

SECTION 32 1823 - SYNTHETIC RUNNING TRACK SURFACING

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

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

1.2 WORKS INCLUDED

- A. Synthetic Track Supplier/Installer shall be responsible for all work pertaining to the synthetic track. Refer to attached drawings delineating the scope of work of the Track Supplier/Installer.
- B. Synthetic Track Supplier/Installer shall furnish all labor, materials, tools and equipment necessary to install all synthetic track as indicated on the plans and as specified herein and other related specifications. The installation of all new materials shall be performed in strict accordance with the manufacturer's installation instructions and in accordance with all approved shop drawings.
- C. Synthetic Track Supplier/Installer is to adhere to all applicable laws and provisions during the duration of their works.
- D. Synthetic Track Supplier/Installer is to abide by all the necessary requirements and specifications of the international governing bodies to ensure the certification of the works
- E. Synthetic Track Supplier/Installer shall secure the certification of the synthetic track to achieve IAAF Class 2 certification – Construction category III.
- F. Synthetic Track Supplier/Installer shall supply and install the semi-permanent aluminum curb at the inner lane of the running track.
- G. Synthetic Track Supplier/Installer shall provide maintenance of the completed synthetic track for the next three (3) years after its completion at the Contactor's own cost.
- H. Synthetic Track Supplier/Installer shall install line markings and letterings compliant with IAAF standards.
- I. Synthetic Track Supplier/Installer shall render close coordination and supervision works of the Base Constructor's works upon issuance of the Notice of Award and shall conduct regular site visits to be monitored by the Owner's representative.
- J. Synthetic Track Supplier/Installer shall provide/issue a written five (5) year warranty supported by a third party insured warranty policy from an "A" Rated Domestic insurance carrier.
- K. Synthetic Track Supplier/Installer shall engage an International Installer/Consultant with experience in the construction of previously certified IAAF Class 2 fields.

- L. Synthetic Track Supplier/Installer shall facilitate the testing of the system to comply with specified and all relevant requirements and secure its accreditation. It shall submit all written results and reports to the Owner.
- M. Track Supplier/Installer shall conduct a minimum of one site visit of the Base Constructor's works and submit the "Affidavit of Site Inspection" duly signed and notarized during the Bidding Process.
- N. Track Supplier/Installer shall provide twenty-seven (27) pieces training hurdling equipment: twenty-two (22) hurdling equipment for running events and five (5) hurdling equipment for the steeplechase.
- O. Track Supplier/Installer shall provide aluminum cover for the steeplechase.
- P. Track Supplier/Installer shall provide and install one thousand and eight hundred (1,800) units of simple-mounted fiberglass football stadium seats with medium-height (30cm) backrest and complete accessories.
- Q. Track Supplier/Installer shall provide thirty (30) units of contemporary ergonomic design fully upholstered theater chairs with full backrest, anti-panic seat of silent foldable and double-spring self-return mechanism, and steel plate frame. Cup holder and complete accessories included.
- R. Track Supplier/Installer shall provide four (4) sets of contemporary design lounge chairs and tables, each set with four (4) medium-height backrest lounge chairs with upholstered backrest, seat, and armrest and four (4) small round side tables.
- S. Track Supplier/Installer shall provide six (6) outdoor steel frame player's benches with eight (8) HDPE seats per module and one (1) outdoor steel frame official's bench with four (4) HDPE seats.
- T. Synthetic Track Supplier/Installer shall comply with the Environmental Corporate Responsibility as further stipulated in part 3.8 of this document.

1.3 REFERENCE STANDARDS

- A. IAAF/NCAA – Performance Specification for Synthetic-Surfaced Athletics Tracks (Outdoor), International Amateur Athletic Federation / National Collegiate Athletic Association.
- B. IAAF Track and Field Facilities Manual - IAAF Requirements for Planning, Constructing, Equipping and Maintaining

1.4 SUBMITTALS DURING BIDDING PROCESS AS PART OF THE TECHNICAL DOCUMENTS

- A. Synthetic Track Supplier/Installer is to submit the following documents during the bidding process:
 - 1. List of their completed and ongoing projects within the last five (5) years with details provided (i.e. Project name and location, name of owner/client, scope of work, synthetic turf product name, construction cost, year started and completed, duration of construction). Supplier/Installer must have completed at least one (1) similar local project for the supply and installation of synthetic running track with IAAF-certified product in the last five (5) years.

2. Product Data:
 - a. Submit manufacturer's catalog cuts, material safety data sheets (MSDS), brochures, specifications; preparation and installation instructions and recommendations; storage, handling requirements and recommendations.
 - b. Submit data in sufficient detail to indicate compliance with the contract documents.
 - c. Submit manufacturer's instructions for installation.
 - d. Submit list of complete product components and the brand and origin of each component to be provided.
 - e. Submit manufacturer's instructions for maintenance for the proper care and preventative maintenance of the synthetic track system, including painting and markings.
3. Samples
 - a. For initial Selection: Submit one sample for each type of synthetic track surfacing indicated.
 - b. Game-Line and Marker Paint: Include charts showing available colors and glosses.
 - c. Submit one sample IAAF-certified product sandwich type for running track. Supplier/Installer to state IAAF certification number of the Sandwich type running track.
4. Prior to the issuance of the Notice of Award, submit a Statement agreeing that Supplier/Installer will submit a written "Certification of Acceptance of the Base Construction" to ensure that the base preparation works are completed as per the Track Manufacturer's specification and conditions.
5. Submit presentation materials (preferably MS PowerPoint format on USB flash drive) that the Bidder will use during their oral presentation not longer than 30 minutes to highlight the design, material, method of construction, and schedule of works, among others, compliant with the requirements of this specifications, if needed.
6. Warranty: Submit sample of special warranty.
7. Supplier/Installer shall provide IAAF-certified running track product sandwich type. Supplier/Installer shall submit duly signed and notarized official letter from their respective manufacturer stating that sandwich type running track is IAAF-certified product.
8. Supplier/Installer shall engage an International Installer/Consultant with experience in the construction of previously certified IAAF Class 2 fields. Submit CV or resume of the International Installer/Consultant.
9. Submit detailed Master Schedule of the works with overall duration of six (6) months. Master Schedule shall start from Issuance of Notice to Proceed to Substantial Completion.

1.5 SUBMITTALS DURING CONSTRUCTION PHASE

- A. Shop Drawings: Submit installation details and locations of the following:
 1. Layout, colors, widths, and dimensions of game lines. Allow Owner to review at least 2 weeks prior to application.

