JOHN C. KIMBALL HIGH SCHOOL
TENNIS COURT REPAIRS

3200 JAGUAR RUN
TRACY, CA 95377

TRACY
UNIFIED SCHOOL DISTRICT

ABBREVIATIONS

NOTE: NOT ALL ABBREVIATIONS MAY BE USED ON THESE PLANS.

AB	AGGREGATE BASE	JP	JOINT UTILITY POLE
AC	ASPHALTIC CONCRETE	LF	LINEAL FEET
AD	AREA DRAIN	LIP	LIP OF GUTTER
APN	ASSESSOR'S PARCEL NUMBER	LT	LEFT
ARV	AIR RELEASE VALVE	MS	MOWSTRIP
ASB	AGGREGATE SUB-BASE	NTS	NOT TO SCALE
BO	BLOW-OFF VALVE	OH	OVERHEAD
BV	BUTTERFLY VALVE	PCC	PORTLAND CEMENT CONCRETE
BW	BACK OF WALK	PD	PLANTER DRAIN
C/L	CENTERLINE	PIV	POST INDICATOR VALVE
CB	CATCH BASIN	P/L	PROPERTY LINE
CL	CLASS	PP	POWER POLE
CMP	CORRUGATED METAL PIPE	PUE	PUBLIC UTILITY EASEMENT
CATV	CABLE TELEVISION	PVC	POLYVINYL CHLORIDE
CO	CLEANOUT	RCP	REINFORCED CONCRETE PIPE
COMM	COMMUNICATION	r	RADIUS
CONC.	CONCRETE	RIM	MANHOLE RIM ELEVATION
CONST.	CONSTRUCT	RP	REDUCED PRESSURE BACKFLOW PREVENTER
CR	CURB RETURN		
CS	CONCRETE SURFACE	RW	RIGHT OF WAY
DC	DOUBLE CHECK VALVE	SCH	SCHEDULE
DDC	DOUBLE DETECTOR CHECK VALVE	SD	STORM DRAIN
DG	DECOMPOSED GRANITE	SDMH	STORM DRAIN MANHOLE
DI	DROP INLET	SG	SUBGRADE ELEVATION
DIA	DIAMETER	si	SIDE INLET
DIP	DUCTILE IRON PIPE	SS	SANITARY SEWER
DWG	DRAWING	SSMH	SANITARY SEWER MANHOLE
DS	DOWNSPOUT	STD	STANDARD
E	ELECTRIC	S/W	SIDEWALK
EP	EDGE OF PAVEMENT	T	TELEPHONE
ESMT	EASEMENT	TC	TOP OF CURB
EX	EXISTING	TD	TRENCH DRAIN
FS	FIRE SERVICE LINE	TDCB	TRENCH DRAIN CATCH BASIN
FDC	FIRE DEPARTMENT CONNECTION	TP	TELEPHONE POLE
FL	FLOWLINE	TRW	TOP OF RETAINING WALL
FM	SANITARY SEWER FORCE MAIN	TSW	TOP OF SEAT WALK
FF	FINISHED FLOOR ELEVATION	TW	TOP OF WALK ELEVATION
FH	FIRE HYDRANT	U	UTILITY
G	GAS	UG	UNDERGROUND
GR	GRATE ELEVATION	UON	UNLESS OTHERWISE NOTED
GRD	GRADE ELEVATION	VCP	VITRIFIED CLAY PIPE
GV	GATE VALVE	W	WATER
HB	HOSE BIBB	W/	WITH
HBD	HEADER BOARD	W/O	WITHOUT
HDPE	HIGH DENSITY POLYETHYLENE PIPE	WV	WATER VALVE
HP	HIGH POINT		
INV	PIPE INVERT ELEVATION		

SYMBOLS LEGEND

NOTE: NOT ALL SYMBOLS MAY BE USED ON THESE PLANS.

