



INVITATION FOR BIDS
ARTIFICIAL TURF MAINTENANCE AND REPAIRS
Solicitation IFB #CCSD-TURF110826

This Invitation for Bids (IFB) is issued in accordance with the Utah Procurement Code and applicable administrative rules of the Utah Administrative Code.

I. Purpose of this Solicitation

The purpose of this IFB is to obtain corrective maintenance and localized repairs at the Mountain Crest, Ridgeline, Sky View, and Green Canyon high school stadium fields. Bidders shall use the attached Firefly assessments to recommend and price appropriate repairs that improve field condition and support the goal of one to two additional seasons of service.

The District may award one or more fields. Each field is a separate bid item and will be evaluated on its complete base price. A bidder may bid any or all fields; each field price must stand alone. One contractor may receive multiple field awards.

II. Procurement Unit Designation and Solicitation Number

The Cache County School District (CCSD) Purchasing Department is the issuing office for this document and all addenda relating to it, on behalf of the Facilities Department. The reference number for this IFB is Solicitation #CCSD-TURF110826. This solicitation number must be referred to on all bids, correspondence, and documentation submitted to the CCSD relating to this IFB.

It is the bidder's responsibility to contact the school administration to obtain authorization for field access. Except for authorized site access, bidders shall not contact other employees, board members, or evaluation committee members concerning this IFB. Failure to comply may result in disqualification. Only written responses and addenda issued through Purchasing may change this IFB.

III. Terms and Conditions

A contract that results from this IFB will include the Cache County School District Standard Terms and Conditions (Attachment A).

The CCSD Terms and Conditions will not be negotiated. In addition, the CCSD requires a bid to be rejected if it is not responsive or responsible. A bid that is not responsive includes a bid that: (a) is conditional; (b) attempts to modify the bid requirements; (c) contains additional terms or conditions; or (d) fails to conform with the requirements or specifications of the IFB.

Any bid that contains exceptions and/or additions to the CCSD Terms and Conditions may be rejected as non-responsive. Further, the CCSD will not allow a bidder's terms and conditions to become part of the contract resulting from this IFB. If a bidder's terms and conditions are attached, referenced, or embedded into a bid, whether intentionally or inadvertently, the bid may also be rejected as nonresponsive. However, a bidder may request an exception and/or addition to the terms and conditions of this solicitation during the Question-and- Answer period.

Any exceptions to the specifications, terms, conditions, and minimum requirements in this solicitation that are not addressed and resolved during the Q&A period may be protested in writing to the CCSD Purchasing Department prior to the closing date for this solicitation.

IV. Submitting A Bid

All bids must be received by November 9, 2026, 1:00 p.m. (MST)

Bids will be submitted electronically via a secure mailbox at the Utah Procurement Place (U3P) Bonfire:
<https://utah.bonfirehub.com/portal/?tab=openOpportunities>.

When submitting a bid electronically through Bonfire, please allow sufficient time to complete the online forms and upload documents. This IFB will close at the closing time specified. If you are in the middle of uploading your bid at the closing time, Bonfire will stop the upload process, and your bid will not be received by Bonfire, and your bid will not be reviewed by the CCSD.

Electronic bids may require uploading of electronic attachments. Bonfire will accept a wide variety of document types as attachments. Documents containing embedded encryptions cannot be processed by Bonfire. Additionally, the submission of documents containing embedded documents, zip files, mov, wmp, and mp3 files is prohibited. All documents should be attached as separate files.

V. Questions and Answer Period

The Question-and-Answer period closes on the date and time specified on U3P (Bonfire). All questions must be submitted through U3P during the Question-and-Answer period. Answers from the CCSD will be posted on U3P. Questions may include notifying the CCSD of any ambiguity, inconsistency, scope exception, excessively restrictive requirement, or other errors in this solicitation. A question may also include a request to modify the Terms and Conditions. Questions are encouraged.

Questions may be answered individually or compiled into a single document. Questions may also be answered via an addendum. An answered question or an addendum may modify the specification or requirements of this solicitation. Answered questions and addenda will be posted on U3P. Bidders should periodically check U3P for answered questions and addenda before the closing date. It is the responsibility of the bidders to submit their bids as required by this IFB, including any requirements contained in an answered question and/or addenda.

Prior to the closing date, the CCSD may, at its sole discretion, issue addenda. Addenda may modify any minimum requirement or specification of this IFB. It is the responsibility of the bidders to submit their bids as required by this IFB, including any requirements contained in addenda issued by the CCSD.

NOTE: Exceptions taken by a bidder to the scope/content of the solicitation that have not been addressed during the Question-and-Answer period may result in the bidder being disqualified.

No CCSD employee or CCSD board member should be contacted concerning this bid during the selection process. Failure to comply may result in disqualification

VI. Addenda

Any modification to this procurement will be made by a formal addendum issued by the CCSD Purchasing Department. Addenda to this IFB may be made for the purpose of making changes to: the scope of work, the schedule, the qualification requirements, the criteria, the weighting, or other aspects of this IFB. Authorized and properly issued addenda shall constitute the official and binding position of CCSD. Bidders are encouraged to periodically check Bonfire for posted questions, answers, and addenda.

Any response to this IFB that has as its basis any communications or information received from sources other than this IFB or related addenda may be considered non-responsive and rejected at the sole discretion of CCSD.

VII. Scope of Work

Provide the labor, materials, equipment, and supervision needed for corrective maintenance and localized repairs at each awarded field. Select methods suitable for the existing turf, explain the recommendations, and include the work described below in the base bid. Full field replacement is outside this scope.

A. Reference reports and locations

The following Firefly Sports Testing reports will be issued as separate reference attachments. Review the complete reports, including test results, location maps, photographs, and the surface regularity observations on page 15 of each field report. The July summary supplements the detailed assessments; it does not replace their findings. Letter grades are not acceptance criteria.

Attachment A remains the District's Standard Terms and Conditions. These reference reports describe conditions at the time of testing; bidders shall identify discrepancies through the question process. The requirements of this IFB and its addenda govern the work and pricing.

Attachment	Reference report
B	Condition Assessment Report Review — July 21, 2026
C	Mountain Crest High School Stadium — Job 102041; report June 22, 2026
D	Ridgeline High School Stadium — Job 102042; report June 22, 2026
E	Sky View High School Stadium — Job 102043; report June 22, 2026
F	Green Canyon High School Stadium — Job 102040; report June 22, 2026

Field and initial work sequence	Location
1. Mountain Crest High School	255 South 800 East, Hyrum, UT 84319
2. Ridgeline High School	180 North 300 West, Millville, UT 84326
3. Sky View High School	520 South 250 East, Smithfield, UT 84335
4. Green Canyon High School	2960 North Wolf Pack Way, North Logan, UT 84341

The District may adjust this sequence for field conditions, weather, and athletic schedules. Site inspections are encouraged during the period in Section XI — IFB Schedule Timeline, by appointment through each school's administration. Do not disturb the turf during bid inspections. Identify any condition that cannot be verified without opening the turf.

B. Required maintenance and repairs

Inspect and secure vulnerable seams, inlays, edges, and existing patches before equipment passes over them. Complete a representative test area at each field, using methods consistent with applicable manufacturer instructions. Stop and notify the District if abnormal fiber loss, seam movement, or backing damage occurs.

Clean the turf and remove debris and loose fibers. Decompact infill, lift recoverable matted fibers, redistribute existing infill, add compatible material where needed, and finish with grooming. Measure infill depth and exposed fiber height before and after work. Submit infill product data, proposed quantities, and target depths for District approval before placement; avoid burying fibers or adding material that the remaining fibers cannot retain.

Include identifiable localized repairs to loose or open seams, damaged inlays, failed patches, tears, exposed backing, worn areas, perimeter edges, and field or goal penetrations. Inspect existing repairs and correct those that are loose, uneven, or failing. Match materials and markings as closely as practical; leave repairs secure, level, and fully cured.

Address the specific conditions in the reports: compaction and patch variations at Mountain Crest; seam gaps, exposed backing, and uneven areas at Ridgeline; infill imbalance, worn goal areas, patches, and faded markings at Sky View; and exposed backing, fiber loss, infill variation, and uneven areas at Green Canyon. These examples do not limit the required review of all reported findings.

Evaluate every reported high or low spot. Include correction achievable through appropriate infill redistribution in the base bid. Do not hide base settlement with added infill. Separately identify and price necessary work that requires opening the turf to repair the base, drainage, or shock pad, and any extensive turf or marking replacement beyond localized repairs. Explain the consequences of deferral. Such work requires separate written authorization; required repairs shall not be labeled as optional improvements.

Protect the fields, tracks, and surrounding facilities; control access during work and curing; remove waste; and correct damage caused by the contractor at no additional cost. Notify the District immediately of conditions that may require restricted use.

C. Verification and acceptance

The District will arrange and pay for independent post-work testing at each awarded field. Use the methods and editions identified in the June 2026 Firefly reports for comparison, as listed below. Repeat the ten original performance test locations and the forty-location infill pattern, and evaluate reported problem areas and repair locations. Report individual results, not just averages. Inspect the full playing surface for irregularities.

Measure	Method identified in the Firefly reports
Impact attenuation (g-max)	ASTM F1936-19
Critical fall height (HIC)	ASTM F3146-18
Force reduction and vertical deformation	ASTM F3189-20, Advanced Artificial Athlete
Rotational resistance	EN 15301-1:2007; document the reported lightweight apparatus modification
Infill depth	EN 1969:2000; also record exposed fiber height
Vertical ball rebound and horizontal ball roll	EN 12235:2013 and EN 12234:2013
Surface regularity	EN 13036-7:2003; 3-meter straight edge

Document equipment, test conditions, and any method deviations. Conduct ball roll testing within the method's wind limits and note that the original assessments reported excessive wind. Use comparable apparatus for rotational resistance and identify the modification rather than claiming an unmodified standard test.

No tested location with g-max of 200 or greater may be accepted for return to use without further correction and passing retest. Project improvement targets are g-max of 165 or less, force reduction of at least 50%, and critical fall height of at least 0.80 m, where achievable through the authorized repairs. These are limited maintenance targets, not a safety certification. Firefly recommends critical fall height greater than 1.30 m; report all locations below that recommendation and explain remaining limitations. Evaluate other results against the ranges in the detailed reports. Authorized surface corrections must leave no deviation greater than 10 mm under a 3-meter straightedge.

Include one return visit for reasonable additional in-scope grooming, decompaction, redistribution, or infill correction indicated by testing. Correct incomplete or defective contracted work at no additional cost; the included visit does not limit warranty obligations. For performance limitations that require work outside the contract, provide the District with a repair recommendation and price. Do not represent the field as cleared for use solely because the contracted work is complete.

Before final payment, provide a concise report for each field with the updated condition response table, repair map, before-and-after photographs, actual repair and infill quantities, measurement records, remaining deficiencies, and a practical 24-month maintenance plan. Include a reasoned opinion on whether the work supports one or two additional

seasons. Acceptance requires completion of authorized repairs, testing review, a District walkthrough, correction of the punch list, and written disposition of unresolved conditions. The District determines return to use.

D. Warranty

Provide a one-year warranty from District acceptance for materials and workmanship furnished under this contract, including seam, inlay, patch, edge, adhesive, and authorized base repairs. Unrelated deterioration of the existing turf, normal wear, misuse, and vandalism are excluded. The age of existing turf does not excuse defective contracted work.

VIII. Price Guarantee Period

Bid prices shall remain available for District acceptance for 60 calendar days after bid closing. Upon award, prices for the accepted scope shall remain fixed through completion, including approved weather-related schedule extensions. Changes to the work or price require written authorization from the District before the changed work begins

IX. Tax Exemption

Sales made to Utah School Districts are exempt from sales tax according to Utah Code 59-12-104. Bidders must use the tax exemption certificate form TC-721G when purchasing materials for CCSD projects. A tax-exempt form will be provided upon request. Subcontractors must obtain tax forms from the General Contractor.

X. Commercial Terms and Work Coordination

CCSD will issue the purchase order or contract directly. After the award, submit a detailed schedule to the Facilities Department and coordinate access, work areas, deliveries, closures, and curing with each school's athletic director. Work around scheduled practices, games, and school events. Do not close or reopen a field without District approval.

Fall 2026 work is permitted after contract execution when weather and approved athletic schedules allow. Field repairs must begin no later than March 15, 2027, and all authorized repairs, curing, testing, corrective work, and closeout must be complete no later than June 1, 2027. Allow time for testing and corrections before the completion deadline. Planning or material orders alone do not satisfy the required start of field repairs.

Plan for seasonal weather and manufacturer temperature, moisture, and cure requirements. Do not work on frozen, snow-covered, saturated, or otherwise unsuitable turf, or when equipment or materials would damage the field. If weather prevents the required start or threatens completion, notify Facilities promptly, document the affected work and conditions, and submit a revised sequence and recovery schedule. Coordinate available work windows with the athletic directors. Deadline changes require written District approval; weather does not automatically extend the contract.

XI. IFB Schedule Timeline

Issue and start advertising	Monday, October 26, 2026
Field inspections by appointment	October 27–30, 2026; arrange through school administration
Deadline for questions	Monday, November 2, 2026 — 1:00 p.m. MST
Target date for answers and addenda	Wednesday, November 4, 2026
Bid submission deadline	Monday, November 9, 2026 — 1:00 p.m. MST
Anticipated notice of award	Monday, November 16, 2026
Fall work opportunity	After contract execution, weather and schedules permitting
Latest start of field repairs	Monday, March 15, 2027
Final completion	Tuesday, June 1, 2027

All times are local Mountain Time. The dates above are proposed for Purchasing review. The final issued IFB and U3P posting will state the binding procurement dates; any later change must be issued by addendum. The award date is anticipated. Work dates are subject to Section X — Commercial Terms and Work Coordination.

XII. Evaluation and Award Process

Pursuant to the Utah Procurement Code, this IFB shall be evaluated in accordance with the objective criteria described in this IFB. Bids submitted must comply with all requirements set forth in this IFB. Any bid that does not comply may be deemed non-responsive and disqualified from further evaluation

Mandatory Minimum Requirements. For each field bid, the bidder shall submit a completed maintenance and repair response form, a fixed base price covering all required maintenance and localized repairs described in Section VII, a response to

Alternate No. 1 – Additional Recommendations with separate pricing for any recommended additional work, and a signed bid acknowledgment. Each repair category must describe the proposed work and affected locations or extent, or explain why no corrective work is necessary. Enter “None” under Alternate No. 1 if no additional work is recommended. A blanket statement that all reported issues will be addressed does not satisfy the response requirement. A bid that omits required responses or prices, lacks the signed acknowledgment, or excludes required base-scope work will be deemed nonresponsive and rejected. All other administrative, qualification, and schedule requirements of this IFB remain applicable.

Each bid receipt shall be evaluated for responsiveness in the following manner

Criteria	Determination
Timely Receipt of Bid	Pass/Fail
Complete Bid Packet	Pass/Fail
Complete and Correct Documents	Pass/Fail
Bid Requirements (Maintenance and Repair Response Form, items 1–6)	Pass/Fail

Bids that pass the administrative and mandatory minimum requirements will be evaluated to determine that they meet or exceed the scope of work. Any bid that does not meet or exceed the scope of work will be deemed nonresponsive and disqualified from further consideration.

The District will compare responsive base bids separately for each field and award that field to the responsible bidder offering its lowest complete base price, or cancel that field item. Compliance with the required scope, schedule, qualifications, and documentation is evaluated on a pass/fail basis. Separate recommendations and optional work will not change the ranking of base bids.

XIII. Contract Award Process

All bids that meet or exceed the scope of work shall be evaluated on price, and the CCSD Purchasing Department, pursuant to Utah Code §63G-6a-606 of the Utah Procurement Code, shall:

- (a)
 - (i) award a contract as soon as possible to the responsible bidder who submits the lowest responsive bid; and
 - (ii) publish the name and bid amount of the bidder to whom the contract is awarded; or
- (b)
 - (i) cancel the invitation for bid without awarding a contract; and
 - (ii) publish a notice of the cancellation that includes an explanation of the reasons for canceling the invitation for bids.

A solicitation award does not constitute a contract. Any award made through U3P (Bonfire), notifications received from U3P, email notifications received directly from the procurement unit, documents received by vendors, or documents posted in U3P do not constitute or create a contract. Only a fully executed PO or fully executed contract constitutes a binding contract.

If awarded, vendor(s) may not begin work, purchase materials, or enter into subcontracts relating to this solicitation until they receive a fully executed PO or contract.

MAINTENANCE AND REPAIR RESPONSE FORM

Submit the following. Recommendations may differ in technique, but the base bid must cover the same required maintenance and identifiable localized repairs described in Section VII. Raise proposed scope exceptions before the question deadline; do not omit required work to reduce the base bid.

1. Qualifications: Identify the company, the responsible supervisor, and three comparable synthetic turf maintenance and repair projects completed within the past five years, with reference contacts. Include the applicable Utah contractor license and licensure limits, insurance certificate, and District vendor information sheet.

2. Maintenance and Repair Response:: Complete one form for each field bid. Address the conditions identified in the applicable Firefly field assessment and summary report. Briefly describe the proposed work, materials, and affected locations or approximate extent. Whole-field treatments may be identified as "entire field." If no corrective work is recommended, explain why. Required work may not be excluded.

School/field: _____

Bidder: _____

Repair category	Items to address	Bidder's proposed work
Cleaning, decompaction, and grooming	Debris and loose fibers, compacted infill, and recoverable matted fibers.	_____
Infill correction	Uneven or excess infill and deficient areas requiring compatible replenishment.	_____
Seams, inlays, and edges	Open or loose seams, damaged inlays, unsecured edges, and areas around field penetrations.	_____
Localized turf replacement and patch repairs	Worn areas, excessive fiber loss, exposed backing, tears, worn goal areas, and failed patches. Sound existing repairs need not be replaced.	_____
High spots, low spots, and uneven areas	Reported surface irregularities; distinguish infill corrections from work requiring access to the underlying base.	_____
Field markings	Damaged or faded lines, numbers, and other reported marking deficiencies.	_____
Other reported conditions	Remaining findings, proposed corrective work, or explanations for conditions requiring no corrective work.	_____

Identify work requiring separate pricing under Section VII in **Alternate No. 1 – Additional Recommendations**. Individual prices for repairs included in the base bid are not required.

3. Work plan and schedule: Describe equipment, repair methods, materials, test areas, anticipated results and limitations, field downtime including cure time, and the dates proposed for each field. Confirm the March 15, 2027, latest start and June 1, 2027, completion requirements, subject only to the written adjustments described in Section X..

4. Bid Prices. Provide one fixed base price for each field bid. Include all required maintenance and localized repairs, mobilization, labor, materials, equipment, protection, disposal, test areas, documentation, and the corrective return visit required by Section VII. Individual repair prices and separate maintenance, repair, and infill subtotals are not required.

Field	Total Fixed Base Bid	Alternate No. 1-Additional Recommendation-Addl Price
Mountain Crest	\$	\$
Ridgeline	\$	\$
Sky View	\$	\$
Green Canyon	\$	\$

Enter "No bid" for a field not offered. Enter "None" in the alternate column if no additional work is recommended. Each field price must stand alone and may not depend on receiving another field award. Alternate prices are additional to the base bid and must correspond to the recommendations submitted under item 5.

Provide fully installed unit prices for each infill material per ton, seam/inlay/edge repair per linear foot, and patching per square foot for authorized changes. State the measurement basis and any minimum charge. These rates do not convert the fixed base bid into an allowance.

5. Alternate No. 1 – Additional Recommendations. Identify additional repairs or improvements recommended from review of the Firefly reports or field inspection that are beyond the required base scope, including work designated for separate pricing under Section VII. For each recommendation, identify the field and location, describe the work, explain why it is needed, and provide its additional price. Distinguish necessary repairs from optional improvements. Enter the total additional price for each field in the pricing table under item 4. If no additional work is recommended, enter "None."

For concealed conditions, separately price the investigation and state the basis for pricing the resulting repairs. Required base-scope work may not be moved into this alternate. Alternate prices and unit rates will not be included in the base-bid ranking. Additional work requires separate written District authorization; work requiring a separate procurement will be handled by Purchasing.

6. Bid Acknowledgment. By signing below, the bidder acknowledges review of this IFB, Attachments A–F, and all issued addenda, including the Firefly field assessment reports and summary report applicable to each field bid. The bidder confirms that its base price includes all maintenance and localized repairs required by Section VII to address the reported conditions, including required work not individually described in its response form. The bidder has identified any reported condition requiring separately priced work or for which no corrective work is recommended and explained its recommendation. The bidder agrees to the IFB's schedule, verification, closeout, and warranty requirements.

Company: _____

Authorized representative and title: _____

Signature: _____ **Date:** _____

Addenda acknowledged: _____

ATTACHMENT A

CACHE COUNTY SCHOOL DISTRICT STANDARD TERMS AND CONDITIONS

1. **DEFINITIONS:** The following definitions apply: (a) “CCSD” – Cache County School District; (b) “PO” – Purchase Order/Contract; (c) “Seller” – Supplier, Vendor or Contractor – the legal person authorized to bind the company contracting with the Buyer and universally used throughout this document; (d) “Buyer” – CCSD authorized Purchasing Agent.
2. **AUTHORITY:** Provisions of this contract are pursuant to the authority set forth in 63G-6a-101, et seq, Utah Code Annotated, 1953, as amended, Utah State Procurement Rules (Utah Administrative Code Section R33) or CCSD Purchasing Policy DBJ in accordance with the laws of the State of Utah, and related statutes which permit CCSD to purchase certain specified services, and other approved purchases for CCSD.
3. **CONTRACT JURISDICTION, CHOICE OF LAW AND VENUE:** The provisions of this contract shall be governed by the laws of the State of Utah. The parties will submit to the jurisdiction of the courts of the State of Utah for any dispute arising out of this Contract or the breach thereof. Venue shall be in Logan City, in the First Judicial District Court in Cache County.
4. **LAWS AND REGULATIONS:** The Seller and any and all supplies, services, equipment, and construction furnished under this contract will comply fully with all applicable Federal and State laws and regulations.
5. **BACKGROUND CHECK:** All persons who will be placed in direct contact with students may be subject to the requirements set forth in Utah Code 53A-3-410. Where applicable, access to CCSD property may be granted to Seller’s employees only after appropriately cleared by the Board of Education. All costs associated for clearance of Seller’s personnel shall be included in the Seller’s pricing.
6. **ACCEPTANCE:** PO acceptance constitutes the entire agreement. This order constitutes Buyer’s offer and may be accepted by Seller (or Contractor where applicable) only in accordance with the terms hereof. No agreement or understanding varying or extending the terms or conditions of the PO, including but not limited to Seller provided terms and conditions included within a quote or proposal, will be binding unless in writing and agreed to and signed by an authorized CCSD Buyer. This PO may be accepted by Seller by written acknowledgment, commencement of work, shipment of goods or furnishing of services. No addition, oral agreement or any instructions, terms and conditions that may be contained in any acknowledgement of this PO shall be binding upon CCSD, if in conflict with CCSD terms and conditions, unless authorized in writing by the CCSD Buyer.
7. **RENEGOTIATION OR MODIFICATIONS:** Buyer shall have the right at any time, by written notice to Seller, to make changes or suspend performance, in whole or in part to this PO. Seller shall proceed to perform as changed. If change causes an increase or decrease in the cost or time of performance of this PO, Seller shall notify Buyer immediately and negotiate an adjustment. Any claim by the Contractor for adjustment must be asserted in writing within thirty (30) days from the date of receipt by the Seller of the notification of change.
8. **SHIPPING:** Buyer reserves the right to route all shipments. Delays in shipment shall be reported immediately by Seller to Buyer. Every package, bill of lading, shipping memorandum and invoice must be marked with CCSD’s PO number. All shipments will include an itemized packing slip of each package’s content.
9. **DELIVERY/TITLE:** Unless otherwise agreed, delivery shall be F.O.B. Destination and title shall pass to CCSD upon acceptance at the final delivery point. Risk of damages or loss following shipment and prior to acceptance by CCSD shall be the responsibility of Seller. Deliveries will be made even in the event of a strike at Seller’s location, unless otherwise authorized by CCSD Buyer. If the Seller fails to deliver in accordance with the schedule, Buyer will be entitled to either a price reduction for late deliveries or the right to terminate the PO for default in performance of this PO, Seller will immediately notify the Buyer in writing of the reasons for the delay and what action is being taken to minimize the delay.

10. **INSPECTION:** All work and/or supplies on this PO are subject to inspection and testing by an authorized CCSD employee at times and places determined by CCSD. If CCSD finds the goods to be incomplete, nonconforming or damaged, CCSD may reject the supplies and require Seller to correct them with no additional charges. If Seller refuses to correct such goods, within a reasonable time, the Buyer may cancel the order in whole or in part.
11. **HAZARDOUS MATERIAL IDENTIFICATION AND MATERIAL SAFETY DATA:** Seller will provide one set of the appropriate Material Safety Data Sheet and container label upon delivery of hazardous material to CCSD.
12. **INDEMNITY CLAUSE:** The Seller agrees to release, protect, indemnify and hold CCSD's officers directors, representatives and its employees harmless from and against any damage, cost or liability, including reasonable attorney's fees for any and all injuries to persons, damage to property or claims for money for damages arising from any and all supplies, services, equipment, and construction furnished under this contract, as well as acts or omissions of the Seller, Seller's employees, subcontractors, representatives or volunteers.
13. **INSURANCE FOR WORK PERFORMED ON CCSD PROPERTIES:** If Seller, its agents, and/or employees are required to perform this PO or any part of this PO on CCSD premises, Seller shall provide insurance coverage as follows:
- Worker's Compensation Insurance or qualification as a self-insurer to satisfy the laws of the State of Utah.
 - Employee's liability insurance for Bodily Injury per accident limits not less than \$1,000,000 per occurrence.
 - Comprehensive General Liability \$2,000,000 combined single limit any one occurrence and shall include coverage for bodily injury and property damage.
 - Comprehensive Automobile Liability Insurance \$1,000,000 (owned and hired vehicles) combined single limit per occurrence for personal injury and property damage.
 - Umbrella or Excess Liability Coverage \$5,000,000.
- The above policies shall include CCSD as additional insured for claims caused in whole or in part by the Seller's negligent acts or omissions during the Seller's operations or performance on this contract. Seller shall provide thirty (30) days advance written notice of changes in or cancellation of any such insurance. Seller will be required to furnish a Certificate of Insurance prior to the commencement of work. Failure to maintain insurance during the performance of this PO shall cause the Seller to be in default under this PO.
14. **CONFLICT OF INTEREST:** Seller represents that none of its officers or employees are officers or employees of CCSD, unless disclosure has been made in accordance with 67-16-8, Utah Code Annotated, 1953, as amended. Further, Seller certifies that it has not offered or given any gift or compensation prohibited by 67-16-5, U.C.A., 1953, as amended, or any other state or federal law, to any officer or employee of CCSD to secure favorable treatment with respect to being awarded this PO.
15. **SELLER, AN INDEPENDENT SELLER:** The Seller shall be an independent Seller, and as such, shall have no authorization, express or implied, to bind CCSD to any agreements, settlements, liability, or understanding whatsoever, and agrees not to perform any acts as agent for CCSD, except as herein expressly set forth. Compensation stated herein shall be the total amount payable to the Seller by CCSD. The Seller shall be responsible for the payment of all income tax and social security amounts due as a result of payments received from CCSD for these contract services. Persons employed by CCSD and acting under the direction of CCSD shall not be deemed to be employees or agents of the Seller.
16. **SELLERS COMPLIANCE WITH APPLICABLE EMPLOYMENT PRACTICES AND LAWS:** CCSD will not have any responsibility to ensure or enforce any employment practices or laws with respect to Seller's employees, agents or contractors. Seller warrants and certifies that it abides by the provisions of the Utah AntiDiscrimination Act, Title 34 Chapter 35, U.C.A., 1953 as amended, and Title VI and VII of the Civil Rights Act of 1964 (42USC 2000e), which prohibit discrimination against any employee or applicant for employment or any applicant or recipient of services, on the basis of race, religion, color, or national origin; and further agrees to abide by Executive Order No. 11246, as amended, which prohibits discrimination on the basis of sex; 45 CFR 90, which prohibits discrimination on the basis of age; and Section 504 of the Rehabilitation Act of 1973, and/or the Americans with Disabilities Act of 1990, which prohibit discrimination on the basis of

disabilities. Also, the Seller agrees to abide by Utah's Executive Order, dated March 17, 1993, which prohibits sexual harassment in the workplace. Seller must include this provision in every subcontract or PO relating to purchases made by CCSD to ensure that the subcontractors and suppliers are bound by this provision.

17. **SEPARABILITY CLAUSE:** A declaration by any court, or any other binding legal source, that any provision of this contract is illegal and void shall not affect the legality and enforceability of any other provision of this contract, unless the provisions are mutually dependent.
18. **DEBARMENT:** The Seller certifies that neither it nor its principals are presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction (contract), by any governmental department or agency. If the Seller cannot certify this statement, attach a written explanation for review by CCSD. The Seller must notify CCSD Director of Purchasing within 30 days if debarred by any governmental entity during the Contract period.
19. **TERMINATION:** Unless otherwise stated in the Special Terms and Conditions, this contract may be terminated, with cause by either party, in advance of the specified termination date, upon written notice being given by the other party. The party in violation will be given ten (10) working days after notification to correct and cease the violations, after which the contract may be terminated for cause. This contract may be terminated without cause, in advance of the specified expiration date, by either party, upon sixty (60) days prior written notice being given the other party. On termination of this contract, all accounts and payments will be processed according to the financial arrangements set forth herein for approved services rendered to date of termination.
20. **DEFAULT AND REMEDIES:** Any of the following will constitute cause for CCSD to declare the Seller in default of the contract: 1. Nonperformance of contractual requirements; 2. A material breach of any term of condition of the PO. CCSD will issue a written notice of default providing a specified period of time for Seller to cure. If the default remains, CCSD may do one or more of the following: 1. Exercise any remedy provided by law; 2. Terminate the PO and any related contracts or portions thereof; 3. Impose liquidated damages, if liquidated damages are listed in the contract; 4. Suspend Seller from receiving future bid/proposal solicitations.
21. **FORCE MAJEURE:** Neither party to this contract will be held responsible for delay or default caused by fire, riot, acts of God and/or war which is beyond that party's reasonable control. CCSD may terminate this contract after determining such delay or default will reasonably prevent successful performance of the contract.
22. **NONAPPROPRIATION OF FUNDS:** The Seller acknowledges that CCSD cannot contract for the payment of funds not yet appropriated by the Board of Education. If funding to CCSD is reduced due to an order by the Board of Education, or is required by State law, or if federal funding (when applicable) is not provided or reduced, CCSD may terminate this contract or proportionately reduce the services and purchase obligations and the amount due from CCSD upon 30 days written notice. In the case that funds are not appropriated or are reduced, CCSD will reimburse Seller for products delivered or services performed through the date of cancellation or reduction, and CCSD will not be liable for any future commitments, penalties, or liquidated damages.
23. **SALES TAX EXEMPTION:** Prices will be exclusive of state sales, use and federal excise taxes. CCSD's sales and use tax exemption number is 12286526-010-STC. The tangible personal property or services being purchased are being paid from CCSD funds and used in the exercise of that entity's essential functions. If the items being purchased are construction materials, they will be converted into real property by employees of this government entity, unless otherwise stated in the contract.
24. **WARRANTY:** The Seller agrees to warrant and assume responsibility for all products (including hardware, firmware, and/or software products) that it licenses, contracts, or sells to CCSD under this contract for a period of one year, unless otherwise specified and mutually agreed upon elsewhere in this contract. The Seller (seller) acknowledges that all warranties granted to the buyer by the Uniform Commercial Code of the State of Utah apply to this contract. Product liability disclaimers and/or warranty disclaimers from the seller are not applicable to this contract unless otherwise specified and mutually agreed upon elsewhere in this contract. In general, the Seller warrants that: (1) the product will do what the salesperson said it would do, (2) the product will live up to all specific claims that the manufacturer makes in their advertisements, (3) the product will be suitable for the ordinary purposes for which such product is used, (4) the product will be suitable for any special purposes that CCSD has relied on the Seller's skill or judgment to consider when it advised CCSD about the

product, (5) the product has been properly designed and manufactured, and (6) the product is free of significant defects or unusual problems about which CCSD has not been warned. Remedies available to CCSD include the following: The Seller will repair or replace (at no charge to CCSD) the product whose nonconformance is discovered and made known to the Seller in writing. If the repaired and/or replaced product proves to be inadequate, or fails of its essential purpose, the Seller will refund the full amount of any payments that have been made. Nothing in this warranty will be construed to limit any rights or remedies CCSD may otherwise have under this contract.

25. **PUBLIC INFORMATION:** Seller agrees that the contract, related sales orders, and invoices will be public documents, and may be available for distribution. Seller gives CCSD express permission to make copies of the contract, related sales orders, and invoices in accordance with the State of Utah Government Records Access and Management Act (GRAMA). Except for sections identified pursuant to Subsection 63G-2-309(1) in writing under the business confidentiality exception under Subsection 63G-2-305 (1) and/or (2) or another exception and expressly approved by CCSD Department of Purchasing, Seller also agrees that the Seller's response to the solicitation will be a public document, and copies may be given to the public under GRAMA laws. The permission to make copies as noted will take precedence over any statements of confidentiality, proprietary information, copyright information, or similar notation.
26. **ORDERING AND INVOICING:** All orders will be shipped promptly in accordance with the delivery schedule. The Seller will promptly submit invoices to CCSD within thirty (30) days of shipment or delivery of goods/services. CCSD contract number and/or the agency PO number shall be listed on all invoices, freight tickets, and correspondence relating to the contract order. The prices paid by CCSD will be those prices listed in the contract. CCSD has the right to adjust or return any invoice reflecting incorrect pricing.
27. **PAYMENT:** Payments are normally made within thirty (30) days following the date the order is delivered or the date a correct invoice is received, whichever is later. All payments to the Seller will be remitted by mail unless paid by CCSD Purchasing Card (major credit card).
28. **PATENTS, COPYRIGHTS, ETC.:** The Seller will release, indemnify and hold CCSD, its officers, agents and employees harmless from liability of any kind or nature, including the Seller's use of any copyrighted or uncopyrighted composition, secret process, patented or un-patented invention, article or appliance furnished or used in the performance of this contract.
29. **ASSIGNMENT/SUBCONTRACT:** Seller will not assign, sell, transfer, subcontract or sublet rights, or delegate responsibilities under this contract, in whole or in part, without the prior written approval of CCSD.
30. **PROCUREMENT ETHICS:** The Seller understands that a person who is interested in any way in the sale of any supplies, services, construction, or insurance to CCSD is violating the law if the person gives or offers to give any compensation, gratuity, contribution, loan or reward, or any promise thereof to any person acting as a procurement officer on behalf of CCSD, or who in any official capacity participates in the procurement of such supplies, services, construction, or insurance, whether it is given for their own use or for the use or benefit of any other person or organization (§63G-6a-2404, Utah Code Annotated, 1953, as amended).
31. **CONFLICT OF TERMS:** Seller Terms and Conditions that apply must be in writing and attached to the contract. No other Terms and Conditions will apply to this contract including terms listed or referenced on a Seller's website, terms listed in a Seller quotation/sales order, etc. In the event of any conflict in the contract terms and conditions, the order of precedence shall be: 1. CCSD Standard Terms and Conditions; 2. CCSD Contract Signature Page(s); 3. CCSD Additional Terms and Conditions; 4. Seller Terms and Conditions.
32. **PRICE GUARANTEE, ADJUSTMENTS:** The contract pricing resulting from this PO/bid/proposal will be guaranteed for the period specified. Following the guarantee period, any request for price adjustment must be for an equal guarantee period, and must be made at least thirty (30) days prior to the effective date. Requests for price adjustment must include documentation supporting the request and demonstrating a logical mathematical link between the current price and the proposed price. Any adjustment or amendment to the contract will not be effective unless approved by the CCSD Director of Purchasing. The District will be given the immediate benefit of any decrease in the market, or allowable discount.
33. **STATUS VERIFICATION SYSTEM:** The Seller verifies that they are in compliance with Utah Code

Annotated, §63G-12-302 to verify the work eligibility of contractor's employees. The law makes it unlawful for a Utah employer to terminate a U.S. citizen and replace that individual with an undocumented worker hired after July 1, 2009. Utah Code Annotated, §63G-12-302 requires Sellers who perform physical services within the State to register and participate in a Status Verification System before entering into contracts with public employers. Contracts awarded through a request for proposal process require a clause mandating the prime and subcontractor to use an approved Status Verification System.

34. **DISPUTES:** In the event of any dispute relating to the PO, the Seller agrees to make diligent and reasonable attempts to resolve disputes through negotiations.

Revision Date: (February 17, 2023)



July 21, 2026

Attn: Donald Adams

Facilities: Cache County School District

Re: Cache County, UT - Condition Assessment Report Review

Firefly Sports Testing completed comprehensive condition assessments on four artificial turf fields in Cache County, UT to evaluate their current performance, consistency, and overall condition. Testing included impact attenuation, force reduction, vertical deformation, rotational resistance, ball rebound, ball roll, surface regularity, and infill depth evaluations, supplemented by a visual inspection of each field. The results were used to assign an overall condition grade and identify trends affecting surface performance. While each field exhibited unique characteristics and varying degrees of wear, all four facilities would benefit from routine maintenance consisting of decompaction, infill management, and periodic performance monitoring to preserve player safety, maintain consistent playing characteristics, and maximize the service life of the turf system. The following summarizes the overall condition, key observations, and recommended maintenance priorities for each field.

If you have any questions regarding the contents of this review feel free to contact us.

