MEMORANDUM

To: Jay Rood, Project Manager
Seattle Parks & Recreation

Cc: Project Team / File

From: Eric Gold 

Date: June 12, 2017
Revised October 5, 2017

Re: Brighton Playfield Improvements
Project Design Narrative

Project Design Program Outline

The following outline details specific project elements as determined through a series of Public Meetings and Parks Department Internal Review and continuing input via various means. The elements described here are not necessarily listed in any particular priority.

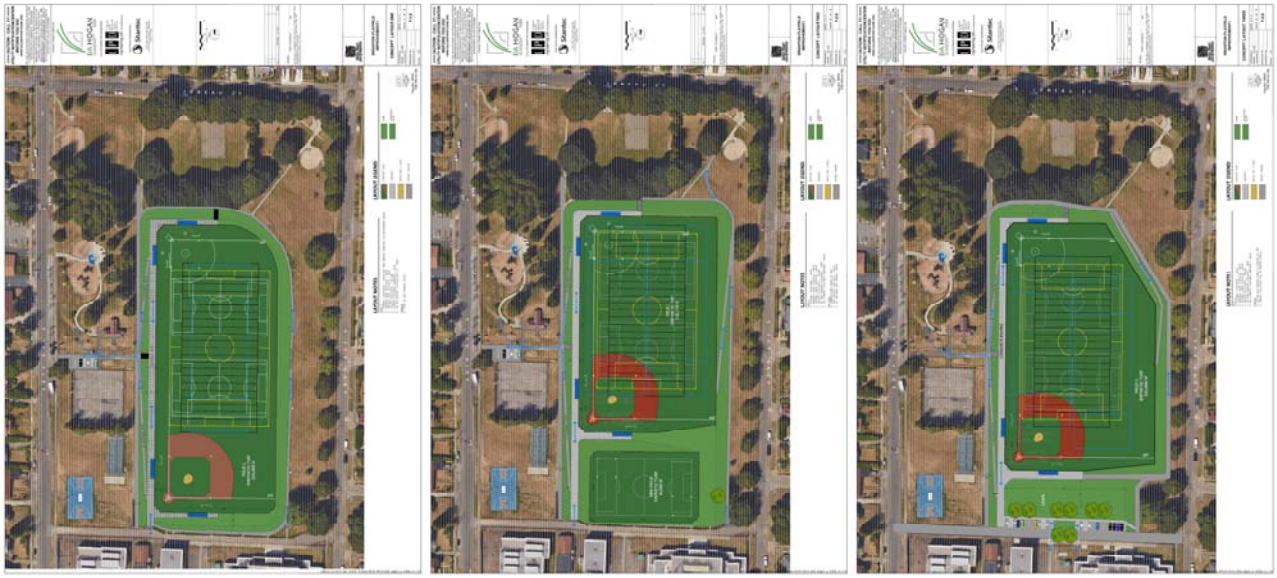
- Field Conversion of existing under-drained Natural Grass to Synthetic Turf
- Field Lighting upgrade to LED full cut-off fixtures, centrally controlled
- Field Recreation Activities
  - Adult Soccer
  - Modified (Youth) Soccer
  - Football
  - Ultimate
  - Baseball
  - Softball
- Site Circulation
  - Improve Circulation Hierarchy, generally
  - Provide Specific Accessible Routes of Travel between key features
  - Provide Specific Accessible Routes of Travel to and from key perimeter locations
  - Improve the interface between School and Park
  - Maintain measured Loop Route
  - Improve Maintenance Access
  - Improve Vehicular Access – Driveway Cuts (3 locations)
- Site Features
  - Site-specific artwork repair and re-location
  - Grant-funded “Adult Fitness Zone”
  - Other opportunities as they arise
- Permitting, known requirements
  - SEPA – Seattle Parks Lead Agency
  - NPDES - Department of Ecology
  - Council Conditional Use Permit/ Type V MUP - DCI
  - Drainage Review – DCI
  - Building Permit – DCI
  - Street Use - SDOT

