AGREEMENT BETWEEN CHARLOTTE COUNTY and ANDREW SITE WORK, LLC for KINGS HIGHWAY & HARBORVIEW ROAD RECONSTRUCTION PROJECT

THIS CONSTRUCTION AGREEMENT (the "Agreement") is entered into by and between CHARLOTTE COUNTY, a political subdivision of the State of Florida, whose principal place of business is 18500 Murdock Circle, Port Charlotte, Florida 33948 (the "County"), and ANDREW SITE WORK, LLC, whose principal place of business is 2511 Palm Ave, Ft. Myers, Florida 33916 (the "Contractor").

WITNESSETH

WHEREAS, the County issued Bid No. 20250062 for the Kings Highway and Harborview Road Reconstruction Project (the "Project"); and

WHEREAS, the Contractor has represented that it is qualified, willing, and able to perform the services described in this Agreement in accordance with the terms and conditions set forth herein; and

WHEREAS, the Board of County Commissioners of Charlotte County awarded this Agreement to the Contractor in accordance with applicable law.

NOW, THEREFORE, in consideration of the mutual covenants, promises, and representations set forth herein, the parties agree as follows:

ARTICLE 1. SCOPE OF WORK

1.1 The Contractor shall furnish all labor, materials, equipment, tools, transportation, supervision, and all other services necessary to complete the Kings Highway and Harborview Road Reconstruction Project, as described in the Bid Documents, Specifications, Addenda, and all other Contract Documents incorporated herein.

1.2 The work shall be performed in strict compliance with the State-Funded Grant Agreement between the County and FDOT, as well as all applicable state, and local laws, regulations, rules, and ordinances.

1.3 The Contractor acknowledges that the services to be provided hereunder shall be subject to oversight, inspection, and audit by FDOT and other applicable agencies as required.

1.4 The work shall include, but is not necessarily limited to, the scope defined in the Contractor's bid for RFB No. 20250062, the associated construction drawings, FDOT Standard Specifications for Road and Bridge Construction (latest edition), and all documents identified in this Agreement.

1.5 The following documents are incorporated herein by reference and made a part of this Agreement:

(a) This agreement and any executed Amendments;
(b) Any executed Addendums;
(c) Contractor's complete bid submission (including unit prices and total bid of ($1,435,486.95);
(d) All FDOT-mandated clauses, certifications, and forms, including but not limited to:
    1. FDOT Form 375-030-84 (Certification of Current Capacity and Contracts on Hand);
    2. FDOT Form 375-030-85 (Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion);
    3. FDOT Form 275-030-10 (Compliance with Nondiscrimination Requirements);
    4. FDOT Form 375-040-34 (Disclosure of Lobbying Activities on Federal Aid Contracts); and
    5. FDOT Form 700-010-63 (Wage Rate Compliance)
(e) Project technical specifications and construction plans;
(f) Performance and Payment Bonds;
(g) Insurance Certificates; and
(h) The "NOTICE OF AVAILABILITY OF BID SPECIFICATIONS" posted by Charlotte County Purchasing Division on January 15, 2025.

1.6 The following documents are incorporated herein as **Composite Exhibit A** and made a part of this agreement:

(a) Contractor's complete bid submission (including unit prices and total bid of ($1,435,486.95);
(b) an executed copy of Addendum 1;
(c) the "Notice of Availability and BID Specifications" issued by Charlotte County; and
(d) Affidavit Regarding Labor and Services

ARTICLE 2. CONTRACT PRICE

2.1 The total Contract Price for the performance of all Work required under this Agreement shall be One Million Four Hundred Thirty-Five Thousand Four Hundred Eighty-Six Dollars and Ninety-Five Cents ($1,435,486.95).

2.2 The Contract Price shall be paid in accordance with the terms set forth in this Agreement and in compliance with applicable federal, state, and local requirements, in compliance with all applicable state and local requirements, including the State-Funded Grant Agreement with FDOT.

ARTICLE 3. CONTRACT TIME

3.1 The Contractor shall commence work within ten (10) calendar days following the County's issuance of a written Notice to Proceed ("NTP"). Failure to commence work within this time frame without written authorization from the County shall constitute a material breach of this Agreement and may serve as grounds for termination under Section 13. The Contractor shall coordinate with the County, the CEI firm, and FDOT prior to mobilization.

3.2 The Contractor shall achieve Substantial Completion of the Work within One Hundred Ninety-Five (195) consecutive calendar days from the date specified in the Notice to Proceed issued by the County.

3.3 Final Completion shall be achieved within thirty (30) calendar days after Substantial Completion.

3.4 Time is of the essence in the performance of this Agreement. The parties acknowledge that delays in completion of the Project will result in damages that are difficult to ascertain. Therefore, liquidated damages in the amount of One Thousand Six Hundred Ninety Dollars ($1,690.00) per calendar day shall be assessed for each day beyond the Contract Time for which Substantial Completion is not achieved.

ARTICLE 4. PAYMENTS

4.1 The Contractor shall submit Applications for Payment on forms approved by the County and in accordance with the payment procedures set forth in the Contract Documents.

4.2 The County shall make payments to the Contractor in accordance with the Florida Prompt Payment Act, Sections 218.70 through 218.80, Florida Statutes, as may be amended.

4.3 All payments are contingent upon proper certification of the Work performed, compliance with all Contract requirements, and approval by the County's designated representatives, including any required oversight or certification by FDOT.

4.4 Notwithstanding any provision to the contrary, no payment shall be made to the Contractor unless and until the County has received all required documentation and certifications, including but not limited to required documentation under the State-Funded Grant Agreement between the County and FDOT, CEI certifications, wage compliance records, and all federal and state audit compliance documents.

4.5 The County shall not be obligated to pay for any work or materials not expressly authorized by this Agreement or properly executed Change Order.

4.6 The County may withhold a retainage of up to five percent (5%) of each approved progress payment until Final Acceptance of the Work, unless otherwise required by FDOT or waived in writing by the County.

ARTICLE 5. CONTRACTOR'S RESPONSIBILITIES

5.1 The Contractor shall perform the Work in a good and workmanlike manner, in strict compliance with the Contract Documents, and in accordance with all applicable federal, state, and local laws, rules, regulations, and codes.

5.2 The Contractor shall obtain and maintain all required permits, licenses, and certifications necessary to perform the Work.

5.3 The Contractor shall comply with all applicable grant compliance obligations as set forth in Article 11 (Compliance with Grant Requirements) and Article 18 (State-Funded Grant Agreement Compliance). The federal requirements typically applicable to LAP-funded contracts — including DBE, EEO, Davis-Bacon, and Buy America — do not apply to this Project.

ARTICLE 6. COUNTY RESPONSIBILITIES

6.1 The County shall provide access to the Project site and coordinate any necessary right-of-way acquisition, utility coordination, and other regulatory approvals necessary for the Contractor to perform the Work.

6.2 The County shall designate a Project Manager who shall serve as the primary point of contact for all communications with the Contractor.

6.3 The County shall provide timely review and approval of Contractor submittals, pay applications, and certifications as required under State-Funded Grant Agreements between the County and FDOT.

6.4 The County shall coordinate with FDOT and other agencies to ensure compliance with applicable funding requirements and to facilitate the administration of the State-Funded Grant Agreement between the County and FDOT.

ARTICLE 7. GENERAL PROVISIONS

7.1 This Agreement, including all incorporated Contract Documents, constitutes the entire agreement between the parties and supersedes all prior agreements, representations, and understandings.

7.2 Any amendment or modification of this Agreement must be in writing and executed by authorized representatives of both parties.

7.3 The Contractor shall not assign or transfer its rights or obligations under this Agreement without prior written consent of the County.

7.4 If any provision of this Agreement is held to be invalid or unenforceable, the remaining provisions shall remain in full force and effect.

7.5 This Agreement shall be governed by and construed in accordance with the laws of the State of Florida. Venue for any disputes arising under this Agreement shall be in the Twentieth Judicial Circuit in and for Charlotte County, Florida.

7.6 The County shall designate a Project Manager to serve as its authorized representative for all technical and administrative matters under this Agreement. The Project Manager shall have authority to issue written directives, evaluate performance, and interpret the Contract Documents subject to the County's final decision-making authority.

7.7 The County shall retain an FDOT-approved CEI firm to oversee the Project. The CEI shall monitor all construction activities, review documentation, certify pay quantities, enforce compliance with the State-Funded Grant Agreement between the County and FDOT, and report any deficiencies or deviations to the County and FDOT.

7.8 No subcontractor shall be engaged by the Contractor without prior written approval of the County and FDOT. The Contractor shall remain responsible for the performance of its subcontractors and must ensure all reporting requirements are met in accordance the State-Funded Grant Agreement between the County and FDOT rules.

7.9 No change in the scope, time, or price of the Work shall be valid unless authorized by a written Change Order executed by the County and approved, as applicable, by FDOT. Unauthorized work performed without a fully executed Change Order shall not be reimbursable.

7.10 Upon execution of this Agreement, the County reserves the right to audit all records of the Contractor related to performance of the Work. The County, FDOT or their authorized representatives may conduct such audits at any time prior to final payment, and at any time within ten (10) years following Final Acceptance of the Work. This right of audit includes, but is not limited to, all books of account, supporting documents, cost records, subcontractor records, payrolls, and any other data the County deems necessary to verify compliance with the terms of this Agreement. The Contractor shall retain all records pertinent to the Project for not less than five (5) years from the date of final payment, or such longer period as may be required by applicable law, including FDOT or federal audit requirements. Upon request, the Contractor shall make such records available to the County or its representatives within a reasonable time and at no cost. The Contractor shall ensure that all subcontractors and material suppliers similarly retain and make available their records for audit by the County or its authorized representatives. Failure to produce records or cooperate with audit requests may be deemed a material breach of this Agreement and may subject the Contractor to disqualification or suspension from future County procurements.

7.11 Nothing in this Agreement shall be construed as a waiver of the County's sovereign immunity or the limits of liability set forth in section 768.28, Florida Statutes, as amended. The parties acknowledge that the County is a political subdivision of the State of Florida and entitled to the full benefit of sovereign immunity protections.

7.12 In the event of any dispute, claim, or disagreement arising under this Agreement, the Contractor shall first submit written notice of the issue to the County's designated Project Manager and the CEI firm for joint resolution. No legal action or request for equitable adjustment shall be initiated unless and until the Contractor has made a good-faith effort to resolve the dispute through this administrative process. The County may require a written position statement from the CEI prior to rendering a final decision. If the matter remains unresolved, the County may, at its sole discretion, submit the issue to FDOT for technical determination in accordance with the requirements of the State-Funded Grant Agreement between the County and FDOT guidance. Nothing in this Section shall prevent the County from seeking immediate injunctive or equitable relief where necessary to protect public safety or preserve federal funding.

ARTICLE 8. INSURANCE

8.1 The Contractor shall maintain insurance coverage throughout the duration of the Project as required by the Contract Documents, which shall include but not be limited to:

(a) Commercial General Liability Insurance;
(b) Automobile Liability Insurance;
(c) Workers' Compensation and Employer's Liability Insurance;
(d) Professional Liability Insurance (if applicable); and
(e) Builder's Risk Insurance (if applicable).

8.2 All insurance policies shall name the County and FDOT as additional insureds, as required by the Contract Documents.

8.3 The Contractor shall provide certificates of insurance evidencing compliance with these requirements prior to commencement of the Work and shall maintain current certificates on file with the County throughout the term of this Agreement.

8.4 Where Work is performed within Railroad Rights-of-Way or Utility Rights-of-Way, the Contractor shall comply with all special insurance requirements identified in Section 18.8 of this Agreement, including any additional endorsements, limits, or notice provisions required by FDOT or third parties.

ARTICLE 9. BONDS

9.1 The Contractor shall furnish to the County, within fourteen (14) calendar days after execution of this Agreement, the following surety bonds:

(a) A Performance Bond in the full amount of the Contract Price, guaranteeing the full and faithful performance of the Work in accordance with this Agreement; and
(b) A Payment Bond in the full amount of the Contract Price, guaranteeing payment to all persons supplying labor, materials, and supplies for the Work.

The Contractor shall ensure that each surety bond incorporates the applicable federal and state provisions required by the State-Funded Grant Agreement between the County and FDOT.

9.2. All bonds shall:

(a) Be issued by a surety authorized to conduct business in the State of Florida and listed on the U.S. Department of the Treasury's Circular 570;
(b) Be executed on forms prescribed by or acceptable to the County and FDOT; and
(c) Remain in full force and effect for a period of one (1) year following Final Acceptance of the Work, unless a longer period is required under applicable law or this Agreement.

Bonds shall also include provisions ensuring that the surety remains liable for latent defects or noncompliant work discovered post-completion if attributable to a breach occurring during the bond term. All performance and payment bonds shall be provided in accordance with section 255.05, Florida Statutes.

ARTICLE 10. BREACH OF BOND OR INSURANCE OBLIGATIONS

10.1 The Contractor's failure to maintain required bonds or insurance shall constitute a material breach of this Agreement and shall be grounds for immediate termination by the County. Such failure shall also render any payment otherwise due to the Contractor subject to immediate withholding pending full cure and re-verification of compliance.

ARTICLE 11. LAP COMPLIANCE NOT REQUIRED

11.1 This Project is funded through a State-Funded Grant Agreement and is not subject to the Federal Highway Administration's Local Agency Program (LAP). Accordingly, federal provisions typically associated with LAP-funded contracts — including but not limited to DBE requirements under 49 CFR Part 26, Davis-Bacon Act wage requirements, and Buy America requirements under 23 CFR 635.410 — do not apply. The Contractor shall comply with all applicable state-level obligations

incorporated into the State-Funded Grant Agreement, including any requirements for audit, documentation, or oversight by FDOT.

11.2 The Contractor shall cooperate fully with all audits, inspections, and reviews conducted by FDOT, the United States Department of Transportation, or any other federal or state agency having jurisdiction over the Project.

ARTICLE 12. INCORPORATION OF BID DOCUMENTS, ADDENDA, AND EXHIBITS

12.1 The following documents are hereby incorporated into and made part of this Agreement as if fully set forth herein:

(a) Bid No. 20250062 and all associated Bid Documents and Specifications;
(b) Addendum No. 1 to Bid No. 20250062;
(c) Contractor's Bid Proposal dated February 19, 2025;
(d) All required Certifications, Affidavits, and Forms submitted with Contractor's bid; and
(e) Any other documents mutually agreed to in writing by the parties after execution of this Agreement.

12.2 In the event of any conflict between the terms of this Agreement and any incorporated document, the terms of this Agreement shall control.

ARTICLE 13. TERMINATION AND DEFAULT

13.1 The County may terminate this Agreement in whole or in part, without cause and for its convenience, by providing the Contractor with not less than thirty (30) calendar days' prior written notice. In such event, the Contractor shall be paid for all work properly performed up to the date of termination, including any unavoidable and substantiated demobilization costs approved by the County. Termination under this Section shall not waive the County's right to audit all costs and records incurred prior to the effective termination date and to recover any amounts disallowed under the State-Funded Grant Agreement or applicable law.

13.2 The County may terminate this Agreement for cause if the Contractor:

(a) Fails to begin work within the time specified;
(b) Fails to perform the Work with sufficient diligence to ensure timely completion;
(c) Fails to comply with any applicable federal, state, or local law, ordinance, rule, or regulation, including but not limited to the FDOT Local Agency Program

Manual, FDOT Standard Specifications for Road and Bridge Construction, the Uniform Administrative Requirements at 2 CFR Part 200, or applicable environmental or safety standards;

(d) Fails to maintain required bonds or insurance;

(e) Fails to make payments to subcontractors or suppliers in accordance with contractual obligations;

(f) Fails to cooperate with CEI oversight, audit investigations, or FDOT inspections;

(g) Fails to cure FDOT or CEI-identified deficiencies within the time prescribed; or

(h) Otherwise materially breaches any term or condition of this Agreement.

Prior to termination for cause, the County shall provide written notice to the Contractor describing the nature of the default and a reasonable opportunity to cure, not to exceed seven (7) calendar days unless otherwise stated in the notice.

13.3 The County shall have the right to immediately suspend or terminate the Agreement if directed to do so by FDOT or if federal funding is withdrawn or materially reduced.

13.4 Termination shall not relieve the Contractor of liability for damages sustained by the County as a result of Contractor's default. Upon termination, the County may procure the remainder of the Work from other sources, and the Contractor shall be liable to the County for any excess costs incurred. The County may also seek reimbursement from the Contractor for any disallowed costs, funding clawbacks, or audit penalties incurred due to the Contractor's breach or noncompliance with the requirements stated in the State-Funded Grant Agreement between the County and FDOT and its rules.

13.5 All provisions of this Agreement relating to indemnification, audit access, records retention, and warranty obligations shall survive any termination of this Agreement.

ARTICLE 14. WARRANTIES AND FINAL ACCEPTANCE

14.1 The Contractor warrants that all materials and equipment furnished under this Agreement shall be new and of good quality. All Work shall be performed in a good and workmanlike manner, free from defects, and in full conformance with the Contract Documents, applicable laws, and regulations. The Contractor's warranty also includes compliance with FDOT Standard Specifications for Road and Bridge Construction and the State-Funded Grant Agreement between the County and

FDOT and its rules, regardless of whether defects are visible at the time of Final Acceptance.

14.2 The warranty period shall begin upon the County's written Final Acceptance of the Work and shall continue for a period of one (1) year, unless a longer period is required by law or specified in the Contract Documents. The Contractor shall, at its sole cost and expense, promptly correct any defective or non-conforming Work identified during the warranty period. For any repaired or replaced Work, the warranty period shall restart upon completion of such correction and acceptance by the County. All warranty obligations extend to deficiencies or noncompliance identified during CEI or County inspections conducted within the original or any extended warranty period.

14.3 The Contractor shall assign to the County all manufacturer and supplier warranties applicable to materials, equipment, or systems provided under this Agreement. These assignments shall be made effective upon Final Acceptance.

14.4 Final Acceptance. Final Acceptance shall occur only upon written determination by the County, with concurrence by the CEI and FDOT, that the Work is complete in all material respects and performed in accordance with this Agreement. Final Acceptance must be documented in writing and shall not waive the County's rights with respect to latent defects, warranty enforcement, or audit and inspection findings issued after acceptance. No language in this Section shall limit the County's rights under Section 7.10 (Audit) or Article 13 (Termination and Default).

14.5 Prior to Final Acceptance, the Contractor shall complete all punch list items identified by the County or CEI during the final inspection. No final payment shall be made until all such items have been completed to the satisfaction of the County.

14.6 The County's issuance of Final Acceptance shall not operate as a waiver of any rights or claims it may have against the Contractor under this Agreement, including without limitation warranty enforcement, indemnity, and audit-related remedies.

14.7 If any product or equipment used on the Project includes a manufacturer warranty of greater than one year, Contractor shall assign such warranty in full to the County and provide all documentation thereof.

ARTICLE 15. INDEMNIFICATION AND LIABILITY

15.1 To the extent provided by law, Contractor shall indemnify, defend, and hold harmless the County and the State of Florida, Department of Transportation, including the Department's officers, agents, and employees, against any actions, claims, or damages arising out of, relating to, or resulting from negligent or wrongful act(s) of Contractor, or any of its officers, agents, or employees, acting within the scope of their office or employment, in connection with the rights granted to or exercised by Contractor. The foregoing indemnification shall not constitute a waiver of the Department's or County 's sovereign immunity beyond the limits set forth in Florida Statutes, Section 768.28. Nor shall the same be construed to constitute agreement by Contractor to indemnify County for the negligent acts or omissions of County, its officers, agents, or employees, or third parties. Nor shall the same be construed to constitute agreement by Contractor to indemnify the Department for the negligent acts or omissions of the Department, its officers, agents, or employees, or third parties. This indemnification shall survive the termination of this Agreement

15.2 This indemnification obligation shall not be construed to extend to any liability caused by the sole negligence of the County. If a court of competent jurisdiction determines that section 725.06, Florida Statutes, applies to this Agreement, then the monetary limitation on indemnification shall be $1,000,000 per occurrence, or such greater amount as may be provided by the Contractor's insurance policies. This indemnity obligation shall apply in cases of joint or concurrent negligence, except to the extent of the County's sole negligence as determined by a court of competent jurisdiction. The Contractor shall remain liable for all costs imposed on the County by any federal agency as a result of acts or omissions giving rise to a breach of this Agreement, including but not limited to disallowed costs, audit penalties, and reimbursement failures.

15.3 The Contractor's duty to indemnify under this Section is independent of any insurance coverage maintained under this Agreement and shall survive the expiration or earlier termination of this Agreement.

15.4 The County shall promptly notify the Contractor of any claim for which indemnification is sought. The Contractor shall assume the defense of such claim with counsel reasonably acceptable to the County, subject to the County's right to participate in the defense with its own counsel at its own expense. If the Contractor fails to assume defense of a claim within a reasonable time after notice, or if a conflict of interest arises, the County may retain separate counsel at the Contractor's expense. The Contractor shall assume the defense of such claim with

counsel reasonably acceptable to the County, subject to the County's right to participate in the defense with its own counsel at its own expense.

15.5 Nothing herein shall be construed to constitute a waiver of sovereign immunity by the County or any other indemnified entity, or to create liability beyond the limits set forth in section 768.28, Florida Statutes.

ARTICLE 16. PUBLIC RECORDS AND COMPLIANCE WITH LAWS

16.1 The Contractor shall comply with all applicable requirements of Chapter 119, Florida Statutes, and shall:

(a) Keep and maintain public records required by the County in performance of this Agreement;
(b) Upon request, provide the County with a copy of requested records or allow the records to be inspected or copied within a reasonable time at a cost that does not exceed that provided in Chapter 119, Florida Statutes;
(c) Ensure that public records which are exempt or confidential and exempt from public records disclosure requirements are not disclosed except as authorized by law;
(d) Meet all requirements for retaining public records and transfer, at no cost, to the County all public records in possession of the Contractor upon termination of this Agreement and destroy any duplicate public records that are exempt or confidential and exempt. Failure to comply with the requirements of this Section may result in immediate termination of this Agreement for cause, disqualification from future County contracts, and any other remedies available under Chapter 119, Florida Statutes, or applicable law.

16.2 IF THE CONTRACTOR HAS QUESTIONS REGARDING THE APPLICATION OF CHAPTER 119, FLORIDA STATUTES, TO THE CONTRACTOR'S DUTY TO PROVIDE PUBLIC RECORDS RELATING TO THIS AGREEMENT, CONTACT THE CUSTODIAN OF PUBLIC RECORDS AT CHARLOTTE COUNTY, 18500 MURDOCK CIRCLE, PORT CHARLOTTE, FLORIDA 33948, (941) 743-1441.

16.3 The Contractor shall comply with all applicable federal, state, and local laws, regulations, executive orders, and ordinances. Because this Project is funded through a State-Funded Grant Agreement and is not subject to the Federal Highway Administration's Local Agency Program (LAP), federal compliance requirements such as Disadvantaged Business Enterprise (DBE), Equal

Employment Opportunity (EEO) reporting, and the Uniform Administrative Requirements at 2 CFR Part 200 do not apply.

16.4 The Contractor shall not discriminate on the basis of race, color, national origin, sex, age, disability, religion, or familial status in the performance of this Agreement and shall comply with Title VI and Title VII of the Civil Rights Act of 1964, the Age Discrimination Act, Section 504 of the Rehabilitation Act, and the ADA, as applicable.

ARTICLE 17. MISCELLANEOUS PROVISIONS

17.1 This Agreement, including all incorporated documents, constitutes the entire agreement between the parties and supersedes all prior negotiations, representations, or agreements, either written or oral. This Agreement includes all documents referenced in Section 1.5 and shall be interpreted in accordance with the State-Funded Grant Agreement between the County and the Florida Department of Transportation (FDOT). Federal forms, certifications, and compliance requirements applicable to LAP-funded contracts do not apply.

17.2 No amendment or modification to this Agreement shall be valid unless in writing and executed by duly authorized representatives of both parties. Any amendment affecting obligations under the State-Funded Grant Agreement shall require written approval from FDOT prior to becoming effective, to the extent required by that agreement.

17.3 If any provision of this Agreement is held to be illegal, invalid, or unenforceable, such provision shall be severed, and the remaining provisions shall remain in full force and effect.

17.4 The failure of either party to enforce any provision of this Agreement shall not be construed as a waiver of the right to enforce such provision in the future.

17.5 Headings. Headings and section titles in this Agreement are for convenience only and shall not affect the interpretation of the terms.

17.6 This Agreement may be executed in counterparts, each of which shall be deemed an original, and all of which together shall constitute one and the same instrument.

17.7 Electronic signatures shall be deemed to have the same legal effect as original signatures and may be used to execute this Agreement in accordance with applicable law, including Chapter 668, Florida Statutes.

17.8 Federal Debarment Certification. Contractor certifies it is not currently listed on any state or federal debarment or exclusion list, including the FDOT Suspended Contractor list or the federal SAM.gov exclusion database.

ARTICLE 18 – STATE-FUNDED GRANT AGREEMENT COMPLIANCE

18.1 Contractor certifies that neither it nor any of its affiliates is currently listed on the convicted vendor list maintained pursuant to section 287.133, Florida Statutes. A person or affiliate who has been placed on the convicted vendor list following a conviction for a public entity crime may not submit a bid or enter into a contract to provide goods or services to a public entity, may not be awarded or perform work as a contractor, supplier, subcontractor, or consultant, and may not transact business with any public entity for the construction or repair of a public building or public work for a period of thirty-six (36) months from the date of being placed on the list.

18.2 Contractor certifies that neither it nor any of its affiliates has been placed on the Discriminatory Vendor List maintained by the Florida Department of Management Services pursuant to section 287.134, Florida Statutes. An entity or affiliate who has been placed on the Discriminatory Vendor List may not submit a bid or enter into a contract to provide goods or services to a public entity, may not be awarded or perform work as a contractor, supplier, subcontractor, or consultant, and may not transact business with any public entity.

18.3 An entity or affiliate who has had its Certificate of Qualification suspended, revoked, or denied by the Florida Department of Transportation, or who has been determined by the Department to be a non-responsible contractor, may not submit a bid or perform work for the construction or repair of a public building or public work on a contract with the County.

18.4 Contractor shall comply with the requirements of Section 274A(e) of the Immigration and Nationality Act, which prohibits the knowing employment of unauthorized aliens and sets forth verification and enforcement provisions applicable to employers.

18.5 Contractor shall utilize the U.S. Department of Homeland Security's E-Verify system to verify the employment eligibility of all newly hired employees working on the Project. Contractor shall ensure that its subcontractors also register with and use E-Verify, and shall maintain appropriate documentation of such compliance for audit or inspection by the County or FDOT.

18.6 In addition to any other indemnification obligations under this Agreement, Contractor shall, to the fullest extent permitted by law, indemnify, defend, and hold

harmless the Florida Department of Transportation, its officers, agents, and employees from any and all claims, actions, liabilities, losses, and costs, including attorneys' fees, arising out of or resulting from the Contractor's performance under this Agreement. This provision shall be construed in accordance with the indemnity requirements of Section 14.c. of the State-Funded Grant Agreement. This FDOT-specific indemnity is in addition to, and not in limitation of, the broader indemnification obligations in Article 15.

18.7 Contractor agrees to comply with section 20.055(5), Florida Statutes, and to cooperate with the Florida Department of Transportation's Inspector General in any investigation, audit, inspection, review, or hearing pursuant to the Inspector General's authority under that section.

18.8 Contractor shall maintain Commercial General Liability Insurance and Workers' Compensation Insurance in accordance with this Agreement and all applicable law. Where work is performed within Railroad Rights-of-Way or Utility Rights-of-Way, Contractor shall comply with any additional insurance requirements set forth in Sections 14.d through 14.g. of the State-Funded Grant Agreement, including any endorsements, increased coverage limits, or notice provisions required by FDOT or affected third parties.

18.9 Contractor acknowledges that the County is required to adhere to the Conflict of Interest Procedure outlined in FDOT Topic No. 375-030-006. Contractor shall not engage in any conduct, arrangement, or financial relationship that would create an actual or perceived conflict of interest under that procedure. Any potential conflicts must be disclosed in writing to the County immediately upon discovery.

18.10 Contractor shall execute and submit FDOT Form 375-030-31, Affidavit Regarding Labor Services, as a condition of contract execution. This form affirms compliance with all applicable employment verification and labor authorization laws and is incorporated into this Agreement by reference. Failure to submit the affidavit shall be deemed a material breach of contract.

18.11 IRON AND STEEL (New section in FS 255.0993, effective, July 1, 2024). The State of Florida requires that iron or steel product permanently incorporated in certain public works projects be produced in the United States. See § 255.0993, Fla. Stat. (2024). Contractor must carefully review the technical specifications to determine whether and how this requirement applies to this project and prepare its bid accordingly. Contractor's failure to account for this requirement in its bid will not justify a later change to the Contract Price. All iron or steel products included in this order must be produced in the United States, which means that all manufacturing processes, from initial melting through application of coatings,

occur in the United States, other than metallurgical processes to refine steel additives. See § 255.0993, Fla. Stat. (2024).

IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of the dates set forth below.

WITNESS:

Signed By: _____

Print Name: Janna Dale

Date: July 22, 2025

ANDREW SITE WORK, LLC

Signed By: _____

Print Name: Chad Baker

Date: July 22, 2025

BOARD OF COUNTY COMMISSIONERS OF CHARLOTTE COUNTY, FLORIDA

By: _____
Hector Flores, County Administrator

ATTEST:
Roger D. Eaton, Clerk of the Circuit Court and Ex-Officio Clerk to the Board of County Commissioners

By: _____
Deputy Clerk

APR 2025-144

APPROVED AS TO FORM AND LEGAL SUFFICIENCY:

By: _____
Janette S. Knowlton, County Attorney
LR25-0634

Enclosures:
Composite Exhibit A

EXHIBIT A

Charlotte County Purchasing Division
18500 Murdock Circle, Suite 344
Port Charlotte, Florida 33948-1094

Phone 941.743.1378
Fax 941.743.1384

NOTICE OF AVAILABILITY OF BID SPECIFICATIONS

REQUEST FOR BIDS
CHARLOTTE COUNTY, FLORIDA

The County of Charlotte will be receiving sealed bids at the Purchasing Division, Suite 344, Charlotte County Administration Center, 18500 Murdock Circle, Port Charlotte, FL 33948-1094, for:

BID NO. 20250062
KINGS HIGHWAY AND HARBORVIEW ROAD INTERSECTION IMPROVEMENTS

It is the intent of Charlotte County to secure the services of a licensed Contractor for intersection improvements at Kings Highway and Harborview Road. The project includes milling and resurfacing, auxiliary lane widening, drainage improvements, signalization, intelligent transportation system improvements, lighting improvements, and signing and pavement markings as indicated on the construction plans. Estimated Budget is $1,250,000.

Local licenses required: FDOT Certified

PRE-BID CONFERENCE: 9:00 a.m., JANUARY 28, 2025
PURCHASING DIVISION CONFERENCE ROOM

BID OPENING: 2:00 p.m., FEBRUARY 19, 2025
PURCHASING DIVISION CONFERENCE ROOM

Bid Documents may be obtained by accessing the Charlotte County Purchasing Division's website at https://purchasingbids.charlottecountyfl.gov under "Purchasing Bids Online", document number 250622. Any questions can be answered by contacting Sheri Strong, Contract Specialist at 941.743.1373 or email: sheri.strong@charlottecountyfl.gov.

OPTIONAL ELECTRONIC BID SUBMISSIONS: If your firm would like to submit your bid electronically, please visit http://bit.ly/3TYAyKa and follow given instructions.

Notice of Availability
Posted: 01/15/2025

Sun Newspaper
Publish Date: 01/17/2025

Charlotte County Purchasing Division
18500 Murdock Circle, Suite 344
Port Charlotte, Florida 33948-1094

Phone 941.743.1378
Fax 941.743.1384

STATEMENT OF NO BID

If you **do not** intend to bid on this commodity/service, please return this form to the above address immediately. If this statement is not completed and returned, your company may be deleted from the Charlotte County Vendors' list for this commodity/service.

We the undersigned, have declined to bid on requested commodity/service **BID #20250062, KINGS HIGHWAY AND HARBORVIEW ROAD INTERSECTION IMPROVEMENTS** for the following reason(s):

_____ Specifications too "tight", i.e. geared toward one brand or manufacturer only (explain below).

_____ Insufficient time to respond to the Invitation to Bid.

_____ We do not offer this product or service.

_____ Our schedule would not permit us to perform.

_____ Unable to meet bond/insurance requirements.

_____ Unable to meet specifications.

_____ Specifications are unclear (explain below).

_____ Remove us from your vendors' list for this commodity/service.

_____ Other (specify below).

Remarks:_____
_____
_____
_____

Company Name: _____

Contact Person (typed or printed): _____

Contact Person Signature: _____

Phone: _____ Fax: _____

E-Mail Address: _____

Note: Statement of No Bid may be emailed to sheri.strong@charlottecountyfl.gov.

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KINGS HIGHWAY AND HARBORVIEW ROAD INTERSECTION IMPROVEMENTS
BID NO. 20250062

IB-01 QUALIFICATIONS OF BIDDERS: It is the intent of the County to award the contract to the lowest responsive, responsible bidder, qualified by experience and capable of providing collateral as bond and/or bondable to a surety company acceptable to the County in the amount of 100% of the awarded contract price. Successful bidder must furnish a Performance and Payment Bond satisfactory to the County within fourteen (14) calendar days after notification of award, as described in IB-08.

IB-02 GENDER DESIGNATION: The County and the Contractor are treated throughout the Contract Documents as if each were of the singular number and masculine gender.

IB-03 EXAMINATION OF DOCUMENTS/SITE: Prior to the submission of a bid form, bidders shall examine the documents, visit the site of the work, and fully inform themselves as to all existing conditions and limitations that affect the work to be performed under the contract.

A. Examination of Documents - The bidding Contractor is instructed to carefully examine the bid package, including the Request for Bids, Instructions to Bidders, Technical Specifications & Conditions, Special Provisions, General Provisions, Insurance Requirements, Safety and Health Requirements, Permit Fees, Maintenance of Traffic Policy (M.O.T.), Plans and all other related bid documents, including all modifications thereof, incorporated in the bid package.

Discrepancies, omissions, or questions about the intent of the documents should be submitted to the Purchasing Division in written form as a request for interpretation no later than five (5) calendar days prior to bid opening (or shall be verbally addressed at the pre-bid conference).

B. Examination of Site: Prior to submitting a bid form, each bidder shall examine the site and all conditions thereon. All bid forms shall be presumed to include all such existing conditions as may affect any work to be done on this project. Failure to familiarize himself with such conditions will in no way relieve the successful bidder from the necessity of furnishing any materials or performing any work that may be required to complete the work in accordance with the drawings and Specifications.

C. Interpretations of any of the bid documents or the project will be in the form of a written addendum to the documents, which will be posted on the purchasing website. The County will attempt to notify all prospective bidders of the issuance of addenda, however, it is the responsibility of the bidder, prior to submitting his bid, to determine if addenda were issued, acknowledging and incorporating it into their bid. Receipt of any addenda by each bidder must be acknowledged on the bid form, indicating the addendum number and date of issue, therein becoming a part of the contract. No oral explanations shall be binding.

IB-04 PREPARATION OF SUBMISSION OF BID FORM REQUIREMENTS: Bid Forms shall be made on forms supplied by the County, or reasonable facsimile thereof and attached thereto, or as otherwise specified. Indicate the number of calendar days required to complete the project (unless length of time required for completion is identified by the County in the Bid Form) and acknowledge receipt of any addenda received during the bid period.

Each bid must give the full business address of the bidder and state whether bidder is an individual, corporation or partnership. Bid Forms by a corporation must be signed in the name of the corporation, followed by the original signature and designation of the officer or other person authorized to bind the corporation.

Any erasures or other corrections in the bid form must be explained or noted over the signature of the bidder. Bid Forms containing any conditions, omissions, unexplained erasures, alterations, or irregularities of any kind may be rejected by the County.

Bid documents and forms shall be submitted sealed, and the envelope/package clearly marked with the Bid Number and the Name and Business Address of the individual or firm submitting the bid. Bids postmarked prior to said time and date but not received shall **not** be considered and will be returned to bidder unopened, with explanation.

Bid Guarantee: Each bid must be accompanied by a bid bond or cashier's check in the amount not less than five percent (5%) of the total amount of the bid as a guarantee that the bidder will not withdraw his bid for a period of 60 days after scheduled opening of bids. Cashier's Checks (as bid bond) will be returned to all bidders after award of bid.

IB-05 BID TABULATIONS: In accordance with Florida Statues, Section 119(1)(b)2: Sealed bids, proposals, or replies received by an agency pursuant to a competitive solicitation are exempt from s. 119.07(1) and s. 24(a), Art. I of the State

Constitution until such time as the agency provides notice of an intended decision or until 30 days after opening the bids, proposals, or final replies, whichever is earlier. Those bidders interested in receiving a copy of the results of this bid once they are released may do so by visiting our website at https://purchasingbids.charlottecountyfl.gov under "Purchasing Bids Online", Document Number 250624. No information regarding the submittal will be divulged over the telephone.

IB-06 RESERVED RIGHTS: The County reserves the right to accept or reject any and/or all bids, to waive irregularities and technicalities, and to request resubmission of bids. Also, the County reserves the right to accept all or any part of the bid and to increase or decrease quantities to meet additional or reduced requirements of the County. Any sole response received the first submission date may be rejected by the County depending on available competition and timely needs of the County.

IB-07 FORM OF CONTRACT: The submitted Bid Form signed by the Bidder, together with the complete bid package furnished by the County, shall constitute a binding contract. The Bidder shall be required to perform according to the Bidder's submitted Bid Form and the County's bid package when a purchase order, signed by the Senior Division Manager - Purchasing or his/her designee, is transmitted to the Bidder. The transmitted purchase order shall serve as both a Notice of Acceptance and Notice to Proceed to the Bidder. Failure to comply with the conditions set forth in the purchase order shall be deemed a breach of contract subjecting the Bidder to forfeiture of the bid bond or other posted security and other possible penalties.

IB-08 PERFORMANCE/PAYMENT BOND: If awarded the contract, the Contractor shall furnish a Performance and Payment Bond bound to "**Charlotte County**" to the Purchasing Division within 14 calendar days after notification of award. In addition, the Contractor shall be responsible and bear all costs associated to record Performance and Payment Bond with the Charlotte County Clerk of the Circuit Court. Receipt of said recording shall be furnished to the Purchasing Division.

The failure of the successful bidder to execute such agreement within fourteen (14) days after award of the contract, or with such extended period as the County may grant, shall constitute a default. The bidder shall then forfeit to the County a full amount of the Bid Guarantee.

IB-09 NOTICE TO PROCEED/DELIVERY: A pre-construction conference will be called, at which time a starting date will be determined. A Notice to Proceed, or Purchase Order, shall be issued bearing the agreed-upon date. No work under the Contract shall commence until after the Notice to Proceed/Purchase Order has been issued and signed by the awarded Contractor.

IB-10 PAYMENT: Request for payment must be submitted to the Charlotte County Purchasing Division on a form approved by the County. All invoices will be paid in accordance with the Local Government Prompt Payment Act, Section 218.74 F.S.

IB-11 PERFORMANCE EVALUATION: At the end of the Contract, the receiving department will evaluate the successful bidder's performance. This evaluation will become public record.

IB-12 ARITHMETIC DISCREPANCIES: For the purpose of initial evaluation of bids, the following will be utilized in resolving arithmetic discrepancies found on the face of the bid forms as submitted by bidders:

A. Obviously misplaced decimal points will be corrected.

B. In case of discrepancy between unit price and extended price, the unit price will govern. Apparent errors in extension will be corrected.

C. Apparent errors in addition of lump sum and extended prices will be corrected.

For the purpose of bid evaluation, the County will proceed on the assumption that the bidder intends his bid be evaluated on the basis of the unit prices, extensions, and totals arrived at by resolution of arithmetic discrepancies as provided above, and the bid will be so reflected on the tabulation of bids.

IB-13 DESCRIPTIVE INFORMATION: Unless otherwise specifically provided in the specifications, all equipment, materials, and articles incorporated in work covered by the contract are to be new and of the most suitable grade for the purpose intended. Unless otherwise specifically provided in the specifications, reference to any equipment, material, article, or patented process by trade name, make or catalog number shall be regarded as establishing a standard of quality and shall not be construed as limiting competition. If the bidder wishes to make substitution to the specifications, he/she shall furnish to the County the name of the manufacturer, the model number, and other identifying data and information necessary to aid the County in evaluating the substitution, and such substitution shall be subject to County approval. Substitutions shall be approved only if determined by the County to be equivalent to the specifications. A bid containing a substitution is subject to disqualification if the substitution is not approved by the County.

Specified items bid shall be identified by brand name, number, manufacturer and model, and shall include full descriptive information, brochures, or appropriate attachments.

IB-14 QUALITY GUARANTEE: If any product delivered does not meet applicable specifications, or if the product will not produce the effect that the supplier represents to the County, the supplier shall pick up the product from the County at no expense to the County. Also, the supplier shall refund to Charlotte County any money that has been paid for same. The supplier will be responsible for reasonable County attorney fees expended to obtain compliance with this provision in the event the supplier defaults under this provision.

IB-15 RELEASE OF LIENS: The Contractor is required to pay all money due subcontractors and material dealers promptly. The Contractor shall submit releases of liens, satisfactory to the County, certifying that all payrolls, material bills, and other indebtedness incurred by the Contractor in connection with this project have been paid in full.

IB-16 REGULATIONS/APPLICABLE LAWS: It shall be the responsibility of each Contractor to assure compliance with any OSHA, EPA, and/or other Federal or State of Florida rules, regulations or other requirements, as each may apply.

Bidder must be authorized to transact business and be properly licensed in the State of Florida. All applicable laws and regulations of the State of Florida and ordinances and regulations of Charlotte County will apply to any resulting contract.

IB-17 CODE OF ETHICS: With respect to this bid, if any bidder violates or is a party to a violation of the State of Florida/Florida Statutes, Chapter 112, Part III, Code of Ethics for Public Officers and Employees, such bidder may be disqualified from furnishing the goods or services for which the bid is submitted and shall be further disqualified from submitting any future bids for goods or services for Charlotte County.

IB-18 COLLUSION: By offering a submission to this invitation for bid, the bidder certifies the bidder has not divulged to, discussed or compared his bid with other bidders and has not colluded with any other bidder or parties to this bid whatever. Also, bidder certifies, and in the case of a joint bid each party thereto certifies as to his own organization, that in connection with this bid:

- any prices and/or cost data submitted have been arrived at independently, without consultation, communication, or agreement, for the purpose of restricting competition, as to any matter relating to such prices and or cost data, with any other bidder or with any competitor;
- any prices and/or cost data quoted for this bid have not been knowingly disclosed by the bidder and will not knowingly be disclosed by the bidder prior to the scheduled opening directly or indirectly to any other bidder or to any competitor;
- no attempt has been made or will be made by the bidder to induce any other person or firm to submit or not to submit a bid for the purpose of restricting competition;
- the only person or persons interested in this bid, principal or principals is/are named therein and that no person other than therein mentioned has any interest in this bid or in the contract to be entered into; and
- no person or agency has been employed or retained to solicit or secure the contract upon an agreement or understanding for a commission, percentage, brokerage, or contingent fee excepting bona fide employees or established commercial agencies maintained by the Purchaser for the purpose of doing business.

IB-19 SUBCONTRACTORS: Bidders are to complete the attached Subcontractors form. This form must be completed and included with the bid form. If bidder does not have a subcontractor, insert "to be determined". When source or subcontractor is determined, selection will be subject to County approval.

IB-20 DRUG FREE WORKPLACE FORM: It is strongly suggested that the attached Drug Free Workplace Form be signed and returned to this office with bid form. In the event of a tie bid, the presence of a valid and accurate form may be used as a basis for awarding the Contract.

IB-21 PUBLIC ENTITY CRIMES: In accordance with Florida Statutes Sec. 287.133(2)(a), "A person or affiliate who has been placed on the convicted vendor list following a conviction for a public entity crime may not submit a bid on a contract to provide any goods/services to a public entity, may not submit a bid on a contract with a public entity for construction or repair of a public building or public work, may not submit bids on leases of real property to a public entity, may not be awarded or perform work as a Contractor, supplier, subcontractor, or consultant under a contract with any public entity, and may not transact business with any public entity in excess of the threshold amount provided in Section 287.017, for Category Two, for a period of 36 months from the date of being placed on the convicted vendor list".

IB-22 CANCELLATION/TERMINATION OF CONTRACT: The County shall have the right to cancel, terminate or suspend the contract, in whole or in part, by providing the Contractor thirty (30) days written notice by certified mail.

It is expressly understood by the County and the Contractor that funding for any successive fiscal years is contingent upon appropriation of monies by the Board of County Commissioners. In the event that funds are not available or not appropriated, the County reserves the right to terminate the Contract. The County will be responsible for any outstanding invoices prior to the termination.

If the Contractor refuses or fails to complete the work within the time specified for this Contract, or any extension thereof, the County may terminate the Contractor's right to proceed. In such event, the County may take over the work and prosecute the same to completion by Contract or otherwise, and the Contractor will be liable for any excess cost occasioned by the County. The County may take possession of and utilize in completing the work such materials and equipment as may be on the site of the work and necessary, therefore.

If the Contractor should be adjudged bankrupt, or should make a general assignment for the benefit of his creditors, or if a receiver should be appointed due to insolvency, or if he should refuse or fail, except in cases which time extension is provided, to supply enough workmen, or if he should fail to make payment to Subcontractors for labor and/or material, or disregard laws, ordinances or the instructions of the County, or be guilty of a violation of a provision of the Contract, then the County, may without prejudice to any other right or remedy and after giving seven (7) days written notice, terminate employment of the Contractor and possess materials, tools, and appliances thereon and finish work by methods it may deem expedient. Expenses incurred by the County and the damage incurred through Contractor's default, shall be certified by the County.

In the event of termination, the Contractor shall be entitled to compensation for services rendered and costs incurred through the effective date of termination. All finished or unfinished documents, materials, or work shall become the property of the County and shall be delivered to the County without reservation.

Pursuant to Section 287.135(3)(a)4 of the Florida Statutes, Charlotte County may, at its sole option, terminate any Agreement valued at $1,000,000 or more if the Contractor is found to have submitted a false certification, has been placed on the *Scrutinized Companies with Activities in Sudan List*, or the *Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List*, or has been engaged in business operations in Cuba or Syria or a boycott of Israel.

Pursuant to Section 287.135(3)(b) of the Florida Statutes, Charlotte County may, at its sole option, terminate any Agreement in any amount if the Contractor is found to have been placed on the *Scrutinized Companies that Boycott Israel List*, or is engaged in a boycott of Israel.

IB-23 TAXES: Contractor shall assume liability for Local, State, or Federal Tax that is applicable to the work.

IB-24 ASSIGNMENT: This agreement, or any interest herein, shall not be assigned, transferred or otherwise encumbered, under any circumstances by Contractor without the prior written consent of the County.

IB-25 EQUAL EMPLOYMENT OPPORTUNITY: Charlotte County, Florida, in accordance with the provisions of Title VI of The Civil Rights Act of 1964 (78 Stat. 252) and the Regulations of the Department of Commerce (15 CFR, Part 8) issued pursuant to such Act, hereby notifies all bidders that it will affirmatively ensure that in any contract entered into pursuant to this advertisement, minority business enterprises will be afforded full opportunity to submit bids in response to this advertisement and will not be discriminated against on the grounds of race, color or national origin in consideration for an award.

All bidders are hereby notified that the successful bidder (Contractor) must and shall comply with the Civil Rights Act of 1964, the Age Discrimination in Employment Act, the Rehabilitation Act of 1973, the Americans with Disabilities Act and the Florida Civil Rights Act, all as amended. Specifically, Contractor agrees that:

- No person shall, on the grounds of race, color, sex, religion, age, disability, national origin or marital status, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program, activity or service funded through the contract.
- Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, age, disability, national origin or marital status. Contractor agrees to post in a conspicuous place, available to employees and applicants for employment, notices setting forth the provisions of this non-discrimination clause.
- Contractor will, in all solicitations or advertisements regarding program activities, services provided or applications for employment, state that all qualified applicants will receive consideration for services or employment without regard to race, color, religion, sex, age, disability, national origin or marital status.
- County may require Contractor to submit reports as may be necessary to indicate non-discrimination. County officials will be permitted access to Contractor's books, records, accounts and other sources of information and its facilities as may be pertinent to ascertain compliance with non-discrimination laws.

It is expressly understood that County shall have the right to terminate the contract upon receipt of evidence of discrimination.

IB-26 RETAINAGE: As the construction work progresses, each month the Contractor will be paid the total value of the work completed and accepted during the preceding month, less five percent (5%) retainage, unless the County has grounds for withholding the payment of retainage pursuant to Section 255.05, Florida Statutes. For the purpose of preparing a monthly estimate, the County's computations and records will be used to determine the value of all work completed and accepted as of the 25th day of each calendar month. That estimate, less retainage, less previous charges, will be paid to the Contractor. Payment will be rendered in conformance with the Local Government Prompt Payment Act, Section 218.74, Florida Statutes. Such payment shall include compensation for all labor, materials, equipment and all other incidental items necessary to perform the work.

IB-27 UNAUTHORIZED ALIEN WORKERS: Charlotte County will not intentionally award publicly funded contracts to any Contractor who knowingly employs unauthorized alien workers, constituting a violation of the employment provisions contains in 8 U.S.C. Section 1324a [Section 274A of the Immigration and Nationality Act ("INA")]. The County shall consider employment by any Contractor of unauthorized aliens a violation of Section 274A of the INA. Such violation by the Contractor of the employment provisions contained in Section 274A of the INA shall be grounds for termination of this Agreement by the County. In addition, pursuant to Section 448.095 of the Florida Statutes, all persons or firms entering into contracts with Charlotte County are required to register with, and use, the E-Verify system of the U.S. Department of Homeland Security to electronically verify the employment eligibility of all newly hired employees. The County may terminate this Agreement for failure on the part of the Contractor to use E-Verify. Contract termination for failure to use E-Verify is not considered a breach of contract pursuant to s. 448.095(2)(c)3, *Fla. Stat.*

IB-28 EMPLOYEE BACKGROUND CHECK: If an owner, except a stockholder in a publicly traded corporation, or an employee of the Contractor has been convicted of any offenses requiring registration as a sexual offender or sexual predator, regardless of the location of conviction, the Contractor shall ensure that the offender's or predator's work on the project is consistent with the terms of his probation and registry requirements.

IB-29 PUBLIC RECORDS CLAUSE TO CONTRACTORS "ACTING ON BEHALF OF THE COUNTY": Pursuant to Section 119.0701 of the Florida Statutes, Contractors acting on behalf of the County must comply with the public records laws, specifically: a) keep and maintain public records required by the County to perform the contracted services; b) upon request from the County's custodian of public records, provide the County with a copy of the requested records or allow the records to be inspected or copied within a reasonable time at a cost that does not exceed the cost provided in Chapter 119 of the Florida Statutes or as otherwise provided by law; c) ensure that public records that are exempt or confidential from public records disclosure requirements are not disclosed except as authorized by law for the duration of the contract term and following completion of the contract; and d) upon completion of the contract, keep and maintain all public records required by the County to perform the service, and meet all applicable requirements for retaining public records.

IF THE CONTRACTOR HAS QUESTIONS REGARDING THE APPLICATION OF CHAPTER 119, FLORIDA STATUTES, TO THE CONTRACTOR'S DUTY TO RETAIN AND PROVIDE PUBLIC RECORDS RELATING TO THIS CONTRACT, CONTACT THE COUNTY'S CUSTODIAN OF PUBLIC RECORDS AT (941) 743-1441, E-MAIL TO RECORDS@CHARLOTTECOUNTYFL.GOV, 18500 MURDOCK CIRCLE, BLDG. B, Suite 109, PORT CHARLOTTE, FLORIDA 33948.

IB-30 SOCIAL, POLITICAL, OR IDEOLOGICAL INTERESTS: Charlotte County will not request documentation of, or consider a vendor's social, political, or ideological interests when determining if the vendor is a responsible vendor. Charlotte County does not give preference to vendors based on social, political, or ideological interests.

IB-31 IRON AND STEEL (New section in FS 255.0993, effective, July 1, 2024). Charlotte County requires that iron or steel product permanently incorporated in certain public works projects be produced in the United States. See § 255.0993, Fla. Stat. (2024). Contractor must carefully review the technical specifications to determine whether and how this requirement applies to this project and prepare its bid accordingly. Contractor's failure to account for this requirement in its bid will not justify a later change to the Contract Price.

All iron or steel products included in this order must be produced in the United States, which means that all manufacturing processes, from initial melting through application of coatings, occur in the United States, other than metallurgical processes to refine steel additives. See § 255.0993, Fla. Stat. (2024).

GP-01 INTENT

A. Intent of Contract: Bid Forms shall set forth firm bid unit prices for furnishing all necessary materials and completing all work, including labor, transportation, supervision, equipment, and traffic control incidental to the Project, as described in the Specifications and/or shown on the Plans attached herewith. The County reserves the right to establish the exact limits of work in the field and to add to or delete from the Project as it deems necessary.

B. Provisions:

1. The successful bidder for the Contract will be referred to as the Contractor; the Board of County Commissioners of Charlotte County, Florida, Director of the applicable County Department or his/her duly authorized representative, acting on behalf of the County will be referred to as County. For the purposes of the Contract, the word "Project" shall mean the construction limits of **KINGS HIGHWAY AND HARBORVIEW ROAD INTERSECTION IMPROVEMENTS.**

2. The Contract Documents consist of the Request for Bids and all Addenda, Instructions to Bidders, Technical Specifications & Conditions, Special Provisions, General Provisions, Insurance Requirements, Safety and Health Requirements, Permits, Maintenance of Traffic Policy (MOT), Plans and all other related documents, including all modifications thereof incorporated in the Documents before their execution. These form the Contract.

3. The County and the Contractor are those mentioned as such in this Project. They are treated throughout the Contract Documents as if each were of the singular number and masculine gender.

4. Where required, written notice shall be deemed to have been duly served when delivered to the other party if delivered by hand; three (3) calendar days after the date of posting if sent by regular U.S. mail; upon receipt by the sender of an acknowledgement or transmission report if delivered by facsimile; or upon receipt by the sender of an automated message confirming delivery, or thirty (30) minutes after the time sent unless the sender receives and automated message that the email has not been sent, if delivered by email.

5. The term subcontractor, as employed herein, includes only those having a direct Contract with the Contractor and it includes one who furnishes material worked to a special design according to the Plans and Specifications of this work, but does not include one who merely furnishes materials not so worked.

6. The term "work" as it pertains to the contract shall include all supplies, materials and transportation, as well as all equipment and labor necessary to complete each pay item as described in the Technical Specifications of this contract.

7. All time limits stated in the Contract Documents are of essence to the Contract.

C. Quality of Work: The Contractor agrees to do the work covered under the Contract, conforming to the Contract, Technical Specifications & Conditions, and in a quality acceptable to the trades. The Contractor further agrees to follow proper and appropriate instructions by the County.

D. Maintenance of Traffic: The Contractor shall not work within the County's Rights-of-Way or on any County property accessible to the public without a County-approved Maintenance of Traffic (MOT) plan. The Contractor shall submit and obtain County approval of a MOT plan that meets all the requirements of the Charlotte County Maintenance of Traffic Policy, a copy of which is attached, at least seven (7) calendar days before the commencement of any such activities.

E. Time of Completion: The Contractor shall complete the work within the time set forth in the Contract. The Contractor shall complete each portion of the work within such time as set forth in the Contract for such portion. The time of completion of the Contract shall be expressed in calendar days.

A working day is any day within the period between the start of the Contract time and the date provided in the Contract for completion or upon field acceptance by the County of all work provided for in the Contract, or as stipulated in the Technical Specifications & Conditions, whichever comes first, other than:

1. Saturday;
2. Sunday;
3. Any day designated as a holiday by the County; or
4. Any day the Contractor is prevented from working during the first five (5) hours of the workday, with at least 60 percent of the normal work force, due to inclement weather.

All work for this Project shall be performed during normal business hours. A working day shall be considered to be a maximum of ten (10) hours in duration. Any time the Contractor desires to work in excess of ten (10) hours per day, on weekends or on County-designated holidays, the Contractor shall submit a written request to the County at least three (3) working days in advance. The Contractor may not work in excess of ten (10) hours per day, on weekends or County-designated holidays unless such request has been approved in advance in writing by the County. By making such a request, the Contractor agrees that the cost for inspection(s) for work performed during the weekend, holiday or in excess of ten (10) hours in any given day will be paid by the Contractor at the prevailing wage rate plus overhead. The exception would be for any work required by the Contractor to protect the public caused by actions not under the control of the Contractor and requested by the County.

No extension of contract time will be granted for any weekend or County-designated holiday.

GP-02 PROSECUTION AND PROGRESS

A. Subletting or Assigning of Contracts: The Contractor shall not sublet, sell, transfer, assign, or otherwise dispose of the Contract or any portion thereof, or of his right, title, or interest therein, without written consent of the County.

B. Pre-construction Conference: After the Contract has been awarded, the County will call a pre-construction conference to be held before any work is begun to review the construction aspects of the Project. The meeting will be between the County, the Contractor, and the various utility companies which will be affected by the construction.

Project Schedule: Submission of Working Schedule/Order of Completion – At the Pre-Construction Conference, the Contractor shall submit a complete Critical Path Method (CPM) Project Schedule showing the Project through completion. This shall include the sequencing of all work items showing:

- Work Task (each phase if phased);
- Coordination with Utilities;
- Utility Adjustments;
- Required County submissions;
- Obtaining Permits; and
- Compliance with Permit Requirements.

Each of the above items shall include:

- Duration;
- Early start;
- Late start;
- Float time;
- Predecessors & Successors; and
- Highlighted Critical Path for the entire Project from start to finish.

An updated CPM Schedule acceptable to the County shall be submitted seven (7) calendar days before each monthly pay request. The updated CPM Schedule must show actual construction progress, actual start/completion dates for work items, any changes necessary to show completion of the Project within the contract time limits, current start/completion dates for work items not yet completed, and a highlighted critical path for the completion of the remainder of the Project. The updated CPM Schedule must be accepted by the County before the monthly pay request will be approved.

C. Provisions for Convenience of Public: The Contractor shall schedule his operations so as to minimize any inconvenience to adjacent businesses or residences. Where necessary, the County may require the Contractor to construct first the work in any areas along the Project where restrictions caused by construction operations would present a more serious handicap, before beginning construction in the less affected areas.

GP-03 CONTROL OF THE WORK AND MATERIALS

A. Plans and Contract Documents – The Contractor will be furnished up to four (4) copies of the Plans, Technical Specifications, General and Special Provisions as required for the Project. The Contractor shall have available on the job site at all times copies of the Plans (including relevant Design Standards), Technical Specifications, General and Special Provisions available to the County and/or its representatives.

B. Detail Drawings and Instructions – The County may furnish, with reasonable promptness, additional instructions by means of drawings or otherwise, necessary for the proper execution of the work. All such drawings and instructions shall be consistent with the Contract Documents, true developments thereof, and reasonably inferable therefrom.

C. Order of Precedence – These documents are integral parts of the Contract, and a requirement occurring in one is as binding as though occurring in all. They are intended to be complementary and to describe and provide for a complete work.

In cases of discrepancy, the governing order of the documents shall be as follows:

1. Permits from Agencies as required by law;
2. Change Orders;
3. Contract Documents including Addenda but excluding Construction Plans;
4. Construction Plans;
   a. Dimensions given in figures govern over scaled dimensions;
   b. Detail drawings govern over general drawings;
   c. Addenda/Change Order drawings govern over Contract drawings.

D. Conformity of Work with Plans – All work performed, and all materials furnished shall be in reasonably close conformity with lines, grades, cross sections, dimensions, and material requirements, including tolerances, shown on the Plans or indicated in the Technical Specifications or Special Provisions.

E. Authority of the County – All work shall be done under the supervision of the County and performed to its satisfaction. It is agreed by the parties hereto that the County shall decide all questions and disputes which may arise relative to the interpretation of the plans, construction, prosecution, and fulfillment of the Contract, and as to the character, quality, amount, and value of any work done, and materials furnished, under or by reason of the Contract.

F. County's Status – The County shall examine and inspect the work to assure compliance with the requirements of these Contract Documents. The County shall determine the quality and acceptability of materials and workmanship relative to the requirements of the Plans and Technical Specifications. In instances where the Contractor is not in compliance with the requirements of the Contract or when the quality and materials are not acceptable to the County, then the County has the authority as follows:

1. to stop the work whenever such stoppage may be necessary to ensure the proper execution of the Contract;
2. to reject all work which does not conform to the Contract or when materials of shop drawings have not been approved prior to placement;
3. to resolve questions which arise in the execution of the work; and
4. to stop work whenever such stoppage may be necessary to ensure the safety of personnel and/or the public.

No additional time or compensation will be added to the Contract when stopping work for the above listed reasons.

The County and his representative shall at all times have access to the work wherever it is in preparation or progress and the Contractor shall provide proper facilities for such access and for inspection. If the Technical Specifications & Conditions, the County's instruction, laws, ordinances or any public authority require any work to be specially tested or approved, the Contractor shall give the County timely notice of its readiness for inspection and, if the inspection is by an authority other than the County, the date fixed for such inspection. Inspections by the County shall be promptly made and, where practicable, at the source of supply.

The County's Inspectors shall be authorized to inspect all work done and all materials furnished. They shall be authorized to call to the attention of the Contractor any failure of the work or materials to conform to the Technical Specifications & Conditions and Contract, and shall have the authority to reject materials or suspend the work until any questions at issue can be referred to and resolved by the County. The presence of the Inspector shall in no way lessen the responsibility of the Contractor.

If any work should be covered up without approval or consent of the County, it must, if required by the County, be uncovered for examination at the Contractor's expense. Re-examination of questioned work may be ordered, and the work must be uncovered by the Contractor.

G. Suspension of Work – The County shall have the right to suspend all or any portion of the work upon giving the Contractor not less than two (2) calendar days' prior written notice of such suspension. If all or any portion of the work is so suspended, the Contractor's sole and exclusive remedy shall be to seek an extension of time to its schedule in accordance with the procedures set forth in the contract documents. In no event shall the Contractor be entitled to any additional compensation or damages. Provided, however, if the ordered suspension exceeds ninety (90) calendar days, the Contractor shall have the right to terminate the Agreement with respect to that portion of the work which is subject to the ordered suspension.

H. The County's Right to do Work – If the Contractor should neglect to prosecute the work properly or fail to perform in accordance with provisions of the Contract, the County, after three (3) days written notice, may without prejudice to any other remedy it may have, make good any deficiencies and deduct the cost from the payment due the Contractor.

I. County's Decision – The County shall, within a reasonable time after their presentation, make decisions in writing on claims by the Contractor and on all other matters relating to the execution and progress of the work or the interpretation of the Contract Documents.

J. Contractor's Supervision and Employees – The Contractor shall supervise, inspect, and direct the work completely and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the work in accordance with the Contract Documents.

Unless otherwise identified in the Contract documents, the Contractor shall be solely responsible for the means, methods, techniques, sequence, and procedures necessary for the orderly progress of the work, and to maintain all safety precautions and programs incidental thereto. The Contractor shall at all times enforce strict discipline and good order among his employees, and shall not employ any unfit person or anyone unskilled in the work assigned to him. The Contractor shall be responsible to see that the completed work complies fully with the Contract Documents.

As the work progresses, the Contractor shall keep on the job at all times an English-speaking Superintendent or designee, technically qualified, who is an employee of the Contractor and who shall not be replaced without written notice and approval from the County. The Superintendent will be the Contractor's representative on the job and shall have authority to act on behalf of the Contractor. The Superintendent or his qualified designee shall be present at the job site and direct the work of subcontractors, as well as employees of the Contractor. This supervisor will be equipped with a communication device enabling him/her to contact suppliers, subcontractors or his/her office who in turn can convey necessary communications to others. All communications given to the Superintendent shall be as binding as if given to the Contractor. The Contractor shall issue all communications to the County or his representative.

The Contractor's Superintendent shall be present on the job site at all times while work is in progress, and shall be available by phone for emergencies twenty-four (24) hours per day, seven (7) days per week. Failure to observe this requirement shall be considered suspension of the work by the Contractor until such time as such Superintendent is again present on the job.

K. Daily Reports – Unless waived in writing by the County, the Contractor shall complete and submit to the County on a weekly basis a daily log of the Contractor's work for the preceding week in a format approved by the Engineer and the County. The daily log shall document all activities of the Contractor at the Project site including, but not limited to, the following:

- Weather conditions showing the high and low temperatures during work hours, the amount of precipitation received on the Project site, and any other weather conditions which adversely affect the work;
- Soil, rock, subsurface or other conditions which adversely affect the work;
- The hours of operation by Contractor's and any subcontractor's personnel;
- The number of Contractor's and subcontractor's personnel present and working at the Project site, by subcontractor and trade;
- All equipment and vehicles present at the Project site, description of equipment and vehicle use and designation of time the equipment and vehicles were used (specifically indicating any down time);
- Description of work being performed at the Project site;
- Any unusual or special occurrences at the Project site;
- Materials received at the Project site;
- A list of all visitors to the Project site; and
- Any problems that might impact either the cost or quality of the work or the time of performance.

The daily log shall not constitute nor take the place of any notice required to be given by the Contractor to the County or Engineer pursuant to other sections of the Contract documents.

L. Contractor's Understanding – It is understood and agreed that the Contractor has, by careful examination and prior to submitting a bid, satisfied himself as to the nature and location of the work; the conformation of the ground and subsurface; the character, quality, and quantity of the materials to be encountered; the character and quantity of equipment, vehicles and facilities needed prior to and during prosecution of the work; the general and local conditions including environmental and climatic conditions; and other matters which can affect the work under the Contract, and that the same are in conformance with the Bid documents. If an underground facility or differing site condition is uncovered or revealed at or contiguous to the site, which was not shown or indicated and of which the Contractor could not reasonably have been expected to be aware, the Contractor shall promptly, before performing any work (excepting in emergencies), identify the owner of such underground facility and give written notice thereof to that owner and to the County. The County will review the underground facility or differing condition to determine the extent to which the Documents should be modified. With County approval, the Contract Documents will be amended or supplemented to the extent necessary and the Contractor shall be allowed an increase or an extension of time, or both, to the extent that they are attributable. During such review, the Contractor shall be responsible for the safety and protection of such underground facility. Any work done after such discovery without specific authorization by the County will be done at the Contractor's risk. Failure of the Contractor to fully examine and acquaint itself with any and all

applicable conditions shall not relieve the Contractor from any of its responsibilities to perform under the Contract documents. Failure to report differing site conditions to the County prior to beginning work, or undertaking additional activities without proper authorization of the County, shall not be considered the basis for any claim for additional time or compensation due to differing or unexpected site conditions or errors in the bid documents. No verbal agreement or conversation with any officer, agent, or employee of the County, either before or after execution of the Contract, shall affect or modify the terms or obligations herein contained.

M. Permits and Regulations – Permits and licenses necessary for the prosecution of the work shall be secured and paid for by the Contractor, unless otherwise specified. (A list of County permit fees is attached.) The Contractor shall give all notices and comply with all laws, ordinances, rules, and regulations bearing on the conduct of the work as drawn and specified. If the Contractor observes that the specifications and drawings are at variance therewith, he shall promptly notify the County in writing, and any necessary changes shall be adjusted as provided in the Contract for changes in the work. If the Contractor performs any work knowing it to be contrary to such laws, ordinances, rules, and regulations, and without such notice to the County, he shall bear all costs arising therefrom.

N. Protection of Work and Property – The Contractor shall continuously maintain protection of all his work from damage and shall protect the County's property from injury or loss arising in connection with the Contract. He shall make good on any such damage, injury or loss, except such as may be directly due to errors in the Contract Documents or caused by agents or employees of the County. He shall adequately protect adjacent property as provided by law and the Contract Documents. He shall provide and maintain all passageways, guard fences, lights, and other facilities for protection required by public authority or local conditions. In an emergency affecting the safety of life or of the work, or of adjoining property, the Contractor, without special instruction or authorization from the County, is hereby permitted to act, at his discretion, to prevent such threatened loss or injury, and he shall so act, without appeal, if so instructed or authorized. Any compensation claimed by the Contractor on account of emergency work shall be determined by agreement between the Contractor and the County.

The Contractor shall not occupy private land outside of any easements or rights of way unless a written authorization has been signed by the property owner. It shall be the Contractor's responsibility to provide these agreements prior to construction, if required. Prior to the use of private lands, the Contractor shall submit a copy of the agreement(s) to the County. In the event the Contractor uses private property for any purpose without first having obtained the necessary approvals from the property owner and provided the necessary agreements to the County, the County will direct the Contractor in writing to immediately cease using such property.

Prior to application for final payment, the Contractor shall provide documentation from the owner of each piece of private property for which an agreement for use was provided, or for which the County has issued written notification to the Contractor, that each owner is satisfied with the manner in which the Contractor has restored the property. Final payment or reduction in retainage shall not be paid until such documentation is received by the County.

O. Changes in the Work – The County, without invalidating the Contract, may order extra work or make changes by altering, adding to or deducting from the work, the Contract sum being adjusted accordingly. Such work shall be executed under the conditions of the original Contract. The change and amount of compensation must be agreed upon in writing in a document of equal dignity herewith prior to any deviation from the terms of the Contract.

In giving instructions, the County shall have authority to make minor changes in the work, not involving extra cost, and not inconsistent with the purposes of the work. Except in an emergency endangering life or property, no extra work or change shall be made unless in pursuance of a written order by the County. No claim for an addition to the Contract sum shall be valid unless ordered and under no circumstances shall the County be liable to the Contractor for any increased compensation without such written order. Value of any such extra work or change shall be determined in one or more of the following ways:

1. By estimate and acceptance in a lump sum;
2. By unit prices named in the Contract or subsequently agreed upon; and/or
3. By cost and percentage or by cost and a fixed fee.

If none of the previous methods are agreed upon, the Contractor, provided he receives an order as above, shall proceed with the work. In such case and also under case (3), he shall keep amendment in such form as the County may direct, a correct account of the net cost of labor and materials, together with vouchers. The County shall certify to the amount, including reasonable allowance for overhead and profit, due to the Contractor. Pending final determination of value, no payment on changes shall be made.

When requiring a change in the scope of services, the Contractor shall notify the County by written notice that a change order is requested within five (5) calendar days of any occurrence.

P. Deductions for Uncorrected Work – If the County deems it inexpedient to correct work injured or done not in accordance with the Contract, an equitable deduction from the Contract price shall be made thereof.

Q. Contract Time Extensions – Should Contractor be obstructed or delayed in the prosecution of or completion of the work, whether to a controlling item of work identified in the most current approved Project CPM Schedule or otherwise, as a result of unforeseeable causes beyond the control of the Contractor and not due to its fault or neglect, including but not limited to acts of God or of the public enemy, acts of government, fires, floods, epidemics, quarantine, regulations, strikes or lockouts, acts or failures to act of any public or private utility, or any other cause, then the time for completion shall be extended for such reasonable time as the County may decide. Contractor shall notify the County in writing within seven (7) calendar days after the commencement of such delay, stating the date the delay began, the cause or causes thereof and the controlling item of work affected by the delay, if applicable. **If the Contractor does not notify the County in writing within seven (7) calendar days, the Contractor fully, completely, absolutely and irrevocably waives any entitlement to an extension of Contract time for that delay.**

The existence of an updated accepted Project CPM Schedule, as required, is a condition precedent to the Contractor having any right to an extension of Contract time arising out of any delay to a Critical Path item. If the Contractor has not submitted or updated the Project CPM Schedule as required for the period of delay, or if the current accepted Schedule does not accurately reflect the actual status of the Project or fails to accurately show the true controlling or noncontrolling work activities for the period of delay, then entitlement to, or the length of any time extension will be determined solely by the County, which determination shall be final.

No Damages for Delay – No interruption, interference, inefficiency, suspension or delay in the commencement or progress of the work from any cause whatsoever, including those for which the County may be responsible, in whole or in part, shall relieve the Contractor of its duty to perform or give rise to any right to damages or additional compensation from the County. **The Contractor expressly acknowledges and agrees that it shall receive no damages for delay.** The Contractor's sole remedy, if any, against the County will be the right to seek an extension to the Contract time. This paragraph shall expressly apply to claims for early completion as well as to claims based on late completion.

R. Correction of Work Before Final Payment – All work, all materials, whether incorporated in the work or not, all processes of manufacturer, and all methods of construction shall be at all times and places subject to the inspection of the County who shall be the final judge of the quality and suitability of the work, materials, processes of manufacture, and methods of construction for the purposes for which they are used. Should they fail to meet County approval, they shall be forthwith reconstructed, made good, replaced, and/or corrected, as the case may be, by the Contractor at his own expense. Rejected material shall be immediately removed from the site. If, in the opinion of the County, it is undesirable to replace any defective or damaged materials or to reconstruct or correct any portion of the defective or unsuitable work not performed in accordance with the Contract Documents, the compensation to be paid to the Contractor hereunder shall be reduced by such amount as in the judgment of the County shall be equitable.

S. Contractor's Right to Stop Work or Terminate Contract – If the work should be stopped under an order of any court or other public authority for a period of three (3) months, through no act or fault of the Contractor or of anyone employed by him, or if the County fails to pay the Contractor within thirty (30) calendar days of maturity and presentation any sum certified by the County, then the Contractor may, upon seven (7) calendar days written notice to the County, stop work or terminate the Contract.

T. Removal of Equipment – In the case of termination of the Contract before completion from any cause whatever, the Contractor, if notified to do so by the County, shall within five (5) business days remove any part or all of its equipment and supplies from property of the County and/or site of work, failing which the County has the right to remove such equipment and supplies at the Contractor's expense.

U. Use of Completed Portions – The County has the right to take possession of and use any completed or partially completed portions of the work, notwithstanding the time for completing the entire work of such portions may not have expired, but taking possession and use shall not be deemed an acceptance of any work not completed in accordance with the Contract Documents. If such prior use increases the cost of or delays the work, the Contractor shall be compensated as the County may determine and the County approves.

V. Payments Withheld – The County may withhold payment to the Contractor on account of:

1. Defective work not remedied;
2. Failure of the Contractor to make payment properly to subcontractors or for material/labor;
3. A reasonable doubt that the Contract can be completed for the balance then unpaid;
4. Damage to another Contractor; or

5. Failure to submit an approved updated monthly CPM Schedule.

When the above grounds are removed, payment shall be made for amounts withheld because of them.

W. Claims and Disputes – A claim is a demand or assertion by the Contractor seeking an adjustment or interpretation of the terms of the Contract documents, payment of money, extension of time or other relief arising out of or relating to the Contract documents, except damages for delays, for which there is no right to claim damages. **The responsibility to fully substantiate a Claim shall rest with the Contractor and no Claim will be considered without documentation or other proper substantiation acceptable to the County as specified below.**

Claims by the Contractor shall be made in writing to the County and the Engineer within seven (7) calendar days after the first day of the event giving rise to such claim or else the Contractor shall be deemed to have unequivocally and forever waived the Claim in its entirety. **The Contractor understands, acknowledges and agrees that if the claim is not made within seven (7) calendar days after the event, the Contractor has unequivocally and forever waived any right it may have to present said claim and has waived any right it may have had to a contract adjustment, interpretation, payment of additional money, extension of time, or any other relief.** Written data supporting any timely claim must be submitted to the County and the Engineer within fifteen (15) calendar days after the occurrence of the event, unless the County grants additional time in writing. In order for the Contractor to establish the claim, it must submit a detailed, written, factual statement of the claim sufficient to allow the County to make a determination. This statement will include, at a minimum: the date(s) and location(s) on which the claim arose; the items of work affected; the conditions giving rise to the claim; all documents and communications relevant to resolving the claim; identification of the specific contract provision(s) supporting the claim; a detailed compilation of all additional compensation sought stemming from the claim, including documentation of all expenses; and a detailed compilation of all calendar days sought if Contractor seeks a time extension. **In all cases, it is the Contractor's responsibility to ensure that it has submitted sufficient documentation to the County to support each element of its claim in a timely manner.** If the Contractor fails to submit sufficient written data supporting the claim within fifteen (15) calendar days after the event, or within such time extension as may be granted by the County in writing, the Contractor shall be deemed to have unequivocally and forever waived the claim. **The Contractor understands, acknowledges and agrees that if sufficient written data supporting the claim has not been provided within fifteen (15) calendars days from the event or within any written time extension, it has unequivocally and forever waived any right it may have had to a contract adjustment, interpretation, payment of additional money, extension of time or any other relief.**

X. Assignment – Neither party to the Contract shall assign the Contract or sublet it as a whole without the written consent of the other, nor shall the Contractor assign any monies due or to become due to him hereunder without the previous written consent of the County.

Y. Rights of Various Interests – Before work being done by the County's forces or by other Contractor's forces, contiguous to work covered by the Contract, the respective rights of the various interests involved shall be established by the County before such commencement, to secure the completion of the various portions of the work in general harmony.

Z. Separate Contracts – The County reserves the right to let other Contracts in connection with this work. The Contractor shall afford other Contractors reasonable opportunity for the introduction and storage of their materials and the execution of the work and shall properly connect and coordinate his work with theirs. If any part of the Contractor's depends on proper execution or results upon the work of any other Contractor, the Contractor shall inspect and promptly report to the County any defects in such work that render it unsuitable for such proper execution and results. His failure to so inspect and report shall constitute an acceptance of the other Contractor's work as fit and proper for the reception of his work, except as to defects which may develop on the other Contractor's work after the execution of his work.

AA. Subcontractors – The Contractor shall provide a list of subcontractors with his bid for approval. The Contractor agrees that he is as fully responsible to the County for the acts and omissions of his subcontractors and of persons either directly or indirectly employed by them as he is for the acts and omissions of persons directly employed by him. Nothing contained in the Contract Documents shall create any contractual relation between any subcontractor and the County. Substitutions must be submitted in writing and shall be subject to approval by the County.

To ensure proper execution of his subcontractor's work, the Contractor shall measure work already in place and shall at once report to the County any discrepancy between the executed work and the drawings.

BB. Horizontal and Vertical Control – Unless noted otherwise in the Contract documents, the Contractor shall be responsible for the layout of all Contract work. The Contractor shall employ or retain any/all professional services that are required by the Contract to complete the work. The Contractor shall carefully preserve benchmarks, reference points and stakes and, in case of willful or careless destruction, be responsible for any mistakes that may be caused by their unnecessary loss or disturbance.

CC. Lands for Work – The County shall provide the lands upon which the work under the Contract is to be done, except that the Contractor shall provide land required for the erection of temporary construction facilities and storage of materials, together with the right of access to same.

DD. Cleaning Up – The Contractor shall, at such times as may be required by the County, remove from the County's property and from all public and private property, at his own expense, all temporary structures, used materials and equipment, rubbish and waste materials resulting from his operations. All damaged areas will be restored by the Contractor to their original condition and approved by the County. By submission of a bid, the Contractor assumes full responsibility for the associated expenses. There shall not be an increase in time or price associated with such removal, and payment to Contractor may be withheld until such work is completed.

EE. Guarantee – The Contractor shall warrant all equipment furnished and work performed by him for a period of one (1) year from the date of final acceptance of the work by the County or as may be otherwise specified. Any faulty work or equipment will be fully corrected at no cost to the County and restored work will be warranted for one (1) year from the date of acceptance, or as may be otherwise specified. The Contractor shall repair or replace defective work or materials no later than (30) days from the Contractor's receipt of written notice from the County.

The making and acceptance of final payment shall not waive any claim for faulty work appearing after final payment or for failure to adhere strictly to the Contract Documents. If any part of the project is guaranteed for a longer period, such longer period shall prevail. Except as otherwise specified, all work shall be guaranteed by the Contractor against defects resulting from use of inferior materials, equipment or workmanship for one (1) year from the date of substantial completion or written acceptance by the County, whichever is later.

FF. Utilities –

1. Responsibility Regarding Existing Utilities and Structures: The Contractor shall be solely and fully responsible for getting all utility locates, sequencing his work to minimize conflicts with all utilities, coordinating with utilities as necessary regarding location, relocation or removal, and making necessary field adjustments, approved by County engineer(s) to accommodate utilities. The existence and location of underground utilities indicated on the plans are not guaranteed and shall be investigated and verified in the field by the Contractor before submitting a bid. Excavation in the vicinity of existing structures and utilities shall be done by hand. The Contractor shall be responsible for any damage to, and for maintenance and protection of, existing utilities and structures, and from any damages resulting from said excavation. The Contractor is to include within his line item bid prices, the costs to protect, support, relocate, or move (whether shown or not shown on the proposed project set of plans) all underground utilities which may be in conflict with the construction of the proposed project, and to include sufficient time for the location, relocation or removal of utilities and underground utilities within the proposed Project timeline. **The Contractor expressly acknowledges and agrees that it shall receive no damages for any delays associated with the location, relocation or removal of utilities or underground utilities. The Contractor's sole remedy, if any, against the County will be the right to seek an extension to the Contract time.**

2. Cooperation With Utilities: Attention is called to the Underground Facility Damage Prevention and Safety Act, Chapter 556, Florida Statutes. This act provides for a "Sunshine State One Call" which is to be used by all parties doing excavation, demolition or other underground construction. The Contractor is required prior to any excavation to notify "SUNSHINE STATE ONE CALL OF FLORIDA (800-432-4770)

GG. Accidents – The Contractor shall provide equipment and medical facilities as necessary to supply first aid to anyone who is injured in connection with the work. The Contractor must promptly report in writing to the County accidents arising out of, or in conjunction with, the performance of the work, whether in, or adjacent to, the site, which cause death, personal injury, or property damages, giving full details and statements of witnesses. If death or serious injuries or serious damages are caused, the accident shall be reported immediately by telephone or messenger to the County.

If a claim is made by anyone against the Contractor or subcontractor on account of an accident, the Contractor shall promptly report the facts in writing to the County, giving full details of the claim.

HH. Stage Plans – Stage plans of structural alterations, cofferdams, dredging, furnished or approved by the County, shall be adhered to unless objected to in writing by the Contractor, but the submission or approval of stage plans by the County shall not relieve the Contractor of full responsibility for the safety of the work.

II. Measurement of Quantities – Where applicable, the quantities of materials and work performed will be computed by the County on the basis of measurements taken by the County and/or its agents, and these measurements shall be final and binding. All materials and work computed under the Contract shall be measured by the County according to the United States Standard Measurements and Weights.

The County does not assume any responsibility that the final quantities will remain in accord with estimated quantities, nor shall the Contractor claim misunderstanding or deception because of such estimate of quantities. The estimated quantities of work to be done and materials to be provided may be increased, decreased, or omitted, as provided herein. Any increase in quantities shall be approved by the County prior to any work.

JJ. Reference to Other Specifications – Where reference is made to Specifications such as A.S.T.M., A.W.W.A., or A.A.S.H.T.O., or any other reference specifications, the latest edition shall be used.

KK. Sanitary Facilities – The Contractor shall provide and maintain, in a sanitary condition, facilities for his employees as are required by local and state boards of health.

LL. Quality of Equipment and Materials – To establish standards of quality, the County may, in the specifications, refer to products by name and/or catalog number. This procedure is not to be construed as eliminating from competition other products of equal quality by other manufacturers where fully suitable in design.

1. The Contractor shall furnish a complete list of proposed desired substitutions prior to signing of the Contract together with such engineering and catalog data as the County may require.

2. The Contractor shall abide by the County's judgment when proposed substitute items of equipment are judged unacceptable and shall furnish the specified item of equipment in such case. All proposals for substitutions shall be submitted in writing by the General Contractor. The County will approve or disapprove proposed substitutions in writing within a reasonable time.

MM. Codes and Laws – The successful bidder shall comply with all Federal, State, Local laws, and ordinances that affect the Contract in any way.

NN. Traffic Control – The Contractor shall comply with the "Manual on Uniform Traffic Control Devices", the Charlotte County MOT Policy and maintain safe conditions at all times.

OO. Explorations and Reports – If reference is made to identification of reports of explorations and tests of subsurface conditions at the site that have been used in preparing the Contract Documents, it should be understood that these reports are not part of the Contract Documents. The Contractor shall have full responsibility with respect to subsurface conditions at the site. Technical data may not be sufficient for construction purposes. Additional investigations may be necessary for the purposes of carrying out the construction project.

If the Contractor desires subsurface investigation, it will be done at his expense, prior to bidding. If the Contractor has elected not to make subsurface investigation prior to bidding, he shall not be entitled to any extra compensation due to conditions encountered.

PP. Existing Structures – Drawings of physical conditions in or relating to existing surface and subsurface structures which are at or contiguous to the site have been utilized by the Consultant and/or the County in preparation of the Contract Documents. The Contractor may rely upon the accuracy of the technical data contained in such drawings but not for the completeness thereof for the purposes of preparing or submitting a bid. Except as previously indicated, the Contractor shall have full responsibility with respect to physical conditions in or relating to such structures.

QQ. All agency permits attached are made a part of this contract and shall be the Contractor's responsibility for all permit conditions.

SPECIAL PROVISIONS
KINGS HIGHWAY AND HARBORVIEW ROAD INTERSECTION IMPROVEMENTS
BID NO. 20250062

SP-01 INTENT: This project consists of intersection improvements at Kings Highway and Harborview Road. The project includes milling and resurfacing, mast arm signalization, intelligent transportation system improvements, lighting improvements, and signing and pavement markings as indicated on the construction plans. The work also includes all other items of construction including, but not limited to, clearing and grubbing, removal and disposal of existing sidewalks, excavation and fill, grading, sodding, and maintenance of traffic. The work specified herein shall consist of furnishing all materials, equipment, labor, and operations necessary to complete the work as indicated in the plans and specifications enclosed herein. All work included in the Bid shall be completed within the contract time from the date specified in the Notice to Proceed. The construction shall include, but not be limited to, establishment and removal of MOT measures, the provision of approved signs and markings, excavations for and construction of new road, sidewalk, storm drainage, driveways, and ROW restoration.

The Contractor will be required to arrange for relocation of existing utilities apparatus which may be in conflict with the construction.

All work shall conform within the limits as specified on the Construction Plans and be in conformance with the appropriate Technical Specifications as specified herein. The Contractor shall be responsible for traffic control, maintenance of temporary sidewalks, the restoration of existing street signs, traffic control signs, mailboxes, property corners, existing utilities or any other items disturbed during the construction.

SP-02 EXAMINATION OF DOCUMENTS: The bidding Contractor is instructed to carefully examine the bid package, Request for Bids, Instructions to Bidders, General Provisions, Special Provisions, Technical Specifications & Conditions, Insurance Requirements, Permit Fees, MOT Policy (M.O.T.), Manual on Uniform Traffic Control Devices latest Edition referred to as M.U.T.C.D., State of Florida Erosion and Sediment Control Manual, Charlotte County Utilities (CCU) Design Compliance Standards latest edition at time of bid, Charlotte County Lighting District Specifications latest edition at time of bid, Plans and all other related bid documents, including all modifications thereof, incorporated in the bid package.

All references to the FDOT Design Standards Plan within the construction documents and plans shall pertain to the FY 2024-25 Design Standard Plan unless specified otherwise. All references to the FDOT Specifications within the construction documents and plans shall pertain to the FDOT Standard Specifications for Road and Bridge Construction 2024-25, unless specified otherwise.

SP-03 NOTICE TO PROCEED/DELIVERY: A pre-construction meeting will be held, at which time a Notice to Proceed date will be established. The Notice to Proceed shall state the mutually agreed upon date on which it is expected that the Contractor will begin the construction and from which date the contract time will start. No work under the Contract shall commence until after the Notice to Proceed/Purchase Order has been issued.

SP-04 DEFINITIONS:

1. As-Builts: Revised set of drawings submitted by a Contractor upon completion of a project or a particular section of the project. They will reflect all the vertical and/or horizontal dimensions of constructed improvements so that the constructed facility can be delineated in such a way that the location of the construction may be compared with the construction plans. Changes made will clearly be shown by symbols, notations, or delineations located by the survey. Specifications and working drawings during the construction process will show the exact dimensions, geometry, and location of all elements of the work completed under the contract. As-Builts must be signed and certified by a professional surveyor/mapper registered in Florida.

2. Completed and Accepted: The County shall be the sole judge of when the work associated with a Pay Item is Completed and Accepted. When all activities described in the Technical Specifications for a Pay Item are satisfactorily completed, the County will judge if the work is completed and accepted.

3. Construction Plans: The drawings, or reproductions thereof, which show locations, character, dimensions, and details of the work to be done.

4. Consultant: The Professional Engineer or Engineering Firm registered in the State of Florida who performs Professional Engineering Services for Charlotte County, other than Charlotte County's personnel. The Consultant may be the Engineer of Record or may provide services through and be subcontracted to the Engineer of Record.

5. Department: Any reference to the Department shall mean Charlotte County.

6. Controlling Work Items: Those work items that are directly interrelated such that it has a definite influence on progress of the overall work.

7. Engineer: The Charlotte County Engineer, acting directly or through duly authorized representatives; such representatives acting within the scope of the duties and authority assigned to them.

8. Engineer of Record: The Professional Engineer or Engineering Firm registered in the State of Florida that is contracted with Charlotte County, who develops criteria and concept for the project, performs the analysis and is responsible for the preparation of the Contract Plans and Specifications.

9. Inspector: An authorized representative of the County, assigned to make official inspections of the materials furnished and of the work performed by the Contractor.

10. Flagger: Any person who has successfully completed the FDOT Basic Training Course for Work Zone Traffic Control and Maintenance of Traffic.

11. Traffic Technician: Any person holding a Florida Department of Transportation Certificate in Work Zone Traffic Control and Maintenance of Traffic (Intermediate Level).

12. Easement: The legal right to use another's land for a specific purpose.

13. Right-of-Way (ROW): The land which Charlotte County has title to, or right of use, for the road and its structures and appurtenances.

14. Roadbed: That portion of the roadway occupied by the subgrade and shoulders.

15. Roadway: The portion of a travel way within the limits of construction.

16. Travel Way: The portion of the roadway providing for the movement of vehicles, exclusive of shoulders and auxiliary lanes.

17. Special Provisions: Specific clauses setting forth conditions varying from or addition to General Provisions, for a specific project.

18. Substantial Completion: Is the stage in the progress of work when the work is sufficiently complete in accordance with the contract documents so the owner can occupy or utilize the work for its intended use. The County shall determine the date for the Notice of Substantial Completion and shall issue a notice.

19. Final Acceptance: The work on the project which has been inspected by authorized representatives of Charlotte County and is hereby declared to be completed in accordance with the contract documents. The completion date is the date of all warranties and guaranties required by the contract documents. The completion date also is the date at which the County will accept and re-establish the maintenance of the Counties R.O.W.

20. Suspension of Work: All work shall be suspended whenever the Board of County Commissioners suspend normal working hours for Charlotte County employees. The Contractor will not be entitled to any additional compensation for such suspension of work, other than contract time.

21. Work Zone: An area established by the County where all of the Contractor's work shall take place.

22. Pay Item Numbers: These are Charlotte County pay item numbers and will be paid according to the project specifications.

SP-05 EQUIPMENT: The Contractor shall only use equipment, machines, or a combination of machines that are in good and safe working condition. The equipment shall produce results that meet or exceed the Technical Specifications & Conditions. Special attention is directed to pavers capable of achieving desired application rates, specified cross slope and necessary joint matching through the use of the latest electronic technology available. Equipment incapable of providing this will not be acceptable for use on this Contract. The Contractor shall not use equipment which is unsafe or is in need of repair. Work completed with equipment which is not properly functioning shall be deemed unacceptable.

SP-06 CONTROL OF MATERIALS REQUIRED BY FDOT SPECIFICATION, SOURCE OF SUPPLY AND QUALITY REQUIREMENTS - CONTROL BY SAMPLES & TESTS: The Contractor shall give sufficient notification of placement of orders for materials and shall order materials sufficiently in advance of their incorporation in the work to allow time for sampling

and testing. If the volume, progress of the work, and other considerations warrant, the County may undertake the inspection of materials at the source of supply. The Contractor shall ensure the County has free entry at all times to the plant as concern the manufacture or production of the materials ordered and shall bear all costs incurred in providing all reasonable facilities to assist in judging if material complies with Specifications.

