

## Introduction

The following is a brief but reasonably complete description of the proposed work as it currently proposed. The project is currently in the Design Development Phase, with many of the engineering details having been identified and either addressed or actively in engineering. There are several supporting documents referenced which provide full detail for specific areas of the work. They are appended here by reference and are listed below.

Located at 3429 45th Ave SW, Seattle, WA 98116, the Madison Middle School campus spans two tax parcels totaling 8.9 acres, with the outdoor sports, athletics, and physical educational facilities, along with surface water management facilities, occupies the west half of the campus. The site is bounded on all sides by a residential neighborhood. Currently, the field is under-drained natural grass, and the perimeter running track is permeable under-drained rubberized surfacing. Both surfaces share a common subsurface drainage system. The existing improvements were completed in 2006 and total 68,000sf. 5' to 6' beneath the field & track section are a gallery of geothermal exchange manifolds and piping.

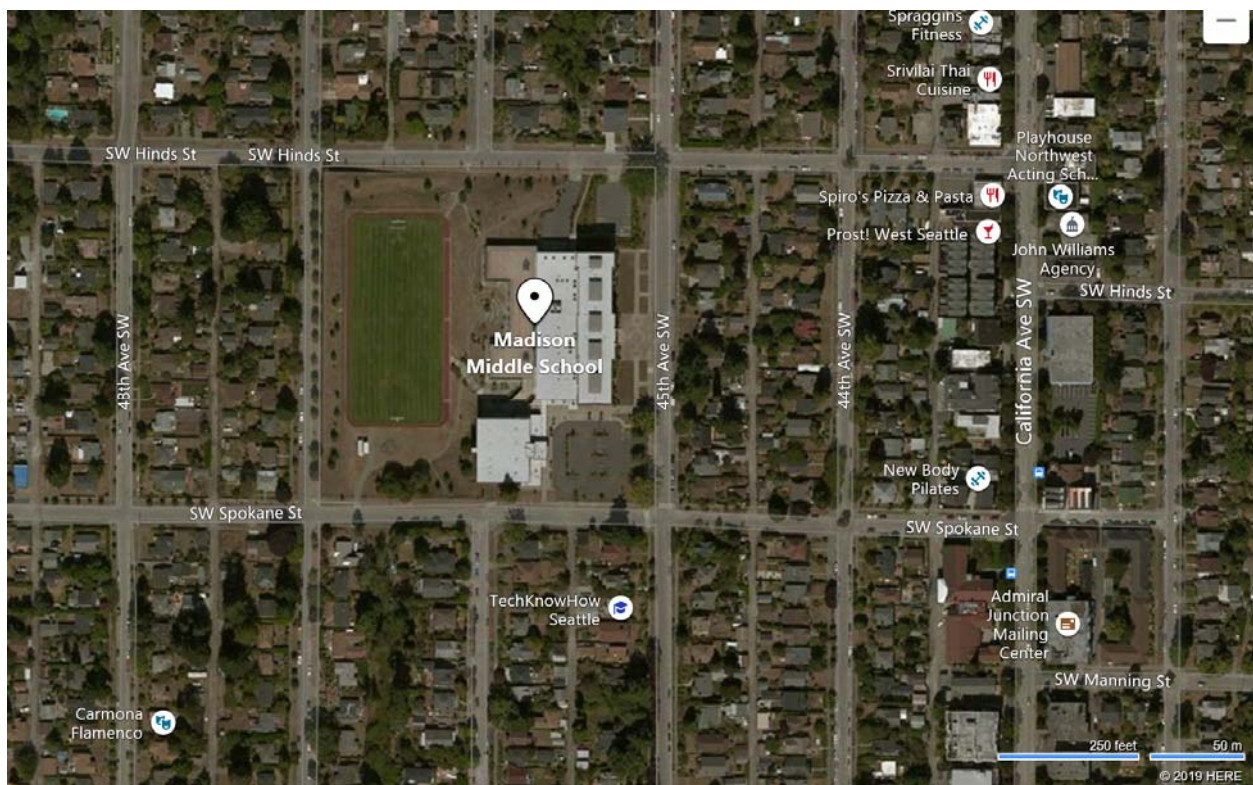


Figure 1 The Project site occupies the west half of the Madison Middle School Campus (north is directly “up” in this image).