Regards,

Michael Rocheleau

Field Operations Manager

Firefly Sports Testing

Direct (603) 294-3130

Office (603) 715-5453

MichaelR@fireflysportstesting.com



Green Canyon High School Stadium (Job #102040)

Overall Grade: B

Major Takeaways:

- This was the strongest-performing field of the four facilities evaluated.
- Surface performance was generally consistent across all testing categories with no significant deficiencies.
- Minor infill depletion and compaction were observed in high-traffic areas, but the field continues to provide consistent player-surface interaction and impact performance.

Recommendation:

The field is performing well but would benefit from a proactive maintenance program to preserve its current condition. Routine decompaction should be completed to relieve infill consolidation, followed by targeted infill replenishment in high-use areas to maintain consistent infill depths. Routine grooming and periodic performance testing are recommended to monitor long-term changes before more significant deterioration occurs.

Visual Inspection Items of note:



A



B



C

Areas with reduced infill depth are more susceptible to accelerated fiber degradation from UV exposure and increased mechanical fiber wear and pull-out (Items A & B). These high-traffic areas should receive routine hand maintenance and infill replacement to restore the designed infill depth and prevent further deterioration. Once fiber loss becomes excessive and can no longer be effectively managed through maintenance, localized turf removal and repair should be considered. In addition, targeted grooming to reorient and stand the fibers upright (item C) should be prioritized to reduce matting, improve surface performance, and maximize the remaining service life of the field.

Mountain Crest High School Stadium (Job #102041)

Overall Grade: C+

Major Takeaways:

- Surface hardness was beginning to increase as a result of infill compaction.
- Several performance characteristics were trending toward the lower end of acceptable ranges.
- The field would benefit from maintenance before deficiencies become more pronounced.

Recommendation:

Corrective maintenance should focus on restoring impact performance and surface consistency. A thorough decompaction should be completed to relieve infill consolidation, followed by infill redistribution and targeted replenishment in worn areas. Given the elevated impact values and reduced force reduction, restoring the resiliency of the infill system should be prioritized. Routine grooming and periodic performance testing are recommended to evaluate the effectiveness of maintenance activities.

Visual Inspection Items of Note:



A



B



C

Overall, the field exhibited few, if any, significant concerns beyond those previously identified. That said, the numerous repaired areas throughout the surface will inherently introduce localized variations in performance characteristics. Fiber matting should be addressed through targeted grooming, and infill should be replenished in high-traffic areas where the existing fiber condition can effectively retain additional material. These maintenance measures will help improve surface consistency and extend the remaining service life of the field.

Ridgeline High School Stadium (Job #102042)

Overall Grade: C

Major Takeaways:

- This field exhibited widespread signs of wear
- Infill depths and surface consistency varied throughout the field, resulting in less uniform playing characteristics.
- Surface performance indicates that maintenance is needed to prevent further degradation.

Recommendation:

Maintenance efforts should focus on restoring surface consistency through decompaction, infill redistribution, and targeted infill replenishment in areas exhibiting reduced infill depth. Regular grooming should be incorporated into the maintenance program to maintain uniform infill distribution and consistent playing characteristics. Follow-up performance testing is recommended after maintenance to verify improvements and establish a performance baseline.

Visual Inspection Items of Note:



A



B



C

Areas with reduced infill depth (Item A) are more susceptible to accelerated fiber degradation from UV exposure, as well as increased mechanical fiber wear and pull-out (Item B). These high-traffic areas should receive routine hand maintenance and targeted infill replenishment to restore the designed infill depth and minimize further deterioration. Once fiber loss becomes too severe to be effectively managed through maintenance alone, localized turf removal and repair should be considered (Item B). In addition, regular grooming to reorient and stand the fibers upright, combined with strategic infill replacement, should be prioritized to reduce fiber matting, improve surface consistency and performance, and maximize the remaining service life of the field.

Sky View High School Stadium (Job #102043)

Overall Grade: C-

Major Takeaways:

- This field displayed the greatest imbalance in infill distribution among the four facilities.
- **End A consistently exhibited lower infill depths than End B**, contributing to reduced surface consistency and elevated impact values in localized areas.
- The observed pattern suggests uneven usage and accelerated wear on one end of the field.

Recommendation:

The field would benefit from a comprehensive maintenance program consisting of decompaction, infill redistribution, and targeted infill replenishment. Testing results indicate that End A exhibits consistently lower infill depths than End B, suggesting that infill has migrated or has been depleted more rapidly in this area. Redistributing existing infill across the field, followed by replenishment where necessary, is recommended to restore a more uniform infill profile and improve overall surface performance. If practices or warm-up activities routinely favor End A, consideration should be given to periodically alternating the primary direction of play or practice orientation to distribute wear more evenly across both halves of the field. Routine grooming, seasonal decompaction, and periodic performance evaluations are also recommended to maintain consistent playing characteristics and extend the service life of the turf system.

Visual Inspection Items of Note:



A



B



C

Areas exhibiting localized infill loss should be replenished with the appropriate infill blend to restore a more uniform surface and improve consistency across the field (Item A). Areas with localized fiber loss should be repaired promptly to prevent further expansion of the damaged areas (Item B). Due to infill depths that were both lower and more variable than those observed at comparable sites, the fibers should first be groomed to a more upright orientation (Item C) to maximize the effectiveness of infill replenishment. Following these maintenance efforts, the field should be closely monitored to determine whether the improvements are sufficient to extend its remaining service life or if more extensive repairs will be required.

ON-SITE TESTING CONDITION ASSESSMENT



Project Information

Job No	102041/12215s		Test Date	6/10/2026	
Field Reference	Mountain Crest High School Stadium		Client	Cache County School District	
Field Address	255 South 800 East Hyrum, UT 84319		Client Address	84 E 2400 North North Logan, UT 84341	
Report Date	6/22/2026		Project Manager	Michael Rocheleau	
Report Status	Final		Technician(s)	Keegan Sanborn Brian Carter	
Substrate Type	n/a		Field Orientation	End A= North	
Product Name	n/p		Infill Type	Rubber & Sand	
Pile Height (mm)	n/p		Shock Pad	Unknown	
	AM	PM		AM	PM
Air Temperature (°F)	56	71	Humidity (%)	53	20
Surface Temperature (°F)	79	95.9	Wind Speed (mph)	0	17
Weather Conditions	Clear & Sunny		Test Condition	Dry	

Notes:

1. This report has been prepared by Firefly Sports Testing with all reasonable skill, care and diligence within the terms of the contract with the Client and within the limitations of the resources devoted to it.
2. This report is confidential to the Client and Firefly Sports Testing accepts no responsibility whatsoever to third parties to whom this report, or any part thereof, is made known. Any such party relies upon the report at their own risk.
3. This report shall not be used for engineering or contractual purposes unless signed by the Author and the Checker and unless the report status is "Final."

Background

Firefly Sports Testing was commissioned to perform this on-site condition assessment per the protocol developed by Firefly Sports Testing. Standard test methods are performed together and held against a scoring system to provide a quantitative look at a range of important attributes. This broader perspective allows for more informed decision making.

Assessment Introduction

At Firefly Sports Testing we understand the need for a qualitative approach to a quantitative assessment of sports surface condition. Therefore, we have created our surface scorecard condition assessment program. We have used our experience of testing thousands of surfaces to provide a qualitative look at surface condition using quantitative indicators.

This report has two main parts. The first part is the surface scorecard. This surface scorecard is a subjective scoring system that uses criteria based on commonly accepted ranges regardless of age to assess field condition.

Our surface scorecard is a cumulative point system that will yield a letter grade to reflect your surface's condition. The points awarded are based on 9 different surface properties tested / measured on-site. The results from each test are measured against four corresponding ranges of values to score each result. The ranges are classified as Poor (0 points), Fair (1 point), Good (2 points) and Excellent (3 points). This can be viewed in the results criteria.

Since each property has a different importance, it is assigned a "weight factor" based on the intended use and significance to the overall condition of the surface. For example, the impact safety tests have the highest weight factor. The weight factor can be viewed in the scorecard table.

The second part of this report contains background information and results graphs for each test performed. If you are not familiar with surface performance testing, then part 2 might be a good place to start to gain an understanding of the tests applied to the surface scorecard.



Unit D5●78 Londonderry Tpk●Hooksett●NH●03106
(603) 715-5453 ● contact@fireflysportstesting.com





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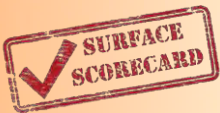
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Methods used within this assessment:

Test Type	Test Method	Test Description
Critical Fall Height	ASTM F3146-18	Standard Test Method for Impact Attenuation of Turf Playing Systems Designated for Rugby
<i>g</i>-max	ASTM F1936-19	Standard Specification for Impact Attenuation of Turf Playing Systems as Measured in the Field
Infill Depths	EN 1969:2000	Surfaces for Sports Areas – Determination of Thickness of Synthetic Sports Surfaces
AAA	ASTM F3189-20	Standard Test Method for Measuring Force Reduction, Vertical Deformation, and Energy Restitution of Synthetic Turf Systems Using the Advanced Artificial Athlete
Vertical Ball Rebound	EN 12235:2013	Surfaces for Sports Areas – Determination of Vertical Ball Behavior.
Ball Roll	EN 12234:2013	Surfaces for Sports Areas – Determination of Ball Roll Behavior <i>Modified: windspeeds exceeded maximum velocity during time of testing</i>
Rotational Resistance	EN 15301-1:2007	Surfaces for Sports Areas- Part 1: Determination of Rotational Resistance <i>Modified: Lightweight rotational resistance apparatus used</i>
Planarity	EN 13036-7:2003	Road and Airfield Surface Characteristics – Irregularity Measurement of Pavement Courses – The Straightedge Test

For the benefit of comparison, each of these tests were performed on the same locations specified by ASTM F1936. Therefore, many of these methods Results graphs and background information can be found in part 2 of this report.

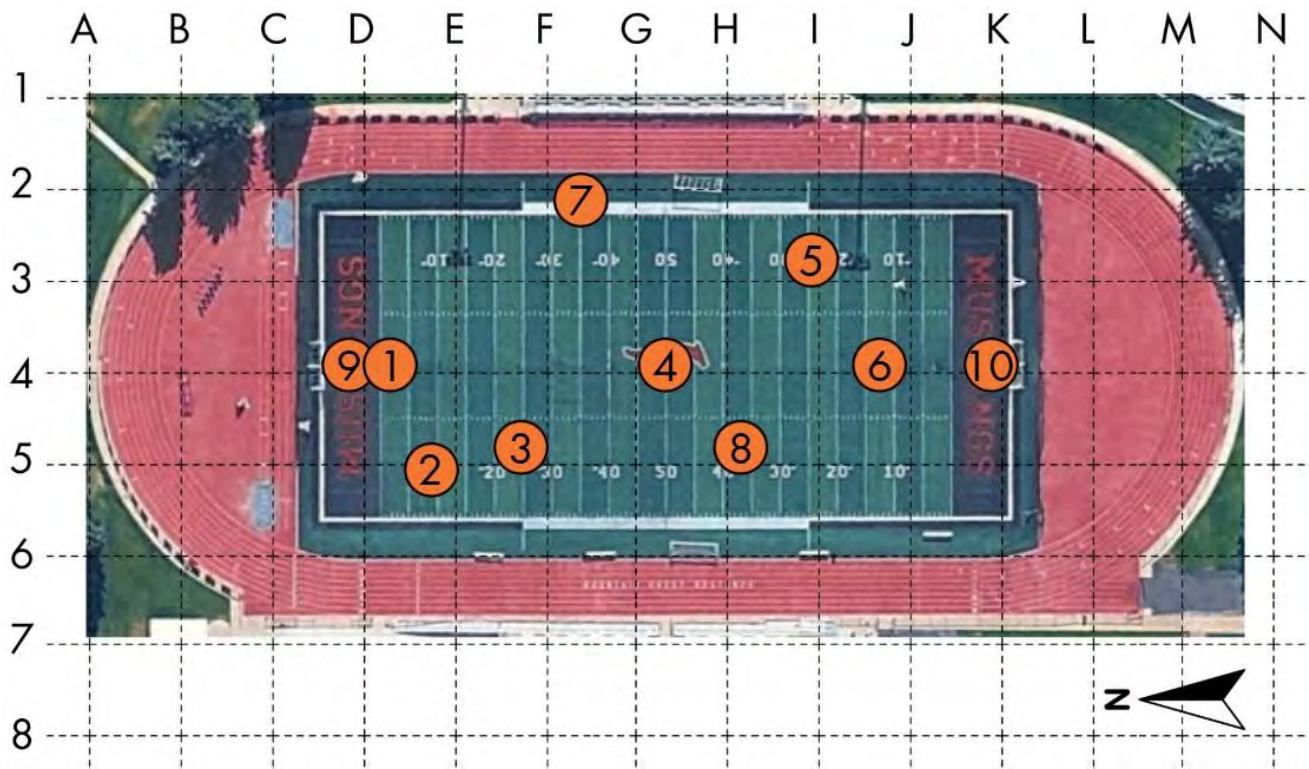
ON-SITE TESTING CONDITION ASSESSMENT



Overall Photos



Location Map



ON-SITE TESTING CONDITION ASSESSMENT



Overall Results

Below are the results of each of the tests performed per location along with a field average. Background and results graphs for each test can be found in part 2 of this report.

Property	Test Position										
	1	2	3	4	5	6	7	8	9	10	Avg
Critical Fall Height (m)	0.97	0.92	0.95	0.90	0.88	0.80	0.88	0.88	0.91	0.84	0.89
F1936 g-max (g's)	150	150	154	157	154	167	170	148	166	140	155
Infill Depth (mm)	31	32	32	29	31	30	33	32	31	36	32
Force Reduction (%)	48	53	53	49	53	49	53	54	53	57	52
Vertical Deformation (mm)	5.5	6.7	6.5	5.6	6.8	5.8	6.6	6.6	6.8	7.3	6.4
Vertical Ball Rebound (m)	0.95	0.93	1.02	1.03	0.92	1.00	1.00	0.96	0.98	0.93	0.97
Horizontal Ball Roll (m)	10.6	10.5	12.6	12.9	9.9	11.8	10.9	11.0	10.5	9.6	11.0
Rotational Resistance (Nm)	34	41	40	41	37	41	36	35	38	36	38

Part 1: Condition Assessment Criteria

Legend	Excellent 3pts	Good 2pts	Fair 1pt	Poor 0pts
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Property	This criteria is based on commonly accepted ranges applicable regardless of age.																		
Impact Tests																			
Critical Fall Height (m)	<	0.80	0.80	to	0.99	1.00	to	1.30	>	1.30									
F1936 G-max (g's)	<	120	120	to	165	166	to	200	>	200									
Player Interaction																			
Force Reduction (%)	<	50	50	to	54	55	to	59	60	to	70	71	to	75	>	75			
Vertical Deformation (mm)	<	3.0	3.0	to	3.9	4.0	to	4.9	5.0	to	10.0	10.1	to	11.0	11.1	to	12.0	>	12.0
Rotational Resistance (Nm)	<	20	20	to	24	25	to	29	30	to	45	46	to	50	51	to	55	>	55
Ball Interaction																			
Vertical Ball Rebound (m)	<	0.50	0.50	to	0.54	0.55	to	0.59	0.60	to	0.85	0.86	to	1.00	1.01	to	1.10	>	1.10
Horizontal Ball Roll (m)	<	3.0	3.0	to	3.9	4.0	to	4.9	5.0	to	8.0	8.1	to	10.0	10.1	to	12.0	>	12.0
Infill Deviation and Surface Regularity																			
Infill Deviation from avg (mm)	<	2.0	2.0	to	5.0	5.1	to	8.0	>	8.0									
Surface Regularity # of deviations found	0	1	to	4	5	to	9	>	10										



ON-SITE TESTING CONDITION ASSESSMENT



Condition Assessment Results

Property	Test Position												
	1	2	3	4	5	6	7	8	9	10	Avg	Min	Max
Impact Tests													
Critical Fall Height (m)	0.97	0.92	0.95	0.90	0.88	0.80	0.88	0.88	0.91	0.84	0.89	0.80	0.97
F1936 g-max (g's)	150	150	154	157	154	167	170	148	166	140	155	140	170
Player Interaction													
Force Reduction (%)	48	53	53	49	53	49	53	54	53	57	52	48	57
Vertical Deformation (mm)	5.5	6.7	6.5	5.6	6.8	5.8	6.6	6.6	6.8	7.3	6.4	5.5	7.3
Rotational Resistance (Nm)	34	41	40	41	37	41	36	35	38	36	38	34	41
Ball Interaction													
Vertical Ball Rebound (m)	0.95	0.93	1.02	1.03	0.92	1.00	1.00	0.96	0.98	0.93	0.97	0.92	1.03
Horizontal Ball Roll (m)	10.6	10.5	12.6	12.9	9.9	11.8	10.9	11.0	10.5	9.6	11.0	9.6	12.9
Infill Deviation and Surface Regularity													
Infill Deviation from avg (mm)	0.7	0.3	0.3	2.7	0.7	1.7	1.3	0.3	0.7	4.3	1.3	0.3	4.3
Surface Regularity # of deviations found	25	This test is not location dependent and applies a uniform score based on the # of deviations.											

Condition Assessment Scorecard

The criteria is based on commonly accepted ranges applicable regardless of age.															
Property	Weight Factor (%)	Test Position										Score		%	
		1	2	3	4	5	6	7	8	9	10				
Impact Tests															
Critical Fall Height (m)	17.5%	1	1	1	1	1	1	1	1	1	1	10	/	30	33%
F1936 g-max (g's)	17.5%	2	2	2	2	2	1	1	2	1	2	17	/	30	57%
Player Interaction															
Force Reduction (%)	12.5%	0	1	1	0	1	0	1	1	1	2	8	/	30	27%
Vertical Deformation (mm)	12.5%	3	3	3	3	3	3	3	3	3	3	30	/	30	100%
Rotational Resistance (Nm)	12.5%	3	3	3	3	3	3	3	3	3	3	30	/	30	100%
Ball Interaction															
Vertical Ball Rebound (m)	7.5%	2	2	1	1	2	2	2	2	2	2	18	/	30	60%
Horizontal Ball Roll (m)	7.5%	1	1	0	0	2	1	1	1	1	2	10	/	30	33%
Infill Deviation and Surface Regularity															
Infill Deviation from avg (mm)	5.0%	3	3	3	2	3	3	3	3	3	2	28	/	30	93%
Surface Regularity # of deviations found	7.5%	0	This test is not location dependent and applies a uniform score based on the # of deviations.									0	/	3	0%
Total Score:														56%	
Grade:														F	

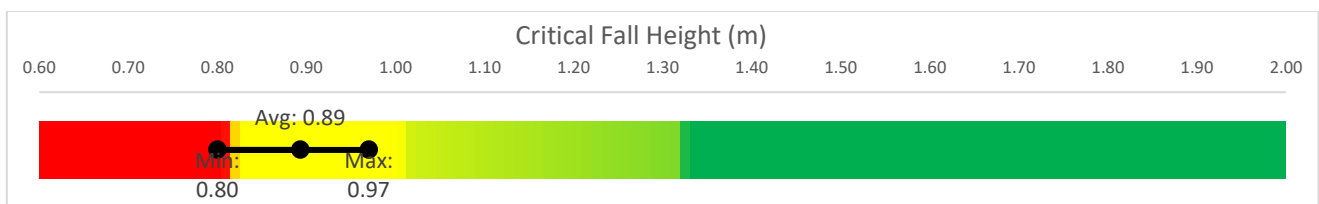
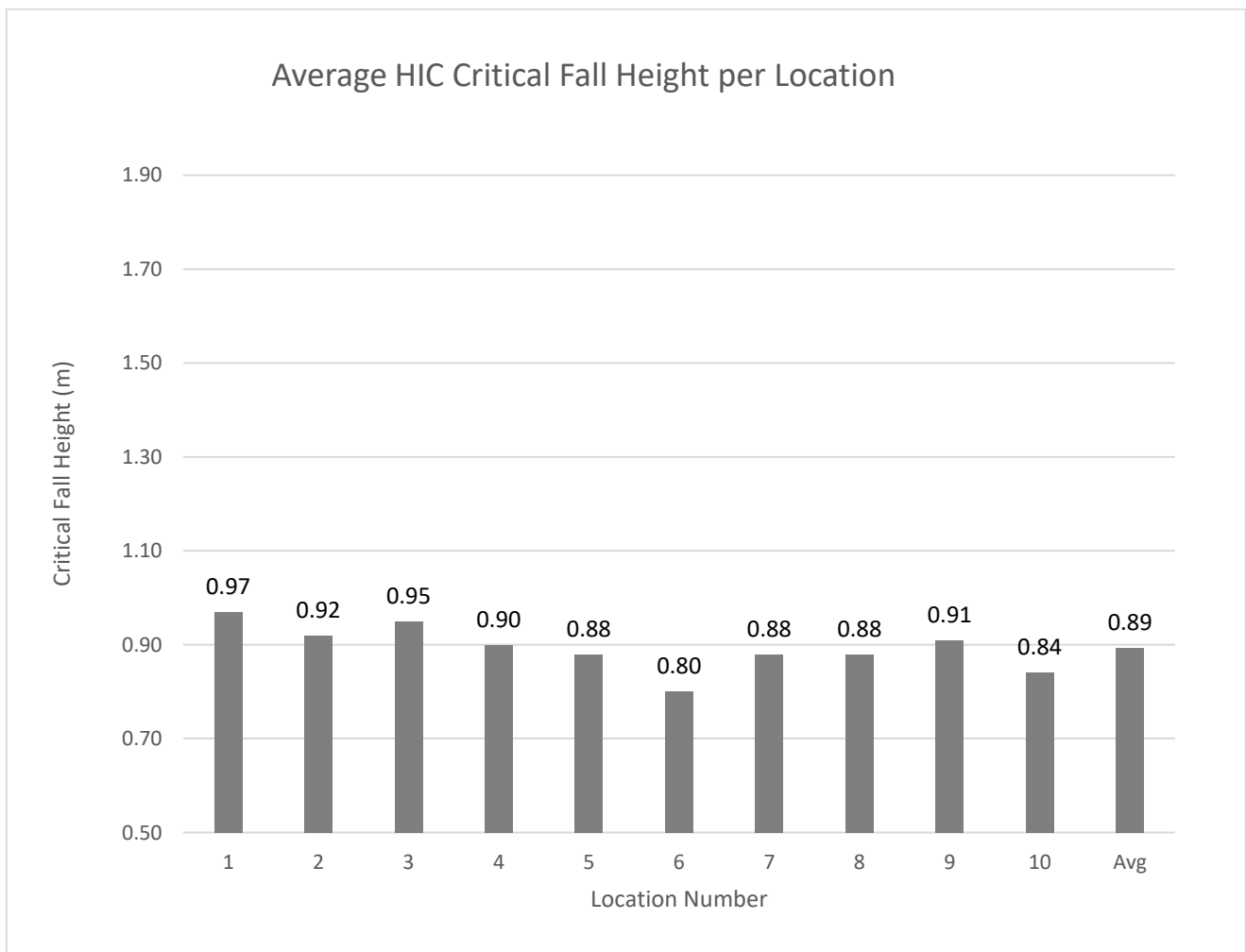


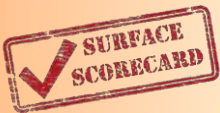


Part 2: Individual Test Background and Results Graphs

HIC Critical Fall Height (Hemispherical Drop Form) – ASTM F3146

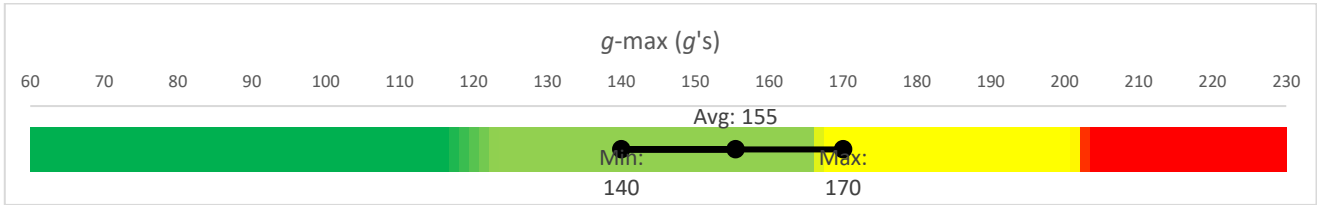
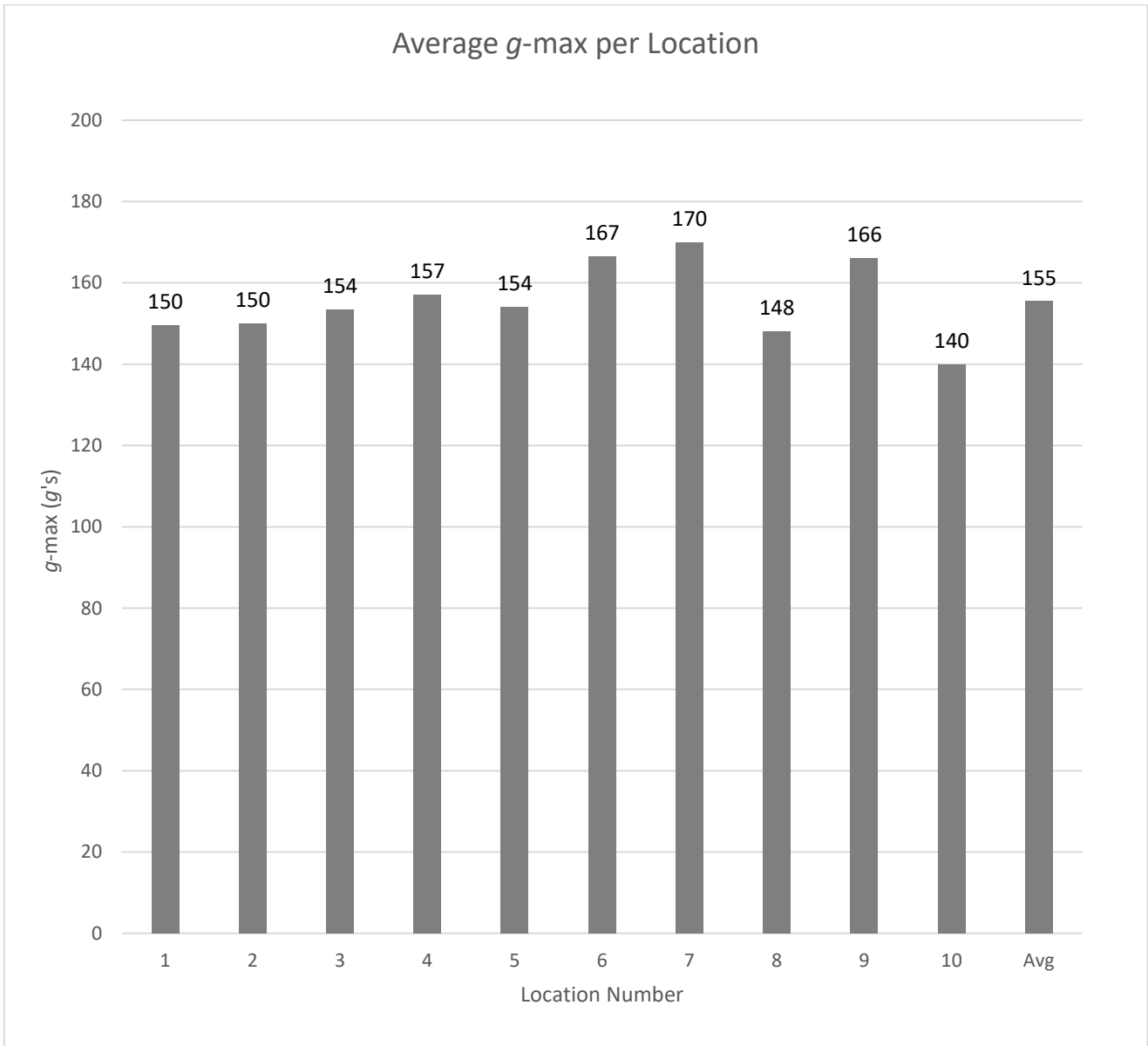
The ASTM F3146 standard establishes a test method to be used when testing a synthetic turf field's impact attenuation property for assessing its suitability for rugby and other sports. The method is similar to the method commonly used for assessing playground surfacing in the United States. The test device calculates the Head Injury Criteria (HIC). This is used to gauge the probability of head injury potential resulting from a surface impact. This device is a hemispherical 10 lb "drop form" with a tri-axial accelerometer. The hemisphere is dropped from (4) different heights to determine the height at which the HIC would be 1000. This height is referred to as the critical fall height. It is recommended that the critical fall height values be greater than 1.3 m. The critical fall heights determined can be found in the graphs below and the Overall Results table above.





Turf Impact Attenuation (g-max) – ASTM F1936

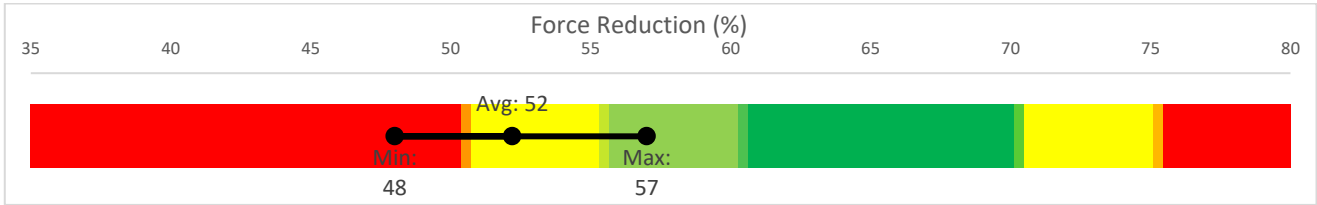
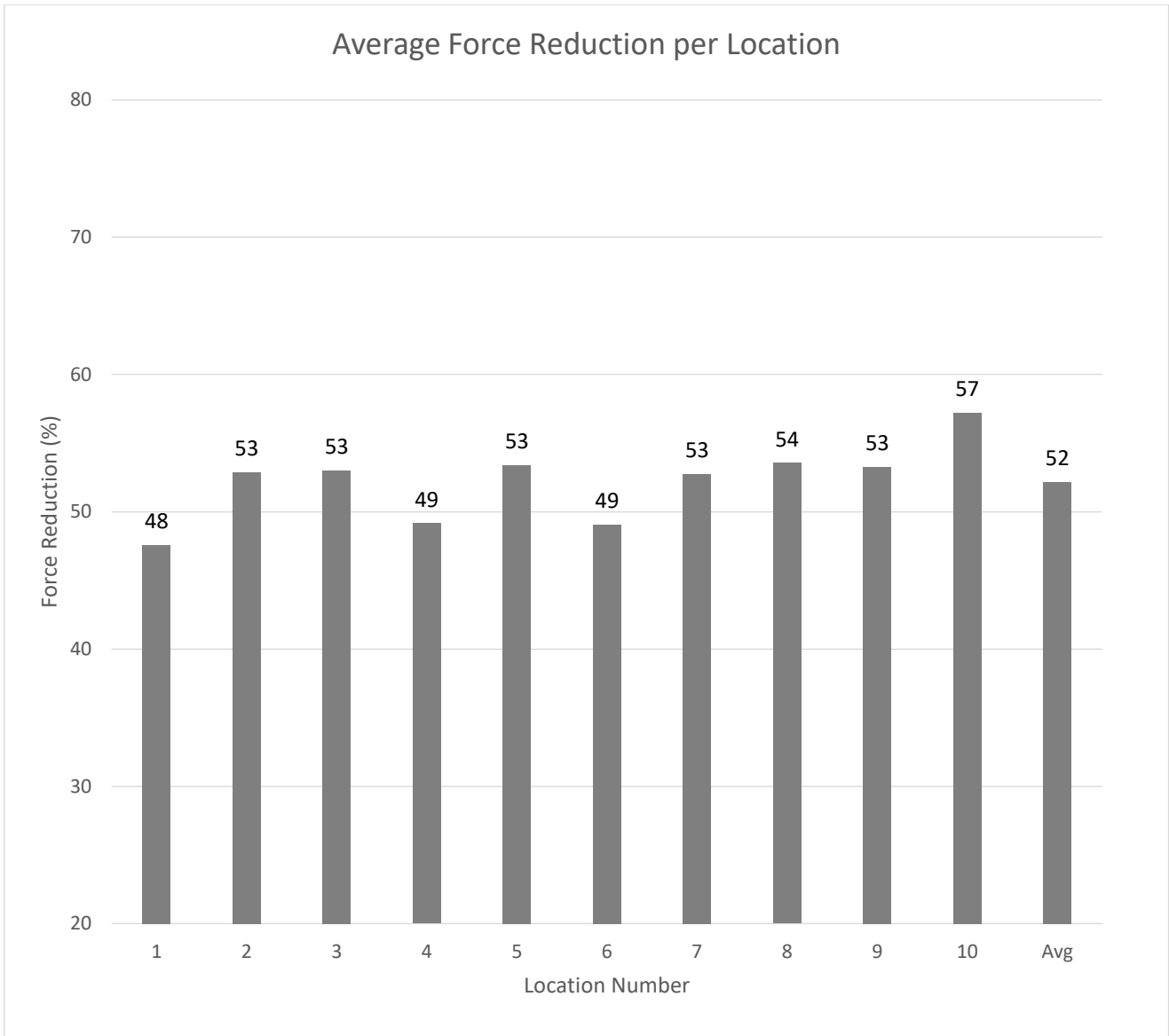
The ASTM F1936 impact attenuation test method specifies the official device / method for assessing the hardness of synthetic turf athletic fields. It is used to gauge impact attenuation based on a predetermined head / body impact. The device uses a 20 lb “drop form” with a tri-axial accelerometer dropped from a height of 24 in. The ASTM recommends that the g-max values be less than 200 g’s. The results can be found in the graphs below and the Overall Results table above.

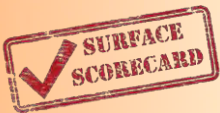




Force Reduction – ASTM F3189 Advanced Artificial Athlete Protocol

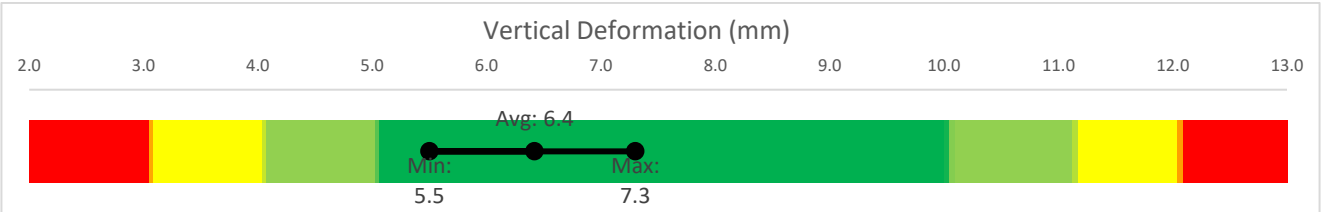
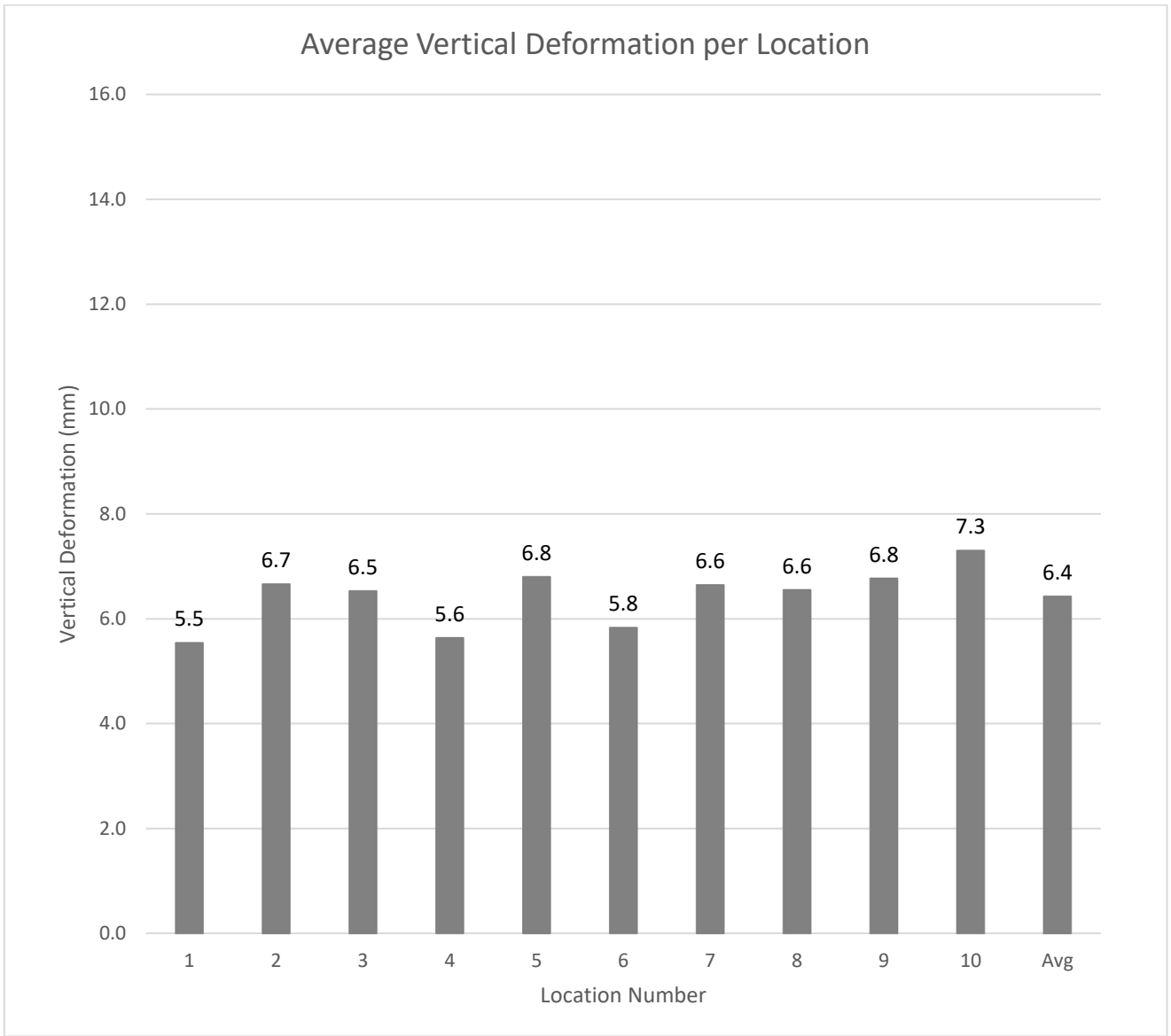
Force Reduction measures the shock absorption provided by the surface to a player under foot as they run. A lower value describes a surface that is harder underfoot and higher value describes a surface that is softer underfoot. As a field ages, these values will become harder (lower) over time. The results can be found in the graphs below and the Overall Results table above.





