

THE CITY OF WORCESTER

Request for Bids Indian Hill Park PH II Site Improvements

April 2022

PROJECT SPECIAL CONDITIONS AND SPECIFICATIONS

DEPARTMENT OF PUBLIC WORKS AND PARKS

Parks, Recreation and Cemetery Division

Jay J. Fink, P.E., Commissioner

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PROJECT SPECIAL CONDITIONS

ARTICLE 1 - PROJECT SITE

- a. All work of this contract is located within the confines of Indian Hill Park, 165 Ararat St., owned and maintained by the City of Worcester DPW and Parks.

ARTICLE 2 - SUMMARY OF WORK

- a. The work to be completed under this contract involves the furnishing of all labor, materials and equipment for the following items of work and all incidentals thereto. All work shall be performed in full accordance with the specifications, other contract documents, obviously implied and necessary or under the direction of the Owner.
- b. The plans and specifications are intended to be cooperative, and any item called for in one and not the other shall be as binding as if called for in both. During the bidding period discrepancies should be immediately brought to the attention of the Owner for clarification. If a discrepancy is discovered within the plans and the specifications after the bid period, **the Owner will determine which shall apply.**
- c. When Applicable, The City of Worcester DPW and Parks, Parks, Recreation and Cemetery Division is in the process of standardizing appurtenances such as park benches, trash receptacles, irrigation controllers, Area/Street lights, Sports field lighting in the facilities within their jurisdiction and maybe currently installed at this facilities. By standardizing on one manufacturer it provides the Division with a consistent product which through familiarity reduces operator training and maintenance time. Standardization also provides opportunities for maintenance cost saving through interchangeable parts such as but not inclusive to luminaries, ballast, poles, compatibility with current Division maintenance equipment etc.
- d. Quality Control: In order to ensure the highest level of quality with respect to the playing surface of this greatly utilized public athletic facility, the General Contractor / Awardee shall have a minimum of five (5) years of successful experience;
 - a. as the Prime Contractor constructing (provide verifiable references upon request)
 - b. ability to demonstrate constructing (provide verifiable references upon request)
 - c. coordinating and supervising (provide verifiable references upon request)

Park Improvements of similar size and quality of this project as per the standards of the project specifications and construction drawings.

ARTICLE 3 - WORK WITHIN A PUBLIC PROPERTY

- a. As a point of information, all of the work to be undertaken is located within the confines of an unsecured public property, and as such is subject to acts of vandalism. The City of Worcester will not pay for any damage to the Contractor's equipment or material. The Contractor shall take all means and measures necessary to protect the public, work in progress, work completed, and all furnishings, materials and equipment stored at the site through the completion of the project. The repair or replacement of work in place or in progress shall be the sole responsibility of the Contractor and shall be accomplished at no cost to the Owner.



ARTICLE 4 - SITE INSPECTION

- a. It shall be contingent upon the Contractor to inspect the site as an aid to determining the extent of the work under the various contract items before submission of the bid.

ARTICLE 5 - PRE -BID AND PRE-CONSTRUCTION MEETINGS

- a. A pre-bid conference will be held on **May 18, 2022**, 10:00 AM (Eastern Standard Time) at Indian Hill Park, 165 Ararat St., Worcester, MA. Interested bidders are encouraged to attend. A mandatory pre-construction meeting will be arranged by the Owner's representative after the award of the contract. Sub-consultants may be asked to attend the pre-construction meeting if determined by the Owner's Representative to be warranted.

ARTICLE 6 - SITE ACCESS

- b. Prospective bidders are advised that access to the project sites shall be in accordance with the governing traffic patterns with specific locations into the site to be designated in the field after award of the contract.
- c. Regardless of the eventual location of the construction access, the Contractor shall make every provision to ensure the safety of pedestrians and drivers making use of the public property.

ARTICLE 7 - OWNER'S TAX EXEMPTION

- a. The Awarding Authority, as a department of a corporate municipality in the Commonwealth is exempt from the taxes listed below. Contractor shall notify all suppliers of the following current certificates.
 1. Federal Excise Taxes as applied to articles taxable under Chapter 32 of the Internal Revenue Code of 1954, as amended, City Excise Tax Exemption Certificate is not required.
 2. From Sales and Use Tax imposed by the Commonwealth of Massachusetts under Chapter 14, Acts of 1966, the City has been assigned and exemption certificate with respect to leases, rentals, or purchases of "Tangible Personal Property". The Owner at the Contractor's request will furnish the tax-exempt certification number.

ARTICLE 8 - TIME FOR COMPLETION AND SEQUENCE OF WORK

- a. The work of this Contract shall be commenced at the time stipulated by the Owner in the Notice to Proceed/Award of Contract and shall be substantially completed for occupancy/use by **April 1, 2023**, except as the work may be interrupted by weather conditions as hereinafter specified. The Contractor shall prosecute the Work with the diligence necessary to ensure its completion within the required time. The Contractor shall provide sufficient labor, materials, and equipment, and shall promptly take such appropriate action to keep the Work on schedule or as directed by the Owner. No additional time shall be provided for Change Orders.
- b. The Parks, Recreation and Cemetery Division (Owner) shall be solely responsible for determining when the work shall be interrupted due to unsatisfactory weather conditions. Determination of the period to be included in the Time for Completion shall cease when the City directs that the work stop due to weather and shall commence again on the first working day thereafter that the City may designate for the work to be resumed. Owner reserves the right to limit or halt construction due to weather or winter condition during the period of January 01 through April 15 with no extension to Time for Completion.



- c. The Contractor must completely understand that once the Contractor mobilizes and begins work, the Contractor must be on-site, every day during the normal work week, and must work continuously until substantial completion of the project. The Parks, Recreation, and Cemetery Division will not allow any time gaps of any length of time during the construction due to the Contractor's scheduling of other work not related to this specific Contract.
- d. It should be further understood that this project will not be a "fill-in" for the Contractor and that the Contractor does not have the ability to start and stop construction at the Contractor's option. Any unauthorized time gaps will be subject to a flat fee of \$500.00 per day. The Owner reserves the right to deduct said fee from the Contractor's periodic application for payment and the Contract Sum.
- e. The Contractor shall carry on the Work and adhere to the schedule during all disputes and disagreements with The Owner. No Work shall be delayed or postponed pending resolution of any disputes or disagreements. The Contractor shall exercise reasonable precautions, efforts and measures to avoid or mitigate situations that would cause delays.
- f. Punch list shall be completed within 28 day from date of issue.
- g. The Contractor is advised that the **required calendar days** regarding Time for Completion and Punchlist, shall be consecutive.

ARTICLE 9 - LIQUIDATED DAMAGES

- a. Prospective Bidders are advised that liquidated damages shall be in effect for this project. The Contractor and his Sureties shall be liable for and shall pay to the Owner the sum of Five Hundred and Dollars (\$500.00) as fixed and agreed, as liquidated damages for each calendar day of delay from the date stipulated for completion, or as modified in accordance with the provisions of the Contract.

ARTICLE 10 - CONSTRUCTION SCHEDULES AND PAYMENT ESTIMATES

- a. The Contractor must submit a construction schedule to the Owner indicating the general sequence of all work under this Contract. This schedule must be submitted within 7 days of the date of the Notice-to-Proceed and shall be revised if required to the satisfaction of the Owner.
- b. The Contractor shall submit a breakdown and monthly cost estimate (schedule of values) for all items of work in categories approved by the Owner.
- c. The established breakdown of items, categories and values shall be utilized to prepare the monthly pay requisition forms. It is recommended that the Contractor submit a draft Payment Applications to the Owner for approval, no later than the second week of every month. The Owner shall review and edit this copy to indicate the amount of payment to be approved and return this to the Contractor after field review. Revised/updated payment estimates and construction schedule must be submitted with monthly Payment Applications. The Contractor shall then formally submit three (3) originals of the Payment Applications, conforming to the Owner's approval, for payment.

ARTICLE 11 – CONSTRUCTION REPORTS & WEEKLY PROGRESS MEETINGS

- a. The Contractor and Sub-Contractors shall attend a regular weekly meeting with the Owner at the Parks, Recreation and Cemetery Division Headquarters, 50 Skyline Drive, Worcester, MA in the Capital Projects Division Conference Room at a pre-determined time set by the Owner. The



Contractor must be present for these meetings during the course of the Contract and reserves no right to cancel the meeting. If the Contractor fails to attend the mandatory weekly meeting, a flat fee of \$500.00 will be charged to the Contractor. The Owner reserves the right to deduct said fee from the Contractor's periodic application for payment and the Contract Sum.