As is typical among School and Park Districts across the Puget Sound Region, the Seattle School District has been challenged by increases in its student population and the popularity of its athletics and community recreational programs. Regardless of the level of maintenance committed to any given field, the facts of scheduling demands and weather invariably intersect with the realities of growing grass, and the results are damaged fields, undesirable or even unsafe conditions, and closed fields. Because much

of the scheduled use occurs during the extended dormancy for grass fields, the wear and tear is cumulative. The winter dormant period bridges the late fall seasons for soccer and football and the early spring seasons of soccer, field and track, baseball, and softball. Damage and wear sustained in November is typically still there when spring sports begin in March, and cannot reasonably be repaired until the end of the school year in late June. Without extreme limits on scheduling, this has been found to be an unsustainable practice. To mitigate this condition, the District proposes converting the natural grass to synthetic turf. A new lighting system will allow additional community use on weekday afternoons and evenings, and most of the weekend, particularly during the winter months when shortened daylight hours otherwise prohibit use.



Figure 2 The concept plan above (rotated so that north is generally to the left), shows the converted playing field. Refer to the accompanying Color Concept Plan.

### Regulatory Requirements

The following Environmental, Land Use, and Construction Permitting Requirements are anticipated.

- SEPA Threshold Determination (Administered by the District as Lead Agency); initial publication and comment period has been completed.
- Type 2 Master Use Permit (MUP/Special Exception per SMC 23.51B.002.D.6.b.1) administered by City of Seattle Department of Construction & Inspections (SDCI); Pre-Application Conference requested.
- NPDES (administered by Washington State Department of Ecology); Will be prepared prior to finalization of the Building Permit Submittal documents.

- Building Permit (SDCI) for light poles.
- Construction permit (Clearing & Grading, Drainage Review, SDCI) for site disturbance and drainage improvements.
- Right-of-Way Permit (Seattle Department of Transportation - SDOT) for construction access & traffic.

#### Contractor-provided Permits

- Electrical / L&I
- Plumbing

#### Stormwater Management

The District proposes to convert the existing under-drained, irrigated, sand-based grass playing surface with a similarly under-drained synthetic turf surface. The District's experience is that this will allow all scheduled activities to occur without weather delays or cancellations. In order to accommodate the currently programmed football and soccer uses in better alignment with current standards (the National Federation of High School Associations, or NFHS, establishes recommendations which are adopted by the "local" Association, in this case the Washington Interscholastic Activities Association or WIAA), the Project proposes to expand the width of the field by approximately 6.5'. To better support Track & Field activities, the western lanes of the surrounding rubberized track are increased by 2.0'. To accomplish this, the existing chain link fence along the west edge and top-of-slope is moved west about 0.7'.

The nature of the proposed project surfaces is the basis of the applicable drainage code interpretation and our response for compliance. Formal Athletic fields (under-drained fields of either grass or synthetic turf) are typically interpreted by the regulating jurisdiction as "Pollution Generating Impervious Surfaces" ("PGIS"). These are often the most difficult to engineer into compliance, being that both water quantity and quality requirements are very strict. The project site is located within a non-capacity constrained drainage basin that discharges to a designated receiving water, Puget Sound; therefore, stormwater detention will not be required. The project proposes new plus replaced hard surface, consisting of the under-drained synthetic turf field, rubber surfacing, and concrete/asphalt walkways. Per the City's 2016 Stormwater Manual, under-drained natural or synthetic fields are considered to be pollution-generating hard surfaces and are modeled as 100% impervious. The project is required to implement On-site Stormwater Management to the extent feasible as it includes more than 1,500 square feet (SF) of new plus replaced hard surface. Additionally, the project proposes more than 5,000 square feet of pollution-generating hard surfaces and will require Basic Water Quality treatment.

