

Athletic Facility Improvements
Feasibility Study
FOR
GREENWOOD SCHOOL DISTRICT



405 East Sunbury Street
Millerstown, PA 17062

January 25, 2019

TURF, TRACK & COURT, LLC
TTC *Athletic Facility Consultants*

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I. Introduction / Project Narrative

Turf, Track and Court, LLC (TTC) is pleased to present the Greenwood School District (GSD) with this Feasibility Study of potential improvements to the District's athletic facilities. As outlined in our proposal dated October 26, 2018, it is the intent of this study to provide the District with an analysis of existing facility conditions, an outline of potential renovation and improvement options, conceptual layout plans, stormwater impacts and tentative budget costs. TTC, along with Diffenbaugh Wadel Engineering, prepared the study with information obtained from past design documents, field investigations and correspondence with District personnel.

The primary focus of the study is the feasibility of transitioning an existing natural turf field into a synthetic turf field. Three primary areas of the campus were included in the study and are identified as Area "A"; Multi-Purpose, Area "B"; Running Track / Field, and Area "C"; Field Hockey.

II. Existing Conditions / Analysis

TTC conducted a thorough site analysis during site visits and existing document reviews. Base mapping for this study utilizes plan information as provided by the district and Google maps. Photographs were also utilized to identify and represent the existing conditions. The accompanying Existing Site Conditions Plan generally identifies the existing site features and areas in need of improvement. Following is an outline of specific site features that were analyzed with respect to existing conditions, durability, present and future uses.:

Area A: Multi-Purpose

Area A is located in the northwest corner of the District's campus. The area is approximately 175,000 square feet (4 acres) in size and contains the baseball and softball fields in opposite corners and the center field area is utilized for soccer (210' x 360') and field hockey (180' x 300'). The area has support structures including dugouts for both baseball and softball, storage buildings and a concession stand located on the eastern side. The area is lit with a six-pole lighting system primarily focused on the eastern portion of the field. Light level testing was not included in the study scope. Spectator viewing areas is primarily the bank on the south side of the fields, in addition small portable bleachers are located on the softball field sidelines. The area drains by surface sheet flow in a south to north direction with a main drainage channel running parallel to the north side of the fields draining in an east to west direction. A few subsurface drains have been installed into help alleviate surface saturation. Drainage is problematic for the large turf area and has limited play in the past.



Multi-Purpose Field





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PROJECT
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 DRAWING
 EXISTING CONDITIONS

TT&C
 JOB NO: 01-113-002
 SCALE: N/A
 DATE: 01.25.2019
 REV:

EXISTING CONDITIONS PLAN
 SHEET:
1 OF 5

AREA A: MULTI-PURPOSE FIELD

- BASEBALL, SOFTBALL
- SOCCER (210' X 360')
- FIELD HOCKEY (180' X 300')
- ± 175,000 SF / 4.02 ACRES
- GOOD ACCESSIBILITY FOR SPECTATORS
- EXISTING LIGHTING

AREA B: RUNNING TRACK / FIELD

- CINDER TRACK
- HIGH JUMP / LONG JUMP, DISCUS, JAVELIN
- SOCCER FIELD ~ 150' X 300'
- ± 160,000 SF / 3.6 ACRES
- GOOD ACCESSIBILITY FOR SPECTATORS
- NO LIGHTING
- EASEMENT THRU CENTER

AREA C: FIELD HOCKEY

- FIELD HOCKEY (180' X 300')
- ± 93,600 SF / 2.15 ACRES
- 10' GRADE CHANGE (EAST TO WEST)
- EASEMENTS (NORTH & SOUTH)
- LIMITED ACCESSIBILITY FOR SPECTATORS
- NO LIGHTING



Baseball Field



Softball Field





Soccer / Field Hockey Layout



Drainage Channel



Area B: Running Track / Field

Area B is located in the northern center of the Districts campus, directly adjacent to the elementary school. The area is approximately 166,000 square feet (3.6 acres) in size and contains a cinder running track, synthetic surfaced field event runways, and a natural turf athletic field allowing for a competition size of 150' x 300'. There is a sanitary sewer easement running directly through the running track and field area. The cinder material does not drain well and has limited use during wet periods. The surface also requires annual maintenance and lining for competitive use. The high jump, long jump, and pole vault areas were upgraded to resilient surfaces in 2015. Field events / runways inside of the running track restrict the athletic field's effective use, limiting competition width to only 150'. The area has two small support structures (storage sheds) in the northeast corner adjacent to the pole vault runway. There is no lighting of the area for evening use. Spectator viewing areas are at grade surrounding the track as well as a small bleacher structure located on the south side. The field appears to be crowned and sheet flows to the inside track edge, however, no field or subsurface drainage exists. The area between the track and school has historically not drained well. The main drainage channel runs parallel to the north side of the track, draining in an east to west direction.