Materials shall be FDOT Certified at the source of supply. The County may certify materials at the plant as to FDOT Specifications section 6.

The County may require any or all materials to be subjected to tests by means of samples or otherwise, at production points, after delivery, or both, as he may determine. The Contractor shall furnish at his own expense, the materials necessary for the required samples, delivered to the point designated, without charge to the County.

If, after sampling and testing, it is found that a source of supply which has been approved does not furnish a uniform product, or if the product from any source proves unacceptable at any time, the Contractor shall furnish material from other approved sources.

SP-07 CONTRACT TIME: The Contractor shall use no more than **195 calendar days** from the date specified in the Notice to Proceed, being the Contract Time, to complete all phases of this project. The Contract Time shall include the preparation, submittal, review and approval of submittals, ordering and lead time and delivery of materials, construction, assembly, adjustment and placement into service for beneficial use of all facilities covered under this contract. The Contract Time shall be extended by one calendar day for each calendar day over fourteen (14) working days used by the County for review of all submittals from Contractor. There shall be no extension of time provided for modification and corrections to the submittals to address deficiencies therein identified during the review by Charlotte County.

SP-08 PRE-CONSTRUCTION CONFERENCE: Prior to commencing work, a Pre-Construction Conference will be held, at which time a mutually agreeable first day of work will be determined. The following documents (if applicable) shall be submitted at this meeting:

1. A Contractor Employee Telephone List specifying the name, e-mail, phone number of all personnel who will be working within the Work Zone including subcontractors or suppliers. The Contractor Employee Telephone List will be revised and updated as necessary. The Contractor shall remove crew members not on the list when so directed by the County Inspector. At any time, the County Inspector can require a valid Florida Driver's license or picture identification acceptable to the County from any Contractor crew member. A telephone list specifying the name, address, phone number of all subcontractors or suppliers to be used on this project.

2. Project list with a description of the work each subcontractor will perform. This list shall also include a description and percentage of the work each subcontractor will perform. If the Contractor proposes to subcontract the survey work, the Contractor shall include the name and registration number of the surveyor. The telephone list shall also include emergency telephone numbers. The Contractor shall include a 24-hour emergency contact telephone number for the County's use, which the Contractor shall update as necessary, throughout the project. The Contractor shall request in writing, changes in subcontractors or suppliers. No change in subcontractors or suppliers shall be made without written consent from the County.

3. The source of all materials to be used for the project. The Contractor shall not change these sources without written consent from the County.

4. A copy of the haul routes the Contractor intends to use. The Contractor shall not use bridges that are posted with weight restrictions, which may be exceeded in weight by equipment and materials.

5. The Contractor shall submit to the County a list of equipment the Contractor proposes to utilize on this project.

6. A MOT plan in accordance with the most current Charlotte County Policy.

7. An erosion control plan.

8. Concrete Mix Designs.

9. Asphalt Mix Designs: Formulas shall provide for a minimum Marshall Stability of 1,500 for ABC-3 and 1,800 for type S-I and S-III.

10. Plans of any staging areas that the Contractor proposes to use, showing the means of access thereto.

11. The Contractor shall submit for County approval a paper copy and electronic copy of a Schedule of Values, a Construction Schedule prepared using Microsoft Project® or other County approved software, and a Schedule of Progress Payments.

12. Dewater/Diversion plan.

13. Health and Safety plan.

14. Turbidity Monitoring plan.

15. The Contractor shall submit to the County striping details for each roadway requiring striping.

16. The Contractor shall also submit materials that will be used in the correction of elevation of the utilities such as manholes, water valves, which will be used by the Contractor for this Contract.

NO WORK SHALL START UNTIL ALL SUBMITTALS HAVE BEEN ACCEPTED BY THE COUNTY. Once approved, no change will be allowed without the written approval of the County.

The Contractor shall also provide, on a monthly basis, an update to the Construction Schedule reflecting changes made as a result of weather, breakdowns, and unanticipated delays. The proposed production schedule shall be submitted a minimum of one (1) week prior to submitting the monthly invoices.

SP-09 SHOP DRAWINGS: The Contractor shall furnish shop drawings to the County for items of work not fully detailed in the plans which require additional drawings and coordination prior to constructing the item. The Contractor shall list the pay item number on each shop drawing submittal. If the Contractor discovers conflicts between shop drawings and specifications or otherwise, after submitting shop drawings for processing by the County, the Contractor shall immediately advise the County; in this event, the Contractor is responsible for resolving the situation through the contract's provisions. The only exception to the above provisions for deviations and conflicts is for differences between shop drawings and construction plans/specifications deemed by the County to be minor, not conflicting with the latter, nor involving cost differences of any kind. Then the Contractor shall include a written explanation with his submittal, citing the specific differences and why the County should approve the submittal under these conditions. The County's decision in this situation is final.

The Contractor shall submit shop drawings that are signed and sealed by a Florida Registered Engineer. Each drawing should be titled and numbered identifying each drawing by reference to construction plan sheet number and pay item number. Shop drawings are to be submitted in a format acceptable to Charlotte County.

Each set of shop drawings shall be signed and dated to attest that compliance with requirements of the Contract Documents has been met. County review of the shop drawings is for general compliance to the Contract Documents and does not relieve the Contractor of any responsibility to insure conformance to the Contract Documents. The Contractor shall at all times be responsible for the accuracy of the data and information contained on the shop drawings, including but not limited to, inverts, top elevations, and pipe sizes. The Contractor shall be responsible for any delay and/or additional expenses that result from the Contractor's failure to provide submittals in a timely manner or failure to identify portions of the submittals that do not conform to the contract documents.

The cost for Shop Drawings shall be considered incidental to the project or included in the bid price for the various bid items. The Contractor's representative shall have a set of approved shop drawings on-site at all times.

SP-10 LIQUIDATED DAMAGES: The work shall be completed within the Contract Time. The Contract Time shall include the preparation, submittal, review and approval of submittals, delivery of components and materials, construction, erection, assembly, adjustment, and placement into service for beneficial use of all facilities covered under this contract.

Charlotte County shall issue a Notice of Substantial Completion to the Contractor when it has determined that the work identified in the Contract has been substantially completed and that the facility is operating satisfactorily. Charlotte County shall provide the Contractor with a punch list within fourteen (14) calendar days after the Notice of Substantial Completion is issued. The punch list will identify the remaining items that must be addressed to the satisfaction of Charlotte County by the Contractor to meet his obligations under the Contract. The Contractor shall complete the items on the punch list to the satisfaction of Charlotte County within thirty (30) additional calendar days of the issuance of the Final Punch List or Notice of Substantial Completion whichever is later and prior to submittal of the application for final payment. Any costs incurred by the County (i.e. inspection time) after the 30 calendar day period shall be charged to the Contractor.

The County and the Contractor hereby agree that time is of the essence on this Contract and the County will suffer damages if the work is not substantially completed within the Contract Time, plus any extensions thereof allowed by Change Order. It is further recognized and agreed by the County and the Contractor that the determination of the exact value of the damages the

County would suffer due to a delay in the Substantial Completion of the work would be a difficult, time consuming and costly process. It is therefore, hereby agreed by the County and the Contractor, that it is in their mutual interest to establish a figure of **$1,690** as Liquidated Damages (but not as a penalty) to be paid by the Contractor to the County, for each calendar day that Substantial Completion is delayed beyond the Contract Time. It is mutually agreed by the County and the Contractor that neither shall make any claim to increase or reduce the amount to be paid under Liquidated Damages as the result of any calculation of actual damages suffered by County as the result of a delay in the Substantial Completion of the work. The County reserves the right to withhold the total amount of the liquidated damages from any payment should the total amount of the liquidated damages exceed the amount of the retainage at any time.

SP-11 PROGRESS MEETING: The Contractor shall designate a representative to attend periodic Progress Meetings held at a mutually agreed upon location. Representatives from the various utilities involved will also be invited. The Contractor shall submit at each meeting revised schedule information, projected schedule for the next week, written claims for additional compensation, claims for rain days to extend the Contract, results of all testing and Value Engineering Proposals. The Contractor shall prepare and distribute meeting minutes to all attendees. The Contractor shall record all meetings minutes and supply to the County Project Manager. The County will use the updated schedule information to monitor the Contractor's production rate. Upon written notice from the County, the Contractor shall dedicate additional resources to increase the productivity rate such that the Contractor will be back on schedule. Failure to comply with the approved Construction Schedule shall result in the Contractor being considered in default and subject to suspension of this Contract.

SP-12 VALUE ENGINEERING PROPOSAL: The Contractor may offer Value Engineering Proposals (VEP) for completing work different than specified in this contract. The County will review and provide written comments to each VEP provided by the Contractor. Value Engineering Proposals accepted by the County will be implemented with the Contractor receiving a 50% share of any cost savings. The Contractor shall not be compensated for the preparation of a VEP.

SP-13 COORDINATION WITH UTILITIES: The Contractor shall notify all utility owner(s) affected by the construction prior to beginning work. Any expense of utility repair or other damage due to Contractor's operations shall be borne by the Contractor. Protection of utilities, and the like, shall be the responsibility of the Contractor who shall provide adequate protection to maintain proper service.

NOTE: The Contractor is to include, within his line-item bid prices, the costs to protect and/or support all utilities, which may be in conflict with the construction of this proposed project.

The contract documents require the Contractor to coordinate with utilities. The Contractor shall be responsible for notifying the utilities, sequencing his work to minimize conflicts with the utilities and making necessary field adjustments to accommodate the utilities.

The Contractor shall not apply the asphalt surface course until all manholes and valve covers, necessary to be set, have been set by the Contractor. The Contractor shall supply all materials to set the manholes and valve covers. Utility owners with utilities located within the County's right-of-way are required to furnish adjustment risers, if necessary. The Contractor shall request from the utility owners the necessary materials; however, the Contractor shall bear all costs necessary to complete the adjustments.

SP-14 PERMITS: The Contractor will be responsible for obtaining all permits not attached to this contract necessary to complete the work described on the Plans and in the Specifications. All work performed will be in accordance with the permit special conditions and restrictions. Specific permits obtained by the Contractor include, but are not limited to, work within a County ROW.

Prior to application for final payment, acceptance of requirements governed by project permits must be received by each permitting agency. Final payment or reduction in retainage shall not be paid until such documentation is received by the County.

If the Contractor performs any work contrary to such laws, ordinances, rules, and regulations as they pertain to permits, he shall bear all costs arising therefrom.

SP-15 DAMAGES: Areas adjacent to the construction that are damaged shall be repaired at the Contractor's expense. Restoration of adjoining areas shall be equal to or better than original condition and to the satisfaction of the County. **A Pre-Construction video shall be required and submitted to the County prior to any work starting.**

Preservation of property shall include any items (fencing, landscaping) within the limits of construction that must be removed or relocated during construction will be replaced undamaged and **not within the County ROW** prior to final payment. Any items damaged will be replaced at the Contractor's expense.

Protection of personal property, utilities, structures, mailboxes, sprinkler systems, conduits, trees, shrubs, and the like, shall be the responsibility of the Contractor who shall provide adequate protection to maintain proper service. Mailboxes shall be kept in service during construction.

Once the Notice to Proceed has been issued, it shall be the responsibility of the Contractor to maintain the existing and proposed improvements until the County issues final acceptance. This includes, but not limited to maintenance of the existing pavement, mowing, maintenance of existing drainage, maintaining the right-of-way in accordance with County regulations, as well as the maintenance and repair of any new improvements damaged before the final acceptance by the County.

SP-16 TESTING:

A. All testing for this project, with the exception of tests specified herein, shall be performed by the County at no expense to the Contractor unless otherwise stated in this document. However, any testing that fails, any retesting done as a result of said failures, or expenses incurred as a direct result of the Contractor's actions, will in turn be back charged to that Contractor. To schedule any testing, the Contractor shall submit a request 24 hours in advance of the need. If testing is not performed as scheduled, due to Contractor's delay, the Contractor shall be charged all costs incurred by the County.

B. Minimum test(s) or testing to be furnished by the Contractor - The Contractor shall furnish tests for hot mix asphaltic concrete delivered to the project. Included shall be a minimum of one (1) test from each day's production of each type of mix. A Contractor's in-house laboratory is acceptable for testing if submitted test reports are accompanied with evidence of laboratory certification by the Florida Department of Transportation.

1. The Contractor's in-house laboratory shall be made available for independent testing by County forces or geo-technical testing firms employed by the County.

2. The Contractor will submit the asphalt mix test for percentage of Asphalt Cement Content, sieve analysis and stability.

3. The Contractor shall submit a certified listing of the sources and descriptions of all materials used in the mix and shall certify that the materials listed meet the specifications of the project.

SP-17 CONTINUOUS PROSECUTION OF WORK: Upon commencement of the project, the operation must be continuously prosecuted during normal work hours to its completion. The Contractor shall not interrupt work unless the County provides written authorization to suspend the work.

Once the Contract has commenced the Contactor shall not suspend work from the job site for more than 7 calendar days without written approval from the County.

Once commencing paving work for each individual roadway, the operation must be continuously prosecuted during normal duty hours to its completion. The Contractor shall not interrupt work on a roadway once the process of tack coating and/or paving has begun. The Contractor shall not demobilize forces if a roadway is not completely paved (i.e. one lane or portion of a lane).

Shoulder work for each individual roadway, to include clip-back to expose the true edge of pavement, is not to begin sooner than seven (7) calendar days prior to the paving of each individual roadway. The Contractor shall be responsible for the removal and disposal of materials. Restoration and cleanup for each individual roadway must begin no later than seven (7) calendar days after completion of the paving of each individual roadway. This work shall be continuously prosecuted to its completion. Invoices will not be approved until such time that all restoration, including sodding and shoulder work, has been completed for paving operations unless the delay in restoration resulted from conditions beyond the control of the Contractor, as determined by the County.

SP-18 QUANTITIES: The quantities, as shown on the Bid Forms, are approximate and are given only as a basis of calculation for award of the Contract. The actual quantities may vary substantially from the estimate amount.

The County reserves the right to alter (increase or decrease) any individual quantities without affecting the unit bid price for that item. When quantities of individual work items are altered, the Contractor shall accept payment in full at Contract unit bid prices for the actual quantities of work completed, and no allowance will be made for increased expense, loss of expected reimbursement, or loss of anticipated profits suffered or claimed by the Contractor, resulting either directly from such alterations, or indirectly from unbalanced allocation among the Contract items of overhead expense on the part of the bidder and subsequent loss of expected reimbursement.

SP-19 MONTHLY ESTIMATES: As the construction work progresses, each month the Contractor will be paid the total value of the work completed and accepted during the preceding month, less five percent (5%) retainage. For the purpose of preparing a monthly estimate, the County's computations and records will be used to determine the value of all work completed and

accepted as of the 25th day of each calendar month. That estimate, less retainage, less previous charges, will be paid to the Contractor. Payment will be rendered in conformance with the Local Government Prompt Payment Act, Section 218.74, Florida Statutes. Such payment shall include compensation for all labor, materials, equipment and all other incidental items necessary to perform the work.

1. The County will furnish the Contractor's Superintendent with a list of quantities and pay items summarizing the work completed during the preceding month. This comprises the monthly estimate.

2. The Contractor shall also provide, on a monthly basis, an update to the Construction Schedule reflecting changes made as a result of weather, breakdowns, and unanticipated delays. The proposed production schedule and daily reports for the period shall be submitted a minimum of one (1) week prior to submitting the monthly invoices.

3. The County's summary of pay items and submittal of the monthly estimate for subsequent payment to the Contractor shall serve as the basis for and become part of the invoice for such payment. The invoice shall be in strict conformance with the form prescribed by the County and submitted at the same time as the monthly estimate.

4. Payment approvals will be subject to the procedures established by the County.

5. Upon completion of the project and at the satisfaction of the County, final payment of the completed items, including punch list items and all retention, less all previous payments and charges, shall be made to the Contractor.

6. This Contract will not provide for fuel or other payment adjustments due to increase in material costs during the life of the contract.

7. No payment will be made for stored items.

SP-20 RESTORATION: Unless authorized by the County, the Contractor shall be responsible for the restoration costs associated with staging areas or damage to Public/Private property outside project limits.

SP-21 PRIVATE PROPERTY: The Contractor shall not occupy private land outside of any easements, permanent or temporary rights of way unless written authorization has been signed by the property owner. Prior to the use of private lands, the Contractor shall submit a copy of the approval from the Charlotte County Public Works Department to use the private property for stockpiling of construction equipment and material as well as a written agreement(s) between the Contractor and landowners, to the County. In the event that the Contractor uses private property for any purpose without first having obtained the necessary approvals from the property owner or provided the necessary submittals to the County, the County will direct the Contractor in writing to immediately cease using such property. The County furthermore reserves the right to cease all work on the project to stop until the proper submittals are received by the County or the property is returned to its pre-existing condition and the use has halted.

Prior to application for final payment, the Contractor shall provide documentation from the owner of each piece of private property for which an agreement for use was provided, or for which the County has issued written notification to the Contractor, that each owner is satisfied with the manner in which the Contractor has restored the property. Documentation of final closeout of Contractor obtained permits will be required. Final payment or reduction in retainage shall not be paid until such documentation is received by the County.

SP-22 HOMEOWNER/BUSINESS NOTIFICATION: The Contractor shall inform all business's and/or homeowners seven (7) calendar days and again at 48 hours prior to the commencement of work in the form of written notification in the area where construction will take place to the nearest cross street or in the area where the existing water and/or sewer services may be affected due to isolation of the utilities in the construction area. At both notifications, a Homeowner Notification form may be hung on doorknobs if the homeowner does not respond to knocking or a doorbell. Notification informs the residents of the time frame of construction and the name and phone number of the Contractor's designated 24 hours 7 days a week contact. If the homeowner's driveway is affected due to construction, the Contractor's notification shall inform the homeowner of the temporary driveway replacement sequence and the timeframe for final/permanent driveway restoration. Any damage outside this agreed to work zone shall be the responsibility of the Contractor at no cost to the County.

All costs associated with the 'NOTICE' and notifying residents shall be considered incidental to this contract at no additional cost to the County.

TS-01 MOBILIZATION:

A. GENERAL – The work specified in this Technical Specification consists of the preparatory work and operations in mobilizing for beginning work on the project, including, but not limited to, those operations necessary for the movement of personnel, equipment, sanitary facilities, onsite and offsite storage areas, supplies and incidentals to the project site, as required by these specifications, State and Local Laws and Regulations. The costs of bonds and any required insurance and any other preconstruction expense necessary for the start of the work, excluding the cost of construction materials, shall also be included in this Section. The Contractor shall furnish all necessary equipment storage areas.

B. PERMITS & CODES – Construction shall conform to all local, state, and federal codes and ordinances. The Contractor shall obtain any necessary dewatering permit(s) from Southwest Florida Water Management District (SWFWMD) and the N.P.D.E.S. Construction General Permit form the Florida Department of Environmental Protection (FDEP), including environmental compliance specified inspections and reporting.

C. SEQUENCING OF WORK – This project must be completed in such a manner as not to disrupt the activities of any adjacent school, other construction sites and facilities throughout the project timeframe.

D. METHOD OF MEASUREMENT – The lump sum quantity for the item of Mobilization shall be the lump sum amount and shall include all items, devices, materials, labor, operations, and all work as described herein.

E. BASIS OF PAYMENT – The work and incidental costs specified herein shall be paid at the Contract Lump Sum Price for the item of Mobilization. Mobilization shall be paid 50% upon commencement of work and 50% upon final completion and acceptance of work and will be paid as part of the final pay estimate.

Bid Item 101-1	**Mobilization**	**Lump Sum (LS)**

TS-02 MAINTENANCE OF TRAFFIC:

A. GENERAL – MOT shall conform to the provisions of the Manual on Uniform Traffic Control Devices (MUTCD), the FDOT Index 600 series, and the Charlotte County MOT Policy attached, except as modified or amended herein. The work specified in this Technical Specification consists of temporary pavements, temporary striping and marking, all barricades, high intensity lights, flashing arrow panels, variable message signs, safety fencing, maintaining traffic in the construction area to include all signs and flagmen, detours, and dust abatement.

B. WORK ZONES – All work zones shall have the FDOT required pre- and post-signs at all times (i.e., Construction Ahead, Men Working, and End Construction). All roads shall be kept open to traffic during construction unless otherwise indicated in the plans. The Contractor shall keep all public and private roads clean and safe at all times.

The Contractor shall inspect traveled roads and haul routes for trailed or spilled material. All material shall be completely removed on a daily basis. The Contractor shall take due care to avoid damaging the existing pavement and striping on all traveled roads. The Contractor shall repair any pavement and/or marking damaged on any traveled roads with the same material that existed prior, as determined by the County. Any clean-up on traveled roads, or pavement and/or marking repairs shall be incidental to the MOT Bid Item.

The Contractor shall comply with FDOT Index 600 series for all drop-offs in Work Zones. Cost of placing warning devices or barricades shall be incidental to the MOT Bid Item.

In addition to the above, the Contractor shall supply, erect, maintain and remove VMS (Variable Messaging Signs) as necessary for detours or warnings when deemed necessary for safety at the county's discretion.

The Contractor shall submit the wording and timing of the messages to the County for approval prior to activating the VMS boards. The boards shall be placed an adequate distance before the point of action so as to allow the traveling public time to read the message. All boards shall be installed and operating at least 10 calendar days before the work is activated. The message shall then be appropriately modified. The VMS Boards shall then be removed promptly when the road is again permanently opened to traffic. The VMS Boards shall be incidental to the MOT bid item.

C. TEMPORARY PAVEMENTS - Contractor shall construct and maintain all temporary pavements as required by MOT work. At a minimum, the following shall be provided for temporary pavement:

Pedestrian Traffic: 4-foot minimum width
2% max cross-slope; 5% max running slope
1-inch Type-S asphalt pavement, placed on 6" sub-grade compacted to AASHTO T-99, 98% density LBR 70

Vehicular Traffic: 10-foot minimum width
2-inch Type-S-I asphalt pavement, placed on 8" sub-grade compacted to AASHTO T180, 98% density LBR 100

The above design is minimum requirements for temporary pavement. Contractor shall be responsible to provide, maintain, and replace all temporary pavements as necessary. The cost of materials, supervision, labor, and equipment for temporary pavement shall be incidental to the MOT Bid Item. Upon completion, all temporary pavements shall be removed upon the direction of Charlotte County staff.

D. TEMPORARY PAVEMENT STRIPING AND MARKING – All pavements previously striped and requiring restriping shall have temporary stripes at completion of each day or road, whichever is first. The cost of materials, supervision, labor, and equipment for temporary pavement markings shall be incidental to the MOT Bid Item.

All temporary pavement stripes and markings are to be completely removed upon the completion of that portion of work requiring the temporary markings. Any temporary markings outside the limits of construction must be removed without damage to the existing surface. Should the removal process damage the existing asphalt surface or if the markings cannot be removed without damage, the Contractor shall mill and resurface that portion of the roadway at no additional cost to the County.

E. TEMPORARY DETOURS – Temporary detours of traffic shall be permitted only as a last resort in the opinion of the County, when no other means of maintaining traffic is available, and only upon written approval of the County in compliance with the Charlotte County MOT Policy. Temporary signs are permitted as long as they are in conformance with MUTCD. If a road closure is anticipated to be in excess of 12 hours, post mounted signage is required.

F. ACCESS – The Contractor will not be permitted to isolate any existing sidewalks and access drives to homes or businesses. Alternate access shall be provided to all existing access points whenever construction interferes with the existing means of access. The Contractor shall provide and maintain in a safe condition, temporary approaches or crossings for all intersections and access points. The Contractor shall coordinate with and notify, in writing, all property owners and the County of work that may affect their access at least seven (7) calendar days in advance of their work.

G. INSPECTION OF SAFETY DEVICES – The Contractor shall inspect MOT and safety devices on a daily basis. The Contractor shall provide all necessary fencing, barricades and any other devices needed for the safety of the public. The costs for all coordination efforts and MOT efforts associated with the project and public safety shall be included in MOT.

Failure to comply with the terms in this section will result in the immediate cessation of all operations by the Contractor, until the County authorizes resumption.

H. TRAFFIC CONTROL PLAN – The Contractor shall submit a MOT Plan 15 calendar days prior to the start of any phase of construction impacting the public, for County approval. The MOT plan shall be in accordance with the Charlotte County MOT Policy, attached herein. Each time the Contractor changes the existing traffic patterns or changes the impacts to the public, a separate MOT Plan shall be required. Each new plan shall meet the requirements of this section.

When flashing arrow boards, variable message signs, or other special lighting devices are required in the Contractor's MOT Plan, as approved by the County, the costs for such items shall be included in the Contract price for MOT and shall not be paid separately.

I. TRAFFIC CONTROL DEVICES & PROCEDURES – This item of work shall require a Traffic Technician with certification in the FDOT Work Zone Traffic Control and MOT (intermediate level). The Traffic Technician shall be employed by the Contractor or retained for this project and shall be in responsible charge of this work. The Contractor shall maintain, on the job site, an adequate supply of signs, barricades, cones, stop/slow paddles, flags, and flag persons for each operation. Any person engaged in flagging duties shall have successfully completed the FDOT Basic Training Course for work zone traffic control and MOT. The Traffic Technician will be required to establish the proper work zone safety signing, traffic channelization devices, detours, and flag persons, before any work has begun, and will remain on site to supervise the operation, and make any necessary adjustments directed by the County. Prior to utilizing any certified traffic technician, the Contractor shall supply the County with a current list of employees and copies of their certifications.

J. DUST ABATEMENT – Dust abatement shall consist of applying water or dust palliative for abatement of dust nuisance originating within the project limits. The methods, materials and procedures for dust abatement shall be subject to approval by the County. Dust Abatement operations shall be performed at all the times, locations, and in the amounts necessary to ensure compliance with this section. Dust abatement operations shall be continuous twenty-four (24) hours per day / seven (7) days per week. Dust Abatement shall be incidental to the MOT Bid Item. Any failure to contain dust within the project limits will cause the entire project to be shut down until such time as the situation is corrected, without any contract time extension.

K. METHOD OF MEASUREMENT – The quantity for MOT shall be one lump sum. MOT shall include all items, devices, materials, operations, signs, temporary pavement, temporary pavement markings and stripes, removal of temporary markings and stripes, dust abatement and all work as described herein.

L. BASIS OF PAYMENT – Price and payment will be full compensation for all work specified in this specification including all labor, materials, hardware, and incidental costs. Such price and payment shall constitute all items of work described herein completed and accepted. Payment for MOT shall be made under:

Bid Item 102-1	**Maintenance Of Traffic**	**Lump Sum (LS)**

TS-03 PREVENTION, CONTROL AND ABATEMENT OF EROSION AND WATER POLLUTION:

A. GENERAL – The work specified in this Technical Specification includes all necessary work, material, and labor to install and maintain erosion control devices as well as to acquire and report compliance with the Contractor's N.P.D.E.S. Permit and/or the approved Stormwater Pollution Prevention Plan. The work under this section shall include, but is not limited to the following:

B. TEMPORARY EROSION CONTROL – The work in this section consists of the material, labor and placement of erosion control related items including, but not limited to, synthetic bales or barriers, silt screens, floating turbidity barriers, staked turbidity barriers, screens, dewatering and settling basins as modified by the plans and herein. The work specified shall consist of furnishing all materials, equipment, labor, and operations necessary for complete temporary erosion control during the course of this project.

The Contractor's Erosion Control Plan shall implement the Best Management Practices in the Construction Plans and shall include procedures to control off-site tracking of soil by vehicles and construction equipment and a procedure for cleanup and reporting of non-storm water discharges, such as contaminated groundwater or accidental spills. Contractor shall be responsible for management and implementation of all associated permit conditions and requirements. Do not begin any soil disturbing activities until County approval of the Contractor's Erosion Control Plan, including all required signed certification statements. No separate payment shall be made to the Contractor for above work required by this section.

1. Turbidity Monitoring: The Contractor shall be required to monitor each site for turbidity twice a day during actual construction. The Contractor shall prepare a turbidity monitoring plan with locations upstream and downstream of the last erosion control device. The turbidity monitoring plans shall be submitted at the Preconstruction Conference for County approval. Turbidity readings shall be in Nephelometric Turbidity Units (NTU) as outlined in "Turbidity, Method 180.1". Any time sampling results indicate that the background turbidity level is exceeded by 29 NTUs at the downstream sampling location, or as specified in the Environmental Resource Permit, the Contractor shall stop the work activity that created the turbidity. The Contractor must notify the appropriate state agency as well as the County and correct the violation of water quality standards prior to returning to the activity. Weekly sampling reports shall be submitted to the County.

2. Staked Silt Fences, Synthetic Bales or Barriers: Staked silt fences, synthetic bales or barriers shall be placed in the swales at a minimum of 30' upstream from the top of the bank of the canal, or as directed by the County. Staked silt fences, synthetic bales or barriers shall remain in place and maintained until the project is completed and accepted by the County. The Contractor's work shall be in conformance with FDOT Specification 104 and the State of Florida Erosion and Sediment Control Manual.

3. Staked and Floating Turbidity Barriers: Staked and Floating turbidity barriers shall be installed prior to any work and shall remain in place and maintained until all generated turbidity subsides to the approval of the County. Contractor shall install turbidity screens in conformance to FDOT Specification 104 and the State of Florida Erosion and Sediment Control Manual.

4. Acquisition of N.P.D.E.S. Permit: Acquisition of the N.P.D.E.S. permit, if required, and all related compliance efforts shall be considered incidental to the project and shall be paid for under this pay item.

C. PRE-CONSTRUCTION REQUIREMENTS AND DEP GENERIC PERMIT - The DEP Generic Permit is issued under the State of Florida's authority to administer the N.P.D.E.S. Stormwater program. The Contractor shall prepare and submit a Notice of Intent (NOI) to use and obtain coverage under the DEP Generic Permit prior to construction. All permit fees shall be paid by the Contractor. The County has provided project-specific Best Management Practices in the Construction Plans. The County has obtained Southwest Florida Water Management District (SWFWMD) approval of Construction Plans for the project. The Contractor shall obtain and provide the acknowledgment letter for N.P.D.E.S. coverage and the Contractor's Erosion Control Plan to the County prior to construction. Acquisition of the N.P.D.E.S. permit and all related compliance efforts shall be considered incidental to the project and shall be paid for under this pay item.

D. METHOD OF MEASUREMENT – The quantity of prevention, control and abatement of erosion and water pollution as shown on the bid form is approximate and is given only as a basis of calculation for award of the contract. The actual quantities may vary substantially from the estimated amount; however, the Contractor shall not exceed bid quantity without written approval from the County. Separate items for temporary erosion control features are incidental to the Contract. The bid quantity of floating turbidity barrier and staked silt fence to be paid for will be the total length, in feet, furnished, installed. The quantity to be paid for in this specification shall be paid for per linear foot once satisfactorily completed and accepted.

E. BASIS OF PAYMENT – Price and payment will be full compensation for all work specified in this specification including all labor, materials, hardware, and incidental costs. Such price and payment shall constitute all items of work described herein completed and accepted. Payment for prevention, control and abatement of erosion and water pollution shall be made under:

Bid Item 104-10-3	**Sediment Barrier**	**Linear Feet (LF)**
Bid Item 104-18	**Inlet Protection System**	**Each (EA)**

TS-04 CLEARING & GRUBBING:

A. GENERAL – The work specified in this Technical Specification will include any and all items within the project area to be removed including but not limited to the removal and disposal of all trees (other than those identified to remain), shrubs, debris, roots, root mat and hair roots, and other debris, pipes, asphalt, guardrail, concrete, abandoned utilities and objects; and the relocation and furnishing of mailboxes. Clearing and Grubbing shall include all areas within the project limits, including pond sites, as indicated on the Construction Plans and shall conform to the requirements of the FDOT Specifications Section 110-1 through 110-10.3 of the FDOT Standard Specifications and applicable FDOT Standard Indexes, except as amended herein.

B. OWNERSHIP OF CLEARING AND GRUBBING MATERIAL - Unless otherwise specified, all material removed in performing clearing and grubbing shall become the property of the Contractor at the time the material is changed from the pre-construction condition. Materials shall be disposed of in a legal manner, burning of material is prohibited. Stockpiling any materials on site shall be prohibited.

Removal of concrete pavement, concrete sidewalk, concrete driveways, and other concrete structures shall also be included in Pay Item 110-1, Clearing and Grubbing.

The Contractor shall cut and cap all irrigation lines within the ROW, maintenance and/or Temporary Construction Easements, whether shown or not shown on the plans.

C. METHOD OF MEASUREMENT – The quantity of clearing and grubbing as shown on the bid form is approximate and is given only as a basis of calculation for award of the contract. The actual quantities may vary substantially from the estimated amount; however, the Contractor shall not exceed bid quantity without written approval from the County.

Mailboxes, as shown on the Bid Form, is approximate and is given only as a basis of calculation for award of the Contract. The quantity to be paid for in this specification shall be paid for in lump sum/each once satisfactorily completed and accepted.

D. BASIS OF PAYMENT – Price and payment will be full compensation for all work specified in this specification including all labor, materials, hardware, and incidental costs. Such price and payment shall constitute all items of work described herein completed and accepted. Payment for clearing and grubbing shall be made under:

Bid Item 110-1-1	**Clearing And Grubbing**	**Lump Sum (LS)**

TS-05 EXCAVATION & EMBANKMENT:

A. GENERAL – Excavation and Embankment shall include regular excavation, borrow excavation, subsoil excavation, lateral ditch excavation, channel excavation, embankment, offsite borrow, and grading, includes hauling, removal and off-site legal disposal or on-site utilization of all materials, including structures, abandoned utilities, and obstructions, placing and

compacting of all materials furnishing borrow material, final dressing and shall conform to the requirements of the FDOT Specifications Section 120-1 through 120-12 of the FDOT Standard Specifications and applicable FDOT Standard Indexes, except as amended herein.

B. REMOVAL AND DISPOSAL OF UNSUITABLE MATERIALS – The Contractor shall remove and dispose of materials deemed unsuitable by the County for use in roadway embankment as encountered within the project limits during excavation activities or otherwise affecting any work associated with the proposed project. Such material shall become the property of the Contractor and disposed of in a manner allowed by law. The cost of materials, supervision, labor and equipment for removal and disposal of unsuitable materials shall be incidental to the Excavation and Embankment Bid Item. No allowance, adjustment or separate payment will be made for investigation and/or difficulties with the removal of any hard rock strata or unsuitable material during excavation.

C. METHOD OF MEASUREMENT – The quantity to be paid for Excavation and Embankment shall be Lump Sum (LS), completed and accepted, and shall include all items and all work described herein, as specified in the Plans.

D. BASIS OF PAYMENT – Price and payment will be full compensation for all work specified in this specification including all labor, materials, hardware, and incidental costs. Such price and payment shall constitute all items of work described herein completed and accepted. Payment for excavation and embankment shall be made under:

Bid Item 120-1	**Excavation/Embankment**	**Lump Sum (LS)**

TS-06 STABILIZING TYPE B:

A. GENERAL – The work specified in this Technical Specification consists of the stabilizing of designated portions of the roadbed and sidewalks to provide a firm and unyielding subgrade, having the required bearing value specified in the plans. Shall be compacted to AASHTO T-180, 98% density. Construction methods shall conform to the requirements of the FDOT Specifications Section 160-3 and 160-4 of the FDOT Standard Specifications, except as amended herein.

B. METHOD OF MEASUREMENT – The quantity of stabilized subbase as shown on the bid form is approximate and is given only as a basis of calculation for award of the contract. The actual quantities may vary substantially from the estimated amount: however, the Contractor shall not exceed bid quantity without written approval from the County. The quantity to be paid for in this specification shall be paid for per square yards once satisfactorily completed and accepted.

C. BASIS OF PAYMENT - Price and payment will be full compensation for all work specified in this specification including all labor, materials, hardware, and incidental costs. Such price and payment shall constitute all items of work described herein completed and accepted. Payment for stabilized subbase shall be made under:

Bid Item 160-4-8	**Type B Stabilization LBR 70 (8")**	**Square Yards (SY)**

TS-07 MILLING EXISTING ASPHALT PAVEMENT:

A. GENERAL – The work specified in this Technical Specification consists of removing existing asphalt concrete pavement by milling to improve the rideability and cross slope of the finished pavement, to lower the finished grade adjacent to existing curb before resurfacing, or to completely remove existing pavement. Provide a milled surface with a reasonably uniform texture, within 1/4 inch of a true profile grade, and with no deviation in excess of 1/4 inch from a straight edge applied to the pavement perpendicular to the centerline. CLEAN UP OPERATIONS - At the end of each day's milling operations and prior to the placement of any Asphaltic Concrete, the Contractor shall clean the milled surface of all loose material with a power broom. The Contractor shall use a street sweeper with a vacuum attachment to remove residual material along the edge of the roadway or accumulated in the roadway gutter. The Contractor shall not sweep any residual material into the roadway gutter, driveways, or sodded areas. No asphalt will be placed until the County accepts cleanup operation. The Contractor shall prevent any residual material from entering the County's storm water system. The Contractor shall be responsible for removing any residual material that the Contractor has allowed to infiltrate the inlets, swales, or drains. Dust Abatement shall be utilized as ordered by the County, in accordance with Technical Specification, TS-02, Section J. Dust Abatement shall be incidental to the Milling Bid Item.

B. METHOD OF MEASUREMENT - The quantity of milling existing asphalt pavement as shown on the bid form is approximate and is given only as a basis of calculation for award of the contract. The actual quantities may vary substantially from the estimated amount; however, the Contractor shall not exceed bid quantity without written approval from the County. The quantity to be paid for in this specification shall be paid for in square yards once satisfactorily completed and accepted.

C. BASIS OF PAYMENT - Price and payment will be full compensation for all work specified in this specification including all labor, materials, hardware, and incidental costs. Such price and payment shall constitute all items of work described herein completed and accepted. Payment for milling existing asphalt pavement shall be made under:

Bid Item 327-70-6	**Milling Existing Asphalt Pavement, 1.5" Average Depth**	**Square Yards (SY)**

TS-08 PRIME AND TACK COATS:

A. GENERAL – This work consists of applying bituminous materials as a Prime Coat on the specified base course, and a Tack Coat between the specified asphalt surface courses including existing pavements to be resurfaced. The work specified in this Technical Specification shall conform to the requirements of the Section 300 of the 2024 FDOT Standard Specifications, except as amended herein. All items and all work shall conform to the lines, grade, dimensions, and notes as specified on the plans. Random sampling and testing of the bituminous materials will be performed at intervals determined by the County. Failure to comply with the requirements of this technical specification will result in the removal and replacement of all asphalt surface course determined to be affected by the deficient tack material.

B. CLEANING THE BASE – Before any bituminous material is applied, all loose material, dust, caked clay, and foreign materials, which might prevent proper bond with the existing surface, shall be removed. Where the prime or tack coat is applied adjacent to driveways, curb and gutter or valley gutter, such concrete surfaces are to be protected and kept free of bituminous material. The Contractor shall always utilize dust abatement measures. All related dust abatement measures shall be considered incidental to the work under this section and no additional compensation will be made.

C. APPLICATION OF PRIME COAT – The surface to be primed shall be cleaned and shall not contain more than 90% of the optimum moisture content. Any glazed finish shall be removed as specified for shell bases. Bituminous material shall be applied at the rate established within the Standard Specifications for Road and Bridge Construction, current addition and shall be sufficient to coat the surface thoroughly. Bituminous material shall not be applied in excess to pool or run off of the base material. The base shall be sufficiently moist to obtain maximum penetration of the asphalt. In all cases, upon application of bituminous material, the primed base shall be covered by a light uniform application of sand or screenings for protection prior to opening the primed base to vehicular travel. The sand or screenings shall be lightly dragged with a drag broom, after which the entire area shall be rolled with a traffic roller. If warranted by traffic conditions, the application may be made on one-half (½) of the width of the base at a time; care shall be taken to apply the correct amount of bituminous material at the joint. Control the application rate within the minimum and plus 0.01 gallon per square yard of the minimum application rate. The minimum application rate may be adjusted by the Engineer to meet specific field conditions. Determine and record the application rate a minimum of twice per day, once at the beginning of each day's production and, as needed, to control the operation. The application rate shall be 0.12 gal/yd^2.

D. APPLICATION OF TACK COAT – Where a bituminous surface is to be laid and tack coat is required, both shall be applied as herein specified. The bituminous material shall be heated to a suitable consistency as designated by the Engineer. Bituminous material shall not be applied in such a way that it is exposed to dust or other foreign material that may impact its adhesiveness. The tack shall be reapplied to any areas that become contaminated by traffic, rain or left overnight. The tack material shall be no older than 30 days as determined by the Bill of Lading received from the tack source. Coverage shall be sufficient to coat the surface thoroughly. The tack coat shall be kept free from traffic until the asphalt course is laid. Control the application rate within plus or minus 0.01 gallon per square yard of the target application rate. The target application rate may be adjusted by the Engineer to meet specific field conditions. Determine and record the application rate a minimum of twice per day, once at the beginning of each day's production and again, as needed, to control the operation. The application rate shall be 0.06 gal/yd^2.

E. BASIS OF PAYMENT – No direct payment will be made for this item. Payment for Prime and Tack Coats completed and accepted, including the cost of furnishing, and applying the cover material when applicable, shall be included under the Contract Bid Item for the specified asphaltic structural and surface courses.

TS-09 RECYCLED ASPHALTIC CONCRETE MIX:

A. GENERAL - The work specified in this Technical Specification shall consist of mixing material from existing pavement with new aggregate (as required) in a suitable central plant and placing the recycled mix to conform with the lines, grades, thickness, dimensions, and notes as specified on the Typical Plans.

All recycled asphaltic concrete mixes shall have the same general composition of mixture and stability as the appropriate "TYPE" of asphaltic concrete specified for the project. The Contractor shall be responsible for the design of asphalt mixes, which incorporate reclaimed asphalt pavement as a component part.

B. PLANT LABORATORY - The Contractor shall furnish a fully equipped laboratory and materials necessary to determine asphalt content and complete mechanical analysis of the recycled asphaltic concrete mix and shall provide such data to the County upon request.

C. MATERIALS –

(1) Recycled Aggregate: The recycled aggregate shall consist of a mixture of milled asphalt pavement.

(2) Fine Aggregate: The fine aggregate used in combination with the recycled aggregate to meet final mix tolerance shall conform to the requirement of FDOT Specifications Section 902.

(3) Coarse Aggregate: The coarse aggregate used in combination with the recycled aggregate to meet final mix tolerances shall conform to the requirements of FDOT Specifications Section 901.

(4) Recycling Agent/Asphalt Rejuvenator: The asphalt rejuvenator shall be an asphalt cement or asphalt cement blended with a softening agent or flux oil conforming to the following:

TABLE I	
Absolute Viscosity, (V60) after TFOT (Thin Film Oven Test)	3:1 Ratio Minimum
Smoke Point	260 degrees F. Minimum
Flash Point	400 degrees F. Minimum
Solubility	97.5 Percent
The asphalt rejuvenator shall contain an approved anti-stripping agent.	

(5) Asphalt Emulsion/Rejuvenator: The asphaltic emulsion rejuvenator shall meet the following:

TABLE II	
Storage Stability - 24 Hr.	1.0 percent maximum
Sieve Test	0.1 percent maximum
Residue by Evaporation	65.0 percent maximum

Residue from the asphaltic emulsion rejuvenator shall conform to the requirements of TABLE I. The asphaltic emulsion rejuvenator shall contain an approved anti-stripping agent.

(6) Recycled Mixture: The recycled asphaltic concrete, new aggregate (as required), new bituminous material (as required) conforming to the requirements of the "TYPE" of asphaltic concrete mix specified for the project.

The recycled material shall constitute a maximum thirty percent (30%) for Type S-I and Type S-III Asphalt of the total aggregate used in the job mix formulas.

The established target values for the job mix formula for the recycled asphalt concrete mixture shall be maintained within the following tolerance:

SIEVE SIZE	
½"	±7%
No. 10	±5.5%
No. 200	±2%
Asphalt Content	±0.55%
Mix Temperature	±30° F from design

D. DENSITY CONTROL - RECYCLED ASPHALTIC CONCRETE - The density control - Nuclear Method as specified in FDOT Specifications Section 330 shall also apply to the Recycled Asphaltic Concrete.

E. METHOD OF MEASUREMENT - The quantity under this section shall be measured as described under the various Technical Specifications for "TYPE" asphaltic concrete applications of these specifications completed. Completed Recycled Asphaltic Concrete Mix work shall include all items and work described herein.

F. BASIS OF PAYMENT - No direct payment will be made for this item. Payment for Recycled Asphalt Concrete Mix shall be included under the Bid Item No. for the specified "TYPE" asphaltic concrete courses.

TS-10 ASPHALT CONCRETE, TYPE 'S':

A. GENERAL – The work specified in this Technical Specification shall conform to the requirements of the 2000 FDOT Standard Specifications Section 330 and 331, except as amended hereinafter. All items and all work shall conform to the lines, grade, thickness, dimensions, cross sections, and notes as specified on the Construction Plans.

Materials shall not be placed on private property. All hazardous material(s) from paver at the clean-out or from any other equipment shall be legally disposed of by the Contractor offsite.

TESTS – Any or all of the following tests may be required by the County:

- Determination for the job-mix formula.
- Test of the asphalt cement.
- Sieve analysis of the aggregate.
- Determination of bitumen content of the asphaltic concrete.
- Plant inspection and verification of aggregate mix.
- Smoothness of finished pavement by use of a 15' rolling straight edge from which the paved surface shall not vary more than 3/16".

Allowable temperature variances for application of asphalt mixes shall be as specified within the 2000 edition of the FDOT "Standard Specifications for Road and Bridge Construction", except as follows. Any load of asphalt, or portion of a load of asphalt mix, at the plant or on the project, with a temperature exceeding 330° F or under 270° F shall be categorically rejected for use on the project.

B. METHOD OF MEASUREMENT – The quantity of asphalt concrete type S as shown on the bid form is approximate and is given only as a basis of calculation for award of the contract. The actual quantities may vary substantially from the estimated amount; however, the Contractor shall not exceed bid quantity without written approval from the County. The quantity to be paid under this section shall be the area measured in tons of Type S Asphaltic Concrete, completed, and accepted, and shall include all items and all work described herein and as specified in FDOT Standard Specifications Section 331, and as specified on the Typical Sections on the Plans.

C. VALUE ADDED ASPHALT PAVEMENT – Construction Value Added Asphalt Pavement consisting of Asphalt overlays, Asphalt Concrete Structural Course, and Asphalt Concrete Friction Course, will be subject to a 3-year warranty period after final acceptance of the contract.

D. BASIS OF PAYMENT - The quantity, as determined above, which shall include all work and all incidental costs specified as being covered under this section shall be paid at the Contract unit price per ton of Type S Asphaltic Concrete, completed and accepted. Said unit price shall include the furnishing, hauling, and placing of materials for mixing, rolling, Prime & Tack coat and for all labor and the use of equipment and incidentals necessary to complete the work. Such price and payment shall constitute full compensation for all items and work described herein. Payment shall be made under the following items:

Bid Item 331-2B	**Asphaltic Concrete, Type S-III, 1.5" Thickness**	**Tons (TN)**

TS-11 CONCRETE GUTTER, CURB ELEMENTS, AND TRAFFIC SEPARATOR:

A. GENERAL – The work specified is this Technical Specification shall conform to the requirements of Section 520 of FDOT Standard Specifications and FDOT Standard Index except as amended herein.

B. METHOD OF MEASUREMENT – The quantity of concrete curb and gutter, valley gutter or traffic separator as shown on the bid form is approximate and is given only as a basis of calculation for award of the contract. The actual quantities may vary substantially from the estimated amount; however, the Contractor shall not exceed bid quantity without written approval from the County. For curb or curb and gutter, the quantity to be paid in this specification shall be paid for per linear foot, measured along the face of the completed and accepted curb or curb and gutter. For valley gutter or shoulder gutter the quantity to be paid in this specification shall be paid for per linear foot, measured along the gutter line of the completed and accepted valley gutter or shoulder gutter. For concrete traffic separator of constant width, the quantity to be paid will be per linear foot, measured along the center of its width, completed, and accepted, including the length of the nose.

C. BASIS OF PAYMENT - Price and payment will be full compensation for all work specified in this specification including all labor, materials, hardware, and incidental costs. Such price and payment shall constitute all items of work described herein completed and accepted. Payment for Concrete Gutter, Curb Elements, and Traffic Separator shall be made under:

Bid Item 520-1-10	**Concrete Curb and Gutter, Type F**	**Linear Feet (LF)**

TS-12 CONCRETE SIDEWALK:

A. GENERAL – The work specified is this Technical Specification consists of the construction of concrete sidewalks and curb cut ramps, in accordance with the plans\requirements of the FDOT Standard Specifications Section 522 except as amended herein, and in conformity with the lines, grades, dimensions and notes shown in the plans. All sidewalks shall have a minimum 8-inch subgrade (Min. LBR 70, 98% compaction by AASHTO T-180) and be tested for compaction and density.

B. MATERIALS - Meet the requirements specified in the FDOT Standard Specifications Section 346-3 Class I except as amended herein, having a minimum compressive strength of 3,000 PSI after 28 days, and have fibermesh reinforcement. "Reinforcement" shall be achieved by the addition and distribution of either glass fibers or virgin polypropylene fibers throughout freshly mixed concrete. The fibermesh fibers will be mixed in accordance with standards set forth in ASTM C-1116. Reinforcing fibers shall be used in strict accordance with the manufacturer's instructions and recommendations as to the type and amount for uniform distribution. Only fibers specifically designed and manufactured for use in concrete and so certified by the manufacturer shall be acceptable. The curb ramps shall be supplied with detectable warning devices per FDOT Standard Specifications Section 527 except as amended herein, County must approve mix design.

C. JOINTS - Contraction joints shall be tooled according to the plans. Tooled joints shall be straight and perpendicular to the edge of the sidewalk. Saw cutting of contraction joints will not be allowed. All contraction joints shall be tooled ¼ of the pavement depth. Expansion joints shall be provided according to the plans, between existing sidewalks and curbs or driveways and at intersections between sidewalk and other fixed objects, at new pours, and at all cold joints. Expansion joints shall be spaced at a distance 5 times the width of the sidewalk. The Contractor shall use expansion joint caps with removable cap strips as manufactured by Vinylex Corporation. Expansion joint sealer shall be Sikaflex-1CSL as manufactured by Silka. Expansion joint sealer shall not be placed in depths greater than ¾" at any one time. If the joint requires greater than ¾" of joint sealer, the Contractor shall place the material in two placements, only after the first placement has sufficiently cured. All removable cap strips shall be placed above the finished sidewalk surface and shall not be tooled over. The removable cap strips shall be pulled and filled with joint sealer within twenty-four (24) hours of the placement of the concrete. The Contractor shall use expansion joint caps with removable cap strips and joint sealer for all driveways. Driveways shall be tooled at 10-foot intervals, both for longitudinal and transverse joints. The cost for this work and materials shall be included in the unit price for Concrete Sidewalk.

D. ADA - All sidewalks proposed for construction shall adhere to all current applicable ADA standards including, but not limited to, cross slopes of 1.50%, +/-0.25% max, longitudinal slopes no steeper than 5.00% and all edge treatment standards. Sidewalks having cross slopes greater than 1.75% shall be corrected by the Contractor at no additional cost to the County. Sidewalks having a longitudinal slope greater than 5.00% are considered ramps under current ADA standards. If the Contractor's grading of the proposed sidewalk necessitates a longitudinal slope greater than 5.00% than the Contractor shall be responsible for providing all necessary ramp features as specified under current ADA standards. Such necessary ramp features shall not be placed as to impact vehicle turning movements or vehicle sight distances in accordance with the current addition of the FDOT "Manual of Uniform Minimum Standards for Design, Construction and Maintenance for Streets and Highways" also known as the "Florida Green Book". Any additional ramp features as may be necessary based on the Contractors grading of the proposed sidewalk, not specifically called out or itemized within the proposed plan set shall be supplied and installed by the Contractor at no additional cost to the County. The cross slope of the proposed sidewalk shall be no less than 1%.

E. TESTING - The County, at its discretion, will sample and perform the appropriate Quality Assurance tests at frequencies established in FDOT's "Sampling, Testing and Reporting Guide," or as otherwise required. Concrete, which fails to comply with the specifications, will be removed and replaced at the Contractor's expense. Concrete shall not be delivered to the site until the County has approved all forms and sub-grade compaction tests.

F. CURING: Curing shall be implemented in accordance with the FDOT Standard Specifications Section 520-8.3 only.

G. METHOD OF MEASUREMENT – The quantity of concrete sidewalk as shown on the bid form is approximate and is given only as a basis of calculation for award of the contract. The actual quantities may vary substantially from the estimated amount; however, the Contractor shall not exceed bid quantity without written approval from the County. The quantity to be paid for in this specification shall be paid for per square yards once satisfactorily completed and accepted.

H. BASIS OF PAYMENT – Price and payment will be full compensation for all work specified in the specification including all labor, materials, hardware, and incidental costs. Such price and payment shall constitute all items of work described herein completed and accepted. Payment for Concrete Sidewalk shall be made under:

Bid Item 522-1	**Concrete Sidewalk, 4" Thick**	**Square Yards (SY)**

TS-13 DETECTABLE WARNING:

A. GENERAL – The work specified in this Technical Specification consists of furnishing and installing detectable warnings on newly constructed and/or existing concrete or asphalt walking surfaces (sidewalk curb ramps, sidewalks, shared use paths). The color of the detectable warning device shall be County approved red.

B. CONSTRUCTION – Provide detectable warnings in accordance with the Americans with Disabilities Act Standards for Transportation Facilities, Section 705 and approved by the County. Use detectable warnings consisting of materials intended for exterior use subject to routine pedestrian traffic and occasional vehicular traffic. Use detectable warnings with size and pattern shown in the plans comprised of truncated domes aligned in parallel rows in accordance with the Design Standards, Index No. 304. Do not use detectable warnings with a diagonal pattern. Use detectable warnings consisting of weather resistant tiles that are surface applied to concrete or asphalt surfaces with adhesives and mechanical fasteners. Prepare the surface in accordance with the manufacturer's recommendations. Use only products and materials appropriate for the surface on which they will be applied. Install in accordance with the manufacturer's instructions, using materials and equipment recommended and approved by the manufacturer.

C. BASIS OF PAYMENT – Payment for work required under this Technical Specification shall be incidental to the construction of concrete sidewalk and no additional payment shall be made for this item.

TS-14 PERFORMANCE TURF:

A. GENERAL – The work specified in this Technical Specification shall conform to the requirements of the FDOT Standard Specifications Section 570, except as amended herein. The Performance Turf item shall consist of furnishing, placing, fertilizing, and watering required to ensure a healthy strand of grass.
Sod Species – Argentine Bahia will be considered the "standard" sod species. When sodding in areas of maintained lawn, disturbed by construction, the sod species shall be of the type existing. Sod shall be placed immediately behind the fill operation to maintain slope and prevent erosion. The Contractor will be responsible to repair any areas of erosion which occur in his work prior to acceptance by the County.

Maintenance – The Contractor shall, at his expense, maintain the sodded areas in a satisfactory condition until final acceptance of the project. Such maintenance shall include litter removal, mowing, filling, leveling, and repairing of any washed or eroded areas, as may be necessary. The County, at any time, may require replanting of any areas in which the establishment of the sod does not appear to be developing satisfactorily, at no additional expense to the County.

B. METHOD OF MEASUREMENT – The quantity of performance turf as shown on the bid form is approximate and is given only as a basis of calculation for award of the contract. The actual quantities may vary substantially from the estimated amount; however, the Contractor shall not exceed bid quantity without written approval from the County. No special or separate allowance will be made for watering, mowing, fertilizer, for specialty sod varieties and/or rolling and tamping as required in said Section 570. Such price and payment for Performance Turf shall constitute full compensation for all items and all work described herein, including furnishing the appropriate species of sod, installing sod, rolling/tamping, sufficient watering, fertilizing, and mowing to maintain the sod in a healthy growing condition until the project is substantially complete. The quantity to be paid for in this specification shall be paid for per square yards once satisfactorily completed and accepted.

C. BASIS OF PAYMENT – Price and payment will be full compensation for all work specified in this specification including all labor, materials, hardware, and incidental costs. Such price and payment shall constitute all items of work described herein completed and accepted. Payment for performance turf shall be made under:

Bid Item 570-1-2	**Performance Turf, Sod**	**Square Yards (SY)**

TS-15 CONDUIT:

A. GENERAL – The work specified in this Technical Specification consists of furnishing and the installation of conduit as indicated in the plans. Installation of conduit shall conform to the requirements of Section 630 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction, the Florida Department of Transportation Design Standards, the Charlotte County Supplemental Specifications for Traffic Signal Installations, the Charlotte County Supplemental Specifications for Roadway Lighting, and the Charlotte County Specifications for Fiber Optic at Traffic Signal Devices, except as modified herein. The link to the Charlotte County Supplemental Specification is provided within this document.

B. METHOD OF MEASUREMENT – The quantity of conduit as shown on the bid form is approximate and is given only as a basis of calculation for award of the contract. The actual quantities may vary substantially from the estimated amount; however, the Contractor shall not exceed bid quantity without written approval from the County. Payment for conduit placed

underground will be based on the horizontal length of the trench or bore measured in a straight line between the centers of pull boxes, cabinets, poles, in linear feet, regardless of the length or number of conduits installed. No allowance will be made for sweeps or vertical distances below the ground. The quantity to be paid for in this specification shall be paid for per linear foot once satisfactorily completed and accepted.

C. BASIS OF PAYMENT – Price and payment will be full compensation for all work specified in this specification including all labor, materials, elbows, sweeps, connection hardware, trenching, restoration, and all incidental costs. Such price and payment shall constitute all items of work described herein completed and accepted. Payment for conduit shall be made under:

Bid Item 630-2-11	**Conduit, Furnish and Install, Open Trench**	**Linear Feet (LF)**
Bid Item 630-2-12	**Conduit, Furnish and Install, Directional Bore**	**Linear Feet (LF)**

TS-16 SIGNAL CABLE:

A. GENERAL – The work specified in this Technical Specification consists of furnishing and the installation of aerial and underground signal cable as indicated in the plans. Installation of signal cable shall conform to the requirements of Section 632 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction, the Florida Department of Transportation Design Standards, and the Charlotte County Supplemental Specifications for Traffic Signal Installations except as amended herein. The link to the Charlotte County Supplemental Specification is provided within this document.

B. METHOD OF MEASUREMENT – The quantity to be paid for in this specification shall be paid for per intersection once satisfactorily completed and accepted.

C. BASIS OF PAYMENT – Price and payment will be full compensation for all work specified in this specification including all labor, materials, hardware, and incidental costs. Such price and payment shall constitute all items of work described herein completed and accepted. Payment for signal cable shall be made under:

Bid Item 632-7-1	**Signal Cable, New or Reconstructed Intersection, F and I**	**Per Intersection (PI)**
Bid Item 632-7-6	**Signal Cable, Remove, Intersection**	**Per Intersection (PI)**

TS-17 COMMUNICATION CABLE:

A. GENERAL – The work specified in this Technical Specification consists of furnishing, installation, splicing and terminating of underground communications cable as indicated in the plans. Installation, splicing, and terminating of cable shall conform to the requirements of Section 633 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction, the Florida Department of Transportation Design Standards, Charlotte County Supplemental Specifications for Fiber Optics at Traffic Signal Devices, and the Charlotte County Supplemental Specifications for Traffic Signal Installations, except as amended herein. The link to the Charlotte County Supplemental Specification is provided within this document.

B. METHOD OF MEASUREMENT – The quantity of communication cable as shown on the bid form is approximate and is given only as a basis of calculation for award of the contract. The actual quantities may vary substantially from the estimated amount; however, the Contractor shall not exceed bid quantity without written approval from the County.

The quantity to be paid for in this specification shall be paid by (1) the length in feet of fiber optic cable; (2) the number of each fiber optic connections; and (3) the number of each fiber optic connection hardware, once satisfactorily completed and accepted.

C. BASIS OF PAYMENT – Price and payment will be full compensation for all work specified in this specification including all labor, materials, hardware, and incidental costs. Such price and payment shall constitute all items of work described herein completed and accepted. Payment for communication cable shall be made under:

Bid Item 633-8-1	**Multi-Conductor Communication Cable, F and I**	**Linear (LF)**

TS-18 PULL AND JUNCTION BOX:

A. GENERAL – The work specified in this Technical Specification consists of furnishing and the installation of pull boxes as indicated in the plans. Installation of pull boxes shall conform to the requirements of Section 635 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction, the Charlotte County Supplemental Specifications for Traffic Signal Installations, and the Charlotte County Supplemental Specifications for Roadway Lighting, except as amended herein.

B. METHOD OF MEASUREMENT - The quantity of pull and junction box as shown on the bid form is approximate and is given only as a basis of calculation for award of the contract. The actual quantities may vary substantially from the estimated amount; however, the Contractor shall not exceed bid quantity without written approval from the County. The quantity to be paid for in this specification shall be paid for per each once satisfactorily completed and accepted.

C. BASIS OF PAYMENT - Price and payment will be full compensation for all work specified in this specification including all labor, materials, hardware, and incidental costs. Such price and payment shall constitute all items of work described herein completed and accepted. Payment for pull and junction boxes shall be made under:

Bid Item 635-2-12	**Pull and Splice Box, F and I, 24" X 36" Cover Size**	**Each (EA)**
Bid Item 635-2-14	**Pull and Splice Box, F and I, 17" X 30" Cover Size**	**Each (EA)**

TS-19 PRESTRESSED CONCRETE POLE:

A. GENERAL - The work specified in this Technical Specification consists of the furnishing and installing or removal of pre-stressed concrete poles for service pole or CCTV applications. All poles must come from those listed on the Qualified Products List. Installation of pre-stressed concrete poles shall conform to the requirements of Section 641 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction, the Charlotte County Supplemental Specifications for Traffic Signal Installations, and the Charlotte County Supplemental Specifications for Roadway Lighting, except as amended herein. The link to the Charlotte County Supplemental Specification is provided within this document.

B. METHOD OF MEASUREMENT - The quantity of pre-stressed concrete poles as shown on the bid form is approximate and is given only as a basis of calculation for award of the contract. The actual quantities may vary substantially from the estimated amount; however, the Contractor shall not exceed bid quantity without written approval from the County. The quantity to be paid for in this specification shall be paid for per each once satisfactorily completed and accepted.

C. BASIS OF PAYMENT – Price and payment will be full compensation for all work specified in this specification including all labor, materials, hardware, and incidental costs. Such price and payment shall constitute all items of work described herein completed and accepted. Payment for pre-stressed concrete pole shall be made under:

Bid Item 641-2-80	**Pre-Stressed Concrete Pole, 30' and Greater, (Complete Removal)**	**Each (EA)**

TS-20 ALUMINUM SIGNALS POLE:

A. GENERAL - The work specified in this Technical Specification consists of furnishing and the installation of aluminum pedestrian pedestal assemblies as indicated in the plans. Installation of aluminum pedestrian assemblies shall conform to the requirements of Design Standards of the Florida Department of Transportation Design Standards Standard, and the Charlotte County Supplemental Specifications for Traffic Signal Installations, except as amended herein. The link to the Charlotte County Supplemental Specification is provided within this document.

B. METHOD OF MEASUREMENT - The quantity of aluminum signals poles as shown on the bid form is approximate and is given only as a basis of calculation for award of the contract. The actual quantities may vary substantially from the estimated amount; however, the Contractor shall not exceed bid quantity without written approval from the County. The quantity to be paid for in this specification shall be paid for per each once satisfactorily completed and accepted.

C. BASIS OF PAYMENT – Price and payment will be full compensation for all work specified in this specification including all labor, materials, hardware, and incidental costs. Such price and payment shall constitute all items of work described herein completed and accepted. Payment for aluminum signals pole shall be made under:

Bid Item 646-1-11	**Aluminum Signal Pole, Pedestal**	**Each (EA)**
Bid Item 646-1-60	**Aluminum Signal Pole, Remove**	**Each (EA)**

TS-21 MAST ARM ASSEMBLY:

A. GENERAL - The work specified in this Technical Specification consists of furnishing and installation of signal mast arm assemblies as indicated in the plans and as described within this section. Installation of mast arm assemblies shall conform to the requirements of Section 649 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction, the Florida Department of Transportation Design Standards, and the Charlotte County Supplemental

Specifications for Traffic Signal Installations, except as amended herein. The link to the Charlotte County Supplemental Specification is provided within this document.

Mast arm assembly shop drawings must be submitted and approved prior to any new mast arm pole installation.

The Contractor shall not order the mast arm poles until field verification of each foundation has been performed. The Contractor shall include within the price of the mast arm assembly the cost to hand dig the diameter of each foundation location to a depth of 48" below existing grade to verify no underground utility conflicts exist.

B. METHOD OF MEASUREMENT - The quantity of mast arm assembly as shown on the bid form is approximate and is given only as a basis of calculation for award of the contract. The actual quantities may vary substantially from the estimated amount; however, the Contractor shall not exceed bid quantity without written approval from the County. The quantity to be paid for in this specification shall be paid for per each once satisfactorily completed and accepted.

C. BASIS OF PAYMENT - Price and payment will be full compensation for all work specified in this specification including all labor, materials, hardware, and incidental costs. Such price and payment shall constitute all items of work described herein completed and accepted. Payment for mast arm assembly shall be made under:

Bid Item 649-21-6	**Steel Mast Arm Assembly (F and I) Single Arm (50')**	**Each (EA)**
Bid Item 649-21-10	**Steel Mast Arm Assembly (F and I) Single Arm (60')**	**Each (EA)**

TS-22 VEHICULAR SIGNAL ASSEMBLIES:

A. GENERAL - The work specified in this Technical Specification consists of furnishing and the installation of vehicular signal assemblies as indicated in the plans. Installation of vehicular signal assemblies shall conform to the requirements of Section 650 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction and the Charlotte County Supplemental Specifications for Traffic Signal Installations, except as amended herein. The link to the Charlotte County Supplemental Specification is provided within this document.

B. METHOD OF MEASUREMENT – The quantity of vehicular signal assemblies as shown on the bid form is approximate and is given only as a basis of calculation for award of the contract. The actual quantities may vary substantially from the estimated amount; however, the Contractor shall not exceed bid quantity without written approval from the County. The contract unit price per assembly for traffic signal, furnished and installed, will consist of the traffic signal assembly, including all attachment hardware necessary to make a complete unit, all mounting brackets, backplates, visors, LED modules, labor, and materials necessary for a complete and accepted installation. The quantity to be paid for in this specification shall be paid for per assembly once satisfactorily completed and accepted.

C. BASIS OF PAYMENT – Price and payment will be full compensation for all work specified in this specification including all labor, materials, hardware, and incidental costs. Such price and payment shall constitute all items of work described herein completed and accepted. Payment for traffic signal assemblies shall be made under:

Bid Item 650-1-14	**Traffic Signal, F and I, Aluminum, 3 Section, 1 Way**	**Assembly (AS)**

TS-23 PEDESTRIAN SIGNAL ASSEMBLIES:

A. GENERAL - The work specified in this Technical Specification consists of furnishing and the installation of pedestrian signal assemblies as indicated in the plans. Installation of pedestrian signal assemblies shall conform to the requirements of Section 653 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction, the Florida Department of Transportation Design Standards, and the Charlotte County Supplemental Specifications for Traffic Signal Installations, except as amended herein. The link to the Charlotte County Supplemental Specification is provided within this document.

B. METHOD OF MEASUREMENT - The quantity of pedestrian signals as shown on the bid form is approximate and is given only as a basis of calculation for award of the contract. The actual quantities may vary substantially from the estimated amount; however, the Contractor shall not exceed bid quantity without written approval from the County. The quantity to be paid for in this specification shall be paid for per assembly once satisfactorily completed and accepted.

C. BASIS OF PAYMENT – Price and payment will be full compensation for all work specified in this specification including all labor, materials, hardware, and incidental costs. Such price and payment shall constitute all items of work described herein completed and accepted. Payment for pedestrian signal assemblies shall be made under:

Bid Item 653-1-11	**Pedestrian Signal, F and I, LED Countdown, 1 Way**	**Assembly (AS)**

TS-24 VEHICLE DETECTION SYSTEM:

A. GENERAL - The work specified in this Technical Specification consists of furnishing and the installation of a vehicle detection system as indicated in the plans. Installation of a vehicle detection system shall conform to the requirements of Section 660 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction, and the Charlotte County Supplemental Specifications for Traffic Signal Installations, except as amended herein. The link to the Charlotte County Supplemental Specification is provided within this document.

B. METHOD OF MEASUREMENT - The quantity of vehicle detection system as shown on the bid form is approximate and is given only as a basis of calculation for award of the contract. The actual quantities may vary substantially from the estimated amount; however, the Contractor shall not exceed bid quantity without written approval from the County. The quantity to be paid for in this specification shall be paid for per each and/or per assembly once satisfactorily completed and accepted.

C. BASIS OF PAYMENT – Price and payment will be full compensation for all work specified in this specification including all labor, materials, hardware, and incidental costs. Such price and payment shall constitute all items of work described herein completed and accepted. Payment for vehicle detection system shall be made under:

Bid Item 660-4-11	**Vehicle Detection System, Video, F and I, Cabinet Equipment**	**Each (EA)**
Bid Item 660-4-12	**Vehicle Detection System, Video, F and I, Above Ground Equipment**	**Each (EA)**

TS-25 PEDESTRIAN DETECTION SYSTEM:

A. GENERAL - The work specified in this Technical Specification consists of furnishing and the installation of pedestrian detection system at the locations and mounted in a manner, as indicated in the plans. Installation of pedestrian detection system shall conform to the requirements of Section 665 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction, the Florida Department of Transportation Design Standards, and the Charlotte County Supplemental Specifications for Traffic Signal Installations, and the Charlotte County Supplemental Specifications for Flashing Beacon Installations except as amended herein. The link to the Charlotte County Supplemental Specification is provided within this document.

B. METHOD OF MEASUREMENT - The quantity of pedestrian detection system as shown on the bid form is approximate and is given only as a basis of calculation for award of the contract. The actual quantities may vary substantially from the estimated amount; however, the Contractor shall not exceed bid quantity without written approval from the County. The quantity to be paid for in this specification shall be paid for per each once satisfactorily completed and accepted and will include the pedestrian actuation sign, all mounting hardware, wiring, materials and equipment, and all labor and miscellaneous materials necessary for a complete and accepted installation.

C. BASIS OF PAYMENT – Price and payment will be full compensation for all work specified in this specification including all labor, materials, hardware, and incidental costs. Such price and payment shall constitute all items of work described herein completed and accepted. Payment for pedestrian detection system shall be made under:

Bid Item 655-1-11	**Pedestrian Detector, (F and I), (Pole Mounted Detector Station)**	**Each (EA)**

TS-26 TRAFFIC CONTROLLER:

A. GENERAL - The work specified in this Technical Specification consists of furnishing and the installation of a traffic controller assembly as indicated in the plans. Installation of the materials which make up the traffic controller assembly shall conform to the requirements of Section 670 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction, the Florida Department of Transportation Design Standards, and the Charlotte County Supplemental Specifications for Traffic Signal Installations, except as amended herein. The link to the Charlotte County Supplemental Specification is provided within this document.
The Contractor will be responsible to furnish and install the signal controller cabinet and cabinet base to make up a complete and acceptable controller assembly.

B. METHOD OF MEASUREMENT - The quantity of traffic controller as shown on the bid form is approximate and is given only as a basis of calculation for award of the contract. The actual quantities may vary substantially from the estimated amount; however, the Contractor shall not exceed bid quantity without written approval from the County. The quantity to be paid for in this specification shall be paid for per assembly once satisfactorily completed and accepted.

C. BASIS OF PAYMENT – Price and payment will be full compensation for all work specified in this specification including all labor, materials, hardware, and incidental costs. Such price and payment shall constitute all items of work described herein completed and accepted. Payment for traffic controller shall be made under:

Bid Item 670-5-110	**Traffic Controller Assembly (F and I), (NEMA)**	**Assembly (AS)**
Bid Item 670-5-600	**Traffic Controller Assembly, (Remove)**	**Assembly (AS)**

TS-27 VIDEO EQUIPMENT:

A. GENERAL – The work specified in this Technical Specification consists of furnishing and installation or removal of closed-circuit television (CCTV) camera at the location(s) shown in the Plans. Ensure that the installed equipment provides unobstructed video images of the roadway, traffic, and other current conditions around a roadside CCTV field site; that it responds to camera control signals from the operator; and that the video images can be transmitted to remote locations for observation. Installation of closed-circuit television equipment shall conform to the requirements of Section 682 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction, the Florida Department of Transportation Design Standards, Charlotte County Supplemental Specifications for Fiber Optics at Traffic Signal Devices, and the Charlotte County Supplemental Specifications for Traffic Signal Installations, except as amended herein. The link to the Charlotte County Supplemental Specification is provided within this document.

B. METHOD OF MEASUREMENT - The quantity of video equipment as shown on the bid form is approximate and is given only as a basis of calculation for award of the contract. The actual quantities may vary substantially from the estimated amount; however, the Contractor shall not exceed bid quantity without written approval from the County. The quantity to be paid for in this specification shall be paid for per each once satisfactorily completed and accepted.

C. BASIS OF PAYMENT – Price and payment will be full compensation for all work specified in this specification including all labor, materials, hardware, and incidental costs. Such price and payment shall constitute all items of work described herein completed and accepted. Payment for video equipment shall be made under:

Bid Item 682-1-133	**ITS CCTV Camera, F and I, Dome Enclosure, Non-Pressurized, LP High Def**	**Each (EA)**

TS-28 NETWORK DEVICES:

A. GENERAL – The work specified in this Technical Specification consists of furnishing and installation of a hardened, device-level managed field Ethernet switch (MFES) for intelligent transportation system (ITS) projects. Ensure that the MFES provides wire-speed fast Ethernet connectivity at transmission rates of 100 megabits per second from the remote ITS device installation location to the ITS network trunk interconnection point. Installation of network devices shall conform to the requirements of Section 684 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction, Charlotte County Supplemental Specifications for Fiber Optics at Traffic Signal Devices, and the Charlotte County Supplemental Specifications for Traffic Signal Installations, except as amended herein. The link to the Charlotte County Supplemental Specification is provided within this document.

B. METHOD OF MEASUREMENT - The quantity of MFES as shown on the bid form is approximate and is given only as a basis of calculation for award of the contract. The actual quantities may vary substantially from the estimated amount; however, the Contractor shall not exceed bid quantity without written approval from the County. The quantity to be paid for in this specification shall be paid for per each once satisfactorily completed and accepted.

C. BASIS OF PAYMENT – Payment will be full compensation for all work specified in this section, including furnishing and installing all components of a MFES. This item shall include all labor, materials, surge suppression, mounting hardware, wiring, and system testing, to provide a complete and operational MFES. This section shall be paid at the Contract unit per each, completed, tested, and accepted. Such price and payment shall constitute full compensation for all items and work described herein.

Bid Item 684-1-1	**ITS Managed Field Ethernet Switch, F and I**	**Each (EA)**

TS-29 SYSTEM AUXILIARIES:

A. GENERAL – The work specified in this Technical Specification consists of furnishing and installation of an uninterruptible power source (UPS) as indicated in the plans. Installation of UPS shall conform to the Charlotte County Supplemental Specifications for Traffic Signal Installations. The link to the Charlotte County Supplemental Specification is provided within this document.

B. METHOD OF MEASUREMENT - The quantity of UPS as shown on the bid form is approximate and is given only as a basis of calculation for award of the contract. The actual quantities may vary substantially from the estimated amount; however, the Contractor shall not exceed bid quantity without written approval from the County. The quantity to be paid for in this specification shall be paid for per each once satisfactorily completed and accepted.

C. BASIS OF PAYMENT – Price and payment will be full compensation for all work specified in this specification including all labor, materials, hardware, and incidental costs. Such price and payment shall constitute all items of work described herein completed and accepted. Payment for system auxiliaries shall be made under:

Bid Item 685-1-13	**Uninterruptible Power Supply, F and I, Line Interactive w/ Cabinet**	**Each (EA)**

TS-30 HIGHWAY SIGNING:

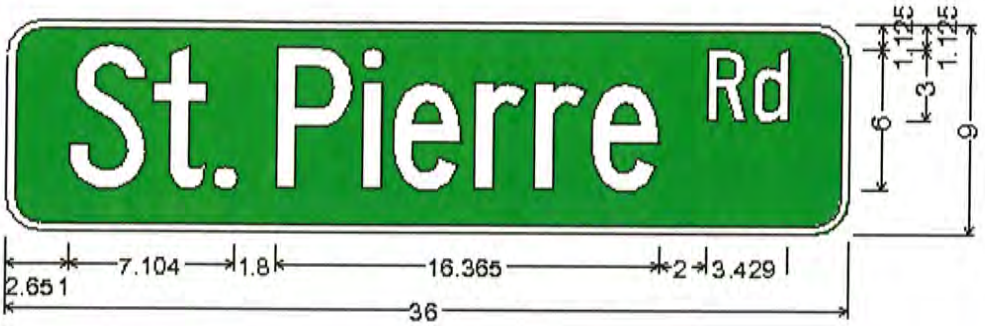
A. GENERAL – The work specified in this Technical Specification shall consist of furnishing and installing new highway signs, relocation of existing signs and removal of existing signs in conformance with these specifications and the types, sizes, and dimensions as shown on the detailed plans. The County designates ground traffic signs as signs erected on the shoulders, slopes, or medians, but not extending over the traveled roadway and may further classify these signs as single post or multi-post. The County designates signs erected partially or completely over the traveled roadway or mounted on bridges as overhead traffic signs and may further classify these signs as overhead cantilever or span traffic signs. The link to the Charlotte County Supplemental Specification is provided within this document.

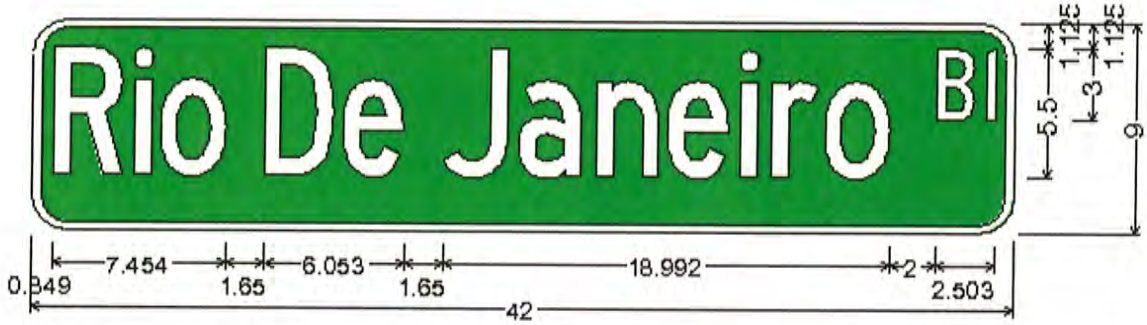
Construction of new highway signs, relocation of existing signs, and removal of existing signs shall conform with the requirements of Section 700 of the FDOT Standard Specifications for Road and Bridge Construction, and in accordance with FDOT, Roadway and Traffic Design Standard Index's and the Charlotte County Supplemental Specifications Traffic Signal Installations, except as amended herein.

B. SIGN FACE -

1. Reflective Sheeting: The film shall be either 3M High Intensity Prismatic Sheeting, 3M VIP Diamond Grade Reflective Sheeting, or a County approved equal.

- Silk screening or Electro Cut material may be overlaid onto the sheeting.
- Stop signs shall use 3M VIP Diamond Grade Sheeting, or a County approved equal.
- Pedestrian warning signs shall be made of Diamond Grad Fluorescent VIP Yellow Green Microprismatic Reflective Sheeting
- Street signs are to be green with silver lettering and borders. Street signs are to be made with silver Hi Prismatic material, with green EC material overlaid onto the material. The border width is to be 0.375" with the radius of the corners of 1.5". The maximum size of the street sign blank is 42" X 9". If the street name, once laid out, will not fit on the 42" blank, the size of the letters may be reduced to 5" C Series letters to accommodate the street name. No letters are to touch or penetrate the border.
- All other signs shall use 3M Scotchlite 3870 High Intensity Reflective Sheeting.





2. Sign Film and Film Application Tape: The traffic control sign film shall consist of highly durable, transparent, acrylic-colored films, coated with a transparent, pressure sensitive adhesive, protected by a removable translucent synthetic, release liner.

3. Shape, Size, Legends, and Color: Sign faces shall meet the shape, size, legends, and color requirements of the Manual on Uniform Traffic Control Devices and the Standard Highway Signs Manual latest editions.

   All street names are to be 6" C Series letters, with 3" C Series letters designation the type of road (i.e. Street, Road, Boulevard, Drive, Way).

4. Aluminum Sign Blanks: All sign blanks and street signs shall be fabricated from aluminum sheet conforming to ASTM Specification B209, with 5052-H38 Alloy and shall have a thickness of 0.080 inches.

   Sign blank dimensions, hole size, location of holes, and corner radii shall be as defined in the U.S. Department of Transportation Standard Highway Manual, and the Manual on Uniform Traffic Control Devices.

5. Signposts: Steel posts shall conform to the standard specification of hot-rolled carbon sheet steel, structural quality. The cross section of the post shall be a square tube formed of 14-gauge square galvanized steel posts – full punch. Posts to be 2" square, carefully rolled to size and welded in the corner. The furnished members shall be straight and shall have a smooth uniform finish.

   All signpost outside concreted areas shall be placed with Hi Strength Concrete Mix with meets or exceeds ASTM C-387 Specifications. Each post shall have a minimum of 20 pounds and a maximum of 40 pounds of concrete placed around each post. The top of the concrete shall be a minimum of 24" below the final surface.

   All signs placed in concreted areas shall have a 12" PVC pipe liner insert surrounding the signpost. The PVC shall be flush with the final surface of the surrounding concrete and be filled with dirt to support the sign. These shall not be filled with concrete.

6. Sign Height & Locations: All post mounted signs shall conform to the MUTCD standards.

C. METHOD OF MEASUREMENT – The quantity of highway signing as shown on the bid form is approximate and is given only as a basis of calculation for award of the contract. The actual quantities may vary substantially from the estimated amount; however, the Contractor shall not exceed bid quantity without written approval from the County. The quantity to be paid for in this specification shall be paid for per each and/or per assembly once satisfactorily completed and accepted.

D. BASIS OF PAYMENT – Price and payment will be full compensation for all work specified in this specification including all labor, materials, hardware, and incidental costs. Such price and payment shall constitute all items of work described herein completed and accepted. Payment for highway signing shall be made under:

Bid Item 700-3-201	**Sign Panel (F and I) (Overhead Mount) (<12 SF)**	**Each (EA)**
Bid Item 700-5-22	**Internally Illuminated Sign (F and I) (12-18 SF)**	**Each (EA)**

TS-31 PAINTED PAVEMENT MARKINGS:

A. GENERAL – The work specified in this Technical Specification consists of layout, furnishing, erecting, installing, and placing all materials and assemblies associated with painted pavement markings at locations indicated on the Construction Plans. The work shall conform to the requirements of FDOT Standard Specifications Section 710; and the Manual on Uniform Traffic Control Devices, except as amended herein.

The Contractor shall be responsible to place stop bars, crosswalks, legends, center line, reflective pavement markers and edge stripes on the final wearing surface. The Contractor shall give the County fourteen (14) calendar day written notice prior to the date the pavement will be ready for the final markings. Second coat of paint for final markings shall be installed no sooner than (30) calendar days from the completion of the first coat, centerline and edge stripes shall be 6" in width while crosswalks shall be 12" and stop bars shall be 24".

If necessary, the Contractor shall complete corrective work, by hydro-blasting to obliterate existing striping without damaging the final surface. Should damage result of these actions, the area is to be milled to a depth of at least 1-½" and resurfaced at no additional cost to the County. Should any stripes or pavement message become worn, covered in tack, or otherwise become in need or refreshing, in the opinion of the County, the Contractor shall repaint the identified stripe and or message at no additional expense to the County.

B. METHOD OF MEASUREMENT – The quantity to be paid under this section shall be in lump sum (LS) for the completed and accepted work in this section, divided by first and second coats.

C. BASIS OF PAYMENT – Price and payment will be full compensation for all work specified in this specification including all labor, materials, hardware, and incidental costs. Such price and payment shall constitute all items of work described herein completed and accepted. Payment for painted pavement markings shall be made under:

Bid Item 710-A	**Painted Pavement Markings First Coat**	**Lump Sum (LS)**
Bid Item 710-B	**Painted Pavement Markings Second Coat**	**Lump Sum (LS)**

TS -32 HIGHWAY LIGHTING SYSTEMS:

A. GENERAL – The work specified in this Technical Specification consists of furnishing and installation of highway lighting systems in accordance with the details shown in the plans. Included in the systems are all devices required for the complete working system. All work shall conform to the requirements of FDOT Specifications Section 715 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction, the Florida Department of Transportation Design Standards, the National Electrical Codes (NEC), Charlotte County Supplemental Specifications for Roadway Lighting Systems, and the Charlotte County Supplemental Specifications for Traffic Signal Installations, except as amended herein. Link to Charlotte County Specifications provided within this document.

The light pole foundation detail shown in the plans was obtained from Hubbell Power Systems online program "Select a Base." Specific information about the projects pole height, wind speed, arm length fixture style, fixture area, were entered and the program recommend the use of the foundation shown in the plans and meeting a safety factor of 2. The drawing in the plans has not been signed and seal by a Professional Engineer register within the state of Florida. The County will furnish the Contractor with results of a project specific soil bore and the Contractor shall be responsible to obtain a signed and sealed drawing for a steel street light pole foundation meeting the requirements on the plans and within the contract documents.

B. METHOD OF MEASUREMENT – The quantity of highway lighting systems and decorative lighting systems as shown on the bid form is approximate and is given only as a basis of calculation for award of the contract. The actual quantities may vary substantially from the estimated amount; however, the Contractor shall not exceed bid quantity without written approval from the County. The quantity to be paid for in this specification shall be paid for per linear foot and/or per each once satisfactorily completed and accepted.

C. BASIS OF PAYMENT – Price and payment will be full compensation for all work specified in this specification including all labor, materials, hardware, and incidental costs. Such price and payment shall constitute all items of work described herein completed and accepted. Payment for highway lighting systems shall be made under:

Bid Item 715-1-12	**Conductor, (F and I), (Insulated No. 8-6) (Blk, Wht, Grn)**	**Linear Foot (LF)**
Bid Item 715-5-31	**Luminaire and Bracket Arm, (F and I), On New/Existing Pole**	**Each (EA)**
Bid Item 715-11-211	**Luminaire, (F and I), (Roadway Cobra Head)**	**Each (EA)**

TS-33 AS-BUILT DRAWINGS:

A. The Contractor shall provide field engineering services, which includes, but is not limited to establishing elevations, lines, and levels utilizing recognized engineering and surveying practices. The work shall include furnishing, placing, and maintaining construction station boards (max 100' intervals) and any other stakes or monuments necessary for the successful completion of the work in accordance with FDOT Specifications, Section 5-7 and as amended.

B. All survey work shall be accomplished in accordance with Minimum Technical Standards for Land Surveyors Rule 5J-17 F.A.C. pursuant to Florida Statues 472.027 and special instructions.

C. It is emphasized that the Contractor shall be responsible for the engineering layout of the Work, and that the cost of performing such work shall be included in the bid prices for the various bid items or considered incidental to those items.

D. The Contractor shall verify locations of survey control and reference points prior to starting work, and promptly notify the County of any discrepancies discovered.

E. During the course of the rehabilitation, any property corners (i.e., iron rods, concrete monuments, PRMs and section corners) disturbed as a result of the Contractor's work shall, at the Contractor's expense, be reset by a Florida Professional Surveyor and Mapper licensed in the state of Florida. The Contractor shall make no changes without prior written notice to the County.

F. The Contractor shall obtain the services of a State of Florida licensed Professional Surveyor and Mapper (PSM) in good standing with the State to certify all project As-Built Data. The Contractor will submit to the PSM a copy of their project As-Built Drawings for the PSM to use in developing the project As-Built Data. The As-Built Data shall be the result of field located survey work that is verified and accurately represented in electronic or digital format by the PSM using sound and accepted land surveying methods and procedures. The project As-Built Data shall result in a signed and sealed As-Built Drawing by the PSM. The Contractor shall be responsible for transmitting the project As-Built Data and copies of the As-Built Drawings and the Contractor's As-Built drawings to Charlotte County. The Contractor shall submit two (2) sets of As-Built Drawing's, signed, and sealed by a Florida Professional Surveyor and Mapper licensed in the State of Florida, prior to Notice of Substantial Completion. In addition to the two (2) sets, an electronic copy of the as-builts must be provided to the Public Works Department. Acceptable media includes email, thumb drive, CD or DVD and must be provided in both DXF or DWG and PDF Format (Note: If Micro Station is used for the design, DGN, PDF and DXF Formats must be provided). As an alternate to providing the media an e-mail of both DXF and PDF (For Micro Station Users: also provide the DGN) formats will be acceptable however, the files must be less than two (2) megs and can be e-mailed to the Project Manager for Charlotte County. In the event the County does not approve the As-Built Drawings, the Contractor shall be responsible to remedy any deviations.

In addition, an electronic copy of the as-builts must be provided in an ArcGIS file geodatabase or shape file format compatible with the most current version of ArcGIS. This can either be exported with relevant information from CAD files or built using ArcGIS software. The GIS data must use the following projection:

NAD_1983_StatePlane_Florida_WestZone(1990 Adjustment)_FIPS_0902_Feet.

If orthometric height data is collected at this scale, the North American Vertical Datum (NAVD88) derived from differential leveling or from the appropriate NGS geoidal model is the required vertical datum.

G. At a minimum, the As-Built Drawings shall include the following information, recorded on County-provided construction drawings:

1. Stormwater System- Show all culverts, pipes, weirs, and inlets. Elevations and lengths shall be recorded for all culverts, pipe runs, tops, grates and inverts as detailed on the plans.

2. Discharge Structures – Locations, dimensions, and elevations of all, including weirs, orifices, gates, pumps, pipes, and oil and grease skimmers.

3. Storage areas for treatment and attenuation (ponds) – dimensions, elevations, contours, or cross-sections of all, sufficient to determine stage-storage relationships of the storage area and the permanent pool depth and volume below the control elevation for normally wet systems.

4. System Grading – dimensions, elevations, contours, final grades, or cross-sections to determine contributing drainage areas, flow directions and conveyance of runoff to the system discharge point(s).

5. Conveyance – dimensions, elevations, contours, final grades, or cross-sections of systems utilized to divert offsite runoff around or through the new system.

6. Water levels – existing water elevation(s) and the date determined.

7. Benchmark(s) – location and description (minimum of one (1) per major water control structure).

8. Roadway – Information shall be recorded for beginning and end stations, and 50' stations. Elevations and distances shall be recorded for centerline for roadway, edge of pavement, edge of shoulder, top of swale, and flow line of swale as detailed on the plans.

H. In compliance with the Southwest Florida Water Management District Permit(s) "As-Built Drawings and Information Checklist", the Contractor shall place a permanent benchmark within 50 feet of each control structure as identified in the plans.

I. The Contractor shall maintain a complete and accurate log of control and survey work as it progresses. An As-Built Survey Drawing, based on field survey as-built data shall be prepared and signed and sealed by a Florida Professional Surveyor and Mapper, licensed in the state of Florida. The As-Built Survey Drawing and a copy of the field notes signed and sealed by a Professional Land Surveyor shall be submitted with the As-Built Drawings. As a final deliverable the right of way will be monumented on the ground and the As-Built Drawings will reflect the monumentation either recovered or set by the Florida Professional Surveyor and Mapper responsible for the Drawings.

J. METHOD OF MEASUREMENT – The quantity to be paid under this section shall be in lump sum (LS) for the completed and accepted work in this section.