Other work being undertaken by Parks

- Comfort Station Improvements
  - Hazardous Materials Abatement
  - Electrical & Plumbing Systems & Fixture Replacement
  - ADA Compliance
  - Doors & Hardware
  - Paint & Finishes

Design Summary

Through a series of site observations, survey and investigation, public meetings, and significant input from the public through a variety of means, the project team is now focused on a schematic plan that maximizes the flexibility and reliability of a converted playing surface, introduces a greatly improved interface area between the Aki Kurose School and the Park, and connects all of the many features within the park with improved pathways and accessible routes of travel. The current working plan is a variation of that previously presented as "Option 3", the third of three options presented both internally and publicly in September and October of 2016.



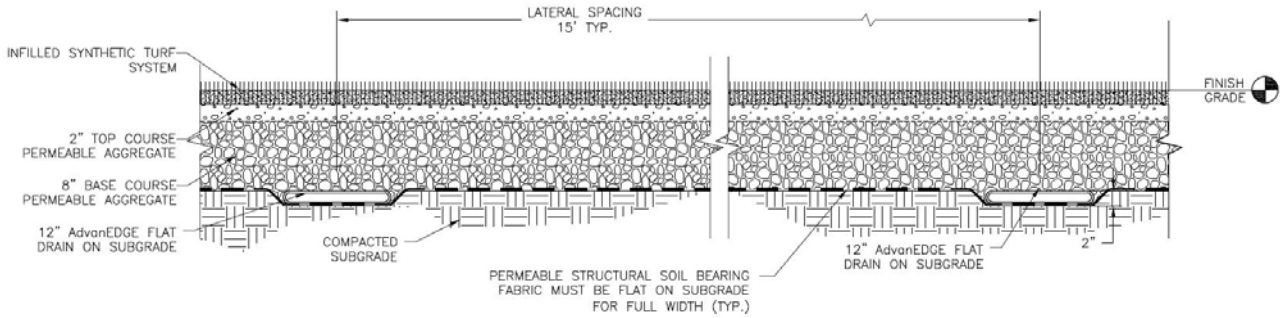
Concepts 1-3 as previously presented.
Note that these images are rotated from the original orientation.

The following text supplements the complete 60% drawings attached here by reference. A full index of available project plans, details, and specifications is appended to this document for additional reference.

Playfield General Renovations

The new field surface will be a resilient, vertically draining infilled synthetic turf surface, largely analogous to those currently in the Parks Departments inventory. Recently, Parks has begun exploring alternatives to typical SBR Crumb Rubber infills as a means of providing resiliency. As an example, Bobby Morris Playfield at Cal Anderson Park was recently resurfaced using typical polyethylene fiber but a natural, granular cork infill, and a supplemental resilient pad underlayment to insure resiliency. The Brighton surface is proposed to be similar to Bobby Morris.

The field will be installed over a vertically draining, stable permeable aggregate foundation, with a series of subsurface drainage pipes on a geotextile soil fabric, on a compacted subgrade (*reference Drawing Sheets F-2.X)*. The overall geometry of the playing surface is recognizable as similar to the current "main field" layout, and is otherwise determined by the activities program outlined above, with particular attention paid to the baseball field dimensions. The existing baseball field dimension of about 225' in right field is inadequate for most competitive baseball programming over the age of 13 or 14, and only suitable for practice beyond that. The field layout is also such that none of the "rectangular" fields (soccer, football, ultimate) overlaps the pitching mound location at baseball, allowing concurrent scheduling of both types of activities.



