CONSTRUCTION AND TECHNICAL SPECIFICATIONS

FOR

HELEN McCALL PARK EXPANSION PHASE 1

(**& PHASE 2** - **for** inf**orm**ati**o**nal pu**r**-po**se**s **o**nly)

PREPARED FOR:

WALTON COUNTY

PREPARED BY:

Dewberry

DECEMBER 2025

PROJECT #: 50128135

TABLE OF CONTENTS FOR HELEN McCALL PARK EXPANSION PHASE 1 & PHASE 2

DIVISION 00 - PROCUREMENT AND CONTRACTING REQUIREMENTS		PAGES
Section 00100	Change Order	1-2
Section 00110	General Conditions	1-20
Section 00120	Application for Payment	1-2
Section 00130	Notice of Substantial Completion	1
DIVISION 01 - GENERAL REQUIREMENTS		**PAGES**
Section 01030	Alternates	1
Section 01090	Definitions and Standards	1-4
Section 01155	Schedules, Reports, Payments	1-2
Section 01205	Procedures and Controls	1-4
Section 01340	Submittals	1-2
Section 01605	Products and Substitutions	1-4
Section 01705	Project Closeout	1-4
DIVISION 02 - EXISTING CONDITIONS		**PAGES**
Section 024116	Structure Demolition	1-6
DIVISION 03 - CONCRETE		**PAGES**
Section 033000	Cast-In-Place Concrete-Site	1-15
DIVISION 04 - MASONRY		
Section 042200	Concrete Unit Masonry	1-5
DIVISION 06 - WOOD, PLASTICS, AND COMPOSITES		**PAGES**
Section 061000	Rough Carpentry	1-7
Section 064023	Interior Architectural Woodwork	1-9
DIVISION 07 – THERMAL AND MOISTURE PROTECTION		**PAGES**
Section 072100	Thermal Insulation	1-4
Section 074113.16	Standing-Seam Metal Roof Panels	1-8
Section 076200	Sheet Metal Flashing and Trim	1-5
Section 079200	Joint Sealants	1-9
DIVISION 08 – OPENINGS		**PAGES**
Section 081416	Flush Wood Doors	1-4
Section 087100	Door Hardware	1-10
Section 088000	Glazing	1-8
DIVISION 09 – FINISHES		**PAGES**
Section 092550	Gypsum Board Assemblies	1-13
Section 093013	Ceramic Tiling	1-9
Section 099100	Painting	1-10
DIVISION 10 – SPECIALTIES		**PAGES**
Section 102800	Toilet Accessories	1-2
Section 104416	Fire Extinguishers	1-4
DIVISION 22 – PLUMBING		**PAGES**
Section 221313	Facility Sanitary Sewers	1
Section 221329	Sanitary Sewerage Pumps	1

DIVISION 31 – EARTHWORK		**PAGES**
Section 311000	Site Clearing	1-5
Section 312000	Earth Moving	1-9
Section 312319	Dewatering	1-4
Section 315000	Excavation Support and Protection	1-4

DIVISION 32 – EXTERIOR IMPROVEMENTS		**PAGES**
Section 321216	Asphalt Paving	1-6
Section 321313	Concrete Paving	1-10
Section 331373	Concrete Paving Joint Sealants	1-4
Section 321713	Parking Bumpers	1-2
Section 321723	Pavement Markings	1-3
Section 321726	Tactile Warning Surface	1-6
Section 323113	Chain Link Fences and Gates	1-8
Section 329200	Turf and Grasses	1-11
Section 329250	Sports Fields	1-8

DIVISION 33 – UTILITIES		**PAGES**
Section 331415	Site Water Distribution	1
Section 334200	Stormwater Conveyance	1-10
Section 334600	Subdrainage	1-4

APPENDICIES

APPENDIX A	Geotechnical Report
APPENDIX B	Environmental Resource Permit (ERP)
APPENDIX C	State 404 Permit
APPENDIX D	Walton County Development Order
APPENDIX E	FDEP General Permit
APPENDIX F	Standard Design and Construction Specifications by Regional Utilities, 2022 Edition
APPENDIX G	Fiberglass Doors (AF Composite Doors)
APPENDIX H	Waterproofing (Ultra HT PS)
APPENDIX I	Wall Epoxy
APPENDIX J	Floor Epoxy (Sherwin Williams Epoxy Floor)
APPENDIX K	ADA Lift (Lift V-1504)
APPENDIX L	Windows (PGT Winguard)
APPENDIX M	Kitchen Tops (416-ST4R53096SSK)
APPENDIX N	Elkay Cane Apron
APPENDIX O	Elkay Fountain/Bottle Filler

APPENDIX P Partitions

APPENDIX Q Athletic Field Surfacing

APPENDIX R Chain Link Fences and Gates

APPENDIX S Lawns and Grasses

APPENDIX T Sports Fields

APPENDIX U Dewatering

APPENDIX V Site Subdrainage

CHANGE ORDER

Order No._____

Date:_____

Agreement Date:_____

Name of Project:_____

Owner:_____

Contractor:_____

The following changes are hereby made to the Contract Documents:

Justification:

ORIGINAL Contract Price:_____

PREVIOUS CHANGES to Contract Price:_____

Current Contract Price adjusted by PREVIOUS Change Order:_____

The Contract Price due to this Change Order will be (INCREASED) (DECREASED)

By:_____

The NEW Contract Price including THIS Change Order will be:_____

Change CONTRACT TIME:

The CONTRACT TIME will be (INCREASED) (DECREASED) by:_____

calendar days.

The DATE FOR COMPLETION of all work will be_____
(Date)

Approvals Required:

Owner:_____

Contractor:_____

Engineer:_____

TECHNICAL SPECIFICATIONS FOR HELEN McCALL PARK EXPANSION PHASE 1 AND PHASE 2
SECTION 00110-GENERAL CONDITIONS/WALTON COUNTY

1. Definitions
2. Additional Instructions and Detail Drawings
3. Schedules, Reports, and Records
4. Drawings and Specifications
5. Shop Drawings
6. Materials, Services, and Facilities
7. Inspection and Testing
8. Substitutions
9. Patents
10. Surveys, Permits, Regulations
11. Protection of Work, Property, Persons
12. Supervision by Contractor
13. Changes in the Work
14. Changes in Contract Price
15. Time for Completion and Liquidated Damages
16. Correction of Work
17. Subsurface Conditions
18. Suspension of Work, Termination, and Delay
19. Payments to Contractor
20. Acceptance of Final Payment as Release
21. Insurance
22. Contract Security (Bonds)
23. Assignments
24. Indemnification
25. Separate Contracts
26. Subcontracting
27. Engineer's Authority
28. Land and Rights-of-Way
29. Guarantee
30. Arbitration (Not Applicable)
31. Taxes

1. DEFINITIONS

1.1 Wherever used in the Contract Documents, the following terms shall have the meanings indicated and shall be applicable to both the singular and plural thereof:

1.2 ADDENDA - Written or graphic instruments issued prior to the execution of the Agreement which modify or interpret the CONTRACT DOCUMENTS, DRAWINGS and SPECIFICATIONS, by additions, deletions, clarifications, or corrections.

1.3 BID - The offer or proposal of the BIDDER submitted on the prescribed form setting forth the prices for the WORK to be performed.

1.4 BIDDER - Any person, firm, or corporation submitting a BID for the WORK.

1.5 BONDS - Bid, Performance, and Payment Bonds and other instruments of surety, furnished by the CONTRACTOR and the CONTRACTOR'S surety in accordance with the CONTRACT DOCUMENTS.

1.6 CHANGE ORDER - A written order to the CONTRACTOR authorizing an addition, deletion, or revision in the WORK within the general scope of the CONTRACT DOCUMENTS, or authorizing an adjustment in the CONTRACT PRICE or CONTRACT TIME.

1.7 CONTRACT DOCUMENTS - The contract, including Invitation to BIDS, Instructions to BIDDERS, BID Form and Schedule, Florida BID BOND, Agreement or Contract, Compliance Documents, including Subcontractors and Suppliers Declaration, Public Entity Crimes form, Drug Free Workplace Certification, Trench Safety Compliance, Que4stionnaire, Unauthorized Aliens declaration form, Public Construction BOND, , NOTICE OF AWARD, NOTICE TO PROCEED, CHANGE ORDER, DRAWINGS, SPECIFICATIONS, and ADDENDA.

1.8 CONTRACT PRICE - The total monies payable to the CONTRACTOR under the terms and conditions of the CONTRACT DOCUMENTS.

1.9 CONTRACT TIME - The number of calendar days stated in the CONTRACT DOCUMENTS for the completion of the WORK.

1.10 CONTRACTOR - The person, firm or corporation with whom the OWNER has executed the Agreement.

1.11 DRAWINGS - The parts of the CONTRACT DOCUMENTS which show the characteristics and scope of the WORK to be performed and which have been prepared or approved by the ENGINEER.

1.12 ENGINEER - The person, firm, or corporation named as such in the CONTRACT DOCUMENTS.

1.13 FIELD ORDER - A written order effecting a change in the WORK not involving an adjustment in the CONTRACT PRICE or an extension of the CONTRACT TIME, issued by the ENGINEER to the CONTRACTOR during construction.

1.14 NOTICE OF AWARD - The written notice of the acceptance of the BID from the OWNERS to the successful BIDDER.

1.15 NOTICE TO PROCEED - Written communication issued by the OWNERS to the CONTRACTOR authorizing him/her to proceed with the WORK and establishing the date for commencement of the WORK.

1.16 OWNERS - A public or quasi-public body or authority, corporation, association, partnership, or an individual for whom the WORK is to be performed.

1.17 PROJECT - The undertaking to be performed as provided in the CONTRACT DOCUMENTS.

1.18 RESIDENT PROJECT REPRESENTATIVE - The authorized representative of the OWNERS who is assigned to the PROJECT site or any part thereof.

1.19 SHOP DRAWINGS - All drawings, diagrams, illustrations, brochures, schedules and other data which are prepared by the CONTRACTOR, a SUBCONTRACTOR, manufacturer, SUPPLIER or distributor, which illustrate how specific portions of the WORK shall be fabricated or installed.

1.20 SPECIFICATIONS - A part of the CONTRACT DOCUMENTS consisting of written descriptions of a technical nature of materials, equipment, construction systems, standards and workmanship.

1.21 SUBCONTRACTOR - An individual, firm, or corporation having a direct contract with CONTRACTOR or with any other SUBCONTRACTOR for the performance of a part of the WORK at the site.

1.22 SUBSTANTIAL COMPLETION - That date certified by the ENGINEER when the construction of the PROJECT or a specified part thereof is NINETY (90) PERCENT, and the PROJECT or specified part can be utilized for the purposes for which it is intended in accordance with the CONTRACT DOCUMENTS

1.23 SUPPLEMENTAL GENERAL CONDITIONS - Modifications to General Conditions required by a State agency for participation in the PROJECT and approved by the agency in writing prior to inclusion in the CONTRACT DOCUMENTS, or such requirements that may be imposed by applicable state laws or by the OWNERS' governing regulations.

1.24 SUPPLIER - Any person or organization who supplies materials or equipment for the WORK, including that fabricated to a special design, but who does not perform labor at the site.

1.25 WORK - All labor necessary to produce the construction required by the CONTRACT DOCUMENTS, and all materials and equipment incorporated or to be incorporated in the PROJECT.

1.26 WRITTEN NOTICE - Any notice to any party of the Agreement relative to any part of the Agreement reduced to writing and considered delivered and the service thereof completed

when posted by certified or registered mail to the said party at their last given address, or delivered in person to said party or their authorized representative on the WORK.

2. ADDITIONAL INSTRUCTION AND DETAIL DRAWINGS

2.1 The CONTRACTOR may be furnished additional instructions and detail drawings, by the ENGINEER, as necessary to carry out the WORK required by the CONTRACT DOCUMENTS.

2.2 The additional drawings and instructions thus supplied will become a part of the CONTRACT DOCUMENTS. The CONTRACTOR shall carry out the WORK in accordance with the additional detail drawings and instructions.

3. SCHEDULES, REPORTS AND RECORDS

3.1 The CONTRACTOR shall submit to the OWNERS such schedule of quantities and costs, progress schedules, payrolls, reports, estimates, records and other data where applicable as are required by the CONTRACT DOCUMENTS for the WORK to be performed.

3.2 Within 20 calendar days after the execution of the Contract, the Contractor shall submit an initial (baseline) Progress Schedule in critical path method (CPM) form, using software generally accepted in the construction industry. The schedule shall be submitted to the County for approval prior to the first Application for Progress Payment. The Progress Schedule shall be updated and submitted with each Application for Progress Payment. CONTRACTOR shall include dates at which the various parts of the WORK will be started, estimated date of completion of each part and, as applicable:

3.2.1 The dates at which special detail drawings will be required; and

3.2.2 Respective dates for submission of SHOP DRAWINGS, the beginning of manufacture, the testing and the installation of materials, supplies and equipment.

3.2.3 Within 20 calendar days of execution of this Contract but not less than 15 calendar days before the first Application for Progress Payment is to be submitted, Contractor shall submit to County a Schedule of Values covering various general and specific tasks enumerated by the County. The Schedule of Values shall contain for each enumerated task an estimate of the value that may be ascribed to completion of the task. Said Schedule of Values must be approved by the County prior to the payment of the first Application for Progress Payment. Failure to provide a Schedule of Values acceptable to the County shall result in a delay of first payment until an acceptable Schedule of Values is submitted and approved by County.

3.3 The CONTRACTOR shall also submit a schedule of payments that the CONTRACTOR anticipates will be earned during the course of the WORK.

4. DRAWINGS AND SPECIFICATIONS

4.1 The intent of the DRAWINGS and SPECIFICATIONS is that the CONTRACTOR shall furnish all labor, materials, tools, equipment, and transportation necessary for the proper execution of the WORK in accordance with the CONTRACT DOCUMENTS and all incidental work necessary to complete the PROJECT in an acceptable manner, ready for use, occupancy or operation by the OWNERS.

4.2 In case of conflict between the DRAWINGS and SPECIFICATIONS, the DRAWINGS shall govern. Figure dimensions on DRAWINGS shall govern over general DRAWINGS.

4.3 Any discrepancies found between the DRAWINGS and SPECIFICATIONS and site conditions or any inconsistencies or ambiguities in the DRAWINGS or SPECIFICATIONS shall be immediately reported to the County, in writing, who shall promptly correct such inconsistencies or ambiguities in writing. WORK done by the CONTRACTOR after discovery of such discrepancies, inconsistencies or ambiguities shall be done at the CONTRACTOR'S risk.

5. SHOP DRAWINGS

5.1 The CONTRACTOR shall provide SHOP DRAWINGS as may be necessary for the prosecution of the WORK as required by the CONTRACT DOCUMENTS. The ENGINEER shall promptly review all SHOP DRAWINGS. The ENGINEER'S approval of any SHOP DRAWING shall not release the CONTRACTOR from responsibility for deviations from the CONTRACT DOCUMENTS. The approval of any SHOP DRAWING which substantially deviates from the requirement of the CONTRACT DOCUMENTS shall be evidenced by a CHANGE ORDER.

5.2 When submitted for the ENGINEER'S review, SHOP DRAWINGS shall bear the CONTRACTOR'S certification that he has reviewed, checked and approved the SHOP DRAWINGS and that they are in conformance with the requirements of the CONTRACT DOCUMENTS.

5.3 Portions of the WORK requiring a SHOP DRAWING or sample submission shall not begin until the SHOP DRAWING or submission has been approved by the ENGINEER. A copy of each approved SHOP DRAWING and each approved sample shall be kept in good order by the CONTRACTOR at the site and shall be available to the ENGINEER.

6. MATERIALS, SERVICES AND FACILITIES

6.1 It is understood that, except as otherwise specifically stated in the CONTRACT DOCUMENTS, the CONTRACTOR shall provide and pay for all materials, labor, tools, equipment, water, light, power, transportation, supervision, temporary construction of any nature,

and all other services and facilities of any nature whatsoever necessary to execute, complete, and deliver the WORK within the specified time.

6.2 Materials and equipment shall be so stored as to insure the preservation of their quality and fitness for the WORK. Stored materials and equipment to be incorporated in the WORK shall be located so as to facilitate prompt inspection.

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

6.4 Materials, supplies, or equipment shall be in accordance with samples submitted by the CONTRACTOR and approved by the ENGINEER.

6.5 Materials, supplies, or equipment to be incorporated into the WORK shall not be purchased by the CONTRACTOR or the SUBCONTRACTOR subject to chattel mortgage or under a conditional sale contract or other agreement by which an interest is retained by the seller.

7. INSPECTION AND TESTING

7.1 All materials and equipment used in the construction of the PROJECT shall be subject to adequate inspection and testing in accordance with generally accepted standards, as required and defined in the CONTRACT DOCUMENTS.

7.2 The OWNERS shall provide all inspection and testing services not required by the CONTRACT DOCUMENTS.

7.3 The CONTRACTOR shall provide at the CONTRACTOR'S expense all testing and inspection services required by the CONTRACT DOCUMENTS.

7.4 If the CONTRACT DOCUMENTS, laws, ordinances, rules, regulations or orders of any public authority having jurisdiction require any WORK to specifically be inspected, tested, or approved by someone other than the CONTRACTOR, the CONTRACTOR will give the ENGINEER timely notice of readiness. The CONTRACTOR will then furnish the ENGINEER the required certificates of inspection, testing or approval.

7.5 Inspections, tests, or approvals by the ENGINEER or others shall not relieve the CONTRACTOR from the obligations to perform the WORK in accordance with the requirements of the CONTRACT DOCUMENTS.

7.6 The ENGINEER and the ENGINEER'S representatives will at all times have access to the WORK. In addition, authorized representatives and agents of any participating Federal or State agency shall be permitted to inspect all work, materials, payrolls, records or personnel, invoices of materials, and other relevant data and records. The CONTRACTOR will provide

proper facilities for such access and observation of the WORK and also for any inspection or testing thereof.

7.7 If any WORK is covered contrary to the written instruction of the ENGINEER, it must, if requested by the ENGINEER, be uncovered for the ENGINEER'S observation and replaced at the CONTRACTOR'S expense.

7.8 If the ENGINEER considers it necessary or advisable that covered WORK be inspected or tested by others, the CONTRACTOR, at the ENGINEER'S request, will uncover, expose or otherwise make available for observation, inspection or testing as the ENGINEER may require, that portion of the WORK in question, furnishing all necessary labor, materials, tools, and equipment. If it is found that such WORK is defective, the CONTRACTOR will bear all the expenses of such uncovering, exposure, observation, inspection and testing, and of satisfactory reconstruction. If, however, such WORK is not found to be defective, the CONTRACTOR will be allowed an increase in the CONTRACT PRICE or given an extension of the CONTRACT TIME, or both, directly attributable to such uncovering, exposure, observation, inspection, testing and reconstruction, and an appropriate CHANGE ORDER shall be issued.

8. SUBSTITUTIONS

8.1 Whenever a material, article, or piece of equipment is identified on the DRAWINGS or SPECIFICATIONS by reference to brand name or catalogue numbers, it shall be understood that this is the only acceptable product. In cases where two or more products are identified, then the CONTRACTOR may select from the products identified. Whenever a product is identified on the DRAWINGS or SPECIFICATIONS by reference to a brand name with "or approved equal" appended, then the CONTRACTOR may recommend the substitution of a material, article, or piece of equipment of equal substance and function for those referred to in the CONTRACT DOCUMENTS, and if, in the opinion of the ENGINEER, such material, article, or piece of equipment is of equal substance and function to that specified, the ENGINEER will allow its substitution and use by the CONTRACTOR. The CONTRACTOR will be required to identify selected items by brand name at the time of bidding. No substitutions will be allowed for these items, after the bids are opened.

9. PATENTS

9.1 The CONTRACTOR shall pay all applicable royalties and license fees, and shall defend all suits or claims for infringement of any patent rights and save the OWNERS harmless from loss on account thereof, except that the OWNERS shall be responsible for any such loss when a particular process, design, or product of a particular manufacturer or manufacturers is specified in the CONTRACT DOCUMENTS. However, if the CONTRACTOR has reason to believe that the design, process or products specified is an infringement of a patent, the CONTRACTOR shall be responsible for such loss unless the CONTRACTOR promptly gives such information to the ENGINEER.

10. SURVEYS, PERMITS, REGULATIONS

10.1 The OWNERS shall furnish all boundary surveys and establish all base lines for locating the principal component parts of the WORK together with a suitable number of bench marks adjacent to the WORK as shown in the CONTRACT DOCUMENTS. From the information provided by the OWNERS, unless otherwise specified in the CONTRACT DOCUMENTS, the CONTRACTOR shall develop and make all detail surveys needed for construction such as slope stakes, batter boards, stakes for pipe locations and other working points, lines, elevations, and cut sheets.

10.2 The CONTRACTOR shall carefully preserve bench marks, reference points and stakes and, in case of willful or careless destruction, shall be charged with the resulting expense and shall be responsible for any mistake that may be caused by their unnecessary loss or disturbance.

10.3 Permits and licenses of a temporary nature necessary for the prosecution of the WORK shall be secured and paid for by the CONTRACTOR unless otherwise stated in the SUPPLEMENTAL GENERAL CONDITIONS. (These shall include City and/or County building permits, burn permits, debris disposal permits, etc.) Permits, licenses and easements for permanent structures or permanent changes in existing facilities shall be secured and paid for by the OWNERS, unless otherwise specified. 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 CONTRACT DOCUMENTS are at variance therewith, the CONTRACTOR shall promptly notify the County in writing, and any necessary changes shall be adjusted as provided in Section 13, CHANGES IN THE WORK.

11. PROTECTION OF WORK, PROPERTY, AND PERSONS

11.1 The CONTRACTOR will be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the WORK. The CONTRACTOR will take all necessary precautions for the safety of, and will provide the necessary protection to prevent damage, injury or loss to all employees on the WORK and other persons who may be affected thereby, all the WORK and all materials or equipment to be incorporated therein, whether in storage on or off the site, and other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction.

11.2 The CONTRACTOR will comply with all applicable law, ordinances, rules, regulations, and orders of any public body having jurisdiction. The CONTRACTOR will erect and maintain, as required by the conditions and progress of the WORK, all necessary safeguards for safety and protection. The CONTRACTOR will notify OWNERS of adjacent utilities when prosecution of the WORK may affect them. The CONTRACTOR will remedy all damage, injury or loss to any property caused, directly or indirectly, in whole or part, by the CONTRACTOR, any SUBCONTRACTOR or anyone directly or indirectly employed by any of them or anyone of whose acts any of them may be liable, except damage or loss attributable to the fault of the

CONTRACT DOCUMENTS or the acts or omissions of the OWNERS, of the ENGINEER or anyone employed by either of them or anyone for whose acts either of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of the CONTRACTOR.

11.3 In emergencies affecting the safety of persons or the WORK or property at the site or adjacent thereto, the CONTRACTOR, without special instructions or authorization from the ENGINEER or OWNERS, shall act to prevent threatened damage, injury or loss. The CONTRACTOR will give the ENGINEER prompt WRITTEN NOTICE of any significant changes in the WORK or deviations from the CONTRACT DOCUMENTS caused thereby, and a CHANGE ORDER shall thereupon be issued covering the changes and deviations involved.

12. SUPERVISION BY CONTRACTOR

12.1 The CONTRACTOR will supervise and direct the WORK. He will be solely responsible for the means, methods, techniques, sequences and procedures of construction. The CONTRACTOR will employ and maintain on the WORK a qualified supervisor or superintendent who shall have been designated in writing by the CONTRACTOR as the CONTRACTOR'S representative at the site. The supervisor shall have full authority to act on behalf of the CONTRACTOR and all communications given to the supervisor shall be as binding as if given to the CONTRACTOR. The supervisor shall be present on the site at all times as required to perform adequate supervision and coordination of the WORK.

13. CHANGES IN THE WORK

13.1 The OWNERS may at any time, as the need arises, order changes within the scope of the WORK without invalidating the Agreement. If such changes increase or decrease the amount due under the CONTRACT DOCUMENTS, or in the time required for performance of the WORK, an equitable adjustment shall be authorized by CHANGE ORDER.

13.2 The ENGINEER, also, may at any time, by issuing a FIELD ORDER, make changes in the details of the WORK. The CONTRACTOR shall proceed with the performance of any changes in the WORK so ordered by the ENGINEER unless the CONTRACTOR believes that such FIELD ORDER entitles the CONTRACTOR to a change in CONTRACT PRICE or TIME, or both, in which event the CONTRACTOR shall give the ENGINEER WRITTEN NOTICE thereof within seven (7) days after the receipt of the ordered change. Thereafter the CONTRACTOR shall document the basis for the change in CONTRACT PRICE or TIME within thirty (30) days. The CONTRACTOR shall not execute such changes pending the receipt of an executed CHANGE ORDER or further instruction from the OWNERS.

14. CHANGES IN CONTRACT PRICE

14.1 The CONTRACT PRICE may be changed only by a CHANGE ORDER. The value of any WORK covered by a CHANGE ORDER or of any claim for increase or decrease in the CONTRACT PRICE shall be determined by one or more of the following methods in the order of precedence listed below:

a. Unit prices contained in the bid schedule.
b. A lump sum amount agreed upon by the OWNER and the CONTRACTOR which is substantiated by appropriate documentation and verified by the ENGINEER as being acceptable and in line with industry standards.

15. TIME FOR COMPLETION AND LIQUIDATED DAMAGES

15.1 The date of beginning and the time for completion of the WORK are essential conditions of the CONTRACT DOCUMENTS, and the WORK embraced shall be commenced on a date specified in the NOTICE TO PROCEED.

15.2 The CONTRACTOR will proceed with the WORK at such rate of progress to insure full completion within the CONTRACT TIME. It is expressly understood and agreed, by and between the CONTRACTOR and the OWNERS, that the CONTRACT TIME for the completion of the WORK described herein is a reasonable time, taking into consideration the average climatic and economic conditions and other factors prevailing in the locality of the WORK.

15.3 If the CONTRACTOR shall fail to complete the WORK within the CONTRACT TIME, or extension of time granted by the OWNERS, then the CONTRACTOR will pay to the OWNERS the amount for liquidated damages as specified in the Contract for each calendar day that the CONTRACTOR shall be in default after the time stipulated in the CONTRACT DOCUMENTS.

15.4 The CONTRACTOR shall not be charged with liquidated damages or any excess cost when the delay in completion of the WORK is due to the following and the CONTRACTOR has promptly given WRITTEN NOTICE of such delay to the OWNERS or ENGINEER.

15.4.1 To any preference, priority or allocation order duly issued by the OWNERS.

15.4.2 To unforeseeable causes beyond the control and without the fault or negligence of the CONTRACTOR, including but not restricted to, acts of God, or of the public enemy, acts of the OWNERS, acts of another CONTRACTOR in the performance of a contract with the OWNERS, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, and abnormal and unforeseeable weather; and

15.4.3 To any delays of SUBCONTRACTORS occasioned by any of the causes specified in paragraphs 15.4.1 and 15.4.2 of this article.

16. CORRECTION OF WORK

16.1 The CONTRACTOR shall promptly remove from the premises all WORK rejected by the ENGINEER for failure to comply with the CONTRACT DOCUMENTS, whether incorporated in the construction or not, and the CONTRACTOR shall promptly replace and re-execute the WORK in accordance with the CONTRACT DOCUMENTS and without expense to the OWNERS and shall bear the expense of making good all WORK of other CONTRACTORS destroyed or damaged by such removal or replacement.

16.2 All removal and replacement WORK shall be done at the CONTRACTOR'S expense. If the CONTRACTOR does not take action to remove such rejected WORK within ten (10) days after receipt of WRITTEN NOTICE, the OWNERS may remove such WORK and store the materials at the expense of the CONTRACTOR. The Contractor shall pay for all re-inspection costs.

17. SUBSURFACE CONDITIONS

17.1 The CONTRACTOR shall promptly, and before such conditions are disturbed, except in the event of an emergency, notify the OWNERS by WRITTEN NOTICE of:

17.1.1 Subsurface or latent physical conditions at the site differing materially from those indicated in the CONTRACT DOCUMENTS; or

17.1.2 Unknown physical conditions at the site, of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in WORK of the character provided for in the CONTRACT DOCUMENTS.

17.2 The OWNERS shall promptly investigate the conditions, and if it is found that such conditions do so materially differ and cause an increase or decrease in the cost of, or in the time required for, performance of the WORK, an equitable adjustment shall be made and the CONTRACT DOCUMENTS shall be modified by a CHANGE ORDER. Any claim of the CONTRACTOR for adjustment hereunder shall not be allowed unless the required WRITTEN NOTICE has been given; provided that the OWNERS may, if the OWNERS determine the facts so justify, consider and adjust any such claims asserted before the date of final payment.

18. SUSPENSION OF WORK, TERMINATION, AND DELAY

18.1 The OWNERS may suspend the WORK or any portion thereof for a period of not more than ninety days or such further time as agreed upon by the CONTRACTOR, by WRITTEN NOTICE to the CONTRACTOR and the ENGINEER which shall fix the date on which WORK shall be resumed. The CONTRACTOR will resume that WORK on the date so fixed. The

CONTRACTOR will be allowed an increase in the CONTRACT PRICE or an extension of the CONTRACT TIME, or both, directly attributable to any suspension.

18.2 If the CONTRACTOR is adjudged as bankrupt or insolvent, or makes a general assignment for the benefit of its creditors, or if a trustee or receiver is appointed for the CONTRACTOR or for any of its property, or if CONTRACTOR files a petition to take advantage of any debtor's act, or to reorganize under the bankruptcy or applicable laws, or repeatedly fails to supply sufficient skilled workmen or suitable materials or equipment, or repeatedly fails to make prompt payments to SUBCONTRACTORS or for labor, materials or equipment, or disregards laws, ordinances, rules, regulations or orders of any public body having jurisdiction over the WORK or disregards the authority of the ENGINEER, or otherwise violates any provision of the CONTRACT DOCUMENTS, then the OWNERS may, without prejudice to any other right or remedy and after giving the CONTRACTOR and its surety a minimum of ten (10) days from delivery of a WRITTEN NOTICE, terminate the services of the CONTRACTOR and take possession of the PROJECT and of all materials, equipment, tools, construction equipment and machinery thereon owned by the CONTRACTOR, and finish the WORK by whatever method the OWNERS may deem expedient. In such case the CONTRACTOR shall not be entitled to receive any further payment until the WORK is finished. If the unpaid balance of the CONTRACT PRICE exceeds the direct and indirect costs of completing the project, including compensation for additional professional services, such excess SHALL BE PAID TO THE CONTRACTOR. If such costs exceed such unpaid balance, the CONTRACTOR will pay the difference to the OWNERS. Such costs incurred by the OWNERS will be determined by the ENGINEER and incorporated in a CHANGE ORDER.

18.3 Where the CONTRACTOR'S services have been so terminated by the OWNERS, said termination shall not affect any right of the OWNERS against the CONTRACTOR then existing or which may thereafter accrue. Any retention or payment of monies by the OWNERS due the CONTRACTOR will not release the CONTRACTOR from compliance with the CONTRACT DOCUMENTS.

18.4 In accordance with the terms of the Contract between OWNER and CONTRACTOR, the OWNERS may, without cause and without prejudice to any other right or remedy, elect to abandon the PROJECT and terminate the CONTRACT. In such case the CONTRACTOR shall be paid for all WORK executed and any expense sustained plus reasonable profit.

18.5 If, through no act or fault of the CONTRACTOR, the WORK is suspended for a period of more than ninety (90) days by the OWNERS or under an order of court or other public authority, or the ENGINEER fails to act on any complete and accurate request for payment, including but not limited to a Waiver of Right to Claim Against Payment Bond (Progress or Final Payment), in the form specified in Section 255.05, Florida Statutes, from each subcontractor, person, firm or corporation who provided work, labor, equipment, or materials for the Project, to the date of the preceding progress payment, or the OWNERS fails to pay the CONTRACTOR substantially the sum approved by the ENGINEER in accordance with the Florida Prompt Payment Act, then the CONTRACTOR may terminate the CONTRACT and recover from the OWNERS payment for all WORK executed and all expenses sustained. In addition and in lieu of

terminating the CONTRACT, if the ENGINEER has failed to act on a request for payment or if the OWNERS have failed to make any payment as aforesaid, the CONTRACTOR may upon ten (10) days written notice to the OWNERS and the ENGINEER stop the WORK until paid all amounts then due, in which event and upon resumption of the WORK CHANGE ORDERS shall be issued for adjusting the CONTRACT PRICE or extending the CONTRACT TIME or both to compensate for the costs and delays attributable to the stoppage of the WORK.

18.6 If the performance of all or any portion of the WORK is suspended, delayed, or interrupted as a result of a failure of the OWNERS or ENGINEER to act within the time specified in the CONTRACT DOCUMENTS, or if no time is specified, within a reasonable time, an adjustment in the CONTRACT PRICE or an extension of the CONTRACT TIME, or both, shall be made by CHANGE ORDER to compensate the CONTRACTOR for the costs and delays necessarily caused by the failure of the OWNERS or ENGINEER.

19. PAYMENT TO CONTRACTOR

19.1 At least ten (10) days before each progress payment falls due (but not more often than once a month), the CONTRACTOR will submit to the ENGINEER a partial payment estimate filled out and signed by the CONTRACTOR covering the WORK performed during the period covered by the partial payment estimate and supported by such data as the ENGINEER may reasonably require. If payment is requested on the basis of materials and equipment not incorporated in the WORK but delivered and suitably stored at or near the site, the partial payment estimate shall also be accompanied by such supporting data, satisfactory to the OWNERS, as will establish the OWNERS' title to the material and equipment and protect the OWNERS' interest therein, including applicable insurance. The ENGINEER will, within ten (10) days after receipt of each partial payment estimate either indicate in writing approval of payment, and present the partial payment estimate to the OWNERS, or return the partial payment estimate to the CONTRACTOR indicating in writing the reasons for refusing to approve payment. In the latter case, the CONTRACTOR may make the necessary corrections and resubmit the partial payment estimate. The OWNERS will, upon receipt of an application for progress payment with the requisite Waiver of Right to Claim Against Payment Bond (Progress Payment) in the form specified in Section 255.05, Florida Statutes, and in accordance with the Florida Prompt Payment Act, pay the CONTRACTOR a progress payment on the basis of the approved application for progress payment less the retainage. The retainage shall be an amount equal to 10% of said estimated Payment of the ten percent (10%) retainage shall be paid within twenty (20) business days after the approved Application for Final Payment is stamped as received by the County Finance Director, subject to final approval and acceptance of the Project by the County.

19.2 The request for payment may also include an allowance for the cost of such major materials and equipment which are suitably stored either at or near the site.

19.3 The County may, at its discretion, occupy and use portions of the Project before SUBSTANTIAL COMPLETION of the entire Project. If the County should so elect to occupy and use a portion of the Project before SUBSTANTIAL COMPLETION of the entire Project, the

Project ENGINEER shall establish the date of SUBSTANTIAL COMPLETION for that portion of the Project, and the Correction Period for that portion of the Project shall run for one (1) year after the date of SUBSTANTIAL COMPLETION established for that portion of the Project. Defects identified for correction during the Correction Period but remaining defective after its expiration shall be considered as part of the Contractor's obligation to repair.

19.4 The OWNERS shall have the right to enter the premises for the purpose of doing work not covered by the CONTRACT DOCUMENTS. This provision shall not be construed as relieving the CONTRACTOR of the sole responsibility for the care and protection of the WORK, or the restoration of any damaged WORK except such as may be caused by agents or employees of the OWNERS.

19.5 Upon completion and acceptance of the WORK, the ENGINEER shall issue a certificate attached to the final payment request that the WORK has been accepted under the conditions of the CONTRACT DOCUMENTS. The entire balance found to be due the CONTRACTOR, including the retained percentages, but except such sums as may be lawfully retained by the OWNERS, shall be paid to the CONTRACTOR in accordance with the Florida Prompt Payment Act.

19.6 The CONTRACTOR will indemnify and save the OWNERS or the OWNERS' agents harmless from all claims growing out of the lawful demand of SUBCONTRACTORS, labors, workmen, mechanics, materialmen, and furnishers of machinery and parts thereof, equipment, tools and all supplies, incurred in the furtherance of the performance of the WORK. The CONTRACTOR shall furnish satisfactory evidence that all obligations of the nature designated above have been paid, discharged, or waived. If the CONTRACTOR fails to do so the OWNERS may, after having notified the CONTRACTOR, either pay unpaid bills or withhold from the CONTRACTOR'S unpaid compensation a sum of money deemed reasonably sufficient to pay any and all such lawful claims until satisfactory evidence is furnished that all liabilities have been fully discharged, whereupon payment to the CONTRACTOR shall be resumed in accordance with the terms of the CONTRACT DOCUMENTS, but in no event shall the provisions of this sentence by construed to impose any obligations upon the OWNERS to either the CONTRACTOR, the CONTRACTOR'S Surety, or any third party. In paying any unpaid bills of the CONTRACTOR, any payment so made by the OWNERS shall be considered as a payment made under the CONTRACT DOCUMENTS by the OWNERS to the CONTRACTOR, and the OWNERS shall not be liable to the CONTRACTOR for any such payments made in good faith.

19.7 If the OWNERS fail to make timely payment after approval by the ENGINEER, in addition to other remedies available to the CONTRACTOR, there shall be added to each such payment interest on the unpaid balance at the maximum legal rate commencing thirty (30) days after the due date and continuing until the payment is received by the CONTRACTOR. Contractor must invoice the OWNER for any interest accrued in order to receive the interest payment (§218.74(4), F.S.).

20. ACCEPTANCE OF FINAL PAYMENT AS RELEASE

20.1 The acceptance by the CONTRACTOR of final payment shall be and shall operate as a release to the OWNERS of all claims and all liability to the CONTRACTOR other than claims in stated amounts as may be specifically excepted by the CONTRACTOR for all things done or furnished in connection with this WORK and for every act and neglect of the OWNERS and others relating to or arising out of this WORK. Any payment, however, final or otherwise shall not release the CONTRACTOR or its sureties from any obligations under the CONTRACT DOCUMENTS or the Performance and Payment Bonds.

21. INSURANCE

21.1 The CONTRACTOR shall purchase and maintain such insurance as will protect it from claims set forth below which may arise out of, or result from the CONTRACTOR'S execution of the WORK, whether such execution by the CONTRACTOR, any SUBCONTRACTOR, or by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable:

21.1.1 Claims under workman's compensation, disability benefit and other similar employee benefit acts;

21.1.2 Claims for damages because of bodily injury, occupational sickness, or death of employees;

21.1.3 Claims for damages because of bodily injury, sickness or disease, or death of any person other than employees;

21.1.4 Claims for damages insured by usual personal injury liability coverage which are sustained (1) by any person as a result of an offense directly or indirectly related to the employment of such person by the CONTRACTOR, or (2) by any other person; and

21.1.5 Claims for damages because of injury to or destruction of tangible property, including loss of use resulting therefrom.

21.2 Certificates of Insurance acceptable to the OWNERS shall be filed with the OWNERS prior to commencement of the WORK. These Certificates shall contain a provision that coverages afforded under the policies will not be canceled unless at least ten(10) days prior WRITTEN NOTICE has been given to the OWNERS.

21.3 The CONTRACTOR shall procure and maintain, at the CONTRACTOR'S own expense, during the CONTRACT TIME, Liability Insurance as hereinafter specified:

21.3.1 CONTRACTOR'S General Public Liability and Property Damage Insurance including vehicle coverage issued to the CONTRACTOR and protecting the CONTRACTOR

from all claims for personal injury, including death, and all claims for destruction of or damage to property, arising out of or in connection with any operations under the CONTRACT DOCUMENTS, whether such operations by the CONTRACTOR or by any SUBCONTRACTOR employed by the CONTRACTOR or anyone directly or indirectly employed by the CONTRACTOR or by a SUBCONTRACTOR employed by the CONTRACTOR. Insurance shall be written with a limit of liability of not less than $1,000,000 for all damages arising out of bodily injury, including death, at any time resulting therefrom, sustained by any one person in any one accident; and a limit of liability of not less than $1,000,000 aggregate for any such damages sustained by two or more persons in any one accident. Insurance shall be written with a limit of liability of not less than $200,000 for all property damage sustained by any one person in any one accident; and a limit of liability of not less than $200,000 aggregate for any such damage sustained by two or more persons in any one accident.

21.3.2 The CONTRACTOR shall acquire and maintain, if applicable, Fire and Extended Coverage Insurance upon the PROJECT to the full insurable value thereof for the benefit of the OWNERS, the CONTRACTOR, and SUBCONTRACTORS as their interest may appear. This provision shall in no way release the CONTRACTOR or CONTRACTOR'S surety from obligations under the CONTRACT DOCUMENTS to fully complete the PROJECT.

21.4 The CONTRACTOR shall procure and maintain, at the CONTRACTOR'S own expense, during the CONTRACT TIME, in accordance with the provisions of the laws of the state in which the WORK is performed. Workmen's Compensation Insurance, including occupational disease provisions, for all of the CONTRACTOR'S employees at the site of the PROJECT and in case any WORK is sublet, the CONTRACTOR shall require such SUBCONTRACTOR similarly to provide Workmen's Compensation Insurance, including occupational disease provisions for all of the latter's employees unless such employees are covered by the protection afforded by the CONTRACTOR. In case any class of employees engaged in hazardous work under this contract at the site of the PROJECT is not protected under Workman's Compensation statute, the CONTRACTOR shall provide, and shall cause each SUBCONTRACTOR to provide, adequate and suitable insurance for the protection of its employees not otherwise protected.

21.5 The CONTRACTOR shall secure, if applicable, "All Risk" type Builder's Risk Insurance for WORK to be performed. Unless specifically authorized by the OWNERS, the amount of such insurance shall not be less than the CONTRACT PRICE totaled in the BID. The policy shall cover not less than the losses due to fire, explosion, hail, lightning, vandalism, malicious mischief, wind, collapse, riot, aircraft, and smoke during the CONTRACT TIME, and until the WORK is accepted by the OWNERS. The policy shall name as the insured the CONTRACTOR, and the OWNERS.

22. CONTRACT SECURITY (BONDS)

22.1 The CONTRACTOR shall within ten (10) days after the receipt of the NOTICE OF AWARD furnish the OWNERS with a Performance Bond and a Payment Bond in penal sums equal to the amount of the CONTRACT PRICE, conditioned upon the performance by the

CONTRACTOR of all undertakings, covenants, terms, conditions and agreements of the CONTRACT DOCUMENTS, and upon the prompt payment by the CONTRACTOR to all persons supplying labor and materials in the prosecution of the WORK provided by the CONTRACT DOCUMENTS. Such BONDS shall be executed by the CONTRACTOR and a corporate bonding company licensed to transact such business in the state in which the WORK is to be performed and named on the current list of Surety Companies Acceptable on Federal Bonds as published in the Treasury Department Circular Number 570 and has an A.M. Best Rating as required by the CONTRACT DOCUMENTS. The expense of these BONDS shall be borne by the CONTRACTOR. If at any time a surety on any such BOND is declared bankrupt or loses its right to do business in the state in which the WORK is to be performed or is removed from the list of surety companies accepted on Federal BONDS, CONTRACTOR shall, within ten (10) days after notice from the OWNERS to do so, substitute an acceptable BOND (or BONDS) in such form and sum satisfactory to the OWNERS. The premiums on such BOND shall be paid by the CONTRACTOR. No further payments shall be deemed due nor shall be made until the new surety or sureties shall have furnished an acceptable BOND to the OWNERS.

23. ASSIGNMENTS

23.1 Neither the CONTRACTOR nor the OWNERS shall sell, transfer, assign, or otherwise dispose of the Contract or any portion thereof, or of any right, title or interest therein, or any obligations thereunder, without prior written consent of the other party.

24. INDEMNIFICATION

24.1 The CONTRACTOR will indemnify and hold harmless the OWNERS and the ENGINEER and their agents and employees from and against all claims, damages, losses and expenses including attorney's fees arising out of or resulting from the performance of the WORK, provided that any such claims, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property including the loss of use resulting therefrom; and is caused in whole or in part by any negligent or willful act or omission of the CONTRACTOR, and SUBCONTRACTOR, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable.

24.2 In any and all claims against the OWNERS or the ENGINEER, or any of their agents or employees, by any employee of the CONTRACTOR, any SUBCONTRACTOR, anyone directly or indirectly employed by any of them, or anyone for whose acts any of them may be liable, the indemnification obligation shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for the CONTRACTOR or any SUBCONTRACTOR under workmen's compensation acts, disability benefit acts or other employee benefits acts.

24.3 The obligation of the CONTRACTOR under this paragraph shall not extend to the liability of the ENGINEER, its agents or employees arising out of the preparation or approval of

maps, DRAWINGS, opinions, reports, surveys, CHANGE ORDERS, designs or SPECIFICATIONS.

24.4 Nothing herein is intended to serve as a waiver of sovereign immunity by County to which sovereign immunity applies. Nothing herein shall be construed as consent by County to be sued by third parties in any matter arising out of any contract.

25. SEPARATE CONTRACTS

25.1 The OWNERS reserve the right to let other contracts in connection with this PROJECT. The CONTRACTOR shall afford other CONTRACTORS reasonable opportunity for the introduction and storage of their materials and the execution of their WORK, and shall properly connect and coordinate the WORK with theirs. If the proper execution or results of any part of the CONTRACTOR'S WORK depends upon the WORK of any other CONTRACTOR, the CONTRACTOR shall inspect and promptly report to the ENGINEER any defects in such WORK that render it unsuitable for such proper execution and results.

25.2 The OWNERS may perform additional WORK related to the PROJECT or the OWNERS may let other contracts containing provisions similar to these. The CONTRACTOR will afford the other CONTRACTORS who are parties to such Contracts (or the OWNERS, if the OWNERS is performing the additional WORK) reasonable opportunity for the introduction and storage of materials and equipment and the execution of WORK, and shall properly connect and coordinate the WORK with theirs.

25.3 If the performance of additional WORK by the CONTRACTORS or the OWNERS is not noted in the CONTRACT DOCUMENTS prior to the execution of the CONTRACT, written notice thereof shall be given to the CONTRACTOR prior to starting any such additional WORK. If the CONTRACTOR believes that the performance of such additional WORK by the OWNERS or others involves it in additional expense or entitles it to an extension of the CONTRACT TIME, the CONTRACTOR may make a claim thereof as provided in Sections 14 and 15.

26. SUBCONTRACTING

26.1 The CONTRACTOR may utilize the services of specialty SUBCONTRACTS on those parts of the WORK which, under normal contracting practices, are performed by specialty SUBCONTRACTORS.

26.2 The CONTRACTOR shall not award WORK to SUBCONTRACTOR(S), in excess of fifty (50%) percent of the CONTRACT PRICE, without prior written approval of the OWNERS.

26.3 The CONTRACTOR shall be fully responsible to the OWNERS for the acts and omissions of its SUBCONTRACTORS, and of persons either directly or indirectly employed by them, as the CONTRACTOR is for the acts and omissions of persons directly employed by it.

26.4 The CONTRACTOR shall cause appropriate provisions to be inserted in all subcontracts relative to the WORK to bind SUBCONTRACTORS to the CONTRACTOR by the terms of the CONTRACT DOCUMENTS insofar as applicable to the WORK of SUBCONTRACTORS and give the CONTRACTOR the same power as regards terminating any subcontract that the OWNERS may exercise over the CONTRACTOR under any provision of the CONTRACT DOCUMENTS.

26.5 Nothing contained in this CONTRACT shall create any contractual relation between any SUBCONTRACTOR and the OWNERS.

27. ENGINEER'S AUTHORITY

27.1 The ENGINEER shall act as the OWNERS' representative during the construction period, shall decide questions which may arise as to quality and acceptability of materials furnished and WORK performed, and shall interpret the intent of the CONTRACT DOCUMENTS in a fair and unbiased manner. The ENGINEER will make visits to the site and determine if the WORK is proceeding in accordance with the CONTRACT DOCUMENTS.

27.2 The CONTRACTOR will be held strictly to the intent of the CONTRACT DOCUMENTS in regard to the quality of materials, workmanship, and execution of the WORK. Inspections may be at the factory or fabrication plant of the source of material supply.

27.3 The ENGINEER will not be responsible for the construction means, controls, techniques, sequences, procedures, or construction safety.

27.4 The ENGINEER shall promptly make decisions relative to interpretation of the CONTRACT DOCUMENTS.

28. LAND AND RIGHTS-OF-WAY

28.1 Prior to issuance of NOTICE TO PROCEED, the OWNERS shall obtain all land and rights-of-way necessary for carrying out and for the completion of the WORK to be performed pursuant to the CONTRACT DOCUMENTS, unless otherwise mutually agreed.

28.2 The OWNERS shall provide to the CONTRACTOR information which delineates and describes the lands owned and rights-of-way acquired.

28.3 The CONTRACTOR shall provide at its own expense and without liability to the OWNERS any additional land and access thereto that the CONTRACTOR may desire for temporary construction facilities, or storage of materials.

29. GUARANTEE

29.1 The CONTRACTOR shall guarantee all materials and equipment furnished and WORK performed for a period of one year from the date of final payment. The CONTRACTOR warrants and guarantees for a period of one (1) year from the date of final payment that the completed system if free from all defects due to faulty materials or workmanship, and the CONTRACTOR shall promptly make such corrections as may be necessary by reason of such defects including the repairs of the damage of other parts of the system resulting from such defects. The OWNERS will give notice of observed defects with reasonable promptness. In the event that the CONTRACTOR should fail to make such repairs, adjustments, or other WORK that may be made necessary by such defects, the OWNERS may have the defective work corrected or the rejected work removed and replaced, and all direct and indirect costs of such removal and replacement, including compensation for additional professional services, shall be paid by Contractor. The Performance BOND shall remain in full force and effect through the guarantee period.

30. TAXES

31.1 The CONTRACTOR will pay all sales, consumer, use, and other similar taxes required by the laws of the place where the WORK is performed.

APPLICATION FOR PAYMENT

NO.
To: (OWNER)
From: (CONTRACTOR)
Contract:
Project: HELEN McCALL PARK EXPANSION PHASE _____
OWNER'S Contract No. _____ENGINEER'S Project No. **50128135**
For Work accomplished through the date of: _____

1.	Original Contract Price:	$
2.	Net change by Change Orders and Written Amendments (+ or -):	$
3.	Current Contract Price (1 plus 2):	$
4.	Total completed and stored to date:	$
5.	Retainage (per Agreement):	$
	_____ % of completed Work:	$
	_____ % of stored material:	$
	Total Retainage:	$
6.	Total completed and stored to date less retainage (4 minus 5):	$
7.	Less previous Application for Payments:	$
8.	**DUE THIS APPLICATION (6 MINUS 7)**:	$

Accompanying Documentation:

CONTRACTOR'S Certification:

The undersigned CONTRACTOR certifies that (1) all previous progress payments received from OWNER on account of Work done under the Contract referred to above have been applied on account to discharge CONTRACTOR's legitimate obligations incurred in connection with Work covered by prior Applications for Payment number 1 through ____ Inclusive; (2) title of all Work, materials and equipment incorporated in said Work or otherwise listed in or covered by this Application for Payment will pass to OWNER at time of payment free and clear of all Liens, security interests and encumbrances (except such as are covered by a Bond acceptable to OWNER indemnifying OWNER against any such Lien, security interest or encumbrance); and (3) all Work covered by this Application for Payment is in accordance with the Contract Documents and not defective.

Dated: _____ _____
CONTRACTOR

By: _____

State of _____
County of _____
Subscribed and sworn to me before this _____ day of _____, 2023.

Notary Public

My Commission expires:

Payment of the above AMOUNT DUE THIS APPLICATION is recommended.

Dated: _____

ENGINEER: _____

By: _____

Item	UNIT PRICE	ESTIMATED QUANTITY	SCHEDULE OF VALUES AMOUNT	QUANTITY COMPLETED	AMOUNT	%	MATERIAL STORED	AMOUNT COMPLETED AND STORED
1.								
2.								
3.								
4.								
5.								
6.								
7.								
8.								
9.								
10.								
11.								
12.								
13.								
14.								
15.								
16.								
17.								
18.								
19.								
20.								
21.								
22.								
23.								
24.								
25.								
26.								
27.								
28.								
29.								
30.								
TOTAL COMPLETED & STORED			$		$		$	$

NOTICE OF SUBSTANTIAL COMPLETION

TO: DATE:

PROJECT: HELEN McCALL PARK EXPANSION PHASE ____

The work performed under this Contract has been reviewed and found to be substantially complete. The Date of Substantial Completion of the Project or portion thereof designated above is hereby established as _____ which is also the date of commencement of applicable warranties required by contract documents, except as stated below.

DEFINITION OF DATE OF SUBSTANTIAL COMPLETION

The Date of Substantial Completion of the Work or designated portion thereof is the Date certified by the Consultant when construction is sufficiently complete, in accordance with the contract Documents, so the Owner can occupy or utilize the Work or designated portion thereof for the use for which it is intended, as expressed in the contract document.

A list of items to be completed or corrected is attached hereto. The failure to include any items on such list does not alter the responsibility of the CONTRACTOR to complete all Work in accordance with the contract documents. The date of commencement of warranties for items on the attached list will be the date of final payment unless otherwise agreed to in writing.

DEWBERRY

BY: _____

TITLE: _____

WALTON COUNTY

BY: _____

TITLE: _____

CONTRACTOR

BY: _____

TITLE: _____

TECHNICAL SPECIFICATIONS FOR HELEN McCALL PARK EXPANSION PHASE 1 & PHASE 2
SECTION 00015-PROJECT OVERVIEW

This project includes the construction of new athletic fields, parking lots, buildings, and stormwater drainage at Helen McCall Park in Santa Rosa Beach, Florida. The project will be constructed in two phases.

Phase 1 includes improvements west of Moll Drive (includes SWMF 1 & 2 modifications). The project includes the construction of new baseball and t-ball fields along with a new parking lot, stormsewer system, expansion of the existing stormwater management facility, press box with concessions and restrooms, restroom building, storage building, and batting cages. The project scope also includes clearing and grubbing, filling, concrete sidewalks, field lighting, field underdrainage, irrigation, landscaping, forcemain sanitary sewer with pump stations, and all associated mechanical, electrical, and plumbing work. The project will also include parking lot lighting to be completed by Choctawhatchee Electric Cooperative (CHELCO).

Phase 2 included improvements east of Moll Drive. This phase includes the demolition of the existing baseball fields and associated buildings, the construction of two new mulita-purpose fields, restroom building, and expansion of the existing parking lot. The project scope also includes clearing and grubbing, filling, concrete sidewalks, field lighting, field underdrainage, irrigation, landscaping, forcemain sanitary sewer and pump station, and all associated mechanical, electrical, and plumbing work. The project will also include parking lot lighting to be completed by Choctawhatchee Electric Cooperative (CHELCO).

Please refer to the bidding and contract specifications for more information.

TECHNICAL SPECIFICATIONS FOR HELEN McCALL PARK EXPANSION PHASE 1 & PHASE 2
SECTION 01030-ALTERNATES

PART 1 - GENERAL

Related Documents:

Drawings and general provisions of Contract, including General and Supplementary Conditions, apply to work of this section.

Description of Requirements:

Definition: An alternate is an amount proposed by Bidders and stated on the Bid Form that will be added to, deducted from, or substituted for an item in the Base Bid amount if the Owner decided to accept a corresponding change in either scope of work or in products, materials, equipment, systems or installation methods described in Contract Documents.

"Include as part of each alternate, miscellaneous devices, appurtenances and similar items incidental to or required for a complete installation whether or not mentioned as part of the alternate."

Coordination: Coordinate related work and modify or adjust adjacent work as required to ensure that work affected by each accepted alternate is complete and fully integrated into the project.

TECHNICAL SPECIFICATIONS FOR HELEN McCALL PARK EXPANSION PHASE 1 & PHASE 2
SECTION 01090-DEFINITIONS AND STANDARDS

PART 1 - GENERAL

RELATED DOCUMENTS:

Drawings and general provisions of Contract, including General and Special Conditions, apply to work of this section.

DEFINITIONS:

GENERAL EXPLANATION: A substantial amount of specification language constitutes definitions for terms found in other contract documents, including drawings which must be recognized as diagrammatic in nature and not completely descriptive of requirements indicated thereon. Certain terms used in contract documents are defined generally in this article. Definitions and explanations of this section are not necessarily either complete or exclusive, but are general for the work extent not stated more explicitly in another provision of contract documents.

INDICATED: The term "Indicated" is a cross-reference to graphics, notes or schedules on drawings, to other paragraphs or schedules in the specifications, and to similar means of recording requirements in contract documents. Where terms such as "shown", "noted", "scheduled" and "specified" are used in lieu of "indicated", it is for purpose of helping reader locate cross-reference, and no limitation of location is intended except as specifically noted.

DIRECTED, REQUESTED, ETC.: Where not otherwise explained, terms such as "directed", "requested", "authorized", "selected", "approved", "required", "accepted", and "permitted" mean "directed by Engineer", "requested by Engineer", etc. However, no such implied meaning will be interpreted to extend Engineer's responsibility into Contractor's area of construction supervision.

APPROVE: Where used in conjunction with Engineer's response to submittals, requests, applications, inquiries, reports and claims by Contractor, the meaning of term "approved" will be held to limitations of Engineer's responsibilities and duties as specified in General and Special Conditions. In no case will "approval" by Engineer be interpreted as a release of Contractor from responsibilities to fulfill requirements of contract documents.

PROJECT SITE: The space available to Contractor for performance of the work, either exclusively or in conjunction with others performing other work as part of the project. The extent of project site is shown on drawings, and may or may not be identical with description of land upon which project is to be built.

FURNISH: Except as otherwise defined in greater detail, the term "furnish" is used to mean supply and deliver to project site, ready for unloading, unpacking, assembly, installation, etc., as applicable in each instance.

INSTALL: Except as otherwise defined in greater detail, term "install" is used to describe operations at project site including unloading, unpacking, assembly, erection, placing, anchoring,

applying, working to dimension, finishing, curing, protecting, cleaning and similar operations, as applicable in each instance.

PROVIDE: Except as otherwise defined in greater detail, term "provide" means furnish and install, complete and ready for intended use, as applicable in each instance.

INSTALLER: The entity (person or firm) engaged by Contractor or its subcontractor or sub-contractor for performance of a particular unit of work at project site, including installation, erection, application and similar required operations. It is a general requirement that such entities (Installers) be expert in operations they are engaged to perform.

TESTING LABORATORY: An independent entity engaged to perform specific inspections of tests of work, either at project site or elsewhere; and to report and (if required) interpret results of those inspections or tests.

SPECIFICATION EXPLANATIONS:

SPECIFICATION CONTENT: Because of methods by which this project specification has been produced, certain general characteristics of content, and conventions in use of language are explained as follows:

SPECIFYING METHODS: The techniques or methods of specifying to record requirements varies throughout text, and may include "prescriptive", "open generic-descriptive", "compliance with standards", "performance", "proprietary", or a combination of these. The method used for specifying one unit of work has no bearing on requirements for another unit of work.

OVERLAPPING AND CONFLICTING REQUIREMENTS: Where compliance with 2 or more industry standards or sets of requirements is specified, and overlapping of those different standards or requirements establishes different or conflicting minimums or levels of quality, most stringent requirement (which is generally recognized to be also most costly) is intended and will be enforced, unless specifically detailed language written into contract documents (not by way of reference to an industry standard) clearly indicates that a less stringent requirement is to be fulfilled. Refer apparently-equal-but-different requirements, and uncertainties as to which level of quality is the more stringent, to Engineer for a decision before proceeding.

CONTRACTOR'S OPTIONS: Except for overlapping or conflicting requirements, where more than one set of requirements are specified for a particular unit of work, option is intended to be Contractor's regardless of whether specifically indicated as such.
MINIMUM QUALITY/QUANTITY: In every instance, quality level or quantity shown or specified is intended as minimum for the work to be performed or provided. Except as otherwise specifically indicated, actual work may either comply exactly with that minimum (within specified tolerances), or may exceed that minimum within reasonable limits. In complying with requirements, indicated numeric values are either minimums or maximums as noted or as appropriate for context of requirements. Refer instances of uncertainty to Engineer for decision before proceeding.

SPECIALISTS; ASSIGNMENTS: In certain instances, specification text requires (or at least implies) that specific work be assigned to specialists or expert entities, who must be engaged for

performance of those units of work. These must be recognized as special requirements over which Contractor has no choice or option. These assignments must not be confused with (and are not intended to interfere with) normal application of regulations, union jurisdictions and similar conventions. One purpose of such assignments is to establish which party or entity involved in a specific unit of work is recognized as "expert" for indicated construction processes or operations. Nevertheless, final responsibility for fulfillment of entire set of requirements remains with Contractor.

TRADES: Except as otherwise indicated, the use of title such as "carpentry" in specification text, implies neither that the work must be performed by an accredited or unionized tradesperson or corresponding generic name (such as "carpenter"), nor that specified requirements apply exclusively to work by tradesperson of that corresponding generic name.

ABBREVIATIONS: The language of specifications and other contract documents is of the abbreviated type in certain instances, and implies words and meanings which will be appropriately interpreted. Actual work abbreviations of a self-explanatory nature have been included in texts. Specific abbreviations have been established, principally for lengthy technical terminology and primarily in conjunction with coordination of specification requirements with notations on drawings and in schedules. These are frequently defined in section at first instance of use. Trade association names and titles of general standards are frequently abbreviated. Singular words will be interpreted as singular where applicable and where full context of the contract documents so indicates.

INDUSTRY STANDARDS

GENERAL APPLICABILITY OF STANDARDS: Applicable standards of construction industry have same force and effect (and are made a part of contract documents by reference) as if copied directly into contract documents, or as if published copies were bound herewith.

Referenced standards (referenced directly in contract documents or by governing regulations) have precedence over non-referenced standards which are recognized in industry for applicability to work.

PUBLICATION DATES: Except as otherwise indicated, where compliance with an industry standard is required, comply with standard in effect as of date of contract documents.

COPIES OF STANDARDS: Provide where needed for proper performance of the work; obtain directly from publication sources.

ABBREVIATIONS AND NAMES: Where acronyms or abbreviations are used in specifications or other contract documents they are defined to mean the industry recognized name of trade association, standards generating organization, governing authority or other entity applicable to context of text provision. Refer to "Encyclopedia of Associations", published by Gale Research Co., available in large libraries.

SUBMITTALS

PERMITS, LICENSES AND CERTIFICATES: For the Owner's records, submit copies of permits, licenses, certificates, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, and similar documents, correspondence and records established in conjunction with compliance with standards and regulations bearing upon performance of the work.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

TECHNICAL SPECIFICATIONS FOR HELEN McCALL PARK EXPANSION PHASE 1 & PHASE 2
SECTION 01155-SCHEDULES, REPORTS, PAYMENTS

PART 1 - GENERAL

RELATED DOCUMENTS:

Drawings and general provisions of Contract, including General and Supplementary Conditions, apply to work of this section.

PRELIMINARY PROGRESS SCHEDULE:

BAR-CHART SCHEDULE: Not more than 7 days after date established for "commencement of the work", submit a bar-chart type progress schedule indicating a time bar for each major category or unit of work to be performed at site, properly sequenced and intermeshed, and showing completion of the work sufficiently in advance of date established for "substantial completion of the work".

PROGRESS MEETING:

INITIAL PROGRESS MEETING: Schedule initial progress meeting, recognized as "Pre-Construction Meeting", for a date not more than 15 days after date of commencement of the work. Use it as an organizational meeting, and review responsibilities and personnel assignments.

UNIT PRICE SCHEDULE:

GENERAL: Refer to individual specification sections for units of work where the establishment of unit prices is required. Methods of measurement and pricing are specified in these sections.

The Owner reserves the right to reject the Contractor's measurement of work-in-place which involves use of established unit prices, and to have this work measured by an independent surveyor acceptable to the Contractor at the Owner's expense.

PAYMENT REQUESTS:

WAIVERS OF LIEN: For final payment application, submit waiver of lien from every entity (including the Contractor) who could lawfully and possibly file a lien in excess of $100 arising out of Contract and related to work covered by payment. Owner reserves right to designate which entities involved in the work must submit waivers.

FINAL PAYMENT APPLICATION: The administrative actions and submittals which must precede or coincide with submittal of final payment application can be summarized as follows, but not necessarily by way of limitation:

Completion of project closeout requirements.

Completion of items specified for completion beyond time of substantial completion (regardless of whether special payment application was previously made).

Assurance, satisfactory to Owner, that unsettled claims will be settled and that work not actually completed and accepted will be completed without undue delay.

Proof, satisfactory to Owner, that taxes, fees and similar obligations of Contractor have been paid.

Removal of temporary facilities, services, surplus materials, rubbish and similar provisions.

Consent of surety for final payment.

APPLICATION TRANSMITTAL: Submit 3 executed copies of each payment application.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

TECHNICAL SPECIFICATIONS FOR HELEN McCALL PARK EXPANSION PHASE 1 & PHASE 2
SECTION 01205-PROCEDURES AND CONTROLS

PART 1 - GENERAL

RELATED DOCUMENTS:

Drawings and general provisions of Contract, including General and Special Conditions, apply work of this section.

DESCRIPTION OF WORK:

The types of minimum requirements for procedures and performance of control work of a general nature include but are not necessarily limited to the following categories:

Administrative/Supervisory personnel.

Surveys and records or reports.

Trades people and workmanship standards.

Inspections, tests and reports.

General installation provisions.

Cleaning and protection.

Conservation and salvage.

ADMINISTRATIVE/SUPERVISORY PERSONNEL:

GENERAL: In addition to a General Superintendent and other administrative and supervisory personnel required for performance of the work, provide specific coordinating personnel as specified herein.

PROJECT COORDINATOR: Provide a full-time Project Coordinator, who is experienced in administration and supervision of construction including mechanical and electrical work, and who is hereby authorized to act as the general coordinator of interfaces between units of work. For purpose of these provisions, "interface" is defined to include the scheduling and sequencing of work, sharing of access to work spaces, installations, protection of each other's work, cutting and patching, tolerances, cleaning, selection for compatibility preparation of coordination drawings, inspections, tests, and temporary facilities and services.

SURVEYS AND RECORDS/REPORTS:

GENERAL: Working from lines and levels established by property survey, and as shown in relation to the other work, establish and maintain bench marks and other dependable markers to set lines and levels for the work as needed to properly locate each element of entire project. Calculate and measure required dimensions as shown (within recognized tolerances if not otherwise indicated); do not scale drawings to determine dimensions. Advise tradesmen performing the work, of marked lines and levels provided for their use in layout work.

SURVEYOR: Engage a Land Surveyor or a Professional Engineer experienced and specializing in land survey work who is registered in State where project is located, to perform services specified in this article. Surveyor shall carry Professional Liability Insurance.

SURVEY PROCEDURES: Verify layout information shown on drawings, in relation to property survey and existing benchmarks, before proceeding with layout of actual work. Record deviations from required lines and levels, and advise Engineer promptly upon detection of deviations exceeding indicated or recognized tolerances. Record deviations which are accepted (not corrected) on record drawings.

TRADESPERSONS AND WORKMANSHIP STANDARDS:

GENERAL: Instigate and maintain procedures to ensure that persons performing work at site are skilled and knowledgeable in methods and craftsmanship needed to produce required quality-levels for workmanship in completed work. Remove and replace work that does not comply with workmanship standards as specified and as recognized in the construction industry for applications indicated. Remove and replace other work damaged or deteriorated by faulty workmanship or its replacement.

INSPECTIONS, TESTS AND REPORTS:

GENERAL: Required inspection and testing services are intended to assist in determination of probable compliances of work with requirements, but do not relieve Contractor of responsibility for those compliances, or for general fulfillment of requirements of contract documents. Specified inspections and tests are not intended to limit Contractor's quality control program. Afford reasonable access to agencies performing tests and inspections.

QUALIFICATION OF TESTING AGENCIES: Except as otherwise indicated and except where manufacturer's testing facilities are located as acceptable, engage independent testing laboratories specializing in required services.

REPORTS: Submit test/inspection reports, including agency's analysis of results and recommendations where applicable, in duplicate to Engineer except as otherwise indicated, and submit copies directly to governing authorities where required or requested.

Tests that will be required but are not limited to the following:

1. Field Density Tests,
2. Compressive Strength Test on Concrete, and

3. LBR’s and proctors are required.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

MANUFACTURER'S INSTRUCTIONS

Where installations include manufactured products, comply with manufacturer's applicable instructions and recommendations for installation, to extent these are more explicit or more stringent than requirements indicated in contract documents.

Inspect each item of materials or equipment immediately prior to installation, and reject damaged and defective items.

Provide attachment and connection devices and methods for securing work properly as it is installed; true to line and level, and within recognized industry tolerances if not otherwise indicated. Allow for expansions and building movements. Provide uniform joint widths in exposed work, organized for best possible visual effect.

Recheck measurements and dimensions of the work, as an integral step of starting each installation.

Install work during conditions of temperature, humidity, exposure, forecasted weather, and status of project completion that will ensure best possible results for each unit of work, in coordination with entire work. Isolate each unit of work from non-compatible work, as required to prevent deterioration.

MOUNTING HEIGHTS: Where mounting heights are not indicated, mount individual units of work at industry-recognized standard mounting heights for applications indicated. Refer questionable mounting height choices to Engineer for final decision.

CLEANING AND PROTECTION

GENERAL: During handling and installation of work at project site clean and protect work in progress and adjoining work on a basis of perpetual maintenance. Apply suitable protective covering on newly installed work where reasonably required to ensure freedom from damage or deterioration at time of substantial completion; otherwise, clean and perform maintenance on newly installed work as frequently as necessary through remainder of construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

LIMITING EXPOSURES OF WORK: To extent possible through reasonable control and protection methods, supervise performance of work in a manner and by means which will ensure that none of the work, whether completed or in progress, will be subjected to harmful dangerous, damaging, or otherwise deleterious exposures during construction period. Such exposures include (where applicable, but not by way of limitation) static loading, dynamic loading, internal pressures, external pressures, high or low

temperatures, thermal shock, high or low humidity, air contamination or pollution, water, ice, solvents, chemicals, light, radiation, puncture, abrasion, heavy traffic, soiling, bacteria, insect infestation, combustion, electrical current, high speed operation, improper lubrication, unusual wear, misuse, incompatible interface, destructive testing, misalignment, excessive weathering, unprotected storage, improper shipping/handling, theft and vandalism.

CONSERVATION AND SALVAGE

GENERAL: It is a general procedural requirement for supervision and administration of the work that construction operations be carried out with maximum practical consideration for conservation of energy, water and materials; and with maximum practical consideration for salvaging materials and equipment involved in performance of the work but not incorporated therein. Refer to other sections for required disposition of salvage materials and equipment that are Owner's property (change order procedures).

TECHNICAL SPECIFICATIONS FOR HELEN McCALL PARK EXPANSION PHASE 1 & PHASE 2
SECTION 01340-SUBMITTALS

PART 1 - GENERAL

RELATED DOCUMENTS:

Drawings and general provisions of Contract, including General and Supplementary Conditions, apply to work of this section.

DESCRIPTION OF REQUIREMENTS:

The types of submittal requirements specified in this section include shop drawings, product data, samples and miscellaneous work-related submittals. Individual submittal requirements are specified in applicable sections for each unit of work. Refer to other sections and other contract documents for requirements of administrative submittals.

Definitions: Work-related submittals of this section are categorized for convenience as follows:

Shop drawings include specially-prepared technical data for this project, including drawings, diagrams, performance curves, data sheets, schedules, templates, patterns, reports, calculations, instructions, measurements and similar information not in standard printed form for general application to a range of similar projects.

Product data include standard printed information on materials, products and systems; not specially-prepared for this project, other than the designation of selections from among available choices printed therein.

Miscellaneous submittals related directly to the work (non-administrative) include warranties, maintenance agreements, workmanship bonds, project photographs, survey data and reports, physical work records, quality testing and certifying reports, copies of industry standards record drawings, field measurements data, operating and maintenance materials, overrun stock, and similar information, devices and materials applicable to the work and not processed as shop drawings, product data or samples.

SUBMITTAL REQUIREMENTS:

General: Except as otherwise indicated in individual work sections, comply with requirements specified herein for each indicated category of submittal. Provide and process intermediate submittals (where required between initial and final) similar to initial submittals.

Shop Drawings: Provide newly-prepared information with graphic information at accurate scale (except as otherwise indicated), with name of preparer indicated (firm name). Show dimensions and note which are based on field measurement. Identify materials and products in the work shown. Indicate compliance with standards, and special coordination requirements. Do not allow shop drawing copies without appropriate final approval markings by Engineer to be used in connection with the work. Submit five (5) copies of all shop drawings. The Engineer will maintain two (2) for his records, if more is needed by the Contractor, then the extra required number should be submitted.

Product Data: Collect required data into one submittal for each unit of work or system; and mark each copy to show which choices and options are applicable to project. Include manufacturer's standard printed recommendations for application and use, compliance with standards, application of labels and seals, rotation of field measurements which have been checked, and special coordination requirements. Maintain one set of product data (for each submittal) at project site, available for reference by Engineer or others.

Submittals: Do not submit product data or allow its use on project until compliance with requirements of contract documents has been confirmed by Contractor. Submittal is for information and record, unless otherwise indicated. Initial submittal is final submittal unless returned promptly by Engineer marked with "Revise and Resubmit" which indicates an observed non-compliance. Submit 3 copies, plus 2 additional copies (which will be returned) where required for maintenance manuals.

Warranties: Refer to Section 01605 - "Products" for specific general requirements on warranties, product/workmanship bonds, and maintenance agreements. In addition to copies desired for Contractor's use, furnish 3 executed copies, except furnish 2 additional (conformed) copies where required for maintenance manuals.

Closeout Submittals: Refer to individual work sections and to Section 01705 - "Closeout" for specific requirements on submittal of closeout information, materials, tools and similar items.

Maintenance/Operating Manuals: Furnish 5 bound copies.

Materials and Tools: Refer to individual work sections for required quantities of spare parts, extra and overrun stock, maintenance tools and devices, keys and similar physical units to be submitted.

ACTION OF SUBMITTAL:

Engineer's Action: Where action and return is required or requested, Engineer will review each submittal, mark with revise and resubmit, and where possible return within 2 weeks of receipt. Where submittal must be held for coordination, Contractor will be so advised by Engineer without delay.

Action Stamp: Engineer's action stamp, for use on submittals to be returned to Contractor, is self-explanatory as marked.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

TECHNICAL SPECIFICATIONS FOR HELEN McCALL PARK EXPANSION PHASE 1 & PHASE 2
SECTION 01605-PRODUCTS AND SUBSTITUTIONS

PART 1 - GENERAL

RELATED DOCUMENTS

Drawings and general provisions of Contract, including General and Special Conditions, apply to work of this section.

DESCRIPTION OF REQUIREMENTS

Definitions: "Products" is defined to include purchased items for incorporation into the work, regardless of whether specifically purchased for project or taken from Contractor's stock of previously purchased products. "Materials" is defined as products which must be substantially cut, shaped, worked, mixed, finished, refined or otherwise fabricated, processed, installed or applied to form units of work. "Equipment" is defined as products with operational parts, regardless of whether motorized or manually operated, and particularly including products with service connections (wiring, piping, etc.). Definitions in this paragraph are not intended to negate the meaning of the other terms used in contract documents, including "specialties", "systems", "structure", "finishes", "accessories", "furnishings", "special construction", and similar terms, which are self-explanatory and have recognized meanings in the construction industry.

Substitutions: The requirements for substitutions do not apply to specified Contractor options on products and construction methods. Revisions to contract documents, where requested by Owner or Engineer are "changes" not "substitutions". Requested substitutions during bidding period, which have been accepted prior to Contract Date, are included in contract document and are not subject to requirements for substitutions as specified herein. Contractor's determination of and compliance with governing regulations and orders issued by governing authorities do not constitute "substitutions"; and do not constitute a basis for change orders, except as provided for in contract documents. Otherwise, Contractors' requests for changes in products, materials and methods of construction required by contract documents are considered requests for "substitutions", and are subject to requirements hereof.

Standards: Refer to Section 01090 - "Definitions and Standards" for applicability of industry standards to products of project, and for acronyms used in text of specification sections.

QUALITY ASSURANCE

Source Limitations: To the greatest extent possible for each unit of work, provide products, materials or equipment of a singular generic kind and from a single source.

Compatibility of Options: Where more than one choice is available as options for Contractor's selection of a product or material, select an option that is compatible with other products and materials already selected (which may have been from among options for those other products and materials). Total compatibility among options is not assured by limitations within contract documents, but must be provided by Contractor. Compatibility is a basic general requirement of product/material selections.

SUBMITTALS

Requests for Substitutions: Submit 3 copies, fully identified for product or method being replaced by substitutions, including related specification section and drawing number(s), and fully documented to show compliance with requirements for substitutions. Include product data/drawings, description of methods, samples where applicable, Contractor's detailed comparison of significant qualities between specified item and proposed substitution, statement of effect on construction time and coordination with other affected work, cost information or proposal, and Contractor's statement to the effect that proposed substitution will result in overall work equal-to-or-better-than work originally indicated.

PRODUCT DELIVERY-STORAGE-HANDLING

General: Deliver, handle and store products in accordance with manufacturer's recommendations and by methods and means that will prevent damage, deterioration, and loss including theft. Control delivery schedules to minimize long-term storage of products at site and overcrowding of construction spaces. In particular, provide delivery/installation coordination to ensure minimum holding or storage times for products recognized to be flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other sources of loss.

WARRANTIES (GUARANTEES)

Coincidental Product Warranty: A warranty which is not specifically required by contract documents (other than as specified in this Section); but which is available on a product incorporated into the work, by virtue of the fact that manufacturer of product has published warranty in connection with purchases and uses of product without regard for specific applications except as otherwise limited by terms of warranty. Refer to individual sections of Division 2 through 16 for the determination of units of work that are required to be specifically or individually warranted, and for the specific requirements and terms of those warranties (or guarantees).

General Limitations: It is recognized that specific warranties are intended primarily to protect Owner against failure of the work to perform as required, and against deficient, defective and faulty materials and workmanship, regardless of sources. Except as otherwise indicated, specific warranties do not cover failures in the work which results from: 1) Unusual and abnormal phenomena of the elements, 2) The Owner's misuse, maltreatment or improper maintenance of the work, 3) Vandalism after time of substantial completion, of 4) Insurrection of acts of aggression including war.

Related Damages and Losses: In connection with Contractor's correction of warranted work which has failed, remove and replace other work of project which has been damaged as a result of such failure, or must be removed and replaced to provide access for correction of warranted work.

Reinstatement of Warranty Period: Except as otherwise indicated, when product warranty has failed and has been corrected by replacement or restoration, reinstate warranty by written endorsement for the following time period, starting on date of acceptance of replaced or restored work: a period of time equal to original warranty period of time.

Replacement Cost, Obligations: Except as otherwise indicated, costs of replacing or restoring failing warranted units or products is Contractor's obligation, without regard for whether Owner has already benefited from use through a portion of anticipated useful service lives.

PART 2 - PRODUCTS

GENERAL PRODUCT COMPLIANCES:

General: The compliance requirements, for individual products as indicated in contract documents, are multiple in nature and may include generic, descriptive, proprietary, performance, prescriptive, compliance with standards, compliance with codes, conformance with graphic details and other similar forms and methods of indicating requirements, all of which must be complied with. Also "allowances" and similar provisions of contract documents will have a bearing on selection process.

Procedures for Selecting Products: Contractor's options for selecting products are limited by contract document requirements, and governing regulations, and are not controlled by industry traditions or procedures experienced by Contractor on previous construction project. Required procedures include, but are not necessarily limited to, the following for various indicated methods of specifying:

Single Product/Manufacturer Name: Provide product indicated except advise Engineer before proceeding, where known that named product is not a feasible or acceptable selection.

Two or More Product/Manufacturer Names: Provide one of the named products, at Contractor's option; but excluding products which do not comply with requirements. Do not provide or offer to provide an unnamed product, except where none of named products comply with requirements or are a feasible selection; advise Engineer before proceeding.

"Or Equal": Where named products in specifications text are accompanied by the term "or equal", or other language of similar effect, comply with those contract document provisions concerning "substitutions" for obtaining Engineer's approval (by change order) to provide an unnamed product.

"Named": Except as otherwise indicated, is defined to mean manufacturer's name for product, as recorded in published product literature, of latest issue as of date of contract documents. Refer to requests to use products of a later (or earlier) model to Engineer for acceptance before proceeding.

Standards, Codes and Regulations: Where only compliance with an imposed standard, code or regulation is required, selection from among products which comply with requirements including those standards, codes and regulations, is Contractor's option.

Performance Requirements: Provide products that comply with specific performances indicated, and which are recommended by manufacturer (in published product literature or by individual certification) for application indicated. Overall performance of a product is implied where product is specified with only certain specific performance requirements.

Prescriptive Requirements: Provide products which have been produced in accordance with prescriptive requirements, using specified ingredients and components, and complying with specified requirements for mixing, fabricating, curing, finishing, testing and similar operations in manufacturing process.

SUBSTITUTIONS

Conditions: Contractor's request for substitution will be received and considered when extensive revisions to contract documents are not required and changes are in keeping with general intent of contract documents; when timely, fully documented and properly submitted; and when one or more of following

conditions is satisfied, all as judged by Engineer. Otherwise request will be returned without action except to record non-compliance with these requirements:

Where request is directly related to an "or equal" clause or other language of same effect in contract documents.

Where required product, material or method cannot be provided within Contract Time, but not as a result of Contractor's failure to pursue the work promptly to coordinate various activities properly.

Where required product, material or method cannot be provided in a manner which is compatible with other materials of the work, or cannot be properly coordinated, therewith, or cannot be warranted as required, or cannot be used without adversely affecting Owner's insurance coverage on completed work, or will encounter other substantial non-compliances which are not possible to otherwise overcome except by making requested substitution, which Contractor thereby certifies to overcome such non-compatibility, non-coordination, non-warranty, non-insurability or other non-compliance as claimed.

Where required product, material or method cannot receive required approval by a governing authority, and requested substitution can be so approved.

Where substantial advantage is offered Owner, in terms of cost, time, energy conservation or other valuable considerations, after deducting offsetting responsibilities Owner may be required to bear, including additional compensation to Engineer for redesign and evaluation services, increased cost of other work by Owner or separate contractors, and similar considerations.

Work Related Submittals: Contractor's submittal of, (and Engineer's acceptance of) shop drawings, product data or samples which indicated work not complying with requirements of contract documents, does not constitute an acceptable and valid request for, nor approval of, a substitution.

GENERAL PRODUCT REQUIREMENTS

General: Provide products which comply with requirements, and which are undamaged and unused at time of installation, and which are complete with accessories, trim, finish, safety guards and other devices and details needed for a complete installation and for intended use and effect.

Standard Products: Where available, provide standard products of types that have been produced and used previously and successfully on other projects and in similar applications.

Continued Availability: Where additional amounts of a product, by nature of its application, are likely to be needed by Owner at a later date for maintenance and repair or replacement work, provide a standard, domestically produced product which is likely to be available to Owner at such later date.

Equipment Nameplates: Provide permanent nameplate on each item of service-connected or power operated equipment. Indicate manufacturer, product name, model number, serial number, capacity, speed, ratings and similar essential operating data.

PART 3 - EXECUTION (Not Applicable)

TECHNICAL SPECIFICATIONS FOR HELEN McCALL PARK EXPANSION PHASE 1 & PHASE 2
SECTION 01705-PROJECT CLOSEOUT

PART 1 - GENERAL

RELATED DOCUMENTS

Drawings and general provisions of Contract, including General and Supplementary Conditions, apply to work of this section.

DESCRIPTION OF REQUIREMENTS

Definitions: Closeout is hereby defined to include general requirements near the end of Contract Time, in preparation for final acceptance, final payment, normal termination of Contract, and similar actions evidencing completion of the work. Specific requirements for individual units of work are specified elsewhere in these specifications. Time of closeout is directly related to "Substantial Completion", and therefore may be either a single time period for entire work or a series of time periods for individual parts of the work that have been certified as substantially complete at different dates. That time variation (if any) shall be applicable to other provisions of this section.

PREREQUISITES FOR SUBSTANTIAL COMPLETION

General: Prior to requesting Engineer's inspection for certification of substantial completion (for either entire work or portions thereof), complete the following and list known exceptions in request:

In progress payment request, coincident with or first following date claimed, show either 100% completion for portion of work claimed as "substantially complete" or list incomplete items, value of incompletion, and reasons for being incomplete.

Include supporting documentation for completion as indicated in these contract documents.

Submit statement showing accounting of changes to the Contract Sum.

Advise Owner of pending insurance changeover requirements.

Submit special warranties, workmanship/maintenance bonds, maintenance agreements, final certifications and similar documents.

Obtain and submit releases enabling Owner's full and unrestricted use of the work and access to services and utilities, including (where required) operating certificate, and similar releases.

Submit record drawings, maintenance manuals, and similar final record information.
Deliver tools, spare parts, extra stocks of materials, and similar physical items to Owner.

Make final changeover of locks and transmit keys to Owner, and advise Owner's personnel to changeover in security provisions.

Complete start-up testing of systems, and instructions of owner's operating/maintenance personnel. Discontinue (or change over) and remove from project site temporary facilities and services, along with construction tools and facilities, mock-ups, and similar elements.

Complete final cleaning up requirements, including touch-up painting of marred surfaces.

Touch-up and otherwise repair and restore marred exposed finishes.

Inspection Procedures: Upon receipt of Contractor's request, Engineer will either proceed with inspection or advise Contractor of prerequisites not fulfilled. Following initial inspection, Engineer will either prepare certificate of substantial completion, or advise Contractor of work which must be performed prior to issuance of certificate; and repeat inspection when requested and assured that work has been substantially completed. Results of completed inspection will form initial "punch-list" for final acceptance.

PREREQUISITES FOR FINAL ACCEPTANCE

General: Prior to requesting Engineer's final inspection for certification of final acceptance and final payment, as required by General Conditions, complete the following and list known exceptions (if any) in request:

Submit final payment request with final releases and supporting documentation not previously submitted and accepted. Include certificates of insurance for products and completed operations where required.

Submit updated final statement, accounting for additional (final) changes to the Contract Sum.

Submit consent of surety.

Submit final liquidation damages settlement statement, acceptable to Owner.

Revise and submit evidence of final continuing insurance coverage complying with insurance requirements.

Reinspection Procedure: Upon receipt of Contractor's notice that the work has been completed, including punch-list items resulting from earlier inspections, and accepting incomplete items delayed because of acceptable circumstances, Engineer will reinspect the work. Upon completion of reinspection, Engineer will either prepare certificate of final acceptance or advise Contractor of work not completed or obligations not fulfilled as required for final acceptance. If necessary, procedure will be repeated.

RECORD DOCUMENT SUBMITTALS:

General: Specific requirements for record documents are indicated in individual sections of these specifications. Other requirements are indicated in General Conditions. General submittal requirements are indicated in Section 01340 - "Submittals". Do not use record documents for construction purposes; protect from deterioration and loss in a secure fire-resistive location; provide access to record documents for Engineer's reference during normal working hours.

Record Drawings: Maintain a set of contract drawings and shop drawings in clean, undamaged condition, with mark-up of actual installations which very substantially from the work as originally shown. Mark whichever drawing is most capable of showing "field" condition fully and accurately; however, where shop drawings are used for mark-up, record a cross-reference at corresponding location on working drawings. Mark with red erasable pencil and, where feasible, use other colors to distinguish between variations in separate categories of work. Mark-up new information that is recognized to be of importance to Owner, but was for some reason not shown on either the contract drawings or shop drawings. Give particular attention to concealed work, which would be difficult to measure and record at a later date. Note related change order numbers where applicable.

Record Specifications: Maintain one copy of specifications, including addenda, change orders and similar modifications issued in printed form during construction, and mark-up variation (of substance) in actual work in comparison with text of specifications and modifications as issued. Give particular attention to substitutions, selection of options, and similar information on work where it is concealed or cannot otherwise be readily discerned at a latter date by direct observation. Note related record drawing information and product data, where applicable. Upon completion of mark-up, submit to Engineer for Owner's records.

Maintenance Manuals: Organize maintenance-and-operating manual information into suitable sets of manageable size, and bind into individual binders properly identified and indexed (thumb tabbed). Four (4) sets will be required. Include emergency instructions, spare parts listing, copies of warranties, wiring diagrams, recommended "turn-around" cycles, inspection procedures, shop drawings, product data, and similar applicable information.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

CLOSEOUT PROCEDURES

General Operating/Maintenance Instructions: Arrange for each installer of work requiring continuing maintenance or operating to meet with Owner's personnel, at project site, to provide basic instructions needed for proper operation and maintenance of entire work. Include instructions by manufacturer's representatives where installers are not experts in the required procedures. Review maintenance manuals, record documentation, tools, spare parts and materials, lubricants, fuels, identification systems, control sequences, hazards, cleaning and similar procedures and facilities. For operational equipment, demonstrate start-up, shutdown, emergency operations, noise and vibration adjustments, safety, economy/efficiency adjustments, energy effectiveness, and similar operations. Review maintenance and operations in relation with applicable warranties, agreements to maintain, bonds and similar continuing commitments.

FINAL CLEANING

General: Special cleaning for specific units of work is specified in other sections. The following are examples, but not by way of limitation, of cleaning levels required:

Remove labels that are not required as permanent labels.

Wipe surfaces of mechanical and electrical equipment clean and remove excess lubrication and other substances.

Clean project site (yard and grounds), including landscape development areas, of litter and foreign substances. Sweep paved areas to a broom-clean condition; remove stains, petro-chemical spills and other foreign deposits. Rake grounds that are neither planted nor paved, to a smooth, even-textured surface.

Compliances: Comply with safety standards and governing regulations for cleaning operations. Do not burn waste materials at site, or bury debris or excess materials on Owner's property, or discharge volatile or other harmful or dangerous materials into drainage systems; remove waste materials from site and dispose of in a lawful manner.

Where extra materials of value remaining after completion of the associated work have become the Owner's property, dispose of these to Owner's best advantage as directed.

TECHNICAL SPECIFICATIONS FOR HELEN McCALL PARK EXPANSION PHASE 1 & PHASE 2
SECTION 024116 – STRUCTURE DEMOLITION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Demolition and removal of buildings and site improvements.
2. Removing below-grade construction.
3. Disconnecting, capping or sealing, and removing site utilities.
4. Salvaging items for reuse by Owner.

B. Related Requirements:

1. Section 013200 "Construction Progress Documentation" for preconstruction photographs taken before building demolition.
2. Section 311000 "Site Clearing" for site clearing and removal of above- and below-grade site improvements not part of building demolition.

1.2 DEFINITIONS

A. Remove: Detach items from existing construction and dispose of them off-site unless indicated to be salvaged.

B. Remove and Salvage: Detach items from existing construction, in a manner to prevent damage, and deliver to owner. Include fasteners or brackets needed for reattachment elsewhere.

C. Existing to Remain: Leave existing items that are not to be removed and that are not otherwise indicated to be salvaged or reinstalled.

1.3 MATERIALS OWNERSHIP

A. Unless otherwise indicated, demolition waste becomes property of Contractor.

B. Historic items, relics, antiques, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, and other items of interest or value to Owner that may be uncovered during demolition remain the property of Owner.

1. Carefully salvage in a manner to prevent damage and promptly return to Owner.

1.4 CLOSEOUT SUBMITTALS

A. Inventory: Submit a list of items that have been removed and salvaged.

1.5 FIELD CONDITIONS

A. Buildings to be demolished will be vacated and their use discontinued before start of the Work.

B. Owner assumes no responsibility for buildings and structures to be demolished.

1. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.

C. Hazardous Materials: It is not expected that hazardous materials will be encountered in the Work.

1. If materials suspected of containing hazardous materials are encountered, do not disturb; immediately notify Owner. Hazardous materials will be removed by Owner under a separate contract.
2. Do not disturb hazardous materials or items suspected of containing hazardous materials except under procedures specified elsewhere in the Contract Documents.
3. Owner will provide material safety data sheets for materials that are known to be present in buildings and structures to be demolished because of building operations or processes performed there.

D. On-site storage or sale of removed items or materials is not permitted.

1.6 COORDINATION

A. Arrange demolition schedule so as not to interfere with Owner’s on-site iperations.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

B. Standards: Comply with ANSI/ASSP A10.6 and NFPA 241.

2.2 SOIL MATERIALS

A. Satisfactory Soils: Comply with requirements in Section 312000 "Earth Moving."

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that utilities have been disconnected and capped before starting demolition operations.

B. Review Project Record Documents of existing construction or other existing condition and hazardous material information provided by Owner. Owner does not guarantee that existing conditions are same as those indicated in Project Record Documents.

C. Perform an engineering survey of condition of building to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of structure or adjacent structures during building demolition operations.

D. Steel Tendons: Locate tensioned steel tendons and include recommendations for de-tensioning.

E. Verify that hazardous materials have been remediated before proceeding with building demolition operations.

F. Inventory and record the condition of items to be removed and salvaged.

3.2 PREPARATION

A. Refrigerant: Before starting demolition, remove refrigerant from mechanical equipment according to 40 CFR 82 and regulations of authorities having jurisdiction.

B. Salvaged Items: Comply with the following:

1. Clean salvaged items of dirt and demolition debris.
2. Pack or crate items after cleaning. Identify contents of containers.
3. Store items in a secure area until delivery to Owner.
4. Transport items to storage area designated by Owner.
5. Protect items from damage during transport and storage.

3.3 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

A. Existing Utilities to Be Disconnected: Locate, identify, disconnect, and seal or cap off utilities serving buildings and structures to be demolished.

1. Arrange to shut off utilities with utility companies.
2. If removal, relocation, or abandonment of utility services will affect adjacent occupied buildings, then provide temporary utilities that bypass buildings and structures to be demolished and that maintain continuity of service to other buildings and structures.
3. Cut off pipe or conduit a minimum of 24 inches (610 mm) below grade. Cap, valve, or plug and seal remaining portion of pipe or conduit after bypassing according to requirements of authorities having jurisdiction.
4. Do not start demolition work until utility disconnecting and sealing have been completed and verified in writing.

3.4 PROTECTION

A. Existing Facilities: Protect adjacent walkways, loading docks, building entries, and other building facilities during demolition operations. Maintain exits from existing buildings.

B. Temporary Shoring: Provide and maintain interior and exterior shoring, bracing, or structural support to preserve stability and prevent unexpected movement or collapse of construction being demolished.

1. Strengthen or add new supports when required during progress of demolition.

C. Existing Utilities to Remain: Maintain utility services to remain and protect from damage during demolition operations.

1. Do not interrupt existing utilities serving adjacent occupied or operating facilities unless authorized in writing by Owner and authorities having jurisdiction.
2. Provide temporary services during interruptions to existing utilities, as acceptable to Owner and authorities having jurisdiction.

    a. Provide at least 72 hours' notice to occupants of affected buildings if shutdown of service is required during changeover.

D. Temporary Protection: Erect temporary protection, such as walks, fences, railings, canopies, and covered passageways, where required by authorities having jurisdiction and as indicated.

1. Protect adjacent buildings and facilities from damage due to demolition activities.
2. Protect existing site improvements, appurtenances, and landscaping to remain.
3. Erect a plainly visible fence around drip line of individual trees or around perimeter drip line of groups of trees to remain.
4. Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
5. Provide protection to ensure safe passage of people around building demolition area and to and from occupied portions of adjacent buildings and structures.
6. Protect walls, windows, roofs, and other adjacent exterior construction that are to remain and that are exposed to building demolition operations.
7. Erect and maintain dustproof partitions and temporary enclosures to limit dust, noise, and dirt migration to occupied portions of adjacent buildings.

E. Remove temporary barriers and protections where hazards no longer exist. Where open excavations or other hazardous conditions remain, leave temporary barriers and protections in place.

3.5 DEMOLITION, GENERAL

A. General: Demolish indicated buildings and site improvements completely. Use methods required to complete the Work within limitations of governing regulations and as follows:

1. Do not use cutting torches until work area is cleared of flammable materials. Maintain portable fire-suppression devices during flame-cutting operations.
2. Maintain fire watch during cutting operations.
3. Maintain adequate ventilation when using cutting torches.
4. Locate building demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.

B. Site Access and Temporary Controls: Conduct building demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

1. Do not close or obstruct streets, walks, walkways, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction. Provide alternate routes around closed or obstructed trafficways if required by authorities having jurisdiction.

2. Use water mist and other suitable methods to limit spread of dust and dirt. Comply with governing environmental-protection regulations. Do not use water when it may damage adjacent construction or create hazardous or objectionable conditions, such as ice, flooding, and pollution.

C. Explosives: Use of explosives is not permitted.

3.6 DEMOLITION BY MECHANICAL MEANS

A. Proceed with demolition of structural framing members systematically, from higher to lower level. Complete building demolition operations above each floor or tier before disturbing supporting members on the next lower level.

B. Remove debris from elevated portions of the building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.

1. Remove structural framing members and lower to ground by method suitable to minimize ground impact and dust generation.

C. Salvage: Items to be removed and salvaged shall be identified by Owner.

D. Below-Grade Construction: Abandon foundation walls and other below-grade construction. Cut below-grade construction flush with grade.

E. Below-Grade Construction: Demolish foundation walls and other below-grade construction that are within footprint of new construction and extending 5 feet (1.5 m) outside footprint indicated for new construction. Abandon below-grade construction outside this area.

1. Remove below-grade construction, including basements, foundation walls, and footings, completely.

F. Below-Grade Construction: Demolish foundation walls and other below-grade construction.

1. Remove below-grade construction, including basements, foundation walls, and footings, completely.

G. Existing Utilities: Demolish and remove existing utilities and below-grade utility structures.

3.7 SITE RESTORATION

A. Below-Grade Areas: Rough grade below-grade areas ready for further excavation or new construction.

B. Site Grading: Uniformly rough grade area of demolished construction to a smooth surface, free from irregular surface changes. Provide a smooth transition between adjacent existing grades and new grades.

3.8 REPAIRS

A. Promptly repair damage to adjacent buildings caused by demolition operations.

3.9 DISPOSAL OF DEMOLISHED MATERIALS

A. Remove demolition waste materials from Project site and dispose of them in an EPA-approved construction and demolition waste landfill acceptable to authorities having jurisdiction.

1. Do not allow demolished materials to accumulate on-site.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

B. Do not burn demolished materials.

3.10 CLEANING

A. Clean adjacent structures and improvements of dust, dirt, and debris caused by building demolition operations. Return adjacent areas to condition existing before building demolition operations began.

1. Clean roadways of debris caused by debris transport.

END OF SECTION 024116

TECHNICAL SPECIFICATIONS FOR HELEN McCALL PARK EXPANSION PHASE 1 & PHASE 2
SECTION 033000 – CAST-IN-PLACE CONCRETE-SITE

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes: This section specifies cast-in-place concrete, including formwork, reinforcement, concrete materials, mixture design, placement procedures, and finishes, for the following:

1. Footings
2. Foundation walls
3. Slabs-on-grade

B. Related Requirements:

1. Section 312000 "Earth Moving" for drainage fill under slabs-on-ground.
2. Section 321313 "Concrete Paving" for concrete pavement and walks.

1.2 DEFINITIONS

A. Cementitious Materials: Portland cement alone or in combination with one or more of the following: blended hydraulic cement, fly ash, slag cement, other pozzolans, and silica fume; materials subject to compliance with requirements.

B. Water/Cement Ratio (w/cm): The ratio by weight of water to cementitious materials.

1.3 ACTION SUBMITTALS

A. Design Mixtures: For each concrete mixture, include the following:

1. Mixture identification.
2. Minimum 28-day compressive strength.
3. Durability exposure class.
4. Maximum w/cm.
5. Calculated equilibrium unit weight, for lightweight concrete.
6. Slump limit.
7. Air content.
8. Nominal maximum aggregate size.
9. Steel-fiber reinforcement content.
10. Synthetic micro-fiber content.
11. Indicate amounts of mixing water to be withheld for later addition at Project site if permitted.
12. Intended placement method.
13. Submit alternate design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.

B. Shop Drawings:

1. Construction Joint Layout: Indicate proposed construction joints required to construct the structure.

a. Location of construction joints is subject to approval of the Owner.

2. Steel Reinforcement: Placing drawings that detail fabrication, bending, and placement. Include bar sizes, lengths, material, grade, bar schedules, stirrup spacing, ben bar diagrams, bar arrangement, splices and laps, mechanical connections, tie spacing, hoop spacing, and supports for concrete reinforcement.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: A qualified installer who employs Project personnel qualified as an ACI-certified Flatwork Technician and Finisher and a supervisor who is a certified ACI Flatwork Concrete Finisher/Technician or an ACI Concrete Flatwork Technician with experience installing and finishing concrete.

1. Post-Installed Concrete Anchors Installers: ACI-certified Adhesive Anchor Installer.

B. Ready-Mixed Concrete Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C94/C94M requirements for production facilities and equipment.

1. Manufacturer certified in accordance with NRMCA's "Certification of Ready Mixed Concrete Production Facilities."

C. Laboratory Testing Agency Qualifications: A testing agency qualified in accordance with ASTM C1077 and ASTM E329 for testing indicated and employing an ACI-certified Concrete Quality Control Technical Manager.

1. Personnel performing laboratory tests to be an ACI-certified Concrete Strength Testing Technician and Concrete Laboratory Testing Technician, Grade I. Testing agency laboratory supervisor to be an ACI-certified Concrete Laboratory Testing Technician, Grade II.

D. Field Quality-Control Testing Agency Qualifications: An independent agency, acceptable to authorities having jurisdiction, qualified in accordance with ASTM C1077 and ASTM E329 for testing indicated.

1. Personnel conducting field tests to be qualified as an ACI Concrete Field Testing Technician, Grade 1, in accordance with ACI CPP 610.1 or an equivalent certification program.

1.5 PRECONSTRUCTION TESTING

A. Preconstruction Testing Service: Engage a qualified testing agency to perform preconstruction testing on each concrete mixture.

1. Include the following information in each test report:

a. Admixture dosage rates.
b. Slump.
c. Air content.

d. Seven-day compressive strength.
e. 28-day compressive strength.
f. Permeability.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Comply with ASTM C94/C94M and ACI 301 (ACI 301M).

1.7 FIELD CONDITIONS

A. Cold-Weather Placement: Comply with ACI 301 (ACI 301M) and ACI 306.1 and as follows.

1. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.
2. When average high and low temperature is expected to fall below 40 deg F (4.4 deg C) for three successive days, maintain delivered concrete mixture temperature within the temperature range required by ACI 301 (ACI 301M).
3. Do not use frozen materials or materials containing ice or snow.
4. Do not place concrete in contact with surfaces less than 35 deg F (1.7 deg C), other than reinforcing steel.
5. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in mixture designs.

B. Hot-Weather Placement: Comply with ACI 301 (ACI 301M) and ACI 305.1 (ACI 305.1M), and as follows:

1. Maintain concrete temperature at time of discharge to not exceed 95 deg F (35 deg C).
2. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade uniformly moist without standing water, soft spots, or dry areas.

1.8 WARRANTY

A. Manufacturer's Warranty: Manufacturer agrees to furnish replacement sheet vapor retarder/termite barrier material and accessories for sheet vapor retarder/ termite barrier and accessories that do not comply with requirements or that fail to resist penetration by termites within specified warranty period.

1. Warranty Period: 10 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 CONCRETE, GENERAL

A. ACI Publications: Comply with ACI 301 (ACI 301M) unless modified by requirements in the Contract Documents.

2.2 CONCRETE MATERIALS

A. Source Limitations:

1. Obtain all concrete mixtures from a single ready-mixed concrete manufacturer for entire Project.
2. Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant.
3. Obtain aggregate from single source.
4. Obtain each type of admixture from single source from single manufacturer.

B. Cementitious Materials:

1. Portland Cement: ASTM C150/C150M, Type I, white.
2. Fly Ash: ASTM C618, Class C or F.
3. Slag Cement: ASTM C989/C989M, Grade 100 or 120.

C. Normal-Weight Aggregates: ASTM C33/C33M, uniformly graded. Provide aggregates from a single source.

D. Air-Entraining Admixture: ASTM C260/C260M.

E. Chemical Admixtures: Certified by manufacturer to be compatible with other admixtures that do not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.

1. Water-Reducing Admixture: ASTM C494/C494M, Type A.
2. Retarding Admixture: ASTM C494/C494M, Type B.
3. Water-Reducing and -Retarding Admixture: ASTM C494/C494M, Type D.
4. High-Range, Water-Reducing Admixture: ASTM C494/C494M, Type F.
5. High-Range, Water-Reducing and -Retarding Admixture: ASTM C494/C494M, Type G.
6. Plasticizing and Retarding Admixture: ASTM C1017/C1017M, Type II.
7. Set-Accelerating Corrosion-Inhibiting Admixture: Commercially formulated, anodic inhibitor or mixed cathodic and anodic inhibitor; capable of forming a protective barrier and minimizing chloride reactions with steel reinforcement in concrete and complying with ASTM C494/C494M, Type C.
8. Non-Set-Accelerating Corrosion-Inhibiting Admixture: Commercially formulated, non-set-accelerating, anodic inhibitor or mixed cathodic and anodic inhibitor; capable of forming a protective barrier and minimizing chloride reactions with steel reinforcement in concrete.

F. Water and Water Used to Make Ice: ASTM C94/C94M.

2.3 VAPOR RETARDERS

A. Sheet Vapor Retarder, Class A: ASTM E1745, Class A; not less than 10 mils (0.25 mm) thick. Include manufacturer's recommended adhesive or pressure-sensitive tape.

2.4 CURING MATERIALS

A. Evaporation Retarder: Waterborne, monomolecular film forming, manufactured for application to fresh concrete.

B. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. (305 g/sq. m) when dry.

C. Moisture-Retaining Cover: ASTM C171, polyethylene film burlap-polyethylene sheet.

1. Color:

a. Ambient Temperature Below 50 deg F (10 deg C): Black.
b. Ambient Temperature between 50 deg F (10 deg C) and 85 deg F (29 deg C): Any color.
c. Ambient Temperature Above 85 deg F (29 deg C): White.

D. Curing Paper: 8-feet- (2438-mm-) wide paper, consisting of two layers of fibered kraft paper laminated with double coating of asphalt.

E. Water: Potable or complying with ASTM C1602/C1602M.

F. Clear, Waterborne, Membrane-Forming, Curing Compound: ASTM C309, Type 1, Class B.

G. Clear, Waterborne, Membrane-Forming, Curing and Sealing Compound: ASTM C1315, Type 1, Class A.

2.5 RELATED MATERIALS

A. Expansion- and Isolation-Joint-Filler Strips: ASTM D1751, asphalt-saturated cellulosic fiber.

B. Semirigid Joint Filler: Two-component, semirigid, 100 percent solids, epoxy resin with a Type A shore durometer hardness of 80 in accordance with ASTM D2240.

C. Bonding Agent: ASTM C1059/C1059M, Type II, nonredispersible, acrylic emulsion or styrene butadiene.

2.6 CONCRETE MIXTURES, GENERAL

A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, in accordance with ACI 301 (ACI 301M).

1. Use a qualified testing agency for preparing and reporting proposed mixture designs, based on laboratory trial mixtures.

B. Cementitious Materials: Limit percentage, by weight, of cementitious materials other than portland cement in concrete as follows:

1. Fly Ash or Other Pozzolans: 25 percent by mass.
2. Slag Cement: 50 percent by mass.
3. Silica Fume: 10 percent by mass.
4. Total of Fly Ash or Other Pozzolans, Slag Cement, and Silica Fume: 50 percent by mass, with fly ash or pozzolans not exceeding 25 percent by mass and silica fume not exceeding 10 percent by mass.
5. Total of Fly Ash or Other Pozzolans and Silica Fume: 35 percent by mass with fly ash or pozzolans not exceeding 25 percent by mass and silica fume not exceeding 10 percent by mass.

C. Admixtures: Use admixtures in accordance with manufacturer's written instructions.

1. Use water-reducing or plasticizing admixture in concrete, as required, for placement and workability.
2. Use water-reducing and -retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.
3. Use water-reducing admixture in pumped concrete, [concrete for heavy-use industrial slabs, concrete for parking structure slabs, and concrete with a w/cm below 0.50.
4. Use corrosion-inhibiting admixture in concrete mixtures where indicated.

2.7 CONCRETE MIXING

A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete in accordance with ASTM C94/C94M[and ASTM C1116/C1116M], and furnish batch ticket information.

B. Project-Site Mixing: Measure, batch, and mix concrete materials and concrete in accordance with ASTM C94/C94M. Mix concrete materials in appropriate drum-type batch machine mixer.

1. For mixer capacity of 1 cu. yd. (0.76 cu. m) or smaller, continue mixing at least 1-1/2 minutes, but not more than five minutes after ingredients are in mixer, before any part of batch is released.
2. For mixer capacity larger than 1 cu. yd. (0.76 cu. m), increase mixing time by 15 seconds for each additional 1 cu. yd. (0.76 cu. m).
3. Provide batch ticket for each batch discharged and used in the Work, indicating Project identification name and number, date, mixture type, mixture time, quantity, and amount of water added. Record approximate location of final deposit in structure.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verification of Conditions:

1. Before placing concrete, verify that installation of concrete forms, accessories, and reinforcement, and embedded items is complete and that required inspections have been performed.
2. Do not proceed until unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Provide reasonable auxiliary services to accommodate field testing and inspections, acceptable to testing agency, including the following:

1. Daily access to the Work.
2. Incidental labor and facilities necessary to facilitate tests and inspections.
3. Secure space for storage, initial curing, and field curing of test samples, including source of water and continuous electrical power at Project site during site curing period for test samples.
4. Security and protection for test samples and for testing and inspection equipment at Project site.

3.3 INSTALLATION OF EMBEDDED ITEMS

A. Place and secure anchorage devices and other embedded items required for adjoining Work that is attached to or supported by cast-in-place concrete.

1. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
2. Install anchor rods, accurately located, to elevations required and complying with tolerances in Section 7.5 of ANSI/AISC 303.
3. Install reglets to receive waterproofing and to receive through-wall flashings in outer face of concrete frame at exterior walls, where flashing is shown at lintels, shelf angles, and other conditions.

3.4 INSTALLATION OF VAPOR RETARDER

A. Sheet Vapor Retarders: Place, protect, and repair sheet vapor retarder in accordance with ASTM E1643 and manufacturer's written instructions.

1. Install vapor retarder with longest dimension parallel with direction of concrete pour.
2. Face laps away from exposed direction of concrete pour.
3. Lap vapor retarder over footings and grade beams not less than 6 inches (150 mm), sealing vapor retarder to concrete.
4. Lap joints 6 inches (150 mm) and seal with manufacturer's recommended tape.
5. Terminate vapor retarder at the top of floor slabs, grade beams, and pile caps, sealing entire perimeter to floor slabs, grade beams, foundation walls, or pile caps.
6. Seal penetrations in accordance with vapor retarder manufacturer's instructions.
7. Protect vapor retarder during placement of reinforcement and concrete.

    a. Repair damaged areas by patching with vapor retarder material, overlapping damages area by 6 inches (150 mm) on all sides, and sealing to vapor retarder.

B. Bituminous Vapor Retarders: Place, protect, and repair bituminous vapor retarder in accordance with manufacturer's written instructions.

3.5 JOINTS

A. Construct joints true to line, with faces perpendicular to surface plane of concrete.

B. Construction Joints: Coordinate with floor slab pattern and concrete placement sequence.

1. Install so strength and appearance of concrete are not impaired, at locations indicated on Drawings or as approved by Owner.
2. Place joints perpendicular to main reinforcement.

    a. Continue reinforcement across construction joints unless otherwise indicated.
    b. Do not continue reinforcement through sides of strip placements of floors and slabs.

3. Form keyed joints as indicated. Embed keys at least 1-1/2 inches (38 mm) into concrete.
4. Locate joints for beams, slabs, joists, and girders at third points of spans. Offset joints in girders a minimum distance of twice the beam width from a beam-girder intersection.

5. Locate horizontal joints in walls and columns at underside of floors, slabs, beams, and girders and at the top of footings or floor slabs.
6. Use epoxy-bonding adhesive at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.

C. Control Joints in Slabs-on-Ground: Form weakened-plane control joints, sectioning concrete into areas as indicated. Construct control joints for a depth equal to at least one-fourth of concrete thickness as follows:

1. Grooved Joints: Form control joints after initial floating by grooving and finishing each edge of joint to a radius of 1/8 inch (3.2 mm). Repeat grooving of control joints after applying surface finishes. Eliminate groover tool marks on concrete surfaces.

D. Isolation Joints in Slabs-on-Ground: After removing formwork, install joint-filler strips at slab junctions with vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.

1. Extend joint-filler strips full width and depth of joint, terminating flush with finished concrete surface unless otherwise indicated on Drawings.
2. Terminate full-width joint-filler strips not less than 1/2 inch (13 mm) or more than 1 inch (25 mm) below finished concrete surface, where joint sealants, specified in Section 079200 "Joint Sealants," are indicated.
3. Install joint-filler strips in lengths as long as practicable. Where more than one length is required, lace or clip sections together.

E. Doweled Joints:

1. Install dowel bars and support assemblies at joints where indicated on Drawings.
2. Lubricate or asphalt coat one-half of dowel bar length to prevent concrete bonding to one side of joint.

3.6 CONCRETE PLACEMENT

A. Before placing concrete, verify that installation of formwork, reinforcement, embedded items, and vapor retarder is complete and that required inspections are completed.

1. Immediately prior to concrete placement, inspect vapor retarder for damage and deficient installation, and repair defective areas.
2. Provide continuous inspection of vapor retarder during concrete placement and make necessary repairs to damaged areas as Work progresses.

B. Do not add water to concrete during delivery, at Project site, or during placement unless approved by Owner in writing, but not to exceed the amount indicated on the concrete delivery ticket.

C. Before test sampling and placing concrete, water may be added at Project site, subject to limitations of ACI 301 (ACI 301M), but not to exceed the amount indicated on the concrete delivery ticket.

1. Do not add water to concrete after adding high-range water-reducing admixtures to mixture.

D. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete is placed on concrete that has hardened enough to cause seams or planes of weakness.

1. If a section cannot be placed continuously, provide construction joints as indicated.

2. Deposit concrete to avoid segregation.
3. Deposit concrete in horizontal layers of depth not to exceed formwork design pressures and in a manner to avoid inclined construction joints.
4. Consolidate placed concrete with mechanical vibrating equipment in accordance with ACI 301 (ACI 301M).

    a. Do not use vibrators to transport concrete inside forms.
    b. Insert and withdraw vibrators vertically at uniformly spaced locations to rapidly penetrate placed layer and at least 6 inches (150 mm) into preceding layer.
    c. Do not insert vibrators into lower layers of concrete that have begun to lose plasticity.
    d. At each insertion, limit duration of vibration to time necessary to consolidate concrete, and complete embedment of reinforcement and other embedded items without causing mixture constituents to segregate.

E. Deposit and consolidate concrete for floors and slabs in a continuous operation, within limits of construction joints, until placement of a panel or section is complete.

1. Do not place concrete floors and slabs in a checkerboard sequence.
2. Consolidate concrete during placement operations, so concrete is thoroughly worked around reinforcement and other embedded items and into corners.
3. Maintain reinforcement in position on chairs during concrete placement.
4. Screed slab surfaces with a straightedge and strike off to correct elevations.
5. Level concrete, cut high areas, and fill low areas.
6. Slope surfaces uniformly to drains where required.
7. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane, before excess bleedwater appears on the surface.
8. Do not further disturb slab surfaces before starting finishing operations.

3.7 FINISHING FORMED SURFACES

A. Related Unformed Surfaces:

1. At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a color and texture matching adjacent formed surfaces.
2. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces unless otherwise indicated.

3.8 FINISHING FLOORS AND SLABS

A. Comply with ACI 302.1R recommendations for screeding, restraightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.

B. Float Finish:

1. When bleedwater sheen has disappeared and concrete surface has stiffened sufficiently to permit operation of specific float apparatus, consolidate concrete surface with power-driven floats or by hand floating if area is small or inaccessible to power-driven floats.
2. Repeat float passes and restraightening until surface is left with a uniform, smooth, granular texture and complies with ACI 117 (ACI A117M) tolerances for conventional concrete.
3. Apply float finish to surfaces indicated.

C. Broom Finish: Apply a broom finish to exterior concrete platforms, steps, ramps, and locations indicated on Drawings.

1. Immediately after float finishing, slightly roughen trafficked surface by brooming with fiber-bristle broom perpendicular to main traffic route.
2. Coordinate required final finish with Architect before application.

3.9 INSTALLATION OF MISCELLANEOUS CONCRETE ITEMS

A. Filling In:

1. Fill in holes and openings left in concrete structures after Work of other trades is in place unless otherwise indicated.
2. Mix, place, and cure concrete, as specified, to blend with in-place construction.
3. Provide other miscellaneous concrete filling indicated or required to complete the Work.

B. Curbs: Provide monolithic finish to interior curbs by stripping forms while concrete is still green and by steel-troweling surfaces to a hard, dense finish with corners, intersections, and terminations slightly rounded.

C. Equipment Bases and Foundations: Provide machine and equipment bases and foundations as shown on Drawings. Set anchor bolts for machines and equipment at correct elevations, complying with diagrams or templates from manufacturer furnishing machines and equipment.

D. Steel Pan Stairs: Provide concrete fill for steel pan stair treads, landings, and associated items.

1. Cast-in inserts and accessories, as shown on Drawings.
2. Screed, tamp, and trowel finish concrete surfaces.

3.10 CONCRETE CURING

A. Protect freshly placed concrete from premature drying and excessive cold or hot temperatures.

1. Comply with ACI 301 (ACI 301M) and ACI 306.1 for cold weather protection during curing.
2. Comply with ACI 301 (ACI 301M) and ACI 305.1 (ACI 305.1M) for hot-weather protection during curing.
3. Maintain moisture loss no more than 0.2 lb/sq. ft. x h (1 kg/sq. m x h), calculated in accordance with ACI 305.1, before and during finishing operations.

B. Curing Formed Surfaces: Comply with ACI 308.1 (ACI 308.1M) as follows:

1. Cure formed concrete surfaces, including underside of beams, supported slabs, and other similar surfaces.
2. Cure concrete containing color pigments in accordance with color pigment manufacturer's instructions.
3. If forms remain during curing period, moist cure after loosening forms.
4. If removing forms before end of curing period, continue curing for remainder of curing period, as follows:

a. Continuous Fogging: Maintain standing water on concrete surface until final setting of concrete.

b. Continuous Sprinkling: Maintain concrete surface continuously wet.
c. Absorptive Cover: Pre-dampen absorptive material before application; apply additional water to absorptive material to maintain concrete surface continuously wet.
d. Water-Retention Sheeting Materials: Cover exposed concrete surfaces with sheeting material, taping, or lapping seams.
e. Membrane-Forming Curing Compound: Apply uniformly in continuous operation by power spray or roller in accordance with manufacturer's written instructions.

1) Recoat areas subject to heavy rainfall within three hours after initial application.
2) Maintain continuity of coating and repair damage during curing period.

C. Curing Unformed Surfaces: Comply with ACI 308.1 (ACI 308.1M) as follows:

1. Begin curing immediately after finishing concrete.
2. Cure unformed surfaces, including floors and slabs, concrete floor toppings, and other surfaces.

a. Floors to Receive Floor Coverings Specified in Other Sections: Contractor has option of the following:

1) Absorptive Cover: As soon as concrete has sufficient set to permit application without marring concrete surface, install prewetted absorptive cover over entire area of floor.

a) Lap edges and ends of absorptive cover not less than 12 inches (300 mm).
b) Maintain absorptive cover water saturated, and in place, for duration of curing period, but not less than seven days.

2) Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches (300 mm), and sealed by waterproof tape or adhesive.

a) Immediately repair any holes or tears during curing period, using cover material and waterproof tape.
b) Cure for not less than seven days.

3) Ponding or Continuous Sprinkling of Water: Maintain concrete surfaces continuously wet for not less than seven days, utilizing one, or a combination of, the following:

a) Water.
b) Continuous water-fog spray.

3.11 TOLERANCES

A. Conform to ACI 117 (ACI 117M).

3.12 JOINT FILLING

A. Prepare, clean, and install joint filler in accordance with manufacturer's written instructions.

1. Defer joint filling until concrete has aged at least one month.
2. Do not fill joints until construction traffic has permanently ceased.

B. Remove dirt, debris, saw cuttings, curing compounds, and sealers from joints; leave contact faces of joints clean and dry.

C. Install semirigid joint filler full depth in saw-cut joints and at least 2 inches (50 mm) deep in formed joints.

D. Overfill joint, and trim joint filler flush with top of joint after hardening.

3.13 CONCRETE SURFACE REPAIRS

A. Defective Concrete:

1. Repair and patch defective areas when approved by Architect.
2. Remove and replace concrete that cannot be repaired and patched to Architect's approval.

B. Patching Mortar: Mix dry-pack patching mortar, consisting of 1 part portland cement to 2-1/2 parts fine aggregate passing a No. 16 (1.18-mm) sieve, using only enough water for handling and placing.

C. Repairing Formed Surfaces: Surface defects include color and texture irregularities, cracks, spalls, air bubbles, honeycombs, rock pockets, fins and other projections on the surface, and stains and other discolorations that cannot be removed by cleaning.

1. Immediately after form removal, cut out honeycombs, rock pockets, and voids more than 1/2 inch (13 mm) in any dimension to solid concrete.

    a. Limit cut depth to 3/4 inch (19 mm).
    b. Make edges of cuts perpendicular to concrete surface.
    c. Clean, dampen with water, and brush-coat holes and voids with bonding agent.
    d. Fill and compact with patching mortar before bonding agent has dried.
    e. Fill form-tie voids with patching mortar or cone plugs secured in place with bonding agent.

2. Repair defects on surfaces exposed to view by blending white portland cement and standard portland cement, so that, when dry, patching mortar matches surrounding color.

    a. Patch a test area at inconspicuous locations to verify mixture and color match before proceeding with patching.
    b. Compact mortar in place and strike off slightly higher than surrounding surface.

3. Repair defects on concealed formed surfaces that will affect concrete's durability and structural performance as determined by Architect.

D. Repairing Unformed Surfaces:

1. Test unformed surfaces, such as floors and slabs, for finish, and verify surface tolerances specified for each surface.

    a. Correct low and high areas.
    b. Test surfaces sloped to drain for trueness of slope and smoothness; use a sloped template.

2. Repair finished surfaces containing surface defects, including spalls, popouts, honeycombs, rock pockets, crazing, and cracks in excess of 0.01 inch (0.25 mm) wide or that penetrate to

reinforcement or completely through unreinforced sections regardless of width, and other objectionable conditions.

3. After concrete has cured at least 14 days, correct high areas by grinding.
4. Correct localized low areas during, or immediately after, completing surface-finishing operations by cutting out low areas and replacing with patching mortar.

    a. Finish repaired areas to blend into adjacent concrete.

5. Repair defective areas, except random cracks and single holes 1 inch (25 mm) or less in diameter, by cutting out and replacing with fresh concrete.

    a. Remove defective areas with clean, square cuts, and expose steel reinforcement with at least a 3/4-inch (19-mm) clearance all around.
    b. Dampen concrete surfaces in contact with patching concrete and apply bonding agent.
    c. Mix patching concrete of same materials and mixture as original concrete, except without coarse aggregate.
    d. Place, compact, and finish to blend with adjacent finished concrete.
    e. Cure in same manner as adjacent concrete.

6. Repair random cracks and single holes 1 inch (25 mm) or less in diameter with patching mortar.

    a. Groove top of cracks and cut out holes to sound concrete, and clean off dust, dirt, and loose particles.
    b. Dampen cleaned concrete surfaces and apply bonding agent.
    c. Place patching mortar before bonding agent has dried.
    d. Compact patching mortar and finish to match adjacent concrete.
    e. Keep patched area continuously moist for at least 72 hours.

E. Perform structural repairs of concrete, subject to Architect's approval, using epoxy adhesive and patching mortar.

F. Repair materials and installation not specified above may be used, subject to Architect's approval.

3.14 FIELD QUALITY CONTROL

A. Testing Agency: Owner will engage a qualified testing and inspecting agency to perform tests and inspections and to submit reports.

B. Concrete Tests: Testing of composite samples of fresh concrete obtained in accordance with ASTM C 172/C 172M to be performed in accordance with the following requirements:

1. Testing Frequency: Obtain one composite sample for each day's pour of each concrete mixture exceeding 5 cu. yd. (4 cu. m), but less than 25 cu. yd. (19 cu. m), plus one set for each additional 50 cu. yd. (38 cu. m) or fraction thereof.

    a. When frequency of testing provides fewer than five compressive-strength tests for each concrete mixture, testing to be conducted from at least five randomly selected batches or from each batch if fewer than five are used.

2. Slump: ASTM C143/C143M:

a. One test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mixture.
b. Perform additional tests when concrete consistency appears to change.

3. Air Content: ASTM C231/C231M pressure method, for normal-weight concrete;

   a. One test for each composite sample, but not less than one test for each day's pour of each concrete mixture.

4. Concrete Temperature: ASTM C1064/C1064M:

   a. One test hourly when air temperature is 40 deg F (4.4 deg C) and below or 80 deg F (27 deg C) and above, and one test for each composite sample.

5. Compression Test Specimens: ASTM C31/C31M:

   a. Cast and laboratory cure two sets of two 6-inch (150 mm) by 12-inch (300 mm) or 4-inch (100 mm) by 8-inch (200 mm) cylinder specimens for each composite sample.
   b. Cast, initial cure, and field cure two standard cylinder specimens for each composite sample.

6. Compressive-Strength Tests: ASTM C39/C39M.

   a. Test one set of two laboratory-cured specimens at seven days and one set of two specimens at 28 days.
   b. A compressive-strength test to be the average compressive strength from a set of two specimens obtained from same composite sample and tested at age indicated.

7. When strength of field-cured cylinders is less than 85 percent of companion laboratory-cured cylinders, Contractor to evaluate operations and provide corrective procedures for protecting and curing in-place concrete.

8. Strength of each concrete mixture will be satisfactory if every average of any three consecutive compressive-strength tests equals or exceeds specified compressive strength, and no compressive-strength test value falls below specified compressive strength by more than 500 psi (3.4 MPa) if specified compressive strength is 5000 psi (34.5 MPa), or no compressive strength test value is less than 10 percent of specified compressive strength if specified compressive strength is greater than 5000 psi (34.5 MPa).

9. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Architect but will not be used as sole basis for approval or rejection of concrete.

10. Additional Tests:

    a. Testing and inspecting agency to make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Architect.
    b. Testing and inspecting agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C42/C42M or by other methods as directed by Architect.

       1) Acceptance criteria for concrete strength to be in accordance with ACI 301 (ACI 301M), Section 1.6.6.3.

11. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

12. Correct deficiencies in the Work that test reports and inspections indicate do not comply with the Contract Documents.

C. Measure floor and slab flatness and levelness in accordance with ASTM E1155 (ASTM E1155M) within **24** hours of completion of floor finishing and promptly report test results to Owner.

3.15 PROTECTION

A. Protect concrete surfaces as follows:

1. Protect from petroleum stains.
2. Diaper hydraulic equipment used over concrete surfaces.
3. Prohibit vehicles from interior concrete slabs.
4. Prohibit use of pipe-cutting machinery over concrete surfaces.
5. Prohibit placement of steel items on concrete surfaces.
6. Prohibit use of acids or acidic detergents over concrete surfaces.
7. Protect liquid floor treatment from damage and wear during the remainder of construction period. Use protective methods and materials, including temporary covering, recommended in writing by liquid floor treatments installer.

END OF SECTION 033000

TECHNICAL SPECIFICATIONS FOR HELEN McCALL PARK EXPANSION PHASE 1 & PHASE 2
SECTION 042200 – CONCRETE UNIT MASONRY

PART 1 - GENERAL CONDITIONS:

A. The General and Special Conditions, Division II, Sections Q and R of these specifications shall apply to and form a part of this Section as if written in full herein.

1.1 SCOPE:

A. Furnish all labor, materials, equipment, services and perform all operations necessary to complete all masonry work as shown on the drawings and as specified.

B. All reinforced masonry construction shall comply with ACI 530-02 and the Florida Building Code 2004 and it's supplements.

1.2 MATERIALS:

A. Concrete Masonry Units: Sizes and shapes as shown and detailed shall be even in color, weight, texture and composition. They shall be approved lightweight block units to meet ASTM Specifications ASTM C-90-75, Grade N-1. Compressive strength for concrete masonry units shall be a minimum of 1900 PSI.

B. Special Rated Concrete Masonry Units: Shall be 12" x 16" split face concrete block with extra wall thickness and rated for two (2) hour fire rating. Where used, block to go from floor slab to underside of roof deck. All CMU shall be grouted solid with 3000 PSI pump mix and rodded in accordance with ACI guidelines to assure continuous coverage and absence of voids.

C. Wall Reinforcement: Shall be hot dipped galvanized DUR-0-WAL Ladder Type Reinforcement in 4", 6" 8", 12" and 16" widths as required and shown. DUR-0-WAL shall be standard type No. 9 (W1.7) side rods and No. 9 (W1.7) cross rods. Rods shall be deformed and welded at points of connection. Furnish "L" and "T" sections for corners and wall intersections.

D. Anchors and Ties: Anchors and ties shall be dove tail corrugated galvanized metal of not less than 22 gauge and 6" long. 12 gauge hot dipped galvanized steel and anchored to studs with self-drilling steel stud screws.

E. Submittals: Submit block sample for review and approval prior to placement of orders and delivery.

G. Mortar: Mortar materials for all masonry work shall be measured by volume, separately, and be thoroughly mixed dry in a clean mortar box or mixer, before adding water.

Water shall be added only as needed, using only enough to bring the mixture to a smooth, even consistency. **No retempered mortar shall be used.**

It shall be the contractor's responsibility to see that mortar for the whole project is of one brand, and all shipped from the same batch. It will also be the contractor's responsibility to see that all mortar is mixed on the job to the same consistency to prevent varying joint colors within one wall area.

1. Mortar Mix: (all concrete masonry and face brick)

   a. Materials:

      1. Mortar shall be Type S complying with ASTM C270 for block masonry and type N for Brick.
      2. Water shall be clean and free and fit for drinking.
      3. Sand shall comply to ASTM C-144.

   b. Proportioning: Mortar shall be proportioned with one part by volume of Portland Cement; ¼ to ½ part by volume of hydrated lime; and not less than 2 ¼ nor more than 3 times the sum of volumes of cement and lime used for the volume of sand.

   c. Physical Requirements: Compressive strength of mortar shall be not less than 1800 psi at 28 days from Type "S" mortar and not less than 750 psi at 28 days from Type "N" mortar.

