4" fiber conduits with 3 each 1 ¼" inner ducts in each conduit from the utility H-frame provided by Contractor to existing fiber pull boxes at the corner of Curtiss St. & Mackie Place approximately 600'

away. (This is an assumed feeder location, Contractor must consult with AT&T Fiber & Comcast fiber (current fiber providers) for final determination.

8. Design, provide, receive, assemble & erect new monopole tower.
9. Design, provide, deliver, receive, offload, set with crane & set up new shelter.
10. Provide and install 90' of 8' tall PVC fencing per construction specifications, with one 12' swing gate. Provide and install standard signage (No Trespassing, FCC, RF & Contact information).
11. Provide & install Mirafi 500X Geotextile Fabric inside tower area (3825 SF +/ -).
12. Provide, deliver, and install 12" of 3/4" washed, crushed aggregate (meeting Illinois DOT specifications for CA-7) throughout tower area.
13. Communicate with Mid-America to advise, liaison & program manage the move and/or installation of all tenants (AT&T, Verizon Wireless, McKay Brothers, DU-COMM & the Village). All tower tenants will move their own equipment at their own cost.
14. Remove old tower and dispose of same. Concrete demo 5' below grade. Finish grade to be 12" of ¾" crushed aggregate with fines (meeting Illinois DOT specifications for CA-6) compacted to 95% modified proctor density.
15. Final Walk – Punch list completion. Fabricate & provide close-out packages to include photos before, during and after all phases of construction, red lined construction drawings, tower erection & design drawings, shelter drawings, all warranty information, and all manuals. Close outs shall be in cloud form available for download for up to five (5) years.

Contract Documents

The following documents are attached and are hereby incorporated into this contract.

- Village of Downers Grove Construction Specifications, dated April 13, 2022
- Downers Grove Tower Swap Project Plans, prepared by Fullerton Engineering, dated 3/31/22
- Shelter Specifications, dated 4/12/2022
- Waste Characterization Soil Sampling, prepared by True North Consultants, dated March 23, 2022
- Tower Elevation Profile, by Sabre Industries, dated 3/8/2022
- Report of Subsurface Exploration and Geotechnical Engineering Services, Proposed Civic Center, 801 Burlington Avenue, Downers Grove, Illinois, by Construction & Geotechnical Materials Testing, Inc., dated January 27, 2022

Proposal Requirements

This RFP is the contract between the prospective Firm and the Village. You must submit this entire RFP document with your proposal.

Quantity and Format

One (1) original, one (1) duplicate copy, and one PDF (on a flash drive) shall be submitted in an 8 ½ x 11 format and be organized as follows:

- Cover Letter/General Information
- Firm Experience (list at least three (3) similar projects in last five (5) years with references)
- Project Understanding/Approach
- Résumés/Project Organizational Chart
- Proposed Project Schedule
- Optional Tasks Beyond the Base Scope of Services – In addition to the base scope of services included in this RFP, issues that, in the Consultant's opinion, are critical to Village interests should be identified for possible inclusion into the scope. An identification and cost for each additional task is to be included as a supplement to the base scope and cost.
- Proposed Overall Not-To-Exceed Cost

Proposal Bond Requirements

A deposit will be required, which shall be equal to five percent (5%) of the estimated cost of the work to be furnished. Such deposit shall be in the form of a bid bond, certified check, cash or money order. Checks shall be drawn upon a bank of good standing payable to the order of the Village and said deposit shall be forfeited to the Village in the event the Proposer neglects or refuses to enter into a contract and bond when required, with approved sureties, to execute the Work or furnish the material for the price mentioned in his Proposal and according to the plans and specifications in case the contract shall be awarded to him.

Fees

The Village requires the method of compensation for professional services to be based on hourly-charged personnel rates plus expenses, with a Total "Not-To-Exceed" cost. Please submit an estimate of hourly personnel requirements to complete the scope of services outlined in your Proposal, a list of current hourly rates and a total "Not-To-Exceed" cost for providing the proposed services to the Village. This "Not-To-Exceed" cost shall include deliverables and reimbursable expenses, such as postage, delivery service, printing, etc. The Village shall be invoiced monthly. Additional compensation above and beyond the "Not to Exceed" cost (i.e. change orders) will not be considered without a significant change in project scope.

Firm Selection

Firm Selection will be based on the following:

- Approach to organizing and understanding of the project
- Firm's recent experience with similar work
- Responsiveness to requirements, terms, timeliness and conditions for performance of the project

- Familiarity with Village of Downers Grove policies and preferences
- Recognition of items related to project, including identification of design elements, and processes that will ultimately result in a quality, streamlined project
- Overall Not-to-Exceed Total Cost

Pre-Proposal Conference

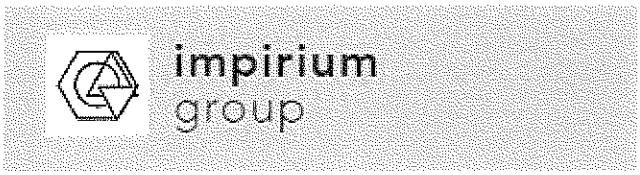
Prior to submitting a Proposal, each prospective Firm may make all investigations and examinations necessary to ascertain all site conditions and requirements affecting the full performance of this project and to verify any representations made by the Village upon which the prospective Firm will rely. These investigations shall be limited to public property only. The monetary expenses incurred as a result of conducting these investigations shall be borne by the prospective Firm and shall not be the responsibility of the Village.

The Pre-Proposal Conference will take place on Wednesday, April 20th, 2022 at 2:00 P.M. at 700 Curtiss Street in Downers Grove, IL 60515. This Pre-Proposal Conference is optional to attend.

Please submit any questions in writing or via email to David Moody by 4:00 p.m. (CST) April 21st, 2022. Questions received after this time may not receive a response.

IV. PROPOSER'S RESPONSE TO RFP

(Proposer must insert response to RFP here. DO NOT insert a form contract, the RFP document including detail specs and Proposer's response will become the contract with the Village.)



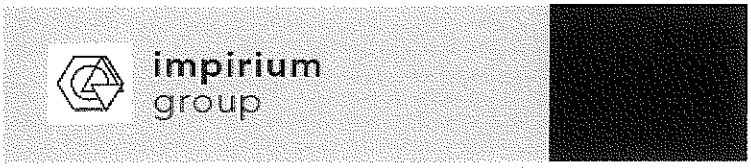
IMPIRIUM GROUP, INC.

PROPOSAL FOR

VILLAGE OF DOWNERS GROVE

EMERGENCY COMMUNICATIONS TOWER CONSTRUCTION

RFP 34-0-2022/DM



4/26/2022

Village of Downers Grove
801 Burlington Ave.
Downers Grove, IL 60515

RE: RFP 34-0-2022/DM

Dear Mr. David Moody,

Impirium Group is pleased to submit this Proposal for "Emergency Communications Tower Construction". As a telecommunication specialty firm, we have full confidence that we have the ability to perform all the requirements of this RFP. We have extensive experience in this field of work and have an understanding of scope of work.

We are based locally in DuPage County and have experience with many local municipalaties. We have good working relationships with your specified equipment vendors, Sabre Industries and Fibrebond.

More details of our experience and approach for this project is detailed in the sections that follow.

We also would be more than pleased to make a presentation and/or answer any questions you have in person or via internet conference.

Very truly yours,

Impirium Group, Inc.

Abder Ghouleh

Abder Ghouleh, Project Director

COMPANY PROFILE

Impirium Group,

Inc.S Corporation

Illinois, 2017

Firm Address: 325 Village Drive
Carol Stream, IL 60188
Telephone: 847.708.7500

Office handling this Contract:
Address: 361 Randy Road, Suite 101
Carol Stream, IL 60188
Telephone **847.708.7500**
Fax: **847.589.0643**

Federal Tax ID Number: 82-18776229

Firm's representative and contact with Downers Grove in regards to this RFP:
Abder Ghouleh, Project Director
361 Randy Road, Suite 101
Carol Stream, IL 60188
Office: 847.708.7500
Fax: 847.589.0643
Cell: 312-613-3713
bizdev@impirium.net

Impirium Group, Inc., is registered and in good standing in the state of Illinois. Impirium Group will procure all necessary licenses, permits, certifications, approvals and authorizations in order to perform all work and obligations required in this RFP.

EXECUTIVE SUMMARY

Impirium Group believes it is a highly qualified and experienced company in the field of communications with many years experience in the design and construction of tower communication sites.

Our staff brings both project management in the private communications sector as well as project management in the government sector. With experienced tower crews and generator crews that have done excellent installations, and we do not foresee any difficulties in this project.

Our project manager Mr. Ghouleh, having worked in government for almost 30 years, understands and appreciates the Village of Downers Grove's objectives in having this project go as smoothly as possible. He will oversee that staff delivers this project to completion and to Downers Grove's satisfaction.

Our firm is focused on providing integrated infrastructure services ranging from initial design/ professional engineering solutions to construction services and maintenance support.

We have achieved vertical integration and operate as TurnKey/Single Source Provider for the Wireless network Sector as well as other Fortune 500 clientele.

We have an In-house Civil, Structural and Architectural Engineers as well as Construction Civil & Tower Crews. Our Groups' staff have diverse experiences and specialties from Civil to Geotechnical to Structural Engineering in addition to our strong experience in field construction skills.

We strive to save our Clients' Precious Financial and Time Assets. The firm has a high work ethic; and our staff work very hard to enhance our clients' customer service experience.

FIRM EXPERIENCE
SIMILAR PROJECTS

Project #1: Verizon Communication Tower at 2495 S Meridian Road, Fowler, IN 47944
Start Date: 11/22/2020; End Date: 1/28/2021

Scope of work

1. **Decommissioning & Replacement of Existing 380 Foot Tower Project – Verizon**

   A. Decommission of existing 380 foot high Self Support / Guyed Tower.
   B. Installation of New 300' Self Support (3-legged) Tower.

Summary

An Existing 380-foot guyed tower that was acquired by Verizon Wireless needed to be removed and replaced by a 300' 3-legged Self Support Tower. The project was very challenging due to the fact that 380' heigh is well past the reach of any typical crane. Thus, it was not financially feasible for Verizon to hire a crane to assist with removing the tower from 380' level. Our firm was retained to decommission the tower section by section using a gin-pole. This type of de-construction is very difficult as the talent required to decommission a guyed tower with multiple guyed-cables is very rare due to the dangerous type of deconstruction.

All equipment was removed off the tower including Antennas, Radios, Microwaves and coax cables and relocated to the new tower.

Client: Verizon Wireless, 250 E. 96th Street, Suite 300, Indianapolis, IN 46240.
Contact: James R. Grant, phone: 317-439-7644

Project #2: GN2 Rochester Central II Tower at 440 W SR 14, Rochester, IN 46975
Start Date: 10/27/2020; End Date: 11/20/2020

Scope of work

1. **Decommissioning & Replacement of Existing 360 Foot Tower Project – Verizon**

   A. Decommission of existing 360 foot high Self Support / Guyed Tower.
   B. Installation of New 190' Monopole Tower.

Summary

An Existing 360-foot guyed tower that was acquired by Verizon Wireless needed to be removed and replaced by a 190' Monopole Tower. The project was very challenging due to the fact that 360' heigh is well past the reach of any typical crane. Thus, it was not financially feasible for Verizon to hire a crane to assist with removing the tower from 360' level. Our firm was retained to decommission the tower section by section using a gin-pole. This type of de-construction is very difficult as the talent required to decommission a guyed tower with multiple guyed-cables is very rare due to the dangerous type of deconstruction.

All equipment was removed off the tower including Antennas, Radios, Microwaves and coax cables and relocated to the new tower.

Client: Verizon Wireless
Contact: James R. Grant, Senior Engineer IV, phone: 317-439-7644, james.grant@verizonwireless.com

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Project #3: GN2 Oxford II Tower at 2495 S Meridian Rd, Benton, IN 46526
Start Date: 11/12/2020; End Date: 12/10/2020

Scope of work

1. **Installation of new 300 Foot Tower Project – Verizon**

   A. Installation of New 300' Self Support (3-legged) Tower.

Summary

A new 300' Self Support (3-legged) Tower was erected. New equipment was installed on the tower including Antennas, Radios, Microwaves and coax cables.

Client: Verizon Wireless
Contact: James R. Grant, Senior Engineer IV, phone: phone: 317-439-7644

Project #4: GN2 Kilmore II Tower at 2024 E County Rd 250 N, Frankfort, IN 46041
Start Date: 11/23/2020; End Date: 12/18/2020

Scope of work

1. **Decommissioning & Replacement of Existing 360 Foot Tower Project – Verizon**

   A. Decommission of existing 360 foot high Self Support / Guyed Tower.
   B. Installation of New 260' Self Support (3-legged) Tower.

Summary

An Existing 360-foot guyed tower that was acquired by Verizon Wireless needed to be removed and replaced by a 260' 3-legged Self Support Tower. The project was very challenging due to the fact that 360' heigh is well past the reach of any typical crane. Thus, it was not financially feasible for Verizon to hire a crane to assist with removing the tower from 360' level. Our firm was retained to decommission the tower section by section using a gin-pole. This type of de-construction is very difficult as the talent required to decommission a guyed tower with multiple guyed-cables is very rare due to the dangerous type of deconstruction.

All equipment was removed off the tower including Antennas, Radios, Microwaves and coax cables and relocated to the new tower.

Client: Verizon Wireless
Contact: James R. Grant, Senior Engineer IV, phone: phone: 317-439-7644,
james.grant@verizonwireless.com

Project #5: Green Lake Tower at W1848 Hwy B, Green Lake, WI 54941
Start Date: 4/8/2020; End Date: 4/17/2020

Scope of work: Replace existing antenna mounts, antenna and radios on tower with new equipment.

Client: Nokia
Contact: Tyler Brinkerhoff, Project Manager, tbrinkerhoff@nokia.com, 707-391-0210

Project #6: Warner Park Tower at 1865 Northport Dr, Madison, WI 53704
Start Date: 4/8/2020; End Date: 4/17/2020

Scope of work: Replace existing antenna mounts, antenna and radios on tower with new equipment.

Client: Nokia
Contact: Tyler Brinkerhoff, Project Manager, tbrinkerhoff@nokia.com, 707-391-0210

Project #7: Main Street Beloit Tower at 545 Public Ave, Beloit, WI 53511
Start Date: 4/22/2020; End Date: 5/18/2020

Scope of work: Replace existing antenna mounts, antenna and radios on tower with new equipment.

Client: Nokia
Contact: Tyler Brinkerhoff, Project Manager, tbrinkerhoff@nokia.com, 707-391-0210

Project #8: Generator at Tower Sites Projects
Dates of Construction: 4th Quarter 2020 - 3th Quarter 2021

CH22517B Tower at 7215 S Exchange Ave, Chicago, IL
CH31082A Tower at 5336 W Chicago Ave, Chicago, IL
CH42429A Tower at 8541 S Baltimore Ave, Chicago, IL

Scope of work: : Install new generators at tower sites.

Client: T-Mobile
Contact: Raymond Graffial, Project Manager, Raymond.Graffial@T-Mobile.com, 847-707-0454

PROJECT APPROACH

Impirium Group's approach to this project will be one of cooperation with the Village of Downers Grove to meet its goals. An organized schedule will utilize specialized work crews to complete the project on time.

We will interact with Downers Grove staff and its site development team to come up with the best solutions possible. We will Value Engineer this project and provide Downers Grove the best recommendations.

We understand the main goal of having a fully operational tower site at the new location completed before decommissioning of the existing tower. We understand that time is of the essence. Completion of the project in a timely manner will remain a priority throughout the process.

We have familiarity with working in Downers Grove with the design and permitting of 4G cell antenna installations.

We anticipate using a 4 person construction crew for this project. Our tower personnel are NATE (National Association of Tower Erectors) certified. We also have extensive experience in generator installations.

A pre-construction meeting will be held with the Village of Downers Grove to review a more detailed schedule before any work is commenced. Impirium Group will work with the Village to insure that construction activity does not interfere with the Village's daily business.

As Impirium Group, Inc. and its affiliated companies have done many similar projects of this scope, we do not anticipate any problems. If any unforeseen problems do arise, our approach is to timely notify the Village's project representative and also advise to our best solution to resolve the problem. We have an in house staff of experienced telecommunication, electrical and structural engineers that we can utilize for problem solving.

After discussion with the Village, we will implement the solution that meets Downers Grove's approval.

PROJECT TEAM QUALIFICATIONS & EXPERIENCE

CONTRACTOR: IMPIRIUM GROUP INC.

DESIGN: CONCORDIA WIRELESS

Firm Address: 361 Randy Road, Suite 101
Carol Stream, IL 60188
Telephone: 847.708.7500

PROJECT TEAM QUALIFICATIONS & EXPERIENCE

PROJECT MANAGEMENT TEAM

GM Sadat, P.E., Director of Engineering
Email: pm@impirium.net
Role: Chief Officer for contract and agreement.

Education: BS in Civil & Structural Engineering, MS in Civil & Geo-Environmental Engineering

Experience: 25+ years, including engineering, managing and directing large scale projects in the telecommunications industry nationwide. Design management and Construction management. Projects include erecting towers, poles, rooftop antennas, DAS, turnkey tower communication sites with shelter and generators for Verizon, T-Mobile, ATT, Dish and others.

Professional Engineer license (P.E.), Illinois, Wisconsin, Indiana, Michigan, Connecticut, Texas

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Abder Ghouleh, P.E., Project Director
Email: bizdev@impirium.net
Role: Project Manager, proposal, schedule, engineering, electrical.

Education: BS in Electrical Engineering, MS in Electrical Engineering

Experience: 30+ years, including Project Manager for large scale government multi-million dollar projects. Supervised multiple design teams and personnel. Project implementation, budget, schedule, design deliverables, contract documents, QA/QC review, post award engineering, and conflict resolution. Project Engineer in Design and the Construction. Design included Power Distribution, Lighting, Controls, Automation, Communications and Specifications. Construction included Multi-Project Coordination as well as Resident Engineer duties. Projects include telecom and generators.

Professional Engineer license (P.E.), Illinois

Reem Hafez, Vice President of Engineering
Email: rhafez@impirium.net
Role: Project Engineer.

Education: BA in Design

Experience: 20 years experience in telecom design and management. Specialties include tower site, rooftop and water tank antenna design. T-Mobile, Verizon, ATT, Dish projects.

Evgueni Guenkov, Structural Engineer
Email: eguenkov@impirium.net
Role: Project Structural Engineer.

Education: BS in Civil/Structural Engineering, MS in Civil/Structural Engineering

Experience: 29 years experience in civil and structural engineering design, of which 21 years are in structural engineering for telecommunication projects. Structural design and investigation of timber, steel, precast and cast-in-place reinforced concrete structures; highway structures; underground facilities, reinforced concrete tunnels and steel lined tunnels; steel and concrete piles, sheet piles, concrete, and modular retaining walls; structural failure investigation and remediation design; finite element analysis of 2D and 3D shell, plate and solid models; soil-structure interaction analysis. Design of new and investigation of existing telecommunication equipment supporting structures; monopoles, self-supporting towers, guyed towers, rooftops. Design and construction project management utilizing several Web-based project management platforms; development and implementation of QA/QC manuals and procedures.

CONSTRUCTION TEAM

Marcin Stopyra, Project Manager
Email: Marcin.Stopyra@impirium.net
Role: Project Manager, on site field construction services supervision.

Education: BS in Building & Engineering Structures, MS in Building & Engineering Structures

Experience: 7+ years, including managing the construction of telecommunication projects. Client services and Field Supervision. Projects include erecting towers, poles, rooftop antennas, and generators. AutoCAD Advanced certification.

Dellahi Maloum, Vice President of Construction
Email: Dellahi.Maloum@impirium.net
Role: Project Support.

Education: MS in Civil Engineering, MBA in Information Systems

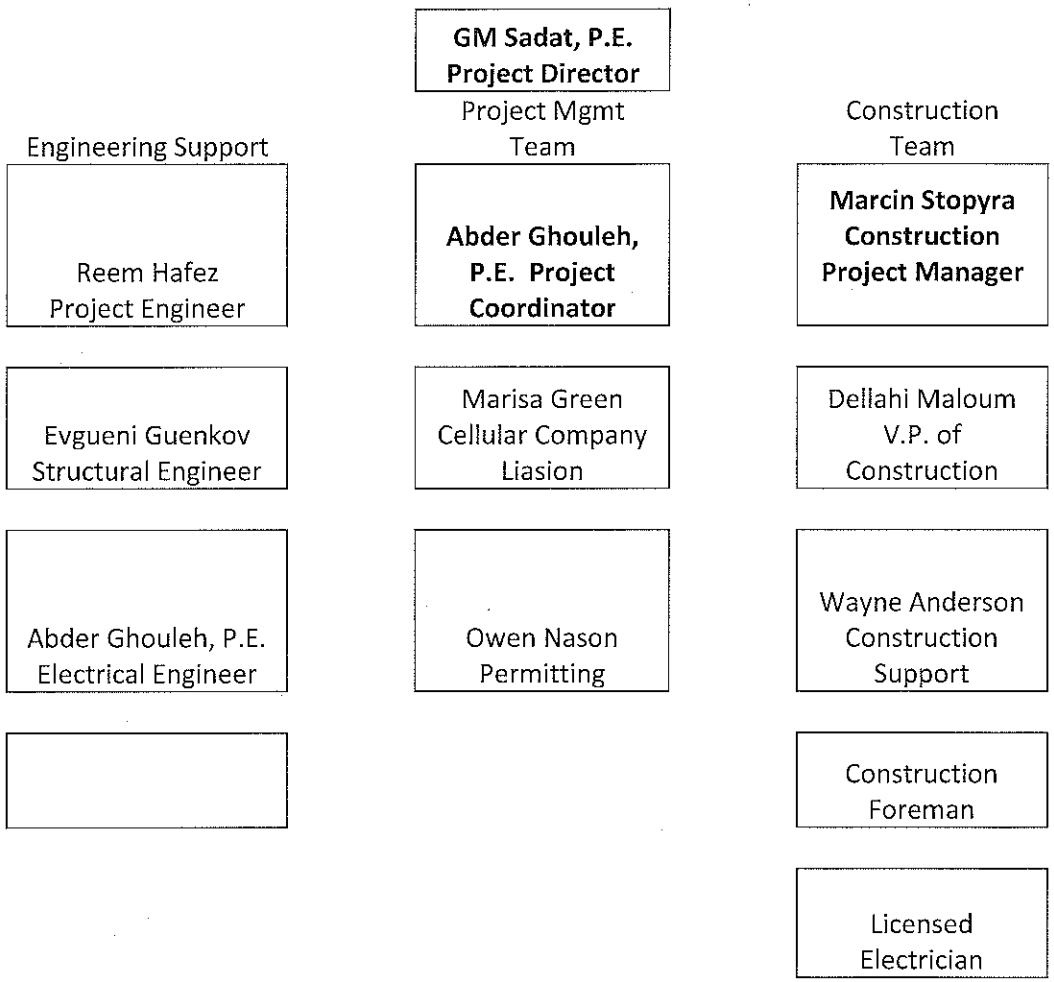
Experience: 9+ years, including managing the construction of telecommunication projects. Client and Field services. Scheduling and estimating. Projects include erecting towers and constructing communication tower sites.

Wayne Anderson, Program Director
Role: Oversight of program management to ensure deliverables are met in timely manner.

Education: BA in Accounting & Business Management (Finance focus)

Experience: 21+ years of managing the different facets of telecommunications work including financial projects & processes, site acquisition services including engineering, zoning, permitting and leasing as well as different types of construction projects including civil work, generator work and tower work.
Project Management Professional (PMP)

PROJECT ORGANIZATIONAL CHART



PROPOSED PROJECT SCHEDULE

- Contract Start — May 2022

- Order Major Equipment — May 2022
- Request Drawings from Vendors — May 2022 (8 week lead time)
- Receive Drawings from Vendors — July 2022

- Coordination with Cellular Companies — May 2022-May 2023

- Approval of Drawings from Vendors — August 2022

- Permitting — September 2022
- Foundations — October 2022

- Material & Equipment Production — September 2022 (16 week lead time)
- Delivery of New Equipment — January-February 2023

- Installation of New Equipment — February-March 2023
- Conduit/Wiring, Trenching — March-May 2023

- Transfer of Comms from Old Tower to New Tower — March 2023-March 2024
- Substantial Completion of New Tower — June 2023

- Decommissioning/Demolition of Old Tower — March-April 2024
- Project Completion — May 2024

PRICE PROPOSAL

Impirium Group Inc. respectfully submits:

Proposed Overall Not-to-Exceed Cost: $648,000

This is includes the following:

Lump Sum for Professional Services: $21,000.

Sabre 190' Monopole Tower (Class III per Addendum): $150,916.

Fibrebond 10x20 pre-built Communication Shelter: $104,159.

Generac 35KW Diesel Generator: $34,120.

Total foundation cost of approximately $100,000.

12 fiber cables at 600' (material & labor)

Allowance item (per Addendum):

Fiber Optic Cable (12 strand): $785 per 1000 ft

Liberty Mutual SURETY

Contract Bonds
Mitchell Swanson
Senior Underwriter
Mitchell.Swanson@LibertyMutual.com
Phone: 605.679.0871

April 26, 2022

RE: Impirium Group Inc. and affilates

To Whom It May Concern:

Liberty Mutual Surety and The Ohio Casualty Insurance Company will give consideration to single bonds up to $3,000,000 and an aggregate program of $3,000,000. A final decision on any particular bond would, of course, depend on a favorable underwriting review of specific underwriting factors such as the details of the job, contract documents, bond forms, and contractor's other work on hand.

The Ohio Casualty Insurance Company is licensed to do business in all states and has an 'A' (Excellent) rating and financial size category of XV in the A.M. Best Insurance Guide.

I trust this is the information you are seeking. If anything else is necessary, please do not hesitate to contact me.

Sincerely,

Mitchell Swanson, Sr. Underwriter
Liberty Mutual Surety

THE AMERICAN INSTITUTE OF ARCHITECTS

AIA Document A310

Bid Bond

KNOW ALL MEN BY THESE PRESENTS, that we

Impirium Group, Inc.
361 Randy Road, Suite 101, Carol Stream, IL 60188

as Principal, hereinafter called the Principal, and
The Ohio Casualty Insurance Company
175 Berkeley Street, Boston, MA 02116

a corporation duly organized under the laws of the State of NH
as Surety, hereinafter called the Surety, are held and firmly bound unto
Village of Downers Grove
801 Burlington Ave, Downers Grove, IL 60515
as Obligee, hereinafter called the Obligee, in the sum of Five Percent of Amount Bid

Dollars ($ 5%),

for the payment of which sum well and truly to be made, the said Principal and the said Surety bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has submitted a bid for Emergency Communications Tower Construction

NOW, THEREFORE, if the Obligee shall accept the bid of the Principal and the Principal shall enter into a Contract with the Obligee in accordance with the terms of such bid, and give such bond or bonds as may be specified in the bidding or Contract Documents with good and sufficient surety for the faithful performance of such Contract and for the prompt payment of labor and material furnished in the prosecution thereof, or in the event of the failure of the Principal to enter such Contract and give such bond or bonds, if the Principal shall pay to the Obligee the difference not to exceed the penalty hereof between the amount specified in said bid and such larger amount for which the Obligee may in good faith contract with another party to perform the Work covered by said bid, then this obligation shall be null and void, otherwise to remain in full force and effect.

Signed and sealed this 26th day of April , 2022

(Witness)

John P. Harney (Witness)

Impirium Group, Inc.
(Principal) (Seal)
By: Abder Ghoulch
Abder Ghoulch (Title) Project Director

The Ohio Casualty Insurance Company
(Surety) (Seal)
By: Haley A. Anderson
(Title)
Haley A. Anderson, Attorney-in-Fact

CONFORMS WITH AIA DOCUMENT A310 • BID BOND • AIA ® • FEBRUARY 1970 ED • THE AMERICAN INSTITUTE OF ARCHITECTS, 1735 N.Y. AVE., N.W., WASHINGTON, D.C. 20006

This Power of Attorney limits the acts of those named herein, and they have no authority to bind the Company except in the manner and to the extent herein stated.

Liberty Mutual Insurance Company
The Ohio Casualty Insurance Company
West American Insurance Company

Certificate No: **8206616-285118**

POWER OF ATTORNEY

KNOWN ALL PERSONS BY THESE PRESENTS: That The Ohio Casualty Insurance Company is a corporation duly organized under the laws of the State of New Hampshire, that Liberty Mutual Insurance Company is a corporation duly organized under the laws of the State of Massachusetts, and West American Insurance Company is a corporation duly organized under the laws of the State of Indiana (herein collectively called the "Companies"), pursuant to and by authority herein set forth, does hereby name, constitute and appoint, Cassandra L. Stone; Haley A. Anderson; Jacquelyn M. Norstrom; John P. Harney; Josefina Rojo; Pramrod Venkatesh; Steven L. Wulff

all of the city of Chicago state of IL each individually if there be more than one named, its true and lawful attorney-in-fact to make, execute, seal, acknowledge and deliver, for and on its behalf as surety and as its act and deed, any and all undertakings, bonds, recognizances and other surety obligations, in pursuance of these presents and shall be as binding upon the Companies as if they have been duly signed by the president and attested by the secretary of the Companies in their own proper persons.

IN WITNESS WHEREOF, this Power of Attorney has been subscribed by an authorized officer or official of the Companies and the corporate seals of the Companies have been affixed thereto this 27th day of October, 2021.

Liberty Mutual Insurance Company
The Ohio Casualty Insurance Company
West American Insurance Company

By: _____
David M. Carey, Assistant Secretary

State of PENNSYLVANIA
County of MONTGOMERY ss

On this 27th day of October, 2021 before me personally appeared David M. Carey, who acknowledged himself to be the Assistant Secretary of Liberty Mutual Insurance Company, The Ohio Casualty Company, and West American Insurance Company, and that he, as such, being authorized so to do, execute the foregoing instrument for the purposes therein contained by signing on behalf of the corporations by himself as a duly authorized officer.

IN WITNESS WHEREOF, I have hereunto subscribed my name and affixed my notarial seal at King of Prussia, Pennsylvania, on the day and year first above written.

Commonwealth of Pennsylvania - Notary Seal
Teresa Pastella, Notary Public
Montgomery County
My commission expires March 28, 2025
Commission number 1126044
Member, Pennsylvania Association of Notaries

By: _____
Teresa Pastella, Notary Public

This Power of Attorney is made and executed pursuant to and by authority of the following By-laws and Authorizations of The Ohio Casualty Insurance Company, Liberty Mutual Insurance Company, and West American Insurance Company which resolutions are now in full force and effect reading as follows:

ARTICLE IV – OFFICERS: Section 12. Power of Attorney.
Any officer or other official of the Corporation authorized for that purpose in writing by the Chairman or the President, and subject to such limitation as the Chairman or the President may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Corporation to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact, subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Corporation by their signature and execution of any such instruments and to attach thereto the seal of the Corporation. When so executed, such instruments shall be as binding as if signed by the President and attested to by the Secretary. Any power or authority granted to any representative or attorney-in-fact under the provisions of this article may be revoked at any time by the Board, the Chairman, the President or by the officer or officers granting such power or authority.

ARTICLE XIII – Execution of Contracts: Section 5. Surety Bonds and Undertakings.
Any officer of the Company authorized for that purpose in writing by the chairman or the president, and subject to such limitations as the chairman or the president may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Company by their signature and execution of any such instruments and to attach thereto the seal of the Company. When so executed such instruments shall be as binding as if signed by the president and attested by the secretary.

Certificate of Designation – The President of the Company, acting pursuant to the Bylaws of the Company, authorizes David M. Carey, Assistant Secretary to appoint such attorneys-in-fact as may be necessary to act on behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations.

Authorization – By unanimous consent of the Company's Board of Directors, the Company consents that facsimile or mechanically reproduced signature of any assistant secretary of the Company, wherever appearing upon a certified copy of any power of attorney issued by the Company in connection with surety bonds, shall be valid and binding upon the Company with the same force and effect as though manually affixed.

I, Renee C. Llewellyn, the undersigned, Assistant Secretary, The Ohio Casualty Insurance Company, Liberty Mutual Insurance Company, and West American Insurance Company do hereby certify that the original power of attorney of which the foregoing is a full, true and correct copy of the Power of Attorney executed by said Companies, is in full force and effect and has not been revoked.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the seals of said Companies this 26th day of April, 2022.

By: _____
Renee C. Llewellyn, Assistant Secretary

Not valid for mortgage, note, letter of credit, currency rate, interest rate or residual value guarantees.

For bond and/or Power of Attorney (POA) verification inquiries, please call 610-832-8240 or email HOSUR@libertymutual.com.

State of Illinois
County of Cook

On this 26th day of April 2022, before me personally appeared Haley A. Anderson, known to me to be the Attorney-in-fact of The Ohio Casualty Insurance Company, the corporation that executed the within instrument, and acknowledged to me that such corporation executed the same.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal, at my office in the aforesaid county, the day and year in this certificate first above written.

OFFICIAL SEAL
M LABNO
NOTARY PUBLIC - STATE OF ILLINOIS
MY COMMISSION EXPIRES:09/11/23

M Labno

(Notary Public)

(Seal)

V. PROPOSAL/CONTRACT FORM

*****THIS PROPOSAL, WHEN ACCEPTED AND SIGNED BY AN AUTHORIZED SIGNATORY OF THE VILLAGE OF DOWNERS GROVE, SHALL BECOME A CONTRACT BINDING UPON BOTH PARTIES.**

Entire Block Must Be Completed When A Submitted Proposal Is To Be Considered For Award

PROPOSER:

Impirium Group, Inc.
Company Name

361 Randy Road Suite 101
Street Address of Company

Carol Stream, IL 60188
City, State, Zip

(847) 708-7500
Business Phone

(847) 589-0643
Fax

Date: 4/25/2022

bizdev@impirium.net
Email Address

Abder Ghouleh
Contact Name (Print)

(224) 213-5945
24-Hour Telephone

Signature of Officer, Partner or Sole Proprietor

Ghazwan M Sadat - Director
Print Name & Title

ATTEST: If a Corporation

Signature of Corporation Secretary

VILLAGE OF DOWNERS GROVE:

Authorized Signature

Title

Date

ATTEST:

Signature of Village Clerk

Date

In compliance with the specifications, the above-signed offers and agrees, if this Proposal is accepted within **90** calendar days from the date of opening, to furnish any or all of the services upon which prices are quoted, at the price set opposite each item, delivered at the designated point within the time specified above.

Village of Downers Grove

VENDOR W-9 REQUEST FORM

The law requires that we maintain accurate taxpayer identification numbers for all individuals and partnerships to whom we make payments, because we are required to report to the I.R.S all payments of $600 or more annually. We also follow the I.R.S. recommendation that this information be maintained for all payees including corporations.

Please complete the following substitute W-9 letter to assist us in meeting our I.R.S. reporting requirements. The information below will be used to determine whether we are required to send you a Form 1099. Please respond as soon as possible, as failure to do so will delay our payments.

BUSINESS (PLEASE PRINT OR TYPE):

NAME: Impirium Group, Inc.

ADDRESS: 325 Village Dr.

CITY: Carol Stream

STATE: IL

ZIP: 60188

PHONE: (888) 476-9878 FAX: (847) 589-0643

TAX ID #(TIN): 82-1877629

(If you are supplying a social security number, please give your full name)

REMIT TO ADDRESS (IF DIFFERENT FROM ABOVE):

NAME: Impirium Group, Inc.

ADDRESS: 361 Randy Road Suite 101

CITY: Carol Stream

STATE: IL ZIP: 60188

TYPE OF ENTITY (CIRCLE ONE):

Individual	Limited Liability Company – Member-Managed
Sole Proprietor	Limited Liability Company- Manager-Managed
Partnership	Medical
Corporation	Charitable/Nonprofit
Government Agency	

SIGNATURE: [signature] DATE: 4/25/2022

Village of Downers Grove

PROPOSER'S CERTIFICATION *(page 1 of 3)*

With regard to Emergency Communications Tower Construction (Name of Project), Proposer Impirium Group, Inc. (Name of Proposer) hereby certifies the following:

1. Proposer is not barred from bidding this contract as a result of violations of Section 720 ILCS 5/33E-3 (Bid Rigging) or 720 ILCS 5/33E-4 (Bid-Rotating);

2. Proposer certifies that it has a written sexual harassment policy in place and is in full compliance with 775 ILCS 5/2-105(A)(4);

3. Proposer certifies that it is in full compliance with the Federal Highway Administrative Rules on Controlled Substances and Alcohol Use and Testing, 49 C. F.R. Parts 40 and 382 and that all employee drivers are currently participating in a drug and alcohol testing program pursuant to the Rules.

4. Proposer further certifies that it is not delinquent in the payment of any tax administered by the Department of Revenue, or that Proposer is contesting its liability for the tax delinquency or the amount of a tax delinquency in accordance with the procedures established by the appropriate Revenue Act. Proposer further certifies that if it owes any tax payment(s) to the Department of Revenue, Proposer has entered into an agreement with the Department of Revenue for the payment of all such taxes that are due, and Proposer is in compliance with the agreement.

5. Bidder certifies that not less than the prevailing rate of wages as determined by the Village of Downers Grove, DuPage County or the Illinois Department of Labor shall be paid to all laborers, workers and mechanics performing work for the Village of Downers Grove. All bonds shall include a provision as will guarantee the faithful performance of such prevailing wage clause. Bidder agrees to comply with the Illinois Prevailing Wage Act, 820 ILCS 130/1 et seq., for all work completed. Bidder agrees to pay the prevailing wage and require that all of its subcontractors pay prevailing wage to any laborers, workers or mechanics who perform work pursuant to this Contract or related subcontract. Bidder and each subcontractor shall keep or cause to be kept an accurate record of each worker's name, address, telephone number when available, the last four digits of the worker's social security number, gender, race, ethnicity, veteran's status, skill level, classification, hourly wage paid (including itemized hourly cash and fringe benefits paid in each pay period), number of hours worked each day, the starting and ending times of work each day, the worker's hourly wage rate, the worker's hourly overtime wage rate, the worker's hourly fringe benefit rates, the name and address of each fringe benefit fund, the plan sponsor of each fringe benefit, if applicable, and the plan administrator of each fringe benefit, if applicable. This record shall be sent to the Illinois Department of Labor no later than the fifteenth (15th) day of each calendar month for the immediately preceding month in which construction on a public works project has occurred. Contractor shall then provide an IDOL certification and case number to the Village. The records must be preserved for five (5) years following completion of the contract. Bidder certifies that Bidder and any subcontractors working on the project are aware that filing false payroll records is a Class A misdemeanor and that the monetary penalties for violations are to be paid pursuant to law by the Bidder, contractor and subcontractor. The Village shall not be liable for any underpayments. If applicable: Since this is a contract for a fixed public works project,

Village of Downers Grove

PROPOSER'S CERTIFICATION *(page 2 of 3)*

as defined in 820 ILCS 130/2, Contractor agrees to post at the job site in an easily accessible place, the prevailing wages for each craft or type of worker or mechanic needed to execute the contract or work to be performed;

BY: Abder Ghouleh
Proposer's Authorized Agent

8	2	-	1	8	7	7	6	2	9

FEDERAL TAXPAYER IDENTIFICATION NUMBER

or _____
Social Security Number

ENEREIDA CRUZ
Official Seal
Notary Public - State of Illinois
My Commission Expires Dec 29, 2024

Subscribed and sworn to before me
this 26th day of April, 2022

_____
Notary Public

(Fill Out Applicable Paragraph Below)

(a) **Corporation**

The Proposer is a corporation organized and existing under the laws of the State of Illinois,
which operates under the Legal name of Impirium Group, Inc.,
and the full names of its Officers are as follows:

President: Rim Hafez

Secretary: Rim Hafez

Treasurer: Rim Hafez

and it does have a corporate seal. (In the event that this Proposal is executed by other than the President, attach hereto a certified copy of that section of Corporate By-Laws or other authorization by the Corporation which permits the person to execute the offer for the corporation.)

(b) **Limited Liability Company (LLC)**

The Bidder is a LLC organized and existing under the laws of the State of _____,
which operates under the Legal name of _____,
and the full names of its managers or members are as follows:

Manager or Member: _____

Manager or Member: _____

Manager or Member: _____

Village of Downers Grove

PROPOSER'S CERTIFICATION *(page 3 of 3)*

(c) **Partnership**

Signatures and Addresses of All Members of Partnership:

_____

_____

_____

_____

The partnership does business under the legal name of: _____

which name is registered with the office of _____ in the state of

_____.

(d) **Sole Proprietor**

The Proposer is a Sole Proprietor whose full name is: _____

and if operating under a trade name, said trade name is: _____

which name is registered with the office of _____ in the state of

6. Are you willing to comply with the Village's preceding insurance requirements within 13 days of the award of the contract? YES NO (circle one)

Insurer's Name Evanston Insurance Company

Agent Mesirow Insurance Services, Inc.

Street Address 353 N Clark St 11th Floor

City, State, Zip Code Chicago, IL 60654

Telephone Number (847) 444-2518

I/We affirm that the above certifications are true and accurate and that I/we have read and understand them.

Print Name of Company: Impirium Group, Inc.

Print Name and Title of Authorizing Signature: Abder Ghouleh - Project Director

Signature: Abder Ghouleh

Date: 4/25/2022

Village of Downers Grove

SUBCONTRACTORS LIST

The Bidder hereby states the following items of work will not be performed by its organization.
(List items to be subcontracted as well as the names, addresses and phone numbers of the subcontractors.)

1) _____ Type of Work _____

Addr: _____ City _____ State____ Zip_____

2) _____ Type of Work _____

Addr: _____ City _____ State____ Zip_____

3) _____ Type of Work _____

Addr: _____ City _____ State____ Zip_____

4) _____ Type of Work _____

Addr: _____ City _____ State____ Zip_____

5) _____ Type of Work _____

Addr: _____ City _____ State____ Zip_____

6) _____ Type of Work _____

Addr: _____ City _____ State____ Zip_____

7) _____ Type of Work _____

Addr: _____ City _____ State____ Zip_____

8) _____ Type of Work _____

Addr: _____ City _____ State____ Zip_____

Village of Downers Grove

SUSPENSION OR DEBARMENT CERTIFICATE

Non-Federal entities are prohibited from contracting with or making sub-awards under covered transactions to parties that are suspended or debarred or whose principals are suspended or debarred. Covered transactions include procurement for goods or services equal to or in excess of $100,000.00. Contractors receiving individual awards for $100,000.00 or more and all sub-recipients must certify that the organization and its principals are not suspended or debarred.

By submitting this offer and signing this certificate, the Proposer certifies to the best of its knowledge and belief, that the company and its principals:

1. Are not presently debarred, suspended, proposed for debarment, declared ineligible or voluntarily excluded from covered transactions by any federal, state or local governmental entity, department or agency;

2. Have not within a three-year period preceding this Proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction, or convicted of or had a civil judgment against them for a violation of Federal or state antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

3. Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State, or local) with commission of any of the offenses enumerated in paragraph (2) of this certification; and

4. Have not within a three-year period preceding this application/proposal/contract had one or more public transactions (Federal, State or local) terminated for cause or default.

If the Proposer is unable to certify to any of the statements in this certification, Proposer shall attach an explanation to this certification.

Company Name: Impirium Group, Inc.

Address: 325 Village Dr.

City: Carol Stream Zip Code: 60188

Telephone: (888) 476-9878 Fax Number: (847) 589-0643

E-mail Address: bizdev@impirium.net

Authorized Company Signature: Abder Ghouleh

Print Signature Name: Abder Ghouleh Title of Official: Project Director

Date: 4/25/2022

Village of Downers Grove

CAMPAIGN DISCLOSURE CERTIFICATE

Any contractor, proposer, bidder or vendor who responds by submitting a bid or proposal to the Village of Downers Grove shall be required to submit with its submission, an executed Campaign Disclosure Certificate.

The Campaign Disclosure Certificate is required pursuant to the Village of Downers Grove Council Policy on Ethical Standards and is applicable to those campaign contributions made to any member of the Village Council.

Said Campaign Disclosure Certificate requires any individual or entity bidding to disclose campaign contributions, as defined in Section 9-1.4 of the Election Code (10 ILCS 5/9-1.4), made to current members of the Village Council within the five (5) year period preceding the date of the bid or proposal release.

By signing the bid or proposal documents, contractor/proposer/bidder/vendor agrees to refrain from making any campaign contributions as defined in Section 9-1.4 of the Election Code (10 ILCS 5/9-1.4) to any Village Council member and any challengers seeking to serve as a member of the Downers Grove Village Council.

Under penalty of perjury, I declare:

☑ Bidder/vendor has <u>not</u> contributed to any elected Village position within the last five (5) years.

Signature _____ Abder Ghouleh
Print Name

☐ Bidder/vendor has contributed a campaign contribution to a current member of the Village Council within the last five (5) years.

Print the following information:

Name of Contributor: _____
(company or individual)

To whom contribution was made: _____

Year contribution made: _____ Amount: $ _____

_____ _____
Signature Print Name

ACKNOWLEDGEMENT OF RECEIPT OF ADDENDUM

PROPOSAL/BID: Emergency Communication Tower Construction

PROPOSAL/BID NUMBER: RFP-34-0-2022/DM

PROPOSAL DUE DATE: April 27, 2022

ADDENDUM NO.: 1

PROPOSER/BIDDER: Impirium Group, Inc.

ADDRESS: 361 Randy Road, Suite 101, Carol Stream, IL 60188

RECEIVED BY: Abder Ghouleh

(NAME)

Abder Ghouleh

(SIGNATURE)

DATE: 4/22/2022 ~~2/22/2022~~ AG

VILLAGE OF DOWNERS GROVE

DEPARTMENT OF PUBLIC WORKS

ADDENDUM NO. 1

FOR

Emergency Communications Tower Construction

RFP-34-0-2022/DM

April 22, 2022

ITEM AND DESCRIPTION:

1. RESPONSES TO QUESTIONS

1) Page 18 cites Project Delivery milestones including "Coordination with Cellular Companies". Are you classifying McKay Brothers here as a "Cellular Company"?

Answer - yes

2) Page 18 cites the structure should be a "Sabre Monopole or like kind, based upon predetermined design". This spawns a couple questions:
   2a - What is the "predetermined design" that is referenced?
   2b - Is the height the top of the structure or the tip height?
   2c - Is there a willingness to go a bit taller for the sake of increased tenancy (and thus revenue)?
   2d - Is a monopole the only option - this makes point to point applications with tower loadings such as ours near impossible from a twist/sway/camber perspective; a lattice tower as exists today is significantly better in this regard. Would you consider a bid that fit a similar footprint but was a 3 legged self support tower structure? This also yields more real estate than a monopole in which to monetize. I am quite afraid that a "typical" monopole design will be unable to achieve the operational parameters McKay Brothers will require.

   Answer
   2a - Reference to the antenna inventory is included in the "Tower Elevation Profile" document, Pg 2

   2b - Tower Hgt

2c - No, the tower shall stay at the designated height.

2d -Sabre has stated that they can design, build & provide a Monopole capable of considering Twist/Sway & Camber required. If it is found that this is not possible other tower types may be considered but it is highly unlikely they could be approved due to available land and zoning restrictions.

3) Page 18 - Is it supposed to be generally understood what "standard 911 specifications" are? We build towers all the time for state police entities - but IL is different from OH is different from PA. Is there detail here to be had?

Answer - Most shelter manufactures have previous designs for 911 specifications and can offer quotes that include these specs. If a proposed bidder wishes to review what we have considered, the document named "Shelter Specifications" lists what we've considered 911 specs.

4) Page 19 references the "To Be Provided by Others" section. This is fine, but it is unusual to have the folks designing the tower for an appropriate loading / twist/sway/camber and not be the folks also running the geotech to a specific depth. 50ft is hopefully quite sufficient, but it depends entirely on the history of fill in that area of Downers, which I do not have immediate familiarity. Any insight on why this was the chosen way to go is helpful context. Perhaps this is why the SOW - "Successful Proposer" number 5 is included so I should just ignore this issue?

Answer - The "To Be Provided By Others" section is a list of items that either have been done "by Others" and exist or are items that will be performed by the General Contractor before the successful tower bidder begins their work. As far as the soil, if the successful bidder wishes to perform another soil boring and soils report they should bid accordingly. Yes, the Scope of work - Successful Bidder #5 does stipulate "Additional soil field boring and report per tower manufacture specs if required" which means the final tower manufacturer may reject the current report and require another.

5) Page 19 has item 7 under "Scope of Work - Successful Proposer" - determining needs on new tower - is the expectation that the tenants will share their current specific loading and tower operational parameters and then the monopole will be designed to that required loading?

Answer - Yes, there should be communication with all the current users to make sure what they would like to have on the new tower is considered and included in the new tower design.

6) Page 21 cites the "Fees" section - including a requirement that the professional services be based on hourly rates. Our staffed A&E / PE / PM team are salaried - is there an expectation that we just back into a hourly rate we find acceptable, or can we just supply

a reasonable project not-to-exceed and monthly not-to-exceed based on the planned project cadence?

Answer - A not-to-exceed amount or lump sum is acceptable.

7) Page 22 references a pre-proposal conference - which obviously we have missed by a day. Was there any substantive clarification given during this conference? Any notes to share?

Answer - no substantive clarification was given at the pre-proposal conference that is not included in the RFP or addressed herein. The intent of the pre-proposal conference was to familiarize prospective bidders with the existing site. All questions are to be submitted in writing. Verbal responses are non-binding.

8) Page 133 - the sway is in excess of what we would ordinarily such a structure for. It is a quite narrow monopole - I'm not sure how the criteria was supplied to reach this tower design - but it is out of spec for a typical tower design given there are 6ft point to point dishes installed - and the design doesn't appear to address at all the "typical" monopole problem of "camber" - i.e., thermal expansion non-uniformly across the pole creating significant additional losses for such point to point microwave systems.

Answer - The design considered HP6 Antennas @ 11 GHz. The monopole, as shown, has a base section weighing 19,506 Lbs and a top section weighing in at 3,553 lbs, utilizing grade A572-65 Steel. This specification provides for a 65ksi minimum yield strength and an 80ksi minimum tensile strength. The referenced Monopole has a width of 74" at 0' and 30" at 190'. This design was primarily a basis of start. The successful proposer will be required to provide a complete tower installation that accommodates all users, including but not limited to the 6' dishes.

9) There is enough complexity here where it might be best to cease being a tenant on this tower - because moving is a severely non-trivial thing for us, if it is even possible to achieve from an FCC licensing perspective; a migration of more than 15 feet laterally requires re-coordination in a very frequency congested area. Plus there is all the problems of using a monopole instead of a self support tower that can be quite severe. I note that there are two water tanks in Downers that have some wireless equipment installed already on leg mounts and rail mounts and on top - perhaps we could just migrate to one or both of these other sites within the next ~12 months and then be out of your hair for this incumbent site? Would you potentially entertain a lease transfer? The tanks that would perhaps be reasonable replacements are at the fire department (5420 Main St, Downers Grove, IL 60515) and the other at 2308 Maple Ave. If you would entertain such a thing as a lease transfer like this, then perhaps we can endeavour to try to coordinate with the FCC to see if such a move is possible and this de-risks the execution of whoever the lead bidder may be for this bid doc.

Answer - This does not pertain to the scope of the RFP and will be addressed separately. Please contact the Village separately regarding your current lease.

10) Construction Specifications, Page 17, Figure 5.2: 4-Gang H-Frame Detail. Vertical Bridge logo at top. Please describe how Vertical Bridge is involved with the project.

Answer - Disregard the Vertical Bridge reference. They are in no way associated with this project.

11) What is MidAmerica Tower's role in the project? Are they engaged for the construction project only, or are they currently (or will be) managing the tower?

Answer - MidAmerica Towers has been retained to consult in the design and consultation efforts of this project. MidAmerica Towers, Inc. will not be a bidder and may be retained during the final design/build to assist in construction 3rd party consultation and inspection efforts.

12) Construction Specifications, Page 17, Figure 5.2: Detail conflicts with drawing Z-2 calling for "H-Frame w/ (6) Gang Meter. Please also confirm that 4 or 6 meters are enough for all tenants at the facility, including future tenants contemplated in the specifications.

Answer - one each ComEd approved 6 gang socket, (or two each 3 gang sockets) single phase electrical Multi Gang is what is designed which will offer 6 users with one each 200 amp electrical circuit.

13) Tower specification, Sabre, Page 133: Design Criteria: Please confirm ANSI/TIA-222-Rev G to be used vs. current Ref H.

Answer - ANSI/TIA-222H shall be used

14) Tower specification, Sabre, Page 133: Structure Class: Please confirm Class II is required. Typical public safety is Class III.

Answer - Structure class III shall be used.

15) Are the existing tower tenants required, at their own cost, to relocate their equipment (ground equipment and antenna) under those leases? If not, is that cost required to be included in the bid price?

Answer - All tenants will be required to relocate (or install new) their equipment onto the new tower at their own expense.

16) Does the Village anticipate that once the new tower is installed, each existing tenant will relocate its installation using the tenant's contractor, or will the Village specify that the bidder perform all the work and be reimbursed directly by the tenants?

Answer - The tenants have the option of utilizing the successful proposer or their own contractor/crews, however this would be a separate agreement between the tenant and the contractor.

17) Will the Village supply new antenna mounts, cables, connector and other accessories for its antennas and other non-commercial users?

Answer - No antenna work is included in this scope of work. This work will be performed by each tenant/user.

18) Will the Village supply new antennas, or will the existing antennas be relocated for Village and non-commercial users? (Note: whip antennas that have been installed for many years may not survive relocation)

Answer - No antenna work is included in this scope of work. This work will be performed by each tenant/user.

19) Will the Village consider a proposal whereby the tower is funded, owned and managed by Bidder, still used by the Village and public safety agencies, and the commercial rental income is used to finance the project cost and manage the facility (or some variation on that)?

Answer - No

20) If the Village is open to the concept above in question #5, please provide the annual tower rental income (breakdown by tenant is preferred).

Answer - N/A

21) The site plan Sheet Z-2 shows allocation for 2 future carrier equipment locations but only 1 future carrier generator location. Also, tower elevation Sheet Z-3 only shows one set of future antenna/radio/platform. Please clarify.

Answer - Should additional users be added in the future the generator allocation will be determined at that time. Two sets of future antenna/radio/platform are to be considered in the design.

22) Is there an existing site survey showing underground utilities for the tower site and surrounding area?

Answer - No. The survey provided on the drawings included with the RFP can be provided to the successful proposer, however it does not necessarily show all existing underground utilities. Coordination with underground utilities will be the responsibility of the successful proposer. The proposed site plan takes into account a known storm sewer that crosses the site from north to south. The Village is not aware of any other underground utilities in the immediate area of the proposed tower, however there may be underground utilities that will need to be considered during final design and construction.

23) Please confirm that the carriers will provide their own generators and power to the new site.

Answer - The carriers will provide their own generator and power. Their power socket will be one of the 6 the successful proposer will provide at the H-frame.

24) Please confirm that the carriers will transfer their own tower equipment, or provide new, to the new tower.

Answer - The carriers will transfer their own tower equipment, or provide new, to the new tower.

25) Please confirm that DuComm, DuPage and Downers Grove will transfer their own tower equipment, or provide new, to the new tower.

Answer - DuComm, DuPage and Downers Grove will transfer their own tower equipment, or provide new, to the new tower.

26) Please confirm that providing new antennas, radios and other telecom equipment on the new tower is not part of the Contractor's scope.

Answer - Providing new antennas, radios and other telecom equipment on the new tower is NOT part of the Contractor's scope

27) Please confirm that transferring any equipment from the existing telecom room currently housed in the Village Hall building to the new equipment shelter is not part of the Contractor's scope.

Answer - Transferring any equipment from the existing telecom room currently housed in the Village Hall building to the new equipment shelter is NOT part of the Contractor's scope.

28) Please confirm that providing new telecom equipment for the new equipment shelter is not part of the Contractor's scope. If anything is be provided by Contractor, please provide a list.

Answer - Providing new telecom equipment for the new equipment shelter is NOT part of the Contractor's scope. No antenna work or antenna materials are to be provided by successful proposer.

29) Please confirm that installing transmission lines from the new communications shelter to the new tower is not part of the Contractor's scope. If Contractor is to install lines, please provide quantity of cables.

Answer - Installing transmission lines from the new communications shelter to the new tower is NOT part of the Contractor's scope.