Typical Synthetic Turf Field Section including "flat drain" field subsurface drainage

To accomplish the preferred minimum outfield dimension of 285', a significant excavation of the east slope will be required. Suitable excavated soils will be used as fill in "normalizing" the finished grade of the playing surface at 0.75% slope (north to south, reference Drawing Sheet F-1.2). Along the south edge of the new playing surface, the field elevation will be nearly 5.5' above the existing grade. Immediately south of that edge, a maximum 5:1 slope will transition to a nearly level natural grass lawn. Establishing the new field dimensions and surface elevations will require excavation and export or regrading of about 10,100cy of on-site soils and import of an additional 6,240cy fills. A large percentage of this will come out of the east slope excavation required to expand the field footprint, and some volume of import. As the design progresses, we will determine more precisely (digitally) the volumes involved and recommend any adjustments to the field surface slope as appropriate. Note that, as a Value Engineering item, the field surface gradient has already been adjusted from an initially preferred 0.5% to 0.75% to reduce earthwork volumes required. This 0.75% gradient is equivalent to a grade change of 9" over 100' and is essentially undetectable in routine recreational play.

The footprint as currently illustrated includes a high degree of literal "trimming" back to the minimum required safety clearances – hence the irregular outline as opposed to the more familiar true rectangle (reference Drawing Sheet F-1.1). Measurements below do not include a 15' typical perimeter "clear" zone that is also provided. 12' wide "Warning Track" is illustrated continuously around the perimeter. Field marking colors are as recommended, subject to approval (the field itself will, of course, be green).

- Adult Soccer – one full-sized field measuring 225' x330', fully marked in yellow

- Modified Soccer – two side-by-side measuring 150’ x225’, markings appropriate for 18’ goals, fully marked in black
- Football – one field measuring 160’ x360’, including sidelines, 5-yard lines, and end zones only, marked in gray.
- Ultimate – two fields measuring 120’ x360’ (Verify – new dimensional standard?), fully marked in blue.
- Baseball – one field with 60’, 70’, 80’, 90’ base paths and commensurate pitching distances, 285’ right field, foul lines marked in white. An option for portable outfield fencing placement is illustrated, showing a 325’ left field and 365’ center field. Foul territory around the infield is 30’, transitioning to a minimum 10’ in the outfield. To provide for the multiple base paths, the “slide pit” concept of alternating color (brown) will be used, similar to Jefferson PF, Lower Woodland #1. Backstop proposed to be similar in scale to Jefferson Playfield. Dugouts to be typical 8’ x40’, with 30’ of player bench, covered.
- Softball – one field with 60’ and 65’ base paths and commensurate pitching distances, 200’ left field, marked in white. Foul territory around the infield is 30’, transitioning to a minimum 10’ in the outfield. No alternating “slide pit” color anticipated. Backstop to be a scaled-down version of baseball, perhaps topping out at 20’ ht. Dugouts to be typical 8’ x40’, with 30’ of player bench, covered.
- The entire field perimeter is shown with a 12’ wide contrasting color warning track, the perimeter of which might function as a level (maximum 0.75%) walking track measuring about 1500lf (slightly over ¼ mile) measured 2’ inside the inside edge. The color of the warning track would presumably match that of the baseball slide pits, but there is an opportunity for introduction of something more “playful”.
- Above and around the field, a paved perimeter loop path extends the walking loop program element out to about 1,600lf/0.3miles. This route passes through several use areas and surfaces although never exceeds 5% gradient.

Current Schematic Design Proposal, November 2016

Fencing: Pedestrian & Ball Control

There are three existing "Hoop" style galvanized chain link fencing and short, low wing fencing. These are replaced with two straight-backed designs with supplemental ball control netting. The current plan does suggest a substantial increase in pedestrian and ball control fencing is warranted (reference Drawing Sheet F-1.5). At the baseball field, a 30' max. height backstop with 25' height (total) chain link and netting wing fences at minimum protecting the infield arc is recommended. Farther down field, fence heights can be reduced incrementally to 10', 6' and even 4'. At approximately mid-field, aligned with the existing steps to the Comfort Station to the west, a perimeter 4' fence is recommended, with pedestrian gates every 100' or so (three envisioned including one at the bottom of the steps).