2. Details of other facilities such as steeplechase layout and construction details, installation and connection details of semi-permanent aluminum curb, installation and connection details for fiberglass seats, and all installations related to the track oval completion.
- B. Samples for Verification: For each type, color, and pattern of synthetic track surfacing indicated, 6-inch-square samples of same thickness and material indicated for the Work.
1. Game-Line and Marker-Paint Samples: Include sample sets showing game-line and marker-paint colors applied to floor coverings.
- C. Product Certification:
1. Submit manufacturer's certification that products and materials comply with requirements of the specifications.
 2. Submit test results indicating compliance with Reference Standards.
 3. Submit Certificate of Importation and copy of Bill of Lading from the point of origin to the delivery point (UP Mindanao Campus) or any approved equivalent document for each product component of the system.
- D. Warranties: Submit warranty and ensure that forms have been completed in Owner's name and registered with approved Supplier/Installer.
- E. Prior to Final Acceptance, the Supplier/Installer shall submit to the Owner:
1. Three (3) copies of Maintenance Manuals, which will include all necessary instructions for the proper care and preventive maintenance of the track system, including painting and markings.
 2. Project Record Documents: Record actual locations of seams, drains or other pertinent information.
 3. Warranty: Submit Warranty and ensure that forms have been completed in Owner's name and registered with Supplier/Installer and Insurance Carrier. Submit information confirming that 3rd Party Insurance Policy, non-cancelable and pre-paid, is in effect covering this installation, and underwritten by an A Rated Insurance Carrier. Insurance carrier must confirm that the policy is in force and premiums paid.
- F. Submit a copy of all relevant test results indicating compliance with Reference Standards.
- G. Prior to the issuance of the Notice to Proceed, the Track Supplier/Installer is to submit a written "Certification of Acceptance of the Base Construction" to ensure that the base preparation works are completed as per the Track Manufacturer's specification and conditions.

1.6 QUALITY ASSURANCE

- A. Synthetic Track Supplier/Installer shall meet the following criteria:

1. Must have completed at least one (1) similar local project for the supply and installation of synthetic running track with IAAF-certified product in the last five (5) years.
 2. Have not had a Surety or Bonding Company finish work on any contract within the last five (5) years.
 3. Have not been disqualified or barred from performing work for any public Owner or other contracting entity.
 4. Not be currently involved with any patent or trade mark litigation, specifically being sued for patent infringement.
 5. Must provide competent workmen skilled in this specific type of running track installation. Technicians must have installed this type of system on at least one installation in the past five (5) years.
 6. The designated Supervisory Personnel on the project must be certified, in writing, by the track Manufacturer as competent in the installation of this material. Supervisory Personnel must have installed this type of system on at least one (1) installation in the past five (5) years.
 7. The Manufacturer shall have a representative visit the site to certify, in writing, the installation and Warranty compliance.
- B. Conduct Pre-Installation Conference at Project site to review requirements for substrates and for preparation by other trades.
- C. Prior to the beginning of installation, the installer of the synthetic track shall inspect the sub-base. The Installer will accept the sub-base in writing when the base constructor provides test results for compaction, planarity and permeability that are in compliance with the synthetic track manufacturer's recommendations.
- D. Track system shall have been independently tested to drain 6"-7" per hour through system and out laterally.
- E. Testing shall be performed in the presence of the Architect and Owner's representative prior to final completion.
- F. The Owner reserves the right to reject and/ or refuse acceptance of any or all aspects of the synthetic track installation if it fails to meet the requirements of this specification section.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in original packages and containers, with seals unbroken, bearing Manufacturer's labels indicating brand name and directions for storing.
- B. Store materials to prevent deterioration.

1.8 EXTRA MATERIALS

- A. Furnish extra materials described below, before installation begins, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents:

1. Track Surfacing: Furnish full-width rolls of not less than 1.5 percent additional material of each type, color, and pattern of surfacing material installed.
- B. Provide and install one thousand and eight hundred (1,800) units of simple-mounted fiberglass football stadium seats with medium-height (30cm) backrest and complete accessories. Final seat design, details of materials and accessories, and installation method shall be subject to Owner's approval prior to installation.
- C. Provide thirty (30) units of contemporary ergonomic design fully upholstered theater chairs, with full backrest and anti-panic seat of silent foldable and double-spring self-return mechanism and steel plate frame. Cup holder and complete accessories included. Final seat design, details of materials, and accessories shall be subject to Owner's approval prior to installation.
- D. Provide four (4) sets of contemporary design lounge chairs and tables, each set with four (4) medium-height backrest lounge chairs with upholstered backrest, seat, and armrest and four (4) small round side tables. Final seat and table design, details of materials, and accessories shall be subject to Owner's approval prior to installation
- E. Provide six (6) outdoor steel frame player's benches with eight (8) HDPE seats per module and one (1) outdoor steel frame official's bench with four (4) HDPE seats.

1.9 WARRANTY

- A. Special Warranty: Supplier/Installer's standard form in which they agree to repair or replace components of synthetic running track surfacing that fail in materials or workmanship within specified warranty period. Warranty guarantees usability and playability of synthetic running track surfacing for its intended uses.
 1. Correct defective Work within five (5) years from the date of Substantial Completion.
 2. Failures include, but are not limited to, the following: Deterioration of surface and other materials beyond normal weathering.
 3. Warranty Period: five (5) years from date of Substantial Completion.

1.10 FIELD ENGINEERING

A. SERVICES OF THE LICENSED SURVEYOR

The Supplier/Installer shall pay for the services of a licensed Surveyor to confirm and certify the precise location and positioning for the installation of the synthetic tracks and other works of similar nature required by the Contract.

The Supplier/Installer shall furnish certification from a licensed Surveyor that all portions of work are located in accordance with Contract requirements and at elevations required thereby.

The Supplier/Installer, through its contracted Surveyor, shall promptly verify and certify to lines and levels of any portion or subdivision of work at any time it may be deemed necessary by the Owner's representative. Any deviation from the Drawings shall be certified to the Owner's representative within 24 hours of discovery of same.

B. SURVEYOR REQUISITES

The Surveyor selected for the purpose of undertaking the work involved in this project shall be subject to the Owner's representative's approval. He shall not be a regular employee of the Supplier/Installer, nor shall he have any interest in the Contract. He shall be employed by the Supplier/Installer in laying out the work, it being intended that the Surveyor shall present an independent and disinterested verification of the project's layout.