Running Track / Field



Drainage Channel



Area C: Field Hockey

Area C is located on the eastern edge of the Districts campus, directly adjacent to a commercial building. The area is approximately 93,600 square feet (2.15 acres) in size and is utilized for field hockey allowing for a competition size of 180' x 300'. The field slopes from east to west with an approximate 3% slope creating approximately 10' fall across the field. There is a sanitary sewer easement on the north side of the field and a drainage easement on the south. The area has one small support structure (storage sheds) in the northwest corner. There are no paved walkways to the area, limiting accessibility. There is also no lighting of the area, limiting evening use. Spectator viewing areas are at grade surrounding the field or off-site on adjacent property. The field appears to sheet flow east to west with no field or subsurface drainage.



Field Hockey (looking northeast)



Field Hockey (looking northwest)



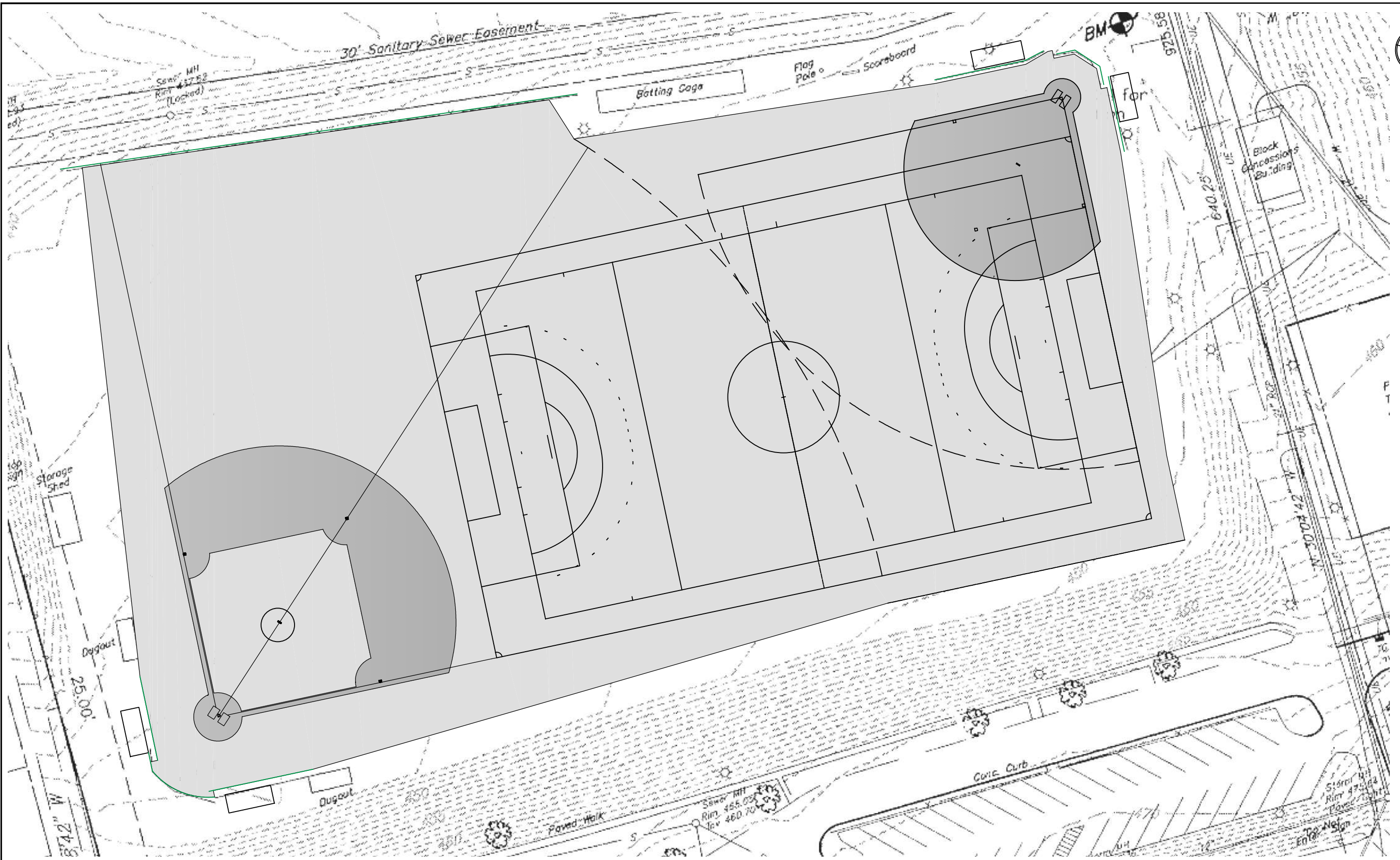
III. Improvement Options

The following narratives are specific to each area of study. These options are conceptual in nature and identify potential improvements for the scope of the project.

Area A: Multi-Purpose Field

Area A turf improvements are proposed to cover the entire active play area for baseball, softball, soccer and field hockey, approximately 168,000 square feet. Baseball and softball fields would include turf on the infield for maximum playability. Soccer end and sideline would be contiguous with softball third base line and baseball first base line to minimize game lines. The area has existing lighting for evening use for evening competitions and use. Spectator access is directly adjacent to the parking lots and the area provides good viewing opportunity from the adjacent bank. A concession building is located on the eastern side adjacent to the softball field. The overall field would drain in similar direction as existing, however an extensive underdrain would move the stormwater to the area north of the fields for controlled release. The stormwater management facilities required to address the increase in runoff are anticipated to include infiltration basins, infiltration berms/retentive grading, extended detention basins, soil amendments and infiltration beds/trenches. Runoff will be collected and directed to these facilities by overland flow and by storm sewers. Most of the control structures will be located on the northern side of the existing channel next to the multi-use field. Smaller facilities (infiltration beds/trenches) may be located on the northwestern corner of the multi-use field.