30) Is the Contractor responsible for any work involved with the proposed 20' wide access/power/fiber easement with existing asphalt access road within?

Answer - Yes, Main feeders from ComEd, AT&T Fiber & Comcast Fiber are part of the scope of work of the successful bidder as outlined in the "Scope of Work - Successful Bidder, Materials & Labor - Construction" item #6 Electrical & item #7 Fiber

31) Scope of Work Item No.6 is in regards to electrical. To be more specific, is the Contractor required to install 6 underground electrical feeders from the utility pole to the site, including conduit and cable?

Answer - The successful bidder shall contact ComEd engineering to obtain the 1200 AMPS (feeding 6 each 200 amp sockets). It is customary for ComEd to provide an underground primary feed from the nearest available location (which is shown on Page Z-1A of the site plans) and place a transformer near the tower feeding the 1200 AMP, 6 gang socket located at the H-frame. For purposes of the proposal, and as stated in the Scope of Work, this distance is approximately 600' ft away.

32) Scope of Work Item No.7 is in regards to fiber connectivity. It mentions "Leopardo will provide and install 4 each 4" fiber conduits with 3 each 1 ¼" inner ducts in each conduit from the utility H-frame provided by Contractor to existing fiber pull boxes at the corner of Curtiss St. & Mackie." To be more specific, is the Contractor required to install fiber optic cable in each of these 12 inner ducts? If so, what type of fiber cable, number of strands, and quantity of cables?

Answer - Yes, the successful proposer will need to provide this fiber, however the type and quantity may not be known until the coordination and design is complete. Please include an allowance in your proposal for this item, specifying what has been used as a basis for the price so that it can be adjusted at a later

date should the actual quantity and type of fiber lines be greater or less than anticipated.

33) Scope of Work Item No.7: How is the fiber connectivity between the tower site and the current Village Buildings and future Village Buildings being established? There is no detail on amount of and type of fiber cable lines between the various points mentioned, nor lengths given. Please clarify.

Answer - This will be provided by others or through an amendment to the tower agreement at a later date.

2. Modifications/Clarifications to Construction Specifications

Page 17, Figure 5.2 – a 6-gang H-Frame assembly shall be provided in lieu of the 4-gang assembly shown. The other specifications and details hereon still apply.

3. Modifications/Clarifications to Tower Specifications

a. ANSI/TIA-222H shall be used for this project.
b. Structure Class III is required.

The Acknowledgement of Receipt of Addendum for this addendum MUST be included in the proposal package. Proposal packages not including signed Acknowledgement Sheets may be REJECTED.

End of Addendum No. 1

April 22, 2022

VILLAGE OF DOWNERS GROVE

DEPARTMENT OF PUBLIC WORKS

VILLAGE OF DOWNERS GROVE

CONSTRUCTION SPECIFICATIONS

April 13, 2022

Quality Assurance Manager:
Jay Panozzo jay@midamericatowers.com
815-693-1565

TABLE OF CONTENTS

1.0 GENERAL PROVISIONS

1.1 CUSTOMER REPRESENTATIVE

A Customer Representative (Leopardo) will accompany the Contractor during certain phases of construction and will provide certain direction at other phases of construction. The Contractor is responsible to the Customer Representative for all work performed.

1.2 MATERIALS

Unless otherwise specified, all materials to be furnished by the Contractor shall be new,of first-class quality, of reputable manufacture, and free from defects. Unless otherwise specified, the structural steel shall be hot galvanized per ASTM A123; site hardware 3/8 inch and smaller shall be stainless steel type 316; and all other nuts, bolts, and washers shall be hot dipped per ASTM A153 with class 2 threads after galvanizing.

1.2.1 Procurement of Materials

The Contractor is responsible for coordinating procurement of material that is supplied by all parties. The Contractor shall be responsible for receiving material from the time it arrives on site and is accepted by the Contractor until the completed site is accepted by the Customer Representative.

1.2.2 Storage of Materials on Site

The Contractor shall unload and store material in a careful systematic manner to prevent injury from damaged material, i.e., splinters, rust, etc. and to prevent loss of small pieces. Proper skids shall be used to prevent material from resting on the ground or in water.

1.2.3 Damaged or Missing Material

The following applies to all material supplied by Contractor. The list of materials shown by the fabricator's shipping statement will, in all cases, govern settlements unless notice of shortage or damaged items is reported by the Contractor to the Customer Representative within twenty-four (24) hours after the receipt of the shipment. Should a shortage or damaged items be discovered by the Contractor, the Contractor will notify the Customer Representative within ample time to preclude any delay in erection and record the shortage and/or damage in the Site Activity Log. If the Contractor fails to produce this report to the Customer Representative, the Contractor will be responsible for the repair and/or replacement of all damaged or missing materials.

1.3 PERMITS, LICENSES AND CODES

The Contractor shall obtain all required licenses and permits before construction starts.The costs of the permits shall be included in the price of the bid. The Contractor shall perform the work in accordance with all codes, ordinances, and authorities having jurisdiction over the work and shall, upon completion, furnish the Customer Representative with a certificate of the inspection or other legal documents to show compliance.

Where no specific local codes exist or no tests or permits are required for a particular phase of the work, the Contractor shall follow the national codes and/or these specifications and the details shown on the drawings in this case. The Contractor shall supply the Customer Representative with a documented statement at the completion of the work that no tests, permits, or licenses were required.

A copy of the building permit, approved construction drawings and all other items required by the authorities having jurisdiction over the work shall be displayed on thesite.

- Current Downers Grove Zoning Ordinance
- Current Downers Grove Stormwater and Flood Plain Ordinance
- 2015 International Building Code with D.G. amendments
    - Section 3108 of 2015 IBC
- 2014 National Electric Code with D.G. amendments
- Current State of Illinois Plumbing Code with D.G. amendments
- 2015 International Mechanical Code with D.G. amendments
- 2015 International Fuel Gas Code with D.G. amendments
- 2018 International Energy Conservation Code with D.G. amendments & State of Illinois amendments
- 2015 International Property Maintenance Code with D.G. amendments
- 2015 International Fire Code with D.G. amendments
- 2015 International Swimming Pool and Spa Code with D.G. amendments
- 2003 Life Safety Code - NFPA 101
- Current State of Illinois Accessibility Code

1.3.1 Prevailing Specifications

Signed and Sealed drawings, specifications, structural enhancement drawings are documents that have been signed and sealed by a register professional engineer (PE) inthe same state in which the work is being performed. Permitted drawings are drawingsthat have been stamped by the local government jurisdiction that issues the building, electrical, etc. permits. Normally, jurisdictions require a PE's stamp on all constructiondocuments submitted for the permit process. If the signed and sealed drawings conflict with the permitted drawings or if either of these documents conflicts with these specifications, then the most stringent of these shall prevail.

1.4 SITE MAINTENANCE

The Contractor shall always maintain the construction site in a manner conducive to safe work practices during the construction activities established in the contract per the Village of Downers Grove Site Management code.

1.4.1 Cleaning

The Contractor shall, always, keep the premises free from accumulations of waste material and rubbish caused by the employees or work. At the completion of work, the Contractor shall remove all the rubbish from the site. In case of dispute, the CUSTOMER REPRESENTATIVE may have the rubbish removed at the Contractor's expense. If material or rubbish is not placed on grounds specifically designated for dumping, written permissionto dump shall be obtained from the property owner, and the document shall be turned over to the CUSTOMER REPRESENTATIVE. No on-site burning will be allowed unless authorized bythe CUSTOMER REPRESENTATIVE in writing.

1.4.2 Cut or Damaged Surfaces

Freshly cut metal surfaces or any metal surface where galvanizing has been damaged shall be painted immediately with two (2) coats of zinc-rich touch-up paint. Any surfacethat is damp, coated with mud, greasy, etc., should be cleaned and dried before painting.

1.4.3 Staging Material and Temporary Work

The Contractor shall keep all staging and temporary work in a safe condition during construction and shall provide temporary means of inspection for the CUSTOMER REPRESENTATIVE. If staging needs to take place outside of the designated area approved by the Village, the Contractor must obtain approval from the Village in writing.

1.4.4 Temporary Toilets

The Contractor should provide portable chemical-type temporary toilets duringwork. These facilities shall comply with local building code requirements. The toilets shall be always maintained in a neat and sanitary condition. Any evidence of the temporary toilets shall be removed upon completion of the Contractor's work.

1.5 SERVICES AND SUBCONTRACTORS

The Contractor is responsible for all services required by the contract, including allservices which may be directed using subContractors.

1.5.1 Surveying

The Contractor shall be responsible for all construction surveying that may be required tocomplete the work in the best manner possible. It is the Contractor's ultimate responsibility to ensure that the site compound and tower are built as depicted on the A&E drawings.

1.5.2 Tests and Inspections

If laws, ordinances, or any public authorities require any work to be tested, inspected, orapproved, the Contractor shall arrange for the same and give the CUSTOMER REPRESENTATIVE timely notice of its readiness and the fixed date for testing or inspection. The Contractor shall pay any fee for such tests or inspection, and a lawful certificate of such tests or inspections shall be delivered to the CUSTOMER REPRESENTATIVE.

1.5.3 Welding

Where welding is required or permitted, it shall conform to all local codes and the requirements of the American Welding Society. Unless specified in the specifications anddrawings, written permission for welding must be obtained from the CUSTOMER REPRESENTATIVE. No welding and/or cutting of any kind will be permitted on the site unless written approval is given by CUSTOMER REPRESENTATIVE.

1.5.4 Workmanship

The Contractor shall complete all work outlined in specifications and drawings including all work that is reasonably inferable from the specifications and drawings. Unless otherwise specified, the Contractor shall provide, furnish, pay, and assume responsibility for all transportation, labor, materials, tools, and other facilities required for the execution and completion of the work in a neat, uniform, and thoroughly workmanlike manner.

1.5.5 SubContractors

The Contractor is to provide the Customer Representative a list of any subContractors for a given job. This list is to be submitted prior to the Pre-Construction Meeting. The Contractor is responsible for directing and correcting the actions of its subContractor. Customer Representative reserves the right to remove a subContractor form the list if it is known to Customer Representative that the party has demonstrated poor quality in their workmanship and/or safety practices.

1.6 UTILITIES

The Contractor shall make whatever provisions are necessary for procuring drinking waterand other water for the work, obtaining a permit, if necessary, and paying for all water that is consumed during the work. The Contractor will furnish his/her own power and light and other utilities that may be required for the work. He/she shall also remove the same upon completion of the work. He/she shall also furnish temporary work required byall subContractors on the job.

1.7 RELEASES OF LIENS AND WARRANTIES

The Contractor shall submit all Releases of Liens and Warranties as specified in thecontract between CUSTOMER and the Contractor.

2.0 SAFETY

2.1 GENERAL SAFETY POLICIES

It is the policy and practice of the customer that no job is so important, and no service is so urgentthat we cannot take the time to perform the work safely. This policy and practice are applicable to the Contractors and their agents (employees, Contractors, etc.) of the Customer.

Contractors have the primary responsibility for executing an acceptable Environmental, Health and Safety (EH&S) program for their employees and subContractors. Nothing in this document is intended to change this responsibility.

CUSTOMER will exercise reasonable judgment in ensuring that Contractor personnel perform their work in a safe and environmentally acceptable manner and act to ensure that suchwork does not create a hazard to the Contractor, Customer, Customers Representative's, employees, or others.

The Contractor shall have and maintain its own safety program. This program shall comply with OSHA, NATE and all other bodies having jurisdiction. The Customer Representative may request a copy of the Contractor's safety program and record at anytime.

2.1.1 Control of a Contractor's Work

Customer personnel will not assume control of a Contractor's work operation beyond the scope of the contract, nor direct any of the Contractor's employees. All dealings concerning the work being performed shall be through the Contractor's on-site representative. Any unsafe or environmentally unacceptable conditions will be brought tothe attention of this representative. It is the representative's responsibility to take action to correct the situation. Depending on the severity of the situation, failure to correct a problem in a reasonable amount of time may result in stoppage of the work operation.

Poor performance will affect the contracting company from being considered for future Customer work.

2.1.2 Imminent Hazard Situations

At the point that any individual, employee and/or representative of Customer, its Contractor,the employee and/or representative of said Contractor, becomes aware of an imminent hazard situation, this person has the authority and the responsibility to issue the following verbal statement:

"When it is safe to do so, stop work."

All people are to comply with this request; the person issuing the request is to inform the highest-ranking employee and/or representative of Customer and the equivalent of the Contractor's representative and/or employee of the concern. The concern is to be addressed and work will continue ONLY when it is safe to do so. The incident should be recorded in the Site Activity Logs. A separate report is not required UNLESS it meets thecriteria of accident reporting and record keeping.

2.1.3 Protection of the Public

The Contractor should take the necessary precautions to protect the public from injury during and after the Contractor's working hours. For example, before the permanent fencing is erected, temporary fencing shall be placed around the tower at the Contractor'sexpense to discourage unauthorized climbing.

2.1.4 Radiation Hazard from Working Systems

Before beginning any work on a working antenna, feeder system, or structure supportingsuch a system, the Contractor shall review with Customer Representative all proposed methods of change and safety precautions that the Contractor shall take. The Customer Representative shall make available to the Contractor all system power and radiation data along with Customer's practices which outline precautions and protection for the working personnel involved. These requirements are necessary because all working microwave systems present a health hazard from radio frequency (RF) radiation. The final responsibility for the working safety of personnel from thesehazards shall rest with the Contractor's designated safety officer.

2.1.5 Inclement Weather

Dangerous high potential, resulting from lightning strikes, may be present at communication sites because of their associated antenna cables and communication tower. Appropriate safety precautions must be exercised when working on, or near cell site equipment. It is recommended that all work be stopped, and communication site areascleared during thunderstorms, or when there is a chance of lightning strikes. It is also recommended that work in the air be delayed during periods of inclement weather such ashigh winds and/or snow and ice conditions.

2.2 ACCIDENT REPORTING

Forms for reporting accidents are in Chapter 13.0 Reports and Documentation. These forms are in addition to any that may be required by the Contractor, local, state, orFederal authorities.

2.2.1 Reportable Incidents

All reportable incidents shall be reported to the Customer Representative responsible for that job site, as well as any local jurisdiction, which may have authority over the situation (i.e.,fire department). Reportable incidents are defined as environmental, health and safety (EH&S) incidents listed below:

Deaths (includes employees, Contractors, or members of the public),serious injuries, injuries requiring medical attention, fires, explosions, or other emergency incidents of a serious nature, requiring major and/or minor treatment;

Visits to the site by any governmental agency conducting an inspection to determineregulatory compliance where such representative alleges that a violation may have occurred or been observed during the visit AND any one of the following conditionsexist:

The alleged violation could result in a fine of $10,000.00 or more, or

The alleged violation could result in regulatory action that could impair the businessfunction of the job, otherwise,

All visits, including scheduled inspections, are to be recorded in the Site Activity Logs,

Written notices of fines, violations, or citations for any EH&S regulatory non-compliance,and/or

Receipt of communication from any government agency or any private party regarding anactual or potential:

Environmental matter related to the disposal of hazardous materials or wastesSafety or health hazard.

2.2.2 Reporting and Recording Accidents

An accident report must be submitted to the Customer Representative immediately for all known or claimed job related injuries/illnesses which occur at the job site or related workenvironment involving:

All personnel supervised by Customer Representative directly, or indirectly,

All company vehicles, powered industrial vehicles, and commercial vehicle accidents,and all fire related incidents.

2.3 PRE-CONSTRUCTION MEETING

An initial meeting shall be held between the Customer Representative and the Contractor to review all contract requirements related to safety and health, including but not limitedto the following.

1 Rules, procedures, photos, and daily log requirements.

2. Inspections and work hold points.

3. Special work permit requirements.

4. Documentation of proper certification and training.

5. Applicable Safety Equipment.

6. Closeout and documentation requirements.

This form for this meeting is in Chapter 13.0 Reports and Documentation.

2.4 SAFETY EQUIPMENT

The Contractor is responsible for providing all safety equipment that may be required by the Contractor's employees, representatives and/or subContractors. The Contractor is responsible for ensuring that all personnel who are to use the prescribed safety equipmentare familiar with its operation and purpose.

2.4.1 Personal Protection Equipment

Contractors should be aware of the potential hazards of the normal work operations they may have to perform. It is expected that the Contractor shall issue personal protection equipment (PPE) as required for a given task and the associated training for the situation and equipment. This issuance and training shall be in accordance with goodindustrial hygiene and safety practices and all applicable Federal and State OSHA regulations.

At a minimum during construction and when climbers are on the tower, all persons working on the site shall wear hard hats, safety goggles, and steel toed shoes always.

2.4.2 Fall Protection

OSHA requires trained employees to use fall protection devices under the followingcircumstances:

Working at unprotected heights greater than six (6) feet.

Working within six (6) feet of a roof edge when no protected sides or edges exist;Includes scissor lifts and man lifts, and/or ladders (unless fixed industrial over 20 feet).

CUSTOMER REPRESENTATIVE requires that all tower climbers be Comm Trained/NATE (National Association ofTower Erectors) or equivalent certified. Proof of this certification may be required by an employee and/or representative of Customer at any time prior to, during, orafter a job has been awarded to a Contractor.

It is the responsibility of the individual using any safety equipment, especially harnesses,to inspect their equipment prior to use and to not use any equipment that appears to be defective. It is the responsibility of the Contractor to provide all safety equipment that may be required for a given task and to ensure that it is in proper working order. It is alsothe responsibility of the Contractor to discontinue use of any equipment known to be defective or in need of repair.

2.5 WORK PERFORMED IN THE AIR

Work performed in the air is defined as any work where the possibility of someone beingunderneath the construction activities exist. All tower climbers must wear their safety helmets, while on the tower. All personnel below the tower must also wear their safety helmets when anyone is on the tower or "overhead" equipment is being utilized, i.e., a crane. The area under the "overhead" work shall be clearly marked, i.e., barricade, signs, etc., to establish the safety helmet (hard hat) area. The workers shall always wear their safety helmets as required by the Contractor's safety program and by the law.

2.5.1 Ladders

All ladders must be properly inspected prior to use and must be in good condition. No metal or conductive ladder shall be used around or near energized conductors or equipment. Straight ladders must be equipped with safety feet. The ladder must be longenough to allow the employee to perform the job safely. Contractors must supply their own ladders.

2.6 VEHICLES AND MACHINERY

2.6.1 Powered Industrial Vehicles

All powered industrial vehicles, i.e., cranes, forklifts, etc. are to be operated ONLY by trained and certified operators. Each operator is responsible for conducting an inspectionof the vehicle prior to start of work. Proof of this certification maybe required by an employee and/or representative of Customer at any time prior to, during, or after a job has been awarded to a Contractor.

2.6.2 Electrical Power Requirements

Electrical hookups, connections and materials must conform to the National Electrical Code currently adopted by the Village. All electrical equipment, including portable tools, must be grounded or double insulated. Ground fault interruption equipment must be used throughout the constructionarea, protecting all circuits. All extension cords must be the three (3) wire variety, must not be hung by nails or suspended from wires.

2.7 UNEXPECTED HAZARDS

Unexpected hazards include, but are not limited to, asbestos, leaking hot water pipe,exposed electrical wiring, downed power lines, fire, etc. In the event a Contractor encounters an unexpected hazard, the following responses shall be observed.

DO NOT continue work activity.

DO NOT allow others to work in hazard area.

DO NOT disturb the hazard.

DO NOT try to remedy the hazard.

DO contact the appropriate authorities, i.e., fire department.

DO notify the Customer Representative responsible for the site.

DO record the incident in the Site Activity Log.

2.8 CHEMICAL SUBSTANCES

Paints, coatings, adhesives, solvents, etc. are considered chemical substances. Unused chemical substances are to be discarded in a manner consistent with recommendations ofthe MSDS and/or local legal requirements.

2.8.1 Material Safety Data Sheets (MSDS)

Material Safety Data Sheets are provided by the manufacturer of a chemical substance. The Contractor is responsible for disseminating the information and warnings contained on the MSDS to all affected personnel. The Contractor shall ensure that the MSDS guidelines are followed. The Contractor is to provide a copy of all MSDS to the Customer Representative at the Pre-Construction Meeting. A copy of all MSDS shall also bedisplayed on site.

2.8.2 Lead and Lead Base Paint

Exterior metal structures such as tanks, pipes, valves, railings, and support beams mayhave been painted with a lead base primer and/or lead containing paint. Any activity, which may disturb the primer, requires special handling techniques. Any painting, welding, cutting grinding or similar work that must be performed on exterior metal structures with lead-based primer must have prior approval from the Customer Representative.

2.9 BARRICADES, SIGNS, AND PERIMETER GUARDING

Safety barricades (such as cones, tape, and corner guards) shall be erected as temporary barriers to warn personnel of potentially hazardous or dangerous situations. Every temporary floor opening shall be guarded to prevent a fall or shall be separated by barricade or barricade tape and appropriate signs. Appropriate barriers (including postedguards, if necessary) and caution signs shall be supplied by and posted by the Contractor.No aisles, passageways, doorways, or common areas, are to be blocked without approval from the Village.

2.10 EXCAVATION AND TRENCHING

Any Contractor performing an excavation must be familiar with and follow all Federal, state, and local regulations pertaining to excavations and trenching. If an excavation is tobe left overnight an appropriate barricade shall be established.

2.11 DO'S AND DON'TS

2.11.1 Drugs and Alcohol

Illegal possession, distribution, transportation, use, sale or purchase of narcotic, hallucinogens, depressants, stimulants, or marijuana is prohibited during job hours and at the job location and will led to termination of the contract as well as possible legal action.

2.11.2 Firearms, Weapons, Explosives and Threatening Actions

Illegal possession of firearms, loaded or unloaded, at the Customer job site shall not be tolerated. No weapons, including hunting knives, are permitted at the job site. No explosives shall be used or permitted at the job site unless specified in writing by the Customer Representative. No tools, i.e., wrenches, shall be waved or held in a manner that is not conducive to the purpose for which the tool was crafted or that may be perceived as threatening. No similar forms of threatening actions and/or language shall be tolerated at a Customer job site. This includes disputes that may arise solely between representatives of a Contractor.

2.11.3 General Conduct

Any kind of "horseplay" is dangerous as proven by the many injuries resulting from it.Such action is strictly forbidden and may be cause for disciplinary action, which couldinclude termination of the contract.

2.11.4 General Housekeeping

All construction sites should be free of debris, maintain all barricades, signs, notices andwarnings in good repair, and all staged material should be placed in an orderly fashion. The construction site shall comply with Section 7.1801 (Demolition/Construction Site Management) of the Village of Downers Grove Municipal Code. The Contractor should submit a staging plan to show where materials will be stored and approved by the Village of Downers Grove.

2.11.5 Harassment

It is strictly forbidden for Contractors' personnel to bother or harass anyone, be it sexual,racial, religious, or other harassment. Violation of this policy will result in immediate removal of violator(s) from the premises.

2.11.6 Working Alone

Contractor's employees who are performing any activity, which has a high accident potential, must be within sight and sound of another employee who is familiar with thehazards of the work being performed and the area.

3.0 RAW LAND SITES

3.1 GENERAL DESCRIPTION

The term "Raw Land" site refers to a site where no existing tower or structure to support the proposed antennas and coax exist. Specific site requirements will be found on the site drawings.

The drawings for this raw land site will require a Building Permit. The Contractor is responsible for securing and posting all applicable Building Permits as required. The Contractor shall provide a copy of the Building Permits to the Customer Representative (scan copy is acceptable) prior to beginning any permitted activities.

The Contractor shall also provide the original Certificate of Occupancy or equivalent with all the construction complete documents. See Chapter 13.0. Depending on the local jurisdiction, a Certificate of Occupancy may not be issued. Rather, it may be a Certificate of Completion or equivalent since no one "occupies" the tower site. If a Certificate of Occupancy or Certificate of Completion is not issued by the local jurisdiction, documentation stating this must be supplied to Customer.

The type of tower to be erected defines the raw land site. There are three major tower types. This proposal is for a monopole. All towers require a geotechnical investigation, which is used to design the tower and the foundation by which it is supported. The Customer Representative is responsible for providing the Contractor with an appropriate geotechnical investigation.

3.2 MONOPOLE TOWER

3.2.1 Typical Site

A monopole tower utilizes a single steel reinforced concrete foundation. Anchor bolts aresecured into the concrete foundation to which a hollow steel tube is secured. Additional sections are added until the structure has reached its designated height. The specifics for this operation are provided in the tower and foundation design and the tower erection specifications furnished by the manufacturer. Refer to Chapter 7.3 and site-specific drawings.

3.2.2 Grounding

Grounding is discussed at length in Chapter 8.0 of this document.

3.3 OVERALL TOWER HEIGHT VERIFICATION REPORT (OTHVR)

Upon reaching the final structure height an OTHVR will be completed and forwarded tothe Customer Representative project manager and/or representative. The completed form and associated photographs are required no later than forty-eight (48) hours after the final structure height has been reached.

The OTHVR form will be provided to the tower erector prior to the start of tower erection. This form outlines all the data required by Customer. In addition, a series of photographs is required to complete the OTHVR requirements. All the photographs shall be marked with the site number and description indicated on the OTHVR Checklistfor Photos.

Both the completed OTHVR form, and the associated photographs are required toconsider the OTHVR requirements met.

4.0 ROADS

4.1 General

The Contractor shall use the existing paved road and parking lot for access to the tower site. No new roads are to be constructed.

5.0 SITEWORK

5.1 PREPARATION OF THE SITE

The Contractor shall do all site work indicated on the drawings or stipulated in the job specification. This work shall include necessary final grading and dressing of the site tospecified grades and contours, furnishing, and installing approved surface materials, andthe performance of all other work specified.

5.2 EROSION CONTROL

(a) The soil erosion and sediment control measures shall be followed and installed in a manner as to minimize sediment leaving the site and as stipulated within state or local jurisdiction standards. See site drawings for specific requirements.

(b) Contractor shall maintain all erosion control measures until permanent vegetation has been established. See site drawings for specific requirements.

5.3 GRADING

(a) The surface area of the site, including all excavation, cuts, fills, and embankments, shall be finished to the lines, grades, and cross-sections shown on the site drawings. The ground shall be compacted and brought to the proper slopes and grades and shall be cleaned of all loose material.

(b) The site shall be graded to cause surface water to flow away from the building, equipment, and tower areas.

(c) The Contractor shall dispose of any remaining materials after grading is final.

5.4 CRUSHED STONE

(a) The Contractor shall provide stone or gravel as specified in site drawings.

(b) The sub-grade shall be compacted and brought to a smooth uniform grade prior to the crushed stone application.

(c) Crushed stone or gravel shall be provided as a surfacing material for areas in compound as shown on the site drawings and as stipulated in the job specifications. Before gravel is applied, a controlled vegetation fabric shall be applied to all areas to be graveled. Application shall be in accordance with the manufacturer's instructions.

(d) Gravel or crushed stone shall be placed on the sub-grade and uniformly spread to such depth that when compacted, it will have the specified thickness and be at the grade elevations as shown on the site drawings.

5.5 SITE RESTORATION

The areas of the owner's property disturbed by the work and not covered by the compound, access road etc., shall be graded to smooth contours, fertilized, seeded, and covered with a mulch as specified hereunder and in site drawings.

5.6 SURFACE AND SUBSURFACE UTILITIES

The Contractor shall contact the local utilities and have the utility establish the location ofany electrical, telephone, television, etc. cable.

5.6.1 Existing Utilities

Contractor shall contact the appropriate locate utility service before any excavation workis started. The Contractor shall notify the Customer Representative if the Contractor encountersutilities, active or inactive, during construction.

(a) Active sewer, water, gas, electric, and other utilities shall be always protected. The Contractor shall use extreme caution when excavating around or near utilities to prevent damage to the utilities and to provide safety for the working crew. If required for the proper execution of the work, these utilities shall be relocated as directed by the Customer Representative and any public agencies or utilities having jurisdiction.

(b) Inactive sewer, water, gas, electric, and other utilities, which interfere with the execution of the work, shall be removed, or shall be capped, plugged, or otherwise discontinued.

(c) The Contractor shall stake out the location of any underground cable and shall maintain such stakes throughout the job to avoid inadvertent excavation around the cable.

5.6.2 Site Utility Trenches

The Contractor shall observe all excavation procedures and cautions when excavating thesite utility trenches. Excavations are covered in Chapter 6.0 of this document. The size and type of electrical wire, corresponding ground wire and the size of the PVC conduit shall be determined by the type of equipment to be placed at the site. Likewise, the typeof equipment shall determine the telephone cable and size of the PVC conduit. See Figure 5.1.

The site utility trenches shall be a minimum of eighteen (18) inches in width and depth asshown on drawings. The conduit shall be placed as shown in Figure 5.1.

The utility trench shall be backfilled and compacted. Utility warning tape (i.e., caution tape) shall be placed in the trench approximately twelve (12) inches below grade. Thiswill let future excavators know to proceed with caution.

The utility trench shall be repaved so that the final grade matches the adjacent pavement, and the existing drainage pattern remains.

Figure 5.1

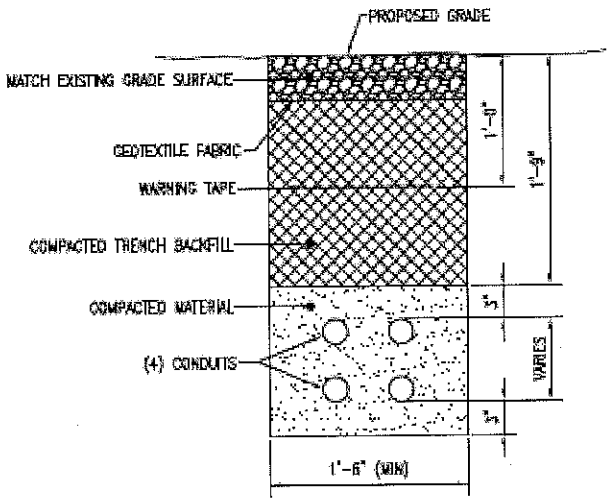


FIGURE 5.1 – UTILITY TRENCH

5.7 UTILITIES MOUNTING STAND

(a) Utility mounting stand (H-frame) is installed to accommodate electrical service equipment, telco demark and lightning control system. Grounding details are discussed in Chapter 8.0 of this document.

(b) The frame of the utility mounting stand shall be as directed on site drawings. See Figure 5.2.

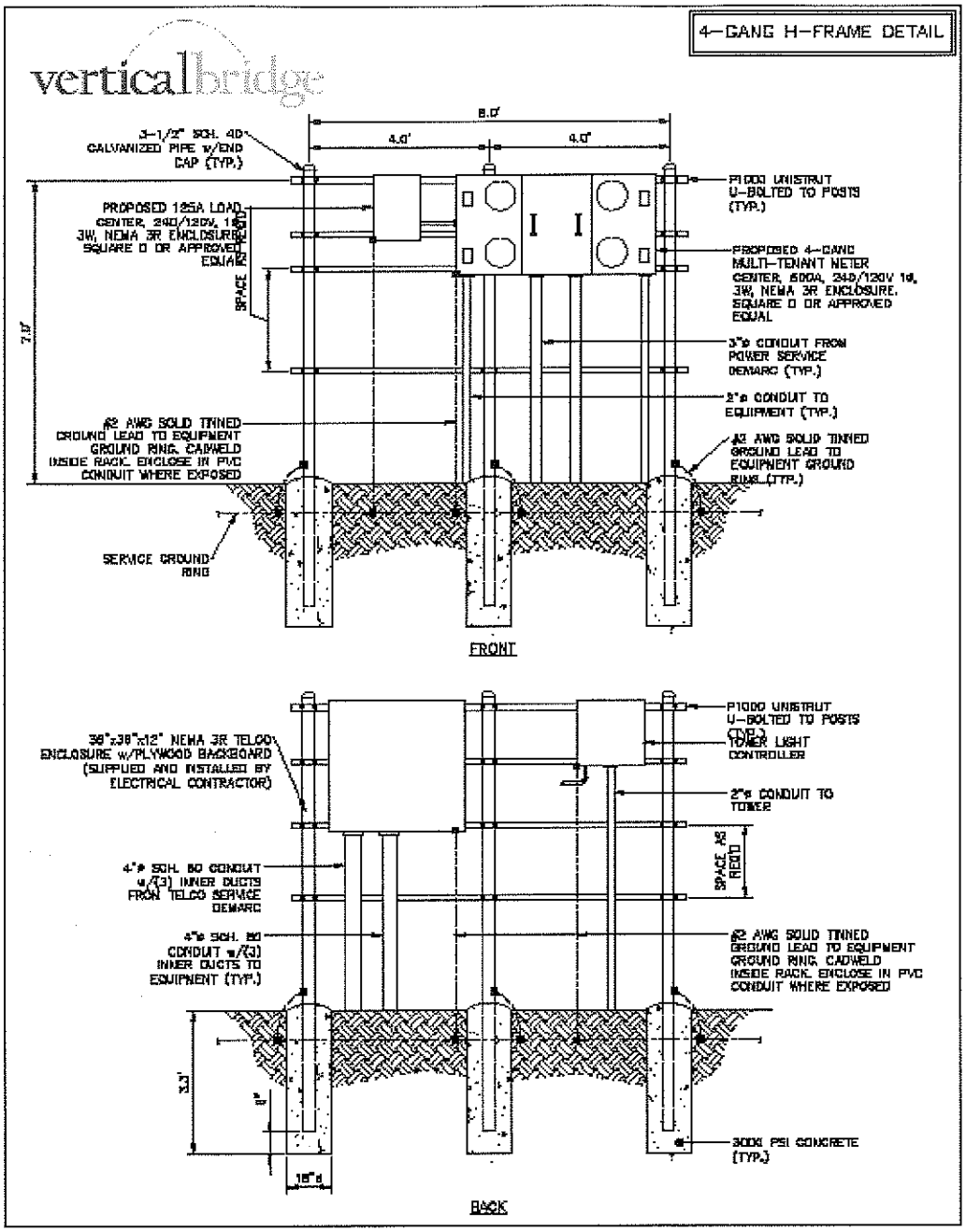
(c) Any cuts made to the components of the galvanized steel shall be "touched up" with cold galvanized spray paint or equivalent. See Chapter 13.3 of this document.

(d) The posts for the utility mounting frame shall be anchored according to the construction drawings.

(e) The support posts shall be as depicted on the site drawings or seven (7) feet from the top of the grade to the top of the post. The support post shall be plumb. The Unistruts are to be perpendicular to the support posts. Each post will be securely capped with a galvanized cap.

(f) The distance between the support posts is typically five (5) feet from the center of post to center of post. This measurement may be altered per specific site conditions.

Figure 5.2


4-GANG H-FRAME DETAIL
verticalbridge
8.0'
4.0'
4.0'
3-1/2" SCH. 40 GALVANIZED PIPE w/END CAP (TYP.)
PROPOSED 125A LOAD CENTER, 240/120V, 1Ø, 3W, NEMA 3R ENCLOSURE, SQUARE D OR APPROVED EQUAL
SPACE AS REQ'D
P1000 UNISTRUT U-BOLTED TO POSTS (TYP.)
PROPOSED 4-GANG MULTI-TENANT METER CENTER, 600A, 240/120V 1Ø, 3W, NEMA 3R ENCLOSURE, SQUARE D OR APPROVED EQUAL
3"ø CONDUIT FROM POWER SERVICE DEMARC (TYP.)
2"ø CONDUIT TO EQUIPMENT (TYP.)
#2 AWG SOLID TINNED GROUND LEAD TO EQUIPMENT GROUND RING, CADWELD INSIDE RACK, ENCLOSE IN PVC CONDUIT WHERE EXPOSED
#2 AWG SOLID TINNED GROUND LEAD TO EQUIPMENT GROUND RING (TYP.)
SERVICE GROUND RING
FRONT
P1000 UNISTRUT U-BOLTED TO POSTS (TYP.)
36"x36"x12" NEMA 3R TELCO ENCLOSURE w/PLYWOOD BACKBOARD (SUPPLIED AND INSTALLED BY ELECTRICAL CONTRACTOR)
TOWER LIGHT CONTROLLER
2"ø CONDUIT TO TOWER
SPACE AS REQ'D
4"ø SCH. 80 CONDUIT w/(3) INNER DUCTS FROM TELCO SERVICE DEMARC
4"ø SCH. 80 CONDUIT w/(3) INNER DUCTS TO EQUIPMENT (TYP.)
#2 AWG SOLID TINNED GROUND LEAD TO EQUIPMENT GROUND RING, CADWELD INSIDE RACK, ENCLOSE IN PVC CONDUIT WHERE EXPOSED
3.3'
3000 PSI CONCRETE (TYP.)
18"ø
BACK

5.8 FILLS AND EMBANKMENTS

(a) The material beneath all fills and embankments shall be firm, dense, and thoroughly compacted; shall be free from mud and muck; and shall be free from all organic materials such as leaves, grass, roots, or brush. Stump holes, or other small excavations within the limits of fills and embankments, shall be back filled and thoroughly compacted.

(b) Fills and embankments shall be constructed with material obtained from excavations for the work (if permitted by the geotechnical report), to the maximum extent available, on a suitable prepared subgrade, to the lines and grades shown on the plans. All material deposited in fills and embankments shall be free from organic or any other objectionable material.

(c) All materials to be used for fills and embankments shall include sufficient fines to fill all voids in the material. All fills shall be free of boulders over six (6) inches in diameter.

(d) No fill or embankment material shall be placed on frozen ground, nor shall frozen materials, snow, or ice be placed in any fill or embankment.

(e) Fills and embankments shall be constructed in horizontal layers not to exceed six (6) inches in uncompacted thickness. Material deposited in piles or windrows from excavating equipment shall be maintained or brought to within two (2) percent of the optimum moisture content, and shall be compacted by rolling, vibration, tamping, or other acceptable methods approved by the Engineer of record/Customer Representative.

(f) Where excessive water exists, the material shall be dried to the required moisture content.

(g) The Contractor shall provide the necessary equipment to apply sufficient water to ensure adequate moisture content for the specified dry density of the fill and embankment material. Insufficient or inadequate watering equipment shall be causes for suspending the work until the proper equipment is provided.

(h) Each layer of fill or embankment material shall be compacted over its entire area with equipment, which has been designated to compact the material most effectively.

(i) All excess material from excavation not required for fill shall be removed from the site. Disposition of this material shall be in accordance with the laws and ordinances of public agencies having jurisdiction.

(j) The Contractor shall be liable for a period of one (1) year for the condition of any fill. Any settlement of the grade in this period shall be repairable solely at the Contractor's expense.

6.0 EXCAVATIONS

6.1 GENERAL DESCRIPTION

Excavations are required for the tower foundation and for the trenches that carry the utilities and ground ring. All excavations must meet the requirements of OSHA and anyother governing entities that have jurisdiction.

6.2 EXCAVATIONS

6.2.1 Character of the Excavation

(a) The Contractor shall ascertain the character of the excavation to be performed. The Customer Representative shall furnish a copy of the geotechnical investigation, tower, and foundation design drawings.

(b) All excavation included in the base bid shall include the removal of all materials as encountered in obtaining the required lines, grades, size and depth of the foundations. Material encountered that was not revealed by the geotechnical investigation must be reported to Engineer of Record/Customer Representative immediately so a determination can be made.

(c) Excavation of known rock shall be included in the bid. Rock is defined as material that cannot be removed by hand or with the aid of the heaviest mechanical equipment commercially available for this purpose. Boulders under a half (1/2) cubic yard in volume shall not be classified as rock.

6.2.2 Workmanship

(a) All excavations shall be in accordance with foundation design requirements. If the excavation is inadvertently carried below the depth indicated for the foundation, concrete shall be used to fill to the required elevation at no additional expense to Customer.

(b) Where an excavation is carried to a depth called for on the drawings, and the nature of soil is unsatisfactory, the excavation shall be deepened as directed by the Engineer of record/Customer Representative.

(c) All excavation and trenching shall be in accordance with the latest local, state, and Federal regulations. The Contractor shall provide, install, and maintain all shoring, bracing, and sheet piling necessary to support the side of the excavations as may be required to prosecute the work properly, and protect all property and construction adjacent to the excavations.

(d) All topsoil shall be separately removed and stockpiled where directed by the Customer Representative.

6.2.3 Removal of Water

(a) The Contractor shall remove all surface or underground water encountered during construction activities. The Contractor is responsible for all costs associated with the removal of this water. The Engineer of Record/Customer Representative must approve the process of removal.

(b) Water shall not be permitted to accumulate in or flow through trenches or excavations.

(c) The Contractor shall provide ditches, pumps, coverings, and/or other approved means and shall provide labor and attendance required to protect the project and adjacent property from water damage.

6.2.4 Rock Excavation

(a) All blasting shall be carried out in strict accordance with the regulations of the state, local laws, and ordinances, and any other regulatory agency. Blasting to depths greater than the depths of the foundations will not be permitted.

(b) Shattered, loose, or unstable rock, or rock which shows signs of incipient disintegration, will not be acceptable as a foundation medium. The Engineer of Record/Customer Representative will issue instructions for consolidation or further excavation where necessary.

(c) The method of rock excavation shall be approved in writing by the Customer Representative and given to the Contractor at the Pre-Construction Meeting.

6.2.5 Protection of the Public

Excavations that remain open overnight shall be adequately barricaded or covered over toprevent people or animals from falling into them.

7.0 FOUNDATIONS

7.1 GENERAL DESCRIPTION

Foundations are steel reinforced concrete caissons or spread footings by which the tower is supported. Foundations are poured for all three tower types, monopole, self-support, and guyed. A monopole foundation consists of one large caisson or spread footing. The self- support has one foundation for each of its legs. The guyed tower has one foundation for the tower base.

The Customer Representative will provide the Contractor with a copy of the geotechnical investigation, foundation design and tower design. This Chapter serves as a guideline for the construction of a foundation. However, if the requirements in thefoundation design from the tower manufacturer are more stringent, then they should be followed.

7.2 CONCRETE

7.2.1 Adherence to ACI Codes

(a) Concrete work shall comply with the applicable sections of "The Building Code for Reinforced Concrete", ACI 318, latest edition, of the American Concrete Institute or such local codes as may apply, whichever is more stringent.

(b) All concrete above grade shall be finished concrete with special care given to density, elimination of voids, honeycomb, bleeding, segregation, and shrinkage.

7.2.2 Materials

7.2.2.1 Cement

All cement shall be Portland or equivalent cement conforming to ASTM C150, latest edition, type I, or type II. All cement shall be from the same mill and be of uniform color.All cement shall meet or exceed the compression strength specified in the foundation design and/or the A&E drawings.

7.2.2.2 Aggregates

All concrete aggregates shall conform to ASTM C33, latest edition, and shall have clean, hard, durable, and uncoated particles, free from deleterious matter. Fine aggregate shall consist of natural sand, evenly graded from fine to coarse. The coarse aggregate shall consist of crushed stone or gravel, evenly graded from a quarter (1/4) to three-quarters (3/4)inch. Only aggregate from approved sources shall be used and shall be from one basic source.

7.2.2.3 Water

Mixing water shall be potable (clean, clear, and fit to drink).

7.2.2.4 Admixtures

(a) Air entraining admixture may be used in concrete only if it is added at the batch plant. Mixing of admixtures at site must be avoided if possible and can only be permitted with a written authorization from the Engineer of Record/Customer Representative.

(b) The air-entraining agent shall be neutralized Vinson resin, Darex AEA or Sika AER. The air-entraining agent shall comply with ASTM C260, latest edition.

(c) The air content in the concrete should be 3 to 5 percent.

(d) No other admixtures shall be used unless approved by the Engineer of Record/Customer Representative.

(e) Calcium chloride or admixtures containing calcium chloride shall not be used.

7.2.3 Storage

Cement, aggregates, and reinforcements shall be stored in a manner to prevent damage, deterioration, or the inclusion of foreign materials. Any material that has deteriorated or has been damaged shall not be used.

7.2.4. Field Control

(a) A minimum of four (4) concrete test cylinders per every fifty (50) yards, one for seven (7) day one for twenty-eight (28) day break, and one spare shall be made by the Contractor. The cylinders shall be made, stored, and cured in strict accordance with ASTM 31, latest edition. The test cylinders shall be delivered to the testing laboratory by the Contractor, and all expenses incurred for testing shall be borne by the Contractor. Three (3) copies of the test results shall be furnished to the Customer Representative.

(b) For three thousand (3000) psi concrete twenty-eight (28) day cylinder tests, no cylinder shall test less than three thousand (3000) psi. In the event this value is not met, the Customer Representative may condemn the portion of the work involved, or may require a load test, or may require a stronger mix for subsequent work. Such additional test and corrective measures shall be at the Contractor's sole expense.

(c) The concrete shall be mixed per ACI specifications. The concrete, after mixing, shall be handled so as not to cause any segregation of the different ingredients and shall be in its final position within sixty (60) minutes after the cement has been mixed with the aggregates. If the distance between the batch plant and the site is such that the time interval is greater than sixty (60) minutes, mixing water shall be added at the job site. If the above situation exists, potable water will have to be furnished by the Contractor at the site at its sole expense.

(d) All batching slips from the concrete supplier shall indicate the truck number, time of departure from the batching plant, time of arrival at the job site, amount of water added, if needed at the site, mixing time, moisture content of fine and coarse aggregates, and weights of cement, sand, and aggregate. The Contractor shall retain one copy of all batching slips to submit with closeouts.

(e) Flushing out of the concrete mixer shall be done in an area approved by the Customer.

(f) A temperature test for the concrete may be required if the temperature has been below or above the minimum or maximum recommended temperature for pouring concrete.

(g) A level area shall be provided for the mixing of concrete, taking slump tests, and preparation of concrete test cylinders. One slump test, according to the ASTM method for test C143, shall be taken for each truck.

(h) Concrete shall not be allowed to drop freely more than three (3) feet unless otherwise approved by the Customer Representative. Where greater drops are required, a canvas "elephant trunk" tremie, or another approved device, must be employed.

(i) When concrete is conveyed by chutes, the plant and equipment shall be of such size and design as to ensure a continuous flow of concrete in the chute. The chute shall be set at approximately a uniform slope, which shall be not less than one (1) vertical to three (3) horizontal, or more than one (1) vertical to two (2) horizontal. The discharge end of the chute shall be provided with a baffle plate to prevent segregation. The chute shall be thoroughly cleaned before and after each run. All waste material and flushing water shall be discharged outside of the forms. Concrete shall not be placed for footings until the excavations have been approved. No concrete shall be placed on frozen ground.

(j) Concrete, during and immediately after deposition, shall be thoroughly worked around reinforcing and embedded fixtures and into the corners of the forms. Concrete shall be placed in layers not over eighteen (18) inches deep, and each layer shall be compacted with the aid of mechanical internal vibrating equipment supplemented by hand spading, rodding, and tamping as directed by the Engineer of Record/Customer Representative. At least one extra vibrator and one extra generator, if generators are required, shall be kept on hand as standby. Vibrations should be induced throughout the mass; superficial, too long sustained, or haphazard operation of vibrators will not be permitted. Vibrators shall not be used for moving the concrete horizontally within the forms or in a horizontal position. The point at which concrete is being placed shall be shifted, as required, so that it will not be necessary for concrete to flow more than two (2) feet in any direction to reach its final position. Special care shall be exercised while spading the exterior surface of the exterior walls with long wooden spades to minimize air pockets and honeycomb. Honeycomb or porous concrete will not be accepted.

(k) Before depositing new concrete on or against concrete that has hardened, the forms shall be retightened, the surface of the hardened concrete shall be roughened, as required, thoroughly cleaned of foreign matter, and moistened with water. Cold joints shall be performed according to the signed and sealed foundation design drawings.

(l) A minimum of twenty-four (24) to thirty-six (36) hours is required before the placement of concrete piers on mat foundations. The placement of concrete before this time must be approved in writing by the Engineer of Record/Customer Representative prior to proceeding with the work.

7.2.5 Protection and Curing

(a) In freezing weather, suitable means shall be provided for keeping the concrete at not less than sixty-five degrees Fahrenheit (65oF) or more than seventy-five degrees Fahrenheit (75oF) for three (3) days or not less than fifty degrees Fahrenheit (50oF) or more than seventy-five degrees Fahrenheit (75oF) for five (5) days. When heated aggregates and/or water are used, the temperature of any component shall not exceed ninety-five degrees Fahrenheit (95oF). Salt, calcium chloride, or other material shall not be mixed with the concrete to prevent freezing. All ground, fill, or forms shall be free of frost before any concrete is placed.

(b) If the air temperature around freshly poured concrete is or expected to be (within four (4) hours after pouring) below forty degrees Fahrenheit (40oF), the Contractor shall use proper methods to ensure freeze protection of the pour. Proper methods to be approved by Engineer of Record.

(c) After the concrete has been placed in locations exposed to the weather, it shall be protected to prevent the loss of moisture from the surface. The protection may consist of covering the concrete with plastic, wet burlap, canvas, sand, straw, and should be applied as soon as the concrete is hard enough to receive it. When plastic is not used, the cover should be

prevented from drying by occasional sprinkling. Concrete shall be protected from "washing" and from the addition of excess water during rainstorms until it is hardened enough to resist washing or dilution.

7.2.6 Reinforcement

(a) Metal reinforcement, at the time the concrete is placed, shall be free from loose rust, scale, or other coating which would destroy or reduce the bond. Reinforcement shall be accurately placed and securely supported to avoid displacement. Wood spacers or the equivalent shall be inserted between reinforcing steel and the surfaces of forms to maintain clearances and shall be inserted between reinforcing steel and the surfaces of forms to maintain clearances and shall be withdrawn as the placement progresses. All reinforcement shall be new billet steel bars of intermediate grade and shall conform to ASTM A615, grade forty (40), latest editions, or as marked in contract drawings. All bars larger than number two (No. 2) shall be deformed. Steel accessories shall conform to ACI and CRSI bar support specifications and standard nomenclature. Mesh reinforcement shall conform to ASTM A185 latest edition. Bars shall be securely tied, supported, and held in place at all intersections with fourteen (14) or sixteen (16) pound BWG annealed iron wire. "Quick wrap" wire ties are acceptable.

(b) Reinforcement accessories including spacers, chairs, bolsters, ties, etc., shall be furnished and placed in accordance with the requirements of the "Manual of Standard Practice for Detailing Reinforced Concrete Structures," ACI 315, latest edition.

(c) All accessories coming within one and one-half (1-1/2) inches of the surface of the concrete shall be galvanized or shall have plastic-coated feet. The feet of all accessories shall be rounded to prevent their being indented into the plywood forms.

(d) The reinforcement and all other metallic items embedded in or anchored to the concrete shall be bonded together to prevent possible internal arcing in the event of a lightning strike. The station grounding system shall be temporarily connected to the foundation or anchors immediately after the concrete has set.

(e) Mill Certification forms shall be submitted to the Customer Representative for all reinforcing steel.

7.2.7 Forms

7.2.7.1 General

(a) Forms for all smooth surfaces shall be in good condition to create a finished form, with special care given to density, elimination of voids, honeycombing, bleeding, segregation, and shrinkage.

(b) Forms shall conform to the shapes, lines, and dimensions of members as shown on the drawings. They shall be properly placed or tied together to maintain position and shape. Forms shall be made sufficiently tight to prevent the leakage of water.

(c) Forms shall be sufficiently rigid to prevent displacement or sagging between supports. Responsibility for their adequacy shall rest with the Contractor.

(d) Form surfaces shall be smooth and free from irregularities, dents, sags, or holes. Forms shall be so constructed that they can be removed without hammering or prying against the concrete.

7.2.7.2 Form Coating

The edges and contact faces of forms shall be coated with non-staining mineral oil such as"noxcrete" or equivalent. The Contractor shall make certain that the forms are completely dry and free of coatings. The coating material shall be allowed to float onto the form witha minimum of brushing at the rate of approximately two hundred (200) square feet per gallon. Stiff brushes shall not be used. If the coating does not adhere in uniform thickness,thinner shall be added as recommended by the manufacturer or the rate of coverage shall be extended.

7.2.7.3 Form Ties

Ties shall be adjustable in length so as to permit the tightening of forms and of such type as to leave no metal closer than one and one-half (1-1/2) inches from the surface, and they shallnot be fitted with any lugs, cones, washers, or other devices to act as a spreader within theform, or for any other purpose which will leave a hole larger than one and one-half (1-1/2) inches in diameter or a depression in the back of the exposed surface of the concrete. Formties shall be Richmond "Tyacrus," Dayton "Sure-Grip", or Superior "Cone Fast" orequivalent coil ties. All ties shall have a minimum working strength when fully assembledof at least nine thousand (9000) pounds. Snap ties or wire ties *will not be* permitted on forms.

7.3 ANCHOR BOLTS

Anchor bolts are supplied by the tower manufacturer. It is the responsibility of the Contractor to schedule the delivery of both the anchor bolts and the tower. The placement of the anchor bolts is supplied by the manufacturer.

Templates supplied by the tower manufacturer will be used to set the exact spacing of theanchor bolts. On self-supporting towers, a pier-to-pier template will also be provided to insure the spacing between tower piers is correct.

Anchor bolts shall be firmly supported and anchored. At the completion of the work, all bolts shall be plumb, and the dimension between the centers of any two tower bolt groupsshall not vary from the indicated dimension by more than a quarter (1/4) inch, or shall thecenter of any tower bolt group be more than a quarter (1/4) inch from its indicated position, or shall any tower bolt in a group be more than one sixteenth (1/16) inch from its indicated position relative to the center of the group.

7.4 STRUCTURE BACK FILL

7.4.1 General

(a) All material and debris shall be removed from excavations along with all wood forms before backfilling.

(b) No back fill shall be placed against foundation walls or any other location until the work to be covered has been inspected and approved by the Engineer of Record/Customer Representative.

(c) Backfilling against concrete may not proceed until twenty-four (24) hours after the placement of the concrete. Fill shall be compacted equally on all sides of the foundation. Compacting within the confines of the foundation shall not be done by heavy equipment, such as a bulldozer or front-end loader.

7.4.2 Material for Back Fill

(a) The excavated site material shall serve as back fill to the extent available, if so, indicated on the geotechnical report or as specified by the Engineer of Record/Customer Representative.

(b) The Contractor shall furnish additional back fill, like the site material, where required, and it shall be approved by the Engineer of Record/Customer Representative before placement.

(c) If excavated material is not suitable as backfill, the Contractor will bring in new acceptable material.

(d) All back fills shall be free of wood, grass, roots, trash, rocks larger than six (6) inches in diameter, or other debris of any kind.

(e) No frozen soil shall be used for fill.

(f) All fill material shall include sufficient fines to fill all voids in the material.

(g) The final six (6) inches of backfill material shall be from stockpiled topsoil removed from excavation.

7.4.3 Method of Backfilling and Compacting

(a) Unless noted otherwise in contract drawings and specifications, fill materials shall be placed in horizontal layers of six (6) inch lifts and each layer compacted with vibrating compactors such as tampers, rammers, or vibroplates to ninety-five (95) percent proctor density.

(b) Soil should be compacted at a water content equal to optimum moisture content plus or minus two (±2) percent. In place density, if required, shall be done in accordance with the ASTM Standard Method Test D1556-58T.

7.4.4 Removal of Excess Material

All excess material from excavation shall be removed from the site andthe disposition of which shall be in accordance with the laws and ordinances of public agencies having jurisdiction.

7.4.5 Finish Grade

(a) The finished grade at backfilled and other disturbed areas shall conform to the lines and grades shown on the site drawings.

(b) Areas shall be graded to cause surface water to flow away from them. See Chapter 5.0 for additional information.

8.0 GROUNDING

8.1 GENERAL

The Contractor shall ground all equipment within the specifications recommended by the equipment manufacturer. The grounded objects shall be bonded to the lightning protectionsystem as recommended in the latest edition of the Standard for the Installation ofLightning Protection Systems, NFPA 780.

8.2 GROUND SYSTEMS – ISOLATED GROUND PLANE (SINGLE POINT) GROUNDING SYSTEM

The purpose of the isolated (single point) grounding system is to prevent the flow of low frequency current from any point to the isolated ground plane and to allow the electricalpotential of all parts of the site to rise and fall simultaneously during a surge. This reducesthe risk of having a difference in electrical potential between parts of the equipment and reduces damage to electronic components.

8.3 GROUND TEST

A ground test is the measurement of resistance (ohms) of a grounding system. A ground test is performed after the installation of the ground system (ground rods and wire) has been inspected and back filled. The test should be performed under normal weather conditions. The test should be delayed if excessive rains are prevalent.

