



109 W. Red Oak Rd. PO Box 9000 Red Oak TX 75154  
 T: 972.617.2941  
 F: Enter Owner Fax  
 CONTACT: Enter Owner Contact  
 email: Enter Owner Contact Email

# Red Oak Independent School District ROHS Practice Field Renovations Issue for Construction



401 N. Houston St  
 Dallas, TX 75202  
 T: 214-748-2000

## SHEET LIST

SHEET INDEX			ISSUE FOR CONSTRUCTION
Discipline	SHEET NO.	SHEET NAME	
01 - GENERAL	COVER	COVER SHEET	■
05 - CIVIL	C01.00	COVER SHEET	■
05 - CIVIL	C01.01	TOPOGRAPHIC SURVEY	■
05 - CIVIL	C02.00	DEMOLITION PLAN	■
05 - CIVIL	C03.00	OVERALL SITE PLAN	■
05 - CIVIL	C03.01	DETAILED SITE PLAN	■
05 - CIVIL	C04.00	GRADING PLAN	■
05 - CIVIL	C04.01	S.W.P.P.P. PLAN	■
05 - CIVIL	C04.02	S.W.P.P.P. DETAILS	■
05 - CIVIL	C04.03	S.W.P.P.P. DETAILS	■
05 - CIVIL	C04.04	EXISTING DA MAP	■
05 - CIVIL	C05.00	DRAINAGE PLAN	■
05 - CIVIL	C06.00	PAVING PLAN	■
05 - CIVIL	C07.00	TURF PLAN	■
05 - CIVIL	C07.01	TURF SECTION	■
05 - CIVIL	C07.02	TURF DETAILS	■
05 - CIVIL	C07.03	EVENT DETAILS	■
05 - CIVIL	C07.04	STORM DRAINAGE PLAN	■
05 - CIVIL	C07.05	FENCE DETAILS	■
05 - CIVIL	C07.06	FOOTBALL INLAID PLAN	■
05 - CIVIL	C07.07	SOCCER INLAID PLAN	■
05 - CIVIL	C07.08	TRENCH DRAIN DETAILS	■
05 - CIVIL	C07.09	TRENCH DRAIN DETAILS	■
12 - PLUMBING	PS01-01	PLUMBING SITE PLAN	■
15 - ELECTRICAL	EP01-01	ELECTRICAL SITE PLAN	■
15 - ELECTRICAL	EP01-02	ELECTRICAL DETAILS, NOTES, & SYMBOLS	■
15 - ELECTRICAL	EP01-03	ELECTRICAL PANELBOARDS & RISER DIAGRAM	■

## CODE INFORMATION

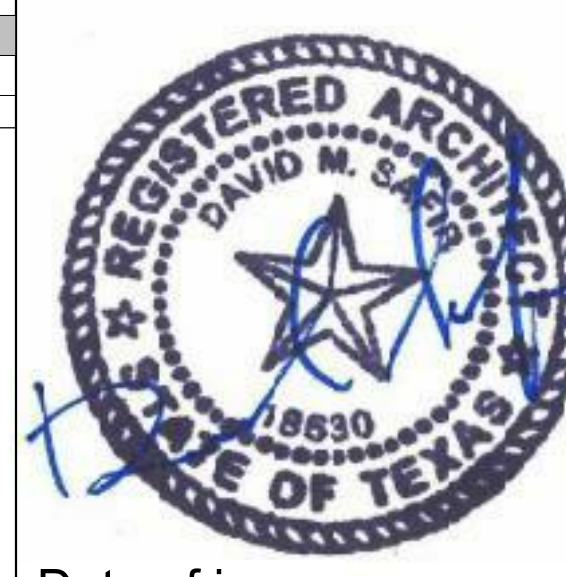
PROJECT DATA AND CODE INFORMATION	
<b>PROJECT DATA</b>	
PROJECT NAME:	ROHS Practice Field Renovations
PROJECT ADDRESS:	220 TX-342, Red Oak, TX 75154
OWNER:	Red Oak Independent School District
<b>APPLICABLE CODES</b>	NOTE: INCLUDED IN SPECIFICATION SECTION 014100 REGULATORY REQUIREMENTS
BUILDING CODE:	2012 IBC
ACCESSIBILITY CODE:	TEXAS ACCESSIBILITY STANDARDS; ADA
ELECTRICAL CODE:	2011 NEC
ENERGY CODE:	2015 IECC
FIRE CODE:	2012 IFC
MECHANICAL CODE:	2012 IMC
PLUMBING CODE:	2012 IPC
REGIONAL OR MUNICIPAL CODE:	REFER TO CITY OF RED OAK EXCEPTIONS & AMENDMENTS
<b>LIFE SAFETY INFORMATION</b>	<b>REFERENCE</b>
<b>USE OR OCCUPANCY CLASSIFICATION</b>	
OCCUPANCY:	ENTER BUILDING OCCUPANCY CLASS.
<b>TYPE OF CONSTRUCTION</b>	
CONSTRUCTION TYPE:	ENTER CONSTRUCTION TYPE

## ISSUES

NO.	DATE	DESCRIPTION
1	09/13/2019	ISSUE FOR CONSTRUCTION

## REVISIONS

NO.	DATE	DESCRIPTION
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Date of issue:  
09/13/2019

**ROHS Practice Field  
 Renovations**  
 FOR  
 Red Oak Independent School District  
 220 TX-342, Red Oak, TX 75154

## PROJECT TEAM

ARCHITECT	CIVIL	M E P
<b>CORGAN</b> T: 214-748-2000 401 N. Houston St Dallas, TX 75202	<b>GLENN ENGINEERING</b> 4500 Fuller Dr. Suite 220 Irving, TX 75038 T: 972-989-2174 CONTACT: Robert Howman email: rahowman@glenngineering.com	<b>EMA</b> 3608 Westway St. Tyler, TX 75703 T: 903.581.2677 CONTACT: Chris Hamby email: chramby@emaengineer.com

## COVER SHEET

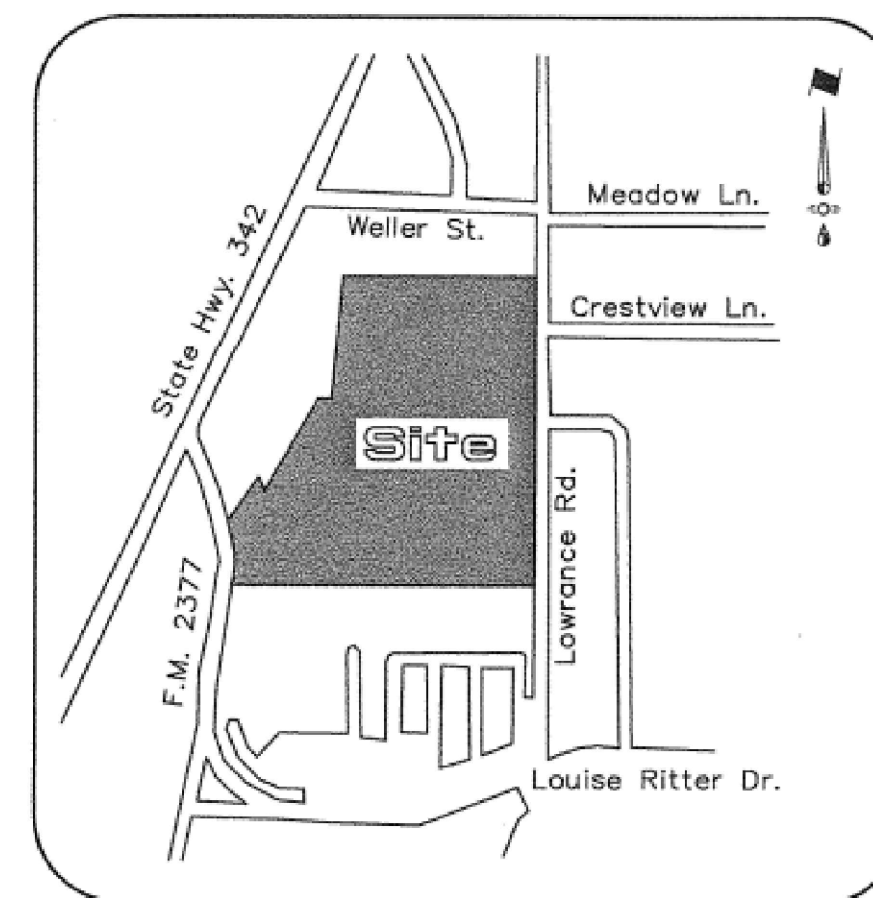
**JOB** 19306.0000  
**DATE** 09/13/2019  
**SHEET**  
**COVER**

# CIVIL CONSTRUCTION PLANS FOR 2019 ARTIFICIAL TURF PRACTICE FIELDS RED OAK HIGH SCHOOL RED OAK INDEPENDENT SCHOOL DISTRICT

LOCATION MAP



VICINITY MAP



VICINITY MAP  
NTS

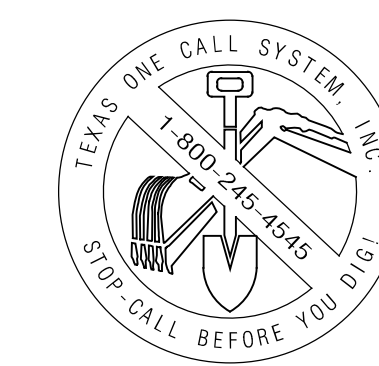
**RED OAK HIGH SCHOOL**

GENERAL NOTE:  
CONTRACTOR TO UTILIZE CITY APPROVED CONSTRUCTION PLANS FOR CONSTRUCTION OF ALL CIVIL RELATED FACILITIES. CONTRACTOR TO NOTIFY ARCHITECT/ENGINEER IMMEDIATELY OF ANY COST DISCREPANCIES BETWEEN THE CITY APPROVED SET AND BID SET WITH LATEST ADDENDA.

## INDEX OF DRAWINGS

### TABLE OF CONTENTS

SHEET NO	TITLE
C01.00	COVER SHEET
C01.01	TOPOGRAPHIC SURVEY
C02.00	DEMOLITION PLAN
C03.00	OVERALL SITE PLAN
C03.01	DETAILED SITE PLAN
C04.00	GRADING PLAN
C04.01	S.W.P.P. PLAN
C04.02	S.W.P.P. DETAILS
C04.03	S.W.P.P. DETAILS
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C05.00	DRAINAGE PLAN
C06.00	PAVING PLAN
C07.00	TURF PLAN
C07.01	TURF SECTION
C07.02	TURF DETAILS
C07.03	EVENT DETAILS
C07.04	STORM DRAINAGE PLAN
C07.05	FENCE DETAILS
C07.06	FOOTBALL INLAID PLAN
C07.07	SOCCER INLAID PLAN
C07.08	TRENCH DRAIN DETAILS
C07.09	TRENCH DRAIN DETAILS



### OWNER

RED OAK I.S.D.  
109 WEST RED OAK RD  
RED OAK, TEXAS 75154  
(972) 617-2941

### OWNER

CORGAN ARCHITECTS  
401 NORTH HOUSTON ST.  
DALLAS, TEXAS 75202  
(214) 757-1696

# AUGUST 2019

### CIVIL ENGINEER

GLENN ENGINEERING  
105 DECKER COURT, SUITE 910  
IRVING, TEXAS 75062  
(972) 717 - 5151



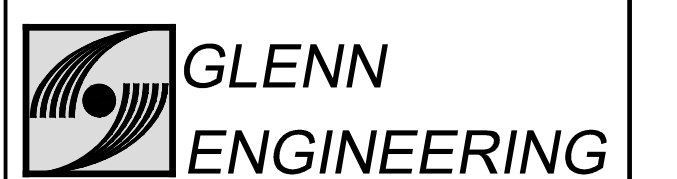
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### ISSUES

1	08/13/2019	ISSUE FOR CONSTRUCTION
2		

### REVISIONS

2		
3		
4		
5		
6		
7		
8		



T.B.P.E. FIRM REGISTRATION NO. F - 303  
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105 DECKER COURT - SUITE 910 IRVING, TEXAS 75062

**RED OAK HIGH SCHOOL  
ARTIFICIAL  
TURF PRACTICE FIELDS  
FOR  
RED OAK INDEPENDENT SCHOOL DISTRICT**

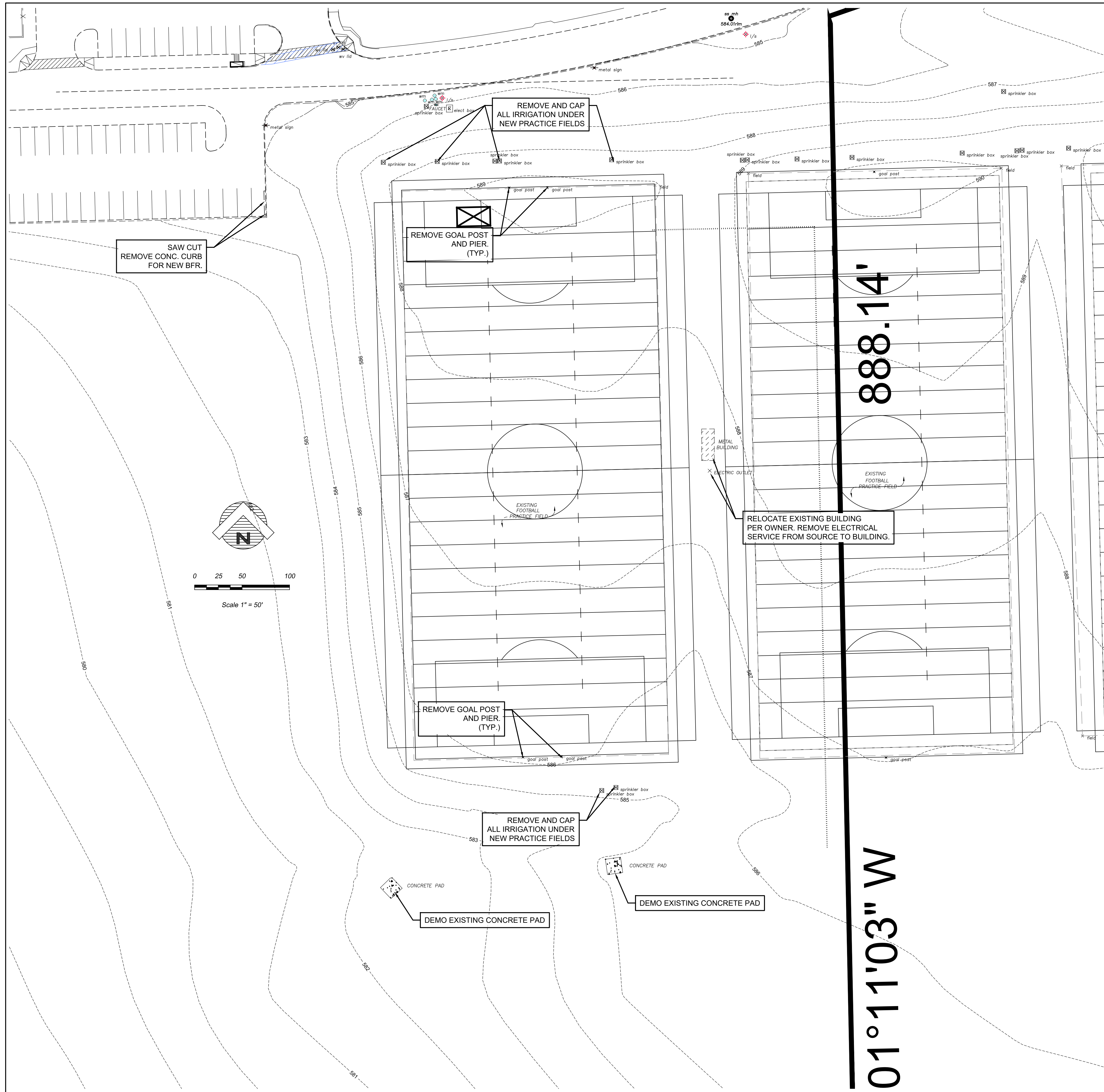
COVER SHEET

JOB 19306.0000  
DATE 09/13/2019  
SHEET

**C01.00**

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**DEMOLITION NOTES:**

1. CONTRACTOR SHALL CONSULT ALL UTILITY COMPANIES AND VERIFY LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO DEMOLITION. REMOVAL AND RELOCATION OF ALL UTILITIES, METERS, VALVES, ETC. SHALL BE PERFORMED PER REQUIREMENTS OF THE CITY OF RED OAK & UTILITY COMPANIES. ANY DAMAGE TO PUBLIC UTILITIES SHALL BE THE GENERAL CONTRACTOR'S RESPONSIBILITY TO CORRECT.
2. ALL DEMOLITION AND CONSTRUCTION TO BE KEPT WITHIN THE BOUNDARIES OF THE SITE OR AS DESIGNATED BY CONSTRUCTION ENGINEER. ANY DAMAGE BY CONTRACTOR TO ADJOINING PROPERTIES OR ITEMS NOT IN THE DESIGNATED DEMOLITION AREA SHALL BE THE GENERAL CONTRACTOR'S RESPONSIBILITY TO CORRECT.
3. REMOVE ALL EXISTING UNDERGROUND UTILITIES, CAP AS REQUIRED. BACK FILL AND COMPACT PER CITY SPECIFICATIONS.
4. REMOVE SURFACE PAVING AS NEEDED TO COMPLETE PAVING PLAN.
5. REMOVE EXISTING SIGNAGE, INCLUDING POSTS AND FOUNDATIONS.
6. REMOVE ANY OTHER ITEMS NOT INDICATED ABOVE BUT WHICH MUST BE DEMOLISHED TO COMPLETE PROJECT AS DESIGNATED BY SITE PLAN.
7. CONTRACTOR TO USE TREE PROTECTION ON ALL EXISTING TREES THAT ARE TO REMAIN.
8. CONTRACTOR REMOVE ALL LIGHT POLE BASES AND PIERS AS SHOWN.

**DEMOLITION LEGEND:**

	EXISTING CONCRETE PAVING AND CURB TO BE REMOVED AND HAULED OFF.
	EXISTING SIDEWALK TO BE REMOVED AND HAULED OFF.
	EXISTING ASPHALT PAVING AND CURB TO BE REMOVED AND HAULED OFF.
	EXISTING UNDERGROUND UTILITY TO BE REMOVED AND HAULED OFF.
	EXISTING BUILDING, FOUNDATION AND PIERS REMOVED AND HAULED OFF.

**ALL CONSTRUCTION SHALL BE PER CITY OF RED OAK STANDARDS**

**CONTRACTOR SHALL VERIFY ALL EXISTING INVERTS AND ELEVATIONS PRIOR TO CONSTRUCTION.**

**IRRIGATION NOTES**

ALL LOCATIONS OF THE EXISTING IRRIGATION SHOWN ON THESE PLANS WERE DERIVED FROM FIELD INSPECTIONS AND EXISTING DESIGN DRAWINGS. THEY IN NO WAY GUARANTEE THE EXACT LOCATION OF ANY OF THE IRRIGATION EQUIPMENT OR LINES THAT EXIST ON THE SITE.

THE EXISTING IRRIGATION SYSTEM SHALL NOT BE DISABLED FOR MORE THAN 48 HOURS FOR ANY REASON. IF THE EXISTING SYSTEM IS DISABLED FOR 48 HOURS, IT SHALL NOT BE DISABLED AGAIN DURING NORMAL WATERING SCHEDULE UNTIL IT HAS COMPLETED TWO FULL WATERINGS OF THE ENTIRE SITE. IT MAY BE INTERRUPTED FOR A SHORTER AND MORE FREQUENT INTERVAL, BUT THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THAT THE NORMAL WATERING SCHEDULE IS COMPLETED.

IRRIGATION CONTRACTOR IS RESPONSIBLE FOR PROPERLY REPAIRED AND FUNCTIONING IRRIGATION SYSTEM IN ALL AREAS IN OR ADJACENT TO CONSTRUCTION AND CONTROLLERS. ALL DISTURBED IRRIGATION AREAS WILL BE REPAIRED OR COMPLETELY REPLACED TO PROVIDE FULL IRRIGATION FOR THE AREAS SHOWN ON THE PLANS.

ALL REPAIRED AND REPLACED IRRIGATION SHALL BE INSTALLED PER THE SPECIFICATIONS.

ANY DEVIATION FROM THE SPECIFICATIONS AND PLANS WILL REQUIRE THE IRRIGATION CONTRACTOR TO OBTAIN APPROVAL FROM THE OWNER.

IF THE IRRIGATION SYSTEM IS DAMAGED DURING THE CONSTRUCTION PROCESS THE GENERAL CONTRACTOR AND IRRIGATION CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING AND RESTORING THE EXISTING SYSTEM TO WORKING STATUS WITHIN 24 HOURS OF WHEN THE DAMAGE OCCURRED.

IRRIGATION CONTRACTOR IS RESPONSIBLE FOR RAISING OR LOWERING HEADS IN AREAS WHERE GRADING IS TAKING PLACE AND THERE IS NO RE-DESIGN OF THE IRRIGATION SYSTEM.

**EXISTING IRRIGATION NOTE**

PRIOR TO CONSTRUCTION OR DISTURBANCE OF EXISTING IRRIGATION, THE GENERAL CONTRACTOR SHALL NOTIFY OWNER TWO WEEKS PRIOR TO DISTURBANCE TO ALLOW OWNER TO SALVAGE ANY EXISTING EQUIPMENT THAT WILL BE DISTURBED.

PRIOR TO CONSTRUCTION OR DISTURBANCE OF EXISTING IRRIGATION THE IRRIGATION CONTRACTOR, GENERAL CONTRACTOR AND THE OWNER SHALL MEET ON SITE TO REVIEW EXISTING IRRIGATION. FIELD NOTES SHALL BE MADE BY THE GENERAL CONTRACTOR AS TO THE LIMITS AND CONDITION OF THE EXISTING SYSTEM. ALL MAINLINE AND WIRES IN THE AREA WHERE CONSTRUCTION WILL DISTURB OR DAMAGE THE EXISTING SYSTEM SHALL BE RELOCATED OR STUBBED OUT PRIOR TO CONSTRUCTION.

EXISTING IRRIGATION ON THE SITE, EXCEPT FOR THE IMMEDIATE CONSTRUCTION AREA, SHALL BE KEPT IN WORKING CONDITION. ANY TEMPORARY MEASURES TO KEEP THE ENTIRE SITE IRRIGATED SHALL BE THE RESPONSIBILITY OF THE IRRIGATION CONTRACTOR.

ALL PLANT MATERIAL ON SITE IS WATERED BY AN EXISTING IRRIGATION SYSTEM. IRRIGATION MAINLINE IS LOOPED AROUND EXISTING BUILDING. LOOP SHALL BE MAINTAINED AS NEEDED TO WATER EXISTING PLANTS TO KEEP THEM HEALTHY. HAND WATERING MAY BE NECESSARY.

GENERAL CONTRACTOR WILL BE RESPONSIBLE FOR MAINTAINING HEALTH OF EXISTING PLANTS DURING CONSTRUCTION. THIS INCLUDES BUT IS NOT LIMITED TO TEMPORARY OR HAND WATERING.

MAINTENANCE ON SITE, EXCEPT FOR THE IMMEDIATE CONSTRUCTION AREA WILL BE COMPLETED BY THE OWNER.

NOTE: THE CITY OF RED OAK CONSTRUCTION STANDARDS APPLY, WHETHER INDICATED ON THESE PLANS OR NOT.

NOTE: EROSION CONTROLS SHALL BE IN PLACE PRIOR TO THE DISTURBANCE OF ANY EXISTING SURFACE.



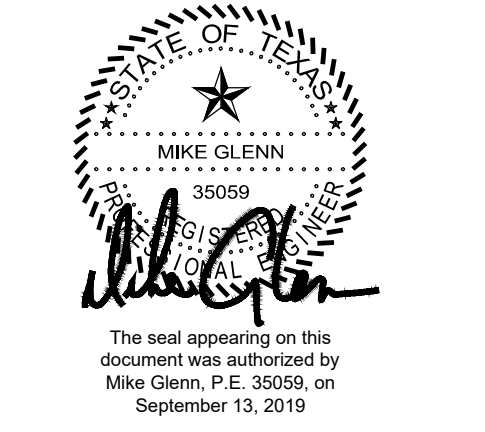
CORGAN  
401 N. Houston St.  
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**ISSUES**

1	08/13/2019	ISSUE FOR CONSTRUCTION
2		

**REVISIONS**

1		
2		
3		
4		
5		
6		
7		
8		



T.B.P.E. FIRM REGISTRATION NO. F - 303  
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105 DECKER COURT - SUITE 910 IRVING, TEXAS 75038

**RED OAK HIGH SCHOOL  
ARTIFICIAL  
TURF PRACTICE FIELDS  
FOR  
RED OAK INDEPENDENT SCHOOL DISTRICT**

**DEMOLITION  
PLAN**

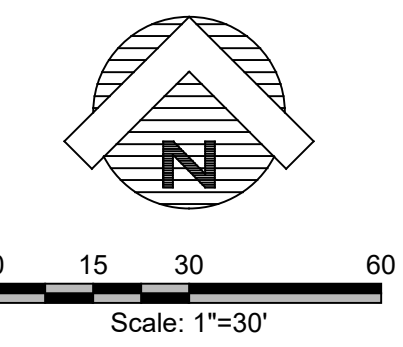
**JOB** 19306.0000  
**DATE** 09/13/2019  
**SHEET**

**C02.00**

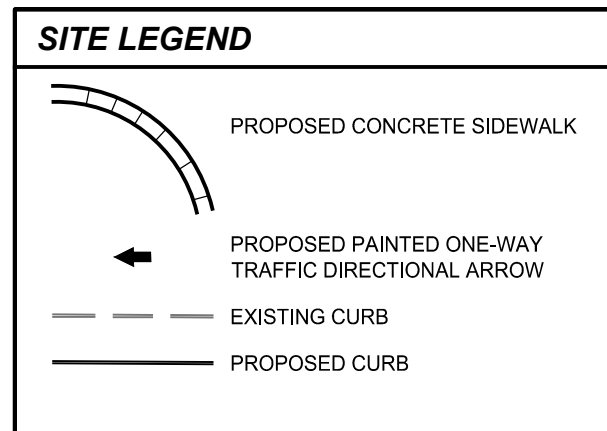
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- GENERAL SITE NOTES**
1. STRIPING & SIGNAGE DIMENSIONS ARE FROM FACE OF CURB.
  2. ALL FIRE LANES, PARKING STRIPING, HOOP PARKING STRIPING & SIGNAGE ARE TO BE IN ACCORDANCE WITH CITY OF RED OAK REQUIREMENTS, TYP.
  3. PRIOR TO ANY CONSTRUCTION THE CONTRACTOR SHALL FAMILIARIZE HIMSELF WITH THE CONTRACT DOCUMENTS AND SPECIFICATIONS, THE PLANS INCLUDING ALL NOTES, THE CITY OF RED OAK SPECIFICATIONS AND ANY OTHER APPLICABLE STANDARDS OR SPECIFICATIONS RELEVANT TO THE PROPER COMPLETION OF THE WORK SPECIFIED. FAILURE ON THE PART OF THE CONTRACTOR TO FAMILIARIZE HIMSELF WITH ALL STANDARDS OR SPECIFICATIONS PERTAINING TO THIS WORK SHALL IN NO WAY RELIEVE THE CONTRACTOR OF RESPONSIBILITY FOR PERFORMING THE WORK IN ACCORDANCE WITH ALL SUCH APPLICABLE STANDARDS AND SPECIFICATIONS.
  4. CONTRACTOR SHALL HAVE IN HIS POSSESSION, PRIOR TO CONSTRUCTION, ALL NECESSARY PERMITS, LICENSES, ETC. CONTRACTOR SHALL HAVE AT LEAST ONE SET OF APPROVED ENGINEERING PLANS AND SPECIFICATIONS ON-SITE AT ALL TIMES.
  5. ALL WORK SHALL CONFORM TO THE CITY OF RED OAK SPECIFICATIONS, STANDARDS, AND DETAILS.
  6. IF UNFORESEEN PROBLEMS OR CONFLICTS ARE ENCOUNTERED IN THE CONSTRUCTION, FOR WHICH AN IMMEDIATE SOLUTION IS NOT APPARENT, THE ENGINEER AND OWNER SHALL BE NOTIFIED IMMEDIATELY.
  7. IT WILL BE THE RESPONSIBILITY OF EACH CONTRACTOR TO PROTECT ALL EXISTING PUBLIC AND PRIVATE UTILITIES THROUGHOUT THE CONSTRUCTION OF THIS PROJECT. CONTRACTOR SHALL CONTACT THE APPROPRIATE UTILITY COMPANIES FOR LINE LOCATIONS, PRIOR TO COMMENCEMENT OF CONSTRUCTION AND SHALL ASSUME FULL LIABILITY TO THOSE COMPANIES FOR ANY DAMAGES CAUSED TO THEIR FACILITIES.
  8. CONTRACTORS SHALL BE RESPONSIBLE FOR FIELD LOCATING EXISTING UTILITIES AND IMPROVEMENTS PRIOR TO CONSTRUCTION.
  9. TRENCH SAFETY DESIGN WILL BE THE RESPONSIBILITY OF THE UTILITY CONTRACTOR. CONTRACTOR SHALL SUBMIT DESIGN TO THE CITY OF RED OAK ENGINEERING DEPARTMENT FOR REVIEW.
  10. MARK FIRE LANES TO THE CITY OF RED OAK SPECIFICATION. TWO PARKING FIRE LANE EVERY 25' WHITE "F" LETTERS ON A 6" RED STRIPED BACKGROUND.
  11. NO TREES ARE TO BE PLANTED WITHIN 5' OF ANY UTILITIES.
  12. THE HICKORY RIDGE LIFT STATION WILL BE UPGRADED TO ACCOMMODATE THE SCHOOL SITE.
  13. ADHERENCE TO ENGINEERING AND FIRE DEPARTMENT STANDARDS SHALL BE REQUIRED.



**NOTE**  
 UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE MAPS AND RECORDS AND THEREFORE THEIR LOCATIONS ARE APPROXIMATE ONLY. ELEVATIONS SHOWN ARE BASED ON FIELD MEASUREMENTS. THERE MAY BE OTHER UTILITIES, THE EXISTENCE OF WHICH ARE NOT KNOWN TO THE UNDERSIGNED. SIZE AND LOCATION OF ALL UNDERGROUND UTILITIES MUST BE VERIFIED PRIOR TO ANY CONSTRUCTION.



**CORGAN**  
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ISSUES	
1	08/13/2019 ISSUE FOR CONSTRUCTION
2	
REVISIONS	
1	
2	
3	
4	
5	
6	
7	
8	



**GLENN ENGINEERING**  
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 105 DECKER COURT - SUITE 910 IRVING, TEXAS 75014

**RED OAK HIGH SCHOOL  
 ARTIFICIAL  
 TURF PRACTICE FIELDS  
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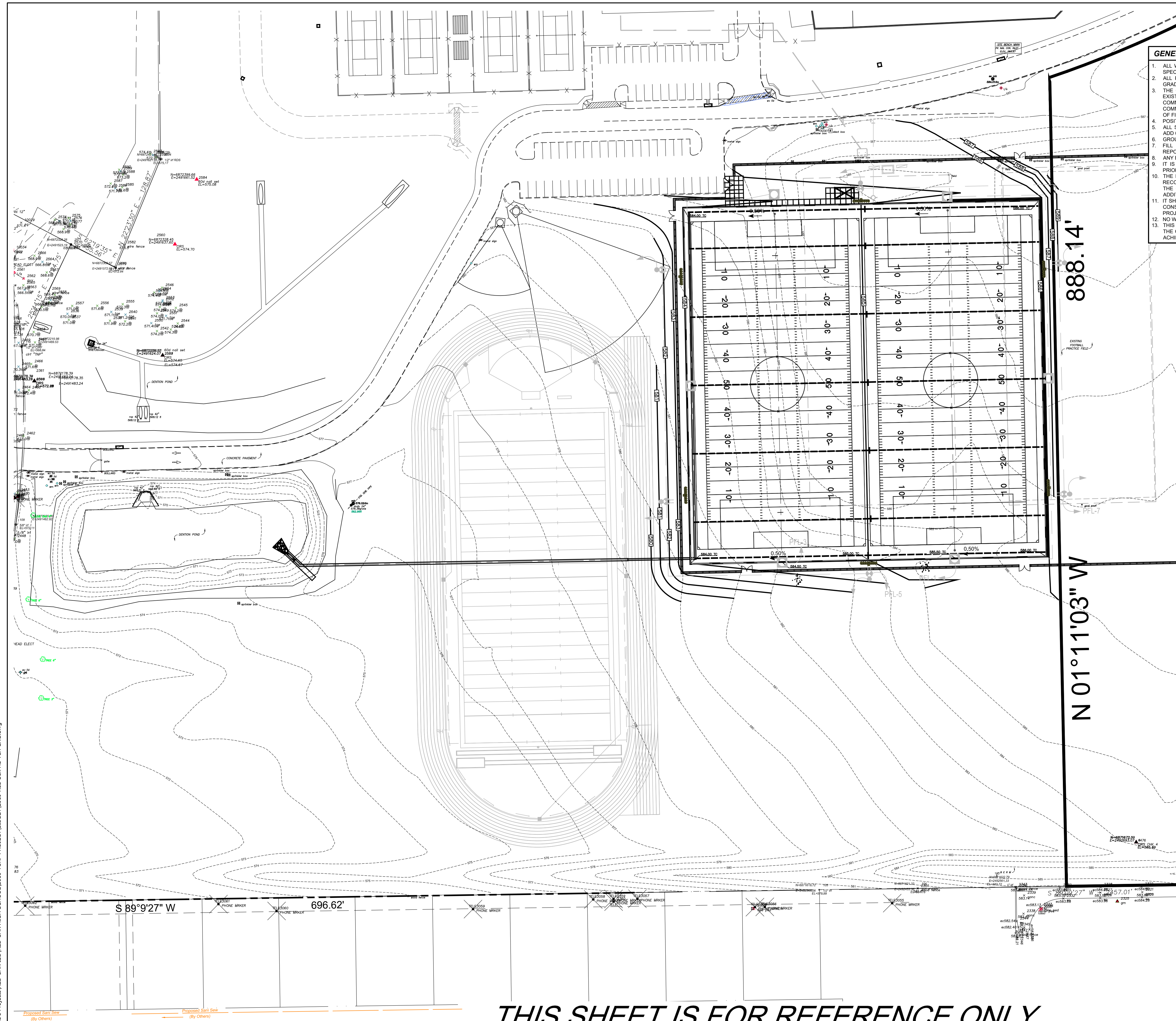
**OVERALL SITE PLAN**

**JOB** 19306.0000  
**DATE** 09/13/2019  
**SHEET** C03.00

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NOTE: THE CITY OF RED OAK CONSTRUCTION STANDARDS APPLY, WHETHER INDICATED ON THESE PLANS OR NOT. NOTE: EROSION CONTROLS SHALL BE IN PLACE PRIOR TO THE DISTURBANCE OF ANY EXISTING SURFACE.



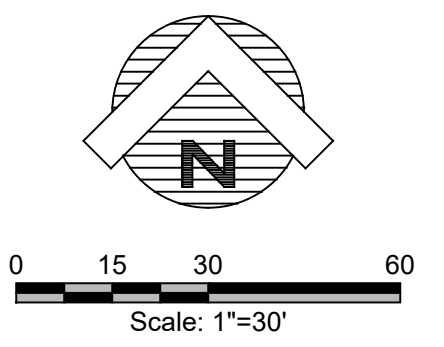


- GENERAL GRADING NOTES:**
1. ALL WORK SHALL BE IN ACCORDANCE WITH THESE PLANS AND CITY OF RED OAK STANDARDS AND SPECIFICATIONS.
  2. ALL PROPOSED CONTOURS ARE APPROXIMATE. PROPOSED SPOT ELEVATIONS AND DESIGNATED GRADIENT ARE TO BE USED IN THE EVENT OF ANY DISCREPANCIES.
  3. THE GENERAL CONTRACTOR AND ALL SUBCONTRACTORS SHALL VERIFY THE SUITABILITY OF ALL EXISTING AND PROPOSED SITE CONDITIONS INCLUDING GRADES AND DIMENSIONS BEFORE COMMENCEMENT OF ANY CONSTRUCTION. IN THE EVENT OF ANY CONFLICT AND PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION, IMMEDIATELY NOTIFY ENGINEER. MINOR ADJUSTMENTS OF FINISHED GRADE TO ACCOMPLISH SPOT DRAINAGE ARE ACCEPTABLE.
  4. POSITIVE DRAINAGE SHALL BE PROVIDED AWAY FROM ALL FOUNDATIONS AND STRUCTURES.
  5. ALL SPOT ELEVATIONS ARE TOP OF PAVEMENT OR GUTTER. TO OBTAIN TOP OF CURB ELEVATION, ADD 0.5 FEET.
  6. GROUND SHALL BE SCARIFIED PRIOR TO PLACING ANY FILL.
  7. FILL SHALL BE PLACED IN ACCORDANCE WITH THE GEOTECHNICAL INVESTIGATION AND SOILS REPORT RECOMMENDATIONS.
  8. ANY EXCESS EXCAVATION SHALL BE DISTRIBUTED AS DIRECTED BY THE OWNER OR THE ENGINEER.
  9. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE AND/OR ESTABLISH A BENCHMARK PRIOR TO CONSTRUCTION AND MAINTAIN THE BENCHMARK DURING CONSTRUCTION.
  10. THE LOCATIONS OF ALL UTILITIES INDICATED ON THE PLANS ARE TAKEN FROM AVAILABLE PUBLIC RECORDS. THE EXACT LOCATION AND DEPTH OF ALL UTILITIES INDICATED MUST BE DETERMINED BY THE CONTRACTOR. IT SHALL BE THE DUTY OF THE CONTRACTOR TO ASCERTAIN WHETHER ANY ADDITIONAL FACILITIES OTHER THAN THOSE SHOWN ON THE PLANS MAY BE PRESENT.
  11. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROTECT ALL EXISTING UTILITIES IN THE CONSTRUCTION OF THIS PROJECT. ANY UTILITIES DAMAGED DURING THE CONSTRUCTION OF THIS PROJECT SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
  12. NO WEEP HOLES SHALL BE COVERED.
  13. THIS SITE IS ASSUMED TO BE A BALANCED SITE BY ADJUSTING THE BENCHMARK ELEVATION. THE CONTRACTOR SHALL INFORM THE ENGINEERING OF THE ADJUSTMENT TO THE BENCHMARK TO ACHIEVE THE BALANCED SITE OR DIRT CAN BE BORROWED FROM THE DETENTION BASIN.

**BENCHMARKS:**

BENCHMARK #1:  
SPK NAIL IN CENTER OF HUBBARD DRIVE.  
N 6985.171710, E 258191.8559  
ELEVATION=456.02

BENCHMARK #2:  
3" ALUMINUM DISK SET IN CONCRETE  
N.W. CORNER OF LIFT STATION FENCE.  
N 698281.3710, E 258791.4690  
ELEVATION=524.55



**LEGEND**

	= PROPOSED TOP OF CURB
	= PROPOSED TOP OF PAVEMENT
	= PROPOSED TOP OF INLET
	= PROPOSED TOP OF INLET
	= PROPOSED CONTOUR
	= PROPOSED FINISH FLOOR
	= PROPOSED LANDSCAPE BERM
	= DIRECTION OF FLOW
	= EXISTING SPOT
	= EXISTING CONTOUR

Project: Sep 13, 2019, 10:51 AM by user: robert...  
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**THIS SHEET IS FOR REFERENCE ONLY**

NOTE: THE CITY OF RED OAK CONSTRUCTION STANDARDS APPLY, WHETHER INDICATED ON THESE PLANS OR NOT. NOTE: EROSION CONTROLS SHALL BE IN PLACE PRIOR TO THE DISTURBANCE OF ANY EXISTING SURFACE.