K. BASIS OF PAYMENT - No direct payment will be made for Surveying. The cost for Surveying shall be considered incidental to the project or included in the bid price for the various bid items. The costs to produce As Built drawings shall include all labor, materials, and equipment necessary to produce an approved product. Payment shall be made under:

TS-33	**As-Built Drawings**	**Lump Sum (LS)**

TS-34 SUBCONTRACTING, SUBLETTING AND/OR ASSIGNMENT: The Contractor shall not subcontract, sublet, or otherwise assign more than forty-nine percent (49%) of the Contract value.

TS-35 REFERENCES: Contractor shall submit a minimum of three (3) recent (within the past five (5) years) references of projects of similar size and scope on the attached reference form. Each reference shall include a project description, project location, name and phone number of a contact person, total project amount, and completion date. The County reserves the right to contact references.

TS-36 CRITERIA FOR AWARD: The award of this bid will be to the lowest responsive, responsible bidder(s) meeting or exceeding all of the above specifications. Other considerations of award may be delivery time and references.

County reserves the right to reject the bid proposal of any bidder who has previously failed to perform properly, or on time, contracts of similar nature; or who is not in a position to satisfactorily perform the contract. If, after bid opening, the lowest bidder is deemed non-responsible by the County, such bidder shall receive written notice from the County of this determination. The bidder shall have five business days from the date of this notice to dispute the determination and to provide to the County any additional information it deems relevant regarding the bidder's responsibility. The County shall make a final determination regarding the bidder's responsibility at the time of award of the contract.

State Requirements for Kings Highway and Harborview Road Intersection Improvements

This project is funded in whole or in part with funds from the Florida Department of Transportation (FDOT or the Department), Grant Agreement 452857-1-54-01 and as such, Contractors performing work on this Project are required to adhere to the following:

1. Restrictions, Prohibitions, Controls and Labor Provisions:

a. A person or affiliate who has been placed on the convicted vendor list following a conviction for a public entity crime may not submit a bid on a contract to provide any goods or services to a public entity; may not submit a bid on a contract with a public entity for the construction or repair of a public building or public work; may not submit bids on leases of real property to a public entity; may not be awarded or perform work as a Contractor, supplier, subcontractor or consultant under a contract with any public entity; and may not transact business with any public entity in excess of the threshold amount provided in Section 287.017, Florida Statutes, for CATEGORY TWO for a period of 36 months from the date of being placed on the convicted vendor list.

b. In accordance with Section 287.134, Florida Statutes, an entity or affiliate who has been placed on the Discriminatory Vendor List, kept by the Florida Department of Management Services, may not submit a bid on a contract to provide goods or services to a public entity; may not submit a bid on a contract with a public entity for the construction or repair of a public building or public work; may not submit bids on leases of real property to a public entity; may not be awarded or perform work as a Contractor, supplier, subcontractor or consultant under a contract with any public entity; and may not transact business with any public entity.

c. An entity or affiliate who has had its Certificate of Qualification suspended, revoked, denied or have further been determined by the Department to be a non-responsible Contractor may not submit a bid or perform work for the construction or repair of a public building or public work on a contract with the Recipient.

d. No funds received pursuant to this Agreement may be expended for lobbying the Florida Legislature, judicial branch, or any state agency, in accordance with Section 216.347, Florida Statutes.

e. The Department shall consider the employment by any Contractor of unauthorized aliens a violation of Section 274A(e) of the Immigration and Nationality Act. If the Contractor knowingly employs unauthorized aliens, such violation will be cause for unilateral cancellation of this Agreement.

f. The Contractor Shall:

i. Utilize the U.S. Department of Homeland Security's E-Verify system to verify the employment eligibility of all new employees hired by the Recipient during the term of the contract; and

ii. Expressly require any Contractors and subcontractors performing work or providing services pursuant to this agreement to likewise utilize the U.S. Department of Homeland Security's E-Verify system to verify the employment eligibility of all new employees hired by the Contractor and subcontractor during the contract term.

g. The Contractor shall comply and require its contractors and subcontractors to comply with all terms and conditions of FDOT Grant Agreement 452857-1-54-01 and all federal, state, and local laws and regulations applicable to this Project.

2. Indemnification and Insurance:

To the extent provided by law, the Contractor shall indemnify, defend, and hold harmless the County and the State of Florida, Department of Transportation, including the Department's officers, agents, and employees, against any actions, claims, or damages arising out of, relating to, or resulting from negligent or wrongful act(s) of the Contractor, or any of its officers, agents, or employees, acting within the scope of their office or employment, in connection with the rights granted to or exercised by the Contractor.

The foregoing indemnification shall not constitute a waiver of the Department's or the County's sovereign immunity beyond the limits set forth in Florida Statutes, Section 768.28. Nor shall the same be construed to constitute agreement by the Contractor to indemnify the County for the negligent acts or omissions of the County, its officers, agents, or employees, or third parties. Nor shall the same be construed to constitute agreement by the Contractor to indemnify the Department for the negligent acts or omissions of the Department, its officers, agents, or employees, or third parties. This indemnification shall survive the termination of this Agreement.

a. The Contractor and any subcontractor(s) and subconsultants shall have Workers' Compensation Insurance for their employees in accordance with Florida's Workers' Compensation law. If using "leased employees" or employees obtained through professional employer organizations ("PEO's"), the Contractor shall ensure that such employees are covered by Workers' Compensation insurance through the PEO's or other leasing entities. The Contractor shall ensure that any equipment rental agreements that include operators or other personnel who are employees of independent Contractors, sole proprietorships or partners are covered by insurance required under Florida's Workers' Compensation law.

b. The Contractor shall carry Commercial General Liability insurance providing continuous coverage for all work or operations performed under the Agreement. Such insurance shall be no more restrictive than that provided by the latest occurrence form edition of the standard Commercial General Liability Coverage Form (ISO Form CG 00 01) as filed for use in the State of Florida. Contractor shall cause the Department to be made an Additional Insured as to such insurance. Such coverage shall be on an "occurrence" basis and shall include Products/Completed Operations coverage. The coverage afforded to the Department as an Additional Insured shall be primary as to any other available insurance and shall not be more restrictive than the coverage afforded to the Named Insured. The limits of coverage shall not be less than $1,000,000 for each occurrence and not less than a $5,000,000 annual general aggregate, inclusive of amounts provided by an umbrella or excess policy. The limits of coverage described herein shall apply fully to the work or operations performed under the Agreement, and may not be shared with or diminished by claims unrelated to the Agreement. The policy/ies and coverage described herein may be subject to a deductible and such deductibles shall be paid by the Named Insured. No policy/ies or coverage described herein may contain or be subject to a Retention or a Self-Insured Retention unless the Recipient is a state agency or subdivision of the State of Florida that elects to self-perform the Project. Prior to the execution of the Agreement, and at all renewal periods which occur prior to final acceptance of the work, the Department shall be provided with an ACORD Certificate of Liability Insurance reflecting the coverage described herein. The Department shall be notified in writing within ten days of any cancellation, notice of cancellation, lapse, renewal, or proposed change to any policy or coverage described herein. The Department's approval or failure to disapprove any policy/ies, coverage, or ACORD Certificates shall not relieve or excuse any obligation to procure and maintain the insurance required herein, nor serve as a waiver of any rights or defenses the Department may have.

c. When the Agreement includes the construction of a railroad grade crossing, railroad overpass or underpass structure, or any other work or operations within the limits of the railroad right-of-way, including any encroachments thereon from work or operations in the vicinity of the railroad right-of-way, the Contractor shall, in addition to the insurance coverage required above, procure and maintain Railroad Protective Liability Coverage (ISO Form CG 00 35) where the railroad is the Named Insured and where the limits are not less than $2,000,000 combined single limit for bodily injury and/or property damage per occurrence, and with an annual aggregate limit of not less than $6,000,000. The railroad shall also be added along with the Department as an Additional Insured on the policy/ies procured pursuant to the paragraph above. Prior to the execution of the Agreement, and at all renewal periods which occur prior to final acceptance of the work, both the Department and the railroad shall be provided with an ACORD Certificate of Liability Insurance reflecting the coverage described herein. The insurance described herein shall be maintained through final acceptance of the work. Both the Department and the railroad shall be notified in writing within ten days of any cancellation, notice of cancellation, renewal, or proposed change to any policy or coverage described herein. The Department's approval or failure to disapprove any policy/ies, coverage, or ACORD Certificates shall not relieve or excuse any obligation to procure and maintain the insurance required herein, nor serve as a waiver of any rights the Department may have.

d. When the Agreement involves work on or in the vicinity of utility-owned property or facilities, the utility shall be added along with the Department as an Additional Insured on the Commercial General Liability policy/ies procured above.

3. Contractor shall maintain books, records, documents, and other evidence directly pertaining to or connected with the services under this Agreement which shall be available and accessible at Contractor's local offices for the purpose of inspection, audit, and copying during normal business hours by the County, or any of its authorized representatives. Such records shall be retained for a minimum of five (5) years after completion of the services and final billing. Prior to destruction of any records, the Consultant shall notify the County and deliver to the County any records the County requests. Consultant shall require all subcontractors to comply with the provisions of this paragraph by insertion of the requirements hereof in a written contract agreement between Consultant and the subcontractor.

4. Inspector General Cooperation -The Contractor agrees to comply with Section 20.055(5), Florida Statutes, and to incorporate in all subcontracts the obligation to comply with Section 20.055(5), Florida Statutes.

INSURANCE REQUIREMENTS
KINGS HIGHWAY AND HARBORVIEW ROAD INTERSECTION IMPROVEMENTS
BID NO. 20250062

Contractor and subcontractors shall procure and maintain until all of their obligations have been discharged, including any warranty periods under this Contract are satisfied, insurance against claims for injury to persons or damage to property which may arise from or in connection with the performance of the work hereunder by the Contractor, his agents, representatives, employees or subcontractors.

The insurance requirements herein are minimum requirements for this Contract and in no way limit the indemnity covenants contained in this Contract. The County in no way warrants that the minimum limits contained herein are sufficient to protect the Contractor from liabilities that might arise out of the performance of the work under this Contract by the Contractor, his agents, representatives, employees, or subcontractors. Contractor is free to purchase such additional insurance as may be determined necessary.

A. **MINIMUM SCOPE AND LIMITS OF INSURANCE** - Contractor shall provide coverage with limits of liability not less than those stated below. An excess liability policy or umbrella liability policy may be used to meet the minimum liability requirements provided that the coverage is written on a "following form" basis.

1. **Commercial General Liability – Occurrence Form (CG 00 01)**
   Policy shall include bodily injury, property damage, broad form contractual liability and Explosion, Collapse and Underground (XCU) coverage. The general aggregate limit shall apply separately to this project/location or the general aggregate limit shall be twice the required occurrence limit.

   Minimum Requirements:

• General Aggregate	$2,000,000
• Each Occurrence	$1,000,000

   For Projects greater than $10,000,000:
   Estimated Project Construction Cost from **$10,000,000 to $29,999,999**

• General Aggregate	$3,000,000
• Each Occurrence	$3,000,000

   a. The policy shall be endorsed to include the following additional insured language: "Charlotte County a political subdivision of the state of Florida and its officers, employees, agents and volunteers" shall be named as an additional insured with respect to liability arising out of the activities performed by, or on behalf of the Contractor.
   b. Contractor's subcontractors shall be subject to the same minimum requirements identified above.
   c. Policy shall be endorsed for a waiver of subrogation against the Charlotte County.

2. **Automobile Liability**
   Bodily injury and property damage for any owned, hired, and non-owned vehicles used in the performance of this Contract. Automobile liability must be written on a standard ISO form (CA 00 01) covering any auto (Code 1), or if Contractor has no owned autos, hired (Code 8) and non-owned (Code 9) autos.

Combined Single Limit (CSL)	$1,000,000

   a. The policy shall be endorsed to include the following additional insured language: "Charlotte County a political subdivision of the state of Florida and its officers, employees, agents and volunteers" shall be named as an additional insured with respect to liability arising out of the activities performed by, or on behalf of the Contractor, including automobiles owned, leased, hired or borrowed by the Contractor".
   b. Contractor's subcontractors shall be subject to the same minimum requirements identified in this section.
   c. Policy shall contain a waiver of subrogation against the Charlotte County.

3. **Worker's Compensation and Employers' Liability**
   Workers' Compensation
   Employers' Liability

Each Accident, bodily injury or disease	$1,000,000

   a. Policy shall contain a waiver of subrogation against the Charlotte County.
   b. Projects on or along navigable waters an endorsement for US Longshoremen and Harbor Workers and Jones Act is required.

c. Contractor's subcontractors shall be subject to the same minimum requirements identified in this section.

d. If the Contractor has no employees the Contractor must submit to the County the Workers Compensation Exemption from the State of Florida.

4. **Builder's Risk Insurance (Course of Construction) or Installation Floater**
Insurance utilizing an "All Risk" (Special Perils) coverage form with limits equal to the completed value of the project and no coinsurance penalty provisions.

5. **Contractors' Pollution Legal Liability (if project involves environmental hazards)**

Each Occurrence or Claim	$1,000,000
Policy Aggregate	$2,000,000

6. **Professional Liability (if design/build)**

Each Occurrence or Claim	$1,000,000
Policy Aggregate	$2,000,000

a. In the event that any professional liability insurance required by this Contract is written on a claims-made basis, Contractor warrants that any retroactive date under the policy shall precede the effective date of this Contract; and that either continuous coverage will be maintained or an extended discovery period will be exercised for a period of five (5) years beginning at the time work under this Contract is completed.

b. Policy shall contain a waiver of subrogation against Charlotte County.

Additional Insured – All policies, ***except*** for the Workers Compensation shall contain endorsements naming the County its officers, employees, agents and volunteers as additional insured with respect to liabilities arising out of the performance of services contained herein. The additional insured endorsements' shall not limit the scope of coverage for the County to vicarious liability but shall allow coverage for the County to full extent provided by the policy, even if those limits exceed those required by this contract. Such additional insured coverage shall be at least as broad as Additional Insured(Form B) endorsement form ISO, CG 20 10 11 85 or both CG 20 10 and CG 20 37 if later revisions used.

Waiver of Subrogation Rights – The Contractor shall require the carriers of required coverage's to waive all rights of subrogation against the County, its officers, employees, agents and volunteers. Contractor agrees to obtain any endorsement that may be necessary to affect this waiver of subrogation. All general or auto liability insurance coverage provided shall not prohibit the Contractor and Contractor's employees or agents from waiving the right of subrogation prior to a loss or claim. The Contractor hereby waives all rights of subrogation against the County.

Policies Primary and Non-Contributory – For any claims related to this contract, the Contractor's insurance coverage shall be primary insurance as respects the County, its officers, employees, agents and volunteers. Any insurance or self-insurance maintained by the County, its officers, employees, agents or volunteers shall be excess of the Contractor's insurance and shall not contribute with it.

Severability of Interests – The Contractor agrees to ensure that coverage provided to meet these requirements is applicable separately to each insured and there will be no cross liability exclusions that preclude coverage for suits between the Contractor and the County or between the County and any other insured or additional insured under the policy.

Proof of Coverage - Prior to the commencement of performance of services the Contractor shall furnish to the County Purchasing Division Certificates of Insurance and amendatory endorsements or copies of the applicable policies. These certificates shall provide that such insurance shall not be terminated or expire without notice thereof in accordance with the policy provisions and Contractor shall maintain such insurance from the time the Contractor commences performance of services until completion of such services.

Acceptability of insurance carrier – Unless otherwise approved by Risk Management, Insurance shall be written by insurers authorized to do business in the State of Florida and with a minimum Best Insurance Guide rating of "A- VII".

Deductibles and Self-Insured Retention – Any and all deductibles or self-insured retentions in excess of $10,000 shall be declared to and approved by Risk Management. The County may require the Contractor to purchase coverage with a lower deductible or retention or provide proof of ability to pay losses and related investigations, claim administration and defense expenses within the deductible or retention.

Failure to Procure Coverage – In the event that any policy of insurance required under this contract does not comply with the requirements, is not procured or is cancelled and not replaced, the County has the right but not the obligation or duty to terminate the contract or obtain insurance if it deems necessary and any premiums paid by the County will be promptly reimbursed by the Contractor or County payments to the Contractor will be reduced to pay for County purchased insurance.

Insurance Review – Insurance requirements are subject to periodic review by the County. The Risk Manager or designee is authorized, but not required, to reduce, waive, or suspend any insurance requirements whenever Risk Management determines that any of the required insurance is not available, is unreasonably priced or is not needed to protect the interests of the County. In addition, if Risk Management determines that heretofore, unreasonably or unavailable types of insurance coverage or coverage limits become reasonably priced or available, the Risk Manager or designee is authorized, but not required, to change the above insurance requirements to require additional types of insurance coverage or higher coverage limits, provided that any such change is reasonable in light of past claims against the County, inflation, or any other item reasonably related to the County's risk. Any change requiring additional types of insurance coverage or higher coverage limits must be made by amendment to this contract. Contractor agrees to execute any such amendment within thirty (30) days of receipt.

Any failure, actual, or alleged, on part of the County to monitor or enforce compliance with any of the insurance and indemnification requirements will not be deemed as a waiver of any rights on the part of the County.

SAFETY AND HEALTH REQUIREMENTS
KINGS HIGHWAY AND HARBORVIEW ROAD INTERSECTION IMPROVEMENTS
BID NO. 20250062

SH-01 HEALTH AND SAFETY PLAN: It shall be the responsibility of the Contractor to comply with OSHA, EPA, DOT and other applicable Federal and State of Florida laws, rules, regulations or other requirements. This includes, but is not limited to, 29 CFR 1926 (Safety and Health Regulations for Construction) and 1910 (Safety and Health Regulations for General Industry). Contractors are required to have a written Health and Safety Program that is jobsite specific. The elements of this written program shall be in accordance with OSHA 1926 and 1910. A list of program elements can be obtained from Charlotte County Risk Management.

The Contractor will designate a responsible member of his organization whose duty shall be the prevention of accidents at the site. This person shall be the Contractor's superintendent unless otherwise designated in writing by the Contractor to the Project Manager.

A copy of the Contractor's Health and Safety Plan will be submitted to Charlotte County at least 10 days prior to commencement of work. Contractor shall provide documentation that his employees and subcontractors received training (been informed of) on the Contractor's Health and Safety Plan. The Contractor will be responsible for conducting a site safety briefing for all visitors to the site. Documentation of these site safety briefings are to be maintained by the Contractor and made available to Charlotte County upon request.

Contractor will post, where appropriate, all necessary job-site Health and Safety notices. The Environmental Health and Safety Manager will conduct unannounced job-site inspections during the course of the project. Minor safety violations may be addressed immediately with the onsite supervisor and Project Manager. Major safety violations will result in written notification to the Contractor and Charlotte County Department Director under which the project is being performed. Hazardous conditions that are considered by the Environmental Health and Safety Manager to be immediately dangerous to life or limb will result in immediate stoppage of work until the hazardous conditions are corrected.

SH-02 ACCIDENTAL SPILLS: In the event of an accidental release or spill of chemicals or other hazardous materials the Contractor shall:

- Immediately take action as appropriate to contain the spill if this action can be taken without jeopardizing the health or safety of employees,
- Notify the Fire/EMS, or other entities as needed or required,
- Contact the Project Manager/Coordinator, and
- Contact Charlotte County Risk Management and Environmental Health and Safety Manager.

The following phone numbers may be used in the event of an emergency:

Risk Management	941.764.4191
Environmental Health and Safety Manager	941.743.1381 (or Cell 941.223.5535)

SH-03 CONTROL OF FUGITIVE EMISSIONS: The Contractor shall take all reasonable precautions necessary to control fugitive emissions from the job site. Fugitive emissions include, but are not limited to: nuisance dust, chemical odors/vapors/gases, hazardous materials such as lead or asbestos, and noise. Where the product(s) or material(s) to be used by the Contractor has a permissible exposure limit (PEL) established by OSHA the Contractor shall take all reasonable steps to maintain emissions of the product(s) or materials below the OSHA PEL. To verify that emissions are maintained below the OSHA PEL, the Contractor shall monitor, or shall contract to have monitored, work area exposure conditions. Monitoring shall occur, at a minimum, during the start of work and whenever there is a change in procedure, process, or chemical or material used. If it is deemed not practical to maintain exposures below the PEL, the Contractor shall restrict access to all areas where exposures exceed the PEL to authorized personnel only.

A. ASBESTOS AND SUSPECT ASBESTOS CONTAINING BUILDING MATERIALS: Contractors shall, under no circumstances, damage or disturb suspect or known asbestos containing material (ACM) unless they are a licensed Florida Asbestos Abatement Contractor and have been specifically employed to perform asbestos repair or removal. It is the responsibility of the Contractor to provide his or her own asbestos awareness program in accordance with 29 CFR 1926.1101. Where required by Federal and State regulations, the Contractor is required to have asbestos surveys performed prior to any work that includes, but is not limited to, renovation, and demolition. The asbestos survey must be performed by a firm that is licensed in the State of Florida to perform such surveys. A copy of the asbestos survey shall be submitted to the County's project manager. Asbestos materials may not be used or installed in any Charlotte County facilities.

B. LEAD-CONTAINING BUILDING MATERIALS: Contractors that will disturb lead-containing building materials during the course of work shall take all necessary precautions to protect Charlotte County employees and the public from exposure to lead dust or contamination. These measures shall conform, at a minimum, to the OSHA requirements detailed in 29 CFR 1926.62 and applicable local, state and federal regulations. Where the Contractor is engaged in work in child-occupied facilities, such work shall be performed in accordance with 40 CFR 745, and clearance testing shall be performed by the Environmental Health and Safety Manager or a licensed consultant at the conclusion of the project in accordance with the requirements of this regulation.

C. SAMPLING AND MONITORING RESULTS: The results of all personal and area monitoring and or other samples collected for health and safety compliance required by OSHA or any other state or federal regulatory agency shall be provided to Charlotte County.

BID FORM
KINGS HIGHWAY AND HARBORVIEW ROAD INTERSECTION IMPROVEMENTS
BID NO. 20250062

TO: Senior Division Manager - Purchasing
Board of County Commissioners
Charlotte County Administration Center
18500 Murdock Circle
Port Charlotte, Florida 33948-1094

The undersigned, as bidder, does hereby declare that he has read the Request for Bids, Instructions to Bidders, General Provisions, Special Provisions, Technical Specifications & Conditions, State Requirements, Insurance, Safety & Health Requirements, Bid Form, Plans, Permit Fees, MOT Policy, and any other documentation for

KINGS HIGHWAY AND HARBORVIEW ROAD INTERSECTION IMPROVEMENTS

and further agrees to furnish all items listed on the attached Bid Form in accordance with the unit price(s) submitted. The above specified documents are herein incorporated into the Bid Form and shall be defined as the contract documents.

TOTAL AMOUNT:

_____ $_____
(TYPE/PRINT) **(NUMERIC)**

Completion Time is 195 calendar days.

Notice Needed Prior to Commencement: _____ calendar days.

Liquidated Damages $1,690 per calendar day.

Please indicate by (√) that you have included the following documentation with your bid:

( ) License Requirement: FDOT Certified

NOTE: In accordance with Florida Statues, Section 119.071(1)(b)2: Sealed bids, proposals, or replies received by an agency pursuant to a competitive solicitation are exempt from s. 119.071(1)(b)2 and s. 24(a), Art. I of the State Constitution, except as provided by Florida Statutes 255.0518, until such time as the agency provides notice of an intended decision or until 30 days after opening the bids, proposals, or final replies, whichever is earlier. Upon release of the intended decision, if you wish to obtain the quote results, you may do so by visiting our Website at http://purchasingbids.charlottecountyfl.gov/ under "Purchasing Bids Online", document number 250624. No information regarding the submittal will be divulged over the telephone.

OPTIONAL ELECTRONIC BID SUBMISSIONS: If your firm would like to submit your bid electronically, please visit http://bit.ly/3TYAyKa and follow given instructions.

Name of Bidder:_____
(This form to be returned)

Summary of Bid Items for Kings Highway and Harborview Road Intersection Improvements

BID ITEM	DESCRIPTION	QTY	UOM	UNIT COST	EXTENDED
ROADWAY					
102-1	Maintenance of Traffic	1	LS	$	$
104-10-3	Sediment Barrier	284	LF	$	$
104-18	Inlet Protection System	6	EA	$	$
110-1-1	Clearing and Grubbing	1	LS	$	$
120-1	Excavation/Embankment	1	LS	$	$
160-4-8	Type B Stabilization LBR 70 (8")	261	SY	$	$
327-70-6	Milling Existing Asphalt Pavement, 1.5" Average Depth	2,398	SY	$	$
331-2B	Asphaltic Concrete, Type S-III, 1.5" Thickness	198	TN	$	$
520-1-10	Concrete Curb and Gutter, Type F	305	LF	$	$
522-1	Concrete Sidewalk, 4" Thick	250	SY	$	$
570-1-2	Performance Turf, Sod	75	SY	$	$
SIGNALIZATION					
630-2-11	Conduit, F and I, Open Trench	13	LF	$	$
630-2-12	Conduit, F and I, Directional Bore	347	LF	$	$
632-7-1	Signal Cable, New or Reconstructed Intersection, F and I	1	PI	$	$
632-7-6	Signal Cable, Remove, Intersection	1	PI	$	$
641-2-80	Prestressed Concrete Pole, 30' and Greater, Complete Removal	4	EA	$	$
646-1-11	Aluminum Signal Pole, Pedestal	8	EA	$	$
646-1-60	Aluminum Signal Pole, Remove	7	EA	$	$
649-21-6	Steel Mast Arm Assembly, F and I, Single Arm 50'	2	EA	$	$
649-21-10	Steel Mast Arm Assembly, F and I, Single Arm 60'	2	EA	$	$
650-1-14	Traffic Signal, F and I, Aluminum, 3 Section, 1 Way	12	AS	$	$
653-1-11	Pedestrian Signal, F and I LED Countdown, 1 Way	8	AS	$	$
660-4-11	Vehicle Detection System, Video, F and I Cabinet Equipment	1	EA	$	$
660-4-12	Vehicle Detection System, Video, F and I Above Ground Equipment	4	EA	$	$
665-1-11	Pedestrian Detector, F and I, Standard, Pole Mounted Detector Station	8	EA	$	$
670-5-110	Traffic Controller Assembly, F and I, NEMA	1	AS	$	$
670-5-600	Traffic Controller Assembly, Remove Controller w/ Cabinet	1	EA	$	$
685-1-13	Uninterruptible Power Supply, F and I, Line Interactive w/ Cabinet	1	EA	$	$
700-3-201	Sign Panel, F and I Overhead Mount, up to 12 SF	4	EA	$	$
700-5-22	Internally Illuminated Sign, F and I, Overhead, 12-18 SF (LED)	4	EA	$	$

Name of Bidder:_____

(This form to be returned)

Summary of Bid Items for Kings Highway and Harborview Road Intersection Improvements (Continued)

BID ITEM	DESCRIPTION	QTY	UOM	UNIT COST	EXTENDED
SIGNING AND MARKING					
710-A	Painted Pavement Markings First Coat	1	LS	$	$
710-B	Painted Pavement Markings Second Coat	1	LS	$	$
ITS					
633-8-1	Multi-Conductor Communication Cable, F and I	20	LF	$	$
635-2-12	Pull and Splice Box, F and I, 24"x36" Cover Size	1	EA	$	$
635-2-14	Pull and Splice Box, F and I, 17"x30" Cover Size	2	EA	$	$
682-1-153	ITS CCTV Camera, F and I, Dome Enclosure- Non-Pressurized, IP, High Definition	1	EA	$	$
684-1-1	ITS Manage Field Ethernet Switch, F and I	1	EA	$	$
715-1-12	Conductors, F and I, Insulated No. 8-6 (Blk, Whte, Grn)	29	LF	$	$
715-5-31	Luminaire and Bracket Arm, Aluminum, F and I, on New/Existing Pole	1	EA	$	$
715-11-211	Luminaire, F and I, Replace Existing Luminaire on Existing Pole/Arm, Roadway, Cobra Head	2	EA	$	$
TS-33	As-Built Drawings	1	LS	$	$
SUB-TOTAL FOR KINGS HIGHWAY AND HARBORVIEW ROAD INTERSECTION IMPROVEMENTS:					$

101-1 Mobilization/Demobilization: The cost for mobilization/demobilization shall be five percent (5%) of the sub-total project cost.

SUB-TOTAL $_____ X 5% = $_____

KINGS HIGHWAY AND HARBORVIEW ROAD INTERSECTION IMPROVEMENTS TOTAL: $_____

Name of Bidder:_____

(This form to be returned)

If notified of the acceptance of this bid form, the undersigned agrees to execute a Contract for the stated compensation in the form as prescribed by the County, within the time constraints outlined in Instructions to Bidders.

The signature below is a guarantee that the Bidder will not withdraw his/her bid for a period of 60 days after the scheduled time for opening the bids.

The undersigned agrees, if awarded this bid, to furnish a Performance and Payment Bond in the amount of 100% of the total project price within 14 calendar days after notification of award to the Purchasing Division. The undersigned shall be responsible and bear all costs associated to record Performance and Payment Bond with the Charlotte County Clerk of Court Office. Receipt of said recording shall be furnished to the Purchasing Division.

In accordance with section 287.135, Florida Statutes, the undersigned certifies that the company is not on the Scrutinized Companies with Activities in Sudan List, the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List and does not have business operations in Cuba or Syria (if applicable) or the Scrutinized Companies that Boycott Israel List or is not participating in a boycott of Israel.

Enclosed is a cashier's check or bid bond in the amount of $_____, which is not less than 5% of the total bid price, as guarantee that the undersigned will enter into a Contract for the work/material as required in this Bid Document. **Note: Failure to submit a 5% bid bond will be cause for rejection of bid**.

All contract documents (i.e.; performance and payment bond, cashier's check, bid bond) shall be in the name of "Charlotte County".

The undersigned acknowledges receipt of the following addenda, and the cost, if any, of such revisions has been included in the price bid.

Addendum No. _____, Dated_____; Addendum No. _____, Dated_____ ; Addendum No. _____, Dated _____

Addendum No. _____, Dated_____; Addendum No. _____, Dated_____ ; Addendum No. _____, Dated _____

HOLD HARMLESS AGREEMENT: _____(name of firm), it's officers and members shall, through the signing of this document by an authorized party or agent, indemnify and hold harmless Charlotte County, a political subdivision of the state of Florida, its officers, agents, employees, and volunteers, from liabilities, damages, losses and costs, including, but not limited to, reasonable attorneys' fees, to the extent caused by the negligence, recklessness, or intentional wrongful misconduct of _____ and persons employed or utilized by_____in the performance of this contract_____ (name) agrees that the first ten dollars ($10.00) of compensation received under this contract represents specific consideration for this indemnification obligation.

Type of Organization (Please Check One): __Individual Ownership __Joint Venture __Partnership ___Corporation

Name of Bidding Firm _____

Mailing Address _____

Location Address _____

City & State _____ **ZIP**_____

Telephone: _____ **E-mail:** _____

Signature of person authorized to bind the Company: _____

Print Name/Title of person authorized to bind the Company: _____

Date: _____

(This form to be returned)

BIDDERS SUBCONTRACTOR LIST KINGS HIGHWAY AND HARBORVIEW ROAD INTERSECTION IMPROVEMENTS BID NO. 20250062

Will you be employing Subcontractors to perform parts of this project? ☐ YES ☐ NO

If "Yes", identify each firm below with all requested information. Use additional forms if necessary. The Awarded Contractor shall not change or use subcontractors not identified on this form without prior written approval from Charlotte County. Any request for changes in subcontractors shall be made in writing and approved by the County.

COMPANY NAME:		
COMPANY ADDRESS:		
CONTACT PERSON:		
CONTACT NUMBERS:	OFFICE:	CELL:
CONTACT EMAIL:		
WORK TO BE PROVIDED:		

COMPANY NAME:		
COMPANY ADDRESS:		
CONTACT PERSON:		
CONTACT NUMBERS:	OFFICE:	CELL:
CONTACT EMAIL:		
WORK TO BE PROVIDED:		

COMPANY NAME:		
COMPANY ADDRESS:		
CONTACT PERSON:		
CONTACT NUMBERS:	OFFICE:	CELL:
CONTACT EMAIL:		
WORK TO BE PROVIDED:		

Name of Bidder:____

(This form to be returned)

COMPANY NAME:		
COMPANY ADDRESS:		
CONTACT PERSON:		
CONTACT NUMBERS:	OFFICE:	CELL:
CONTACT EMAIL:		
WORK TO BE PROVIDED:		

COMPANY NAME:		
COMPANY ADDRESS:		
CONTACT PERSON:		
CONTACT NUMBERS:	OFFICE:	CELL:
CONTACT EMAIL:		
WORK TO BE PROVIDED:		

COMPANY NAME:		
COMPANY ADDRESS:		
CONTACT PERSON:		
CONTACT NUMBERS:	OFFICE:	CELL:
CONTACT EMAIL:		
WORK TO BE PROVIDED:		

Name of Bidder:____

(This form to be returned)

DRUG FREE WORKPLACE FORM
KINGS HIGHWAY AND HARBORVIEW ROAD INTERSECTION IMPROVEMENTS
BID NO. 20250062

The undersigned vendor in accordance with Florida Statute 287.087 hereby certifies that_____ _____ (name of business) does:

1. Publish a statement notifying employees that the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance is prohibited in the workplace and specifying the actions that will be taken against employees for violations of such prohibition.

2. Inform employees about the dangers of drug abuse in the workplace, the business's policy of maintaining a drug-free workplace, any available drug counseling, rehabilitation, and employee assistance programs, and the penalties that may be imposed upon employees for drug abuse violations.

3. Give each employee engaged in providing the commodities or contractual services that are under bid a copy of the statement specified in subsection (1).

4. In the statement specified in subsection (1), notify the employees that, as a condition of working on the commodities or contractual services that are under bid, the employee will abide by the terms of the statement and will notify the employer of any conviction of, or plea of guilty or nolo contendere to, any violation of Chapter 893 or of any controlled substance law of the United States or any state, for a violation occurring in the workplace no later than five (5) days after such conviction.

5. Impose a sanction on or require the satisfactory participation in a drug abuse assistance or rehabilitation program if such is available in the employee's community, by any employee who is so convicted.

6. Make a good faith effort to continue to maintain a drug-free workplace through implementation of this section.

As the person authorized to sign the statement, I certify that this firm complies fully with the above requirements.

Signature _____

Dated _____

Name of Bidder:_____

(This form to be returned)

HUMAN TRAFFICKING AFFIDAVIT
for Nongovernmental Entities Pursuant To FS. §787.06

Charlotte County Contract #**20250062**

The undersigned on behalf of the entity listed below, (the "Nongovernmental Entity"), hereby attests under penalty of perjury as follows:

1. I am over the age of 18 and I have personal knowledge of the matters set forth except as otherwise set forth herein.

2. I am an officer or representative of the Nongovernmental Entity and authorized to provide this affidavit on the Company's behalf.

3. Nongovernmental Entity does not use coercion for labor or services as defined in Section 787.06, Florida Statutes.

4. This declaration is made pursuant to Section 92.525, Florida Statutes. I understand that making a false statement in this declaration may subject me to criminal penalties.

Under penalties of perjury, I declare that I have read the foregoing Human Trafficking Affidavit and that the facts stated in it are true.

Further Affiant sayeth naught.

_____
Signature

_____
Printed Name

_____
Title

_____
Nongovernmental Entity

_____
Date

(this form to be returned)

REFERENCES: KINGS HIGHWAY AND HARBORVIEW ROAD INTERSECTION IMPROVEMENTS

Contractor shall submit a minimum of three (3) recent (within the past five (5) years) references of projects of similar size and scope. Each reference shall include a project description, project location, name and phone number of a contact person, total project amount, and completion date. The County reserves the right to contact references.

1. Project Owner / Company:_____

Name of Contact Person:_____ Telephone #_____

Address:_____

City & State:_____ Zip Code:_____

Project Description:_____

_____

_____

Total Project Amount: $_____ Completion Date:_____

2. Project Owner / Company:_____

Name of Contact Person:_____ Telephone #_____

Address:_____

City & State:_____ Zip Code:_____

Project Description:_____

_____

_____

Total Project Amount: $_____ Completion Date:_____

3. Project Owner / Company:_____

Name of Contact Person:_____ Telephone #_____

Address:_____

City & State:_____ Zip Code:_____

Project Description:_____

_____

_____

Total Project Amount: $_____ Completion Date:_____

4. Project Owner / Company:_____

Name of Contact Person:_____ Telephone #_____

Address:_____

City & State:_____ Zip Code:_____

Project Description:_____

_____

_____

Total Project Amount: $_____ Completion Date:_____

Name of Bidder:_____

(This form to be returned)

Charlotte County
Community Development Department
18400 Murdock Circle, Port Charlotte, FL 33948-1074
Phone: 941.743.1201 Fax: 941.764.4907
Zoning: 941.743.1964 Toll Free from Englewood: 941.697.2919
Email: BuildingSvcs@CharlotteFL.com
www.CharlotteCountyFL.gov
"To exceed expectations in the delivery of public services"

Official Use Only

Fee Schedule for Permits & Associated Services
Building, Right-of-Way, Zoning, Planning & Mapping

(Surcharges Amended & Effective on October 1, 2010 in accordance with Section 553.721 of the Florida Statutes)

Valuation Based Permits (note: a 3% Surcharge, $4 minimum, is added to the fee; Plans Review Fees may also apply) The following permit types have their fee based on building valuation. Valuation comes from the most recent Building Valuation Data (BVD) normally published each February & August by the International Code Council (ICC) on the ICC website www.iccsafe.org
Only a signed and sealed contract may be substituted for valuation purposes in order to appeal the calculated fee and only if the contract includes all phases of construction including contractor overhead and profit.

- One & Two Family, Commercial and Multifamily types less than $50,000 in valuation: = $90
- One & Two Family types more than or equal to $50,000 in valuation: = Valuation x 0.004 = Permit Fee
- Commercial & Multifamily types more than or equal to $50,000 in valuation: = Valuation x 0.005 = Permit Fee

Flat Fee Based Permits (unless valuation is at or above $50,000 (note: a $4 Surcharge is added to the fee))
These permits MAY be eligible for a discounted fee of $45 each plus the $4 surcharge each if the following conditions are met: 1) The permits are for individual units in one condo building OR are consecutive houses on the same street, 2) The permits are all of the same type for the same work, 3) More than 10 (ten) permits are required, and 4) Inspections are called in in multiples of five or more.

Flat Fee for the following: = $90

Baby Barrier	Door	Irrigation System	Shed (Stick Built)
Barn	Electrical Power Pole	Kitchen Hood	Shed (DCA > 100 sq. ft.)
Boatlift	Electrical Service Change	LP Tank	Solar Photovoltaic
Cage	Fire Alarm	Parking Lot Milling	Spray Booth
Carport	Fire Sprinkler	Parking Lot Restripe	Sign
Communication Tower	Fire Suppression System	Parking Lot Resurface	Tent
Deck	Fuel Tank	Pool Heater	Water Heater
Demolition	Hood Suppression	Plumbing	Window Replacement
Dock	Hurricane Protection	Sewer Connection	

Special Flat Fee Based Permits (unless valuation is at or above $50,000 (note: a $4 Surcharge is added to the fee))

Flat Fee for the following: = $200

DCA Home	Mobile Home	Residential Interior Remodel
Garage	Residential Addition	Swimming Pool

Plans Review*/Inspections

Pre-Application (this fee is credited towards the permit fee when the permit is issued):

- Single Family Residential Types = $150
- Commercial/Multifamily Types = $200

Plans Review Rejection:

- 1st Rejection = $0
- 2nd Rejection = $75
- 3rd Rejection = $150
- 4th or more Rejection = $225

Plans Amendment/Change:

- Residential = $50
- Commercial = $75

Re-Stamp of Plans: = $50

Re-Inspections:

- 1st Re-Inspection = $50
- 2nd Re-Inspection = $100
- 3rd + Re-Inspection = $150
- Partial Inspection = $50

(non-refundable)

Miscellaneous

Expired Permit Renewal –2 or more renewals require a letter of hardship addressed to the Building Official

Renewal Type	Initial permit cost (building)	Renewal cost
Flat Fee Trade permits	$90	$90 per renewal
All other permits – 1st Renewal	Various	$200 or 25% of the initial building fee whichever is greater
All other permits – 2nd Renewal	Various	$200 or 50% of the initial building fee whichever is greater
All other permits – 3rd Renewal	Various	$200 or 75% of the initial building fee whichever is greater
All other permits – 4th Renewal	Various	$200 or 100% of the initial building fee whichever is greater

Moving Permit (both in & out of county) = $90

Failure to Obtain a Permit Prior to Commencing Work Will Result in a Penalty of Up to Quadruple the Original Fee

Permit Extension Request (1st 90 days – in writing & made prior to permit expiration)	=	$63
Permit Extension Request (2nd 90 days – in writing & made prior to permit expiration)	=	$100
Stop Work Order (i.e. to have the SWO lifted)	=	$50

Temporary Certificate Of Occupancy – Must be requested in writing to the Building Official

Time Period	1st 30 Days	2nd 30 Days	3rd 30 Days	Additional 30 day periods
Residential	$ 100.00	$ 200.00	$ 300.00	$ 600.00
Commercial	$ 200.00	$ 400.00	$ 500.00	$ 900.00

Right of Way & Stormwater Division

(Note: Right of Way Permits expire after one (1) year unless a renewal fee of $29 is paid.)

Right of Way Permit or Service:

Line & Grade	$310
Pool	$90
Right of Way Plans Review or Permit	$90
Right of Way Utility Permit	$140
Re-Inspection	$90

Stormwater

10 acres or less	$580
More than 10 acres	$580 + $21 per acre over 10 acres

Zoning Division

Permits & Plans Review

Seawalls, Boat Lifts and Docks	$95
Fence (Residential or Commercial)	$30
Residential and Commercial Miscellaneous	$22
Signs (including additional and temporary signs)	$22

Temporary Event/Use Permits/Reviews

Type 1 (small)	N/A
Type 2 (medium)	$300
Type 3 (large)	$1,000

Plans Change

Commercial	$22
Residential	$22

Environmental Reviews

Commercial or Multifamily Landscape/Tree Permit	$80
Commercial or Multifamily Landscape/Tree Permit *(RESUBMITTAL)*	$50
Single Family or Duplex Landscape/Tree Permit	$70
Single Family or Duplex Landscape/Tree Permit *(RESUBMITTAL)*	$50
Environmental Inspections & Mulching Permit	$55

Density Transfers

Certification of a Sending Zone	$655
Transfer of Density Units W/Certificate	$45
Transfer of Density Units W/Certification of Sending Zone	$700
Transfer of Density Units W/LATF	$130
Appeal of TDU ordinance	$1,485

Plans Review/Inspection/Re-Inspection

New Commercial Review	$65
Commercial Re-Submittal	$50
Single Family-Residential Review	$50
Single Family Re-Submittal	$50
Zoning Re-Inspection	$50

Miscellaneous

Zoning Verification Letter	$35
Permit/Code Case/Lien Research Request	$35
Minor Home Occupation	$50

Current and Comprehensive Planning

Appeal (of a decision by the Zoning Official)	$235
Special Exception or Variance (See Zoning Code for list)	$880
Variance - Administrative (See Zoning Code for list)	$175
BZA Administration	$180
P&Z or BCC Continuance	$220
Small Scale Plan Amendment	$2,490
Large Scale Plan Amendment	$2,640
Small Scale Plan Amendment & Rezoning (no PD)	$2,490
Rezoning (no Planned Development)	$2,490
Rezoning for Planned Development	$4,540
Major Modification of Planned Development	$2,590
Community Development Districts	$15,000
DRI Master Development Order	$22,000
DRI Substantial Deviation	$22,000
DRI Amendment (Notice of Proposed Change)	$3,350
DRI Bi-Annual Report Administrative Fee	$250

Note: Excessive recording or advertising costs will be paid by the applicant.

Land Information & Mapping Division

Street Name Changes – Public	$460
Street Name Changes – Private	$405
Address Verification Letter	$15
Address Number Change	$15
Address Permit Review (Per Unit)	$15
Property Owner Notification (Per 25 Letters)	$15
Hourly specialized map rate	$41.20/hour

Data disc (CD/DVD)	$35
Aerial prints (black & white)	$10
Aerial prints (color)	$31.05
Aerial images on disc (All-county)	$35
Mailing – tube	$3
Mailing – postage as dictated by USPS ($4.80 minimum)	varies
Data on supplied Flash Drive	N/C

Impact Fees (please see the fee schedule online at www.charlottecountyfl.com/GrowthManagement/ImpactFees.asp)

CHARLOTTE COUNTY
PUBLIC WORKS DEPARTMENT
CHARLOTTE COUNTY, FLORIDA

POLICY

Subject:	Effective Date:	From:
Maintenance of Traffic (MOT) Policy	**August 5, 2019**	**Joanne Vernon, County Engineer**
Applies to: **All Employees of the Charlotte County Board of County Commissioners**	Last Amended: **August 2019**	Page: **1 of 6 pages**

The purpose of this policy is to provide instructions to assure that all work being performed in the County's rights-of-way are performed under both The Manual of Uniform Traffic Control Devices (MUTCD) and The Florida Department of Transportation (FDOT) Roadway & Traffic Design Standards thus, assuring a safe environment for both the worker(s) and driver(s) on all County roads. Short term projects that last only a few hours will not be held to the same planning outlined in this policy however they shall still be subject to MUTCD and FDOT standards. The entire MOT Policy must be followed even if it is more stringent than the MUTCD and FDOT standards.

This policy shall apply to all work in the rights-of-way including that performed by contractors working for the County, contractors working for developers, utility companies (including work being performed by their personnel or contractors/sub-contractors) and all County work forces within each department of each division. Both internal requirements (departmental) as well as external requirements (contractors) are governed by this policy. A copy of this policy shall be attached to all permits for contractor compliance. All instruction references to the MUTCD Part VI and Index 600 of the Florida Department of Transportation Design Standards, shall apply to the latest edition.

The contractor shall at all times take every available precaution to safeguard the public as well as the construction workers. The contractor's personnel shall comply with the Maintenance of Traffic requirements, comply with reasonable requests from County employees, and act courteously with the public.

1. All personnel working within the County's rights-of-way shall at **ALL** times, wear FDOT approved safety vests, including those who may be periodically on-site and out of their vehicles, i.e., supervisors, foreman, testing personnel, etc.
   No personnel in the County's rights-of ways shall wear headphones or earbuds.

2. Each contractor shall submit a Maintenance of Traffic Plan for any construction project involving work or activity that may affect traffic on any County street, roadway, bike path, or sidewalk, and obtain approval prior to

the start of the project. The MOT plan submitted will only be good for 60 days from the date approved. If work does not commence prior to the 60 day timeframe, a new MOT plan must be submitted and approved prior to any construction beginning.

3. The MOT Plan shall consist of one or more engineering drawing(s) signed and dated by a person certified by the International Municipal Signal Association (IMSA), Florida Intermediate or American Traffic Safety Services Association (ATSSA), in work zone traffic safety, qualified and knowledgeable in the field of traffic engineering, detailing traffic control for any road construction, detours, or road closures. If any changes to the MOT occur during any phase of the project, a revised MOT Plan shall be immediately submitted and approved reflecting all changes.

4. For all work within the County rights-of-way, where construction operations will alter traffic activities, the contractor will designate a qualified individual who will be responsible to implement, inspect, and/or supervise the placement, maintenance, and removal of traffic control devices in the work zone. The person responsible, possessing current valid and verifiable wallet cards from the above approved courses, shall be the only person approved to work on the maintenance of traffic and shall remain on site during any time of activity. This person must also be fluent in the English language.

5. Traffic control devises shall be maintained in the work zones at all times. Traffic control devises shall be installed and maintained to meet federal and state standards set forth in the most current MUTCD, FDOT Design Standards and in accordance with Charlotte County Maintenance of Traffic Policy Specifications. Maintaining traffic control devices shall consider proper position, cleanliness, legibility, and daytime and nighttime visibility and reflectivity. To assure adequate maintenance the work zone shall be inspected daily. Damaged or deteriorated traffic control devices shall be replaced.

6. All equipment and hazards left in the rights-of-way during hours of darkness are to be barricaded off. All signs and barricades requiring lights shall have Type A flashing lights in good working order. Any further traffic control

devices deemed necessary during the project are to be provided by the contractor at the contractor's expense.

7. Type B High Intensity Flashing Warning Lights shall be mounted on the first and second advanced post mounted warning signs on all approaches to any work zone.

8. All road, bridge, or sidewalk closure barricades will have Type A flashing lights in working order.

9. Areas around schools that are in session must have sidewalks that are opened at minimum of one hour before to at one half hour after school starting in the morning and one half hour before to one hour after school is let out in the afternoon, unless written permission is granted by the School Board to close the sidewalk.

10. Work will not be permitted in the school zone from one hour before to one half hour after school starting in the morning and at one half hour before to one hour after school is let out in the afternoon, unless written permission is granted by the School Board.

11. No construction equipment shall travel on or cross a public roadway without a yellow flashing beacon and accompanied by flagging personnel to safely guide the equipment until it is safely off the roadway out of the clear zone.

12. Every attempt shall be made to avoid road closures. Where it is not possible to completely avoid road closures, the following procedures shall be followed:

    a. Road closures shall be limited, if possible, to single lane closures with traffic controlled by flagmen. Flagging operations and flagmen shall comply with MUTCD requirements and flagmen shall be certified in a flagging operation. Flagging is not to begin until the proper signage is in place. When flagging is not being performed, the signs must be covered up, turned away from traffic or removed from the job site.

b. If the work cannot be performed without closing all traffic lanes, but the closures can be limited to intervals no longer than five-minute duration's (e.g., to accommodate necessary equipment operations) flagmen shall be used to control traffic as necessary. All equipment crossing the roadway is to be escorted by flaggers.

c. If the work cannot be performed without closing all traffic lanes for periods longer than five (5) minutes at a time, provisions shall be made to maintain access to all developed properties. Access shall be properly signed and/or marked detours or other approved methods.

d. A detailed Maintenance of Traffic Plan shall be prepared by the contractor or other responsible entity for all situations where any lane closures are proposed. The detailed MOT Plans shall show the limits of the road closure, detour routes and/or other means of maintaining access, temporary signing and marking that will be used, and any other information deemed necessary by the County Engineer. The MOT Plan for road closures shall be submitted to the Engineering Department at least two weeks prior to each road closure. **No road closures, other than emergencies, are authorized without the prior approval of the County Engineer. No road closures will begin on a County Holiday or weekend.**

e. If the road closure is authorized by the County Engineer, the following organizations shall be notified seven days prior to the closure and again 24 hours prior to the closure. If the closure will extend for more than one (1) day, notifications shall be made each day to inform these organizations of the road closure that will be in effect the following day:

- **Charlotte County Public Works**
  - Public Relations Manager- Tracy.Doherty@charlottecountyfl.gov
    Phone (941) 575-3643

•Emergency services:

Sheriff	**FIRE/EMS**	**Fire Headquarters**
(941) 639-2101	(941) 833-5600	(941) 833-5600

- **Charlotte County School Board:**
  Transportation Division (941) 575-5432

- **The Media:** Newspaper/Radio Stations (Notify applicable one(s))

Charlotte Sun Herald	(941) 206-1000
Charlotte Herald Tribune Newspaper	(941) 473-5475
Englewood Sun Herald Tribune Newspaper	(941) 681-3000
Sarasota Herald Tribune Newspaper	(941) 953-7755
Venice Gondolier Newspaper	(941) 207-1000
I Heart Media – Port Charlotte, Punta Gorda, Sarasota	(941) 206-1188
KIX Country 92.9 WIKX Radio Station–Punta Gorda	(941)206-1188
98.9 my FM– Port Charlotte, Punta Gorda	(941) 206-1188
Seaview 104.9 Radio Station – Punta Gorda	(941) 206-1188

- All property owners, residents and tenants of the affected properties (continuing notification not required).

f. If immediate road closure is necessary to safeguard life and/or public safety or private property, prior approval shall **NOT** be required. However, the notifications required under **e.** above shall be made as soon as practicable provided that the notification effort does not compromise the efforts to safeguard life and/or property.

13. All initial MOT Plans (not involving road closures) and proposed changes shall be submitted to the County Transportation Engineer, or designee, for approval, at least two weeks prior to the start of work.

14. Failure to comply with the stipulations set forth in this policy will result in immediate suspension of work, and/or revoking of the permit until such time as the affected party comes into compliance.

Original: 9/15/1995
Revisions: 3/01/1997
9/29/2003
7/10/2006
3/20/2012
3/24/2014
11/10/2015
8/31/2016
7/26/2017
9/24/2018
8/5/2019

Southwest Florida Water Management District

2379 Broad Street, Brooksville, Florida 34604-6899
(352) 796-7211 or 1-800-423-1476 (FL only)
WaterMatters.org

An Equal Opportunity Employer

Bartow Office
170 Century Boulevard
Bartow, Florida 33830-7700
(863) 534-1448 or
1-800-492-7862 (FL only)

Sarasota Office
78 Sarasota Center Boulevard
Sarasota, Florida 34240-9770
(941) 377-3722 or
1-800-320-3503 (FL only)

Tampa Office
7601 U.S. 301 North (Fort King Highway)
Tampa, Florida 33637-6759
(813) 985-7481 or
1-800-836-0797 (FL only)

June 13, 2024

Charlotte County Public Works Department Attn: Zach Patchell
410 Taylor St Unit 104 Punta Gorda, FL
33950

Subject: **Project Evaluation - Project Exempt**

Project Name:	Kings Hwy at Harborview - Intersection improvements
File Number:	893310
County:	Charlotte
Sec/Twp/Rge:	S25/T40S/R22E

References: Chapter 62-330, Florida Administrative Code (F.A.C.)

Dear Mr. Patchell:

The District has reviewed the information you submitted for the project referenced above and has determined that an Environmental Resource Permit (ERP) **will not be required** for the proposed roadway safety improvements such as curb ramp reconstruction, lighting improvements, updated signage and marking, and the milling and resurfacing of the intersection Harborview Road and Kings Highway. [Rule 62-330.051(4)(c), F.A.C]

The information received by the District will be kept on file to support the District's determination regarding your application. This information is available for viewing or downloading through the District's Application and Permit Search Tools located at www.WaterMatters.org/permits.

The District's determination that your project does not require an ERP is only applicable pursuant to the statutes and rules in effect at the time the information was submitted and may not be valid in the event subsequent changes occur in the applicable rules and statutes. Additionally, this notification does not mean that the District has determined that your project is permanently exempt from permitting requirements. Any subsequent change you make in the project's operation may necessitate further evaluation or permitting by the District. Therefore, you are advised to contact the District before beginning the project and before beginning any activity which is not specifically described in your submittal. Your timely pursuit of this activity is encouraged to avoid any potential rule changes that could affect your request.

This letter constitutes notice of Intended Agency Action of the project referenced above. The District's action in this matter only becomes closed to future legal challenges from members of the public if such persons have been properly notified of the District's action and no person objects to the District's action within the prescribed period of time following the notification. The District does not publish notices of agency action. If you wish to limit the time within which a person who does not receive actual written notice from the District may request an administrative hearing regarding this action, you are strongly encouraged to publish, at your own expense, a notice of agency action in the legal advertisement section of a newspaper of general circulation in the county or counties where the activity will occur. Publishing notice of agency action will close the window for filing a petition for hearing. Legal requirements and

instructions for publishing notice of agency action, as well as a noticing form that can be used is available from the District's website at www.WaterMatters.org/permits/noticing. If you publish notice of agency action, a copy of the affidavit of publishing provided by the newspaper should be sent to the Regulation Division at the District Service Office that services this permit or other agency action, for retention in the File of Record for this agency action.

If you have questions regarding this matter, please contact Giancarlos Rivas-Fajardo, in the Tampa Service Office, at 8134386703. Please reference the Project Name and Inquiry/Permit Number in future communications concerning this project.

Sincerely,

David Kramer, P.E.
Bureau Chief
Environmental Resource Permit Bureau Regulation Division

Enclosures: Notice of Rights
cc: Ravi Devaguptapu, P.E.
Florida Transportation Engineering, Inc.

Notice of Rights

Administrative Hearing

1. You or any person whose substantial interests are or may be affected by the District's intended or proposed action may request an administrative hearing on that action by filing a written petition in accordance with Sections 120.569 and 120.57, Florida Statutes (F.S.), Uniform Rules of Procedure Chapter 28-106, Florida Administrative Code (F.A.C.) and District Rule 40D-1.1010, F.A.C. Unless otherwise provided by law, a petition for administrative hearing must be filed with (received by) the District within 21 days of receipt of written notice of agency action. "Written notice" means either actual written notice, or newspaper publication of notice, that the District has taken or intends to take agency action. "Receipt of written notice" is deemed to be the fifth day after the date on which actual notice is deposited in the United States mail, if notice is mailed to you, or the date that actual notice is issued, if sent to you by electronic mail or delivered to you, or the date that notice is published in a newspaper, for those persons to whom the District does not provide actual notice.

2. Pursuant to Subsection 373.427(2)(c), F.S., for notices of intended or proposed agency action on a consolidated application for an environmental resource permit and use of sovereignty submerged lands concurrently reviewed by the District, a petition for administrative hearing must be filed with (received by) the District within 14 days of receipt of written notice.

3. Pursuant to Rule 62-532.430, F.A.C., for notices of intent to deny a well construction permit, a petition for administrative hearing must be filed with (received by) the District within 30 days of receipt of written notice of intent to deny.

4. Any person who receives written notice of an agency decision and who fails to file a written request for a hearing within 21 days of receipt or other period as required by law waives the right to request a hearing on such matters.

5. Mediation pursuant to Section 120.573, F.S., to settle an administrative dispute regarding District intended action is not available prior to the filing of a petition for hearing.

6. A request or petition for administrative hearing must comply with the requirements set forth in Chapter 28-106, F.A.C. A petition for a hearing must: (1) explain how the substantial interests of each person requesting the hearing will be affected by the District's intended action or proposed action, (2) state all material facts disputed by the person requesting the hearing or state that there are no material facts in dispute, and (3) otherwise comply with Rules 28-106.201 and 28-106.301, F.A.C. Chapter 28-106, F.A.C., can be viewed at www.flrules.org or at the District's website at www.WaterMatters.org/permits/ rules.

7. A petition for administrative hearing is deemed filed upon receipt of the complete petition by the District Agency Clerk at the District's Tampa Service Office during normal business hours, which are 8:00 a.m. to 5:00 p.m., Monday through Friday, excluding District holidays. Filings with the District Agency Clerk may be made by mail, hand-delivery or facsimile transfer (fax). The District does not accept petitions for administrative hearing by electronic mail. Mailed filings must be addressed to, and hand-delivered filings must be delivered to, the Agency Clerk, Southwest Florida Water Management District, 7601 US Hwy 301, Tampa, FL 33637-6759. Faxed filings must be transmitted to the District Agency Clerk at (813) 367-9776. Any petition not received during normal business hours shall be filed as of 8:00 a.m. on the next business day. The District's acceptance of faxed petitions for filing is subject to certain conditions set forth in the District's Statement of Agency Organization and Operation, available for viewing at www.WaterMatters.org/about.

Judicial Review

1. Pursuant to Sections 120.60(3) and 120.68, F.S., a party who is adversely affected by District action may seek judicial review of the District's action.Judicial review shall be sought in the Fifth District Court of Appeal or in the appellate district where a party resides or as otherwise provided by law.

2. All proceedings shall be instituted by filing an original notice of appeal with the District Agency Clerk within 30 days after the rendition of the order being appealed, and a copy of the notice of appeal, accompanied by any filing fees prescribed by law, with the clerk of the court, in accordance with Rules
9.110 and 9.190 of the Florida Rules of Appellate Procedure (Fla. R. App. P.). Pursuant to Fla. R. App.
P. 9.020(h), an order is rendered when a signed written order is filed with the clerk of the lower tribunal.

Charlotte County Intersection Improvement Project
Utility Relocation Agreement for
Harbor View Rd & Kings Highway

Charlotte County has undertaken a project known as Harbor View Rd & Kings Highway. This project may include impacts to public utilities within the corridor.

General Description of the Project:

Improvements to the intersection of Harborview & Kings Highway which include modifications to the traffic signal and lighting.

Project Schedule:

Design Schedule

o 30% Plans Delivered to Utility:	February 16, 2024
o 30% Comments Received from Utility:	March 8, 2024
o 60% Plans Delivered to Utility:	April 18, 2024
o 60% Comments Anticipated from Utility:	May 17, 2024
o 90% Plans Anticipated:	N/A
o 100% Anticipated	May 31, 2024

Anticipated Schedule

• Acquisition Complete:	TBD
• Bidding Starts:	TBD
• Construction Starts:	TBD
• Construction Complete:	TBD

County Project Manger

Zach Patchell
Projects Manager
410 Taylor St., Unit 104, Punta Gorda, FL 33950
Office 941-575-3609
Email: zach.patchell@charlottecountyfl.gov

To help ensure that all parties have an understanding of what your company needs to accomplish to allow the construction to be completed, Charlotte County is requesting you detail the conflicts the proposed design has with your facilities.

Based on the 60% construction plans dated April 2024, I have determined there are:

_____ No identified conflicts with our facilities

Please sign this form and return it to the County's Project Manager

OR

_____ Conflicts have been identified with our facilities.

Charlotte County Intersection Improvement Project
Utility Relocation Agreement for
Harbor View Rd & Kings Highway

Please detail <u>each task</u> you will need accomplish to resolve the identified conflicts on the following sheet(s), then sign this form and return it along will all associated conflict sheet(s), to the County's Project Manager.

Submitted by _Rae Register _____ representing __Lumen_____
(Print Name) (Utility Company Name)

on 6/12/24. Total number of pages included 6.
(Date)

Rae Register
(Signature)

Charlotte County Intersection Improvement Project
Utility Relocation Agreement for
Harbor View Rd & Kings Highway

Conflict # 1

1. **What is the conflict?**

   2 - BT900

2. **Location or Limits (using construction plans stationing and offsets):**

   22+00 59'RT

3. **Proposed resolution:**
   Place new BT-200 from 21+34 21' R to 22+0099' RT and
   Place new BT 100 from 21+34 21'R to 24+10.5 30'RT

4. **What will the County's Contractor have to accomplish in order for you to start the conflict resolution?**

   Staking of pole foundation so new cable can be placed between there and curb

5. **Lead time you will need to be able to have the necessary supplies, manpower and equipment in place to resolve this conflict:**

   30 days

6. **Time required to resolve this conflict once Item #4 is complete?**
   15 business days

7. **Other Utilities directly impacted by your proposed resolution to the conflict:**

8. **Other Information:**

Charlotte County Intersection Improvement Project
Utility Relocation Agreement for
Harbor View Rd & Kings Highway

Conflict #__2___

1. **What is the conflict?**

   BT600

2. **Location or Limits (using construction plans stationing and offsets):**
   23+18 34.5' RT

3. **Proposed resolution:**
   Place new BT 100 from 21+34 21'R to 24+10.5 30'RT

4. **What will the County's Contractor have to accomplish in order for you to start the conflict resolution?**
   Staking of pole foundation so new cable can be placed between there and curb

5. **Lead time you will need to be able to have the necessary supplies, manpower and equipment in place to resolve this conflict:**
   30 days

6. **Time required to resolve this conflict once Item #4 is complete?**
   15 business days coordinate with conflict 1

7. **Other Utilities directly impacted by your proposed resolution to the conflict:**

8. **Other Information:**

Charlotte County Intersection Improvement Project
Utility Relocation Agreement for
Harbor View Rd & Kings Highway

Conflict # 3

1. **What is the conflict?**

   1 BFO-96 & 1 BFO-48

2. **Location or Limits (using construction plans stationing and offsets):**

   22+00 59'RT

3. **Proposed resolution:**
   Adjust during installation of pole foundation

4. **What will the County's Contractor have to accomplish in order for you to start the conflict resolution?**

   Staking of pole foundation and coordination with Lumen construction team.

5. **Lead time you will need to be able to have the necessary supplies, manpower and equipment in place to resolve this conflict:**

   5 days

6. **Time required to resolve this conflict once Item #4 is complete?**
   5 business days

7. **Other Utilities directly impacted by your proposed resolution to the conflict:**

8. **Other Information:**

Charlotte County Intersection Improvement Project
Utility Relocation Agreement for
Harbor View Rd & Kings Highway

Conflict # 4

9. **What is the conflict?**

   1 BFO-24

10. **Location or Limits (using construction plans stationing and offsets):**

    21+88 60.5' LT

11. **Proposed resolution:**
    Adjust during installation of pole foundation

12. **What will the County's Contractor have to accomplish in order for you to start the conflict resolution?**

    Staking of pole foundation and coordination with Lumen construction team.

13. **Lead time you will need to be able to have the necessary supplies, manpower and equipment in place to resolve this conflict:**

    5 days

14. **Time required to resolve this conflict once Item #4 is complete?**
    5 business days

15. **Other Utilities directly impacted by your proposed resolution to the conflict:**

16. **Other Information:**

Charlotte County Intersection Improvement Project
Utility Relocation Agreement for
Harbor View Rd & Kings Highway

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Improvements to the intersection of Harborview & Kings Highway which include modifications to the traffic signal and lighting.

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- 60% Comments Anticipated from Utility: May 17, 2024
- 90% Plans Anticipated: N/A
- 100% Anticipated May 31, 2024

Anticipated Schedule

- Acquisition Complete: TBD
- Bidding Starts: TBD
- Construction Starts: TBD
- Construction Complete: TBD

County Project Manger

Zach Patchell
Projects Manager
410 Taylor St., Unit 104, Punta Gorda, FL 33950
Office 941-575-3609
Email: zach.patchell@charlottecountyfl.gov

To help ensure that all parties have an understanding of what your company needs to accomplish to allow the construction to be completed, Charlotte County is requesting you detail the conflicts the proposed design has with your facilities.

Based on the 60% construction plans dated April 2024, I have determined there are:

_____ No identified conflicts with our facilities

Please sign this form and return it to the County's Project Manager

OR

_____ Conflicts have been identified with our facilities.

Charlotte County Intersection Improvement Project
Utility Relocation Agreement for
Harbor View Rd & Kings Highway

Please detail each task you will need accomplish to resolve the identified conflicts on the following sheet(s), then sign this form and return it along will all associated conflict sheet(s), to the County's Project Manager.

Submitted by David Delgado representing Comcast
(Print Name) (Utility Company Name)

on 6/19/2024. Total number of pages included 3.
(Date)

_____
(Signature)

Charlotte County Intersection Improvement Project
Utility Relocation Agreement for
Harbor View Rd & Kings Highway

Conflict # 1

1. **What is the conflict?**

   Existing Comcast aerial facilities in conflict with proposed mast arm construction

2. **Location or Limits (using construction plans stationing and offsets):**
   STA 23+17, 34.35' RT

3. **Proposed resolution:**
   Adjust vertically during mast arm construction

4. **What will the County's Contractor have to accomplish in order for you to start the conflict resolution?**
   Notify Comcast Construction Specialist David Delgado a minimum of 6 weeks prior to construction of mast arm for scheduling an onsite Comcast crew and equipment.

5. **Lead time you will need to be able to have the necessary supplies, manpower and equipment in place to resolve this conflict:**
   See # 4 above

6. **Time required to resolve this conflict once Item #4 is complete?**
   5 days total to detach from pole and reattach for vertical adjustment.

7. **Other Utilities directly impacted by your proposed resolution to the conflict:**
   N/A – Joint user with power company.

8. **Other Information:**
   N/A

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_____ No identified conflicts with our facilities

Please sign this form and return it to the County's Project Manager

OR

__X__ Conflicts have been identified with our facilities.

Charlotte County Intersection Improvement Project
Utility Relocation Agreement for
Harbor View Rd & Kings Highway

Please detail each task you will need accomplish to resolve the identified conflicts on the following sheet(s), then sign this form and return it along will all associated conflict sheet(s), to the County's Project Manager.

Submitted by Livia de Mattos-Siech representing Crown Castle
(Print Name) (Utility Company Name)

on 5/31/2024. Total number of pages included 3.
(Date)

(Signature)

Charlotte County Intersection Improvement Project
Utility Relocation Agreement for
Harbor View Rd & Kings Highway

Conflict # 1

1. **What is the conflict?**

   Handhole inside of the proposed sidewalk construction.

2. **Location or Limits (using construction plans stationing and offsets):**
   STA 21+83.2, 38.5' RT of Harborview Dr C/L

3. **Proposed resolution:**
   Adjust Existing HH to Final Grade.

4. **What will the County's Contractor have to accomplish in order for you to start the conflict resolution?**
   Final Grade of the Proposed new Sidewalk to be staked in the field.

5. **Lead time you will need to be able to have the necessary supplies, manpower and equipment in place to resolve this conflict:**
   7 days

6. **Time required to resolve this conflict once Item #4 is complete?**
   1 day

7. **Other Utilities directly impacted by your proposed resolution to the conflict:**
   N/A

8. **Other Information:**

Charlotte County Intersection Improvement Project
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Please sign this form and return it to the County's Project Manager

OR

__3___ Conflicts have been identified with our facilities.

Charlotte County Intersection Improvement Project
Utility Relocation Agreement for
Harbor View Rd & Kings Highway

Please detail each task you will need accomplish to resolve the identified conflicts on the following sheet(s), then sign this form and return it along will all associated conflict sheet(s), to the County's Project Manager.

Submitted by Chris McJunkin representing Florida Power & Light .

(Print Name) (Utility Company Name)

on _____. Total number of pages included 5.

(Date)

_____

(Signature)

Charlotte County Intersection Improvement Project
Utility Relocation Agreement for
Harbor View Rd & Kings Highway

Conflict # 1

1. **What is the conflict?**

   Removal of existing concrete strain pole and installation of signal mast arm.

2. **Location or Limits (using construction plans stationing and offsets):**
   STA. 21+86.50, 51.50' RT.

3. **Proposed resolution:**
   Re-Route power and de-energize existing power lines

4. **What will the County's Contractor have to accomplish in order for you to start the conflict resolution?**
   6-8 weeks advance notice

5. **Lead time you will need to be able to have the necessary supplies, manpower and equipment in place to resolve this conflict:**
   6-8 weeks advance notice

6. **Time required to resolve this conflict once Item #4 is complete?**
   1 day

7. **Other Utilities directly impacted by your proposed resolution to the conflict:**
   N/A

8. **Other Information:**
   N/A

Charlotte County Intersection Improvement Project
Utility Relocation Agreement for
Harbor View Rd & Kings Highway

Conflict # 2

1. **What is the conflict?**

   Removal of existing concrete strain pole and installation of signal mast arm.

2. **Location or Limits (using construction plans stationing and offsets):**
   STA. 23+17.00, 34.35' RT.

3. **Proposed resolution:**
   Re-Route power and de-energize existing power lines

4. **What will the County's Contractor have to accomplish in order for you to start the conflict resolution?**
   6-8 weeks advance notice

5. **Lead time you will need to be able to have the necessary supplies, manpower and equipment in place to resolve this conflict:**
   6-8 weeks advance notice

6. **Time required to resolve this conflict once Item #4 is complete?**
   1 day

7. **Other Utilities directly impacted by your proposed resolution to the conflict:**
   N/A

8. **Other Information:**
   N/A

Charlotte County Intersection Improvement Project
Utility Relocation Agreement for
Harbor View Rd & Kings Highway

Conflict # 3

1. **What is the conflict?**

   Light fixture attachment to existing pole

2. **Location or Limits (using construction plans stationing and offsets):**
   STA. 22+23.91, 196.99' RT.

3. **Proposed resolution:**

   New Bracket Arm and Luminaire onto Existing Pole

4. **What will the County's Contractor have to accomplish in order for you to start the conflict resolution?**
   Notification to FPL that POLE IS READY FOR LIGHT

5. **Lead time you will need to be able to have the necessary supplies, manpower and equipment in place to resolve this conflict:**
   4 WEEKS

6. **Time required to resolve this conflict once Item #4 is complete?**
   4 WEEKS

7. **Other Utilities directly impacted by your proposed resolution to the conflict:**
   N/A

8. **Other Information:**
   N/A

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Utility Relocation Agreement for
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Based on the 60% construction plans dated April 2024, I have determined there are:

_____ No identified conflicts with our facilities

Please sign this form and return it to the County's Project Manager

OR

___X___ Conflicts have been identified with our facilities.

Charlotte County Intersection Improvement Project
Utility Relocation Agreement for
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Please detail each task you will need accomplish to resolve the identified conflicts on the following sheet(s), then sign this form and return it along will all associated conflict sheet(s), to the County's Project Manager.

Submitted by Rene Davis representing MCI/VERIZON/VERIZON WIRELESS
(Print Name) (Utility Company Name)

on 5/20/2024. Total number of pages included 4.
(Date)

Rene Davis
(Signature)

Charlotte County Intersection Improvement Project
Utility Relocation Agreement for
Harbor View Rd & Kings Highway

Conflict # 1

1. **What is the conflict?**

   2" HDPE FOC has an indirect/close proximity conflict with proposed mast arm signal on the northwest corner.

2. **Location or Limits (using construction plans stationing and offsets):**
   STA. 21+86.85, 59.98' LT

3. **Proposed resolution:**
   MCI proposes to protect our facilities in place using temporary sheet pile or adjusting horizontally during construction of the signal foundation. Hold/Guard/Protect may include the use of sheeting, shoring, and bracing of MCI facilities and should be decided upon by the Field Representatives of MCI in coordination with the roadway Contractor on a case-by-case basis. This by no means relieves the Contractor of its responsibilities as written in Statute 556 and contract documents.

4. **What will the County's Contractor have to accomplish in order for you to start the conflict resolution?**
   MOT in place, open cut sidewalk so MCI can expose and protect (or) relocate their utility.

5. **Lead time you will need to be able to have the necessary supplies, manpower and equipment in place to resolve this conflict:**
   MCI requests a minimum of 72 hours of advance notification prior to construction to assign MCI field staff to address conflicts during construction.

6. **Time required to resolve this conflict once Item #4 is complete?**
   2 days

7. **Other Utilities directly impacted by your proposed resolution to the conflict:**
   N/A

8. **Other Information:**
   N/A

Charlotte County Intersection Improvement Project
Utility Relocation Agreement for
Harbor View Rd & Kings Highway

Conflict #_2____

1. **What is the conflict?**

   2" HDPE FOC has an indirect/close proximity conflict with proposed ped pole on the northeast corner.

2. **Location or Limits (using construction plans stationing and offsets):**
   STA. 23+40.04, 70.58' LT.

3. **Proposed resolution:**
4. MCI proposes to protect our facilities in place using temporary sheet pile or adjusting horizontally during construction of the signal foundation. Hold/Guard/Protect may include the use of sheeting, shoring, and bracing of MCI facilities and should be decided upon by the Field Representatives of MCI in coordination with the roadway Contractor on a case-by-case basis. This by no means relieves the Contractor of its responsibilities as written in Statute 556 and contract documents.

5. **What will the County's Contractor have to accomplish in order for you to start the conflict resolution?**
   MOT in place, open cut sidewalk so MCI can expose and protect (or) relocate their utility.

6. **Lead time you will need to be able to have the necessary supplies, manpower and equipment in place to resolve this conflict:**
   MCI requests a minimum of 72 hours of advance notification prior to construction to assign MCI field staff to address conflicts during construction.

7. **Time required to resolve this conflict once Item #4 is complete?**
   1 day

8. **Other Utilities directly impacted by your proposed resolution to the conflict:**
   N/A

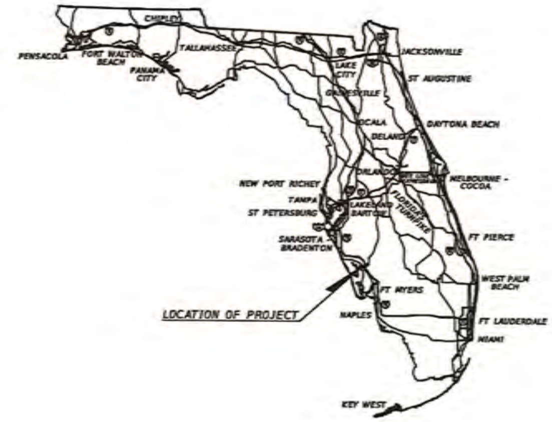
9. **Other Information:**
   N/A

CHARLOTTE COUNTY

PUBLIC WORKS DEPARTMENT

CONTRACT PLANS

HARBORVIEW RD. - KINGS HWY.
INTERSECTION HARDENING SIGNAL



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7	TEMPORARY TRAFFIC CONTROL PLAN
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9	SIGNING AND PAVEMENT MARKING PLAN
10	SIGNALIZATION PLAN
11	STANDARD MAST ARM TABULATION
12	INTERNALLY ILLUMINATED STREET NAME SIGNS DETAILS
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N

BEGIN PROJECT
STA. 21+77.85
℄ CONST. HARBORVIEW RD.

END PROJECT
STA 23+51.60
℄ CONST. HARBORVIEW RD.

CHARLOTTE COUNTY BOARD OF COMMISSIONERS

DISTRICT 1: KEN DOHERTY

DISTRICT 2: CHRISTOPHER CONSTANCE

DISTRICT 3: BILL TRUEX

DISTRICT 4: STEPHEN R. DEUTSCH

DISTRICT 5: JOE TISEO

SIGNALIZATION PLANS ENGINEER OF RECORD:

RYAN C. ANLOAGUE, P.E.
P.E. LICENSE NUMBER 92396
FLORIDA TRANSPORTATION ENGINEERING, INC.
11458 NORTH 53RD STREET
TAMPA, FLORIDA 33617
(813) 989-0729 Ext. 113
REQ NO.: 2024000705
PO NO.: 2024001439
VENDOR NO.: F65-0183924

CHARLOTTE COUNTY PUBLIC WORKS DIRECTOR:

JOHN ELIAS

CHARLOTTE COUNTY COUNTY ENGINEER:

JOANNE VERNON, P.E.

CHARLOTTE COUNTY PROJECT MANAGER:

ZACH PATCHELL

SHEET NO.
1

RYAN C. ANLOAGUE
LICENSE
No 92396
STATE OF
FLORIDA
PROFESSIONAL ENGINEER

THIS ITEM HAS BEEN DIGITALLY
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ON THE DATE ADJACENT TO THE SEAL

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FLORIDA TRANSPORTATION ENGINEERING, INC.
11458 NORTH 53RD STREET
TAMPA, FLORIDA 33617
RYAN C. ANLOAGUE, P.E. NO. 92396

THE ABOVE NAMED PROFESSIONAL ENGINEER SHALL BE RESPONSIBLE FOR THE FOLLOWING SHEETS IN ACCORDANCE WITH RULE 61G15-23.004, F.A.C.

SHEET NO.	SHEET DESCRIPTION
1	KEY SHEET
2	SIGNATURE SHEET
3	TYPICAL SECTION
4	GENERAL NOTES
5	ROADWAY PLAN
6	EROSION CONTROL PLAN
7	TEMPORARY TRAFFIC CONTROL PLAN
8	UTILITY ADJUSTMENTS
9	SIGNING AND PAVEMENT MARKING PLAN
10	SIGNALIZATION PLAN
11	STANDARD MAST ARM TABULATION
12	INTERNALLY ILLUMINATED STREET NAME SIGNS DETAILS
15	LIGHTING DATA TABLE AND LEGEND
16	LIGHTING PLAN

COLIN J. CAMPBELL
LICENSE
No 62566
STATE OF
FLORIDA
PROFESSIONAL ENGINEER

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AGENOR & CAMPBELL STRUCTURAL ENGINEERING, LLC.
670 ISLAND WAY, SUITE 30
CLEARWATER, FL 33767
COLIN J. CAMPBELL, P.E. NO. 62566

THE ABOVE NAMED PROFESSIONAL ENGINEER SHALL BE RESPONSIBLE FOR THE FOLLOWING SHEETS IN ACCORDANCE WITH RULE 61G15-23.004, F.A.C.

SHEET NO.	SHEET DESCRIPTION
2	SIGNATURE SHEET
13	MAST ARM ASSEMBLIES DATA TABLE

ADAM DORNACKER
LICENSE
No 85319
STATE OF
FLORIDA
PROFESSIONAL ENGINEER

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GFA INTERNATIONAL, INC.
201 WALDO AVE NORTH
LEHIGH ACRES, FLORIDA 33971
ADAM DORNACKER, P.E. NO. 85319

THE ABOVE NAMED PROFESSIONAL ENGINEER SHALL BE RESPONSIBLE FOR THE FOLLOWING SHEETS IN ACCORDANCE WITH RULE 61G15-23.004, F.A.C.

SHEET NO.	SHEET DESCRIPTION
2	SIGNATURE SHEET
14	REPORT OF CORE BORINGS

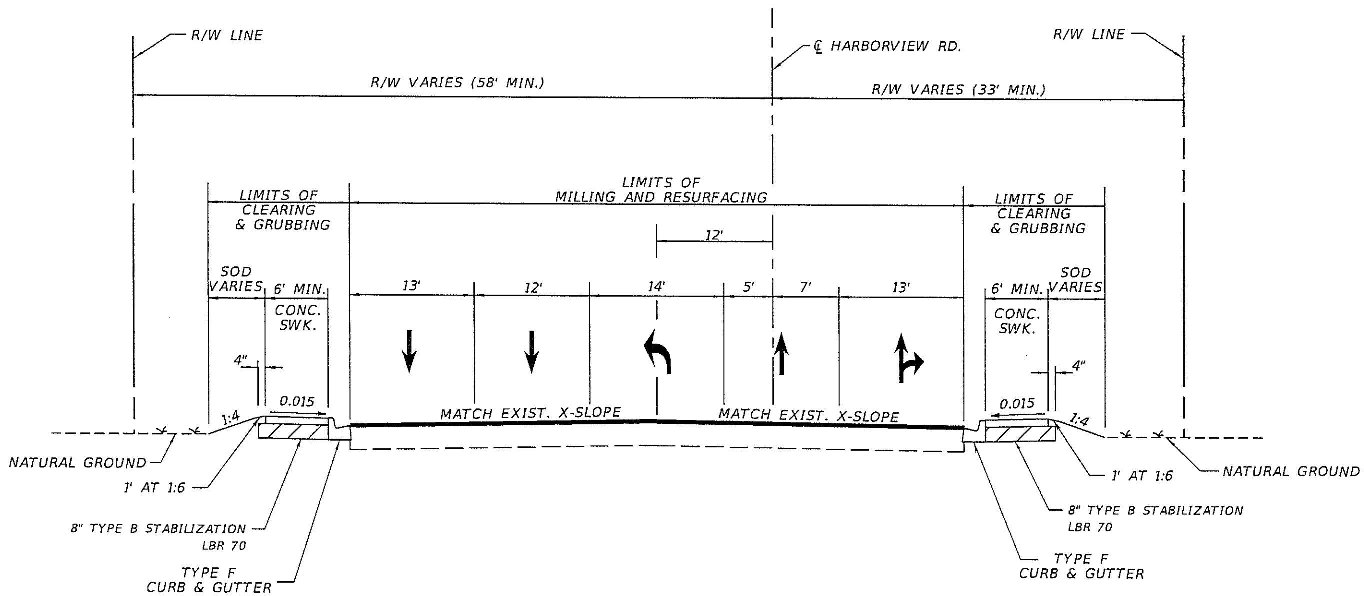
REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ENGINEER OF RECORD
RYAN C. ANLOAGUE, P.E.
LICENSE NUMBER 92396
FLORIDA TRANSPORTATION ENGINEERING, INC.
11458 NORTH 53RD STREET
TAMPA, FLORIDA 33617

CHARLOTTE COUNTY
PUBLIC WORKS DEPARTMENT

SIGNATURE SHEET

SHEET NO.
2



TYPICAL SECTION
HARBORVIEW RD.
STA. 21+77.85 TO STA. 23+51.60

RESURFACING

MILL EXIST. ASPHALT PAVEMENT 1.5" DEPTH
TYPE S-III ASPHALT 1.5" DEPTH

TRAFFIC DATA

HARBORVIEW RD.
DESIGN SPEED = 35 MPH
POSTED SPEED = 35 MPH
KINGS HWY.
DESIGN SPEED = 40 MPH
POSTED SPEED = 40 MPH

REVISIONS				ENGINEER OF RECORD			
DATE	DESCRIPTION	DATE	DESCRIPTION	RYAN C. ANLOAGUE, P.E. LICENSE NUMBER 92396 FLORIDA TRANSPORTATION ENGINEERING, INC. 11458 NORTH 53RD STREET TAMPA, FLORIDA 33617	CHARLOTTE COUNTY PUBLIC WORKS DEPARTMENT	TYPICAL SECTION	SHEET NO. 3

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HORIZONTAL & VERTICAL CONTROL TABLE

Point #	STATION	OFFSET	CENTERLINE	Northing	Easting	Elevation	DESCRIPTION
HC1	19+12.35	83.10' LT.	HARBORVIEW RD	956412.440	633187.024	6.290'	SET 5/8" IRC
HC2	20+49.91	334.70' LT.	HARBORVIEW RD	956680.079	633289.940	6.859'	SET 5/8" IRC
HC3	19+57.87	296.95' RT.	HARBORVIEW RD	956041.804	633282.629	6.288'	SET 5/8" IRC

GENERAL NOTES

1. ALL BENCHMARK ELEVATIONS SHOWN ON THE PLANS ARE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88). EXISTING AND PROPOSED ELEVATIONS SHOWN ARE BASED ON NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88).
2. ALL SURVEY INFORMATION WAS OBTAINED FROM A LICENSED FLORIDA PROFESSIONAL SURVEYOR AND MAPPER AND UTILIZED AS SUPPORTING DATA IN THE PRODUCTION OF DESIGN PLANS AND FOR CONSTRUCTION ON THE SUBJECT PROJECT. THE PROFESSIONAL SURVEYOR AND MAPPER OF RECORD IS:
   BERNARD GREGORY RIETH, P.S.M.
   P.S.M. NO: 5228
   FLORIDA TRANSPORTATION ENGINEERING, INC.
   11458 NORTH 53RD STREET
   TAMPA, FLORIDA, 33617
3. CONTACT CHARLOTTE COUNTY UTILITY DEPARTMENT 48 HOURS PRIOR TO CONSTRUCTION.
4. ALL WORK AND MATERIALS FOR THE PROJECT MUST CONFORM TO CURRENT CHARLOTTE COUNTY SPECIFICATIONS.
5. EXISTING FACILITIES MUST BE RESTORED TO A CONDITION EQUIVALENT OR BETTER TO THAT WHICH EXISTED PRIOR TO COMMENCING CONSTRUCTION, AT NO ADDITIONAL COST TO THE OWNER.
6. ANY LAND DISTURBED BY CONSTRUCTION MUST BE SODDED. USE ARGENTINE BAHIA OR LIKE KIND AND CONFORM TO FDOT SPECIFICATION SECTION 570 AND STANDARD PLANS INDEX 570-010. SOD ALONG EDGES OF PAVEMENT OF ALL ROADS, SIDEWALKS AND/OR CURB MUST BE 1 INCH BELOW FINISHED PAVEMENT GRADE.
7. ADJUST ALL VALVE BOXES, MANHOLE RIMS, GRATES, ETC. AS NECESSARY TO MATCH PROPOSED GRADES.

SIGNING AND PAVEMENT MARKING NOTES

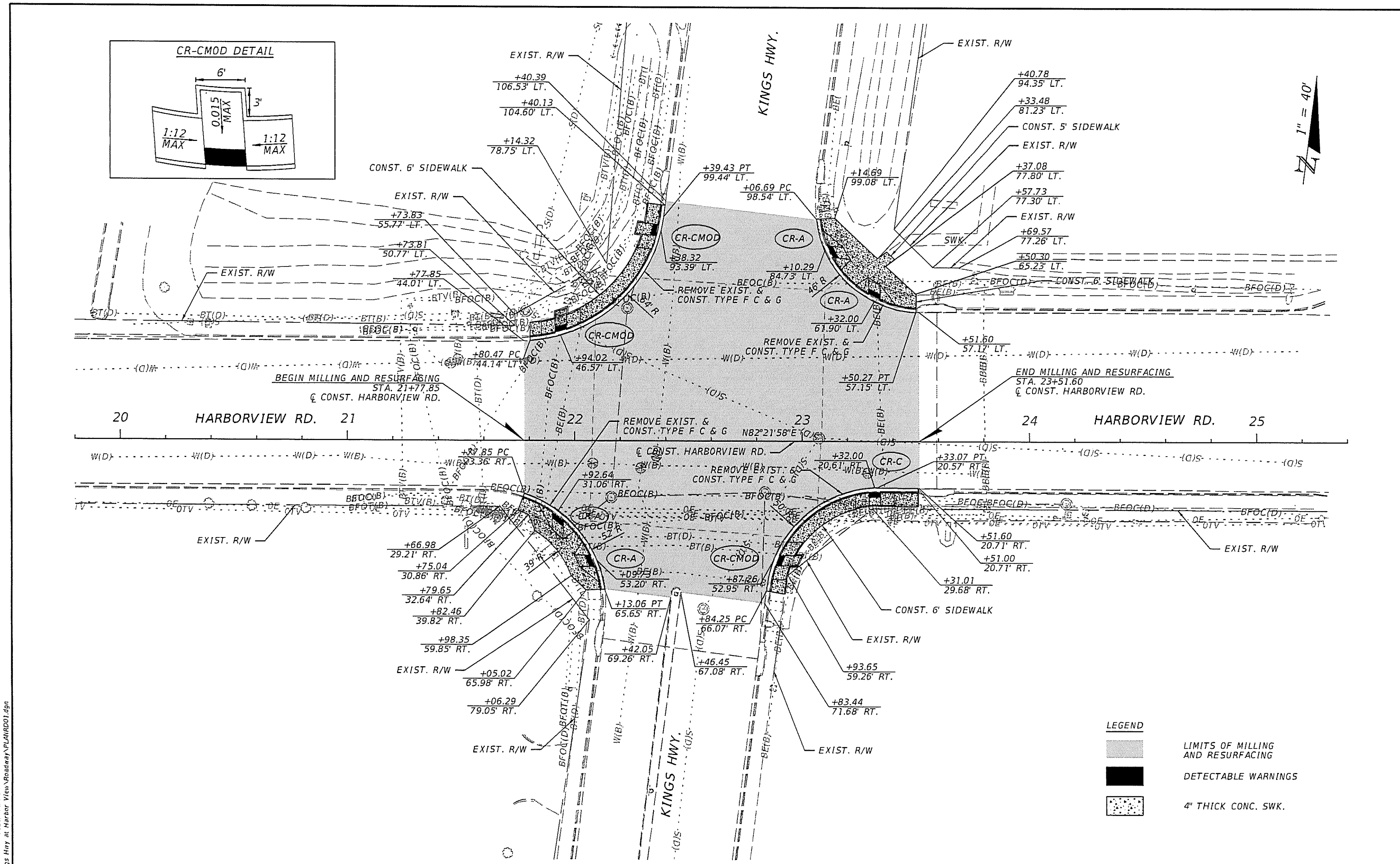
1. ALL MARKINGS MUST BE REFLECTIVE PAINT- GLASS BEAD.

SIGNALIZATION NOTES

1. SIGNAL TO BE MAINTAINED BY CHARLOTTE COUNTY. WHEN CONSTRUCTION IS COMPLETE, PROVIDE A SET OF "AS-BUILT" PLANS TO:
   CHARLOTTE COUNTY PUBLIC WORKS DEPARTMENT, LIGHTING DISTRICT:
   7000 FLORIDA STREET
   PUNTA GORDA, FLORIDA 33950
   +1 (941) 575-3648
   CONTACT: JODY MANSELL
2. WHERE MAST ARM, STRAIN POLES, OR ANY OTHER SIGNAL EQUIPMENT REQUIRING FOUNDATIONS ARE PROPOSED WITHIN 4 FEET OF ANY UNDERGROUND UTILITY, THE UTILITY MUST BE LOCATED AND PROTECTED AND THE INITIAL 5 FEET OF THE SHAFT INSTALLATION MUST BE HAND DUG.
3. STAKE ALL POLE LOCATIONS AND REQUEST UTILITY COMPANIES TO LOCATE AND STAKE UNDERGROUND UTILITIES PRIOR TO DRILLING.
4. COAT ALL TERMINATIONS WITH NOALOX.
5. WEATHERPROOF IRREGULAR MATTING SURFACES SUCH AS AREAS INCLUDING SEPARATED SIGNAL COUPLINGS, CONTROLLER CABINET FOUNDATION, PEDESTRIAN PUSH BUTTONS, AND ANY OTHER AREAS TYPICALLY PRONE TO MOISTURE INFILTRATION BY APPLYING A BEAD OF SILICONE CAULK.
6. WHEREVER A CABLE ENTERS OR EXITS A FIELD-DRILLED HOLE, THE HOLE MUST BE PROTECTED BY A PERMANENTLY INSTALLED RUBBER GROMMET.