Before attaching a "new" grounding system to an existing one, a ground test shall be performed, and the amount of resistance shall be recorded. If the results are not within allowable limits for the region, the Contractor shall contact the Customer Representative and shall not disturb the existing ground ring.

The ground system is acceptable if the soil resistivity is less than twelve thousand five hundred (12,500) ohm-cm, or the resistance to the earth is less than five (5) ohms.

If a five (5) ohm or less resistance from the ground system cannot be achieved by a typical ground rod and wire system, alternative methods will need to be introduced. The Contractor shall coordinate with Engineer of Record to determine alternategrounding methods to obtain the five (5) ohm or less requirement.

Once the existing ground ring is determined to be within acceptable limits, the "new" grounding system shall be attached in a minimum of two places. After the "new" groundingsystem is attached a second ground test shall be performed. This ground test will measurethe resistance for the whole grounding system (the "new" and existing grounding rings).

8.4 COMPONENTS OF THE GROUND SYSTEM

8.4.1 Ground Ring

The ground ring shall be minimum number two (#2) AWG bare, solid, tinned copper conductor. The ground ring shall be installed at an approximate distance of two (2) feet from the edge of a foundation (concrete slab, antenna tower legs), and buried a minimum of thirty (30) inches below finished grade or six (6) inches below the frost line, whichever isdeeper. The ground ring shall be supplemented with 8' driven ground rods spaced at minimum 10 foot to maximum of 15-foot intervals, butnot less than the rod's length. The trench for a ground ring shall be wide enough to providesufficient space for making of exothermic weld connections. The trench shall be backfilledonly after inspection of the trench and exothermic weld connections by authority having jurisdiction and/or authorized and qualified personnel has been performed. The exothermic weld should be tested according to the manufacturers' instructions and shall be porous free(without holes or cavities). The back fill shall be non-corrosive, low resistivity material, free of stone, debris, etc., and tamped down thoroughly in layers not exceeding six (6) inches in depth, to at least 95% of original density before

excavation. The buried conductors and connections should be photographed before backfilling. The Contractor shall submit the photographs as part of the site's closeout documentation.

8.4.2 Driven Ground Rods

The ground rods shall be copper-clad steel or stainless steel, and 5/8-inch diameter and a minimum of eight (8) feet long. Any further increase in rod diameter has minimal effect on thefinal ground impedance and may be increased as the number of rod sections and soil hardness (rockiness) increases. The ground rods must resist corrosion. Therefore, caution must be exercised, with proper soil analysis, when choosing the type of rod. Copper-clad rods are widely used, but acidic conditions may attack copper, and therefore stainless-steel rods may be required. Copper has a negligible rate of corrosion in unpolluted water and air. At high temperatures some copper alloys are better than stainless steel.

8.4.3 Ground Conductor

The grounding conductor size and type are based on adequate conductivity, maximum longevity, ease of installation, physical resistance to damage, availability, economicfeasibility, and minimum galvanic effect on other nearby buried objects.

8.4.4 Buried Ground Conductor

The buried ground conductor shall be a minimum of number two (#2) AWG bare,solid, tinned, copper (semi-hard drawn commercial grade). The solid copper conductor hasbetter life expectancy than stranded copper, and tinned copper has less galvanic effect on other nearby buried metallic objects. Aluminum conductors and mechanical connections shall not be used.

8.5 INSTALLATION

8.5.1 Ground Rods and Wires

The Contractor shall install all grounding and anchors in accordance with the drawings asfollows:

(a) Ground rods and wire shall be installed before and during the back filling of the excavations. See site drawings for grounding plan.

(b) Ground rods shall be installed vertically and not more than two (2) feet (horizontal distance) from the foundation mats. The top of the ground rod should be a minimum of thirty (30) inches below the finished grade. See Figure 8.1.

(c) At least one inspection well shall be installed per site. Some "hosts" may require inspection wells at the two places, where the "new" ground ring was tied into the "existing" ground ring. See Figure 8.2.

(d) Care should be taken to avoid sharp bends or kinks. Enough wire should be left above ground after back filling so that the wire can be easily welded to the steel structure.

(e) Ground wires shall be bonded to each other and to ground rods by an exothermic weld (i.e., cadweld) connection. The exothermic welds should be tested according to manufacturer's specifications and shall be porous free (without holes or cavities).

(f) Before a ground rod is installed, the Contractor shall specifically check for the possibility of buried electrical power. Refer to Chapter 5.5. If it cannot be positively verified that all electrical power in the vicinity is aerial, the possibility of buried electrical power exists, and the Contractor shall follow the special precautions listed below.

1. When driving the ground rod, the Contractor shall ensure that the employee is wearing rubber gloves.

2. If a ground rod strikes a utility during installation, the work must be stopped, and the Contractor shall notify the Customer Representative. The Customer Representative shall ensure that no further work takes place with the ground rod until the utility owner is notified. In conjunction with the utility owner representative, the Customer Representative should then locate a suitable station ground location and should assist the Contractor in safely installing a new station ground.

3. The ground connections to the structure shall be made immediately after the initial section of the structure is securely in place. Care shall be taken to avoid damaging the wire connection when leveling or grouting the structure. The ground connection may be temporarily removed during this operation but should be immediately reconnected after leveling or grouting is completed.

(g) All grounding material as specified on the site drawings and not provided on the job specifications shall be provided by the Contractor.

(h) Figure 8.3 shows the typical attachment of the ground leads to a self-supporting tower.

(i) Figure 8.4 shows the typical attachment for a ground bus bar.

(j) Figure 8.5 shows the typical connection of the ground lug to the ground bus bar.

Figure 8.1

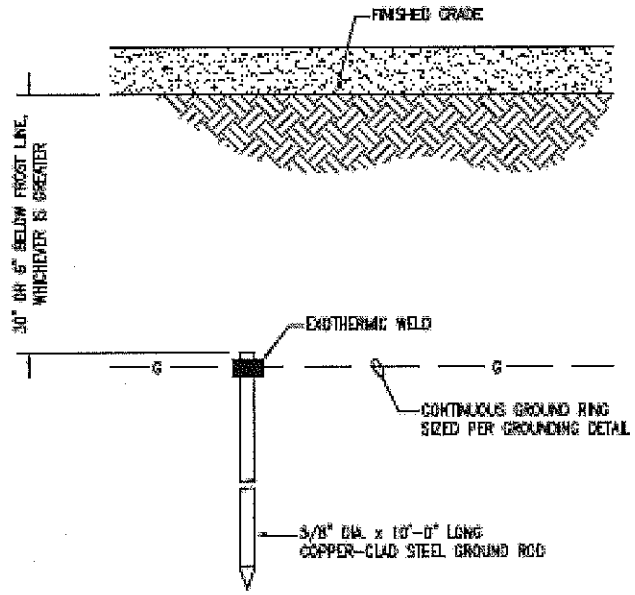


FIGURE 8.1 – GROUND ROD DETAIL

Figure 8.2

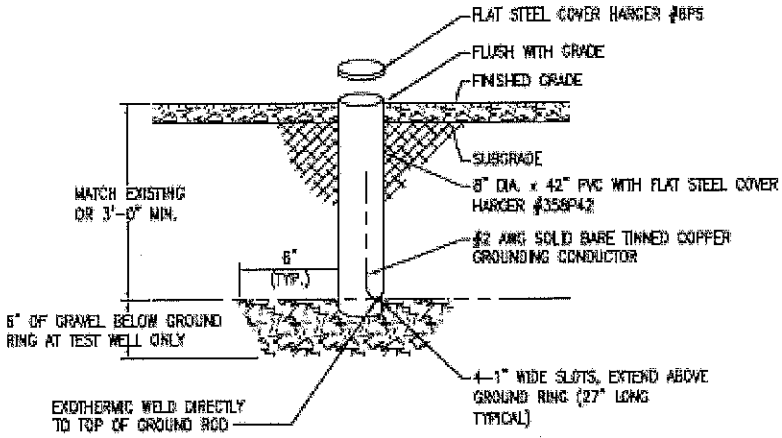


FIGURE 8.2 – GROUND TEST WELL DETAIL

Figure 8.3

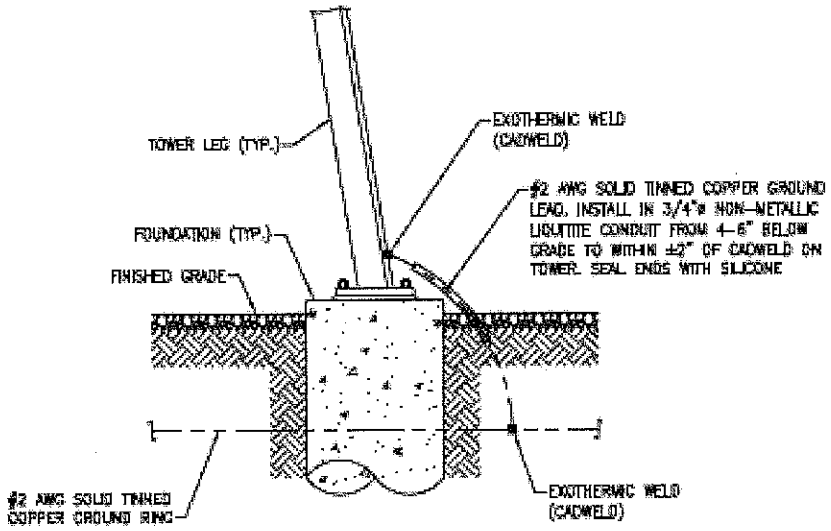
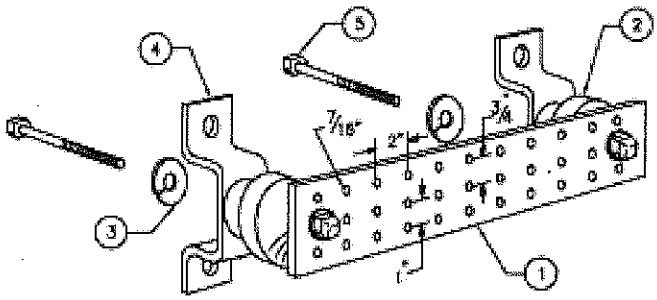


FIGURE 8.3 – GROUND LEAD TO TOWER LEG

Figure 8.4

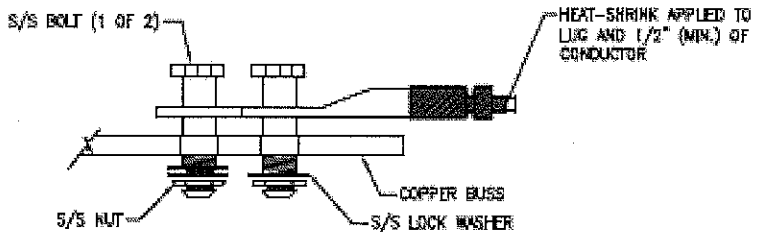


LEGEND

1 – SOLID TINNED COPPER GROUND BAR, 1/4"x 4"x 20" MIN., NEWTON INSTRUMENT CO. HOLE CENTERS TO MATCH NEMA DOUBLE LUG CONFIGURATION
2 – INSULATORS, NEWTON INSTRUMENT CAT. NO. 3061–4
3 – 5/8" LOCKWASHERS, NEWTON INSTRUMENT CO. CAT. NO. 3015–8
4 – WALL MOUNTING BRACKET, NEWTON INSTRUMENT CO. CAT NO. A–6056
5 – 5/8–11 X 1" H.H.C.S. BOLTS, NEWTON INSTRUMENT CO. CAT NO. 3012–1
6 – GROUND BAR SHALL BE SIZED TO ACCOMODATE ALL GROUNDING CONNECTIONS REQUIRED PLUS PROVIDE 50% SPARE CAPACITY
7 – GROUND BARS SHALL NEITHER BE FIELD FABRICATED NOR NEW HOLES DRILLED
8 – GROUND LUGS SHALL MATCH THE HOLE SPACING ON THE BAR
9 – HARDWARE DIAMETER SHALL BE MINIMUM 3/8"

FIGURE 8.4 – GROUND BAR DETAIL

Figure 8.5



1. ALL HARDWARE 18-8 STAINLESS STEEL INCLUDING BELLEVILLES. COAT ALL SURFACES WITH KOPR-SHIELD BEFORE MATING.
2. FOR GROUND, BOND TO STEEL ONLY: INSERT A LOCK WASHER BETWEEN LUG AND STEEL. COAT ALL SURFACES WITH KOPR-SHIELD.
3. ALL HARDWARE TO BE 3/8" DIAMETER.

FIGURE 8.5 – GROUND LUG DETAIL

8.5.2 Lightning Rods

The lightning rod is normally three (3) to five (5) feet in length or as depicted on the A&Eand/or tower drawings. It is placed at the top of the tower and is the highest element of the tower. The Contractor is responsible for ensuring that the lightning rod does not extendhigher than the approved FAA height. The terminal for the lightning rod varies with the tower manufacturer and the carrier directives. Three typical practices for the lightning rodground lead terminal follow.

(a) The terminal is clamped directly to the tower,

(b) The terminal is bonded by an exothermic weld.

The specific terminal bond should be discussed at the Pre-Construction meeting and/or noted on the construction drawings.

8.5.3 Inspections

The Contractor shall schedule an inspection of the installed ground system (ground rods and wires) with the Customer Representative. An installed ground system is one thatis fully bonded, but the trenches remain open so that the entire ground system is exposed. The Contractor shall not back fill the trenches until after system and all connections of theground system have passed inspection by the Engineer of Record/ Customer Representative. The Contractor shall take pictures of the ground ring prior to back filling.

9.0 TOWER ERECTION

9.1 GENERAL

No steel shall be erected on the foundation until concrete design strength has reached its design strength. The Contractor shall check the foundation to ensure that size, location, andbolt spacing is in accordance with site drawings. The Contractor shall meet all tower erection requirements by OSHA, NATE, ANSI/TIA-222 latest revision and all other agencies that have jurisdiction. The Contractor shall complete the erection of all structuralsteel and miscellaneous metalwork as shown on the site drawings and/or inferred in the job specification including the following:

(a) Erection of all structural and miscellaneous steel required for the tower, including tower legs, bracing, platform framing, base plates, gussets, splices, connections, drive bolts, bolts, nuts, screws, washers, lock washers, ladders, railings, gratings, supports, anchors, brackets, and other items necessary or required to make a complete assembly;

(b) Grouting of base plates, if required;

(c) Erection of temporary tower lighting when required, per Chapter 10.0 of this specification (The Contractor shall not use an extension cord for this purpose.);

(d) Erection of the top obstruction light support assembly and side light access platforms, when obstruction lighting is required; and

(e) Installation of guys and guy anchors.

9.2 CODES

The work shall comply with all requirements of the specifications for the design, fabrication, and erection of structural steel for buildings of the American Institute of SteelConstruction, except where otherwise noted on the drawings or job specification, and except as modified by the Engineer of Record/Customer Representative, along with all applicable state and local codes.

Where welding is required or permitted, it shall conform to the requirements for shielded ARC-welding of the Standard Code for ARC and Gas Welding in Building Construction, of the American Welding Society, and shall comply with all applicable state and local codes.

9.3 CONTRACTOR'S RESPONSIBILITIES

The tower manufacturer supplies erection drawings. It is the Contractor's responsibilityto coordinate delivery of the anchor bolts and the tower with Customer Representative. Any questions or comments relative to the erection details should be referred to tower manufacturer.

Changes in procedure or modifications of details from that shown on the drawings or prescribed in the job specifications will not be permitted without approval, in writing,by the Engineer of Record/Customer Representative.

The Contractor shall protect stored materials in such a manner to prevent injury from damaged materials, i.e., splinters, rust, etc., and to prevent loss of minor pieces.

The Contractor shall pay for all special inspections, license fees, and permits by local or state authorities having jurisdiction over the work. These fees should be included in the bid.

It is the responsibility of the Contractor to perform a complete inventory of all towermaterials prior to beginning tower erection. No tower erection shall begin until this inventory has been performed. All missing or damaged materials shall be reported in writing to Customer Representative as well as any materials that are bent or out of round. This inventorymust be received by Customer Representative within forty eight (48) hours after the tower materialshave arrived on site. If this inventory is received by Customer Representative within 48 hours, Customer Representative will provide replacement parts to the Contractor at no charge. If the tower inventory is not reported to Customer Representative within 48 hours of tower material delivery, then the Contractor will assume all responsibility to provide all parts listed in the inventory at no cost to Customer. In addition, Customer Representative will not be held responsible for any mobilization and/or standby time because of this missing or damaged materials.

9.4 INSTALLATION OF TOWER BASE SHOES

Both the foundation surface and the base shoe should be cleaned of mud, grime, andother foreign matter. The foundation may be damp but standing puddles or pools of wateron its surface shall be eliminated.

The base shoe may be leveled with leveling nuts or as specified in the erection drawings. For self-supporting towers, one or more sections of the tower, complete with internal bracing to assure that the tower is being square, shall be installed before leveling base shoes.

The shoe shall be leveled in two directions with a spirit level and the nuts on the anchor bolts tightened. The Contractor shall ensure that the base shoe is at the required specified elevation depicted in the construction drawings. Leveling and elevation shall be checked after the nuts have been tightened, and if necessary, the leveling nuts should be adjusted tore-level the shoe.

After the nuts are tightened, the bottom of the base shoe should be at least three quarters (3/4) inch but no more than one and a quarter (1-1/4) inch above the foundation pier, oras directed on the tower erection drawings.

If the tower manufacturer requires grout, then grout shall be forced under the shoe from allfour sides, completely filling all voids, except as to allow weep holes for rainwater.

9.5 GROUT

9.5.1 Mix

(a) The grout shall consist of one part Portland or equivalent cement to two parts of sand by volume.

(b) Portland or equivalent cement shall conform to the requirements of current ASTM Specification C150 for Type I.

(c) Water shall be potable. Only sufficient water shall be added to assure hydration of the cement.

(d) When squeezed in the hand, the grout shall form a lump, and when distributed, it shall crumble freely.

(e) The grout, while being mixed, shall have a granular appearance and shall not be so wet as to resemble mortar.

(f) When compacted between the foundation and the baseplate, the grout shall pack hard with no tendency to flow and with no bleeding of the mixing water.

(g) Weep holes shall be placed in the grout. The weep holes (usually one-quarter (1/4) inch in diameter) allow water that may collect in the hollow tower leg a means of egress through the grout. There shall be a minimum of one hole per leg.

9.5.2 Installation

(a) A board shall be placed between the baseplate and the foundation so that one edge will bear against the inside face of two of the anchor bolts.

(b) The grout shall be packed against the board to a width of approximately six (6) inches, the board shall be removed, and the grout shall be packed from all sides against the initial volume of grout.

(c) The grout shall be placed in layers approximately two (2) inches wide, and each layer shall be thoroughly compacted before the next layer is placed.

(d) The grout shall be compacted with the use of special steel grouting tool and a hammer weighing not less than two (2) pounds. The steel grouting tool shall have a face thickness approximately three-fourths of the space between the foundation and the baseplate.

(e) The Contractor shall furnish and have on the job grouting tools with the face thickness of three-eighths (3/8) inch, three-quarters (3/4) inch, and one and one- eighth (1-1/8) inches.

(f) After the space under the plates is substantially filled with grout, leaving room for the weep holes, the grout shall be smoothly finished, on a forty-five (45) degree slope toward the bottom of the base plate.

9.6 ERECTION

9.6.1 General

(a) The Contractor shall follow the tower manufacturer's erection guide.

(b) The use of drift pins will be permitted only to bring together several parts. They shall not be used in such a manner as to distort or damage the metal or enlarge unfair holes.

(c) The use of a gas-cutting torch in the field for correcting errors of fabrication or for forming holes will not be permitted.

(d) The field drilling or reaming of holes in structural members will not be permitted except with the written consent of the Engineer of Record/Customer Representative. All ungalvanized ferrous metal surfaces, where the galvanizing has been removed or damaged, shall be spotted with two coats of zinc dust-zinc oxide primer as specified in Chapter 11.0 of this document.

(e) All welding shall be done by duly licensed/certified welders, and only under all conditions imposed by these specifications and by local and state authorities having jurisdiction. Surfaces to be welded shall be free from loose mill scale, rust, paint, or other foreign materials. All welding shall be inspected by qualified welding inspectors paid for by the Contractor and under the direction of the Customer Representative.

(f) All drive bolt connections in tower leg splices and in antenna platform framing, as depicted on the erection drawings, shall be installed strictly in accordance with the manufacturer's

recommendations. Care shall be taken to ensure that all members are in exact alignment before bolts are driven.

(g) All other connections for structural steel shall be made with bolts, lock washers and nuts except where otherwise noted on the drawings. All bolts in the joint shall be installed and nuts run up before the final torqueing operation is begun. Washers and ring fills shall be installed at this point. Each nut or bolt in the joint shall be tightened sufficiently to bring all faying surfaces of the connection into contact. Each nut shall be subsequently tightened to a "snug tight" condition as defined by the specification for structural joints using ASTM A325 or A490 bolts. Snug tight is defined as the tightness attained by a few impacts of an impact wrench or the full effort of a man using an ordinary spud wrench.

(h) During the erection of the tower, enough temporary bolts shall be used to prevent damage from wind or other cause.

(i) After the tower has been erected, all connections, including connections in miscellaneous metalwork, shall be examined and any loose bolts retightened.

(j) All bolts used for connecting vertical members shall be installed with the head in; on horizontal members they shall be installed with the head down.

(k) Members which cannot be joined without further field fabrication should not be installed. Members which are too long may be cut to proper length provided distances between bolt holes and edge distances are correct after cutting. Grinding may be permitted in lieu of cutting. Cutting by torch will not be allowed.

(l) Members which have been bent or buckled shall be replaced. If bolt holes do not line up closely enough to permit full bolting without drifting of holes, the zinc galvanizing may be removed should it unduly reduce the hole size. The area where the zinc galvanizing was removed shall be "touched up" with a spray galvanized paint or equivalent. Refer to Chapter 11.3.3.

9.6.2 Monopole Towers

(a) The tower shall be brought together as required in the tower erection specifications.

(b) If the tower is marked with the minimum, design, and maximum heights for determining the joint at the tower sections, then the Contractor may use binoculars to confirm that the section joint is at the correct height. Otherwise, the Contractor shall use a weighted tape to confirm the height.

(c) The process is continued until all sections of the monopole have been erected.

9.7 MISCELLANEOUS METALWORK

All miscellaneous metalwork, including steel gratings, ladders, handrails, waveguidesupports, restraining brackets, and where required, top obstruction light support and lightning rods, antenna or reflector mountings or supports, network assembly protection, and network mountings, shall be erected in accordance with the site drawings and specifications.

9.8 DAMAGED GALVANIZED SURFACES

Non-galvanized ferrous metal surfaces exposed to the weather and areas of galvanized surfaces where the galvanizing has been removed or damaged shall be spotted with two coats of zinc dust-zinc oxide primer as specified in Chapter 11.0 of this document.

9.9 RESPONSIBILITY OF DESIGNS, FABRICATION, AND ERECTION DRAWINGS

Respective parties will assume responsibility for errors and omissions which result from engineering designs, fabrication drawings, erection drawings, or erection errors while engaged by Customer. The responsibility, which may involve fabrication and/or Contractor charges, will depend on the following conditions:

(a) The Contractor shall immediately notify the Engineer of Record/ Customer Representative of any error. The Contractor and the Customer Representative will review the impact of the error and its effect on the project if any.

(b) The Engineer of Record/ Customer Representative will investigate the error and will either specify the corrective change or approve the suggested change and most economic method of correction to be used by others.

(c) The estimated back charges (if any) will be reviewed and agreed upon at the time job responsibility has been determined.

(d) Moderate changes or corrections of minor misfits using drift pins and a moderate amount of reaming, chipping, or cutting shall be considered a part of erection and shall be absorbed by the erector. Any errors which prevent the proper assembly of parts by these measures, or which require correction or adjustment, must be immediately reported to the Customer Representative.

10.0 TOWER LIGHTING

10.1 GENERAL

If required by the FAA, the Contractor shall install lighting on the tower. The Contractor shall furnish all conduit, wiring, and associated equipment between the utility mounting stand (H-frame) and tower and all other equipment shown or inferred on site drawings, which isnot furnished as part of the job specification. The installation of all tower lighting, both temporary and permanent, shall meet FAA requirements.

10.2 MATERIAL

Material to be furnished by the Contractor shall meet the following specifications:

Conduits shall be of standard weight of the sizes indicated, of rigid galvanized steel of theapproved make, and listed by the Underwriter's Laboratories, Inc. Conduit fittings shall also be galvanized.

Junction boxes and covers shall be galvanized cast metal with threaded hubs for conduit connections. Unused conduit hubs shall be closed with a threaded pipe plug. Each box shall be provided with a cover gasket to make the assembly waterproof. Boxes shall be equipped with wire holding devices to provide support of the vertical conductors as required by the National Electrical Code and local codes. Terminal blocks with enough connectors shall be provided to accommodate all splices and branch connections. Junction boxes shall be Crouse-Hines Company, type FL6963 or FL6964 or an approved equal.

EL-type fittings shall be galvanized cast metal with threaded hubs for conduit connectionsand with galvanized sheet metal gasket covers.

Wiring shall be six hundred (600) volt, moisture, and heat resistant, rubber insulated, neoprene type, approved, and listed as type RHW by the Underwriter's Laboratories, Inc. Conductors, number ten (No. 10) AWG and smaller shall be solid copper; larger sizes shallbe stranded copper. Wiring shall be consistently color coded as indicated on the drawings.

"Wraplock" ties shall be as manufactured by the Actus Products Company, Mt. Vernon, New York, or an approved equal.

10.3 OBSTRUCTION LIGHTING

Obstruction lighting shall be installed in the following manner:

An EL-type fitting shall be used to make all conduit turns.

All external conduits shall be installed in a neat, workmanlike manner. Runs shall be keptstraight without bows or unnecessary bends. Lateral runs shall be horizontal.

Conduit, junction boxes, and fixtures shall be fastened to the tower with "wrap lock." Tiesshall be located wherever the conduit crosses a structural member but not to exceed ten (10) feet.

Special care shall be exercised in the support of the conduit at the side lights to provide afirm support for the lighting fixture.

All junctions shall be sealed using pipe joint compound.

The beacon at the top of the tower shall be oriented so that it may be opened withoutmechanical interference from the lightning rod.

Wires shall be pulled after all conduits and boxes are in place. Wiring shall be run from box to box with splices and branches made only at terminal blocks in junction boxes. Wiring shall be carefully trained over wire supports in junction boxes and neatly fanned out and terminated on appropriate terminal block connectors. Color-coding of wiring and size of conductors shall be as shown on the site drawings. The wiring shall be left unterminated inside the building with sufficient slack for connection to the obstruction lighting panel unless the job specification calls for leads to be connected to the obstructionlighting panel.

All the above work shall conform to the requirements of the National Electrical Code, local codes, and to the applicable requirements of the Federal Aviation Agency, Civil Aeronautics Administration, and the Federal Communications Commission (FCC), Part 17, "Construction, Marking, and Lighting of Antenna Structures." The Lightning Contractor shall furnish and deliver certificates of approval to the Customer Representative, covering the electrical work from the local inspecting authority for the National Electrical Code and from any other local authority having jurisdiction over the work.

The Lighting Contractor shall be responsible for the maintenance of the obstruction lighting system, including the immediate replacement of burned-out lamps and fixtures until such time after the completion of the tower work as may be mutually agreedupon between the Contractor and the Customer Representative.

10.4 TEMPORARY TOWER LIGHTING

The FAA may require temporary warning lights during construction. When this required lighting is energized from a branch circuit originating in the radio relay building, and the temporary wiring consists of exposed cable or wire, the Contractor shall provide a lightningprotector on the temporary lighting circuit. The lightning protector shall be a General Electric Company, Model 9LA1544, pellet lightning protector, or approved equal, installedin accordance with the manufacturer's instructions at or near the base of the tower with theground lead of the protector connected to the tower ground, and the line leads connected to the line and neutral conductor of the branch circuit. The wiring and protector for the temporary lighting shall be removed when the permanent lighting system is in place and operating.

The number of sets or levels of temporary lights required shall be the same as the numberof levels of permanent lighting required by the rules of the responsible government authority. However, where two or three levels of permanent lights are required, only one temporary set of lights is required at the top until the level of the first permanent light is exceeded. Temporary lights shall be installed at approximately the level of permanent lights, and in addition, a set of temporary lights is required at the uppermost point of the structure.

Temporary lights are to burn steadily from sunset to sunrise. Top lights are to consist of two 116- or 125-watt lamps enclosed in aviation red obstruction light globes. Two similarlights are required at each level where permanent lights would be installed. All side lightsare to be so positioned that at least one of the two lights at each level will be visible from the angle of approach.

In lieu of the above temporary warning lights, the permanent obstruction lighting fixturesmay be installed and operated at each required level as each such level is exceeded in height during construction.

The Contractor shall not use an extension cord as the wiring for the temporary lighting.

The Contractor will supply temporary power to the light kit if permanent power is notavailable.

11.0 FIELD PAINTING

11.1 GENERAL

The work in this section shall include all labor, materials, and equipment as required to complete all painting as indicated on the drawings as described in the specifications, or asreasonably inferable from the drawings and specifications. This also includes surface preparation, application of paint, protection of work and adjacent property, and cleaning ofthe site.

The Contractor shall submit with his bid a statement in writing regarding the paint system and related paint products he/she proposes to use. Failure to do so will be cause for rejectionof the bid. At the completion of the work, the Contractor shall submit to Customer Representative for each station a Record of Painting form (Chapter 13.0) confirming their compliance withthe paint system selected and these specifications.

Paint used on the job shall be as specified herein and shall be applied in strict accordance with the manufacturer's recommendations. All coatings shall be from the same manufacturer. Should the Contractor wish to substitute any products other than those specified, the suitability of the product must be determined by an independent testing laboratory at no cost to the Customer.

The Contractor shall be financially responsible for any valid damage claims arising from the work performed, including splatter and wind-carried spray.

The Contractor shall not use any equipment or methods which would endanger or interferewith working antennas and waveguides. In the event of accidental service interruption,the Contractor shall immediately notify the Customer Representative.

11.2 SURFACE PREPARATION

11.2.1 General

(a) Preparation of the surfaces to which paint is to be applied is of utmost importance to the life of the job. Surfaces to be prepared and painted include new galvanized steel, previously painted galvanized steel, and weathered galvanized steel. Cleaning methods shall be suited to the condition of the surfaces to be prepared. It shall be the responsibility of the Contractor to determine such conditions and meet the requirements necessary to complete the work.

(b) All surfaces to be painted shall be completely dry, clean, and free of all shavings, filings, dirt, oil, grease, loose rust, and any other foreign matter.

(c) Grease and oil shall be removed with rags and toluene, xylene, or other non-residual solvents in a manner avoiding the spreading of the oil and grease over additional areas. Loose dirt and loose foreign matter may be removed with air pressure or bristle brushes.

(d) Sand blasting will not be permitted.

11.2.2 New Galvanized Steel

(a) New galvanized steel surfaces that have not weathered for the period of time recommended by the manufacturer of the paint system selected shall be given the manufacturer's recommended wash.

(b) Areas on galvanized surfaces where the galvanizing has been removed or damaged shall be spot primed.

(c) New galvanized surfaces shall be solvent cleaned only in those areas where oils, grease, or other such contaminants are present.

11.2.3 Previously Painted

(a) Previously painted surfaces shall be wiped clean with a dry rag and inspected for flaws in the coating. All loose or peeling paint shall be removed by wire brushing, chipping, sanding, or scraping to beveled edge until only firmly adhering paint remains. If the previous coating has a heavy chalk, it shall be washed off with water before painting.

(b) Damaged areas shall be spot primed. Where priming is required on more than 25 percent of the previously painted surfaces, a full prime coat shall be applied to all the previously painted surfaces.

11.2.4 Weathered Galvanized Steel

(a) Rusted areas and areas where the galvanizing has eroded shall be scraped and wire brushed to remove as much rust as possible to produce a clean surface of bare metal or firmly adhering rust.

(b) The cleaned surfaces shall be spot primed. Where priming is required on more than 25 percent of the galvanized surfaces, a full prime coat shall be applied to all the galvanized surfaces.

11.2.5 Aluminum

(a) New aluminum surfaces shall be clean of all detrimental residue and top coated the same day as cleaned.

(b) Previously painted aluminum surfaces shall be inspected for flaws in the coating. All loose or peeling paint shall be carefully removed by wire brushing, sanding, or scraping to a beveled edge until only firmly adhering paint remains. Damaged areas shall be spot primed the same day as cleaned and followed with the recommended topcoat.

11.3 APPLICATION

Mixing, thinning, and application methods shall be done in strict compliance with the manufacturer's instructions. Unless instructed otherwise, the Contractor may choose either brush or airless spray application.

Paint shall be applied without modification as it comes from the container. If thinning is necessary, it shall be done with the approval of the Customer Representative and in accordance with the manufacturer's instructions. The resultant coating shall be of the samefilm thickness as specified for undiluted material.

Paint shall be thoroughly mixed before application and stirred frequently during applicationand shall be applied during atmospheric conditions, which comply with the manufacturer'sinstructions.

All paint shall be carefully and uniformly applied in such a manner as to give complete hiding and coverage in the number of coats specified. If the topcoat does not provide complete hiding, the Contractor shall stop work, and notify the Customer Representative who will issue instructions on how to proceed. Each coat of paint shall be thoroughly dry before a following coat is applied.

Tarpaulins or other suitable covers including supports shall be used to protect adjacent equipment including roof fans, cooling towers, outhouses, tower piers, and the face of theequipment building adjacent to the

tower. Clear plastic shall be used to protect parabolic antennas and any transmitting equipment in service requiring protection. Paint applied or splattered on surfaces not required to be painted shall be promptly removed.

11.4 MATERIALS AND STORAGE

Material shall be delivered to the job site in the original unopened containers bearing the name of the product and of the manufacturer.

All material shall be stored and mixed at the site in an area designated by the Customer Representative. The storage area shall be kept clean, with all used rags and drop cloths removed from the site at the end of each day's work, and all other necessary precautions taken to prevent damage by fire.

All paints and volatile materials shall be stored in a safe manner.

At the completion of the work, the Contractor shall remove all the rubbish, tools, scaffolding, and surplus materials from the site.

11.5 INSPECTION

Customer, at its option, may maintain an inspector on the job during any or all phases of the work to inspect the work and materials furnished for compliance with the specifications.

The inspector shall have the right to approve the surface preparation prior to the applicationof any coating and to reject any painted surfaces found to be damaged or improperly applied. The inspector may reject any work or material not meeting the requirements of thespecifications.

The presence of the Customer Representative inspector on the job and any decisions or requests made by him/her shall not relieve the Contractor of his/her responsibilities under the specifications.

12.0 FENCES AND GATES

12.1 GENERAL

The Contractor shall furnish and install fences and gates as specified herein and on the sitedrawings and job specifications.

12.2 CONTRACTOR'S RESPONSIBILITY

The Contractor shall maintain the survey stakes placed by a licensed surveyor to mark thesite, and/or lease parcel. The Contractor shall make reference measurements from these points consistent with site drawings.

The Contractor shall be responsible for the complete installation of a selected fence typeas herein specified and shown on the site drawings.

12.3 INSTALLATION

The Contractor shall install all fencing in true alignment, and each post shall be plumbwith the vertical.

All post corners, gate posts, and terminal posts shall be heavy-duty and braced towithstand the additional forces acting at these points.

The fabric and wire strands shall be correctly tensioned, and the post verticals spaced soas not to create a sag or bow along the fence line.

The fence, unless otherwise specified, shall, as nearly as possible, follow the contour of the terrain. Special provisions shall be made where sudden changes of elevation occur orwhere drainage depressions occur.

The gravel in the compound should be graded away from the tower and shall cover the bottom half (1/2) inch of the fence fabric. No gaps should be visible between the graveland the fabric.

Galvanized fences, railing, posts, and gates shall not be painted unless otherwise specifiedor directed by the Customer Representative. If it is necessary to have such surfaces painted initially, consideration will be given to the use of black malleable iron in place of the galvanized steel.

12.4 PVC FENCE

The specifications for the material and installation of various fence components are as follows:

(a) Height: Unless otherwise specified, the fence shall be eight (8) feet in height above grade.

(b) Materials: Poly Vinyl Chloride (PVC) formulated to resist impact and for Ultraviolet (UV) stabilization. Extruded products meet or exceed ASTM D 1784.

(c) Color: As selected by the Owner from the manufacturer's full range of standard colors.

(d) Fence Panels: Privacy fence panels, 7/8 inch by 6-inch tongue and groove or interlocking Panels with smooth finish.

(e) Line, End and Corner Posts: The posts shall be 5-inches square. Posts shall be spaced approximately eight (8) feet on the center and set a minimum of three (3) feet in bell-shaped concrete footings, twelve (12) inch minimum diameter. Posts not having extension arms shall be crowned or capped on the top to shed water.

(f) Swing Gate Posts: The posts shall be 5-inches square of the same material and set a minimum of three (3) feet in bell-shaped concrete footings, sixteen (16) inch minimum diameter.

(g) Top and Bottom Horizontal Rails: 1-3/4 inches by seven (7) inches or as recommended by the manufacturer for the panel type indicated.

(h) Bracing: Bracing shall be in accordance with manufacturer's requirements for the spans indicated, making a rigid connection but allowing for expansion and contraction.

(i) Gates: Gates shall be of the swing type and shall open in the direction as indicated on the drawings. Frames shall be of two (2) inch OD standard pipe with internal bracing one and five-eighths (1-5/8) inch OD standard pipe, welded at all joints to provide rigid watertight construction.

(j) Gate Panels: Frames shall be filled with the same type of panels as used in the line of the fence.

(k) Hinges: Hinges shall be stainless steel or aluminum, offset type to allow gates to swing back parallel with the line of the fence.

(l) Latch: A stainless steel or aluminum latch shall be provided in order to readily lock gates with multiple padlocks.

(m) Installation: Install in accordance with manufacturer's instructions. Center and align posts, place concrete around posts and vibrate or tamp for consolidation. Recheck vertical and top alignment of posts and make necessary corrections. Install gates plumb, level, and secure for full opening without interference. For double gates, install drop rod. Adjust hardware for smooth operation.

12.5 GROUNDING

The fence corner posts, and gate posts shall be bonded 12" above finished grade to the ground system using number two (No. 2) AWG solid, bare, tinned copper cable. See Figure 12.1.The connections are to be made exothermic welds (i.e., cadwelds). At minimum, both posts on either side of the gate should be bonded to the ground system as well as each of the corner posts for the fence compound. Each gate and its respective post shall be bonded at the hinged end using flexible copper braid jumpers.

Figure 12.1

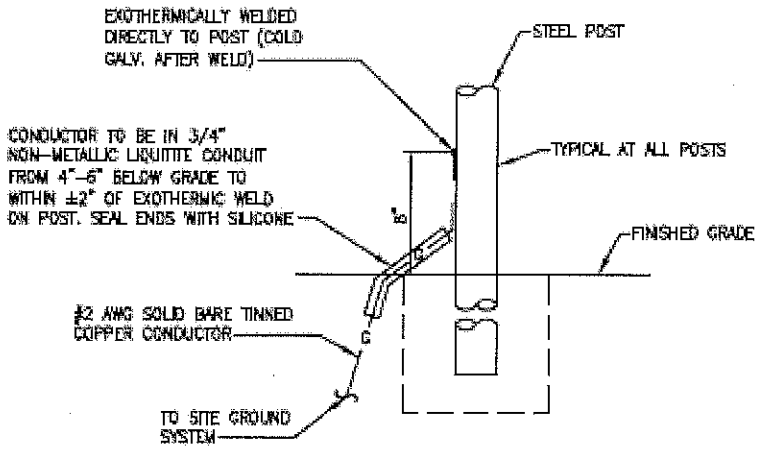


FIGURE 12.1 – FENCE POST GROUND DETAIL

13.0 REPORTS AND DOCUMENTATION

13.1 Pre-Construction Checklist

13.2 Construction Activity Log

13.3 Contractor Photo Log

13.4 Final Site Inspection Checklist

13.5 Final Documentation

13.6 Accident Report

13.7 Record of Painting Form

PRE-CONSTRUCTION CHECKLIST

Date: _____

Customer: _____

Site Name: _____

Site Address: _____

Site No.: _____

Attendees:

Name:	Company:	Phone Number:

Documentation:	N/A	Yes	Comments:
Building Permit			
Electrical Permit			
List of Subcontractors			
Heavy Equip. Licenses			
Welding Certifications			
Electricians Licenses			
NATE Certification			
Other Certificates			
MSDS			

Safety and Health Items:	N/A	Yes
Customer Representative has copy of GC signed receipt of current specifications		
Customer Representative has copy of GC current insurance		
Special Work Permit(s)		
Applicable Safety Equipment (available and in good repair)		
GC is aware of the location of all active antennas at the site		

CUSTOMER REPRESENTATIVE SUPPLIED DOCUMENTS

Raw Land/Re-Build:	**Yes**	**N/A**
Geotechnical Investigation		
Tower Design		
Foundation Design		
Site CDs		
All Sites:		
FAA Approved Height		

Antenna Declination for Area:

Topics for discussion:

1. Rules, procedures, photo, and daily log requirements.
2. Inspections and work hold points.
3. Special work permit requirements.
4. Documentation of proper certification and training.
5. Applicable Safety Equipment.
6. Closeout and documentation requirements.

CUSTOMER REPRESENTATIVE

SITE ACTIVITY LOG

Date: _____

Site Name: _____

Site Address: _____

Site No.: _____

Temperature: _____

Weather Conditions: _____

Contractor(s) at Site: _____

Description of Activities:

_____

_____

_____

_____

_____

_____

_____

Description of Any Tests or Inspections Being Performed:

_____

_____

_____

_____

_____

_____

_____

Safety Issues: (accidents, hard hat violations, etc.)

_____

_____

_____

_____

_____

_____

CONTRACTOR PHOTO LOG

Date: _____

Site Name: _____

Site Address: _____

The Contractor shall take pictures of the following applicable activities and submit the pictures as part of the Final Documentation. A given activity may require more than one photo. The Contractor may submit this document with the applicable pictures checked.

Date Taken	Description of Activities
_____	Site prior to construction activities (East, West, North and South)
_____	Picture of Building permit or other permits clearly posted at site
_____	Excavation of utility trenches
_____	Installation of utility mount stand posts
_____	Installation of ground rods
_____	Installation of ground rings
_____	Back filling of trenches
_____	Excavation of tower foundation
_____	Installation of reinforcing steel for tower foundation
_____	Setting of anchor bolts
_____	Pouring of concrete for tower foundation
_____	Erection of tower
_____	Antenna mounts assembly (all sectors
_____	Antennas attached to mounts
_____	Antenna bus bar installation
_____	Antenna ground connections
_____	Cable ground connections (especially at top of tower)
_____	Lightning rod attachment
_____	Tower lighting installed (if applicable)
_____	Installation of equipment pad or support stand
_____	Installation of ice bridge
_____	Installation of ground bars (tower base and equipment)
_____	Bonding of ice bridge system to ground ring
_____	Bonding of tower to ground ring
_____	Installation of fence
_____	Bonding of fence to ground ring
_____	Installation of landscaping
_____	Completed site (East, West, North and South)

FINAL SITE INSPECTIONCHECKLIST

COMPLETED:	DESCRIPTION:
	SITEWORK
	Grading, clearing, rock removal and grubbing per site plan topographic requirements.
	Repaving of disturbed areas complete.
	Vegetation control fabric barrier installed under rocked areas per construction drawings.
	Guard rails, tire stops and/or bollards installed per construction drawings.
	Excess material removed from site.
	Landscaping installed according to construction drawings.
	Site is neat and clean.
	Grading, culverts, and drainage per site plan.
	Culvert free from debris and excess gravel.
	Grade at both ends of culverts consistent with proper water flow.
	Final surfacing (gravel, asphalt, or concrete) per construction drawings.
	Fencing installed per site plans.
	Fabric tension sufficient and uniform
	Post caps installed and are uniform in height.
	Fence and posts are plumb. Gates and locks work correctly.
	Fence and gate posts are grounded per construction drawings.
	All locks installed and combinations known to operations.
	UTILITY MOUNTING STAND
	Electrical panel box is properly grounded.
	Meter installed.
	Emergency generator receptacle installed per construction drawings.
	All circuit breakers in electrical panel boxes are labeled.
	All support posts are grounded.
	Meter and telco grounds are in PVC and are plumb.
	GROUNDING
	Ground wires properly connected between cabinet ground bus and master ground bus.
	All exothermic welds are smooth, secure, and free from rust.
	Power connected and in "liquid tight" conduit attached to sub-base
	All grounding connections (crimped and exothermically welded) are tight.
	All grounding components free from corrosion.
	All ground bus bars are installed and grounded.
	All ground lugs attached singularly and with double bolts.
	Antennas and antenna support structure are grounded.
	All ground lugs have No-Ox (or equivalent) between dissimilar metals only. (Not "gunked" on top)
	Master Ground Bus lead terminated to either:
	A. Building steel/ water pipe

COMPLETED:	DESCRIPTION:
	B. Ground Rod
	C. Ground Ring
	All coax ground kits installed and leads point in direction of the earth.
	Ground rods and ring inspected prior to back fill.
	Bonds from ground ring to tower ground bus bar are present.
	Cable ground kits installed near the antenna mounts.
	Cable ground kits installed near the entry to sub-base.
	Tower grounds connected to ground ring with exothermic welds.
	Cover plates and cable trays continuously bonded and grounded.
	All ground connections and exothermic welds are tight (tug on them).
	Ground lugs bolted to master ground bus bar singularly and with double bolts.
	CONCRETE
	If required, base plate grouted with weep hole(s) installed and free from obstructions.
	Foundation free of cracks and edges chamfered.
	Tower concrete foundation edges chamfered, finish smooth and flat, not cracked or broken.
	Concrete forms have been removed.
	TOWER
	Tower is plumb and is within FAA allowed height.
	Safety climbing wire is installed and tight.
	Bottom ten (10) feet of tower requires ladder to access climb.
	Galvanizing is uniform not flaking or chipped.
	Any tower parts rusted or scratched have been replaced or repaired and painted per Chapter 13.3.
	Tower ID/Serial # attached (please write) _____
	ANTENNAS, CABLE, AND ANTENNA MOUNTS
	Antenna support arm plumb, square and parallel to antenna and cable.
	Cable hoisting grips and hooks installed.
	Each antenna inspected for azimuth accuracy:
	Sector A (alpha) azimuth degrees A1:
	Sector B (beta) azimuth degrees B1:
	Sector C (gamma) azimuth degrees C1:
	Coaxial cable bends are gradual and do not exceed manufacturer's minimum bending radius:
	- 1 5/8" coax = 20" minimum bending radius
	- 7/8" coax = 10" minimum bending radius
	- 1/2" coax = 5" minimum bending radius
	Down tilt brackets set (check screws) and locked tight as per manufacturer's specifications.
	Ground kit installed for each cable run and bolted to antenna ground bus bar.
	Cable/jumper to antenna secured or fastened so it does not vibrate in wind.
	Antenna face cover not cracked, broken, warped, or bowed.

COMPLETED:	DESCRIPTION:
_____	Cable is free from dents, insulation damage, kinks, or sharp bends.
_____	Antenna, mounting brackets, and jumper painted to match background per construction drawings.
_____	Antenna and down-tilt installed plumb; down-tilt setting per construction drawings.
_____	Base of antenna height (measure):
_____	Antenna type is as specified on construction drawings.
_____	**EQUIPMENT INSTALLATION**
_____	Cabinet(s) base(s) are set square and level on equipment support system.
_____	Sub-base anchor bolts installed tight and are galvanized.
_____	Sufficient room in front of cabinet(s) for 180-degree door swing.
_____	Sub-base rodent plate installed and secured where applicable.
_____	Equipment sub-base is installed and/or painted per construction drawings.
_____	If required, galvanized sheet metal walkway over cable/jumper path installed.

FINAL DOCUMENTATION

The Contractor shall submit all applicable documentation listed below.

1. Building Permit or equivalent
2. Certificate of Occupancy or equivalent
3. Release of Liens
4. All testing/inspection notices
5. Concrete Batch records
6. Applicable licenses and/or certifications (welders, etc.)
7. Photo Log
8. Material reconciliation Form
9. Final Site Inspection Checklist
10. Accident Reports, if applicable
11. Reportable Incidents, if applicable
12. Record of Painting, if applicable
13. Warranty of Craftsmanship
14. Redlines and As-Built drawings
15. Approved final inspections
16. Tenant configuration form
17. Light Monitoring Questionnaire (if required)
18. Ground Test Results
19. Concrete Test Results
20. Guarantee
21. Form of Waiver and Release of Lien Notarization is notoptional

ACCIDENT REPORT

Date: _____

Site Name: _____

Site Address: _____

Personnel at Site at Time of Accident:

Complete Account of Incident: (feel free to add diagrams and additional notes)

RECORD OF PAINTING FORM

Date: _____

Site Name: _____

Site Address: _____

Manufacturer of Paint: _____

Site Address: _____

Surface Condition: _____

Date Surface Prepared: _____

Date Paint Applied: _____

Type of Coat	Name of Product	Date Applied	Method of Application	No. of Coats	Temp. (°F)	Humidity	Dry Film Thickness
Spotting							
Primer							
Finish							

Painting Contractor: _____

Name (Printed): _____

Signature: _____

Title: _____

CHAPTER 14 – ABBREVIATIONS

A&E firm – Architectural and Engineer firm

ACI – American Concrete Institute

AWG – American Wire Gauge

BWG – Birmingham Wire Gauge

CRSI – Concrete Reinforcing Steel Institute

DC – Direct Current

DOT – Department of Transportation

EMT – Electrical Metal Tubing

FAA – Federal Aviation Administration

MSDS – Material Safety Data Sheets

NATE – National Association of Tower Erectors

NEC – National Electric Code (as adopted by the Village of Downers Grove)

NFPA – National Fire Protection Agency

OD – outside diameter

PPE – Personal Protection Equipment

psi – pounds per square inch

PVC – Polyvinyl chloride

CHAPTER 15 – GLOSSARY

Bonding:

Permanent connection of metal parts to form an electrically conductive path that will assure electrical continuity and have the capability to safely conduct any current likely to be imposed.

Building Permit:

Document(s) issued by the local building department allowing construction to place. Failure to secure a building permit can lead to punitive damages.

Building Ground Lead:

A buried, bare, tinned, solid copper cable or copper strap that runs out in straight line away from the point being grounded.

Buried Ground Ring:

A buried, bare, tinned, solid copper cable encircling the cell site building and/or tower foundation.

Cabinet:

An enclosure with frame and door designed for surface or flush mounting, housing electrical and/or electronic equipment.

Caisson:

Steel reinforced concrete foundation. Caissons are normally cylindrical in shape. The average caisson is thirty (30) feet in depth. The actual depth depends on the professional engineer's interpretation of the geotechnical investigation.

Cell Site:

A location where one or more cabinets and/or frames housing wireless cellular and personal communication system equipment is installed.

Cold Joint:

A cold joint is the place where new concrete is placed on top of existing concrete. It is imperative that the Contractor follows the exact requirements of the foundation design when installing a cold joint.

Contractor:

Licensed party/selected bidder responsible for performing construction activities allowed by building permit or equivalent.

Disconnect Box:

The disconnect box is between the power meter and the equipment. It is normally within twelve (12) inches of the power meter. It serves the same function as the fuse box in a residence. It has a main power breaker switch, which is normally located on the outside of the box.

This switch should be in the "off" position prior to working on the equipment if the meter is installed.

Driven Ground Rod:

A copper clad steel or stainless-steel rod, a minimum of 8'-0" long and 5/8" in diameter.

Electrical Permit:

Document(s) issued by the local building department allowing construction related to electrical work to take place. Commonly required for roof tops and co-locates as many building departments do not require a building permit for hanging antennas and cable on an existing structure and/or installing an equipment pad.

Exothermic Weld:

A method of making electrical connections of copper to copper or copper to steel using high temperature fusion. The molten copper flows over the connectors in a mold, melting and welding them together. CADWELD is a registered trade name of Erico Products.

Fastener:

An attachment to secure (support) a conductor to a structure.

Flash Over:

An unintended electrical arc between two pieces of apparatus that is caused by potential difference.

Foundation Design:

Signed and sealed document(s) issued by a licensed Professional Engineer (PE) depictingthe type of foundation to be installed. It will list the type of concrete, and the type and quantity of reinforcing steel to be installed. The design will show the dimensions (depth and diameter) of the foundation and specify the number and type of anchor bolts to be used.If a pad and pier are to be installed it will depict the method of bonding the concrete cold joint.

Frame:

A Structure consisting of parts joined together for supporting electrical and/or electronicequipment.

Frost Line:

The limit to which frost penetrates the earth, at a specific cell site location.

Geotechnical Investigation:

A geotechnical investigation, also known as a soils report, analyzes the type of soil on which a structure will be built. The depth and quantity of the hole or holes drilled, by whicha sample of the soil is removed for testing, depends on the type of structure to be erected. This report is signed and sealed by a registered Professional Geologist (PG). This is the information on which a PE designs the tower and foundation.

Ground:

A conducting connection between an equipment or electrical circuit and earth, or otherconductive body that is used in place of earth.

Ground Bus Bar:

A ground bus bar is piece of copper that is usually rectangular in shape and has holes drilledthrough it. It serves as a place for the ground lugs from the cable to fasten and as a place for the ground leads to the ground system to attach. Normally the ground lugs fastened with two nuts, bolts, and lock washers. Because the bus bar is copper and the bolts, nuts and washers are not, it is best to apply anti-ox, copper-shield, or equivalent between all dissimilar metals. This will enhance the flow of electricity should lightning strike.

Ground Grid:

A grounding electrode system consisting of interconnected bare, tinned copper cable or strap, buried in earth.

Ground Lug:

The ground lug is the ground lead between the cable and the bus bar. One end is attachedto the cable via the ground kit and one end is fastened to the bus bar. The ground lug should be installed in such a way as to produce a downward, smooth, and short path betweenthe cable and the bus bar. Excessive length should be removed, allow enough curve as toavoid right angles and a strain between its end connections.

Ground Mat:

Galvanized steel grating, 3'-0" wide by 1/4" thick, extending along the back and/or front of the equipment line-up, bonded to the grounding system at both ends.

Ground Ring:

The ground ring is a circle of conductive wire to which the ground leads (made of the sameconductive wire) are bonded by exothermic welds and in turn the ring is bonded by exothermic welds to the ground rods. A path by which the electricity can flow should therebe a lightning strike.

Ground Rod:

The ground rod is also known as the resistance electrode. The length of the ground rod isdependent on the results of the soil resistivity test. The ground rod, if possible, is driven into the ground water table. The purpose of the ground rod is to take the lightning as far away as possible from the tower and associated equipment.

Ground System:

The ground system includes all grounding components, ground rods, ground ring, groundleads, bus bars, etc.

Ground Window:

A dimensioned transition area (3'-0" radius) containing the Main Ground Bus (MGB), which is the interface between the building's integrated (multi-point) and isolated (single-point) grounding system.

Grounded:

Connected to earth or to some conducting body that is used in place of the earth.

Grounded Conductor:

A conductor that is intentionally grounded, such as neutral conductor in AC systems and return conductor in DC systems

Grounding Conductor:

A conductor used to connect equipment or a grounded electrical circuit to the grounding electrode system.

Grounding Electrode System:

The conductive objects that are intentionally bonded to furnish connection to earth (e.g., buried ring ground with ground rods, electrically continuous buried metallic water pipe, electrolytic ground electrode, etc.)

Halo Ground:

An interior ring ground, stranded copper cable with green insulation installed around the equipment approximately 8'-0" above the floor, or 6" below the ceiling.

High Exposure Area:

An area that has sixty (60) or more thunderstorm-days per year.

Host:

The party responsible for activities, including construction, on an existing structure.

Ice Bridge:

Metal grate supported by posts, under which the cable runs from the structure to the equipment. Its purpose is to stop falling objects and ice from damaging the cable.

Isolated Ground Plane:

A set of frames interconnected and referenced to ground at a single point only.

Customer Representative:

Party responsible to and for Customer.

Main Ground Bus (MGB):

A copper bus bar used to provide the electrical interface for connection of the isolated ground plane to the integrated ground system (often referred to as the ground window).

Non-Plenum:

Any substance, material, room, or area which is not fire resistant.