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3		
4		
5		
6		
7		
8		



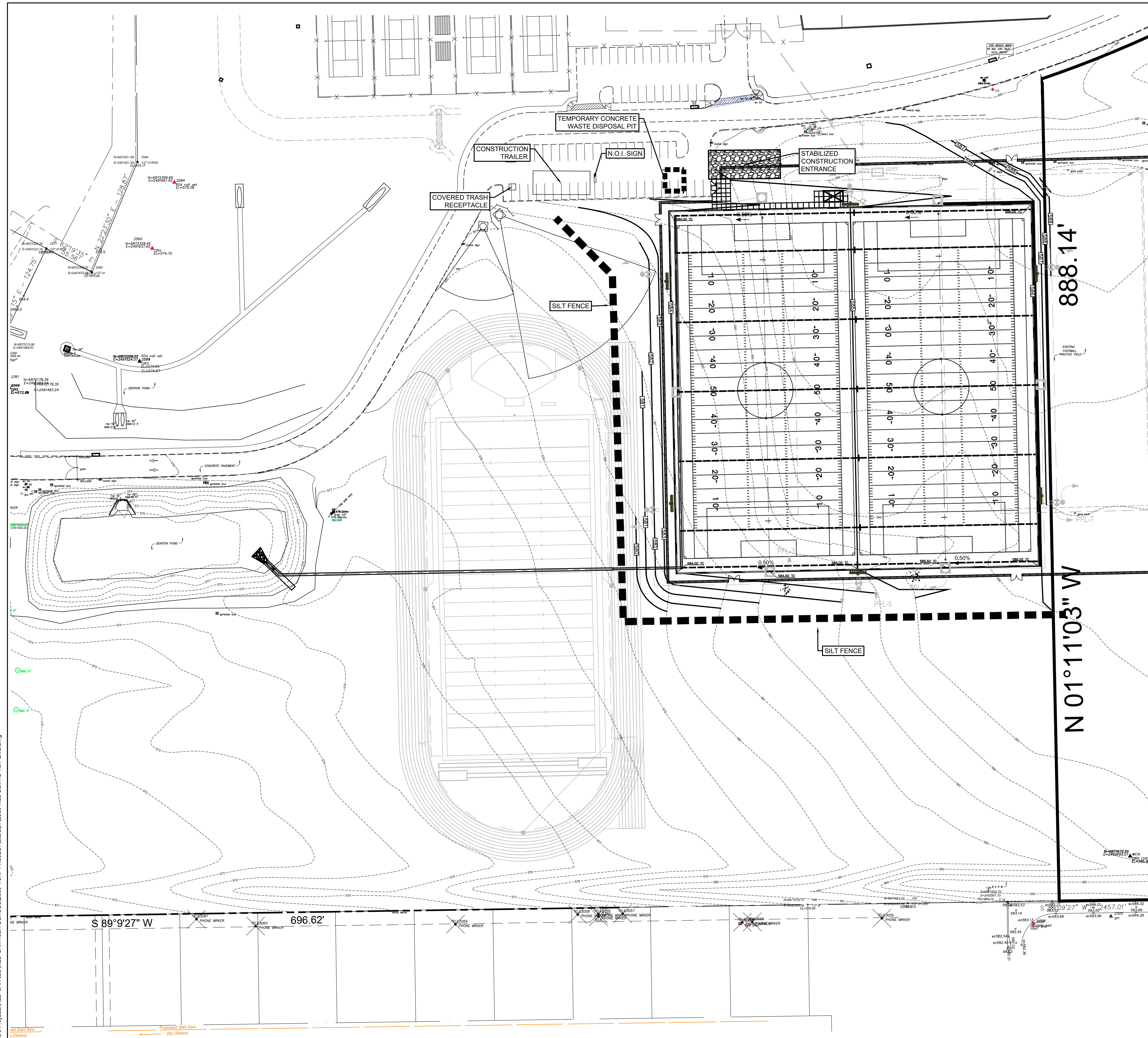
**GLENN ENGINEERING**  
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105 DECKER COURT - SUITE 910 IRVING, TEXAS 75014

**RED OAK HIGH SCHOOL  
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FOR  
RED OAK INDEPENDENT SCHOOL DISTRICT**






**GRADING  
PLAN**

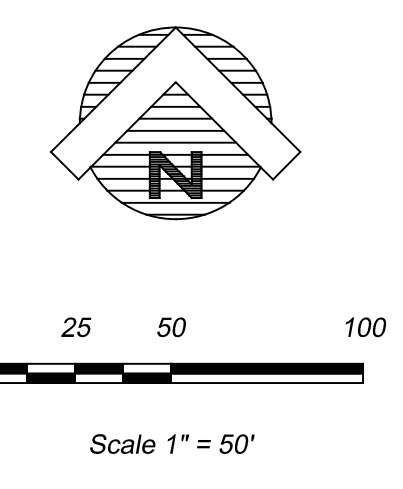
**JOB** 19306.0000  
**DATE** 09/13/2019  
**SHEET**

**C04.00**



- SEDIMENT CONTROL NOTES:**
- CONTRACTOR TO CHOOSE LOCATION OF CONSTRUCTION ENTRANCE. THIS ENTRANCE MUST BE USED BY ALL TRAFFIC ENTERING OR EXITING THE SITE. SEE SHEET C4.05 FOR STABILIZED CONSTRUCTION ENTRANCE DETAILS.
  - SEDIMENT CONTROL DEVICES SHALL BE INSTALLED ACCORDING TO THE CONTRACT DOCUMENTS AND AS DIRECTED BY THE ENGINEER. ALL DEVICES SHALL BE MAINTAINED SUCH THAT THEY FUNCTION AS INTENDED THROUGHOUT THE ENTIRE CONSTRUCTION PERIOD. THE STONE FROM ROCK CHECK DAMS SHALL BE USED AS ENERGY DISSIPATORS FOR PROPOSED STORM SEWER AT CONSTRUCTION COMPLETION.
  - CURB INLET PROTECTION SHALL BE INSTALLED AS SOON AS STORM DRAINAGE HAS BEEN CONSTRUCTED.
  - PLYWOOD INLET PROTECTION TO BE PLACED AT UPSTREAM END OF ALL UNFINISHED PIPING AT DAYS END.
  - ALL SEDIMENT CONTROL MEASURES TO REMAIN IN PLACE UNTIL ENTIRE SITE IS STABILIZED.
  - THE EXTENT AND DURATION OF DISTURBANCE TO THE DRAINAGEWAYS SHALL BE MINIMIZED. THE FOLLOWING CONSTRUCTION SEQUENCE SHALL BE FOLLOWED:
    - INSTALL STABILIZED CONSTRUCTION ENTRANCE.
    - INSTALL SILT FENCE PRIOR TO DISTURBING SOIL. PERIMETER SILT FENCE TO BE INSTALLED OUTSIDE OF ANY POINT TO BE DISTURBED.
    - DURING CONSTRUCTION, INLET PROTECTION SHALL BE INSTALLED AS NEEDED. ALL SEDIMENT CONTROL MEASURES SHALL BE INSPECTED AND MAINTAINED PER CONTRACT REQUIREMENTS. ALL DISTURBED AREAS WHICH ARE INACTIVE FOR LONG PERIODS OF TIME SHALL BE VEGETATED.
    - ONLY WHEN ENTIRE SITE IS STABILIZED AND CONSTRUCTION IS COMPLETE, SHALL SEDIMENT CONTROL MEASURES BE REMOVED.
  - CONTRACTOR SHALL CONTROL MUD ACCUMULATION ON ALL STREETS SURROUNDING THE PROJECT. NO MUD ACCUMULATION WILL BE ALLOWED IN PUBLIC STREETS.
  - MAINTAIN ALL FILTERS DURING CONSTRUCTION TO PREVENT ANY BLOCKAGES FROM ACCUMULATED SEDIMENT. ADDITIONAL MAY SALES MAY BE REQUIRED DURING CONSTRUCTION AS SPECIFIED BY ENGINEER OR CITY INSPECTOR.
  - ALL PROPOSED PARKING AREAS TO BE PAVED AS SOON AS POSSIBLE AFTER SUBGRADE IS PREPARED.
  - 80% OF ALL DISTURBED AREA SHALL BE COVERED ( 1 INCH IN HEIGHT ) BY GRASS PRIOR TO CITY ACCEPTANCE.
  - ALL DETENTION FACILITIES SHALL BE INSTALLED AND FUNCTIONAL PER PLANS PRIOR TO ANY PAVING BEING PLACED ON SITE INCLUDING BUILDING FOUNDATION.
  - ALL SLOES, SLOPES AND TOP OF DETENTION BASIN SHALL BE SODDED OR ANCHORED ON SEEDED CURLEX PRIOR TO ANY PAVING BEING PLACED INCLUDING BUILDING FOUNDATION.
  - DETENTION BASIN SHALL BE UTILIZED AS SEDIMENT CONTROL BASIN DURING CONSTRUCTION OPERATIONS AND SHALL BE SIZED AND DETAILED PER THE REQUIREMENTS OF TCEQ.

- LEGEND**
-  = INSTALL SILT FENCE
  -  = INSTALL ROCK CHECK DAM
  -  = INSTALL CURB INLET PROTECTION
  -  = INSTALL AREA DRAIN INLET PROTECTION
  -  = INSTALL SEDIMENT POND AT CURB INLET, WYE, INLET OR AREA DRAIN



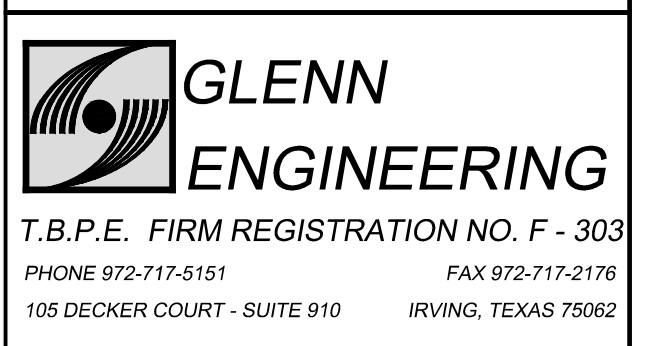
NOTE:  
SEE SWPPP DETAILS  
SHEET C04.06



ISSUES	
1	08/13/2019 ISSUE FOR CONSTRUCTION
2	

REVISIONS	
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**RED OAK HIGH SCHOOL**  
**ARTIFICIAL**  
**TURF PRACTICE FIELDS**  
 FOR  
 RED OAK INDEPENDENT SCHOOL DISTRICT

SWPPP  
PLAN

JOB 19306.0000  
DATE 09/13/2019  
SHEET

C04.01

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NOTE: THE CITY OF RED OAK CONSTRUCTION STANDARDS APPLY, WHETHER INDICATED ON THESE PLANS OR NOT. NOTE: EROSION CONTROLS SHALL BE IN PLACE PRIOR TO THE DISTURBANCE OF ANY EXISTING SURFACE.



**SITE DESCRIPTION**

**PROJECT NAME & LOCATION:** RED OAK HIGH SCHOOL  
220 TX-342  
RED OAK, TEXAS 75154

**OWNER NAME & ADDRESS:** RED OAK INDEPENDENT SCHOOL DISTRICT  
109 WEST RED OAK ROAD  
RED OAK, TEXAS 75154

**PROJECT DESCRIPTION:** NEW ARTIFICIAL TURF PRACTICE FIELDS

**SEQUENCE OF MAJOR ACTIVITIES:** PLACEMENT OF EROSION CONTROL DEVICES  
DENUDE SITE  
INSTALLATION OF UTILITY LINES  
START FOUNDATION OF BUILDINGS  
PLACEMENT OF CONCRETE PAVEMENT  
COMPLETE BUILDINGS  
PLACEMENT OF LANDSCAPE AND GRASS  
REMOVAL OF EROSION CONTROL DEVICES

**MAJOR SOIL DISTURBING ACTIVITIES:** DENUDE SITE  
INSTALLATION OF UTILITY LINES  
PLACEMENT OF LANDSCAPE AND GRASS

**PRE-DEVELOPMENT RUNOFF COEFFICIENT:** 0.70

**FINAL RUNOFF COEFFICIENT AFTER CONSTRUCTION:** 0.70

**TOTAL PROJECT AREA:** 60.0 ACRES

**TOTAL AREA TO BE DISTURBED:** 43.8 ACRES

**DESCRIPTION OF EXISTING SOIL:** CLAY SOILS

**DESCRIPTION OF STABILIZATION OF EXISTING DRAINAGE WAYS:**

SILT FENCE  
INLET PROTECTION  
DETENTION BASIN / SEDIMENT BASIN

**DESCRIPTION OF EXISTING QUALITY OF STORM WATER DISCHARGE FOR SITE (IF AVAILABLE):**

CITY STREETS  
EXISTING STREAM

**NAME OF RECEIVING WATERS:**

CITY CURB AND GUTTER  
CURB AND GUTTER ALONG ROADWAYS  
ENCLOSED STORM SEWERS  
COTTONWOOD CREEK/LAKE RAY HUBBARD

**ADDITIONAL COMMENTS:**

**ESTIMATED PROJECT START DATE:** APRIL 2018

**ESTIMATED PROJECT END DATE:** JULY 2019

**LATITUDE:** 32°56'50" N

**LONGITUDE:** 96°23'33" W

**NAME OF RECEIVING WATER:** STREAM #3 TO LAKE RAY HUBBARD

**SEQUENCE AND TIMING OF INDICATED EROSION CONTROL PRACTICES AND/OR FEATURES**  
(INCLUDE TREATMENT OF STOCKPILED DIRT FOR FUTURE USE)

**PRIOR TO STARTING CONSTRUCTION:**  
PLACEMENT OF SILT FENCES  
INSTALLATION OF INLET PROTECTION FOR STREET INLETS

**DURING CONSTRUCTION:**  
INSPECTION AND MAINTENANCE OF SILT FENCES  
INSTALLATION OF INLET PROTECTION FOR ON-SITE PAVING

**COMPLETION OF SITE:**  
INSTALLATION OF LANDSCAPE AND GRASS  
REMOVAL OF EROSION CONTROL DEVICES

SITE RATING FACTOR UTILIZING INDICATED EROSION CONTROL & MEASURES = 0.70  
(MUST BE 0.70 OR LARGER)

**EROSION AND SEDIMENT CONTROLS**

**STABILIZATION PRACTICES**  
DISTURBED AREAS ON WHICH CONSTRUCTION ACTIVITY HAS CEASED (TEMPORARILY OR PERMANENTLY) SHALL BE STABILIZED WITHIN 14 DAYS UNLESS ACTIVITIES ARE SCHEDULED TO RESUME WITHIN 21 DAYS.

TEMPORARY	PERMANENT	
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	SEED OR SOD
<input type="checkbox"/>	<input checked="" type="checkbox"/>	VEGETATION OTHER THAN SEED OR SOD
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	EROSION CONTROL MATS
<input type="checkbox"/>	<input type="checkbox"/>	PRESERVATION OF NATURAL VEGETATION
<input type="checkbox"/>	<input type="checkbox"/>	OTHER (DESCRIBE)

ADDITIONAL COMMENTS:

**STRUCTURAL PRACTICES**

TEMPORARY	PERMANENT	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	SILT FENCE
<input type="checkbox"/>	<input type="checkbox"/>	HAY BALES
<input checked="" type="checkbox"/>	<input type="checkbox"/>	ROCK BERMS
<input type="checkbox"/>	<input type="checkbox"/>	DIVERSION INTERCEPTOR, OR PERIMETER DIKES
<input type="checkbox"/>	<input type="checkbox"/>	DIVERSION, INTERCEPTOR, OR PERIMETER SWALES
<input type="checkbox"/>	<input type="checkbox"/>	PIPE SLOPE DRAIN
<input type="checkbox"/>	<input type="checkbox"/>	TRIANGULAR SEDIMENT FILTER DIKE
<input checked="" type="checkbox"/>	<input type="checkbox"/>	INLET PROTECTION
<input type="checkbox"/>	<input type="checkbox"/>	STONE OUTLET SEDIMENT TRAP
<input type="checkbox"/>	<input type="checkbox"/>	SEDIMENT BASIN (REQUIRED FOR 10 ACRES OR LARGER WHERE ATTAINABLE)
<input type="checkbox"/>	<input type="checkbox"/>	CHECK DAM
<input type="checkbox"/>	<input type="checkbox"/>	TEMPORARY SEDIMENT TANK
<input checked="" type="checkbox"/>	<input type="checkbox"/>	STABILIZED CONSTRUCTION ENTRY
<input type="checkbox"/>	<input type="checkbox"/>	SANDBAG BERM
<input type="checkbox"/>	<input type="checkbox"/>	OTHER (DESCRIBE)

ADDITIONAL COMMENTS:

**OTHER ADDITIONAL STORM WATER MANAGEMENT FEATURES**

PERMANENT	
<input checked="" type="checkbox"/>	CURB & GUTTER
<input checked="" type="checkbox"/>	STORM SEWER INLETS
<input checked="" type="checkbox"/>	STORM SEWER
<input checked="" type="checkbox"/>	CULVERTS
<input type="checkbox"/>	STORM WATER DETENTION POND
<input type="checkbox"/>	VELOCITY DISSIPATION DEVICES
<input type="checkbox"/>	OTHER (DESCRIBE)

ADDITIONAL COMMENTS:

**EROSION AND SEDIMENT CONTROLS**

- MAINTENANCE/INSPECTION PROCEDURES**
- THE CONTRACTOR SHALL PROVIDE AND MAINTAIN A RAIN GAUGE UTILIZING MIN. 0.1 INCH INCREMENTS AT THE PROJECT SITE.
  - CONTROL MEASURES WILL BE INSPECTED AT LEAST ONCE A WEEK OR WITHIN 24 HOURS OF ANY STORM EVENT OF 0.5 INCH OR GREATER. IF A REPAIR IS NECESSARY IT WILL BE DONE AT THE EARLIEST PRACTICABLE DATE.
  - INSPECTION WILL BE PERFORMED BY THE OWNERS REPRESENTATIVE AT LEAST ONCE A WEEK AS WELL AS AFTER EVERY 0.5 INCH OF RAIN OR GREATER. AN INSPECTION AND MAINTENANCE REPORT WILL BE MADE FOR EACH INSPECTION AND KEPT AT THE PROJECT SITE. THE INSPECTION SHOULD USE THE OPERATOR INSPECTION FORM IN THE NCTCOG CONSTRUCTION BMP MANUAL OR OTHER FORM APPROVED BY THE CITY.
  - THE CONTRACTOR SHALL KEEP RECORDS OF THE CONSTRUCTION ACTIVITY ON THE SITE.  
OTHER (DESCRIBE)

- OTHER BEST MANAGEMENT (HOUSEKEEPING) PRACTICES**  
THE FOLLOWING INDICATED PRACTICES SHALL BE FOLLOWED:
- LIME STABILIZATION**  
 ATTACHED BMP S-11 FROM NCTCOG CONSTRUCTION BMP MANUAL  
— OTHER (DESCRIBE):
- SOLID WASTE MANAGEMENT**  
 ATTACHED BMP W-2 FROM NCTCOG CONSTRUCTION BMP MANUAL  
— OTHER (DESCRIBE):
- HAZARDOUS WASTE MANAGEMENT**  
 ATTACHED BMP W-2 FROM NCTCOG CONSTRUCTION BMP MANUAL  
— STORAGE AREAS (DESCRIBE):
- OTHER (DESCRIBE):

- CONCRETE WASTE MANAGEMENT**  
 ATTACHED BMP W-3 FROM NCTCOG CONSTRUCTION BMP MANUAL  
— OTHER (DESCRIBE):

- SANDBLASTING WASTE MANAGEMENT**  
 ATTACHED BMP W-4 FROM NCTCOG CONSTRUCTION BMP MANUAL  
— OTHER (DESCRIBE):

- DUST REDUCTION MEASURES**  
 DISTURBED AREAS DAMPENED PERIODICALLY FOR DUST CONTROL  
— EXCESS DIRT ON ADJACENT ROADS REMOVED DAILY  
— OTHER (DESCRIBE):

**ALLOWABLE NON-STORM WATER DISCHARGES**

- DISCHARGES FROM FIRE FIGHTING ACTIVITIES.
  - FIRE HYDRANT FLUSHINGS.
  - WATER USED TO WASH VEHICLES OR CONTROL DUST.
  - POTABLE WATER SOURCES (INCLUDING WATERLINE FLUSHINGS CONTAINING LESS THAN 1000 GALLONS).
  - UNCONTAMINATED GROUND WATER (INCLUDING DEWATERING GROUNDWATER INFILTRATION).
  - FOUNDATION OR FOOTING DRAINS WHERE FLOWS ARE NOT CONTAMINATED WITH PROCESS MATERIALS SUCH AS SOLVENTS.
  - IRRIGATION WATER.
  - SPRINGS, RIPARIAN HABITATS, WETLANDS AND UNCONTAMINATED GROUNDWATER.
  - EXTERIOR BUILDING WASH DOWN WITHOUT DETERGENTS.
  - PAVEMENT WASH WATERS WHERE SPILLS OR LEAKS OF TOXIC OR HAZARDOUS MATERIALS HAVE NOT OCCURRED (UNLESS ALL SPILL MATERIAL HAS BEEN REMOVED) AND WHERE DETERGENTS ARE NOT USED.
  - AIR CONDITIONING CONDENSATE.
- \* HEAVILY CHLORINATED WATER (3.5 MG/L OR GREATER FREE CHLORINE) RESULTING FROM WATER LINE STERILIZATION SHALL BE DIRECTED UNDER PERMIT TO THE SANITARY SEWER UNLESS OTHERWISE NOTED. THE CONTRACTOR SHALL APPLY TO THE ENGINEERING DEPARTMENT FOR A SANITARY SEWER DISCHARGE PERMIT AFTER THE MANDATORY CHLORINE RETENTION TIME (USUALLY 24 HOURS). THE HEAVILY CHLORINATED WATER MAY BE DISCHARGED TO THE SANITARY SEWER, BEGINNING TWO WORKING DAYS AFTER PERMIT APPLICATION.

**SIGNATORY REQUIREMENTS**

THE CITY HAS ADOPTED THE NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS' (NCTCOG) CONSTRUCTION BMP MANUAL. THESE OUTLINES WERE DEVELOPED AS AN AID FOR THOSE PREPARING STORM WATER POLLUTION PREVENTION PLANS (SW3P'S) FOR VARIOUS CONSTRUCTION ACTIVITIES IN THE CITY. THEIR USE DOES NOT RELIEVE THE DESIGN ENGINEER OR OPERATOR(S) FROM COMPLYING WITH THE NCTCOG BMP MANUAL OR THE NATIONAL POLLUTION DISCHARGE ELIMINATION SYSTEM (NPDES) GENERAL PERMIT FOR STORM WATER DISCHARGE FROM CONSTRUCTION SITES.

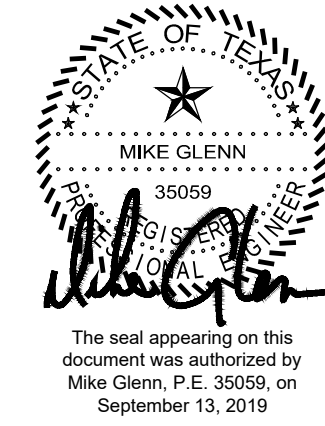
THE SW3P SHALL BE SEALED BY A TEXAS REGISTERED PROFESSIONAL ENGINEER AND CERTIFIED BY THE OWNER THAT THE INFORMATION IS TRUE AND THAT THEY ASSUME RESPONSIBILITY FOR THE PLAN. ADDITIONALLY, THEY SHALL CERTIFY THAT THE PLAN MEETS STATE AND LOCAL REQUIREMENTS FOR EROSION AND SEDIMENT CONTROL AND STORM WATER QUALITY. IN ALL CASES, A DULY AUTHORIZED REPRESENTATIVE AS INDICATED IN THE GENERAL PERMIT MAY CERTIFY THIS PLAN.

PRIOR TO THE COMMENCEMENT OF WORK, THE OWNER AND GENERAL CONTRACTOR MUST SUBMIT NOTICES OF INTENT (NOI) AS CO-PERMITTEES TO DISCHARGE STORM WATER FROM A CONSTRUCTION SITE UNDER THE NPDES PERMIT. ADDITIONALLY, ALL CONTRACTORS AND SUBCONTRACTORS (INCLUDING FRANCHISE UTILITIES) WHOSE ACTIVITIES IMPACT THE SW3P MUST SIGN AN APPROVED CERTIFICATION THAT THEY UNDERSTAND THEIR RESPONSIBILITIES UNDER THE PLAN. NO WORK WILL BE ALLOWED UNTIL COPIES OF ALL APPROPRIATE NOIS AND CERTIFICATIONS ARE RECEIVED BY THE CITY.



CORGAN  
401 N. Houston St.  
Dallas, TX 75202  
T: 214.748.2000  
F: 214.653.8281

NO.	DATE	ISSUES
1	08/13/2019	ISSUE FOR CONSTRUCTION
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**GLENN ENGINEERING**  
T.B.P.E. FIRM REGISTRATION NO. F - 303  
PHONE 972-717-5151 FAX 972-717-2176  
105 DECKER COURT - SUITE 910 IRVING, TEXAS 75062

**RED OAK HIGH SCHOOL**  
**ARTIFICIAL**  
**TURF PRACTICE FIELDS**  
**FOR**  
**RED OAK INDEPENDENT SCHOOL DISTRICT**

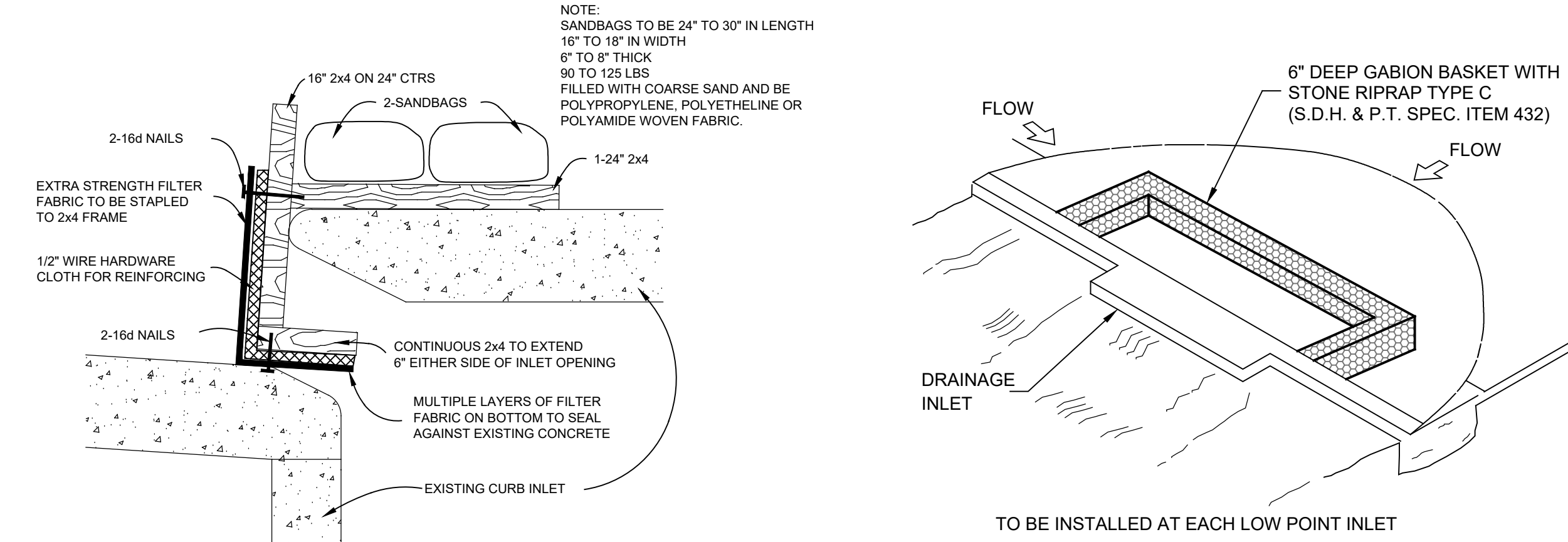
**SWPPP DETAILS**

**JOB** 19306.0000  
**DATE** 09/13/2019  
**SHEET**

C04.02

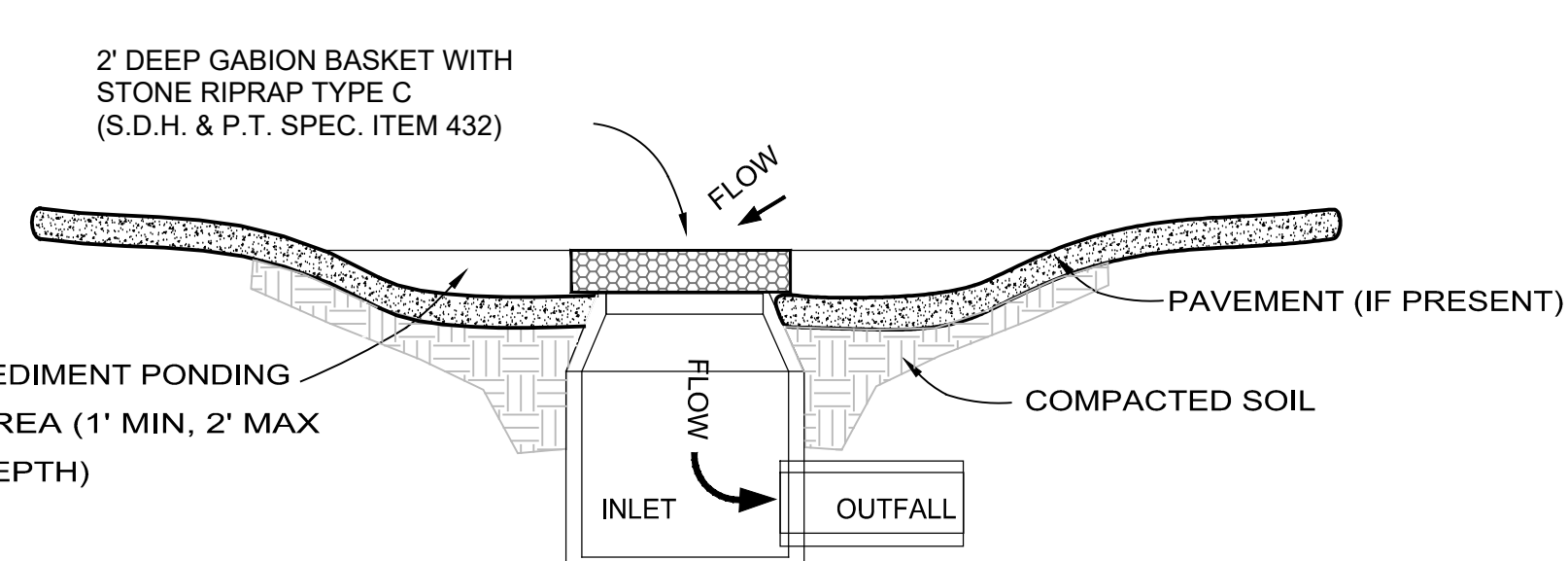
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### EROSION CONTROL PLAN

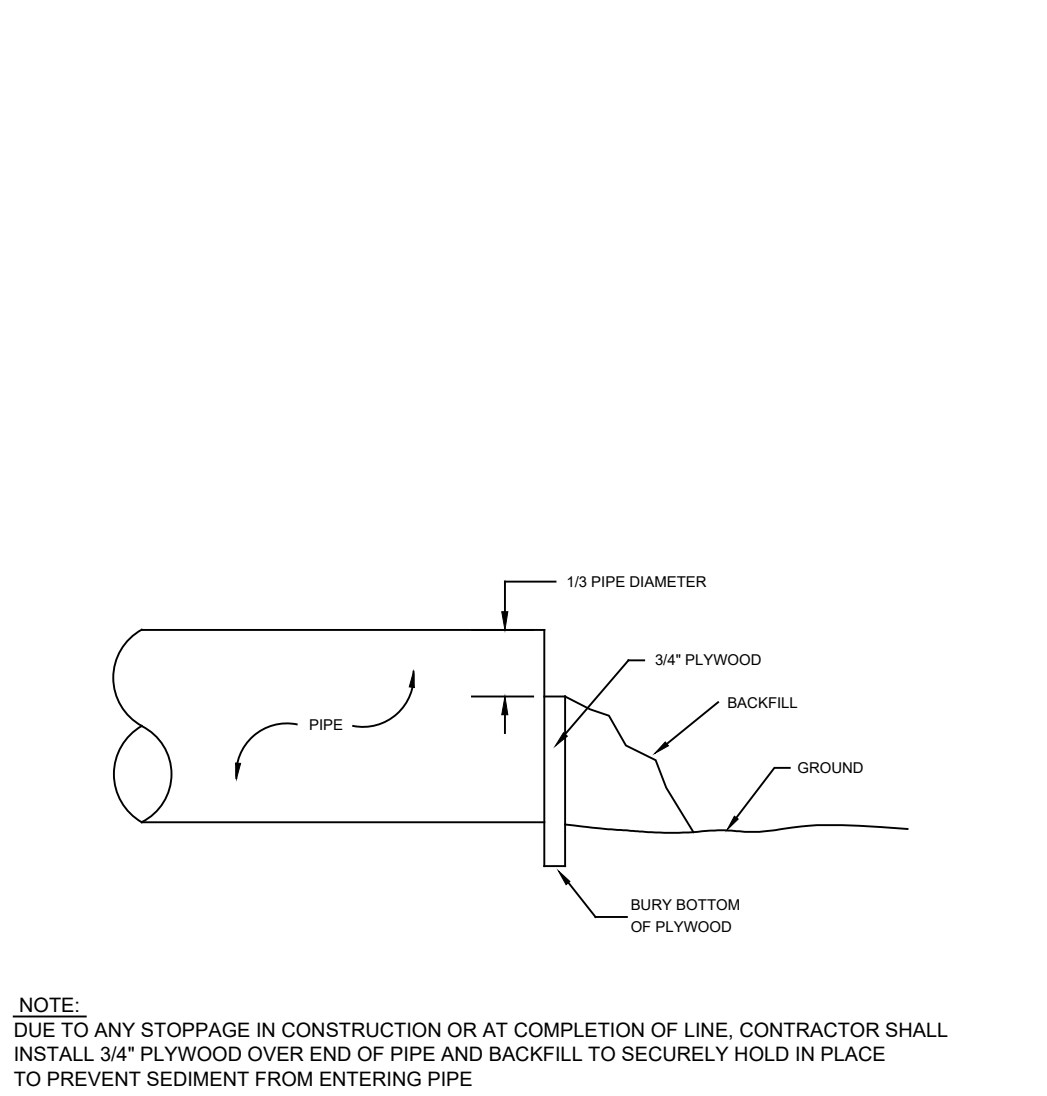


CURB INLET PROTECTION ON GRADE

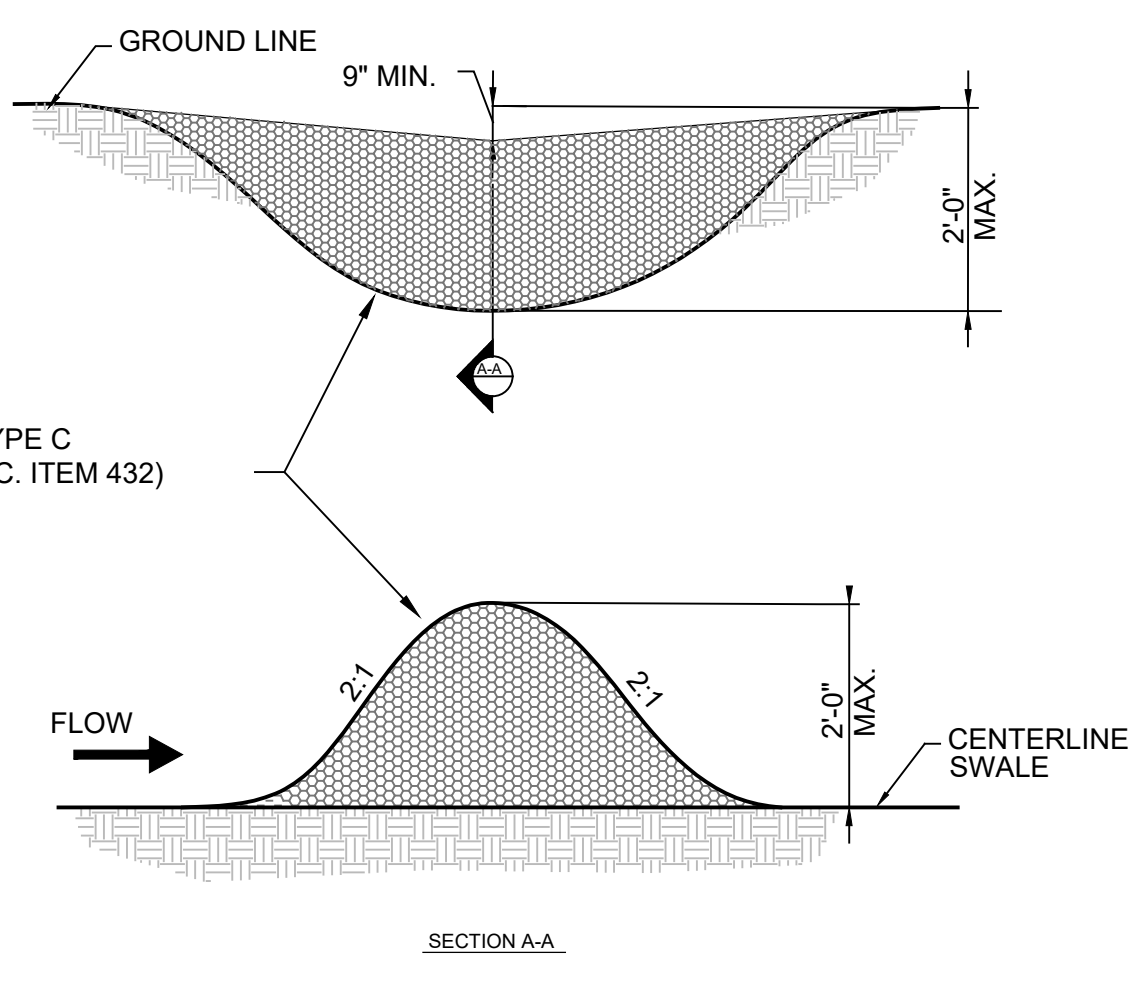
LOW POINT CURB INLET SEDIMENT FILTER N.T.S.



SEDIMENT POND @ CURB INLETS & AREA DRAINS



PLYWOOD PROTECTION AT PIPE N.T.S.



ROCK CHECK DAM DETAIL N.T.S.

NOTE: DUE TO ANY STOPPAGE IN CONSTRUCTION OR AT COMPLETION OF LINE, CONTRACTOR SHALL INSTALL 3/4\"/>

NOTE: THE CITY OF RED OAK CONSTRUCTION STANDARDS APPLY, WHETHER INDICATED ON THESE PLANS OR NOT.

#### Solid Waste Management

**DESCRIPTION:** Large volumes of solid waste are often generated at construction sites including packaging, rubble, rock waste, concrete waste, soil, electrical wiring, ceiling, and a variety of other materials. The solid waste management practice here is designed to minimize the potential of storm water contamination from solid waste through appropriate storage and disposal practices.

**PRIMARY USE:** These practices should be part of all construction projects. By limiting the time and debris on site, storm water quality is improved along with reduced clean up requirements at the completion of the project.

**APPLICATIONS:** The solid waste management practice for construction sites is based on proper storage and disposal practices by construction workers and supervisors. Key elements of the program are education and modification of improper disposal habits. Construction and agencies are required on the part of supervisors and workers to ensure that the recommendations and procedures are followed. Following are the described the targeted materials and recommended procedures:

**Targeted Solid Waste Materials:**

- Paint and paint-related containers
- Plastic packaging
- Styrofoam packing and forms
- Insulation materials (non-hazardous)
- Wood shales
- Wood shingles
- Pipe and electrical cuttings
- Concrete, brick, and mortar waste
- Single cuttings and waste
- Rouling for
- Steel cuttings, nails, fasteners
- Gypsum board cuttings and waste
- REED: Ceiling cuttings and waste
- Miscellaneous cuttings and waste
- Food waste
- Demolition waste

**Storage Procedures:**

- Whenever possible, minimize production of solid waste materials.
- Design a storage or supervisor to oversee and enforce proper solid waste procedures.
- Instruct construction workers in proper solid waste procedures.
- Segregate materials into separate waste forms and procedures.
- Keep solid waste materials under cover in either a closed container or other protected form container that limits contact with rain and snow.
- Store waste materials away from drainage ditches, swales and catch basins.
- Do not allow trash containers to overflow.
- Do not allow waste materials to accumulate on the ground.
- Follow safe work handling and storage procedures.

**Disposal Procedures:**

- Flammable, combustible, toxic, or otherwise hazardous waste should be disposed of properly.
- General construction debris may be hauled to a licensed construction debris landfill (typically less expensive than a sanitary landfill).
- Use waste facilities approved by local jurisdiction.
- Rouling which comes into contact with unprotected waste shall be directed into structural or off road areas such as all-terrain vehicles to remove debris.

**Education:**

- Educate all workers on solid waste storage and disposal procedures.
- Instruct workers in identification of solid waste and hazardous waste.
- Have regular meetings to discuss and reinforce disposal procedures (incorporate in regular safety meetings).
- Clearly mark on all solid waste containers which materials are acceptable.

**Quality Control:**

- Foreman and/or construction supervisor shall monitor on-site solid waste storage and disposal procedures.
- Discipline workers who repeatedly violate procedures.

**Regulation:**

- Obtain waste handling and disposal education and awareness program.
- Comply with regulations to implement and enforce Solid Waste Management Program.
- Complete all paperwork.
- Sufficient and appropriate waste storage containers.
- Timely removal of stored solid waste materials.
- Prohibit material from being used for other purposes.
- Minimize overall cost impact.

**LIMITATIONS:**

- Only address non-hazardous solid waste.
- One part of a comprehensive construction site management program.

**Applications:**

- Perimeter Control
- Slope Protection
- Sediment Trapping
- Channel Protection
- Temporary Stabilization
- Permanence Stabilization
- Waste Management
- Housekeeping Practices

**Targeted Constituents:**

- Sediment
- Nutrients
- Toxic Materials
- Oil & Grease
- Flammable Materials
- Other Construction Wastes

**Implementation Requirements:**

- Capital Costs
- Maintenance
- Training
- Stability for Slope > 5%

**Legend:**

- Significant Impact
- Medium Impact
- Low Impact
- Unknown or Questionable Impact

**Fe = 0.75, S = 1**

#### Inlet Protection

**DESCRIPTION:** Inlet protection consists of a variety of methods of intercepting sediment at low point inlets through the use of slope filter fabric and other materials. This is normally located at the inlet, providing either detention or filtration to reduce sediment and floatable materials in storm water.