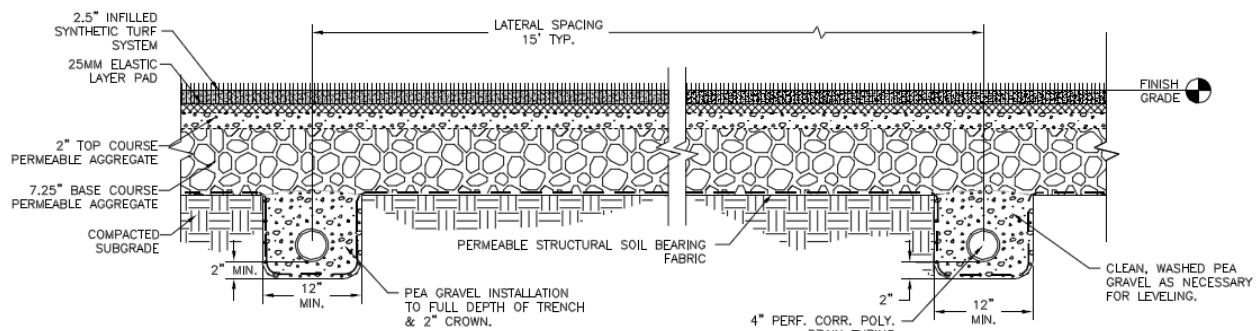
A complete Storm Water Technical Information Report (TIR), or Drainage Report, will be prepared for submittal with the Construction Permit Application.

#### Playing Field Surfacing

The existing 64,000sf grass field is proposed to be replaced with 66,350sf of synthetic turf. The new field surface will be a resilient, vertically draining infilled synthetic turf surface installed over a supplemental resilient pad, directly on a permeable aggregate base. Since 2016, all Seattle School District synthetic turf installations have all consisted of the following materials;

- Polyethylene Fiber, generally a blend of monofilament and/or "slit film", tufted into a geotextile backing coated in polyurethane
- Granular cork and sand infill

- Supplemental Pad consisting of a paved-in-place elastic layer (“e-layer”) or panelized polyethylene foam modules (“Brock”)
- Most commonly installed on a permeable aggregate base with a subsurface drainage system piped to City utility (as previously described).



*Typical Synthetic Turf Field Section including new or replaced field subsurface drainage*

### Running Track Surfaces

All of the track running lanes will be a permeable polyurethane rubberized base matt – structural spray (“BMSS”) surfacing on a pervious base. The existing track surface is constructed on porous asphalt. The proposed rubberized track surfacing will be built on a paved-in-place pervious pea-gravel/polyurethane matrix. BMSS surfaces are provided by multiple vendors, using granular rubber bound with polyurethane and paved directly on the prepared base using equipment typical of asphalt paving. Once approved, the resilient paved base matt is protected with one or two sprayed applications of a polyurethane and fine aggregate EPDM “structural spray” most commonly seen in a reddish hue as illustrated on the plan. The new/replaced surfaces will be paved in place, over a permeable aggregate base that is continuous and integrated with that of the synthetic turf surfaces described above, matching the existing condition. Lane and runway lines, as well as typical running event markings, are painted on using latex paint.

### Earthwork Summary

In all, to prepare to receive the 75,000sf of new or replaced surfaces on the field & track plus perimeter disturbances, and the base and drainage infrastructure conditions required for them, the following is a current estimate of earthwork volumes required.

- Stripping of existing vegetation (sod) and other surfacing materials to a depth of 0.25’, producing 680cy cut/export
- Excavation of up to 9” of excess on-site soils, producing 2,040cy of export
- Import of engineered aggregates and other bulk materials 2,730cy

This yields a new fill of 10cy over the entirety of the site.

