

# Soccer Field Renovation and Modernization

September 5, 2018



overview	<p><b>LLOYD Civil &amp; Sports Engineering</b> is a design consultant licensed in civil engineering and facilities management.</p> <ul style="list-style-type: none"><li>• <u>Site</u>: drainage, stormwater quality, all site civil services</li><li>• <u>Sports</u>: playing fields, tracks, courts</li><li>• <u>Facilities</u>: asset management, conditions assessments and operations</li></ul>
markets	International, professional, collegiate, K-12 & recreation
locations	Phoenix – San Francisco – Reno/Tahoe

# Bob Milano Jr.

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Trained Landscape Architect

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30 years as a facilities professional

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20 years as Assistant AD at UC Berkeley; directed \$500M of Capital Development

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5 years at Lloyd Civil & Sports Engineering





# Aerial View



Google Earth

# Goals

1

Develop a League and NCAA compliant soccer pitch for training and competition

2

Modernize systems and infrastructure to provide year round all weather playing field

3

Provide flexibility for new field to support existing programs and future opportunities



# Programming Requirements

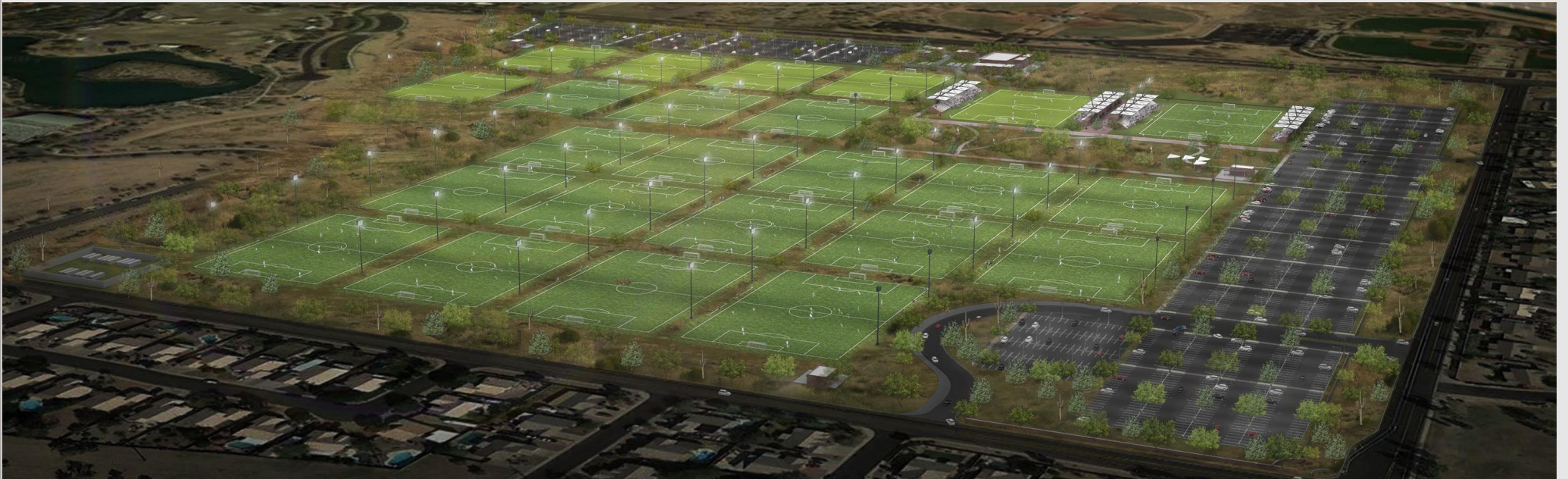
NCAA Compliance	Provide a playing surface of 70 yards by 110 yards MINIMUM
Quality	Provide smooth uniform multi-use all weather high use field.
Event Capabilities	Provide adequate event support and to maximize field utility to College and Community.