**PRIMARY USE:** Inlet protection is normally used as a secondary defense in the erosion control due to the limited effectiveness and applicability of the silt fence. It is normally used in new developments that include new inlets or roads with new curb inlets or during major repairs to existing inlets. Inlet protection has limited use in developed areas due to the potential for flooding, traffic safety and maintenance problems. Inlet protection can reduce sediment in storm sewer system by setting up a trap or system to create a pond or holding sediment basin from controls with limited effectiveness such as straw bales.

**APPLICATIONS:** Different variations are used for different conditions as follows:

- Filter barrier protection (similar to a silt fence barrier around the inlet) is appropriate when the storage area is less than five (5) percent. The type of protection is not applicable in steep areas. (See Section 5)
- Block and gravel protection (stone, recycled concrete or also approved material) is used when there is a need to add a secondary filter for trapping to prevent scouring. (See Section 5)
- Wire mesh and gravel protection (crushed stone, recycled concrete or approved material) is used when there is a need to add a secondary filter for trapping to prevent scouring. (See Section 5)
- Excavated measurement protection and a stop silt may be used for protection against sediment entering a storm sewer system. With the method, it is necessary to install weep holes to allow the groundwater to escape completely. The excavation shall be equal to 1000 cubic feet per acre of contributing drainage area, except for the filter fabric effectiveness. Smaller volumes can be used for reduced effectiveness. (See Section 5)
- Filter fabric protection shall be designed and maintained in a manner similar to a silt fence.
- Maximum depth of filter shall be eight inches or less depending on vehicle and pedestrian traffic.
- Procedures are critical in the design of inlet protection. If overflow is not provided for at the inlet, flows which exceed the capacity of the inlet protection system shall result through established roads, streets or other watercourses to minimize damage due to flooding and to provide for public safety.

**LIMITATIONS:**

- Filter fabric protection is only viable at low point inlets. Inlets which are on a slope cannot be effectively protected because storm water will bypass the filter and continue downstream, causing an overload condition at inlets beyond.
- Procedures are critical in the design of inlet protection. If overflow is not provided for at the inlet, flows which exceed the capacity of the inlet protection system shall result through established roads, streets or other watercourses to minimize damage due to flooding and to provide for public safety.

**MAINTENANCE REQUIREMENTS:**

- Inspection should be made on a weekly basis, especially after large (0.5 inches) storm events. When the filter is used and the fabric becomes digged, it should be cleaned or if necessary, replaced. Also, sediment should be removed when it reaches approximately one-half the height of the filter. If a pump is used, sediment should be removed when the volume of the basin is reduced by 50%.
- For systems using stone filters, when the stone filter becomes digged with sediment, the stone must be pulled away from the inlet and disposed or replaced. Since clearing of gravel at a construction site may be difficult, an alternative approach would be to use the digged stone as fill material and to use stone around the inlet.

**Applications:**

- Perimeter Control
- Slope Protection
- Sediment Trapping
- Channel Protection
- Temporary Stabilization
- Permanence Stabilization
- Waste Management
- Housekeeping Practices

**Targeted Constituents:**

- Sediment
- Nutrients
- Toxic Materials
- Oil & Grease
- Flammable Materials
- Other Construction Wastes

**Implementation Requirements:**

- Capital Costs
- Maintenance
- Training
- Stability for Slope > 5%

**Legend:**

- Significant Impact
- Medium Impact
- Low Impact
- Unknown or Questionable Impact

**Fe = 0.67 - 0.75, S = 4**

#### Concrete Waste Management

**DESCRIPTION:** Concrete waste at construction sites comes in two forms: excess fresh concrete mix including truck and equipment washing, and 2) concrete dust and concrete debris resulting from demolition. Both forms have the potential to impact water quality through storm water runoff contact with the waste.

**PRIMARY USE:** Concrete waste is present at most construction sites. This BMP should be utilized if sites in which concrete waste is present.

**APPLICATIONS:**

- A number of water quality parameters can be affected by introduction of concrete - especially fresh concrete. Concrete affects the pH of runoff, causing significant chemical changes in water bodies and harming aquatic life. Excessed solids in the form of both cement and aggregate dust are also generated from both fresh and demolished concrete waste.
- Current unacceptable waste for concrete disposal practices:
  - Dumping in open areas on the jobsite.
  - Backfilling ditches.
  - Dumping into ditches or drainage basins.
- Approved disposal practices:
  - Avoid unacceptible disposal practices listed above.
  - Develop containment with concrete disposal areas.
  - Provide a washout area with a minimum of 5 cubic feet of contained area volume for every 10 cubic yards of concrete poured.
  - Never allow waste concrete body or without property owner knowledge and consent.
  - Test runoff from storage areas through the use of structural controls.

**Education:**

- Drivers and equipment operators should be instructed on proper disposal and equipment washing practices for concrete disposal and equipment washing.
- Employees violating disposal or equipment cleaning practices must be reeducated or disciplined if necessary.

**Demolition Practices:**

- Monitor weather and wind direction to ensure concrete dust is not being blowing toward or onto surface waters.
- Wash aggregate, crushed asphalt traps or other type of sediment control devices to prevent sediment from being blown.

**Regulation:**

- Use pre-determined disposal sites for waste concrete.
- Prohibit dumping waste concrete anywhere but pre-determined areas.
- Educate drivers and operators on proper disposal and equipment cleaning procedures.

**Education:**

- Monitor soil impact for tracking and monitoring.
- Concrete disposal site depends on availability and distance to suitable disposal areas.
- Additional costs involved in equipment washing could be significant.

**LIMITATIONS:**

- The concrete waste management program is one part of a comprehensive construction site waste management program.

**Applications:**

- Perimeter Control
- Slope Protection
- Sediment Trapping
- Channel Protection
- Temporary Stabilization
- Permanence Stabilization
- Waste Management
- Housekeeping Practices

**Targeted Constituents:**

- Sediment
- Nutrients
- Toxic Materials
- Oil & Grease
- Flammable Materials
- Other Construction Wastes

**Implementation Requirements:**

- Capital Costs
- Maintenance
- Training
- Stability for Slope > 5%

**Legend:**

- Significant Impact
- Medium Impact
- Low Impact
- Unknown or Questionable Impact

**W = 3**

#### Silt Fence

**DESCRIPTION:** A silt fence is a barrier consisting of geotextile fabric supported by poultry netting or other fabric stretched between other wooden or metal posts with the lower edge of the fabric secured embedded in the soil. The fence is typically located downstream of disturbed areas to intercept runoff from the front of the site. Silt fences provide both erosion and sediment control by reducing sediment and reducing the velocity of the runoff. Properly designed silt fence is economical since it can be relocated during construction and reused on other projects.

**PRIMARY USE:** Silt fence is normally used as perimeter control located downstream of disturbed areas. It is only feasible for non-erosive, sheet flow conditions.

**APPLICATIONS:**

- Silt fence is an economical means to prevent overflow.
- Non-erosive sheet flow for all types of projects. Silt fences are used as perimeter control devices for site developments and linear facilities/projects. They are most effective with coarse to silt clay types. Due to the potential of digging, silt fence should not be used with silt clay types.
- In order to reduce the length of silt fence, it should be placed adjacent to the down slope side of the construction activities.

**Working (along a center line) where possible:**

- Maximum slope adjacent to the fence is 1:1.
- Minimum distance of flow to silt fence should be 200 feet or less.
- Minimum conventional flow to silt fence shall be 1 CFS per 20 feet of fence.
- If 50% of flow and by height passes the U.S. Standard sieve No. 200, select the equivalent opening size (E.O.S.) to sieve 85% of the flow.
- Minimum equivalent opening size shall be 75 (75) sieve.
- Minimum equivalent opening size shall be 100 (100) sieve.
- If 85% or more of soil, by weight, passes the U.S. Standard sieve No. 200, silt fence shall be used only to prevent digging.
- Silt fence is not for the operation of sediment removal equipment shall be provided between the silt fence and other structures in order to prevent material from the fence.
- The ends of the fence shall be lashed upstream to prevent bypass of stormwater.

**LIMITATIONS:**

- Silt fence may fail structurally under heavy storm flows, creating maintenance problems and reducing the effectiveness of the system.
- Fences which are constructed in swales or low areas subject to concentrated flow may be concentrated overflow resulting in failure of the filter fence. Silt fences subject to areas of concentrated flow (bedrock with flow 1:1) are not acceptable.
- Silt fence can interfere with construction operations, therefore planning of access routes onto the site is critical.
- Silt fence can fail structurally under heavy storm flows, creating maintenance problems and reducing the effectiveness of the system.

**MAINTENANCE REQUIREMENTS:**

- Inspection should be made on a weekly basis, especially after large storm events. If the fabric becomes digged, it should be cleaned or if necessary, replaced.
- Sediment should be removed when it reaches approximately one-half the height of the fence.

**Applications:**

- Perimeter Control
- Slope Protection
- Sediment Trapping
- Channel Protection
- Temporary Stabilization
- Permanence Stabilization
- Waste Management
- Housekeeping Practices

**Targeted Constituents:**

- Sediment
- Nutrients
- Toxic Materials
- Oil & Grease
- Flammable Materials
- Other Construction Wastes

**Implementation Requirements:**

- Capital Costs
- Maintenance
- Training
- Stability for Slope > 5%

**Legend:**

- Significant Impact
- Medium Impact
- Low Impact
- Unknown or Questionable Impact

**Fe = 0.75, S = 1**

#### Stabilized Construction Entrance

**DESCRIPTION:** A stabilized construction entrance consists of a pad consisting of gravel, crushed stone or other inert material to facilitate the wash down and removal of sediment and other debris from construction equipment prior to exiting the construction site. For added effectiveness, a washout area can be incorporated into the design to further reduce sediment tracking. For long term projects, catch basins or other type of sediment trap can be used in conjunction with a wash rack. This device addresses the problem of all mud deposition on roadways used for construction site access.

**PRIMARY USE:** Stabilized construction entrances are used primarily for sites where significant traffic occurs on a daily basis. It reduces the need to remove sediment from trucks. It is most effective if also includes the majority of traffic to a single location, reducing the number and quantity of disturbed areas on the site and providing protection for other structural controls through traffic control.

**APPLICATIONS:** Stabilized construction entrances are a required part of the erosion control plan for all site developments larger than 5 acres and a recommended practice for all construction sites. It is not suitable for long, linear projects. For smaller, small entrances, should be incorporated into all construction due to the large percentage of disturbed area on the site and the high potential for off-site tracking of all mud and soil.

**DESIGN CRITERIA:**

- Stabilized construction entrances are to be constructed such that drainage across the entrance is directed to a permanent, stabilized outlet on site with provisions for storage, proper drainage and removal of each water.
- The entrance must be properly graded so that storm water is not allowed to leave the site and enter roadway.
- Minimum width of entrance shall be 15 feet, but in no case shall be less than the width of the entry vehicle to be used.
- The depth of entrance shall be 12 inches for the entire length of the entrance.
- Minimum dimensions for entrance of track areas less than 1 acre shall be an average bed depth of 100 feet with a minimum depth of 50 feet and a minimum entrance depth of 20 feet.
- Minimum 4" to 8" rock. No crushed concrete allowed.

**LIMITATIONS:**

- Location of the construction entrance location is critical to that to be effective, it must be used judiciously.
- Stabilized entrances are rather expensive considering that it must be installed in combination with one or more other sediment control techniques, but it may be cost effective compared to labor intensive street cleaning.

**MAINTENANCE REQUIREMENTS:**

- Inspection should be made on a regular basis and after large storm events in order to ascertain whether or not sediment and pollutants are being effectively detained on site.
- When sediment has substantially digged the void area between the rocks, the aggregate must be replaced or replaced.
- Periodic re-grading and top dressing with additional stone must be done to keep the efficiency of the entrance from diminishing.

**Applications:**

- Perimeter Control
- Slope Protection
- Sediment Trapping
- Channel Protection
- Temporary Stabilization
- Permanence Stabilization
- Waste Management
- Housekeeping Practices

**Targeted Constituents:**

- Sediment
- Nutrients
- Toxic Materials
- Oil & Grease
- Flammable Materials
- Other Construction Wastes

**Implementation Requirements:**

- Capital Costs
- Maintenance
- Training
- Stability for Slope > 5%

**Legend:**

- Significant Impact
- Medium Impact
- Low Impact
- Unknown or Questionable Impact

**Fe = N/A, S = 9**

#### ALLOWABLE NON-STORM WATER DISCHARGES

**DISCHARGES FROM FIRE FIGHTING ACTIVITIES:**

- FIRE HYDRANT FLUSHINGS.
- WATER USED TO WASH VEHICLES OR CONTROL DUST.
- POTABLE WATER SOURCES (INCLUDING WATERLINE FLUSHINGS CONTAINING LESS THAN 1000 GALLONS).
- UNCONTAMINATED GROUND WATER (INCLUDING DETERMINING GROUNDWATER INFILTRATION).
- FOUNDATION OR FOOTING DRAINAGE WHERE FLOWS ARE NOT CONTAMINATED WITH PROCESS MATERIALS SUCH AS SOLVENTS.
- SPRINKLER, FIREPROOFING, WETLANDS AND UNCONTAMINATED GROUNDWATER.
- IRRIGATION WATER.
- EXTERIOR BUILDING WASH DOWN WITHOUT DETERGENTS.
- PAVEMENT WASH WATERS WHERE SPILLS OR LEAKS OF TOXIC OR HAZARDOUS MATERIALS HAVE NOT OCCURRED (UNLESS ALL SPILL MATERIAL HAS BEEN REMOVED) AND WHERE AIR CONDITIONING CONDENSATE.

**HEAVILY CHLORINATED WATER (3.5 MG/L OR GREATER FREE CHLORINE) RESULTING FROM WATER LINE STERILIZATION SHALL BE DIRECTED UNDER PERMIT TO THE SANITARY SEWER UNLESS OTHERWISE NOTED. THE CONTRACTOR SHALL APPLY TO THE ENGINEERING DEPARTMENT FOR A SANITARY SEWER DISCHARGE PERMIT AFTER THE MANDATORY CHLORINE RETENTION TIME (USUALLY 24 HOURS). THE HEAVILY CHLORINATED WATER MAY BE DISCHARGED TO THE SANITARY SEWER, BEGINNING TWO WORKING DAYS AFTER PERMIT APPLICATION.**

**Legend:**

- Silt Fence
- Limits of Construction
- Property Boundary
- Elevation Contours
- Building Foot Print
- Covered Trash
- Direction of Storm Water Runoff Flow
- Covered Storage
- Vegetated/Preserved Buffer Strip
- Concrete Wash Area
- Inlet Protection
- North Arrow
- Daily Mulch
- Stabilized Construction Entrance
- Other (Specify)
- Erosion Mat

**MAINTENANCE AND INSPECTION PROCEDURES:** CONTROL MEASURES WILL BE INSPECTED AT LEAST ONCE A WEEK OR WITHIN 24 HOURS OF ANY STORM EVENT OR 0.5 INCHES OR GREATER. IF A REPAIR IS NECESSARY IT WILL BE DONE AT THE EARLIEST PRACTICABLE DATE BUT WITHIN 48 HOURS.

**CORGAN**

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1	08/13/2019	ISSUE FOR CONSTRUCTION
2		
3		
4		
5		
6		
7		
8		

**REVISIONS**

1		
2		
3		
4		
5		
6		
7		
8		

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MIKE GLENN  
05055  
05055

The seal appearing on this document was authorized by Mike Glenn, P.E. 30058, on September 13, 2019.

**RED OAK HIGH SCHOOL**

**ARTIFICIAL TURF PRACTICE FIELDS**

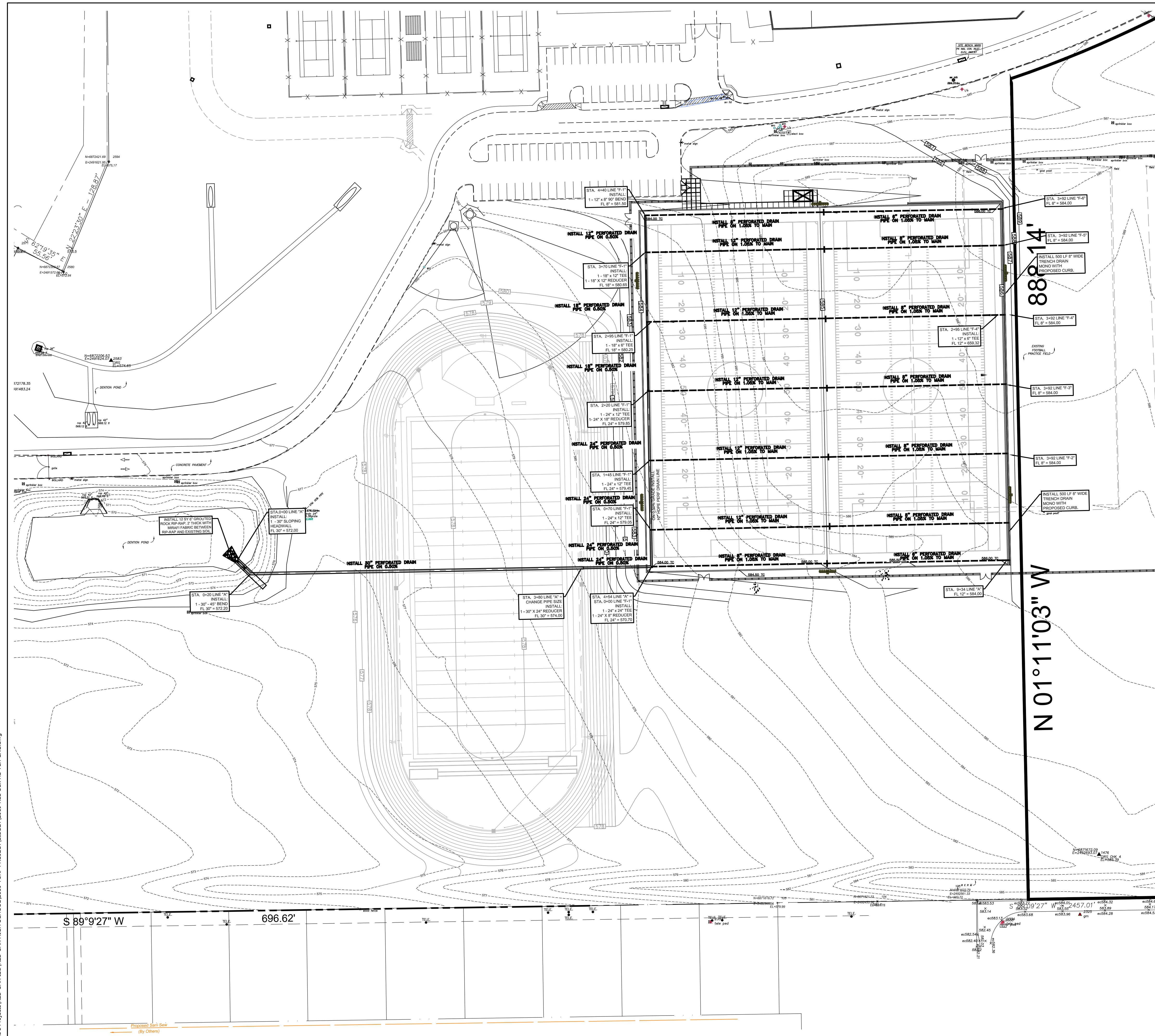
**FOR RED OAK INDEPENDENT SCHOOL DISTRICT**

**SWPPP DETAILS**

**JOB** 19306.0000  
**DATE** 09/13/2019  
**SHEET**

**C04.03**



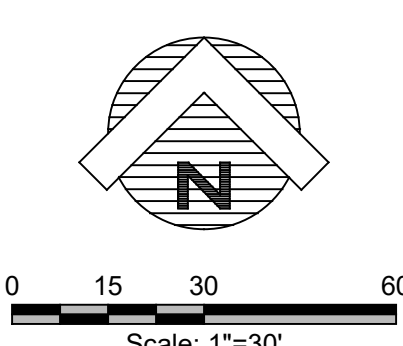


- GENERAL STORM SEWER NOTES:**
1. ALL CONSTRUCTION TO BE IN ACCORDANCE WITH THESE PLANS AND CITY OF RED OAK STANDARDS AND SPECIFICATIONS.
  2. PRIOR TO STARTING CONSTRUCTION, THE CONTRACTOR SHALL MAKE CERTAIN THAT ALL REQUIRED PERMITS AND APPROVALS HAVE BEEN OBTAINED. NO CONSTRUCTION OR FABRICATION SHALL BEGIN UNTIL THE CONTRACTOR HAS RECEIVED AND THOROUGHLY REVIEWED ALL PLANS AND OTHER DOCUMENTS APPROVED BY ALL OF THE PERMITTING AUTHORITIES.
  3. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THESE PLANS AND SPECIFICATIONS AND THE REQUIREMENTS AND STANDARDS OF THE LOCAL GOVERNING AUTHORITY.
  4. IN THE EVENT AN ITEM IS NOT COVERED IN THE CITY OF RED OAK SPECIFICATIONS, THE ENGINEER'S DECISION SHALL APPLY.
  5. BARRICADING, TRAFFIC CONTROL, AND PROJECT SIGNS SHALL CONFORM TO "STATE DEPARTMENT OF HIGHWAYS AND PUBLIC TRANSPORTATION BARRICADING AND CONSTRUCTION STANDARDS".
  6. THE GENERAL CONTRACTOR AND ALL SUBCONTRACTORS SHALL VERIFY THE SUITABILITY OF ALL EXISTING AND PROPOSED SITE CONDITIONS INCLUDING GRADES AND DIMENSIONS BEFORE COMMENCEMENT OF ANY CONSTRUCTION. IN THE EVENT OF ANY CONFLICT AND PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION, IMMEDIATELY NOTIFY ENGINEER. MINOR ADJUSTMENTS OF FINISH GRADE TO ACCOMPLISH SPOT DRAINAGE ARE ACCEPTABLE, IF NECESSARY UPON PRIOR APPROVAL OF ENGINEER. PAVING INSTALLED SHALL "FLUSH OUT" AT ANY JUNCTURE WITH EXISTING PAVING.
  7. THE LOCATIONS OF UNDERGROUND UTILITIES SHOWN ON THIS PLAN ARE BASED ON FIELD SURVEYS AND LOCAL UTILITY COMPANY RECORDS. IT SHALL BE THE CONTRACTOR'S FULL RESPONSIBILITY TO CONTACT THE VARIOUS UTILITY COMPANIES TO LOCATE THEIR UTILITIES PRIOR TO STARTING CONSTRUCTION.
  8. CONTRACTOR SHALL VERIFY ALL EXISTING INVERTS, RIM ELEVATIONS AND SIZES PRIOR TO CONSTRUCTION.
  9. ALL NON RCP DRAIN PIPE SHALL BE PVC SCH 40, ADS OR APPROVED EQUAL.
  10. ALL RCP SHALL BE CLASS III.
  11. W.E. AS INDICATED ON INLET CALLS INDICATES WATER ELEVATION AT INLET DURING 100 YEAR STORM EVENT.

**BENCHMARKS:**

BENCHMARK #1:  
SPK NAIL IN CENTER OF HUBBARD DRIVE.  
N 69821.0710 E 2986187.9200  
ELEVATION=456.02

BENCHMARK #2:  
2" ALUMINUM DISK SET IN CONCRETE  
N.W. CORNER OF LIFT STATION FENCE.  
N 698291.3710 E 2987291.4680  
ELEVATION=524.55



**NOTE:**  
SEE SHEET MEP SHEET PL 1.1 FOR DOWNSPOUT & ROOF DRAIN LOCATIONS. ALL ROOF DRAINS & DOWNSPOUTS SHALL BE CONNECTED TO STORM SEWER SYSTEM.



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1	08/13/2019 ISSUE FOR CONSTRUCTION
2	
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1	
2	
3	
4	
5	
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7	
8	



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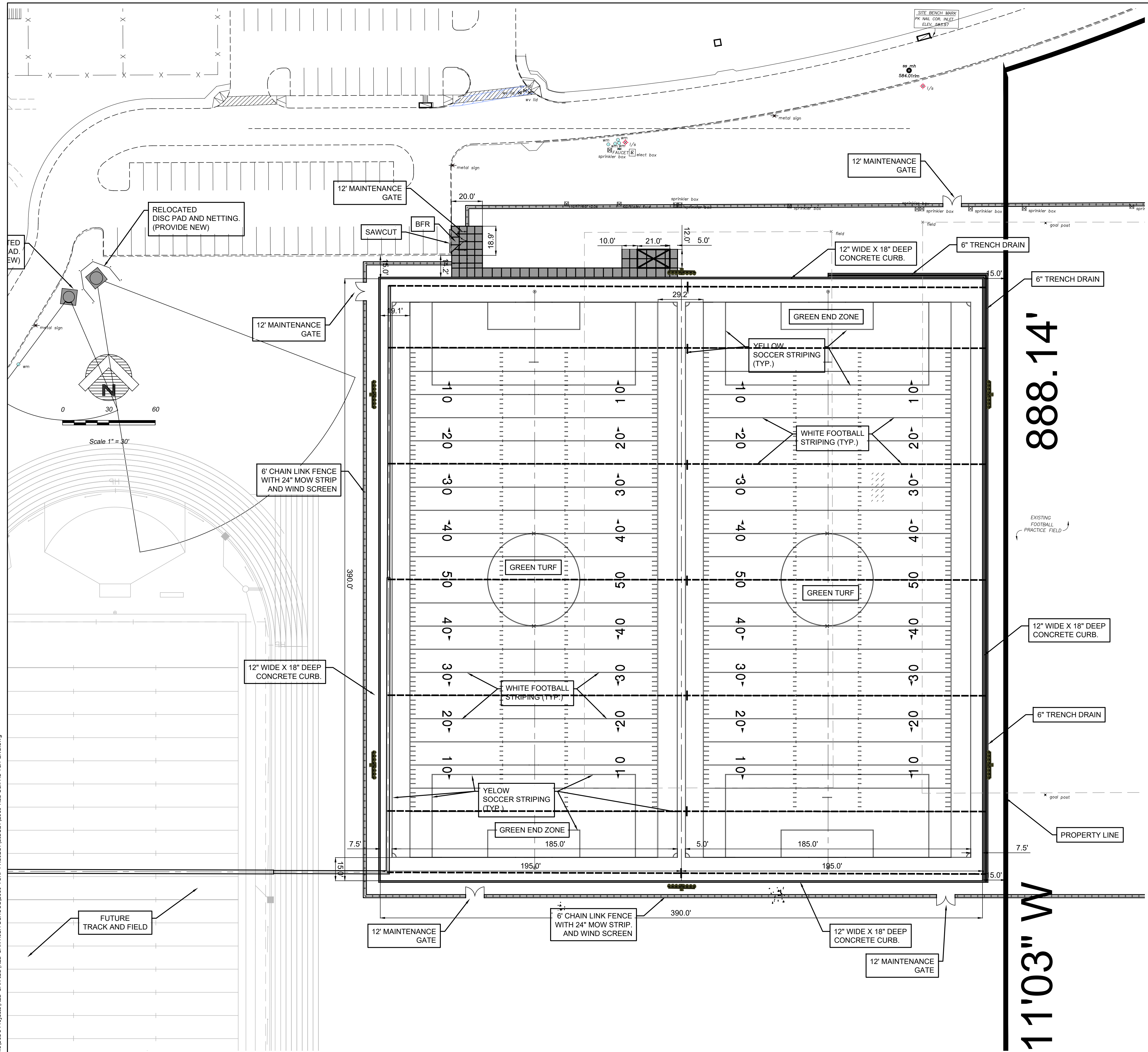
**RED OAK HIGH SCHOOL  
ARTIFICIAL  
TURF PRACTICE FIELDS  
FOR  
RED OAK INDEPENDENT SCHOOL DISTRICT**

**DRAINAGE PLAN**

**JOB** 19306.0000  
**DATE** 09/13/2019  
**SHEET** C05.00

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NOTE: THE CITY OF RED OAK CONSTRUCTION STANDARDS APPLY, WHETHER INDICATED ON THESE PLANS OR NOT. NOTE: EROSION CONTROLS SHALL BE IN PLACE PRIOR TO THE DISTURBANCE OF ANY EXISTING SURFACE.



- GENERAL PAVING NOTES**
- ALL CURBS SHALL BE 6-INCH REINFORCED CONCRETE CURBS AS PER DETAIL. ALL BAR LAPS SHALL BE A THIRTY DIAMETER MINIMUM.
  - ALL CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH THE TOWN OF RED OAK STANDARD DETAILS AND SPECIFICATIONS.
  - CONTRACTOR TO VERIFY EXISTING PAVEMENT ELEVATIONS PRIOR TO CONSTRUCTION.
  - NEW PAVING INSTALLED SHALL "FLUSH-OUT" AT ANY JUNCTURE WITH EXISTING PAVING.
  - CONTRACTOR TO PROVIDE FIRE LANE STRIPING PER TOWN OF RED OAK REQUIREMENTS. PROVIDE PARKING LOT STRIPING AND HANDICAP STRIPING PER THESE PLANS AND TOWN OF RED OAK REQUIREMENTS.
  - BARRIER FREE RAMP SHALL COMPLY WITH TOWN OF RED OAK DETAIL.
- ALL PAVING SHALL BE PLACED OVER COMPACTED SUBGRADE TO BETWEEN 95% AND 100% OF STANDARD PROCTOR AT A MOISTURE CONTENT AT OR ABOVE OPTIMUM.
7. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3,500 PSI AT 28 DAYS.

- PAVING NOTES:**
- C. ON-SITE SIDEWALKS
- CONCRETE SIDEWALKS SHALL BE A WIDTH AS DESIGNATED ON SITE PLAN AND A MINIMUM OF 4 INCHES THICK, CONSTRUCTED OF 3,000 PSI IN 28 DAYS CONCRETE WITH 4% EXTRACTED AIR AND REINFORCED WITH #3 BARS AT 18" O.C.E.W. TOOLED CONSTRUCTION JOINTS SHALL BE 5'-0" O.C. ONE-HALF INCH EXPANSION JOINT SHALL BE PLACED EVERY 40 FEET AND WHERE NEW WORK IS CONSTRUCTED ADJACENT TO OTHER CONCRETE WORK (WALLS, FOUNDATION CURB, ETC.), THE JOINTS SHALL BE FILLED WITH 1/2-INCH PRE MOULDED GRAY BITUMINOUS EXPANSION JOINT FILLER AND SHALL EXTEND THE ENTIRE DEPTH AND WIDTH OF THE CONCRETE SECTION.
- FINISH OF SIDEWALKS SHALL BE WITH A BROOM FINISH PER ENGINEER. WALKS SHALL HAVE TOOLED CURB EDGES & TOOLED JOINTS.
- III. FINISHING FOR CONCRETE DRIVEWAY, PARKING LOT AND STREET CURBS
- THE EXPOSED SURFACES OF DRIVEWAYS AND PARKING LOT SHALL HAVE A MONOLITHIC FINISH BY FLOATING WITH A WOODEN FLAT UNTIL A SLIGHT EXCESS OF SAND APPEARS ON THE SURFACES. IN NO CASE SHALL THE SURFACE BE LEFT SLICK OR WITH A GLOSSY FINISH. EXPOSED SURFACES OF SIDEWALKS SHALL HAVE A MONOLITHIC FINISH BY TROWLING WITH A STEEL TROWEL AND BRUSHED LIGHTLY WITH AN APPROVED BROOM. THE EDGE OF ALL CONCRETE SHALL BE NEATLY ROUNDED TO THE REQUIRED RADIUS WITH AN EDGING TOOL.
- THE EXPOSED SURFACE OF CURBS AND CURBS WITH GUTTER SHALL BE SHAPED WITH A "MULE" AND BRUSHED WITH A WET BRUSH AT RIGHT ANGLE TO THE LINE OF THE CURB TO PRODUCE A UNIFORM TEXTURED SURFACE. THE EDGES SHALL BE NEATLY ROUNDED OFF TO THE REQUIRED RADIUS. USE OF GROUT OVER A ROUGH FINISHED TEXTURE WILL NOT BE ALLOWED.

**PAVING LEGEND**

	PROPOSED 7" REINFORCED CONCRETE PAVEMENT 3,600 P.S.I. CONCRETE, 6 1/2 SACK HAND FINISH 6 SACK MACHINE FINISH WITH #4 REBARS ON 18" CENTERS EACH WAY.
	PROPOSED 4" REINFORCED CONCRETE SIDEWALK PAVEMENT 3,600 P.S.I. CONCRETE, 5 1/2 SACK HAND FINISH WITH #3 REBARS ON 18" CENTERS EACH WAY.

SEE LANDSCAPE PLAN LS 1.01 FOR SLEEVES UNDER ALL PAVING WALKS, DRIVES AND PARKING. SEE M.E.P. PLANS ES 1.01 FOR ALL SLEEVE LOCATIONS FOR LIGHTING.

**NOTE: NO SAND WILL BE PERMITTED UNDER PAVEMENT.**

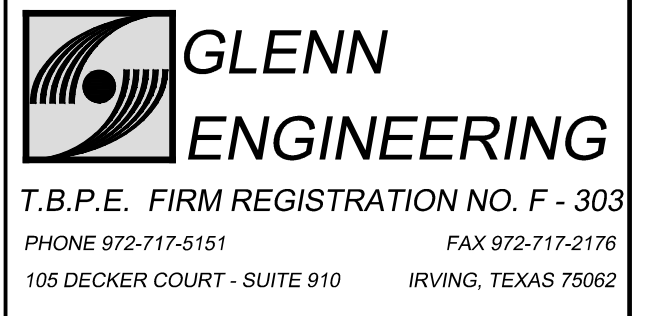


**ISSUES**

1	08/13/2019	ISSUE FOR CONSTRUCTION
2		

**REVISIONS**

1		
2		
3		
4		
5		
6		
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8		



**RED OAK HIGH SCHOOL  
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TURF PRACTICE FIELDS  
FOR  
RED OAK INDEPENDENT SCHOOL DISTRICT**

**PAVING PLAN**

**JOB** 19306.0000  
**DATE** 09/13/2019  
**SHEET** C06.00

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NOTE: THE CITY OF RED OAK CONSTRUCTION STANDARDS APPLY, WHETHER INDICATED ON THESE PLANS OR NOT.

NOTE: EROSION CONTROLS SHALL BE IN PLACE PRIOR TO THE DISTURBANCE OF ANY EXISTING SURFACE.



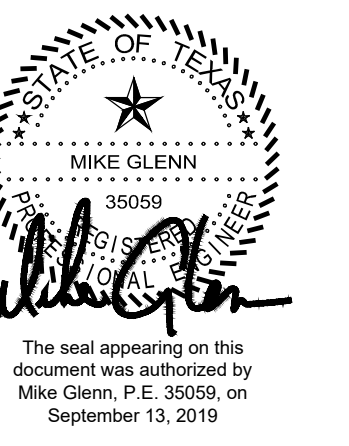


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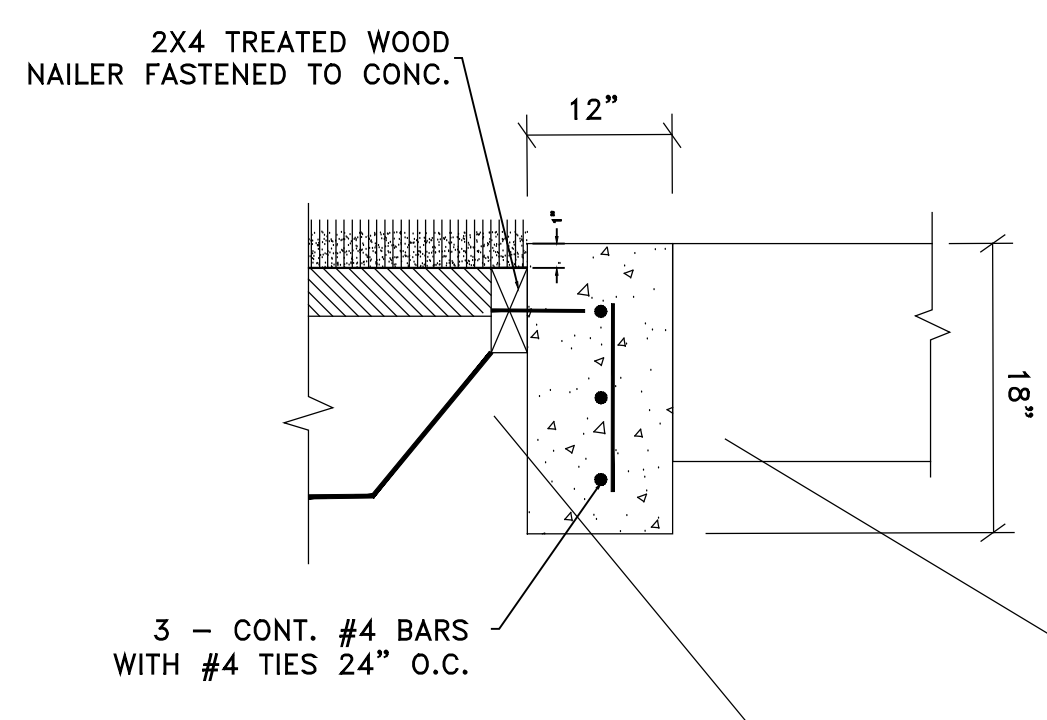
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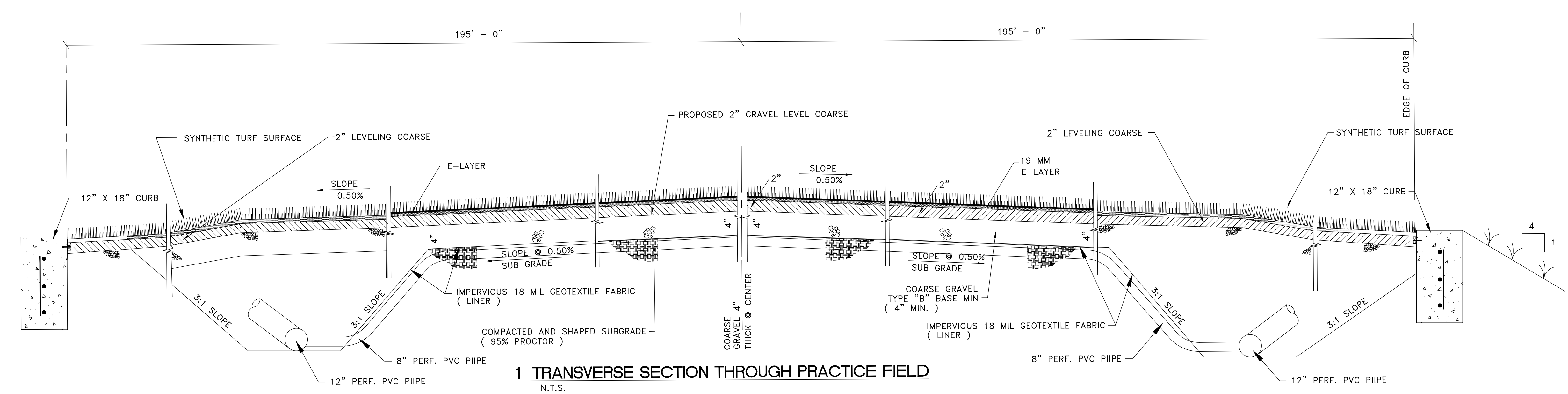
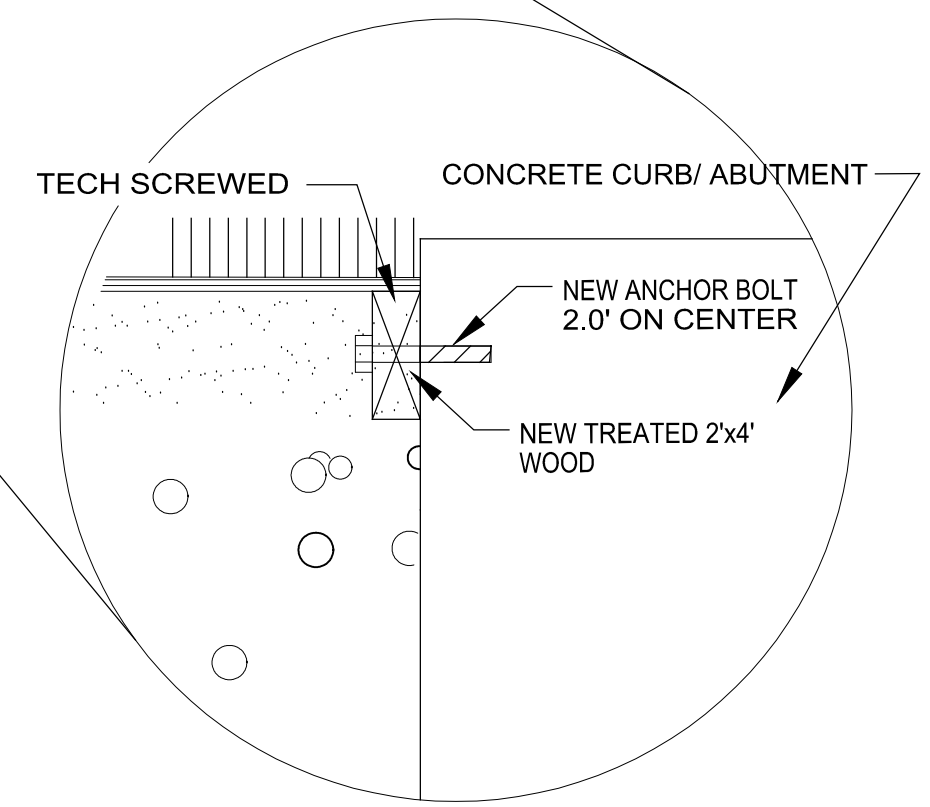
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TYPICAL EDGE CURB DETAIL