### Proposed Field & Site Lighting Design

The Project proposes to extend existing electrical service from the adjacent Middle School building interior, where all control infrastructure will be located. Underground conduit and junction boxes, and pole foundations will be included in the Phase 1 site work. Upon issuance of the Master Use Permit, the

light poles and fixtures, and electrical cabling and wiring will be installed. The field lighting is proposed to utilize highly efficient LED fixtures – essentially full-cut-off “box” design, based on a performance specification derived from MUSCO® product data and modeling – supported on 6 steel poles, each 70’ in height. The Project design includes 6 poles instead of 4 to improve uniformity based on the site geometry and program priorities, and to mitigate glare and spill effects on adjacent residential properties that might otherwise be increased by topography.

The illumination design assumes an IES Class IV lighting level, suitable for recreational play. Obtrusive effects of the field lighting system are extremely low as the LED fixtures attain a nearly full cutoff effect behind the poles, meaning little or no spill light at the property line, and vastly reduced glare as the fixture enclosure very effectively shields the element when viewed from anywhere beyond the lighting task surface (field). Refer to the accompanying Engineers Light & Glare Report.

Each pole can accommodate one or two additional site-lighting fixtures, mounted at 30’ height, that are capable of lighting an area about 100’ radius to 15fc.



*Example LED Field Lighting System*

The complete “Light & Glare Report” will be prepared by the consulting Field Lighting Designer to include more detail related to obtrusive lighting effects such as trespass/spill, glare and sky glow to demonstrate compliance with SMC 23.51B.002.D.6.b.1, Special Exception for over-height Light Standards in Residential Land Use Zones.

### Schedule

Refinement of the design & engineering is currently underway, based on the accompanying concept plan. All of the documentation necessary to formally submit a MUP Application is anticipated to be

completed in April 2020. Due to the expected duration the SEPA and MUP processes, the District anticipates separating the lighting out of the primary site improvement project, consisting of the playing field surface conversion and track expansion. It is anticipated that the complete sitework project ("Phase 1"), to speculatively include underground utilities work associated with the lighting ("Phase 2"), will be permitted in time for construction during the summer of 2020. Once the complete SEPA process has been concluded, and the MUP/Special Exception issued, the District will complete the Phase 2 lighting (Fall 2020 or beyond).

## **PROJECT RESOURCES:**

### **Available Documentation**

- Vicinity Maps, Legal Description, and Property Information (12-19-19)
- SEPA Environmental Checklist (ESA, Pending)
- Project Site Plan (Sitts & Hill / DA Hogan 12-19-19)
- Color Concept Plan (DA Hogan, 12-19-19)
- Geotechnical Report (Krazan, 12-12-19)
- Storm Drainage Report and SWPPP (LPD Engineers, Pending)
- Engineers Light & Glare Reporting (Stantec, Pending)
- Traffic & Parking Study (Heffron, Pending)

### **Owner / Seattle School District Contact Information**

Capital Projects Office, Seattle Public Schools  
David Standaart 206-252-0662

### **Project Design Team Consultants**

Prime Consultant / Athletic Facilities Design & Engineering, DA Hogan & Associates, Inc.  
Eric Gold ASLA, Principal 206-285-0400  
Jeff Burke PE, Project Manager

Electrical Engineering & Lighting Design, Stantec Engineering  
Chris Fote PE 206-224-3667

Stormwater Engineering, LPD Engineers LLC  
Laurie Pfarr PE 206-725-1211

### **Other Consultants to the District**

Land Survey, Sitts & Hill Engineers, Inc.  
Geotechnical Engineering, Krazan & Associates, Inc.  
Environmental & Permit Planning (SEPA), ESA/Environmental Science Associates, Inc.  
Traffic Engineering & Planning, Heffron Transportation, Inc.