Example Baseball Backstop, note – in this photo there is a duplicate backstop to the right and beyond.

For the softball field, a reduced scale version of the same assembly details is proposed, perhaps 20' maximum height.

Example 12' warning track and 4' chain link pedestrian and ball control fence

Further consideration is required as to the degree to which the remainder of the field perimeter will be "controlled". Areas that are high-risk to otherwise uninvolved bystanders will include the entire right- and center- outfield of the baseball field, and to a lesser extent left- field of the softball field. A simple 4' fence helps keep inappropriate pedestrian traffic funneled to proper openings and prevents balls from rolling out of play.

Field & Site Lighting Design

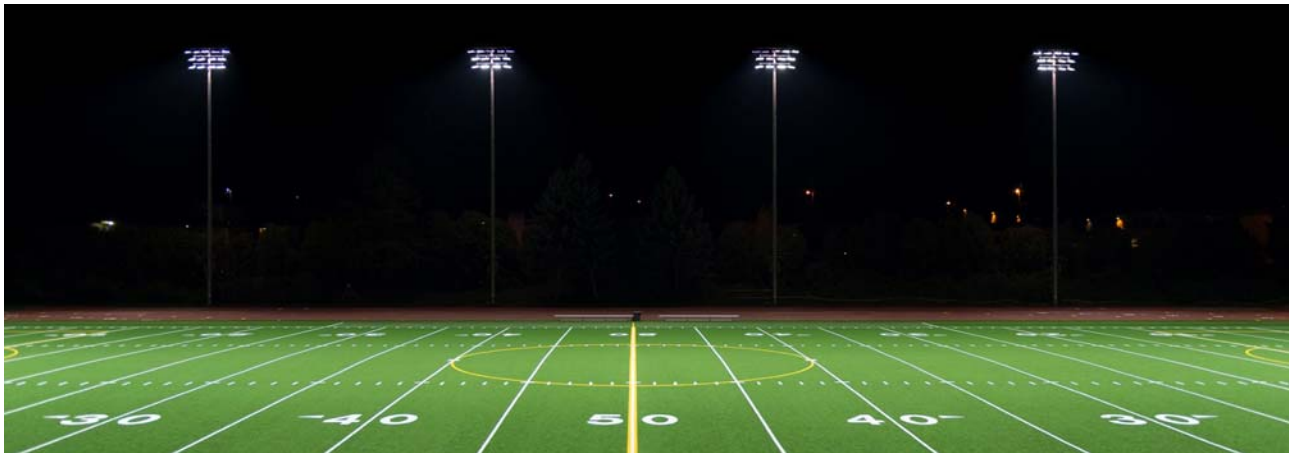
The existing field lighting system uses 1970's vintage unshielded high-intensity-discharge metal halide fixtures with spun-aluminum parabolic reflectors on wooden poles. The entire system is well beyond its originally planned service life. Twisting and deflection of the poles has resulted in major aiming

issues including reflectors pointing in an inefficient and often obtrusive manner. Combined with a lack of shielding, the current levels of light trespass and glare are extreme, and would be worse if not for a high percentage of non-functioning luminaires. Measurements of the existing conditions have been measured and mapped and are included in the Illumination Engineers Light & Glare Report.

(Left) Existing Unshielded Aluminum Parabola and (Right) LED "Box" Fixture

The new plan envisions highly efficient LED fixtures – essentially full-cut-off "box" design based on a performance specification derived from MUSCO® product data and modeling - on steel poles, with the pole count reduced from the existing 9 to 7, and an approximately 30% reduction in overall energy consumption. While the reduced energy demand suggests that it will not be necessary to upgrade to a new electrical service, the project does propose to replace the transformer, conductors, panel, etc. if only due to advanced age. The illumination design assumes a Class IV lighting level, suitable for recreational play configured for the baseball field and the rectangular fields. The softball field is not included in the lighting task as the baseball field can be used for softball (proper base dimensions as previously described) and both cannot be utilized at the same time.