- b. The Contractor will be required to take minutes for the weekly scheduled meetings. The Contractor will have three (3) business days from the date of the meeting to submit to the Owner the minutes of the meeting on the Parks, Recreation and Cemetery Division form. The form will be supplied to the respective Contractor when the Notice to Proceed has been issued. Failure to supply the minutes of the meeting in the required timeframe will result in a flat fee of \$250.00 to be charged to the Contractor. The Owner reserves the right to deduct said fee from the Contractor's periodic application for payment and the Contract Sum.
- c. The Contractor will be required to maintain daily construction reports (DCRs) (format and information required to be reviewed/ approved by Owner). PDF of the DCRs shall be submitted weekly for review and shall be up to date prior to approval of monthly Payment Applications.
- d. The Owner may desire other meetings from time to time, and the Contractor shall attend these and such Sub-Contractors as are directed to attend. All of the above mentioned conditions should apply.

ARTICLE 12 - HOURS OF OPERATION

- a. Unless otherwise approved by the Owner, hours of operation shall be 7:00 a.m. to 3:30 p.m., Monday through Friday.

ARTICLE 13 - CONTRACT DOCUMENTS

- a. The Owner will furnish the Contractor, without charge, four (4) complete copies of the Contract Documents. Additional copies requested by the Contractor will be furnished at cost.

ARTICLE 14 - STORAGE OF MATERIALS AND EQUIPMENT

- a. Bidders are advised that the storage of equipment within the confines of the project limit shall be at the Contractors own risk. No material or equipment shall be stored outside the limits of work as defined in the contract documents, designated and agreed to by the Owner.

ARTICLE 15 - USE OF EQUIPMENT/MACHINERY

- a. The Contractor shall not use as any part of his operation any skid steered, track driven, or heavy machinery/equipment on adjacent roadways.

ARTICLE 16 - RESPONSIBILITIES OF CONTRACTOR

- a. Except as otherwise specifically stated in the Contract Documents and Technical Specifications, the Contractor shall provide and pay for all materials, tools, labor, equipment, water, light, heat, power, transportation, superintendence, temporary construction of every nature, charges, levies, fees or other expenses, permits and back charges and all other services and facilities of every nature whatsoever necessary for the performance of the Contract and to deliver all improvements embraced in this Contract completed in every respect within the specified time.
- b. Unless otherwise specified herein all materials, workmanship, methods, and practices shall conform to the current Standards and Ordinances of the appropriate Departments and/or Commissions of the City. The following documents are available online at <http://www.ci.worcester.ma.us/dpw/> , a hard copy or CD will be furnished to the Contractor upon request.



- i. The City of Worcester DPW and Parks, Engineering Division, Construction Management Section, Standard Specifications and Details - March 2007 or current edition.
 - ii. Permit Manual – Revised 2004 or current edition.
- c. The Contractor shall be responsible for detailed layout; all stakeout and grade control and shall employ a registered Professional Engineer or a registered Land Surveyor for this purpose. The Owner's Representative will verify and approve the layout and locations of improvements prior to excavation or installation.
- d. The Contractor shall verify dimensions and utility locations shown on the plans and if any inconsistencies or discrepancies should be noted on the Drawings, or between the Drawings and actual field conditions, or between the Drawings and the specifications he/she shall immediately notify the Owner. The Contractor will be held responsible for any errors resulting from his/her failure to exercise the aforementioned precaution. Such information shall be marked on copies of the "As-Built" drawings and the original "As-Built" drawings are to be reviewed at weekly job meetings.
- e. The Contractor shall provide final As-Built Drawings to the Owner. See "Record Drawings – As Built" of this Section.
- f. The Contractor shall maintain a full time supervisor or foreman on the construction site, whether the construction forces are employed by his construction company or employed by a Sub-Contractor.
- g. As soon as the Contract is executed, the Contractor shall order materials, submit construction schedules as herein after specified and otherwise anticipate the Notice to Proceed. When the Owner gives the Notice to Proceed, the work of construction shall begin at the time stipulated therein and shall be completed within the Time for Completion specified.
- h. It is the Contractor's responsibility to make his own investigation and related assumptions, to satisfy her/him as to subsurface conditions and to insure that these are reflected in the bid.
- i. In order to verify locations of utilities and varying field conditions, exploratory excavations may be necessary, the cost of which is to be included in the contract bid price.
- j. The Contractor's attention is called to the necessity of obtaining permits especially those required by various departments of the City. These permit fees will not be waived by the City and must be paid in full by the Contractor.
- k. The Contractor shall furnish and maintain all temporary fences, barriers, enclosures, lights and warning devices necessary to protect his/her work area and to protect the public and his work forces throughout the life of this contract.

ARTICLE 17 - EMERGENCY CONTACT INFORMATION

- a. The Contractor will be required to submit within seven (7) business days after the Notice to Proceed a list of all people that will be involved with the completion of this project including all principal(s), president(s), superintendent(s), and project manager(s) of the company. The list shall contain the following information, including but not limited to: name, title, address, voice mail number, cell phone number, pager number, fax number and email address.



ARTICLE 18 - ON SITE SUPERINTENDENT/PROJECT MANAGER

- a. The Contractor must, at all times, maintain an on-site superintendent during the construction and administration of this Contract. The superintendent must be completely familiar with all aspects of the project and capable of following the construction through from start to finish. The Contractor does not have the right to switch, replace, change or otherwise remove the superintendent assigned to this project unless specifically authorized in writing by the Owner. The on-site superintendent must be present a minimum of seven (7) hours per day during construction. If the on-site superintendent fails to meet the above-mentioned requirements, the Contractor will be subject to a flat fee of \$500.00 per day. The Owner reserves the right to deduct said fee from the Contractor's periodic application for payment and the Contract Sum.

The Contractor must assign a Project Manager to this Contract that is completely familiar with all aspects of the project and capable of completing the project. The Contractor does not have the right to switch, replace, change or otherwise remove the superintendent assigned to this project unless specifically authorized in writing by the Owner. It should be further understood that the Owner would discuss all matters in regards to the administration of this Contract with only one (1) Project Manager, regardless of how many the Contractor assigns to the project.

All correspondence, emails, voice mail, faxes, etc. will be handled through the designated Project Manager only. The Parks, Recreation and Cemetery Division reserves the right, in conjunction with the Contractor, to remove the Contractor's assigned Project Manager if the City feels it is the best interest to do. Upon written notification, the Contractor must assign a new Project Manager within three (3) business days.

ARTICLE 19 - PROVISIONS FOR TRAFFIC/POLICE DETAIL (As Applicable)

- a. The Contractor shall not close or obstruct any portion of a public road without obtaining the necessary permission from the proper municipal authorities. If any street or private way shall be rendered unsafe by the Contractor's opinion, he shall make such repairs or provide such temporary ways or guards as shall be acceptable to the Owner including the provision of police details required to complete the work.
- b. The Contractor at his/her expense shall maintain public roads and sidewalks passable, and the Contractor shall assume full responsibility for the adequacy and safety of provisions made. He shall conduct his construction operations such that interference with the activities of park users will be held to a minimum.
- c. The Contractor shall cooperate in every way possible with the municipal authorities in accommodating park activities and events.

ARTICLE 20 - COMMUNICATIONS

- a. All notices, demands, requests, instructions, approvals, proposals and claims must be in writing and must be presented in person or by mail to the Owner.
- b. Any notice to or demand upon the Contractor shall be considered sufficiently given if delivered at the office or field office of the Contractor stated on the signature page of the Agreement (or at such other office as the Contractor may from time to time designate in writing to the Owner), or if deposited in the United States mail in a sealed, postage prepaid envelope, or delivered with charges prepaid to any telegraph company for transmission, in each case addressed to such office.
- c. All papers required to be delivered to the **Owner** shall, unless otherwise specified in writing to the Contractor, be delivered to:

Robert C. Antonelli, Jr., Assistant Commissioner
Department of Public Works and Parks
50 Skyline Drive, Worcester, MA 01605



and any notice to or demand upon the Owner shall be sufficiently given is so delivered, or if deposited in the United States mail in a sealed, postage prepaid envelope, or delivered with charges prepaid to any telegraph company for transmission to said Owner at such address, or to such other representatives of the Owner or to such other address as the Owner may subsequently specify in writing to the Contractor for such purpose.