## Natural Grass

- Low capital
- Preferred by Athletes
- Compaction/Climate
- Land Intensive

## Synthetic Turf

- High capital
- Low Maintenance
- All Weather
- Land Efficient

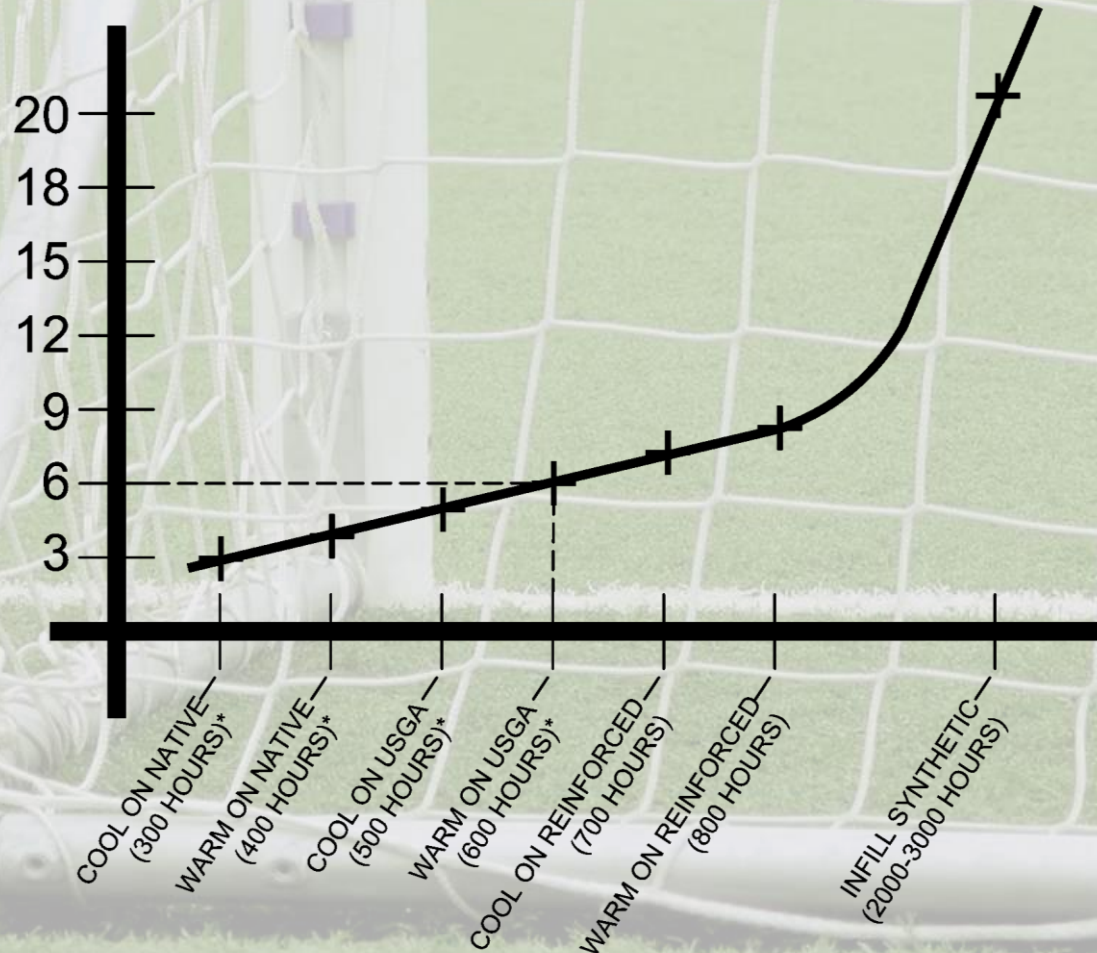




### 3 SEASON LIGHTED SPORTS FIELD (RECTANGULAR) TURF SYSTEM AND USE INTENSITY MODEL

#### USE INTENSITY

- NUMBER OF PARTICIPANTS
- DURATION OF ACTIVITY
- INTENSITY FACTOR

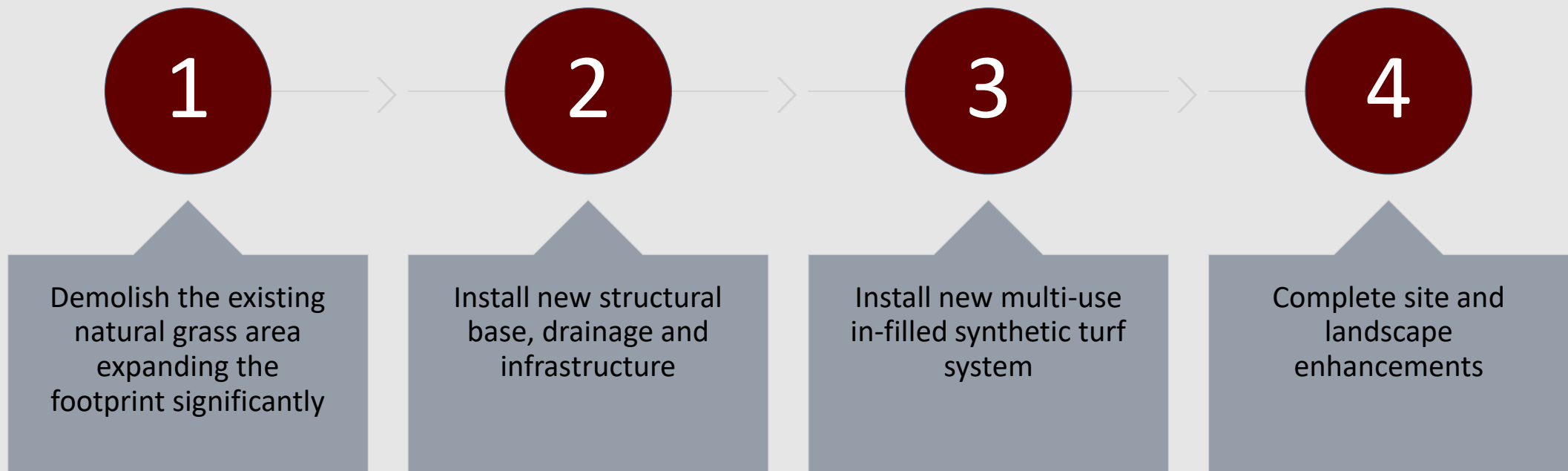


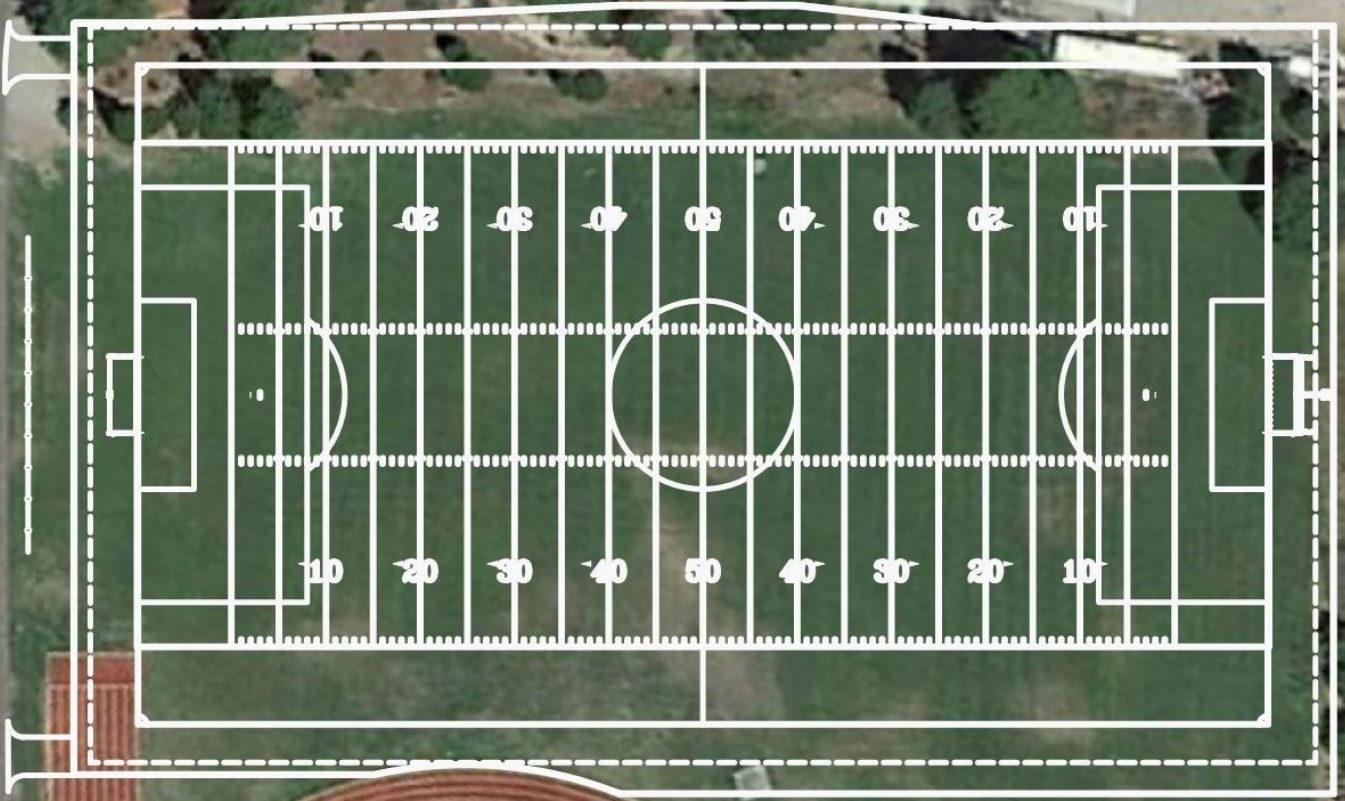
❖ ESTIMATED 3-SEASON HOURS BY MONTGOMERY COUNTY MARYLAND FOR 2011 STUDY STADIUM FIELD LEVEL