Panel Board:

A flat board consisting of buses and automatic over-current devices, with or without switches, for the control of electrical circuits. It is designed to be placed in a cabinet havingonly front access.

Plenum:

Normally refers to electrical rooms, wires, etc. that are fire resistant. When running telephone wire from the main telephone box to the equipment the telephone wire does nothave to be encased in conduit if the path along which it runs is *plenum*.

Primary Ground Bus (PGB):

A copper bus bar conveniently located that provides a physical means to bond various equipment and/or bus bars together.

Principal Ground Point:

The place where all the main grounding conductors connect to the grounding electrodesystem.

Raceway:

An enclosed channel designed for holding wires, cables, or bus bars with other additionalfunctions as permitted in the National Electric Code (NEC ®).

Soil Resistivity Test:

Soil resistivity is measured in ohms-centimeters. The resistivity measurements are usefulfor finding the best location, depth, number of ground rods. The soil resistivity test is generally performed at the same time as the geotechnical investigation, as it can be performed by most geotechnical firms.

Solidly Grounded:

A method of grounding that uses a grounding conductor in which no additional impedanceis introduced in series with the grounding path.

Sphere of Influence:

The effective resistance area of a grounding electrode, or the area which is influenced bythe radiated current of a grounding electrode.

Step Potential:

The potential difference between two points on the earth surface separated by a shortdistance (one pace).

Structural Enhancement

The determination by a PE who has performed a structural analysis of an existing structure,that additional members are required to support the proposed loading. Signed andsealed document(s) depict the addition of new members to an existing structure.

Supplementary Conductor:

A conductor of low impedance that extends horizontally along the equipment line-up for bonding all frames and miscellaneous metallic objects.

Surge Protective Device (Arrester/Suppressor):

A protective device used to limit surge voltages by discharging or bypassing any unwantedsurge current that may enter a building or equipment.

Sweep Tests:

Test that determines whether or not the installed antenna and cable system function.

Telco:

Telco is short for telephone wire. Normally, in PCS applications telco refers to T1 lines asopposed to POTS lines. [POTS = Plain Old Telephone Service] Telco is also used to referto the service provided by the telephone utility.

Telco Box:

The telco box is the term that describes the place where the junction between where the telephone utility line terminates, and the site-specific telephone line begins. [Similar in function to a power meter and disconnect box.]

Thunder-storm day:

A day which thunder (crashing sound produced by rapidly expanding air along the path oflightning) is heard at a specific observation point. Such observations confirm the presenceof lightning strike, but do not provide information on the number of strikes to earth.

Touch Potential:

The potential difference between hands when they come in contact with electrically energized objects.

Tower Design

Signed and sealed document(s) that are produced by a registered PE. The tower design depicts the tower height, the designed loading, the heights for the designed loading, and the wind speed and ice loading at which the tower is designed. The standard(s) to which the tower is designed should also be on the document(s).

Tower Rebuild

Site where an existing tower will be removed, and a new tower built to replace it. The mostcommon reason for a tower rebuild is zoning restrictions that do not permit a new tower close to an existing one.

Trapeze

The name given to describe the structure that supports the cable as it runs from the structureto the equipment. The trapeze is attached to and protected by the ice bridge.

Utility Mounting Stand

The support structure on which the power meter, the disconnect box (breaker box) and thetelco box are attached. This is the place where the utility companies stop their conduit andwhere the site utility conduits begin. It is also known as the "d-mark", as in demarcation of the location where the utilities will end. (Demarcation is from the perspective of the utility companies.)

Weather-Head

Metal component that attaches to exterior end of conduit secured in an exterior wall. Theconduit, usually EMT, is secured in the exterior wall. The conduit makes a path for the wire to travel. [The wire may be either electrical or telco] The weather head deters the rainwater and/or ice from penetrating the opening.

Zone of protection:

The space adjacent to a lightning protection system that is mainly protected from directlightning strikes.

DOWNERS GROVE
TOWER SWAP PROJECT

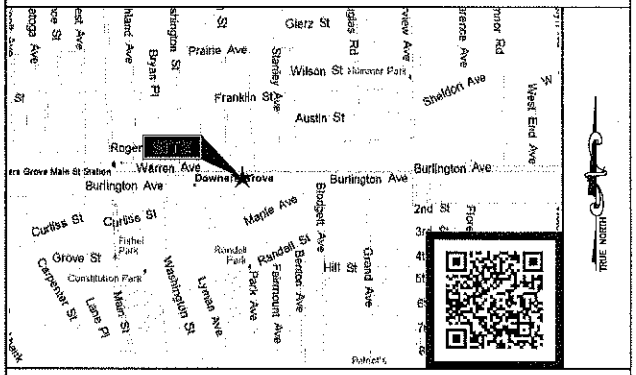
SITE INFORMATION

SITE ADDRESS (E911):	801 BURLINGTON AVENUE DOWNERS GROVE, IL 60515
LATITUDE (NAD 83): LONGITUDE (NAD 83):	41.795331° -88.002931°
GROUND ELEVATION (FT):	719'
JURISDICTION:	VILLAGE OF DOWNERS GROVE
PROJECT CONTACT:	MIDAMERICA TOWERS, INC. jaypanozzo@midamericatowers.com (815) 693-1565
PARCEL/MAP NUMBER:	09-08-211-001
PARCEL OWNER:	VILLAGE OF DOWNERS GROVE 801 BURLINGTON AVENUE DOWNERS GROVE, IL 60515 TEL: (630) 434-5500 | FAX: (630) 434-5571
TOWER OWNER:	VILLAGE OF DOWNERS GROVE 801 BURLINGTON AVENUE DOWNERS GROVE, IL 60515 (815) 693-1565 TEL: (630) 434-5500 | FAX: (630) 434-5571
STRUCTURE TYPE:	MONOPOLE
STRUCTURE HEIGHT (FT):	190'
POWER SUPPLIER:	COMED
FIBER/TELCO SUPPLIER:	COMCAST AND AT&T

PROJECT TEAM

TOWER OWNER / APPLICANT:	VILLAGE OF DOWNERS GROVE 801 BURLINGTON AVENUE DOWNERS GROVE, IL 60515 (815) 693-1565 TEL: (630) 434-5500 | FAX: (630) 434-5571
A+E FIRM:	FULLERTON ENGINEERING CONSULTANTS, LLC SARGIZ MIRZAEI (smirzaei@fullertonengineering.com) 1100 E. WOODFIELD ROAD, SUITE 500 SCHAUMBURG, IL 60173 (847) 908-8497

VICINITY MAP



DIRECTIONS

FROM NEAREST INTERNATIONAL AIRPORT:

DEPART CHICAGO O'HARE INTERNATIONAL AIRPORT. TURN RIGHT ONTO RAMP. TURN RIGHT (SOUTH) ONTO BESSIE COLEMAN DR. TAKE RAMP (RIGHT) ONTO I-190. AT EXIT 1D, TAKE RAMP (RIGHT) ONTO I-294. TAKE RAMP (RIGHT) ONTO I-88. TURN RIGHT ONTO RAMP. KEEP LEFT TO STAY ON RAMP. ROAD NAME CHANGES TO BUTTERFIELD RD. TURN LEFT (SOUTH) ONTO CR-9. ROAD NAME CHANGES TO MAIN ST. TURN LEFT (EAST) ONTO WARREN AVE. TURN RIGHT (SOUTH) ONTO LOCAL ROAD(S). ARRIVE AT SITE.

CODE COMPLIANCE

ALL WORK AND MATERIALS SHALL BE PERFORMED AND INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THE LATEST EDITIONS OF THE FOLLOWING CODES.

- 2021 INTERNATIONAL BUILDING CODE
- 2020 NATIONAL ELECTRICAL CODE

DRAWING INDEX

DRAWING SCALE

THESE DRAWINGS ARE SCALED TO FULL SIZE AT 22"X34" AND HALF SIZE AT 11"X17". CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE DESIGNER / ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR MATERIAL ORDERS OR BE RESPONSIBLE FOR THE SAME. CONTRACTOR SHALL USE BEST MANAGEMENT PRACTICE TO PREVENT STORM WATER POLLUTION DURING CONSTRUCTION.

SCOPE OF WORK

THIS PROJECT CONSISTS OF:

- PROPOSED MONOPOLE AND FOUNDATION
- PROPOSED ACCESS/UTILITY EASEMENTS
- PROPOSED GROUND EQUIPMENT
- PROPOSED ANTENNAS
- PROPOSED ICE BRIDGE
- PROPOSED GENERATOR
- PROPOSED UTILITY H-FRAME
- PROPOSED PVC FENCE

TOWER OWNER / APPLICANT

Village of DOWNERS GROVE

ENGINEER

FULLERTON

1100 E. WOODFIELD ROAD, SUITE 500
SCHAUMBURG, ILLINOIS 60173
TEL: 847-908-8400
DESIGN FIRM NO. 184.008202-0006
www.FullertonEngineering.com

SITE INFORMATION

DOWNERS GROVE

801 BURLINGTON AVENUE
DOWNERS GROVE, IL 60515

DESIGN RECORD

REVISION

REV	DATE	DESCRIPTION	BY
A	3/31/22	PRELIM. ZONING	JW

LAND OWNER APPROVAL

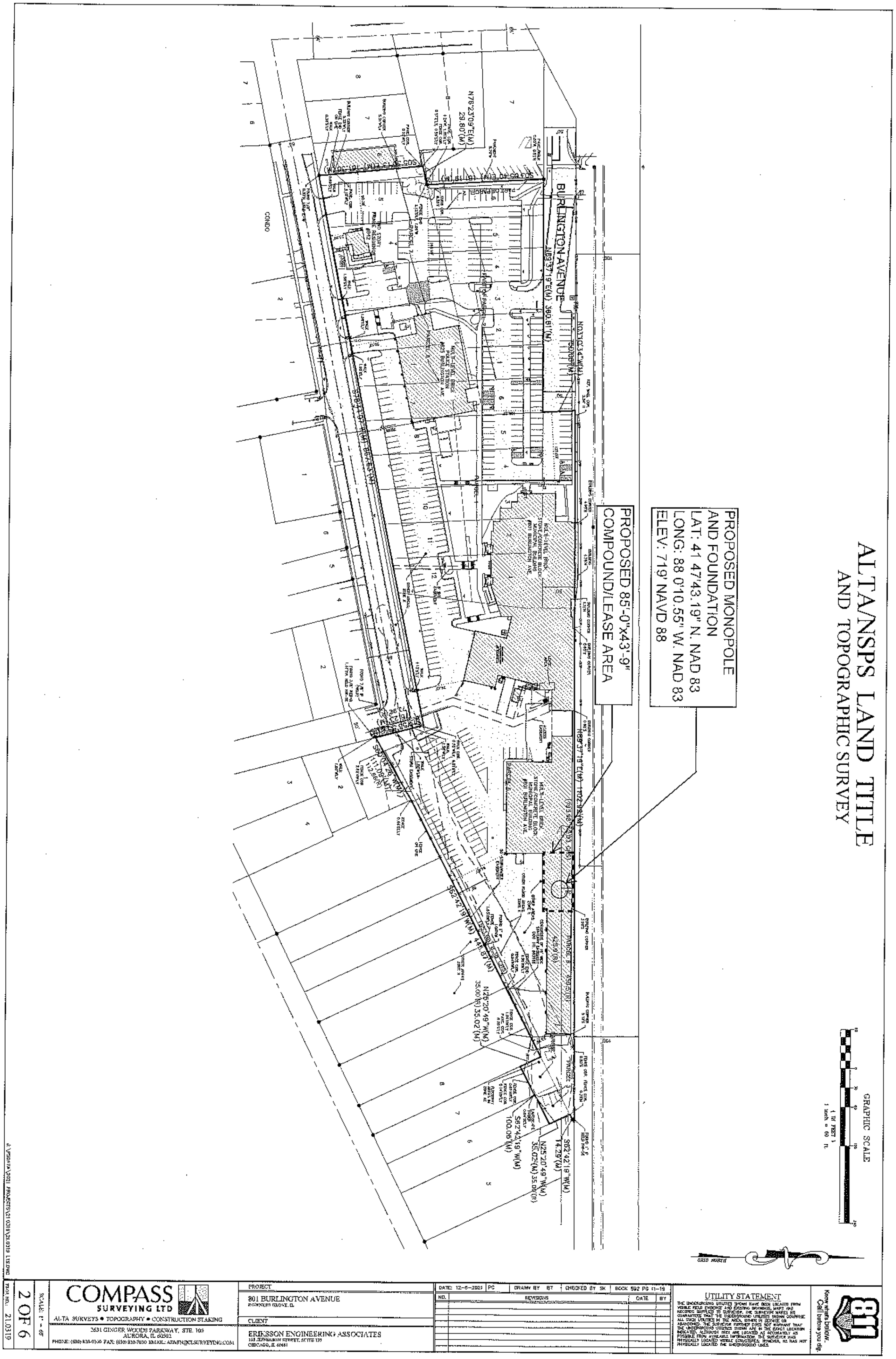
SHEET NAME

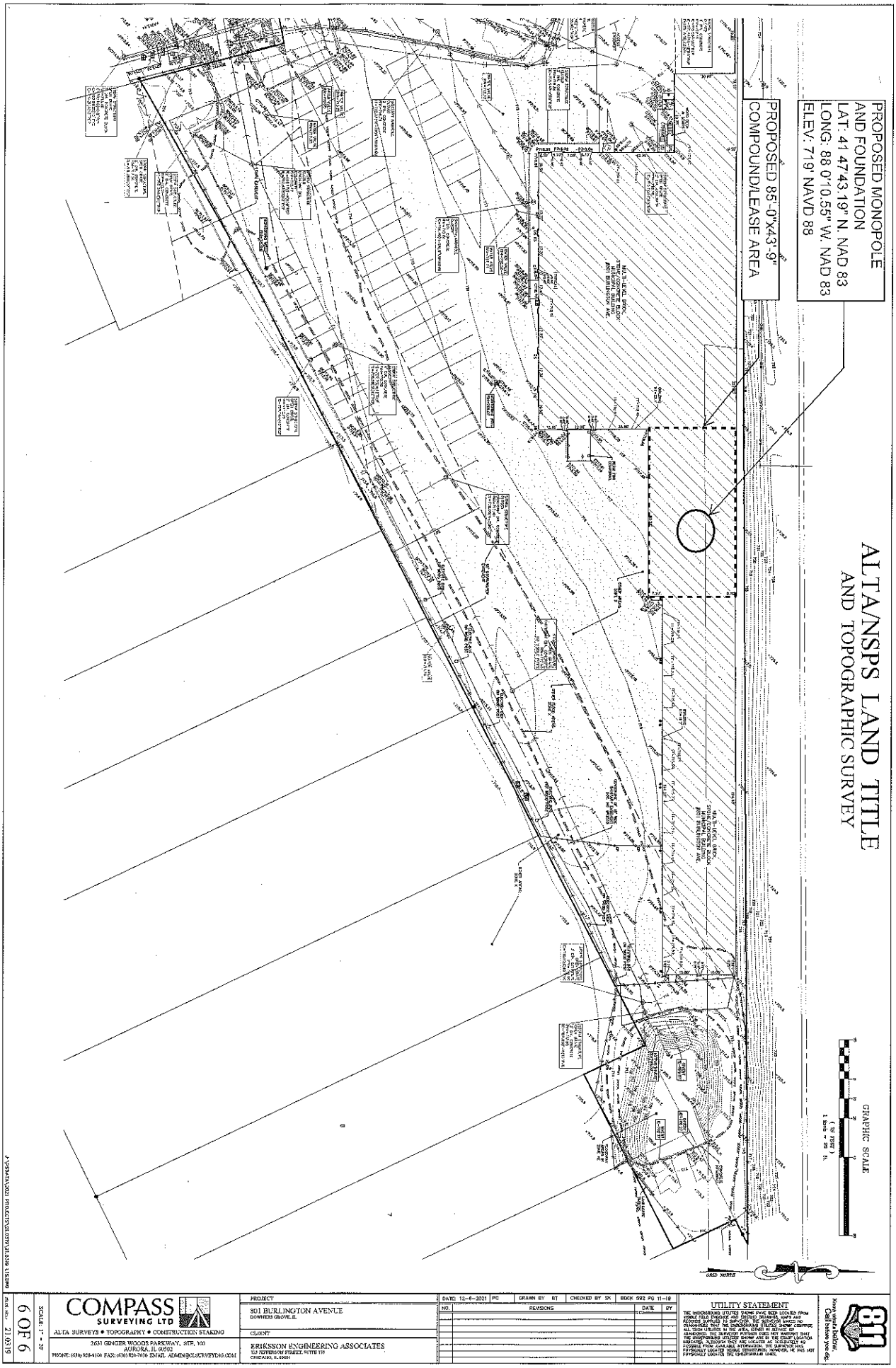
TITLE SHEET

SHEET NUMBER

T-1

PROJECT# 2022.0008.0001


ALTA/NSPS LAND TITLE
AND TOPOGRAPHIC SURVEY
GRAPHIC SCALE
(IN FEET)
1 inch = 60 ft.
PROPOSED MONOPOLE
AND FOUNDATION
LAT: 41 47'43.19" N. NAD 83
LONG: 88 0'10.55" W. NAD 83
ELEV: 719' NAVD 88
PROPOSED 85'-0"x43'-9"
COMPOUND/LEASE AREA
BURLINGTON AVENUE
N89°37'19"E(M) 360.81'(M)
N89°37'19"E(M) 1102.92'(M)
N03°10'34"W(M)
N76°23'09"E(M)
29.80'(M)
S62°42'19"W(M)
14.29'(M)
N25°20'49"W(M)
35.02'(M) 35.00'(R)
S62°42'19"W(M)
100.06'(M)
N26°20'49"W(M)
35.00'(R) 35.02'(M)
S62°42'19"W(M) 448.87'(M)
PARCEL 1
PARCEL 2
PARCEL 3
PARCEL 4
PARCEL 6
PARCEL 7
PARCEL 8
MULTI-LEVEL BRICK STONE/CONCRETE BLOCK MUNICIPAL BUILDING #801 BURLINGTON AVE.
MULTI-LEVEL BRICK POLICE STATION #825 BURLINGTON AVE.
TWO STORY FRAME RESIDENCE #842
CONDO
UTILITY STATEMENT
Know what's below. Call before you dig.
DATE: 12-6-2021
DRAWN BY: BT
CHECKED BY: SK
BOOK 592 PG 11-19
REVISIONS
PROJECT
801 BURLINGTON AVENUE
DOWNERS GROVE, IL
CLIENT
ERIKSSON ENGINEERING ASSOCIATES
COMPASS SURVEYING LTD
ALTA SURVEYS • TOPOGRAPHY • CONSTRUCTION STAKING
2631 GINGER WOODS PARKWAY, STE. 100
AURORA, IL 60502
SCALE: 1" = 60'
2 OF 6
FILE NO. 21.0319



COMPASS SURVEYING LTD
ALTA SURVEYS • TOPOGRAPHY • CONSTRUCTION STAKING
2631 GINGER WOODS PARKWAY, STE. 100
AURORA, IL 60502
PHONE: (630) 820-9100 FAX: (630) 820-7030 EMAIL: ADMIN@CSLSURVEYING.COM

PROJECT
801 BURLINGTON AVENUE
DOWNERS GROVE, IL

CLIENT
ERIKSSON ENGINEERING ASSOCIATES
135 JEFFERSON STREET, SUITE 110
CHICAGO, IL 60661

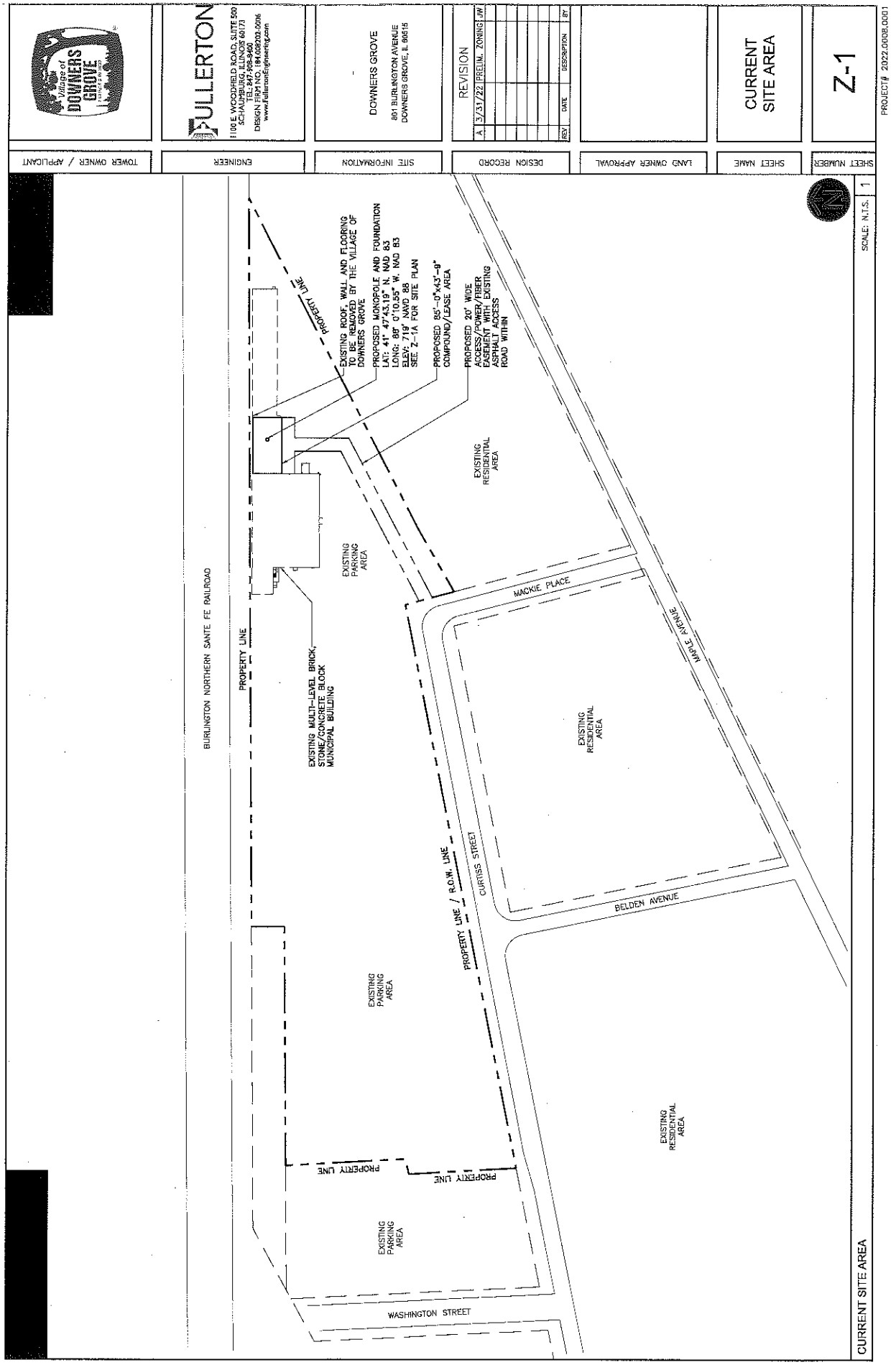
DATE 12-6-2021 | PC | DRAWN BY BT | CHECKED BY SK | BOOK 692 PG 11-18

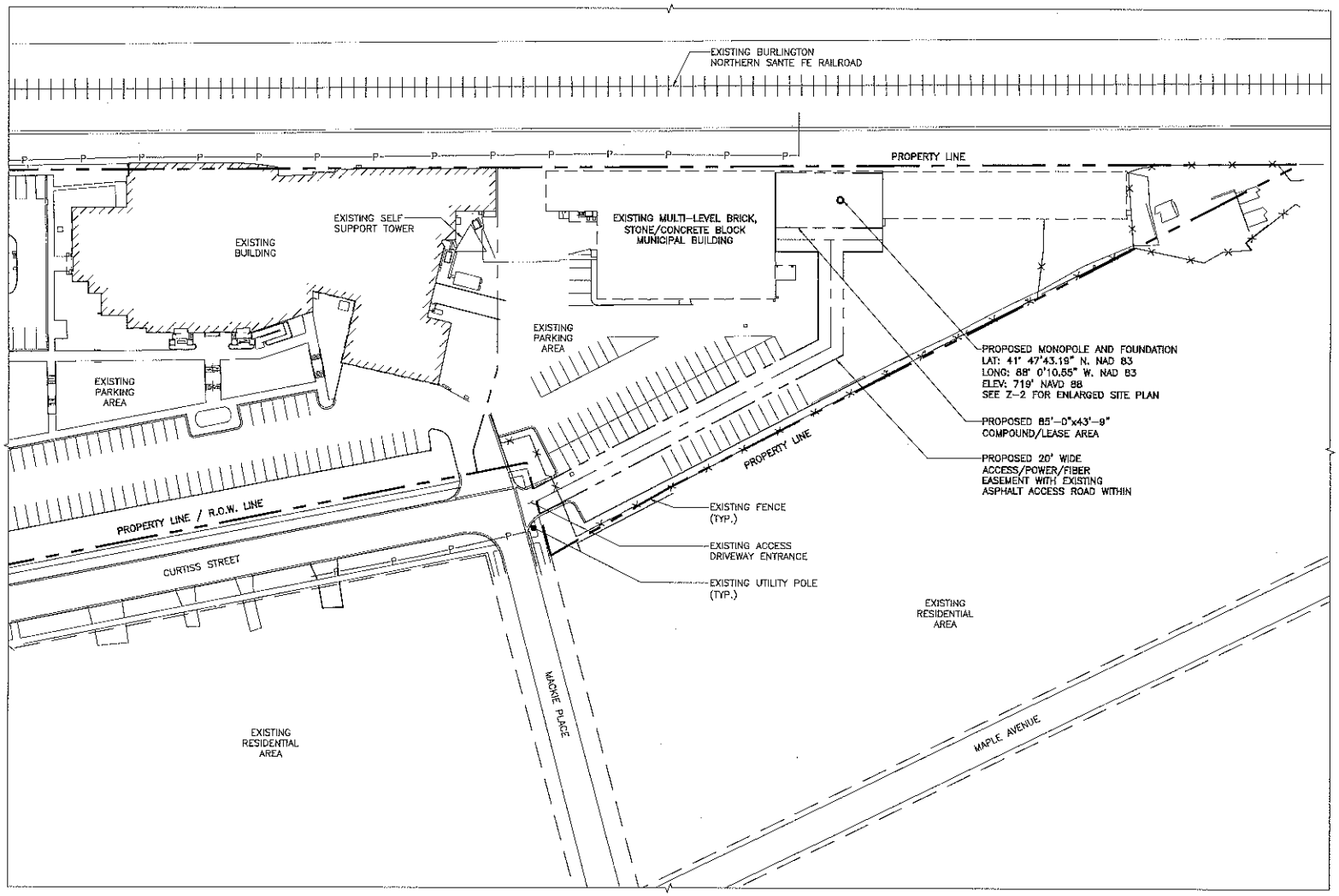
NO.	REVISIONS	DATE	BY

UTILITY STATEMENT
THE UNDERSIGNED UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING UTILITY MAPS AND RECORDS SUPPLIED TO SURVEYOR. THE SURVEYOR MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER BY DEFINED OR ABANDONED. THE SURVEYOR FURTHER DOES NOT GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AND SURVEYING DATA OBTAINED. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND LINES.

Know what's below. Call before you dig.

SCALE: 1" = 30'
6 OF 6
21-0319


TOWER OWNER / APPLICANT
Village of DOWNERS GROVE
ENGINEER
FULLERTON
1100 E. WOODFIELD ROAD, SUITE 500
SCHAUMBURG, ILLINOIS 60173
TEL: 847.995-9400
DESIGN FIRM NO: 184.006203.2006
www.fullertonengineering.com
SITE INFORMATION
DOWNERS GROVE
801 BURLINGTON AVENUE
DOWNERS GROVE, IL 60515
DESIGN RECORD
REVISION
REV DATE DESCRIPTION BY
A 3/31/22 PRELIM. ZONING SW
LAND OWNER APPROVAL
SHEET NAME
CURRENT SITE AREA
SHEET NUMBER
Z-1
PROJECT# 2022.0008.0001
PROPERTY LINE
EXISTING ROOF, WALL AND FLOORING TO BE REMOVED BY THE VILLAGE OF DOWNERS GROVE
PROPOSED MONOPOLE AND FOUNDATION LAT: 41° 47'43.19" N, NAD 83 LONG: 88° 0'10.55" W, NAD 83 ELEV: 719' NAVD 88 SEE Z-1A FOR SITE PLAN
PROPOSED 85'-0"x43'-9" COMPOUND/LEASE AREA
PROPOSED 20' WIDE ACCESS/POWER/FIBER EASEMENT WITH EXISTING ASPHALT ACCESS ROAD WITHIN
EXISTING RESIDENTIAL AREA
EXISTING PARKING AREA
MACKIE PLACE
MAPLE AVENUE
EXISTING MULTI-LEVEL BRICK, STONE/CONCRETE BLOCK MUNICIPAL BUILDING
BURLINGTON NORTHERN SANTE FE RAILROAD
PROPERTY LINE / R.O.W. LINE
CURTISS STREET
BELDEN AVENUE
WASHINGTON STREET
SCALE: N.T.S. 1
CURRENT SITE AREA



FUTURE DEVELOPED SITE AREA

SCALE: 1" = 80'-0" | 1

TOWER OWNER / APPLICANT

Village of DOWNERS GROVE

ENGINEER

FULLERTON

1100 E. WOODFIELD ROAD, SUITE 500
SCHAUMBURG, ILLINOIS 60173
TEL: 847-908-8400
DESIGN FIRM NO. 184.008202-0006
www.FullertonEngineering.com

SITE INFORMATION

DOWNERS GROVE

801 BURLINGTON AVENUE
DOWNERS GROVE, IL 60515

DESIGN RECORD

REVISION

REV	DATE	DESCRIPTION	BY
A	3/31/22	PRELIM. ZONING	JW

LAND OWNER APPROVAL

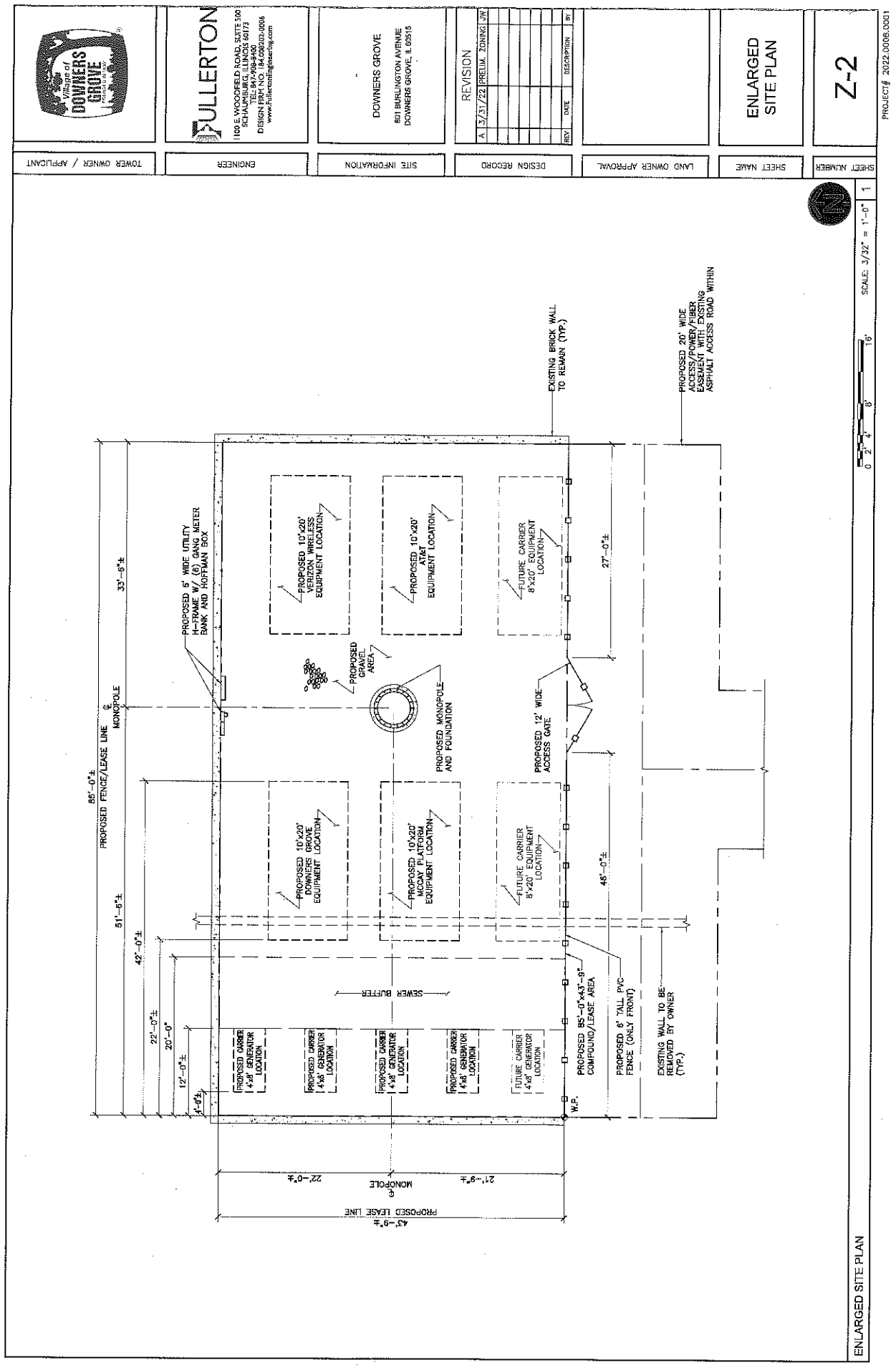
SHEET NAME

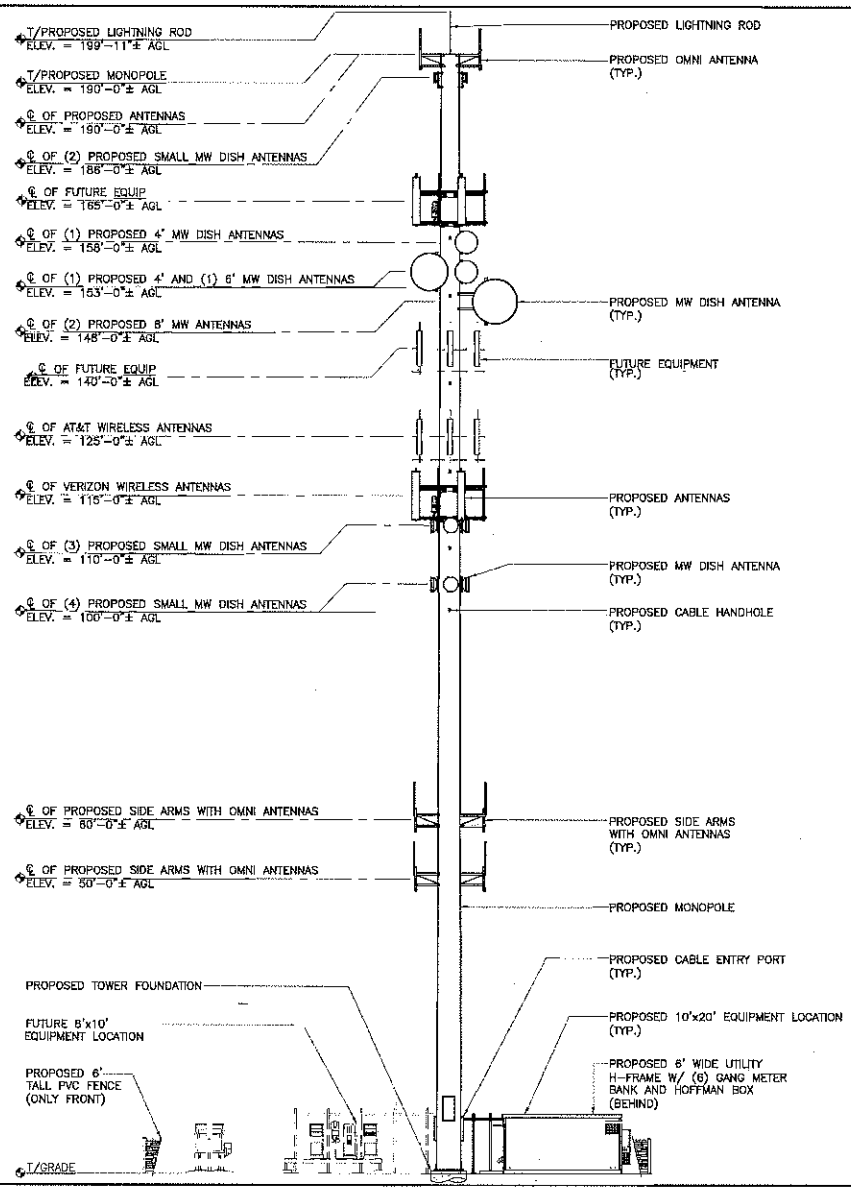
FUTURE DEVELOPED SITE AREA

SHEET NUMBER

Z-1A

PROJECT# 2022.0008.0001


TOWER OWNER / APPLICANT
Village of DOWNERS GROVE
ENGINEER
FULLERTON
100 E. WOODFIELD ROAD, SUITE 500
SCHAUMBURG, ILLINOIS 60173
TEL: 847-908-8450
DESIGN FIRM NO. 184.000202-0006
www.fullertonengineering.com
SITE INFORMATION
DOWNERS GROVE
801 BURLINGTON AVENUE
DOWNERS GROVE, IL 60515
DESIGN RECORD
REVISION
REV DATE DESCRIPTION BY
A 3/31/22 PRELIM. ZONING JW
LAND OWNER APPROVAL
SHEET NAME
ENLARGED SITE PLAN
SHEET NUMBER
Z-2
PROJECT# 2022.0006.0001
SCALE: 3/32" = 1'-0"
0 2' 4' 8' 16'
EXISTING BRICK WALL TO REMAIN (TYP.)
PROPOSED 20' WIDE ACCESS/POWER/FIBER EASEMENT WITH EXISTING ASPHALT ACCESS ROAD WITHIN
PROPOSED 6' WIDE H-FRAME W/ (E) GANG METER BANK AND HOFFMAN BOX
PROPOSED 10'x20' VERIZON WIRELESS EQUIPMENT LOCATION
PROPOSED 10'x20' AT&T EQUIPMENT LOCATION
FUTURE CARRIER 8'x20' EQUIPMENT LOCATION
27'-0"±
PROPOSED GRAVEL AREA
PROPOSED MONOPOLE AND FOUNDATION
PROPOSED 12' WIDE ACCESS GATE
85'-0"±
PROPOSED FENCE/LEASE LINE
MONOPOLE
℄
33'-6"±
51'-6"±
40'-0"±
22'-0"±
20'-0"
12'-0"±
4'-0"±
PROPOSED 10'x20' DOWNSIZE GROVE EQUIPMENT LOCATION
PROPOSED 10'x20' MCOAY PLATFORM EQUIPMENT LOCATION
FUTURE CARRIER 8'x20' EQUIPMENT LOCATION
46'-0"±
SEWER BUFFER
PROPOSED CARRIER 4'x8' GENERATOR LOCATION
PROPOSED CARRIER 4'x8' GENERATOR LOCATION
PROPOSED CARRIER 4'x8' GENERATOR LOCATION
PROPOSED CARRIER 4'x8' GENERATOR LOCATION
FUTURE CARRIER 4'x8' GENERATOR LOCATION
W.P.
PROPOSED 85'-0"x43'-9" COMPOUND/LEASE AREA
PROPOSED 6' TALL PVC FENCE (ONLY FRONT)
EXISTING WALL TO BE REMOVED BY OWNER (TYP.)
PROPOSED LEASE LINE
43'-9"±
MONOPOLE
℄
22'-0"±
21'-9"±
ENLARGED SITE PLAN



ELEVATION

0 10 20 30 SCALE: 1" = 20'-0" 1

TOWER OWNER / APPLICANT

Village of DOWNERS GROVE

ENGINEER

FULLERTON

1100 E. WOODFIELD ROAD, SUITE 500
SCHAUMBURG, ILLINOIS 60173
TEL: 847-908-8400
DESIGN FIRM NO. 184.008202-0006
www.FullertonEngineering.com

SITE INFORMATION

DOWNERS GROVE

801 BURLINGTON AVENUE
DOWNERS GROVE, IL 60515

DESIGN RECORD

REVISION

REV	DATE	DESCRIPTION	BY
A	3/31/22	PRELIM. ZONING	JW

LAND OWNER APPROVAL

SHEET NAME

ELEVATION

SHEET NUMBER

Z-3

PROJECT# 2022.0008.0001

Shelter Specifications
based upon Fiberbond quote Q21065554CL
911 Shelter
801 Burlington Ave, Downers Grove, IL 60515
4/13/2022

20.00	Feet Long (Outside Walls)	20' - 0"
	Feet Long (Inside Walls)	18' - 10"
10.00	Feet Wide (Outside Walls)	10' - 0"
	Feet Wide (Inside Walls)	8' - 10"
9.00	Feet High (Cast Wall Height)	9' - 0"
	Feet High (Interior Ceiling Height)	8' - 9"
QTY		
1	Piece #1 Estimated Shipping Dimensions	
20.50	Length (Feet)	
10.50	Width (Feet)	
10.54	Height (Feet)	
42,900	Empty Weight (Lbs)	
5,000	Equipment Weight (Lbs)	
47,900	Total Weight Piece #1 (Lbs)	
	BUILDING DESIGN CRITERIA	
	Area Classification - General Purpose Non-Hazardous	
105	Roof Load (inclusive of Snow Load) - International Building Code (Current State-Adopted Revision) in psf	
C	Terrain Category, "C" used as a minimum	
1.00	Roof Load Importance Factor, "1" used as a minimum	
150	Wind Load - International Building Code (Current State-Adopted Revision) in mph	
C	Exposure Category	
1.00	Wind Load Importance Factor, "1" used as a minimum	
0	FT - Height of piers building will be installed on ("0" will be shown if building is installed on the ground)	
D	Seismic Design Category, "D" used as a minimum	
1.25	Seismic Importance Factor	
III	Risk Category	
300	Floor Loading - DL + LL	
30	Lighting Level @ 30" above floor in Foot Candles	
Level 8	UL752 Ballistic Rated Walls (Concrete only)	
1	Hour Fire Rating (Concrete walls only)	
1	Equipment Center Quantity	
1	Set of Certified Structural Design Calculations performed and stamped by a Professional Engineer in the state of Illinois.	
	HVAC DESIGN CRITERIA	
None	Redundancy	
	Ambient Temperature Range	
10	°F Minimum	
95	°F Maximum	
	Interior Temperature Range	
60	°F Minimum	

80	°F Maximum
17.6	Ceiling Insulation R-Value
16.6	Walls Insulation R-Value
3.7	Floor Insulation R-Value
6.54	Door Insulation R-Value
0	Number of persons
0	Ventilation air in CFM
	Note - The following states require an Economizer on HVAC units: CO, ID, MO, MT, NV, TX, TN, UT, WA.
	BUILDING CONSTRUCTION
	Unit shall be a custom designed NEMA 3R structure with exterior walls and roof fabricated from materials specified below to house and protect the integrated electrical equipment contained inside from the exterior ambient conditions. NEMA 3R Enclosures are intended for outdoor use primarily to provide a degree of protection against falling rain, sleet and snow, and undamaged by the formation of ice on the enclosure. Unit shall be designed and constructed with an integral structural base constructed of materials specified below, designed for the applicable floor loading, and allowing the unit to be lifted, transported, and set on the support foundation with the interior equipment installed. Unit to be constructed of the following materials:
1	Concrete Floor
1	Exterior Wall Panels of Concrete
1	Roof Panels of Concrete
	INSULATION - Shown in Finish section
	DOOR PACKAGES
1	3070 EXTERIOR DOOR
1	• Door Assembly - 3070, 16GA Galv, 90-Min Fire Rating, 6.54 R-Value
1	• 14 GA Door Frame Assembly 3070
1	• Paint
1	• Door Closer
3	• Stainless Steel Hinges
1	• Weatherstrip, 3070 3-Pc Magnet
1	• Drip Strip
1	• Door Sweep
1	• Holder
1	• Lockguard
1	• Threshold
1	• Door Stop
1	• Strike Plate
	DOOR HARDWARE
1	Deadbolt Lock, Best
2	• Handle, Door Pull (5-1/2")
	FINISH
	Exterior Finish - Exposed Aggregate
	Interior Finish - NuPoly
	Floor Finish - Tile
1	Interior Wall Finish - Concrete Building

15	• 3/8 Nupoly Interior Finish
13	• Molding, 9' V-193 White 1-Pc
17	• Sheetrock, 1/2" X 4' X 8'
17	• 1/2" Dow Foam Insulation
17	• Foam, Thermasheath 1 1/2" x 48" x 8' 9.5" (USA)
1	Exterior Wall Finish - Concrete Building
1	• Exposed Aggregate Exterior Finish
2.64	• Sealer, OKON Fibrebond Stain #249273
12.68	• Caulk, PRUROFLEX MS-30 Adhesive/Sealant 20oz sausage- Prarie Torque Tan
1.62	• Paint, Thorolastic Mesa Tan
0.09	• Grout, 5 Star V.O. Structural
1	Ceiling Finish - Concrete Building
5	• 3/8 Nupoly Interior Finish
4	• Molding, 12' V-193 White 1-Pc
6	• Molding 2 1/4"X12' Cove White Vinyl Nudo
7	• Sheetrock, 1/2" X 4' X 8'
7	• 1/2" Dow Foam Insulation
7	• Foam, Thermasheath 1 1/2" x 48" x 8' 9.5" (USA)
1	Aldo Roofing System - Concrete Building
0.26	• Roofing, AldoFabric 36" x 300' Aldo Florida Product Approval FL17054.1, Miami Dade NOA 14-0203.07
4.27	• Roofing, Aldocoat 374 Base Coat Gray Custom Viscosity Florida Product Approval Number FL17054.1, Miami Dade NOA 14-0203.07
0.39	• Roofing, Aldocoat 400 Top Coat Custom Viscosity Florida Product Approval Number FL17054.1, Miami Dade NOA 14-0203.07
1	1/8" Tile over Concrete - Concrete Building
223	• Tile, 1/8" VCT Mannington Sandrift
3	• Adhesive, Franklin 920 Tile
6	• Molding, 2 1/4" x 12'-0" White Casing
	ELECTRICAL UTILITIES
	Conduit & Wire
	Conduit Interior - Exposed EMT Conduit (compression fittings) as required by NEC.
	- 1/2"Ø Minimum ANSI C80.3
	Conduit Exterior - Exposed Rigid Galvanized Conduit as required by NEC.
	- 3/4"Ø Minimum ANSI C80.1
	Power Wiring - Type THHN / THWN #12AWG Stranded Minimum
	- Temperature Rating 600V 90°C dry and 90°C wet
	- Insulation - Flame Resistant PVC
	- Meets UL "VW-1" flame test requirements
	- HVAC Controls - #18AWG Thermostat Cable
	Interior Lighting Fixtures
6	Fixture, 4' LED, CSA Compliant 4WNLED-LD4-40SL-F-UNV-L840-CD1-U
6	• Fixture, 4' LED, CSA Compliant 4WNLED-LD4-40SL-F-UNV-L840-CD1-U
	• Power Circuit - 120VAC, 1Ø, 20A
1	Light Switch - Commercial Specification Grade • 20AMP, 120V, Toggle Single-Pole AC Quiet Switch, Back-Wired
	• Power Circuit - 120VAC, 1Ø, 20A

	Emergency Lighting Fixtures
1	Emergency Light / Exit Sign Combination • 120/277 VAC Selectable Input • (2) 1.8W LED Lamps • Nickel Cadmium Battery • 90 Minutes of Emergency Power • White Finish
	• Power Circuit - 120VAC, 1Ø, 20A
	Exterior Lighting
1	Fixture, Keystone Exterior LED 20 Watt Wallpack with Photocell, Bronze, 120-277V, #KT-WPLED20-S1-8CSB-VDIM
	• Power Circuit - 120VAC, 1Ø, 20A
	Receptacles
6	Interior Receptacle (Duplex) • 20AMP, 125V, Specification Grade
	• Power Circuit - 120VAC, 1Ø, 20A
1	Exterior Receptacle • 20AMP, 125V GFCI, Specification Grade
	• Power Circuit - 120VAC, 1Ø, 20A
	EATON ELECTRICAL UTILITIES INSTALLED
	EATON LOADCENTERS
	Main Breaker Loadcenters(s)
1	Loadcenter, Cutler Hammer Plug Neutral, 200A, 1PH, Main Breaker, 42 Space #CHP42B200X7
1	• Cover, Cutler Hammer, Surface Mount, Plug Neutral for 150A or Greater MB LC, X7 #CHPX7BS
1	• Loadcenter Cutler Hammer Ground Bar
1	• Breaker Snap In Cutler Hammer 1 Pole 15A CH115
12	• Breaker Snap In Cutler Hammer 1 Pole 20A CH120
2	• Breaker Snap In Cutler Hammer 2 Pole 20A CH220
2	• Breaker Snap In Cutler Hammer 2 Pole 50A CH250
2	• Breaker Snap In Cutler Hammer 2 Pole 60A CH260
10 FT	• Power Circuit - 240VAC, 1Ø, 200A from Source to AC Panel
	GROUNDING
1	**Medium Halo Grounding System - Ring With Drops and Equip. Ground**
	GROUND BAR(S)
1	1/4" X 4" X 20" GROUND BAR
1	GND BAR(1/4"x4"x20")
2 EA	• Glastic Insulator
2 EA	• Hat Bracket
1	1/4" X 4" X 20" TINNED GROUND BAR
1	TINNED GND BAR(1/4"x4"x20")
2 EA	• Glastic Insulator
2 EA	• Hat Bracket
	SURGE ARRESTOR(S)
1	Surge Arrestor Transtector MOV Type 2B (Type 2) 160kA 120/208 3PH APEX IMAX 1101-809-MM-1
	CONTROL CIRCUITS IN CABLE TRAY - None provided at this time
	POWER CIRCUITS (600V) - None provided at this time
	CABLE TRAY / WIREWAY COMPONENTS

4	12" FIBREBOND STANDARD CABLE TRAY
4	• Cable Tray, 12" Z/C "FBR" 10012ZY
3	• Clamp Kit, Straight Cable Tray
8	• Clamp Kit, Corner Cable Tray
4	• Cable Tray Mounting Angle 4"
24	• Channel, Kindorf 1 5/8"
24	• Bracket, C/T 1 1/4" Z/C Hanger
24	• Allthread, 5/8" Plated • Trapeze Strut Supports Anchored to Ceiling - As Required
8	• Cap, 1 1/2" Blk Pvc Cable Tray
	BARD HVAC UNITS
2	Bard Mfg 3 Ton Wall-Mount A/C Unit w/ 5kW Heat and Control Module "J" - 11.0 EER, 240/200V-1PH, 60Hz • Model# W36AB-A05BPXXXJ • 38.2"W x 17.125"D x 70.563"H • High & Low Pressure Switches • R-410A Refrigerant • Compressor anti-cycle relay • Aluminum Finned Copper Coils • Low ambient controls • Pleated Filter (MERV 8) • Alarm relay
	Accessories included with above HVAC are as follows:
2	• Supply Grill, 28" X 8"
2	• Return Grill, 28" X 14"
2	• 41" Drip Strip (2-3 Ton)
6	• Caulk, Silicone 10.1 Oz. Clear
2	• Drain Hose Assembly
2	• Power Circuit for HVAC Unit - 240VAC, 1Ø, 35A
2	• AC Service Duplex Exterior Receptacle - 20AMP, 125V GFCI, Specification Grade
	•Power Circuit for Service Receptacle - 120VAC, 1Ø, 20A
	HVAC ACCESSORIES
1	Bard - Lead Lag Controller #MC4002A
	• (2) Cooling control stages for each A/C unit • (1) Heating control stage for each unit • Fire/Smoke shutdown • Refrigerant alarm from A/C #1, input • Refrigerant alarm from A/C #2, input • Power loss alarm A/C #1, Form C (SPDT) output • Power loss alarm A/C #2, Form C (SPDT) output • Smoke/Fire alarm, Form C (SPDT) output • Low temperature alarm, Form C (SPDT) output • First stage (H1) high temperature alarm, Form C (SPDT) output • Refrigerant system lockout A/C #1, Form C (SPDT) output • Refrigerant system lockout A/C #2, Form C (SPDT) output
	FIRE/SAFETY - None provided at this time
	FIBER ENTRY
	WAVEGUIDE
1	Cable Entry Panel 4" 12 Port with PVC Caps (USA) Harger 53000TWP
	ALARMS
1	Magnetic Door Alarm Contacts • Ademco# 7939-2GY
1	• Signal Circuit
1	Power Fail, Single Phase - Relay, 240V Dpdt #3X740
1	• Socket, 8 Pin Octal #5X852
1	• Fuseholder, 20A Bussman

1	• Fuse, 1 Amp In-Line
1	• Enclosure, 6"X6"X6" Scrwcvr Nk
2	Detector, Gentex Smoke Alarm 120VAC/9VDC W/Relay, #S1209F 917-0057-002
2	• Power Circuit - 120VAC, 1Ø, 20A
2	• Signal Circuit - 24VDC, 1Ø, 20A
	ACCESSORIES
	SERVICES
1	Lot of In-House Material Handling Labor
1	In-House Inspection
1	Lot of assistance provided for Customer Inspection
1	Lot of Crane Loading on to Transportation

TRUE NORTH
CONSULTANTS

1000 East Warrenville Road, Suite 140
Naperville, IL 60563

O: 630.717.2880
F: 630.689.5881

ConsultTrueNorth.com

March 23, 2022

Mr. Andy Sikich
Downers Grove Public Works
5101 Walnut Avenue
Downers Grove, Illinois 60515

Subject: **Waste Characterization Soil Sampling**
700-842 Burlington Avenue
Downers Grove, Illinois 60515
True North Project No. T121682

Dear Mr. Sikich,

True North Consultants, Inc. (True North) was retained to perform subsurface material and soil characterization sampling activities for the future redevelopment proposed for the Village property located at 700-842 Burlington Avenue in Downers Grove, Cook County, Illinois (Site). During previous environmental site assessment activities, subsurface sampling and analyses indicated that the soil contained various VOCs and RCRA Metals in concentrations exceeding the most stringent Tier I Soil Remediation Objectives (SROs) listed in 35 Illinois Administrative Code (IAC) Part 742 "Tiered Approach to Corrective Action Objectives" (742). Based on the initial assessment results, True North was requested to evaluate subsurface materials to determine if soil precluded from CCDD management exhibits any characteristics of a hazardous waste as defined in the United States Environmental Protection Agency (EPA) *Resource Conservation and Recovery Act* (RCRA).

In order to further characterize subsurface materials, True North collected a representative composite sample of subsurface material intended for ultimate off-site disposal. The composite soil sample, collected on March 10, 2022, was placed in a laboratory provided container, labeled, placed in a cooler with ice, and logged in utilizing chain-of-custody documentation procedures. The samples were then transported to a National Environmental Laboratory Accreditation Conference (NELAC) accredited laboratory for analysis (Pace Analytical Services, LLC) on a standard turnaround basis.

The representative composite sample was analyzed to determine whether it exhibited any characteristics of a hazardous waste per RCRA regulations. The analytical results, as presented in the attached analytical report, indicate that the collected composite sample does not exhibit the characteristics of a hazardous waste and therefore spoils generated during excavation activities at the Site are eligible for disposal as non-hazardous waste at a licensed Subtitle D landfill. The laboratory analytical report demonstrating the material can be profiled as a non-hazardous in accordance with RCRA is enclosed within this summary letter and may be utilized to generate and support a non-hazardous waste profile for soils requiring off-site management during upcoming construction activities. True North appreciates the opportunity to be of service. If you have any questions, please contact us at 630-717-2880.

Regards,
TRUE NORTH CONSULTANTS, INC.

Sean P. Brady, P.E
Senior Consultant

Pace Analytical Services, LLC
2231 W. Altorfer Drive
Peoria, IL 61615
(800)752-6651

March 17, 2022

Sean Brady
True North Consultants
1000 East Warrenville Rd. #140
Naperville, IL 60563

RE: DG Village Hall-842 Burlington Ave

Dear Sean Brady:

Please find enclosed the analytical results for the **1** sample(s) the laboratory received on **3/10/22 3:00 pm** and logged in under work order **FC02273**. All testing is performed according to our current TNI accreditations unless otherwise noted. This report cannot be reproduced, except in full, without the written permission of Pace Analytical Services, LLC.