1 TRANSVERSE SECTION THROUGH PRACTICE FIELD  
N.T.S.

TURF SECTION  
NTS

RED OAK HIGH SCHOOL  
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TURF SECTION

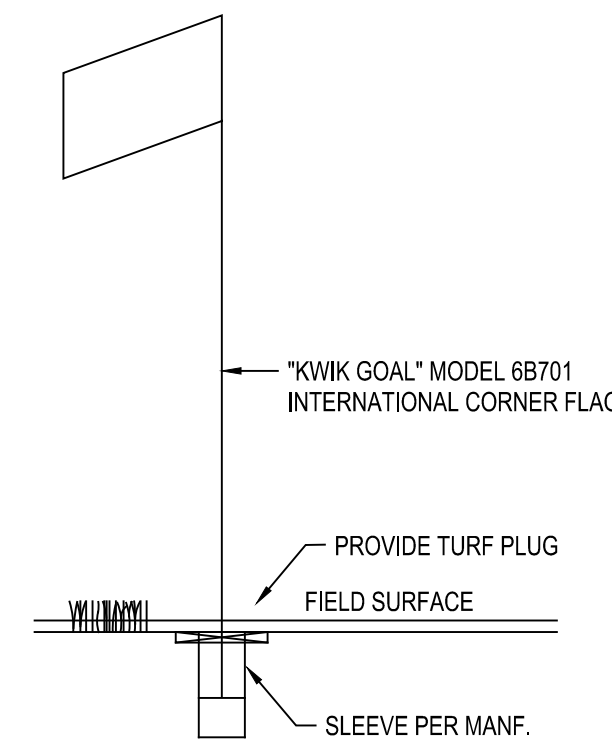
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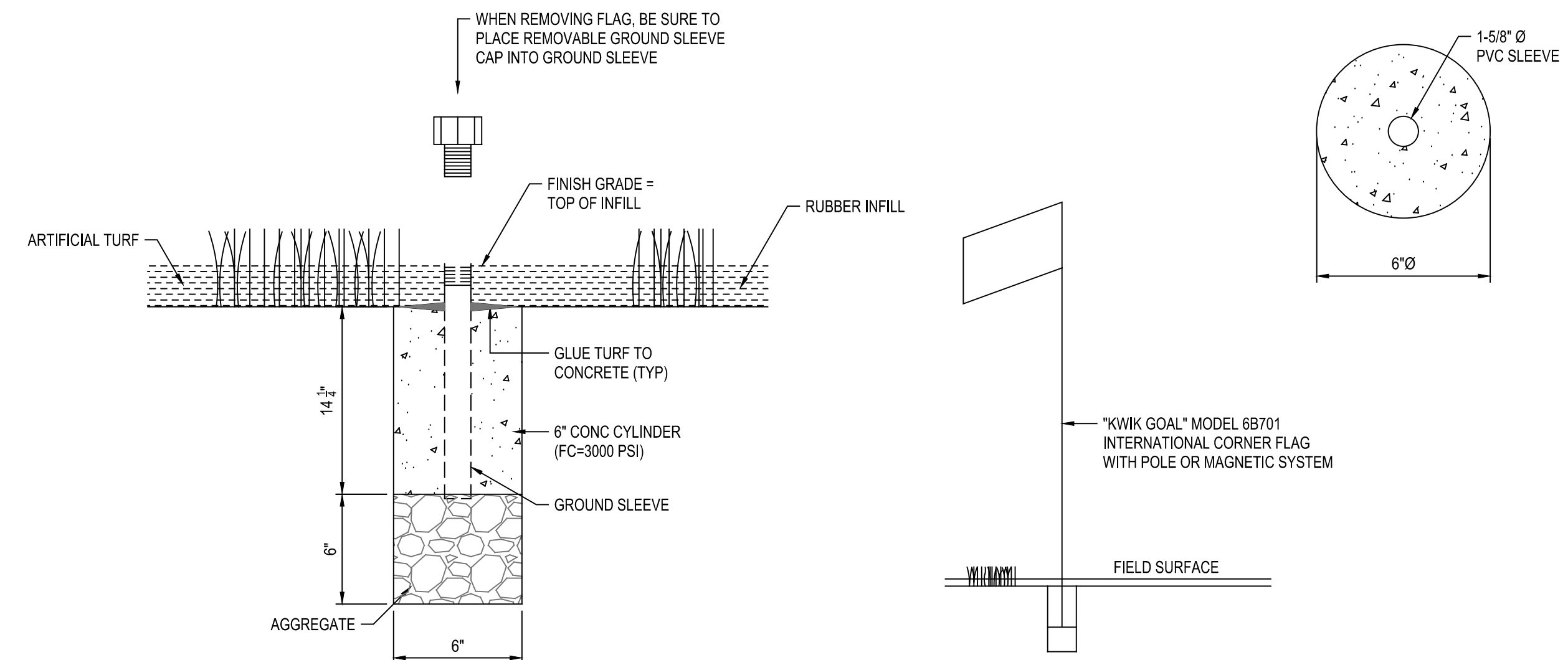
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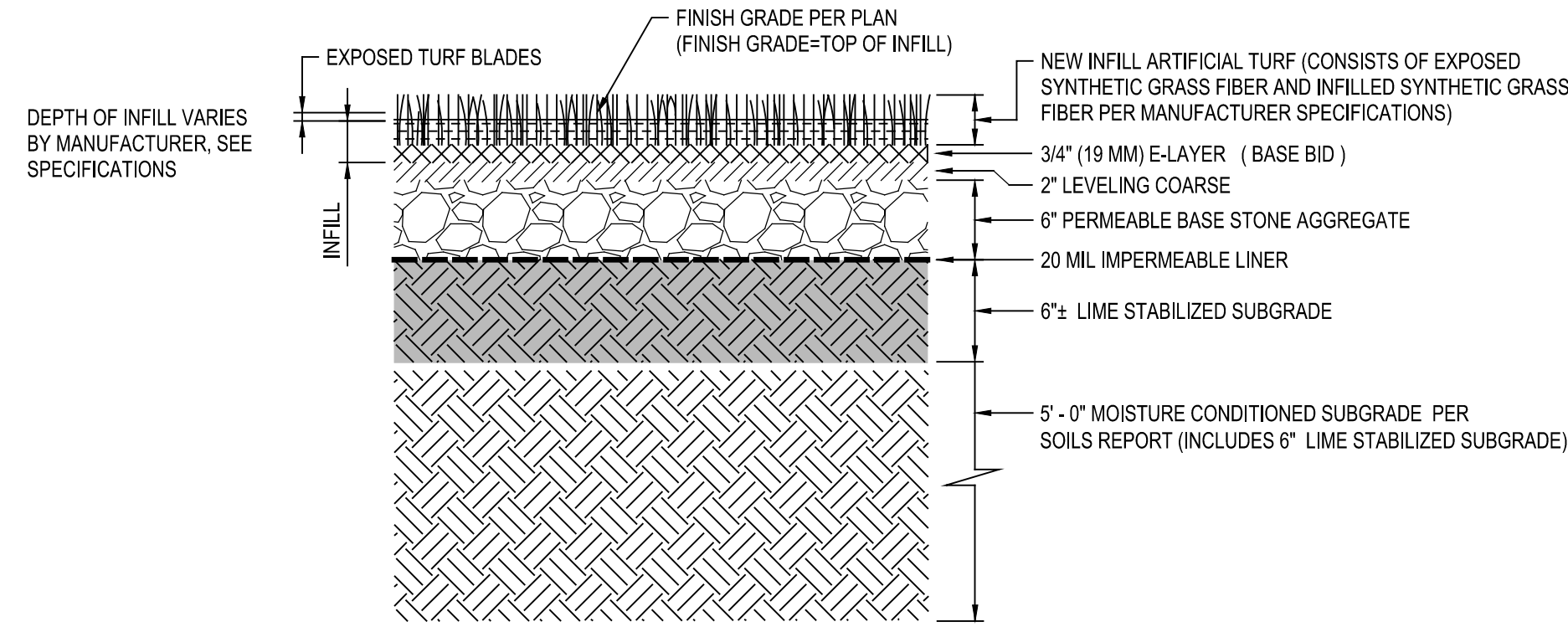
NOTE: EROSION CONTROLS SHALL BE IN PLACE PRIOR TO THE DISTURBANCE OF ANY EXISTING SURFACE.



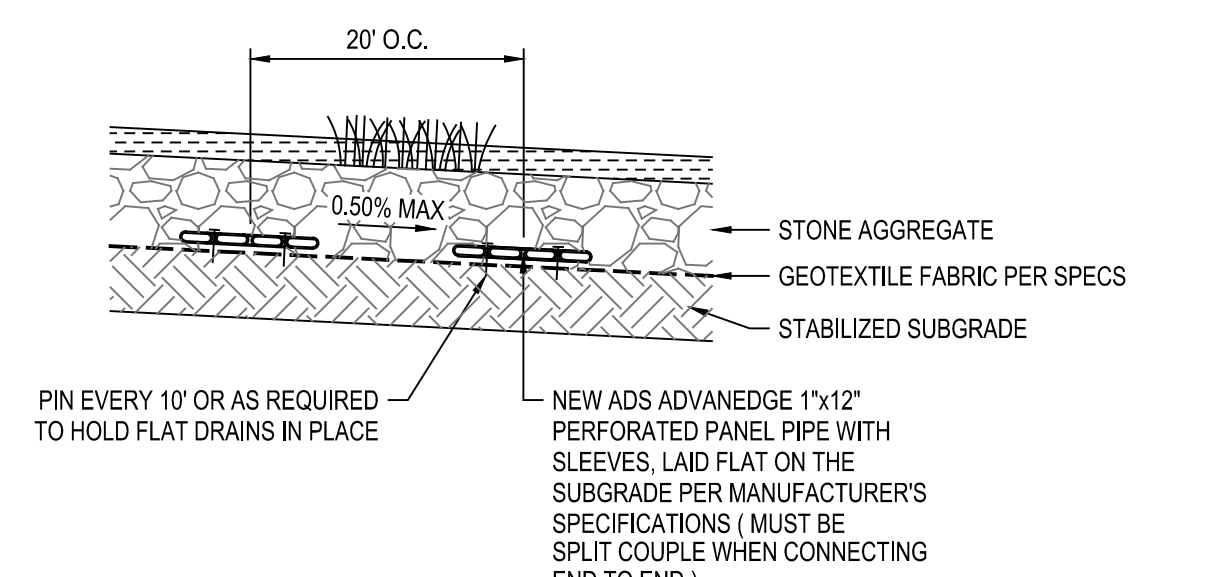
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SCALE: NTS



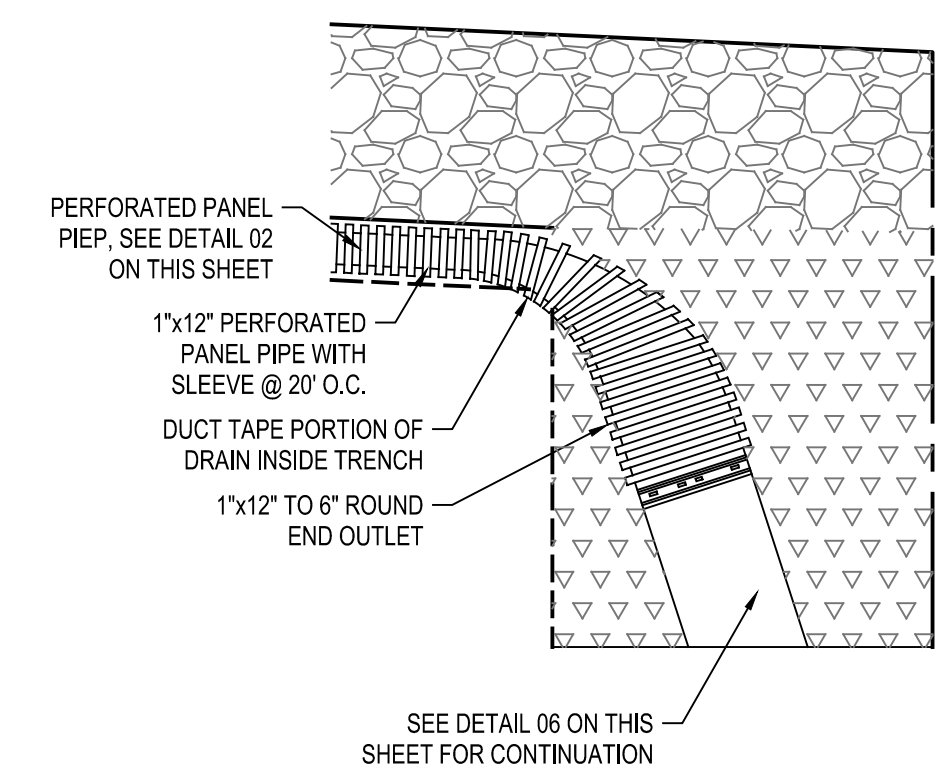
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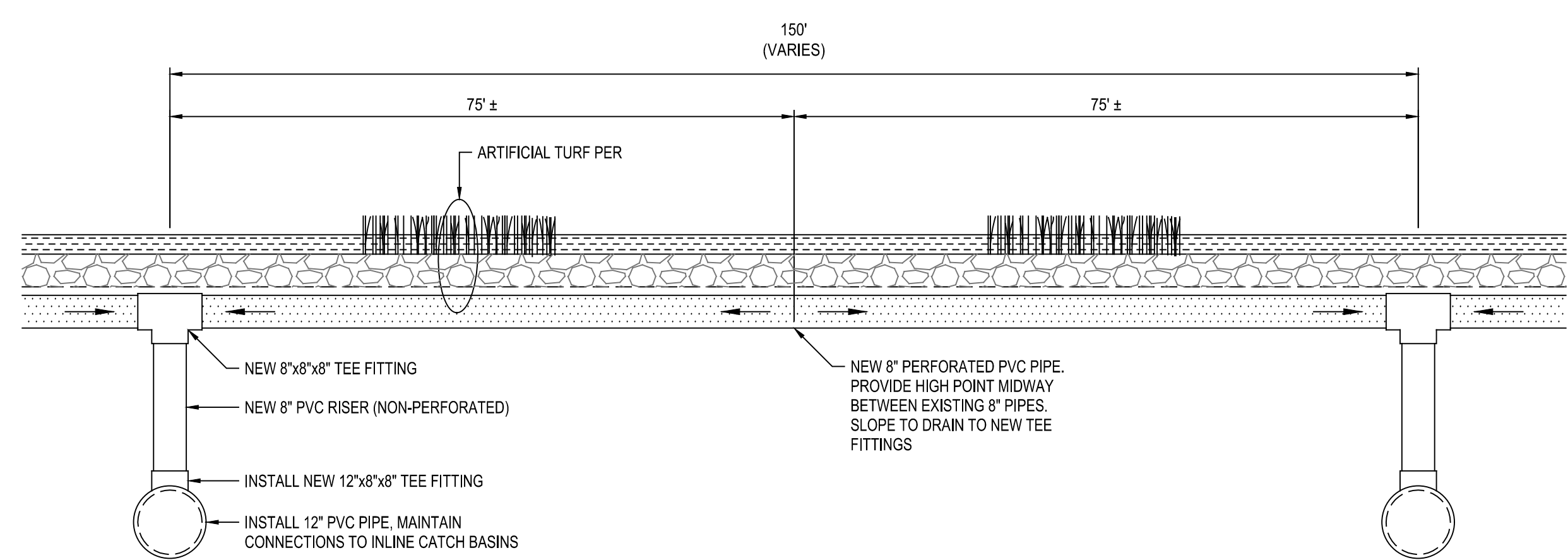
**TYPICAL ARTIFICIAL TURF SECTION - BASE BID**  
SCALE: NTS



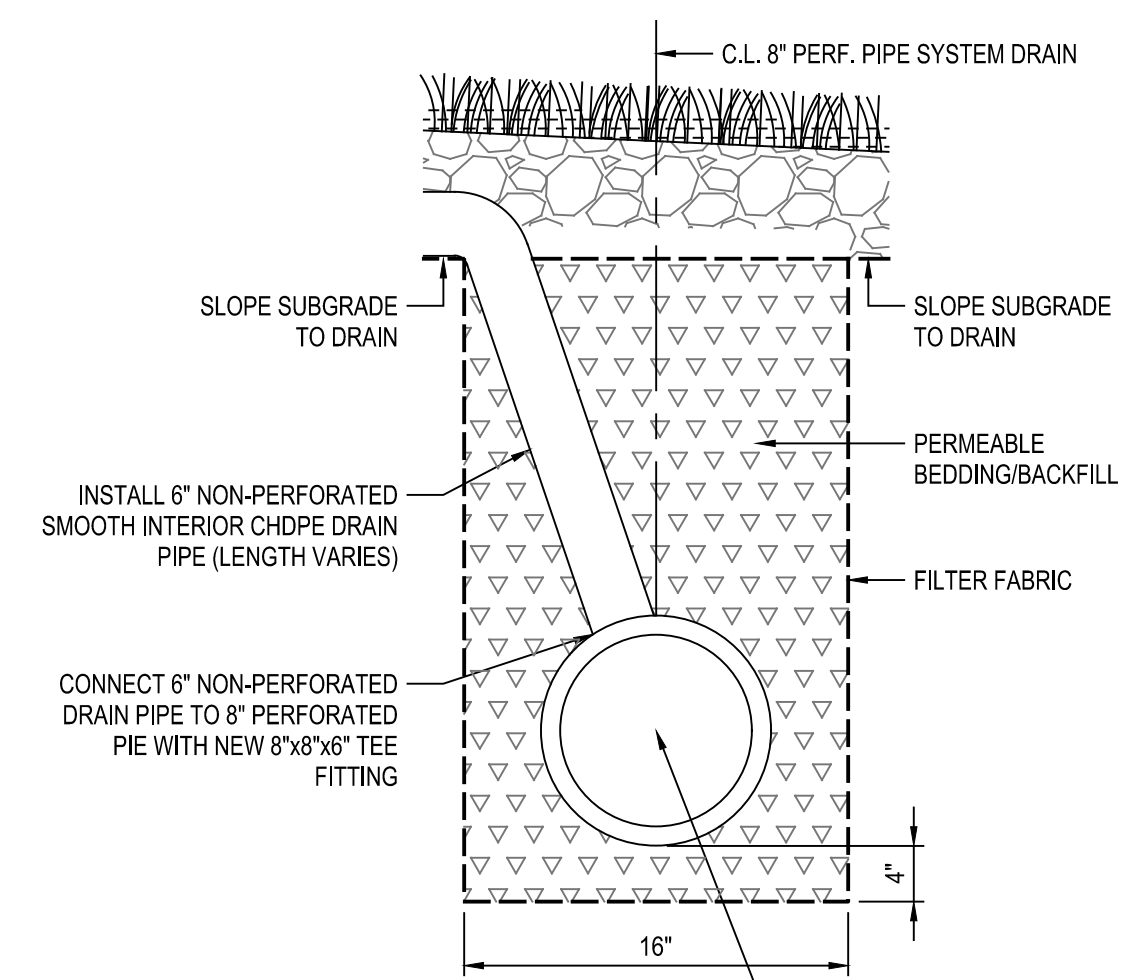
**PERFORATED PANEL PIPE - FLAT**  
SCALE: NTS



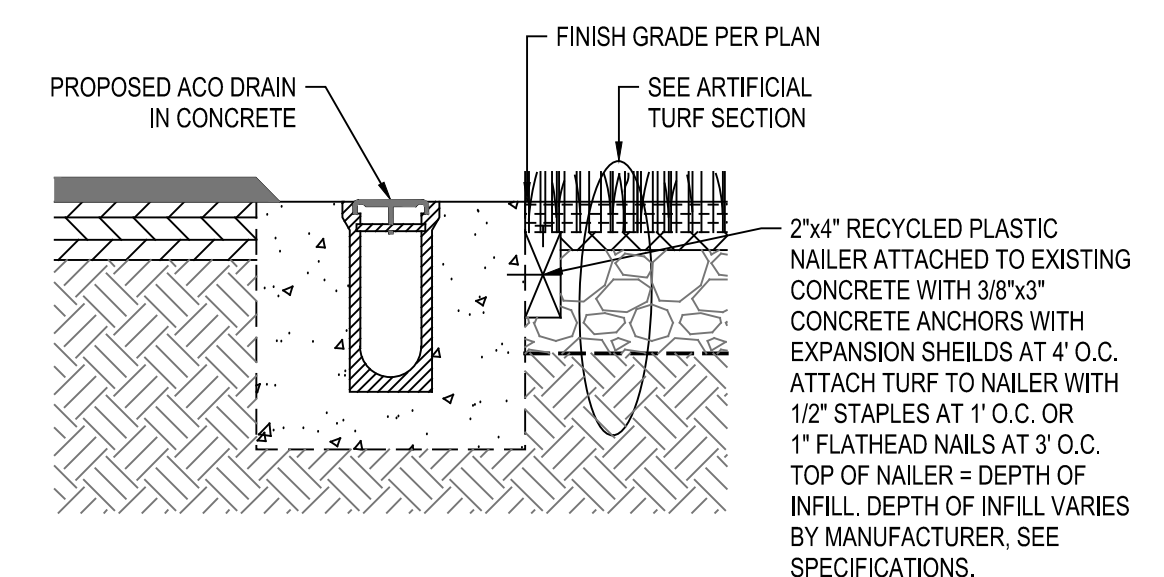
**06 PANEL DRAIN CONNECTION**  
SCALE: NTS



**8" PERFORATED PVC CONNECTION DETAIL**  
SCALE: NTS



**MAIN STORM DRAIN TRENCH SECTION**  
SCALE: NTS



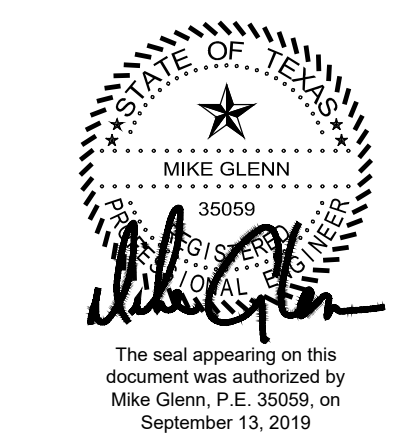
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ISSUES	
1	08/13/2019 ISSUE FOR CONSTRUCTION
2	
REVISIONS	
1	
2	
3	
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**RED OAK HIGH SCHOOL  
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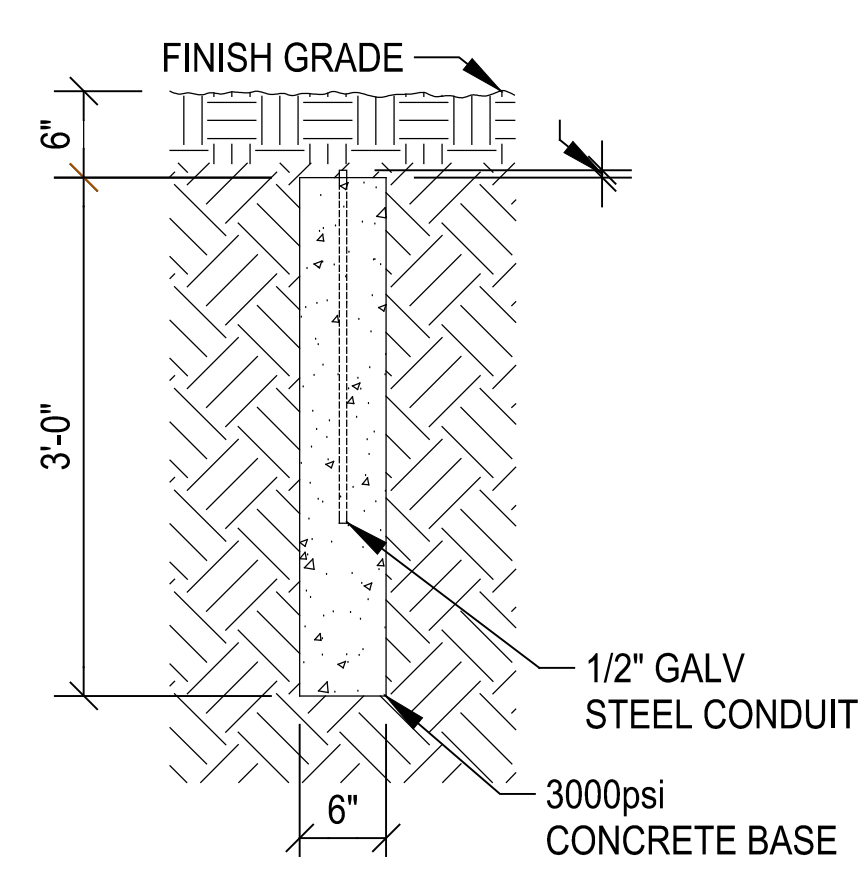
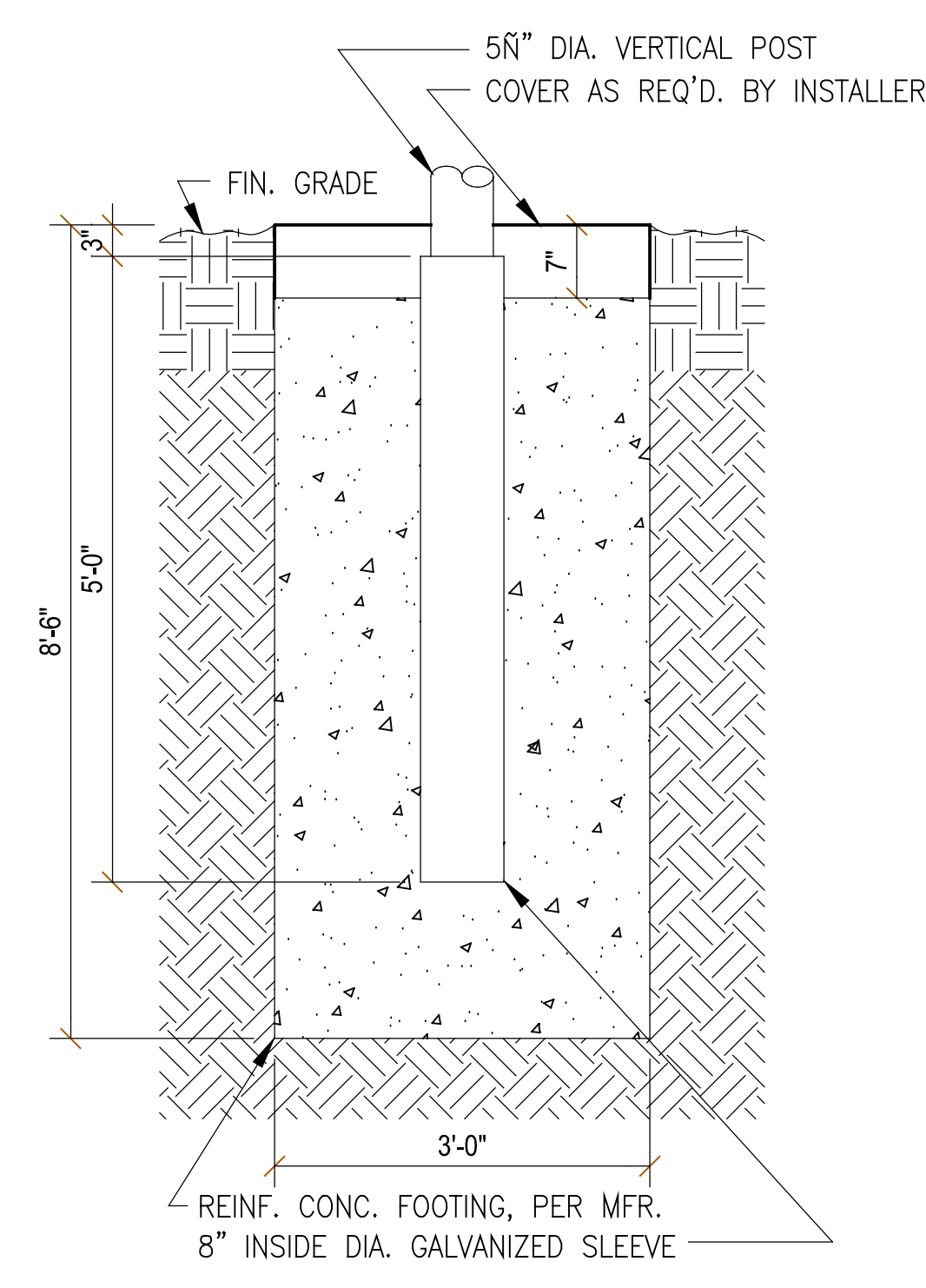
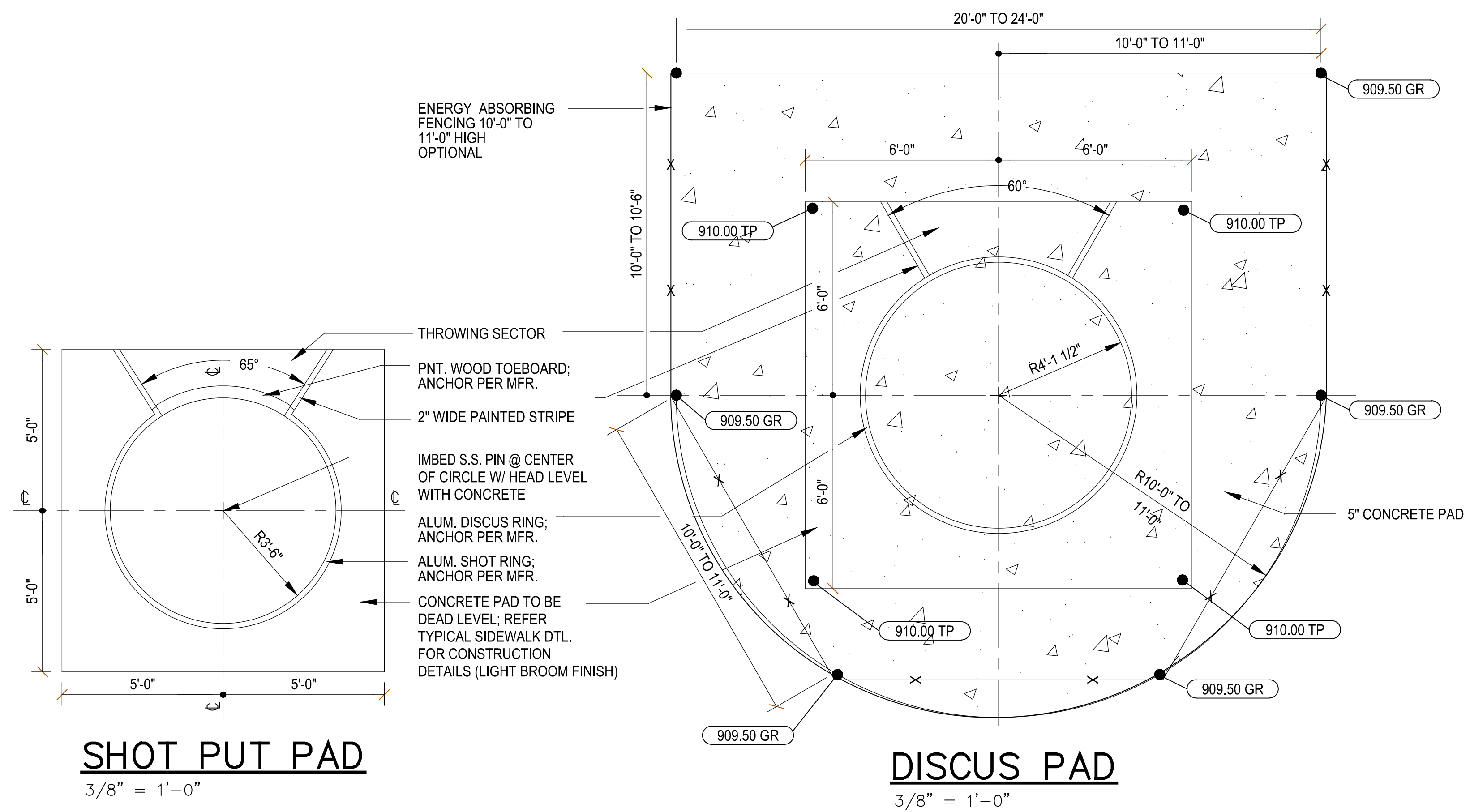
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**C07.02**

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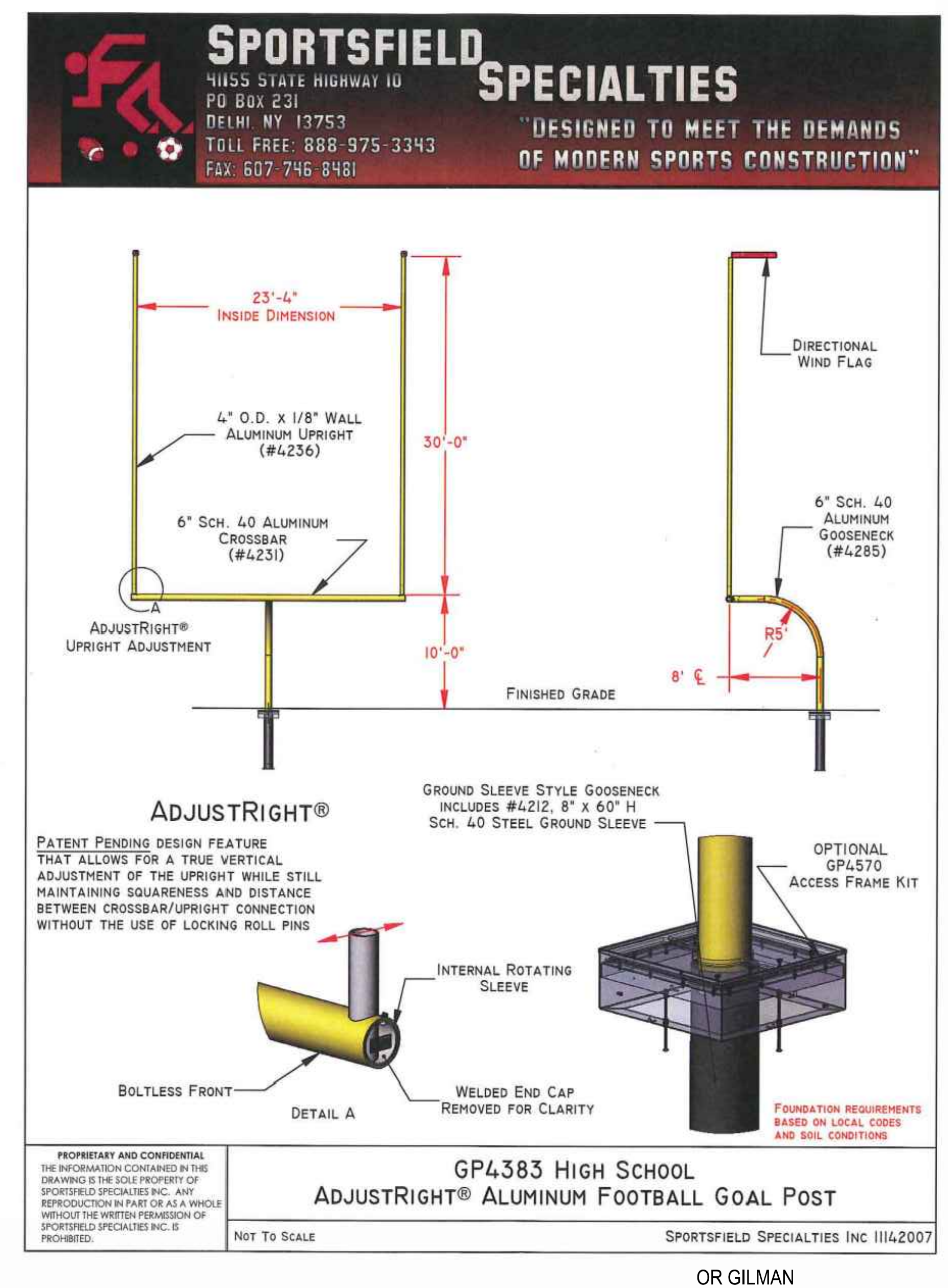
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NOTE: EROSION CONTROLS SHALL BE IN PLACE PRIOR TO THE DISTURBANCE OF ANY EXISTING SURFACE.