#### TURF SYSTEM TYPE



# Scope of Work; Overview



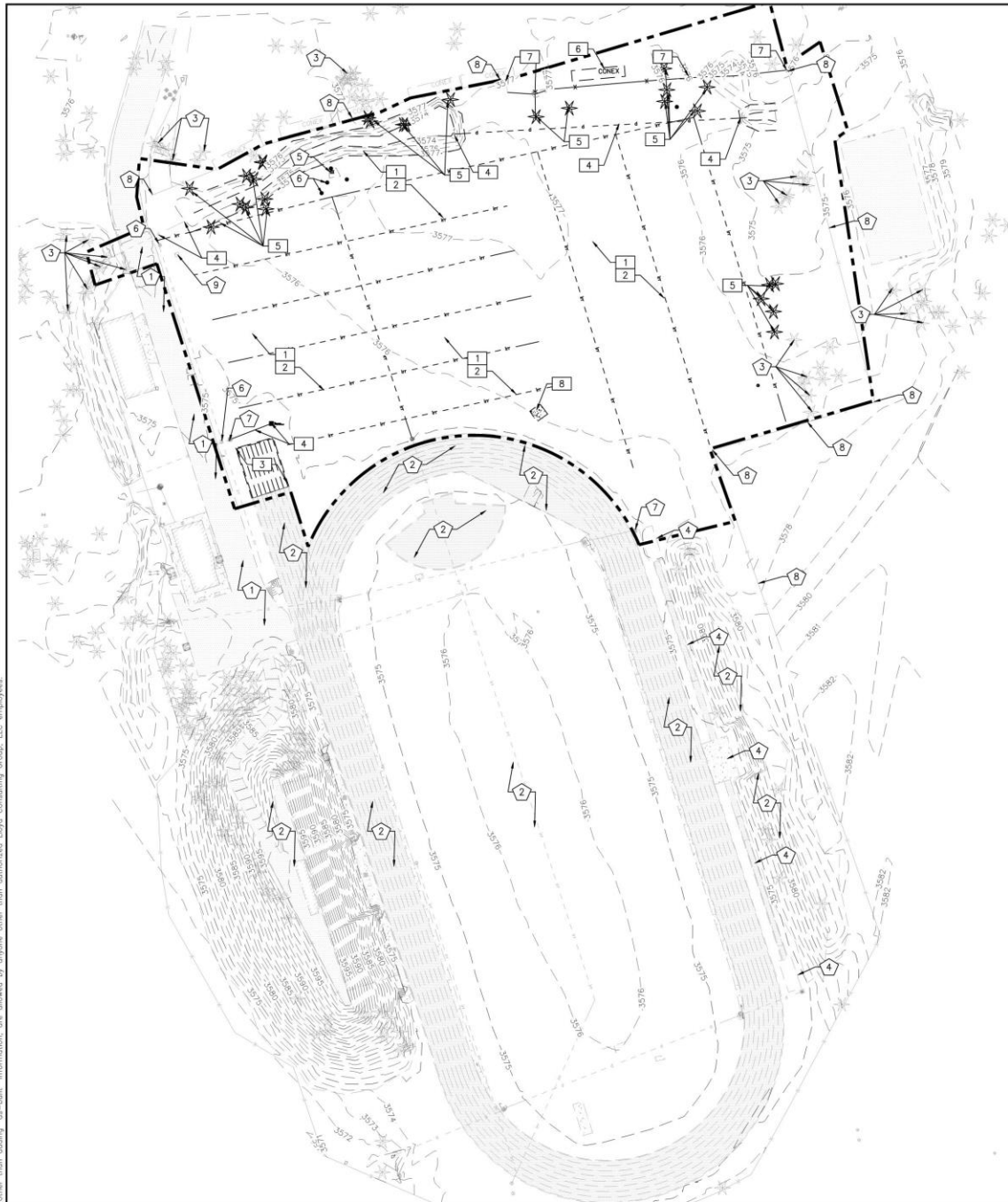


# Field Striping Overlay



# Demolition Plan

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**TOTAL DISTURBED AREA**  
TOTAL DISTURBED AREA = 156,185 SF

—	LIMITS OF CONSTRUCTION
▲	CONTROL POINT
■	CATCH BASIN
▼	IRRIGATION VALVE
◆	FIRE HYDRANT
★	TREE
☆	WATER VALVE
⊠	POWER METER
- - -	FENCE
- - -	STORM DRAIN LINE
- - -	IRRIGATION LINE
---	CONTOUR
▨	CONCRETE
▩	ASPHALT
▭	TRACK SURFACE

### PROTECT IN PLACE NOTES

- 1 PROTECT IN PLACE EXISTING ASPHALT ACCESS ROAD.
- 2 PROTECT IN PLACE EXISTING TRACK AND FIELD AND ALL ASSOCIATED EQUIPMENT, SPECTATOR AREAS, DRAINAGE INLETS, COMMUNICATION AND IRRIGATION VALVE BOXES.
- 3 PROTECT IN PLACE EXISTING TREES.
- 4 PROTECT IN PLACE EXISTING LONG JUMP PIT AND RUNWAY.
- 5 PROTECT IN PLACE EXISTING ELECTRICAL BOXES, CONDUIT AND LEADS.
- 6 PROTECT IN PLACE EXISTING IRRIGATION BOXES.
- 7 PROTECT IN PLACE EXISTING STORM DRAIN INLET AND PIPE.
- 8 PROTECT IN PLACE EXISTING SITE FENCE.
- 9 PROTECT, SALVAGE AND RELOCATE MONUMENT ROCK.

### DEMOLITION NOTES

- 1 REMOVE AND DISPOSE OF EXISTING NATURAL GRASS AND ORGANIC DEBRIS WITHIN LIMITS OF NEW SOCCER FIELD.
- 2 REMOVE AND DISPOSE OF EXISTING IRRIGATION LINES AND VALVES WITHIN LIMITS OF NEW SOCCER FIELD.
- 3 REMOVE AND DISPOSE OF EXISTING TRACK RUNOUT SURFACING, ASPHALT AND ROCK BASE. DISPOSE OF MATERIALS ACCORDING TO LOCAL CODES AND REQUIREMENTS.
- 4 REMOVE AND DISPOSE OF EXISTING STORM DRAIN PIPES AND CATCH BASINS.
- 5 REMOVE AND DISPOSE OF EXISTING TREES WITHIN LIMITS OF NEW SOCCER FIELD.
- 6 REMOVE AND RELOCATE EXISTING STORAGE CONTAINERS AND ALL RELATED ITEMS IN STORAGE PER OWNERS DIRECTION.
- 7 REMOVE AND DISPOSE OF EXISTING FENCE.
- 8 REMOVE AND DISPOSE OF EXISTING THROWING CIRCLE CONCRETE.