C. CERTIFICATION BY SURVEYOR

A final certification shall be submitted upon completion of work, or upon completion of each major segment of the work, or as required by the Owner's representative, and before final certificate, and there shall be included a map, plot, note or the like necessary in the opinion of the Owner's representative to constitute a full and complete report.

1.11 DURATION OF THE WORKS

The Supplier/Installer is to complete the works within **six (6) months**, starting from the issuance of the Notice to Proceed.

PART 2 – PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

- A. Supplier/Installer for synthetic track products shall meet or exceed the requirements listed in Part 1.6 and Part 2.2.

2.2 PRODUCT SPECIFICATION

The following product specifications are within the scope of works of the Supplier/Installer.

- A. Synthetic Track

System	IAAF-certified running track surface product - Sandwich Type for athletic tracks and professional training facilities
Area Coverage	Standard eight lanes with two D zones and 100m 4-lane warm-up track approximately six thousand seven hundred fifty (6,750) square meters in area
Thickness and Quantity	Minimum of 13mm approx. on 13kg/sq.m as per Supplier's recommendation
Surface Texture	Non-porous granular finish as per Supplier's recommendation
Color	Maroon (as per Owner's approval)
Top Layer	Minimum of 3mm thickness; Polyurethane and EPDM (Ethylene Propylene Diene Monomer granules) strewn-in, approximately sieve 1- 4mm as per Supplier's recommendation
Base Layer	Minimum of 10mm thickness; Polyurethane and black SBR granule, approximately sieve 1-4mm as per Supplier's recommendation
Asphalt Substrate	Dense grade asphalt Thickness: 70mm minimum
Base Course	Thickness: 300mm minimum Sieve size 0-40mm Field Density Test(FDT) Compaction rate: 95% or higher
Spike Resistance	Class 1 (DIN 18035 pt 6)
Burning Characteristics	Class 1 (DIN 51960)

- B. Sub--Layer Composition (Order as per upper layer to lower layer)
1. The track surface i.e., asphalt substrate, shall not vary from planned cross slope by more than +/- 0.1% with a maximum lateral slope outside to inside of 1%
 2. Maximum slope of 0.1% in any running direction.
 3. The finished asphalt shall not vary under a 10' straight edge more than 1/8".

C. Seats

Fiberglass Seats	<u>One thousand and eight hundred (1,800) units of simple-mounted fiberglass football stadium seats with medium-height (30cm) backrest and complete accessories. Final seat design, details of materials and accessories, and installation method shall be subject to Owner's approval prior to installation.</u>
VIP Area Chairs	<p><u>Thirty (30) units of contemporary ergonomic design fully upholstered theater chairs with full backrest, anti-panic seat of silent foldable and double-spring self-return mechanism, and steel plate frame. Cup holder and complete accessories included. Final seat design, details of materials and accessories, and installation method shall be subject to Owner's approval prior to installation.</u></p> <p><u>Four (4) sets of contemporary design lounge chairs and tables. Each set with four (4) medium-height backrest lounge chairs with upholstered backrest, seat, and armrest and four (4) small round side tables. Final seat and table design, details of materials, and accessories shall be subject to Owner's approval prior to installation.</u></p>
Players' Benches	Six (6) sets of steel frame in white/gray semi-gloss enamel paint finish with eight (8) HDPE seats per module and with clear acrylic glass cover or approved equivalent.
Official's Bench	One (1) set of steel frame in white/gray semi-gloss enamel paint finish with four (4) HDPE seats per module and with clear acrylic glass cover or approved equivalent.

2.3 SYNTHETIC RUNNING TRACK SURFACING SYSTEMS

- A. Synthetic Track Surfacing: Synthetic surfacing of manufacturer's standard thickness as required for overall thickness indicated.
- B. Substitutions will not be considered unless published literature is provided that verifies that the proposed substitution meets all requirements of this specification and is suitable for intended use.
- C. Accessories:
 - 1. Game-Line and Marker Paint: Complete system including primer, if any, compatible with synthetic track surfacing material and recommended in writing by synthetic track surfacing and paint manufacturers for use indicated.
 - 2. Provide minimum of two coats of paint as per recommendations of IAAF.
 - 3. Paint numbers 30 inches high by 42 inch lanes.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, with Installer present, for compliance with requirements for installation tolerances, moisture content, and other conditions affecting performance.
- B. Verify that in-ground track and field equipment and fixtures are installed.
- C. Proceed with installation only after unsatisfactory conditions of the base works have been corrected.

3.2 PREPARATION

- A. Prepare substrates according to manufacturer's written recommendations to ensure adhesion of floor coverings.
- B. Protect surfaces adjacent to track surfacing operations.
- C. Asphalt Substrates: Cure and not less than 28 days.
 - 1. Verify that substrates are dry and free of curing compounds, sealers, and hardeners.
 - 2. Adhesion Testing: Perform tests recommended in writing by manufacturer. Test cured asphalt and provide documentation that volatiles and latent asphalt content are within limits defined by manufacturer. Proceed with installation only after substrates pass testing.
- D. Obtain written approval from manufacturer's technical representative indicating that asphalt base is suitable for installation of the track surfacing.

3.3 INSTALLATION OF SYNTHETIC RUNNING TRACK

- A. Comply with manufacturer's written installation instructions.
- B. Substrate Tolerances:
 - 1. Planarity: Not to exceed 1/4-inch in 10 feet, non-cumulative.
 - 2. Levelness: Not to exceed 0.1 percent in running direction.
 - 3. Concrete curbs: Ensure that tops of elevations of continuous concrete curbs are at constant elevation.
- C. Make substrate repairs and minor planarity corrections as recommended by manufacturer.
- D. Install track surface that achieves track surfacing performance and physical dimensions within tolerances.

3.4 GAME LINES AND MARKERS

- A. Provide IAAF standard markings for the following track and field events as verified with Owner prior to installation:
 - 1. 100 meters, one direction on home straight.
 - 2. 200 meters, all in lanes, one turn.
 - 3. 400 meters, all in lanes
 - 4. 800 meter water fall start and 1-turn stagger.
 - 5. 1600 meter water fall start.