2. Pre-Mixed Mortar: All block and brickwork shall be equal to magnolia Mortar Mix, Type "S". or Type "N" color to match existing. Premixed mortars of the same color as manufactured by LeHigh Portland Cement Company, or Coosa Mortar are acceptable.

1.3 MOCK UP PANEL:

Construct a 3'-4" high x 4'-0" long sample panel with one 90 degree corner of thickness to indicate actual wall. Construct one panel of each type of masonry construction as shown on the drawings.

A. Construct a 3'-4" high x 4'-0" long sample panel with one 90 degree corner of thickness to indicate actual wall. Construct one panel of each type of masonry construction as shown on the drawings.

B. Location of panel shall be adjacent to existing face blockwork.

C. No masonry work shall begin until sample panel has been approved by Engineer.

D. Panel shall be standard range, texture, and workmanship for entire job and shall be used to judge all actual work. Panel shall remain on job until completion.

1.4 LAYING BLOCK:

A. CONCRETE BLOCK:

1. Erect concrete bock walls, partitions, chases where indicated. Bed each course solidly in mortar, with vertical joints in line. Bond each course at corners or intersections. Where bock cannot be keyed into or bonded in adjacent and abutting walls, anchors as described above shall be used, unless noted otherwise. Exposed bock walls will be laid in running bond with tooled concave joints. Note: It is important that the cavity remain clean and free from all excess mortar, therefore the masons will be required to exercise caution when laying exterior walls.

2. Where concrete block walls noted to be fire rated, masonry block is to be carried up to underside of deck and fire safing applied to seal top of block and under side of deck.

B. WALL REINFORCEMENT:

1. On stacked block walls, install every course (8" o.c. vertically). On running bond, install in first and second bed joints and in every other bed joint (16" o.c. vertically) throughout remainder of structure or as directed by Engineer.

At wall corners and wall intersections "L" and "T" sections shall be used.

2. On stacked concrete block and brick walls, 7" wide wire reinforcing may be used at 16" o.c. vertically alternating with 11" wide reinforcing in every other course. Where block extends above ceilings, block may be set in running bond.

Reinforcing be run in first and second block courses above and below all openings and carried two (2) feet past opening on each side.

1.5 LAYING MASONRY IN FREEZING WEATHER:

A. When temperature is below 50 degrees, or likely to freeze within 25 hours from time brick is laid, no masonry work shall be done unless approved by Engineer and provision is made to prevent mortar from freezing before it has set.

1.6 PROTECTION:

A. Masonry shall be well protected when not being worked upon as well as during hot weather, frost and rain, by substantial waterproof covering securely held in place. Other parts of the work such as sill, pavement, etc., shall be protected against falling mortar, etc., by protecting with suitable substantial covering. **All block shall be delivered to the site on wood pallets and shall be covered with visqueen until ready for use. Block with excessive chipped corners shall be returned to manufacturers.**

1.7 CONTROL JOINTS:

A. Where noted on the drawings and at all exterior walls abutting existing construction, and at all wall expansions joints, equal to Dur-O-Wal Rapid Control Joint, No. 8, wide flange joint for 8" walls and No. 12 for 12" block. Control joints shall be constructed at a maximum spacing of 25' on all CMU structures and exact locations shall be provided for review and approval if the locations are not specifically shown on the construction plans. All horizontal steel in bond beams shall run continuous through control joints.

1.8 FLASHING:

A. Where called for on the drawings, approved flashing equal to Phoenix Type A, "Cop-R-Flash", 3 oz., or Nervastral 56 shall be installed as the work progresses. Where laps occur in flashing, a lock joint shall be formed to insure water tightness. At heads and sills of windows, extend flashing 12" beyond jamb line and turn up with folded corner to lead all moisture to exterior.

1.9 BUILDING IN ANCHORS, ETC.:

A. Build in all anchors, beams, lintels, frames, pipes, sleeves, hangers, inserts, plugs, and any other accessories indicated or necessary for installation of connections of adjoining work. Nailing plugs shall be crimped galvanized, spaced not less than 16" o.c.

B. Any wood blocks or nailers set in masonry shall be treated with approved wood preserver.

C. Build in all metal flashing and fabric flashing as indicated on drawings or specified.

D. Fill in all spaces between the masonry and door bucks with mortar. Exterior door frames shall be ¼" reveal between frame and brick to permit caulking. Interior frames shall have right, full joints unless otherwise detailed.

E. Consult all other trades in advance and make provisions for installation of their work to avoid cutting and patching. Any cutting and patching required to accommodate the wood of others shall be done by the mason.

1.10 CUTTING AND PATCHING:

A. Consult all other trades in advance and make provisions for their work to avoid cutting and patching. Any cutting and patching required to accommodate work of others shall be done by the mason.

1.11 POINTING UP:

A. The contractor shall be responsible for pointing up, grouting, etc., around all piping that passes through the walls, especially those pipes that pass through chase walls are to be pointed up around so that there is no space between the masonry units and the pipe for the full thickness of the wall.

1.12 REINFORCED MASONRY UNITS:

A. Reinforced masonry unit shall be one and/or two cells filled with concrete, and each cell reinforced with one No. 5 bar from bottom steel (hooked) of footing to top steel (hooked) of the beam. In addition, one cell reinforced masonry unit be located at jambs at all windows and door openings. **Reinforcing shall be lapped 48 diameters. Refer to plans for additional details regarding CMU reinforcement schedule.**

B. Concrete for filling shall be 3,000 psi but may have an 8" to 10" slump. **Lifts shall not be over 4 FT in height.**

1.4 CLEANING:

A. At completion of masonry work, all brick surfaces shall be brushed down thoroughly, wet down the surfaces to be cleaned and clean with stiff fiber brush using product equal to Vanatrol as manufactured by Prosoco, Inc., Kansas City, Kansas. **Job site mixed muriatic acid and water shall not be used in block cleaning process.**

END OF SECTION 042200

TECHNICAL SPECIFICATIONS FOR HELEN McCALL PARK EXPANSION PHASE 1 & PHASE 2
SECTION 061000 – ROUGH CARPENTRY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes the following:

1. Framing with dimension lumber.
2. Wood blocking and nailers.
3. Wood furring.

1.3 DEFINITIONS

A. Exposed Framing: Framing not concealed by other construction.

B. Dimension Lumber: Lumber of 2 inches nominal or greater but less than 5 inches nominal in least dimension.

C. Timber: Lumber of 5 inches nominal or greater in least dimension.

D. Lumber grading agencies, and the abbreviations used to reference them, include the following:

1. NeLMA: Northeastern Lumber Manufacturers' Association.
2. NLGA: National Lumber Grades Authority.
3. RIS: Redwood Inspection Service.
4. SPIB: The Southern Pine Inspection Bureau.
5. WCLIB: West Coast Lumber Inspection Bureau.
6. WWPA: Western Wood Products Association

1.4 QUALITY ASSURANCE

A. Source Limitations for Engineered Wood Products: Obtain each type of engineered wood product through one source from a single manufacturer.

B. Forest Certification: For the following wood products, provide materials produced from wood obtained from forests certified by an FSC-accredited certification body to comply with FSC 1.2, "Principles and Criteria":

1. Dimension lumber framing.
2. Timber.

3. Laminated veneer lumber.
4. Parallel-strand lumber.
5. Prefabricated wood I-joists.
6. Rim boards.
7. Miscellaneous lumber.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Stack lumber flat with spacers between each bundle to provide air circulation. Provide for air circulation around stacks and under coverings.

PART 2 - PRODUCTS

2.1 WOOD PRODUCTS, GENERAL

A. Lumber: DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, provide lumber that complies with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Provide lumber graded by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.

1. Factory mark each piece of lumber with grade stamp of grading agency.
2. For exposed lumber indicated to receive a stained or natural finish, and mark grade stamp on end or back of each piece.
3. Where nominal sizes are indicated, provide actual sizes required by DOC PS 20 for moisture content specified. Where actual sizes are indicated, they are minimum dressed sizes for dry lumber.
4. Provide dressed lumber, S4S, unless otherwise indicated.

B. Engineered Wood Products: Provide engineered wood products acceptable to authorities having jurisdiction and for which current model code research or evaluation reports exist that show compliance with building code in effect for Project.

1. Allowable Design Stresses: Provide engineered wood products with allowable design stresses, as published by manufacturer,that meet or exceed those indicated. Manufacturer's published values shall be determined from empirical data or by rational engineering analysis and demonstrated by comprehensive testing performed by a qualified independent testing agency.

2.2 WOOD-PRESERVATIVE-TREATED LUMBER

A. Preservative Treatment by Pressure Process: AWPA C2 except that lumber that is not in contact with the ground and is continuously protected from liquid water may be treated according to AWPA C31 with inorganic boron (SBX).

1. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium.
2. For exposed items indicated to receive a stained or natural finish, use chemical formulations that do not require incising, contain colorants, bleed through, or otherwise adversely affect finishes.

B. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent. Do not use material that is warped or does not comply with requirements for untreated material.

C. Mark lumber with treatment quality mark of an inspection agency approved by the ALSC Board of Review.

1. For exposed lumber indicated to receive a stained or natural finish, mark end or back of each piece.

D. Application: Treat where in contact with concrete on CM4'S

2.3 DIMENSION LUMBER FRAMING

A. Maximum Moisture Content: 19 percent.

B. No. 2.

C. Non-Load-Bearing, Interior Partitions: grade and the following species:

1. Mixed southern pine; SPIB.
2. or WWPA.
3. (south); NeLMA, WCLIB, or WWPA.
4. NLGA.
5. NeLMA.
6. WCLIB or WWPA.

D. Joists, Rafters, and Other Framing Not Listed Above: No. 2 grade and of the following species:

1. Southern pine; SPIB.

2.4 MISCELLANEOUS LUMBER

A. General: Provide miscellaneous lumber indicated and lumber for support or attachment of other construction, including the following:

1. Blocking.
2. Nailers.
3. Furring.
4. Grounds.
5. Utility shelving.

B. For items of dimension lumber size, provide No. 2 grade lumber with 19 percent maximum moisture content of any species.

C. For items of dimension lumber size, provide No. 2 grade lumber with 19 percent maximum moisture content and of the following species:

1. Mixed southern pine; SPIB.

D. For concealed boards, provide lumber with 19 percent maximum moisture content and any of the following species and grades:

1. Mixed southern pine, No. 2 grade; SPIB.

E. For blocking not used for attachment of other construction, Utility, Stud, or No. 3 grade lumber of any species may be used provided that it is cut and selected to eliminate defects that will interfere with its attachment and purpose.

F. For blocking and nailers used for attachment of other construction, select and cut lumber to eliminate knots and other defects that will interfere with attachment of other work.

G. For furring strips for installing plywood or hardboard paneling, select boards with no knots capable of producing bent-over nails and damage to paneling.

2.5 PLYWOOD BACKING PANELS

A. Telephone and Electrical Equipment Backing Panels: DOC PS 1, Exposure 1, C-D Plugged, in thickness indicated or, if not indicated, not less than ½-inch nominal thickness.

2.6 FASTENERS

A. General: Provide fasteners of size and type indicated that comply with requirements specified in this Article for material and manufacture.

1. Where rough carpentry is exposed to weather, in ground contact, pressure-preservative treated, or in area of high relative humidity, provide fasteners.

B. Nails, Brads, and Staples: ASTM F 1667.

C. Power-Driven Fasteners: NES NER-272.

D. Wood Screws: ASME B18.6.1.

E. Lag Bolts: ASME B18.2.1.

F. Bolts: Steel bolts complying with ASTM A 307, Grade A; with ASTM A 563 hex nuts and, where indicated, flat washers.

G. Expansion Anchors: Anchor bolt and sleeve assembly of material indicated below with capability to sustain, without failure, a load equal to 6 times the load imposed when installed in unit masonry assemblies and equal to 4 times the load imposed when installed in concrete as determined by testing per ASTM E 488 conducted by a qualified independent testing and inspecting agency.

1. Material: Carbon-steel components, zinc plated to comply with ASTM B 633, Class Fe/Zn 5.
2. Material: Stainless steel with bolts and nuts complying with ASTM F 593 and ASTM F 594, Alloy Group 1 or 2.

2.7 METAL FRAMING ANCHORS

A. Hold-Downs: Brackets for bolting to wall studs and securing to foundation walls with anchor bolts or to other hold-downs with threaded rods and designed with first of two bolts placed seven bolt diameters from reinforced base.

1. Bolt Diameter: 5/8 inch.

2.8 MISCELLANEOUS MATERIALS

A. Sill-Sealer Gaskets: Glass-fiber-resilient insulation, fabricated in strip form, for use as a sill sealer; 1-inch nominal thickness, compressible to 1/32 inch; selected from manufacturer's standard widths to suit width of sill members indicated.

B. Sill-Sealer Gaskets: Closed-cell neoprene foam, ¼ inch thick, selected from manufacturer's standard widths to suit width of sill members indicated.

C. Adhesives for Gluing, Furring, and Sleepers to Concrete or Masonry: Formulation complying with ASTM D 3498 that is approved for use indicated by adhesive manufacturer.

1. Use adhesives that have a VOC content of 70 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

D. Water-Repellent Preservative: NWWDA-tested and -accepted formulation containing 3-iodo-2-propynyl butyl carbamate, combined with an insecticide containing chloropyrifos as its active ingredient.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit rough carpentry to other construction; scribe and cope as needed for accurate fit. Locate**,** nailers, blocking, and similar supports to comply with requirements for attaching other construction.

B. Framing Standard: Comply with AF&PA's "Details for Conventional Wood Frame Construction," unless otherwise indicated.

C. Framing with Engineered Wood Products: Install engineered wood products to comply with manufacturer's written instructions.

D. Metal Framing Anchors: Install metal framing to comply with manufacturer's written instructions.

E. Do not splice structural members between supports, unless otherwise indicated.

F. Provide blocking and framing as indicated and as required to support facing materials, fixtures, specialty items, and trim.

1. Provide metal clips for fastening gypsum board or lath at corners and intersections where framing or blocking does not provide a surface for fastening edges of panels. Space clips not more than 16 inches o.c.

G. Sort and select lumber so that natural characteristics will not interfere with installation or with fastening other materials to lumber. Do not use materials with defects that interfere with function of member or pieces that are too small to use with minimum number of joints or optimum joint arrangement.

H. Comply with AWPA M4 for applying field treatment to cut surfaces of preservative-treated lumber.

1. Use inorganic boron for items that are continuously protected from liquid water.
2. Use copper naphthenate for items not continuously protected from liquid water.

I. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated, complying with the following:

1. NES NER-272 for power-driven fasteners.
2. Table 2304.9.1, "Fastening Schedule," in ICC's International Building Code.
3. Table 23-II-B-1, "Nailing Schedule," and Table 23-II-B-2, "Wood Structural Panel Roof Sheathing Nailing Schedule," in ICBO's Uniform Building Code.
4. Table 2305.2, "Fastening Schedule," in BOCA's BOCA National Building Code.
5. Table 2306.1, "Fastening Schedule," in SBCCI's Standard Building Code.
6. Table R602.3(1), "Fastener Schedule for Structural Members," and Table R602.3(2), "Alternate Attachments," in ICC's International Residential Code for One- and Two-Family Dwellings.
7. Table 602.3(1), "Fastener Schedule for Structural Members," and Table 602.3(2), "Alternate Attachments," in ICC's International One- and Two-Family Dwelling Code.

J. Use common wire nails, unless otherwise indicated. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting wood; do not countersink nail heads, unless otherwise indicated.

3.2 WALL AND PARTITION FRAMING INSTALLATION

A. General: Provide single bottom plate and double top plates using members of 2-inch nominal thickness whose widths equal that of studs, except single top plate may be used for non-load-bearing partitions and for load-bearing partitions where framing members bearing on partition are located directly over studs. Fasten plates to supporting construction, unless otherwise indicated.

1. For exterior walls, provide 2-by-4-inch nominal size wood studs spaced 16" o.c., unless otherwise indicated.
2. For interior partitions and walls, provide 2-by-4-inch nominal size wood studs spaced 24" o.c., unless otherwise indicated.
3. Provide continuous horizontal blocking at midheight of partitions more than 96" high, using members of 2-inch nominal thickness and of same width as wall or partitions.

B. Construct corners and intersections with three or more studs.

C. Frame openings with multiple studs and headers. Provide nailed header members of thickness equal to width of studs. Support headers on jamb studs. Refer to plan

3.3 PROTECTION

A. Protect wood that has been treated with inorganic boron (SBX) from weather. If, despite protection, inorganic boron-treated wood becomes wet, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.

B. Protect rough carpentry from weather. If, despite protection, rough carpentry becomes wet, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.

END OF SECTION 061000

TECHNICAL SPECIFICATIONS FOR HELEN McCALL PARK EXPANSION PHASE 1 & PHASE 2
SECTION 064023 – INTERIOR ARCHITECTURAL WOODWORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes the following:

1. Interior standing and running trim.
2. Wood cabinets.
3. Plastic-laminate cabinets.
4. Wood countertops.
5. Plastic-laminate countertops.
6. Flush wood paneling and wainscots.
7. Interior frames and jambs.
8. Shop finishing interior woodwork

B. Related Sections include the following:

1. Division 6 Section "Rough Carpentry" for wood furring, blocking, shims, and hanging strip required for installing woodwork and concealed within other construction before woodwork installation.

2. Division 9 Section "Painting" for field finishing of interior architectural woodwor1.3 DEFINITIONS

A. Interior architectural woodwork includes wood furring, blocking, shims, and hanging strips for installing woodwork items, unless concealed within other construction before woodwork installation.

1.4 SUBMITTALS

A. Product Data: For each type of product indicated, including cabinet hardware and accessories, handrail brackets, arid finishing materials and processes.

B. Shop Drawings: Show location of each item, dimensioned plans and elevations, large scale details, attachment devices, and other components.

1. Show locations and sizes of furring, blocking, and hanging strips, including concealed blocking and reinforcement specified in other Sections.

2. Show locations and sizes of cutouts and holes for plumbing fixtures, faucets, soap dispensers, and other items installed in architectural woodwork.

3. Show veneer leaves with dimensions, grain direction, exposed face, and identification

numbers indicating the flitch and sequence within the flitch for each leaf.

4. Apply WIG-certified compliance label to first page of Shop Drawings.

C. Samples for Initial Selection: Manufacturer's color charts consisting of units or sections of Iimits showing the full range of colors, textures, and patterns available for each type of material indicated.

1. Plastic laminates.

D. Samples for Verification: For the following:

1. Lumber and panel products with shop-applied finish, 50 sq. in. (300 sq. cm) for lumber and 8 by 10 inches (200 by 250 mm) for panels, for each finish system and color, with 1/2 of exposed surface finished.

2. Plastic-laminate-clad panel products, 8 by 10 inches (200 by 250 mm), for each type, color, pattern, and surface finish, with separate samples of unfaced panel product used for core.

3. Exposed cabinet hardware and accessories, one unit for each type and finish.

E. Qualification Data: For firms, and persons specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: An experienced installer who has completed architectural woodwork similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.

B. Fabricator Qualifications: A firm experienced in producing architectural woodwork similar to that indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

C. Source Limitations: Engage a qualified woodworking firm to assume undivided responsibility for production and' installation of interior architectural woodwork with sequence-matched wood veneers including wood doors where veneer matching includes door faces.

D. Quality Standard: Unless otherwise indicated, comply with AWl's "Architectural. Woodwork Quality Standards" for grades of interior architectural woodwork, construction, finishes, and other requirements.

1. Provide AWl Quality Certification Program labels indicating that woodwork complies with requirements of grades specified.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Do not deliver woodwork until painting and similar operations that could damage woodwork have been completed in installation areas. If woodwork must be stored in. other than installation areas, store only in areas where environmental conditions comply with requirements specified in "Project Conditions" Article.

1.7 PROJECT CONDITIONS

A. Environmental Limitations: Obtain and comply with woodwork fabricator's and Installer's coordinated advice for optimum temperature and humidity conditions for woodwork during its storage and installation. Do not install woodwork until these conditions have been attained and stabilized so that woodwork will be within plus or minus 1.0 percent of optimum moisture content from date of installation through remainder of construction period.

B. Field Measurements: Where woodwork is indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

1. Locate concealed framing, blocking, and reinforcements that support woodwork by field measurements before being enclosed and indicate measurements on Shop Drawings.

2. Established Dimensions: Where field measurements cannot be made without delaying the Work, establish dimensions and proceed with fabricating woodwork without field measurements.. Provide allowance for trimming at site, and coordinate construction to ensure that actual dimensions correspond to established dimensions.

1.8 COORDINATION

A. Coordinate sizes and locations of framing, blocking, furring, reinforcements, and other related units of Work specified in. other Sections to ensure that interior architectural woodwork can be supported and installed as indicated.

B. Hardware Coordination: Coordinate architectural woodwork with all required millwork hardware.

PART 2 - PRODUCTS.

2.1 MATERIALS

A. General: Provide materials that comply with requirements of the AWl quality standard for each type of woodwork and quality grade specified, unless otherwise indicated.

B. Wood Species and Cut for Transparent Finish: Honduras Mahogany

C. Wood Products: Comply with the following:

1. Hardboard: AHAA 135.4.
2. Medium-Density Fiberboard: ANSI A208.2.
3. Particleboard: ANSI A208.1.
4. Softwood Plywood: DOC PS 1.
5. Hardwood Plywood and Face Veneers: HPVA HP-1.

D. High-Pressure Decorative Laminate: NEMA LD 3, grades as indicated, or if not indicated, as required by woodwork quality standard.

1. Manufacturer: Subject to compliance with requirements, provide high-pressure decorative laminates by one of the following:

a. As indicated on the drawings

E. Adhesive for Bonding Plastic Laminate: Urea- Formaldehyde.

2.2 CABINET HARDWARE AND ACCESSORIES

A. General: Provide cabinet hardware and accessory materials associated with architectural cabinets.

B. Hardware Standard: Comply with BHMA A 156.9 for items indicated by referencing BHMA numbers or items referenced to this standard.

C. Frameless Concealed Hinges (European Type): BHMA A156.9, B01602, [170] degrees of opening.

D. Wire Pulls: Back mounted, 4 inches (100 rnm) long, 5/16 inches (8 mm) in diameter.

E. Adjustable Shelf Standards and Supports: BHMA A 156.9, 804071; with shelf rests, B04081.

F. Drawer Slides: Side-mounted, full-extension, zinc-plated steel drawer slides with steel ball bearings, BHMAA156.9, B05091 and rated as required for use:

G. Grommets for Cable Passage. through Countertops: [2-inch (51-mm)] 00, black, molded-plastic grommets and matching plastic' caps with slot for wire passage.

H. Exposed Hardware Finishes: For exposed hardware, provide finish that complies with BHMAA156.18 for BHMA finish number indicated. .

1. Satin Stainless Steel: BHMA 630.

I. For concealed hardware, provide manufacturer's standard finish that complies with product class requirements in BHMAA156.9.

2.3 INSTALLATION MATERIALS

A. Furring, Blocking, Shims, and Hanging Strips: Softwood or hardwood lumber, kiln dried to less than 15 percent moisture content.

B. Anchors: Select material, type, size, and finish required for each substrate for secure anchorage. Provide nonferrous-metal or hot-dip galvanized anchors and inserts on inside face of exterior walls and elsewhere as required for corrosion resistance. Provide toothed-steel or lead expansion sleeves for drilled-in-place anchors.

2.4 FABRICATION, GENERAL

A. Interior Woodwork Grade: Provide Premium grade interior woodwork complying with the referenced quality standard.

B. Wood Moisture Content: Comply with requirements of referenced quality standard for wood moisture content in relation to ambient relative humidity during fabrication and in installation areas.

C. Fabricate woodwork to dimensions, profiles, and details indicated.

D. Complete fabrication, including assembly, finishing, and hardware application, to maximum extent possible, before shipment to Project site. Disassemble components only as necessary for shipment and installation. Where necessary for fitting at site, provide ample allowance for scribing, trimming, and fitting.

E. Shop cut openings, to maximum extent possible, to receive hardware, appliances plumbing fixtures, electrical work, and similar items. Locate openings accurately and use templates or roughing-in diagrams to produce accurately sized and shaped openings. Sand edges of cutouts to remove splinters and burrs.

1. Seal edges of openings in countertops with a coat of varnish.

2.5 INTERIOR STANDING AND RUNNING TRIM FOR TRANSPARENT FINISH

A. Quality Standard: Comply with AWl Section 300.

B. Grade: Premium.

C. Backout or groove backs of flat trim members and kerf backs of other wide, flat members, except for members with ends exposed in finished work.

D. Assemble casings in plant except where limitations of access to place of installation require field assembly. .

E. Assemble moldings in plant to maximum extent possible. Miter comers in plant and prepare for field assembly with bolted fittings designed to pull connections together.

F. Wood Species and Cut: Cherry, plain sliced.

2.6 WOOD CABINETS FOR TRANSPARENT FINISH

A. Quality Standard: Comply with AWl Section 400 requirements for wood cabinets.

B. Grade: Premium.

C. AWl Type of Cabinet Construction: As indicated.

D. Wood Species and Cut for Exposed Surfaces: Cherry, plain sliced.

1. Grain Matching: Run and match grain vertically for drawer fronts, doors, and fixed panels.

2. Vertical Matching of Veneer Leaves: End match.
3. Veneer Matching within Room: Provide cabinet veneers in each room or other space from a single flitch with doors, drawer fronts, and other surfaces matched in a sequenced set with continuous match where veneers are interrupted perpendicular to the grain.

2.7 PLASTIC-LAMINATE CABINETS

A. Quality Standard: Comply with AWl Section 400 requirements for laminate cabinets.
B. Grade: Premium.

C. AWl Type of Cabinet Construction: Flush overlay.

D. Laminate Cladding for Exposed Surfaces: High-pressure decorative laminate complying with the following requirements:

1. Horizontal Surfaces Other Than Tops: GP-50, .050 inch (1.270mm) nominal thickness.
2. Vertical Surfaces: GP-50, 0.050 inch (1.270mm) nominal thickness.
3. Edges: GP-28, 0.028 inch 60.711mm) nominal thickness.

E. Materials for Semiexposed Surfaces: Provide surface materials indicated below:

1. Surfaces Other Than Drawer Bodies: High-pressure decorative laminate, Grade GP-28.

F. Colors, Patterns, and. Finishes: Provide materials and products that result in colors and textures of exposed laminate surfaces complying with the following requirements:

1. As indicated on the drawings.

2.8 PLASTIC-LAMINATE COUNTERTOPS

A. Quality Standard: Comply with AWl Section 400 requirements for high-pressure decorative laminate countertops.

B. Grade: Premium.

C. High-Pressure Decorative Laminate Grade: HGS HGP.

D. Colors, Patterns, and Finishes: Provide materials and products that result in Colors and textures of exposed laminate surfaces complying with the following requirements:

1. As indicated on the drawings

E. Edge Treatment: Same as laminate cladding on horizontal surfaces.

2.9 FLUSH WOOD PANELING AND WAINSCOTS

A. Quality Standard: Comply with AWl Section 500 requirements for flush wood paneling.

B. Grade: Premium.

C. Wood Species and Cut: Cherry, plain sliced.

D. Panel-Matching Method: No matching between panels is required. Select and arrange panels for similarity of grain pattern and color between adjacent panels.

2.10 INTERIOR FRAMES AND JAMBS FOR TRANSPARENT FINISH

A. Quality Standard: Comply with AWl Section 900.

B. Grade: Premium.

C. For frames or jambs wider than available lumber, use veneered construction. Do not glue for width.

D. Wood Species and Cut: Cherry, plain sliced.

E. Fire-Rated Interior Frames and Jambs: Products fabricated from fire-retardant particleboard or fire-retardant medium-density fiberboard with veneered, exposed surfaces and listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire ratings indicated, based on testing according to NFPA 252.

1. Test Pressure: Test at atmospheric pressure.
2. Fire Rating: 20 minutes.

2.11 SHOP FINISHING

A. Quality Standard: Comply with AWl Section 1500, unless otherwise indicated.

B. General: Finish architectural woodwork at fabrication shop as specified in this Section. Defer only final touch up, cleaning, and polishing until after installation.

C. Preparations for Finishing: Comply with referenced quality standard for sanding, filling countersunk fasteners, sealing concealed surfaces, and similar preparations for finishing architectural woodwork, as applicable to each unit of work.

1. Backpriming: Apply one coat of sealer or primer, compatible with finish coats, to concealed surfaces of woodwork. Apply two coats to back of paneling and to end-grain surfaces. Concealed surfaces of plastic-laminate-clad woodwork do not require backpriming when surfaced with plastic laminate, backing paper, or thermoset decorative overlay.

D. Transparent Finish: Comply with requirements indicated below for grade, finish system, staining, and sheen, with sheen measured on 60-degree gloss meter per ASTM D 523:

1. Grade: Premium.
2. Wash Coat for Stained Finish: Apply a vinyl wash coat to woodwork made from closed-grain wood before staining and finishing.
3. Open Finish for Open-Grain Woods: Do not apply filler to open-grain woods.
4. Filled Finish for Open-Grain Woods: After staining (if any), apply paste wood filler to open-grain woods and wipe off excess. Tint filler to match stained wood.
5. Sheen: Satin, 30-50.

PART 3- EXECUTION

3.1 PREPARATION

A. Condition woodwork to average prevailing humidity conditions in installation areas before installation.

B. Before installing architectural woodwork, examine shop-fabricated work for completion and complete work as required, including removal of packing and backpriming.

3.2 INSTALLATION

A. Quality Standard: Install woodwork to comply with AWl Section 1700 for the same grade specified

in Part 2 of this Section for type of woodwork involved. Delete paragraph above or below. Revise if installation grade is different.

B. Install woodwork level, plumb, true, and straight. Shim as required with concealed shims. Install level and plumb (including tops) to a tolerance of 1/8 inch in 96 inches (3 mm in 2400 mm).

C. Scribe and cut woodwork to fit adjoining work, and refinish cut surfaces and repair damaged finish at cuts.

D. Fire-Retardant-Treated Wood: Handle, store, and install fire-retard ant-treated wood to comply with recommendations of chemical treatment manufacturer, including those for adhesives used to install woodwork.

E. Anchor woodwork to anchors or blocking built in or directly attached to substrates. Secure with countersunk, concealed fasteners and blind nailing as required for complete installation. Use fine finishing nails or finishing screws for exposed fastening, countersunk and filled flush with woodwork and matching final finish if transparent finish is indicated.

F. Standing and Running Trim: Install with minimum number of joints possible, using full length pieces (from maximum length of lumber available) to greatest extent possible. Do not use pieces less than 36 inches (900 mm)] long, except where shorter single length pieces are necessary. Scarf running joints and stagger in adjacent and related members.

1. Fill gaps. if any, between top of base and wall with plastic wood filler, sand smooth, and finish same as wood base, if finished.

2. Install standing and running trim with no more variation from a straight line than 1/8 inch in 96 inches (3 mm in 2400 mm).

G. Cabinets: Install without distortion so doors and drawers fit openings properly and are accurately aligned. Adjust hardware to center doors and drawers in openings and to provide unencumbered operation. Complete installation of hardware and accessory items as indicated.

1. Install cabinets with no more than 1/8 inch in 96-inch (3 mm in 2400-mm) sag, bow, or other variation from a straight line.

H. Countertops: Anchor securely by screwing through corner blocks of base cabinets or other supports into underside of countertop.

I. Install countertops with no more than 1/8 inch in 96-inch (3 mm in 2400-mm) sag, bow, or other variation from a straight line.

1. Secure backsplashes to tops with concealed metal brackets at 16 inches (400 mm) o.c. and to walls with adhesive.

2. Caulk space between backsplash and wall with sealant specified in Division 7 Section "Joint Sealants.

J. Paneling: Anchor paneling to supporting substrate with concealed panel-hanger clips or as indicated on the drawings.

1. Install flush paneling with no more than 1/16 inch in 96-inch (1.5 mm in 2400-mm) vertical cup or bow and 1/8 inch in 96-inch (3 mmin 2400-mm) horizontal variation from a

true plane.

K. Refer to Division 9 Sections for final finishing of installed architectural woodwork.

3.3 ADJUSTING AND CLEANING,

A. Repair damaged and defective woodwork, where possible, to eliminate functional and visual defects; where not possible to repair, replace woodwork. Adjust joinery for uniform appearance.

B. Clean, lubricate, and adjust hardware.

C. Clean woodwork on exposed and semi-exposed surfaces. Touch up shop-applied finishes to restore damaged or soiled areas.

END OF SECTION 064023

TECHNICAL SPECIFICATIONS FOR HELEN McCALL PARK EXPANSION PHASE 1 & PHASE 2
SECTION 072100 – THERMAL INSULATION

PART 1 GENERAL

1.1 RELATED DOCUMENTS

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

1. This Section includes the following:

a. Building Insulation in batt form.
b. Safing insulation.

B. Related Sections: The following Sections contain requirements that relate to this Section:

1. Division 9. Section "Gypsum. Board Assemblies" for insulation installed as part of metal framed wall and partition assemblies.

1.2 DEFINITIONS

A, Thermal Resistivity: Where the thermal resistivity of insulation products are designated by "r--values," they represent the reciprocal of thermal conductivity (k-values). Thermal conductivity is the rate of heat flow through a homogenous material exactly 1 inch thick. Thermal resistivities are expressed by the temperature difference in degrees F between the two exposed faces required to cause one BTU to flow through one square foot per hour at mean temperatures indicated.

1.3 SUBMITTALS

A. General: Submit each item in this Article according to the Conditions of the Contract and Division 1 Specification Sections.

B. Product Data for each type of insulation product specified.

1. Product test reports from and based on tests performed by a qualified independent testing agency evidencing compliance of insulation products with specified requirements including those for thermal resistance, fire-test-response characteristics, water-vapor transmission, water absorption, and other properties, based on comprehensive testing of current products.

1.4 QUALITY ASSURANCE

A. Single-Source Responsibility for Insulation Products: Obtain each type of building insulation from a single source with resources to provide products complying with requirements indicated without delaying the Work.

B. Fire-Test-Response Characteristics: Provide insulation and related materials with the fire-test - response characteristics indicated on Drawings or specified elsewhere in this Section as determined

by testing identical products per test method indicated below by UL of another testing and inspecting agency acceptable to authorities having jurisdiction. Identify materials with appropriate markings of applicable testing and inspecting agency.

1. Surface-Burning Characteristics: ASTM E 84.
2. Fire-Resistance Ratings: ASTM E 119.
3. Combustion Characteristics: ASTM E 136.

1.5 DELIVERY. STORAGE. AND HANDLING

A. Protect insulation materials from physical damage and from deterioration by moisture, soiling, and other sources. Store inside and in a dry location. Comply with manufacturer's written instructions for handling, storing, and protecting during installation.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide insulation products by one of the following:

1. Glass-Fiber Insulation:

a. Certain Teed Corporation.
b. Manville: Building Insulations Div., Manville Sales Corp.
c. Owens-Corning Fiberglas Corporation.

2. Semi- Refractory Fiber Insulation:

a. Cafco Industries Ltd.
b. USG: Thermafiber Div., USG Interiors, Inc.

2.2 INSULATING MATERIALS

A. General: Provide insulating materials that comply with requirements and with referenced standards.

1. Preformed Units: Sizes to fit applications indicated; selected from manufacturer's standard thicknesses, widths, and lengths.

B. Faced Mineral-Fiber Blanket Insulation: Thermal insulation combining mineral fibers of type described below with thermosetting resins to comply with ASTM C 665, Type III, Class A (blankets with reflective vapor-retarder membrane facing and flame spread of 25 or less); with foil-scrim-kraft, foil-scrim, or foil-scrim-polyethylene vapor-retarder membrane on 1 face.

1. Mineral-Fiber Type: Fibers manufactured from glass or slag.

2. Surface Burning Characteristics: Maximum flame spread and smoke developed values of 25 and 50 respectively.

C. Flanged Units: Provide blankets fabricated with facing incorporating 4-inch-wide flanges along edges for attachment to framing members.

2.3 SAFING INSULATION AND ACCESSORIES

A. Semi-Refractory Fiber Board Safing Insulation: Semirigid boards designed for use as fire stop at openings between edge of slab and exterior wall panels, produced by combining slag-wool fibers with thermosetting resin binders to comply with ASTM C612, Class 1 and 2; nominal density of 4.0 pcf; passing ASTM E 136 for combustion characteristics; r-value of 4.0 at 75 deg F (23.9 deg C).

B. Calking Compound: Material approved by manufacturer of safing insulation for sealing joint between foil backing of safing insulation and edge of concrete floor slab against penetration of smoke.

C, Safina Clips: Galvanized steel safing clips approved by manufacturer of safing insulation for holding safing insulation in place.

2.4 AUXILIARY INSULATING MATERIALS

A. Adhesive *for* Bonding Insulaton: Product with demonstrated capability to bond insulation or mechanical anchors securely to substrates indicated without damaging or corroding either insulation, anchors, or substrates.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions, with Installer present, for compliance with requirements of Sections in which substrates and related work are specified and to determine if other conditions affecting performance of insulation are satisfactory. Do not proceed with installation until, unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Clean substrates of substances harmful to insulations or vapor retarders, including removing projections capable of puncturing vapor retarders or that interfere with insulation attachment.

B. Close off openings in cavities receiving poured-in-place insulation to prevent escape of insulation. Provide bronze or stainless-steel screens (inside) where openings must be maintained for drainage or ventilation.

3.3 INSTALLATION - GENERAL

A, Comply with insulation manufacturer's written instructions applicable to products and application indicated. If printed instructions are not available or do not apply to project conditions, consult manufacturer's technical representative for specific recommendations before proceeding with installation of insulation.

B. Extend insulation in thickness indicated to envelop entire area to be insulated. Cut and fit tightly around obstructions and fill voids with insulation. Remove projections that interfere with placement. .

C. Apply single laver of insulation of required thickness; unless otherwise shown or required to make

up total thickness indicated.

3.4 INSTALLATION OF GENERAL BUILDING INSULATION

A. Apply insulation units to substrates by method indicated, complying with manufacturer's written instructions. If no specific method is indicated, bond units to substrate with adhesive or use mechanical anchorage to provide permanent placement and support of units.

B. Set vapor-retarder-faced units with vapor retarder to warm side of construction, unless otherwise indicated. Do not obstruct ventilation spaces, except for firestopping.

C. Set reflective foil-faced units with not less than O.75-inch (19-mm) air space in front of foil as indicated.

3.5 INSTALLATION OF SAFING INSULATION

A. Install safing insulation to fill gap between edge of concrete floor slab and back of exterior spandrel panels on sating clips spaced as needed to support insulation, but not further apart than 24 inches (610 mm) o.c. Cut safing insulation wider than gap to be filled to ensure compression fit and seal joint between insulation and edge of slab with calking approved by sating insulation manufacturer for this purpose. Leave no voids in completed installation.

3.6 PROTECTION

A. General: Protect installed insulation and vapor retarders from damage due to harmful weather exposures. physical abuse and other causes. Provide temporary coverings or enclosures where insulation is subject to abuse and cannot be concealed and protected by permanent construction immediately after installation.

END OF SECTION 072100

TECHNICAL SPECIFICATIONS FOR HELEN McCALL PARK EXPANSION PHASE 1 & PHASE 2
SECTION 074113.16 – STANDING-SEAM METAL ROOF PANELS

PART 1 GENERAL

1.02 GENERAL

A. Manufacturer: Standing seam metal roof system (SSMRS) shall be the product of a recognized SSMRS manufacturer who has been in the practice of manufacturing SSMRS for a period of not less than 3 years and has been involved in at least five projects similar in size and complexity to this project.

B. Manufacturer's Representative: A representative of the SSMRS manufacturer, who is familiar with the design of the roof system supplied and experienced in the erection of roof systems similar in size to the one required under this contract, shall be present at the job site during installation of the SSMRS to assure that the roof system meets the specified requirements. The manufacturer's representative shall be either an employee of the manufacturer with at least 2 years' experience in installing the roof system or an employee of an independent installer that is certified by the SSMRS manufacturer to have 2 years of experience installing similar roof systems.

C. Installer: The installer shall have a minimum of 2 years experience and shall have been involved in installing at least three projects that are of comparable size, scope and complexity as this project for the particular roof system furnished.

1.03 DESIGN REQUIREMENTS

Contract drawings indicate extent and general assembly details of the metal roofing. Members and connections not indicated on the drawings shall be designed by the Contractor. All roofing, components, transitions, and assemblies shall be the products of the same manufacturer and must be designed as a complete unit. The live load, dead and wind loads will be applied to the complete unit. The wind loading will be applied as indicated in ANSI A58.1, considering all edge and corner conditions. The entire system will be designed in accordance with the provisions of the Metal Building Manufacturers Association (MBMA) design manual. Steel covering shall be designed in accordance with AISI. Aluminum covering shall be designed in accordance with AA-01, AA-02, AA-04.

A. Uniform wind, load capacity:

1. Installed roof system shall withstand positive and negative design wind loading pressures complying with Florida Building Code 2020, and as identified below,

	POSITIVE	NEGATIVE
Roof Panel Interior Zone 1	28.7 psf	- 45.6 psf
Eaves, and Rakes Zone 2	28.7 psf	- 100.6 psf
Eave and Rake Corners Zone 3	28.7 psf	-164.0 psf

Refer to Building Plan Sheets for additional windload requirements

1.04 SUBMITTALS:

A. GENERAL: The Contractor may submit manufacturer's data in lieu of the required certificate of compliance if he desires. Manufacturer's data is required by the owner if an "X" appears under the "Mfg. Data Required" column.

B. MATERIAL SUBMITTALS:

Para#	Description	Mfg. Data Required	Certificate of Compliance	Exceptions Taken	Inspector's Checklist
2.01	Roof Panels		XXX		
2.02	Factory Color Finish		XXX		
2.03	Accessories		XXX		
2.04	Fasteners		XXX		
2.05	Insulation		XXX		
2.06	Insulation Retainers		XXX		
2.07	Concealed Anchor Clips		XXX		
2.08	Sealant		XXX		
2.09	Gaskets and Insulating Compounds		XXX		
2.10	Roof Felt		XXX		
2.11	EPDM Rubber Boots		XXX		

C. OTHER SUBMITTALS: Provide the following submittals as required by the contract or as directed by the Owner.

Para#	Description	Data	Inspector's Required Checklist
1.05	Design Data by a Registered Professional Engineer	NTP + 14	
1.06	Shop Drawings	NTP + 14	
1.07	Qualification Statements	NTP + 14	
1.08	Test Reports	NTP + 14	
1.09	Certifications	NTP + 14	
1.11	Guarantee	Final Acceptance of Work	

1.05 DESIGN BY FLORIDA REGISTERED PROFESSIONAL ENGINEER

A. Data: Design analysis signed by a Florida Registered Professional Engineer, prior to beginning of manufacture. The design analysis shall include a list of the design loads, and complete calculations for the support system, roofing system and its components. The design analysis shall include, but not be limited to, the following wind and thermal information:

1. Wind forces on various parts of the roof. Both positive and negative pressures shall be calculated with the controlling pressure summarized.

2. Thermal movements that will result from the specified temperature range.

B. The calculations shall be accompanied by details from the manufacturer that demonstrate how installed concealed anchor clips and other roof system devices will accommodate the required thermal movement.

1.06 SHOP DRAWINGS

The Contractor's shall submit drawings and specifications; design and erection drawings containing an isometric view of the roof showing the design wind uplift pressure and dimensions of edge and corner zones; shop coating and finishing specifications; and other data as necessary to clearly describe design, materials, sizes, layouts, standing seam configuration, construction details, provisions for thermal movement, line of panel fixity, fastener sizes and spacings, sealant(s) and erection procedures. Drawings shall reflect the intent of the architectural detailing using the manufacturer's proprietary products and fabricated items as required. All shop drawings shall be signed and sealed by a Florida Registered Professional Engineer.

1.07 QUALIFICATION STATEMENTS

Qualifications of the manufacturer, installer, and field representative.

1.08 TEST REPORTS

The Contractor shall submit four copies of all test reports for uplift resistance of the SSRMS.

1.09 CERTIFICATES

A. Certification that the actual thickness of uncoated steel sheets used in SSMRS components including roofing panels, subpurlins, and concealed anchor clips comply with specified requirements.

B. Certification that materials used in the installed components are made from certified steel coil materials.

C. Certification that the SSMRS covered by the test report is the same type, quality and manufacturer as that proposed for this project.

D. Certification that the sheets to be furnished are produced under a continuing quality control program and that a representative sample consisting of not less than five pieces has been tested and has met the quality standards specified for factory color finish.

E. Mill certification for structural bolts and roof panels.

1.10 DELIVERY AND STORAGE

Materials shall be delivered to the site in a dry and undamaged condition and stored out of contact with the ground. Materials shall be covered with weathertight coverings and kept dry. Storage accommodations for roof covering shall provide good air circulation and protection from surface staining.

1.11 GUARANTEE

The SSMRS shall be guaranteed for 20 years against leakage arising out of or caused by ordinary wear and tear by the elements. Such guarantee shall start upon final acceptance of the work or the date the Government takes possession, whichever is earlier.

PART 2 PRODUCTS

2.01 ROOF PANELS

Panels shall be either steel or aluminum and shall have a factory color finish. Length of sheets shall be sufficient to cover the entire length of any unbroken roof slope when such slope is 30 feet or less. When length of run exceeds 30 feet and panel splices are provided, each sheet in the run shall extend over three or more supports. Sheets longer than 30 feet may be furnished if approved by the Owner. Width of sheets shall provide not more than 18 inches of coverage in place. SSMRS with roofing panels greater than 12 inches in width shall have standing seams rolled during installation by an electrically driven seaming machine. Height of standing seams shall be not less than 1-1/2 inches. All sheets shall be either square-cut or miter-cut except that gable end wall sheets may be cut in the shop to correspond to the roof slope and may have a horizontal joint at the eave line.

2.02 MANUFACTURERS

A. Manufacturer: Subject to compliance with requirements provide standing seam roof and wall panels system equal to:

Product	Manufacturer	Florida Approval No.
Vertical Seam Seam-Loc Magna.Loc	Metal Sales Manufacturing Corp.	FL2182
Series 1300 Series 2000	Englert, Inc.	FL1318

B. Steel Panels: Zinc-coated steel conforming to ASTM A 446, G 90 coating designation; aluminum-zinc alloy coated steel conforming to ASTM A 792, AZ 55 coating; or aluminum-coated steel conforming to ASTM A 463, Type 2, coating designation T2 65. Panels shall be 0.024 inch thick minimum, except that when the mid field of the roof is subject to design wind uplift pressures of 60 psf or greater, the entire roof system shall have a minimum thickness of 0.030 inch.

C. Aluminum Panels: Alloy conforming to ASTM B 209, temper as required for the forming operation, minimum 0.032 inch thick.

2.03 FACTORY COLOR FINISH

Roof panels shall have a factory color finish on the exposed side. The exterior finish shall consist of a polyvinylidene fluoride coating. **Color shall be selected by owner prior to shop drawing approvals**. The dry film thickness of the exterior coating shall be not less than 0.8 mil over a primer coat with a dry film thickness of 0.3 mils. The interior color finish shall consist of the same coating and dry film thickness as the exterior. The exterior color finish shall meet the test requirement specified below. The manufacturer shall have conducted tests on previously manufactured sheets of the same type and finish as proposed for the project. The term "appearance of base metal" refers to the metal coating on the steel base metal.

A. Salt Spray Test: A sample of the sheets shall withstand a salt spray test for a minimum of 1,000 hours in accordance with ASTM B 117, including the scribe requirement in the test. Immediately upon removal of the panel from the test, the coating shall receive a rating of 10, no blistering, as determined by ASTM D 714; and rating of 10, no edge creep failure at scribe, as determined by ASTM D 1654.

B. Formability Test: When subjected to a 180-degree bend over a 3/8 inch diameter mandrel in accordance with ASTM D 522, exterior coating film shall show no evidence of fracturing to the naked eye.

C. Accelerated Weathering, Chalking Resistance and Color Change: A sample of the sheets shall withstand a weathering test a minimum of 2,000 hours in accordance with ASTM G 23 using a Type D apparatus, without cracking, peeling, blistering, loss of adhesion of the protective coating, or corrosion of the base metal. Protective coating that can be readily removed from the base metal with tape in accordance with ASTM D 3359, Test Method B, shall be considered as an area indicating loss of adhesion. After the 2,000-hour weatherometer test, exterior coating shall not chalk greater than No. 8 rating in accordance with ASTM D 4214 test procedures. After the 2,000-hour weatherometer test, exterior coating color change shall not exceed 2 NBS units in accordance with ASTM D 2244.

D. Humidity Test: When subjected to a humidity cabinet test in accordance with ASTM D 2247 for 1,500 hours, a scored panel shall show no signs of blistering, cracking, creepage or corrosion.

E. Impact Resistance: Factory-painted sheet shall withstand direct and reverse impact in accordance with ASTM D 2794 equal to 1.5 times metal thickness in mils, expressed in inch-pounds, with no loss of adhesion.

F. Abrasion Resistance Test: When subjected to the falling sand test in accordance with ASTM D 968, the coating system shall withstand a minimum of 80 liters of sand before the appearance of the base metal.

G. Specular Gloss: Finished surfaces shall have a specular gloss of 20 or less at an angle of 60 degrees when measured in accordance with ASTM D 523.

H. Pollution Resistance: Coating shall show no visual effects when immersion tested in a 10 percent hydrochloric acid solution for 24 hours in accordance with ASTM D 1308.

2.04 ACCESSORIES

Accessories shall be compatible with the covering furnished. Flashing, trim, metal closure strips, caps, and similar metal accessories shall be not less than the minimum thicknesses specified for roofing panels. Exposed metal accessories shall be finished to match the panels furnished. Molded closure strips shall be

closed-cell or solid-cell synthetic rubber or neoprene, or polyvinyl chloride premolded to match configuration of the covering and shall not absorb or retain water. Thermal spacer blocks and other thermal barriers at concealed clip fasteners shall be as recommended by the manufacturer.

2.05 FASTENERS

Fasteners for steel roof panels shall be zinc-coated steel, aluminum, corrosion-resisting steel, or nylon-capped steel, type and size specified below or as otherwise approved for the applicable requirements. Fasteners for aluminum roof panels shall be aluminum or corrosion-resisting steel. Fasteners for structural connections shall provide both tensile and shear strength of not less than 750 pounds per fastener. Fasteners for accessories shall be the manufacturer's standard. Exposed roof fasteners shall be gasketed or have gasketed washers on the exterior side of the covering to waterproof the fastener penetration. Washer material shall be compatible with the covering; have a minimum diameter of 3/8 inch for structural connections; and gasketed portion of fasteners or washers shall be neoprene or other equally durable elastomeric material approximately 1/8 inch thick.

A. Screws: Screws shall be as recommended by the manufacturer to meet the strength design requirements of the panels.

B. Bolts: Bolts shall be not less than 1/4 inch diameter, shouldered or plain shank as required, with locking washers and nuts.

C. Structural Blind Fasteners: Blind screw-type expandable fasteners shall be not less than 1/4 inch diameter. Blind (pop) rivets shall be 9/32 inch minimum diameter.

2.06 INSULATION

Thermal resistance of insulation shall be not less than the R-values shown. R-values shall be determined at 75 degrees F in accordance with ASTM C 518. Insulation shall have a flame spread not in excess of 25 and a smoke developed rating not in excess of 50 when tested in accordance with ASTM E 84; shall be a standard product of a manufacturer, factory-marked or identified with manufacturer's name or trademark and R-value. Identification shall be on individual pieces or individual packages. Insulation shall have a facing providing a permeability of 0.02 perm or less when tested in accordance with ASTM E 96. Facing shall be of 2 mil thick white vinyl backed with 6-inch by 6-inch glass scrim and 0.7 mil thick metal foil laminate. Reinforced foil with a natural finish may be used for facing in concealed locations. Facings and finishes shall be factory applied.

A. Rigid or Semirigid Board Insulation: Rigid or semirigid board insulation shall conform to FS HH-I-558, Form A, Class 1 or Class 2. Exposed insulation shall have a white nondusting and nonshedding finish.

B. Blanket Insulation: Blanket insulation shall conform to FS HH-I-558, Form B, Type I, Class 6. Exposed insulation shall have a white sheet vinyl.

2.07 INSULATION RETAINERS

Insulation retainers shall be type, size, and design necessary to adequately hold the insulation and to provide a neat appearance. Metallic retaining members shall be nonferrous or have a nonferrous coating. Nonmetallic retaining members, including adhesives used in conjunction with mechanical retainers or at insulation seams, shall have a fire resistance classification not less than that permitted for the insulation.

2.08 CONCEALED ANCHOR CLIPS

Concealed anchor clips shall be as recommended by the manufacturer for the roofing system furnished. Clip bases shall have factory punched or drilled holes for attachment. Clips used with panel width greater than 12 inches shall be made from multiple pieces with the allowance for the total thermal movement required to take place within the clip.

2.09 SEALANT

Except as stated below, sealants shall be elastomeric type containing no oil or asphalt. Exposed sealant shall cure to a rubber-like consistency. All sealants shall be the nonhardening type. Roof panel standing seam ribs shall have a continuous sealant that is factory installed.

2.10 GASKETS AND INSULATING COMPOUNDS

Gaskets and insulating compounds shall be nonabsorptive and suitable for insulating contact points of incompatible materials. Insulating compounds shall be nonrunning after drying.

2.11 ROOFING FELT

Asphaltic saturated felt weighing not less than 30 lbs./100 square feet.

2.12 EPDM RUBBER BOOTS

Flashing devices around pipe penetrations shall be flexible, one-piece devices molded from weather-resistant EPDM rubber. Rubber boot material shall be as recommended by the manufacturer. The boots shall have base rings made of aluminum or corrosion-resisting steel that conform to the contours of the roof panel to form a weathertight seal.

PART 3 EXECUTION

3.01 INSTALLATION

Installation shall be in accordance with the approved erection instructions and drawings. Dissimilar materials which are not compatible when contacting each other shall be insulated from each other by means of gaskets or insulating compounds. Molded closure strips shall be installed wherever covering sheets terminate in open-end configurations, exclusive of flashings. The closure strip installation shall be weathertight and sealed. Improper or mislocated drill holes shall be plugged with an oversize screw fastener and gasketed washer; however, sheets with an excess of such holes or with such holes in critical locations shall not be used. Exposed surfaces and edges shall be kept clean and free from sealant, metal cuttings, hazardous burrs, and other foreign material. Stained, discolored, or damaged sheets shall be removed from the site.

A. Roof Panel Installation: Roof panels shall be installed with the standing seams in the direction of the roof slope. The side seam connections for installed panels shall be completed at the end of each day's work. Method of applying joint sealant shall conform to the manufacturer's recommendation as needed to achieve a complete weathertight installation. End laps, when approved by the Owner, shall be made over framing members. Closures, flashings, EPDM rubber boots and related accessories shall be installed according to the drawings. Fasteners shall not puncture covering sheets except as approved for flashing, closures, and trim. Exposed fasteners shall be installed in straight lines and shall be permitted only at the rakes, eaves, panel splices, and where required for

the attachment of flashings, gutter and other similar accessories. Expansion joints shall be installed at locations indicated on the drawings.

B. Concealed Anchor Clips: Roof panels shall be fastened to framing members with concealed fastening clips or other concealed devices. Clips shall be attached to the building structural system (concrete or steel members) with bolts or screws. The maximum distance, parallel to the seams, between clips shall be 30 inches on center in all areas of the roof shown as high wind uplift areas on the drawings, including corners, ridges, eaves, and edges. In no case shall that distance be greater than 5 feet on center.

3.02 INSULATION INSTALLATION

Insulation shall be installed as indicated and in accordance with manufacturer's instructions. Final appearance of installed insulation shall be free of unsightly sags and wrinkles.

A. Board and Blanket Insulation: Joints shall be tight and sealed as required by the manufacturer.

3.03 VAPOR RETARDER INSTALLATION

General purpose tape shall be installed over all the seams of the structural roof decking at any penetrating edges, and at all surface areas exhibiting sharp burrs or similar protrusions. A single ply of 10 mil polyethylene sheet or, at the Contractor's option, a double ply of 6 mil polyethylene sheet shall be installed over the entire deck surface. Tape shall be used to seal the edges of the sheets to the decking, to the edge of the roof supporting structures, or to the sheet below. Sheet edges shall be lapped not less than 6 inches. Sufficient material shall be provided to avoid inducing stresses in the sheets due to stretching or binding. All tears or punctures that are visible in the finished surface at any time during the construction process shall be sealed with the tape.

3.04 CLEANING AND TOUCH-UP

Exposed SSMRS shall be cleaned at completion of installation. Debris that could cause discoloration and harm to the panels, flashings, closures and other accessories shall be removed. Grease and oil films, excess sealants, and handling marks shall be removed and the work shall be scrubbed clean. Exposed metal surfaces shall be free of dents, creases, waves, scratch marks, and solder or weld marks. Immediately upon detection, abraded or corroded spots on shop-painted surfaces shall be wire brushed and touched up with the same material used for the shop coat. Factory color finished surfaces shall be touched up as necessary with the manufacturer's recommended touch-up paint.

END OF SECTION 074113.16

TECHNICAL SPECIFICATIONS FOR HELEN McCALL PARK EXPANSION PHASE 1 & PHASE 2
SECTION 076200 – SHEET METAL FLASHING AND TRIM

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes sheet metal flashing and trim in the following categories:

1. Exposed trim, gravel stops, and fasciae.
2. Copings.
3. Metal flashing.
4. Reglets

1.3 PERFORMANCE REQUIREMENTS

A. General: Install sheet metal flashing and trim to withstand wind loads structural movement, thermally induced movement, and exposure to weather without failing.

1.4 SUBMITTALS

A. General: Submit each item in this Article according to the Conditions of the Contract and Division 1 Specification Sections.

B. Product Data including manufacturer's material and finish data, installation instructions, and general recommendations for each specified flashing material and fabricated product.

C. Shop Drawings of each item specified showing layout, profiles, methods of joining, and anchorage details.

D. Samples of sheet metal flashing, trim, and accessory items, in the specified finish. Where finish involves normal color and texture variations, include Sample sets composed of 2 or more units showing the full range of variations expected.

1. 12-inch- (300-mm-) long Samples of factory-fabricated products exposed as finished Work. Provide complete with specified factory finish.

E. Qualification data for firms and persons specified in the "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: Engage an experience Installer who has completed sheet metal flashing and trim work similar in material, design, and extent to that indicated for this Project and with a record of successful in-service performance.

1.6 PROJECT CONDITIONS

A. Coordinate Work of this Section with interfacing and adjoining. Work for proper sequencing of each installation. Ensure best possible weather resistance, durability of Work, and protection of materials and finishes.

PART 2 - PRODUCTS

2.1 METALS

A. Galvanized Steel Sheet: ASTM A 653, G90 (ASTM A653 M, 2275) commercial quality, lock forming quality, hot dipped galvanized, mill phosphatized for painting, not less than 0.0396 inch (1.0mm) thick.

1. Note that all exposed metal trim and flashing to be prefinished to match custom color as selected by Architect.

2.2 REGLETS

A. General: Units of type, material, and profile indicated, formed to provide secure interlocking of separate reglet and counterflashing pieces and compatible with flashing indicated.

B. Surface-Mounted Type: Provide with slotted holes for fastening to substrate, with neoprene or other suitable weatherproofing washers, and with channel for sealant at top edge.

C. Masonry Type: Provide with offset top flange for embedment in masonry mortar joint.

D. Flexible Flashing Retainer: Provide resilient plastic or rubber accessory to secure flexible flashing in reglet where clearance does not permit use of standard metal counterflashing or where Drawings show reglet without metal counterflashing.

E. Counterflashing Wind-Restraint Clips: Provide clips to be installed before counterflashing to prevent wind uplift of the counterflashing lower edge.

1. Material: Galvanized steel, 0.0217 inch (0.55 mm) thick.

F. Manufacturers: Subject to compliance with requirements, provide products by one of the following or owner’s selection:

Fry Reglet Corporation.
Hickman: W.P. Hickman Co.

2.3 MISCELLANEOUS MATERIALS AND ACCESSORIES,

A. Solder: ASTM B 32, Grade Sn50, used with rosin flux, solvent type.

B. Fasteners: Same metal as sheet metal flashing or other noncorrosive metal as recommended by sheet metal manufacturer. Match finish of exposed heads with material being fastened.

C. Elastomeric Sealant: Generic type recommended by sheet metal manufacturer and fabricator of components being sealed and complying with, requirements for joint sealants as specified in Division 7 Section "Joint Sealant".

D. Asphalt Mastic: SSPC-Paint 12, solvent-type asphalt mastic nominally free of sulfur and containing no asbestos fibers, compound for 15-mil (O.4-mm) dry film thickness per coat.

E. Metal Accessories: Provide sheet metal clips, straps, anchoring devices, and similar accessory units as required for installation of Work, matching or compatible with material being installed; noncorrosive; size and thickness required for performance.

R. Roofing Cement: ASTM D 4586, Type I, asphalt based, containing no asbestos fibers.

2.4 FABRICATION, GENERAL

A. Sheet Metal Fabrication, Standard: Fabricate sheet metal flashing and trim to comply with recommendations of SMACNA's "Architectural Sheet Metal Manual" that apply to the design, dimensions, metal, and other characteristics of the item indicated below.

B. Comply with details shown on the drawings to fabricate sheet metal flashing and trim and gutters and downspouts that fit substrates and result in waterproof and weather-resistant performance once installed. Verify shapes and dimensions of surfaces to be covered before fabricating sheet metal.

C. Form exposed sheet metal Work that is without excessive oil canning, buckling, and tool marks and that is true to line and levels indicated, with exposed edges folded back to form hems.

D. Seams: Fabricate nonmoving seams in sheet metal with flat-lock seams. Tin edges to be seamed, form seams, and solder.

E. Sealed Joints: Form nonexpansion, but movable, joints in metal to accommodate elastomeric sealant to comply with SMACNA standards.

F. Separate metal, from noncompatible metal or corrosive substrates by coating concealed surfaces, at locations of, contact with asphalt mastic or other permanent separation as recommended by manufacturer.

G. Conceal fasteners and expansion provisions where possible. Exposed fasteners are not allowed on faces of sheet metal exposed to public view.

H. Fabricate cleats and attachment devices from same material as sheet metal component being anchored or from compatible, noncorrosive metal recommended by sheet metal manufacturer.

I. Size: As recommended by SMACNA manual or sheet metal manufacturer for application but never less than thickness of metal being secured.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions under which sheet metal flashing and trim are to be installed and verify that Work may properly commence. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. General: Unless otherwise indicated, install sheet metal flashing and trim to comply with performance requirements, manufacturer's installation instructions, and SMACNA's "Architectural Sheet Metal Manual". Anchor units of Work securely in place by methods indicated, providing for thermal expansion of metal units; conceal fasteners where possible, and set units true to line and level as indicated, Install Work with laps, joints, and seams that will be permanently watertight and weatherproof.

B. Install exposed sheet metal Work that is without excessive oil canning, buckling, and tool marks and that is true to line and levels indicated, with exposed edges folded hack to form hems. Install sheet metal flashing and trim to fit substrates and to result in waterproof and weather-resistant performance. Verify shapes and dimensions of surfaces to be covered before fabricating sheet metal.

C. Roof-Edge Flashings: Secure metal flashings at roof edges according to FM Loss Prevention Data Sheet 1-49 for specified wind zone.

D. Expansion Provisions: Provide for thermal expansion of exposed sheet metal Work. Space movement joints at maximum of 10 feet (3 m) with no joints allowed within 24 inches (610 mm) of comer or intersection. Where lapped or bayonet-type expansion provisions in Work cannot be used or would not be sufficiently weatherpoof and waterproof, form expansion joints of intermeshing hooked flanges, not less than 1 inch (25 mm) deep, filled with mastic sealant (concealed within joints).

E. Soldered Joints: Clean surfaces to be soldered, removing oils and foreign matter. Pretin edges of sheets to be soldered to a width of 1-1/2 inches (38 mm), except where pretinned surface would show in finished Work.

F. Sealed Joints: Form nonexpansion, but movable, joints in metal to accommodate elastomeric sealant to comply with SMACNA standards. Fill joint with sealant and form metal to completely conceal sealant.

1. Use joint adhesive for nonmoving joints specified not to be soldered.

G. Separations: Separate metal from non compatible metal or corrosive substrates by coating concealed surfaces, at locations of contact, with asphalt mastic or other permanent separation as recommended by manufacturer.

1. Install realets to receive counterflashing according to the following requirements:

a. Where indicated on the Contract Documents (drawings).

H. Counterflashings: Coordinate installation of counterflashings with installation of assemblies to be

protected by counterflashing. Install counterflashings in reglets or receivers. Secure in a waterproof manner by means of snap-in installation and sealant, lead wedges and sealant, interlocking folded seam, or blind rivets and sealtant. Lap counterflash1ng joints a minimum of 2 inches (50 mm) and bed with sealant.

I. Equipment Support Flashing: Coordinate equipment support flashing installation with roofing and equipment installation. Weld or seal flashing to equipment support member.

J. Roof-Penetration Flashing: Coordinate roof-penetration flashing installation with roofing and installation of items penetrating roof. Install flashing as follows:

1. Turn lead flashing down inside vent piping, being careful not to block vent piping with flashing.

2. Seal and clamp flashing to pipes penetrating roof, other than lead flashing on vent piping.

3.3 CLEANING AND PROTECTION

A. Clean exposed metal surfaces, removing substances that might cause corrosion of metal or deterioration of finishes.

B. Provide final protection and maintain conditions that ensure sheet metal flashing and trim Work during construction is without damage or deterioration other than natural weathering at the time of Substantial Completion.

END OF SECTION 076200

TECHNICAL SPECIFICATIONS FOR HELEN McCALL PARK EXPANSION PHASE 1 & PHASE 2
SECTION 079200 – JOINT SEALANTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes joint sealants for the following locations:

1. Exterior joints in vertical surfaces and nontraffic horizontal surfaces as indicated below:

a. Control and expansion joints in cast-in-place concrete.
b. Control and expansion joints in unit masonry.
c. Joints between different materials listed above.
d. Perimeter joints between materials listed above and frames of doors and windows.
e. Control and expansion joints in ceiling and overhead surfaces.
f. Other joints as indicated.

2. Exterior joints in horizontal traffic surfaces as indicated below:

a. Control, expansion, and isolation joints in cast-in-place concrete slabs.
b. Joints between different materials listed above.
c. Other joints as indicated.

3. Interior joints in vertical surfaces and horizontal nontraffic surfaces as indicated below:

a. Perimeter joints of exterior openings where indicated.
b. Perimeter joints between interior wall surfaces and frames of interior doors, windows, and elevator entrances.
c. Perimeter of toilet fixtures.
d. Other joints as indicated.

4. Interior joints in horizontal traffic surfaces as indicated below:

a. Control and expansion joints in cast-in-place concrete slabs.
b. Control and expansion joints in tile flooring.
c. Other joints as indicated.

5. Related Sections: The following Sections contain requirements that relate to this Section:

a. Division 7 Section Flashing and Sheet Metal" for sealing joints related to flashing and sheet metal for roofing.
b. Division 9 Section "Gypsum Drywall" for sealing concealed perimeter joints of gypsum board partitions to reduce sound transmission.
c. Division 9 Section "Acoustical Panels" for sealing edge moldings at perimeter of acoustical ceilings.
d. Division 9 Section "Tile" for sealing tile joints.

1.3 SYSTEM PERFORMANCE REQUIREMENTS

A. Provide elastomeric joint sealants that have been produced and installed to establish and to maintain watertight and airtight continuous seals without causing staining or deterioration of joint substrates.

B. Provide joint sealants for interior applications that have been produced and installed to establish and maintain airtight continuous seals that are water resistant and cause no staining or deterioration of joint substrates.

1.4 SUBMITTALS

A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.

1. Product data from manufacturers for each joint sealant product required.

a. Certification by joint sealant manufacturer that sealants plus the primers and cleaners required for sealant installation comply with local regulations controlling use of volatile organic compounds.

2. Samples for initial selection purposes in form of manufacturers standard bead samples, consisting of strips of actual products showing full range of colors available, for each product exposed to view.

3. Samples for verification purposes of each type and color of joint sealant required. Install joint sealant samples in 1/2-inch-wide joints formed between two 6-inch-long strips of material matching the appearance of exposed surfaces adjacent to joint sealants.

B. Qualification data complying with requirements specified in "Quality Assurance" article. Include list of completed projects with project names addresses, names of Architects and Owners, plus other information specified.

1. Product test reports for each type of joint sealants indicated, evidencing compliance with requirements specified.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: Engage an experienced Installer who has completed joint sealant applications similar in material, design, and extent to that indicated for Project that have resulted in construction with a record of successful in-service performance.

B. Single Source Responsibility for Joint Sealant Materials: Obtain joint sealant materials from a

single manufacturer for each different product required.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to Project site in original unopened containers or bundles with labels indicating manufacturer, product name and designation, color, expiration period for use, pot life, curing time, and mixing instructions for multi component materials.

B. Store and handle materials in compliance with manufacturer's recommendations to prevent their deterioration or damage due to moisture, high or low temperatures, contaminants, or other causes.

1.7 PROJECT CONDITIONS

A. Environmental Conditions: Do not proceed with installation of joint sealants under the following conditions:

1. When ambient and substrate temperature conditions are outside the limits permitted by joint sealant manufacturer.

2. When joint substrates are wet

B. Joint Width Conditions: Do not proceed with installation of joint sealants where joint widths are less than allowed by joint sealant manufacturer for application indicated.

C. Joint Substrate Conditions: Do not proceed with installation of joint sealants until contaminants capable of interfering with their adhesion are removed from joint substrates.

1.8 SEQUENCING AND SCHEDULING

A. Sequence installation of joint sealants to occur not less than 21 nor more than 30 days after completion of waterproofing, unless otherwise indicated.

PART 2 - PRODUCTS

2.1 MATERIALS. GENERAL

A. Compatibility: Provide joint sealants, joint fillers, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience.

1. Colors: Provide color of exposed joint sealants to comply with the following:

a. Provide selections made by Architect from manufacturer’s full range of standard colors for products of type indicated.

2.2 ELASTOMERIC JOINT SEALANTS

A. Elastomeric Sealant Standard: Provide manufacturer’s standard chemically curing elastomeric sealants that comply with ASTM C *920.*

2.3 ELASTOMERIC JOINT SEALANT DATA

Elastomeric Joint sealant Designation: (ES1)
Base Polymer: Urethane
Type: S (single component).
Grade: NS (nonsag).
Uses Related to Exposure: T(traffic) and NT(nontraffic)
Uses Related to Joint Substrates: M, G, A, and as applicable to joint substrates indicated, O.
Products: Subject to compliance, provide one of the following:

One-Part Nonsag Urethane Sealant for Use NT:

"DynatroI1"; Pecora Corporation
"Sonolastic NP"; Sonneborn Building Products Division.
Rexnord Chemical Products, Inc.
" Dymonic"; Tremco, Inc.

One-Part Nonsag-Urethane Sealant for Use T:

"Perrnapol RC-1"; Products Research. & Chemical Corporation
"Sikaflex-Ia"; Sika Corporation.

2.4 SOLVENT-RELEASE-CURING JOINT SEALANTS

A. Acrvlic Sealant: Manufacturer's standard one-part, nonsag, solvent-release-curing acrylic terpolymer sealant complying with AAMA 808.3 or FS TT-S-00230 or both, with capability when tested for adhesion and cohesion under maximum cyclic movement per ASTM C 719, to withstand the following percentage change in joint width existing at time of application and remain adhered to joint substrates indicated for Project without failing cohesively:

12-1/2 percent movement in both extension and compression for a total of 25 percent

B. Butyl Sealant: Manufacturer's standard one-part, nonsag, solvent-release-curing, polymerized butyl sealant complying with ASTM C 1085 and formulated with minimum of 75 percent solids to be nonstaining, paintable, and have a tack-free time of 24 hours or less.

C. Pigmented Narrow Joint Sealant: Manufacturer's standard, solvent-release-curing, pigmented synthetic rubber sealant complying with AAMA 803.3 and formulated for sealing joints 3/16 inch or smaller in width.

D. Available Products: Subject to compliance with requirements, solvent-release-curing joint sealants that may be incorporated in the Work include, but are not limited to, the following:

Acrylic Sealant:

"60+Unicrylic," Pecora Corp.
"PTI738," Protective Treatments, lnc.
"PTI767," Protective Treatments,lnc.
"Mono," Trernco, Inc.

Butyl Sealant:

"BG-158," Pecora Corp.

"PTI757," Protective Treatments, lnc.
"Sonneborn Multi-Purpose Sealant," Sonneborn Building Products Div., ChemRex, Inc.
"Tremco Butyl Sealant," Tremco, Inc.

Pigmented Narrow Joint Sealants:

"PTI 200," Protective Treatments, Inc.

2.5 LATEX JOINT SEALANTS

A. General: Provide manufacturer's standard one-part, nonisag, mildew- resistant, paintable-latex sealant of formulation indicated that is recommended for exposed applications on interior and protected exterior locations and that accommodates indicated percentage change in joint width existing at time of installation without failing either adhesively or cohesively.

B. Acrylic-Emulsion Sealant: Provide product complying with ASTM C 834 that accommodates joint movement of not more than 5 percent in both extension and compression for a total of 10 percent.

C. Silicone Emulsion Sealant: Provide product complying with ASTM C 834 and, except for weight loss measured per ASTM C 792, with ASTM C 920 that accommodates joint movement of not more than 25 percent in both extension and compression for a total of 50 percent.

D. Available Products: Subject to compliance with requirements, latex joint sealants that may be incorporated in the Work include, but are not limited to, the following:

Acrylic-Emulsion Sealant:

"AC-20," Pecora Corp.
"Sonolac," Sonneborn Building Products Div., ChemRex, Inc.
"Tremco Acrylic Latex 834," Tremco, Inc.

Silicone-Emulsion Sealant:

"Trade Mate Paintable Glazing Sealant," Dow Coming Corp.

2.6 ACOUSTICAL JOINT SEALANTS

A. Acoustical Sealant: Manufacturer's standard nonsag, paintable, nonstaining latex sealant complying with ASTM C 834 and the following requirements:

1. Product is effective in reducing airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies per ASTME90.
2. Product has flame spread and smoke developed ratings of less than 25 per ASTM E 84.

B. Acoustical Sealant for Concealed Joints: Manufacturer's standard, nondrying, nonhardening, nonskinning, nonstaining, gunnable, synthetic rubber sealant recommended for sealing interior concealed joints to reduce transmission of airborne sound.

C. Available Products: Subject to compliance with requirements, acoustical joint sealants that may be incorporated in the Work include, but are not limited to, the following:

Acoustical Sealant:

"SHEETROCK Acoustical Sealant,'; United States Gypsum Co;
"AC-20 FTR Acoustical and Insulation Sealant," PeCora Corp.

Acoustical Sealant for Concealed Joints:

"BA-98," Pecora Corp.
"Tremco Acoustical Sealant," Tremco, Inc.

2.7 JOINT SEALANT BACKING

A. General: Provide sealant backings of material and type that are nonstaining; are compatible with joint substrates, sealants, primers and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.

B. Plastic Foam Joint Fillers: Preformed,compressible, resilient, nonstaining, nonwaxing, nonextruding strips of flexible plastic foam of material indicated below and of size, shape, and density to control sealant depth and otherwise contribute to producing optimum sealant performance:

1. Open-cell polyurethane foam.
2. Closed-cell polyethylene foam, nonabsorbent to liquid water and gas, nonoutgassing in unruptured state.
3. Proprietary, reticulated, closed-cell polymeric foam, nonoutgassing, with a density of 2.5 pcf and tensile strength of 35 psi per ASTM D 1623; and with water absorption less than 0.02 gms/cc perASTM C 1083.
4. Any material indicated above.

C. Elastomeric Tubing Joint Fillers: Neoprene, butyl, EPDM, or silicone tubing complying with ASTM D 1056, nonabsorbent to water and gas, capable of remaining resilient at temperatures down to -26 deg F (-32 deg C). Provide products with low compression set and of size and shape to provide a secondary seal, to control sealant depth, and otherwise contribute to optimum sealant performance.

D. Bond-Breaker Tape: Polyethylene tape or other plastic tape as recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint filler materials or joint surfaces at back of joint where such adhesion would result in sealant failure. Provide self-adhesive tape where applicable.

2.8 MISCELLANEOUS MATERIALS

A. Primer: Material recommended by joint sealant manufacturer where required for adhesion of sealant to joint substrates indicated; as determined from preconstruction joint sealant-substrate tests arid field tests.

B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming in any way joint substrates and adjacent nonporous surfaces, and formulated to promote optimum adhesion of sealants with joint substrates.

C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint sealant performance. Do not proceed with installation of joint sealants until unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with recommendations of joint sealant manufacturer and the following requirements:

1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.

2. Clean concrete masonry, unglazed surfaces of ceramic tile, and similar porous joint substrate surfaces by brushing, grinding, blast cleaning, mechanical abrading, or a combination of these methods to produce a dean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining from above cleaning operations by vacuuming or blowing out joints with oil-free compressed air.

3. Remove laitance and form release agents from concrete.

4. Clean metal, glass, porcelain enamel, glazed surfaces of ceramic tile, and other nonporous surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants.

B. Joint Priming: Prime joint substrates where indicated or where recommended by joint sealant manufacturer based on preconstruction joint sealant-substrate tests or prior experience. Apply primer to comply with joint. sealant manufacturer's recommendations. .Confine primers to areas of joint sealant bond; do riot allow spillage or migration onto adjoining surfaces.

C. Masking Tape: Use masking tape where required to prevent contact of sealant with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.3 INSTALLATION OF JOINT SEALANTS

A. General: Comply with joint sealant manufacturer's printed installation instructions applicable to products and applications indicated, except where more stringent requirements apply.

1. Elastomeric Sealant Installation Standard: Comply with recommendations of ASTM C 962 for use of joint sealants as applicable to materials, applications, and conditions indicated.

2. Solvent-Release-Curing Sealant Installation Standard: Comply with requirements of ASTM C 804 for use of solvent-release-curing sealants.

3. Latex Sealant Installation Standard: Comply with requirements of ASTM C 90 for use of latex sealants.

4. Acoustical Sealant Application Standard: Comply with recommendations of ASTM C 19 for use of joint sealants in acoustical applications as applicable to materials, applications, and conditions indicated.

5. Installation of Sealant Backings: Install sealant backings to comply with the following requirements:

1. Install joint fillers of type indicated to provide support of sealants during application and at position required to produce the cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.

a. Do not leave gaps between ends of joint fillers.
b. Do not stretch, twist, puncture, or tear joint fillers.
c. Remove absorbent joint fillers that have become wet prior to sealant application and replace with dry material.
d. Install bond breaker - tape between sealants where backer rods are not used between sealants and joint fillers or back of joints.

B. Installation of Sealants: Install sealants by proven techniques that result in sealants directly contacting and fully wetting joint substrates, completely filling recesses provided for each joint configuration, and providing uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability. Install sealants at the same time sealant backings are installed.

C. Tooling of Nonsag Sealants: Immediately after sealant application and prior to time skinning or curing begins, tool sealants to form smooth, uniform beads of configuration indicated, to eliminate air pockets, and to ensure contact and adhesion of sealant with sides of joint. Remove excess sealants from surfaces adjacent to joint. Do not use tooling agents that discolor sealants or adjacent surfaces or are not approved by sealant manufacturer.

1. Provide concave joint configuration per Figure 5A in ASTM C 62, unless otherwise indicated.

2. Provide flush joint configuration, per Figure 58 in ASTM C 962, where indicated. Use masking tape to protect adjacent surfaces of recessed tooled joints.

D. Provide recessed joint configuration, per Figure 5C in ASTM C 962, of recess, depth and at locations indicated.

E. Installation of Preformed Foam Sealants: Install each length of sealant immediately after removing protective wrapping, taking care not to pull or stretch material, and to comply with sealant manufacturer's directions for installation methods, materials, and tools that produce seal continuity at ends, turns, and intersections of joints. For applications at low ambient temperatures where, expansion of sealant requires acceleration to produce seal, apply heat to sealant in conformance with sealant manufacturer's recommendations.

3.4 CLEANING

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

3.5 PROTECTION

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

END OF SECTION 079200

TECHNICAL SPECIFICATIONS FOR HELEN McCALL PARK EXPANSION PHASE 1 & PHASE 2
SECTION 081416 – FLUSH WOOD DOORS

PART 1 - GENERAL

1.01 WARRANTY

A. Special warranty:

1. Doors:
   a. Interior doors: Life of installation.
   b. Causes for replacement:
      1) Delamination.
      2) NWWDA I.S. 1-A-93, T-1: Telegraphing of stile, rail, or core through face causing surface variation exceeding 1/100" in any 3" span.
      3) NWWDA I.S. 1-A-93, T-2: Warp or twist exceeding ¼" in door face plane.

2. Provide for finished replacement; include Project site refinishing, labor, and materials.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Acceptable manufacturers:

1. Five ply flush doors:
   a. Algoma Hardwoods, Inc.
   b. Buell Door Company.
   c. Eggers Industries, Inc.
   d. Weyerhaueser Company.
   e. VT Industries, Inc.

2. Plastic laminate flush doors:
   a. Algoma Hardwoods, Inc.
   b. Buell Door Company.
   c. Eggers Industries, Inc.
   d. Oshkosh Architectural Door Company.
   e. Weyerhaueser Company.
   f. VT Industries, Inc.

3. Stile and rail look doors: International Paper; Masonite Division Molded Products Group.

2.02 MANUFACTURED UNITS

A. Flush doors:
   1. Solid core:
      a. Type: NWWDA I.S. 1-A-93, Premium Grade.
      b. Assembly, general:
         1) Wood veneer: NWWDA I.S. 1-A-93, PC-5; five ply construction.
         2) Plastic laminate face: SLC-HPDL-5; five ply construction.
      c. Core: ANSI A208.1, 1-LD-2 grade particleboard core.
      d. Vertical and horizontal edges: Bonded to solid core; NWWDA T.M.6, Type II gluelines, minimum.
      e. Adhesive: Commercial Standard CS-171, Type I for exterior and high moisture doors; Type II for other interior doors.

f. Blocking and reinforcement: No blocking required for TimberStrand® LSL or stave core doors. Provide particleboard core doors with solid wood blocking such as wide top rails and lock blocks for surface hardware such as closers and exit devices.
g. Stiles; bonded to core:
    1) Wood veneer: Matching hardwood 1-3/8" minimum two ply.
    2) Plastic laminate face: Factory applied plastic laminate stiles laminated to manufacturer's standard construction hardwood; 1-3/8" minimum.
h. Rails , moldings, and trim; NWWDA I.S. 1-A-93, G-12: Hardwood rails or TimberStrand® LSL, 1-1/8" minimum.
i. Label: UL or WH 20 minute label on doors indicated to be 20 minute rated.

2. Mineral core:
    a. Type: NWWDA I.S. 1-A-93, Custom Grade.
    b. Assembly, general: NWWDA I.S. 1-A-93, FD-5 90 MIN, B label; FD-5 60 MIN, B label; FD-5 45 MIN, C label; or FD-5 20 MIN, 20 min. five ply construction; label requirements indicated on Drawings.
    c. Core: Asbestos free mineral composition core; salt free.
    d. Vertical and horizontal edges: Bonded to core; NWWDA T.M.6, Type II gluelines.
    e. Adhesive: Commercial Standard CS-171, Type II.
    f. Blocking, rails, and reinforcement; salt free:
        1) NWWDA I.S. 1-A-93: Provide lock blocks for scheduled locks. Provide blocking for other scheduled surface hardware attachment directly into blocking.
        2) Top and bottom rails 2" minimum before fitting, Georgia-Pacific Firestop® II high-density mineral with 1130 lb. screw holding power minimum.
    g. Stiles; salt free:
        1) 1¼" minimum before fitting, Georgia-Pacific Firestop® II high density mineral with 1130 lb. screw holding power minimum with
            a) Wood veneer: veneer to match face veneer.
            b) Plastic laminate face: factory applied plastic laminate.
        2) Bonded to core. Drill 5/32" pilot holes for hinge screws at factory prior to shipment for "B" and "C" label fire doors.
        3) Meet following performance criteria:
            a) Split resistance; tested in accord with *"Test Method to Determine Split Resistance of Hinge Edges of Composite Type Fire Doors"*: Average of ten test samples shall be not less than 900 load pounds.
            b) Direct screw withdrawal; ASTM D1037-96a: Average of ten test samples shall be not less than 650 load pounds when tested for direct screw withdrawal using No. 12 x 1¼" steel thread-to-the-head wood screw of cadmium plated or rust-resistant type.
            c) Cycle/Slam; ANSI A151.1, Section 2.5: 200,000 cycles with no loose hinge screws or other visible signs of failure.
    h. Moldings, and trim; salt free; NWWDA I.S. 1-A-93, G-12: Fire-retardant treated maple or birch.
    i. Core: Asbestos and salt free mineral composition core.
    j. Labels: UL or WH factory applied labels for ratings indicated on Drawings in excess of 30 minute requirements allowed above in "Solid core" Subparagraph above.

3. Doorskins:
    a. Paint finish: Medium density overlay (MDO); overlay readily sandable, weatherproof, and carry a Class "B" Fire Rating.
    b. Plastic laminate faces for HPDL:
        1) NEMA Standard LD-3.1-1991, Grade GP-50.
        2) Colors and patterns: Indicated on Drawings.

4. Furnish astragals at meeting edge of door pair, wood beads, and applied moldings; same material and quality as door face; meet NWWDA Grade.

5. Thickness: 1-3/4" thickness unless otherwise indicated.

B. Stile and rail look doors:
   1. Type: NWWDA I.S. 1-A-93, Grade II, Type II and AWI Section 1300, Custom Grade.
   2. Construction: Three-ply construction; low-density wood fiber core.
   3. Faces: International Paper; Masonite Division Molded Products Group; Craftmaster® Coventry® textured face molded four panel CraftCore® solid core.
   4. Thickness: 1-3/4".
   5. Label: UL or WH 20 minute label on solid core doors indicated to be 20 minute rated.

C. Fire resistant glazing sealant, acceptable product: Rectorseal, Inc.; Metalcaulk Series for installation of wire glass in openings.

2.03 FABRICATION

A. Shop assembly:

   1. Fabricate doors to NWWDA I.S. 1-A-93, G-13 Workmanship and AWI Sections 1300 and 1400 as applicable for Grade specified and specified criteria. Generally, utilize hot press method for face lay up; bond stiles, rails, and faces to core material.

   2. Fabrication details; use below unless otherwise indicated:
      a. Meeting edge for door pairs:
         1) Non-rated and 20 minute doors: NWWDA I.S. 1-A-93, G-12, Option E4 Tee Astragal.
         2) Rated doors: NWWDA I.S. 1-A-93, G-12, Option E7 Metal Edge Guard Astragal.
      b. Vision panel trimming:
         1) Non-rated and 20-minute doors: NWWDA I.S. 1-A-93, G-12, Option M3, Lip Moulding for glazing, same rating as door.
         2) Rated doors: NWWDA I.S. 1-A-93, G-12, Option M4 Metal Vision Frame.

   3. Cut and fit to sizes and supplied hardware templates prior to finishing.

   4. Fabricate openings in labeled doors in accord with manufacturer's inspection service procedure and under label service; finish.

   5. Seal edges and machined surfaces immediately after fitting and cutting.

B. Tolerances:

   1. Not prefit doors; width, height, and thickness: ±1/16".
   2. Machined for hardware:
      a. Width: ±1/32".
      b. Height and thickness: ±1/16".
      c. Hardware location: ±1/32".
      d. Locks and hinges: +1/32" -0.
   3. Prefit clearances:
      a. Top and hinge edge: 1/8".
      b. Single door lock edge: 1/8".
      c. Pair meeting edge, per leaf: 1/16".
   4. Squareness: Maximum 1/8" difference in diagonal measurements.

2.04 SOURCE QUALITY CONTROL

A. Inspection:

   1. Allowable color and grade variation: Select doors for natural finish for uniformity in color and grain and inconspicuous joints in face veneers.
   2. Adjacent doors and doors viewed together with color and grain meeting NWWDA standards specified above.

B. Verification of performance: Stamp, brand, or label each door identifying manufacturer, trade association of which he is member, grade and type of door, or complying industry standard.

PART 3 - EXECUTION

3.01 INSTALLATION

A. General:

1. Install in accord with NWWDA I.S. 1-A-93, G-20, *Care and Installation at Job Site.*
2. Provide cutouts for door grilles and glass lites, without damage to door faces if not factory prepped. Field fabricated openings in rated doors are prohibited.
3. Machine doors for hardware using templates furnished by door hardware manufacturer, if not factory prepped.
4. Seal cut-outs immediately after cutting or machining with one coat of solvent type sealer.
5. Replace or rehang doors which bind or sag and doors with improper machining or cut-outs visible in finished construction activities.
6. Clean soil and smudge marks and handling defects from doors. Replace doors from which marks cannot be removed.
7. Install fire-rated doors in accord with requirements of NFiPA 80-1995. Removing rating labels is prohibited.
8. Finishing paint grade veneers and edges: In accord with Paints Section.

B. Tolerances:

1. Variation from specified clearances: +1/32", -0.
2. Variation in edge alignment, pairs of doors, each leaf: 1/16" maximum.
3. Clearances around door perimeter:
   a. Hinge side: 1/16".
   b. Latch edge: 1/8" (+0", -1/16").
   c. Meeting edges, pairs of doors: 1/8" total.
   d. Bottoms: ¼" above threshold or floor finish except where undercutting is indicated.

END OF SECTION 081416

TECHNICAL SPECIFICATIONS FOR HELEN McCALL PARK EXPANSION PHASE 1 & PHASE 2
SECTION 087100 – DOOR HARDWARE

PART 1 - GENERAL

1.01 SUMMARY

A. This Section includes items known commercially as finish or door hardware that are required for swing, sliding, and folding doors, except special types of unique hardware specified in the same sections as the doors and door frames on which they are installed.

B. This Section includes the following:
1. Hinges
2. Key control system
3. Lock and latch sets
4. Exit devices
5. Push/Pull units
6. Closers
7. Overhead holders
8. Miscellaneous door control devices
9. Door trim units
10. Protection plates
11. Weatherstripping for exterior doors
12. Astragals or meeting seals on pairs of doors
13. Thresholds
14. Door Seals

C. Related Sections: The following Sections contain requirements that relate to this Section:
1. Section 08110: Steel Doors and Frames
2. Section 08210: Wood Doors
3. Section 08410: Aluminum Entrances and Storefronts
4. Division 16: Electrical

1.02 REFERENCES

A. Standards of the following as referenced:
1. American National Standards Institute (ANSI)
2. Door and Hardware Institute (DHI)
3. Factory Mutual (FM)
4. National Fire Protection Association (NFPA)
5. Underwriters' Laboratories, Inc. (UL)
6. Warnock Hersey

B. Regulatory standards of the following as referenced:
1. Department of Justice, Office of the Attorney General, *Americans with Disabilities Act*, Public Law 101-336 (ADA).
2. CABO/ANSI A117.1: *Providing Accessibility and Usability for Physically Handicap People*, 1992 edition.

1.03 SYSTEM DESCRIPTION

A. Refer to applicable Headings for system description for electric and electro-pneumatic hardware products.

1.04 SUBMITTALS

A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification sections.

B. Product data including manufacturers' technical product data for each item of door hardware, installation instructions, maintenance of operating parts and finish, and other information necessary to show compliance with requirements.

C. Final hardware schedule coordinated with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.
   1. Final Hardware Schedule Content: Based on hardware indicated, organize schedule into vertical format "hardware sets" indicating complete designations of every item required for each door or opening. Use specification Heading numbers with any variations suffixed a, b, etc. Include the following information:
      a. Type, style, function, size, and finish of each hardware item.
      b. Name and manufacturer of each item.
      c. Fastenings and other pertinent information.
      d. Location of each hardware set cross referenced to indications on Drawings both on floor plans and in door and frame schedule.
      e. Explanation of all abbreviations, symbols, and codes contained in schedule.
      f. Mounting locations for hardware.
      g. Door and frame sizes and materials.
      h. Keying information.
      i. Cross reference numbers used within schedule deviating from those specified.
         1) Column 1: State specified item and manufacturer.
         2) Column 2: State prior approved substituted item and its manufacturer.
   2. Submittal Sequence: Submit final schedule at earliest possible date particularly where acceptance of hardware schedule must precede fabrication of other work that is critical in the Project construction schedule. Include with schedule the product data, samples, shop drawings of other work affected by door hardware, and other information essential to the coordinated review of schedule.
   3. Submittal Sequence: Submit initial draft of final schedule along with essential product date in order to facilitate the fabrication of other work that is critical in the Project construction schedule. Submit final schedule after samples, product date, coordinate with shop drawings of other work, delivery schedules, and similar information has been completed and accepted.
   4. Keying Schedule: Submit separate detailed schedule indicating clearly how the Owner's final instructions on keying of locks has been fulfilled.

D. Samples of each type of exposed hardware unit in finish indicated and tagged with full description for coordination with schedule. Submit samples prior to submission of final hardware schedule.

1. Samples will be returned to the supplier. Units that are acceptable and remain undamaged through submittal, review, and field comparison process may, after final check of operation, be incorporated in the Work, within limitations of keying coordination requirements.

E. Templates for doors, frames, and other work specified to be factory prepared for the installation of door hardware. Check shop drawings of other work to confirm that adequate provisions are made for locating and installing door hardware to comply with indicated requirements.

F. Contract closeout submittals:
   1. Operation and maintenance data: Complete information for installed door hardware.
   2. Warranty: Completed and executed warranty forms.

1.05 QUALITY ASSURANCE

A. Single Source Responsibility: Obtain each type of hardware (latch and lock sets, hinges, closers, etc.) from a single manufacturer.

B. Supplier Qualifications: A recognized architectural door hardware supplier, with warehousing facilities in the Project's vicinity, that has a record of successful in-service performance for supplying door hardware similar in quantity, type, and quality to that indicated for this Project and that employs an experienced architectural hardware consultant (AHC) who is available to Owner, Architect, and Contractor, at reasonable times during the course of the Work, for consultation.
   1. Require supplier to meet with Owner to finalize keying requirements and to obtain final instructions in writing.
   2. Required supplier to meet with installer prior to beginning of installation of door hardware.

C. Fire-Rated Openings: Provide door hardware for fire-rated openings that complies with NFPA Standard No. 80 and requirements of authorities having jurisdiction. Provide only items of door hardware that are listed and are identical to products tested by UL, Warnock Hersey, FM, or other testing and inspecting organization acceptable to authorities having jurisdiction for use on types and sizes of doors indicated in compliance with requirements of fire-rated door and door frame labels.

1.06 PRODUCT HANDLING

A. Tag each item or package separately with identification related to final hardware schedule, and include basic installation instructions with each item or package.

B. Packaging of door hardware is responsibility of supplier. As material is received by hardware supplier from various manufacturers, sort and repackage in containers clearly marked with appropriate hardware set number to match set numbers of approved hardware schedule. Two or more identical sets may be packed in same container.

C. Inventory door hardware jointly with representatives of hardware supplier and hardware installer until each is satisfied that count is correct.

D. Deliver individually packaged door hardware items promptly to place of installation (shop or Project site).

E. Provide secure lock-up for door hardware delivered to the Project, but not yet installed. Control handling and installation of hardware items that are not immediately replaceable so that completion of the Work will not be delayed by hardware losses both before and after installation.

1.07 WARRANTY

A. Special warranties:
   1. Door Closers: Ten year period
   2. Exit Devices: Three year period

1.08 MAINTENANCE

A. Maintenance Tools and Instructions: Furnish a complete set of specialized tools and maintenance instructions as needed for Owner's continued adjustment, maintenance, and removal and replacement of door hardware.
B. Parts kits: Furnish manufacturers' standard parts kits for locksets, exit devices, and door closers.

PART 2 - PRODUCTS

2.01 MANUFACTURED UNITS

A. Hinges:
   1. Acceptable manufacturers:
      a. Hager Hinge Company
      b. Lawrence Brothers
      c. Stanley Works
      d. Mont Hard*
   2. Characteristics:
      a. Templates: Provide only template-produced units.
      b. Screws: Provide Phillips flat-head screws complying with the following requirements:
         1) For metal doors and frames install machine screws into drilled and tapped holes.
         2) For wood doors and frames install threaded-to-the-head wood screws.
         3) For fire-rated wood doors install #12 x 1-1/4 inch, threaded-to-the-head steel wood screws.
         4) Finish screw heads to match surface of hinges or pivots.
      c. Hinge pins: Except as otherwise indicated, provide hinge pins as follows:
         1) Out-Swing Exterior Doors: Non-removable pins.
         2) Out-Swing Corridor Doors with Locks: Non-removable pins.
         3) Interior Doors: Non-rising pins.
         4) Tips: Flat button and matching plug. Finished to match leafs.
      d. Size: Size hinges in accordance with specified manufacturer’s published recommendations.
      e. Quantity: Furnish one pair of hinges for all doors up to 5'0" high. Furnish one hinge for each additional 2-1/2 feet or fraction thereof.

B. Cylinders:
   1. Acceptable manufacturers:
      a. Schlage Lock Co., Division of Ingersoll-Rand*
      b. Russwin/Corbin
      c. Sargent
   2. Characteristics:

a. Grandmaster key or masterkey to a new masterkey system.
b. Equip locks with manufacturer's special 6-pin tumbler cylinder with construction masterkey feature that permits voiding of construction keys without cylinder removal.
c. Metals: Construct lock cylinder parts from brass or bronze, stainless steel, or nickel silver.
d. Comply with Owner's instructions for masterkeying and, except as otherwise indicated, provide individual change key for each lock that is not designated to be keyed alike with a group of related locks.
    1) Permanently inscribe each key with number of lock that identifies cylinder manufacturer's key symbol, and notation, "DO NOT DUPLICATE."
e. Key Material: Provide keys of nickel silver only.
f. Key Quantity: Furnish 2 change keys for each lock, 4 master keys for each master system, and 4 grandmaster keys for each grandmaster system, and 6 construction master keys.
    1) Furnish one extra blank for each lock.

C. Locksets, Latchsets:
1. Acceptable manufacturers:
    a. Schlage Lock Company*
    b. Russwin/Corbin
    c. Sargent

2. Characteristics:
    a. Locksets and Latchsets to be UL Listed standard duty cylindrical type, 2-3/4" backset.
    b. Provide appropriate strikes, with lip to center dimensions required with wrought strike boxes.
    c. Lock series and trim to be Schlage AL, Lever Neptune.

D. Exit Devices:

1. Acceptable manufacturers:
    a. Von Duprin, Division of Ingersoll-Rand*
2. Characteristics:
    a. Exit devices shall be "UL" listed for life safety. All exit devices for fire rated openings shall have "UL" labels for "Fire Exit Hardware."
    b. All exit devices mounted on labeled wood doors shall be thru-bolted mounted on the door per the door manufacturers requirements.
    c. All trim shall be thru-bolted to the lock stile case.
    d. All exit devices shall be made of brass, bronze, stainless steel, or aluminum material, plated to the standard architectural finishes to match the balance of the door hardware. Painted or anodized aluminum finishes are not accepted.
    e. Provide glass bead conversion kits to shim exit devices on doors with raised glass heads.
    f. All exit devices shall be one manufacturer.
    g. All series exit devices shall incorporate a fluid damper, which decelerates the touchpad on its return stroke and eliminates noise associated with exit device operation. All exit devices shall be non-handed. Touchpad shall extend a minimum of 1/2 of the door width and shall be a minimum of 2-3/16" in height. Plastic touchpads are not acceptable. All latch bolts to be the deadlocking type. Latch bolts shall have a self-lubricating coating to reduce wear. Plated or plastic coated latch bolts are not acceptable.

E. Closers and Door Control Devices:

1. Acceptable manufacturers:

a. LCN Closers, Division of Ingersoll-Rand

2. Characteristics:
   a. Door closers shall have fully hydraulic, full rack and pinion action with a high strength cast iron cylinder.
   b. Hydraulic fluid shall be of a type requiring no seasonal closer adjustment for temperatures ranging from 120 degrees F (49 degrees C) to -30 degrees F (-35 degrees C).
   c. Spring power shall be continuously adjustable over the full range of closer sizes, and allow for reduced opening force for the physically handicapped. Hydraulic regulation shall be by tamper-proof, non-critical valves. Closers shall have separate adjustment for latch speed, general speed and back check.
   d. All closers shall have solid forged steel main arms (and forearms for parallel arm closers) and where specified shall have a cast-in solid stop on the closer shoe ("cush"). Where door travel on out-swing doors must be limited, use "cush" type closers. Auxiliary stops are not required when cush type closers are used.
   e. Overhead concealed closers shall have spring power adjustable for 50% increase in closing power and fully mortised door tracks.
   f. All closers shall be certified to exceed ten million (10,000,000) full load cycles by a recognized independent testing laboratory. All closers (overhead, surface and concealed) shall be of one manufacturer and carry manufacturer's ten year warranty (electric closers to have two year warranty).
   g. Access-Free Manual Closers: Where manual closers are indicated for doors required to be accessible to the physically handicapped provide adjustable units complying with ADA and ANSI A-117.1 provisions for door opening force.
   h. Closers to be installed to allow door swing as shown on plans. Doors swinging into exit corridors shall provide for corridor clear width as required by code. Where possible, mount closers inside rooms.
   i. Powder coating finish to be certified to exceed 100 hours salt spray testing by ETL, an independent testing laboratory used by BHMA for ANSI certification.
   j. Combination Door Closers and Holders: Provide units designed to hold door in open position under normal usage and to release and automatically close door under fire conditions. Incorporate an integral electromagnetic holder mechanism designed for use with UL listed fire detectors, provided with normally closed switching contacts. Where Combination Door Closers, Holder, and Detectors are scheduled, provide integral UL Listed photo-electric 24V detector module.

F. Overhead Door Holders:

1. Acceptable manufacturers:
   a. Glynn Johnson, Division of Ingersoll-Rand*
   b. Rixson Firemark
2. Characteristics:
   a. Provide heavy duty and medium duty door holders concealed and surface mounted of brass, bronze or stainless steel.
   b. Concealed holders to be installed with the jamb bracket mortised flush with the bottom of the jamb. The arm and channel to be mortised into the door.
   c. Holder to be installed with the jamb bracket mounted on the stop.

G. Floor Stops and Wall Bumpers:

1. Acceptable manufacturers:
    a. Glynn Johnson
    b. Ives
    c. Rockwood Manufacturing*
2. Characteristics: Refer to Hardware Headings.

H. Push Plates:

1. Acceptable manufacturers:
    a. Glynn Johnson
    b. Ives
    c. Rockwood Manufacturing*

2. Characteristics:
    a. Exposed Fasteners: Provide manufacturers standard exposed fasteners.
    b. Material to be bronze, per the Hardware Headings.
    c. Provide plated sized as shown in Hardware Headings.

I. Door Pulls & Pull Plates:

1. Acceptable manufacturers:
    a. Glynn Johnson
    b. Ives
    c. Rockwood Manufacturing*

2. Characteristics:
    a. Provide concealed thru-bolted trim on back to back mounted pulls, but not for single units.
    b. Material to be bronze.
    c. Provide units sized as shown in Hardware Headings.

J. Push Pull Sets:

1. Acceptable manufacturers:
    a. Glynn Johnson
    b. Ives
    c. Rockwood Manufacturing*

2. Characteristics:
    a. Provide mounting systems as shown in hardware sets.
    b. Material to be tubular, bronze.
    c. Provide Push/Pull sets sized as shown in Hardware Headings.

K. Protective Plates:

1. Acceptable manufacturers:
    a. Glynn Johnson
    b. Ives
    c. Rockwood Manufacturing*

2. Characteristics:
    a. Provide manufacturers standard exposed fasteners for door trim units consisting of either machine screws or self-tapping screws.
    b. Materials:
        1) Metal Plates: Bronze, .062 inch (U.S. 16 gage)
    c. Fabricate protection plates not more than 1-1/2 inches less than door width on hinge side and not more than 1/2 inch less than door width on pull side.
    d. Heights:
        1) Kick plates to be 10 inches in height.
        2) Armor plates to be 36 inches in height.

L. Thresholds:

1. Acceptable manufacturers:
    a. National Guard Products, Inc.*
    b. Reese Industries
    c. Zero Weatherstripping Co., Inc.

2. Types: Indicated in Hardware Headings.

M. Weatherstripping:

3 Acceptable manufacturers:
    a. National Guard Products, Inc.*
    b. Reese Industries
    c. Zero Weatherstripping Co., Inc.

Types: Indicated in Hardware Headings.

N. Silencers:

4 Acceptable manufacturers:
    a. Glynn Johnson
    b. Ives
    c. Rockwood Manufacturing*

5 Three for each single doors; four for pairs of doors.

O. Door Seals:
1. Acceptable manufacturers:
    a. National Guard Products, Inc.*
    b. Reese Industries
    c. Zero Weatherstripping Co., Inc.
2. Types: Indicated in Hardware Headings.

(Note: * Indicates manufacture for specified units in heading section).

2.02 MATERIALS AND FABRICATION

A. Manufacturer's Name Plate: Do not use manufacturers' products that have manufacturer's name or trade name displayed in a visible location (omit removable nameplates) except in conjunction with required fire-rated labels and as otherwise acceptable to Architect.
   1. Manufacturer's identification will be permitted on rim of lock cylinders only.

B. Base Metals: Produce hardware units of basic metal and forming method indicated, using manufacturer's standard metal alloy, composition, temper, and hardness, but in no case of lesser (commercially recognized) quality than specified for applicable hardware units by applicable ANSI/BHMA A156 series standards for each type of hardware item and with ANSI/BHMA A156.18 for finish designations indicated. Do not furnish "optional" materials or forming methods for those indicated, except as otherwise specified.

C. Fasteners: Provide hardware manufactured to conform to published templates, generally prepared for machine screw installation.
   1. Do not provide hardware that has been prepared for self-tapping sheet metal screws, except as specifically indicated.
   2. Furnish screws for installation with each hardware item. Provide Phillips flat-head screws except as otherwise indicated. Finish exposed (exposed under any condition) screws to match hardware finish or, if exposed in surfaces of other work, to match finish of this other work as closely as possible including "prepared for paint" surfaces to receive painted finish.
   3. Provide concealed fasteners for hardware units that are exposed when door is closed except to the extent no standard units of type specified are available with concealed fasteners. Do not use thru-bolts for installation where bolt head or nut on opposite face is exposed in other work unless their use is the only means of adequately fastening the hardware. Coordinate with wood doors and metal doors and frames where thru-bolts are used as a means of reinforcing the work, provide sleeves for each thru-bolt or use sex screw fasteners.

2.03 HARDWARE FINISHES

A. Match items to the manufacturer’s standard color and texture finish for the latch and lock sets (or push-pull units if no latch of lock sets).

B. Provide finishes that match those established by ANSI or, if none established, match the Architect’s sample.

C. Provide quality of finish, including thickness of plating or coating (if any), composition, hardness, and other qualities complying with manufacturer’s standards, but in no case less than specified by referenced standards for the applicable units of hardware.

D. Provide protective lacquer coating on all exposed hardware finishes of brass, bronze, and aluminum, except as otherwise indicated. The suffix "-NL" is used with standard finish designations to indicate "no lacquer."

E. Finish to be US4(606) Satin Brass unless noted otherwise in the Hardware Schedule. Hinges and concealed door closers are to be plated to match. Surface mounted door closers are to be Powder Coat Paint to match.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Mount hardware units at heights indicated in following applicable publications, except as specifically indicated or required to comply with governing regulations and except as otherwise directed by Architect.
    a. "Recommended Locations for Builders Hardware for Standard Steel Doors and Frames" by the Door and Hardware Institute.
    b. NWWDA Industry Standard I.S.1.7, "Hardware Locations for Wood Flush Doors."

B. Install each hardware item in compliance with the manufacturer's instructions and recommendations. Where cutting and fitting is required to install hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation or application of surface protection with finishing work specified in the Division 9 Sections. Do not install surface-mounted items until finishes have been completed on the substrates involved.

C. Set units level, plumb, and true to line and location. Adjust and reinforce the attachment substrate as necessary for proper installation and operation.

   Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors in accordance with industry standards.

D. Set thresholds for exterior doors in full bed of butyl-rubber or polyisobutylene mastic sealant complying with requirements specified in Division 7 Section "Joint Sealers."

E. Weatherstripping and Seals: Comply with manufacturer's instructions and recommendations to the extent installation requirements are not otherwise indicated.

3.02 ADJUSTING, CLEANING, AND DEMONSTRATING

A. Adjust and check each operating item of hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate freely and smoothly or as intended for the application made.
    a. Where door hardware is installed more than one month prior to acceptance or occupancy of a space or area, return to the installation during the week prior to acceptance or occupancy and make final check and adjustment of all hardware items in such space or area. Clean operating items as necessary to restore proper function and finish of hardware and doors. Adjust door control devices to function properly with final operation of heating and ventilating equipment.

B. Clean adjacent surfaces soiled by hardware installation.

C. Door Hardware Supplier's Field Service
    a. Inspect door hardware items for correct installation and adjustment after complete installation of door hardware.
    b. Instruct Owner's personnel in the proper adjustment and maintenance of door hardware and hardware finishes.
    c. File written report of this inspection to the Architect.

D. Prior to project completion, a representative of the overhead closer manufacturer shall inspect and adjust all closers and certify that all closers are installed in accordance with the manufacturer's instructions, and are regulated properly and functioning correctly. A written report shall be provided to the Architect as to the inspection and shall include appropriate certificates.

END OF SECTION 08710

TECHNICAL SPECIFICATIONS FOR HELEN McCALL PARK EXPANSION PHASE 1 & PHASE 2
SECTION 088000 – GLAZING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes glazing for the following products and applications, including those specified in other Sections where glazing requirements are specified by reference to this Section:

1. Windows.

2. Entrances and other Doors.

3. Storefront framing.

1.3 DEFINITIONS

A. Manufacturer: A firm that produces primary glass or fabricated glass as defined in referenced glazing publications.

B. Interspace: Space between lites of an insulating-glass unit that contains dehydrated air.

C. Deterioration of Coated Glass: Defects developed from normal use that are attributed to the manufacturing process and not to causes other than glass breakage and practices for maintaining and cleaning coated glass contrary to manufacturers written instructions. Defects include peeling, cracking, and other indications of deterioration in metallic coating.

D. Deterioration of Insulating Glass: Failure of the hermetic seal under normal use that is attributed to the manufacturing process and not to causes other than glass breakage and practices for maintaining and cleaning insulating glass contrary to manufacturers written instructions. Evidence of failure is the obstruction of vision by dust, moisture, or film on interior surfaces of glass.

1.4 PERFORMANCE REQUIREMENTS

A. General: Provide glazing systems capable of withstanding normal thermal movement and wind and impact loads (where applicable) without failure, including loss or glass breakage attributable to the following: defective manufacture, fabrication, and installation; failure of sealants or gaskets to remain watertight and airtight; deterioration of glazing materials; or other defects in construction.

B. Glass Design: Glass thicknesses indicated are minimums and are for detailing only. Confirm glass thicknesses by analyzing Project loads and in-service conditions. Provide glass lites for various size openings in nominal thicknesses indicated, but not less than thicknesses and in strengths (annealed or heat treated) required to meet or exceed the following criteria:

1. Glass Thicknesses: Select minimum glass thicknesses to comply with ASTM E 1300, according to the following requirements:

   a. Minimum Glass Thickness for Exterior Lites: Not less than 6 mm.

   b. Thickness of Tinted and Heat-Absorbing Glass: Provide the same thickness for each tint color indicated throughout Project.

C. Thermal Movements:. Provide glazing that allows for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures acting on glass framing members and glazing components. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

   1. Temperature Change (Range): 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.

1.5 SUBMITTALS

A. Product Data: For each glass product and glazing material indicated.

   Samples: For each type of glass product indicated, in the form of 12-inch-(300-mm) square. Samples for glass- 12-inch- (300-mm-) long Samples for sealants. Install sealant Samples between two strips of material representative in color of the adjoining framing system. A sample of each glass must be approved by the Architect / Engineeer prior to Contractor ordering the glass products.

B. Product Certificates: Signed by manufacturers of glass and glazing products certifying that products furnished comply with requirements.

C. Product Test Reports: From a qualified testing agency indicating each glass product indicated comply with requirements, based on comprehensive testing of current products.

D. SWRI Validation Certificate: For each elastomeric glazing sealant specified to be validated by SWRl's Sealant Validation Program.

E. Warranties: Special warranties specified in this Section.

1.6 QUALITY ASSURANCE

A. Installer Qualifications: An experienced installer who has completed glazing similar in material, design, and extent to that indicated for Project and whose work has resulted in construction with a record of successful in-service performance.

B. Source Limitations for Clear Glass: manufacturer: Obtain clear float glass from one primary-glass manufacturer.

C. Source Limitations for Tinted Glass: Obtain tinted, heat-absorbing, and light-reducing float glass from one primary-glass manufacturer for each tint color indicated.

D. Source Limitations for Insulating Glass: Obtain insulating-glass units from one manufacturer using the same type of glass and other components for each type of unit indicated.

E. Source Limitations for Glazing Accessories: Obtain glazing accessories from one source for each product and installation method indicated.

F. Glass Product Testing: Obtain glass test results for product test reports in "Submittals" Article from a qualified testing agency based on testing glass products.

G. Elastomeric Glazing Sealant Product Testing: Obtain sealant test results for product test reports in "Submittals" Article from a qualified testing agency based on testing current sealant formulations within a 36-month period.

H. Safety Glass: Category II materials complying with testing requirements in 16 CFR 1201 and ANSIZ97.1.

1. Subject to compliance with requirements, permanently mark safety glass with certification label of Safety Glazing Certification Councilor another certification agency acceptable to authorities having jurisdiction.

I. Glazing Publications: Comply with published recommendations of glass product manufacturers and organizations below, unless more stringent requirements are indicated. Refer to these publications for glazing terms not otherwise defined in this Section or in referenced standards.

1. SIGMA Publications: SIGMA TM-3000, "Vertical Glazing Guidelines," and SIGMA TB-3001, "Sloped Glazing Guidelines."

J. Insulating-Glass Certification Program: Permanently marked either on spacers or on at least one component lite of units with appropriate certification label of the following inspecting and testing agency:

1. Insulating Glass Certification Council (IGCC).

1.7 DELIVERY. STORAGE. AND HANDLING

A. Protect glazing materials according to manufacturer's written instructions and as needed to prevent damage to glass and glazing materials from condensation, temperature changes, direct exposure to sun, or other causes.

B. For insulating-glass units that. will be exposed to substantial altitude changes, comply with insulating-glass manufacturer's written recommendations for venting and sealing to avoid hermetic seal ruptures.

1.8 PROJECT CONDITIONS

A. Environmental Limitations: Do not proceed, with glazing when ambient and substrate temperature conditions are outside limits permitted by glazing material manufacturers and when glazing channel substrates are wet from rain, frost, condensation, or other causes.

1.9 WARRANTY

A. General Warranty: Special warranties specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the

Contract Documents.

B. Manufacturer's Special Warranty on Coated Glass Products: Written warranty, made out to Owner and signed by coated-glass manufacturer agreeing to furnish replacements for those coated-glass units that deteriorate as defined in "Definitions" Article, f.o.b. the nearest shipping point to Project site, within specified warranty period indicated below.

1. Warranty Period: 10 years from date of Substantial Completion.

C. Manufacturer's Special Warranty on Insulating Glass: Written warranty, made out to Owner and signed by insulating-glass manufacturer agreeing to furnish replacements for insulating-glass units that deteriorate as defined in "Definitions" Article, f.o.b. the nearest shipping point to Project site, within specified warranty period indicated below.

1. Warranty Period: 10 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PRODUCTS AND MANUFACTURERS

A. Products: Subject to compliance with requirements, provide one of the products indicated in schedules at the end of Part 3.

2.2 PRIMARY FLOAT GLASS

A. Float Glass: ASTM C 1036, Type I (transparent glass, flat), Quality q3 (glazing select); class as indicated in schedules at the end of Part 3.

2.3 HEAT-TREATED FLOAT GLASS

A. Heat-Treated Float Glass: ASTM C1048; Type I (transparent glass, flat); Quality q3 (glazing select); class kind, and condition as indicated in schedules at the end of Part 3.

2.4 INSULATING GLASS

A. Insulating-Glass Units: Preassembled units consisting of sealed lites of glass separated by a dehydrated interspace, and complying with ASTM E 774 for Class CBA units and with requirements specified in this Article and in the Insulating glass Schedule at the end of Part 3.

1. Provide Kind HS (heat-strengthened) float glass in place of annealed glass where needed to resist thermal stresses induced by differential shading of individual glass lites and to comply with glass design requirements specified in "Performance Requirements" Article. Provide Kind FT (fully tempered) where *safety* glass is indicated.

B. Overall Unit Thickness and Thickness of Each Lite: Dimensions indicated are nominal and the overall thicknesses of units are measured perpendicularly from outer surfaces of glass lites at units edge

1. Sealing System: Dual seal, with primary and secondary sealants as follows:

a. Manufacturer's standard sealants.

C. Spacer Specifications: Manufacturer's standard spacer material and construction complying with the following requirements:

1. Aluminum with mill or clear-anodized finish.

2. Desiccant: Molecular sieve or silica gel, or blend of both.

3. Comer Construction: Manufacturer's standard comer construction.

2.5 ELASTOMERIC GLAZING SEALANTS

A. General: Provide products of type indicated, complying with the following requirements:

1. Compatibility: Select glazing sealants that are compatible with one another and with other materials they will contact, including glass products, seals of insulating-glass units, and glazing channel substrates, under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience.

2. Suitability: Comply with sealant and glass manufacturers' written instructions for selecting glazing sealants suitable for applications indicated and for conditions existing at time of installation.

3. Colors of Exposed Glazing Sealants: As selected by Architect from manufacturer's full range for this characteristic.

4. Glazing Sealant for Fire-Resistive Glazing Products: Identical to product used in test assembly to obtain fire-protection rating.

2.6 GLAZING GASKETS

A. Dense Compression Gaskets: Molded or extruded gaskets of material indicated below, complying with standards referenced with name of elastomer indicated below, and of profile and hardness required to maintain water tight seal:

1. Neoprene, ASTM C 864.

2. EPDM, ASTM C 864.

3. Any material indicated above.

2.7 MISCELLANEOUS GLAZING MATERIALS

A. General: Provide products of material, size, and shape complying with referenced glazing standard, requirements of manufacturers of glass and other glazing materials for application indicated, and with a proven record of compatibility with surfaces contacted in installation.

B. Cleaners. Primers. and Sealers: Types recommended by sealant or gasket manufacturer.

C. Setting Blocks: Elastomeric material with a Shore A durometer hardness of 85, plus or minus 5.

D. Spacers: Elastomeric blocks or continuous extrusions with a Shore A durometer hardness required by glass manufacturer to maintain glass lites in place for installation indicated.

E. Edge Blocks: Elastomeric material of hardness needed to limit glass lateral, movement (side walking)

2.8 FABRICATION OF GLASS AND OTHER GLAZING PRODUCTS

A. Fabricate glass and other glazing products in sizes required to glaze openings indicated for Project, with edge and face clearances, edge and surface conditions, and bite complying with written instructions of product manufacturer and referenced glazing standard, to comply with system performance requirements.

1. Grind smooth and polish exposed glass edges.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine framing glazing, with Installer present, for Compliance with the following:

1. Manufacturing and installation tolerances, including those for size, squareness, and offsets at comers.

2. Presence and functioning of weep system.

3. Minimum required face or edge clearances.

4. Effective sealing between joints of glass-framing members.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Clean glazing channels and other framing members receiving glass immediately before glazing. Remove coatings not firmly bonded to substrates.

3.3 GLAZING - GENERAL

A. Comply with combined written instructions of manufacturers of glass, sealants, gaskets, and other glazing materials, unless more stringent requirements are indicated, including those in referenced glazing publications.

B. Glazing channel dimensions, as indicated on Drawings, provide necessary bite on glass, minimum edge and face clearances, and adequate sealant thicknesses, with reasonable tolerances. Adjust as

required by Project conditions during installation.

C. Protect glass edges from damage during handling and installation. Remove damaged glass from Project site and legally dispose of off Project site. Damaged glass is glass with edge damage or other imperfections that, when installed, could weaken glass and impair performance and appearance.

D. Apply primers to joint surfaces where required for adhesion of sealants, as determined by preconstruction sealant-substrate testing.

E. Install setting blocks in sill rabbets, sized and located to comply with referenced glazing publications, unless otherwise required by grass manufacturer. Set blocks in thin course of compatible sealant suitable for heel bead.

F. Do not exceed edge pressures stipulated by glass manufacturers for installing glass lites.

G. Provide spacers for glass lites where the length plus width is larger than 50 inches (1270 mm) as follows:

1. Locate spacers directly opposite each other on both inside and outside faces of glass. Install correct size and spacing to preserve required face clearances, unless gaskets and glazing tapes are used that have demonstrated ability to maintain required face clearances and to comply with system performance requirements.

2. Provide 1/8-inch (3-mm) minimum bite of spacers on glass and use thickness equal to sealant width. With glazing tape, use thickness slightly less than final compressed thickness of tape.

H. Provide edge blocking where indicated or needed to prevent glass lites from moving sideways in glazing channel, as recommended in writing by glass manufacturer and according to requirements in referenced glazing publications. .

1. Set glass lites in each series with uniform pattern, draw, bow, and similar characteristics.

3.4 PROTECTION AND CLEANING

A. Protect exterior glass from damage immediately after installation by attaching crossed streamers to framing held away from glass. Do not apply markers to glass surface. Remove nonpermanent labels, and clean surfaces.

B. Protect glass from contact with contaminating substances resulting from construction operations, including weld splatter. If despite such protection, contaminating substances do come into contact with glass, remove them immediately as recommended by glass manufacturer.

C. Examine glass surfaces adjacent to or below exterior concrete and other masonry surfaces at frequent intervals during construction, but not less than once a month, for build-up of dirt, scum, alkaline deposits, or stains; remove as recommended by glass manufacturer.

D. Remove and replace glass that is broken, chipped, cracked, abraded, or damaged in any way, including natural causes, accidents, and vandalism, during construction period.

E. Wash glass on both exposed surfaces in each area of Project not more than four days before date scheduled for inspections that establish date of Substantial Completion. Wash glass recommended by glass manufacturer.

3.5 MONOLITHIC FLOAT-GLASS SCHEDULE

A. Float Glass: Where glass as designated below is indicated, provide Class 2 (tinted, heat absorbing, and light-reducing) glass lites complying with the following:

1. Products: Manufacturer to be selected

2. Tint Color: Clear or Grey as indicated on the drawings.

3. Tempered where required.

3.6 INSULATING-GLASS SCHEDULE

A. Insulating Glass: Where glass of this designation is indicated, provide uncoated insulating-glass units complying with the following:

1. Products: Manufacturer to be selected.

2. Overall Unit Thickness and Thickness of Each Lite: Each glass to be 6.0 mm thick sheets of glass separated by 1/2 inch (12.7 mm) dehydrated space.

3. Indoor Lite: Type I (transparent glass, flat), Class 1 (clear) float glass. Kind HS (heat--strengthened).

4. Outdoor Lite: Type I (transparent glass, flat) float glass.

   a. Class 2 (tinted, heat absorbing and light reducing).

   b. Tint Color: Grey

   c. Kind HS (heat strengthened)

5. Mirror Glass: ASTM C1036, Type I, Class I, Quality q2, silvercoated per FS-DD-M-411 C, fully tempered, 6.0 mm thick, with edges flat polished.

END OF SECTION 088000

TECHNICAL SPECIFICATIONS FOR HELEN McCALL PARK EXPANSION PHASE 1 & PHASE 2
SECTION 092550 – GYPSUM BOARD ASSEMBLIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes the following:

1. Non-load-bearing steel framing members for gypsum board assemblies.

2. Gypsum board assemblies attached to steel framing.

3. Cementitious Backer Units

B. Related Sections: The following Sections contain requirements that relate to this Section:

1. Division 5 Section "Cold-Formed Metal Framing" for load-bearing steel framing.

1.3 DEFINITIONS

A. Gypsum Board Construction Terminology: Refer to ASTM C 11 and GA-505 for definitions of terms related to gypsum board assemblies not defined in this Section or in other referenced standards.

1.4 ASSEMBLY PERFORMANCE REQUIREMENTS

A. Sound Transmission Characteristics: For gypsum board assemblies indicated to have STC ratings, provide materials and construction identical to those of assemblies whose STC ratings *were* determined per ASTM E 90. and classified per ASTM E 413 by a qualified independent testing agency.

1.5 SUBMITTALS

A. General: Submit the following according to Conditions of the Contract and Division 1 Specification Sections.

1. Product data for each type of product specified.

B. Product certificates signed by manufacturers of gypsum board assembly components certifying that their products comply with specified requirements.

1.6 QUALITY ASSURANCE

A. Fire-Test-Response Characteristics: Where fire-rated gypsum board assemblies are indicated, provide materials and construction identical to those of assemblies tested for fire resistance per ASTM E 119 by an independent testing and inspecting agency acceptable to authorities having jurisdiction.

1. Fire Resistance Ratings: As indicated by reference to GA File Numbers in GA-600 "Fire Resistance Design Manual" or to design designations in UL "Fire Resistance Directory" or in the listing of another testing and inspecting agency acceptable to authorities having jurisdiction.

B. Single-Source Responsibility for Steel Framing: Obtain steel framing members for gypsum board assemblies from a single manufacturer.

C. Single-Source Responsibility for Panel Products: Obtain each type of gypsum board and other panel products from a single manufacturer.

D. Single-Source Responsibility for Finishing Materials: Obtain finishing materials from either the same manufacturer that supplies gypsum board and other panel products or from a manufacturer acceptable to gypsum board manufacturer.

E. Field Samples: On actual gypsum board assemblies, prepare field samples of at least 100 sq. ft. in surface area for the following applications. Simulate finished lighting conditions for review of in-place unit of Work.

1. Wall surfaces indicated to receive nontextured paint finishes.

2. Ceiling surfaces indicated to receive nontextured paint finishes.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials in original packages, containers, or bundles bearing brand name and identification of manufacturer or supplier.

B. Store materials inside under cover and keep them dry and protected against damage from weather, direct sunlight, surface contamination, corrosion, construction traffic, and other causes. Neatly stack gypsum panels flat to prevent sagging.

C. Handle gypsum board to prevent damage to edges, ends, and surfaces. Do not bend or otherwise damage metal comer beads and trim.

1.8 PROJECT CONDITIONS

A. Environmental Conditions. General: Establish and maintain environmental conditions for applying and finishing gypsum board to comply with ASTM C 840 and with gypsum board manufacturer's recommendations.

B. Room Temperatures: For nonadhesive attachment of gypsum board to framing, maintain not less than 40 deg F (4 deg C). For adhesive attachment and finishing of gypsum board, maintain not less than 50 deg F (10 deg C) for 48 hours prior to application and continuously after until dry. Do not

exceed 95 deg F (35 deg C) when using temporary heat sources.

C. Ventilation: Ventilate building spaces, as required, for drying joint treatment materials. Avoid drafts during hot dry weather to prevent finishing materials from drying too rapidly.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

Steel Framing and Furring:

Alabama Metal Industries Corp.
Gold Bond Building Products Div., National Gypsum Co.
USG, United States Gypsum Company

Grid Suspension Assemblies:

Chicago Metallic Corp.
National Rolling Mills Co.
USG Interiors, Inc.

Gypsum Board and Related Products:

Domtar Gypsum.
Georgia-Pacific Corp.
Gold Bond Building Products Div., National Gypsum Co.
United States Gypsum Co.

2.2 STEEL FRAMING COMPONENTS FOR SUSPENDED AND FURRED CEILINGS

A. General: Provide components complying with ASTM C 754 for materials and sizes unless otherwise indicated.

1. Wire for Hangers and Ties: ASTM A 641, Class 1 zinc coating, soft temper.

2. Channels: Cold-rolled steel, 0.05980-inch-minimum thickness of base (uncoated) metal and 7/16-inch:-wide flanges, and as follows:

   a. Carrying Channels: 2 inches deep, 590 Ib per 1000 feet, unless otherwise indicated.
   b. Furring Channels: 3/4 inch deep, 300 Ib per 1000 feet, unless otherwise indicated.
   c. Finish: G-60 hot-dip galvanized coating per ASTM A 525 for framing for exterior soffits and where indicated.

B. Steel Rigid Furring Channels: ASTM C 645, hat-shaped, depth of 7/8 inch, and minimum thickness of base (uncoated) metal as follows:

1. Thickness: 0.0329 inch, unless otherwise indicated.

2. Protective Coating: G40 hot-dip galvanized coating per ASTM A 525

2.3 STEEL FRAMING FOR WALLS AND PARTITIONS

A. General: Provide steel framing members complying with the following requirements:

1. Component Sizes and Spacings: As indicated but not less than that required to comply with ASTM C 754 under the following maximum deflection and lateral loading conditions:

2. Maximum Deflection: U240 at 5 1bf per sq. ft.

3. Protective Coating: G40 hot-dip galvanized coating per ASTM A 525.

B. Steel Studs and Runners: ASTM C 645, with flange edges of studs bent back 90 deg and doubled over to form 3/16-inch-wide minimum lip (return) and complying with the following requirements for minimum thickness of base (uncoated) metal and for depth:

1. Thickness: 25 Gage unless noted otherwise.

2. Depth: 3-5/8 inches, unless otherwise indicated.

C. Steel Rigid Furring Channels: ASTM C 645, hat-shaped, depth and minimum thickness of base (uncoated) metal as follows:

1. Depth: 7/8 inch.

2. Thickness: 0.0179 inch, unless otherwise indicated.

D. Fasteners for Metal Framing: Provide fasteners of type, material, size, corrosion resistance, holding power, and other properties required to fasten steel framing and furring members securely to substrates involved; complying with the recommendations of gypsum board manufacturers for applications indicated.

2.4 GYPSUM BOARD PRODUCTS

A. General: Provide gypsum board of types indicated in maximum lengths available to minimize end-to-end butt joints.

1. Thickness: Provide gypsum board in thicknesses indicated or, if not otherwise indicated, in 5/8 inch thicknesses to comply with ASTM C 840 for application system and support spacing indicated.

B. Gypsum Wallboard: ASTM C 36 and as follows:

Type: Regular for vertical surfaces, unless otherwise indicated.
Type: Type X where required for fire-resistive-rated assemblies.
Type: Sag-resistant type for ceiling surfaces.

Edges: Tapered.

Thickness: 5/8 inch where indicated.

C. Products: Subject to compliance with requirements, provide one of the following products where proprietary gypsum wallboard is indicated.