LIGHTING NOTES

1. ANY DAMAGED PORTIONS OF POLES, FIXTURES AND BRACKET ARMS WILL BE REJECTED.
2. ALL CONDUITS THAT WILL REMAIN EMPTY MUST BE MANDREL TESTED, CLEANED INSIDE AND BOTH ENDS CAPPED. LEAVE THE CORROSION RESISTANT PULL WIRE AND PLACE PULL BOXES TO MARK THE LOCATION OF THE ENDS OF THE CONDUITS.
3. ALL MATERIAL, UNLESS OTHERWISE SPECIFIED, MUST BE UNDERWRITERS LABORATORY (UL APPROVED).
4. ALL PULL-BOXES MUST HAVE MOW PADS OR BE INSTALLED IN SIDEWALK.
5. ALL PULL BOXES FOR ROADWAY LIGHTING MUST HAVE STAMPED COVERS LABELED "STREET LIGHTING".
6. INSTALLATION OF LIGHTING POLES AND CIRCUITS MUST BE IN ACCORDANCE WITH THE FDOT STANDARD PLANS-FY 2024-25, INDEX 715-001, AND THE LATEST NATIONAL ELECTRIC CODE. ALL COMPONENTS MUST BE PROPERLY GROUNDED AND BONDED PER N.E.C. AND N.E.S.C. CODE AND CURRENT EDITION OF THE CHARLOTTE COUNTY LIGHTING DISTRICT SUPPLEMENTAL SPECIFICATIONS.
7. FOUR COPIES OF SHOP DRAWINGS AND DESIGN DATA MUST BE SUBMITTED TO THE ENGINEER OF RECORD WITH A COPY OF THE SUBMITTAL LETTER SENT TO CHARLOTTE COUNTY PUBLIC WORKS, PROJECT MANAGER. A COPY OF SHOP DRAWINGS MUST BE SENT TO CHARLOTTE COUNTY FOR REVIEW AND APPROVAL. ALLOW A 30 DAY TURNAROUND FOR SUBMITTALS.
8. LIGHTING CONTRACTOR MUST FOLLOW ALL OSHA RULES AND REGULATIONS WHEN WORKING IN THE VICINTY OF ENERGIZED FPL HIGH VOLTAGE ELECTRIC LINES. AT NO TIME SHOULD ANY PERSONNEL OR EQUIPMENT BE CLOSER THAN 10 FEET TO ENERGIZED LINES.
9. NOTIFY FPL AT LEAST 48 HOURS PRIOR TO ANY INSTALLATION THAT IS WITHIN 10 FEET OF ENERGIZED ELECTRICAL CONDUCTORS. FPL AT ITS OPTION MUST ASSIST THE CONTRACTOR TO COVER UP ENERGIZED CONDUCTORS AT INSTALLATION SITE OR TAKE OTHER ACTION AT ALL TIMES IN PERFORMANCE OF WORK AROUND ANY PRIMARY, HIGH VOLTAGE COMPONENTS.
10. PULLING INSTRUCTIONS: CONNECT PULLING DEVICES TO COPPER WIRE AND NOT TO JACKET AND MEET MANUFACTURER'S REQUIREMENTS. ALL BENDS MUST BE NOT LESS THAN RECOMMENDED BY N.E.C. OR N.E.S.C. FOR CABLES USED.
11. MINIMUM DEPTH OF COVER ON THE LIGHTING CONDUIT MUST BE 36".
12. INSTALL SURGE PROTECTIVE DEVICES, PROPERLY GROUNDED IN POWER (SECONDARY) ENTRANCES.
13. WHENEVER POSSIBLE ALL CONDUITS UNDER ROADWAY AND SIDEWALK MUST BE INSTALLED PRIOR TO INSTALLATION OF THE ROADWAY BASE AND SURFACE. NO OPEN CUT OF FINAL PAVEMENT SURFACES MUST BE ALLOWED.
14. CONSTRUCT DIRECTIONAL BORE CONDUIT AND TERMINATE INTO SEPARATE PULL BOXES.
15. AT LOCATIONS WHERE UNDERGROUND UTILITIES ARE WITHIN 4 FEET OF THE LIGHT POLE FOUNDATIONS OR CONDUIT RUN, AS DETERMINED BY THE ENGINEER, IT MAY BE NECESSARY TO INVESTIGATE FOUNDATION OR CONDUIT RUN BY HAND DIGGING.
16. ALL CONDUIT TRENCHES MUST BE BACKFILLED COMPLETELY TO PROVIDE SAFE CROSSING BY THE END OF EACH WORKING DAY OR WHENEVER THE WORK ZONE BECOMES INACTIVE. DO NOT OPEN ANY AREA THAT CANNOT BE BACKFILLED IN THE SAME DAY/NIGHT OPERATION.
17. ANY EXCESS DIRT AND DEBRIS RESULTING FROM INSTALLATION OF POLE FOUNDATION, TRENCHING OR DIRECTIONAL DRILLING MUST BE REMOVED DAILY TO AREAS APPROVED BY THE ENGINEER.
18. THERE MUST BE NO SPLICES MADE IN PULL BOXES UNLESS AUTHORIZED BY CHARLOTTE COUNTY LIGHTING DISTRICT.
19. ALL CURRENT CARRYING CONDUCTORS MUST HAVE BLACK AND WHITE THHN/THWN INSULATION RATED AT 600 VOLTS. ALL GROUNDED CONDUCTORS MUST HAVE WHITE CONTINUOUS THHN/THWN INSULATION RATED AT 600 VOLTS. ALL GROUNDING CONDUCTORS MUST HAVE CONTINUOUS GREEN THHN/THWN INSULATION RATED AT 600 VOLTS.
20. CONDUCTORS MUST BE INSTALLED WITH SUFFICIENT SLACK AT THE BASE OF THE POLE TO ALLOW WIRES AND CONNECTIONS TO BE PULLED OUTSIDE THE TRANSFORMER BASE HOUSING.
21. AT EACH LIGHT POLE, CONNECT PULL BOX TO LIGHT POLE FOUNDATION BY MEANS OF TWO 1 1/4" PVC.
22. ALL NON-ELECTRICAL THREADED HARDWARE, ALL MECHANICAL ELECTRICAL CONNECTIONS AND ANY THREADED COMPONENT REQUIRING ASSEMBLY MUST BE COATED WITH IDEAL NOALOX ANTI-OXIDANT COMPOUND.



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REVISIONS				ENGINEER OF RECORD			SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION	RYAN C. ANLOAGUE, P.E. LICENSE NUMBER 92396 FLORIDA TRANSPORTATION ENGINEERING, INC. 11458 NORTH 53RD STREET TAMPA, FLORIDA 33617	CHARLOTTE COUNTY PUBLIC WORKS DEPARTMENT	ROADWAY PLAN	5

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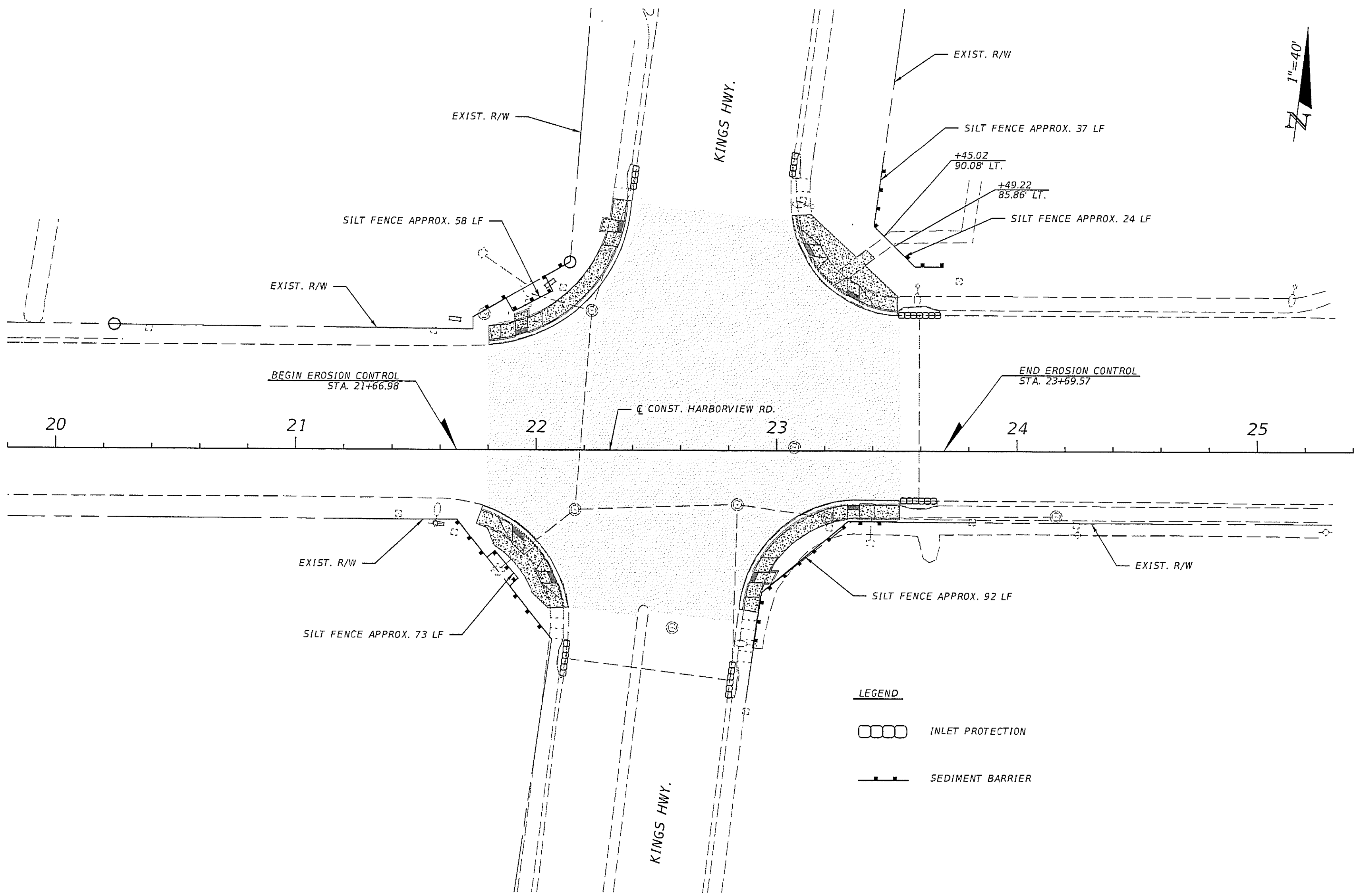

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REVISIONS				ENGINEER OF RECORD			
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TRAFFIC CONTROL NOTES

1. CONTACT CHARLOTTE COUNTY PUBLIC WORKS DEPARTMENT FOR REVIEW AND APPROVAL OF THE TRAFFIC CONTROL PLAN PRIOR TO COMMENCING CONSTRUCTION.
2. DAY TIME LANE CLOSURES ARE NOT PERMITTED.
3. EXISTING POSTED SPEEDS TO REMAIN.
4. MAINTAIN PEDESTRIAN ACCESS UTILIZING INDEX 102-660.

PHASING NOTES

PHASE I

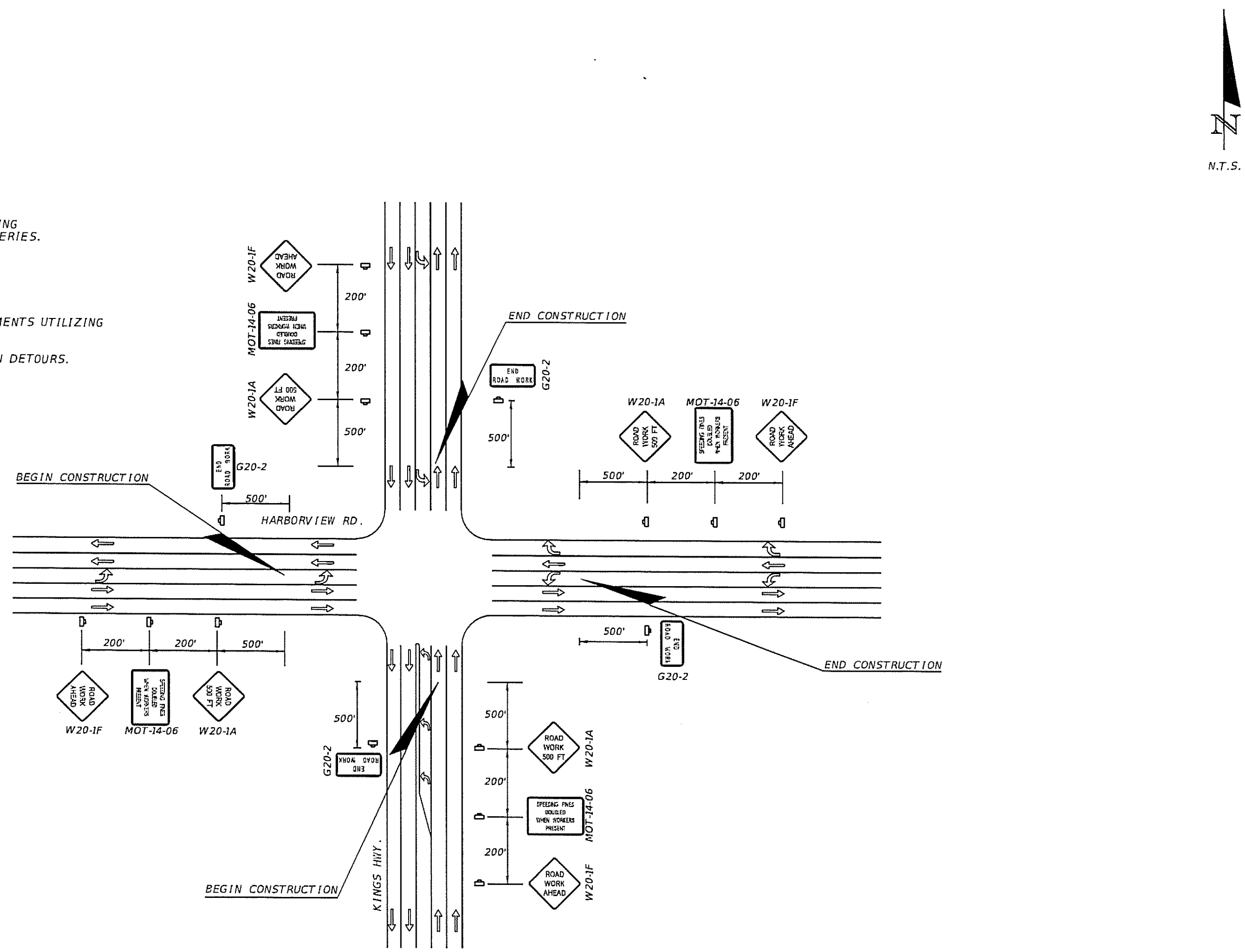
1. INSTALL ADVANCE WARNING SIGNS AND WARNING DEVICES UTILIZING TRAFFIC CONTROL PLAN AND FDOT STANDARD PLANS INDEX 102 SERIES.
2. INSTALL TEMPORARY EROSION CONTROL DEVICES.

PHASE II

1. CONSTRUCT SIGNALIZATION, LIGHTING AND PEDESTRIAN IMPROVEMENTS UTILIZING INDEX 102-615, AND 102-660.
2. CONSTRUCT ONE CURB RAMP AT A TIME AND PROVIDE PEDESTRIAN DETOURS.

PHASE III

1. MILL AND RESURFACE THE EXISTING ROADWAY AND PLACE FINAL PAVEMENT LAYER, FINAL PAVEMENT MARKINGS, AND SIGNS, UTILIZING INDEX 102-613, 102-615, AND 102-660.



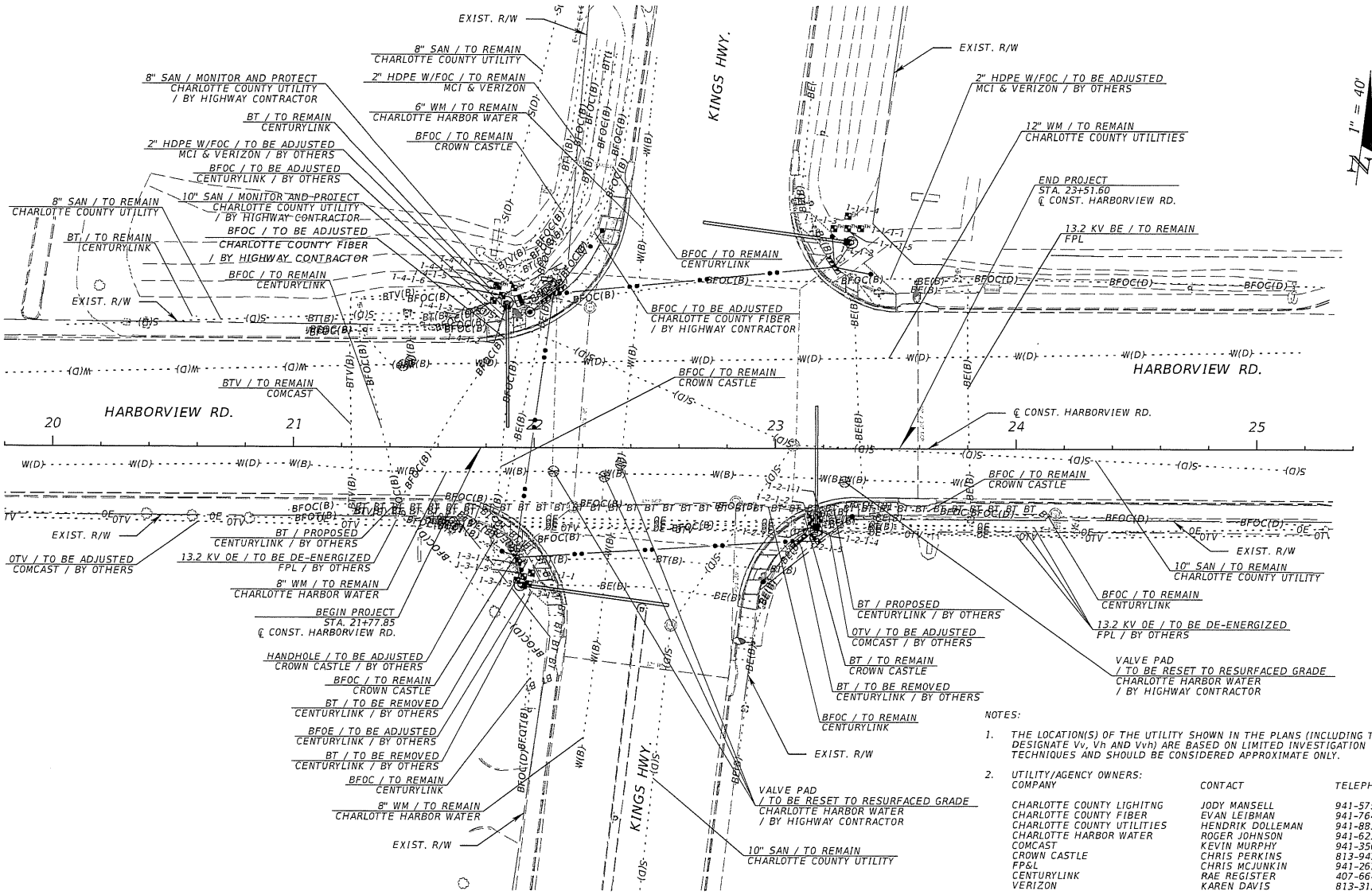
REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ENGINEER OF RECORD
RYAN C. ANLOAGUE, P.E.
LICENSE NUMBER 92396
FLORIDA TRANSPORTATION ENGINEERING, INC.
11458 NORTH 53RD STREET
TAMPA, FLORIDA 33617

CHARLOTTE COUNTY
PUBLIC WORKS DEPARTMENT

TEMPORARY TRAFFIC CONTROL PLAN

SHEET NO. 7



NOTES:

1. THE LOCATION(S) OF THE UTILITY SHOWN IN THE PLANS (INCLUDING THOSE DESIGNATE Vv, Vh AND Vvh) ARE BASED ON LIMITED INVESTIGATION TECHNIQUES AND SHOULD BE CONSIDERED APPROXIMATE ONLY.

2. UTILITY/AGENCY OWNERS:

COMPANY	CONTACT	TELEPHONE NO.
CHARLOTTE COUNTY LIGHITNG	JODY MANSELL	941-575-3648
CHARLOTTE COUNTY FIBER	EVAN LEIBMAN	941-764-5504
CHARLOTTE COUNTY UTILITIES	HENDRIK DOLLEMAN	941-883-3521
CHARLOTTE HARBOR WATER	ROGER JOHNSON	941-625-2288
COMCAST	KEVIN MURPHY	941-356-1489
CROWN CASTLE	CHRIS PERKINS	813-947-6009
FP&L	CHRIS MCJUNKIN	941-267-7476
CENTURYLINK	RAE REGISTER	407-664-6670
VERIZON	KAREN DAVIS	813-312-3217

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ENGINEER OF RECORD

RYAN C. ANLOAGUE, P.E.
LICENSE NUMBER 92396
FLORIDA TRANSPORTATION ENGINEERING, INC.
11458 NORTH 53RD STREET
TAMPA, FLORIDA 33617

CHARLOTTE COUNTY
PUBLIC WORKS DEPARTMENT

UTILITY ADJUSTMENTS

SHEET NO. 8

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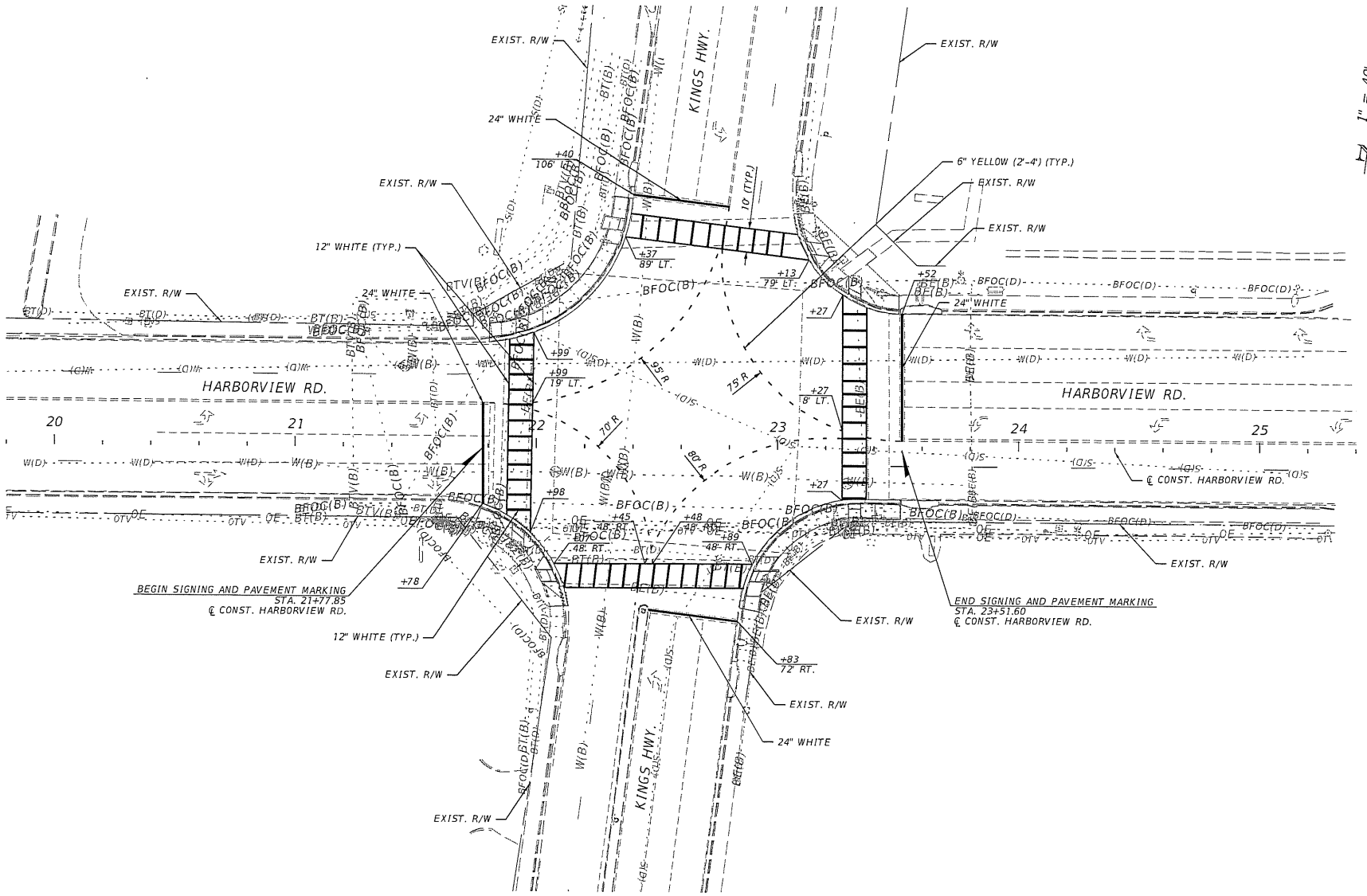

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REVISIONS				ENGINEER OF RECORD			
DATE		DATE	DESCRIPTION	RYAN C. ANLOAGUE, P.E. LICENSE NUMBER 92396 FLORIDA TRANSPORTATION ENGINEERING, INC. 11458 NORTH 53RD STREET TAMPA, FLORIDA 33617	CHARLOTTE COUNTY PUBLIC WORKS DEPARTMENT	SIGNING AND PAVEMENT MARKING PLAN	SHEET NO. 9

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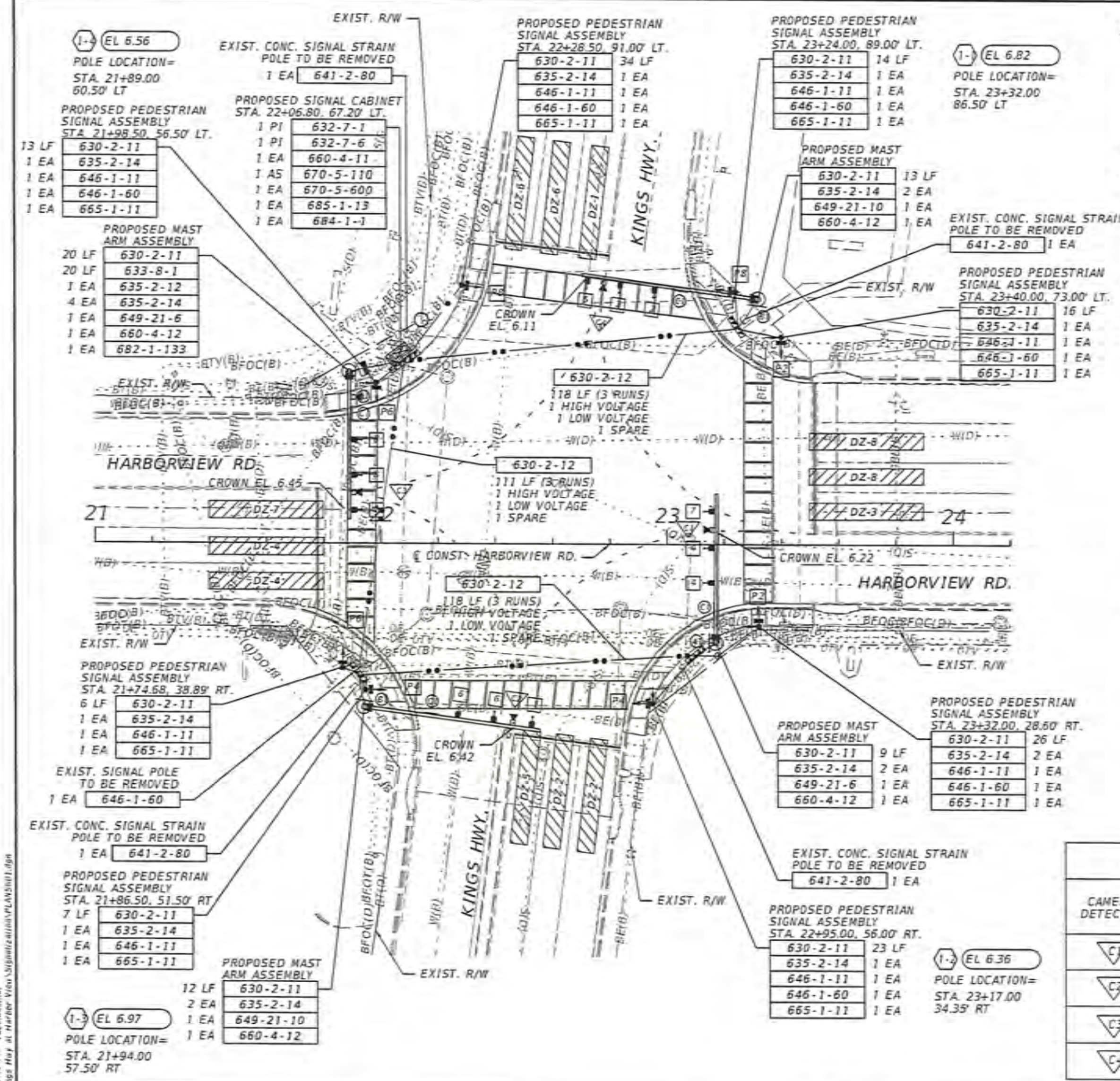
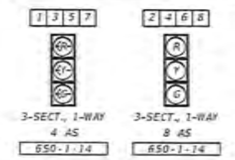
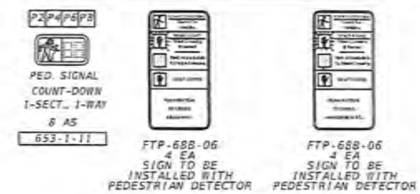


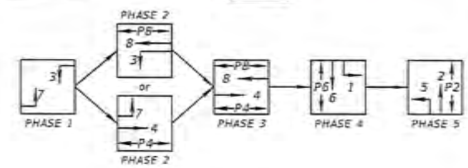
SIGNAL HEAD DETAILS



PEDESTRIAN SIGNAL DETAILS

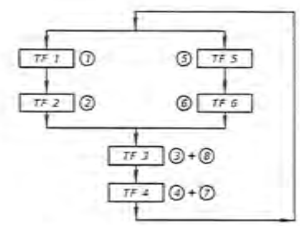


OVERHEAD SIGN DETAILS



NOTES:

1. CONTROLLER OPERATIONS:
   - MAJOR STREET: KINGS HWY.
   - MINOR STREET: HARBORVIEW RD.
2. FLASHING OPERATIONS:
   - YELLOW: 2 & 6
   - RED: 1, 3, 4, 5, 7 & 8
3. POSTED SPEED LIMITS ARE AS FOLLOWS:
   - HARBORVIEW RD. EB APPROACH = 45 MPH
   - HARBORVIEW RD. WB APPROACH = 35 MPH
   - KINGS HWY. = 40 MPH
4. ALL VIDEO DETECTION ZONES ARE 6' X 40'.



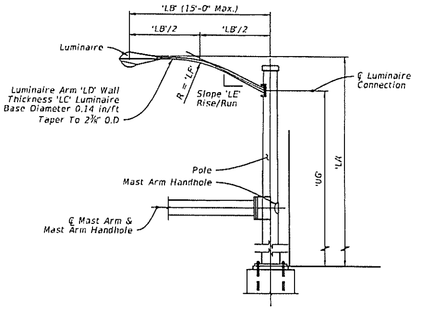
VIDEO VEHICLE DETECTION ASSIGNMENTS

CAMERA DETECTOR	DETECTION ZONE	TIMING FUNCTION CONNECTION
C1	DZ-4	TF-4
	DZ-7	TF-7
C2	DZ-6	TF-6
	DZ-1	TF-1
C3	DZ-8	TF-8
	DZ-3	TF-3
C4	DZ-2	TF-2
	DZ-5	TF-5

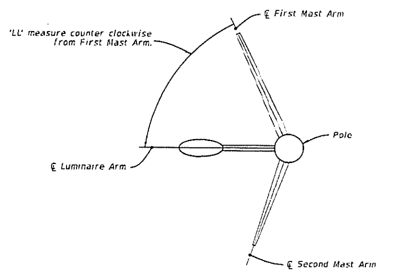
CONTROLLER TIMINGS

TIMING FUNCTION								
MOVEMENT NUMBER	1	2	3	4	5	6	7	8
MINIMUM GREEN	10	25	10	25	10	25	10	25
EXTENSION	3	4	3	4	3	4	3	4
MAXIMUM GREEN 1	30	50	30	50	30	50	30	50
MAXIMUM GREEN 2								
YELLOW CLEARANCE	4.4	4.4	4.8	4.8	4.4	4.4	4.8	4.8
ALL RED	2.0	2.0	2.4	2.0	2.0	2.0	2.4	2.0
PEDESTRIAN WALK		7		7		7		7
PED. CLEARANCE		30		30		30		30
RECALL		MIN				MIN		

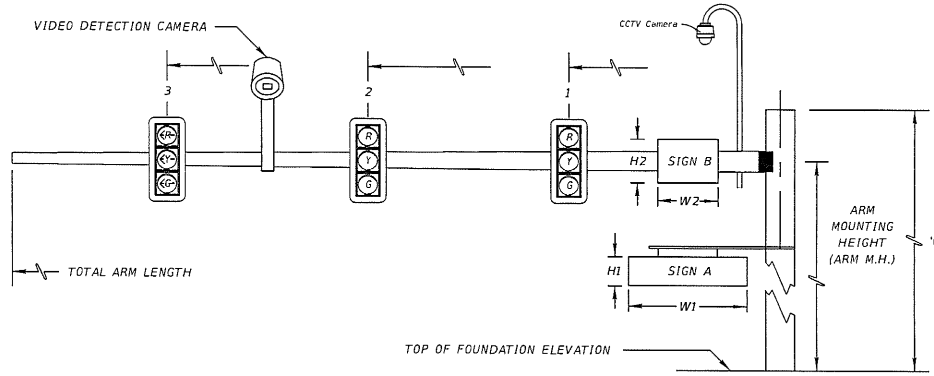
REVISIONS				ENGINEER OF RECORD			
DATE	DESCRIPTION	DATE	DESCRIPTION	RYAN C. ANLOAGUE, P.E. LICENSE NUMBER 92396 FLORIDA TRANSPORTATION ENGINEERING, INC. 11458 NORTH 53RD STREET TAMPA, FLORIDA 33617	CHARLOTTE COUNTY PUBLIC WORKS DEPARTMENT	SIGNALIZATION PLAN	SHEET NO. 10



LUMINAIRE ELEVATION



LUMINAIRE ORIENTATION



* DENOTES NUMBER OF SECTIONS IN SIGNAL HEAD ASSEMBLY

ID NO.	SHEET NO.	LOCATION BY STA.	TOP OF FOUND. ELEVATION	RDWY ARM NO.	CROWN ELEV.	LUMINAIRE Y/N	TERN. COMP. Y/N	SIGNAL DATA: SIGNAL V/H	BACK PLATES Y/N	PED. SIGNAL Y/N	DISTANCE FROM POLE: 1	*	2	*	3	*	TOTAL ARM LENGTH	ARM M.H.	LUMINAIRE CONNECTION: UG	LA	LL	CCTV M.H.	Upright UA	ANGLE BETWEEN DUAL ARMS 90/270	SIGN DATA: DISTANCE FROM POLE / HEIGHT AND WIDTH OF SIGN: A	H1	W1	B	H2	W2	PAINT COLOR	VIDEO DETECTION CAMERA: DISTANCE FROM POLE	CCTV CAMERA: DISTANCE FROM POLE
1-1	9	23+32.00, 86.50' LT	6.82	1	6.11	N	N	V	Y	N	34.3	3	46.3	3	57.8	3	60	19.5					22.5		0.0	2.0	7.0	25.0	2.5	2.5	GALV.	52.0	
				2																													
1-2	9	23+17.00, 35.35' RT	6.36	1	6.22	N	N	V	Y	N	18.9	3	31.1	3	43.8	3	50	20.0					23.0		0.0	2.0	6.0	9.7	2.5	2.5	GALV.	37.5	
				2																													
1-3	9	21+94.00, 57.50' RT	6.97	1	6.42	N	N	V	Y	N	30.7	3	43.3	3	56.8	3	60	19.5					22.5		0.0	2.0	7.0	21.5	2.5	2.5	GALV.	50.1	
				2																													
1-4	9	21+89.00, 60.50' LT	6.56	1	6.45	Y	N	V	Y	N	22.1	3	34.6	3	46.9	3	50	20.0	34.4	40.0	44.0	20.0	39.0		0.0	2.0	6.0	12.9	2.5	2.5	GALV.	40.7	7.0
				2																													
				1																													
				2																													
				1																													
				2																													
				1																													
				2																													
				1																													
				2																													

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ENGINEER OF RECORD
RYAN C. ANLOAGUE, P.E.
LICENSE NUMBER 92396
FLORIDA TRANSPORTATION ENGINEERING, INC.
11458 NORTH 53RD STREET
TAMPA, FLORIDA 33617

CHARLOTTE COUNTY
PUBLIC WORKS DEPARTMENT

STANDARD MAST ARM TABULATION

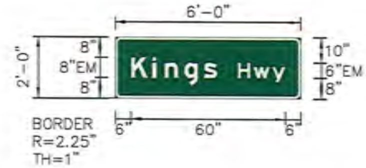
SHEET NO. 11

7/8/2024 3:53:47 PM YazenAlkindi
S:\Projects\FDOT\Kings Hwy at Harbor View\Signalization\SSGSG01.dgn

SIGN NAME	A1	QTY	2	SIGN NUMBER	STATION(S)
PANEL		BORDER			23+17.00
WIDTH	6'-0"	WIDTH	1"		21+89.00
HEIGHT	2'-0"	RADII	2.25"		
LEGEND	White	COLOR	White		
COLOR	Green				

SYMBOL(S)	ANGLE	X	Y	WID	HT

SIGN NUMBER	NUMBER OF POSTS	CLEARANCE Edge of Lane	COLUMN SIZE	AVERAGE LENGTH



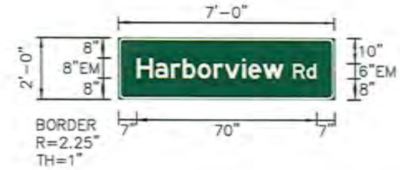
NO. OF LIGHT FIXTURES		FIXTURE SPACING		PHOTOMETRIC CURVE		WATT		VOLTAGE	

COPY	K	i	n	g	s	H	w	y		L
SPACE	6	14.3	19	26.7	34.3	47.5	53.7	60.9		60
COPY										
SPACE										
COPY										
SPACE										
COPY										
SPACE										
COPY										
SPACE										
COPY										
SPACE										

SIGN NAME	B1	QTY	2	SIGN NUMBER	STATION(S)
PANEL		BORDER			23+32.00
WIDTH	7'-0"	WIDTH	1"		21+94.00
HEIGHT	2'-0"	RADII	2.25"		
LEGEND	White	COLOR	White		
COLOR	Green				

SYMBOL(S)	ANGLE	X	Y	WID	HT

SIGN NUMBER	NUMBER OF POSTS	CLEARANCE Edge of Lane	COLUMN SIZE	AVERAGE LENGTH



NO. OF LIGHT FIXTURES		FIXTURE SPACING		PHOTOMETRIC CURVE		WATT		VOLTAGE	

COPY	H	a	r	b	o	r	v	i	e	w		R	d		L
SPACE	7	14.1	20.3	24.9	30.7	36.9	41.2	48.1	50.4	56.2	64.3	67.9	73		70
COPY															
SPACE															
COPY															
SPACE															
COPY															
SPACE															
COPY															
SPACE															
COPY															
SPACE															

SIGN NAME		QTY		SIGN NUMBER	STATION(S)
PANEL		BORDER			
WIDTH		WIDTH			
HEIGHT		RADII			
LEGEND		COLOR			
COLOR					

SYMBOL(S)	ANGLE	X	Y	WID	HT

SIGN NUMBER	NUMBER OF POSTS	CLEARANCE Edge of Lane	COLUMN SIZE	AVERAGE LENGTH

NO. OF LIGHT FIXTURES		FIXTURE SPACING		PHOTOMETRIC CURVE		WATT		VOLTAGE	

COPY	
SPACE	
COPY	
SPACE	
COPY	
SPACE	
COPY	
SPACE	
COPY	
SPACE	
COPY	
SPACE	

SIGN NAME		QTY		SIGN NUMBER	STATION(S)
PANEL		BORDER			
WIDTH		WIDTH			
HEIGHT		RADII			
LEGEND		COLOR			
COLOR					

SYMBOL(S)	ANGLE	X	Y	WID	HT

SIGN NUMBER	NUMBER OF POSTS	CLEARANCE Edge of Lane	COLUMN SIZE	AVERAGE LENGTH

NO. OF LIGHT FIXTURES		FIXTURE SPACING		PHOTOMETRIC CURVE		WATT		VOLTAGE	

COPY	
SPACE	
COPY	
SPACE	
COPY	
SPACE	
COPY	
SPACE	
COPY	
SPACE	
COPY	
SPACE	

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ENGINEER OF RECORD
RYAN C. ANLOAGUE, P.E.
LICENSE NUMBER 92396
FLORIDA TRANSPORTATION ENGINEERING, INC
11458 NORTH 53RD STREET
TAMPA, FLORIDA 33617

CHARLOTTE COUNTY
PUBLIC WORKS DEPARTMENT

INTERNALLY ILLUMINATED STREET NAME SIGNS DETAILS

SHEET NO. 12

S:\Projects\FDOT\Kings Hwy at Harbor View\Signalization\GSWKS001.dgn : SPECIALDETAILSHEETS
YazenAlkindi 7/8/2024 3:53:47 PM

STANDARD MAST ARM ASSEMBLIES DATA TABLE

Table Date 11-01-16

STRUCTURE ID NUMBERS	DESIGNATION	FIRST ARM		SECOND ARM		UF (deg)	LL (deg)	POLE			DRILLED SHAFT ID
		ARM ID	FAA (ft.)	ARM ID	SAA (ft.)			POLE ID	UAA (ft.)	UB (ft.)	
MA 1-1	A60/S - P4/S	A60						P4/S	22.5	19.5	DS/20.0/5.0
MA 1-2	A50/S - P3/S	A50						P3/S	23.0	20.0	DS/25.0/5.0
MA 1-3	A60/S - P4/S	A60						P4/S	22.5	19.5	DS/25.0/5.0
MA 1-4	A50/S - P3/S/L*	A50					44	P3/S/L*	39.0	20.0	DS/25.0/5.0

*LUMINAIRE AND CONNECTION

LA (ft)	LB (ft)	LC (in)	LD (in)	LE	LF (ft)	LG (in)	LH (in)	LJ (in)	LK (in)	LL (deg)	UG (ft.)
40.0	11.2	3	0.1875	1	8	0.5	0.75	0.25	0.25	44	34.4

NOTES [Notes Date 11-01-16]:

1. Design Wind Speed = 170 mph
2. If an entry appears in column FAA, a shorter arm is required. This is obtained by removing length from the arm tip and the arm length shortened from FA to FAA. SAA Similar.
3. If an entry appears in column UAA, a shorter pole is required. This is obtained by removing length from the pole tip and the pole height shortened from UA to UAA.
4. Work this sheet with the Signal Designer's "Mast Arm Tabulation". See "Mast Arm Tabulation" for special instructions that include non-standard Handhole location, paint color, terminal compartment requirement, and pedestrian features.
5. Work with Index 649-030 and 649-031.

FOUNDATION NOTES:

1. Design based on borings taken, signed and sealed by Universal Engineering Sciences.
2. Assumptions and values used in design:

MA 1-1 (Boring B-1)

Soil Type = Cohesionless
Soil Friction Angle = 29° (deg)
Soil Weight = 47 pcf
Design SPT N-Value = 8
Design Water Table is 0 ft. below surface

MA 1-2 & 1-3 (Borings B-2 & B-3)

Soil Type = Cohesionless
Soil Friction Angle = 29° (deg)
Soil Weight = 47 pcf
Design SPT N-Value = 5
Design Water Table is 0 ft. below surface

MA 1-4 (Boring B-4)

Soil Type = Cohesionless
Soil Friction Angle = 29° (deg)
Soil Weight = 46 pcf
Design SPT N-Value = 5
Design Water Table is 0 ft. below surface

REVISIONS				ENGINEER OF RECORD			
DATE	DESCRIPTION	DATE	DESCRIPTION	COLIN J. CAMPBELL, P.E. LICENSE NUMBER: 62566 AGENOR & CAMPBELL STRUCTURAL ENGINEERS, LLC 670 ISLAND WAY, SUITE 301 CLEARWATER, FLORIDA 33767	CHARLOTTE COUNTY PUBLIC WORKS DEPARTMENT	MAST ARM ASSEMBLIES DATA TABLE	SHEET NO. 13

Source: Google Earth Pro

NOTES: SPT BORING LOCATION

SOIL PARAMETERS

Boring No.	Depth (ft)	Unit Weight (moist) (pcf)	Submerged Unit Weight (pcf)	Angle of Internal Friction (°)
B-3	0 - 2	101	47	29
	2 – 6	102	48	30
	6 - 23	101	47	30
	23 – 28 & 33 - 35	105	51	33
	28 - 33	106	52	34
B-4	0 - 6	-	-	-
	6 – 13	100	46	29
	13 – 18	102	48	30
	18 – 23	103	49	31
	23 – 33	109	55	38
	33 – 35	105	51	33

SUBMERGED UNIT WEIGHT SHOULD BE USED BELOW THE WATER TABLE.

UES RECOMMENDS THE FOLLOWING SOIL DESIGN PARAMETERS (MOIST UNIT WEIGHT - 101 PCF, SUBMERGED UNIT WEIGHT - 47 PCF, ANGLE OF INTERNAL FRICTION - 30) AT THE LOCATIONS WHERE SOIL DESIGN PARAMETERS ARE NOT SHOWN IN TABLE (WHERE HAND AUGERS WERE PERFORMED). THESE SOIL DESIGN PARAMETERS ARE BASED ON THE ASSUMPTION OF SPT-N VALUE OF 5 TO 6 AT THE HAND AUGER LOCATIONS.

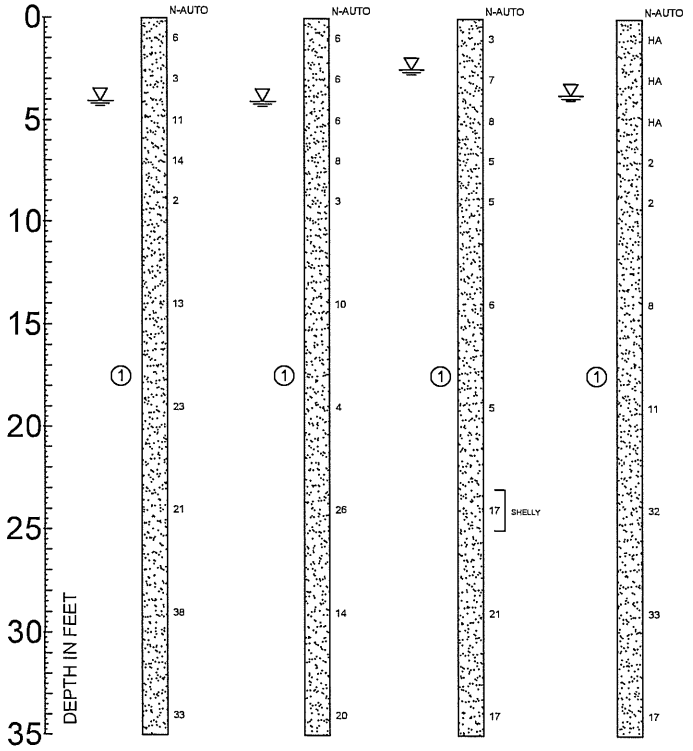
SOIL PROFILES

BOR #: B-1
DATE: 03/12/2024
DRILLER: L SANCHEZ
HAMMER: AUTO
RIG: CME-45
LAT: 26°57'53.75"N
LONG: 82°4'12.80"W

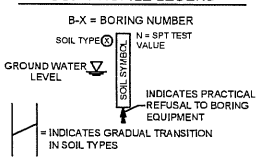
BOR #: B-2
DATE: 03/12/2024
DRILLER: L SANCHEZ
HAMMER: AUTO
RIG: CME-45
LAT: 26°57'52.25"N
LONG: 82°4'12.87"W

BOR #: B-3
DATE: 03/12/2024
DRILLER: L SANCHEZ
HAMMER: AUTO
RIG: CME-45
LAT: 26°57'52.17"N
LONG: 82°4'14.22"W

BOR #: B-4
DATE: 03/12/2024
DRILLER: L SANCHEZ
HAMMER: AUTO
RIG: CME-45
LAT: 26°57'53.29"N
LONG: 82°4'14.32"W



SOIL PROFILE LEGEND



SOIL LEGEND

① Dark to Light Brown, Dark to Light Gray, Tan SAND (SP) Very Loose to Dense

N - NUMBERS TO THE RIGHT OF BORINGS INDICATE SPT VALUE FOR 12-INCHES OF PENETRATION (UNLESS OTHERWISE NOTED).

NO ELEVATIONS WERE PROVIDED. DEPTH SHOWN IS FROM EXISTING GROUND SURFACE AT TIME OF SAMPLING.

GEOGRAPHICAL GPS COORDINATE LOCATIONS WERE DETERMINED USING A 4 SATELLITE MINIMUM AUTOMONOUS SOLUTION WAS ENABLED HAND HELD GPS UNIT.

THE BORING LOGS SHOWN REPRESENT SUBSURFACE CONDITIONS WITHIN THE BOREHOLE AT TIME OF DRILLING. NO WARRANTY AS TO THE SUBSURFACE CONDITION, STRATA DEPTH OF SOIL CONSISTENCY BETWEEN OR OUTSIDE BORING LOCATIONS IS EXPRESSED OR IMPLIED BY THIS DRAWING.

HA - NO RECORDED N VALUES DUE TO HAND AUGERING PROCEDURE

SOIL CLASSIFICATION

CORRELATION OF N - VALUES WITH RELATIVE DENSITY AND CONSISTENCY

COHESIONLESS SOIL

N - VALUE	RELATIVE DENSITY
0 - 3	VERY LOOSE
4 - 8	LOOSE
9 - 24	MEDIUM DENSE
25 - 40	DENSE
OVER 40	VERY DENSE

SILTS AND CLAYS

N - VALUE	CONSISTENCY
0 - 1	VERY SOFT
2 - 4	SOFT
5 - 8	FIRM
7 - 12	STIFF
13 - 24	VERY STIFF
OVER 24	HARD

CORRELATION OF N - VALUES WITH HARDNESS DESCRIPTION

LIMEROCK

N - VALUE	RELATIVE DENSITY
0 - 50	SOFT
51 - 50 FOR 0"	HARD

APPROXIMATE FINES CONTENT	MODIFIERS
5% TO 12%	SLIGHTLY SILTY OR SLIGHTY CLAYEY
13% TO 25%	SILTY OR CLAYEY
26% TO 49%	VERY SILTY OR VERY CLAYEY

APPROXIMATE SAND/ GRAVEL CONTENT	MODIFIERS
5% TO 15%	SLIGHTLY SANDY OR SLIGHTLY GRAVELLY
15% TO 25%	SANDY OR GRAVELLY
26% TO 49%	VERY SANDY OR VERY GRAVELLY

APPROXIMATE ROOT CONTENT	MODIFIERS
5% TO 10%	TRACE
11% TO 20%	TRACE TO SOME
21% TO 40%	SOME
41% TO 60%	AND

DEFINITION OF DESCRIPTIVE TERMS OF MODIFIERS FOR SILTS/CLAYS/SHELLS/GRAVELS ARE DESCRIBED AS FOLLOWS:

PERCENTAGE OF MODIFIER MATERIAL	FIRST QUALIFIER	SECOND QUALIFIER
0 - 5	WITH A TRACE OF + MODIFIER	WITH A TRACE
5 - 12	SLIGHTLY + MODIFIER + Y	WITH SOME
12 - 30	MODIFIER + Y	WITH
30 - 50	VERY + MODIFIER + Y	AND

SOIL PARAMETERS

Boring No.	Depth (ft)	Unit Weight (moist) (pcf)	Submerged Unit Weight (pcf)	Angle of Internal Friction (°)
B-1	0 - 2	102	48	30
	2 - 4 & 8 - 13	101	47	29
	4 - 6	103	49	31
	6 - 8 & 13 - 18	104	50	32
	18 - 28	106	52	34
	28 - 35	110	56	38
B-2	0 - 8	102	48	30
	8 - 13 & 18 - 23	101	47	29
	13 - 18	103	49	31
	23 -28	107	53	36
	28 - 33	104	50	32
	33 - 35	106	52	34

SUBMERGED UNIT WEIGHT SHOULD BE USED BELOW THE WATER TABLE.

THE OFFICIAL RECORD OF THIS SHEET IS THE ELCTRONNIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

UNIVERSAL ENGINEERING SCIENCES
201 WALDO AVENUE NORTH
LEHIGH ACRES, FLORIDA 33971

Adam J. Dornacker, P.E.#85319

ROAD NAME	COUNTY NAME	UES PROJECT ID
HARBOR VIEW RD. / KINGS HWY.	CHARLOTTE	0530.2400060.0000

REPORT OF CORE BORINGS

MAST ARM SIGNALIZATION
HARBOR VIEW RD. & KINGS HWY.
CHARLOTTE HARBOR, CHARLOTTE COUNTY, FLORIDA

SHEET NO. 14

Lighting Data Table

Pole No.	Easting	Northing	Baseline	Station	Offset	Foundation	Arm Length	Arm Rise	Mount Height	Quantity Luminaires	Type	Make\Model	Lumens	IES Dist Type	CCT(K)	Tilt (deg)	Luminaire Watts	Luminaire Volts	Load Center No.	Circuit No.	Maint. Agency	Pay Item
1	633159.70	956384.96	℄ CONST. HARBORVIEW RD.	21+89.00	59.5 LT	N/A	15'	5' 6"	40	1	Conventional	Mongoose Medium P7	35704.3	Type IV	3000	0	254.92	N/A	N/A	SIGNAL CABINET	Charlotte County	0715 5 31
2	633176.03	956525.87	℄ CONST. HARBORVIEW RD.	22+23.91	196.99 LT	N/A	8'	3' 0"	29	1	Conventional	Autobahn ATB2 P602	26278	Type IV	3000	0	196	N/A	N/A	FPL	Charlotte County	
3	633279.22	956258.89	℄ CONST. HARBORVIEW RD.	22+90.72	81.33 RT	N/A	15'	5' 6"	40	1	Conventional	Mongoose Medium P7	35704.3	Type IV	3000	0	254.92	N/A	N/A	SL#32	Charlotte County	0715 11211
4	633326.83	956417.39	℄ CONST. HARBORVIEW RD.	23+58.96	69.44 LT	N/A	15'	5' 6"	40	1	Conventional	Mongoose Medium P7	35704.3	Type IV	3000	0	254.92	N/A	N/A	SL#32	Charlotte County	0715 11211

SIGNALIZED INTERSECTION LIGHTING CRITERIA

AVERAGE INITIAL INTENSITY (H.F.C.)	1.5 STD.; 1.0 MIN. (H.F.C.)
UNIFORMITY RATIO - AVG./MIN.	4:1 OR LESS
MAX./MIN.	10:1 OR LESS
AVERAGE INITIAL INTENSITY IN CROSSWALK FOR APPROACH MOVEMENT (V.F.C.)	1.5 STD.; 1.0 MIN. (V.F.C.)
WIND SPEED	160 MPH

LEGEND

SYMBOL	DESCRIPTION
	PROPOSED BRACKET ARM AND LUMINAIRE ON PROPOSED SIGNAL POLE.
	PROPOSED BRACKET ARM AND LUMINAIRE TO BE INSTALLED BY OTHERS ONTO EXISTING POWER POLE.
	RETROFIT LED LUMINAIRE ON EXISTING LIGHT POLE.
	EXISTING LIGHT POLE AND LUMINAIRE TO REMAIN.

7/8/2024 3:53:48 PM yazmolinski
S:\Projects\FDOT\Kings Hwy at Harbor View\Roadway\PLAN\R001.dgn

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ENGINEER OF RECORD
RYAN C. ANLOAGUE, P.E.
LICENSE NUMBER 92396
FLORIDA TRANSPORTATION ENGINEERING, INC.
11458 NORTH 53RD STREET
TAMPA, FLORIDA 33617

CHARLOTTE COUNTY
PUBLIC WORKS DEPARTMENT

LIGHTING DATA TABLE & LEGEND

SHEET NO. 15

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ENGINEER OF RECORD

RYAN C. AMLOAGUE, P.E.
LICENSE NUMBER 92396
FLORIDA TRANSPORTATION ENGINEERING, INC.
11438 NORTH 53RD STREET
TAMPA, FLORIDA 33617

CHARLOTTE COUNTY
PUBLIC WORKS DEPARTMENT

LIGHTING PLAN

SHEET NO. 16

Test Hole Data Report

Date:	4/10 - 4/11/2024
ECHO Project #:	24-076
Financial Project #:	N/A
Truck No.:	D-16

4803 George Road, Ste. 350
Tampa, Florida 33634
400 SR 434, Ste. 1024
Oviedo, Florida 32765

ECHO
UTILITY ENGINEERING & SURVEY

ECHO UES, Inc.
www.echoues.com
888.778.ECHO
-GROW. INSPIRE. MAKE A DIFFERENCE-

Crew Members:	DO,BP
City, State:	Port Charlotte, FL
General Location:	Harbor View Rd at Kings Hwy
Coordinate Unit of Measure:	US Survey Feet

Utility Type		Utility Material		Identified By:	Abbreviations	Offset Measured From:
BE = Buried Electrical	RCW = Reclaimed Water	AC = Transite	GALV = Galvanized Pipe	HUB = Survey Hub	N/A = Not Applicable	EP= Edge of Pavement
GM = Gas Main	TS = Traffic Signal	CI= Cast Iron	HDPE = High Density Polyethylene Pipe	IRC = Iron Rod & Cap "ECHO TEST HOLE"	NAD = North American Datum	BC = Back of Curb
BT = Buried Telephone	SL = Street Light	CP = Concrete Pipe	PE = Polyethylene Pipe	NL = Nail & Disk "ECHO TEST HOLE"		BL = Baseline of Survey
FOC = Fiber Optic Cable	IRR = Irrigation Line	DBC = Direct Buried Cable	PVC = Polyvinyl Chloride	SLEEVE = Sleeve	NAVD = North American Vertical Datum	COORD = Survey Coordinates
WM = Water Main	GS = Gas Service	CMP = Corrugated Metal Pipe	STL = Steel	X = "X" in Concrete		CL = Centerline
SAN = Sanitary Sewer	WS = Water Service	CONC = Concrete	VCP = Vitrified Clay Pipe	**Surface Type**	UNK = Unknown	HUB = Survey Hub
STM = Storm Sewer	UNK = Unknown Utility	CPP = Corrugated Plastic Pipe	PCCP = Prestressed Cylinder Concrete Pipe	ASPH = Asphalt		RW = Right of Way
CATV = Cable Television	BED = Buried Electrical Duct	DCT = Duct		CONC = Concrete		ST = Swing Ties
FM = Force Main	BTD = Buried Telephone Duct	DIP = Ductile Iron Pipe	RCP = Reinforced Concrete Pipe	NG = Natural Ground		X = "X" in Concrete

Datums: Horizontal: NAD83/11; Vertical: NAVD88

Test Hole	Utility Type	Utility Material	Utility Size Outside Diameter inches	Utility Manual Depth feet	Cross Sectional View	Utility Direction	Identified By	Surface Type	Surface Thickness inches	Apparent Utility Owner	Northing	Easting	Ground Elevation	Utility Elevation
1-1-1-1	EXPLORATORY - NO UTILITIES FOUND - CLEARED TO 10'						IRC	NG	N/A	N/A	956437.04'	633300.81'	5.94'	N/A
1-1-1-2	EXPLORATORY - NO UTILITIES FOUND - CLEARED TO 10'						IRC	NG	N/A	N/A	956430.80'	633295.87'	5.90'	N/A
1-1-1-3	EXPLORATORY - NO UTILITIES FOUND - CLEARED TO 10'						NL	NG	N/A	N/A	956435.56'	633289.84'	5.80'	N/A
1-1-1-4	EXPLORATORY - NO UTILITIES FOUND - CLEARED TO 10'						IRC	NG	N/A	N/A	956441.45'	633295.03'	5.65'	N/A
1-1-1-5	EXPLORATORY - NO UTILITIES FOUND - CLEARED TO 10'						IRC	NG	N/A	N/A	956436.31'	633295.46'	5.76'	N/A
1-2-1-1	STM	CONC	N/A	1.19'			X	CONC	4"	CHARLOTTE COUNTY	956313.81'	633299.75'	6.29'	5.10'
1-2-1-2	EXPLORATORY - NO UTILITIES FOUND - CLEARED TO 10'						X	CONC	4"	N/A	956313.66'	633296.22'	6.24'	N/A
1-2-1-3	EXPLORATORY - NO UTILITIES FOUND - CLEARED TO 10'						X	CONC	4"	N/A	956310.75'	633296.54'	6.31'	N/A
1-2-1-4	TS	PVC	1.5" & 2-2"	1.90' & 2.12'			IRC	NG	N/A	CHARLOTTE COUNTY	956310.09'	633298.63'	6.37'	4.47' & 4.25'
1-2-1-5	BT	DBC	1.5"	1.24'	●		IRC	NG	N/A	CENTURY LINK	956306.22'	633298.03'	6.14'	4.90'

Notes: TH# 1-2-1-1 PIN SET ON SOUTH WEST EDGE OF STORM STRUCTURE

Prepared by: EU/CM *Date: 4/15/2024*

Checked by: MA *Date: 4/16/2024*

7/8/2024 3:54:00 PM YazenAlkindi
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REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

FOR INFORMATIONAL PURPOSES ONLY

CHARLOTTE COUNTY
PUBLIC WORKS DEPARTMENT

SUBSURFACE UTILITY ENGINEERING EXHIBIT

SHEET NO. UTV-1

Date:	4/10 - 4/11/2024	**Test Hole Data Report**	**Crew Members:**	DO,BP
ECHO Project #:	24-076	4803 George Road, Ste. 350 Tampa, Florida 33634 / ECHO UES, Inc. www.echoues.com 888.778.ECHO	**City, State:**	Port Charlotte, FL
Financial Project #:	N/A	400 SR 434, Ste. 1024 Oviedo, Florida 32765	**General Location:**	Harbor View Rd at Kings Hwy
Truck No.:	D-16	ECHO UTILITY ENGINEERING & SURVEY - GROW. INSPIRE. MAKE A DIFFERENCE-	**Coordinate Unit of Measure:**	US Survey Feet

Utility Type		Utility Material		Identified By:	Abbreviations	Offset Measured From:
BE = Buried Electrical	RCW = Reclaimed Water	AC = Transite	GALV = Galvanized Pipe	HUB = Survey Hub	N/A = Not Applicable	EP= Edge of Pavement
GM = Gas Main	TS = Traffic Signal	CI= Cast Iron	HDPE = High Density Polyethylene Pipe	IRC = Iron Rod & Cap "ECHO TEST HOLE"	NAD = North American Datum	BC = Back of Curb
BT = Buried Telephone	SL = Street Light	CP = Concrete Pipe	PE = Polyethylene Pipe	NL = Nail & Disk "ECHO TEST HOLE"		BL = Baseline of Survey
FOC = Fiber Optic Cable	IRR = Irrigation Line	DBC = Direct Buried Cable	PVC = Polyvinyl Chloride	SLEEVE = Sleeve	NAVD = North American Vertical Datum	COORD = Survey Coordinates
WM = Water Main	GS = Gas Service	CMP = Corrugated Metal Pipe	STL = Steel	X = "X" in Concrete		CL = Centerline
SAN = Sanitary Sewer	WS = Water Service	CONC = Concrete	VCP = Vitrified Clay Pipe	**Surface Type**	UNK = Unknown	HUB = Survey Hub
STM = Storm Sewer	UNK = Unknown Utility	CPP = Corrugated Plastic Pipe	PCCP = Prestressed Cylinder Concrete Pipe	ASPH = Asphalt		RW = Right of Way
CATV = Cable Television	BED = Buried Electrical Duct	DCT = Duct		CONC = Concrete		ST = Swing Ties
FM = Force Main	BTD = Buried Telephone Duct	DIP = Ductile Iron Pipe	RCP = Reinforced Concrete Pipe	NG = Natural Ground		X = "X" in Concrete

Test Hole	Utility Type	Utility Material	Utility Size Outside Diameter inches	Utility Manual Depth feet	Cross Sectional View	Utility Direction	Identified By	Surface Type	Surface Thickness inches	Apparent Utility Owner	Datums: Horizontal: NAD83/11 Vertical: NAVD88 Northing	Easting	Ground Elevation	Utility Elevation
1-3-1-1	TS	PVC	3-2"	1.93'			IRC	NG	N/A	CHARLOTTE COUNTY	956275.07'	633184.20'	6.51'	4.58'
1-3-1-2	EXPLORATORY - NO UTILITIES FOUND - CLEARED TO 10'						IRC	NG	N/A	N/A	956270.41'	633183.62'	6.55'	N/A
1-3-1-3	BT / FOC	DBC / PE	2" / 1.5"	3.08' / 3.12'			IRC	NG	N/A	CENTURY LINK	956271.27'	633178.58'	6.26'	3.18' / 3.14'
1-3-1-4	BT	PVC	4"	1.35'			IRC	NG	N/A	CENTURY LINK	956278.76'	633178.19'	6.28'	4.93'
1-3-1-5	EXPLORATORY - NO UTILITIES FOUND - CLEARED TO 10'						IRC	NG	N/A	N/A	956273.19'	633181.13'	6.45'	N/A
1-4-1-1	EXPLORATORY - NO UTILITIES FOUND - CLEARED TO 10'						IRC	NG	N/A	N/A	956392.42'	633161.63'	5.04'	N/A
1-4-1-2	FOC	PVC	2"	5.00'			IRC	NG	N/A	MCI	956385.27'	633159.30'	5.76'	0.76'
1-4-1-3	EXPLORATORY - NO UTILITIES FOUND - CLEARED TO 10'						IRC	NG	N/A	N/A	956386.04'	633153.77'	5.57'	N/A
1-4-1-4	BT	DBC	2"	2.64'			IRC	NG	N/A	CENTURY LINK	956392.63'	633154.40'	5.61'	2.97'
1-4-1-5	FOC	PE	2-1.5"	3.44'			IRC	NG	N/A	CENTURY LINK	956392.11'	633155.02'	5.58'	2.14'

Notes: TH# 1-3-1-1 - PIN SET ON EAST EDGE

TH# 1-4-1-2 - POSSIBLE 2" PVC; UNABLE TO VISUALLY VERIFY SIZE AND MATERIAL DUE TO WATER, DEPTH AND CAVE-IN

Prepared by: EU/CM *Date: 4/15/2024*

Checked by: MA *Date: 4/16/2024*

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

FOR INFORMATIONAL PURPOSES ONLY

CHARLOTTE COUNTY
PUBLIC WORKS DEPARTMENT

SUBSURFACE UTILITY ENGINEERING EXHIBIT

SHEET NO. UTV-2

7/8/2024 3:54:01 PM YazeoAklndi
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Test Hole Data Report

Date:	4/10 - 4/11/2024	**Crew Members:**	DO,BP
ECHO Project #:	24-076	**City, State:**	Port Charlotte, FL
Financial Project #:	N/A	**General Location:**	Harbor View Rd at Kings Hwy
Truck No.:	D-16	**Coordinate Unit of Measure:**	US Survey Feet

4803 George Road, Ste. 350
Tampa, Florida 33634
400 SR 434, Ste. 1024
Oviedo, Florida 32765

ECHO
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ECHO UES, Inc.
www.echoues.com
888.778.ECHO
-GROW, INSPIRE, MAKE A DIFFERENCE-

Utility Type		Utility Material		Identified By:	Abbreviations	Offset Measured From:
BE = Buried Electrical	RCW = Reclaimed Water	AC = Transite	GALV = Galvanized Pipe	HUB = Survey Hub	N/A = Not Applicable	EP= Edge of Pavement
GM = Gas Main	TS = Traffic Signal	CI= Cast Iron	HDPE = High Density Polyethylene Pipe	IRC = Iron Rod & Cap "ECHO TEST HOLE"	NAD = North American Datum	BC = Back of Curb
BT = Buried Telephone	SL = Street Light	CP = Concrete Pipe	PE = Polyethylene Pipe	NL = Nail & Disk "ECHO TEST HOLE"		BL = Baseline of Survey
FOC = Fiber Optic Cable	IRR = Irrigation Line	DBC = Direct Buried Cable	PVC = Polyvinyl Chloride	SLEEVE = Sleeve	NAVD = North American Vertical Datum	COORD = Survey Coordinates
WM = Water Main	GS = Gas Service	CMP = Corrugated Metal Pipe	STL = Steel	X = "X" in Concrete		CL = Centerline
SAN = Sanitary Sewer	WS = Water Service	CONC = Concrete	VCP = Vitrified Clay Pipe	**Surface Type**	UNK = Unknown	HUB = Survey Hub
STM = Storm Sewer	UNK = Unknown Utility	CPP = Corrugated Plastic Pipe	PCCP = Prestressed Cylinder Concrete Pipe	ASPH = Asphalt		RW = Right of Way
CATV = Cable Television	BED = Buried Electrical Duct	DCT = Duct		CONC = Concrete		ST = Swing Ties
FM = Force Main	BTD = Buried Telephone Duct	DIP = Ductile Iron Pipe	RCP = Reinforced Concrete Pipe	NG = Natural Ground		X = "X" in Concrete

Datums: Horizontal: NAD83/11; Vertical: NAVD88

Test Hole	Utility Type	Utility Material	Utility Size Outside Diameter inches	Utility Manual Depth feet	Cross Sectional View	Utility Direction	Identified By	Surface Type	Surface Thickness inches	Apparent Utility Owner	Northing	Easting	Ground Elevation	Utility Elevation
1-4-1-6	EXPLORATORY - NO UTILITIES FOUND - CLEARED TO 10'						IRC	NG	N/A	N/A	956388.57'	633157.14'	5.41'	N/A

Notes:

Prepared by: EU/CM *Date: 4/15/2024*

Checked by: MA *Date: 4/16/2024*

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

FOR INFORMATIONAL PURPOSES ONLY

CHARLOTTE COUNTY
PUBLIC WORKS DEPARTMENT

SUBSURFACE UTILITY ENGINEERING EXHIBIT

SHEET NO. UTV-3

7/8/2024 3:54:03 PM YazenAlkindi
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UES™

Florida's Leading Engineering Source

Report of Geotechnical Exploration

Proposed Mast Arms

Harbor View Road & Kings Highway
Charlotte Harbor, Charlotte County, Florida

April 15, 2024
UES Project No.: 0530.2400060.0000

Prepared For:

Florida Transportation Engineering, Inc.
11458 N 53rd Street
Tampa, FL 33617
Attention: Mr. Ryan Anloague
Phone: (813) 989-0729

Prepared By:

UES
201 Waldo Avenue North
Lehigh Acres, Florida 33971
Phone: (239) 489-2443
www.teamues.com

Materials Testing
Geotechnical Engineering
Environmental
Building Sciences & Safety
Inspections & Code Compliance
Virtual Design Consulting

April 15, 2024

Mr. Ryan Anloague
Florida Transportation Engineering, Inc.
11458 N 53rd Street
Tampa, Florida 33617
Phone: (813) 989-0729
Email: Ryan@fteinc.net

Subject: **Geotechnical Exploration**
Proposed Mast Arms
Harbor View Road & Kings Highway
Charlotte Harbor, Charlotte County, Florida
UES Project No. 0530.2400060.0000

Dear Mr. Anloague:

UES has completed the subsurface exploration and geotechnical engineering evaluation for the above-referenced project in accordance with the geotechnical and engineering service agreement for this project. The scope of UES's exploration was planned in conjunction with and authorized by you. This exploration was performed in accordance with generally accepted soil and foundation engineering practices.

The purpose of subsurface exploration was to classify the nature of the subsurface soils and general geomorphic conditions and evaluate their impact upon the proposed construction. This report contains and provides the findings and conclusions. It has been prepared for the exclusive use of Florida Transportation Engineering, Inc. and their consultants for specific application to the subject project in accordance with generally accepted geotechnical engineering practices. No other warranty, expressed or implied, is made.

1.0 SCOPE OF SERVICES

The objective of UES's geotechnical services was to collect subsurface data for the subject project, summarize the test results, and discuss any apparent site conditions that may have geotechnical significance for construction. The following scope of service is provided within this report:

1. Conduct four Standard Penetration Test (SPT) borings to determine the nature and condition of the subsurface soils and preparing record logs of these soil borings depicting the subsurface soil conditions encountered during our field exploration.

2. Review each soil sample obtained during our field exploration for classification and additional testing, if necessary.

3. Evaluate the existing soil conditions found during the exploration with respect to foundation support for the proposed mast arm signalizations.

4. Prepare this report to document the results of our field exploration, engineering analysis and UES's recommended soil parameters for foundation design.

2.0 SITE LOCATION AND PROJECT DESCRIPTION

UES understands that the project will consist of the installation of new mast-arm traffic signalization on each side of the intersection of Harbor View Road & Kings Highway in Charlotte Harbor, Charlotte County, Florida. The recommendations provided herein are based upon the above considerations. If the project description has been revised, please inform UES so that we may review the recommendations with respect to any modifications.

3.0 FIELD EXPLORATION

A total of four standard penetration test (SPT) borings to depths of approximately 35 feet below ground surface (BGS) were completed for this study. The locations of the borings performed are illustrated in Appendix B: "Report of Core Borings". The Standard Penetration Test (SPT) boring method was used as the investigative tool within the borings. SPT tests were performed in substantial accordance with ASTM Procedure D-1586, "Penetration Test and Split-Barrel Sampling of Soils". This test procedure consists of driving a 1.4-inch I.D. split-tube sampler into the soil profile using a 140-pound hammer falling 30 inches. The number of blows per foot for the second and third 6-inch increments is an indication of soil strength.

The soil samples recovered from the soil borings were visually classified and their stratification is illustrated in Appendix B: "Report of Core Borings". It should be noted that soil conditions might vary between the strata interfaces, which are shown. The soil boring data reflect information from a specific test location only. Site specific survey staking for the test locations was not provided for our field exploration. The indicated depth and location of each test was approximated based upon existing grade and estimated distances and relationships to obvious landmarks. The boring depths were selected based on our knowledge of vicinity soils and to include the zone of soil likely to be stressed by the proposed construction.

4.0 LABATORY TESTING PROGRAM

Soil samples recovered from our field exploration were returned to UES's laboratory where they were visually classified in general accordance with ASTM D-2488. Samples were evaluated to obtain an accurate understanding of the soil properties and site geomorphic conditions. After performing a review of the recovered site soils, no laboratory testing was deemed necessary. Bag samples of the soil encountered during the field exploration will be held in UES's laboratory for your inspection.

5.0 GENERAL SUBSURFACE CONDITIONS

Boring logs derived from the field exploration are presented in Appendix B: "Report of Core Borings". The boring logs depict the observed soils in graphic detail. The Standard Penetration Test borings indicate the penetration resistance, or N-values, logged during the drilling and sampling activities. The classifications and descriptions shown on the logs are generally based upon visual characterizations of the recovered soil samples. All soil samples reviewed have been depicted and classified in general accordance with the Unified Soil Classification System, modified as necessary to describe typical southwest Florida conditions. See Appendix C: "Discussion of Soil Groups", for a detailed description of various soil groups.

The subsurface soil conditions encountered at this site generally consists of very loose to dense sands (SP) with some (if any) shell fragments to the boring termination depths. Please refer to Appendix B: "Report of Core Borings" for a detailed account of each boring.

On the dates of the field exploration, the groundwater table was encountered at depths of approximately 2 feet 6 inches to 4 feet 1 inches below the existing ground surface. The groundwater table will fluctuate seasonally depending upon local rainfall and other site specific and/or local influences such as tidal events. Brief ponding of stormwater may occur across the site after heavy rains.

No additional investigation was included in the scope of work in relation to the wet seasonal high groundwater table or any existing well fields in the vicinity. Well fields may influence water table levels and cause significant fluctuations. If a more comprehensive water table analysis is necessary, please contact UES for additional guidance.

6.0 ENGINEERING PROPERTIES

The soil properties, based on the samples obtained and the recorded N-values were averaged and are presented on the boring logs corresponding to the soils and rock types encountered. The soil properties presented include: cohesive strength, c, in pounds per square foot (psf); the angle of internal friction, ø, in degrees; the total unit weight, γt, in pounds per cubic foot (pcf) and the soil buoyant unit weight, γb, in pcf. The following tables present generalized conditions for each boring. These tables are also presented in Appendix B: "Report of Core Borings".

Soil Design Parameters: Soil Boring B-1					
Depth Below Ground Surface (feet)	SPT Range (N-value)	Approx. Soil Unit Wt.		Angle of Internal Friction (degrees)	Cohesion (psf)
		γt (pcf)	γb (pcf)		
0 - 2	6	102	48	30	---
2 - 4 & 8 - 13	2 - 3	101	47	29	---
4 - 6	11	103	49	31	---
6 - 8 & 13 - 18	13 - 14	104	50	32	---
18 - 28	21 - 23	106	52	34	---
28 - 35	33 - 38	110	56	38	---

Soil Design Parameters: Soil Boring B-2					
Depth Below Ground Surface (feet)	SPT Range (N-value)	Approx. Soil Unit Wt.		Angle of Internal Friction (degrees)	Cohesion (psf)
		γt (pcf)	γb (pcf)		
0 – 8	6 - 8	102	48	30	---
8 – 13 & 18 - 23	3 - 4	101	47	29	---
13 - 18	10	103	49	31	---
23 - 28	26	107	53	36	---
28 - 33	14	104	50	32	---
33 - 35	20	106	52	34	---

Soil Design Parameters: Soil Boring B-3					
Depth Below Ground Surface (feet)	SPT Range (N-value)	Approx. Soil Unit Wt.		Angle of Internal Friction (degrees)	Cohesion (psf)
		γt (pcf)	γb (pcf)		
0 - 2	3	101	47	29	---
2 – 6	7 - 8	102	48	30	---
6 - 23	5 - 6	101	47	30	---
23 – 28 & 33 - 35	17	105	51	33	---
28 - 33	21	106	52	34	---

Soil Design Parameters: Soil Boring B-4					
Depth Below Ground Surface (feet)	SPT Range (N-value)	Approx. Soil Unit Wt.		Angle of Internal Friction (degrees)	Cohesion (psf)
		γt (pcf)	γb (pcf)		
0 - 6	---	---	---	---	---
6 – 13	2	100	46	29	---
13 – 18	8	102	48	30	---
18 – 23	11	103	49	31	---
23 – 33	32 – 33	109	55	38	---
33 – 35	17	105	51	33	---

UES has performed hand augers in the upper 6 feet at one of the test boring location (B-4), where UES was uncertain of the presence of utilities. The SPT values were not recorded at those depths due to hand angering procedures. UES recommends the following soil design parameters (**Approximate Soil Unit Weight: Moist (Yt) – 101 pcf, Submerged (Yb) – 47 pcf, Angle of Internal Friction – 30 Degrees**) at the locations where soil design parameters are not shown in the tables above (where hand augers were performed). These soil design parameters are based on the assumption of SPT N-value of 5 to 6 at the hand auger locations.

7.0 REPORT LIMITATIONS

This consulting report has been prepared for the exclusive use of the current project owners and other members of the design team for installation of new mast-arm traffic signalization on each side of the intersection of Harbor View Road & Kings Highway in Charlotte Harbor, Charlotte County, Florida. This report has been prepared in accordance with generally accepted local geotechnical engineering practices; no other warranty is expressed or implied. The evaluation submitted in this report, is based in part upon the data collected during a field exploration, however, the nature and extent of variations throughout the subsurface profile may not become evident until the time of construction. If variations then appear evident, it may be necessary to reevaluate information and professional opinions as provided in this report. In the event changes are made in the nature, design, or locations of the proposed structure, the evaluation and opinions contained in this report shall not be considered valid, unless the changes are reviewed and conclusions modified or verified in writing by UES. UES is not responsible for damage caused by soil improvement and/or construction activity vibrations related to this project. UES is also not responsible for damage concerning drainage or moisture related issues for the proposed or nearby structures.

UES should be provided the opportunity to review the final foundation design drawings and specifications to determine whether UES's recommendations have been properly interpreted, communicated and implemented. If UES is not afforded the opportunity to participate in construction related aspects of foundation installation as recommended in this report or any report addendum, UES will accept no responsibility for the interpretation of the recommendations made in this report or on a report addendum for foundation performance.

8.0 BASIS FOR RECOMMENDATIONS

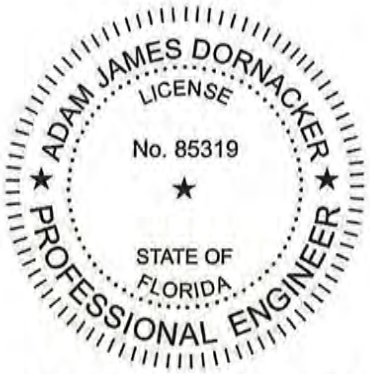
The analysis and recommendations submitted in this report are based on the data obtained from the tests performed at the locations indicated on the attached figure in Appendix B. This report does not reflect any variations, which may occur between borings. While the borings are representative of the subsurface conditions at their respective locations and for their vertical reaches, local variations characteristic of the subsurface soils of the region are anticipated and may be encountered. The delineation between soil types shown on the soil logs is approximate and the description represents UES's interpretation of the subsurface conditions at the designated boring locations on the particular date drilled.

Any third party reliance on this geotechnical report or parts thereof is strictly prohibited without the expressed written consent of UES. The methodology (ASTM D-1586) used in performing our borings and for determining penetration resistance is specific to the sampling tools utilized and does not reflect the ease or difficulty of advancing other tools or materials.

UES appreciates the opportunity to be of service to you on this project and look forward to a continued association. Please do not hesitate to contact UES if you have any questions or comments, or if UES may further assist you as your plans proceed.

Respectfully Submitted,
UES
Registry Number 4930

This document has been digitally signed and sealed by



on the date adjacent to the seal.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

Ashok Neela
Staff Engineer

Adam J. Dornacker, P.E. No. 85319
State of Florida
Geotechnical Department Manager

Appendix A - Vicinity Map
Appendix B - Report of Core Borings
Appendix C - Discussion of Soil Groups

Appendix A - Vicinity Map

N
W E
S

VICINITY MAP

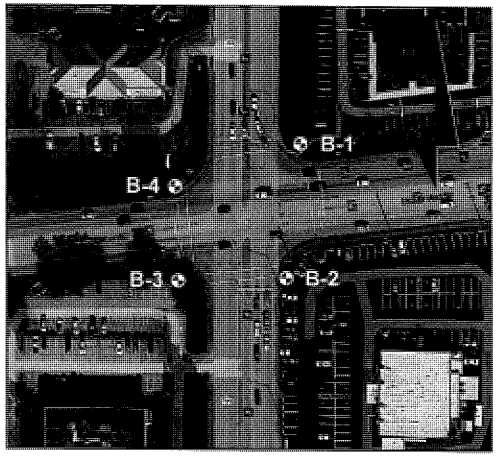
SOURCE: GOOGLE EARTH PRO©

UES™

Proposed Mast Arms
Harbor View Road & Kings Highway
Charlotte Harbor, Charlotte County, FL

Drawn By:	Checked By:	Date:
Ashok Neela	AJD	04/15/2024
Project No.: 0530.2400060.0000	Approved By: Adam Dornacker, P.E.	

Appendix B – Report of Core Borings



Source: Google Earth Pro

NOTES: SPT BORING LOCATION

SOIL PARAMETERS

Boring No.	Depth (ft)	Unit Weight (moist) (pcf)	Submerged Unit Weight (pcf)	Angle of Internal Friction (°)
B-3	0 - 2	101	47	29
	2 – 6	102	48	30
	6 - 23	101	47	30
	23 – 28 & 33 - 35	105	51	33
	28 – 33	106	52	34
B-4	0 - 6	-	-	-
	6 – 13	100	46	29
	13 – 18	102	48	30
	18 – 23	103	49	31
	23 – 33	109	55	38
	33 – 35	105	51	33

SUBMERGED UNIT WEIGHT SHOULD BE USED BELOW THE WATER TABLE.

UES RECOMMENDS THE FOLLOWING SOIL DESIGN PARAMETERS (MOIST UNIT WEIGHT - 101 PCF, SUBMERGED UNIT WEIGHT - 47 PCF, ANGLE OF INTERNAL FRICTION - 30) AT THE LOCATIONS WHERE SOIL DESIGN PARAMETERS ARE NOT SHOWN IN TABLE (WHERE HAND AUGERS WERE PERFORMED). THESE SOIL DESIGN PARAMETERS ARE BASED ON THE ASSUMPTION OF SPT-N VALUE OF 5 TO 6 AT THE HAND AUGER LOCATIONS.

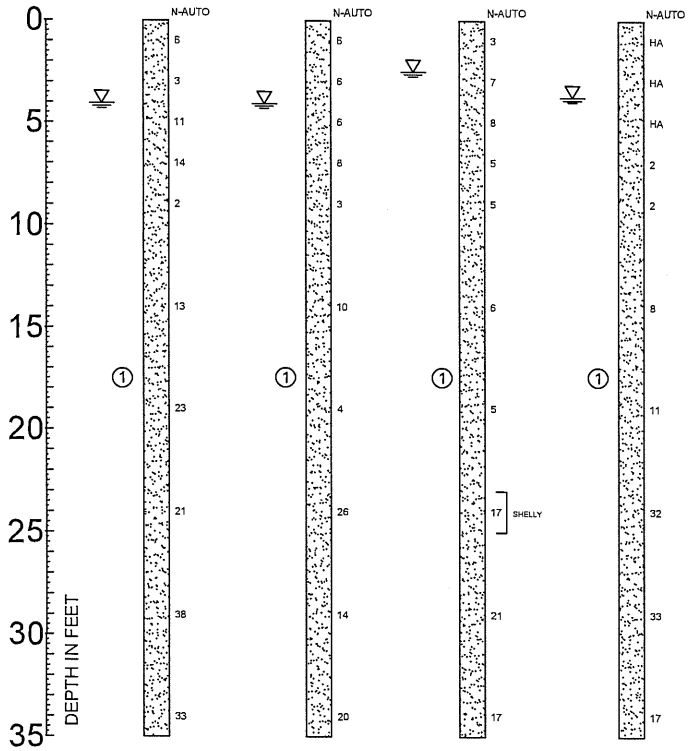
SOIL PROFILES

BOR #: B-1
DATE: 03/12/2024
DRILLER: L SANCHEZ
HAMMER: AUTO
RIG: CME-45
LAT: 26°57'53.75"N
LONG: 82°4'12.80"W

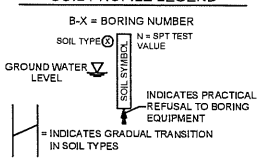
BOR #: B-2
DATE: 03/12/2024
DRILLER: L SANCHEZ
HAMMER: AUTO
RIG: CME-45
LAT: 26°57'52.25"N
LONG: 82°4'12.87"W

BOR #: B-3
DATE: 03/12/2024
DRILLER: L SANCHEZ
HAMMER: AUTO
RIG: CME-45
LAT: 26°57'52.17"N
LONG: 82°4'14.22"W

BOR #: B-4
DATE: 03/12/2024
DRILLER: L SANCHEZ
HAMMER: AUTO
RIG: CME-45
LAT: 26°57'53.29"N
LONG: 82°4'14.32"W



SOIL PROFILE LEGEND



SOIL LEGEND

1 — Dark to Light Brown, Dark to Light Gray, Tan SAND (SP) Very Loose to Dense

N - NUMBERS TO THE RIGHT OF BORINGS INDICATE SPT VALUE FOR 12-INCHES OF PENETRATION (UNLESS OTHERWISE NOTED).

NO ELEVATIONS WERE PROVIDED. DEPTH SHOWN IS FROM EXISTING GROUND SURFACE AT TIME OF SAMPLING.

GEOGRAPHICAL GPS COORDINATE LOCATIONS WERE DETERMINED USING A 4 SATELLITE MINIMUM AUTOMONOUS SOLUTION WAS ENABLED HAND HELD GPS UNIT.

THE BORING LOGS SHOWN REPRESENT SUBSURFACE CONDITIONS WITHIN THE BOREHOLE AT TIME OF DRILLING. NO WARRANTY AS TO THE SUBSURFACE CONDITION, STRATA DEPTH OF SOIL CONSISTENCY BETWEEN OR OUTSIDE BORING LOCATIONS IS EXPRESSED OR IMPLIED BY THIS DRAWING.

HA - NO RECORDED N VALUES DUE TO HAND AUGERING PROCEDURE

SOIL CLASSIFICATION

CORRELATION OF N - VALUES WITH RELATIVE DENSITY AND CONSISTENCY

COHESIONLESS SOIL

N - VALUE	RELATIVE DENSITY
0 - 3	VERY LOOSE
4 - 8	LOOSE
9 - 24	MEDIUM DENSE
25 - 40	DENSE
OVER 40	VERY DENSE

SILTS AND CLAYS

N - VALUE	CONSISTENCY
0 - 1	VERY SOFT
2 - 4	SOFT
5 - 6	FIRM
7 - 12	STIFF
13 - 24	VERY STIFF
OVER 24	HARD

CORRELATION OF N - VALUES WITH HARDNESS DESCRIPTION

LIMEROCK

N - VALUE	RELATIVE DENSITY
0 - 50	SOFT
51 - 50 FOR 0"	HARD

APPROXIMATE FINES CONTENT	MODIFIERS
5% TO 12%	SLIGHTLY SILTY OR SLIGHTY CLAYEY
13% TO 25%	SILTY OR CLAYEY
26% TO 49%	VERY SILTY OR VERY CLAYEY

APPROXIMATE SAND/ GRAVEL CONTENT	MODIFIERS
5% TO 15%	SLIGHTLY SANDY OR SLIGHTLY GRAVELLY
16% TO 25%	SANDY OR GRAVELLY
26% TO 49%	VERY SANDY OR VERY GRAVELLY

APPROXIMATE ROOT CONTENT	MODIFIERS
5% TO 10%	TRACE
11% TO 20%	TRACE TO SOME
21% TO 40%	SOME
41% TO 60%	AND

DEFINITION OF DESCRIPTIVE TERMS OF MODIFIERS FOR SILTS/CLAYS/SHELLS/GRAVELS ARE DESCRIBED AS FOLLOWS:

PERCENTAGE OF MODIFIER MATERIAL	FIRST QUALIFIER	SECOND QUALIFIER
0 - 5	WITH A TRACE OF + MODIFIER	WITH A TRACE
5 - 12	SLIGHTLY + MODIFIER + Y	WITH SOME
12 - 30	MODIFIER + Y	WITH
30 - 50	VERY + MODIFIER + Y	AND

SOIL PARAMETERS

Boring No.	Depth (ft)	Unit Weight (moist) (pcf)	Submerged Unit Weight (pcf)	Angle of Internal Friction (°)
B-1	0 - 2	102	48	30
	2 - 4 & 8 - 13	101	47	29
	4 - 6	103	49	31
	6 - 8 & 13 - 18	104	50	32
	18 - 28	106	52	34
	28 - 35	110	56	38
B-2	0 - 8	102	48	30
	8 - 13 & 18 - 23	101	47	29
	13 - 18	103	49	31
	23 -28	107	53	36
	28 - 33	104	50	32
	33 - 35	106	52	34

SUBMERGED UNIT WEIGHT SHOULD BE USED BELOW THE WATER TABLE.