If you have any questions regarding your report, please contact your project manager. Quality and timely data is of the utmost importance to us.

Pace Analytical Services appreciates the opportunity to provide you with analytical expertise. We are always trying to improve our customer service and we welcome you to contact the Director of Client Services, Lisa Grant, with any feedback you have about your experience with our laboratory at 309-683-1764 or lisa.grant@pacelabs.com.

Michael Austin
Project Manager
(314) 595-7341
Michael.Austin@pacelabs.com

Pace Analytical Services, LLC
2231 W. Altorfer Drive
Peoria, IL 61615
(800)752-6651

SAMPLE RECEIPT CHECK LIST

Items not applicable will be marked as in compliance

Work Order FC02273

YES	Samples received within temperature compliance when applicable
YES	COC present upon sample receipt
YES	COC completed & legible
YES	Sampler name & signature present
YES	Unique sample IDs assigned
YES	Sample collection location recorded
YES	Date & time collected recorded on COC
YES	Relinquished by client signature on COC
YES	COC & labels match
YES	Sample labels are legible
YES	Appropriate bottle(s) received
YES	Sufficient sample volume received
YES	Sample containers received undamaged
YES	Zero headspace, <6 mm present in VOA vials
NO	Trip blank(s) received
YES	All non-field analyses received within holding times
NO	Short hold time analysis
YES	Current PDC COC submitted
NO	Case narrative provided

Pace Analytical Services, LLC
2231 W. Altorfer Drive
Peoria, IL 61615
(800)752-6651

ANALYTICAL RESULTS

Sample: FC02273-01
Name: WC-1
Matrix: Solid - Composite

Sampled: 03/10/22 11:00
Received: 03/10/22 15:00
PO #: T121682:2

Parameter	Result	Unit	Qualifier	Dilution	MDL	MRL	Analyzed	Analyst	Method
General Chemistry - STL									
Flashpoint closed	>200	°F		1	50	50	03/11/22 14:48	das	SW 1010 - ASTM D93
Paint Filter	Pass			1	1.0	1.0	03/15/22 09:02	das	EPA 9095A
pH	7.77	pH Units		1		0.0100	03/14/22 15:27	SEC	EPA 9045D
Phenol	< 5.9	mg/kg dry		1	2.0	5.9	03/15/22 11:55	SJP	EPA 9065
Solids - total solids (TS)	84	%		1		0.050	03/11/22 13:56	SEC	SM 2540G
Cyanide - reactive	< 1.25	mg/kg		1	0.445	1.25	03/15/22 16:06	CLH	SW9014 R0 1996
Reactive Sulfide	< 10.0	mg/kg		1	4.95	10.0	03/15/22 16:09	CLH	SW 9034 & 7.3.4.1
Herbicides - TCLP - STL									
2,4-D	< 0.00250	mg/L		1	0.000592	0.00250	03/16/22 15:02	SCI	SW 8321B
Silvex	< 0.00250	mg/L		1	0.000783	0.00250	03/16/22 15:02	SCI	SW 8321B
Pesticides - TCLP - STL									
gamma-BHC (Lindane)	< 0.00150	mg/L		1	5.00E-5	0.00150	03/16/22 17:34	JMH	EPA 8081A
Chlordane (technical)	< 0.00100	mg/L		1	0.000500	0.00100	03/16/22 17:34	JMH	EPA 8081A
Endrin	< 0.00100	mg/L		1	5.00E-5	0.00100	03/16/22 17:34	JMH	EPA 8081A
Heptachlor	< 0.000100	mg/L		1	5.00E-5	0.000100	03/16/22 17:34	JMH	EPA 8081A
Heptachlor epoxide	< 0.000100	mg/L		1	5.00E-5	0.000100	03/16/22 17:34	JMH	EPA 8081A
Methoxychlor	< 0.00150	mg/L		1	5.00E-5	0.00150	03/16/22 17:34	JMH	EPA 8081A
Toxaphene	< 0.0200	mg/L		1	0.000500	0.0200	03/16/22 17:34	JMH	EPA 8081A
Surrogate: Decachlorobiphenyl	*93 %*	*60-130*					*03/16/22 17:34*	*JMH*	*EPA 8081A*
Surrogate: Tetrachloro-m-xylene	*77 %*	*40-80*					*03/16/22 17:34*	*JMH*	*EPA 8081A*
Polychlorinated Biphenyls (PCBs) - STL									
Aroclor 1016	< 0.020	mg/kg dry		1	0.004	0.020	03/15/22 17:33	JMH	EPA 8082
Aroclor 1221	< 0.020	mg/kg dry		1	0.004	0.020	03/15/22 17:33	JMH	EPA 8082
Aroclor 1232	< 0.020	mg/kg dry		1	0.004	0.020	03/15/22 17:33	JMH	EPA 8082
Aroclor 1242	< 0.020	mg/kg dry		1	0.004	0.020	03/15/22 17:33	JMH	EPA 8082
Aroclor 1248	< 0.020	mg/kg dry		1	0.004	0.020	03/15/22 17:33	JMH	EPA 8082
Aroclor 1254	< 0.020	mg/kg dry		1	0.004	0.020	03/15/22 17:33	JMH	EPA 8082
Aroclor 1260	< 0.020	mg/kg dry		1	0.004	0.020	03/15/22 17:33	JMH	EPA 8082
Aroclors - Total	< 0.020	mg/kg dry		1	0.004	0.020	03/15/22 17:33	JMH	EPA 8082
Semivolatile Organics - TCLP - STL									
1,4-Dichlorobenzene	< 0.0200	mg/L		1	0.00187	0.0200	03/17/22 08:22	JCB	EPA 8270C
2,4-Dinitrotoluene	< 0.0200	mg/L		1	0.00122	0.0200	03/17/22 08:22	JCB	EPA 8270C
Hexachlorobenzene	< 0.0200	mg/L		1	0.00148	0.0200	03/17/22 08:22	JCB	EPA 8270C
Hexachlorobutadiene	< 0.0200	mg/L		1	0.00205	0.0200	03/17/22 08:22	JCB	EPA 8270C
Hexachloroethane	< 0.0200	mg/L		1	0.00159	0.0200	03/17/22 08:22	JCB	EPA 8270C

Pace Analytical Services, LLC
2231 W. Altorfer Drive
Peoria, IL 61615
(800)752-6651

ANALYTICAL RESULTS

Sample: FC02273-01
Name: WC-1
Matrix: Solid - Composite

Sampled: 03/10/22 11:00
Received: 03/10/22 15:00
PO #: T121682:2

Parameter	Result	Unit	Qualifier	Dilution	MDL	MRL	Analyzed	Analyst	Method
2-Methylphenol	< 0.0200	mg/L		1	0.00216	0.0200	03/17/22 08:22	JCB	EPA 8270C
3- & 4-Methylphenol	< 0.0400	mg/L		1	0.00176	0.0400	03/17/22 08:22	JCB	EPA 8270C
Nitrobenzene	< 0.0200	mg/L		1	0.00188	0.0200	03/17/22 08:22	JCB	EPA 8270C
Pentachlorophenol	< 0.100	mg/L		1	0.00137	0.100	03/17/22 08:22	JCB	EPA 8270C
Pyridine	< 0.100	mg/L		1	0.000999	0.100	03/17/22 08:22	JCB	EPA 8270C
2,4,5-Trichlorophenol	< 0.0200	mg/L		1	0.00118	0.0200	03/17/22 08:22	JCB	EPA 8270C
2,4,6-Trichlorophenol	< 0.0200	mg/L		1	0.00173	0.0200	03/17/22 08:22	JCB	EPA 8270C
Surrogate: 2-Fluorobiphenyl	*67 %*	*13.8-115*					*03/17/22 08:22*	*JCB*	*EPA 8270C*
Surrogate: 2-Fluorophenol	*66 %*	*14.3-109*					*03/17/22 08:22*	*JCB*	*EPA 8270C*
Surrogate: Nitrobenzene-d5	*67 %*	*10-140*					*03/17/22 08:22*	*JCB*	*EPA 8270C*
Surrogate: Phenol-d6	*62 %*	*10-114*					*03/17/22 08:22*	*JCB*	*EPA 8270C*
Surrogate: 4-Terphenyl-d14	*73 %*	*18.8-128*					*03/17/22 08:22*	*JCB*	*EPA 8270C*
Surrogate: 2,4,6-Tribromophenol	*62 %*	*10-130*					*03/17/22 08:22*	*JCB*	*EPA 8270C*
CLP - STL									
Final pH	6.1			1			03/14/22 10:26	RVL	SW 1311
TCLP Metals - STL									
Mercury	< 0.0002	mg/L		1	0.00005	0.0002	03/15/22 11:36	CGB	SW 7470
Arsenic	< 0.0500	mg/L		1	0.00919	0.0500	03/15/22 10:49	JMW1	EPA 6010B
Barium	0.626	mg/L		1	0.000820	0.0700	03/15/22 10:49	JMW1	EPA 6010B
Cadmium	< 0.00500	mg/L		1	0.000370	0.00500	03/15/22 10:49	JMW1	EPA 6010B
Chromium	< 0.00500	mg/L		1	0.000660	0.00500	03/15/22 10:49	JMW1	EPA 6010B
Lead	< 0.00750	mg/L		1	0.00510	0.00750	03/15/22 10:49	JMW1	EPA 6010B
Selenium	< 0.0400	mg/L		1	0.0110	0.0400	03/15/22 10:49	JMW1	EPA 6010B
Silver	< 0.00500	mg/L		1	0.000760	0.00500	03/15/22 10:49	JMW1	EPA 6010B
Volatile Organics - TCLP - STL									
Benzene	< 0.250	mg/L		10	0.00510	0.250	03/14/22 12:59	MBM	EPA 8260B
2-Butanone	< 0.250	mg/L		10	0.0177	0.250	03/14/22 12:59	MBM	EPA 8260B
Carbon tetrachloride	< 0.250	mg/L		10	0.00330	0.250	03/14/22 12:59	MBM	EPA 8260B
Chlorobenzene	< 0.250	mg/L		10	0.00157	0.250	03/14/22 12:59	MBM	EPA 8260B
Chloroform	< 0.250	mg/L		10	0.00568	0.250	03/14/22 12:59	MBM	EPA 8260B
1,4-Dichlorobenzene	< 0.250	mg/L		10	0.00149	0.250	03/14/22 12:59	MBM	EPA 8260B
1,2-Dichloroethane	< 0.250	mg/L		10	0.00569	0.250	03/14/22 12:59	MBM	EPA 8260B
1,1-Dichloroethene	< 0.250	mg/L		10	0.00547	0.250	03/14/22 12:59	MBM	EPA 8260B
Tetrachloroethene	< 0.250	mg/L		10	0.00184	0.250	03/14/22 12:59	MBM	EPA 8260B
Trichloroethene	< 0.250	mg/L		10	0.00579	0.250	03/14/22 12:59	MBM	EPA 8260B
`nyl chloride	< 0.200	mg/L		10	0.00636	0.200	03/14/22 12:59	MBM	EPA 8260B
urrogate: 4-Bromofluorobenzene	*94 %*	*67-133*					*03/14/22 12:59*	*MBM*	*EPA 8260B*
Surrogate: 1,2-Dichloroethane-d4	*97 %*	*85-125*					*03/14/22 12:59*	*MBM*	*EPA 8260B*
Surrogate: Toluene-d8	*98 %*	*81-116*					*03/14/22 12:59*	*MBM*	*EPA 8260B*

Pace Analytical Services, LLC
2231 W. Altorfer Drive
Peoria, IL 61615
(800)752-6651

QC SAMPLE RESULTS

Parameter	Result	Unit	Qual	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B226716 - 04-No Prep WC Solid - SW 1010 - ASTM D93									
LCS (B226716-BS1)				Prepared & Analyzed: 03/11/22					
Flashpoint closed	79.1	°F		80.00		99	97.5-102.5		
LCS (B226716-BS2)				Prepared & Analyzed: 03/11/22					
Flashpoint closed	80.8	°F		80.00		101	97.5-102.5		
Duplicate (B226716-DUP1)	**Sample: FC01606-01**			Prepared & Analyzed: 03/11/22					
Flashpoint closed	>200	°F			ND				4
Batch B226736 - 04-No Prep VOA - EPA 8260B									
Blank (B226736-BLK1)				Prepared & Analyzed: 03/14/22					
Benzene	< 0.0250	mg/L							
2-Butanone	< 0.0250	mg/L							
Carbon tetrachloride	< 0.0250	mg/L							
Chlorobenzene	< 0.0250	mg/L							
Chloroform	< 0.0250	mg/L							
1,4-Dichlorobenzene	< 0.0250	mg/L							
1,2-Dichloroethane	< 0.0250	mg/L							
1,1-Dichloroethene	< 0.0250	mg/L							
Tetrachloroethene	< 0.0250	mg/L							
Trichloroethene	< 0.0250	mg/L							
Vinyl chloride	< 0.0200	mg/L							
Surrogate: 4-Bromofluorobenzene	*0.0476*	*mg/L*		*0.05000*		*95*	*67-133*		
Surrogate: 1,2-Dichloroethane-d4	*0.0474*	*mg/L*		*0.05000*		*95*	*85-125*		
Surrogate: Toluene-d8	*0.0484*	*mg/L*		*0.05000*		*97*	*81-116*		
LCS (B226736-BS1)				Prepared & Analyzed: 03/14/22					
Benzene	0.0486	mg/L		0.05000		97	82.4-135		
2-Butanone	0.127	mg/L		0.1000		127	76.7-133		
Carbon tetrachloride	0.0623	mg/L		0.05000		125	73.5-146		
Chlorobenzene	0.0504	mg/L		0.05000		101	86.3-116		
Chloroform	0.0472	mg/L		0.05000		94	84-120		
1,4-Dichlorobenzene	0.0492	mg/L		0.05000		98	84.8-115		
1,2-Dichloroethane	0.0512	mg/L		0.05000		102	86.5-126		
1,1-Dichloroethene	0.0512	mg/L		0.05000		102	70.9-150		
Tetrachloroethene	0.0541	mg/L		0.05000		108	74.8-131		
Trichloroethene	0.0539	mg/L		0.05000		108	77.8-139		
Vinyl chloride	0.0512	mg/L		0.05000		102	69.2-142		
Surrogate: 4-Bromofluorobenzene	*0.0498*	*mg/L*		*0.05000*		*100*	*67-133*		
Surrogate: 1,2-Dichloroethane-d4	*0.0506*	*mg/L*		*0.05000*		*101*	*85-125*		
Surrogate: Toluene-d8	*0.0479*	*mg/L*		*0.05000*		*96*	*81-116*		
LCS Dup (B226736-BSD1)				Prepared & Analyzed: 03/14/22					
Benzene	0.0505	mg/L		0.05000		101	82.4-135	4	20
2-Butanone	0.119	mg/L		0.1000		119	76.7-133	6	20
Carbon tetrachloride	0.0634	mg/L		0.05000		127	73.5-146	2	20

Pace Analytical Services, LLC
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QC SAMPLE RESULTS

Parameter	Result	Unit	Qual	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B226736 - 04-No Prep VOA - EPA 8260B									
LCS Dup (B226736-BSD1)				Prepared & Analyzed: 03/14/22					
Chlorobenzene	0.0505	mg/L		0.05000		101	86.3-116	0.2	20
Chloroform	0.0488	mg/L		0.05000		98	84-120	3	20
1,4-Dichlorobenzene	0.0491	mg/L		0.05000		98	84.8-115	0.1	20
1,2-Dichloroethane	0.0528	mg/L		0.05000		106	86.5-126	3	20
1,1-Dichloroethene	0.0533	mg/L		0.05000		107	70.9-150	4	20
Tetrachloroethene	0.0537	mg/L		0.05000		107	74.8-131	0.6	20
Trichloroethene	0.0552	mg/L		0.05000		110	77.8-139	2	20
Vinyl chloride	0.0543	mg/L		0.05000		109	69.2-142	6	20
Surrogate: 4-Bromofluorobenzene	*0.0492*	*mg/L*		*0.05000*		*98*	*67-133*		
Surrogate: 1,2-Dichloroethane-d4	*0.0522*	*mg/L*		*0.05000*		*104*	*85-125*		
Surrogate: Toluene-d8	*0.0488*	*mg/L*		*0.05000*		*98*	*81-116*		
Batch B226760 - 04-No Prep WC Solid - SM 2540G									
Blank (B226760-BLK1)				Prepared & Analyzed: 03/11/22					
olids - total solids (TS)	< 0.050	%							
Duplicate (B226760-DUP1)	**Sample: FC02273-01**			Prepared & Analyzed: 03/11/22					
Solids - total solids (TS)	84.2	%			84.3			0.1	20
Duplicate (B226760-DUP2)	**Sample: FC02320-01**			Prepared & Analyzed: 03/11/22					
Solids - total solids (TS)	77.9	%			78.1			0.3	20
Batch B226794 - 04-SW 1311 - TCLP - SW 1311									
Blank (B226794-BLK1)				Prepared: 03/13/22 Analyzed: 03/14/22					
Final pH	4.90	[blank]							
Batch B226843 - 04 SW 3010A TCLP - EPA 6010B									
Blank (B226843-BLK1)				Prepared: 03/14/22 Analyzed: 03/15/22					
Arsenic	< 0.0500	mg/L							
Barium	< 0.0700	mg/L							
Cadmium	< 0.00500	mg/L							
Chromium	< 0.00500	mg/L							
Lead	< 0.00750	mg/L							
Selenium	< 0.0400	mg/L							
Silver	< 0.00500	mg/L							
LCS (B226843-BS1)				Prepared: 03/14/22 Analyzed: 03/15/22					
Arsenic	0.221	mg/L		0.2000		111	80-120		
Barium	0.191	mg/L		0.2000		95	80-120		
Cadmium	0.208	mg/L		0.2000		104	80-120		
Chromium	0.200	mg/L		0.2000		100	80-120		
Lead	0.194	mg/L		0.2000		97	80-120		
Selenium	0.234	mg/L		0.2000		117	80-120		
Silver	0.0500	mg/L		0.05000		100	80-120		
Matrix Spike (B226843-MS1)	**Sample: FC02273-01**			Prepared: 03/14/22 Analyzed: 03/15/22					
Arsenic	0.223	mg/L		0.2000	ND	112	75-125		
Barium	0.807	mg/L		0.2000	0.626	90	75-125		

Pace Analytical Services, LLC
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(800)752-6651

QC SAMPLE RESULTS

Parameter	Result	Unit	Qual	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B226843 - 04 SW 3010A TCLP - EPA 6010B									
Matrix Spike (B226843-MS1)	**Sample: FC02273-01**			Prepared: 03/14/22 Analyzed: 03/15/22					
Cadmium	0.196	mg/L		0.2000	0.000686	97	75-125		
Chromium	0.191	mg/L		0.2000	ND	95	75-125		
Lead	0.187	mg/L		0.2000	ND	93	75-125		
Selenium	0.220	mg/L		0.2000	ND	110	75-125		
Silver	0.0500	mg/L		0.05000	ND	100	75-125		
Matrix Spike Dup (B226843-MSD1)	**Sample: FC02273-01**			Prepared: 03/14/22 Analyzed: 03/15/22					
Arsenic	0.221	mg/L		0.2000	ND	110	75-125	0.9	20
Barium	0.797	mg/L		0.2000	0.626	85	75-125	1	20
Cadmium	0.195	mg/L		0.2000	0.000686	97	75-125	0.5	20
Chromium	0.191	mg/L		0.2000	ND	95	75-125	0.04	20
Lead	0.185	mg/L		0.2000	ND	93	75-125	0.7	20
Selenium	0.227	mg/L		0.2000	ND	113	75-125	3	20
Silver	0.0499	mg/L		0.05000	ND	100	75-125	0.2	20
Batch B226871 - 04-SW 7470A/245.1 - SW 7470									
Blank (B226871-BLK1)				Prepared: 03/14/22 Analyzed: 03/15/22					
Mercury	< 0.0002	mg/L							
LCS (B226871-BS1)				Prepared: 03/14/22 Analyzed: 03/15/22					
Mercury	0.00497	mg/L		0.005000		99	80-120		
Matrix Spike (B226871-MS1)	**Sample: FC02311-01**			Prepared: 03/14/22 Analyzed: 03/15/22					
Mercury	0.00467	mg/L		0.005000	ND	93	75-125		
Matrix Spike (B226871-MS2)	**Sample: FC02311-02**			Prepared: 03/14/22 Analyzed: 03/15/22					
Mercury	0.00461	mg/L		0.005000	ND	92	75-125		
Matrix Spike (B226871-MS3)	**Sample: FC02311-03**			Prepared: 03/14/22 Analyzed: 03/15/22					
Mercury	0.00477	mg/L		0.005000	ND	95	75-125		
Matrix Spike (B226871-MS4)	**Sample: FC02314-01**			Prepared: 03/14/22 Analyzed: 03/15/22					
Mercury	0.00449	mg/L		0.005000	ND	90	75-125		
Matrix Spike (B226871-MS5)	**Sample: FC02273-01**			Prepared: 03/14/22 Analyzed: 03/15/22					
Mercury	0.00493	mg/L		0.005000	ND	99	75-125		
Matrix Spike Dup (B226871-MSD1)	**Sample: FC02311-01**			Prepared: 03/14/22 Analyzed: 03/15/22					
Mercury	0.00437	mg/L		0.005000	ND	87	75-125	7	20
Batch B226912 - 04-No Prep WC Solid - EPA 9045D									
Duplicate (B226912-DUP1)	**Sample: FC02273-01**			Prepared & Analyzed: 03/14/22					
pH	7.79	pH Units			7.77			0.3	10
Batch B226959 - 04-No Prep WC Solid - EPA 9095A									
Duplicate (B226959-DUP1)	**Sample: FC01625-04**			Prepared & Analyzed: 03/15/22					
Paint Filter	Pass	[blank]			ND				20
Batch B226991 - 04-No Prep WC Solid - EPA 9065									
Blank (B226991-BLK1)				Prepared & Analyzed: 03/15/22					
Phenol	< 5.0	mg/kg wet							
LCS (B226991-BS1)				Prepared & Analyzed: 03/15/22					

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QC SAMPLE RESULTS

Parameter	Result	Unit	Qual	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B226991 - 04-No Prep WC Solid - EPA 9065									
LCS (B226991-BS1)				Prepared & Analyzed: 03/15/22					
Phenol	51.5	mg/kg wet		50.00		103	90-110		
Matrix Spike (B226991-MS1)	**Sample: FC01625-04**			Prepared & Analyzed: 03/15/22					
Phenol	71.1	mg/kg dry		67.20	5.24	98	75-125		
Matrix Spike Dup (B226991-MSD1)	**Sample: FC01625-04**			Prepared & Analyzed: 03/15/22					
Phenol	65.3	mg/kg dry		67.20	5.24	89	75-125	8	20
Batch B227001 - 04 SW 3550 (8081/8082) - EPA 8082									
Blank (B227001-BLK1)				Prepared & Analyzed: 03/15/22					
Aroclor 1016	< 0.017	mg/kg wet							
Aroclor 1221	< 0.017	mg/kg wet							
Aroclor 1232	< 0.017	mg/kg wet							
Aroclor 1242	< 0.017	mg/kg wet							
Aroclor 1248	< 0.017	mg/kg wet							
Aroclor 1254	< 0.017	mg/kg wet							
Aroclor 1260	< 0.017	mg/kg wet							
Aroclors - Total	< 0.017	mg/kg wet							
Surrogate: TCMX	*0.012*	*mg/kg wet*		*0.01330*		*90*	*10-173*		
Surrogate: Decachlorobiphenyl	*0.012*	*mg/kg wet*		*0.01330*		*90*	*10-172*		
LCS (B227001-BS1)				Prepared & Analyzed: 03/15/22					
Aroclor 1016	0.183	mg/kg wet		0.1663		110	62.4-121		
Aroclor 1260	0.180	mg/kg wet		0.1663		108	66.2-132		
Surrogate: TCMX	*0.014*	*mg/kg wet*		*0.01330*		*102*	*10-173*		
Surrogate: Decachlorobiphenyl	*0.014*	*mg/kg wet*		*0.01330*		*105*	*10-172*		
Matrix Spike (B227001-MS1)	**Sample: FC02467-01**			Prepared & Analyzed: 03/15/22					
Aroclor 1016	0.210	mg/kg dry		0.1964	ND	107	10-181		
Aroclor 1260	0.203	mg/kg dry		0.1964	ND	103	42-122		
Surrogate: TCMX	*0.015*	*mg/kg dry*		*0.01571*		*97*	*10-173*		
Surrogate: Decachlorobiphenyl	*0.015*	*mg/kg dry*		*0.01571*		*95*	*10-172*		
Matrix Spike Dup (B227001-MSD1)	**Sample: FC02467-01**			Prepared & Analyzed: 03/15/22					
Aroclor 1016	0.216	mg/kg dry		0.1964	ND	110	10-181	3	40
Aroclor 1260	0.217	mg/kg dry		0.1964	ND	110	42-122	7	40
Surrogate: TCMX	*0.015*	*mg/kg dry*		*0.01571*		*97*	*10-173*		
Surrogate: Decachlorobiphenyl	*0.016*	*mg/kg dry*		*0.01571*		*100*	*10-172*		
Batch B227075 - 04-No Prep WC Solid - SW 9034 & 7.3.4.1									
Blank (B227075-BLK1)				Prepared & Analyzed: 03/15/22					
Reactive Sulfide	< 10.0	mg/kg							
Duplicate (B227075-DUP1)	**Sample: FC02362-04**			Prepared & Analyzed: 03/15/22					
Reactive Sulfide	< 10.0	mg/kg			ND				20
Batch B227076 - 04-No Prep WC Solid - SW9014 R0 1996									
Blank (B227076-BLK1)				Prepared & Analyzed: 03/15/22					
Cyanide - reactive	< 1.25	mg/kg							
Duplicate (B227076-DUP1)	**Sample: FC02362-04**			Prepared & Analyzed: 03/15/22					

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QC SAMPLE RESULTS

Parameter	Result	Unit	Qual	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B227076 - 04-No Prep WC Solid - SW9014 R0 1996									
Duplicate (B227076-DUP1)	**Sample: FC02362-04**			Prepared & Analyzed: 03/15/22					
Cyanide - reactive	< 1.25	mg/kg			ND				20
Batch B227097 - 04 SW 3510 (M8270 TCLP) - EPA 8270C									
Blank (B227097-BLK1)				Prepared: 03/16/22 Analyzed: 03/17/22					
1,4-Dichlorobenzene	< 0.0200	mg/L							
2,4-Dinitrotoluene	< 0.0200	mg/L							
Hexachlorobenzene	< 0.0200	mg/L							
Hexachlorobutadiene	< 0.0200	mg/L							
Hexachloroethane	< 0.0200	mg/L							
2-Methylphenol	< 0.0200	mg/L							
3- & 4-Methylphenol	< 0.0400	mg/L							
Nitrobenzene	< 0.0200	mg/L							
Pentachlorophenol	< 0.100	mg/L							
Pyridine	< 0.100	mg/L							
2,4,5-Trichlorophenol	< 0.0200	mg/L							
2,4,6-Trichlorophenol	< 0.0200	mg/L							
Surrogate: 2-Fluorobiphenyl	*0.304*	*mg/L*		*0.5000*		*61*	*13.8-115*		
Surrogate: 2-Fluorophenol	*0.487*	*mg/L*		*0.8000*		*61*	*14.3-109*		
Surrogate: Nitrobenzene-d5	*0.308*	*mg/L*		*0.5000*		*62*	*10-140*		
Surrogate: Phenol-d6	*0.444*	*mg/L*		*0.8000*		*56*	*10-114*		
Surrogate: 4-Terphenyl-d14	*0.336*	*mg/L*		*0.5000*		*67*	*18.8-128*		
Surrogate: 2,4,6-Tribromophenol	*0.457*	*mg/L*		*0.8000*		*57*	*10-130*		
LCS (B227097-BS1)				Prepared: 03/16/22 Analyzed: 03/17/22					
1,4-Dichlorobenzene	0.454	mg/L		0.8000		57	32.2-88.4		
2,4-Dinitrotoluene	0.469	mg/L		0.8000		59	26.7-98.4		
Hexachlorobenzene	0.440	mg/L		0.8000		55	16.3-113		
Hexachlorobutadiene	0.426	mg/L		0.8000		53	29.4-91.5		
Hexachloroethane	0.424	mg/L		0.8000		53	27.4-90.1		
2-Methylphenol	0.480	mg/L		0.8000		60	31.7-99		
3- & 4-Methylphenol	0.540	mg/L		0.8000		67	34.6-111		
Nitrobenzene	0.468	mg/L		0.8000		59	30.9-100		
Pentachlorophenol	0.257	mg/L		0.8000		32	22-97.6		
Pyridine	0.519	mg/L		0.8000		65	12.3-94.2		
2,4,5-Trichlorophenol	0.439	mg/L		0.8000		55	24.3-104		
2,4,6-Trichlorophenol	0.457	mg/L		0.8000		57	30-102		
Surrogate: 2-Fluorobiphenyl	*0.306*	*mg/L*		*0.5000*		*61*	*13.8-115*		
Surrogate: 2-Fluorophenol	*0.463*	*mg/L*		*0.8000*		*58*	*14.3-109*		
Surrogate: Nitrobenzene-d5	*0.308*	*mg/L*		*0.5000*		*62*	*10-140*		
Surrogate: Phenol-d6	*0.446*	*mg/L*		*0.8000*		*56*	*10-114*		
Surrogate: 4-Terphenyl-d14	*0.328*	*mg/L*		*0.5000*		*66*	*18.8-128*		
Surrogate: 2,4,6-Tribromophenol	*0.472*	*mg/L*		*0.8000*		*59*	*10-130*		
Matrix Spike (B227097-MS1)	**Sample: FC02273-01**			Prepared: 03/16/22 Analyzed: 03/17/22					
1,4-Dichlorobenzene	0.509	mg/L		0.8000	ND	64	50-100		
2,4-Dinitrotoluene	0.527	mg/L		0.8000	ND	66	39.2-93.5		

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QC SAMPLE RESULTS

Parameter	Result	Unit	Qual	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B227097 - 04 SW 3510 (M8270 TCLP) - EPA 8270C									
Matrix Spike (B227097-MS1)	**Sample: FC02273-01**			Prepared: 03/16/22 Analyzed: 03/17/22					
Hexachlorobenzene	0.481	mg/L		0.8000	ND	60	33-80.7		
Hexachlorobutadiene	0.480	mg/L		0.8000	ND	60	30.8-101		
Hexachloroethane	0.479	mg/L		0.8000	ND	60	36.8-84		
2-Methylphenol	0.538	mg/L		0.8000	ND	67	37.4-92.3		
3- & 4-Methylphenol	0.597	mg/L		0.8000	ND	75	34.4-111		
Nitrobenzene	0.526	mg/L		0.8000	ND	66	41.1-92.9		
Pentachlorophenol	0.293	mg/L		0.8000	ND	37	10-128		
Pyridine	0.552	mg/L		0.8000	ND	69	10-91.9		
2,4,5-Trichlorophenol	0.502	mg/L		0.8000	ND	63	19.7-113		
2,4,6-Trichlorophenol	0.520	mg/L		0.8000	ND	65	25.6-104		
Surrogate: 2-Fluorobiphenyl	*0.332*	*mg/L*		*0.5000*		*66*	*13.8-115*		
Surrogate: 2-Fluorophenol	*0.509*	*mg/L*		*0.8000*		*64*	*14.3-109*		
Surrogate: Nitrobenzene-d5	*0.335*	*mg/L*		*0.5000*		*67*	*10-140*		
Surrogate: Phenol-d6	*0.491*	*mg/L*		*0.8000*		*61*	*10-114*		
Surrogate: 4-Terphenyl-d14	*0.348*	*mg/L*		*0.5000*		*70*	*18.8-128*		
Surrogate: 2,4,6-Tribromophenol	*0.513*	*mg/L*		*0.8000*		*64*	*10-130*		
Matrix Spike Dup (B227097-MSD1)	**Sample: FC02273-01**			Prepared: 03/16/22 Analyzed: 03/17/22					
1,4-Dichlorobenzene	0.496	mg/L		0.8000	ND	62	50-100	3	28
2,4-Dinitrotoluene	0.516	mg/L		0.8000	ND	65	39.2-93.5	2	38
Hexachlorobenzene	0.463	mg/L		0.8000	ND	58	33-80.7	4	20
Hexachlorobutadiene	0.462	mg/L		0.8000	ND	58	30.8-101	4	20
Hexachloroethane	0.467	mg/L		0.8000	ND	58	36.8-84	3	20
2-Methylphenol	0.519	mg/L		0.8000	ND	65	37.4-92.3	4	20
3- & 4-Methylphenol	0.579	mg/L		0.8000	ND	72	34.4-111	3	20
Nitrobenzene	0.509	mg/L		0.8000	ND	64	41.1-92.9	3	20
Pentachlorophenol	0.286	mg/L		0.8000	ND	36	10-128	2	25
Pyridine	0.645	mg/L		0.8000	ND	81	10-91.9	16	20
2,4,5-Trichlorophenol	0.473	mg/L		0.8000	ND	59	19.7-113	6	20
2,4,6-Trichlorophenol	0.489	mg/L		0.8000	ND	61	25.6-104	6	20
Surrogate: 2-Fluorobiphenyl	*0.318*	*mg/L*		*0.5000*		*64*	*13.8-115*		
Surrogate: 2-Fluorophenol	*0.480*	*mg/L*		*0.8000*		*60*	*14.3-109*		
Surrogate: Nitrobenzene-d5	*0.321*	*mg/L*		*0.5000*		*64*	*10-140*		
Surrogate: Phenol-d6	*0.469*	*mg/L*		*0.8000*		*59*	*10-114*		
Surrogate: 4-Terphenyl-d14	*0.338*	*mg/L*		*0.5000*		*68*	*18.8-128*		
Surrogate: 2,4,6-Tribromophenol	*0.486*	*mg/L*		*0.8000*		*61*	*10-130*		
Batch B227169 - 06-SW 3510C CPA Herbicides - SW 8321B									
Blank (B227169-BLK1)				Prepared & Analyzed: 03/16/22					
2,4-D	< 0.00250	mg/L							
Silvex	< 0.00250	mg/L							
Surrogate: DCAA	*0.00352*	*mg/L*		*0.01000*		*35*	*10-140*		
LCS (B227169-BS1)				Prepared & Analyzed: 03/16/22					
2,4-D	0.00437	mg/L		0.01000		44	10-116		
Silvex	0.00342	mg/L		0.01000		34	10-114		

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QC SAMPLE RESULTS

Parameter	Result	Unit	Qual	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B227169 - 06-SW 3510C CPA Herbicides - SW 8321B									
LCS (B227169-BS1)				Prepared & Analyzed: 03/16/22					
Surrogate: DCAA	*0.00350*	*mg/L*		*0.01000*		*35*	*10-140*		
Matrix Spike (B227169-MS1)	**Sample: FC02273-01**			Prepared & Analyzed: 03/16/22					
2,4-D	0.00294	mg/L	Q3, R	0.01000	ND	29	40-120		
Silvex	0.00261	mg/L	Q3	0.01000	ND	26	40-120		
Surrogate: DCAA	*0.00282*	*mg/L*		*0.01000*		*28*	*10-140*		
Matrix Spike Dup (B227169-MSD1)	**Sample: FC02273-01**			Prepared & Analyzed: 03/16/22					
2,4-D	0.00363	mg/L	Q3, R	0.01000	ND	36	40-120	21	20
Silvex	0.00319	mg/L	Q3	0.01000	ND	32	40-120	20	20
Surrogate: DCAA	*0.00286*	*mg/L*		*0.01000*		*29*	*10-140*		
Batch B227171 - 04 SW 3510 (TCLP) - EPA 8081A									
Blank (B227171-BLK1)				Prepared & Analyzed: 03/16/22					
gamma-BHC (Lindane)	< 0.00150	mg/L							
Chlordane (technical)	< 0.00100	mg/L							
ıdrin	< 0.00100	mg/L							
Heptachlor	< 0.000100	mg/L							
Heptachlor epoxide	< 0.000100	mg/L							
Methoxychlor	< 0.00150	mg/L							
Toxaphene	< 0.0200	mg/L							
Surrogate: Decachlorobiphenyl	*0.00392*	*mg/L*		*0.004000*		*98*	*60-130*		
Surrogate: Tetrachloro-m-xylene	*0.00348*	*mg/L*	*X*	*0.004000*		*87*	*40-80*		
LCS (B227171-BS1)				Prepared & Analyzed: 03/16/22					
gamma-BHC (Lindane)	0.00354	mg/L		0.005000		71	39.4-110		
Endrin	0.00346	mg/L		0.005000		69	35.1-125		
Heptachlor	0.00312	mg/L		0.005000		62	30-116		
Surrogate: Decachlorobiphenyl	*0.00401*	*mg/L*		*0.004000*		*100*	*60-130*		
Surrogate: Tetrachloro-m-xylene	*0.00339*	*mg/L*	*X*	*0.004000*		*85*	*40-80*		
Matrix Spike (B227171-MS1)	**Sample: FC02273-01**			Prepared & Analyzed: 03/16/22					
gamma-BHC (Lindane)	0.00335	mg/L		0.005000	ND	67	40-90		
Endrin	0.00352	mg/L		0.005000	ND	70	45-110		
Heptachlor	0.00302	mg/L		0.005000	ND	60	40-105		
Surrogate: Decachlorobiphenyl	*0.00384*	*mg/L*		*0.004000*		*96*	*60-130*		
Surrogate: Tetrachloro-m-xylene	*0.00334*	*mg/L*	*X*	*0.004000*		*83*	*40-80*		
Matrix Spike Dup (B227171-MSD1)	**Sample: FC02273-01**			Prepared & Analyzed: 03/16/22					
gamma-BHC (Lindane)	0.00357	mg/L		0.005000	ND	71	40-90	6	20
Endrin	0.00378	mg/L		0.005000	ND	76	45-110	7	20
Heptachlor	0.00323	mg/L		0.005000	ND	65	40-105	7	20
Surrogate: Decachlorobiphenyl	*0.00412*	*mg/L*		*0.004000*		*103*	*60-130*		
Surrogate: Tetrachloro-m-xylene	*0.00363*	*mg/L*	*X*	*0.004000*		*91*	*40-80*		

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NOTES

Specifications regarding method revisions, method modifications, and calculations used for analysis are available upon request. Please contact your project manager.

* Not a TNI accredited analyte

Certifications

CHI - McHenry, IL - 4314-A W. Crystal Lake Road, McHenry, IL 60050
TNI Accreditation for Drinking Water and Wastewater Fields of Testing through IL EPA Accreditation No. 100279
Illinois Department of Public Health Bacterial Analysis in Drinking Water Approved Laboratory Registry No. 17556

PIA - Peoria, IL - 2231 W. Altorfer Drive, Peoria, IL 61615
TNI Accreditation for Drinking Water, Wastewater, Solid and Hazardous Material Fields of Testing through IL EPA Accreditation No. 100230
Illinois Department of Public Health Bacterial Analysis in Drinking Water Approved Laboratory Registry No. 17553
Drinking Water Certifications/Accreditations: Iowa (240); Kansas (E-10338); Missouri (870)
Wastewater Certifications/Accreditations: Arkansas (88-0677); Iowa (240); Kansas (E-10338)
Solid and Hazardous Material Certifications/Accreditations: Arkansas (88-0677); Iowa (240); Kansas (E-10338)

SPMO - Springfield, MO - 1805 W Sunset Street, Springfield, MO 65807
USEPA DMR-QA Program

STL - Hazelwood, MO - 944 Anglum Rd, Hazelwood, MO 63042
TNI Accreditation for Wastewater, Solid and Hazardous Material Fields of Testing through KS KDHE Certification No. E-10389
TNI Accreditation for Wastewater, Solid and Hazardous Material Fields of Testing through IL EPA Accreditation No. - 200080
Illinois Department of Public Health Bacterial Analysis in Drinking Water Approved Laboratory, Registry No. 171050
Missouri Department of Natural Resources - Certificate of Approval for Microbiological Laboratory Service - No. 1050

Qualifiers

Q3 Matrix Spike/Matrix Spike Duplicate both failed % recovery acceptance limits. The associated blank spike recovery was acceptable.
R Matrix Spike/Matrix Spike Duplicate Failed %Relative Percent Difference criterion.
X Surrogate failed to meet acceptance criteria

Certified by: Chenise Lambert-Sykes For Michael Austin, Project Manager

Pace

REGULATORY PROGRAM:			
MORBCA		NPDES	
CCDD		RCRA	X
TACO: RES		IND/COMM	

CHAIN OF CUSTODY RECORD

STATE WHERE SAMPLE(S) COLLECTED IL

CLIENT	PROJECT NAME	PROJECT LOCATION	PURCHASE ORDER #
True North Consultants	DG Village Hall	842 Burlington Ave	T121682:2

ADDRESS	PHONE NUMBER	E-MAIL	DATE SHIPPED
1000 East Warrenville Road, Suite 140	630.717.2880	sbrady@consulttruenort	

CITY, STATE ZIP	SAMPLER	MATRIX TYPES:
Naperville, Illinois 60563	BTP	WW=wastewater DW=drinking water GW=ground water NAS= non aqueous Solid SO= soil

CONTACT PERSON(S)	SAMPLER'S SIGNATURE
Brady, Kupczyk, Mihelich, Poss, Trzaskus	BTP

(FOR LAB USE ONLY)
LOGIN # FC0227S
LOGGED BY:
CLIENT
PROJECT
PM:
CUST SEAL #:

SAMPLE DESCRIPTION (UNIQUE DESCRIPTION AS IT WILL APPEAR ON THE ANALYTICAL REPORT)	DATE COLLECTED	TIME COLLECTED	SAMPLE TYPE GRAB	SAMPLE TYPE COMP	MATRIX TYPE	BOTTLE COUNT	PRES CODE FROM CLIENT	TCLP VOCs	TCLP SVOCs	TCLP RCRA Metals	TCLP Pest/Herb	PCBs	Total Phenols	Reactive Cyanide/Sulfide	pH/Paint Filter/Flash Point	REMARKS
WC-1	3/10/22	1100		X	SO	1	6	X	X	X	X	X	X	X	X	

CHEMICAL PRESERVATION CODES:	1-HCL	2-H2SO4	3-HNO3	4-NaOH	5-5035	6-UNPRESERVED	7-OTHER

TURNAROUND TIME REQUESTED (RUSH TAT IS SUBJECT TO PDC LABS APPROVAL AND SURCHARGE)				DATE RESULTS NEEDED
RUSH		STANDARD	X	

I understand that by initialing this box I give the lab permission to proceed with analysis, even though it may not meet all sample conformance requirements as defined in the receiving facility's Sample Acceptance Policy and the data will be qualified. Qualified data may NOT be acceptable to report to all regulatory authorities.

PROCEED WITH ANALYSIS and QUALIFY RESULTS: (INITIALS) _____BTP_____

RELINQUISHED BY: (SIGNATURE)	DATE/TIME	RECEIVED BY: (SIGNATURE)	DATE/TIME
	3-10-22		3/10/22 1500
	3/10/22		3/10/22 1520
	1750		3/11/22 0800

3/11/22 1100

3/11/22 1100

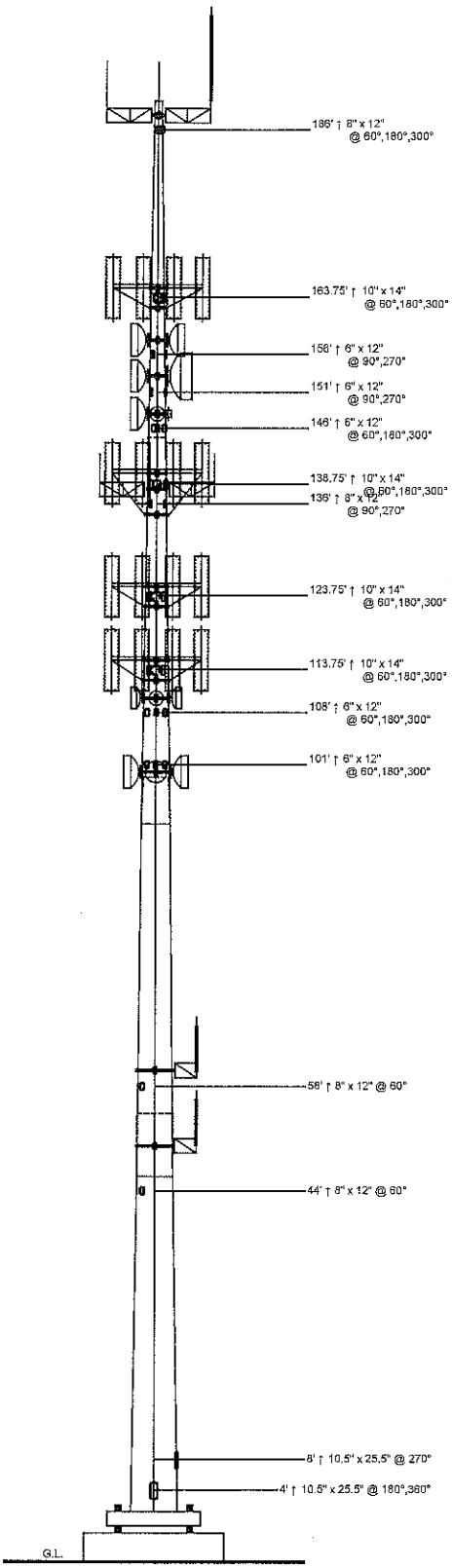
COMMENTS: (FOR LAB USE ONLY)

SAMPLE TEMPERATURE UPON RECEIPT 3.4 °C
CHILL PROCESS STARTED PRIOR TO RECEIPT (Y/N) Y
SAMPLE(S) RECEIVED ON ICE (Y/N) Y

DATE AND TIME TAKEN FROM SAMPLE BOTTLE

SIZES ARE PRELIMINARY AN CHANGE UPON FINAL DESIGN

Length (ft)	53'-3"	53'-6"	49'-6"	51'-6"						
Number Of Sides				18						
Lap Splice (ft)		8' - 6"			6' - 3"	A				
Top Diameter (in)	56.8"		42.7"				28.43"	14"		
Bottom Diameter (in)	74.37"		60.35"				45.51"	30.34"		
Taper (in/ft)				0.33						
Grade				A572-65						
Weight (lbs)	19506		11786				8810		3553	
Overall Steel Height (ft)				189						



Design Criteria - ANSI/TIA-222-G

ASCE 7-16 Ultimate Wind Speed (No Ice)	107 mph
Wind Speed (Ice)	40 mph
Design Ice Thickness	1.50 in
Structure Class	II
Risk Category	II
Exposure Category	B
Topographic Category	1

Limit State Load Combination Reactions

Load Combination	Axial (kips)	Shear (kips)	Moment (ft-k)	Deflection (ft)	Sway (deg)
1.2 D + 1.0 Wo	87.44	38.51	4870.98	8.16	4.81
0.9 D + 1.0 Wo	65.57	38.53	4806.82	7.99	4.69
1.2 D + 1.0 Di + 1.0 Wi	123.14	10.21	1362.47	2.49	1.61
1.0 D + 1.0 Wo (Service @ 60 mph)	72.86	11.22	1408.8	2.36	1.39

Base Plate Dimensions

Shape	Width	Thickness	Bolt Circle	Bolt Qty	Bolt Diameter
Square	78.25"	2.5"	81.75"	12	2.25"

Material List

Display	Value
A	4' - 3"

Notes

1) Antenna Feed Lines Run Inside Pole
2) All dimensions are above ground level, unless otherwise specified.
3) Weights shown are estimates. Final weights may vary.
4) Full Height Step Bolts

Sabre Industries™
INNOVATION DELIVERED

Sabre Industries
7101 Southbridge Drive
P.O. Box 658
Sioux City, IA 51102-0658
Phone: (712) 258-6890
Fax: (712) 279-0814

Quote:	20-5443-TJH-R1
Customer:	MIDAMERICA TOWERS INC
Site Name:	Downers Grove Village, IL
Description:	190' Monopole
Date:	3/8/2022 By: KJL Page: 1

Designed Appurtenance Loading

Elev	Description	Tx-Line
5.65	(1) DB809DK-Y	(1) 1 7/8"
3.29	(3) DB222	(3) 1 7/8"
194.71	(3) DB408	(3) 1 7/8"
188	6ft Sidearm	
188	(3) 6ft Sidearms	
165	Platform - 12' w/ Enhanced Support Rail	
165	(12) 8' x 2' x 6in	(18) 1 5/8"
165	(6) RRU (1' x 1' x 1')	(3) 1 5/8"
158	(1) Dish Mount (Monopole Only) - Pipe Mount (up to 6' Dish)	
158	(1) Dish Mount (Monopole Only) - Pipe Mount (up to 6' Dish)	
158	(1) 4' H.P. Dish	(4) Cat 5
158	(1) 4' H.P. Dish	(1) Cat 5
153	(1) Dish Mount (Monopole Only) - Pipe Mount (up to 6' Dish)	
153	(1) Dish Mount (Monopole Only) - Pipe Mount (up to 6' Dish)	
153	(1) 4' H.P. Dish	(2) Cat 5
153	(1) 6' H.P. Dish	(1) Cat 5
148	Flush Mount (Monopole Only)	
148	(1) Dish Mount (Monopole Only) - Pipe Mount (up to 6' Dish)	
148	(1) Dish Mount (Monopole Only) - Pipe Mount (up to 6' Dish)	
148	(1) 1' x 1' x 1in Panel	(1) Cat 5
148	(1) 4' H.P. Dish	(4) Cat 5
148	(1) 1' H.P. Dish	(1) Cat 5
142.71	(2) DB408	(2) 1 7/8"
142.71	(1) DB408	(1) 1 7/8"
140	Platform - 12' w/ Enhanced Support Rail	
140	(6) RRU (1' x 1' x 1')	(3) 1 5/8"

Elev	Description	Tx-Line
140	(12) 8' x 2' x 6in	(18) 1 5/8"
138	6ft Sidearm	
138	6ft Sidearm	
125	Platform - 12' w/ Enhanced Support Rail	
125	(12) 8' x 2' x 6in	(18) 1 5/8"
125	(6) RRU (1' x 1' x 1')	(3) 1 5/8"
125	(1) Squid (36" x 18" Diameter)	(1) 1 5/8"
115	Platform - 12' w/ Enhanced Support Rail	
115	(12) 8' x 2' x 6in	(18) 1 5/8"
115	(1) Squid (36" x 18" Diameter)	(1) 1 5/8"
115	(6) RRU (1' x 1' x 1')	(3) 1 5/8"
110	(2) Dish Mount (Monopole Only) - Pipe Mount (up to 6' Dish)	
110	(1) Dish Mount (Monopole Only) - Pipe Mount (up to 6' Dish)	
110	(1) 1' H.P. Dish	(1) Cat 5
110	(2) 3' H.P. Dish	(2) Cat 5
100	(2) Dish Mount (Monopole Only) - Pipe Mount (up to 6' Dish)	
100	(1) Dish Mount (Monopole Only) - Pipe Mount (up to 6' Dish)	
100	(1) Dish Mount (Monopole Only) - Pipe Mount (up to 6' Dish)	
100	(2) 4' H.P. Dish	(2) Cat 5
100	(1) 3' H.P. Dish	(1) Cat 5
100	(1) 2' H.P. Dish	(1) Cat 5
63	(1) 6' Omni	(1) 1 7/8"
60	3ft Sidearm	
53	(1) 6' Omni	(1) 1 7/8"
50	3ft Sidearm	

Construction & Geotechnical Material Testing, Inc.

60 Martin Lane, Elk Grove Village, Illinois 60007
Telephone (630) 595-1111 ♦ Fax (630) 595-1110

January 27, 2022

David Yandel, AIA, LEED AP
FGM Architects, Inc.
1211 W. 22nd Street, Suite 700
Oak Brook, Illinois 60523

CGMT Project No. 22G0116

Reference: ***Report of Subsurface Exploration and Geotechnical Engineering Services, Proposed Civic Center, 801 Burlington Avenue, Downers Grove, Illinois***

Dear Mr. Yandel:

CGMT, Inc. has completed the subsurface exploration and geotechnical engineering analyses for the proposed Civic Center to be located at 801 Burlington Avenue, in Downers Grove, Illinois. This report describes the subsurface exploration procedures, laboratory testing, and geotechnical recommendations for project construction. A Boring Location Plan is included in the Appendix of this report along with the Boring Logs performed for the exploration.

We appreciate this opportunity to be of service to the FGM Architects, Inc. during the design phase of this project. If you have any questions with regard to the information and recommendations presented in this report, or if we can be of further assistance to you in any way during the planning or construction of this project, please do not hesitate to contact us.

Respectfully,

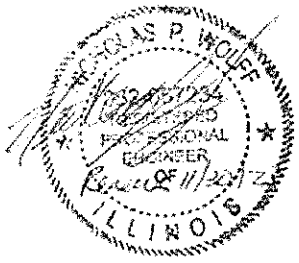
CONSTRUCTION AND GEOTECHNICAL MATERIAL TESTING, INC.

Pratik Patel, P.E.
Vice President

3pc: Encl.

REPORT OF

SUBSURFACE EXPLORATION AND
GEOTECHNICAL ENGINEERING SERVICES



CIVIC CENTER
801 BURLINGTON AVENUE
DOWNERS GROVE, ILLINOIS

CGMT PROJECT NO. 22G0116

FOR

FGM ARCHITECTS, INC.
OAK BROOK, ILLINOIS

JANUARY 27, 2022

CGMT Project No. 22G0116
Civic Center
Downers Grove, Illinois

TABLE OF CONTENTS

CGMT Project No. 22G0116
Civic Center
Downers Grove, Illinois

EXECUTIVE SUMMARY

Construction & Geotechnical Material Testing, Inc. (CGMT) has completed your subsurface exploration and geotechnical engineering project. The subsurface conditions encountered during our exploration and CGMT's conclusions and recommendations are summarized below. This summary should not be considered apart from the entire text of the report with all the qualifications and considerations mentioned herein. Details of our conclusions and recommendations are discussed in the following sections and in the Appendix of this report.

The project site is located at 801 Burlington Avenue in Downers Grove, Illinois. A total of twenty (20) exploratory borings, B-1 through B-8, B-21 through B-24, B-31, and P-1 through P-7, were performed for this project. The soil conditions encountered at the borings performed at the site are summarized as follows.

Beneath the surface materials, Boring B-3, B-4, B-7, B-8, B-24, and P-2 encountered brown and gray, very loose to medium dense sand and gravel fill to depths of approximately of 3½ to 8½ feet below the existing ground surface. Beneath the surface materials and granular fill soils in Borings B-3, B-5, B-6, B-21, B-22, B-23, B-31, P-2, and P-7, the borings encountered dark brown, brown, and gray, stiff to hard silty clay fill soils were encountered and extended to depths of approximately 3½ to 13½ feet below grade. Beneath the surface materials and fill soils, the borings encountered natural, brown and gray, stiff to hard, silty clay and sandy clay that extended to depths of approximately 10 to 50 feet below the existing ground surface. Within the natural clay profile, Borings B-1, B-2, B-3, B-4, B-5, B-6, B-8, B-22 encountered ½ to 10 feet thick layers of brown and gray, loose to medium dense to very dense silt, clayey sand, silty sand, sand, and gravel in the clay profile between depths of approximately 9 to 50 feet below grade.

Supplemental refractive microtremor (ReMi) testing will be performed at the project site, but the results of these tests were not available at the time this report was prepared. ***As such, the discussion below should be considered provisional until the ReMi test results either confirm or refine these recommendations.***

Based on the 2015 International Building Code, Table 1615.1.1 Site Class Definitions, the site soils can be characterized as Site Class D.
If available, records of compaction obtained during the mass earthwork phase of the project should be provided to CGMT for our review. However, if records are not available, the existing fill soils appear to have been placed with some measure of control of moisture content and density and it should be feasible to support floor slabs, pavements, and new fill.