Firestop Type C, Georgia-Pacific Corp.
Fire-Shield G, Gold Bond Building Products Div., National Gypsum Co. SHEETROCK Brand Gypsum Panels, FIRECODE C Core, United States Gypsum

D. Exterior Gypsum Soffit Board: ASTM C 931, with manufacturer's standard edges, of type and thickness indicated below:

Type: Regular, unless otherwise indicated.

Thickness: 5/8 inch, unless otherwise indicated.

2.5 CEMENTITIOUS BACKER UNITS

A. Provide cementitious backer units complying with ANSI A 118.9, of thickness and width indicated below, and in maximum lengths available to minimize end-to-end butt joints.

1. Thickness: 5/8 inch, unless otherwise indicated.

2. Width: Manufacturer's standard width but not less than 32 inches.

3. Products: Subject to. compliance with requirements, provide one of the following products:

DomCrete Cementitious Tile-Backer board, Domtar Gypsum.

Glass-crete Cementitious Backer Board, Glascrete,lnc.

DUROCK Interior Cement Board, United States Gypsum Co.

2.6 TRIM ACCESSORIES

A. Accessories for Interior Installation: Comer beads, edge trim, and control joints complying with ASTM C 1047 and requirements indicated below:

1. Material: Formed metal complying with the following requirement:

Sheet steel zinc-coated by hot-dip process.

2. Shapes indicated below by reference to Fig. 1 designations in ASTM C 1047:

Cornerbead on outside comers, unless otherwise indicated.

L-bead with face flange only; face flange formed to receive joint compound. Use L-bead

where indicated.

U-bead with face and back flanges; face flange formed to be left without application of joint compound. Use U-bead where indicated.

B. Zinc Accessories for Exterior Ceilings: Comer beads, edge trim, and control joints formed from rolled zinc complying with ASTM C 1047, in shapes indicated below by reference to ASTM C 1047:

1. Comer bead on outside comers, unless otherwise indicated.

2. Edge trim complying with ASTM C 1047, formed from rolled zinc, shape LC-Bead per Fig. 1, unless otherwise indicated.

C. Linear Soffit Vent: Provide 2" linear soffit vent as indicated below:

1. Manufacturer. Fry Reglet, Model 1680Y

2.7 JOINT TREATMENT MATERIALS

A. General: Provide joint treatment materials complying with ASTM C 475 and the recommendations of both the manufacturers of sheet products and of joint treatment materials for each application indicated.

1. Joint Tape for Gypsum Board: Paper reinforcing tape, unless otherwise Indicated.
2. Joint Tape for Cementitious Backer Units: Polymer-coated open glass-fiber mesh.
3. Drying-Type Joint Compounds for Gypsum Board: Factory-packaged vinyl-based products complying with the following requirements for formulation and intended use.
   a. Ready-Mixed Formulation: Factory-mixed product.
   b. Taping compound formulated for embedding tape and for first coat over fasteners and face flanges of trim accessories.
   c. Topping compound formulated for fill (second) and finish (third) coats. All-purpose compound formulated for both taping and topping compounds.

B. Joint Compound for Cementitious Backer Unit:- Material recommended by cementitious backer unit manufacturer.

2.8 ACOUSTICAL SEALANT

A. Latex Acoustical Sealant: Manufacturer's standard nonsag paintable. nonstaining latex sealant complying with ASTM C 834 and the following requirements:

1. Product is effective in reducing airbome sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies per ASTM E 90.

2.9 MISCELLANEOUS MATERIALS

A. General: Provide auxiliary materials for gypsum board construction that comply with referenced standards and recommendations of gypsum board manufacturer.

B. Fastening Adhesive for Masonry: Special adhesive recommended for fastening gypsum panels to masonry.

C. Steel drill screws complying with ASTM C 1002 for the following applications:

1. Fastening gypsum board to steel members less than 0.03 inch thick.

2. Fastening gypsum board to gypsum board.

D. Steel drill screws complying with ASTM C 954 for fastening gypsum board to steel members from .0.033 to 0.112 inch thick.

E. Corrosion-resistant-coated steel drill screws of size and type recommended by board manufacturer for fastening cementitious backer units.

F. Sound Attenuation Blankets: Unfaced mineral-fiber blanket insulation produced by combining mineral fibers of type described below with thermosetting resins to comply with ASTM C 665 for Type I (blankets without membrane facing):

1. Mineral-Fiber Type: Fibers manufactured from glass or slag.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates to which gypsum board assemblies attach or abut, installed hollow metal frames, cast-in-anchors, and structural framing with Installer present for compliance with requirements for installation tolerances and other conditions affecting performance of assemblies specified in this Section. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Ceiling Anchorages: Coordinate installation of ceiling suspension systems with installation of overhead structural assemblies to ensure that inserts and other provisions for anchorages to building structure have been installed to receive ceiling hangers that will develop their full strength and at spacing required to support ceilings.

3.3 INSTALLING STEEL FRAMING, GENERAL

A. Steel Framing Installation Standard: Install steel framing to comply with ASTM C 754 and with ASTM C 840 requirements that apply to framing installation.

B. Install supplementary framing, blocking, and bracing at terminations in gypsum board assemblies to support fixtures, equipment services, heavy trim, grab bars, toilet accessories, furnishings, or similar construction. Comply with details indicated and with recommendations of gypsum board manufacturer or, if none available, with "Gypsum Construction Handbook" published by United States Gypsum Co.

C. Isolate steel framing from building structure at locations indicated to prevent transfer of loading imposed by structural movement. Comply with details shown on Drawings.

1. Where building structure abuts ceiling perimeter or penetrates ceiling.

2. Where partition framing and wall furring abut structure except at floor.

a. Provide slip or cushioned-type joints as detailed to attain lateral support and avoid axial loading.

D. Do not bridge building expansion and control joints with steel framing or furring members. Independently frame both sides of joints with framing or furring members as indicated.

3.4 INSTALLING STEEL FRAMING FOR SUSPENDED AND FURRED CEILINGS

A. Suspend ceiling hangers from building structural members and as follows:

1. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structural or ceiling suspension system. Splay hangers only where required to miss obstructions and offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.

2. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with the location of hangers required to support standard suspension system members, install supplemental suspension members and hangers in form of trapezes or equivalent devices. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced standards.

B. Secure wire hangers by looping and wire-tying, either directly to structures or to inserts, eyescrews, or other devices and fasteners that are secure and appropriate for substrate, and in a manner that will not cause them to deteriorate or otherwise fail due to age, corrosion, or elevated temperatures.

1. Do not attach hangers to steel deck tabs.

2. Do not attach hangers to steel roof deck. Attach hangers to structural members. Do not connect or suspend steel framing from ducts, pipes or conduit.

C. Sway-brace suspended steel framing with hangers used for support.

D. Install suspended steel framing components in sizes and at spacings indicated but not less than that required by the referenced steel framing installation standard.

1. Wire Hangers: O.1620-inch (8-gage) diameter, 4 feet o.c.

2. Carrying Channels (Main Runners): 2 inch, 4 feet o.c.

3. Rigid Furring Channels (Furring Members): 16 inches o.c.

E. Installation Tolerances: Install steel framing components for suspended ceilings so that cross-furring members or grid suspension members are level to within 1/8 inch in 12 feet as measured

both lengthwise on each member and transversely between parallel members.

F. Wire-tie or clip furring members to main runners and to other structural supports as indicated.

G. Grid Suspension System: Attach perimeter wall track or angle where grid suspension system meets vertical surfaces. Mechanically join main beam and cross-furring members to each other and butt-cut to fit into wall track.

H. For exterior soffits, install cross-bracing and additional framing to resist wind.

3.5 INSTALLING STEEL FRAMING FOR WALLS AND PARTITIONS

A. Install runners (tracks) at floors, ceilings, and structural walls and columns where gypsum board stud assemblies abut other construction.

1. Where studs are installed directly against exterior walls, install asphalt felt strips between studs and wall.

B. Installation Tolerances: Install each steel framing and furring member so that fastening surfaces do not vary more than 1/8 inch from the plane formed by the faces of adjacent framing.

C. Extend partition framing full height to structural supports or substrates above suspended ceilings, except where partitions are indicated to terminate at suspended ceilings. Cut studs 1/2 inch short of full height. Continue framing over frames for doors and openings and frame around ducts penetrating partitions above ceiling to provide support for gypsum board.

1. For STC-rated and fire-resistive-rated partitions requiring partitions to extend to the underside of floor/roof slabs and decks or other continuous solid structural surfaces to obtain ratings, install framing around structural and other members extending below floor/roof slabs and decks, as needed to support gypsum board closures needed to make partitions continuous from floor to underside of solid structure.

D. Install steel studs and furring in sizes and at spacings indicated but not ess than that required by the referenced steel framing installation standard to comply with maximum' deflection and minimum loading requirements specified:

1. Single-Laver Construction: Space studs at 24 inches o.c. unless indicated otherwise.

E. Install steel studs so that flanges point in the same direction and so that leading edges or ends of each gypsum board can be attached to open (unsupported) edges of stud flanges first.

F. Frame door openings to comply with details indicated, with GA-219, and with applicable published recommendations of gypsum board manufacturer. Attach vertical studs at jambs with screws either directly to frames or to jamb anchor clips on door frames; install runner track section (for cripple studs) at head and secure to jamb studs.

1. Extend vertical jamb studs through suspended ceilings and attach to underside of floor or roof structure above.

G. Frame openings other than door openings to comply with details indicated or, if none indicated, in same manner as required for door openings. Install framing below sills of openings to match

framing required above door heads.

H. Install sound attenuation insulation as follows:

1. Erect insulation vertically and hold in place with Z-furring members spaced 24 inches o.c.

2. Except at exterior comers, securely attach narrow flanges of furring members to wall with concrete stub nails, screws designed for masonry attachment, or powder-driven fasteners spaced 24 inches o.c.

3. At exterior comers; attach wide flange of furring members to wall with short flange extending beyond comer; on adjacent wall surface, screw attach short flange of furring channel to web of attached channel. Start from this furring channel with standard width insulation panel and continue in regular manner. At interior comers, space second member no more than 12 inches from comer and cut insulation to fit.

3.6 APPLYING AND FINISHING GYPSUM BOARD, GENERAL

A. Gypsum Board Application and Finishing Standards: Install and finish gypsum panels to comply with ASTM C 840 and GA-216.

B. Install sound attenuation blankets where indicated prior to installing gypsum panels unless blankets are readily installed after panels have been installed on one side.

C. Install ceiling board panels across framing to minimize the number *of* abutting end joints and avoid abutting end joints in the central area *of* each ceiling. Stagger abutting end joints *of* adjacent panels not less than one framing member.

D. Install wall/partition board panels to minimize the number *of* abutting end joints or avoid them entirely. Stagger abutting end joints not less than one framing member in alternate courses *of* board. At stairwells and other high walls, install panels horizontally with end abutting joints over studs and staggered.

E. Install gypsum panels with face side out. Do not install imperfect, damaged, or damp panels. Butt panels together for a light contact at edges and ends with not more than 1/16 inch *of* open space between panels. Do not force into place.

F. Locate both edge or end joints over supports, except in ceiling applications where intermediate supports or gypsum board back-blocking is provided behind end joints. Position adjoining panels so that tapered edges abut tapered edges, and field-cut edges abut field-cut edges and ends. Do not place tapered edges against cut edges or ends. Stagger vertical joints over different studs on opposite sides *of* partitions. Avoid joints at comers *of* framed openings where possible.

G. Attach gypsum panels to steel studs so that the leading edge or end *of* each panel is attached to open (unsupported) edges *of* stud flanges first.

H. Attach gypsum panels to framing provided at openings and cutouts.

I. Form control joints and expansion joints at locations indicated and as detailed, with space between edges *of* adjoining gypsum panels, as well as supporting framing behind gypsum panels.

J. Cover both faces *of* steel stud partition framing with gypsum panels in concealed spaces (above

ceilings, etc.), except in chase walls that are braced internally.

1. Except where concealed application is indicated or required for sound, fire, air, or smoke ratings, coverage may be accomplished with scraps *of* not less than 8 sq. ft. in area.

2. Fit gypsum panels around ducts, pipes, and conduits.

K. Isolate perimeter *of* non-load-bearing gypsum board partitions at structural abutments, except floors, as detailed. Provide 1/4-inch-to-1/2-inch-wide spaces at these locations and trim edges with U-bead edge trim where edges *of* gypsum panels are exposed. Seal joints between edges and abutting structural surfaces with acoustical sealant.

L. Where STC-rated gypsum board assemblies are indicated, seal construction at perimeters, behind control and expansion joints, openings, and penetrations with a continuous bead *of* acoustical sealant including a bead at both faces *of* the partitions. Comply with ASTM C 919 and manufacturer's recommendations for location *of* edge trim and closing off sound-flanking paths around or through gypsum board assemblies, including sealing partitions above acoustical ceilings.

M. Space fasteners in gypsum panels according to referenced gypsum board application and finishing standard and manufacturer's recommendations.

3.7 GYPSUM BOARD APPLICATION METHODS

A. Single-Laver Application: Install gypsum WalIboard panels as follows:

1. On ceilings, apply gypsum panels prior to wall partition board application to the greatest - extent possible and -at right angles to framing, unless otherwise indicated.
2. On partitions/walls, apply gypsum panels horizontally (perpendicular to framing), unless parallel application is required for fire-resistive-rated assemblies. Use maximum-length panels to minimize end joints.

B. Wall Tile Substrates: For substrates indicated to receive thin-set ceramic tile and similar rigid applied wall finishes, comply with the following:

1. Install cementitious backer units as ceramic tile substrate to comply with ANSI A 108.11.

2. Single-Laver Fastening Methods: Apply gypsum panels to supports as follows:

a. Fasten with screws.

C. Exterior Soffits and Ceilings: Apply exterior gypsum soffit board panels perpendicular to supports, with end joints staggered over supports. Install with 114-inch open space where panels abut other construction or structural penetrations.

1. Fasten with corrosion resistant screws.

3.8 INSTALLING TRIM ACCESSORIES

A. General: For trim accessories with back flanges, fasten to framing with the same fasteners used to fasten gypsum board. Otherwise, fasten trim accessories according to accessory manufacturer's directions for type, length, and spacing of fasteners.

1. Install comer beads at external comers.

2. Install edge trim where edge of gypsum panels would otherwise be exposed or semiexposed. Provide edge trim type with face flange formed to receive joint compound except where other types are indicated.

   a. Install L-bead where edge trims can only be installed after gypsum panels are installed.

   b. Install U-bead where indicated.

c. Install aluminum edge trim and other accessories where indicated.

B. Install control joints at locations indicated, and where not indicated according to ASTM C 840, and in locations approved by Architect for visual effect.

3.9 FINISHING GYPSUM BOARD ASSEMBLIES

A. General: Apply joint treatment at gypsum board joints (both directions); flanges of comer bead, edge trim, and control joints; penetrations; fastener heads; surface defects, and elsewhere as required to prepare gypsum board surfaces for decoration and levels of gypsum board finish indicated.

B. Prefill open joints, rounded or beveled edges, and damaged areas using setting-type joint compound.

C. Apply joint tape over gypsum board joints except those with trim accessories having concealed face flanges not requiring taping to prevent cracks from developing in joint treatment at flange edges.

D. Levels of Gypsum Board Finish: Provide the following levels of gypsum board finish per GA-214.

1. Level 1 for ceiling plenum areas, concealed areas, and where indicated, unless a higher level of finish is required for fire-resistive-rated assemblies and sound-rated assemblies.

2. Level 4 for gypsum board surfaces indicated to receive gloss and semigloss enamels, nontextured flat paints, and where indicated.

E. For level 4 gypsum board finish, embed tape in finishing compound plus two separate coats applied over joints, angles, fastener heads, and trim accessories using one of the following combinations of joint compounds (not including prefill), and sand between coats and after last coat.

1. Embedding and First Coat: Ready-mixed, drying-type, all-purpose or taping compound. Fill (Second) Coat: Ready-mixed, drying-type, all-purpose or topping compound. Finish (Third) Coat: Ready-mixed, drying-type, all-purpose or topping compound.

F. Where level 4 gypsum board finish is indicated, apply joint compound combination specified for level 4 plus a thin, uniform skim coat of joint compound over entire surface. Use joint compound specified for the. finish (third coat) or a product specially formulated for this purpose and acceptable to gypsum board manufacturer. Produce surfaces free of tool marks and ridges ready for

decoration of type indicated.

G. Finish exterior gypsum soffit board using setting-type joint compounds to prefill joints and embed tape, and for first, fill {second} and finish (third) coats, with the last coat being a sand able product. Smooth each coat before joint compound hardens to minimize need for sanding. Sand between coats and after finish coat.

1. Painting exterior gypsum soffitboard after finish coat has dried is specified in Division 9 Section "Painting"

H. Finish cementitious backer units to comply with unit manufacturer's directions.

4.0 CLEANING AND PROTECTION

A. Promptly remove any residual joint compound from adjacent surfaces.

B. Provide final protection and maintain conditions, in a manner suitable to Installer that ensures gypsum board assemblies remain without damage or deterioration at time of Substantial Completion.

END OF SECTION 092550

TECHNICAL SPECIFICATIONS FOR HELEN McCALL PARK EXPANSION PHASE 1 & PHASE 2
SECTION 093013 – CERAMIC TILING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes the following:
   1. Ceramic mosaic tile.
   2. Ceramic porcelain tile.
   3. Glazed wall tile.
   4. Stone thresholds installed as part of tile installations.

B. Related Sections include the following:

   1. Division 9 Section "Gypsum Board Assemblies" for cementitious backer units installed In gypsum wallboard assemblies.

1.3 DEFINITIONS

A. Module Size: Actual tile size (minor facial dimension as measured per ASTM C 499) plus joint width indicated.

B. Facial Dimension: Actual tile size (minor facial dimension as measured per ASTM C 499).

C. Facial Dimension: Nominal tile size as defined in ANSI A137.1.

1.4 SUBMITTALS

A. Product Data: For each type of tile, mortar, grout, and other products specified.

   1. Shoe Drawings: For the following:

      a. Tile patterns and locations.

B. Tile Samples for Initial Selection: Manufacturer's color charts consisting of actual tiles or sections of tiles showing the full range of colors, textures, and patterns available for each type and composition of tile indicated. Include Samples of accessories involving color selection.

C. Grout Samples for Initial Selection: Manufacturer's color charts consisting of actual sections of grout showing the full range of colors available for each type of grout indicated.

D. Samples for Verification: Of each item listed below, prepared on Samples of size and construction indicated. Where products involve normal color and texture variations, include Sample sets

showing the full range of variations expected.

1. Each type and composition of tile and for each color and texture required, at least 12 inches (300 mm) square, mounted on plywood or hardboard backing, and with grouted joints using product complying with specified requirements and approved for completed work in color or selected by the Architect.

2. Full-size units of each type of trim and accessory for each color required.

3. Stone thresholds in 6-inch (150-mm) lengths.

E. Qualification Data: For firms and persons specified in the "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names of architects and owners, and other information specified.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: Engage an experienced installer who has completed tile installations similar in material, design, and extent to that indicated for this Project and with a record of successful in-service performance.

B. Source Limitations for Tile: Obtain each color, grade, finish, type, composition, and variety of tile from one source with resources to provide products from the same production run for each contiguous area of consistent quality in appearance and physical properties without delaying the Work.

C. Source Limitations for Setting and Grouting Materials: Obtain ingredients of a uniform quality for each mortar, adhesive, and grout component from a single manufacturer and each aggregate from one source or producer.

D. Source Limitations for Other Products: Obtain each of the following products specified in this Section from one source and by a single manufacturer for each product:

1. Stone thresholds.

1.6 DELIVERY, STORAGE. AND HANDLING

A. Deliver and store packaged materials in original' containers with seals unbroken and labels intact until time of use. Comply with requirement of ANSI A137.1 for labeling sealed tile packages.

B. Prevent damage or contamination to materials by water, freezing, foreign matter, and other causes.

1.7 PROJECT CONDITIONS

A. Environmental Limitations: Do not install tile until construction in spaces is completed and ambient temperature and humidity conditions are being maintained to comply with referenced standards and manufacturer's written instructions.

1.8 EXTRA MATERIALS

A. Deliver extra materials to Owner. Furnish extra materials described below that match products

installed, are packaged with protective covering for storage, and are identified' with labels describing contents. .

1. Tile and Trim Units: Furnish quantity of full-size units equal to 3 percent of amount installed, for each type, composition, color, pattern, and size indicated.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Products: Subject to compliance with requirements, provide products indicated on the drawings.

B. Manufacturers: Provide products as specified on the drawings.

2.2 PRODUCTS-GENERAL

A. ANSI Ceramic Tile Standard: Provide tile that complies with ANSI A 137.1, "Specifications for Ceramic Tile," for types, compositions, and other characteristics indicated.

1. Provide tile complying with Standard Grade requirements, unless otherwise indicated.

B. ANSI Standards for Tile Installation Materials: Provide materials complying with ANSI standards referenced in "Setting Materials" and "Grouting Materials" articles.

C. Colors. Textures. and Patterns: Where manufacturer's standard products are indicated for tile, grout, and other products requiring selection of colors, surface textures, patterns, and other appearance characteristics, provide specific products or materials complying with the following requirements:

1. Provide tile trim and accessories that match color and finish of adjoining flat tile.

2.3 TILE PRODUCTS

A. Unglazed Ceramic Mosaic Tile (CT-3): Provide factory-mounted flat tile complying with the following requirements:

Composition: Porcelain.

Module Size: 2 by 2 inches (50.8 by 50.8 mm).

Nominal Thickness: 1/4 inch (6.35 mm).

Face: Plain with cushion edges.

B. Unglazed Ceramic Tile (CT-1, CT-2): Provide factory mounted fiat tile complying with the following requirements:

Composition: Porcelain

Module Size: As indicated on drawings.

Face: Plain with cushion edges.

Pattern: As indicated on the drawings. Note that two ceramic tile colors will be used.

C. Glazed Wall Tile (CT-3): Provide flat tile complying with the following requirements:

Module Size: 8" x 8"

Thickness: 5/16 inch (8 mm).

Face: Plain with cushion edges.

Mounting: Factory back-mounted.

D. Trim Units: Provide tile trim units to match characteristics of adjoining flat tile and to comply with the following requirements:

1. Size: As indicated, coordinated with sizes and coursing of adjoining flat tile where applicable.

2. Shapes: As follows, selected from manufacturer's standard shapes:

a. Base for Thin-Set Mortar Installations: Straight.

b. Wainscot Call for Thin-Set Mortar Installations: Surface bullnose.

c. External Comers for Thin-Set Mortar Installations: Surface bullnose.

d. Internal Comers: Field-butted square corners, except with coved base and cap angle pieces designed to member with stretcher shapes.

2.4 STONE THRESHOLDS

A. General: Provide stone thresholds that are uniform in color and finish, fabricated to sizes and. profiles indicated to provide transition between tile surfaces and adjoining finished floor surfaces.

B. Marble Thresholds: Provide marble thresholds complying with ASTM C 503 requirements for exterior use and with a minimum abrasive-hardness value of 10 per ASTM C 241.

1. Provide white, honed marble complying with the Marble Institute of America's Group A requirements for soundness.

2.5 SETTING MATERIALS.

A. Latex Portland Cement Mortar: ANSI A 118.4, composition: as follows:

B. Prepackaged dry mortar mix composed of portland cement, graded aggregate, and the following dry polymer additive in the form of a reemulsifiable powder to which only water is added at the job site.

1. Dry Polymer Additive: Manufacturer's standard.

2. Latex Additive: (water emulsion) of type described below, serving as replacement for part or all of gauging water, combined at the job site with prepackaged dry mortar mix supplied or specified by latex additive manufacturer.

3. Latex Type: Manufacturer's standard.

2.6 GROUTING MATERIALS

A. Latex-Portland Cement Grout: ANSI A 118.6, color as indicated, composition as follows:

B. Prepackaged dry grout mix composed of portland cement, graded aggregate, and the following dry polymer additive in the form of a reemulsified powder to which only water is added at the job site.

1. Dry Polymer Additive: Manufacturer's standard.

2. Latex Additive: (water emulsion) serving as replacement for part or all of the gauging water, added at job site with dry grout mixture, with type of latex and dry grout mix as follows:

a. Latex Type: Acrylic Resin.

b. Dry Grout Mixture: Commercial portland cement specified or supplied by latex additive manufacturer.

2.7 MISCELLANEOUS MATERIALS

A. Metal Edge Strips: White-zinc-alloy terrazzo strips, 1/8 inch (3.2 mm) wide at top edge with integral provision for anchorage to mortar bed or substrate, unless otherwise indicated.

B. Temporary Protective Coating: Provide product indicated below that is formulated to protect exposed surfaces of tile against adherence of mortar and grout; is compatible with tile, mortar, and grout products; and is easily removable after grouting is Completed without damaging grout or tile.

1. Grout release in form of manufacturer's standard proprietary liquid coating that is specially formulated and recommended for use as a temporary protective coating for tile.

C. Tile Cleaner: A. neutral cleaner capable of removing soil and residue without harming the and grout surfaces, specifically approved for materials and installations indicated by tile and grout manufacturers.

2.8 MIXING MORTARS AND GROUT

A. Mix mortars and grouts to comply with referenced standards and mortar and grout manufacturers' written instructions.

B. Add materials, water, and additives in accurate proportions.

C. Obtain and use type of mixing equipment, mixer speeds, mixing containers, mixing time, and other procedures to produce mortars and grouts of uniform quality with optimum performance, characteristics for installations indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates areas and conditions where tile will be installed, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of installed tile.

1. Verify that substrates for setting tile are firm; dry; clean; free from oil, waxy films, and curing compounds; and within flatness tolerances required by referenced ANSI A 108 series of tile installation standards for installations indicated.

2. Verify that installation of grounds, anchors, recessed frames, electrical and mechanical units of work, and similar items located in or behind tile has been completed before installing tile.

3. Verify that joints and cracks in tile substrates are coordinated with tile joint locations; if not coordinated, adjust latter in consultation with Architect.

B. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Provide concrete substrates for tile floors installed with dry-set or latex-portland cement mortars that comply with flatness tolerances specified in referenced ANSI A 108 series of tile installation standards for installations indicated.

B. Blending: For tile exhibiting color variations within the ranges selected during Sample submittals, verify that tile has been blended in the factory and packaged so tile units taken from one package show the same range in colors as those taken from other packages and match approved Samples. If not factory blended, either return to manufacturer or blend tiles at Project site before installing.

C. Field-Applied Temporary Protective Coating: Where indicated under tile type or needed to prevent adhesion or staining of exposed tile surfaces by grout, protect exposed surfaces of tile against adherence of mortar and grout by precoating them with a continuous film of temporary protective coating indicated below, taking care not to coat unexposed tile surfaces: Grout release.

3.3 INSTALLATION, GENERAL

A. ANSI Tile Installation Standards: Comply with parts of ANSI A108 series of tile installation standards in "Specifications for Installation of Ceramic Tile" that apply to types of setting and grouting materials and to methods indicated in ceramic tile installation schedules.

B. TCA Installation Guidelines: TCA's "Handbook for Ceramic Tile Installation. It Comply with TCA installation methods indicated in ceramic tile installation schedules.

C. Extend tile work into recesses and under or behind equipment and fixtures to form a complete covering without interruptions, unless otherwise indicated. Terminate work neatly at obstructions, edges, and comers without disrupting pattern or joint alignments.

D. Accurately form intersections and returns. Perform cutting and drilling of tile without marring visible surfaces. Carefully grind cut edges of tile abutting trim, finish, or built-in items for straight aligned joints. Fit tile closely to electrical outlets, piping, fixtures, and other penetrations so plates, collars, or covers overlap tile.

E. Jointing Pattern: Lay tile in grid pattern, unless otherwise indicated. Align joints when adjoining tiles on floor, base, walls, and trim are the same size. Layout tile work and center tile fields in both directions in each space or on each wall area. Adjust to minimize tile cutting. Provide uniform joint widths, unless otherwise indicated.

1. For tile mounted in sheets, make joints between tile sheets the same width as joints within tile sheets so joints between sheets are not apparent in finished work.

F. Lay out tile wainscots to next full tile beyond dimensions indicated.

G. Expansion Joints: Locate expansion joints and other sealant-filled joints, including control, contraction, and isolation joints, where indicated during installation of setting materials, mortar beds, and tile. Do not saw-cut joints after installing tiles.

1. Locate joints in tile surfaces directly above joints in concrete substrates.

2. Prepare joints and apply sealants to comply with requirements of Division 7 Section “Joint Sealants’.

H. Grout tile to comply with the requirements of the following tile installation standards:

1. For ceramic tile grouts (sand-portland cement, dry-set. commercial portland cement, and latex-portland cement grouts), comply with ANSI A108.10.

G. At showers tubs, and other wet locations, install cementitious backer units and treat joints to comply with ANSI A 108.11 and manufacturer's written instructions for type of application indicated.

3.4 FLOOR TILE INSTALLATION

A. General: Install tile to comply with requirements in the Ceramic Tile Floor Installation Schedule, including those referencing TCA installation methods and ANSI A 108 series of tile installation standards.

B. Joint Widths: Install tile on floors with the following joint widths:

Ceramic Mosaic Tile: 1/16 inch (1.6mm).
Ceramic Porcelain Tile: per manufacturer's standards.

C. Back Buttering: For installations indicated, obtain 100 percent mortar coverage by complying with applicable special requirements for back buttering of tile in referenced ANSI A 108 series of tile installation standards:

1. Tile floors in wet areas, including showers, tub enclosures, laundries, and swimming pools.

D. Stone Thresholds: Install stone thresholds at locations indicated; set in same type of setting bed as abutting field tile, unless otherwise indicated.

1. Set thresholds in latex-portland cement mortar for locations where mortar bed would otherwise be exposed above adjacent nontile floor finish.

2. Metal Edge Strips: Install at locations indicated or where exposed edge of tile flooring meets carpet, wood, or other flooring that finishes flush with top of tile.

3.5 WALL TILE INSTALLATION

A. Install types of tile designated for wall installations to comply with requirements in the Ceramic Tile Wall Installation Schedule, including those referencing TCA installation methods and ANSI setting-bed standards.

B. Joint Widths: Install tile on walls with the following joint widths:

Wall Tile: 1/16 inch (1.6 mm).

C. Back Buttering: For installations indicated, obtain 100 percent mortar coverage by complying with applicable special requirements for back buttering of tile in referenced ANSI A 108 series of tile installation standards:

1. Tile wall installations in wet areas, including showers, tub enclosures, laundries, and swimming pools.

3.6 CLEANING AND PROTECTING

A. Cleaning: On completion of placement and grouting, clean all ceramic tile surfaces so they are free of foreign matter.

1. Remove latex-portland cement grout residue from tile as soon as possible.

2. Unglazed tile may be cleaned with acid solutions only when permitted by tile and grout manufacturers written instructions, but no sooner than 10 days after installation. Protect metal surfaces, cast iron, and vitreous plumbing fixtures from effects of acid cleaning. Flush surface with clean water before and after cleaning.

3. Remove temporary protective coating by method recommended by coating manufacturer that is acceptable to brick and grout manufacturer. Trap and remove coating to prevent it from clogging drains.

B. Finished Tile Work: Leave finished installation clean and free of cracked, chipped, broken, unbonded, and otherwise defective tile work.

C. Provide final protection and maintain conditions, in a manner acceptable to manufacturer and Installer that ensure tile is without damage or deterioration at the time of Substantial Completion.

1. When recommended by tile manufacturer, apply a protective coat of neutral protective cleaner to completed tile walls and floors. Protect installed tile work with kraft paper or other heavy covering during construction period to prevent staining, damage, and wear.

2. Prohibit foot and wheel traffic from tiled floors for at least 7 days after grouting is completed.

D. Before final inspection, remove protective coverings and rinse neutral cleaner from tile surfaces.

END OF SECTION 093013

TECHNICAL SPECIFICATIONS FOR HELEN McCALL PARK EXPANSION PHASE 1 & PHASE 2
SECTION 099100 – PAINTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes surface preparation, painting, and finishing of exposed interior and exterior items and surfaces.

1. Surface preparation, priming, and finish coats specified in this Section are in addition to shop-priming and surface treatment specified under other Sections.

B. Paint exposed surfaces whether or not colors are designated in schedules, except where a surface or material is specifically indicated not to be painted or is to remain natural. Where an item or surface is not specifically mentioned, paint the same as similar adjacent materials or surfaces. If color or finish is not designated, the Architect will select from standard colors or finishes available.

1. Painting includes field-painting exposed bare and covered pipes and ducts (including color coding), hangers, exposed steel and iron work, and primed metal surfaces of mechanical and electrical equipment

C. Painting is not required on prefinished items, finished metal surfaces, concealed surfaces, operating parts, and labels.

D. Concealed surfaces not to be painted include wall or ceiling surfaces in the following generally inaccessible areas:

1. Foundation spaces.

2. Furred areas.

3. Pipe spaces.

4. Duct shafts.

E. Operating parts not to be painted include moving parts of operating equipment.

F. Labels: Do not paint over Underwriters laboratories, Factory Mutual or other code-required labels or equipment name, identification, performance rating, or nomenclature plates.

G. Related Sections: The following Sections contain requirements that relate to this Section: Division 5 Section "Metal Fabrications" for shop-priming ferrous metal.

1. Division 6 Section "Interior Architectural Woodwork" for finishing interior architectural

woodwork not indicated for shop finish.

2. Division 8 Section "Standard Steel Doors and Frames" for shop-priming steel doors and Frames

3. Division 9 Section "Wall Coverings" for substrate sealer under wall coverings.

4. Divisions 15 and 16: Painting mechanical and electrical work is specified in Divisions 15 and 16, respectively.

1.3 SUBMITTALS

A. General: Submit the following according to Conditions of the Contract and Division 1 Specification Sections.

B. Product data for each paint system specified, including block fillers and primers.

1. Provide the manufacturer's technical information including label analysis and instructions for handling, storage, and application of each material proposed for use.

2. List each material and cross-reference the specific coating, finish system, and application. Identify each material by the manufacturer's catalog number and general classification.

C. Samples for initial color selection in the form of manufacturer's color charts.

1. Color selections to be made by Owner.

D. Samples for Verification Purposes: Provide samples of each color and material to be applied, with texture to simulate actual conditions, on representative samples of the actual substrate.

1. Provide stepped samples, defining each separate coat, including fillers and primers. Use representative colors when preparing samples for review. Resubmit until required sheen, color, and texture are achieved.

2. Provide a list of material and application for each coat of each sample label each sample as to location and application.

3. Submit samples on the following substrates for the Architect’s review of color and texture only:

4. Painted Wood and Drywall: Provide two 12-inch-square samples of each color and material on hardboard.

5. Stained or Natural Wood: Provide two 4-by-8-inch samples of natural and stained wood finish on actual wood surfaces.

6. Ferrous Metal: provide two 4-inch-square samples of flat metal and two 8-inch-long samples of solid metal for each color and finish.

1.4 QUALITY ASSURANCE

A. Applicator Qualifications: Engage an experienced applicator who has completed painting system applications similar in material and extent to those indicated for the Project that have resulted in a construction record of successful in-service performance.

B. Single-Source Responsibility: Provide primers and undercoat paint produced by the same manufacturer as the finish coats.

C. Field Samples: On wall surfaces and other exterior and interior components, duplicate finishes of prepared samples. Provide full-coat finish samples on at least 100 sq. ft. of surface until required sheen, color, and texture are obtained; simulate finished lighting conditions for review of in-place work.

1. Final acceptance of colors will be from job-applied samples.

2. The Architect will select one room or surface to represent surfaces and conditions for each type of coating and substrate to be painted. Apply coatings in this room or surface according to the schedule or as specified.

    a. After finishes are accepted, this room or surface will be used to evaluate coating systems of a similar nature.

1.5 DELIVERY. STORAGE. AND HANDLING

A. Deliver materials to the job site in the manufacturers original, unopened packages and containers bearing manufacturer's name and label, and the following information:

1. Product name or title of material.

2. Product description (generic classification or binder type).

3. Manufacturer's stock number and date of manufacture.

4. Contents by volume, for pigment and vehicle constituents.

5. Thinning instructions.

6. Application instructions.

7. Color name and number.

B. Store materials not in use in tightly covered containers in a well-ventilated area at a minimum ambient temperature of 45 deg F (7 deg C). Maintain containers used in storage in a clean condition, free of foreign materials and residue.

1. Protect from freezing. Keep storage area neat and orderly. Remove oily rags and waste daily. Take necessary measures to ensure that workers and work areas are protected from fire and health hazards resulting from handling, mixing, and application.

1.6 JOB CONDITIONS

A. Apply water-based paints only when the temperature of surfaces to be painted and surrounding air temperatures are between 50 deg F (10 deg C) and 90 deg F (32 deg C).

B. Apply solvent-thinned paints only when the temperature of surfaces to be painted and surrounding air temperatures are between 45 deg F (7 deg C) and 95 deg F (35 deg C).

C. Do not apply paint in snow, rain, fog, or mist; or when the relative humidity exceeds 85 percent; or at temperatures less than 5 deg F (3 deg C) above the dew point; or to damp or wet surfaces.

1. Painting may continue during inclement weather if surfaces and areas to be painted are enclosed and heated within temperature limits specified by the manufacturer during application and drying periods.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturer: Subject to compliance with requirements, provide products of one of the following:

PPG Industries, Pittsburgh Paints (PPG)
The Sherwin-Williams Company (S-W).

2.2 PAINT MATERIALS, GENERAL

A. Material Compatibility: Provide block fillers, primers, finish coat materials, and related materials that are compatible with one another and the substrates indicated under conditions of service and application, as demonstrated by the manufacturer based on testing and field experience.

B. Material Quality: Provide the manufacturers best quality trade sale paint material of the various coating types specified. Paint material containers not displaying manufacturer's product identification will not be acceptable.

1. Proprietary Names: Use of manufacturer's proprietary product names to designate colors or materials is not intended to imply that products named are required to be used to the exclusion of equivalent products of other manufacturers. Furnish the manufacturer's material data and certificates of performance for proposed substitutions.

C. Colors: Provide custom colors of the finished paint systems to match the Architect's samples.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions under which painting will be performed for compliance with paint application requirements: Surfaces receiving paint must be thoroughly dry before paint is applied.

1. Do not begin to apply paint until unsatisfactory conditions have been corrected.

2. Start of painting will be construed as the Applicators acceptance of surfaces and conditions within a particular area.

B. Coordination of Work: Review other Sections in which primers are provided to ensure compatibility of the total system for various substrates. On request, furnish information on characteristics of finish materials to ensure use of compatible primers.

1. Notify the Architect about anticipated problems using the materials specified over substrates primed by others.

3.2 PREPARATION

A. General: Remove hardware and hardware accessories, plates, machined surfaces, lighting fixtures, and similar items already installed that are not to be painted, or provide surface-applied protection prior to surface preparation and painting. Remove these items, if necessary, to completely paint the items and adjacent surfaces. Following completion of painting operations in each space or area, have items reinstalled by workers skilled in the trades involved.

B. Cleaning: Before applying paint or other surface treatments, clean the substrates of substances that could impair the bond of the various coatings. Remove oil and grease prior to cleaning. Schedule cleaning and painting so dust and other contaminants from the cleaning process will not

fall on wet, newly painted surfaces.

C. Surface Preparation: Clean and prepare surfaces to be painted according to the manufacturer's instructions for each particular substrate condition and as specified.

1. Provide barrier coats over incompatible primers or remove and reprime. Notify Architect in writing about anticipated problems using the specified finish-coat material with substrates primed by others.

2. Wood: Clean surfaces of dirt, oil, and other foreign substances with scrapers, mineral spirits, and sandpaper, as required. Sand surfaces exposed to view smooth and dust off.

a. Scrape and clean small, dry, seasoned knots, and apply a thin coat of white shellac, or other recommended knot sealer before applying primer. After priming, fill holes and imperfections in finish surfaces with putty or plastic wood filler. Sand smooth when dried.

b. Prime, stain, or seal wood to be painted immediately upon delivery. Prime edges, ends, faces, undersides, and backsides of wood, including cabinets, counters, cases, and paneling.

c. When transparent finish is required, backprime with spar varnish.

d. Seal tops, bottoms, and cutouts of unprimed wood doors with a heavy coat of varnish or sealer immediately upon delivery.

3. Ferrous Metals: Clean ungalvanized ferrous - metal surfaces that have not been shop-coated; remove oil, grease, dirt, loose mill scale, and other foreign substances. Use solvent

or mechanical cleaning methods that comply with recommendations of the Steel Structures Painting Council (SSPC).

4. Blast steel surfaces clean as recommended by the paint system manufacturer and - according to requirements of SSPC specification SSPC-SP 10.

5. Treat bare and sandblasted or pickled clean metal with a metal treatment wash coat before priming.

6. Touch UP bare areas and shop-applied prime coats that have been damaged. Wire-brush, clean with solvents recommended by the paint manufacturer, and touch up with the same primer as the shop coat.

D. Galvanized Surfaces: Clean galvanized surfaces with non petroleum-based solvents so that the surface is free of oil and surface contaminants. Remove pretreatment from galvanized sheet metal fabricated from coil stock by mechanical methods.

E. Materials Preparation: Carefully mix and prepare paint materials according to manufacturer's directions.

1. Maintain containers used in mixing and applying paint in a clean condition, free of foreign materials and residue.

2. Stir material before application to produce a mixture of uniform density; stir as required during application. Do not stir surface film into material. Remove film and, if necessary, strain material before using.

3. Use only thinners approved by the paint manufacturer and only within recommended limits.

F. Tinting: Tint each undercoat a lighter shade to facilitate identification of each coat where multiple coats of the same material are applied. Tint undercoats to match the color of the finish coat, but provide sufficient differences in shade of undercoats to distinguish each separate coat.

3.3 APPLICATION

A. General: Apply paint according to manufacturer's directions. Use applicators and techniques best suited for substrate and type of material being applied.

B. Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions detrimental to formation of a durable paint film.

1. Paint colors, surface treatments, and finishes are indicated in the schedules.

2. Provide finish coats that are compatible with primers used.

3. The number of coats and the film thickness required are the same regardless of the application method. Do not apply succeeding coats until the previous coat has cured as recommended by the manufacturer. Sand between applications where sanding is required to produce a smooth even surface according to the manufacturer's directions.

4. Apply additional coats if undercoats, stains, or other conditions show through final coat of paint until paint film is of uniform finish, color, and appearance. Give special attention to ensure that surfaces, including edges, corners, crevices, welds, and exposed fasteners, receive a dry film thickness equivalent to that of flat surfaces;

5. The term exposed surfaces includes areas visible when permanent or built-in fixtures, convector covers, covers for finned tube radiation, grilles, and similar components are in place. Extend coatings in these areas, as required, to maintain the system integrity and provide desired protection.

6. Paint surfaces behind movable equipment and furniture the same as similar exposed surfaces. Before the final installation of equipment, paint surfaces behind permanently fixed equipment or furniture with prime coat only.

7. Paint interior surface of ducts, where visible through registers or grilles, with a flat, nonspecular black paint.

8. Paint back sides of access panels and removable or hinged covers to match exposed surfaces.

9. Finish interior of wall and base cabinets and similar field-finished casework to match exterior.

10. Finish exterior doors on tops, bottoms, and side edges same as exterior faces.

11. Sand lightly between each succeeding enamel or varnish coat.

12. Omit primer on metal surfaces that have been shop-primed and touch-up painted.

C. Scheduling Painting: Apply first coat to surfaces that have been cleaned, pretreated, or otherwise prepared for painting as soon as practicable after preparation and before subsequent surface deterioration.

1. Allow sufficient time between successive coats to permit proper drying. Do not recoat until paint has dried to where it feels firm, does not deform or feel sticky under moderate thumb pressure, and where application of another coat of paint does not cause the undercoat to lift or lose adhesion.

D. Application Procedures: Apply paints and coatings by brush, roller, spray, or other applicators according to the manufacturer's directions.

1. Brushes: Use brushes best suited for the material applied.

2. Rollers: Use rollers of carpet, velvet back, or high-pile sheep's wool as recommended by the manufacturer for the material and texture required.

3. Minimum Coating Thickness: Apply materials no thinner than the manufacturer's recommended spreading rate. Provide the total dry film thickness of the entire system as recommended by the manufacturer.

4. Prime Coats: Before applying finish coats, apply a prime coat of material, as recommended by the manufacturer, to material that is required to be painted or finished and that has not been prime-coated by others. Recoat, primed and sealed surfaces where evidence of suction spots or, unsealed areas in first coat appears, to ensure a finish coat with no burn-through or other defects due to insufficient sealing.

5. Enamel Finish: Roll and redistribute paint to an even and fine texture. Leave no evidence of rolling such as laps, irregularity in texture, skid marks, or other surface imperfections.

6. Pigmented (Opaque) Finishes: Completely cover to provide a smooth, opaque surface of uniform finish, color, appearance, and coverage. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, or other surface imperfections will not be acceptable.

7. Transparent (Clear) Finishes: Use multiple coats to produce a glass-smooth surface film of even luster. Provide a finish free of laps, cloudiness, color irregularity, runs, brush marks, orange peel, nail holes, or other surface imperfections.

   a. Provide satin finish for final coats.

8. Completed Work: Match approved samples for color, texture, and coverage. Remove, refinish, or repaint work not complying with specified requirements.

3.4 FIELD QUALITY CONTROL

A. The Owner reserves the right to invoke the all applicable test procedures at any time and as often as the Owner deems necessary during the period when paint is being applied:

1. The Owner will engage the services of an independent testing agency to sample the paint material being used. Samples of material delivered to the Project will be taken, identified, sealed, and certified in the presence of the Contractor.

2. If test results show material being used does not comply with specified requirements, the Contractor may be directed to stop painting, remove noncomplying paint, pay for testing, repaint surfaces coated with rejected paint, and remove rejected paint from previously painted surfaces if, upon repainting with specified paint, the two coatings are incompatible.

3.4 CLEANING

A. Cleanup: At the end of each work day, remove empty cans, rags, rubbish, and other discarded paint materials from the site. .

1. After completing painting, clean glass and paint-spattered surfaces. Remove spattered paint by washing and scraping. Be careful not to scratch or damage adjacent finished surfaces. .

3.4 PROTECTION.

A. Protect work of other trades, whether being painted or not, against damage by painting. Correct damage by cleaning, repairing or replacing, and repainting as acceptable to Architect.

B. Provide "Wet Paint" signs to protect newly painted finishes. Remove temporary protective

wrappings provided by others to protect their work after completing painting operations.

1. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces. .

3.5 INTERIOR PAINT SCHEDULE

A. General: Provide the following paint systems for the various substrates, as indicated.

Gypsum Drywall Systems:

Odorless Semi-gloss Alkyd Enamel Finish: Three coats with total dry film thickness not less than 2.5 mils.

Primer: White, interior, latex-based primer.

First and Second Coats: Interior, eggshell, odorless, alkyd enamel.

Woodwork and Hardboard: indicated for painted finish

Semi-gloss Enamel Finish: Three coats.

Undercoat: Interior enamel undercoat.

First and second Coats: Interior, semi-gloss, odorless, alkyd enamel.

Devoe: 26XX Velour Alkyd Semi-gloss Enamel.
PPG: 27 Line Wallhide Semi-gloss Enamel.
S-W: Classic 99 Semi-gloss Enamel A40 Series.

Stained Woodwork:

Stained-Varnish Rubbed Finish: Three finish coats over stain plus filler on open-grain wood. Wipe filler before applying first varnish coat.

Stain Coat: Oil-type interior wood stain.

First Coat: Cut shellac.

Filler Coat: Paste wood filler.

Second and Third Coats: Oil rubbing varnish.

Stained Doors:

Stained-Varnish Rubbed Finish: Three finish coats over stain plus filler on open grain wood. Wipe filler before applying first varnish coat.

Stain Coat: Oil-type interior wood stain.

First Coat: Cut shellac.

Filler Coat: Paste wood filler.

Second and Third Coats: Oil rubbing varnish.

Ferrous Metal:

Semi-gloss Enamel Finish: Two coats over primer with total dry film thickness not less than 2.5 mils.

Primer: Synthetic, quick-drying, rust-inhibiting primer.

Undercoat: Interior enamel undercoat.

Finish Coat: Interior, semi-gloss, odorless, alkyd enamel.

END OF SECTION 099100

TECHNICAL SPECIFICATIONS FOR HELEN McCALL PARK EXPANSION PHASE 1 & PHASE 2
SECTION 102800 – TOILET ACCESSORIES

PART 1 - GENERAL

1.01 SYSTEM DESCRIPTION

A. Design requirements: Meet ANSI A117.1 grab bar loading requirements.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Toilet accessories:

1. Acceptable manufacturers:
   a. Products specified as standard of quality are manufactured by Bobrick Washroom Equipment, Inc., referred to as “Bobrick”.
   b. Products of manufacturers listed below meeting indicated standards and specified manufacturer's product data characteristics, except as modified below, are acceptable for use, subject to prior approval of proposed product list.
      1) American Specialties, Inc.
      2) Bradley Washfountain Company.

2. Furnish accessories as product of one manufacturer, except where certain special items are indicated. Key keyed accessories alike with exception of coin receiving boxes on vending equipment. Key vending equipment in accord with Owner's requirements.

3. Materials: Use AISI Type 304 stainless steel, (non-austenitic), for all parts except mounting kits for grab bars or specific items noted otherwise.

4. Fasteners: Toilet and bath accessory manufacturer's recommended fasteners for substrate encountered.

5. Toilet and bath accessories: Indicated on Drawings.

B. Baby changing stations:

1. Acceptable products:
   a. American Infant Care Products; Diaper Deck□.
   b. American Specialties, Inc.; 9010 Baby Changing Station.
   c. Bobrick Washroom Equipment, Inc.; #B2200 Series.
   d. JBJ Industries, Inc.; Koala Bear Kare Baby Changing Station.

2. Characteristics:
   a. Type: Surface mount fold down high impact FDA approved plastic unit with shaped platform for child's body.
   b. Pneumatic gas shock assuring smooth operation of fold down platform.
   c. Child safety strap on platform.
   d. Furnish manufacturer's recommended wall anchors for substrates encountered.
   e. Factory installed vandalism lock.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verification of conditions:
   1. Verify built-in accessory plates and related items are in correct location and position.
   2. Check openings scheduled to receive recessed or semi-recessed accessories for correct dimensions, depth, plumbness of blocking for frames, and preparation affecting accessories installation.

3.02 INSTALLATION

A. General:
   1. Built-in accessory plates: Furnish for installation under construction activities specified in other sections.
   2. Install accessories level, plumb, in indicated locations.
   3. Installation methods indicated in manufacturer's literature for substrates encountered.

B. Mounting heights, general:
   1. Mount toilet and bath accessories where indicated.
   2. If mounting heights are not indicated, mount at toilet and bath accessory manufacturer recommended height.
   3. Accessory items indicated by code *"for use by the handicapped"*: Mount at height required by ANSI A117.1 and ADA; use more restrictive requirement unless otherwise indicated in case of conflict.

C. Wall conditions, grab bars: Attach to stud wall system using accessory manufacturer supplied continuous length steel anchor plate and mounting kits at indicated locations on grab bar wall side.

D. Baby changing stations: Install on walls where indicated in accord with manufacturer's installation instructions at height required to meet ADA requirements.

E. Conceal evidence of drilling, cutting, and fitting adjacent finishes.

3.03 ADJUST AND CLEAN

A. Adjust accessories operating parts for correct operation.

B. Clean and polish exposed surfaces not more than 48 hours prior to Date of Substantial Completion.

C. Deliver accessory schedule, keys, and parts manual as part of Project Close-out documents.

END OF SECTION 102800

TECHNICAL SPECIFICATIONS FOR HELEN McCALL PARK EXPANSION PHASE 1 & PHASE 2
SECTION 104416 – FIRE EXTIGUISHERS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes the following:

Fire extinguishers.
Fire extinguisher cabinets.
Fire extinguisher mounting brackets.

1.3 SUBMITTALS

A. General: Submit the following according to the Conditions of the Contract and Division 1 Specification Sections.

B. Product data for cabinets include rough-in dimensions, details showing mounting methods, relationships of box and trim to surrounding construction, door hardware, cabinet type and materials, trim style, door construction, panel style, and materials.

1.4 QUALITY ASSURANCE

A. Single-Source Responsibility: Obtain extinguishers and cabinets from one source from a single manufacturer.

B. Coordination: Verify that cabinets are sized to accommodate type and capacity of extinguishers indicated and provided by Owner under separate Contract.

C. UL-Listed Products: Fire extinguishers shall be UL listed with UL listing mark for type, rating, and classification of extinguisher.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated in the Work include, but are not limited to, the following:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

Ansul Fire Protection.
Badger-Powhatan.
American Specialties Inc.
Bobrick Washroom Equipment, Inc.
Croker Div., Fire-End and Croker Corp.
Filtrine Manufacturing.
Lyon Metal Products.
J. L. Industries.
Larsen's Manufacturing Co.
Modem Metal Products by Muckle.
Potter-Roemer, Inc.
Samson Metal Products, Inc.

2.2 FIRE EXTINGUISHERS

A. General: Provide fire extinguishers for indicated locations on life safety plan, in colors and finishes selected by Architect/Owner from manufacturer's standard, that comply with authorities having jurisdiction.

2.3 MOUNTING BRACKETS

A. Brackets: Designed to prevent accidentally dislodging extinguisher, of sizes required for type and capacity of extinguisher indicated, in plated finish.

2.4 CABINETS

A. Construction: Manufacturer's standard box, with trim, frame, door, and hardware to suit cabinet type, trim style, and door style indicated. Weld joints and grind smooth. Miter and weld perimeter door frames.

B. Fire-Rated Cabinets: UL listed with UL listing mark with fire-resistance rating of wall where it is installed. Note that corridor walls or partitions have been designated with a fire rating as well as other areas within the buildings.

Cabinet Type: Suitable for containing the fire extinguisher.

Cabinet Mounting: Suitable for the following mounting conditions:

Semi-recessed: Cabinet box (tub) partially recessed in walls of shallow depth.

Trim Style: Fabricate trim in one piece with comers mitered, welded, and ground smooth.

Door Material and Construction: Manufacturer's standard door construction, of material indicated, coordinated with cabinet types and trim styles selected.

Aluminum-Backed Acrylic: Manufacturer's standard aluminum-backed obscure acrylic with silkscreen

lettering or design applied to back of acrylic face.

Acrylic: Textured.

Identify fire extinguisher in cabinet with FIRE EXTINGUISHER lettering applied to door. Provide lettering to comply with authorities having jurisdiction for letter style, color, size, spacing, and location.

Application Process: Silk screen.

Identify bracket-mounted extinguishers with FIRE EXTINGUISHER in red letter decals applied to wall surface. Use letter size, style, and location as selected by Architect.

Door Style: Manufacturer's standard design with view panel.

Door Hardware: Provide manufacturer's standard door-operating hardware of proper type for cabinet type, trim style, and door material and style indicated. Provide either lever handle with earn-action latch, or exposed or concealed door pull and friction latch. Provide concealed or continuous-type hinge permitting door to open 180 deg.

2.5 FINISHES FOR CABINETS-GENERAL

A. Comply with NAAMM "Metal Finishes Manual" for recommendations relative to applying and designating finishes.

B. Protect mechanical finishes on exposed surfaces from damage by applying temporary strippable protective covering prior to shipping.

2.6 ALUMINUM CABINET FINISHES

A. Finish designations prefixed by AA conform to the system established by the Aluminum Association for designating aluminum finishes.

B. Class IT Clear Anodized Finish: AA-MI2C22A31 (Mechanical Finish: as fabricated, nonspecular; Chemical Finish: etched, medium matte; Anodic Coating: Class IT Architectural, clear film thicker than 0.4 mil).

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine rough-in for hose vales, hose racks, and cabinets to verify locations of piping connections prior to cabinet installation.

B. Examine walls and partitions for thickness and framing for cabinets to verify cabinet depth and mounting prior to cabinet installation.

C. Do not proceed until unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Follow manufacturers printed instructions for installation.

B. Install in locations and at mounting heights indicated or, if not indicated, at heights to comply with applicable regulations of governing authorities.

1. Prepare recesses in walls for cabinets as required by type and size of cabinet and style of trim and to comply with manufacturers instructions.

2. Fasten mounting brackets and cabinets to structure, square and plumb.

END OF SECTION 104416

TECHNICAL SPECIFICATIONS FOR HELEN McCALL PARK EXPANSION PHASE 1 & PHASE 2
SECTION 221313 – FACILITY SANITARY SEWERS

PART 1 - GENERAL

1.1 SUMMARY

A. Sanitary sewerage system materials, installation, testing, etc. to be provided and performed in accordance with the latest edition of the Standard Design and Construction Specifications by Regional Utilities, operated by Florida Community Services Corp. of Walton County.

1. A copy of the current edition (2022 edition) is available for viewing as appended to this Document.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 221313

TECHNICAL SPECIFICATIONS FOR HELEN McCALL PARK EXPANSION PHASE 1 & PHASE 2
SECTION 221329 – SANITARY SEWERAGE PUMPS

PART 1 - GENERAL

1.1 SUMMARY

A. Sanitary sewerage pumps, appurtenances, installation, testing, etc. to be provided and performed in accordance with the latest edition of the Standard Design and Construction Specifications by Regional Utilities, operated by Florida Community Services Corp. of Walton County.

1. A copy of the current edition (2022 edition) is available for viewing as appended to this Document.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 221329

TECHNICAL SPECIFICATIONS FOR HELEN McCALL PARK EXPANSION PHASE 1 & PHASE 2
SECTION 311000 – SITE CLEARING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

B. Florida Department of Transportation Standard Specifications for Road and Bridge Construction, Section 110 “Clearing and Grubbing”, current edition. Hereafter referred to as “FDOT Standard Specifications”.

1.2 SUMMARY

A. Section Includes:

1. Protecting existing vegetation to remain.
2. Removing existing vegetation.
3. Clearing and grubbing.
4. Stripping and stockpiling topsoil.
5. Removing above- and below-grade site improvements.
6. Disconnecting, capping or sealing, and removing site utilities.
7. Temporary erosion and sedimentation control.

B. Related Requirements:

1. Section 015000 "Temporary Facilities and Controls" for temporary erosion- and sedimentation-control measures.

1.3 DEFINITIONS

A. Subsoil: Soil beneath the level of subgrade; soil beneath the topsoil layers of a naturally occurring soil profile, typified by less than 1 percent organic matter and few soil organisms.

B. Topsoil: Natural or cultivated surface-soil layer containing organic matter and sand, silt, and clay particles; friable, pervious, and black or a darker shade of brown, gray, or red than underlying subsoil; reasonably free of subsoil, clay lumps, gravel, and other objects larger than 1 inch in diameter; and free of weeds, roots, toxic materials, or other nonsoil materials.

C. Tree-Protection Zone: Area surrounding individual trees or groups of trees to be protected during construction and defined by the drip line of individual trees or the perimeter drip line of groups of trees, unless otherwise indicated.

D. Vegetation: Trees, shrubs, groundcovers, grass, and other plants.

1.4 MATERIAL OWNERSHIP

A. Except for materials indicated to be stockpiled or otherwise remain Owner's property, cleared materials shall become Contractor's property and shall be removed from Project site.

1.5 INFORMATIONAL SUBMITTALS

A. Existing Conditions: Documentation of existing trees and plantings, adjoining construction, and site improvements that establishes preconstruction conditions that might be misconstrued as damage caused by site clearing.

1. Use sufficiently detailed photographs or video recordings.

B. Record Drawings: Identifying and accurately showing locations of capped utilities and other subsurface structural, electrical, and mechanical conditions.

1.6 FIELD CONDITIONS

A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during site-clearing operations.

1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction.
2. Provide alternate routes around closed or obstructed trafficways if required by Owner or authorities having jurisdiction.

B. Salvageable Improvements: Carefully remove items indicated to be salvaged and store on Owner's premises where indicated.

C. Utility Locator Service: Notify utility locator service for area where Project is located before site clearing.

D. Do not commence site clearing operations until temporary erosion- and sedimentation-control measures are in place.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Satisfactory Soil Material: Requirements for satisfactory soil material are specified in Section 312000 "Earth Moving."

1. Obtain approved borrow soil material off-site when satisfactory soil material is not available on-site.

PART 3 - EXECUTION

3.1 PREPARATION

A. Protect and maintain benchmarks and survey control points from disturbance during construction.

B. Locate and clearly flag trees and vegetation to remain or to be relocated.

C. Protect existing site improvements to remain from damage during construction.

1. Restore damaged improvements to their original condition, as acceptable to Owner.

3.2 TEMPORARY EROSION AND SEDIMENTATION CONTROL

A. Provide temporary erosion- and sedimentation-control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to erosion- and sedimentation-control Drawings and requirements of authorities having jurisdiction.

B. Inspect, maintain, and repair erosion- and sedimentation-control measures during construction until permanent vegetation has been established.

C. Remove erosion and sedimentation controls, and restore and stabilize areas disturbed during removal.

3.3 TREE AND PLANT PROTECTION

A. Erect and maintain temporary fencing around tree protection zones before starting site clearing. Remove fence when construction is complete.

1. Do not store construction materials, debris, or excavated material within fenced area.
2. Do not permit vehicles, equipment, or foot traffic within fenced area.
3. Maintain fenced area free of weeds and trash.

B. Do not excavate with tree protection zones, unless otherwise indicated.

C. Repair or replace trees, shrubs, and other vegetation indicated to remain or be relocated that are damaged by construction operations in a manner approved by Owner.

1. Employ an arborist, licensed in jurisdiction where Project is located, to submit details of proposed repairs and to repair damage to trees and shrubs.
2. Replace trees that cannot be repaired and restored to full-growth status, as determined by Owner.

3.4 EXISTING UTILITIES

A. Locate, identify, disconnect, and seal or cap utilities indicated to be removed.

1. Arrange with utility companies to shut off indicated utilities.

B. Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others, unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:

1. Notify Owner not less than two days in advance of proposed utility interruptions.
2. Do not proceed with utility interruptions without Architect's written permission.

C. Excavate for and remove underground utilities indicated to be removed is included in Section 31200 “Earth Moving”.

3.5 CLEARING AND GRUBBING

A. In accordance with FDOT Standard Specifications.

B. Remove obstructions, trees, shrubs, and other vegetation to permit installation of new construction.

1. Do not remove trees, shrubs, and other vegetation indicated to remain or to be relocated.
2. Grind down stumps and remove roots larger than 2 inches in diameter, obstructions, and debris to a depth of 12 inches below exposed subgrade.
3. Use only hand methods or air spade for grubbing within protection zones.
4. Chip removed tree branches and dispose of off-site.

C. Fill depressions caused by clearing and grubbing operations with satisfactory soil material unless further excavation or earthwork is indicated.

1. Place fill material in horizontal layers not exceeding a loose depth of 8 inches, and compact each layer to a density equal to adjacent original ground.

3.6 TOPSOIL STRIPPING

A. Remove sod and grass before stripping topsoil.

B. Strip topsoil to whatever depths are encountered in a manner to prevent intermingling with underlying subsoil or other waste materials.

1. Remove subsoil and nonsoil materials from topsoil, including clay lumps, gravel, and other objects larger than 2 inches in diameter; trash, debris, weeds, roots, and other waste materials.

C. Stockpile topsoil away from edge of excavations without intermixing with subsoil or other materials. Grade and shape stockpiles to drain surface water. Cover to prevent windblown dust and erosion by water.

1. Limit height of topsoil stockpiles to 72 inches.
2. Do not stockpile topsoil within protection zones.
3. Stockpile surplus topsoil to allow for respreading deeper topsoil.

3.7 SITE IMPROVEMENTS

A. Remove existing above- and below-grade improvements as indicated and necessary to facilitate new construction.

B. Remove slabs, paving, curbs, gutters, and aggregate base as indicated.

1. Unless existing full-depth joints coincide with line of demolition, neatly saw-cut along line of existing pavement to remain before removing adjacent existing pavement. Saw-cut faces vertically.
2. Paint cut ends of steel reinforcement in concrete to remain with two coats of antirust coating, following coating manufacturer's written instructions. Keep paint off surfaces that will remain exposed.

3.8 DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. Remove surplus soil material, unsuitable topsoil, obstructions, demolished materials, and waste materials including trash and debris, and legally dispose of them off Owner's property.

END OF SECTION 311000

TECHNICAL SPECIFICATIONS FOR HELEN McCALL PARK EXPANSION PHASE 1 & PHASE 2
SECTION 312000 – EARTH MOVING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

B. Florida Department of Transportation Standard Specifications for Road and Bridge Construction, Section 120 “Excavation and Embankment”, current edition. Hereafter referred to as “FDOT Standard Specifications”.

C. Florida Department of Transportation Standard Specifications for Road and Bridge Construction, Section 125 “Excavation for Structures and Pipe”, current edition. Hereafter referred to as “FDOT Standard Specifications”.

1.2 SUMMARY

A. Section Includes:

1. Excavating and filling for rough grading the Site.
2. Preparing subgrades for slabs-on-grade, walks, pavements, turf and grasses, and plants.
3. Excavating and backfilling for buildings and structures.
4. Drainage course for concrete slabs-on-grade.
5. Subbase course for concrete walks and pavements.
6. Subbase course and base course for asphalt paving.
7. Subsurface drainage backfill for walls and trenches.
8. Excavating and backfilling trenches for utilities and pits for buried utility structures.

B. Related Requirements:

1. Section 311000 "Site Clearing" for site stripping, grubbing, stripping and stockpiling topsoil, and removal of above- and below-grade improvements and utilities.
2. Section 315000 "Excavation Support and Protection" for shoring, bracing, and sheet piling of excavations.
3. Section 329200 "Turf and Grasses" for finish grading in turf and grass areas, including preparing and placing planting soil for turf areas.
4. Section 329300 "Plants" for finish grading in planting areas and tree and shrub pit excavation and planting.

1.3 DEFINITIONS

A. Backfill: Soil material or controlled low-strength material used to fill an excavation.

1. Initial Backfill: Backfill placed beside and over pipe in a trench, including haunches to support sides of pipe.

2. Final Backfill: Backfill placed over initial backfill to fill a trench.

B. Base Course: Aggregate layer placed between the subbase course and hot-mix asphalt paving.

C. Bedding Course: Aggregate layer placed over the excavated subgrade in a trench before laying pipe.

D. Borrow Soil: Satisfactory soil imported from off-site for use as fill or backfill.

E. Drainage Course: Aggregate layer supporting the slab-on-grade that also minimizes upward capillary flow of pore water.

F. Excavation: Removal of material encountered above subgrade elevations and to lines and dimensions indicated.

1. Authorized Additional Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions as directed by Owner. Authorized additional excavation and replacement material will be paid for according to Contract provisions for changes in the Work.
2. Unauthorized Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions without direction by Architect. Unauthorized excavation, as well as remedial work directed by Architect, will be without additional compensation.

G. Fill: Soil materials used to raise existing grades.

H. Rock:

1. Rock material in beds, ledges, unstratified masses, conglomerate deposits, and boulders of rock material 2 cu. yd. or more in volume that exceed a standard penetration resistance of 100 blows/2 inches when tested by a geotechnical testing agency, according to ASTM D1586.

I. Structures: Buildings, footings, foundations, retaining walls, slabs, tanks, curbs, mechanical and electrical appurtenances, or other fabricated stationary features constructed above or below the ground surface.

J. Subbase Course: Aggregate layer placed between the subgrade and base course for hot-mix asphalt pavement, or aggregate layer placed between the subgrade and a cement concrete pavement or a cement concrete or hot-mix asphalt walk.

K. Subgrade: Uppermost surface of an excavation or the top surface of a fill or backfill immediately below subbase, drainage fill, drainage course, or topsoil materials.

L. Utilities: On-site underground pipes, conduits, ducts, and cables as well as underground services within buildings.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of the following manufactured products required:

1. Geotextiles.
2. Warning tapes.

B. Samples for Verification: For the following products, in sizes indicated below:

1. Geotextile: 12 by 12 inches.

2. Warning Tape: 12 inches long; of each color.

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For qualified testing agency.

B. Material Test Reports: For each on-site and borrow soil material proposed for fill and backfill as follows:

1. Classification according to ASTM D2487.
2. Laboratory compaction curve according to ASTM D698.

1.6 QUALITY ASSURANCE

A. Geotechnical Testing Agency Qualifications: Qualified according to ASTM E329 and ASTM D3740 for testing indicated.

1.7 FIELD CONDITIONS

A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during earth-moving operations.

1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction.
2. Provide alternate routes around closed or obstructed traffic ways if required by Owner or authorities having jurisdiction.

B. Utility Locator Service: Notify utility locator service for area where Project is located before beginning earth-moving operations.

C. Do not commence earth-moving operations until temporary site fencing and erosion- and sedimentation-control measures specified in Section 015000 "Temporary Facilities and Controls" and Section 311000 "Site Clearing" are in place.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

A. General: Provide borrow soil materials when sufficient satisfactory soil materials are not available from excavations.

B. Satisfactory Soils: Refer to FDOT Standard Specifications.

C. Unsatisfactory Soils: Refer to FDOT Standard Specifications.

D. Subbase Material: Refer to FDOT Standard Specifications.

E. Base Course: Refer to FDOT Standard Specifications.

F. Engineered Fill: Refer to FDOT Standard Specifications.

G. Bedding Course: Refer to FDOT Standard Specifications.

H. Drainage Course: Refer to FDOT Standard Specifications.

I. Filter Material: Refer to FDOT Standard Specifications.

J. Sand: Refer to FDOT Standard Specifications.

K. Impervious Fill: Clayey gravel and sand mixture capable of compacting to a dense state.

2.2 ACCESSORIES

A. Detectable Warning Tape: Acid- and alkali-resistant, polyethylene film warning tape manufactured for marking and identifying underground utilities, a minimum of 6 inches wide and 4 mils thick, continuously inscribed with a description of the utility, with metallic core encased in a protective jacket for corrosion protection, detectable by metal detector when tape is buried up to 30 inches deep; colored as required by authorities having jurisdiction.

PART 3 - EXECUTION

3.1 PREPARATION

A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earth-moving operations.

B. Protect and maintain erosion and sedimentation controls during earth-moving operations.

C. Protect subgrades and foundation soils from freezing temperatures and frost. Remove temporary protection before placing subsequent materials.

3.2 DEWATERING

A. Provide dewatering system of sufficient scope, size, and capacity to control hydrostatic pressures and to lower, control, remove, and dispose of ground water and permit excavation and construction to proceed on dry, stable subgrades.

B. Prevent surface water and ground water from entering excavations, from ponding on prepared subgrades, and from flooding Project site and surrounding area.

C. Protect subgrades from softening, undermining, washout, and damage by rain or water accumulation.

1. Reroute surface water runoff away from excavated areas. Do not allow water to accumulate in excavations. Do not use excavated trenches as temporary drainage ditches.

D. Dispose of water removed by dewatering in a manner that avoids endangering public health, property, and portions of work under construction or completed. Dispose of water and sediment in a manner that avoids inconvenience to others.

3.3 EXPLOSIVES

A. Explosives:

1. Do not use explosives.

3.4 EXCAVATION, GENERAL

A. Unclassified Excavation: Excavate to subgrade elevations regardless of the character of surface and subsurface conditions encountered. Unclassified excavated materials may include rock, soil materials, and obstructions. No changes in the Contract Sum or the Contract Time will be authorized for rock excavation or removal of obstructions.

1. If excavated materials intended for fill and backfill include unsatisfactory soil materials and rock, replace with satisfactory soil materials.

3.5 EXCAVATION FOR STRUCTURES

A. Excavate to indicated elevations and dimensions within a tolerance of plus or minus 1 inch. If applicable, extend excavations a sufficient distance from structures for placing and removing concrete formwork, for installing services and other construction, and for inspections.

1. Excavations for Footings and Foundations: Do not disturb bottom of excavation. Excavate by hand to final grade just before placing concrete reinforcement. Trim bottoms to required lines and grades to leave solid base to receive other work.
2. Pile Foundations: Stop excavations 6 to 12 inches above bottom of pile cap before piles are placed. After piles have been driven, remove loose and displaced material. Excavate to final grade, leaving solid base to receive concrete pile caps.
3. Excavation for Underground Tanks, Basins, and Mechanical or Electrical Utility Structures: Excavate to elevations and dimensions indicated within a tolerance of plus or minus 1 inch. Do not disturb bottom of excavations intended as bearing surfaces.

3.6 EXCAVATION FOR WALKS AND PAVEMENTS

A. Excavate surfaces under walks and pavements to indicated lines, cross sections, elevations, and subgrades.

3.7 EXCAVATION FOR UTILITY TRENCHES

A. Excavate per FDOT Standard Specifications.

B. Excavate trenches to indicated gradients, lines, depths, and elevations.

C. Excavate trenches to uniform widths to provide the following clearance on each side of pipe or conduit. Excavate trench walls vertically from trench bottom to 12 inches higher than top of pipe or conduit unless otherwise indicated.

D. Trench Bottoms:

1. Excavate and shape trench bottoms to provide uniform bearing and support of pipes and conduit. Shape subgrade to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits. Remove projecting stones and sharp objects along trench subgrade.

    a. For pipes and conduit less than 6 inches in nominal diameter, hand-excavate trench bottoms and support pipe and conduit on an undisturbed subgrade.
    b. For pipes and conduit 6 inches or larger in nominal diameter, shape bottom of trench to support bottom 90 degrees of pipe or conduit circumference. Fill depressions with tamped sand backfill.
    c. For flat-bottomed, multiple-duct conduit units, hand-excavate trench bottoms and support conduit on an undisturbed subgrade.
    d. Excavate trenches 6 inches (150 mm) deeper than elevation required in rock or other unyielding bearing material to allow for bedding course.

3.8 SUBGRADE INSPECTION

A. Notify Owner when excavations have reached required subgrade.

B. If Owner determines that unsatisfactory soil is present, continue excavation and replace with compacted backfill or fill material as directed.

C. Proof-roll subgrade below the building slabs and pavements with a pneumatic-tired [and loaded 10-wheel, tandem-axle dump truck weighing not less than 15 tons to identify soft pockets and areas of excess yielding. Do not proof-roll wet or saturated subgrades.

1. Completely proof-roll subgrade in one direction, repeating proof-rolling in direction perpendicular to first direction. Limit vehicle speed to 3 mph (5 km/h).
2. Excavate soft spots, unsatisfactory soils, and areas of excessive pumping or rutting, as determined by Owner, and replace with compacted backfill or fill as directed.

D. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by Architect, without additional compensation.

3.9 UNAUTHORIZED EXCAVATION

A. Fill unauthorized excavation under foundations or wall footings by extending bottom elevation of concrete foundation or footing to excavation bottom, without altering top elevation. Lean concrete fill, with 28-day compressive strength of 2500 psi, may be used when approved by Architect.

1. Fill unauthorized excavations under other construction, pipe, or conduit as directed by Owner.

3.10 STORAGE OF SOIL MATERIALS

A. Stockpile borrow soil materials and excavated satisfactory soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.

1. Stockpile soil materials away from edge of excavations. Do not store within drip line of remaining trees.

3.11 BACKFILL

A. Place and compact backfill in excavations promptly, but not before completing the following:

1. Construction below finish grade including, where applicable, subdrainage, dampproofing, waterproofing, and perimeter insulation.
2. Surveying locations of underground utilities for Record Documents.
3. Testing and inspecting underground utilities.
4. Removing concrete formwork.
5. Removing trash and debris.
6. Removing temporary shoring, bracing, and sheeting.
7. Installing permanent or temporary horizontal bracing on horizontally supported walls.

B. Place backfill on subgrades free of mud, frost, snow, or ice.

3.12 UTILITY TRENCH BACKFILL

A. Place backfill on subgrades free of mud, frost, snow, or ice.

B. Place and compact bedding course on trench bottoms and where indicated. Shape bedding course to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits.

C. Trenches under Footings: Backfill trenches excavated under footings and within **18 inches** of bottom of footings with satisfactory soil; fill with concrete to elevation of bottom of footings. Concrete is specified in Section 033000 "Cast-in-Place Concrete."

D. Backfill voids with satisfactory soil while removing shoring and bracing.

E. Initial Backfill:

1. Soil Backfill: Place and compact initial backfill of subbase material, free of particles larger than 1 inch in any dimension, to a height of 12 inches over the pipe or conduit.

a. Carefully compact initial backfill under pipe haunches and compact evenly up on both sides and along the full length of piping or conduit to avoid damage or displacement of piping or conduit. Coordinate backfilling with utilities testing.

F. Final Backfill:

1. Soil Backfill: Place and compact final backfill of satisfactory soil to final subgrade elevation.

G. Warning Tape: Install warning tape directly above utilities, 12 inches below finished grade, except 6 inches below subgrade under pavements and slabs.

3.13 SOIL FILL

A. Plow, scarify, bench, or break up sloped surfaces steeper than 1 vertical to 4 horizontal so fill material will bond with existing material.

B. Place and compact fill material in layers to required elevations.

3.14 SOIL MOISTURE CONTROL

A. Uniformly moisten or aerate subgrade and each subsequent fill or backfill soil layer before compaction to within 2 percent of optimum moisture content.

1. Do not place backfill or fill soil material on surfaces that are muddy, or contain frost or ice.
2. Remove and replace, or scarify and air dry, otherwise satisfactory soil material that exceeds optimum moisture content by 2 percent and is too wet to compact to specified dry unit weight.

3.15 COMPACTION OF SOIL BACKFILLS AND FILLS

A. Refer to FDOT Standard Specifications

B. Place backfill and fill soil materials in layers not more than 8 inches in loose depth for material compacted by heavy compaction equipment and not more than 4 inches in loose depth for material compacted by hand-operated tampers.

C. Place backfill and fill soil materials evenly on all sides of structures to required elevations and uniformly along the full length of each structure.

D. Compact soil materials to not less than the following percentages of maximum dry unit weight according to ASTM D1557 and as indicated in the FDOT Standard Specifications.

3.16 GRADING

A. General: Uniformly grade areas to a smooth surface, free of irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.

1. Provide a smooth transition between adjacent existing grades and new grades.
2. Cut out soft spots, fill low spots, and trim high spots to comply with required surface tolerances.

B. Site Rough Grading: Slope grades to direct water away from buildings and to prevent ponding. Finish subgrades to elevations required to achieve indicated finish elevations, within the following subgrade tolerances:

1. Turf or Unpaved Areas: Plus or minus 1 inch.
2. Walks: Plus or minus 1 inch.
3. Pavements: Plus or minus 1/2 inch.

C. Grading inside Building Lines: Finish subgrade to a tolerance of 1/2 inch when tested with a 10-foot (3-m) straightedge.

3.17 SUBBASE AND BASE COURSES UNDER PAVEMENTS AND WALKS

A. Subbase and base courses to be placed in accordance with FDOT Standard Specifications.

3.18 DRAINAGE COURSE UNDER CONCRETE SLABS-ON-GRADE

A. Place drainage course on subgrades free of mud, frost, or ice.

B. On prepared subgrade, place and compact drainage course under cast-in-place concrete slabs-on-grade as follows:

C. Remove surplus satisfactory soil and waste materials, including unsatisfactory soil, trash, and debris, and legally dispose of them off Owner's property.

END OF SECTION 312000

TECHNICAL SPECIFICATIONS FOR HELEN McCALL PARK EXPANSION PHASE 1 & PHASE 2
SECTION 312319 – DEWATERING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

B. Florida Department of Transportation Standard Specifications for Road and Bridge Construction, current edition. Hereafter referred to as “FDOT Standard Specifications”.

1.2 SUMMARY

A. Section Includes:

1. Construction dewatering.

B. Related Requirements:

1. Section 312000 "Earth Moving" for excavating, backfilling, site grading, and controlling surface-water runoff and ponding.

1.3 SUBMITTALS

A. Field Test Reports: Before starting excavation, submit test results and computations demonstrating that dewatering system is capable of meeting performance requirements.

1.4 QUALITY ASSURANCE

A. Regulatory Requirements: Comply with water disposal requirements of authorities having jurisdiction.

1.5 FIELD CONDITIONS

A. Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted in writing by Owner and then only after arranging to provide temporary utility services according to requirements indicated.

B. Project-Site Information: A geotechnical report has been prepared for this Project and is available for information only. The opinions expressed in this report are those of a geotechnical engineer and represent interpretations of subsoil conditions, tests, and results of analyses conducted by a geotechnical engineer. Owner is not responsible for interpretations or conclusions drawn from this data.

1. Make additional test borings and conduct other exploratory operations necessary for dewatering in accordance with the performance requirements.

2. The geotechnical report is included elsewhere in Project Manual.

C. Survey Work: Engage a qualified land surveyor or professional engineer to survey adjacent existing buildings, structures, and site improvements; establish exact elevations at fixed points to act as benchmarks. Clearly identify benchmarks and record existing elevations.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Dewatering Performance: Design, furnish, install, test, operate, monitor, and maintain dewatering system of sufficient scope, size, and capacity to control hydrostatic pressures and to lower, control, remove, and dispose of groundwater and permit excavation and construction to proceed on dry, stable subgrades.

1. Design dewatering system, including comprehensive engineering analysis by a qualified professional engineer.
2. Continuously monitor and maintain dewatering operations to ensure erosion control, stability of excavations and constructed slopes, prevention of flooding in excavation, and prevention of damage to subgrades and permanent structures.
3. Prevent surface water from entering excavations by grading, dikes, or other means.
4. Accomplish dewatering without damaging existing buildings, structures, and site improvements adjacent to excavation.
5. Remove dewatering system when no longer required for construction.

B. Regulatory Requirements: Comply with governing EPA notification regulations before beginning dewatering. Comply with water- and debris-disposal regulations of authorities having jurisdiction.

PART 3 - EXECUTION

3.1 PREPARATION

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

1. Prevent surface water and subsurface or groundwater from entering excavations, from ponding on prepared subgrades, and from flooding site or surrounding area.
2. Protect subgrades and foundation soils from softening and damage by rain or water accumulation.

B. Install dewatering system to ensure minimum interference with roads, streets, walks, and other adjacent occupied and used facilities.

1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by authorities having jurisdiction.

C. Provide temporary grading to facilitate dewatering and control of surface water.

D. Protect and maintain temporary erosion and sedimentation controls during dewatering operations.

3.2 INSTALLATION

A. Install dewatering system utilizing wells, well points, or similar methods complete with pump equipment, standby power and pumps, filter material gradation, valves, appurtenances, water disposal, and surface-water controls.

1. Space well points or wells at intervals required to provide sufficient dewatering.
2. Use filters or other means to prevent pumping of fine sands or silts from the subsurface.

B. Place dewatering system into operation to lower water to specified levels before excavating below groundwater level.

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

D. Provide standby equipment on-site, installed and available for immediate operation, to maintain dewatering on continuous basis if any part of system becomes inadequate or fails.

3.3 OPERATION

A. Operate system continuously until drains, sewers, and structures have been constructed and fill materials have been placed or until dewatering is no longer required.

B. Operate system to lower and control groundwater to permit excavation, construction of structures, and placement of fill materials on dry subgrades. Drain water-bearing strata above and below bottom of foundations, drains, sewers, and other excavations.

1. Do not permit open-sump pumping that leads to loss of fines, soil piping, subgrade softening, and slope instability.
2. Reduce hydrostatic head in water-bearing strata below subgrade elevations of foundations, drains, sewers, and other excavations.
3. Maintain piezometric water level as recommended by testing agency below bottom of excavation.

C. Dispose of water removed by dewatering in a manner that avoids endangering public health, property, and portions of work under construction or completed. Dispose of water and sediment in a manner that avoids inconvenience to others.

D. Remove dewatering system from Project site on completion of dewatering. Plug or fill well holes with sand or cut off and cap wells a minimum of 36 inches below overlying construction.

3.4 FIELD QUALITY CONTROL

A. Observation Wells: Provide observation wells or piezometers, take measurements, and maintain at least the minimum number indicated; additional observation wells may be required by authorities having jurisdiction.

1. Observe and record daily elevation of groundwater and piezometric water levels in observation wells.
2. Repair or replace, within 24 hours, observation wells that become inactive, damaged, or destroyed. In areas where observation wells are not functioning properly, suspend construction activities until

reliable observations can be made. Add or remove water from observation-well risers to demonstrate that observation wells are functioning properly.

3. Fill observation wells, remove piezometers, and fill holes when dewatering is completed.

B. Survey-Work Benchmarks: Resurvey benchmarks regularly during dewatering and maintain an accurate log of surveyed elevations for comparison with original elevations. Promptly notify Architect if changes in elevations occur or if cracks, sags, or other damage is evident in adjacent construction.

C. Provide continual observation to ensure that subsurface soils are not being removed by the dewatering operation.

D. Prepare reports of observations.

3.5 PROTECTION

A. Protect and maintain dewatering system during dewatering operations.

B. Promptly repair damages to adjacent facilities caused by dewatering.

END OF SECTION 312319

TECHNICAL SPECIFICATIONS FOR HELEN McCALL PARK EXPANSION PHASE 1 & PHASE 2
SECTION 315000 – EXCAVATION SUPPORT AND PROTECTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

B. Florida Department of Transportation Standard Specifications for Road and Bridge Construction, current edition. Hereafter referred to as "FDOT Standard Specifications".

1.2 SUMMARY

A. Section includes temporary excavation support and protection systems.

B. Related Requirements:

1. Section 312000 "Earth Moving" for excavating and backfilling, for controlling surface-water runoff and ponding, and for dewatering excavations.

1.3 FIELD CONDITIONS

A. Interruption of Existing Utilities: Do not interrupt any utility-serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility according to requirements indicated:

1. Notify Owner no fewer than two days in advance of proposed interruption of utility.
2. Do not proceed with interruption of utility without Owner's written permission.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Provide materials that are either new or in serviceable condition.

B. Structural Steel: ASTM A36/A36M, ASTM A690/A690M, or ASTM A992/A992M.

C. Steel Sheet Piling: ASTM A328/A328M, ASTM A572/A572M, or ASTM A690/A690M; with continuous interlocks.

D. Wood Lagging: Lumber, mixed hardwood, nominal rough thickness of size and strength required for application.

PART 3 - EXECUTION

3.1 PREPARATION

A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards that could develop during excavation support and protection system operations.

1. Shore, support, and protect utilities encountered.

3.2 INSTALLATION - GENERAL

A. Locate excavation support and protection systems clear of permanent construction, so that construction and finishing of other work is not impeded.

B. Install excavation support and protection systems to ensure minimum interference with roads, streets, walks, and other adjacent occupied and used facilities.

1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction.
2. Provide alternate routes around closed or obstructed traffic ways if required by authorities having jurisdiction.

C. Install excavation support and protection systems without damaging existing buildings, structures, and site improvements adjacent to excavation.

3.3 SOLDIER PILES AND LAGGING

A. Install steel soldier piles before starting excavation.

1. Extend soldier piles below excavation grade level to depths adequate to prevent lateral movement.
2. Space soldier piles at regular intervals not to exceed allowable flexural strength of wood lagging.
3. Accurately align exposed faces of flanges to vary not more than 2 inches from a horizontal line and not more than 1:120 out of vertical alignment.

B. Install wood lagging within flanges of soldier piles as excavation proceeds.

1. Trim excavation as required to install lagging.
2. Fill voids behind lagging with soil, and compact.

C. Install wales horizontally at locations indicated on Drawings and secure to soldier piles.

3.4 SHEET PILING

A. Before starting excavation, install one-piece sheet piling lengths and tightly interlock vertical edges to form a continuous barrier.

B. Accurately place the piling using templates and guide frames unless otherwise recommended in writing by the sheet piling manufacturer.

1. Limit vertical offset of adjacent sheet piling to 60 inches.
2. Accurately align exposed faces of sheet piling to vary not more than 2 inches from a horizontal line and not more than 1:120 out of vertical alignment.

C. Cut tops of sheet piling to uniform elevation at top of excavation.

3.5 TIEBACKS

A. Drill, install, grout, and tension tiebacks.

B. Test load-carrying capacity of each tieback, and replace and retest deficient tiebacks.

1. Have test loading observed by a qualified professional engineer responsible for design of excavation support and protection system.

C. Maintain tiebacks in place until permanent construction is able to withstand lateral earth and hydrostatic pressures.

3.6 BRACING

A. Locate bracing to clear columns, floor framing construction, and other permanent work. If necessary to move brace, install new bracing before removing original brace.

1. Do not place bracing where it will be cast into or included in permanent concrete work unless otherwise approved by Architect.
2. Install internal bracing if required to prevent spreading or distortion of braced frames.
3. Maintain bracing until structural elements are supported by other bracing or until permanent construction is able to withstand lateral earth and hydrostatic pressures.

3.7 MAINTENANCE

A. Monitor and maintain excavation support and protection system.

B. Prevent surface water from entering excavations by grading, dikes, or other means.

C. Continuously monitor vibrations, settlements, and movements to ensure stability of excavations and constructed slopes and to ensure that damage to permanent structures is prevented.

3.8 REMOVAL AND REPAIRS

A. Remove excavation support and protection systems when construction has progressed sufficiently to support excavation and earth and hydrostatic pressures.

1. Remove in stages to avoid disturbing underlying soils and rock or damaging structures, pavements, facilities, and utilities.
2. Repair or replace, as approved by Architect, adjacent work damaged or displaced by removing excavation support and protection systems.

END OF SECTION 315000

TECHNICAL SPECIFICATIONS FOR HELEN McCALL PARK EXPANSION PHASE 1 & PHASE 2
SECTION 321216 – ASPHALT PAVING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

B. Florida Department of Transportation Standard Specifications for Road and Bridge Construction, current edition. Hereafter referred to as “FDOT Standard Specifications”.

1.2 SUMMARY

A. Section Includes:

1. Hot-mix asphalt paving.
2. Hot-mix asphalt overlay.
3. Cold milling of existing asphalt pavement.
4. Asphalt surface treatments.

B. Related Requirements:

1. Section 024116 "Structure Demolition" for demolition and removal of existing asphalt pavement.
2. Section 312000 "Earth Moving" for subgrade preparation, fill material, separation geotextiles, unbound-aggregate subbase and base courses, and aggregate pavement shoulders.
3. Section 321313 "Concrete Paving" for concrete pavement and for separate concrete curbs, gutters, and driveway aprons.
4. Section 321373 "Concrete Paving Joint Sealants" for joint sealants and fillers at pavement terminations.

1.3 ACTION SUBMITTALS

A. Hot-Mix Asphalt Designs:

1. Certification, in accordance with FDOT Standard Specifications, of approval of each hot-mix asphalt design proposed for the Work.
2. For each hot-mix asphalt design proposed for the Work.

1.4 QUALITY ASSURANCE

A. Manufacturer Qualifications: A paving-mix manufacturer registered with and approved by authorities having jurisdiction or the Florida Department of Transportation (FDOT).

B. Testing Agency Qualifications: Qualified in accordance with ASTM D3666 for testing indicated.

C. Regulatory Requirements: Comply with materials, workmanship, and other applicable requirements of the Florida Department of Transportation (FDOT) for asphalt paving work.

1. Measurement and payment provisions and safety program submittals included in standard specifications do not apply to this Section.

1.5 FIELD CONDITIONS

A. Environmental Limitations: Do not apply asphalt materials if subgrade is wet or excessively damp, if rain is imminent or expected before time required for adequate cure, or if the following conditions are not met:

1. Prime Coat: Minimum surface temperature of 60 deg F (15.6 deg C).
2. Tack Coat: Minimum surface temperature of 60 deg F (15.6 deg C).
3. Slurry Coat: Comply with weather limitations in ASTM D3910.
4. Asphalt Base Course: Minimum surface temperature of 40 deg F (4.4 deg C) and rising at time of placement.
5. Asphalt Surface Course: Minimum surface temperature of 60 deg F (15.6 deg C) at time of placement.

PART 2 - PRODUCTS

2.1 AGGREGATES

A. General: Use materials and gradations in accordance with FDOT Standard Specifications.

B. Coarse Aggregate: In accordance with FDOT Standard Specifications.

C. Fine Aggregate: In accordance with FDOT Standard Specifications.

D. Mineral Filler: In accordance with FDOT Standard Specifications.

2.2 ASPHALT MATERIALS

A. Asphalt Binder: In accordance with FDOT Standard Specifications.

B. Asphalt Cement: In accordance with FDOT Standard Specifications.

C. Cutback Prime Coat: In accordance with FDOT Standard Specifications.

D. Emulsified Asphalt Prime Coat: In accordance with FDOT Standard Specifications.

E. Tack Coat: In accordance with FDOT Standard Specifications.

F. Water: Potable.

2.3 AUXILIARY MATERIALS

A. Recycled Materials for Hot-Mix Asphalt Mixes: In accordance with FDOT Standard Specifications.

B. Herbicide: Commercial chemical for weed control, registered by the EPA, and not classified as "restricted use" for locations and conditions of application. Provide in granular, liquid, or wettable powder form.

C. Sand: AASHTO M 29, Grade No. 2 or No. 3.

2.4 MIXES

A. Hot-Mix Asphalt: Dense-graded, hot-laid, hot-mix asphalt plant mixes in accordance with FDOT Standard Specifications.

1. Provide mixes with a history of satisfactory performance in geographical area where Project is located.
2. Base Course: In accordance with FDOT Standard Specifications.
3. Binder Course: In accordance with FDOT Standard Specifications.
4. Surface Course: In accordance with FDOT Standard Specifications.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that subgrade is dry and in suitable condition to begin paving.

B. Proceed with paving only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Protection: Provide protective materials, procedures, and worker training to prevent asphalt materials from spilling, coating, or building up on curbs, driveway aprons, manholes, and other surfaces adjacent to the Work.

B. Proof-roll subgrade below pavements with heavy pneumatic-tired equipment to identify soft pockets and areas of excess yielding. Do not proof-roll wet or saturated subgrades.

1. Completely proof-roll subgrade in one direction, repeating proof-rolling in direction perpendicular to first direction. Limit vehicle speed to 3 mph (5 km/h).
2. Proof-roll with a loaded 10-wheel, tandem-axle dump truck weighing not less than 15 tons (13.6 tonnes).
3. Excavate soft spots, unsatisfactory soils, and areas of excessive pumping or rutting, as determined by Architect, and replace with compacted backfill or fill as directed.

3.3 SURFACE PREPARATION

A. Ensure that prepared subgrade has been proof-rolled and is ready to receive paving. Immediately before placing asphalt materials, remove loose and deleterious material from substrate surfaces.

B. Herbicide Treatment: Apply herbicide in accordance with manufacturer's recommended rates and written application instructions. Apply to dry, prepared subgrade or surface of compacted-aggregate base before applying paving materials.

C. Emulsified Asphalt Prime Coat: Apply uniformly over surface of compacted unbound-aggregate base course at a rate of 0.10 to 0.30 gal./sq. yd. per inch depth (0.5 to 1.40 L/sq. m per 25 mm depth). Apply enough material to penetrate and seal, but not flood, surface. Allow prime coat to cure.

1. If prime coat is not entirely absorbed within 24 hours after application, spread sand over surface to blot excess asphalt. Use enough sand to prevent pickup under traffic. Remove loose sand by sweeping before pavement is placed and after volatiles have evaporated.
2. Protect primed substrate from damage until ready to receive paving.

D. Tack Coat: Apply uniformly to surfaces of existing pavement at a rate of 0.05 to 0.15 gal./sq. yd. (0.2 to 0.7 L/sq. m).

1. Allow tack coat to cure undisturbed before applying hot-mix asphalt paving.
2. Avoid smearing or staining adjoining surfaces, appurtenances, and surroundings. Remove spillages and clean affected surfaces.

3.4 HOT-MIX ASPHALT PLACEMENT

A. Machine place hot-mix asphalt on prepared surface, spread uniformly, and strike off. Place asphalt mix by hand in areas inaccessible to equipment in a manner that prevents segregation of mix. Place each course to required grade, cross section, and thickness when compacted.

1. Place hot-mix asphalt base course in number of lifts and thicknesses indicated.
2. Place hot-mix asphalt surface course in single lift.
3. Spread mix at a minimum temperature of 250 deg F (121 deg C).
4. Begin applying mix along centerline of crown for crowned sections and on high side of one-way slopes unless otherwise indicated.
5. Regulate paver machine speed to obtain smooth, continuous surface free of pulls and tears in asphalt-paving mat.

B. Place paving in consecutive strips not less than 10 feet (3 m) wide unless infill edge strips of a lesser width are required.

1. After first strip has been placed and rolled, place succeeding strips and extend rolling to overlap previous strips. Overlap mix placement about 1 to 1-1/2 inches (25 to 38 mm) from strip to strip to ensure proper compaction of mix along longitudinal joints.
2. Complete a section of asphalt base course before placing asphalt surface course.

C. Promptly correct surface irregularities in paving course behind paver. Use suitable hand tools to remove excess material forming high spots. Fill depressions with hot-mix asphalt to prevent segregation of mix; use suitable hand tools to smooth surface.

3.5 JOINTS

A. Construct joints to ensure a continuous bond between adjoining paving sections. Construct joints free of depressions, with same texture and smoothness as other sections of hot-mix asphalt course.

1. Clean contact surfaces and apply tack coat to joints.
2. Offset longitudinal joints, in successive courses, a minimum of 6 inches (150 mm).
3. Offset transverse joints, in successive courses, a minimum of 24 inches (600 mm).

4. Construct transverse joints at each point where paver ends a day's work and resumes work at a subsequent time. Construct these joints using either "bulkhead" or "papered" method in accordance with AI MS-22, for both "Ending a Lane" and "Resumption of Paving Operations.".
5. Compact joints as soon as hot-mix asphalt will bear roller weight without excessive displacement.
6. Compact asphalt at joints to a density within 2 percent of specified course density.

3.6 COMPACTION

A. General: Begin compaction as soon as placed hot-mix paving will bear roller weight without excessive displacement. Compact hot-mix paving with hot hand tampers or with vibratory-plate compactors in areas inaccessible to rollers.

1. Complete compaction before mix temperature cools to 185 deg F (85 deg C).

B. Breakdown Rolling: Complete breakdown or initial rolling immediately after rolling joints and outside edge. Examine surface immediately after breakdown rolling for indicated crown, grade, and smoothness. Correct laydown and rolling operations to comply with requirements.

C. Intermediate Rolling: Begin intermediate rolling immediately after breakdown rolling while hot-mix asphalt is still hot enough to achieve specified density. Continue rolling until hot-mix asphalt course has been uniformly compacted to the following density:

1. Average Density, Marshall Test Method: 96 percent of reference laboratory density in accordance with ASTM D6927, but not less than 94 percent or greater than 100 percent.
2. Average Density, Rice Test Method: 92 percent of reference maximum theoretical density in accordance with ASTM D2041/D2041M, but not less than 90 percent or greater than 96 percent.

D. Finish Rolling: Finish roll paved surfaces to remove roller marks while hot-mix asphalt is still warm.

E. Edge Shaping: While surface is being compacted and finished, trim edges of pavement to proper alignment. Bevel edges while asphalt is still hot; compact thoroughly.

F. Repairs: Remove paved areas that are defective or contaminated with foreign materials and replace with fresh, hot-mix asphalt. Compact by rolling to specified density and surface smoothness.

G. Protection: After final rolling, do not permit vehicular traffic on pavement until it has cooled and hardened.

H. Erect barricades to protect paving from traffic until mixture has cooled enough not to become marked.

3.7 INSTALLATION TOLERANCES

A. Pavement Thickness: Compact each course to produce thickness indicated within the following tolerances:

1. Base Course: Plus or minus 1/2 inch (13 mm).
2. Surface Course: Plus 1/4 inch (6 mm), no minus.

B. Pavement Surface Smoothness: Compact each course to produce surface smoothness within the following tolerances as determined by using a 10-foot (3-m) straightedge applied transversely or longitudinally to paved areas:

1. Base Course: 1/4 inch (6 mm).
2. Surface Course: 1/8 inch (3 mm).
3. Crowned Surfaces: Test with crowned template centered and at right angle to crown. Maximum allowable variance from template is 1/4 inch (6 mm).

3.8 FIELD QUALITY CONTROL

A. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections.

B. Thickness: In-place compacted thickness of hot-mix asphalt courses will be determined in accordance with ASTM D3549/D3549M.

C. Surface Smoothness: Finished surface of each hot-mix asphalt course will be tested for compliance with smoothness tolerances.

D. In-Place Density: In accordance with FDOT Standard Specifications.

E. Replace and compact hot-mix asphalt where core tests were taken.

F. Remove and replace or install additional hot-mix asphalt where test results or measurements indicate that it does not comply with specified requirements.

END OF SECTION 321216

TECHNICAL SPECIFICATIONS FOR HELEN McCALL PARK EXPANSION PHASE 1 & PHASE 2
SECTION 321313 – CONCRETE PAVING

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes concrete paving including the following:

1. Parking lots.
2. Curbs and gutters.
3. Walks.

B. Related Requirements:

1. Section 033000 "Cast-in-Place Concrete" for general building applications of concrete.
2. Section 321373 "Concrete Paving Joint Sealants" for joint sealants in expansion and contraction joints within concrete paving and in joints between concrete paving and asphalt paving or adjacent construction.
3. Section 321713 "Parking Bumpers."
4. Section 321723 "Pavement Markings."
5. Section 321726 "Tactile Warning Surfacing" for detectable warning mats.

1.2 RELATED DOCUMENTS

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

B. Florida Department of Transportation Standard Specifications for Road and Bridge Construction, current edition. Hereafter referred to as “FDOT Standard Specifications”.

1.3 DEFINITIONS

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

B. W/C Ratio: The ratio by weight of water to cementitious materials.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Design Mixtures: For each concrete paving mixture. Include alternate design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For qualified ready-mix concrete manufacturer.

B. Material Certificates: For the following, from manufacturer:

1. Cementitious materials.
2. Steel reinforcement and reinforcement accessories.
3. Fiber reinforcement.
4. Admixtures.
5. Curing compounds.
6. Applied finish materials.
7. Bonding agent or epoxy adhesive.
8. Joint fillers.

C. Material Test Reports: For each of the following:

1. Aggregates: Include service-record data indicating absence of deleterious expansion of concrete due to alkali-aggregate reactivity.

D. Field quality-control reports.

1.6 QUALITY ASSURANCE

A. Ready-Mix-Concrete Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C94/C94M requirements for production facilities and equipment.

B. Testing Agency Qualifications: Qualified according to ASTM C1077 and ASTM E329 for testing indicated.

1. Personnel conducting field tests must be qualified as ACI Concrete Field Testing Technician, Grade 1, according to ACI CP-1 or an equivalent certification program.

1.7 FIELD CONDITIONS

A. Traffic Control: Maintain access for vehicular and pedestrian traffic as required for other construction activities.

B. Hot-Weather Concrete Placement: Comply with ACI 301 (ACI 301M) and as follows when hot-weather conditions exist:

1. Cool ingredients before mixing to maintain concrete temperature below 90 deg F (32 deg C) at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated in total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.
2. Cover steel reinforcement with water-soaked burlap, so steel temperature will not exceed ambient air temperature immediately before embedding in concrete.

PART 2 - PRODUCTS

2.1 CONCRETE, GENERAL

A. In accordance with FDOT Standard Specifications.

2.2 FORMS

A. Form Materials: Plywood, metal, metal-framed plywood, or other approved panel-type materials to provide full-depth, continuous, straight, and smooth exposed surfaces.

1. Use flexible or uniformly curved forms for curves with a radius of 100 feet (30.5 m) or less. Do not use notched and bent forms.

B. Form-Release Agent: Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and that will not impair subsequent treatments of concrete surfaces.

2.3 STEEL REINFORCEMENT

A. In accordance with FDOT Standard Specifications.

B. Plain-Steel Welded-Wire Reinforcement: ASTM A1064/A1064M, fabricated from as-drawn steel wire into flat sheets.

C. Deformed-Steel Welded-Wire Reinforcement: ASTM A1064/A1064M, flat sheet.

D. Epoxy-Coated Welded-Wire Reinforcement: ASTM A884/A884M, Class A, plain steel.

E. Reinforcing Bars: ASTM A615/A615M, Grade 60 (Grade 420); deformed.

F. Galvanized Reinforcing Bars: ASTM A767/A767M, Class II zinc coated, hot-dip galvanized after fabrication and bending; with ASTM A615/A615M, Grade 60 (Grade 420) deformed bars.

G. Epoxy-Coated Reinforcing Bars: ASTM A775/A775M or ASTM A934/A934M; with ASTM A615/A615M, Grade 60 (Grade 420) deformed bars.

H. Steel Bar Mats: ASTM A184/A184M; with ASTM A615/A615M, Grade 60 (Grade 420) deformed bars; assembled with clips.

I. Plain-Steel Wire: ASTM A1064/A1064M, galvanized.

J. Deformed-Steel Wire: ASTM A1064/A1064M.

K. Epoxy-Coated-Steel Wire: ASTM A884/A884M, Class A; coated, plain.

L. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars, welded-wire reinforcement, and dowels in place. Manufacture bar supports according to CRSI's "Manual of Standard Practice" from steel wire, plastic, or precast concrete of greater compressive strength than concrete specified, and as follows:

1. Equip wire bar supports with sand plates or horizontal runners where base material will not support chair legs.
2. For epoxy-coated reinforcement, use epoxy-coated or other dielectric-polymer-coated wire bar supports.

M. Epoxy Repair Coating: Liquid, two-part, epoxy repair coating, compatible with epoxy coating on reinforcement.

N. Zinc Repair Material: ASTM A780/A780M.

2.4 CONCRETE MATERIALS

A. Cementitious Materials: Use the following cementitious materials, of same type, brand, and source throughout Project in accordance with FDOT Standard Specificaitons.

B. Normal-Weight Aggregates: In accordance with FDOT Standard Specifications.

C. Air-Entraining Admixture: In accordance with FDOT Standard Specifications.

D. Chemical Admixtures: In accordance with FDOT Standard Specifications.

E. Water: Potable and complying with ASTM C94/C94M.

2.5 FIBER REINFORCEMENT

A. Synthetic Fiber, Monofilament Fibers: Monofilament polypropylene fibers engineered and designed for use in decorative concrete paving, complying with ASTM C1116/C1116M, Type III, **1/2 to 1-1/2 inches** long.

2.6 CURING MATERIALS

A. In accordance with FDOT Standard Specifications.

2.7 RELATED MATERIALS

A. Joint Fillers: In accordance with FDOT Standard Specifications.

B. In accordance with FDOT Standard Specifications.

C. In accordance with FDOT Standard Specifications.

2.8 CONCRETE MIXTURES

A. Prepare design mixtures in accordance with FDOT Standard Specifications for each type and strength of normal-weight concrete, and as determined by either laboratory trial mixtures or field experience.

1. Use a qualified independent testing agency for preparing and reporting proposed concrete design mixtures for the trial batch method.

B. Cementitious Materials: In accordance with FDOT Standard Specifications.

C. Add air-entraining admixture at manufacturer's prescribed rate to result in normal-weight concrete at point of placement having an air content in accordance with FDOT Standard Specifications

D. Limit water-soluble, chloride-ion content in hardened concrete to **0.15** percent by weight of cement.

E. Chemical Admixtures: Use admixtures according to manufacturer's written instructions.

1. Use water-reducing admixture high-range, water-reducing and retarding admixture plasticizing and retarding admixture in concrete as required for placement and workability.
2. Use water-reducing and retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.

F. Synthetic Fiber: Uniformly disperse in concrete mixture at manufacturer's recommended rate, but not less than 1.0 lb/cu. yd..

G. Concrete Mixtures: In accordance with FDOT Standard Specifications.

2.9 CONCRETE MIXING

A. Ready-Mixed Concrete: Measure, batch, and mix concrete materials and concrete according to FDOT Standard Specifications.

B. Project-Site Mixing: Measure, batch, and mix concrete materials and concrete according to FDOT Standard Specifications.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine exposed subgrades and subbase surfaces for compliance with requirements for dimensional, grading, and elevation tolerances.

B. Proof-roll prepared subbase surface below concrete paving to identify soft pockets and areas of excess yielding.

1. Completely proof-roll subbase in one direction and repeat in perpendicular direction. Limit vehicle speed to 3 mph.
2. Proof-roll with a pneumatic-tired and loaded, 10-wheel, tandem-axle dump truck weighing not less than 15 tons.
3. Correct subbase with soft spots and areas of pumping or rutting exceeding depth of 1/2 inch according to requirements in Section 312000 "Earth Moving."

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

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

3.3 EDGE FORMS AND SCREED CONSTRUCTION

A. Set, brace, and secure edge forms, bulkheads, and intermediate screed guides to required lines, grades, and elevations. Install forms to allow continuous progress of work and so forms can remain in place at least 24 hours after concrete placement.

B. Clean forms after each use and coat with form-release agent to ensure separation from concrete without damage.

3.4 INSTALLATION OF STEEL REINFORCEMENT

A. General: Comply with CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.

B. Clean reinforcement of loose rust and mill scale, earth, ice, or other bond-reducing materials.

C. Arrange, space, and securely tie bars and bar supports to hold reinforcement in position during concrete placement. Maintain minimum cover to reinforcement.

D. Install welded-wire reinforcement in lengths as long as practicable. Lap adjoining pieces at least one full mesh, and lace splices with wire. Offset laps of adjoining widths to prevent continuous laps in either direction.

3.5 JOINTS

A. General: Form construction, isolation, and contraction joints in accordance with FDOT Standard Specifications and tool edges true to line in, with faces perpendicular to surface plane of concrete. Construct transverse joints at right angles to centerline unless otherwise indicated.

1. When joining existing paving, place transverse joints to align with previously placed joints unless otherwise indicated.

B. Construction Joints: Set construction joints at side and end terminations of paving and at locations where paving operations are stopped for more than one-half hour unless paving terminates at isolation joints.

1. Continue steel reinforcement across construction joints unless otherwise indicated. Do not continue reinforcement through sides of paving strips unless otherwise indicated.

C. Isolation Joints: Form isolation joints of preformed joint-filler strips abutting concrete curbs, catch basins, manholes, inlets, structures, other fixed objects, and where indicated.

1. Locate expansion joints at intervals of 50 feet unless otherwise indicated.
2. Extend joint fillers full width and depth of joint.
3. Terminate joint filler not less than 1/2 inch or more than 1 inch below finished surface if joint sealant is indicated.
4. Place top of joint filler flush with finished concrete surface if joint sealant is not indicated.
5. Furnish joint fillers in one-piece lengths. Where more than one length is required, lace or clip joint-filler sections together.
6. During concrete placement, protect top edge of joint filler with metal, plastic, or other temporary preformed cap. Remove protective cap after concrete has been placed on both sides of joint.

D. Contraction Joints: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of the concrete thickness, as follows:

1. Grooved Joints: Form contraction joints after initial floating by grooving and finishing each edge of joint with grooving tool to a 1/4-inch radius. Repeat grooving of contraction joints after applying surface finishes. Eliminate grooving-tool marks on concrete surfaces.

2. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch wide joints into concrete when cutting action will not tear, abrade, or otherwise damage surface and before developing random contraction cracks.

E. Edging: After initial floating, tool edges of paving, gutters, curbs, and joints in concrete with an edging tool to a 1/4-inch radius. Repeat tooling of edges after applying surface finishes. Eliminate edging-tool marks on concrete surfaces.

3.6 CONCRETE PLACEMENT

A. Before placing concrete, inspect and complete formwork installation, steel reinforcement, and items to be embedded or cast-in.

B. Remove snow, ice, or frost from subbase surface and steel reinforcement before placing concrete. Do not place concrete on frozen surfaces.

C. Moisten subbase to provide a uniform dampened condition at time concrete is placed. Do not place concrete around manholes or other structures until they are at required finish elevation and alignment.

D. Comply with ACI 301 (ACI 301M) requirements for measuring, mixing, transporting, and placing concrete.

E. Do not add water to concrete during delivery or at Project site. Do not add water to fresh concrete after testing.

F. Deposit and spread concrete in a continuous operation between transverse joints. Do not push or drag concrete into place or use vibrators to move concrete into place.

G. Consolidate concrete according to ACI 301 (ACI 301M) by mechanical vibrating equipment supplemented by hand spading, rodding, or tamping.

1. Consolidate concrete along face of forms and adjacent to transverse joints with an internal vibrator. Keep vibrator away from joint assemblies, reinforcement,] or side forms. Use only square-faced shovels for hand spreading and consolidation. Consolidate with care to prevent dislocating reinforcement, dowels, and joint devices.

H. Screed paving surface with a straightedge and strike off.

I. Commence initial floating using bull floats or darbies to impart an open-textured and uniform surface plane before excess moisture or bleedwater appears on the surface. Do not further disturb concrete surfaces before beginning finishing operations or spreading surface treatments.

J. Curbs and Gutters: Use design mixture for automatic machine placement. Produce curbs and gutters to required cross section, lines, grades, finish, and jointing.

K. Slip-Form Paving: Use design mixture for automatic machine placement. Produce paving to required thickness, lines, grades, finish, and jointing.

1. Compact subbase and prepare subgrade of sufficient width to prevent displacement of slip-form paving machine during operations.

3.7 FLOAT FINISHING

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

B. Float Finish: Begin the second floating operation when bleedwater sheen has disappeared and concrete surface has stiffened sufficiently to permit operations. Float surface with power-driven floats or by hand floating if area is small or inaccessible to power units. Finish surfaces to true planes. Cut down high spots and fill low spots. Refloat surface immediately to uniform granular texture.

1. Burlap Finish: Drag a seamless strip of damp burlap across float-finished concrete, perpendicular to line of traffic, to provide a uniform, gritty texture.
2. Medium-to-Fine-Textured Broom Finish: Draw a soft-bristle broom across float-finished concrete surface, perpendicular to line of traffic, to provide a uniform, fine-line texture.
3. Medium-to-Coarse-Textured Broom Finish: Provide a coarse finish by striating float-finished concrete surface 1/16 to 1/8 inch deep with a stiff-bristled broom, perpendicular to line of traffic.

3.8 INSTALLATION OF DETECTABLE WARNINGS

A. Install Detectable Warnings in accordance with FDOT Standard Specifications.

B. Blockouts: Form blockouts in concrete for installation of detectable paving units specified in Section 321726 "Tactile Warning Surfacing."

1. Tolerance for Opening Size: Plus 1/4 inch , no minus.

C. Cast-in-Place Detectable Warning Tiles: Form blockouts in concrete for installation of tiles specified in Section 321726 "Tactile Warning Surfacing." Screed surface of concrete where tiles are to be installed to elevation, so that edges of installed tiles will be flush with surrounding concrete paving. Embed tiles in fresh concrete to comply with Section 321726 "Tactile Warning Surfacing" immediately after screeding concrete surface.

3.9 CONCRETE PROTECTION AND CURING

A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures in accordance with FDOT Standard Specifications.

B. Comply with ACI 306.1 for cold-weather protection.

C. Evaporation Retarder: Apply evaporation retarder to concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h (1 kg/sq. m x h) before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete but before float finishing.

D. Begin curing after finishing concrete but not before free water has disappeared from concrete surface.

E. Curing Methods: In accordance with FDOT Standard Specifications.

3.10 PAVING TOLERANCES

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

1. Elevation: 1/4 inch.
2. Thickness: Plus 3/8 inch, minus 1/4 inch.
3. Surface: Gap below 10-feet- long; unleveled straightedge not to exceed 1/4 inch.
4. Joint Spacing: 3 inches.
5. Contraction Joint Depth: Plus 1/4 inch, no minus.
6. Joint Width: Plus 1/8 inch, no minus.

3.11 FIELD QUALITY CONTROL

A. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections.

B. Testing Services: Testing and inspecting of composite samples of fresh concrete obtained according to ASTM C172/C172M will be performed according to the following requirements:

1. Testing Frequency: In accordance with FDOT Standard Specifications.

2. Slump: ASTM C143/C143M; one test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mixture. Perform additional tests when concrete consistency appears to change.
3. Air Content: ASTM C231/C231M, pressure method; one test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
4. Concrete Temperature: ASTM C1064/C1064M; one test hourly when air temperature is 40 deg F and below and when it is 80 deg F and above, and one test for each composite sample.
5. Compression Test Specimens: ASTM C31/C31M; cast and laboratory cure one set of three standard cylinder specimens for each composite sample.
6. Compressive-Strength Tests: ASTM C39/C39M; test one specimen at seven days and two specimens at 28 days.

    a. A compressive-strength test to be the average compressive strength from two specimens obtained from same composite sample and tested at 28 days.

C. Strength of each concrete mixture will be satisfactory if average of any three consecutive compressive-strength tests equals or exceeds specified compressive strength and no compressive-strength test value falls below specified compressive strength by more than 500 psi.

D. Test results to be reported in writing to Architect, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests to contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design compressive strength at 28 days, concrete mixture proportions and materials, compressive breaking strength, and type of break for both 7- and 28-day tests.

E. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Architect but will not be used as sole basis for approval or rejection of concrete.

F. Additional Tests: Testing and inspecting agency will make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Architect.

G. Concrete paving will be considered defective if it does not pass tests and inspections.

H. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

3.12 REPAIR AND PROTECTION

A. Remove and replace concrete paving that is broken, damaged, or defective or that does not comply with requirements in this Section. Remove work in complete sections from joint to joint unless otherwise approved by Architect.

B. Drill test cores, where directed by Architect, when necessary to determine magnitude of cracks or defective areas. Fill drilled core holes in satisfactory paving areas with portland cement concrete bonded to paving with epoxy adhesive.

C. Protect concrete paving from damage. Exclude traffic from paving for at least 14 days after placement. When construction traffic is permitted, maintain paving as clean as possible by removing surface stains and spillage of materials as they occur.

D. Maintain concrete paving free of stains, discoloration, dirt, and other foreign material. Sweep paving not more than two days before date scheduled for Substantial Completion inspections.

END OF SECTION 321313

TECHNICAL SPECIFICATIONS FOR HELEN McCALL PARK EXPANSION PHASE 1 & PHASE 2
SECTION 321373 – CONCRETE PAVING JOINT SEALANTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Cold-applied joint sealants.
2. Hot-applied joint sealants.
3. Cold-applied, fuel-resistant joint sealants.
4. Hot-applied, fuel-resistant joint sealants.
5. Joint-sealant backer materials.
6. Primers.

1.2 RELATED DOCUMENTS

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

B. Florida Department of Transportation Standard Specifications for Road and Bridge Construction, current edition. Hereafter referred to as "FDOT Standard Specifications".

1.3 ACTION SUBMITTALS

A. Product Data:

1. Concrete pavement joint sealants.
2. Joint-sealant backer materials.

1.4 QUALITY ASSURANCE

A. Qualifications:

1. Installers: Entity that employs installers and supervisors who are trained and approved by manufacturer.

1.5 PRECONSTRUCTION TESTING

A. Preconstruction Testing: Performed by a qualified testing agency.

1.6 FIELD CONDITIONS

A. Do not proceed with installation of joint sealants under the following conditions:

1. When ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer **or are below 40 deg F**.
2. When joint substrates are wet.
3. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.
4. Where contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

PART 2 - PRODUCTS

2.1 SOURCE LIMITATIONS

A. Obtain joint sealants from single manufacturer for each sealant type.

2.2 JOINT SEALANTS, GENERAL

A. Provide joint sealants in accordance with FDOT Standard Specifications.

B. Compatibility: Provide joint sealants, backer materials, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer, based on testing and field experience.

2.3 COLD-APPLIED JOINT SEALANTS

A. In accordance with FDOT Standard Specifications.

2.4 HOT-APPLIED JOINT SEALANTS

A. In accordance with FDOT Standard Specifications.

2.5 COLD-APPLIED, FUEL-RESISTANT JOINT SEALANTS

A. In accordance with FDOT Standard Specifications.

2.6 HOT-APPLIED, FUEL-RESISTANT JOINT SEALANTS

A. In accordance with FDOT Standard Specifications.

2.7 JOINT-SEALANT BACKER MATERIALS

A. Joint-Sealant Backer Materials: Nonstaining; compatible with joint substrates, sealants, primers, and other joint fillers; and approved for applications indicated by joint-sealant manufacturer, based on field experience and laboratory testing.

B. Round Backer Rods for Cold- and Hot-Applied Joint Sealants: ASTM D5249, Type 1, of diameter and density required to control sealant depth and prevent bottom-side adhesion of sealant.

C. Round Backer Rods for Cold-Applied Joint Sealants: ASTM D5249, Type 3, of diameter and density required to control joint-sealant depth and prevent bottom-side adhesion of sealant.

D. Backer Strips for Cold- and Hot-Applied Joint Sealants: ASTM D5249; Type 2; of thickness and width required to control joint-sealant depth, prevent bottom-side adhesion of sealant, and fill remainder of joint opening under sealant.

2.8 PRIMERS

A. Primers: Product recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine joints to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint-sealant performance.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Surface Cleaning of Joints: Before installing joint sealants, clean out joints immediately to comply with joint-sealant manufacturer's written instructions.

1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.

B. Joint Priming: Prime joint substrates where indicated or where recommended in writing by joint-sealant manufacturer, based on preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.

3.3 INSTALLATION OF JOINT SEALANTS

A. Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated unless more stringent requirements apply.

B. Joint-Sealant Installation Standard: Comply with recommendations in ASTM C1193 for use of joint sealants as applicable to materials, applications, and conditions.

C. Install joint-sealant backers to support joint sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.

1. Do not leave gaps between ends of joint-sealant backer materials.
2. Do not stretch, twist, puncture, or tear joint-sealant backer materials.
3. Remove absorbent joint-sealant backer materials that have become wet before sealant application and replace them with dry materials.

D. Install joint sealants immediately following backer material installation, using proven techniques that comply with the following:

1. Place joint sealants so they fully contact joint substrates.
2. Completely fill recesses in each joint configuration.
3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

E. Tooling of Nonsag Joint Sealants: Immediately after joint-sealant application and before skinning or curing begins, tool sealants in accordance with the following requirements to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint:

1. Remove excess joint sealant from surfaces adjacent to joints.
2. Use tooling agents that are approved in writing by joint-sealant manufacturer and that do not discolor sealants or adjacent surfaces.

F. Provide joint configuration to comply with joint-sealant manufacturer's written instructions unless otherwise indicated.

3.4 CLEANING AND PROTECTION

A. Clean off excess joint sealant as the Work progresses, by methods and with cleaning materials approved in writing by joint-sealant manufacturers.

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

END OF SECTION 321373

TECHNICAL SPECIFICATIONS FOR HELEN McCALL PARK EXPANSION PHASE 1 & PHASE 2
SECTION 321713 – PARKING BUMPERS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

B. Florida Department of Transportation Standard Specifications for Road and Bridge Construction, current edition. Hereafter referred to as "FDOT Standard Specifications".

1.2 SUMMARY

A. Section Includes:

1. Precast concrete wheel stops.

1.3 ACTION SUBMITTALS

A. Product Data:

1. Precast concrete wheel stops.

PART 2 - PRODUCTS

2.1 PARKING BUMPERS

A. Precast Concrete Wheel Stops: Precast, steel-reinforced, air-entrained concrete; 4000-psi minimum compressive strength; 6 inches maximum to 5 inches minimum high by 9 inches maximum to 8 inches minimum wide by 72 inches long. Provide chamfered corners and a minimum of two factory-formed or -drilled vertical holes through wheel stop for anchoring to substrate.

1. Source Limitations: Obtain wheel stops from single source from single manufacturer.
2. Surface Appearance: Smooth, free of pockets, sand streaks, honeycombs, and other obvious defects. Corners shall be uniform, straight, and sharp.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that pavement is in suitable condition to begin installation in accordance with manufacturer's written instructions.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Install wheel stops in accordance with manufacturer's written instructions unless otherwise indicated.

B. Securely anchor wheel stops to substrate with hardware in each preformed vertical hole in wheel stop as recommended in writing by manufacturer. Recess head of hardware beneath top of wheel stop.

END OF SECTION 321713

TECHNICAL SPECIFICATIONS FOR HELEN McCALL PARK EXPANSION PHASE 1 & PHASE 2
SECTION 321723 – PAVEMENT MARKINGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

B. Florida Department of Transportation Standard Specifications for Road and Bridge Construction, current edition. Hereafter referred to as "FDOT Standard Specifications".

1.2 SUMMARY

A. Section Includes:

1. Painted markings applied to asphalt paving.
2. Painted markings applied to concrete surfaces.

1.3 ACTION SUBMITTALS

A. Product Data: Include technical data and tested physical and performance properties.

1. Pavement-marking paint, alkyd.
2. Pavement-marking paint, solvent-borne.
3. Pavement-marking paint, acrylic.
4. Pavement-marking paint, latex.
5. Glass beads.

1.4 QUALITY ASSURANCE

A. Regulatory Requirements: Comply with materials, workmanship, and other applicable requirements of Walton County and the Florida Department of Transportation for pavement-marking work.

1. Measurement and payment provisions and safety program submittals included in standard specifications do not apply to this Section.

1.5 FIELD CONDITIONS

A. Environmental Limitations: Proceed with pavement marking only on clean, dry surfaces and at a minimum ambient or surface temperature of 40 deg F for alkyd materials, 55 deg F for water-based materials], and not exceeding 95 deg F (35 deg C).

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Source Limitations: Obtain pavement-marking paints from single source from single manufacturer.

2.2 PERFORMANCE REQUIREMENTS

A. Accessibility Standard: Comply with applicable provisions in the USDOJ's "2010 ADA Standards for Accessible Design".

2.3 PAVEMENT-MARKING PAINT

A. Pavement-Marking Paint: In accordance with FDOT Standard Specifications.

1. Color: As indicated.

B. Glass Beads: In accordance with FDOT Standard Specifications.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that pavement-marking substrate is dry and in suitable condition to begin pavement marking in accordance with manufacturer's written instructions.

B. Proceed with pavement marking only after unsatisfactory conditions have been corrected.

3.2 PAVEMENT MARKING

A. Do not apply pavement-marking paint until layout, colors, and placement have been verified with Owner.

B. Allow asphalt paving or concrete surfaces to age for a minimum of 30 days before starting pavement marking.

C. Sweep and clean surface to eliminate loose material and dust.

D. Apply paint with mechanical equipment to produce pavement markings, of dimensions indicated, with uniform, straight edges. Apply at manufacturer's recommended rates to provide a minimum wet film thickness of 15 mils.

1. Apply graphic symbols and lettering with paint-resistant, die-cut stencils, firmly secured to asphalt paving or concrete surface. Mask an extended area beyond edges of each stencil to prevent paint application beyond stencil. Apply paint so that it cannot run beneath stencil.
2. Broadcast glass beads uniformly into wet markings at a rate of 6 lb/gal..

3.3 PROTECTING AND CLEANING

A. Protect pavement markings from damage and wear during remainder of construction period.

B. Clean spillage and soiling from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

END OF SECTION 321723

TECHNICAL SPECIFICATIONS FOR HELEN McCALL PARK EXPANSION PHASE 1 & PHASE 2
SECTION 321726 – TACTILE WARNING SURFACING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

B. Florida Department of Transportation Standard Specifications for Road and Bridge Construction, current edition. Hereafter referred to as “FDOT Standard Specifications”.

1.2 SUMMARY

A. Section Includes:

1. Cast-in-place detectable warning tiles.
2. Surface-applied detectable warning tiles.
3. Detectable warning mats.
4. Cast-in-place detectable warning metal tiles.
5. Surface-applied detectable warning metal tiles.
6. Detectable warning unit pavers.

B. Related Requirements:

1. Section 321313 "Concrete Paving" for concrete walkways serving as substrates for tactile warning surfacing.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Samples for Initial Selection: For each type of exposed finish requiring color selection.

C. Samples for Verification: For each type of tactile warning surface, in manufacturer's standard sizes unless otherwise indicated, showing edge condition, truncated-dome pattern, texture, color, and cross section; with fasteners and anchors.

1.4 CLOSEOUT SUBMITTALS

A. Maintenance Data: For tactile warning surfacing, to include in maintenance manuals.

1.5 PROJECT CONDITIONS

A. Cold-Weather Protection: Do not use frozen materials or materials mixed or coated with ice or frost. Do not build on frozen subgrade or setting beds. Remove and replace unit paver work damaged by frost or freezing.

B. Weather Limitations for Adhesive Application:

1. Apply adhesive only when ambient temperature is above 50 deg F (10 deg C) and when temperature has not been below 35 deg F (2 deg C) for 12 hours immediately before application. Do not apply when substrate is wet or contains excess moisture.

C. Weather Limitations for Mortar and Grout:

1. Cold-Weather Requirements: Comply with cold-weather construction requirements contained in ACI 530.1/ASCE 6/TMS 602.
2. Hot-Weather Requirements: Comply with hot-weather construction requirements contained in ACI 530.1/ASCE 6/TMS 602. Provide artificial shade and windbreaks, and use cooled materials as required. Do not apply mortar to substrates with temperatures of 100 deg F (38 deg C) and higher.

a. When ambient temperature exceeds 100 deg F (38 deg C), or when wind velocity exceeds 8 mph (13 km/h) and ambient temperature exceeds 90 deg F (32 deg C), set unit pavers within 1 minute of spreading setting-bed mortar.

1.6 WARRANTY

A. Special Warranty: Manufacturer agrees to repair or replace components of tactile warning surfaces that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:

a. Deterioration of finishes beyond normal weathering and wear.
b. Separation or delamination of materials and components.

2. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 TACTILE WARNING SURFACING, GENERAL

A. Accessibility Requirements: Provide detectable warning in accordance with the Americans with Disabilities Act and FDOT Standard Specifications.

1. For tactile warning surfaces composed of multiple units, provide units that when installed provide consistent side-to-side and end-to-end dome spacing that complies with requirements.

B. Source Limitations: Obtain each type of tactile warning surfacing, joint material, setting material, anchor, and fastener from single source with resources to provide materials and products of consistent quality in appearance and physical properties.

2.2 DETECTABLE WARNING TILES

A. Cast-in-Place Detectable Warning Tiles: In accordance with FDOT Standard Specifications.

B. Surface-Applied Detectable Warning Tiles: In accordance with FDOT Standard Specifications.

2.3 DETECTABLE WARNING MATS

A. Surface-Applied Detectable Warning Mats: In accordance with FDOT Standard Specifications.

2.4 DETECTABLE WARNING UNIT PAVERS

A. Detectable Warning Concrete Unit Pavers: In accordance with FDOT Standard Specifications.

2.5 ACCESSORIES

A. Fasteners and Anchors: Manufacturer's standard as required for secure anchorage of tactile warning surfaces, noncorrosive and compatible with each material joined, and complying with the following:

1. Furnish Type 316 stainless-steel fasteners for exterior use.
2. Fastener Heads: For nonstructural connections, use flathead or oval countersunk screws and bolts with tamper-resistant heads, colored to match tile.

B. Adhesive: As recommended by manufacturer for adhering tactile warning surfacing unit to pavement.

C. Sealant: As recommended by manufacturer for sealing perimeter of tactile warning surfacing unit.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that pavement is in suitable condition to begin installation according to manufacturer's written instructions. Verify that installation of tactile warning surfacing will comply with accessibility requirements upon completion.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION OF TACTILE WARNING SURFACING

A. General: Prepare substrate and install tactile warning surfacing according to manufacturer's written instructions unless otherwise indicated.