Vertical Deformation - ASTM F3189 Advanced Artificial Athlete Protocol

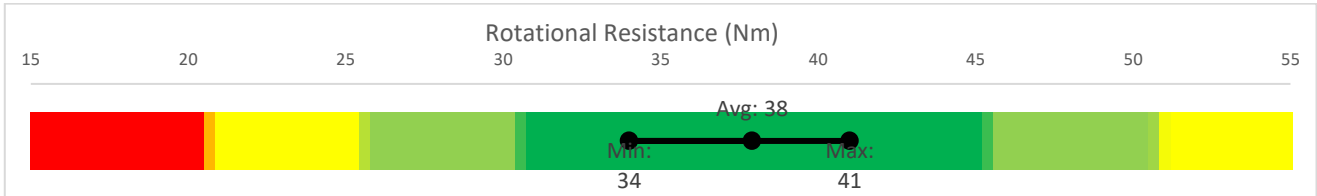
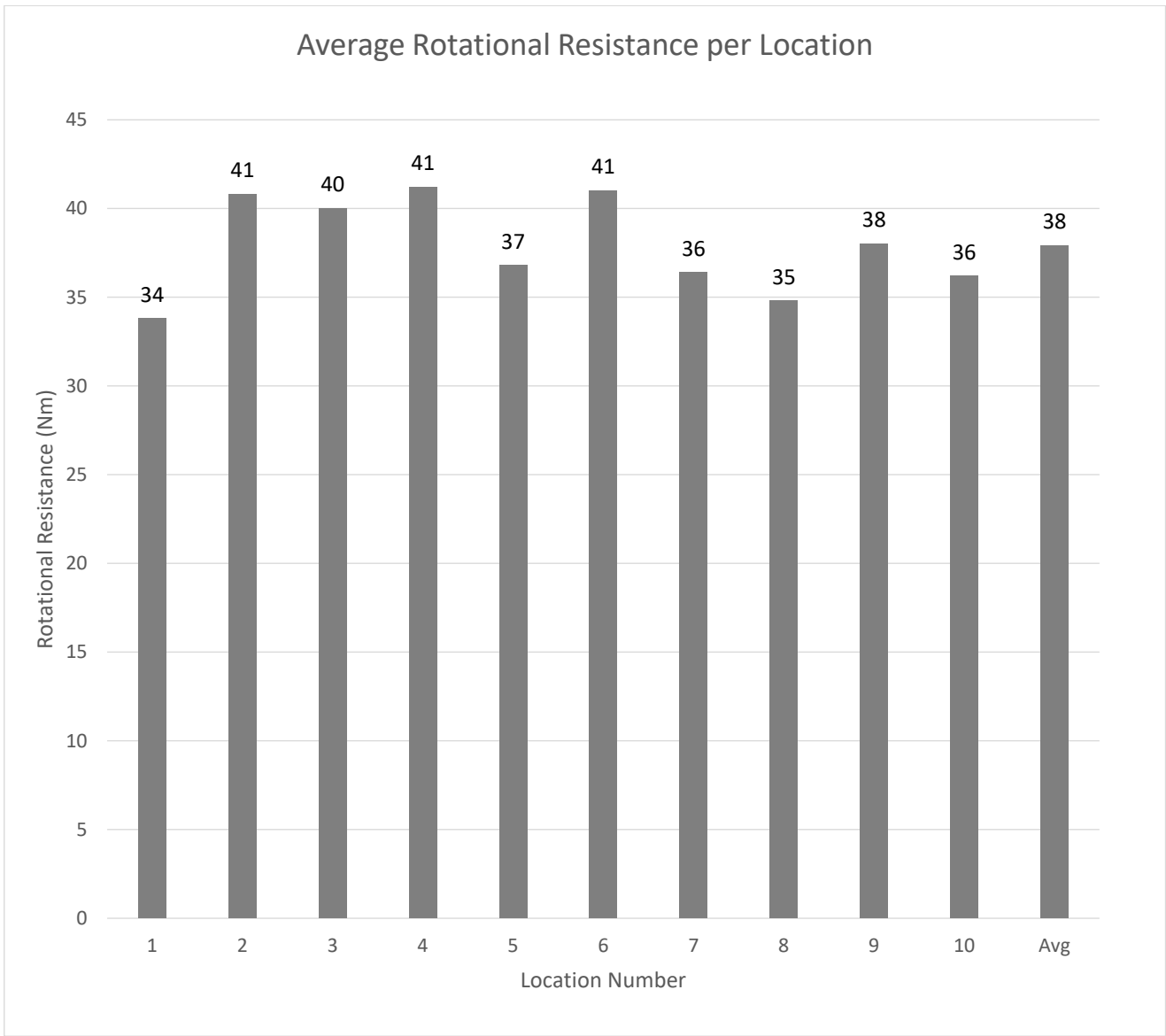
Vertical Deformation measures the amount a surface compresses as an athlete runs across it. This value is often related to speed of play and surface stability. As a field ages, these values will become lower over time. The results can be found in the graphs below and the Overall Results table above.





Rotational Resistance – EN 15301-1

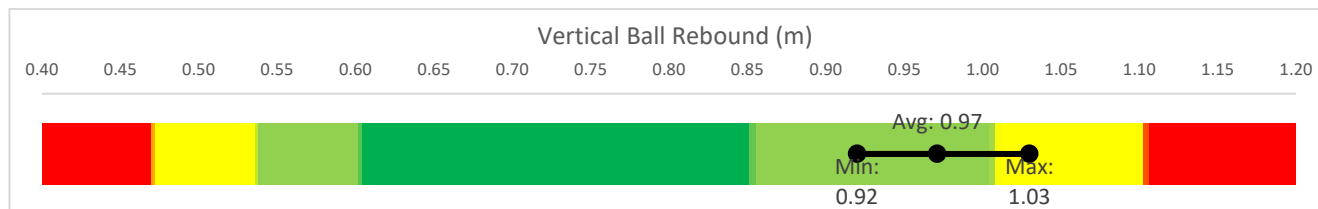
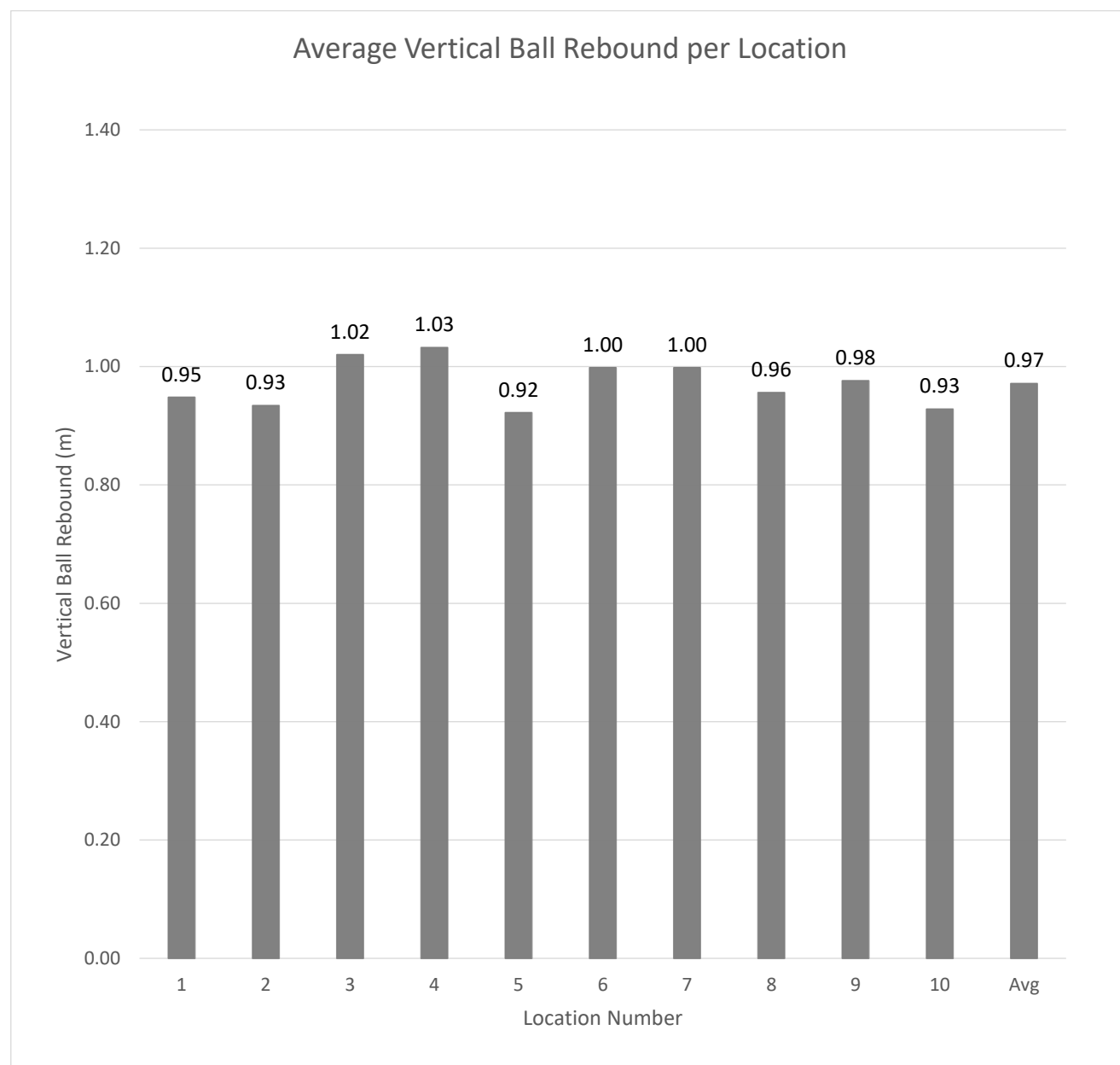
Rotational Resistance measures the torsional resistance of a weighted apparatus with a standard cleat pattern that is rotated on a surface. The resistance is measured 5 times at each test location. A lower value reflects a surface with a low level of cleat release and a higher value describes a surface with more “grab” or cleat resistance. Please note that this test reflects the characteristics of the surface and does not take the athletes footwear into account. Footwear can dramatically impact the resistance experienced by an athlete. The results can be found in the graphs below and the Overall Results table above.





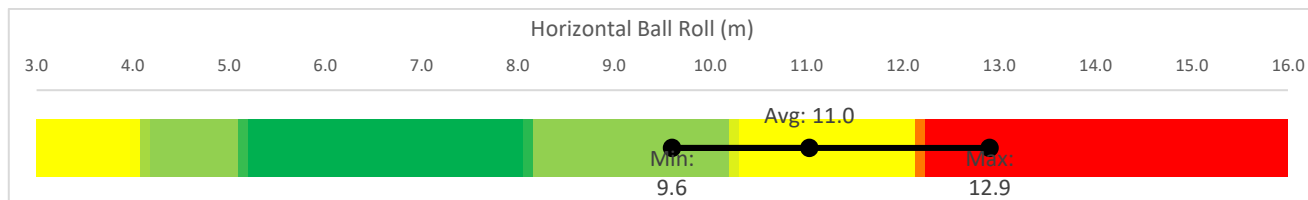
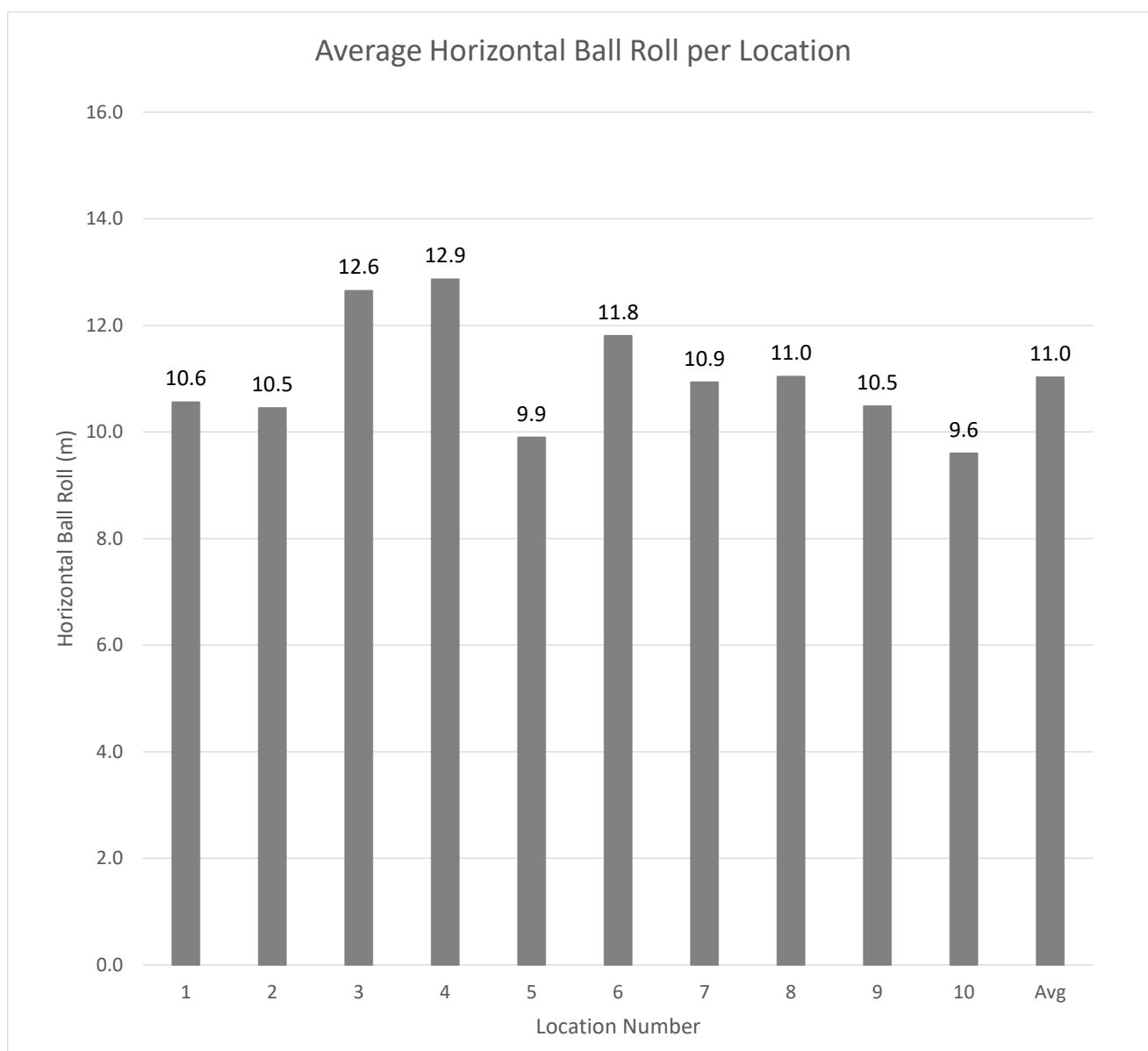
Vertical Ball Rebound - EN 12235

Vertical Ball Rebound measures how high the ball bounces when falling vertically onto a synthetic turf field. A calibrated ball is released from 2 meters and the height of its rebound from the surface is calculated. Typically, as a field ages, these values will increase over time. The results can be found in the graphs below and the Overall Results table above.



Horizontal Ball Roll - EN 12234

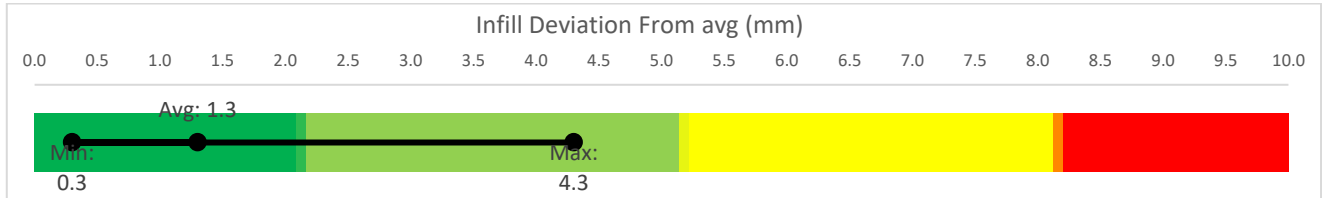
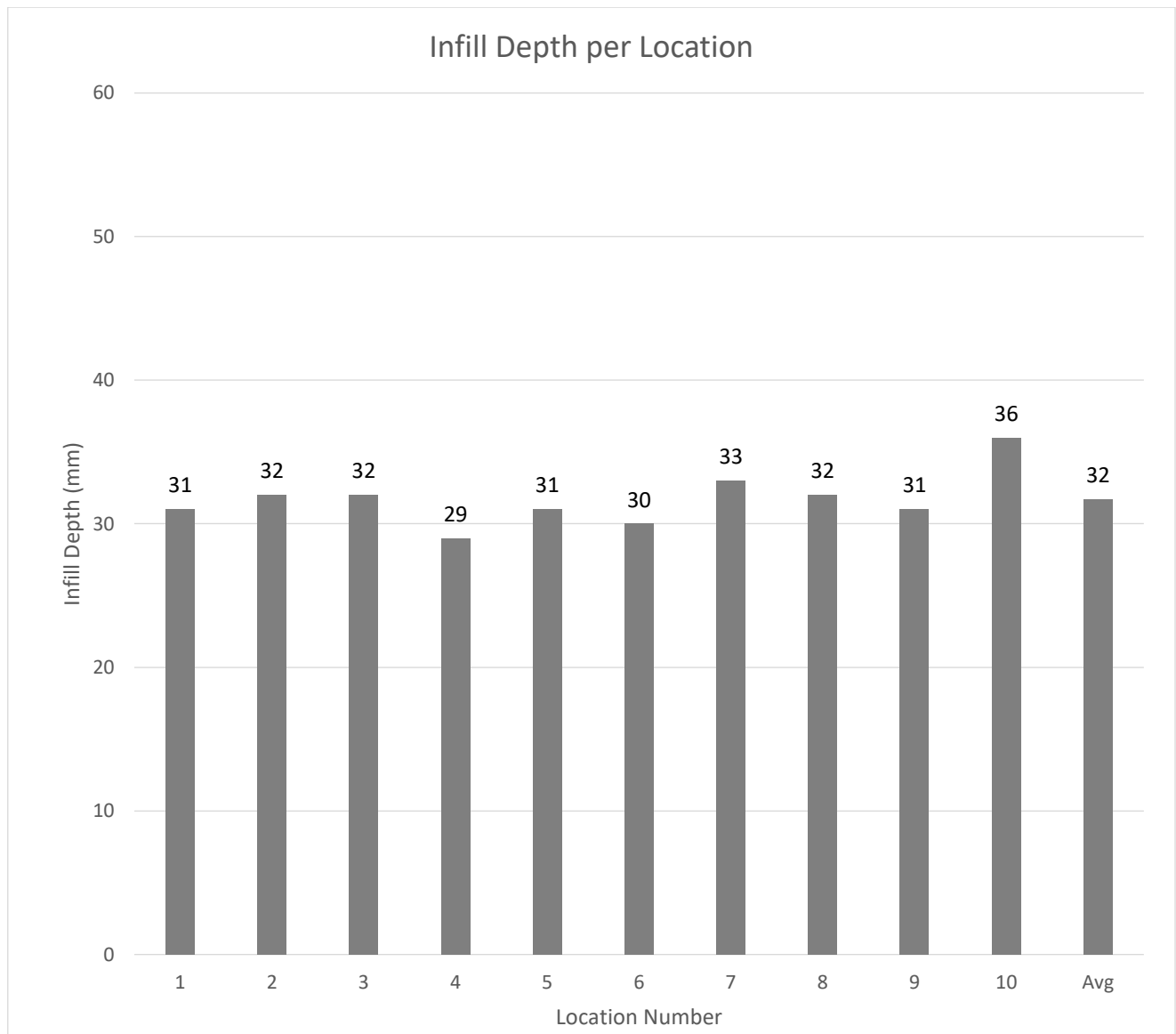
Horizontal Ball Roll measures the distance a ball rolls on synthetic turf. A calibrated ball is rolled off a specified ball ramp. The ball is rolled 3 times in 4 directions at each location. These values are used to determine the location average. The results can be found in the graphs below and the Overall Results table above.





Infill Depth Evaluation – EN 1969

Infill depth measurements were taken at each location. This test determines the depth and distribution of infill. A lack of infill and/or an uneven distribution of infill can lead accelerated fiber degradation and differential wear. The results can be found in the graphs below and the Overall Results table above. Additional infill depth information has been included on the following page.



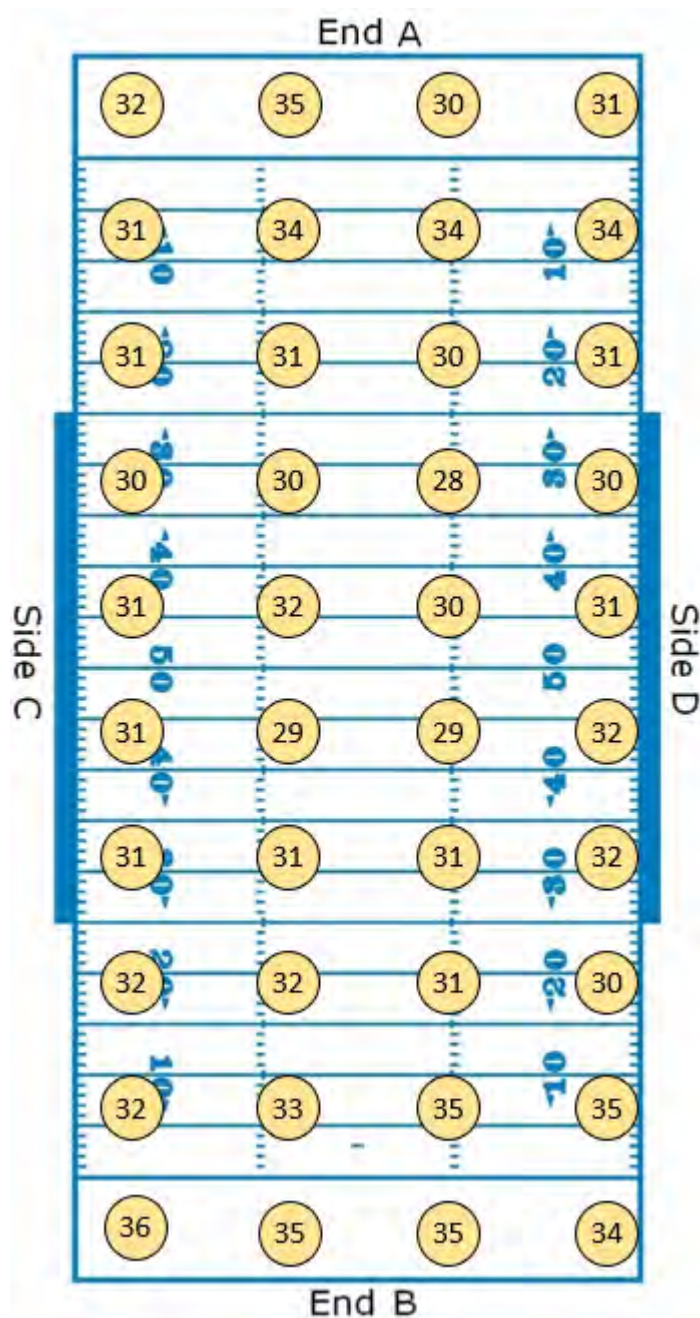
ON-SITE TESTING CONDITION ASSESSMENT



40 Infill Depth Evaluation – EN 1969

Additional infill depth measurements were taken at each of 40 locations distributed evenly across the field. These results are supplemental to the 10 infill depths included in the Overall Results table. The results and location map can be found below.

Infill Depth (mm)	Average	(min)	Range	(max)
	32	28	to	36

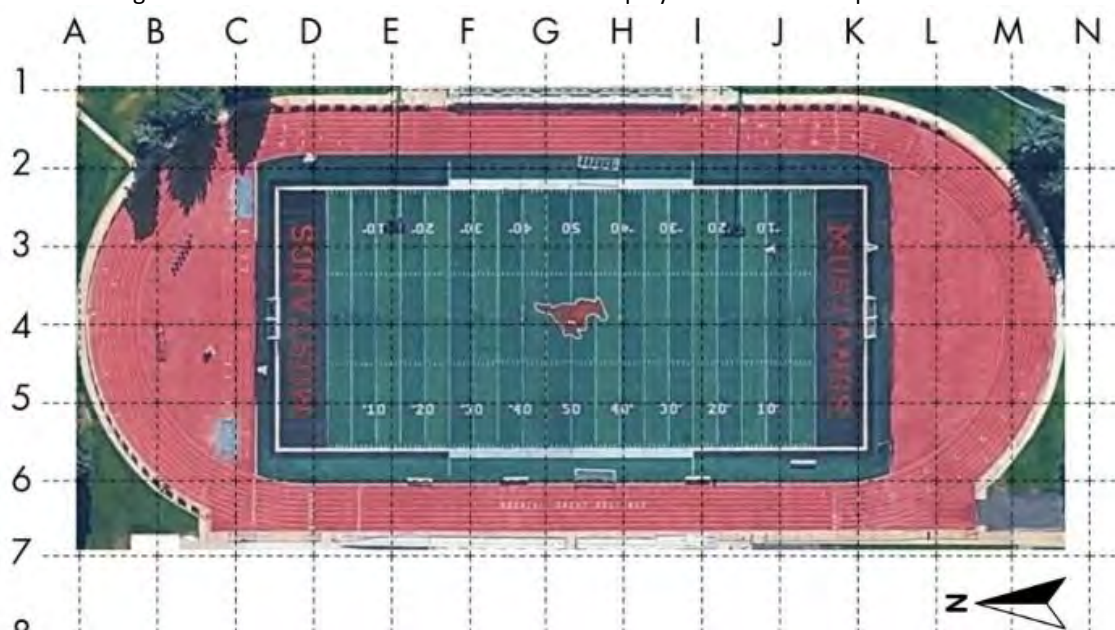


ON-SITE TESTING CONDITION ASSESSMENT



Surface Regularity – EN 13036-7

This test evaluates the planarity and evenness of a surface. A 3-meter straight edge is used to check for positive and negative deviations greater than 10 mm across the entire field of play. A reference map can be found below.



X	Y	Depth (mm)	Length, X (ft)	Width, Y (ft)	Deviation Type	Comments
C.5	5.6		0.6	1	Repair	
D.3	3.4		0.5	1	FW - Worn Fibers (High wear)	
D.4	3.9		3	2	Repair	
D.6	3.9		4.5	3.5	Repair	
D.9	3.9		3.5	1.5	Repair	
D.9	4.3		0.5	0.3	FW - Worn Fibers (High wear)	
E.4	4.2		0.5	0.3	Repair	
E.4	3.9		4	0.3	Repair	
F.1	3.9		7	0.4	Repair	
F.2	4.2		0.8	0.8	Repair	
F.2	4.3		0.5	10	Repair	
F.6	5.5		0.2	0.5	FW - Worn Fibers (High wear)	
F.7	3.9		2.5	2	Repair	
F.5	2.3		1	3	Discoloration	
H.0	3.9		0.5	0.5	Repair	
I.6	4.3		20	1	Discoloration	
I.8	3.9		2	1	Repair	
J.2	3.9		5	2.5	Repair	
J.4	3.9		3	1.5	Repair	
C.5-M	2-6		360	180	DO-Other	Matted fibers
C.5	5.8	11	0.5	0.25	Lxx – Low spot of -XX mm	
J.3	4.5	10	2	1	Lxx – Low spot of -XX mm	
J.7	3.7	11	3	1	Lxx – Low spot of -XX mm	
F.7	3.6	14	6.5	1.5	Lxx – Low spot of -XX mm	
C.5	2	14	8	4.5	Hxx – High spot of +XX mm	



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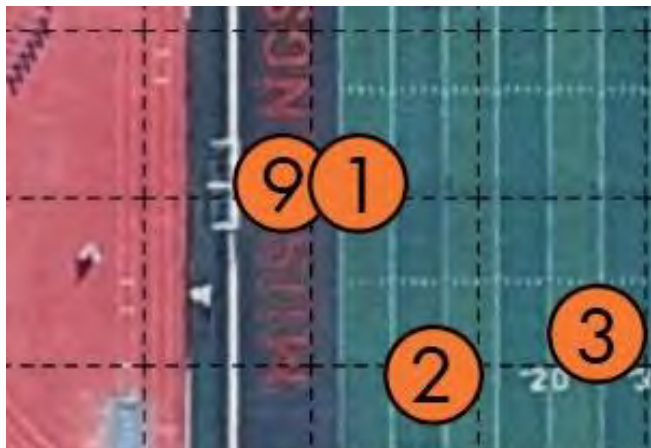
ON-SITE TESTING CONDITION ASSESSMENT



Testing Location Photo Sequence

Photos have been taken at each location and are displayed below.

Location #1



Location Map



3" to 6" Height Photo



Shin Height Photo



Chest Height Photo



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Location #2



Location Map



3" to 6" Height Photo



Shin Height Photo



Chest Height Photo



Location #3



Location Map



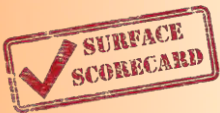
3" to 6" Height Photo



Shin Height Photo



Chest Height Photo



Location #4



Location Map



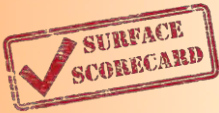
3" to 6" Height Photo



Shin Height Photo



Chest Height Photo



Location #5



Location Map



3" to 6" Height Photo



Shin Height Photo



Chest Height Photo





Location #6



Location Map



3" to 6" Height Photo



Shin Height Photo

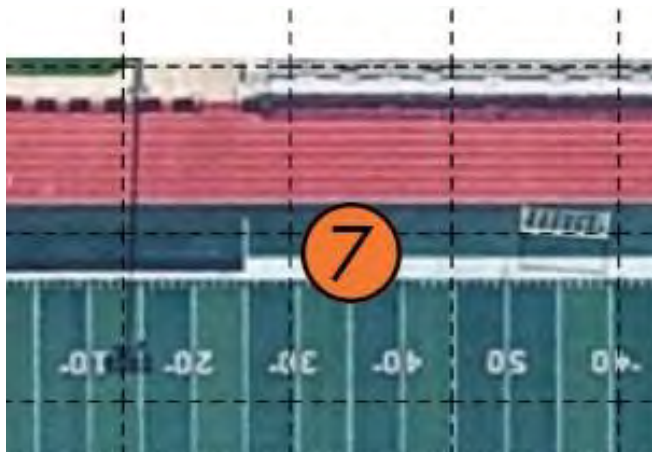


Chest Height Photo

ON-SITE TESTING CONDITION ASSESSMENT



Location #7



Location Map



3" to 6" Height Photo

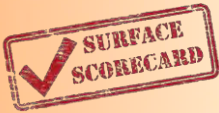


Shin Height Photo



Chest Height Photo





Location #8



Location Map



3" to 6" Height Photo



Shin Height Photo



Chest Height Photo





Location #9



Location Map



3" to 6" Height Photo



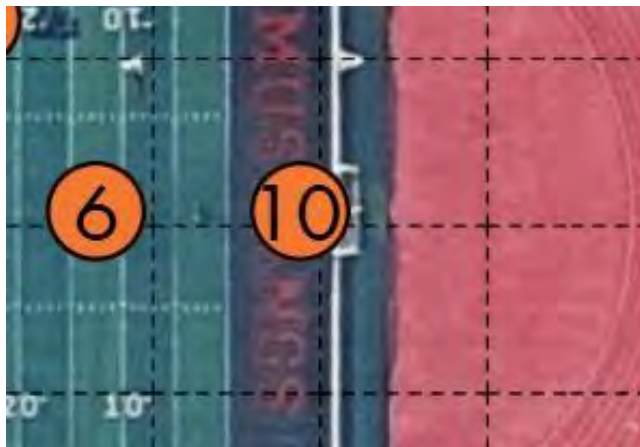
Shin Height Photo



Chest Height Photo



Location #10



Location Map



3" to 6" Height Photo



Shin Height Photo



Chest Height Photo

End of Report

ON-SITE TESTING CONDITION ASSESSMENT



Project Information

Job No	102042/12216s		Test Date	6/10/2026	
Field Reference	Ridgeline High School Stadium Field		Client	Cache Country School District	
Field Address	180 North 300 West Millville, UT 84326		Client Address	84 E 2400 North North Logan, UT 84341	
Report Date	6/22/2026		Project Manager	Michael Rocheleau	
Report Status	Final		Technician(s)	Keegan Sanborn Brian Carter	
Substrate Type	n/a		Field Orientation	End A= South	
Product Name	n/p		Infill Type	Rubber & Sand	
Pile Height (mm)	n/p		Shock Pad	None	
	AM	PM		AM	PM
Air Temperature (°F)	n/a	70	Humidity (%)	n/a	19
Surface Temperature (°F)	n/a	108.3	Wind Speed (mph)	n/a	14
Weather Conditions	Clear & Sunny		Test Condition	Dry	

Notes:

1. This report has been prepared by Firefly Sports Testing with all reasonable skill, care and diligence within the terms of the contract with the Client and within the limitations of the resources devoted to it.
2. This report is confidential to the Client and Firefly Sports Testing accepts no responsibility whatsoever to third parties to whom this report, or any part thereof, is made known. Any such party relies upon the report at their own risk.
3. This report shall not be used for engineering or contractual purposes unless signed by the Author and the Checker and unless the report status is "Final."

Background

Firefly Sports Testing was commissioned to perform this on-site condition assessment per the protocol developed by Firefly Sports Testing. Standard test methods are performed together and held against a scoring system to provide a quantitative look at a range of important attributes. This broader perspective allows for more informed decision making.

Assessment Introduction

At Firefly Sports Testing we understand the need for a qualitative approach to a quantitative assessment of sports surface condition. Therefore, we have created our surface scorecard condition assessment program. We have used our experience of testing thousands of surfaces to provide a qualitative look at surface condition using quantitative indicators.

This report has two main parts. The first part is the surface scorecard. This surface scorecard is a subjective scoring system that uses criteria based on commonly accepted ranges regardless of age to assess field condition.

Our surface scorecard is a cumulative point system that will yield a letter grade to reflect your surface's condition. The points awarded are based on 9 different surface properties tested / measured on-site. The results from each test are measured against four corresponding ranges of values to score each result. The ranges are classified as Poor (0 points), Fair (1 point), Good (2 points) and Excellent (3 points). This can be viewed in the results criteria.

Since each property has a different importance, it is assigned a "weight factor" based on the intended use and significance to the overall condition of the surface. For example, the impact safety tests have the highest weight factor. The weight factor can be viewed in the scorecard table.

The second part of this report contains background information and results graphs for each test performed. If you are not familiar with surface performance testing, then part 2 might be a good place to start to gain an understanding of the tests applied to the surface scorecard.





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Methods used within this assessment:

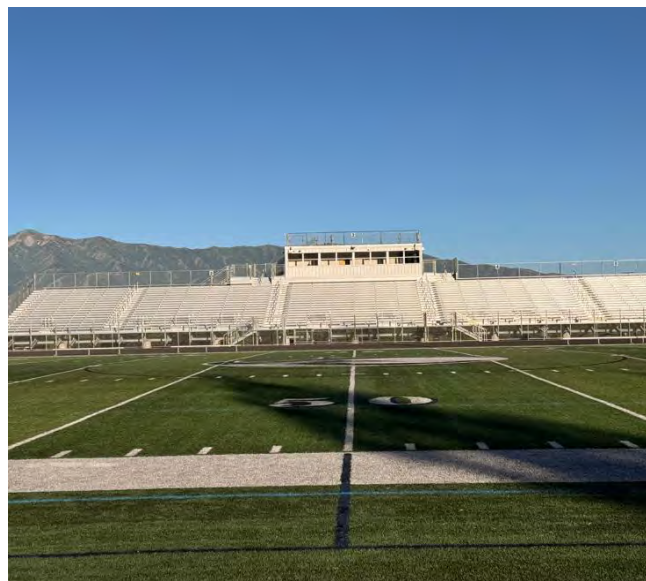
Test Type	Test Method	Test Description
Critical Fall Height	ASTM F3146-18	Standard Test Method for Impact Attenuation of Turf Playing Systems Designated for Rugby
<i>g</i>-max	ASTM F1936-19	Standard Specification for Impact Attenuation of Turf Playing Systems as Measured in the Field
Infill Depths	EN 1969:2000	Surfaces for Sports Areas – Determination of Thickness of Synthetic Sports Surfaces
AAA	ASTM F3189-20	Standard Test Method for Measuring Force Reduction, Vertical Deformation, and Energy Restitution of Synthetic Turf Systems Using the Advanced Artificial Athlete
Vertical Ball Rebound	EN 12235:2013	Surfaces for Sports Areas – Determination of Vertical Ball Behavior.
Ball Roll	EN 12234:2013	Surfaces for Sports Areas – Determination of Ball Roll Behavior <i>Modified: windspeeds exceeded maximum velocity during time of testing</i>
Rotational Resistance	EN 15301-1:2007	Surfaces for Sports Areas- Part 1: Determination of Rotational Resistance <i>Modified: Lightweight rotational resistance apparatus used</i>
Planarity	EN 13036-7:2003	Road and Airfield Surface Characteristics – Irregularity Measurement of Pavement Courses – The Straightedge Test

For the benefit of comparison, each of these tests were performed on the same locations specified by ASTM F1936. Therefore, many of these methods Results graphs and background information can be found in part 2 of this report.