6. 3200 meter water fall start.
7. 100 meter hurdles, one direction on home straight.
8. 110 meter hurdles, one direction on home straight.
9. 300 meter hurdles, all in lanes.
10. 400 meter hurdles, all in lanes.
11. 800 meters water fall start and 1-turn stagger.
12. 4 by 100 (400) meter relay, all in lanes.
13. 4 by 400 (1600) meter relay, three-turn stagger.
14. 1-mile run waterfall start.
15. Common Finish Line.
16. Lane Numbers, prior to common finish line, facing timing camera.
17. Relay Exchange Zones.
18. Starting Lines with event names.
19. Break lines for distance events at entry of back and main straights

- B. Do not apply marking paint until layout, colors, and placement are approved by the Owner's representative.

3.5 TOLERANCES

- A. Slopes:
 1. Track oval:
 - a. Running Direction and Lateral Slope: 1.0 percent maximum.
 2. High Jump: 1.0 percent maximum, downwards to the cross bar.
 3. Run Ups: Same as track oval unless located in High Jump area

3.6 FIELD QUALITY CONTROL

- A. Layout: Employ registered surveyor to document compliance of in-place Work with the Contract Documents and referenced standards.
- B. Submit reports.

3.7 CLEANING AND PROTECTING

- A. Leave surfacing clean and free of surface defects.
- B. Protect installed surfacing from damage during construction activities

3.8 ENVIRONMENTAL CORPORATE RESPONSIBILITY (ECR)

- A. Donate and plant native trees (1.2M to 1.5M in height) at the start of construction, in places designated by the University, at the rate of one tree per 150 square meters of play area (running track). Use a variety of native tree species as specified by the University.
- B. Maintain tree saplings by watering and ring weeding during the construction period.
- C. Dead saplings within the construction period must be replaced with same species and height at least 30 days before project turn-over.

PART 4 - IAAF SPECIFIC REQUIREMENTS

- In accordance to the Scope of Works that the project is to achieve IAAF Class 2 - Category III Certification.
- The IAAF Track and Field Facilities Manual and its requirements are part of the Specification.

We highlight the following requirement as per IAAF Track and Field Facilities Manual:

A.	1.5.3 REQUIREMENTS OF CONSTRUCTION CATEGORIES	<p><i>The requirements of Table 1.5.3 are minimum requirements. There is a trend towards some sports that normally use the infield of athletics arenas, preferring synthetic surfaces on which to play their sport. These synthetic surfaces are generally not suitable for the throwing of athletics implements because they are damaged by the implements and/or a satisfactory mark is not made on the synthetic surface so that the judges can determine the first mark made by the fall of the implement. The highest Construction Category possible for an arena that does not have all the requisite throwing facilities on the main arena is Construction Category III if complying throwing facilities are provided adjacent to the arena.</i></p> <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr> <th rowspan="2"></th> <th rowspan="2"></th> <th colspan="5" style="text-align: center;">Construction Category</th> </tr> <tr> <th style="text-align: center;">I</th> <th style="text-align: center;">II</th> <th style="text-align: center;">III</th> <th style="text-align: center;">IV</th> <th style="text-align: center;">V</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1</td> <td>400m Standard Track as described under Chapter 2 with min. 8 oval and 8 straight lanes for 100m and 110m Hurdles</td> <td style="text-align: center;">1</td> <td style="text-align: center;">1</td> <td style="text-align: center;">1</td> <td style="text-align: center;">-</td> <td style="text-align: center;">-</td> </tr> <tr> <td style="text-align: center;">2</td> <td>400m Standard Track as line 1, but with 6 oval and 6 straight lanes</td> <td style="text-align: center;">-</td> <td style="text-align: center;">-</td> <td style="text-align: center;">-</td> <td style="text-align: center;">1</td> <td style="text-align: center;">-</td> </tr> <tr> <td style="text-align: center;">3</td> <td>400m Standard Track as line 1, but with 4 oval and 6 straight lanes</td> <td style="text-align: center;">-</td> <td style="text-align: center;">-</td> <td style="text-align: center;">-</td> <td style="text-align: center;">-</td> <td style="text-align: center;">1</td> </tr> <tr> <td style="text-align: center;">4</td> <td>Water jump for the Steeplechase</td> <td style="text-align: center;">1</td> <td style="text-align: center;">1</td> <td style="text-align: center;">1</td> <td style="text-align: center;">-</td> <td style="text-align: center;">-</td> </tr> <tr> <td style="text-align: center;">5</td> <td>Facility for Long and Triple Jump with landing area at each end</td> <td style="text-align: center;">2^{a)}</td> <td style="text-align: center;">2^{a)}</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">-</td> </tr> <tr> <td style="text-align: center;">6</td> <td>Facility for Long and Triple Jump with landing area at one end</td> <td style="text-align: center;">-</td> <td style="text-align: center;">-</td> <td style="text-align: center;">-</td> <td style="text-align: center;">-</td> <td style="text-align: center;">1</td> </tr> <tr> <td style="text-align: center;">7</td> <td>Facility for High Jump</td> <td style="text-align: center;">2</td> <td style="text-align: center;">2</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">1</td> </tr> <tr> <td style="text-align: center;">8</td> <td>Facility for Pole Vault with provision 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<td style="text-align: center;">2^{d)}</td> <td style="text-align: center;">2^{d)}</td> <td style="text-align: center;">2^{d)}</td> <td style="text-align: center;">1</td> <td style="text-align: center;">1</td> </tr> <tr> <td style="text-align: center;">12</td> <td>Facility for Shot Put</td> <td style="text-align: center;">2</td> <td style="text-align: center;">2</td> <td style="text-align: center;">2</td> <td style="text-align: center;">2</td> <td style="text-align: center;">1</td> </tr> <tr> <td style="text-align: center;">13</td> <td>Ancillary rooms as described under Chapter 4</td> <td style="text-align: center;">*</td> <td style="text-align: center;">*</td> <td style="text-align: center;">*</td> <td style="text-align: center;">*</td> <td style="text-align: center;">*</td> </tr> <tr> <td style="text-align: center;">14</td> <td>Full facilities for spectators</td> <td style="text-align: center;">*</td> <td style="text-align: center;">*</td> <td style="text-align: center;">*</td> <td style="text-align: center;">*</td> <td style="text-align: center;">*</td> </tr> <tr> <td style="text-align: center;">15</td> <td>Warm-up area, comprising a 400m Standard Track with min. 4 oval and min. 6 straight lanes (similar surface to the competition track); separate throwing field for Discus, Hammer, Javelin; 2 facilities for Shot Put</td> <td style="text-align: center;">*</td> <td style="text-align: center;">-</td> <td style="text-align: center;">-</td> <td style="text-align: center;">-</td> <td style="text-align: center;">-</td> </tr> <tr> <td style="text-align: center;">16</td> <td>Warm-up area, comprising preferably min. a 200m track with min. 4 oval and min. 4 straight lanes (synthetic surface); separate throwing field for Discus, Hammer, Javelin; facility for Shot Put</td> <td style="text-align: center;">-</td> <td style="text-align: center;">*</td> <td style="text-align: center;">-</td> <td style="text-align: center;">-</td> <td style="text-align: center;">-</td> </tr> <tr> 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center;">200</td> <td style="text-align: center;">150</td> <td style="text-align: center;">200</td> <td style="text-align: center;">-</td> </tr> </tbody> </table> <p style="font-size: small; margin-top: 5px;"> ^{a)} Required ^{b)} The two facilities must be in the same direction and adjacent to allow simultaneous competition by two groups of competitors with similar conditions ^{c)} An additional facility for Discus only may also be provided ^{d)} For large events, a second facility outside the stadium but in the same throwing direction is desirable ^{e)} One at each end of the area </p>			Construction Category					I	II	III	IV	V	1	400m Standard Track as described under Chapter 2 with min. 8 oval and 8 straight lanes for 100m and 110m Hurdles	1	1	1	-	-	2	400m Standard Track as line 1, but with 6 oval and 6 straight lanes	-	-	-	1	-	3	400m Standard Track as line 1, but with 4 oval and 6 straight lanes	-	-	-	-	1	4	Water jump for the Steeplechase	1	1	1	-	-	5	Facility for Long and Triple Jump with landing area at each end	2 ^{a)}	2 ^{a)}	1	2	-	6	Facility for Long and Triple Jump with landing area at one end	-	-	-	-	1	7	Facility for High Jump	2	2	1	2	1	8	Facility for Pole Vault with provision for landing area at each end	2 ^{a)}	2 ^{a)}	1	2	-	9	Facility for Pole Vault with provision for landing area at one end	-	-	-	-	1	10	Combined facility for Discus and Hammer throw (separate or concentric circles)	1 ^{b)}	1 ^{b)}	1 ^{c)}	1 ^{c)}	1	11	Facility for Javelin Throw	2 ^{d)}	2 ^{d)}	2 ^{d)}	1	1	12	Facility for Shot Put	2	2	2	2	1	13	Ancillary rooms as described under Chapter 4	*	*	*	*	*	14	Full facilities for spectators	*	*	*	*	*	15	Warm-up area, comprising a 400m Standard Track with min. 4 oval and min. 6 straight lanes (similar surface to the competition track); separate throwing field for Discus, Hammer, Javelin; 2 facilities for Shot Put	*	-	-	-	-	16	Warm-up area, comprising preferably min. a 200m track with min. 4 oval and min. 4 straight lanes (synthetic surface); 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Table 1.5.3 - Requirements of the Construction Categories																																																																																																																																																			
B.	<p>Thickness</p> <p>The thickness of a synthetic surface is of fundamental importance to the characteristics exhibited by the surface. To a certain extent, the durability of the surface is dependent on its thickness, particularly with respect to mechanical wear. It is also quite apparent that if the IAAF Rules permit athletes to use footwear with spikes of a certain length, the surface must</p>																																																																																																																																																		