**TRACK AND FIELD DETAILS**  
SCALE: AS NOTED



GP4383 HIGH SCHOOL  
ADJUSTRIGHT® ALUMINUM FOOTBALL GOAL POST  
SPORTSFIELD SPECIALTIES INC. 11142007  
OR GILMAN

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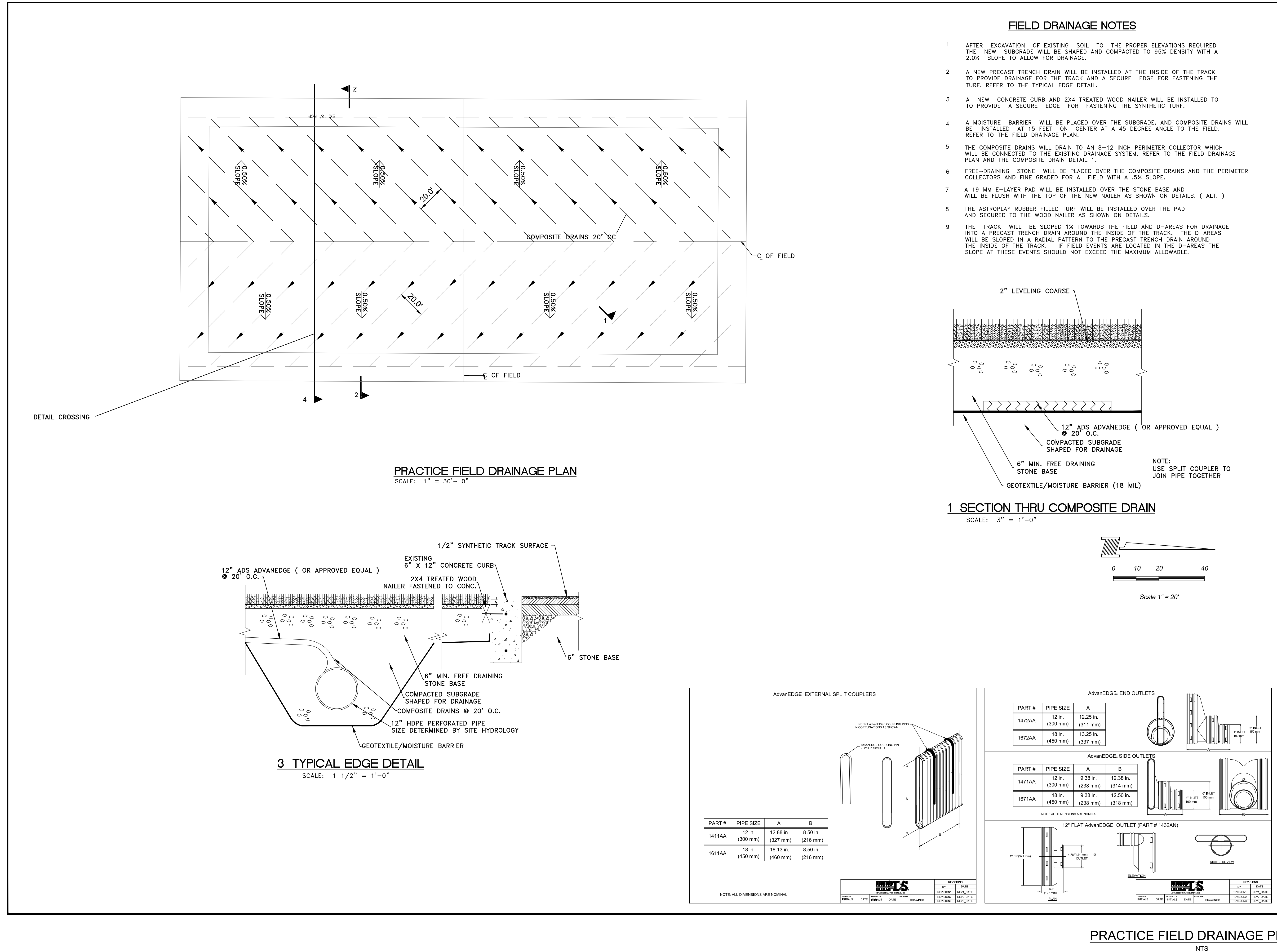
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**RED OAK HIGH SCHOOL**  
**ARTIFICIAL**  
**TURF PRACTICE FIELDS**  
**FOR**  
**RED OAK INDEPENDENT SCHOOL DISTRICT**

**FIELD EVENT DETAILS**

JOB 19306.0000  
DATE 09/13/2019  
SHEET  
**C07.03**

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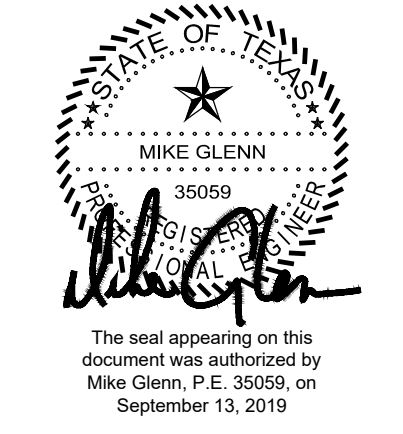
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**RED OAK HIGH SCHOOL**  
**ARTIFICIAL**  
**TURF PRACTICE FIELDS**  
**FOR**  
**RED OAK INDEPENDENT SCHOOL DISTRICT**

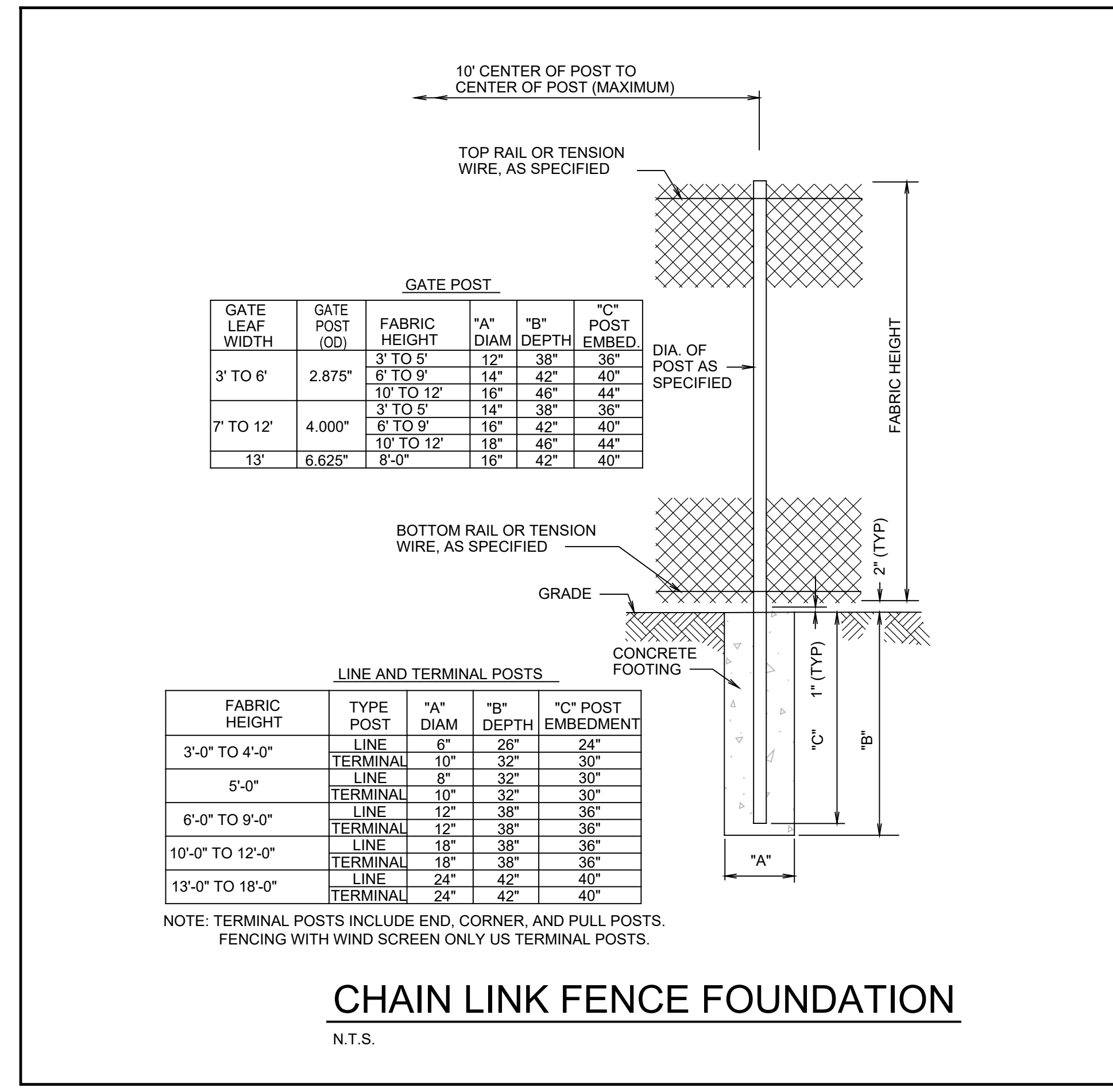
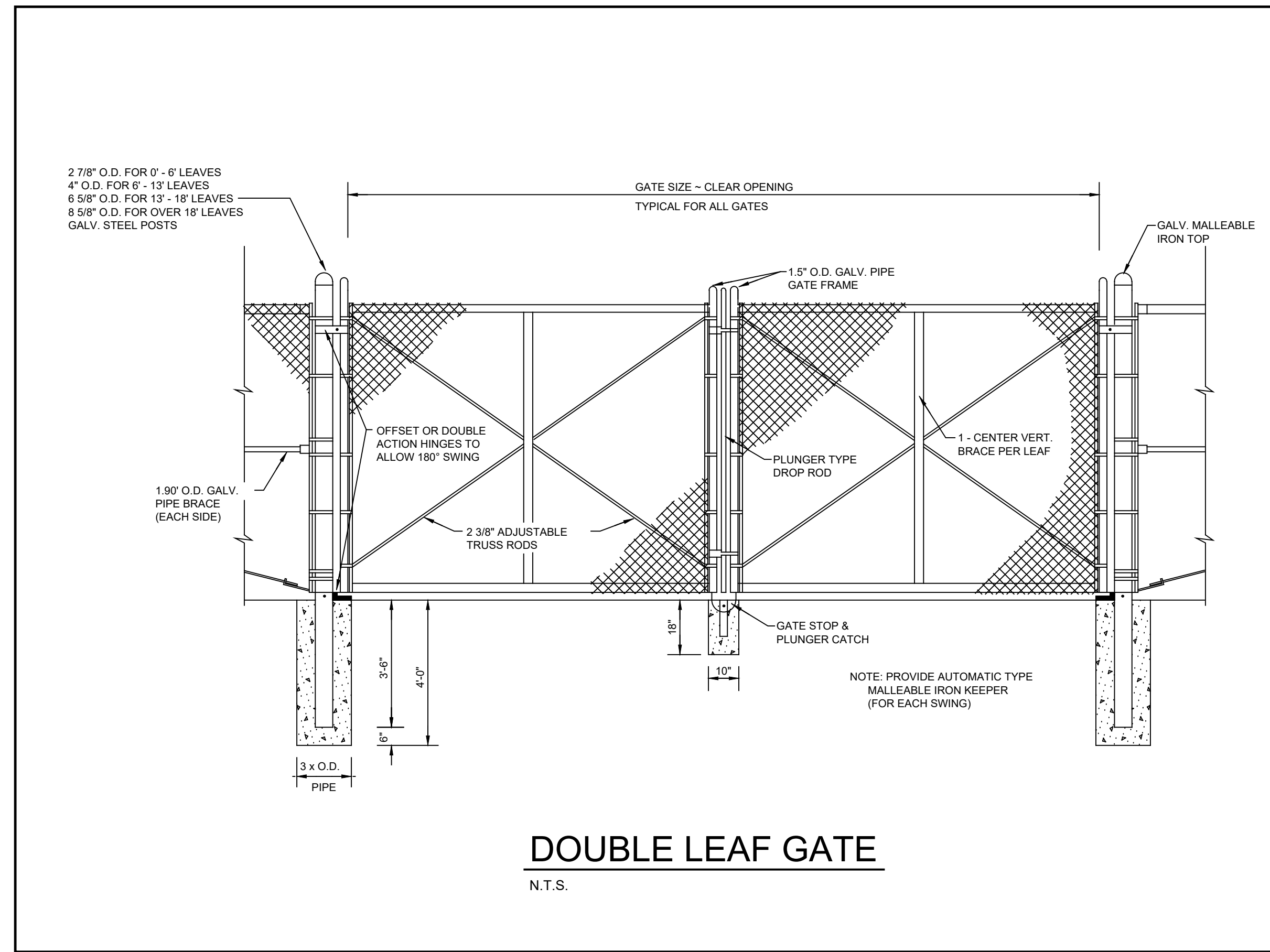
**FIELD DRAINAGE PLAN**

**JOB** 19306.0000  
**DATE** 09/13/2019  
**SHEET**

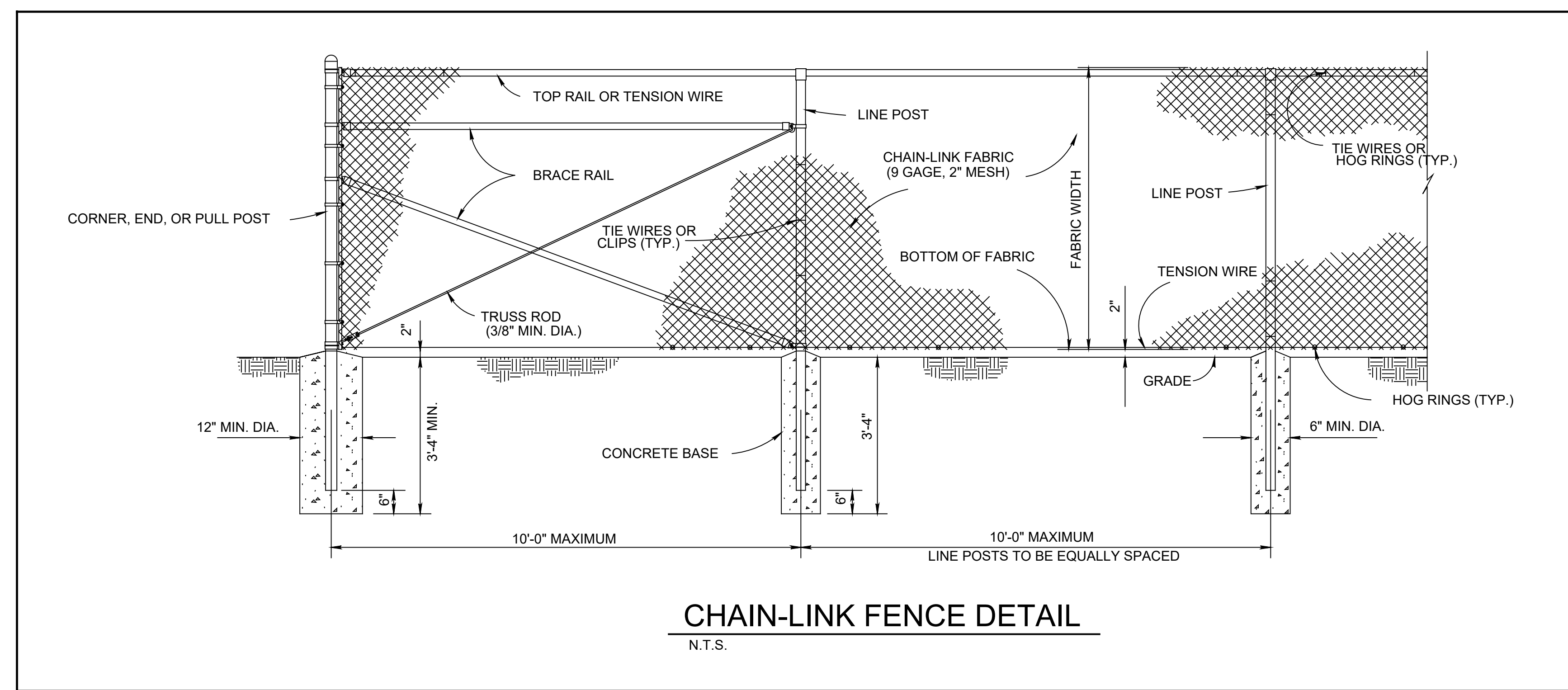
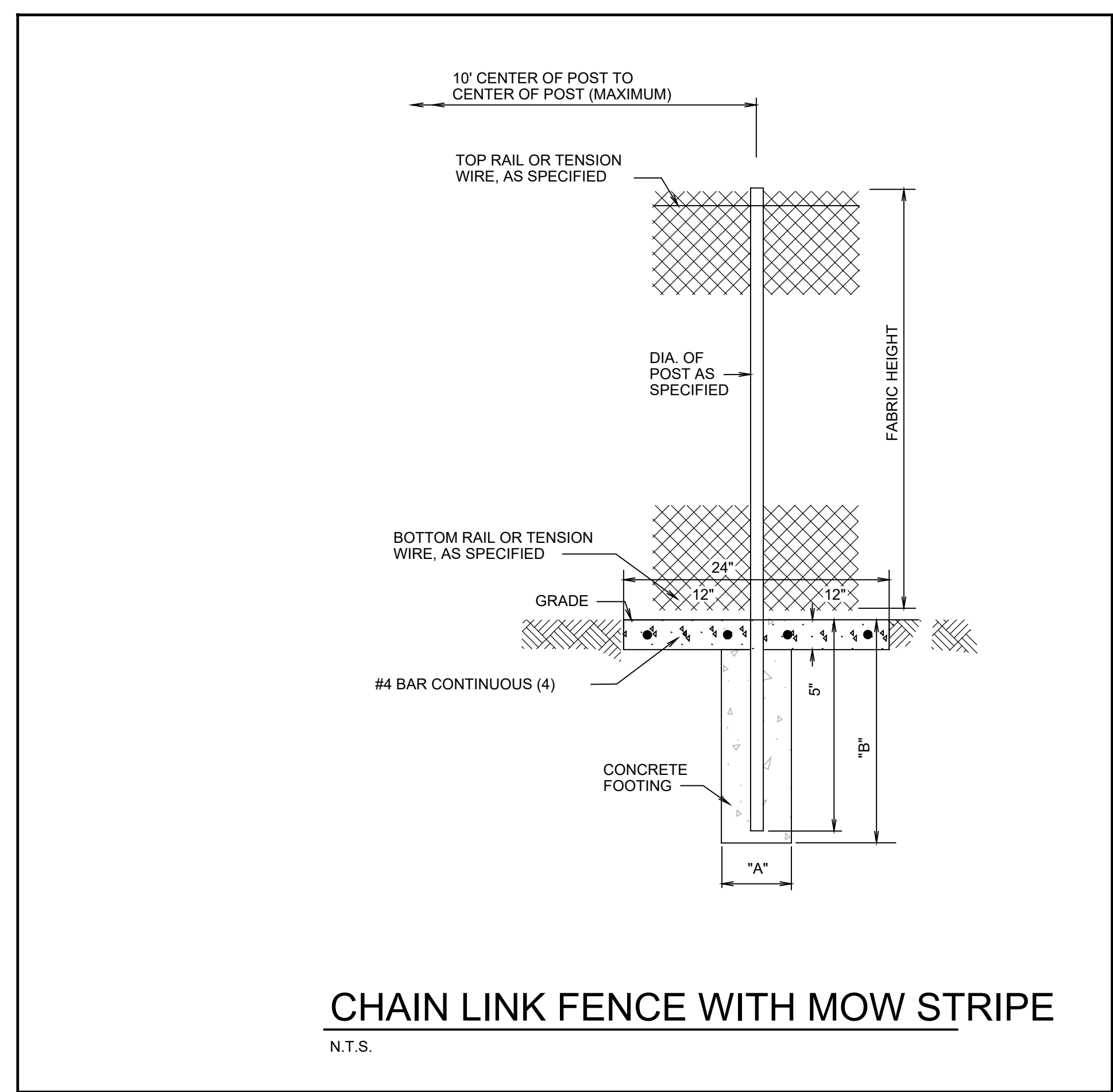
**C07.04**

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- CHAIN LINK FENCE NOTES:**
1. ALL FENCING SHALL HAVE WIND SCREEN SLATS BOTTOM AND TOP LOCK 1 3/4" BY PDS FENCE OR APPROVED EQUAL.
  2. ALL SLATS SHALL BE LOCKING AT INTERIOR FENCE.
  3. TUBULAR SLATS WITH REINFORCED LEGS. LOCK SNAP CHANNEL.
  4. INSET LOCKING CHANNEL HORIZONTALLY THROUGH THE BOTTOM; SLIDE VERTICAL SLATS FROM THE TOP OF THE MESH DOWN INTO THE BOTTOM CHANNEL; INSET TOP LOCKING CHANNEL.
  5. SLAT SIZE SHALL BE 7/8" WIDE.
  6. COLOR SHALL BE GREEN.
  7. ALTERNATE FOR FABRIC PER ARCHITECTURAL SPECIFICATIONS.



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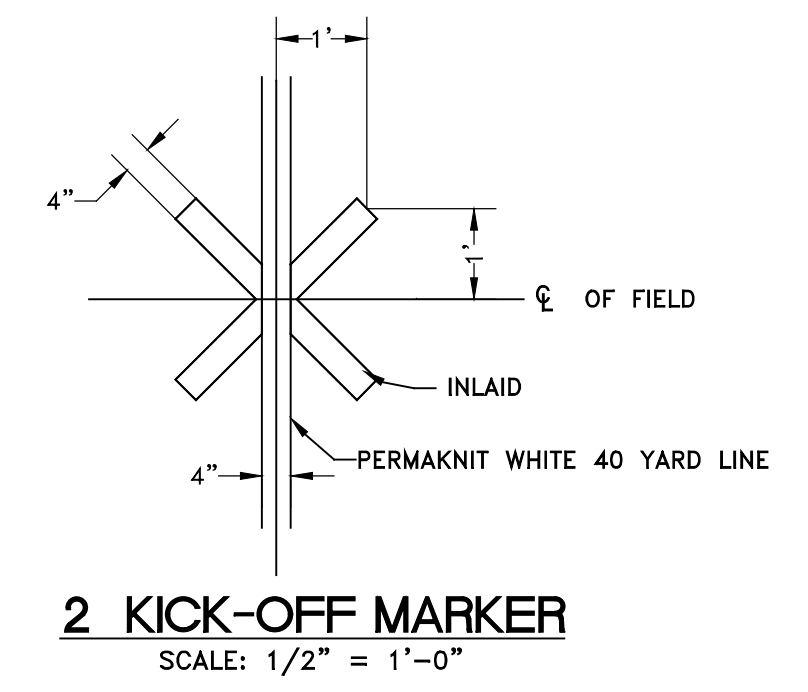
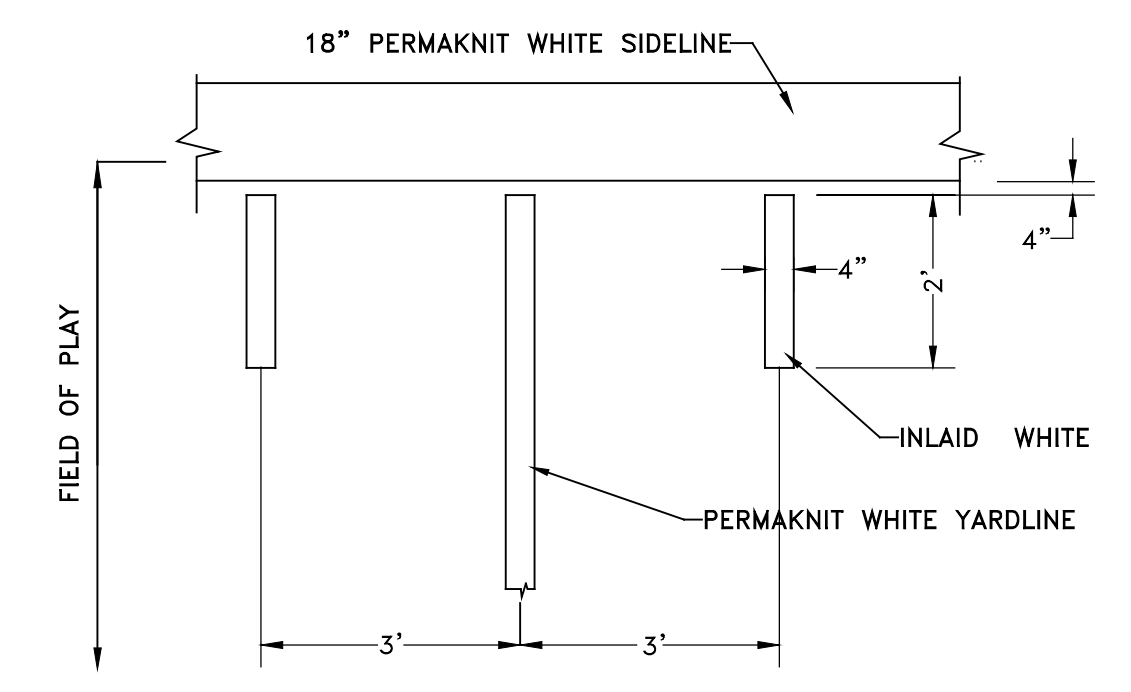
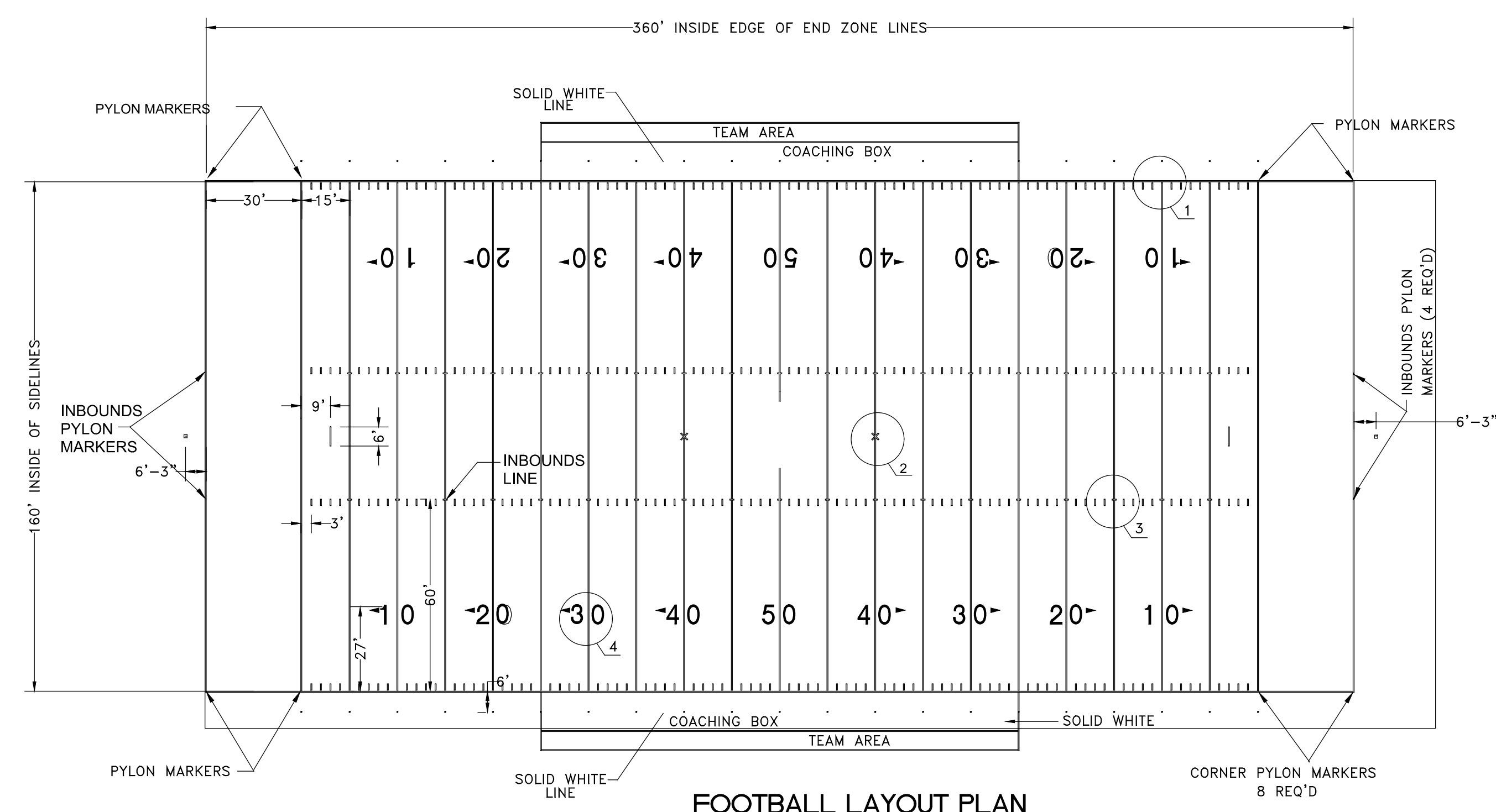
Mike Glenn  
 35056  
 The seal appearing on this document was authorized by Mike Glenn, P.E. 35056, on September 13, 2019.

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**RED OAK HIGH SCHOOL**  
**ARTIFICIAL**  
**TURF PRACTICE FIELDS**  
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**RED OAK INDEPENDENT SCHOOL DISTRICT**

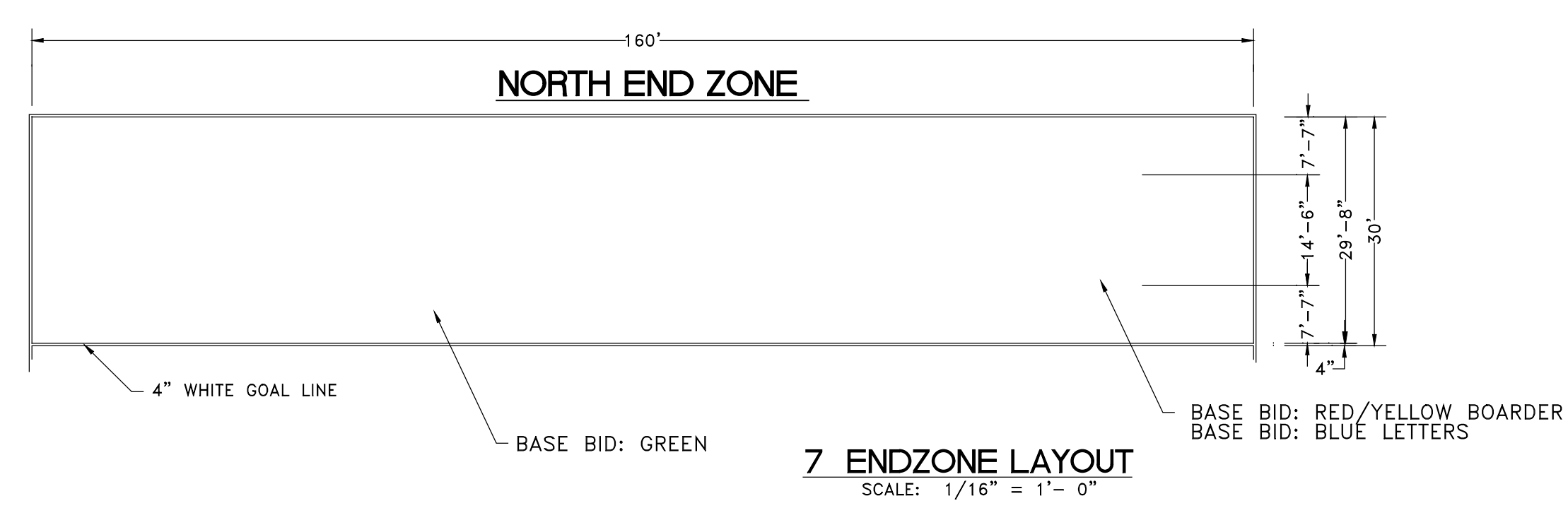
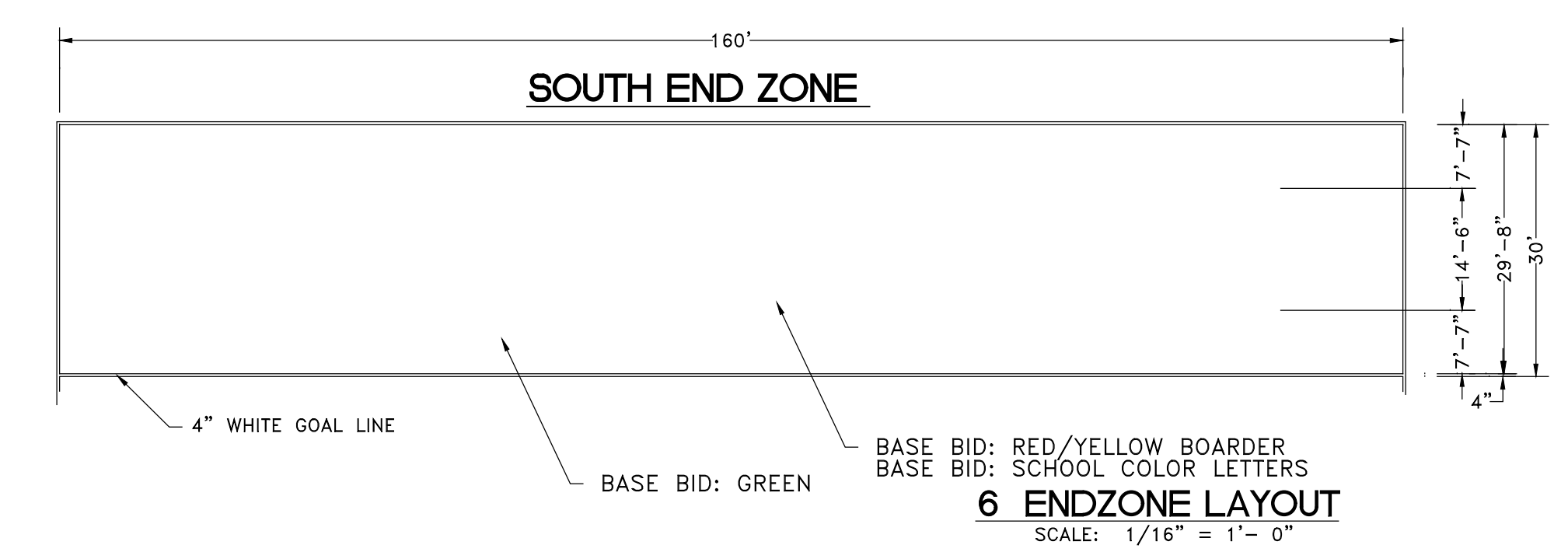
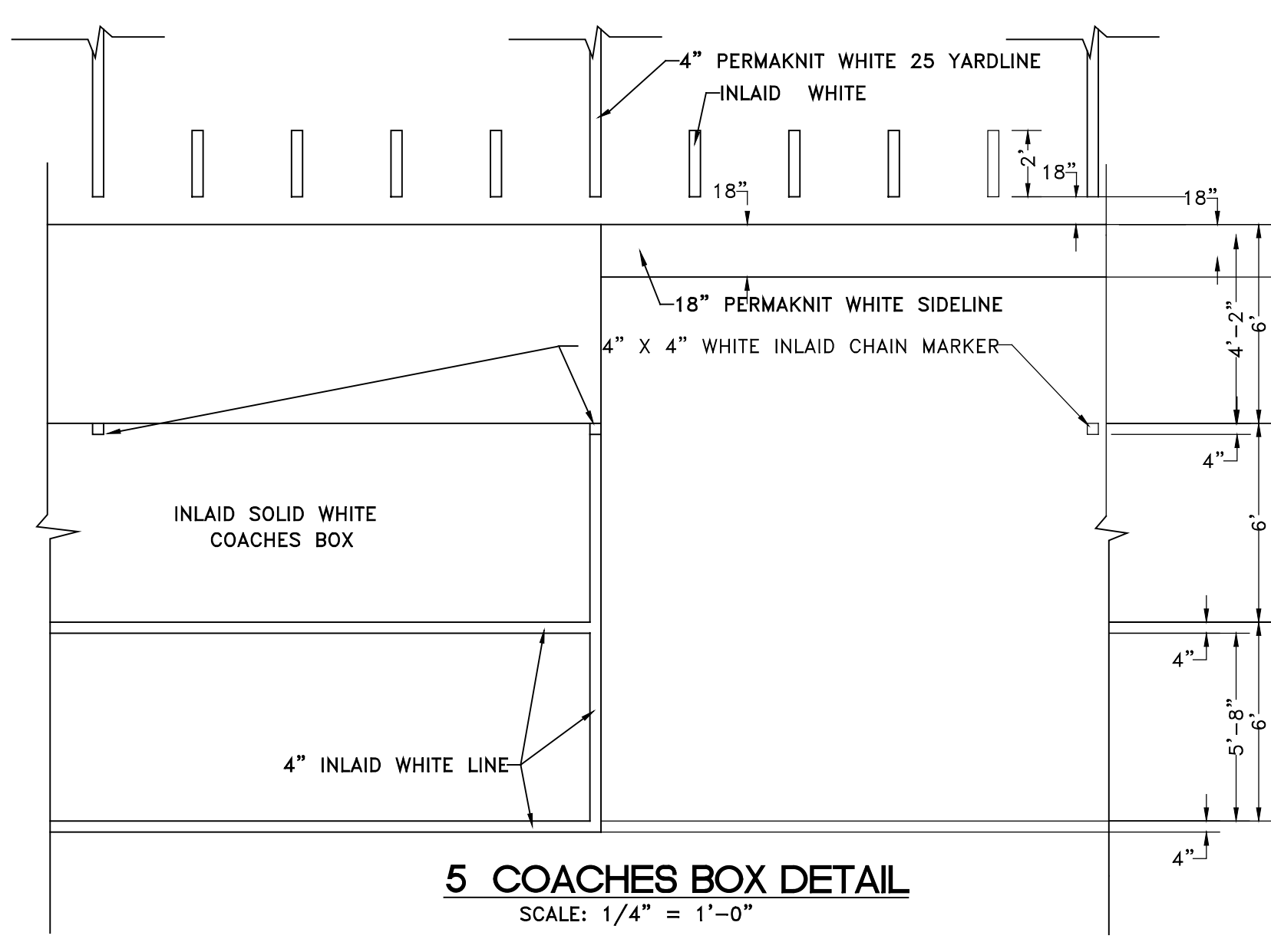
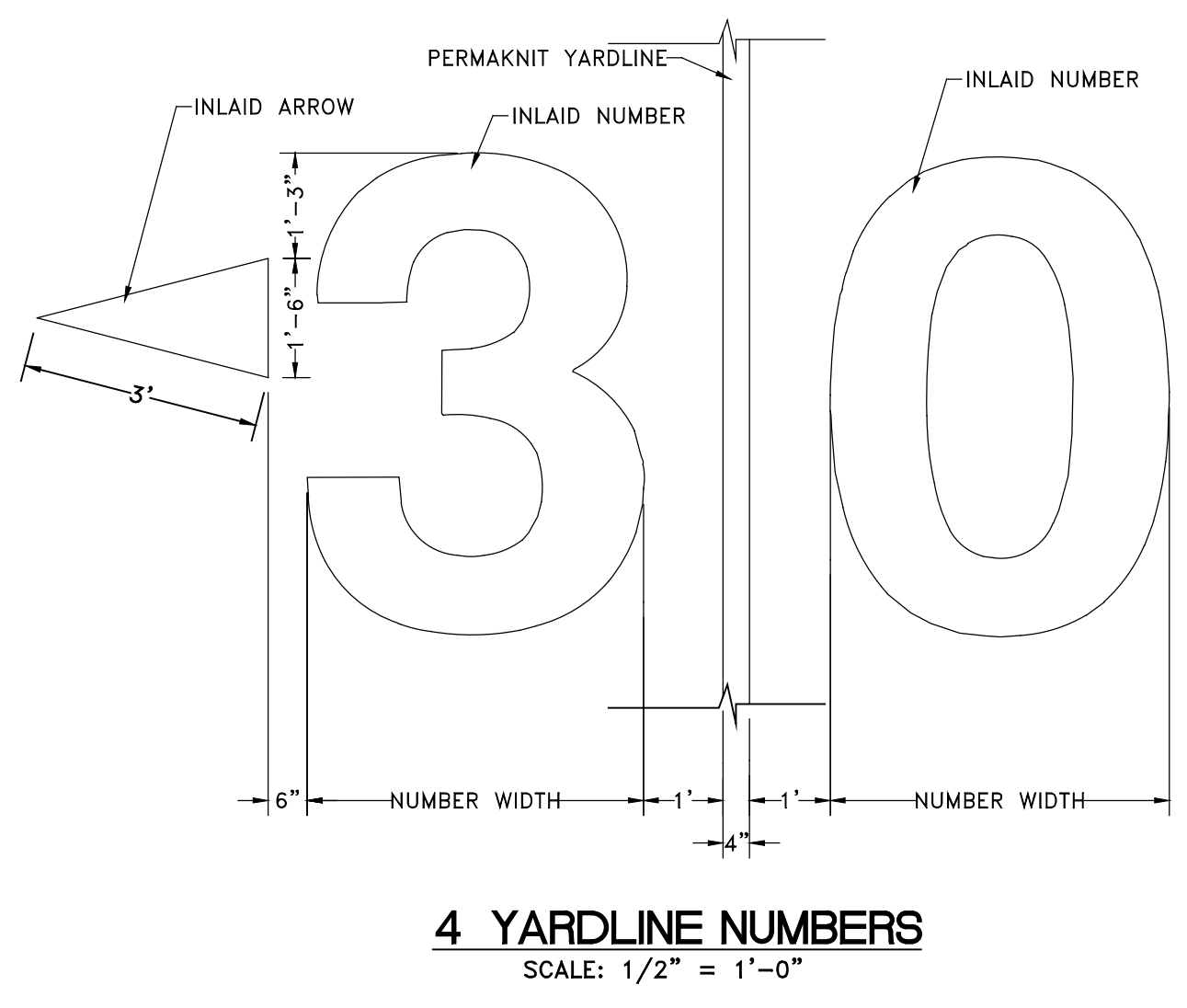
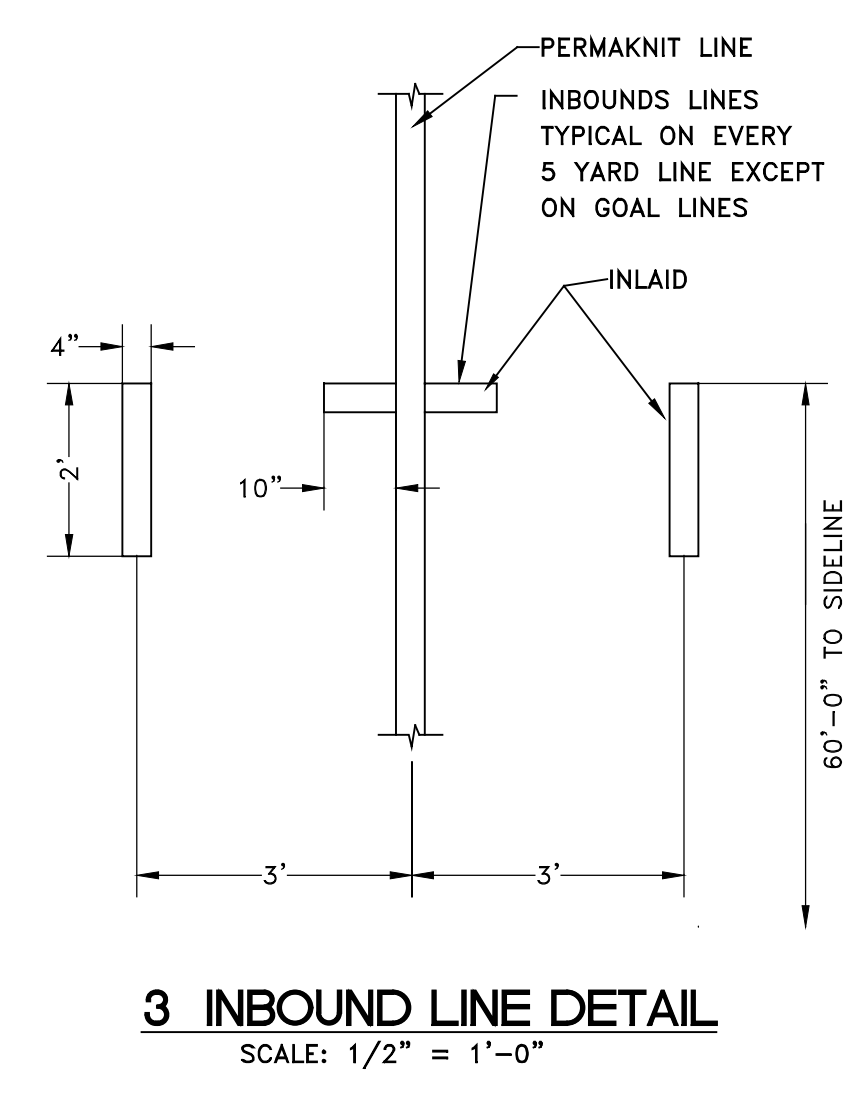
**FENCE DETAILS**

**JOB** 19306.0000  
**DATE** 09/13/2019  
**SHEET**  
C07.05



**FIELD LAYOUT NOTES**

- CONTRACTOR SHALL VERIFY ALL DIMENSIONS.
- ALL LINE WORK IS TO BE LAID OUT WITH A TOLERANCE OF 1/4 INCH.
- ALL YARDLINES AND SIDELINES SHALL BE 4 INCH, WHITE, PERMAKNIT TURF. REFER TO DETAIL 1.
- 24 INCH SHORT YARDLINE EXTENSIONS, 4 INCHES FROM THE SIDELINES SHALL BE 4 INCHES WIDE, WHITE, INLAID LINES. REFER TO DETAIL 1.
- THE COACHING BOX AND TEAM AREA SHALL BE PER NCAA RULES AS DRAWN ON THE PLAN AND SHALL BE OUTLINED IN 4 INCH INLAID WHITE LINES.
- THE TWO INBOUNDS LINES ARE 60 FEET FROM THE SIDELINES. INBOUNDS LINES AND SHORT YARDLINE EXTENSIONS SHALL BE 24 INCHES LONG AND 4 INCHES WIDE, INLAID, WHITE LINES. REFER TO DETAIL 3.
- THE EXTRA POINT LINES ARE 6 FEET LONG, 4 INCHES WIDE, WHITE INLAID LINES AT THE CENTERLINE OF THE FIELD AND THE 3 YARDLINE ON EACH END OF THE FIELD. REFER TO PLAN FOR LOCATION.
- WHITE YARDLINE NUMBERS MEASURING 6 FEET IN HEIGHT AND 4 FEET IN WIDTH WITH THE TOP OF THE NUMBERS 27 FEET FROM THE SIDELINES ARE INLAID TURF. REFER TO DETAIL 4.
- DIRECTIONAL ARROWS POINT TOWARD RESPECTIVE ENDZONES AND ARE WHITE, INLAID TURF AS DIMENSIONED ON DETAIL 4. THERE ARE NO ARROWS ON THE 50 YARDLINE.
- AN "X" WILL MARK THE SPOT OF THE KICKOFF AT THE 40 YARDLINE ON EACH END OF THE FIELD AND SHALL BE DIMENSIONED AS PER DETAIL 2. THE 40 YARDLINE IS WHITE PERMAKNIT TURF AND THE EXTENSIONS TO FORM THE X ARE INLAID WHITE.
- PYLON LOCATIONS AT THE INTERSECTIONS OF THE GOAL LINES AND THE ENDLINES WITH THE SIDELINES, AND THE ENDLINES AND THE EXTENSION OF THE INBOUNDS LINE SHALL BE 4 INCHES BY 4 INCHES. THE PYLONS WILL BE FREE-STANDING, WEIGHTED TYPE.
- THE SOUTH ENDZONE WILL BE RED TURF WITH THE WORD "COPPELL" IN WHITE INLAID LETTERS 14 FEET 6 INCHES IN HEIGHT. REFER TO DETAIL 6.
- THE NORTH ENDZONE WILL BE RED TURF WITH THE WORD "COWBOYS" IN WHITE INLAID LETTERS 14 FEET 6 INCHES IN HEIGHT. REFER TO DETAIL 7.
- THE MID-FIELD LOGO WILL BE 2 RED INLAID HORSESHOES INTERLOCKING SIDEWAYS TO REPRESENT THE LETTERS "CO" WITH A 6 INCH WHITE INLAID BORDER. REFER TO DETAIL 8.