- d. Any such notice shall be deemed to have been given as of the time of actual delivery or (in the case of mailing) when the same should have been received in due course of post, or in the case of telegrams, at the time of actual receipt, as the case may be.

ARTICLE 21 - PARTIAL USE OF SITE IMPROVEMENTS

- a. The Owner, at its election, may give notice to the Contractor and place in use those sections of the improvements which have been completed, inspected and can be accepted as complying with the Technical Specifications and if, in its opinion, each such section is reasonably safe, fit and convenient for the use and accommodation for which it was intended, provided:
 - 1. The use of such sections of the improvements shall in no way impede the completion of the remainder of the work by the Contractor.
 - 2. The Contractor shall not be responsible for any damages or maintenance costs due directly to the use of such sections.
 - 3. The use of such sections shall in no way relieve the Contractor of his liability due to having used defective materials or due to poor workmanship.
 - 4. The period of guarantee stipulated in the specifications shall not begin to run until the date of the final acceptance of all work which the Contractor is required to construct under this Contract.

ARTICLE 22 - SAMPLING AND TESTING OF MATERIALS AND COMPACTION

- a. Sampling and testing ordered by the Owner to ensure that materials are as specified and that compaction of all materials conforms to the necessary requirements shall be taken and completed by representatives of a Massachusetts certified testing laboratory satisfactory to the Owner, and shall be paid for by the City as described in the technical specifications.

ARTICLE 23 - TEMPORARY FACILITIES

- a. Furnish all labor, materials, and services to fulfill the requirements for temporary facilities, at no additional cost to the Owner, and comply with all requirements set forth herein, except where said requirements are in conflict with Federal, State, or Local laws, rules, and regulations, in which case(s) the applicable Federal, State, or Local requirements shall govern.

ARTICLE 24 - SANITARY FACILITIES

- a. Provide, place, and maintain in good order from the commencement to final completion of the work, suitable temporary toilet facilities for use by all persons employed under this contract. Toilets shall be rented from and serviced by an approved company, and shall be kept clean and sanitary and secured at all times. The type of toilets proposed for use shall have the approval of the appropriate City agency, and the number of units shall be as recommended by the Department of Labor. Toilets shall be locked during nonworking hours and placed in a secured (fenced) location, where possible.



ARTICLE 25 - TEMPORARY LIGHT AND POWER

- a. Make all necessary arrangements with the local utility company and pay all costs including labor, in operating and maintaining all temporary services for electricity used during the construction, unless specifically noted otherwise.
- b. Ensure that temporary wiring, outlets, and lighting are provided in accordance with the requirements of Bulletin No. 12, Division of Industrial Safety, Department of Public Safety, Commonwealth of Massachusetts.

ARTICLE 26 - TEMPORARY WATER

- a. Contractor shall be responsible for securing and coordination of all water needs and temporary connections.

ARTICLE 27 - UTILITIES

- a. The Contractor shall obtain and pay for all licenses and/or permits, which are required by the City or any other agencies that may be involved; he/she shall comply with all codes, regulations and standards of the City.
- b. Contractor shall be responsible for all on-site coordination with utility companies and public agencies and for obtaining all required permits and paying all required fees. In accordance with M.G.L., Chapter 82, Section 40, including amendments; Contractor shall notify all utility companies and government agencies in writing prior to such excavation, Contractor shall also call "Dig Safe" at 1-(888) 344-7233 no less than 72 hours (exclusive of Saturdays, Sundays and Holidays.) prior to such excavation. Documentation of requests and numbers provided to Contractor shall be provided to Owner prior to excavation work.

ARTICLE 28 – PHOTOGRAPHS and TIME-LAPSE CAMERA(S)

- a. The Contractor shall be required to furnish one (1) view of before, during and after photographs of each site conditions. The Contractor is encouraged to submit "during" photographs along with each pay requisition to facilitate approvals. Photographs in electronic format via compact disc (jpeg or tiff) are acceptable.
- b. The Contractor shall be required to furnish, install and continuously maintain three (3) industrial-grade, wire-free, battery operated, weather-proof, construction time-lapse cameras. Cameras shall be securely mounted up to 25'-0" above sidewalk grade on existing light poles adjacent to the Project, location and field of view to be reviewed and approved by Owner. Minimum specification for the performance of the cameras shall be Brinno Model BCC200 or approved equal. The cameras' AVI file (1 frame per 15 minutes (or approved setting) and 30-day maximum duration) shall be submitted with monthly Payment Applications. Cameras shall be operational prior to site mobilization and maintained until substantial completion of the Project. Cameras and appurtenances shall become property of the Owner at the conclusion of the Project.

ARTICLE 29 - CONTRACTOR'S SHOP AND WORKING DRAWINGS

- a. Contractor to coordinate preparation and processing of submittals with performance of construction activities. Transmit each submittal sufficiently in advance of performance of related construction activities to avoid delay. Furnish two (2) record hardcopy sets (binder 8.5x 11 format) of all approved shop drawings at end of the Project.



- b. All Contractors are directed to the timeliness and critical importance of expediting the submittal process. Any lead times that may impact sequencing should be prioritized to meet the project schedule. The Owner must be notified if any delays arise that impact lead times.
- c. The Contractor shall coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals and related activities that requires sequential activity.
- d. The Owner reserves the right to withhold action on a submittal requiring coordination with other submittals until all related submittals are received.
- e. To avoid the need to delay installation as a result of the time required to process submittals and to allow sufficient time for submittal review, all initial product submittals, shop drawings shall be submitted for processing and within **35 calendar days** (35) days from the date of Notice to Proceed, unless approved otherwise by Owner.
- f. The Contractor must allow the Owner **fourteen (14) calendar days** for initial review to achieve efficient construction sequencing. Allow additional time if the Owner must delay processing to permit coordination with subsequent submittals. If an intermediate submittal is necessary, process the same as the initial submittal. Allow ample time for reprocessing each submittal to achieve efficient construction sequencing.
- g. No extension of Contract Time will be authorized because of the Contractor's failure to transmit submittals to the Owner for processing sufficiently in advance of the scheduled Work.
- h. Shop drawings, product data and samples submitted for each item will be reviewed no more than two (2) times at the Owner's expense. Submittals failing to comply with the Contract requirements will be reviewed at times convenient to the Owner and the Owner's consultants and at the Contractor's expense, based upon a flat rate of \$75.00 per hour not to exceed \$600.00 for each subsequent re-submittal. The Owner reserves the right to deduct said reimbursement from the Contractor's periodic application for payment and the Contract Sum.
- i. The Owner's review and approval of submittals shall be held to limitations stated in the conditions of the Contract. In no case shall approval or acceptance by the Owner be interpreted as release of Contractor of responsibility to fulfill requirements of Contract Documents. No acceptance or approval of submittals, nor any indication or note marked by the Owner on submittals, shall constitute authorization for increase in Contract Sum. The Owner will stamp each submittal with an action stamp.
- j. As the timely submittal of samples, shop drawings, catalogue cuts and other related submittals is of paramount importance to the completion of the project within the stipulated time period, a contract value of 1% will be assigned to this effort. Upon receipt of the complete submittal package the General Contractor will be permitted to submit payment of this item with a value equal to 1% of the base bid contract amount.
- k. Show in large-scale any unique fabrication and setting requirements or any other specified areas seen as necessary or as directed by the Owner's Representative.
- l. Shop drawings shall indicate specification section and paragraph requiring items submitted.
- m. Contractor shall submit to the Owner's Representative a notarized certificate of compliance from the galvanizer with all galvanizing requirements including ASTM number and weight of coatings in ounces per square foot. Certificate of compliance shall also contain the following:



1. Sole Source Responsibility: include statement that galvanizer accepts sole responsibility for coatings under this Article. Galvanizer who does not accept this responsibility is not acceptable and will be rejected.
2. Quality Assurance: include evidence that Galvanizer meets requirements of ANSI Q90.
3. Certificate of Compliance with Current Environmental Regulations: Galvanizer shall certify that coatings proposed for use comply with applicable environmental regulations. Contractor and Galvanizer shall be responsible for penalties assessed by governmental or environmental authorities for coatings that do not comply with current environmental regulations. All coatings shall be
4. Lead-free.