If the Village of Downers Grove is willing to accept some risk of total and differential settlement and associated long term maintenance, the existing fill material similar to those encountered in the borings extending to depths of approximately 3½ to 9 feet below the surrounding grade may remain in place below floor slabs and pavements but the subgrade must pass a proofroll under the observation of a CGMT geotechnical engineer or soils technician. **However, if the Village of Downers Grove is unwilling to accept the risk, then the existing fill soils should be completely removed and replaced with new engineered fill.**

Based on the anticipated structural loading and subsurface conditions, conventional shallow foundation systems consisting of spread and/or continuous footings, extending through existing fill soils (encountered in the borings to depths of approximately 3½ to 9 feet below existing grade), bearing on the natural, very stiff silty clay soils is considered feasible and appropriate to support the proposed civic center improvements. For footings, extending through existing fill soils, bearing at depths of approximately 3½ to 9 feet below grade on natural, very stiff silty clay or new, properly compacted engineered fill, we recommend a maximum net allowable soil bearing pressure of 4,000 psf be used to proportion the footings.

Based on the boring information, the support of the monopole foundation on the natural, stiff to hard silty clay soils is considered feasible and is recommended. For the monopole foundation, we recommend the foundation be located at a depth between 28 and 30 feet and should be proportioned for a net allowable soil bearing pressure of 6,000 psf. The depth of embedment will depend upon the lateral or bending resistance of the shaft in addition to uplift loads.

We recommend that the excavation of building foundations be monitored full-time by a CGMT geotechnical engineer or his representative to verify that the exposed subgrade materials and the soil bearing pressure will be suitable for the proposed structure.

Report Prepared By:

Nicholas Wolff

Nicholas P. Wolff, P.E.
Geotechnical Engineer

Report Reviewed By:

Pratik Patel

Pratik K. Patel, P.E.
Vice President

CGMT Project No. 22G0116
Civic Center
Downers Grove, Illinois

PROJECT OVERVIEW

Introduction

This report presents the results of our subsurface exploration and engineering services for the proposed Civic Center in Downers Grove, Illinois. A General Location Plan included in the Appendix of this report, shows the approximate location of this project.

Project Description

ITEM	DESCRIPTION
Site Layout	See Boring Location Diagram in the Appendix
Proposed Construction	We understand the planned development will consist of the following improvements: • VHPS and Administration Building: ~77,000 square feet (2 story and partial basement) • VHPS Staff Parking: 147 spaces (133 exterior and 14 interior) • School District Administration Parking: 44 to 66 spaces • Apartment Development: 43,908 plan sq. ft. (4 to 5 stories; No basement) • Commuter Parking: 77 spaces (45 on Curtiss Street and 32 in Public Works lot) • 195-foot monopole tower: Max. loads – Vertical: 200 kips; Shear: 30 kips; Uplift: 100 kips (Assumed)
Structural Loads	VHPS/Admin Building: Max. column loads: 550 kips (270 kips DL + 280 kips LL) Apartment Development: Max. column loads: 750 kips (Assumed)
Grading and Existing Site Considerations	We estimate cuts and fills of less than approximately 4 feet will be necessary to establish final site grades.

Scope of Work

The conclusions and recommendations contained in this report are based on the soil borings performed in the vicinity of the proposed building and pavement areas, and associated laboratory testing of selected soil samples. The scope of the subsurface exploration included the following.

Number of Borings	Depth (feet)
9	50
4	25
7	10

The results of the soil borings, along with a Boring Location Plan showing the approximate locations where the borings were performed, are included in the Appendix of this report. Once the samples were returned to our laboratory we laboratory tests on selected representative soil samples from the borings to evaluate pertinent engineering properties, and, we analyzed the field and laboratory data to develop appropriate engineering recommendations.

The purpose of this report is to provide information and geotechnical engineering recommendations with regard to:

- Subsurface Soil and Groundwater Conditions
- Seismic Considerations
- Site Preparation and Earthwork
- Foundation Design and Construction
- Floor Slab Design and Construction
- Pavement Design and Construction

EXPLORATION RESULTS

Site Description

ITEM	DESCRIPTION
Project Location	The project site is located at 801 Burlington Avenue, in Downers Grove, Illinois.
Existing Site Improvements	At the time of our exploration, the site was occupied with the existing multi story village hall structure and a police department facility. These structures will be removed as a part of this project. Most of the balance of the site is covered with asphaltic concrete pavements, concrete flatwork, and landscaped areas.
Existing Topography	According to the topographic survey, by M. Gingerich, Gereaux & Associates, dated November 4, 2016, the site was highest near the central portion of the site, but the site grades had an overall grade down from the north and west toward the south and east with site grades ranging from 729 feet down to 712 feet

Soil Conditions

A total of twenty (20) borings, B-1 through B-8, B-21 through B-24, B-31, and P-1 through P-7,were performed for this project. The subsurface conditions encountered at the borings performed at the site can be summarized as follows.

At each of the borings, except B-21, approximately 5.5 to 10.75 inches of asphalt pavement underlain by 0 to 20 inches of aggregate base course was encountered at the ground surface at the boring locations. Boring B-21 encountered 5 inches of topsoil at the ground surface.

Beneath the surface materials, Boring B-3, B-4, B-7, B-8, B-24, and P-2 encountered brown and gray, very loose to medium dense sand and gravel fill to depths of approximately of 3½ to 8½ feet below the existing ground surface. Beneath the surface materials and granular fill soils in Borings B-3, B-5, B-6, B-21, B-22, B-23, B-31, P-2, and P-7, the borings encountered dark brown, brown, and gray, stiff to hard silty clay fill soils were encountered and extended to depths of approximately 3½ to 13½ feet below grade.

Beneath the surface materials and fill soils, the borings encountered natural, brown and gray, stiff to hard, silty clay and sandy clay that extended to depths of approximately 10 to 50 feet below the existing ground surface. Within the natural clay profile, Borings B-1, B-2, B-3, B-4, B-5, B-6, B-8, B-22 encountered ½ to 10 feet thick layers of brown and gray, loose to medium dense to very dense silt, clayey sand, silty sand, sand, and gravel in the clay profile between depths of approximately 9 to 50 feet below grade.

SOILS	SOIL CHARACTERISTICS
Silty Clay (Existing Fill)	Unconfined Compressive Strengths: 1.0 to 4.5+ tsf Dry Density Determinations: 95.7 to 102.9 pcf Moisture Contents: 11.2 to 28.7 percent
Sand and Gravel (Existing Fill)	Very loose, to medium dense; 2 to 21 blows per foot
Silty Clay and Sandy Clay (Natural)	Unconfined Compressive Strengths: 1.0 to 4.5+ tsf Moisture Contents: 10.8 to 25.9 percent
Silt, Clayey Sand, Silty Sand, Sand, and Gravel (Natural)	Loose to very dense; 7 to 57 blows per foot

The specific soil types observed at the borings are noted on the boring logs, enclosed in the Appendix.

Groundwater Observations

Observations for groundwater were made during sampling and upon completion of the drilling operations at the boring locations. In auger drilling operations, water is not introduced into the boreholes, and the groundwater position can often be obtained by observing water flowing into or out of the boreholes. Furthermore, visual observation of the soil samples retrieved during the auger drilling exploration can often be used in evaluating the groundwater conditions. Groundwater levels were observed during drilling and immediately the completion of drilling. Groundwater measurements are summarized in the table below.

BORINGS	GROUNDWATER LEVELS (FEET)	
	DURING DRILLING	IMMEDIATELY AFTER COMPLETION
P-1 through P-7	None	None
B-6	None	28.9
B-2	28.5	None
Other Borings	2.3 to 34	6.4 to 32.1

Glacial till soils in the Midwest frequently oxidize from gray to brown above the level at which the soil remains saturated. The long-term groundwater level is often interpreted to be near this zone of color change. Based on the results of this exploration, the long-term groundwater level may be located at a depth of approximately 8½ to 18½ feet (usually 13 ½ feet) below current grade.

It should be noted that the groundwater level can vary based on precipitation, evaporation, surface run-off and other factors not immediately apparent at the time of this exploration. Surface water runoff will be a factor during general construction, and steps should be taken during construction to control surface water runoff and to remove any water that may accumulate in the proposed excavations as well as floor slab and pavement areas. Precipitation generally varies seasonally. To assist in anticipating groundwater fluctuations changes throughout the year, average monthly precipitation is provided in the table below. Average precipitation levels were obtained from WeatherDB.com.

Seasonal Precipitation													
Month	January	February	March	April	May	June	July	August	September	October	November	December	Total
Normal Precipitation (inches)	1.73	1.79	2.50	3.38	3.68	3.45	3.70	4.90	3.21	3.15	3.15	2.25	36.89

Seismic Zone

Supplemental refractive microtremor (ReMi) testing will be performed at the project site, but the results of these tests were not available at the time this report was prepared. ***As such, the discussion below should be considered provisional until the ReMi test results either confirm or refine these recommendations.***

Based on the 2015 International Building Code, Table 1615.1.1 Site Class Definitions, the site soils can be characterized as Site Class D. Site Class D is described as Stiff Soil Profile for the top 100 ft of the site soil profile. Since we drilled to a maximum depth of 50 feet for this exploration, based on our experience with the soils in this area, the available geologic maps and following the direction of IBC 2015 when there are no borings to 100 feet deep, it is our opinion the site would be defined as Site Class D.

CGMT also calculated the spectral response factors based on the site class as well as the latitude and longitude of the project location using United States Geological Survey (USGS) seismic calculator software. The calculated values are presented in the table below.

Seismic Design Criteria					
Civic Center					
Downers Grove, Illinois					
Latitude	41.795027	Longitude	-88.004694	Site Class	D
S_s	0.153g	S_{MS}	0.245g	S_{DS}	0.163g
S_1	0.065g	S_{M1}	0.156g	S_{D1}	0.104g

5
ANALYSIS AND RECOMMENDATIONS

Overview

The following recommendations have been developed on the basis of the previously described project characteristics and subsurface conditions encountered. If there are any changes to the project characteristics or if different subsurface conditions are encountered during construction, CGMT should be consulted so that the recommendations of this report can be reviewed.

A summary of the results of the exploration is summarized in the table below.

Preliminary Bearing Table

Boring	Boring Depth (feet)	Depth to Groundwater (feet)		Approximate Depth to Soils Suitable for a Net Allowable Bearing Pressure of 4,000 psf*
		During Drilling	After Completion	
B-1	50	24.3	19.2	1
B-2	50	28.5	None	6
B-3	50	28.5	25.9	6
B-4	50	2.3	10.6	3.5
B-5	50	5.6	17.4	9
B-6	50	None	28.9	6
B-7	50	21.6	16.8	3.5
B-8	50	34	32.1	3.5
B-21	25	14.9	12.6	3.5
B-22	25	9.8	22.8	3.5
B-23	25	18.9	16.1	3.5
B-24	25	9.8	6.4	8.5
B-31	50	34	16	13.5
P-1	10	None	None	N/A
P-2	10	None	None	N/A
P-3	10	None	None	N/A
P-4	10	None	None	N/A
P-5	10	None	None	N/A
P-6	10	None	None	N/A
P-7	10	None	None	N/A

* To be used a minimum of 3½ feet below adjacent outside grade.

Subgrade Preparation and Engineered Fill

Subgrade Preparation

Initial subgrade preparation should consist of complete stripping/removal of topsoil, asphalt pavement course, existing base course materials, vegetation, and any other soft or unsuitable/deleterious materials from the location of the new

civic center improvements, as well as, pavement areas. Unsuitable materials, such as topsoil/buried topsoil or organic soils, should either be stockpiled for later use in landscaping fills or placed in approved disposal areas either on-site or off-site.

The sides of the basement and foundation excavations should be sloped or braced for stability. Excavations should comply with the requirements of OSHA 29CFR, Part 1926, Subpart P, "Excavations" and its appendices, as well as other applicable codes. This document states that the excavation safety is the responsibility of the contractor. Reference to this OSHA requirement should be included in the job specifications.

We recommend that the project geotechnical engineer or his representative should be on site to monitor stripping and site preparation operations and observe that unsuitable soils have been satisfactorily removed and to observe proofrolling.

Existing utilities should be abandoned and relocated, and associated structures and backfill materials should be removed from proposed building areas unless they are planned to remain in service for the new __. Prior to construction, we recommend all utilities in the proposed construction areas be positively identified and marked. Those utilities that can be relocated should be relocated to the extent practical and backfilled with compacted/densified engineered fill. Abandoned utilities should be removed or grouted full with lean concrete. Excavations resulting from removal/demolition of existing utilities and other structures should be completely filled with engineered fill. Active utilities to remain in the construction areas should be exposed and protected during construction to reduce the potential for damage or interruption of service. Where existing utilities will remain under any structure, we recommend that the utility backfill be removed and replaced with controlled fill.

Floor slabs and below grade foundation elements of the existing buildings should be completely removed where they will conflict with new construction. The tops of foundation walls should be removed to depths of at least 2 feet below the base of new pavements, but existing wall backfill materials, if encountered, should be completely removed and replaced with controlled compacted fill. Soils exposed in the excavations created by the demolition should be observed and evaluated by an experienced geotechnical technician or engineer. The completed excavations should be backfilled with properly placed and compacted fill as recommended in this report. **Improper placement and compaction of fill materials during demolition/removal of existing foundations and other structures could lead to inconsistent subgrade performance resulting in foundation, floor slab and pavement distress and settlement.**

It has been our experience that many demolition contractors place the debris from the structure below grade and cap with soil. These type of activities will not provide a suitable subgrade for new foundations, slabs or pavements. **Costs of removal and replacement of demolition debris could unnecessarily add thousands of additional dollars to the cost of the project.** The presence of a CGMT geotechnical engineer on the site during demolition and backfilling operations would reduce the potential for unnecessary removal and replacement to take place during construction.

We do not recommend the use of 3-inch stone or "Pea Gravel" as engineered fill to backfill undercuts, particularly under floor slabs, pavements and foundations. Due to the large diameter and/or absence of fines, the 3-inch rock exhibits large voids. Fill materials containing large voids are more susceptible to future movement that may become unstable resulting in excessive and variable settlement.

Current EPA and State law requires an asbestos survey prior to demolition or renovation activities. In the event regulated asbestos materials are confirmed to be present, any regulated asbestos materials that would be disturbed must removed prior to such disturbance by a licensed asbestos removal firm.

After removal of unsuitable/deleterious materials and stripping to the desired grade, and prior to fill placement, we recommend the stripped/exposed subgrades be observed by an experienced geotechnical engineer or his authorized representative at the time of construction in order to aid in identifying localized soft/loose or unsuitable materials which should be removed. Proofrolling using a loaded dump truck having an axle weight of at least 10 tons, may be used at this time to aid in identifying localized soft or unsuitable material which should be removed. Any soft or unsuitable

materials encountered during proofrolling should be compacted in place or removed and replaced with an approved backfill compacted to the criteria given below. Prior to proofrolling, pavement and floor slab areas that will receive less than 1 foot of new fill, should be scarified to a depth of about 9 inches, moisture conditioned, and recompacted as recommended below.

If available, records of compaction obtained during the mass earthwork phase of the project should be provided to CGMT for our review. However, if records are not available, the existing fill soils appear to have been placed with some measure of control of moisture content and density and it should be feasible to support floor slabs, pavements, and new fill.

If the Village of Downers Grove is willing to accept some risk of total and differential settlement and associated long term maintenance, the existing fill material similar to those encountered in the borings extending to depths of approximately 3½ to 9 feet below the surrounding grade may remain in place below floor slabs and pavements but the subgrade must pass a proofroll under the observation of a CGMT geotechnical engineer or soils technician. **However, if the Village of Downers Grove is unwilling to accept the risk, then the existing fill soils should be completely removed and replaced with new engineered fill.**

During final preparation of subgrades, a smooth drum roller is often used to provide a flat surface and provide for better drainage to reduce the negative impact of rain events. Due to the relative sensitivity of the silty clay soils, we recommend that these materials be static rolled (no vibrations) to reduce the potential for subgrade soil disturbance. We also recommend crowning the subgrade to provide positive drainage off the building pads and pavement area subgrades.

Engineered Fill

Where new fill material is required for backfill or to otherwise reach the design subgrade elevation beneath slabs-on-grade and pavements, we recommend that engineered fill be used. Any soil placed as engineered fill should be an approved material, free of organic matter or debris, be a non-frost susceptible soil, and have a liquid limit and plasticity index less than 40 and 15, respectively. The project geotechnical engineer should be consulted to determine the suitability of off-site/on-site materials for use as engineered fill, prior to use or placement. **We do not recommend the use of 3-inch stone as engineered fill to backfill undercuts, particularly under floor slabs and foundations.** Fill materials containing large voids are more susceptible to future movement that may become unstable resulting in excessive and variable settlement.

Fill should be placed in lifts not exceeding 8 inches in loose thickness, moisture conditioned to within 2 percent of the optimum moisture content, and compacted to at least 95 percent of the maximum dry density obtained in accordance with ASTM Specification D 1557, Modified Proctor Method. Fill placed below footing base elevations should be compacted to at least 95 percent of the material's modified Proctor maximum dry density (ASTM D 1557). Engineered fill placed to support foundations should extend 1 foot beyond the outside edges of the footings and from that point outward laterally 1 foot for every 2 feet of fill thickness below the footings. Laboratory proctor tests should be performed on fill materials to determine the maximum dry density and optimum moisture content. A shrinkage factor of 15 percent can be assumed for estimating earthwork quantities for bidding purposes.

We recommend suitable silty clays used to raise the grade or backfill undercuts should be compacted with a sheepsfoot roller. Granular engineered fill should be compacted with a smooth drum roller or adequate heavy vibratory plate. Moisture control during earthwork operations, including the use of disking or appropriate drying equipment and techniques, should be expected.

In-place density tests should be performed with a minimum of 1 test per 2,000 square feet of fill area for each lift of fill placed. We recommend that the placement of engineered fill be monitored full-time by CGMT representative and in-place density tests should be performed to verify the adequacy of the compaction for each lift of fill placed.

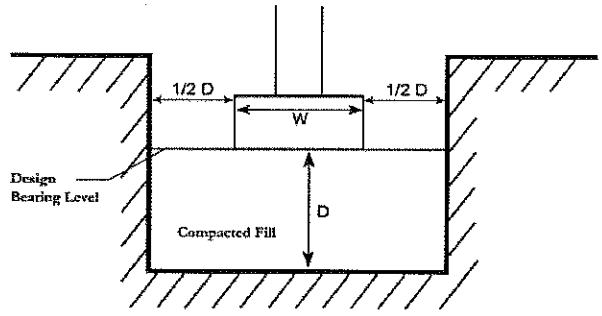
Footing Foundations

Based on the anticipated structural loading and subsurface conditions, conventional shallow foundation systems consisting of spread and/or continuous footings, extending through existing fill soils (encountered in the borings to depths of approximately 3½ to 9 feet below existing grade), bearing on the natural, very stiff silty clay soils is considered feasible and appropriate to support the proposed civic center improvements. For footings, extending through existing fill soils, bearing at depths of approximately 3½ to 9 feet below grade on natural, very stiff silty clay or new, properly compacted engineered fill, we recommend a maximum net allowable soil bearing pressure of 4,000 psf be used to proportion the footings.

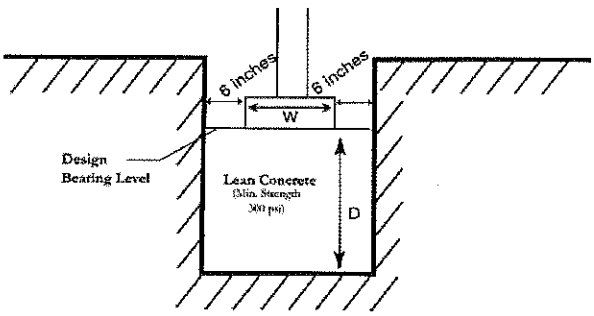
To reduce the potential for foundation bearing failure and excessive settlement due to local shear or "punching" action, we recommend that continuous footings have a minimum width of 18 inches and that isolated column footings have a minimum lateral dimension of 30 inches. In addition, footings should be placed at a depth to provide adequate frost cover protection. We recommend the footings be placed at a minimum depth of 3½ feet below finished grade. Interior footings in heated areas can be placed at a minimum of 2 feet below grade provided that suitable soils are encountered and that the foundations will not be subjected to freezing weather either during or after construction.

We recommend that the excavation of building foundations be monitored on a full-time basis by a CGMT geotechnical engineer or his representative to verify that the exposed subgrade materials and the soil bearing capacity will be suitable for the proposed building and is consistent with the boring log information obtained during the geotechnical exploration.

The contractor should be prepared to undercut/overexcavate and extend the footings to soils of adequate bearing capacity. As an alternative, after overexcavation and removal of weaker/low bearing capacity soils or unsuitable soils, the foundation subgrade can be raised using compacted engineered fill or lean concrete to a minimum frost depth of 3½ feet below final exterior grade. Engineered fill should be compacted to a minimum of 95 percent of the maximum dry density as discussed in the **Subgrade Preparation and Engineered Fill** section. The zone of the engineered fill placed below the foundations should extend 1 foot beyond the outside edges of the footings and from that point, outward laterally 1 foot inches for every 2 feet of fill thickness below the footing. The overexcavation and backfill procedure is depicted in the figure below. If lean concrete is used to replace weaker/low bearing soils or unsuitable soils, no lateral overexcavation will be necessary, but the excavation should be 1 foot wider than the footing (6 inches on each side).



Overexcavation and Backfill Procedure
(Recommended for Relatively Shallow Deepening)



Overexcavation and Lean Concrete Backfill Procedure
(Recommended for Greater Deepening)

Settlement of the conventional shallow foundations, designed in accordance with our recommendations presented in this report, is expected to be within tolerable limits for the proposed building. For footings, extended through existing fill, placed on natural, very stiff silty clay or properly compacted engineered fill and designed as discussed above, maximum total settlement is expected to be in the range of 1 inch or less. These settlement values are based on our engineering experience with the soil and the anticipated structural loading, and are to guide the structural engineer with his design.

Monopole Drilled Shaft Foundations

Design Criteria

Based on the boring information, the support of the monopole foundation on the natural, stiff to hard silty clay soils is considered feasible and is recommended. For the monopole foundation, we recommend the foundation be located at a depth between 28 and 30 feet and should be proportioned for a net allowable soil bearing pressure of 6,000 psf. The depth of embedment will depend upon the lateral or bending resistance of the shaft in addition to uplift loads.

The pier design and construction procedures should be reviewed with the contractor prior to start of construction. If you desire, we would be pleased to review the plans and specifications for the project once they are completed so we may have the opportunity to comment on the impact of the soil and groundwater conditions on the design.

For straight shaft drilled shafts, uplift forces can be resisted by the monopole dead load including the factored weight of the shaft, and the side shear along the circumference of the pier (skin friction). In determining the weight of the shaft, we recommend a minimum factor of safety of 1.25 be applied to the weight of the concrete in the shaft. The compression forces can also be resisted by the side shear along the circumference of the shaft and the end bearing capacity.

For the assumed maximum loads, post-construction settlements of drilled shafts designed and constructed as discussed in this report should be about ½ to 1 inch. Differential settlements within the structure are not anticipated to exceed ½ the total settlement.

Drilled Shaft Lateral Resistance

Estimated soil parameters and the allowable lateral soil pressures for drilled shafts constructed directly against the site soils are provided below in the table below. However, it should be noted that the load capacities provided herein are based on the stresses induced in the supporting soils. The structural capacity of the shafts should be checked to assure that they can safely accommodate the combined stresses induced by axial and lateral forces. Furthermore, the response of the drilled shaft foundation to lateral loads is dependent upon the soil/structure interaction as well as the shaft's actual diameter, length, stiffness and "fixity" (fixed or free-head condition). The allowable passive earth pressure values presented below may be used to evaluate lateral resistance. The earth pressure values were developed using a factor of safety of 2 for cohesive soils. We recommend no contribution to resisting lateral loads be considered within 3 feet of the ground surface. The presented values have been computed at the mid-depth of each stratum, with an assumed groundwater level of greater than 8½ feet below existing grade. We would be pleased to provide further consultation in the design of the drilled shafts to resist lateral loading, if requested to do so.

For lateral capacity analysis of deep foundations, several computer programs based upon the P-Y analysis like COM624P as discussed in Publication No. FHWA-SA-91-048, or Florida Pier, are available and may be used. The estimated soil properties that may be used for calculating lateral loads are presented in the table below.

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Soil Properties

Depth Below Surface	Soil Type	Unit Weight; γ (pcf)	Effective Unit Weight; γ' (pcf)	Undrained Cohesive Strength*; c (psf)	Angle of Internal Friction; φ (degrees)	Allowable Skin Friction (psf)	Strain at 50%Stress Level; E_{50}	Variation of Soil Modulus With Depth	
								k-Static (pci)	k-Cyclic (pci)
0 – 3½	FILL: Silty Clay	-	-	-	-	-	-	-	-
3½ - 6	Very stiff, Silty Clay	125	125	2,500	-	1,100	0.004	2,000	-
6 - 8½	Very stiff, Silty Clay	130	130	2,000	-	1000	0.004	2,000	-
8½ - 13½	Very stiff, Silty Clay	130	130	2,000	-	1000	0.004	1,000	-
13½ - 18½	Very stiff, Silty Clay	130	68	2,750	-	1200	0.004	1,000	-
18½ – 23½	Very stiff, Silty Clay	125	63	2000	-	1,000	0.004	1,000	-
23½ - 28½	Sand, Silty Sand, Gravel	130	68	-	28	700	-	20	20
28½ - 33½	Very stiff, Silty Clay	130	68	2,000	-	1000	0.004	1,000	-
33½ – 38½	Very stiff, Silty Clay	130	68	3,250	-	1,600	0.004	1,000	-
38½ - 40	Stiff, Silty Clay	130	68	1,750	-	900	0.005	500	-
43½ - 45	Very stiff, Silty Clay	130	68	2,000	-	1,000	0.004	1000	-
48½ - 50	Sand and Gravel	135	73	-	32	1,150	-	50	50

*See boring logs for subsurface data, enclosed in the Appendix.

Drilled Shaft Construction Considerations

Some sloughing or caving of the pier excavations could occur where significant granular soils are encountered. Temporary casing may be required to support the drilled shaft excavations.

The shaft excavation should be observed by a CGMT geotechnical engineer, engineering geologist or experienced soil technician by visually examining the exposed surface at the sides and bottom of the piers, to confirm that the soils are present to provide the values assumed above.

Once the bearing level is reached all loose soil should be removed prior to placement of pier reinforcing cage and concrete. Reinforcing steel and concrete strength requirements for the piers should be determined by the structural engineer.

Our experience indicates that the drilled pier can be constructed by "free fall" placement of concrete without affecting the strength and quality of concrete. The concrete should "free fall" without hitting the sides of the casing or reinforcing. The use of a hopper or other suitable device is recommended to control concrete placement and direct it towards the center of the pier. The free fall of concrete results in compact concrete below a depth of 5 feet. In the upper 5 feet, we recommend that the concrete be vibrated.

If casing of drilled shaft excavations becomes necessary, care should be taken when removing temporary casings during concrete placement. During casing removal, the concrete level inside the casing should be maintained a sufficient distance above the bottom of the casing to counteract hydrostatic pressures on the outside of the casing. Placement of loose soil backfill should not be permitted around the casing prior to removal. A design concrete slump of approximately 5 to 7 inches should be used to help facilitate removal of temporary casings and reduce the possibility of concrete arching.

Based on the soil and groundwater conditions obtained from the borings, groundwater seepage, if any, should not be significant. Groundwater that accumulates in shaft excavations should be removed prior to concrete placement, or a tremie method should be used for placement of the concrete.

Although gases or odors were not noted in the borings during the drilling operations, such poor air quality could be encountered in the drilled shaft excavation during construction. The contractor should check for gas and/or oxygen deficiency prior to any workers entering the excavations for observation and manual clean up. All the necessary monitoring and safety precautions should be strictly observed during construction.

We recommend that all drilled shaft construction be observed on a full-time basis by an experienced geotechnical engineer in order to check that the soils encountered are consistent with the recommended design parameters.

Lateral Earth Pressures

Below grade walls, including basement walls, but also potentially retaining walls, should be designed to withstand lateral earth pressures and surcharge loads. The lateral earth pressures exerted on the walls will be a function of the stiffness and the rotation of the walls. The rotation of the wall controls the degree to which the internal strength of the soil is mobilized. If rotation or deflection of the walls will be less than that required to mobilize the "**active**" earth pressure condition due to stiffness, bracing or other mechanism (as is typical with retaining walls), the "**active**" earth pressure condition should be evaluated. If the walls will be rigidly tied and unyielding (as is typical with basement walls), the "**at-rest**" earth pressure condition should be evaluated. The unfactored soil parameters provided in the Lateral Earth Pressure table are based in the assumption that a horizontal back slop will be utilized behind the sheeting and shoring.

Lateral Earth Pressures					
Soil Type	Angle of Internal Friction, φ (degrees)	Estimated Total Unit Weight (pcf)	K_O "At-Rest"	K_A "Active"	K_P "Passive"
Cohesive Soils	30	125	0.50	0.33	3.00
Granular Soils	28	125	0.53	0.36	2.77

- For passive earth pressure, wall top must rotate about the base a minimum of 0.01H horizontally to mobilize resistance.
- No groundwater acting on wall
- Ignore passive pressure in frost zone
- The above values do not include a factor of safety
- Uniform Surcharge
- Loading from the construction equipment not included

- Horizontal backfill, compacted to at least 95% of standard Proctor maximum dry density

If friction at the base of the wall is insufficient and additional resistance to sliding is required, the provision for a shear key at the bottom of the wall may be considered. A key develops additional lateral resistance using "**passive**" earth pressures. To develop "**passive**" earth pressures, the key should be located at depths greater than the depth of frost penetration (3½ feet below lowest adjacent finished grade).

When unsaturated conditions are present an equivalent fluid pressure can be obtained from the table above by multiplying the appropriate k-factor times the total unit weight of the soil and when saturated conditions are present an equivalent fluid pressure can be obtained from the table above by multiplying the appropriate k-factor time the effective unit weight (total unit weight minus weight of water) and the unit weight of water added to that resultant.

Backfill placed against structures should consist of granular soils or low plasticity cohesive soils. For the granular values to be valid, the granular backfill must extend out from the base of the wall at an angle of at least 45 and 60 degrees from vertical for the active and passive cases, respectively. To calculate the resistance to sliding, a value of 0.35 should be used as the allowable coefficient of friction between the footing and the underlying soil. It is important to note that since sliding resistance is mobilized with movement, it would follow that passive failure would have likely occurred. Therefore, the design of the wall should account for resistance to reflect either sliding resistance or passive resistance. The use of both resistance mechanisms in the design should not be performed.

We recommend the basement and retaining walls be provided with a perimeter drainage system, as described above, to reduce the potential for excess hydrostatic pressures to be exerted on the walls. This system may consist of perforated or porous wall, closed joint drain tiles located around the perimeter of the walls, slightly below the lower slab level. We recommend waterproofing and damp proofing of walls be considered for basement walls. Based on the groundwater level information obtained from the boring, damp proofing of the basement walls should be adequate. Waterproofing/damp proofing and waterstops measures should be installed in accordance with local building code requirements.

The space between the outside of the walls and the excavation should be backfilled with a granular fill. The ground surface adjacent to the below grade walls should be kept properly graded to prevent ponding of water adjacent to the below grade walls.

To reduce hydrostatic loading, we recommend perforated, rigid plastic or metal drain lines be installed near the base of walls extending below grade. The invert of a drain line around the perimeter of below-grade structures should be at least 12 inches below the finished subgrade elevation of the interior slab or at least at footing base level. The drain line should be sloped to provide positive gravity drainage and should be surrounded by free-draining (less than 3 percent fines) granular material graded to prevent the intrusion of fines, or an alternative non-graded free-draining granular material encapsulated with suitable filter fabric. At least a 2-foot wide section of free-draining granular fill should be used for backfill above the drain line and adjacent to the wall. The drainage section should extend to within 2 feet of final grade. The drainage section should be capped with low-permeability compacted cohesive fill to minimize infiltration of surface water into the drain system.

To achieve a desirable balance between minimizing excessive pressures against the below grade walls and reducing the settlement of the wall backfill, we recommend that the wall granular backfill be compacted to at least 90% of the maximum dry density obtained in accordance with ASTM Specification D 1557, Modified Proctor Method. Where the fill materials will be supporting sidewalks or pavements, the upper 1 foot should be compacted to 95% of the maximum dry density referenced above. It has been our experience that compaction of backfill around structures is typically poor in both materials and workmanship resulting in substantial settlements adjacent to the structure. These settlements are most evident on stoops, porches and driveways. Therefore, we recommend all backfilling be monitored by a CGMT representative to reduce the potential for settlement related problems.

Backfill materials should consist of inorganic materials, free of debris, be free draining, and containing no frost susceptible soil. The fill placed adjacent to the below grade walls should not be overcompacted. Heavy earthwork equipment should maintain a minimum horizontal distance away from the below grade walls of 1 foot per foot of vertical wall height. Lighter compaction equipment should be used close to the below grade walls. Where light (e.g., hand) compaction equipment is employed, the maximum lift thickness should be reduced to 6 inches. Depending upon the method of excavation (i.e. sheeting), it may be difficult to install a perimeter drain system. Use of geosynthetic wall drain, such as Enka drain, or similar material may be needed to facilitate drainage.

Floor Slab Design

For the design and construction of the new building slabs-on-grade for the proposed buildings, we recommend that all existing vegetation, pavements, topsoil or organic soils, and any unsuitable/deleterious materials should be removed and replaced with compacted engineered fill as discussed in the **Site Preparation and Engineered Fill** section. If the removal is performed in accordance with these recommendations, we anticipate floor slabs for the structures will be supported on stable and approved subgrades consisting of silty clay, or on new engineered fill.

It is assumed that the existing floor slab subgrade has performed satisfactorily during the proofroll discussed in the Subgrade Preparation subsection, even though existing fill soils were encountered to depths of 3½ to 9 feet. Provided that the floor slab subgrade passes a proofroll, the risk of excessive settlement is low. However, if the floor slab subgrade does not pass the proofroll, some undercutting and placement of controlled backfill will be required.

We recommend that floor slabs be underlain by a minimum of 6 inches of granular material having a maximum aggregate size of 1½ inches and no more than 2 percent of fines. Prior to placing the granular material, the floor subgrade soil should be properly compacted, proofrolled, and free of standing water, mud, and frozen soil. For design of Portland cement concrete slabs-on-grade, a modulus of subgrade reaction (k) of 100 pounds per cubic inch (pci) can be used for slabs constructed on subgrade prepared as discussed herein.

A properly designed and constructed capillary break layer can often mitigate the need for a moisture retarder and can assist in more uniform curing of concrete. If a vapor retarder is considered to provide additional moisture protection, special attention should be given to the surface curing of the slabs to reduce uneven drying of the slabs and associated cracking and/or slab curling. The use of a blotter or cushion layer above the vapor retarder can also be considered for project specific reasons. Please refer to ACI 302.1R96 *Guide for Concrete Floor and Slab Construction* and ASTM E 1643 *Standard Practice for Installation of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs* for additional guidance on this issue.

We recommend that the floor slab be isolated from the foundation footings so differential settlement of the structure will not induce shear stresses on the floor slab. Also, in order to reduce the crack width of any shrinkage cracks that may develop near the surface of the slab, we recommend mesh reinforcement as a minimum be included in the design of the floor slab. Temperature and shrinkage reinforcements in slabs on ground should be positioned in the upper third of the slab thickness. The Wire Reinforcement Institute recommends the mesh reinforcement be placed 2 inches below the slab surface or upper one-third of slab thickness, whichever is closer to the surface. Adequate construction joints, contraction joints and isolation joints should also be provided in the slab to reduce the impacts of cracking and shrinkage. Please refer to ACI 302.1R96 *Guide for Concrete Floor and Slab Construction* for additional information regarding concrete slab joint design.

Underslab Drainage

It would also be prudent to install an underslab drain system beneath the basement floor slab to collect water that infiltrates from the soils adjacent to basement walls as well as from the ground surface. The drain system could consist of a 6-inch thick layer of free draining base underlain by drains composed of perforated pipe placed in a trench that is

backfilled with free-draining granular material. The trenches should extend 12 inches below the floor slab subgrade and should be spaced at 50 feet center-to-center.

The drain systems should be sloped to provide positive gravity drainage to a frost-free outlet or sump equipped for automated pumping. Pumps should be sized and selected to adequately handle potential flows that may be encountered at the desired basement depths. Redundant pumps with battery backup power should be considered, to reduce the risk of basement seepage in the event of pump and/or power failure. Periodic maintenance of the drainage systems is necessary so that they do not become plugged and inoperative.

Mechanically Stabilized Earth (MSE) Retaining Walls

Due to some substantial grade changes over relatively small laterial distances, retaining walls may be necessary at the site. Mechanically stabilized earth (MSE) retaining walls provide an economical alternative to reinforced concrete retaining walls or driven and tied-back sheet pile walls. A system of reinforced soil backfill provides the anchoring of the soil mass behind the wall system and architecturally pleasing panels provides the anchoring of the soil mass behind the wall system and architecturally pleasing panels provide a facing to support the end of the reinforced backfill. Wall heights of 30 to 50 feet have been successfully designed in this area with the use of proper reinforced backfill tied to the facing materials.

Any bearing loads placed on the soil above a wall without reinforced backfill also affect the allowable wall height. Roadway surcharge loads should be taken into account in the wall design. Water pressure will also force a wall to fail. The design must ensure proper drainage of backfill materials. Care must be taken to include any plantings or street light installation into the retaining wall design.

Although different MSE wall types and block configurations may be used, the external soil parameters necessary in design remain the same for each wall system. Three sets of parameters are needed to address the three sets of materials required by the design: the foundation soil, the retained soil, and the reinforced fill. Since a reinforced soil will not be used, we have not included recommended design values for reinforced fill here.

The following parameters are recommended for the site foundation soil (extended through fill to predominantly natural silty clay):

Angle of Internal Friction, ϕ	25°
Moist Soil Unit Weight, γ_w	125 pcf
Net Allowable Bearing Pressure	3,000 psf

The following parameters are recommended for silty clay backfill:

Angle of Internal Friction, ϕ	25°
Moist Soil Unit Weight, γ_w	130 pcf

The following parameters are recommended for granular backfill:

Angle of Internal Friction, ϕ	30°
Moist Soil Unit Weight, γ_w	130 pcf

These parameters for the foundation and retained soils are based on the data obtained at the site and predictions of the compacted soil properties. We recommend the use of well graded granular fill (such as IDOT CA-6) be used for the reinforced fill zone. Cohesive soil in the reinforced backfill zone is not recommended. The design parameters of sand and other reinforced fill materials should be verified prior to construction.

Drains are recommended to efficiently remove the excess water pressure behind each wall face. A granular drain layer or synthetic wall board shall be placed behind the selected retaining wall system.

The reinforced zone should extend to a minimum of 3½ feet below final grade for frost protection. The base course of face block should be founded on a leveling pad consisting of a minimum 1 foot thick layer of compacted well-graded granular fill, such as IDOT CA-6. The leveling pad should extend a minimum of 6 inches in front of and behind the block.

Reinforced fill and the leveling pad shall be compacted to at least 95% of the maximum dry density determined by ASTM D-1557, Modified Proctor. Sand shall be compacted at a moisture content that does not promote balking. Compacting at a nearly dry state or at a nearly saturated state will generally decrease the potential balking and allow proper compaction. Due to the potential for deflecting the wall outward, the use of heavy compactive equipment near the wall face shall be avoided. We recommend that CGMT be on site full time to observe retaining wall construction and backfilling.

Pavements

For the design and construction of exterior pavements, we recommend that topsoil, old pavement be removed before construction of new pavements and that new pavements will be supported by stable and approved subgrades consisting of silty clay or on new engineered fill.

It is assumed that the existing pavement subgrade has performed satisfactorily during the proofroll discussed in the **Subgrade Preparation** subsection, even though existing fill soils were encountered to depths of 3½ to 9 feet. Provided that the pavement subgrade passes a proofroll, the risk of excessive settlement is low. However, if the pavement subgrade does not pass the proofroll, some undercutting and placement of controlled backfill will be required.

We anticipate the new pavement will be constructed of asphaltic concrete or Portland cement concrete. We expect that the proposed parking lot will generally be utilized for light duty traffic, and the driveways and loading and unloading areas be utilized for light to medium duty traffic. Heavy traffic loads would be anticipated for areas near any dumpsters where garbage trucks would often cross. We recommend the pavement subjected to light traffic be underlain by a minimum of 8 inches of base course granular material, similar to Illinois Department of Transportation gradation CA-6.

Assuming the pavement subgrade will consist predominantly of the cohesive soils and new fill prepared in accordance with the recommendations given in this report, an estimated IBR value of 3 could be used in proportioning a flexible pavement section. Similarly, an estimated modulus of subgrade reaction value equal to 100 pounds per cubic inch could be used for design of rigid concrete pavement sections. A Subgrade Stability Rating (SSR) rating of (Poor) should be used for pavement design. Concrete pavements should be air-entrained Portland cement concrete with a minimum compressive strength of 4,000 psi and a minimum flexural strength of 650 psi. Concrete strength requirements are outlined in article 1020.04 of the Standard Specifications for Road and Bridge Construction, effective April 1, 2016.

Some typical pavement sections used in this region of the country are given below which could be considered for preliminary estimating purposes. Other sections can also be considered. These sections assume a low volume of light vehicle loads (automobiles, vans, pickups, etc.). They should also be considered minimum thicknesses, and, as such, periodic maintenance should be anticipated. Final design sections should consider details such as final grades, traffic loadings, traffic volumes, the desired design life and any local, county or city codes. If you wish, we would be pleased to perform a detailed pavement section design using AASHTO or Asphalt Institute procedures when this information is available. It should also be noted that these sections do not consider if the binder course will be subject to construction vehicle traffic for an extended period of time. Some distress to the binder course and aggregate base could occur, if this is the case.

TYPICAL PAVEMENT SECTIONS*

	Light Duty (Parking Lots)	Heavy Duty ** (Drives)
Portland Cement Concrete	5 inches	6 inches
Full Depth Asphalt	5.5 inches	7 inches
Combined Section:		
Asphalt	3 inches	4 inches
Crushed Stone Base Course	8 inches	10 inches

* All materials should meet the current Illinois Department of Transportation Standard Specifications for Road and Bridge Construction requirements.

** In areas of anticipated heavy traffic, delivery trucks, or concentrated loads, a minimum concrete thickness of 7 inches is recommended but should be evaluated further when loading conditions are known.

Minimum design requirements for hot-mix asphalt (HMA) shall follow Article 1030.05 of the Standard Specifications for Road and Bridge Construction, effective April 1, 2016. During asphalt pavement construction, the wearing and leveling course should be compacted to a minimum of 93 percent of the theoretical density value. Prior to placing the granular material, the pavement subgrade soil should be properly compacted, proofrolled, and free of standing water, mud, and frozen soil.

An important consideration with the design and construction of pavements is surface and subsurface drainage. Where standing water develops, either on the pavement surface or within the base course layer, softening of the subgrade and other problems related to the deterioration of the pavement can be expected. Furthermore, good drainage should reduce the possibility of the subgrade materials becoming saturated over a long period of time. We would be pleased to be of further assistance to you in the design of the project pavements by providing additional recommendations during construction of the project.

Periodic maintenance of pavements should be anticipated. The subgrade parameters provided in this report consider that significant changes in the subgrade moisture content do not occur. To reduce the potential for changes in subgrade moisture, all paved areas should be sloped to provide rapid drainage of surface water and to drain water away from the pavement edges. Water that is allowed to pond on or adjacent to the pavement can saturate and soften the subgrade soils and subsequently accelerate pavement deterioration.

Granular base or subbase materials directly below pavement sections can also collect infiltrated surface water and soften the subgrade as well as increase the effects of frost action, both of which can be detrimental to pavements. For these reasons, where granular materials are used over a cohesive soil subgrade or where the groundwater level is within 3.5 feet of finished pavement subgrade, we recommend that consideration be given to using pavement underdrains hydraulically connected to the granular base or subbase to improve the pavement performance and extend its service life. Underdrains should be installed at 300 to 500 feet intervals and at low points in the roadway profile. Pipe underdrains shall be installed according to Check Sheet #19 of the Supplemental Specifications and Recurring Special Provisions, effective January 1, 2015.

General Construction Considerations

We recommend that the subgrade preparation, installation of the foundations, and construction of slabs-on-grade be monitored by a CGMT geotechnical engineer or his representative. Methods of verification and identification such as proofrolling, DCP testing and hand auger probe holes will be necessary to further evaluate the subgrade soils and identify unsuitable soils. The contractor should be prepared to overexcavate footing excavations at isolated locations.

We recommend that excavations of new foundations be monitored on a full-time basis by a CGMT geotechnical engineer or his representative to verify that the soil bearing pressure and the exposed subgrade materials will be suitable for the proposed Civic Center and are consistent with the boring log information obtained during this geotechnical exploration. We would be pleased to provide these services.

Since localized areas of soft/unsuitable soils may be present below the bearing elevation of foundations, we recommend that hand-auger borings be performed to at least half the footing width, or a minimum of 3 feet below each isolated column footing and to at least 2 feet below continuous footings. Hand auger borings should be performed at each column footing and at approximately 20-foot intervals along continuous footings to verify the suitability of the soils to support the recommended maximum net allowable bearing pressure. If soft/unsuitable soils are encountered, the footings should be extended until suitable bearing soils are encountered or the unsuitable soils should be removed beneath the base of the footing and replaced with compacted engineered fill or lean concrete. The foundation contractor should expect undercutting/overexcavation or removal of unsuitable material without delay and replacement with engineered fill at the time of foundation excavation/construction.

All loose or soft soils in the subgrade or foundation excavation areas should be densified or removed before placing any concrete or fill. Accumulated water or runoff water at the base of the foundation excavations should also be promptly removed. Groundwater seepage is anticipated not to be a major factor during foundation excavations or undercutting. If encountered, we believe sump and pump system should be adequate to remove accumulated seepage from the bottom of excavations prior to placement of concrete or crushed stone. Concrete should not be placed in water. To reduce the potential for frost heave related problems; forms should be used prior to the placement of foundation concrete.

Exposure to the environment may weaken the soils at the foundations bearing level if the excavations remain open for too long a time. Therefore, foundation concrete should be placed the same day that excavations are opened, when possible. If the bearing soils are softened by surface water intrusion or exposure, the softened soils must be removed from the immediately prior to placement of concrete.

We recommend adequate surface and subsurface drainage be considered in the design and construction of floor slabs and pavements. Where standing water develops, either on slab or pavement surfaces or within the base course layer, softening of the subgrade and other problems related to the deterioration of the floor slabs and pavements can be expected. Adequate drainage should reduce the possibility of the subgrade materials becoming saturated over a long period of time. To reduce water infiltration to the pavement section and within the base course layer resulting in softening of the subgrade and deterioration of the slabs and pavements, we recommend the timely repair or sealing of joints and cracks in slabs and pavement.

All unsuitable materials should be removed and replaced with environmentally clean, inorganic fill and free of debris or harmful matter. Unsuitable materials removed from the project site should be disposed of in accordance with all applicable federal, state, and local regulations.

The contractor should avoid stockpiling excavated materials immediately adjacent to the excavation walls. We recommend that stockpile materials be kept back from the excavation a minimum distance equal to the excavation depth to avoid surcharging the excavation walls. If this is impractical due to space constraints, the excavation walls should be retained with bracing designed for the anticipated surcharge loading.

Excavations should comply with the requirements of OSHA 29CFR, Part 1926, Subpart P, "Excavations" and its appendices, as well as other applicable codes. This document states that the contractor is solely responsible for the design and construction of stable, temporary excavations. The excavations should not only be in accordance with current OSHA excavation and trench safety standards but also with applicable local, state, and federal regulations. The contractor should shore, slope or bench the excavation sides when appropriate. In no case should excavations extend below the level of adjacent structures, utilities or pavements, unless underpinning or other adequate support is provided. Site safety is the sole responsibility of the contractor, who shall also be responsible for the means, methods and sequencing of construction operations.

EXPLORATION PROCEDURES

Subsurface Exploration Procedures

The soil borings were located in the field by a CGMT Field Engineer based on the proposed boring site plan provided to us. As required by the State of Illinois, the driller notified Illinois One-Call System, JULIE, to verify underground utilities in the vicinity of the project site prior to drilling operations.

The soil borings were performed with a truck-mounted rotary-type auger drill rig, which utilized continuous hollow stem augers to advance the boreholes. Representative soil samples were obtained at 2½ foot intervals for the first 10 feet and 5 foot intervals thereafter by means of conventional split-barrel sampling procedures. In this procedure, a 2-inch O.D., split-barrel sampler is driven into the soil a distance of 18 inches by a 140-pound hammer falling 30 inches. The number of blows required to drive the sampler through a 12-inch interval, after initial setting of 6 inches, is termed the Standard Penetration Test (SPT) or N-value and is indicated for each sample on the boring logs. The SPT value can be used as a qualitative indication of the in-place relative density of cohesionless soils. In a less reliable way, it also indicates the consistency of cohesive soils. This indication is qualitative, since many factors can significantly affect the standard penetration resistance value and prevent a direct correlation between drill crews, drill rigs, drilling procedures, and hammer-rod-sampler assemblies. The drill rig utilized an automatic trip hammer to drive the sampler. Consideration of the effect of the automatic hammer's efficiency was included in the interpretation of subsurface information for the analyses prepared for this report.

The drill crew maintained a field log of the soils encountered in the borings. After recovery, each geotechnical soil sample was removed from the sampler and visually classified. Representative portions of each soil sample were then sealed in jars and brought to our laboratory in Elk Grove Village, Illinois for further visual examination and laboratory testing. After completion of the drilling operations, the boreholes were backfilled with auger cuttings to the existing ground surface.

Laboratory Testing Program

Representative soil samples were selected and tested in our laboratory to check field classifications and to determine pertinent engineering properties. The laboratory testing program included visual classifications and unconfined compressive strength and moisture content determinations. Dry density determinations were performed on selected samples of existing fill soils.

An experienced geotechnical engineer classified each soil sample on the basis of texture and plasticity in accordance with the Unified Soil Classification System. The group symbols for each soil type are indicated in parentheses following the soil descriptions on the boring logs. A brief explanation of the Unified System is included with this report. The geotechnical engineer grouped the various soil types into the major zones noted on the boring logs. The stratification lines designating the interfaces between earth materials on the boring logs and profiles are approximate; in situ, the transitions may be gradual.

Unconfined compressive strength tests were performed on cohesive soil samples with the use of a calibrated hand penetrometer. In the hand penetrometer test, the unconfined compressive strength of a soil sample is estimated, to a maximum of 4½ tons per square foot (tsf) by measuring the resistance of a soil sample to penetration of a small, calibrated spring-loaded cylinder.

The soil samples will be retained in our laboratory for a period of 60 days, after which, they will be discarded unless other instructions are received as to their disposal.

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CLOSING

We recommend that the construction activities be monitored by CGMT to provide the necessary overview and to check the suitability of the subgrade soils for supporting the foundations. Once final loads become available, CGMT must be contacted to review the recommendations presented herein.

This report has been prepared in order to aid in the evaluation of this property and to assist the architect and/or engineer in the design of this project. The scope is limited to the specific project and locations described herein and our description of the project represents our understanding of the significant aspects relative to soil and foundation characteristics. In the event that any change in the nature or location of the proposed construction outlined in this report are planned, we should be informed so that the changes can be reviewed and the conclusions of this report modified or approved in writing by the geotechnical engineer. It is recommended that all construction operations dealing with earthwork and foundations be reviewed by an experienced geotechnical engineer to provide information on which to base a decision as to whether the design requirements are fulfilled in the actual construction. If you wish, we would welcome the opportunity to provide field construction services for you during construction.

The analysis and recommendations submitted in this report are based upon the data obtained from the soil borings and tests performed at the locations as indicated on the Boring Location Plan and other information referenced in this report. This report does not reflect any variations, which may occur between the borings. In the performance of the subsurface exploration, specific information is obtained at specific locations at specific times. However, it is a well known fact that variations in soil conditions exist on most sites between boring locations and also such situations as groundwater levels vary from time to time. The nature and extent of variations may not become evident until the course of construction. If variations then appear evident, after performing on-site observations during the construction period and noting characteristics and variations, a reevaluation of the recommendations for this report will be necessary.