Example Un-shielded Metal Halide fixtures



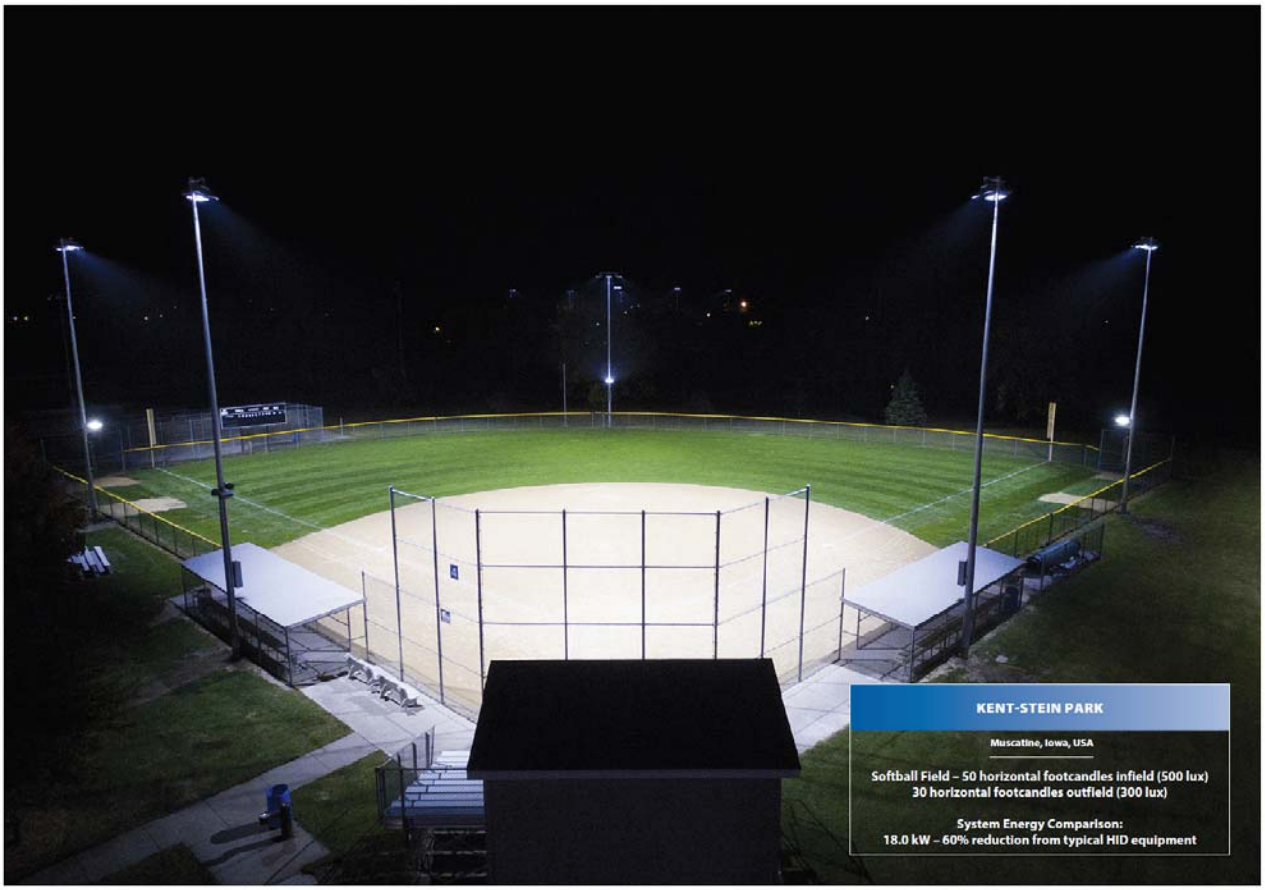
Example Proposed LED Full Cut-off Fixture (same site as above)

Obtrusive effects of the field lighting system will be reduced dramatically from the current system 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). To achieve these levels of control, the fixtures must be mounted at elevations up to 80' above the field surface. Total pole height may vary by location on site and relative elevation above the field surface. Sky-glow effects will also be dramatically reduced, although some level of illumination above the fixture "cut-off" line must be maintained in order to allow for safe tracking of balls in flight, particularly for some levels of baseball, softball, and football play.