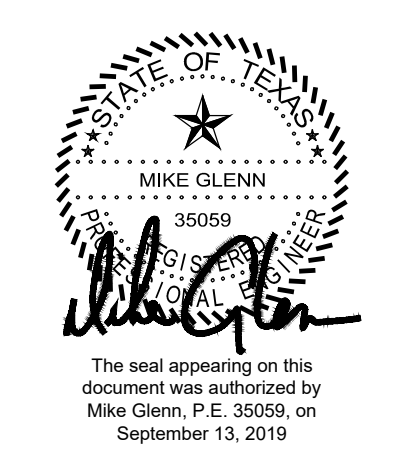
**FIELD MARKINGS**



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**RED OAK HIGH SCHOOL  
ARTIFICIAL  
TURF PRACTICE FIELDS  
FOR  
RED OAK INDEPENDENT SCHOOL DISTRICT**

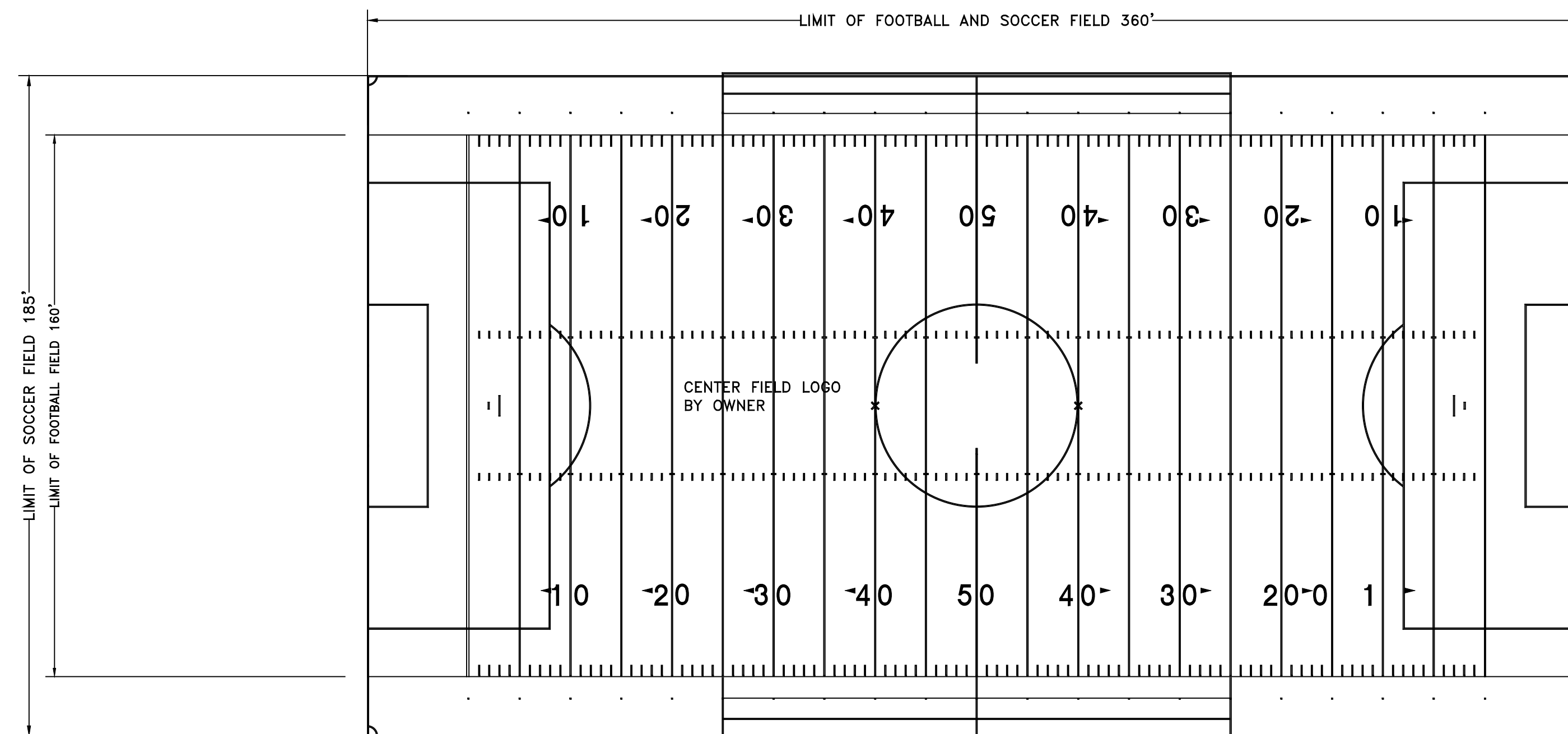
**TURF MARKINGS  
FOOTBALL**

**JOB** 19306.0000  
**DATE** 09/13/2019  
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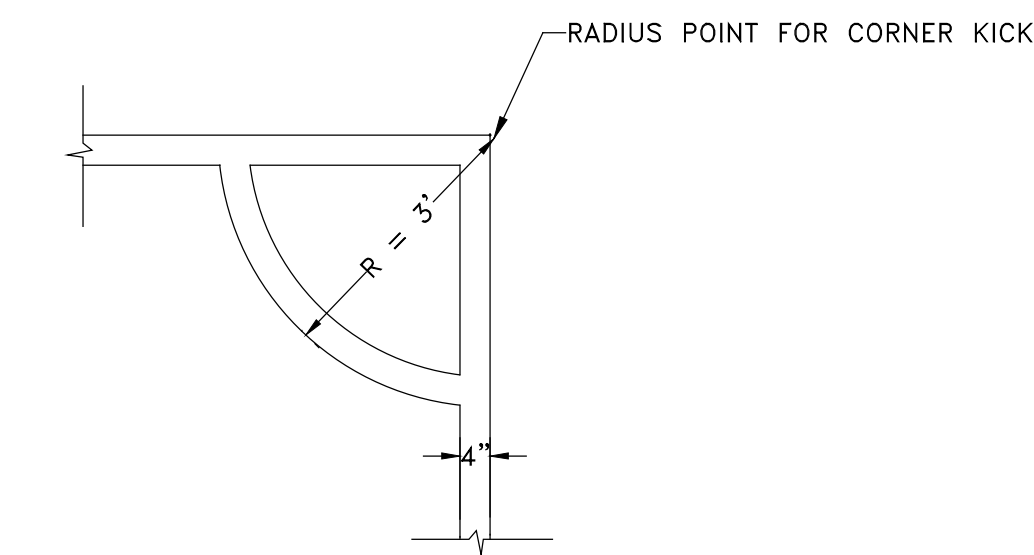
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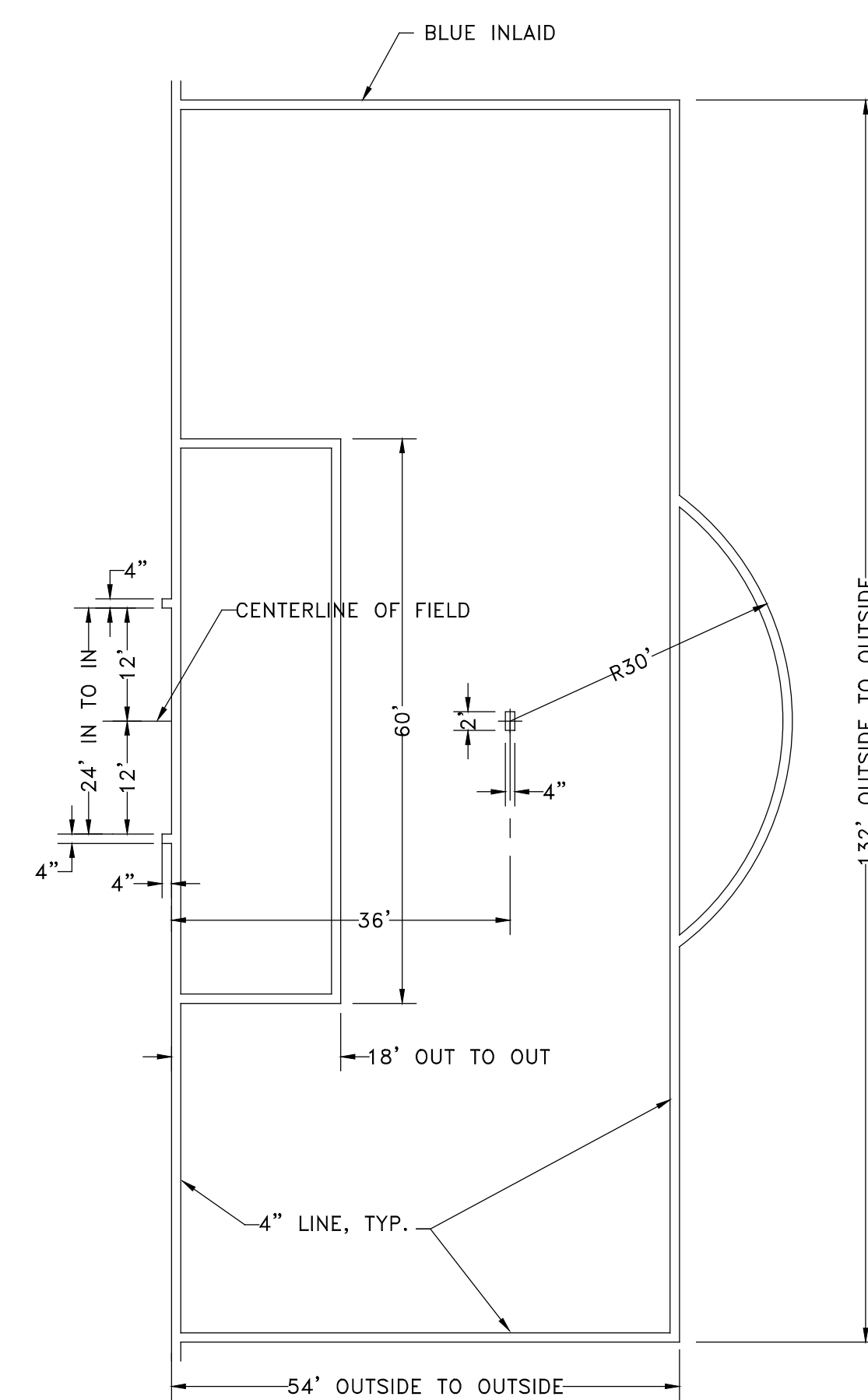
**FIELD COMPOSITE LAYOUT PLAN**  
SCALE: 1" = 30'-0"

**COMPOSITE LAYOUT NOTES**

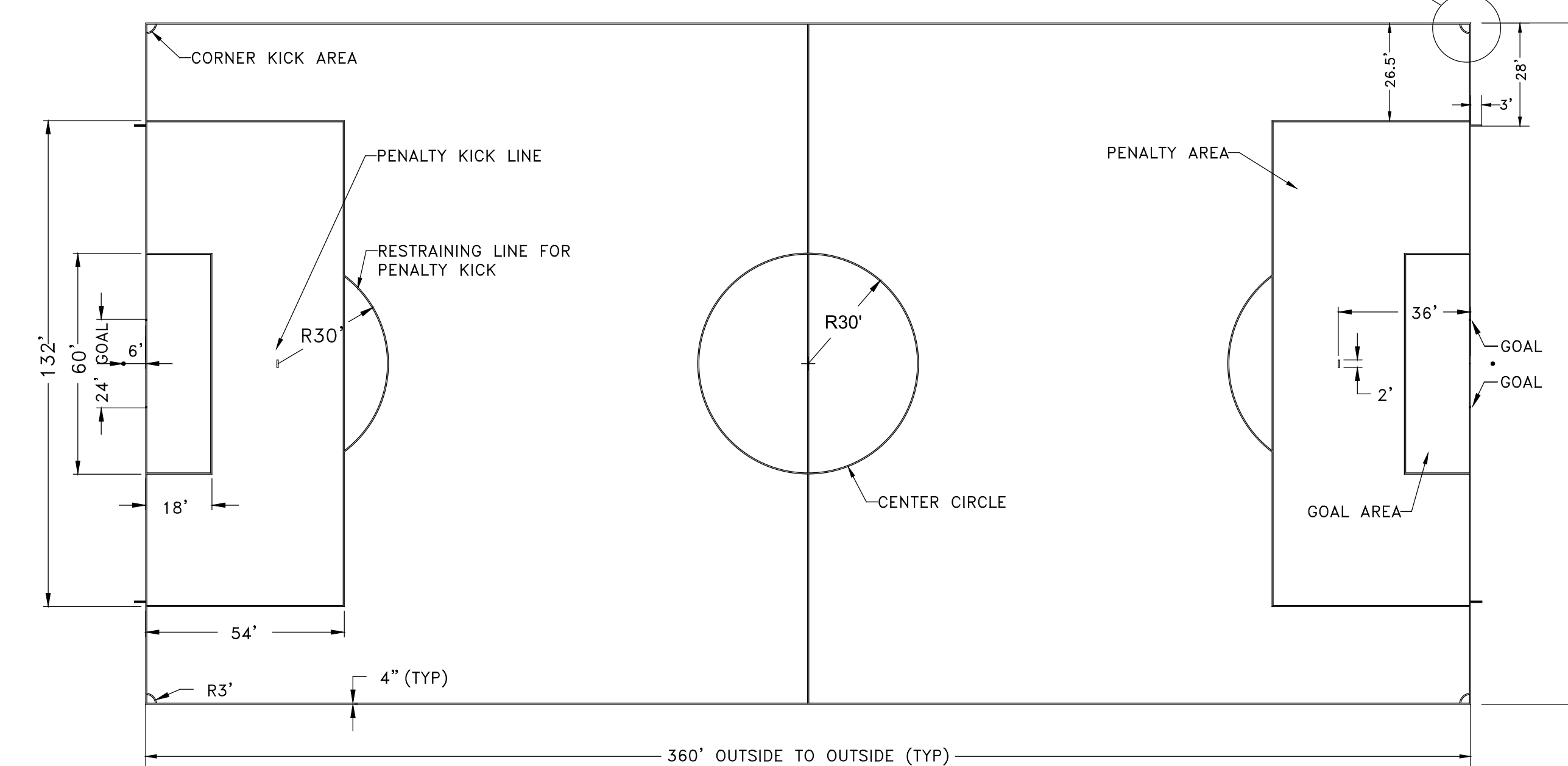
- 1 CONTRACTOR SHALL VERIFY ALL DIMENSIONS.
- 2 ALL LINE WORK IS TO BE LAID OUT WITH A TOLERANCE OF 1/4 INCH.
- 3 THE FOOTBALL FIELD WILL BE 4 INCH WHITE INLAID. REFER TO THE FOOTBALL LAYOUT PLAN ON SHEET 4.
- 4 THE SOCCER FIELD WILL BE 4 INCH WIDE, YELLOW INLAID LINES. THE FIELD SIZE WILL BE 360 FEET BY 185 FEET. REFER TO COMPOSITE PLAN AND SOCCER LAYOUT PLAN ON THIS SHEET.
- 5 YARD LINES AND BOUNDARY TO BE INLAID. ALL MARKINGS TO BE INLAID.



**SOCCER CORNER KICK DETAIL**  
SCALE: 1/2" = 1'-0"



**GOAL AREA DETAIL**  
SCALE: 1/16" = 1'-0"



**SOCCER LAYOUT PLAN**  
SCALE: 1" = 30'-0"

**SOCCER DETAILS**  
NTS

**SOCCER LAYOUT NOTES**

- 1 CONTRACTOR SHALL VERIFY ALL DIMENSIONS.
- 2 ALL LINE WORK IS TO BE LAID OUT WITH A TOLERANCE OF 1/4 INCH.
- 3 ALL SOCCER LINES ARE 4 INCH YELLOW INLAID TURF AS DIMENSIONED ON THE SOCCER LAYOUT PLAN.
- 4 THE SOCCER GOAL AREA IS 18 FEET BY 60 FEET. REFER TO PLAN FOR LOCATION.
- 5 THE SOCCER PENALTY AREA IS 54 FEET BY 132 FEET. REFER TO PLAN FOR LOCATION.
- 6 THE PENALTY MARK IS A 2 FOOT LINE, 4 INCHES WIDE, 36 FEET FROM THE GOAL LINE AND CENTERED ON THE GOAL. THE RESTRAINING LINE FOR PENALTY KICKS IS AN ARC 30 FEET FROM THIS MARK OUTSIDE OF THE PENALTY AREA. REFER TO PLAN FOR LOCATION.
- 7 THE HALFWAY LINE FOR THE SOCCER FIELD IS A 4 INCH YELLOW LINE WITH A CIRCLE 30 FEET IN RADIUS IN THE CENTER OF THE FIELD. REFER TO PLAN FOR LOCATION. THE 50 YARDLINE OF THE FOOTBALL FIELD WILL BE WHITE AS SHOWN ON THE FOOTBALL LAYOUT PLAN AND THE SOCCER LINE WILL EXTEND BEYOND THE FOOTBALL SIDELINE.
- 8 THE CORNERS OF THE SOCCER FIELD SHALL HAVE A 3 FOOT RADIUS IN YELLOW DESIGNATING THE CORNER KICK AREA. REFER TO CORNER KICK DETAIL.
- 9 A LINE, 3 FEET LONG BY 4 INCHES WIDE WILL BE LOCATED ALONG EACH ENDLINE, 33 FEET FROM THE SIDELINE. REFER TO PLAN.
- 10 ALL LINES AND OR MARKINGS SHALL BE INLAID.

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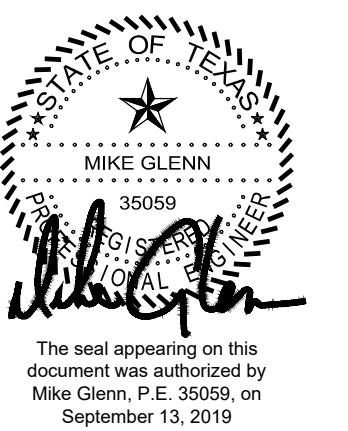
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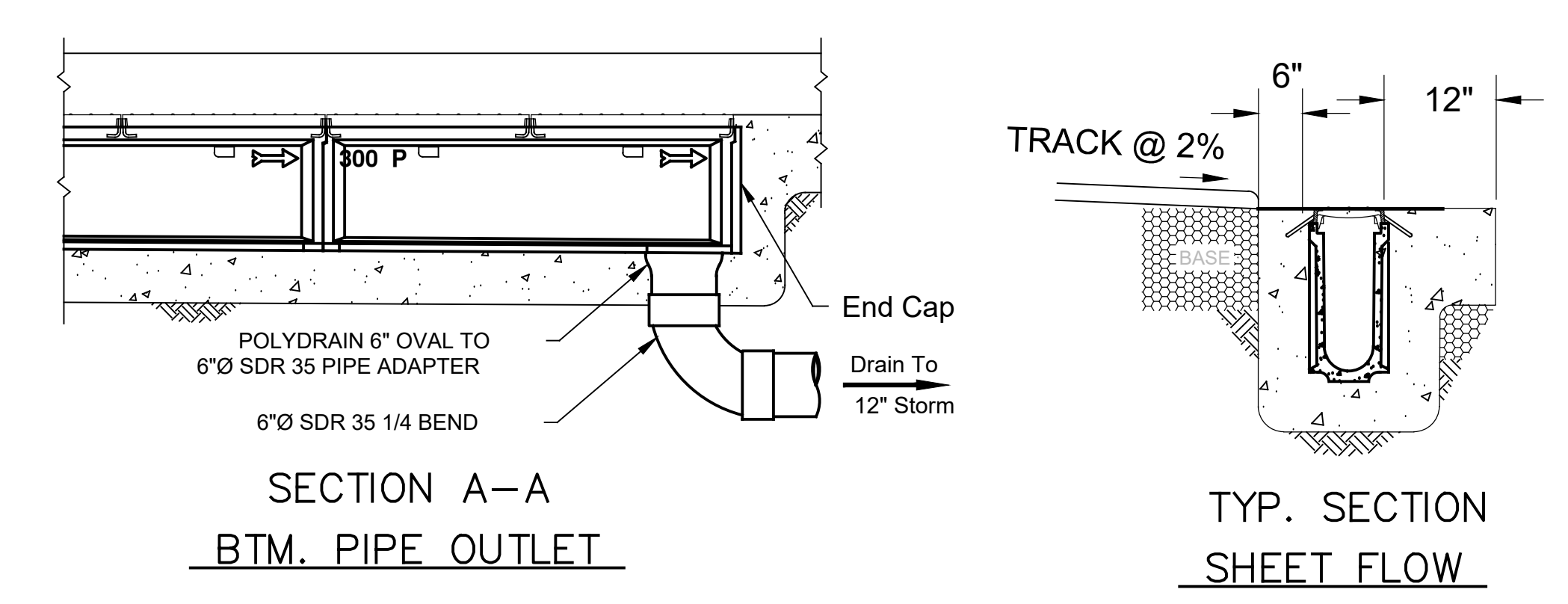
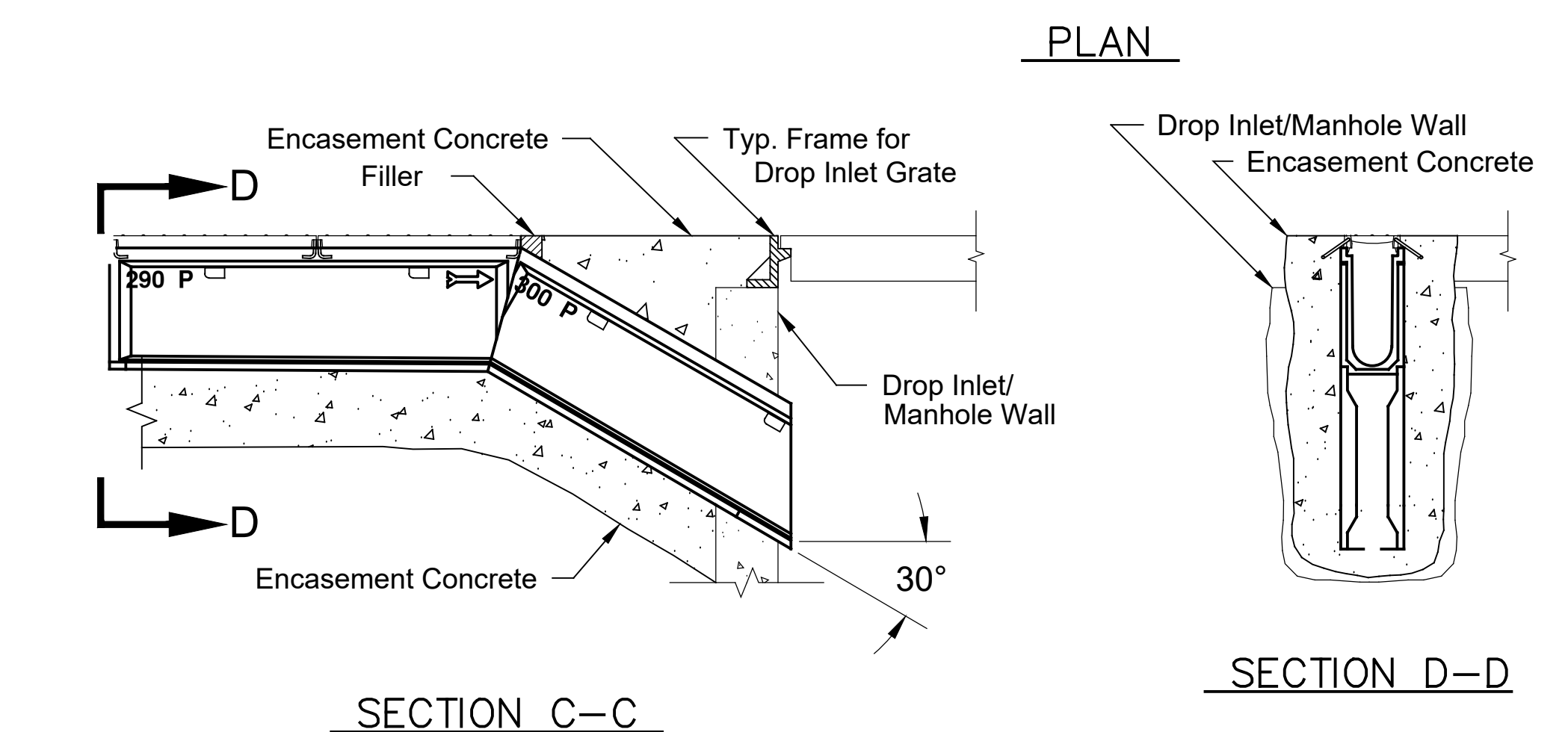
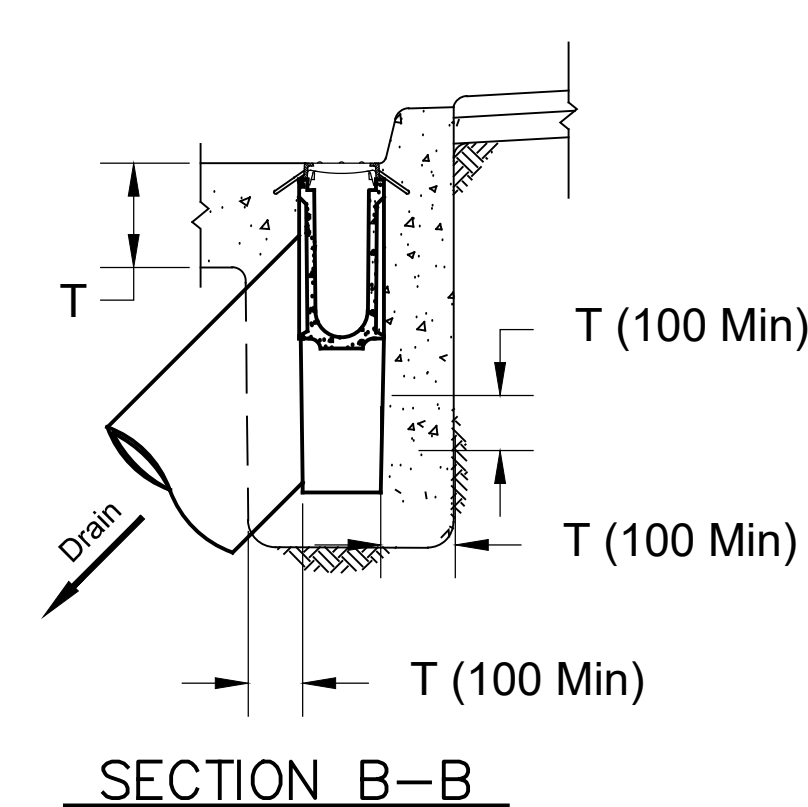
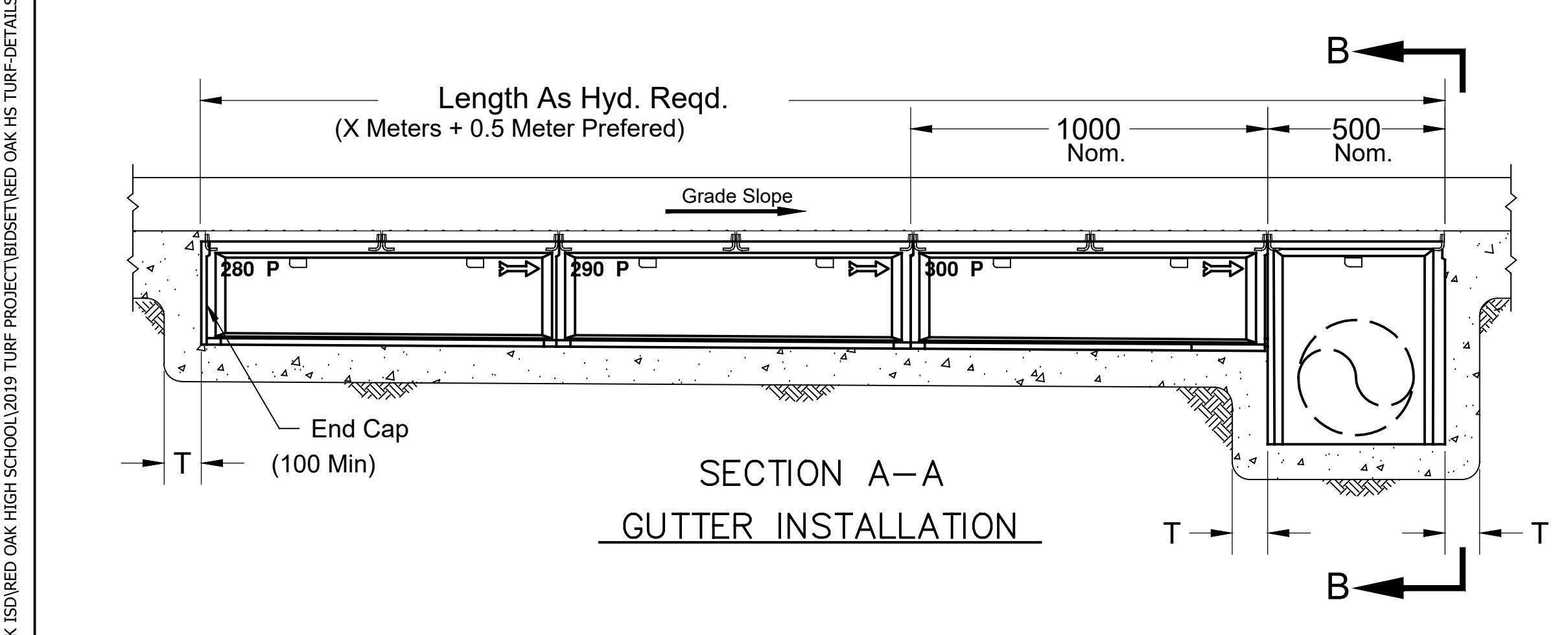
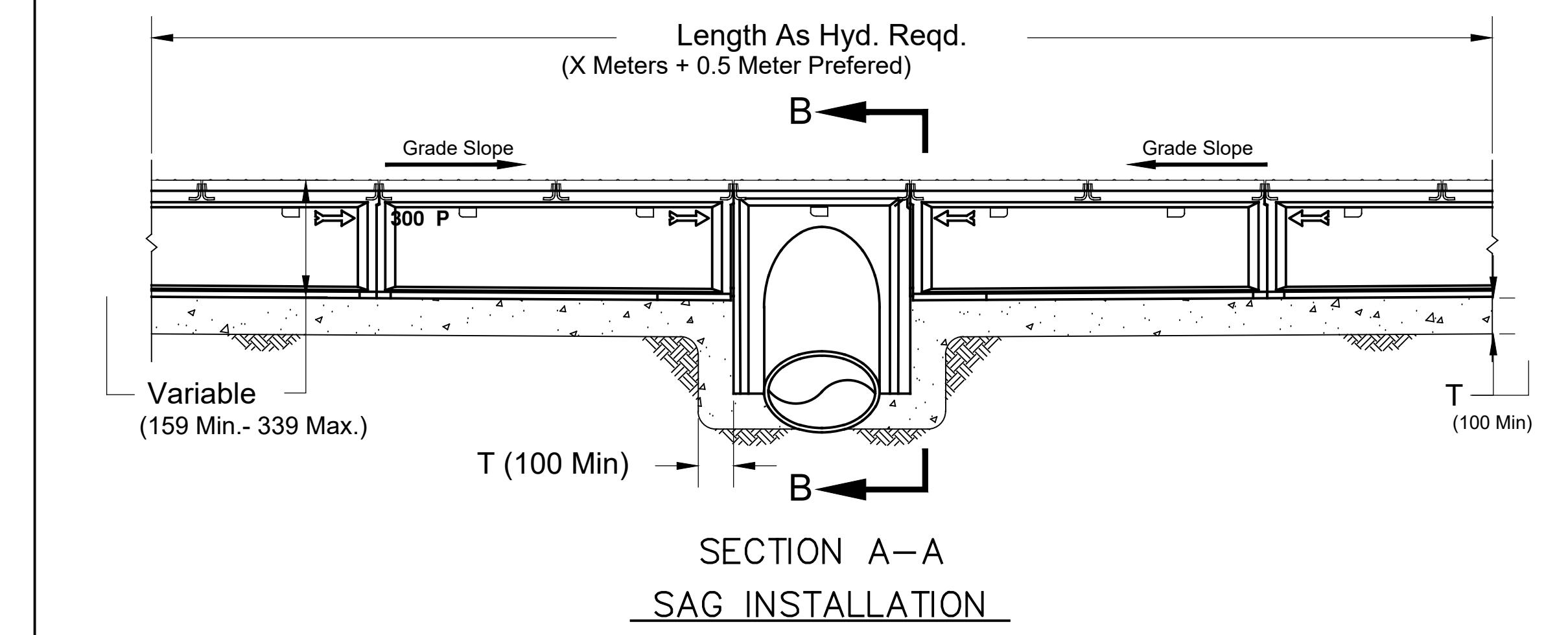
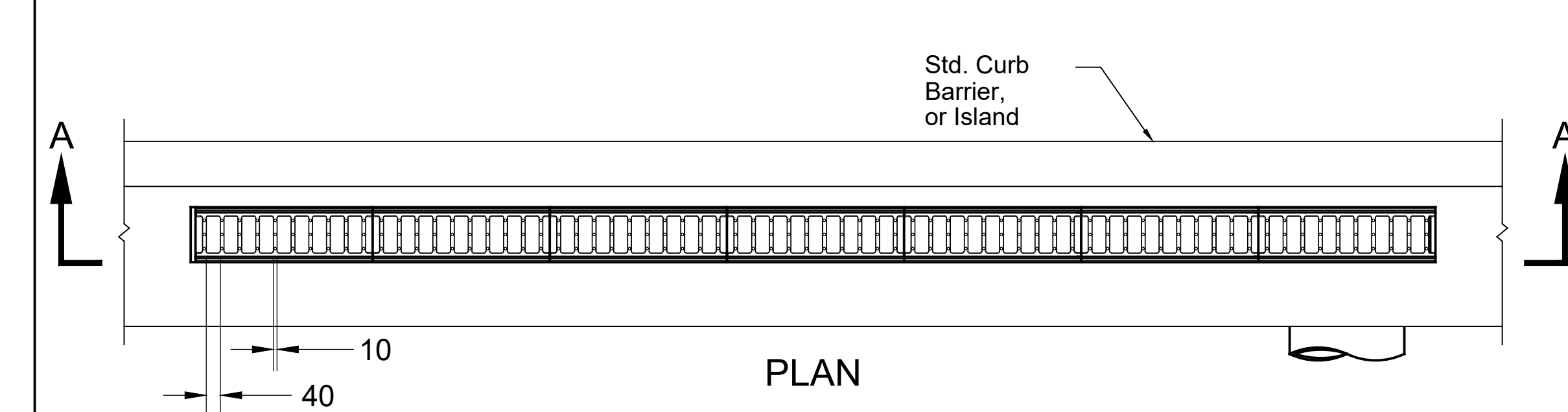
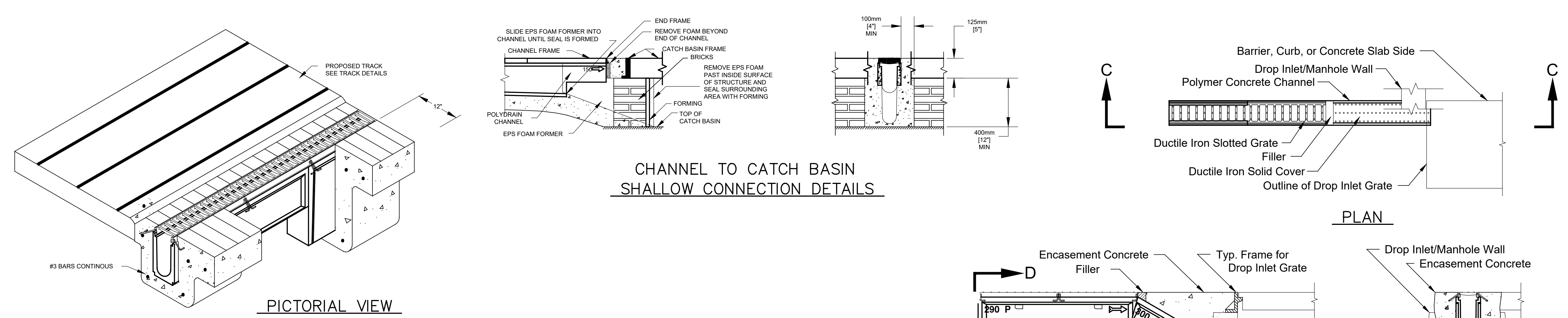
**RED OAK HIGH SCHOOL  
ARTIFICIAL  
TURF PRACTICE FIELDS  
FOR  
RED OAK INDEPENDENT SCHOOL DISTRICT**

**TURF MARKINGS  
SOCCER**

**JOB** 19306.0000  
**DATE** 09/13/2019  
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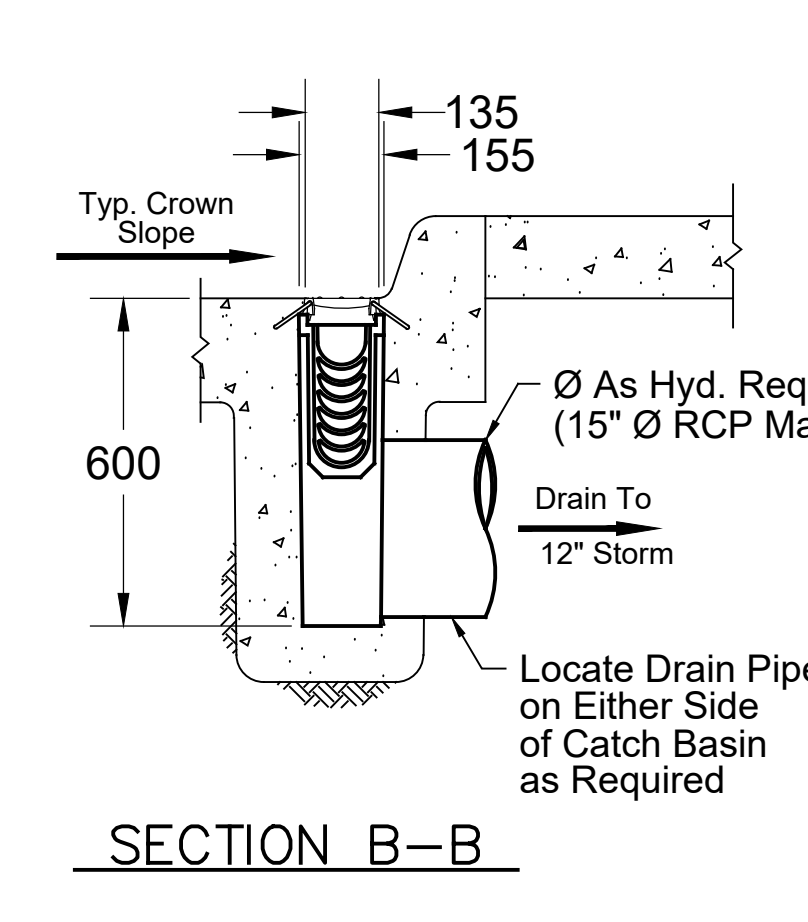
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**NOTE:**  
1. MUST BE A SLOPING TRENCH DRAIN SYSTEM  
2. TRENCH DRAIN SHALL ACCOMADATE TURF

- LINE DRAIN NOTES**
1. Line drain is suitable for applications for controlling spread in gutter flow conditions or to intercept sheet flow. Typical application is at the street curb or barrier.
  2. The frame and grate is suitable for pedestrian and bicycle traffic and rated for H-25 and HS-25 loads.
  3. Concrete thickness, type, and amount of reinforcement to be same as adjacent pavement.
  4. Top of grate to be installed flush to 3 mm below finished grade. Bevel concrete to top of grate if below flush.