PROPOSED GRADING & DRAINAGE SYMBOLS:

- 8" SD — STORM DRAIN LINE (SIZE AND FLOW SHOWN)
- STORM DRAIN MANHOLE (SDMH)
- CATCH BASIN (CB)
- DROP INLET (DI)
- AREA DRAIN (AD)
- PLANTER DRAIN (PD) OR FLOOR DRAIN (FD)
- CO — STORM DRAIN CLEANOUT
- 99.99 — ELEVATION
- FF=100.00 — FINISHED FLOOR ELEVATION
- PAD=99.33 — BUILDING PAD ELEVATION
- CONCRETE SIDEWALK
- GRADED DIRECTION FOR DRAINAGE FLOW
- SWALE
- SLOPE
- TREE TO BE REMOVED
- SAVE — TREE TO REMAIN
- RETAINING WALL
- O.R. — OVERLAND RELEASE PATH

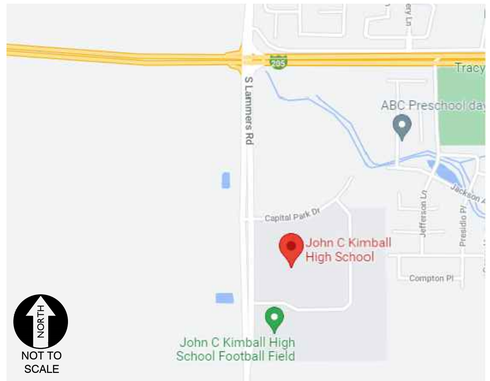
PROPOSED WATER SYMBOLS:

- 8" W — WATER LINE & SIZE
- 8" FS — FIRE LINE & SIZE
- 8" DW — DOMESTIC WATER LINE & SIZE
- 8" RW — RECLAIMED WATER LINE & SIZE
- 8" IRR — IRRIGATION SERVICE LINE & SIZE
- 8" NP — NON POTABLE WATER LINE & SIZE
- 8" SP — FIRE SPRINKLER SVC. LINE & SIZE
- GATE VALVE
- M — WATER METER
- FH — FIRE HYDRANT ASSEMBLY
- FDC — FIRE DEPARTMENT CONNECTION
- DC — DETECTOR CHECK VALVE
- DDC — DOUBLE DETECTOR CHECK VALVE
- RP — REDUCED PRESSURE BACKFLOW PREVENTER
- BUTTERFLY VALVE
- 1" — AIR RELEASE VALVE + SIZE
- 1" — BLOW-OFF VALVE + SIZE
- PIV — POST INDICATOR VALVE

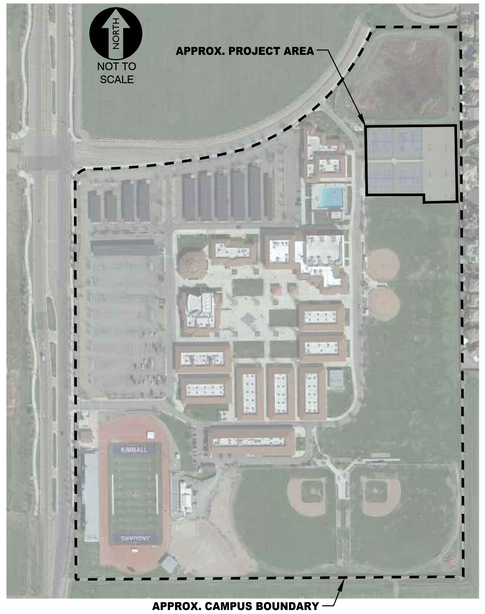
PROPOSED SANITARY SEWER SYMBOLS:

- 6" SS — SANITARY SEWER LINE (SIZE AND FLOW SHOWN)
- SANITARY SEWER MANHOLE (SSMH)
- CO — SEWER CLEANOUT FLUSHER BRANCH

VICINITY MAP



SITE MAP



APPLICABLE CODES & STANDARDS

BUILDING STANDARDS ADMINISTRATIVE CODE, PART 1, TITLE 24 C.C.R.