ARTICLE 30 - HISTORICAL, ARCHAEOLOGICAL OR ANTIQUE ITEMS

- a. The Contractor during his excavation, site clearance and other operations may come upon, uncover or otherwise discover items of historical, archaeological or antique nature. The Contractor shall immediately stop operations at the particular site of the discovery and notify the Owner so that a proper evaluation may be made of its importance. The Owner shall arrange for the evaluation in a manner that shall not unduly interfere with the Contractor's operation.
- c. All such items, if designated by competent authority to be of historical, archaeological or antique nature shall not become the property of the Contractor but shall be placed in the custody of the Owner for disposition.
- c. The Contractor shall be required to remove with care or to assist in the removal of any such item or items and to transport the same to a place of safe keeping within the City. The costs for so assisting shall be reimbursed to the Contractor if approved by the Owner.

ARTICLE 31 - PROVISIONS FOR PUBLIC SAFETY AND CONVENIENCE

- a. Particular care shall be taken to establish and maintain such methods and procedures as will not create hazards. Access to all park facilities and shall be maintained in a reasonable and safe manner for the duration of the construction period.
- b. Every reasonable effort shall be made to reduce to a minimum any interference with or inconveniences to park operations and park patrons due to the construction work. Excavated material shall be trucked away and returned if the Owner deems it necessary and practical as a means for avoiding serious interference with and inconvenience to business concerns and abutters.
- c. The Contractor's attention is directed to the fact that the work on this project is to be performed within a recreation area and adjacent to park drives and walkways which are utilized by pedestrians, bikers, joggers and vehicles. The Contractor shall be responsible for the installation of adequate precautions and other safety measures and controls deemed necessary by the Owner in order to protect all park users.
- d. Any automotive equipment not protected by traffic cones that is operating on a public way under this project shall have one amber flashing warning light mounted on the cab roof or on the highest practical point of the machinery. This light shall be in operation while the equipment is so working.
- e. Trenches shall not be opened in park areas until all material and equipment required for the work are on the site and available for immediate use. The work at each trench shall be practically continuous, with the placing of utilities, backfill and patching (where applicable) of the surface



closely following each preceding operation. When work is not in progress, trenches in areas subject to use by park patrons shall be covered with steel plates capable of safely sustaining all anticipated loads.

- f. The Contractor shall provide traffic signs, warning markers and other construction safety measures as necessary to maintain public safety and optimum traffic flow. Parking of personal vehicles will be prohibited in construction areas as directed.
- g. With suspension of construction activities during holidays, weekends and nights, the Contractor shall remove temporary traffic and/or safety control devices, as requested, and return them to their positions when work begins again. Payment for the installation and maintenance of appropriate safety provisions shall be included under the base bid price and no separate payment shall be considered.
- h. The Contractor shall without additional compensation be required to maintain access to the project area for fire apparatus and other emergency vehicles at all times.

ARTICLE 32 - PROTECTION OF EXISTING FACILITIES

- a. All existing walks, pipes, conduits, poles, fences, stairways, curbing, walls, buildings, trees and other structures which are to remain in place shall be carefully supported and protected from injury by the Contractor without additional compensation and in case of injury they shall be restored by him without compensation therefore to as good condition as that in which they were found. The value of any trees damaged shall be determined in accordance with established practices of the American Association of Nurserymen or a Registered or Certified Arborist selected by the Project Manager. Limits of liability shall not be limited to the replacement with new and immature trees.
- b. The Contractor shall, at his own expense, provide suitable and safe bridges and other crossings, where required, for accommodation of travel and to provide access to private property during construction, and shall remove said structures thereafter.
- c. The location of prior existing utility systems is not known and therefore may not be shown on the drawings prepared for this project. The existence of utilities shall not be considered as an unusual obstacle, and the Contractor shall not be entitled to extra compensation for maintaining, protecting, or repairing these utilities. The Contractor shall use the exploratory excavation included in his contract price, whenever he/she or the Owner's representatives deem it necessary to verify, or prevent interruption of, existing services.

ARTICLE 33 - RECORD DRAWINGS - AS-BUILT

- a. The Contractor shall cooperate with the Project Manager and shall prepare and maintain a set of drawings on which shall be recorded accurately, as the work progresses, the actual "as built" locations and dimensions of all his work, indicating thereon all variations from the Contract Drawings. This record of "as built" conditions shall include the work of all subcontractors and shall be submitted, upon final acceptance of all work, to the Project Manager and shall be reviewed and updated at weekly meetings.
- b. Prior to final acceptance of the work, all "as built" data shall be transferred into digital Auto CAD 2005 format files provided to the Owner by the Contractor. This work shall be performed by the Contractor's Registered Land Surveyor with the cooperation of the Contractor as required. After review and approval by the Owner the record drawings will be completed and delivered to the Owner.
 - 1. All geographic data must be submitted in a standard real-world coordinate system. The following coordinate system is required:



Projection: Massachusetts State-plane Mainland
Datum: NAD83
Fipszone: 2001
Units: Feet
Spheroid: GRS1980

2. All digital data must be delivered in the following format:

Autodesk AutoCAD dwg. format, and one of the following file formats:

ESRI Geodatabase
ESRI Shapefile format
ESRI Arc/Info Interchange File format (e00)
Autodesk AutoCAD dxf format

3. All data must be clean of undershooting and overshooting arcs (dangles). Polygons must be snapped closed at nodes and lines must snap to one another at nodes.
4. All data must be thematically organized. There must be separate layers for road edges, road centerlines, buildings, streams, water and sewer mains, hydrants, easements, parcels, water bodies, etc. For example, if a stream is coincident with a parcel boundary that coincident line must appear in both the parcel layer and the stream layer. All data shown on the plan shall be submitted digitally.
5. Features, which contain a third, dimension or elevation data (z value) must have the elevation value within the attribute data. If elevation data is submitted in a CAD format then the value must be part of the feature (polyline).
6. Documentation:
 - A. A list of all files being submitted is required.
 - B. CAD data shall include metadata for each layer included within the file. This documentation will provide information on the source of the data, feature type (point, line, polygon, etc), source date, and a general description of what is shown on the layer(s).
 - C. GIS data submissions (e.g., mdb, shp file, e00 export) must include all items from B above as well as metadata for each of the feature's geographic data attributes. This will include a complete description of each attribute's definition as well as a description of what each of the attribute values mean for each field.
7. Documentation on the method/s used for data collection shall be submitted for all data deliverables.
8. Documentation on the horizontal and vertical accuracy shall be submitted for all data deliverables.
9. Text & Annotation:
 - A. For CAD submissions, text must be placed in separate layers. Features must not be erased in order to accommodate the placement of text. Text layers must be thematically separate, meaning that text associated with hydrography should be placed on a single layer, while text pertaining to a parcel's ID number should be placed on yet another separate layer. For example, should there be text on a map defining a parcel's ID number and another piece of text defining a stream name, the deliverable to the town must include two (2) separate text layers, one for the parcel ID numbers and one for the stream names.
 - B. Text associated with a GIS formatted data deliverable must be in one of four forms.



1. A label attribute. This would be related to the feature's attribute fields as previously described above in Section 6.
 2. Annotation subclass. This would be separate annotation included within a feature data set as a series of text attribute tables (TAT).
 3. Annotation coverage (e00 export). This would be an entirely separate feature class containing text or annotation only.
 4. Feature linked annotation as prescribed in ArcGIS.
10. Pertaining to CAD formatted deliverables, features, which cross map sheets, must precisely match each other at the join line between the sheets; edge matching must be seamless.
 11. All deliverables, data, text and/or documentation, must be submitted on either CD-ROM or DVD.
 12. The Owner shall supply the Contractor with electronic files (AutoCAD) for the sole purpose of creating As- Built Drawings.
 13. **As-built tasks shall be assigned a monetary value equal to 2 percent (2%) of total construction cost and be included as an item in the approved schedule of values.**
 14. **Contractor shall submit the final approved as-built within 28 day of notice of substantial completion or approval of final payment application.**

ARTICLE 34 - RUBBISH REMOVAL

- a. The Contractor and each Subcontractor shall remove all rubbish, waste, tools, equipment, and appurtenances caused by and used in the execution of his work; but this shall in no way be construed to relieve the Contractor of his primary responsibility for maintaining the site clean and free of debris, leaving all work in a clean condition. The Contractor shall keep the site free of rubbish and construction debris at all times.
- b. The Contractor shall provide sufficient metal barrels or dumpsters into which all refuse and garbage shall be deposited. All containers shall have tight fitting covers. These shall be secured overnight or removed daily.
- c. At the end of each workweek, the Contractor shall thoroughly clean premises of rubbish and debris of any nature, and remove such from the premises.