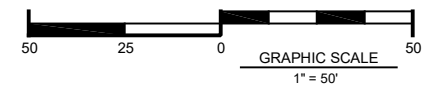


AREA A: MULTI - PURPOSE FIELD

- BASEBALL & SOFTBALL
- SOCCER (210' X 360')
- FIELD HOCKEY (180' X 300')
- ± 168,000 SF / 3.86 ACRES

LEGEND

- SYNTHETIC TURF
- SYNTHETIC TURF INFIELD



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PROJECT
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 DRAWING
 CONCEPT "A"



JOB NO: 01-113-002

SCALE: 1" = 50' - 0"

DATE: 01.25.2019

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CONCEPT "A"

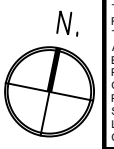
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Area B: Running Track / Field

Area B improvements include the conversion of the cinder running track into an all-weather synthetic surfaced running track and conversion of the natural turf field to synthetic turf. The running track layout is recommended to be reconfigured to provide a wider field of play to maximize use. The turf area is approximately 90,500 square feet. Soccer play width is 200' x 360' and field hockey is the standard 180' x 300'. The running track is a six lane 400-meter layout with high jump in the western "D" zone (as existing) and the long jump relocated into the eastern "D" zone. Javelin and discus would need to be relocated outside of the field as to not damage the synthetic turf. It is recommended to move javelin and discus to the field hockey field area. The area is not lit, therefore, evening use is dependent on natural light. Spectator access is through the elementary playground adjacent to the parking lots. Spectator viewing would be on grade and outside of the running track. It is recommended to install a bleacher structure to accommodate spectators. It is also recommended to install a fence surrounding the track for separation of athletes and spectators. The previously mentioned concession building is located on the western downslope side adjacent to the softball field. A drainage system would be installed to collect the field and track runoff. The stormwater management facilities are anticipated to include infiltration basins, infiltration berms/retentive grading, extended detention basins, soil amendments and infiltration beds/trenches. Runoff will be collected and directed to these facilities entirely by underground storm sewers. It is anticipated that these facilities will be located on the northern side of the existing channel located next to the multi-use field.