### GENERAL NOTES:

1. CONTRACTOR MUST REMOVE AND DISPOSE OF ALL WEEDS, LOOSE MATERIALS, AND THOROUGHLY CLEAN THE TRACK/RUNWAY AREAS TO RECEIVE THE NEW SYNTHETIC SURFACE.
2. AT THE CONCLUSION OF THE REPAIRS AND PREPARATION NO EXPOSED CONCRETE SURFACES SHALL BE VISIBLE ALONG THE PERIMETER AND OR EDGES OF ANY AREAS INTENDED FOR A SYNTHETIC TRACK AND FIELD RUNNING OR JUMPING SURFACE.
3. EXISTING STORM DRAIN FACILITIES WITHIN THE LIMITS OF CONSTRUCTION MUST BE PROTECTED FROM CONSTRUCTION DEBRIS INTRUSION AND MUST BE FLUSHED OUT AND CLEANED BY THE CONTRACTOR AT THE END OF CONSTRUCTION.
4. THE CONTRACTOR SHALL PROVIDE AND INSTALL EROSION CONTROL ITEMS SUCH AS SILT FENCING, HAY BALES, STABILIZED CONSTRUCTION ENTRANCES, AND INLET SEDIMENT TRAPS AS REQUIRED BY LOCAL CODE. THE CONTRACTOR IS RESPONSIBLE TO PROVIDE ANY EROSION CONTROL PLANS REQUIRED BY GOVERNMENT AGENCIES, AND OBTAIN ANY REQUIRED PERMITS.
5. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING IRRIGATION SERVICE TO EXISTING LANDSCAPE MATERIAL TO REMAIN AND TO ADJACENT FIELDS BOTH DURING AND AFTER CONSTRUCTION.
6. THE CONTRACTOR MUST CONTACT LOCAL UTILITY LOCATION SERVICES PRIOR TO CONSTRUCTION.
7. THE CONTRACTOR MUST PROTECT IN PLACE ALL EXISTING UTILITIES. THE CONTRACTOR IS RESPONSIBLE FOR REPAIR OR REPLACEMENT OF UTILITIES DAMAGED DURING CONSTRUCTION.
8. THE CONTRACTOR MUST PROTECT IN PLACE IMPERMEABLE LINER. THE CONTRACTOR IS RESPONSIBLE FOR REPAIR OR REPLACEMENT WHERE DAMAGED.
9. THE QUANTITY AND LOCATION OF INFIELD COMBOXES AND IRRIGATION BOXES IS APPROXIMATE. ADDITIONAL BOXES MAYBE LOCATED DURING CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR RENOVATING ALL INFIELD BOXES PER PLAN NOTES AND DETAILS.

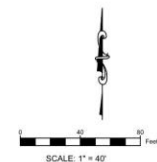
**LLOYD**  
CIVIL & SPORTS ENGINEERING  
7349 N. VA PASEO DEL SUR  
SUITE 515-324  
SCOTTSDALE, ARIZONA 85258  
PH 602.635.4226  
FAX 602.997.3148

PRELIMINARY NOT  
FOR CONSTRUCTION

REV.  
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\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
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\_\_\_\_\_  
COLLEGE OF THE SISKIYOU  
SOCCER FIELD  
800 College Avenue  
Weed, CA  
SCALE: 1"=40'  
DESIGNED: BTL  
DATE: 8/30/2018  
DRAWN: ZTP  
PROJ. 17-173  
APPROVED:

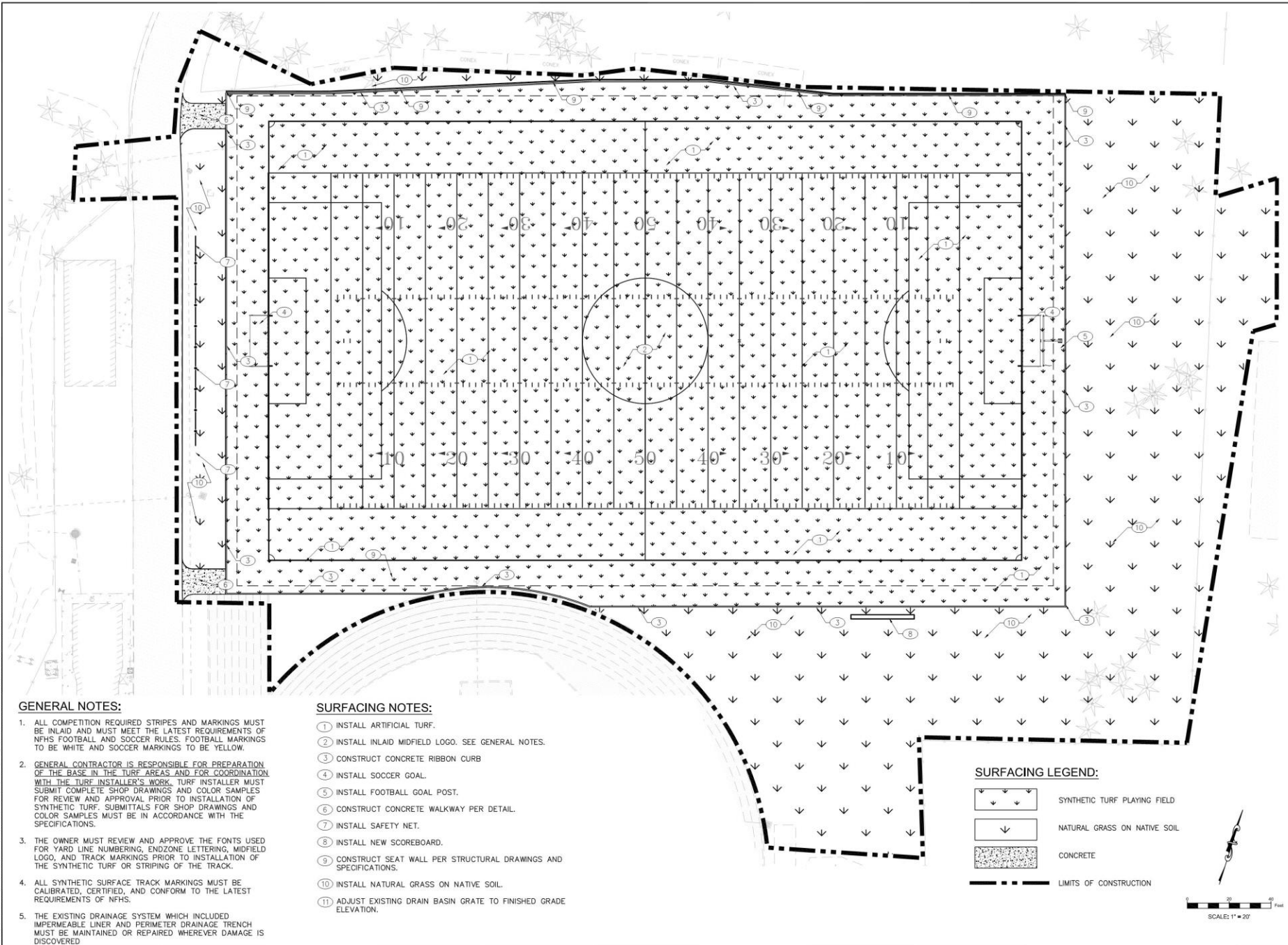
DEMOLITION PLAN

DWG. NO.  
PF-02



# 330 X 210 Soccer Layout

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**GENERAL NOTES:**

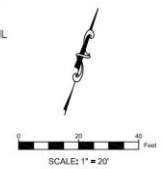
1. ALL COMPETITION REQUIRED STRIPES AND MARKINGS MUST BE INLAID AND MUST MEET THE LATEST REQUIREMENTS OF NFHS FOOTBALL AND SOCCER RULES. FOOTBALL MARKINGS TO BE WHITE AND SOCCER MARKINGS TO BE YELLOW.
2. GENERAL CONTRACTOR IS RESPONSIBLE FOR PREPARATION OF THE BASE IN THE TURF AREAS AND FOR COORDINATION WITH THE TURF INSTALLER'S WORK. TURF INSTALLER MUST SUBMIT COMPLETE SHOP DRAWINGS AND COLOR SAMPLES FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION OF SYNTHETIC TURF. SUBMITTALS FOR SHOP DRAWINGS AND COLOR SAMPLES MUST BE IN ACCORDANCE WITH THE SPECIFICATIONS.
3. THE OWNER MUST REVIEW AND APPROVE THE FONTS USED FOR YARD LINE NUMBERING, ENDZONE LETTERING, MIDFIELD LOGO, AND TRACK MARKINGS PRIOR TO INSTALLATION OF THE SYNTHETIC TURF OR STRIPING OF THE TRACK.
4. ALL SYNTHETIC SURFACE TRACK MARKINGS MUST BE CALIBRATED, CERTIFIED, AND CONFORM TO THE LATEST REQUIREMENTS OF NFHS.
5. THE EXISTING DRAINAGE SYSTEM WHICH INCLUDED IMPERMEABLE LINER AND PERIMETER DRAINAGE TRENCH MUST BE MAINTAINED OR REPAIRED WHEREVER DAMAGE IS DISCOVERED.

**SURFACING NOTES:**

- ① INSTALL ARTIFICIAL TURF.
- ② INSTALL INLAID MIDFIELD LOGO. SEE GENERAL NOTES.
- ③ CONSTRUCT CONCRETE RIBBON CURB
- ④ INSTALL SOCCER GOAL.
- ⑤ INSTALL FOOTBALL GOAL POST.
- ⑥ CONSTRUCT CONCRETE WALKWAY PER DETAIL.
- ⑦ INSTALL SAFETY NET.
- ⑧ INSTALL NEW SCOREBOARD.
- ⑨ CONSTRUCT SEAT WALL PER STRUCTURAL DRAWINGS AND SPECIFICATIONS.
- ⑩ INSTALL NATURAL GRASS ON NATIVE SOIL.
- ⑪ ADJUST EXISTING DRAIN BASIN GRATE TO FINISHED GRADE ELEVATION.

**SURFACING LEGEND:**

- SYNTHETIC TURF PLAYING FIELD
- NATURAL GRASS ON NATIVE SOIL
- CONCRETE
- LIMITS OF CONSTRUCTION



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PRELIMINARY NOT  
 FOR CONSTRUCTION

REV.	DESCRIPTION

COLLEGE OF THE SISKIYOU  
 SOCCER FIELD  
 800 College Avenue  
 Weed, CA

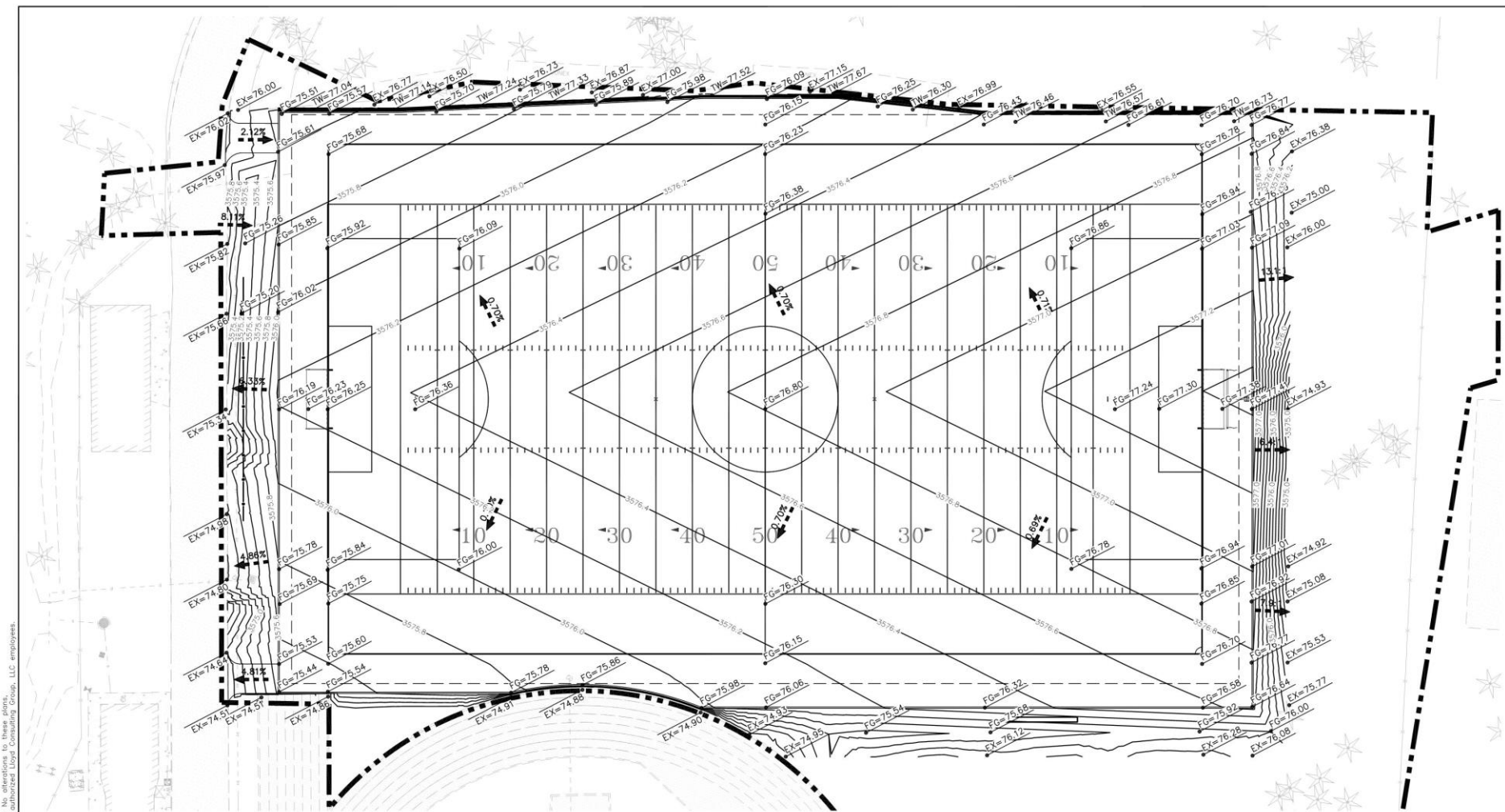
SCALE: 1"=30'  
 DESIGNED: BTI  
 DATE: 8/30/2018  
 DRAWN: ZTP  
 PROJ: 17-173  
 APPROVED:

**SURFACING PLAN**

DWG. NO.  
**PF-03**



# Concept Grading



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## GRADING NOTES:

- ELEVATIONS SHOWN ARE FINISHED GRADE, TOP OF NATURAL GRASS, CONCRETE PAVEMENT OR TOP OF SYNTHETIC TURF INFILL.
- CONTRACTOR MUST PROVIDE SMOOTH AND FLUSH SURFACE AT ALL FIELD ENTRANCES AND MATERIAL TRANSITIONS. NO DIPS, LIPS OR GAPS ARE ACCEPTED.
- SUBGRADE MUST BE PREPARED AND COMPACTED IN ACCORDANCE WITH ALL RECOMMENDATIONS AND REQUIREMENTS PER GEOTECHNICAL REPORT.
- FIELD CONTRACTOR MUST ACCEPT SUBGRADE CONDITIONS PRIOR TO FIELD CONSTRUCTION.
- ALL ACCESSIBLE PATHWAYS MUST BE INSTALLED IN ACCORDANCE WITH ADA REQUIREMENTS.