ARTICLE 35 - PROJECT CONSTRUCTION SIGN

- a. Contractor will provide and temporarily install one monolithic 48" high X 96" wide X ¾" thick project sign and 2- 4"x 4" posts to identify the Project at a location to be determined in the field by the Owner.
- b. The Project sign shall conform exactly to the City of Worcester's DPW and Parks, Parks, Recreation and Cemetery Division's prototype projects sign including but not limited to: size, backer material, font style, size and relief, capitalization, color, weather proofing, fasteners and fastener locations.
- c. **Final Graphic and language will be provided by the Owner** (Background color is forest green, text is white). **Sample below is for reference only.**



- d. The Contractor shall include the cost of furnishing, post installation and removal of sign and posts in the total project costs



CITY OF WORCESTER

CITY-WIDE PARK & PLAYGROUND IMPROVEMENT PROGRAM
"PRIDE IN OUR PARKS"

INDIAN HILL PARK PHASE II IMPROVEMENTS

CITY MANAGER EDWARD M. AUGUSTUS JR.	DEPARTMENT OF PUBLIC WORKS & PARKS JAY J. FINK, P.E., COMMISSIONER ROBERT C. ANTONELLI, JR., ASST. COMMISSIONER
WORCESTER CITY COUNCIL JOSEPH M. PETTY, MAYOR	CONSULTANTS BOHLER ENGINEERING, MA, LLC 352 TURNPIKE ROAD SOUTHBOROUGH, MA 01772
MORRIS A. BERGMAN DONNA M. COLORIO ETEL HAXHIAJ KHRYSIAN E. KING CANDY F. MERO-CARLSON	GENERAL CONTRACTOR KATHLEEN M. TOOMEY

THIS CAPITAL IMPROVEMENT PROJECT HAS BEEN MADE POSSIBLE THROUGH FUNDING PROVIDED BY A CITY COUNCIL TAX LEVY APPROPRIATION.

PLEASE PARDON OUR APPEARANCE AS WE ENHANCE THIS FACILITY FOR FUTURE GENERATIONS

PROJECT SPECIAL SPECIFICATIONS

General

1. The following special standard specifications are to be used on contract work awarded by the City of Worcester DPW and Parks; Parks Recreation and Cemetery Division. They are intended to supplement, support and suit this specific contract.

ARTICLE 36 – DEMOLITION, SITE EXCAVATION AND PREPARATION

- a. The work shall consist of excavating, removing and legal disposal of surplus if any, earth, boulders, masonry, existing pavements, building materials, footings, appurtenances and other materials encountered of whatever nature that is unsuitable for the construction and improvements of finished conditions. Excavated to the depth necessary to install according to the specifications, plans and details plans provided in the construction bidding documents.
- b. Location of existing utilities shall be verified before excavation commences. The Drawings are based on available utility record drawings and site observation.
- c. The excavation shall be carried out to such depths that sufficient materials will be left above the designated grade to allow for compaction to this grade. Should the Contractor, through negligence or other fault, excavate below the designated lines, he shall replace such excavation at his own expense. The Owner shall have complete control over excavation, moving, placing, and disposition of all material. All material determine to be unsuitable shall be disposed offsite at no additional cost to the Owner.
- d. The Contractor shall inform and satisfy himself as to the character, quantity, and distribution of all material to be excavated. No payment shall be made for any excavated material, which is used for purposes other than those designated or implied.



- e. If it is necessary in the process of the work to interrupt existing surface drainage, sewers, or to pass under drainage, conduits, utilities, or similar underground structures, or parts thereof, the Contractor shall protect it or provide temporary services. The Contractor shall, at his own expense, satisfactorily repair all damage to such facilities or structures that may result from any of his operations or from negligence during the period of the Contract..
- f. No excavation shall be started until the Owner has approved the proposed area of construction.
- g. Excavation shall be performed at such places as are indicated on the Drawings, to the lines, grades and elevations shown or as directed by the Project Manager, and shall be made in such manner that requirements for the formation of the sub-grade can be followed. Unless directed otherwise any disturbed existing rimmed structures shall be adjusted flush to final adjacent grade.
- h. Existing pavements and base courses shall be carefully saw cut or core drilled and removed to the lines indicated and in a manner to obtain sound, vertical edges, and so as not to disturb or damage existing buildings, utilities, pavements, and base coats which are to remain.
- i. Unit pavers, such as granite brick and concrete, shall be carefully removed and stockpiled for reuse, if required.
- j. All excavations shall be opened using minimum, straight, parallel cuts through pavement and base materials, and other excavations opened using square or rectangular cuts or as directed to minimize removal while permitting regular, straight-line repair and patching.
- k. No excavation shall commence in any until the pavement covering the proposed excavation has been marked for cutting.
- l. Excavated areas shall be made safe for the residents at the end of each workday.
- m. Transport excavated materials, waste materials, trash, and debris and legally dispose of it off city property.
- n. Prevent, minimize and control groundwater and/or surface water to accumulate in excavations. Remove water to prevent the undercutting of footings and soil changes detrimental to the stability of sub-grades, foundations and granite, brick or concrete paving.
- o. Payment for site excavation and preparation work shall be considered incidental to the individual items installed. No separate payment shall be made for site excavation and preparation work. No separate payment shall be made for all labor, equipment, tools and incidentals necessary to complete the work to the satisfaction of the city, including transportation and disposal of excavated materials.
- p. It is the responsibility of the Contractor to verify the accuracy of all survey information provided by the Owner prior to commencing excavations or filling operations. Commencement of these operations constitutes acceptance of the survey information as appropriate to meet the intent of the Contract.
- q. Soil testing, if required, for all materials to be reused on-site or removed and disposed of offsite, shall be the responsibility of the contractor. The city reserves the right to obtain its own test results from the same sample as the contractor without penalties to the owner. The contractor is required to obtain a large enough sample to divide with the owner for this proposes.
- r. Transport excavated materials, waste materials, trash, and debris and legally dispose of it off city property.
- s. Surplus excavated material not needed as specified above shall be hauled away and disposed of by the Contractor at no additional cost to the Owner, at appropriate locations, and in accordance with arrangements made by him. Disposal of all rubble shall be in accordance with all applicable local, state and federal regulations.
- t. The Contractor shall comply with Massachusetts regulations (310 CMR 40.0032) that govern the removal and disposal of surplus excavated materials. Materials, including contaminated soils, having concentrations of oil or hazardous materials less than an otherwise Reportable Concentration



and that are not a hazardous waste, may not be disposed of at locations where concentrations of oil and/or hazardous material at the receiving site are significantly lower than the levels of those oil and /or hazardous materials present in the soil being disposed or reused.

- u. If required: In response to the State/ Federal imposed quarantine regarding the Asian long-horned beetle infestation, the protocol for handling and disposal of wood based materials within the project area by the contractor shall be to:
 - i. at a minimum, process all onsite vegetative, wood and cellulose based materials (trees, shrubs, root, stumps, branches, leaves, etc. **twelve inches and under in diameter** and designated for disposal) to a size of less than one inch as measured in two directions by approved mechanical means (wood chipper) prior to disposal/removal offsite. All other existing vegetative, wood and cellulose based products; tree trunks, stumps, branches etc., **greater than twelve inches, in diameter** and designated for removal/disposal shall be delivered to the current transfer station located within the City property limits.
 - ii. Contractor shall be responsible to comply with changes to the current quarantine protocols at the time the work is performed.