B. Place tactile warning surfacing units in dimensions and orientation indicated. Comply with location requirements of AASHTO MP 12.

3.3 INSTALLATION OF DETECTABLE WARNING TILES

A. Cast-in-Place Detectable Warning Tiles:

1. Concrete Paving Installation: Comply with installation requirements in Section 321313 "Concrete Paving." Mix, place, and finish concrete to conditions complying with detectable warning tile manufacturer's written requirements for satisfactory embedment of tile.
2. Set each detectable warning tile accurately and firmly in place and completely seat tile back and embedments in wet concrete by tamping or vibrating. If necessary, temporarily apply weight to tiles to ensure full contact with concrete.
3. Set surface of tile flush with surrounding concrete and adjacent tiles, with variations between tiles and between concrete and tiles not exceeding plus or minus 1/8 inch (3 mm) from flush.
4. Protect exposed surfaces of installed tiles from contact with wet concrete. Complete finishing of concrete paving surrounding tiles. Remove concrete from tile surfaces.
5. Clean tiles using methods recommended in writing by manufacturer.

B. Surface-Applied Detectable Warning Tiles:

1. Lay out detectable warning tiles as indicated and mark concrete pavement.
2. Prepare existing paving surface by grinding and cleaning as recommended by manufacturer.

3. Apply adhesive to back of tiles in amounts and pattern recommended by manufacturer, and set tiles in place. Firmly seat tiles in adhesive bed, eliminating air pockets and establishing full adhesion to pavement. If necessary, temporarily apply weight to tiles to ensure full contact with concrete.
4. Install anchor devices through face of tiles and into pavement using anchors located as recommended by manufacturer. Set heads of anchors flush with top surface of mat.
5. Mask perimeter of tiles and adjacent concrete, and apply sealant in continuous bead around perimeter of tile installation.
6. Remove masking, adhesive, excess sealant, and soil from exposed surfaces of detectable warning tiles and surrounding concrete pavement using cleaning agents recommended in writing by manufacturer.
7. Protect installed tiles from traffic until adhesive has set.

3.4 INSTALLATION OF DETECTABLE WARNING MATS

A. Lay out detectable warning mats as indicated and mark concrete pavement at edges of mats.

B. Prepare existing paving surface by grinding and cleaning as recommended by manufacturer.

C. Apply adhesive to back of mat in amounts and pattern recommended by manufacturer, and set mat in place. Firmly seat mat in adhesive bed, eliminating air pockets and establishing full adhesion to pavement. If necessary, temporarily apply weight to mat to ensure full contact with adhesive.

D. Install anchor devices through face of mat and into pavement using anchors located as recommended by manufacturer. Set heads of anchors flush with mat surface.

E. Mask mat perimeter and adjacent concrete, and apply sealant in continuous bead around perimeter of mat.

F. Remove masking, adhesive, excess sealant, and soil from exposed surfaces of detectable warning mat and surrounding concrete pavement using cleaning agents recommended in writing by manufacturer.

G. Protect installed mat from traffic until adhesive has set.

3.5 INSTALLATION OF DETECTABLE WARNING UNIT PAVERS

A. Unit Paver Installation, General:

1. Mix unit pavers from several pallets or cubes, as they are placed, to produce uniform blend of colors and textures.
2. Cut unit pavers with motor-driven masonry saw equipment to provide pattern indicated and to fit adjoining work neatly. Use full units without cutting where possible.
3. Tolerances: Do not exceed 1/4 inch in 10 feet from level, or indicated slope, for finished surface of paving.

B. Aggregate Setting-Bed Applications:

1. Place aggregate base, compact by tamping with plate vibrator, and screed to depth indicated.
2. Place leveling course and screed to a thickness of 1 to 1-1/2 inches (25 to 38 mm), taking care that moisture content remains constant and density is loose and uniform until unit pavers are set and compacted.
3. Treat leveling course with herbicide to inhibit growth of grass and weeds.
4. Set unit pavers with a minimum joint width of 1/16 inch (1.5 mm) and a maximum of 1/8 inch (3 mm), being careful not to disturb leveling base. If pavers have spacer bars, place pavers hand tight against spacer bars. Use string lines to keep straight lines.
5. Vibrate pavers into leveling course with a low-amplitude plate vibrator capable of a 3500- to 5000-lbf (16- to 22-kN) compaction force at 80 to 90 Hz.
6. Spread dry sand and fill joints immediately after vibrating pavers into leveling course. Vibrate pavers and add sand until joints are completely filled, then remove excess sand. Leave a slight surplus of sand on the surface for joint filling.

C. Mortar Setting-Bed Applications:

1. Saturate concrete subbase with clean water several hours before placing setting bed. Remove surface water about one hour before placing setting bed.
2. Apply mortar-bed bond coat over surface of concrete subbase about 15 minutes before placing mortar bed. Limit area of bond coat to avoid its drying out before placing setting bed. Do not exceed 1/16-inch (1.6-mm) thickness for bond coat.
3. Apply mortar bed over bond coat; spread and screed mortar bed to uniform thickness at subgrade elevations required for accurate setting of pavers to finished grades indicated.
4. Mix and place only that amount of mortar bed that can be covered with pavers before initial set. Before placing pavers, cut back, bevel edge, and remove and discard setting-bed material that has reached initial set.
5. Place pavers before initial set of cement occurs. Immediately before placing pavers on mortar bed, apply uniform 1/16-inch- (1.5-mm-) thick bond coat to mortar bed or to back of each paver with a flat trowel.
6. Tamp or beat pavers with a wooden block or rubber mallet to obtain full contact with setting bed and to bring finished surfaces within indicated tolerances. Set each paver in a single operation before initial set of mortar; do not return to areas already set or disturb pavers for purposes of realigning finished surfaces or adjusting joints.

7. Spaced Joint Widths: In accordance with Manufacture's recommendations.
8. Grouted Joints: Grout paver joints complying with ANSI A108.10. Grout joints as soon as possible after initial set of setting bed.

    a. Force grout into joints, taking care not to smear grout on adjoining surfaces.
    b. Tool exposed joints slightly concave when thumbprint hard.

c. Cure grout by maintaining in a damp condition for seven days unless otherwise recommended by grout or liquid-latex manufacturer.

9. Remove excess grout from exposed paver surfaces; wash and scrub clean.
10. Protect installation from traffic until grout has set.

3.6 CLEANING AND PROTECTION

A. Remove and replace tactile warning surfacing that is broken or damaged or does not comply with requirements in this Section. Remove in complete sections from joint to joint unless otherwise approved by Architect. Replace using tactile warning surfacing installation methods acceptable to Architect.

B. Protect tactile warning surfacing from damage and maintain free of stains, discoloration, dirt, and other foreign material.

END OF SECTION 321726

TECHNICAL SPECIFICATIONS FOR HELEN McCALL PARK EXPANSION PHASE 1 & PHASE 2
SECTION 323113 – CHAIN LINK FENCES AND GATES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

B. Florida Department of Transportation Standard Specifications for Road and Bridge Construction, current edition. Hereafter referred to as “FDOT Standard Specifications”.

1.2 SUMMARY

A. Section Includes:

1. Chain-link fences.
2. Swing gates.

B. Related Requirements:

1. Section 033000 "Cast-in-Place Concrete"

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for the following:

a. Fence and gate posts, rails, and fittings.
b. Chain-link fabric, reinforcements, and attachments.
c. Gates and hardware.

B. Shop Drawings: For each type of fence and gate assembly.

1. Include plans, elevations, sections, details, and attachments to other work.
2. Include accessories, hardware, gate operation, and operational clearances.

C. Samples for Initial Selection: For each type of factory-applied finish.

D. Samples for Verification: For each type of component with factory-applied finish, prepared on Samples of size indicated below:

1. Polymer-Coated Components: In 6-inch lengths for components and on full-sized units for accessories.

1.4 INFORMATIONAL SUBMITTALS

A. Product Certificates: For each type of chain-link fence, and gate.

B. Field quality-control reports.

C. Sample Warranty: For special warranty.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: An experienced installer who has completed chain link fences and gates similar in material, design, and extent to those indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.

B. Testing Agency Qualifications: For testing fence grounding; member company of NETA or an NRTL.

1. Testing Agency's Field Supervisor: Certified by NETA to supervise on-site testing.

1.6 FIELD CONDITIONS

A. Field Measurements: Verify layout information for chain-link fences and gates shown on Drawings in relation to property survey and existing structures. Verify dimensions by field measurements.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Lightning Protection System: Maximum resistance-to-ground value of 25 ohms at each grounding location along fence under normal dry conditions.

2.2 CHAIN-LINK FENCE FABRIC

A. General: Provide fabric in one-piece heights measured between top and bottom of outer edge of selvage knuckle or twist. Comply with ASTM A 392, CLFMI CLF 2445, and regulations indicated below:

1. Fabric Height: As indicated on Drawings.
2. Steel Wire for Fabric: Polymer coated wire, see plans for gauge of core wire.

a. Mesh Size: 2 inches.
b. Weight of Metallic (Zinc) coating: ASTM A 392, Type II, Class 2, 2.0 oz./sq. ft. with zinc coating applied before weaving.
c. Polymer Coating: Fusion-bonded PVC – Color Black

d. Coat selvage ends of metallic-coated fabric before the weaving process with manufacturer's standard clear protective coating.

3. Selvage: Knuckled at both selvages.

2.3 FENCE FRAMEWORK

A. Posts and Rails: Comply with ASTM F 1043 for framing, ASTM F 1083 for Group IC round pipe, and the following:

1. Group: IA, round steel pipe, Schedule 40.
2. Fence Height: Indicated on drawings.
3. Strength Requirements: Heavy industrial according to ASTM F 1043.
4. Post Diameter and Thickness: According to ASTM F 1083'
   a. Line Post: Indicated on drawings.
   b. End, Corner, and Pull Post: Indicated on drawings.
   c. Swing Gate Post: Indicated on drawings.
5. Metallic Coating for Steel Framework:
   a. Type B: Zinc with organic overcoat, consisting of a minimum of 0.9 oz./sq. ft. of zinc after welding, a chromate conversion coating, and a clear, verifiable polymer film.
   b. External, Type B: Zinc with organic overcoat, consisting of a minimum of 0.9 oz./sq. ft. of zinc after welding, a chromate conversion coating, and a clear, verifiable polymer film. Internal, Type D, consisting of 81 percent, not less than 0.3-mil- (0.0076-mm-) thick, zinc-pigmented coating.
   c. Type C: Zn-5-Al-MM alloy, consisting of not less than 1.8-oz./sq. ft. coating.
   d. Coatings: Any coating above.

6. Polymer coating over metallic coating.

   a. Color: Black, according to ASTM F934.

2.4 TENSION WIRE

A. General: Provide horizontal tension wire at the following locations:

1. Location: Extended along bottom of fence fabric,
2. Location: As indicated on drawings.

B. Metallic-Coated Steel Wire: 0.177-inch- diameter, marcelled tension wire according to ASTM A817 or ASTM A824, with the following metallic coating:

1. Type II: Zinc coated (galvanized) by hot-dip process, with the following minimum coating weight:

   a. Class 3: Not less than 0.8 oz./sq. ft. of uncoated wire surface.
   b. Class 4: Not less than 1.2 oz./sq. ft. of uncoated wire surface.
   c. Class 5: Not less than 2 oz./sq. ft. of uncoated wire surface.
   d. Matching chain-link fabric coating weight.

2. Type III: Zn-5-Al-MM alloy with the following minimum coating weight:

   a. Class 60: Not less than 0.6 oz./sq. ft. of uncoated wire surface.
   b. Class 100: Not less than 1 oz./sq. ft. of uncoated wire surface.
   c. Matching chain-link fabric coating weight.

2.5 SWING GATES

A. General: ASTM F900 for gate posts and single and double swing gate types.

1. Gate Leaf Width: As indicated on drawings.
2. Framework Member Sizes and Strength: Based on gate fabric height as indicated on drawings.

B. Pipe and Tubing:

1. Zinc-Coated Steel: ASTM F1043 and ASTM F1083; protective coating and finish to match fence framework.
2. Aluminum: ASTM B429/B429M; manufacturer's standard.
3. Gate Posts: Round tubular steel.
4. Gate Frames and Bracing: Round tubular steel.

C. Frame Corner Construction: assembled with corner fittings.

D. Hardware:

1. Hinges: 180-degree inward swing.
2. Latch: Permitting operation from both sides of gate with provision for padlocking accessible from both sides of gate.
3. Closer: Manufacturer's standard.

2.6 FITTINGS

A. Provide fittings according to ASTM F626.

B. Post Caps: Provide for each post.

1. Provide line post caps with loop to receive tension wire or top rail.

C. Rail and Brace Ends: For each gate, corner, pull, and end post.

D. Rail Fittings: Provide the following:

1. Rail Clamps: Line and corner boulevard clamps for connecting [**intermediate**] [**and**] [**bottom**] rails to posts.

E. Tension and Brace Bands: Pressed steel.

F. Tension Bars: Steel, length not less than 2 inches shorter than full height of chain-link fabric. Provide one bar for each gate and end post, and two for each corner and pull post, unless fabric is integrally woven into post.

G. Truss Rod Assemblies: Steel, hot-dip galvanized after threading rod and turnbuckle or other means of adjustment.
1.

H. Tie Wires, Clips, and Fasteners: According to ASTM F626.

1. Standard Round Wire Ties: For attaching chain-link fabric to posts, rails, and frames, according to the following:

    a. Hot-Dip Galvanized Steel: 0.148-inch- diameter wire; galvanized coating thickness matching coating thickness of chain-link fence fabric.

I. Finish:

1. Metallic Coating for Pressed Steel or Cast Iron: Not less than 1.2 oz./sq. ft. of zinc.

2. Aluminum: Mill finish.

2.7 GROUT AND ANCHORING CEMENT

A. Nonshrink, Nonmetallic Grout: Factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C1107/C1107M. Provide grout, recommended in writing by manufacturer, for exterior applications.

B. Anchoring Cement: Factory-packaged, nonshrink, nonstaining, hydraulic-controlled expansion cement formulation for mixing with water at Project site to create pourable anchoring, patching, and grouting compound. Provide formulation that is resistant to erosion from water exposure without needing protection by a sealer or waterproof coating, and that is recommended in writing by manufacturer for exterior applications.

2.8 GROUNDING MATERIALS

A. Comply with requirements in Section 260526 "Grounding and Bonding for Electrical Systems."

B. Connectors and Grounding Rods: Listed and labeled for complying with UL 467.

1. Connectors for Below-Grade Use: Exothermic welded type.
2. Grounding Rods: Copper-clad steel, 5/8 by 96 inches.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas and conditions, with Installer present, for compliance with requirements for site clearing, earthwork, pavement work, and other conditions affecting performance of the Work.

1. Do not begin installation before final grading is completed unless otherwise permitted by Owner.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Stake locations of fence lines, gates, and terminal posts. Do not exceed intervals of 500 feet or line of sight between stakes. Indicate locations of utilities, lawn sprinkler system, underground structures, benchmarks, and property monuments.

3.3 CHAIN-LINK FENCE INSTALLATION

A. Install chain-link fencing according to ASTM F567 and more stringent requirements specified.

1. Install fencing on established boundary lines inside property line.

B. Post Excavation: Drill or hand-excavate holes for posts to diameters and spacings indicated, in firm, undisturbed soil.

C. Post Setting: Set posts **in concrete at** indicated spacing into firm, undisturbed soil.

1. Verify that posts are set plumb, aligned, and at correct height and spacing, and hold in position during setting with concrete or mechanical devices.
2. Concrete Fill: Place concrete around posts to dimensions indicated and vibrate or tamp for consolidation. Protect aboveground portion of posts from concrete splatter.
    a. Concealed Concrete: Place top of concrete 2 inches below grade as indicated on Drawings to allow covering with surface material.

D. Terminal Posts: Install terminal end, corner, and gate posts according to ASTM F567 and terminal pull posts at changes in horizontal or vertical alignment of 15 degrees or more. For runs exceeding 500 feet, space pull posts an equal distance between corner or end posts.

E. Line Posts: Space line posts uniformly at as indicated on drawings.

F. Post Bracing and Intermediate Rails: Install according to ASTM F567, maintaining plumb position and alignment of fence posts. Diagonally brace terminal posts to adjacent line posts with truss rods and turnbuckles. Install braces at end and gate posts and at both sides of corner and pull posts.

1. Locate horizontal braces at midheight of fabric 72 inches or higher, on fences with top rail, and at two-third fabric height on fences without top rail. Install so posts are plumb when diagonal rod is under proper tension.

G. Tension Wire: Install according to ASTM F567, maintaining plumb position and alignment of fence posts. Pull wire taut, without sags. Fasten fabric to tension wire with 0.120-inch- diameter hog rings of same material and finish as fabric wire, spaced a maximum of 24 inches o.c. Install tension wire in locations indicated before stretching fabric. Provide horizontal tension wire at the following locations:

H. Top Rail: Install according to ASTM F567, maintaining plumb position and alignment of fence posts. Run rail continuously through line post caps, bending to radius for curved runs and terminating into rail end attached to posts or post caps fabricated to receive rail at terminal posts. Provide expansion couplings as recommended in writing by fencing manufacturer.

I. Intermediate and Bottom Rails: Secure to posts with fittings.

J. Chain-Link Fabric: Apply fabric to inside (facing ballfield) of enclosing framework. Leave 1-inch bottom clearance between finish grade or surface and bottom selvage unless otherwise indicated. Pull fabric taut

and tie to posts, rails, and tension wires. Anchor to framework so fabric remains under tension after pulling force is released.

K. Tension or Stretcher Bars: Thread through fabric and secure to end, corner, pull, and gate posts, with tension bands spaced not more than 15 inches o.c.

L. Tie Wires: Use wire of proper length to firmly secure fabric to line posts and rails. Attach wire at one end to chain-link fabric, wrap wire around post a minimum of 180 degrees, and attach other end to chain-link fabric according to ASTM F626. Bend ends of wire to minimize hazard to individuals and clothing.

1. Maximum Spacing: Tie fabric to line posts at 12 inches o.c. and to braces at 24 inches o.c.

M. Fasteners: Install nuts for tension bands and carriage bolts on the side of fence opposite the fabric side.

3.4 GATE INSTALLATION

A. Install gates according to manufacturer's written instructions, level, plumb, and secure for full opening without interference. Attach fabric as for fencing. Attach hardware using tamper-resistant or concealed means. Install ground-set items in concrete for anchorage. Adjust hardware for smooth operation.

3.5 GROUNDING AND BONDING

A. Comply with requirements in Section 260526 "Grounding and Bonding for Electrical Systems."

B. Fence and Gate Grounding:

1. Ground for fence and fence posts shall be a separate system from ground for gate and gate posts.
2. Install ground rods and connections at maximum intervals of 1500 feet.
3. Fences within 100 Feet of Buildings, Structures, Walkways, and Roadways: Ground at maximum intervals of 750 feet.
4. Ground fence on each side of gates and other fence openings.

    a. Bond metal gates to gate posts.
    b. Bond across openings, with and without gates, except openings indicated as intentional fence discontinuities. Use No. 2 AWG wire and bury it at least 18 inches below finished grade.

C. Protection at Crossings of Overhead Electrical Power Lines: Ground fence at location of crossing and at a ground rod located a maximum distance of 150 feet on each side of crossing.

D. Fences Enclosing Electrical Power Distribution Equipment: Ground according to IEEE C2 unless otherwise indicated.

E. Grounding Method: At each grounding location, drive a grounding rod vertically until the top is 6 inches below finished grade. Connect rod to fence with No. 6 AWG conductor. Connect conductor to each fence component at grounding location.

F. Connections:

1. Make connections with clean, bare metal at points of contact.
2. Make aluminum-to-steel connections with stainless-steel separators and mechanical clamps.

3. Make aluminum-to-galvanized-steel connections with tin-plated copper jumpers and mechanical clamps.
4. Make above-grade ground connections with mechanical fasteners.
5. Make below-grade ground connections with exothermic welds.
6. Coat and seal connections having dissimilar metals with inert material to prevent future penetration of moisture to contact surfaces.

G. Bonding to Lightning Protection System: Ground fence and bond fence grounding conductor to lightning protection down conductor or lightning protection grounding conductor according to NFPA 780.

H. Comply with requirements in Section 264113 "Lightning Protection for Structures."

3.6 FIELD QUALITY CONTROL

A. Testing Agency: Owner will engage a qualified testing agency to perform tests.

B. Grounding Tests: Comply with requirements in Section 264113 "Lightning Protection for Structures."

C. Prepare test reports.

3.7 ADJUSTING

A. Gates: Adjust gates to operate smoothly, easily, and quietly, free of binding, warp, excessive deflection, distortion, nonalignment, misplacement, disruption, or malfunction, throughout entire operational range. Confirm that latches and locks engage accurately and securely without forcing or binding.

B. Lubricate hardware and other moving parts.

3.8 DEMONSTRATION

A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain chain-link fences and gates.

END OF SECTION 323113

TECHNICAL SPECIFICATIONS FOR HELEN McCALL PARK EXPANSION PHASE 1 & PHASE 2
SECTION 329200 – TURF AND GRASSES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:

1. Seeding.
2. Sodding.
3. Sprigging.
4. Erosion-control materials.

B. Related Requirements:

1. Section 329300 "Plants" for trees, shrubs, ground covers, and other plants as well as border edgings and mow strips.

1.3 DEFINITIONS

A. Finish Grade: Elevation of finished surface of planting soil.

B. Pesticide: A substance or mixture intended for preventing, destroying, repelling, or mitigating a pest. Pesticides include insecticides, miticides, herbicides, fungicides, rodenticides, and molluscicides. They also include substances or mixtures intended for use as a plant regulator, defoliant, or desiccant.

C. Pests: Living organisms that occur where they are not desired or that cause damage to plants, animals, or people. Pests include insects, mites, grubs, mollusks (snails and slugs), rodents (gophers, moles, and mice), unwanted plants (weeds), fungi, bacteria, and viruses.

D. Planting Soil: Existing, on-site soil; imported soil; or manufactured soil that has been modified with soil amendments and perhaps fertilizers to produce a soil mixture best for plant growth.

E. Subgrade: The surface or elevation of subsoil remaining after excavation is complete, or the top surface of a fill or backfill before planting soil is placed.

1.4 INFORMATIONAL SUBMITTALS

A. Qualification Data: For landscape Installer.

B. Certification of Grass Seed: From seed vendor for each grass-seed monostand or mixture, stating the botanical and common name, percentage by weight of each species and variety, and percentage of purity, germination, and weed seed. Include the year of production and date of packaging.

1. Certification of each seed mixture for turfgrass sod. Include identification of source and name and telephone number of supplier.

C. Product Certificates: For fertilizers, from manufacturer.

D. Pesticides and Herbicides: Product label and manufacturer's application instructions specific to Project.

1.5 CLOSEOUT SUBMITTALS

A. Maintenance Data: Recommended procedures to be established by Owner for maintenance of turf during a calendar year. Submit before expiration of required maintenance periods.

1.6 QUALITY ASSURANCE

A. Installer Qualifications: A qualified landscape installer whose work has resulted in successful turf establishment.

1. Professional Membership: Installer shall be a member in good standing of either the National Association of Landscape Professionals or AmericanHort.
2. Experience: Five years' experience in turf installation in addition to requirements in Section 014000 "Quality Requirements."
3. Installer's Field Supervision: Require Installer to maintain an experienced full-time supervisor on Project site when work is in progress.
4. Pesticide Applicator: State licensed, commercial.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Seed and Other Packaged Materials: Deliver packaged materials in original, unopened containers showing weight, certified analysis, name and address of manufacturer, and indication of compliance with state and Federal laws, as applicable.

B. Sod: Harvest, deliver, store, and handle sod according to requirements in "Specifications for Turfgrass Sod Materials" and "Specifications for Turfgrass Sod Transplanting and Installation" sections in TPI's "Guideline Specifications to Turfgrass Sodding." Deliver sod within 24 hours of harvesting and in time for planting promptly. Protect sod from breakage and drying.

C. Bulk Materials:

1. Do not dump or store bulk materials near structures, utilities, walkways and pavements, or on existing turf areas or plants.
2. Provide erosion-control measures to prevent erosion or displacement of bulk materials; discharge of soil-bearing water runoff; and airborne dust reaching adjacent properties, water conveyance systems, or walkways.
3. Accompany each delivery of bulk materials with appropriate certificates.

1.8 FIELD CONDITIONS

A. Weather Limitations: Proceed with planting only when existing and forecasted weather conditions permit planting to be performed when beneficial and optimum results may be obtained. Apply products during favorable weather conditions according to manufacturer's written instructions.

PART 2 - PRODUCTS

2.1 SEED

A. Grass Seed: Fresh, clean, dry, new-crop seed complying with AOSA's "Rules for Testing Seeds" for purity and germination tolerances.

B. Seed Species:

1. Full Sun, Warm-Season Grass: Bermudagrass (Cynodon dactylon).

2.2 TURFGRASS SOD

A. Turfgrass Sod: Certified Number 1 Quality/Premium, including limitations on thatch, weeds, diseases, nematodes, and insects, complying with "Specifications for Turfgrass Sod Materials" in TPI's "Guideline Specifications to Turfgrass Sodding." Furnish viable sod of uniform density, color, and texture that is strongly rooted and capable of vigorous growth and development when planted.

B. Turfgrass Species: Bermudagrass (Cynodon dactylon)

2.3 SPRIGS

A. Sod Sprigs: Healthy living stems, rhizomes, or stolons with a minimum of two nodes and attached roots free of soil, of the following turfgrass species:

1. Turfgrass Species: Bermudagrass (Cynodon dactylon)

2.4 TOPSOIL

A. Topsoil: ASTM D 5268, pH range of 5.5 to 7, a minimum of 2 percent organic material content; free of stones 1 inch or larger in any dimension and other extraneous materials harmful to plant growth.

1. Topsoil Source: Reuse surface soil stockpiled on-site. Verify suitability of stockpiled surface soil to produce topsoil. Clean surface soil of roots, plants, sod, stones, clay lumps, and other extraneous materials harmful to plant growth.

a. Supplement with imported or manufactured topsoil from off-site sources when quantities are insufficient. Obtain topsoil displaced from naturally well-drained constriction or mining sites where topsoil occurs at least 4 inches deep; do not obtain form agricultural land, bogs, or marshes.

2. Topsoil Source: Import topsoil or manufactured topsoil from off-site sources. Obtain topsoil displaced from naturally well-drained construction or mining sites where topsoil occurs at least 4 inches deep; do not obtain from agricultural land, bogs, or marshes.

2.5 INORGANIC SOIL AMENDMENTS

A. Lime: ASTM C 602, agricultural limestone containing a minimum of 80 percent calcium carbonate equivalent and as follows:

1. Class: T, with a minimum of 99 percent passing through No. 8 sieve and a minimum of 75 percent passing through No. 60 sieve.
2. Class: O, with a minimum of 95 percent passing through No. 8 sieve and a minimum of 55 percent passing through No. 60 sieve.
3. Provide line in form of dolomitic limestone.

B. Sulfur: Granular, biodegradable, containing a minimum of 90 percent sulfur, with a minimum of 99 percent passing through No. 6 sieve and a maximum of 10 percent passing through No. 40 sieve.

C. Iron Sulfate: Granulated ferrous sulfate containing a minimum of 20 percent iron and 10 percent sulfur.

D. Aluminum Sulfate: Commercial grade, unadulterated.

E. Perlite: Horticultural perlite, soil amended grade.

F. Agricultural Gypsum: Finely ground, containing a minimum of 90 percent calcium sulfate.

G. Sand: Clean, washed, natural or manufactured, free of toxic materials.

H. Diatomaceous Earth: Calcined, diatomaceous earth, 90 percent silica, with approximately 140 percent water absorption capacity by weight.

I. Zeolites: Mineral clinoptilolite with at least 60 percent water absorption by weight.

2.6 ORGANIC SOIL AMENDMENTS

A. Compost: Well-composted, stable, and weed-free organic matter, pH range of 5.5 to 8; moisture content 35 to 55 percent by weight; 100 percent passing through 1-inch sieve; soluble salt content of 5 to 10 deci-siemens/m; not exceeding 0.5 percent inert contaminants and free of substances toxic to plantings; and as follow:

1. Organic Matter Content: 50 to 60 percent by dry weight.
2. Feedstock: Agricultural, food, or industrial residuals; biosolids; yard trimmings; or source-separated or compostable mixed solid waste.

B. Peat: Sphagnum peat moss, partially decomposed, finely divided or granular texture, with a pH range of 3.4 to 4.8.

C. Peat: Finely divided or granular texture, with a pH range of 6 to 7.5, containing partially decomposed moss peat, native peat, or reed-sedge peat and having a water-absorbing capacity of 1100 to 2000 percent.

D. Wood Derivatives: Decomposed, nitrogen-treated sawdust, ground bark, or wood waste; of uniform texture, free of chips, stones, sticks, soil, or toxic materials.

1. In lieu of composed wood derivatives, mix partially decomposed wood derivatives with ammonium nitrate at minimum rate of 0.15 lb/cu.ft. of loose sawdust or ground bark, or with ammonium sulfate at a minimum rate of 0.25 lb/cu.ft. of loose sawdust or ground bark.

E. Manure: Well-rotted, un-leached, stable or cattle manure containing not more than 25 percent by volume of straw, sawdust, or other bedding materials. Free of toxic substances, stones, sticks, soil, weed seed, and material harmful to plant growth.

2.7 FERTILIZERS

A. Bonemeal: Commercial, raw or steamed, finely ground; a minimum of 4 percent nitrogen and 10 percent phosphoric acid.

B. Superphosphate: Commercial, phosphate mixture, soluble; a minimum of 20 percent available phosphoric acid.

C. Commercial Fertilizer: Commercial-grade complete fertilizer of neutral character, consisting of fast- and slow-release nitrogen, 50 percent derived from natural organic sources of urea formaldehyde, phosphorous, and potassium in the following composition:

1. Composition:

a. 1 lb/1000 sq. ft. of actual nitrogen, 4 percent phosphorous, and 2 percent potassium, by weight.
b. Nitrogen, phosphorous, and potassium in amounts recommended in soil reports from a qualified soil-testing laboratory.

D. Slow-Release Fertilizer: Granular or pelleted fertilizer consisting of 50 percent water-insoluble nitrogen, phosphorus, and potassium in the following composition:

1. Composition:

a. 20 percent nitrogen, 10 percent phosphorous, and 10 percent potassium, by weight.
b. Nitrogen, phosphorous, and potassium in amounts recommended in soil reports from a qualified soil-testing laboratory.

2.8 MULCHES

A. Fiber Mulch: Biodegradable, dyed-wood, cellulose-fiber mulch; nontoxic and free of plant-growth or germination inhibitors; with a maximum moisture content of 15 percent and a pH range of 4.5 to 6.5.

2.9 PESTICIDES

A. General: Pesticide, registered and approved by the EPA, acceptable to authorities having jurisdiction, and of type recommended by manufacturer for each specific problem and as required for Project conditions and application. Do not use restricted pesticides unless authorized in writing by authorities having jurisdiction.

B. Pre-Emergent Herbicide (Selective and Nonselective): Effective for controlling the germination or growth of weeds within planted areas at the soil level directly below the mulch layer.

C. Post-Emergent Herbicide (Selective and Nonselective): Effective for controlling weed growth that has already germinated.

2.10 EROSION-CONTROL MATERIALS

A. Erosion-Control Blankets: Biodegradable wood excelsior, straw, or coconut-fiber mat enclosed in a photodegradable plastic mesh. Include manufacturer's recommended steel wire staples, 6 inches long.

B. Erosion-Control Fiber Mesh: Biodegradable burlap or spun-coir mesh, a minimum of 0.92 lb/sq. yd., with 50 to 65 percent open area. Include manufacturer's recommended steel wire staples, 6 inches long.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas to be planted for compliance with requirements and other conditions affecting installation and performance of the Work.

1. Verify that no foreign or deleterious material or liquid such as paint, paint washout, concrete slurry, concrete layers or chunks, cement, plaster, oils, gasoline, diesel fuel, paint thinner, turpentine, tar, roofing compound, or acid has been deposited in soil within a planting area.
2. Suspend planting operations during periods of excessive soil moisture until the moisture content reaches acceptable levels to attain the required results.
3. Uniformly moisten excessively dry soil that is not workable or which is dusty.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

C. If contamination by foreign or deleterious material or liquid is present in soil within a planting area, remove the soil and contamination as directed by Owner and replace with new planting soil.

3.2 PREPARATION

A. Protect structures; utilities; sidewalks; pavements; and other facilities, trees, shrubs, and plantings from damage caused by planting operations.

1. Protect adjacent and adjoining areas from hydroseeding and hydromulching overspray.
2. Protect grade stakes set by others until directed to remove them.

B. Install erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.

3.3 TURF AREA PREPARATION

A. Limit lawn subgrade preparation to areas to be planted.

B. Newly Graded Subgrades: Loosen subgrade to a minimum depth of 6 inches. Remove stones larger than 1 inch in any dimension and sticks, roots, rubbish, and other extraneous matter and legally dispose of them off Owner's property.

1. Apply commercial fertilizer (10-10-10) fertilizer directly to subgrade before loosening.
2. Thoroughly blend planting soil mix off-site before spreading or spread topsoil, apply soil amendments and fertilizer on surface, and thoroughly blend planting soil mix.
    a. Delay mixing fertilizer with planting soil of planting will not proceed within a few days
    b. Mix lime with dry soil before mixing fertilizer.
3. Spread planting soil mix to a depth of 6 inches but not less than required to meet finish grades after light rolling and natural settlement. Do not spread if planning soil or subgrade is frozen, muddy, or excessively wet.
    a. Spread approximately 1/2 the thickness of planting soil mix over loosened subgrade. Mix thoroughly into top 4 inches of subgrade. Spread remainder of planting soil mix.
    b. Reduce elevation of planting soil to allow for thickness of sod.
4. See Section 31200 "Earth Moving" for additional information.

C. Unchanged Subgrades: If lawns are to be planted in areas unaltered or undisturbed by excavation, grading, or surface-soil stripping operations, prepare surface as follows:

1. Remove existing grass, vegetation, and turf. Do not mix into surface soil.
2. Loosen surface soil to a depth of at least 6 inches. Apply soil amendments and fertilizers according to planting soil mix proportions and mix thoroughly into top 4 inches of soil. Till soil to a homogeneous mixture of fine texture.
    a. Apply commercial fertilizer (10-10-10) fertilizer directly to surface soil before loosening.
3. If not already required by Earth Moving section, remove stones larger than 1 inch in any dimension and sticks, roots, trach, and other extraneous matter.
4. Legally dispose of waste material, including grass, vegetation, and turf, off Owner's property.

D. Finish Grading: Grade planting areas to a smooth, uniform surface plane with loose, uniformly fine texture. Roll and rake, remove ridges, and fill depressions to meet finish grades. Limit finish grading to areas that can be planted in the immediate future. See Earth Moving specifications for additional information.

E. Moisten prepared area before planting if soil is dry. Water thoroughly and allow surface to dry before planting. Do not create muddy soil.

F. Before planting, obtain Owner's acceptance of finish grading; restore planting areas if eroded or otherwise disturbed after finish grading.

3.4 PREPARATION FOR EROSION-CONTROL MATERIALS

A. Prepare area as specified in "Turf Area Preparation" Article.

B. For erosion-control blanket or mesh, install from top of slope, working downward, and as recommended by material manufacturer for site conditions. Fasten as recommended by material manufacturer.

C. Moisten prepared area before planting if surface is dry. Water thoroughly and allow surface to dry before planting. Do not create muddy soil.

3.5 SEEDING

A. Sow seed with spreader or seeding machine. Do not broadcast or drop seed when wind velocity exceeds 5 mph.

1. Evenly distribute seed by sowing equal quantities in two directions at right angles to each other.
2. Do not use wet seed or seed that is moldy or otherwise damaged.
3. Do not seed against existing trees. Limit extent of seed to outside edge of planting saucer.

B. Sow Common Bermuda seed at a total rate of 75 lbs/acre.

C. Rake seed lightly into top 1/8 inch of soil, roll lightly, and water with fine spray.

D. Protect seeded areas with slopes exceeding 1:3 with erosion-control blankets installed and stapled according to manufacturer's written instructions.

3.6 HYDROSEEDING

A. Hydroseeding: Mix specified seed, fertilizer, and, and fiber mulch in water, using equipment specifically designed for hydroseed application. Continue mixing until uniformly blended into homogeneous slurry suitable for hydraulic application.

1. Mix slurry with fiber-mulch manufacturer's recommended tackifier.
2. Spray-apply slurry uniformly to all areas to be seeded in a one-step process. Apply slurry at a rate so that mulch component is deposited at not less than 1500-lb/acre dry weight, and seed component is deposited at not less than the specified seed-sowing rate.

3.7 SODDING

A. Lay sod within 24 hours of harvesting. Do not lay sod if dormant or if ground is frozen or muddy.

B. Lay sod to form a solid mass with tightly fitted joints. Butt ends and sides of sod; do not stretch or overlap. Stagger sod strips or pads to offset joints in adjacent courses. Avoid damage to soil or sod during installation. Tamp and roll lightly to ensure contact with soil, eliminate air pockets, and form a smooth surface. Work sifted soil or fine sand into minor cracks between pieces of sod; remove excess to avoid smothering sod and adjacent grass.

1. Lay sod across slopes exceeding 1:3.
2. Anchor sod on slopes exceeding 1:6 with wood pegs spaced as recommended by sod manufacturer but not less than two anchors per sod strip to prevent slippage.

C. Saturate sod with fine water spray within two hours of planting. During first week after planting, water daily or more frequently as necessary to maintain moist soil to a minimum depth of 1-1/2 inches below sod.

3.8 SPRIGGING

A. Broadcast sprigs uniformly over prepared surface at a rate of 650 bushels/acre and mechanically force sprigs into lightly moistened soil.

1. Spread a 1/4-inch- thick layer of topsoil on sprigs.
2. Lightly roll and firm soil around sprigs after planting.
3. Water sprigs immediately after planting and keep moist by frequent watering until well rooted.

3.9 TURF MAINTENANCE

A. Turf maintenance is the responsibility of the contractor until final acceptance.

B. General: Maintain and establish turf by watering, fertilizing, weeding, mowing, trimming, replanting, and performing other operations as required to establish healthy, viable turf. Roll, regrade, and replant bare or eroded areas and remulch to produce a uniformly smooth turf. Provide materials and installation the same as those used in the original installation.

1. Fill in as necessary soil subsidence that may occur because of settling or other processes. Replace materials and turf damaged or lost in areas of subsidence.
2. In areas where mulch has been disturbed by wind or maintenance operations, add new mulch and anchor as required to prevent displacement.
3. Apply treatments as required to keep turf and soil free of pests and pathogens or disease. Use integrated pest management practices whenever possible to minimize the use of pesticides and reduce hazards.

C. Watering: Install and maintain temporary piping, hoses, and turf-watering equipment to convey water from sources and to keep turf uniformly moist to a depth of 4 inches.

1. Schedule watering to prevent wilting, puddling, erosion, and displacement of seed or mulch. Lay out temporary watering system to avoid walking over muddy or newly planted areas.
2. Water turf with fine spray at a minimum rate of 1 inch per week unless rainfall precipitation is adequate.

D. Mow turf as soon as top growth is tall enough to cut. Repeat mowing to maintain specified height without cutting more than one-third of grass height. Remove no more than one-third of grass-leaf growth in initial or subsequent mowings. Do not delay mowing until grass blades bend over and become matted. Do not mow when grass is wet. Schedule initial and subsequent mowings to maintain the following grass height:

1. Mow to a height of 1/2 inch to 1 inch or less.

E. Turf Postfertilization: Apply commercial fertilizer after initial mowing and when grass is dry.

1. Use fertilizer that provides actual nitrogen of at least 1 lb/1000 sq. ft. to turf area.

3.10 SATISFACTORY TURF

A. Turf installations shall meet the following criteria as determined by Owner:

1. Satisfactory Seeded Turf: At end of maintenance period, a healthy, uniform, close stand of grass has been established, free of weeds and surface irregularities, with coverage exceeding 90 percent over any 10 sq. ft. and bare spots not exceeding 6 by 6 inches.
2. Satisfactory Sodded Turf: At end of maintenance period, a healthy, well-rooted, even-colored, viable turf has been established, free of weeds, open joints, bare areas, and surface irregularities.

3. Satisfactory Sprigged Turf: At end of maintenance period, the required number of sprigs has been established as well-rooted, viable plants, and areas between sprigs are free of weeds and other undesirable vegetation.

B. Use specified materials to reestablish turf that does not comply with requirements, and continue maintenance until turf is satisfactory.

3.11 PESTICIDE APPLICATION

A. Apply pesticides and other chemical products and biological control agents according to requirements of authorities having jurisdiction and manufacturer's written recommendations. Coordinate applications with Owner's operations and others in proximity to the Work. Notify Owner before each application is performed.

B. Post-Emergent Herbicides (Selective and Nonselective): Apply only as necessary to treat already-germinated weeds and according to manufacturer's written recommendations.

3.12 CLEANUP AND PROTECTION

A. Promptly remove soil and debris created by turf work from paved areas. Clean wheels of vehicles before leaving site to avoid tracking soil onto roads, walks, or other paved areas.

B. Remove surplus soil and waste material, including excess subsoil, unsuitable soil, trash, and debris, and legally dispose of them off Owner's property.

C. Erect temporary fencing or barricades and warning signs as required to protect newly planted areas from traffic. Maintain fencing and barricades throughout initial maintenance period and remove after plantings are established.

D. Remove nondegradable erosion-control measures after grass establishment period.

3.13 MAINTENANCE SERVICE

A. Turf Maintenance Service: Provide full maintenance by skilled employees of landscape Installer. Maintain as required in "Turf Maintenance" Article. Begin maintenance immediately after each area is planted and continue until acceptable turf is established, but for not less than the following periods:

1. Seeded Turf: 60 days from date of planting completion.

    a. When initial maintenance period has not elapsed before end of planting season, or if turf is not fully established, continue maintenance during next planting season.

2. Sodded Turf: 30 days from date of planting completion.
3. Sprigged Turf: 60 days from date of planting completion.

B. SPECIAL PROVISION: GRASSING

1. Seeding, sprigging or sodding of turf areas must occur with enough time remaining in the contract and provide all maintenance, watering, fertilizing, top dressing, etc. so that acceptable final lawns providing the conditions of Section 329300 have been met at the date of substantial completion,

including maintenance, and a healthy, uniform, close stand of grass is established, free of bare spots in excess of 6 inches square and surface irregularities. Coordination with the general contractor will be necessary to ensure that areas to receive turf have been prepared ready to begin grassing by date necessary to ensure establishment by substantial completion. This includes scheduling of seeding of all disturbed areas and requirements of the erosion control plan. All efforts should be made to ensure permanent lawns required by the plans can be established during the seasons necessary for various species of grass. This may mean that establishment of final grades and seeding, sprigging, and sodding may have to occur early in the project schedule and other work coordinated around lawn areas as construction continues, with touch up grass as required.

2. At substantial completion, if lawns are not established, including all disturbed areas caused by construction, no additional payment for this or any other work will be made until contractor exhibits effort to establish lawns by final completion. If, by final completion, laws are not established, the contractor must sod all areas at no additional expense, including all disturbed areas caused by construction activities.

3. The Owner reserves the right to withhold enough payment for the establishment of lawns (including additional costs to sod areas shown as seeded or sprigged turf) until establishment of lawns over 100% of the project is acceptable to Owner. Release of such payment will only be made at the Owner's discretion depending on the contractor's effort to establish lawns.

END OF SECTION 329200

TECHNICAL SPECIFICATIONS FOR HELEN McCALL PARK EXPANSION PHASE 1 & PHASE 2
SECTION 329250 – SPORTS FIELDS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:

1. Removal of existing vegetation.
2. Grading of sports fields, including fine grading and laser grading
3. Finish grading of sports fields, including laser grading
4. Sodding fields.

B. Related Requirements:

1. Section 329200 “Turf and Grasses”.

1.3 DEFINITIONS

A. Topsoil: Friable surface soil which is reasonably free of subsoil, rocks, stones, sticks and other debris over one inch (1”) in size in any direction and without weeds, roots, and other objectionable material.

B. Sub-Surface Soil: That soil directly below the topsoil being existing in place soil and/or properly compacted imported soil, both being stable as a supporting medium and acceptable as part of a root zone for sports field construction.

C. Root zone: The combination of silt, sand, clay, organic matter, lime and fertilizer lightly blended into a loose homogeneous mixture. Root zone consists of the 2” subsurface soil, 2” of top soil and 2” of sand blended to a depth of 6 inches.

D. Sand: USGA Greens Sand or sand meeting the USGA specification per particle analysis.

E. Dolomitic Limestone, ground to meet agricultural standards containing a minimum of eighty five percent (85%) carbonates.

F. Fertilizer: A commercial mixed grade fertilizer of nitrogen, phosphorus, potassium and in percentages recommended based on soil sample analysis.

G. Sod: TifTuf Bermuda grass. The sod shall be harvested from a vigorously growing, properly fertilized field(s) with at least one full growing season prior to harvesting. Sod shall be harvested in thirty inch (30”) width rolls or larger and the harvest netting shall be removed upon installation.

1.4 INFORMATIONAL SUBMITTALS

A. Qualification Data: For landscape Installer.

B. Certification of Grass Seed: From seed vendor for each grass-seed monostand or mixture, stating the botanical and common name, percentage by weight of each species and variety, and percentage of purity, germination, and weed seed. Include the year of production and date of packaging.

1. Certification of each seed mixture for turfgrass sod. Include identification of source and name and telephone number of supplier.

C. Product Certificates: For fertilizers, from manufacturer.

D. Pesticides and Herbicides: Product label and manufacturer's application instructions specific to Project.

1.5 CLOSEOUT SUBMITTALS

A. Maintenance Data: Recommended procedures to be established by Owner for maintenance of turf during a calendar year. Submit before expiration of required maintenance periods.

1.6 QUALITY ASSURANCE

A. Installer Qualifications: A qualified landscape installer whose work has resulted in successful turf establishment for sports fields.

B. Only experienced subcontractors meeting all of the following qualifications will be considered for the grassing and irrigation of the sports fields. If the General Contractor proposes to self perform the sports field work described herein, the documentation described below must be submitted within the stipulated time frame. Prime bidders who intend to subcontract the sports field construction must submit documentation listed herein for all sports field subcontractors. This information can be provided after the bid, prior to commencing the work. The General Contractor is responsible for determining the subcontractor's qualifications based on the following criteria:

1. The Sports Field subcontractor must have a minimum of 5 years' experience, having predominately performed the discipline specific work being considered for this project.

2. The Sports Field Contractor or subcontractor shall have build and completed 5 sports field construction projects during the past 10 years; said fields shall have included installation of sod or sprigs and have been performed by the actual Sports Field Subcontractor.

3. The Sports Field subcontractor shall perform all required work with staff supervision and employees, using company equipment either owned or leased.

4. The bid shall include submittal of information demonstrating the sports field contractor or subcontractor's qualifications and experience, including but not limited to the following:

a. EXPERIENCE: State the following "Listed Data" for all athletic projects completed by the sports field contractor or subcontractor; requiring a minimum of five (5) sports field construction projects within the past ten (10) years.

1) Project's Complete Name and Address.

2) Owner's Complete Name, Address, Telephone Area Code and Number, and email address.

3) If applicable, Architect/Engineer's Complete Name, Address, Telephone Area Code and Number, and email address.

4) Year Project Started.

5) Year Project Completed.

6) Description o f Responsibilities for all Projects.

7) Identify the project manager and superintendent for the project.

8) Narrative Description of Each Project, noting single field projects, all fields of multiple field projects, what sports are played on each field, and amenities that were your Company's responsibility. List all sub-contracted work per all fields for all projects. List all work performed directly by your company per all fields for all projects.

9) List details and information about all of your sub-contractors including, length of relationship, company name, owner's name, their contact person, full addresses and telephone numbers.

5. The owner and its representative shall be the sole judge of the contractor/subcontractor meeting the requirements set forth. The owner's decision will be final. The owner reserves the right to act in its best interest in this determination process, to waive all technicalities and informalities, and to accept only qualified responsible contractors/subcontractors who, in the owner's opinion, meet the above stated provisions.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Sod: Harvest, deliver, store, and handle sod according to requirements in "Specifications for Turfgrass Sod Materials" and "Specifications for Turfgrass Sod Transplanting and Installation" sections in TPI's "Guideline Specifications to Turfgrass Sodding." Deliver sod within 24 hours of harvesting and in time for planting promptly. Protect sod from breakage and drying.

B. Bulk Materials:

1. Do not dump or store bulk materials near structures, utilities, walkways and pavements, or on existing turf areas or plants.
2. Provide erosion-control measures to prevent erosion or displacement of bulk materials; discharge of soil-bearing water runoff; and airborne dust reaching adjacent properties, water conveyance systems, or walkways.
3. Accompany each delivery of bulk materials with appropriate certificates.

1.8 FIELD CONDITIONS

A. Weather Limitations: Proceed with planting only when existing and forecasted weather conditions permit planting to be performed when beneficial and optimum results may be obtained. Apply products during favorable weather conditions according to manufacturer's written instructions.

PART 2 - PRODUCTS

2.1 TURFGRASS SOD

A. Turfgrass Sod: Certified Number 1 Quality/Premium, including limitations on thatch, weeds, diseases, nematodes, and insects, complying with "Specifications for Turfgrass Sod Materials" in TPI's "Guideline Specifications to Turfgrass Sodding." Furnish viable sod of uniform density, color, and texture that is strongly rooted and capable of vigorous growth and development when planted.

B. Turfgrass Species: TifTuf Bermudagrass

2.2 SPRIGS

A. Sod Sprigs: Healthy living stems, rhizomes, or stolons with a minimum of two nodes and attached roots free of soil, of the following turfgrass species:

1. Turfgrass Species: TifTuf Bermudagrass

2.3 TOPSOIL

A. Topsoil: ASTM D 5268, pH range of 5.5 to 7, a minimum of 2 percent organic material content; free of stones 1 inch or larger in any dimension and other extraneous materials harmful to plant growth.

1. Topsoil Source: Reuse surface soil stockpiled on-site. Verify suitability of stockpiled surface soil to produce topsoil. Clean surface soil of roots, plants, sod, stones, clay lumps, and other extraneous materials harmful to plant growth.

a. Supplement with imported or manufactured topsoil from off-site sources when quantities are insufficient. Obtain topsoil displaced from naturally well-drained constriction or mining sites where topsoil occurs at least 4 inches deep; do not obtain form agricultural land, bogs, or marshes.

2. Topsoil Source: Import topsoil or manufactured topsoil from off-site sources. Obtain topsoil displaced from naturally well-drained construction or mining sites where topsoil occurs at least 4 inches deep; do not obtain from agricultural land, bogs, or marshes.

2.4 FERTILIZERS

A. Bonemeal: Commercial, raw or steamed, finely ground; a minimum of 4 percent nitrogen and 10 percent phosphoric acid.

B. Superphosphate: Commercial, phosphate mixture, soluble; a minimum of 20 percent available phosphoric acid.

C. Commercial Fertilizer: Commercial-grade complete fertilizer of neutral character, consisting of fast- and slow-release nitrogen, 50 percent derived from natural organic sources of urea formaldehyde, phosphorous, and potassium in the following composition:

1. Composition:

a. 1 lb/1000 sq. ft. of actual nitrogen, 4 percent phosphorous, and 2 percent potassium, by weight.
b. Nitrogen, phosphorous, and potassium in amounts recommended in soil reports from a qualified soil-testing laboratory.

D. Slow-Release Fertilizer: Granular or pelleted fertilizer consisting of 50 percent water-insoluble nitrogen, phosphorus, and potassium in the following composition:

1. Composition:

a. 20 percent nitrogen, 10 percent phosphorous, and 10 percent potassium, by weight.
b. Nitrogen, phosphorous, and potassium in amounts recommended in soil reports from a qualified soil-testing laboratory.

2.5 PESTICIDES

A. General: Pesticide, registered and approved by the EPA, acceptable to authorities having jurisdiction, and of type recommended by manufacturer for each specific problem and as required for Project conditions and application. Do not use restricted pesticides unless authorized in writing by authorities having jurisdiction.

B. Pre-Emergent Herbicide (Selective and Nonselective): Effective for controlling the germination or growth of weeds within planted areas at the soil level directly below the mulch layer.

C. Post-Emergent Herbicide (Selective and Nonselective): Effective for controlling weed growth that has already germinated.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas to be planted for compliance with requirements and other conditions affecting installation and performance of the Work.

1. Verify that no foreign or deleterious material or liquid such as paint, paint washout, concrete slurry, concrete layers or chunks, cement, plaster, oils, gasoline, diesel fuel, paint thinner, turpentine, tar, roofing compound, or acid has been deposited in soil within a planting area.
2. Suspend planting operations during periods of excessive soil moisture until the moisture content reaches acceptable levels to attain the required results.
3. Uniformly moisten excessively dry soil that is not workable or which is dusty.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

C. If contamination by foreign or deleterious material or liquid is present in soil within a planting area, remove the soil and contamination as directed by Owner and replace with new planting soil.

3.2 PREPARATION

A. Protect structures; utilities; sidewalks; pavements; and other facilities, trees, shrubs, and plantings from damage caused by planting operations.

3.3 SUBGRADE AND ROOT ZONE AREA PREPARATION

A. Limit subgrade preparation to areas to be planted.

B. Meet with the Program Manager, Designer and Owner's Representative(s) before any work is initiated for review and general coordination procedures.

C. Following establishment of rough grade, the fields shall be tilled with a disc harrow six to eight inches (6"-8") into the subsurface a minimum of three (3) times.

D. Laser grade the subsurface to within +/- one-half (1/2") inch of the designated slopes and elevations.

E. Remove small loose rocks, stone and debris using a Harley Rake Machine or equivalent as required, thereby causing the subsurface soil to be reasonably free of such miscellaneous matter. Remove from site.

F. Coordinate with the irrigation and underdrain subcontractors to insure all underdrainage, irrigation main lines, valve boxes, electric controls, wires, and pipe trenches are properly installed. Re-compact disturbed areas to prevent future settling. The depth and height of installation is subject to final grade.

G. Add two (2") inches of topsoil, from on-site stockpile area or imported topsoil, and laser grade to within +/- one-half (1/2") inch of designated slopes and elevations. Remove existing vegetation from topsoil prior to utilizing on the fields.

H. Remove small loose rocks, stones and debris, using a Harley Rake Machine or equivalent as required, thereby causing topsoil layer to be reasonably free of such miscellaneous matter. Remove debris from site.

1. Apply lime evenly over the surface according to soil test analysis.

I. Add two (2") inches of sand, per the previous definition, to all sports field areas and, with laser technology, evenly distribute the material to within +/- one-half (1/2") inch of the designated slopes and elevations.

1. Blend materials to form root zone to a depth of 6 inches. Final laser grade to 1/4".
2. Add phosphorus and potassium (pre-plant fertilizer), as required by soil test analysis, evenly over sod surface prior to laying sod.
3. Roll the surface prior to laying sod.

J. Install the sprinkler heads as related to the surface at the appropriate elevation to accommodate sod installation and carefully re-compact around the heads to prevent future settling. The irrigation system shall be tested and its proper operation thoroughly confirmed and demonstrated prior to the installation of sod.

3.4 SODDING

A. Lay sod within 24 hours of harvesting. Do not lay sod if dormant or if ground is frozen or muddy.

B. Sod shall be TifTuf Bermuda sod. The netting on the back of the sod shall be removed prior to installation of the sod. Netting to be disposed of properly, of site.

C. Lay sod to form a solid mass with tightly fitted joints. Butt ends and sides of sod; do not stretch or overlap. Stagger sod strips or pads to offset joints in adjacent courses. Avoid damage to soil or sod during installation. Tamp and roll lightly to ensure contact with soil, eliminate air pockets, and form a smooth surface. Work sifted soil or fine sand into minor cracks between pieces of sod; remove excess to avoid smothering sod and adjacent grass.

D. Immediately after sod installation, the irrigation system shall be active through each appropriate zone on a five to ten (5-10) minute cycle until the ground is thoroughly wet. The sod shall be kept moist until rooting occurs and then irrigate as needed to maintain a healthy and vigorous strand of grass.

E. Roll the surface after “rooting in” has occurred.

F. After the project is accepted by the Owner, subsequent watering as well as maintenance shall be the sole responsibility of the Owner as part of the Owner’s maintenance program.

G. Export excess organic materials and soil materials off site.

3.5 TURF MAINTENANCE

A. Turf maintenance is the responsibility of the contractor until final acceptance.

B. General: Maintain the fields until accepted by Owner to assure a healthy and vigorous stand of grass and provide Owner with full instructions and review of the irrigation system for the subsequent care by the Owner. Contractor maintenance until acceptance by the Owner shall include, but not be limited to: fertilizing, moving, weeding, watering and top dressing. Fields will be accepted if they are not properly established, mowed, adequately level, and free of weeds. Sports fields may be accepted on an individual basis by the Owner, as construction is completed.

C. Mowing shall be accomplished utilizing a reel-mower and cut to a height appropriate for the season and approved by the Owner. Mowing shall be accomplished so as not to remove more than 1/3 of the leaf tissue per mowing.

3.6 SATISFACTORY TURF

A. Turf installations shall meet the following criteria as determined by Owner:

1. Satisfactory Sodded Turf: At end of maintenance period, a healthy, well-rooted, even-colored, viable turf has been established, free of weeds, open joints, bare areas, and surface irregularities.

3.7 PESTICIDE APPLICATION

A. Apply pesticides and other chemical products and biological control agents according to requirements of authorities having jurisdiction and manufacturer's written recommendations. Coordinate applications with

Owner's operations and others in proximity to the Work. Notify Owner before each application is performed.

B. Post-Emergent Herbicides (Selective and Nonselective): Apply only as necessary to treat already-germinated weeds and according to manufacturer's written recommendations.

3.8 CLEANUP AND PROTECTION

A. Promptly remove soil and debris created by turf work from paved areas. Clean wheels of vehicles before leaving site to avoid tracking soil onto roads, walks, or other paved areas.

B. Remove surplus soil and waste material, including excess subsoil, unsuitable soil, trash, and debris, and legally dispose of them off Owner's property.

C. Remove nondegradable erosion-control measures after grass establishment period.

END OF SECTION 329250

TECHNICAL SPECIFICATIONS FOR HELEN McCALL PARK IMPROVEMENTS
SECTION 329250-SPORTSFIELDS

SECTION 329250 - SPORTSFIELDS

PART 1 – GENERAL

1.1 DESCRIPTION OF WORK

A. Removal of existing vegetation
B. Grading of sports fields, including fine grading and laser grading.
C. Finish grading of sports fields including laser grading
D. Sodding fields.

1.2 SUBMITTALS

A. Permitting
B. Sand & Root zone Material Analysis – Test shall include the following:
    1. Sand, Silt & Clay Analysis
    2. Percolation Rate
    3. Fertility Analysis & Recommendations

1.3 DEFINITIONS

A. Topsoil: Friable surface soil which is reasonably free of subsoil, rocks, stones, sticks and other debris over one inches (1”) in size in any direction and without weeds, roots and other objection- able material.
B. Sub-Surface Soil: That soil directly below the topsoil being existing in place soil and/or properly compacted imported soil, both being stable as a supporting medium and acceptable as a part of a root zone for sports field construction.
C. Root zone: The combination of silt, sand, clay, organic matter, lime and fertilizer lightly blended into a loose homogenous mixture. Root zone consists of the 2” subsurface soil, 2” of top soil and 2” of sand blended to a depth of 6 inches.
D. Sand: USGA Greens Sand or sand meeting the USGA specification per particle analysis.
E. Dolomitic Limestone, ground to meet agricultural standards containing a minimum of eighty-five percent (85%) carbonates.
F. Fertilizer: A commercial mixed grade fertilizer of nitrogen, phosphorus, potassium and in per- centages recommended based on soil sample analysis.
G. Sod: Tifway 419 Bermuda grass. The sod shall be harvested from vigorously growing, properly

fertilized field(s) with at least one full growing season prior to harvesting. Sod shall be harvested in thirty inch (30") width rolls or larger and the harvest netting shall be removed upon installation.

1.4 QUALITY ASSURANCE

Only experienced subcontractors meeting all of the following qualifications will be considered for the grassing and irrigation of the sportsfields. If the General Contractor proposes to self perform the sports field work described herein, the documentation described below must be submitted within the stipulated time frame. Prime bidders who intend to subcontract the sports field construction must submit documentation listed herein for all sports field subcontractors. This information can be provided after the bid, prior to commencing the work. The General Contractor is responsible for determining the subcontractor's qualifications based on the following criteria.

1. The Sports Field subcontractor must have a minimum of 5 years' experience, having predominately performed the discipline specific work being considered for this project.
2. The Sports Field Contractor or subcontractor shall have built and completed 5 sportsfield construction projects during the past 10 years; said fields shall have included installation of sod or sprigs and have been performed by the actual Sports Field Subcontractor.
3. The Sports Field subcontractor shall perform all required work with staff supervision and employees, using company equipment either owned or leased.
4. The bid shall include submittal of information demonstrating the sports field contractor or subcontractor's qualifications and experience, including, but not limited to the following:

   EXPERIENCE:

   State the following "Listed Data" for all athletic projects completed by the sports field contractor or subcontractor; requiring a minimum of five (5) sports field construction projects within the past ten (10) years.

   - Project's Complete Name and Address
   - Owner's Complete Name, Address, Telephone Area Code and Number, and email address.
   - If applicable, Architect/Engineer's Complete Name, Address, Telephone Area Code and Number, and email address.
   - Year Project Started.
   - Year Project Completed.
   - Description of Responsibilities for all Projects.
   - Identify the project manager and superintendent for the project.
   - Narrative Description of Each Project, noting single field projects, all fields of multiple

field projects, what sports are played on each field, and amenities that were your Company's responsibility. List all sub-contracted work per all fields for all projects. List all work performed directly by your company per all fields for all projects.

- List details and information about all your sub-contractors including, length of relationship, company name, owner's name, their contact person, full addresses and telephone numbers.

4. The owner and its representative shall be the sole judge of the contractor/subcontractor meeting the requirements set forth; the owner's decision will be final. The owner reserves the right to act in its best interest in this determination process, to waive all technicalities and informalities, and to accept only qualified responsible contractors/subcontractors who, in the owner's opinion, meet the above stated provisions.

PART 2 – EXECUTION

2.1 SUBGRADE AND ROOTZONE PREPARATION

A. The work shall include:

1. Meet with the Program Manager, Designer and Owner's Representative(s) before any work is initiated for review and general coordination procedures.
2. The existing fields shall be stripped of any excess organic material or grass prior to commencement of field renovation. Top soil remaining after organic material removal shall be removed and stockpiled for later use.
3. Following establishment of rough grade, the fields shall be tilled with a disc harrow six to eight inches (6"-8") into the subsurface a minimum of three (3) times.
4. Laser grade the subsurface to within ± one-half (1/2") inch of the designated slopes and elevations.
5. Remove small loose rocks, stone and debris using a Harley Rake Machine or equivalent as required, thereby causing the subsurface soil to be reasonably free of such miscellaneous matter. Remove debris from site.
6. Coordinate work with the irrigation subcontractor to ensure all irrigation main lines, valve boxes, electric controls, wires, and pipe trenches are properly installed. Re-compact disturbed areas to prevent future settling. The depth and height of installation is subject to final grade.
7. Add two (2") inches of topsoil, from on-site stockpile area or imported top soil, and laser grade to within ± one-half (1/2") inch of designated slopes and elevations. Remove existing vegetation, from top soil prior to utilizing on the fields.
8. Remove small loose rocks, stone and debris, using a Harley Rake Machine or equivalent as required, thereby causing the topsoil layer to reasonably free of such miscellaneous

matter. Remove debris form site.

a. Apply lime evenly over the surface according to soil test analysis.

9. Add two (2") inches of sand, per the previous definition, to all sports field areas and with laser technology evenly distribute the material to within ± one half (1/2") inch of the designated slopes and elevations.
    a. Blend materials to form root zone to a depth of 6 inches. Final laser grade to ¼".
    b. Add phosphorus and potassium (pre-plant fertilizer) as required by soil test analysis evenly over sod surface prior to laying sod.
    c. Roll the surface prior to laying the sod.
10. Install the sprinkler heads as related to the surface at the appropriate elevation to accommodate sod installation and carefully re-compact around the heads to prevent future settling. The irrigation system shall be tested and its proper operation thoroughly confirmed and demonstrated prior to installation of sod.
11. Initiate the installation of sod.
    a. Sod shall be Tifway 419 Bermuda sod. The netting on the back of the sod shall be removed prior to the installation of the sod. Netting to be disposed of properly, off the site.
    b. Immediately after sod installation, the irrigation system shall be activated through each appropriate zone on a five to ten (5-10) minute cycle until the ground is thoroughly wet. The sod shall be kept moist until rooting occurs and then irrigate as needed a healthy and vigorous stand of grass.
    c. Roll the surface after "rooting in" has occurred.
    d. After the project is accepted by the Owner, subsequent watering as well as maintenance shall be the sole responsibility of the Owner as part of the Owner's maintenance program
    e. Export excess organic materials and soil materials off site.

2.2 MAINTENANCE

A. Maintain the fields until accepted by the Owner to assure a healthy and vigorous stand of grass and shall provide Owner with full instructions and review of the irrigation system for the subsequent care by the Owner. Contractor maintenance until acceptance by the Owner shall include, but not be limited to: fertilizing, mowing, weeding, watering and top dressing. Fields will not be accepted if they are not properly established, mowed, adequately level and free of weeds. Sports fields may be accepted on an individual basis by the Owner, as the construction is completed.

B. Mowing shall be accomplished utilizing a reel-mower and cut to a height appropriate for the season and approved by the Owner. Mowing shall be accomplished so as not to remove more than 1/3 of the leaf tissue per mowing.

2.3 CLEANUP

A. Police and clean up the entire project so that excess soil, sand, containers and debris are removed.

END OF SECTION

TECHNICAL SPECIFICATIONS FOR HELEN McCALL PARK EXPANSION PHASE 1 & PHASE 2
SECTION 331415 – SITE WATER DISTRIBUTION PIPING

PART 1 - GENERAL

1.1 SUMMARY

A. Water system materials, installation, testing, etc. to be provided and performed in accordance with the latest edition of the Standard Design and Construction Specifications by Regional Utilities, operated by Florida Community Services Corp. of Walton County.

1. A copy of the current edition (2022 edition) is available for viewing as appended to this Document.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 331415

TECHNICAL SPECIFICATIONS FOR HELEN McCALL PARK EXPANSION PHASE 1 & PHASE 2
SECTION 334200 – STORMWATER CONVEYANCE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

B. Florida Department of Transportation Standard Specifications for Road and Bridge Construction, current edition. Hereafter referred to as "FDOT Standard Specifications".

1.2 SUMMARY

A. Section Includes:

1. Round corrugated HDPE pipe.
2. PVC pipe and fittings.
3. Concrete pipe and fittings.
4. Cleanouts.
5. Drains.
6. Manholes.
7. Catch basins.
8. Stormwater inlets.
9. Stormwater detention structures.
10. Pipe outlets.
11. RipRap

1.3 DEFINITIONS

A. HDPE: High density polyethylene

B. PVC: Polyvinyl chloride plastic.

C. RCP: Reinforced Concrete Pipe

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings:

1. Manholes: Include plans, elevations, sections, details, frames, and covers.
2. Catch basins and stormwater inlets. Include plans, elevations, sections, details, frames, covers, and grates.

3. Stormwater Detention Structures: Include plans, elevations, sections, details, frames, covers, design calculations, and concrete design-mix reports.

1.5 QUALITY ASSURANCE

A. Manufacturer's Qualifications: Firms regularly engaged in the manufacture of pipes and pipe fittings of types and sizes required, whose products have been in satisfactory use in similar service for not less than 5 years.

B. Piping materials shall bear label, stamp, or other markings of specified testing agency.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Do not store plastic manholes, pipe, and fittings in direct sunlight.

B. Protect pipe, pipe fittings, and seals from dirt and damage.

C. Handle manholes in accordance with manufacturer's written rigging instructions.

D. Handle catch basins and stormwater inlets in accordance with manufacturer's written rigging instructions.

1.7 FIELD CONDITIONS

A. Interruption of Existing Storm Drainage Service: Do not interrupt service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary service in accordance with requirements indicated:

1. Notify and Owner no fewer than **two** days in advance of proposed interruption of service.
2. Do not proceed with interruption of service without Owner's written permission.

PART 2 - PRODUCTS

2.1 HDPE PIPE AND FITTINGS

A. Source Limitations: Obtain ABS pipe and fittings from single manufacturer.

B. HDPE pipe and fittings shall conform to the requirements of AASHTO M-294 and AASHTO MP7, Type S&D.

2.2 CORRUGATED-PE PIPE AND FITTINGS

A. Source Limitations: Obtain corrugated-PE pipe and fittings from single manufacturer.

B. Corrugated-PE Drainage Pipe and Fittings NPS 3 to NPS 10 (DN 80 to DN 250): AASHTO M 252, Type S, with smooth waterway for coupling joints.

C. Corrugated-PE Pipe and Fittings NPS 12 to NPS 60 (DN 300 to DN 1500): AASHTO M 294, Type S, with smooth waterway for coupling joints.

D. Corrugated-PE Silttight Couplings: PE sleeve with ASTM D1056, Type 2, Class A, Grade 2 gasket material that mates with pipe and fittings.

E. Corrugated-PE Soiltight Couplings: AASHTO M 294, corrugated, matching pipe and fittings.

2.3 PVC PIPE AND FITTINGS

A. Source Limitations: Obtain PVC pipe and fittings from single manufacturer.

B. NSF Marking: Comply with NSF 14, "Plastics Piping Systems Components and Related Materials," for plastic piping components. Include marking with "NSF-drain" for plastic storm drain and "NSF-sewer" for plastic storm sewer piping.

C. PVC Corrugated Sewer Piping:

1. Pipe: ASTM F949, PVC, corrugated pipe with bell-and-spigot ends for gasketed joints.
2. Fittings: ASTM F949, PVC molded or fabricated, socket type.
3. Gaskets: ASTM F477, elastomeric seals.

D. PVC Profile Sewer Piping:

1. Pipe: ASTM F794, PVC profile, gravity sewer pipe with bell-and-spigot ends for gasketed joints.
2. Fittings: ASTM D3034, PVC with bell ends.
3. Gaskets: ASTM F477, elastomeric seals.

E. PVC Gravity Sewer Piping:

1. Pipe and Fittings: ASTM F679, T-1 wall thickness, PVC gravity sewer pipe with bell-and-spigot ends and with integral ASTM F477, elastomeric seals for gasketed joints.

2.4 CONCRETE PIPE AND FITTINGS

A. Source Limitations: Obtain concrete pipe and fittings from single manufacturer.

B. Reinforced-Concrete Sewer Pipe and Fittings: ASTM C76 (ASTM C76M).

1. Bell-and-spigot or tongue-and-groove ends and gasketed joints with ASTM C443 (ASTM C443M), rubber gaskets.
2. Class III, Wall B.
3. Class IV, Wall B.
4. Class V, Wall B.

2.5 NONPRESSURE TRANSITION COUPLINGS

A. Comply with ASTM C1173, elastomeric, sleeve-type, reducing or transition coupling, for joining underground nonpressure piping. Include ends of same sizes as piping to be joined, and corrosion-resistant-metal tension band and tightening mechanism on each end.

B. Sleeve Materials:

1. For Concrete Pipes: ASTM C443 (ASTM C443M), rubber.
2. For Plastic Pipes: ASTM F477, elastomeric seal or ASTM D5926, PVC.
3. For Dissimilar Pipes: ASTM D5926, PVC or other material compatible with pipe materials being joined.

C. Unshielded, Flexible Couplings:

1. Source Limitations: Obtain unshielded, flexible couplings from single manufacturer.
2. Description: Elastomeric sleeve with[stainless-steel shear ring and corrosion-resistant-metal tension band and tightening mechanism on each end.

D. Shielded, Flexible Couplings:

1. Source Limitations: Obtain shielded, flexible couplings from single manufacturer.
2. Description: ASTM C1460, elastomeric or rubber sleeve with full-length, corrosion-resistant outer shield and corrosion-resistant-metal tension band and tightening mechanism on each end.

E. Ring-Type, Flexible Couplings:

1. Source Limitations: Obtain ring-type, flexible couplings from single manufacturer.
2. Description: Elastomeric compression seal with dimensions to fit inside bell of larger pipe and for spigot of smaller pipe to fit inside ring.

2.6 CLEANOUTS

A. PVC Cleanouts:

1. Source Limitations: Obtain PVC cleanouts from single manufacturer.
2. Description: PVC body with PVC threaded plug. Include PVC sewer pipe fitting and riser to cleanout of same material as sewer piping.

2.7 MANHOLES

A. In accordance with FDOT Standard Specifications.

2.8 CONCRETE

A. General: Cast-in-place concrete in accordance with ACI 318, ACI 350 , and the following:

1. Cement: ASTM C150/C150M, Type II.
2. Fine Aggregate: ASTM C33/C33M, sand.
3. Coarse Aggregate: ASTM C33/C33M, crushed gravel.
4. Water: Potable.

B. Portland Cement Design Mix: 4000 psi (27.6 MPa) minimum, with 0.45 maximum water/cementitious materials ratio.

1. Reinforcing Fabric: ASTM A1064/A1064M, steel, welded wire fabric, plain.

2. Reinforcing Bars: ASTM A615/A615M, Grade 60 (420 MPa) deformed steel.

C. Ballast and Pipe Supports: Portland cement design mix, 3000 psi (20.7 MPa) minimum, with 0.58 maximum water/cementitious materials ratio.

1. Reinforcing Fabric: ASTM A1064/A1064M, steel, welded wire fabric, plain.
2. Reinforcing Bars: ASTM A615/A615M, Grade 60 (420 MPa) deformed steel.

2.9 CATCH BASINS

A. In accordance with Manufacturer's and FDOT Standard Specifications.

2.10 STORMWATER INLETS

A. In accordance with Manufacturer's and FDOT Standard Specifications.

2.11 STORMWATER DETENTION STRUCTURES

A. Cast-in-Place Concrete, Stormwater Detention Structures: Constructed of reinforced-concrete bottom, walls, and top; designed in accordance with ASTM C890 for A-16 (AASHTO HS20-44), heavy-traffic, structural loading; of depth, shape, dimensions, and appurtenances indicated.

1. Ballast: Increase thickness of concrete as required to prevent flotation.

B. Manhole Frames and Covers: ASTM A536, Grade 60-40-18, ductile-iron castings designed for heavy-duty service. Include 24-inch ID by 7- to 9-inch riser with 4-inch- minimum width flange, and 26-inch- diameter cover. Include indented top design with lettering cast into cover, using wording equivalent to "STORM SEWER."

2.12 PIPE OUTLETS

A. Mitered End Sections: In accordance with FDOT Standard Specifications.

B. Head Walls: Cast-in-place reinforced concrete, with apron and tapered sides.

2.13 RIPRAP

A. Class 2 RipRap

1. Riprap shall be durable stone with a minimum weight of 165 pounds per cubic foot. Riprap gradation shall conform to the requirements of Class 2 riprap, Alabama Highway Department Standard Specifications for Highway Construction, Section 814 (current edition).
2. Stone for Class 2 Riprap shall consist of reasonably well-graded durable rock with a median stone size of 80 pounds and not over 10 percent larger than 200 pounds. There shall be sufficient small stones and spails to approximately fill the void between the larger stones.

PART 3 - EXECUTION

3.1 EARTHWORK

A. Excavation, trenching, and backfilling are specified in Section 312000 "Earth Moving."

3.2 PIPING INSTALLATION

A. General Locations and Arrangements: Drawing plans and details indicate general location and arrangement of underground storm drainage piping. Location and arrangement of piping layout take into account design considerations. Install piping as indicated, to extent practical. Where specific installation is not indicated, follow piping manufacturer's written instructions.

B. Install piping beginning at low point, true to grades and alignment indicated with unbroken continuity of invert. Place bell ends of piping facing upstream. Install gaskets, seals, sleeves, and couplings in accordance with manufacturer's written instructions for use of lubricants, cements, and other installation requirements.

C. Install manholes for changes in direction unless fittings are indicated. Use fittings for branch connections unless direct tap into existing sewer is indicated.

D. Install proper size increasers, reducers, and couplings where different sizes or materials of pipes and fittings are connected. Reducing size of piping in direction of flow is prohibited.

E. When installing pipe under streets or other obstructions that cannot be disturbed by tunneling, jacking, or a combination of both

F. Install gravity-flow, nonpressure drainage piping in accordance with the following:

1. Install piping pitched down in direction of flow.
2. Install piping **NPS 6** and larger with restrained joints at tee fittings and at changes in direction. Use corrosion-resistant rods, pipe or fitting manufacturer's proprietary restraint system, or cast-in-place concrete supports or anchors.
3. Install piping with 12 inch- minimum cover.
4. Install PE corrugated sewer piping in accordance with ASTM D2321.
5. Install PVC sewer piping in accordance with ASTM D2321 and ASTM F1668.
6. Install PVC profile gravity sewer piping in accordance with ASTM D2321 and ASTM F1668.
7. Install reinforced-concrete sewer piping in accordance with ASTM C1479 and ACPA's "Concrete Pipe Installation Manual."
8. Installation of HDPE pipe shall be in accordance with ASTM recommended practice D-2323, AASHTO section 30, or in accordance with FDOT Standard Specifications.

3.3 PIPE JOINT CONSTRUCTION

A. Join gravity-flow, nonpressure drainage piping in accordance with the following:

1. Join corrugated-PE piping in accordance with ASTM D3212 for push-on joints.
2. Join PVC corrugated sewer piping in accordance with ASTM D2321 for elastomeric-seal joints.
3. Join PVC sewer piping in accordance with ASTM D2321 and ASTM D3034 for elastomeric-seal joints or ASTM D3034 for elastomeric-gasketed joints.

4. Join PVC profile gravity sewer piping in accordance with ASTM D2321 for elastomeric-seal joints or ASTM F794 for gasketed joints.
5. Join reinforced-concrete sewer piping in accordance with ACPA's "Concrete Pipe Installation Manual" for rubber-gasketed joints.
6. Join dissimilar pipe materials with nonpressure-type flexible couplings.

B. Join force-main pressure piping in accordance with the following:

1. Join ductile-iron pressure piping in accordance with AWWA C600 or AWWA M41 for push-on joints.
2. Join ductile-iron special fittings in accordance with AWWA C600 or AWWA M41 for push-on joints.
3. Join PVC pressure piping in accordance with AWWA M23 for gasketed joints.
4. Join PVC water-service piping in accordance with ASTM D2855 for solvent-cemented joints.
5. Join dissimilar pipe materials with pressure-type couplings.

3.4 DRAIN INSTALLATION

A. Install type of drains in locations indicated.

1. Use Light-Duty, top-loading classification drains in **earth or unpaved foot-traffic** areas.
2. Use Medium-Duty, top-loading classification drains in **paved foot-traffic** areas.
3. Use Heavy-Duty, top-loading classification drains in **vehicle-traffic service** areas.

B. Embed drains in 4-inch- minimum concrete around bottom and sides.

C. Fasten grates to drains if indicated.

D. Set drain frames and covers with tops flush with pavement surface.

E. Assemble trench sections with flanged joints.

3.5 MANHOLE INSTALLATION

A. General: Install manholes, complete with appurtenances and accessories indicated.

B. Install precast concrete manhole sections with sealants in accordance with ASTM C891.

C. Where specific manhole construction is not indicated, follow manhole manufacturer's written instructions.

D. Set tops of frames and covers flush with finished surface of manholes that occur in pavements. Set tops **3** inches above finished surface elsewhere unless otherwise indicated.

3.6 CATCH BASIN INSTALLATION

A. Construct catch basins to sizes and shapes indicated.

B. Set frames and grates to elevations indicated.

3.7 STORMWATER INLET AND OUTLET INSTALLATION

A. Construct inlet head walls, aprons, and sides of reinforced concrete, as indicated.

B. Construct riprap of broken stone, as indicated.

C. Install outlets that spill onto grade, anchored with concrete, where indicated.

D. Install outlets that spill onto grade, with mitered end sections that match pipe, where indicated.

E. Construct energy dissipaters at outlets, as indicated.

3.8 RIPRAP

A. Subgrade Preparation

1. The subgrade surfaces on which the rock riprap, filter or bedding is to be placed shall be cut or filled and graded to the lines and grades shown on the drawings. When fill to subgrade line is required, it shall consist of approved materials and shall conform to the requirements of the specified class of fill.
2. Rock riprap, filter or bedding shall not be placed until the foundation preparation is completed and the subgrade surfaces have been inspected and approved by the Engineer.

3.9 CONCRETE PLACEMENT

A. Place cast-in-place concrete in accordance with ACI 318.

3.10 CONNECTIONS

A. Make connections to existing piping and underground manholes.

1. Use commercially manufactured wye fittings for piping branch connections. Remove section of existing pipe; install wye fitting into existing piping; and encase entire wye fitting, plus 6-inch overlap, with not less than 6 inches of concrete with 28-day compressive strength of 3000 psi.
2. Make branch connections from side into existing piping, NPS 4 to NPS 20. Remove section of existing pipe, install wye fitting into existing piping, and encase entire wye with not less than 6 inches (150 mm) of concrete with 28-day compressive strength of 3000 psi (20.7 MPa).
3. Make branch connections from side into existing piping, NPS 21 or larger, or to underground manholes and structures by cutting into existing unit and creating an opening large enough to allow 3 inches of concrete to be packed around entering connection. Cut end of connection pipe passing through pipe or structure wall to conform to shape of and be flush with inside wall unless otherwise indicated. On outside of pipe, manhole, or structure wall, encase entering connection in 6 inches of concrete for minimum length of 12 inches to provide additional support of collar from connection to undisturbed ground.

    a. Use concrete that will attain a minimum 28-day compressive strength of 3000 psi unless otherwise indicated.
    b. Use epoxy-bonding compound as interface between new and existing concrete and piping materials.

4. Protect existing piping, manholes, and structures to prevent concrete or debris from entering while making tap connections. Remove debris or other extraneous material that may accumulate.

3.11 IDENTIFICATION

A. Materials and their installation are specified in Section 312000 "Earth Moving." Arrange for installation of green warning tape directly over piping and at outside edge of underground structures.

1. Use detectable warning tape over ferrous piping.
2. Use detectable warning tape over nonferrous piping and over edges of underground structures.

3.12 FIELD QUALITY CONTROL

A. Inspect interior of piping to determine whether line displacement or other damage has occurred. Inspect after approximately 24 inches of backfill is in place, and again at completion of Project.

1. Submit separate reports for each system inspection.
2. Defects requiring correction include the following:

    a. Alignment: Less than full diameter of inside of pipe is visible between structures.
    b. Deflection: Flexible piping with deflection that prevents passage of ball or cylinder of size not less than 92.5 percent of piping diameter.
    c. Damage: Crushed, broken, cracked, or otherwise damaged piping.
    d. Infiltration: Water leakage into piping.
    e. Exfiltration: Water leakage from or around piping.

3. Replace defective piping using new materials, and repeat inspections until defects are within allowances specified.
4. Reinspect and repeat procedure until results are satisfactory.

B. Test new piping systems, and parts of existing systems that have been altered, extended, or repaired, for leaks and defects.

1. Do not enclose, cover, or put into service before inspection and approval.
2. Test completed piping systems in accordance with requirements of authorities having jurisdiction.
3. Schedule tests and inspections by authorities having jurisdiction with at least 24 hours' advance notice.
4. Submit separate report for each test.
5. Gravity-Flow Storm Drainage Piping: Test in accordance with requirements of authorities having jurisdiction, UNI-B-6, and the following:

    a. Exception: Piping with soiltight joints unless required by authorities having jurisdiction.
    b. Option: Test plastic piping in accordance with ASTM F1417.

C. Leaks and loss in test pressure constitute defects that must be repaired.

D. Replace leaking piping using new materials, and repeat testing until leakage is within allowances specified.

3.13 CLEANING

A. Clean interior of piping of dirt and superfluous materials. Flush with potable water.

END OF SECTION 334200

TECHNICAL SPECIFICATIONS FOR HELEN McCALL PARK EXPANSION PHASE 1 & PHASE 2
SECTION 334600 – SUBDRAINAGE

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Perforated-wall pipe and fittings.
2. Drainage conduits.
3. Drainage panels.
4. Geotextile filter fabrics.

1.2 ACTION SUBMITTALS

A. Product Data:

1. Drainage conduits, including rated capacities.
2. Drainage panels, including rated capacities.
3. Geotextile filter fabrics.

PART 2 - PRODUCTS

2.1 PERFORATED-WALL PIPES AND FITTINGS

A. Perforated PVC Sewer Pipe and Fittings: ASTM D2729, bell-and-spigot ends, for loose joints.

2.2 SOIL MATERIALS

A. Soil materials are specified in Section 312000 "Earth Moving."

2.3 GEOTEXTILE FILTER FABRICS

A. Description: Fabric of PP or polyester fibers or combination of both, with flow rate range from 110 to 330 gpm/sq. ft. when tested in accordance with ASTM D4491.

B. Structure Type: Nonwoven, needle-punched continuous filament.

1. Survivability: AASHTO M 288 Class 2.
2. Styles: Flat and sock.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine surfaces and areas for suitable conditions where subdrainage systems are to be installed.

B. If subdrainage is required for landscaping, locate and mark existing utilities, underground structures, and aboveground obstructions before beginning installation and avoid disruption and damage of services.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 EARTHWORK

A. Excavating, trenching, and backfilling are specified in Section 312000 "Earth Moving."

3.3 FIELD SUBDRAINAGE INSTALLATION

A. Provide trench width to allow installation of drainage conduit. Grade bottom of trench excavations to required slope, and compact to firm, solid bed for drainage system.

B. Lay flat-style geotextile filter fabric in trench and overlap trench sides.

C. Place supporting layer of drainage course over compacted subgrade and geotextile filter fabric, to compacted depth of not less than 4 inches.

D. Install drainage conduits as indicated in Part 3 "Piping Installation" Article for landscaping subdrainage with horizontal distance of at least 6 inches between conduit and trench walls. Wrap drainage conduits without integral geotextile filter fabric with flat-style geotextile filter fabric before installation. Connect fabric sections with adhesive or tape.

E. Add drainage course to top of drainage conduits.

F. After satisfactory testing, cover drainage conduit to within 12 inches (300 mm) of finish grade.

G. Install drainage course and wrap top of drainage course with flat-style geotextile filter fabric.

H. Place layer of flat-style geotextile filter fabric over top of drainage course, overlapping edges at least 4 inches.

I. Fill to Grade: Place satisfactory soil fill material over drainage course. Place material in loose-depth layers not exceeding 6 inches (150 mm). Thoroughly compact each layer. Fill to finish grade.

3.4 LANDSCAPE DRAINAGE INSTALLATION

A. Provide trench width to allow installation of drainage conduit. Grade bottom of trench excavations to required slope, and compact to firm, solid bed for drainage system.

B. Lay flat-style geotextile filter fabric in trench and overlap trench sides.

C. Place supporting layer of drainage course over compacted subgrade and geotextile filter fabric, to compacted depth of not less than 4 inches.

D. Install drainage conduits as indicated in Part 3 "Piping Installation" Article for landscaping subdrainage with horizontal distance of at least 6 inches between conduit and trench walls. Wrap drainage conduits without integral geotextile filter fabric with flat-style geotextile filter fabric before installation. Connect fabric sections with adhesive or tape.

E. Add drainage course to top of drainage conduits.

F. After satisfactory testing, cover drainage conduit to within 12 inches (300 mm) of finish grade.

G. Install drainage course and wrap top of drainage course with flat-style geotextile filter fabric.

H. Place layer of flat-style geotextile filter fabric over top of drainage course, overlapping edges at least 4 inches.

I. Fill to Grade: Place satisfactory soil fill material over drainage course. Place material in loose-depth layers not exceeding 6 inches (150 mm). Thoroughly compact each layer. Fill to finish grade.

3.5 PIPING INSTALLATION

A. Install piping beginning at low points of system, true to grades and alignment indicated, with unbroken continuity of invert. Bed piping with full bearing in filtering material. Install gaskets, seals, sleeves, and couplings in accordance with manufacturer's written instructions and other requirements indicated.

1. Field Subdrainage: Install piping level and with a minimum cover as indicated on the drawings.
2. Landscaping Subdrainage: Install piping pitched down in direction of flow, at a minimum slope of 0.5 percent and with a minimum cover of 36 inches unless otherwise indicated.
3. Lay perforated pipe with perforations down.
4. Excavate recesses in trench bottom for bell ends of pipe. Lay pipe with bells facing upslope and with spigot end entered fully into adjacent bell.

B. Use increasers, reducers, and couplings made for different sizes or materials of pipes and fittings being connected. Reduction of pipe size in direction of flow is prohibited.

C. Install thermoplastic piping in accordance with ASTM D2321.

3.6 PIPE JOINT CONSTRUCTION

A. Join perforated PE pipe and fittings with couplings in accordance with ASTM D3212 with loose banded, coupled, or push-on joints.

B. Join perforated PVC sewer pipe and fittings in accordance with ASTM D3212 with loose bell-and-spigot, push-on joints.

C. Special Pipe Couplings: Join piping made of different materials and dimensions with special couplings made for this application. Use couplings that are compatible with and fit materials and dimensions of both pipes.

3.7 CLEANOUT INSTALLATION

A. Comply with requirements for cleanouts specified in Section 334100 "Storm Utility Drainage Piping."

B. Cleanouts for Landscaping Subdrainage:

1. Install cleanouts from piping to grade. Locate cleanouts at beginning of piping run and at changes in direction. Install fittings so cleanouts open in direction of flow in piping.
2. In vehicular-traffic areas, use NPS 4 cast-iron soil pipe and fittings for piping branch fittings and riser extensions to cleanout. Set cleanout frames and covers in a cast-in-place concrete anchor, 18 by 18 by 12 inches deep. Set top of cleanout flush with grade.
3. In nonvehicular-traffic areas, use NPS 4 PVC pipe and fittings for piping branch fittings and riser extensions to cleanout. Set cleanout frames and covers in a cast-in-place concrete anchor, 12 by 12 by 4 inches deep. Set top of cleanout 1 inch above grade.
4. Comply with requirements for concrete specified in Section 033000 "Cast-in-Place Concrete."

3.8 CONNECTIONS

A. Drawings indicate general arrangement of piping, fittings, and specialties.

B. Comply with requirements for piping specified in Section 334100 "Storm Utility Drainage Piping." Drawings indicate general arrangement of piping, fittings, and specialties.

C. Connect low elevations of subdrainage system to solid-wall-piping storm drainage system.

3.9 IDENTIFICATION

A. Arrange for installation of green warning tapes directly over piping. Comply with requirements for underground warning tapes specified in specified in Section 312000 "Earth Moving."

1. Install detectable warning tape over nonferrous piping and over edges of underground structures.

3.10 FIELD QUALITY CONTROL

A. Tests and Inspections:

1. After installing drainage course to top of piping, test drain piping with water to ensure free flow before backfilling.
2. Remove obstructions, replace damaged components, and repeat test until results are satisfactory.

3.11 CLEANING

A. Clear interior of installed piping and structures of dirt and other superfluous material as work progresses. Maintain swab or drag in piping and pull past each joint as it is completed. Place plugs in ends of uncompleted pipe at end of each day or when work stops.

END OF SECTION 334600

APPENDIX A

GEOTECHNICAL REPORT

MAGNUM ENGINEERING INC
GEOTECHNICAL ENGINEERING CONSULTANTS

GEOTECHNICAL ENGINEERING REPORT

HELEN MCCALL PARK
EXPANSION PHASE I
WALTON COUNTY, FLORIDA

PREPARED FOR:

MR. RUDY MALL, PE

DEWBERRY ENGINEERS INC.
877 CR 393 NORTH
SANTA ROSA BEACH, FLORIDA 32459

429 FLORIDA AVENUE
LYNN HAVEN, FLORIDA 32444
TELEPHONE (850) 258.0994
magnum.engineering@yahoo.com

MAGNUM ENGINEERING INC
GEOTECHNICAL ENGINEERING CONSULTANTS

September 23, 2022

Mr. Rudy Mall, PE
Dewberry Engineers Inc.
877 CR 393 North
Santa Rosa Beach, Florida 32459

SUBJECT: Helen McCall Park Expansion Phase I
Geotechnical Services Walton County, Florida
Project Number: M122-109-180

Dear Mr. Mall:

This letter forwards the results of our Geotechnical exploration for the proposed development. Our exploration consisted of Three (3) 20-feet deep Standard Penetration (SPT) borings in the proposed building footprint (Note: B-4 resulted in a 5' Hand Auger boring being performed due to not being able to access with our truck mounted drill rig. In addition, Ten (10) 5-feet deep hand auger borings in the proposed pavement and stormwater retention areas. However, due to standing water at locations HA-5 and HA-7 the hand auger borings were not able to be performed at the time of our exploration. The subsurface exploration was conducted to provide information needed in the design of an effective foundation system and pavement area(s) for the referenced development, as well as to provide soil related information in the stormwater management area to aid in the design of an effective pond design in accordance with ERP and/or local municipal regulations.

The following report presents the results of our study as well as our evaluation and recommendations pertaining to the geotechnical aspects of the project. Upon completion of our field testing, the samples were brought back to the office for visual inspection, classification, and analysis by our engineering staff.

Project Information

The subject site is located south of US Highway 98 on both east and west sides of south Moll Drive in Walton County, Florida. At the time of our exploration, the site partially developed with existing ball fields including roadways and parking areas. The site was sparsely wooded in areas and easily accessible with our track mounted drill rig for borings B-1 through B-3.

No structural information had been provided at the writing of this report, however, we have assumed wall loads to be less than 2 kips per linear foot and maximum isolated column loads not to exceed 20 kips.

If any of the above information is incorrect, please inform Magnum Engineering, Inc. so that we can review and update our recommendations, as needed.

Subsurface Conditions

Figure #1 shows the Boring Location Plan and Figure #2 shows the Logs of Borings for Standard Penetration Test (SPT) borings B-1 through B-3 and hand auger borings HA-1 through HA-10 and B-4 (Note: HA-5 and HA-7 were not performed due to standing water at the time of our exploration). The test locations were established in the field using a 100-foot tape and estimating right angles with reference to existing structures, thus, the test location should be considered approximate.

Building Borings

The building borings (B-1 through B-3) generally encountered loose to medium dense slightly silty fine sands, silty fine sands, and clayey fine sands from the ground surface to the bottom of the 20-feet deep Standard Penetration Test (SPT) borings. Please refer to the attached Logs of Borings (Figure 2) for detailed descriptions of the soils encountered at each boring location.

Pavement and Stormwater Borings

The hand auger borings (HA-1 through HA-10) generally encountered slightly silty fine sands, silty fine sands and clayey fine sands from the ground surface to the bottom of the 2-feet to 4-feet deep auger borings performed. Boring depths were terminated at various depths due to encountering shallow groundwater at the time of our exploration.

The above subsurface descriptions are of a generalized nature, provided to highlight the major soil strata encountered. The Logs of Boring should be reviewed for specific subsurface conditions at each boring location. The stratifications shown on the Logs of Boring represent the subsurface conditions at the actual boring locations only, and variations in the subsurface conditions can and may occur between boring locations and should therefore be expected. The stratifications represent the approximate boundary between subsurface materials, and the transitions between strata may be gradual.

Please refer to the attached Logs of Boring presented as Figure #2 for a detailed description of the subsurface conditions encountered.

Groundwater Conditions

Groundwater was encountered from the existing ground surface to 3.0 depth of the borings on (7/18/22 & 8/1/2022), which was during a period of normal seasonal rainfall. Groundwater levels will fluctuate with rainfall and could vary several feet during typical seasonal fluctuations. Larger fluctuations are possible under severe weather conditions. The following Table #1 presents the groundwater levels at each boring location.

Table #2

Location	Depth to Existing Groundwater Table (FT)	Estimated Seasonal High Groundwater Level (FT)
B-1	2.0	1.0
B-2	3.0	2.0
B-3	2.0	1.0
B-4	1.5	0.5
HA-1	0.3	Surface
HA-2	Surface	Surface
HA-3	2.3	1.3
HA-4	2.2	1.2
HA-5	Did Not Perform due to Standing Water	Surface
HA-6	Surface	Surface
HA-7	Did Not Perform due to Standing Water	Surface
HA-8	Surface	Surface
HA-9	0.7	Surface
HA-10	0.8	Surface

We recommend that the Contractor verify the actual groundwater levels at the time of construction to determine potential impacts groundwater will have on construction procedures.

CONCLUSIONS AND RECOMMENDATIONS

General

The following geotechnical related design recommendations have been developed on the basis of the previously described project characteristics and subsurface conditions encountered. If there are any changes in these project criteria, including project location on the site, a review should be made by Magnum Engineering to determine if modifications to the recommendations are warranted.

Once final design plans and specifications are available, a general review by Magnum Engineering is recommended as a means to check that the evaluations made in preparation of this report are correct and that earthwork and foundation recommendations are properly interpreted and implemented.

Site Preparation

Because of the existing structures present on site, special care should be taken to remove all existing drain pipes, water lines, etc. associated with the existing structure in the area of the new addition. Additionally, the site should be cleared and grubbed of surface vegetation. As a minimum, it is recommended the clearing operations extend at least five feet beyond the development perimeters.

The existing subgrade soils should be compacted to at least 95 percent of the Modified Proctor (ASTM D-1557) maximum dry density to a depth of 12 inches below grade.

Engineered Fill

All fill used to raise the building area to final grades should consist of sandy soils with less than 15 percent passing the No. 200 sieve. These soils should be free of rubble, organics, clay, debris and other unsuitable material. Fill should be placed in lifts on the order of 12 inches or less (in loose thickness) and compacted to 95 percent of the soil's Modified Proctor maximum dry density, per ASTM D-1557.

Foundations

With proper subgrade preparation and compaction/densification as described herein, the site soils should be capable of supporting the proposed structure on shallow foundations. The existing near surface soils and fill soils should be prepared as previously recommended to improve foundation support and reduce total and differential settlements.

Based on the anticipated construction and site preparation requirements recommended herein, it is our opinion that the building can be supported on shallow foundations designed for a **net maximum allowable bearing pressure of 2,000 pounds per square foot (psf**). The following geotechnical related recommendations should be used for design and construction of the foundations.

- The foundation and floor slab should bear on properly improved existing subgrade or on properly placed and compacted cohesionless (sand) fill.
- The soils to a depth of one foot below the footings and floor slabs and all new fill should be compacted to 95 percent of the soil's Modified Proctor (ASTM D-1557) density.
- Exterior footings should be embedded so that the bottom of the foundation is a minimum of 18 inches below the adjacent compacted grades.
- Strip or wall footings should be a minimum of 18 inches wide and pad or column footings should be a minimum of three feet wide. The minimum footing sizes should be used regardless of whether or not the foundation loads and allowable bearing pressures dictate a smaller size.

- All footings should be constructed in a "dry" fashion.

- Structural elements should be centered on the footings such that the load is transferred evenly unless the footings are proportioned for eccentric loads.

Settlement

The settlement of shallow foundations supported on sandy soils should occur rapidly after loading. The majority of expected settlement should occur during construction as dead loads are imposed. Total settlements of footings are **estimated to be less than 1 inch**, with differential settlement on the order of 50 percent of the total settlements. Total and differential settlements of these magnitudes are usually considered tolerable for the anticipated construction; however, the tolerance of the proposed structures to the predicted total and differential settlements should be confirmed by the structural engineer.

Ground Floor Slab

The ground floor slab can be safely supported as a slab-on-grade. In this regard, it is recommended that the ground floor slab be "floating," that is, generally ground supported and not rigidly connected to walls or foundations. This is to minimize the possibility of cracking and displacement of the floor slab because of differential movements between the slab and the foundation.

The subgrade should be covered by an effective vapor barrier to reduce the loss of water from the plastic concrete into the subgrade soils and to reduce the possibility of slab dampness due to moisture.

Pavements

Initially, the pavement areas should be cleared, grubbed, and stripped of topsoil and other deleterious material (i.e. concrete pavement). Special care should be taken to ensure that all stumps, root systems and peaty soils (if present) are removed from beneath the proposed pavement areas.

Prior to placing fill soils, where applicable, the top of the ground surface should be compacted to a minimum soil density of 95% of the Modified Proctor Test (ASTM D1557). Structural fill soils should be placed in maximum 12-inch lifts and compacted to a minimum soil density of 95% of the Modified Proctor Test (ASTM D1557). The top 12 inches of subgrade should be compacted to a minimum soil density of 98% of the Modified Proctor Test (ASTM D1557). The top 12 inches of subgrade should have a minimum LBR value of 40. We recommend that structural fill soils, where planned, have a minimum LBR of 40.

Based on the subsurface conditions encountered in the test borings, we recommend using a graded aggregate base (i.e. limerock or crushed concrete). The base course should be compacted to a minimum soil density of 98% of the Modified Proctor Test (ASTM D1557). We recommend the base course have a minimum LBR value of 100.

Without benefit of traffic loads, volumes, and serviceability parameters, a pavement section cannot be designed. However, typical parking lots in the local area generally consist of a minimum of 1½ inches of FDOT Superpave Mix SP-12.5 or SP-9.5 asphaltic concrete and a minimum of 6 inches of base. Moderate duty traffic areas (e.g. main entrance areas) typically have a minimum pavement section consisting of 2 inches of FDOT Superpave Mix SP-12.5 asphaltic concrete and 8 inches of base. The above sections represent minimum thicknesses representative of typical, local construction practices, and as such periodic maintenance should be anticipated. All pavement materials and construction procedures should conform to FDOT and/or appropriate city or county requirements.

Preparation of the subgrade soils for the parking and drive lanes should be prepared in general accordance with the site soil preparation recommendations described for the building area. While specific traffic loads and volumes for the project have not been provided, we are providing recommended light-duty and medium-duty pavement sections, which have been successfully utilized for this type of commercial development in the Northwest Florida area with similar traffic loadings.

Light Duty (Automobile Parking)

- 1 ½ inches Asphalt Concrete (FDOT Superpave Mix SP-12.5 or SP-9.5)
- 6 inches Crushed Limerock or Graded Aggregate Base
- 12 inches stabilized subgrade (minimum LBR40)

Medium Duty (Entrance Lanes, Truck Bays)

- 2 inches Asphaltic Concrete (FDOT Superpave Mix SP-12.5)
- 8 inches Crushed Limerock or Graded Aggregate Base
- 12 inches Stabilized Subgrade (minimum LBR40)

A rigid pavement section merits consideration for areas to receive relatively high concentrated sustained loads such as dumpsters and loading/storage areas. A rigid concrete pavement of 6 inches in minimum thickness will distribute concentrated loads over a greater area, hence reducing the possibility of high stress concentrations to the subgrade. The concrete used for rigid pavement should have a minimum 28-day flexural strength of 650 psi and a maximum slump of 4 inches. The subgrade should consist of a near uniform soil of equivalent moisture content and density. Pavement joints, reinforcing, and details should be designed in accordance with applicable American Concrete Institute (ACI) standards.

The above recommended pavement sections represent minimum design thicknesses and, as such, periodic maintenance should be anticipated. Also, these recommended pavement sections should be confirmed or modified by your Civil Engineer, based on actual traffic and the owner's requirements. The pavement section materials and construction should comply with the Florida DOT and local municipality requirements.

Warranty and Limitations of Study

Our professional services have been performed, our findings obtained, and our recommendations prepared in accordance with generally accepted geotechnical engineering principles and practices. This warranty is in lieu of all other warranties, either expressed or implied. Magnum Engineering, Inc. is not responsible for the independent conclusions, opinions or recommendations made by others based on the field exploration and laboratory test data presented in this report.

Soil conditions at other locations may differ from those encountered in the test borings, and the passage of time may cause the soils conditions to change from those described in this report.

This report is intended for use by the designers of this project. While we have no objections to it being provided for review by parties to this project, it is not a specification document and is not to be used as a part of the specifications. If desired, we can assist in the development of specifications for this project based upon our exploration.

The nature and extent of variation and change in the subsurface conditions at the site may not become evident until the course of construction. Construction monitoring by the geotechnical engineer or his representative is therefore considered necessary to verify the subsurface conditions and to check that the soils connected construction phases are properly carried out. If significant variations or changes are in evidence, it may be necessary to reevaluate the recommendations in this report.

Furthermore, if the project characteristics are altered significantly from those discussed in this report, if the project information contained in this report is incorrect or if additional information becomes available, a review must be made by this office to determine if any modifications in the recommendations will be necessary.

We hope this letter provides sufficient information for the present. If you have any questions or comments, please feel free to call.

Sincerely,
MAGNUM ENGINEERING. INC.

JAMES T. VICKERS, P.E.
Sr. Geotechnical Engineer
Florida Registration # 56813

James T. Vickers, P.E.
Digitally signed by James T. Vickers, P.E.
Date: 2022.09.26 09:47:03 -05'00'

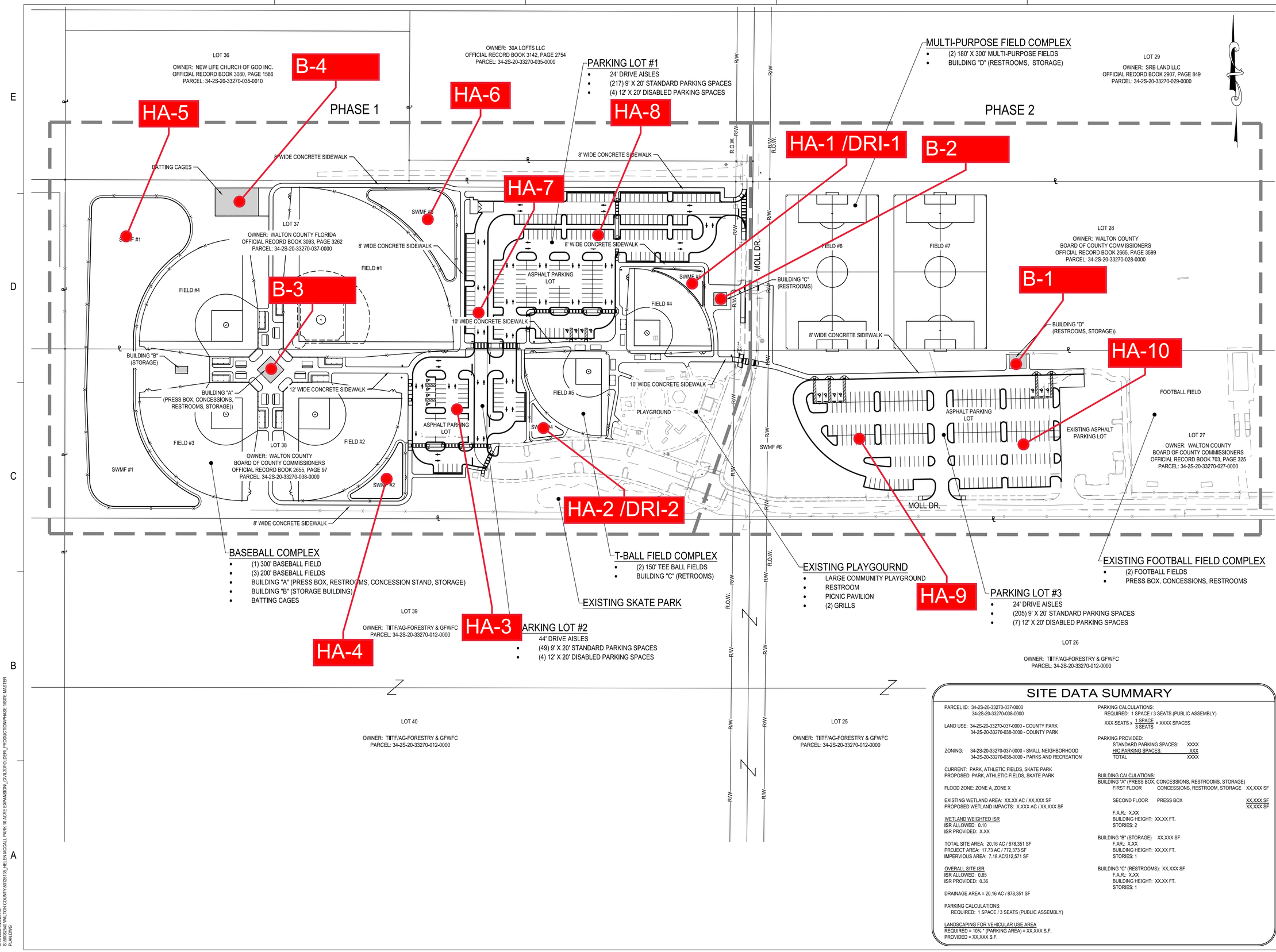
Attachments: Figure #1 – Boring Location Plan
Figure #2 – Log of Borings

MAGNUM ENGINEERING INC

GEOTECHNICAL ENGINEERING
CONSULTANTS

BORING LOCATION PLAN

FIGURE # 1



SITE DATA SUMMARY

PARCEL ID: 34-2S-20-33270-037-0000
34-2S-20-33270-038-0000

LAND USE: 34-2S-20-33270-037-0000 - COUNTY PARK
34-2S-20-33270-038-0000 - COUNTY PARK

ZONING: 34-2S-20-33270-037-0000 - SMALL NEIGHBORHOOD
34-2S-20-33270-038-0000 - PARKS AND RECREATION

CURRENT: PARK, ATHLETIC FIELDS, SKATE PARK
PROPOSED: PARK, ATHLETIC FIELDS, SKATE PARK

FLOOD ZONE: ZONE A, ZONE X

EXISTING WETLAND AREA: XX.XX AC / XX,XXX SF
PROPOSED WETLAND IMPACTS: X.XXX AC / XX,XXX SF

WETLAND WEIGHTED ISR
ISR ALLOWED: 0.10
ISR PROVIDED: X.XX

TOTAL SITE AREA: 20.16 AC / 878,351 SF
PROJECT AREA: 17.73 AC / 772,373 SF
IMPERVIOUS AREA: 7.18 AC/312,571 SF

OVERALL SITE ISR
ISR ALLOWED: 0.85
ISR PROVIDED: 0.36

DRAINAGE AREA = 20.16 AC / 878,351 SF

PARKING CALCULATIONS:
REQUIRED: 1 SPACE / 3 SEATS (PUBLIC ASSEMBLY)

LANDSCAPING FOR VEHICULAR USE AREA
REQUIRED = 10% * (PARKING AREA) = XX,XXX S.F.
PROVIDED = XX,XXX S.F.

PARKING CALCULATIONS:
REQUIRED: 1 SPACE / 3 SEATS (PUBLIC ASSEMBLY)

XXX SEATS x 1 SPACE / 3 SEATS = XXXX SPACES

PARKING PROVIDED:
STANDARD PARKING SPACES: XXXX
H/C PARKING SPACES: XXX
TOTAL XXXX

BUILDING CALCULATIONS:
BUILDING "A" (PRESS BOX, CONCESSIONS, RESTROOMS, STORAGE)
FIRST FLOOR CONCESSIONS, RESTROOM, STORAGE XX,XXX SF
SECOND FLOOR PRESS BOX XX,XXX SF
XX,XXX SF
F.A.R.: X.XX
BUILDING HEIGHT: XX.XX FT.
STORIES: 2

BUILDING "B" (STORAGE) XX,XXX SF
F.A.R.: X.XX
BUILDING HEIGHT: XX.XX FT.
STORIES: 1

BUILDING "C" (RESTROOMS): XX,XXX SF
F.A.R.: X.XX
BUILDING HEIGHT: XX.XX FT.
STORIES: 1

Dewberry
877 CR 393 North
Santa Rosa Beach, FL 32459
850.267.0759

HELEN MCCALL PARK EXPANSION PHASE 1
BOARD OF COUNTY COMMISSIONERS
WALTON COUNTY
FLORIDA

SEAL

AARON M. HARRISON LICENSE No 87629 STATE OF FLORIDA PROFESSIONAL ENGINEER

AARON M. HARRISON, P.E. 87692
EB 0008794

REVIEW SET
(NOT FOR CONSTRUCTION)

SCALE

0' 40' 80' 160'
SCALE: 1" = 80'

REVISIONS

NO.	DESCRIPTION	DATE

DRAWN BY	A HARRISON
APPROVED BY	A HARRISON
CHECKED BY	C KNAUER
DATE	JANUARY 2022

TITLE

SITE MASTER PLAN

PROJECT NO. 50128135

C2.1

SHEET NO.

3/10/2022 8:28:23 AM
S:\WGNV\WALTON COUNTY\50128135_HELEN MCCALL PARK 10 ACRE EXPANSION_CIVIL\3DFOLDER_PRODUCTION\PHASE 1\SITE MASTER PLAN.DWG

MAGNUM ENGINEERING INC

GEOTECHNICAL ENGINEERING
CONSULTANTS

LOGS OF BORINGS

FIGURE # 2

Magnum Engineering, Inc.
1026 Pierson Drive
Lynn Haven, Florida 32444
Telephone: 8502658332

BORING NUMBER B-1

CLIENT Dewberry Engineers Inc
PROJECT NAME Helen McCall Park
PROJECT NUMBER M122-109-180
PROJECT LOCATION Walton County, Florida
DATE STARTED 8/1/22 **COMPLETED** 8/1/22
GROUND ELEVATION _____ **HOLE SIZE** _____
DRILLING CONTRACTOR GeoDrill Tech, LLC
GROUND WATER LEVELS:
DRILLING METHOD Standard Penetration Test (SPT)
▽ **DEPTH TO GROUNDWATER AT TIME OF DRILLING** 2.0 ft
LOGGED BY J. Governale **CHECKED BY** J. Vickers
ESTIMATED SEASONAL HIGH GWT ---
NOTES _____
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		Gray/Brown Slightly Silty Fine SAND (SP-SM)	AU									
		▽ Brown Slightly Silty Fine SAND (SP-SM)										
5		Tan/Brown Slightly Silty Fine SAND (SP-SM)	SS 1		5-9-10-12 (19)							
		Gray Slightly Silty Fine SAND (SP-SM)	SS 2		6-7-9-10 (16)							
10		Brown/Gray Slightly Silty Fine SAND (SP-SM)	SS 3		5-6-6-7 (12)							
15		Dark Brown Silty Fine SAND (SM)	SS 4		5-6-6 (12)							
20		Gray/Brown Slightly Silty Fine SAND (SP-SM)	SS 5		4-4-4 (8)							
		Boring Termination Depth at 20.0 feet.										

GEOTECH BH COLUMNS HELEN MCCALL PARK.GPJ GINT STD US LAB.GDT 8/4/22

Magnum Engineering, Inc.
1026 Pierson Drive
Lynn Haven, Florida 32444
Telephone: 8502658332

BORING NUMBER B-2

CLIENT Dewberry Engineers Inc
PROJECT NAME Helen McCall Park
PROJECT NUMBER M122-109-180
PROJECT LOCATION Walton County, Florida
DATE STARTED 8/1/22 **COMPLETED** 8/1/22
GROUND ELEVATION _____ **HOLE SIZE** _____
DRILLING CONTRACTOR GeoDrill Tech, LLC
GROUND WATER LEVELS:
DRILLING METHOD Standard Penetration Test (SPT)
▽ **DEPTH TO GROUNDWATER AT TIME OF DRILLING** 3.0 ft
LOGGED BY J. Governale **CHECKED BY** J. Vickers
ESTIMATED SEASONAL HIGH GWT ---
NOTES _____
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		Brown Slightly Silty Fine SAND (SP-SM)	SS 1		3-3-5-9 (8)							
		Tan Slightly Silty Fine SAND (SP-SM) ▽	SS 2		5-8-9-9 (17)							
5		Tan/Brown Slightly Silty Fine SAND (SP-SM)	SS 3		6-9-10-12 (19)							
		Brown Slightly Silty Fine SAND with Wood (SP-SM)	SS 4		4-7-8-9 (15)							
10			SS 5		3-4-7-7 (11)							
15			SS 6		3-4-4 (8)							
20		Brown/Gray Slightly Silty Fine SAND (SP-SM)	SS 7		9-12-14 (26)							
		Boring Termination Depth at 20.0 feet.										

GEOTECH BH COLUMNS HELEN MCCALL PARK.GPJ GINT STD US LAB.GDT 8/4/22

Magnum Engineering, Inc.
1026 Pierson Drive
Lynn Haven, Florida 32444
Telephone: 8502658332

BORING NUMBER B-3

CLIENT Dewberry Engineers Inc
PROJECT NAME Helen McCall Park
PROJECT NUMBER M122-109-180
PROJECT LOCATION Walton County, Florida
DATE STARTED 8/1/22 **COMPLETED** 8/1/22
GROUND ELEVATION _____ **HOLE SIZE** _____
DRILLING CONTRACTOR GeoDrill Tech, LLC
GROUND WATER LEVELS:
DRILLING METHOD Standard Penetration Test (SPT)
▽ **DEPTH TO GROUNDWATER AT TIME OF DRILLING** 2.0 ft
LOGGED BY J. Governale **CHECKED BY** J. Vickers
ESTIMATED SEASONAL HIGH GWT ---
NOTES _____
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		Gray/Tan Slightly Silty Fine SAND (SP-SM)	SS 1		2-3-4-7 (7)							
		▽ Gray/Brown Slightly Silty Fine SAND (SP-SM)	SS 2		4-6-7-9 (13)							
5			SS 3		6-8-10-12 (18)							
		Brown Slightly Silty Fine SAND (SP-SM)	SS 4		5-5-5-4 (10)							
			SS 5		3-5-3-6 (8)							
10												
		Tan/Gray Slightly Silty Fine SAND (SP-SM)	SS 6		13-15-16 (31)							
15												
		Brown Slightly Silty Fine SAND (SP-SM)	SS 7		12-12-11 (23)							
20		Boring Termination Depth at 20.0 feet.										

GEOTECH BH COLUMNS HELEN MCCALL PARK.GPJ GINT STD US LAB.GDT 8/4/22

Magnum Engineering, Inc.
1026 Pierson Drive
Lynn Haven, Florida 32444
Telephone: 8502658332

BORING NUMBER B-4

CLIENT Dewberry Engineers Inc
PROJECT NAME Helen McCall Park
PROJECT NUMBER M122-109-180
PROJECT LOCATION Walton County, Florida
DATE STARTED 8/1/22 **COMPLETED** 8/1/22
GROUND ELEVATION ___ **HOLE SIZE** ___
DRILLING CONTRACTOR GeoDrill Tech, LLC
GROUND WATER LEVELS:
DRILLING METHOD Hand Auger Boring
▽ **DEPTH TO GROUNDWATER AT TIME OF DRILLING** 1.5 ft
LOGGED BY J. Governale **CHECKED BY** J. Vickers
ESTIMATED SEASONAL HIGH GWT ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0.0		Tan Slightly Silty Fine SAND (SP-SM)	AU									
2.5		Gray/Brown Slightly Silty Fine SAND (SP-SM)										
5.0		Boring Termination Depth at 5.0 feet.										

Magnum Engineering, Inc.
1026 Pierson Drive
Lynn Haven, Florida 32444
Telephone: 8502658332

BORING NUMBER HA-1

CLIENT Dewberry Engineers Inc
PROJECT NAME Helen McCall Park
PROJECT NUMBER M122-109-180
PROJECT LOCATION Walton County, Florida
DATE STARTED 7/18/22 **COMPLETED** 7/18/22
GROUND ELEVATION _____ **HOLE SIZE** _____
DRILLING CONTRACTOR _____
GROUND WATER LEVELS:
DRILLING METHOD Hand Auger Boring
▽ **DEPTH TO GROUNDWATER AT TIME OF DRILLING** 0.3 ft
LOGGED BY B. Vickers **CHECKED BY** J. Vickers
ESTIMATED SEASONAL HIGH GWT ---
NOTES _____
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0.0		Dark Gray Slightly Silty Fine SAND (SP-SM) ▽	AU									
2.5		Tan/Brown Slightly Silty Fine SAND (SP-SM)										
		Boring Termination Depth at 3.5 feet.										

Magnum Engineering, Inc.
1026 Pierson Drive
Lynn Haven, Florida 32444
Telephone: 8502658332

BORING NUMBER HA-10

CLIENT Dewberry Engineers Inc
PROJECT NAME Helen McCall Park
PROJECT NUMBER M122-109-180
PROJECT LOCATION Walton County, Florida
DATE STARTED 7/18/22 **COMPLETED** 7/18/22
GROUND ELEVATION _____ **HOLE SIZE** _____
DRILLING CONTRACTOR _____
GROUND WATER LEVELS:
DRILLING METHOD Hand Auger Boring
▽ **DEPTH TO GROUNDWATER AT TIME OF DRILLING** 0.8 ft
LOGGED BY B. Vickers **CHECKED BY** J. Vickers
ESTIMATED SEASONAL HIGH GWT ---
NOTES _____
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0.0		Brown Slightly Silty Fine SAND (SP-SM) ▽	AU									
2.5		Dark Gray Silty Fine SAND (SM)										
		Tan Slightly Silty Fine SAND (SP-SM)										
		Boring Termination Depth at 4.0 feet.										

GEOTECH BH COLUMNS HELEN MCCALL PARK.GPJ GINT STD US LAB.GDT 8/4/22

Magnum Engineering, Inc.
1026 Pierson Drive
Lynn Haven, Florida 32444
Telephone: 8502658332

BORING NUMBER HA-2

CLIENT Dewberry Engineers Inc
PROJECT NAME Helen McCall Park
PROJECT NUMBER M122-109-180
PROJECT LOCATION Walton County, Florida
DATE STARTED 7/18/22 **COMPLETED** 7/18/22
GROUND ELEVATION _____ **HOLE SIZE** _____
DRILLING CONTRACTOR _____
GROUND WATER LEVELS:
DRILLING METHOD Hand Auger Boring
▽ **DEPTH TO GROUNDWATER AT TIME OF DRILLING** 0.0 ft
LOGGED BY B. Vickers **CHECKED BY** J. Vickers
ESTIMATED SEASONAL HIGH GWT ---
NOTES _____
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0.0		▽ Tan/Brown Silty Fine SAND (SM)	AU									
		Boring Termination Depth at 2.0 feet.										

Magnum Engineering, Inc.
1026 Pierson Drive
Lynn Haven, Florida 32444
Telephone: 8502658332

BORING NUMBER HA-3

CLIENT Dewberry Engineers Inc
PROJECT NAME Helen McCall Park
PROJECT NUMBER M122-109-180
PROJECT LOCATION Walton County, Florida
DATE STARTED 7/18/22 **COMPLETED** 7/18/22
GROUND ELEVATION ___ **HOLE SIZE** ___
DRILLING CONTRACTOR ___
GROUND WATER LEVELS:
DRILLING METHOD Hand Auger Boring
▽ **DEPTH TO GROUNDWATER AT TIME OF DRILLING** 2.3 ft
LOGGED BY B. Vickers **CHECKED BY** J. Vickers
ESTIMATED SEASONAL HIGH GWT ---
NOTES ___
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0.0		Tan/Orange Clayey Fine SAND (SC)										
		Gray Slightly Silty Fine SAND (SP-SM)	AU									
2.5		Light Gray Slightly Silty Fine SAND (SP-SM) ▽										
		Boring Termination Depth at 3.0 feet.										

Magnum Engineering, Inc.
1026 Pierson Drive
Lynn Haven, Florida 32444
Telephone: 8502658332

BORING NUMBER HA-4

CLIENT Dewberry Engineers Inc
PROJECT NAME Helen McCall Park
PROJECT NUMBER M122-109-180
PROJECT LOCATION Walton County, Florida
DATE STARTED 7/18/22 **COMPLETED** 7/18/22
GROUND ELEVATION _____ **HOLE SIZE** _____
DRILLING CONTRACTOR _____
GROUND WATER LEVELS:
DRILLING METHOD Hand Auger Boring
▽ **DEPTH TO GROUNDWATER AT TIME OF DRILLING** 2.2 ft
LOGGED BY B. Vickers **CHECKED BY** J. Vickers
ESTIMATED SEASONAL HIGH GWT ---
NOTES _____
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0.0		Tan/Orange Clayey Fine SAND (SC)	AU									
		Dark Gray Slightly Silty Fine SAND (SP-SM)										
		▽ Light Gray Slightly Silty Fine SAND (SP-SM)										
2.5		Brown Slightly Silty Fine SAND (SP-SM)										
		Light Brown Slightly Silty Fine SAND (SP-SM)										
		Boring Termination Depth at 4.0 feet.										

Magnum Engineering, Inc.
1026 Pierson Drive
Lynn Haven, Florida 32444
Telephone: 8502658332

BORING NUMBER HA-6

CLIENT Dewberry Engineers Inc
PROJECT NAME Helen McCall Park
PROJECT NUMBER M122-109-180
PROJECT LOCATION Walton County, Florida
DATE STARTED 7/18/22 **COMPLETED** 7/18/22
GROUND ELEVATION _____ **HOLE SIZE** _____
DRILLING CONTRACTOR _____
GROUND WATER LEVELS:
DRILLING METHOD Hand Auger Boring
▽ **DEPTH TO GROUNDWATER AT TIME OF DRILLING** 0.0 ft
LOGGED BY B. Vickers **CHECKED BY** J. Vickers
ESTIMATED SEASONAL HIGH GWT ---
NOTES _____
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0.0		Gray/Brown Slightly Silty Fine SAND (SP-SM)	AU									
		Tan Slightly Silty Fine SAND (SP-SM)										
2.5		Tan/Gray Clayey Fine SAND (SC)										
		Boring Termination Depth at 4.0 feet.										

Magnum Engineering, Inc.
1026 Pierson Drive
Lynn Haven, Florida 32444
Telephone: 8502658332

BORING NUMBER HA-8

CLIENT Dewberry Engineers Inc
PROJECT NAME Helen McCall Park
PROJECT NUMBER M122-109-180
PROJECT LOCATION Walton County, Florida
DATE STARTED 7/18/22 **COMPLETED** 7/18/22
GROUND ELEVATION _____ **HOLE SIZE** _____
DRILLING CONTRACTOR _____
GROUND WATER LEVELS:
DRILLING METHOD Hand Auger Boring
▽ **DEPTH TO GROUNDWATER AT TIME OF DRILLING** 0.0 ft
LOGGED BY B. Vickers **CHECKED BY** J. Vickers
ESTIMATED SEASONAL HIGH GWT ---
NOTES _____
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0.0		▽ Tan Slightly Silty Fine SAND (SP-SM)	AU									
2.5		Tan/Gray Clayey Fine SAND (SC)										
		Boring Termination Depth at 4.0 feet.										

Magnum Engineering, Inc.
1026 Pierson Drive
Lynn Haven, Florida 32444
Telephone: 8502658332

BORING NUMBER HA-9

CLIENT Dewberry Engineers Inc
PROJECT NAME Helen McCall Park
PROJECT NUMBER M122-109-180
PROJECT LOCATION Walton County, Florida
DATE STARTED 7/18/22 **COMPLETED** 7/18/22
GROUND ELEVATION _____ **HOLE SIZE** _____
DRILLING CONTRACTOR _____
GROUND WATER LEVELS:
DRILLING METHOD Hand Auger Boring
▽ **DEPTH TO GROUNDWATER AT TIME OF DRILLING** 0.7 ft
LOGGED BY B. Vickers **CHECKED BY** J. Vickers
ESTIMATED SEASONAL HIGH GWT ---
NOTES _____
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0.0		Dark Gray/Brown Silty Fine SAND (SM) ▽	AU									
2.5		Tan Slightly Silty Fine SAND (SP-SM)										
		Boring Termination Depth at 3.0 feet.										

APPENDIX B

ENVIRONMENTAL RESOURCE PERMIT (ERP)

Northwest Florida Water Management District

700 U.S. Highway 331 South, DeFuniak Springs, FL 32435

Lyle Seigler
Executive Director

ERP: (850) 951-4660 • Fax: (850) 892-8007
Wells: (850) 951-4661

May 05, 2023

Chance Powell
Walton County Public Works
117 Montgomery Circle
DeFuniak Springs, FL 32435

RE: Notice of Final Agency Action - Approval
Individual Environmental Resource Permit
Permit Number: IND-131-309938-1
Project Name: Helen McCall Park Expansion

Dear Sir/Madam:

Enclosed is the approved individual Environmental Resource Permit (ERP) for the above referenced project as authorized on May 05, 2023 by the Northwest Florida Water Management District.

Please be sure to read the enclosed permit and all exhibits in their entirety, paying close attention to the permit conditions in Exhibit A that require you to perform maintenance activities on your stormwater system and to have inspections performed by a Registered Professional at specified times throughout the life of the stormwater system.

Please be advised that you are required to fully execute and submit the following documents:

- “Construction Commencement Notice” [Form 62-330.350(1)] - Submitted to the District no later than 48 hours prior to commencement of any part of the activity authorized by the enclosed permit.

- “As-Built Certification and Request for Conversion to Operational Phase" [Form 62-330.310(1)] Submitted to the District no later than 30 days after the activity has been completed.

Copies of these and other ERP forms are available for download on the District website at http://www.nwfwater.com/Permits/Environmental-Resource-Permits/Application-Forms

Please be advised that the District ***has not*** published a notice in the newspaper of local circulation advising the public that a permit has been issued for this activity. Publication, using the District form, notifies the public of their rights to challenge the issuance of this permit. If proper notice is given by publication, third parties have a 21-day time limit to file a petition opposing the issuance of the permit. If you do not publish, a party's right to challenge the issuance of the permit may extend indefinitely. If you wish to have certainty that the period for filing such a challenge is closed, then

GEORGE ROBERTS
Chair
Panama City

JERRY PATE
Vice Chair
Pensacola

NICK PATRONIS
Secretary
Panama City

JOHN W. ALTER
Malone

GUS ANDREWS
DeFuniak Springs

TED EVERETT
Chipley

KELLIE RALSTON
Tallahassee

ANNA UPTON
Tallahassee

you may publish, at your expense, such a notice in a newspaper of general circulation. A sample notice form is attached for your information. If you choose to publish such a notice, please submit a copy to the District for our records.

The issuance of an Environmental Resource Permit for this activity does not eliminate the need to obtain all necessary permits or approvals from other agencies.