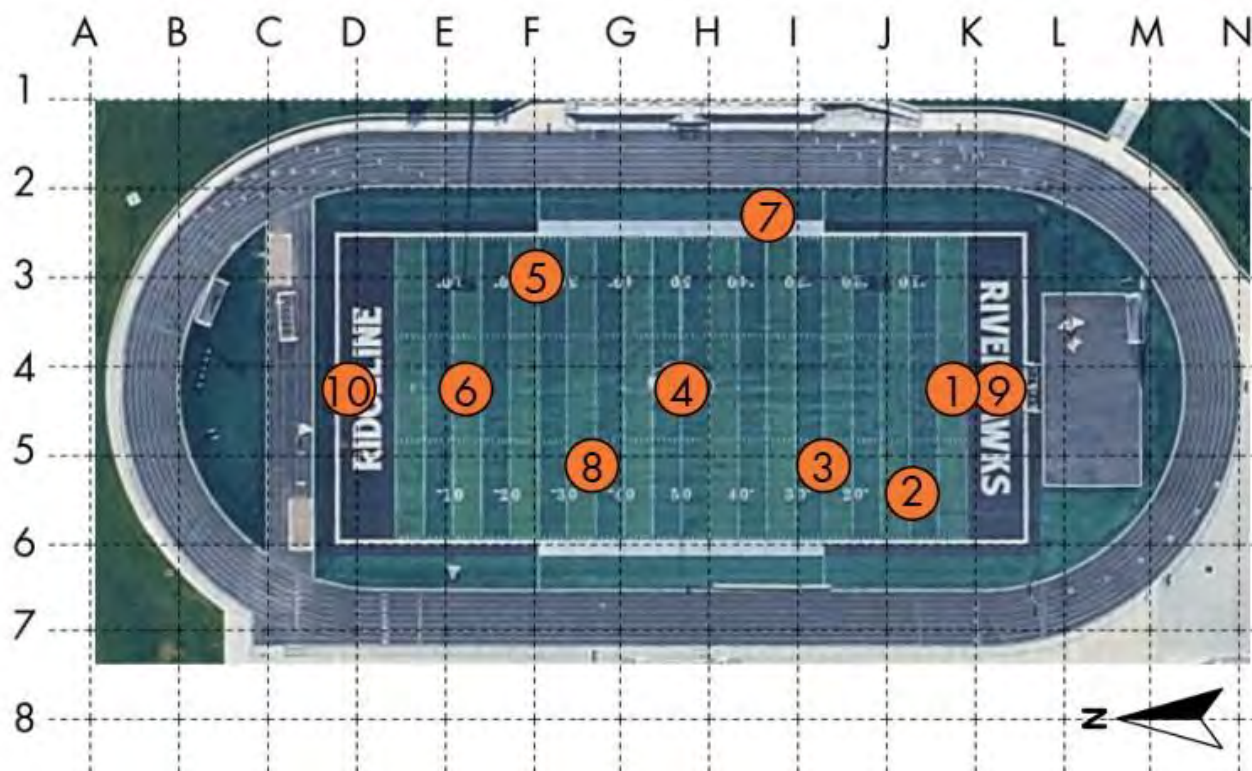
ON-SITE TESTING CONDITION ASSESSMENT



Overall Photos



Location Map



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ON-SITE TESTING CONDITION ASSESSMENT



Overall Results

Below are the results of each of the tests performed per location along with a field average. Background and results graphs for each test can be found in part 2 of this report.

Property	Test Position										
	1	2	3	4	5	6	7	8	9	10	Avg
Critical Fall Height (m)	0.84	0.91	0.86	0.81	0.93	0.82	0.90	0.90	0.94	0.89	0.88
F1936 g-max (g's)	148	139	132	168	133	135	146	144	127	138	141
Infill Depth (mm)	36	38	36	33	38	38	37	37	37	36	37
Force Reduction (%)	47	56	53	50	57	52	52	56	53	54	53
Vertical Deformation (mm)	5.8	7.3	7.1	6.3	7.7	6.6	6.6	7.5	6.8	6.9	6.8
Vertical Ball Rebound (m)	0.89	0.91	0.84	1.01	0.89	0.84	0.99	0.89	0.96	0.95	0.92
Horizontal Ball Roll (m)	10.3	10.0	10.3	11.5	10.0	10.5	9.0	9.2	9.6	12.1	10.2
Rotational Resistance (Nm)	32	28	27	33	26	28	29	26	31	27	29

Part 1: Condition Assessment Criteria

Legend	Excellent 3pts	Good 2pts	Fair 1pt	Poor 0pts
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Property	This criteria is based on commonly accepted ranges applicable regardless of age.																		
Impact Tests																			
Critical Fall Height (m)	<	0.80	0.80	to	0.99	1.00	to	1.30	>	1.30									
F1936 G-max (g's)	<	120	120	to	165	166	to	200	>	200									
Player Interaction																			
Force Reduction (%)	<	50	50	to	54	55	to	59	60	to	70	71	to	75	>	75			
Vertical Deformation (mm)	<	3.0	3.0	to	3.9	4.0	to	4.9	5.0	to	10.0	10.1	to	11.0	11.1	to	12.0	>	12.0
Rotational Resistance (Nm)	<	20	20	to	24	25	to	29	30	to	45	46	to	50	51	to	55	>	55
Ball Interaction																			
Vertical Ball Rebound (m)	<	0.50	0.50	to	0.54	0.55	to	0.59	0.60	to	0.85	0.86	to	1.00	1.01	to	1.10	>	1.10
Horizontal Ball Roll (m)	<	3.0	3.0	to	3.9	4.0	to	4.9	5.0	to	8.0	8.1	to	10.0	10.1	to	12.0	>	12.0
Infill Deviation and Surface Regularity																			
Infill Deviation from avg (mm)	<	2.0	2.0	to	5.0	5.1	to	8.0	>	8.0									
Surface Regularity # of deviations found	0	1	to	4	5	to	9	>	10										



ON-SITE TESTING CONDITION ASSESSMENT



Condition Assessment Results

Property	Test Position												
	1	2	3	4	5	6	7	8	9	10	Avg	Min	Max
Impact Tests													
Critical Fall Height (m)	0.84	0.91	0.86	0.81	0.93	0.82	0.90	0.90	0.94	0.89	0.88	0.81	0.94
F1936 g-max (g's)	148	139	132	168	133	135	146	144	127	138	141	127	168
Player Interaction													
Force Reduction (%)	47	56	53	50	57	52	52	56	53	54	53	47	57
Vertical Deformation (mm)	5.8	7.3	7.1	6.3	7.7	6.6	6.6	7.5	6.8	6.9	6.9	5.8	7.7
Rotational Resistance (Nm)	32	28	27	33	26	28	29	26	31	27	29	26	33
Ball Interaction													
Vertical Ball Rebound (m)	0.89	0.91	0.84	1.01	0.89	0.84	0.99	0.89	0.96	0.95	0.92	0.84	1.01
Horizontal Ball Roll (m)	10.3	10.0	10.3	11.5	10.0	10.5	9.0	9.2	9.6	12.1	10.2	9.0	12.1
Infill Deviation and Surface Regularity													
Infill Deviation from avg (mm)	0.6	1.4	0.6	3.6	1.4	1.4	0.4	0.4	0.4	0.6	1.1	0.4	3.6
Surface Regularity # of deviations found	17	This test is not location dependent and applies a uniform score based on the # of deviations.											

Condition Assessment Scorecard

The criteria is based on commonly accepted ranges applicable regardless of age.															
Property	Weight Factor (%)	Test Position										Score		%	
		1	2	3	4	5	6	7	8	9	10				
Impact Tests															
Critical Fall Height (m)	17.5%	1	1	1	1	1	1	1	1	1	1	10	/	30	33%
F1936 g-max (g's)	17.5%	2	2	2	1	2	2	2	2	2	2	19	/	30	63%
Player Interaction															
Force Reduction (%)	12.5%	0	2	1	1	2	1	1	2	1	1	12	/	30	40%
Vertical Deformation (mm)	12.5%	3	3	3	3	3	3	3	3	3	3	30	/	30	100%
Rotational Resistance (Nm)	12.5%	3	2	2	3	2	2	2	2	3	2	23	/	30	77%
Ball Interaction															
Vertical Ball Rebound (m)	7.5%	2	2	3	1	2	3	2	2	2	2	21	/	30	70%
Horizontal Ball Roll (m)	7.5%	1	2	1	1	2	1	2	2	2	0	14	/	30	47%
Infill Deviation and Surface Regularity															
Infill Deviation from avg (mm)	5.0%	3	3	3	2	3	3	3	3	3	3	29	/	30	97%
Surface Regularity # of deviations found	7.5%	0	This test is not location dependent and applies a uniform score based on the # of deviations.									0	/	3	0%
Total Score:														58%	
Grade:														F	



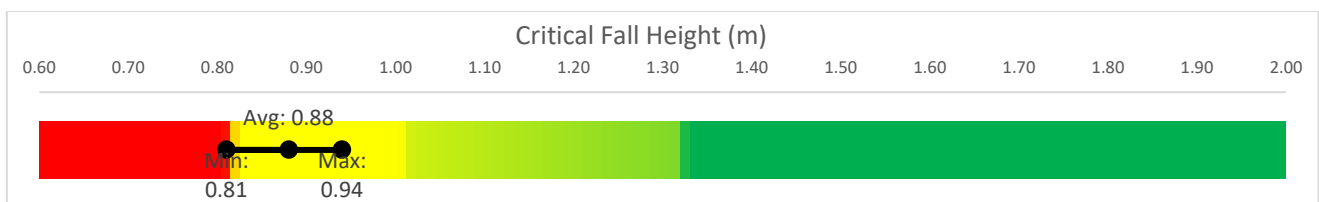
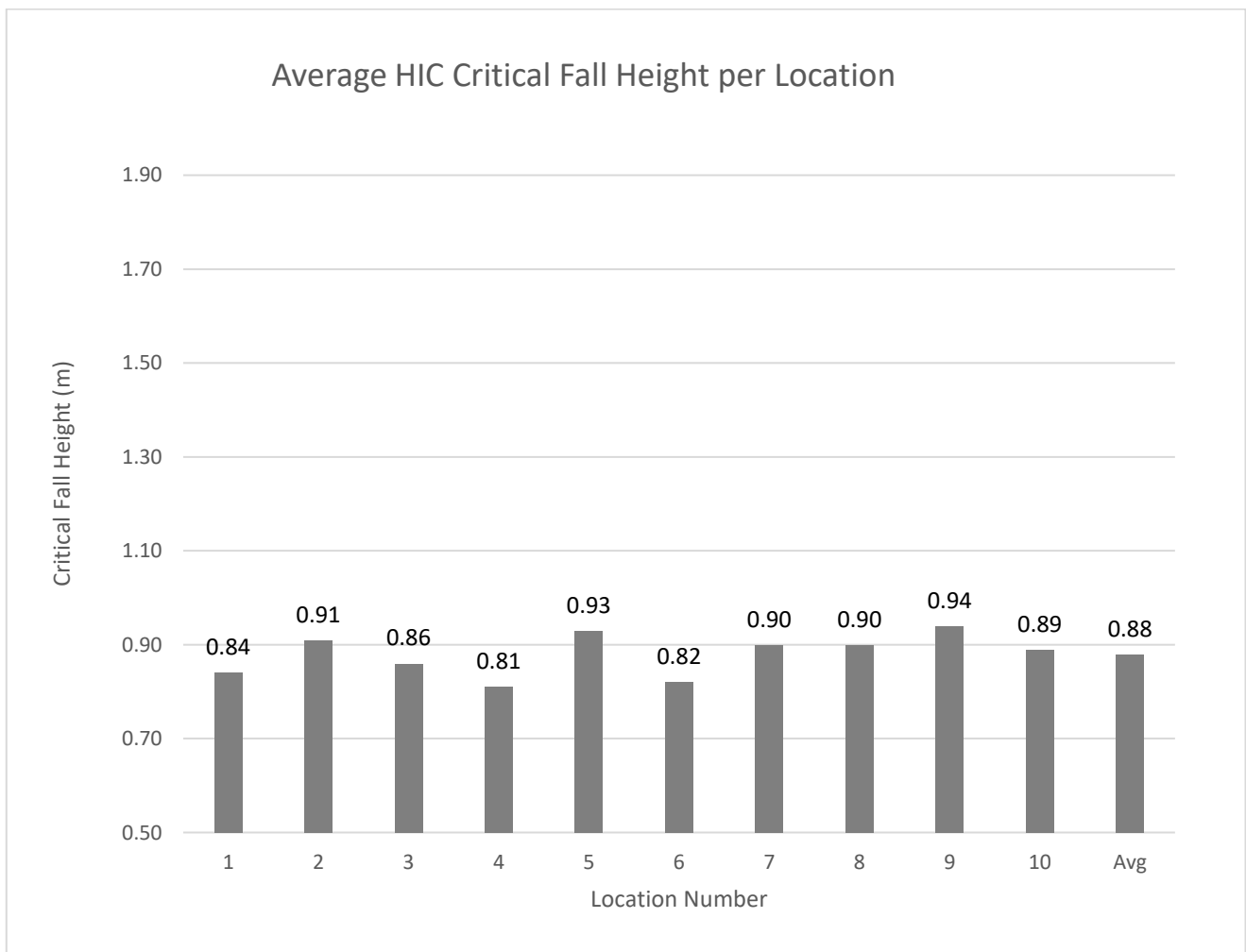
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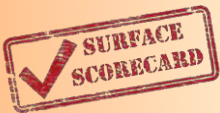


Part 2: Individual Test Background and Results Graphs

HIC Critical Fall Height (Hemispherical Drop Form) – ASTM F3146

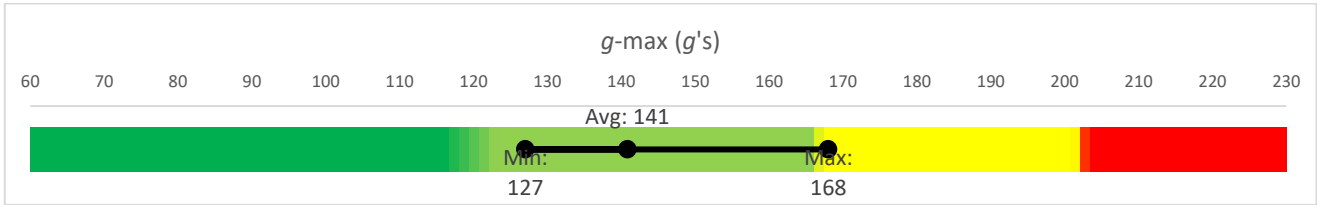
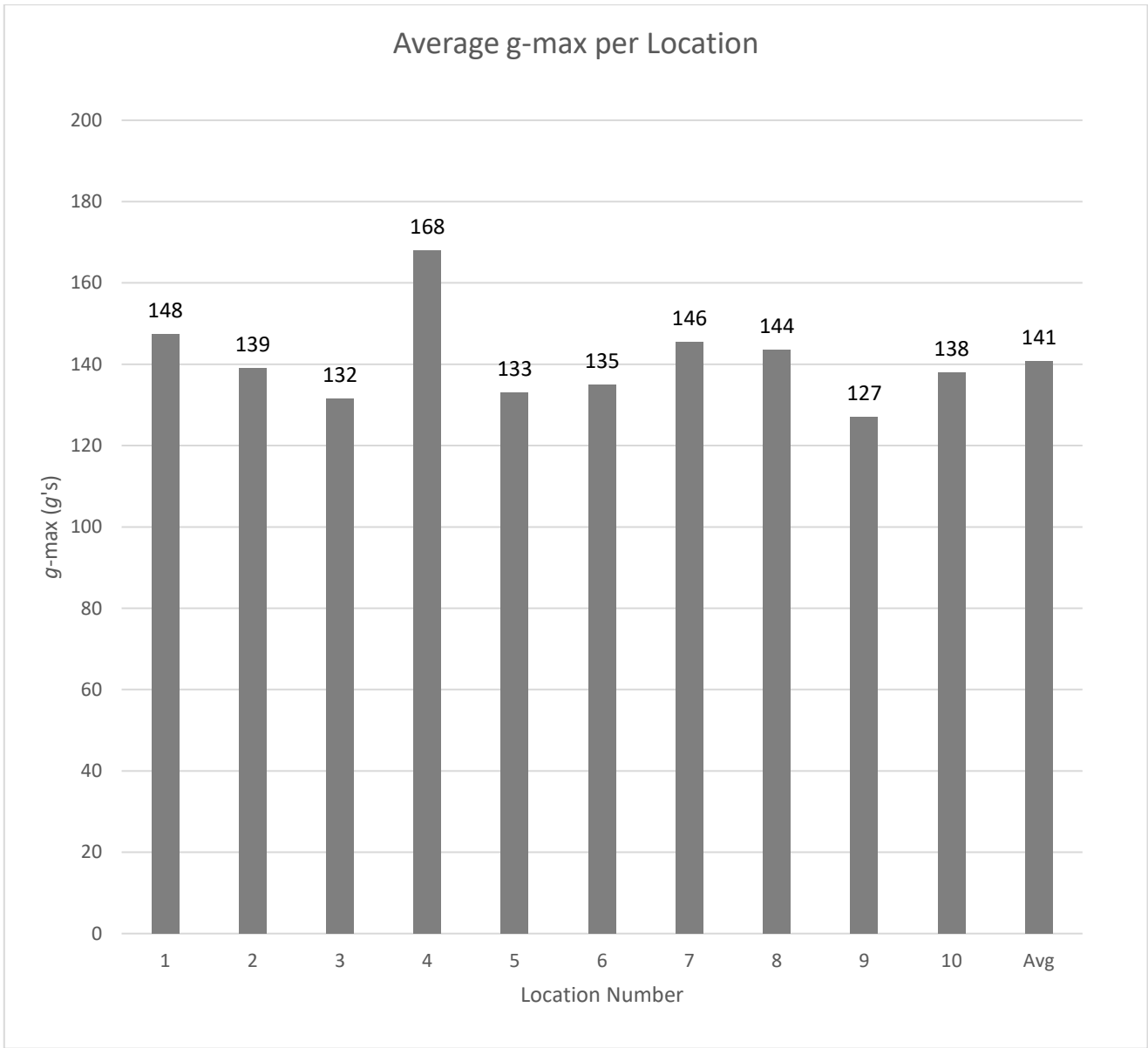
The ASTM F3146 standard establishes a test method to be used when testing a synthetic turf field's impact attenuation property for assessing its suitability for rugby and other sports. The method is similar to the method commonly used for assessing playground surfacing in the United States. The test device calculates the Head Injury Criteria (HIC). This is used to gauge the probability of head injury potential resulting from a surface impact. This device is a hemispherical 10 lb "drop form" with a tri-axial accelerometer. The hemisphere is dropped from (4) different heights to determine the height at which the HIC would be 1000. This height is referred to as the critical fall height. It is recommended that the critical fall height values be greater than 1.3 m. The critical fall heights determined can be found in the graphs below and the Overall Results table above.





Turf Impact Attenuation (g-max) – ASTM F1936

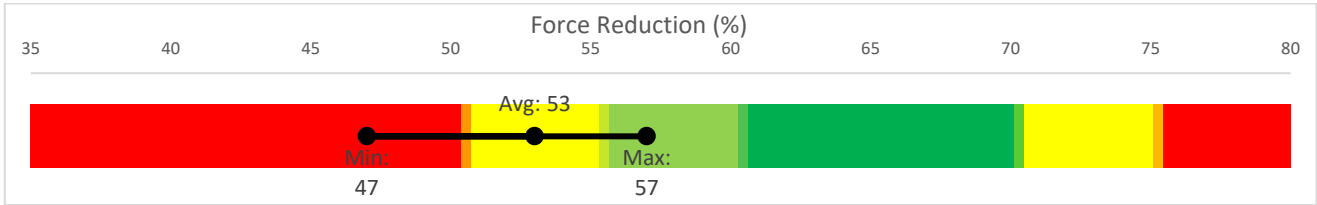
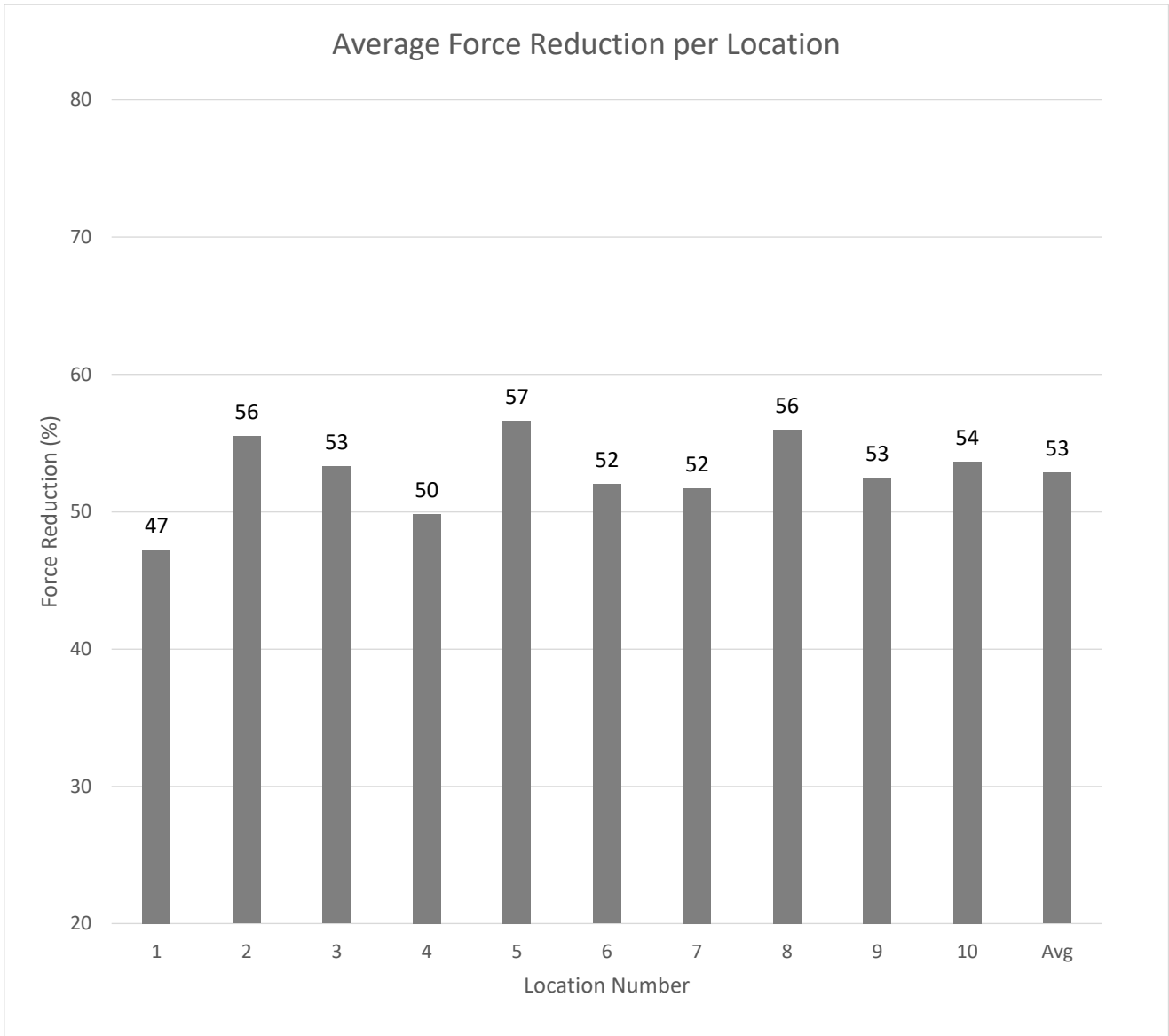
The ASTM F1936 impact attenuation test method specifies the official device / method for assessing the hardness of synthetic turf athletic fields. It is used to gauge impact attenuation based on a predetermined head / body impact. The device uses a 20 lb “drop form” with a tri-axial accelerometer dropped from a height of 24 in. The ASTM recommends that the g-max values be less than 200 g’s. The results can be found in the graphs below and the Overall Results table above.

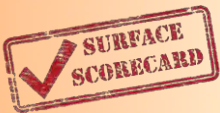




Force Reduction – ASTM F3189 Advanced Artificial Athlete Protocol

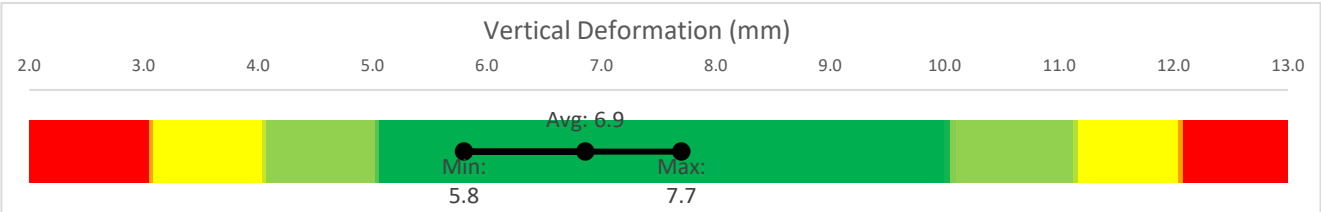
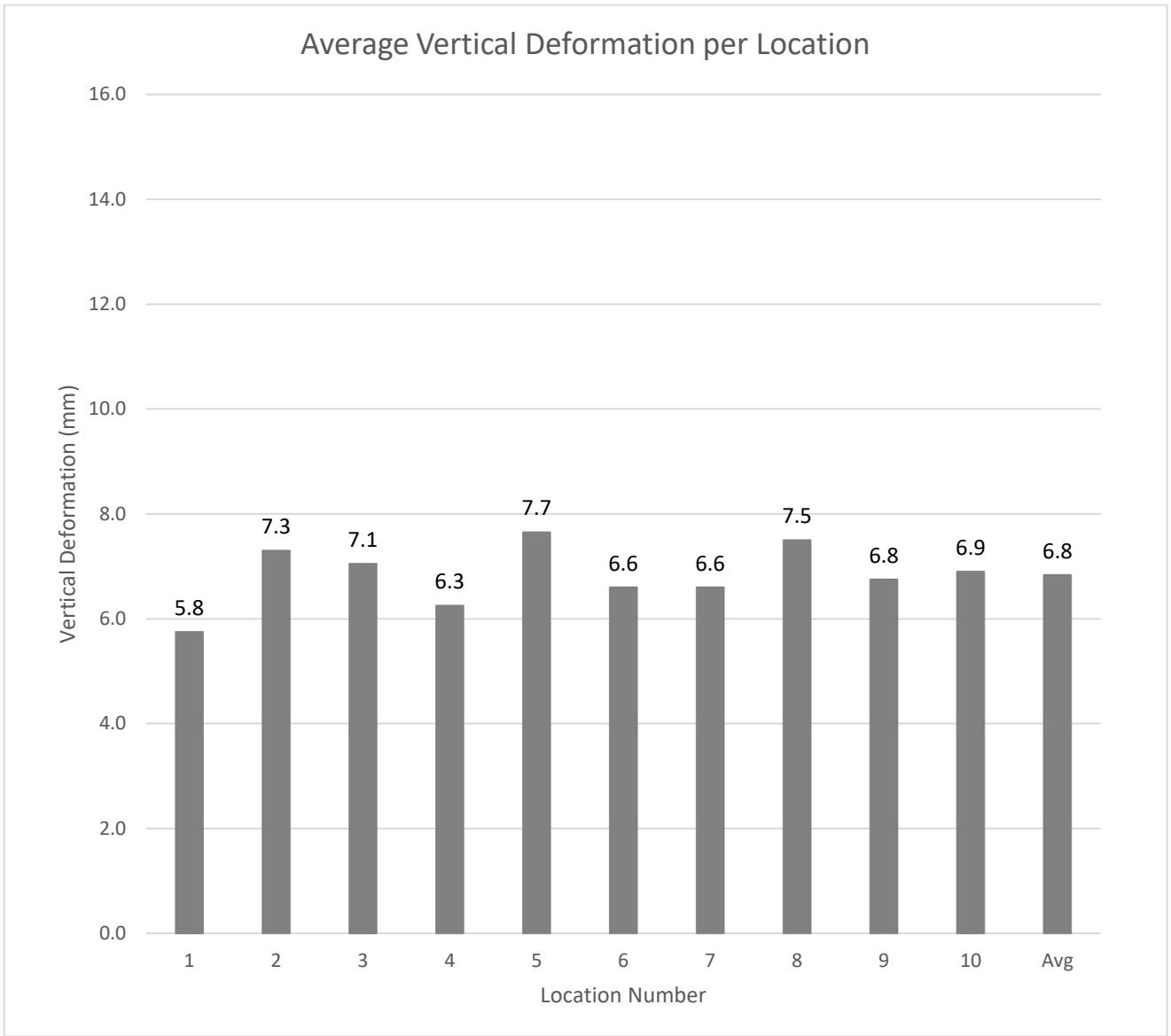
Force Reduction measures the shock absorption provided by the surface to a player under foot as they run. A lower value describes a surface that is harder underfoot and higher value describes a surface that is softer underfoot. As a field ages, these values will become harder (lower) over time. The results can be found in the graphs below and the Overall Results table above.

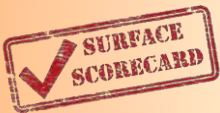




Vertical Deformation - ASTM F3189 Advanced Artificial Athlete Protocol

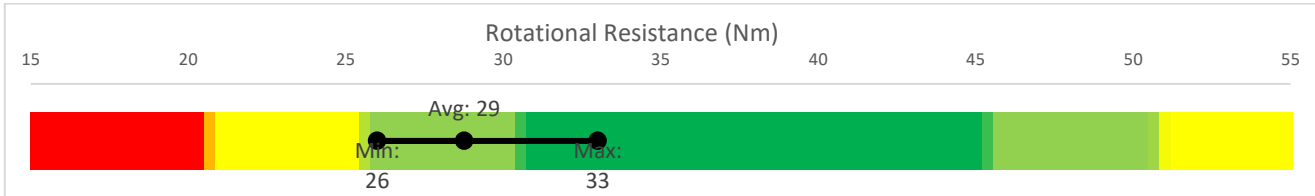
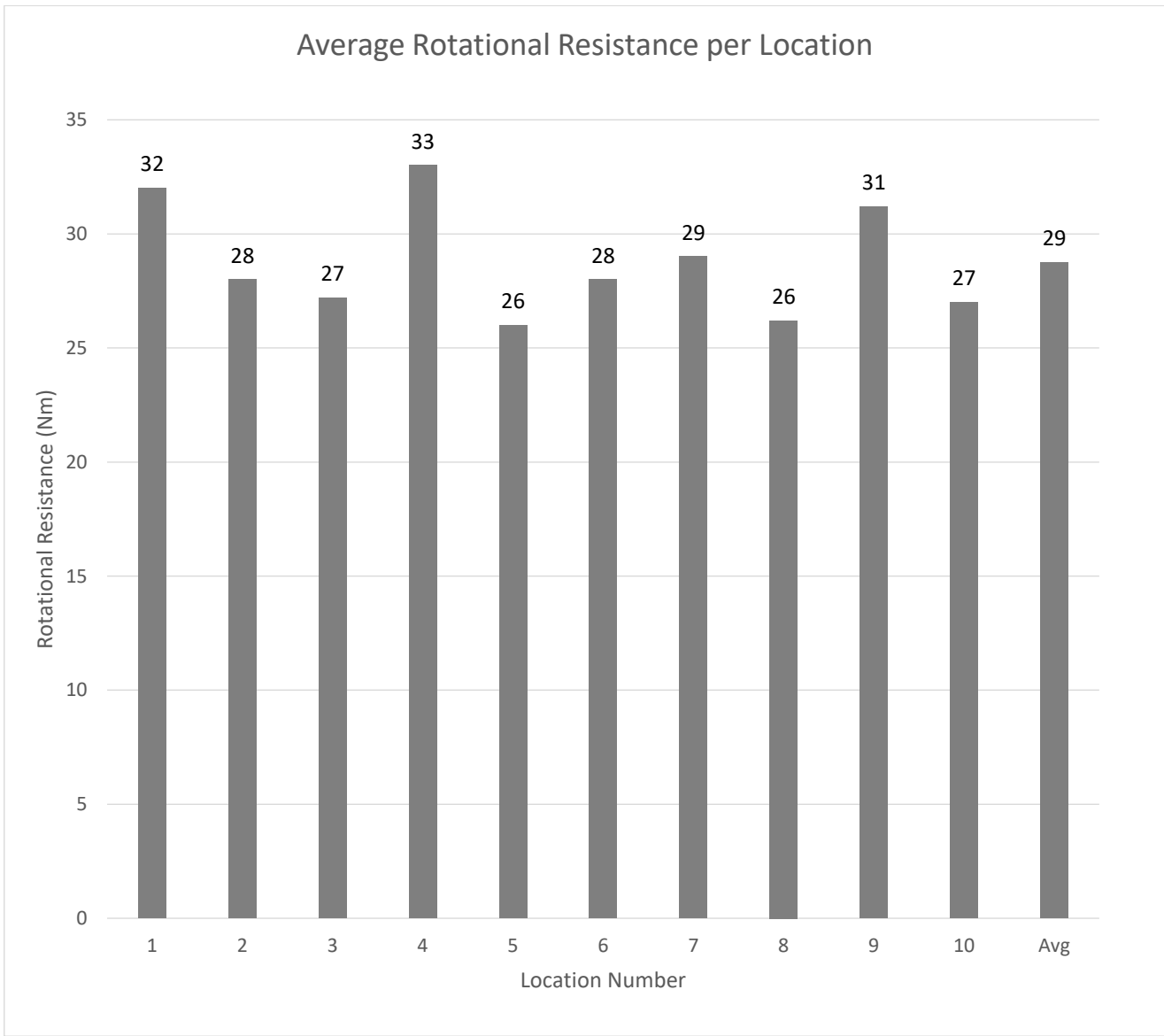
Vertical Deformation measures the amount a surface compresses as an athlete runs across it. This value is often related to speed of play and surface stability. As a field ages, these values will become lower over time. The results can be found in the graphs below and the Overall Results table above.





Rotational Resistance – EN 15301-1

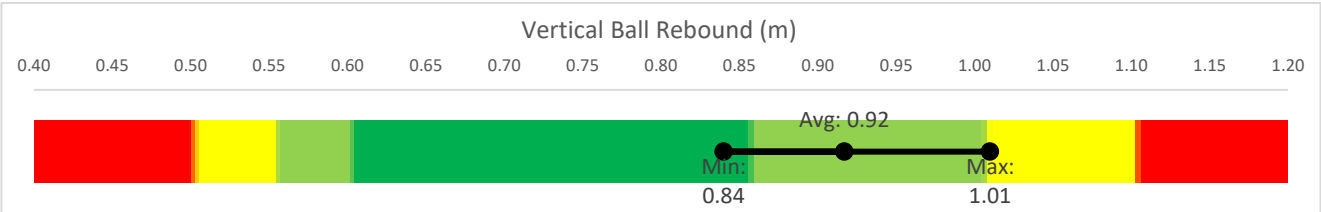
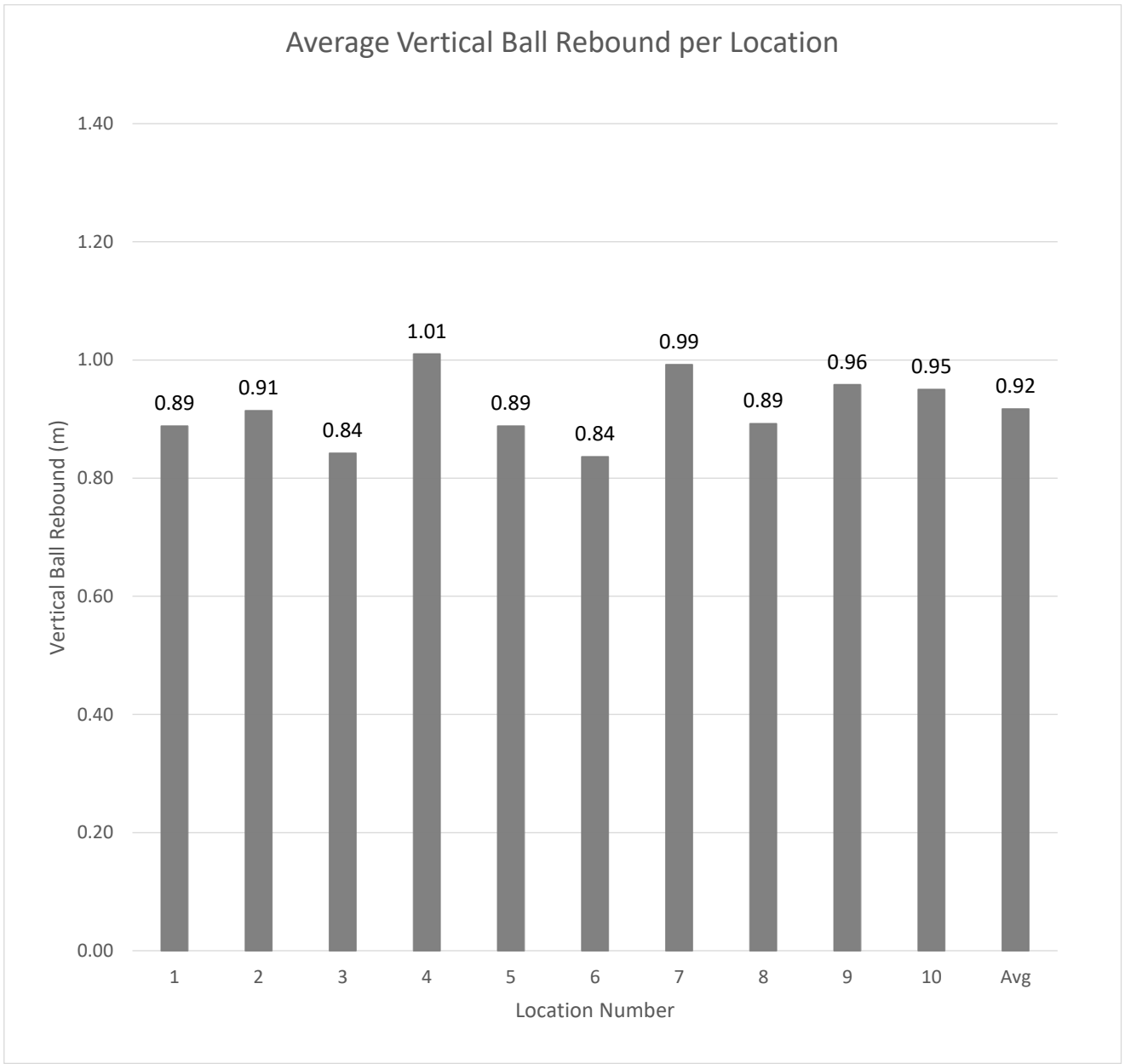
Rotational Resistance measures the torsional resistance of a weighted apparatus with a standard cleat pattern that is rotated on a surface. The resistance is measured 5 times at each test location. A lower value reflects a surface with a low level of cleat release and a higher value describes a surface with more “grab” or cleat resistance. Please note that this test reflects the characteristics of the surface and does not take the athletes footwear into account. Footwear can dramatically impact the resistance experienced by an athlete. The results can be found in the graphs below and the Overall Results table above.