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

UNIVERSAL ENGINEERING SCIENCES
201 WALDO AVENUE NORTH
LEHIGH ACRES, FLORIDA 33971

Adam J. Dornacker, P.E.#85319

ROAD NAME	COUNTY NAME	UES PROJECT ID
HARBOR VIEW RD. / KINGS HWY.	CHARLOTTE	0530.2400060.0000

REPORT OF CORE BORINGS

MAST ARM SIGNALIZATION
HARBOR VIEW RD. & KINGS HWY.
CHARLOTTE HARBOR, CHARLOTTE COUNTY, FLORIDA

SHEET NO.

Appendix C – Discussion of Soil Groups

NOTES RELATED TO RECORDS OF TEST BORING AND GENERALIZED SUBSURFACE PROFILE

1. Groundwater level was encountered and recorded (if shown) following the completion of the soil test boring on the date indicated. Fluctuations in groundwater levels are common; consult report text for a discussion.

2. The boring location was identified and located in the field based on measured and estimated distances from existing site features.

3. The borehole was backfilled to site grade following boring completion, patched with asphalt cold patch mix when pavement was encountered.

4. The Record of Test Boring represents our interpretation of field conditions based on engineering examination of the soil samples.

5. The Record of Test Boring is subject to the limitations, conclusions, and recommendations presented in the report text.

6. The Standard Penetration Test (SPT) was performed in accordance ASTM Procedure D-1586. SPT testing procedure consists of driving a 1.4-inch I.D. split-tube sampler into the soil profile using a 140-pound hammer falling 30 inches.

7. On the Record of Test Boring listed as "Blow Counts", the N-value is the sum of the SPT hammer blows required to drive the split-tube sampler through the second and third 6-inch increment of the sampling layer, and is an indication of soil strength.

8. Shown on the Record of Test Boring an SPT N-value expressed as 50/2" is descriptive of the fact that 50 hammer blows were required to drive the split-spoon sampler a distance of approximately 2 inches.

9. The soil/rock strata interfaces shown on the Records of Test Boring are approximate and may vary from those in the field. The soil/rock conditions shown on the Records of Test Boring refer to conditions at the specific location tested; soil/rock conditions may vary between test locations.

10. Relative density and consistency for sands/gravels, silts/clays, and limestone are described as follows:

Cohesionless Soils		
Safety SPT (N-Value)	Auto SPT (N-Value)	Relative Density
0 – 4	0 – 3	Very Loose
5 – 10	4 – 8	Loose
11 – 30	9 – 24	Medium Dense
31 – 50	25 – 40	Dense
Over 50	Over 40	Very Dense

Silts and Clays		
Safety SPT (N-Value)	Auto SPT (N-Value)	Consistency
0 – 2	0 – 1	Very Soft
3 – 5	2 – 4	Soft
6 – 7	5 – 6	Firm
8 – 15	7 – 12	Stiff
16 – 30	13 – 24	Very Stiff
Over 30	Over 24	Hard

Limestone	
SPT (N-Value)	Relative Density
0 – 50	Soft
51 – 50 for 0"	Hard

11. Definition of descriptive terms of modifiers for silts/clays/shells/gravels are described as follows:

Percentage of Modifier Material	First Qualifier	Second Qualifier
0 – 5	(No mention)	(No mention)
5 – 12	Slightly + Modifier + y	With Trace
12 – 30	Modifier + y	With Some
30 – 50	Very + Modifier + y	And

12. Descriptive characteristics for organic content percentages are described as follows:

Percentage of Organic Material	Descriptor
0 – 2.5	(No mention)
2.5 – 5	With a Trace of Organics
5 – 20	Organic
20 – 75	Highly Organic
75 – 100	Peat

Mast Arm Design

Harborview Rd. – Kings Hwy. Intersection
Hardening Signal

Prepared For:

CHARLOTTE COUNTY
Public Works

Subconsultants to Florida Transportation Engineering, Inc.

Prepared By:

Agenor & Campbell Structural Engineers
670 Island Way, Suite 301
Clearwater, Florida 33767

Colin J. Campbell, P.E.
P.E. License No. 62566

May 2024

THIS ITEM HAS BEEN DIGITALLY
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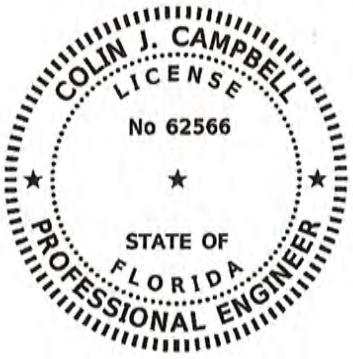

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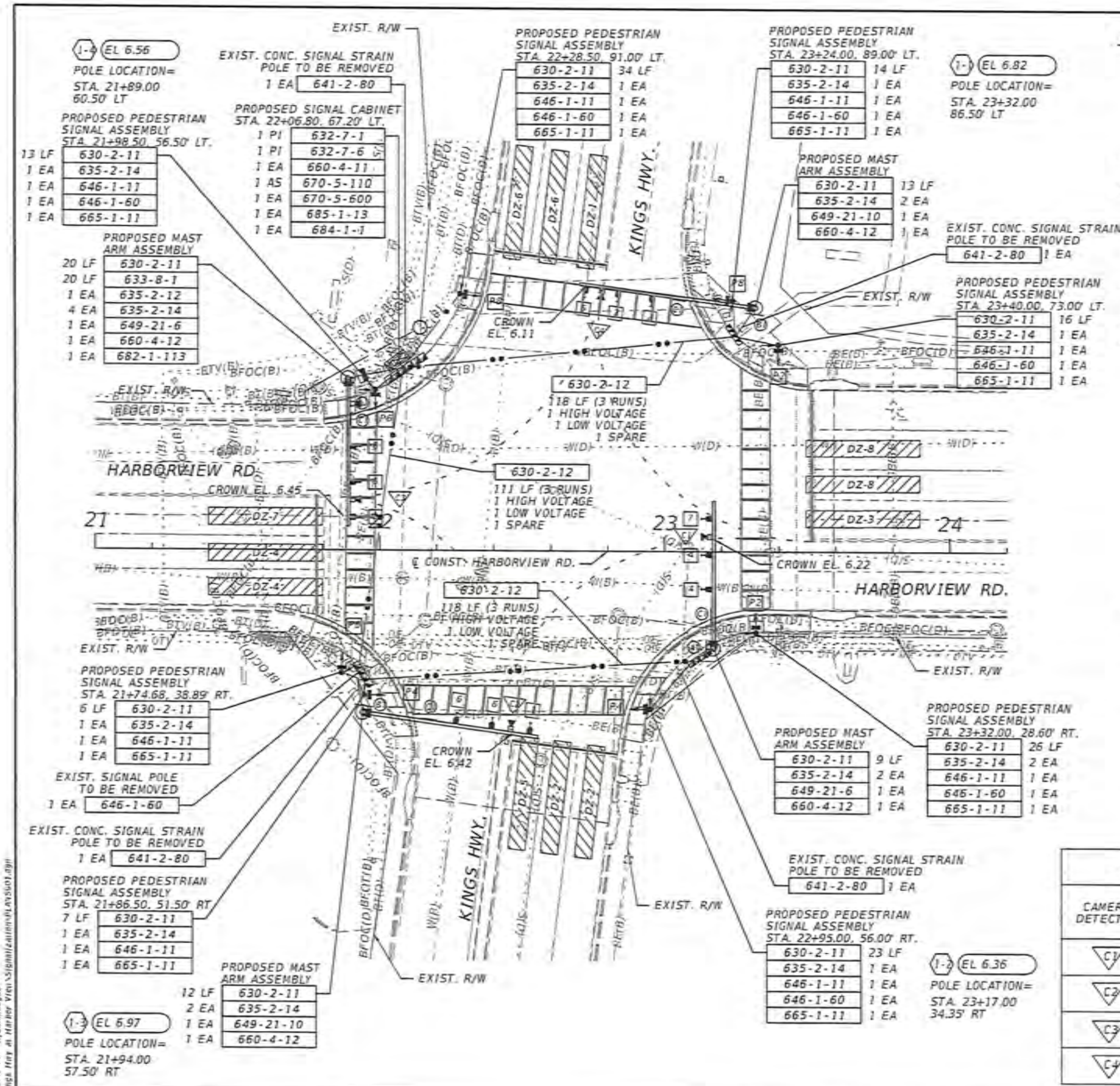
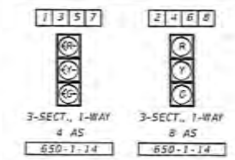
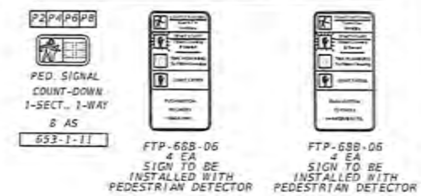
TABLE OF CONTENTS



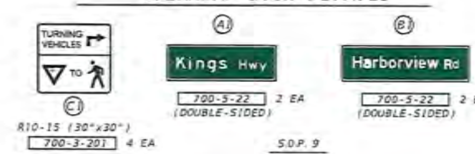
SIGNAL HEAD DETAILS

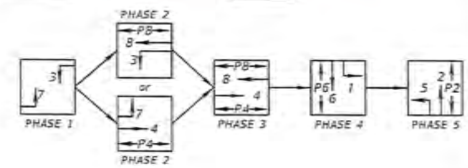


PEDESTRIAN SIGNAL DETAILS



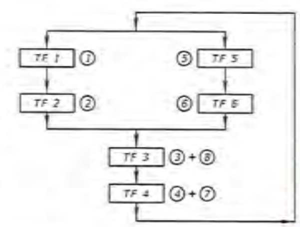
OVERHEAD SIGN DETAILS





NOTES:

1. CONTROLLER OPERATIONS:
   - MAJOR STREET: KINGS HWY.
   - MINOR STREET: HARBORVIEW RD.
2. FLASHING OPERATIONS:
   - YELLOW: 2 & 6
   - RED: 1, 3, 4, 5, 7 & 8
3. POSTED SPEED LIMITS ARE AS FOLLOWS:
   - HARBORVIEW RD. EB APPROACH = 45 MPH
   - HARBORVIEW RD. WB APPROACH = 35 MPH
   - KINGS HWY. = 40 MPH
4. ALL VIDEO DETECTION ZONES ARE 6' X 30'.



VIDEO VEHICLE DETECTION ASSIGNMENTS

CAMERA DETECTOR	DETECTION ZONE	TIMING FUNCTION CONNECTION
C1	DZ-4	TF-4
	DZ-7	TF-7
C2	DZ-6	TF-6
	DZ-1	TF-1
C3	DZ-8	TF-8
	DZ-3	TF-3
C4	DZ-2	TF-2
	DZ-5	TF-5

CONTROLLER TIMINGS

TIMING FUNCTION								
MOVEMENT NUMBER	1	2	3	4	5	6	7	8
MINIMUM GREEN	10	25	10	25	10	25	10	25
EXTENSION	3	4	3	4	3	4	3	4
MAXIMUM GREEN 1	30	50	30	50	30	50	30	50
MAXIMUM GREEN 2								
YELLOW CLEARANCE	4.4	4.4	4.8	4.8	4.4	4.4	4.8	4.8
ALL RED	2	2	2.4	2	2	2	2.4	2
PEDESTRIAN WALK		7		7		7		7
PED. CLEARANCE		30		30		30		30
RECALL		MIN				MIN		

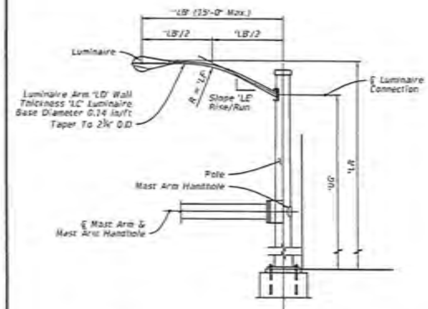
REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ENGINEER OF RECORD
RYAN C. ANLOAGUE, P.E.
LICENSE NUMBER 92396
FLORIDA TRANSPORTATION ENGINEERING, INC.
11458 NORTH 53RD STREET
TAMPA, FLORIDA 33617

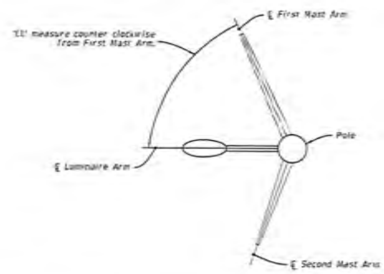
CHARLOTTE COUNTY
PUBLIC WORKS DEPARTMENT

SIGNALIZATION PLAN

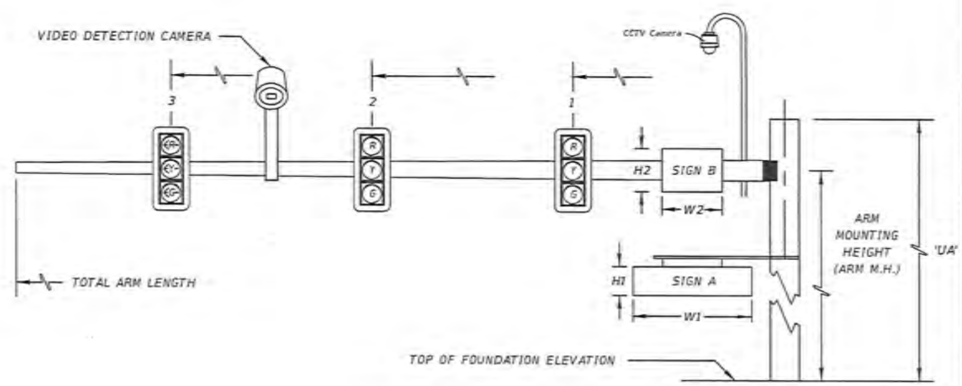
SHEET NO. 10



LUMINAIRE ELEVATION



LUMINAIRE ORIENTATION



* DENOTES NUMBER OF SECTIONS IN SIGNAL HEAD ASSEMBLY

ID NO.	SHEET NO.	LOCATION BY STA.	TOP OF FOUND. ELEVATION	RDWY ARM NO.	CROWN ELEV.	LUMINAIRE Y/N	TERM. COMP. Y/N	SIGNAL DATA: SIGNAL V/H	BACK PLATES Y/N	PED. SIGNAL Y/N	DISTANCE FROM POLE: 1	*	2	*	3	*	TOTAL ARM LENGTH	ARM M.H.	LUMINAIRE CONNECTION: UG	LA	LL	CCTV M.H.	Upright UA	ANGLE BETWEEN DUAL ARMS 90/270	SIGN DATA: DISTANCE FROM POLE / HEIGHT AND WIDTH OF SIGN: A	H1	W1	B	H2	W2	PAINT COLOR	VIDEO DETECTION CAMERA: DISTANCE FROM POLE	CCTV CAMERA: DISTANCE FROM POLE
I-1	9	23+32.00, 86.50' LT	6.82	1	6.11	N	N	V	Y	N	34.3	3	46.3	3	57.8	3	60	19.5					TBD		0.0	2.0	7.0	25.0	2.5	2.5	GALV.	52.0	
				2																													
I-2	9	23+17.00, 35.35' RT	6.36	1	6.22	N	N	V	Y	N	18.9	3	31.1	3	43.8	3	50	20.0					TBD		0.0	2.0	6.0	9.7	2.5	2.5	GALV.	37.5	
				2																													
I-3	9	21+94.00, 57.50' RT	6.97	1	6.42	N	N	V	Y	N	30.7	3	13.3	3	56.8	3	60	19.5					TBD		0.0	2.0	7.0	21.5	2.5	2.5	GALV.	50.1	
				2																													
I-4	9	21+89.00, 60.50' LT	6.56	1	6.45	Y	N	V	Y	N	22.1	3	34.6	3	46.9	3	50	20.0	34.4	40.0	44.0	20.0	TBD		0.0	2.0	6.0	12.9	2.5	2.5	GALV.	40.7	7.0
				2																													
				1																													
				2																													
				1																													
				2																													
				1																													
				2																													
				1																													
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REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ENGINEER OF RECORD
RYAN C. ANLOAGUE, P.E.
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TAMPA, FLORIDA 33617

CHARLOTTE COUNTY
PUBLIC WORKS DEPARTMENT

STANDARD MAST ARM TABULATION

SHEET NO. 11

4/30/2024 4:13:46 PM Ryanbloague
S:\Projects\FDOT\Kings Hwy at Harbor View\Signalization\SSG501.dgn

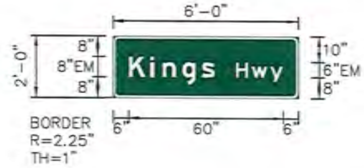
ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

FOR STRUCTURAL EVALUATION NOT FOR CONSTRUCTION

SIGN NAME	A1	QTY	2	SIGN NUMBER	STATION(S)
PANEL		BORDER			22+17.00
WIDTH	6'-0"	WIDTH	1"		21+89.00
HEIGHT	2'-0"	RADII	2.25"		
LEGEND	White	COLOR	White		
COLOR	Green				

SYMBOL(S)	ANGLE	X	Y	WID	HT

SIGN NUMBER	NUMBER OF POSTS	CLEARANCE Edge Of Lane	COLUMN SIZE	AVERAGE LENGTH



NO. OF LIGHT FIXTURES		FIXTURE SPACING		PHOTOMETRIC CURVE		WATT		VOLTAGE	

COPY	K	i	n	g	s	H	w	y		L
SPACE	6	14.3	19	26.7	34.3	47.5	53.7	60.9		60
COPY										
SPACE										
COPY										
SPACE										
COPY										
SPACE										
COPY										
SPACE										
COPY										
SPACE										

SIGN NAME	B1	QTY	2	SIGN NUMBER	STATION(S)
PANEL		BORDER			none
WIDTH	7'-0"	WIDTH	1"		21+94.00
HEIGHT	2'-0"	RADII	2.25"		
LEGEND	White	COLOR	White		
COLOR	Green				

SYMBOL(S)	ANGLE	X	Y	WID	HT

SIGN NUMBER	NUMBER OF POSTS	CLEARANCE Edge Of Lane	COLUMN SIZE	AVERAGE LENGTH

NO. OF LIGHT FIXTURES		FIXTURE SPACING		PHOTOMETRIC CURVE		WATT		VOLTAGE	

COPY	H	a	r	b	o	r	v	i	e	w		R	d		L
SPACE	7	14.1	20.3	24.9	30.7	36.9	41.2	48.1	50.4	56.2	64.3	67.9	73		70
COPY															
SPACE															
COPY															
SPACE															
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SPACE															
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SPACE															

SIGN NAME		QTY		SIGN NUMBER	STATION(S)
PANEL		BORDER			
WIDTH		WIDTH			
HEIGHT		RADII			
LEGEND		COLOR			
COLOR					

SYMBOL(S)	ANGLE	X	Y	WID	HT

SIGN NUMBER	NUMBER OF POSTS	CLEARANCE Edge Of Lane	COLUMN SIZE	AVERAGE LENGTH

NO. OF LIGHT FIXTURES		FIXTURE SPACING		PHOTOMETRIC CURVE		WATT		VOLTAGE	

COPY	
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SPACE	

SIGN NAME		QTY		SIGN NUMBER	STATION(S)
PANEL		BORDER			
WIDTH		WIDTH			
HEIGHT		RADII			
LEGEND		COLOR			
COLOR					

SYMBOL(S)	ANGLE	X	Y	WID	HT

SIGN NUMBER	NUMBER OF POSTS	CLEARANCE Edge Of Lane	COLUMN SIZE	AVERAGE LENGTH

NO. OF LIGHT FIXTURES		FIXTURE SPACING		PHOTOMETRIC CURVE		WATT		VOLTAGE	

COPY	
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SPACE	

3

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ENGINEER OF RECORD
RYAN C. ANLOAGUE, P.E.
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TAMPA, FLORIDA 33617

CHARLOTTE COUNTY
PUBLIC WORKS DEPARTMENT

INTERNALLY ILLUMINATED STREET NAME SIGNS DETAILS

SHEET NO. 12

ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

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RyanAnloague 4/30/2024 4:13:51 PM

Mast Arm Mounting Heights

Pole	Top of Foundation Elevation	Crown Elevation	Min. Vertical Clearance	Signal Height (1)	Min. Mounting Height	UB (2)	Grout Pad = 1 Bolt Dia. (2")	Arm Elevation	Min. Clearance Provided (3)	Max Allowed Clearance (4)	Clearance Check
1-1	6.82	6.11	17.50	4.50	19.04	19.50	0.17	26.49	18.13	19.00	OK
1-2	6.36	6.22	17.50	4.50	19.61	20.00	0.17	26.53	18.06	19.00	OK
1-3	6.97	6.42	17.50	4.50	19.20	19.50	0.17	26.64	17.97	19.00	OK
1-4	6.56	6.45	17.50	4.50	19.64	20.00	0.17	26.73	18.03	19.00	OK

Notes:

(1) 3-sect heads all poles.

(2) Mounting height provided, to the nearest 6 inches.

(3) To the bottom of the proposed signals

(4) Specifications 650-3.3, provide minimum clearance of 17.5' and not more than 19'

FDOT Mast Arm Traffic Signal Support Analysis Program V2.0

State Structures Design Office

This program works in conjunction with FDOT Mast Arm Standard Plans 649-030 & 649-031.

References:
AASHTO LRFD Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals (LRFDLTS).
FDOT Structures Manual Volume 3 (SM V3).
AISC Steel Construction Manual

Reference

For more information see Reference.xmcd and Changes.xmcd.

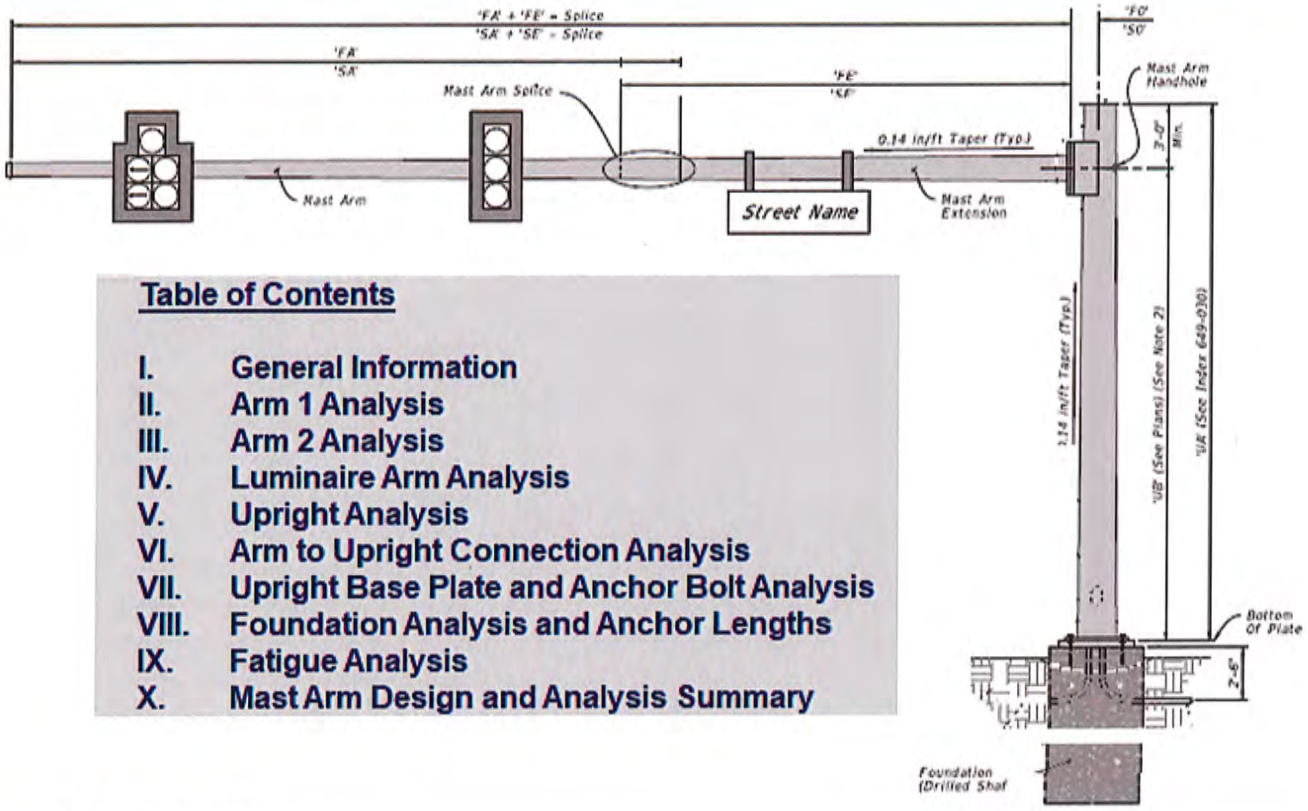


Table of Contents

Data Folder and Files

Data Files Folder

Change Folder

D:\Worksets\FDOT\2024001439\Structures\MastArmV2.0\Data\

Required - Open Existing Data File. To save New Data Files, enter data variables at the end of Section IX.

Refresh List

Open File

A78DH-A40DH-P6DL.dat
A78DH-A60DH-P6DL.dat
A78DH-A78DH-P7DL.dat
A78SH-P6SL.dat
MA 1-1.dat
MA 1-2.dat
MA 1-3.dat
MA 1-4.dat

I. General Information and Sign & Signal Data

Enter Project Information

Project Name	Harborview Drive - Kings Hwy Intersection Hardening Signal		
Project No.	2024001439		
Designed by	RA	*Date*	05/01/2024
Checked by	CJC	*Date*	05/03/2024
Signal Name	MA 1-1		
Station/Offset	23+32.00 / 86.50' LT		

Enter Wind Speed

Design Wind Speed 170 *mph*

Extreme Event Wind Speed

SDG Wind Speeds by County

Enter Arm Lengths, Signal and Sign Data

Arm 1

Arm 1 Length 60 Reset Arm 1 Data

Arm1 Signal Number	*Distance to Signal (ft)*	*Number of Heads*
1	34.3	3
2	46.3	3
3	57.8	3
4		
5		
6		
7		
8		
9		
10		

Arm 2 *Set Arm 2 Length = 0 for single arm Mast Arms*

Arm 2 Length 0 Reset Arm 2 Data

Arm2 Signal Number	*Distance to Signal (ft)*	*Number of Heads*
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

Arm 1 Sign Panels

Arm1 Sign Panel Number	*Distance to Panel (ft)*	*Panel Area (sf)*
1	1	14
2	25	6.25
3	52	2
4		
5		

Arm 2 Sign Panels

Arm2 Sign Panel Number	*Distance to Panel (ft)*	*Panel Area (sf)*
1		
2		
3		
4		
5		

Save Data for Signs and Signals

II. Arm 1 Analysis

InputDataFile = "MA 1-1.dat" $V_{extreme}$ = 170 mph

Reference:D:\Worksets\FDOT\2024001439\Structures\MastArmV2.0\LRFD Equation Module.xmcd(R)

Help - Base Diameters | Help - Tube Wall Thickness

Arm Extension (for 2 piece arms only)

Enter Arm 1 Data

Iterate on Base Diameters and Wall Thicknesses

Arm Length (ft)	*Base Diameter 1 (in)*	*Wall Thickness 1 (in)*	*Base Diameter 2 (in)*	*Wall Thickness 2 (in)*
$L_{total.arm1}$ = 60 ft	12	0.25	15	0.375
feet, 40 ft. max. for 1 piece arms	*Measured flat to flat* 'FC'	'FD'	*Measured flat to flat* 'FG'	'FH'

Arm 1 Analysis including Existing Mast Arm Analysis (Additional Variables Required)

$L_{total.arm1}$ = 60 ft 'FD'= 'FH'= $t_{wall.arm1} = \begin{pmatrix} 0.250 \\ 0.375 \end{pmatrix} \cdot in$ 'FC'= 'FG'= $Diameter_{base.arm1} = \begin{pmatrix} 12.00 \\ 15.00 \end{pmatrix} \cdot in$ BackPlate = "Rigid, 6 inches wide"

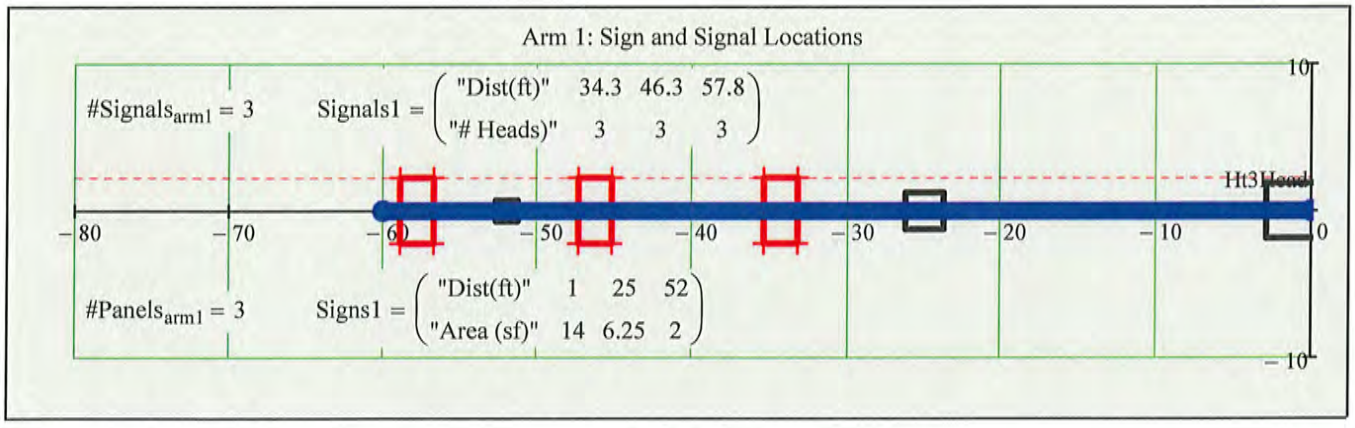
'FB'= 'FF'= $Diameter_{tip.arm1} = \begin{pmatrix} 7.03 \\ 11.15 \end{pmatrix} \cdot in$ $CheckTipDia_{arm1}$ = "OK"

'FA'= 'FE'= $L_{arm1} = \begin{pmatrix} 35.5 \\ 27.5 \end{pmatrix} \cdot ft$ $CheckSectionLength_{arm1}$ = "OK"

$L_{splice.provided.arm1}$ = 2.4 ft $Classification_{arm1} = \begin{pmatrix} \text{"Compact"} \\ \text{"Compact"} \end{pmatrix}$

Arm 1 Combined Force Interaction Ratio and Deflection

$\max(CFI_{arm1})$ = 0.75 $CheckMaxCFI_{arm1}$ = "OK" $\max(\Delta_{arm1})$ = 11.4 in $2 \cdot deg \cdot L_{total.arm1}$ = 25.1 in



III. Arm 2 Analysis

InputDataFile = "MA 1-1.dat" $V_{extreme}$ = 170 mph

Help - Base Diameters | Help - Tube Wall Thickness

Arm Extension (for 2 piece arms only)

Enter Arm 2 Data

Iterate on Base Diameters and Wall Thicknesses

Arm Length (ft)	*Base Diameter 1 (in)*	*Wall Thickness 1 (in)*	*Base Diameter 2 (in)*	*Wall Thickness 2 (in)*
$L_{total.arm2}$ = 0 ft				
feet, 40 ft. max. for 1 piece arms	*Measured flat to flat* 'SC'	*for 1 & 2 piece arms* 'SD'	*Measured flat to flat* 'SG'	*for 2 piece arms only* 'SH'

Arm 2 Analysis

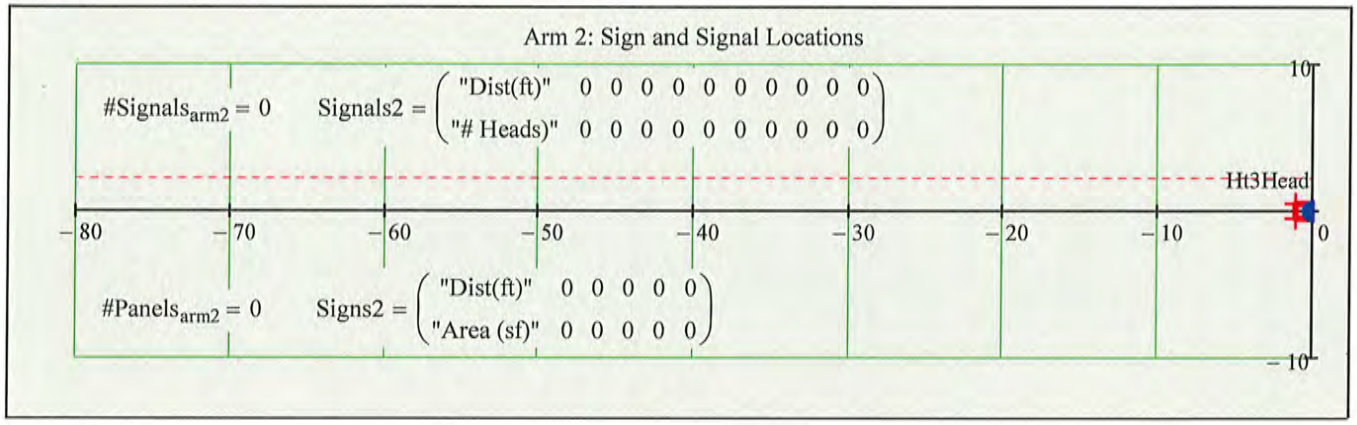
$L_{total.arm2} = 0\,ft$ 'SD'= 'SH'= $t_{wall.arm2} = \begin{pmatrix} 0.000 \\ 0.000 \end{pmatrix} \cdot in$ 'SC'= 'SG'= $Diameter_{base.arm2} = \begin{pmatrix} 0.00 \\ 0.00 \end{pmatrix} \cdot in$ BackPlate = "Rigid, 6 inches wide"

'SB'= 'SF'= $Diameter_{tip.arm2} = \begin{pmatrix} 0.00 \\ 0.00 \end{pmatrix} \cdot in$ $CheckTipDia_{arm2}$ = "N/A" 'SA'= 'SE'= $L_{arm2} = \begin{pmatrix} 0.0 \\ 0.0 \end{pmatrix} \cdot ft$ $CheckSectionLength_{arm2}$ = "N/A"

$L_{splice.provided.arm2} = 0.0\,ft$ $Classification_{arm2} = \begin{pmatrix} \text{"Compact"} \\ \text{"N/A"} \end{pmatrix}$

Arm 2 Combined Force Interaction Ratio and Deflection

$\max(CFI_{arm2}) = 0.00$ $CheckMaxCFI_{arm2}$ = "OK" $\max(\Delta_{arm2}) = 0.0 \cdot in$ $2 \cdot deg \cdot L_{total.arm2} = 0 \cdot in$



IV. Luminaire Arm Analysis

InputDataFile = "MA 1-1.dat" $V_{extreme} = 170\,mph$

Enter Luminaire Data

Set Lum. Ht. = 0 for no Luminaire

See Design Standards 649-030 and 649-031 for input values.

Luminaire Height (ft)	Lum Horiz Length (ft)	Lum Arm Base Dia (in)	Lum Wall Thickness (in)	Slope	Lum Arm Radius (ft)	Lum Bolt Dia (in)	Lum Base Plate Thickness (in)
0							
Std = 40 feet	*10 feet*	*3 inches*	*0.125 inches*	*0.5*	*8 feet*	*0.5 inches*	*0.75 inches*

Analyze Luminaire

Summary - Luminaire Arm Geometry

$\begin{pmatrix} CFI_{base.lumarm} \\ CSR_{bolt.lum} \\ D/C_{baseplate.lum} \\ D/C_{conn.plate.lum} \end{pmatrix} = \begin{pmatrix} 0.00 \\ 0.00 \\ 0.00 \\ 0.00 \end{pmatrix}$

'LA'= $Y_{luminaire} = 0\,ft$

'LB'= $X_{luminaire} = 0\,ft$

'LC'= $Diameter_{base.lumarm} = 0 \cdot in$

'LD'= $t_{wall.lumarm} = 0 \cdot in$

'LE'= $Slope_{lumarm} = 0$

'LF'= $r_{lumarm} = 0\,ft$

'LG'= $d_{bolt.lum} = 0 \cdot in$

'LH'= $t_{baseplate.lum} = 0 \cdot in$

'LJ'= $w_{base.lum} = 0 \cdot in$

'LK'= $w_{channel.lum} = 0 \cdot in$

V. Upright Analysis

InputDataFile = "MA 1-1.dat" $V_{extreme} = 170 \cdot mph$

Help - Upright Base Diameter and Wall Thickness | Help - Gap Distance

Enter Upright Data

Total Height (ft)	*Height to Arm Connection (ft)*	*Base Diameter (in)*	*Wall Thickness (in)*	*Gap (in)*
22.5	19.50	22	0.375	7.4
'UA'	'UB'	'UD' *measured flat to flat*	'UE'	*arm 1 gap* / *arm 2 gap*

Analyze Upright

Upright Combined Force Interaction Ratio and Deflections

$Classification_{pole} = "Compact"$

$max(CFI_{pole}) = 0.44$

$Check_{slope} = "OK"$

$Check_{deflection} = "OK"$

$max(\Delta_{x.dl}) = 0.63 \cdot in$

$max(\Delta_{z.dl}) = 0 \cdot in$

$Slope_z = 0 \cdot deg$

$Slope_x = 0.33 \cdot deg$

$Diameter_{conn.pole} = 19.3 \cdot in$

$max(Diameter_{base.arm1}) = 15 \cdot in$

$max(Diameter_{base.arm2}) = 0 \cdot in$

'UA'= $Y_{pole} = 22.5\,ft$

'UB'= $Y_{arm.conn} = 19.5\,ft$

'UC'= $Diameter_{tip.pole} = 18.9\,in$

'UD'= $Diameter_{base.pole} = 22\,in$

'UE'= $t_{wall.pole} = 0.375\,in$

'UF'= $\alpha = 0 \cdot deg$

'UG'= $Y_{lum.conn} = 0\,ft$

VI. Arm to Upright Connection Analysis

InputDataFile = "MA 1-1.dat"

for double arms, both connection plate heights must be equal

Help - Arm Connection Dimensions

Enter Connection Data

Connection Plate Height(in)	*Connection Plate Width (in)*	*Vertical Plate Thickness (in)*	*Bolt Diameter (in)*	*Arm Base Plate Thickness (in)*
30	36	0.75	1.25	3
'HT'	'FJ', 'SJ'	'FL', 'SL'	'FP', 'SP'	'FK', 'SK'

Analyze Connection

Connection Summary

'HT'= $h_{conn.plate} = 30 \cdot in$ $D/C_{ht.conn.plate} = 0.60$ $CheckHt_{conn.plate} = "OK"$

$D/C_{width.conn.plate_0} = 0.86$

$CheckWidth_{conn.plate_0} = "OK"$

$$\begin{pmatrix} D/C_{t.baseplate.arm_0} \\ CFI_{t.vert.plate_0} \\ CSR_{bolt.conn_0} \end{pmatrix} = \begin{pmatrix} 0.83 \\ 0.35 \\ 0.30 \end{pmatrix}$$

$\#Bolts_{conn_0} = 6$

'FJ'= $b_{conn.plate_0} = 36 \cdot in$

'FK'= $t_{baseplate.arm_0} = 3.00\,in$

'FL'= $t_{vertical.plate_0} = 0.75\,in$

'FN'= $w_{vertical.plate_0} = \frac{1}{4} \cdot in$

'FO'= $Offset_{conn_0} = 17.0\,in$

'FP'= $d_{bolt.conn_0} = 1.25\,in$

'FR'= $t_{conn.plate_0} = 2.00\,in$

'FS'= $Spacing_{bolts.conn_0} = 12.5\,in$

'FT'= $w_{conn.plate_0} = \frac{1}{4} \cdot in$

$D/C_{width.conn.plate_1} = 0.00$

$CheckWidth_{conn.plate_1} = "OK"$

$$\begin{pmatrix} D/C_{t.baseplate.arm_1} \\ CFI_{t.vert.plate_1} \\ CSR_{bolt.conn_1} \end{pmatrix} = \begin{pmatrix} 0.00 \\ 0.00 \\ 0.00 \end{pmatrix}$$

$\#Bolts_{conn_1} = 0$

'SJ'= $b_{conn.plate_1} = 0 \cdot in$

'SK'= $t_{baseplate.arm_1} = 0.00\,in$

'SL'= $t_{vertical.plate_1} = 0 \cdot in$

'SN'= $w_{vertical.plate_1} = 0 \cdot in$

'SO'= $Offset_{conn_1} = 0.0 \cdot in$

'SP'= $d_{bolt.conn_1} = 0 \cdot in$

'SR'= $t_{conn.plate_1} = 0.00\,in$

'SS'= $Spacing_{bolts.conn_1} = 0.00\,in$

'ST'= $w_{conn.plate_1} = 0 \cdot in$

VII. Upright Base Plate & Anchor Bolt Analysis

InputDataFile = "MA 1-1.dat"

Enter Anchorage Data

Anchor Bolt Diameter (in)	*Number of Anchor Bolts*
2	8
'BC'	'#Bolts'

Help - Number of Anchor Bolts

$Diameter_{base.pole} = 22 \cdot in$

Analyze Base Plate & Anchors

Base Plate and Anchor Summary

$CSR_{anchor} = 0.16$

$CheckCSR_{anchorbolt} = "OK"$

'#Bolts'= $\#AnchorBolts = 8$

$Diameter_{boltcircle.pole} = 30 \cdot in$

'BA'= $Diameter_{baseplate.pole} = 38 \cdot in$

'BB'= $t_{baseplate.pole} = 2.50\,in$

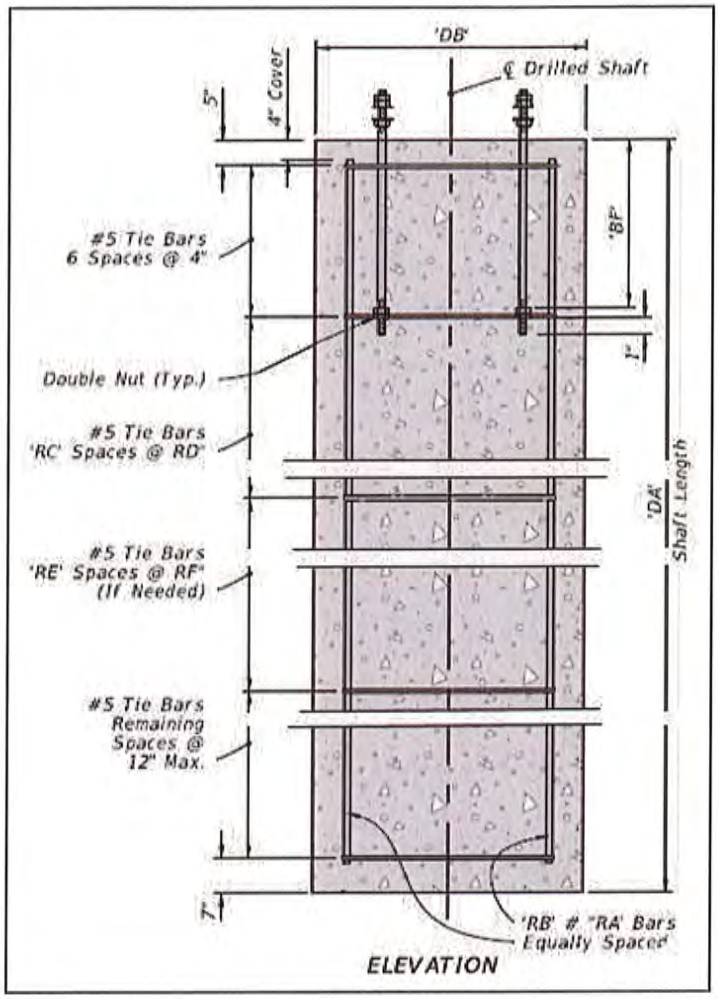
'BC'= $d_{anchorbolt} = 2.00\,in$

VIII. Foundation Analysis & Anchor Bolt Lengths

InputDataFile = "MA 1-1.dat"

Enter Drilled Shaft Data

Soil Type	Sand / Clay	
Soil Density, γ_{soil} (45-50 pcf typ.)	47	pcf
Friction Angle, ϕ (Sands)	29	deg
SPT Number (N_{blows} 5 min.) (Sands)	8	
Shear Strength, c (Clays)		ksf
Ground to Top of Shaft Offset	0.5	ft
First Set of User Defined Stirrups:		
Number of Stirrup Spaces 'RC'	10	
Stirrup Spacing 'RD'	6	in
Second Set of User Defined Stirrups:		
Number of Stirrup Spaces 'RE' *enter zero for 12 inch spacing*	10	
Stirrup Spacing 'RF' *enter zero for 12 inch spacing*	9	in
Stirrup Bar Size, use #5 for all Standard Shafts	#5 / #6	



Analyze Foundation

Shaft Length $L_{shaft} = 18.5\ ft$

Stirrup spacing $s_v = \begin{pmatrix} 4 \\ 6 \\ 9 \\ 12 \end{pmatrix} \cdot in$

Number of stirrup spaces $\#Spaces_{vbar} = \begin{pmatrix} 6 \\ 10 \\ 10 \\ 3 \end{pmatrix}$

Foundation Summary

CheckReinfClearSpacing = "OK"

CheckLongReinf$_{shr.tor}$ = "OK"

CheckMaxSpacingTransvReinf = "OK"

OverlapDesign = "Based on Overlap of Failure Cones"

OverlapTest = "Overlap of Failure Cones"

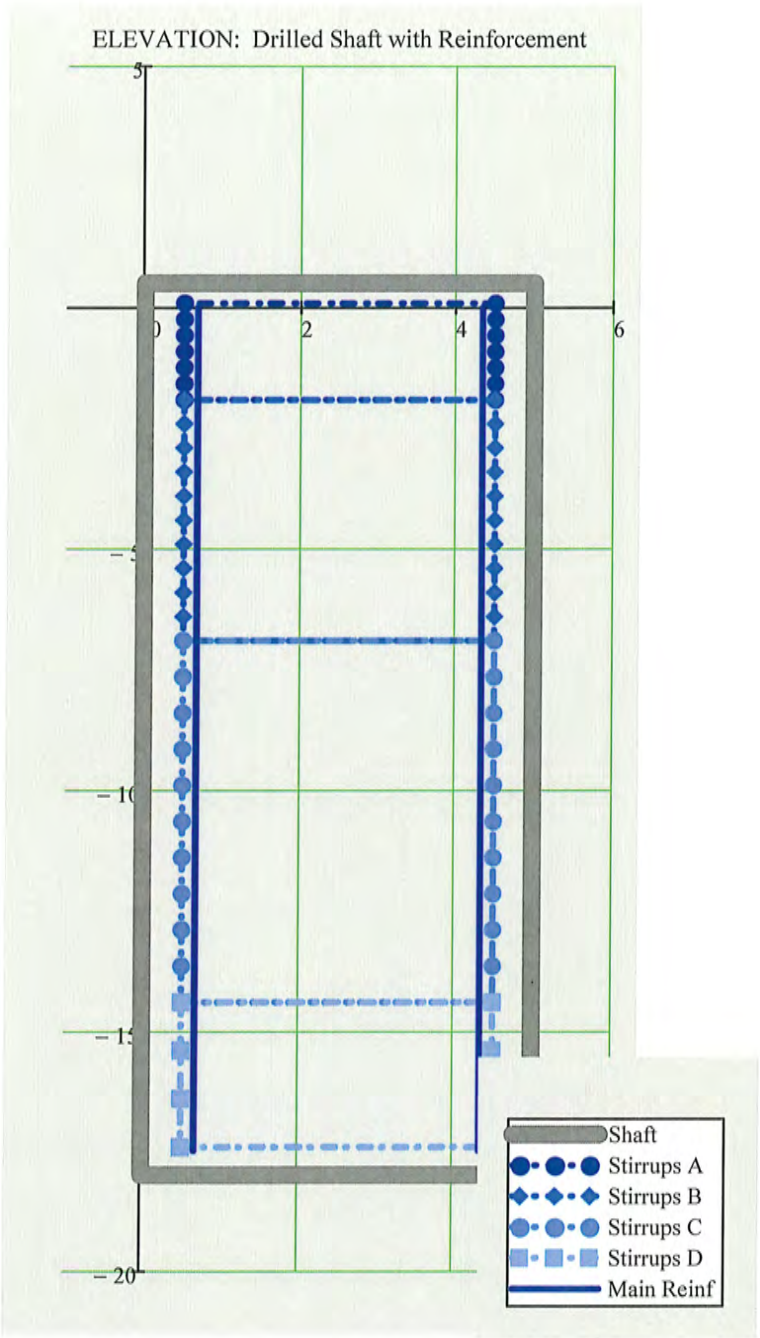
BreakoutTest = "OK"

Stirrups $s_{v_0} = 4 \cdot in$ @ $\#Spaces_{vbar_0} = 6$: $D/C_{torsion_0} = 0.2$

Stirrups 'RC' ($s_{v_1} = 6 \cdot in$) @ 'RD' ($\#Spaces_{vbar_1} = 10$): $D/C_{torsion_1} = 0.3$

Stirrups 'RE' ($s_{v_2} = 9 \cdot in$) @ 'RF' ($\#Spaces_{vbar_2} = 10$): $D/C_{torsion_2} = 0.4$

Stirrups $s_{v_3} = 12 \cdot in$ @ $\#Spaces_{vbar_3} = 3$



Offset = 0.5 ft

$d_{long.bar} = 1.41 \cdot in$

$Dia_{bar.circle} = 45.3 \cdot in$

'DA' $L_{shaft} = 18.5\,ft$

'DB' $Diameter_{shaft} = 5 \cdot ft$

'BF' $L_{embedment.anchor} = 40 \cdot in$

$L_{anchor.bolt} = 58 \cdot in$

'RA' $round\left(\frac{d_{long.bar}}{0.125in}\right) = 11$

'RB' $\#LongBars_{prov} = 19$

$\#Spaces_{vbar_0} = 6$

$s_{v_0} = 4 \cdot in$

'RC' $\#Spaces_{vbar_1} = 10$

'RD' $s_{v_1} = 6 \cdot in$

'RE' $\#Spaces_{vbar_2} = 10$

'RF' $s_{v_2} = 9 \cdot in$

$\#Spaces_{vbar_3} = 3$

$s_{v_3} = 12 \cdot in$

IX. Fatigue Analysis

InputDataFile = "MA 1-1.dat"

$FatigueCategory_{galloping} := 2$ $FatigueCategory_{natural.wind} := 2$ ***SM V3 11.6***

Analyze Structure for Fatigue

Fatigue Summary

K1 values within 2% of LTS thresholds of 3.0 and 4.0 may use next higher CAFT values

Arm and Pole Welds

$Check_{galloping.arm1} = "OK"$ $f_{galloping.arm1} = 4.1 \cdot ksi$ $CAFT_{fullpengroove.weld.arm1} = 7 \cdot ksi$

$Check_{galloping.arm2} = "NA"$ $f_{galloping.arm2} = 0.0 \cdot ksi$ $CAFT_{fullpengroove.weld.arm2} = "NA" \cdot ksi$

$Check_{galloping.pole} = "OK"$ $f_{galloping.pole} = 1.9 \cdot ksi$ $CAFT_{fullpengroove.weld.pole} = 4.5 \cdot ksi$

$Check_{nwg.arm1} = "OK"$ $f_{nwg.arm1} = 2.9 \cdot ksi$ $CAFT_{fullpengroove.weld.arm1} = 7 \cdot ksi$

$Check_{nwg.arm2} = "NA"$ $f_{nwg.arm2} = 0.0 \cdot ksi$ $CAFT_{fullpengroove.weld.arm2} = "NA" \cdot ksi$

$Check_{nwg.pole} = "OK"$ $f_{nwg.pole} = 1.3 \cdot ksi$ $CAFT_{fullpengroove.weld.pole} = 4.5 \cdot ksi$

$$CheckK1Values = \begin{pmatrix} "K1 \text{ is outside of 2\% of K1 thresholds}" \\ "K1 \text{ is outside of 2\% of K1 thresholds}" \\ "K1 \text{ is outside of 2\% of K1 thresholds}" \end{pmatrix} \quad \begin{pmatrix} K_{l.arm1} \\ K_{l.arm2} \\ K_{l.pole} \end{pmatrix} = \begin{pmatrix} 3.88 & "Arm\ 1\ Base\ Weld" \\ 100.0 & "Arm\ 2\ Base\ Weld" \\ 6.68 & "Upright\ Base\ Weld" \end{pmatrix}$$

A325 Connection Bolts

$Check_{g.conn.bolt} = \begin{pmatrix} "OK" \\ "OK" \end{pmatrix}$ $f_{t.g.bolt} = \begin{pmatrix} 3.7 \\ 0.0 \end{pmatrix} \cdot ksi$ $CAFT_{conn.bolt} = 16 \cdot ksi$

$Check_{nwg.conn.bolt} = \begin{pmatrix} "OK" \\ "OK" \end{pmatrix}$ $f_{t.nwg.bolt} = \begin{pmatrix} 2.6 \\ 0.0 \end{pmatrix} \cdot ksi$

Anchor Bolts

$Check_{g.anchor} = "OK"$ $f_{t.g.anchor} = 1.4 \cdot ksi$ $CAFT_{anchor.bolts} = 7 \cdot ksi$

$Check_{nwg.anchor} = "OK"$ $f_{t.nwg.anchor} = 1 \cdot ksi$

Save Data File (optional)

☑ Use current input file

File Name MA 1-1.dat

Note: Select an output folder by using the "Change Folder" option above.

Save Data

Arm Designation Example

A70/D-A30/D/H-P5/D/L-DS/16/5

A70/D -	*Arm 70 feet long, Double Arm*
A30/D/H -	*Arm 30 feet long, Double Arm, Heavy Duty*
P5/D/L -	*Pole 5 , Double Arm, with Luminaire*
DS/16/5 -	*Drilled Shaft 16 ft deep, 5 foot diameter*

X. Mast Arm Design and Analysis Summary

InputDataFile = "MA 1-1.dat"

If comparing results to Standard Index 649-030, some values in the index have been increased to reduce the number of variations.

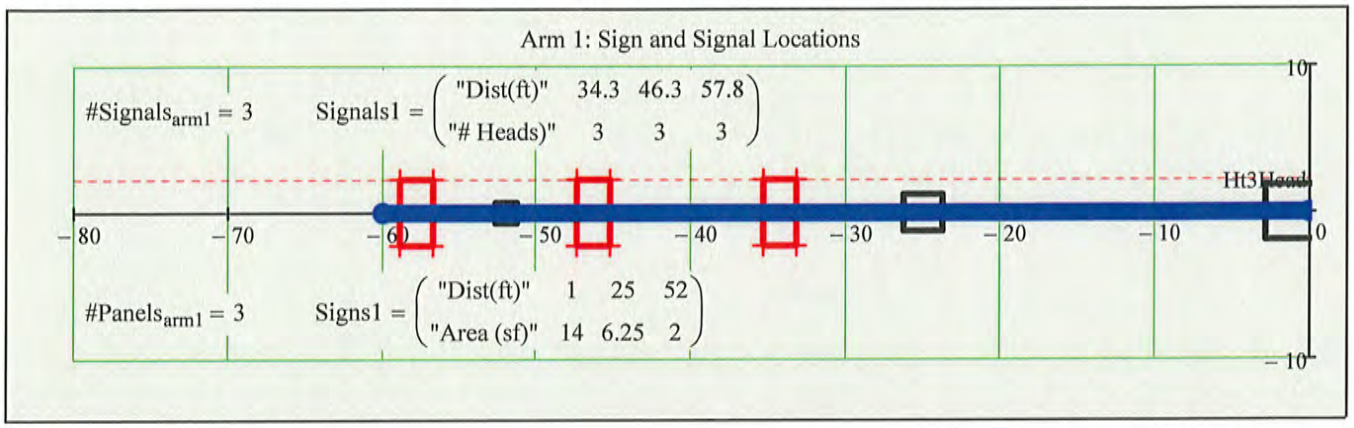
Subject = "Harborview Drive - Kings Hwy Interse" DesignedBy = "RA" "l" PoleLocation = "23+32.00 / 86.50' LT"

ProjectNo = "2024001439" CheckedBy = "CJC" Date = "05/01/2024" ExistingMastArm = "No"

For FDOT Mast Arm Support Structures, $\max(CFI) \le 0.95$ ***(See Structures Manual Volume3)***

1st Mast Arm

$V_{extreme} = 170$ mph ExistingMastArm = "No" BackPlate = "Rigid, 6 inches wide"



$\max(CFI_{arm1}) = 0.75$ CheckMaxCFI_arm1 = "OK" $L_{total.arm1} = 60$ ft $L_{splice.provided.arm1} = 2.4 \cdot$ ft $\max(\Delta_{arm1}) = 11.4 \cdot$ in

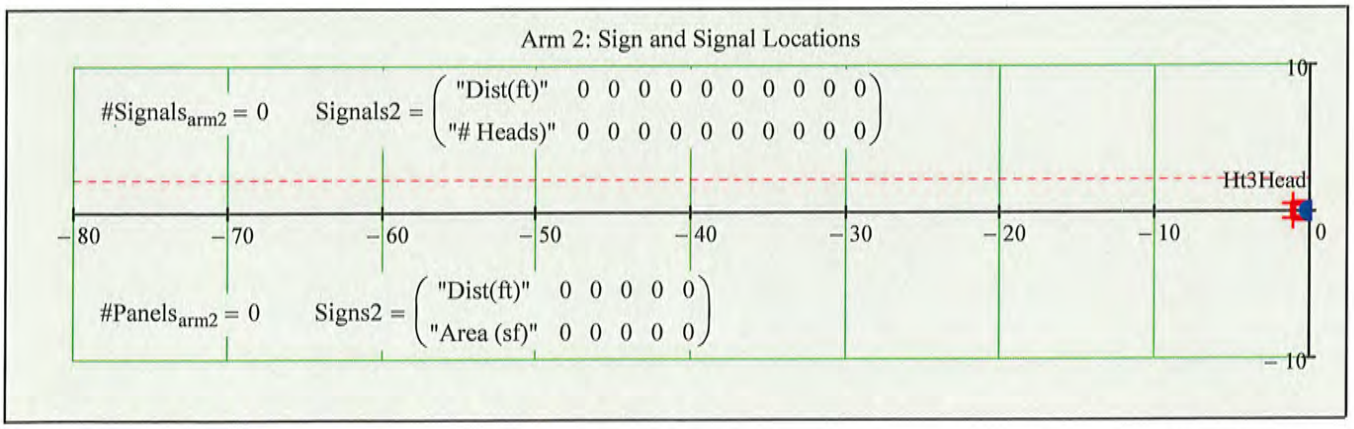
'FA'= 'FE'= $L_{arm1} = \begin{pmatrix} 35.5 \\ 27.5 \end{pmatrix} \cdot$ ft CheckSectionLength_arm1 = "OK"

'FC'= 'FG'= $Diameter_{base.arm1} = \begin{pmatrix} 12.00 \\ 15.00 \end{pmatrix} \cdot$ in

'FB'= 'FF'= $Diameter_{tip.arm1} = \begin{pmatrix} 7.03 \\ 11.15 \end{pmatrix} \cdot$ in CheckTipDia_arm1 = "OK"

'FD'= 'FH'= $t_{wall.arm1} = \begin{pmatrix} 0.250 \\ 0.375 \end{pmatrix} \cdot$ in

2nd Mast Arm



$\max(CFI_{arm2}) = 0.00$ CheckMaxCFI_arm2 = "OK" $L_{total.arm2} = 0$ ft $L_{splice.provided.arm2} = 0 \cdot$ ft $\max(\Delta_{arm2}) = 0 \cdot$ in

'SA'= 'SE'= $L_{arm2} = \begin{pmatrix} 0 \\ 0 \end{pmatrix} \cdot$ ft CheckSectionLength_arm2 = "N/A"

'SC'= 'SG'= $Diameter_{base.arm2} = \begin{pmatrix} 0.00 \\ 0.00 \end{pmatrix} \cdot$ in

'UF'= $\alpha = 0 \cdot$ deg (Angle Between Arms)

'SB'= 'SF'= $Diameter_{tip.arm2} = \begin{pmatrix} 0.00 \\ 0.00 \end{pmatrix} \cdot$ in CheckTipDia_arm2 = "N/A"

'SD'= 'SH'= $t_{wall.arm2} = \begin{pmatrix} 0.000 \\ 0.000 \end{pmatrix} \cdot$ in

Luminaire Arm and Connection *(use MC10x33.6 channel for connection)*

$$\begin{pmatrix} CFI_{base.lumarm} \\ CSR_{bolt.lum} \\ D/C_{baseplate.lum} \\ D/C_{conn.plate.lum} \end{pmatrix} = \begin{pmatrix} 0.00 \\ 0.00 \\ 0.00 \\ 0.00 \end{pmatrix}$$

'LA'= $Y_{luminaire} = 0\ ft$

'LB'= $X_{luminaire} = 0\ ft$

'LC'= $Diameter_{base.lumarm} = 0 \cdot in$

'LD'= $t_{wall.lumarm} = 0 \cdot in$

'LE'= $Slope_{lumarm} = 0$

'LF'= $r_{lumarm} = 0\ ft$

'LG'= $d_{bolt.lum} = 0 \cdot in$

'LH'= $t_{baseplate.lum} = 0 \cdot in$

'LJ'= $w_{base.lum} = 0 \cdot in$

'LK'= $w_{channel.lum} = 0 \cdot in$

Upright

$\max(CFI_{pole}) = 0.44$ $Check_{deflection} = "OK"$ $Check_{slope} = "OK"$

'UA'= $Y_{pole} = 22.5 \cdot ft$

'UB'= $Y_{arm.conn} = 19.5 \cdot ft$

'UC'= $Diameter_{tip.pole} = 18.9 \cdot in$

'UD'= $Diameter_{base.pole} = 22 \cdot in$

'UE'= $t_{wall.pole} = 0.375 \cdot in$

'UF'= $\alpha = 0 \cdot deg$

'UG'= $Y_{lum.conn} = 0\ ft$

1st Arm to Upright Connection

$D/C_{ht.conn.plate} = 0.60$

$CheckHt_{conn.plate} = "OK"$

$D/C_{width.conn.plate_0} = 0.86$

$CheckWidth_{conn.plate_0} = "OK"$

$$\begin{pmatrix} D/C_{t.baseplate.arm_0} \\ CFI_{t.vert.plate_0} \\ CSR_{bolt.conn_0} \end{pmatrix} = \begin{pmatrix} 0.83 \\ 0.35 \\ 0.30 \end{pmatrix}$$

'HT'= $h_{conn.plate} = 30 \cdot in$

$\#Bolts_{conn_0} = 6$

'FJ'= $b_{conn.plate_0} = 36 \cdot in$

'FK'= $t_{baseplate.arm_0} = 3 \cdot in$

'FL'= $t_{vertical.plate_0} = 0.75 \cdot in$

'FN'= $w_{vertical.plate_0} = \frac{1}{4} \cdot in$

'FO'= $Offset_{conn_0} = 17.0 \cdot in$

'FP'= $d_{bolt.conn_0} = 1.25 \cdot in$

'FR'= $t_{conn.plate_0} = 2 \cdot in$

'FS'= $Spacing_{bolts.conn_0} = 12.5 \cdot in$

'FT'= $w_{conn.plate_0} = \frac{1}{4} \cdot in$

2nd Arm to Upright Connection

$D/C_{width.conn.plate_1} = 0.00$

$CheckWidth_{conn.plate_1} = "OK"$

$$\begin{pmatrix} D/C_{t.baseplate.arm_1} \\ CFI_{t.vert.plate_1} \\ CSR_{bolt.conn_1} \end{pmatrix} = \begin{pmatrix} 0.00 \\ 0.00 \\ 0.00 \end{pmatrix}$$

'HT'= $h_{conn.plate} = 30 \cdot in$

$\#Bolts_{conn_1} = 0$

'SJ'= $b_{conn.plate_1} = 0 \cdot in$

'SK'= $t_{baseplate.arm_1} = 0 \cdot in$

'SL'= $t_{vertical.plate_1} = 0 \cdot in$

'SN'= $w_{vertical.plate_1} = 0 \cdot in$

'SO'= $Offset_{conn_1} = 0.0 \cdot in$

'SP'= $d_{bolt.conn_1} = 0 \cdot in$

'SR'= $t_{conn.plate_1} = 0 \cdot in$

'SS'= $Spacing_{bolts.conn_1} = 0 \cdot in$

'ST'= $w_{conn.plate_1} = 0 \cdot in$

Pole Base Plate

$CSR_{anchor} = 0.16$

$CheckCSR_{anchorbolt} = "OK"$

'#Bolts'= $\#AnchorBolts = 8$

$Diameter_{boltcircle.pole} = 30 \cdot in$

'BA'= $Diameter_{baseplate.pole} = 38 \cdot in$

'BB'= $t_{baseplate.pole} = 2.5 \cdot in$

'BC'= $d_{anchorbolt} = 2.00 \cdot in$

'BF'= $L_{embedment.anchor} = 40 \cdot in$

$L_{anchor.bolt} = 58 \cdot in$

Foundation

$D/C_{torsion.max} = 0.37$

$CheckD/C_{shear.and.torsion} = "OK"$

$CheckReinfClearSpacing = "OK"$

$CheckLongReinf_{shr.tor} = "OK"$

$CheckMaxSpacingTransvReinf = "OK"$

$OverlapDesign = "Based on Overlap of Failure Cones"$

$OverlapTest = "Overlap of Failure Cones"$

$BreakoutTest = "OK"$

$Clearance_{csl.to.nut} = 4.5 \cdot in$

$Offset = 0.5\,ft$

$d_{long.bar} = 1.41 \cdot in$

$Dia_{bar.circle} = 45.3 \cdot in$

'DA'= $L_{shaft} = 18.5 \cdot ft$

'DB'= $Diameter_{shaft} = 5 \cdot ft$

'RA'= $round\left(\frac{d_{long.bar}}{0.125in}\right) = 11$

'RB'= $\#LongBars_{prov} = 19$

'RC'= $\#Spaces_{vbar_1} = 10$

'RD'= $s_{v_1} = 6 \cdot in$

'RE'= $\#Spaces_{vbar_2} = 10$

'RF'= $s_{v_2} = 9 \cdot in$

Fatigue

$Check_{galloping.arm1} = "OK"$

$Check_{nwg.arm1} = "OK"$

$Check_{galloping.arm2} = "NA"$

$Check_{nwg.arm2} = "NA"$

$Check_{galloping.pole} = "OK"$

$Check_{nwg.pole} = "OK"$

$Check_{g.conn.bolt} = \begin{pmatrix} "OK" \\ "OK" \end{pmatrix}$

$Check_{nwg.conn.bolt} = \begin{pmatrix} "OK" \\ "OK" \end{pmatrix}$

$Check_{g.anchor} = "OK"$

$Check_{nwg.anchor} = "OK"$

K1 values within 2% of LTS thresholds may use next higher CAFT values

$$CheckK1Values = \begin{pmatrix} "K1 \text{ is outside of } 2\% \text{ of K1 thresholds}" \\ "K1 \text{ is outside of } 2\% \text{ of K1 thresholds}" \\ "K1 \text{ is outside of } 2\% \text{ of K1 thresholds}" \end{pmatrix}$$

$$\begin{pmatrix} K_{I.arm1} \\ K_{I.arm2} \\ K_{I.pole} \end{pmatrix} = \begin{pmatrix} 3.882 \\ 100.000 \\ 6.683 \end{pmatrix} \begin{pmatrix} "Arm\ 1\ Base\ Weld" \\ "Arm\ 2\ Base\ Weld" \\ "Upright\ Base\ Weld" \end{pmatrix}$$

WRITE to Special Mast Arm Assembly Data Tables

Mast Arm Tip Deflection

Compare Mast Arm deflection of each arm to a proposed camber

$Camber_{arm1} := 2 \cdot deg$ $Camber_{arm2} := 2 \cdot deg$

$Deflection_{arm1} := Slope_x \cdot L_{total.arm1} + \max(\Delta_{arm1}) = 15.5 \cdot in$

$CamberArm1_{upward} := \sin(Camber_{arm1}) \cdot L_{total.arm1} = 25.1 \cdot in$

$Deflection_{arm2} := \left[Slope_z \cdot L_{total.arm2} \cdot (\sin(\alpha))\right] + Slope_x \cdot L_{total.arm2} \cdot \cos(\alpha) + \max(\Delta_{arm2}) = 0 \cdot in$

$CamberArm2_{upward} := \sin(Camber_{arm2}) \cdot L_{total.arm2} = 0 \cdot in$

Check Clearance Between Connection Plates *(for Two Arm Structures only)*

$\alpha = 0 \cdot deg$ $\alpha := if[(\alpha > 180 \cdot deg), (360 \cdot deg - \alpha), \alpha]$

$Offset_{conn_0} = 17 \cdot in$ $b_{conn.plate_0} = 36 \cdot in$ $h_{conn.plate} = 30 \cdot in$ $\alpha = 0 \cdot deg$

$Offset_{conn_1} = 0 \cdot in$ $b_{conn.plate_1} = 0 \cdot in$

$x1 := Offset_{conn_0} - t_{conn.plate_0} - h_{conn.plate} \cdot \frac{\sin(Camber_{arm1})}{2} = 14.5 \cdot in$ $y1 := \frac{b_{conn.plate_0}}{2} = 18 \cdot in$

$x2 := \left(Offset_{conn_1} - t_{conn.plate_1} - h_{conn.plate} \cdot \frac{\sin(Camber_{arm2})}{2}\right) \cdot \cos(\alpha) + \frac{b_{conn.plate_1}}{2} \cdot \sin(\alpha) = -0.5 \cdot in$

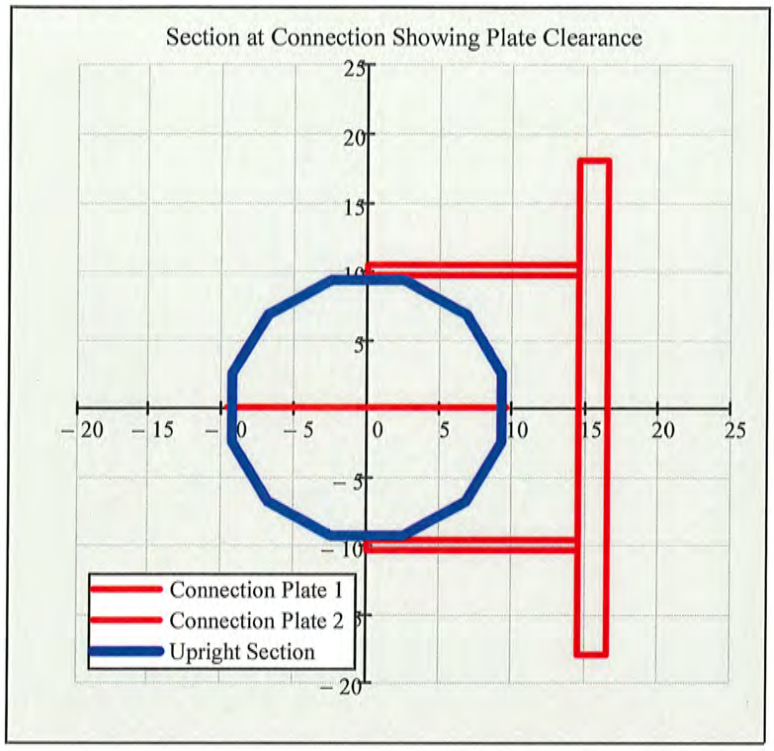
$y2 := \left(Offset_{conn_1} - t_{conn.plate_1} - h_{conn.plate} \cdot \frac{\sin(Camber_{arm2})}{2}\right) \cdot \sin(\alpha) - \frac{b_{conn.plate_1}}{2} \cdot \cos(\alpha) = 0 \cdot in$

$Clearance_{plate.to.plate} := if\left[(x1 > x2) \cdot (y2 > y1), \sqrt{(x1 - x2)^2 + (y1 - y2)^2}, 0 \cdot in\right] = 0 \cdot in$

(if Clearance < 2 inches, a redesign is required.

Coordinates for Drawings

Plan View - Connection Plate Clearance for Two Arm Connections



$Clearance_{plate.to.plate} = 0 \cdot in$

$Diameter_{conn.pole} = 19.3 \cdot in$

'FR'= $t_{conn.plate_0} = 2 \cdot in$

'FJ'= $b_{conn.plate_0} = 36 \cdot in$

'FL'= $t_{vertical.plate_0} = 0.75 \cdot in$

'FO'= $Offset_{conn_0} = 17.0 \cdot in$

$Gap_0 = 7.4 \cdot in$

'SR'= $t_{conn.plate_1} = 0 \cdot in$

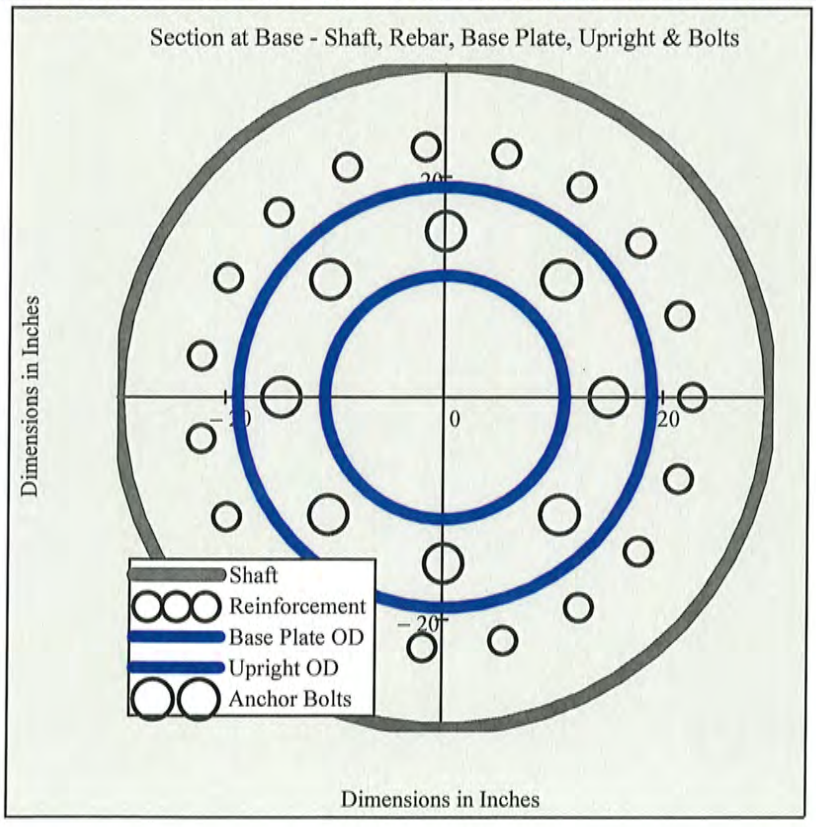
'SJ'= $b_{conn.plate_1} = 0 \cdot in$

'SL'= $t_{vertical.plate_1} = 0 \cdot in$

'SO'= $Offset_{conn_1} = 0.0 \cdot in$

$Gap_1 = 0 \cdot in$

Plan View - Drilled Shaft, Base Plate, Upright, Anchor Bolts, & Reinforcing Steel



$Clearance_{bar.to.nut} = 5.1 \cdot in$

'UD'= $Diameter_{base.pole} = 22 \cdot in$

'BA'= $Diameter_{baseplate.pole} = 38 \cdot in$

'DB'= $Diameter_{shaft} = 60 \cdot in$

$Diameter_{boltcircle.pole} = 30 \cdot in$

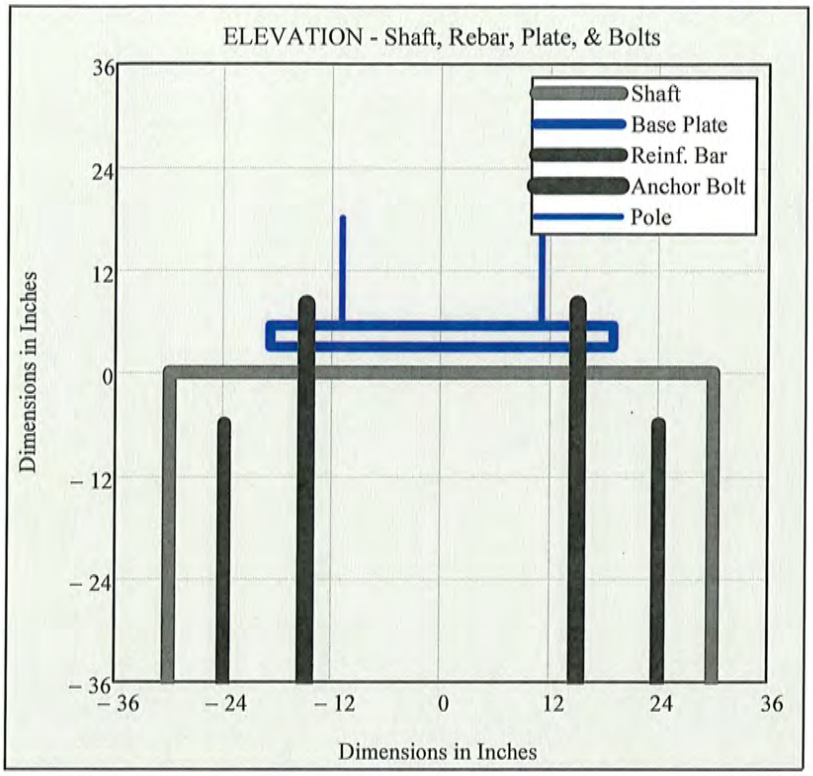
$Dia_{bar.circle} = 45.3 \cdot in$

$\#AnchorBolts = 8$

$\#LongBars_{prov} = 19$

Note: The Plan and Elevation Views do not show the 4 or 5 1.9" O.D. Nondestructive Integrity Testing Access Tubes that are tied to the inside of the reinforcing cage (see FDOT Spec 455-16.4).

Elevation View - Drilled Shaft, Base Plate, Anchor Bolts, & Reinforcing Steel



$Clearance_{bar.to.nut} = 5.1 \cdot in$

'UD'= $Diameter_{base.pole} = 22 \cdot in$

'BA'= $Diameter_{baseplate.pole} = 38 \cdot in$

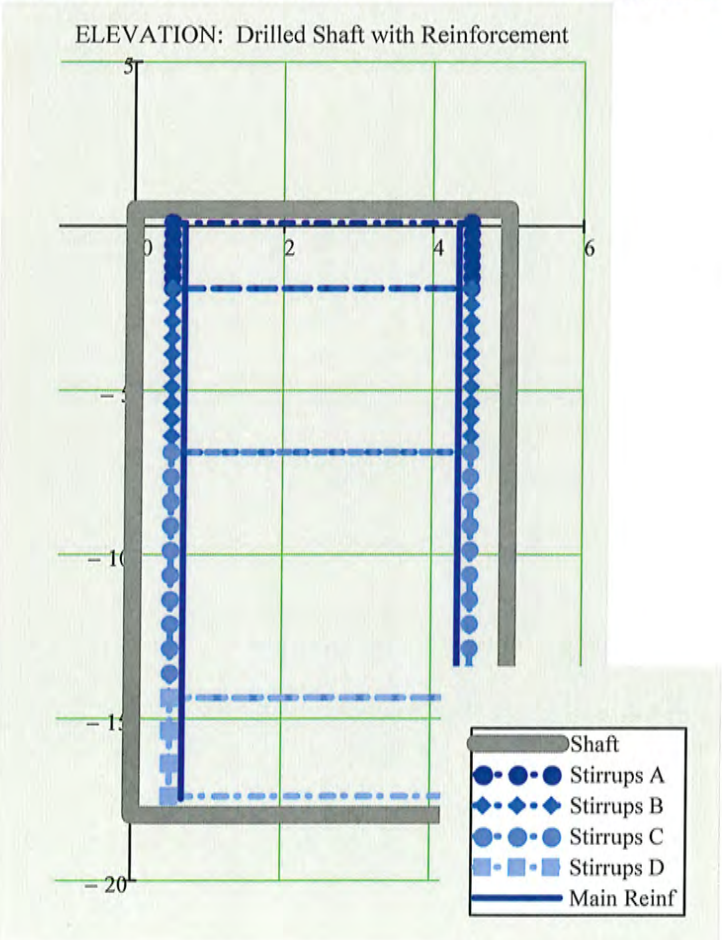
'BB'= $t_{baseplate.pole} = 2.5 \cdot in$

'DB'= $Diameter_{shaft} = 60 \cdot in$

$Diameter_{boltcircle.pole} = 30 \cdot in$

$Dia_{bar.circle} = 45.3 \cdot in$

Elevation View - Drilled Shaft with Main Reinforcement and Stirrups



$$s_v = \begin{pmatrix} 4 \\ 6 \\ 9 \\ 12 \end{pmatrix} \cdot in$$ *stirrup spacing*

$$\#Spaces_{vbar} = \begin{pmatrix} 6 \\ 10 \\ 10 \\ 3 \end{pmatrix}$$ *number of stirrup spaces*

FDOT Mast Arm Traffic Signal Support Analysis Program V2.0

This program works in conjunction with FDOT Mast Arm Standard Plans 649-030 & 649-031.

References:
AASHTO LRFD Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals (LRFDLTS).
FDOT Structures Manual Volume 3 (SM V3).
AISC Steel Construction Manual

For more information see Reference.xmcd and Changes.xmcd.

Reference

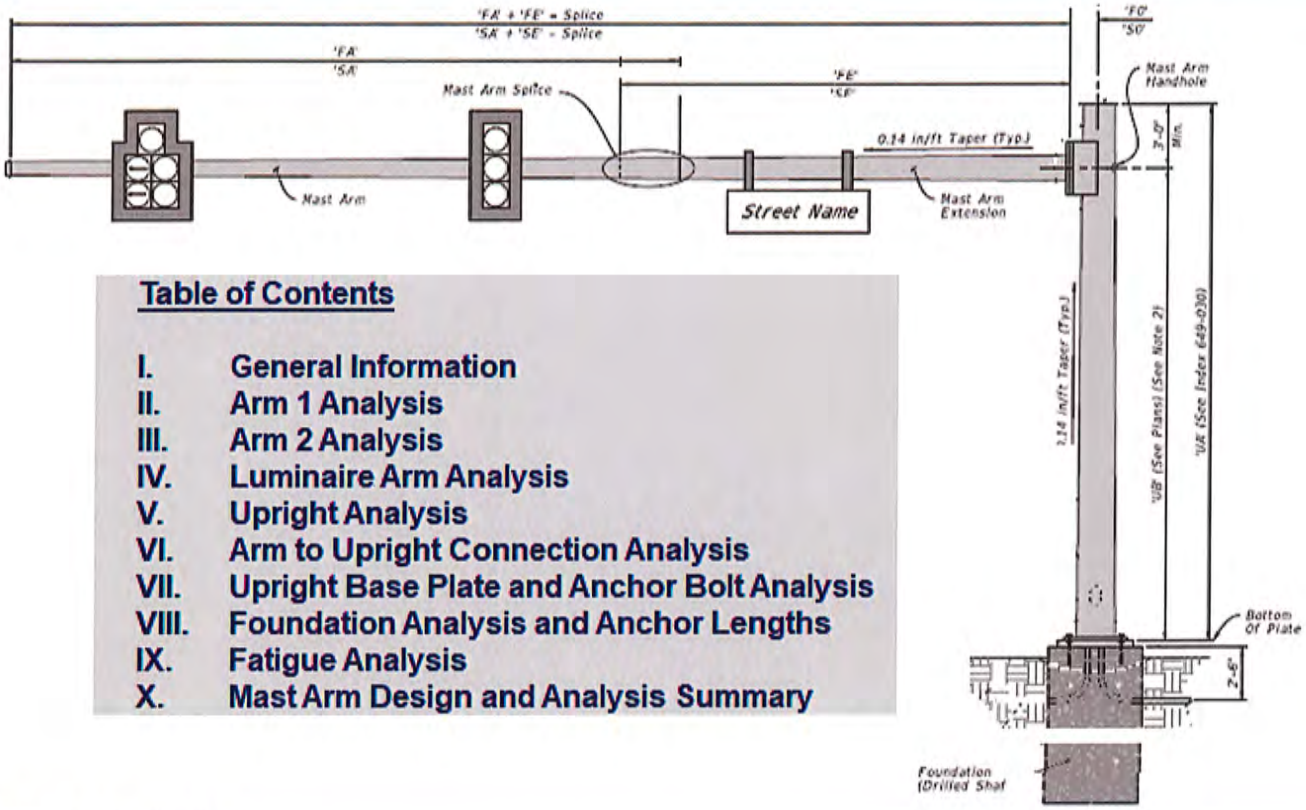


Table of Contents

Data Folder and Files

Data Files Folder

Change Folder

D:\Worksets\FDOT\2024001439\Structures\MastArmV2.0\Data\

Required - Open Existing Data File. To save New Data Files, enter data variables at the end of Section IX.

Refresh List

Open File

A78DH-A40DH-P6DL.dat
A78DH-A60DH-P6DL.dat
A78DH-A78DH-P7DL.dat
A78SH-P6SL.dat
MA 1-1.dat
MA 1-2.dat
MA 1-3.dat
MA 1-4.dat

I. General Information and Sign & Signal Data

Enter Project Information

Project Name	Harborview Drive - Kings Hwy Intersection Hardening Signal		
Project No.	2024001439		
Designed by	RA	*Date*	05/01/2024
Checked by	CJC	*Date*	05/03/2024
Signal Name	MA 1-2		
Station/Offset	23+17.00 / 35.4' RT		

Enter Wind Speed

Design Wind Speed 170 *mph*

Extreme Event Wind Speed

SDG Wind Speeds by County

Enter Arm Lengths, Signal and Sign Data

Arm 1

Arm 1 Length 50 Reset Arm 1 Data

Arm1 Signal Number	*Distance to Signal (ft)*	*Number of Heads*
1	18.9	3
2	31.1	3
3	43.8	3
4		
5		
6		
7		
8		
9		
10		

Arm 2 *Set Arm 2 Length = 0 for single arm Mast Arms*

Arm 2 Length 0 Reset Arm 2 Data

Arm2 Signal Number	*Distance to Signal (ft)*	*Number of Heads*
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

Arm 1 Sign Panels

Arm1 Sign Panel Number	*Distance to Panel (ft)*	*Panel Area (sf)*
1	1	12
2	9.7	6.25
3	37.5	2
4		
5		

Arm 2 Sign Panels

Arm2 Sign Panel Number	*Distance to Panel (ft)*	*Panel Area (sf)*
1		
2		
3		
4		
5		

Save Data for Signs and Signals

II. Arm 1 Analysis

InputDataFile = "MA 1-2.dat" $V_{extreme}$ = 170 mph

Reference:D:\Worksets\FDOT\2024001439\Structures\MastArmV2.0\LRFD Equation Module.xmcd(R)

Help - Base Diameters | Help - Tube Wall Thickness

Arm Extension (for 2 piece arms only)

Enter Arm 1 Data

Iterate on Base Diameters and Wall Thicknesses

Arm Length (ft)	*Base Diameter 1 (in)*	*Wall Thickness 1 (in)*	*Base Diameter 2 (in)*	*Wall Thickness 2 (in)*
$L_{total.arm1}$ = 50 ft	12	0.25	14	0.3125
feet, 40 ft. max. for 1 piece arms	*Measured flat to flat* 'FC'	'FD'	*Measured flat to flat* 'FG'	'FH'

Arm 1 Analysis including Existing Mast Arm Analysis (Additional Variables Required)

$L_{total.arm1}$ = 50 ft 'FD'= 'FH'= $t_{wall.arm1} = \begin{pmatrix} 0.250 \\ 0.313 \end{pmatrix} \cdot in$ 'FC'= 'FG'= $Diameter_{base.arm1} = \begin{pmatrix} 12.00 \\ 14.00 \end{pmatrix} \cdot in$ BackPlate = "Rigid, 6 inches wide"

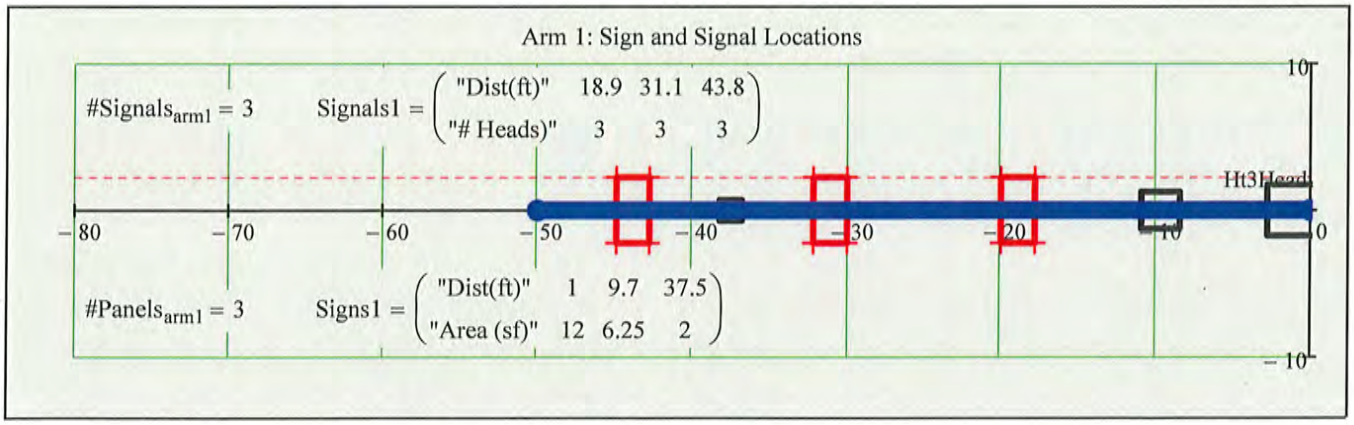
'FB'= 'FF'= $Diameter_{tip.arm1} = \begin{pmatrix} 7.45 \\ 11.13 \end{pmatrix} \cdot in$ $CheckTipDia_{arm1}$ = "OK"

'FA'= 'FE'= $L_{arm1} = \begin{pmatrix} 32.5 \\ 20.5 \end{pmatrix} \cdot ft$ $CheckSectionLength_{arm1}$ = "OK"

$L_{splice.provided.arm1}$ = 2.6 ft $Classification_{arm1} = \begin{pmatrix} \text{"Compact"} \\ \text{"Compact"} \end{pmatrix}$

Arm 1 Combined Force Interaction Ratio and Deflection

$\max(CFI_{arm1})$ = 0.70 $CheckMaxCFI_{arm1}$ = "OK" $\max(\Delta_{arm1})$ = 6.9 in $2 \cdot deg \cdot L_{total.arm1}$ = 20.9 in



III. Arm 2 Analysis

InputDataFile = "MA 1-2.dat" $V_{extreme}$ = 170 mph

Help - Base Diameters | Help - Tube Wall Thickness

Arm Extension (for 2 piece arms only)

Enter Arm 2 Data

Iterate on Base Diameters and Wall Thicknesses

Arm Length (ft)	*Base Diameter 1 (in)*	*Wall Thickness 1 (in)*	*Base Diameter 2 (in)*	*Wall Thickness 2 (in)*
$L_{total.arm2}$ = 0 ft				
feet, 40 ft. max. for 1 piece arms	*Measured flat to flat* 'SC'	*for 1 & 2 piece arms* 'SD'	*Measured flat to flat* 'SG'	*for 2 piece arms only* 'SH'

Arm 2 Analysis

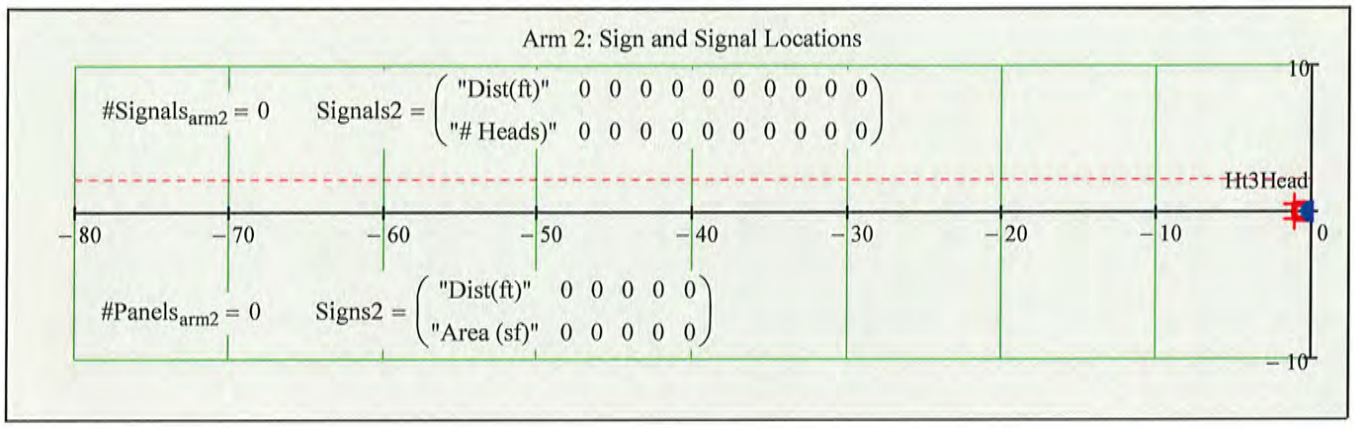
$L_{total.arm2} = 0\,ft$ 'SD'= 'SH'= $t_{wall.arm2} = \begin{pmatrix} 0.000 \\ 0.000 \end{pmatrix} \cdot in$ 'SC'= 'SG'= $Diameter_{base.arm2} = \begin{pmatrix} 0.00 \\ 0.00 \end{pmatrix} \cdot in$ BackPlate = "Rigid, 6 inches wide"

'SB'= 'SF'= $Diameter_{tip.arm2} = \begin{pmatrix} 0.00 \\ 0.00 \end{pmatrix} \cdot in$ $CheckTipDia_{arm2}$ = "N/A" 'SA'= 'SE'= $L_{arm2} = \begin{pmatrix} 0.0 \\ 0.0 \end{pmatrix} \cdot ft$ $CheckSectionLength_{arm2}$ = "N/A"

$L_{splice.provided.arm2} = 0.0\,ft$ $Classification_{arm2} = \begin{pmatrix} \text{"Compact"} \\ \text{"N/A"} \end{pmatrix}$

Arm 2 Combined Force Interaction Ratio and Deflection

$\max(CFI_{arm2}) = 0.00$ $CheckMaxCFI_{arm2}$ = "OK" $\max(\Delta_{arm2}) = 0.0 \cdot in$ $2 \cdot deg \cdot L_{total.arm2} = 0 \cdot in$



IV. Luminaire Arm Analysis

InputDataFile = "MA 1-2.dat" $V_{extreme} = 170\,mph$

Enter Luminaire Data

Set Lum. Ht. = 0 for no Luminaire

See Design Standards 649-030 and 649-031 for input values.