Should you have any questions regarding your permit or its conditions, please contact your permit reviewer, Erica Roberts, at (850) 951-4660 or by e-mail: Erica.Roberts@nwfwater.com, Aaron Waits, CWE, at (850) 951-4660 or by e-mail: Aaron.Waits@nwfwater.com and Duke N. Le, E.I., at (850) 951-4670 or by e-mail: Duc.Le@nwfwater.com

Sincerely,

Terry E. Wells

_____

Terry Wells
Division of Regulatory Services; ERP Bureau Chief

cc:
Consultant:

Trish Engel
Biome Consulting Group
3298 Summit Blvd., Ste 44
Pensacola, FL 32503

Rudolph Mall
Dewberry Engineers
877 North County Highway 393
Santa Rosa Beach, FL 32459

Chris Bosso
Biome Consulting Group, LLC
3298 Summit Blvd., Ste 44
Pensacola, FL 32503

Enc:
Environmental Resource Permit Number: IND-131-309938-1
Sample Newspaper Notice
Notice of Rights

NORTHWEST FLORIDA WATER MANAGEMENT DISTRICT
INDIVIDUAL ENVIRONMENTAL RESOURCE PERMIT

PERMIT NO: IND-131-309938-1 **DATE ISSUED:** May 05, 2023
PROJECT NAME: Helen McCall Park Expansion
CONSTRUCTION PHASE EXPIRATION DATE: May 05, 2028

A PERMIT AUTHORIZING:
The construction of site improvements for the existing Helen McCall Park located south of U.S. Highway 98 along Moll Drive in Santa Rosa Beach, Walton County). The approximately 25.45-acre development will consist of the expansion of the current park facility to include several additional new baseball fields, multi-purpose fields, concession stands, batting cages, restrooms, new parking areas, drive aisles, sidewalks, and new access driveway connections to Moll Drive. Stormwater runoff generated onsite (new and contributing areas previously permitted under Permit No. IND-131-8486-1), approximately 29.56 acres, will be collected and conveyed by drainage inlets to a new wet detention system consisting of two (2) interconnected wet detention ponds (Pond 1A and Pond 1B); please refer to the permitted plans for their proposed locations. Pond 1A and Pond 1B have both been designed without vegetated littoral zones but will provide an additional fifty percent (50%) to their respective permanent pool volumes. Pond 1A has been designed with two (2) control structures. The first control structure (see DR-66 details within permitted plans) consists of a FDOT modified drainage inlet that consist of a 3.00-inch diameter orifice set at an approximate invert elevation of 12.00 feet, a 18.00-inch wide rectangular weir set at an approximate invert elevation of 13.50 feet, and a top grate as well as top of skimmer both set at an approximate top elevation of 14.00 feet. The second control structure (see DR-68 details within permitted plans) will consist of a FDOT modified drainage inlet that consist of a 3.00-inch diameter orifice set at an approximate invert elevation of 12.00 feet, a 18.00-inch wide rectangular weir set at an approximate invert elevation of 13.50 feet, and a top grate as well as top of skimmer both set at an approximate top elevation of 14.00 feet. Pond 1B has been designed with a single (1) control structure (see DR-100 details within permitted plans) which will consist of a FDOT modified drainage inlet to include a 3.00-inch diameter orifice set at an approximate invert elevation of 12.00 feet, a 18.00-inch wide rectangular weir set at an approximate invert elevation of 13.50 feet, and a top grate as well as top of skimmer both set at an approximate top elevation of 14.00 feet. The control structures of Pond 1A and Pond 1B have all been designed to discharge stormwater runoff offsite to a South Walton Mosquito Control ditch (along the western and southern property boundaries) before outfalling to Churchill Bayou. Stormwater runoff from this system will inevitably discharge to Choctawhatchee Bay. This permit authorizes the direct impact to 0.126 acres of isolated wetlands. No mitigation will be required for the impacts. The surface water management system is in accordance with the approved plans prepared by Aaron M Harrison of Dewberry Engineers.

LOCATION:

Section(s):	34	Township(s):	2S 2S	Range(s):	20W 33

Walton County

ISSUED TO:

Walton County Public Works
117 Montgomery Circle
DeFuniak Springs, FL 32435

Permittee agrees to hold and save the Northwest Florida Water Management District and its successors harmless from any and all damages, claims, or liabilities which may arise from permit issuance. Said application, including all plans and specifications attached thereto, is by reference made a part hereof.

This permit does not convey to any permittee any property rights nor any rights or privileges other than those specified herein, nor relieve the permittee from complying with any law, regulation or requirement affecting the rights of other bodies or agencies. All structures and works installed by permittee hereunder shall remain the property of the permittee.

This permit is issued pursuant to Part IV of Chapter 373, Florida Statutes (F.S.), and Chapter 62-330, Florida Administrative Code, (F.A.C.), and may be revoked, modified or transferred at any time pursuant to the appropriate provisions of Chapter 373, Florida Statutes.

This permit also constitutes certification compliance with water quality standards under Section 401 of the Clean Water Act, 33 U.S. Code 1341.

PERMIT IS CONDITIONED UPON:

See conditions on attached “Exhibit A”, dated May 05, 2023

AUTHORIZED BY: Northwest Florida Water Management District
Division of Resource Regulation

By: Terry E. Wells
_____
Terry Wells
Division of Regulatory Services; ERP Bureau Chief

"EXHIBIT A"
CONDITIONS FOR ISSUANCE OF PERMIT NUMBER IND-131-309938-1
Helen McCall Park Expansion
DATED May 05, 2023

1. All activities shall be implemented following the plans, specifications and performance criteria approved by this permit. Any deviations must be authorized in a permit modification in accordance with Rule 62-330.315, F.A.C. Any deviations that are not so authorized may subject the permittee to enforcement action and revocation of the permit under Chapter 373, F.S.

2. A complete copy of this permit shall be kept at the work site of the permitted activity during the construction phase, and shall be available for review at the work site upon request by the Agency staff. The permittee shall require the contractor to review the complete permit prior to beginning construction.

3. The permittee is to minimize the extent of the area exposed at one time, the disturbance of steep slopes, and the duration of exposure during construction. This includes avoiding clearing, grubbing, and grading the entirety of the site at once. The permittee shall have a phased construction schedule which includes the description of construction techniques, sequencing, and equipment as well as the appropriate sediment and erosion controls to be put in place all throughout construction. Please refer to Subsection 11.1.2 of ERP Applicant's Handbook Volume I and Part 3 of Section E of the ERP Application Form 62-330.060(1) for more information.

4. Activities shall be conducted in a manner that does not cause or contribute to violations of state water quality standards. Performance-based erosion and sediment control best management practices shall be installed immediately prior to, and be maintained during and after construction as needed, to prevent adverse impacts to the water resources and adjacent lands. Such practices shall be in accordance with the *State of Florida Erosion and Sediment Control Designer and Reviewer Manual (Florida Department of Environmental Protection and Florida Department of Transportation June 2007)*, and the *Florida Stormwater Erosion and Sedimentation Control Inspector's Manual (Florida Department of Environmental Protection, Nonpoint Source Management Section, Tallahassee, Florida, July 2008)*, which are both incorporated by reference in subparagraph 62-330.050(9)(b)5., F.A.C., unless a project-specific erosion and sediment control plan is approved or other water quality control measures are required as part of the permit.

5. At least 48 hours prior to beginning the authorized activities, the permittee shall submit to the Agency a fully executed Form 62-330.350(1), "Construction Commencement Notice," [October 1, 2013], incorporated by reference herein (http://www.flrules.org/Gateway/reference.asp?No=Ref-02505), indicating the expected start and completion dates. A copy of this form may be obtained from the Agency, as described in subsection 62-330.010(5), F.A.C. If available, an Agency website that fulfills this notification requirement may be used in lieu of the form.

6. Unless the permit is transferred under Rule 62-330.340, F.A.C., or transferred to an operating entity under Rule 62-330.310, F.A.C., the permittee is liable to comply with the plans, terms and conditions of the permit for the life of the project or activity.

7. Within 30 days after completing construction of the entire project, or any independent portion of the project, the permittee shall provide the following to the Agency, as applicable:

1. For an individual, private single-family residential dwelling unit, duplex, triplex, or quadruplex “Construction Completion and Inspection Certification for Activities Associated With a Private Single-Family Dwelling Unit” [Form 62-330.310(3)]; or
2. For all other activities “As-Built Certification and Request for Conversion to Operational Phase” [Form 62-330.310(1)].
3. If available, an Agency website that fulfills this certification requirement may be used in lieu of the form.

8. If the final operation and maintenance entity is a third party:
    1. Prior to sales of any lot or unit served by the activity and within one year of permit issuance, or within 30 days of as- built certification, whichever comes first, the permittee shall submit, as applicable, a copy of the operation and maintenance documents (see sections 12.3 thru 12.3.3 of Volume I) as filed with the Department of State, Division of Corporations and a copy of any easement, plat, or deed restriction needed to operate or maintain the project, as recorded with the Clerk of the Court in the County in which the activity is located.
    2. Within 30 days of submittal of the as- built certification, the permittee shall submit “Request for Transfer of Environmental Resource Permit to the Perpetual Operation Entity” [Form 62-330.310(2)] to transfer the permit to the operation and maintenance entity, along with the documentation requested in the form. If available, an Agency website that fulfills this transfer requirement may be used in lieu of the form.

9. The permittee shall notify the Agency in writing of changes required by any other regulatory agency that require changes to the permitted activity, and any required modification of this permit must be obtained prior to implementing the changes.

10. This permit does not:
    1. Convey to the permittee any property rights or privileges, or any other rights or privileges other than those specified herein or in Chapter 62-330, F.A.C.;
    2. Convey to the permittee or create in the permittee any interest in real property;
    3. Relieve the permittee from the need to obtain and comply with any other required federal, state, and local authorization, law, rule, or ordinance; or
    4. Authorize any entrance upon or work on property that is not owned, held in easement, or controlled by the permittee

11. Prior to conducting any activities on state-owned submerged lands or other lands of the state, title to which is vested in the Board of Trustees of the Internal Improvement Trust Fund, the permittee must receive all necessary approvals and authorizations under Chapters 253 and 258, F.S. Written authorization that requires formal execution by the Board of Trustees of the Internal Improvement Trust Fund shall not be considered received until it has been fully executed.

12. The permittee shall hold and save the Agency harmless from any and all damages, claims, or liabilities that may arise by reason of the construction, alteration, operation, maintenance, removal, abandonment or use of any project authorized by the permit.

13. The permittee shall notify the Agency in writing:
    1. Immediately if any previously submitted information is discovered to be inaccurate; and
    2. Within 30 days of any conveyance or division of ownership or control of the property or the system, other than conveyance via a long-term lease, and the new owner shall request transfer of the permit in accordance with Rule 62-330.340, F.A.C. This does not apply to the sale of lots or units in residential or commercial subdivisions or condominiums where the stormwater management system has been completed and converted to the operation phase

14. Upon reasonable notice to the permittee, Agency staff with proper identification shall have permission to enter, inspect, sample and test the project or activities to ensure conformity with the plans and specifications authorized in the permit.

15. If any prehistoric or historic artifacts, such as pottery or ceramics, stone tools or metal implements, dugout canoes, or any other physical remains that could be associated with Native American cultures, or early colonial or American settlement are encountered at any time within the project site area, work involving subsurface disturbance in the immediate vicinity of such discoveries shall cease. The permittee or other designee shall contact the Florida Department of State, Division of Historical Resources, Compliance and Review Section, at (850) 245-6333 or (800) 847-7278, as well as the appropriate permitting agency office. Such subsurface work shall not resume without verbal or written authorization from the Division of Historical Resources. If unmarked human remains are encountered, all work shall stop immediately and notification shall be provided in accordance with Section 872.05, F.S.

16. Any delineation of the extent of a wetland or other surface water submitted as part of the permit application, including plans or other supporting documentation, shall not be considered binding unless a specific condition of this permit or a formal determination under Rule 62-330.201, F.A.C., provides otherwise.

17. The permittee shall provide routine maintenance of all components of the stormwater management system to remove trapped sediments and debris. Removed materials shall be disposed of in a landfill or other uplands in a manner that does not require a permit under Chapter 62-330, F.A.C., or cause violations of state water quality standards.

18. This permit is issued based on the applicant's submitted information that reasonably demonstrates that adverse water resource-related impacts will not be caused by the completed permit activity. If any adverse impacts result, the Agency will require the permittee to eliminate the cause, obtain any necessary permit modification, and take any necessary corrective actions to resolve the adverse impacts.

19. A Recorded Notice of Environmental Resource Permit may be recorded in the county public records in accordance with subsection 62-330.090(7), F.A.C. Such notice is not an encumbrance upon the property.

20. **Record-keeping.** The permittee shall be responsible for keeping records documenting that relevant permit conditions are met. This documentation shall include, at a minimum, the date of each inspection, the name and qualifications of the inspector, any maintenance actions taken, and a determination by the inspector as to whether the system is operating as intended. Inspection documentation must be readily available and shall be provided at the District's request. Submittal of inspection documentation to the District is not required.

21. Once project construction has been deemed complete, including the re-stabilization of all side slopes, embankments, and other disturbed areas, and before the transfer to the Operation and Maintenance phase, all obsolete erosion control materials shall be removed.

22. The littoral zone shall be constructed according to the following criteria:
    a. The littoral zone shall be gently sloped (6:1 Horizontal:Vertical or flatter).
    b. The littoral zone shall be planted with aquatic and wetland vegetation suitable for the specific anticipated hydroperiod of the pond.
    c. Within 24 months of completion of the system, the littoral zone shall consist of 80% coverage with suitable aquatic and wetland vegetation.
    d. The littoral zones shall be stabilized by either mulching or other means to ensure the stability of the native plants and soils.

23. The wet detention area shall be inspected periodically for debris and trash built up around the discharge structures. Accumulations of debris and trash that negatively affect the function of the system shall be removed upon discovery.

24. The littoral zone shall be inspected to ensure that the 80% coverage of suitable aquatic and wetland vegetation within 24 months of system completion criteria is met. If necessary, additional planting shall be conducted to meet success criteria.

25. If utilizing wetland topsoil as an alternative to planting portions of the littoral zone, the wetland topsoil shall be at least four inches in depth.

26. If utilizing wetland topsoil as an alternative to planting portions of the littoral zone, the portion of the littoral zone within 25 feet of the inlet and outlet structures shall be planted with suitable aquatic and wetland vegetation.

27. **Inspections by a Registered Professional**. The stormwater management system shall be inspected by a registered professional to evaluate whether the system is functioning as designed and permitted. The Registered Professional may record his inspection on Form No 62-330.311(1), Operation and Maintenance Inspection Certification or may provide his evaluation in any other format; however any report must be signed and sealed by the Registered Professional. Submittal of the inspection report to the District shall occur within 30 days of the inspection. Inspections shall be made by the Registered Professional in accordance with this schedule:
    - On the first anniversary of the date of conversion to Operation and Maintenance Phase.
    - Every fifth year on the anniversary of conversion to Operation and Maintenance phase, after the first year of successful operation.

28. **Reporting by a Registered Professional.** Within 30 days of any failure of the stormwater management system or deviation from the permit, a report shall be submitted to the District on Form 62-330.311(1), Operation and Maintenance Inspection Certification, describing the remedial actions taken to resolve the failure or deviation. This report shall be signed and sealed by a Registered Professional.

29. This permit does not authorize the permittee to cause any adverse impact to or “take” of state listed species and other regulated species of fish and wildlife. Compliance with state laws regulating the take of fish and wildlife is the responsibility of the owner or applicant associated with this project. Please refer to Chapter 68A-27 of the Florida Administrative Code for definitions of “take” and a list of fish and wildlife species. If listed species are observed onsite, FWC staff are available to provide decision support information or assist in obtaining the appropriate FWC permits. Most marine endangered and threatened species are statutorily protected and a “take” permit cannot be issued. Requests for further information or review can be sent to FWCConservationPlanningServices@MyFWC.com

30. Negative impacts to wetlands or other surface waters outside of the approved impact areas shall be reported immediately to the Northwest Florida Water Management District, 700 South U.S. Highway 331, DeFuniak Springs, FL 32435, Phone: (850) 951-4660. Corrective action shall be taken as soon as practicable to restore the impacted areas.

31. All wetlands areas or other surface waters that are outside the specific limits of construction authorized by this permit must be protected from erosion, siltation, scouring or excess turbidity, and dewatering.

32. All storage or stockpiling of tools or materials (i.e. lumber, pilings, etc.) shall be limited to uplands or within the impact areas authorized by this project. In addition, all equipment

being utilized shall be limited to operation and storage in uplands or within the impact areas authorized by this permit.

33. Prior to construction, the limits of the proposed construction shall be demarcated (clearly flagged and/or staked): particularly in areas adjacent to remaining natural wetlands. All construction personnel shall be shown the location(s) of all wetland areas outside of the construction area so as to prevent encroachment form heavy equipment into these areas.

NOTICING PUBLICATION INFORMATION

The District's action regarding the issuance or denial of a permit, a petition or qualification for an exemption only becomes closed to future legal challenges from members of the public ("third parties"), if 1) "third parties" have been properly notified of the District's action regarding the permit or exemption, and 2) no "third party" objects to the District's action within a specific period of time following the notification.

Notification of "third parties" is provided through publication of certain information in a newspaper of general circulation in the county where the proposed activities are to occur. Publication of notice informs "third parties" of their right to have a 21-day time limit in which to file a petition opposing the District's action. However, if no notice to "third parties" is published, there is no time limit to a party's right to challenge the District's action. The District has not published a notice to "third parties" that it has taken final action on your application. If you want to ensure that the period of time in which a petition opposing the District's action regarding your application is limited to the time frame stated above, you may publish, at your own expense, a notice in a newspaper of general circulation. A copy of the Notice of Agency Action the District uses for publication is attached. You may use this format or create your own, as long as the essential information is included.

If you do decide to publish a Notice of Final Agency Action, please provide the District a copy of the Proof of Publication when you receive it. That will provide us notice that action on this permit application is closed after the 21 days following publication.

Notice of Final Agency Action Taken by the
Northwest Florida Water Management District

Notice is given that Environmental Resource permit number IND-131-309938-1 was issued on May 05, 2023, to Chance Powell of Walton County Public Works for the construction of a new surface water management system. The project is located south of U.S. Highway 98 along Moll Drive in Santa Rosa Beach, Walton County.

The application file is available online and can be accessed through the District's e-Permitting Portal at: https://permitting.sjrwmd.com/nwepermitting/jsp/Search.do?theAction=PermitNumSearch. If you have any questions or are experiencing difficulty viewing the electronic application, please contact us at (850) 951-4660.

A person whose substantial interests are affected by the District permitting decision may petition for an administrative hearing in accordance with Sections 120.569 and 120.57, Florida Statutes, or may choose to pursue mediation as an alternative remedy under Section 120.573, Florida Statutes, and Rules 28-106.111 and 28-106.401-404, Florida Administrative Code. Petitions must comply with the requirements of Florida Administrative Code, Chapter 28-106 and be filed with (received by) the District Clerk located at District Headquarters, 81 Water Management Drive, Havana, FL 32333-4712. Petitions for administrative hearing on the above application must be filed within twenty-one (21) days of publication of this notice or within twenty-six (26) days of the District depositing notice of this intent in the mail for those persons to whom the District mails actual notice. Failure to file a petition within this time period shall constitute a waiver of any right(s) such person(s) may have to request an administrative determination (hearing) under Sections 120.569 and 120.57, F.S., concerning the subject permit. Petitions which are not filed in accordance with the above provisions are subject to dismissal.

Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the District's final action may be different from the position taken by it in this notice. Persons whose substantial interests will be affected by any such final decision of the District on the application have the right to petition to become a party to the proceedings, in accordance with the requirements set forth above.

NOTICE OF RIGHTS

Northwest Florida Water Management District
152 Water Management Drive, Havana, FL 32333-4712
(850) 539-5999 Fax (850) 539-2693
www.nwfwater.com

The following information addresses procedures to be followed if you desire an administrative hearing or other review of agency action.

PETITION FOR FORMAL ADMINISTRATIVE PROCEEDINGS

Any person whose substantial interests are or may be affected by the action described in the enclosed Notice of Agency Action, may petition for an administrative hearing in accordance with the requirements of section 28-106.201, Florida Administrative Code, or may choose to pursue mediation as an alternative remedy under section 120.573, Florida Statutes, before the deadline for filing a petition. Pursuit of mediation will not adversely affect the right to administrative proceedings in the event mediation does not result in a settlement. Petitions for an administrative hearing must be filed with the Agency Clerk of the Northwest Florida Water Management District, 81 Water Management Drive, Havana, Florida 32333-9700 by the deadline specified in the attached cover letter. Failure to file a petition within this time period shall constitute a waiver of any rights such person may have to request an administrative determination (hearing) under section 120.57, Florida Statutes, concerning the subject permit application. Petitions which are not filed in accordance with the above provisions are subject to dismissal.

DISTRICT COURT OF APPEAL

A party who is adversely affected by final agency action on the permit application and who has exhausted available administrative remedies is entitled to judicial review in the District Court of Appeal pursuant to section 120.68, Florida Statutes. Review under section 120.68, Florida Statutes, is initiated by filing a Notice of Appeal in the appropriate District Court of Appeal in accordance with Florida Rule of Appellate Procedure 9.110.

SECTION 28-106.201, FLORIDA ADMINISTRATIVE CODE, INITIATION OF PROCEEDINGS

(1) Unless otherwise provided by statute, and except for agency enforcement and disciplinary actions that shall be initiated under Rule 28-106.2015, F.A.C., initiation of proceedings shall be made by written petition to the agency responsible for rendering final agency action. The term "petition" includes any document that requests an evidentiary proceeding and asserts the existence of a disputed issue of material fact. Each petition shall be legible and on 8 1/2 by 11 inch white paper. Unless printed, the impression shall be on one side of the paper only and lines shall be double-spaced.

(2) All petitions filed under these rules shall contain:

(a) The name and address of each agency affected and each agency's file or identification number, if known;

(b) The name, address, any e-mail address, any facsimile number, and telephone number of the petitioner, if the petitioner is not represented by an attorney or a qualified representative; the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests will be affected by the agency determination;

(c) A statement of when and how the petitioner received notice of the agency decision;

(d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate;

(e) A concise statement of the ultimate facts alleged, including the specific facts the petitioner contends warrant reversal or modification of the agency's proposed action;

(f) A statement of the specific rules or statutes the petitioner contends require reversal or modification of the agency's proposed action, including an explanation of how the alleged facts relate to the specific rules or statutes; and

(g) A statement of the relief sought by the petitioner, stating precisely the action petitioner wishes the agency to take with respect to the agency's proposed action.

(3) Upon receipt of a petition involving disputed issues of material fact, the agency shall grant or deny the petition, and if granted shall, unless otherwise provided by law, refer the matter to the Division of Administrative Hearings with a request that an administrative law judge be assigned to conduct the hearing. The request shall be accompanied by a copy of the petition and a copy of the notice of agency action.

Rulemaking Authority 14.202, 120.54(3), (5) FS. Law Implemented 120.54(3) FS. History–New 4-1-97, Amended 9-17-98, 1-15-07, 2-5-13.

CERTIFICATE OF SERVICE

I hereby certify that on the below date, a true and correct copy of the foregoing document and all attachments were sent to the applicant and/or their representative(s), and any party having made a written request for notice of agency action, and that section 120.60(3), Florida Statutes has been satisfied.



Support Specialist II	May 05, 2023 **Date**

APPENDIX C

STATE 404 PERMIT

FLORIDA DEPARTMENT OF Environmental Protection

Northwest District
160 W. Government Street, Suite 308
Pensacola, Florida 32502-5740

Ron DeSantis
Governor

Jeanette Nuñez
Lt. Governor

Shawn Hamilton
Secretary

June 6, 2023

Walton County Public Works
c/o Chance Powell
117 Montgomery Circle
DeFuniak Springs, FL, 32435
powchance@co.walton.fl.us

File No.: 0431240-001-NPR/66, Walton County

Dear Mr. Powell:

On February 6, 2023, we received your request for verification that a State 404 Program permit will not be required for the activity described below.

The proposed activity is to fill 0.126 acres of isolated unnamed wetlands to expand Helen McCall Park at 325 Moll Drive, Santa Rosa Beach, Florida, 32439, Section 34, Township 2 South, Range 20 West, Walton County.

Based on a review of the information submitted, the Department has verified that the activity, as proposed does not involve discharge of dredged or fill material into the waters of the United States and therefore, does not require a permit or other form of authorization under the State 404 Program, as described in Chapter 62-331, Florida Administrative Code (F.A.C.).

This verification reflects current regulations and is only valid for a period of no longer than five years from the date of this letter unless new information warrants a revision of this verification before the expiration date.

Please retain this letter. The activities described above may be inspected by authorized state personnel in the future to ensure compliance with appropriate statutes and administrative codes. If the activities are not in compliance, you may be subject to enforcement action and possible penalties.

This letter does not relieve you from the responsibility of obtaining other federal, state (including ERP), or local authorizations that maybe required for this activity.

If you have any questions regarding this letter or permitting requirements, please contact Gregory Leenig by telephone at (850)595-0564, or at Gregory.Leenig@FloridaDEP.gov

EXECUTION AND CLERKING
Executed in Orlando, Florida.
STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION



Russell Sullivan
Environmental Manager

RS:gnl

Attachments:
Project drawings, 6 pages
Certified Wetland Evaluator Coversheet, 2 pages
62-340, F.A.C., Data forms and Photos, 20 pages
WOTUS Information Form, 5 pages
WOTUS Supporting Information, 4 pages

CERTIFICATE OF SERVICE
The undersigned duly designated deputy clerk hereby certifies that this document and all attachments were sent on the filing date below to the following listed persons:

Chance Powell, Applicant, powchance@co.walton.fl.us
Rudolph Mall, Consultant, rmall@dewberry.com
Trish Engel, Consultant, trish@biome.co
Kim Allen, DEP, Kim.Allen@FloridaDEP.gov
Russell Sullivan, FDEP, Russell.sullivan@floridadep.gov
Blake Chapman, FDEP, blake.a.chapman@floridadep.gov
Gregory Leenig, FDEP, Gregory.leenig@floridadep.gov
Walton County, carscott@co.walton.fl.us, carmac@co.walton.fl.us, shekristen@co.walton.fl.us

FILING AND ACKNOWLEDGMENT

FILED, on this date, pursuant to Section 120.52, F. S., with the designated Department Clerk, receipt of which is hereby acknowledged.



Clerk

June 6, 2023
Date

DREDGE AND FILL PLANS FOR:

HELEN McCALL PARK EXPANSION

PREPARED FOR:

BOARD OF COUNTY COMMISSIONERS
WALTON COUNTY ,FLORIDA

PROJECT NUMBER - 50128135

DECEMBER 2022

UTILITY PROVIDERS:				
WATER/SEWER REGIONAL UTILITIES MR. RYAN DOUGLAS 4432 EAST HWY. 98 SANTA ROSA BEACH, FL PH: (850) 231-5114	ELECTRIC CHELCO MR. QUINTIN BETTIS 723 NORTH US HWY. 331 DEFUNIAK SPRINGS, FL PH: (850) 573-7286	TELEPHONE CENTURYLINK MR. MIKE BELL 650 DENTON BLVD. FORT WALTON BEACH PH: (850) 664-3608	SPRINT NEXTEL STEVE THOMPSON 411 HUGER ST. COLUMBIA, SC 29201 PH: (678) 852-2726	SUNSHINE STATE ON-CALL 605 WEST GARDEN STREET ORLANDO, FL PH: (800) 432-4770
NATURAL GAS OKALOOSA GAS DISTRICT MR. ESSA RHEBI 364 HWY, 190 VALPARAISO, FL PH: (850) 729-4870	CABLE COX COMMUNICATIONS ROGER DIXON 320 RACETRACK ROAD NW FORT WALTON BEACH, FL PH: (850) 314-8163	COMMUNICATIONS UNITI FIBER DJ McAULEY 107 ST. FRANCIS ST., STE 1800 MOBILE, AL 36602 PH: (251) 259-0807	MEDIACOM EDDIE ARNOLD 1613 NANTAHALA BEACH DR. GULF BREEZE, FL 32563 PH: (850) 698-2386	

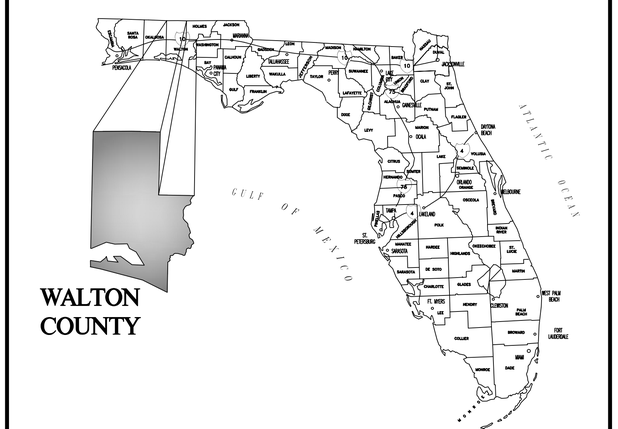
48 HOURS
BEFORE YOU DIG
CALL SUNSHINE ONE
1-800-432-4770
www.callsunshine.com

GOVERNING STANDARD PLANS:
FLORIDA DEPARTMENT OF TRANSPORTATION, FY 2022-23 STANDARD PLANS FOR ROAD AND BRIDGE CONSTRUCTION AND APPLICABLE INTERIM REVISIONS (IR'S)

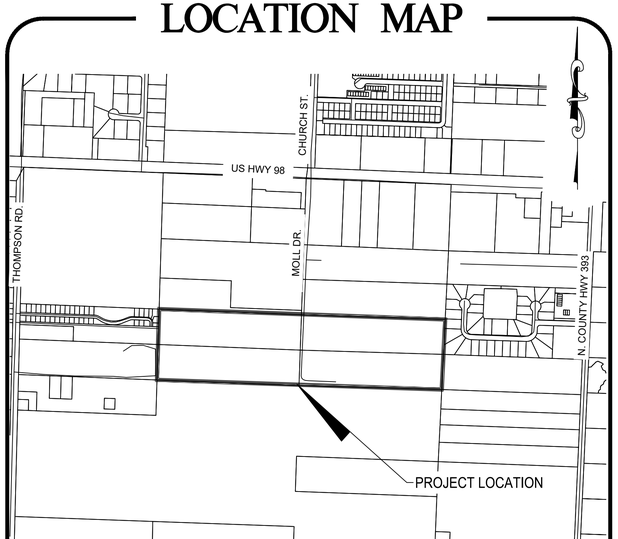
STANDARD PLANS FOR ROAD CONSTRUCTION AND ASSOCIATED IR'S ARE AVAILABLE AT THE FOLLOWING WEBSITE: http://www.fdot.gov/design/standardplans

GOVERNING STANDARD SPECIFICATIONS:
FLORIDA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, JULY 2022

VICINITY MAP



LOCATION MAP



DRAWING INDEX	
Sheet Number	Sheet Title
COV	COVER SHEET
1	SITE MASTER PLAN
2	LAYOUT PLAN AND SHEET KEY
3	SITE PLAN
4	SITE PLAN
5	SITE PLAN

Dewberry
877 CR 393 North
Santa Rosa Beach, FL 32459
850.267.0759

HELEN MCCALL PARK EXPANSION
BOARD OF COUNTY COMMISSIONERS
WALTON COUNTY
FLORIDA

SEAL

AARON M. HARRISON LICENSE No 87629 STATE OF FLORIDA PROFESSIONAL ENGINEER

AARON M. HARRISON, P.E. 87692
EB 0008794

PERMIT SET

SCALE

REVISIONS

NO.	DESCRIPTION	DATE

DRAWN BY	BTW
APPROVED BY	AMH
CHECKED BY	AMH
DATE	DECEMBER 2022

TITLE

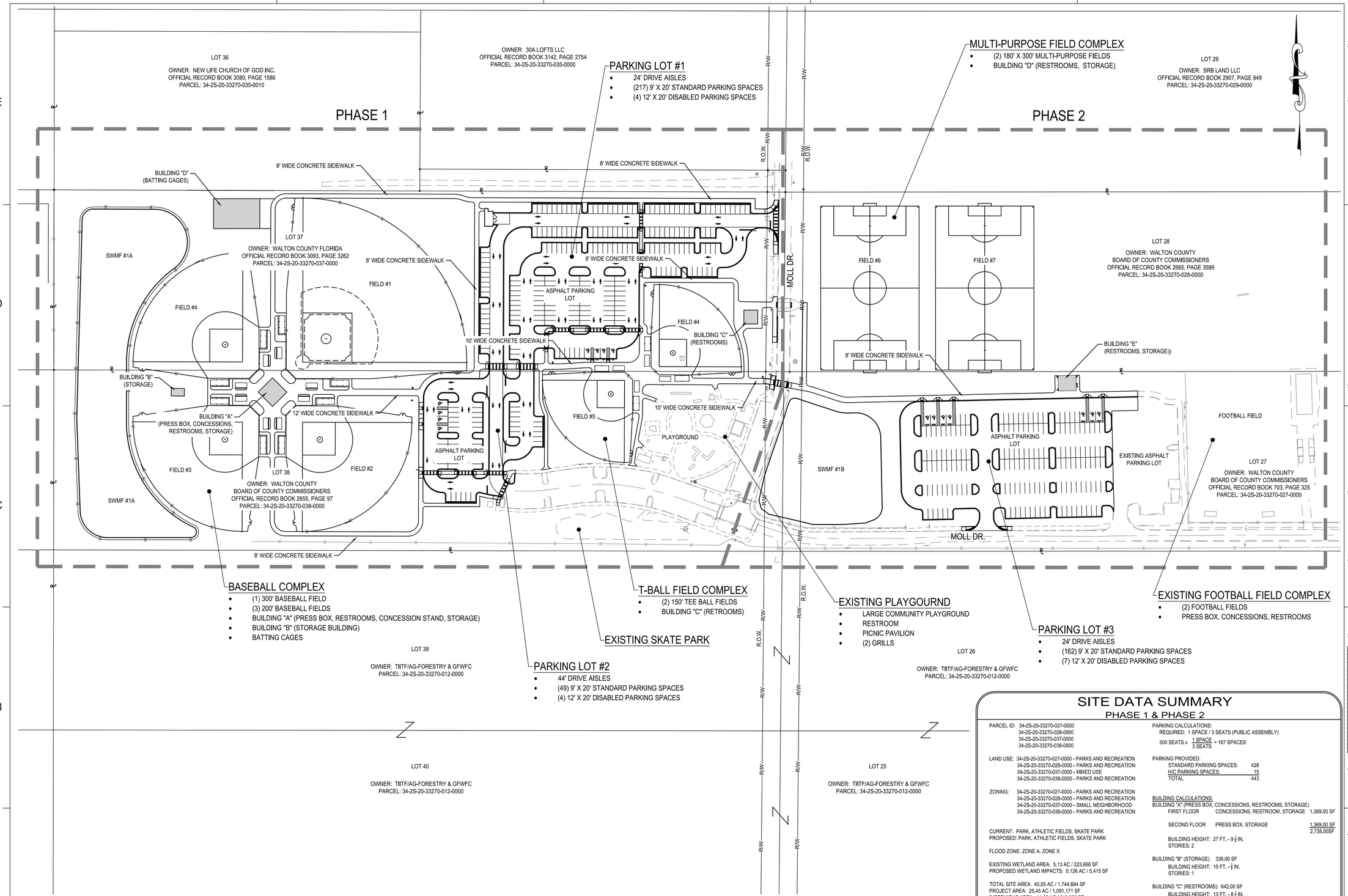
COVER SHEET

PROJECT NO. 50128135

COV

SHEET NO.

01/10/2023 7:27:13 AM
S:\SOUTH\WALTON COUNTY\50128135_HELEN MCCALL PARK 10 ACRE EXPANSION_CIVIL\SFOLDER_PRODUCTION\DREDGE AND FILL PERMIT PLANS\PERMIT COVER.DWG



SITE DATA SUMMARY
PHASE 1 & PHASE 2

PARCEL ID: 34-2S-20-33270-027-0000
34-2S-20-33270-028-0000
34-2S-20-33270-037-0000
34-2S-20-33270-038-0000

LAND USE: 34-2S-20-33270-027-0000 - PARKS AND RECREATION
34-2S-20-33270-028-0000 - PARKS AND RECREATION
34-2S-20-33270-037-0000 - MIXED USE
34-2S-20-33270-038-0000 - PARKS AND RECREATION

ZONING: 34-2S-20-33270-027-0000 - PARKS AND RECREATION
34-2S-20-33270-028-0000 - PARKS AND RECREATION
34-2S-20-33270-037-0000 - SMALL NEIGHBORHOOD
34-2S-20-33270-038-0000 - PARKS AND RECREATION

CURRENT: PARK, ATHLETIC FIELDS, SKATE PARK
PROPOSED: PARK, ATHLETIC FIELDS, SKATE PARK

FLOOD ZONE: ZONE A, ZONE X

EXISTING WETLAND AREA: 5.13 AC / 223,666 SF
PROPOSED WETLAND IMPACTS: 0.126 AC / 5,415 SF

TOTAL SITE AREA: 40.05 AC / 1,744,684 SF
PROJECT AREA: 25.45 AC / 1,091,171 SF
IMPERVIOUS AREA: 11.92 AC / 519,398 SF

OVERALL SITE ISR
ISR ALLOWED: 0.50 (50%)
ISR PROVIDED: 519,398 / 1,744,684 = 0.30 (30%)

DRAINAGE AREA = 20.16 AC / 878,351 SF

BUILDING SETBACKS REQUIRED:
FRONT: 25 FT.
SIDE: 10 FT.
REAR: 20 FT.

PARKING CALCULATIONS:
REQUIRED: 1 SPACE / 3 SEATS (PUBLIC ASSEMBLY)
500 SEATS x 1 SPACE / 3 SEATS = 167 SPACES

PARKING PROVIDED:
STANDARD PARKING SPACES: 428
H/C PARKING SPACES: 15
TOTAL 443

BUILDING CALCULATIONS:
BUILDING "A" (PRESS BOX, CONCESSIONS, RESTROOMS, STORAGE)
FIRST FLOOR CONCESSIONS, RESTROOM, STORAGE 1,369.00 SF
SECOND FLOOR PRESS BOX, STORAGE 1,369.00 SF
2,738.00SF

BUILDING HEIGHT: 27 FT. - 9 1/2 IN.
STORIES: 2

BUILDING "B" (STORAGE) 336.00 SF
BUILDING HEIGHT: 15 FT. - 8 IN.
STORIES: 1

BUILDING "C" (RESTROOMS): 642.00 SF
BUILDING HEIGHT: 13 FT. - 8 1/2 IN.
STORIES: 1

BUILDING "D" (BATTING CAGES): 4,629 SF.
BUILDING HEIGHT: 24 FT.
STORIES: 2

BUILDING "E" (RESTROOMS AND STORAGE): 924.00 SF
BUILDING HEIGHT: 14 FT. - 9 1/2 IN.
STORIES: 1

TOTAL BUILDING AREA: 9,269.00 SF
EXISTING BUILDING AREAS: 2,664 SF
TOTAL = 11,933 SF

FAR
MAX. FAR ALLOWED: 0.50 (50%)
FAR PROVIDED: 11,933 / 1,744,684 = 0.007 (0.7%)

Dewberry
877 CR 393 North
Santa Rosa Beach, FL 32459
850.267.0759

HELEN MCCALL PARK EXPANSION
BOARD OF COUNTY COMMISSIONERS
WALTON COUNTY
FLORIDA

SEAL
AARON M. HARRISON LICENSE No 87629 STATE OF FLORIDA PROFESSIONAL ENGINEER
AARON M. HARRISON, P.E. 87692
EB 0008794

PERMIT SET

SCALE
0' 40' 80' 160'
SCALE: 1" = 80'

REVISIONS

NO.	DESCRIPTION	DATE

DRAWN BY	BTW
APPROVED BY	AMH
CHECKED BY	AMH
DATE	DECEMBER 2022

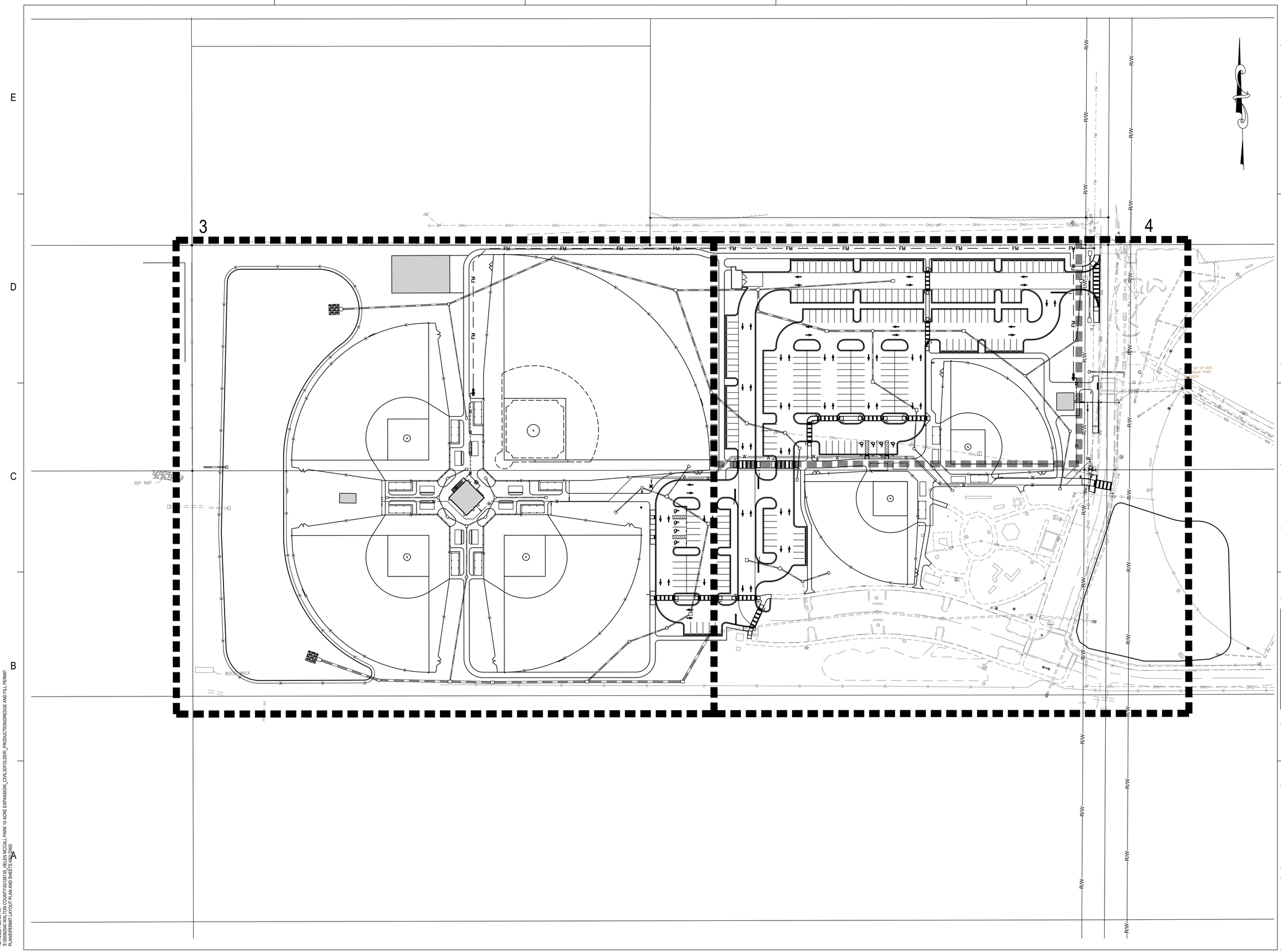
TITLE
SITE MASTER PLAN

PROJECT NO. 50128135

1

SHEET NO.

1/27/2022 7:24:38 AM
S:\SOCIAL CIRCLE\WALTON COUNTY\50128135_HELEN MCCALL PARK 10 ACRE EXPANSION_CIVIL\03FOLDER_PRODUCTION\DREDGE AND FILL PERMIT PLANS\PERMIT SITE MASTER PLAN.DWG



Dewberry
877 CR 393 North
Santa Rosa Beach, FL 32459
850.267.0759

HELEN MCCALL PARK EXPANSION
BOARD OF COUNTY COMMISSIONERS
WALTON COUNTY
FLORIDA

SEAL

AARON M. HARRISON
LICENSE
No 87629
STATE OF FLORIDA
PROFESSIONAL ENGINEER

AARON M. HARRISON, P.E. 87692
EB 0008794

PERMIT SET

SCALE

0' 30' 60' 120'
SCALE: 1" = 60'

REVISIONS

NO.	DESCRIPTION	DATE

DRAWN BY	BTW
APPROVED BY	AMH
CHECKED BY	AMH
DATE	DECEMBER 2022

TITLE

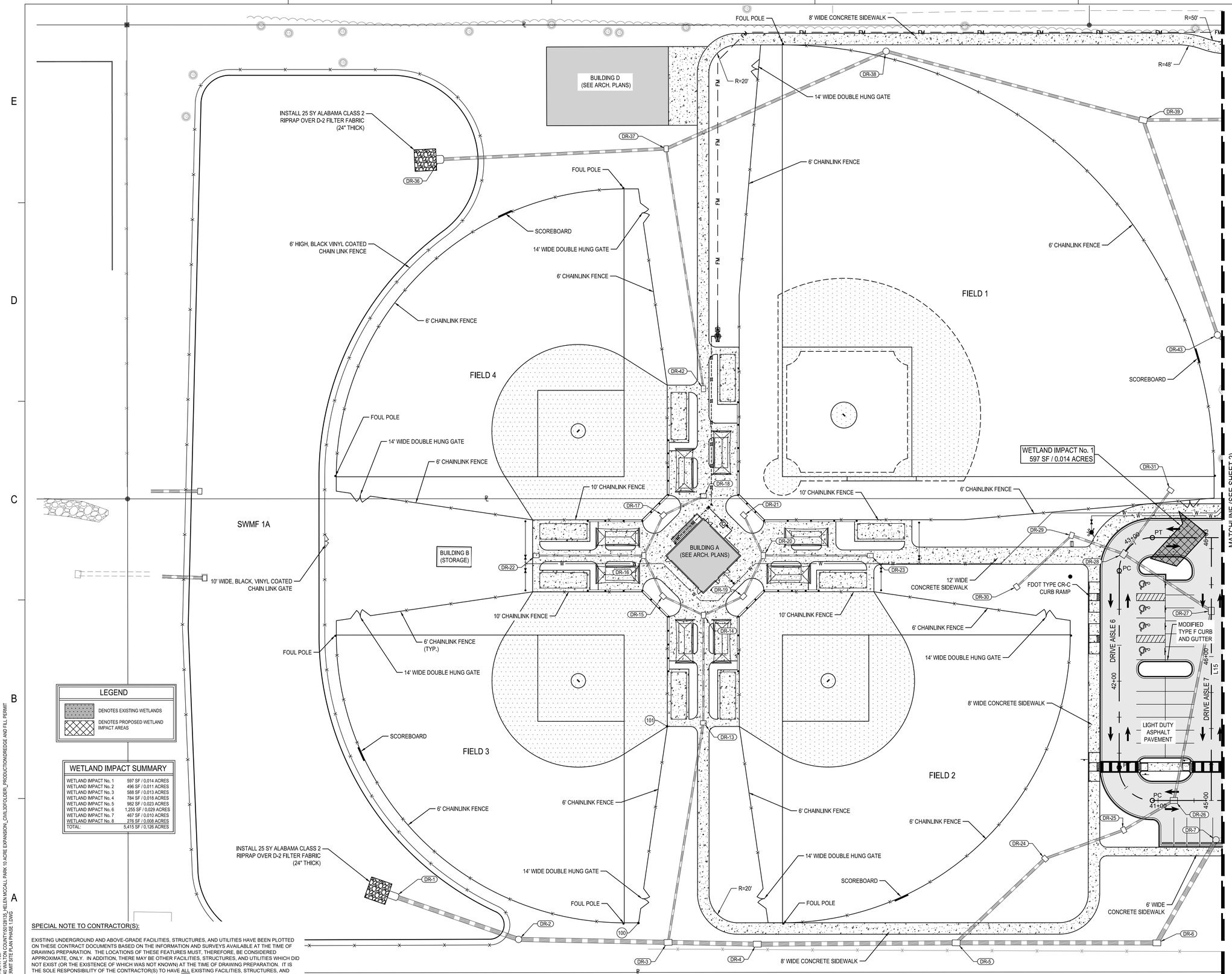
LAYOUT PLAN AND SHEET KEY

PROJECT NO. 50128135

2

SHEET NO.

12/7/2022 7:26:46 AM
S:\WOOD\WALTON\50128135_HELEN MCCALL PARK 10 ACRE EXPANSION_CIVIL\3DFOLDER_PRODUCTION\DREDGE AND FILL PERMIT PLANS\PERMIT LAYOUT PLAN AND SHEETS KEY.DWG



LEGEND

- DENOTES EXISTING WETLANDS
- DENOTES PROPOSED WETLAND IMPACT AREAS

WETLAND IMPACT SUMMARY

WETLAND IMPACT No. 1	597 SF / 0.014 ACRES
WETLAND IMPACT No. 2	496 SF / 0.011 ACRES
WETLAND IMPACT No. 3	588 SF / 0.013 ACRES
WETLAND IMPACT No. 4	784 SF / 0.018 ACRES
WETLAND IMPACT No. 5	982 SF / 0.023 ACRES
WETLAND IMPACT No. 6	1,255 SF / 0.029 ACRES
WETLAND IMPACT No. 7	467 SF / 0.010 ACRES
WETLAND IMPACT No. 8	276 SF / 0.008 ACRES
TOTAL:	5,415 SF / 0.126 ACRES

SPECIAL NOTE TO CONTRACTOR(S):

EXISTING UNDERGROUND AND ABOVE-GRADE FACILITIES, STRUCTURES, AND UTILITIES HAVE BEEN PLOTTED ON THESE CONTRACT DOCUMENTS BASED ON THE INFORMATION AND SURVEYS AVAILABLE AT THE TIME OF DRAWING PREPARATION. THE LOCATIONS OF THESE FEATURES MUST, THEREFORE, BE CONSIDERED APPROXIMATE, ONLY. IN ADDITION, THERE MAY BE OTHER FACILITIES, STRUCTURES, AND UTILITIES WHICH DID NOT EXIST (OR THE EXISTENCE OF WHICH WAS NOT KNOWN) AT THE TIME OF DRAWING PREPARATION. IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR(S) TO HAVE ALL EXISTING FACILITIES, STRUCTURES, AND UTILITIES LOCATED IN THE FIELD PRIOR TO ANY EXCAVATION OR CONSTRUCTION ACTIVITY; AND TO PROTECT ALL SUCH EXISTING FEATURES (EXCEPT THOSE SPECIFICALLY NOTED FOR REMOVAL OR DEMOLITION) DURING CONSTRUCTION.

12/7/2022 7:24:47 PM
S:\2022\50128135_WALTON COUNTY\50128135_HELEN MCCALL PARK 10 ACRE EXPANSION_CIVIL\DSFOLDER_PRODUCTION\DREDGE AND FILL PERMIT PLANS\PERMIT SITE PLAN PHASE 1.DWG

Dewberry
877 CR 393 North
Santa Rosa Beach, FL 32459
850.267.0759

HELEN MCCALL PARK EXPANSION
BOARD OF COUNTY COMMISSIONERS
WALTON COUNTY
FLORIDA

SEAL

AARON M. HARRISON LICENSE No 87629 STATE OF FLORIDA PROFESSIONAL ENGINEER

AARON M. HARRISON, P.E. 87692
EB 0008794

PERMIT SET

SCALE

0' 15' 30' 60'
SCALE: 1" = 30'

REVISIONS

NO.	DESCRIPTION	DATE

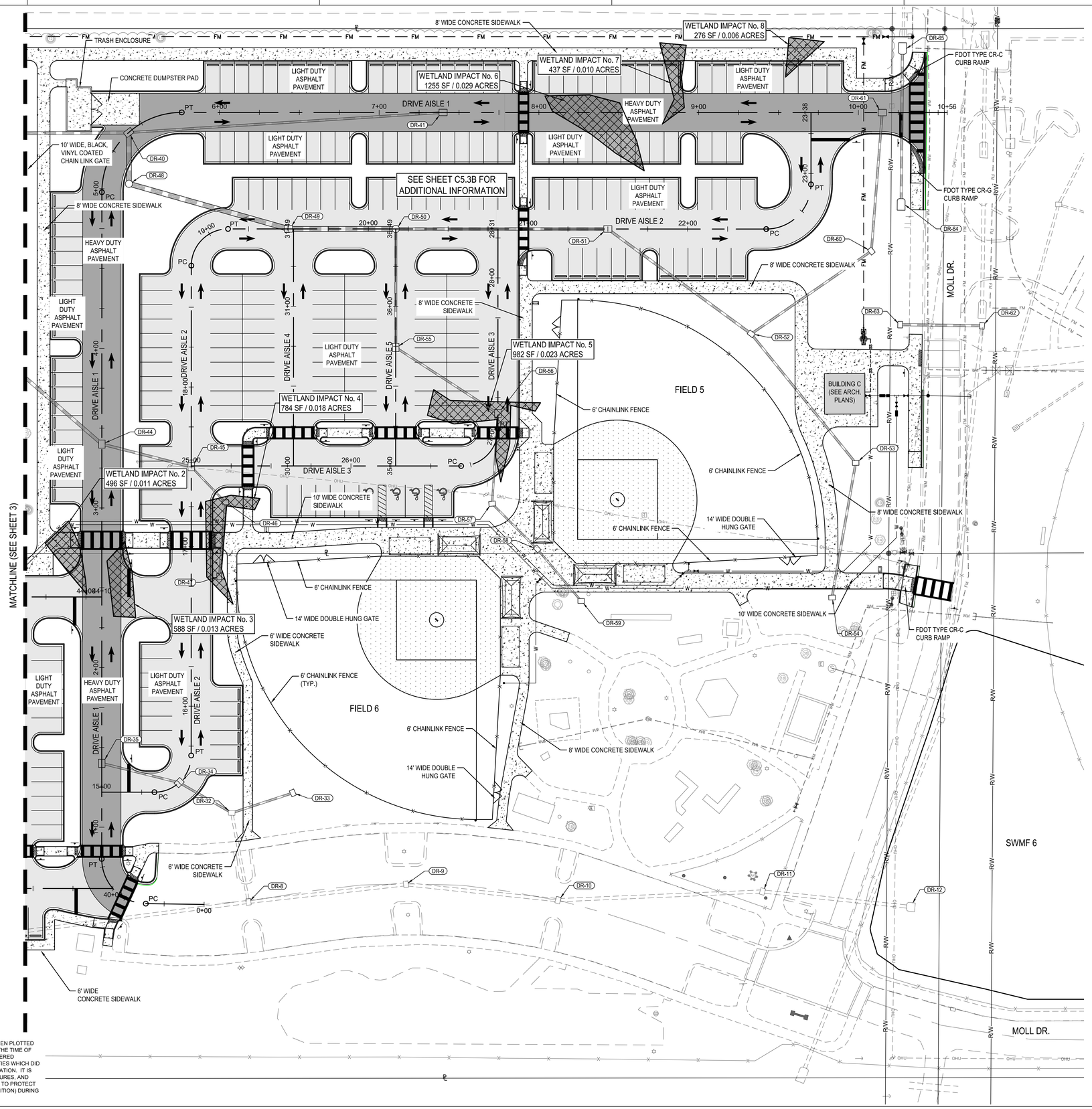
DRAWN BY	BTW
APPROVED BY	AMH
CHECKED BY	AMH
DATE	DECEMBER 2022

TITLE

SITE PLAN

PROJECT NO. 50128135

SHEET NO. 3



LEGEND

- DENOTES EXISTING WETLANDS
- DENOTES PROPOSED WETLAND IMPACT AREAS

WETLAND IMPACT SUMMARY

WETLAND IMPACT No. 1	597 SF / 0.014 ACRES
WETLAND IMPACT No. 2	496 SF / 0.011 ACRES
WETLAND IMPACT No. 3	588 SF / 0.013 ACRES
WETLAND IMPACT No. 4	784 SF / 0.018 ACRES
WETLAND IMPACT No. 5	982 SF / 0.023 ACRES
WETLAND IMPACT No. 6	1,255 SF / 0.029 ACRES
WETLAND IMPACT No. 7	467 SF / 0.010 ACRES
WETLAND IMPACT No. 8	276 SF / 0.008 ACRES
TOTAL:	5,415 SF / 0.126 ACRES

SPECIAL NOTE TO CONTRACTOR(S):

EXISTING UNDERGROUND AND ABOVE-GRADE FACILITIES, STRUCTURES, AND UTILITIES HAVE BEEN PLOTTED ON THESE CONTRACT DOCUMENTS BASED ON THE INFORMATION AND SURVEYS AVAILABLE AT THE TIME OF DRAWING PREPARATION. THE LOCATIONS OF THESE FEATURES MUST, THEREFORE, BE CONSIDERED APPROXIMATE, ONLY. IN ADDITION, THERE MAY BE OTHER FACILITIES, STRUCTURES, AND UTILITIES WHICH DID NOT EXIST (OR THE EXISTENCE OF WHICH WAS NOT KNOWN) AT THE TIME OF DRAWING PREPARATION. IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR(S) TO HAVE ALL EXISTING FACILITIES, STRUCTURES, AND UTILITIES LOCATED IN THE FIELD PRIOR TO ANY EXCAVATION OR CONSTRUCTION ACTIVITY; AND TO PROTECT ALL SUCH EXISTING FEATURES (EXCEPT THOSE SPECIFICALLY NOTED FOR REMOVAL OR DEMOLITION) DURING CONSTRUCTION.

12/7/2022 7:24:47 AM
S:\WALTON COUNTY\50128135_HELEN MCCALL PARK 10 ACRE EXPANSION_CIVIL\3PO\DER_PRODUCTION\DREDGE AND FILL PERMIT PLANS\PERMIT SITE PLAN PHASE 1.DWG

Dewberry
877 CR 393 North
Santa Rosa Beach, FL 32459
850.267.0759

HELEN MCCALL PARK EXPANSION
BOARD OF COUNTY COMMISSIONERS
WALTON COUNTY
FLORIDA

SEAL

AARON M. HARRISON LICENSE No 87629 STATE OF FLORIDA PROFESSIONAL ENGINEER

AARON M. HARRISON, P.E. 87692
EB 0008794

PERMIT SET

SCALE

0' 15' 30' 60'
SCALE: 1" = 30'

REVISIONS

NO.	DESCRIPTION	DATE

DRAWN BY	BTW
APPROVED BY	AMH
CHECKED BY	AMH
DATE	DECEMBER 2022

TITLE

SITE PLAN

PROJECT NO. 50128135

4

SHEET NO.

Dewberry
877 CR 393 North
Santa Rosa Beach, FL 32459
850.267.0759

HELEN MCCALL PARK EXPANSION
BOARD OF COUNTY COMMISSIONERS
WALTON COUNTY
FLORIDA

SEAL

AARON M. HARRISON LICENSE No 87629 STATE OF FLORIDA PROFESSIONAL ENGINEER

AARON M. HARRISON, P.E. 87692
EB 0008794

PERMIT SET

SCALE

0' 15' 30' 60'
SCALE: 1" = 30'

REVISIONS

NO.	DESCRIPTION	DATE

DRAWN BY	BTW
APPROVED BY	AMH
CHECKED BY	AMH
DATE	DECEMBER 2022

TITLE

SITE PLAN

PROJECT NO. 50128135

5

SHEET NO.

FIELD 7

FIELD 8

MOLL DR.

WETLANDS

LEGEND

DENOTES EXISTING WETLANDS

DENOTES PROPOSED WETLAND IMPACT AREAS

WETLAND IMPACT SUMMARY

WETLAND IMPACT No. 1	597 SF / 0.014 ACRES
WETLAND IMPACT No. 2	496 SF / 0.011 ACRES
WETLAND IMPACT No. 3	588 SF / 0.013 ACRES
WETLAND IMPACT No. 4	784 SF / 0.018 ACRES
WETLAND IMPACT No. 5	982 SF / 0.023 ACRES
WETLAND IMPACT No. 6	1,255 SF / 0.029 ACRES
WETLAND IMPACT No. 7	467 SF / 0.010 ACRES
WETLAND IMPACT No. 8	276 SF / 0.008 ACRES
TOTAL:	5,415 SF / 0.126 ACRES

8' WIDE CONCRETE SIDEWALK

10' WIDE CONCRETE SIDEWALK

WETLAND BUFFER

BUILDING "E" RESTROOM, STORAGE, IRRIGATION CONTROLS (SEE ARCH. PLANS)

FDOT TYPE CR-A CURB RAMP WITH DETECTABLE WARNINGS

DETECTABLE WARNINGS

SPECIAL EMPHASIS CROSSWALK STRIPING PER FDOT INDEX 711-001 (TYP.)

PEDESTRIAN CROSSING SIGN

ACCESSIBLE PARKING MARKINGS PER FDOT INDEX 711-01 (TYP.)

CONCRETE BOLLARD AND H.C. PARKING SIGN (TYP.)

CONCRETE BUMPER GUARD (TYP.)

LIGHT DUTY ASPHALT PAVEMENT

MODIFIED TYPE F CURB AND GUTTER

MODIFIED TYPE F CURB AND GUTTER (TYPICAL)

SWMF 1B

DRIVE AISLE 1

DRIVE AISLE 2

DRIVE AISLE 3

FDOT TYPE CR-G CURB RAMP WITH DETECTABLE WARNINGS

SPECIAL NOTE TO CONTRACTOR(S):

EXISTING UNDERGROUND AND ABOVE-GRADE FACILITIES, STRUCTURES, AND UTILITIES HAVE BEEN PLOTTED ON THESE CONTRACT DOCUMENTS BASED ON THE INFORMATION AND SURVEYS AVAILABLE AT THE TIME OF DRAWING PREPARATION. THE LOCATIONS OF THESE FEATURES MUST, THEREFORE, BE CONSIDERED APPROXIMATE, ONLY. IN ADDITION, THERE MAY BE OTHER FACILITIES, STRUCTURES, AND UTILITIES WHICH DID NOT EXIST (OR THE EXISTENCE OF WHICH WAS NOT KNOWN) AT THE TIME OF DRAWING PREPARATION. IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR(S) TO HAVE ALL EXISTING FACILITIES, STRUCTURES, AND UTILITIES LOCATED IN THE FIELD PRIOR TO ANY EXCAVATION OR CONSTRUCTION ACTIVITY; AND TO PROTECT ALL SUCH EXISTING FEATURES (EXCEPT THOSE SPECIFICALLY NOTED FOR REMOVAL OR DEMOLITION) DURING CONSTRUCTION.

12/7/2022 7:24:23 AM
S:\WALTON\DESIGN\CIVIL\CONTRACTS\128135_HELEN MCCALL PARK 10 ACRE EXPANSION_CIVIL\DGN\FOLDER_PRODUCTION\DRIDGE AND FILL PERMIT PLANS\PERMIT SITE PLAN PHASE 2.DWG

State 404 Program
Department Certified Wetland Evaluator Work Product Cover Sheet

The attached files were reviewed/created and approved by the Certified Wetland Evaluator(s) (CWEs) employed by the Florida Department of Environmental Protection as indicated below.

State 404 File Number: 0431240-001-NPR/6 WMD/DLG ERP/FD File Number: IND-131-309938-1

Date(s) of Site Inspection: 04/04/2023

Purpose of Site Inspection: Verify wetland lines

Evaluation Documentation Includes (check all that apply):

- [x] 62-340, F.A.C. Data Forms: 1-12 pages
- [ ] Functional assessment forms: _____ pages
  - [ ] UMAM
  - [ ] WRAP
  - [ ] WATER
  - [ ] Other _____
- [x] Site photos: 13-20 pages
- [ ] State 404 Program WOTUS Information Form: _____ pages
- [ ] Other WOTUS-related documentation: _____ pages
  - [ ] Description_____

By signing below, the DEP CWE(s) affirm that the attached documentation was completed in accordance with the following laws and rules as applicable: Chapters 62-330, 62-331, 62-340, and 62-345, F.A.C., and 40 C.F.R. 120, and contain true and accurate information that reflects the site conditions at the time of the inspection.

Lead DEP CWE Name (legible): Aaron Waits

Signature: _____

Date Approved: _____

DEP CWE Name (legible): _____

Signature: _____

Date Approved: _____

DEP CWE Name (legible): _____

Signature: _____

Date Approved: _____

DEP CWE Name (legible): _____

Signature: _____

Date Approved: _____

DEP CWE Name (legible): _____

Signature: _____

Date Approved: _____

§ denotes the Rule, subsection, paragraph, or subparagraph referenced from Ch. 62-340, F.A.C.

FDEP SLERC August 2019

Chapter 62-340, F.A.C. Data Form

1. Date: 04/04/2023 2. Staff Present: Aaron Waits 3. Form recorder(s): AW

4. County: Walton (66) 5. Site Name: Helen McCall Park Expansion Tracking #: 309938-1

6. Point ID: Upland GPS Coordinates: N 30° 22' 13.7" , W 86° 14' 18.9"

7. Distances and bearings from fixed objects (if no GPS):

8. Current condition of described point: ◉ Authorized or legal condition ○ Unauthorized or illegal condition

9. Work type: ○ Identification ◉ Delineation

Point status: ○ Wetland ○ Non-Wetland Surface Water ◉ Upland

10. Vegetative Stratum §62-340.400: Using §62-340.400, F.A.C. with reasonable scientific judgment, select the appropriate vegetative stratum. (Do not include FAC species when determining 10% minimum areal extent.)

○ Canopy (Min. 10% areal extent) ○ Subcanopy (Min. 10% areal extent) ◉ Groundcover (No min. areal extent)

○ Vegetation Absent *(skip to #14)* ○ Evaluation Impossible *(skip to #14)* **Why?** Canopy only has one species

11. Plant List §62-340.200(2),(6),(16), §62-340.400, §62-340.450, F.A.C.:

As is under current conditions, without considering RSJ[1] or the legality of any alterations:

Areal extent estimator: AW

Select and identify plants in an area just large enough to represent and classify the plant community at the described point. Do not extend into different communities or hydrologic conditions.

1. Record the scientific name (binomial) and status of each plant species necessary to identify/delineate and classify the plant community in the selected area.
2. Record the percent areal extent in the canopy, subcanopy, and groundcover columns for each species.
3. For each species present in the **stratum selected in #10**, transfer the numbers from only that stratum's column into the appropriate status columns.

#	Binomial of Observed Species	Status	Canopy	Subcanopy	Groundcover	Upland	Facultative	Fac. Wet	Obligate
1.	Pinus elliottii	U	60	20					
2.	Ilex glabra	U			35	35			
3.	Diospyros virginiana	U			5	5			
4.	Carex sp.	FW			7			7	
5.	Cyrilla racemiflora	F			5		5		
6.									
7.									
8.									
9.									
10.									
11.									
12.									
13.									
14.									
15.									
16.									
17.									
18.									
19.									
20.									
Percent areal extent totals for the stratum selected in question 10						40	5	7	0

12. In the stratum selected in #10: What is the % areal extent of Obligate plants? 0

What is the % areal extent of Upland plants? 40

Is the areal extent of Obligate plants greater than that of Upland plants? ○ Yes ◉ No

13. In the stratum selected in #10: What is the total % areal extent of Obligate & Facultative Wet plants combined? 7

What is the total % areal extent of Obligate, Facultative Wet, & Upland plants combined? 47

What is the percentage of OBL + FACW in relation to all plants, excluding FAC? ($\frac{\text{OBL+FACW}}{\text{OBL+FACW+UPL}}$) 14.9%

Point ID/Location: N 30° 22' 13.7" , W 86° 14' 18.9" | Soil describer: AW

14. LRR/MLRA T | **Textures:** Peat, Mucky Peat, Muck, Mucky Mineral (S or F), Sand, Fine, Marl

15. Is a soil profile evaluation possible? ◉ Yes ○ No If no, why? *(**If No**, skip to #18)*

16. Soil Description: ***As is under current conditions, without considering RSJ[1] or the legality of any alterations***

Soil surface, or 0 inch depth for purposes of Chapter 62-340, F.A.C. is the muck or mineral surface (whether natural or fill)

Horizon	beginning to ending **Depth** (inches)	**Matrix Texture**	moist condition **Matrix Hue Value/ Chroma**	for sandy matrix horizons w/ value ≤ 3: **% Organic Coating**	- **Describe soil features: DA** (areas darker than matrix)**, LA** (areas lighter than matrix)**, RC** (redox concentrations): Record in moist condition **hue value/chroma; % volume in horizon; boundaries** (sharp/clear/diffuse)**; shape** (rounded/linear/angular). - **OB** (organic bodies): Record **texture** (muck or mucky mineral)**, % volume in horizon.** - **H_2S** (hydrogen sulfide odor): Indicate shallowest depth where detected - **Note** if horizon is **Physically Mixed (PM), Nonsoil** (any material not listed in "Textures" above), or **Fill** and describe.
1	0-10	Sand	10YR 3/2	20%	LA- 10YR 7/1- 50% Total Area- Round Clear Boundaries Soil appeared physically mixed over time
2					
3					
4					
5					
6					

17. Hydric Soil Field Indicators: If present, check all Hydric Soil Field Indicators satisfied and specify their beginning and ending depths

☑ All Texture	☑ Sandy Texture	☑ Fine Texture
__(A1) Histosol*	__(S4) Sandy Gleyed Matrix*	__(F2) Loamy Gleyed Matrix*
__(A2) Histic Epipedon*	__(S5) Sandy Redox	__(F3) Depleted Matrix
__(A3) Black Histic*	__(S6) Stripped Matrix	__(F6) Redox Dark Surface
__(A4) Hydrogen Sulfide*	__(S7) Dark Surface	__(F7) Depleted Dark Surface
__(A5) Stratified Layers*	__(S8) Polyvalue Below Surface	__(F8) Redox Depression
__(A6) Organic Bodies	__(S9) Thin Dark Surface	__(F10) Marl
__(A7) 5cm Mucky Mineral*	__(S12) Barrier Islands 1cm Muck	__(F12) Iron-Manganese Masses
__(A8) Muck Presence*		__(F13) Umbric Surface
__(A9) 1cm Muck*		__(F22) Very Shallow Dark Surface
__(A11) Depleted Below Dark Surface		
__(A12) Thick Dark Surface		

Indicator Present	Begin Depth	End Depth
1.		
2.		
3.		
4.		
5.		
6.		

** = Stand-alone D Test - both hydric soil and hydrologic indicator*

To combine layers/indicators to meet thickness requirements, see NRCS Hydric Soils Technical Note 4.

18. Excluding organic horizons, is any nonsoil horizon present at or within the uppermost 12 inches of the ground surface?
○ Yes *(e.g. bedrock, rock outcrop, limestone fill, gravel, etc)* ◉ No ○ Soil profile or site inaccessible

19. Is one or more hydric soil field indicators present? ○ Yes ◉ No ○ Inconclusive *(e.g., evaluation to 12+ inches impeded by disturbance, water, nonsoil, no site access, etc.)*
If no or inconclusive, is the soil hydric as determined by other NRCS methods?
○ Yes ← Which method(s)? _____ ◉ No ○ Inconclusive ← Why? _____
(e.g., hydric soil definition, HSTS[2], indicator present at drier elevation, indicator would be present but for disturbance)

20. Is the depth of the soil profile 20 inches or greater from the soil surface? ○ Yes ◉ No
If no, depth of soil profile is: 10 inches Why? Soil compaction
(e.g., root refusal, nonsoil, water table, loose sand, heavy texture, compaction, weather conditions, inspection interrupted)

21. **Observed** height or depth of standing water from **soil** surface: _____ inches ○ Above ○ Below ◉ Not Observed

Point ID/Location: N 30° 22' 13.7" , W 86° 14' 18.9" | Indicator evaluator: AW

22. Hydrologic Indicators: ***As is under current conditions, without considering RSJ[1] or the legality of any alterations***

Hydrologic Indicators per §62-340.500, F.A.C. (and as applied to §62-340.600, F.A.C.)	Present at or near point	Predicted during normal high water or wet season◆	Within 100 ft waterward of point (not for upland points)	1. Describe the type of all checked indicators. 2. Approximate the distance and compass direction of indicators within 100 ft of the point. 3. For water level indicators (potential indicators denoted by *) **note the height from ground surface** at the point as well as waterward (with distance from point). ◆Only for indicators not present due to dry season/drought
(1) Algal mats*				
(2) Aquatic mosses or liverworts*				
(3) Aquatic plants*				
(4) Aufwuchs				
(5) Drift lines and rafted debris*				
(6) Elevated lichen lines*				
(7) Evidence of aquatic fauna				
(8) Hydrologic data*				
(9) Morphological plant adaptations*				
(10) Secondary flow channels				
(11) Sediment deposition*				
(12) Tussocks or hummocks*				
(13) Water marks*				

Highest water level indicator height at point: _____ inches ○ Above Ground Surface ○ No Water Level Indicators ○ Above Soil Surface ◉ N/A (described point is Upland)

23. Is one or more hydrologic indicator(s) listed in §62-340.500, F.A.C. present or predicted with normal high water or wet season conditions at the described point? ○ Yes ◉ No ○ Evaluation Impossible ← Why? _____

24. Delineation by Wetland Definition §62-340.300(1), F.A.C.

As is under current conditions, without considering RSJ[1] or the legality of any alterations:

a) Has a wetland boundary been delineated at the described point? ○ Yes ◉ No *(**If No**, skip to #25)*

b) If yes to 24a, can the boundary be easily delineated using the definition of wetlands? ○ Yes ○ No

25. A & B Test Wetland Criteria §62-340.300(2)(a),(b), F.A.C.

As is under current conditions, without considering RSJ[1] or the legality of any alterations:

a) Is the areal extent of Obligate plants in the stratum selected in #10 greater than the areal extent of all Upland plants in that stratum? (See #12) ○ Yes ◉ No ○ Vegetation Absent *(skip to #25f)* ○ Evaluation Impossible *(skip to #26a)*

b) Is the areal extent of Obligate and/or Facultative Wet plants in the stratum selected in #10 equal to or greater than 80% of all the plants in that stratum, excluding Facultative plants? (See #13) ○ Yes ◉ No

c) Is the soil hydric as identified using standard NRCS definitions and practices? (see #19) ○ Yes ◉ No ○ Indeterminable with current conditions ← Why? _____

d) Is the substrate composed of riverwash, nonsoil (see #18), rock outcrop-soil complex, or is the substrate located within an artificially created wetland area? ○ Yes ○ No If yes, which condition is present? _____

e) Is one or more of the hydrologic indicators in §62-340.500, F.A.C. present at the described point? (See #23) ○ Yes ◉ No

f) Are the A Test criteria met per §62-340.300(2)(a), F.A.C. at the described point? ○ Yes ◉ No
(Note: If yes to 25a and yes to either 25c, 25d, or 25e, A Test criteria are met)

g) Are the B Test criteria met per §62-340.300(2)(b), F.A.C. at the described point? ○ Yes ◉ No
(Note: If yes to 25b and yes to either 25c, 25d, or 25e, B Test criteria are met)

h) Are there any **alterations or conditions** affecting reliable application of the A or B Test such that the Altered Sites Test is more appropriate? ○ Yes ◉ No

Point ID/Location: N 30° 22' 13.7" , W 86° 14' 18.9"

26. C Test Wetland Criteria §62-340.300(2)(c), F.A.C.

As is under current conditions, without considering RSJ[1] or the legality of any alterations:

a) Per §62-340.300(2)(c), F.A.C. is the described point Pine Flatwoods or Improved Pasture, or does it have drained soils? ○ Yes ◉ No ***If yes**, select which of the following are met, then skip to #26d*

☐ Pine Flatwoods ☐ Improved Pasture ☐ Drained Soils

***Pine Flatwoods** must have flat terrain, a monotypic or mixed canopy of long leaf pine or slash pine, and a ground cover dominated by saw palmetto with other species that are NOT obligate or facultative wet. **Improved Pasture** means areas where the dominant native plant community has been replaced with planted or natural recruitment of herbaceous species which are NOT obligate or facultative wet species and which have been actively maintained for livestock through mechanical means or grazing. **Drained Soils** are those in which permanent alterations, excluding mechanical pumping, preclude the formation of hydric soils.*

b) Are the soils at the described point saline sands (salt flats-tidal flats), **or** have they been **field verified** by NRCS's Keys to Soil Taxonomy (4th ed. 1990) as Umbraqualfs, Sulfaquents, Hydraquents, Humaquepts, Histosols (except Folists), Argiaquolls, or Umbraquults? ○ Yes ◉ No

c) Do the soils at the described point have a NRCS hydric soil field indicator (see #17), **and** is the point located within a map unit named or designated by the NRCS as frequently flooded, depressional, or water?

Map Unit: Rutledge Fine Sand ○ Yes ◉ No ○ Inconclusive ← Why? _____ (*skip to #27a)*

d) Are the C Test criteria met per §62-340.300(2)(c), F.A.C. at the described point? ○ Yes ◉ No

(Note: If no to 26a and yes to either 26b or 26c, C Test criteria are met)

e) Are there any **alterations or conditions** affecting reliable application of the C Test such that the Altered Sites Test is more appropriate? ○ Yes ◉ No

27. D Test Wetland Criteria §62-340.300(2)(d), F.A.C.

As is under current conditions, without considering RSJ[1] or the legality of any alterations:

a) Is the soil hydric as verified by a NRCS hydric soil field indicator? (See #17)

○ Yes ◉ No (*skip to #27d)* ○ Inconclusive ← Why? _____ (*skip to #28)*

b) Does any NRCS hydric soil field indicator begin **at the soil surface or** are any of the following indicators present: A1, A2, A3, A4, A5, A7, A8, A9, S4, F2? ○ Yes ○ No *(If yes, then hydrologic indicator §62-340.500(8) or (11) is met)*

c) Is one or more of the hydrologic indicators in §62-340.500, F.A.C. present at the described point? (See #23) ○ Yes ○ No

d) Are the D Test criteria met per §62-340.300(2)(d), F.A.C. at the described point? ○ Yes ◉ No

(Note: If yes to 27a and yes to either 27b or 27c, D Test criteria may be met)

e) Are there any **alterations or conditions** affecting reliable application of the D Test such that the Altered Sites Test is more appropriate? ○ Yes ◉ No

28. Altered Sites Tests §62-340.300(3), F.A.C. (Legal/Authorized or Illegal/Unauthorized)

*For purposes of Chapter 62-340, F.A.C. **altered** refers to any natural or man-induced condition(s) which **masks or eliminates reliable expression** of wetland indicators (i.e. hydrophytic vegetation, hydric soils, and hydrologic indicators). **Unaltered or normal does not require a natural condition**, only an expression of wetland indicators that is sufficient to **reliably** identify or delineate the wetland using the criteria in §62-340.300, F.A.C.*

Are alterations affecting normal wetland condition? ○ Yes ◉ No (*skip to #32)* ○ Evaluation Impossible (*skip to #32)*

29. Authorized or Legally Altered Vegetation and Soils Test Criteria §62-340.300(3)(a), F.A.C.

a) Are there **authorized** or **legal** alterations affecting reliable expression of vegetation at the described point? ○ Yes ○ No If yes, how? _____

b) Are there **authorized** or **legal** alterations affecting reliable soil evaluation at the described point? ○ Yes ○ No If yes, how? _____ *(**If no to both** 29a and 29b, skip to #30)*

c) If yes to 29a or 29b, which criteria tests are affected by the legal alterations?

☐ A Test ☐ B Test ☐ C Test ☐ D Test

d) Using the most reliable available information and reasonable scientific judgment, would the types of evidence and characteristics contemplated in §62-340.300, F.A.C. identify or delineate the described point as a wetland with cessation of the legal altering activities? ○ Yes ○ No If no, why? _____ *(**If no**, skip to #30)*

e) If yes to 29d, what §62-340.300, F.A.C. evidence is present now and/or will be present in the future with cessation of legal altering activities? ☐ Plants ☐ Soils ☐ Hydrologic indicators

f) If yes to 29d, which tests would be passed with cessation of legal altering activities?

☐ Wetland Definition ☐ A Test ☐ B Test ☐ C Test ☐ D Test

Why? _____

Point ID/Location: N 30° 22' 13.7" , W 86° 14' 18.9"

30. Authorized or Legally Altered Hydrology Test Criteria §62-340.300(3)(b), F.A.C.

a) Has wetland hydrology of the area been **legally** drained or lowered? ○ Yes ○ No *(**If no**, skip to #31)*
If yes, how? _____

b) Has wetland hydrology been **legally** eliminated at the described point? ○ Yes ○ No *(**If no**, skip to #31)*

c) If yes to 30b, using reasonable scientific judgment or §62-340.550, F.A.C., have dredging or filling activities authorized by **Part IV** of Chapter 373, F.S. **permanently eliminated** wetland hydrology at the described point such that the wetland definition cannot be met? ○ Yes (point is upland) ○ No *(**If yes**, skip to #31)*

*Chapter 373, F.S. Part II activities (e.g., water use permits) or other temporary hydrologic alterations (e.g., surface water pumps, drought) do **not** apply to this or any other Ch. 62-340, F.A.C. determinations.*

d) If no to 30c, what §62-340.300, F.A.C. evidence is present now and/or will be present in the future with cessation of temporary hydrologic drainage? ☐ Plants ☐ Soils ☐ Hydrologic indicators

e) If no to 30c, Which tests would be passed with cessation of temporary hydrologic alterations?
☐ Wetland Definition ☐ A Test ☐ B Test ☐ C Test ☐ D Test
Why? _____

31. Unauthorized or Illegally Altered Sites Test Criteria §62-340.300(3)(c), F.A.C.

*If the altering activity is a violation of regulatory requirements, then application of §62-340.300(3)(c), F.A.C. and all provisions of Chapter 62-340, F.A.C. are utilized to identify or delineate the wetland in a forensic manner. **This identification or delineation reflects the condition immediately prior to the unauthorized alteration**.*

a) Have any **unauthorized** alterations affected the normal wetland condition at the described point? ○ Yes ○ No
If yes, how? _____ *(**If no**, skip to #32)*

b) If yes to 31a, which criteria tests are affected by the unauthorized alterations?
☐ A Test ☐ B Test ☐ C Test ☐ D Test

c) With reasonable scientific judgment is the described point a wetland, or would it have been a wetland immediately prior to the unauthorized alteration? ○ Yes ○ No If no, why? _____ *(**If no**, skip to #32)*

d) If yes to 31c, what §62-340.300, F.A.C. evidence is present now and/or was present immediately prior to the unauthorized alteration? ☐ Plants ☐ Soils ☐ Hydrologic indicators

e) If yes to 31c, which tests would be passed immediately prior to the unauthorized alteration?
☐ Wetland Definition ☐ A Test ☐ B Test ☐ C Test ☐ D Test
Why? _____

32. Wetland and Other Surface Water Summary §62-340.600(2)(a-e), F.A.C.:

Given **normal** expression, **cessation** of **authorized** alterations, or **immediately prior** to any **unauthorized** alterations:

a) With **reasonable scientific judgment** is the described point a wetland as defined in §62-340.200(19), F.A.C. and located by Ch. 62-340, F.A.C.? ○ Yes ◉ No If yes, which criteria identified or delineated the wetland?
☐ Wetland Definition ☐ A Test ☐ B Test ☐ C Test ☐ D Test
If summary answers differ from answers in 25f, 25g, 26d, or 27d, why? _____

b) Is the described point located at or within the Mean High Water Line of a tidal water body?
○ Yes ◉ No ○ MHWL Unknown

c) Is the described point located at or within the Ordinary High Water Line of a non-tidal natural water body or natural watercourse? ○ Yes ◉ No

d) Is the described point located at or within the top of the bank of an artificial lake, borrow pit, canal, ditch, or other type of artificial water body or watercourse with side slopes of 1 foot vertical to 4 feet horizontal or steeper, excluding spoil banks when the canals and ditches have resulted from excavation into the ground? ○ Yes ◉ No

e) Is the described point located at or within the Seasonal High Water Line of an artificial lake, borrow pit, canal, ditch, or other type of artificial water body or watercourse with side slopes flatter than 1 foot vertical to 4 feet horizontal or an artificial water body created by diking or impoundment above the ground? ○ Yes ◉ No

33. Connection or Isolation of Wetland per Applicant's Handbook Vol.1 Section 2.0

If the described point is a wetland, does it have a connection via wetlands or other surface waters, or is it wholly surrounded by uplands and therefore isolated? ○ Connected ○ Isolated ◉ N/A (Point is not wetland)

Point ID/Location: N 30° 22' 13.7" , W 86° 14' 18.9"

34. Photographs and/or videos: Soil profile with Data Form, Soil profile close-up, Cross section(s) at 6" depth for sandy textures and/or critical depths for fine textures, Hydric soil indicators, Water table or inundation depth, Four cardinal directions of plant strata present, Hydrologic indicators (with scale as necessary), Critical plant ID (optional)

#	Memory Card # / Metadata	Description, compass direction (if applicable)	Taken By
1.	UP_04_04_23 (1)	Data Point location facing North	AW
2.	UP_04_04_23 (2)	Data Point location facing South	AW
3.	UP_04_04_23 (3)	Data Point location facing East	AW
4.	UP_04_04_23 (4)	Data Point location facing West	AW
5.	UP_04_04_23 (5)	Soil Profile	AW
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			
14.			

Notes:

Helpful Definitions for Applying Ch 62-340, F.A.C.

[1]**RSJ** stands for Reasonable Scientific Judgment where used throughout this Data Form (See *The Florida Wetlands Delineation Manual* pg. 2 & 12*)*

[2]**HSTS** stands for Hydric Soils Technical Standard (See NRCS Hydric Soils Technical Note 11)

Definition from §62.340.200(19) Florida Administrative Code
"**Wetlands**," as defined in subsection 373.019(17), F.S., means those areas that are inundated or saturated by surface water or ground water at a frequency and a duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soils. Soils present in wetlands generally are classified as hydric or alluvial, or possess characteristics that are associated with reducing soil conditions. The prevalent vegetation in wetlands generally consists of facultative or obligate hydrophytic macrophytes that are typically adapted to areas having soil conditions described above. These species, due to morphological, physiological, or reproductive adaptations, have the ability to grow, reproduce or persist in aquatic environments or anaerobic soil conditions. Florida wetlands generally include swamps, marshes, bayheads, bogs, cypress domes and strands, sloughs, wet prairies, riverine swamps and marshes, hydric seepage slopes, tidal marshes, mangrove swamps and other similar areas. Florida wetlands generally do not include longleaf or slash pine flatwoods with an understory dominated by saw palmetto.

Definition from §373.019(19) Florida Statutes
"**Surface water**" means water upon the surface of the earth, whether contained in bounds created naturally or artificially or diffused. Water from natural springs shall be classified as surface water when it exits from the spring onto the earth's surface.

Definition from §373.019(14) Florida Statutes
"**Other watercourse**" means any canal, ditch, or other artificial watercourse in which water usually flows in a defined bed or channel. It is not essential that the flowing be uniform or uninterrupted.

Definition from §62.340.200(15) Florida Administrative Code
"**Seasonal High Water**" means the elevation to which the ground and surface water can be expected to rise due to a normal wet season.

From The Florida Wetlands Delineation Manual pg. 37
Ordinary high water is that point on the slope or bank where the surface water from the water body ceases to exert a dominant influence on the character of the surrounding vegetation and soils. The OHWL frequently encompasses areas dominated by non-listed vegetation and non-hydric soils. When the OHWL is not at a wetland edge, the general view of the area may present an "upland" appearance.

Definition from §403.803(14) Florida Statutes
"Swale" means a manmade trench which:
(a) Has a top width-to-depth ratio of the cross-section equal to or greater than 6:1, or side slopes equal to or greater than 3 feet horizontal to 1 foot vertical;
(b) Contains contiguous areas of standing or flowing water only following a rainfall event;
(c) Is planted with or has stablized vegetation suitable for soil stabilization, stormwater treatment, and nutrient uptake; and
(d) Is designed to take into acount the soil erodibility, soil percolation, slope, slope length, and drainage area so as to prevent erosion and reduce pollutant concentration of any discharge.

§ denotes the Rule, subsection, paragraph, or subparagraph referenced from Ch. 62-340, F.A.C.

FDEP SLERC August 2019

Chapter 62-340, F.A.C. Data Form

1. Date: 04/04/2023 2. Staff Present: Aaron Waits 3. Form recorder(s): AW

4. County: Walton (66) 5. Site Name: Helen McCall Park Expansion Tracking #: 309938-1

6. Point ID: Wetland GPS Coordinates: N 30° 22' 14.5" , W 86° 14' 17.3"

7. Distances and bearings from fixed objects (if no GPS):

8. Current condition of described point: ◉ Authorized or legal condition ○ Unauthorized or illegal condition

9. Work type: ○ Identification ◉ Delineation

Point status: ◉ Wetland ○ Non-Wetland Surface Water ○ Upland

10. Vegetative Stratum §62-340.400: Using §62-340.400, F.A.C. with reasonable scientific judgment, select the appropriate vegetative stratum. (Do not include FAC species when determining 10% minimum areal extent.)

○ Canopy (Min. 10% areal extent) ○ Subcanopy (Min. 10% areal extent) ◉ Groundcover (No min. areal extent)

○ Vegetation Absent *(skip to #14)* ○ Evaluation Impossible *(skip to #14)* **Why?** Canopy and subcanopy have single species other than invasive tree species

11. Plant List §62-340.200(2),(6),(16), §62-340.400, §62-340.450, F.A.C.:

As is under current conditions, without considering RSJ[1] or the legality of any alterations:

Areal extent estimator: AW

Select and identify plants in an area just large enough to represent and classify the plant community at the described point. Do not extend into different communities or hydrologic conditions.

1. Record the scientific name (binomial) and status of each plant species necessary to identify/delineate and classify the plant community in the selected area.
2. Record the percent areal extent in the canopy, subcanopy, and groundcover columns for each species.
3. For each species present in the **stratum selected in #10**, transfer the numbers from only that stratum's column into the appropriate status columns.

#	Binomial of Observed Species	Status	Canopy	Subcanopy	Groundcover	Upland	Facultative	Fac. Wet	Obligate
1.	Triadica sebifera	F	30	20	15		15		
2.	Woodwardia virginica	FW			10			10	
3.	Pinus elliottii	U	10	3					
4.	Andropogon glamaratous	FW			3			3	
5.	Myrica cerifera	F			7		7		
6.	Carex sp.	FW			5			5	
7.	Panicum repens	FW			3			3	
8.	Solidego	FW			2			2	
9.									
10.									
11.									
12.									
13.									
14.									
15.									
16.									
17.									
18.									
19.									
20.									
Percent areal extent totals for the stratum selected in question 10						0	22	23	0

12. In the stratum selected in #10: What is the % areal extent of Obligate plants? 0

What is the % areal extent of Upland plants? 0

Is the areal extent of Obligate plants greater than that of Upland plants? ○ Yes ◉ No

13. In the stratum selected in #10: What is the total % areal extent of Obligate & Facultative Wet plants combined? 23

What is the total % areal extent of Obligate, Facultative Wet, & Upland plants combined? 23

What is the percentage of OBL + FACW in relation to all plants, excluding FAC? ($\frac{\text{OBL+FACW}}{\text{OBL+FACW+UPL}}$) 100.0%

Point ID/Location: N 30° 22' 14.5" , W 86° 14' 17.3" | Soil describer: AW

14. LRR/MLRA T | **Textures:** Peat, Mucky Peat, Muck, Mucky Mineral (S or F), Sand, Fine, Marl

15. Is a soil profile evaluation possible? ◉ Yes ○ No If no, why? *(**If No**, skip to #18)*

16. Soil Description: ***As is under current conditions, without considering RSJ[1] or the legality of any alterations***
Soil surface, or 0 inch depth for purposes of Chapter 62-340, F.A.C. is the muck or mineral surface (whether natural or fill)

Horizon	beginning to ending **Depth** (inches)	**Matrix Texture**	moist condition **Matrix Hue Value/ Chroma**	for sandy matrix horizons w/ value ≤ 3: **% Organic Coating**	- **Describe soil features: DA** (areas darker than matrix), **LA** (areas lighter than matrix), **RC** (redox concentrations): Record in moist condition **hue value/chroma; % volume in horizon; boundaries** (sharp/clear/diffuse); **shape** (rounded/linear/angular). - **OB** (organic bodies): Record **texture** (muck or mucky mineral), **% volume in horizon.** - **H_2S** (hydrogen sulfide odor): Indicate shallowest depth where detected - **Note** if horizon is **Physically Mixed (PM), Nonsoil** (any material not listed in "Textures" above), or **Fill** and describe.
1	0-8	Sand	10YR 3/1	50%	LA- 10YR 6/1- 25% Total Area- Round Clear Boundaries RC- 5YR 4/6- 10% Total Area- Round Diffused Boundaries
2	8-13	Sand	10YR 3/1	50%	RC- 5YR 4/6- 15% Total Area- Round Diffused Boundaries
3					
4					
5					
6					

17. Hydric Soil Field Indicators: If present, check all Hydric Soil Field Indicators satisfied and specify their beginning and ending depths

☑ All Texture	☑ Sandy Texture	☑ Fine Texture
__(A1) Histosol*	__(S4) Sandy Gleyed Matrix*	__(F2) Loamy Gleyed Matrix*
__(A2) Histic Epipedon*	✓(S5) Sandy Redox	__(F3) Depleted Matrix
__(A3) Black Histic*	__(S6) Stripped Matrix	__(F6) Redox Dark Surface
__(A4) Hydrogen Sulfide*	__(S7) Dark Surface	__(F7) Depleted Dark Surface
__(A5) Stratified Layers*	__(S8) Polyvalue Below Surface	__(F8) Redox Depression
__(A6) Organic Bodies	__(S9) Thin Dark Surface	__(F10) Marl
__(A7) 5cm Mucky Mineral*	__(S12) Barrier Islands 1cm Muck	__(F12) Iron-Manganese Masses
__(A8) Muck Presence*		__(F13) Umbric Surface
__(A9) 1cm Muck*		__(F22) Very Shallow Dark Surface
__(A11) Depleted Below Dark Surface		
__(A12) Thick Dark Surface		

	Indicator Present	Begin Depth	End Depth
1.	S5	0	13+
2.			
3.			
4.			
5.			
6.			

** = Stand-alone D Test - both hydric soil and hydrologic indicator*

To combine layers/indicators to meet thickness requirements, see NRCS Hydric Soils Technical Note 4.

18. Excluding organic horizons, is any nonsoil horizon present at or within the uppermost 12 inches of the ground surface?
○ Yes *(e.g. bedrock, rock outcrop, limestone fill, gravel, etc)* ◉ No ○ Soil profile or site inaccessible

19. Is one or more hydric soil field indicators present? ◉ Yes ○ No ○ Inconclusive *(e.g., evaluation to 12+ inches impeded by disturbance, water, nonsoil, no site access, etc.)*
If no or inconclusive, is the soil hydric as determined by other NRCS methods?
○ Yes ← Which method(s)? _____ ◉ No ○ Inconclusive ← Why? _____
(e.g., hydric soil definition, HSTS[2], indicator present at drier elevation, indicator would be present but for disturbance)

20. Is the depth of the soil profile 20 inches or greater from the soil surface? ○ Yes ◉ No
If no, depth of soil profile is: 13 inches Why? Roots
(e.g., root refusal, nonsoil, water table, loose sand, heavy texture, compaction, weather conditions, inspection interrupted)

21. **Observed** height or depth of standing water from **soil** surface: _____ inches ○ Above ○ Below ◉ Not Observed

Point ID/Location: N 30° 22' 14.5" , W 86° 14' 17.3" | Indicator evaluator: AW

22. Hydrologic Indicators: ***As is under current conditions, without considering RSJ[1] or the legality of any alterations***

Hydrologic Indicators per §62-340.500, F.A.C. (and as applied to §62-340.600, F.A.C.)	Present at or near point	Predicted during normal high water or wet season◆	Within 100 ft waterward of point (not for upland points)	1. Describe the type of all checked indicators. 2. Approximate the distance and compass direction of indicators within 100 ft of the point. 3. For water level indicators (potential indicators denoted by *) **note the height from ground surface** at the point as well as waterward (with distance from point). ◆Only for indicators not present due to dry season/drought
(1) Algal mats*	✓			
(2) Aquatic mosses or liverworts*				
(3) Aquatic plants*				
(4) Aufwuchs				
(5) Drift lines and rafted debris*				
(6) Elevated lichen lines*				
(7) Evidence of aquatic fauna				
(8) Hydrologic data*	✓			Buttressing
(9) Morphological plant adaptations*				
(10) Secondary flow channels				
(11) Sediment deposition*				
(12) Tussocks or hummocks*				
(13) Water marks*	✓			Water Staining on the leaves

Highest water level indicator height at point: 6 inches ◉ Above Ground Surface ○ No Water Level Indicators ○ Above Soil Surface ○ N/A (described point is Upland)

23. Is one or more hydrologic indicator(s) listed in §62-340.500, F.A.C. present or predicted with normal high water or wet season conditions at the described point? ◉ Yes ○ No ○ Evaluation Impossible ← Why? _____

24. Delineation by Wetland Definition §62-340.300(1), F.A.C.

As is under current conditions, without considering RSJ[1] or the legality of any alterations:

a) Has a wetland boundary been delineated at the described point? ◉ Yes ○ No *(**If No**, skip to #25)*

b) If yes to 24a, can the boundary be easily delineated using the definition of wetlands? ○ Yes ◉ No

25. A & B Test Wetland Criteria §62-340.300(2)(a),(b), F.A.C.

As is under current conditions, without considering RSJ[1] or the legality of any alterations:

a) Is the areal extent of Obligate plants in the stratum selected in #10 greater than the areal extent of all Upland plants in that stratum? (See #12) ○ Yes ◉ No ○ Vegetation Absent *(skip to #25f)* ○ Evaluation Impossible *(skip to #26a)*

b) Is the areal extent of Obligate and/or Facultative Wet plants in the stratum selected in #10 equal to or greater than 80% of all the plants in that stratum, excluding Facultative plants? (See #13) ◉ Yes ○ No

c) Is the soil hydric as identified using standard NRCS definitions and practices? (see #19) ◉ Yes ○ No ○ Indeterminable with current conditions ← Why? _____

d) Is the substrate composed of riverwash, nonsoil (see #18), rock outcrop-soil complex, or is the substrate located within an artificially created wetland area? ○ Yes ○ No If yes, which condition is present? _____

e) Is one or more of the hydrologic indicators in §62-340.500, F.A.C. present at the described point? (See #23) ◉ Yes ○ No

f) Are the A Test criteria met per §62-340.300(2)(a), F.A.C. at the described point? ○ Yes ◉ No
(Note: If yes to 25a and yes to either 25c, 25d, or 25e, A Test criteria are met)

g) Are the B Test criteria met per §62-340.300(2)(b), F.A.C. at the described point? ◉ Yes ○ No
(Note: If yes to 25b and yes to either 25c, 25d, or 25e, B Test criteria are met)

h) Are there any **alterations or conditions** affecting reliable application of the A or B Test such that the Altered Sites Test is more appropriate? ○ Yes ◉ No

Point ID/Location: N 30° 22' 14.5" , W 86° 14' 17.3"

26. C Test Wetland Criteria §62-340.300(2)(c), F.A.C.

As is under current conditions, without considering RSJ[1] or the legality of any alterations:

a) Per §62-340.300(2)(c), F.A.C. is the described point Pine Flatwoods or Improved Pasture, or does it have drained soils? ○ Yes ◉ No ***If yes**, select which of the following are met, then skip to #26d*

☐ Pine Flatwoods ☐ Improved Pasture ☐ Drained Soils

***Pine Flatwoods** must have flat terrain, a monotypic or mixed canopy of long leaf pine or slash pine, and a ground cover dominated by saw palmetto with other species that are NOT obligate or facultative wet. **Improved Pasture** means areas where the dominant native plant community has been replaced with planted or natural recruitment of herbaceous species which are NOT obligate or facultative wet species and which have been actively maintained for livestock through mechanical means or grazing. **Drained Soils** are those in which permanent alterations, excluding mechanical pumping, preclude the formation of hydric soils.*

b) Are the soils at the described point saline sands (salt flats-tidal flats), **or** have they been **field verified** by NRCS's Keys to Soil Taxonomy (4th ed. 1990) as Umbraqualfs, Sulfaquents, Hydraquents, Humaquepts, Histosols (except Folists), Argiaquolls, or Umbraquults? ○ Yes ◉ No

c) Do the soils at the described point have a NRCS hydric soil field indicator (see #17), **and** is the point located within a map unit named or designated by the NRCS as frequently flooded, depressional, or water?

Map Unit: Rutledge Fine Sand ○ Yes ◉ No ○ Inconclusive ← Why? _____ (*skip to #27a)*

d) Are the C Test criteria met per §62-340.300(2)(c), F.A.C. at the described point? ○ Yes ◉ No

(Note: If no to 26a and yes to either 26b or 26c, C Test criteria are met)

e) Are there any **alterations or conditions** affecting reliable application of the C Test such that the Altered Sites Test is more appropriate? ○ Yes ◉ No

27. D Test Wetland Criteria §62-340.300(2)(d), F.A.C.

As is under current conditions, without considering RSJ[1] or the legality of any alterations:

a) Is the soil hydric as verified by a NRCS hydric soil field indicator? (See #17)

◉ Yes ○ No (*skip to #27d)* ○ Inconclusive ← Why? _____ (*skip to #28)*

b) Does any NRCS hydric soil field indicator begin **at the soil surface or** are any of the following indicators present: A1, A2, A3, A4, A5, A7, A8, A9, S4, F2? ◉ Yes ○ No *(If yes, then hydrologic indicator §62-340.500(8) or (11) is met)*

c) Is one or more of the hydrologic indicators in §62-340.500, F.A.C. present at the described point? (See #23) ◉ Yes ○ No

d) Are the D Test criteria met per §62-340.300(2)(d), F.A.C. at the described point? ◉ Yes ○ No

(Note: If yes to 27a and yes to either 27b or 27c, D Test criteria may be met)

e) Are there any **alterations or conditions** affecting reliable application of the D Test such that the Altered Sites Test is more appropriate? ○ Yes ◉ No

28. Altered Sites Tests §62-340.300(3), F.A.C. (Legal/Authorized or Illegal/Unauthorized)

*For purposes of Chapter 62-340, F.A.C. **altered** refers to any natural or man-induced condition(s) which **masks or eliminates reliable expression** of wetland indicators (i.e. hydrophytic vegetation, hydric soils, and hydrologic indicators). **Unaltered or normal does not require a natural condition**, only an expression of wetland indicators that is sufficient to **reliably** identify or delineate the wetland using the criteria in §62-340.300, F.A.C.*

Are alterations affecting normal wetland condition? ○ Yes ◉ No (*skip to #32)* ○ Evaluation Impossible (*skip to #32)*

29. Authorized or Legally Altered Vegetation and Soils Test Criteria §62-340.300(3)(a), F.A.C.

a) Are there **authorized** or **legal** alterations affecting reliable expression of vegetation at the described point? ○ Yes ○ No If yes, how? _____

b) Are there **authorized** or **legal** alterations affecting reliable soil evaluation at the described point? ○ Yes ○ No If yes, how? _____ *(**If no to both** 29a and 29b, skip to #30)*

c) If yes to 29a or 29b, which criteria tests are affected by the legal alterations?

☐ A Test ☐ B Test ☐ C Test ☐ D Test

d) Using the most reliable available information and reasonable scientific judgment, would the types of evidence and characteristics contemplated in §62-340.300, F.A.C. identify or delineate the described point as a wetland with cessation of the legal altering activities? ○ Yes ○ No If no, why? _____ *(**If no**, skip to #30)*

e) If yes to 29d, what §62-340.300, F.A.C. evidence is present now and/or will be present in the future with cessation of legal altering activities? ☐ Plants ☐ Soils ☐ Hydrologic indicators

f) If yes to 29d, which tests would be passed with cessation of legal altering activities?

☐ Wetland Definition ☐ A Test ☐ B Test ☐ C Test ☐ D Test

Why? _____

Point ID/Location: N 30° 22' 14.5" , W 86° 14' 17.3"

30. Authorized or Legally Altered Hydrology Test Criteria §62-340.300(3)(b), F.A.C.

a) Has wetland hydrology of the area been **legally** drained or lowered? ○ Yes ○ No *(**If no**, skip to #31)*
If yes, how? _____

b) Has wetland hydrology been **legally** eliminated at the described point? ○ Yes ○ No *(**If no**, skip to #31)*

c) If yes to 30b, using reasonable scientific judgment or §62-340.550, F.A.C., have dredging or filling activities authorized by **Part IV** of Chapter 373, F.S. **permanently eliminated** wetland hydrology at the described point such that the wetland definition cannot be met? ○ Yes (point is upland) ○ No *(**If yes**, skip to #31)*

*Chapter 373, F.S. Part II activities (e.g., water use permits) or other temporary hydrologic alterations (e.g., surface water pumps, drought) do **not** apply to this or any other Ch. 62-340, F.A.C. determinations.*

d) If no to 30c, what §62-340.300, F.A.C. evidence is present now and/or will be present in the future with cessation of temporary hydrologic drainage? ☐ Plants ☐ Soils ☐ Hydrologic indicators

e) If no to 30c, Which tests would be passed with cessation of temporary hydrologic alterations?
☐ Wetland Definition ☐ A Test ☐ B Test ☐ C Test ☐ D Test
Why? _____

31. Unauthorized or Illegally Altered Sites Test Criteria §62-340.300(3)(c), F.A.C.

*If the altering activity is a violation of regulatory requirements, then application of §62-340.300(3)(c), F.A.C. and all provisions of Chapter 62-340, F.A.C. are utilized to identify or delineate the wetland in a forensic manner. **This identification or delineation reflects the condition immediately prior to the unauthorized alteration**.*

a) Have any **unauthorized** alterations affected the normal wetland condition at the described point? ○ Yes ○ No
If yes, how? _____ *(**If no**, skip to #32)*

b) If yes to 31a, which criteria tests are affected by the unauthorized alterations?
☐ A Test ☐ B Test ☐ C Test ☐ D Test

c) With reasonable scientific judgment is the described point a wetland, or would it have been a wetland immediately prior to the unauthorized alteration? ○ Yes ○ No If no, why? _____ *(**If no**, skip to #32)*

d) If yes to 31c, what §62-340.300, F.A.C. evidence is present now and/or was present immediately prior to the unauthorized alteration? ☐ Plants ☐ Soils ☐ Hydrologic indicators

e) If yes to 31c, which tests would be passed immediately prior to the unauthorized alteration?
☐ Wetland Definition ☐ A Test ☐ B Test ☐ C Test ☐ D Test
Why? _____

32. Wetland and Other Surface Water Summary §62-340.600(2)(a-e), F.A.C.:

Given **normal** expression, **cessation** of **authorized** alterations, or **immediately prior** to any **unauthorized** alterations:

a) With **reasonable scientific judgment** is the described point a wetland as defined in §62-340.200(19), F.A.C. and located by Ch. 62-340, F.A.C.? ◉ Yes ○ No If yes, which criteria identified or delineated the wetland?
☒ Wetland Definition ☐ A Test ☒ B Test ☐ C Test ☒ D Test
If summary answers differ from answers in 25f, 25g, 26d, or 27d, why? _____

b) Is the described point located at or within the Mean High Water Line of a tidal water body?
○ Yes ◉ No ○ MHWL Unknown

c) Is the described point located at or within the Ordinary High Water Line of a non-tidal natural water body or natural watercourse? ○ Yes ◉ No

d) Is the described point located at or within the top of the bank of an artificial lake, borrow pit, canal, ditch, or other type of artificial water body or watercourse with side slopes of 1 foot vertical to 4 feet horizontal or steeper, excluding spoil banks when the canals and ditches have resulted from excavation into the ground? ○ Yes ◉ No

e) Is the described point located at or within the Seasonal High Water Line of an artificial lake, borrow pit, canal, ditch, or other type of artificial water body or watercourse with side slopes flatter than 1 foot vertical to 4 feet horizontal or an artificial water body created by diking or impoundment above the ground? ○ Yes ◉ No

33. Connection or Isolation of Wetland per Applicant's Handbook Vol.1 Section 2.0

If the described point is a wetland, does it have a connection via wetlands or other surface waters, or is it wholly surrounded by uplands and therefore isolated? ○ Connected ◉ Isolated ○ N/A (Point is not wetland)

Point ID/Location: N 30° 22' 14.5" , W 86° 14' 17.3"

34. Photographs and/or videos: Soil profile with Data Form, Soil profile close-up, Cross section(s) at 6" depth for sandy textures and/or critical depths for fine textures, Hydric soil indicators, Water table or inundation depth, Four cardinal directions of plant strata present, Hydrologic indicators (with scale as necessary), Critical plant ID (optional)

#	Memory Card # / Metadata	Description, compass direction (if applicable)	Taken By
1.	Wet1_04_04_23 (1)	Data Point location facing North	AW
2.	Wet1_04_04_23 (2)	Data Point location facing South	AW
3.	Wet1_04_04_23 (3)	Data Point location facing East	AW
4.	Wet1_04_04_23 (4)	Data Point location facing West	AW
5.	Wet1_04_04_23 (5)	Soil Profile	AW
6.	Wet1_04_04_23 (6)	Redox at 2.5"	AW
7.	Wet1_04_04_23 (7)	Redox at 10"	AW
8.	Wet1_04_04_23 (8)	Algae Mats	AW
9.	Wet1_04_04_23 (9)	Water Marks	AW
10.	Wet1_04_04_23 (10)	Water Staining on leaves and pine straw	AW
11.	Wet1_04_04_23 (11)	Buttressing	AW
12.			
13.			
14.			

Notes: All wetlands on site appear to be isolated.

Helpful Definitions for Applying Ch 62-340, F.A.C.

[1]**RSJ** stands for Reasonable Scientific Judgment where used throughout this Data Form (See *The Florida Wetlands Delineation Manual* pg. 2 & 12)

[2]**HSTS** stands for Hydric Soils Technical Standard (See NRCS Hydric Soils Technical Note 11)

Definition from §62.340.200(19) Florida Administrative Code

"**Wetlands**," as defined in subsection 373.019(17), F.S., means those areas that are inundated or saturated by surface water or ground water at a frequency and a duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soils. Soils present in wetlands generally are classified as hydric or alluvial, or possess characteristics that are associated with reducing soil conditions. The prevalent vegetation in wetlands generally consists of facultative or obligate hydrophytic macrophytes that are typically adapted to areas having soil conditions described above. These species, due to morphological, physiological, or reproductive adaptations, have the ability to grow, reproduce or persist in aquatic environments or anaerobic soil conditions. Florida wetlands generally include swamps, marshes, bayheads, bogs, cypress domes and strands, sloughs, wet prairies, riverine swamps and marshes, hydric seepage slopes, tidal marshes, mangrove swamps and other similar areas. Florida wetlands generally do not include longleaf or slash pine flatwoods with an understory dominated by saw palmetto.

Definition from §373.019(19) Florida Statutes

"**Surface water**" means water upon the surface of the earth, whether contained in bounds created naturally or artificially or diffused. Water from natural springs shall be classified as surface water when it exits from the spring onto the earth's surface.

Definition from §373.019(14) Florida Statutes

"**Other watercourse**" means any canal, ditch, or other artificial watercourse in which water usually flows in a defined bed or channel. It is not essential that the flowing be uniform or uninterrupted.

Definition from §62.340.200(15) Florida Administrative Code

"**Seasonal High Water**" means the elevation to which the ground and surface water can be expected to rise due to a normal wet season.

From The Florida Wetlands Delineation Manual pg. 37

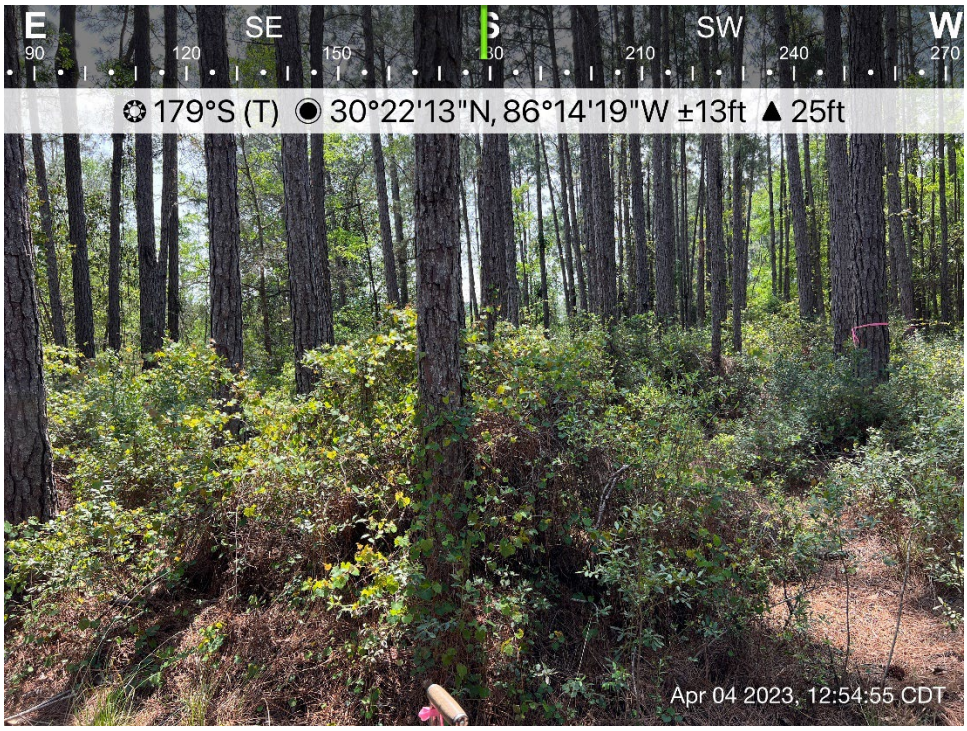
Ordinary high water is that point on the slope or bank where the surface water from the water body ceases to exert a dominant influence on the character of the surrounding vegetation and soils. The OHWL frequently encompasses areas dominated by non-listed vegetation and non-hydric soils. When the OHWL is not at a wetland edge, the general view of the area may present an "upland" appearance.

Definition from §403.803(14) Florida Statutes

"Swale" means a manmade trench which:
(a) Has a top width-to-depth ratio of the cross-section equal to or greater than 6:1, or side slopes equal to or greater than 3 feet horizontal to 1 foot vertical;
(b) Contains contiguous areas of standing or flowing water only following a rainfall event;
(c) Is planted with or has stablized vegetation suitable for soil stabilization, stormwater treatment, and nutrient uptake; and
(d) Is designed to take into acount the soil erodibility, soil percolation, slope, slope length, and drainage area so as to prevent erosion and reduce pollutant concentration of any discharge.



UP_04_04_23 (1)



UP_04_04_23 (2)



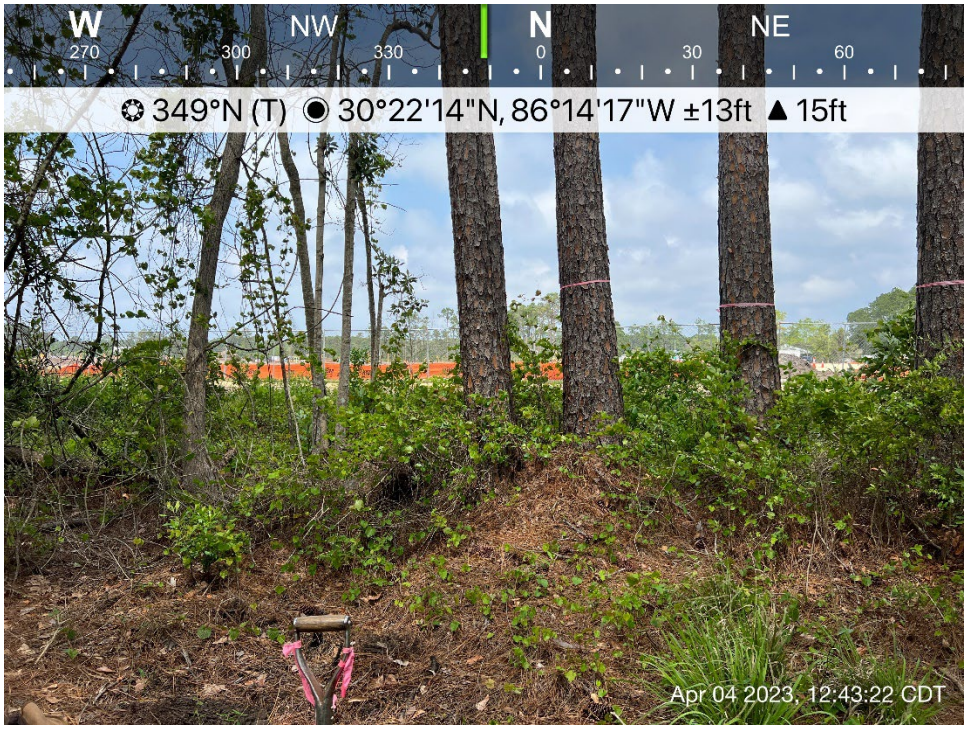
UP_04_04_23 (3)



UP_04_04_23 (4)



UP_04_04_23 (5)



Wet1_04_04_23 (1)



Wet1_04_04_23 (2)



Wet1_04_04_23 (3)



Wet1_04_04_23 (4)



Wet1_04_04_23 (5)



Wet1_04_04_23 (6)



Wet1_04_04_23 (7)



Wet1_04_04_23 (8)



Wet1_04_04_23 (9)



Wet1_04_04_23 (10)



Wet1_04_04_23 (11)

Information Required for a WOTUS Determination in State-assumed Waters

I. General Information

The following information is necessary if an applicant is requesting that the Department perform a Waters of the United States (WOTUS) jurisdictional determination pursuant to the Navigable Waters Protection Rule (40 C.F.R. 120) during review of a State 404 Program permit application, a Formal Determination under Chapter 62-340, F.A.C., or a request for verification that no permit is required under the State 404 Program. This form is provided as a service to applicants and petitioners. Use of the form may assist efficient review.

II. Findings

A. Summary

Check all that apply. At least one box from the following list MUST be selected. Complete the corresponding sections/tables and summarize data sources.

- ☐ The review area is comprised entirely of dry land (i.e., there are no waters or water features, including wetlands, of any kind in the entire review area).
  Rationale: (N/A or describe rationale)
- ☐ There are "waters of the United States" within Clean Water Act jurisdiction within the review area (complete appropriate tables in Section II.B).
- X There are waters or water features excluded from Clean Water Act jurisdiction within the review area (complete table in Section II.C)

  The applicant proposes to impact 0.126 acres of an *isolated wetland* for the expansion of a public recreational facility. The isolated wetland does not connect to any significant systems outside this general area and does not appear to have a positive discharge to any surrounding system.

B. Clean Water Act Section 404 Jurisdiction (40 C.F.R. 120)

Please expand tables or use additional sheets as needed. Include measurement units in size column (acres, linear feet, etc.).

Traditional Navigable Waters ((1)(i) waters)

(1)(i) Name	(1)(i) Size	(1)(i) Criteria	Rationale for (1)(i) Determination
N/A			

Note: All Territorial Seas and any Traditional Navigable Water (TNW) listed in Appendix B of the 404 Handbook (Retained Waters List) are not assumable under the State 404 Program. If your project site contains or borders one of these waters and you are proposing or plan to propose dredge or fill activities in adjacent wetlands or other surface waters within 300 feet of the mean high tide line or ordinary high water mark, please apply to the US Army Corps of Engineers (USACE) for a permit or jurisdictional determination under Section 404 of the Clean Water Act.

Authority: The Department does not have authority to determine whether a waterbody is a TNW and must rely on USACE determinations. All waters listed in Appendix B of the 404 Handbook are TNWs. A TNW may also be any waterbody not listed in Appendix B of the 404 Handbook that has been previously designated as a TNW in a USACE-issued Approved Jurisdictional Determination (AJD).

Tributaries ((1)(ii) waters)

(1)(ii) Name	(1)(ii) Size	(1)(ii) Criteria	Rationale for (1)(ii) Determination
N/A			

Lakes and ponds, and impoundments of jurisdictional waters ((1)(iii) waters)

(1)(iii) Name	(1)(iii) Size	(1)(iii) Criteria	Rationale for (1)(iii) Determination
N/A			

Adjacent wetlands ((1)(iv) waters)

(1)(iv) Name	(1)(iv) Size	(1)(iv) Criteria	Rationale for (1)(iv) Determination
N/A			

C. Excluded Waters or Features

Excluded waters ((2)(i) – (2)(xii))

Name	Size	(2) Exclusion	Rationale for Exclusion Determination
Isolated wetlands	**5,415 SF/ 0.51 AC**	**(i) Not connected/surrounded by uplands**	**Isolated wetland**

III. Supporting Information

A. Resources Used

Select/enter all resources that were used to aid in this determination and attach data/maps to this document and/or references/citations in the administrative record, as appropriate.

X Information submitted by, or on behalf of, the applicant/consultant (Title(s) and date(s)):

See attached the Permitting Exhibit package showing the wetland delineation and other supporting documentation like aerials, soil map, topo, and historic aerials.

X Current 62-340, F.A.C. delineation:

See attached the Permitting Exhibit package showing the wetland delineation conducted by Biome Consulting Group and other supporting documentation like aerials, soil map, topo, and historic aerials.

X Aerial photographs:

See attached the Permitting Exhibit package showing the wetland delineation and other supporting documentation like aerials, soil map, topo, and historic aerials.

☐ Other photographs:

☐ Previous WOTUS jurisdictional determinations (Corps PJD or AJD/Department WOTUS determination):

☐ Previous or current 62-340, F.A.C. formal jurisdictional determination:

☐ Antecedent Precipitation Tool (provide detailed discussion in Section III.B.):

X USDA NRCS Soil Survey (Title(s) and/or date(s)):

See attached the Permitting Exhibit package showing the wetland delineation and other supporting documentation like aerials, soil map, topo, and historic aerials.

☐ USFWS NWI maps (Title(s) and/or date(s)):

X USGS topographic maps (Title(s) and/or date(s)):

See attached the Permitting Exhibit package showing the wetland delineation and other supporting documentation like aerials, soil map, topo, and historic aerials.

Other data sources used to aid in this determination:

Data source	Name and/or date and other relevant information
USGS Sources	**Google Earth Pro map suite**
USDA Sources	**Google Earth Pro map suite**
NOAA Sources	
USACE Sources	
State/Local/Tribal Sources	
Other Sources	

B. Typical Year Assessments

N/A or provide typical year assessment for each relevant data source used to support the determination:

Wetland delineation was conducted by Biome Consulting Group in May 2022, see attached.

C. Additional comments to support the WOTUS jurisdictional determination

N/A or provide additional discussion as appropriate:

Wetland isolated, surrounded by uplands and development. No other positive connection to any other wetland, surface water, ditch, TNW/RPW.

IV. Agency Approval [For Internal Agency Use Only]

This State 404 Program WOTUS Information Form was reviewed and approved by the following Department Certified Wetland Evaluator(s) (CWE):

Name of CWE

Approval Date

Field Review Date(s)

Gregory Leenig Gregory Leenig May 26, 2023

Name of CWE Approval Date

April 4, 2023

Field Review Date(s)

Disclaimer: This form is only intended to assist the Florida Department of Environmental Protection in administering their approved state Clean Water Act Section 404 program. This form is not a "jurisdictional determination" or "approved jurisdictional determination" as defined and governed by the U.S. Army Corps of Engineers' regulations per 33 C.F.R. § 331.2. This form is not binding on the federal government. The U.S. Environmental Protection Agency has final authority to construe the jurisdictional term "waters of the United States" under the Clean Water Act.

Helen McCall Recreation Park
Multiple Parcels
325 Moll Drive, Santa Rosa Beach
Walton County, Florida 32439

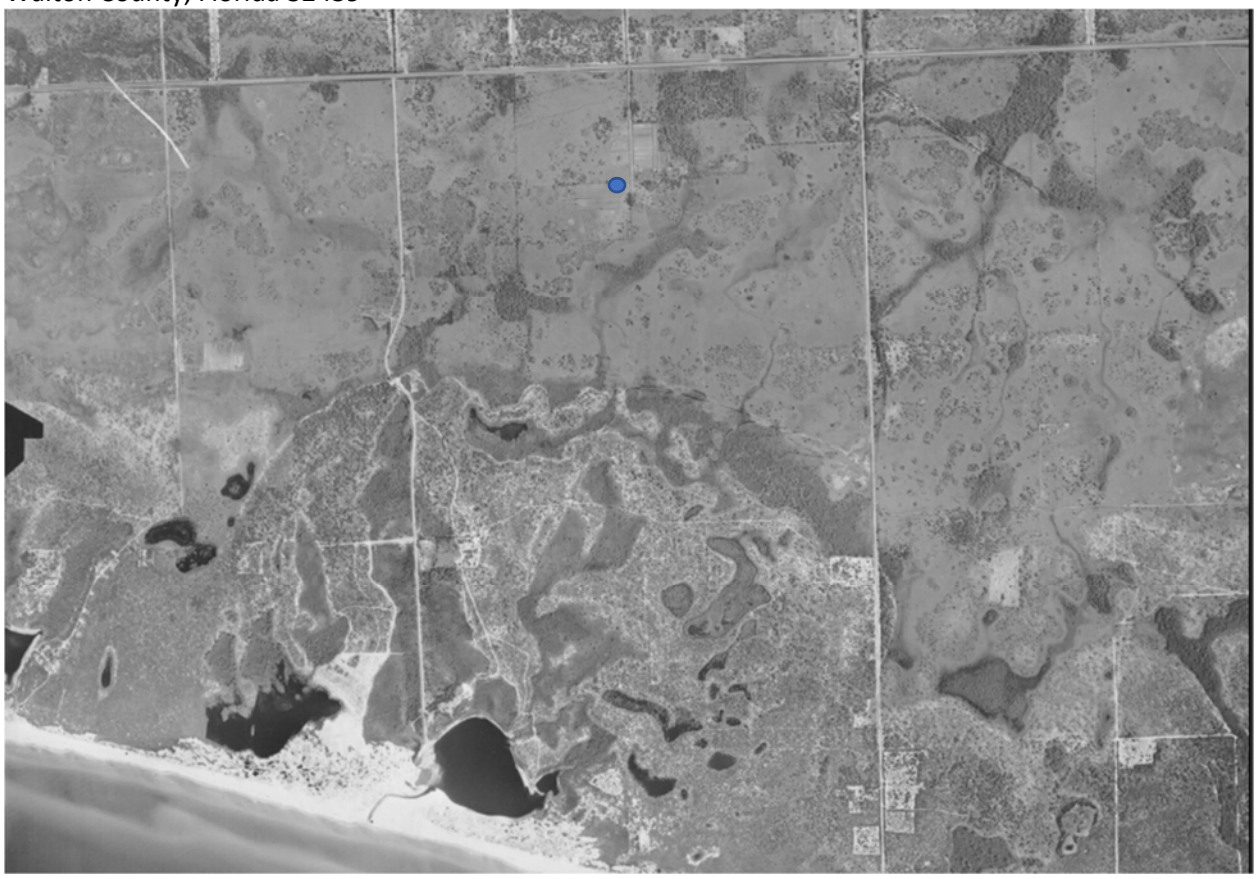


Exhibit 1: 1949 aerial photo of subject property. Blue dot indicates approximate center location of project site. Photo obtained from UF Aerial Photography of Florida: https://original-ufdc.uflib.ufl.edu/UF00071791/00013/46x?coord=30.374429272348582,-86.24614810608561,30.36461721878914,-86.2286386456364

Helen McCall Recreation Park
Multiple Parcels
325 Moll Drive, Santa Rosa Beach
Walton County, Florida 32439

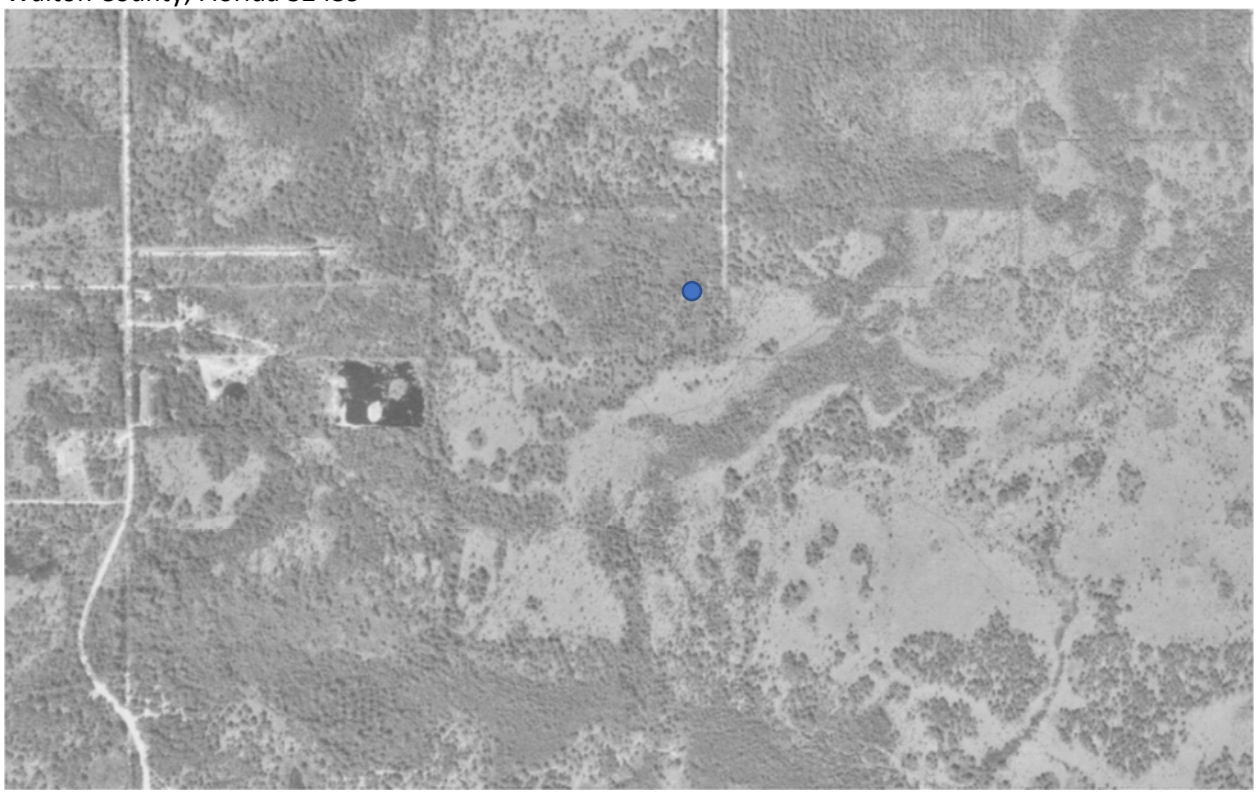


Photo 2: 1974 aerial photo of subject property. Blue dot indicates the approximate center location of project site. Photo obtained from UF Aerial Photography of Florida: https://original-ufdc.uflib.ufl.edu/UF00071791/00020/187x?coord=30.374429272348582,-86.24614810608561,30.36461721878914,-86.2286386456364

Helen McCall Recreation Park
Multiple Parcels
325 Moll Drive, Santa Rosa Beach
Walton County, Florida 32439



Exhibit 3: 1990-1999 aerial photo of subject property. Blue dot indicates approximate center location of project site. Photo obtained from FDOT.