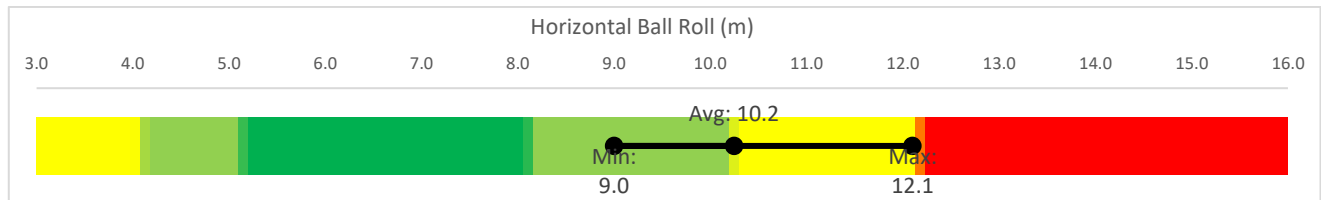
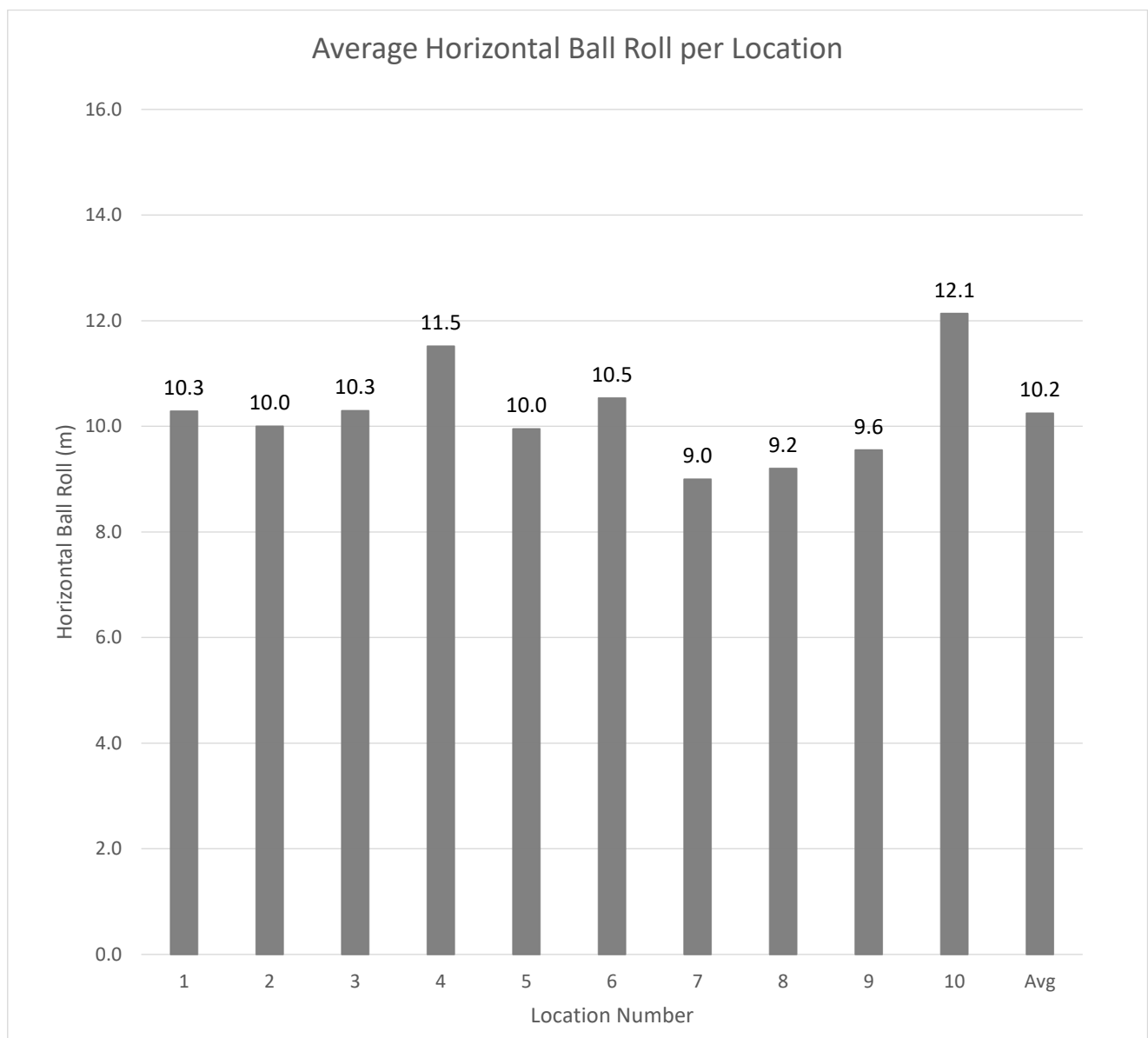
Vertical Ball Rebound - EN 12235

Vertical Ball Rebound measures how high the ball bounces when falling vertically onto a synthetic turf field. A calibrated ball is released from 2 meters and the height of its rebound from the surface is calculated. Typically, as a field ages, these values will increase over time. The results can be found in the graphs below and the Overall Results table above.



Horizontal Ball Roll - EN 12234

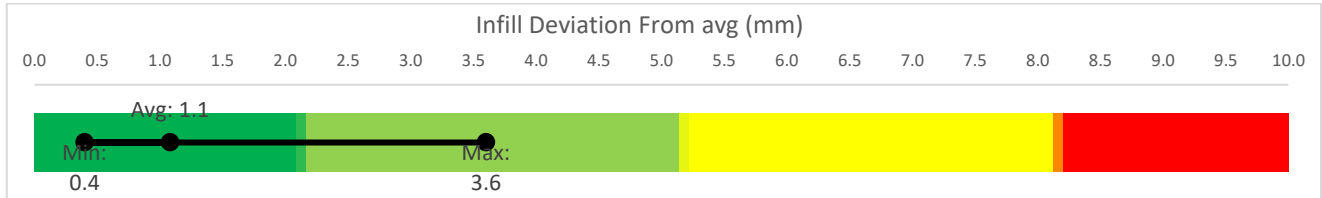
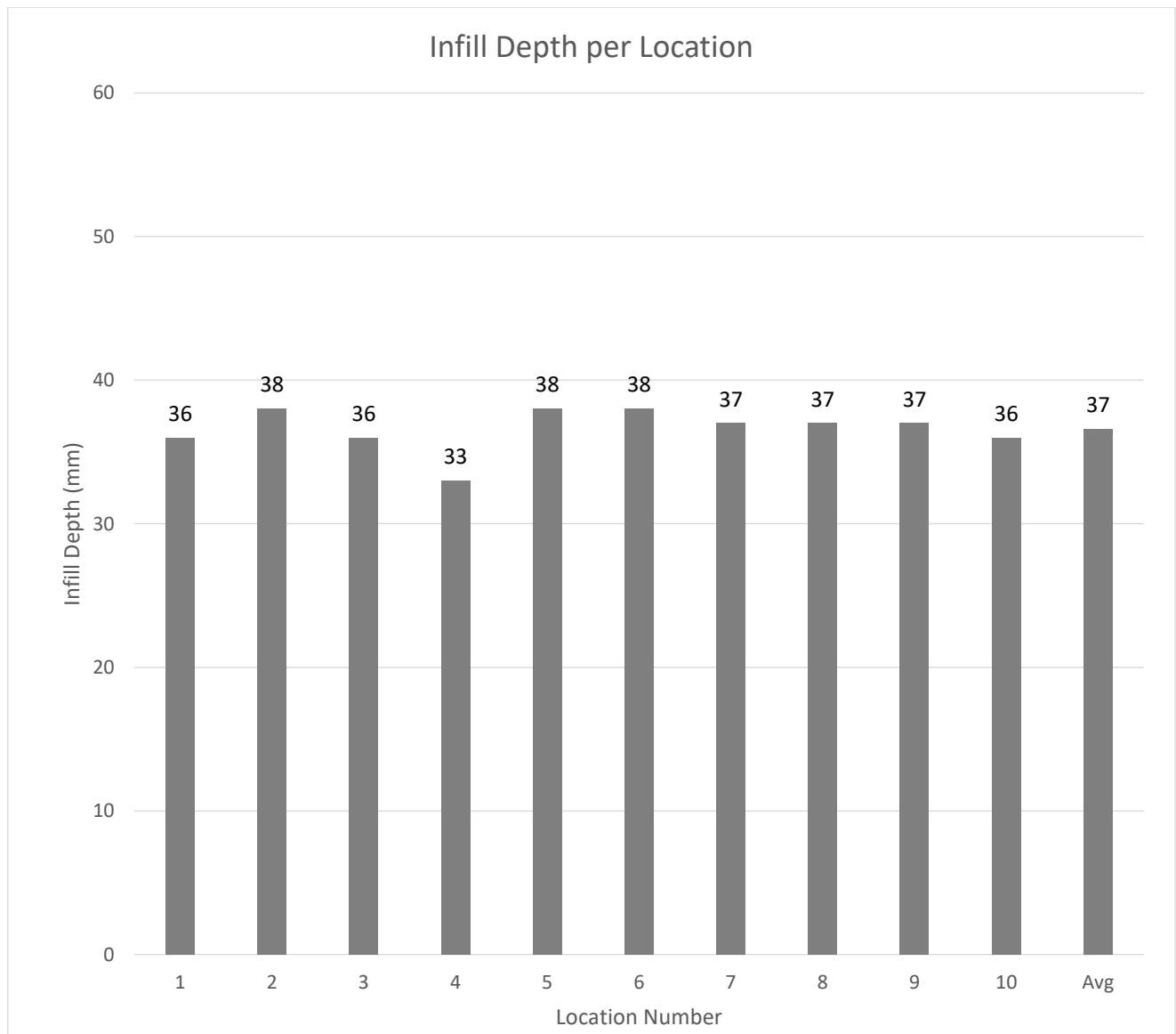
Horizontal Ball Roll measures the distance a ball rolls on synthetic turf. A calibrated ball is rolled off a specified ball ramp. The ball is rolled 3 times in 4 directions at each location. These values are used to determine the location average. The results can be found in the graphs below and the Overall Results table above.





Infill Depth Evaluation – EN 1969

Infill depth measurements were taken at each location. This test determines the depth and distribution of infill. A lack of infill and/or an uneven distribution of infill can lead accelerated fiber degradation and differential wear. The results can be found in the graphs below and the Overall Results table above. Additional infill depth information has been included on the following page.



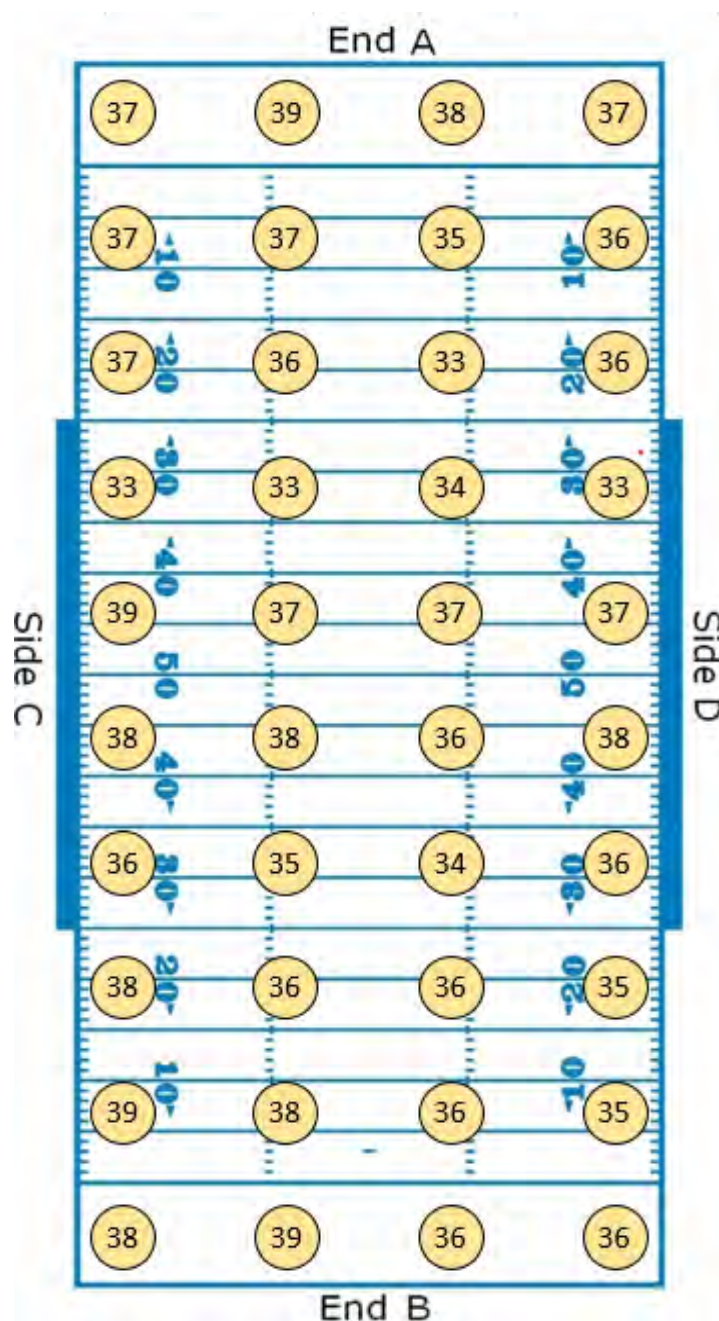
ON-SITE TESTING CONDITION ASSESSMENT



40 Infill Depth Evaluation – EN 1969

Additional infill depth measurements were taken at each of 40 locations distributed evenly across the field. These results are supplemental to the 10 infill depths included in the Overall Results table. The results and location map can be found below.

	Average	(min)	Range	(max)
Infill Depth (mm)	36	33	to	39



ON-SITE TESTING CONDITION ASSESSMENT



Surface Regularity – EN 13036-7

This test evaluates the planarity and evenness of a surface. A 3-meter straight edge is used to check for positive and negative deviations greater than 10 mm across the entire field of play. A reference map can be found below.



X	Y	Depth (mm)	Length, X (ft)	Width, Y (ft)	Deviation Type	Comments
C.5-M	2-6.5		360	180	FL- Loose Fibers	Across entire field
J.7	4.5		2	1	DO-Other	Repair
J.4	4.5		1	3.5	FW - Worn Fibers (High wear)	Exposed backing
J.7	4.5		2	1	DO-Other	Discoloration - Left of Center, End A 15-yard line to 40 yard across half-line
J.4	4.5		1	3.5	DO-Other	Discoloration - Right of Center, End A 20-yard line to 30 before half-line
J.2	4.9		135	20	SG – Gap in seam	
I.9	3.8		30	10	DO-Other	Discoloration - Center of field, End B 30-yard line to 10 yard line
C.5-M	2-6.5		360	180	DO-Other	Matted fibers
F.9	5.5	11	2	1	Lxx – Low spot of -XX mm	
H.1	5.2	11	1.5	1	Lxx – Low spot of -XX mm	
F.1	4.8	11	1.5	1.5	Lxx – Low spot of -XX mm	
G.0	4.8	16	2	1.5	Lxx – Low spot of -XX mm	
I.3	4.5	15	1.5	1.5	Lxx – Low spot of -XX mm	
G.4	4.5	12	1	1.5	Lxx – Low spot of -XX mm	
I.2	4.2	12	1	1.5	Lxx – Low spot of -XX mm	
H.7	3.5	12	1	1	Lxx – Low spot of -XX mm	
H.8	3.5	14	1	1.5	Lxx – Low spot of -XX mm	



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ON-SITE TESTING CONDITION ASSESSMENT



Testing Location Photo Sequence

Photos have been taken at each location and are displayed below.

Location #1



Location Map



3" to 6" Height Photo



Shin Height Photo



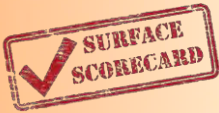
Chest Height Photo



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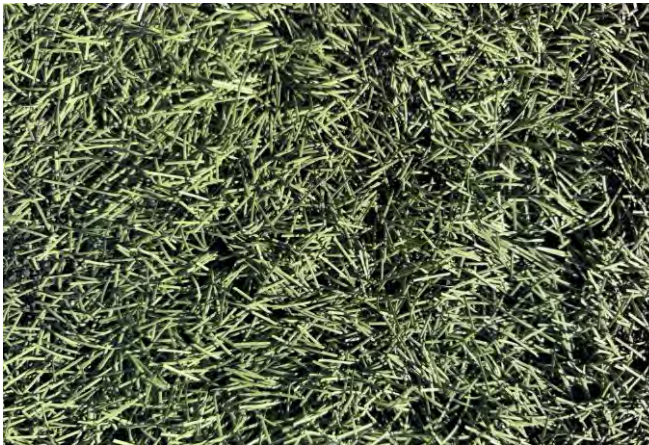




Location #2



Location Map



3" to 6" Height Photo

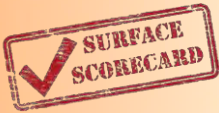


Shin Height Photo



Chest Height Photo





Location #3



Location Map



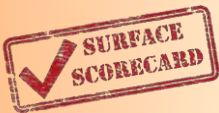
3" to 6" Height Photo



Shin Height Photo



Chest Height Photo



Location #4



Location Map



3" to 6" Height Photo



Shin Height Photo



Chest Height Photo



Location #5



Location Map



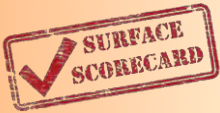
3" to 6" Height Photo



Shin Height Photo



Chest Height Photo



Location #6



Location Map



3" to 6" Height Photo

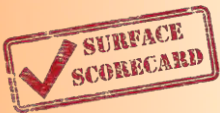


Shin Height Photo



Chest Height Photo





Location #7



Location Map



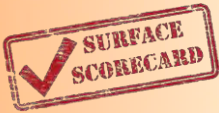
3" to 6" Height Photo



Shin Height Photo



Chest Height Photo



Location #8



Location Map



3" to 6" Height Photo



Shin Height Photo



Chest Height Photo



Location #9



Location Map



3" to 6" Height Photo



Shin Height Photo



Chest Height Photo



Location #10



Location Map



3" to 6" Height Photo



Shin Height Photo



Chest Height Photo

End of Report

ON-SITE TESTING CONDITION ASSESSMENT



Project Information

Job No	102043/12217s		Test Date	6/11/2026	
Field Reference	Sky View High School Stadium Field		Client	Cache Country School District	
Field Address	520 South 250 East Smithfield, UT 84335		Client Address	84 E 2400 North North Logan, UT 84341	
Report Date	6/22/2026		Project Manager	Michael Rocheleau	
Report Status	Final		Technician(s)	Keegan Sanborn Brian Carter	
Substrate Type	n/a		Field Orientation	End A= South	
Product Name	n/p		Infill Type	Rubber & Sand	
Pile Height (mm)	n/p		Shock Pad	None	
	AM	PM		AM	PM
Air Temperature (°F)	52	65	Humidity (%)	40	20
Surface Temperature (°F)	72.9	82.4	Wind Speed (mph)	3	4
Weather Conditions	Clear & Sunny		Test Condition	Dry	

Notes:

1. This report has been prepared by Firefly Sports Testing with all reasonable skill, care and diligence within the terms of the contract with the Client and within the limitations of the resources devoted to it.
2. This report is confidential to the Client and Firefly Sports Testing accepts no responsibility whatsoever to third parties to whom this report, or any part thereof, is made known. Any such party relies upon the report at their own risk.
3. This report shall not be used for engineering or contractual purposes unless signed by the Author and the Checker and unless the report status is "Final."

Background

Firefly Sports Testing was commissioned to perform this on-site condition assessment per the protocol developed by Firefly Sports Testing. Standard test methods are performed together and held against a scoring system to provide a quantitative look at a range of important attributes. This broader perspective allows for more informed decision making.

Assessment Introduction

At Firefly Sports Testing we understand the need for a qualitative approach to a quantitative assessment of sports surface condition. Therefore, we have created our surface scorecard condition assessment program. We have used our experience of testing thousands of surfaces to provide a qualitative look at surface condition using quantitative indicators.

This report has two main parts. The first part is the surface scorecard. This surface scorecard is a subjective scoring system that uses criteria based on commonly accepted ranges regardless of age to assess field condition.

Our surface scorecard is a cumulative point system that will yield a letter grade to reflect your surface's condition. The points awarded are based on 9 different surface properties tested / measured on-site. The results from each test are measured against four corresponding ranges of values to score each result. The ranges are classified as Poor (0 points), Fair (1 point), Good (2 points) and Excellent (3 points). This can be viewed in the results criteria.

Since each property has a different importance, it is assigned a "weight factor" based on the intended use and significance to the overall condition of the surface. For example, the impact safety tests have the highest weight factor. The weight factor can be viewed in the scorecard table.

The second part of this report contains background information and results graphs for each test performed. If you are not familiar with surface performance testing, then part 2 might be a good place to start to gain an understanding of the tests applied to the surface scorecard.





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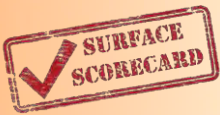
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Methods used within this assessment:

Test Type	Test Method	Test Description
Critical Fall Height	ASTM F3146-18	Standard Test Method for Impact Attenuation of Turf Playing Systems Designated for Rugby
<i>g</i>-max	ASTM F1936-19	Standard Specification for Impact Attenuation of Turf Playing Systems as Measured in the Field
Infill Depths	EN 1969:2000	Surfaces for Sports Areas – Determination of Thickness of Synthetic Sports Surfaces
AAA	ASTM F3189-20	Standard Test Method for Measuring Force Reduction, Vertical Deformation, and Energy Restitution of Synthetic Turf Systems Using the Advanced Artificial Athlete
Vertical Ball Rebound	EN 12235:2013	Surfaces for Sports Areas – Determination of Vertical Ball Behavior.
Ball Roll	EN 12234:2013	Surfaces for Sports Areas – Determination of Ball Roll Behavior <i>Modified: windspeeds exceeded maximum velocity during time of testing</i>
Rotational Resistance	EN 15301-1:2007	Surfaces for Sports Areas- Part 1: Determination of Rotational Resistance <i>Modified: Lightweight rotational resistance apparatus used</i>
Planarity	EN 13036-7:2003	Road and Airfield Surface Characteristics – Irregularity Measurement of Pavement Courses – The Straightedge Test

For the benefit of comparison, each of these tests were performed on the same locations specified by ASTM F1936. Therefore, many of these methods Results graphs and background information can be found in part 2 of this report.

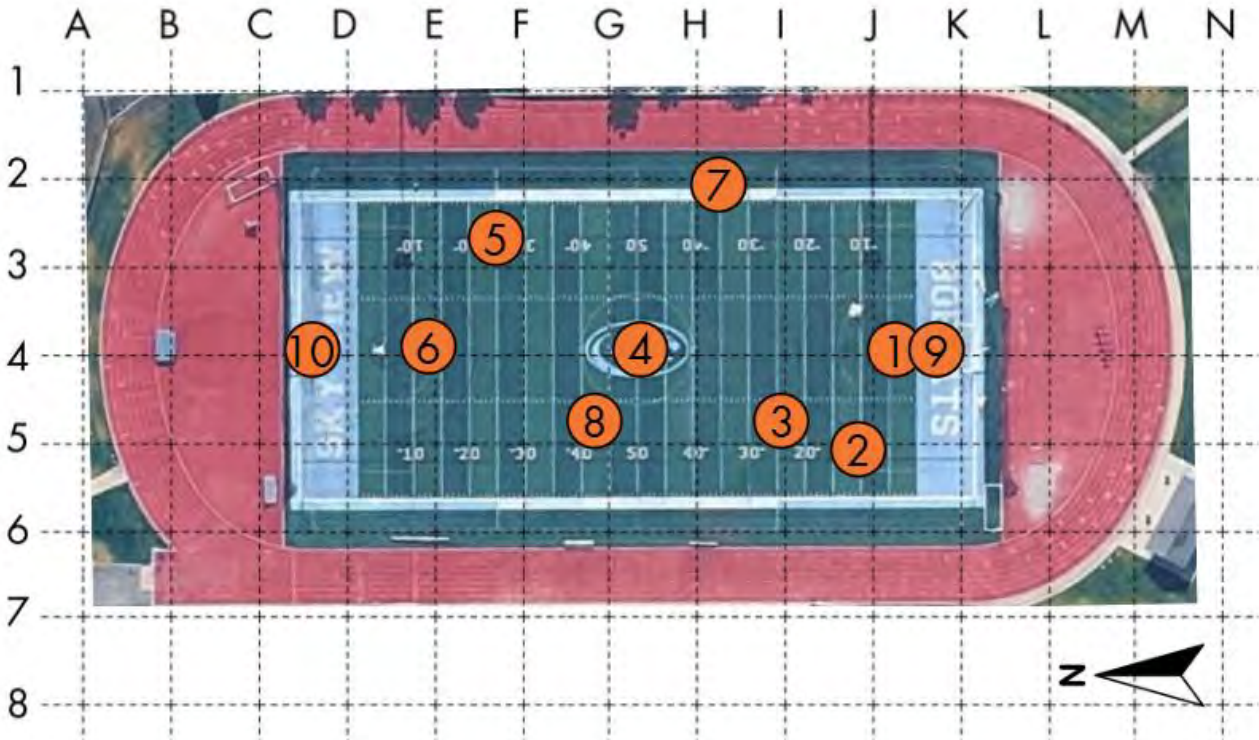
ON-SITE TESTING CONDITION ASSESSMENT



Overall Photos



Location Map



ON-SITE TESTING CONDITION ASSESSMENT



Overall Results

Below are the results of each of the tests performed per location along with a field average. Background and results graphs for each test can be found in part 2 of this report.

Property	Test Position										
	1	2	3	4	5	6	7	8	9	10	Avg
Critical Fall Height (m)	0.81	0.85	0.91	0.82	0.86	0.87	0.89	0.86	0.75	1.11	0.87
F1936 g-max (g's)	173	151	162	122	154	143	152	138	184	140	152
Infill Depth (mm)	30	34	33	34	35	34	34	34	26	36	33
Force Reduction (%)	53	56	56	51	54	51	55	56	49	61	54
Vertical Deformation (mm)	6.8	7.3	7.0	6.0	6.9	6.1	6.8	7.1	6.0	8.3	6.8
Vertical Ball Rebound (m)	0.93	0.85	0.93	0.99	0.97	0.96	0.98	0.90	0.89	0.86	0.93
Horizontal Ball Roll (m)	10.8	9.7	9.4	10.3	10.6	9.9	10.5	9.6	10.5	9.5	10.1
Rotational Resistance (Nm)	32	28	28	31	27	30	28	29	37	26	30

Part 1: Condition Assessment Criteria

Legend	Excellent 3pts	Good 2pts	Fair 1pt	Poor 0pts
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Property	This criteria is based on commonly accepted ranges applicable regardless of age.																		
Impact Tests																			
Critical Fall Height (m)	<	0.80	0.80	to	0.99	1.00	to	1.30	>	1.30									
F1936 G-max (g's)	<	120	120	to	165	166	to	200	>	200									
Player Interaction																			
Force Reduction (%)	<	50	50	to	54	55	to	59	60	to	70	71	to	75	>	75			
Vertical Deformation (mm)	<	3.0	3.0	to	3.9	4.0	to	4.9	5.0	to	10.0	10.1	to	11.0	11.1	to	12.0	>	12.0
Rotational Resistance (Nm)	<	20	20	to	24	25	to	29	30	to	45	46	to	50	51	to	55	>	55
Ball Interaction																			
Vertical Ball Rebound (m)	<	0.50	0.50	to	0.54	0.55	to	0.59	0.60	to	0.85	0.86	to	1.00	1.01	to	1.10	>	1.10
Horizontal Ball Roll (m)	<	3.0	3.0	to	3.9	4.0	to	4.9	5.0	to	8.0	8.1	to	10.0	10.1	to	12.0	>	12.0
Infill Deviation and Surface Regularity																			
Infill Deviation from avg (mm)	<	2.0	2.0	to	5.0	5.1	to	8.0	>	8.0									
Surface Regularity # of deviations found	0	1	to	4	5	to	9	>	10										



ON-SITE TESTING CONDITION ASSESSMENT



Condition Assessment Results

Property	Test Position										Avg	Min	Max
	1	2	3	4	5	6	7	8	9	10			
Impact Tests													
Critical Fall Height (m)	0.81	0.85	0.91	0.82	0.86	0.87	0.89	0.86	0.75	1.11	0.87	0.75	1.11
F1936 g-max (g's)	173	151	162	122	154	143	152	138	184	140	152	122	184
Player Interaction													
Force Reduction (%)	53	56	56	51	54	51	55	56	49	61	54	49	61
Vertical Deformation (mm)	6.8	7.3	7.0	6.0	6.9	6.1	6.8	7.1	6.0	8.3	6.8	6.0	8.3
Rotational Resistance (Nm)	32	28	28	31	27	30	28	29	37	26	30	26	37
Ball interaction													
Vertical Ball Rebound (m)	0.93	0.85	0.93	0.99	0.97	0.96	0.98	0.90	0.89	0.86	0.93	0.85	0.99
Horizontal Ball Roll (m)	10.8	9.7	9.4	10.3	10.6	9.9	10.5	9.6	10.5	9.5	10.1	9.4	10.8
Infill Deviation and Surface Regularity													
Infill Deviation from avg (mm)	3.0	1.0	0.0	1.0	2.0	1.0	1.0	1.0	7.0	3.0	2.0	0.0	7.0
Surface Regularity # of deviations found	24	This test is not location dependent and applies a uniform score based on the # of deviations.											

Condition Assessment Scorecard

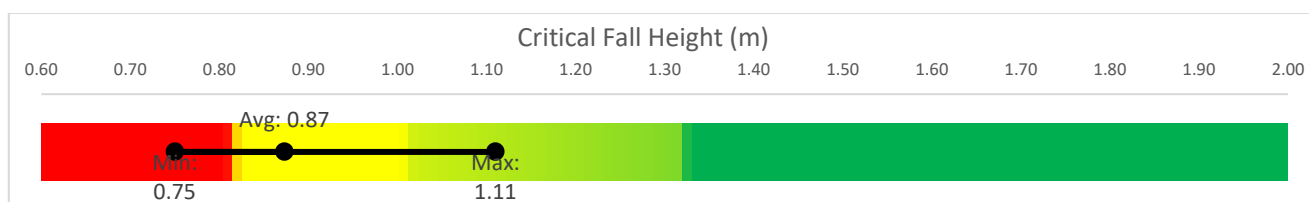
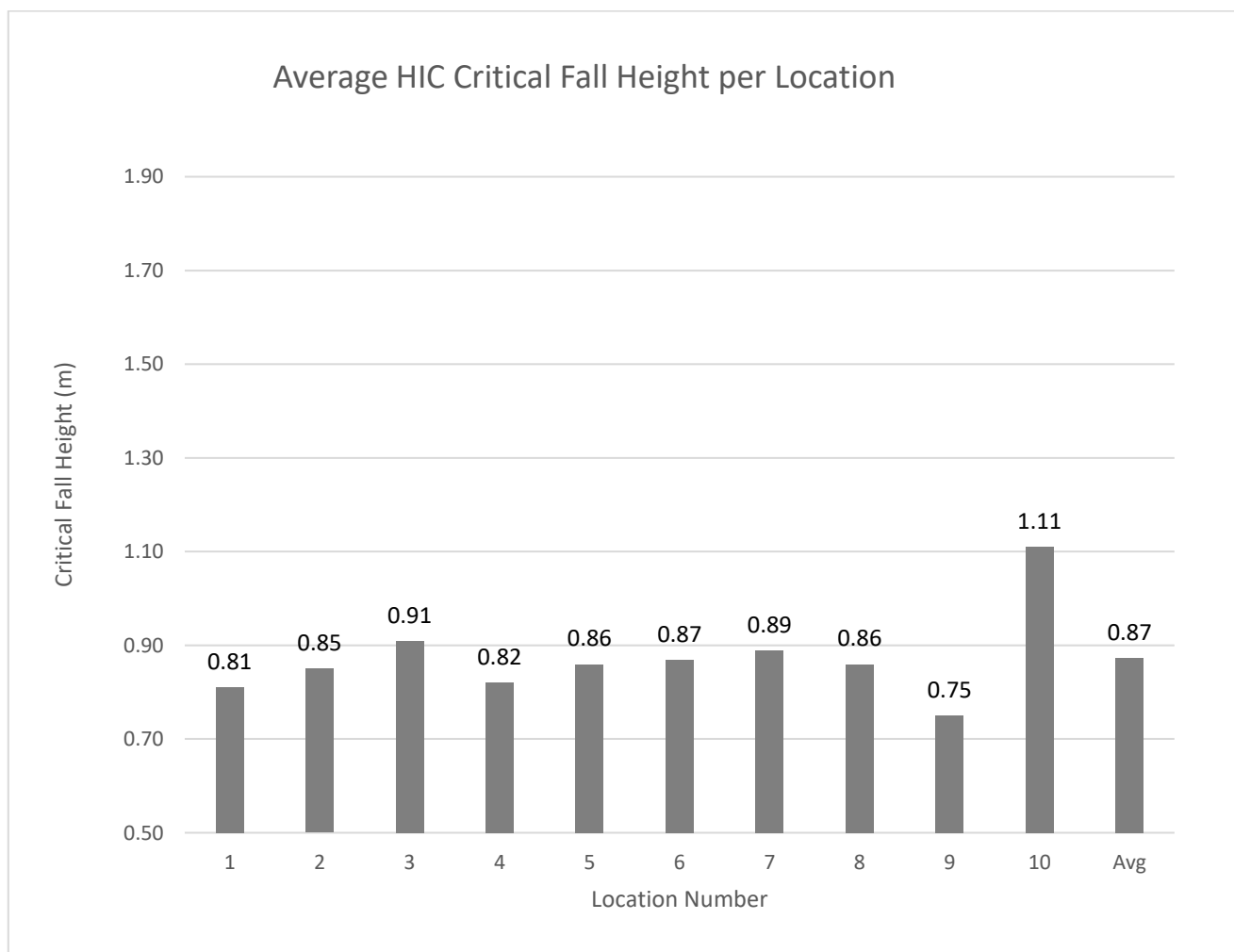
The criteria is based on commonly accepted ranges applicable regardless of age.															
Property	Weight Factor (%)	Test Position										Score		%	
		1	2	3	4	5	6	7	8	9	10				
Impact Tests															
Critical Fall Height (m)	17.5%	1	1	1	1	1	1	1	1	0	2	10	/	30	33%
F1936 g-max (g's)	17.5%	1	2	2	2	2	2	2	2	1	2	18	/	30	60%
Player Interaction															
Force Reduction (%)	12.5%	1	2	2	1	1	1	2	2	0	3	15	/	30	50%
Vertical Deformation (mm)	12.5%	3	3	3	3	3	3	3	3	3	3	30	/	30	100%
Rotational Resistance (Nm)	12.5%	3	2	2	3	2	3	2	2	3	2	24	/	30	80%
Ball Interaction															
Vertical Ball Rebound (m)	7.5%	2	3	2	2	2	2	2	2	2	2	21	/	30	70%
Horizontal Ball Roll (m)	7.5%	1	2	2	1	1	2	1	2	1	2	15	/	30	50%
Infill Deviation and Surface Regularity															
Infill Deviation from avg (mm)	5.0%	2	3	3	3	2	3	3	3	1	2	25	/	30	83%
Surface Regularity # of deviations found	7.5%	0	This test is not location dependent and applies a uniform score based on the # of deviations.									0	/	3	0%
Total Score:															58%
Grade:															F



Part 2: Individual Test Background and Results Graphs

HIC Critical Fall Height (Hemispherical Drop Form) – ASTM F3146

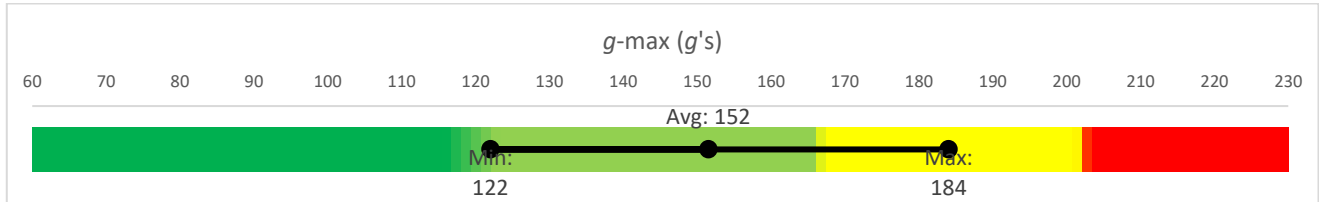
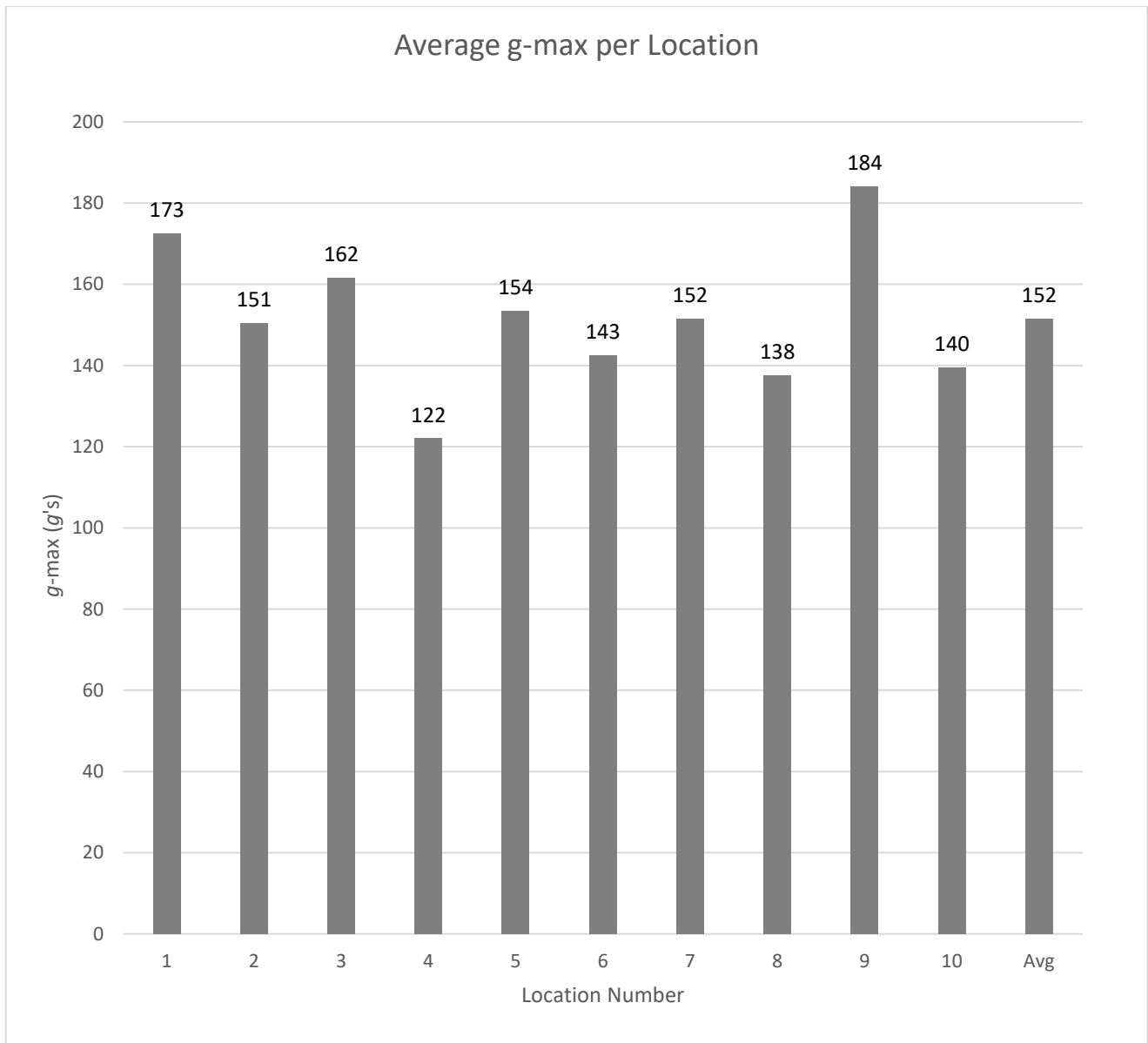
The ASTM F3146 standard establishes a test method to be used when testing a synthetic turf field's impact attenuation property for assessing its suitability for rugby and other sports. The method is similar to the method commonly used for assessing playground surfacing in the United States. The test device calculates the Head Injury Criteria (HIC). This is used to gauge the probability of head injury potential resulting from a surface impact. This device is a hemispherical 10 lb "drop form" with a tri-axial accelerometer. The hemisphere is dropped from (4) different heights to determine the height at which the HIC would be 1000. This height is referred to as the critical fall height. It is recommended that the critical fall height values be greater than 1.3 m. The critical fall heights determined can be found in the graphs below and the Overall Results table above.