ARTICLE 37 –PLAYGROUND EQUIPMENT

- A. Equipment selection is based on specific program requirements and physical constraints within the site. Equipment must be a commercially produced product (***not custom fabricated***) that is designed for the specific recreational purposes required by DPW & Parks as outlined in these specifications.
 - a. Provide a choice of up to a three premium color combination for composite play equipment.
 - b. Required Submittals: (CAD drawing of playground layout is available upon request.)
 - c. Submit 2-D layout and 3-D color rendering with quote.
 - d. Submit guaranteed lead time for delivery and installation.
 - e. Additional hardware shall be provided in sufficient quantity to complete the assembly of the play equipment including hardware for surface mounting onto the concrete pad. All hardware shall be stainless steel or non-ferrous. Bidder shall provide the Owner with any and all maintenance and repair supplies, installation manuals, tool kits and materials that were shipped with each product for the Owner's Inventory.

ARTICLE 38 - CAST IN PLACE CEMENT CONCRETE

- a. The scope of work under this article shall consist of furnishing all labor, materials, equipments, transportation, reinforcing, forming, finishing and curing of cast in place concrete for the construction of concrete pads, footings and walls for the structures and site improvements as specified herein and according to the plans and details shown in the construction drawings and the balance of any concrete construction necessary to completion of the project.
- b. Unless otherwise specified, all materials shall conform to the relevant provisions of Section 901, **Cement Concrete Masonry**, and Section M4, **Cement And Concrete Materials** of latest edition of The Massachusetts Department of Public Works Standard Specifications for Highways, Bridges and Waterways.
- c. At a minimum, concrete to be used shall be Class 4,000 PSI - minimum 28 day compressive strength, and cement content of 610 lbs per cubic yard for ¾" course aggregate. Concrete shall be discharged at site within 90-minutes after batching.
- d. All horizontal (pad) concrete construction shall be air entrained which shall be 4.5% to 7%, as determined by ASTM C231.
- e. Formwork shall be sufficient enough to resist pressure of the concrete without springing and tight enough to prevent leakage of mortar. Forms shall be staked, braced, or tied together to maintain their position and shape when concrete is compacted in place. Forms shall be clean and shall produce



- an even finish for exposed surfaces. Forms shall not be removed for at least twenty-four (24) hours after concrete has been placed, or longer if directed by Owner.
- f. Preformed expansion joint filler shall be non-extruding and resilient non-bituminous type conforming to AASHTO-M135.
 - g. Reinforcing as required or pads shall be welded wire fabric, 6" X 6", W1.4 X W1.4 gauge cold-drawn steel wires formed into a mesh and welded together at points of intersection in conformance with ASTM A-185-70. Welded wire fabric shall be furnished in mats and not in rolls.
 - h. All references to 'processed gravel', 'gravel borrow', or 'gravel' shall conform to Article 38 Gravel Borrow.
 - i. Curing and protection shall be accomplished by applicable optimum method specified in Section 901, **Cement Concrete Masonry**, and Section M4, **Cement And Concrete Materials** of latest edition of The Massachusetts Department of Public Works Standard Specifications for Highways, Bridges and Waterways.
 - j. The Contractor is responsible for the quality and strength of the concrete. Inferior concrete, including that damaged by frost action shall be removed and replaced at no additional cost to the Owner.
 - k. The Contractor shall be responsible to repair or replace any concrete exhibiting deficient materials or workmanship within one (1) year of final acceptance.
 - l. Payment for concrete and concrete work shall be considered incidental to the individual item in which the concrete is used. No separate payment shall be made for concrete work.

ARTICLE 39 - GRAVEL BORROW

- a. The scope of work under this article shall consist of furnishing all labor, materials, equipment and transportation required for placement and compaction of approved processed gravel according to the plans and details shown in the construction drawings and the balance of any sub base construction necessary to the completion of the project.
- b. All references to 'processed gravel', 'gravel borrow', or 'gravel base' shall conform to Article 39 Gravel Borrow.
- c. Gravel borrow shall consist of inert material that is hard durable stone and coarse sand, free from loam and clay, surface coatings and deleterious material. Gravel borrow containing recycled concrete material shall not be used in areas of pervious finish grade (i.e. ball fields, skinned, and lawns areas).
- d. Gradation requirements for gravel borrow shall be determined by AASHTO-T11 and T27 and shall conform to the following:

<u>Sieve</u>	<u>Percent Passing</u>
2"	100
1/2"	50-85
No. 4	40-75
No. 50	8-28
No. 200	0-10

- e. Maximum size of stone in gravel shall be two (2) inches, largest dimension.
- f. Gravel shall be spread and compacted in layers not exceeding six (6) inches in depth compacted measurement and all layers shall be compacted to not less than ninety-five percent (95%) of the maximum dry density of the material as determined by the Standard AASHTO Test Designation T99 compaction test Method C at optimum moisture content.



ARTICLE 40 –SECURITY CAMERAS - APPURTENANCES STANDARDS

- a. Include \$150,000 in Base Bid for allowance to furnish and install cameras and associated appurtenances. Owner will be responsible to secure specifications and vendor pricing for products, installation labor and connection of security system. Project Contract terms apply.***
- b. Include in Base Bid, to furnish, install and test 2,000 LF of fiber optic cable, type 12 strand single mode outdoor plant fiber.***
- c. Communications conduits shall be 2-inch type HDPE continuous roll, smooth wall SDR 09 between handholes, communication conduits run into light poles can be Schedule 40 PVC. Electrical and HDPE conduits shall be in separate handhole/pullbox.
- d. Include in base bid, to coordinate, furnish and install on each pedestrian light pole with communication handhole, one pole mounted NEMA 3R rated utility cabinet, with stainless steel back panel, include labor and materials to energized duplex outlet for security cameras, security camera appurtenances. Cameras and appurtenances inside pole mounted utility cabinet are not included in Base Bid (see item ‘a’ of Article 40). Furnish and install manufacturer’s standard auxiliary wire exits (2). Mount utility cabinets with pole manufacturer’s standard and provided “trac nut” hardware, include fabrication of custom H-bracket for the utility cabinet. Utility cabinet standard shall be Stahlin Part# RJ1614HW-P, Type# 1,3R,4X,6P,12 painted black, or approved equal.

ARTICLE 41 – POURED IN PLACE PLAYGROUND SAFETY SURFACING

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes: Poured-in-place playground surfacing system.

1.02 REFERENCES

A. American Society for Testing and Materials (ASTM):

1. ASTM D412 Standard Test Methods for Vulcanized Rubber and Thermoplastic Rubbers and Thermoplastic Elastomers-Tension.
2. ASTM D624 Standard Test Method for Tear Strength of Conventional Vulcanized Rubber and Thermoplastic Elastomers.
3. ASTM D2047 Standard Test Method for Static Coefficient of Friction of Polish-Coated Floor Surfaces as Measured by the James Machine.
4. ASTM D2859 Standard Test Method for Flammability of Finished Textile Floor Covering Materials.
5. ASTM E303 Standard Test Method for Measuring Surface Frictional Properties Using the British Pendulum Tester.
6. ASTM F1292 Standard Specification for Impact Attenuation of Surface Systems under and Around Playground Equipment.



7. ASTM F1951 Standard Specification for Determination of Accessibility of Surface Systems under and Around Playground Equipment.

1.03 SYSTEM DESCRIPTION

A. Performance Requirements: Provide a 2 layer rubber-polyurethane playground surfacing system which has been designed, manufactured and installed to meet the following criteria:

1. Shock Attenuation (ASTM F1292):
 - a. Gmax: No to exceed 150.
 - b. Head Injury Criteria: Not to Exceed 850.
2. Flammability (ASTM D2859): Pass.
3. Tensile Strength (ASTM D412): 60 psi (413 kPa).
4. Tear Resistance (ASTM D624): 140%.
5. Water Permeability: 0.4 gal/yd²/second.
6. Accessibility: Comply with requirements of ASTM F1951.

1.04 SUBMITTALS

- A. General: Submit listed submittals in accordance with Conditions of the Contract.
- B. Product Data: Submit manufacturer's product data and installation instructions.
- C. Verification Samples: Submit manufacturer's standard verification samples of 9" x 9" (229 x 229 mm) minimum.
- D. Quality Assurance/Control Submittals: Submit the following:
 1. Certificate of qualifications of the playground surfacing installer.
- E. Closeout Submittals: Submit the following:
 1. Warranty and Testing documents specified herein.