Walton County, Florida (FL131)

Walton County, Florida (FL131)

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
21	Leon sand, 0 to 2 percent slopes	14.8	26.1%
27	Rutlege fine sand, 0 to 2 percent slopes	36.6	64.6%
63	Pickney sand, depressional	4.9	8.6%
99	Water	0.4	0.7%
Totals for Area of Interest		**56.6**	**100.0%**

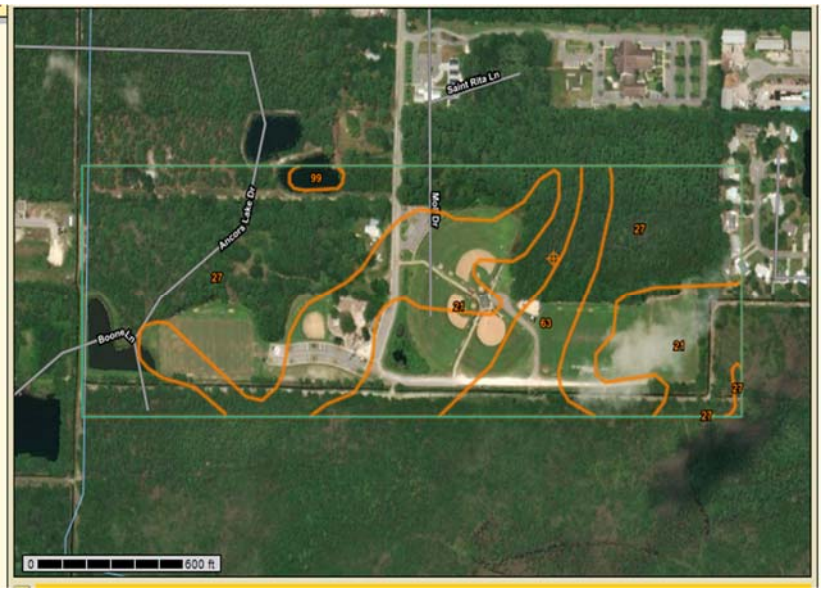


Exhibit 4: Photo 6: USGS Soil Map of subject property. Soils map obtained from USGS: https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx

Helen McCall Recreation Park
Multiple Parcels
325 Moll Drive, Santa Rosa Beach
Walton County, Florida 32439

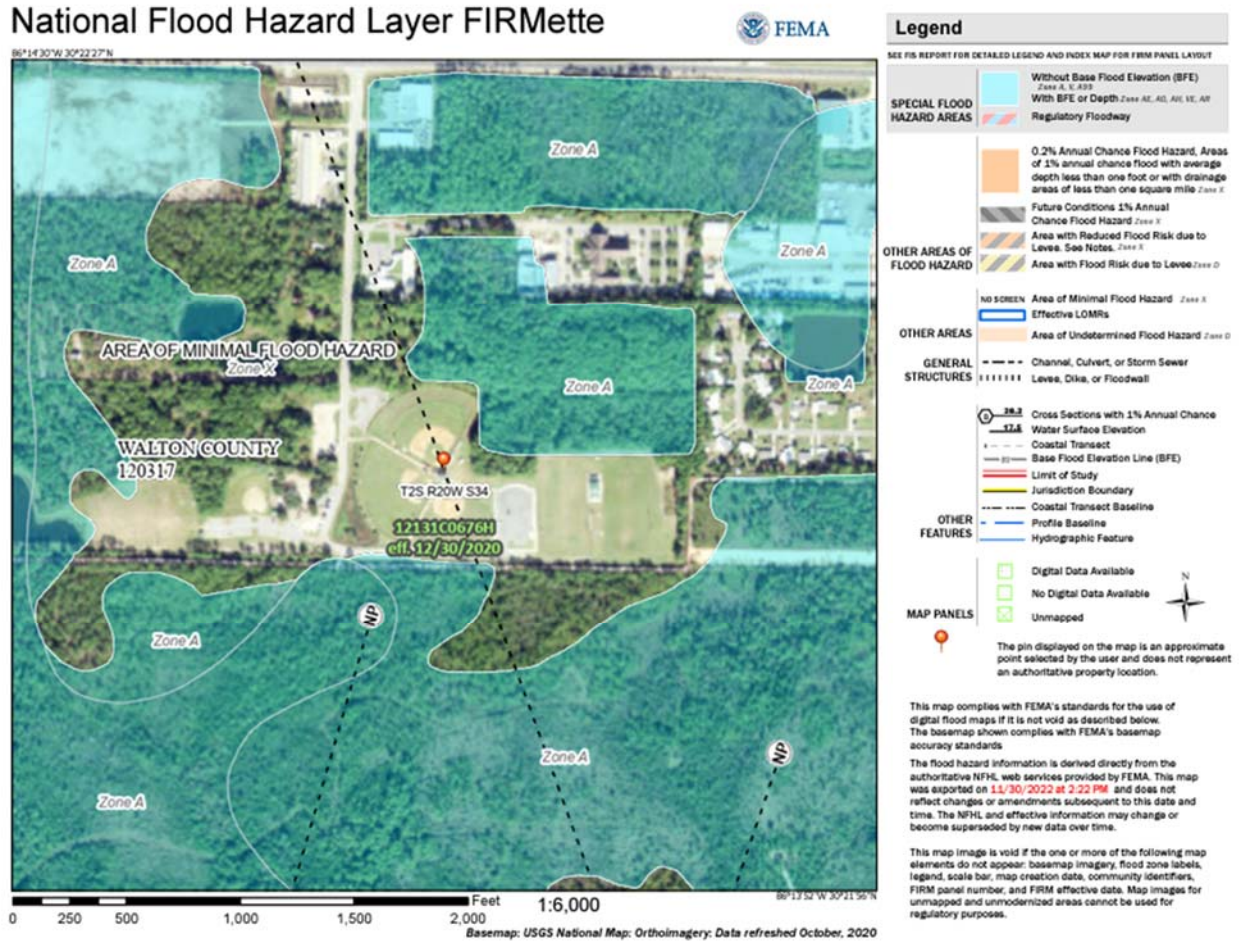


Photo 5: FEMA Flood Zone Map of subject property. Red marker indicates location of subject property. Map obtained from FEMA:
https://msc.fema.gov/portal/search?AddressQuery=325%20moll%20drive%2C%20santa%20rosa%20beach%20fl#searchresultsanchor

APPENDIX D

WALTON COUNTY DEVELOPMENT ORDER

February 10, 2023 Development Order No. MIN22-000082

Final Development Order:

Helen McCall Park Expansion

A MINOR DEVELOPMENT

Based upon the Technical Review Committee and Walton County Planning Staff's approval of this Minor Development Order on January 4, 2023, this document will serve as your development order, to include all of the provisions of the attached staff report, and with the following conditions as specified by the Walton County Planning and Development Services Division.

BACKGROUND / ISSUE:

Applicant:	Walton County Board of County Commissioners
Request:	This is a minor development application requesting to remove the current baseball fields and parking to construct 4,640 SF of new buildings consisting of a press box, concessions, restrooms, storage, new baseball and multi-use fields and associated parking lots with 56 bike parking spaces.
Location:	Located at 325 Moll Drive, Santa Rosa Beach.
Parcel:	34-2S-20-33270-038-0000, 34-2S-33270-037-0000, 34-2S-33270-028-0000, 34-2S-20-33270-027-0000.
Future Land Use:	Parks and Recreation/Mixed Use
Zoning District:	Parks and Recreation/Small Neighborhood

Application Date: October 26, 2022
Technical Review Committee Meeting: January 4, 2023

DETERMINATIONS:

1. The Walton County Technical Review Committee held a public hearing on January 4, 2023. The Committee voted to approve the project as presented in the agenda package

and subject to all applicable conditions identified within the report. These conditions have now been met.

2. All the findings of the staff report January 4, 2023, and revised February 9, 2023.

Conditions of Approval for the Helen McCall Park Expansion Minor Development Order (MIN22-000082):

1. Prior to commencement of the development, provide a copy of the NPDES Notice of Intent (NOI) along with the required Stormwater Pollution Prevention Plan (SWPPP).
2. Provide a copy of the Environmental Resource Permit or "Self-Certification for a Stormwater Management System in Uplands Serving Less than 10 Acres of Total Project Area and less than 2 acres of Impervious Surfaces (10-2 General Permit)", prior to commencement of development.

1. Prior to starting any construction on the site:

    a. **The Contractor shall contact the Walton County Development Order Inspector to schedule a Pre-construction Meeting to be held onsite prior to commencement of construction** (Jacob Reeves, Development Services of Walton County, 842 State Highway 20 East, Suite 110, Freeport, FL 32439, Phone: 850-267-1955).

2. Pursuant to the Walton County Land Development Code and Walton County Comprehensive Plan, construction must commence within one (1) year of the date of the development order (**no later than February 9, 2024**) and must be completed as shown on the approved plans signed by the Division of Planning and Development.

    WARNING: If the applicant/owner has not obtained a building permit(s) or has not commenced construction within one (1) year of issuance of the final development order, the final development order will become null and void and the application for plan approval must be re-initiated.

    NOTE: The development order will not expire if development has commenced and is continuing in good faith according to the approved plan, per §11.01.05.B of the Walton County Land Development Code. An applicant/owner who desires to extend the one year deadline must apply for the extension no less than thirty (30) days before the expiration of their development order. The applicant may receive only one extension, and that extension may not exceed one year.

3. The applicant must obtain necessary approvals from Walton County for the following activities on and off site (these may require submission of an appropriate surety):
    a. Disturbance of the County's right-of-way (Note: Applicant must obtain the proper ROW permit(s) from the Engineering Department prior to issuance of building permits, unless otherwise exempted by the County Engineer.)
    b. Pavement cuts.

c. Construction of any kind.
d. Clearing, grubbing, or demolition.
e. Paving, grading, drainage, sidewalks.
f. Signage.
g. Installation of utilities.
h. Construction trailers.

4. The terms and conditions of the following permits as applicable and required from other jurisdictions will be incorporated into this development order by the applicant through Walton County's Less-Than-Minor Development Order modification process, prior to scheduling the Pre-Construction Conference onsite with the Walton County Development Order Instructor, and prior to commencement of construction:

5. **If the project needs a building permit, the plan will need to be reviewed by the Planning Technicians before applying for permit with the Walton County Building Department.**
6. Division of Planning and Development Services Conditions: Refer to the attached staff report dated January 4, 2023, and revised February 9, 2023.

APPROVAL:

7. Are there any outstanding Planning fees? None

The fees described as being required by this Development Order have been reviewed and confirmed by _____ **on this** 2.10.23 **, as being correct.**

Roy D. Carnman — Terry Carnman — 2/10/23
Owner (Signature) **(Print Name)** **(Date)** **Date**

_____ — Bob Baronti — 2-10-23
Project Manager **(Print Name)** **Date**

Issued by: _____ 2-10-23
Planning and Development Official **Date**

Development Order Requirements:

Preservation Buy-out Fee: No preservation buy-out was requested for this project.

Proportionate Fair Share: This project qualifies for an exemption to Proportionate Fair Share.

Sidewalk Buy-out Fee: No sidewalk buy out was requested for this project.

Plat Recreation Fee: Not required.

911 Recording Fee: Not required.
Exhibits:

A. Walton County Technical Review Staff Report dated January 4, 2023, and revised February 9, 2023.
B. Transportation Concurrency Letter dated November 15, 2022.
C. Approved Plan Set

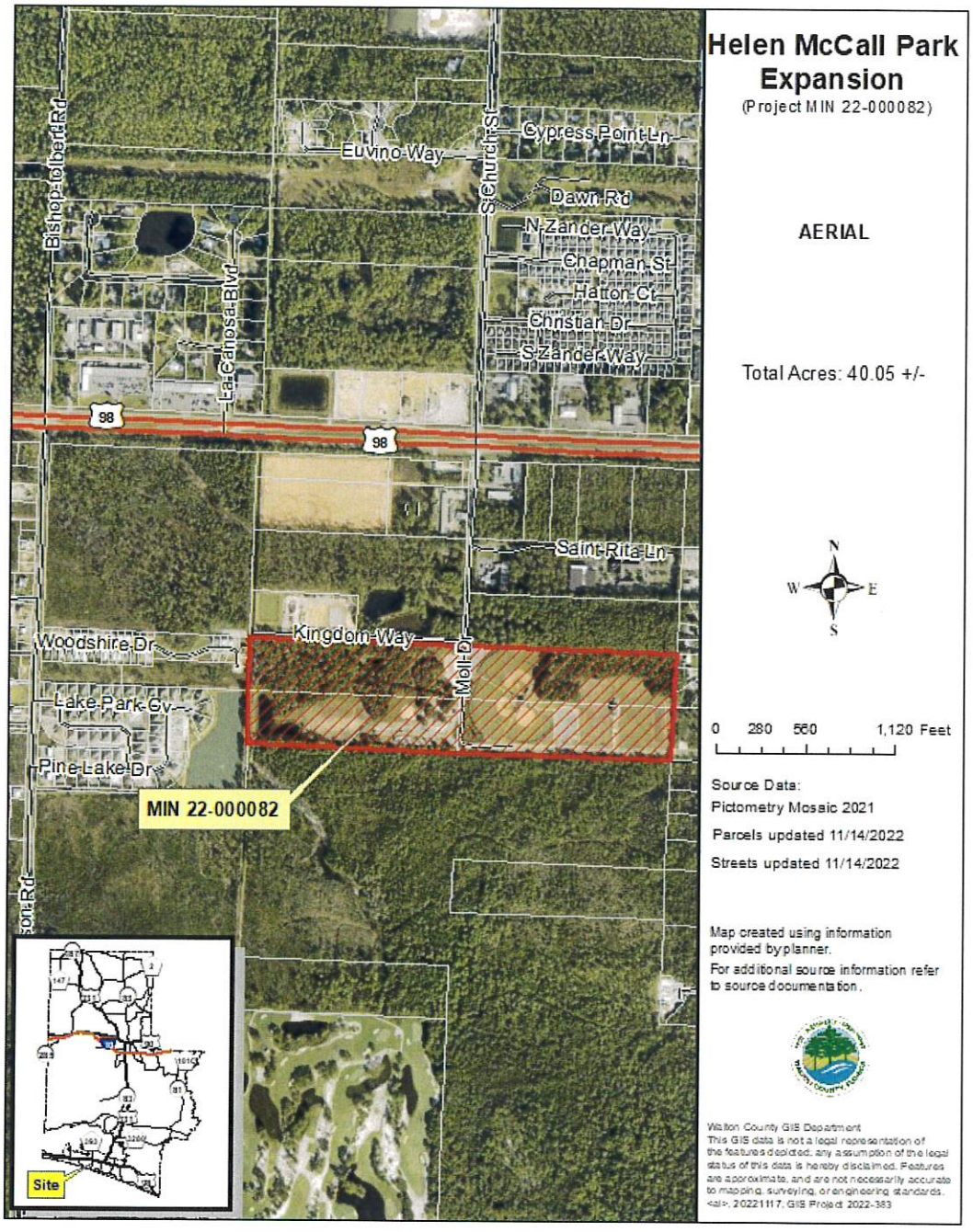
Staff Report to the Walton County Technical Review Committee

January 4, 2023

Project # MIN22-000082

Helen McCall Park Expansion

PROJECT LOCATION MAP



Revised: February 9,2023

Staff Report to the Walton County Technical Review Committee

January 4, 2023

Project # MIN22-000082

Helen McCall Park Expansion

PROJECT OVERVIEW	
Applicant:	Dewberry Engineers
Owner:	Walton County
Staff Project Manager:	Bob Baronti, AICP, CPM, Sr. Planner
Parcel ID#:	34-2S-20-33270-038-0000, 34-2S-33270-037-0000, 34-2S-33270-028-0000, 34-2S-20-33270-027-0000
Property Location:	325 Moll Drive, Santa Rosa Beach
Commissioner District:	4
Applicant's Request:	Remove the current baseball fields and parking to construct 4,640 SF of new buildings consisting of a press box, concessions, restrooms, storage, new baseball and multi-use fields and associated parking lots.

Public Hearing History: *(Conditions for approval are listed below.)*

Board	Meeting Date	Outcome	Condition(s)
Design Review Board:	N/A	N/A	☐
Technical Review Committee:	1/04/2023	Approved	☐
Planning Commission:	TBD	TBD	☐
Board of County Commissioners:	TBD	TBD	☐

Public Notice History: *(All Public Comment Received Prior to Report Printing Deadline is Attached)*:

Meeting	Sign Posted		Letter Sent		Ad Published	
Neighborhood Meeting:	☐	N/A	☐	N/A	☐	N/A
Design Review Board:	☐	N/A	☐	N/A	☐	N/A
Technical Review Committee:	☒		☐	N/A	☒	
Planning Commission:	☐	N/A	☐	N/A	☐	N/A
Board of County Commissioners:	☐	N/A	☐	N/A	☐	N/A

Infrastructure Summary:

Water:	Regional Utilities			
Sewer:	Regional Utilities			
Transportation:	Exemption			
Stormwater:	100 Years			
Site Access:	**Number of Access Points**		**Comply**	**Non-Comply**
	2		☒	☐

Special Considerations:	DO # 6-01300019 For the ball fields
Proposed Conditions of Approval:	None

Reviewer Summary

List of Technical Reviewers	N/A	Comply	Non-Comply
Anna Hudson, PE Public Works	☐	☒	☐
DRMP Engineering	☒	☐	☐
Andrea Ward, PE Staff Traffic Engineer	☐	☒	☐
Andrea Ward, PE Staff Stormwater Engineer	☐	☒	☐
Floodplain Management	☐	☒	☐
Karen Taporco, Eglin AFB	☐	☒	☐

Project # MIN22-000082

Helen McCall Park Expansion

	Donna Free, Walton County EMS	☐	☒	☐
	Brad Bohn, Environmental Planner	☐	☒	☐
	Sammy Sanchez, South Walton Fire District	☐	☒	☐
	North Walton Fire District	☒	☐	☐
	Utility Provider	☐	☐	☐
	Darrin Dunwald, S Walton Mosquito Control	☐	☒	☐
	Michelle Doggette, School Board	☐	☒	☐
	Crystal Steele, FDOH	☐	☒	☐
	Georgina Hicks, Code Enforcement	☐	☒	☐
	Matthew Betts, GIS	☐	☒	☐
	Scott Rosenheim, County Surveyor	☐	☒	☐
	Florida DOT	☐	☐	☐
	Planning Department	☐	☒	☐

PROJECT ANALYSIS				
Future Land Use:			Parks and Recreation	
Zoning District			Parks and Recreation	
Site Area (ac):			40.05+/-	
Density:	**Allowed:**	**N/A**	**Proposed:**	**N/A**
Impervious Surface Area:	**Allowed:**	**50%**	**Proposed:**	**30%**
Floor Area Ratio:	**Allowed:**	**50%**	**Proposed:**	**0.7%**
Structure Height:	**Allowed:**	**50'**	**Proposed:**	**27'**
Parking:	**Required:**	**167**	**Proposed:**	**443**
Additional Comment:			**56 Bike Parking Spaces**	
Previous Actions:			**None**	
Consistency with the Comprehensive Plan:		**YES** ☒		**NO** ☐
Consistency with the Land Development Code:		**YES** ☒		**NO** ☐
Additional Comment:		**Planning and Development Services staff believes consistency with the Comprehensive Plan and Land Development Code will be accomplished.**		

STAFF REVIEW COMMENTS

Project # MIN22-000082

Helen McCall Park Expansion

Planning and Development Services Comments: **Date: December 27, 2022**

1. All comments have been addressed.

Fire District Comments: **Date: January 12, 2023**

During my review of the project's site plan, the following are fire/life safety concerns:
This project appears to meet our technical review approval contingent on the following:

1. Access roadway to the concession stand shall be at a minimum 15 ft width and must be capable of supporting the imposed loads of fire apparatus.

Access roads shall be accessible to fire apparatus once construction of structures begins.
Fire hydrant shall be operational once construction of structures begins

Utility Provider Comments: **Date: December 27, 2022**

1. No comments as of the date of this staff report.

Public Works: **Date: December 14, 2022**

The Walton County Public Works Department has reviewed the engineering plans for the aforementioned project in regards to our area of review, which is typically limited to impacts to the County right-of-way.

1. We have no comments for the project at this time.

Public Works Survey Comments: **Date: January 19, 2023**

1. No comments at this time.

Engineer Comments: **Date: January 4, 2023**

This project is an expansion to an existing community sports complex. The proposed improvements encompass multiple sports fields with amenities, parking, and stormwater infrastructure. The property has an existing stormwater management facility that is slated for expansion to accommodate the proposed improvements.
Upon review of the most recent documents submitted for the Helen McCall Park Expansion all engineering comments have been addressed.
Conditions of Approval:

1. Provide a set of signed and sealed civil plans certified by a civil engineer licensed in the State of Florida.
2. Stabilized construction entrances and exits shall be established prior to any interior clearing of the property. The ingress / egress shall meet the criteria established in the Florida Department of Environmental Protection (FDEP) Stormwater Erosion and Sediment Control Inspectors Manual. The minimum width and length shall be 12-foot by 50-foot for all major or minor developments.

Transportation Concurrency

Planning Department Engineering staff has reviewed the data provided for the transportation concurrency analysis associated with proposed improvements to Helen McCall Park. The property is located west of County Road 393, at the corner of Rena Arnett Lane and Moll Drive.

1. This project has been approved for the exemption outlined in Section 3.01.04(C) with one recommendation.
   Staff Recommendation:
2. In order to adequately account for the committed demand in the County's Transportation Concurrency Management System (CMS) in accordance with TCM Section 5, it is recommended that a traffic analysis is provided that meets the criteria established in TCM Section 6.

Project # MIN22-000082

Helen McCall Park Expansion

Florida Department of Health Comments: **Date: November 8, 2022**

The FDOH-Walton Environmental Health Office has reviewed the proposed plans and has noted the following:

1. Helen McCall Park Expansion – MIN22-000082
   a. This proposed subdivision will utilize public water and sewer.

Code Enforcement Comments: **Date: November 10, 2022**

1. No liens, fines, fees, or code cases on this parcel.

Emergency Management Comments: **Date: November 10, 2022**

1. It appears that this is located in Evacuation Zone C.

Floodplain Management Comments: **Date: December 29, 2022**

Floodplain Specific Comments:

The proposed project area is located within Zone X and an Un-numbered A Zone according to Effective FEMA Maps 12131C0676 H, dated 12-30-2020.

The revised stormwater management analysis established the base flood elevation (BFE) and/or 100-year critical storm at 14.78 feet. The project proposes an estimated 5,712 cubic feet of fill within Zone A and provides compensatory volume of 6,337 cubic feet.

There are no outstanding floodplain comments or issues related to this project as submitted and appears to meet the minimum Floodplain requirements of the Land Development Code and Comprehensive Plan.

Environmental Comments: **Date: December 29, 2022**

The proposed project is requesting approval to construct new baseball, t-ball and multi-use fields and associated parking lots on 40.2 +/- acres with a future land use of mixed use and Parks and Recreation and a zoning district of Small Neighborhood and Parks and Recreation. The property is located in District 4 property is approximately 0.25 miles south of the intersection of U.S. Highway 98 W. and Moll Drive and is identified by parcel number 34-2S-20-33270-027-0000, 34-2S-20-33270-028-0000, 34-2S20-33270-037-0000 and 34-2S-20-33270-038-0000.

Environmental Assessment Summary:

Soils – The Environmental Assessment (EA) identified three soil type(s) on the subject property:

1. Leon Sand, 0 to 2 percent slopes

a. This soil is poorly drained and nearly level. The Leon soil has a high-water table at a depth of 10 to 40 inches for periods of more than 9 months during most years. The high-water table is at a depth of less than 10 inches for 1 to 4 months during periods of high rainfall and recedes to a depth of more than 40 inches during very dry seasons.

2. Rutlege fine sand

a. This soil is very poorly drained and nearly level. It is in shallow depressions on stream or creek flood plains and upland flats. Rutledge soil has a high-water table at or near the surface for long periods of the year. Shallow ponding is common. The available water capacity is high in the surface layer and low in the underlying material. Internal drainage is impeded by the high-water table.

3. Pickney (ST-63)

a. This soil consists of hydric soils with 0 to 2 percent slopes that are poorly drained.

Pickney soils result in depressions, drainageways, stream terraces, and flood plains. The water table occurs at depths of less than 10 inches below the soil surface for more than 8 months during most years. During the drier seasons the water table may recede to a depth of 20 inches. These soils formed in thick, organic marine sediment in broad, nearly level areas and are usually comprised of depressional wetland community types.
Wetlands – According to the EA, the site contains 4.0 +/- acres of wetlands and other waters jurisdictional to the USACE and the FDEP.
Vegetative Communities – According to the EA, the site consists of 6.8 +/- acres of Mesic Flatwoods and 33.4 +/- acres of Disturbed Area due to previous land use.
Threatened and Endangered Species – According to the EA, no federally listed species were observed on the project site.
Historic and Cultural Resources – The EA has provided correspondence from the Florida Master Site File stating that no known sites are within the project site.
Hazardous Materials and Contamination – The EA did not indicate any evidence of hazardous materials or contamination.

Site Specific Environmental Comments:

There are no outstanding environmental comments or issues related to this project as submitted. The proposed project appears to meet the environmental resource protection regulations and requirements found within the Walton County Land Development Code and Comprehensive Plan.
General Environmental Comments / Conditions of Approval:

1. Prior to commencement of the development, provide a copy of the NPDES Notice of Intent (NOI) along with the required Stormwater Pollution Prevention Plan (SWPPP).
2. Provide a copy of the Environmental Resource Permit or "Self-Certification for a Stormwater Management System in Uplands Serving Less than 10 Acres of Total Project Area and Less than 2 Acres of Impervious Surfaces (10-2 General Permit)", prior to commencement of development.
3. Provide a copy of all state and federal wetland permits for proposed impacts to wetlands prior to commencement of construction as well as documentation that all mitigation credits have been purchased as required in the associated permits

Mosquito Control District Comments: **Date: November 11, 2022**

1. No comments on project MIN22-000082.

School Board Comments: **Date: November 22, 2022**

1. This project will not impact the school district.

Eglin Comments: **Date: November 7, 2022**

1. EGLIN AFB has no comments for MIN22-000082.

GIS Comments: **Date: November 7, 2022**

1. The above project meets all the specifications of County Ordinance #2006-17 at this time.

Project # MIN22-000082

Helen McCall Park Expansion

Florida Department of Transportation:	**Date: December 27, 2022**
1. No comments as of the date of this staff report.	

FEES:		
1.	**Sidewalk Buyout**	**None**
2.	**Preservation Buyout**	**None**
3.	**Proportionate Fair Share**	**Exempt**
4.	**Plat Recreation Fee**	**N/A**
5.	**911 Recording Fee**	**N/A**
**Fee amounts above reflect a preliminary estimate. Fees based on land value are subject to change upon annual adoption of tax rolls.*		

RECOMMENDATION:
1. Staff recommends to approve this project.

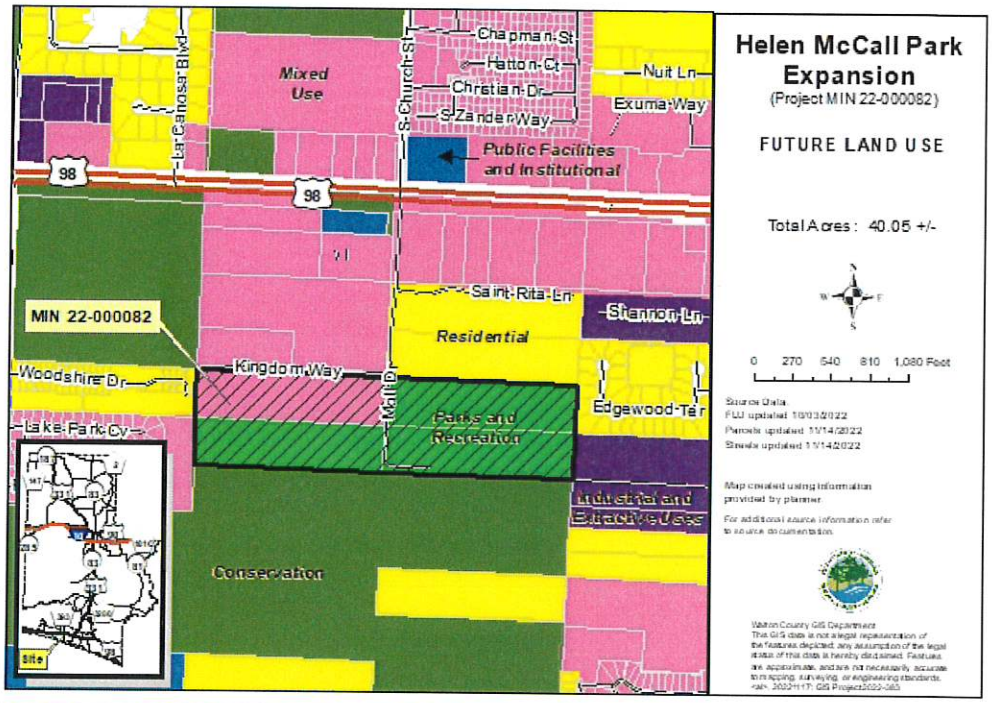
REVIEW / APPROVAL PROCESS – NEXT STEPS
1. Development Order.

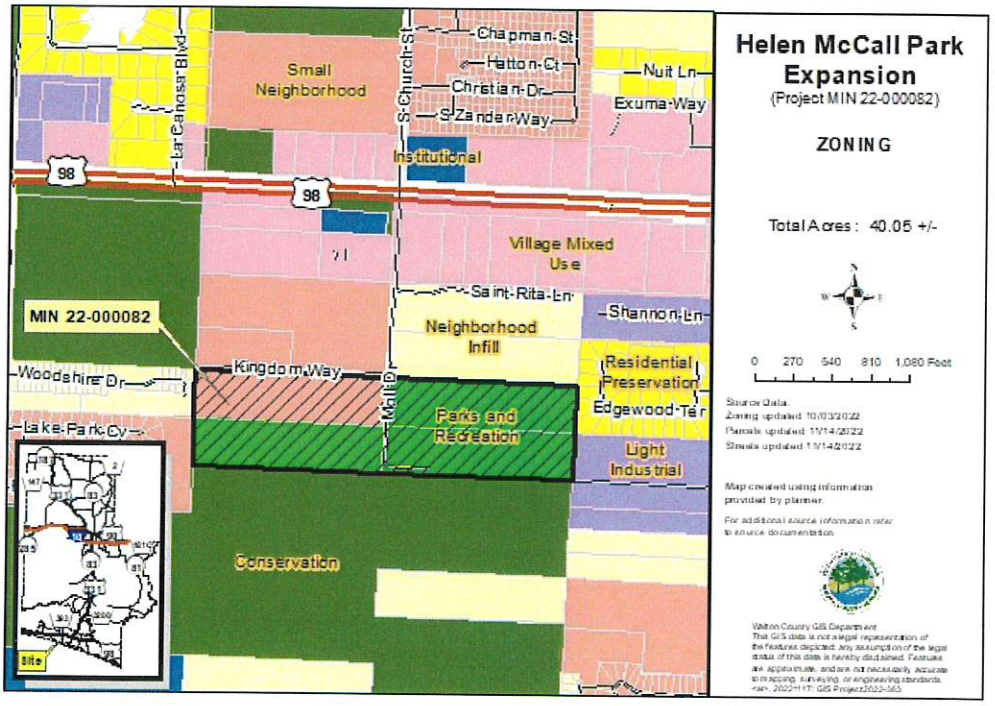
EXHIBITS TO STAFF REPORT:
1. Project Map Series. 2. Site plan.

Project # MIN22-000082

Helen McCall Park Expansion

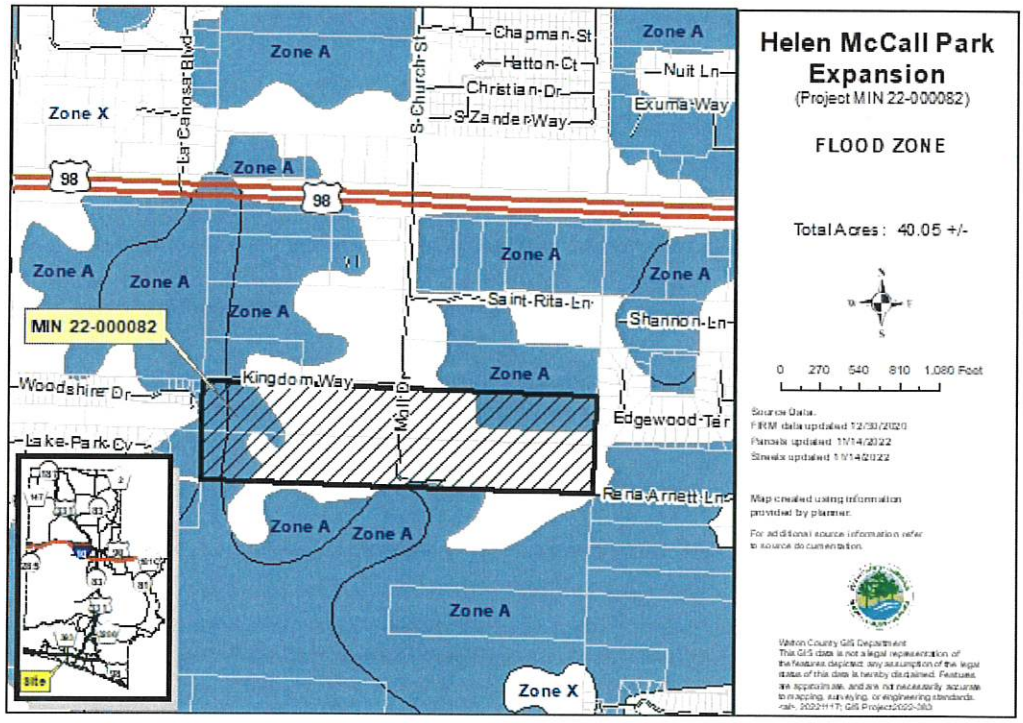
EXHIBIT 1. PROJECT MAP SERIES

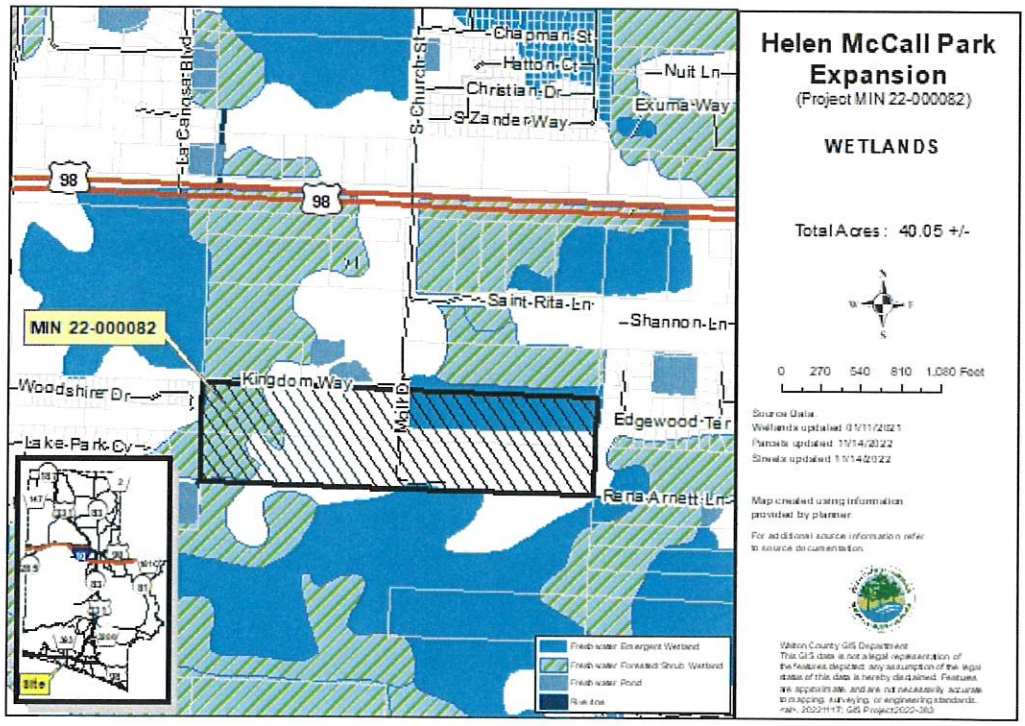




Project # MIN22-000082

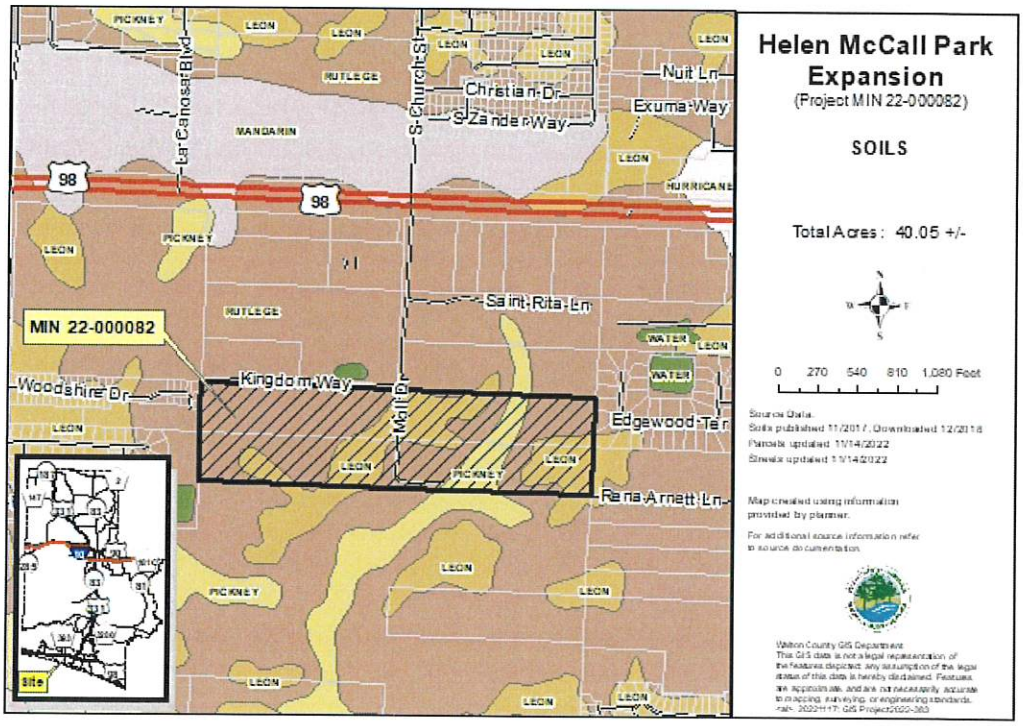
Helen McCall Park Expansion





Project # MIN22-000082

Helen McCall Park Expansion



Walton County Planning and Development Services

842 State Highway 20 E, Suite 110
Freeport, Florida 32439
Phone 850-267-1955 * Facsimile 850-622-9133
https://www2.citizenserve.com/waltonplanning

MINOR DEVELOPMENT ORDER
TRANSPORTATION CONCURRENCY
Parcel No: 34-2S-20-33270-027-0000 / 34-2S-20-33270-028-0000 /
34-2S-20-33270-037-0000 / 34-2S-20-33270-038-0000
325 Moll Drive, Santa Rosa Beach
Helen McCall Park Expansion

Date: November 15, 2022

Through: Bob Baronti. Jr., AICP, CPM / Senior Planner

From: Walton County Planning Department / Engineering

Re: MIN 22-000082

Planning Department Engineering staff has reviewed the data provided for the transportation concurrency analysis associated with proposed improvements to Helen McCall Park. The property is located west of County Road 393, at the corner of Rena Arnett Lane and Moll Drive.

This project has been approved for the exemption outlined in Section 3.01.04(C) with one recommendation.

Staff Recommendation:

In order to adequately account for the committed demand in the County's Transportation Concurrency Management System (CMS) in accordance with TCM Section 5, it is recommended that a traffic analysis is provided that meets the criteria established in TCM Section 6.

As stated in Section 3.01.04 (C) in the Land Development Code (LDC), exempt activities encompass the construction of public facilities that are identified in the capital improvements element of the Walton County Comprehensive Plan. The Schedule of Capital Improvements provided in the Comprehensive Plan lists two connector roads associated with Helen McCall Park in the transportation section. The project is not listed in the parks and recreation section. Additionally, the Comprehensive Plan does not depict any committed or planned funding for the fiscal years 2017 through 2021 in either section.

a. In support of Section 3.01.04(C) of the LDC "Any person seeking an exemption from the terms of this chapter shall submit substantial competent evidence to the Director of Planning and Development Services to demonstrate the entitlement to the exemption" (Section 3.02.00 *Exemptions*).

b. The Walton County Transportation Concurrency Manual (TCM) Section 14(F)(2) provides an option to mitigate the proportionate fair share cost for public facilities if they are not included in the capital improvements program.

Expiration of Transportation Certificates of Concurrency are subject to the following conditions as listed below:

Minor Development

For a minor development as defined in Chapter XI of the Land Development Code (LDC), a certificate of concurrency shall automatically expire six months after it is issued unless: (1) the Technical Review Committee has completed its review of the complete application and provided its comments and recommendations to the Director; (2) the Director has approved the application for minor development approval; and (3) the Department has issued a development order for the approved minor project. In that circumstance, the certificate of concurrency shall be automatically extended and shall remain valid until the development order expires.

Consistent with section 11.01.05B of the LDC, a development order for a minor development shall be valid for a period of two years from the date of issuance. A certificate of concurrency shall automatically expire simultaneously with the expiration of the development order, unless: (1) the infrastructure improvements committed to secure the development order for the minor development have been fully completed within the two year period following the issuance of the development order; or (2) as applicable, the applicant has timely paid the project's non-refundable proportionate fair share in full accordance with the requirements of Appendix C-3. If either criterion is timely satisfied, the development order shall be deemed vested for traffic concurrency for the approved project.

Major Development

For a major development as defined in Chapter XI of the LDC, a certificate of concurrency shall automatically expire six months after it is issued unless: (1) the Technical Review Committee has completed its review of the application and provided its comments and recommendations to the Director; and (2) the Director has issued his or her report recommending approval, approval with conditions, or denial of the application to the Planning Commission. In that event, the certificate of concurrency shall be automatically extended for an additional six month period to facilitate timely review of the application by the Planning Commission and the Board of County Commissioners consistent with the requirements of this Code, and the Board's issuance of a final order.

Except for final orders issued for a phased project, as more particularly described below, a final order approving a major development application shall be valid for a period of two years from rendition. A certificate of concurrency for a major development shall automatically expire simultaneously with the expiration of a final order unless: (1) within this two year period the applicant secures the requisite development order for the project and completes all of the site's infrastructure improvements; or (2) as applicable, the applicant timely pays the project's nonrefundable proportionate fair share in full in accordance with the requirements of Appendix C-3. If either criterion is timely satisfied, the development order shall be deemed vested for traffic concurrency for the approved project.

If the applicant fails to secure the requisite development order for a major development within two years from rendition of a final order, the certificate of concurrency shall automatically expire at the conclusion of this two year period. Thereafter, an applicant seeking to secure approval for the project after the expiration of a certificate of concurrency shall be required to submit an updated traffic concurrency analysis to reflect then current conditions, for which a reasonable fee shall be assessed for the cost of the new review. Based on approval of the updated analysis by the traffic concurrency manager, the applicant shall be required to apply for an amended final order from the Board of County Commissioners to address any deficiencies identified in the updated analysis, and to pay the project's additional proportionate fair share, as warranted, as a condition precedent to securing a development order for the project.

In the event a minor or major development order is challenged pursuant to s. 163.3215, Florida Statutes, the timelines for the expiration of the development order and certificate of concurrency, as detailed above, shall be tolled until all legal challenges are exhausted.

Master Development Phased Projects

A final order approving a major development application for a phased project, referred to herein as a "master development", other than a planned unit development, which is addressed in Chapter II of the LDC, shall be valid for a period of two years from rendition. A certificate of concurrency for a phased project shall automatically expire simultaneously with the expiration of the final order for the master development unless the applicant secures the requisite development order for the project within this two year period, and (1) completes the infrastructure for all phases of the master development, as approved; or (2) pays the master development's non-refundable proportionate fair share in full for all phases of the master development in accordance with the requirements of Appendix C-3; or (3) completes, at a minimum, the site's infrastructure improvements for the first phase of the approved master development and/or timely pays the master development's non-refundable proportionate fair share for the first phase of the master project, as applicable, in accordance with the requirements of Appendix C-3 of the LDC ; and (4) enters into a development agreement in accordance with the requirements of ss. 163.3220-163.3243, Florida Statutes, wherein the county and the applicant agree to a schedule for the timely construction and completion of the infrastructure for each remaining phase of the approved master development and/or the timely payment of the non-refundable proportionate fair share for each of the remaining phases of the approved master development.

For purposes of this section, "timely completion" of the site's infrastructure means that construction of the infrastructure for each phase of the master development is scheduled to commence, and commences, within one year of completion of the prior phase, and is scheduled to be completed, and is completed, within two years of the scheduled commencement date for that phase. The certificate of concurrency shall expire automatically if any phase of the master development is not timely completed in accordance with the timelines adopted in the development agreement. Upon the expiration of the certificate of concurrency for a master development, any unused traffic capacity reserved by the certificate for the remaining phases of the master project will be released from reservation and the county's CMS database will be updated to reflect this released, unused capacity.

Proportionate Fair Share Contribution

(1) Applicants may submit a letter to withdraw their Development Order at any time prior to payment of a proportionate fair share contribution.
(2) Payment of a Proportionate Fair Share Contribution is due in full prior to issuance of the building permit for commercial development or recording of the final plat for residential development and shall be non-refundable. If the period of payment exceeds 12 months from the date of receipt of the Transportation Certificate of Concurrency in which a Proportionate Fair Share Contribution has been calculated, then the proportionate share cost shall be recalculated based on the best estimate of the construction cost of the required improvement at the time of payment and adjusted accordingly.
(3) Upon payment of a Proportionate Fair Share Contribution in full, all trips attributable to the development shall be deemed vested, in conformity with Chapter III of the County's LDC.
(4) Developer improvements authorized under this Program involving dedications to the County must be completed upon final acceptance of the improvements and receipt of a warranty bond.
(5) Developer improvements authorized under this Program not involving dedications to the County must be completed upon recording of the final plat for residential development or upon issuance of a certificate of occupancy for non-residential development.
(6) Any requested change to a development project subsequent to a development order will be subject to additional proportionate fair share contributions.

Fair Share Fund

(1) The County will establish special transportation corridor revenue fund accounts for the appropriation of proportionate fair share payments made pursuant to this Program. Revenue from these accounts shall be used toward funding of scheduled improvements in the Capital Improvements Element (CIE) of the Comprehensive Plan, or as otherwise established in the terms of the Development Order.
(2) In the event a scheduled improvement is removed from the CIE, then the Fair Share funds collected for its construction may be applied toward the construction of other transportation improvements identified in the CIE, which will in the opinion of the County significantly benefit the impacted transportation system.

APPENDIX E

FDEP GENERAL PERMIT

APPENDIX F

STANDARD DESIGN AND CONSTRUCTION SPECIFICATIONS BY REGIONAL UTILITIES, 2022 EDITION

STANDARD
DESIGN AND CONSTRUCTION
SPECIFICATIONS

Regional Utilities
operated by
Florida Community Services corp
of
Walton County

4432 U.S. HWY 98 EAST
SANTA ROSA BEACH, FLORIDA 32459
PHONE: (850) 231-5114
www.regionalutilities.net

<u>2022 EDITION</u>

2022 DESIGN/CONSTRUCTION SPECIFICATION AND DETAIL SHEET CHANGES

WRITTEN SPECIFICATIONS

- 2.1 – GENERAL REQUIREMENTS
  - Added CAD file requirement to submittal for sewer model.

- 2.3 – DESIGN GUIDELINES
  - Common tap for fire mains and potable water services.
  - Proper procedure for abandoning gravity sewer laterals.
  - Plugging existing manholes during construction of new system.
  - Set a maximum depth for sewer lateral at the right of way line.
  - Potable water mains and services on top of storm exfiltration systems.
  - 8-inch sewer lateral connection to gravity main.

- 2.4 – EASEMENTS AND SEPARATION REQUIREMENTS
  - Clarified distance from water/sewer mains to any structure.

- 6.3.14 – FIRE HYDRANTS
  - American Darling hydrants only.

- 7.2 - GRAVITY SEWER GENERAL REQUIREMENTS
  - Liner requirements for manholes near wet wells with sewer force main entry.

- 7.3 – GRAVITY SEWER MATERIALS
  - No 90-degree fittings.

- 7.6 – GRAVITY SEWER FIELD TESTING
  - Removed section 7.6.4 – Air Testing

- 9.3 – NON-CLOG LIFT STATION MATERIALS – WET WELL
  - Dewatering requirement for wet well installation.
  - Added RAVEN epoxy coating to written specifications.

DETAIL SHEETS

- GS-1 – GRINDER STATION DETAIL SHEET
  - Clarified spool piece notes.
  - Clarified guide rails mounting requirements.
  - Clarified air box requirements.

- LS-1 – NON-CLOG LIFT STATION DETAIL SHEET
  - Clarified spool piece notes.
  - Clarified guide rail mounting requirements.
  - Clarified air box requirements.
  - Added cross brace note.

- PS-1 – PRESSURE SEWER DETAIL SHEET
  - Added pressure/flow testing requirement for low pressure sewer services.

- PS-2 – PRESSURE SEWER DETAIL SHEET
  - Modified the joint restraint detail.
  - Clarified the HDPE to PVC transition details.
  - Modified the valve box details to include cushioning requirements.

- S-1 – GRAVITY SEWER DETAIL SHEET
  - Clarified cleanout detail to call out fittings and set a tee-wye minimum angle.
  - Added note about 90-degreen fittings.
  - Added note about step requirements.
  - Added notes about liner requirements for manholes near lift stations with sewer force main entry.
  - Added note about 8-inch sewer lateral connections to gravity main.

- S-2 – GRAVITY SEWER DETAIL SHEET
  - Added notes about step requirements.

- W-1 – POTABLE WATER DETAIL SHEET
  - Created new detail for fire main / potable water service sharing common tap.
  - Added notes about water mains and services being above storm exfiltration systems.

- W-2 – POTABLE WATER DETAIL SHEET
  - Created new detail for proper curb stop handle and lock installation.
  - Changed notes to no longer require handles on meters over 1-inch.

- W-3 – POTABLE WATER DETAIL SHEET
  - Modified the valve box detail to include cushioning requirements.
  - Clarified the HDPE to PVC transition details.
  - Clarified the joint restraint details.

TABLE OF CONTENTS

1. **GENERAL ITEMS**
   1.1. Definitions
   1.2. Scope

2. **DESIGN GUIDELINES**
   2.1. General Requirements
   2.2. Deliverables
   2.3. Design Guidelines
   2.4. Easements & Separation Requirements
   2.5. As Built Drawings
   2.6. Engineer Certification Guidelines
   2.7. Inspection Requirements

2. EXCAVATION AND BACKFILLING
   3.1. Scope
   3.2. General Requirements
      3.2.1. Sunshine State One Call of Florida
   3.3. Materials
      3.3.1. Backfill
   3.4.Execution
      3.4.1. Handling Water
      3.4.2. Excavating Trenches
      3.4.3. Joint Trenches
      3.4.4. Excavating Below Normal Grade
      3.4.5. Backfilling
      3.4.6. Compaction and Testing
      3.4.7. Backfill Maintenance

4. DEWATERING
   4.1. Scope
   4.2. General Requirements
   4.3. Execution

5. POTABLE WATER – PIPELINES
   5.1. Scope
   5.2. General Requirements
   5.3. Materials
      5.3.1. Poly-Vinyl Chloride (PVC)
      5.3.2. High Density Poly-Ethylene (HDPE)
      5.3.3. Ductile Iron
      5.3.4. Fittings
      5.3.5. Standard Joints
      5.3.6. Restrained Joints
      5.3.7. Service Connections

5.3.8. Marking Services
5.3.9. Service Tubing
5.3.10. Ball Markers
5.4. Installation
5.5. Cleaning and Flushing
5.6. Field Testing
5.7. Disinfection
5.8. Warranty
5.9. As-Built Water Plans

6. POTABLE WATER - VALVES & FITTINGS
6.1. Scope
6.2. General Requirements
6.3. Materials
6.3.1. Gate Valves
6.3.2. Valve Joints
6.3.3. Check Valves
6.3.4. Cushioned Check Valves
6.3.5. Hose Valves
6.3.6. Taps
6.3.7. Tap Hydrostatic Pressure Test
6.3.8. Corporation Stops
6.3.9. Curb Stops
6.3.10. Ball Valves
6.3.11. Valve Boxes
6.3.12. Backflow Preventers
6.3.13. Fire Hydrants
6.3.14. Flush Points

7. SEWER – GRAVITY
7.1. Scope
7.2. General Requirements
7.3. Materials
7.3.1. Poly-Vinyl Chloride (PVC)
7.3.2. Ductile Iron
7.3.3. Tapping Saddles
7.3.4. Precast Concrete Manholes
7.3.5. Cast Iron Manhole Frames and Covers
7.4. Installation
7.5. Cleaning & Flushing
7.6. Field Testing
7.7. Warranty
7.8. As-Built Sewer Plans

8. SEWER - FORCE MAINS & APPURTENANCES
8.1. Scope
8.2. General Requirements

8.3. Materials
8.3.1. Material Specifications
8.3.2. Poly-Vinyl Chloride (PVC)
8.3.3. High Density Poly-Ethylene (HDPE)
8.3.4. Ductile Iron
8.3.5. Fittings
8.3.6. Joints
8.3.7. Linings and Coatings
8.4. Installation
8.5. Cleaning & Flushing
8.6. Field Testing
8.7. Warranty

9. SEWER - NON-CLOG PUMP STATIONS
9.1. Scope
9.2. General Requirements
9.3. Materials
9.3.1. Wet Well
9.3.2. Valve Vault
9.3.3. Valves & Fittings
9.3.4. Submersible Non-Clog Pump
9.3.5. Motor
9.3.6. Pump Guide Rail
9.3.7. Pump Power & Control Cables
9.3.8. Pump Power & Control Panel
9.4. Installation
9.5. Field Testing
9.6. Warranty

10. SEWER - GRINDER PUMP STATIONS
10.1. Scope
10.2. General Requirements
10.3. Materials
10.3.1. Wet Well
10.3.2. Valve Vault
10.3.3. Valves & Fittings
10.3.4. Submersible Grinder Pump
10.3.5. Pump Motor
10.3.6. Pump Guide Rail
10.3.7. Pump Power & Control Cables
10.3.8. Pump Power & Control Panel
10.4. Installation
10.5. Testing
10.6. Warranty

APPENDIX

A. **AS-BUILT LAYERS & LINE TYPES**

B. **AS-BUILT SYMBOLS**

C. **UTILITY CONTACT INFORMATION**

.

SECTION 1

GENERAL ITEMS

SECTION 1 – GENERAL ITEMS

1.1. DEFINITIONS

1.1.1. The words “REGIONAL UTILITIES” and “FLORIDA COMMUNITY SERVICES CORPORATION (DBA REGIONAL UTILITIES),” as employed herein shall collectively refer to the owner and manager of the water and sewer utility system bounded by Sandestin Golf and Beach Resort to the West, Inlet Beach to the East, the Intercoastal Waterway to the North and the Gulf of Mexico to the South.

1.1.2. The word "DEVELOPER," as employed herein, shall mean the owner of the project who, by way of an engineered submittal, proposes to improve a parcel or parcels of real estate by subdividing the land for the purpose of constructing habitable buildings.

1.1.3. The word "ENGINEER," as employed herein shall mean the licensed design professional representing DEVELOPER.

1.1.4. The word "CONTRACTOR," as employed herein shall mean the person, persons, partnership, company, or corporation entering into a contract for the performance of the work defined by the proposed engineered drawings.

1.1.5. The term “SUBCONTRACTOR” as employed herein includes only those having a direct contract with CONTRACTOR and it includes one who furnishes material worked to a special design according to the Drawings or Specifications of this work, but does not include one who merely furnishes material not so worked.

1.1.6. Wherever the word "MANUFACTURER" is used it refers to a person, partnership, or corporation who is furnishing material or equipment to either the OWNER, CONTRACTOR or both.

1.1.7. The word “OWNER,” as employed herein shall refer to DEVELOPER prior to FDEP CERTIFICATION, after which REGIONAL UTILITIES shall be referred to as OWNER.

1.1.8. The words “FDEP CERTIFICATION,” as employed herein shall collectively mean that in the opinion of Regional Utilities and the Florida Department of Environmental Protection (FDEP), CONTRACTOR has completed all utility construction in accordance with all Federal, State, and Local Codes and Standards as detailed on the APPROVED DRAWINGS.

1.1.9. The words "APPROVED DRAWINGS" shall collectively mean the project construction drawings and details provided to, and authorized for

construction by, REGIONAL UTILITIES as part of a proposed plan to improve DEVELOPER'S real estate.

1.1.10. "POINT OF SERVICE" shall mean the discharge side of the REGIONAL UTILITIES underground gate valve, prior to the double detector check valve assembly.

1.1.11. "APPROVED EQUAL" shall mean any pipe, fitting, valve, or material that may be used as a replacement to the material stated in the specifications, after which CONTRACTOR has received written approval prior to construction by REGIONAL UTILITIES for change.

1.2. SCOPE

1.2.1. The standards set forth in this document are intended to provide a basis for design and construction.

1.2.2. Applicable Federal, State and County environmental laws and regulations shall be considered concurrently with this text.

1.2.3. Any variation from these standards is to be approved in advance by REGIONAL UTILITIES General Manager or their designated representative prior to construction.

1.2.4. It is intended that the requirements of this document shall be applicable in all cases where the facilities being constructed or to be constructed shall be owned and/or operated and maintained by REGIONAL UTILITIES. These requirements shall also be applicable to those portions of facilities which shall lie within public right-of way (ROW).

1.2.5. REGIONAL UTILITIES responsibility for ownership, operation and maintenance of water mains or water services shall end at the Right of Way.

1.2.6. REGIONAL UTILITIES shall not be responsible for maintaining sewer services extending beyond the first cleanout which shall be located at the Right Of Way or utility easement.

1.2.7. REGIONAL UTILITIES shall not acquire, operate or maintain any sewage facilities that are not constructed to our standards. Responsibility for these lines and/or lift stations shall remain with DEVELOPER.

1.2.8. It shall be the responsibility of ENGINEER to verify existing line information and design the proposed utilities in accordance with REGIONAL UTILITIES standard specifications.

1.2.9. ENGINEER may exceed REGIONAL UTILITIES standard specifications at their discretion.

1.2.10. REGIONAL UTILITIES shall review and approve all proposed plans prior to the commencement of construction in accordance with our Plan Review Procedure. REGIONAL UTILITIES Plan review Procedure may be found on our website at www.regionalutilities.net.

1.2.11. REGIONAL UTILITIES shall enforce the approved construction plans.

1.2.12. No changes shall be made to approved plans without written consent from REGIONAL UTILITIES.

1.2.13. While every effort shall be made to ascertain that the plans are in compliance with our standard specifications as detailed herein, REGIONAL UTILITIES reserves the right to enforce the minimum standards as required by FDEP, USACOE, FDOT, and Walton County.

1.2.14. No construction shall start prior to a pre-construction conference with REGIONAL UTILITIES.

1.2.15. It shall be the responsibility of CONTRACTOR to notify REGIONAL UTILITIES forty-eight (48) hours in advance of all field-testing and meetings.

1.2.16. REGIONAL UTILITIES shall not be responsible for newly constructed water and sewer lines within new subdivisions or development sites until all underground utilities are in place (i.e., electric, gas, phone, and cable television, etc.).

1.2.17. CONTRACTOR shall be responsible for locating and protecting newly constructed water and sewer lines until all underground utilities are in place (i.e., electric, gas, phone, and cable television).

1.2.18. Where reference is made in these specifications to specifications compiled by other agencies, organizations or departments, such reference is made for expediency and standardization and such specifications referred to are hereby made a part of these specifications.

1.2.19. Execution of specifications, construction drawings, details, and procedures must meet OSHA safety requirements. All excavation must also meet the Florida Trench Safety Act.

SECTION 2

DESIGN & INSPECTION GUIDELINES

SECTION 2 – DESIGN GUIDELINES

2.1. GENERAL REQUIREMENTS

2.1.1. The REGIONAL UTILITIES standards shall be followed on all plans.

2.1.2. An electronic (pdf file) copy, and a CAD file of the plans shall be submitted for review. All plans shall be submitted to the email engplanreview@regionalutilities.net.

2.1.3. Once the review process has been completed REGIONAL UTILITIES will require one (1) hard copy set of the signed and sealed plans and one (1) digital storage device containing a copy of the signed and sealed approved set of plans and all documentation.

2.1.4. CONTRACTOR shall have on the job at all times, one set of APPROVED plans that have been stamped by REGIONAL UTILITIES at the pre-construction meeting. Any work completed to an unapproved set shall be subject to removal.

2.1.5. Incomplete or unchecked Construction Plans submitted to REGIONAL UTILITIES for review shall be returned to the design Engineer without review.

2.1.6. Construction Plans shall be prepared on 24”x36” sheets using an appropriate scale. Drawings submitted on other size sheets or on an unacceptable scale shall be returned without review.

2.1.7. Drawing scales shall be clearly defined and verified by way of a standard Engineer’s box scale. Like scales shall be used on plan and profile drawings with corresponding grids (i.e., 1”=50” horizontal, 1”=5’ vertical or 1”=40” horizontal, 1”=4’ vertical). Do not interchange scales or grid count.

2.1.8. REGIONAL UTILITIES detail sheets are provided under the engineering tab on our website www.regionalutilities.net for your use.

2.1.8.1. Provide all applicable detail drawings.

2.1.8.2. Details altered without the expressed written permission of REGIONAL UTILITIES shall not be accepted and shall be retuned without review.

2.1.9. Clearly indicate all phase and match lines as required.

2.1.10. Show all elevations of crossing pipes indicating the top and bottom of the pipe to define a clear distance between pipes.

2.1.11. All sewer data, including manhole invert and rim elevations, shall be defined on the plan sheets.

2.1.12. Profiles are required for all gravity sewers.

2.1.12.1. Sewer profiles shall show all storm drain and water lines crossings and specify all special treatments as may be required by FDEP codes.

2.1.13. Roadway cross sections are required every 100-feet that show the elevations of all proposed utilities.

2.1.13.1. Proposed gravity sewer mains shall not be at the same elevation as proposed storm water lines.

2.1.14. All pressurized pipelines shall be placed in right-of-way/utility easements unless approved in writing by REGIONAL UTILITIES General Manager or their designated representative.

2.1.15. All service line sizes shall be shown on the plan sheets.

2.1.16. All water and sewer lines shall include detail of the line diameter, material type and slope.

2.1.17. Specify details for all connections to existing facilities, including double valves, as required.

2.1.18. Identify the number of stories and dwelling units; show zero lot lines with driveway location (if applicable).

2.1.19. All street names, lot and block numbers shall be as shown on proposed drawings.

2.1.20. Finished floor elevations must be specified at least one foot above the crown of the road and clearly shown on the plan drawings.

2.1.21. After REGIONAL UTILITIES approval, all revisions shall be noted in revision block.

2.1.22. Drawings shall be georeferenced to the US State Plan Coordinate System, NAD 83, Florida State Planes, North Zone, US Foot, and must contain two referenced, labeled points tied to the State Plan Coordinate System.

2.2. DELIVERABLES

2.2.1. Refer to the Developer Plan Review Procedure for a list of deliverables.

2.2.2. All deliverables shall be labeled with the File Name, Company Name, Contact Name, and Phone Number.

2.2.3. Any additional drawing files used as an external reference within the submitted drawing file shall also be included with the submitted project. Any projects which have and external reference attached and not included shall not be accepted.

2.2.4. **FILE NAMING AND REVISIONS**

2.2.4.1. File names shall correspond exactly to the subdivision or project name and shall be consistent from one version to the next.

2.2.4.2. The file name shall contain the project name and the revision date in YYMMDD format as part of the name.

2.3. DESIGN GUIDELINES

2.3.1. Sewer lift stations shall only discharge to a pressurized sewer force main.

2.3.2. Lift station wet wells shall be designed so the pumps remain submerged at all times.

2.3.3. A non-looped (dead end) water line shall be sized no less than 8-inches in diameter for fire flow purposes.

2.3.4. All water and sewer service laterals shall be located no more than 3-feet from the property corners.

2.3.5. All water, gravity sewer, and sewer force mains crossing under creeks and or mosquito ditches shall be in P401 coated ductile iron pipe.

2.3.6. Commercial and residential units located in the same building shall be metered separately.

2.3.7. Restaurants shall be metered separately from all other units, commercial or residential.

2.3.8. Pools and clubhouses shall be metered separately so that there are no sewer charges for pool water.

2.3.9. No more than one residential lot shall connect to a single sewer service lateral.

2.3.10. Potable water services and fire mains shall not share a common tap except in situations where the water main is on the opposite side of the road. In all other instances, potable water services and fire mains shall have separate taps.

2.3.11. Where a fire line and potable water service share a common tap, valves shall be placed on each line where they split per the detail on sheet W-1 of Regional Utilities' Potable Water Details.

2.3.12. In the event where existing gravity sewer laterals are to be abandoned as part of a new design, the service shall be plugged in the main using an internal point repair liner and the lateral filled with an excavatable, cementitious flowable fill.

2.3.13. In the event that a new gravity sewer system is connecting to an existing manhole, the new line shall be plugged where it enters the existing manhole and shall remain plugged until the new gravity line has been fully tested and FDEP certified.

2.3.14. Gravity sewer service laterals shall be no more than three (3) feet deep where it terminates at the cleanout.

2.3.15. Potable water main lines and services shall be installed above stormwater exfiltration systems.

2.3.16. An 8-inch sewer lateral shall only connect to a gravity sewer main via a manhole.

2.4. EASEMENTS & SEPARATION REQUIREMENTS

2.4.1. Easements shall allow unhindered access to all facilities and mains.

2.4.2. A ten (10) foot easement shall be required in areas adjacent and parallel to rights of way.

2.4.3. A twelve (12) foot easement shall be required for single line areas where zoning or other legal requirements would ensure that structures are not placed within ten (10) feet of facilities.

2.4.4. A twelve (12) foot wide easement, dedicated solely to REGIONAL UTILITIES, shall be required to provide vehicular access to all pump stations located within a development.

2.4.5. A twenty (20) foot easement shall be required for a line that runs down the side property line of a single-family lot or through areas not typically accessible (buffer zones, green areas, lakeside easements, golf courses, etc.).

2.4.5.1. Easements of 20-foot width are required to ensure that neither structures, nor trees, shrubs, etc., are placed closer than (10) feet to a facility or main.

2.4.5.2. Proposed facilities are not to be constructed in areas that are to be landscaped.

2.4.5.3. If REGIONAL UTILITIES determines that there is no alternative, plantings with non-aggressive rooting systems may be placed within five (5) feet of a facility or main provided that there is at least four (4) feet of cover is provided.

2.4.6. A HOLD HARMLESS AGREEMENT is to be provided for REGIONAL UTILITIES in such a case, relieving REGIONAL UTILITIES from any responsibility for damages due to REGIONAL UTILITIES maintenance or construction work within the easement.

2.4.7. Wider easements may be required for deeper runs per REGIONAL UTILITIES discretion.

2.4.8. A perpendicular distance of no less than ten (10) linear feet (in plan) shall be required for separation between any and all sewer and water utilities.

2.4.9. A perpendicular distance of no less than ten (10) feet (in plan) shall be required for separation between any structure and all water and or sewer mains.

2.4.10. A perpendicular distance of no less than six (6) linear feet (in plan) shall be required for separation between any and all sewer/water utilities and underground electric utilities.

2.4.11. A perpendicular distance of no less than six (6) linear feet (in plan) shall be required for separation between any and all sewer/water utilities and underground natural gas utilities.

2.4.12. Deviations from these requirements shall be considered on a case-by-case basis, at the sole discretion of REGIONAL UTILITIES General Manager or their designated representative, and no less than minimum FDEP standards

2.5. AS-BUILT DRAWINGS

2.5.1. All as-built plans submitted to Regional Utilities shall be provided via email or on digital device in AutoCAD format, PDF format, and one signed and sealed hard copy.

2.5.2. Drawings shall be georeferenced to the US State Plan Coordinate System, NAD 83, Florida State Planes, North Zone, US Foot, and must contain two referenced, labeled points tied to the State Plan Coordinate System.

2.5.3. All features depicted in the as-built drawings must be surveyed after construction, to verify accuracy. Regional Utilities shall randomly spot check to ensure accuracy. Water system features must be surveyed to an accuracy of ≤ 0.3 foot. Sewer system features must be surveyed to an accuracy of ≤ 0.5 foot.

2.5.4. Regional Utilities shall provide a template drawing available for downloading on its web site at www.regionalutilities.net.

2.5.5. Do not use computer-generated scales that cannot be read with a standard Engineer's box scale.

2.5.6. Show profile grade between manholes.

2.5.6.1. Manhole inverts and top elevations.

2.5.7. Special detail drawings covering installation to meet field conditions.

2.5.8. Use appropriate symbols for natural ground, compacted earth and pavement.

2.5.9. **LAYERING**

2.5.9.1. Layer names must appear exactly as in Appendix A.

2.5.9.2. All required layers listed in Regional Utilities approved CAD layers shall only contain the associated described features. For example, the BOUND-PROJECT layer shall contain only the project boundary line.

2.5.9.3. All required layers shall be present in the drawing except for features that do not pertain to a particular project.

2.5.9.4. All layers shall be clearly differentiated from one another. For example: two layers having the names WATER-MAIN and WATER-MAINS shall not exist in the same drawing.

2.5.9.5. All text shall appear on separate layers from the layers they annotate. For example, text describing a water main shall be on the WATER-MAIN-TXT layer and not on the WATER-MAIN layer.

2.5.9.6. Leaders and dimensions shall be placed on the appropriate text layer and not the feature layer. All Dimensions shall be associative. Exploded dimensions shall not be accepted.

2.5.9.7. All layers shall conform to the proper geometry type (line (polyline), polygon, text, insert) as shown on Appendix A.

2.5.9.8. All polygon type features shall be completely closed. Lines may need to be duplicated on more than one layer to be correctly drawn as a polygon.

2.5.9.9. Gravity Sewer lines and Force Mains shall be drawn as polylines and broken only at changes in pipe type, valves, tees, crosses, manholes and reducers.

2.5.9.10. All valves shall be labeled with coordinates and referenced to road centerlines, power and/or utility poles, phone boxes, or any other existing permanent above ground structure. All dimensions for valve references shall be on the appropriate Valve-Txt layer.

2.5.9.11. Water lines shall be drawn as polylines and broken only at changes in pipe type, valves, tees, crosses and reducers.

2.5.9.12. Pipe end points shall be snapped together at endpoints.

2.5.9.13. "End-of-line" caps shall be drawn to differentiate end-of-lines from lines that extend beyond the extent of the drawing. "End-of-line" caps shall be drawn for lines that are to be permanently capped when the job is complete, not for lines that are temporarily capped pending inspection.

2.5.10. **SYMBOLS**

2.5.10.1. Symbols shall be standardized according to examples provided in the Regional Utilities As-built Template file. The following "point" features shall be symbolized using the standard Regional Utilities Symbols and inserted as blocks:

- ✓ End of line Cap
- ✓ Fire Hydrant
- ✓ Flush Hydrant
- ✓ Manhole
- ✓ Meter
- ✓ Reducer
- ✓ Tees
- ✓ Valve
- ✓ Cleanout
- ✓ Lift station

*See Appendix B

2.5.11. **ANNOTATION**

2.5.11.1. All water and sewer lines shall include detail of the line diameter, material type and slope.

2.5.11.2. All addresses and lot numbers shall not be shown with special characters such as *, #, “, etc.

2.5.11.3. All required text shall be single line text.

2.5.12. **FILE NAMING AND REVISIONS**

2.5.12.1. File names shall correspond exactly to the subdivision or project name and shall be consistent from one version to the next.

2.5.12.2. The file name shall contain the project name and the revision date in YYMMDD format as part of the name.

2.6. ENGINEER CERTIFICATION GUIDELINES

2.6.1. The ENGINEER shall submit to REGIONAL UTILITIES the following certifications and status reports when the project is ready to be certified:

2.6.1.1. Written certification that all materials being used for the project meet the latest version of REGIONAL UTILITIES’ Standard Design and Construction Specifications, as well as all ASTM, AWWA, ANSI standards.

2.6.1.2. Fusion equipment operator certification. Refer to section 5.3.2.

2.6.1.2.1. Fusion equipment Data Logger records. Refer to section 5.3.2.

2.6.1.3. Inspection reports from gravity sewer camera inspections, outlining needed repairs and or certifying the line meets Regional's specifications.

2.7. INSPECTION REQUIREMENTS

2.7.1. CONTRACTOR shall be responsible for getting all property corners and right of ways staked prior to final inspection.

2.7.2. It shall be the responsibility of CONTRACTOR to notify REGIONAL UTILITIES at least forty-eight (48) hours in advance of all inspections.

2.7.3. All construction shall be completed before the CONTRACTOR schedules a walk-through inspection with REGIONAL UTILITIES.

2.7.4. CONTRACTOR shall supply personnel on the day of the scheduled inspection, who will accompany the inspector to open all manholes, meter boxes, test all fire hydrants, and correct any punch list items found before the inspector leaves the job site. The inspector will return to the job site at a later date to inspect any larger, more difficult items when they have been completed.

SECTION 3

EXCAVATION AND BACKFILLING

SECTION 3 – EXCAVATION AND BACKFILLING

3.1. SCOPE

3.1.1. The work under this section includes the excavation to designated elevations for (where applicable) all structures, trenching for underground piping, stockpiling of materials suitable for backfill, placing and compacting backfill, including granular backfill where shown on the drawings and specified hereinafter.

3.1.2. Excavation, dewatering, sheeting, and bracing required shall be carried out so as to prevent undermining or disturbing foundations of any existing structure or work, and so that all work may be accomplished and inspected in the dry.

3.1.3. The extent of excavation open at any one time shall be held to a minimum consistent with normal and orderly prosecution of the work.

3.2. GENERAL REQUIREMENTS

3.2.1. SUNSHINE STATE ONE CALL OF FLORIDA

3.2.1.1. Sunshine State One Call (SSOCOF) is a not for profit corporation which began with the 1993 adoption of the *"Underground Facility Damage Prevention and Safety Act,"* Chapter 556, Florida Statutes. Its main purpose is to assist with the prevention of damage to underground facilities.

3.2.1.2. Excavators throughout Florida are responsible for notifying SSOCOF of their proposed excavations so that SSOCOF can notify all members with underground facilities near the excavation site.

3.2.1.3. SSOCOF may be notified by contacting (800) 432-4770.

3.2.1.4. Excavators without a valid locate ticket for any project that involves digging run the risk of paying fines levied by SSOCOF and lost revenues from their job site being shut down until they have a valid locate ticket and have waited the required two full business days before digging.

3.3. MATERIALS

3.3.1. BACKFILL

3.3.1.1. CONTRACTOR shall furnish, place, and compact granular backfill as specified hereinafter, in excavation below normal grade, as pipe bedding material, in other locations as indicated on the drawings, or as

specified, and where ordered by REGIONAL UTILITIES or Engineer for miscellaneous granular backfill.

3.3.1.2. Granular backfill consist of well-graded crushed stone or crushed gravel meeting the requirements of ASTM Designation C-33-, Gradation 67 (3/4 inch to no. 4). Air-cooled blast furnace slag, alone or in combination with crushed stone and/or crushed gravel conforming to ASTM Designation C-33-, requirements may also be used.

3.3.1.3. In lieu of the above-specified granular material for backfill and bedding, CONTRACTOR when so authorized by REGIONAL UTILITIES may use a good grade AASHTO Class A-3 sand, meeting County Ordinance 2005-24 and free of organic or other unsuitable material in quantities which would render the sand unsuitable for bedding use.

3.3.1.4. Unsuitable materials for backfill shall include pile foundations, concrete, railroad ties, debris, organic material, etc.

3.3.1.5. All backfill shall be placed in uniform horizontal layers. "Ramping," that is pushing backfill material down a ramp into excavated areas, shall not be permitted unless authorized in writing by the REGIONAL UTILITIES General Manager or their designated representative.

3.3.1.6. Grade and line stakes shall be protected.

3.3.1.7. Benchmarks and other reference points shall be carefully maintained and, if disturbed or destroyed, shall replace as directed.

3.4. EXECUTION

3.4.1. HANDLING WATER

3.4.1.1. CONTRACTOR shall provide ample means and device with which to immediately remove and dispose of all water entering trench and structure excavations and shall keep said excavations acceptably dry, until the structures to be built therein are completed.

3.4.1.2. All water pumped in or drained from the work shall be disposed of in a suitable manner without damage to sewer, pavement, pipes, electrical conduits, or any other work or property.

3.4.1.3. Drainage shall be adequate. No pipe shall be laid in water and no water shall be allowed to rise above the bottom of any pipe while it is being jointed, except as otherwise permitted in writing.

3.4.1.4. No masonry shall be placed in water and no water shall be allowed to rise over masonry until the concrete or mortar has attained its initial set, nor shall water be allowed to run over completed masonry for four days.

3.4.1.5. At no time shall water be allowed to rise as so to set up unequal pressures in the structures until the concrete or mortar has set at least 24 hours and also until any danger of floatation has been removed.

3.4.1.6. Dewatering, if required, shall be continued during construction to keep the groundwater below the level of the backfill at all times until the backfill is completed.

3.4.2. EXCAVATING TRENCHES

3.4.2.1. All excavation for piping shall be open cut and tunneling shall not be permitted unless specifically called for on the plans.

3.4.2.2. Trench sides shall be approximately vertical between an elevation of one foot above the top of the pipe and the bottom of trench; otherwise, trench sides shall be as vertical as possible or as required to meet safety regulations.

3.4.2.3. CONTRACTOR shall excavate the pipe trench by hand where excavation by machinery would endanger existing utilities, or structures which otherwise might be saved by use of hand excavation.

3.4.2.4. Trench width shall be as narrow as practicable and shall not be widened by scraping or loosening material from the sides.

3.4.2.4.1. At no time shall the trench width within one (1) foot of the top of pipe exceed the eternal pipe diameter by more than twelve inches on either side.

3.4.2.5. Except where granular or concrete bedding is to be used, mechanical excavation shall be stopped above the final invert grade elevation and the remaining material hand excavated so that the pipe may be laid on a firm, undisturbed, native earth bed.

3.4.2.6. Bell holes shall be dug to permit the entire straight barrel of the pipe to rest on the trench bottom. Boulders or loose rocks, which might bear against the pipe, shall not be permitted in the trench bottom or backfill.

3.4.2.7. Where materials unsuitable for backfill such as muck, mud or other unstable material are excavated within the limits of excavation shown on the drawings, the unsuitable material shall be removed from the job site and disposed of by CONTRACTOR. Suitable class A-3 sand or

selected backfill shall replace the unsuitable backfill and be compacted to minimum of 98% Modified Proctor Density.

3.4.2.8. Excavation in rock (if present) shall be made at least six inches below the finished grade of the pipe and the resultant over-excavation shall be filled and compacted with suitable material as approved by REGIONAL UTILITIES. No section of pipe shall rest directly on rock or concrete.

3.4.3. **JOINT TRENCHES**

3.4.3.1. Joint Trench construction shall not be allowed without specific written consent on a per project basis.

3.4.3.2. In all cases, water and sewer lines must be a minimum of 6 foot horizontal and 1.5 foot vertical from any electrical, communications, or gas lines.

3.4.3.3. ELECTRICAL MUST BE BELOW THE WATER/SEWER LINES.

3.4.3.4. In cases where 1.5-foot vertical cannot be met an 8-foot separation shall be required.

3.4.4. **EXCAVATING BELOW NORMAL GRADE**

3.4.4.1. In the event CONTRACTOR through error or carelessness excavates below the elevation required, CONTRACTOR shall at his own expense, backfill with selected granular backfill as hereinafter specified and compact to obtain suitable bedding as specified.

3.4.4.2. In the event unstable or unsuitable bedding material is encountered at or below the limits of excavation noted on the drawings, such material shall be removed and replaced with suitable compacted granular backfill material.

3.4.5. **BACKFILLING**

3.4.5.1. Attention is called to the various testing requirements of the particular pipe to be installed as specified under the pipe sections of these specifications.

3.4.5.2. Contractor shall be responsible for obtaining the necessary inspections before, during and after backfilling and shall re-excavate, refill, and re-perform all such related work to obtain satisfactory test results.

3.4.5.3. Backfill shall be placed and compacted under the pipe haunches in uniform layers so as not to exceed six inches in depth on either side.

Each layer shall be placed, then carefully and uniformly tamped, so as to eliminate the possibility of lateral displacement. The remainder of the backfill material shall then be placed in layers not exceed twelve inches (compacted thickness) and tamped to a compaction as specified hereinafter.

3.4.5.4. Whenever trenches have not been properly filled, or if settlement occurs, they shall be refilled, smoothed off, and finally made to conform to the surface of the ground.

3.4.5.5. Backfilling shall be carefully performed and surface restored to the elevation shown on the plans. In unpaved areas the surface of trenches shall conform and be equal in quality, character, and materials to the surface immediately prior to making the excavation.

3.4.5.6. Compaction shall be in accordance with the compaction requirements of this section. Fill material shall be within 2 % of optimum moisture content at time of compaction.

3.4.5.7. Where wet conditions are such that dewatering by normal pumping methods would not be effective, the procedure outlined below may be used when specifically authorized by REGIONAL UTILITIES in writing and noted in the job diary. In such specifically authorized cases, backfill material used below the elevation at which mechanical tampers would be effective shall be of the AA STHO A-3 soil classification.

3.4.5.7.1. After the pipe is bedded properly, the A-3 material shall be placed, and rammed and compacted under the pipe haunches by the use of timbers or hand tampers. Hand tamping shall continue during the placing of the backfill until such time that the backfill has reached an acceptable elevation for mechanical tamping.

3.4.5.7.2. The mechanical tamping shall be done in such a manner and to such an extent as to transfer the compacting force into the previously hand-tamped fill.

3.4.5.8. If CONTRACTOR has compaction equipment with which the required density can be obtained in thicker lifts than permitted above and upon satisfactory evidence that the proposed equipment shall produce work equal in quality to that produced by the specified method, REGIONAL UTILITIES and ENGINEER may permit placement of granular material of soil groups A-1, A-2, or A-3 in lifts up to a maximum of one foot compacted thickness.

3.4.5.9. CONTRACTOR shall be required to furnish equipment and labor to excavate and backfill test pits to be dug for the performance of density tests.

3.4.5.10. Use of thick lift compaction shall not be allowed for the first stage backfilling (up to one foot above top of pipe.).

3.4.6. **COMPACTION AND TESTING**

3.4.6.1. Backfill material up to a level of one foot over the top of the pipe or bottom of structures shall be placed in layers not to exceed six inches compacted thickness and compacted to 95% of its maximum density within +/- 2% of optimum moisture content as determined by the Laboratory Modified Proctor Tests.

3.4.6.2. In areas of roadways or traffic areas, backfill material of one foot over the top of pipe and bottom of structures shall be placed in layers not to exceed 12 inches compacted thickness and compacted to 98% of its maximum density within +/- 2% of optimum moisture content as determined by the Laboratory Modified Proctor Test.

3.4.6.3. Compaction by water jetting or puddling shall not be permitted in roadways or other traffic areas.

3.4.6.4. On areas outside of roadways and outside of traffic areas, backfill material above one foot over the top of the pipe and above the bottom of structures shall be placed in layers not to exceed 12 inches compacted thickness and compacted to 95% of its maximum density within +/- 2% of optimum moisture content as determined by the Laboratory Modified Proctor Test.

3.4.6.5. Where pipe is laid or structures built on fill materials in lieu of undisturbed earth, the fill material shall be brought up to the bottom elevation of the pipe or structure in six inches (compacted thickness) maximum layers. Each layer shall be compacted to 98% of the maximum density as determined by the Laboratory Modified Proctor Tests.

3.4.6.6. The method of compacting backfill shall be at CONTRACTORS discretion, subject to the approval of ENGINEER and REGIONAL UTILITIES, provided that the compaction requirements specified herein are obtained, except that consolidation by flooding shall not be permitted under or adjacent to paved or unpaved traffic areas.

3.4.6.7. If tests for in place density consistency fail to meet the requirements, ENGINEER or REGIONAL UTILITIES may require CONTRACTOR

to change his method of compaction without claiming additional compensation.

3.4.6.8. Compaction control on all new construction shall be accomplished by in-place densities to determine the degree of compaction. Compaction control testing shall be performed at CONTRACTOR'S expense by a qualified independent testing laboratory approved by the ENGINEER. CONTRACTOR shall give the ENGINEER ample notice to notify the laboratory to perform tests as specified. Any compacted layer, which fails to meet the above compaction requirements, shall be removed, replaced and retested at CONTRACTOR'S expense.

3.4.6.9. Field density shall be made in locations approved by the ENGINEER, normally in each vertical layer, and using the following approximate spacing:

3.4.6.9.1. Under structures, pavement and slabs one per 2,500 square feet with at least two per structure or area.

3.4.6.9.2. In trenches, one every three hundred feet in continuous trenches under pavement or future pavement plus one at each intersection or one every five hundred feet in continuous trenches not under pavement.

3.4.7. BACKFILL MAINTENANCE

3.4.7.1. CONTRACTOR shall refill all backfill areas to compensate for settlement.

3.4.7.2. The surfaces of backfilled trenches shall be maintained in a safe and satisfactory condition at all times after being opened to traffic until the final acceptance of the work by REGIONAL UTILITIES.

SECTION 4

DEWATERING

SECTION 4 – DEWATERING

4.1. SCOPE

4.1.1. The work specified in this section of the specifications shall consist of supplying all labor, materials, and plans and performing all work necessary to lower and control the groundwater levels and hydrostatic pressures to permit all excavation and construction specified under this contract to be performed in the dry.

4.1.2. The control of all surface water shall be considered as part of the work.

4.2. GENERAL REQUIREMENTS

4.2.1. It is the intent of these specifications that an adequate dewatering system be installed to lower and control the groundwater in order to permit excavation, construction of structures, and the placement of the fill materials, all to be performed under dry conditions.

4.2.2. The dewatering system shall be adequate to pre-drain the water-bearing strata above and below the bottom of the structure foundations, the drains, the sewers and all other excavations.

4.2.3. The system to be used shall reduce the hydrostatic head in the water-bearing strata below the structure foundations, the drains, sewers and all other excavations, to the extent that the water level and piezo metric water levels in the construction area remain below the prevailing excavation surface at all times.

4.2.4. The contactor shall be solely responsible for the arrangement, location, and depths of the dewatering system necessary to accomplish the work described under this section of the specifications.

4.2.5. The supply of all labor, materials, and plans, and the performance of all work necessary to carry out additional work for reinstatement of the structures of foundation soil resulting from such inadequacy or failure shall be undertaken by CONTRACTOR to the approval of REGIONAL UTILITIES and at no additional expense.

4.2.6. If the dewatering requirements are not satisfied due to inadequacy or failure of the dewatering system, then loosening of the foundation strata or instability of slopes, or damage to the foundations or structures may occur.

4.3. EXECUTION

4.3.1. Prior to any excavation below the groundwater level, the DEWATERING system shall be placed into operation to lower the water levels as required and then shall be operated 24 hours per day, seven days per week until all drains, sewers, and structures have been satisfactorily constructed, including placement of fill materials, and no longer require dewatering.

4.3.2. CONTRACTOR shall take any steps that he feels necessary to familiarize himself with the site conditions, the ground conditions and the groundwater conditions.

4.3.3. An adequate weight of fill material shall be in place to prevent buoyancy prior to discontinuing operation of the dewatering system.

4.3.4. No pipe shall be installed in standing water. A sufficient amount of bedding material shall be in place.

4.3.5. The control of all surface and subsurface water is considered as part of the dewatering requirements.

4.3.6. The control shall be adequate so that the stability of excavated and constructed slopes are not adversely affected by water, that erosion is controlled and that flooding of excavations or damage to the structures does not occur.

4.3.7. DEWATERING shall be performed in such a manner so as to cause no inconveniences whatsoever to REGIONAL UTILITIES, ENGINEER, or others engaged in work about the site.

4.3.8. All applicable Federal, State, and Local codes shall be met.

SECTION 5

POTABLE WATER - PIPELINES

SECTION 5 – POTABLE WATER - PIPELINES

5.1. SCOPE

5.1.1. CONTRACTOR shall furnish and install potable water piping system, complete, tested and ready for operation.

5.1.2. This section contains standard specifications for use in general procedures as specified hereinafter or as otherwise shown on the drawings.

5.2. GENERAL REQUIREMENTS

5.2.1. All work shall be proved to be in first class working condition and constructed properly in accordance with the drawings and specifications.

5.2.2. All defects and leaks disclosed by the tests shall be remedied. All tests shall be performed by CONTRACTOR and observed by REGIONAL UTILITIES. Water for testing shall be furnished by CONTRACTOR.

5.2.3. CONTRACTOR shall submit to ENGINEER for approval before work begins, certificates of inspection in triplicate from the pipe MANUFACTURER that the pipe and the fittings supplied have been inspected at the plant and meet the requirements of these specifications.

5.2.3.1. Any materials outside of those listed in the specifications must be approved by REGIONAL UTILITIES in writing prior to work beginning to be considered an APPROVED EQUAL material.

5.2.3.2. ENGINEER shall submit to REGIONAL UTILITIES, documentation certifying that all materials meet current specifications.

5.2.4. All pipe sections shall be a minimum of twenty (20) feet in length.

5.2.5. All materials shall be free from defects impairing strength and durability and shall be the best of commercial quality for the purpose specified.

5.2.6. All materials have structural properties sufficient to safely sustain or withstand strains and stresses to which it is normally subjected and be true to detail.

5.2.7. All pipe and fittings shall be clearly marked with the name or trademark of the MANUFACTURER, the batch number, the location of the plant, and strength designation, etc. and the pipe shall be of a color approved by the utility company.

5.2.8. Each section of pipe shall be marked with the date of completion of lining and inspection in accordance with these specifications, and its numerical sequence of application on that date. A permanent marker of identifiable color shall be used.

5.2.9. All pipe and fittings delivered to the job site shall be accompanied by independent TESTING LABORATORY REPORTS certifying that the pipe and fittings conform to ASTM Specifications.

5.2.10. CONTRACTOR shall submit a NOTARIZED STATEMENT OF CERTIFICATION from the pipe MANUFACTURER as to conformance with the aforementioned ASTM Specifications and Modifications thereto, at the time of submitting shop drawing data on the pipe and fittings.

5.3. MATERIALS

5.3.1. POLY-VINYL CHLORIDE (PVC)

5.3.1.1. Pipe shall be clean, virgin Polyvinyl Chloride (PVC) pipe for potable water and shall have a bell type coupling with a thickened wall section integral with the pipe barrel.

5.3.1.2. Pipe shall be approved for potable water by the National Sanitation Foundation. All herein referenced standards shall be of the latest edition or revision.

5.3.1.3. PVC pipe joints shall be the manufacture's standard push-on bell type with rubber sealing ring for pipe sizes 2-3 inch and larger.

5.3.1.4. Ductile iron fittings shall be used for PVC pipe 3 inches and larger.

5.3.1.5. PVC 1120 SCHEDULE 40

5.3.1.5.1. Pipe shall conform to ASTM D1785 - latest, for use in sizes under 2 inches.

5.3.1.5.2. The sustained pressure test shall be conducted in accordance with ASTM D1598 at test pressures given in ASTM D1785 when tested in accordance with ASTM D2672 (section 6.5).

5.3.1.5.3. The burst pressure test shall be conducted in accordance with ASTM D1599 at test pressures given in ASTM D1785, when determined in accordance with ASTM D2672 (section 6.6).

5.3.1.6. **PVC PR200 / SDR21 (CLASS PIPE)**

5.3.1.6.1. Pipe shall conform to ASTM D2241- latest, for use in 2" up to 12" in size. REGIONAL UTILITIES may specifically approve use in other sizes on request.

5.3.1.6.2. Pipe is to be manufactured in I.P.S (steel) standard pipe equivalent outside diameters.

5.3.1.6.3. The pipe shall be designed for a hydrostatic working pressure of 200 psi at 73.4 degrees Fahrenheit and to pass without failure sustained pressure test of 420-psi minimum when tested in accordance with ASTM D1598 and for a quick burst test of 630-psi minimum when tested in accordance with ASTM D1599.

5.3.1.6.4. The pipe shall be push on bell type with rubber sealing ring.

5.3.1.7. **PVC 150 PSI / DR18 (C-905)**

5.3.1.7.1. Pipe shall conform to AWWA Standard C-905-latest for use in diameters larger than 12-inches.

5.3.1.7.2. Pipe is to be cast iron pipe (D.I.P.S.) equivalent outside diameters.

5.3.1.7.3. The pipe shall be designed to pass without failure a sustained pressure test of 500 psi in conformance with ASTM D1598 and for a quick burst test of 755 psi in conformance with ASTM D1599.

5.3.1.7.4. In any case of conflict with standards specified herein, the requirements of AWWA Standard C905 shall prevail.

5.3.1.7.5. The pipe shall be push on bell type with rubber sealing ring.

5.3.2. **HIGH DENSITY POLY-ETHYLENE (HDPE)**

5.3.2.1. Pipe shall be DR 11.

5.3.2.2. HDPE pipe for water system use shall conform to AWWA C-901 (up to 3") and AWWA C-906 (4" and larger).

5.3.2.3. Material shall be PE 4710 meeting cell classification PE445574C and Standards ASTM D2737, ASTM D2239 or ASTM D3035.

5.3.2.4. Pipe shall be manufactured in accordance with ASTM D3035 (up to 3") or ASTM F714 (4" and larger) and shall be so marked.

5.3.2.5. All pipe shall be marked with a blue stripe.

5.3.2.6. Mechanical joint transitions with HDPE pipe stiffeners are not permitted.

5.3.2.7. All pipe joints shall be heat fused in accordance with the recommended procedures of the pipe MANUFACTURER.

5.3.2.8. Transitions to other types of pipe shall be by fused end transitions.

5.3.2.9. The fusion equipment operator shall receive training using the recommended procedure.

5.3.2.9.1. Certification of such training shall be provided to REGIONAL UTILITIES prior to the commencement of fusing/installation of any HDPE pipe and in the final certification submittals provided by the ENGINEER.

5.3.2.10. CONTRACTOR shall be responsible to verify that the fusion equipment is in good operating condition.

5.3.2.11. The fusion equipment shall be equipped with a Data Logger. Records of the welds (heater temperature, fusion pressure, and a graph of the fusion cycle) shall be provided to REGIONAL UTILITIES in the final certification submittals by the ENGINEER.

5.3.2.11.1. Fusion beads shall not be removed.

5.3.3. **DUCTILE IRON**

5.3.3.1. Pipe shall be fabricated by American Cast Iron Pipe Company or approved equal Class 350.

5.3.3.2. Pipe shall be ductile iron manufactured in accordance with the requirements of ANSI/AWWA C151/A21.51.

5.3.3.3. Push-on joints and mechanical joints for such pipes shall be in accordance with ANSI/AWWA C111/A21.11.

5.3.3.4. Pipe shall have cement mortar lining and seal coating in accordance with ANSI/AWWA C104/A21.4.

5.3.4. **STANDARD JOINTS**

5.3.4.1. PVC pipe joints for pipe sizes 2-1/2 inches and smaller shall be extra heavy PVC or CPVC fittings solvent welded with PVC or CPVC cement.

5.3.4.2. All mechanical joint fittings shall have mega-lug restraint type retaining glands as manufactured by EBBA IRON.

5.3.5. **RESTRAINED JOINTS**

5.3.5.1. In addition to concrete thrust blocks, approved cast iron or ductile iron restraint type retainer glands shall be used.

5.3.5.2. Joint Restraints shall be required on all pipe located in paved areas.

5.3.5.3. Joint Restraints shall also be required for at least four joints on either side of a directional bore or per the PVC pipe MANUFACTURER's requirements.

5.3.5.4. Joint Restraints shall be used on at least three joints prior to the valve for a dead-end fire hydrant or a stub out.

5.3.5.5. Joint Restraints shall be used on at least two joints, or 40-feet, whichever is greater, downstream of tapping valves.

5.3.6. **SERVICE CONNECTIONS**

5.3.6.1. Service connections shall be FORD FS202 stainless band iron service saddles.

5.3.6.2. Where service headers are proposed for the purpose of installing a multiple meter vault (A.K.A. "meter bank"), the construction shall conform to the detail as shown on Regional Utilities Standard Potable Water Detail sheet W-2.

5.3.6.3. All service connections shall terminate at the property lines and no more than 3-feet from the property corners unless directed by REGIONAL UTILITIES.

5.3.7. **MARKING SERVICES**

5.3.7.1. A "W" shall be stamped, not cut, into the back or high part of the curb directly over each service line or in the street or sidewalk where no curb is available.

5.3.7.2. The stamp shall be at least 3-inches tall and ¼-inch deep.

5.3.7.3. CONTRACTOR shall be responsible for installing blue four-inch ball markers, part number 1403, as manufactured by 3m. A marker ball shall be placed at each tap and in each meter box.

5.3.8. **SERVICE TUBING**

5.3.8.1. One-inch CTS service tubing shall be polyethylene, PE 4710 Resin Formulation, meeting AWWA specification C-901 pressure rated for 200 psi (DR9) with 1"x3/4" meter coupling curb stop. Tubing shall be black with a blue stripe.

5.3.9. **BALL MARKERS**

5.3.9.1. Contractor is to place a 4" ball marker as manufactured by 3m, part no.1403, beside each water main valve, each corp. stop tap at the main, and each curb stop in the buried meter box.

5.3.9.2. The marker ball shall be placed no more than 36-inches deep at any point.

5.4. **INSTALLATION**

5.4.1. All work shall be provided to be in first class condition and constructed properly in accordance with the drawings and specifications.

5.4.2. CONTRACTOR shall submit to REGIONAL UTILITIES, for approval, shop drawings including manufactures certifications of all pipe and fittings used on this project.

5.4.3. CONTRACTOR shall submit to ENGINEER and REGIONAL UTILITIES for approval before work begins, certificates of inspection in triplicate from the pipe MANUFACTURER that the pipe and fittings supplied have been inspected at the plant and meet the requirements of these specifications.

5.4.4. All water mains, fittings, and appurtenances shall be in conformance with all applicable State of Florida Department of Environmental Protection and American Water Works Association (AWWA) Standards.

5.4.5. CONTRACTOR shall be responsible for defective, damaged or unsound pipe already laid which are found to be defective or damaged and shall replace with new pipe.

5.4.6. All tests shall be performed by CONTRACTOR and observed by REGIONAL UTILITIES. Water for testing shall be furnished by CONTRACTOR.

5.4.7. Each section of the pipe shall rest upon the pipe bed for full length of its barrel, with recesses excavated to accommodate bells and joints. Any pipe, which has its grade or joint disturbed after lying, shall be taken up and relayed.

5.4.8. No pipe shall be laid when the trench conditions or weather is unsuitable for such work, except by permission of REGIONAL UTILITIES.

5.4.9. Pipe fittings shall be carefully handled to avoid damage, and if feasible while they are suspended over the trench before lowering, they shall be inspected for defects and to detect cracks.

5.4.10. Minimum cover on all piping shall be 36".

5.4.11. Maximum cover on all piping shall be 48", unless approved in writing by REGIONAL UTILITIES.

5.5. CLEANING AND FLUSHING

5.5.1. After a final inspection has been performed and has passed on the project CONTRACTOR shall be responsible for having a flush point opened and is responsible for where the water is to be dispersed. At this time the REGIONAL UTILITIES construction inspector shall open the main line valve to thoroughly flush out the line.

5.5.2. At this time the CONTRACTOR and REGIONAL UTILITIES' construction inspector shall check that ALL water services and fire hydrants are turned on and in working order.

5.6. FIELD TESTING

5.6.1. All piping to be operated under liquid pressure shall be tested in sections of approved length.

5.6.2. All field tests shall be made in the presence of ENGINEER and REGIONAL UTILITIES.

5.6.3. Testing shall consist of hydrostatic pressure testing at 150 psi.

5.6.4. For the test, CONTRACTOR shall furnish clean water, suitable temporary testing plugs and other necessary equipment and all labor required.

5.6.5. Pressure tests shall be of 2-hour duration, unless specified otherwise or notified in writing by REGIONAL UTILITIES.

5.6.6. Pressure tests shall be conducted with a pressure loss of not more than 2 psi regardless of length of pipe being tested.

5.6.7. The section of pipe to be tested shall be filled with water of approved quality and all air shall be expelled from the pipe. If hydrants, blow offs, or other outlets are not available at high points for releasing air, CONTRACTOR shall make the temporary taps at such points and shall plug said holes after completion of tests.

5.6.8. Specified test pressures shall be applied by means of a pump connected to the pipe in a manner satisfactory to REGIONAL UTILITIES.

5.6.9. The pump, pipe connection, and all necessary apparatus, including the proper gauges, shall be furnished by CONTRACTOR and shall be subject to the approval of ENGINEER and REGIONAL UTILITIES.

5.6.10. Pressure gauges shall be calibrated by an approved testing laboratory, with increments no greater than 2 psi.

5.6.11. Gauges used shall be of such size that pressures tested shall not register less than 10% or more than 90% of the gauge capacity.

5.6.12. All exposed pipe, fittings, valves, hydrants, and joints shall be examined carefully during the test. Any damaged or defective pipe, fittings, valves, or hydrants that are discovered following the pressure test shall be repaired or replaced with sound material and the test shall be performed until it is satisfactory.

5.6.13. In the event a section fails to pass the test, CONTRACTOR shall locate, uncover (even to the extent of uncovering the entire section), and repair or replace the defective pipe, fitting, or joint.

5.6.14. Visible leaks shall be corrected regardless of total leakage.

5.6.15. Lines shall be repaired and retested as necessary until test requirements are achieved.

5.7. DISINFECTION

5.7.1. All water pipes and fittings at whatever size and wherever installed on potable water lines shall be thoroughly disinfected prior to being placed into service.

5.7.2. Disinfection shall follow the applicable provisions of the procedure established for the disinfection of water mains in AWWA C-651-latest, Florida Rule 62-555.345, F.A.C., and shall be in accordance with both Federal, State and Local requirements.

5.8. WARRANTY

5.8.1. CONTRACTOR shall provide a warranty on installation and workmanship for no less than one year from the date of FDEP certification.

5.9. AS-BUILT WATER PLANS

5.9.1.1. See Section 2.0 of this Specification

SECTION 6

POTABLE WATER – VALVES & FITTINGS

SECTION 6 – POTABLE WATER – VALVES & FITTINGS

6.1. SCOPE

6.1.1. CONTRACTOR shall provide, install, joint, and test all valves and appurtenances as shown on the drawings and herein specified.

6.1.2. All items furnished shall be new, unused, and shall be the products of manufactures having long experience in the manufacturing of the specified items.

6.2. GENERAL REQUIREMENTS

6.2.1. All valves shall be NSF Standard 61 certified.

6.2.2. Valves over 12 inches shall have right angle drive assemblies.

6.2.3. Valves 3 inches and above in size shall be gate valves unless otherwise noted.

6.2.4. All water valves shall be marked with 3M water ball markers (3M part # 1403).

6.2.5. Valves installed within a water system shall open by turning to the left or counterclockwise, when viewed from the stem.

6.2.6. Where extension stems are required, substantial, adjustable wall brackets and extension stems shall be furnished and located as directed.

6.2.7. Extension stems shall be provided on all buried valves when the operating nut is deeper than 4-feet below final grade.

6.2.8. Interior and exterior of valves shall be fusion bonded epoxy coated in compliance with ANSI/AWWA C-550.

6.3. MATERIALS

6.3.1. GATE VALVES

6.3.1.1. All valves shall be manufactured by American Flow Control or AVK.

6.3.1.2. All GATE VALVES shall be resilient wedge and shall meet the requirements of AWWA C-515 (sizes up to 12”) and AWWA C-550.

6.3.1.3. GATE VALVE sizes 3 to 12 inches in diameter shall be designed for 250-psi minimum working pressure.

6.3.1.4. GATE VALVE sizes over 12 inches in diameter shall be designed for 150-psi minimum working pressure.

6.3.1.5. When fully open, all GATE VALVES shall have a clear waterway equal to the nominal diameter of the pipe.

6.3.1.6. All GATE VALVE operating nuts or wheels shall have an arrow cast in the metal indicating the direction of opening.

6.3.1.7. All GATE VALVES shall have the manufacture's distinctive marking, pressure ratings, and year of manufacturing cast on the body.

6.3.1.8. Prior to shipment from the factory, each GATE VALVE shall be tested by applying it to a hydraulic pressure equal to twice the specified working pressure.

6.3.1.9. All buried GATE VALVES shall be resilient seat iron body non-rising stem type with two-inch operating nut and adjustable valve boxes.

6.3.1.10. GATE VALVES located above ground and inside structures shall be hand wheel operated, non-rising stem type with flanged ends and of the same general construction as buried valves.

6.3.2. **VALVE JOINTS**

6.3.2.1. All gate valves shall have mechanical joint ends to fit the pipe run in which they are to be used, except valves installed on slip joint pipe shall have mechanical joint ends unless otherwise specified.

6.3.2.2. Joint restraint type mechanical joint gland shall be used and shall be mega-lug type or approved equal.

6.3.2.3. Hydrostatic tests shall be performed to check all valve joints and conducted in strict accordance with AWWA requirements and Section 5.5 of this specification.

6.3.3. **CHECK VALVES**

6.3.3.1. CHECK VALVES shall conform to the requirements of AWWA C508, latest, "AWWA Standard for Swing-Check Valves for Ordinary Waterworks Service".

6.3.3.2. CHECK VALVES larger than two-inch nominal size shall be iron body, flanged ends, outside lever, spring loaded, swing type with straightaway passageway of full pipe area. The valve shall have renewable bronze seat ring and rubber faced disc.

6.3.3.3. CHECK VALVES shall be AVK manufactured.

6.3.3.4. CHECK VALVE sizes 2-inches in diameter and smaller shall be brass swing check valves, 200 psi working pressure, American Valve M 31, or APPROVED EQUAL.

6.3.4. **CUSHIONED CHECK VALVES**

6.3.4.1. The CHECK VALVE used on a high service pump discharge line shall be series 6011 oil-cushioned swing check valves with weight and lever as manufactured by APCO or APPROVED EQUAL.

6.3.5. **HOSE VALVES (BIBS)**

6.3.5.1. All garden hose valves or bibs shall be ¾ inch.

6.3.6. **FITTINGS**

6.3.6.1. Fittings shall be ductile iron and in accordance with the requirements of ANSI/AWWA C153/A21.53, and ANSI/AWWA C110/A21.10.

6.3.6.2. Interior and exterior of fittings shall be fusion bonded epoxy coated in compliance with ANSI/AWWA C-550.

6.3.6.3. All fittings shall be of DOMESTIC ORIGIN (American Made).

6.3.6.4. Ductile fittings and special castings shall conform to the type of pipe being installed and have a minimum working pressure rating of 150 psi. Fittings shall conform to specification (AWWA C153) latest.

6.3.6.5. Short body pattern fittings shall normally be installed. Long body fittings (AWWA C110) shall be used where the drawings specifically call for long body fittings or at the option of CONTRACTOR when the laying length is not controlled by short body patterns.

6.3.6.6. Fittings shall have joints that match the type of pipe furnished. Joints shall be made using restraint type retainer glands.

6.3.7. **TAPS**

6.3.7.1. REGIONAL UTILITIES shall perform all taps greater than 2” in diameter.

6.3.7.2. CONTRACTOR shall perform all taps 2-inches diameter and less.

6.3.7.3. A representative of REGIONAL UTILITIES must be onsite prior to performing any and all taps.

6.3.7.4. CONTRACTOR shall provide at least five working days' notice to REGIONAL UTILITIES prior to performing the work.

6.3.7.5. At the time the line is to be tapped, it shall be the responsibility of CONTRACTOR to ensure that the tapping sleeve and valve is pressurized and can sustain the pressure test (See Section 6.3.7 of this specification).

6.3.7.6. In the event the line has not been tested prior to the arrival of REGIONAL UTILITIES at the job site, there shall be a $50.00 service charge added to the cost of the tap and the tap shall be rescheduled. Should CONTRACTOR prefer REGIONAL UTILITIES to remain on-site in preparation for the work, a service charge equal to $50.00 an hour shall apply so long as REGIONAL UTILITIES is on-site.

6.3.7.7. All taps EQUAL TO OR GREATER THAN 4" IN DIAMETER, irrespective of the diameter of the line to which you are tapping, shall consist of a single TAPPING SLEEVE and associated tapping valve.

6.3.7.7.1. The TAPPING SLEEVE and gland shall be Stainless Steel Wraparound "Fast Style", and shall be as manufactured by FORD METER CO. or APPROVED EQUAL and shall be furnished complete with all necessary accessories.

6.3.7.7.2. The TAPPING SLEEVE shall have a working pressure rating of 200 psi for sizes 4" through 12" and 150 psi for sizes 14"and larger, and shall conform to the applicable sections of AWWA Standard C110 of latest revision.

6.3.7.7.3. The TAPPING SLEEVE shall be of the split type for assembly on the pipe and the sleeve shall be sized for use with all classes of cast iron pipe.

6.3.7.7.4. The outlet flange shall be Class 125 Standard, with recess for standard tapping valves.

6.3.7.8. All taps SMALLER THAN 4" IN DIAMETER, irrespective of the diameter of the line to which you are tapping, shall consist of a single TAPPING SADDLE and associated tapping valve.

6.3.7.8.1. The TAPPING SADDLE shall be Fusion Bonded Epoxy Coated, and shall be as manufactured by FORD METER

CO. or APPROVED EQUAL and shall be furnished complete with all necessary accessories.

6.3.7.9. The excavated area in which the tap shall be made must be a minimum of 4" below the bottom of the valve, at least seven feet in length and able to accommodate two people working.

6.3.7.10. The area where the tap shall be made must be completely dry. It is the responsibility of CONTRACTOR to pursue all means necessary to dewater the area in which the tap is to be made.

6.3.7.11. TAPPING VALVES shall meet all the requirements of Section 6.3 of this specification and shall be a mechanical joint outlet by tapping flange with a raised inner lip for alignment with the tapping sleeve.

6.3.7.12. Prior to tapping a potable water main, the drilling machine's pilot drill, shell cutter and cutter hub shall be sterilized in accordance with the following procedure:

6.3.7.12.1. Four gallons of potable water shall be combined with 8 oz. of sodium hypochlorite; the pilot drill, shell cutter and cutter hub shall be swabbed until clean or totally immersed in the sterilizing solution and allowed to remain wet at least five minutes before tapping operation commences. It is not necessary to rinse the sterilizing solution from the tapping components prior to use.

6.3.8. TAP HYDROSTATIC PRESSURE TEST

6.3.8.1. After installing a tapping sleeve and valve, and prior to tapping a pressurized water main, a hydrostatic pressure test shall be performed.

6.3.8.2. The test shall be conducted by introducing water into a tap or test hole located on the neck of the outlet half of the sleeve with the tapping valve in the closed position. Sleeves that do not have a tap shall be tested with water supplied through a mechanical joint tapped plug connected to the open tapping valve. Upon completion, a watertight plug shall be inserted into the test hole.

6.3.8.3. The sleeve and valve shall be capable of maintaining test pressure of 150 psi for 30 minutes duration, with no sign of visible leaks.

6.3.8.4. All leaks shall be repaired by removing and replacing defective items with items free from defect, after which the sleeve and valve shall be retested. Such repair and retesting shall be done until the installation passes the specified test.

6.3.8.5. CONTRACTOR shall furnish and install any necessary and temporary restraints, gauges, pumps, and other incidental and appurtenant items necessary to complete this work, and shall remove same upon completion of the test.

6.3.9. CORPORATION STOPS (LEAD FREE)

6.3.9.1. CORPORATION STOPS shall be manufactured from lead free cast bronze with machined fitting surfaces, and in accordance with AWWA C-800, latest, in sizes 1 inch up to and including 2 inches.

6.3.9.2. The inlet connection shall be AWWA Standard corporation stop thread or iron pipe (I.P.) thread. CORPORATION STOPS with compression joint outlets for copper or plastic tubing shall be Ford type F 1000.

6.3.10. CURB STOPS (LEAD FREE)

6.3.10.1. CURB STOPS shall be manufactured from lead free cast bronze with machine fitting surfaces, and in accordance with AWWA C800, latest, in sizes 1 inch up to and including 2 inch.

6.3.10.2. CURB STOPS shall be a straight ball meter valve with pack joint, with lock wing cast on stop body and operating tee cap to provide for locking the stop in the closed position.

6.3.10.3. CURB STOPS shall be Ford type B43 with an HB-34 lever handle for 1-inch diameters.

6.3.10.3.1. Handle shall be installed where it will not cover the locking mechanism.

6.3.10.4. CURB STOPS shall be Ford type B41 for 1-1/4 – 2-inch diameters.

6.3.10.5. All curb stops shall be locked with the Highfield Lockseal lock. The lock shall be installed where the lock opening is on the top, easily accessible.

6.3.11. BALL VALVES (LEAD FREE)

6.3.11.1. BALL VALVES shall be limited to ¾ inch through 2 inch in size and shall have a lead-free cast bronze body, bronze tee head, stem with check, full round way opening and provisions for locking in a closed position.

6.3.11.2. BALL VALVES for use with copper services shall have an inlet connection with a flare nut fitting for type K copper tubing and an outlet connection with female iron pie thread, FORD B-21 series or approved equal.

6.3.11.3. BALL VALVES for use with schedule 40 PVC pipe shall have inlet and outlet connections with female iron pipe threads. The latter shall require the use of brass nipples. Compression joints shall require insert stiffeners.

6.3.11.4. BALL VALVES used in conjunction with pitometer tap installations shall be cast bronze body with inlet and outlet opening with 1 ¼ inch female iron pipe thread. (Valve size 1 ¼ inch). The BALL VALVE shall be No. B11-455 with HP-4 handle as manufactured by Ford Meter Company, Inc., or approved equal.

6.3.12. **VALVE BOXES**

6.3.12.1. CONTRACTOR shall furnish, assemble and place a valve box for each buried valve.

6.3.12.2. Adjustable valve boxes with a cast iron base shall be used, each with an adjustable length center and top section with cover. The sections shall be adjustable for elevation and shall be set to allow equal movement above and below finished grade.

6.3.12.3. The base shall be centered over the valve and shall be approximately on line with nut at top of the valve stem and the entire assembly shall be plumb.

6.3.12.4. The cover shall be marked “WATER” or “FIRE” as appropriate.

6.3.12.5. The castings shall be manufactured of clean, even grain, gray cast iron conforming to ASTM Designation A48, Class 20 B, gray iron castings; and shall be smooth, true to pattern, free from blow holes, sand holes, projections, or other harmful defects.

6.3.12.6. The valve boxes shall be coated with a single coat of coal tar pitch varnish before machining, so that machined seating surfaces shall be free from any coating. The seating surfaced of both the cover and the jacket shall be machined to fit so that the cover shall not rock after it has been seated in any position in its associated jacket.

6.3.12.7. The location of the valve shall be marked in the high back of the curb with a “V”.

6.3.13. BACKFLOW PREVENTERS

6.3.13.1. The following standards shall be referenced and adhered to in the design and application of BACKFLOW PREVENTERS:

6.3.13.1.1. REGIONAL UTILITIES: Cross Connection Control Program.

6.3.14. FIRE HYDRANTS

6.3.14.1. The FIRE HYDRANTS shall be cast iron body, fully bronze mounted, for 150 psi working pressure, complying with AWWA C502-latest.

6.3.14.2. The FIRE HYDRANT inlet connection shall be mechanical joint type, with accessories for a six-inch pipe connection. The internal shutoff valve shall be five and a quarter inch diameter and the hose nozzles shall be bronze with American National Standard fire hose coupling screen threads.

6.3.14.3. The FIRE HYDRANT shall have two (2), two and half (2.5") inch hose nozzles and one (1) four (4.5") and half inch pumper nozzle.

6.3.14.4. The FIRE HYDRANT shall be ONLY American-Darling Model B-84-B.

6.3.14.5. The FIRE HYDRANT shall be yellow in color.

6.3.14.6. The FIRE HYDRANT shall be installed with an auxiliary six-inch gate valve at least 30-inches but no more than 10-feet from the FIRE HYDRANT valve.

6.3.14.7. The FIRE HYDRANT valve shall attach to the water main via a mechanical joint by swivel joint tee.

6.3.14.8. All FIRE HYDRANTS shall be restrained to the valve with a 24-inch long x 6-inch diameter Swivel Adapter. The adapter shall have the Fusion Bonded Epoxy coating on the exterior and interior.

6.3.14.9. Thrust blocks shall be required as per Regional Utilities' Standard Details.

6.3.14.10. FIRE HYDRANT installations more than 30-inches and no more than 10-feet from the valve, shall be restrained from the hydrant back to the valve, with no less than two grade 304 stainless steel ¾" diameter all-thread rods per Regional Utilities' standard details.

6.3.14.11. In the event that a FIRE HYDRANT is more than 10-feet from the water main, a second water valve shall be added to no less than 30-inches in front of the hydrant. The first valve will attach to the main as described in 6.3.14.7 and the second valve will be installed in accordance with 6.3.14.8.

6.3.15. FLUSH POINT

6.3.15.1. End of the line flush point shall be constructed per Regional Utilities' standard details as a 2-inch water service.

6.3.15.2. A 2-inch quick connect shall be installed on the curb stop.

SECTION 7

SEWER - GRAVITY

SECTION 7 – SEWER - GRAVITY

7.1. SCOPE

7.1.1. CONTRACTOR shall furnish and install all gravity sewer lines, manholes, fittings, and appurtenances required for a complete system as shown on the drawings and specified herein.

7.2. GENERAL REQUIREMENTS

7.2.1. All work shall be proved to be in first class working condition and constructed properly in accordance with the drawings and specifications.

7.2.2. All defects and leaks disclosed by the tests shall be remedied. All tests shall be performed by CONTRACTOR and observed by REGIONAL UTILITIES. Water for testing shall be furnished by CONTRACTOR.

7.2.3. CONTRACTOR shall submit to ENGINEER for approval before work begins certificates of inspection in triplicate from the pipe MANUFACTURER that the pipe and the fittings supplied have been inspected at the plant and meet the requirements of these specifications.

7.2.4. Excavation and backfill are specified in Section 3 of this specification, *Excavation and Backfill for Utilities.*

7.2.5. Manholes and gravity sewer lines shall not be placed outside of paved areas without written approval from REGIONAL UTILITIES.

7.2.6. Manholes shall be no less than 48” deep.

7.2.7. Where feasible, allow for margin of error in design of sewers at minimum slopes and cover (i.e. 0.10-foot drop through manholes, or 0.42% slopes, or, a combination of both).

7.2.8. Gravity sewers shall have no greater than a 0.5-foot inside drop. In other situations, there shall be no greater than a 1.0-foot drop in incoming and outgoing sewer elevations unless a proper drop manhole assembly is used.

7.2.9. Gravity sewers shall have no less than a 90-degree angle between sewer runs unless specific prior approval is given and it is unavoidable.

7.2.10. All materials shall be free from defects impairing strength and durability and shall be the best of commercial quality for the purpose specified.

7.2.11. All materials have structural properties sufficient to safely sustain or withstand strains and stresses to which it is normally subjected and be true to detail.

7.2.12. All pipe and fittings shall be clearly marked with the name or trademark of the MANUFACTURER, the batch number, the location of the plant, and strength designation, etc. and the pipe shall be of a color approved by the utility company.

7.2.13. Each pipe joint shall be marked with the date of completion of lining and inspection in accordance with these specifications, and its numerical sequence of application on that date. A permanent marker of identifiable color shall be used.

7.2.14. All pipe and fittings delivered to the job site shall be accompanied by independent TESTING LABORATORY REPORTS certifying that the pipe and fittings conform to the above-mentioned ASTM Specifications.

7.2.15. CONTRACTOR shall submit a NOTARIZED STATEMENT OF CERTIFICATION from the pipe MANUFACTURER as to conformance with the aforementioned ASTM Specifications and Modifications thereto, at the time of submitting shop drawing data on the pipe and fittings.

7.2.16. Where a sewer force main enters a lift station wet well that is also connected to gravity sewer, no less than two manholes upstream of the wet well, or any manhole within 400-feet of the wet well, shall be lined with the RAVEN epoxy coating per Regional specification 9.3.1.14.

7.3. MATERIALS

7.3.1. POLYVINYL CHLORIDE (PVC)

7.3.1.1. Pipe shall be clean, virgin Polyvinyl Chloride (PVC) pipe for use in gravity sewer systems and shall have a bell type coupling with a thickened wall section integral with the pipe barrel.

7.3.1.2. All herein referenced standards shall be of the latest edition or revision.

7.3.1.3. PVC pipe joints shall be the manufacture's standard push-on bell type with rubber sealing ring for pipe sizes 2-3 inch and larger.

7.3.1.4. PVC SDR 26– MAIN LINE

7.3.1.4.1. Polyvinyl Chloride sewer pipe for use in gravity sewer systems, shall conform to ASTM D3034-latest for PVC

sewer pipe and fittings for sizes 6-inch through 12-inch in diameter, except as hereinafter modified.

7.3.1.4.2. The pipe material shall meet or exceed the approved cell class 12454, PVC compound conforming to ASTM D1784 - latest.

7.3.1.4.3. The bell shall be extruded integral with the pipe barrel with a thickness equal to or greater than that of the barrel.

7.3.1.4.4. The laying length shall not exceed 14 foot (+/-1") without specific written approval from REGIONAL UTILITIES.

7.3.1.5. **PVC SDR 35– SERVICE LATERALS**

7.3.1.5.1. Polyvinyl Chloride sewer pipe for use in gravity sewer systems, shall conform to ASTM D3034-latest for PVC sewer pipe and fittings for sizes 6-inch through 12-inch in diameter, except as hereinafter modified.

7.3.1.5.2. The pipe material shall meet or exceed the approved cell class 12454, PVC compound conforming to ASTM D1784 - latest.

7.3.1.5.3. The bell shall be extruded integral with the pipe barrel with a thickness equal to or greater than that of the barrel.

7.3.1.5.4. The laying length shall not exceed 14 foot (+/-1") without specific written approval from REGIONAL UTILITIES.

7.3.1.6. **ELASTOMERIC GASKET JOINT**

7.3.1.6.1. Provision shall be made for contraction and/or expansion at each joint with a solid cross section rubber ring. The rubber ring shall be factory assembled and secured in the bell in such a manner so as to prevent sliding and rolling when the spigot end of the adjoining pipe is installed.

7.3.1.6.2. Manual cuts to the pipe shall be to MANUFACTURER standards to prevent damage to the gasket.

7.3.1.7. **FITTINGS**

7.3.1.7.1. All fittings and accessories shall be manufactured in accordance with ASTM D3034.

7.3.1.7.2. Saddle TEE's or saddle WYE's shall not be permitted except by special written approval from ENGINEER and REGIONAL UTILITIES.

7.3.1.7.3. Gravity sewer main fittings shall be of the bell and spigot configuration.

7.3.1.7.4. Gravity sewer service laterals shall be SDR-35 pipe with solvent weld fittings.

7.3.1.7.5. 90-degree fittings shall not be used in gravity sewer situations.

7.3.2. **DUCTILE IRON**

7.3.2.1. Ductile iron pipe sizes 6 inch through 48-inch diameter shall conform to AWWA Standard C151 – latest.

7.3.2.2. Minimum pipe strength shall be Class 350.

7.3.2.3. The pipe shall have design values of 60,000-psi tensile strength, 42,000-psi yield strength, and 10% minimum elongation.

7.3.2.4. The wall thickness shall be in accordance with Table 51.2 and the corresponding class designation in Table 51.3 of the above referenced specification using wall thickness for laying condition "b" and thickness as required to the depth of cut, shown on the drawings.

7.3.2.5. In addition to the standard markings required by AWWA Standard C151-, the utility company may require each joint of pipe to be marked for the depth of cut it is used on the project, in which case, such markings shall be stenciled on the pipe exterior.

7.3.2.6. **JOINTS**

7.3.2.6.1. Joints for ductile iron pipe shall conform to AWWA Standard C111, Rubber Gasket Joints for Cast Iron Pressure Pipe and Fittings, of the push-on type, unless otherwise specified or shown on the drawings.

7.3.2.7. **FITTINGS**

7.3.2.7.1. Fittings shall conform to AWWA Standard C110 American Standard for Cast Iron Fittings, 2.0-inch diameter through 48.0-inch diameter, for water and other liquid, Class 150, mechanical joint unless otherwise noted on the drawings.

7.3.2.8. **COATING**

7.3.2.8.1. All ductile iron pipe and fittings for sewer use shall be furnished with a factory applied coating Protecto 401 ceramic epoxy.

7.3.2.9. **LINING**

7.3.2.9.1. The interior of all ductile iron pipe and fittings for sewer use shall be furnished with a factory applied lining. The lining material shall be Protecto 401 Ceramic Epoxy, unless otherwise directed by ENGINEER and approved by REGIONAL UTILITIES in writing.

7.3.2.9.2. The lining system shall be applied in accordance with the manufactures standard specifications and requirements.

7.3.2.9.3. The Lining the system shall cover the interior surface of the pipe, extending from the plain or beveled end, to the rear of the gasket socket. The surface shall be adequately prepared prior to lining.

7.3.2.9.4. The lining shall be allowed to cure at least 5 days after the final cast. However, the minimum time shall be increased if the drying temperature is below 65 degrees Fahrenheit.

7.3.2.9.5. The MANUFACTURER shall furnish notarized certificates of compliance stating that the lining conforms to all requirements of these specifications.

7.3.3. **GRAVITY SERVICE LATERAL TAP**

7.3.3.1. Connecting a 6” sewer service lateral to an existing gravity sewer main shall be made using the Inserta TEE Lateral Connection System for the type of pipe being connected to.

7.3.3.2. A hole saw shall be used to make a 6-1/2” hole in the side of the existing PVC gravity sewer main.

7.3.3.3. Refer to MANUFACTURER’S installation instructions.

7.3.4. **PRECAST CONCRETE MANHOLES**

7.3.4.1. MANHOLES shall meet the latest requirements of ASTM C478 *Specification for Precast Reinforced Concrete Manhole Sections*.

7.3.4.2. Minimum wall thickness shall be five inches.

7.3.4.3. Cement shall meet the latest requirements of ASTM C 150 *Specification for Portland Cement, TYPE II*.

7.3.4.4. Minimum concrete strength shall 4000 PSI at 28 days.

7.3.4.5. The required minimum strength of concrete shall be confirmed by making and testing four standard cylinders at seven (7) days and at (28) days. The test results shall be submitted to the ENGINEER prior to any manhole being installed.

7.3.4.6. Rings shall be custom made with openings to meet indicated pipe alignment conditions and invert elevations.

7.3.4.7. Openings shall be adequately sealed with approved non-shrinking grout, applied and cured in strict conformance with the MANUFACTURER's recommendations so that there shall be zero leakage around pipes and joints.

7.3.4.8. Approval of ENGINEER and REGIONAL UTILITIES shall be obtained before placing any order for manholes.

7.3.4.9. The top of a manhole structure shall be no more than 18-inches below final grade.

7.3.4.10. The trough shall be no less than 8-inches in diameter.

7.3.4.11. **BASES**

7.3.4.11.1. MANHOLE BASES shall be cast integrally with the bottom manhole section.

7.3.4.11.2. The base section shall be set in a 12-inch thick leveling course of #4 or #57 stone with filter fabric above and below the stone, extending at least 12-inches outside the base.

7.3.4.11.3. In order to permit adjustment of the precast base section and insure full bearing on the leveling course, said section shall be placed just prior to initial set.

7.3.4.12. **JOINTS**

7.3.4.12.1. Joint contact surfaces shall be formed with machine castings; they shall be exactly parallel with a 2 degree slope and

nominal 1/16-inch clearance with the tongue equipped with a proper recess for the installation of an "o" ring rubber gasket, conforming to the latest edition of C443, Joints for Circular Concrete Sewer and Culvert Pipe Using Rubber Gasket or Pre-Molded Plastic Joint Sealer with Joints Pre-Primed.

7.3.4.12.2. Each joint shall be grouted on the inside with approved grouting materials.

7.3.4.13. **COATING**

7.3.4.13.1. The interior and exterior surfaces of each manhole shall be given two (2) coats of a waterproof bituminous coating approved by ENGINEER and REGIONAL UTILITIES.

7.3.4.13.2. Total minimum dry film thickness shall be 12 mils. Each coat shall be applied at a rate of no less than 1 gallon per 100 square feet.

7.3.4.13.3. The waterproofing materials shall be applied by brush or spray and in accordance with the instructions of the MANUFACTURER.

7.3.4.13.4. Time shall be allowed between each coat to permit sufficient drying so that the application of the second coat has no effect on the first coat.

7.3.4.13.5. The paint shall be applied at the place of fabrication.

7.3.4.13.6. Additional coating or touch up work shall be required after manhole installation if so directed by ENGINEER and/or REGIONAL UTILITIES.

7.3.4.14. **RISER ADJUSTMENT RINGS**

7.3.4.15. CRETEX Expanded Polypropylene adjustment rings shall be used for all manhole risers.

7.3.4.16. Refer to MANUFACTURER'S installation instructions at https://youtu.be/w_ZEAw-OVFU

7.3.5. **CAST IRON MANHOLE FRAMES AND COVERS**

7.3.5.1. Shall be U.S. Foundry E 170 with NPPB pick bar.

7.3.5.2. Castings shall be made of good quality, strong, tough, and even.

7.3.5.3. Sand holes and defects of any nature which would render them unfit for the service for which they are intended shall not be allowed.

7.3.5.4. Castings shall meet the requirements of ASTM A48, latest Specifications for Gray Iron Castings, Class No. 30, or Grade 65-45-12, Ductile Iron Castings. In either Case, manhole frame and cover shall be designed to withstand an HS20-44 loading defined in the AASHTO Specifications.