APPENDIX

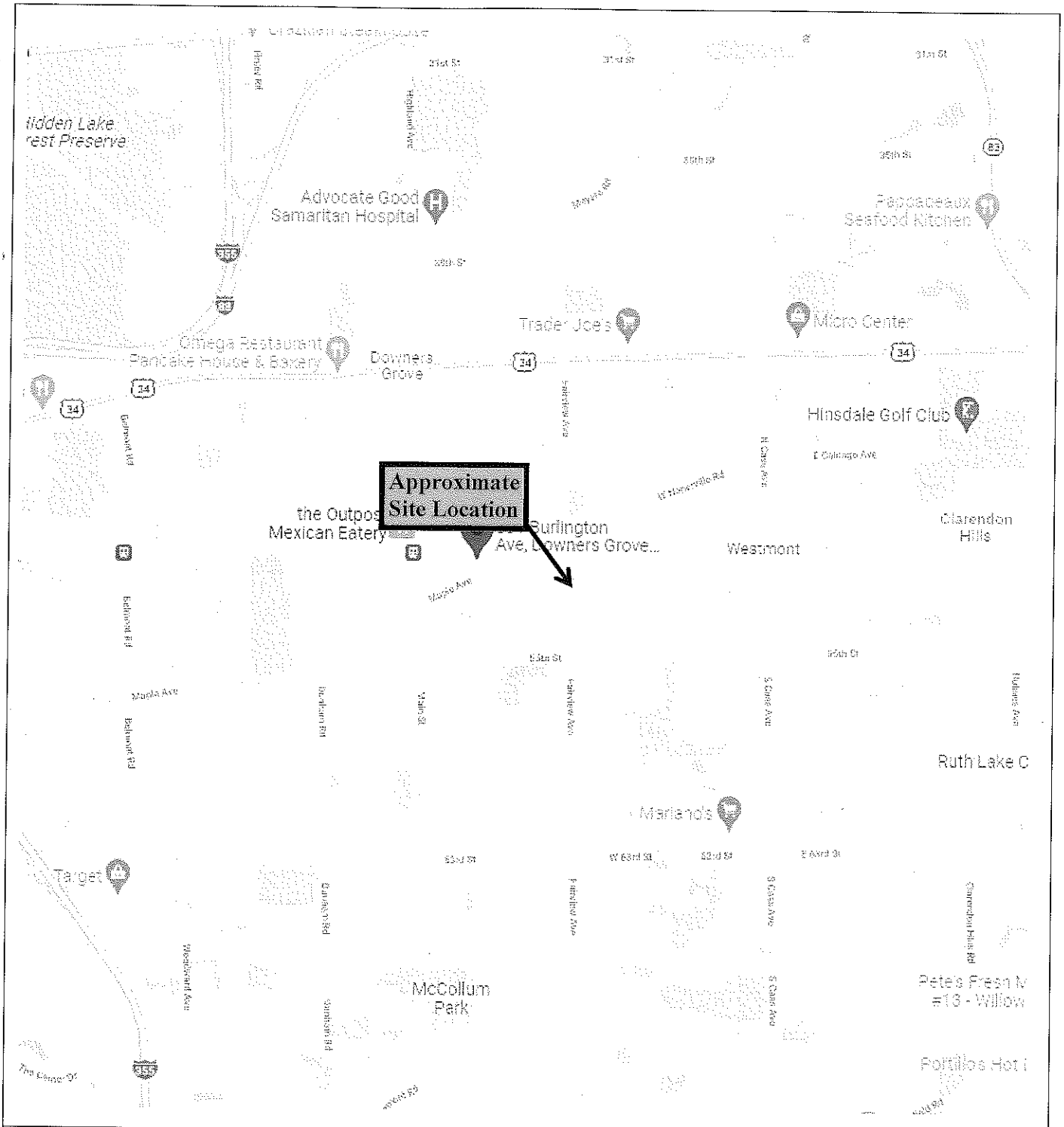
Vicinity Map

Boring Location Plan

Boring Logs

Unified Soil Classification System

Reference Notes For Boring Logs



	VICINITY MAP	N	**CGMT Project No. 22G0116** **Civic Center** **801 Burlington Avenue** **Downers Grove, DuPage County, Illinois**

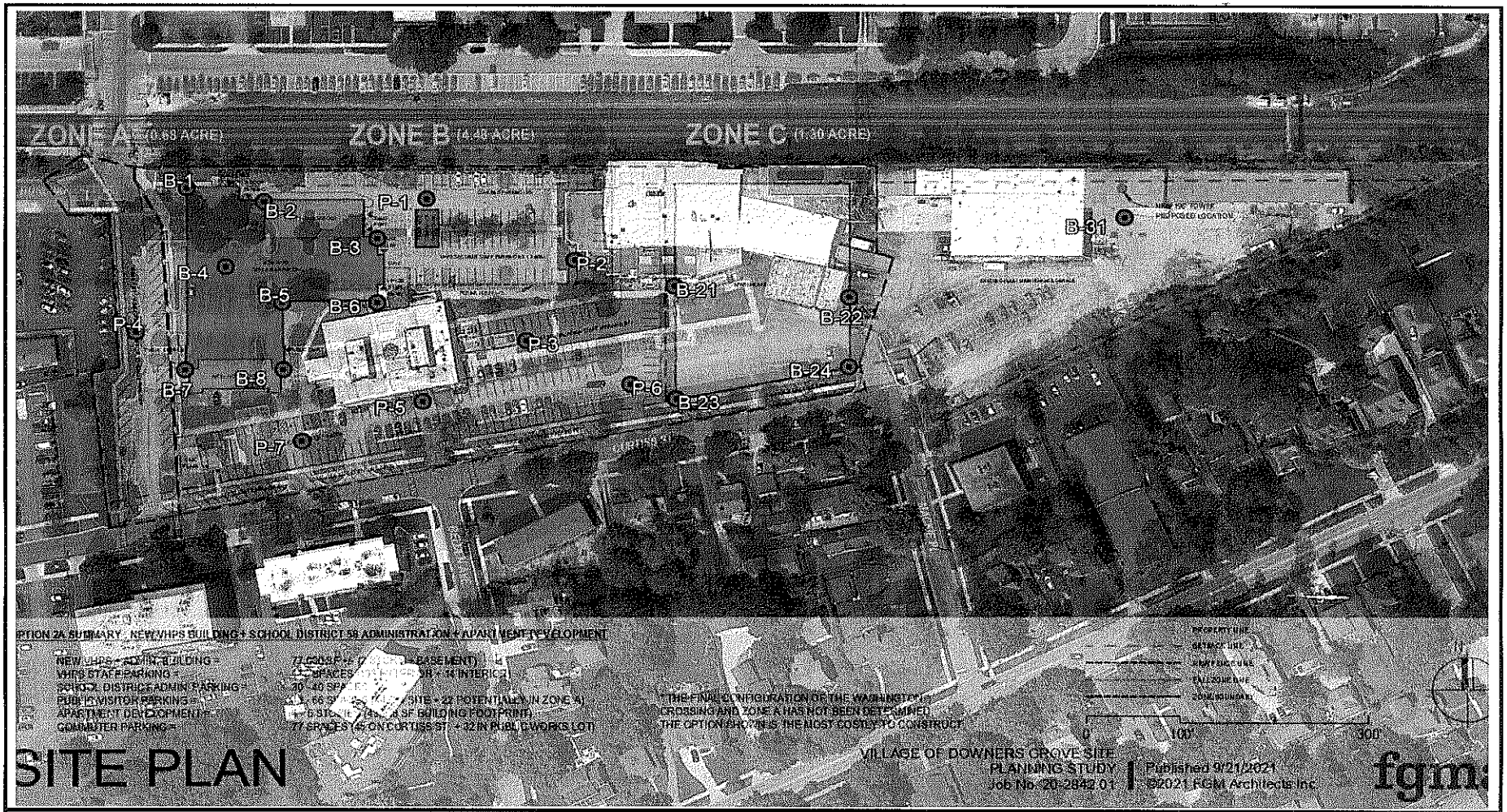
Drawing Not To Scale

N

LEGEND

- Approximate Soil Boring Location

Soil Boring Location Diagram	
Civic Center	
801 Burlington Avenue Downers Grove, Illinois 60515	
Project Manager	Project Number
P. Patel	22G0116
Date	Sheet Number
1/27/2022	Fig. 1

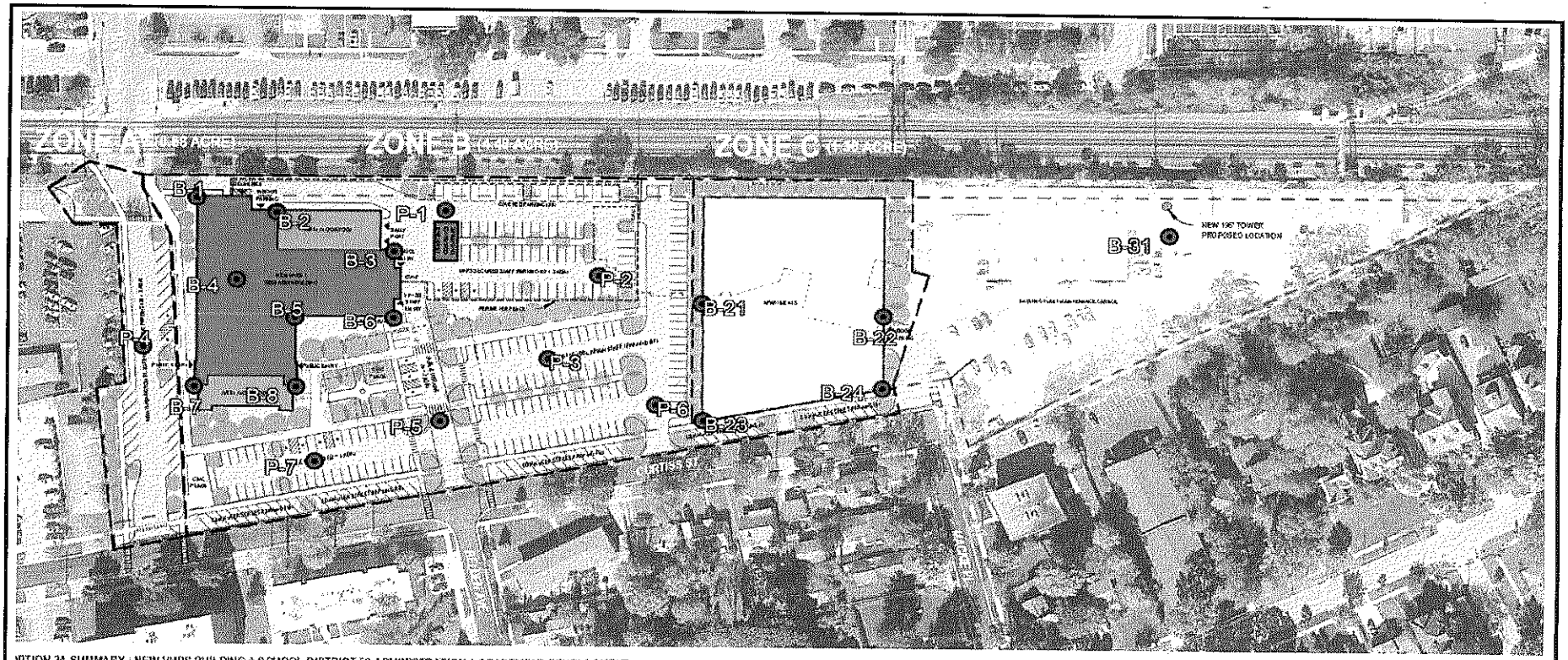


Drawing Not To Scale

LEGEND

- Approximate Soil Boring Location

Soil Boring Location Diagram	
Civic Center	
801 Burlington Avenue Downers Grove, Illinois 60515	
Project Manager	Project Number
P. Patel	22G0116
Date	Sheet Number
1/27/2022	Fig. 2



OPTION 2A SUMMARY : NEW VHPS BUILDING + SCHOOL DISTRICT 58 ADMINISTRATION + APARTMENT DEVELOPMENT

NEW VHPS + ADMIN. BUILDING =	77,000 SF +/- (2 STORY + BASEMENT)
VHPS STAFF PARKING =	147 SPACES (133 EXTERIOR + 14 INTERIOR)
SCHOOL DISTRICT ADMIN. PARKING =	30 - 40 SPACES
PUBLIC VISITOR PARKING =	44 - 66 SPACES (44 ON SITE + 22 POTENTIALLY IN ZONE A)
APARTMENT DEVELOPMENT =	4 - 5 STORIES (43,909 SF BUILDING FOOTPRINT)
COMMUTER PARKING =	77 SPACES (45 ON CURTISS ST. + 32 IN PUBLIC WORKS LOT)

* THE FINAL CONFIGURATION OF THE WASHINGTON CROSSING AND ZONE A HAS NOT BEEN DETERMINED. THE OPTION SHOWN IS THE MOST COSTLY TO CONSTRUCT.

SITE PLAN

VILLAGE OF DOWNERS GROVE SITE PLANNING STUDY
Job No 20-2842.01 | Published 9/21/2021

fgm

Drawing Not To Scale

LEGEND

- Approximate Soil Boring Location

N

Soil Boring Location Diagram

Civic Center

801 Burlington Avenue
Downers Grove, Illinois 60515

Project Manager	Project Number
P. Patel	22G0116
Date	Sheet Number
1/27/2022	Fig. 3

Soil Boring Log

Construction & Geotechnical Material Testing, Inc.
60 Martin Lane, Elk Grove Village, Illinois 60007
Telephone (630) 595-1111 ♦ Fax (630) 595-1110

Soil Boring Prepared for:
Mr. David Yandel, AIA, LEED AP
FGM Architects, Inc.
1211 W. 22nd Street, Suite 700
Oak Brook, Illinois 60523

Boring No.: B-01
Date: Friday, January 7, 2022
Project: Civic Center
801 Burlington Avenue
Downers Grove, Illinois 60515
Project No.: L.S.H.
Boring Location: See Boring Location Diagram
Logged By: L.S.H.
Ground Elevation:

Elevation	Depth	Strata	Soil / Rock Description	Sample Type & No. Depth Interval (Ft) Recovery (in)	Blow Count	Moisture Content (%)	Unconfined Compressive Strength (TSF)	Notes & Test Results
	0.0		Approximately 5½" of Asphalt Pavement					Unconfined compressive strength of soil samples estimated using a calibrated penetrometer.
			Approximately 6½" of Aggregate Base Course					
	1.0		Silty Clay, Trace Sand and Gravel, brown and gray, very stiff (CL)	SS-1	2			
				1.0' - 2.5'	3	19.8	3.0	
	2.0			18" Recovery	4			
	3.0							
				SS-2	2			
	4.0			3.5' - 5.0'	3	21.4	3.0	
				16" Recovery	5			
	5.0							
	6.0			SS-3	4			
				6.0' - 7.5'	5	19.7	3.5	
	7.0			18" Recovery	8			
	8.0							
				SS-4	3			
	9.0			8.5' - 10.0'	5	17.8	3.0	
				17" Recovery	7			
	10.0							
	11.0							
	12.0							
	13.0							
			Silty Clay, Trace Sand and Gravel, gray, very stiff to hard (CL)	SS-5	3			
	14.0			13.5' - 15.0'	5	17.8	4.0	
				18" Recovery	7			
	15.0							
	16.0							
	17.0							
	18.0							
				SS-6	3			
	19.0			18.5' - 20.0'	7	13.4	2.5	
				17" Recovery	7			
	20.0							

Drilling Contractor:	CGMTCS	**Water Level (Ft.)**	
Drilling Method:	3¼" O.D. H.S.A. Split Spoon Sampling	**During Drilling:**	24.3 feet
Drilling Equipment:	Dietrich 7822DT Geoprobe	**Immediately After Drilling:**	19.2 feet
	REVIEWED BY: NPW	**Caved In:**	39.1 feet

Soil Boring Log

Construction & Geotechnical Material Testing, Inc.
60 Martin Lane, Elk Grove Village, Illinois 60007
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Boring No.: B-01
Date: Friday, January 7, 2022
Project: Civic Center
801 Burlington Avenue
Downers Grove, Illinois 60515
Project No.: L.S.H.
Boring Location: See Boring Location Diagram
Logged By: L.S.H.
Ground Elevation:

Elevation	Depth	Strata	Soil / Rock Description	Sample Type & No. Depth Interval (Ft) Recovery (in)	Blow Count	Moisture Content (%)	Unconfined Compressive Strength (TSF)	Notes & Test Results
	20.0		Silty Clay, Trace Sand and Gravel, gray, very stiff to hard (CL)					Unconfined compressive strength of soil samples estimated using a calibrated penetrometer.
	21.0							
	22.0							
	23.0							
	24.0			SS-7 23.5' - 25.0' 18" Recovery	3 6 11	15.2	2.5	
	25.0							
	26.0							
	27.0							
	28.0							
	29.0		Sand and Gravel, gray, medium dense (SP-GP) Saturated	SS-8 28.5' - 30.0' 16" Recovery	16 11 8	19.8	-	
	30.0							
	31.0							
	32.0							
	33.0							
	34.0		Sandy Clay, Trace Gravel, gray, hard (CL)	SS-9 33.5' - 55.0' 17" Recovery	3 6 7	11.2	4.0	
	35.0							
	36.0							
	37.0							
	38.0							
	39.0		Silty Clay, Trace Sand and Gravel, gray, very stiff (CL)	SS-10 38.5' - 40.0' 18" Recovery	3 5 7	18.3	2.5	
	40.0							

Drilling Contractor: CGMTCS
Drilling Method: 3¼" O.D. H.S.A. Split Spoon Sampling
Drilling Equipment: Dietrich 7822DT Geoprobe
REVIEWED BY: NPW

Water Level (Ft.)
During Drilling: 24.3 feet
Immediately After Drilling: 19.2 feet
Caved In: 39.1 feet

Soil Boring Log

Construction & Geotechnical Material Testing, Inc.
60 Martin Lane, Elk Grove Village, Illinois 60007
Telephone (630) 595-1111 ♦ Fax (630) 595-1110

Soil Boring Prepared for:
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FGM Architects, Inc.
1211 W. 22nd Street, Suite 700
Oak Brook, Illinois 60523

Boring No.: B-01
Date: Friday, January 7, 2022
Project: Civic Center
801 Burlington Avenue
Downers Grove, Illinois 60515
Project No.: L.S.H.
Boring Location: See Boring Location Diagram
Logged By: L.S.H.
Ground Elevation:

Sheet 3 of 3

Elevation	Depth	Strata	Soil / Rock Description	Sample Type & No. Depth Interval (Ft) Recovery (in)	Blow Count	Moisture Content (%)	Unconfined Compressive Strength (TSF)	Notes & Test Results
	40.0		Silty Clay, Trace Sand and Gravel, gray, very stiff (CL)					Unconfined compressive strength of soil samples estimated using a calibrated penetrometer.
	41.0							
	42.0							
	43.0							
			Sand and Gravel, gray, dense (SP-GP)	SS-11	9			
	44.0			43.5' -45.0'	23	6.2	-	
				15" Recovery	24			
	45.0							
	46.0							
	47.0							
	48.0							
			Sand, Trace Gravel, gray, dense (SP)	SS-12	6			
	49.0			48.5' - 50.0'	13	9.1	-	
				15" Recovery	17			
	50.0		END of BORING at 50 Feet					
	51.0							
	52.0							
	53.0							
	54.0							
	55.0							
	56.0							
	57.0							
	58.0							
	59.0							
	60.0							

Drilling Contractor: CGMTCS
Drilling Method: 3¼" O.D. H.S.A. Split Spoon Sampling
Drilling Equipment: Dietrich 7822DT Geoprobe
REVIEWED BY: NPW

Water Level (Ft.)
During Drilling: 24.3 feet
Immediately After Drilling: 19.2 feet
Caved In: 39.1 feet

Soil Boring Log

Construction & Geotechnical Material Testing, Inc.
60 Martin Lane, Elk Grove Village, Illinois 60007
Telephone (630) 595-1111 ♦ Fax (630) 595-1110

Soil Boring Prepared for:
Mr. David Yandel, AIA, LEED AP
FGM Architects, Inc.
1211 W. 22nd Street, Suite 700
Oak Brook, Illinois 60523

Boring No.: B-02
Date: Friday, January 7, 2022
Project: Civic Center
801 Burlington Avenue
Downers Grove, Illinois 60515
Project No.: L.S.H.
Boring Location: See Boring Location Diagram
Logged By: L.S.H.
Ground Elevation:

Elevation	Depth	Strata	Soil / Rock Description	Sample Type & No. Depth Interval (Ft) Recovery (in)	Blow Count	Moisture Content (%)	Unconfined Compressive Strength (TSF)	Notes & Test Results
	0.0		Approximately 10" of Asphalt Pavement					Unconfined compressive strength of soil samples estimated using a calibrated penetrometer.
			Approximately 2" of Aggregate Base Course					
	1.0		Silty Clay, Trace Sand and Gravel, brown, stiff to very stiff (CL)	SS-1	4			Dry Density:
				1.0' - 2.5'	3	21.6	2.5	1.0' - 2.5' = 108.0 lbs/ft^3
	2.0			16" Recovery	4			
	3.0							
				SS-2	2			Dry Density:
	4.0		Saturated	3.5' - 5.0'	3	29.4	1.5	3.5' - 5.0' = 92.8 lbs/ft^3
				15" Recovery	3			
	5.0							
	6.0		Silty Clay, Trace Sand and Gravel, brown and gray, hard (CL)	SS-3	3			
				6.0' - 7.5'	5	17.9	4.0	
	7.0			17" Recovery	6			
	8.0							
				SS-4	3			
	9.0			8.5' - 10.0'	6	18.4	4.5+	
				18" Recovery	8			
	10.0							
	11.0							
	12.0							
	13.0							
			Silty Clay, Trace Sand and Gravel, gray, very stiff to hard (CL)	SS-5	3			
	14.0			13.5' - 15.0'	6	17.5	4.0	
				17" Recovery	8			
	15.0							
	16.0							
	17.0							
	18.0							
				SS-6	2			
	19.0			18.5' - 20.0'	3	18.1	2.0	
				17" Recovery	5			
	20.0							

Drilling Contractor:	CGMTCS	**Water Level (Ft.)**	
Drilling Method:	3¼" O.D. H.S.A. Split Spoon Sampling	**During Drilling:**	28.5 feet
Drilling Equipment:	Dietrich 7822DT Geoprobe	**Immediately After Drilling:**	None
	REVIEWED BY: NPW		

Soil Boring Log

Construction & Geotechnical Material Testing, Inc.
60 Martin Lane, Elk Grove Village, Illinois 60007
Telephone (630) 595-1111 • Fax (630) 595-1110

Soil Boring Prepared for:
Mr. David Yandel, AIA, LEED AP
FGM Architects, Inc.
1211 W. 22nd Street, Suite 700
Oak Brook, Illinois 60523

Boring No.: **B-02**
Date: Friday, January 7, 2022
Project: Civic Center
801 Burlington Avenue
Downers Grove, Illinois 60515
Project No.: L.S.H.
Boring Location: See Boring Location Diagram
Logged By: L.S.H.
Ground Elevation:

Elevation	Depth	Strata	Soil / Rock Description	Sample Type & No. Depth Interval (Ft) Recovery (in)	Blow Count	Moisture Content (%)	Unconfined Compressive Strength (TSF)	Notes & Test Results
	20.0		Silty Clay, Trace Sand and Gravel, gray, very stiff to hard (CL)					Unconfined compressive strength of soil samples estimated using a calibrated penetrometer.
	21.0							
	22.0							
	23.0							
	24.0			SS-7 23.5' - 25.0' 21" Recovery	5 3 5	15.7	2.0	
	25.0							
	26.0							
	27.0							
	28.0							
	29.0		Sand, Trace Gravel, gray, medium dense (SP)	SS-8 28.5' - 30.0' 23" Recovery	1 5 7	12.3	-	
	30.0							
	31.0							
	32.0							
	33.0							
	34.0		Clayey Sand and Gravel, gray, loose (SC-GC)	SS-9 33.5' - 55.0' 16" Recovery	4 4 3	9.4	-	
	35.0							
	36.0							
	37.0							
	38.0							
	39.0		Silty Clay, Trace Sand and Gravel, gray, very stiff (CL)	SS-10 38.5' - 40.0' 17" Recovery	4 5 6	16.7	2.0	
	40.0							

Drilling Contractor:	CGMTCS	**Water Level (Ft.)**	
Drilling Method:	3¼" O.D. H.S.A. Split Spoon Sampling	**During Drilling:**	28.5 feet
Drilling Equipment:	Dietrich 7822DT Geoprobe	**Immediately After Drilling:**	None
	REVIEWED BY: NPW		

Soil Boring Log

Construction & Geotechnical Material Testing, Inc.
60 Martin Lane, Elk Grove Village, Illinois 60007
Telephone (630) 595-1111 ♦ Fax (630) 595-1110

Soil Boring Prepared for:
Mr. David Yandel, AIA, LEED AP
FGM Architects, Inc.
1211 W. 22nd Street, Suite 700
Oak Brook, Illinois 60523

Boring No.: B-02
Date: Friday, January 7, 2022
Project: Civic Center
801 Burlington Avenue
Downers Grove, Illinois 60515
Project No.: L.S.H.
Boring Location: See Boring Location Diagram
Logged By: L.S.H.
Ground Elevation:

Elevation	Depth	Strata	Soil / Rock Description	Sample Type & No. Depth Interval (Ft) Recovery (in)	Blow Count	Moisture Content (%)	Unconfined Compressive Strength (TSP)	Notes & Test Results
	40.0		Silty Clay, Trace Sand and Gravel, gray, very stiff (CL)					Unconfined compressive strength of soil samples estimated using a calibrated penetrometer.
	41.0							
	42.0							
	43.0							
	44.0		Sand, Trace Gravel, gray, medium dense (SP)	SS-11 43.5' -45.0' 13" Recovery	7 11 12	6.2	-	
	45.0							
	46.0							
	47.0							
	48.0							
	49.0		Sand, Trace Gravel, brown, medium dense (SP-GP)	SS-12 48.5' - 50.0' 14" Recovery	7 11 9	7.4	-	
	50.0		END of BORING at 50 Feet					
	51.0							
	52.0							
	53.0							
	54.0							
	55.0							
	56.0							
	57.0							
	58.0							
	59.0							
	60.0							

Drilling Contractor: CGMTCS
Drilling Method: 3¼" O.D. H.S.A. Split Spoon Sampling
Drilling Equipment: Dietrich 7822DT Geoprobe
REVIEWED BY: NPW

Water Level (Ft.)
During Drilling: 28.5 feet
Immediately After Drilling: None

Soil Boring Log

Construction & Geotechnical Material Testing, Inc.
60 Martin Lane, Elk Grove Village, Illinois 60007
Telephone (630) 595-1111 ♦ Fax (630) 595-1110

Soil Boring Prepared for:
Mr. David Yandel, AIA, LEED AP
FGM Architects, Inc.
1211 W. 22nd Street, Suite 700
Oak Brook, Illinois 60523

Boring No.: B-03
Date: Friday, January 7, 2022
Project: Civic Center
801 Burlington Avenue
Downers Grove, Illinois 60515
Project No.: L.S.H.
Boring Location: See Boring Location Diagram
Logged By: L.S.H.
Ground Elevation:

Elevation	Depth	Strata	Soil / Rock Description	Sample Type & No. Depth Interval (Ft) Recovery (in)	Blow Count	Moisture Content (%)	Unconfined Compressive Strength (TSF)	Notes & Test Results
	0.0		Approximately 9½" of Asphalt Pavement					Unconfined compressive strength of soil samples estimated using a calibrated penetrometer.
	1.0		Sand and Gravel, brown, medium dense (SP-GP FILL)	SS-1 1.0' - 2.5' 12" Recovery	4 5 6	13.6	-	
	2.0							
	3.0		Silty Clay, Trace Sand and Gravel, brown, very stiff (CL FILL) Saturated	SS-2 3.5' - 5.0' 11" Recovery	3 5 5	27.2	2.0	
	4.0							
	5.0							
	6.0		Silty Clay, Trace Sand and Gravel, brown and gray, very stiff to hard (CL)	SS-3 6.0' - 7.5' 17" Recovery	2 3 4	19.7	3.5	
	7.0							
	8.0							
	9.0			SS-4 8.5' - 10.0' 16" Recovery	3 5 8	19.8	4.0	
	10.0							
	11.0							
	12.0							
	13.0							
	14.0			SS-5 13.5' - 15.0' 18" Recovery	4 5 8	17.4	2.75	
	15.0							
	16.0							
	17.0							
	18.0							
	19.0		Silty Clay, Trace Sand and Gravel, gray, very stiff (CL)	SS-6 18.5' - 20.0' 18" Recovery	3 4 5	18.0	3.0	
	20.0							

Drilling Contractor:	CGMTCS	**Water Level (Ft.)**	
Drilling Method:	3¼" O.D. H.S.A. Split Spoon Sampling	**During Drilling:**	28.5 feet
Drilling Equipment:	Dietrich 7822DT Geoprobe	**Immediately After Drilling:**	25.9 feet
	REVIEWED BY: NPW	**Caved In:**	45 feet

Soil Boring Log

Construction & Geotechnical Material Testing, Inc.
60 Martin Lane, Elk Grove Village, Illinois 60007
Telephone (630) 595-1111 • Fax (630) 595-1110

Soil Boring Prepared for:
Mr. David Yandel, AIA, LEED AP
FGM Architects, Inc.
1211 W. 22nd Street, Suite 700
Oak Brook, Illinois 60523

Boring No.: **B-03**
Date: Friday, January 7, 2022
Project: Civic Center
801 Burlington Avenue
Downers Grove, Illinois 60515
Project No.: L.S.H.
Boring Location: See Boring Location Diagram
Logged By: L.S.H.
Ground Elevation:

Elevation	Depth	Strata	Soil / Rock Description	Sample Type & No. Depth Interval (Ft) Recovery (in)	Blow Count	Moisture Content (%)	Unconfined Compressive Strength (TSF)	Notes & Test Results
	20.0		Silty Clay, Trace Sand and Gravel, gray, very stiff (CL)					Unconfined compressive strength of soil samples estimated using a calibrated penetrometer.
	21.0							
	22.0							
	23.0							
	24.0			SS-7 23.5' - 25.0' 17" Recovery	3 3 6	13.7	2.5	
	25.0							
	26.0							
	27.0							
	28.0							
			Sand, Trace Gravel, gray, medium dense (SP)	SS-8	2	16.5	-	
	29.0		Silty Clay, Trace Sand and Gravel, gray, stiff to very stiff (CL)	28.5' - 30.0' 18" Recovery	5 11	19.8	2.0	
	30.0							
	31.0							
	32.0							
	33.0							
	34.0			SS-9 33.5' - 55.0' 18" Recovery	4 6 10	15.0	1.75	
	35.0							
	36.0							
	37.0							
	38.0							
	39.0			SS-10 38.5' - 40.0' 17" Recovery	3 4 9	14.6	3.0	
	40.0							

Drilling Contractor:	CGMTCS	**Water Level (Ft.)**	
Drilling Method:	3¼" O.D. H.S.A. Split Spoon Sampling	**During Drilling:**	28.5 feet
Drilling Equipment:	Dietrich 7822DT Geoprobe	**Immediately After Drilling:**	25.9 feet
	REVIEWED BY: NPW	**Caved In:**	45 feet

Soil Boring Log

Construction & Geotechnical Material Testing, Inc.
60 Martin Lane, Elk Grove Village, Illinois 60007
Telephone (630) 595-1111 ♦ Fax (630) 595-1110

Soil Boring Prepared for:
Mr. David Yandel, AIA, LEED AP
FGM Architects, Inc.
1211 W. 22nd Street, Suite 700
Oak Brook, Illinois 60523

Boring No.: B-03
Date: Friday, January 7, 2022
Project: Civic Center
801 Burlington Avenue
Downers Grove, Illinois 60515
Project No.: L.S.H.
Boring Location: See Boring Location Diagram
Logged By: L.S.H.
Ground Elevation:

Elevation	Depth	Strata	Soil / Rock Description	Sample Type & No., Depth Interval (Ft) Recovery (in)	Blow Count	Moisture Content (%)	Unconfined Compressive Strength (TSF)	Notes & Test Results
	40.0		Silty Clay, Trace Sand and Gravel, gray, stiff to very stiff (CL)					Unconfined compressive strength of soil samples estimated using a calibrated penetrometer.
	41.0							
	42.0							
	43.0							
	44.0			SS-11 43.5' -45.0' 20" Recovery	2 4 5	17.3	1.75	
	45.0							
	46.0							
	47.0							
	48.0							
	49.0		Silt, Trace Sand and Gravel, gray, dense (ML)	SS-12 48.5' - 50.0' 14" Recovery	15 23 26	14.3	-	
	50.0		END of BORING at 50 Feet					
	51.0							
	52.0							
	53.0							
	54.0							
	55.0							
	56.0							
	57.0							
	58.0							
	59.0							
	60.0							

Drilling Contractor:	CGMTCS	**Water Level (Ft.)**
Drilling Method:	3¼" O.D. H.S.A. Split Spoon Sampling	**During Drilling:** 28.5 feet
Drilling Equipment:	Dietrich 7822DT Geoprobe	**Immediately After Drilling:** 25.9 feet
	REVIEWED BY: NPW	**Caved In:** 45 feet

Soil Boring Log

Construction & Geotechnical Material Testing, Inc.
60 Martin Lane, Elk Grove Village, Illinois 60007
Telephone (630) 595-1111 ♦ Fax (630) 595-1110

Soil Boring Prepared for:
Mr. David Yandel, AIA, LEED AP
FGM Architects, Inc.
1211 W. 22nd Street, Suite 700
Oak Brook, Illinois 60523

Boring No.: B-04
Date: Friday, January 7, 2022
Project: Civic Center
801 Burlington Avenue
Downers Grove, Illinois 60515
Project No.: L.S.H.
Boring Location: See Boring Location Diagram
Logged By: L.S.H.
Ground Elevation:

Elevation	Depth	Strata	Soil / Rock Description	Sample Type & No. Depth Interval (Ft) Recovery (in)	Blow Count	Moisture Content (%)	Unconfined Compressive Strength (TSF)	Notes & Test Results
	0.0		Approximately 5½" of Asphalt Pavement					Unconfined compressive strength of soil samples estimated using a calibrated penetrometer.
			Approximately 6½" of Aggregate Base Course					
	1.0		Sand and Gravel, gray, medium dense (SP-GP FILL)	SS-1 1.0' - 2.5' 14" Recovery	14 10 10	5.6	-	
	2.0							
	3.0							
			Silty Clay, Trace Sand and Gravel, brown and gray, very stiff to hard (CL)	SS-2 3.5' - 5.0' 16" Recovery	2 4 5	20.8	3.0	
	4.0							
	5.0							
	6.0			SS-3 6.0' - 7.5' 18" Recovery	4 6 9	16.9	4.5+	
	7.0							
	8.0							
	9.0			SS-4 8.5' - 10.0' 18" Recovery	4 7 9	19.0	3.5	
	10.0							
	11.0							
	12.0							
	13.0							
	14.0		Silty Clay, Trace Sand and Gravel, gray, very stiff (CL)	SS-5 13.5' - 15.0' 18" Recovery	4 6 10	20.8	3.0	
	15.0							
	16.0							
	17.0							
	18.0							
	19.0			SS-6 18.5' - 20.0' 17" Recovery	3 4 5	18.8	2.0	
	20.0							

Drilling Contractor:	CGMTCS
Drilling Method:	3¼" O.D. H.S.A. Split Spoon Sampling
Drilling Equipment:	Dietrich 7822DT Geoprobe
	REVIEWED BY: NPW

Water Level (Ft.)

During Drilling:	2.3 feet
Immediately After Drilling:	10.6 feet
Caved In:	47.2 feet

Soil Boring Log

Construction & Geotechnical Material Testing, Inc.
60 Martin Lane, Elk Grove Village, Illinois 60007
Telephone (630) 595-1111 • Fax (630) 595-1110

Soil Boring Prepared for:
Mr. David Yandel, AIA, LEED AP
FGM Architects, Inc.
1211 W. 22nd Street, Suite 700
Oak Brook, Illinois 60523

Boring No.: B-04
Date: Friday, January 7, 2022
Project: Civic Center
801 Burlington Avenue
Downers Grove, Illinois 60515
Project No.: L.S.H.
Boring Location: See Boring Location Diagram
Logged By: L.S.H.
Ground Elevation:

Elevation	Depth	Strata	Soil / Rock Description	Sample Type & No. Depth Interval (Ft) Recovery (in)	Blow Count	Moisture Content (%)	Unconfined Compressive Strength (TSF)	Notes & Test Results
	20.0		Silty Clay, Trace Sand and Gravel, gray, very stiff (CL)					Unconfined compressive strength of soil samples estimated using a calibrated penetrometer.
	21.0							
	22.0							
	23.0							
	24.0		Clayey Sand and Gravel, gray, medium dense (SC-GC)	SS-7 23.5' - 25.0' 16" Recovery	4 11 11	19.8	-	
	25.0							
	26.0							
	27.0							
	28.0							
	29.0		Silty Clay, Trace Sand and Gravel, gray, stiff to very stiff (CL)	SS-8 28.5' - 30.0' 17" Recovery	5 7 9	11.9	2.5	
	30.0							
	31.0							
	32.0							
	33.0							
	34.0			SS-9 33.5' - 55.0' 18" Recovery	3 5 7	14.3	1.75	
	35.0							
	36.0							
	37.0							
	38.0							
	39.0			SS-10 38.5' - 40.0' 16" Recovery	4 5 7	16.8	2.0	
	40.0							

Drilling Contractor: CGMTCS
Drilling Method: 3¼" O.D. H.S.A. Split Spoon Sampling
Drilling Equipment: Dietrich 7822DT Geoprobe
REVIEWED BY: NPW

Water Level (Ft.)
During Drilling: 2.3 feet
Immediately After Drilling: 10.6 feet
Caved In: 47.2 feet

Soil Boring Log

Construction & Geotechnical Material Testing, Inc.
60 Martin Lane, Elk Grove Village, Illinois 60007
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Soil Boring Prepared for:
Mr. David Yandel, AIA, LEED AP
FGM Architects, Inc.
1211 W. 22nd Street, Suite 700
Oak Brook, Illinois 60523

Boring No.: B-04
Date: Friday, January 7, 2022
Project: Civic Center
801 Burlington Avenue
Downers Grove, Illinois 60515
Project No.: L.S.H.
Boring Location: See Boring Location Diagram
Logged By: L.S.H.
Ground Elevation:

Elevation	Depth	Strata	Soil / Rock Description	Sample Type & No. Depth Interval (Ft) Recovery (in)	Blow Count	Moisture Content (%)	Unconfined Compressive Strength (TSF)	Notes & Test Results
	40.0		Silty Clay, Trace Sand and Gravel, gray, stiff to very stiff (CL)					Unconfined compressive strength of soil samples estimated using a calibrated penetrometer.
	41.0							
	42.0							
	43.0							
	44.0		Clayey Sand and Gravel, gray, very dense (SC-GC)	SS-11 43.5' -45.0' 11" Recovery	21 50/5.5" -	10.2	-	
	45.0							
	46.0							
	47.0							
	48.0							
	49.0			SS-12 48.5' - 50.0' 17" Recovery	15 29 27	14.1	-	
	50.0		END of BORING at 50 Feet					
	51.0							
	52.0							
	53.0							
	54.0							
	55.0							
	56.0							
	57.0							
	58.0							
	59.0							
	60.0							

Drilling Contractor: CGMTCS
Drilling Method: 3¼" O.D. H.S.A. Split Spoon Sampling
Drilling Equipment: Dietrich 7822DT Geoprobe
REVIEWED BY: NPW

Water Level (Ft.)
During Drilling: 2.3 feet
Immediately After Drilling: 10.6 feet
Caved In: 47.2 feet

Soil Boring Log

Construction & Geotechnical Material Testing, Inc.
60 Martin Lane, Elk Grove Village, Illinois 60007
Telephone (630) 595-1111 • Fax (630) 595-1110

Soil Boring Prepared for:
Mr. David Yandel, AIA, LEED AP
FGM Architects, Inc.
1211 W. 22nd Street, Suite 700
Oak Brook, Illinois 60523

Boring No.: **B-05**
Date: Friday, January 7, 2022
Project: Civic Center
801 Burlington Avenue
Downers Grove, Illinois 60515
Project No.: L.S.H.
Boring Location: See Boring Location Diagram
Logged By: L.S.H.
Ground Elevation:

Elevation	Depth	Strata	Soil / Rock Description	Sample Type & No. Depth Interval (Ft) Recovery (in)	Blow Count	Moisture Content (%)	Unconfined Compressive Strength (TSF)	Notes & Test Results
	0.0		Approximately 7¾" of Asphalt Pavement					Unconfined compressive strength of soil samples estimated using a calibrated penetrometer.
			Approximately 9¼" of Aggregate Base Course					
	1.0			SS-1	6	-	-	
			Silty Clay, Trace Sand and Gravel, brown, stiff (CL FILL)	1.0' - 2.5'	3	25.2	1.75	
	2.0			10" Recovery	3			
			Saturated					
	3.0							
				SS-2	1			
	4.0		Saturated	3.5' - 5.0'	1	26.7	1.0	
				15" Recovery	1			
	5.0							
				SS-3	1			
	6.0		Saturated	6.0' - 7.5'	1	25.6	1.25	
				16" Recovery	1			
	7.0							
	8.0							
			Saturated	SS-4	2	27.4	1.5	
	9.0		Clayey Sand and Gravel, brown, medium dense (SC-GC)	8.5' - 10.0'	4	23.9	-	
				11" Recovery	6			
	10.0		Saturated					
	11.0							
	12.0							
	13.0							
			Silty Clay, Trace Sand and Gravel, gray, stiff to very stiff (CL)	SS-5	2			
	14.0			13.5' - 15.0'	4	15.4	2.5	
				15" Recovery	6			
	15.0							
	16.0							
	17.0							
	18.0							
				SS-6	2			
	19.0			18.5' - 20.0'	4	20.0	1.5	
				18" Recovery	6			
	20.0							

Drilling Contractor:	CGMTCS	**Water Level (Ft.)**	
Drilling Method:	3¼" O.D. H.S.A. Split Spoon Sampling	**During Drilling:**	5.6 feet
Drilling Equipment:	Dietrich 7822DT Geoprobe	**Immediately After Drilling:**	17.4 feet
	REVIEWED BY: NPW	**Caved In:**	45.6 feet

Soil Boring Log

Construction & Geotechnical Material Testing, Inc.
60 Martin Lane, Elk Grove Village, Illinois 60007
Telephone (630) 595-1111 ♦ Fax (630) 595-1110

Soil Boring Prepared for:
Mr. David Yandel, AIA, LEED AP
FGM Architects, Inc.
1211 W. 22nd Street, Suite 700
Oak Brook, Illinois 60523

Boring No.: B-05
Date: Friday, January 7, 2022
Project: Civic Center
801 Burlington Avenue
Downers Grove, Illinois 60515
Project No.: L.S.H.
Boring Location: See Boring Location Diagram
Logged By: L.S.H.
Ground Elevation:

Elevation	Depth	Strata	Soil / Rock Description	Sample Type & No. Depth Interval (ft) Recovery (in)	Blow Count	Moisture Content (%)	Unconfined Compressive Strength (TSF)	Notes & Test Results
	20.0		Silty Clay, Trace Sand and Gravel, gray, stiff to very stiff (CL)					Unconfined compressive strength of soil samples estimated using a calibrated penetrometer.
	21.0							
	22.0							
	23.0							
	24.0			SS-7 23.5' - 25.0' 15" Recovery	3 7 10	15.2	2.5	
	25.0							
	26.0							
	27.0							
	28.0							
	29.0			SS-8 28.5' - 30.0' 18" Recovery	3 8 9	14.7	2.5	
	30.0							
	31.0							
	32.0							
	33.0							
	34.0			SS-9 33.5' - 55.0' 15" Recovery	6 5 8	17.3	-	
	35.0							
	36.0							
	37.0							
	38.0							
	39.0			SS-10 38.5' - 40.0' 18" Recovery	5 6 8	17.4	2.0	
	40.0							

Drilling Contractor: CGMTCS
Drilling Method: 3¼" O.D. H.S.A. Split Spoon Sampling
Drilling Equipment: Dietrich 7822DT Geoprobe
REVIEWED BY: NPW

Water Level (Ft.)
During Drilling: 5.6 feet
Immediately After Drilling: 17.4 feet
Caved In: 45.6 feet

Soil Boring Log

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Soil Boring Prepared for:
Mr. David Yandel, AIA, LEED AP
FGM Architects, Inc.
1211 W. 22nd Street, Suite 700
Oak Brook, Illinois 60523

Boring No.: B-05
Date: Friday, January 7, 2022
Project: Civic Center
801 Burlington Avenue
Downers Grove, Illinois 60515
Project No.: L.S.H.
Boring Location: See Boring Location Diagram
Logged By: L.S.H.
Ground Elevation:

Elevation	Depth	Strata	Soil / Rock Description	Sample Type & No. Depth Interval (Ft) Recovery (in)	Blow Count	Moisture Content (%)	Unconfined Compressive Strength (TSF)	Notes & Test Results
	40.0		Silty Clay, Trace Sand and Gravel, gray, stiff to very stiff (CL)					Unconfined compressive strength of soil samples estimated using a calibrated penetrometer.
	41.0							
	42.0							
	43.0							
			Sand, Trace Gravel, gray, very dense (SP)	SS-11 43.5' -45.0' 18" Recovery	17 30 34	8.1	-	
	44.0							
	45.0							
	46.0							
	47.0							
	48.0							
			Clayey Sand and Gravel, gray, very dense (SC-GC)	SS-12 48.5' - 50.0' 10" Recovery	25 50/5.5" -	7.5	-	
	49.0							
	50.0		END of BORING at 50 Feet					
	51.0							
	52.0							
	53.0							
	54.0							
	55.0							
	56.0							
	57.0							
	58.0							
	59.0							
	60.0							

Drilling Contractor: CGMTCS
Drilling Method: 3¼" O.D. H.S.A. Split Spoon Sampling
Drilling Equipment: Dietrich 7822DT Geoprobe
REVIEWED BY: NPW

Water Level (Ft.)
During Drilling: 5.6 feet
Immediately After Drilling: 17.4 feet
Caved In: 45.6 feet

Soil Boring Log

Construction & Geotechnical Material Testing, Inc.
60 Martin Lane, Elk Grove Village, Illinois 60007
Telephone (630) 595-1111 ♦ Fax (630) 595-1110

Soil Boring Prepared for:
Mr. David Yandel, AIA, LEED AP
FGM Architects, Inc.
1211 W. 22nd Street, Suite 700
Oak Brook, Illinois 60523

Boring No.: B-06
Date: Friday, January 7, 2022
Project: Civic Center
801 Burlington Avenue
Downers Grove, Illinois 60515
Project No.: L.S.H.
Boring Location: See Boring Location Diagram
Logged By: L.S.H.
Ground Elevation:

Elevation	Depth	Strata	Soil / Rock Description	Sample Type & No. Depth Interval (ft) Recovery (in)	Blow Count	Moisture Content (%)	Unconfined Compressive Strength (TSF)	Notes & Test Results
	0.0		Approximately 8" of Asphalt Pavement					Unconfined compressive strength of soil samples estimated using a calibrated penetrometer.
			Approximately 4" of Aggregate Base Course					
	1.0		Silty Clay, Trace Sand and Gravel, brown, very stiff to hard (CL FILL)	SS-1	10			
				1.0' - 2.5'	10	11.2	4.5+	
	2.0			8" Recovery	11			
	3.0							
				SS-2	2			Dry Density:
	4.0		Saturated	3.5' - 5.0'	5	27.4	2.5	3.5' - 5.0' = 95.7 lbs/ft^3
	5.0			12" Recovery	5			
	6.0		Silty Clay, Trace Sand and Gravel, brown and gray, very stiff to hard (CL)	SS-3	2			
				6.0' - 7.5'	4	19.2	4.0	
	7.0			15" Recovery	6			
	8.0							
				SS-4	3			
	9.0			8.5' - 10.0'	4	19.7	2.5	
	10.0			15" Recovery	4			
	11.0							
	12.0							
	13.0							
			Silty Clay, Trace Sand and Gravel, gray, very stiff to hard (CL)	SS-5	3			
	14.0			13.5' - 15.0'	6	15.6	4.0	
	15.0			16" Recovery	9			
	16.0							
	17.0							
	18.0							
				SS-6	3			
	19.0			18.5' - 20.0'	6	14.4	4.5+	
	20.0			16" Recovery	11			

Drilling Contractor:	CGMTCS
Drilling Method:	3¼" O.D. H.S.A. Split Spoon Sampling
Drilling Equipment:	Dietrich 7822DT Geoprobe
	REVIEWED BY: NPW

Water Level (Ft.)

During Drilling:	None
Immediately After Drilling:	28.9 feet
Caved In:	41.4 feet

Soil Boring Log

Construction & Geotechnical Material Testing, Inc.
60 Martin Lane, Elk Grove Village, Illinois 60007
Telephone (630) 595-1111 ♦ Fax (630) 595-1110

Soil Boring Prepared for:
Mr. David Yandel, AIA, LEED AP
FGM Architects, Inc.
1211 W. 22nd Street, Suite 700
Oak Brook, Illinois 60523

Boring No.: B-06
Date: Friday, January 7, 2022
Project: Civic Center
801 Burlington Avenue
Downers Grove, Illinois 60515
Project No.: L.S.H.
Boring Location: See Boring Location Diagram
Logged By: L.S.H.
Ground Elevation:

Elevation	Depth	Strata	Soil / Rock Description	Sample Type & No. Depth Interval (Ft) Recovery (in)	Blow Count	Moisture Content (%)	Unconfined Compressive Strength (TSF)	Notes & Test Results
	20.0		Silty Clay, Trace Sand and Gravel, gray, very stiff to hard (CL)					Unconfined compressive strength of soil samples estimated using a calibrated penetrometer.
	21.0							
	22.0							
	23.0							
	24.0			SS-7 23.5' - 25.0' 18" Recovery	2 4 7	13.8	3.0	
	25.0							
	26.0							
	27.0							
	28.0							
	29.0		Sand and Gravel, gray, medium dense (SP-GP)	SS-8 28.5' - 30.0' 2" Recovery	5 10 11	11.6	-	
	30.0							
	31.0							
	32.0							
	33.0							
	34.0		Silty Clay, Trace Sand and Gravel, gray, stiff to very stiff (CL)	SS-9 33.5' - 55.0' 17" Recovery	4 5 7	14.3	3.0	
	35.0							
	36.0							
	37.0							
	38.0							
	39.0			SS-10 38.5' - 40.0' 18" Recovery	4 5 5	15.8	2.5	
	40.0							

Drilling Contractor: CGMTCS
Drilling Method: 3¼" O.D. H.S.A. Split Spoon Sampling
Drilling Equipment: Dietrich 7822DT Geoprobe
REVIEWED BY: NPW

Water Level (Ft.)
During Drilling: None
Immediately After Drilling: 28.9 feet
Caved In: 41.4 feet

Soil Boring Log

Construction & Geotechnical Material Testing, Inc.
60 Martin Lane, Elk Grove Village, Illinois 60007
Telephone (630) 595-1111 ♦ Fax (630) 595-1110

Soil Boring Prepared for:
Mr. David Yandel, AIA, LEED AP
FGM Architects, Inc.
1211 W. 22nd Street, Suite 700
Oak Brook, Illinois 60523

Boring No.: B-06
Date: Friday, January 7, 2022
Project: Civic Center
801 Burlington Avenue
Downers Grove, Illinois 60515
Project No.: L.S.H.
Boring Location: See Boring Location Diagram
Logged By: L.S.H.
Ground Elevation:

Elevation	Depth	Strata	Soil / Rock Description	Sample Type & No. Depth Interval (Ft) Recovery (in)	Blow Count	Moisture Content (%)	Unconfined Compressive Strength (TSF)	Notes & Test Results
	40.0		Silty Clay, Trace Sand and Gravel, gray, stiff to very stiff (CL)					Unconfined compressive strength of soil samples estimated using a calibrated penetrometer.
	41.0							
	42.0							
	43.0							
	44.0			SS-11 43.5' -45.0' 20" Recovery	4 6 7	18.6	1.5	
	45.0							
	46.0							
	47.0							
	48.0							
	49.0			SS-12 48.5' - 50.0' 10" Recovery	9 25 26	20.6 9.9	1.0 -	
			Sand and Gravel, gray, very dense (SP-GP)					
	50.0		END of BORING at 50 Feet					
	51.0							
	52.0							
	53.0							
	54.0							
	55.0							
	56.0							
	57.0							
	58.0							
	59.0							
	60.0							

Drilling Contractor: CGMTCS
Drilling Method: 3¼" O.D. H.S.A. Split Spoon Sampling
Drilling Equipment: Dietrich 7822DT Geoprobe
REVIEWED BY: NPW

Water Level (Ft.)
During Drilling: None
Immediately After Drilling: 28.9 feet
Caved In: 41.4 feet

Soil Boring Log

Construction & Geotechnical Material Testing, Inc.
60 Martin Lane, Elk Grove Village, Illinois 60007
Telephone (630) 595-1111 ♦ Fax (630) 595-1110

Soil Boring Prepared for:
Mr. David Yandel, AIA, LEED AP
FGM Architects, Inc.
1211 W. 22nd Street, Suite 700
Oak Brook, Illinois 60523

Boring No.: B-07
Date: Friday, January 7, 2022
Project: Civic Center
801 Burlington Avenue
Downers Grove, Illinois 60515
Project No.: L.S.H.
Boring Location: See Boring Location Diagram
Logged By: L.S.H.
Ground Elevation:

Elevation	Depth	Strata	Soil / Rock Description	Sample Type & No. / Depth Interval (Ft) / Recovery (in)	Blow Count	Moisture Content (%)	Unconfined Compressive Strength (TSF)	Notes & Test Results
	0.0		Approximately 7½" of Asphalt Pavement					Unconfined compressive strength of soil samples estimated using a calibrated penetrometer.
			Approximately 4½" of Aggregate Base Course					
	1.0		Gravel, Trace Sand, gray, medium dense (GP FILL)	SS-1	12			
				1.0' - 2.5'	4	-	-	
	2.0			2" Recovery	5			
	3.0							
			Silty Clay, Trace Sand and Gravel, brown and gray, very stiff to hard (CL)	SS-2	3			
	4.0			3.5' - 5.0'	5	20.3	2.75	
				17" Recovery	7			
	5.0							
	6.0			SS-3	3			
				6.0' - 7.5'	6	19.4	4.5+	
	7.0			18" Recovery	7			
	8.0							
				SS-4	4			
	9.0			8.5' - 10.0'	6	18.3	4.5+	
				18" Recovery	8			
	10.0							
	11.0							
	12.0							
	13.0							
			Silty Clay, Trace Sand and Gravel, gray, stiff to hard (CL)	SS-5	3			
	14.0			13.5' - 15.0'	5	14.9	2.75	
				18" Recovery	6			
	15.0							
	16.0							
	17.0							
	18.0							
				SS-6	3			
	19.0			18.5' - 20.0'	6	18.5	1.0	
				18" Recovery	7			
	20.0							

Drilling Contractor:	CGMTCS	**Water Level (Ft.)**	
Drilling Method:	3¼" O.D. H.S.A. Split Spoon Sampling	**During Drilling:**	21.6 feet
Drilling Equipment:	Dietrich 7822DT Geoprobe	**Immediately After Drilling:**	16.8 feet
	REVIEWED BY: NPW	**Caved In:**	41.4 feet

Soil Boring Log

Construction & Geotechnical Material Testing, Inc.
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Soil Boring Prepared for:
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FGM Architects, Inc.
1211 W. 22nd Street, Suite 700
Oak Brook, Illinois 60523

Boring No.: **B-07**
Date: Friday, January 7, 2022
Project: Civic Center
801 Burlington Avenue
Downers Grove, Illinois 60515
Project No.: L.S.H.
Boring Location: See Boring Location Diagram
Logged By: L.S.H.
Ground Elevation:

Elevation	Depth	Strata	Soil / Rock Description	Sample Type & No. Depth Interval (Ft) Recovery (in)	Blow Count	Moisture Content (%)	Unconfined Compressive Strength (TSF)	Notes & Test Results
	20.0		Silty Clay, Trace Sand and Gravel, gray, stiff to hard (CL)					Unconfined compressive strength of soil samples estimated using a calibrated penetrometer.
	21.0							
	22.0							
	23.0							
	24.0			SS-7 23.5' - 25.0' 14" Recovery	3 4 5	16.3	2.0	
	25.0							
	26.0							
	27.0							
	28.0							
	29.0			SS-8 28.5' - 30.0' 18" Recovery	2 4 5	16.8	2.0	
	30.0							
	31.0							
	32.0							
	33.0							
	34.0			SS-9 33.5' - 55.0' 18" Recovery	3 13 8	18.5	2.0	
	35.0							
	36.0							
	37.0							
	38.0							
	39.0			SS-10 38.5' - 40.0' 18" Recovery	4 8 10	17.7	1.0	
	40.0							

		Water Level (Ft.)
Drilling Contractor:	CGMTCS	
Drilling Method:	3¼" O.D. H.S.A. Split Spoon Sampling	**During Drilling:** 21.6 feet
Drilling Equipment:	Dietrich 7822DT Geoprobe	**Immediately After Drilling:** 16.8 feet
	REVIEWED BY: NPW	**Caved In:** 41.4 feet

Soil Boring Log

Construction & Geotechnical Material Testing, Inc.
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Boring No.: B-07
Date: Friday, January 7, 2022
Project: Civic Center
801 Burlington Avenue
Downers Grove, Illinois 60515
Project No.: L.S.H.
Boring Location: See Boring Location Diagram
Logged By: L.S.H.
Ground Elevation:

Elevation	Depth	Strata	Soil / Rock Description	Sample Type & No. Depth Interval (Ft) Recovery (in)	Blow Count	Moisture Content (%)	Unconfined Compressive Strength (TSF)	Notes & Test Results
	40.0		Silty Clay, Trace Sand and Gravel, gray, stiff to hard (CL)					Unconfined compressive strength of soil samples estimated using a calibrated penetrometer.
	41.0							
	42.0							
	43.0							
	44.0			SS-11 43.5' -45.0' 16" Recovery	23 20 19	12.6	4.5+	
	45.0							
	46.0							
	47.0							
	48.0							
	49.0			SS-12 48.5' - 50.0' 17" Recovery	8 10 10	14.2	2.0	
	50.0		END of BORING at 50 Feet					
	51.0							
	52.0							
	53.0							
	54.0							
	55.0							
	56.0							
	57.0							
	58.0							
	59.0							
	60.0							

		Water Level (Ft.)
Drilling Contractor:	CGMTCS	
Drilling Method:	3¼" O.D. H.S.A. Split Spoon Sampling	**During Drilling:** 21.6 feet
Drilling Equipment:	Dietrich 7822DT Geoprobe	**Immediately After Drilling:** 16.8 feet
	REVIEWED BY: NPW	**Caved In:** 41.4 feet

Soil Boring Log

Construction & Geotechnical Material Testing, Inc.
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Soil Boring Prepared for:
Mr. David Yandel, AIA, LEED AP
FGM Architects, Inc.
1211 W. 22nd Street, Suite 700
Oak Brook, Illinois 60523

Boring No.: B-08
Date: Friday, January 14, 2022
Project: Civic Center
801 Burlington Avenue
Downers Grove, Illinois 60515
Project No.: L.S.H.
Boring Location: See Boring Location Diagram
Logged By: L.S.H.
Ground Elevation:

Elevation	Depth	Strata	Soil / Rock Description	Sample Type & No. Depth Interval (ft) Recovery (in)	Blow Count	Moisture Content (%)	Unconfined Compressive Strength (TSF)	Notes & Test Results
	0.0		Approximately 10" of Asphalt Pavement					Unconfined compressive strength of soil samples estimated using a calibrated penetrometer.
			Approximately 2" of Aggregate Base Course					
	1.0		Sand and Gravel, gray, medium dense (SP-GP FILL)	SS-1 1.0' - 2.5' 5" Recovery	12 10 5	5.4	-	
	2.0							
	3.0		Silty Clay, Trace Sand and Gravel, brown and gray, hard (CL)	SS-2 3.5' - 5.0' 15" Recovery	2 5 5	18.0	4.5+	
	4.0							
	5.0							
	6.0			SS-3 6.0' - 7.5' 10" Recovery	2 4 6	20.0	4.5+	
	7.0							
	8.0							
	9.0			SS-4 8.5' - 10.0' 20" Recovery	2 5 8	18.0	4.5+	
	10.0							
	11.0							
	12.0							
	13.0							
	14.0		Silty Clay, Trace Sand and Gravel, gray, very stiff to hard (CL)	SS-5 13.5' - 15.0' 15" Recovery	4 6 8	17.3	2.75	
	15.0							
	16.0							
	17.0							
	18.0							
	19.0			SS-6 18.5' - 20.0' 4" Recovery	9 3 4	15.4	4.0	
	20.0							