Each pole can accommodate one or two additional site-lighting fixtures that are capable of lighting an area about 100' radius to 15fc. These are typically provided as "egress" lighting, and remain on for a short time after the primary field lighting is turned off for the evening, to allow for users to safely exit the Park.

Current illumination modeling produces light levels of 49fc maximum at the baseball infield and 29fc elsewhere, equivalent to IESNA Class IV recreational lighting.

In modeling the spill light effect of the design, a 20' elevation change was introduced along the property line to approximate the "lay of the land" or the fact that the field surface being lighted sits in a "bowl". Illumination levels at the street centerline peaks at 0.77fc at the intersection of 42nd S. and S. Raymond and fall off considerably to the north and south. Along 39th S. and S. Juneau, there are no measurable effects. See sheets ESPL-1 and ESPL-2. Sheets ESPL-3 and 4 illustrate the spill light effects of mounting the fixtures at 29' above grade, as would be dictated by the Development Standards (height restrictions) of the underlying Land Use Zone.



Example Spill Lighting Control

The "Light & Glare Report" prepared by the consulting Field Lighting Designer includes more detail related to obtrusive lighting effects such as trespass/spill, glare and sky glow to demonstrate compliance with relevant Code and Development Standards.

Site Utilities

Drainage

There are currently two known utilities that directly impact the design and execution of the work, both belonging to Seattle Public Utilities (SPU).

Passing directly beneath the playing field, a Sanitary/Combined Sewer that is largely separated with the exception of (we believe) some storm drainage inputs from within the park. These will likely need to be separated, which should not be an issue given the wholesale nature of the redevelopment. Currently it appears most of the flow inputs will be reconfigured however there may be some existing flows from the upper site work areas that will have to be re-plumbed to a new storm drainage conveyance.

The grading concept avoids any conflict with this pipe by not proposing any lowering of finished grade along the main run. There are two existing manholes in the main work area, including one directly

beneath the proposed field surface. The existing (buried) frame and cover is identified at 149.85' where the proposed finished grade will be approximately 152.15' (subgrade presumably 151.15', see sheet F-1.2). Access to this structure has not been historically documented. The project will create an opportunity for inspection and, if necessary, repair or upgrade by SPU. Future access will be enhanced, by means of a fabricated cover with lift-points (it will be fairly large and require machine lift). Access will require skilled removal and replacement of the area of synthetic surfacing installed over the manhole, and some mitigation of equipment loading on the surface will be required by the use of plywood sheeting or other means of spreading loads to less than 50psi.

There also appear to be side connections from the east that require special consideration in the execution of the earthwork. Calculations of the inverts within the field and in the 42nd S. ROW appear to indicate that these connections can remain without impact assuming their gradients are constant. These are highlighted in red on the Drainage Plan, sheet F-1.3. Similarly, the connection to the Comfort Station will be reviewed and maintained or re-aligned.

Second, a storm main runs diagonally above the northeast corner of the field, above the slope and just beyond the existing pathway. The geometry of the current plan is largely informed by the presence of this line and the preference to avoid any disturbance. Calculations of the invert/crown elevations at the two control structures confirm a minimum cover of 3.5' at the approximate mid-point. No excavation below that existing elevation will occur. As with the sanitary sewer described above, assuming a constant pipe gradient, there should be no conflict with the current layout. This area is also highlighted in red on the Drainage Plan.