## EARTHWORK QUANTITIES:

OUT TO SUBGRADE =	2,180 CY
FILL =	485 CY
EXPORT TO BALANCE =	1,695 CY

## GRADING LEGEND:

- FG = FINISHED GRADE
- EX = EXISTING GRADE
- TC = TOP OF CURB
- BC = BOTTOM OF CURB
- = GRADE BREAK
- - - = SLOPE ARROW
- = LIMITS OF CONSTRUCTION

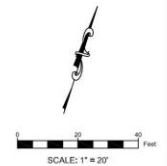
PRELIMINARY NOT  
FOR CONSTRUCTION

REV.	

## COLLEGE OF THE SISKIYOU'S SOCCER FIELD

800 College Avenue  
Weed, CA

SCALE: 1"=20'  
 DESIGNED: BTL  
 DATE: 8/30/2018  
 DRAWN: TML  
 PROJ: 17-173  
 APPROVED:



# Synthetic Turf System Details



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Student Safety

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Shock Attenuation

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Materials and Components

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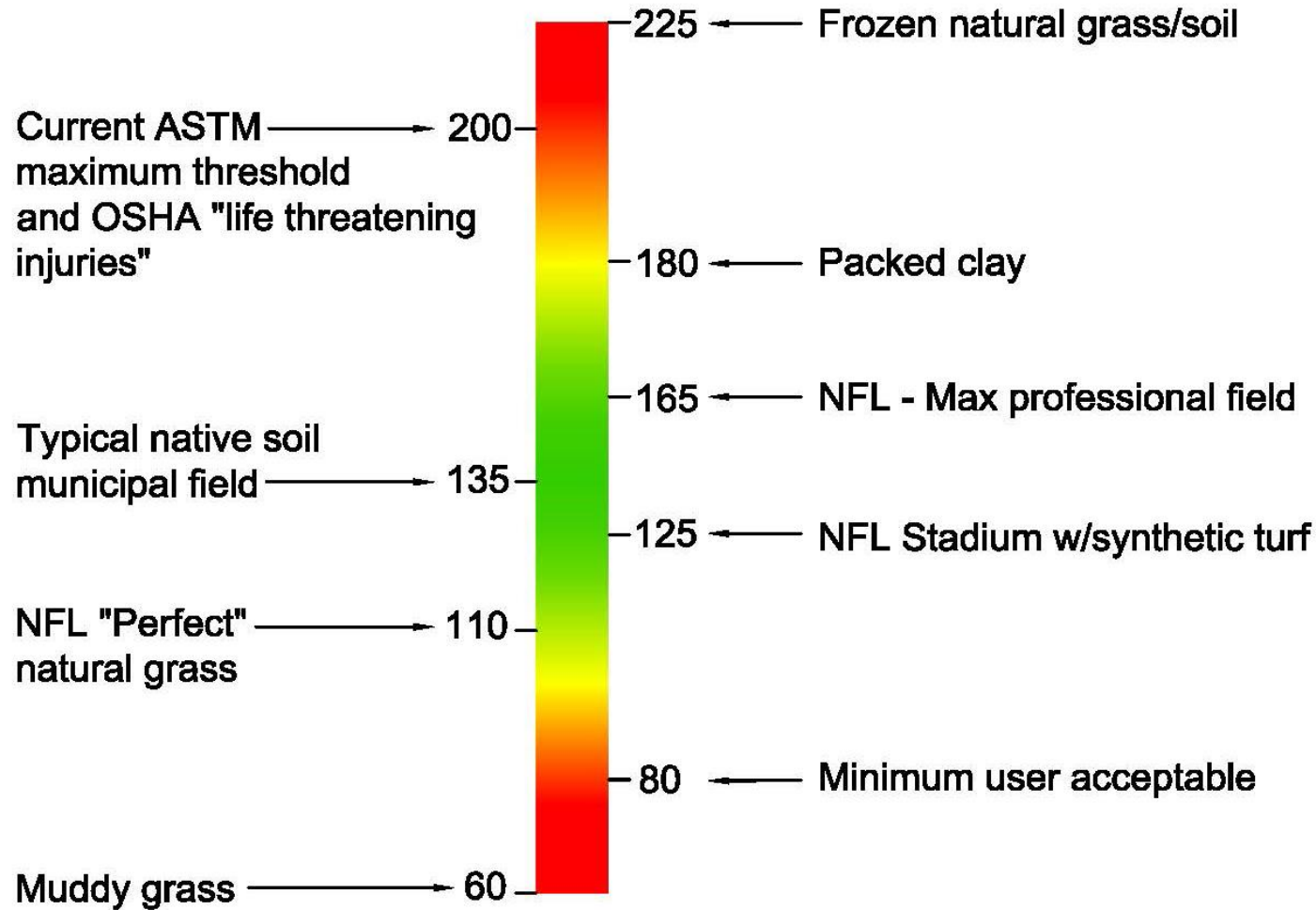
Heat and Abrasion

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# G-MAX RATING SCALE



Source: adapted from Turf Industry Presentation 2012

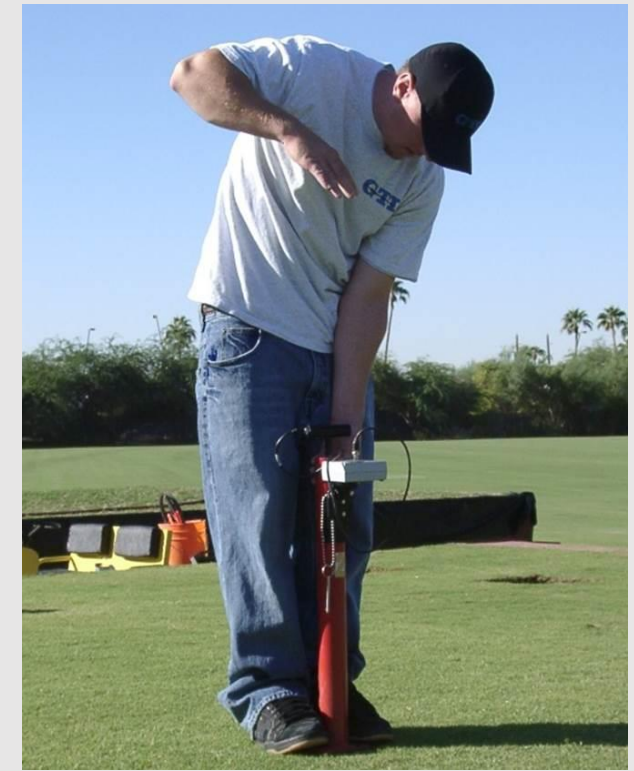


Image source: [www.Palombotesting.com](http://www.Palombotesting.com)