Drilling Contractor:	CGMTCS	**Water Level (Ft.)**	
Drilling Method:	3¼" O.D. H.S.A. Split Spoon Sampling	**During Drilling:**	34 feet
Drilling Equipment:	Dietrich 7822DT Geoprobe	**Immediately After Drilling:**	32.1 feet
	REVIEWED BY: NPW	**Caved In:**	33.1 feet

Soil Boring Log

Construction & Geotechnical Material Testing, Inc.
60 Martin Lane, Elk Grove Village, Illinois 60007
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FGM Architects, Inc.
1211 W. 22nd Street, Suite 700
Oak Brook, Illinois 60523

Boring No.: B-08
Date: Friday, January 14, 2022
Project: Civic Center
801 Burlington Avenue
Downers Grove, Illinois 60515
Project No.: L.S.H.
Boring Location: See Boring Location Diagram
Logged By: L.S.H.
Ground Elevation:

Elevation	Depth	Strata	Soil / Rock Description	Sample Type & No. Depth Interval (Ft) Recovery (in)	Blow Count	Moisture Content (%)	Unconfined Compressive Strength (TSF)	Notes & Test Results
	20.0		Silty Clay, Trace Sand and Gravel, gray, very stiff to hard (CL)					Unconfined compressive strength of soil samples estimated using a calibrated penetrometer.
	21.0							
	22.0							
	23.0							
				SS-7	4			
	24.0			23.5' - 25.0'	10	13.1	4.5+	
				20" Recovery	10			
	25.0							
	26.0							
	27.0							
	28.0							
			Silty Sand, Trace Gravel, gray, medium dense (SM)	SS-8	4			
	29.0			28.5' - 30.0'	9	20.6	-	
			Saturated	11" Recovery	12			
	30.0							
	31.0							
	32.0							
	33.0							
				SS-9	4			
	34.0		Saturated	33.5' - 55.0'	7	15.2	-	
				12" Recovery	8			
	35.0							
	36.0							
	37.0							
	38.0							
			Silty Clay, Trace Sand and Gravel, gray, very stiff (CL)	SS-10	4			
	39.0			38.5' - 40.0'	7	16.2	2.5	
				18" Recovery	8			
	40.0							

Drilling Contractor:	CGMTCS	**Water Level (Ft.)**	
Drilling Method:	3¼" O.D. H.S.A. Split Spoon Sampling	**During Drilling:**	34 feet
Drilling Equipment:	Dietrich 7822DT Geoprobe	**Immediately After Drilling:**	32.1 feet
	REVIEWED BY: NPW	**Caved In:**	33.1 feet

Soil Boring Log

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Boring No.: B-08
Date: Friday, January 14, 2022
Project: Civic Center
801 Burlington Avenue
Downers Grove, Illinois 60515
Project No.: L.S.H.
Boring Location: See Boring Location Diagram
Logged By: L.S.H.
Ground Elevation:

Elevation	Depth	Strata	Soil / Rock Description	Sample Type & No. Depth Interval (Ft) Recovery (in)	Blow Count	Moisture Content (%)	Unconfined Compressive Strength (TSF)	Notes & Test Results
	40.0		Silty Clay, Trace Sand and Gravel, gray, very stiff (CL)					Unconfined compressive strength of soil samples estimated using a calibrated penetrometer.
	41.0							
	42.0							
	43.0							
	44.0		Sand and Gravel, gray, medium dense to very dense (SP-GP)	SS-11 43.5' -45.0' 10" Recovery	9 14 14	5.0	-	
	45.0							
	46.0							
	47.0							
	48.0							
	49.0			SS-12 48.5' - 50.0' 11" Recovery	9 36 21	4.2	-	
	50.0		END of BORING at 50 Feet					
	51.0							
	52.0							
	53.0							
	54.0							
	55.0							
	56.0							
	57.0							
	58.0							
	59.0							
	60.0							

		Water Level (Ft.)	
Drilling Contractor:	CGMTCS		
Drilling Method:	3¼" O.D. H.S.A. Split Spoon Sampling	**During Drilling:**	34 feet
Drilling Equipment:	Dietrich 7822DT Geoprobe	**Immediately After Drilling:**	32.1 feet
	REVIEWED BY: NPW	**Caved In:**	33.1 feet

Soil Boring Log

Construction & Geotechnical Material Testing, Inc.
60 Martin Lane, Elk Grove Village, Illinois 60007
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Soil Boring Prepared for:
Mr. David Yandel, AIA, LEED AP
FGM Architects, Inc.
1211 W. 22nd Street, Suite 700
Oak Brook, Illinois 60523

Boring No.: B-21
Date: Friday, January 14, 2022
Project: Civic Center
801 Burlington Avenue
Downers Grove, Illinois 60515
Project No.: L.S.H.
Boring Location: See Boring Location Diagram
Logged By: L.S.H.
Ground Elevation:

Sheet 1 of 2

Elevation	Depth	Strata	Soil / Rock Description	Sample Type & No. Depth Interval (Ft) Recovery (in)	Blow Count	Moisture Content (%)	Unconfined Compressive Strength (TSF)	Notes & Test Results
	0.0		Approximately 5" of Topsoil					Unconfined compressive strength of soil samples estimated using a calibrated penetrometer.
	1.0		Silty Clay, Trace Sand and Gravel, dark brown, very stiff (CL- FILL)	SS-1 1.0' - 2.5' 9" Recovery	7 4 4	23.7	2.0	Dry Density: 1.0' - 2.5' = 96.8 lbs/ft^3
	2.0							
	3.0		Silty Clay, Trace Sand and Gravel, brown and gray, very stiff to hard (CL)	SS-2 3.5' - 5.0' 10" Recovery	2 5 5	18.9	4.5+	
	4.0							
	5.0			SS-3 6.0' - 7.5' 15" Recovery	3 5 8	19.0	4.5+	
	6.0							
	7.0			SS-4 8.5' - 10.0' 16" Recovery	2 2 3	25.5	2.5	
	8.0							
	9.0							
	10.0							
	11.0							
	12.0							
	13.0		Silty Clay, Trace Sand and Gravel, gray, very stiff (CL)	SS-5 13.5' - 15.0' 18" Recovery	3 4 5	17.1	2.5	
	14.0							
	15.0							
	16.0							
	17.0							
	18.0			SS-6 18.5' - 20.0' 19" Recovery	2 5 4	17.9	2.5	
	19.0							
	20.0							

Drilling Contractor:	CGMTCS	**Water Level (Ft.)**	
Drilling Method:	3¼" O.D. H.S.A. Split Spoon Sampling	**During Drilling:**	14.9 feet
Drilling Equipment:	Dietrich 7822DT Geoprobe	**Immediately After Drilling:**	12.6 feet
	REVIEWED BY: NPW		

Soil Boring Log

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Soil Boring Prepared for:
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1211 W. 22nd Street, Suite 700
Oak Brook, Illinois 60523

Boring No.: B-21
Date: Friday, January 14, 2022
Project: Civic Center
801 Burlington Avenue
Downers Grove, Illinois 60515
Project No.: L.S.H.
Boring Location: See Boring Location Diagram
Logged By: L.S.H.
Ground Elevation:

Elevation	Depth	Strata	Soil / Rock Description	Sample Type & No. Depth Interval (Ft) Recovery (in)	Blow Count	Moisture Content (%)	Unconfined Compressive Strength (TSF)	Notes & Test Results
	20.0		Silty Clay, Trace Sand and Gravel, gray, very stiff (CL)					Unconfined compressive strength of soil samples estimated using a calibrated penetrometer.
	21.0							
	22.0							
	23.0							
	24.0			SS-7 23.5' - 25.0' 18" Recovery	3 4 5	16.9	2.5	
	25.0		END of BORING at 25 Feet					
	26.0							
	27.0							
	28.0							
	29.0							
	30.0							
	31.0							
	32.0							
	33.0							
	34.0							
	35.0							
	36.0							
	37.0							
	38.0							
	39.0							
	40.0							

Drilling Contractor:	CGMTCS	**Water Level (Ft.)**
Drilling Method:	3¼" O.D. H.S.A. Split Spoon Sampling	**During Drilling:** 14.9 feet
Drilling Equipment:	Dietrich 7822DT Geoprobe	**Immediately After Drilling:** 12.6 feet
	REVIEWED BY: NPW	

Soil Boring Log

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Soil Boring Prepared for:
Mr. David Yandel, AIA, LEED AP
FGM Architects, Inc.
1211 W. 22nd Street, Suite 700
Oak Brook, Illinois 60523

Boring No.: B-22
Date: Friday, January 14, 2022
Project: Civic Center
801 Burlington Avenue
Downers Grove, Illinois 60515
Project No.: L.S.H.
Boring Location: See Boring Location Diagram
Logged By: L.S.H.
Ground Elevation:

Sheet 1 of 2

Elevation	Depth	Strata	Soil / Rock Description	Sample Type & No. Depth Interval (ft) Recovery (in)	Blow Count	Moisture Content (%)	Unconfined Compressive Strength (TSF)	Notes & Test Results
	0.0		Approximately 6" of Asphalt Pavement					Unconfined compressive strength of soil samples estimated using a calibrated penetrometer.
			Approximately 4" of Aggregate Base Course					
	1.0		Silty Clay, Trace Sand and Gravel, brown, very stiff (CL FILL)	SS-1	4			Dry Density:
				1.0' - 2.5'	5	25.5	2.75	1.0' - 2.5' = 96.5 lbs/ft^3
	2.0			9" Recovery	6			
	3.0							
			Silty Clay, Trace Sand and Gravel, brown and	SS-2	5			
	4.0		gray, very stiff to hard (CL)	3.5' - 5.0'	7	16.6	4.5+	
				15" Recovery	10			
	5.0							
				SS-3	3			
	6.0			6.0' - 7.5'	6	20.5	2.75	
	7.0			18" Recovery	7			
	8.0							
			Silty Clay, Trace Sand and Gravel, gray, very stiff	SS-4	3			
	9.0		(CL)	8.5' - 10.0'	3	17.5	2.0	
				11" Recovery	4			
	10.0							
	11.0							
	12.0							
	13.0							
				SS-5	2			
	14.0			13.5' - 15.0'	5	18.4	2.0	
				12" Recovery	4			
	15.0							
	16.0							
	17.0							
	18.0							
				SS-6	4			
	19.0			18.5' - 20.0'	6	15.6	2.5	
				17" Recovery	8			
	20.0							

Drilling Contractor:	CGMTCS	**Water Level (Ft.)**	
Drilling Method:	3¼" O.D. H.S.A. Split Spoon Sampling	**During Drilling:**	9.8 feet
Drilling Equipment:	Dietrich 7822DT Geoprobe	**Immediately After Drilling:**	22.8 feet
	REVIEWED BY: NPW		

Soil Boring Log

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Soil Boring Prepared for:
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FGM Architects, Inc.
1211 W. 22nd Street, Suite 700
Oak Brook, Illinois 60523

Boring No.: B-22
Date: Friday, January 14, 2022
Project: Civic Center
801 Burlington Avenue
Downers Grove, Illinois 60515
Project No.: L.S.H.
Boring Location: See Boring Location Diagram
Logged By: L.S.H.
Ground Elevation:

Elevation	Depth	Strata	Soil / Rock Description	Sample Type & No. Depth Interval (Ft) Recovery (in)	Blow Count	Moisture Content (%)	Unconfined Compressive Strength (TSF)	Notes & Test Results
	20.0		Silty Clay, Trace Sand and Gravel, gray, very stiff (CL)					Unconfined compressive strength of soil samples estimated using a calibrated penetrometer.
	21.0							
	22.0							
	23.0							
	24.0		Silty Sand, Trace Gravel, gray, medium dense (SM)	SS-7 23.5' - 25.0' 11" Recovery	3 6 8	13.5	-	
	25.0		END of BORING at 25 Feet					
	26.0							
	27.0							
	28.0							
	29.0							
	30.0							
	31.0							
	32.0							
	33.0							
	34.0							
	35.0							
	36.0							
	37.0							
	38.0							
	39.0							
	40.0							

Drilling Contractor:	CGMTCS	**Water Level (Ft.)**	
Drilling Method:	3¼" O.D. H.S.A. Split Spoon Sampling	**During Drilling:**	9.8 feet
Drilling Equipment:	Dietrich 7822DT Geoprobe	**Immediately After Drilling:**	22.8 feet
	REVIEWED BY: NPW		

Soil Boring Log

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Soil Boring Prepared for:
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FGM Architects, Inc.
1211 W. 22nd Street, Suite 700
Oak Brook, Illinois 60523

Boring No.: B-23
Date: Friday, January 14, 2022
Project: Civic Center
801 Burlington Avenue
Downers Grove, Illinois 60515
Project No.: L.S.H.
Boring Location: See Boring Location Diagram
Logged By: L.S.H.
Ground Elevation:

Sheet 1 of 2

Elevation	Depth	Strata	Soil / Rock Description	Sample Type & No. Depth Interval (Ft) Recovery (in)	Blow Count	Moisture Content (%)	Unconfined Compressive Strength (TSF)	Notes & Test Results
	0.0		Approximately 9½" of Asphalt Pavement					Unconfined compressive strength of soil samples estimated using a calibrated penetrometer.
			Approximately 2½" of Aggregate Base Course					
	1.0		Silty Clay, Trace Sand and Gravel, brown, very stiff (CL FILL)	SS-1	2			Dry Density:
				1.0' - 2.5'	3	22.6	2.5	1.0' - 2.5' = 102.9 lbs/ft^3
	2.0			10" Recovery	4			
	3.0							
			Silty Clay, Trace Sand and Gravel, brown and gray, very stiff to hard (CL)	SS-2	2			
	4.0			3.5' - 5.0'	6	18.7	4.5+	
	5.0			11" Recovery	6			
	6.0			SS-3	3			
				6.0' - 7.5'	4	20.2	2.75	
	7.0			10" Recovery	5			
	8.0							
				SS-4	3			
	9.0			8.5' - 10.0'	4	19.2	2.75	
	10.0			12" Recovery	7			
	11.0							
	12.0							
	13.0							
			Silty Clay, Trace Sand and Gravel, gray, very stiff (CL)	SS-5	3			
	14.0			13.5' - 15.0'	6	17.7	2.5	
	15.0			14" Recovery	6			
	16.0							
	17.0							
	18.0							
				SS-6	2			
	19.0			18.5' - 20.0'	4	18.0	2.0	
	20.0			18" Recovery	5			

Drilling Contractor:	CGMTCS	**Water Level (Ft.)**
Drilling Method:	3¼" O.D. H.S.A. Split Spoon Sampling	**During Drilling:** 18.9 feet
Drilling Equipment:	Dietrich 7822DT Geoprobe	**Immediately After Drilling:** 16.1 feet
	REVIEWED BY: NPW	Cave-in at 22.8 feet

Soil Boring Log

Construction & Geotechnical Material Testing, Inc.
60 Martin Lane, Elk Grove Village, Illinois 60007
Telephone (630) 595-1111 ♦ Fax (630) 595-1110

Soil Boring Prepared for:
Mr. David Yandel, AIA, LEED AP
FGM Architects, Inc.
1211 W. 22nd Street, Suite 700
Oak Brook, Illinois 60523

Boring No.: B-23
Date: Friday, January 14, 2022
Project: Civic Center
801 Burlington Avenue
Downers Grove, Illinois 60515
Project No.: L.S.H.
Boring Location: See Boring Location Diagram
Logged By: L.S.H.
Ground Elevation:

Elevation	Depth	Strata	Soil / Rock Description	Sample Type & No. Depth Interval (Ft) Recovery (in)	Blow Count	Moisture Content (%)	Unconfined Compressive Strength (TSF)	Notes & Test Results
	20.0		Silty Clay, Trace Sand and Gravel, gray, very stiff (CL)					Unconfined compressive strength of soil samples estimated using a calibrated penetrometer.
	21.0							
	22.0							
	23.0							
	24.0			SS-7 23.5' - 25.0' 20" Recovery	3 4 5	16.8	2.0	
	25.0		END of BORING at 25 Feet					
	26.0							
	27.0							
	28.0							
	29.0							
	30.0							
	31.0							
	32.0							
	33.0							
	34.0							
	35.0							
	36.0							
	37.0							
	38.0							
	39.0							
	40.0							

Drilling Contractor: CGMTCS
Drilling Method: 3¼" O.D. H.S.A. Split Spoon Sampling
Drilling Equipment: Dietrich 7822DT Geoprobe
REVIEWED BY: NPW

Water Level (Ft.)
During Drilling: 18.9 feet
Immediately After Drilling: 16.1 feet
Cave-in at 22.8 feet

Soil Boring Log

Construction & Geotechnical Material Testing, Inc.
60 Martin Lane, Elk Grove Village, Illinois 60007
Telephone (630) 595-1111 • Fax (630) 595-1110

Soil Boring Prepared for:
Mr. David Yandel, AIA, LEED AP
FGM Architects, Inc.
1211 W. 22nd Street, Suite 700
Oak Brook, Illinois 60523

Boring No.: B-24
Date: Friday, January 14, 2022
Project: Civic Center
801 Burlington Avenue
Downers Grove, Illinois 60515
Project No.: L.S.H.
Boring Location: See Boring Location Diagram
Logged By: L.S.H.
Ground Elevation:

Elevation	Depth	Strata	Soil / Rock Description	Sample Type & No. Depth Interval (Ft) Recovery (in)	Blow Count	Moisture Content (%)	Unconfined Compressive Strength (TSF)	Notes & Test Results
	0.0		Approximately 10¾" of Asphalt Pavement					Unconfined compressive strength of soil samples estimated using a calibrated penetrometer.
	1.0		Approximately 12" of Aggregate Base Course	SS-1	7	-	-	
				1.0' - 2.5'	6			
	2.0		Sand and Gravel, gray, very loose to medium dense (SP-GP FILL)	3" Recovery	5	4.4	-	
	3.0							
				SS-2	3			
	4.0			3.5' - 5.0'	2	2.4	-	
				2" Recovery	3			
	5.0							
				SS-3	3			
	6.0			6.0' - 7.5'	1	3.4	-	
	7.0			1" Recovery	1			
	8.0							
			Silty Clay, Trace Sand and Gravel, gray, stiff to very stiff (CL)	SS-4	2			
	9.0			8.5' - 10.0'	2	15.8	3.0	
				9" Recovery	5			
	10.0							
	11.0							
	12.0							
	13.0							
				SS-5	5			
	14.0			13.5' - 15.0'	7	18.1	3.5	
				15" Recovery	10			
	15.0							
	16.0							
	17.0							
	18.0							
				SS-6	4			
	19.0			18.5' - 20.0'	5	15.1	1.75	
				16" Recovery	8			
	20.0							

Drilling Contractor:	CGMTCS	**Water Level (Ft.)**	
Drilling Method:	3¼" O.D. H.S.A. Split Spoon Sampling	**During Drilling:**	9.8 feet
Drilling Equipment:	Dietrich 7822DT Geoprobe	**Immediately After Drilling:**	6.4 feet
	REVIEWED BY: NPW	Cave-in at 22.4 feet	

Soil Boring Log

Construction & Geotechnical Material Testing, Inc.
60 Martin Lane, Elk Grove Village, Illinois 60007
Telephone (630) 595-1111 ♦ Fax (630) 595-1110

Soil Boring Prepared for:
Mr. David Yandel, AIA, LEED AP
FGM Architects, Inc.
1211 W. 22nd Street, Suite 700
Oak Brook, Illinois 60523

Boring No.: B-24
Date: Friday, January 14, 2022
Project: Civic Center
801 Burlington Avenue
Downers Grove, Illinois 60515
Project No.: L.S.H.
Boring Location: See Boring Location Diagram
Logged By: L.S.H.
Ground Elevation:

Elevation	Depth	Strata	Soil / Rock Description	Sample Type & No. Depth Interval (ft) Recovery (in)	Blow Count	Moisture Content (%)	Unconfined Compressive Strength (TSF)	Notes & Test Results
	20.0		Silty Clay, Trace Sand and Gravel, gray, stiff to very stiff (CL)					Unconfined compressive strength of soil samples estimated using a calibrated penetrometer.
	21.0							
	22.0							
	23.0							
	24.0			SS-7 23.5' - 25.0' 18" Recovery	3 5 5	20.9	2.5	
	25.0		END of BORING at 25 Feet					
	26.0							
	27.0							
	28.0							
	29.0							
	30.0							
	31.0							
	32.0							
	33.0							
	34.0							
	35.0							
	36.0							
	37.0							
	38.0							
	39.0							
	40.0							

Drilling Contractor:	CGMTCS	**Water Level (Ft.)**
Drilling Method:	3¼" O.D. H.S.A. Split Spoon Sampling	**During Drilling:** 9.8 feet
Drilling Equipment:	Dietrich 7822DT Geoprobe	**Immediately After Drilling:** 6.4 feet
	REVIEWED BY: NPW	Cave-in at 22.4 feet

Soil Boring Log

Construction & Geotechnical Material Testing, Inc.
60 Martin Lane, Elk Grove Village, Illinois 60007
Telephone (630) 595-1111 ♦ Fax (630) 595-1110

Soil Boring Prepared for:
Mr. David Yandel, AIA, LEED AP
FGM Architects, Inc.
1211 W. 22nd Street, Suite 700
Oak Brook, Illinois 60523

Boring No.: B-31
Date: Friday, January 14, 2022
Project: Civic Center
801 Burlington Avenue
Downers Grove, Illinois 60515
Project No.: L.S.H.
Boring Location: See Boring Location Diagram
Logged By: L.S.H.
Ground Elevation:

Elevation	Depth	Strata	Soil / Rock Description	Sample Type & No. Depth Interval (Ft) Recovery (in)	Blow Count	Moisture Content (%)	Unconfined Compressive Strength (TSF)	Notes & Test Results
	0.0		Approximately 6" of Asphalt Pavement					Unconfined compressive strength of soil samples estimated using a calibrated penetrometer.
			Approximately 6" of Aggregate Base Course					
	1.0		Silty Clay, Trace Sand and Gravel, brown, very stiff to hard (CL FILL)	SS-1 1.0' - 2.5' 5" Recovery	5 8 8	13.1	4.5+	
	2.0							
	3.0							
	4.0			SS-2 3.5' - 5.0' 7" Recovery	3 4 5	24.0	2.75	Dry Density: 3.5' - 5.0' = 100.2 lbs/ft^3
	5.0							
	6.0		Silty Clay, Trace Sand and Gravel, dark brown, very stiff (CL FILL)	SS-3 6.0' - 7.5' 10" Recovery	1 4 5	24.6	2.0	Dry Density: 6.0 - 7.5' = 95.5 lbs/ft^3
	7.0							
	8.0							
	9.0			SS-4 8.5' - 10.0' 9" Recovery	1 11 7	17.2	2.0	
	10.0							
	11.0							
	12.0							
	13.0							
	14.0		Silty Clay, Trace Sand and Gravel, gray, very stiff (CL)	SS-5 13.5' - 15.0' 8" Recovery	3 3 3	17.5	3.0	
	15.0							
	16.0							
	17.0							
	18.0							
	19.0			SS-6 18.5' - 20.0' 13" Recovery	2 3 4	18.7	2.5	
	20.0							

		Water Level (Ft.)	
Drilling Contractor:	CGMTCS		
Drilling Method:	3¼" O.D. H.S.A. Split Spoon Sampling	**During Drilling:**	34 feet
Drilling Equipment:	Dietrich 7822DT Geoprobe	**Immediately After Drilling:**	16 feet
	REVIEWED BY: NPW	**Cave- In at:**	44.2 feet

Soil Boring Log

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60 Martin Lane, Elk Grove Village, Illinois 60007
Telephone (630) 595-1111 ♦ Fax (630) 595-1110

Soil Boring Prepared for:
Mr. David Yandel, AIA, LEED AP
FGM Architects, Inc.
1211 W. 22nd Street, Suite 700
Oak Brook, Illinois 60523

Boring No.: B-31
Date: Friday, January 14, 2022
Project: Civic Center
801 Burlington Avenue
Downers Grove, Illinois 60515
Project No.: L.S.H.
Boring Location: See Boring Location Diagram
Logged By: L.S.H.
Ground Elevation:

Elevation	Depth	Strata	Soil / Rock Description	Sample Type & No. Depth Interval (Ft) Recovery (in)	Blow Count	Moisture Content (%)	Unconfined Compressive Strength (TSF)	Notes & Test Results
	20.0		Silty Clay, Trace Sand and Gravel, gray, very stiff (CL)					Unconfined compressive strength of soil samples estimated using a calibrated penetrometer.
	21.0							
	22.0							
	23.0							
	24.0			SS-7 23.5' - 25.0' 18" Recovery	2 2 4	17.9	2.0	
	25.0							
	26.0							
	27.0							
	28.0							
	29.0			SS-8 28.5' - 30.0' 18" Recovery	3 3 5	17.3	2.5	
	30.0							
	31.0							
	32.0							
	33.0							
	34.0			SS-9 33.5' - 55.0' 10" Recovery	4 6 8	16.0	2.5	
	35.0							
	36.0							
	37.0							
	38.0							
	39.0			SS-10 38.5' - 40.0' 15" Recovery	4 6 8	13.1	3.0	
	40.0							

Drilling Contractor:	CGMTCS	**Water Level (Ft.)**	
Drilling Method:	3¼" O.D. H.S.A. Split Spoon Sampling	**During Drilling:**	34 feet
Drilling Equipment:	Dietrich 7822DT Geoprobe	**Immediately After Drilling:**	16 feet
	REVIEWED BY: NPW	**Cave- In at:**	44.2 feet

Soil Boring Log

Construction & Geotechnical Material Testing, Inc.
60 Martin Lane, Elk Grove Village, Illinois 60007
Telephone (630) 595-1111 • Fax (630) 595-1110

Soil Boring Prepared for:
Mr. David Yandel, AIA, LEED AP
FGM Architects, Inc.
1211 W. 22nd Street, Suite 700
Oak Brook, Illinois 60523

Boring No.: B-31
Date: Friday, January 14, 2022
Project: Civic Center
801 Burlington Avenue
Downers Grove, Illinois 60515
Project No.: L.S.H.
Boring Location: See Boring Location Diagram
Logged By: L.S.H.
Ground Elevation:

Elevation	Depth	Strata	Soil / Rock Description	Sample Type & No. Depth Interval (Ft) Recovery (in)	Blow Count	Moisture Content (%)	Unconfined Compressive Strength (TSF)	Notes & Test Results
	40.0		Silty Clay, Trace Sand and Gravel, gray, very stiff (CL)					Unconfined compressive strength of soil samples estimated using a calibrated penetrometer.
	41.0							
	42.0							
	43.0							
	44.0			SS-11 43.5' -45.0' 14" Recovery	4 6 11	14.4	2.5	
	45.0							
	46.0							
	47.0							
	48.0							
	49.0			SS-12 48.5' - 50.0' 15" Recovery	4 6 10	16.4	2.0	
	50.0		END of BORING at 50 Feet					
	51.0							
	52.0							
	53.0							
	54.0							
	55.0							
	56.0							
	57.0							
	58.0							
	59.0							
	60.0							

Drilling Contractor: CGMTCS
Drilling Method: 3¼" O.D. H.S.A. Split Spoon Sampling
Drilling Equipment: Dietrich 7822DT Geoprobe
REVIEWED BY: NPW

Water Level (Ft.)
During Drilling: 34 feet
Immediately After Drilling: 16 feet
Cave- In at: 44.2 feet

Soil Boring Log

Construction & Geotechnical Material Testing, Inc.
60 Martin Lane, Elk Grove Village, Illinois 60007
Telephone (630) 595-1111 ♦ Fax (630) 595-1110

Soil Boring Prepared for:
Mr. David Yandel, AIA, LEED AP
FGM Architects, Inc.
1211 W. 22nd Street, Suite 700
Oak Brook, Illinois 60523

Boring No.: P-01
Date: Friday, January 7, 2022
Project: Civic Center
801 Burlington Avenue
Downers Grove, Illinois 60515
Project No.: L.S.H.
Boring Location: See Boring Location Diagram
Logged By: L.S.H.
Ground Elevation:

Sheet 1 of 1

Elevation	Depth	Strata	Soil / Rock Description	Sample Type & No. Depth Interval (Ft) Recovery (in)	Blow Count	Moisture Content (%)	Unconfined Compressive Strength (TSF)	Notes & Test Results
	0.0		Approximately 10" of Asphalt Pavement					Unconfined compressive strength of soil samples estimated using a calibrated penetrometer.
			Approximately 4" of Aggregate Base Course					
	1.0		Silty Clay, Trace Sand and Gravel, brown and gray, very stiff to hard (CL)	SS-1 1.0' - 2.5' 6" Recovery	4 5 7	20.0	3.25	
	2.0							
	3.0							
	4.0			SS-2 3.5' - 5.0' 14" Recovery	4 5 6	19.1	3.5	
	5.0							
	6.0			SS-3 6.0' - 7.5' 18" Recovery	3 6 8	20.4	3.25	
	7.0							
	8.0							
	9.0			SS-4 8.5' - 10.0' 12" Recovery	4 7 9	19.3	4.5+	
	10.0		END of BORING at 10 Feet					
	11.0							
	12.0							
	13.0							
	14.0							
	15.0							
	16.0							
	17.0							
	18.0							
	19.0							
	20.0							

Drilling Contractor: CGMTCS
Drilling Method: 3¼" O.D. H.S.A. Split Spoon Sampling
Drilling Equipment: Dietrich 7822DT Geoprobe
REVIEWED BY: NPW

Water Level (Ft.)
During Drilling: None
Immediately After Drilling: None

Soil Boring Log

Construction & Geotechnical Material Testing, Inc.
60 Martin Lane, Elk Grove Village, Illinois 60007
Telephone (630) 595-1111 • Fax (630) 595-1110

Soil Boring Prepared for:
Mr. David Yandel, AIA, LEED AP
FGM Architects, Inc.
1211 W. 22nd Street, Suite 700
Oak Brook, Illinois 60523

Boring No.: P-02
Date: Friday, January 7, 2022
Project: Civic Center
801 Burlington Avenue
Downers Grove, Illinois 60515
Project No.: L.S.H.
Boring Location: See Boring Location Diagram
Logged By: L.S.H.
Ground Elevation:

Sheet 1 of 1

Elevation	Depth	Strata	Soil / Rock Description	Sample Type & No. Depth Interval (Ft) Recovery (in)	Blow Count	Moisture Content (%)	Unconfined Compressive Strength (TSF)	Notes & Test Results
	0.0		Approximately 9½" of Asphalt Pavement					Unconfined compressive strength of soil samples estimated using a calibrated penetrometer.
			Approximately 7" of Aggregate Base Course					
	1.0		Sand and Gravel, gray, medium dense (SP-GP FILL)	SS-1 1.0' - 2.5' 18" Recovery	7 11 10	5.4	-	
	2.0							
	3.0							
			Silty Clay, Trace Sand and Gravel, dark brown, stiff (CL FILL)	SS-2 3.5' - 5.0' 16" Recovery	3 2 6	28.7	1.5	
	4.0		Saturated					
	5.0							
	6.0		Silty Clay, Trace Sand and Gravel, brown and gray, very stiff to hard (CL)	SS-3 6.0' - 7.5' 18" Recovery	4 7 10	18.4	3.25	
	7.0							
	8.0							
				SS-4 8.5' - 10.0' 18" Recovery	4 6 8	18.6	4.5+	
	9.0							
	10.0		END of BORING at 10 Feet					
	11.0							
	12.0							
	13.0							
	14.0							
	15.0							
	16.0							
	17.0							
	18.0							
	19.0							
	20.0							

		Water Level (Ft.)	
Drilling Contractor:	CGMTCS		
Drilling Method:	3¼" O.D. H.S.A. Split Spoon Sampling	**During Drilling:**	None
Drilling Equipment:	Dietrich 7822DT Geoprobe	**Immediately After Drilling:**	None
	REVIEWED BY: NPW		

Soil Boring Log

Construction & Geotechnical Material Testing, Inc.
60 Martin Lane, Elk Grove Village, Illinois 60007
Telephone (630) 595-1111 • Fax (630) 595-1110

Soil Boring Prepared for:
Mr. David Yandel, AIA, LEED AP
FGM Architects, Inc.
1211 W. 22nd Street, Suite 700
Oak Brook, Illinois 60523

Boring No.: P-03
Date: Friday, January 7, 2022
Project: Civic Center
801 Burlington Avenue
Downers Grove, Illinois 60515
Project No.: L.S.H.
Boring Location: See Boring Location Diagram
Logged By: L.S.H.
Ground Elevation:

Sheet 1 of 1

Elevation	Depth	Strata	Soil / Rock Description	Sample Type & No. Depth Interval (Ft) Recovery (in)	Blow Count	Moisture Content (%)	Unconfined Compressive Strength (TSF)	Notes & Test Results
	0.0		Approximately 10" of Asphalt Pavement					Unconfined compressive strength of soil samples estimated using a calibrated penetrometer.
	1.0		Silty Clay, Trace Sand and Gravel, brown and gray, very stiff (CL)	SS-1 1.0' - 2.5' 12" Recovery	3 4 6	22.7	2.5	
	2.0							
	3.0							
	4.0			SS-2 3.5' - 5.0' 12" Recovery	2 3 4	24.9	2.5	
	5.0							
	6.0			SS-3 6.0' - 7.5' 14" Recovery	3 5 7	16.7	3.0	
	7.0							
	8.0							
	9.0		Silty Clay, Trace Sand and Gravel, gray, hard (CL)	SS-4 8.5' - 10.0' 16" Recovery	4 7 11	16.2	4.5+	
	10.0		END of BORING at 10 Feet					
	11.0							
	12.0							
	13.0							
	14.0							
	15.0							
	16.0							
	17.0							
	18.0							
	19.0							
	20.0							

Drilling Contractor: CGMTCS
Drilling Method: 3¼" O.D. H.S.A. Split Spoon Sampling
Drilling Equipment: Dietrich 7822DT Geoprobe
REVIEWED BY: NPW

Water Level (Ft.)
During Drilling: None
Immediately After Drilling: None

Soil Boring Log

Construction & Geotechnical Material Testing, Inc.
60 Martin Lane, Elk Grove Village, Illinois 60007
Telephone (630) 595-1111 • Fax (630) 595-1110

Soil Boring Prepared for:
Mr. David Yandel, AIA, LEED AP
FGM Architects, Inc.
1211 W. 22nd Street, Suite 700
Oak Brook, Illinois 60523

Boring No.: P-04
Date: Friday, January 7, 2022
Project: Civic Center
801 Burlington Avenue
Downers Grove, Illinois 60515
Project No.: L.S.H.
Boring Location: See Boring Location Diagram
Logged By: L.S.H.
Ground Elevation:

Sheet 1 of 1

Elevation	Depth	Strata	Soil / Rock Description	Sample Type & No. Depth Interval (Ft) Recovery (in)	Blow Count	Moisture Content (%)	Unconfined Compressive Strength (TSF)	Notes & Test Results
	0.0		Approximately 8½" of Asphalt Pavement					Unconfined compressive strength of soil samples estimated using a calibrated penetrometer.
	1.0		Approximately 9" of Aggregate Base Course					
			Silty Clay, Trace Sand and Gravel, brown and gray, very stiff to hard (CL)	SS-1 1.0' - 2.5' 6" Recovery	8 5 5	21.1	3.5	
	2.0							
	3.0							
				SS-2 3.5' - 5.0' 12" Recovery	5 6 7	21.1	3.5	
	4.0							
	5.0							
				SS-3 6.0' - 7.5' 18" Recovery	3 3 2	24.7	3.0	
	6.0							
	7.0							
	8.0							
				SS-4 8.5' - 10.0' 18" Recovery	5 6 9	20.9	4.0	
	9.0							
	10.0		END of BORING at 10 Feet					
	11.0							
	12.0							
	13.0							
	14.0							
	15.0							
	16.0							
	17.0							
	18.0							
	19.0							
	20.0							

Drilling Contractor: CGMTCS
Drilling Method: 3¼" O.D. H.S.A. Split Spoon Sampling
Drilling Equipment: Dietrich 7822DT Geoprobe
REVIEWED BY: NPW

Water Level (Ft.)
During Drilling: None
Immediately After Drilling: None

Soil Boring Log

Construction & Geotechnical Material Testing, Inc.
60 Martin Lane, Elk Grove Village, Illinois 60007
Telephone (630) 595-1111 • Fax (630) 595-1110

Soil Boring Prepared for:
Mr. David Yandel, AIA, LEED AP
FGM Architects, Inc.
1211 W. 22nd Street, Suite 700
Oak Brook, Illinois 60523

Boring No.: P-05
Date: Friday, January 7, 2022
Project: Civic Center
801 Burlington Avenue
Downers Grove, Illinois 60515
Project No.: L.S.H.
Boring Location: See Boring Location Diagram
Logged By: L.S.H.
Ground Elevation:

Sheet 1 of 1

Elevation	Depth	Strata	Soil / Rock Description	Sample Type & No. Depth Interval (Ft) Recovery (in)	Blow Count	Moisture Content (%)	Unconfined Compressive Strength (TSF)	Notes & Test Results
	0.0		Approximately 9½" of Asphalt Pavement					Unconfined compressive strength of soil samples estimated using a calibrated penetrometer.
	1.0		Silty Clay, Trace Sand and Gravel, brown and gray, very stiff to hard (CL)	SS-1 1.0' - 2.5' 16" Recovery	3 4 8	18.1	3.25	
	2.0							
	3.0							
	4.0			SS-2 3.5' - 5.0' 16" Recovery	4 6 9	20.1	3.0	
	5.0							
	6.0			SS-3 6.0' - 7.5' 16" Recovery	3 5 8	19.2	4.0	
	7.0							
	8.0							
	9.0			SS-4 8.5' - 10.0' 18" Recovery	9 9 8	10.8	3.0	
	10.0		END of BORING at 10 Feet					
	11.0							
	12.0							
	13.0							
	14.0							
	15.0							
	16.0							
	17.0							
	18.0							
	19.0							
	20.0							

Drilling Contractor:	CGMTCS	**Water Level (Ft.)**
Drilling Method:	3¼" O.D. H.S.A. Split Spoon Sampling	**During Drilling:** None
Drilling Equipment:	Dietrich 7822DT Geoprobe	**Immediately After Drilling:** None
	REVIEWED BY: NPW	

Soil Boring Log

Construction & Geotechnical Material Testing, Inc.
60 Martin Lane, Elk Grove Village, Illinois 60007
Telephone (630) 595-1111 • Fax (630) 595-1110

Soil Boring Prepared for:
Mr. David Yandel, AIA, LEED AP
FGM Architects, Inc.
1211 W. 22nd Street, Suite 700
Oak Brook, Illinois 60523

Boring No.: P-06
Date: Friday, January 7, 2022
Project: Civic Center
801 Burlington Avenue
Downers Grove, Illinois 60515
Project No.: L.S.H.
Boring Location: See Boring Location Diagram
Logged By: L.S.H.
Ground Elevation:

Sheet 1 of 1

Elevation	Depth	Strata	Soil / Rock Description	Sample Type & No. Depth Interval (Ft) Recovery (in)	Blow Count	Moisture Content (%)	Unconfined Compressive Strength (TSF)	Notes & Test Results
	0.0		Approximately 10" of Asphalt Pavement					Unconfined compressive strength of soil samples estimated using a calibrated penetrometer.
			Approximately 4" of Aggregate Base Course					
	1.0		Silty Clay, Trace Sand and Gravel, brown and gray, very stiff to hard (CL)	SS-1	4			
				1.0' - 2.5'	5	25.9	3.0	
	2.0		Saturated	18" Recovery	6			
	3.0							
				SS-2	4			
	4.0			3.5' - 5.0'	6	18.3	4.5+	
				14" Recovery	8			
	5.0							
	6.0			SS-3	4			
				6.0' - 7.5'	5	19.7	3.5	
	7.0			18" Recovery	6			
	8.0							
				SS-4	4			
	9.0			8.5' - 10.0'	7	18.3	4.0	
				16" Recovery	9			
	10.0		END of BORING at 10 Feet					
	11.0							
	12.0							
	13.0							
	14.0							
	15.0							
	16.0							
	17.0							
	18.0							
	19.0							
	20.0							

Drilling Contractor:	CGMTCS	**Water Level (Ft.)**	
Drilling Method:	3¼" O.D. H.S.A. Split Spoon Sampling	**During Drilling:**	None
Drilling Equipment:	Dietrich 7822DT Geoprobe	**Immediately After Drilling:**	None
	REVIEWED BY: NPW		

Soil Boring Log

Construction & Geotechnical Material Testing, Inc.
60 Martin Lane, Elk Grove Village, Illinois 60007
Telephone (630) 595-1111 ♦ Fax (630) 595-1110

Soil Boring Prepared for:
Mr. David Yandel, AIA, LEED AP
FGM Architects, Inc.
1211 W. 22nd Street, Suite 700
Oak Brook, Illinois 60523

Boring No.: P-07
Date: Friday, January 7, 2022
Project: Civic Center
801 Burlington Avenue
Downers Grove, Illinois 60515
Project No.: L.S.H.
Boring Location: See Boring Location Diagram
Logged By: L.S.H.
Ground Elevation:

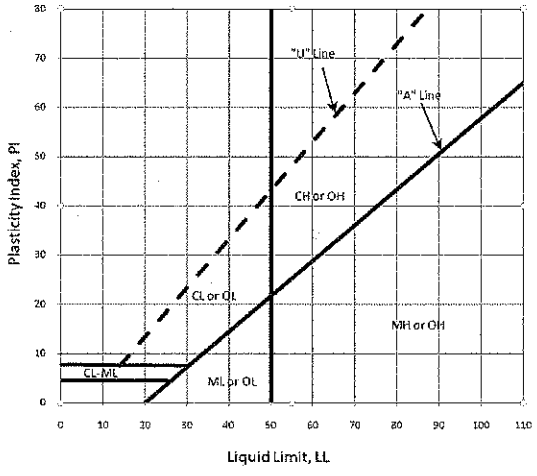
Sheet 1 of 1

Elevation	Depth	Strata	Soil / Rock Description	Sample Type & No. Depth Interval (ft) Recovery (in)	Blow Count	Moisture Content (%)	Unconfined Compressive Strength (TSF)	Notes & Test Results
	0.0		Approximately 10" of Asphalt Pavement					Unconfined compressive strength of soil samples estimated using a calibrated penetrometer.
			Approximately 20" of Aggregate Base Course					
	1.0			SS-1	21	-	-	
				1.0' - 2.5'	10			
	2.0		Silty Clay, Trace Sand and Gravel, brown, stiff (CL FILL)	12" Recovery	5	25.9	1.5	
	3.0		Saturated					
			Silty Clay, Trace Sand and Gravel, brown and	SS-2	3			
	4.0		gray, stiff to very stiff (CL)	3.5' - 5.0'	9	19.9	2.75	
				16" Recovery	9			
	5.0							
	6.0			SS-3	2			
				6.0' - 7.5'	2	24.4	1.0	
	7.0			16" Recovery	3			
	8.0							
				SS-4	3			
	9.0			8.5' - 10.0'	5	18.9	3.0	
				16" Recovery	6			
	10.0		END of BORING at 10 Feet					
	11.0							
	12.0							
	13.0							
	14.0							
	15.0							
	16.0							
	17.0							
	18.0							
	19.0							
	20.0							

Drilling Contractor:	CGMTCS	**Water Level (Ft.)**
Drilling Method:	3¼" O.D. H.S.A. Split Spoon Sampling	**During Drilling:** None
Drilling Equipment:	Dietrich 7822DT Geoprobe	**Immediately After Drilling:** None
	REVIEWED BY: NPW	

UNITED SOIL CLASSIFICATION SYSTEM
(ASTM D-2487)

Major Division			Group Symbol	Typical Names	Classification Criteria
Coarse-grained soils: More than 50% retained on No. 200 sieve	Gravels: More than 50% of coarse fraction retained on No. 4 sieve	Classification on basis of percentage of fines: Less than 5% pass No. 200 sieve	GW	Well-graded gravels and gravel-sand mixtures, little or no fines	$C_u = D_{60}/D_{10}$ greater than 4 $C_z = (D_{30})^2/(D_{10}XD_{60})$ between 1 & 3
			GP	Poorly graded gravels and gravel-sand mixtures, little or no fines	Not meeting both criteria for GW
		More than 12% pass No. 200 sieve	GM	Silty gravels, gravel-sand-silt mixtures	Atterberg limits plot below "A" line or plasticity index less than 4
		5% to 12% pass No. 200 sieve: Borderline classification requiring use of dual symbol: GW, GP, SW, SP; GM, GC, SM, SC	GC	Clayey gravels, gravel-sand-clay mixtures	Atterberg limits plot above "A" line and plasticity index greater than 7
	Sands: More than 50% of coarse fraction passes No. 4 sieve	Less than 5% pass No. 200 sieve	SW	Well-graded sands and gravelly sands, little or no fines	$C_u = D_{60}/D_{10}$ greater than 6 $C_z = (D_{30})^2/(D_{10}XD_{60})$ between 1 & 3
			SP	Poorly graded sands and gravelly sands, little or no fines	Not meeting both criteria for SW
		More than 12% pass No. 200 sieve	SM	Silty sands, sand-silt mixtures	Atterberg limits plot below "A" line or plasticity index less than 4
		5% to 12% pass No. 200 sieve: Borderline classification requiring use of dual symbol: GW, GP, SW, SP; GM, GC, SM, SC	SC	Clayey sands, sand-clay mixtures	Atterberg limits plot above "A" line and plasticity index greater than 7
Fine-grained soils: 50% or more passing No. 200 sieve	Silts and Clays: Liquid limit 50% or less		ML	Inorganic silts, very fine sands, rock flour, silty or clayey fine sands	Note: U-line represents approximate upper limit of LL and PI combinations natural soils (empirically determined). ASTM D-2487
			CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays	
			OL	Organic silts and organic silty clays of low plasticity	
	Silts and Clays: Liquid limit greater than 50%		MH	Inorganic silts, micaceous or diatomaceous fine sands or silts, elastic silts	
			CH	Inorganic clays of high plasticity, fat clays	
			OH	Organic clays of medium to high plasticity	
Highly organic soils			Pt	Peat, muck and other highly organic soils	Fibrous organic matter; will char, burn or glow



Plasticity chart for the classification of fine-grained soils. Tests made on fraction finer than No. 40 sieve

Borderline classifications, used for soils possessing characteristics of two groups, are designated by combinations of group symbols. For example: GW-GC, well-graded gravel-sand mixture with clay binder

UNIFIED SOIL CLASSIFICATION SYSTEM

REFERENCE NOTES FOR BORING LOGS

I. Drilling and Sampling Symbols:

SS – Split Spoon Sampler
ST – Shelby Tube Sampler
RC – Rock Core: NX, BX, AX
PM – Pressuremeter
DC – Dutch Cone Penetrometer
RB – Rock Bit Drilling
BS – Bulk Sample of Drilling
PA – Power Auger (no sample)
HSA – Hollow Stem Auger
WS – Wash Sample

Standard Penetration (Blows/Ft) refers to the blows per foot of a 140 lb. hammer falling 30 inches on a 2 inch O.D. split spoon sampler, as specified in ASTM D-1586. The blow count is commonly referred to as the N-value.

II. Correlation of Penetration Resistances to Soil Properties:

Relative Density-Sands, Silts

SPT – N	Relative Density
0 – 3	Very Loose
4 – 9	Loose
10 – 29	Medium Dense
30 – 49	Dense
50 – 80	Very Dense

Consistency of Cohesive Soils

Unconfined Compressive Strength, Qp, tsf	Consistency
under 0.25	Very Soft
0.25 – 0.49	Soft
0.50 – 0.99	Firm
1.00 – 1.99	Stiff
2.00 – 3.99	Very Stiff
4.00 – 8.00	Hard
over 8.00	Very Hard

III Unified Soil Classification Symbols:

GP – Poorly Graded Gravel
GW – Well Graded Gravel
GM – Silty Gravel
GC – Clayey Gravel
SP – Poorly Graded Sand
SW – Well Graded Sand
SM – Silty Sand
SC – Clayey Sand
ML – Low Plasticity Silt
MH – High Plasticity Silt
CL – Low Plasticity Clay
CH – High Plasticity Clay
OL – Low Plasticity Organic
OH – High Plasticity Organic
CL-ML – Dual Classification (Typical)

IV. Water Level Measurement Symbol:

WL – Water Level
WS – While Sampling
WD – While Drilling
BCR – Before Casing Removal
ACR – After Casing Removal
WCI – Wet Cave In
DCI – Dry Cave In

The water levels are those water levels actually measured in the borehole at the times indicated by the symbol. The measurements are relatively reliable when augering, without adding fluids, in a granular soil. In clays and plastic silts, the accurate determination of water levels may require several days for the water level to stabilize. In such cases, additional methods of measurement are generally applied.

THE AMERICAN INSTITUTE OF ARCHITECTS

AIA Document A310

Bid Bond

KNOW ALL MEN BY THESE PRESENTS, that we

Impirium Group, Inc.

361 Randy Road, Suite 101, Carol Stream, IL 60188

as Principal, hereinafter called the Principal, and

The Ohio Casualty Insurance Company

175 Berkeley Street, Boston, MA 02116

a corporation duly organized under the laws of the State of NH
as Surety, hereinafter called the Surety, are held and firmly bound unto

Village of Downers Grove

801 Burlington Ave, Downers Grove, IL 60515

as Obligee, hereinafter called the Obligee, in the sum of Five Percent of Amount Bid

Dollars ($ 5%),

for the payment of which sum well and truly to be made, the said Principal and the said Surety bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has submitted a bid for Emergency Communications Tower Construction

NOW, THEREFORE, if the Obligee shall accept the bid of the Principal and the Principal shall enter into a Contract with the Obligee in accordance with the terms of such bid, and give such bond or bonds as may be specified in the bidding or Contract Documents with good and sufficient surety for the faithful performance of such Contract and for the prompt payment of labor and material furnished in the prosecution thereof, or in the event of the failure of the Principal to enter such Contract and give such bond or bonds, if the Principal shall pay to the Obligee the difference not to exceed the penalty hereof between the amount specified in said bid and such larger amount for which the Obligee may in good faith contract with another party to perform the Work covered by said bid, then this obligation shall be null and void, otherwise to remain in full force and effect.

Signed and sealed this 26th day of April , 2022 .

(Witness)

John P. Harney (Witness)

THE OHIO CASUALTY INSURANCE COMPANY INCORPORATED 1919 NEW HAMPSHIRE

Seal No. 8079

Impirium Group, Inc.
(Principal) (Seal)

By: Abder Ghoulleh
Abder Ghoulleh (Title) Project Direct

The Ohio Casualty Insurance Company
(Surety) (Seal)

By: Haley A. Anderson
(Title)
Haley A. Anderson, Attorney-in-Fact

This Power of Attorney limits the acts of those named herein, and they have no authority to bind the Company except in the manner and to the extent herein stated.

Liberty Mutual Insurance Company
The Ohio Casualty Insurance Company
West American Insurance Company

Certificate No: **8206616-285118**

POWER OF ATTORNEY

KNOWN ALL PERSONS BY THESE PRESENTS: That The Ohio Casualty Insurance Company is a corporation duly organized under the laws of the State of New Hampshire, that Liberty Mutual Insurance Company is a corporation duly organized under the laws of the State of Massachusetts, and West American Insurance Company is a corporation duly organized under the laws of the State of Indiana (herein collectively called the "Companies"), pursuant to and by authority herein set forth, does hereby name, constitute and appoint, Cassandra L. Stone; Haley A. Anderson; Jacquelyn M. Norstrom; John P. Harney; Josefina Rojo; Pramrod Venkatesh; Steven L. Wulff

all of the city of Chicago state of IL each individually if there be more than one named, its true and lawful attorney-in-fact to make, execute, seal, acknowledge and deliver, for and on its behalf as surety and as its act and deed, any and all undertakings, bonds, recognizances and other surety obligations, in pursuance of these presents and shall be as binding as upon the Companies as if they have been duly signed by the president and attested by the secretary of the Companies in their own proper persons.

IN WITNESS WHEREOF, this Power of Attorney has been subscribed by an authorized officer or official of the Companies and the corporate seals of the Companies have been affixed thereto this 27th day of October, 2021.

Liberty Mutual Insurance Company
The Ohio Casualty Insurance Company
West American Insurance Company

By: _____
David M. Carey, Assistant Secretary

State of PENNSYLVANIA
County of MONTGOMERY ss

On this 27th day of October, 2021 before me personally appeared David M. Carey, who acknowledged himself to be the Assistant Secretary of Liberty Mutual Insurance Company, The Ohio Casualty Company, and West American Insurance Company, and that he, as such, being authorized so to do, execute the foregoing instrument for the purposes therein contained by signing on behalf of the corporations by himself as a duly authorized officer.

IN WITNESS WHEREOF, I have hereunto subscribed my name and affixed my notarial seal at King of Prussia, Pennsylvania, on the day and year first above written.

Commonwealth of Pennsylvania - Notary Seal
Teresa Pastella, Notary Public
Montgomery County
My commission expires March 28, 2025
Commission number 1126044
Member, Pennsylvania Association of Notaries

By: _____
Teresa Pastella, Notary Public

This Power of Attorney is made and executed pursuant to and by authority of the following By-laws and Authorizations of The Ohio Casualty Insurance Company, Liberty Mutual Insurance Company, and West American Insurance Company which resolutions are now in full force and effect reading as follows:

ARTICLE IV – OFFICERS: Section 12. Power of Attorney.
Any officer or other official of the Corporation authorized for that purpose in writing by the Chairman or the President, and subject to such limitation as the Chairman or the President may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Corporation to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact, subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Corporation by their signature and execution of any such instruments and to attach thereto the seal of the Corporation. When so executed, such instruments shall be as binding as if signed by the President and attested to by the Secretary. Any power or authority granted to any representative or attorney-in-fact under the provisions of this article may be revoked at any time by the Board, the Chairman, the President or by the officer or officers granting such power or authority.

ARTICLE XIII – Execution of Contracts: Section 5. Surety Bonds and Undertakings.
Any officer of the Company authorized for that purpose in writing by the chairman or the president, and subject to such limitations as the chairman or the president may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Company by their signature and execution of any such instruments and to attach thereto the seal of the Company. When so executed such instruments shall be as binding as if signed by the president and attested by the secretary.

Certificate of Designation – The President of the Company, acting pursuant to the Bylaws of the Company, authorizes David M. Carey, Assistant Secretary to appoint such attorneys-in-fact as may be necessary to act on behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations.

Authorization – By unanimous consent of the Company's Board of Directors, the Company consents that facsimile or mechanically reproduced signature of any assistant secretary of the Company, wherever appearing upon a certified copy of any power of attorney issued by the Company in connection with surety bonds, shall be valid and binding upon the Company with the same force and effect as though manually affixed.

I, Renee C. Llewellyn, the undersigned, Assistant Secretary, The Ohio Casualty Insurance Company, Liberty Mutual Insurance Company, and West American Insurance Company do hereby certify that the original power of attorney of which the foregoing is a full, true and correct copy of the Power of Attorney executed by said Companies, is in full force and effect and has not been revoked.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the seals of said Companies this 26th day of April, 2022.

By: _____
Renee C. Llewellyn, Assistant Secretary

LMS-12873 LMIC OCIC WAIC Multi Co 02/21

Not valid for mortgage, note, loan, letter of credit, currency rate, interest rate or residual value guarantees.

For bond and/or Power of Attorney (POA) verification inquiries, please call 610-832-8240 or email HOSUR@libertymutual.com.

State of Illinois
County of Cook

On this 26th day of April 2022, before me personally appeared Haley A. Anderson, known to me to be the Attorney-in-fact of The Ohio Casualty Insurance Company, the corporation that executed the within instrument, and acknowledged to me that such corporation executed the same.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal, at my office in the aforesaid county, the day and year in this certificate first above written.

OFFICIAL SEAL
M LABNO
NOTARY PUBLIC - STATE OF ILLINOIS
MY COMMISSION EXPIRES:09/11/23

M Labno

(Notary Public)

(Seal)