The site is located within a non-capacity constrained drainage basin that discharges to a designated receiving water, Lake Washington; 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.

According the Seattle's GIS mapping, the southwest portion of the site is in an area mapped where infiltration testing is not required. The geotechnical engineer has evaluated the feasibility of infiltration in accordance with Volume 3, Appendix D of the 2016 manual. The amount of sandy silt observed in all nine borings and perched groundwater observed in three borings are considered to be hydraulically restrictive material. The use of shallow infiltration facilities would not allow for the minimum vertical separation required between the bottom of a facility and the hydraulically restrictive material or the seasonal high groundwater level; therefore, the geotechnical engineer does not recommend the use of infiltration facilities.

The Project Point of Connection for all storm water flows will be an existing manhole located south of the site about midway through the park, on the north side of the existing service drive. The existing manhole conveys an 18-inch storm main running east and connects with an 18-inch storm main within 42nd Avenue, directing stormwater south. The public storm system heads southeast for approximately

2.2 miles before discharging to Lake Washington. The Storm Water Management concept for the Site includes four, separate system "legs" as follows:

1. Field Drainage will be collected through the previously described vertically draining synthetic turf and permeable aggregate base. It is anticipated that the field will be considered an OSM BMP by the nature of the pervious materials that make up the field base layers and allow for stormwater to contact with the native soil below. The current pipe layout avoids trenching through the middle of the field, often a source of later settlement, instead a traditional herringbone pattern of flat drains conveys flow to the edges. Collector pipe(s) running south along the edges are designed with the benefit of uniform cover as they are running parallel to the slope. Stormwater collected under the field require water quality treatment. The flows are directed to a bioretention cell located southwest of the field, consisting of 18-inches of bioretention soil mix underlain by 18-inches of drain rock over the native subgrade. The bioretention cell has been designed to filter at least 91 percent of the stormwater runoff volume. Stormwater from the bioretention cell will then discharge to Project Point of Connection.
2. Flows collected from the majority of proposed walkways surrounding the play field will be collected in area drains/catch basin inlets and conveyed to a series of pipes to the proposed bioretention cell to be mitigated to meet the OSM requirement in addition to meeting the water quality standards.
3. The proposed walkway to the northwest of the site, accessing the park, will sheet flow disperse onto the adjacent vegetated surface. A vegetated flow path of at least 10 feet will be provided since the walkways will have a contributing flow length of less than 20 feet. The stormwater will eventually drain to the proposed area drains on the north side of the field.
4. A portion of the walkways south of the proposed field connecting into the existing service drive, cannot gravity flow to the bioretention cell. It was determined that this relatively small area could not feasibly be mitigated by OSM BMPs and drains directly the existing public storm system along the existing service drive.

Electrical

Existing electrical capacity is expected to be adequate for the new lighting system, particularly given the reduced demand created by the LED fixtures. Despite this, the existing service is expected to be beyond its intended service life, and certainly not of a quality expected to last through the proposed life of the new systems. For this reason it is expected that the hardware – everything from the transformer to conduit, handholes, and conductors, will be replaced.

Water

A "private" water main feeds the comfort station from a meter on 42nd S., feeding west – down to field level and back up. If the condition and location of this pipe requires replacement, it may make sense to consider a new meter on 39th S. The meter sizing, currently unknown, can likely be reduced given the dramatic reduction in irrigation demand as a result of the conversion to synthetic turf.

Other Opportunities

Art

A series of site-specific art installations is located around the park site, particularly along the east side of the Park. Beginning in the northeast corner of the site is a sizeable, round plaza space which includes remnant compass points and other markings, which as a whole is representative of the Sun.

Between this location and the School to the south are a series of ground-installed concrete flatwork and tile mosaic representations of the planets, including informative engravings. These are each in varying states of disrepair, and are very much within the impacted areas of the proposed Renovation. Parks is working with the Artist on a separate track to coordinate their restoration and re-siting.