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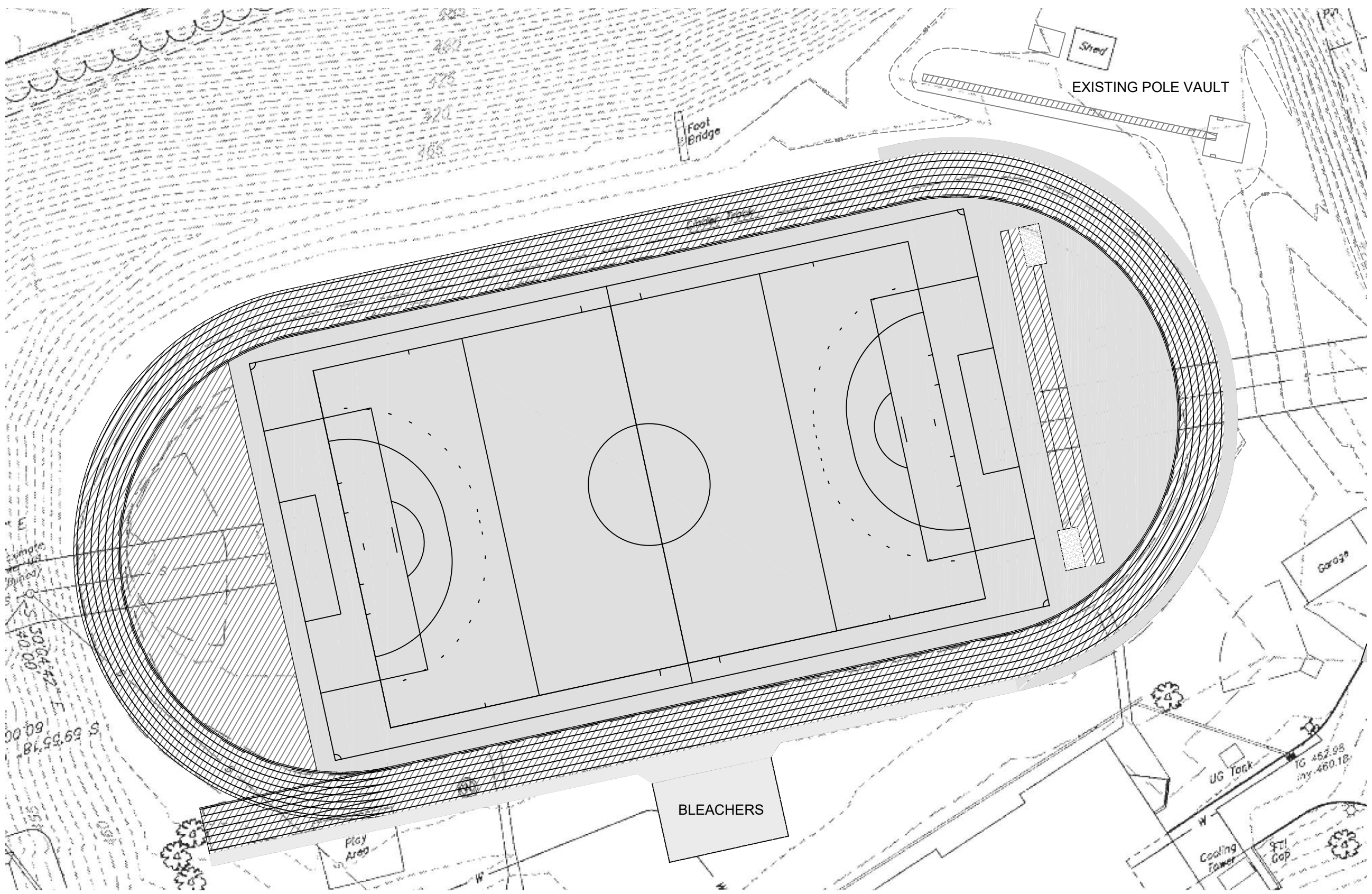
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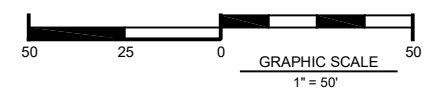