1.05 QUALITY ASSURANCE

A. Qualifications: Utilize an installer approved and trained by the manufacturer of the playground surfacing system, having experience with other projects of the scope and scale of the work described in this section. For installation of the poured-in-place play surface the contractor shall have a minimum of five (5) years of experience. Provide evidence of successful completion of twenty-five (25) like surfaces installed during the past five (5) years with names of clients and phone numbers.

B. Certifications: Certification by manufacturer that installer is an approved applicator of the playground surfacing system.



C. International Play Equipment Manufacturers Association (IPEMA) certified.

D. Testing: Within 35 days following installation of the finished playground surface, the Contractor is required to provide the city with field test results demonstrating that the surface is in compliance with ASTM F1292 for impact attenuation and ASTM F1951 for wheelchair accessibility.

1.06 DELIVERY, STORAGE & HANDLING

A. General: Comply with Division 1 Product Requirement Section.

B. Delivery: Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.

C. Storage and Protection: Store materials protected from exposure to harmful environmental conditions and at a minimum temperature of 40 degrees F (4 degrees C) and a maximum temperature of 90 degrees F (32 degrees C).

1.07 PROJECT/SITE CONDITIONS

A. Environmental Requirements: Install surfacing system when minimum ambient temperature is 40 degrees F (1 degree C) and maximum ambient temperature is 90 degrees F (32 degrees C). Do not install in steady or heavy rain.

1.08 WARRANTY

A. Project Warranty: Refer to Conditions of the Contract for project warranty provisions.

B. Manufacturer's Warranty: Submit, for Owner's acceptance, manufacturer's standard warranty document executed by authorized company official. Manufacturer's warranty is in addition to, and not a limitation of, other rights Owner may have under contract documents.

C. Warranty Period: Surfacing shall maintain impact attenuation characteristics and be guaranteed against defects in workmanship and materials for a period of no less than 7 years from date of completion of acceptance of work or submission of testing result.

PART 2 PRODUCTS

2.01 POURED-IN-PLACE (PIP) PLAYGROUND SURFACING SYSTEM

A. Poured-in-place playground surfacing system, including the following:

1. Poured-In-Place Primer:

a. Material: Polyurethane.

2. Poured-in-Place Basemat:

a. Material: Blend of 100% recycled SBR (styrene butadiene rubber) and polyurethane.

b. Thickness: meets ASTM F1292 requirements for Impact Attenuation of Surface Systems under and Around Playground Equipment and Swings or designed maximum critical fall height of 96 inches, whichever is greater.



c. Formulation Components: Blend of strand and granular material.

3. Poured-In-Place Top Surface:

a. Material: Blend of recycled EPDM (ethylene propylene diene monomer) and Aromatic polyurethane.

b. Thickness: Nominal 1/2" minimum.

c. Color: Uniform Custom Three Combination - 50% Black and 50 % of Manufacturer's three (3) Premium Colors.

d. Dry Static Coefficient of Friction (ASTM D2047): 1.0.

e. Wet Static Coefficient of Friction (ASTM D2047): 0.9.

f. Dry Skid Resistance (ASTM E303): 89.

g. Wet Skid Resistance (ASTM E303): 57.

2.02 PRODUCT SUBSTITUTIONS

A. Substitutions: Approved Equal

2.03 MIXES

A. Required mix proportions by weight:

1. Basemat: 14% polyurethane, 86% rubber.

2. Top Surface: 18% polyurethane, 82% rubber.

PART 3 EXECUTION

3.01 MANUFACTURER'S INSTRUCTIONS

A. Comply with the instructions and recommendations of the playground surfacing manufacturer

3.02 EXAMINATION

A. Site Verification of Conditions: Verify that substrate conditions are suitable for installation of the playground surfacing system.

B. Do not proceed with installation until unsuitable conditions are corrected.



3.03 PREPARATION

A. Surface Preparation: Using a brush or short nap roller, apply primer to the substrate perimeter and any adjacent vertical barriers such as playground equipment support legs, curbs or slabs that will contact the surfacing system at the rate of 300 ft²/gal (7.5 m²/L).

3.04 INSTALLATION

A. Do not proceed with playground surfacing installation until all applicable site work, including substrate preparation, fencing, playground equipment installation and other relevant work, has been completed.

B. Basemat Installation:

1. Using screeds and hand trowels, install the basemat at a consistent density of approximately 29 pounds, 1 ounce per cubic foot (466 kg/m³) to the specified thickness.

2. Allow basemat to cure for sufficient time so that indentations are not left in the basemat from applicator foot traffic or equipment.

3. Do not allow foot traffic or use of the basemat surface until it is sufficiently cured.

C. Primer Application: Using a brush or short nap roller, apply primer to the basemat perimeter and any adjacent vertical barriers such as playground equipment support legs, curbs or slabs that will contact the surfacing system at the rate of 300 ft²/gal (7.5 m²/L).

D. Top Surface Installation:

1. Using a hand trowel, install top surface at a consistent density of approximately 58 pounds, 9 ounces per cubic foot (938 kg/m³) to a nominal thickness of 1/2" (12.7 mm).

3. **Single application of each color, no cold seams.**

4. Allow top surface to cure for a minimum of 48 hours.

5. At the end of the minimum curing period, verify that the top surface is sufficiently dry and firm to allow foot traffic and use without damage to the surface.

6. Do not allow foot traffic or use of the surface until it is sufficiently cured.

3.05 PROTECTION

A. Protect the installed playground surface from damage resulting from subsequent construction activity on the site.



ARTICLE 42 - WPRC DIVISION CHAIN LINK FENCE FRAMEWORK AND FABRIC

General

1. This work includes the installation of galvanized, aluminized and polymer coated fence framework and fabric of various heights in accordance with these specifications and in conformity with the details, lines and grades shown on the plans or established.

Construction Requirements

1. Locate and install all posts in concrete (4000 psi at 28 days), with minimum depth of 48 inches below finish grade and minimum diameter of twelve inches or four times the diameter of post, whichever is greater. Typical spacing of post shall be 120 inches max on center. Core spacing/location of post on the precast concrete wall shall be coordinated with shop drawings and adjusted to be located in the middle of top “anchor” block. If applicable, refer to plans for post concrete footing depth and size for batting cage, bullpen, backstop and netting framework. Install plumb and true to line and grade and to the height as indicated within the drawings. All posts shall have continuous horizontal rails at the top, middle (for fence design height 72 inches and greater), and bottom. In addition, all end and corner posts shall be braced to the nearest line post with center brace rails. Outside sleeve type top rail couplings shall be placed a maximum of twelve (12) inches from posts.
2. Chain link fence shall have continuous top and bottom rails. Refer to plans for rail layout for batting cage, bullpen and backstop and netting framework. Top and bottom edge of fence fabric shall have knuckled edges. Fabric shall be stretched uniformly taut and as tight as possible, true to line and grade and complete in all details. Install tension bars at corners.
3. All chain link fence fabric shall be fastened on the outside of the posts unless directed otherwise by the Owner. The fabric shall be properly stretched and securely fastened to the posts and between posts the top and bottom of the fabric shall be fastened to the horizontal braces as specified, herein. The fabric shall be fastened to end and corner posts with tension bars and stretcher bar bands spaced at one (1) foot intervals.
4. Fabric shall be aligned so that top and bottom shall extend one half the height of the “diamond” beyond outer edge of top and bottom of the horizontal rail. The fabric shall also be one (1) inch maximum above finish grade. The fabric shall be tied (as per item 5 below) to all line posts, top, middle and bottom rails every six (6) “diamonds” as measured horizontally or vertically. Overlapping fence fabric sections shall overlap one full height of the “diamond” and be centered on the horizontal rail.
5. All fabric, shall be fastened to all line posts and horizontal rails with 0.020" thickness, 200/300 series stainless steel ½" wide bands, with a minimum breaking strength of 850 lbs., 1/2" band capacity ear-lokt design buckles to be manufactured with 0.050" thick material, 201/301 series stainless steel. Fabric for bleachers shall be attached at each vertical post only, three bands per post. All bands shall be pulled tight and raw ends of steel bands shall be secured in buckle by folding ear tabs around steel bands as per manufacturer's recommended installation procedure. No sharp edges shall protrude from band-it buckles.