be of a thickness which will be adequate to take that length of spike, plus an excess of thickness to allow for wear and weathering. It is obviously for this reason that certain areas on a facility, such as at the throwing end of the Javelin runway, and at the ends of other runways where an athlete plants his foot with considerable force and there is a greater impact on the athlete's legs, shall be of greater thickness than most areas of the synthetic surface. Not only do the longer spikes permitted for the High Jump and Javelin Throw, penetrate deeper into the surface, but the degree of damage which they inflict on the surface is that much greater (Figure 3.1.2.2 and Table 3.1.2.2).

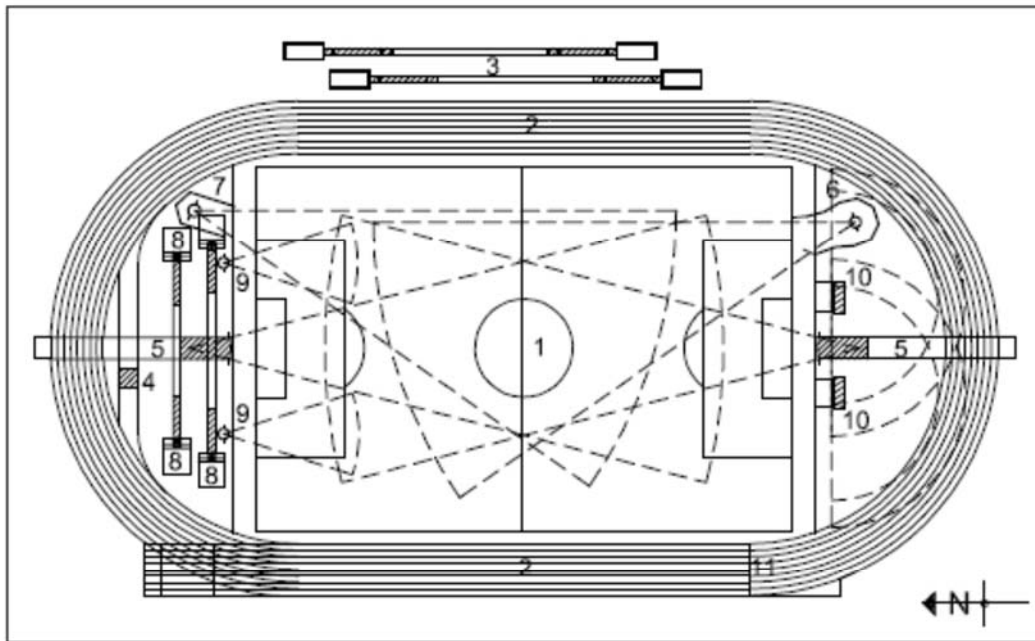


Figure 3.1.2.2 - Areas with thicker layers of synthetic surface (shaded)

- 1 Football pitch
- 2 Standard Track
- 3 Long jump and Triple Jump facility
- 4 Water jump
- 5 Javelin Throw facility
- 6 Discus and Hammer Throw facility
- 7 Discus Throw facility
- 8 Pole Vault facility
- 9 Shot Put facility
- 10 High Jump facility
- 11 Finish line

Runway	Thickness mm	Length
High Jump	20	Last 3m
Triple Jump	20	Last 13m
Pole Vault	20	Last 8m
Javelin Throw	20	Last 8m plus overrun
Steeplechase Water Jump	25	Water jump landing