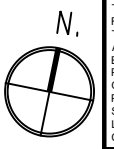
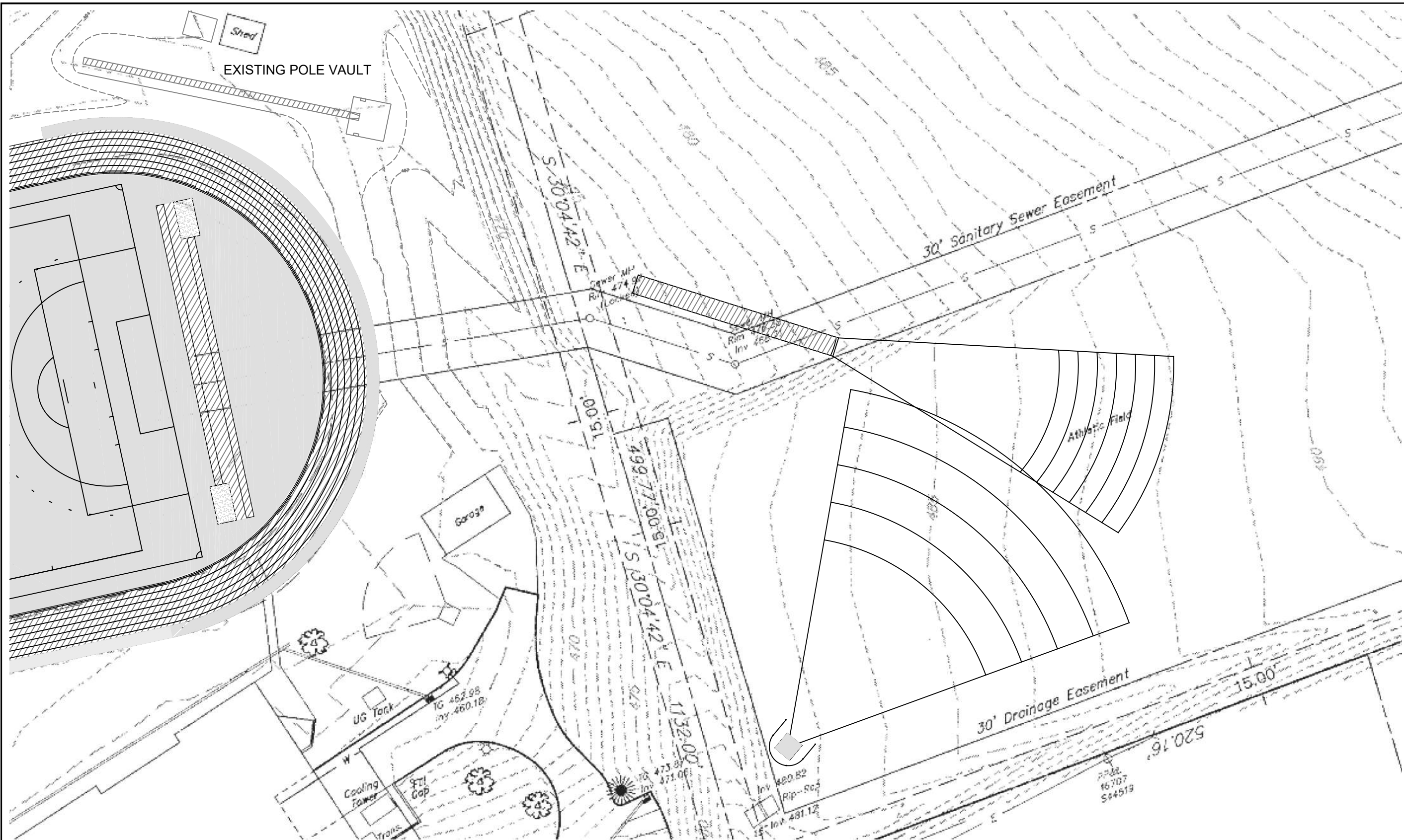
AREA B: RUNNING TRACK / FIELD

- 400 METER, 6 - LANE
- SOCCER (200' X 360')
- FIELD HOCKEY (180' X 300')
- TURF ± 90,486 SF / 2.08 ACRES
- DISCUS / JAVELIN RELOCATE TO EAST
- LONG JUMP RELOCATE TO "D" ZONE
- BLEACHER CAPACITY ± 500

LEGEND

- SYNTHETIC TURF
- SYNTHETIC TRACK SURFACE
- HARD SURFACE





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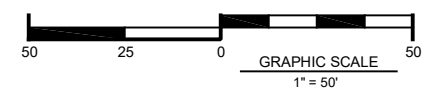
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4 OF 5