**TRENCH DETAILS**  
SCALE: 1"=20"



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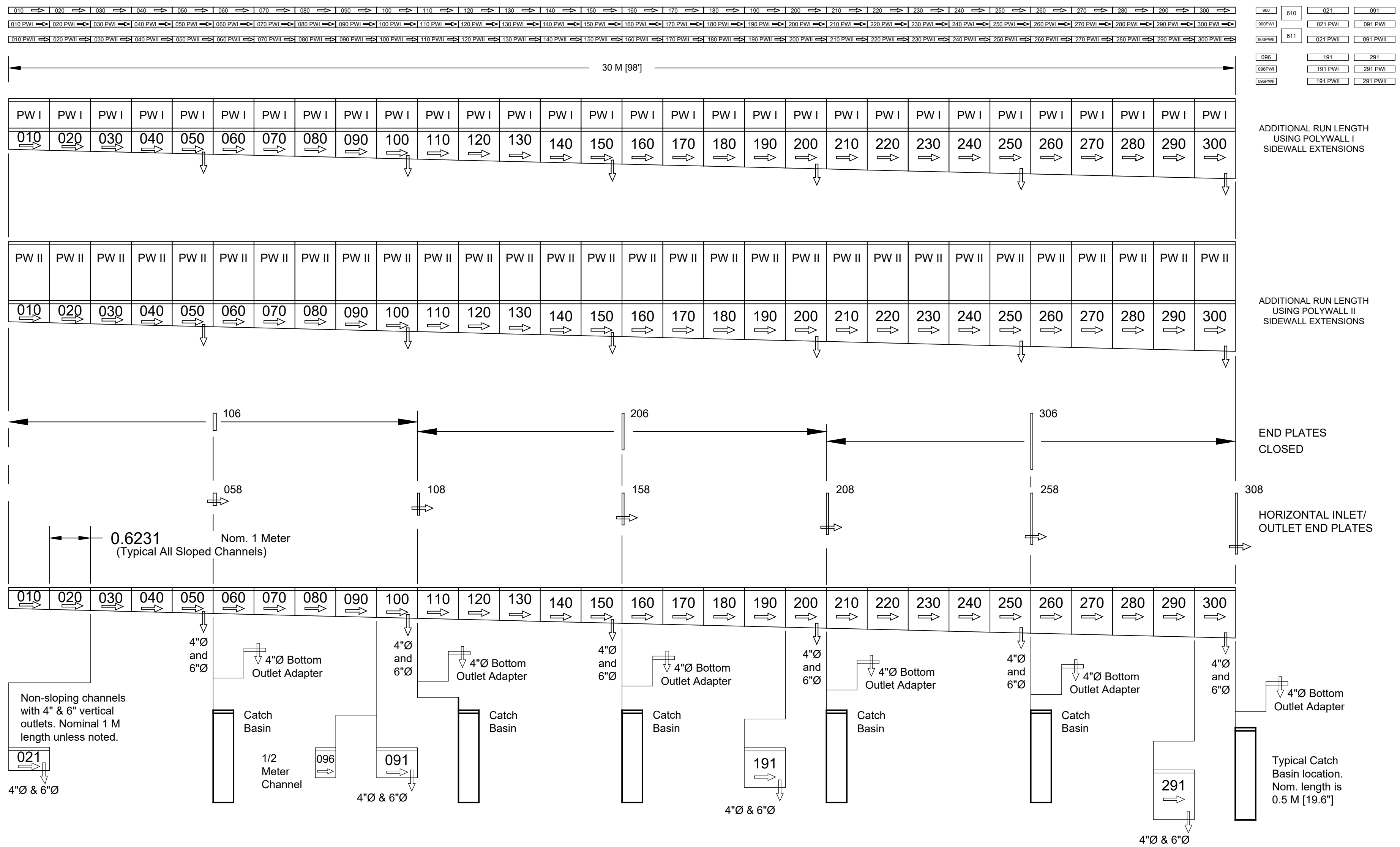
**TRENCH DRAIN  
DETAILS**

**JOB** 19306.0000  
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**C07.08**

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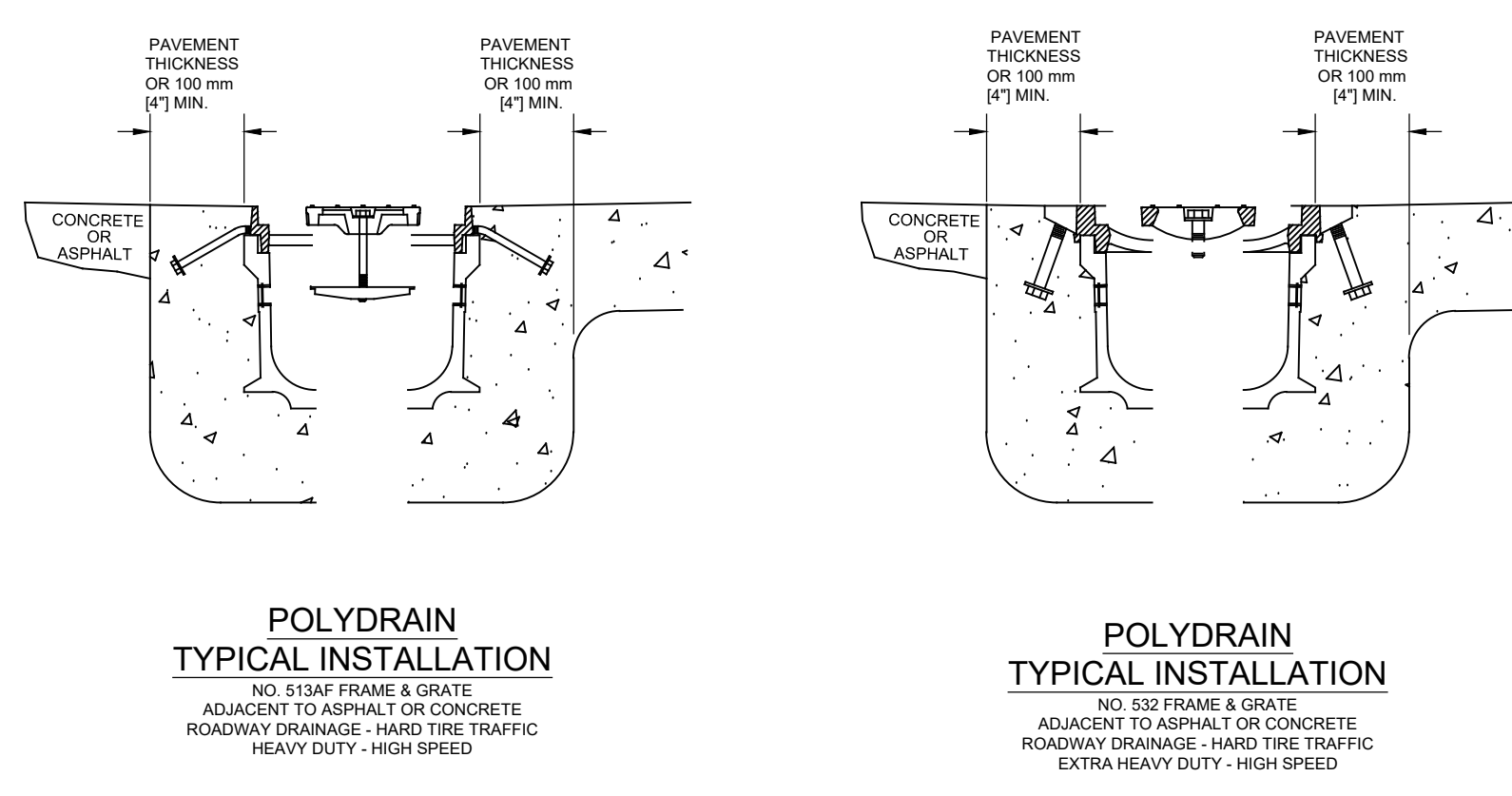


- PLAN VIEW END PLATES
- PLAN VIEW NO. 900 CATCH BASIN
- PLAN VIEW NO. 6XX CATCH BASIN
- PLAN VIEW SLOPED CHANNEL
- PLAN VIEW NON-SLOPED CHANNEL
- PLAN VIEW NO. 096 NON-SLOPED CHANNEL

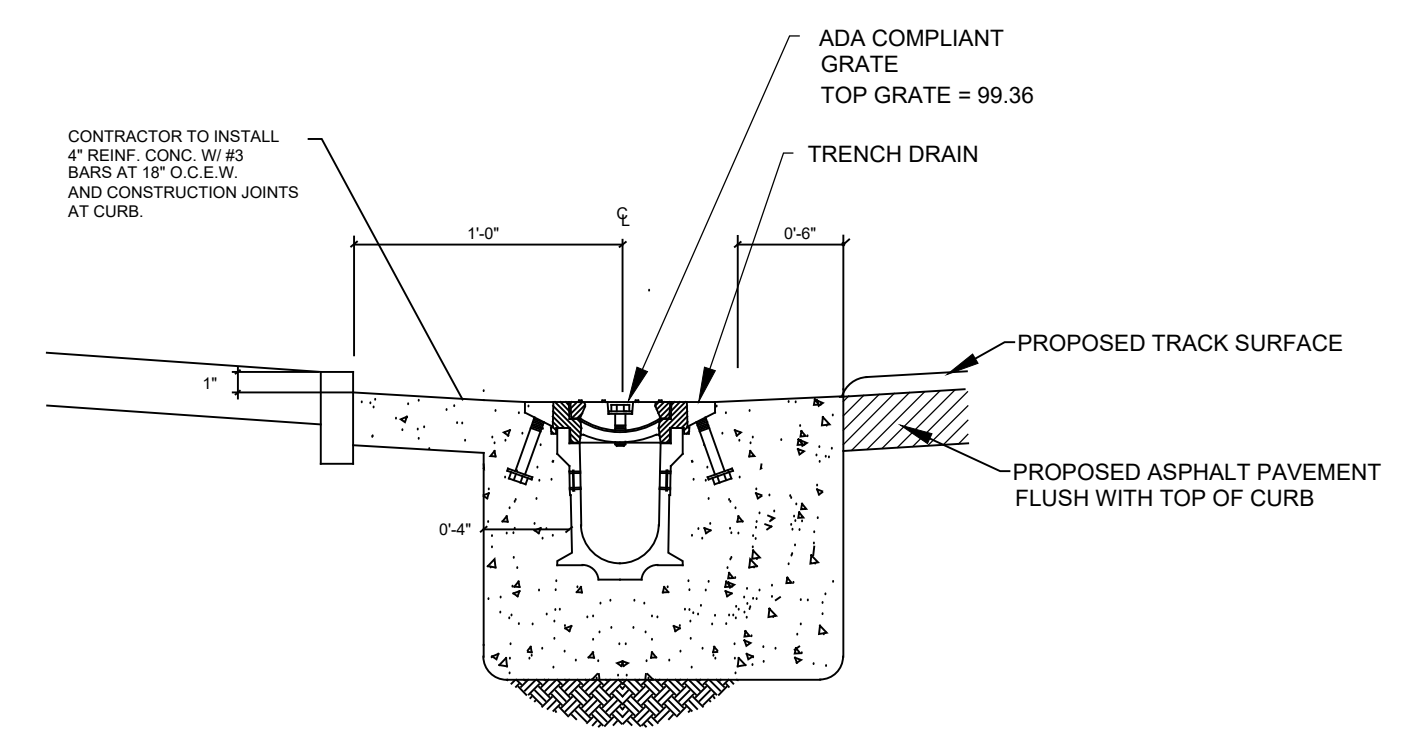
NOTE:  
G.C. TO CONNECT BOTH 4" AND 6" OUTLETS TO 12" STORM SEWER

- NOTES:
- DRAWING UNITS = mm
  - VERTICAL SCALE = 4 X HORIZONTAL SCALE.
  - ADD POLYWALLS TO TOP OF CHANNELS AS NEEDED.

PD-SYS  
11/15/95



CROSS SECTIONS



POLYDRAIN SYSTEM OR EQUIVALENT (OPTION NO. 1)  
TYPICAL INSTALLATION  
BUTTED AGAINST CONCRETE  
CROSS SECTION

TRENCH DETAILS  
SCALE: 1"=20"

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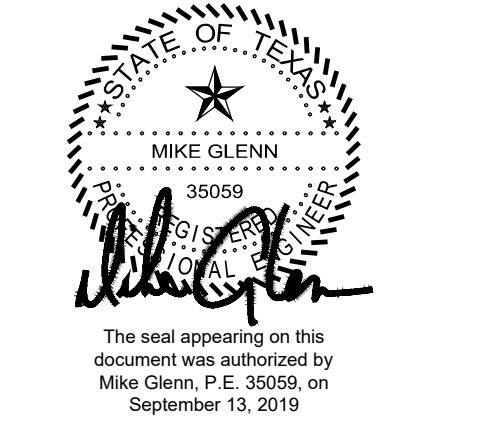
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**RED OAK HIGH SCHOOL**  
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**RED OAK INDEPENDENT SCHOOL DISTRICT**

TRENCH DRAIN  
DETAILS

JOB 19306.0000  
DATE 09/13/2019  
SHEET  
**C07.09**





**ELECTRICAL SITE GENERAL NOTES**

- (SOME NOTES MAY NOT BE USED)
- CONTRACTORS AND SUBCONTRACTORS SHALL VERIFY LOCATION, CONDUCT TEST AND INSPECTIONS, COORDINATE WITH UTILITIES, OWNER'S REPRESENTATIVES, AND CHECK FOR ALL UNDERGROUND UTILITIES AND LINES BEFORE DITCHING TAKES PLACE. CONTRACTOR AND SUBCONTRACTORS PERFORMING THESE DUTIES SHALL BE RESPONSIBLE FOR ANY REPAIRS OF CUT OR DAMAGED LINES AND UTILITIES NOT SHOWN ON PLANS.
  - PROVIDE SEPARATE CONTACTORS FOR INDEPENDENT CONTROL OF EXTERIOR LIGHTING GROUPS PER LIGHTING CONTROL DETAIL.

**ELECTRICAL SITE PLAN NOTES**

- (SOME NOTES MAY NOT BE USED)
- (C1) APPROXIMATE LOCATION OF EXISTING UNDERGROUND UTILITY POWER.
  - (C2) BORE UNDER OR SAW-CUT. PATCH TO MATCH EXISTING.
  - (C3) PROVIDE POWER OUT TO IN GROUND BOX FROM NEW PANEL "PFL". PROVIDE A WIREMOLD #XB814C520BK OUTDOOR IN GROUND BOX WITH 2 DUPLEX RECEPTACLES AT EACH LOCATION SHOWN. WRAP CONDUIT AROUND THE PRACTICE FIELDS AS SHOWN. PROVIDE PULLBOX AS NEEDED TO MAKE TURNS. SEE SHEET EP08-01 FOR MORE INFORMATION.
  - (C4) PROVIDE AND RUN A SINGLE UNDERGROUND 2" CONDUITS FROM PULL BOX NEAR BUILDING TO PULL BOX NEAR PRACTICE FIELDS FOR POWER TO PRACTICE FIELDS. COORDINATE EXACT LOCATION OF PANEL WITH ARCHITECT BEFORE WORK IS PERFORMED. CAP AND MARK CONDUITS. PROVIDE PULL STRING. BORE UNDER OR SAW-CUT AS NEEDED. PATCH TO MATCH EXISTING.
  - (C5) NEW PANELS TO BE PLACED ON PAD AREA, FACING THE STREET. COORDINATE EXACT LOCATION OF PANELS WITH ARCHITECT. COORDINATE ALL ELECTRICAL REQUIREMENTS BEFORE WORK IS PERFORMED.
  - (C6) POWER FOR MUSCO CONTROL CABINET. COORDINATE EXACT LOCATION WITH MUSCO.

**ISSUES**

1	09.13.2019	ISSUE FOR CONSTRUCTION
2		
3		
4		
5		
6		
7		
8		
9		
10		

**REVISIONS**




Date of issue:  
09/13/2019

**ROHS Practice Field  
Renovations  
FOR  
Red Oak Independent School District  
220 TX-342, Red Oak, TX 75154**

**ELECTRICAL SITE PLAN**

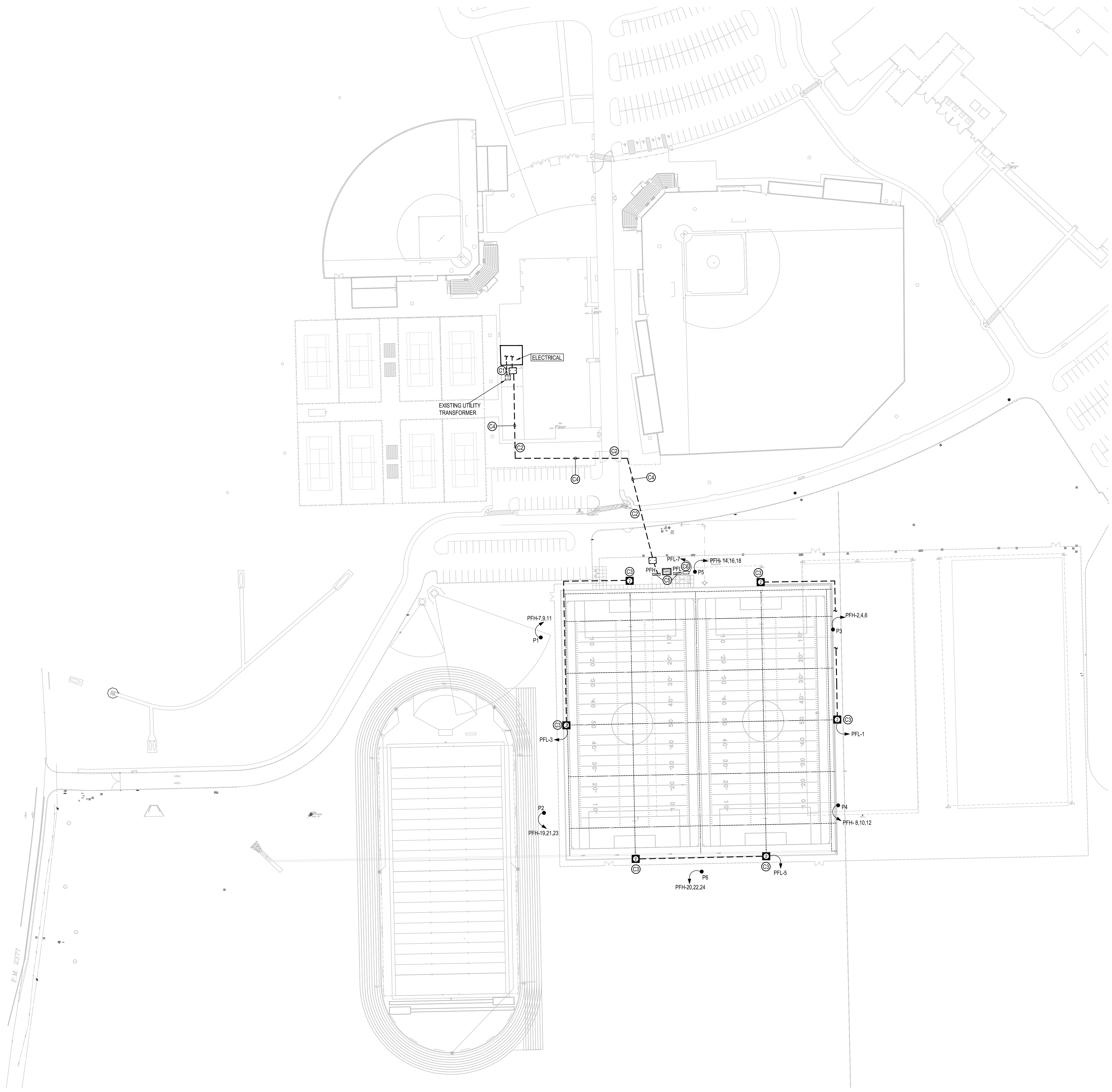
**EMA** Engineering & Consulting  
Tyler | Austin | Houston | DFW | El Paso  
TBPE Firm Registration No. F-893  
www.EMAengineer.com  
**DESIGN SOLVE ENHANCE** Phone: 1.800.933.0538

**JOB** 19306.0000  
**DATE** 09.13.2019

SUBMISSION OF BID WILL BE CONSIDERED ACKNOWLEDGMENT THAT THE CONTRACTOR HAS VISITED THE SITE AND HAS VERIFIED ALL EXISTING JOB CONDITIONS AND INCLUDED ANY NECESSARY MODIFICATION TO EXISTING AND NEW WORK REQUIRED FOR INSTALLATION OF A COMPLETE AND WORKING SYSTEM.

**SHEET**  
**ES01-01**

1 ELECTRICAL SITE PLAN  
1"=60'-0"



**ISSUES**

1	09.13.2019	ISSUE FOR CONSTRUCTION
2		
3		
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9		
10		

**REVISIONS**



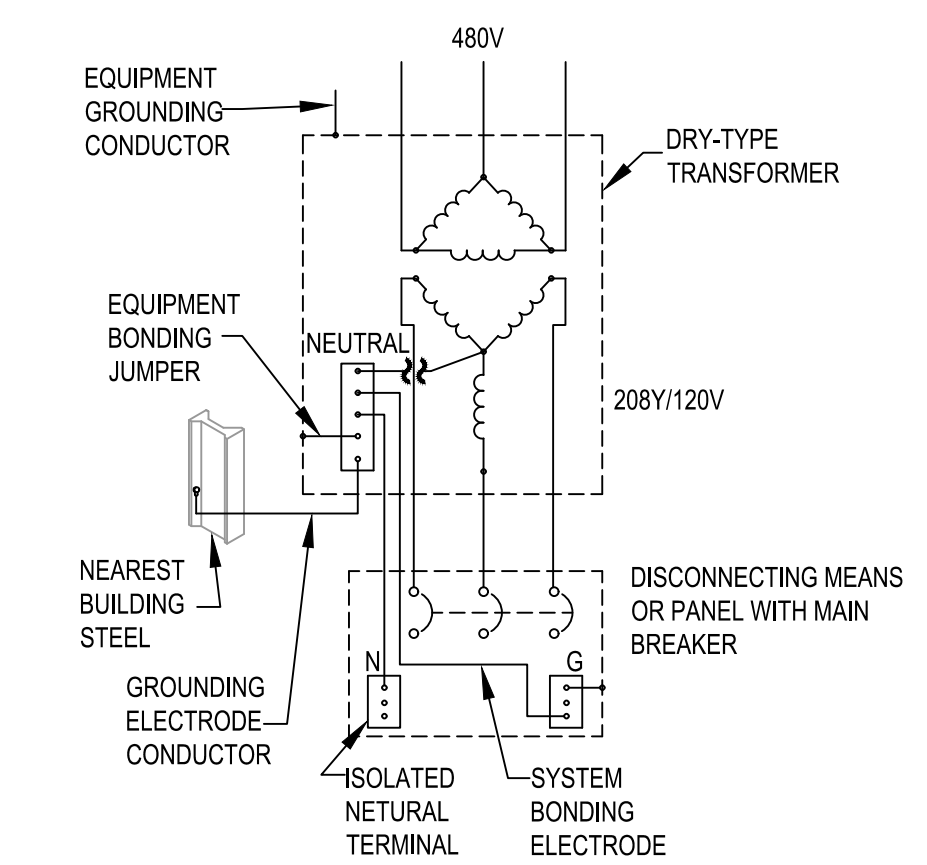

Date of issue:  
09/13/2019

**ROHS Practice Field  
Renovations  
FOR  
Red Oak Independent School District  
220 TX-342, Red Oak, TX 75154**

**ELECTRICAL GENERAL NOTES**

(SOME NOTES MAY NOT BE USED)

- BRANCH CIRCUIT - PROVIDE A SEPARATE NEUTRAL CONDUCTOR FOR EACH CIRCUIT. MULTIPLE CIRCUITS SHALL NOT SHARE A COMMON NEUTRAL. NEUTRAL CONDUCTORS SHALL BE SIZED AS LARGE AS THE PHASE CONDUCTORS. NEUTRAL CONDUCTORS SHALL NOT BE OF A REDUCED SIZE.
- CONDUIT - ALL CONDUIT AND/OR CABLING SHALL BE INSTALLED BETWEEN THE BOTTOM AND TOP CHORD OF JOIST. WHERE NO CEILINGS ARE SCHEDULED, ALL CONDUIT SHALL BE UP AGAINST BOTTOM OF THE TOP CHORD.
- CONDUIT - ROUTE CONDUIT IN EXPOSED AREAS PERPENDICULAR OR PARALLEL TO WALLS. ROUTE CONDUIT AS HIGH AS POSSIBLE AND ROUTE CONDUIT RUNS ADJACENT TO EACH OTHER. CONDUITS SHALL BE ORDERLY AND NEAT.
- DEVICES - VERIFY ALL INSTALLATION HEIGHTS OF RECEPTABLES WITH ARCHITECTURAL CASEWORK DETAILS BEFORE ROUGH-IN.
- EQUIPMENT - DURING THE SUBMITTAL PHASE, THIS CONTRACTOR SHALL SUBMIT LAYOUT OF ALL PANELS, SWITCHGEAR, TRANSFORMERS, CONTACTORS, ETC. IN EACH EQUIPMENT ROOM WHERE THIS EQUIPMENT IS LOCATED. ALL LAYOUTS MUST BE DRAWN TO SCALE AND DIMENSIONED.
- UTILITY - THE CONTRACTOR AND SUBCONTRACTORS SHALL COORDINATE WITH ALL UTILITY COMPANIES AND THE OWNER'S REPRESENTATIVE TO DETERMINE THE LOCATION OF ALL EXISTING LINES AND UTILITIES BEFORE DITCHING IS PERFORMED. THE CONTRACTOR AND SUBCONTRACTORS SHALL BE RESPONSIBLE FOR REPAIR OF ANY CUT OR DAMAGED LINES OR UTILITIES THAT ARE NOT SHOWN ON ANY PLANS.
- DEVICES - EXACT LOCATION OF ALL OUTLETS, DEVICES, & ETC. INSTALLED IN MOVEABLE FURNITURE SHALL BE COORDINATED WITH ARCHITECT AND OWNER.



8 TRANSFORMER GROUND  
N.T.S.

**ELECTRICAL SITE GENERAL NOTES**

(SOME NOTES MAY NOT BE USED)

- CONTRACTORS AND SUBCONTRACTORS SHALL VERIFY LOCATION, CONDUCT TEST AND INSPECTIONS, COORDINATE WITH UTILITIES, OWNERS REPRESENTATIVES, AND CHECK FOR ALL UNDERGROUND UTILITIES AND LINES BEFORE DITCHING TAKES PLACE. CONTRACTOR AND SUBCONTRACTORS PERFORMING THESE DUTIES SHALL BE RESPONSIBLE FOR ANY REPAIRS OF CUT OR DAMAGED LINES AND UTILITIES NOT SHOWN ON PLANS.
- PROVIDE SEPARATE CONTACTORS FOR INDEPENDENT CONTROL OF EXTERIOR LIGHTING GROUPS PER LIGHTING CONTROL DETAIL.

**ELECTRICAL POWER SYMBOLS**

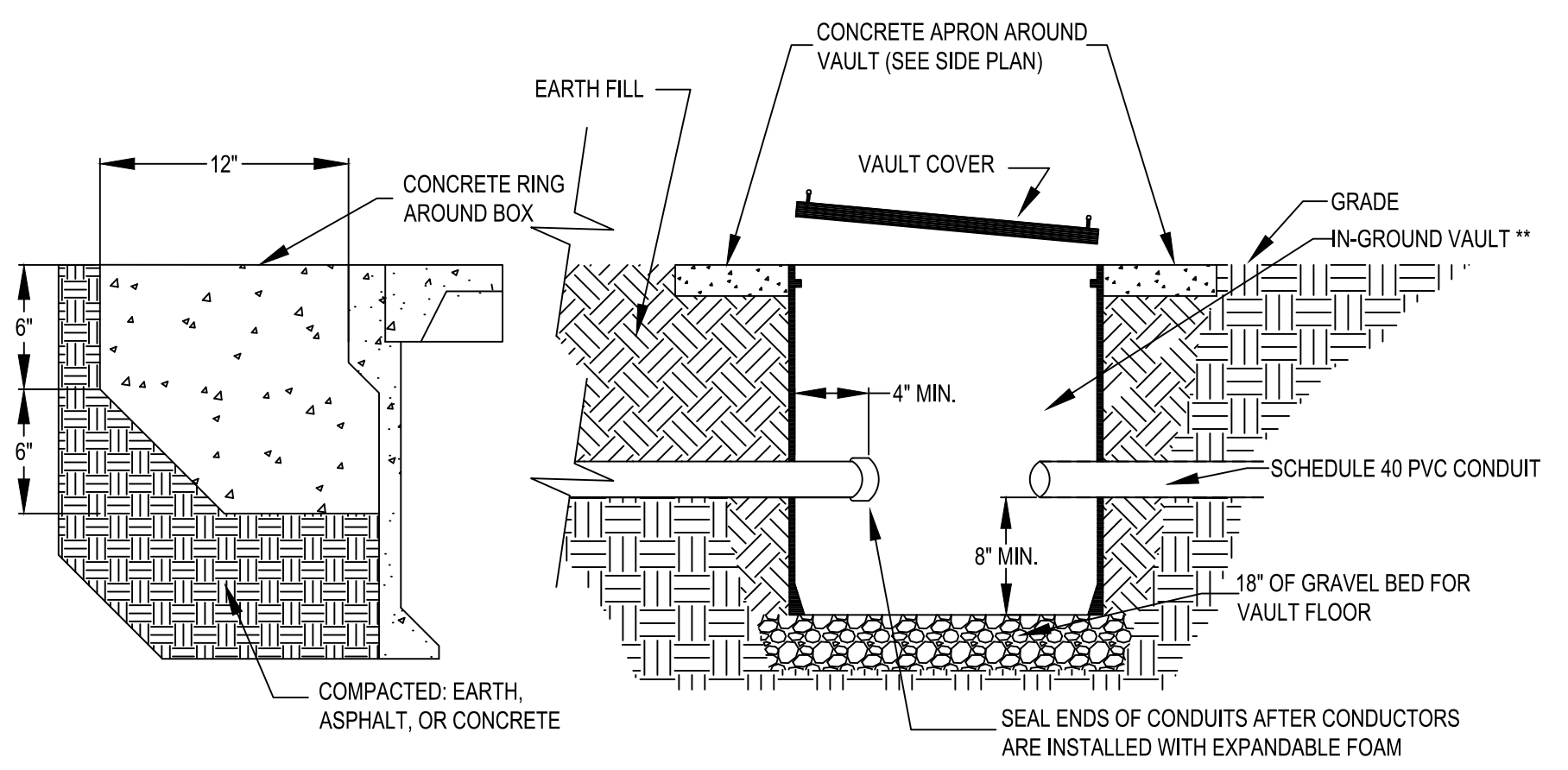
	DUPLEX RECEPTACLE - 18" A.F.F. OR AS NOTED
	MULTI-POLE RECEPTACLE - 18" A.F.F. OR AS NOTED
	MULTI-POLE RECEPTACLE - 208V 1Ø 3ØA ISOLATED GROUND HUBBELL TWIST-LOCK #22620 RECEPTACLE OR EQUAL - 18" A.F.F. OR AS NOTED
	EXISTING RECEPTACLE
	DUPLEX RECEPTACLE WITH ISOLATED GROUND RECEPTACLE - 18" A.F.F. OR AS NOTED
	QUAD RECEPTACLE - 18" A.F.F. OR AS NOTED
	QUAD RECEPTACLE WITH ISOLATED GROUND - 18" A.F.F. OR AS NOTED
	GFCI DUPLEX RECEPTACLE - 1" ABOVE MILLWORK BACKSPASH F SHOWN ON MILLWORK OR 18" A.F.F. - VERIFY MILLWORK LOCATION WITH ARCHITECT.
	DUPLEX FLOOR RECEPTACLE WITH BRASS COVER PLATE - 3/4" C. TO ACCESSIBLE ATTIC SPACE OR AS NOTED
	WIRE MOLD POLE THROUGH EVOLUTION 8" OR EQUIVALENT 1" O.D.M. AS NOTED & 3/16" P. 1/8" GRN. OUTLETS. REFER TO SPECS FOR CONDUIT SIZE AND QUANTITY.
	WIRE MOLD POLE THROUGH EVOLUTION 8" OR EQUIVALENT 1" O.D.M. AS NOTED & 3/16" P. 1/8" GRN. OUTLETS. REFER TO SPECS FOR CONDUIT SIZE AND QUANTITY.
	OUTDOOR IN GROUND BOX WITH 2 DUPLEX RECEPTABLES WIRE MOLD #1884C200K. REFER TO SHEET ESD-01 & ESD-04 FOR CONDUIT SIZE AND QUANTITY.
	PROVIDE RFB4 OR EQUIVALENT WICOMM. AS NOTED & 2 ISO. GRN. OUTLETS. REFER TO SPECS FOR CONDUIT SIZE AND QUANTITY.
	PROVIDE RFB6 OR EQUIVALENT WICOMM. AS NOTED & 3 ISO. GRN. OUTLETS. REFER TO SPECS FOR CONDUIT SIZE AND QUANTITY.
	PROVIDE RFB8 OR EQUIVALENT WICOMM. AS NOTED & 6 ISO. GRN. OUTLETS. REFER TO SPECS FOR CONDUIT SIZE AND QUANTITY.
	PROVIDE RFB12 OR EQUIVALENT WICOMM. AS NOTED & 12 ISO. GRN. OUTLETS. REFER TO SPECS FOR CONDUIT SIZE AND QUANTITY.
	4-GANG BACK BOX WITH DIVIDERS FOR POWER AND COMMUNICATIONS INCLUDE DEVICES AND COVERS-WIRE MOLD WSA SERIES
	8-GANG BACK BOX WITH DIVIDERS FOR POWER AND COMMUNICATIONS INCLUDE DEVICES AND COVERS-WIRE MOLD WSA SERIES
	POWER/COMMUNICATION POLE - FURNISH REQUIRED LENGTH TO PENETRATE CEILING
	SURFACE MOUNTED RACEWAY
	MECHANICALLY HELD CONTACTOR - ABOVE CEILING
	WATER SOLENOID ACTUATOR - ABOVE CEILING - VERIFY & COORDINATE WITH PLUMBING DRAWINGS
	GAS SOLENOID ACTUATOR - ON ROOF - VERIFY & COORDINATE WITH PLUMBING DRAWINGS
	PUSH BUTTON EMERGENCY SHUT-OFF - REFER TO SPECIFICATIONS FOR MORE INFORMATION
	THERMOSTAT, CO2 SENSOR, HUMIDITY SENSOR - SEE SENSOR MOUNTING DETAIL FOR MOUNTING HEIGHT AND ADDITIONAL REQUIREMENTS
	JUNCTION BOX - 18" A.F.F. - 3/4" C. TO CORRIDOR ATTIC SPACE OR AS NOTED
	PLUMBING SENSORS POWER - CONNECT TO MECHANICAL PLUMBING TRANSFORMER(S)
	AUDIO VISUAL POWER OUTLET - CEILING OR WALL MOUNTED. SEE COMMUNICATIONS DETAILS
	CLOCK RECEPTACLE - 1'-0" BELOW CEILING OR 6'-0" A.F.F.
	PUMP MOTOR - PROVIDED BY MECHANICAL OR AS NOTED WITH MOTOR SWITCH WITH OVERLOAD S.D. CLASS 2510 IN NEMA ENCLOSURE (TYPE K) OR AS NOTED
	SUPPLY FAN - PROVIDED BY MECHANICAL OR AS NOTED WITH MOTOR SWITCH WITH OVERLOAD S.D. CLASS 2510 IN NEMA ENCLOSURE (TYPE K) OR AS NOTED
	EXHAUST FAN - PROVIDED BY MECHANICAL OR AS NOTED WITH MOTOR SWITCH WITH OVERLOAD S.D. CLASS 2510 IN NEMA ENCLOSURE (TYPE K) OR AS NOTED
	MOTOR WITH MOTOR SWITCH WITH OVERLOAD S.D. CLASS 2510 IN NEMA ENCLOSURE (TYPE K) OR AS NOTED-FINAL CONNECTION BY ELECTRICAL
	SAFETY SWITCH - MOUNT 30" ABOVE FINISH GRADE MAX. OR AS DIRECTED
	SURFACE MOUNT EQUIPMENT PANEL, RACK, CABINET, AMPLIFIER, ETC. AS NOTED.
	FLUSH MOUNT EQUIPMENT PANEL, RACK, CABINET, AMPLIFIER, ETC. AS NOTED.
	WATER HEATER - REFER TO PLUMBING FOR MORE INFORMATION
	WEATHERHEAD
	IN-GRADE PULL BOX HAND HOLE - PROVIDE AS REQUIRED
	FIRE SAFETY CONTROL DEVICE - FIRE ALARM TO SMOKE/FIRE BARRIER DOOR ELECTROMAGNETIC HOLDER/RELEASE INTERFACE
	FIRE SAFETY CONTROL DEVICES - CONTROL RELAY AND DUCT MOUNTED SMOKE DETECTOR WITH CONTROL RELAY
	FIRE SAFETY CONTROL DEVICE - MOTORIZED SMOKE/FIRE DAMPER - POWER CONNECTION BY DIVISION 16
	BUZZER - EDWARDS #156G-6G1 80" A.F.F.
	PUSH BUTTON - EDWARDS #695-W 44" A.F.F.
	SIGNAL TRANSFORMER - EDWARDS #581 IN J-BOX ABOVE CEILING
	PANELBOARD OR SWITCHBOARD - REFER TO SCHEDULE & RISER
	POWER TRANSFORMER - DESCRIBED IN SCHEDULE, RISER AND/OR SPECIFICATIONS
	GROUND
	HOME RUN WITH CIRCUIT DESIGNATION(S) - LETTER DENOTES PANEL
	SWITCH CIRCUIT
	BRANCH CIRCUIT
	UNDERGROUND POWER CIRCUIT

- NOTES:  
1. SOME SYMBOLS MAY NOT BE USED.  
2. ACCESSIBLE DEVICES HIGHEST OPERABLE PART TO BE 46" MAXIMUM/18" MINIMUM A.F.F. - REFER TO ARCHITECTURAL DRAWINGS.  
3. DIMENSIONS GIVEN A.F.F. ARE TO BOTTOM OF BOX.

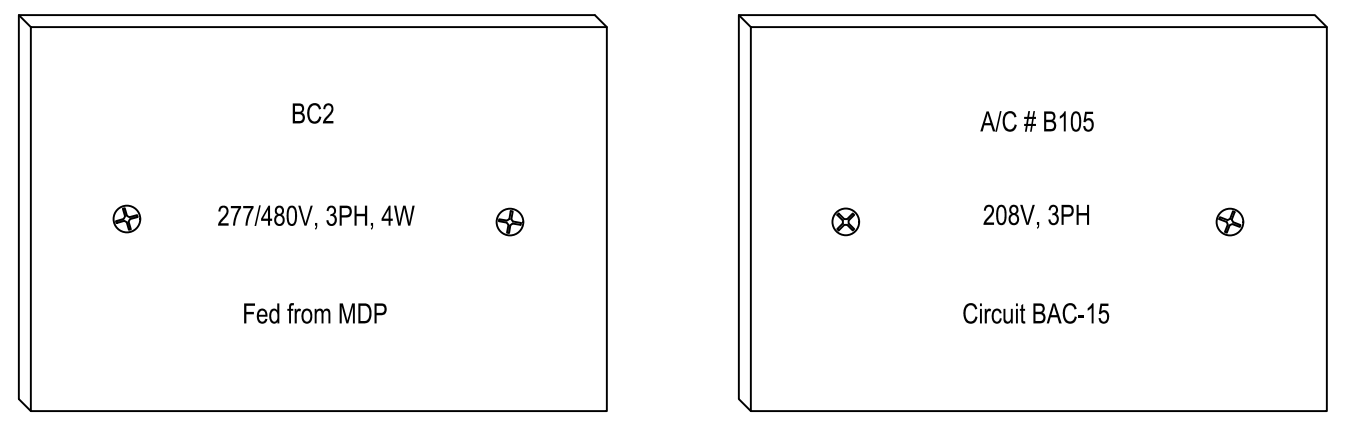
**ELECTRICAL EXISTING POWER SYMBOLS**

	JUNCTION BOX - 18" A.F.F. - 3/4" C. TO CORRIDOR ATTIC SPACE OR AS NOTED
	SAFETY SWITCH - MOUNT 30" ABOVE FINISH GRADE MAX. OR AS DIRECTED
	PANELBOARD OR SWITCHBOARD - REFER TO SCHEDULE & RISER
	POWER TRANSFORMER - DESCRIBED IN SCHEDULE, RISER AND/OR SPECIFICATIONS

- NOTES:  
1. SOME SYMBOLS MAY NOT BE USED.  
2. DIMENSIONS GIVEN A.F.F. ARE TO BOTTOM OF BOX.