7.3.5.5. Before being shipped from the foundry, castings shall be given one (1) coat of coal-tar pitch varnish applied in a satisfactory manner so as to make a smooth coating, tough, tenacious and not brittle or with any tendency to scale off.

7.3.5.6. Frames and covers shall be machined or ground at touching surfaces so as to seat firmly and prevent rocking. Any set not matching perfectly shall be rejected.

7.3.5.7. A RainGuard ABS insert shall be installed in all manhole frames and covers to prevent excess storm water inflow.

7.4. INSTALLATION

7.4.1. The method of pipe lying shall be subject to the approval of ENGINEER and REGIONAL UTILITIES.

7.4.2. Each pipe length shall be inspected and tested before being laid to ensure that it is sound and of good quality.

7.4.3. The pipe laying shall proceed upgrade; beginning at the lower end of the sewer, with the pipe bell ends facing upgrade.

7.4.4. Upon identification of any defective pipe which may have been installed, CONTRACTOR shall immediately act to remove and replace the damaged or defective material with sound pipe.

7.4.5. Extreme care shall be taken to keep the pipe in exact alignment and elevation.

7.4.6. Pipe shall be laid to conform accurately to the lines and grades indicated on the drawings.

7.4.7. CONTRACTOR assumes complete responsibility for locating all underground utilities in advance of construction, to ensure that no conflicts occur with the proposed line and grade.

7.4.7.1. Minor changes in alignment, but not the grade, shall be permitted to avoid unforeseen underground facilities only if approved by ENGINEER and REGIONAL UTILITIES, provided that straight alignment can be maintained between manholes.

7.4.7.2. If a conflict is discovered between an existing utility and the proposed grade, CONTRACTOR shall furnish ENGINEER all pertinent information, so that remedial design can be performed and approved by REGIONAL UTILITIES.

7.4.8. **SURVEYS AND GRADE STAKES**

7.4.8.1. CONTRACTOR is responsible for providing; protecting and the accuracy of all survey and grade stakes.

7.4.9. **LAYING AND JOINTING**

7.4.9.1. The pipe shall be laid on an unyielding foundation with uniform bearing under the full length of the barrel of the pipe.

7.4.9.2. The bedding shall be shaped to conform to the outside of the pipe.

7.4.9.3. Suitable excavation shall be made to receive, where applicable, the bell of each pipe, which shall be carefully laid true to line and grade.

7.4.9.4. All adjustments to line and grade must be made by scraping away or filling in under the barrel of the pipe and not by wedging or blocking up any portion of the pipe.

7.4.9.5. The spigot end of each pipe shall not abut against the base of unevenness of any kind along the bottom halves of the pipe.

7.4.9.6. Prior to jointing the pipes, the mating ends shall be thoroughly cleaned of any debris, dirt, or foreign material.

7.4.9.7. If the pipe is to be cut to length, it shall be cut and beveled per the MANUFACTURER's specifications.

7.4.9.8. The pipe shall be adjoined in accordance with the recommendations from the MANUFACTURER's of the pipe and gaskets.

7.4.9.9. In all jointing operations the trench must be dewatered when joints are made, unless otherwise approved in writing by ENGINEER, and kept

dewatered until sufficient time has elapsed to assure efficient hardening of the jointing material, or as may be required.

7.4.9.10. CONTRACTOR shall make all necessary precautions to prevent floatation of the pipe due to flooding in the trench.

7.4.9.11. The pipe shall not be driven down to grade by striking it with the end of shovel, handle, timber, rammer, or other unyielding object.

7.4.9.12. Openings such as stubs, tees or other services along the lines shall be securely closed by means of an approved gasketed leak proof STOPPER that fits into the bell of the pipe and is recommended by the pipe MANUFACTURER.

7.4.9.12.1. This STOPPER shall be jointed in such a manner that it may be removed at some future time without injury to the pipe itself.

7.4.9.13. At the close of each work day, and at other times when pipe is not being laid, the end of the pipe shall be temporarily closed with a close-fitting STOPPER approved by ENGINEER and REGIONAL UTILITIES.

7.4.10. SERVICE CONNECTIONS

7.4.10.1. All gravity sewer services shall be 6" diameter single services unless otherwise approved by REGIONAL UTILITIES. Services shall be constructed of SDR35 PVC pipe.

7.4.10.2. All service connections shall terminate at the property lines and no more than 3-feet from the property corners unless directed by REGIONAL UTILITIES.

7.4.10.3. All service connections shall be constructed using solvent weld fittings. The solvent weld fittings shall start at the first fitting upstream of the tee wye.

7.4.10.4. All service connections shall terminate at the property line with a single stub up with a cleanout cap per the standard detail sheet.

7.4.10.5. Any service connection located in a paved area shall have a brass traffic rated cleanout cap installed.

7.4.10.6. All service connections shall be stubbed up at least 24-inches and no more than 36-inches above final grade.

7.4.10.7. Unless authorized by ENGINEER in writing, or shown on the drawings, service connections shall not be tied into new or existing manholes.

7.4.11. MARKING SERVICE LINES

7.4.11.1. An "S" shall be stamped, not cut, into the back or high part of the curb directly over each service line or in the street or sidewalk where no curb is available.

7.4.11.2. The stamp shall be at least 3-inches tall and ¼-inch deep.

7.4.11.3. CONTRACTOR shall be responsible for installing a green four-inch ball marker, part number 1404, as manufactured by 3m. The service ball shall be placed at the cleanout and no more than 36 inches deep.

7.4.12. MANHOLE INSTALLATION

7.4.12.1. INSTALLING SECTIONS

7.4.12.1.1. Precast concrete sections shall be set so the manhole shall be vertical and with sections in true alignment.

7.4.12.1.2. Joint surfaces of the base or previously set section shall have an O-ring installed in the recess or shall be sealed with approved pre-molded plastic joint sealer. Joints shall be pre-primed.

7.4.12.1.3. Manholes shall only be set in a properly de-watered environment.

7.4.12.2. NON-SHRINKING MORTAR

7.4.12.2.1. All holes in sections used for their handling, all interior and exterior joints and the annular space between the wall and entering pipes shall be thoroughly plugged with an approved non-shrinking mortar, applied and cured in strict conformance with the MANUFACTURER's recommendations so that there shall be zero leakage through openings around pipes.

7.4.12.2.2. The mortar shall be finished smooth and flush with the adjoining interior and exterior manhole wall surfaces.

7.4.12.2.3. As soon as mortar is hydrated to the point where it shall not be marred by such application, and within two hours after installing mortar, CONTRACTOR shall install an approved membrane curing compound, conforming to AST C309,

latest, to the finished mortar surface both inside and outside the manhole.

7.4.12.3. **GRADE ADJUSTMENT**

7.4.12.3.1. For grade adjustment in setting the manhole frame, the CRETEX EPP Adjustment Rings shall be used. Refer to section 7.3.5.13.

7.4.12.4. **SETTING MANHOLE FRAMES**

7.4.12.4.1. Manhole frames and covers shall be set to conform accurately to the finished ground or pavement surface as established by the contract drawings, unless otherwise directed by ENGINEER.

7.4.12.4.2. Frames on manhole cones shall be set on top of the CRETEX EPP Adjustment Rings using the same butyl sealant to secure the frame to the top ring. Refer to the CRETEX installation instructions in section 7.3.5.13.

7.4.12.5. **FLOW CHANNELS IN MANHOLE BASE**

7.4.12.5.1. Shall be conformed of Class C concrete and/or brick rubble and mortar while the manholes are under construction.

7.4.12.5.2. Cut off pipes at inside face of the manholes and construct the invert to the shape and sizes of the pipe indicated. All inverts shall follow the grades of the pipe entering the manhole.

7.4.12.5.3. Changes in direction of the sewer and entering branch or branches shall be laid out in smooth curves of the longest radius possible, which is tangent to the centerline of adjoining pipelines.

7.4.12.5.4. Flow channels shall be at least 8-inches wide so that a sewer camera can pass through the channel.

7.4.12.6. **CONCRETE MANHOLE BOOTS**

7.4.12.6.1. Precast concrete manholes shall have leak-proof boots installed where pipes enter or exit.

7.4.12.6.2. The boots shall be watertight and shall allow for a limited amount of differential settlement.

7.4.12.6.3. All boot bands, bolts, etc. shall be stainless steel.

7.4.13. **STUB-OUTS**

7.4.13.1. Where shown on the drawings, stub-outs shall be provided for the connection of future sewer lines to manholes.

7.4.13.2. The end of each stub-out shall be provided with a bell and which shall be closed by an approved stopper as specified herein before.

7.4.13.3. Each stub-out shall be accurately referenced to the center of the manhole, and the actual invert elevation of each end of the stub-out shall be accurately recorded on the as-built drawings.

7.4.13.4. Regional Utilities shall not be responsible for the condition of the stub-out at the time of the future connection.

7.4.14. **BEDDING AND BACKFILL**

7.4.14.1. Immediately after the pipe has been jointed and inspected, sufficient backfill shall be performed to protect the pipe adequately from injury or movement.

7.4.14.2. Where so indicated on the drawings, or directed by ENGINEER or REGIONAL UTILITIES, the pipe shall be supported by compacted granular fill or concrete cradle or encasing according to the applicable detail shown on the plans.

7.4.14.3. Pipe bedded in compacted granular fill shall not be supported on blocking, wedges, bricks, or anything except the bedding material. Where concrete cradle or encasement is required, the pipe shall be supported on solid concrete blocks or precast concrete saddles which shall become part of the completed cradle or encasement.

7.4.14.4. Where no other bedding is indicated, pipe shall be placed on a shaped bed of undisturbed material.

7.5. **CLEANING AND FLUSHING**

7.5.1. All necessary precautions shall be taken to prevent the entrance of mud, sand, or other obstructing materials into the pipelines.

7.5.2. As the work progresses, the interior of the sewer shall be cleaned of all dirt, jointing material, and superfluous materials of every description.

7.5.3. CONTRACTOR shall flush all sewer lines constructed with clean water prior to a final inspection to assure complete removal of all debris and foreign material, and to the satisfaction of ENGINEER and REGIONAL UTILITIES.

7.5.4. A visual inspection and approval by REGIONAL UTILITIES shall be required.

7.6. FIELD TESTING

7.6.1. All work constructed shall be subject to visual and internal television inspections for faults or defects and any other deviations or omissions shall be corrected at once.

7.6.2. All tests shall be made by CONTRACTOR who shall provide any necessary equipment for testing and televising the system as directed by REGIONAL UTILITIES.

7.6.3. All costs for testing defined within, but not limited to, this section shall be the responsibility of CONTRACTOR.

7.6.4. CAMERA INSPECTION

7.6.4.1. All gravity sewer mains and service laterals shall be camera inspected by a qualified third-party camera inspector. Camera inspections shall be witnessed by REGIONAL UTILITIES. Camera inspections performed by the contractor installing the pipe shall not be accepted if REGIONAL UTILITIES cannot witness.

7.6.4.1.1. Camera Inspection shall be scheduled with REGIONAL UTILITIES at least five working days prior to the inspection.

7.6.4.2. Camera inspection shall be just before final paving and after all underground utilities (conduit, gas mains) have been installed but prior to FDEP certification.

7.6.4.2.1. It is recommended that the CONTRACTOR perform a preliminary camera inspection immediately after installation to identify any issues and make repairs under the ENGINEER's direction. CONTRACTOR and ENGINEER shall consult with REGIONAL UTILITIES about any issues found in the preliminary inspection.

7.6.4.2.2. Gravity mains and laterals shall not contain bellies that hold more than ½-inch of water.

7.6.4.2.3. All joints and fittings shall have no leaks visible.

7.6.4.3. Contractor shall provide a color video, DVD format or USB Flash Drive, recording of all footage televised.

7.6.4.3.1. Video equipment used shall CLEARLY show all pipe and joints being inspected. Any pipe or fittings not clearly shown shall be rejected.

7.6.4.3.2. The speed of the camera shall not exceed 30-feet per minute.

7.6.4.4. Video equipment shall include on-screen character generation showing the following information.

7.6.4.4.1. Location of camera at all times, in reference to beginning manhole.

7.6.4.4.2. Location of entry manhole and sewer line being examined

7.6.4.4.3. Date of examination

7.6.4.5. Gravity mains and service laterals shall be jetted and clean from debris and mud prior to inspection.

7.6.4.6. Gravity mains shall be inspected upstream so that each joint can be clearly viewed.

7.6.4.7. Camera inspection shall require water to be introduced to the laterals and mains prior to the inspections to highlight deformities.

7.6.4.8. Water shall be added to the laterals and mains at least 2 hours but no more than 24 hours prior to inspection and must be witnessed by REGIONAL UTILITIES.

7.6.4.9. A minimum of 500 gallons shall be added to the main lines.

7.6.4.9.1. A minimum of 10 gallons shall be added to each lateral.

7.6.4.10. Upon completion, each section of sewer lines shall show a straight run, free of structural defects and joint misalignment between manholes.

7.6.4.10.1. At the beginning of each main inspection, a light shall be flashed from the next manhole back towards the camera for a minimum of 15 seconds to highlight any deformities.

7.6.4.11. Videos of gravity mains shall be labeled from manhole to manhole in accordance with the approved set construction plans. Video file names that are not properly labeled shall be rejected.

7.6.4.12. Videos of service laterals shall be labeled to match the approved set of construction plans. Video file names that are not properly labeled shall be rejected.

7.6.4.13. Camera operator shall supply a written report identifying any issues or certifying the system has passed inspection. Video submittals without written reports shall be rejected.

7.6.5. MANHOLE TESTING

7.6.5.1. REGIONAL UTILITIES will only accept a vacuum test after the manhole has been completely constructed and final pavement installed. It is recommended that the CONTRACTOR vacuum tests the structures prior to final pavement to check for issues, plugging pinholes and seams with non-shrinking mortar. Any deficiencies shall be repaired before the project will be accepted.

7.6.5.2. Brace the inlet and outlet pipes/plugs to prevent movement during the test. Use air inflated plugs in good condition.

7.6.5.3. The vacuum test shall be performed using equipment approved by the ENGINEER. The equipment shall be in good operating condition. No gauges are to have any broken glass or other visible abnormalities. The test shall be performed by trained personnel familiar with the equipment and the test.

7.6.5.4. The test shall have a minimum duration of two minutes (dependent on manhole depth, see 7.6.5.5 below. The vacuum shall be pumped down to 10 inches (250 mm) of mercury on an approved gauge, and held. At the time the removal of air is stopped, the test time shall begin.

7.6.5.5. Any manhole that has a vacuum drop to nine inches (225 mm) of mercury or less, within the following time intervals, shall have failed the test.

0 – 10 ft. deep: less than 2 minutes.

10 ft. – 15 ft. deep: less than 2-1/2 minutes.

15 ft. – 20 ft. deep: less than 3 minutes.

7.6.5.6. Manhole vacuum test shall be per ASTM C-1244.

7.6.6. **DEFLECTION TEST**

7.6.6.1. All PVC pipe shall be inspected for deflection.

7.6.6.2. Maximum allowable deflection shall be equal to 5%, or manufactures recommendations, whichever is less.

7.6.6.3. REGIONAL UTILITIES may require verification of compliance with this deflection test by requiring a mandrel at 95% of pipe inside diameter be pulled through the installed pipeline.

7.7. **WARRANTY**

7.7.1. CONTRACTOR shall provide a warranty on installation and workmanship for no less than one year from the date of FDEP certification.

7.8. **AS-BUILT SEWER PLANS**

7.8.1. CONTRACTOR shall provide as built plans to REGIONAL UTILITIES in accordance with Section 2.0 of this specification.

SECTION 8

SEWER - FORCE MAINS & APPURTENANCES

SECTION 8 – SEWER - FORCE MAINS AND APPURTENANCES

8.1. SCOPE

8.1.1. This section contains standard specifications for use in the design and construction of SEWAGE FORCE MAINS AND APPURTENANCES as required by REGIONAL UTILITIES.

8.1.2. CONTRACTOR shall furnish and install sewage force main piping system, valves and vents complete, tested and ready for operation.

8.2. GENERAL REQUIREMENTS:

8.2.1. All work shall be proved to be in first class condition and constructed properly in accordance with the drawings and the specifications.

8.2.2. CONTRACTOR shall submit to ENGINEER and REGIONAL UTILITIES for approval before work begins, certificates of inspections in triplicate from the pipe MANUFACTURER that the pipe and fittings supplied have been inspected at the plant and meet the requirements of these specifications.

8.2.3. All pipe and fittings shall be clearly marked with the name of the MANUFACTURER, the batch number, the location of the plant, strength designation and pressure rating.

8.2.4. It shall be the responsibility of CONTRACTOR to keep extra fittings on hand to make vertical and/or horizontal adjustments as a result of unknown interferences to avoid unnecessary delays to the project.

8.2.5. All defects and leaks disclosed by any test shall be remedied. All tests shall be performed by CONTRACTOR and observed by REGIONAL UTILITIES.

8.2.6. Water for testing shall be furnished by CONTRACTOR.

8.2.7. See Section 3 and 4 of this specification for "*Excavation and Backfill"* and "*Dewatering*."

8.2.8. All herein referenced standards shall be the latest edition or revision.

8.2.9. All material shall be free from defects impairing strength and durability and be of the best commercial quality for the purpose specified.

8.2.10. All valves shall be Dezurik Plug Valves, except tapping valves which shall be manufactured by American Flow Control.

8.2.11. All materials shall have structural properties sufficient to safely sustain or withstand strains and stresses to which it is normally subjected and be true to detail.

8.2.12. Unless otherwise indicated on the drawings, pipe materials for force main shall be as follows:

8.2.12.1. PVC Class 200, SDR 21 for pipes 2" up to 12" in diameter.

8.2.12.2. PVC DR 25, C905 165psi for pipes 14" in diameter and larger

8.2.12.3. Ductile iron fittings shall be used for PVC pipe 3 inches and larger.

8.2.12.3.1. 90-degree fittings shall not be used except in the lift station valve vault.

8.2.12.4. Solvent weld fittings shall be used for PVC pipe 2 inches and smaller.

8.2.13. The entire product of any MANUFACTURER or of any one plant may be rejected when, in the opinion of ENGINEER or REGIONAL UTILITIES, the methods of MANUFACTURER fail to secure uniform results acceptable to the requirements of these specifications

8.2.14. All pipe and fittings shall be subject to the inspection at time of delivery and also in the field just prior to installation.

8.2.15. All pipe and fittings which in the opinion of ENGINEER or REGIONAL UTILITIES do not conform to these specifications shall be rejected and shall be removed by CONTRACTOR.

8.2.15.1. Pipes crossing ditches, culverts, rivers, creeks, etc., shall be considered as buried pipe.

8.3. MATERIALS

8.3.1. MATERIAL SPECIFICATIONS

8.3.1.1. Pipe material shall be tested in and for conformity with the latest editions of the following:

ITEM	SPECIFICATIONS	NUMBER OF TEST
DUCTILE IRON PIPE AND FITTINGS	ANSI A21.50 (AWWA C150) ANSI A21.51 (AWWA C151) ANSI A21.10 (AWWA C110)	Sworn Statement
POLYVINYL	ASTM D-1598	Sworn Statement

CHLORIDE PIPE	ASTM D-1599 ASTM D-1784 ASTM D-2122 ASTM D-2241 ASTM D-2837 PS-22-70

8.3.2. **POLYVINYL CHLORIDE (PVC)**

8.3.2.1. Pipe shall be virgin Polyvinyl Chloride (PVC) pipe for and shall have a bell type coupling with a thickened wall section integral with the pipe barrel.

8.3.2.2. The pipe material shall be clean, virgin, NSF approved class 12454-0A or 12454-B PVC compound conforming to ASTM resin specification D-1784.

8.3.2.3. The pipe shall be tested at levels meeting the requirements of the U.S. department of commerce public standard 22-70, and shall conform to the physical standards and specifications of the plastic pipe institute.

8.3.2.4. The pipe shall be designed for a hydrostatic working pressure of 160 psi at 73.4 degrees Fahrenheit and to pass without failure sustained pressure of 340-psi minimum when tested in accordance with ASTM D-1598 and for a quick burst test of 500-psi minimum when tested in accordance with ASTM D-159a.

8.3.2.5. Pipe shall conform to ASTM D-2241-latest, for use in sizes 4 inches up to and including 12 inches in diameter.

8.3.2.6. The pipe shall be of the “bell ring” type.

8.3.2.7. Pipe shall be manufactured in I.P.S. (steel) standard pipe equivalent outside diameters.

8.3.2.8. Pipe shall be green in color.

8.3.3. **HIGH DENSITY POLYETHYLENE PIPE (HDPE)**

8.3.3.1. Pipe shall be DR11.

8.3.3.2. HDPE pipe for sewer force main use shall conform to AWWA C-901 (up to 3”) and AWWA C-906 (4” and larger).

8.3.3.3. HDPE pipe for force main system use shall be PE 3608 meeting cell classification PE445574C per ASTM D3035 and NSF 14.

8.3.3.4. Pipe shall be manufactured in accordance with ASTM F714 and shall be so marked.

8.3.3.5. All pipe joints shall be heat fused in accordance with the recommended procedures of the pipe MANUFACTURER and by a qualified heat fusing equipment operator. Refer to section 2 for requirements.

8.3.3.6. Transitions to other types of pipe shall be by fused end transitions.

8.3.3.7. Mechanical joint transitions with HDPE pipe stiffeners shall not be allowed.

8.3.3.8. All pipe shall be as manufactured by Performance Pipe or approved equal.

8.3.4. **DUCTILE IRON, CLASS 350**

8.3.4.1. Pipe shall be ductile iron manufactured in accordance with the requirements of ANSI.

8.3.4.2. Pipe shall be Protecto 401 ceramic epoxy coated inside and out.

8.3.4.3. Push-on joints and mechanical joints for such pipes shall be in accordance with ANSI/AWWA C111/A21.11.

8.3.4.4. Pipe shall be manufactured by American or written approved equal Class 350.

8.3.4.5. Fittings shall be ductile iron and in accordance with the requirements of ANSI/AWWA C153/A21.53, and ANSI/AWWA C110/A21.10.

8.3.4.6. Pipe fittings shall have seal coating, where applicable, in accordance with ANSI/AWWA C104/A21.4.

8.3.4.7. Mechanical joints shall conform to ANSI/AWWA C111/A21.11. .

8.3.5. **FITTINGS**

8.3.5.1. Ductile iron fittings and special castings shall conform to the type for pipe being installed and have a minimum working pressure of 350 psi.

8.3.5.2. Fittings shall conform to ANSI specification A21.10 (AWWA C110) latest.

8.3.5.3. Fittings shall be of DOMESTIC ORIGIN (American Made).

8.3.5.4. Short body pattern fittings shall normally be installed.

8.3.5.5. Long body fittings shall be used where the drawings specifically call for long body fittings or at the option of CONTRACTOR when the laying length is not controlled by short body patterns.

8.3.5.6. Fittings shall be mechanical joint fittings unless otherwise specified or indicated on the drawings.

8.3.5.7. Restraint type mechanical joint retainer glands shall be used on all mechanical joints. These shall be mega-lug restraints or approved equal.

8.3.5.8. Joint Restraints shall be used on all joints located in paved areas.

8.3.5.9. 90-degree fittings shall not be used except in the lift station wet well and valve vault.

8.3.6. **JOINTS**

8.3.6.1. PVC pipe joints shall be the manufacture's standard push-on bell type with rubber sealing ring installed in strict accordance with the pipe manufacture's recommendations.

8.3.6.2. Sealing rings shall be in conformance with ASTM F477.

8.3.6.3. All bolts, nuts, studs and other uncoated parts of joints for underground installation shall be 316 stainless steel.

8.3.7. **LININGS AND COATINGS**

8.3.7.1. All ductile iron pipe, fittings and specials for sewer use shall have an exterior coating of and shall be lined with Protecto 401 Ceramic Epoxy or equal.

8.4. **INSTALLATION**

8.4.1. Force mains shall be constructed of the materials specified and as shown on the drawings.

8.4.2. Pipe shall be laid with spigot ends pointing in the direction of flow.

8.4.3. Each section of pipe shall rest on the pipe bed for the full length of its barrel, with recesses excavated to accommodate bells and joints.

8.4.4. Any pipe which has its grade or joint disturbed after lying shall be taken up and relayed.

8.4.5. No pipe shall be laid when the trench conditions or weather is unsuitable for such work, except by permission by REGIONAL UTILITIES.

8.4.6. Pipe fittings shall be carefully handled to avoid damage, and if feasible while they are suspended over the trench before lowering they shall be inspected to detect defects and cracks.

8.4.7. Defective, damaged, or unsound pipe or fittings shall be rejected. Any section of pipe already laid, which is found to be defective or damaged, shall be replaced.

8.4.8. **SURVEYS AND GRADE STAKES:**

8.4.8.1. CONTRACTOR shall be responsible for setting grade stakes, lines, and levels.

8.4.8.2. CONTRACTOR or Contractor's surveyor shall provide centerline of construction and shall establish a benchmark.

8.4.8.3. Any reference points, points of intersections, property corners, or bench marks, which are disturbed during construction, shall be restored by a land surveyor registered to practice in the State of Florida, and all cost thereof shall be borne of CONTRACTOR.

8.4.8.4. CONTRACTOR shall assume all responsibility for the correctness of the grade and alignment stakes.

8.4.9. **PIPE BEDDING**

8.4.9.1. Pipe bedding shall be in accordance with Section 3.0 of this specification and REGIONAL UTILITIES Standard Pressure Sewer Detail Sheet S-1

8.4.10. **PIPE COVER**

8.4.10.1. The minimum cover over all piping shall not be less than 36 inches except where specifically shown on the construction drawings and approved by REGIONAL UTILITIES.

8.4.10.2. The maximum cover over all piping shall not be greater than 48 inches except where specifically shown on the construction drawings and approved by REGIONAL UTILITIES.

8.4.11. THRUST BLOCKING

8.4.11.1. Suitable concrete reaction or THRUST BLOCKING shall be applied on all pressure pipe lines (except for those having screwed or flanged joints) at all tees, plugs, caps, and at bends deflecting 22-1/2 degrees or more.

8.4.11.2. Concrete used for THRUST BLOCKS shall be 2,500-psi minimum.

8.4.11.3. Schedule and details for required thrust blocks are included on REGIONAL UTILITIES standard details and shall be required as part of the approved drawings.

8.4.11.4. All mechanical joint fittings shall have restraint type mechanical joint retainer glands.

8.4.12. TAPS

8.4.12.1. REGIONAL UTILITIES shall perform all taps greater than 2" in diameter.

8.4.12.2. CONTRACTOR shall perform all taps 2-inches diameter and less.

8.4.12.3. A representative of REGIONAL UTILITIES must be onsite prior to performing any and all taps.

8.4.12.4. CONTRACTOR shall provide at least five working days' notice to REGIONAL UTILITIES prior to performing the work.

8.4.12.5. At the time the line is to be tapped, it shall be the responsibility of CONTRACTOR to ensure that the tapping sleeve and valve is pressurized and can sustain the pressure test (See Section 8.6 for this specification).

8.4.12.6. In the event the line has not been tested prior to the arrival of REGIONAL UTILITIES at the job site, there shall be a $50.00 service charge added to the cost of the tap and the tap shall be rescheduled. Should CONTRACTOR prefer REGIONAL UTILITIES to remain on-site in preparation for the work, a service charge equal to $50.00 an hour shall apply so long as REGIONAL UTILITIES is on-site.

8.4.12.7. All taps EQUAL TO OR GREATER THAN 4" IN DIAMETER, irrespective of the diameter of the line to which you are tapping, shall consist of a single TAPPING SLEEVE and associated tapping valve.

8.4.12.7.1. The TAPPING SLEEVE and gland shall be Stainless Steel Wraparound "Fast Style", and shall be as manufactured by FORD METER CO. or APPROVED EQUAL and shall be furnished complete with all necessary accessories.

8.4.12.7.2. The TAPPING SLEEVE shall have a working pressure rating of 200 psi for sizes 4" through 12" and 150 psi for sizes 14"and larger, and shall conform to the applicable sections of AWWA Standard C110 of latest revision.

8.4.12.7.3. The TAPPING SLEEVE shall be of the split type for assembly on the pipe and the sleeve shall be sized for use with all classes of cast iron pipe.

8.4.12.7.4. The outlet flange shall be Class 125 Standard, with recess for standard tapping valves.

8.4.12.8. All taps 3-INCH AND SMALLER IN DIAMETER, irrespective of the diameter of the line to which you are tapping, shall consist of a single TAPPING SADDLE and associated corporation stop.

8.4.12.8.1. The TAPPING SADDLE shall be Fusion Bonded Epoxy Coated, and shall be an FS202 with a stainless steel as manufactured by FORD METER CO. or APPROVED EQUAL and shall be furnished complete with all necessary accessories.

8.4.12.9. The excavated area in which the tap shall be made must be a minimum of 4" below the bottom of the valve, at least seven feet in length and able to accommodate two people working.

8.4.12.10. The area where the tap shall be made must be completely dry. It is the responsibility of CONTRACTOR to pursue all means necessary to dewater the area in which the tap is to be made.

8.4.12.11. TAPPING VALVES shall meet all the requirements of Section 6.3.1 of this specification and shall be a mechanical joint outlet by tapping flange with a raised inner lip for alignment with the tapping sleeve.

8.4.13. **LOW PRESSURE SERVICE CONNECTIONS (2-INCH & LESS)**

8.4.13.1. Low pressure service connections shall conform to the detail as shown on REGIONAL UTILITIES' Standard Pressure Sewer Detail Sheet PS-1.

8.4.13.2. Each service shall be pressure/flow tested to check that the service operates normally.

8.5. **CLEANING AND FLUSHING**

8.5.1. Prior to pressure testing, all force mains shall be flushed out to remove air from the lines.

8.5.2. At the time of flushing the line CONTRACTOR shall be responsible for having a flush point opened and shall be responsible for where the water is to be dispersed.

8.6. **FIELD TESTING**

8.6.1. All piping to be operated under liquid pressure shall be tested in sections of approved length.

8.6.2. All field tests shall be made in the presence of ENGINEER and REGIONAL UTILITIES.

8.6.3. Pipelines laid in excavations other than trench excavations or pipelines embedded in concrete, shall be tested prior to backfilling of the excavated material or placing of the concrete.

8.6.4. Hydrostatic testing shall consist of a pressure test.

8.6.5. For this test, CONTRACTOR shall furnish clean water, suitable temporary testing plugs and other necessary equipment and all labor required.

8.6.5.1. In no case shall CONTRACTOR connect the force main to any water main to obtain water for testing.

8.6.5.2. Water may be obtained via a jumper meter with a RPZ and there shall be an AIR GAP between the two mains.

8.6.5.3. Water must be re-pumped from a holding tank into the force main so as to eliminate any cross-connection or potential backflow.

8.6.6. Pressure tests shall be of 2-hour duration at 120 psi, unless specified otherwise or notified in writing by REGIONAL UTILITIES.

8.6.7. Pressure tests shall be conducted with a pressure loss of not more than 2 psi regardless of length of pipe being tested.

8.6.8. The section of pipe to be tested shall be filled with water of approved quality and all air shall be expelled from the pipe. If hydrants, blow offs, or other outlets are not available at high points for releasing air, CONTRACTOR shall make the temporary taps at such points and shall plug said holes after completion of tests.

8.6.9. Specified test pressures shall be applied by means of a pump connected to the pipe in a manner satisfactory to REGIONAL UTILITIES.

8.6.10. The pump, pipe connection, and all necessary apparatus, including the proper gauges, shall be furnished by CONTRACTOR and shall be subject to the approval of ENGINEER and REGIONAL UTILITIES.

8.6.11. Pressure gauges shall be calibrated by an approved testing laboratory, with increments no greater than 2 psi.

8.6.12. Gauges used shall be of such size that pressures tested shall not register less than 10% nor more than 90% of the gauge capacity.

8.6.13. All exposed pipe, fittings, valves, hydrants, and joints shall be examined carefully during the test. Any damaged or defective pipe, fittings, valves, or hydrants that are discovered following the pressure test shall be repaired or replaced with sound material and the test shall be performed until it is satisfactory.

8.6.14. In the event a section fails to pass the test, CONTRACTOR shall do everything possible to locate, uncover (even to the extent of uncovering the entire section), and repair or replace the defective pipe, fitting, or joint.

8.6.15. Visible leaks shall be corrected regardless of test results.

8.6.16. Lines shall be repaired and retested as necessary until test requirements are achieved.

8.7. WARRANTY

8.7.1. CONTRACTOR shall provide a warranty on installation and workmanship for no less than one year from the date of FDEP certification.

SECTION 9

SEWER – NON-CLOG PUMP STATIONS

SECTION 9 – SEWER – NON-CLOG PUMP STATIONS

9.1. SCOPE

9.1.1. This section contains standard specifications for use in the design and construction of SUBMERSIBLE SEWAGE NON-CLOG PUMP STATIONS as required by REGIONAL UTILITIES.

9.1.2. CONTRACTOR shall furnish and install all WET WELLS, PUMPS, VALVES, ELECTRICAL COMPONENTS AND CONTROL PANELS and all other LABOR, TESTING AND EQUIPMENT necessary to complete an operational PUMP STATION.

9.2. GENERAL REQUIREMENTS:

9.2.1. All work shall be proved to be in first class condition and constructed properly in accordance with the drawings and the specifications.

9.2.2. CONTRACTOR shall submit to ENGINEER OF RECORD and REGIONAL UTILITIES for approval before work begins, certificates of inspections in triplicate from the SUBCONTRACTOR that the materials supplied have been inspected at the respective places of fabrication and meet the requirements of these specifications.

9.2.3. All materials including, but not limited to, concrete structures, pumps, pipes, valves, fittings, lids, panels and electrical equipment shall be clearly marked with the name of the MANUFACTURER, batch/serial number, strength/capacity designation and/or pressure rating.

9.2.4. It shall be the responsibility of CONTRACTOR to keep extra fittings on site to make vertical and/or horizontal adjustments as a result of unknown interferences so as to avoid any unnecessary delays to the project.

9.2.5. All defects and leaks disclosed by any test shall be remedied. All tests shall be performed by CONTRACTOR and observed by REGIONAL UTILITIES.

9.2.6. All SUBMERSIBLE PUMPS shall be manufactured by Wilo EMU

9.2.7. In order to insure proper performance and compatibility of interacting components within these specifications; all submersible pumps, control panels, access frames, guide rails, and lifting systems shall be the product of one MANUFACTURER or furnished by the SUBMERSIBLE NON-CLOG PUMP MANUFACTURER for sole source responsibility.

9.2.8. Water for testing shall be furnished by CONTRACTOR.

9.2.9. All hardware associated with the lift station shall be 316 stainless steel.

9.2.10. See Section 3.0 and 4.0 of this specification for "*Excavation and Backfill Procedures"* and "*Dewatering Procedures*."

9.2.11. All herein referenced standards shall be the latest edition or revision.

9.3. MATERIALS

9.3.1. WET WELL

9.3.1.1. All NON-CLOG PUMP STATIONS located in a public and/or FDOT Right-of-Way must be designed and constructed of reinforced concrete as per detail drawing LS-1.

9.3.1.2. Regional Utilities requires that all lift stations are constructed as per these specifications and detail drawing LS-1.

9.3.1.3. WET WELLS shall meet the latest requirements of ASTM C478 *Specification for Precast Reinforced Concrete Manhole Sections*.

9.3.1.4. Minimum wall thickness shall be seven inches.

9.3.1.5. Cement shall meet the latest requirements of ASTM C 150 *Specification for Portland Cement, TYPE II*.

9.3.1.6. Minimum concrete strength shall 4000 PSI at 28 days.

9.3.1.7. The required minimum strength of concrete shall be confirmed by making and testing four standard cylinders at seven (7) days and at (28) days. The test results shall be submitted to the ENGINEER prior to any manhole being installed.

9.3.1.8. Rings shall be custom made with openings to meet indicated pipe alignment conditions and invert elevations.

9.3.1.9. Openings shall be adequately sealed with water tight boots or approved non-shrinking grout, applied and cured in strict conformance with the MANUFACTURER's recommendations so that there shall be zero leakage around pipes and joints.

9.3.1.10. Approval of ENGINEER and REGIONAL UTILITIES shall be obtained before placing any order for manholes.

9.3.1.11. **BASES**

9.3.1.11.1. WET WELL BASES shall be cast integrally with the bottom manhole section.

9.3.1.11.2. The base section shall be set in a 12-inch leveling course of #4 or #57 stone with filter fabric above and below the stone, extending at least 12-inches outside the base.

9.3.1.11.3. In order to permit adjustment of the precast base section and insure full bearing on the leveling course, said section shall be placed just prior to initial set.

9.3.1.11.4. Wet well shall be installed in a properly de-watered environment.

9.3.1.12. **JOINTS**

9.3.1.12.1. Joint contact surfaces shall be formed with machine castings; they shall be exactly parallel with a 2-degree slope and nominal 1/16-inch clearance with the tongue equipped with a proper recess for the installation of an "o" ring rubber gasket, conforming to the latest edition of C443, Joints for Circular Concrete Sewer and Culvert Pipe Using Rubber Gasket or Pre-Molded Plastic Joint Sealer with Joints Pre-Primed.

9.3.1.12.2. Each joint shall be grouted on the inside with approved grouting materials.

9.3.1.13. **HATCH**

9.3.1.13.1. CONTRACTOR shall furnish and install one access door on wet well.

9.3.1.13.2. The access door shall be Type ASP300 as manufactured by U.S. Foundry and Manufacturing Corp., Miami, FL with the size being at least 48-inch x 36-inch.

9.3.1.13.3. Door leaf shall be .250" thick aluminum floor plate reinforced to 300 p.s.f. live load.

9.3.1.13.4. The access door shall be equipped with a flush aluminum drop handle which does not protrude above the cover and an automatic hold open arm with red vinyl grip on a release handle.

9.3.1.13.5. Hinges shall be all stainless steel with tamper-proof stainless-steel bolts and nuts, and be removable for maintenance after the access door is cast in place.

9.3.1.13.6. For security, the access door shall be equipped with a staple for padlock.

9.3.1.13.7. Access door shall be furnished with mill finish.

9.3.1.13.8. The frame shall be extruded aluminum with an integral anchor flange and seat.

9.3.1.14. **INTERIOR COATING**

9.3.1.14.1. Interior of the wet well shall be coated with 100 MIL of RAVEN 405 moisture tolerant blue epoxy resin.

9.3.1.14.2. Coating shall be applied by an authorized RAVEN applicator according to the manufacturer's specifications.

9.3.1.14.3. Wet well must be constructed in place and plumbed prior to coating.

9.3.1.15. **EXTERIOR COATING**

9.3.1.15.1. The exterior surface shall be given two (2) coats of KOP-COAT COAL TAR EPOXY 300-M, 9 MILS each.

9.3.1.15.2. The waterproofing materials shall be applied by brush or spray and in accordance with the instructions of the MANUFACTURER.

9.3.1.15.3. Time shall be allowed between each coat to permit sufficient drying so that the application of the second coat has no effect on the first coat.

9.3.1.15.4. The paint shall be applied at the place of fabrication.

9.3.1.15.5. Additional coating or touch up work shall be required after WET WELL installation if so directed by ENGINEER and/or REGIONAL UTILITIES.

9.3.1.16. All hardware associated with the lift station shall be 316 stainless steel.

9.3.2. **VALVE VAULTS**

9.3.2.1. Refer to section 9.3.1 for concrete specifications.

9.3.2.2. Valve Vault shall be coated inside and out with KOP-COAT COAL TAR EPOXY 300-M at (2) coats at 9 MILS each.

9.3.2.3. Valve vault shall use same type of hatch used for wet well.

9.3.2.4. Valve vault shall be sized accordingly to allow room for workers and tools.

9.3.3. **VALVES AND FITTINGS**

9.3.3.1. Refer to section 8 of this document and detail drawing LS-1 for specifications on valves and fittings.

9.3.4. **SUBMERSIBLE NON-CLOG PUMP**

9.3.4.1. All SUBMERSIBLE NON-CLOG PUMPS shall be *Wilo EMU Model FA Pumps*.

9.3.4.2. The NON-CLOG PUMPS shall be designed and constructed to pump sewage, storm water, sludge, and other water-based liquids without injurious damage during operation.

9.3.4.3. The NON-CLOG PUMPS shall be capable of passing 3-inch diameter solid non-deformable without clogging.

9.3.4.4. The NON-CLOG PUMPS shall be designed for continuous operation under submerged conditions without leakage to a depth of up to 65 feet.

9.3.4.5. The NON-CLOG PUMP design shall be such that the lifting cover, stator housing, and volute casing are constructed of ASTM A48, Class 30, gray cast iron.

9.3.4.5.1. The volute shall be of centerline discharge design and shall be fitted with ANSI 125 pound compatible discharge flange which shall be capable of withstanding 150% of the pump shutoff head in accordance with the Hydraulic Institute Standards.

9.3.4.5.2. The interfaces between the major castings shall be machined for metal contact and shall be additionally protected with circular cross section Buna-N O-rings.

9.3.4.5.3. All the nuts, bolts, washers and other fastening devices shall be constructed of type 316 stainless steel.

9.3.4.5.4. All exposed surfaces of the castings shall be coated with a single coat of PVC type varnish that is resistant to sewage.

9.3.4.6. The NON-CLOG PUMP impeller, both statically and dynamically balanced, shall be of double shrouded non-clog design having smooth surfaces and free from acute angles in the flow path.

9.3.4.6.1. The NON-CLOG PUMP impeller shall be constructed of ASTM A339 ductile cast iron.

9.3.4.6.2. The NON-CLOG PUMP impeller and volute both shall be equipped with AISI type 316 stainless steel wear rings that are heat treated to differing Brinell hardness to prevent friction welding.

9.3.4.6.3. Pump-out vanes shall be located on the backside of the NON-CLOG PUMP impeller to help reduce pressure on the lower mechanical seal.

9.3.5. **MOTOR**

9.3.5.1. The motor shall be designed with a service factor of 1.25 over and above the nameplate horsepower as standard.

9.3.5.2. The motor shall be warranted for ten (10) evenly spaced starts per hour when used with across the line starters, and unlimited starts per hour when used with variable frequency drives or soft start starters.

9.3.6. **PUMP GUIDE RAIL**

9.3.6.1. Furnish a minimum of one (1) GUIDE RAIL for each pump to permit raising and lowering.

9.3.6.1.1. The GUIDE RAIL shall be constructed of type 316L stainless steel that shall reach from the top of the base elbow to the upper guide rail holder on the access frame or on the vertical face of the concrete opening.

9.3.6.1.2. The single GUIDE RAIL system shall be supplied by the pump manufacturer.

9.3.6.1.3. GUIDE RAILS that are longer than 10 feet shall have a cross brace system installed for support.

9.3.7. PUMP POWER & CONTROL CABLES

9.3.7.1. The power supply shall be: 120/208/240 volt, DELTA 3 phase, 4 wire, 60 hertz for pumps up to 25 hp.

9.3.7.2. The power supply shall be 277/480 volt, 3 phase, wye, 60 hertz for pumps over 25 hp with soft starts.

9.3.7.3. Soft starts are acceptable for 20 hp pumps and larger.

9.3.7.4. The power and control cables shall enter the motor housing through an isolated chamber that is completely isolated from the oil filled stator chamber.

9.3.7.5. The Hypalon power and control cable jackets shall be sealed via a compressible Buna-N grommet flanked by washers forming the first isolation point of the assembly.

9.3.7.6. The cables shall be terminated on the individually o-ringed brass terminal lugs of the terminal board thereby sealing the cable entry chamber completely from the stator housing to the extent that any and all moisture that happens to find its way into the cable entry chamber is trapped there.

9.3.7.7. The terminal board is designed to short out in the event that moisture has found its way into the cable entry chamber thus signaling that the motor must have service without the costly complete overhaul that occurs with pumps that do not have isolated terminal boards.

9.3.8. PUMP POWER & CONTROL PANEL

9.3.8.1. Monitoring and control system to be designed to function with pumping units and to be factory wired and tested.

9.3.8.2. Primary control system shall be by RELAY LOGIC using Float Level Switches.

9.3.8.2.1. The FIRST LEVEL SWITCH (lowest) stops the lead pump and the lag pump if it is energized, when the level drops below this point, and triggers the alternator.

9.3.8.2.2. The SECOND LEVEL SWITCH (lead) starts one pump as the liquid rises to close this circuit. Which pump starts at this level is determined by the alternator.

9.3.8.2.3. The THIRD LEVEL SWITCH (lag) causes both pumps to run as the liquid level rises to this point.

9.3.8.2.4. The FOURTH LEVEL SWITCH (highest) illuminates the alarm indicator.

9.3.8.2.5.

9.3.8.3. ALL panels shall come constructed and pre-wired to use both RELAY LOGIC and a DATA FLOW telemetry unit if so desired.

9.3.8.4. Each panel shall be supplied with an electrical schematic permanently fastened to the inside of the enclosure door.

9.3.8.5. All internal wiring shall be neat and concealed in 1" x 2" tall white wire way.

9.3.8.5.1. Control wiring shall be red 14-gauge minimum.

9.3.8.5.2. Power shall be black 10-gauge minimum.

9.3.8.5.3. Neutral wiring shall be white.

9.3.8.5.4. Ground wiring shall be green.

9.3.8.5.5. Each wire shall terminate in screw or lug terminal connection.

9.3.8.6. Every panel shall be tested to perform as designed through the entire sequence of operation before it leaves the factory.

9.3.8.7. Every panel shall include a permanent sticker that is signed by the person who built, wired, and tested the panel.

9.3.8.8. <u>ENCLOSURE</u>

9.3.8.8.1. Shall be a NEMA 4X 316 stainless steel construction to provide protection against rain, sleet and snow.

9.3.8.8.2. Door shall be fastened securely with pad-lockable stainless steel draw latches, spring loaded for smoother action.

9.3.8.8.3. Standard size shall be 36" high x 24" wide and 10" deep unless larger panel is warranted by component sizes or heat generation considerations.

9.3.8.8.4. Control panel shall have an air gap installed by the manufacturer on the bottom of the panel. The air gap shall be constructed of 316 stainless steel or aluminum.

9.3.8.9. DEADFRONT

9.3.8.9.1. Shall be clear plexi-glass see through design to give operator visual inspection of panel without opening DEADFRONT or interrupting operation of pumping station.

9.3.8.10. ALARM SYSTEM

9.3.8.10.1. An ALARM SYSTEM shall be provided for all pumping stations.

9.3.8.10.2. The ALARM SYSTEM shall be activated in cases of power failure, high water elevation.

9.3.8.10.3. ALARM shall be 90 decibels in sound, with a silence push button.

9.3.8.10.4. ALARM shall be supplied with a battery back-up power system.

9.3.8.10.5. ALARMS for Large Collection Pumping Stations shall be telemetered, including identification of the alarm condition, to a municipal facility that is manned 24 hours a day. If such a facility is not available and 2-hour holding capacity is not provided, the alarm shall be telemetered to city offices during normal working hours and to the home of the person(s) in responsible charge of the lift station during off-duty hours.

9.3.8.10.6. Audio visual ALARM SYSTEMS with a self-contained power supply may be acceptable in some cases in lieu of the telemetering system outlined above, depending upon location, station holding capacity, and inspection frequency.

9.3.8.10.7. The ALARM LIGHT shall be a red XENON strobe light. The light shall be mounted on top of the enclosure with a neoprene gasket. The light shall be visible over all obstacles.

9.3.8.10.8. An AUDIBLE ALARM shall be provided in addition to the ALARM LIGHT.

9.3.8.10.9. ALARM LADDER DIAGRAM shall show, and construction shall be, that all the alarm conditions (phase failure, power failure, pump failure, high level or any case of pump station malfunction) engage the audible and visual alarm system. If telemetered, the telemetry shall report all the required alarm conditions.

9.3.8.11. SURGE SUPPRESSER

9.3.8.11.1. Shall be ASCO APT TE Series to operate up to 136,500-amp total peak surge current.

9.3.8.12. PHASE FAILURE RELAY

9.3.8.12.1. Shall be Time Mark Model NO. 257B, plug in and 8 pin design.

9.3.8.12.2. The relay shall provide against phase loss, phase reversal and low voltage. The relay shall cut control panel when a failure is detected.

9.3.8.13. TRANSFER SWITCH

9.3.8.13.1. Shall be mounted inside the control panel through the Lexan door.

9.3.8.13.2. Shall be rated for 100 amp or 200 amp (depending on horsepower) 3 pole, and rated for 600 volts.

9.3.8.13.3. Switch handle shall interlock with the Lexan door so that the door cannot be opened with the power on.

9.3.8.14. PUMP CONTROLS

9.3.8.14.1. Shall be by relay logic using a Time-Mark 2611-120 alternating relay for non-telemetered stations.

9.3.8.14.2. Shall be by DATA FLOW SYSTEMS controller with relay logic as backup for telemetered stations.

9.3.8.14.3. All panels shall come constructed and wired for both options.

9.3.8.15. GENERATOR RECEPTACLE

9.3.8.15.1. Shall be a Hubbell Pin and Sleeve type Model 4100R9W for 240-volt, 3 phase, and equivalent type for 460-volt, 3 phase.

9.3.8.15.2. Shall be weather proof and mounted on the exterior of the enclosure.

9.3.8.16. MOTOR CIRCUIT PROTECTORS

9.3.8.16.1. Shall be Square D Type FAL 100-amp frame or as required and provided for each pump for instantaneous trip on a short circuit fault.

9.3.8.17. MOTOR STARTERS

9.3.8.17.1. MOTOR STARTERS shall be Square D NEMA rated, sized to match each pump horsepower.

9.3.8.17.2. The overload shall be thermal melting alloy type. IEC rated starters shall not be accepted. Overloads shall not be adjustable or of the solid-state type.

9.3.8.17.3. Soft Start starters are required on pumps 20 horse power and larger.

9.3.8.18. ELAPSED TIME METERS

9.3.8.18.1. Shall be 6 digit non-re-settable.

9.3.8.18.2. The meters shall be mounted on the deadfront for each pump to record hours of operation.

9.3.8.19. GROUND FAULT INTERRUPTER

9.3.8.19.1. Shall be a 15A, 120-volt device provided for a convenience outlet to operate power tools.

9.3.8.19.2. The GFI shall be mounted on the deadfront and protected by a 1 pole, 15A circuit breaker mounted on the back plate.

9.3.8.20. TRANSFORMER

9.3.8.20.1. Shall be a 1 KVA, 460/240 – 120-volt, 1 phase.

9.3.8.20.2. The transformer shall provide all 120-volt power to operate the control circuit and the GFI.

9.4. INSTALLATION

9.4.1. Each PUMP shall be supplied with a universal COUPLING constructed of ASTM A48, Class 309 gray cast iron which bolts to the pump discharge flange.

9.4.1.1. The COUPLING shall be capable of sliding down the pump guide rail and attaching to the base DISCHARGE ELBOW that shall be also constructed of ASTM A48, Class 30 gray cast iron so that no personnel entry into the wet pit is required to connect the pump coupling to the DISCHARGE ELBOW.

9.4.2. The pump SEAL to the elbow shall be accomplished by the cantilevered effect of the COUPLING being suspended by the rounded fit on top of the DISCHARGE ELBOW.

9.4.2.1. The effect shall be such that sealing forces of the COUPLING to DISCHARGE ELBOW are 1.5 times higher than the weight of the pump and coupling alone.

9.4.2.2. The cantilever effect also requires that no part of the PUMP rest directly on the floor of the sump to obstruct flow into the suction eye of the pump.

9.4.3. The SEAL at the COUPLING to DISCHARGE ELBOW interface shall be made by a replaceable Buna-N sealing rubber.

9.4.3.1. Machined metal-to-metal sealing surface is not considered an equal and is not acceptable.

9.4.3.2. The SEAL rubber shall be constructed so that it comprises the flat gasket between the PUMP and COUPLING and the seal at the COUPLING to DISCHARGE ELBOW connection.

9.4.3.3. This sealing system must guarantee a positive leak proof seal in the wet pit PUMP installation.

9.5. FIELD TESTING

9.5.1. Each pump and motor shall be given the following tests at the factory prior to shipment:

9.5.1.1. The mechanical and electrical integrity of the pump shall be established by the use of physical inspection and the use of a megger of verification of the stator resistance to short circuit.

9.5.1.2. The power leads shall be connected to the motor in accordance to the jobsite voltage and the pump started to verify rotation and no-load amp readings.

9.5.1.3. Any undue noise or vibration shall be cause for discontinuing the test and further investigation.

9.5.1.4. If requested, the pump shall be installed in the test tank on a wet pit discharge elbow and complete hydraulic tests conducted.

9.5.1.5. The KW input, power factor, flowrate and head shall be measured and recorded.

9.5.1.6. The pump shall be operated at the duty point for the project and checked for compliance with Hydraulic Institute Standards prior to being certified.

9.5.1.7. The pump shall then be removed and given a physical inspection and additional megger insulation test to verify the mechanical and electrical integrity.

9.5.1.8. Copies of hydraulic test results are maintained at the factory and supplied when requested.

9.6. PUMP WARRANTY

9.6.1. The MANUFACTURER shall WARRANT the pump to be supplied to the OWNER for a period of five (5) years under normal use.

9.6.2. The WARRANTY includes 100% coverage for the parts and labor for the first year and then 50% coverage for the second to the fifth year.

9.6.3. This WARRANTY shall not be limited by duty cycle or hours of running time.

9.6.4. The applicable WARRANTY shall be in preprinted form and shall be a part of these specifications.

SECTION 10

SEWER - GRINDER PUMP STATIONS

SECTION 10 – SEWER - GRINDER PUMP STATIONS

10.1. SCOPE

10.1.1. This section contains standard specifications for use in the design and construction of SUBMERSIBLE SEWAGE GRINDER PUMP STATIONS as required by REGIONAL UTILITIES.

10.1.2. CONTRACTOR shall furnish and install WET PITS, PUMPS, VALVES, and ELECTRICAL CONTROL PANELS complete, tested and ready for operation.

10.1.3. GRINDER PUMPS are defined as centrifugal submersible pumps designed to reduce material found in normal domestic and light industrial sewage into a finely ground slurry.

10.1.3.1. The slurry produced by a GRINDER PUMP is then pumped through small diameter piping into a gravity interceptor or wastewater treatment facility.

10.1.3.2. The temperature of the liquid being pumped is 104 degrees F continuous, 160 degrees F intermittent and shall be capable of running dry for extended periods.

10.2. GENERAL REQUIREMENTS

10.2.1. All GRINDER PUMPS shall be Barnes SGV Double Seal, Oil Filled Motor, 3 phase grinder pumps .

10.2.2. All work shall be proved to be in first class condition and constructed properly in accordance with the drawings and the specifications.

10.2.3. CONTRACTOR shall submit to ENGINEER OF RECORD and REGIONAL UTILITIES for approval before work begins, certificates of inspections in triplicate from the SUBCONTRACTOR that the materials supplied have been inspected at the respective places of fabrication and meet the requirements of these specifications.

10.2.4. All materials including, but not limited to, concrete structures, pumps, pipes, valves, fittings, lids, panels and electrical equipment shall be clearly marked with the name of the MANUFACTURER, batch/serial number, strength/capacity designation and/or pressure rating.

10.2.5. It shall be the responsibility of CONTRACTOR to keep extra fittings on site to make vertical and/or horizontal adjustments as a result of unknown interferences so as to avoid any unnecessary delays to the project.

10.2.6. All defects and leaks disclosed by any test shall be remedied. All tests shall be performed by CONTRACTOR and observed by REGIONAL UTILITIES.

10.2.7. In order to insure proper performance and compatibility of interacting components within these specifications; all submersible pumps, control panels, access frames, guide rails, and lifting systems shall be the product of one MANUFACTURER or furnished by the GRINDER PUMP MANUFACTURER for sole source responsibility.

10.2.8. Water for testing shall be furnished by CONTRACTOR.

10.2.9. See Section 3 and 4 of this specification for "*Excavation and Backfill"* and "*Dewatering*."

10.2.10. All herein referenced standards shall be the latest edition or revision.

10.3. MATERIALS

10.3.1. WET WELL

10.3.1.1. All GRINDER PUMP STATIONS located in a public and/or FDOT Right-of-Way must be designed and constructed of reinforced concrete as per detail drawing GS-1.

10.3.1.2. Regional Utilities requires that all GRINDER PUMP STATIONS are constructed as per these specifications and detail drawing GS-1.

10.3.1.3. WET WELLS shall meet the latest requirements of ASTM C478 *Specification for Precast Reinforced Concrete Manhole Sections*.

10.3.1.4. Minimum wall thickness shall be seven inches.

10.3.1.5. Cement shall meet the latest requirements of ASTM C 150 *Specification for Portland Cement, TYPE II*.

10.3.1.6. Minimum concrete strength shall 4000 PSI at 28 days.

10.3.1.7. The required minimum strength of concrete shall be confirmed by making and testing four standard cylinders at seven (7) days and at (28) days. The test results shall be submitted to the ENGINEER prior to any manhole being installed.

10.3.1.8. Rings shall be custom made with openings to meet indicated pipe alignment conditions and invert elevations.

10.3.1.9. Openings shall be adequately sealed with water tight boots or approved non-shrinking grout, applied and cured in strict conformance with the MANUFACTURER's recommendations so that there shall be zero leakage around pipes and joints.

10.3.1.10. Approval of ENGINEER and REGIONAL UTILITIES shall be obtained before placing any order for manholes.

10.3.1.11. **BASES**

10.3.1.11.1. WET WELL BASES shall be cast integrally with the bottom manhole section.

10.3.1.11.2. The base section shall be set in a 12-inch leveling course of #4 or #57 stone with filter fabric above and below the stone, extending at least 12-inches outside the base.

10.3.1.11.3. In order to permit adjustment of the precast base section and insure full bearing on the leveling course, said section shall be placed just prior to initial set.

10.3.1.12. **JOINTS**

10.3.1.12.1. Joint contact surfaces shall be formed with machine castings; they shall be exactly parallel with a 2-degree slope and nominal 1/16-inch clearance with the tongue equipped with a proper recess for the installation of an "o" ring rubber gasket, conforming to the latest edition of C443, Joints for Circular Concrete Sewer and Culvert Pipe Using Rubber Gasket or Pre-Molded Plastic Joint Sealer with Joints Pre-Primed.

10.3.1.12.2. Each joint shall be grouted on the inside with approved grouting materials.

10.3.1.13. **INTERIOR/EXTERIOR COATING**

10.3.1.13.1. The interior and exterior surface shall be given two (2) coats of KOP-COAT COAL TAR EPOXY 300-M, 9 MILS each.

10.3.1.14. **HATCH**

10.3.1.14.1. CONTRACTOR shall furnish and install one access door on wet well.

10.3.1.14.2. The access door shall be Type ASP300 as manufactured by U.S. Foundry and Manufacturing Corp., with the size being 36" X 36" and an actual opening of 32" X 35".

10.3.1.14.3. Door leaf shall be .250" thick aluminum floor plate reinforced to 300 PSF live load.

10.3.1.14.4. The access door shall be equipped with a flush aluminum drop handle which does not protrude above the cover and an automatic hold open arm with red vinyl grip on a release handle.

10.3.1.14.5. Hinges shall be all stainless steel with tamper-proof stainless steel bolts and nuts, and be removable for maintenance after the access door is cast in place.

10.3.1.14.6. For security, the access door shall be equipped with a staple for padlock.

10.3.1.14.7. Access door shall be furnished with mill finish.

10.3.1.14.8. The frame shall be extruded aluminum with an integral anchor flange and seat.

10.3.2. VALVE VAULT

10.3.2.1. Refer to section 10.3.1 for concrete specifications.

10.3.2.2. Valve Vault shall be coated inside and out with KOP-COAT COAL TAR EPOXY 300-M at (2) coats at 9 MILS each.

10.3.2.3. Valve vault shall use same type of hatch specified for wet well.

10.3.2.4. Valve vault shall be sized accordingly to allow room for workers and tools.

10.3.3. VALVES AND FITTINGS

10.3.3.1. Refer to detail drawing GS-1 for specifications on valves and fittings.

10.3.4. SUBMERSIBLE GRINDER PUMP

10.3.4.1. The volute, seal plates, impeller and motor housing shall be constructed of high quality ASTM 48 Class 30 cast iron.

10.3.4.2. Pump(s) shall be painted with a water based air-dry enamel of 2.0 mil minimum thickness.

10.3.4.3. All exposed hardware shall be 300 series stainless steel.

10.3.4.4. The pump construction shall contain no points of critical clearance nor require periodic adjustment or replacement to maintain reasonable operating efficiency.

10.3.4.5. Discharge connection shall be a standard 2" NPT in the vertical position. All gaskets shall be of the compression square ring type eliminating critical slip fits and the possibility of damage during service associated with sliding "O"-Ring sealing arrangements.

10.3.4.6. The impeller shall be of the recessed vortex design.

10.3.4.7. Pumps with standard centrifugal semi open impeller designs shall not be acceptable.

10.3.4.8. The impeller shall be of 85-5-5-5 bronze construction and machined for threading to the motor shaft. The impeller shall be capable of being trimmed to meet specific performance characteristics.

10.3.4.9. The grinder mechanism shall consist of a radial cutter threaded and locked on the motor shaft by a washer in conjunction with a countersunk flat head cap screw, and a shredding ring containing a minimum of fifteen flow passages with cutting edges.

10.3.4.10. The shredding ring shall be reversible to provide twice the cutting edge life. Both the shredding ring and radial cutter shall be of 440C stainless steel hardened to a minimum of Rockwell C55 and shall be finish ground for a fine cutting edge.

10.3.4.11. Two stage cutter mechanisms requiring external adjustment for proper clearance are not acceptable.

10.3.4.12. The unit shall utilize a tandem mechanical shaft seal arrangement and shall operate in an oil atmosphere.

10.3.4.13. The seal shall be commercially available and not a proprietary design of the MANUFACTURER.

10.3.4.14. The materials of construction shall be carbon for the rotating face and ceramic for the stationary face, lapped and polished to a tolerance of one light band, 300 series stainless steel hardware, and all elastomer parts to be Buna-N.

10.3.4.15. The pump shall have a three bearing design consisting of an upper ball bearing, an intermediate ball bearing restrained for the purpose of carrying the thrust loads, and a lower bronze sleeve bearing to carry radial loads and prevent shaft deflection imposed by the pump impeller and grinder operation.

10.3.4.16. Bearings shall operate in an oil bath atmosphere for superior life.

10.3.4.17. Permanently lubricated bearings are not acceptable.

10.3.5. **PUMP MOTOR**

10.3.5.1. The pump shall be designed to be non-overloading throughout the entire pump curve.

10.3.5.2. Three phase motors shall be of the dual voltage 230/460 design.

10.3.5.3. Motor designs incorporating shrink or press fit assembly between the stator and motor housing shall not be acceptable.

10.3.5.4. The rotor and stator assembly shall be of the standard frame design and secured to the pump seal plate by four threaded fasteners allowing for easy serviceability.

10.3.5.5. The motor shall be constructed with the windings operating in a sealed environment containing clean dielectric oil, making it capable of operating in a totally, partially or non-submerged condition for extended periods of time without damage to the heat being generated.

10.3.5.6. Air filled motors shall not be acceptable.

10.3.5.7. The motor windings shall be Class B insulation.

10.3.5.8. The motor shall meet the standard NEMA design B for three phase. The motor shaft shall be of 416 stainless steel.

10.3.5.9. Protection against excessive temperature shall be provided by a heat sensor thermostat attached to the stator windings and connected in series with the contactor coil in the control panel.

10.3.6. **PUMP GUIDE RAIL**

10.3.6.1. The guide rail assemblies shall consist of 316 stainless steel upper guide rail brackets and pump guide brackets with the slide rail assemblies of 11 gauge 316 stainless steel.

10.3.6.2. The stationary and moveable portions of the hydraulically sealed discharge coupling assemblies shall be machined cast iron.

10.3.6.3. The upper guide rail bracket(s) shall mount to the basin cover and position the lower end of the guide rail.

10.3.6.4. The stainless steel rail shall support the pump at a distance of four (4) inches from the basin floor to provide unrestricted flow of material into the pump.

10.3.6.5. Stainless steel guide brackets shall be attached to the pump for positioning of the unit on the guide rail during installation or removal of the unit within the basin.

10.3.7. **PUMP POWER & CONTROL CABLES**

10.3.7.1. Pump power supply shall be 120/208/240 Volts, DELTA 3 Phase, 4 Wire, 60 Hertz.

10.3.7.2. The pump shall be equipped with 25 feet of type S spliced power cable, and 25 feet of sensor cable type SO.

10.3.7.3. All incoming lead wires shall be spliced in the motor terminal housing.

10.3.7.4. After splicing, the terminal housing shall be filled with epoxy to seal the outer cable jacket and the individual strands to prevent water from entering the motor housing.

10.3.7.5. A secondary rubber pressure grommet shall be provided as an additional sealing point and strain relief at the point of cable entry.

10.3.8. **PUMP POWER & CONTROL PANEL**

10.3.8.1. Monitoring and control system to be designed to function with pumping units and to be factory wired and tested.

10.3.8.2. Primary control system shall be by RELAY LOGIC using Float Level Switches.

10.3.8.2.1. The FIRST LEVEL SWITCH (lowest) stops the lead pump and the lag pump if it is energized, when the level drops below this point, and triggers the alternator.

10.3.8.2.2. The SECOND LEVEL SWITCH (lead) starts one pump as the liquid rises to close this circuit. Which pump starts at this level is determined by the alternator.

10.3.8.2.3. The THIRD LEVEL SWITCH (lag) causes both pumps to run as the liquid level rises to this point.

10.3.8.2.4. The FOURTH LEVEL SWITCH (highest) illuminates the alarm indicator.

10.3.8.2.5.

10.3.8.3. ALL panels shall come constructed and pre-wired to use both RELAY LOGIC and a DATA FLOW telemetry unit if so desired.

10.3.8.4. Each panel shall be supplied with an electrical schematic permanently fastened to the inside of the enclosure door.

10.3.8.5. All internal wiring shall be neat and concealed in 1" x 2" tall white wire way.

10.3.8.5.1. Control wiring shall be red 14-gauge minimum.

10.3.8.5.2. Power shall be black 10-gauge minimum.

10.3.8.5.3. Neutral wiring shall be white.

10.3.8.5.4. Ground wiring shall be green.

10.3.8.5.5. Each wire shall terminate in screw or lug terminal connection.

10.3.8.6. Every panel shall be tested to perform as designed through the entire sequence of operation before it leaves the factory.

10.3.8.7. Every panel shall include a permanent sticker that is signed by the person who built, wired, and tested the panel.

10.3.8.8. <u>ENCLOSURE</u>

10.3.8.8.1. Shall be a NEMA 4X 316 stainless steel construction to provide protection against rain, sleet and snow.

10.3.8.8.2. Door shall be fastened securely with pad-lockable stainless steel draw latches, spring loaded for smoother action.

10.3.8.8.3. Standard size shall be 36" high x 24" wide and 10" deep unless larger panel is warranted by component sizes or heat generation considerations.

10.3.8.8.4. Control panel shall have an air gap installed by the manufacturer and fastened to the bottom of the panel. The air gap shall be constructed of 316 stainless steel or aluminum.

10.3.8.9. DEADFRONT

10.3.8.9.1. Shall be clear plexi-glass see through design to give operator visual inspection of panel without opening DEADFRONT or interrupting operation of pumping station.

10.3.8.10. ALARM SYSTEM

10.3.8.10.1. An ALARM SYSTEM shall be provided for all pumping stations.

10.3.8.10.2. The Alarm system shall be activated in cases of power failure, high water level, or any cause of pump station malfunction.

10.3.8.10.3. Alarm shall be 90 decibels in sound, with a silence push button.

10.3.8.10.4. Alarm shall be supplied with a battery back-up power system.

10.3.8.10.5. ALARMS for stations in environmentally critical areas shall be telemetered, including identification of the alarm condition, to a municipal facility that is manned 24 hours a day. If such a facility is not available and 2-hour holding capacity is not provided, the alarm shall be telemetered to REGIONAL UTILITIES' offices during normal working hours and to the home of the person(s) in responsible charge of the lift station during NON-Business hours.

10.3.8.10.6. Audio visual Alarm systems with a self-contained power supply may be acceptable in some cases in lieu of the telemetering system outlined above, depending upon location, station holding capacity, and inspection frequency.

10.3.8.10.7. The Alarm Light shall be a red XENON strobe and shall be mounted on top of the enclosure with a neoprene gasket. Light shall be visible over all obstacles.

10.3.8.10.8. The audible Alarm shall be provided in addition to the alarm light.

10.3.8.10.9. ALARM Ladder diagram shall show, and construction shall be, that all the alarm conditions (phase failure, power failure, pump failure, high water lever or any cause of pump station malfunction) engage the audible and visual alarm system. If telemetered, the telemetry shall report all the required alarm conditions.

10.3.8.11. SURGE SUPPRESSER

10.3.8.11.1. Shall be ASCO APT TE Series, to operate up to 136,500 amp total peak surge current.

10.3.8.12. PHASE FAILURE RELAY

10.3.8.12.1. Shall be Time Mark Model NO. 257B, plug in and 8 pin design.

10.3.8.12.2. The relay shall provide against phase loss, phase reversal and low voltage.

10.3.8.13. TRANSFER SWITCH

10.3.8.13.1. Shall be mounted inside the control panel through the Lexan door.

10.3.8.13.2. Shall be rated for 100 amp or 200 amp (depending on horsepower) 3 pole, and rated for 600 volts.

10.3.8.13.3. Switch handle shall interlock with the Lexan door so that the door cannot be opened with the power on.

10.3.8.14. PUMP CONTROLS

10.3.8.14.1. Shall be by relay logic using a Time-Mark 2611-120 alternating relay.

10.3.8.15. GENERATOR RECEPTACLE

10.3.8.15.1. Shall be a Hubbell Pin and Sleeve type Model 4100R9W for 240-volt, 3 phase and rated at 100 Amps.

10.3.8.15.2. Shall be weather proof and mounted on the exterior of the enclosure.

10.3.8.16. MOTOR CIRCUIT PROTECTORS

10.3.8.16.1. Shall be Square D Type FAL 100-amp frame or as required and provided for each pump for instantaneous trip on a short circuit fault.

10.3.8.17. MOTOR STARTERS

10.3.8.17.1. MOTOR STARTERS shall be Square D NEMA rated, sized to match each pump horsepower.

10.3.8.17.2. The overload shall be thermal melting alloy type. IEC rated starters shall not be accepted.

10.3.8.18. ELAPSED TIME METERS

10.3.8.18.1. Shall be 6 digit non-re-settable.

10.3.8.18.2. The meters shall be mounted on the dead front for each pump to record hours of operation.

10.3.8.19. GROUND FAULT INTERRUPTER

10.3.8.19.1. Shall be a 15A, 120-volt device provided for a convenience outlet to operate power tools.

10.3.8.19.2. The GFI shall be mounted on the dead front and protected by a 1 pole, 15A circuit breaker mounted on the back plate.

10.3.8.20. TRANSFORMER

10.3.8.20.1. Shall be a 1 KVA, 460/240 – 120-volt, 1 phase.

10.3.8.20.2. The transformer shall provide all 120-volt power to operate the control circuit and the GFI.

10.4. INSTALLATION

10.4.1. The stationary fitting shall have a Neoprene diaphragm clamped between the stainless steel rail and the stationary cast iron discharge.

10.4.2. The cast iron moveable fitting, when in position, shall be held against the stationary fitting by the construction of the stainless steel rail, aligning the movable fitting to the flexible diaphragm for proper sealing of the two surfaces under pressure.

10.4.3. The flexible diaphragm shall also serve as an anti-siphon device. A stainless steel lifting cable with a minimum breaking strength of 2100 pounds shall be provided for pump installation and removal.

10.4.4. The discharge piping shall consist of 2 inch Schedule 40 stainless steel pipe. A ball check valve shall be installed in the vertical position between the pump discharge and the moveable fitting.

10.4.5. Each valve shall be 2 inches in size and shall consist of three major components; body, access plug, and ball.

10.4.6. The design of the valve shall be such that it keeps solids, stringy material, grit, rags, etc. moving without the need for back flushing.

10.4.7. In the operating mode, the ball shall not impede flow through the valve.

10.4.8. The operating flow area shall be equal to the nominal size of the valve. The ball shall clear the waterway providing "full flow" equal to the nominal size. It shall be non-clog design.

10.4.9. There shall not be outside levers, weights, springs, dashpots or other accessories required for a swing (clapper) type check valve.

10.4.10. The ball shall be natural rubber and be resistant to material normally found in sewage. The body and access plug shall be gray cast iron, ASTM Class 30. All fasteners shall be stainless steel. Inlet and outlet ports shall be 2 inch NPT threaded.

10.4.11. A 2-inch brass true union ball valve shall be installed in the discharge piping of each pump to provide shut-off capabilities during pump removal. Each valve shall be mounted in a separate valve box adjacent to the wet well for ease of access and maintenance.

10.5. TESTING

10.5.1. The pump MANUFACTURER shall perform the following inspections and tests in accordance with the Hydraulic Institute Type B standards before shipment from the factory:

10.5.2. A check of the motor voltage and frequency shall be made as shown on the nameplate.

10.5.3. A motor and cable insulation test for moisture content or insulation defects shall be made per UL criteria.

10.5.4. The pump shall be completely submerged and run to determine that the unit meets pre-determined hydraulic performance points.

10.5.5. A written report shall be available showing the aforementioned tests have been performed in accordance with the specifications.

10.5.6. The pump(s) shall be tested by a qualified representative of the MANUFACTURER, and shall be inspected and approved by Regional Utilities.

10.6. WARRANTY

10.6.1. The MANUFACTURER shall WARRANT the pump to be supplied to the OWNER for a period of five (5) years under normal use.

10.6.2. The WARRANTY includes 100% coverage for the parts and labor for the first year and then 50% coverage for the second to the fifth year.

10.6.3. This WARRANTY shall not be limited by duty cycle or hours of running time.

10.6.4. The applicable WARRANTY shall be in preprinted form and shall be a part of these specifications.

APPENDIX

APPENDIX A – AS-BUILT LAYERS & LINE TYPES

Layer Name	Color	Linetype	Lineweight	Description	Type
ADDRESS-TXT	7	CONTINUOUS	0.25	STREET POSTAL ADDRESS NUMBER	TEXT
BLDG-IDEN	7	CONTINUOUS	0.25	BUILDING IDENTIFICATION	TEXT
BLDG-OTLN	7	CONTINUOUS	0.18	BUILDING OUTLINE	POLYGON
BLOCK-IDEN-TXT	3	CONTINUOUS	0.25	SUBDIVISION BLOCK IDENTIFICATION	TEXT
BORE	7	CONTINUOUS	0.15	BORE LOCATION	POLYGON
BORE-TXT	7	CONTINUOUS	0.25	TEXT ASSOCIATED WITH BORE	TEXT
BOUND-EASE	11	PHANTOM2	0.18	BOUNDARY LINE OF EASEMENTS	POLYGON
BOUND-EASE-TXT	7	CONTINUOUS	0.25	TEXT ASSOCIATED WITH EASEMENTS	TEXT
BOUND-FENCE-WALL	20	CONTINUOUS	0.13	FENCES, RETAINING WALLS, GUARDRAILS, ETC.	POLYLINE
BOUND-FENCE-TXT	20	CONTINUOUS	0.25	TEXT ASSOCIATED WITH FENCES, RETAINING WALLS, GUARDRAILS, ETC.	TEXT
BOUND-LOT-LINE	84	PHANTOM2	0.18	LOT LINES WITHIN AND ASSOCIATED TO PROJECT	TEXT
BOUND-LOT-LINE-TXT	3	CONTINUOUS	0.25	LOT IDENTIFICATION	TEXT
BOUND-PROJECT	1	PHANTOM2	0.20	OVERALL BOUNDARY OF PROJECT	POLYGON
BOUND-PROJECT-TXT	1	PHANTOM2	0.25	TEXT ASSOCIATED WITH BOUNDARY OF PROJECT	TEXT
C-ANNO-PATT	9	CONTINUOUS	0.13	HATCH PATTERNS	INSERT
C-ANNO-TXT	3	CONTINUOUS	0.25	MISCELLANEOUS TEXT	TEXT
DEFPOINTS	7	CONTINUOUS	0.00	DEFPOINTS	
G-ANNO-LOGO	7	CONTINUOUS	0.20	COMPANY LOGO	INSERT
G-ANNO-NOTE	2	CONTINUOUS	0.25	TEXT FOR TITLE BLOCK FOR PROJECT	TEXT
G-ANNO-TTLB	6	CONTINUOUS	0.80	TITLE BOCKS	INSERT
G-ANNO-TEXT	2	CONTINUOUS	0.18	TEXT ASSOCIATED WITH TITLE BLOCKS	TEXT
G-LAYOUT	2	CONTINUOUS	0.00	VIEWPORT IN PAPER SPACE	
HYDRANT	152	CONTINUOUS	0.25	HYDRANTS (FLUSH, FIRE, ETC.)	INSERT
HYDRANT-TXT	152	CONTINUOUS	0.25	TEXT ASSOCIATED WITH HYDRANTS	TEXT
HYDRO-SHORELINE	5	DIVIDE2	0.18	SHORELINES OF LAKES, STREAMS, PONDS, ETC.	POLYGON
HYDRO-TXT	7	CONTINUOUS	0.25	TEXT ASSOCIATED WITH WATER BODIES	TEXT
PLSS-SECTION	4	DASHED	0.25	SECTION LINES AND INDENTIFICATION	POLYLINE AND TEXT
PLSS-TOWNSHIP-RANGE	143	PHANTOM	0.20	TOWNSHIP AND RANGE LINES INCLUDING TEXT	POLYLINE AND TEXT
RECLAIM-WATER-FITINGS	211	CONTINUOUS	0.30	RECLAIM WATER END CAPS, BENDS, REDUCERS, ETC.	INSERT
RECLAIM-WATER-FITTINGS-TXT	211	CONTINUOUS	0.25	TEXT ASSOCIATED WITH RECLAIM WATER LINE FITTINGS	TEXT
RECLAIM-WATER	211	CONTINUOUS	0.40	RECLAIM WATER MAIN LINES	POLYLINE

RECLAIM-WATER-TXT	211	CONTINUOUS	0.25	TEXT ASSOCIATED TO RECLAIM WATER MAIN LINES	POLYLINE
RECLAIM-WATER-VALVE	211	CONTINUOUS	0.30	RECLAIM WATER VAVLES	INSERT
RECLAIM-WATER-VAVLE-TXT	211	CONTINUOUS	0.25	TEXT ASSOCIATED WITH RECLAIM WATER VALVES	TEXT
ROAD-CENTER	12	CENTER2	0.15	ROAD CENTERLINES	POLYLINE
ROAD-CURB	95	CONTINUOUS	0.15	BACK AND FACE OF CURB	POLYLINE
ROAD-DRIVEWAY	8	CONTINUOUS	0.13	DRIVEWAYS AND IDENTIFICATION	POLYGON
ROAD-EOP	2	CONTINUOUS	0.13	EDGE OF ROAD SURFACES	POLYGON
ROAD-EOP-TXT	2	CONTINUOUS	0.25	TEXT ASSOCIATED TO ROAD SURFACE	TEXT
ROAD-ROW	3	PHANTOM2	0.13	ROAD RIGHT OF WAYS	POLYGON
ROAD-ROW-TXT	7	CONTINUOUS	0.25	TEXT ASSOCIATED TO ROAD RIGHT OF WAYS	TEXT
ROAD-SIDEWALK-DECK	7	CONTINUOUS	0.13	SIDEWALKS, DECKS, WALKWAYS, ETC.	POLYLINE
ROAD-TXT	1	CONTINUOUS	0.25	ROAD NAMES	TEXT
SSWR-CLEANOUT	31	CONTINUOUS	0.25	SANITARY SEWER FORCE MAIN CLEAN OUTS	INSERT
SSWR-CLEANOUT-TXT	31	CONTINUOUS	0.25	TEXT ASSOCIATED WITH FORCE MAIN CLEAN OUTS	TEXT
SSWR-EXISTING	31	HIDDEN	0.18	EXISTING SANITARY SEWER LINE, FORCE OR GRAVITY	POLYLINE
SSWR-EXISTING-FITTINGS	3	CONTINUOUS	0.15	EXISTING SANITARY SEWER VALVES, END CAPS, BENDS, ETC.	INSERT
SSWR-EXISTING-FITTINGS-TXT	3	CONTINUOUS	0.25	TEXT ASSOCIATED WITH EXISTING SANITARY SEWER VALVES, END CAPS, ETC.	TEXT
SSWR-EXISTING-MANHOLE	3	CONTINUOUS	0.15	EXISTING MANHOLES	INSERT
SSWR-EXISTING-MANHOLE-TXT	3	CONTINUOUS	0.25	TEXT ASSOCIATED WITH EXISTING MANHOLES	TEXT
SSWR-EXISTING-TXT	7	CONTINUOUS	0.25	TEXT ASSOCIATED WITH EXISTING SANITARY SEWER LINES FORCE AND GRAVITY	TEXT
SSWR-FITTINGS	1	CONTINUOUS	0.25	SANITARY SEWER END CAPS, BENDS, REDUCERS, ETC.	INSERT
SSWR-FITTINGS-TXT	7	CONTINUOUS	0.25	TEXT ASSOCIATED WITH SANITARY SEWER END CAPS, BENDS. REDUCERS ETC	TEXT
SSWR-FM	222	CONTINUOUS	0.40	SANITARY SEWER FORCE MAINS	POLYLINE
SSWR-FM-TXT	222	CONTINUOUS	0.25	TEXT ASSOCIATED WITH SANITARY SEWER FORCE MAINS	TEXT
SSWR-GRAVITY	3	CONTINUOUS	0.40	SANITARY SEWER GRAVITY MAINS	POLYLINE
SSWR-GRAVITY-TXT	7	CONTINUOUS	0.25	TEXT ASSOCIATED WITH SANITARY SEWER GRAVITY MAINS	TEXT
SSWR-LAT	202	CONTINUOUS	0.30	SANITARY SEWER SERVICE LINES AND TAPS	POLYLINE

SSWR-LAT-TXT	7	CONTINUOUS	0.25	TEXT ASSOCIATED TO SANITARY SEWER GRAVITY LINES	TEXT
SSWR-MANHOLE	1	CONTINUOUS	0.30	SANITARY SEWER MANHOLES	INSERT
SSWR-MANHOLE-TXT	7	CONTINUOUS	0.25	TEXT ASSOCIATED WITH MANHOLES	TEXT
SSWR-STATION	200	CONTINUOUS	0.30	LIFT STATIONS, ETC	INSERT
SSWR-STATION-TXT	7	CONTINUOUS	0.25	TEXT ASSOCIATED WITH LIFT STATIONS, ETC.	TEXT
SSWR-VALVE	7	CONTINUOUS	0.30	SANITARY SEWER VALVES	INSERT
SSWR-VALVE-TXT	7	CONTINUOUS	0.25	TEXT ASSOCIATED TO SANITARY SEWER VALVES	TEXT
SURVEY-CONTROL	2	CONTINUOUS	0.13	HORIZONTAL AND VERTICAL CONTROL OF SURVEY	LINES
SURVEY-CONTROL-TXT	2	CONTINUOUS	0.25	TEXT ASSOCIATED TO HORIZONTAL AND VERTICAL	TEXT
SURVEY-POINTS	6	CONTINUOUS	0.13	ALL SURVEY POINTS	POINT
WATER-BFP	152	CONTINUOUS	0.20	BACK FLOW PREVENTER	
WATER-BFP-TXT	7	CONTINUOUS	0.25	TEXT ASSOCIATED TO BACK FLOW PREVENTERS	TEXT
WATER-EXISTING	153	HIDDEN	0.13	EXISTING WATER MAINS AND SERVICES	POLYLINE
WATER-EXISTING-TXT	7	CONTINUOUS	0.25	TEXT ASSOCIATED TO EXISTING WATER MAINS AND SERVICES	TEXT
WATER-FIRELINE	1	CONTINUOUS	0.40	WATER FIRE LINES	POLYLINE
WATER-FIRELINE-TXT	7	CONTINUOUS	0.25	TEXT ASSOCIATED TO FIRE LINES	TEXT
WATER-FITTING	152	CONTINUOUS	0.30	END CAPS, REDUCERS, TEES, ETC.	INSERT
WATER-FITTING-TXT	7	CONTIUNOUS	0.25	TEXT ASSOCIATED WITH WATER END CAPS, REDUCERS, TEES, ETC.	TEXT
WATER-LAT	130	CONTINUOUS	0.30	WATER SERVICE LINES	POLYLINE
WATER-LAT-TXT	7	CONTINUOUS	0.25	TEXT ASSOCIATED WITH WATER SERVICE LINES	TEXT
WATER-MAIN	152	CONTINUOUS	0.40	WATER MAINS	POLYLINE
WATER-MAIN-TXT	7	CONTINUOUS	0.25	TEXT ASSOCIATED TO WATER MAINS	TEXT
WATER-METER	152	CONTINUOUS	0.30	WATER METER	INSERT
WATER-STATION	152	CONTINUOUS	0.30	BOOSTER PUMPS, MONITORING WELLS, TANKS, TOWERS, ETC.	INSERT
WATER-STATION-TXT	7	CONTINUOUS	0.25	TEXT ASSOCIATED WITH WATER STATIONS	TEXT
WATER-VALVE-TXT	7	CONTINUOUS	0.25	TEXT ASSOCIATED WITH WATER VALVES	TEXT
WATER-VAULT	152	CONTINUOUS	0.30	LARGE METER OR CONNECTION VAULT	POLYGON
WATER-VAULT-TXT	7	CONTINUOUS	0.25	TEXT ASSOCIATED WITH LARGE METER OR CONNECTION VAULT	TEXT
U-CABLE	53	CONTINUOUS	0.13	TELEVISION CABLE STRUCTURES	INSERT
U-POWER	53	CONTINUOUS	0.13	ELECTRICAL POWER STRUCTURES	INSERT
U-STORM	53	CONTINUOUS	0.13	STORM WATER DRAINAGE STRUCTURES	INSERT

U-TELE	53	CONTINUOUS	0.13	TELEPHONE STRUCTURES	INSERT

APPENDIX B – AS-BUILT SYMBOLS

APPENDIX C – UTILITY CONTACT INFORMATION

A.1. AT&T Florida (formerly Bellsouth)
2221 Industrial Drive
Panama City, Florida 32405
(850) 913-3703
www.att.com

A.2. Choctawhacthee Electric Cooperative, Inc.
1350 W. Baldwin Avenue
DeFuniak Springs, Florida 32435
(800) 892-5069
www.chelco.com

A.3. Cox Communications
320 Racetrack Rd., NW
Ft. Walton Beach, Florida 32547
(850) 314-8163
www.cox.com

A.4. Century Link (formerly Embarq)
650 Denton Boulevard
Ft. Walton Beach, Florida 32547
(850) 664-3751
wwwcenturylink.com

A.5. Gulf Power
PO Box 1388
DeFuniak Springs, Florida 32435
(850) 892-2154
www.southernco.com

A.6. Mediacom
2814 E. County Hwy 390
Suite D
Panama City, FL 32405
(850) 271-9815
www.medicomcc.com

A.7. Okaloosa Gas District

P.O. Box 548
Valparaiso, Florida 32580
(850) 729-4870
www.okaloosagas.com

A.8. Regional Utilities
4432 Hwy 98 East
Santa Rosa Beach, Florida 32459
(850) 231-5114
www.regionalutilities.net

A.9. South Walton Utility Co, Inc.
369 Miramar Beach Dr.
Miramar Beach, Florida 32550
(850) 837-2988
www.swuci.org

A.11. Southern Light
156 St. Anthony Street
Mobile, AL 36603
(251) 662-1170
www.southernlightfiber.com

APPENDIX G

FIBERGLASS DOORS (AF COMPOSITE DOORS)

Special-Lite®

AF COMPOSITE

AF-200, 217, 219, 219-1, 220

ALL FIBERGLASS FLUSH DOORS

All Fiberglass Composite Doors offer a lightweight, economical solution for demanding environments

Special-Lite® All Fiberglass Composite Flush Doors include five models that are constructed with pultruded FRP stiles and rails, and factory bonded face sheets for durability. All models are identical with the exception of the FRP face sheet texture: AF-200 smooth, AF-217 pebble grain, AF-219 rustic wood grain, AF-219-1 contemporary wood grain, and AF-220 sandstone texture.

Install this door in a Special-Lite® FRP Frame for a long lasting, easy to clean interior or exterior entrance. Our All Fiberglass doors and frames are rust, rot, and corrosion resistant, even in the most demanding environments.

Features & Benefits

- Pultruded FRP stile and rail construction with mitered, bracketed corners and bonded face sheets for durability.
- Choice of smooth, pebble grain, sandstone texture, rustic wood grain, or contemporary wood grain. Door edges and FRP lite kits are painted to match face sheet color. Class A face sheets are available on some door models. Contact Special-Lite for details.
- Choice of two core materials: 2LB./ft.^{3} EPS (expanded polystyrene) or polypropylene honeycomb.
- Pultruded fiberglass lite kits provide functionality and design flexibility. Aluminum or EPDM lite kits are also available.
- Fiberglass louvers are available for use in doors or walls. AF Composite Doors are also compatible with Special-Lite's aluminum louvers.
- See color charts for large color selection for AF-217/220 through-colored UV-stabilized face sheets, and also the AF-200 painted face sheets. Choose a stain color for the AF-219 Rustic Wood Grain or AF-219-1 Contemporary Wood Grain Doors. All models available in custom colors.
- All AF Composite Door models are available in singles or pairs. Refer to website for maximum door size.
- Florida Building Code and TDI approved on certain models. Contact Special-Lite for details.



Hardware Compatibility:

Compatible with most standard industry hardware, with exceptions noted below. Pultruded fiberglass center posts, mullions, and thresholds are also available.

Surface hardware must be through bolted.

Hardware Limitations:

SL-301 Adjustable Bottom Brush not compatible.



All Fiberglass Composite Doors are FDA/USDA compliant

FRP Door & Frame Models

Door Model	Face Sheet
AF-200	Smooth FRP
AF-217	SpecLite3® Pebble Grain FRP
AF-219	Rustic Wood Grain FRP
AF-219-1	Contemporary Wood Grain FRP
AF-220	Sandstone Textured FRP

Frame Model	Wall Thickness	Depth	Face	Head
AF-250 Pultruded Framing	3/16"	5-3/4" (immediate door frame only)	2"	2" or 4"
AF-150 Pultruded Framing	1/4"	5-3/4", 6-3/4", 7-3/4", 8-3/4", 4-1/2" - 12" (factory adjustable frame)	2"	2" or 4"

APPENDIX H

WATERPROOFING (ULTRA HT PS)

Technical Information

MFM Building Products Corp. manufactures a wide range of innovative waterproofing products for the building industry. Founded in 1961, MFM products are engineered for superior performance and ease of installation.

DESCRIPTION

Ultra HT Wind & Water Seal® is a self-adhering waterproofing underlayment composed of a white, non-slip cross-laminated polyethylene film, laminated to a **high temperature** rubberized aggressive asphalt adhesive. A split release liner protects the adhesive and is removed as the underlayment is installed. This advanced system bonds to the substrate to limit damage caused by water penetration or leaks. Ultra HT Wind & Water Seal® serves as a secondary waterproofing membrane.

USES

Whole-roof underlayment for shingle, tile, shake or metal roofing. Use in valleys, ridges, around chimneys and at eaves for protection against ice dams and wind-driven rain. Suitable for use in a Class A roofing system when used in an approved assembly per MFM UL listing R11672.

FEATURES

- Uniform thickness for dependable protection
- Self-seals around fasteners including nails, staples and screws
- High elongation, flexible, accommodates expansion and contraction of the substrate
- Compatible with most construction sealants and primers
- Eliminates leaks – multiple layers of protection seal out water
- Rubberized asphalt won't crack or dry out
- Aggressively adheres – sticks to plywood, metal and most other building materials for ease of application and to eliminate movement of water under the membrane
- Non-slip surface and overlap guide lines for easy installation

INSTALLATION NOTES:

- Apply in clear, dry weather at temperatures above 50°F
- Surface must be clean, dry, and free from oil and debris
- Clean, dry wood and metal surfaces do not require priming
- Prime masonry, weathered OSB, aged metal and concrete surfaces with an MFM-approved primer – masonry must be fully cured
- It is recommended to tape all deck seams with a flashing membrane like MFM Roof Deck Tape® in a shingled fashion
- Use 3" side laps and 6" end laps
- Apply uniform pressure with a weighted roller, paying special attention to all seams and overlaps
- Minimum roof slope of 2:12 is required (some code approvals require a minimum slope of 3:12 – check your local building codes)
- Use MFM Low-VOC Spray Adhesive™ in cooler temperatures
- **Membrane should NOT be folded over roof edge unless covered by a gutter, mechanically fastened every 6" or protected with other flashing materials**

WARNINGS

- Roof work is dangerous – work carefully and use caution when walking on installed Ultra HT Wind & Water Seal® and the roof deck
- Ultra HT Wind & Water Seal® is a vapor barrier – allow for proper ventilation of the ridge and soffit
- If using under copper, zinc, or Cor-Ten®, please contact MFM Technical Services for proper installation instructions
- If using under clay or concrete tile, refer to your local building codes and approvals
- Do not expose to direct sunlight for more than 90 days
- Miami-Dade County approved – NOA approval limitations may differ from those advertised
- **DO NOT** install over EPDM, PVC, TPO or silicone roofing materials
- **DO NOT** install over silicone caulking, or uncured solvents or sealants
- Installer is responsible for compatibility with caulks and sealants
- MFM will not warranty product when used on tongue-and-groove or plank that are not cured and still contain tree resin – resin is not compatible with the asphalt adhesive and will liquify it

ULTRA HT
WIND & WATER SEAL®
HIGH TEMPERATURE

PRODUCT DATA

Material Color	White
Roll Size	36" x 67'
Carton Weight	55 lbs
Rolls per Carton	1
Area per Carton	200 ft^2
Cartons per Pallet	30
Minimum Installation Temperature	50°F
Service Temperature	-20°F – 250°F

TECHNICAL SPECIFICATIONS

Property	Test Method	Result
Material Thickness	ASTM D 5147	45 Mils Nom.
Flexibility @ -20°F	ASTM D 1970	Pass
Vapor Permeance	ASTM E 96	<0.02
Nail Sealability	ASTM D 1970	Pass
Tensile MD	ASTM D 412 Die C	>675 psi
Tensile CMD	ASTM D 412 Die C	>675 psi
Adhesion to Plywood @ 75°F	ASTM D 903/1970	>12 lbs/ft
Adhesion to Plywood @ 40°F	ASTM D 903/1970	>2 lbs/ft

PRODUCT NUMBER | PRODUCT UPC CODE

36" X 67' - 48268	7 25799 48268 3

*Some results listed may be the test method criteria and not actual test results.

APPROVALS

Ultra HT Wind & Water Seal® is tested to ASTM D 1970, Florida Building Code FL #11842.3, Miami-Dade County Approved, ICC-ES ESR 1737, LA County (LARC/LABC), State of California (CRC/CBC) Texas Department of Insurance listed, is Fortified Building Program compliant, and Canadian CCMC 14048-L.

CLASS A FIRE RATING

Ultra HT Wind & Water Seal® is a UL classified fire resistant barrier when used in conjunction with 24 GA minimum steel or 16 oz. copper UL listed roofing panels. Refer to the Ultra HT Installation Instructions for required roof deck assemblies.

10-YEAR LIMITED WARRANTY

MFM Building Products Corp. (MFM) warrants materials to be free from leaks caused by defects in material or manufacturing for a period of ten (10) years from the date of purchase when applied according to published directions.

For the most current Installation Instructions, Warranties, Technical Specifications and Approvals, visit www.mfmbp.com.



MFM BUILDING PRODUCTS CORP.

525 Orange Street, Coshocton, Ohio 43812 ▪ Tel 800-882-7663 ▪ Fax 740-622-6161 ▪ www.mfmbp.com

APPENDIX I

WALL EPOXY

Pro Industrial™

Heavy Duty Block Filler

B42W00150 White

CHARACTERISTICS

Pro Industrial Heavy Duty Block Filler is a commercial strength block filler formulated for precast concrete, concrete block, and cinder block, and is suitable for both interior and exterior applications.

- Excellent filling properties
- Good hiding
- Topcoat with high performance coatings such as epoxies and urethanes
- Applies by brush, roller, or spray
- Interior-Exterior
- Suitable for use in USDA inspected facilities

Finish: Flat

Color: White

Coverage:

Wet mils:	16.0-21.0
Dry mils:	8.0-10.5
Coverage:	75-100 sq. ft. per gallon

Approximate spreading rates are calculated on volume solids and do not include any application loss.
Note: Brush or roll application may require multiple coats to achieve maximum film thickness and uniformity of appearance.

Drying Schedule @ 50% RH, 16 mils wet:
Drying and recoat times are temperature, humidity, and film thickness dependent.

	@77°F (25°C)
To touch	2 hours
To Recoat: itself	1 hour
To Recoat: with water borne	18 hours
To Recoat: with solvent borne	72 hours

Tinting: DO NOT TINT

White B42W00150

V.O.C. (less exempt solvents):
less than 50 grams per litre; 0.42 lbs. per gallon
As per 40 CFR 59.406

Volume Solids:	59 ±2%
Weight Solids:	71 ±2%
Weight per Gallon:	13.99 lbs (6.34 kg)
Flash Point:	NA
Vehicle Type:	Acrylic Latex
Shelf Life:	36 months, unopened

COMPLIANCE

As of 05/21/2025, Complies with:

OTC	Yes
OTC Phase II	Yes
S.C.A.Q.M.D.	Yes
CARB	Yes
CARB SCM 2007	Yes
CARB SCM 2020	Yes
Canada	Yes
LEED® v4 & v4.1 Emissions	Yes
LEED® v4 & v4.1 V.O.C.	Yes
EPD-NSF® Certified	Yes
MIR-Manufacturer Inventory	Yes
MPI®	#4, 4 X-Green™

APPLICATION

Temperature:

minimum	50°F / 10°C
maximum	95°F / 35°C

The following is a guide. Changes in pressures and tip sizes may be needed for proper spray characteristics. Always purge spray equipment before use with listed reducer. Any reduction must be compatible with the existing environmental and application conditions.

Reducer: No reduction necessary
Airless Spray:

Pressure	2300 p.s.i.
Hose	3/8 inch I.D.
Tip	.019-.028 inch

Brush: Nylon-polyester such as Purdy® Clearcut® Elite™
Roller Cover: Backroll with 3/4 to 1-1/4 inch cover such as Purdy Marathon®.

APPLICATION TIPS

Apply paint at the recommended film thickness and spreading rate as indicated. Spreading rates are calculated on volume solids and do not include an application loss factor due to surface profile, roughness or porosity of the surface, skill and technique of the applicator, method of application, various surface irregularities, material lost during mixing, spillage, over thinning, climatic conditions, and excessive film build. Excessive reduction of the material can affect film build, appearance, and adhesion.

For repairing exterior cracks, bugholes, air pickets, and voids use an elastomeric patch or seal.

Pro Industrial Heavy Duty Block Filler is ready-to-spray (airless) and does not require thinning. Mix material thoroughly to a uniform consistency with power agitation and apply by brush, roller or spray. Follow by squeegee for a smoother finish, or roller for a textured finish.

Make sure the material is forced into the pores and bugholes to provide a pinhole free surface.

Do not use below grade as a hydrostatic waterproofer or in immersion service.

In wet areas, a smooth continuous pinhole-free appearance is necessary for proper protection before topcoating. Two coats will provide the most uniform surface.

Must be topcoated for exterior use. Do not apply over existing coatings. Do not apply to damp or wet surfaces.

RECOMMENDED SYSTEMS

Concrete, Masonry, Cement
1 coat Pro Industrial Heavy Duty Block Filler
2 coats Appropriate topcoat

CMU, Block, Split0face Block:
1 coat Pro Industrial Heavy Duty Block Filler
2 coats Appropriate topcoat

Recommended Architectural Topcoats:
A-100® Exterior Latex
Loxon® Masonry Coatings
SuperPaint® Exterior
Duration® Exterior
Emerald® Exterior
Emerald® Interior
Duration Home®
ProClassic® Interior
ProMar® Interior
SuperPaint® Interior

Recommended Industrial Topcoats:
Acrolon™ 218 Polyurethane
Hi-Solids Polyurethane
Pro Industrial™ Series
Epolon™ II Multi-Mil Epoxy
Industrial Enamels
Macropoxy® HS Epoxy
Macropoxy® 646 HS Epoxy

The systems listed above are representative of the product's use, other systems may be appropriate.

For exterior use, **Pro Industrial Heavy Duty Block Filler** must be topcoated within 14 days to prevent degradation due to weathering.

continued on back

Pro Industrial™
Heavy Duty Block Filler

SURFACE PREPARATION

WARNING! If you scrape, sand or remove old paint, you may release lead dust. **LEAD IS TOXIC. EXPOSURE TO LEAD DUST CAN CAUSE SERIOUS ILLNESS, SUCH AS BRAIN DAMAGE, ESPECIALLY IN CHILDREN. PREGNANT WOMEN SHOULD ALSO AVOID EXPOSURE.** Wear a **NIOSH**-approved respirator to control lead exposure. Clean up carefully with a **HEPA** vacuum and a wet mop. Before you start, find out how to protect yourself and your family by contacting the National Lead Information Hotline at 1-800-424-LEAD or log on to www.epa.gov/lead.

Do not use hydrocarbon solvents for cleaning.

Surface must be clean, dry, and in sound condition. Remove all oil, dust, grease, dirt, loose rust, and other foreign material to ensure adequate adhesion. Masonry surfaces must be dry before coating. Moisture content must be 15% or lower, and the pH between 6 and 9. If the pH is greater than 9, use Loxon Acrylic Block Surfacer in place of the Pro Industrial Heavy Duty Block Filler.

Concrete-Masonry:
New: For surface preparation, refer to SSPC-SP13/Nace 6, or ICRI No. 310.2, CSP 1-3. Surface must be clean, dry, sound and offer sufficient profile to achieve adequate adhesion. Minimum substrate cure is 29 days at 75°F. Remove all form release agents, curing compounds, salts, efflorescence, laitance, and other foreign matter by sandblasting, shotblasting, mechanical scarification, or suitable chemical means. Refer to ASTM D4260. Rinse thoroughly to achieve a final pH between 6.0 and 9.0. Allow to dry thoroughly prior to coating.

Old: For surface preparation, refer to SSPC-SP13, NACE 6, or ICRI No. 310.2, CSP 1-3. Surface preparation is done in much the same manner as new concrete; however, if the concrete is contaminated with oils, grease, chemicals, etc., they must be removed by cleaning with a strong detergent. Refer to ASTM D4258. Form release agents, hardeners, etc. must be removed by sandblasting, shotblasting, mechanical scarification, or suitable chemical means. Do not apply to smooth, slick surfaces, existing coatings or peeling may result. Recognize that any surface preparation short of total removal of the old coating may compromise the service length of the system.

SURFACE PREPARATION

Mildew - Clean mildew from the Surface: Mildew is a fungus that looks like dirt but won't wash off. Mildew must be removed before painting, or it will grow through any new coat of paint. To remove mildew or suspected mildew, scrub surface before painting with a commercial mildew remover following manufacturer's safety instructions.

PHYSICAL PROPERTIES

Do not apply to wet surfaces.
Protect from freezing.

B42W00150

Water Vapor Permeance (US):
Method: ASTM D1653
Result: 67.96 grains/(hr ft2 in Hg)

SAFETY PRECAUTIONS

Before using, carefully read **CAUTIONS** on label.

Refer to the Safety Data Sheets (SDS) before use.

FOR PROFESSIONAL USE ONLY.

Published technical data and instructions are subject to change without notice. Contact your Sherwin-Williams representative for additional technical data and instructions.

CLEANUP INFORMATION

Clean spills, spatters, hands and tools immediately after use with soap and warm clean water. After cleaning, flush spray equipment with compliant cleanup solvent to prevent rusting of the equipment. Follow manufacturer's safety recommendations when using solvents.

HOTW 05/21/2025 B42W00150 28 09
FRC

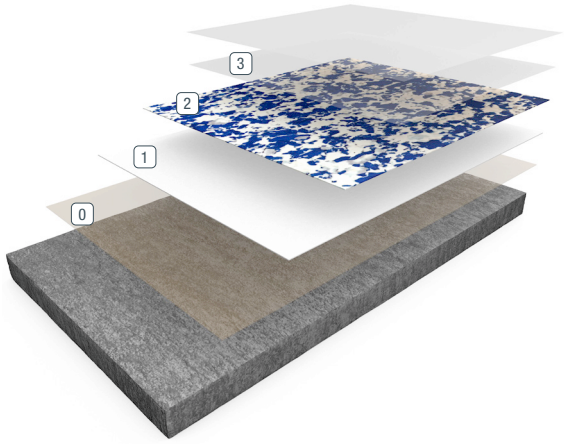
The information and recommendations set forth in this Product Data Sheet are based upon tests conducted by or on behalf of The Sherwin-Williams Company. Such information and recommendations set forth herein are subject to change and pertain to the product offered at the time of publication. Consult your Sherwin-Williams representative or visit www.paintdocs.com to obtain the most current version of the PDS and/or an SDS

APPENDIX J

FLOOR EPOXY (SHERWIN WILLIAMS EPOXY FLOOR)

RESUFLOR™ DECO FLAKE BC

Sherwin-Williams Resuflor Deco Flake BC is a mosaic pattern floor covering. Vinyl chips are incorporated in a clear or pigmented epoxy and sealed with a clear, high-gloss, polyurethane finish. Its innovative base chemistry also provides tough chemical resistant protection.



0 **Primer**

1 **Base Coat**

2 **Broadcast**

3 **Grout/Seal Coat**

BENEFITS

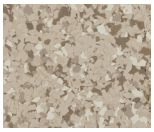
- Aesthetically pleasing appearance
- Limitless color options
- Seamless
- Chemical- and stain-resistant
- High-gloss finish
- LEED® v4 compliant

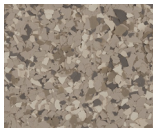
USES

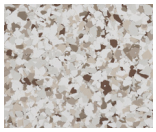
- Nursing homes and healthcare facilities
- Clean rooms and pharmaceuticals
- Office buildings
- Locker and restrooms
- Cafeterias

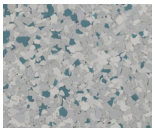


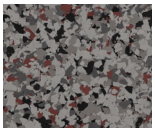
FEATURED COLORS

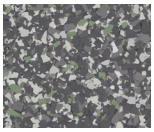

Flaxseed

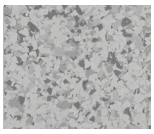

Ocelot

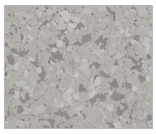

Almond Milk

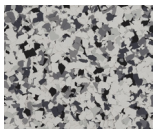

Agave

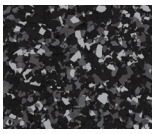

Kingsnake

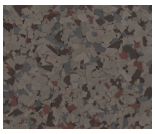

Korat

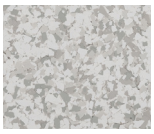

Chinchilla


Limestone


Greyhound


Black Bean


Speckled Ash


Moon

Unlimited standard and custom blends available. Please see Deco Flake Color Cards for the extensive collection of standard blends or use our Flooring Visualizer Tool to create your own custom blend at floorvisualizer.sherwin-williams.com. This reproduction approximates the actual color. Factors such as the type of product, degree of gloss, texture, size and shape of area, lighting, heat or method of application may cause color variance. Contact your Sherwin-Williams representative for details.

ABOUT CHEMICAL RESISTANCE

Sherwin-Williams High Performance Flooring offers a broad range of systems to accommodate nearly every industrial, commercial and institutional setting. Each flooring system includes a standard chemical resistant topcoat or surface proven to perform under typical conditions.

Important considerations:

- The combination of cleaning solutions, sanitizing chemicals, processing substances and products found in any operational setting is unique.
- Knowing exactly which materials are present – as well as their concentrations and typical exposure times before cleanup – is critical for proper flooring system selection.
- During the specification process, a flooring system's standard chemical resistant topcoat may get replaced with one better suited to unique facility conditions.

The ability of a flooring system to perform as designed relies heavily on proper selection. Matching each use case with the right chemical resistant flooring is key to a having a facility looking great and functioning at peak level over the long term.

See our Chemical Resistance Guide and other technical resources on our website. Connect with a Sherwin-Williams High Performance Flooring expert for help with specifying an optimal flooring system for your facility.

TYPICAL PHYSICAL PROPERTIES

Property	Result
Abrasion Resistance ASTM D 4060, CS-17 Wheel, 1,000 cycles	5.1 mgs lost
Flexural Strength ASTM C 580	10,000 psi
Adhesion ACI 503R	300 psi concrete failure
Flammability	Self-extinguishing over concrete
Impact Resistance MIL-D-3134J	Direct, inch pound greater than 160, passes reverse, inch pound greater than 80, passes
Resistance to Elevated Temperatures MIL-D-3134J	No slip or flow at required temperature of 158°F

ASTM C = Mortar System
ASTM D = Resin only

THE SHERWIN-WILLIAMS DIFFERENCE

Sherwin-Williams High Performance Flooring delivers world-class industry subject matter expertise, unparalleled technical and specification service, and unmatched regional commercial team support to our customers around the globe.

United States & Canada
sherwin-williams.com/resin-flooring
swflooring@sherwin.com

©2024 The Sherwin-Williams Company
High Performance Flooring
HPF-1697217-12 10/24

APPENDIX K

ADA LIFT (LIFT V-1504)



Suitable for virtually any architectural requirements including public spaces and home use

Ideal for indoor or outdoor applications from basic installations to large-scale, complex projects

Finish options including frameless glass for the ultimate in luxury for upscale commercial applications

Savaria® V-1504 Vertical Platform Lift



VERSATILITY FOR ANY APPLICATION

The Savaria V-1504 vertical platform lift is built to carry a wheelchair and passenger safely up and down one or more levels.

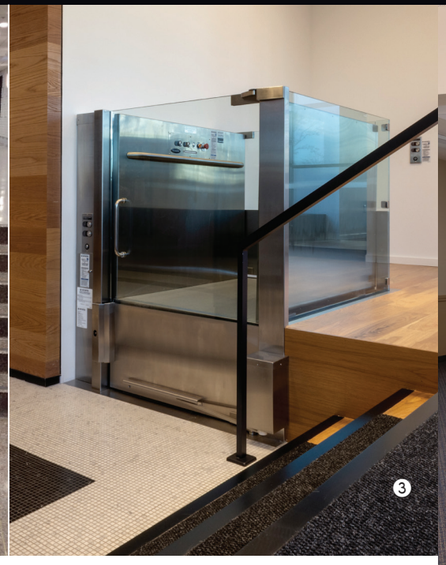
Suitable for installations in public and commercial buildings, as well as private homes, this Savaria lift features an extremely versatile design that can be configured and customized to suit virtually any project requirements and aesthetic needs. From the rugged outdoors, to the most luxurious office tower lobbies, the Savaria V-1504 lift is ready to serve with its reliable performance, ease of use and range of finish options.

savaria®



1


2


3



4


5


6

SAVARIA® V-1504 VERTICAL PLATFORM LIFT

The Savaria V-1504 vertical platform lift is available in a range of base models, all with options and configurations for customization to your needs.

Every Savaria V-1504 model is driven by our reliable hydraulic system and can be configured specifically for your needs. The lift travels up and down a rail system enclosed in the lift tower. The tower is supported with attachment to an existing wall support or through a constructed hoistway. Because the drive system is contained within the lift tower, no additional machine room is required for installation.

STANDARD (V-1504 STD)

Ideal for basic commercial applications and home use, this lift can be used indoors and outdoors to travel a standard 48" with 2 stops or optionally more distance and stops. The standard unit can also be installed inside a constructed hoistway.

ALUMINUM/ACRYLIC MODEL (V-1504 ALPE)

The aluminum enclosure model can be ordered with an outdoor package that features zinc-coated corrosion resistant steel parts. The acrylic model can be optionally ordered with tempered or laminated glass inserts. The active ventilation system keeps the inside comfortable and the gates and door can be motorized.

LUXURY FRAMED (V-1504 LUX)

The Lux features an enclosure frame with stainless steel No. 4 finish and tempered or laminated glass inserts, making it a beautiful complement for lobbies and interior public buildings.

PRESTIGE FRAMELESS (V-1504 PRESTIGE)

The two-stop Prestige lift features 1/2" structural tempered or laminated glass with almost invisible framing. The tower can be finished in stainless steel or custom powder coat, making this lift the ultimate statement for barrier-free access in interior settings.

Installation notes:

1. *Interior application with optional black powder coat. Upper landing gate with glass insert.*
2. *Unenclosed, indoor application in optional white with platform gate and acrylic insert. (courtesy of Eastern Elevator)*
3. *Prestige Frameless model with tempered glass and stainless steel. (courtesy of Mobility Elevator & Lift)*
4. *Hoistway application with melamine antique white cab panels.*
5. *Tall enclosure with acrylic inserts, shown in standard beige, outdoor stadium application.*
6. *Aluminum enclosure with outdoor package and full-sized door. (courtesy of Access Lifts & Service)*

SMOOTH HYDRAULIC 2:1 CHAIN DRIVE SYSTEM

The lift provides a high efficiency, reliable and comfortable ride.

LARGE PLATFORM FOR EASY ACCESS

The standard platform is 36" by 54" (ADA compliant), and custom platform sizes are also available. The non-skid surface provides added safety.

FLEXIBLE DESIGN

Configure up to 23' of travel distance* with up to four stops, with a full range of entrance and exit configurations available.

EXTENSIVE FINISH OPTIONS

Choose standard beige powder coat, select from the optional color finishes, or even request your own custom color. Enclose your lift with acrylic or glass panels.

EMERGENCY BACK-UP SYSTEMS

In addition to a manual lowering system, the lift features a DC battery powered lowering system for use in the event of a power failure. Optionally, a battery back-up operating system can be added to allow full functionality of the lift for emergencies.

EASY OPERATION

On-board controls operate the lift easily with constant pressure. Optional call/send stations can be added with or without key access. Add an optional joystick, 60 mm buttons, or additional operating panel to add even more flexibility for user needs.

MACHINE ROOMLESS

The Savaria V-1504 does not require a machine room to house the drive component, simplifying the installation process. Alternatively, the drive system can be located in a remote machine room for ultra-quiet operation.

** consult your authorized Savaria dealer for complete specifications applicable to your local code requirements*

Savaria® V-1504 Vertical Platform Lift

VERSATILITY FOR ANY APPLICATION



ADDITIONAL OPTIONS

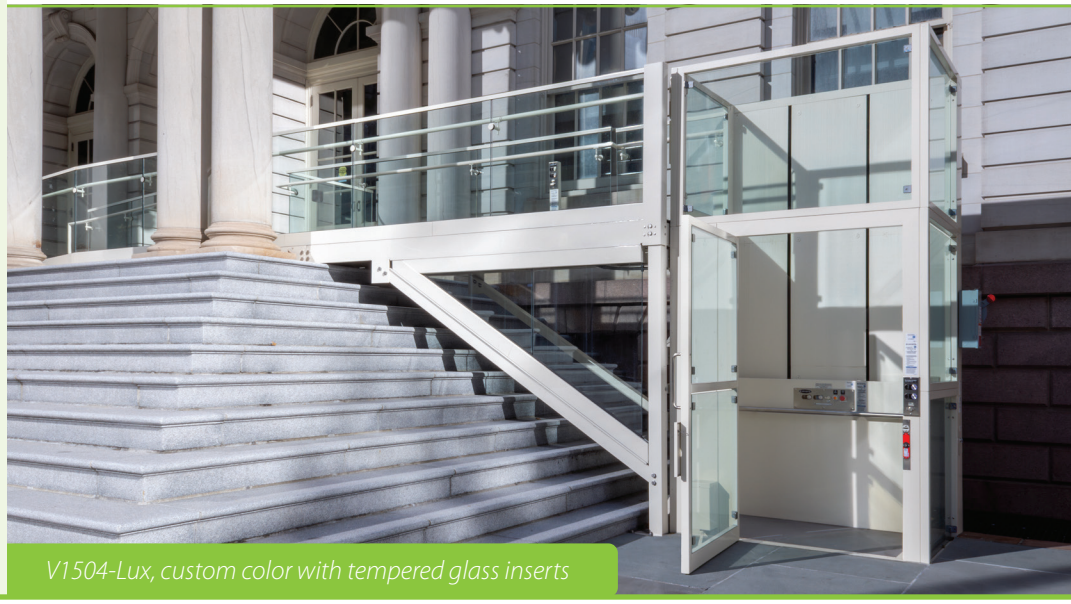
Choose from a variety of doors and gates, including a platform gate, top landing gate, or full-sized upper or lower landing doors with optional acrylic or glass inserts. Add motorized operation, weather-resistant lock, fire-rated, or wooden doors.

Other options include ADA hands-free phone, folding seat and 60 mm buttons, as well as full battery back-up operation. Add Savaria Link wifi diagnostic system for faster dealer trouble-shooting. The Savaria One Touch Alert System provides two-way voice communications using a pre-paid, owner-supplied nano sim card.

A variety of paint colors and textures are available including custom RAL colors. Please consult your local dealer for a full list of options available for your application.

SPECIFICATIONS

Applications	Residential, commercial, indoor, outdoor
Capacity	750 lb (340 kg)
Maximum travel distance	23' (7 m), 12' to 14' (3.65 to 4.26 m) in some jurisdictions
Platform sizes	36" x 54" (914 mm x 1371 mm) ADA-compliant, (customize up to 17.5 sq.ft. /1.63 sq. m) Type 1, 2 only
Nominal speed	20 ft/min (0.1 m/s)
Levels/stops	2 to 4 stops
Car access/configurations	Enter/exit same side, 90 degree, straight through entry/exit
Power supply	110 volt, 20 amp, single phase, 60 Hz
Drive system	2:1 roller chain, hydraulic
Motor pump	3 hp, gear-type
Controller	Relay logic
Emergency operation	Battery-operated lowering with automatic recharging system, plus remote access manual lowering valve, optional battery backup
Rail construction	8' modular guide rail assembly with roller guide shoes
Side guards	42 ⅛" (1070 mm), 80" (2032 mm) optional
Finish	Beige powder-coated steel, optional and custom colors available
Warranty	36 months parts, ask for details



V1504-Lux, custom color with tempered glass inserts

Authorized Savaria dealer:

savaria®

savaria.com
2 Walker Drive Brampton ON L6T 5E1 Canada
tel: 1.855.728.2742

Savaria makes every effort to publish accurate information. Some specifications, options or features may vary by market or change without notice.

©2025 Savaria Corporation.

APPENDIX L

WINDOWS (PGT WINGUARD)

PGT™ WinGuard® VINYL

IMPACT

A LIFE YOU DESIGN.
THE FREEDOM YOU DESERVE.





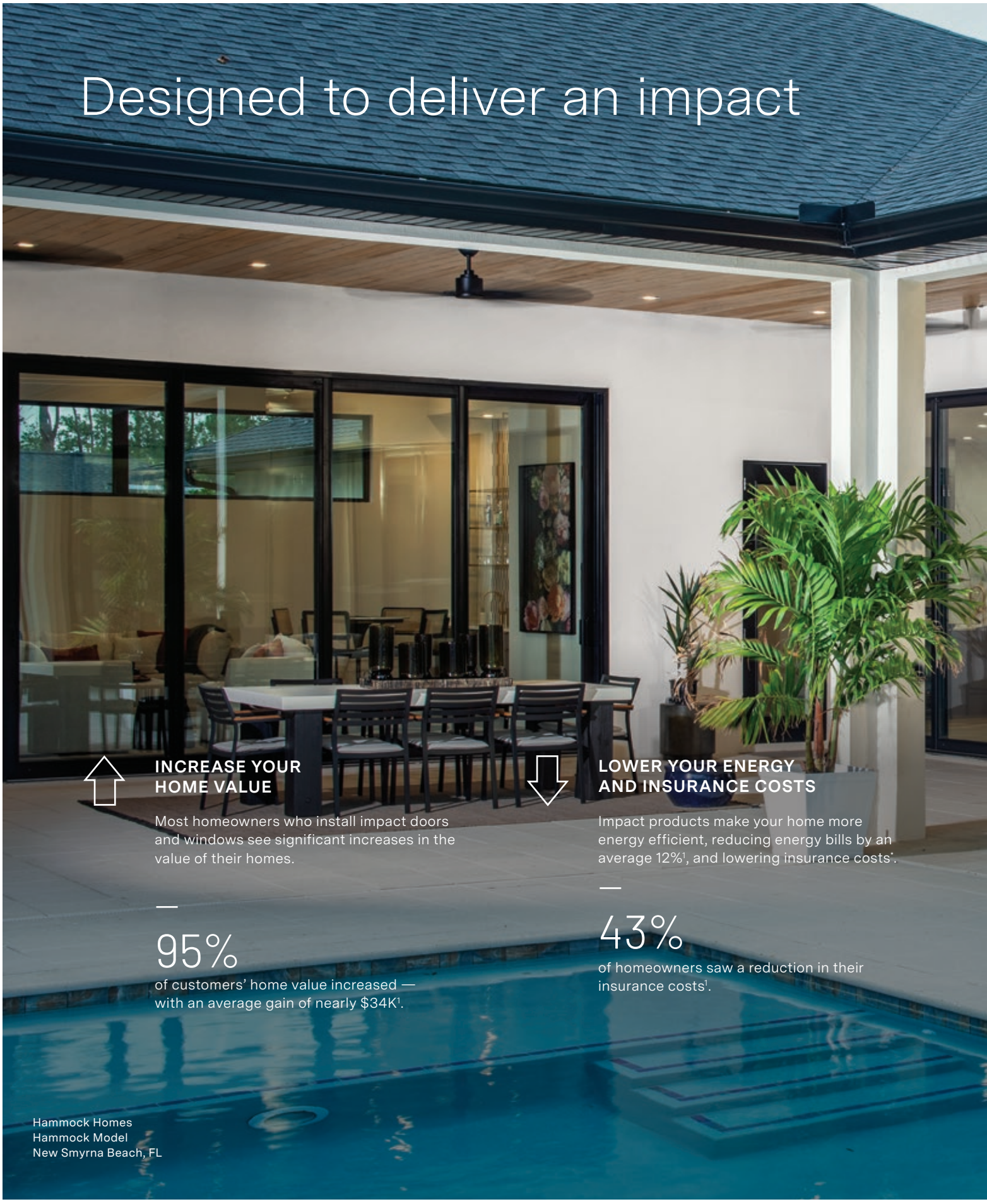
Medallion Homes
Regatta Model
Bradenton, FL

Why Impact Windows and Doors	4
Advantages of Impact Products	6
Always on Protection	8
Customizable Options	10
PGT® WinGuard® Vinyl Doors	16
PGT® WinGuard® Vinyl Windows	22
Glossary	35

Live the life you want *where* you want — a custom detailed home that offers you and your family beauty and peace of mind for years to come. That's the freedom PGT® gives you.

From the day they're installed and for every moment you own your home, our impact products stand up to outside elements and give you confidence in your environment, your lifestyle, and your investment.

Designed to deliver an impact



INCREASE YOUR HOME VALUE

Most homeowners who install impact doors and windows see significant increases in the value of their homes.

—

95%

of customers' home value increased — with an average gain of nearly $34K[1].

LOWER YOUR ENERGY AND INSURANCE COSTS

Impact products make your home more energy efficient, reducing energy bills by an average 12%[1], and lowering insurance costs*.

—

43%

of homeowners saw a reduction in their insurance costs[1].

Hammock Homes
Hammock Model
New Smyrna Beach, FL



FEEL MORE SAFE AND SECURE

When it comes to guarding against intruders and standing up to the strongest weather conditions, impact products simply perform better.

—

63%

In fact, 63% of homeowners who have impact products said they are rarely or never concerned about intruders[1].

ENJOY THE PEACE AND QUIET

Impact products give you peace and privacy by minimizing nearby noises like — lawn mowers, traffic, and loud neighbors.

—

32%

Up to a 32% increase in sound reduction based on testing of the glass alone[2].

1. John Burns Real Estate Consulting LLC (2020). Consumer Survey: Impact-Resistant Window and Door Perception Survey (unpublished), created for research report created for PGT Innovations (September 23). Survey pool consistent of 104 homeowners/customers.
2. Based on comparison of Guardian 1/8" monolithic glass to Guardian 1" LIG (3/16" cap – 3/8" airspace – 7/16" PVB lami).

Innovation for a lifetime

PGT® has led the impact industry for more than 40 years by improving safety standards, pushing innovation, and delivering superior performance.

LAMINATED INSULATING GLASS

LAMINATED GLASS

Two panes of glass bonded together with a clear interlayer to form an incredibly strong glass "sandwich" that functions as a single pane, with additional noise-dampening and security benefits.

THE INTERLAYER

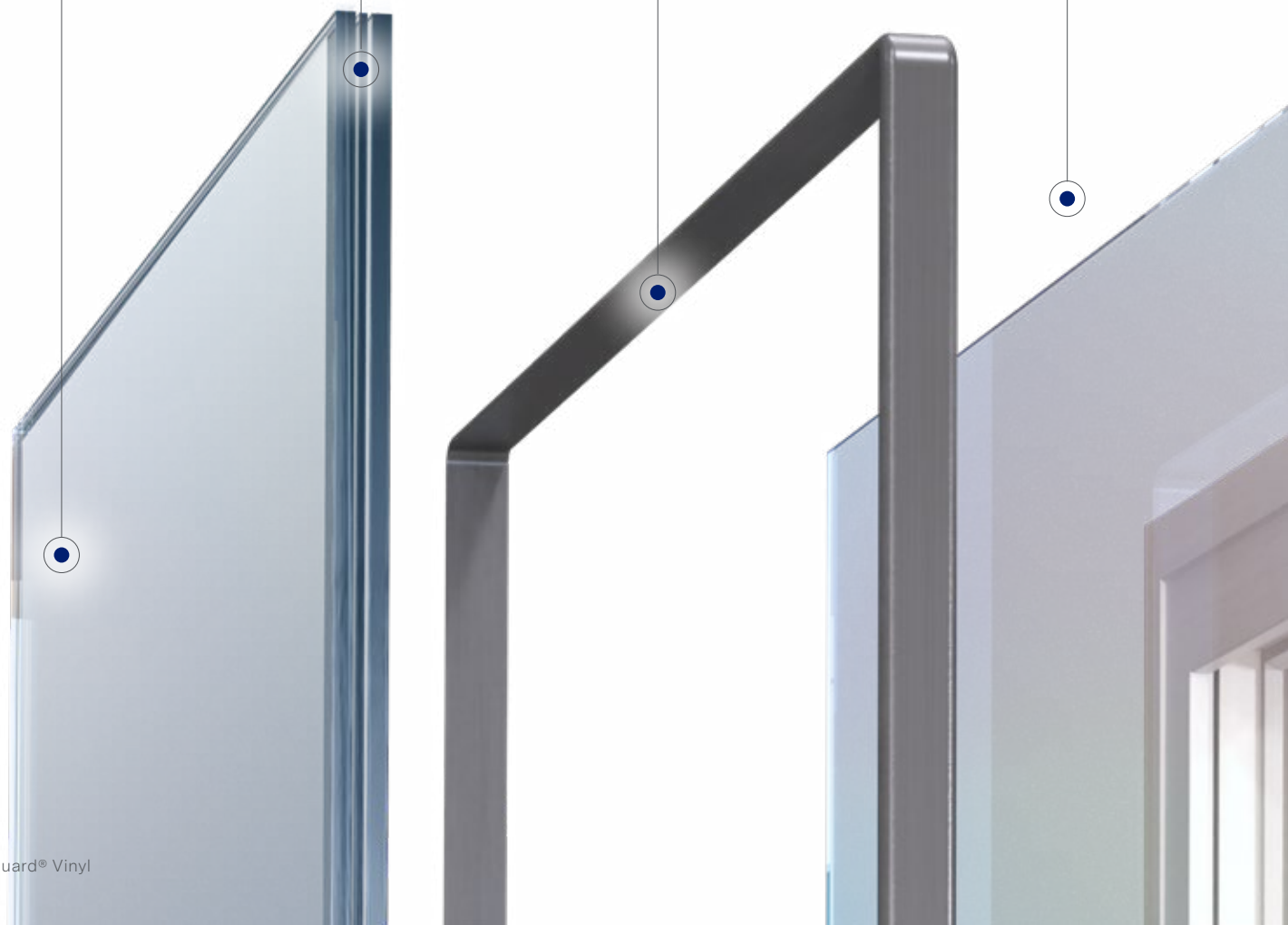
The interlayer is a transparent, shatter-resistant plastic membrane that is remarkably tough and flexible, holding the panes of glass firmly in place even if cracked from the outside. The interlayer also protects furniture and decor against fading and sun damage.

THERMOPLASTIC SPACER (TPS)

Our unique TPS spacer and sealant system is air-tight, maintaining the thermal insulation and preventing condensation and seal failures.

INSULATING AIR SPACE*

The layer between the outside pane and inner laminated glass pane acts as a barrier that slows heat transfer and dissipates sound. Argon gas can be inserted for even greater energy efficiency.



UV PERFORMANCE COATING

A molecular bonded coating on the glass surface that reduces heat buildup in your home, saving cooling cost.

OUTSIDE PANE*

Single pane of glass that increases a window's insulating properties while maintaining clear sightlines.

MULTI-CHAMBERED FRAME

PGT® WinGuard® Vinyl windows and doors feature a multi-chambered frame and warm-edge spacer technology to increase energy efficiency.



With more than 7 million units installed, we're America's authority on laminated glass. Discover more:

Renowned Performance

Over 8 million products manufactured and shipped, a testament to the quality and performance trusted by homeowners and builders alike.

Sound Reduction

Minimize noises in and around your home. Product options are subjected to STC testing.

ENERGY STAR® Options

Laminated insulating glass offers advanced energy-saving performance. WinGuard® Vinyl has many options to maximize energy efficiency and achieve ENERGY STAR® ratings.

Hours of Testing

PGT® WinGuard® Vinyl products endure hundreds of hours of testing to meet or exceed Miami-Dade Building Code requirements.

Leader in NOA Certifications

PGT® is a leader in the impact category with 44 Miami-Dade Notices of Acceptance.

Certifications & Ratings:

National Fenestration Rating Council
Sound Transmission Class (STC)
Miami-Dade Notice of Acceptance (NOA)
Florida HVHZ Product Approval
Texas Department of Insurance
OITC (Outdoor-Indoor Transmission Class)
AAMA Tested/Keystone Certified
ENERGY STAR®

*Included with laminated insulating glass packages for highest energy performance.