AREA B - 1: FIELD EVENTS

- JAVELINE RUNWAY
- DISCUS
- MAJOR EXCAVATION REQUIRED

LEGEND

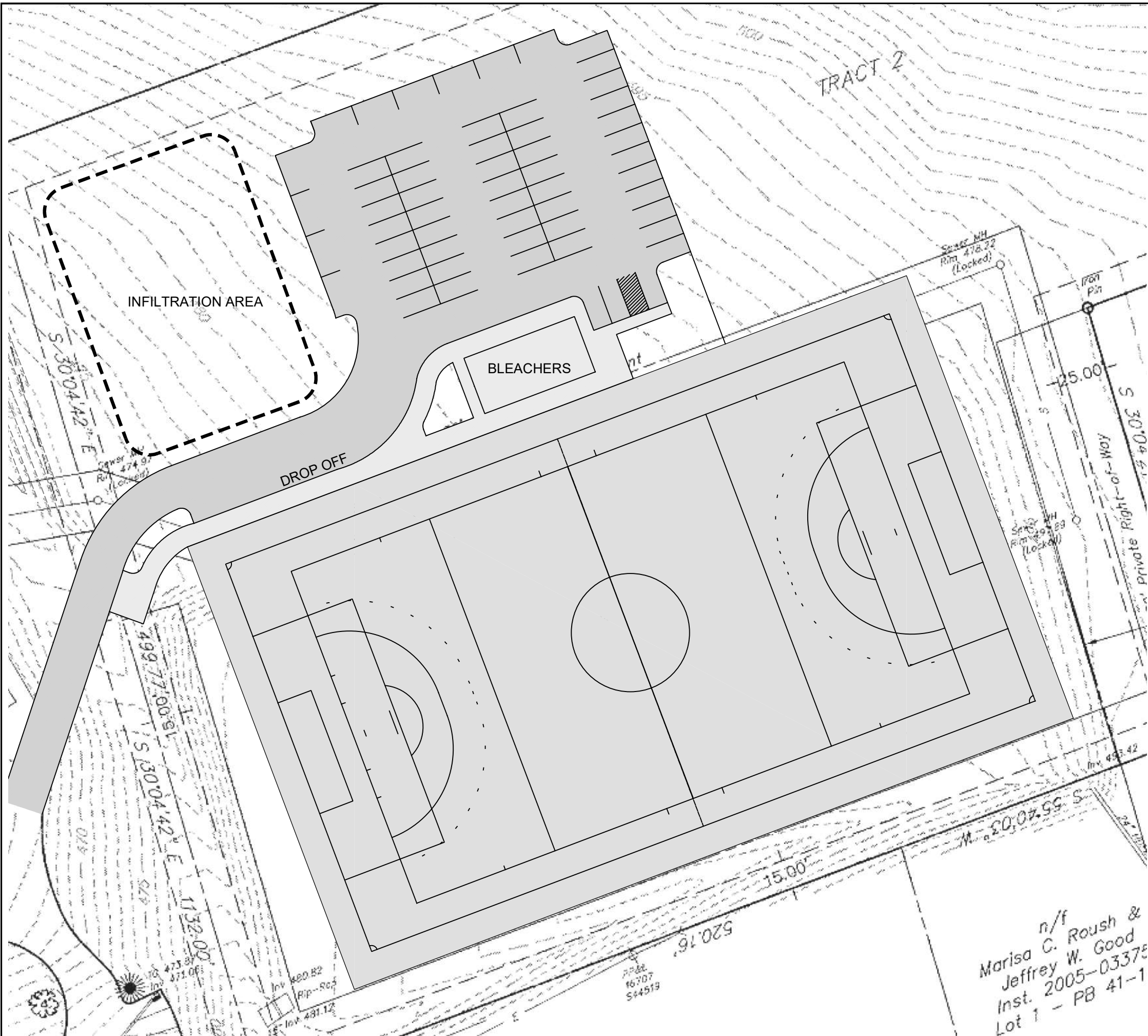
- SYNTHETIC TURF
- SYNTHETIC TRACK SURFACE
- HARD SURFACE



Area C: Field Hockey

Area C improvements consider the components to maximize the use of the facility. Existing grades are not preferred for synthetic turf, therefore significant earthwork will be required to prepare the subgrade. Also, the planning and layout for support features, accessways, parking, storage, concessions, bleachers, will also require extensive earthwork. The proposed turf area is approximately 93,600 square feet. Soccer play width is 210' x 360' and field hockey is the standard 180' x 300'. This layout will require encroachment into the sanitary easement on the north side of the field. The access, parking and support structures are conceptual and for planning purposes. The area is not lit, therefore, evening use is dependent on natural light. A drainage system would be installed to collect the field runoff. The stormwater management facilities are anticipated to include infiltration basins, infiltration berms/retentive grading, extended detention basins, soil amendments and infiltration beds/trenches. Runoff will be collected and directed to these facilities by overland flow and by storm sewers. Most of these facilities will be located on the northern side of the field hockey field with some portions possibly being located under the proposed parking area.