The form of existing circular for of the entry plaza space at the northeast corner is borrowed at pathway intersections/nodes, picnic table slabs, etc. as a proposed additional opportunity to be further developed as the project is progressed.

Adult Fitness Zone

Sited adjacent to the children's play area, this feature allows adults to participate in meaningful, healthful activity while maintaining a direct line of site to the children they are supervising. Modeled on the recent installation at Van Asselt Community Center (adjacent to the play area), the Brighton installation will reside on the newly accessibly pathway, adjacent to the swings, and across form the play structure.

Van Asselt Community Center Adult Fitness Zone

Other Available Documentation

The following is a comprehensive list of available reports and documentation that have been developed or are in development in support of the Project.

- Type V MUP Land Use Action Request 9-13-17
- Drainage Report 9-12-17
- Geotechnical Engineering Services Report 6-19-17
- Illumination Engineers Spill and Glare Report 9-13-17

- SEPA Environmental Checklist
- Project Engineering Drawings
  1. C-0.0 SDCI Cover Sheet
  2. C-0.1 Cover
  3. C-0.2 Enhanced Site Plan
  4. F-0.0 Color Site Plan
  5. F-0.1 Topographical Survey
  6. F-0.2 Topographical Survey Legend
  7. F-0.3 CSC Plan
  8. F-0.4 CSC Details
  9. F-0.5 Demolition Plan
  10. F-1.0 Color Layout Plan
  11. F-1.1 Layout Plan
  12. F-1.2 Grading Plan
  13. F-1.3 Drainage Plan
  14. F-1.4 Washwater Plan
  15. F-1.5 Fencing Plan
  16. F-1.6 Site Furnishings & Planting Plan
  17. F-2.1 Typical Sections
  18. F-2.2 Drainage Details
  19. F-2.3 Drainage Details
  20. F-2.4 Fencing Details
  21. F-2.5 Fencing Details
  22. F-2.6 Dugout Details
  23. F-2.7 Site Details
  24. F-2.8 Site Details
  25. F-2.9 Site Details
  26. F-2.10 Site Details
  27. F-2.11 Irrigation Details
  28. F-2.12 Irrigation Details
  29. F-3.1 Synthetic Turf Layout Plan
  30. F-3.2 Baseball & Softball Layout Plan & Details
  31. F-3.3 Soccer Layout Plan & Details
  32. F-3.4 Football Layout Plan & Details
  33. F-3.5 Field Layout Plan & Details
  34. E-1.0 Electrical Site Plan-Demo
  35. E-1.1 Electrical Site Plan
  36. E-2.1 Electrical Details
  37. ESPL1 Standard Mounting Height Spill Light Plan At 3' Above Field
  38. ESPL2 Standard Mounting Height Spill Light Plan At 20' Above Field
  39. ESPL3 29' Mounting Height Spill Light Plan At 3' Above Field
  40. ESPL4 29' Mounting Height Spill Light Plan At 20' Above Field
  41. S-1.1 Structural Foundation Notes & Details
  42. S-1.2 Structural Inspection & Testing Notes
- Project Technical Specifications

02 10 00	Site Preparation
03 30 00	Sitework Concrete
03 40 00	Porous Concrete Paving
05 50 50	Sheet Metal Roofing & Flashing
11 68 24	Equipment & Furnishings
26 50 00	Site Electrical & Lighting
31 00 00	Earthwork
31 22 16	Field Subgrade Establishment
31 25 00	Temporary Erosion and Sediment Control
31 46 22	Field Imported Sands
31 46 23	Field Permeable Aggregate
32 12 16	Asphalt Paving
32 18 23	Synthetic Turf Surfacing
32 31 13	Chain Link Backstops & Gates
32 80 00	Irrigation Systems
32 95 25	Landscape Plantings
33 11 00	Water Utility Distribution Piping
33 40 00	Storm Drainage
33 46 16	Subsurface Drainage

End.