2019 CALIFORNIA BUILDING CODE (CBC), PART 2, TITLE 24 C.C.R.
(2012 INTERNATIONAL BUILDING CODE VOLUME 1-2 AND 2013 CALIFORNIA AMENDMENTS)

2019 CALIFORNIA PLUMBING CODE (CBC), PART 5, TITLE 24 C.C.R.
(2012 UNIFORM PLUMBING CODE AND 2013 CALIFORNIA AMENDMENTS)

2019 CALIFORNIA FIRE CODE (CFC), PART 9, TITLE 24 C.C.R.
(2012 INTERNATIONAL FIRE CODE AND 2013 CALIFORNIA AMENDMENTS)

2019 GREEN CALIFORNIA BUILDING STANDARDS, CALGREEN CODE, TITLE 24, PART 11

2019 CALIFORNIA REFERENCE STANDARDS, PART 12, TITLE 24 C.C.R.

TITLE 19 C.C.R., PUBLIC SAFETY, STATE FIRE MARSHALL REGULATIONS

PROJECT NARRATIVE

REMOVAL AND REPLACEMENT OF TENNIS COURT PAVING, SURFACING AND STRIPING.

REMOVAL AND REPAIR OF EXISTING HARDCOURT AND FENCING, AS WELL AS RESURFACING AND STRIPING.

INSTALLATION OF COURT LIGHTING AND POWER SYSTEMS.

Note: This project has an add-alternate, see sheets C1.1 and sheets C2.1-C2.2.

APPLICABLE REGULATIONS

N/A

DEFERRED APPROVALS

N/A

STATEMENTS:

N/A

GENERAL NOTES

1. THE TYPES, LOCATIONS, SIZES, AND/OR DEPTHS OF EXISTING UNDERGROUND UTILITIES AS SHOWN ON THESE PLANS WERE OBTAINED FROM SOURCES OF VARYING RELIABILITY. THE CONTRACTOR IS CAUTIONED THAT ONLY ACTUAL EXCAVATION WILL REVEAL THE TYPES, EXTENT, SIZES, LOCATIONS AND DEPTHS OF SUCH UNDERGROUND UTILITIES. A REASONABLE EFFORT HAS BEEN MADE TO LOCATE AND DELINEATE ALL KNOWN UNDERGROUND UTILITIES. HOWEVER, WARREN CONSULTING ENGINEERS CAN ASSUME NO RESPONSIBILITY FOR THE COMPLETENESS OR ACCURACY OF ITS DELINEATION OF SUCH UNDERGROUND UTILITIES, NOR FOR THE EXISTENCE OF OTHER BURIED OBJECTS OR UTILITIES WHICH MAY BE ENCOUNTERED BUT WHICH ARE NOT SHOWN ON THESE PLANS. THE CONTRACTOR OR ANY SUBCONTRACTOR FOR THIS CONTRACT SHALL NOTIFY MEMBERS OF UNDERGROUND SERVICE ALERT (USA) TWO (2) WORKING DAYS IN ADVANCE OF PERFORMING ANY EXCAVATION WORK BY CALLING TOLL FREE 1-800-227-2600, OR 811.