Luminaire Height (ft)	Lum Horiz Length (ft)	Lum Arm Base Dia (in)	Lum Wall Thickness (in)	Slope	Lum Arm Radius (ft)	Lum Bolt Dia (in)	Lum Base Plate Thickness (in)
0							
Std = 40 feet	*10 feet*	*3 inches*	*0.125 inches*	*0.5*	*8 feet*	*0.5 inches*	*0.75 inches*

Analyze Luminaire

Summary - Luminaire Arm Geometry

$\begin{pmatrix} CFI_{base.lumarm} \\ CSR_{bolt.lum} \\ D/C_{baseplate.lum} \\ D/C_{conn.plate.lum} \end{pmatrix} = \begin{pmatrix} 0.00 \\ 0.00 \\ 0.00 \\ 0.00 \end{pmatrix}$

'LA'= $Y_{luminaire} = 0\,ft$

'LB'= $X_{luminaire} = 0\,ft$

'LC'= $Diameter_{base.lumarm} = 0 \cdot in$

'LD'= $t_{wall.lumarm} = 0 \cdot in$

'LE'= $Slope_{lumarm} = 0$

'LF'= $r_{lumarm} = 0\,ft$

'LG'= $d_{bolt.lum} = 0 \cdot in$

'LH'= $t_{baseplate.lum} = 0 \cdot in$

'LJ'= $w_{base.lum} = 0 \cdot in$

'LK'= $w_{channel.lum} = 0 \cdot in$

V. Upright Analysis

InputDataFile = "MA 1-2.dat" $V_{extreme} = 170 \cdot mph$

Help - Upright Base Diameter and Wall Thickness | Help - Gap Distance

Enter Upright Data

Total Height (ft)	*Height to Arm Connection (ft)*	*Base Diameter (in)*	*Wall Thickness (in)*	*Gap (in)*	
23	20	20	0.375	7.4	*arm 1 gap*
					arm 2 gap
'UA'	'UB'	'UD' *measured flat to flat*	'UE'		

Analyze Upright

Upright Combined Force Interaction Ratio and Deflections

$Classification_{pole} = "Compact"$

$\max(CFI_{pole}) = 0.42$

$Check_{slope} = "OK"$

$Check_{deflection} = "OK"$

$\max(\Delta_{x.dl}) = 0.59 \cdot in$

$\max(\Delta_{z.dl}) = 0 \cdot in$

$Slope_z = 0 \cdot deg$

$Slope_x = 0.3 \cdot deg$

$Diameter_{conn.pole} = 17.2 \cdot in$

$\max(Diameter_{base.arm1}) = 14 \cdot in$

$\max(Diameter_{base.arm2}) = 0 \cdot in$

'UA'= $Y_{pole} = 23 \cdot ft$

'UB'= $Y_{arm.conn} = 20 \cdot ft$

'UC'= $Diameter_{tip.pole} = 16.8 \, in$

'UD'= $Diameter_{base.pole} = 20 \cdot in$

'UE'= $t_{wall.pole} = 0.375 \, in$

'UF'= $\alpha = 0 \cdot deg$

'UG'= $Y_{lum.conn} = 0 \, ft$

VI. Arm to Upright Connection Analysis

InputDataFile = "MA 1-2.dat"

for double arms, both connection plate heights must be equal

Help - Arm Connection Dimensions

Enter Connection Data

Connection Plate Height(in)	*Connection Plate Width (in)*	*Vertical Plate Thickness (in)*	*Bolt Diameter (in)*	*Arm Base Plate Thickness (in)*
22	29	0.75	1.25	3
'HT'	'FJ', 'SJ'	'FL', 'SL'	'FP', 'SP'	'FK', 'SK'

Analyze Connection

Connection Summary

'HT'= $h_{conn.plate} = 22 \cdot in$ $D/C_{ht.conn.plate} = 0.77$ $CheckHt_{conn.plate} = "OK"$

$D/C_{width.conn.plate_0} = 1.00$

$CheckWidth_{conn.plate_0} = "OK"$

$$\begin{pmatrix} D/C_{t.baseplate.arm_0} \\ CFI_{t.vert.plate_0} \\ CSR_{bolt.conn_0} \end{pmatrix} = \begin{pmatrix} 0.83 \\ 0.36 \\ 0.23 \end{pmatrix}$$

$\#Bolts_{conn_0} = 6$

'FO'= $Offset_{conn_0} = 16.0 \, in$

'FJ'= $b_{conn.plate_0} = 29 \cdot in$

'FP'= $d_{bolt.conn_0} = 1.25 \cdot in$

'FK'= $t_{baseplate.arm_0} = 3.00 \, in$

'FR'= $t_{conn.plate_0} = 2.00 \, in$

'FL'= $t_{vertical.plate_0} = 0.75 \, in$

'FS'= $Spacing_{bolts.conn_0} = 8.5 \cdot in$

'FN'= $w_{vertical.plate_0} = \frac{5}{16} \cdot in$

'FT'= $w_{conn.plate_0} = \frac{5}{16} \cdot in$

$D/C_{width.conn.plate_1} = 0.00$

$CheckWidth_{conn.plate_1} = "OK"$

$$\begin{pmatrix} D/C_{t.baseplate.arm_1} \\ CFI_{t.vert.plate_1} \\ CSR_{bolt.conn_1} \end{pmatrix} = \begin{pmatrix} 0.00 \\ 0.00 \\ 0.00 \end{pmatrix}$$

$\#Bolts_{conn_1} = 0$

'SO'= $Offset_{conn_1} = 0.0 \, in$

'SJ'= $b_{conn.plate_1} = 0 \cdot in$

'SP'= $d_{bolt.conn_1} = 0 \cdot in$

'SK'= $t_{baseplate.arm_1} = 0.00 \, in$

'SR'= $t_{conn.plate_1} = 0.00 \, in$

'SL'= $t_{vertical.plate_1} = 0 \cdot in$

'SS'= $Spacing_{bolts.conn_1} = 0.00 \, in$

'SN'= $w_{vertical.plate_1} = 0 \cdot in$

'ST'= $w_{conn.plate_1} = 0 \cdot in$

VII. Upright Base Plate & Anchor Bolt Analysis

InputDataFile = "MA 1-2.dat"

Enter Anchorage Data

Anchor Bolt Diameter (in)	*Number of Anchor Bolts*
2	6
'BC'	'#Bolts'

Help - Number of Anchor Bolts

$Diameter_{base.pole} = 20 \cdot in$

Analyze Base Plate & Anchors

Base Plate and Anchor Summary

'#Bolts'= $\#AnchorBolts = 6$

'BB'= $t_{baseplate.pole} = 2.50 \, in$

$CSR_{anchor} = 0.20$

$Diameter_{boltcircle.pole} = 28 \cdot in$

'BC'= $d_{anchorbolt} = 2.00 \, in$

$CheckCSR_{anchorbolt} = "OK"$

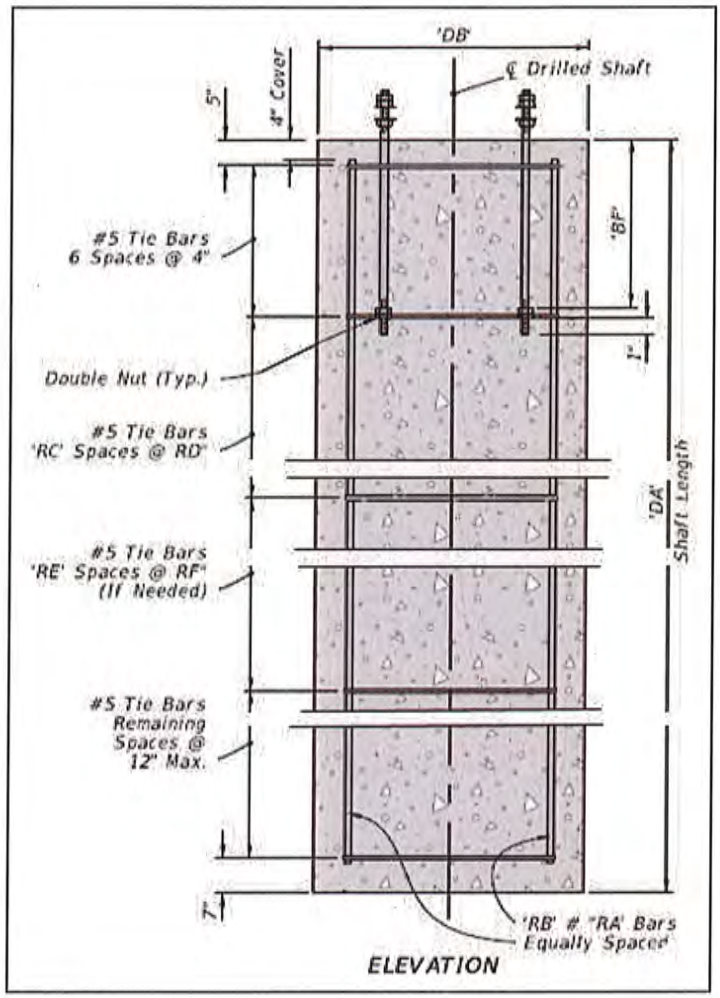
'BA'= $Diameter_{baseplate.pole} = 36 \cdot in$

VIII. Foundation Analysis & Anchor Bolt Lengths

InputDataFile = "MA 1-2.dat"

Enter Drilled Shaft Data

Soil Type	Sand / Clay	
Soil Density, γ_{soil} (45-50 pcf typ.)	47	pcf
Friction Angle, ϕ (Sands)	29	deg
SPT Number (N_{blows} 5 min.) (Sands)	5	
Shear Strength, c (Clays)		ksf
Ground to Top of Shaft Offset	0.5	ft
First Set of User Defined Stirrups:		
Number of Stirrup Spaces 'RC'	10	
Stirrup Spacing 'RD'	6	in
Second Set of User Defined Stirrups:		
Number of Stirrup Spaces 'RE' *enter zero for 12 inch spacing*	10	
Stirrup Spacing 'RF' *enter zero for 12 inch spacing*	9	in
Stirrup Bar Size, use #5 for all Standard Shafts	#5 / #6	



Analyze Foundation

Shaft Length $L_{shaft} = 19.5\ ft$

Stirrup spacing $s_v = \begin{pmatrix} 4 \\ 6 \\ 9 \\ 12 \end{pmatrix} \cdot in$

Number of stirrup spaces $\#Spaces_{vbar} = \begin{pmatrix} 6 \\ 10 \\ 10 \\ 4 \end{pmatrix}$

Foundation Summary

CheckReinfClearSpacing = "OK"

CheckLongReinf$_{shr.tor}$ = "OK"

CheckMaxSpacingTransvReinf = "OK"

OverlapDesign = "Based on Overlap of Failure Cones"

OverlapTest = "Overlap of Failure Cones"

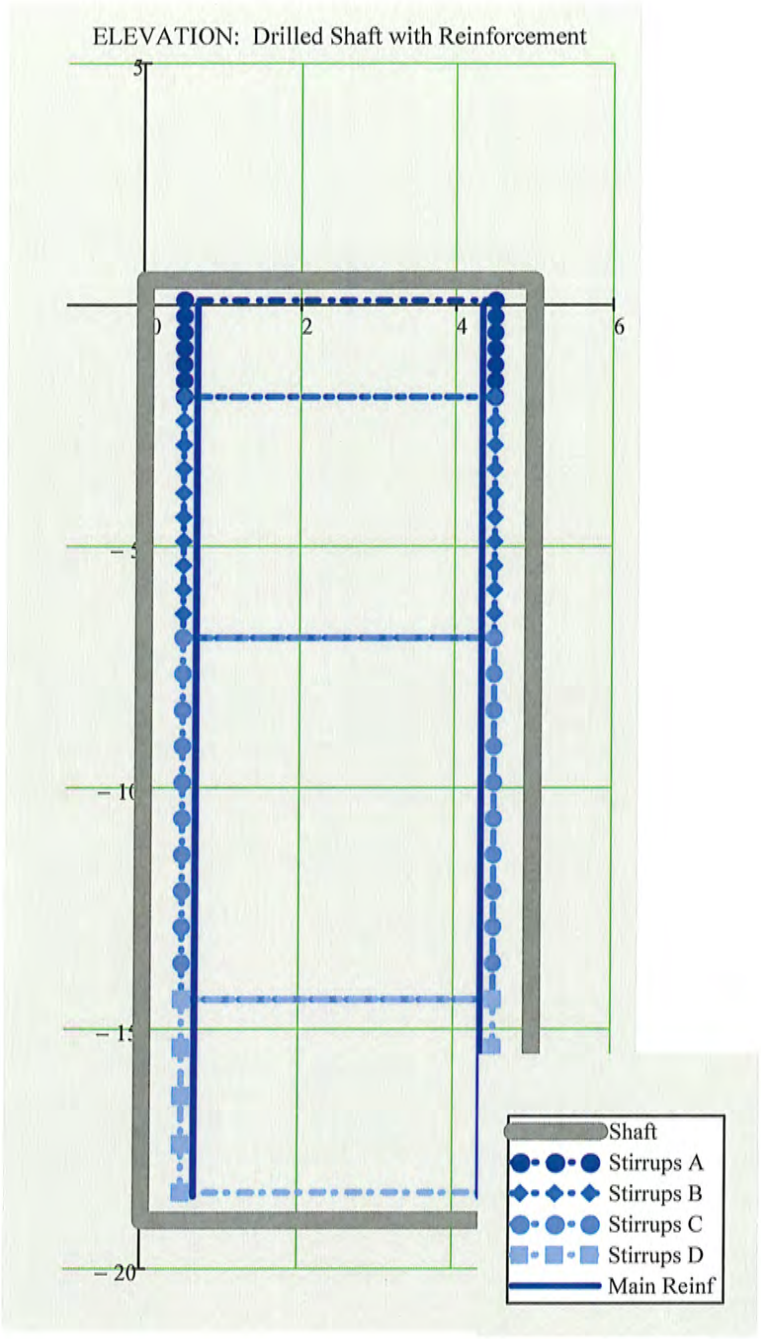
BreakoutTest = "OK"

Stirrups $s_{v_0} = 4 \cdot in$ @ $\#Spaces_{vbar_0} = 6$: $D/C_{torsion_0} = 0.1$

Stirrups 'RC' ($s_{v_1} = 6 \cdot in$) @ 'RD' ($\#Spaces_{vbar_1} = 10$): $D/C_{torsion_1} = 0.2$

Stirrups 'RE' ($s_{v_2} = 9 \cdot in$) @ 'RF' ($\#Spaces_{vbar_2} = 10$): $D/C_{torsion_2} = 0.3$

Stirrups $s_{v_3} = 12 \cdot in$ @ $\#Spaces_{vbar_3} = 4$



Offset = 0.5 ft

$d_{long.bar} = 1.41 \cdot in$

$Dia_{bar.circle} = 45.3 \cdot in$

'DA' $L_{shaft} = 19.5\,ft$

'DB' $Diameter_{shaft} = 5 \cdot ft$

'BF' $L_{embedment.anchor} = 40 \cdot in$

$L_{anchor.bolt} = 58 \cdot in$

'RA' $round\left(\frac{d_{long.bar}}{0.125in}\right) = 11$

'RB' $\#LongBars_{prov} = 19$

$\#Spaces_{vbar_0} = 6$

$s_{v_0} = 4 \cdot in$

'RC' $\#Spaces_{vbar_1} = 10$

'RD' $s_{v_1} = 6 \cdot in$

'RE' $\#Spaces_{vbar_2} = 10$

'RF' $s_{v_2} = 9 \cdot in$

$\#Spaces_{vbar_3} = 4$

$s_{v_3} = 12 \cdot in$

IX. Fatigue Analysis

InputDataFile = "MA 1-2.dat"

$FatigueCategory_{galloping} := 2$ $FatigueCategory_{natural.wind} := 2$ ***SM V3 11.6***

Analyze Structure for Fatigue

Fatigue Summary

Arm and Pole Welds

K1 values within 2% of LTS thresholds of 3.0 and 4.0 may use next higher CAFT values

$Check_{galloping.arm1} = "OK"$	$f_{galloping.arm1} = 3.7 \cdot ksi$	$CAFT_{fullpengroove.weld.arm1} = 7 \cdot ksi$
$Check_{galloping.arm2} = "NA"$	$f_{galloping.arm2} = 0.0 \cdot ksi$	$CAFT_{fullpengroove.weld.arm2} = "NA" \cdot ksi$
$Check_{galloping.pole} = "OK"$	$f_{galloping.pole} = 1.5 \cdot ksi$	$CAFT_{fullpengroove.weld.pole} = 4.5 \cdot ksi$
$Check_{nwg.arm1} = "OK"$	$f_{nwg.arm1} = 2.7 \cdot ksi$	$CAFT_{fullpengroove.weld.arm1} = 7 \cdot ksi$
$Check_{nwg.arm2} = "NA"$	$f_{nwg.arm2} = 0.0 \cdot ksi$	$CAFT_{fullpengroove.weld.arm2} = "NA" \cdot ksi$
$Check_{nwg.pole} = "OK"$	$f_{nwg.pole} = 1.5 \cdot ksi$	$CAFT_{fullpengroove.weld.pole} = 4.5 \cdot ksi$

$$CheckK1Values = \begin{pmatrix} "K1 \text{ is outside of 2\% of K1 thresholds}" \\ "K1 \text{ is outside of 2\% of K1 thresholds}" \\ "K1 \text{ is outside of 2\% of K1 thresholds}" \end{pmatrix} \qquad \begin{pmatrix} K_{I.arm1} \\ K_{I.arm2} \\ K_{I.pole} \end{pmatrix} = \begin{pmatrix} 3.20 & "Arm\ 1\ Base\ Weld" \\ 100.0(& "Arm\ 2\ Base\ Weld" \\ 6.31 & "Upright\ Base\ Weld" \end{pmatrix}$$

A325 Connection Bolts

$$Check_{g.conn.bolt} = \begin{pmatrix} "OK" \\ "OK" \end{pmatrix} \qquad f_{t.g.bolt} = \begin{pmatrix} 3.2 \\ 0.0 \end{pmatrix} \cdot ksi \qquad CAFT_{conn.bolt} = 16 \cdot ksi$$

$$Check_{nwg.conn.bolt} = \begin{pmatrix} "OK" \\ "OK" \end{pmatrix} \qquad f_{t.nwg.bolt} = \begin{pmatrix} 2.3 \\ 0.0 \end{pmatrix} \cdot ksi$$

Anchor Bolts

$Check_{g.anchor} = "OK"$	$f_{t.g.anchor} = 1.3 \cdot ksi$	$CAFT_{anchor.bolts} = 7 \cdot ksi$
$Check_{nwg.anchor} = "OK"$	$f_{t.nwg.anchor} = 1.3 \cdot ksi$	

Save Data File (optional)

☑ Use current input file

File Name MA 1-2.dat

Note: Select an output folder by using the "Change Folder" option above.

Save Data

Arm Designation Example

A70/D-A30/D/H-P5/D/L-DS/16/5

A70/D -	*Arm 70 feet long, Double Arm*
A30/D/H -	*Arm 30 feet long, Double Arm, Heavy Duty*
P5/D/L -	*Pole 5 , Double Arm, with Luminaire*
DS/16/5 -	*Drilled Shaft 16 ft deep, 5 foot diameter*

X. Mast Arm Design and Analysis Summary

InputDataFile = "MA 1-2.dat"

If comparing results to Standard Index 649-030, some values in the index have been increased to reduce the number of variations.

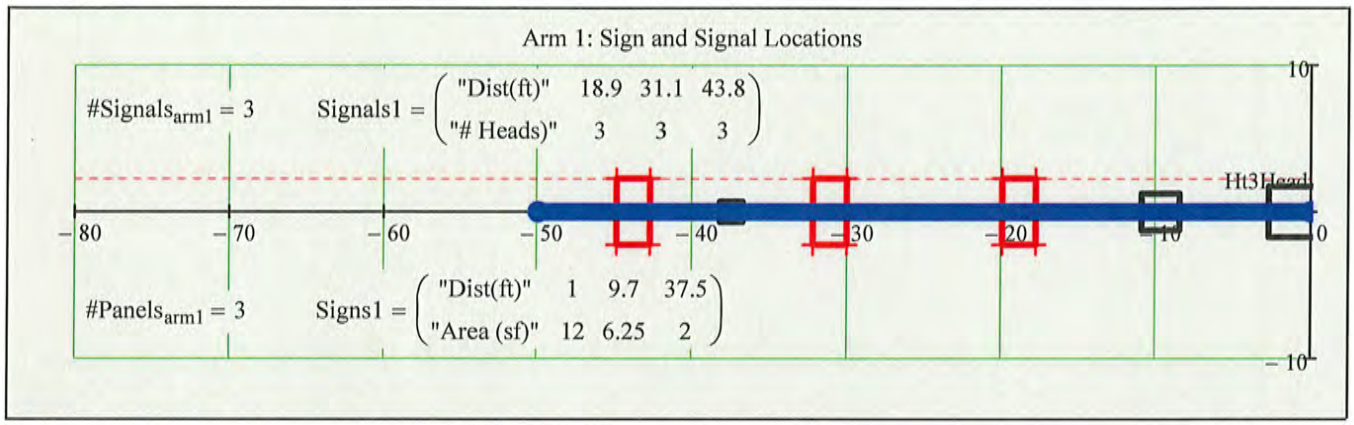
Subject = "Harborview Drive - Kings Hwy Interse DesignedBy = "RA" ıl" PoleLocation = "23+17.00 / 35.4' RT"

ProjectNo = "2024001439" CheckedBy = "CJC" Date = "05/01/2024" ExistingMastArm = "No"

For FDOT Mast Arm Support Structures, max(CFI) ≤ 0.95 ***(See Structures Manual Volume3)***

1st Mast Arm

$V_{extreme}$ = 170 mph ExistingMastArm = "No" BackPlate = "Rigid, 6 inches wide"

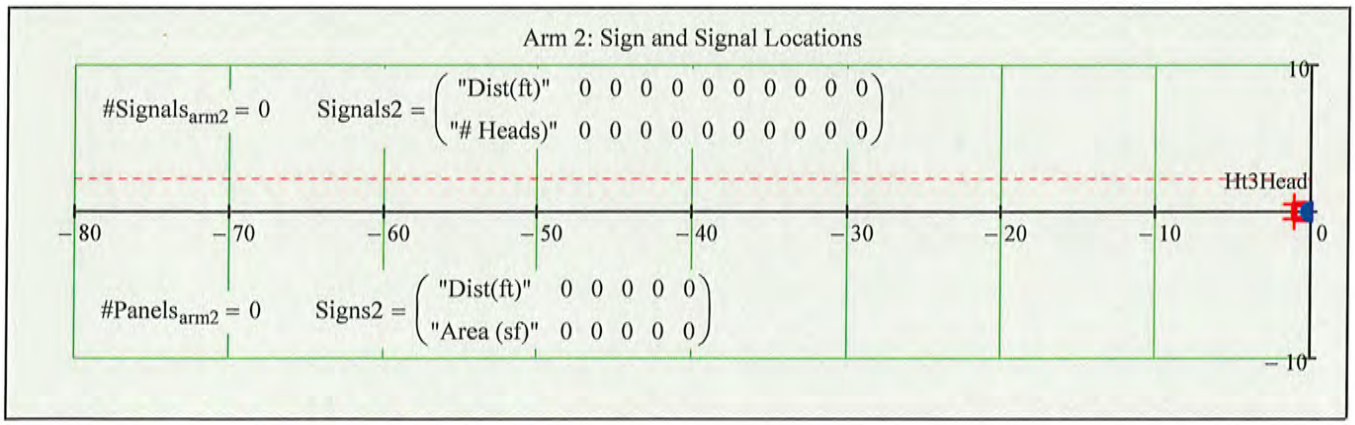


$\max(CFI_{arm1}) = 0.70$ CheckMaxCFI_arm1 = "OK" $L_{total.arm1} = 50$ ft $L_{splice.provided.arm1} = 2.6$ ft $\max(\Delta_{arm1}) = 6.9$ in

'FA'= 'FE'= $L_{arm1} = \begin{pmatrix} 32.5 \\ 20.5 \end{pmatrix}$ ft CheckSectionLength_arm1 = "OK" 'FC'= 'FG'= $Diameter_{base.arm1} = \begin{pmatrix} 12.00 \\ 14.00 \end{pmatrix}$ in

'FB'= 'FF'= $Diameter_{tip.arm1} = \begin{pmatrix} 7.45 \\ 11.13 \end{pmatrix}$ in CheckTipDia_arm1 = "OK" 'FD'= 'FH'= $t_{wall.arm1} = \begin{pmatrix} 0.250 \\ 0.313 \end{pmatrix}$ in

2nd Mast Arm



$\max(CFI_{arm2}) = 0.00$ CheckMaxCFI_arm2 = "OK" $L_{total.arm2} = 0$ ft $L_{splice.provided.arm2} = 0$ ft $\max(\Delta_{arm2}) = 0$ in

'SA'= 'SE'= $L_{arm2} = \begin{pmatrix} 0 \\ 0 \end{pmatrix}$ ft CheckSectionLength_arm2 = "N/A" 'SC'= 'SG'= $Diameter_{base.arm2} = \begin{pmatrix} 0.00 \\ 0.00 \end{pmatrix}$ in 'UF'= $\alpha = 0$ deg (Angle Between Arms)

'SB'= 'SF'= $Diameter_{tip.arm2} = \begin{pmatrix} 0.00 \\ 0.00 \end{pmatrix}$ in CheckTipDia_arm2 = "N/A" 'SD'= 'SH'= $t_{wall.arm2} = \begin{pmatrix} 0.000 \\ 0.000 \end{pmatrix}$ in

Luminaire Arm and Connection *(use MC10x33.6 channel for connection)*

$$\begin{pmatrix} CFI_{base.lumarm} \\ CSR_{bolt.lum} \\ D/C_{baseplate.lum} \\ D/C_{conn.plate.lum} \end{pmatrix} = \begin{pmatrix} 0.00 \\ 0.00 \\ 0.00 \\ 0.00 \end{pmatrix}$$

'LA'= $Y_{luminaire} = 0\ ft$

'LB'= $X_{luminaire} = 0\ ft$

'LC'= $Diameter_{base.lumarm} = 0 \cdot in$

'LD'= $t_{wall.lumarm} = 0 \cdot in$

'LE'= $Slope_{lumarm} = 0$

'LF'= $r_{lumarm} = 0\ ft$

'LG'= $d_{bolt.lum} = 0 \cdot in$

'LH'= $t_{baseplate.lum} = 0 \cdot in$

'LJ'= $w_{base.lum} = 0 \cdot in$

'LK'= $w_{channel.lum} = 0 \cdot in$

Upright

$\max(CFI_{pole}) = 0.42$ $Check_{deflection} = "OK"$ $Check_{slope} = "OK"$

'UA'= $Y_{pole} = 23 \cdot ft$

'UB'= $Y_{arm.conn} = 20 \cdot ft$

'UC'= $Diameter_{tip.pole} = 16.8 \cdot in$

'UD'= $Diameter_{base.pole} = 20 \cdot in$

'UE'= $t_{wall.pole} = 0.375 \cdot in$

'UF'= $\alpha = 0 \cdot deg$

'UG'= $Y_{lum.conn} = 0\ ft$

1st Arm to Upright Connection

$D/C_{ht.conn.plate} = 0.77$

$CheckHt_{conn.plate} = "OK"$

$D/C_{width.conn.plate_0} = 1.00$

$CheckWidth_{conn.plate_0} = "OK"$

$$\begin{pmatrix} D/C_{t.baseplate.arm_0} \\ CFI_{t.vert.plate_0} \\ CSR_{bolt.conn_0} \end{pmatrix} = \begin{pmatrix} 0.83 \\ 0.36 \\ 0.23 \end{pmatrix}$$

'HT'= $h_{conn.plate} = 22 \cdot in$

$\#Bolts_{conn_0} = 6$

'FJ'= $b_{conn.plate_0} = 29 \cdot in$

'FK'= $t_{baseplate.arm_0} = 3 \cdot in$

'FL'= $t_{vertical.plate_0} = 0.75 \cdot in$

'FN'= $w_{vertical.plate_0} = \frac{5}{16} \cdot in$

'FO'= $Offset_{conn_0} = 16.0 \cdot in$

'FP'= $d_{bolt.conn_0} = 1.25 \cdot in$

'FR'= $t_{conn.plate_0} = 2 \cdot in$

'FS'= $Spacing_{bolts.conn_0} = 8.5 \cdot in$

'FT'= $w_{conn.plate_0} = \frac{5}{16} \cdot in$

2nd Arm to Upright Connection

$D/C_{width.conn.plate_1} = 0.00$

$CheckWidth_{conn.plate_1} = "OK"$

$$\begin{pmatrix} D/C_{t.baseplate.arm_1} \\ CFI_{t.vert.plate_1} \\ CSR_{bolt.conn_1} \end{pmatrix} = \begin{pmatrix} 0.00 \\ 0.00 \\ 0.00 \end{pmatrix}$$

'HT'= $h_{conn.plate} = 22 \cdot in$

$\#Bolts_{conn_1} = 0$

'SJ'= $b_{conn.plate_1} = 0 \cdot in$

'SK'= $t_{baseplate.arm_1} = 0 \cdot in$

'SL'= $t_{vertical.plate_1} = 0 \cdot in$

'SN'= $w_{vertical.plate_1} = 0 \cdot in$

'SO'= $Offset_{conn_1} = 0.0 \cdot in$

'SP'= $d_{bolt.conn_1} = 0 \cdot in$

'SR'= $t_{conn.plate_1} = 0 \cdot in$

'SS'= $Spacing_{bolts.conn_1} = 0 \cdot in$

'ST'= $w_{conn.plate_1} = 0 \cdot in$

Pole Base Plate

$CSR_{anchor} = 0.20$

$CheckCSR_{anchorbolt} = "OK"$

'#Bolts'= $\#AnchorBolts = 6$

$Diameter_{boltcircle.pole} = 28 \cdot in$

'BA'= $Diameter_{baseplate.pole} = 36 \cdot in$

'BB'= $t_{baseplate.pole} = 2.5 \cdot in$

'BC'= $d_{anchorbolt} = 2.00 \cdot in$

'BF'= $L_{embedment.anchor} = 40 \cdot in$

$L_{anchor.bolt} = 58 \cdot in$

Foundation

$D/C_{torsion.max} = 0$

$CheckD/C_{shear.and.torsion} = "OK"$

$CheckReinfClearSpacing = "OK"$

$CheckLongReinf_{shr.tor} = "OK"$

$CheckMaxSpacingTransvReinf = "OK"$

$OverlapDesign = "Based on Overlap of Failure Cones"$

$OverlapTest = "Overlap of Failure Cones"$

$BreakoutTest = "OK"$

$Clearance_{csl.to.nut} = 5.5 \cdot in$

$Offset = 0.5\,ft$

$d_{long.bar} = 1.41 \cdot in$

$Dia_{bar.circle} = 45.3 \cdot in$

'DA'= $L_{shaft} = 19.5 \cdot ft$

'DB'= $Diameter_{shaft} = 5 \cdot ft$

'RA'= $round\left(\frac{d_{long.bar}}{0.125in}\right) = 11$

'RB'= $\#LongBars_{prov} = 19$

'RC'= $\#Spaces_{vbar_1} = 10$

'RD'= $s_{v_1} = 6 \cdot in$

'RE'= $\#Spaces_{vbar_2} = 10$

'RF'= $s_{v_2} = 9 \cdot in$

Fatigue

$Check_{galloping.arm1} = "OK"$

$Check_{nwg.arm1} = "OK"$

$Check_{galloping.arm2} = "NA"$

$Check_{nwg.arm2} = "NA"$

$Check_{galloping.pole} = "OK"$

$Check_{nwg.pole} = "OK"$

$Check_{g.conn.bolt} = \begin{pmatrix} "OK" \\ "OK" \end{pmatrix}$

$Check_{nwg.conn.bolt} = \begin{pmatrix} "OK" \\ "OK" \end{pmatrix}$

$Check_{g.anchor} = "OK"$

$Check_{nwg.anchor} = "OK"$

K1 values within 2% of LTS thresholds may use next higher CAFT values

$$CheckK1Values = \begin{pmatrix} "K1 \text{ is outside of 2\% of K1 thresholds}" \\ "K1 \text{ is outside of 2\% of K1 thresholds}" \\ "K1 \text{ is outside of 2\% of K1 thresholds}" \end{pmatrix}$$

$$\begin{pmatrix} K_{I.arm1} \\ K_{I.arm2} \\ K_{I.pole} \end{pmatrix} = \begin{pmatrix} 3.201 \\ 100.000 \\ 6.307 \end{pmatrix} \begin{pmatrix} "Arm\ 1\ Base\ Weld" \\ "Arm\ 2\ Base\ Weld" \\ "Upright\ Base\ Weld" \end{pmatrix}$$

WRITE to Special Mast Arm Assembly Data Tables

Mast Arm Tip Deflection

Compare Mast Arm deflection of each arm to a proposed camber

$Camber_{arm1} := 2 \cdot deg$ $Camber_{arm2} := 2 \cdot deg$

$Deflection_{arm1} := Slope_x \cdot L_{total.arm1} + \max(\Delta_{arm1}) = 10.1 \cdot in$

$CamberArm1_{upward} := \sin(Camber_{arm1}) \cdot L_{total.arm1} = 20.9 \cdot in$

$Deflection_{arm2} := \left[Slope_z \cdot L_{total.arm2} \cdot (\sin(\alpha))\right] + Slope_x \cdot L_{total.arm2} \cdot \cos(\alpha) + \max(\Delta_{arm2}) = 0 \cdot in$

$CamberArm2_{upward} := \sin(Camber_{arm2}) \cdot L_{total.arm2} = 0 \cdot in$

Check Clearance Between Connection Plates *(for Two Arm Structures only)*

$\alpha = 0 \cdot deg$ $\alpha := if[(\alpha > 180 \cdot deg), (360 \cdot deg - \alpha), \alpha]$

$Offset_{conn_0} = 16 \cdot in$ $b_{conn.plate_0} = 29 \cdot in$ $h_{conn.plate} = 22 \cdot in$ $\alpha = 0 \cdot deg$

$Offset_{conn_1} = 0 \cdot in$ $b_{conn.plate_1} = 0 \cdot in$

$$x1 := Offset_{conn_0} - t_{conn.plate_0} - h_{conn.plate} \cdot \frac{\sin(Camber_{arm1})}{2} = 13.6 \cdot in \qquad y1 := \frac{b_{conn.plate_0}}{2} = 14.5 \cdot in$$

$$x2 := \left(Offset_{conn_1} - t_{conn.plate_1} - h_{conn.plate} \cdot \frac{\sin(Camber_{arm2})}{2}\right) \cdot \cos(\alpha) + \frac{b_{conn.plate_1}}{2} \cdot \sin(\alpha) = -0.4 \cdot in$$

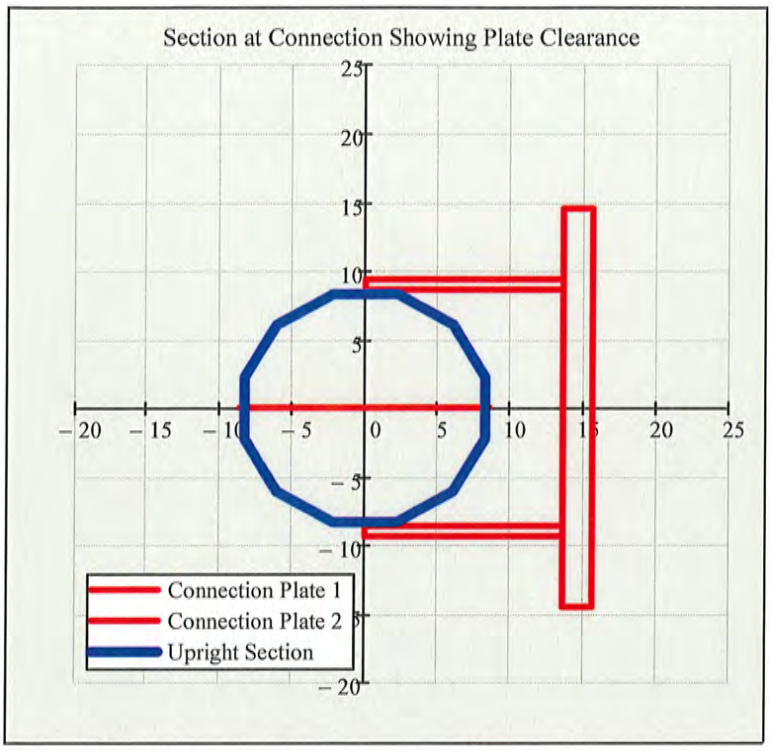
$$y2 := \left(Offset_{conn_1} - t_{conn.plate_1} - h_{conn.plate} \cdot \frac{\sin(Camber_{arm2})}{2}\right) \cdot \sin(\alpha) - \frac{b_{conn.plate_1}}{2} \cdot \cos(\alpha) = 0 \cdot in$$

$$Clearance_{plate.to.plate} := if\left[(x1 > x2) \cdot (y2 > y1), \sqrt{(x1 - x2)^2 + (y1 - y2)^2}, 0 \cdot in\right] = 0 \cdot in$$

(if Clearance < 2 inches, a redesign is required.

Coordinates for Drawings

Plan View - Connection Plate Clearance for Two Arm Connections



$Clearance_{plate.to.plate} = 0 \cdot in$

$Diameter_{conn.pole} = 17.2 \cdot in$

'FR'= $t_{conn.plate_0} = 2 \cdot in$

'FJ'= $b_{conn.plate_0} = 29 \cdot in$

'FL'= $t_{vertical.plate_0} = 0.75 \cdot in$

'FO'= $Offset_{conn_0} = 16.0 \cdot in$

$Gap_0 = 7.4 \cdot in$

'SR'= $t_{conn.plate_1} = 0 \cdot in$

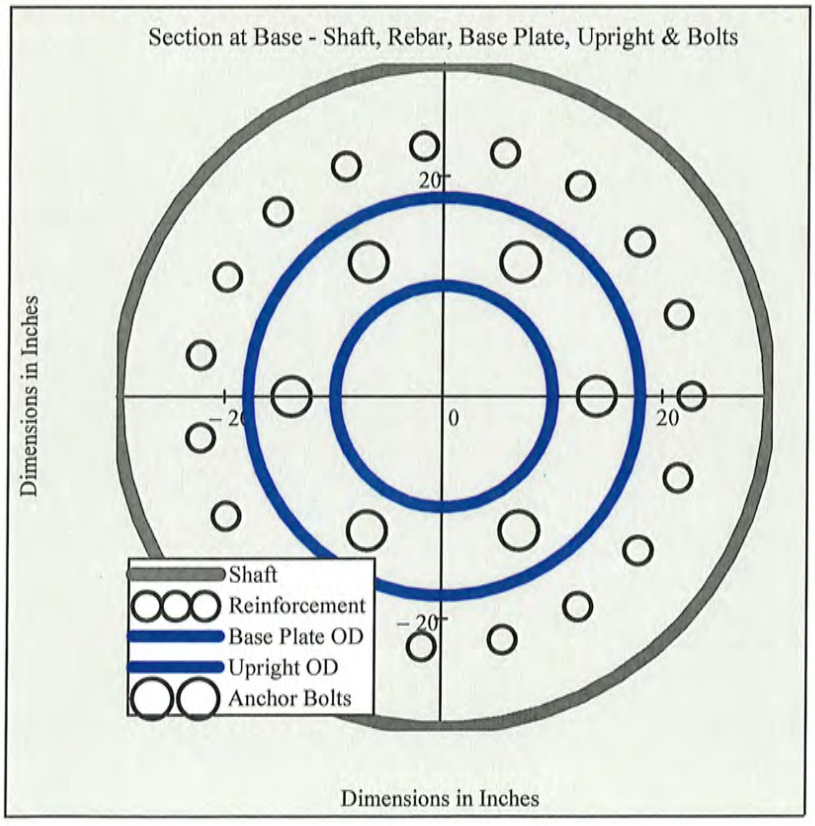
'SJ'= $b_{conn.plate_1} = 0 \cdot in$

'SL'= $t_{vertical.plate_1} = 0 \cdot in$

'SO'= $Offset_{conn_1} = 0.0 \cdot in$

$Gap_1 = 0 \cdot in$

Plan View - Drilled Shaft, Base Plate, Upright, Anchor Bolts, & Reinforcing Steel



$Clearance_{bar.to.nut} = 6.1 \cdot in$

'UD'= $Diameter_{base.pole} = 20 \cdot in$

'BA'= $Diameter_{baseplate.pole} = 36 \cdot in$

'DB'= $Diameter_{shaft} = 60 \cdot in$

$Diameter_{boltcircle.pole} = 28 \cdot in$

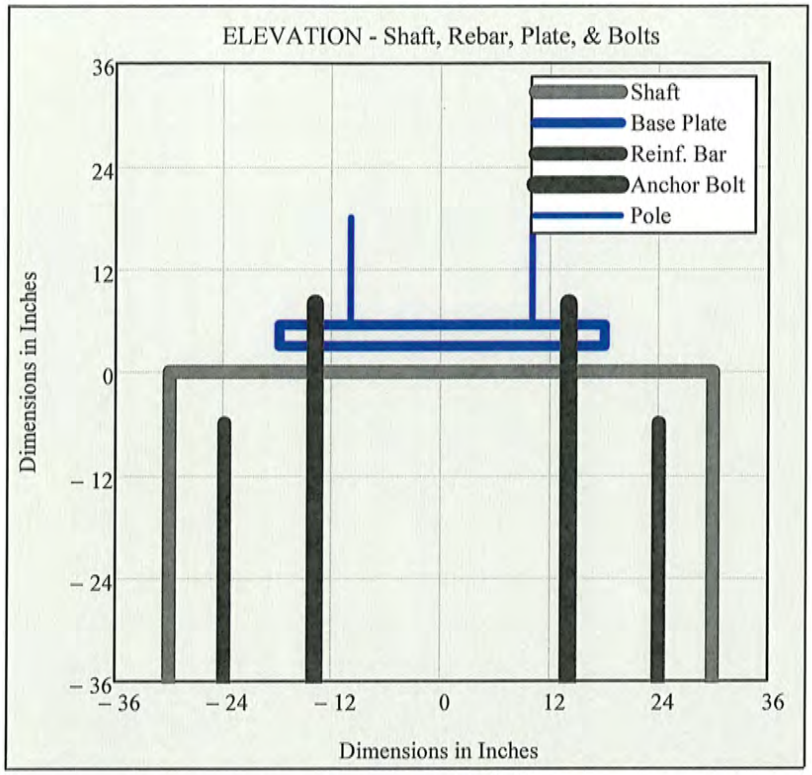
$Dia_{bar.circle} = 45.3 \cdot in$

$\#AnchorBolts = 6$

$\#LongBars_{prov} = 19$

Note: The Plan and Elevation Views do not show the 4 or 5 1.9" O.D. Nondestructive Integrity Testing Access Tubes that are tied to the inside of the reinforcing cage (see FDOT Spec 455-16.4).

Elevation View - Drilled Shaft, Base Plate, Anchor Bolts, & Reinforcing Steel



$Clearance_{bar.to.nut} = 6.1 \cdot in$

'UD'= $Diameter_{base.pole} = 20 \cdot in$

'BA'= $Diameter_{baseplate.pole} = 36 \cdot in$

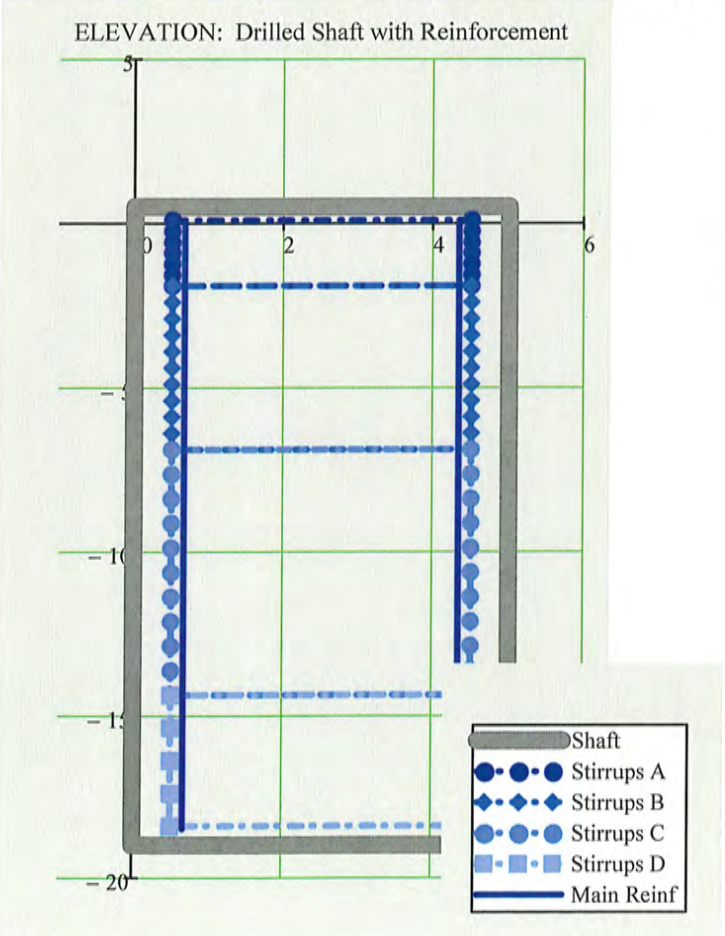
'BB'= $t_{baseplate.pole} = 2.5 \cdot in$

'DB'= $Diameter_{shaft} = 60 \cdot in$

$Diameter_{boltcircle.pole} = 28 \cdot in$

$Dia_{bar.circle} = 45.3 \cdot in$

Elevation View - Drilled Shaft with Main Reinforcement and Stirrups



$$s_v = \begin{pmatrix} 4 \\ 6 \\ 9 \\ 12 \end{pmatrix} \cdot in$$ *stirrup spacing*

$$\#Spaces_{vbar} = \begin{pmatrix} 6 \\ 10 \\ 10 \\ 4 \end{pmatrix}$$ *number of stirrup spaces*

FDOT Mast Arm Traffic Signal Support Analysis Program V2.0

State Structures Design Office

This program works in conjunction with FDOT Mast Arm Standard Plans 649-030 & 649-031.

References:
AASHTO LRFD Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals (LRFDLTS).
FDOT Structures Manual Volume 3 (SM V3).
AISC Steel Construction Manual

Reference

For more information see Reference.xmcd and Changes.xmcd.

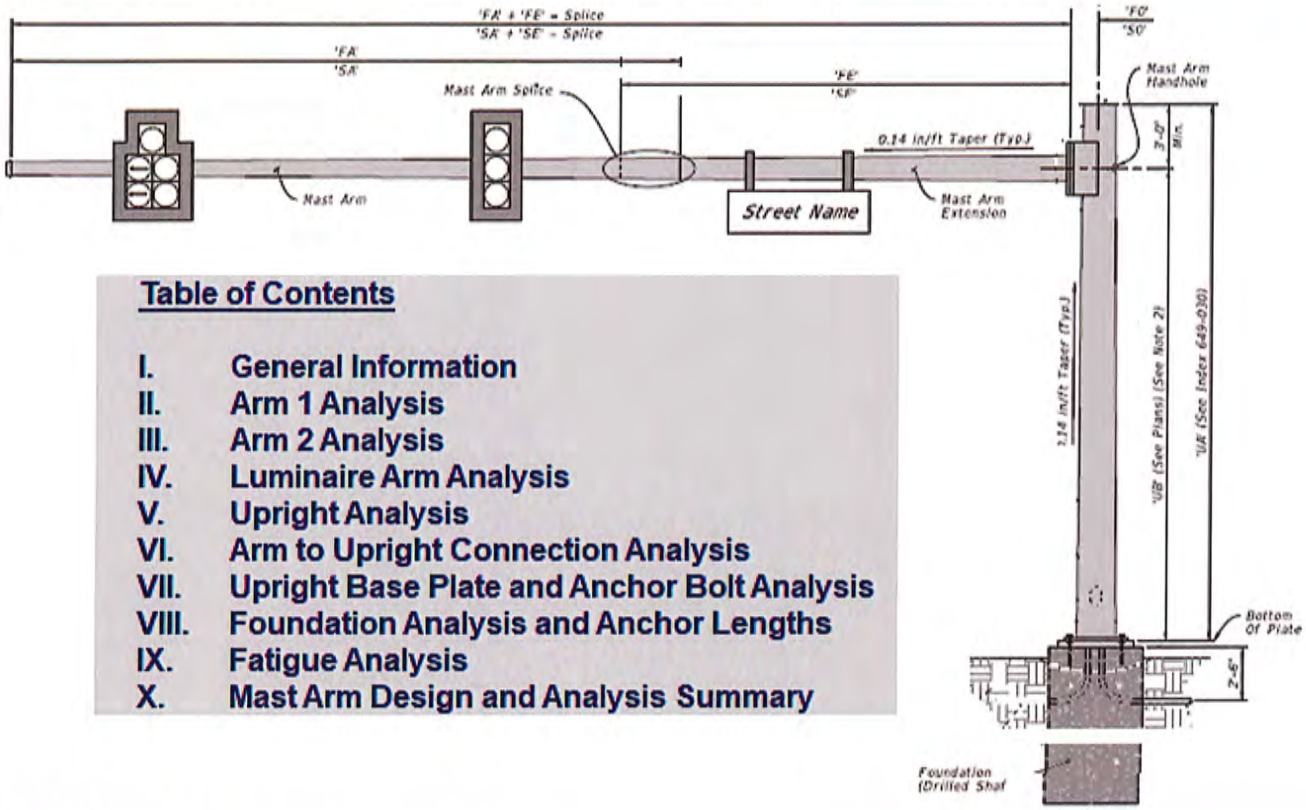


Table of Contents

Data Folder and Files

Data Files Folder

Change Folder

D:\Worksets\FDOT\2024001439\Structures\MastArmV2.0\Data\

Required - Open Existing Data File. To save New Data Files, enter data variables at the end of Section IX.

Refresh List

Open File

- A78DH-A40DH-P6DL.dat
- A78DH-A60DH-P6DL.dat
- A78DH-A78DH-P7DL.dat
- A78SH-P6SL.dat
- MA 1-1.dat
- MA 1-2.dat
- MA 1-3.dat
- MA 1-4.dat

I. General Information and Sign & Signal Data

Enter Project Information

Project Name	Harborview Drive - Kings Hwy Intersection Hardening Signal		
Project No.	2024001439		
Designed by	RA	*Date*	05/01/2024
Checked by	CJC	*Date*	05/03/2024
Signal Name	MA 1-3		
Station/Offset	21+94.00 / 57.50' RT		

Enter Wind Speed

Design Wind Speed 170 *mph*

Extreme Event Wind Speed

SDG Wind Speeds by County

Enter Arm Lengths, Signal and Sign Data

Arm 1

Arm 1 Length 60 Reset Arm 1 Data

Arm1 Signal Number	*Distance to Signal (ft)*	*Number of Heads*
1	30.7	3
2	43.3	3
3	56.8	3
4		
5		
6		
7		
8		
9		
10		

Arm 2 *Set Arm 2 Length = 0 for single arm Mast Arms*

Arm 2 Length 0 Reset Arm 2 Data

Arm2 Signal Number	*Distance to Signal (ft)*	*Number of Heads*
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

Arm 1 Sign Panels

Arm1 Sign Panel Number	*Distance to Panel (ft)*	*Panel Area (sf)*
1	1	14
2	21.5	6.25
3	50.1	2
4		
5		

Arm 2 Sign Panels

Arm2 Sign Panel Number	*Distance to Panel (ft)*	*Panel Area (sf)*
1		
2		
3		
4		
5		

Save Data for Signs and Signals

II. Arm 1 Analysis

InputDataFile = "MA 1-3.dat" $V_{extreme}$ = 170 mph

Reference:D:\Worksets\FDOT\2024001439\Structures\MastArmV2.0\LRFD Equation Module.xmcd(R)

Help - Base Diameters | Help - Tube Wall Thickness

Arm Extension (for 2 piece arms only)

Enter Arm 1 Data

Iterate on Base Diameters and Wall Thicknesses

Arm Length (ft)	*Base Diameter 1 (in)*	*Wall Thickness 1 (in)*	*Base Diameter 2 (in)*	*Wall Thickness 2 (in)*
$L_{total.arm1}$ = 60 ft	12	0.25	15	0.375
feet, 40 ft. max. for 1 piece arms	*Measured flat to flat* 'FC'	'FD'	*Measured flat to flat* 'FG'	'FH'

Arm 1 Analysis including Existing Mast Arm Analysis (Additional Variables Required)

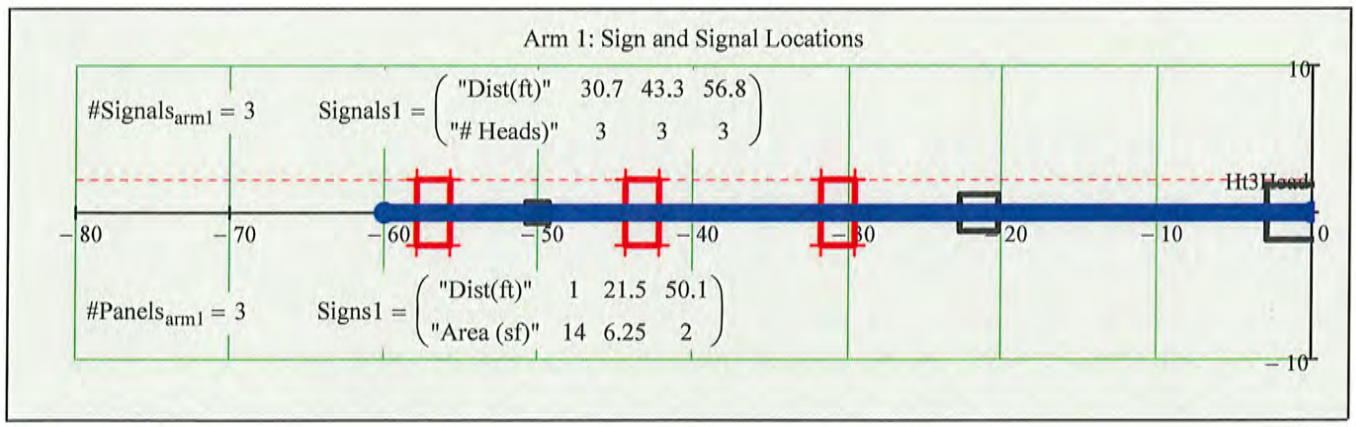
$L_{total.arm1}$ = 60 ft 'FD'= 'FH'= $t_{wall.arm1} = \begin{pmatrix} 0.250 \\ 0.375 \end{pmatrix} \cdot in$ 'FC'= 'FG'= $Diameter_{base.arm1} = \begin{pmatrix} 12.00 \\ 15.00 \end{pmatrix} \cdot in$ BackPlate = "Rigid, 6 inches wide"

'FB'= 'FF'= $Diameter_{tip.arm1} = \begin{pmatrix} 7.03 \\ 11.15 \end{pmatrix} \cdot in$ $CheckTipDia_{arm1}$ = "OK" 'FA'= 'FE'= $L_{arm1} = \begin{pmatrix} 35.5 \\ 27.5 \end{pmatrix} \cdot ft$ $CheckSectionLength_{arm1}$ = "OK"

$L_{splice.provided.arm1}$ = 2.4 ft $Classification_{arm1} = \begin{pmatrix} \text{"Compact"} \\ \text{"Compact"} \end{pmatrix}$

Arm 1 Combined Force Interaction Ratio and Deflection

$\max(CFI_{arm1})$ = 0.73 $CheckMaxCFI_{arm1}$ = "OK" $\max(\Delta_{arm1})$ = 11.2 in $2 \cdot deg \cdot L_{total.arm1}$ = 25.1 in



III. Arm 2 Analysis

InputDataFile = "MA 1-3.dat" $V_{extreme}$ = 170 mph

Help - Base Diameters | Help - Tube Wall Thickness

Arm Extension (for 2 piece arms only)

Enter Arm 2 Data

Iterate on Base Diameters and Wall Thicknesses

Arm Length (ft)	*Base Diameter 1 (in)*	*Wall Thickness 1 (in)*	*Base Diameter 2 (in)*	*Wall Thickness 2 (in)*
$L_{total.arm2}$ = 0 ft				
feet, 40 ft. max. for 1 piece arms	*Measured flat to flat* 'SC'	*for 1 & 2 piece arms* 'SD'	*Measured flat to flat* 'SG'	*for 2 piece arms only* 'SH'

Arm 2 Analysis

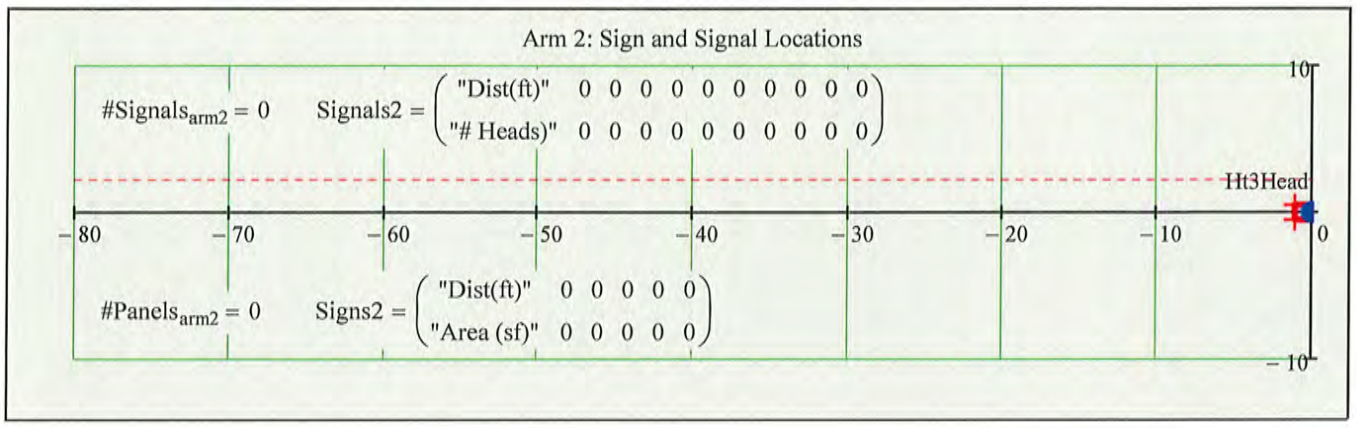
$L_{total.arm2} = 0\,ft$ 'SD'= 'SH'= $t_{wall.arm2} = \begin{pmatrix} 0.000 \\ 0.000 \end{pmatrix} \cdot in$ 'SC'= 'SG'= $Diameter_{base.arm2} = \begin{pmatrix} 0.00 \\ 0.00 \end{pmatrix} \cdot in$ BackPlate = "Rigid, 6 inches wide"

'SB'= 'SF'= $Diameter_{tip.arm2} = \begin{pmatrix} 0.00 \\ 0.00 \end{pmatrix} \cdot in$ $CheckTipDia_{arm2}$ = "N/A" 'SA'= 'SE'= $L_{arm2} = \begin{pmatrix} 0.0 \\ 0.0 \end{pmatrix} \cdot ft$ $CheckSectionLength_{arm2}$ = "N/A"

$L_{splice.provided.arm2} = 0.0\,ft$ $Classification_{arm2} = \begin{pmatrix} \text{"Compact"} \\ \text{"N/A"} \end{pmatrix}$

Arm 2 Combined Force Interaction Ratio and Deflection

$\max(CFI_{arm2}) = 0.00$ $CheckMaxCFI_{arm2}$ = "OK" $\max(\Delta_{arm2}) = 0.0 \cdot in$ $2 \cdot deg \cdot L_{total.arm2} = 0 \cdot in$



IV. Luminaire Arm Analysis

InputDataFile = "MA 1-3.dat" $V_{extreme}$ = 170 mph

Enter Luminaire Data

Set Lum. Ht. = 0 for no Luminaire

See Design Standards 649-030 and 649-031 for input values.

Luminaire Height (ft)	Lum Horiz Length (ft)	Lum Arm Base Dia (in)	Lum Wall Thickness (in)	Slope	Lum Arm Radius (ft)	Lum Bolt Dia (in)	Lum Base Plate Thickness (in)
0							
Std = 40 feet	*10 feet*	*3 inches*	*0.125 inches*	*0.5*	*8 feet*	*0.5 inches*	*0.75 inches*

Analyze Luminaire

Summary - Luminaire Arm Geometry

$\begin{pmatrix} CFI_{base.lumarm} \\ CSR_{bolt.lum} \\ D/C_{baseplate.lum} \\ D/C_{conn.plate.lum} \end{pmatrix} = \begin{pmatrix} 0.00 \\ 0.00 \\ 0.00 \\ 0.00 \end{pmatrix}$

'LA'= $Y_{luminaire} = 0\,ft$ 'LB'= $X_{luminaire} = 0\,ft$ 'LC'= $Diameter_{base.lumarm} = 0 \cdot in$ 'LD'= $t_{wall.lumarm} = 0 \cdot in$

'LE'= $Slope_{lumarm} = 0$ 'LF'= $r_{lumarm} = 0\,ft$ 'LG'= $d_{bolt.lum} = 0 \cdot in$ 'LH'= $t_{baseplate.lum} = 0 \cdot in$

'LJ'= $w_{base.lum} = 0 \cdot in$ 'LK'= $w_{channel.lum} = 0 \cdot in$

V. Upright Analysis

InputDataFile = "MA 1-3.dat" $V_{extreme}$ = 170 mph

Help - Upright Base Diameter and Wall Thickness | Help - Gap Distance

Enter Upright Data

Total Height (ft)	Height to Arm Connection (ft)	Base Diameter (in)	Wall Thickness (in)	Gap (in)	
22.5	19.50	22	0.375	7.4	arm 1 gap
					arm 2 gap
'UA'	'UB'	'UD' measured flat to flat	'UE'		

Analyze Upright

Upright Combined Force Interaction Ratio and Deflections

Classification$_{pole}$ = "Compact"

$\max(CFI_{pole}) = 0.43$

$Check_{slope}$ = "OK"

$Check_{deflection}$ = "OK"

$\max(\Delta_{x.dl}) = 0.63 \cdot in$

$\max(\Delta_{z.dl}) = 0 \cdot in$

$Slope_z = 0 \cdot deg$

$Slope_x = 0.33 \cdot deg$

$Diameter_{conn.pole} = 19.3 \cdot in$

$\max(Diameter_{base.arm1}) = 15 \cdot in$

$\max(Diameter_{base.arm2}) = 0 \cdot in$

'UA'= $Y_{pole} = 22.5$ ft

'UB'= $Y_{arm.conn} = 19.5$ ft

'UC'= $Diameter_{tip.pole} = 18.9$ in

'UD'= $Diameter_{base.pole} = 22$ in

'UE'= $t_{wall.pole} = 0.375$ in

'UF'= $\alpha = 0 \cdot deg$

'UG'= $Y_{lum.conn} = 0$ ft

VI. Arm to Upright Connection Analysis

InputDataFile = "MA 1-3.dat"

for double arms, both connection plate heights must be equal

Help - Arm Connection Dimensions

Enter Connection Data

Connection Plate Height(in)	Connection Plate Width (in)	Vertical Plate Thickness (in)	Bolt Diameter (in)	Arm Base Plate Thickness (in)
30	36	0.75	1.25	3
'HT'	'FJ', 'SJ'	'FL', 'SL'	'FP', 'SP'	'FK', 'SK'

Analyze Connection

Connection Summary

'HT'= $h_{conn.plate} = 30 \cdot in$ $D/C_{ht.conn.plate} = 0.60$ $CheckHt_{conn.plate} = "OK"$

$D/C_{width.conn.plate_0} = 0.86$

$CheckWidth_{conn.plate_0} = "OK"$

$\#Bolts_{conn_0} = 6$

'FO'= $Offset_{conn_0} = 17.0 \, in$

$$\begin{pmatrix} D/C_{t.baseplate.arm_0} \\ CFI_{t.vert.plate_0} \\ CSR_{bolt.conn_0} \end{pmatrix} = \begin{pmatrix} 0.83 \\ 0.34 \\ 0.29 \end{pmatrix}$$

'FJ'= $b_{conn.plate_0} = 36 \cdot in$

'FP'= $d_{bolt.conn_0} = 1.25 \, in$

'FK'= $t_{baseplate.arm_0} = 3.00 \, in$

'FR'= $t_{conn.plate_0} = 2.00 \, in$

'FL'= $t_{vertical.plate_0} = 0.75 \, in$

'FS'= $Spacing_{bolts.conn_0} = 12.5 \, in$

'FN'= $w_{vertical.plate_0} = \frac{1}{4} \cdot in$

'FT'= $w_{conn.plate_0} = \frac{1}{4} \cdot in$

$D/C_{width.conn.plate_1} = 0.00$

$CheckWidth_{conn.plate_1} = "OK"$

$\#Bolts_{conn_1} = 0$

'SO'= $Offset_{conn_1} = 0.0 \, in$

$$\begin{pmatrix} D/C_{t.baseplate.arm_1} \\ CFI_{t.vert.plate_1} \\ CSR_{bolt.conn_1} \end{pmatrix} = \begin{pmatrix} 0.00 \\ 0.00 \\ 0.00 \end{pmatrix}$$

'SJ'= $b_{conn.plate_1} = 0 \cdot in$

'SP'= $d_{bolt.conn_1} = 0 \cdot in$

'SK'= $t_{baseplate.arm_1} = 0.00 \, in$

'SR'= $t_{conn.plate_1} = 0.00 \, in$

'SL'= $t_{vertical.plate_1} = 0 \cdot in$

'SS'= $Spacing_{bolts.conn_1} = 0.00 \, in$

'SN'= $w_{vertical.plate_1} = 0 \cdot in$

'ST'= $w_{conn.plate_1} = 0 \cdot in$

VII. Upright Base Plate & Anchor Bolt Analysis

InputDataFile = "MA 1-3.dat"

Enter Anchorage Data

Anchor Bolt Diameter (in)	*Number of Anchor Bolts*
2	8
'BC'	'#Bolts'

Help - Number of Anchor Bolts

$Diameter_{base.pole} = 22 \cdot in$

Analyze Base Plate & Anchors

Base Plate and Anchor Summary

'#Bolts'= $\#AnchorBolts = 8$

'BB'= $t_{baseplate.pole} = 2.50 \, in$

$CSR_{anchor} = 0.15$

$Diameter_{boltcircle.pole} = 30 \cdot in$

'BC'= $d_{anchorbolt} = 2.00 \, in$

$CheckCSR_{anchorbolt} = "OK"$

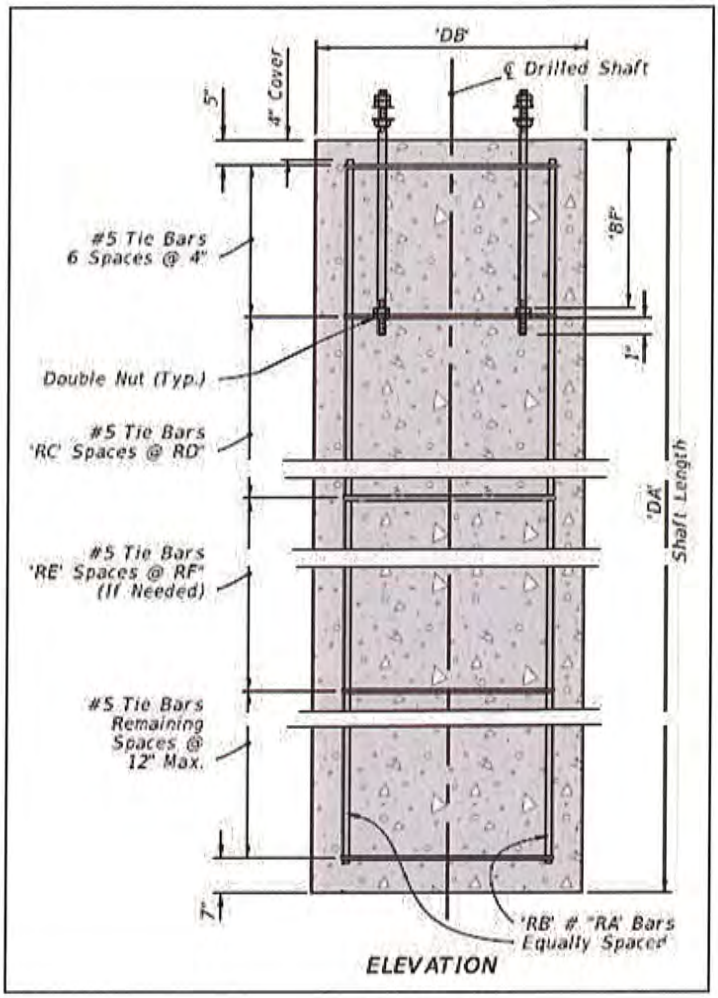
'BA'= $Diameter_{baseplate.pole} = 38 \cdot in$

VIII. Foundation Analysis & Anchor Bolt Lengths

InputDataFile = "MA 1-3.dat"

Enter Drilled Shaft Data

Soil Type	Sand / Clay	
Soil Density, γ_{soil} (45-50 pcf typ.)	47	pcf
Friction Angle, ϕ (Sands)	29	deg
SPT Number (N_{blows} 5 min.) (Sands)	5	
Shear Strength, c (Clays)		ksf
Ground to Top of Shaft Offset	0.5	ft
First Set of User Defined Stirrups:		
Number of Stirrup Spaces 'RC'	10	
Stirrup Spacing 'RD'	6	in
Second Set of User Defined Stirrups:		
Number of Stirrup Spaces 'RE' *enter zero for 12 inch spacing*	10	
Stirrup Spacing 'RF' *enter zero for 12 inch spacing*	9	in
Stirrup Bar Size, use #5 for all Standard Shafts	#5 / #6	



Analyze Foundation

Shaft Length $L_{shaft} = 22.5\ ft$

Stirrup spacing $s_v = \begin{pmatrix} 4 \\ 6 \\ 9 \\ 12 \end{pmatrix} \cdot in$

Number of stirrup spaces $\#Spaces_{vbar} = \begin{pmatrix} 6 \\ 10 \\ 10 \\ 7 \end{pmatrix}$

Foundation Summary

CheckReinfClearSpacing = "OK"

CheckLongReinf$_{shr.tor}$ = "OK"

CheckMaxSpacingTransvReinf = "OK"

OverlapDesign = "Based on Overlap of Failure Cones"

OverlapTest = "Overlap of Failure Cones"

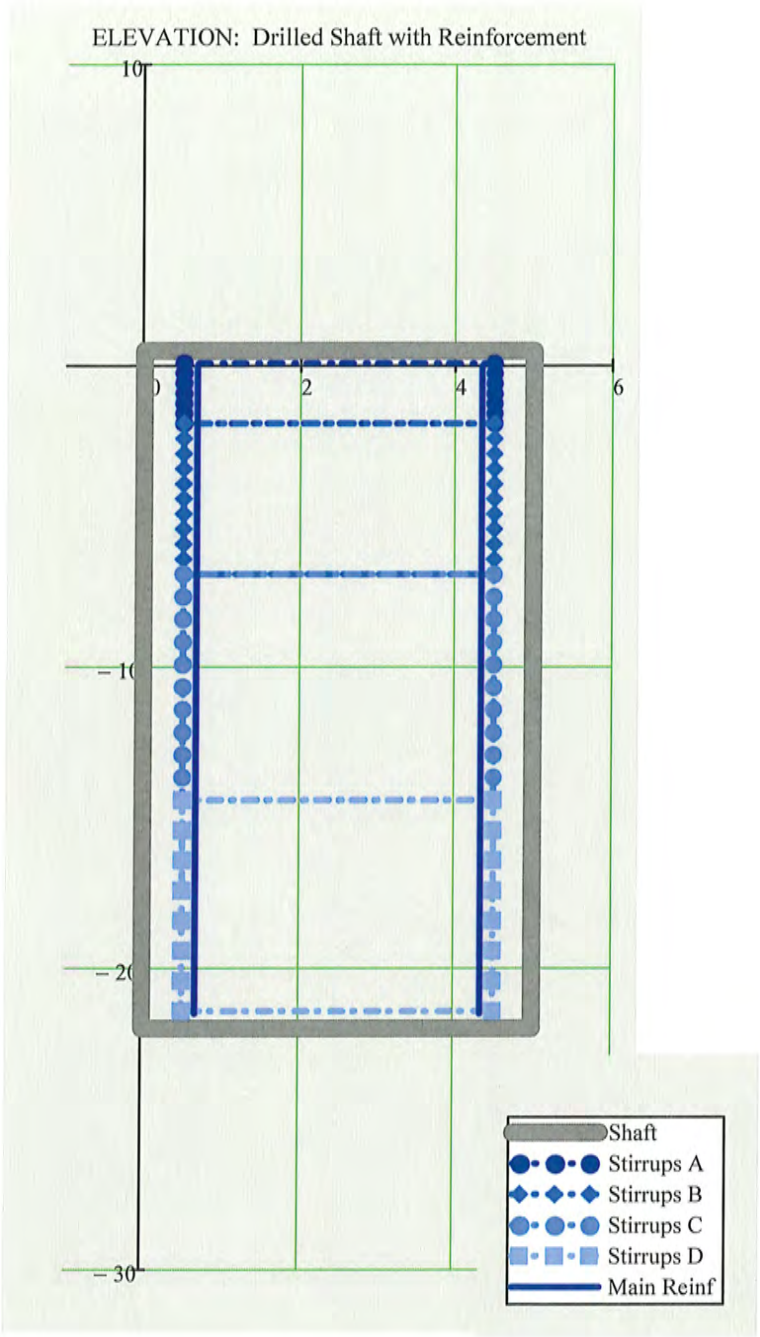
BreakoutTest = "OK"

Stirrups $s_{v_0} = 4 \cdot in$ @ $\#Spaces_{vbar_0} = 6$: $D/C_{torsion_0} = 0.2$

Stirrups 'RC' ($s_{v_1} = 6 \cdot in$) @ 'RD' ($\#Spaces_{vbar_1} = 10$): $D/C_{torsion_1} = 0.3$

Stirrups 'RE' ($s_{v_2} = 9 \cdot in$) @ 'RF' ($\#Spaces_{vbar_2} = 10$): $D/C_{torsion_2} = 0.4$

Stirrups $s_{v_3} = 12 \cdot in$ @ $\#Spaces_{vbar_3} = 7$



Offset = 0.5 ft

$d_{long.bar} = 1.41 \cdot in$

$Dia_{bar.circle} = 45.3 \cdot in$

'DA' $L_{shaft} = 22.5\,ft$

'DB' $Diameter_{shaft} = 5 \cdot ft$

'BF' $L_{embedment.anchor} = 40 \cdot in$

$L_{anchor.bolt} = 58 \cdot in$

'RA' $round\left(\frac{d_{long.bar}}{0.125in}\right) = 11$

'RB' $\#LongBars_{prov} = 19$

$\#Spaces_{vbar_0} = 6$

$s_{v_0} = 4 \cdot in$

'RC' $\#Spaces_{vbar_1} = 10$

'RD' $s_{v_1} = 6 \cdot in$

'RE' $\#Spaces_{vbar_2} = 10$

'RF' $s_{v_2} = 9 \cdot in$

$\#Spaces_{vbar_3} = 7$

$s_{v_3} = 12 \cdot in$

IX. Fatigue Analysis

InputDataFile = "MA 1-3.dat"

$FatigueCategory_{galloping} := 2$ $FatigueCategory_{natural.wind} := 2$ ***SM V3 11.6***

Analyze Structure for Fatigue

Fatigue Summary

K1 values within 2% of LTS thresholds of 3.0 and 4.0 may use next higher CAFT values

Arm and Pole Welds

$Check_{galloping.arm1} = "OK"$	$f_{galloping.arm1} = 3.9 \cdot ksi$	$CAFT_{fullpengroove.weld.arm1} = 7 \cdot ksi$
$Check_{galloping.arm2} = "NA"$	$f_{galloping.arm2} = 0.0 \cdot ksi$	$CAFT_{fullpengroove.weld.arm2} = "NA" \cdot ksi$
$Check_{galloping.pole} = "OK"$	$f_{galloping.pole} = 1.8 \cdot ksi$	$CAFT_{fullpengroove.weld.pole} = 4.5 \cdot ksi$
$Check_{nwg.arm1} = "OK"$	$f_{nwg.arm1} = 2.8 \cdot ksi$	$CAFT_{fullpengroove.weld.arm1} = 7 \cdot ksi$
$Check_{nwg.arm2} = "NA"$	$f_{nwg.arm2} = 0.0 \cdot ksi$	$CAFT_{fullpengroove.weld.arm2} = "NA" \cdot ksi$
$Check_{nwg.pole} = "OK"$	$f_{nwg.pole} = 1.3 \cdot ksi$	$CAFT_{fullpengroove.weld.pole} = 4.5 \cdot ksi$

$$CheckK1Values = \begin{pmatrix} "K1 \text{ is outside of 2\% of K1 thresholds}" \\ "K1 \text{ is outside of 2\% of K1 thresholds}" \\ "K1 \text{ is outside of 2\% of K1 thresholds}" \end{pmatrix} \quad \begin{pmatrix} K_{I.arm1} \\ K_{I.arm2} \\ K_{I.pole} \end{pmatrix} = \begin{pmatrix} 3.88 & "Arm\ 1\ Base\ Weld" \\ 100.0(& "Arm\ 2\ Base\ Weld" \\ 6.68 & "Upright\ Base\ Weld" \end{pmatrix}$$

A325 Connection Bolts

$Check_{g.conn.bolt} = \begin{pmatrix} "OK" \\ "OK" \end{pmatrix}$	$f_{t.g.bolt} = \begin{pmatrix} 3.5 \\ 0.0 \end{pmatrix} \cdot ksi$	$CAFT_{conn.bolt} = 16 \cdot ksi$
$Check_{nwg.conn.bolt} = \begin{pmatrix} "OK" \\ "OK" \end{pmatrix}$	$f_{t.nwg.bolt} = \begin{pmatrix} 2.6 \\ 0.0 \end{pmatrix} \cdot ksi$	

Anchor Bolts

$Check_{g.anchor} = "OK"$	$f_{t.g.anchor} = 1.4 \cdot ksi$	$CAFT_{anchor.bolts} = 7 \cdot ksi$
$Check_{nwg.anchor} = "OK"$	$f_{t.nwg.anchor} = 1 \cdot ksi$	

Save Data File (optional)

Use current input file

File Name MA 1-3.dat

Note: Select an output folder by using the "Change Folder" option above.

Save Data

Arm Designation Example

A70/D-A30/D/H-P5/D/L-DS/16/5

A70/D -	*Arm 70 feet long, Double Arm*
A30/D/H -	*Arm 30 feet long, Double Arm, Heavy Duty*
P5/D/L -	*Pole 5 , Double Arm, with Luminaire*
DS/16/5 -	*Drilled Shaft 16 ft deep, 5 foot diameter*

X. Mast Arm Design and Analysis Summary

InputDataFile = "MA 1-3.dat"

If comparing results to Standard Index 649-030, some values in the index have been increased to reduce the number of variations.

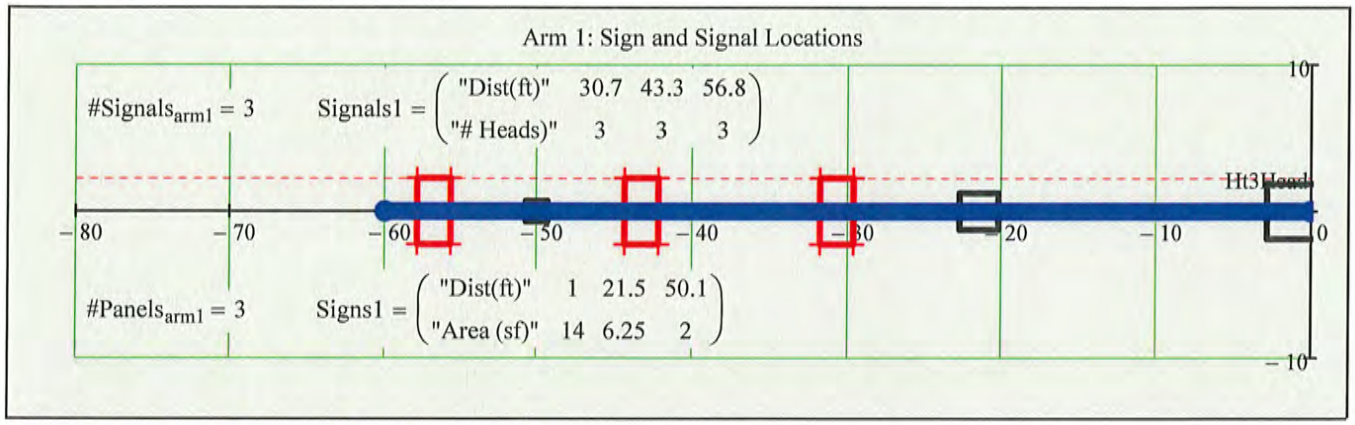
Subject = "Harborview Drive - Kings Hwy Interse DesignedBy = "RA" ıl" PoleLocation = "21+94.00 / 57.50' RT"

ProjectNo = "2024001439" CheckedBy = "CJC" Date = "05/01/2024" ExistingMastArm = "No"

For FDOT Mast Arm Support Structures, max(CFI) ≤ 0.95 ***(See Structures Manual Volume3)***

1st Mast Arm

$V_{extreme}$ = 170 mph ExistingMastArm = "No" BackPlate = "Rigid, 6 inches wide"



$\max(CFI_{arm1}) = 0.73$ CheckMaxCFI$_{arm1}$ = "OK" $L_{total.arm1} = 60$ ft $L_{splice.provided.arm1} = 2.4 \cdot$ ft $\max(\Delta_{arm1}) = 11.2 \cdot$ in

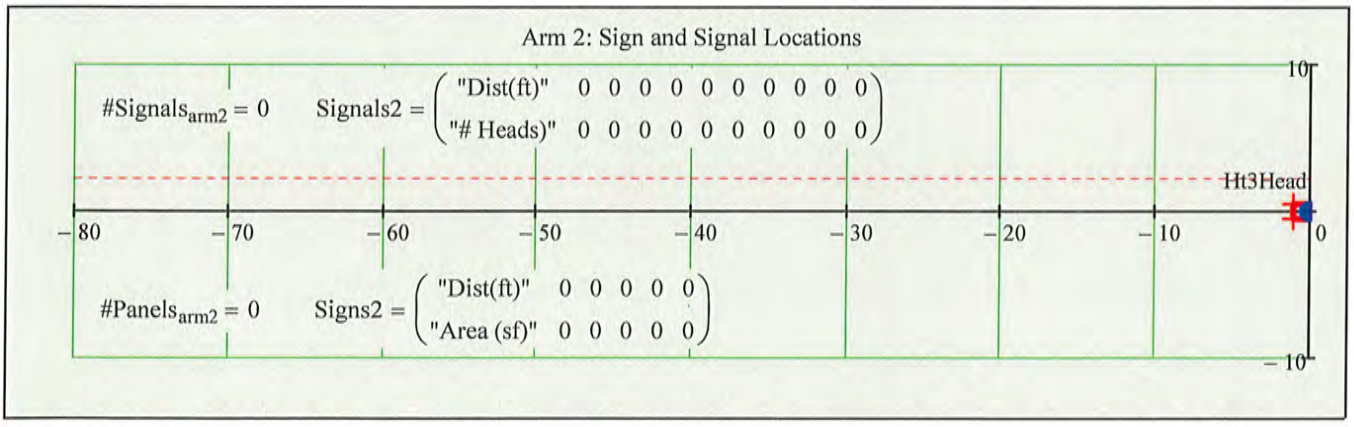
'FA'= 'FE'= $L_{arm1} = \begin{pmatrix} 35.5 \\ 27.5 \end{pmatrix} \cdot$ ft CheckSectionLength$_{arm1}$ = "OK"

'FC'= 'FG'= $Diameter_{base.arm1} = \begin{pmatrix} 12.00 \\ 15.00 \end{pmatrix} \cdot$ in

'FB'= 'FF'= $Diameter_{tip.arm1} = \begin{pmatrix} 7.03 \\ 11.15 \end{pmatrix} \cdot$ in CheckTipDia$_{arm1}$ = "OK"

'FD'= 'FH'= $t_{wall.arm1} = \begin{pmatrix} 0.250 \\ 0.375 \end{pmatrix} \cdot$ in

2nd Mast Arm



$\max(CFI_{arm2}) = 0.00$ CheckMaxCFI$_{arm2}$ = "OK" $L_{total.arm2} = 0$ ft $L_{splice.provided.arm2} = 0 \cdot$ ft $\max(\Delta_{arm2}) = 0 \cdot$ in

'SA'= 'SE'= $L_{arm2} = \begin{pmatrix} 0 \\ 0 \end{pmatrix} \cdot$ ft CheckSectionLength$_{arm2}$ = "N/A"

'SC'= 'SG'= $Diameter_{base.arm2} = \begin{pmatrix} 0.00 \\ 0.00 \end{pmatrix} \cdot$ in

'UF'= $\alpha = 0 \cdot$ deg (Angle Between Arms)

'SB'= 'SF'= $Diameter_{tip.arm2} = \begin{pmatrix} 0.00 \\ 0.00 \end{pmatrix} \cdot$ in CheckTipDia$_{arm2}$ = "N/A"

'SD'= 'SH'= $t_{wall.arm2} = \begin{pmatrix} 0.000 \\ 0.000 \end{pmatrix} \cdot$ in

Luminaire Arm and Connection *(use MC10x33.6 channel for connection)*

$$\begin{pmatrix} CFI_{base.lumarm} \\ CSR_{bolt.lum} \\ D/C_{baseplate.lum} \\ D/C_{conn.plate.lum} \end{pmatrix} = \begin{pmatrix} 0.00 \\ 0.00 \\ 0.00 \\ 0.00 \end{pmatrix}$$

'LA'= $Y_{luminaire} = 0\,ft$

'LB'= $X_{luminaire} = 0\,ft$

'LC'= $Diameter_{base.lumarm} = 0 \cdot in$

'LD'= $t_{wall.lumarm} = 0 \cdot in$

'LE'= $Slope_{lumarm} = 0$

'LF'= $r_{lumarm} = 0\,ft$

'LG'= $d_{bolt.lum} = 0 \cdot in$

'LH'= $t_{baseplate.lum} = 0 \cdot in$

'LJ'= $w_{base.lum} = 0 \cdot in$

'LK'= $w_{channel.lum} = 0 \cdot in$

Upright

$\max(CFI_{pole}) = 0.43$ $Check_{deflection} = "OK"$ $Check_{slope} = "OK"$

'UA'= $Y_{pole} = 22.5\,ft$

'UB'= $Y_{arm.conn} = 19.5\,ft$

'UC'= $Diameter_{tip.pole} = 18.9\,in$

'UD'= $Diameter_{base.pole} = 22 \cdot in$

'UE'= $t_{wall.pole} = 0.375\,in$

'UF'= $\alpha = 0 \cdot deg$

'UG'= $Y_{lum.conn} = 0\,ft$

1st Arm to Upright Connection

$D/C_{ht.conn.plate} = 0.60$

$CheckHt_{conn.plate} = "OK"$

$D/C_{width.conn.plate_0} = 0.86$

$CheckWidth_{conn.plate_0} = "OK"$

$$\begin{pmatrix} D/C_{t.baseplate.arm_0} \\ CFI_{t.vert.plate_0} \\ CSR_{bolt.conn_0} \end{pmatrix} = \begin{pmatrix} 0.83 \\ 0.34 \\ 0.29 \end{pmatrix}$$

'HT'= $h_{conn.plate} = 30 \cdot in$

$\#Bolts_{conn_0} = 6$

'FJ'= $b_{conn.plate_0} = 36 \cdot in$

'FK'= $t_{baseplate.arm_0} = 3 \cdot in$

'FL'= $t_{vertical.plate_0} = 0.75\,in$

'FN'= $w_{vertical.plate_0} = \frac{1}{4} \cdot in$

'FO'= $Offset_{conn_0} = 17.0\,in$

'FP'= $d_{bolt.conn_0} = 1.25\,in$

'FR'= $t_{conn.plate_0} = 2 \cdot in$

'FS'= $Spacing_{bolts.conn_0} = 12.5\,in$

'FT'= $w_{conn.plate_0} = \frac{1}{4} \cdot in$

2nd Arm to Upright Connection

$D/C_{width.conn.plate_1} = 0.00$

$CheckWidth_{conn.plate_1} = "OK"$

$$\begin{pmatrix} D/C_{t.baseplate.arm_1} \\ CFI_{t.vert.plate_1} \\ CSR_{bolt.conn_1} \end{pmatrix} = \begin{pmatrix} 0.00 \\ 0.00 \\ 0.00 \end{pmatrix}$$

'HT'= $h_{conn.plate} = 30 \cdot in$

$\#Bolts_{conn_1} = 0$

'SJ'= $b_{conn.plate_1} = 0 \cdot in$

'SK'= $t_{baseplate.arm_1} = 0 \cdot in$

'SL'= $t_{vertical.plate_1} = 0 \cdot in$

'SN'= $w_{vertical.plate_1} = 0 \cdot in$

'SO'= $Offset_{conn_1} = 0.0\,in$

'SP'= $d_{bolt.conn_1} = 0 \cdot in$

'SR'= $t_{conn.plate_1} = 0 \cdot in$

'SS'= $Spacing_{bolts.conn_1} = 0 \cdot in$

'ST'= $w_{conn.plate_1} = 0 \cdot in$

Pole Base Plate

$CSR_{anchor} = 0.15$

$CheckCSR_{anchorbolt} = "OK"$

'#Bolts'= $\#AnchorBolts = 8$

$Diameter_{boltcircle.pole} = 30 \cdot in$

'BA'= $Diameter_{baseplate.pole} = 38 \cdot in$

'BB'= $t_{baseplate.pole} = 2.5 \cdot in$

'BC'= $d_{anchorbolt} = 2.00\,in$

'BF'= $L_{embedment.anchor} = 40 \cdot in$

$L_{anchor.bolt} = 58 \cdot in$

Foundation

$D/C_{torsion.max} = 0$

$CheckD/C_{shear.and.torsion} = "OK"$

$CheckReinfClearSpacing = "OK"$

$CheckLongReinf_{shr.tor} = "OK"$

$CheckMaxSpacingTransvReinf = "OK"$

$OverlapDesign = "Based\ on\ Overlap\ of\ Failure\ Cones"$

$OverlapTest = "Overlap\ of\ Failure\ Cones"$

$BreakoutTest = "OK"$

$Clearance_{csl.to.nut} = 4.5 \cdot in$

$Offset = 0.5\,ft$

$d_{long.bar} = 1.41 \cdot in$

$Dia_{bar.circle} = 45.3 \cdot in$

'DA'= $L_{shaft} = 22.5\,ft$

'DB'= $Diameter_{shaft} = 5 \cdot ft$

'RA'= $round\left(\frac{d_{long.bar}}{0.125in}\right) = 11$

'RB'= $\#LongBars_{prov} = 19$

'RC'= $\#Spaces_{vbar_1} = 10$

'RD'= $s_{v_1} = 6 \cdot in$

'RE'= $\#Spaces_{vbar_2} = 10$

'RF'= $s_{v_2} = 9 \cdot in$

Fatigue

$Check_{galloping.arm1} = "OK"$

$Check_{nwg.arm1} = "OK"$

$Check_{galloping.arm2} = "NA"$

$Check_{nwg.arm2} = "NA"$

$Check_{galloping.pole} = "OK"$

$Check_{nwg.pole} = "OK"$

$Check_{g.conn.bolt} = \begin{pmatrix} "OK" \\ "OK" \end{pmatrix}$

$Check_{nwg.conn.bolt} = \begin{pmatrix} "OK" \\ "OK" \end{pmatrix}$

$Check_{g.anchor} = "OK"$

$Check_{nwg.anchor} = "OK"$

K1 values within 2% of LTS thresholds may use next higher CAFT values

$$CheckK1Values = \begin{pmatrix} "K1\ is\ outside\ of\ 2\%\ of\ K1\ thresholds" \\ "K1\ is\ outside\ of\ 2\%\ of\ K1\ thresholds" \\ "K1\ is\ outside\ of\ 2\%\ of\ K1\ thresholds" \end{pmatrix}$$

$$\begin{pmatrix} K_{I.arm1} \\ K_{I.arm2} \\ K_{I.pole} \end{pmatrix} = \begin{pmatrix} 3.882 \\ 100.000 \\ 6.683 \end{pmatrix} \begin{pmatrix} "Arm\ 1\ Base\ Weld" \\ "Arm\ 2\ Base\ Weld" \\ "Upright\ Base\ Weld" \end{pmatrix}$$

WRITE to Special Mast Arm Assembly Data Tables

Mast Arm Tip Deflection

Compare Mast Arm deflection of each arm to a proposed camber

$Camber_{arm1} := 2 \cdot deg \qquad Camber_{arm2} := 2 \cdot deg$

$Deflection_{arm1} := Slope_x \cdot L_{total.arm1} + \max(\Delta_{arm1}) = 15.3 \cdot in$

$CamberArm1_{upward} := \sin(Camber_{arm1}) \cdot L_{total.arm1} = 25.1 \cdot in$

$Deflection_{arm2} := \left[Slope_z \cdot L_{total.arm2} \cdot (\sin(\alpha))\right] + Slope_x \cdot L_{total.arm2} \cdot \cos(\alpha) + \max(\Delta_{arm2}) = 0 \cdot in$

$CamberArm2_{upward} := \sin(Camber_{arm2}) \cdot L_{total.arm2} = 0 \cdot in$

Check Clearance Between Connection Plates *(for Two Arm Structures only)*

$\alpha = 0 \cdot deg \qquad \alpha := if[(\alpha > 180 \cdot deg), (360 \cdot deg - \alpha), \alpha]$

$Offset_{conn_0} = 17 \cdot in \qquad b_{conn.plate_0} = 36 \cdot in \qquad h_{conn.plate} = 30 \cdot in \qquad \alpha = 0 \cdot deg$

$Offset_{conn_1} = 0 \cdot in \qquad b_{conn.plate_1} = 0 \cdot in$

$$x1 := Offset_{conn_0} - t_{conn.plate_0} - h_{conn.plate} \cdot \frac{\sin(Camber_{arm1})}{2} = 14.5 \cdot in \qquad y1 := \frac{b_{conn.plate_0}}{2} = 18 \cdot in$$

$$x2 := \left(Offset_{conn_1} - t_{conn.plate_1} - h_{conn.plate} \cdot \frac{\sin(Camber_{arm2})}{2}\right) \cdot \cos(\alpha) + \frac{b_{conn.plate_1}}{2} \cdot \sin(\alpha) = -0.5 \cdot in$$

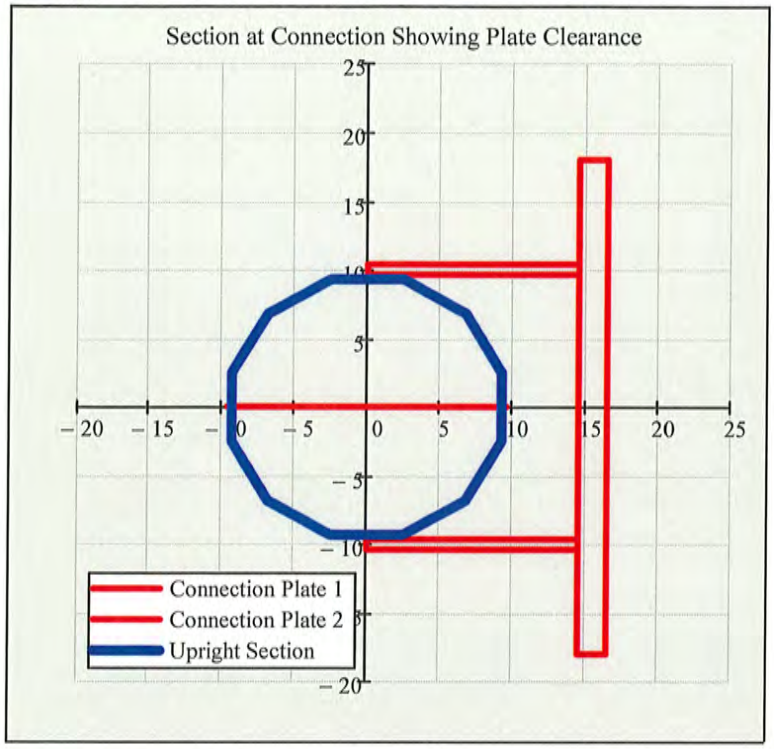
$$y2 := \left(Offset_{conn_1} - t_{conn.plate_1} - h_{conn.plate} \cdot \frac{\sin(Camber_{arm2})}{2}\right) \cdot \sin(\alpha) - \frac{b_{conn.plate_1}}{2} \cdot \cos(\alpha) = 0 \cdot in$$

$$Clearance_{plate.to.plate} := if\left[(x1 > x2) \cdot (y2 > y1), \sqrt{(x1 - x2)^2 + (y1 - y2)^2}, 0 \cdot in\right] = 0 \cdot in$$

(if Clearance < 2 inches, a redesign is required.