# Crumb Rubber and Alternate In-fills



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Recycled Crumb Rubber

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Virgin Plastics and Polymers

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Composites & Blends

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Organic Materials

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# Crumb Rubber Research



- 2017 Washington State Department of Health Report:  
<https://www.doh.wa.gov/Portals/1/Documents/Pubs/210-091.pdf>
- 2017 European Chemicals Agency Report:  
[https://echa.europa.eu/documents/10162/13563/annex-xv\\_report\\_rubber\\_granules\\_en.pdf/dbcb4ee6-1c65-af35-7a18-f6ac1ac29fe4](https://echa.europa.eu/documents/10162/13563/annex-xv_report_rubber_granules_en.pdf/dbcb4ee6-1c65-af35-7a18-f6ac1ac29fe4)
- 2016 EPA Federal Research Action Plan on Crumb Rubber  
[https://www.epa.gov/sites/production/files/2016-12/documents/federal\\_research\\_action\\_plan\\_on\\_recycled\\_tire\\_crumb\\_used\\_on\\_playing\\_fields\\_and\\_playgrounds\\_status\\_report.pdf](https://www.epa.gov/sites/production/files/2016-12/documents/federal_research_action_plan_on_recycled_tire_crumb_used_on_playing_fields_and_playgrounds_status_report.pdf)
- 2016 State of California; CalRecycle Study and Reports  
<https://oehha.ca.gov/risk-assessment/fact-sheet-environmental-health-study-synthetic-turf>
- 2018 State of CA; OEHHA Synthetic Turf Advisory Panel; Ongoing Study  
<https://oehha.ca.gov/risk-assessment/synthetic-turf-studies>

# Color Rendering



### FIELD COLOR LEGEND

- SYNTHETIC TURF COLOR (GREEN)
- SOCCER LINES (WHITE)
- FOOTBALL PRACTICE LINES (GRAY)