AREA C: FIELD HOCKEY

- SOCCER (210' X 360')
- FIELD HOCKEY (180' X 300')
- EASEMENT CONFLICT
- CREATE ACCESS / PARKING
- 10' GRADE CHANGE TO CREATE FIELD
- 25' GRADE CHANGE TO CREATE PARKING
- CREATE INFILTRATION AREA
- NO LIGHTING
- TURF ± 93,600 SF / 2.15 ACRES
- BLEACHERS ± 500 CAPACITY
- PARKING ± 55 SPACES

LEGEND

-  SYNTHETIC TURF
-  HARD SURFACE
-  PARKING AREA

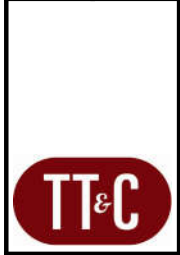


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PROJECT
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 CONCEPT "C"

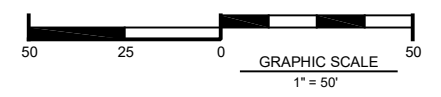


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CONCEPT "C"

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5 OF 5

n/f
 Marisa C. Roush &
 Jeffrey W. Good
 Inst. 2005-0337E
 Lot 1 - PB 41-1



IV. Cost Estimates

The following cost estimates are for budgeting purposes only, not bid or contract prices. The estimates are based upon historical pricing received for similar projects.

Area A: Multi-Purpose Field

- | | |
|--|------------|
| • Earthwork / Edging | \$ 135,000 |
| • Synthetic Turf / Pad (\pm 168,000 SF) | \$ 924,000 |
| • Drainage (stone, pipe) | \$ 344,000 |
| • Stormwater Management | \$ 240,000 |

\$ 1,643,000

Area B: Running Track / Field

- | | |
|--|------------|
| • Earthwork / Edging | \$ 80,000 |
| • Synthetic Turf / Pad (\pm 90,500) | \$ 497,750 |
| • Asphalt / Paving (track base) | \$ 125,000 |
| • Synthetic Track | \$ 210,000 |
| • Drainage (stone, pipe) | \$ 180,000 |
| • Stormwater Management | \$ 175,000 |
| • Bleachers Capacity \pm 500 | \$ 100,000 |
| • Fencing Around Track (42" High) | \$ 35,000 |

\$ 1,402,750

Area C: Field Hockey

- | | |
|--|------------|
| • Earthwork / Edging | \$ 350,000 |
| • Synthetic Turf / Pad (\pm 93,600) | \$ 514,800 |
| • Drainage (stone, pipe) | \$ 187,000 |
| • Stormwater Management | \$ 170,000 |
| • Asphalt / Paving (parking, access) | \$ 140,000 |
| • Bleachers Capacity \pm 500 | \$ 100,000 |

\$ 1,461,800

Construction Contingency (15%)

\$ _____



V. Tentative Project Schedule / Professional Services Budget

TASK	SCHEDULE	BUDGET
Project Scope Determination • Greenwood SD	February / March 2019	-
Field Survey • TTC	March / April 2019	\$ 9,500
Geotechnical Study	March / April 2019	\$ 7,500
Municipal / Regulatory Document Prep. • TTC	May / June 2019	\$ 45,000
Municipal / Regulatory Submissions / Fees • TTC	June 2019	\$ 6,400
Municipal / Regulatory Agency Approvals • TTC	August / Sept. 2019	-
Construction Document Prep. • TTC	Sept. / October 2019	\$ 25,000
Bidding • TTC	Nov. / Dec. 2019	\$ 4,500
Receipt / Review of Bids • Greenwood SD / TTC	Dec. / Jan. 2020	-
Award of Construction Contract • Greenwood SD	February 2020	-
Construction Admin. / Observation • TTC	Feb. / August 2020	\$ 35,000
Construction Begins • Greenwood SD / TTC	+/- May 2020	-
Substantial Completion • Greenwood SD / TTC	September 2020	-