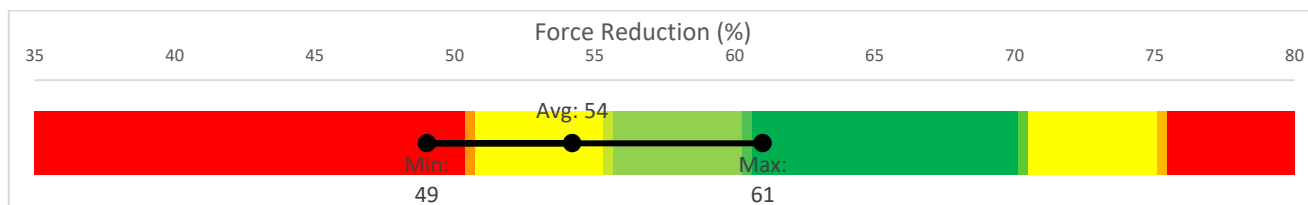
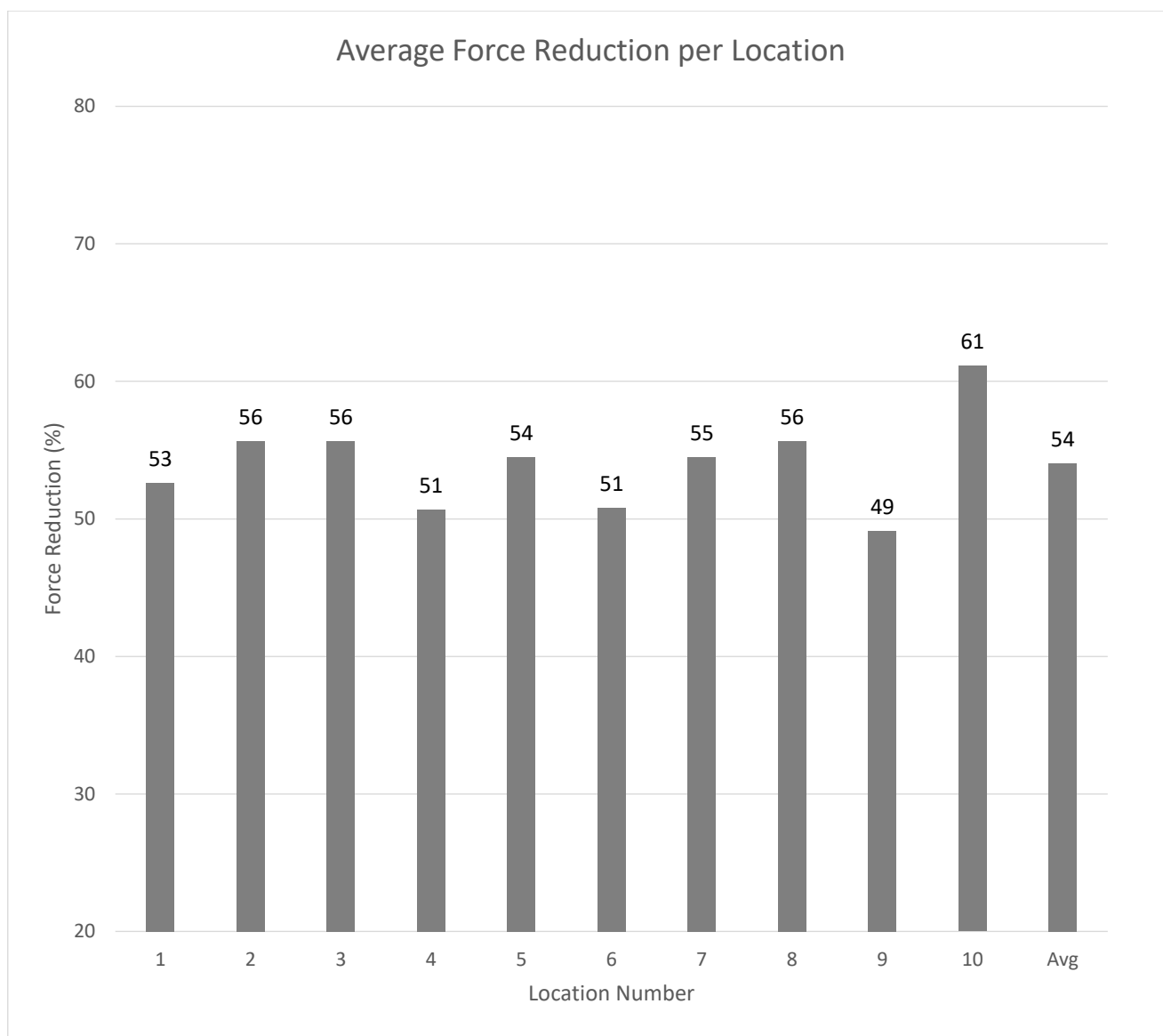
Turf Impact Attenuation (*g*-max) – ASTM F1936

The ASTM F1936 impact attenuation test method specifies the official device / method for assessing the hardness of synthetic turf athletic fields. It is used to gauge impact attenuation based on a predetermined head / body impact. The device uses a 20 lb “drop form” with a tri-axial accelerometer dropped from a height of 24 in. The ASTM recommends that the *g*-max values be less than 200 *g*'s. The results can be found in the graphs below and the Overall Results table above.



Force Reduction – ASTM F3189 Advanced Artificial Athlete Protocol

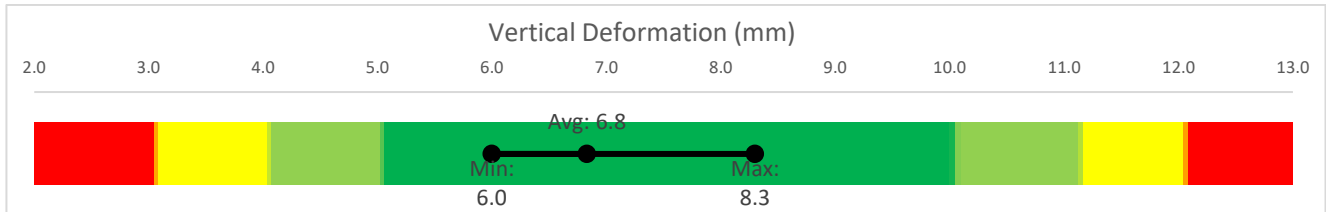
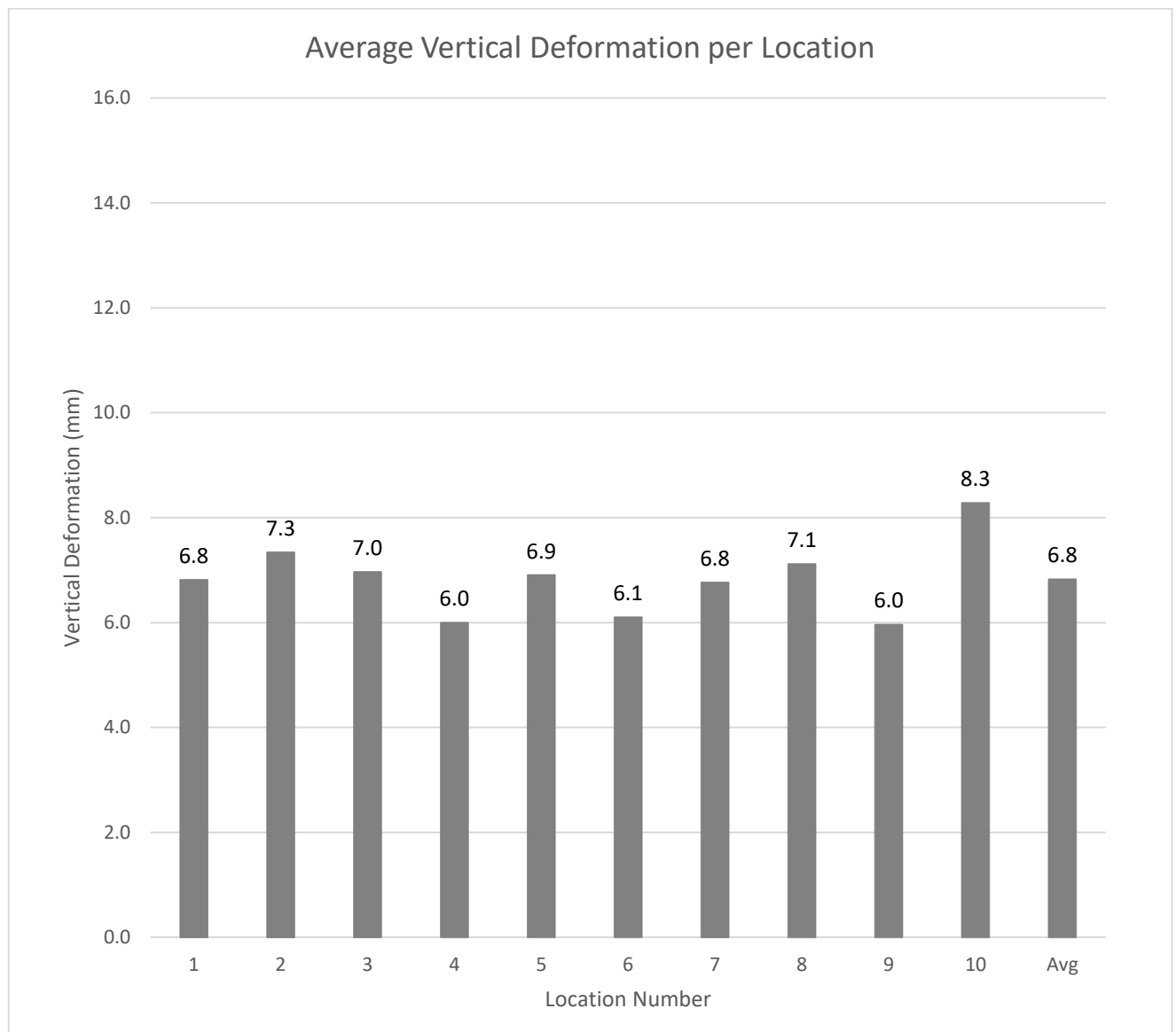
Force Reduction measures the shock absorption provided by the surface to a player under foot as they run. A lower value describes a surface that is harder underfoot and higher value describes a surface that is softer underfoot. As a field ages, these values will become harder (lower) over time. The results can be found in the graphs below and the Overall Results table above.





Vertical Deformation - ASTM F3189 Advanced Artificial Athlete Protocol

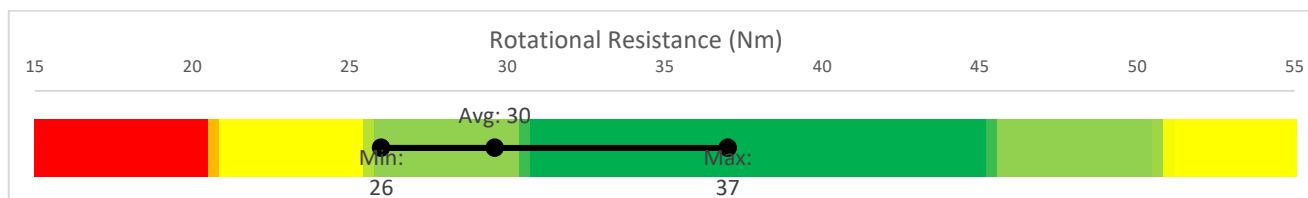
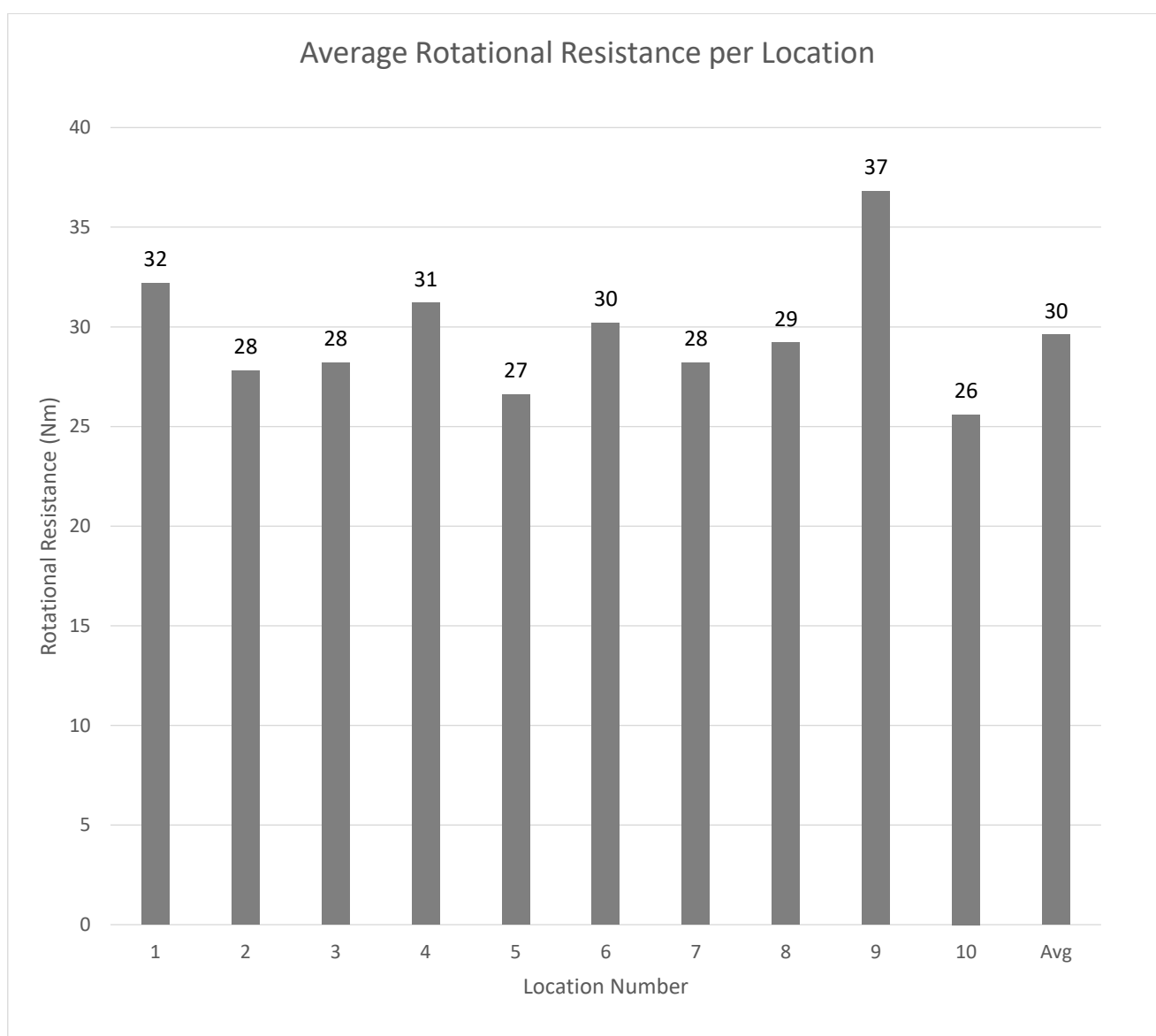
Vertical Deformation measures the amount a surface compresses as an athlete runs across it. This value is often related to speed of play and surface stability. As a field ages, these values will become lower over time. The results can be found in the graphs below and the Overall Results table above.





Rotational Resistance – EN 15301-1

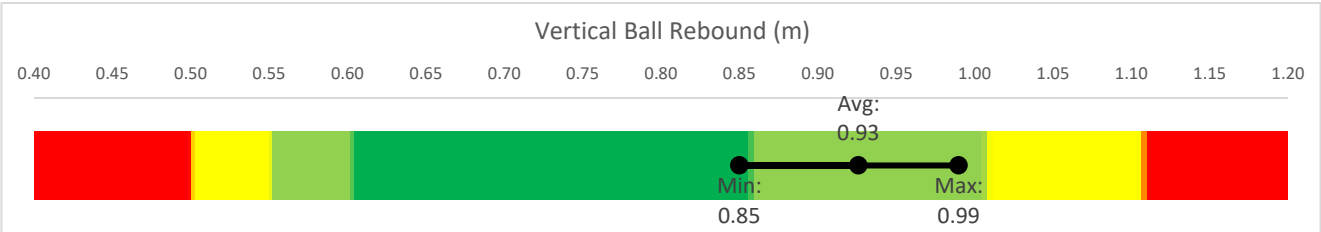
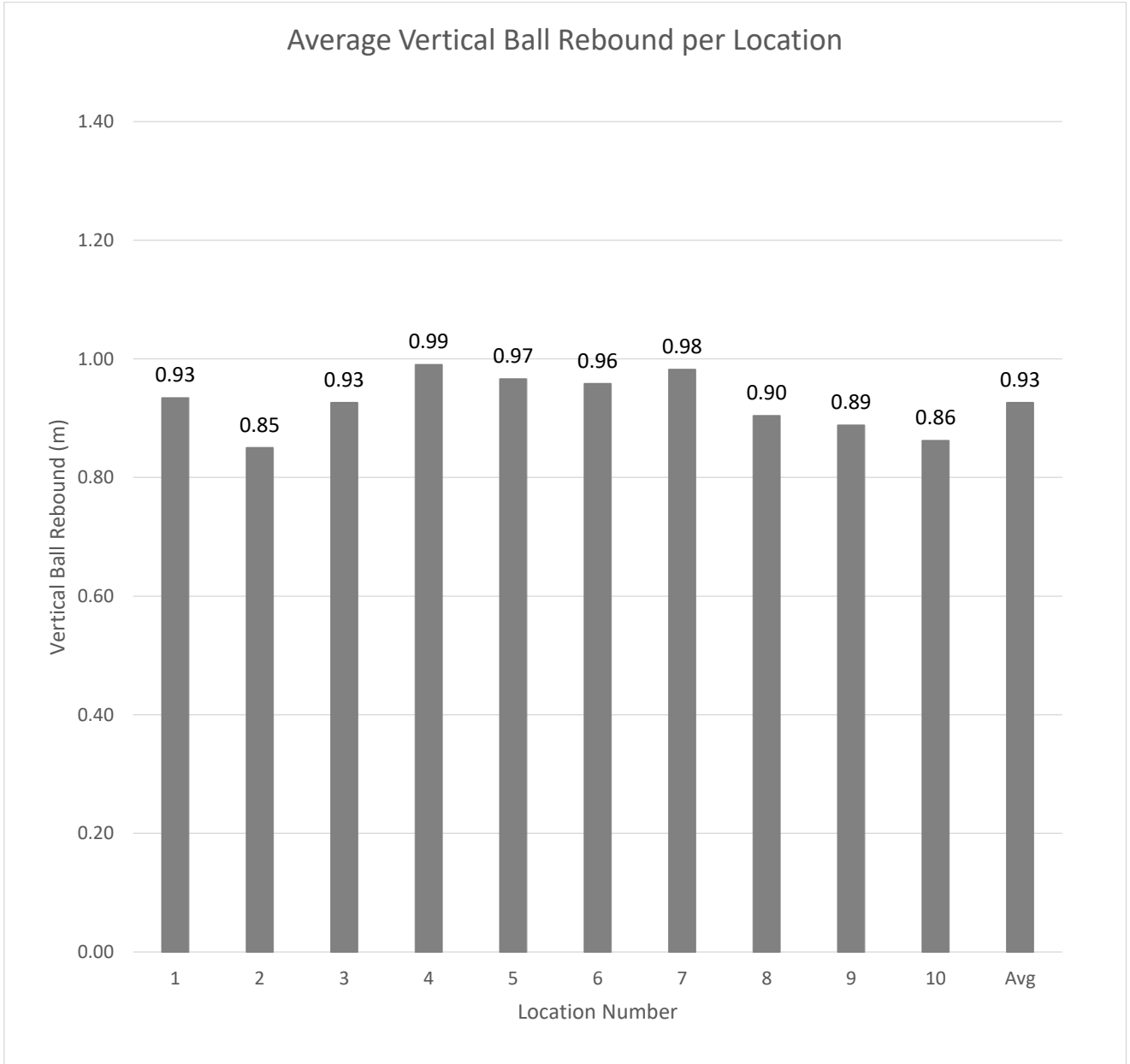
Rotational Resistance measures the torsional resistance of a weighted apparatus with a standard cleat pattern that is rotated on a surface. The resistance is measured 5 times at each test location. A lower value reflects a surface with a low level of cleat release and a higher value describes a surface with more “grab” or cleat resistance. Please note that this test reflects the characteristics of the surface and does not take the athletes footwear into account. Footwear can dramatically impact the resistance experienced by an athlete. The results can be found in the graphs below and the Overall Results table above.





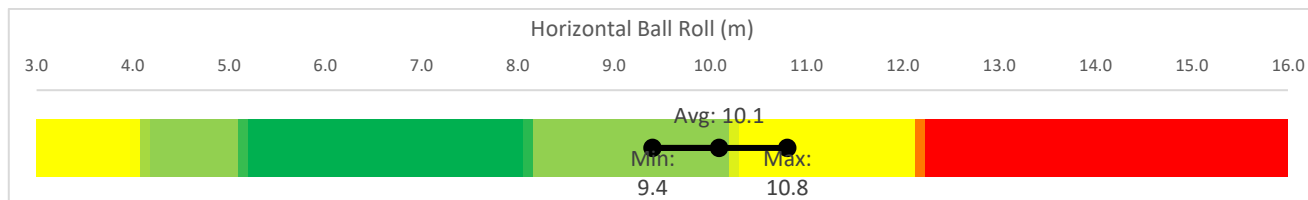
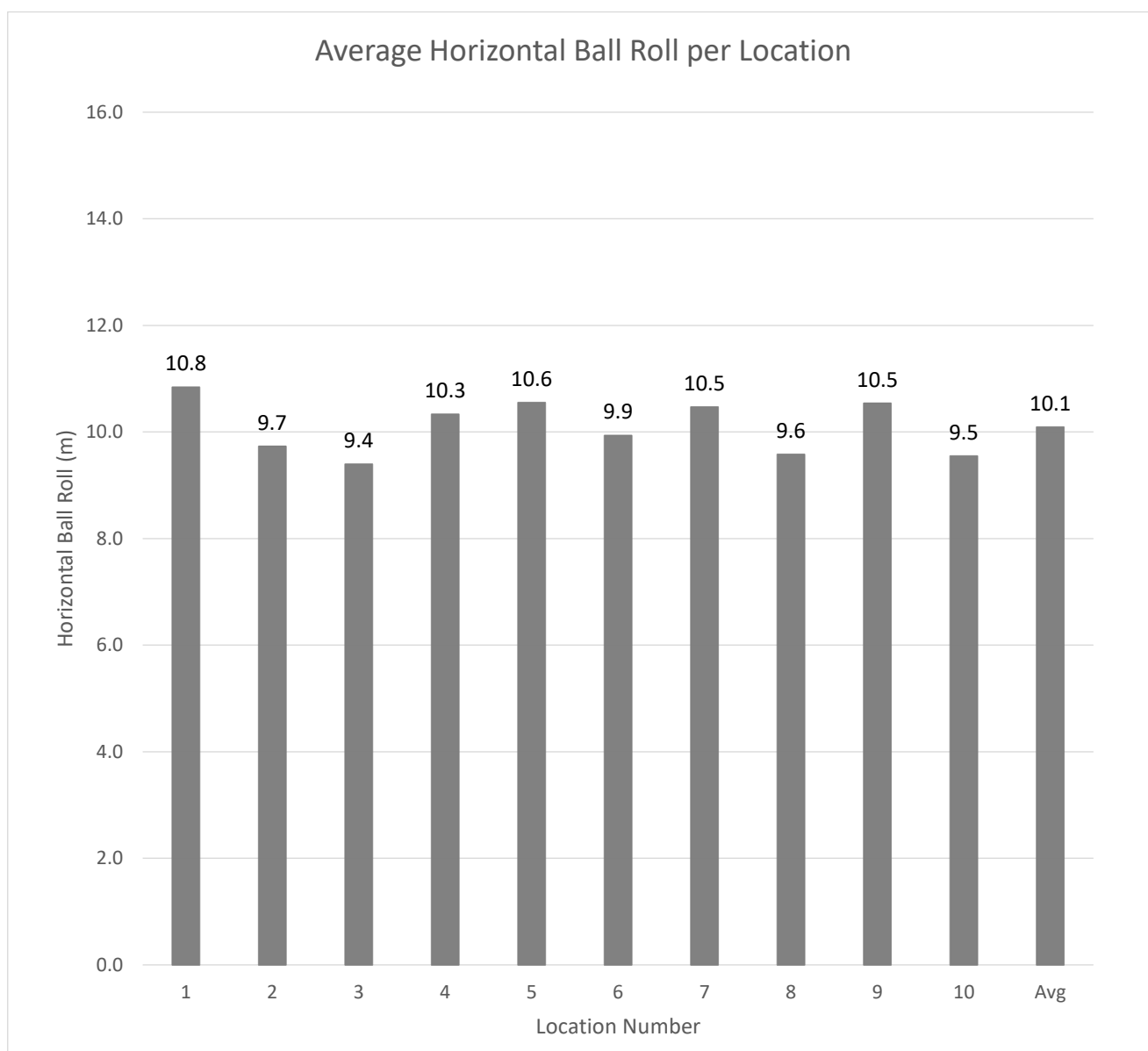
Vertical Ball Rebound - EN 12235

Vertical Ball Rebound measures how high the ball bounces when falling vertically onto a synthetic turf field. A calibrated ball is released from 2 meters and the height of its rebound from the surface is calculated. Typically, as a field ages, these values will increase over time. The results can be found in the graphs below and the Overall Results table above.



Horizontal Ball Roll - EN 12234

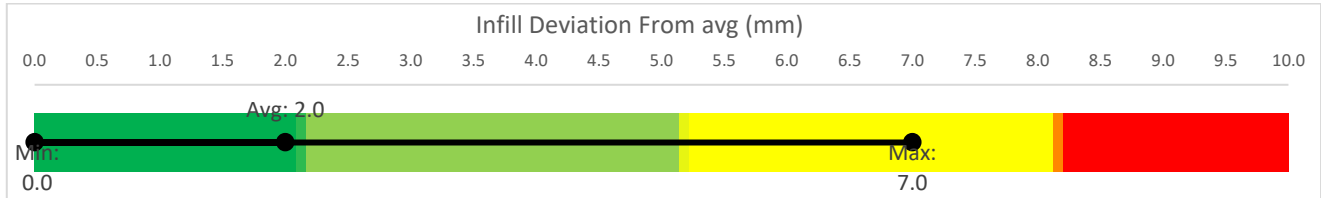
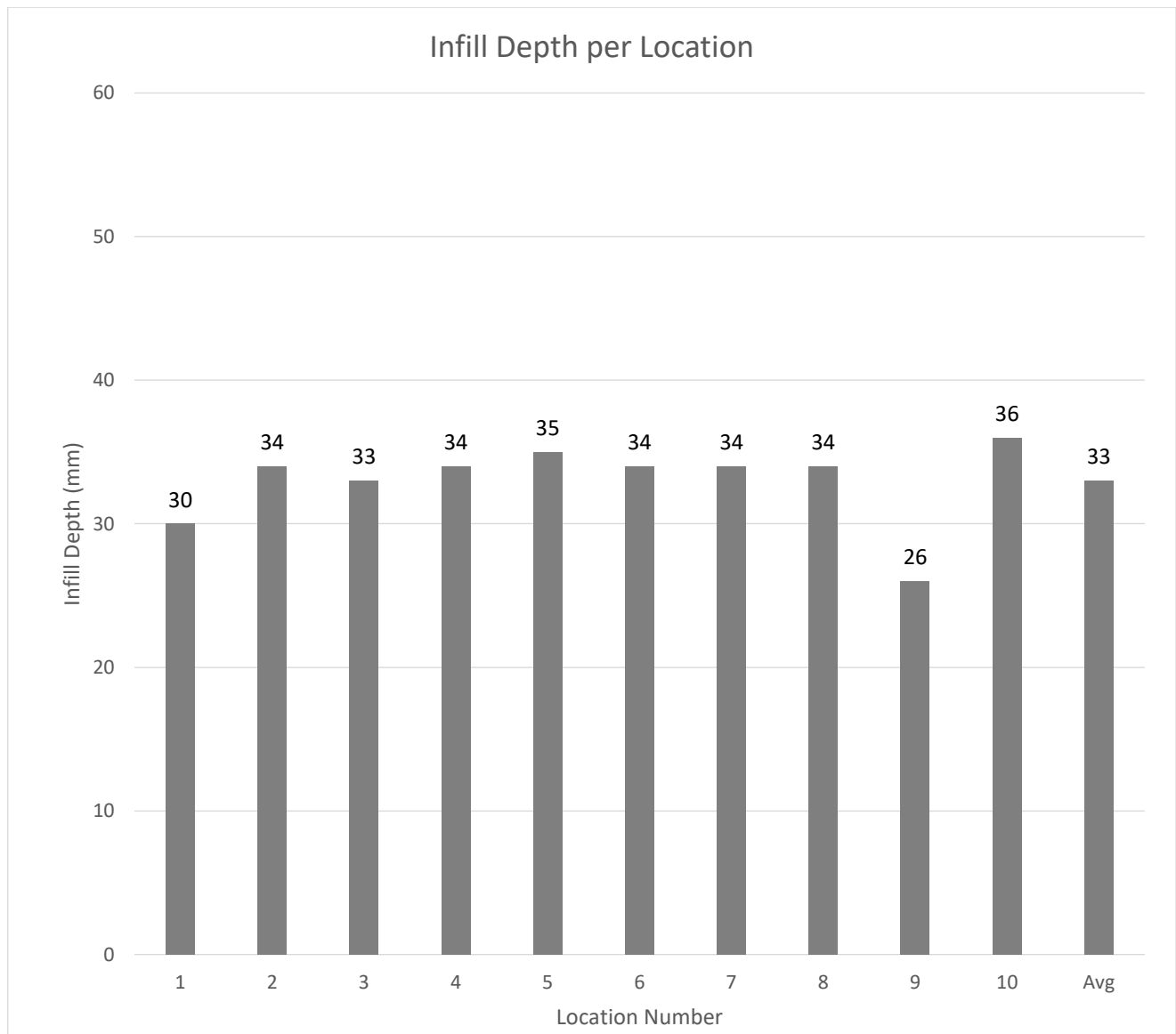
Horizontal Ball Roll measures the distance a ball rolls on synthetic turf. A calibrated ball is rolled off a specified ball ramp. The ball is rolled 3 times in 4 directions at each location. These values are used to determine the location average. The results can be found in the graphs below and the Overall Results table above.





Infill Depth Evaluation – EN 1969

Infill depth measurements were taken at each location. This test determines the depth and distribution of infill. A lack of infill and/or an uneven distribution of infill can lead accelerated fiber degradation and differential wear. The results can be found in the graphs below and the Overall Results table above. Additional infill depth information has been included on the following page.



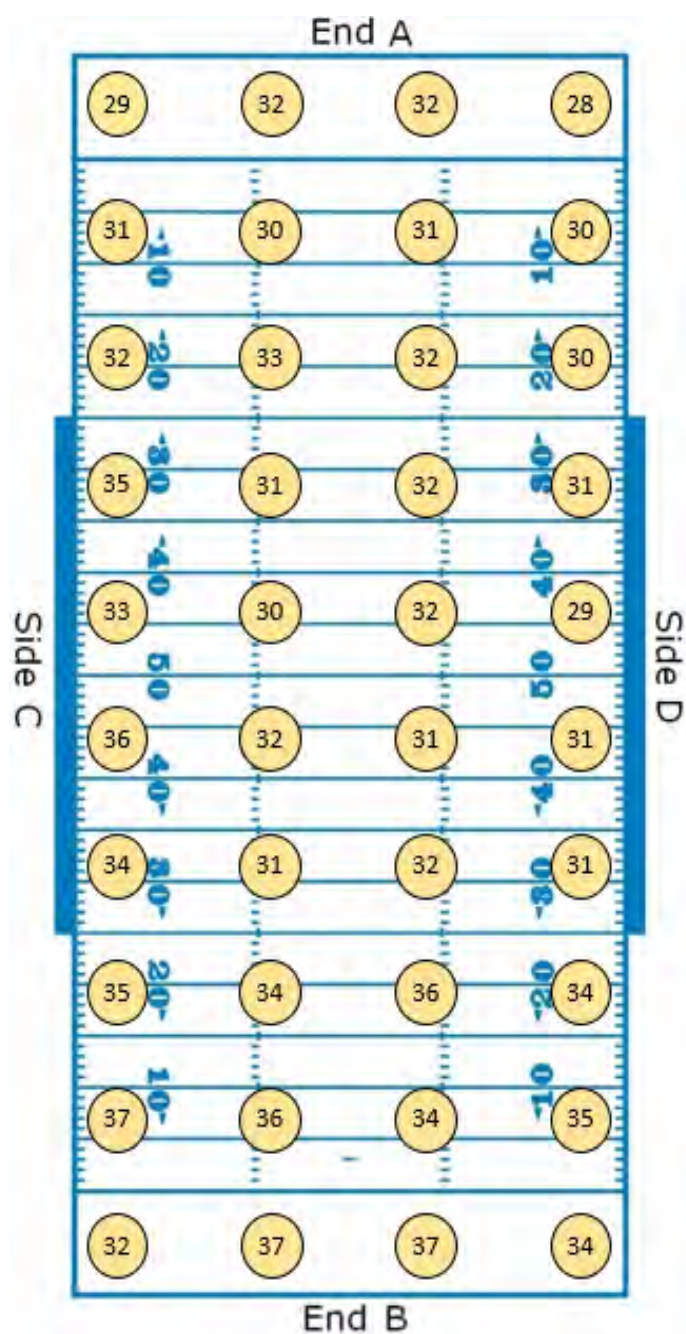
ON-SITE TESTING CONDITION ASSESSMENT



40 Infill Depth Evaluation – EN 1969

Additional infill depth measurements were taken at each of 40 locations distributed evenly across the field. These results are supplemental to the 10 infill depths included in the Overall Results table. The results and location map can be found below.