811 Know what's below. Call before you dig.

2. WARREN CONSULTING ENGINEERS, INC. (WCE) ASSUMES NO RESPONSIBILITY FOR ERRORS IN PHYSICAL LOCATION OF IMPROVEMENTS, HORIZONTAL OR VERTICAL, IF STAKED BY OTHERS. IN ADDITION, ANY SUCH ERRORS IN PHYSICAL LOCATION MAY AFFECT THE INTENDED DESIGN OF SUCH IMPROVEMENTS AND WCE CANNOT BE HELD RESPONSIBLE FOR SUCH CONDITIONS WHICH ARE A RESULT OF ERRORS IN SURVEYING, OR IMPROPER CONSTRUCTION.
3. IF SUBSURFACE CULTURAL RESOURCES, REMAINS, AND/OR ARTIFACTS ARE UNCOVERED DURING PROJECT CONSTRUCTION, ALL WORK IN THE VICINITY SHALL BE STOPPED UNTIL SUCH ITEMS CAN BE ASSESSED BY AN APPROPRIATE MEMBER OF THE COUNTY ENVIRONMENTAL IMPACT SECTION STAFF.
4. CONTRACTOR AGREES THAT HE/SHE SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY; THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND SHALL NOT BE LIMITED TO NORMAL WORKING HOURS; AND THAT THE CONTRACTOR SHALL DEFEND, INDEMNIFY AND HOLD THE OWNER AND ENGINEER HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE OWNER OR ENGINEER.
5. THE CONTRACTOR SHALL OBTAIN AN EXCAVATION PERMIT FROM THE STATE OF CALIFORNIA DEPARTMENT OF INDUSTRIAL SAFETY FOR ALL EXCAVATIONS OF 5 FEET OR MORE IN DEPTH.
6. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO MAKE ALL NECESSARY PRE-BID AND PRE-CONSTRUCTION SITE INSPECTION, AND/OR OBSERVATIONS ON THE SITE TO PRE-DETERMINE ALL HIS/HER MEANS AND METHODS NECESSARY TO COMPLETE THE IMPROVEMENTS SHOWN ON THESE PLANS AND PER THE PROJECT SPECIFICATIONS. IT IS THE CONTRACTORS RESPONSIBILITY TO DETERMINE, AND INCLUDE IN HIS/HER CONTRACT, ALL MEANS AND METHODS NECESSARY TO PERFORM A COMPLETE AND ACCEPTABLE JOB.
7. WHERE IMPROVEMENTS LIE WITHIN AN EXISTING DEVELOPED AREA, CONTRACTOR SHALL USE CAUTION WHEN ACCESSING THE SITE THROUGH THESE EXISTING IMPROVEMENTS. IT IS THE CONTRACTORS RESPONSIBILITY TO PROTECT ANY SUCH EXISTING IMPROVEMENTS OUTSIDE THE PROJECT BOUNDARY, OR EXISTING IMPROVEMENTS WITHIN THE BOUNDARY WHICH ARE TO REMAIN. PROPER PRECAUTIONS SHALL BE PROVIDED AND MAINTAINED THROUGHOUT CONSTRUCTION. ANY DAMAGE SHALL BE REPAIRED OR REPLACED TO THE SATISFACTION OF THE OWNER.
8. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO KEEP DETAILED RECORDS OF MINOR CHANGES OR ADJUSTMENTS MADE DURING CONSTRUCTION (WHICH WERE NOT FORMALLY ISSUED). UPON PROJECT COMPLETION, THESE RECORDS AND/OR INFORMATION SHALL BE PROVIDED TO THE OWNER AND WARREN CONSULTING ENGINEERS, INC. UNLESS AN OFFICIAL "AS-BUILT" SET OF PLANS IS A REQUIREMENT OF THE CONTRACT. IF AS-BUILT PLANS ARE A REQUIREMENT OF THE CONTRACT, REFER TO SPECIFICATIONS FOR AS-BUILT DELIVERABLE REQUIREMENTS.
9. IN VEHICULAR PATHWAYS, EXISTING ASPHALTIC AND/OR CONCRETE SURFACES SHALL BE CUT TO A NEAT AND STRAIGHT LINE, PARALLEL OR PERPENDICULAR TO THE VEHICULAR TRAVELED PATH. THIS IS TYPICALLY THE ROADWAY CENTERLINE, BUT MAY VARY. THAT SAWCUT EDGE SHALL BE PROTECTED FROM DAMAGE DURING CONSTRUCTION SO A CLEAN EDGE REMAINS FOR PATCH BACK.. IF EDGE IS DAMAGED, A NEW SAW CUT WILL BE REQUIRED. THE EXPOSED EDGE SHALL BE "TACKED" WITH EMULSION PRIOR TO PAVING.
10. NO BURNING OR BLASTING SHALL BE ALLOWED ONSITE UNLESS SPECIFICALLY ADDRESSED ON PLANS, OR SPECIFICALLY APPROVED AND COORDINATED WITH THE ARCHITECT, ENGINEER, AND LOCAL AGENCY OR OTHER ADMINISTRATIVE AUTHORITY.