▶ Coordinates for Drawings

Plan View - Connection Plate Clearance for Two Arm Connections



$Clearance_{plate.to.plate} = 0 \cdot in$

$Diameter_{conn.pole} = 19.3 \cdot in$

'FR' = $t_{conn.plate_0} = 2 \cdot in$

'FJ' = $b_{conn.plate_0} = 36 \cdot in$

'FL' = $t_{vertical.plate_0} = 0.75 \cdot in$

'FO' = $Offset_{conn_0} = 17.0 \cdot in$

$Gap_0 = 7.4 \cdot in$

'SR' = $t_{conn.plate_1} = 0 \cdot in$

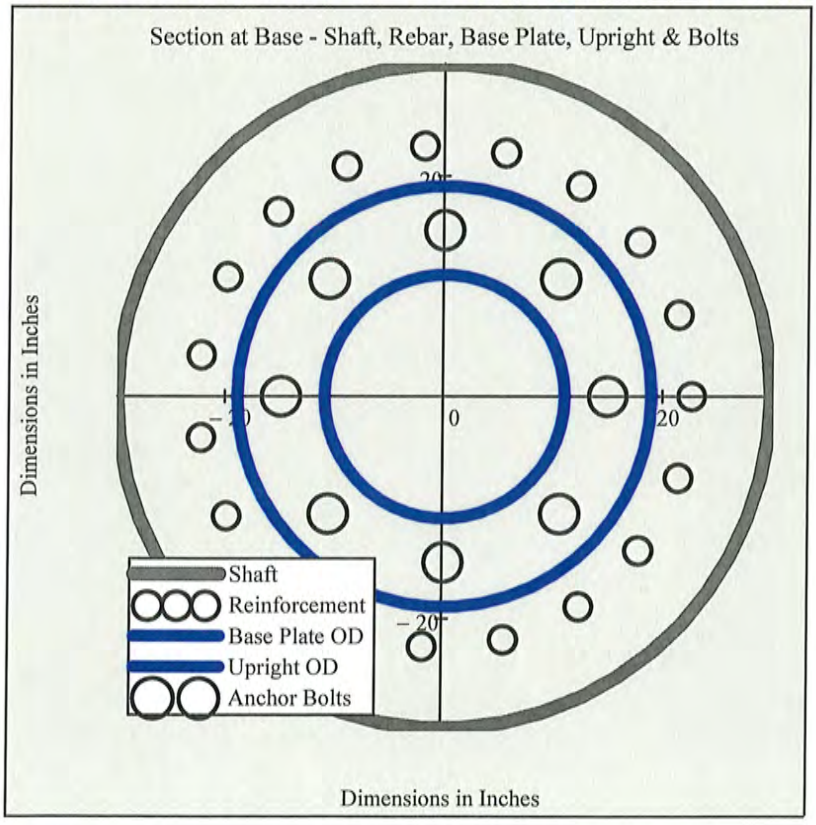
'SJ' = $b_{conn.plate_1} = 0 \cdot in$

'SL' = $t_{vertical.plate_1} = 0 \cdot in$

'SO' = $Offset_{conn_1} = 0.0 \cdot in$

$Gap_1 = 0 \cdot in$

Plan View - Drilled Shaft, Base Plate, Upright, Anchor Bolts, & Reinforcing Steel



$Clearance_{bar.to.nut} = 5.1 \cdot in$

'UD' = $Diameter_{base.pole} = 22 \cdot in$

'BA' = $Diameter_{baseplate.pole} = 38 \cdot in$

'DB' = $Diameter_{shaft} = 60 \cdot in$

$Diameter_{boltcircle.pole} = 30 \cdot in$

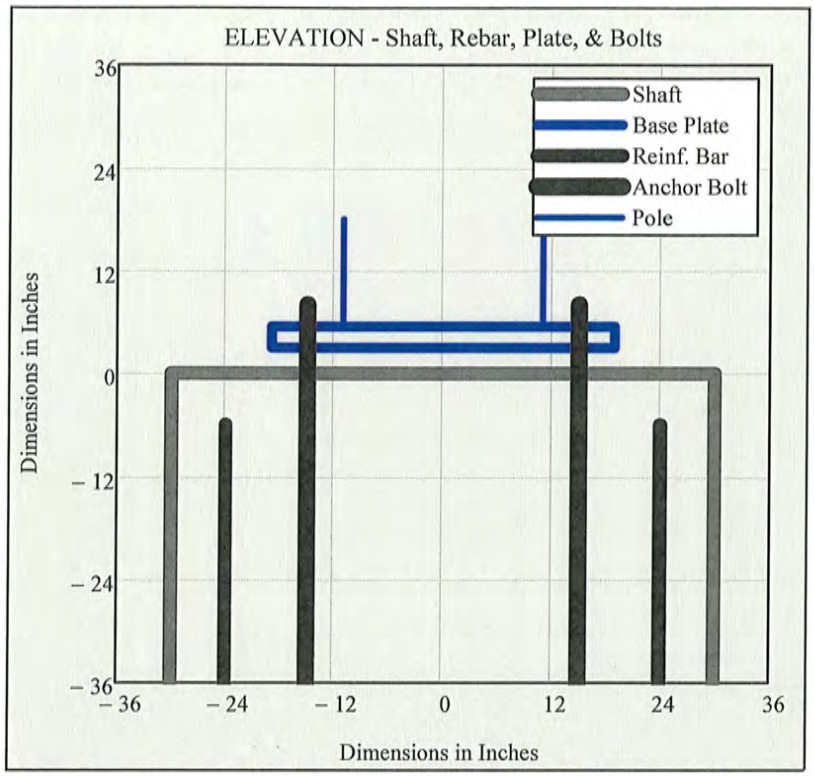
$Dia_{bar.circle} = 45.3 \cdot in$

$\#AnchorBolts = 8$

$\#LongBars_{prov} = 19$

Note: The Plan and Elevation Views do not show the 4 or 5 1.9" O.D. Nondestructive Integrity Testing Access Tubes that are tied to the inside of the reinforcing cage (see FDOT Spec 455-16.4).

Elevation View - Drilled Shaft, Base Plate, Anchor Bolts, & Reinforcing Steel



$Clearance_{bar.to.nut} = 5.1 \cdot in$

'UD'= $Diameter_{base.pole} = 22 \cdot in$

'BA'= $Diameter_{baseplate.pole} = 38 \cdot in$

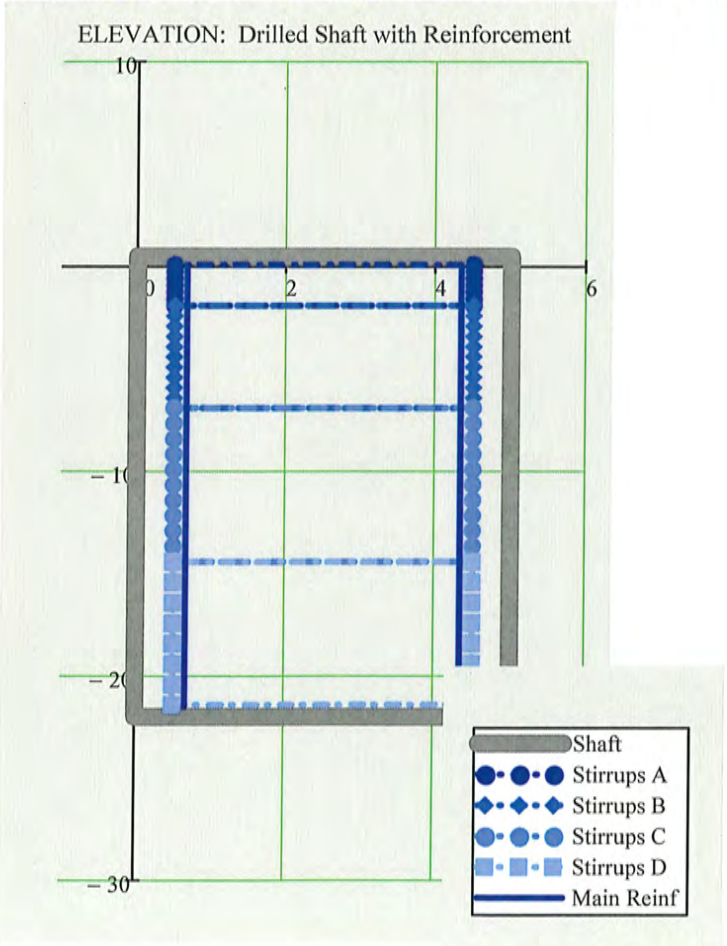
'BB'= $t_{baseplate.pole} = 2.5 \cdot in$

'DB'= $Diameter_{shaft} = 60 \cdot in$

$Diameter_{boltcircle.pole} = 30 \cdot in$

$Dia_{bar.circle} = 45.3 \cdot in$

Elevation View - Drilled Shaft with Main Reinforcement and Stirrups



$$s_v = \begin{pmatrix} 4 \\ 6 \\ 9 \\ 12 \end{pmatrix} \cdot in$$ *stirrup spacing*

$$\#Spaces_{vbar} = \begin{pmatrix} 6 \\ 10 \\ 10 \\ 7 \end{pmatrix}$$ *number of stirrup spaces*

FDOT Mast Arm Traffic Signal Support Analysis Program V2.0

State Structures Design Office

This program works in conjunction with FDOT Mast Arm Standard Plans 649-030 & 649-031.

References:
AASHTO LRFD Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals (LRFDLTS).
FDOT Structures Manual Volume 3 (SM V3).
AISC Steel Construction Manual

Reference

For more information see Reference.xmcd and Changes.xmcd.

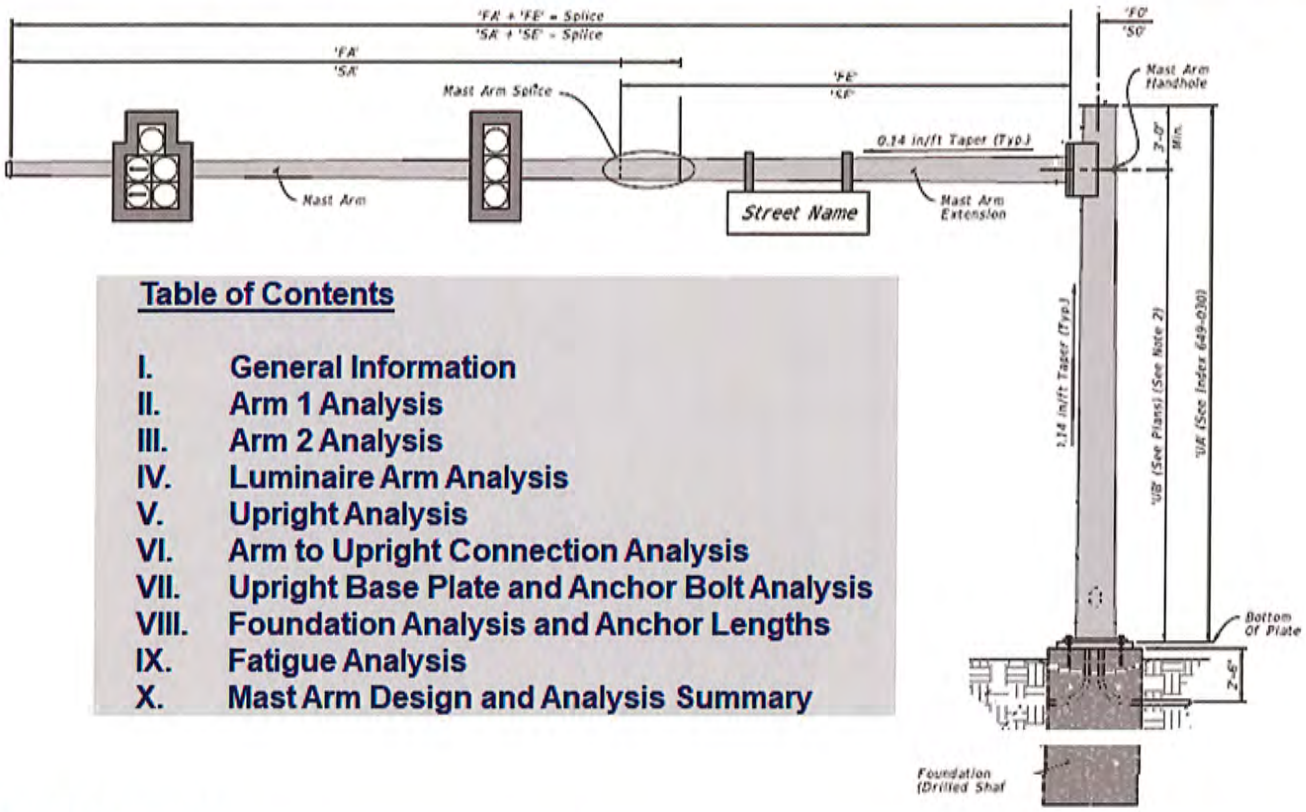


Table of Contents

Data Folder and Files

Data Files Folder

Change Folder

D:\Worksets\FDOT\2024001439\Structures\MastArmV2.0\Data\

Required - Open Existing Data File. To save New Data Files, enter data variables at the end of Section IX.

Refresh List

Open File

A78DH-A40DH-P6DL.dat
A78DH-A60DH-P6DL.dat
A78DH-A78DH-P7DL.dat
A78SH-P6SL.dat
MA 1-1.dat
MA 1-2.dat
MA 1-3.dat
MA 1-4.dat

I. General Information and Sign & Signal Data

Enter Project Information

Project Name	Harborview Drive - Kings Hwy Intersection Hardening Signal		
Project No.	2024001439		
Designed by	RA	*Date*	05/01/2024
Checked by	CJC	*Date*	05/03/2024
Signal Name	MA 1-4		
Station/Offset	21+89.00 / 60.5' LT		

Enter Wind Speed

Design Wind Speed 170 *mph*

Extreme Event Wind Speed

SDG Wind Speeds by County

Enter Arm Lengths, Signal and Sign Data

Arm 1

Arm 1 Length 50 Reset Arm 1 Data

Arm1 Signal Number	*Distance to Signal (ft)*	*Number of Heads*
1	22.1	3
2	34.6	3
3	46.9	3
4		
5		
6		
7		
8		
9		
10		

Arm 2 *Set Arm 2 Length = 0 for single arm Mast Arms*

Arm 2 Length 0 Reset Arm 2 Data

Arm2 Signal Number	*Distance to Signal (ft)*	*Number of Heads*
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

Arm 1 Sign Panels

Arm1 Sign Panel Number	*Distance to Panel (ft)*	*Panel Area (sf)*
1	1	12
2	7.0	2
3	12.9	6.25
4	40.7	2
5		

Arm 2 Sign Panels

Arm2 Sign Panel Number	*Distance to Panel (ft)*	*Panel Area (sf)*
1		
2		
3		
4		
5		

Save Data for Signs and Signals

II. Arm 1 Analysis

InputDataFile = "MA 1-4.dat" $V_{extreme}$ = 170 mph

Reference:D:\Worksets\FDOT\2024001439\Structures\MastArmV2.0\LRFD Equation Module.xmcd(R)

Help - Base Diameters | Help - Tube Wall Thickness

Arm Extension (for 2 piece arms only)

Enter Arm 1 Data

Iterate on Base Diameters and Wall Thicknesses

Arm Length (ft)	*Base Diameter 1 (in)*	*Wall Thickness 1 (in)*	*Base Diameter 2 (in)*	*Wall Thickness 2 (in)*
$L_{total.arm1}$ = 50 ft	12	0.25	14	0.3125
feet, 40 ft. max. for 1 piece arms	*Measured flat to flat* 'FC'	'FD'	*Measured flat to flat* 'FG'	'FH'

Arm 1 Analysis including Existing Mast Arm Analysis (Additional Variables Required)

$L_{total.arm1}$ = 50 ft

'FD'= 'FH'= $t_{wall.arm1} = \begin{pmatrix} 0.250 \\ 0.313 \end{pmatrix} \cdot in$

'FC'= 'FG'= $Diameter_{base.arm1} = \begin{pmatrix} 12.00 \\ 14.00 \end{pmatrix} \cdot in$

BackPlate = "Rigid, 6 inches wide"

'FB'= 'FF'= $Diameter_{tip.arm1} = \begin{pmatrix} 7.45 \\ 11.13 \end{pmatrix} \cdot in$

$CheckTipDia_{arm1}$ = "OK"

'FA'= 'FE'= $L_{arm1} = \begin{pmatrix} 32.5 \\ 20.5 \end{pmatrix} \cdot ft$

$CheckSectionLength_{arm1}$ = "OK"

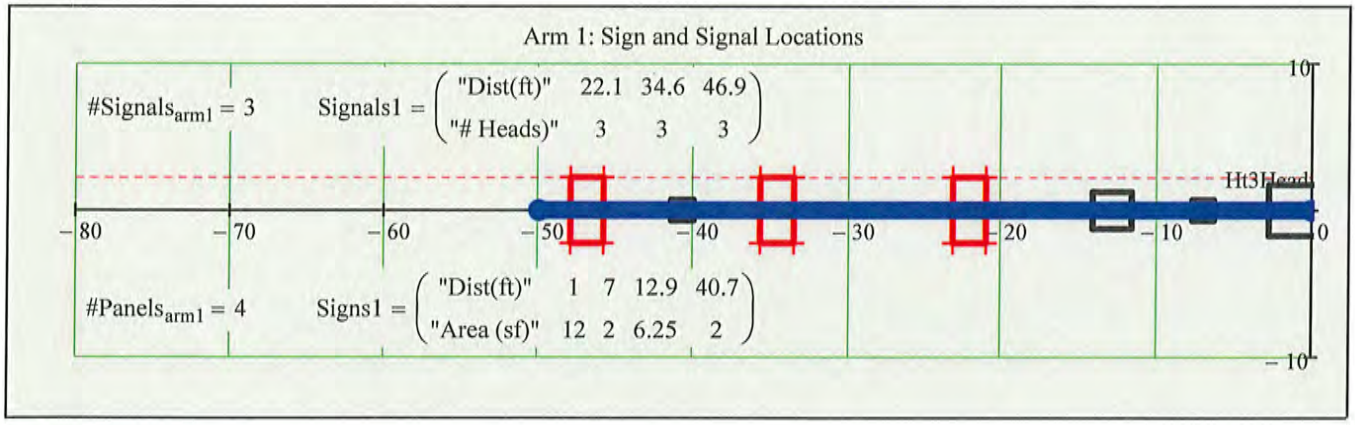
$L_{splice.provided.arm1}$ = 2.6 ft

$Classification_{arm1} = \begin{pmatrix} \text{"Compact"} \\ \text{"Compact"} \end{pmatrix}$

Arm 1 Combined Force Interaction Ratio and Deflection

$\max(CFI_{arm1})$ = 0.75 $CheckMaxCFI_{arm1}$ = "OK"

$\max(\Delta_{arm1})$ = 7.1 in $2 \cdot deg \cdot L_{total.arm1}$ = 20.9 in



III. Arm 2 Analysis

InputDataFile = "MA 1-4.dat" $V_{extreme}$ = 170 mph

Help - Base Diameters | Help - Tube Wall Thickness

Arm Extension (for 2 piece arms only)

Enter Arm 2 Data

Iterate on Base Diameters and Wall Thicknesses

Arm Length (ft)	*Base Diameter 1 (in)*	*Wall Thickness 1 (in)*	*Base Diameter 2 (in)*	*Wall Thickness 2 (in)*
$L_{total.arm2}$ = 0 ft				
feet, 40 ft. max. for 1 piece arms	*Measured flat to flat* 'SC'	*for 1 & 2 piece arms* 'SD'	*Measured flat to flat* 'SG'	*for 2 piece arms only* 'SH'

Arm 2 Analysis

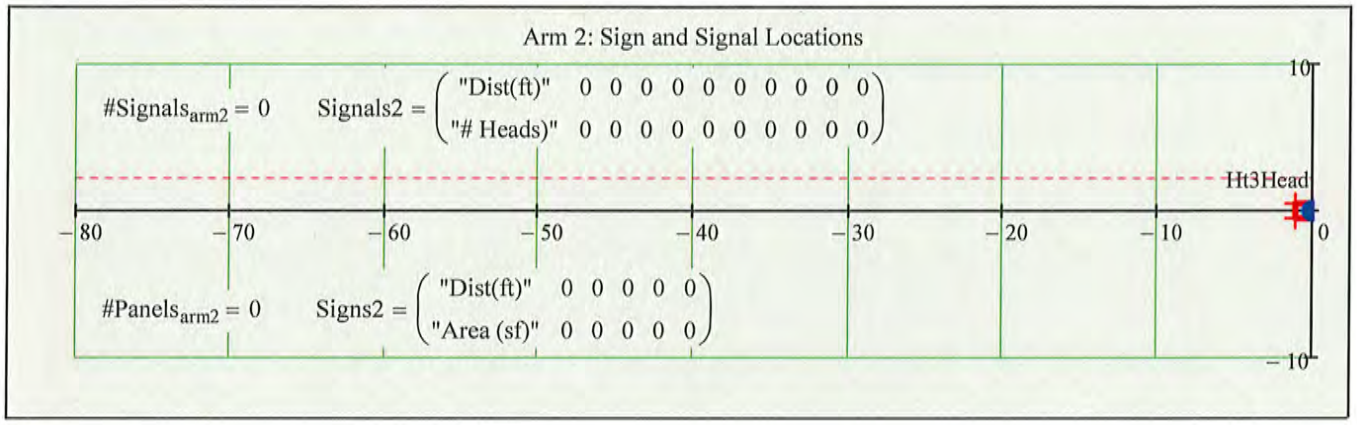
$L_{total.arm2} = 0\,ft$ 'SD'= 'SH'= $t_{wall.arm2} = \begin{pmatrix} 0.000 \\ 0.000 \end{pmatrix} \cdot in$ 'SC'= 'SG'= $Diameter_{base.arm2} = \begin{pmatrix} 0.00 \\ 0.00 \end{pmatrix} \cdot in$ BackPlate = "Rigid, 6 inches wide"

'SB'= 'SF'= $Diameter_{tip.arm2} = \begin{pmatrix} 0.00 \\ 0.00 \end{pmatrix} \cdot in$ $CheckTipDia_{arm2}$ = "N/A" 'SA'= 'SE'= $L_{arm2} = \begin{pmatrix} 0.0 \\ 0.0 \end{pmatrix} \cdot ft$ $CheckSectionLength_{arm2}$ = "N/A"

$L_{splice.provided.arm2} = 0.0\,ft$ $Classification_{arm2} = \begin{pmatrix} \text{"Compact"} \\ \text{"N/A"} \end{pmatrix}$

Arm 2 Combined Force Interaction Ratio and Deflection

$\max(CFI_{arm2}) = 0.00$ $CheckMaxCFI_{arm2}$ = "OK" $\max(\Delta_{arm2}) = 0.0 \cdot in$ $2 \cdot deg \cdot L_{total.arm2} = 0 \cdot in$



IV. Luminaire Arm Analysis

InputDataFile = "MA 1-4.dat" $V_{extreme} = 170\,mph$

Enter Luminaire Data

Set Lum. Ht. = 0 for no Luminaire

See Design Standards 649-030 and 649-031 for input values.

Luminaire Height (ft)	Lum Horiz Length (ft)	Lum Arm Base Dia (in)	Lum Wall Thickness (in)	Slope	Lum Arm Radius (ft)	Lum Bolt Dia (in)	Lum Base Plate Thickness (in)
40	11.2	3	0.1875	1.0	8	0.5	0.75
Std = 40 feet	*10 feet*	*3 inches*	*0.125 inches*	*0.5*	*8 feet*	*0.5 inches*	*0.75 inches*

Analyze Luminaire

Summary - Luminaire Arm Geometry

$\begin{pmatrix} CFI_{base.lumarm} \\ CSR_{bolt.lum} \\ D/C_{baseplate.lum} \\ D/C_{conn.plate.lum} \end{pmatrix} = \begin{pmatrix} 0.67 \\ 0.05 \\ 0.80 \\ 0.72 \end{pmatrix}$

'LA'= $Y_{luminaire} = 40\,ft$

'LB'= $X_{luminaire} = 11.2\,ft$

'LC'= $Diameter_{base.lumarm} = 3 \cdot in$

'LD'= $t_{wall.lumarm} = 0.1875\,in$

'LE'= $Slope_{lumarm} = 1$

'LF'= $r_{lumarm} = 8\,ft$

'LG'= $d_{bolt.lum} = 0.5 \cdot in$

'LH'= $t_{baseplate.lum} = 0.75 \cdot in$

'LJ'= $w_{base.lum} = \frac{1}{4} \cdot in$

'LK'= $w_{channel.lum} = \frac{1}{4} \cdot in$

V. Upright Analysis

InputDataFile = "MA 1-4.dat" $V_{extreme} = 170 \cdot mph$

Help - Upright Base Diameter and Wall Thickness | Help - Gap Distance

Enter Upright Data

Total Height (ft)	Height to Arm Connection (ft)	Base Diameter (in)	Wall Thickness (in)	Gap (in)
39	20	20	0.375	7.4
'UA'	'UB'	'UD' measured flat to flat	'UE'	arm 1 gap / arm 2 gap

Analyze Upright

Upright Combined Force Interaction Ratio and Deflections

$Classification_{pole} = "Compact"$

$\max(CFI_{pole}) = 0.56$

$Check_{slope} = "OK"$

$Check_{deflection} = "OK"$

$\max(\Delta_{x.dl}) = 0.6 \cdot in$

$\max(\Delta_{z.dl}) = 0 \cdot in$

$Slope_z = 0 \cdot deg$

$Slope_x = 0.31 \cdot deg$

$Diameter_{conn.pole} = 17.2 \cdot in$

$\max(Diameter_{base.arm1}) = 14 \cdot in$

$\max(Diameter_{base.arm2}) = 0 \cdot in$

'UA'= $Y_{pole} = 39 \cdot ft$

'UB'= $Y_{arm.conn} = 20 \cdot ft$

'UC'= $Diameter_{tip.pole} = 14.6 \cdot in$

'UD'= $Diameter_{base.pole} = 20 \cdot in$

'UE'= $t_{wall.pole} = 0.375 \cdot in$

'UF'= $\alpha = 0 \cdot deg$

'UG'= $Y_{lum.conn} = 34.4 \cdot ft$

VI. Arm to Upright Connection Analysis

InputDataFile = "MA 1-4.dat"

for double arms, both connection plate heights must be equal

Help - Arm Connection Dimensions

Enter Connection Data

Connection Plate Height(in)	Connection Plate Width (in)	Vertical Plate Thickness (in)	Bolt Diameter (in)	Arm Base Plate Thickness (in)
22	29	0.75	1.25	3
'HT'	'FJ', 'SJ'	'FL', 'SL'	'FP', 'SP'	'FK', 'SK'

Analyze Connection

Connection Summary

'HT'= $h_{conn.plate} = 22 \cdot in$ $D/C_{ht.conn.plate} = 0.77$ $CheckHt_{conn.plate} = "OK"$

$D/C_{width.conn.plate_0} = 1.00$

$CheckWidth_{conn.plate_0} = "OK"$

$\#Bolts_{conn_0} = 6$

'FJ'= $b_{conn.plate_0} = 29 \cdot in$

'FK'= $t_{baseplate.arm_0} = 3.00\,in$

'FL'= $t_{vertical.plate_0} = 0.75 \cdot in$

'FN'= $w_{vertical.plate_0} = \frac{5}{16} \cdot in$

'FO'= $Offset_{conn_0} = 16.0\,in$

'FP'= $d_{bolt.conn_0} = 1.25 \cdot in$

'FR'= $t_{conn.plate_0} = 2.00\,in$

'FS'= $Spacing_{bolts.conn_0} = 8.5 \cdot in$

'FT'= $w_{conn.plate_0} = \frac{5}{16} \cdot in$

$$\begin{pmatrix} D/C_{t.baseplate.arm_0} \\ CFI_{t.vert.plate_0} \\ CSR_{bolt.conn_0} \end{pmatrix} = \begin{pmatrix} 0.83 \\ 0.39 \\ 0.26 \end{pmatrix}$$

$D/C_{width.conn.plate_1} = 0.00$

$CheckWidth_{conn.plate_1} = "OK"$

$\#Bolts_{conn_1} = 0$

'SJ'= $b_{conn.plate_1} = 0 \cdot in$

'SK'= $t_{baseplate.arm_1} = 0.00\,in$

'SL'= $t_{vertical.plate_1} = 0 \cdot in$

'SN'= $w_{vertical.plate_1} = 0 \cdot in$

'SO'= $Offset_{conn_1} = 0.0 \cdot in$

'SP'= $d_{bolt.conn_1} = 0 \cdot in$

'SR'= $t_{conn.plate_1} = 0.00\,in$

'SS'= $Spacing_{bolts.conn_1} = 0.00\,in$

'ST'= $w_{conn.plate_1} = 0 \cdot in$

$$\begin{pmatrix} D/C_{t.baseplate.arm_1} \\ CFI_{t.vert.plate_1} \\ CSR_{bolt.conn_1} \end{pmatrix} = \begin{pmatrix} 0.00 \\ 0.00 \\ 0.00 \end{pmatrix}$$

VII. Upright Base Plate & Anchor Bolt Analysis

InputDataFile = "MA 1-4.dat"

Enter Anchorage Data

Anchor Bolt Diameter (in): 2 'BC'

Number of Anchor Bolts: 6 '#Bolts'

Help - Number of Anchor Bolts

$Diameter_{base.pole} = 20 \cdot in$

Analyze Base Plate & Anchors

Base Plate and Anchor Summary

'#Bolts'= #AnchorBolts = 6

$CSR_{anchor} = 0.31$

$Diameter_{boltcircle.pole} = 28 \cdot in$

$CheckCSR_{anchorbolt} = "OK"$

'BA'= $Diameter_{baseplate.pole} = 36 \cdot in$

'BB'= $t_{baseplate.pole} = 2.50\,in$

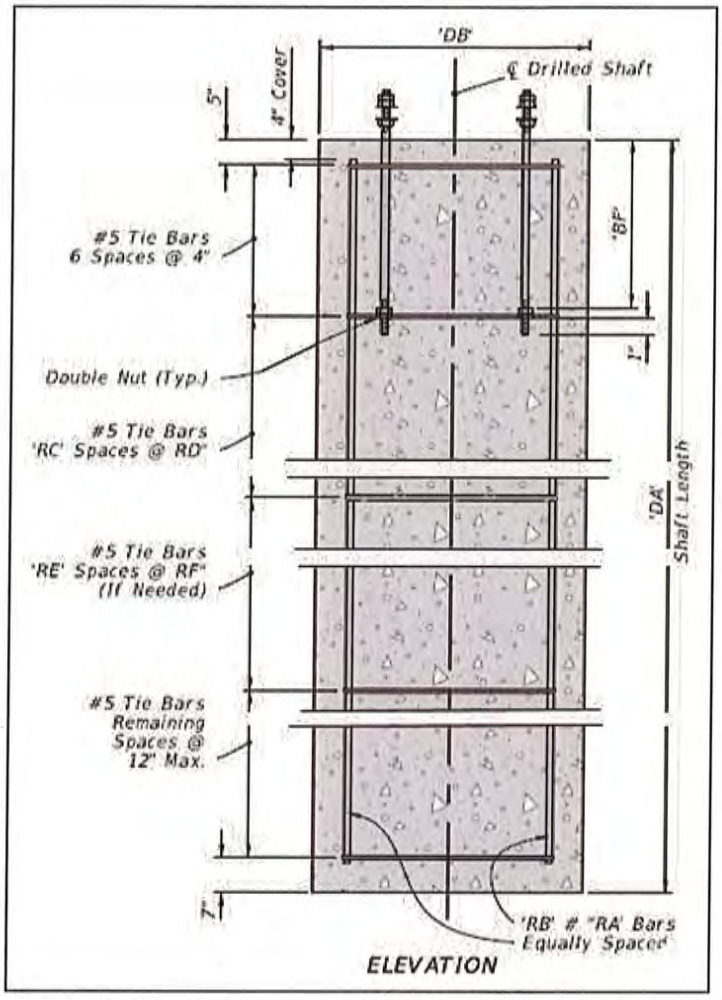
'BC'= $d_{anchorbolt} = 2.00\,in$

VIII. Foundation Analysis & Anchor Bolt Lengths

InputDataFile = "MA 1-4.dat"

Enter Drilled Shaft Data

Soil Type	Sand / Clay	
Soil Density, γ_{soil} (45-50 pcf typ.)	46	pcf
Friction Angle, ϕ (Sands)	29	deg
SPT Number (N_{blows} 5 min.) (Sands)	5	
Shear Strength, c (Clays)		ksf
Ground to Top of Shaft Offset	0.5	ft
First Set of User Defined Stirrups:		
Number of Stirrup Spaces 'RC'	10	
Stirrup Spacing 'RD'	6	in
Second Set of User Defined Stirrups:		
Number of Stirrup Spaces 'RE' *enter zero for 12 inch spacing*	10	
Stirrup Spacing 'RF' *enter zero for 12 inch spacing*	9	in
Stirrup Bar Size, use #5 for all Standard Shafts	#5 / #6	



Analyze Foundation

Shaft Length $L_{shaft} = 20.5\ ft$

Stirrup spacing $s_v = \begin{pmatrix} 4 \\ 6 \\ 9 \\ 12 \end{pmatrix} \cdot in$

Number of stirrup spaces $\#Spaces_{vbar} = \begin{pmatrix} 6 \\ 10 \\ 10 \\ 5 \end{pmatrix}$

Foundation Summary

CheckReinfClearSpacing = "OK"

CheckLongReinf$_{shr.tor}$ = "OK"

CheckMaxSpacingTransvReinf = "OK"

OverlapDesign = "Based on Overlap of Failure Cones"

OverlapTest = "Overlap of Failure Cones"

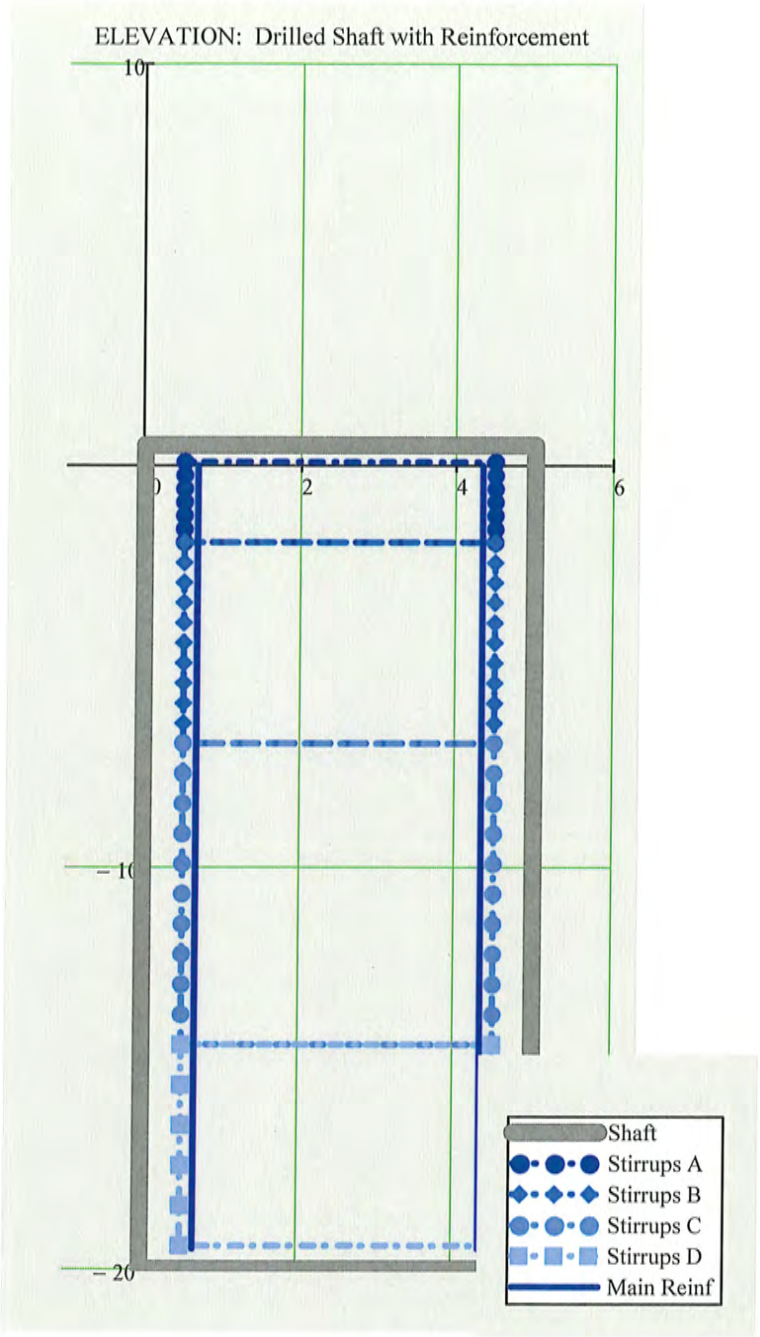
BreakoutTest = "OK"

Stirrups $s_{v_0} = 4 \cdot in$ @ $\#Spaces_{vbar_0} = 6$: $D/C_{torsion_0} = 0.1$

Stirrups 'RC' ($s_{v_1} = 6 \cdot in$) @ 'RD' ($\#Spaces_{vbar_1} = 10$): $D/C_{torsion_1} = 0.2$

Stirrups 'RE' ($s_{v_2} = 9 \cdot in$) @ 'RF' ($\#Spaces_{vbar_2} = 10$): $D/C_{torsion_2} = 0.3$

Stirrups $s_{v_3} = 12 \cdot in$ @ $\#Spaces_{vbar_3} = 5$



Offset = 0.5 ft

$d_{long.bar} = 1.41 \cdot in$

$Dia_{bar.circle} = 45.3 \cdot in$

'DA'= $L_{shaft} = 20.5 \cdot ft$

'DB'= $Diameter_{shaft} = 5 \cdot ft$

'BF'= $L_{embedment.anchor} = 40 \cdot in$

$L_{anchor.bolt} = 58 \cdot in$

'RA'= $round\left(\frac{d_{long.bar}}{0.125in}\right) = 11$

'RB'= $\#LongBars_{prov} = 19$

$\#Spaces_{vbar_0} = 6$

$s_{v_0} = 4 \cdot in$

'RC'= $\#Spaces_{vbar_1} = 10$

'RD'= $s_{v_1} = 6 \cdot in$

'RE'= $\#Spaces_{vbar_2} = 10$

'RF'= $s_{v_2} = 9 \cdot in$

$\#Spaces_{vbar_3} = 5$

$s_{v_3} = 12 \cdot in$

IX. Fatigue Analysis

InputDataFile = "MA 1-4.dat"

$FatigueCategory_{galloping} := 2$ $FatigueCategory_{natural.wind} := 2$ ***SM V3 11.6***

Analyze Structure for Fatigue

Fatigue Summary

Arm and Pole Welds

K1 values within 2% of LTS thresholds of 3.0 and 4.0 may use next higher CAFT values

$Check_{galloping.arm1} = "OK"$	$f_{galloping.arm1} = 4.2 \cdot ksi$	$CAFT_{fullpengroove.weld.arm1} = 7 \cdot ksi$
$Check_{galloping.arm2} = "NA"$	$f_{galloping.arm2} = 0.0 \cdot ksi$	$CAFT_{fullpengroove.weld.arm2} = "NA" \cdot ksi$
$Check_{galloping.pole} = "OK"$	$f_{galloping.pole} = 1.7 \cdot ksi$	$CAFT_{fullpengroove.weld.pole} = 4.5 \cdot ksi$
$Check_{nwg.arm1} = "OK"$	$f_{nwg.arm1} = 2.8 \cdot ksi$	$CAFT_{fullpengroove.weld.arm1} = 7 \cdot ksi$
$Check_{nwg.arm2} = "NA"$	$f_{nwg.arm2} = 0.0 \cdot ksi$	$CAFT_{fullpengroove.weld.arm2} = "NA" \cdot ksi$
$Check_{nwg.pole} = "OK"$	$f_{nwg.pole} = 1.9 \cdot ksi$	$CAFT_{fullpengroove.weld.pole} = 4.5 \cdot ksi$

$$CheckK1Values = \begin{pmatrix} "K1 \text{ is outside of 2\% of K1 thresholds}" \\ "K1 \text{ is outside of 2\% of K1 thresholds}" \\ "K1 \text{ is outside of 2\% of K1 thresholds}" \end{pmatrix} \qquad \begin{pmatrix} K_{I.arm1} \\ K_{I.arm2} \\ K_{I.pole} \end{pmatrix} = \begin{pmatrix} 3.20 & "Arm\ 1\ Base\ Weld" \\ 100.0 & "Arm\ 2\ Base\ Weld" \\ 6.31 & "Upright\ Base\ Weld" \end{pmatrix}$$

A325 Connection Bolts

$$Check_{g.conn.bolt} = \begin{pmatrix} "OK" \\ "OK" \end{pmatrix} \qquad f_{t.g.bolt} = \begin{pmatrix} 3.5 \\ 0.0 \end{pmatrix} \cdot ksi \qquad CAFT_{conn.bolt} = 16 \cdot ksi$$

$$Check_{nwg.conn.bolt} = \begin{pmatrix} "OK" \\ "OK" \end{pmatrix} \qquad f_{t.nwg.bolt} = \begin{pmatrix} 2.4 \\ 0.0 \end{pmatrix} \cdot ksi$$

Anchor Bolts

$Check_{g.anchor} = "OK"$	$f_{t.g.anchor} = 1.5 \cdot ksi$	$CAFT_{anchor.bolts} = 7 \cdot ksi$
$Check_{nwg.anchor} = "OK"$	$f_{t.nwg.anchor} = 1.7 \cdot ksi$	

Save Data File (optional)

☑ Use current input file

File Name MA 1-4.dat

Note: Select an output folder by using the "Change Folder" option above.

Save Data

Arm Designation Example

A70/D-A30/D/H-P5/D/L-DS/16/5

A70/D -	*Arm 70 feet long, Double Arm*
A30/D/H -	*Arm 30 feet long, Double Arm, Heavy Duty*
P5/D/L -	*Pole 5 , Double Arm, with Luminaire*
DS/16/5 -	*Drilled Shaft 16 ft deep, 5 foot diameter*

X. Mast Arm Design and Analysis Summary

InputDataFile = "MA 1-4.dat"

If comparing results to Standard Index 649-030, some values in the index have been increased to reduce the number of variations.

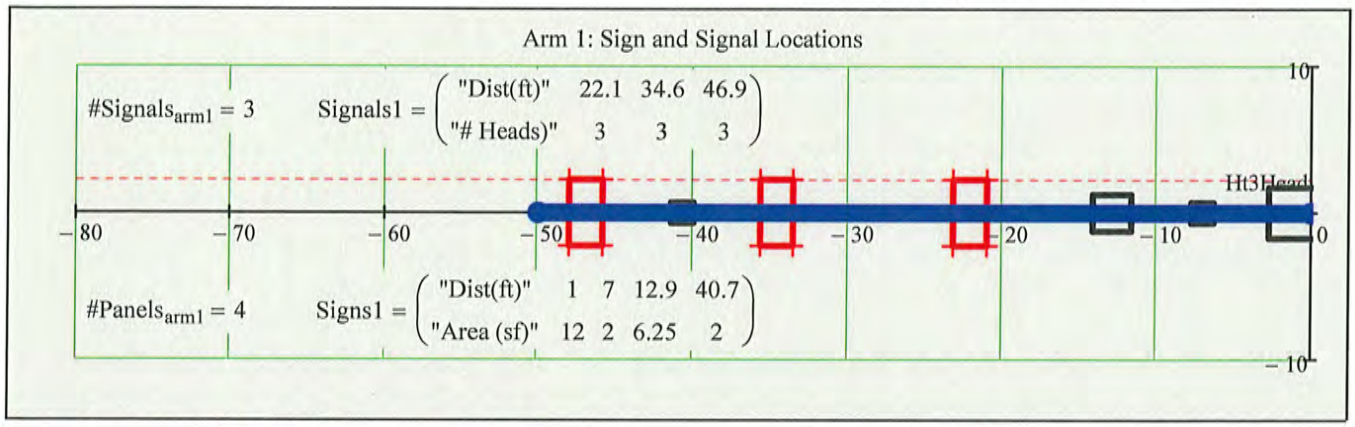
Subject = "Harborview Drive - Kings Hwy Interse DesignedBy = "RA" ıl" PoleLocation = "21+89.00 / 60.5' LT"

ProjectNo = "2024001439" CheckedBy = "CJC" Date = "05/01/2024" ExistingMastArm = "No"

For FDOT Mast Arm Support Structures, $\max(CFI) \le 0.95$ ***(See Structures Manual Volume3)***

1st Mast Arm

$V_{extreme}$ = 170 mph ExistingMastArm = "No" BackPlate = "Rigid, 6 inches wide"



$\max(CFI_{arm1}) = 0.75$ CheckMaxCFI_arm1 = "OK" $L_{total.arm1} = 50$ ft $L_{splice.provided.arm1} = 2.6 \cdot ft$ $\max(\Delta_{arm1}) = 7.1 \cdot in$

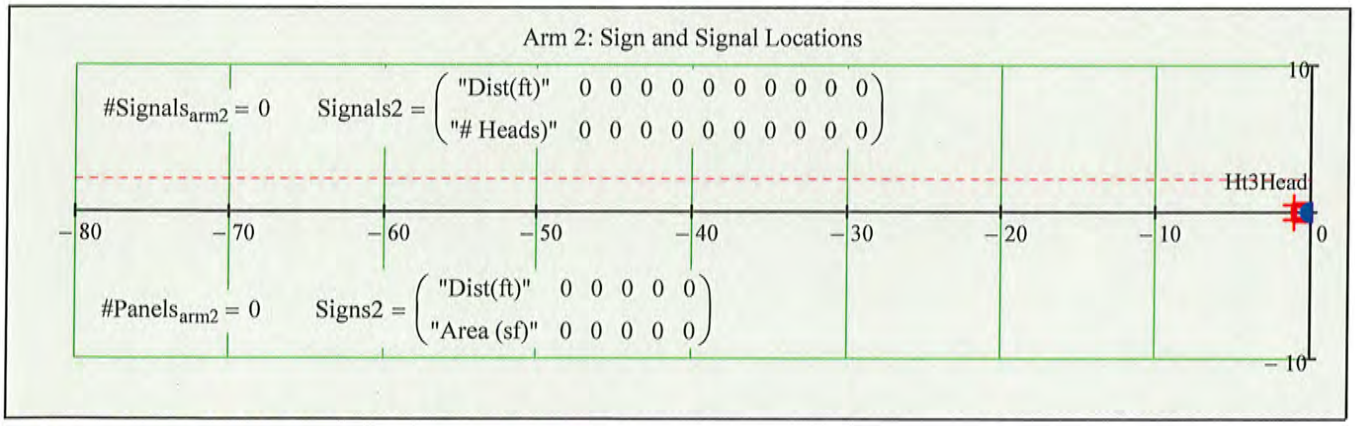
'FA'= 'FE'= $L_{arm1} = \begin{pmatrix} 32.5 \\ 20.5 \end{pmatrix} \cdot ft$ CheckSectionLength_arm1 = "OK"

'FC'= 'FG'= $Diameter_{base.arm1} = \begin{pmatrix} 12.00 \\ 14.00 \end{pmatrix} \cdot in$

'FB'= 'FF'= $Diameter_{tip.arm1} = \begin{pmatrix} 7.45 \\ 11.13 \end{pmatrix} \cdot in$ CheckTipDia_arm1 = "OK"

'FD'= 'FH'= $t_{wall.arm1} = \begin{pmatrix} 0.250 \\ 0.313 \end{pmatrix} \cdot in$

2nd Mast Arm



$\max(CFI_{arm2}) = 0.00$ CheckMaxCFI_arm2 = "OK" $L_{total.arm2} = 0$ ft $L_{splice.provided.arm2} = 0 \cdot ft$ $\max(\Delta_{arm2}) = 0 \cdot in$

'SA'= 'SE'= $L_{arm2} = \begin{pmatrix} 0 \\ 0 \end{pmatrix} \cdot ft$ CheckSectionLength_arm2 = "N/A"

'SC'= 'SG'= $Diameter_{base.arm2} = \begin{pmatrix} 0.00 \\ 0.00 \end{pmatrix} \cdot in$

'UF'= $\alpha = 0 \cdot deg$ (Angle Between Arms)

'SB'= 'SF'= $Diameter_{tip.arm2} = \begin{pmatrix} 0.00 \\ 0.00 \end{pmatrix} \cdot in$ CheckTipDia_arm2 = "N/A"

'SD'= 'SH'= $t_{wall.arm2} = \begin{pmatrix} 0.000 \\ 0.000 \end{pmatrix} \cdot in$

Luminaire Arm and Connection *(use MC10x33.6 channel for connection)*

$$\begin{pmatrix} CFI_{base.lumarm} \\ CSR_{bolt.lum} \\ D/C_{baseplate.lum} \\ D/C_{conn.plate.lum} \end{pmatrix} = \begin{pmatrix} 0.67 \\ 0.05 \\ 0.80 \\ 0.72 \end{pmatrix}$$

'LA'= $Y_{luminaire} = 40\,ft$

'LB'= $X_{luminaire} = 11.2ft$

'LC'= $Diameter_{base.lumarm} = 3 \cdot in$

'LD'= $t_{wall.lumarm} = 0.1875\,in$

'LE'= $Slope_{lumarm} = 1$

'LF'= $r_{lumarm} = 8\,ft$

'LG'= $d_{bolt.lum} = 0.5 \cdot in$

'LH'= $t_{baseplate.lum} = 0.75\,in$

'LJ'= $w_{base.lum} = \frac{1}{4} \cdot in$

'LK'= $w_{channel.lum} = \frac{1}{4} \cdot in$

Upright

$\max(CFI_{pole}) = 0.56$ $Check_{deflection} = "OK"$ $Check_{slope} = "OK"$

'UA'= $Y_{pole} = 39 \cdot ft$

'UB'= $Y_{arm.conn} = 20 \cdot ft$

'UC'= $Diameter_{tip.pole} = 14.6\,in$

'UD'= $Diameter_{base.pole} = 20 \cdot in$

'UE'= $t_{wall.pole} = 0.375\,in$

'UF'= $\alpha = 0 \cdot deg$

'UG'= $Y_{lum.conn} = 34.4ft$

1st Arm to Upright Connection

$D/C_{ht.conn.plate} = 0.77$

$CheckHt_{conn.plate} = "OK"$

$D/C_{width.conn.plate_0} = 1.00$

$CheckWidth_{conn.plate_0} = "OK"$

$$\begin{pmatrix} D/C_{t.baseplate.arm_0} \\ CFI_{t.vert.plate_0} \\ CSR_{bolt.conn_0} \end{pmatrix} = \begin{pmatrix} 0.83 \\ 0.39 \\ 0.26 \end{pmatrix}$$

'HT'= $h_{conn.plate} = 22 \cdot in$

$\#Bolts_{conn_0} = 6$

'FJ'= $b_{conn.plate_0} = 29 \cdot in$

'FK'= $t_{baseplate.arm_0} = 3 \cdot in$

'FL'= $t_{vertical.plate_0} = 0.75\,in$

'FN'= $w_{vertical.plate_0} = \frac{5}{16} \cdot in$

'FO'= $Offset_{conn_0} = 16.0\,in$

'FP'= $d_{bolt.conn_0} = 1.25\,in$

'FR'= $t_{conn.plate_0} = 2 \cdot in$

'FS'= $Spacing_{bolts.conn_0} = 8.5 \cdot in$

'FT'= $w_{conn.plate_0} = \frac{5}{16} \cdot in$

2nd Arm to Upright Connection

$D/C_{width.conn.plate_1} = 0.00$

$CheckWidth_{conn.plate_1} = "OK"$

$$\begin{pmatrix} D/C_{t.baseplate.arm_1} \\ CFI_{t.vert.plate_1} \\ CSR_{bolt.conn_1} \end{pmatrix} = \begin{pmatrix} 0.00 \\ 0.00 \\ 0.00 \end{pmatrix}$$

'HT'= $h_{conn.plate} = 22 \cdot in$

$\#Bolts_{conn_1} = 0$

'SJ'= $b_{conn.plate_1} = 0 \cdot in$

'SK'= $t_{baseplate.arm_1} = 0 \cdot in$

'SL'= $t_{vertical.plate_1} = 0 \cdot in$

'SN'= $w_{vertical.plate_1} = 0 \cdot in$

'SO'= $Offset_{conn_1} = 0.0 \cdot in$

'SP'= $d_{bolt.conn_1} = 0 \cdot in$

'SR'= $t_{conn.plate_1} = 0 \cdot in$

'SS'= $Spacing_{bolts.conn_1} = 0 \cdot in$

'ST'= $w_{conn.plate_1} = 0 \cdot in$

Pole Base Plate

$CSR_{anchor} = 0.31$

$CheckCSR_{anchorbolt} = "OK"$

'#Bolts'= $\#AnchorBolts = 6$

$Diameter_{boltcircle.pole} = 28 \cdot in$

'BA'= $Diameter_{baseplate.pole} = 36 \cdot in$

'BB'= $t_{baseplate.pole} = 2.5 \cdot in$

'BC'= $d_{anchorbolt} = 2.00 \cdot in$

'BF'= $L_{embedment.anchor} = 40 \cdot in$

$L_{anchor.bolt} = 58 \cdot in$

Foundation

$D/C_{torsion.max} = 0$

$CheckD/C_{shear.and.torsion} = "OK"$

$CheckReinfClearSpacing = "OK"$

$CheckLongReinf_{shr.tor} = "OK"$

$CheckMaxSpacingTransvReinf = "OK"$

$OverlapDesign = "Based on Overlap of Failure Cones"$

$OverlapTest = "Overlap of Failure Cones"$

$BreakoutTest = "OK"$

$Clearance_{csl.to.nut} = 5.5 \cdot in$

$Offset = 0.5\ ft$

$d_{long.bar} = 1.41 \cdot in$

$Dia_{bar.circle} = 45.3 \cdot in$

'DA'= $L_{shaft} = 20.5 \cdot ft$

'DB'= $Diameter_{shaft} = 5 \cdot ft$

'RA'= $round\left(\frac{d_{long.bar}}{0.125in}\right) = 11$

'RB'= $\#LongBars_{prov} = 19$

'RC'= $\#Spaces_{vbar_1} = 10$

'RD'= $s_{v_1} = 6 \cdot in$

'RE'= $\#Spaces_{vbar_2} = 10$

'RF'= $s_{v_2} = 9 \cdot in$

Fatigue

$Check_{galloping.arm1} = "OK"$

$Check_{nwg.arm1} = "OK"$

$Check_{galloping.arm2} = "NA"$

$Check_{nwg.arm2} = "NA"$

$Check_{galloping.pole} = "OK"$

$Check_{nwg.pole} = "OK"$

$Check_{g.conn.bolt} = \begin{pmatrix} "OK" \\ "OK" \end{pmatrix}$

$Check_{nwg.conn.bolt} = \begin{pmatrix} "OK" \\ "OK" \end{pmatrix}$

$Check_{g.anchor} = "OK"$

$Check_{nwg.anchor} = "OK"$

K1 values within 2% of LTS thresholds may use next higher CAFT values

$$CheckK1Values = \begin{pmatrix} "K1 \text{ is outside of 2\% of K1 thresholds}" \\ "K1 \text{ is outside of 2\% of K1 thresholds}" \\ "K1 \text{ is outside of 2\% of K1 thresholds}" \end{pmatrix}$$

$$\begin{pmatrix} K_{I.arm1} \\ K_{I.arm2} \\ K_{I.pole} \end{pmatrix} = \begin{pmatrix} 3.201 \\ 100.000 \\ 6.307 \end{pmatrix} \begin{pmatrix} "Arm\ 1\ Base\ Weld" \\ "Arm\ 2\ Base\ Weld" \\ "Upright\ Base\ Weld" \end{pmatrix}$$

WRITE to Special Mast Arm Assembly Data Tables

Mast Arm Tip Deflection

Compare Mast Arm deflection of each arm to a proposed camber

$Camber_{arm1} := 2 \cdot deg$ $Camber_{arm2} := 2 \cdot deg$

$Deflection_{arm1} := Slope_x \cdot L_{total.arm1} + \max(\Delta_{arm1}) = 10.4 \cdot in$

$CamberArm1_{upward} := \sin(Camber_{arm1}) \cdot L_{total.arm1} = 20.9 \cdot in$

$Deflection_{arm2} := \left[Slope_z \cdot L_{total.arm2} \cdot (\sin(\alpha))\right] + Slope_x \cdot L_{total.arm2} \cdot \cos(\alpha) + \max(\Delta_{arm2}) = 0 \cdot in$

$CamberArm2_{upward} := \sin(Camber_{arm2}) \cdot L_{total.arm2} = 0 \cdot in$

Check Clearance Between Connection Plates *(for Two Arm Structures only)*

$\alpha = 0 \cdot deg$ $\alpha := if[(\alpha > 180 \cdot deg), (360 \cdot deg - \alpha), \alpha]$

$Offset_{conn_0} = 16 \cdot in$ $b_{conn.plate_0} = 29 \cdot in$ $h_{conn.plate} = 22 \cdot in$ $\alpha = 0 \cdot deg$

$Offset_{conn_1} = 0 \cdot in$ $b_{conn.plate_1} = 0 \cdot in$

$x1 := Offset_{conn_0} - t_{conn.plate_0} - h_{conn.plate} \cdot \frac{\sin(Camber_{arm1})}{2} = 13.6 \cdot in$ $y1 := \frac{b_{conn.plate_0}}{2} = 14.5 \cdot in$

$x2 := \left(Offset_{conn_1} - t_{conn.plate_1} - h_{conn.plate} \cdot \frac{\sin(Camber_{arm2})}{2}\right) \cdot \cos(\alpha) + \frac{b_{conn.plate_1}}{2} \cdot \sin(\alpha) = -0.4 \cdot in$

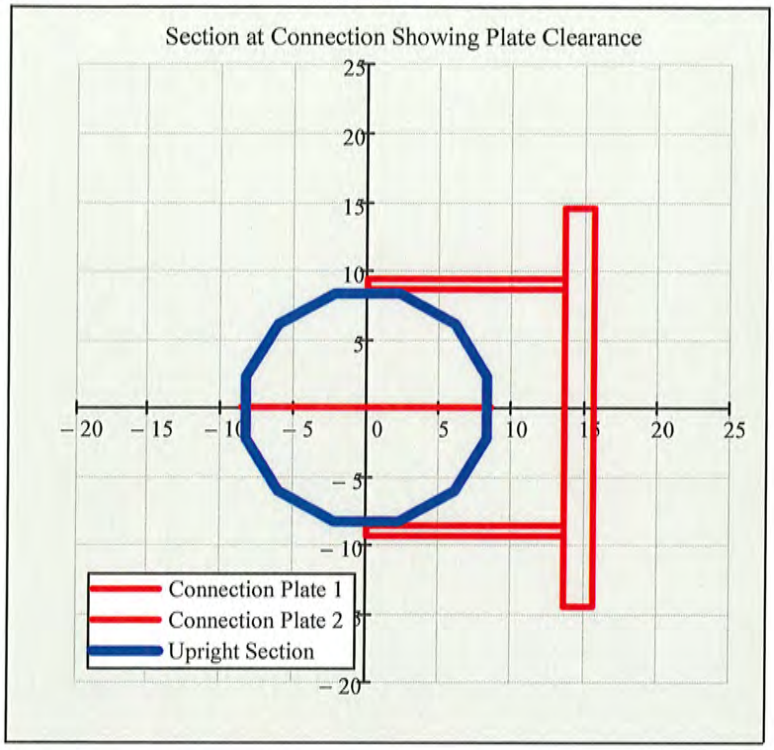
$y2 := \left(Offset_{conn_1} - t_{conn.plate_1} - h_{conn.plate} \cdot \frac{\sin(Camber_{arm2})}{2}\right) \cdot \sin(\alpha) - \frac{b_{conn.plate_1}}{2} \cdot \cos(\alpha) = 0 \cdot in$

$Clearance_{plate.to.plate} := if\left[(x1 > x2) \cdot (y2 > y1), \sqrt{(x1 - x2)^2 + (y1 - y2)^2}, 0 \cdot in\right] = 0 \cdot in$

(if Clearance < 2 inches, a redesign is required.

Coordinates for Drawings

Plan View - Connection Plate Clearance for Two Arm Connections



$Clearance_{plate.to.plate} = 0 \cdot in$

$Diameter_{conn.pole} = 17.2 \cdot in$

'FR'= $t_{conn.plate_0} = 2 \cdot in$

'FJ'= $b_{conn.plate_0} = 29 \cdot in$

'FL'= $t_{vertical.plate_0} = 0.75 \cdot in$

'FO'= $Offset_{conn_0} = 16.0 \cdot in$

$Gap_0 = 7.4 \cdot in$

'SR'= $t_{conn.plate_1} = 0 \cdot in$

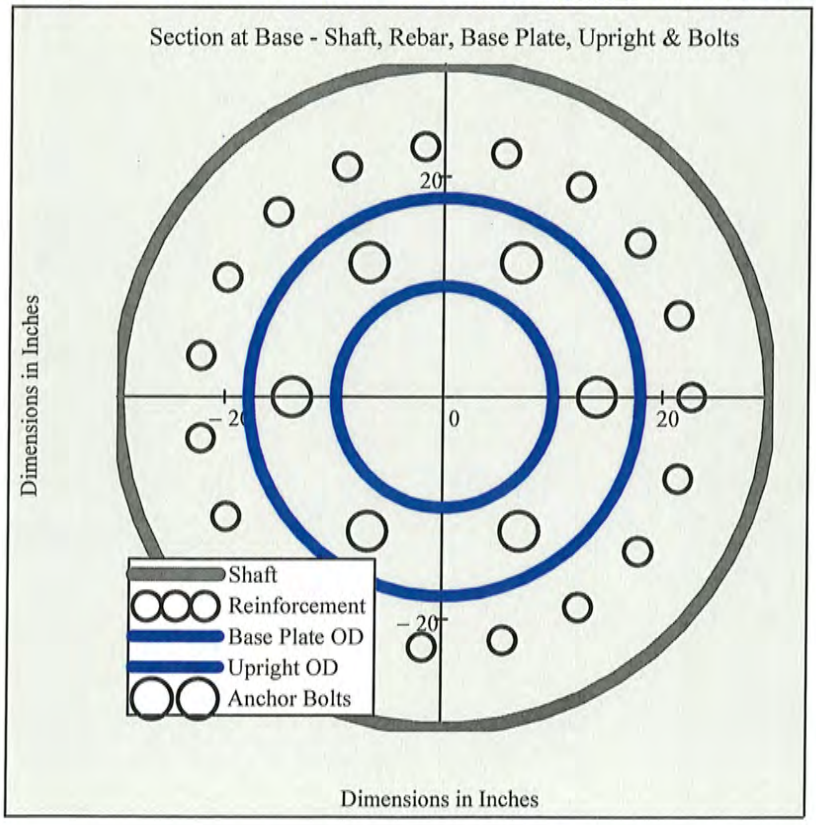
'SJ'= $b_{conn.plate_1} = 0 \cdot in$

'SL'= $t_{vertical.plate_1} = 0 \cdot in$

'SO'= $Offset_{conn_1} = 0.0 \cdot in$

$Gap_1 = 0 \cdot in$

Plan View - Drilled Shaft, Base Plate, Upright, Anchor Bolts, & Reinforcing Steel



$Clearance_{bar.to.nut} = 6.1 \cdot in$

'UD'= $Diameter_{base.pole} = 20 \cdot in$

'BA'= $Diameter_{baseplate.pole} = 36 \cdot in$

'DB'= $Diameter_{shaft} = 60 \cdot in$

$Diameter_{boltcircle.pole} = 28 \cdot in$

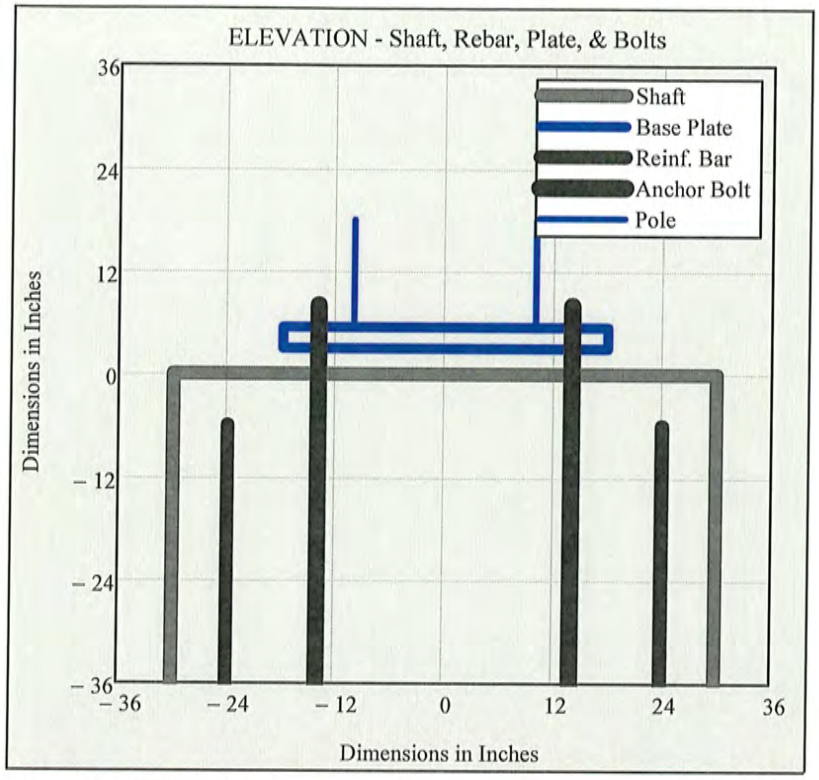
$Dia_{bar.circle} = 45.3 \cdot in$

$\#AnchorBolts = 6$

$\#LongBars_{prov} = 19$

Note: The Plan and Elevation Views do not show the 4 or 5 1.9" O.D. Nondestructive Integrity Testing Access Tubes that are tied to the inside of the reinforcing cage (see FDOT Spec 455-16.4).

Elevation View - Drilled Shaft, Base Plate, Anchor Bolts, & Reinforcing Steel



$Clearance_{bar.to.nut} = 6.1 \cdot in$

'UD'= $Diameter_{base.pole} = 20 \cdot in$

'BA'= $Diameter_{baseplate.pole} = 36 \cdot in$

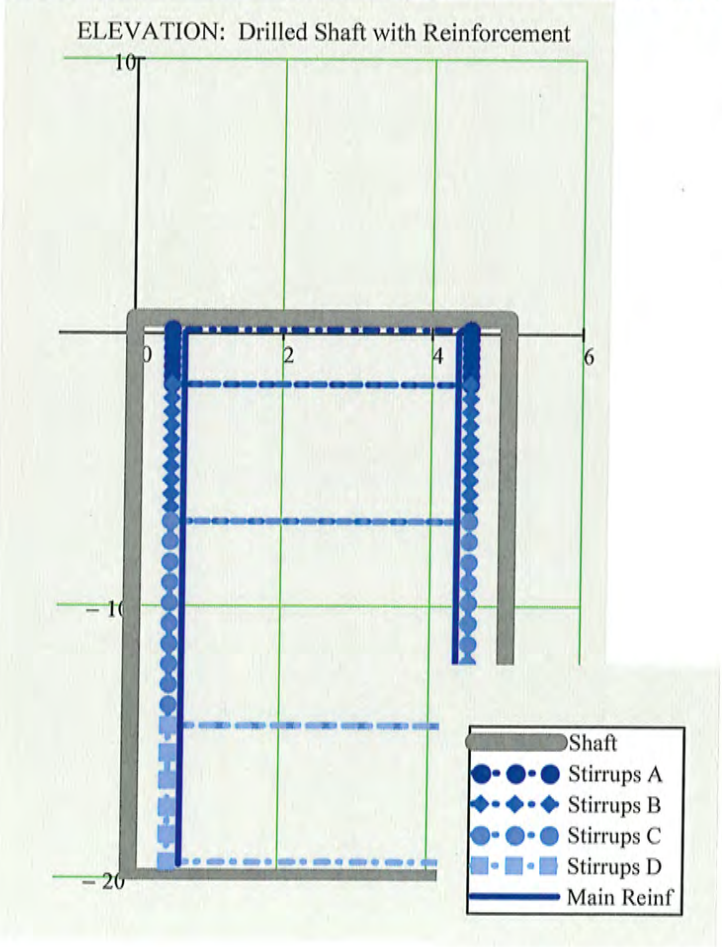
'BB'= $t_{baseplate.pole} = 2.5 \cdot in$

'DB'= $Diameter_{shaft} = 60 \cdot in$

$Diameter_{boltcircle.pole} = 28 \cdot in$

$Dia_{bar.circle} = 45.3 \cdot in$

Elevation View - Drilled Shaft with Main Reinforcement and Stirrups



$$s_v = \begin{pmatrix} 4 \\ 6 \\ 9 \\ 12 \end{pmatrix} \cdot in$$ *stirrup spacing*

$$\#Spaces_{vbar} = \begin{pmatrix} 6 \\ 10 \\ 10 \\ 5 \end{pmatrix}$$ *number of stirrup spaces*

5.0 GENERAL SUBSURFACE CONDITIONS

Boring logs derived from the field exploration are presented in Appendix B: "Report of Core Borings". The boring logs depict the observed soils in graphic detail. The Standard Penetration Test borings indicate the penetration resistance, or N-values, logged during the drilling and sampling activities. The classifications and descriptions shown on the logs are generally based upon visual characterizations of the recovered soil samples. All soil samples reviewed have been depicted and classified in general accordance with the Unified Soil Classification System, modified as necessary to describe typical southwest Florida conditions. See Appendix C: "Discussion of Soil Groups", for a detailed description of various soil groups.

The subsurface soil conditions encountered at this site generally consists of very loose to dense sands (SP) with some (if any) shell fragments to the boring termination depths. Please refer to Appendix B: "Report of Core Borings" for a detailed account of each boring.

On the dates of the field exploration, the groundwater table was encountered at depths of approximately 2 feet 6 inches to 4 feet 1 inches below the existing ground surface. The groundwater table will fluctuate seasonally depending upon local rainfall and other site specific and/or local influences such as tidal events. Brief ponding of stormwater may occur across the site after heavy rains.

No additional investigation was included in the scope of work in relation to the wet seasonal high groundwater table or any existing well fields in the vicinity. Well fields may influence water table levels and cause significant fluctuations. If a more comprehensive water table analysis is necessary, please contact UES for additional guidance.

6.0 ENGINEERING PROPERTIES

The soil properties, based on the samples obtained and the recorded N-values were averaged and are presented on the boring logs corresponding to the soils and rock types encountered. The soil properties presented include: cohesive strength, c, in pounds per square foot (psf); the angle of internal friction, ø, in degrees; the total unit weight, γt, in pounds per cubic foot (pcf) and the soil buoyant unit weight, γb, in pcf. The following tables present generalized conditions for each boring. These tables are also presented in Appendix B: "Report of Core Borings".

Soil Design Parameters: Soil Boring B-1					
Depth Below Ground Surface (feet)	SPT Range (N-value)	Approx. Soil Unit Wt.		Angle of Internal Friction (degrees)	Cohesion (psf)
		γt (pcf)	γb (pcf)		
0 - 2	6	102	48	30	---
2 - 4 & 8 - 13	2 - 3	101	47	29	---
4 - 6	11	103	49	31	---
6 - 8 & 13 - 18	13 - 14	104	50	32	---
18 - 28	21 - 23	106	52	34	---
28 - 35	33 - 38	110	56	38	---

Soil Design Parameters: Soil Boring B-2					
Depth Below Ground Surface (feet)	SPT Range (N-value)	Approx. Soil Unit Wt.		Angle of Internal Friction (degrees)	Cohesion (psf)
		γt (pcf)	γb (pcf)		
0 – 8	6 - 8	102	48	30	---
8 – 13 & 18 - 23	3 - 4	101	47	29	---
13 - 18	10	103	49	31	---
23 - 28	26	107	53	36	---
28 - 33	14	104	50	32	---
33 - 35	20	106	52	34	---

Soil Design Parameters: Soil Boring B-3					
Depth Below Ground Surface (feet)	SPT Range (N-value)	Approx. Soil Unit Wt.		Angle of Internal Friction (degrees)	Cohesion (psf)
		γt (pcf)	γb (pcf)		
0 - 2	3	101	47	29	---
2 – 6	7 - 8	102	48	30	---
6 - 23	5 - 6	101	47	30	---
23 – 28 & 33 - 35	17	105	51	33	---
28 - 33	21	106	52	34	---

Soil Design Parameters: Soil Boring B-4					
Depth Below Ground Surface (feet)	SPT Range (N-value)	Approx. Soil Unit Wt.		Angle of Internal Friction (degrees)	Cohesion (psf)
		γt (pcf)	γb (pcf)		
0 - 6	---	---	---	---	---
6 – 13	2	100	46	29	---
13 – 18	8	102	48	30	---
18 – 23	11	103	49	31	---
23 – 33	32 – 33	109	55	38	---
33 – 35	17	105	51	33	---

UES has performed hand augers in the upper 6 feet at one of the test boring location (B-4), where UES was uncertain of the presence of utilities. The SPT values were not recorded at those depths due to hand angering procedures. UES recommends the following soil design parameters (**Approximate Soil Unit Weight: Moist (Yt) – 101 pcf, Submerged (Yb) – 47 pcf, Angle of Internal Friction – 30 Degrees**) at the locations where soil design parameters are not shown in the tables above (where hand augers were performed). These soil design parameters are based on the assumption of SPT N-value of 5 to 6 at the hand auger locations.

7.0 REPORT LIMITATIONS

This consulting report has been prepared for the exclusive use of the current project owners and other members of the design team for installation of new mast-arm traffic signalization on each side of the intersection of Harbor View Road & Kings Highway in Charlotte Harbor, Charlotte County, Florida. This report has been prepared in accordance with generally accepted local geotechnical engineering practices; no other warranty is expressed or implied. The evaluation submitted in this report, is based in part upon the data collected during a field exploration, however, the nature and extent of variations throughout the subsurface profile may not become evident until the time of construction. If variations then appear evident, it may be necessary to reevaluate information and professional opinions as provided in this report. In the event changes are made in the nature, design, or locations of the proposed structure, the evaluation and opinions contained in this report shall not be considered valid, unless the changes are reviewed and conclusions modified or verified in writing by UES. UES is not responsible for damage caused by soil improvement and/or construction activity vibrations related to this project. UES is also not responsible for damage concerning drainage or moisture related issues for the proposed or nearby structures.

UES should be provided the opportunity to review the final foundation design drawings and specifications to determine whether UES's recommendations have been properly interpreted, communicated and implemented. If UES is not afforded the opportunity to participate in construction related aspects of foundation installation as recommended in this report or any report addendum, UES will accept no responsibility for the interpretation of the recommendations made in this report or on a report addendum for foundation performance.

CORPORATE OFFICE
Punta Gorda, FL

FLORIDA OFFICES
DeFuniak Springs
Fort Myers
Jacksonville
Lakeland
Miami
Punta Gorda
Tallahassee
Tampa

MEMORANDUM

DATE: May 22, 2024

TO: Zach Patchell, P.E. (Zach.Patchell@charlottecountyfl.gov)

FROM: Ryan Anloague, P.E. (ryan@fteinc.net)

COPY: Jody Mansell (Jody.Mansell@charlottecountyfl.gov)
Gary Ng, P.E. (gary@fteinc.net)

SUBJECT: **Kings Hwy. at Harborview Rd. – Charlotte County**
100% Plans Photometric Analysis

FTE is pleased to submit the attached photometric analysis for the subject project. The analysis was prepared consistent with criteria presented in the FDOT Design Manual, Section 231.2.

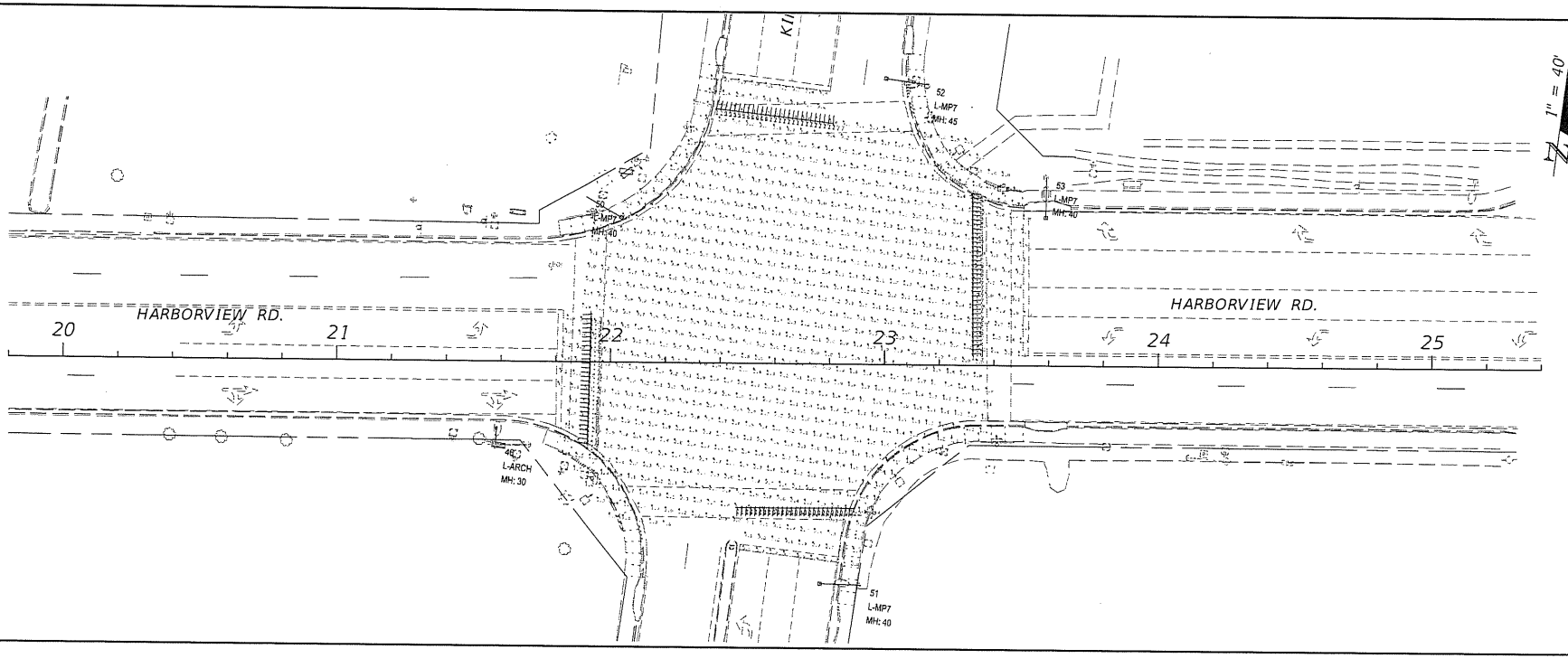
Below is a summary of the intersection included within this project. The minimum lighting criteria was satisfied for the signalized intersection as well as the pedestrian crossings on the intersection approaches.

Intersection Location	Horizontal Illuminance	Vertical Illuminance
Kings Hwy. at Harborview Rd.	Avg: 2.67hfc (Satisfied)	EB Thru: 1.65vfc (Satisfied)
	Avg/Min: 2.43:1 (Satisfied)	NB Thru: 1.39vfc (Satisfied)
	Max/Min: 3.64:1 (Satisfied)	SB Thru: 1.64vfc (Satisfied)
		WB Thru: 1.47vfc (Satisfied)

The lighting criteria from the FDOT Design Manual, Part 2, Table 231.2.1 Lighting Initial Values along with the Minimum Mounting Heights Based on Maximum Candela, Table 231.2.2, are attached. The proposed luminaires are LED. Details of the luminaires to be utilized are attached.

Proposed lighting work at the intersection will be completed by the Charlotte County contractor. Florida Power & Light (FPL) was identified as the power provider and the maintaining agency responsible for two of the power poles near the intersection. Preferred luminaire IES information was provided by both Charlotte County and FDPL for FTE to utilize in the AGI32 lighting analysis. The County contractor will be installing two LED luminaire retrofits and one new luminaire and bracket arm onto a proposed signal pole in the NW corner. FPL will be installing a new luminaire and bracket arm to the north of the intersection on an existing power pole. The proposed FPL luminaire is to be connected to FPL's existing lighting circuit. Please note adjacent Charlotte County lighting project PO No. 2021000867 will also be addressing other lighting improvements for the intersection and the surrounding corridor roadways.

Should you have any questions relating to our analysis, please feel free to contact me at (813) 989-0729, ext. 113. I look forward to serving you further on this project.



Calculation Summary							
Project: Kings Hwy at Harbor View Intersection							
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
Kings at Harborview Intersection	Illuminance	Fc	2.67	4.0	1.1	2.43	3.64
Kings Hwy at Harborview EB	Illuminance	Fc	1.65	1.8	1.3	1.27	1.38
Kings Hwy at Harborview NB	Illuminance	Fc	1.39	1.6	1.2	1.16	1.33
Kings Hwy at Harborview SB	Illuminance	Fc	1.64	1.7	1.5	1.09	1.13
Kings Hwy at Harborview WB	Illuminance	Fc	1.47	1.7	1.1	1.34	1.55

Luminaire Schedule						
Symbol	Qty	Label	Arrangement	Total Lamp Lumens	LLF	Description
	1	ARCH-M-PA2-130-730-U-T3	SINGLE	N.A.	1.000	ARCH-M, Type IV, 17476 Lum, 131 W, 6' Arm
	4	MGLEDM P7 30K XXXXX FT	SINGLE	N.A.	1.000	Mongoose Medium P7, Type IV, 35702 Lum, 254.92 W, 15' Arm
	1	ATB2 P602 R4 3K	SINGLE	N.A.	1.000	ATB2 P602 R4 3K

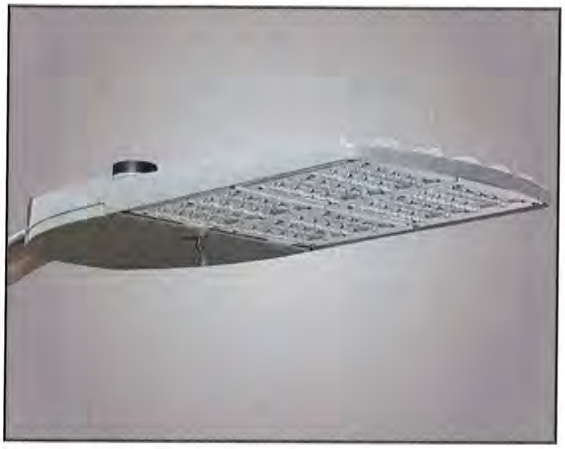
REVISIONS				ENGINEER OF RECORD			
DATE	DESCRIPTION	DATE	DESCRIPTION	RYAN C. ANLOAGUE, P.E. LICENSE NUMBER 92396 FLORIDA TRANSPORTATION ENGINEERING, INC. 11458 NORTH 53RD STREET TAMPA, FLORIDA 33617	CHARLOTTE COUNTY PUBLIC WORKS DEPARTMENT	PHOTOMETRIC PLAN	SHEET NO.