Table 3.1.2.2 - Required thickening of synthetic surface

C.	<p><u>2.1.1 TYPES OF COMPETITION FACILITIES</u></p> <p>2.1.1.1 Competition Area for Track Events <i>The Competition area for Track Events includes:</i></p> <ul style="list-style-type: none"> - Oval track with at least 4 lanes (400m + 0.04m x 1.22m ± 0.01m) and safety zones measuring not less than 1.00m on the inside and preferably 1.00m on the outside - Straight with at least 6 lanes (100m + 0.02m x 1.22m ± 0.01m for sprints and 110m + 0.02m x 1.22m ± 0.01m for hurdles) Starting area: 3m min. (for 110m Hurdles, category V 2.5m min.).Run-out: 17m min. - Steeplechase track as for oval track with a permanent water jump (3.66m x 3.66m x 0.50m-0.70m) placed inside or outside the second bend <p>2.1.1.2 Competition Area for Jumping Events <i>The competition area for jumping events includes:</i></p> <ul style="list-style-type: none"> - Facility for Long Jump with runway (40m min. x 1.22m ± 0.01m), take-off board (1.22m ± 0.01m x 0.20m ± 0.002m x 0.10m max.), placed between 1m and 3m from the nearer end of the landing area, and the landing area 2.75m min. wide with the far end at least 10m min. from the take-off line). - Facility for Triple Jump as for Long Jump except for a take-off board placed 13m min. for men or 11m min. for women from the nearer end of the landing area for international competitions. For any other competition, this distance shall be appropriate for the level of competition. - Facility for High Jump with a semicircular runway (radius 20m min.) and landing area (6m x 4m min.). - Facility for Pole Vault with a runway (40m min. x 1.22m ± 0.01m), a box for inserting the pole and landing area (6m x 6m min.) with an additional forward extension.
D.	<p><u>Facility for Long Jump</u> (See 2.1.1.2) (***Important Note: For Long Jump and Triple Jump Facility Only : Soil Preparation and Compaction Works included in the Supplier/Installer Scope of Work)</p> <p>2.3.1.1 Layout of the Facility for the Long Jump (Figures 2.3.1.1a and b) <i>The Long Jump facility includes a runway, a take-off board and a landing area. Usually, it is placed outside the track along one of the straights with two adjacent runways with a landing area at each end, thus allowing competition in either direction by two groups of athletes simultaneously. This is mandatory for Construction Classes I and II.</i></p> <p>2.3.1.2 Runway for the Long Jump (Figures 2.3.1.1a and b) <i>The length provided for the runway shall be 40m min. and is measured from the beginning of the runway to the take-off line. The runway shall be 1.22m ± 0.01m wide. It shall be marked by white lines 0.05m wide or broken lines 0.05m wide, 0.10m long and 0.50m apart. The runway is usually covered with the same surface as the track.</i></p> <p>2.3.1.3 Take-off Board for the Long Jump (Figure 2.3.1.1a and Chapter 6) <i>The take-off board shall be rectangular and shall measure 1.22m ± 0.01m long, 0.20m ± 0.002m wide and not more than 0.10m deep. It shall be coloured white. The surface of the take-off board must be flush with the surface of the runway. In the case of a runway with a permanent surface, this requires a built-in installation tray made of corrosion-protected metal in which the take-off board can be correctly positioned. During sport-free periods, the take-off board can be removed. If it has a track surface on its reverse side, it can be turned over and used as part of the runway. This makes it possible to combine Long and Triple Jump with two or three take-off boards (which can be used on both sides) on a Triple Jump runway.(For the take-off board itself, see also Chapter 6.)</i></p>

2.3.1.4 Landing Area for the Long Jump (Figure 2.3.1.1a)

The landing area must be 7m to 9m long depending on the distance between its nearer end and the take-off line and shall be 2.75m min. wide. Generally, a landing area length of 8m placed 2m from the take-off line is recommended. The landing area shall, if possible, be so placed that the middle of the runway coincides with the middle of the landing area. If two landing areas are situated parallel side by side, the distance between them must be at least 0.30m. If two landing areas are staggered, the separation between the two areas must also be at least 0.30m (Figure 2.3.1.1b). The landing area should have a border not less than 0.05m wide and 0.30m high, rounded off towards the inside (e.g. wooden plank or concrete border with soft covering) and level with the ground. The landing area must have a water permeable substructure or a suitable drainage system (draining well or canal connection) and be filled with sand to a depth of not less than 0.30m at the edges and slightly deeper at the centre.

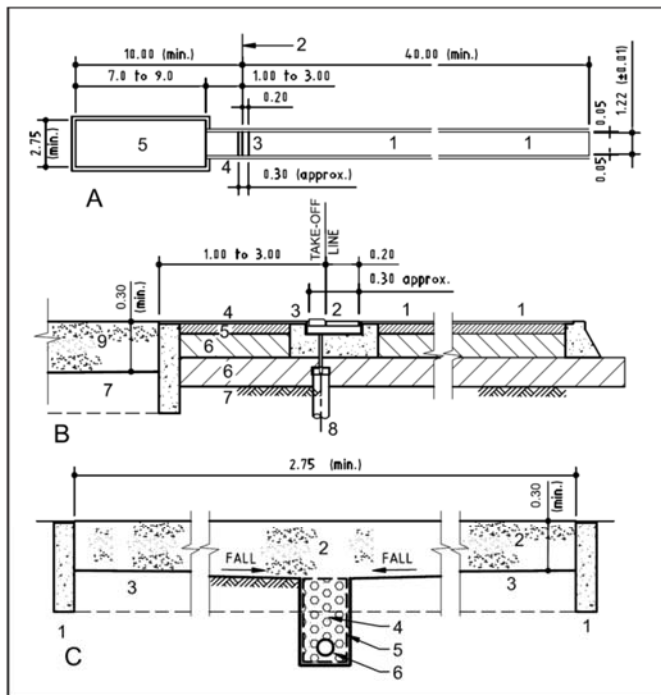


Figure 2.3.1.1a - Facility for the Long Jump (Dimensions in m)