	Average	(min)	Range	(max)
Infill Depth (mm)	33	28	to	37

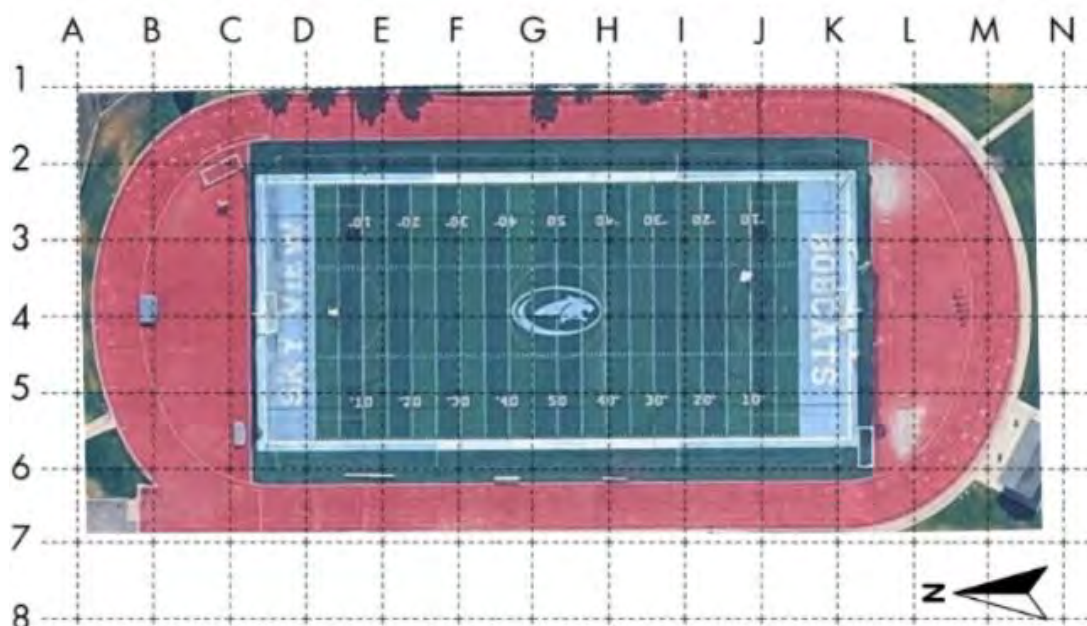


ON-SITE TESTING CONDITION ASSESSMENT



Surface Regularity – EN 13036-7

This test evaluates the planarity and evenness of a surface. A 3-meter straight edge is used to check for positive and negative deviations greater than 10 mm across the entire field of play. A reference map can be found below.



X	Y	Depth (mm)	Length, X (ft)	Width, Y (ft)	Deviation Type	Comments
C.2-K.4	1.8-6.2		360	180	FL- Loose Fibers	
D.2	6.0		3	3	IH – Excess (High) Infill	
E.2	5.8		0.2	0.5	FW - Worn Fibers (High wear)	
E.7	5.6		0.5	0.2	FW - Worn Fibers (High wear)	
K.1	5.6		0.5	10	DO-Other	Black line color fading
C.4	5.1		5	8	IH – Excess (High) Infill	
E.2	4.3		0.5	6	DO-Other	Discoloration - Majority of Black Lacrosse lines are faded/fading
I.3	4.3		2	1	DO-Other	Repair
J.0	4.3		2	8	FW - Worn Fibers (High wear)	
J.5	4.3		5	0.2	FW - Worn Fibers (High wear)	Worn from goal post
J.5	3.6		4	0.2	FW - Worn Fibers (High wear)	Worn from goal post
J.2	3.8		5.5	4	DO-Other	Repair - located within lacrosse circle
J.1	3.8		8	16	DO-Other	Repair - PK line
I.6	3.8		3	30	DO-Other	Multiple repairs
H.7	3.8		1.5	1	DO-Other	Repair
F.6	3.8		1	1	DO-Other	Repair
D.7	3.8		1	1.5	DO-Other	Repair
D.4	3.8		4	6	DO-Other	Repair
D.3	3.8		1.5	1.5	DO-Other	Repair
D.3	3.8		0.5	0.1	FW - Worn Fibers (High wear)	
C.6	3.0		20	5	IH – Excess (High) Infill	
K.0	1.8		0.5	0.5	FW - Worn Fibers (High wear)	
D.3	2.0		4	4	IH – Excess (High) Infill	



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ON-SITE TESTING CONDITION ASSESSMENT



Testing Location Photo Sequence

Photos have been taken at each location and are displayed below.

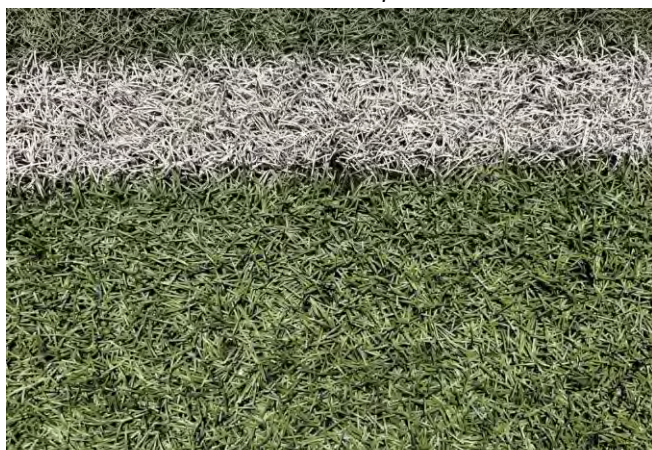
Location #1



Location Map



3" to 6" Height Photo



Shin Height Photo



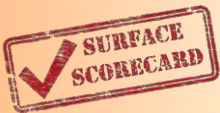
Chest Height Photo



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Location #2



Location Map



3" to 6" Height Photo

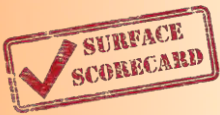


Shin Height Photo



Chest Height Photo





Location #3



Location Map



3" to 6" Height Photo



Shin Height Photo



Chest Height Photo





Location #4



Location Map



3" to 6" Height Photo



Shin Height Photo



Chest Height Photo



Location #5



Location Map



3" to 6" Height Photo



Shin Height Photo



Chest Height Photo



Location #6



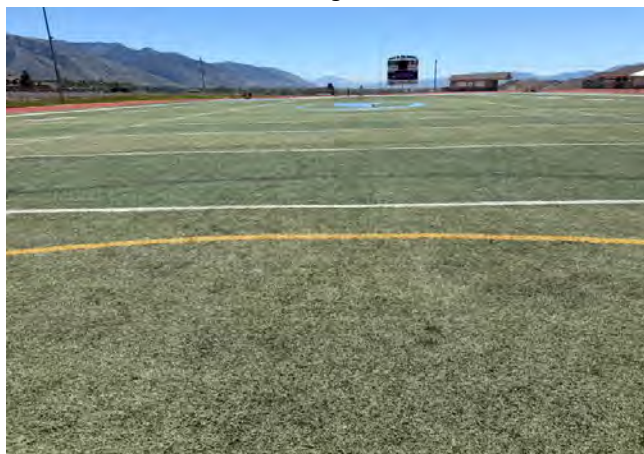
Location Map



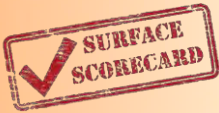
3" to 6" Height Photo



Shin Height Photo



Chest Height Photo



Location #7



Location Map



3" to 6" Height Photo

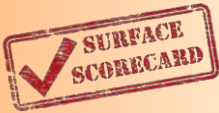


Shin Height Photo



Chest Height Photo





Location #8



Location Map



3" to 6" Height Photo

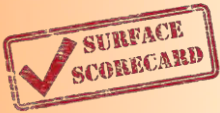


Shin Height Photo



Chest Height Photo

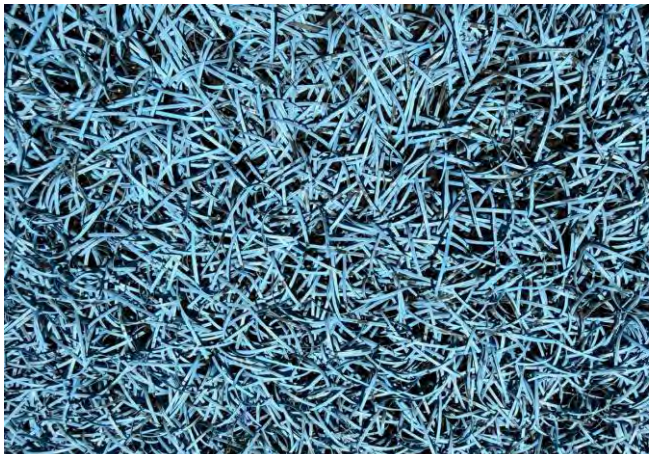




Location #9



Location Map



3" to 6" Height Photo



Shin Height Photo

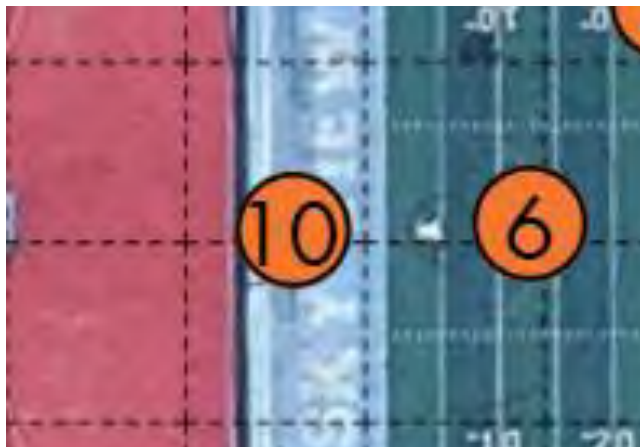


Chest Height Photo





Location #10



Location Map



3" to 6" Height Photo



Shin Height Photo



Chest Height Photo

End of Report

ON-SITE TESTING CONDITION ASSESSMENT



Project Information

Job No	102040/12214s		Test Date	6/11/2026	
Field Reference	Green Canyon High School Stadium		Client	Cache County School District	
Field Address	2960 North Wolf Pack Way North Logan, UT 84341		Client Address	84 E 2400 North North Logan, UT 84341	
Report Date	6/22/2026		Project Manager	Michael Rocheleau	
Report Status	Final		Technician(s)	Keegan Sanborn Brian Carter	
Substrate Type	n/a		Field Orientation	End A= North	
Product Name	n/p		Infill Type	Rubber & Sand	
Pile Height (mm)	n/p		Shock Pad	Unknown	
	AM	PM		AM	PM
Air Temperature (°F)	50	65	Humidity (%)	51	24
Surface Temperature (°F)	64.2	104.5	Wind Speed (mph)	1	4
Weather Conditions	Clear & Sunny		Test Condition	Dry	

Notes:

1. This report has been prepared by Firefly Sports Testing with all reasonable skill, care and diligence within the terms of the contract with the Client and within the limitations of the resources devoted to it.
2. This report is confidential to the Client and Firefly Sports Testing accepts no responsibility whatsoever to third parties to whom this report, or any part thereof, is made known. Any such party relies upon the report at their own risk.
3. This report shall not be used for engineering or contractual purposes unless signed by the Author and the Checker and unless the report status is "Final."

Background

Firefly Sports Testing was commissioned to perform this on-site condition assessment per the protocol developed by Firefly Sports Testing. Standard test methods are performed together and held against a scoring system to provide a quantitative look at a range of important attributes. This broader perspective allows for more informed decision making.

Assessment Introduction

At Firefly Sports Testing we understand the need for a qualitative approach to a quantitative assessment of sports surface condition. Therefore, we have created our surface scorecard condition assessment program. We have used our experience of testing thousands of surfaces to provide a qualitative look at surface condition using quantitative indicators.

This report has two main parts. The first part is the surface scorecard. This surface scorecard is a subjective scoring system that uses criteria based on commonly accepted ranges regardless of age to assess field condition.

Our surface scorecard is a cumulative point system that will yield a letter grade to reflect your surface's condition. The points awarded are based on 9 different surface properties tested / measured on-site. The results from each test are measured against four corresponding ranges of values to score each result. The ranges are classified as Poor (0 points), Fair (1 point), Good (2 points) and Excellent (3 points). This can be viewed in the results criteria.

Since each property has a different importance, it is assigned a "weight factor" based on the intended use and significance to the overall condition of the surface. For example, the impact safety tests have the highest weight factor. The weight factor can be viewed in the scorecard table.

The second part of this report contains background information and results graphs for each test performed. If you are not familiar with surface performance testing, then part 2 might be a good place to start to gain an understanding of the tests applied to the surface scorecard.





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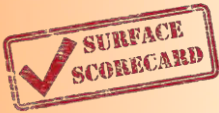
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Methods used within this assessment:

Test Type	Test Method	Test Description
Critical Fall Height	ASTM F3146-18	Standard Test Method for Impact Attenuation of Turf Playing Systems Designated for Rugby
<i>g</i>-max	ASTM F1936-19	Standard Specification for Impact Attenuation of Turf Playing Systems as Measured in the Field
Infill Depths	EN 1969:2000	Surfaces for Sports Areas – Determination of Thickness of Synthetic Sports Surfaces
AAA	ASTM F3189-20	Standard Test Method for Measuring Force Reduction, Vertical Deformation, and Energy Restitution of Synthetic Turf Systems Using the Advanced Artificial Athlete
Vertical Ball Rebound	EN 12235:2013	Surfaces for Sports Areas – Determination of Vertical Ball Behavior.
Ball Roll	EN 12234:2013	Surfaces for Sports Areas – Determination of Ball Roll Behavior <i>Modified: windspeeds exceeded maximum velocity during time of testing</i>
Rotational Resistance	EN 15301-1:2007	Surfaces for Sports Areas- Part 1: Determination of Rotational Resistance <i>Modified: Lightweight rotational resistance apparatus used</i>
Planarity	EN 13036-7:2003	Road and Airfield Surface Characteristics – Irregularity Measurement of Pavement Courses – The Straightedge Test

For the benefit of comparison, each of these tests were performed on the same locations specified by ASTM F1936. Therefore, many of these methods Results graphs and background information can be found in part 2 of this report.

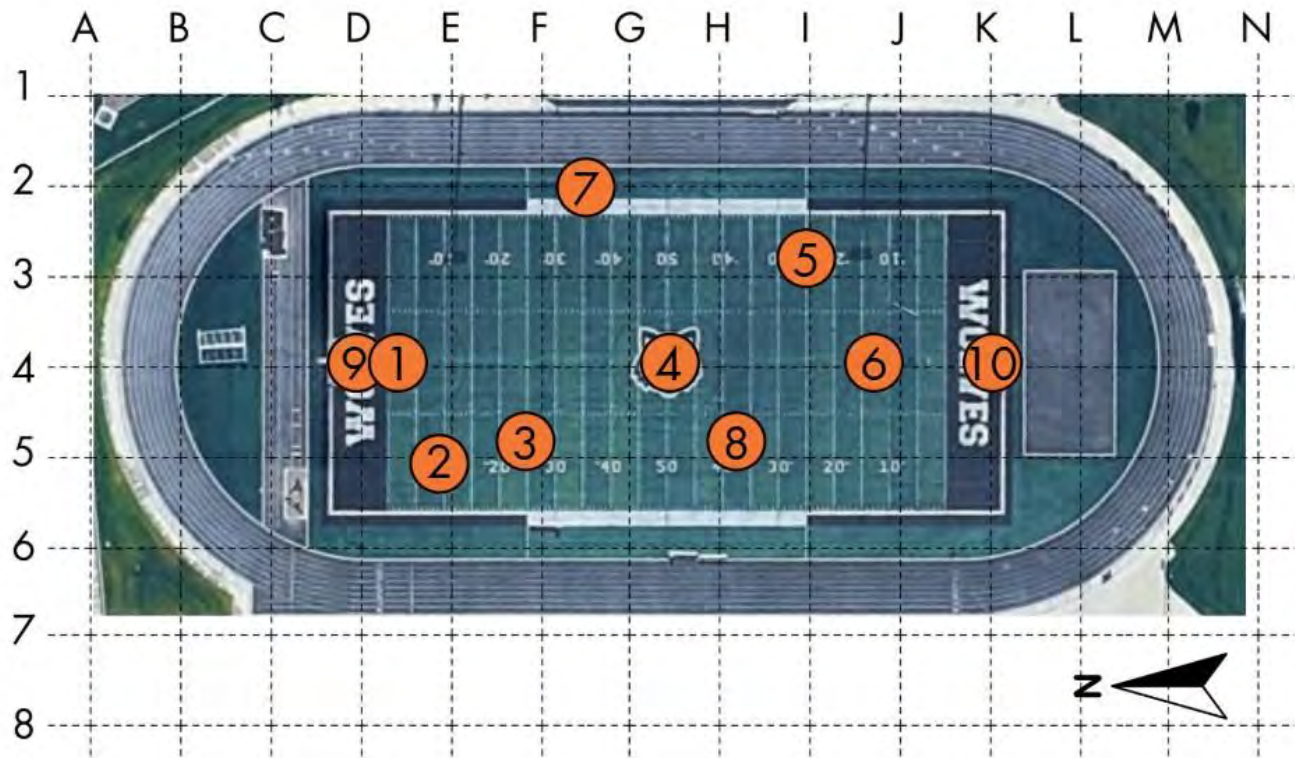
ON-SITE TESTING CONDITION ASSESSMENT



Overall Photos



Location Map



ON-SITE TESTING CONDITION ASSESSMENT



Overall Results

Below are the results of each of the tests performed per location along with a field average. Background and results graphs for each test can be found in part 2 of this report.

Property	Test Position										
	1	2	3	4	5	6	7	8	9	10	Avg
Critical Fall Height (m)	0.89	1.16	1.06	1.01	1.14	0.98	1.14	1.08	1.02	1.13	1.06
F1936 g-max (g's)	147	122	145	123	131	127	133	121	123	114	128
Infill Depth (mm)	36	37	35	36	36	37	38	36	37	41	37
Force Reduction (%)	54	59	59	57	58	57	59	58	56	64	58
Vertical Deformation (mm)	7.3	8.0	8.0	7.7	7.8	7.6	8.0	7.8	7.6	9.0	7.9
Vertical Ball Rebound (m)	0.87	0.84	0.84	0.94	0.84	0.87	0.90	0.85	0.82	0.85	0.86
Horizontal Ball Roll (m)	9.3	9.0	9.3	10.8	8.8	9.6	9.0	9.4	8.9	9.9	9.4
Rotational Resistance (Nm)	24	24	25	29	22	22	23	23	25	24	24

Part 1: Condition Assessment Criteria

Legend	Excellent 3pts	Good 2pts	Fair 1pt	Poor 0pts
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Property	This criteria is based on commonly accepted ranges applicable regardless of age.																		
Impact Tests																			
Critical Fall Height (m)	<	0.80	0.80	to	0.99	1.00	to	1.30	>	1.30									
F1936 G-max (g's)	<	120	120	to	165	166	to	200	>	200									
Player Interaction																			
Force Reduction (%)	<	50	50	to	54	55	to	59	60	to	70	71	to	75	>	75			
Vertical Deformation (mm)	<	3.0	3.0	to	3.9	4.0	to	4.9	5.0	to	10.0	10.1	to	11.0	11.1	to	12.0	>	12.0
Rotational Resistance (Nm)	<	20	20	to	24	25	to	29	30	to	45	46	to	50	51	to	55	>	55
Ball Interaction																			
Vertical Ball Rebound (m)	<	0.50	0.50	to	0.54	0.55	to	0.59	0.60	to	0.85	0.86	to	1.00	1.01	to	1.10	>	1.10
Horizontal Ball Roll (m)	<	3.0	3.0	to	3.9	4.0	to	4.9	5.0	to	8.0	8.1	to	10.0	10.1	to	12.0	>	12.0
Infill Deviation and Surface Regularity																			
Infill Deviation from avg (mm)	<	2.0	2.0	to	5.0	5.1	to	8.0	>	8.0									
Surface Regularity # of deviations found	0	1	to	4	5	to	9	>	10										



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ON-SITE TESTING CONDITION ASSESSMENT



Condition Assessment Results

Property	Test Position										Avg	Min	Max
	1	2	3	4	5	6	7	8	9	10			
Impact Tests													
Critical Fall Height (m)	0.89	1.16	1.06	1.01	1.14	0.98	1.14	1.08	1.02	1.13	1.06	0.89	1.16
F1936 g-max (g's)	147	122	145	123	131	127	133	121	123	114	128	114	147
Player Interaction													
Force Reduction (%)	54	59	59	57	58	57	59	58	56	64	58	54	64
Vertical Deformation (mm)	7.3	8.0	8.0	7.7	7.8	7.6	8.0	7.8	7.6	9.0	7.9	7.3	9.0
Rotational Resistance (Nm)	24	24	25	29	22	22	23	23	25	24	24	22	29
Ball Interaction													
Vertical Ball Rebound (m)	0.87	0.84	0.84	0.94	0.84	0.87	0.90	0.85	0.82	0.85	0.86	0.82	0.94
Horizontal Ball Roll (m)	9.3	9.0	9.3	10.8	8.8	9.6	9.0	9.4	8.9	9.9	9.4	8.8	10.8
Infill Deviation and Surface Regularity													
Infill Deviation from avg (mm)	0.9	0.1	1.9	0.9	0.9	0.1	1.1	0.9	0.1	4.1	1.1	0.1	4.1
Surface Regularity # of deviations found	27	This test is not location dependent and applies a uniform score based on the # of deviations.											

Condition Assessment Scorecard

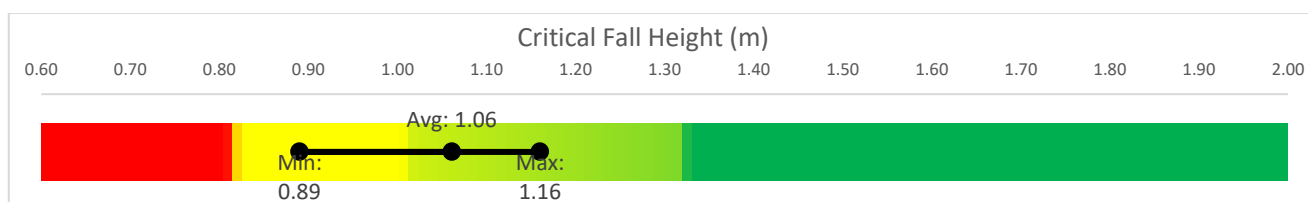
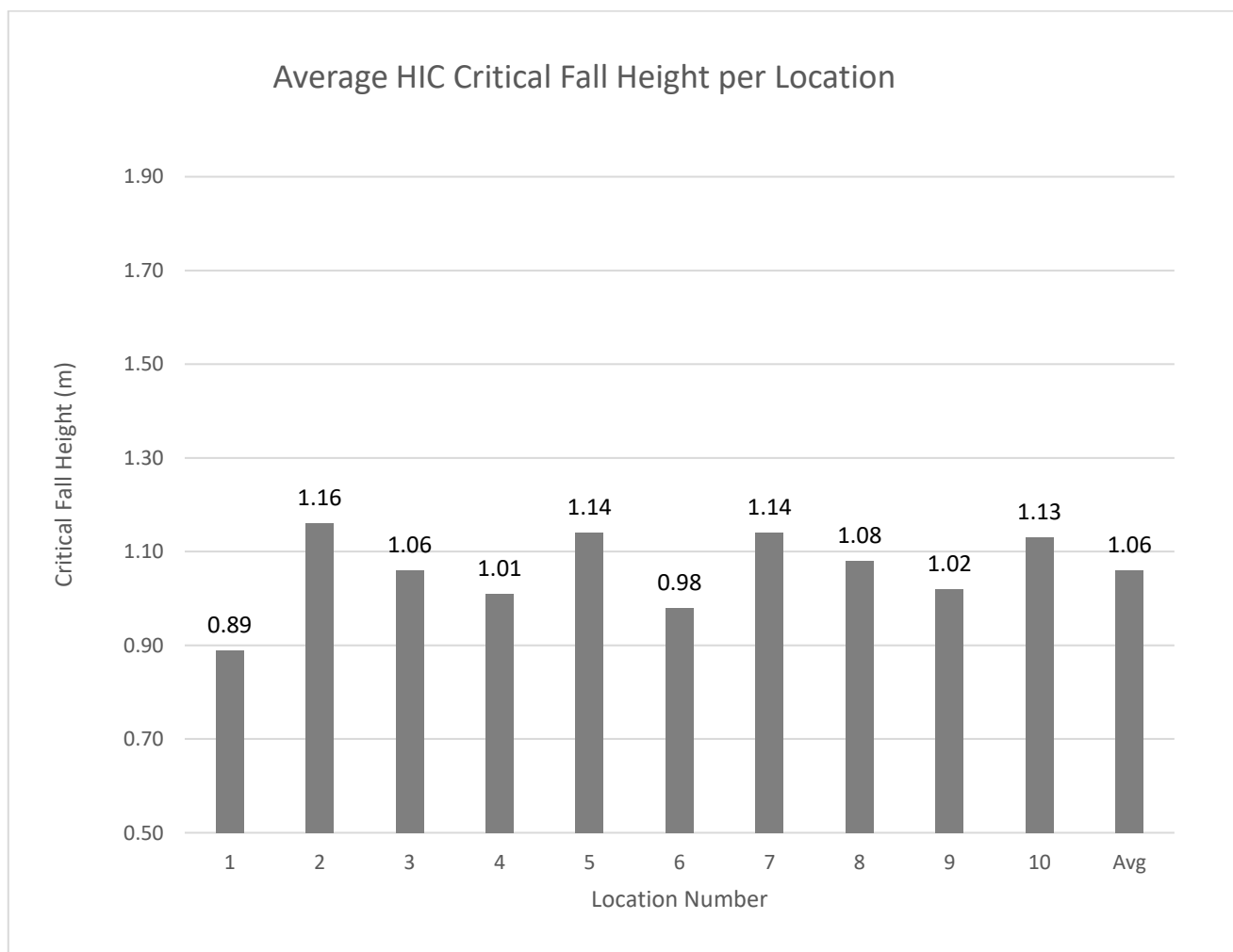
The criteria is based on commonly accepted ranges applicable regardless of age.															
Property	Weight Factor (%)	Test Position										Score		%	
		1	2	3	4	5	6	7	8	9	10				
Impact Tests															
Critical Fall Height (m)	17.5%	1	2	2	2	2	1	2	2	2	2	18	/	30	60%
F1936 g-max (g's)	17.5%	2	2	2	2	2	2	2	2	2	3	21	/	30	70%
Player Interaction															
Force Reduction (%)	12.5%	1	2	2	2	2	2	2	2	2	3	20	/	30	67%
Vertical Deformation (mm)	12.5%	3	3	3	3	3	3	3	3	3	3	30	/	30	100%
Rotational Resistance (Nm)	12.5%	1	1	2	2	1	1	1	1	2	1	13	/	30	43%
Ball Interaction															
Vertical Ball Rebound (m)	7.5%	2	3	3	2	3	2	2	3	3	3	26	/	30	87%
Horizontal Ball Roll (m)	7.5%	2	2	2	1	2	2	2	2	2	2	19	/	30	63%
Infill Deviation and Surface Regularity															
Infill Deviation from avg (mm)	5.0%	3	3	3	3	3	3	3	3	3	2	29	/	30	97%
Surface Regularity # of deviations found	7.5%	0	This test is not location dependent and applies a uniform score based on the # of deviations.									0	/	3	0%
Total Score:														65%	
Grade:														D	



Part 2: Individual Test Background and Results Graphs

HIC Critical Fall Height (Hemispherical Drop Form) – ASTM F3146

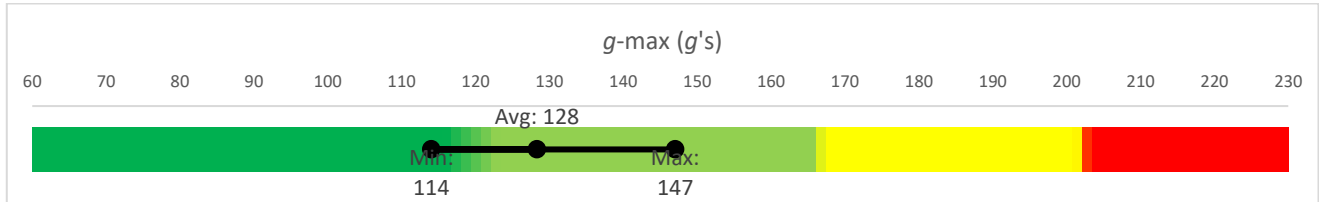
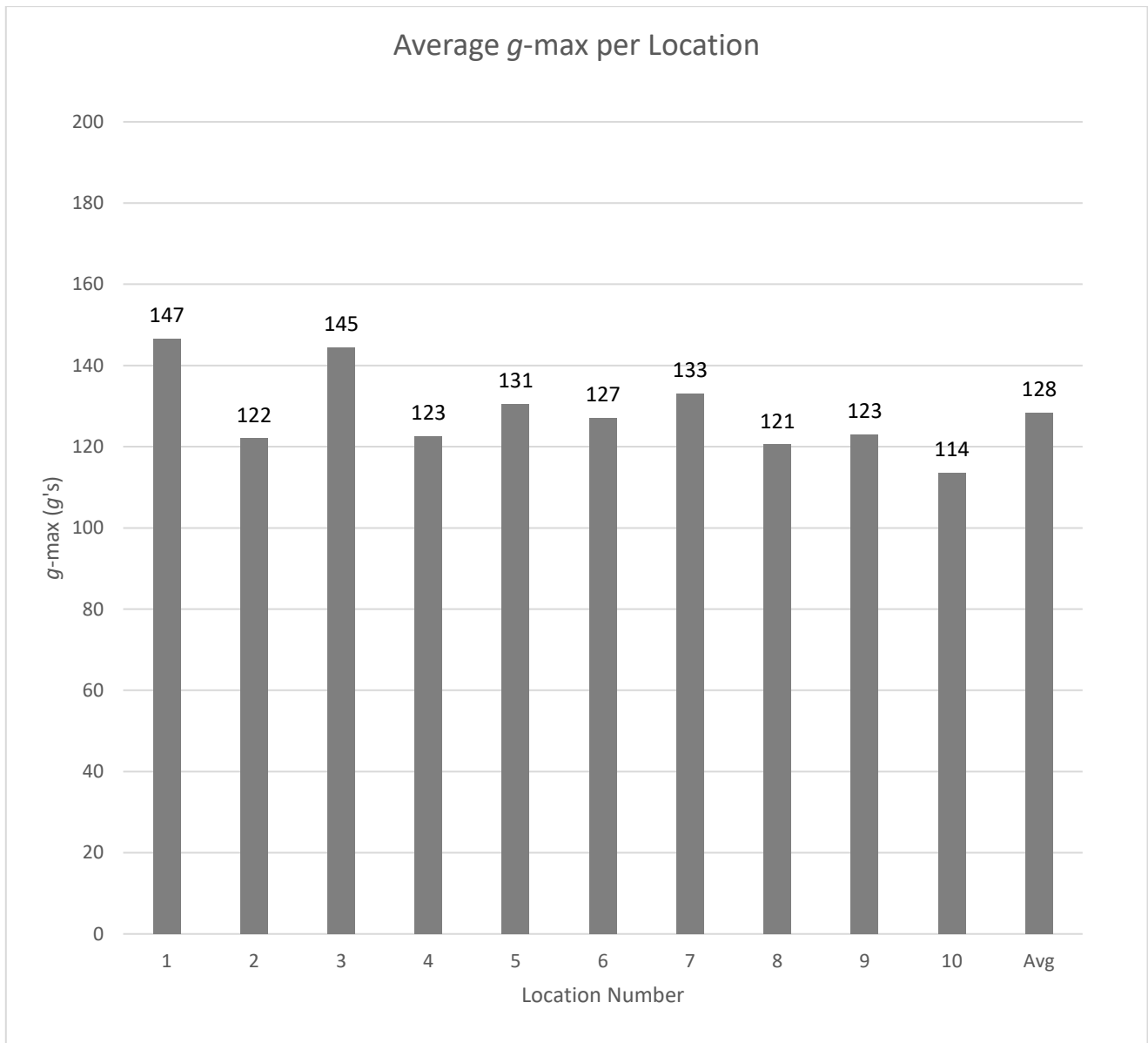
The ASTM F3146 standard establishes a test method to be used when testing a synthetic turf field's impact attenuation property for assessing its suitability for rugby and other sports. The method is similar to the method commonly used for assessing playground surfacing in the United States. The test device calculates the Head Injury Criteria (HIC). This is used to gauge the probability of head injury potential resulting from a surface impact. This device is a hemispherical 10 lb "drop form" with a tri-axial accelerometer. The hemisphere is dropped from (4) different heights to determine the height at which the HIC would be 1000. This height is referred to as the critical fall height. It is recommended that the critical fall height values be greater than 1.3 m. The critical fall heights determined can be found in the graphs below and the Overall Results table above.

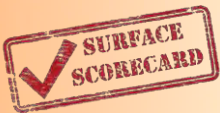




Turf Impact Attenuation (g-max) – ASTM F1936

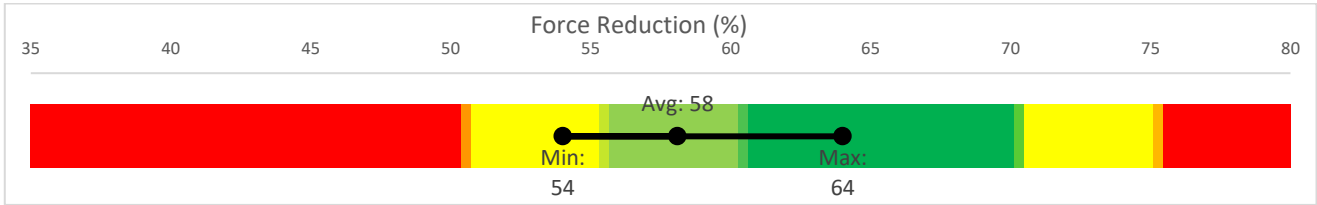
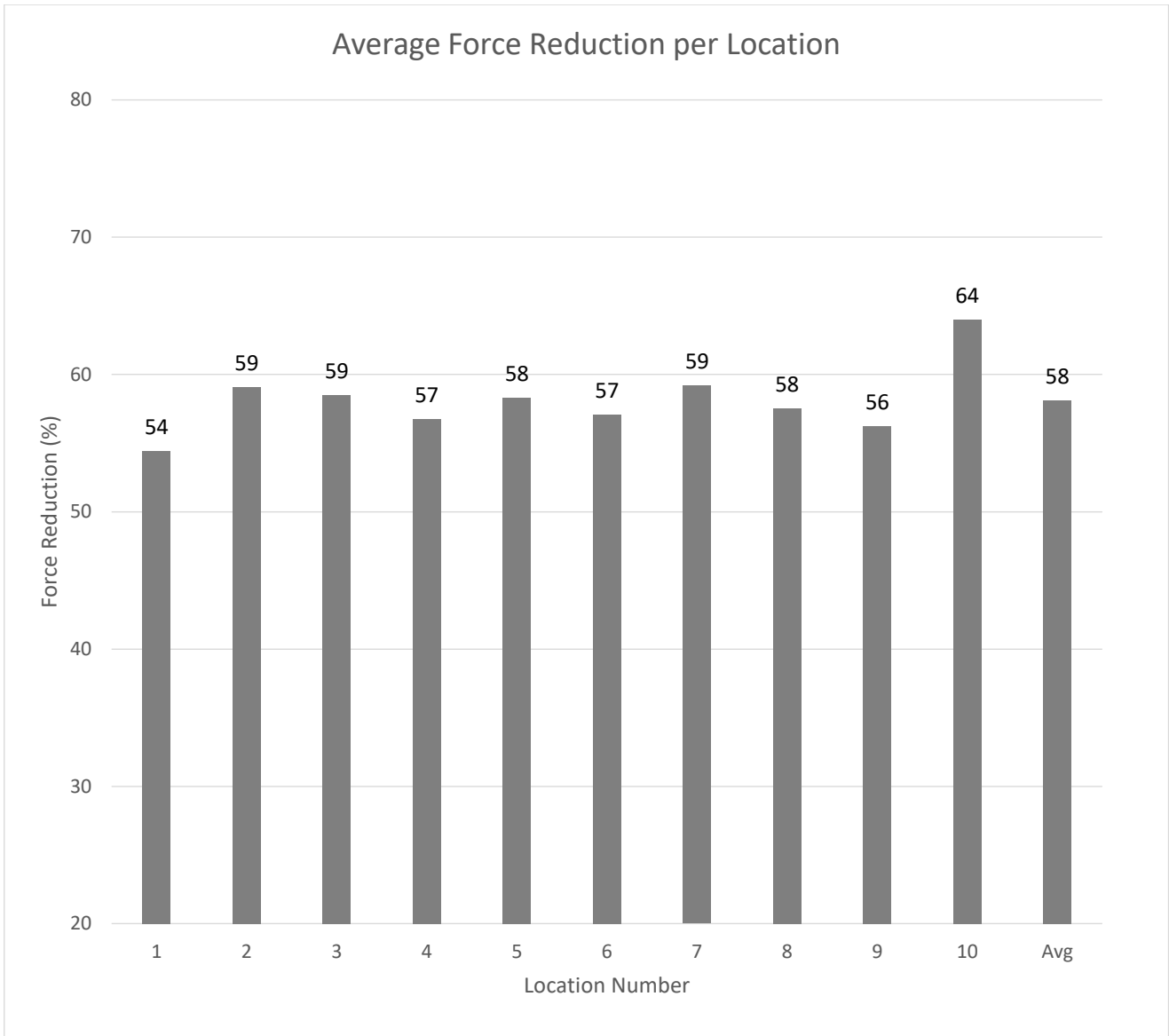
The ASTM F1936 impact attenuation test method specifies the official device / method for assessing the hardness of synthetic turf athletic fields. It is used to gauge impact attenuation based on a predetermined head / body impact. The device uses a 20 lb “drop form” with a tri-axial accelerometer dropped from a height of 24 in. The ASTM recommends that the g-max values be less than 200 g’s. The results can be found in the graphs below and the Overall Results table above.