# Timeline

## College of the Siskiyous, Synthetic Turf Soccer Schedule

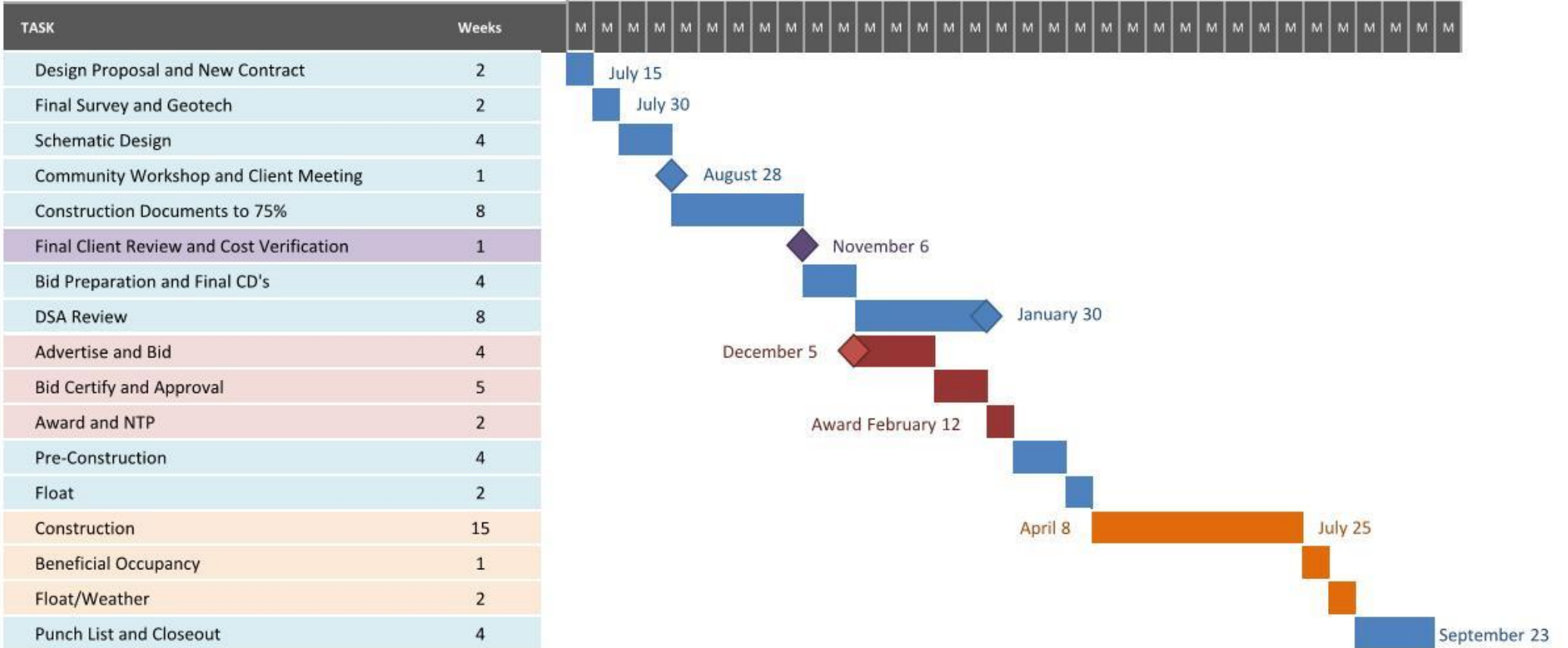


Lloyd Consulting Group

7/18/2018

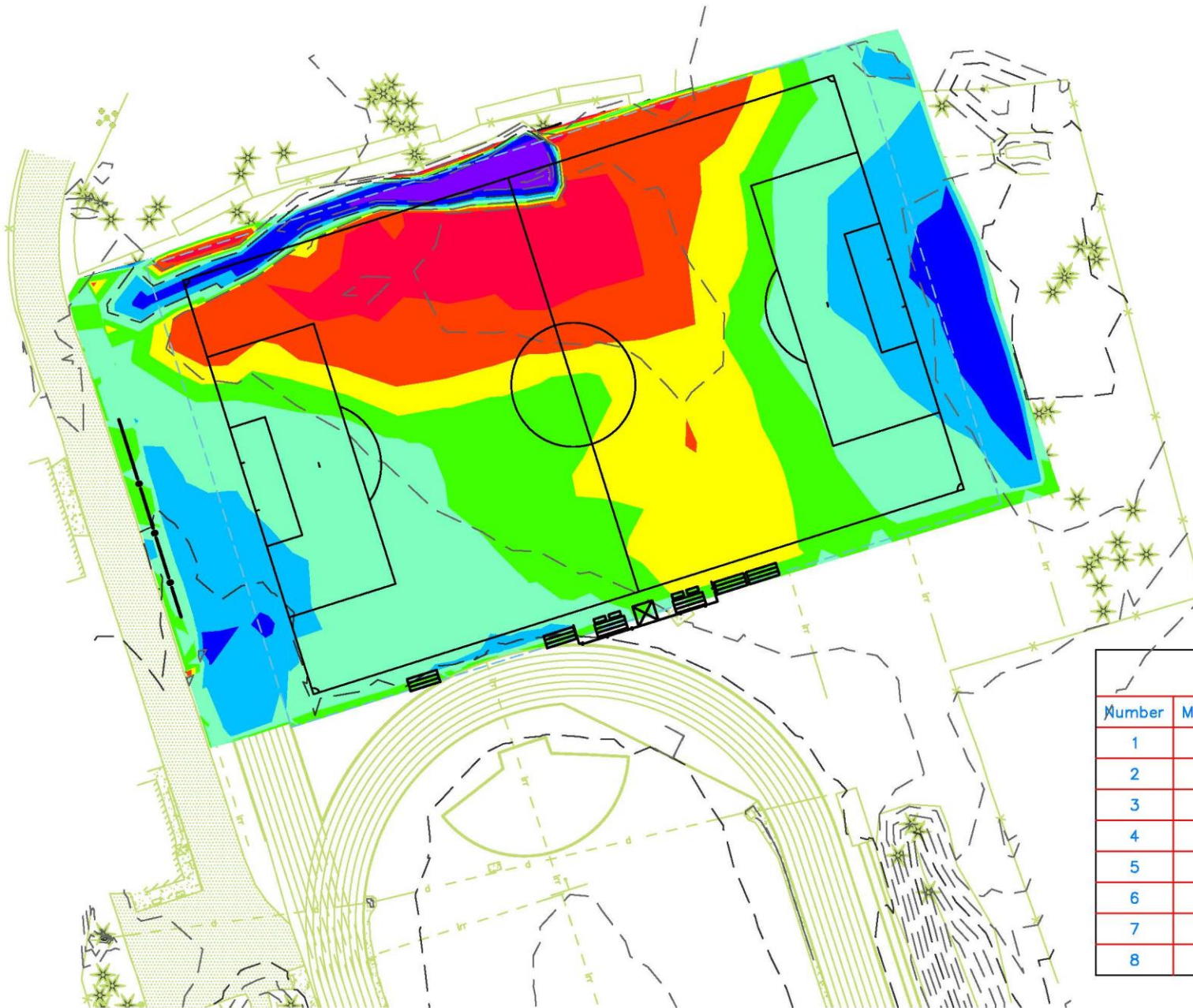
Project Start: Sun, 7/1/2018

Display Week:



- Design Team Task
- Bidding
- Owner Task
- Contractor Task





**EARTHWORK BALANCE**

CUT        935 CY  
 FILL        935 CY

TOTAL DISTURBED AREA  
 = 101745 SF

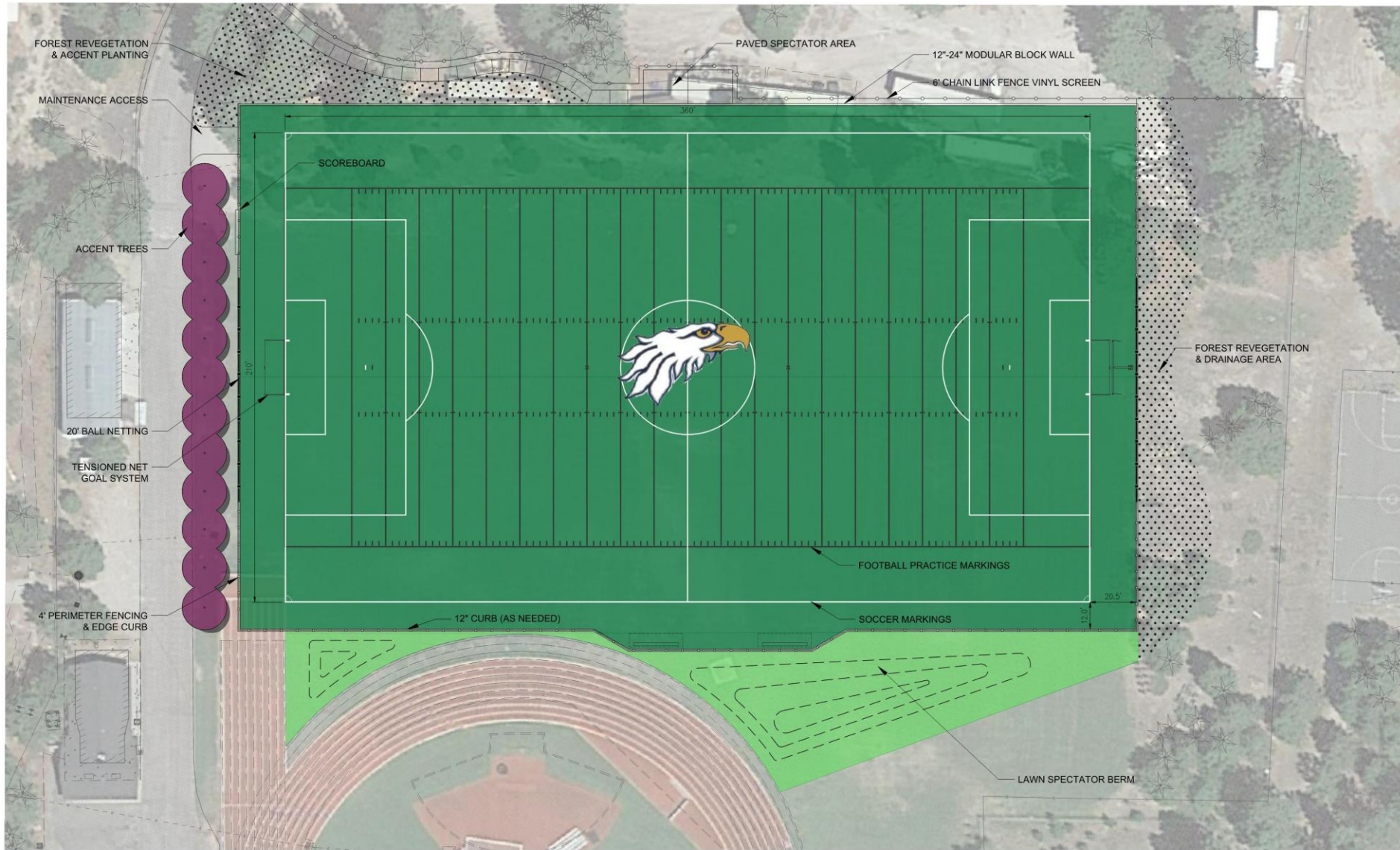
Elevations Table

Number	Minimum Elevation	Maximum Elevation	Area	Color
1	-1.57	-1.00	7214.82	Red
2	-1.00	-0.50	12796.05	Orange
3	-0.50	-0.25	15224.12	Yellow
4	-0.25	0.00	15693.82	Light Green
5	0.00	0.50	31422.88	Green
6	0.50	1.00	13904.97	Cyan
7	1.00	2.00	4312.10	Blue
8	2.00	3.03	1099.47	Purple





# Color Rendering



### FIELD COLOR LEGEND

- SYNTHETIC TURF COLOR (GREEN)
- SOCCER LINES (WHITE)
- FOOTBALL PRACTICE LINES (GRAY)