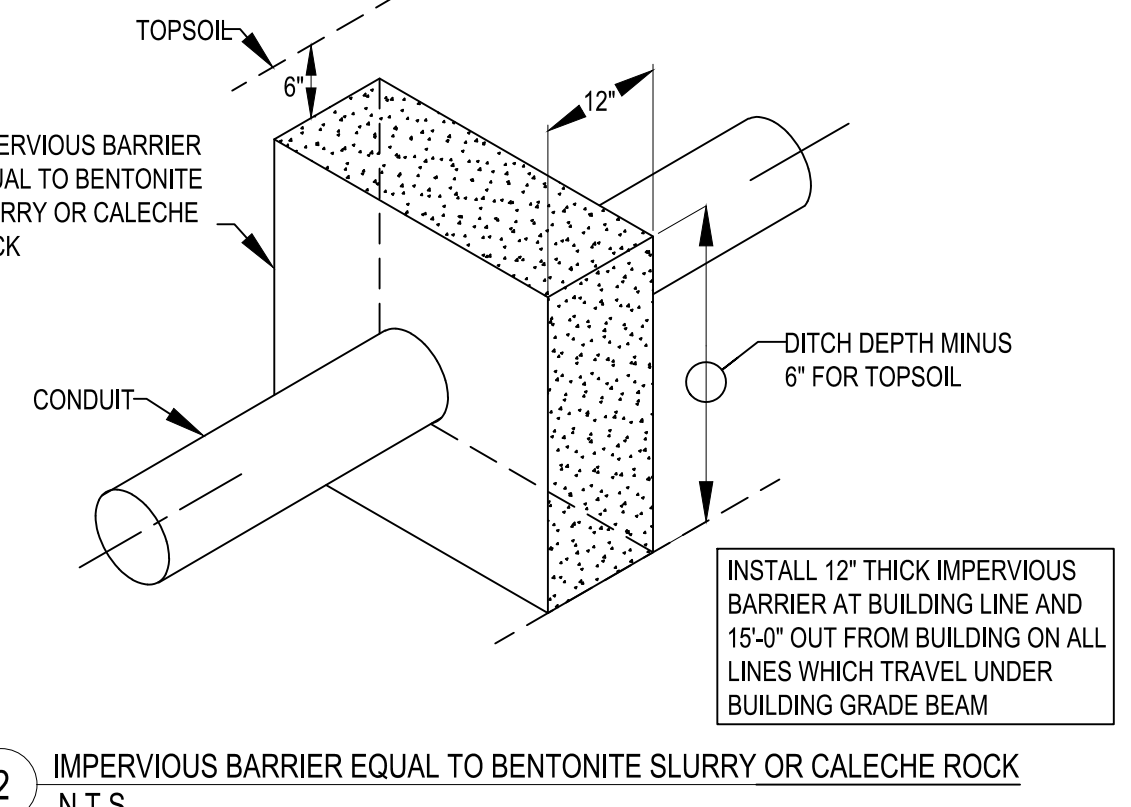


1 PULL BOX DETAIL  
N.T.S.

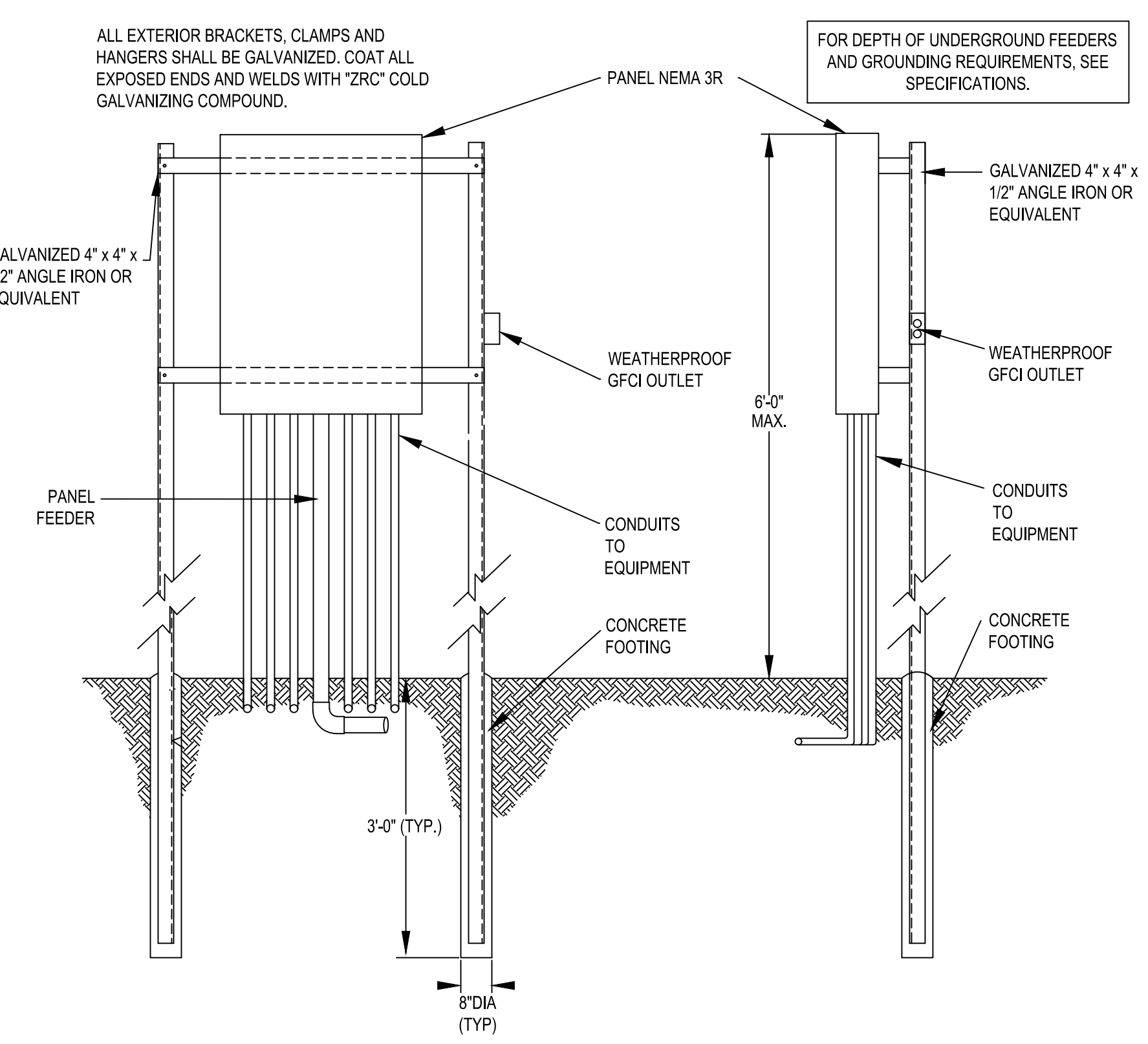


- PANELBOARD LABEL (TYPICAL) HVAC DISCONNECT SWITCH LABEL (TYPICAL)
- NOTES:  
1. ATTACH SECURELY WITH NON-CORRODING STAINLESS STEEL SCREWS, NON-CORRODING POP RIVETS ARE ACCEPTABLE, ADHESIVE ATTACHMENT IS NOT ACCEPTABLE.  
2. LABEL ALL PANELBOARDS, SWITCHBOARDS, TRANSFORMERS, HVAC DISCONNECT SWITCHES, AND MOTOR CONTROL CENTERS AS REQUIRED, REFERENCE SPECIFICATION SECTION 260553.

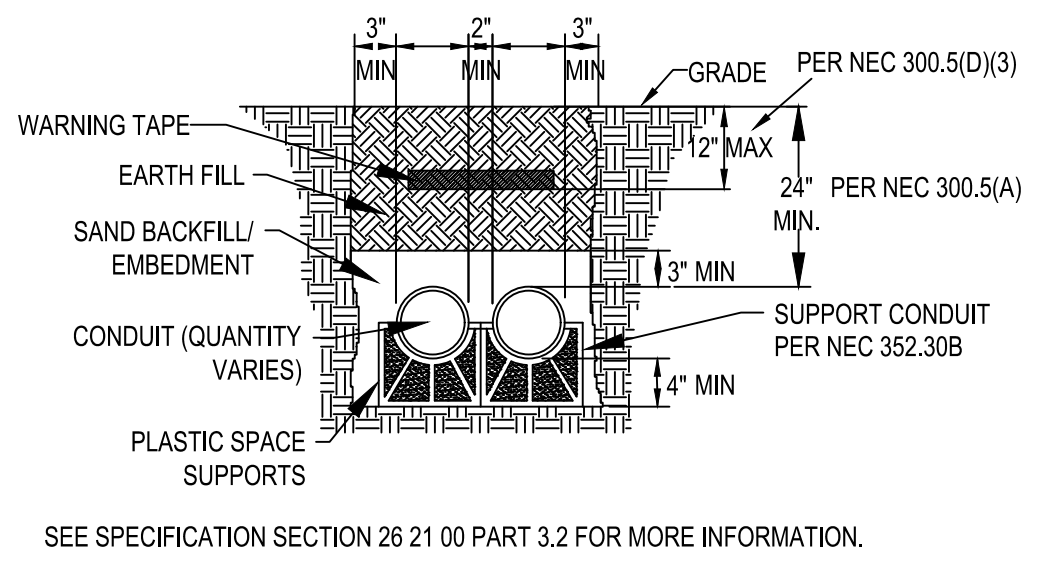
5 ELECTRICAL EQUIPMENT IDENTIFICATION  
N.T.S.



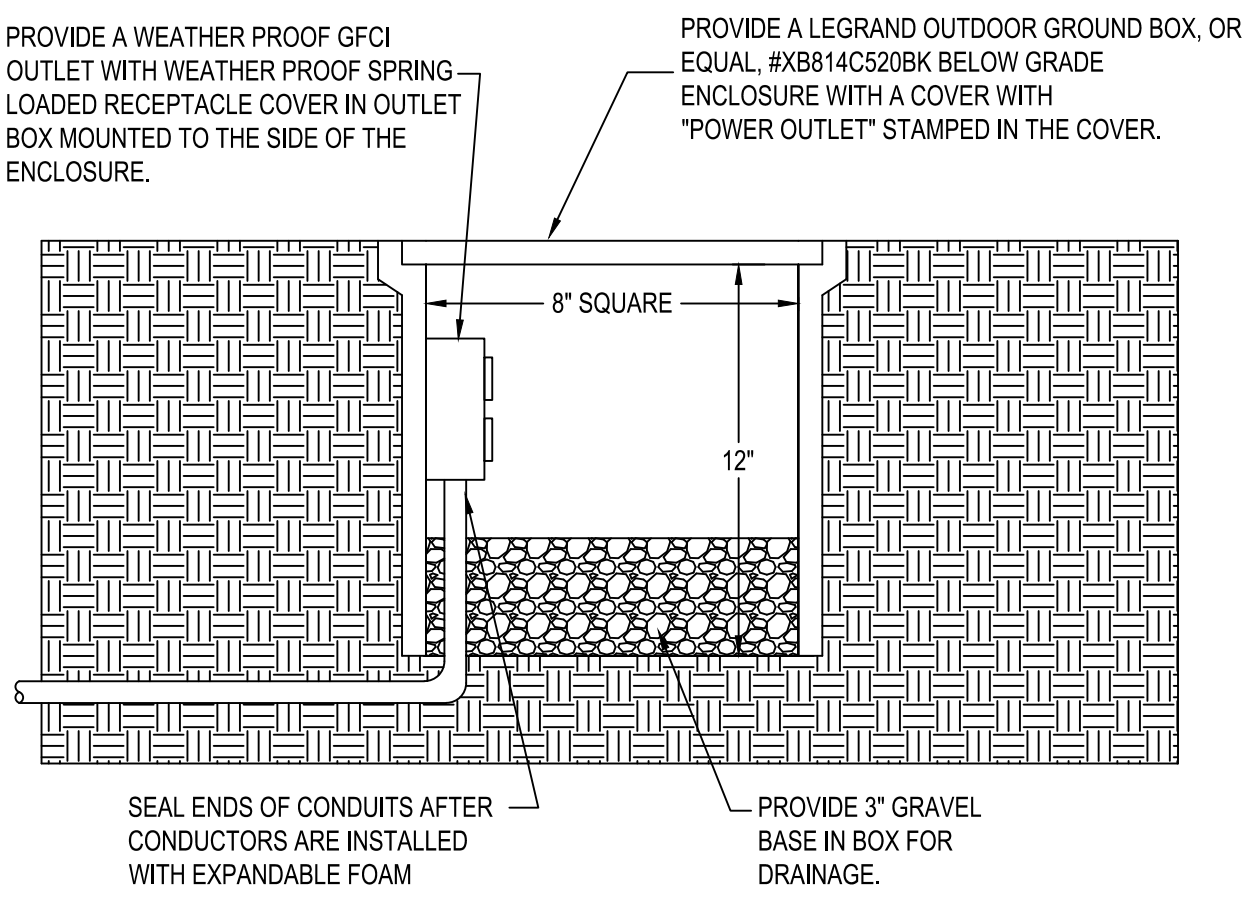
2 IMPERVIOUS BARRIER EQUAL TO BENTONITE SLURRY OR CALICHE ROCK  
N.T.S.



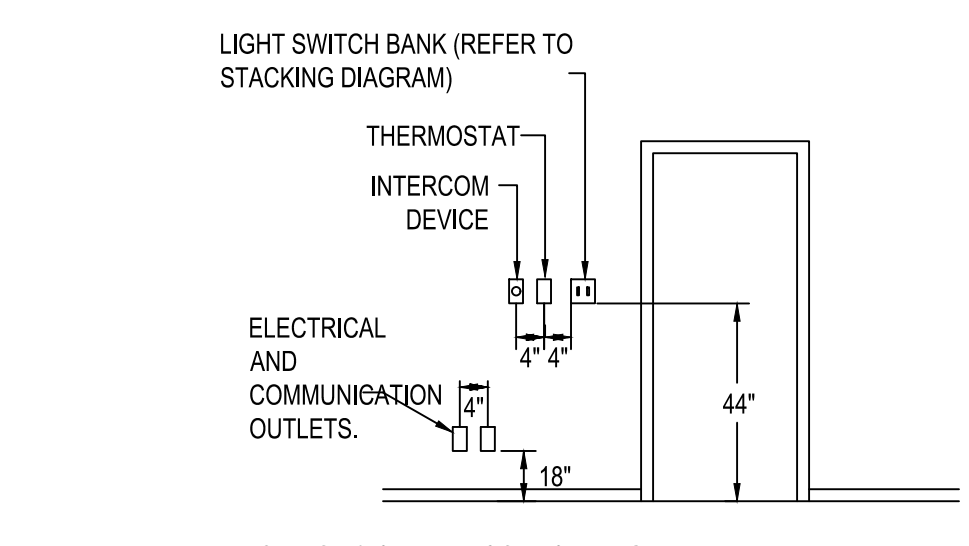
6 SUPPORT FOR PANEL MOUNTED ON GROUND  
N.T.S.



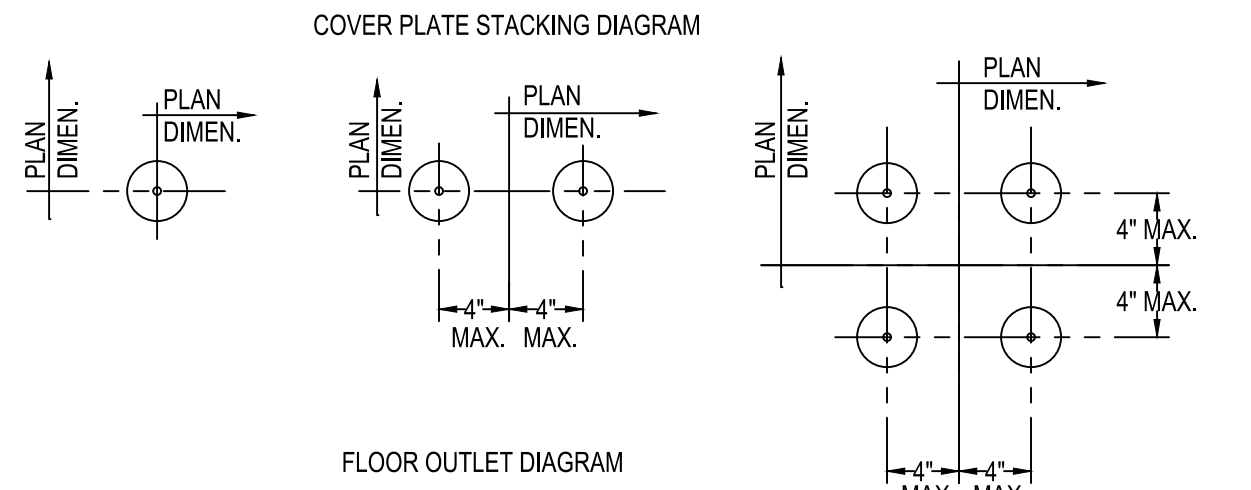
3 UNDERGROUND FEEDER CONDUITS  
N.T.S.



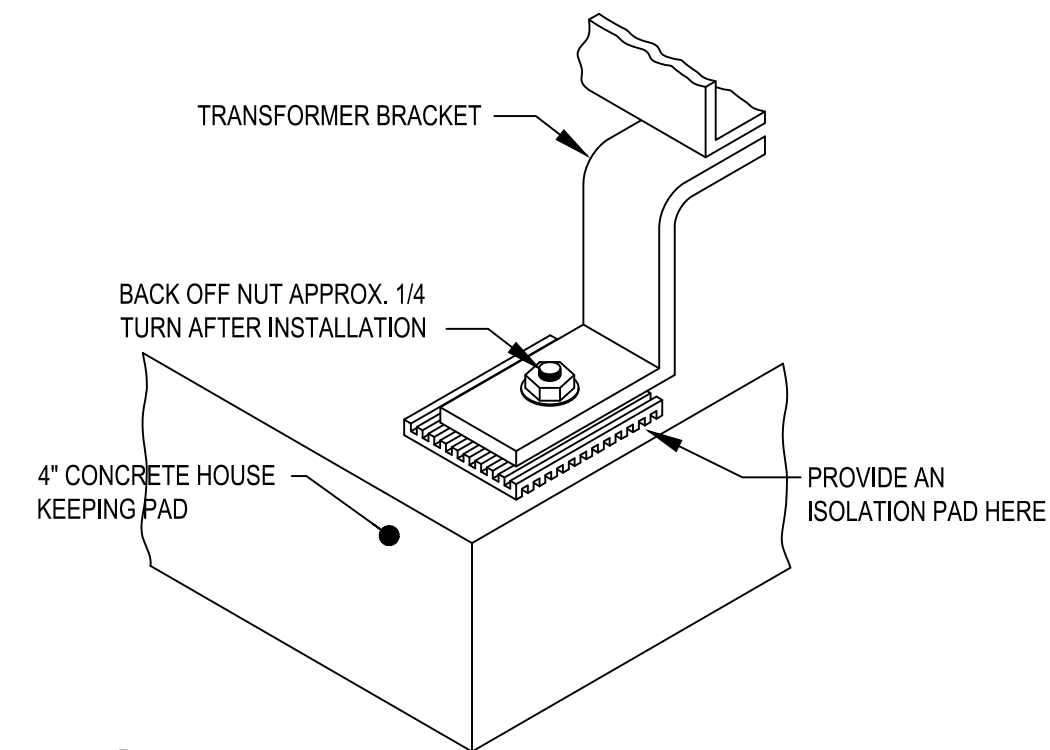
4 IN-GROUND MOUNTED G.F.C.I. RECEPTACLE  
N.T.S.



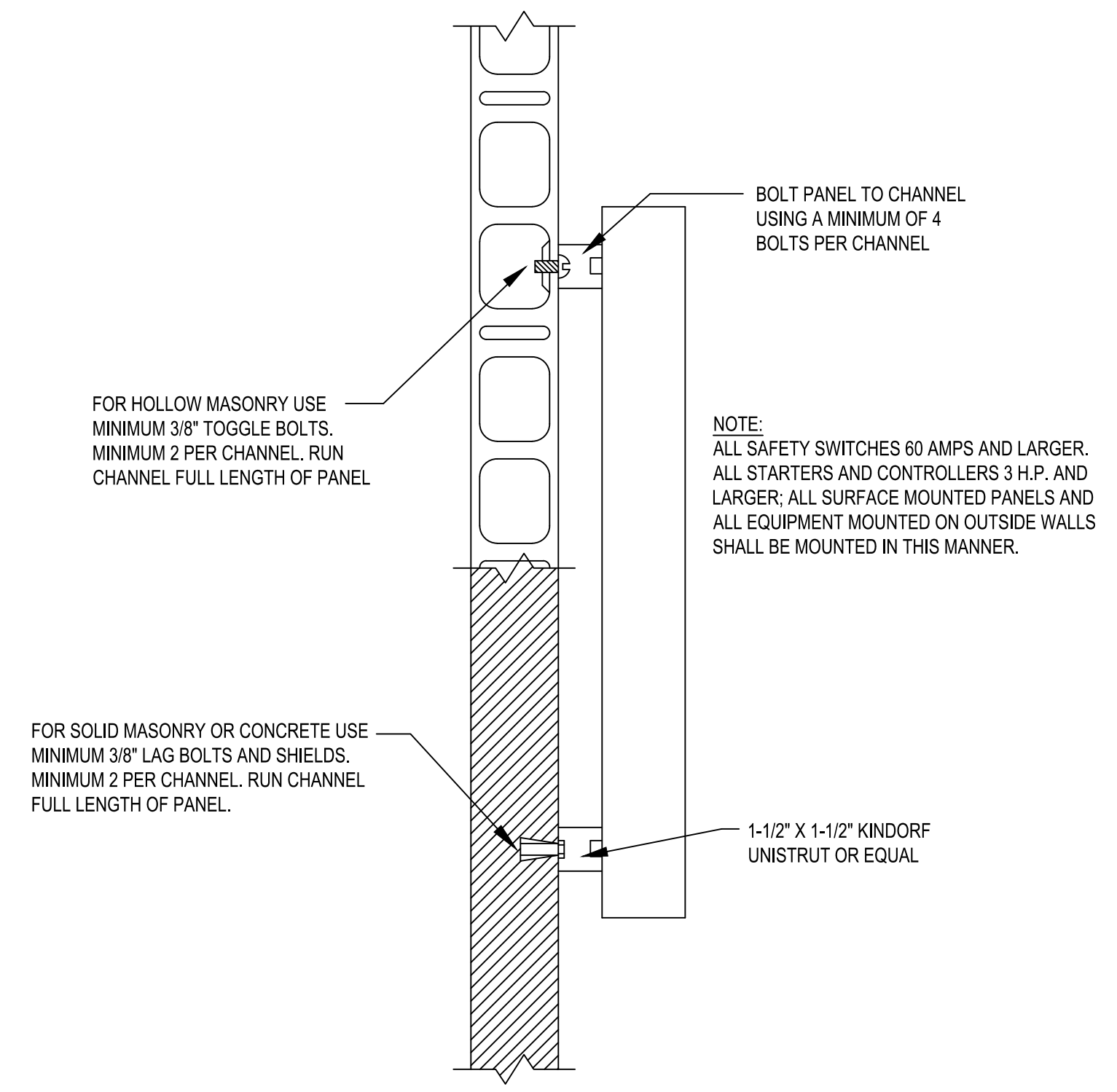
- NOTE:  
1. IF HIGH WATTAGE DIMMERS ARE USED ADJACENT TO LIGHTING BANK, STACKING IS TO BE USED AS INDICATED.  
2. PROVIDE SINGLE GANGING PLATE W/ 1, 2, 3, OR 4 SWITCH LEG CAPACITY WHEREVER POSSIBLE.



7 OUTLET DIAGRAM  
N.T.S.



9 ISOLATION PAD  
N.T.S.



10 SURFACE EQUIPMENT MOUNTING DETAIL  
N.T.S.

# ROOM # ELECTRICAL

EXIST. PANEL - MPFH		Rating - 800A WITH 800MCB				Located In Room - ELECTRICAL ROOM Surface Mount - Inside (NEMA 1) Branch AIC - 100,000 Amps			
Fed from - UTIL (480V 3PH)		Service - 277/480 3PH 4Wire				Div. Load (kVA) - 72 (A), 72 (B), 72 (C) or (260 Amps)			
EQUIPMENT SERVED	POLE	TRIP	WIRE	Ø LOAD in VA	Ø LOAD in VA	TRIP	WIRE	Ø LOAD in VA	EQUIPMENT SERVED
EXISTING LOAD	3	225	12	1 A=10000 B=10000 C=10000	2	-	20	3	SPARE
EXISTING LOAD- EXISTING PANEL HFH	3	400	8	7 A=41000 B=41000 C=41000	8	12	50	3	EXISTING LOAD - TD-FH
EXISTING LOAD - MAIN	3	800	12	13 A=50000 B=50000 C=50000	14	4	100	3	EXISTING TVSS PROTECTION
SPACE	1	-	-	19 A=0 B=0 C=0	20	*	225	3	PANEL PFH
SPACE	1	-	-	21 A=0 B=0 C=0	22	-	-	-	SPACE
SPACE	1	-	-	23 A=0 B=0 C=0	24	-	-	-	SPACE
SPACE	1	-	-	25 A=0 B=0 C=0	26	-	60	3	SPACE
SPACE	1	-	-	27 A=0 B=0 C=0	28	-	-	-	SPACE
SPACE	1	-	-	29 A=0 B=0 C=0	30	-	-	-	SPACE
SPACE	1	-	-	31 A=0 B=0 C=0	32	-	-	-	SPACE
SPACE	1	-	-	33 A=0 B=0 C=0	34	-	-	-	SPACE
SPACE	1	-	-	35 A=0 B=0 C=0	36	-	-	-	SPACE
SPACE	1	-	-	37 A=0 B=0 C=0	38	-	-	-	SPACE
SPACE	1	-	-	39 A=0 B=0 C=0	40	-	-	-	SPACE
SPACE	1	-	-	41 A=0 B=0 C=0	42	-	-	-	SPACE

COMMENTS - \* REFER TO RISER DIAGRAM FOR WIRE SIZE

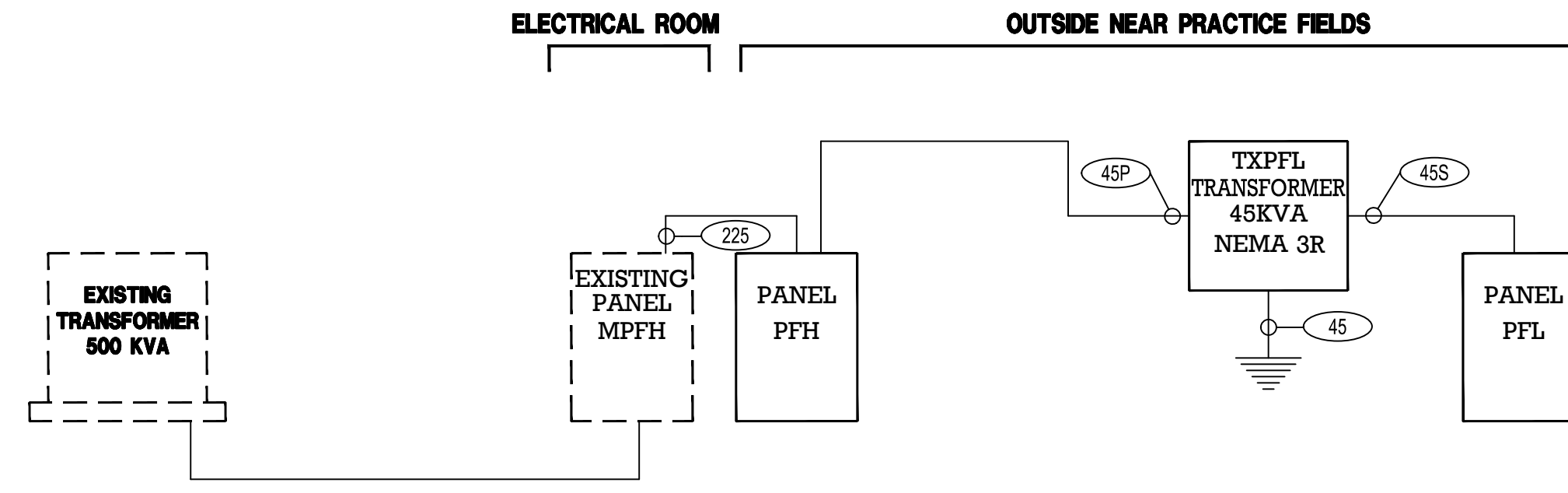
# OUTSIDE NEAR FIELDS

PANEL - PFH		Rating - 225A WITH 225MCB				Located OUTSIDE NEAR PRACTICE FIELDS Surface Mount - Outside (NEMA 3R) Branch AIC - 14,000 Amps			
Fed from - MPFH (480V 3PH)		Service - 277/480 3PH 4Wire				Div. Load (kVA) - 1.7 (A), 1.7 (B), 1.7 (C) or (62 Amps)			
EQUIPMENT SERVED	POLE	TRIP	WIRE	Ø LOAD in VA	Ø LOAD in VA	TRIP	WIRE	Ø LOAD in VA	EQUIPMENT SERVED
PANEL PFL fed thru TXPFL	3	70	*	1 A=1982 B=1982 C=1982	2	6	20	3	PRACTICE FIELD LIGHTING - POLE "P3"
TXPFL (45 KVA 150° C. Rse/K-1) NEMA 3R									CONNECT FEEDER TO MUSCO PROVIDED
PRACTICE FIELD LIGHTING - POLE "P1"	3	20	6	7 A=3963 B=3963 C=3963	8	6	20	3	PRACTICE FIELD LIGHTING - POLE "P4"
CONNECT FEEDER TO MUSCO PROVIDED									CONNECT FEEDER TO MUSCO PROVIDED
DISCONNECT 10'-0" A.F.G. ON POLE									DISCONNECT 10'-0" A.F.G. ON POLE
SPACE	1	20	-	13 A=3963 B=3963 C=3963	14	6	30	3	PRACTICE FIELD LIGHTING - POLE "P5"
SPACE	1	20	-	15 A=3963 B=3963 C=3963	16	-	-	-	CONNECT FEEDER TO MUSCO PROVIDED
SPACE	1	20	-	17 A=3963 B=3963 C=3963	18	-	-	-	DISCONNECT 10'-0" A.F.G. ON POLE
PRACTICE FIELD LIGHTING - POLE "P2"	3	20	6	19 A=5945 B=5945 C=5945	20	6	30	3	PRACTICE FIELD LIGHTING - POLE "P6"
CONNECT FEEDER TO MUSCO PROVIDED									CONNECT FEEDER TO MUSCO PROVIDED
DISCONNECT 10'-0" A.F.G. ON POLE									DISCONNECT 10'-0" A.F.G. ON POLE
SPACE	1	-	-	25 A=0 B=0 C=0	26	-	20	1	SPACE
SPACE	1	-	-	27 A=0 B=0 C=0	28	-	20	1	SPACE
SPACE	1	-	-	29 A=0 B=0 C=0	30	-	20	1	SPACE
SPACE	1	-	-	31 A=0 B=0 C=0	32	-	-	1	SPACE
SPACE	1	-	-	33 A=0 B=0 C=0	34	-	-	1	SPACE
SPACE	1	-	-	35 A=0 B=0 C=0	36	-	-	1	SPACE
SPACE	1	-	-	37 A=0 B=0 C=0	38	-	-	1	SPACE
SPACE	1	-	-	39 A=0 B=0 C=0	40	-	-	1	SPACE
SPACE	1	-	-	41 A=0 B=0 C=0	42	-	-	1	SPACE

COMMENTS - \* REFER TO RISER DIAGRAM FOR WIRE SIZE

PANEL - PFL		Rating - 100A MLO				Located OUTSIDE NEAR PRACTICE FIELDS Surface Mount - Outside (NEMA 3R) Branch AIC - 14,000 Amps			
Fed from - TXPFL (208V 3PH)		Service - 120/208 3PH 4Wire				Div. Load (kVA) - 1 (A), 1 (B), 1 (C) or (10 Amps)			
EQUIPMENT SERVED	POLE	TRIP	WIRE	Ø LOAD in VA	Ø LOAD in VA	TRIP	WIRE	Ø LOAD in VA	EQUIPMENT SERVED
MAINTENANCE WEATHERPROOF IN GROUND BOX	1	20	6	1 A=720 B=720 C=720	2	-	20	1	SPACE
MAINTENANCE WEATHERPROOF IN GROUND BOX	1	20	6	3 A=720 B=720 C=720	4	-	20	1	SPACE
MAINTENANCE WEATHERPROOF IN GROUND BOX	1	20	4	5 A=720 B=720 C=720	6	-	-	-	SPACE
MUSCO LIGHTING CONTROL CABINET	1	20	12	7 A=500 B=500 C=500	8	-	-	-	SPACE
SPACE	1	20	-	9 A=0 B=0 C=0	10	-	-	-	SPACE
SPACE	1	20	-	11 A=0 B=0 C=0	12	-	-	-	SPACE
SPACE	1	-	-	13 A=0 B=0 C=0	14	-	-	-	SPACE
SPACE	1	-	-	15 A=0 B=0 C=0	16	-	-	-	SPACE
SPACE	1	-	-	17 A=0 B=0 C=0	18	-	-	-	SPACE
SPACE	1	-	-	19 A=0 B=0 C=0	20	-	-	-	SPACE
SPACE	1	-	-	21 A=0 B=0 C=0	22	-	-	-	SPACE
SPACE	1	-	-	23 A=0 B=0 C=0	24	-	-	-	SPACE
SPACE	1	-	-	25 A=0 B=0 C=0	26	-	-	-	SPACE
SPACE	1	-	-	27 A=0 B=0 C=0	28	-	-	-	SPACE
SPACE	1	-	-	29 A=0 B=0 C=0	30	-	-	-	SPACE
SPACE	1	-	-	31 A=0 B=0 C=0	32	-	-	-	SPACE
SPACE	1	-	-	33 A=0 B=0 C=0	34	-	-	-	SPACE
SPACE	1	-	-	35 A=0 B=0 C=0	36	-	-	-	SPACE
SPACE	1	-	-	37 A=0 B=0 C=0	38	-	-	-	SPACE
SPACE	1	-	-	39 A=0 B=0 C=0	40	-	-	-	SPACE
SPACE	1	-	-	41 A=0 B=0 C=0	42	-	-	-	SPACE

COMMENTS - \* REFER TO RISER DIAGRAM FOR WIRE SIZE



### GENERAL RISER NOTES:

- WHEREVER THE LENGTH OF THE SECONDARY CONDUCTORS OF ANY TRANSFORMER EXCEEDS TEN FEET, AN ENCLOSED CIRCUIT BREAKER OR FUSED DISCONNECT IS REQUIRED TO BE PROVIDED WITHIN TEN FEET OF THE TRANSFORMER SECONDARY TERMINALS IN ACCORDANCE WITH NEC ARTICLE 240-21(C)(2). THIS OVERCURRENT DEVICE SHALL HAVE AN AMP RATING EQUAL TO THE AMP RATING OF THE PANEL BEING SERVED. IF THIS OCCURS AND THE PANEL IS IN THE SAME ROOM, THE PANEL BEING FED MAY BE CHANGED TO MAIN LUG ONLY.
- SERVICE ENTRANCE FEEDERS DO NOT REQUIRE AN EQUIPMENT GROUNDING CONDUCTOR.
- PROVIDE AND INSTALL BURNDY OR NSI (OR APPROVED EQUIVALENT) UL RATED COMPRESSION REDUCING PIN TERMINALS ON COPPER / ALUMINUM CONDUCTORS AS REQUIRED. SEE IMAGE TO THE RIGHT.
- UTILITY WORK SHOWN HERE IS PROPOSED AND MAY NOT INCLUDE ALL UTILITY COMPANY REQUIREMENTS. COORDINATE FINAL UTILITY LOCATION, EASEMENT REQUIREMENTS, TRANSFORMER SIZE AND LOCATION, TRANSFORMER PAD SIZE, MEANS OF DISCONNECT REQUIREMENTS, ETC. WITH UTILITY COMPANY BEFORE BIDDING.



SAMPLE REDUCING PIN TERMINAL

### GENERAL RISER NOTES:

- WHEREVER THE LENGTH OF THE SECONDARY CONDUCTORS OF ANY TRANSFORMER EXCEEDS TEN FEET, AN ENCLOSED CIRCUIT BREAKER OR FUSED DISCONNECT IS REQUIRED TO BE PROVIDED WITHIN TEN FEET OF THE TRANSFORMER SECONDARY TERMINALS IN ACCORDANCE WITH NEC ARTICLE 240-21(C)(2). THIS OVERCURRENT DEVICE SHALL HAVE AN AMP RATING EQUAL TO THE AMP RATING OF THE PANEL BEING SERVED. IF THIS OCCURS AND THE PANEL IS IN THE SAME ROOM, THE PANEL BEING FED MAY BE CHANGED TO MAIN LUG ONLY.

### TRANSFORMER INFORMATION

ALL TRANSFORMERS TO BE 150°C RISE.  
ALL TRANSFORMERS SERVING PANELS WITH AN ISOLATED GROUND OR DOUBLE SIZED NEUTRAL ARE TO HAVE A RATING OF K-13 OR GREATER. ALL OTHER TRANSFORMERS ARE TO BE RATED K-1 OR GREATER.

### ELECTRICAL RISER NOTES: (SOME NOTES MAY NOT BE USED)

- 60 4-#4, 1-#10 GRN, 1 1/2" C.
- 80 4-#3, 1-#8 GRN, 1 1/2" C.
- 100 4-#1, 1-#8 GRN, 1 1/2" C.
- 125 4-#1/0, 1-#6 GRN, 2" C.
- 150 4-#1/0, 1-#6 GRN, 2" C.
- 175 4-#2/0, 1-#6 GRN, 2" C.
- 225 2-2" C. WITH 4-#3/0, 1-#3 GRN IN EACH

### PRIMARY PRIMARY SIDE OF XFMR (480 VOLT)

- 25 A 15P 3-#10, 1-#10 GRN, 3/4" C.
- 45 A 30P 3-#6, 1-#10 GRN, 1" C.
- 70 A 45P 3-#4, 1-#8 GRN, 1" C.
- 125 A 75P 3-#1/0, 1-#6 GRN, 1 1/2" C.
- 175 A 112P 3-#2/0, 1-#6 GRN, 1 1/2" C.
- 225 A 150P 3-#4/0, 1-#4 GRN, 2" C.
- 350 A 225P 3-#500 MCM, 1-#3 GRN, 3" C.
- 500 A 300P 2-2 1/2" C. WITH 3-#250 MCM, 1-#2 GRN IN EACH.

### TRANSFORMER GROUNDS

- 15G #8 GRN
- 30G #6 GRN
- 45G #4 GRN
- 75G #2 GRN
- 112G #2 GRN
- 150G #1/0 GRN
- 225G #2/0 GRN
- 300G #2/0 GRN

### SECONDARY SECONDARY SIDE OF XFMR (208)

- 60 A 15S 4-#6, 1-#8 GRN, 1" C.
- 110 A 30S 4-#1/0, 1-#6 GRN, 2" C.
- 175 A 45S 4-#2/0, 1-#4 GRN, 2" C.
- 250 A 75S 4-#250 MCM, 1-#2 GRN, 2 1/2" C.
- 400 A 112S 2-2" C. WITH 4-#3/0, 1-#2 GRN IN EACH.
- 500 A 150S 2-2 1/2" C. WITH 4-#250 MCM, 1-#1/0 GRN IN EACH.
- 800 A 225S 4-2" C. WITH 4-#3/0, 1-#2/0 GRN IN EACH.
- 1000 A 300S 4-2 1/2" C. WITH 4-#250 MCM, 1-#2/0 GRN IN EACH.



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ISSUES	
1	09.13.2019 ISSUE FOR CONSTRUCTION
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REVISIONS	



Date of issue:  
09/13/2019

**ROHS Practice Field**  
**Renovations**  
**FOR**  
 Red Oak Independent School District  
 220 TX-342, Red Oak, TX 75154

**ELECTRICAL**  
**PANELBOARDS &**  
**RISER DIAGRAM**

**EMA** Engineering & Consulting  
Tyler | Austin | Houston | DFW | El Paso  
TBPE Firm Registration No. F-893  
www.EMAengineer.com  
DESIGN SOLVE ENHANCE Phone: 1.800.933.0538

SUBMISSION OF BID WILL BE CONSIDERED ACKNOWLEDGMENT THAT THE CONTRACTOR HAS VISITED THE SITE AND HAS VERIFIED ALL EXISTING JOB CONDITIONS AND INCLUDED ANY NECESSARY MODIFICATION TO EXISTING AND NEW WORK REQUIRED FOR INSTALLATION OF A COMPLETE AND WORKING SYSTEM.

**JOB** 19306.0000  
**DATE** 09.13.2019  
**SHEET**  
**EP08-01**