11. SUBGRADE AND RESULTING FINISHED GRADE SHALL BE CONSTRUCTED SMOOTH AND UNIFORM BETWEEN SPOT ELEVATIONS, CONTOURS OR OTHER STRUCTURE ELEVATIONS SHOWN ON GRADING OR OTHER PLANS. NO MOUNDS, RUTS, DEPRESSIONS OR OTHER GRADING DEFICIENCIES WILL BE ALLOWED UNLESS SPECIFICALLY SHOWN ON PLANS.
12. ON NEW WATER SYSTEMS, SERVICE LATERALS SHALL BE MADE USING APPROPRIATE "TEE" AND "WYE" FITTINGS. SADDLE TAPS WILL ONLY BE ALLOWED WHEN MAKING CONNECTIONS TO EXISTING WATER MAINS.
13. CURING COMPOUND SHALL BE APPLIED IN A CONTINUOUS SOLID WET FLOWING COAT. ANY "SPOTTY" APPLICATIONS SHALL BE RECOATED IMMEDIATELY. APPLICATION SHALL BE INSPECTED BY PROJECT INSPECTOR DURING APPLICATION.
14. EMBEDMENT OF FEATURES IN CONCRETE PAVING, CURBS, OR WALLS, SUCH AS SQUARE OR ROUND TUBING, POSTS, OR COLUMNS, STEEL BOLTED PLATES, OR OTHER STRUCTURES, SHALL REQUIRE ADDITIONAL SCORE OR EXPANSION JOINTS TO PREVENT UNCONTROLLED CRACKING. THOSE ADDITIONAL JOINTS MAY OR MAY NOT BE SPECIFICALLY SHOWN ON PLANS BUT SHALL BE PROVIDED BY THE CONTRACTOR.
15. EMBEDMENT OF FEATURES IN CONCRETE PAVING, CURBS, OR WALLS, SUCH AS SQUARE OR ROUND TUBING, POSTS, OR COLUMNS, STEEL BOLTED PLATES, OR OTHER STRUCTURES, SHALL REQUIRE A MINOR ADJUSTMENT OF REBAR WITHIN CONCRETE TO ALLOW FOR SUCH STRUCTURE. THAT REBAR ADJUSTMENT MAY NOT BE SPECIFICALLY SHOWN ON PLANS.
16. NO MORE THAN 1 GALLON OF WATER PER YARD OF CONCRETE CAN BE ADDED TO THE TRUCK AFTER ARRIVAL TO PROJECT SITE. THE ADDITION OF WATER CAN ONLY BE ADDED UNDER THE SUPERVISION OF THE CONCRETE INSPECTOR OR LABORATORY TECHNICIAN.
17. WHEN PUMPING CONCRETE FOR PLACEMENT, ABSOLUTELY NO WATER IS TO BE ADDED TO PUMP HOPPER. ANY WATER ADDED TO HOPPER WILL BE REASON FOR CONCRETE REJECTION AT THE CONTRACTORS EXPENSE.
18. ALL CONTRACTION/CONSTRUCTION JOINTS "CJ" SHALL BE 1/4 THE SLAB THICKNESS DEEP, BUT NO LESS THAN 1" FOR CONTROLLING OF CRACKING. CONTRACTOR SHALL EXERCISE CAUTION WHEN FINAL TROWELING OF CONCRETE SO AS NOT TO FILL IN THESE JOINTS WITH CONCRETE CREAM. ANY CRACKS OUTSIDE OF JOINTS WHICH WERE CONSTRUCTED LESS THAN 1" DEEP, SHALL BE CAUSE FOR CONCRETE SLAB(S) TO BE REMOVED AND REPLACE AT CONTRACTORS EXPENSE.
19. ANY SCREED BOARDS SET WITHIN CONCRETE SLABS SHALL BE AN "OVERHEAD SCREED" SO THERE IS NO INTERFERENCE WITH THE PLACEMENT AND ALIGNMENT OF SLAB REINFORCING.
20. 3-1/2" FELT JOINTS WILL NOT BE ACCEPTED. PROVIDE A FULL 4" FELT JOINT FOR 4" SLAB CONSTRUCTION, AND A 6" FELT JOINT FOR A 6" SLAB SLAB CONSTRUCTION.
21. SHOULD ANY SHRINKAGE CRACKS OCCUR OUTSIDE OF EITHER THE EXPANSION JOINTS OR CRACK CONTROL JOINTS, THEN THE CONCRETE SLAB SHALL BE SAWCUT AT THE NEAREST JOINTS ON EACH SIDE OF THE CRACK AND THE CONCRETE SECTION SHALL BE, REMOVED AND REPLACED. NEW CONCRETE SHALL BE DOWELED INTO EXISTING CONCRETE PER DRAWING DETAIL.
22. ALL AREAS DISTURBED BY GRADING OPERATIONS WHETHER SHOWN ON THE DRAWINGS OR NOT SHALL BE HYDRO SEEDED UNLESS OTHERWISE NOTED. HYDRO SEEDING SHALL CONFORM TO LOCAL CITY/COUNTY STANDARDS.
23. REPAIR OR PATCHING OF GALVANIZED METALS, SUCH AS AFTER WELDING GALVANIZED COMPONENTS, SHALL BE MADE USING A ZINC COMPOSITION "HOT STICK" APPLICATION PER ASTM A 780-01. GALVANIZING PAINTS WILL NOT BE ALLOWED.