- | | |
|--|---|
| <p>A Layout plan</p> <ul style="list-style-type: none"> 1 Runway 40m (min.) 2 Take-off line 3 Take-off board 4 Built-in tray 5 Landing area | <p>C Cross section of landing area</p> <ul style="list-style-type: none"> 1 Pit edge 2 Washed river sand 0 to 2mm graining, no organic components, max. 5% of weight up to 0.20mm 3 Subgrade 4 Drainage gravel 5 Geo fabric material 6 Subsoil drainage pipe |
| <p>B Longitudinal section of built-in tray for take-off board</p> <ul style="list-style-type: none"> 1 Runway 2 Removable take-off board with adjustable legs 3 Built-in tray 4 Synthetic surface 5 Asphaltic concrete layer 6 Gravel base layer 7 Subgrade 8 Tray drainage 9 Landing area | |

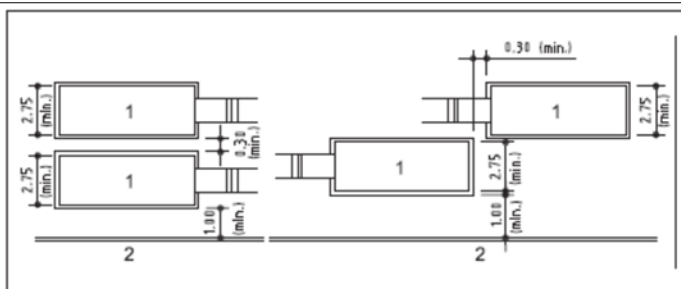


Figure 2.3.1.1b - Minimum distance of parallel situated Long and Triple Jump facilities
(Dimensions in m)

1 Landing area
2 Outer lane

E. Facility for Triple Jump (See 2.1.1.2)
(*Important Note: For Long Jump and Triple Jump Facility Only : Soil Preparation and Compaction Works included in the Supplier/Installer Scope of Work)**

2.3.2.1 Layout of the Facility for the Triple Jump (Figure 2.3.2.1)

Except for the placement of the take-off board, the same facilities are used for Triple Jump as for Long Jump. For international competition, it is recommended that the take-off board shall be not less than 13m for men and 11m for women from the nearer end of the landing area. For other competitions, this distance shall be appropriate for the level of competition.

2.3.2.2 Runway for the Triple Jump (Figure 2.3.2.1)

Section 2.3.1.2 also applies to the runway for the Triple Jump with the exception of the position of the take-off line.

2.3.2.3 Take-off Board for the Triple Jump (Figures 2.3.1.1a and Chapter 6)

Section 2.3.1.3 also applies to the take-off board for the Triple Jump. The integration of the Triple Jump into the facility for Long Jump requires a removable take-off board as described under Section 2.3.1.3. For Triple Jump, Sections 2.3.1.4 to 2.3.1.6 also apply.

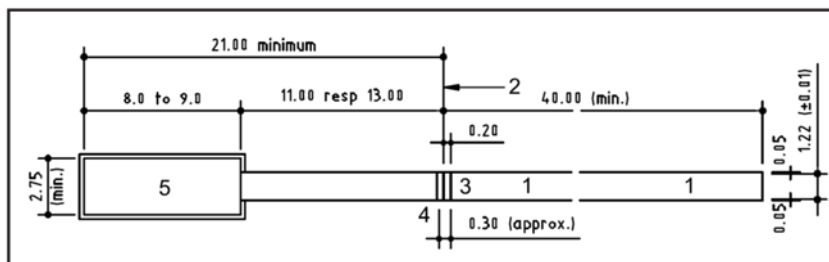


Figure 2.3.2.1 - Facility for the Triple Jump (Dimensions in m)

1 Runway 40m (min.)
2 Take-off line
3 Take-off board
4 Built-in tray
5 Landing area

F. Facility for High Jump (See 2.1.1.2)

2.3.3.1 Layout of the Facility for the High Jump (Figure 2.3.3.1) The High Jump facility includes a semicircular runway, a take-off area, two uprights with cross bar and a landing area. By temporarily removing sections of the kerb, it is possible to use the oval track as part of the runway. For major championships, the High Jump facility must be large enough so that two High Jumps can be conducted simultaneously.

2.3.3.2 Runway for the High Jump (Figure 2.3.3.1)

The semicircular runway, with a radius of at least 20m, will permit approaches from every direction. If it is necessary to remove the kerb temporarily in order to be able to use the oval track as a runway, care must be taken to ensure that the heights of the surfaces of the oval

track and the segment are the same along the track border. The runway and take-off areas are usually covered with the same surface as the track.

2.3.3.3 Uprights for the High Jump (See Chapter 6)

They must be installed $4.02\text{m} \pm 0.02\text{m}$ apart.

2.3.3.4 Landing Mats for the High Jump (Figure 2.3.3.1 and Chapter 6)

The landing mats shall measure not less than $6.00\text{m} \times 4.00\text{m}$ and shall be covered by a spike proof protective mat. The overall height shall be minimum 0.70m . It may be placed on a 0.10m high grid which, on all sides shall be boarded to the ground with its front edge 0.10m behind that of the mat.

2.3.3.5 Safety of the Facility for the High Jump

Of particular importance for the safety of the High Jump is a suitable landing mat, which will allow both sufficient absorption of the impact energy from the fall of the athletes and gives adequate resilience when compressed. The condition of the landing mat must be regularly monitored.

If the oval track is included in the runway, a removable kerb is essential.

2.3.3.6 Suitability for Competition and Official Acceptance of the Facility for the High Jump

High Jump facilities must conform to the specifications. This can be established when inspecting the 400m Standard Track.

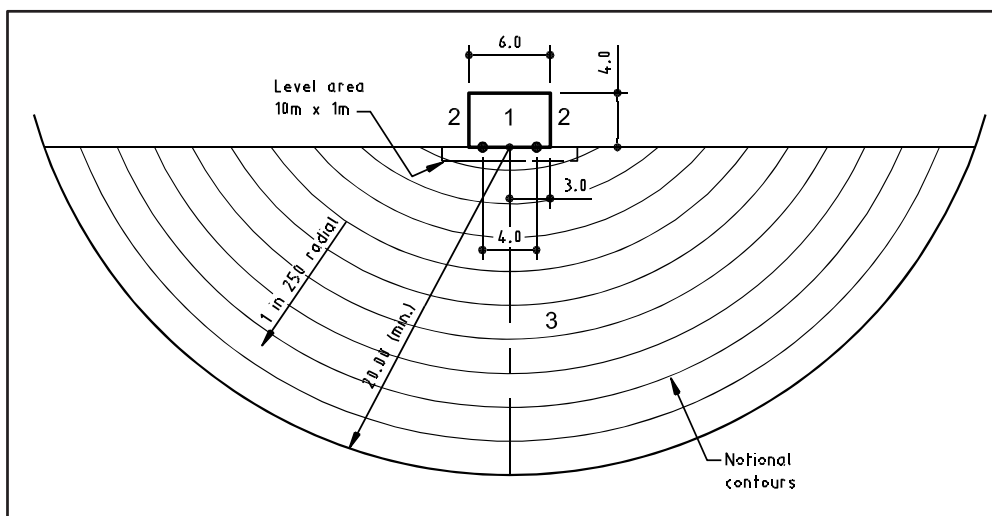


Figure 2.3.3.1 - Facility for the High Jump (Dimensions in m)