Force Reduction – ASTM F3189 Advanced Artificial Athlete Protocol

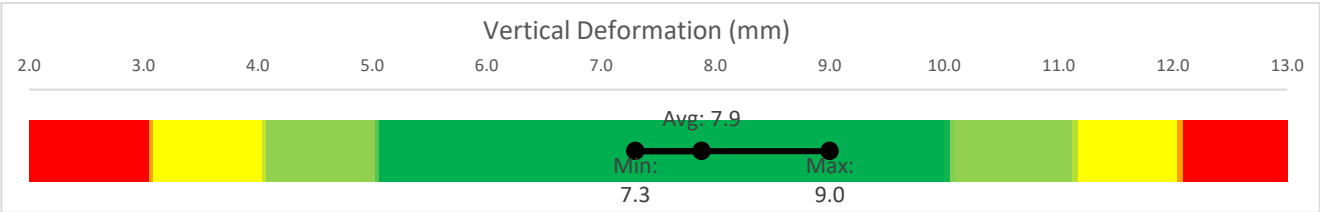
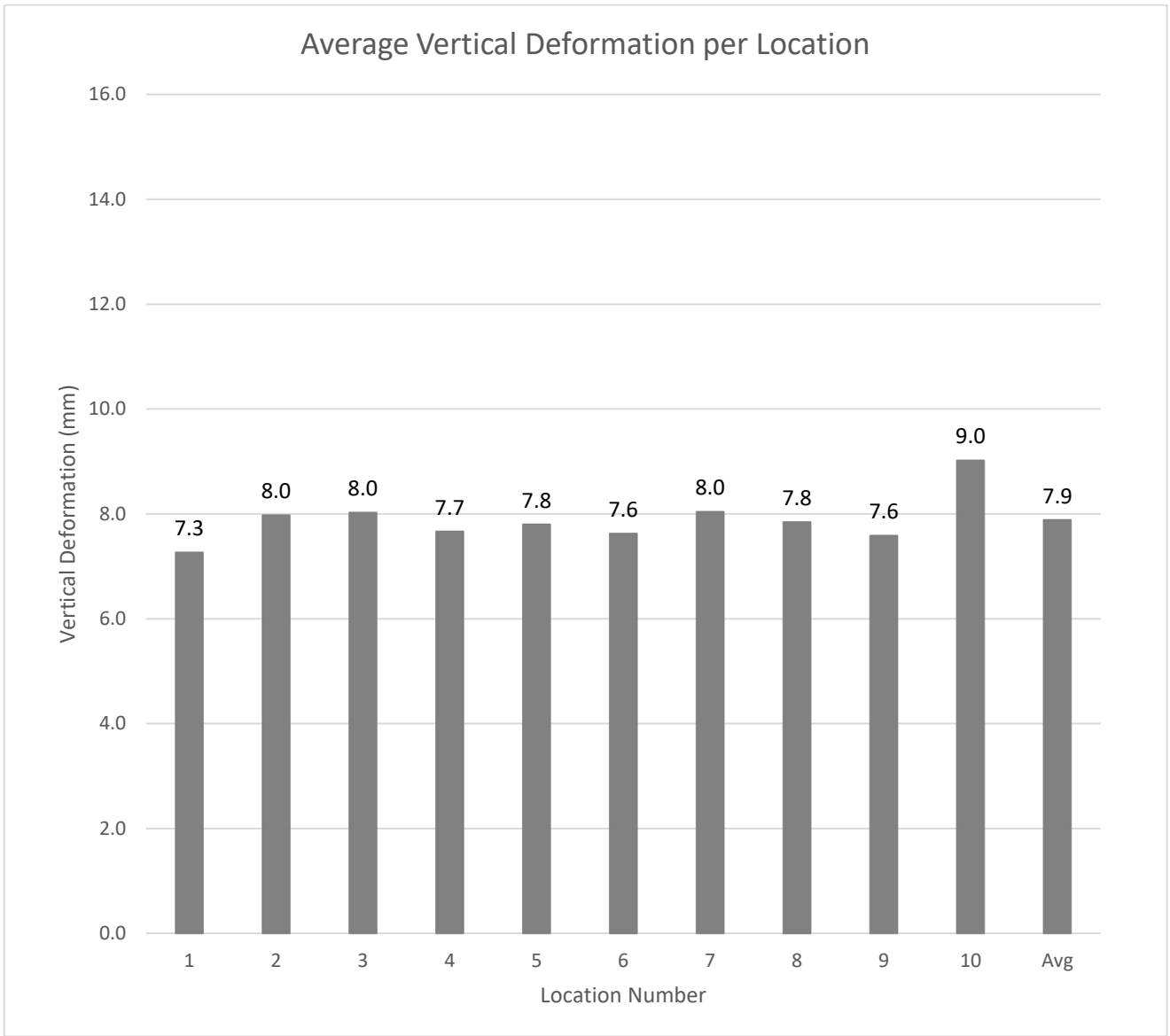
Force Reduction measures the shock absorption provided by the surface to a player under foot as they run. A lower value describes a surface that is harder underfoot and higher value describes a surface that is softer underfoot. As a field ages, these values will become harder (lower) over time. The results can be found in the graphs below and the Overall Results table above.

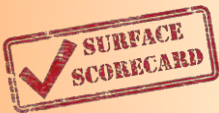




Vertical Deformation - ASTM F3189 Advanced Artificial Athlete Protocol

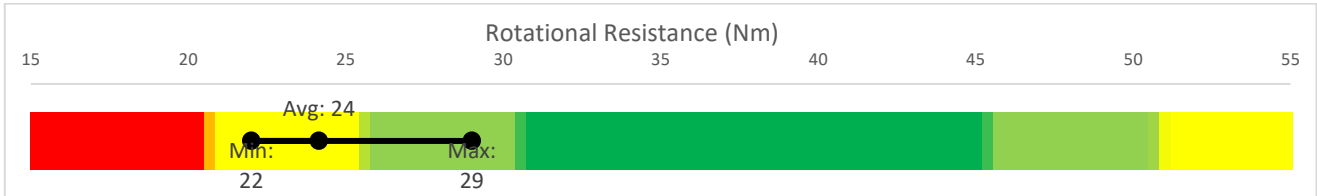
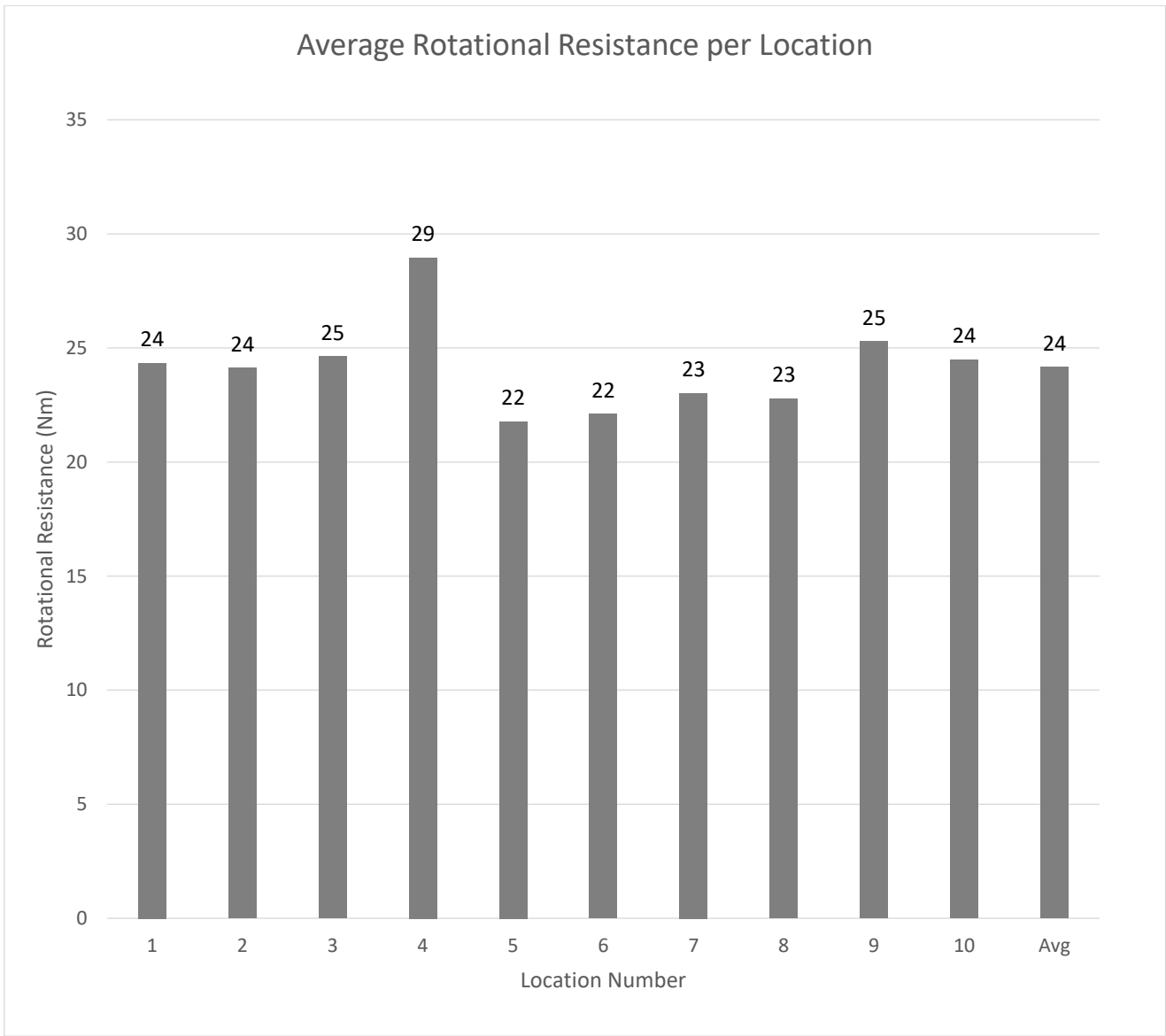
Vertical Deformation measures the amount a surface compresses as an athlete runs across it. This value is often related to speed of play and surface stability. As a field ages, these values will become lower over time. The results can be found in the graphs below and the Overall Results table above.





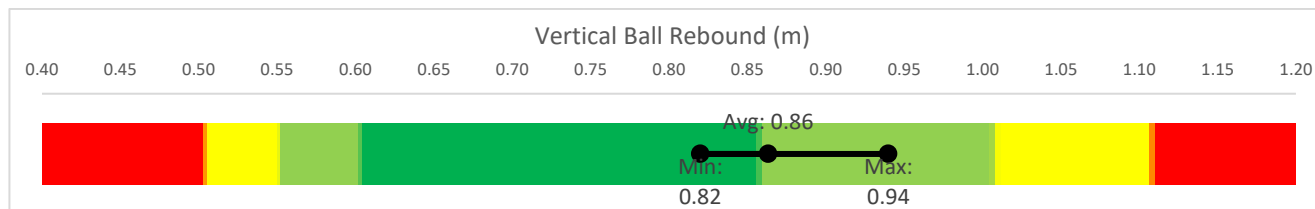
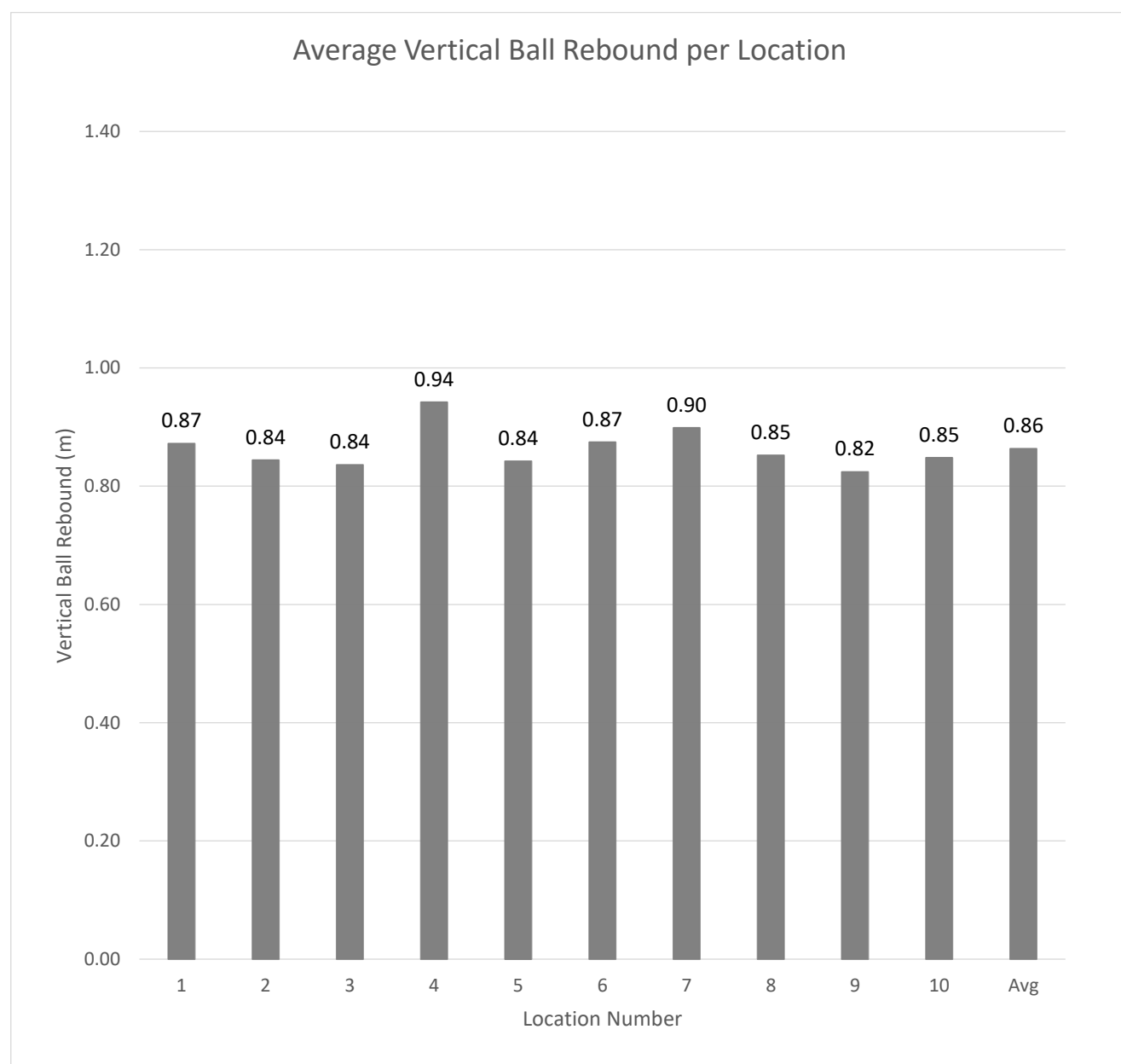
Rotational Resistance – EN 15301-1

Rotational Resistance measures the torsional resistance of a weighted apparatus with a standard cleat pattern that is rotated on a surface. The resistance is measured 5 times at each test location. A lower value reflects a surface with a low level of cleat release and a higher value describes a surface with more “grab” or cleat resistance. Please note that this test reflects the characteristics of the surface and does not take the athletes footwear into account. Footwear can dramatically impact the resistance experienced by an athlete. The results can be found in the graphs below and the Overall Results table above.



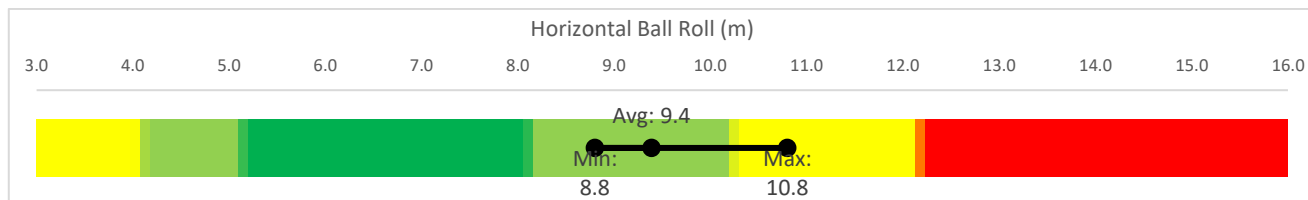
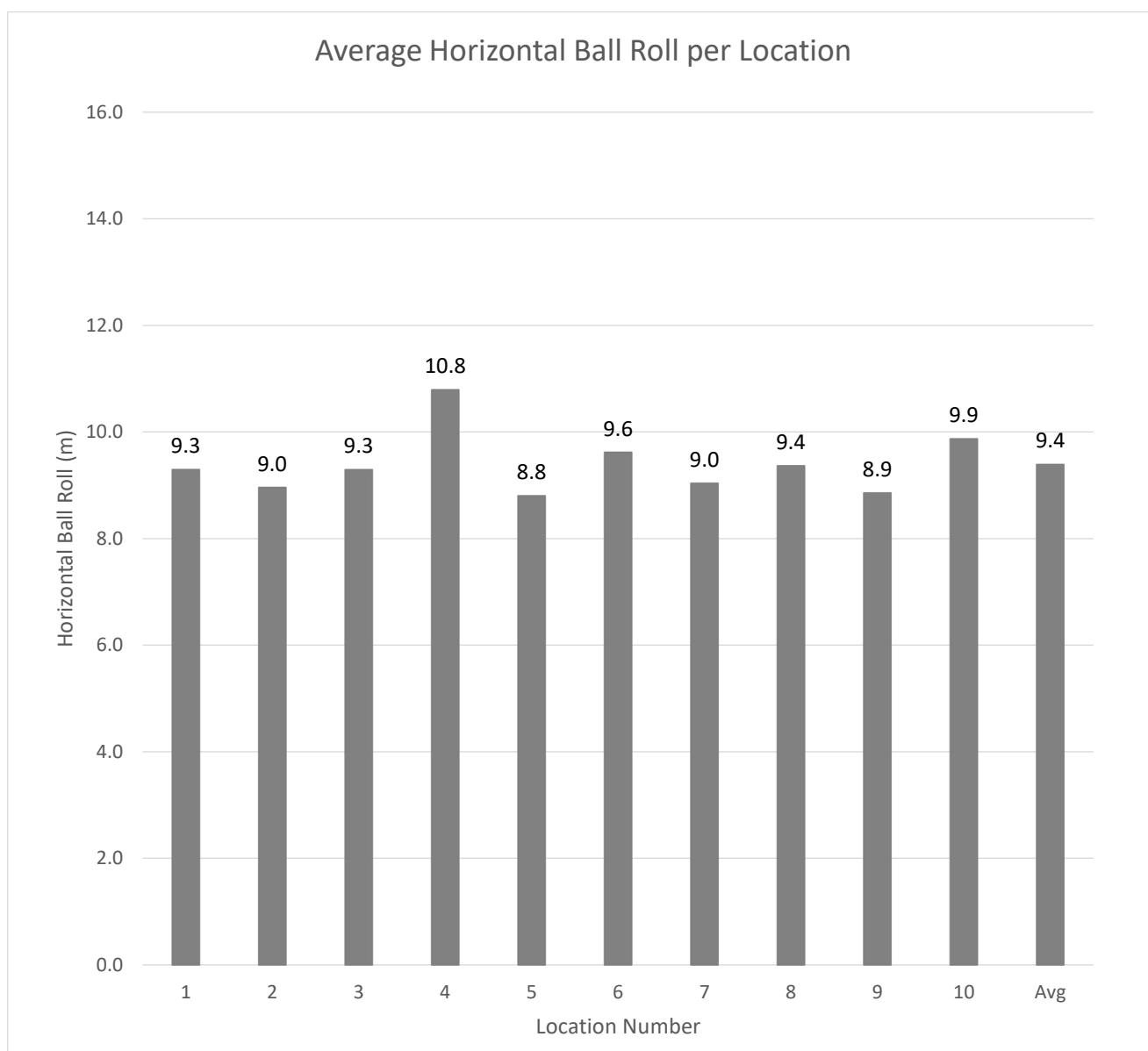
Vertical Ball Rebound - EN 12235

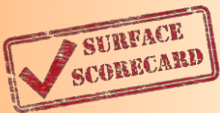
Vertical Ball Rebound measures how high the ball bounces when falling vertically onto a synthetic turf field. A calibrated ball is released from 2 meters and the height of its rebound from the surface is calculated. Typically, as a field ages, these values will increase over time. The results can be found in the graphs below and the Overall Results table above.



Horizontal Ball Roll - EN 12234

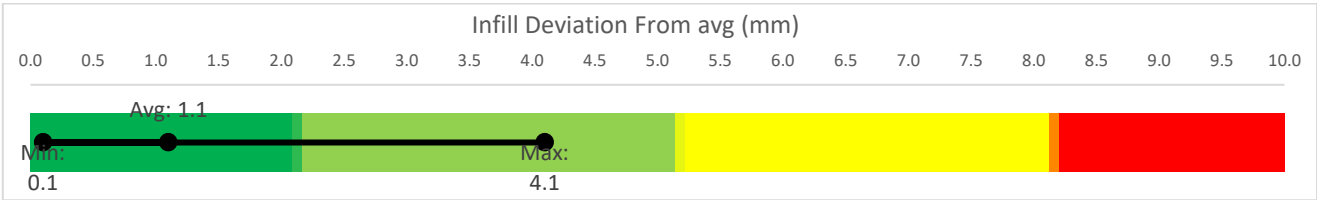
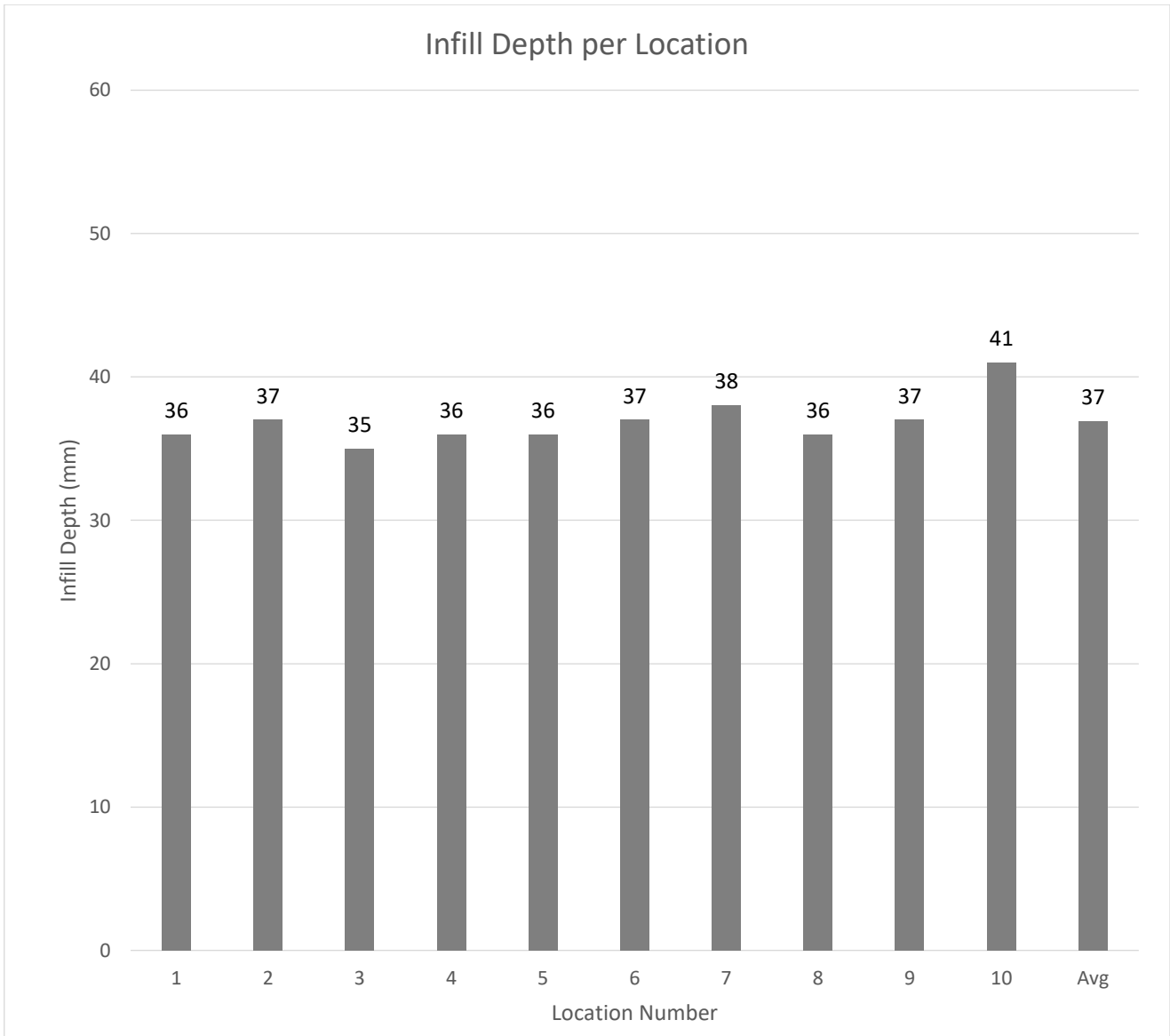
Horizontal Ball Roll measures the distance a ball rolls on synthetic turf. A calibrated ball is rolled off a specified ball ramp. The ball is rolled 3 times in 4 directions at each location. These values are used to determine the location average. The results can be found in the graphs below and the Overall Results table above.





Infill Depth Evaluation – EN 1969

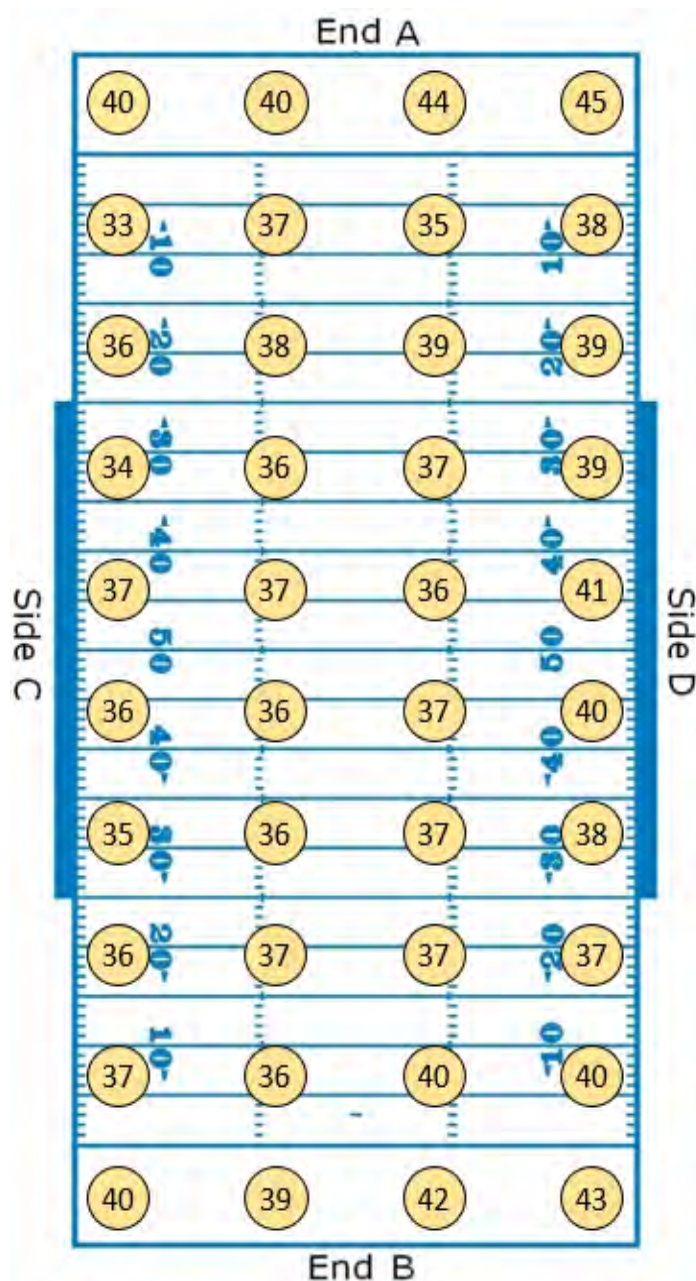
Infill depth measurements were taken at each location. This test determines the depth and distribution of infill. A lack of infill and/or an uneven distribution of infill can lead accelerated fiber degradation and differential wear. The results can be found in the graphs below and the Overall Results table above. Additional infill depth information has been included on the following page.





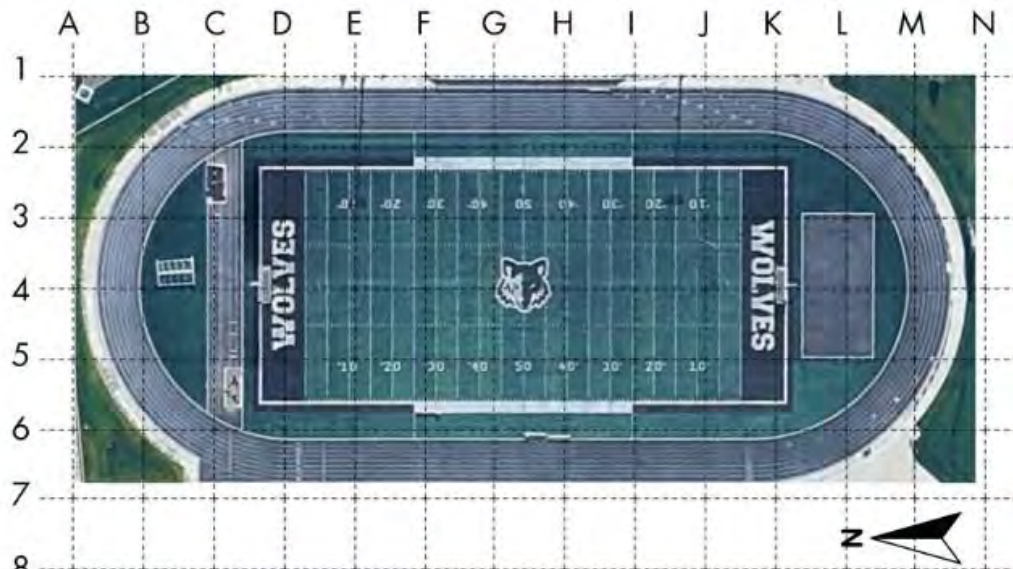
Additional infill depth measurements were taken at each of 40 locations distributed evenly across the field. These results are supplemental to the 10 infill depths included in the Overall Results table. The results and location map can be found below.

	Average	(min)	Range	(max)
Infill Depth (mm)	38	33	to	45



Surface Regularity – EN 13036-7

This test evaluates the planarity and evenness of a surface. A 3-meter straight edge is used to check for positive and negative deviations greater than 10 mm across the entire field of play. A reference map can be found below.



X	Y	Depth (mm)	Length, X (ft)	Width, Y (ft)	Deviation Type	Comments
D.5	3.9		1	1.5	Repair	
D.4	4.0		1	2	DO-Other	Exposed backing
D.3	4.0		60	18	FL- Loose Fibers	Fiber loss
E.4	5.1		3	3	IH – Excess (High) Infill	
E.2	3.9		2	2	IH – Excess (High) Infill	
E.9	4.5		1	1.5	Repair	
F.0	2.2		360	15	FL- Loose Fibers	White fiber loss along sidelines and numbers
F.3	3.9		1	6	IH – Excess (High) Infill	
G.3	3.9		0.5	0.5	FW - Worn Fibers (High wear)	Center of field
J.2	3.9		5	4	Repair	
J.3	3.9		1	1.5	Repair	
J.3	3.9		0.25	0.5	FW - Worn Fibers (High wear)	Exposed Backing
C.5-M	2-6		360	180	DO-Other	Matted fibers
K.0	5.7	11	1	1	Lxx – Low spot of -XX mm	
G.2	5.6	10	2	1	Lxx – Low spot of -XX mm	
I.8	5.2	12	2	1	Lxx – Low spot of -XX mm	
H.7	5.2	18	3	2	Lxx – Low spot of -XX mm	
G.9	5.2	12	2.5	1.5	Lxx – Low spot of -XX mm	
G.4	5	13	3	1.5	Lxx – Low spot of -XX mm	
G.7	4.7	11	1	1	Lxx – Low spot of -XX mm	
I.4	4.2	13	3	1	Lxx – Low spot of -XX mm	
G.2	4.2	11	1.5	1.5	Lxx – Low spot of -XX mm	
G.5	4	18	6	2.5	Lxx – Low spot of -XX mm	
I.7	3.6	10	0.5	0.5	Lxx – Low spot of -XX mm	
G.4	2.6	15	2.5	1	Lxx – Low spot of -XX mm	
G.6	2.1	11	1.5	0.5	Lxx – Low spot of -XX mm	
G.2	2.1	12	2	1	Lxx – Low spot of -XX mm	

ON-SITE TESTING CONDITION ASSESSMENT



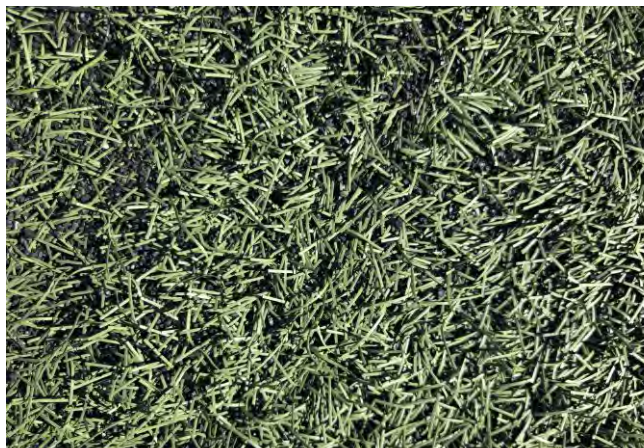
Testing Location Photo Sequence

Photos have been taken at each location and are displayed below.

Location #1



Location Map



3" to 6" Height Photo



Shin Height Photo



Chest Height Photo



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Location #2



Location Map



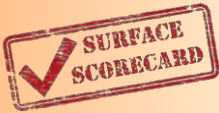
3" to 6" Height Photo



Shin Height Photo



Chest Height Photo



Location #3



Location Map



3" to 6" Height Photo



Shin Height Photo



Chest Height Photo





Location #4



Location Map



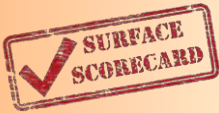
3" to 6" Height Photo



Shin Height Photo



Chest Height Photo



Location #5



Location Map



3" to 6" Height Photo



Shin Height Photo



Chest Height Photo



Location #6



Location Map



3" to 6" Height Photo



Shin Height Photo



Chest Height Photo



Location #7



Location Map



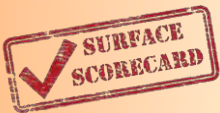
3" to 6" Height Photo



Shin Height Photo



Chest Height Photo



Location #8



Location Map



3" to 6" Height Photo



Shin Height Photo



Chest Height Photo



Location #9



Location Map



3" to 6" Height Photo



Shin Height Photo



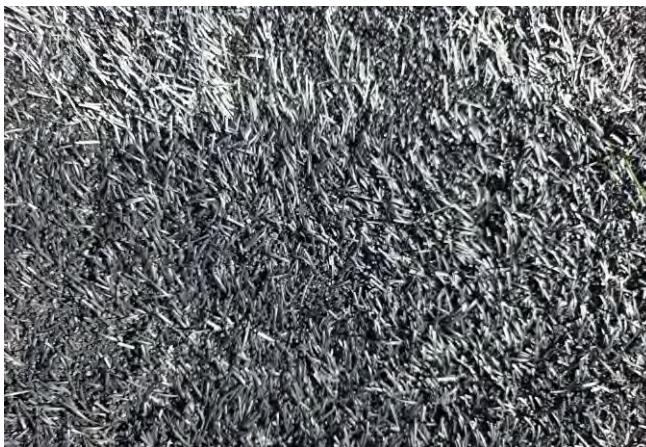
Chest Height Photo



Location #10



Location Map



3" to 6" Height Photo



Shin Height Photo



Chest Height Photo

End of Report