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

Autobahn Series ATB2
Roadway Lighting

Consistent with LEED® goals & Green Globes™ criteria for light pollution reduction

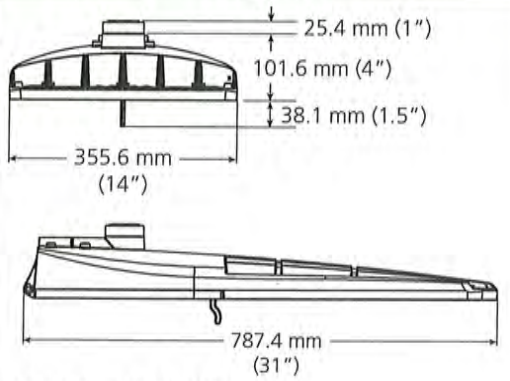
PRODUCT OVERVIEW



Applications:

Roadways
Off ramps
Residential streets
Parking lots

DIMENSIONS



Effective Projected Area (EPA)
The EPA for the ATB2 is 0.78 sq. ft.,
Approx. Wt. = 21 lbs. (9.53 kg)

STANDARDS

DesignLights Consortium® (DLC) Premium qualified product. Not all versions of this product may be DLC Premium qualified. Please check the DLC Qualified Products List at www.designlights.org/QPL to confirm which versions are qualified.

Color temperatures of ≤ 3000K must be specified for International Dark-Sky Association certification.

Rated for -40°C to 40°C ambient.
CSA Certified to U.S. and Canadian standards
Complies with ANSI: C136.2, C136.10, C136.14, C136.31, C136.15, C136.37

BUY AMERICAN ACT — Product with the BAA option is assembled in the USA and meets the Buy America(n) government procurement requirements under FAR, DFARS and DOT regulations. Please refer to www.acuitybrands.com/buy-american for additional information.

Note: Specifications subject to change without notice.

Features:

OPTICAL

The Autobahn's new molded silicone optics provide exceptional performance. Silicone optics are superior to other polymeric materials in the areas of; optical efficiency, thermal performance, and reduction in dirt accumulation, all of which can lead to long term lumen degradation and a shift in optical distribution. Also, because silicone allows for the molding of fine details as well as thick sections, it produces the most crisp, clean and well-defined lighting distributions available. Silicone optics paired with modern LED's allow the Autobahn to take full advantage of both technologies.

Same Light: Performance is comparable to 400-1000W HPS roadway luminaires.

White Light: Correlated color temperature - 4000K, or optional 2700K, 3000K or 5000K, all 70 CRI minimum.

Unique IP66 rated LED light engines provided 0% uplight and restrict backlight to within sidewalk depth, providing optimal application coverage and optimal pole spacing.

Available in Type II, III, IIIL, IV, & V roadway distributions.

ELECTRICAL

Expected Life: LED light engines are rated >100,000 hours at 25°C, L70. Electronic driver has an expected life of 100,000 hours at a 25°C ambient.

Lower Energy: Saves an average of 40-60% over comparable HPS platforms.

Robust Surge Protection: Two different surge protection options provide a minimum of ANSI C136.2 10kV/5kA protection. 20kV/10kA protection is also available.

Luminaire ships with a 0-10v dimmable driver. Luminaire is continuous and step dimming capable via A0 option or controls installed on P7 photocontrol receptacle option.

MECHANICAL

Easy to Maintain: Includes standard AEL lineman-friendly features such as tool-less entry, 3 station terminal block and quick disconnects. Bubble level located inside the electrical compartment for easy leveling at installation.

Rugged die-cast aluminum housing is polyester powder-coated for durability and corrosion resistance. Rigorous five-stage pre-treating and painting process yields a finish that achieves a scribe creepage rating of 7 (per ASTM D1654) after over 5000 hours exposure to salt fog chamber (operated per ASTM B117).

Four-bolt mast arm mount is adjustable for arms from 1-1/4" to 2" (1-5/8" to 2-3/8" O.D.) diameter and provides a 3G vibration rating per ANSI C136.31.

Wildlife shield is cast into the housing (not a separate piece).

CONTROLS

NEMA 3 Pin photocontrol receptacle is standard, with the Acuity designed ANSI 7 Pin receptacle optionally available.

Premium solid state locking sale photocontrol - PCSS (10 year rated life). Extreme long life sold state locking style photocontrol - PCLL (20 year rated life).

Optional onboard Adjustable Output module allows the light output and input wattage to be modified to meet site specific requirements, and can also allow a single fixture to be flexibly applied in many different applications.

AEL American Electric Lighting

Autobahn Series ATB2
Roadway Lighting

ORDERING INFORMATION

Series

ATB2 Autobahn LED Roadway

Performance Packages

P601	26,192 lumens nominal
P602	29,188 lumens nominal
P603	33,062 lumens nominal
P604	36,305 lumens nominal
P605	39,786 lumens nominal
P901	30,398 lumens nominal
P902	36,273 lumens nominal
P903	41,215 lumens nominal
P904	45,247 lumens nominal
P905	50,476 lumens nominal

Voltage

MVOLT	Multi-volt, 120-277V
347	347V
480	480V
XVOLT[3]	277V-480V

Optics

R2	Roadway Type II
R3	Roadway Type III
R3L	Roadway Type III Long
R4[2]	Roadway Type IV
R5	Roadway Type V

Options

Color Temperature (CCT)

(Blank)	4000K CCT, 70 CRI Min.
27K	2700K CCT, 70 CRI Min.
3K	3000K CCT, 70 CRI Min.
5K	5000K CCT, 70 CRI Min.

Paint

(Blank)	Gray (Standard)
BK	Black
BZ	Bronze
DDB	Dark Bronze
GN	Green
GI	Graphite
WH	White

Surge Protection

(Blank)	Standard 20kV/10kA SPD
MP	MOV Pack 10kV/5kA

Terminal Block

(Blank)	Terminal Block (Standard)
T2	Wired to L1 & L2 Positions

Misc.

BL	External Bubble Level
HSS	House-Side Shield
NL	Nema Label
XL	Not CSA Certified
HK	Hingekeepers
BAA	Buy America(n) Act Compliant

Misc. (continued)

UMR-XX	8" Horizontal Arm for Round Pole, Painted to match Fixture
UMS-XX	8" Horizontal Arm for Square Pole, Painted to match Fixture
UMR-GALV	8" Horizontal Arm for Round Pole, Galvanized
UMS-GALV	8" Horizontal Arm for Square Pole, Galvanized

Controls

(Blank)	3 Pin NEMA Photocontrol Receptacle (Standard)
P7	7 Pin Photocontrol Receptacle (Dimmable Driver Included)
NR	No Photocontrol Receptacle
AO	Field Adjustable Output
PCSS[1]	Solid State Lighting Photocontrol (120-277V)
PCLL	Solid State Long Life Photocontrol
SH	Shorting Cap

Packaging

(Blank)	Single Unit (Standard)
JP	Job Pack (24/Pallet)

Accessories:

House Side Shields for field installation

ATB260XR2/R3L/R5HSS	for use with P601 - P605, R2, R3L, R5 distributions
ATB2P60XR3HSS	for use with P601 - P605, R3 distribution
ATB0P60XR4HSS	for use with P601 - P505, R4 distribution
ATB290XR2/R3L/R5HSS	for use with P901 - P905, R2, R3L, R5 distributions
ATB2P90XR3HSS	for use with P901 - P905, R3 distribution

Notes

1. Not available in 347 or 480V.
2. Not available with P901 - P905 performance packages
3. XVOLT option only available with P601 and P602 performance packages

American Electric Lighting
AEL Headquarters, One Lithonia Way, Conyers Georgia 30012
www.americanelectriclighting.com Phone: 1-866-HOLOPHANE
Email: TechSupportINF@AcuityBrands.com

Autobahn Series ATB2
Roadway Lighting

PERFORMANCE PACKAGE

ATB2	Distribution	Input Watts	2700K		3000K		4000/5000K	
			Lumens	LPW	Lumens	LPW	Lumens	LPW
P601	R2	175	22,828	131	24,280	139	27,200	156
	R3		22,689	130	25,200	144	27,080	155
	R3L		21,844	125	22,513	129	23,761	136
	R4		23,376	135	23,760	136	24,770	143
	R5		23,291	135	23,810	138	24,680	143
P602	R2	196	24,983	126	26,610	135	30,060	152
	R3		24,831	126	27,770	142	30,020	153
	R3L		24,270	124	24,770	126	26,400	135
	R4		25,697	135	26,280	137	27,230	143
	R5		25,489	135	26,270	138	27,010	144
P603	R2	233	28,442	121	30,430	131	34,020	145
	R3		28,269	121	32,760	141	33,990	145
	R3L		27,087	116	28,050	120	29,464	126
	R4		29,359	124	29,800	126	31,110	132
	R5		29,019	125	29,850	127	30,750	132
P604	R2	263	31,060	118	33,130	126	37,050	140
	R3		30,871	118	35,670	136	36,950	141
	R3L		29,369	112	30,541	116	31,946	121
	R4		32,001	125	32,450	126	33,910	132
	R5		31,690	126	32,790	127	33,580	133
P605	R2	295	33,992	115	36,960	125	39,750	135
	R3		33,785	115	38,670	131	39,910	136
	R3L		31,867	108	33,149	112	34,663	118
	R4		34,728	120	35,430	122	36,800	127
	R5		34,681	121	35,130	122	36,750	128
P901	R2	199	27,147	137	28,470	143	30,430	154
	R3		26,982	135	29,040	146	31,350	157
	R3L		26,100	131	26,603	134	28,390	143
	R5		27,698	141	29,020	146	29,350	149
P902	R2	245	32,512	133	35,070	144	38,090	156
	R3		32,314	132	35,600	145	38,970	159
	R3L		31,000	127	31,344	128	33,720	138
	R5		33,171	137	33,740	138	35,150	145
P903	R2	282	37,007	131	39,380	140	42,990	152
	R3		36,782	130	39,540	140	43,580	154
	R3L		35,238	125	35,154	125	38,330	136
	R5		37,758	134	37,860	134	40,010	142
P904	R2	319	40,420	127	43,410	137	47,220	148
	R3		40,175	126	43,600	137	48,170	151
	R3L		38,327	120	38,078	119	41,690	131
	R5		41,240	132	41,420	132	43,700	140
P905	R2	369	44,573	121	48,390	132	52,380	142
	R3		44,303	120	48,560	132	53,940	146
	R3L		42,886	116	42,455	115	46,649	126
	R5		45,477	128	45,390	127	48,190	136

Note: Individual fixture performance may vary. Specifications subject to change without notice.

ATB2 LLD Multiplier	15C	20C	25C	30C	35C	40C
	1.02	1.01	1.00	0.99	0.98	0.97

To calculate the LLD for a temperature other than 25°C, multiply the LLD @ 25°C (shown in the performance package table) by the LLD multiplier for the selected temperature.

AEL American Electric Lighting®
AEL Headquarters, One Lithonia Way, Conyers Georgia 30012
www.americanelectriclighting.com Phone: 1-866-HOLOPHANE
Email: TechSupportINF@AcuityBrands.com
 ATB2 Rev. 12/19/22

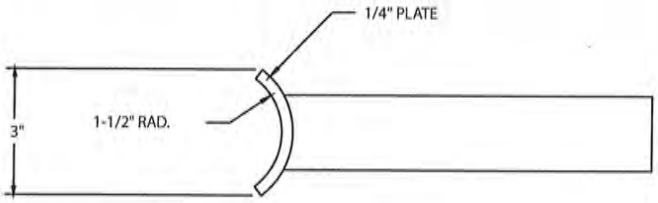
Warranty Five-year limited warranty. This is the only warranty provided and no other statements in this specification sheet create any warranty of any kind. All other express and implied warranties are disclaimed. Complete warranty terms located at: www.acuitybrands.com/support/warranty/terms-and-conditions

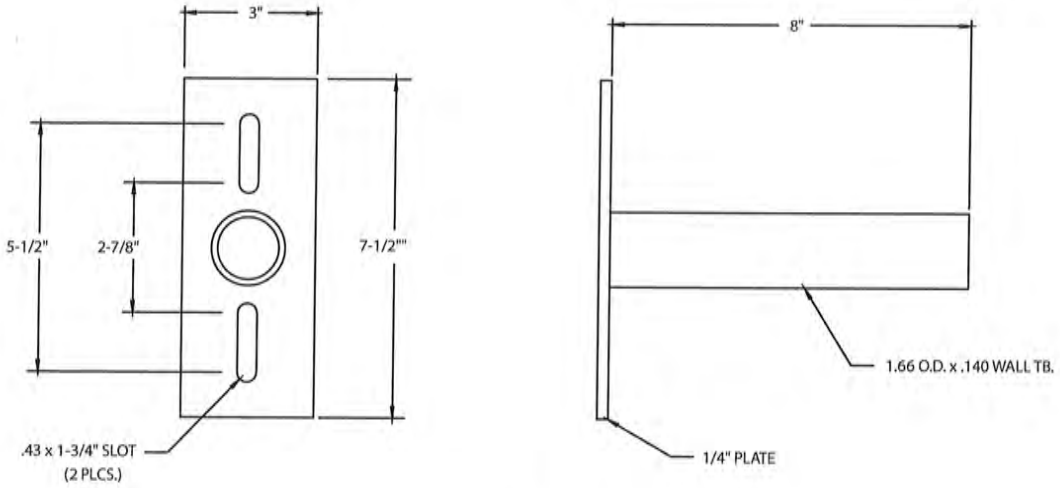
Note: Actual performance may differ as a result of end-user environment and application. All values are design or typical values, measured under laboratory conditions at 25 °C. Specifications subject to change without notice.

Please contact your sales representative for the latest product information.

UMR POLE ADAPTOR

RECOMMENDED FOR USE WITH POLES OF 4" DIAMETER OR SMALLER





UMS POLE ADAPTOR

AEL American Electric Lighting
AEL Headquarters, One Lithonia Way, Conyers Georgia 30012
www.americanelectriclighting.com Phone: 1-866-HOLOPHANE
Email: TechSupportINF@AcuityBrands.com
 ATB2 Rev. 12/19/22

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Please contact your sales representative for the latest product information.

HOLOPHANE®
LEADER IN LIGHTING SOLUTIONS

Catalog Number	
Notes	Type

MGLEDM

Mongoose Medium LED

The Mongoose Medium LED offset roadway and area lighting product provides significant energy and maintenance savings vs. HID luminaires. It offers the ultimate in application flexibility with a uniquely designed advanced optical system and attractive appearance. This combined with multiple lighting distributions, mounting options and the ability to tilt the fixture offers unequalled performance in a diverse set of applications ranging from interstates and parking lots.

Mechanical

- Rugged grade A360 diecast aluminum (<1% copper)
- Tool-less access with stainless steel latches
- Terminal block in arm
- Rigorous 5-stage pretreatment polyester topcoat to ensure maximum durability that achieves a scribe creepage rating of 8 after 5,000 hours of salt spray
- Removable "power tray" facilitates maintenance
- Corrosion resistant stainless-steel latches ensure secure closure over the long fixture life
- Horizontal mast arms or vertical tenon (VH) and universal mounting to round and square poles (UN) options
- Universal mount mates to all major manufacturer's hole patterns
- All Mountings are 3G vibration rated per ANSI C136.31
- Adjustable fixture tilt from 0-45 degrees provides flexibility to optimize lighting performance

Electrical

- Standard surge protection is 20kV/10kA "Extreme Level" per ANSI C136.2
- LED light engines are rated > 100,000 at 25°C, L70
- Electronic driver has an expected life of > 100,000 hours at 25°C
- Rated for -40°C / (-40°F) minimum ambient
- Programmable electronic driver with 0-10V control leads
- Driver voltage options: 120-277V 50/60 Hz and 347 50/60 Hz and 480V 50/60 Hz

Optical

- Performance is comparable to 150-400 watt HPS or 175-1,000 watt MH
- IP66 rated borosilicate glass optics ensure longevity and minimize dirt depreciation
- IP66 rated optics
- Molded Silicone optics: Area (Type 5) (AR), Forward Throw (FT), Medium Roadway (MR), Narrow Roadway (NR) and Wide Roadway (WR)
- Borosilicate glass refractor optics: Area (AG), Forward Throw (FG), Medium Roadway (MG), Narrow Roadway (NG) and Wide Roadway (WG)
- 3000K, 4000K and 5000K CCT, 70 CRI
- Optional Uplight Skirt (US) when used with refractor ensures zero uplight above 90°
- House side shield (HSS), light trespass shield and option available
- Wire guard kit option available

Controls

- 7 pin NEMA photocontrol receptacle
- Premium solid-state locking-style photocontrol (PCSS) – 10 year rated life
- Extreme long life solid state locking-style photocontrol (PCLL) – 20 year rated life
- Field adjustable output
- nLight Air motion and daylight sensor
- Programmable motion and daylight sensor

Certification & Standards

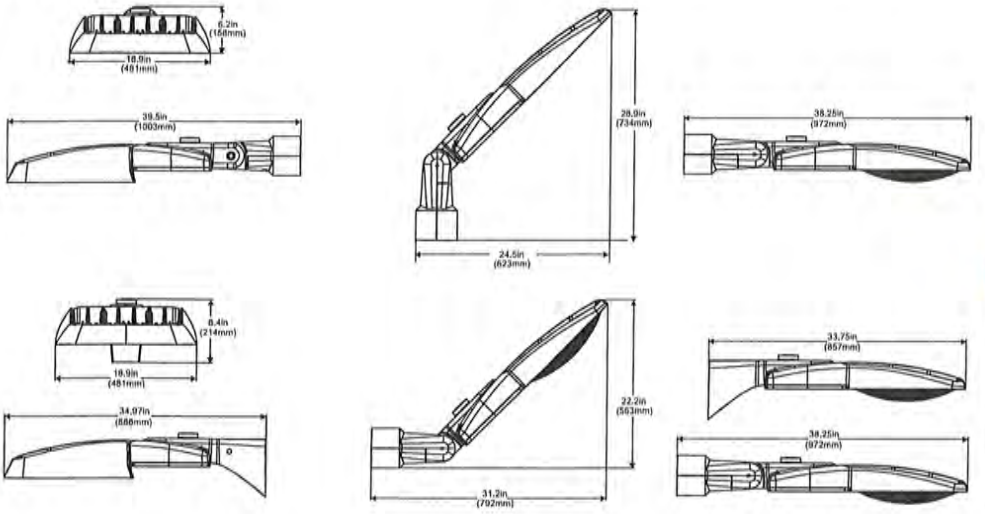
- CSA Certified to US and Canadian standards
- Suitable for operation in an ambient temperature up to 40°C / 104°F for standard product
- Designlights Consortium® (DLC) qualified product. Not all versions of this product may be DLC qualified. Please check the DLC Qualified Products List at www.designlights.org/QPL to confirm which versions are qualified.

Warranty

5-year limited warranty. Complete warranty terms located at: www.acuitybrands.com/support/customer-support/terms-and-conditions

Note: Actual performance may differ as a result of end-user environment and application.
All values are design or typical values, measured under laboratory conditions at 25°C

DIMENSIONAL DATA



Mounting/Optic	Tilt	Weight	EPA
VH	0°	35 lbs.	1.64 sq. ft.
VH with Refractor & US		44 lbs.	
VH	45°	35 lbs.	2.85 sq. ft.
VH with Refractor & US		44 lbs.	
UN	0°	31 lbs.	1.64 sq. ft.
UN with Refractor & US		38 lbs.	

MGLEDM

Mongoose Medium LED

ORDERING INFORMATION

Example: MGLEDM P2 40K MVOLT FT UN GRSD

Series	LED performance package	Color temperature	Voltage	Optics
MGLEDM Mongoose Medium	P1 15,400 Lumens P2 19,000 Lumens P3 22,400 Lumens P4 25,800 Lumens P5 28,900 Lumens P6 31,900 Lumens P7 35,100 Lumens P8 38,000 Lumens	30K 3,000 K CCT 40K 4,000 K CCT 50K 5,000 K CCT	MVOLT Auto-sensing voltage (120 thru 277) 347 347 Volt 480 480 Volt	AG Area with Refractor AR Area FG Forward Throw with Refractor FT Forward Throw MG Medium Roadway with Refractor MR Medium Roadway NG Narrow Roadway with Refractor NR Narrow Roadway WG Wide Roadway with Refractor WR Wide Roadway

Mounting	Super Durable Paint	Options	
VH Vertical Tenon/ Horizontal Arm UN Universal (Rd. & Sq)	GRSD Vitracoat Gray GHSD Vitracoat Graphite BKSD Vitracoat Black GNSD Vitracoat Green WHSD Vitracoat White BZSD Vitracoat Bronze	Adjustable/Programmable Options AO Field Adjustable Output Control Options PCLL DTL Extreme Long Life Twistlock Photocontrol for Solid State (20 year rated life) PCSS DSS Premium Twistlock Photocontrol for Solid State (10 year rated life) POC2[1] Programmable occ. and daylight sensor, for mounting applications up to 20' POC4[1] Programmable occ. and daylight sensor, for mounting applications between 20' & 40' RSDGR nLight Air Occ. and daylight sensor	NEMA Label Options NL NEMA LABEL NEMA Receptacle Options PR7 7-pin Photocontrol Receptacle Shielding Options US Uplight Skirt HSS House Side Shield Shorting Cap Option SH SHORTING CAP

Accessories: *Order as separate catalog number.*	
Wire Guard Kit	
MGLEDM WG	Mongoose Medium Wire Guard Kit
Light Trespass Shield	
MGLEDM LTS	Mongoose Medium Light Trespass Shield
Uplight Skirt	
MGLEDM US GRSD	Mongoose Medium Uplight Skirt, Vitracoat Gray
MGLEDM US GHSD	Mongoose Medium Uplight Skirt, Vitracoat Graphite
MGLEDM US BKSD	Mongoose Medium Uplight Skirt, Vitracoat Black
MGLEDM US GNSD	Mongoose Medium Uplight Skirt, Vitracoat Green
MGLEDM US WHSD	Mongoose Medium Uplight Skirt, Vitracoat White
MGLEDM US BZSD	Mongoose Medium Uplight Skirt, Vitracoat Bronze
House Side Shield	
MGLEDM HSS	Mongoose Medium House Side Shield

Notes

1 For custom programming of the sensor, a wireless handheld configuration tool, Part No. FSIR-100 should be purchased, either from Legrand, or from Acuity (by special request).

MOUNTING OPTIONS

Vertical Tenon/Horizontal Arm Mount – VH
Attaches to 2" vertical tenon or horizontal mast arm (2 3/8" O.D.)

Universal Mount – UN
Attaches to square or 3" minimum round pole

OPTIONS MATRIX

Mounting		SELECTED OPTION (start here)							
		A0	PR7	PCLL	PCSS	POC2	POC4	RSDGR	SH
Controls	A0		Y	Y	Y	N	N	N	Y
	PR7	Y		Y	Y	N	N	N	Y
	PCLL	Y	Y		N	N	N	N	N
	PCSS	Y	Y	N		N	N	N	N
	POC2	N	N	N	N		N	N	N
	POC4	N	N	N	N	N		N	N
	RSDGR	N	N	N	N	N	N		N
	SH	Y	Y	N	N	N	N	N	
Voltage	MVOLT	Y	Y	Y	Y	Y	Y	Y	Y
	347	Y	Y	Y	N	Y	Y	Y	Y
	480	Y	Y	Y	N	Y	Y	Y	Y
Performance Packages	P1	Y	Y	Y	Y	Y	Y	Y	Y
	P2	Y	Y	Y	Y	Y	Y	Y	Y
	P3	Y	Y	Y	Y	Y	Y	Y	Y
	P4	Y	Y	Y	Y	Y	Y	Y	Y
	P5	Y	Y	Y	Y	Y	Y	Y	Y
	P6	Y	Y	Y	Y	Y	Y	Y	Y
	P7	Y	Y	Y	Y	Y	Y	Y	Y
	P8	Y	Y	Y	Y	Y	Y	Y	Y

Y = Valid Option Combination
N = Combination Not available

LUMEN AMBIENT TEMPERATURE (LAT) MULTIPLIERS

Use these factors to determine relative lumen output for average ambient temperatures from 0-40°C (32-104°F).

Temperature		Ambient Temperature (°C) Lumen Multiplier							
°C	°F	P1	P2	P3	P4	P5	P6	P7	P8
0	32	1.03	1.03	1.03	1.03	1.04	1.04	1.04	1.05
5	41	1.02	1.02	1.03	1.03	1.03	1.03	1.03	1.04
10	50	1.02	1.02	1.02	1.02	1.02	1.02	1.03	1.03
15	59	1.01	1.01	1.01	1.01	1.02	1.02	1.02	1.02
20	68	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
25	77	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

PERFORMANCE DATA (continued)

Performance Package	Distribution	Input Watts	30K (3000K CCT, 70 CRI)					40K (4000K CCT, 70 CRI)					50K (5000K CCT, 70 CRI)					LLD @ 25°C		
			Lumens	LPW	B	U	G	Lumens	LPW	B	U	G	Lumens	LPW	B	U	G	50k Hours	75k Hours	100k Hours
P5	AG	206	29,340	142	4	3	2	30,181	147	5	3	3	30,555	148	5	3	3	0.96	0.96	0.95
	AR		31,653	154	5	0	3	32,560	158	5	0	3	32,963	160	5	0	3			
	FG		27,169	132	3	3	5	27,947	136	3	3	5	28,294	137	3	3	5			
	FT		29,497	143	3	0	5	30,342	147	3	0	5	30,718	149	3	0	5			
	MG		28,188	137	3	3	3	28,996	141	3	3	3	29,355	143	3	3	3			
	MR		30,300	147	3	0	3	31,169	151	3	0	3	31,555	153	3	0	3			
	NG		28,615	139	4	3	3	29,436	143	4	3	3	29,800	145	4	3	3			
	NR		30,550	148	4	0	3	31,426	153	4	0	3	31,815	154	4	0	3			
	WG		27,276	132	3	3	3	28,058	136	3	3	3	28,405	138	3	3	3			
	WR		29,465	143	3	0	3	30,309	147	3	0	3	30,685	149	3	0	3			
P6	AG	230	32,375	141	5	3	3	33,303	145	5	3	3	33,715	147	5	3	3	0.96	0.95	0.94
	AR		34,926	152	5	0	3	35,927	156	5	0	3	36,372	158	5	0	3			
	FG		29,978	130	3	3	5	30,838	134	3	3	5	31,220	136	3	3	5			
	FT		32,547	142	3	0	5	33,480	146	3	0	5	33,894	147	3	0	5			
	MG		31,103	135	3	3	3	31,995	139	3	3	3	32,391	141	3	3	3			
	MR		33,434	145	3	0	4	34,392	150	3	0	4	34,818	151	3	0	4			
	NG		31,575	137	4	3	3	32,480	141	4	3	3	32,882	143	4	3	3			
	NR		33,710	147	4	0	3	34,676	151	4	0	3	35,105	153	4	0	3			
	WG		30,097	131	4	3	4	30,960	135	4	3	4	31,343	136	4	3	4			
	WR		32,512	141	3	0	4	33,444	145	3	0	4	33,858	147	4	0	4			
P7	AG	255	35,515	139	5	3	3	36,533	143	5	3	3	36,986	145	5	3	3	0.96	0.95	0.93
	AR		38,314	150	5	0	4	39,412	155	5	0	4	39,900	156	5	0	4			
	FG		32,886	129	3	3	5	33,829	133	4	3	5	34,248	134	4	3	5			
	FT		35,704	140	3	0	5	36,728	144	4	0	5	37,183	146	4	0	5			
	MG		34,120	134	3	3	3	35,098	138	3	3	3	35,533	139	4	3	3			
	MR		36,677	144	3	0	4	37,728	148	3	0	4	38,195	150	3	0	4			
	NG		34,638	136	4	3	3	35,630	140	4	3	3	36,072	141	4	3	3			
	NR		36,980	145	4	0	3	38,040	149	4	0	3	38,511	151	4	0	3			
	WG		33,017	129	4	3	4	33,963	133	4	3	4	34,383	135	4	3	4			
	WR		35,666	140	4	0	4	36,688	144	4	0	4	37,142	146	4	0	4			
P8	AG	280	38,510	138	5	3	3	39,614	141	5	3	3	40,104	143	5	3	3	0.95	0.93	0.92
	AR		41,545	148	5	0	4	42,735	153	5	0	4	43,265	155	5	0	4			
	FG		35,659	127	4	3	5	36,681	131	4	3	5	37,136	133	4	3	5			
	FT		38,715	138	4	0	5	39,824	142	4	0	5	40,318	144	4	0	5			
	MG		36,997	132	4	3	3	38,058	136	4	3	3	38,529	138	4	3	3			
	MR		39,770	142	4	0	4	40,909	146	4	0	4	41,416	148	4	0	4			
	NG		37,558	134	4	3	3	38,635	138	4	3	3	39,113	140	4	3	3			
	NR		40,098	143	4	0	3	41,247	147	4	0	3	41,758	149	4	0	3			
	WG		35,800	128	4	3	4	36,827	132	4	3	4	37,283	133	4	3	4			
	WR		38,673	138	4	0	4	39,782	142	4	0	4	40,274	144	4	0	4			

Project		Catalog #		Type	
Prepared by		Notes		Date	

Streetworks

Archeon Medium

Roadway Luminaire

Product Features

Light ARchitect™

Product Certifications

CERTIFIED · IP66 · 3G VIB · ISTA SYSTEMS CERTIFIED · ida DARK SKY APPROVED

Interactive Menu

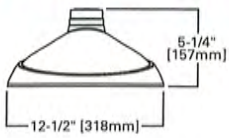
Quick Facts

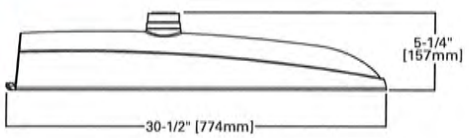
- Die-cast aluminum construction; Single latch tool-less entry
- Replaces up to 400W equivalent HID; -40°C to 40°C operating range
- Pole-mounted; Optional arm and offset adjustable arm mounting
- 120-277V 50/60Hz, 347V 60Hz or 480V 60Hz operation; IP66 rated

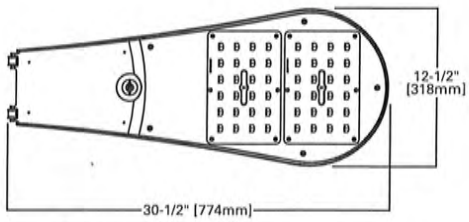
Connected Systems

- WaveLinx
- Enlighted

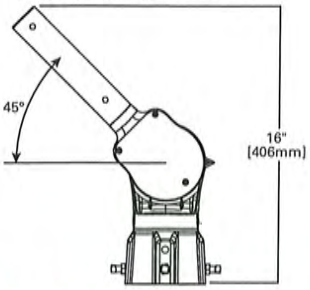
Dimensional Details



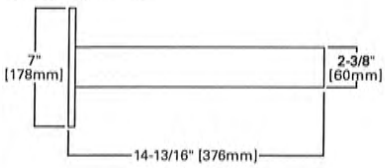




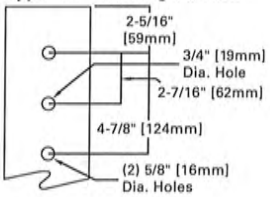
Adjustable Slipfitter Offset Arm



15" Straight Arm



Type "M" - Drilling Pattern



Ordering Information

SAMPLE ORDER NUMBER: **ARCH-M-PA2-40-740-U-T2R-A15-AP-10K-PR**

Product Family [1,2]	Light Engine	Wattage Bucket	Color Temperature	Voltage	Distribution	Mounting	Finish
ARCH-M=Archeon Medium	**PA2**=(2) Direct Mount Rectangle (48 LED)	**40** **50** **60** **70** **80** **90** **100** **110** **120** **130** **140** **150** **160**	**722**=70CRI, 2200K **727**=70CRI, 2700K **730**=70CRI, 3000K **735**=70CRI, 3500K **740**=70CRI, 4000K **750**=70CRI, 5000K **827**=80CRI, 2700K [6] **AMB**=Amber, 590nm [18,25]	**U**=Universal (120-277V) **8**=480V [4,5] **9**=347V [4]	**T2R**=Type II Roadway **T2U**=Type II Urban **T3**=Type III **T4W**=Type IV Wide **5WQ**=Type V Square Wide	**[Blank]**=None **A15**=15" Straight Mast Arm [14] **ASJS15**=Adjustable Slipfitter (Factory set at 15° degrees) **ASJS25**=Adjustable Slipfitter (Factory set at 25° degrees) **ASJS45**=Adjustable Slipfitter (Factory set at 45° degrees)	**AP**=Grey **BZ**=Bronze **BK**=Black **DP**=Dark Platinum **WH**=White

Options (Add as Suffix)

10K=Series 10kV UL 1449 Surge Protective Device
20K=Series 20kV UL 1449 Surge Protective Device
20KI=Series 20kV UL 1449 Surge Protective Device with light indicator
10MSP=Parallel 10kV MOV Surge Protective Device
20MSP=Parallel 20kV MOV Surge Protective Device
K=Level Indicator
HA=50°C High Ambient Temperature
HSS=Factory Install House Side Shield [13]
PSC=Photocontrol Shorting Cap
NPC=NEMA Photocontrol - Multi-Tap
LLPC=Longlife Photocontrol Included
IP66=IP66 Rated Housing
FADC=Field Adjustable Dimming Controller [26]
CC=Coastal Construction [27]

Controls

PR=NEMA 3-PIN Twistlock Photocontrol Receptacle [7]
PR7=NEMA 7-PIN Twistlock Photocontrol Receptacle
SPB1=Dimming Occupancy Sensor with Bluetooth Interface, <8' Mounting [28]
SPB2=Dimming Occupancy Sensor with Bluetooth Interface, 8'-20' Mounting [28]
SPB4=Dimming Occupancy Sensor with Bluetooth Interface, 21'-40' Mounting [28]
MS/DIM-L08=Motion Sensor for Dimming Operation, Maximum 8' Mounting Height [8,9]
MS/DIM-L20=Motion Sensor for Dimming Operation, Maximum 9' - 20' Mounting Height [8,9]
MS/DIM-L40=Motion Sensor for Dimming Operation, Maximum 21' - 40' Mounting Height [8,9]
LWR-LW=Enlighted Wireless Sensor, Wide Lens for 8' - 16' Mounting Heights [8,10,11]
LWR-LN=Enlighted Wireless Sensor, Narrow Lens for 16' - 40' Mounting Heights [8,10,11]
5LTD=DALI [3]
ZD=DALI-enabled 4-PIN Twistlock Receptacle [19,20]
ZW=WaveLinx-enabled 4-PIN Twistlock Receptacle [19,20]
SWPD4XX=WaveLinx Wireless Sensor, 7' - 15' Mounting Height [21,22,23,24]
SWPD5XX=WaveLinx Wireless Sensor, 15' - 40' Mounting Height [21,22,23,24]

Accessories (Order Separately) [17]

OA / RA1013=Photocontrol Shorting Cap OA1223=10kV Surge Module Replacement
OA/RA1014=NEMA Photocontrol - 120V
OA/RA1016=NEMA Photocontrol - Multi-Tap
OA/RA1027=NEMA Photocontrol - 480V
OA/RA1201=NEMA Photocontrol - 347V
OA1223=10kV Surge Module Replacement
A15-XX=Arm (15" Straight Arm) [14,16]
ASJS15-XX=Adjustable slipfitter (Factory set at 15 degrees) [16]
ASJS25-XX=Adjustable slipfitter (Factory set at 25 degrees) [16]
ASJS45-XX=Adjustable slipfitter (Factory set at 45 degrees) [16]
FSIR-100=Wireless Configuration Tool for Occupancy Sensor [17]
HS-ARCH=Field Install ARCH House Side Shield [13,15]
SWPD4XX=WaveLinx Wireless Sensor, 7' - 15' Mounting Height [21,22,23,24]
SWPD5XX=WaveLinx Wireless Sensor, 15' - 40' Mounting Height [21,22,23,24]
VGS-ARCH=Short Vertical Drop Shield
VGL-ARCH=Long Vertical Drop Shield

NOTES:

1. Customer is responsible for engineering analysis to confirm pole and fixture compatibility for all applications. Refer to our white paper WP513001EN for additional support information.
2. Nominal wattage values will be labeled on fixture as per ANSI C136.15. For specific fixture wattage, refer to Power and Lumens table.
3. Only available in universal voltage.
4. Not available at 40W or 50W.
5. Only for use with 480V Wye systems. Per NEC, not for use with ungrounded systems, impedance grounded systems or corner grounded systems (commonly known as Three Phase Three Wire Delta, Three Phase High Leg Delta and Three Phase Corner Grounded Delta systems).
6. Extended lead times may apply.
7. If "PR" selected, dimming functionality not available. Dimming leads will be capped.
8. Only available in Universal voltage.
9. The FSIR-100 accessory is required to adjust parameters.
10. Enlighted wireless system is not available with photocontrol receptacle (not required)
11. Enlighted wireless sensors are factory installed and require network components LWP-EM-1, LWP-GW-1, and LWP-PoE8 in appropriate quantities. See website for Enlighted application information.
12. HA option not available with the following configurations, 347/480V 150W and 160W if paired with HS-ARCH or 5TLD 140 160W.
13. HSS not available with 5WQ distribution.
14. Round pole adapter and mounting hardware included. "M" drill pattern.
15. Archeon Medium requires two house side shields.
16. Replace XX with color designation.
17. This tool enables adjustment of parameters including high and low modes, sensitivity, time delay, cutoff and more. Consult your lighting representative at Cooper Lighting Solutions for more information.
18. Amber 590nm +/- 5nm for wildlife and observatory use. Supplied in PA2-60 wattage bucket only.
19. Utilizes internal step-down transformer when 347V or 480V is selected.
20. Controls system is not available with photocontrol (BPC), photocontrol receptacle (PR or PR7), or other controls systems (MS, ZD, ZW, LWR, DALI, or DIM).
21. Requires 4-PIN twistlock receptacle (ZD or ZW) option.
22. Replace XX with sensor color (WH, BZ or BK).
23. Sensor passive infrared (PIR) may be overly sensitive with operating below -20°C (-4°F).
24. For this device to be field-configurable, requires WAC Gateway components WAC-PoE and WPOE-120 in appropriate quantities. Only compatible with WaveLinx system and software and requires system components to be installed for operation. See website for more WaveLinx application information.
25. Not available with HA option.
26. Cannot be used with motion response control options.
27. Coastal construction finish salt spray tested to over 5,000-hours per ASTM B117, with a scribe rating of 9 per ASTM D1654.
28. Smart device with Sensor Configuration mobile application by Wattstopper required to change system defaults.

Product Specifications

Construction

- Heavy-duty die-cast aluminum housing and door
- Tool-less entry, hinged removable door for easy maintenance
- 3G vibration rated

Optics

- Choice of four patented, high efficiency AccuLED Optics
- Available in Type IIR, IIU, III, IV wide and V square wide the optics are precisely designed to shape the distribution maximizing efficiency and application spacing
- Offered standard in 4000K (+/- 275K) CCT and minimum 70 CRI. Optional 2200K, 2700K,3000K, and 5000K CCT
- For the ultimate level of spill light control, an optional house side shield accessory is available and can be field or factory installed
- Optics are IP66 enclosure rated
- IDA Certified for 3000K CCT and warmer only.

Electrical

- 120-277V 50/60Hz, 347V 60Hz or 480V 60Hz operation
- Standard 0-10V dimming
- 10kV/10kA common- and differential- mode surge protection available
- Ambient operating temperature from -40°C to 40°C; 50°C HA, high ambient, capability available
- Standard with three position tunnel type compression terminal block
- Greater than 98% lumen maintenance expected at 60,000 hours
- Replaces 150W to 400W HID
- Luminaire available with the field adjustable dimming controller (FADC) to manually adjust wattage and reduce the total lumen output and light levels. Comes pre-set to the highest position at the lumen output selected.

Mounting

- Two-bolt/one-bracket slipfitter with cast-in pipe stop and 2.5° leveling steps
- Fixed-in-place bird guard seals around 1-1/4" to 2" (1-5/8" to 2-3/8" O.D.) mounting arms
- Optional 15" pole mount arm available with round pole adapter and mounting hardware included

Finish

- Housing and cast parts finished in five-stage super TGIC polyester powder coat paint, 2.5 mil nominal thickness for superior protection against fade and wear
- Consult your lighting representative at Cooper Lighting Solutions for a complete selection of standard colors

Shipping Data

- Approximate Net Weight: 18 lbs. (8.16 kgs.)
- Effective Projected Area: 0.71 (Sq. Ft.)

Warranty

- Five year limited warranty, consult website for details. www.cooperlighting.com/legal
- Optional ten-year warranty, please see your CLS Streetworks sales representative for more information

Energy and Performance Data

Supplemental Performance Guide

Power and Lumens (PA2 Light Engine)

Light Engine - PA2*		PA2-40	PA2-50	PA2-60	PA2-70	PA2-80	PA2-90	PA2-100	PA2-110	PA2-120	PA2-130	PA2-140	PA2-150	PA2-160
Power (Watts)		38	48	63	73	83	92	101	111	122	131	141	151	161
Wattage Label		40	50	60	70	80	90	100	110	120	130	140	150	160
Input Current @ 120V (A)		0.318	0.399	0.527	0.609	0.693	0.768	0.846	0.925	1.020	1.100	1.180	1.260	1.340
Input Current @ 277V (A)		0.145	0.178	0.243	0.275	0.309	0.342	0.374	0.407	0.453	0.486	0.518	0.553	0.586
Input Current @ 347V (A)		--	--	0.188	0.216	0.245	0.271	0.298	0.325	0.371	0.400	0.428	0.458	0.487
Input Current @ 480V (A)		--	--	0.146	0.165	0.185	0.203	0.222	0.240	0.286	0.304	0.323	0.344	0.363
Optics														
T2R	4000K/5000K Lumens	6,489	8,063	10,434	11,891	13,299	14,714	15,925	17,033	18,278	19,311	20,317	21,323	22,189
	Bug Rating	B1-U0-G1	B1-U0-G2	B1-U0-G2	B2-U0-G2	B2-U0-G2	B2-U0-G2	B2-U0-G2	B2-U0-G2	B2-U0-G2	B2-U0-G3	B2-U0-G3	B2-U0-G3	B2-U0-G3
	3000K Lumens	5,911	7,342	9,502	10,829	12,111	13,400	14,501	15,512	16,646	17,586	18,502	19,418	20,206
	Bug Rating	B1-U0-G1	B1-U0-G2	B1-U0-G2	B1-U0-G2	B2-U0-G2	B2-U0-G2	B2-U0-G2	B2-U0-G2	B2-U0-G2	B2-U0-G2	B2-U0-G3	B2-U0-G3	B2-U0-G3
T2U	4000K/5000K Lumens	6,411	7,965	10,306	11,747	13,138	14,535	15,731	16,826	18,056	19,076	20,070	21,064	21,918
	Bug Rating	B2-U0-G2	B2-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G3
	3000K Lumens	5,838	7,253	9,385	10,698	11,963	13,238	14,325	15,323	16,443	17,373	18,277	19,182	19,961
	Bug Rating	B2-U0-G1	B3-U0-G1	B3-U0-G1	B3-U0-G2	B3-U0-G2	B3-U0-G2	B4-U0-G2	B4-U0-G2	B4-U0-G2	B3-U0-G2	B4-U0-G2	B4-U0-G2	B4-U0-G2
T3	4000K/5000K Lumens	6,649	8,013	10,367	11,816	13,216	14,621	15,825	16,926	18,164	19,190	20,190	21,189	22,050
	Bug Rating	B1-U0-G2	B1-U0-G2	B2-U0-G2	B2-U0-G2	B2-U0-G2	B2-U0-G2	B2-U0-G3	B2-U0-G3	B2-U0-G3	B2-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G3
	3000K Lumens	5,873	7,297	9,441	10,761	12,036	13,317	14,410	15,415	16,542	17,476	18,388	19,297	20,081
	Bug Rating	B1-U0-G2	B1-U0-G2	B2-U0-G2	B2-U0-G2	B2-U0-G2	B2-U0-G2	B2-U0-G2	B2-U0-G2	B2-U0-G3	B2-U0-G3	B2-U0-G3	B3-U0-G3	B3-U0-G3
T4W	4000K/5000K Lumens	6,416	7,971	10,313	11,756	13,147	14,547	15,742	16,839	18,070	19,091	20,085	21,080	21,936
	Bug Rating	B1-U0-G2	B1-U0-G2	B2-U0-G3	B2-U0-G3	B2-U0-G3	B2-U0-G3	B2-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G4
	3000K Lumens	5,843	7,259	9,392	10,706	11,973	13,247	14,336	15,334	16,455	17,385	18,292	19,197	19,977
	Bug Rating	B1-U0-G2	B1-U0-G2	B2-U0-G3	B2-U0-G3	B2-U0-G3	B2-U0-G3	B2-U0-G3	B2-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G3
5WQ	4000K/5000K Lumens	6,619	8,223	10,640	12,127	13,563	15,007	16,241	17,372	18,642	19,694	20,721	21,747	22,629
	Bug Rating	B3-U0-G1	B3-U0-G2	B4-U0-G2	B4-U0-G2	B4-U0-G2	B4-U0-G2	B4-U0-G3	B4-U0-G3	B4-U0-G3	B4-U0-G3	B5-U0-G3	B5-U0-G3	B5-U0-G3
	3000K Lumens	6,029	7,489	9,690	11,043	12,353	13,666	14,789	15,820	16,977	17,935	18,870	19,804	20,609
	Bug Rating	B3-U0-G1	B3-U0-G2	B4-U0-G2	B4-U0-G2	B4-U0-G2	B4-U0-G2	B4-U0-G3	B4-U0-G3	B4-U0-G3	B4-U0-G3	B4-U0-G3	B5-U0-G3	B5-U0-G3

Lumen Maintenance

Light Engine	Ambient Temperature	TM-21 Lumen Maintenance (60,000 Hours)	Theoretical L70 (Hours)
PA2	Up to 40°C	> 98%	> 800,000

Lumen Multiplier

Ambient Temperature	Lumen Multiplier
0°C	1.02
10°C	1.01
25°C	1.00
40°C	0.99
50°C	0.97

FADC Settings

FADC Position	Percent of Typical Lumen Output
1	25%
2	48%
3	56%
4	65%
5	75%
6	80%
7	85%
8	90%
9	95%
10	100%

Note: +/-5% typical value

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PURCHASING DIVISION

Charlotte County Administration Center
18500 Murdock Circle
Port Charlotte, Florida 33948-1094

Telephone (941) 743-1378
Facsimile (941) 743-1384

FEBRUARY 6, 2025

TO: PROSPECTIVE BIDDERS

RE: BID 20250062 KINGS HIGHWAY AND HARBORVIEW ROAD INTERSECTION IMPROVEMENTS

BID DUE DATE: FEBRUARY 19, 2025, ADDENDUM NO. 1

Bidders are hereby notified that this addendum shall be made a part of the above-named proposal and contract documents.

The following is issued to modify, and/or clarify the proposal and contract documents. These items shall have the same force and effect as the original Bid and contract documents, and Bids to be submitted on the specified date shall conform with the additions, deletions and revisions as listed herein.

QUESTIONS AND ANSWERS:
Q1. Would the County consider allowing the Awarded Contractor to delay the start date up to 150 calendar days to accommodate the 26-week lead times for the mast arms?

A1. The Contract Time of 195 calendar days includes lead time for the purchase of the mast arms. The Awarded Contractor will have enough time to complete the project as materials can be ordered once the Notice to Proceed is issued. While waiting for the orders to come in, the Awarded Contractor will be able to start on other aspects of the project. This will be discussed more in depth at the pre-construction meeting.

Q2. What is the current anticipated start date?
A2. The anticipated start date will be determined at the pre-construction meeting with the Awarded Contractor and the Project Manager. The department is looking to get this started as quickly as possible.

This addendum is binding and is to be considered as if contained within the original quote documents of Bid No. 20250062. **Bidders are required to acknowledge receipt of this addendum on their Bid Forms.**

Kimberly Corbett

Kimberly A. Corbett, C.P.M., CPPB
Senior Division Manager - Purchasing

KAC/ss

cc: File

BID FORM
KINGS HIGHWAY AND HARBORVIEW ROAD INTERSECTION IMPROVEMENTS
BID NO. 20250062

TO: Senior Division Manager - Purchasing
Board of County Commissioners
Charlotte County Administration Center
18500 Murdock Circle
Port Charlotte, Florida 33948-1094

ORIGINAL

The undersigned, as bidder, does hereby declare that he has read the Request for Bids, Instructions to Bidders, General Provisions, Special Provisions, Technical Specifications & Conditions, State Requirements, Insurance, Safety & Health Requirements, Bid Form, Plans, Permit Fees, MOT Policy, and any other documentation for

KINGS HIGHWAY AND HARBORVIEW ROAD INTERSECTION IMPROVEMENTS

and further agrees to furnish all items listed on the attached Bid Form in accordance with the unit price(s) submitted. The above specified documents are herein incorporated into the Bid Form and shall be defined as the contract documents.

TOTAL AMOUNT:

ONE MILLION FOUR HUNDRED THIRTY FIVE THOUSAND FOUR HUNDRED EIGHTY SIX DOLLARS AND NINTY FIVE CENTS (TYPE/PRINT) $ 1,435,486.95 (NUMERIC)

Completion Time is 195 calendar days.

Notice Needed Prior to Commencement: 30 **calendar days.**

Liquidated Damages $1,690 per calendar day.

Please indicate by (√) that you have included the following documentation with your bid:

(X) License Requirement: FDOT Certified

NOTE: In accordance with Florida Statues, Section 119.071(1)(b)2: Sealed bids, proposals, or replies received by an agency pursuant to a competitive solicitation are exempt from s. 119.071(1)(b)2 and s. 24(a), Art. I of the State Constitution, except as provided by Florida Statutes 255.0518, until such time as the agency provides notice of an intended decision or until 30 days after opening the bids, proposals, or final replies, whichever is earlier. Upon release of the intended decision, if you wish to obtain the quote results, you may do so by visiting our Website at http://purchasingbids.charlottecountyfl.gov/ under "Purchasing Bids Online", document number 250624. No information regarding the submittal will be divulged over the telephone.

OPTIONAL ELECTRONIC BID SUBMISSIONS: If your firm would like to submit your bid electronically, please visit http://bit.ly/3TYAyKa and follow given instructions.

Name of Bidder: Andrew Sitework, LLC.
(This form to be returned)

Summary of Bid Items for Kings Highway and Harborview Road Intersection Improvements

BID ITEM	DESCRIPTION	QTY	UOM	UNIT COST	EXTENDED
ROADWAY					
102-1	Maintenance of Traffic	1	LS	$ 95,000.00	$ 95,000.00
104-10-3	Sediment Barrier	284	LF	$ 2.68	$ 761.12
104-18	Inlet Protection System	6	EA	$ 391.53	$ 2,349.18
110-1-1	Clearing and Grubbing	1	LS	$ 63,965.44	$ 63,965.44
120-1	Excavation/Embankment	1	LS	$ 35,050.40	$ 35,050.40
160-4-8	Type B Stabilization LBR 70 (8")	261	SY	$ 67.76	$ 17,685.36
327-70-6	Milling Existing Asphalt Pavement, 1.5" Average Depth	2,398	SY	$ 6.43	$ 15,419.14
331-2B	Asphaltic Concrete, Type S-III, 1.5" Thickness	198	TN	$ 246.40	$ 48,787.20
520-1-10	Concrete Curb and Gutter, Type F	305	LF	$ 95.32	$ 29,072.60
522-1	Concrete Sidewalk, 4" Thick	250	SY	$ 135.69	$ 33,922.50
570-1-2	Performance Turf, Sod	75	SY	$ 74.78	$ 5,608.50
SIGNALIZATION					
630-2-11	Conduit, F and I, Open Trench	13	LF	$ 329.23	$ 4,279.99
630-2-12	Conduit, F and I, Directional Bore	347	LF	$ 50.51	$ 17,526.97
632-7-1	Signal Cable, New or Reconstructed Intersection, F and I	1	PI	$ 19,076.29	$ 19,076.29
632-7-6	Signal Cable, Remove, Intersection	1	PI	$ 4,106.26	$ 4,106.26
641-2-80	Prestressed Concrete Pole, 30' and Greater, Complete Removal	4	EA	$ 16,133.04	$ 64,532.16
646-1-11	Aluminum Signal Pole, Pedestal	8	EA	$ 3,593.74	$ 28,749.92
646-1-60	Aluminum Signal Pole, Remove	7	EA	$ 1,202.43	$ 8,417.01
649-21-6	Steel Mast Arm Assembly, F and I, Single Arm 50'	2	EA	$ 125,511.23	$ 251,022.46
649-21-10	Steel Mast Arm Assembly, F and I, Single Arm 60'	2	EA	$ 127,966.61	$ 255,933.22
650-1-14	Traffic Signal, F and I, Aluminum, 3 Section, 1 Way	12	AS	$ 2,404.86	$ 28,858.32
653-1-11	Pedestrian Signal, F and I LED Countdown, 1 Way	8	AS	$ 1,510.43	$ 12,083.44
660-4-11	Vehicle Detection System, Video, F and I Cabinet Equipment	1	EA	$ 32,392.98	$ 32,392.98
660-4-12	Vehicle Detection System, Video, F and I Above Ground Equipment	4	EA	$ 6,166.16	$ 24,664.64
665-1-11	Pedestrian Detector, F and I, Standard, Pole Mounted Detector Station	8	EA	$ 708.40	$ 5,667.20
670-5-110	Traffic Controller Assembly, F and I, NEMA	1	AS	$ 86,524.59	$ 86,524.59
670-5-600	Traffic Controller Assembly, Remove Controller w/ Cabinet	1	EA	$ 5,309.92	$ 5,309.92
685-1-13	Uninterruptible Power Supply, F and I, Line Interactive w/ Cabinet	1	EA	$ 16,392.99	$ 16,392.99
700-3-201	Sign Panel, F and I Overhead Mount, up to 12 SF	4	EA	$ 1,990.91	$ 7,963.64
700-5-22	Internally Illuminated Sign, F and I, Overhead, 12-18 SF (LED)	4	EA	$ 10,415.33	$ 41,661.32

Name of Bidder: Andrew Sitework, LLC.

(This form to be returned)

Summary of Bid Items for Kings Highway and Harborview Road Intersection Improvements (Continued)

BID ITEM	DESCRIPTION	QTY	UOM	UNIT COST	EXTENDED
SIGNING AND MARKING					
710-A	Painted Pavement Markings First Coat	1	LS	$ 20,389.60	$ 20,389.60
710-B	Painted Pavement Markings Second Coat	1	LS	$ 19,157.60	$ 19,157.60
ITS					
633-8-1	Multi-Conductor Communication Cable, F and I	20	LF	$ 3.70	$ 74.00
635-2-12	Pull and Splice Box, F and I, 24"x36" Cover Size	1	EA	$ 5,271.73	$ 5,271.73
635-2-14	Pull and Splice Box, F and I, 17"x30" Cover Size	2	EA	$ 1,990.91	$ 3,981.82
682-1-153	ITS CCTV Camera, F and I, Dome Enclosure- Non-Pressurized, IP, High Definition	1	EA	$ 9,591.12	$ 9,591.12
684-1-1	ITS Manage Field Ethernet Switch, F and I	1	EA	$ 6,577.65	$ 6,577.65
715-1-12	Conductors, F and I, Insulated No. 8-6 (Blk, Whte, Grn)	29	LF	$ 3.70	$ 107.30
715-5-31	Luminaire and Bracket Arm, Aluminum, F and I, on New/Existing Pole	1	EA	$ 6,399.01	$ 6,399.01
715-11-211	Luminaire, F and I, Replace Existing Luminaire on Existing Pole/Arm, Roadway, Cobra Head	2	EA	$ 3,615.92	$ 7,231.84
TS-33	As-Built Drawings	1	LS	$ 25,564.00	$ 25,564.00
SUB-TOTAL FOR KINGS HIGHWAY AND HARBORVIEW ROAD INTERSECTION IMPROVEMENTS:					$ 1,367,130.43

101-1 Mobilization/Demobilization: The cost for mobilization/demobilization shall be five percent (5%) of the sub-total project cost.

SUB-TOTAL $ 1,367,130.43 **X 5% = $** 68,356.52

KINGS HIGHWAY AND HARBORVIEW ROAD INTERSECTION IMPROVEMENTS TOTAL: **$** 1,435,486.95

Name of Bidder: Andrew Sitework, LLC.

(This form to be returned)

If notified of the acceptance of this bid form, the undersigned agrees to execute a Contract for the stated compensation in the form as prescribed by the County, within the time constraints outlined in Instructions to Bidders.

The signature below is a guarantee that the Bidder will not withdraw his/her bid for a period of 60 days after the scheduled time for opening the bids.

The undersigned agrees, if awarded this bid, to furnish a Performance and Payment Bond in the amount of 100% of the total project price within 14 calendar days after notification of award to the Purchasing Division. The undersigned shall be responsible and bear all costs associated to record Performance and Payment Bond with the Charlotte County Clerk of Court Office. Receipt of said recording shall be furnished to the Purchasing Division.

In accordance with section 287.135, Florida Statutes, the undersigned certifies that the company is not on the Scrutinized Companies with Activities in Sudan List, the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List and does not have business operations in Cuba or Syria (if applicable) or the Scrutinized Companies that Boycott Israel List or is not participating in a boycott of Israel.

Enclosed is a cashier's check or bid bond in the amount of $ 21,532.20 which is not less than 5% of the total bid price, as guarantee that the undersigned will enter into a Contract for the work/material as required in this Bid Document. **Note: Failure to submit a 5% bid bond will be cause for rejection of bid.**

All contract documents (i.e.; performance and payment bond, cashier's check, bid bond) shall be in the name of "Charlotte County".

The undersigned acknowledges receipt of the following addenda, and the cost, if any, of such revisions has been included in the price bid.

Addendum No. 1, Dated 2/6/25; Addendum No. _____, Dated _____; Addendum No. _____, Dated _____

Addendum No. _____, Dated _____; Addendum No. _____, Dated _____; Addendum No. _____, Dated _____

HOLD HARMLESS AGREEMENT: Andrew Sitework, LLC. (name of firm), it's officers and members shall, through the signing of this document by an authorized party or agent, indemnify and hold harmless Charlotte County, a political subdivision of the state of Florida, its officers, agents, employees, and volunteers, from liabilities, damages, losses and costs, including, but not limited to, reasonable attorneys' fees, to the extent caused by the negligence, recklessness, or intentional wrongful misconduct of "ASW" and persons employed or utilized by "ASW" in the performance of this contract Chad M. Baker (name) agrees that the first ten dollars ($10.00) of compensation received under this contract represents specific consideration for this indemnification obligation.

Type of Organization (Please Check One): __Individual Ownership __Joint Venture __Partnership X Corporation

Name of Bidding Firm Andrew Sitework, LLC.

Mailing Address 2511 Palm Ave

Location Address (Same)^

City & State Fort Myers, FL **ZIP** 33916

Telephone: 239-226-1606 Ext. 7 **E-mail:** chad@andrewsitework.com

Signature of person authorized to bind the Company: - Chad M. Baker

Print Name/Title of person authorized to bind the Company: Chad M. Baker - General Manager

Date: February 19th, 2025

(This form to be returned)

BIDDERS SUBCONTRACTOR LIST
KINGS HIGHWAY AND HARBORVIEW ROAD INTERSECTION IMPROVEMENTS
BID NO. 20250062

Will you be employing Subcontractors to perform parts of this project? ☒ **YES** ☐ **NO**

If "Yes", identify each firm below with all requested information. Use additional forms if necessary. The Awarded Contractor shall not change or use subcontractors not identified on this form without prior written approval from Charlotte County. Any request for changes in subcontractors shall be made in writing and approved by the County.

COMPANY NAME:	Kavalo, LLC.		
COMPANY ADDRESS:	6214 Presidential Ct Suite C, Fort Myers, FL 33919		
CONTACT PERSON:	Junior Kavalo		
CONTACT NUMBERS:	**OFFICE:** 239-689-1725	**CELL:**	239-689-1725
CONTACT EMAIL:	junior@kavalollc.com		
WORK TO BE PROVIDED:	Clearing & Grubbing, Excavation & Embankment, Type B Stabilization		

COMPANY NAME:	Ferguson Land Survey		
COMPANY ADDRESS:	806 Franklin St, Clearwater, FL 33756		
CONTACT PERSON:	Timothy Drewett		
CONTACT NUMBERS:	**OFFICE:** 727-230-9606	**CELL:**	727-230-9606
CONTACT EMAIL:	tim@flsurveyors.com		
WORK TO BE PROVIDED:	As-built Survey		

COMPANY NAME:	Paramount Asphalt & Sealcoating		
COMPANY ADDRESS:	1110 Pine Ridge Rd. Suite 204 Naples, FL 34108		
CONTACT PERSON:	Nick Rivenburg		
CONTACT NUMBERS:	**OFFICE:** 239-348-0777	**CELL:**	518-542-6895
CONTACT EMAIL:	nick@paramountsealcoating.com		
WORK TO BE PROVIDED:	Mill & Overlay, Pavement Markings		

Name of Bidder: Andrew Sitework, LLC.
(This form to be returned)

COMPANY NAME:	ACME Barricades		
COMPANY ADDRESS:	3690 Canal St, Fort Myers, FL 33916		
CONTACT PERSON:	Danny Benfield		
CONTACT NUMBERS:	**OFFICE:** 239-479-5266	**CELL:**	dbenfield@acmebarricades.com
CONTACT EMAIL:	dbenfield@acmebarricades.com		
WORK TO BE PROVIDED:	Maintenance of Traffic, Guardrails		

COMPANY NAME:	Slack Electrical		
COMPANY ADDRESS:	17221 Alico Center Rd; Suite 2		
CONTACT PERSON:	Justin Slack		
CONTACT NUMBERS:	**OFFICE:** 239-288-2977	**CELL:**	239-839-8762
CONTACT EMAIL:	jslack@slackelectrical.com		
WORK TO BE PROVIDED:	Signalization, ITS		

COMPANY NAME:	CTI - Construction Testing & Inspection, Inc.		
COMPANY ADDRESS:	509 Sawgrass Corporate Parkway, Sunrise, FL 33328		
CONTACT PERSON:	Jorge Herrera		
CONTACT NUMBERS:	**OFFICE:** 954-835-6000	**CELL:**	305-343-7379
CONTACT EMAIL:	jherrera@ctilabs.net		
WORK TO BE PROVIDED:	Density Testing		

Name of Bidder: Andrew Sitework, LLC.

(This form to be returned)

DRUG FREE WORKPLACE FORM
KINGS HIGHWAY AND HARBORVIEW ROAD INTERSECTION IMPROVEMENTS
BID NO. 20250062

The undersigned vendor in accordance with Florida Statute 287.087 hereby certifies that Andrew Sitework, LLC. (name of business) does:

1. Publish a statement notifying employees that the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance is prohibited in the workplace and specifying the actions that will be taken against employees for violations of such prohibition.

2. Inform employees about the dangers of drug abuse in the workplace, the business's policy of maintaining a drug-free workplace, any available drug counseling, rehabilitation, and employee assistance programs, and the penalties that may be imposed upon employees for drug abuse violations.

3. Give each employee engaged in providing the commodities or contractual services that are under bid a copy of the statement specified in subsection (1).

4. In the statement specified in subsection (1), notify the employees that, as a condition of working on the commodities or contractual services that are under bid, the employee will abide by the terms of the statement and will notify the employer of any conviction of, or plea of guilty or nolo contendere to, any violation of Chapter 893 or of any controlled substance law of the United States or any state, for a violation occurring in the workplace no later than five (5) days after such conviction.

5. Impose a sanction on or require the satisfactory participation in a drug abuse assistance or rehabilitation program if such is available in the employee's community, by any employee who is so convicted.

6. Make a good faith effort to continue to maintain a drug-free workplace through implementation of this section.

As the person authorized to sign the statement, I certify that this firm complies fully with the above requirements.

Signature _____ - Chad M. Baker

Dated February 19th, 2025

Name of Bidder: Andrew Sitework, LLC.

(This form to be returned)

HUMAN TRAFFICKING AFFIDAVIT
for Nongovernmental Entities Pursuant To FS. §787.06

Charlotte County Contract #**20250062**

The undersigned on behalf of the entity listed below, (the "Nongovernmental Entity"), hereby attests under penalty of perjury as follows:

1. I am over the age of 18 and I have personal knowledge of the matters set forth except as otherwise set forth herein.

2. I am an officer or representative of the Nongovernmental Entity and authorized to provide this affidavit on the Company's behalf.

3. Nongovernmental Entity does not use coercion for labor or services as defined in Section 787.06, Florida Statutes.

4. This declaration is made pursuant to Section 92.525, Florida Statutes. I understand that making a false statement in this declaration may subject me to criminal penalties.

Under penalties of perjury, I declare that I have read the foregoing Human Trafficking Affidavit and that the facts stated in it are true.

Further Affiant sayeth naught.

- Chad M. Baker
Signature

Chad M. Baker
Printed Name

General Manager
Title

Andrew Sitework, LLC
Nongovernmental Entity

02/19/25
Date

(this form to be returned)

REFERENCES: KINGS HIGHWAY AND HARBORVIEW ROAD INTERSECTION IMPROVEMENTS

Contractor shall submit a minimum of three (3) recent (within the past five (5) years) references of projects of similar size and scope. Each reference shall include a project description, project location, name and phone number of a contact person, total project amount, and completion date. The County reserves the right to contact references.

1. Project Owner / Company: City of Cape Coral

Name of Contact Person: Jeff Pearson Telephone # 239-574-0709 (Ext. 4709)

Address: 1015 Cultural Park Blvd

City & State: Cape Coral, FL Zip Code:

Project Description: Install of over 4,000 LF of RCP and 85 new drainage structures. Restoration included 5,000 SY of new sidewalk and 6,000 SY of complete road building.

Total Project Amount: $ 6,598,327.00 Completion Date: August 2023

2. Project Owner / Company: City of Arcadia

Name of Contact Person: Julie Karleskint Telephone # 941-960-4893

Address: 23 North Polk Ave

City & State: Arcadia FL Zip Code: 34266

Project Description: Rehab of 15 existing manholes and install of 50 new manholes. This project also included a 36" jack & bore under the existing railroad, excavation of 6" gaseous Force Main and 12,000 LF of gravity sewer. This project included comprehensive roadway restoration.

Total Project Amount: $ 9,416,086.00 Completion Date: March 2024

3. Project Owner / Company: Lee County Utilities

Name of Contact Person: Dewayne Tagg Telephone # 239-533-8261

Address: 2115 Second Street, 1st Floor

City & State: Fort Myers, FL Zip Code: 33901

Project Description: 1,700 LF of 16" open cut Force Main, 6,240 LF of 20" open cut Force Main, and a 600' 20" horizontal directional drill crossing Summerlin Rd., 5,480 LF of 24" open cut reuse main. Restoration of 3,200 SY of roadway resurfacing, 3,555 SY of asphalt sidewalk and 15,000 SY of swale grading.

Total Project Amount: $ 8,581,862.00 Completion Date: March 2023

4. Project Owner / Company: City of Cape Coral

Name of Contact Person: Ronald Kerfoot Telephone # 239-332-4569

Address: 2161 Fowler St.

City & State: Fort Myers, FL Zip Code: 33915

Project Description: Clearing and Grubbing (1.73 AC), 151 CY of Excavation / Embankment, 17 CY of gravity wall. install approx. 46 inlets, 3 manholes, and 3,070 LF of pipe culvert. Abandonment of 4,500 LF of WM piping and installation of WM piping, restoration incuded sidewalk, curb & gutter.

Total Project Amount: $ 1,891,504.00 Completion Date: 2021

Name of Bidder: Andrew Sitework, LLC.

(This form to be returned)

Document A310™ – 2010

Conforms with The American Institute of Architects AIA Document 310

Bid Bond

CONTRACTOR:
(Name, legal status and address)

Andrew Site Work, LLC
2511 Palm Ave
Fort Myers, FL 33916

SURETY:
(Name, legal status and principal place of business)

The Ohio Casualty Insurance Company
175 Berkeley Street
Boston, MA 02116

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

OWNER:
(Name, legal status and address)

Charlotte County Purchasing Division
18500 Murdock Circle, Suite 344
Port Charlotte, FL 33948

BOND AMOUNT: $ 5% Five Percent of Amount Bid

PROJECT:
(Name, location or address, and Project number, if any)

Kings Highway and Harborview Road Intersection Improvements - Bid No. 20250062

The Contractor and Surety are bound to the Owner in the amount set forth above, for the payment of which the Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, as provided herein. The conditions of this Bond are such that if the Owner accepts the bid of the Contractor within the time specified in the bid documents, or within such time period as may be agreed to by the Owner and Contractor, and the Contractor either (1) enters into a contract with the Owner in accordance with the terms of such bid, and gives such bond or bonds as may be specified in the bidding or Contract Documents, with a surety admitted in the jurisdiction of the Project and otherwise acceptable to the Owner, for the faithful performance of such Contract and for the prompt payment of labor and material furnished in the prosecution thereof; or (2) pays to the Owner the difference, not to exceed the amount of this Bond, between the amount specified in said bid and such larger amount for which the Owner 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. The Surety hereby waives any notice of an agreement between the Owner and Contractor to extend the time in which the Owner may accept the bid. Waiver of notice by the Surety shall not apply to any extension exceeding sixty (60) days in the aggregate beyond the time for acceptance of bids specified in the bid documents, and the Owner and Contractor shall obtain the Surety's consent for an extension beyond sixty (60) days.

If this Bond is issued in connection with a subcontractor's bid to a Contractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

When this Bond has been furnished to comply with a statutory or other legal requirement in the location of the Project, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

Signed and sealed this 19th day of February, 2025

(Witness) Janice Dale

(Witness) Michelle Ramirez

Andrew Site Work, LLC
(Principal) *(Seal)*

By:
(Title)

The Ohio Casualty Insurance Company
(Surety) *(Seal)*

By: Brett Rosenhaus
(Title) Brett Rosenhaus Attorney-in-Fact
Surety Phone No. 513-603-2400

This Po[illegible] Attorney limits the acts of those named herein, and they h[illegible] 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: 8208937-964020

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, D. A. Belis; Christian Collins; Brett Rosenhaus; Taylor Rosenhaus

all of the city of Delray Beach state of FL 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, 2022.

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, 2022 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 Plymouth Meeting, 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 19th day of February, 2025.

By: _____
Renee C. Llewellyn, Assistant Secretary

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.

PURCHASING DIVISION

Charlotte County Administration Center
18500 Murdock Circle
Port Charlotte, Florida 33948-1094

Telephone (941) 743-1378
Facsimile (941) 743-1384

FEBRUARY 6, 2025

TO: PROSPECTIVE BIDDERS

RE: BID 20250062 KINGS HIGHWAY AND HARBORVIEW ROAD INTERSECTION IMPROVEMENTS

BID DUE DATE: FEBRUARY 19, 2025, **ADDENDUM NO. 1** ✓

Bidders are hereby notified that this addendum shall be made a part of the above-named proposal and contract documents.

The following is issued to modify, and/or clarify the proposal and contract documents. These items shall have the same force and effect as the original Bid and contract documents, and Bids to be submitted on the specified date shall conform with the additions, deletions and revisions as listed herein.

QUESTIONS AND ANSWERS:
Q1. Would the County consider allowing the Awarded Contractor to delay the start date up to 150 calendar days to accommodate the 26-week lead times for the mast arms?

A1. The Contract Time of 195 calendar days includes lead time for the purchase of the mast arms. The Awarded Contractor will have enough time to complete the project as materials can be ordered once the Notice to Proceed is issued. While waiting for the orders to come in, the Awarded Contractor will be able to start on other aspects of the project. This will be discussed more in depth at the pre-construction meeting.

Q2. What is the current anticipated start date?
A2. The anticipated start date will be determined at the pre-construction meeting with the Awarded Contractor and the Project Manager. The department is looking to get this started as quickly as possible.

This addendum is binding and is to be considered as if contained within the original quote documents of Bid No. 20250062. **Bidders are required to acknowledge receipt of this addendum on their Bid Forms.**

Kimberly Corbett

Kimberly A. Corbett, C.P.M., CPPB
Senior Division Manager - Purchasing

KAC/ss

cc: File

Ron DeSantis, Governor

Melanie S. Griffin, Secretary

Florida dbpr

STATE OF FLORIDA
DEPARTMENT OF BUSINESS AND PROFESSIONAL REGULATION

CONSTRUCTION INDUSTRY LICENSING BOARD

THE UNDERGROUND UTILITY & EXCAVATION CO HEREIN IS CERTIFIED UNDER THE PROVISIONS OF CHAPTER 489, FLORIDA STATUTES

ANDREW, RALPH CHANCEY III

ANDREW SITE WORK, LLC
2511 PALM AVENUE
FORT MYERS FL 33916

LICENSE NUMBER: CUC1224664

EXPIRATION DATE: AUGUST 31, 2026

Always verify licenses online at MyFloridaLicense.com

ISSUED: 07/19/2024

Do not alter this document in any form.

This is your license. It is unlawful for anyone other than the licensee to use this document.

Ron DeSantis, Governor

Melanie S. Griffin, Secretary

Florida dbpr

STATE OF FLORIDA
DEPARTMENT OF BUSINESS AND PROFESSIONAL REGULATION

CONSTRUCTION INDUSTRY LICENSING BOARD

THE GENERAL CONTRACTOR HEREIN IS CERTIFIED UNDER THE
PROVISIONS OF CHAPTER 489, FLORIDA STATUTES

BAKER, CHAD MICHAEL

ANDREW SITE WORK, LLC
2511 PALM AVE
FORT MYERS FL 33916

LICENSE NUMBER: CGC1535669

EXPIRATION DATE: AUGUST 31, 2026

Always verify licenses online at MyFloridaLicense.com

ISSUED: 06/24/2024

Do not alter this document in any form.

This is your license. It is unlawful for anyone other than the licensee to use this document.

E-Verify

Welcome
Ralph Andrew

MENU

Company Information

Company Name
Andrew Sitework

Company ID Number
399745

Doing Business As (DBA) Name
--

DUNS Number
--

Physical Location

Address 1
2511 Palm Ave

Address 2
--

City
Fort Myers

State
FL

Zip Code
33916

County
LEE

Mailing Address

Address 1
--

Address 2
--

City
--

State
--

Zip Code

--

Additional Information

Employer Identification Number
263291871

Total Number of Employees
20 to 99

Perform Verifications for Your Company's Employees
Yes

Parent Organization
--

Organization Designation

Employer Category
None of these categories apply

View / Edit

NAICS Code
221 - UTILITIES

View / Edit

Total Hiring Sites
1

View / Edit

Total Points of Contact
1

View / Edit

View Original MOU Template

Last Login: 06/22/2020 11:09 AM

U.S. Department of Homeland Security

Detail by Officer/Registered Agent Name

Florida Limited Liability Company
ANDREW SITE WORK, LLC

Filing Information

Document Number	L08000082353
FEI/EIN Number	26-3291871
Date Filed	08/28/2008
Effective Date	08/27/2008
State	FL
Status	ACTIVE
Last Event	CORPORATE MERGER
Event Date Filed	12/21/2015
Event Effective Date	NONE

Principal Address

2511 Palm Ave.
FORT MYERS, FL 33916

Changed: 04/14/2015

Mailing Address

2511 Palm Ave.
FORT MYERS, FL 33916

Changed: 04/14/2015

Registered Agent Name & Address

Andrew , Ralph C, III
2061 SE 28th Terrace
Cape Coral, FL 33906

Name Changed: 02/04/2013

Address Changed: 01/07/2019

Authorized Person(s) Detail

Name & Address

Title Manager

ANDREW, RALPH Chancey, III

ANDREW, RALPH Chancey, III
2061 SE 28th Terr
Cape Coral, FL 33906

Annual Reports

Report Year	Filed Date
2022	01/31/2022
2023	02/06/2023
2024	02/12/2024

Document Images

02/12/2024 – ANNUAL REPORT	View image in PDF format
02/06/2023 – ANNUAL REPORT	View image in PDF format
01/31/2022 – ANNUAL REPORT	View image in PDF format
01/29/2021 – ANNUAL REPORT	View image in PDF format
01/16/2020 – ANNUAL REPORT	View image in PDF format
01/07/2019 – ANNUAL REPORT	View image in PDF format
02/07/2018 – ANNUAL REPORT	View image in PDF format
01/06/2017 – ANNUAL REPORT	View image in PDF format
01/22/2016 – ANNUAL REPORT	View image in PDF format
12/21/2015 – Merger	View image in PDF format
04/14/2015 – ANNUAL REPORT	View image in PDF format
12/18/2014 – CORLCDSMEM	View image in PDF format
01/29/2014 – ANNUAL REPORT	View image in PDF format
02/04/2013 – ANNUAL REPORT	View image in PDF format
03/20/2012 – ANNUAL REPORT	View image in PDF format
01/05/2011 – ANNUAL REPORT	View image in PDF format
01/28/2010 – REINSTATEMENT	View image in PDF format
08/28/2008 – Florida Limited Liability	View image in PDF format

Form **W-9**
(Rev. March 2024)
Department of the Treasury
Internal Revenue Service

Request for Taxpayer Identification Number and Certification

Go to *www.irs.gov/FormW9* for instructions and the latest information.

Give form to the requester. Do not send to the IRS.

Before you begin. For guidance related to the purpose of Form W-9, see *Purpose of Form*, below.

Print or type. See *Specific Instructions* on page 3.

1 Name of entity/individual. An entry is required. (For a sole proprietor or disregarded entity, enter the owner's name on line 1, and enter the business/disregarded entity's name on line 2.)

Ralph C. Andrew III

2 Business name/disregarded entity name, if different from above.

Andrew Site Work, LLC

3a Check the appropriate box for federal tax classification of the entity/individual whose name is entered on line 1. Check only **one** of the following seven boxes.

☑ Individual/sole proprietor ☐ C corporation ☐ S corporation ☐ Partnership ☐ Trust/estate

☐ LLC. Enter the tax classification (C = C corporation, S = S corporation, P = Partnership) . . . .

Note: Check the "LLC" box above and, in the entry space, enter the appropriate code (C, S, or P) for the tax classification of the LLC, unless it is a disregarded entity. A disregarded entity should instead check the appropriate box for the tax classification of its owner.

☐ Other (see instructions)

4 Exemptions (codes apply only to certain entities, not individuals; see instructions on page 3):

Exempt payee code (if any)

Exemption from Foreign Account Tax Compliance Act (FATCA) reporting code (if any)

(Applies to accounts maintained outside the United States.)

3b If on line 3a you checked "Partnership" or "Trust/estate," or checked "LLC" and entered "P" as its tax classification, and you are providing this form to a partnership, trust, or estate in which you have an ownership interest, check this box if you have any foreign partners, owners, or beneficiaries. See instructions . . . . . ☐

5 Address (number, street, and apt. or suite no.). See instructions.

2511 Palm Ave

6 City, state, and ZIP code

Fort Myers, FL 33916

Requester's name and address (optional)

7 List account number(s) here (optional)

Part I Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. The TIN provided must match the name given on line 1 to avoid backup withholding. For individuals, this is generally your social security number (SSN). However, for a resident alien, sole proprietor, or disregarded entity, see the instructions for Part I, later. For other entities, it is your employer identification number (EIN). If you do not have a number, see *How to get a TIN*, later.

Note: If the account is in more than one name, see the instructions for line 1. See also *What Name and Number To Give the Requester* for guidelines on whose number to enter.

Social security number

			–			–				

or

Employer identification number

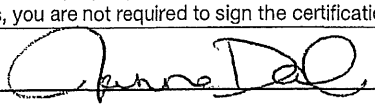
2	6	–	3	2	9	1	8	7	1

Part II Certification

Under penalties of perjury, I certify that:

1. The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me); and
2. I am not subject to backup withholding because (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or (c) the IRS has notified me that I am no longer subject to backup withholding; and
3. I am a U.S. citizen or other U.S. person (defined below); and
4. The FATCA code(s) entered on this form (if any) indicating that I am exempt from FATCA reporting is correct.

Certification instructions. You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and, generally, payments other than interest and dividends, you are not required to sign the certification, but you must provide your correct TIN. See the instructions for Part II, later.

Sign Here | **Signature of U.S. person**  **Date** 01/22/2025

General Instructions

Section references are to the Internal Revenue Code unless otherwise noted.

Future developments. For the latest information about developments related to Form W-9 and its instructions, such as legislation enacted after they were published, go to *www.irs.gov/FormW9*.

What's New

Line 3a has been modified to clarify how a disregarded entity completes this line. An LLC that is a disregarded entity should check the appropriate box for the tax classification of its owner. Otherwise, it should check the "LLC" box and enter its appropriate tax classification.

New line 3b has been added to this form. A flow-through entity is required to complete this line to indicate that it has direct or indirect foreign partners, owners, or beneficiaries when it provides the Form W-9 to another flow-through entity in which it has an ownership interest. This change is intended to provide a flow-through entity with information regarding the status of its indirect foreign partners, owners, or beneficiaries, so that it can satisfy any applicable reporting requirements. For example, a partnership that has any indirect foreign partners may be required to complete Schedules K-2 and K-3. See the Partnership Instructions for Schedules K-2 and K-3 (Form 1065).

Purpose of Form

An individual or entity (Form W-9 requester) who is required to file an information return with the IRS is giving you this form because they

Client#: 1 94 2ANDRESIT

ACORD™ CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 9/12/2024

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer any rights to the certificate holder in lieu of such endorsement(s).

PRODUCER	CONTACT NAME: Pam Gillmore, AIAM	
McGriff Insurance Services LLC 12751 New Brittany Blvd., Suite 201 Fort Myers, FL 33907	PHONE (A/C, No, Ext): 239 433-7169	FAX (A/C, No): 866 802-8680
	E-MAIL ADDRESS: PGillmore@McGriff.com	

INSURER(S) AFFORDING COVERAGE	NAIC #
INSURER A : FCCI Insurance Company	10178
INSURER B : The North River Insurance Company	21105
INSURER C : AXIS Surplus Insurance Company	26620
INSURER D : Brierfield Insurance Company	10993
INSURER E :	
INSURER F :	

INSURED
Andrew Site Work LLC
Andrew Underground LLC
2511 Palm Avenue
Fort Myers, FL 33916-5347

COVERAGES CERTIFICATE NUMBER: REVISION NUMBER:

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSR	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	X COMMERCIAL GENERAL LIABILITY	X	X	GL10008722501	09/15/2024	09/15/2025	EACH OCCURRENCE	$1,000,000
	CLAIMS-MADE X OCCUR						DAMAGE TO RENTED PREMISES (Ea occurrence)	$100,000
	X BI/PD Ded. $1,000						MED EXP (Any one person)	$5,000
							PERSONAL & ADV INJURY	$1,000,000
	GEN'L AGGREGATE LIMIT APPLIES PER:						GENERAL AGGREGATE	$2,000,000
	POLICY PRO-JECT LOC						PRODUCTS - COMP/OP AGG	$2,000,000
	OTHER:							$
D	AUTOMOBILE LIABILITY	X	X	CA10008722701	09/15/2024	09/15/2025	COMBINED SINGLE LIMIT (Ea accident)	$1,000,000
	X ANY AUTO						BODILY INJURY (Per person)	$
	OWNED AUTOS ONLY / SCHEDULED AUTOS						BODILY INJURY (Per accident)	$
	X HIRED AUTOS ONLY / X NON-OWNED AUTOS ONLY						PROPERTY DAMAGE (Per accident)	$
								$
B	X UMBRELLA LIAB X OCCUR			5821240509	09/15/2024	09/15/2025	EACH OCCURRENCE	$6,000,000
	EXCESS LIAB CLAIMS-MADE						AGGREGATE	$6,000,000
	DED RETENTION $							$
A	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY Y/N		X	WC010006777503	04/01/2024	04/01/2025	X PER STATUTE OTH-ER	
	ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? N	N/A					E.L. EACH ACCIDENT	$1,000,000
	(Mandatory in NH)						E.L. DISEASE - EA EMPLOYEE	$1,000,000
	If yes, describe under DESCRIPTION OF OPERATIONS below						E.L. DISEASE - POLICY LIMIT	$1,000,000
A	Rented Equipment			CM10008722601	09/15/2024	09/15/2025	$500,000	
C	Professional			CM005598022024	04/19/2024	04/19/2025	$1,000,000	
	Liability			Claims Made			Retro date 4/19/2023	

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

** Workers Comp Information **

USLH ; Other States Coverage

When required by a written contact, Andrew Site Work LLC is included as Additional Insured on a primary and non-contributory basis with regards to General Liability including ongoing and completed operations. Andrew Site Work LLC and [Name of Owner],[Name of General Contractor],are included as Additional Insured in regards (See Attached Descriptions)

CERTIFICATE HOLDER

** PROPOSAL PURPOSES for:
Andrew Site Work LLC;
Andrew Underground LLC
2511 Palm Avenue
Fort Myers, FL 33916

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

Eric M. Woodling

Lee County
Tax Collector
Noelle Branning

Local Business Tax Receipt

ANDREW SITE WORK LLC
ANDREW SITE WORK LLC
2511 PALM AVE
FT MYERS, FL 33916

Dear Business Owner:

Your **2024 - 2025** Lee County Local Business Tax Receipt is attached below for account number / receipt: number: **1000094 / 1005090**

If there is a change in one of the following, refer to the instructions on the back of this receipt.

- Business name
- Ownership
- Physical location
- Business closed

This is not a bill. Detach the bottom portion and display in a public location.

I hope you have a successful year.

Sincerely,

R. Noelle Branning

Lee County Tax Collector

2024 - 2025
LEE COUNTY LOCAL BUSINESS TAX RECEIPT

Account Number: 1000094
Receipt Number: 1005090
State License Number: cuc1224664

Account Expires: September 30, 2025

Location:
2511 PALM AVE
FT MYERS, FL 33916

May engage in the business of:
UNDERGROUND UTILITY & EXCAVATION CONTRACTOR-CERTIFIE
THIS LOCAL BUSINESS TAX RECEIPT IS NON REGULATORY

ANDREW SITE WORK LLC
ANDREW RALPH CHANCEY III
2511 PALM AVE
FT MYERS, FL 33916

Payment Information:		
PAID	INT-00-02474874	07/22/2024
		$ 50.00

Lee County
Tax Collector
Noelle Branning

Local Business Tax Receipt

ANDREW SITE WORK LLC
ANDREW SITE WORK LLC
2511 PALM AVE
FT MYERS, FL 33916

Dear Business Owner:

Your **2024 - 2025** Lee County Local Business Tax Receipt is attached below for account number / receipt: number: **1000094 / 0900393**

If there is a change in one of the following, refer to the instructions on the back of this receipt.

- Business name
- Ownership
- Physical location
- Business closed

This is not a bill. Detach the bottom portion and display in a public location.

I hope you have a successful year.

Sincerely,

R. Noelle Branning

Lee County Tax Collector

2024-2025
LEE COUNTY LOCAL BUSINESS TAX RECEIPT

Account Number: 1000094
Receipt Number: 0900393
State License Number: 1197760012008

Account Expires: September 30, 2025

Location:
2511 PALM AVE
FT MYERS, FL 33916

May engage in the business of:
FIRE SPRINKLER SYSTEMS CONTRACTOR THIS LOCAL BUSINESS TAX RECEIPT IS NON REGULATORY

ANDREW SITE WORK LLC
ANDREW RALPH CHANCEY III
2511 PALM AVE
FT MYERS, FL 33916

Payment Information:		
PAID	INT-00-02474874	07/22/2024 $ 50.00

Jimmy Patronis
CHIEF FINANCIAL OFFICER
JoAnne Rice
DIVISION DIRECTOR

Bruce Gillingham
BUREAU CHIEF
Ronald Dilworth
SAFETY PROGRAM MANAGER

FLORIDA DEPARTMENT OF FINANCIAL SERVICES
DIVISION OF STATE FIRE MARSHAL
200 EAST GAINES STREET - Tallahassee, Florida 32399-0342
Tel. 850-413-3644

CERTIFICATE OF COMPETENCY
OFFICIAL COPY

THIS CERTIFIES THAT: Ralph C Andrew
2511 Palm Avenue
Ft. Myers FL 33916-5347

BUSINESS ORGANIZATION: Andrew Site Work LLC

Contractor V means a contractor whose business is limited to the execution of contracts requiring the ability to fabricate, install, inspect, alter, repair and service the underground piping for a fire protection system using water as the extinguishing agent beginning at the point of service as defined in the act and ending no more than 1 foot above the finished floor.

Issue Date:	07/01/2024
Type:	09
Class:	14
County:	Lee
License/Permit #:	119776-0001-2008
Expiration Date:	06/30/2026

Jimmy Patronis
Chief Financial Officer

Department of
Environmental Protection
2600 Blair Stone Road, M.S. 3570
Tallahassee, Florida 32399-2400

November 28, 2012

Congratulations on successfully completing the Florida Stormwater Erosion and Sedimentation Control Inspector Training Program. I greatly appreciate your participation in and successful completion of this course. I hope that it has helped you to better understand Florida's stormwater problems and the importance of proper design, construction, and maintenance of erosion and sediment controls during construction, in order to assure the proper long-term operation and maintenance of stormwater systems after construction is completed.

Attached you will find your numbered certificate and wallet card. Please let me know if there are any errors in the certificate or card, or in the grading of your exam. If I can be of further assistance, please do not hesitate to contact me at 850/245-8294 or via email: halton.lunsford@dep.state.fl.us

Brian Brandfass
Andrew Site Work LLC
4696 Elevation Way
Ft. Myers, FL 33905

DEPARTMENT OF
ENVIRONMENTAL PROTECTION
STORMWATER EROSION AND SEDIMENTATION CONTROL
INSPECTOR TRAINING PROGRAM

Brian Brandfass

Class Date *Inspector Number*
November 1, 2012 *27909*

QUALIFIED STORMWATER MANAGEMENT INSPECTOR

QUALIFIED STORMWATER MANAGEMENT INSPECTOR

The undersigned hereby acknowledges that

Brian Brandfass

has successfully met all requirements necessary to be fully qualified through the Florida Department of Environmental Protection Stormwater Erosion and Sedimentation Control Inspector Training Program

November 1, 2012

Inspector Number 27909

Hal Lunsford

Kristine Jones

American Management Resources Corporation

AMRC

Certifies that

Ralph Andrew

Has successfully completed the 8 Hour OSHA Course for handling Class II Asbestos-Containing Materials

CLASS II ASBESTOS WORK
8 Hour OSHA Course

March 25, 2011	4391
Course Date	***Certificate Number***

Josh Snider III

Jack Snider III, CSP,
Course Instructor

March 25, 2011
Exam Date

Training Provided By AMRC
5230 Clayton Court • Fort Myers • Florida • 33907 • (239) 936-8266

FDOT

Florida Department of Transportation

RON DESANTIS
GOVERNOR

605 Suwannee Street
Tallahassee, FL 32399-0450

JARED W. PERDUE, P.E.
SECRETARY

April 17, 2024

ANDREW SITE WORK LLC
2511 PALM AVE.
FORT MYERS, FLORIDA 33916

RE: CERTIFICATE OF QUALIFICATION

The Department of Transportation has qualified your company for the type of work indicated below.

FDOT APPROVED WORK CLASSES:
DRAINAGE, FENCING, GRADING, GRASSING, SEEDING AND SODDING, SIDEWALK, Underground Utilities (Water & Sewer)

Unless notified otherwise, this Certificate of Qualification will expire **6/30/2025.**

In accordance with Section 337.14(4), Florida Statutes, changes to Ability Factor or Maximum Capacity Rating will not take effect until after the expiration of the current certificate of prequalification (if applicable).

In accordance with Section 337.14(1), Florida Statutes, an application for qualification must be filed within (4) months of the ending date of the applicant's audited annual financial statements.

If the company's maximum capacity has been revised, it may be accessed by logging into the Contractor Prequalification Application System via the following link:
HTTPS://fdotwp1.dot.state.fl.us/ContractorPreQualification

Once logged in, select "View" for the most recently approved application, and then click the "Manage" and "Application Summary" tabs.

The company may apply for a Revised Certificate of Qualification at any time prior to the expiration date of this certificate according to Section 14-22.0041(3), Florida Administrative Code (F.A.C.), by accessing the most recently approved application as shown above and choosing "Update" instead of "View." If certification in additional classes of work is desired, documentation is needed to show that the company has performed such work.

All prequalified contractors are required by Section 14-22.006(3), F.A.C., to certify their work underway monthly in order to adjust maximum bidding capacity to available bidding capacity. You can find the link to this report at the website shown above.

Sincerely,

James E. Taylor II

James E. Taylor II, Prequalification Supervisor
Contracts Administration Office

JTII