- 1 Landing mat
- 2 Uprights
- 3 Runway area

L. **Water Jump**

2.2.4.1 Layout of the Steeplechase Track Integrated within the 400m Standard Track

The steeplechase track is integrated into the 400m Standard Track. For the steeplechase track, a total of 5 hurdles is required, if possible at equal distances apart. One of the hurdles forms part of the water jump. The water jump (3.66m x 3.66m x 0.50 to 0.70m - Figure 2.2.4.1c) is permanently installed inside the Standard Track in the 2nd segment (Figures 2.2.4.1a and 2.2.4.1d) or outside the Standard Track outside the 2nd bend (Figures 2.2.4.1b and 2.2.4.1e). The water jump track inside the segment is connected to the main track by a transitional arc (radius 16.00m), and the water jump outside the segment by a transitional straight (9.86m) followed by a transitional arc (radius 36.5m). If the water jump bend is located inside the track, the kerb of the Standard Track must be removable at the beginning and end of the water jump bend.

If the steeplechase track inside the bend is not bordered by a fixed kerb, it must be marked by a white line. Measurement of the track must be taken from a theoretical distance of 0.20m outward from this line. The same applies to the running line for water jumps outside the segment. The theoretical running line for the steeplechase track is 3.916m shorter in the segment containing the water jump than along the adjacent Standard Track (Figure 2.2.4.1a), for example the length of the steeplechase lap with the water jump inside the segment is 396.084m oval track, an inside water jump is preferred, however if the water jump is outside, much greater care is needed in the design so that the distance from the finish line to the first hurdle is not be less than 12m, the distance from the 5th hurdle to the finish line is not less than 40m and the distance from the start line to the 1st barrier to be jumped is not less than 70m. The top of the water jump pit shall be level with a concrete and/or synthetic surface finish but without any cut-outs or niches so that a painted white line can define the inside edge of the pit. The crossfall of the adjoining synthetic shall be warped so as to provide a smooth transition.

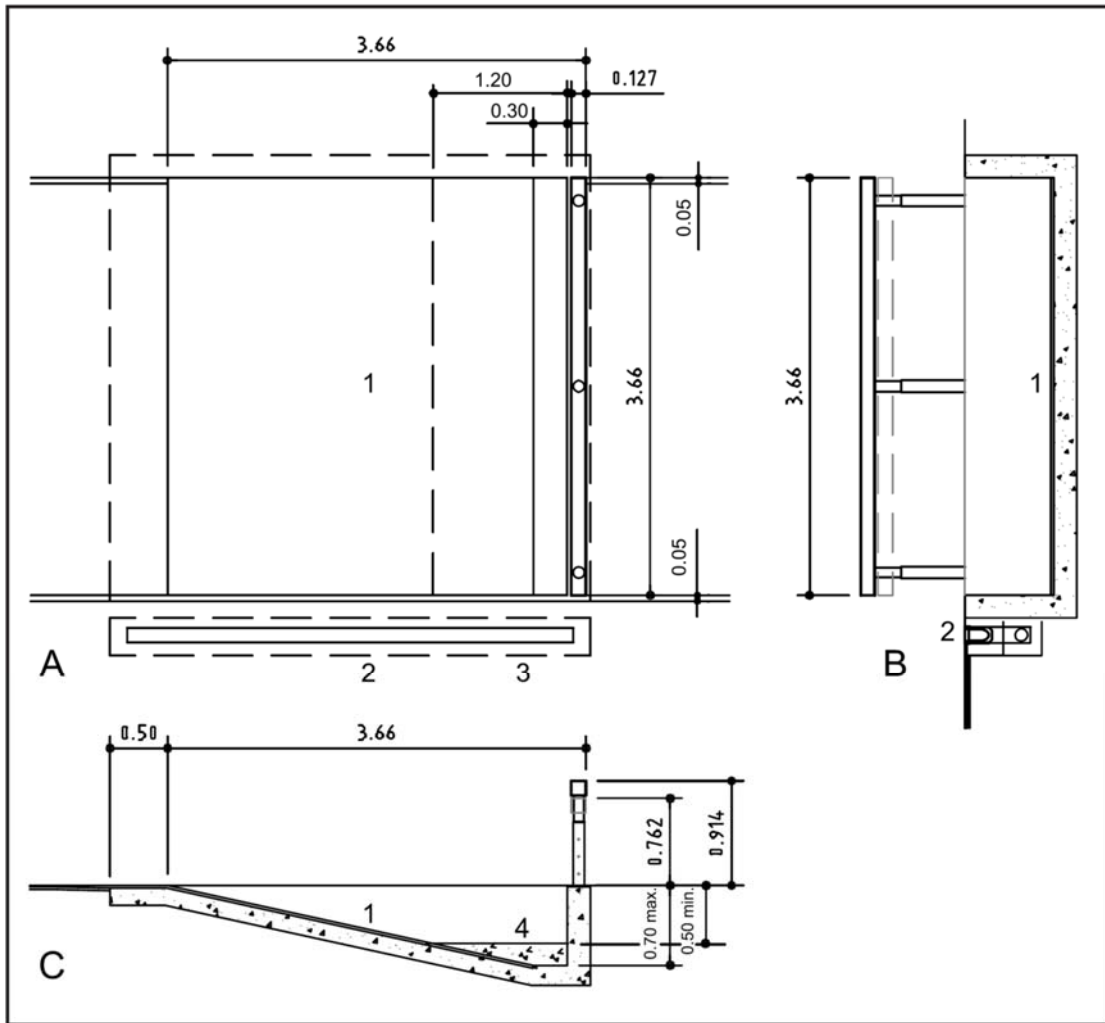


Figure 2.2.4.1c - Water jump for steeplechase track (Dimensions in m)

- A Layout plan
- B Cross section
- C Longitudinal section

- 1 Synthetic surface, 25mm
- 2 Drainage gutter
- 3 Closable drain
- 4 Optional concrete infill for existing water jumps