Effortless protection + energy efficiency that's always on



Medallion Homes
Cat Claw Model
Bradenton, FL

Scan the QR code to visit our website. You'll find homeowner resources to care for and maintain your PGT® products along with inspiration and tips for new builds and renovations. Experience all that PGT® has to offer.

Ready to say goodbye to shutters? Installing PGT® impact products is an investment in your home and lifestyle with everyday and long-term rewards. WinGuard® is engineered for performance.

Convenience

PGT® provides effortless impact protection from the moment of installation. Shutters require your presence for timely setup before every weather event.

Effectiveness

A durable interlayer keeps impact glass within the frame even if struck, shielding your home from flying debris.

Value

While the initial investment for impact windows is higher than shutters, the ROI for impact windows ranges from 80% to 86%. Shutters max out at around 40%[1].

Comfort

PGT® products allow for natural light while significantly quieting outdoor noise during a storm. Shutters darken your home and offer minimal sound protection.

Service

We're committed to delivering the best service in our industry, making the process from purchase to ownership simple and stress-free.

Freedom

You get the everyday superior performance of PGT®. — less noise, more security, and lower energy costs — no matter the weather. Shutters are manually removed after every storm.

IMPACT WINDOWS VS. SHUTTERS AND PANELS

PRODUCT	NO EFFORT REQUIRED	NO STORAGE REQUIRED	NO CHANGE IN HOME APPEARANCE	24/7 SECURITY PROTECTION	24/7 UV PROTECTION	24/7 NOISE REDUCTION	COST EFFICIENT*
PGT® WinGuard® Impact Resistant Windows & Doors	✓	✓	✓	✓	✓	✓	✓
Electric Roll-Down Shutters	×	✓	×	×	×	×	×
Manual Roll-Down Shutters	×	✓	×	×	×	×	×
Accordion Shutters	×	✓	×	×	×	×	×
Lexan Panel Shutters	×	×	×	×	×	×	×
Plywood	×	×	×	×	×	×	×
Fabric Storm Panels	×	×	✓	×	×	×	×

1. Source: 2022 Cost vs Value Report, *Remodeling* Magazine.
* Cost efficiencies are gained over the lifetime of a product.

Elevated style. Designed for customization.

PGT® WinGuard® Vinyl products are engineered for the highest quality and designed to fit any style of home with the most customized glass and frame options available.

We're so sure of their performance, we back our windows and doors with one of the industry's best warranties.

LIMITED
LIFETIME WARRANTY
On the frame, hardware, screen and moving parts

Many PGT® WinGuard® Vinyl products meet ENERGY STAR® ratings. Talk to your local dealer for more information.

"

Overall, it's been a good investment. I feel confident in my choices of windows and doors, both for the looks and value of my home.

– James P., Tampa, FL

PGT® WINGUARD® VINYL DOORS



Sliding Glass Door

This smooth operating door will add extra security to your home and let natural light into your living room or master bedroom.

Pages 18-19



French Door

Pairing elegance and high functionality, this single or double French door can be equipped with European-style hardware and is available with matching sidelites.

Pages 20-21



Single Hung Window

Raised from the bottom with a fixed top half, our single hung window offers ventilation and effortless protection in a traditional style that can be used throughout the home.

Page 24



Double Hung Window

Removable top and bottom sashes maximize ventilation in your home and make exterior cleaning easier than ever. An ideal match for lanais, patios, and sunrooms.

Page 25



Casement Window

Fixed Lite Casement Picture/ Architectural Window

The foldaway handles of these windows prevent interference with your curtains. Pair them beautifully with matching Awning and Fixed Lite Picture windows.

Pages 26-27



Horizontal Roller Window

Blending modern style and top-notch protection, this easily operated window is perfect for kitchens, bathrooms, and more.

Page 28



Awning Window

Designed for use in high spaces, this beautiful-yet-functional window is designed to block rain from entering, while providing outstanding ventilation and light.

Page 29



Fixed Lite Picture Window

A non-operable window that enhances the look of living rooms, kitchens, and master bedrooms with maximum, unobstructed sightlines.

Pages 30-31



Fixed Lite Architectural Window

Our wide selection of unique shapes and styles will help allow natural light, improve security, and enhance your home's beauty and aesthetics.

Pages 32-33



CUSTOMIZED TO YOUR EXACT STYLE AND STANDARDS

Each PGT® WinGuard® Vinyl product is built just for you and can be fully customized to live up to your highly unique design vision — without compromise, down to the last detail.

FRAME COLORS

Custom frame colors are also available. Multi-chambered frame provides outstanding energy savings.

Black
Bronze
Beige
White

Two Tone Options:

Bronze Exterior/White Interior
Black Exterior/White Interior

SCREENS

Fiberglass Screen Mesh



18x16
20x20
Charcoal

BetterVue® *(Optional)*
Insect screening with
Water Shed Technology™
Charcoal only



GLASS OPTIONS

With over 7,200 glazing options possible, you can create the right look for any window shape, size, or style. WinGuard® Vinyl products offer superior energy efficiency and many options to achieve ENERGY STAR® ratings with customized glass options like gas fills, tints, and coatings.

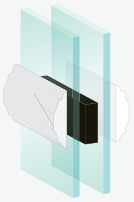
Argon Gas
(Laminated insulating glass only)
Windows can be filled with colorless and odorless argon gas to help insulate a room and minimize the transfer of heat through the window

Low-E (Emissivity) Glass
High performance coated glass that reflects heat to keep your home comfortable

Impact Laminated Insulating Glass
Highly customizable option that delivers increased energy efficiency and sound dampening

Privacy Glass
White Interlayer, Obscure glass, Obscure with White Interlayer glass options

GRID TYPES



Traditional Simulated Divided Lite Grid
7/8" wide raised ogee applied to exterior and interior with 9/16" wide bronze shadow bar between the glass



Flat Grid
9/16" wide or 13/16" wide grid between the glass

Contour Grid
1" wide grid between the glass

GLASS TINTS



Clear



Bronze



Gray



Green



Azure Blue



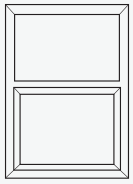
Solarcool® Bronze



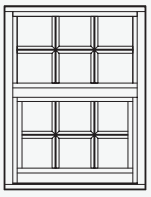
Graylite® II

Turtle Glass
Tinted to reduce light and protect the natural habitat of marine turtles. Ask your dealer to learn more.

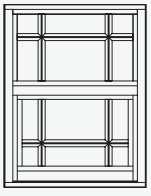
GRID STYLES



None



Colonial
(Many options available)



Brittany / Prairie

SLIDING GLASS DOOR HARDWARE OPTIONS SGD5570/SGD5570NS

Recessed pulls available on both the exterior and interior of the sliding glass doors, or optioned on the interior only when paired with a raised exterior handle.

Raised



Contemporary



Curved



Modern



Beveled



FRENCH DOOR HARDWARE OPTIONS FD5555

Keyed locks available for Sliding Glass Doors and French Doors

Standard



Curved



Contemporary



HARDWARE FINISH OPTIONS

STYLE	WHITE	MATTE BLACK	SATIN NICKEL	OIL-RUBBED BRONZE	BEIGE	BRONZE
Raised	SGD 5570/SGD 5570NS	SGD 5570/SGD 5570NS	SGD 5570/SGD 5570NS	SGD 5570/SGD 5570NS	SGD 5570/SGD 5570NS	SGD5570/SGD5570NS
Contemporary	SGD 5570	SGD 5570	SGD 5570			
Curved	SGD 5570		SGD 5570		SGD 5570	
Modern	SGD 5570NS	SGD 5570NS			SGD 5570NS	SGD5570NS
Beveled	SGD 5570NS	SGD 5570NS	SGD 5570NS	SGD 5570NS	SGD 5570NS	SGD5570NS
Standard			FD5555	FD5555		

PGT® WINGUARD®

VINYL DOORS



“I have noticed about a 10% saving in my overall utility costs. The combination of impact and insulation has been an investment for the future.

– James P., Orlando, FL

Medallion Home
Regatta Model
Bradenton, FL

Quality that brings confidence

PGT® WinGuard® Vinyl doors are beautiful and low-maintenance — the perfect complement to a carefree life. You'll feel the premium quality each time you open them and feel fully protected when they're closed.

Ease of Operation
Heavy-duty hardware and stainless steel rollers provide easy opening

Low Maintenance
Premium vinyl delivers performance for years to come

Durable
Sturdy vinyl frame provides superior strength, allowing for larger door sizes



Sliding Glass Door
Preferred Sliding Glass Door
SGD5570

Sliding Glass Door
Preferred View Sliding Glass Door
SGD5570NS



French Door
Preferred French Door
FD5555

Sliding Glass Door

Ease of Operation
Stainless-steel rollers for smooth and durable movement

Exceptional Quality
PGT® WinGuard® is #1 in quality patio doors in America*



SGD5570
Preferred Sliding Glass Door

Configurations
- → 4.5" Interlock
- → Bypass, Pocket, and Corner
- → Up to 8 panels with expansions of up to 40'

Dual-Point Locking System
- → Prevents panels from being lifted off the tracks
- → Secures into the door jamb, creating a weather-tight seal with high-security performance and maximum-load resistance

Screens
- → Standard or heavy-duty

Dimensions
- → Max panel size: 5'w x 10'h

SGD5570NS
Preferred View Sliding Glass Door

Configurations
- → 2.5" Stile Width
- → Bypass and Pocket
- → Up to 8 panels with expansions of up to 40'

Screens
- → Standard or heavy-duty

Dimensions
- → Max panel size: 5'w x 10'h

* Builder Brand Use Report, 2019

SGD5570 AND SGD5570NS
Track Height Dimensions



Standard 1.680" height

Sill Risers: 2.5", 3.5", 4.0625", 4.625" to guard against water intrusion

SGD5570
Roller Options



Nylon for a quieter option

Steel

Stainless Steel *(Standard)*

SGD5570NS
Roller Options



Qual rollers for better load distribution

Stainless Steel *(Standard)*



SGD5570 Preferred Sliding Glass Door

French Door

Ease of Operation
Heavy-duty hinge supports the weight of the door for easy opening

Exceptional Quality
PGT® WinGuard® is #1 in quality patio doors in America*

FD5555
Preferred French Door

Configurations

→ Available as a double French Door style or single French Door *(also known as a patio or terrace door)*

Modular Design

→ Single or double configurations

→ Optional sidelites and transoms allow design flexibility

3-Point Stainless-Steel Locking System

→ Provides an unmatched level of strength and security

Prepped for Industry-Standard Hardware

→ Enhances the design of patios, master bedrooms, and more



* Builder Brand Use Report, 2019



FD5555 French Door
Double sidelites and transom

PGT® WINGUARD®

VINYL WINDOWS



“It has made a drastic savings in our utility bill. Having impact-resistant products has proven to be a huge savings advantage.

– Fitzgerald M., Orlando, FL

John Cannon Homes
Adelaide Model
Sarasota, FL

Beauty and efficiency beyond compare

Add beauty, unmatched strength, and increased energy efficiency to any home design with PGT® WinGuard® Vinyl impact windows. During a storm, these windows will not separate from your home, which can cause pressurization during extreme weather. Each one delivers our signature premium quality and performance, engineered to be durable and worry-free.

Low Maintenance
Premium vinyl delivers performance for years to come

Durable
Sturdy vinyl frame with patented corner key provides superior strength and allows for larger window sizes

Energy Efficient
Impact windows lower your home's energy bills*. Can qualify for ENERGY STAR® rating.



Single Hung Window
SH5500



Double Hung Window
DH5560



Casement Window
CA5540

Fixed Lite Casement Picture Window/Architectural
PW/AR5540



Horizontal Roller Window
HR5510



Awning Window
AW5540



Fixed Lite Picture Window
PW5520



Fixed Lite Architectural Window
AR5520

*Compared to a single pane window. Energy cost savings based on 14.4 yrs Florida average home ownership. Source: energy.gov, valuepenguin.com

SH5500

Single Hung Window

Flexible Design
Custom design configurations with exceptional strength

Easy Opening
Heavy-duty spiral balance or constant force balance system



Configurations



Equal | Proview | Cottage

Easy Opening & Closing

- → ComfortLift handles
- → Various balancing systems for large, small, and heavy sashes ensures effortless operation
- → Constant Force or spiral balance system
- → Sash tilts in for easy cleaning

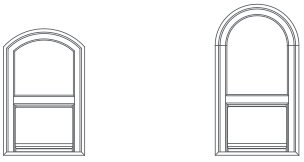
Exceptional Strength

- → Welded sash corners
- → SecureConnect corner keys ensure optimal performance on any sized window
- → Aluminum interlock enhances strength on larger sizes/design pressures

Hardware Options

- → Vent latch allows fresh air in without opening window completely
- → Window Opening Control Device that delivers a deeper level of safety and security (Certified to ASTM F2090*)

Sash Options



Single hung radius top with equal sash

Single hung arch top with proview/ oriel sash

Other sash options include:
Radius
Half Radius
Arch
Half Arch

Sash can be removed for easy maintenance

*Window opening control devices are designed to meet the ASTM International (formally known as ASTM - American Society of Testing and Materials) Standard Specification for Window Fall Prevention Devices with Emergency Escape (Egress) Release Mechanisms.

DH5560

Double Hung Window

Enhanced Security
Impact glass resists intruders and features a low-profile sweep lock

Easy Opening
Heavy-duty spiral balance or constant force balance system



Configurations



Equal Proview Cottage

Easy Opening & Closing

- → ComfortLift handles
- → Various balancing systems for large, small, and heavy sashes ensures effort less operation
- → Constant Force or spiral balance system
- → Sash tilts in for easy cleaning

Removable Sash Design

- → Clean the exterior part of the window more easily

Exceptional Strength

- → Welded sash corners
- → SecureConnect corner keys ensure optimal performance on any sized window
- → Aluminum interlock enhances strength on larger sizes/design pressures

Hardware Options

- → Vent latch allows fresh air in without opening window completely
- → Window Opening Control Device that delivers a deeper level of safety and security (Certified to ASTM F2090*)

*Window opening control devices are designed to meet the ASTM International (formally known as ASTM - American Society of Testing and Materials) Standard Specification for Window Fall Prevention Devices with Emergency Escape (Egress) Release Mechanisms.

CA5540

Casement Window

Easy Ventilation
Opens on either left- or right-hand side

Added Security
Best performing option for extreme weather and built with innovative multi-point locking system



CA5540 Casement Window

Configurations



Single Double Triple (XOX)

Modular Design

→ Available in single, double, or triple unit for versatile left or right opening

→ Pair with a matching Awning and Fixed Lite Casement Picture Window for design flexibility

Multi-Point Locking System

→ Provides added strength and security

Exceptional Strength

→ TrueHold hinge ensures durable sash operation on larger windows

Hardware

→ Foldaway handle won't interfere with window treatments

→ Washable hinge for easy cleaning from inside the home

→ Window Opening Control Device that delivers a deeper level of safety and security (Certified to ASTM F2090*)

PW/AR5540
Fixed Lite Casement Picture Window/ Architectural

Fixed (Non-Operable) Window:

→ Allows flexibility in design for multiple window configurations

→ Suitable for most bedrooms and living spaces

→ Works well as a standalone or companion window

→ Matching Casement and Awning Windows available

→ Available in a variety of architectural shapes and sizes

*Window opening control devices are designed to meet the ASTM International (formally known as ASTM - American Society of Testing and Materials) Standard Specification for Window Fall Prevention Devices with Emergency Escape (Egress) Release Mechanisms.



CA5540 Casement Window and PW5540
Fixed Lite Casement Picture Window
Black Frame

HR5510

Horizontal Roller Window

Design Versatility
Available in 2- and 3-lite configurations

Easy Opening and Closing
Made with tandem stainless-steel bearings



Configurations



Equal Lite
(1/3-1/3-1/3)



Unequal Lite
(1/4-1/2-1/4)

Exceptional Strength

- → Welded sash corners
- → SecureConnect corner keys ensure optimal performance on any sized window
- → Aluminum interlock enhances strength on larger sizes/design pressures

Low-Profile Sweep Lock

- → Adds an extra level of security
- → Maximizes the view

Removable Sash Design

- → Clean the exterior part of the window more easily

Hardware Options

- → Vent latch allows fresh air in without opening window completely
- → Window Opening Control Device that delivers a deeper level of safety and security (Certified to ASTM F2090*)

*Window opening control devices are designed to meet the ASTM International (formally known as ASTM - American Society of Testing and Materials) Standard Specification for Window Fall Prevention Devices with Emergency Escape (Egress) Release Mechanisms.

AW5540

Awning Window

Hinged at the Top
To keep out rain but allow light and ventilation

Custom Configurations
Can be mulled vertically or horizontally

Modular Design

- → Allows flexibility in design for multiple window configurations
- → Works well as a standalone or companion window

Hardware

- → Foldaway handle won't interfere with window treatments
- → Multi-point locking system adds an extra layer of strength and security



PW5520

Fixed Lite Picture Window

Design Flexibility
Pairs with other window shapes for a custom look. Great for creating a wall of windows.

Abundant Sunlight
Allows for the perfect view and natural light to fill the space



Fixed (Non-Operable) Window

→ Works well as a standalone or companion window

→ Allows flexibility in design for multiple window configurations

Modular Design

→ Many matching window options available

→ Enhances the look of living rooms, kitchens, and master bedrooms

→ Individual units can be mulled for a variety of shapes and sizes to create a unique vignette that's custom to your home

→ Many popular grid options available. Check with your local dealer.



PW5520 Fixed Lite Picture Window
White frames

AR5520

Fixed Lite Architectural Window

Visual Appeal
Available in an array of interesting shapes and can be customized to order

Abundant Sunlight
Allows natural light to fill the space

Fixed (Non-Operable) Window

→ Works well as a standalone or companion window

→ Allows flexibility in design for multiple window configurations

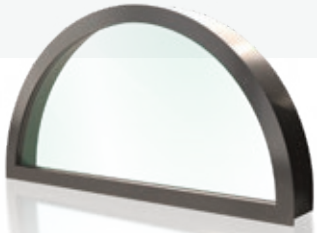
Modular Design

→ Many matching window options available

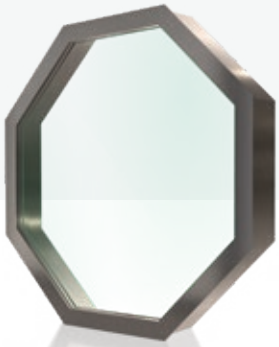
→ Enhances the look of living rooms, kitchens, and master bedrooms

→ Individual units can be mulled for a variety of shapes and sizes to create a unique vignette that's custom to your home

→ Many popular grid options available. Check with your local dealer.



Half Circle



Octagon



Circle



Trapezoid



Arch



Eyebrow

Popular Architectural shapes shown.
Ask your dealer for details on custom shapes and sizes.



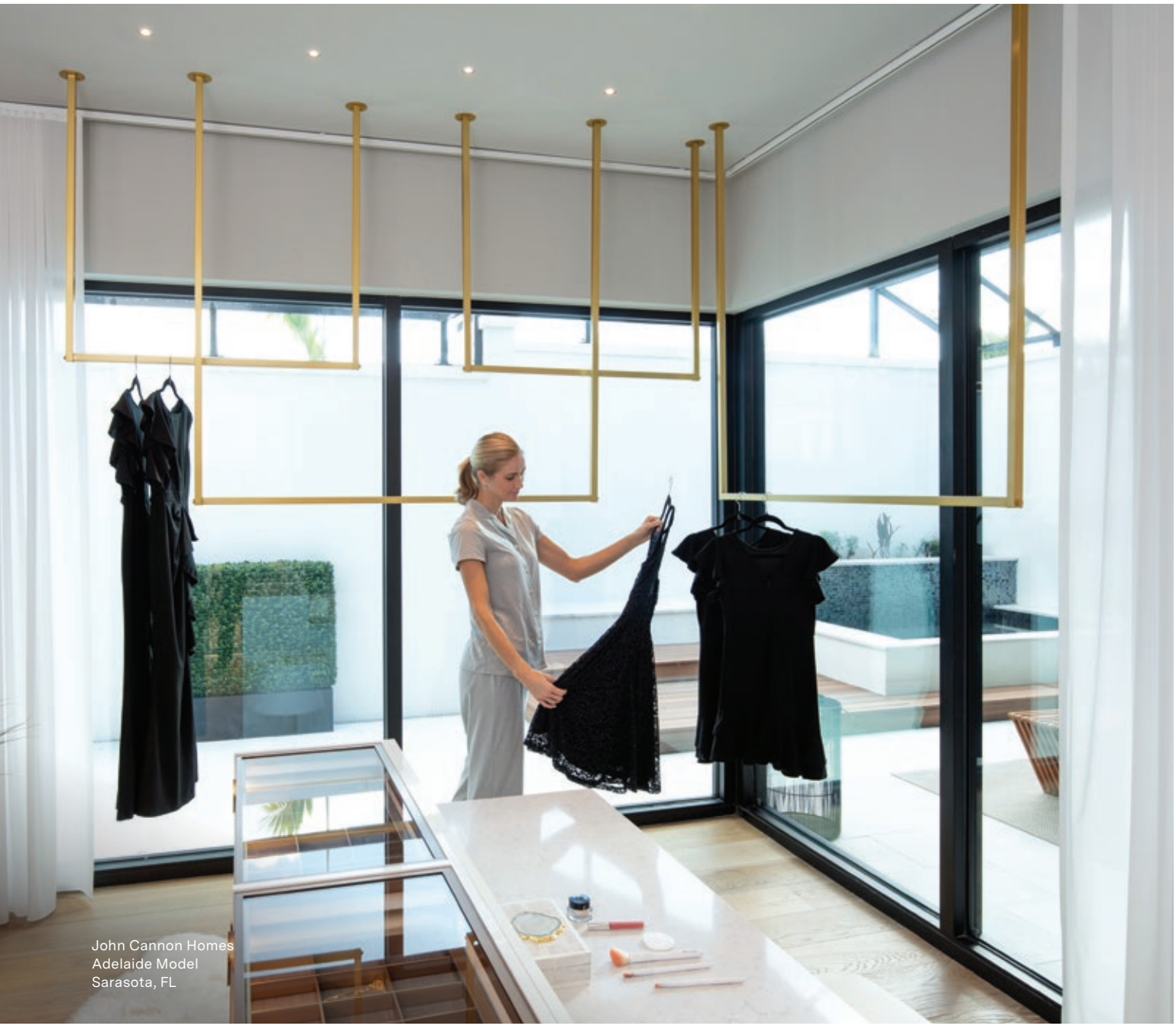
AR5520 Fixed Lite Architectural Window
4 Unit Trapezoid



AR5520 Fixed Lite Architectural Window
4 Unit Trapezoid

What makes our impact resistant products so worth the investment?

It's the safety and quiet you'll enjoy the day they're installed. It's the peace of mind knowing you're protected against unpredictable conditions. And it's the money you'll save and gain — in reduced energy bills and increased home value.



John Cannon Homes
Adelaide Model
Sarasota, FL

PARTNER SPOTLIGHT

PGT® is proud to feature properties of impeccable design and function using our products. Get inspired or find out more about our partners.

Scan the QR code to learn more about our partners and how you can benefit.

MEDALLION HOME

JOHN CANNON HOMES
Build a Legacy.

NEAL SIGNATURE HOMES
The Luxury of Living Well

HAMMOCK HOMES

The homes shown in this brochure are a collaboration with the PGT Corporate Builder Program.

GLOSSARY

Argon Gas — A safe, odorless, colorless, non-toxic, non-flammable inert gas that is commonly used in place of air between the glass panes of an insulated Low-E glass unit to reduce temperature transfer.

Corrosion Resistant — Refers to how well a substance can withstand damage caused by oxidization or other chemical reactions.

Design Pressure — Wind load pressure, expressed in pounds per square foot (psf).

ENERGY STAR® — An independent U.S. government program that establishes a standard set of guidelines to recognize the energy efficiency of various products. ENERGY STAR® guidelines are used in conjunction with a variety of building materials, including windows and patio doors.

Florida Product Approval — A statewide approval system that requires manufacturers to submit testing and engineering data to ensure certain building components meet Florida Building Code standards.

Forced-Entry Resistance — The test methods intended to establish a measure of resistance for window assemblies subjected to attacks, other than by impact.

Impact Resistant — Shatter-resistant glass. When the glass breaks, the shattered pieces will adhere to the interlayer.

Insulating Glass — Window panes separated by an air- or other gas-filled space to reduce heat transfer.

Interlayer — A shatter-resistant plastic membrane sandwiched between two panes of glass.

International Building Code — A model building code developed by the International Code Council that has been adopted throughout most of the United States.

Laminated Glass — Two panes of glass bonded together with a strong, clear interlayer.

Laminated Insulating Glass — Comprised of three panes of glass: two panes bonded together with a strong, clear interlayer and one pane for added insulation.

Large-Missile Impact — Test used on windows and doors in which a 9-lb. 2' x 4' is propelled at a speed of 34 mph onto test subject.

Low-E (Emissivity) Glass — Glass with a transparent, metallic oxide coating applied onto or into a glass surface. The coating typically allows short-wave energy to pass through but reflects long-wave infrared energy, which improves the U-value.

Miami-Dade Notice of Acceptance (NOA) — A certification method controlled by Miami-Dade County that requires products to be tested to the TAS testing protocols.

Monolithic Glass — A single pane of glass casting using one glass thickness.

National Fenestration Rating Council (NFRC) — A non-profit organization that provides energy performance ratings on windows, doors, skylights, and attachment products.

Privacy Glass — Glass that has been made translucent instead of transparent.

Sea Turtle Protection Code — Protects sea turtles along the Florida coastline during nesting season by restricting the amount of light permitted through windows and doors.

Sound Transmission Class (STC) — An integer rating that provides an estimate of the sound insulation performance of an interior building partition (such as a window or door) between indoor spaces. The higher the number, the less sound is transmitted.

Tempered glass — Treated glass that is strengthened by reheating it to just below the melting point and then suddenly cooling it. When shattered, it breaks into small pieces. Approximately four times stronger than standard annealed glass; is required as safety glazing in patio doors, entrance doors, sidelites, and other hazardous locations. It cannot be recut after tempering.

Ultraviolet (UV) — The invisible rays of the spectrum that are outside of the visible spectrum at its short-wavelength violet end. Ultraviolet rays are found in everyday sunlight and can cause fading of paint finishes, carpets, and fabrics.

Window Opening Control Device — A device that limits the opening of a window sash to a predetermined position. The device includes a release mechanism that shall allow the sash to be fully opened and that automatically resets when a window is fully closed.

Scan to Shop
PGT® Products

At PGT®, we're committed to delivering windows and doors you can rely on with Always On protection. Contact your local dealer today to get started.

PGT®

Custom Windows and Doors

PGTWINDOWS.COM | NORTH VENICE, FL

©2025 PGT CUSTOM WINDOWS + DOORS

10/2025 MC0100456

APPENDIX M

KITCHEN TOPS (416-ST4R53096SSK)

John BOOS
Since 1887

ITEM #: _____ QTY: _____
MODEL #: _____
PROJECT NAME: _____

3601 S. Banker St. Effingham, IL 62401 • P.O. BOX 609 • Ph: (888) 431-2667 • Fax: (800) 433-2667

"ST4R5-SSK" STAINLESS STEEL TOP WORK TABLES

14GA TOP W/5" RISER AND STAINLESS STEEL LEGS AND ADJUSTABLE UNDERSHELF

FEATURES:

- 14 GAUGE STAINLESS STEEL TOP W/ 5" RISER & TURNDOWN
- TYPE 300 STAINLESS STEEL WITH # 4 POLISH, SATIN FINISH
- TOP IS SOUND DEADENED
- REINFORCED WITH 1"X2" CHANNEL RUNNING ENTIRE LENGTH OF TABLE
- 1-1/2" STALLION EDGE ON FRONT SIDE EDGES
  90 DEGREE BEND DOWN FOR TABLE LINE-UP
- STAINLESS STEEL BASE WITH ADJUSTABLE UNDERSHELF
- ADJUSTABLE BULLET FEET
- SHIPPED KNOCKED-DOWN, EASY-TO-ASSEMBLE
- NSF AND CSA CERTIFIED



ST4R5-3048SSK

CONSTRUCTION:

- TOP: STAINLESS STEEL TOPS ARE TIG WELDED,
  EXPOSED WELDS ARE POLISHED TO MATCH ADJACENT SURFACE.

MATERIAL:

- TOP: 14 GAUGE STAINLESS STEEL TYPE 300 STAINLESS STEEL
  WITH # 4 POLISH, SATIN FINISH
- SHELF: 18 GAUGE STAINLESS STEEL,
  (36" WIDE TABLES, 16 GAUGE LOWER SHELF)
- LEGS: 1-5/8" ROUND O.D. 16 GAUGE TUBULAR STAINLESS STEEL
- GUSSETS: STAINLESS STEEL
- FEET: 1" ADJUSTABLE STAINLESS BULLET FEET



ADJUSTABLE SHELF

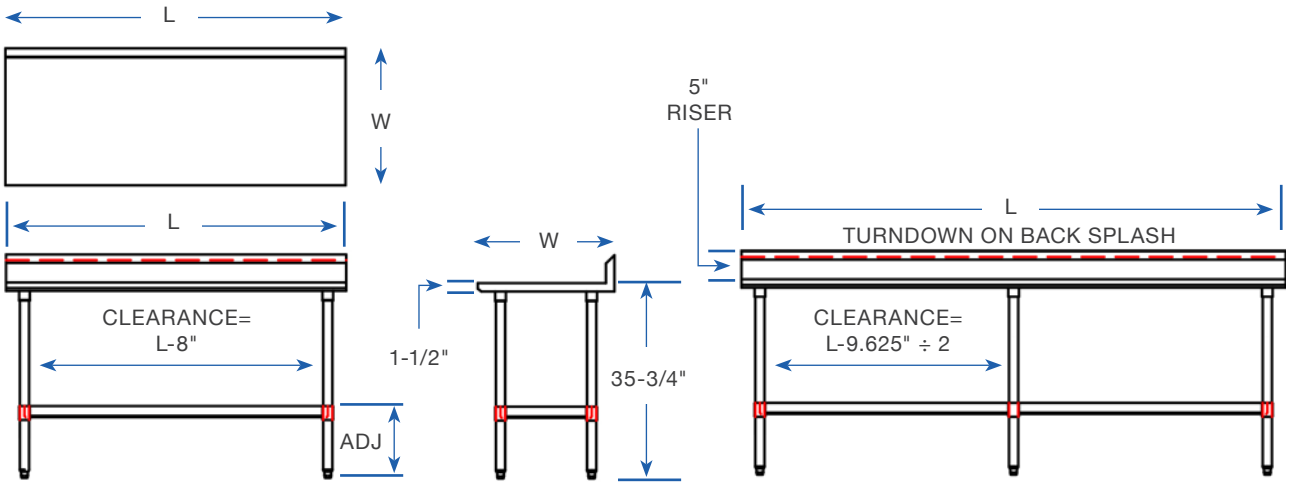
14 GAUGE TOP W/ ADJUSTABLE SHELF

24" WIDE	QTY	30" WIDE	QTY	36" WIDE	QTY
ST4R5-2436SSK		ST4R5-3036SSK		ST4R5-3636SSK	
ST4R5-2448SSK		ST4R5-3048SSK		ST4R5-3648SSK	
ST4R5-2460SSK		ST4R5-3060SSK		ST4R5-3660SSK	
ST4R5-2472SSK		ST4R5-3072SSK		ST4R5-3672SSK	
ST4R5-2484SSK		ST4R5-3084SSK		ST4R5-3684SSK	
ST4R5-2496SSK		ST4R5-3096SSK		ST4R5-3696SSK	
ST4R5-24108SSK		ST4R5-30108SSK		ST4R5-36108SSK	
ST4R5-24120SSK		ST4R5-30120SSK		ST4R5-36120SSK	

OPTIONAL ACCESSORIES

DESCRIPTION	MODEL #	QTY
DRAWER		
DRAWER LOCK		
CASTERS		
OVERSHELVES		
SINKS		
POT RACK		

DETAILED SPECIFICATIONS



- UNITS 7 FT. AND LARGER ARE FURNISHED WITH SIX LEGS.
- FINISHED SIZE OF UNDERSHELF.
  SHELF LENGTH = LENGTH MINUS 4.875”
  SHELF WIDTH = WIDTH MINUS 4.25

14 GAUGE TOP W/ ADJUSTABLE UNDERSHELF

LENGTH	24" WIDE	WT. (LBS)	30” WIDE	WT. (LBS)	36” WIDE	WT. (LBS)
36"	ST4R5-2436SSK	62	ST4R5-3036SSK	70	ST4R5-3636SSK	86
48"	ST4R5-2448SSK	76	ST4R5-3048SSK	87	ST4R5-3648SSK	91
60"	ST4R5-2460SSK	91	ST4R5-3060SSK	118	ST4R5-3660SSK	107
72"	ST4R5-2472SSK	106	ST4R5-3072SSK	122	ST4R5-3672SSK	128
84"	ST4R5-2484SSK	125	ST4R5-3084SSK	130	ST4R5-3684SSK	151
96"	ST4R5-2496SSK	144	ST4R5-3096SSK	164	ST4R5-3696SSK	173
108"	ST4R5-24108SSK	159	ST4R5-30108SSK	182	ST4R5-36108SSK	192
120"	ST4R5-24120SSK	173	ST4R5-30120SSK	199	ST4R5-36120SSK	200

MODEL # STRUCTURE

30 = WIDTH OF WORK SURFACE
5 = HT. OF RISER W/ TURNDOWN
R = RISER TOP WORK TABLE
4 = 14GA WORK SURFACE
ST = STAINLESS STEEL TOP

120 = LENGTH OF WORK SURFACE
SS = STAINLESS LEGS & SHELF
K = K.D. W/ ADJUSTABLE BRACING

ST4R5-30120SSK

SOME UNITS SHIP UNASSEMBLED FOR REDUCED SHIPPING COST. ALL DIMENSIONS ARE TYPICAL. TOLERANCE +/- .500"
John Boos & Co. is constantly engaged in a program of improving products and therefore reserves the right to change specifications without prior notice.

APPENDIX N

ELKAY CANE APRON

Cane Apron for HAC HVR EMABF & VRC Models (Stainless)
Model(s) 98324C

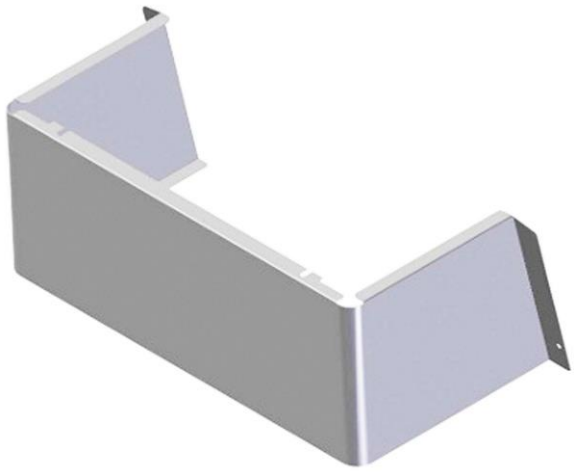
PRODUCT SPECIFICATIONS

Cane Apron for HAC HVR EMABF & VRC Models (Stainless).
Overall dimensions are 15-3/4" x 8-5/8" x 6-1/2".

Finish:	Stainless Steel
Dimensions:	15-3/4" x 8-5/8" x 6-1/2"
Shipping Weight:	3 lbs.

Special Note: For use with EMABF, VRC and VRCGRN models.

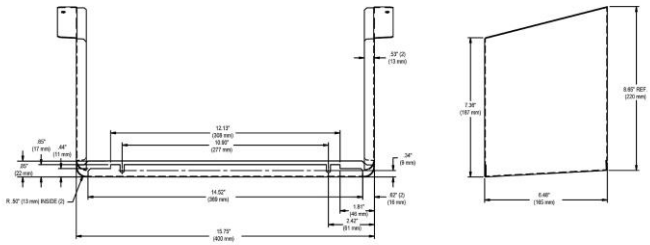
- Cane touch apron designed for use in specific bi-level applications
- For when coolers or bottle fillers are installed on an exposed wall
- ADA compliant when properly installed
- Provides the mandatory 27” (686 mm) floor-to-underside requirement for detection in a circulation path when properly installed
- Stainless steel finish is corrosion resistant and attractive



Included with Product: **Cane apron assembly**

A Century of Tradition and Quality.
For more than 100 years, Elkay has been making innovative products and providing exceptional customer care. We take pride in offering plumbing products that make life easier, inspire change and leave the world a better place.

Installation Instructions (PDF) - 98379C
Warranty (PDF)



PART:_____QTY: _____
PROJECT:_____
CONTACT:_____
DATE:_____
NOTES:_____
APPROVAL:

In keeping with our policy of continuing product improvement, Elkay reserves the right to change product specifications without notice. Please visit elkay.com for the most current version of Elkay product specification sheets. This specification describes an Elkay product with design, quality, and functional benefits to the user. When making a comparison of other producers’ offerings, be certain these features are not overlooked.

APPENDIX O

ELKAY FOUNTAIN/BOTTLE FILLER

ELKAY®
SPECIFICATIONS

Elkay ezH2O® Vandal-Resistant Bottle Filling Station & Bi-Level Cooler Non-Filtered Non-Refrigerated Stainless
Model VRCTLDDWSK

PRODUCT SPECIFICATIONS

Elkay ezH2O® Vandal-Resistant Bottle Filling Station & Bi-Level Cooler Non-Filtered Non-Refrigerated Stainless. Features shall include Green Ticker™, Laminar Flow, Real Drain, Vandal Resistant. Furnished with Vandal Resistant bubbler. Electronic Bottle Filler Button with Mechanical Front Bubbler Button activation. Product shall be Wall Mount (On Wall), for Indoor + Outdoor applications, serving 2 station(s). Unit shall be certified to UL 399 and CAN/CSA C22.2 No. 120.

Special Features:	Green Ticker™, Laminar Flow, Real Drain, Vandal Resistant
Finish:	Stainless Steel
Power:	115V/60Hz
Bubbler Style:	Vandal Resistant
Activation by:	Electronic Bottle Filler Button with Mechanical Front Bubbler Button
Mounting Type:	Wall Mount (On Wall)
Chilling Capacity:	Non-refrigerated
Full Load Amps	1
Rated Watts:	15
Dimensions (L x W x H):	36-1/8" x 18-5/8" x 38-13/16"
Approx. Shipping Weight:	112 lbs.
Installation Location:	Indoor + Outdoor
No. of Stations Served:	2
**When used in non-temperature controlled environments, unit(s) must be adequately winterized and/or protected from extreme heat to prevent damage where climates dictate.	

- Mechanically-Activated unit continues to supply water in event of service disruptions.
- Green Ticker: Informs user of number of 20 oz. plastic water bottles saved from waste.
- Laminar flow provides clean fill with minimal splash.
- Real Drain System eliminates standing water.



Included with Product: **Water Cooler (VRCTLDDWSC), Bottle Filler (VRCWS)**

▼ Ships in multiple boxes.

A Century of Tradition and Quality.
For more than 100 years, Elkay has been making innovative products and providing exceptional customer care. We take pride in offering plumbing products that make life easier, inspire change and leave the world a better place.

PRODUCT COMPLIANCE

ADA & ICC A117.1
ASME A112.19.3/CSA B45.4
CAN/CSA C22.2 No. 120
GreenSpec®
NSF/ANSI 61 (Q≤1) & 372 (lead free)
UL 399

Complies with ADA & ICC A117.1 accessibility requirements when installed according to the requirements outlined in these standards. Installation may require additional components and/or construction features to be fully compliant. Consult the local Authority Having Jurisdiction if necessary.

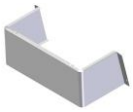
Installation Instructions (PDF) - 98982C

Electrical components and water system are warranted for 12 months from date of installation. **Warranty pertains to drinking water applications only. Non-drinking water applications are not covered under warranty.**

Warranty (PDF)

PART:_____QTY: _____
PROJECT:_____
CONTACT:_____
DATE:_____
NOTES:_____
APPROVAL:_____

In keeping with our policy of continuing product improvement, Elkay reserves the right to change product specifications without notice. Please visit elkay.com for the most current version of Elkay product specification sheets. This specification describes an Elkay product with design, quality, and functional benefits to the user. When making a comparison of other producers' offerings, be certain these features are not overlooked.

Optional Accessories		
EWF3000	Elkay® Universal Filtration Kit (3000-Gallon) Spec Sheet (PDF)	
98324C	Cane Apron for HAC HVR EMABF & VRC Models (Stainless) Spec Sheet (PDF)	
36292C	Power Block for Multistation Bottle Filling Stations Spec Sheet (PDF)	

In keeping with our policy of continuing product improvement, Elkay reserves the right to change product specifications without notice. Please visit elkay.com for the most current version of Elkay product specification sheets. This specification describes an Elkay product with design, quality, and functional benefits to the user. When making a comparison of other producers' offerings, be certain these features are not overlooked.

Elkay ezH2O® Vandal-Resistant Bottle Filling Station & Bi-Level Cooler Non-Filtered Non-Refrigerated Stainless
Model VRCTLDDWSK

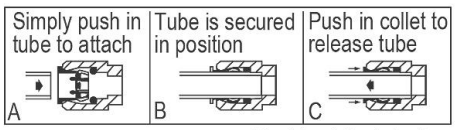
IMPORTANT!
INSTALLER PLEASE NOTE :

This water cooler has been designed and built to provide water to the user which has not been altered by materials in the cooler waterways. The grounding of electrical equipment such as telephone, computer, etc. to water lines is a common procedure. The grounding may be in the building but may also occur away from the building. This grounding can cause electrical feedback into a water cooler creating an electrolysis which creates a metallic taste or causes an increase in the metal content of the water. This condition is avoidable by installing the cooler using the proper materials as shown below.

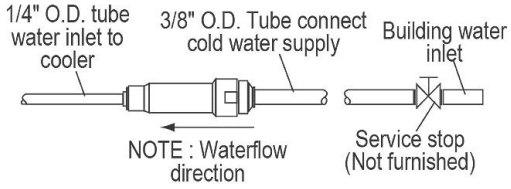
NOTICE

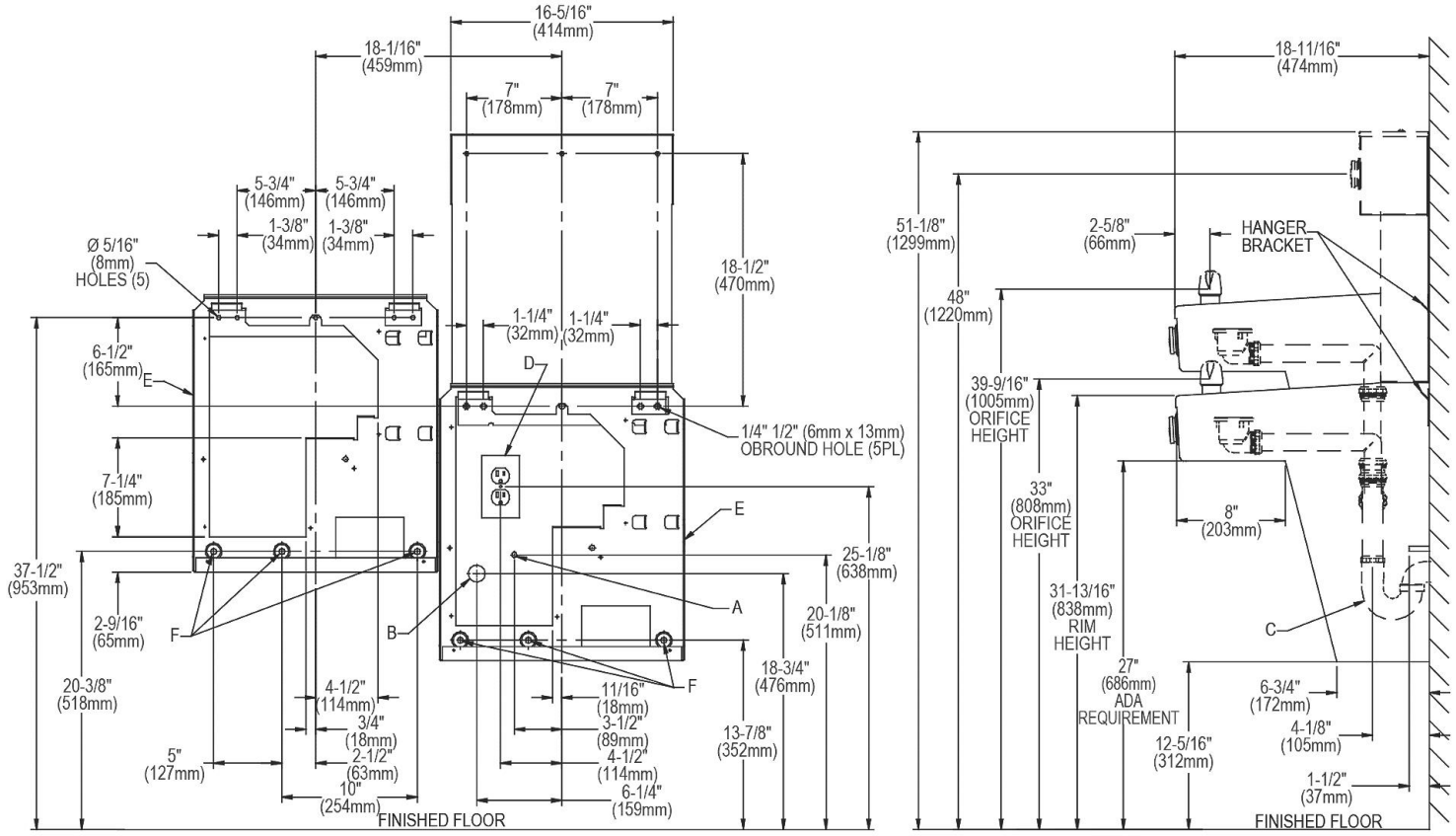
This water cooler must be connected to the water supply using a dielectric coupling. The cooler is furnished with a non-metallic strainer which meets this requirement. The drain trap which is provided by the installer should also be plastic to completely isolate the cooler from the building plumbing system.
Bottle filler unit on bracket attached to wall by 6 holes (as shown). Water and electrical will connect through pre-punched hole in basin.

OPERATION OF QUICK CONNECT FITTINGS



Pushing tube in before pulling it out helps to release tube





REDUCE HEIGHT BY 3" FOR INSTALLATION OF CHILDREN'S ADA COOLER

LEGEND:
A = Recommended Water Supply location. Shut-off Valve (not furnished) to accept 3/8" O.D. unplated copper tube. Up to 3" (76mm) maximum out from wall.
B = Recommended Waste Outlet location. To accommodate 1-1/2" nominal drain. Drain stub 2" (51mm) out from wall.
C = 1-1/2" Trap (not furnished).
D = Electrical Supply (3) Wire Recessed Box Duplex Outlet.
E = Insure proper ventilation by maintaining 6" (152mm) minimum clearance from cabinet louvers to wall.
F = 7/16" (11mm) Bolt Holes for fastening to wall.
Note : New Installations Must Use Ground Fault Circuit Interrupter (GFCI).

In keeping with our policy of continuing product improvement, Elkay reserves the right to change product specifications without notice. Please visit elkay.com for the most current version of Elkay product specification sheets. This specification describes an Elkay product with design, quality, and functional benefits to the user. When making a comparison of other producers' offerings, be certain these features are not overlooked.

APPENDIX P

BATHROOM PARTITION WALLS

Toilet Partitions



ASI® Accurate Partitions

To provide Solid Plastic (HDPE) toilet partitions with the proper care and maintenance, the following instructions must be followed:

1. All accessible surfaces should be cleaned with a mild liquid soap only.
2. The surfaces should then be wiped and dried.
3. In areas containing showers, either self-contained or tiled-in units, the partitions in these rooms must receive ventilation from the outside so that excess humidity can escape.

Under no circumstance should the following agents be used:

- Abrasive powders or scouring pads
- Water closet cleaners
- Ceramic tile cleaners
- Solutions containing more than 1% by volume of ammonia
- Solutions containing acids or lye
- Solutions containing enzymes

If the above instructions are adhered to, our product shall provide years of dependable service.

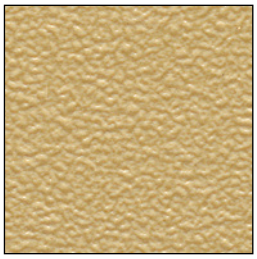
ASI Accurate Partitions shall not accept responsibility for product failure if the above instructions are not followed.

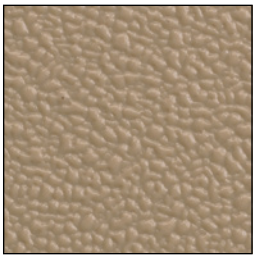
Solid Plastic (HDPE) Color Selection Guide

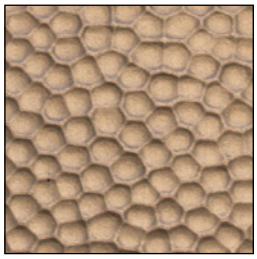

White
9201

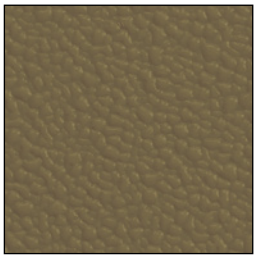

Cream
9235

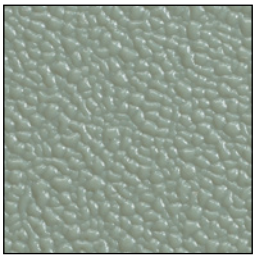

Ivory Essence
Speckle 9500*


Caramel
9658

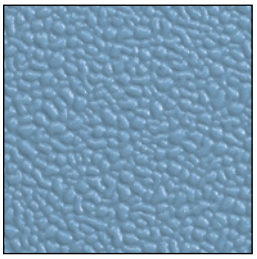

Mocha
9212

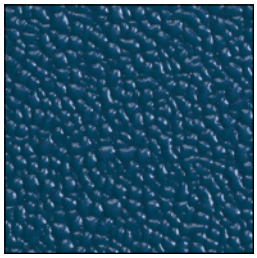

Metallic Bronze
9513

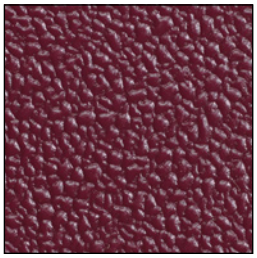

Olive
9223


Moss
9233

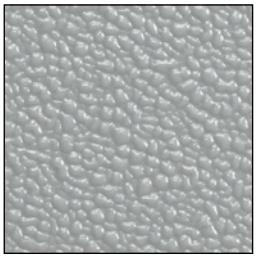

Hunter Green
9508

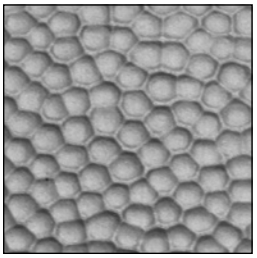

Azure
9231

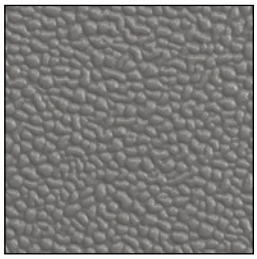

Blue
9509

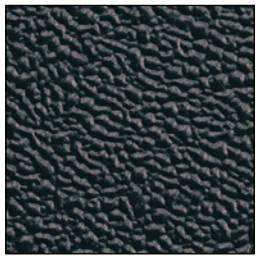

Burgundy
9211

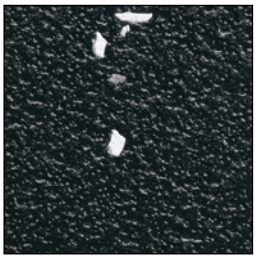

Folkstone Gray
9400*


Gray
9200


Metallic Silver
9511


Charcoal
9237


Black
9205


Black Confetti
9217*

ASI Accurate Partitions
160 Tower Drive, Burr Ridge, IL 60527
Tel: 708.442.6800 Fax: 708.442.7439
E-mail: info@asi-accuratepartitions.com
Web: asi-accuratepartitions.com

**Not available in Tough Texture™ or Hammered finishes.*
Actual colors may vary slightly from those shown due to limitations in the printing process.

©2018 ASI Accurate Partitions, an ASI Group Company

ASI106810418

Specifications

Solid Plastic Partitions

Floor Anchored/Overhead Braced

4.3

Solid Plastic Partitions with Floor Anchored/Overhead Braced Mounting Style

Part 1 - General

1.01 Work Included

A. The toilet partitions shall be high-density polyethylene (HDPE) polymer with floor anchored/overhead braced mounting style as manufactured by **ASI Accurate Partitions,** Burr Ridge, Illinois.

B. Furnish all labor and materials necessary for completion of work in this section as shown in the approved drawings and specified herein.

Related Work – Specified elsewhere shall include accessories and anchorage/blocking for attachment of partitions.

Part 2 Product

2.01 Door, Panels, Pilaster and Urinal Screens –Shall be 1" thick (door and panels 55" high, pilasters 82" high) HDPE polymer that is water resistant and non-absorbent. A heat sink shall be attached as standard to the bottom of all doors and panels.

2.02 Material – The HDPE material shall have homogenous color throughout each component with ¼" machined edges for uniformity. Self-lubricating surface shall resist markings from pens, pencils and other writing instruments.

2.03 Color- Will be selected from **Accurate's** full range of standard designer colors.

2.04 Door Hardware - Hinges shall be 8" and fabricated from heavy-duty extruded aluminum alloy with a brushed anodized finish. Wrap-around flanges are mounted and thru-bolted to doors and pilasters with stainless steel tamper resistant barrel nuts and shoulder screws. Hinges operate on field adjustable, gravity activated cams that can be set in 30-degree increments. Emergency access is accomplished by lifting the door from the bottom.

Door Strike and Keeper: Shall be 6" and fabricated from heavy-duty extruded aluminum alloy with brushed finish. Wrap-around flanges are mounted and thru-bolted to pilaster with stainless steel tamper resistant barrel nuts and shoulder screws.

Latch: Anodized extruded aluminum, with housing, slide bolt and button. Latch at accessible compartments shall be sliding type only.

2.05 Mounting Hardware –Brackets shall be extruded aluminum stirrup brackets. Brackets shall be thru-bolted to the panels with tamper resistant barrel nuts and shoulder screws.

2.06 Construction Design- Partitions shall be anchored to the floor by a 1-piece, 3" high, stainless steel anchor trim with bottom plate through which concrete anchors are driven into the floor. Pilaster is leveled with machine screw threaded into an insert in bottom of pilaster and is fastened to anchor trim with tamper resistant stainless fasteners. Headrail with anti-grip profile shall provide overhead bracing and span all compartments and brace the end pilaster to the back wall.

Part 3 Execution

3.01 Installation – Shall be installed in accordance to the **ASI Accurate's** installation instructions with partitions rigid, straight and plumb. Doors and panels shall be mounted 14" above the finished floor.

3.02 Warranty – ASI Accurate Partitions guarantees its solid plastic HDPE material against breakage, corrosion, and delamination for 25 YEARS from the date of receipt by the customer. If material is found defective during that period, the material shall be replaced free of charge. No credits or allowances shall be issued for any labor or expenses relating to the replacement of components covered under the warranty plan.

160 Tower Drive
Burr Ridge, IL 60527
Tel: (708) 442-6800
Fax: (708) 442-7439
www.asi-accuratepartitions.com

October 17, 2019

ASI Accurate Partitions warrants that its products will be free of defects in material or workmanship under normal usage from the date of invoice for a period as stated below.

Powder Coated Steel: Three (3) years against chipping, flaking, cracking or discoloration

Stainless Steel: Five (5) years against corrosion or discoloration

Moisture Guard™ Plastic Laminate: Five (5) years against discoloration or delamination

Legacy Plastic Laminate: Two (2) years against discoloration or delamination

Black Core/Color-Thru Phenolic: Twenty-five (25) years against delamination, breakage or corrosion

Solid Plastic (HDPE): Twenty-five (25) years against delamination, breakage or corrosion

If material is found to be defective during the above period, the material shall be repaired or replaced (at ASI Accurate Partitions' discretion) free of charge. No credits or allowances shall be issued for any labor or expenses relating to the repair replacement of components covered under the warranty plan. The repair or replacement of material shall be the sole remedy of purchaser and ASI Accurate Partitions shall not be liable for incidental, consequential or indirect damages caused by any defects in the partitions or any delay in repairing or replacing defective product.

These warranties shall not be applicable if vandalism, improper installation, or improper cleaning/maintenance of partitions has contributed as just cause for the partition failure. These warranties extend to commercial and industrial purchasers and do not extend to any other persons, including consumers of the partitions. These warranties are in lieu of all other warranties, express or implied, including any implied warranty of merchantability or fitness for a particular purpose or otherwise.

160 Tower Drive. Burr Ridge, IL 60527
www.asi-accuratepartitions.com
Tel: 708.442.6800
Fax: 708.442.7439



SOLID PLASTIC (HDPE) PARTITIONS

ENVIRONMENTALLY SAFE– MILDEW, RUST, GRAFFITI AND IMPACT RESISTANT

Solid Plastic (HDPE) partitions are water resistant and unaffected by steam or high humidity. ASI solid plastic partitions have passed the NFPA 286 fire test standard.

Shipped In 48 HOURS





COLORS, FINISHES, STYLES + SIZES

Solid Plastic partitions in Blue 9509, see colors on pages 18-19. For configuration styles, see pages 20-21 and sizes on the Material Selection Guide.

ASI ACCURATE MATERIAL SELECTION

SIX DISTINCT MATERIALS TO MATCH ANY AESTHETIC AND PERFORMANCE NEED



Stainless Steel

ASI's stainless steel metal partitions are manufactured with Integrated Privacy™ and complement any design scheme. By adding a textured finish, increased resistance to vandalism can be achieved. Available in all mounting styles.

Warranty 5 years*



Solid Plastic (HDPE)

Highly resistant to common cleaning agents as well as to moisture, mildew, and graffiti. Ideal choice for busy public facilities and high humidity applications—never needs painting and will not easily dent, rust, or delaminate. Available in a wide variety of colors and mounting styles. Floor Anchored/ Overhead Braced, Ceiling Hung, and Floor to Ceiling Anchored styles.

Warranty 25 years*



Powder Coated Steel

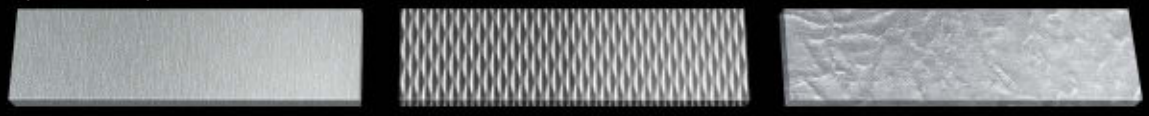
ASI's powder coated metal partitions are manufactured with Integrated Privacy™. Thermoset hybrid powder coating on these galvannealed steel partitions provide quality and economy. The finish is resistant to wear, fading, and scuffing. It is easily cleaned and wiped dry. Available in all mounting styles.

Warranty 3 years*

STAINLESS STEEL**

Shipped In 48 HOURS

STANDARD FINISH:



#4 Satin | Diamond | Leather Grain

Stainless Steel 48 hour shipping available only in #4 Satin finish.

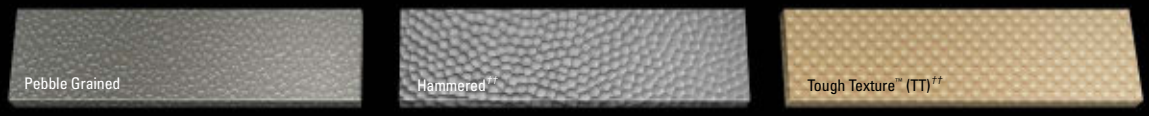
SOLID PLASTIC (HDPE)**

Shipped In 48 HOURS

COLOR SELECTION:



AVAILABLE FINISHES:



Available in all non-metallic colors.

Stocked in silver and bronze. Available in all non-speckled colors with additional lead time and required minimums.

Available in all non-speckled colors with additional lead time and required minimums.

PHENOLIC

BLACK CORE SELECTION:** Price Index: $

Shipped In 48 HOURS



COLOR-THRU™ SELECTION:** (Not available in 48 hours) Price Index: $$$$$



†† *Compartments limits also apply to the non-stocked colors.*

Actual colors may vary slightly from those shown due to limitations in the printing process. If color is important request color samples prior to ordering. Colors are subject to change without notice.

**Directional Pattern—Pattern on panels over 60" wide will run perpendicular to pattern on doors and pilasters. Patterns shown cropped from full size sheet, contact us for additional references.*

*** Additional charges for non-standard colors, including White 1050.*

ASI ACCURATE STYLES



Floor Anchored/Overhead Braced

This economical and sturdy mounting style installs just about anywhere. An anodized aluminum anti-grip head rail secures partitions firmly to the walls.



Floor Anchored

Simplified construction permits ease of installation anywhere. For concrete floors only: 2" minimum penetration into floor required.



Ceiling Hung

When used together with wall-hung fixtures, the entire floor is accessible for efficient cleaning. Structural steel ceiling supports are necessary to assure proper installation.



Floor to Ceiling Anchored

This mounting style is extremely stable and durable as pilasters are anchored into both the concrete floor and the structural ceiling support.

APPENDIX Q

ATHLETIC FIELD SURFACING

SECTION 321813 – ATHLETIC FIELD SURFACING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SCOPE OF WORK

A. Furnish all labor, materials, tools, and equipment necessary to install, in place, all synthetic turf material as indicated on the plans and as specified herein. The installation of all new materials shall be performed in strict accordance with the Manufacturer's written installation instructions, and in accordance with all approved shop drawings.

B. Prior to order of materials, the Synthetic Turf Contractor shall submit the following:

1. Product data, including Independent Laboratory Test Results,
2. Installation details,
3. Sample Warranty,
4. Field layout and striping plans,
5. Details on construction, especially any details that may deviate from plans and specifications.
6. Turf Cooling product data and warranty.

C. Prior to the beginning of installation, the Synthetic Turf Contractor of the synthetic turf shall verify the base for planarity. Upon written confirmation from the base contractor that compaction/planarity and drainage/permeability specifications have been achieved, the installation of synthetic turf will proceed as arranged.

D. Prior to Final Acceptance, the Synthetic Turf Contractor shall submit to the Owner three (3) copies of Executed Warranty Documents and Maintenance Manuals, which will include necessary instructions for the proper care and preventative maintenance of the synthetic turf system, including painting and striping.

1.3 SHOP DRAWINGS AND SUBMITTALS

A. Shop drawings shall be prepared at the scale of the construction documents and contain all pertinent information regarding installation. These drawings shall be submitted to the Owner or Owner's representative for approval prior to the manufacturing and shipment of materials.

B. Submit drawings for:

1. Installation details, edge detail, goal post detail, other inserts, and covers, etc., as required by contract.
2. Striping plan showing any field lines, markings and boundaries, and field logos per project drawings.
3. Infill, porous stone base, drainage system.

C. Submit one (1) finished product sample, twelve inches (12”) x twelve inches (12”) minimum. Submit one (1) adhered sample twelve inches (12”) x twelve inches (12”) minimum indicating adhered inlaid lines and stiching/gluing technique.

D. Submit any and all documentation as necessary to ensure the Owner that a safe, durable and proven synthetic turf system complying with the latest industry standards, such as, but not limited to, The Synthetic Turf Council, for a sports field surface, and complying with these specifications, is being provided.

1.4 QUALITY ASSURANCE

A. Synthetic Turf Contractor’s Experience:
1. The Synthetic Turf Contractor must be a certified member of the Synthetic Turf Council in good standing.
2. The Contractor shall submit a minimum of five (5) references for the Synthetic Turf Contractor for similar sized projects with similar amenities, completed over the past five (5) years.

B. The system shall be tufted on a 1/2” gauge. The fiber tufts shall be in a uniform pattern with symmetrical spacing between the tufts. The pile height shall be approximately 2.0 inches.

C. Monofilament fiber yarns must be produced from C_8 Ethylene Copolymers.

D. The Primary Backing shall consist of two layers of woven fabric and one layer of non-woven fabric (minimum of (3) three separate backing layers). Primary backing must contain UV stabilizers and must pass 500 hours of QUVA testing.

E. The Secondary Backing of high-grade polyurethane shall be applied to the Primary Backing at 23 oz/yd^2. Secondary Backing adds resistance to water degradation and strengthens grip on fibers. The tuft bind shall be a minimum average of 10 lb-F.

F. The entire backing shall be coated with holes perforated throughout the backing at the Synthetic Turf Manufacturer’s recommended interval to allow for drainage. Partially coated backings or latex coating materials shall not be acceptable.

G. Warranty: The Synthetic Turf Contractor shall submit it Manufacturer’s Warranty, which guarantees the usability and playability of the synthetic turf system for its intended uses for an eight (8) year period commencing with the date of Substantial Completion.

1. The warranty submitted must have the following characteristics:

a) Must provide full-field coverage for eight (8) years from date of Substantial Completion,
b) Must warrant materials and workmanship,
c) Must warrant that the materials installed meet or exceed the product specifications within manufacturing tolerances,
d) Must have a provision to either repair or replace such portion of the installed materials that are no longer serviceable to maintain a serviceable and playable surface,
e) Must be a Manufacturer’s warranty from a single source covering workmanship and all self-manufactured or procured materials,
f) Must not be limited to the amount of annual usage,

1.5 EXISTING CONDITIONS

A. If the surface on which the new synthetic turf is to be installed is an existing asphaltic/concrete base, the Synthetic Turf Contractor will be responsible for any damage due to negligence to the concrete during removal/installation of the synthetic turf system provided there are no failures below the surface which contribute to the damage. The football goal posts, if any, are to be removed and reinstalled by the Owner or Prime Contractor to facilitate the installation of the new synthetic turf system.

B. If the surface on which the new synthetic turf to be installed is a new asphaltic/concrete base or a new base of compacted, porous aggregate, the Synthetic Turf Contractor will be responsible for any damage to the base during removal/installation of the synthetic turf system after the deficiencies (if any) have been corrected by the base contractor with respect to planarity, compaction, and drainage/permeability. New football goal posts (if any) and/or infield dirt mix backfill within the contiguous synthetic turf limits or immediately adjacent thereto are not to be installed by the Owner or Prime Contractor until after the new synthetic turf system has been completed. Damage to the synthetic turf system during the installation of such materials is not the responsibility of the Synthetic Turf Contactor.

1.6 SCHEDULE

A. The Synthetic Turf Contractor shall complete all work on the synthetic turf system in accordance with the published project schedule, or as mutually agreed upon.

B. The Synthetic Turf Contractor will require unencumbered use of an area within thirty (30) feet of the synthetic turf area(s) being installed in order to complete his work. The Synthetic Turf Contractor shall also be afforded unencumbered access through the construction site to reach the synthetic turf field area being installed.

1.7 SURFACE AREA

A. The Synthetic Turf Contractor is to verify all measurements.

1.8 UTILITIES

A. Owner or Prime Contractor will supply necessary water, adequate lighting, and electricity for installation. Owner or Prime Contractor shall permit use of toilet and wash up facilities.

PART 2- PRODUCTS

2.1 MATERIALS

A. The fibers shall include a monofilament (spinneret, extruded), bi-color (mix of Field Green- two ends, and Olive Green- two ends) multifilament polyethylene and a parallel fibrillated tape yarn (5,000 denier Lime Green). The two yarn bundles shall be tufted through the same needle in a grass-like fabric to a finished pile height of approximately 2.0” and coated with a secondary backing of high-grade polyurethane. The synthetic turf fabric shall be filled with 70% ambient rubber and 30% rounded silica sand.

B. All components and their installation method shall be designed and manufactured for use on outdoor athletic fields. The materials as hereinafter specified should be able to with-

stand full climatic exposure in all climates, be resistant to insect infestation, rot, fungus, mildew, ultraviolet light and heat degradation, and shall have the basic characteristics of flow-through drainage, allowing free movement of surface runoff through the synthetic turf fabric where such water may flow to the existing base and into the field drainage system.

C. The finished playing surface shall appear as mowed grass with no irregularities and shall afford excellent traction for conventional athletic shoes of all types. The finished surface shall resist abrasion and cutting from normal use. The system shall be suitable for football, field hockey, soccer, lacrosse, baseball, softball, PE classes, intramurals, and recreational use.

D. The polyethylene multifilament pile yarn shall be a proven athletic caliber yarn designed specifically for outdoor use and stabilized to resist the effect of ultraviolet degradation, heat, foot traffic, water, and airborne pollutants. The pile fiber shall possess the following physical characteristics:

	Legion 41	**METHOD**
Linear Density (Denier)	5,000 (slit); 7,200 (mono)	ASTM D 1577
Yarn Thickness	100 microns (slit); 240 microns (mono)	ASTM D 3218
Break Strength	8 lb-F (slit); 25 lb-F (mono)	ASTM D 2256
Pile Weight*	41 oz/yd^2	ASTM D 5848

The above specifications are nominal. * Values are +/- 5%.

E. The Pile fabric shall possess the following physical characteristics:

	Legion 41	**METHOD**
Finished Pile Height*	2” (51mm)	ASTM D 5823
Product Weight (total)*	72 oz/yd^2	ASTM D 5848
Primary Backing Weight*	8 oz/yd^2	ASTM D 5848
Secondary Coating Weight**	23 oz/yd^2	ASTM D 5848
Fabric Width	15’ (4.57m)	ASTM D 5793
Tuft Gauge	1/2”	ASTM D 5793
Grab Tear Strength	200 lb-F	ASTM D 5034
Tuft Bind (Avg)*	>10 lb-F	ASTM D 1335

Except where noted as a minimum or maximum, the above specifications are nominal. * Values are +/- 5%. **All values are +/- 3 oz/yd^2.

F. Impregnated (Infill) Layer will be 70% ambiently processed SBR rubber and 30% rounded silica sand.

G. Perimeter edge details, underground storm sewer piping and connections, and goal post foundations required for the system shall be as detailed and recommended by the Design Professional, and as approved by the Owner. The cost for these embedded items shall be included in the Sitework Contractor’s price along with the compacted, porous base.

H. Basis of design product: Legion® 41 manufactured and installed by Shaw Sports Turf: 1-866-703-4004.

2.2 TURF COOLING

A. Synthetic turf cooling product must cool the surface by removing heat from the turf materials using evaporative cooling.

B. Materials

1) Must be a material that coats the rubber infill. The coating is a thin coating that must not negatively affect the appearance or the performance of the infill. The material must have the ability to absorb and desorb water so it acts as a water reservoir inside the synthetic turf field. The water is available for cooling when the turf temperature starts to rise.

C. Quality Assurance

1) Must provide a written four year warranty guaranteeing a minimum of 30 degrees (Fahrenheit) cooling. The four year warranty must identify the test procedures to be followed to verify the effectiveness of the cooling.
2) Must provide the test results from at least two field installations that show minimum cooling has been achieved per the warranty protocol.
3) Must provide field testing reports that show no adverse effect to playing surface performance characteristics.

PART 3- EXECUTION

3.1 GENERAL

A. The installation shall be performed in full compliance with approved shop drawings.

B. Only factory-trained technicians skilled in the installation of athletic caliber synthetic turf systems shall undertake the placement of the system.

C. Subject to the requirements in Section 1.2(B), the surface to receive the synthetic turf shall be verified by the Synthetic Turf Contractor as ready for the installation of the synthetic turf system and must be perfectly clean as installation commences and shall be maintained in that condition throughout the process.

3.3 INSTALLATION

A. The completed base and adjacent curbs/perimeter nailer shall be inspected by the Engineer or Sitework Contractor by means of a laser and plotted on a 10-foot grid. Based upon the Contractor's inspection of the topographical survey, the Sitework Contractor shall fine grade the base suitably, including properly rolling and compacting the base to achieve a surface planarity within ¼" in 10-feet (+0, -1/4"). OWNER, ENGINEER, OR PRIME CONTRACTOR SHALL NOT APPROVE THE BASE FOR TOLERANCE TO GRADE WITHOUT OBTAINING THE TOPOGRAPHICAL SURVEY.

B. Subgrade and base shall be uniformly compacted to a minimum of 95% of maximum dry density. Care must be exercised to minimize segregation. Sitework Contractor shall make written records available to Synthetic Turf Contractor's inspector for both drainage/permeability and compaction/planarity as obtained from a minimum 10' x 10' grid.

C. The Synthetic Turf Project Superintendent shall thoroughly inspect all synthetic turf materials delivered to the site for both mixing and quantity to assure that the entire installation shall have sufficient material to maintain proper mixing ratios.

D. Synthetic turf shall be loose-laid across the field, stretched, and attached to the perimeter edge detail. Synthetic turf shall be of sufficient length to permit full cross-field installation. No head or cross seams will be allowed except as needed for inlaid fabric striping or to accommodate programmed cut-outs.

E. All seams shall be flat, tight, and permanent with no separation or fraying. Selvedge edges of all panels must be cut and discarded prior to being sewn together. A butt-stitch method of seaming must be implemented and a double-lock stitch with cord recommended by the Synthetic Turf Manufacturer shall be utilized. Bagger stitching is prohibited. Field seams will also be glued (if applicable) to seaming tape. Seaming tape is to be constructed of high tenacity, coated non-woven fabric. Inlaid markings shall be adhered to seaming tape with a high strength polyurethane adhesive applied per the Synthetic Turf Manufacturer's standard procedures for outdoor applications. All main fabric seams shall be transverse to the field direction (i.e. run perpendicularly across the field).

F. Infill materials shall be properly applied in numerous lifts using special broadcasting equipment to produce a system of sand and recycled SBR rubber particles. The synthetic turf shall be raked and brushed properly as the mixture is applied. The infill material shall be installed to a settled depth of approximately 1-3/8 inches. The infill materials can only be applied when the synthetic turf fabric is dry.

G. g-Max (shock attenuation) must test below 125 at installation.

3.4 FIELD MARKINGS AND DECORATIONS

A. Field markings and decorations shall be installed in accordance with approved project shop drawings.

3.5 CLEAN UP

A. Synthetic Turf Contractor shall provide the labor, supplies, and equipment, as necessary, for final cleaning of the surfaces.

B. The Synthetic Turf Contractor shall keep the area clean and clear of debris throughout the project.

C. Surfaces, recesses, enclosures, etc., shall be cleaned as necessary to leave the work area in a clean, immaculate condition ready for immediate occupancy and use by Owner.

END OF SECTION

APPENDIX R

CHAIN LINK FENCES AND GATES

SECTION 323113 - CHAIN-LINK FENCES AND GATES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:

1. Chain-Link Fences
2. Gates

1.2 PERFORMANCE REQUIREMENTS

A. Structural Performance: Provide chain-link fences and gates capable of withstanding the effects of gravity loads and the following loads and stresses within limits and under conditions indicated:

1. Minimum Post Size and Maximum Spacing for Wind Velocity Pressure: Determine based on mesh size and pattern specified, and on the following minimum design wind pressures and according to CLFMI WLG 2445:

   a. Wind Speed: 80 mph.
   b. Fence Height: at 10’ tall
   c. Line Post Group: IA, ASTM F 1043, Schedule 40 steel pipe.
   d. Wind Exposure Category: C.

2. Determine minimum post size, group, and section according to ASTM F 1043 for framework up to 12 feet high, and post spacing not to exceed 10 feet.

B. Lightning Protection System: Maximum grounding-resistance value of 25 ohms under normal dry conditions.

1.3 SUBMITTALS

A. Product Data: Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for chain-link fences and gates.

1. Fence and gate posts, rails, and fittings.
2. Chain-link fabric, reinforcements, and attachments.
3. Gates and hardware.

B. Shop Drawings: Show locations of fences, gates, posts, rails, tension wires, details of extended posts, extension arms, gate swing, or other operation, hardware, and accessories. Indicate materials, dimensions, sizes, weights, and finishes of components. Include plans, gate elevations, sections, details of post anchorage, attachment, bracing, and other required installation and operational clearances.

1. For installed products indicated to comply with design loads, include structural analysis data.

C. Samples for Initial Selection: Manufacturer's color charts or 6-inch lengths of actual units showing the full range of colors available for components with factory-applied color finishes.

D. Samples for Verification: For each type of chain-link fence and gate indicated.

1. Polymer-coated steel wire (for fabric) in 6-inch lengths.
2. Polymer coating, in 6-inch lengths on shapes for posts, rails, wires, and gate framing and on full-sized units for accessories.

E. Field quality-control test reports.

F. Maintenance Data: For the following to include in maintenance manuals:

1. Polymer finishes.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: An experienced installer who has completed chain-link fences and gates similar in material, design, and extent to those indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.

1. Engineering Responsibility: Preparation of data for chain-link fences and gates, including Shop Drawings, based on testing and engineering analysis of manufacturer's standard units in assemblies similar to those indicated for this Project.

B. Testing Agency Qualifications: An independent agency, with the experience and capability to conduct the testing indicated, that is a member company of the International Electrical Testing Association or is a nationally recognized testing laboratory (NRTL) as defined by OSHA in 29 CFR 1910.7, and that is acceptable to authorities having jurisdiction.

1. Testing Agency's Field Supervisor: Person currently certified according to NETA ETT, or the National Institute for Certification in Engineering Technologies, to supervise on-site testing specified in Part 3.

C. Pre-installation Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Management and Coordination."

1.5 PROJECT CONDITIONS

A. Field Measurements: Verify layout information for chain-link fences and gates shown on Drawings in relation to property survey and existing structures. Verify dimensions by field measurements.

B. Interruption of Existing Utility Service: Do not interrupt utility services to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:

1. Notify Architect no fewer than two days in advance of proposed interruption of utility services.
2. Do not proceed with interruption of utility services without Architect's written permission.

PART 2 - PRODUCTS

2.1 CHAIN-LINK FENCE FABRIC

A. General: Height indicated on Drawings. Provide fabric in one-piece heights measured between top and bottom of outer edge of selvage knuckle or twist. Comply with ASTM A 392, CLFMI CLF 2445, and requirements indicated below:

1. Steel Wire Fabric: Polymer-coated wire –see plans for gauge of core wire.

    a. Mesh Size: 2 inches.
    b. Weight of Metallic (Zinc) Coating: ASTM A 392, Type II, Class 2, 2.0 oz./sq. ft. with zinc coating applied before weaving.
    c. Polymer Coating: Fusion-bonded PVC – color black.
    d. Coat selvage ends of fabric that is metallic coated before the weaving process with manufacturer's standard clear protective coating.

2. Selvage: Knuckled at both selvages.

2.2 INDUSTRIAL FENCE FRAMING

A. Posts and Rails: Comply with ASTM F 1043 for framing, ASTM F 1083 for Group IC round pipe, and the following:

1. Group: IA, round steel pipe, Schedule 40.
2. Fence Height: indicated on drawings.
3. Strength Requirement: Heavy industrial according to ASTM F 1043.
4. Post Diameter and Thickness: According to ASTM F 1083.

    a. Line Post: indicated on drawings.
    b. End, Corner and Pull Post: indicated on drawings.
    c. Swing Gate Post: indicated on drawings.

5. Coating for Steel Framing:

    a. Metallic Coating:

        1) Type B, zinc with organic overcoat, consisting of a minimum of 0.9 oz./sq. ft. of zinc after welding, a chromate conversion coating, and a clear, verifiable polymer film.
        2) External, Type B, zinc with organic overcoat, consisting of a minimum of 0.9 oz./sq. ft. of zinc after welding, a chromate conversion coating, and a clear, verifiable polymer film. Internal, Type D, consisting of 81 percent, not less than 0.3-mil- thick, zinc pigmented coating.
        3) Type C, Zn-5-Al-MM alloy, consisting of not less than 1.8-oz./sq. ft. coating.
        4) Coatings: Any coating above.

    b. Polymer coating over metallic coating.

2.3 TENSION WIRE

A. General: Provide horizontal tension wire at the following locations:

1. Location: Extended along bottom of fence fabric
2. Location: as indicated on drawings.

B. Metallic-Coated Steel Wire: 0.177-inch- diameter, marcelled tension wire complying with ASTM A 817, ASTM A 824, and the following:

1. Metallic Coating: Type II, zinc coated (galvanized) by hot-dip process, with the following minimum coating weight:

   a. Class 1: Not less than 0.8 oz./sq. ft. of uncoated wire surface.
   b. Class 2: Not less than 1.2 oz./sq. ft. of uncoated wire surface.
   c. Class 3: Not less than 2 oz./sq. ft. of uncoated wire surface.
   d. Matching chain-link fabric coating weight.

2. Metallic Coating: Type III, Zn-5-Al-MM alloy with the following minimum coating weight:

   a. Class 1: Not less than 0.6 oz./sq. ft. of uncoated wire surface.
   b. Class 2: Not less than 1 oz./sq. ft. of uncoated wire surface.
   c. Matching chain-link fabric coating weight.

2.4 INDUSTRIAL SWING GATES

A. General: Comply with ASTM F 900 for single and double swing gate types.

1. Metal Pipe and Tubing: Galvanized steel. Comply with ASTM F 1043 and ASTM F 1083 for materials and protective coatings.

B. Frames and Bracing: Fabricate members from round tubing with outside dimension and weight according to ASTM F 900 and the following:

1. Gate Fabric Height: As indicated.
2. Leaf Width: As indicated.
3. Frame Members:

   a. Tubular Steel: as indicated.

C. Frame Corner Construction:

1. assembled with corner fittings.

D. Hardware: Latches permitting operation from both sides of gate, hinges, center gate stops and keepers for each gate leaf more than 5 feet wide. Fabricate latches with integral eye openings for padlocking; padlock accessible from both sides of gate.

2.5 FITTINGS

A. General: Comply with ASTM F 626.

B. Post and Line Caps: Provide for each post.

1. Line post caps with loop to receive tension wire or top rail.

C. Rail and Brace Ends: Attach rails securely to each gate, corner, pull, and end post.

D. Rail Fittings: Provide the following:
1. Rail Clamps: Line and corner boulevard clamps for connecting intermediate bottom rails in the fence line-to-line posts.

E. Tension and Brace Bands: Pressed steel.

F. Tension Bars: Steel, length not less than 2 inches shorter than full height of chain-link fabric. Provide one bar for each gate and end post, and two for each corner and pull post, unless fabric is integrally woven into post.

G. Truss Rod Assemblies: Steel, hot-dip galvanized after threading rod and turnbuckle or other means of adjustment.

H. Tie Wires, Clips, and Fasteners: According to ASTM F 626.

1. Standard Round Wire Ties: For attaching chain-link fabric to posts, rails, and frames, complying with the following:

a. Hot-Dip Galvanized Steel: 0.148-inch- diameter wire; galvanized coating thickness matching coating thickness of chain-link fence fabric.

I. Finish:

1. Metallic Coating for Pressed Steel or Cast Iron: Not less than 1.2 oz. /sq. ft. zinc.
2. Aluminum: Mill finish.

2.6 POLYMER FINISHES

A. Supplemental Color Coating: In addition to specified metallic coatings for steel, provide fence components with polymer coating.

B. Metallic-Coated Steel Tension Wire: PVC-coated wire complying with ASTM F 1664, Class 1.

C. Metallic-Coated Steel Framing and Fittings: Comply with ASTM F 626 and ASTM F 1043 for polymer coating applied to exterior surfaces and, except inside cap shapes, to exposed interior surfaces.

1. Polymer Coating: Not less than 10-mil- thick PVC finish.

D. Color: Match chain-link fabric, complying with ASTM F 934.

E. All fence posts and rails to be polyester powder coated.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas and conditions, with Installer present, for compliance with requirements for site clearing, earthwork, pavement work, and other conditions affecting performance.

1. Do not begin installation before final grading is completed, unless otherwise permitted by Architect.
2. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Stake locations of fence lines, gates, and terminal posts. Do not exceed intervals of 500 feet or line of sight between stakes. Indicate locations of utilities, lawn sprinkler system, underground structures, benchmarks, and property monuments.

3.3 INSTALLATION, GENERAL

A. Install chain-link fencing to comply with ASTM F 567 and more stringent requirements specified.

1. Install fencing on established boundary lines inside property line.

3.4 CHAIN-LINK FENCE INSTALLATION

A. Post Excavation: Drill or hand-excavate holes for posts to diameters and spacings indicated, in firm, undisturbed soil.

B. Post Setting: Set posts in concrete at indicated spacing into firm, undisturbed soil.

1. Verify that posts are set plumb, aligned, and at correct height and spacing, and hold in position during setting with concrete or mechanical devices.
2. Concrete Fill: Place concrete around posts to dimensions indicated and vibrate or tamp for consolidation. Protect aboveground portion of posts from concrete splatter.

    a. Exposed Concrete: Extend 2 inches above grade; shape and smooth to shed water.

C. Terminal Posts: Locate terminal end, corner, and gate posts per ASTM F 567 and terminal pull posts at changes in horizontal or vertical alignment of as indicated on Drawings.

D. Line Posts: Space line posts uniformly at as indicated.

E. Post Bracing and Intermediate Rails: Install according to ASTM F 567, maintaining plumb position and alignment of fencing. Install braces at end and gate posts and at both sides of corner and pull posts.

1. Locate horizontal braces at mid-height of fabric 6 feet or higher, on fences with top rail and at 2/3 fabric height on fences without top rail. Install so posts are plumb when diagonal rod is under proper tension.

F. Tension Wire: Install according to ASTM F 567, maintaining plumb position and alignment of fencing. Pull wire taut, without sags. Fasten fabric to tension wire with 0.120-inch- diameter

hog rings of same material and finish as fabric wire, spaced a maximum of 24 inches o.c. Install tension wire in locations indicated before stretching fabric.

G. Top Rail: Install according to ASTM F 567, maintaining plumb position and alignment of fencing. Run rail continuously through line post caps, bending to radius for curved runs and terminating into rail end attached to posts or post caps fabricated to receive rail at terminal posts. Provide expansion couplings as recommended in writing by fencing manufacturer.

H. Bottom Rails: Install, spanning between posts.

I. Chain-Link Fabric: Apply fabric to inside (facing ballfield) of enclosing framework. Leave 1 inch between finish grade or surface and bottom selvage, unless otherwise indicated. Pull fabric taut and tie to posts, rails, and tension wires. Anchor to framework so fabric remains under tension after pulling force is released.

J. Tension or Stretcher Bars: Thread through fabric and secure to end, corner, pull, and gate posts with tension bands spaced not more than 15 inches o.c.

K. Tie Wires: Use wire of proper length to firmly secure fabric to line posts and rails. Attach wire at 1 end to chain-link fabric, wrap wire around post a minimum of 180 degrees, and attach other end to chain-link fabric per ASTM F 626. Bend ends of wire to minimize hazard to individuals and clothing.

1. Maximum Spacing: Tie fabric to line posts at 12 inches o.c. and to braces at 24 inches o.c.

L. Fasteners: Install nuts for tension bands and carriage bolts on the side of the fence opposite the fabric side.

GATE INSTALLATION

M. Install gates according to manufacturer's written instructions, level, plumb, and secure for full opening without interference. Attach fabric as for fencing. Attach hardware using tamper-resistant or concealed means. Install ground-set items in concrete for anchorage. Adjust hardware for smooth operation and lubricate where necessary.

3.5 FIELD QUALITY CONTROL

A. Grounding-Resistance Testing: Owner will engage a qualified independent testing and inspecting agency to perform field quality-control testing.

1. Grounding-Resistance Tests: Subject completed grounding system to a megger test at each grounding location. Measure grounding resistance not less than two full days after last trace of precipitation, without soil having been moistened by any means other than natural drainage or seepage and without chemical treatment or other artificial means of reducing natural grounding resistance. Perform tests by two-point method according to IEEE 81.
2. Excessive Grounding Resistance: If resistance to grounding exceeds specified value, notify Architect promptly. Include recommendations for reducing grounding resistance and a proposal to accomplish recommended work.
3. Report: Prepare test reports certified by a testing agency of grounding resistance at each test location. Include observations of weather and other phenomena that may affect test results.

3.6 ADJUSTING

A. Gate: Adjust gate to operate smoothly, easily, and quietly, free of binding, warp, excessive deflection, distortion, nonalignment, misplacement, disruption, or malfunction, throughout entire operational range. Confirm that latches and locks engage accurately and securely without forcing or binding.

B. Lubricate hardware and other moving parts.

END OF SECTION

APPENDIX S

LAWNS AND GRASSES

SECTION 329200 - LAWNS AND GRASSES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Seeding.
2. Sodding.
3. Sprigging.
4. Erosion-control material(s).

1.2 DEFINITIONS

A. Finish Grade: Elevation of finished surface of planting soil.

B. Manufactured Soil: Soil produced off-site by homogeneously blending mineral soils or sand with stabilized organic soil amendments to produce topsoil or planting soil.

C. Planting Soil: Native or imported topsoil, manufactured topsoil, or surface soil modified to become topsoil; mixed with soil amendments.

D. Subgrade: Surface or elevation of subsoil remaining after completing excavation, or top surface of a fill or backfill immediately beneath planting soil.

E. Subsoil: All soil beneath the topsoil layer of the soil profile, and typified by the lack of organic matter and soil organisms.

1.3 SUBMITTALS

A. Certification of Grass Seed: From seed vendor for each grass-seed monostand or mixture stating the botanical and common name and percentage by weight of each species and variety, and percentage of purity, germination, and weed seed. Include the year of production and date of packaging.

1. Certification of each seed mixture for turfgrass sod, identifying source, including name and telephone number of supplier.

B. Material Test Reports: For existing surface soil and imported topsoil.

C. Maintenance Instructions: Recommended procedures to be established by Owner for maintenance of lawns during a calendar year. Submit before expiration of required initial maintenance periods.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: A qualified landscape installer whose work has resulted in successful lawn establishment.

1. Installer's Field Supervision: Require Installer to maintain an experienced full-time supervisor on Project site when planting is in progress.

B. Soil-Testing Laboratory Qualifications: An independent laboratory, recognized by the State Department of Agriculture, with the experience and capability to conduct the testing indicated and that specializes in types of tests to be performed.

SPECIAL NOTE RELATED TO SEEDING: SEE SPECIAL PROVISIONS FOR LANGUAGE RELATED TO RELEASE OF PAYMENT AND OWNER ACCEPTANCE RELATED TO ESTABLISHMENT OF TURF.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Seed: Deliver seed in original sealed, labeled, and undamaged containers.

B. Sod: Harvest, deliver, store, and handle sod according to requirements in TPI's "Specifications for Turfgrass Sod Materials" and "Specifications for Turfgrass Sod Transplanting and Installation" in its "Guideline Specifications to Turfgrass Sodding." Deliver sod in time for planting within 24 hours of harvesting. Protect sod from breakage and drying.

1.6 PROJECT CONDITIONS

A. Weather Limitations: Proceed with planting only when existing and forecasted weather conditions permit.

1.7 MAINTENANCE SERVICE

A. Initial Lawn Maintenance Service: Provide full maintenance by skilled employees of landscape Installer. Maintain as required in Part 3. Begin maintenance immediately after each area is planted and continue until acceptable lawn is established, but for not less than the following periods:

1. Seeded Lawns: 60 days from date of planting completion.

    a. When initial maintenance period has not elapsed before end of planting season, or if lawn is not fully established, continue maintenance during next planting season.

2. Sodded Lawns: 30 days from date of planting completion.
3. Sprigged Lawns: 60 days from date of planting completion.

B. **SPECIAL PROVISION: GRASSING**

Seeding, sprigging or sodding of turf areas must occur with enough time remaining in the contract and provide all maintenance, watering, fertilizing, top dressing, etc. so that acceptable final lawns providing the conditions of Section 329200 have been met the date of substantial completion, including maintenance, and a healthy, uniform, close stand of grass is established, free of: bare spots in excess of 6 inches square and surface irregularities. Coordination with the general contractor will be necessary to ensure that areas to receive turf have been prepared ready to begin grassing by date necessary to ensure establishment by substantial completion. This includes scheduling of seeding of all disturbed areas and requirements of the erosion control plans. All efforts should be made to ensure permanent lawns required by the plans can be established during the seasons necessary for the various species of grass. This may mean that establishment of final grades and seeding, sprigging, and sodding may have to occur early in the project schedule and other work coordinated around lawn areas as construction continues, with touch up grassing as required.

At substantial completion, if lawns are not established, including all disturbed areas caused by construction, no additional payment for this or any other work will be made until the con-

tractor exhibits effort to establish lawns by final completion. If by final completion, lawns are not established, the contractor must sod all areas at no additional expense, including all disturbed areas caused by construction activities.

Exception: If the majority of the project occurs over the winter and the permanent Bermuda grass seeding or sprigging can not be installed during the dates required for growth and graded areas could not have been prepared so that grassing could not have occurred earlier in the construction schedule when growing conditions were sufficient, the contractor, at no additional expense to the owner, shall install temporary seeding and maintain temporary cover until the next season for permanent seeding. Upon return of proper growing conditions in the Spring, if in the sole opinion of the owner the contractor does not commit sufficient resources to expeditiously establish the seeded or sprigged lawns, the contractor must sod all areas at no additional expense, including all disturbed areas caused by construction activities.

The Owner reserves the right to withhold enough payment for the establishment of lawns (including additional costs to sod areas shown as seeded or sprigged turf) until establishment of lawns over 100% of the project is acceptable to the Owner. Release of such payments will only be made at the Owner's discretion depending on the contractor's effort to establish lawns.

PART 2 - PRODUCTS

2.1 SEED

A. Grass Seed: Fresh, clean, dry, new-crop seed complying with AOSA's "Journal of Seed Technology; Rules for Testing Seeds" for purity and germination tolerances.

B. Seed Species: State-certified seed of grass species, as follows:

1. Full Sun: Bermudagrass (Cynodon dactylon).

2.2 TURFGRASS SOD

A. Turfgrass Sod: Certified Number 1 Quality/Premium, including limitations on thatch, weeds, diseases, nematodes, and insects, complying with TPI's "Specifications for Turfgrass Sod Materials" in its "Guideline Specifications to Turfgrass Sodding." Furnish viable sod of uniform density, color, and texture, strongly rooted, and capable of vigorous growth and development when planted.

B. Turfgrass Species: as indicated on plans

2.3 SPRIGS

A. Sod Sprigs: Healthy living stems, rhizomes, or stolons with a minimum of two nodes and attached roots free of soil, of the following turfgrass species:

1. Turfgrass Species: as indicated on plans

2.4 TOPSOIL

A. Topsoil: ASTM D 5268, pH range of 5.5 to 7, a minimum of 2 percent organic material content; free of stones 1 inch or larger in any dimension and other extraneous materials harmful to plant growth. See Earthwork for additional information.

1. Topsoil Source: Reuse surface soil stockpiled on-site. Verify suitability of stockpiled surface soil to produce topsoil. Clean surface soil of roots, plants, sod, stones, clay lumps, and other extraneous materials harmful to plant growth.

    a. Supplement with imported or manufactured topsoil from off-site sources when quantities are insufficient. Obtain topsoil displaced from naturally well-drained construction or mining sites where topsoil occurs at least 4 inches deep; do not obtain from agricultural land, bogs or marshes.

2. Topsoil Source: Import topsoil or manufactured topsoil from off-site sources. Obtain topsoil displaced from naturally well-drained construction or mining sites where topsoil occurs at least 4 inches deep; do not obtain from agricultural land, bogs or marshes.

2.5 INORGANIC SOIL AMENDMENTS

A. Lime: ASTM C 602, agricultural limestone containing a minimum of 80 percent calcium carbonate equivalent and as follows:

1. Class: T, with a minimum of 99 percent passing through No. 8 sieve and a minimum of 75 percent passing through No. 60 sieve.
2. Class: O, with a minimum of 95 percent passing through No. 8 sieve and a minimum of 55 percent passing through No. 60 sieve.
3. Provide lime in form of dolomitic limestone.

B. Sulfur: Granular, biodegradable, containing a minimum of 90 percent sulfur, with a minimum of 99 percent passing through No. 6 sieve and a maximum of 10 percent passing through No. 40 sieve.

C. Iron Sulfate: Granulated ferrous sulfate containing a minimum of 20 percent iron and 10 percent sulfur.

D. Aluminum Sulfate: Commercial grade, unadulterated.

E. Perlite: Horticultural perlite, soil amendment grade.

F. Agricultural Gypsum: Finely ground, containing a minimum of 90 percent calcium sulfate.

G. Sand: Clean, washed, natural or manufactured, free of toxic materials.

H. Diatomaceous Earth: Calcined, diatomaceous earth, 90 percent silica, with approximately 140 percent water absorption capacity by weight.

I. Zeolites: Mineral clinoptilolite with at least 60 percent water absorption by weight.

2.6 ORGANIC SOIL AMENDMENTS

A. Compost: Well-composted, stable, and weed-free organic matter, pH range of 5.5 to 8; moisture content 35 to 55 percent by weight; 100 percent passing through 1-inch sieve; soluble salt content of 5 to 10 deci-siemens/m; not exceeding 0.5 percent inert contaminants and free of substances toxic to plantings; and as follows:

1. Organic Matter Content: 50 to 60 percent of dry weight.
2. Feedstock: Agricultural, food, or industrial residuals; biosolids; yard trimmings; or source-separated or compostable mixed solid waste.

B. Peat: Sphagnum peat moss, partially decomposed, finely divided or granular texture, with a pH range of 3.4 to 4.8.

C. Peat: Finely divided or granular texture, with a pH range of 6 to 7.5, containing partially decomposed moss peat, native peat, or reed-sedge peat and having a water-absorbing capacity of 1100 to 2000 percent.

D. Wood Derivatives: Decomposed, nitrogen-treated sawdust, ground bark, or wood waste; of uniform texture, free of chips, stones, sticks, soil, or toxic materials.

1. In lieu of decomposed wood derivatives, mix partially decomposed wood derivatives with ammonium nitrate at a minimum rate of 0.15 lb/cu. ft. of loose sawdust or ground bark, or with ammonium sulfate at a minimum rate of 0.25 lb/cu. ft. of loose sawdust or ground bark.

E. Manure: Well-rotted, un-leached, stable or cattle manure containing not more than 25 percent by volume of straw, sawdust, or other bedding materials; free of toxic substances, stones, sticks, soil, weed seed, and material harmful to plant growth.

2.7 PLANTING ACCESSORIES

A. Selective Herbicides: EPA registered and approved, of type recommended by manufacturer for application.

2.8 FERTILIZER

A. Bonemeal: Commercial, raw or steamed, finely ground; a minimum of 4 percent nitrogen and 10 percent phosphoric acid.

B. Superphosphate: Commercial, phosphate mixture, soluble; a minimum of 20 percent available phosphoric acid.

C. Commercial Fertilizer: Commercial-grade complete fertilizer of neutral character, consisting of fast- and slow-release nitrogen, 50 percent derived from natural organic sources of urea formaldehyde, phosphorous, and potassium in the following composition:

1. Composition: 1 lb/1000 sq. ft. of actual nitrogen, 4 percent phosphorous, and 2 percent potassium, by weight.
2. Composition: Nitrogen, phosphorous, and potassium in amounts recommended in soil reports from a qualified soil-testing agency.

D. Slow-Release Fertilizer: Granular or pelleted fertilizer consisting of 50 percent water-insoluble nitrogen, phosphorus, and potassium in the following composition:

1. Composition: 20 percent nitrogen, 10 percent phosphorous, and 10 percent potassium, by weight.
2. Composition: Nitrogen, phosphorous, and potassium in amounts recommended in soil reports from a qualified soil-testing agency.

2.9 MULCHES

A. Fiber Mulch: Biodegradable, dyed-wood, cellulose-fiber mulch; nontoxic; free of plant-growth or germination inhibitors; with a maximum moisture content of 15 percent and a pH range of 4.5 to 6.5.

2.10 EROSION-CONTROL MATERIALS

A. Erosion-Control Blankets: Biodegradable wood excelsior, straw, or coconut-fiber mat enclosed in a photodegradable plastic mesh. Include manufacturer's recommended steel wire staples, 6 inches long.

B. Erosion-Control Fiber Mesh: Biodegradable burlap or spun-coir mesh, a minimum of 0.92 lb/sq. yd., with 50 to 65 percent open area. Include manufacturer's recommended steel wire staples, 6 inches long.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas to receive lawns and grass for compliance with requirements and other conditions affecting performance.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Protect structures, utilities, sidewalks, pavements, and other facilities, trees, shrubs, and plantings from damage caused by planting operations.

1. Protect adjacent and adjoining areas from hydro-seeding and hydro-mulching overspray.
2. Protect grade stakes set by others until directed to remove them.

B. Provide erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.

3.3 LAWN PREPARATION

A. Limit lawn subgrade preparation to areas to be planted.

B. Newly Graded Subgrades: Loosen subgrade to a minimum depth of 6 inches. Remove stones larger than 1 inch in any dimension and sticks, roots, rubbish, and other extraneous matter and legally dispose of them off Owner's property.

1. Apply commercial fertilizer (10-10-10) fertilizer directly to subgrade before loosening.
2. Thoroughly blend planting soil mix off-site before spreading or spread topsoil, apply soil amendments and fertilizer on surface, and thoroughly blend planting soil mix.

    a. Delay mixing fertilizer with planting soil if planting will not proceed within a few days.
    b. Mix lime with dry soil before mixing fertilizer.

3. Spread planting soil mix to a depth of 6 inches but not less than required to meet finish grades after light rolling and natural settlement. Do not spread if planting soil or subgrade is frozen, muddy, or excessively wet.

a. Spread approximately 1/2 the thickness of planting soil mix over loosened subgrade. Mix thoroughly into top 4 inches of subgrade. Spread remainder of planting soil mix.
b. Reduce elevation of planting soil to allow for soil thickness of sod.

4. See Earthwork section for additional information for preparation of sand base material and laser grading required for sprigged areas.

C. Unchanged Subgrades: If lawns are to be planted in areas unaltered or undisturbed by excavating, grading, or surface-soil stripping operations, prepare surface soil as follows:

1. Remove existing grass, vegetation, and turf. Do not mix into surface soil.
2. Loosen surface soil to a depth of at least 6 inches. Apply soil amendments and fertilizers according to planting soil mix proportions and mix thoroughly into top 4 inches of soil. Till soil to a homogeneous mixture of fine texture.

a. Apply commercial fertilizer (10-10-10] fertilizer directly to surface soil before loosening.

3. If not already required by Earthwork sections, remove stones larger than 1 inch in any dimension and sticks, roots, trash, and other extraneous matter.
4. Legally dispose of waste material, including grass, vegetation, and turf, off Owner's property.

D. Finish Grading: Grade planting areas to a smooth, uniform surface plane with loose, uniformly fine texture. Roll and rake, remove ridges, and fill depressions to meet finish grades. Limit finish grading to areas that can be planted in the immediate future. See Earthwork specifications for additional information.

E. Moisten prepared lawn areas before planting if soil is dry. Water thoroughly and allow surface to dry before planting. Do not create muddy soil.

F. Before planting, restore areas if eroded or otherwise disturbed after finish grading.

3.4 PREPARATION FOR EROSION-CONTROL MATERIALS

A. Prepare area as specified in "Lawn Preparation" Article.

B. For erosion-control blanket or mesh, install from top of slope, working downward, and as recommended by material manufacturer for site conditions. Fasten as recommended by material manufacturer.

C. Moisten prepared area before planting if surface is dry. Water thoroughly and allow surface to dry before planting. Do not create muddy soil.

3.5 SEEDING

A. Sow seed with spreader or seeding machine. Do not broadcast or drop seed when wind velocity exceeds 5 mph. Evenly distribute seed by sowing equal quantities in two directions at right angles to each other.

1. Do not use wet seed or seed that is moldy or otherwise damaged.

2. Do not seed against existing trees. Limit extent of seed to outside edge of planting saucer.

B. Sow Common Bermuda seed at a total rate of 75lbs/acre

C. Rake seed lightly into top 1/8 inch of soil, roll lightly, and water with fine spray.

D. Protect seeded areas with slopes exceeding 1:3 with erosion-control blankets installed and stapled according to manufacturer's written instructions.

3.6 HYDROSEEDING

A. Hydroseeding: Mix specified seed, fertilizer, and fiber mulch in water, using equipment specifically designed for hydro-seed application. Continue mixing until uniformly blended into homogeneous slurry suitable for hydraulic application.

1. Mix slurry with fiber-mulch manufacturer's recommended tackifier.
2. Apply slurry uniformly to all areas to be seeded in a one-step process. Apply slurry at a rate per manufacturer’s recommendations, and seed component is deposited at not less than the specified seed-sowing rate.

3.7 SODDING

A. Lay sod within 24 hours of harvesting. Do not lay sod if dormant or if ground is frozen or muddy.

B. Lay sod to form a solid mass with tightly fitted joints. Butt ends and sides of sod; do not stretch or overlap. Stagger sod strips or pads to offset joints in adjacent courses. Avoid damage to subgrade or sod during installation. Tamp and roll lightly to ensure contact with subgrade, eliminate air pockets, and form a smooth surface. Work sifted soil or fine sand into minor cracks between pieces of sod; remove excess to avoid smothering sod and adjacent grass.

1. Lay sod across angle of slopes exceeding 1:3.
2. Anchor sod on slopes exceeding 1:6 with wood pegs spaced as recommended by sod manufacturer but not less than 2 anchors per sod strip to prevent slippage.

C. Saturate sod with fine water spray within two hours of planting. During first week after planting, water daily or more frequently as necessary to maintain moist soil to a minimum depth of 1-1/2 inches below sod.

3.8 SPRIGGING

A. Broadcast sprigs uniformly over prepared surface at a rate of 650 bushels/acre and mechanically force sprigs into lightly moistened soil.

1. Spread a 1/4-inch- thick layer of topsoil on sprigs.
2. Lightly roll and firm soil around sprigs after planting.
3. Water sprigs immediately after planting and keep moist by frequent watering until well rooted.

3.9 LAWN MAINTENANCE

A. Lawn maintenance is the responsibility of the contractor until final acceptance.

B. Maintain and establish lawn by watering, fertilizing, weeding, mowing, trimming, replanting, and other operations. Roll, regrade, and replant bare or eroded areas and remulch to produce a uniformly smooth lawn. Provide materials and installation the same as those used in the original installation.

1. In areas where mulch has been disturbed by wind or maintenance operations, add new mulch and anchor as required to prevent displacement.

C. Watering: Provide and maintain temporary piping, hoses, and lawn-watering equipment to convey water from sources and to keep lawn uniformly moist to a depth of 4 inches.

1. Schedule watering to prevent wilting, puddling, erosion, and displacement of seed or mulch. Lay out temporary watering system to avoid walking over muddy or newly planted areas.
2. Water lawn with fine spray at a minimum rate of 1 inch per week unless rainfall precipitation is adequate.

D. Mow lawn as soon as top growth is tall enough to cut. Repeat mowing to maintain specified height without cutting more than 1/3 of grass height. Provide at least 3 mowings as needed to maintain healthy lawn. Remove no more than 1/3 of grass-leaf growth in initial or subsequent mowings. Do not delay mowing until grass blades bend over and become matted. Do not mow when grass is wet. Schedule initial and subsequent mowings to maintain the following grass height:

1. Mow grass to a height of 1/2 inch or less.
2. Mow grass to a height of 1/2 to 1 inch.
3. Mow grass to a height of 1 to 2 inches.
4. Mow grass to a height of 2 to 3 inches.

E. Lawn Post-fertilization: Apply fertilizer after initial mowing and when grass is dry.

1. Use fertilizer that will provide actual nitrogen of at least 1 lb/1000 sq. ft. to lawn area.

3.10 SATISFACTORY LAWNS

A. Lawn installations shall meet the following criteria as determined by Architect:

1. Satisfactory Seeded Lawn: At end of maintenance period, a healthy, uniform, close stand of grass has been established, free of weeds and surface irregularities, with coverage exceeding 90 percent over any 10 sq. ft. and bare spots not exceeding 6 by 6 inches.

   SPECIAL NOTE RELATED TO SEEDING: SEE SPECIAL PROVISIONS FOR LANGUAGE RELATED TO RELEASE OF PAYMENT AND OWNER ACCEPTANCE RELATED TO ESTABLISHMENT OF TURF IN AREAS REQUIRING SEEDING.

2. Satisfactory Sodded Lawn: At end of maintenance period, a healthy, well-rooted, even-colored, viable lawn has been established, free of weeds, open joints, bare areas, and surface irregularities.
3. Satisfactory Sprigged Lawn: At end of maintenance period, the required number of sprigs has been established as well-rooted, viable plants; and areas between sprigs are free of weeds and other undesirable vegetation.

B. Use specified materials to reestablish lawns that do not comply with requirements and continue maintenance until lawns are satisfactory.

3.11 CLEANUP AND PROTECTION

A. Promptly remove soil and debris, created by lawn work, from paved areas. Clean wheels of vehicles before leaving site to avoid tracking soil onto roads, walks, or other paved areas.

B. Erect temporary fencing or barricades and warning signs as required to protect newly planted areas from traffic. Maintain fencing and barricades throughout initial maintenance period and remove after lawn is established.

C. Remove non-degradable erosion-control measures after grass establishment period.

END OF SECTION

APPENDIX T

SPORTS FIELDS

SECTION 329250 - SPORTSFIELDS

PART 1 – GENERAL

1.1 DESCRIPTION OF WORK

A. Removal of existing vegetation
B. Grading of sports fields, including fine grading and laser grading.
C. Finish grading of sports fields including laser grading
D. Sodding fields.

1.2 SUBMITTALS

A. Permitting
B. Sand & Root zone Material Analysis – Test shall include the following:
    1. Sand, Silt & Clay Analysis
    2. Percolation Rate
    3. Fertility Analysis & Recommendations

1.3 DEFINITIONS

A. Topsoil: Friable surface soil which is reasonably free of subsoil, rocks, stones, sticks and other debris over one inches (1”) in size in any direction and without weeds, roots and other objectionable material.
B. Sub-Surface Soil: That soil directly below the topsoil being existing in place soil and/or properly compacted imported soil, both being stable as a supporting medium and acceptable as a part of a root zone for sports field construction.
C. Root zone: The combination of silt, sand, clay, organic matter, lime and fertilizer lightly blended into a loose homogenous mixture. Root zone consists of the 2” subsurface soil, 2” of top soil and 2” of sand blended to a depth of 6 inches.
D. Sand: USGA Greens Sand or sand meeting the USGA specification per particle analysis.
E. Dolomitic Limestone, ground to meet agricultural standards containing a minimum of eighty-five percent (85%) carbonates.
F. Fertilizer: A commercial mixed grade fertilizer of nitrogen, phosphorus, potassium and in percentages recommended based on soil sample analysis.
G. Sod: Tifway 419 Bermuda grass. The sod shall be harvested from vigorously growing, properly fertilized field(s) with at least one full growing season prior to harvesting. Sod shall be harvested in thirty inch (30”) width rolls or larger and the harvest netting shall be removed upon installation.

1.4 QUALITY ASSURANCE

Only experienced subcontractors meeting all of the following qualifications will be considered for the grassing and irrigation of the sportsfields. If the General Contractor proposes to self perform the sports field work described herein, the documentation described below must be submitted within the stipulated time frame. Prime bidders who intend to subcontract the sports field construction must submit documentation listed herein for all sports field subcontractors. This information can be provided after the bid, prior to commencing the work. The General Contractor is responsible for determining the subcontractor's qualifications based on the following criteria.

1. The Sports Field subcontractor must have a minimum of 5 years' experience, having predominately performed the discipline specific work being considered for this project.
2. The Sports Field Contractor or subcontractor shall have built and completed 5 sportsfield construction projects during the past 10 years; said fields shall have included installation of sod or sprigs and have been performed by the actual Sports Field Subcontractor.
3. The Sports Field subcontractor shall perform all required work with staff supervision and employees, using company equipment either owned or leased.
4. The bid shall include submittal of information demonstrating the sports field contractor or subcontractor's qualifications and experience, including, but not limited to the following:

   EXPERIENCE:

   State the following "Listed Data" for all athletic projects completed by the sports field contractor or subcontractor; requiring a minimum of five (5) sports field construction projects within the past ten (10) years.

   - Project's Complete Name and Address
   - Owner's Complete Name, Address, Telephone Area Code and Number, and email address.
   - If applicable, Architect/Engineer's Complete Name, Address, Telephone Area Code and Number, and email address.
   - Year Project Started.
   - Year Project Completed.
   - Description of Responsibilities for all Projects.
   - Identify the project manager and superintendent for the project.
   - Narrative Description of Each Project, noting single field projects, all fields of multiple field projects, what sports are played on each field, and amenities that were your

Company's responsibility. List all sub-contracted work per all fields for all projects. List all work performed directly by your company per all fields for all projects.

- List details and information about all your sub-contractors including, length of relationship, company name, owner's name, their contact person, full addresses and telephone numbers.

4. The owner and its representative shall be the sole judge of the contractor/subcontractor meeting the requirements set forth; the owner's decision will be final. The owner reserves the right to act in its best interest in this determination process, to waive all technicalities and informalities, and to accept only qualified responsible contractors/subcontractors who, in the owner's opinion, meet the above stated provisions.

PART 2 – EXECUTION

2.1 SUBGRADE AND ROOTZONE PREPARATION

A. The work shall include:

1. Meet with the Program Manager, Designer and Owner's Representative(s) before any work is initiated for review and general coordination procedures.
2. The existing fields shall be stripped of any excess organic material or grass prior to commencement of field renovation. Top soil remaining after organic material removal shall be removed and stockpiled for later use.
3. Following establishment of rough grade, the fields shall be tilled with a disc harrow six to eight inches (6"-8") into the subsurface a minimum of three (3) times.
4. Laser grade the subsurface to within ± one-half (1/2") inch of the designated slopes and elevations.
5. Remove small loose rocks, stone and debris using a Harley Rake Machine or equivalent as required, thereby causing the subsurface soil to be reasonably free of such miscellaneous matter. Remove debris from site.
6. Coordinate work with the irrigation subcontractor to ensure all irrigation main lines, valve boxes, electric controls, wires, and pipe trenches are properly installed. Re-compact disturbed areas to prevent future settling. The depth and height of installation is subject to final grade.
7. Add two (2") inches of topsoil, from on-site stockpile area or imported top soil, and laser grade to within ± one-half (1/2") inch of designated slopes and elevations. Remove existing vegetation, from top soil prior to utilizing on the fields.
8. Remove small loose rocks, stone and debris, using a Harley Rake Machine or equivalent as required, thereby causing the topsoil layer to reasonably free of such miscellaneous matter. Remove debris form site.

a. Apply lime evenly over the surface according to soil test analysis.

9. Add two (2") inches of sand, per the previous definition, to all sports field areas and with laser technology evenly distribute the material to within ± one half (1/2") inch of the designated slopes and elevations.
    a. Blend materials to form root zone to a depth of 6 inches. Final laser grade to ¼".
    b. Add phosphorus and potassium (pre-plant fertilizer) as required by soil test analysis evenly over sod surface prior to laying sod.
    c. Roll the surface prior to laying the sod.
10. Install the sprinkler heads as related to the surface at the appropriate elevation to accommodate sod installation and carefully re-compact around the heads to prevent future settling. The irrigation system shall be tested and its proper operation thoroughly confirmed and demonstrated prior to installation of sod.
11. Initiate the installation of sod.
    a. Sod shall be Tifway 419 Bermuda sod. The netting on the back of the sod shall be removed prior to the installation of the sod. Netting to be disposed of properly, off the site.
    b. Immediately after sod installation, the irrigation system shall be activated through each appropriate zone on a five to ten (5-10) minute cycle until the ground is thoroughly wet. The sod shall be kept moist until rooting occurs and then irrigate as needed a healthy and vigorous stand of grass.
    c. Roll the surface after "rooting in" has occurred.
    d. After the project is accepted by the Owner, subsequent watering as well as maintenance shall be the sole responsibility of the Owner as part of the Owner's maintenance program
    e. Export excess organic materials and soil materials off site.

2.2 MAINTENANCE

A. Maintain the fields until accepted by the Owner to assure a healthy and vigorous stand of grass and shall provide Owner with full instructions and review of the irrigation system for the subsequent care by the Owner. Contractor maintenance until acceptance by the Owner shall include, but not be limited to: fertilizing, mowing, weeding, watering and top dressing. Fields will not be accepted if they are not properly established, mowed, adequately level and free of weeds. Sports fields may be accepted on an individual basis by the Owner, as the construction is completed.

B. Mowing shall be accomplished utilizing a reel-mower and cut to a height appropriate for the season and approved by the Owner. Mowing shall be accomplished so as not to remove more than 1/3 of the leaf tissue per mowing.

2.3 CLEANUP

A. Police and clean up the entire project so that excess soil, sand, containers and debris are removed.

END OF SECTION

APPENDIX U
DEWATERING

SECTION 332240 - DEWATERING

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes construction dewatering.

1.2 PERFORMANCE REQUIREMENTS

A. Dewatering Performance: Design, furnish, install, test, operate, monitor, and maintain dewatering system of sufficient scope, size, and capacity to control ground-water flow into excavations and permit construction to proceed on dry, stable subgrades.

1. Maintain dewatering operations to ensure erosion control, stability of excavations and constructed slopes, that excavation does not flood, and that damage to subgrades and permanent structures is prevented.
2. Prevent surface water from entering excavations by grading, dikes, or other means.
3. Accomplish dewatering without damaging existing buildings adjacent to excavation.
4. Remove dewatering system if no longer needed.

1.3 SUBMITTALS

A. Field Test Reports: Before starting excavation, submit test results and computations demonstrating that dewatering system is capable of meeting performance requirements.

1.4 QUALITY ASSURANCE

A. Regulatory Requirements: Comply with water disposal requirements of authorities having jurisdiction.

1.5 PROJECT CONDITIONS

A. Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted in writing by Architect and then only after arranging to provide temporary utility services according to requirements indicated.

B. Project-Site Information: A geotechnical report has been prepared for this Project and is available for information only. The opinions expressed in this report are those of geotechnical engineer and represent interpretations of subsoil conditions, tests, and results of analyses conducted by geotechnical engineer. Owner will not be responsible for interpretations or conclusions drawn from this data.

1. Make additional test borings and conduct other exploratory operations necessary for dewatering.
2. The geotechnical report is referenced elsewhere in the Project Manual.

C. Survey adjacent structures and improvements, employing a qualified professional engineer or land surveyor, establishing exact elevations at fixed points to act as benchmarks. Clearly identify benchmarks and record existing elevations.

1. During dewatering, regularly resurvey benchmarks , maintaining an accurate log of surveyed elevations for comparison with original elevations. Promptly notify Architect if changes in elevations occur or if cracks, sags, or other damage is evident in adjacent construction.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 PREPARATION

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

1. Prevent surface water and subsurface or ground water from entering excavations, from ponding on prepared subgrades, and from flooding site and surrounding area.
2. Protect subgrades and foundation soils from softening and damage by rain or water accumulation.

B. Install dewatering system to ensure minimum interference with roads, streets, walks, and other adjacent occupied and used facilities.

1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by authorities having jurisdiction.

3.2 INSTALLATION

A. Install dewatering system utilizing wells, well points, or similar methods complete with pump equipment, standby power and pumps, filter material gradation, valves, appurtenances, water disposal, and surface-water controls.

B. Before excavating below ground-water level, place system into operation to lower water to specified levels. Operate system continuously until drains, sewers, and structures have been constructed and fill materials have been placed, or until dewatering is no longer required.

C. Provide an adequate system to lower and control ground water to permit excavation, construction of structures, and placement of fill materials on dry subgrades. Install sufficient dewatering equipment to drain water-bearing strata above and below bottom of foundations, drains, sewers, and other excavations.

1. Do not permit open-sump pumping that leads to loss of fines, soil piping, subgrade softening, and slope instability.

D. Reduce hydrostatic head in water-bearing strata below subgrade elevations of foundations, drains, sewers, and other excavations.

1. Maintain piezometric water level as recommended by testing agency below surface of excavation.

E. Dispose of water removed by dewatering in a manner that avoids endangering public health, property, and portions of work under construction or completed. Dispose of water in a manner that avoids inconvenience to others. Provide sumps, sedimentation tanks, and other flow-control devices as required by authorities having jurisdiction.

F. Provide standby equipment on-site, installed and available for immediate operation, to maintain dewatering on continuous basis if any part of system becomes inadequate or fails. If dewatering requirements are not satisfied due to inadequacy or failure of dewatering system, restore damaged structures and foundation soils at no additional expense to Owner.

1. Remove dewatering system from Project site on completion of dewatering. Plug or fill well holes with sand or cut off and cap wells a minimum of 36 inches below overlying construction.

G. Damages: Promptly repair damages to adjacent facilities caused by dewatering operations.

END OF SECTION

APPENDIX V

SITE SUBDRAINAGE

SECTION 334616 – SITE SUBDRAINAGE

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes subdrainage systems for the following:

1. Plaza decks.
2. Retaining walls.
3. Landscaped areas.

1.2 DEFINITIONS

A. HDPE: High-density polyethylene plastic.

B. PE: Polyethylene plastic.

C. PP: Polypropylene plastic.

D. PS: Polystyrene plastic.

E. PVC: Polyvinyl chloride plastic.

F. Subdrainage: Drainage system that collects and removes subsurface or seepage water.

1.3 SUBMITTALS

A. Product Data: For the following:

1. Perforated-wall pipe and fittings.
2. Solid-wall pipe and fittings.
3. Drainage conduits.
4. Drainage panels.
5. Geotextile filter fabrics.

PART 2 - PRODUCTS

2.1 PIPING MATERIALS

A. Refer to the "Piping Applications" Article in Part 3 for applications of pipe, tube, fitting, and joining materials.

2.2 PERFORATED-WALL PIPES AND FITTINGS

A. Perforated PE Pipe and Fittings:

1. NPS 6 and Smaller: ASTM F 405 or AASHTO M 252, Type CP; corrugated, for coupled joints.
2. NPS 8 and Larger: ASTM F 667; AASHTO M 252, Type CP; or AASHTO M 294, Type CP; corrugated; for coupled joints.
3. Couplings: Manufacturer's standard, band type.

2.3 SOLID-WALL PIPES AND FITTINGS

A. PE Drainage Tubing and Fittings: AASHTO M 252, Type S, corrugated, with smooth waterway, for coupled joints.

1. Couplings: AASHTO M 252, corrugated, band type, matching tubing and fittings.

B. PE Pipe and Fittings: AASHTO M 294, Type S, corrugated, with smooth waterway, for coupled joints.

1. Couplings: AASHTO M 294, corrugated, band type, matching tubing and fittings.

2.4 SPECIAL PIPE COUPLINGS

A. Comply with ASTM C 1173, elastomeric, sleeve-type, reducing or transition coupling, for joining underground non-pressure piping. Include ends of same sizes as piping to be joined and corrosion-resistant metal tension band and tightening mechanism on each end.

1. Sleeve Materials:

   a. For Plastic Pipes: ASTM F 477, elastomeric seal or ASTM D 5926, PVC.
   b. For Dissimilar Pipes: ASTM D 5926, PVC or other material compatible with pipe materials being joined.

2. Unshielded Flexible Couplings: Elastomeric sleeve with corrosion-resistant metal tension band and tightening mechanism on each end.
3. Shielded Flexible Couplings: ASTM C 1460, elastomeric or rubber sleeve with full-length, corrosion-resistant outer shield and corrosion-resistant metal tension band and tightening mechanism on each end.

2.5 CLEANOUTS

A. PVC Cleanouts: ASTM D 3034, PVC cleanout threaded plug and threaded pipe hub.

2.6 SOIL MATERIALS

A. Backfill, drainage course, impervious fill, and satisfactory soil materials are specified in Division 31 Section "Earthwork."

2.7 GEOTEXTILE FILTER FABRICS

A. Description: Fabric of PP or polyester fibers or combination of both, with flow rate range from 110 to 330 gpm/sq. ft. when tested according to ASTM D 4491.

1. Structure Type: Nonwoven, needle-punched continuous filament or woven, monofilament or multifilament.
2. Style(s): Flat and sock.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine surfaces and areas for suitable conditions where subdrainage systems are to be installed.

B. If subdrainage is required for landscaping, locate and mark existing utilities, underground structures, and aboveground obstructions before beginning installation and avoid disruption and damage of services.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 EARTHWORK

A. Excavating, trenching, and backfilling are specified in Division 31 Section "Earthwork."

3.3 PIPING APPLICATIONS

A. Underground Subdrainage Piping:

1. Perforated PE pipe and fittings, couplings, and coupled joints.

B. Header Piping:

1. PE drainage tubing and fittings, couplings, and coupled joints.

3.4 CLEANOUT APPLICATIONS

A. In Underground Subdrainage Piping:

1. At Grade in Earth: PVC cleanouts.

3.5 PLAZA DECK DRAINAGE INSTALLATION

A. Horizontal Drainage Panel: Install between slab and floor cover. Place core on structural floor. Install panels to fit tightly around floor drains of building's storm drainage system. Provide stormwater access into floor drain.

1. Install drainage piping as indicated in Part 3 "Piping Installation" Article for plaza deck subdrainage.

3.6 RETAINING-WALL DRAINAGE INSTALLATION

A. Lay flat-style geotextile filter fabric in trench and overlap trench sides.

B. Place supporting layer of drainage course over compacted subgrade to compacted depth of not less than 4 inches.

C. Encase pipe with sock-style geotextile filter fabric before installing pipe. Connect sock sections with adhesive or tape.

D. Install drainage piping as indicated in Part 3 "Piping Installation" Article for retaining-wall subdrainage.

E. Add drainage course to width of at least 6 inches on side away from wall and to top of pipe to perform tests.

F. After satisfactory testing, cover drainage piping to width of at least 6 inches on side away from footing and above top of pipe to within 12 inches of finish grade.

G. Place drainage course in layers not exceeding 3 inches in loose depth; compact each layer placed and wrap top of drainage course with flat-style geotextile filter fabric.

H. Place layer of flat-style geotextile filter fabric over top of drainage course, overlapping edges at least 4 inches.

I. Fill to Grade: Place satisfactory soil fill material over compacted drainage course. Place material in loose-depth layers not exceeding 6 inches. Thoroughly compact each layer. Fill to finish grade.

3.7 LANDSCAPING DRAINAGE INSTALLATION

A. Provide trench width to allow installation of drainage conduit. Grade bottom of trench excavations to required slope, and compact to firm, solid bed for drainage system.

B. Lay flat-style geotextile filter fabric in trench and overlap trench sides.

C. Place supporting layer of drainage course over compacted subgrade and geotextile filter fabric, to compacted depth of not less than 4 inches.

D. Install drainage conduits as indicated in Part 3 "Piping Installation" Article for landscaping subdrainage with horizontal distance of at least 6 inches between conduit and trench walls. Wrap drainage conduits without integral geotextile filter fabric with flat-style geotextile filter fabric before installation. Connect fabric sections with adhesive or tape.

E. Add drainage course to top of drainage conduits.

F. After satisfactory testing, cover drainage conduit to within 12 inches of finish grade.

G. Install drainage course and wrap top of drainage course with flat-style geotextile filter fabric.

H. Place layer of flat-style geotextile filter fabric over top of drainage course, overlapping edges at least 4 inches.

I. Fill to Grade: Place satisfactory soil fill material over drainage course. Place material in loose-depth layers not exceeding 6 inches. Thoroughly compact each layer. Fill to finish grade.

3.8 PIPING INSTALLATION

A. Install piping beginning at low points of system, true to grades and alignment indicated, with unbroken continuity of invert. Bed piping with full bearing in filtering material. Install gaskets, seals, sleeves, and couplings according to manufacturer's written instructions and other requirements indicated.

1. Plaza Deck Subdrainage: Install piping pitched down in direction of flow, at a minimum slope of 1.0 percent.
2. Retaining-Wall Subdrainage: When water discharges at end of wall into stormwater piping system, install piping pitched down in direction of flow, at a minimum slope of 0.5 percent and with a minimum cover of 36 inches, unless otherwise indicated. However, when water discharges through wall weep holes, pipe may be installed with a minimum slope of zero percent.
3. Landscaping Subdrainage: Install piping pitched down in direction of flow, at a minimum slope of 0.5 percent and with a minimum cover of 36 inches, unless otherwise indicated.
4. Lay perforated pipe with perforations down.
5. Excavate recesses in trench bottom for bell ends of pipe. Lay pipe with bells facing upslope and with spigot end entered fully into adjacent bell.

B. Use increasers, reducers, and couplings made for different sizes or materials of pipes and fittings being connected. Reduction of pipe size in direction of flow is prohibited.

C. Install PE piping according to ASTM D 2321.

3.9 PIPE JOINT CONSTRUCTION

A. Join PE pipe, tubing, and fittings with couplings for soil-tight joints according to AASHTO's "Standard Specifications for Highway Bridges," Division II, Section 26.4.2.4, "Joint Properties."

B. Join perforated, PE pipe and fittings with couplings for soil-tight joints according to AASHTO's "Standard Specifications for Highway Bridges," Division II, Section 26.4.2.4, "Joint Properties"; or according to ASTM D 2321.

C. Special Pipe Couplings: Join piping made of different materials and dimensions with special couplings made for this application. Use couplings that are compatible with and fit materials and dimensions of both pipes.

3.10 CLEANOUT INSTALLATION

A. Cleanouts for Retaining-Wall and Landscaping Subdrainage:

1. Install cleanouts from piping to grade. Locate cleanouts at beginning of piping run and at changes in direction. Install fittings so cleanouts open in direction of flow in piping.
2. In vehicular-traffic areas, use NPS 4 cast-iron soil pipe and fittings for piping branch fittings and riser extensions to cleanout. Set cleanout frames and covers in a cast-in-

place concrete anchor, 18 by 18 by 12 inches in depth. Set top of cleanout flush with grade. Cast-iron pipe may also be used for cleanouts in non-vehicular-traffic areas.

3. In non-vehicular-traffic areas, use NPS 4 PVC pipe and fittings for piping branch fittings and riser extensions to cleanout. Set cleanout frames and covers in a cast-in-place concrete anchor, 12 by 12 by 4 inches in depth. Set top of cleanout plug 1 inch above grade.

3.11 CONNECTIONS

A. Drawings indicate general arrangement of piping, fittings, and specialties.

B. Connect low elevations of subdrainage system to solid-wall-piping storm drainage system where shown.

3.12 IDENTIFICATION

A. Materials and their installation are specified in Division 31 Section "Earthwork." Arrange for installation of green warning tapes directly over piping.

1. Install detectable warning tape over nonferrous piping and over edges of underground structures.

3.13 FIELD QUALITY CONTROL

A. Testing: After installing drainage course to top of piping, test drain piping with water to ensure free flow before backfilling. Remove obstructions, replace damaged components, and repeat test until results are satisfactory.

3.14 CLEANING

A. Clear interior of installed piping and structures of dirt and other superfluous material as work progresses. Maintain swab or drag in piping and pull past each joint as it is completed. Place plugs in ends of uncompleted pipe at end of each day or when work stops.

END OF SECTION