Materials

Fabric, posts, gate frames, gate hinges, gate stops, braces, rails, stretcher bars, truss rods, post caps, stretcher bar bands, tension wire shall and other parts shall be of steel, pressed steel or approved equal except that post tops and rail ends may be of aluminum. **No malleable iron, ductile iron materials will be**



accepted. The Contractor shall supply a notarized mill certification from manufacturer that all materials used have been tested and fully comply with the specifications specified herein.

1. Fabric: The fabric shall consist of No. 9 gauge (0.148 inch core) wire, 2-inch diamond mesh typical and 1.75-inch diamond mesh for fabric adjacent to tennis courts. All fabric shall be knuckled at both selvages. Public side of fabric shall be installed in accordance with the Owner's direction. The height of the fabric as shown on plans and details shall be typically one piece unless directed otherwise by Owner. Fabric for bleachers will be as per manufacturer's standard.

(a) *Galvanized /Aluminized Coated Fabric:* All materials used shall conform to the requirements of ASTM A392 Class-2, or ASTM A491. Except aluminum alloy items, shall conform to ASTM-B211, B221 and B429.

(b) *Polyvinyl Chloride (PVC) Coated Fabric:* Fence fabric shall be zinc coated in accordance ASTM A392 Class-1 or aluminum-coated in accordance with ASTM A 491(TABLE 3). PVC coating shall be applied in accordance with ASTM F668 Class-2a. The color of the fabric shall be black and in accordance with ASTM F934.

2. Framework: Type II, Group IC round steel pipe (electric resistance welded), cold-formed as per ASTM F1043-00 Standard, with minimum yield strength of 50,000 psi. The external zinc coating shall be Type B, zinc with polymer film, 0.90 oz / sq. ft, minimum zinc coating with a chromate conversion and a verifiable polymer film. The internal coating shall be Type B, zinc 0.90 oz./sq.ft. Minimum or type D, zinc pigmented, 81% nominal coating with 0.30 mils minimum thickness. Gate framework joints shall be welded and coated in accordance with Practice A780, employing zinc-rich paint. Refer to plans for framework sizes for batting cage, bullpen, backstop and netting framework.

(a) End, Corner and Pull Post. Galvanized steel, physical pipe dimension and weights as follows:

- (1) Up to 12-foot fabric height: 2.875-inch OD pipe, 4.64-lbs. /lin. ft.
- (2) For basketball and tennis courts: 4.000-inch OD pipe, 6.56-lbs. /lin. ft.
- (3) For combo batting cage/bullpen and backstop: 4.000-inch OD pipe, 6.56-lbs. /lin. ft.
- (4) Maximum Spacing between all posts is 10'- 0" On Center.

(b) Line Posts. Galvanized steel, physical pipe dimension and weights as follows:

- (1) Up to 12-foot fabric height: 2.375-inch OD steel pipe, 3.12-lbs. /lin. ft.
- (2) For basketball and tennis courts: 2.875-inch OD pipe, 4.64-lbs. /lin. ft.
- (3) For combo batting cage/bullpen and backstop: 4.000-inch OD pipe, 6.56-lbs. /lin. ft.
- (4) Maximum Spacing between all posts is 10'- 0" On Center.

(c) Gate Posts. Galvanized steel, single gate widths, physical pipe dimension and weights as follows:

- (1) Up to 6-feet: 2.875-inch OD pipe, 4.64-lbs./linear ft.
- (2) Over 6-feet to 13 feet: 4.0 inch OD pipe, 6.56-lbs./ linear ft.
- (3) Gate frames as per ASTM F 900-94.

(d) Rails (Top, middle and bottom rails): Galvanized steel, manufacturer's longest lengths joined by six-inch (6") long sleeves, rail shall run continuously along top of fence. Bottom rail shall be joined at line posts with boulevard clamps. Minimum pipe sizes and weights as follows:

- (1) 1.660-inch OD pipe, 1.82-lbs. /lin. ft. minimum.
- (2) **Top, Bottom and MIDDLE rails are required for fencing adjacent to the soccer field and top of wall OR any fence designated to be six (6) feet and taller.**

(e) Couplings: Expansion types, approximately 6-inch long, install one sleeve for each 500 foot run. Standard couplings are installed at each rail end to form one continuous top rail.



- (f) Attaching Devices: Provide fittings for attaching top rail securely to each gate corner pull and end post.
- (g) Sleeves: Galvanized steel pipe not less than 6 inches long and with inside diameter not less than 1/2-inch greater than outside diameter of the post pipe. Provide steel plate closure welded to bottom of sleeve of width and length not less than 1-inch greater than outside diameter of sleeve.
- (h) Post Brace Assembly: Manufacturer's standard adjustable braces at end of gateposts and at both sides of corner and pull posts. Provide horizontal brace located at mid-height of fabric. Use same material as top rail for brace, and truss to line posts with 3/8-inch diameter galvanized steel truss rods and adjustable tightener.
- (i) Post Tops: Galvanized steel, weather-tight closure cap for each tubular post. Furnish caps with openings to permit passage of top rail.
- (j) Tension Bars: Galvanized steel, one piece lengths equal to full height of fabric, with minimum cross-section of 3/16 inch x 3/4 inch. Provide tension bar for each gate and end post, and two for each corner and pull post. Stretcher Bar Bands will be manufacturer's standard.
- (k) Gate Cross-Bracing: 3/8-inch diameter galvanized steel truss rods and adjustable tightener.
- (l) Non-Shrink, Non-Metallic Grout: Premixed, factory-packaged, non-corrosive, non-staining, non-gaseous, exterior grout approved by the Engineer.
- (m) Single and Double Swinging Gate and Hardware: Swing gates and hardware shall be manufactured to meet the requirements of ASTM F900. Unless indicate otherwise, and to meet ADA requirements, the minimum clear opening for all single gates (as measure with gate perpendicular to framework) shall be 36 inches.
 - (1) Hinges. Industrial butt hinges, size and material as required for the gate size. Non-lift-off type, offset to permit 180 degree gate opening. Provide one pair of hinges for each leaf, gates eight feet and taller in nominal height shall have three hinges per leaf. Spot-weld to post and paint (non polymer coated), to prevent rotational movement.
 - (2) Latch (for both single and double gates). Pressed steel, industrial series gate latch, straight fork type, provide latch catch for double gates, designed to permit operation from either side of gate, with padlock eye as integral part of latch catch. Provide two latch and catch for double gates. All gates shall be equipped with one gate stop.
- (n) Sleeves if required for fence shall be galvanized steel pipe conforming to ASTM F1043 sizing as required to accommodate posts.

Polymer Coated Framework

Shall meet the above-mentioned specification for materials. The framework shall be subjected to a complete thermal stratification coating process (multi-stage, high-temperature, multi-layer) including, as a minimum, a six-stage pretreatment/wash (with zinc phosphate), an electrostatic spray application of an epoxy base, and a separate electrostatic spray application of a polyester finish. The material used for the base coat shall be a zinc-rich (gray color) thermosetting epoxy; the minimum thickness of the base coat shall be two (2) mils. The material used for the finish coat shall be a thermosetting "no-mar" TGIC polyester powder; the minimum thickness of the finish coat shall be two (2) mils. The stratification-coated pipe shall demonstrate the ability to endure a salt-spray resistance test in accordance with ASTM B117 without loss of adhesion for a minimum exposure time of 3,500 hours. Additionally, the coated pipe shall demonstrate the ability to withstand exposure in a weather-ometer apparatus for 1,000 hours without failure in accordance with ASTM D1499 and to show satisfactory adhesion when subjected to the



crosshatch test, Method B, in ASTM D3359. The polyester finish coat shall not crack, blister or split under normal use. Painted framework and accessories are not acceptable, welded joints shall be top-coated to match frame color. Color of the polymer coated framework and accessories shall be black and in accordance with ASTM F934.

ARTICLE 43 - ATTACHMENTS

- D-1, Wood Guardrail and Pipe Bollard Detail (1 page)
- D-2, Chain Link Fence Framework and Fabric (1 page)
- D-3, Single or Double Pipe Gate Detail (1 page)

End of Special Conditions and Specifications