GENERAL PAVING SURFACE NOTES:

1. PROVIDE EQUIVALENT OF MEDIUM BROOM FINISH AT SLOPES UP TO 5.99%, TYPICAL. PROVIDE EQUIVALENT OF HEAVY BROOM FINISH AT SLOPES 6% AND GREATER. REFER TO SPECIFICATIONS.
2. ALL NEW PEDESTRIAN WALKWAYS (NON-RAMP) SHALL BE SLOPED NO GREATER THAN 2.0%, AND NO LESS THAN 0.75% IN ANY DIRECTION, UNLESS SPECIFICALLY LABELED OTHERWISE. ALL CONCRETE SHALL MEET THE FOLLOWING SLOPE REQUIREMENTS:
   - NO GREATER THAN 5% SLOPE IN THE DIRECTION OF TRAVEL.
   - NO GREATER THAN 2% SLOPE CROSSING THE DIRECTION OF TRAVEL.
   - NO GREATER THAN 2% SLOPE IN ANY DIRECTION IN COURTYARD OR PLAZA AREAS.

SHEET INDEX

NO.	SHEET DESCRIPTION
CIVIL	
C0.0	COVER SHEET
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C1.1	DEMOLITION PLAN
C2.1	GRADING AND CONSTRUCTION PLAN
C2.2	GRADING AND CONSTRUCTION PLAN
C2.3	GRADING AND CONSTRUCTION PLAN
C3.1	SURFACING, STRIPING AND EQUIPMENT PLAN
C4.1	DETAILS AND SECTIONS
ELECTRICAL	
E0.1	ABBREVIATIONS, ELECTRICAL SHEET INDEX & NOTES
E0.2	ELECTRICAL SYMBOL LEGEND
E0.3	ELECTRICAL SPECIFICATIONS
E0.4	ELECTRICAL SPECIFICATIONS
E0.5	ELECTRICAL SPECIFICATIONS
E1.1	ELECTRICAL SITE PLAN
E1.2	PHOTOMETRIC PLAN
E6.1	ELECTRICAL PANEL SCHEDULES
E7.1	ELECTRICAL DETAILS
E7.2	ELECTRICAL DETAILS

OWNER/USER

OWNER: TRACY UNIFIED SCHOOL DISTRICT
1875 W. LOWELL AVENUE
TRACY, CA 95376
PHONE: (209) 830-3200
FAX: (209) 830-3204

DISTRICT CONTACT:
JAIME QUINTANA
DIRECTOR OF FACILITIES AND PLANNING
(209) 830-3245
JQUINTANA@TUSD.NET

USER: JOHN C. KIMBALL
3200 JAGUAR RUN
TRACY, CA 95377
PHONE: (209) 832-6600
FAX: (209) 832-6601

PROJECT TEAM

CIVIL: WARREN CONSULTING ENGINEERS, INC.
1117 WINDFIELD WAY, SUITE 110
EL DORADO HILLS, CA 95762
PHONE: (916) 985-1870
FAX: (916) 985-1877

DSA

ENGINEER:

WCE
WARREN CONSULTING ENGINEERS, INC.
1117 WINDFIELD WAY, SUITE 110
EL DORADO HILLS, CA 95762 | (916) 985-1870

CONSULTANT:

OWNER:

TRACY UNIFIED SCHOOL DISTRICT
Tracy Unified School District
1875 W. Lowell Avenue
Tracy, CA 95376
Phone: (209) 830-3200

REGISTERED PROFESSIONAL ENGINEER
ANTHONY J. TASSANO
NO. C74696
STATE OF CALIFORNIA
11/15/2022

John C. Kimball High School Tennis Court Repairs

3200 Jaguar Run
Tracy, CA 95377

REVISIONS

NO.	DESCRIPTION

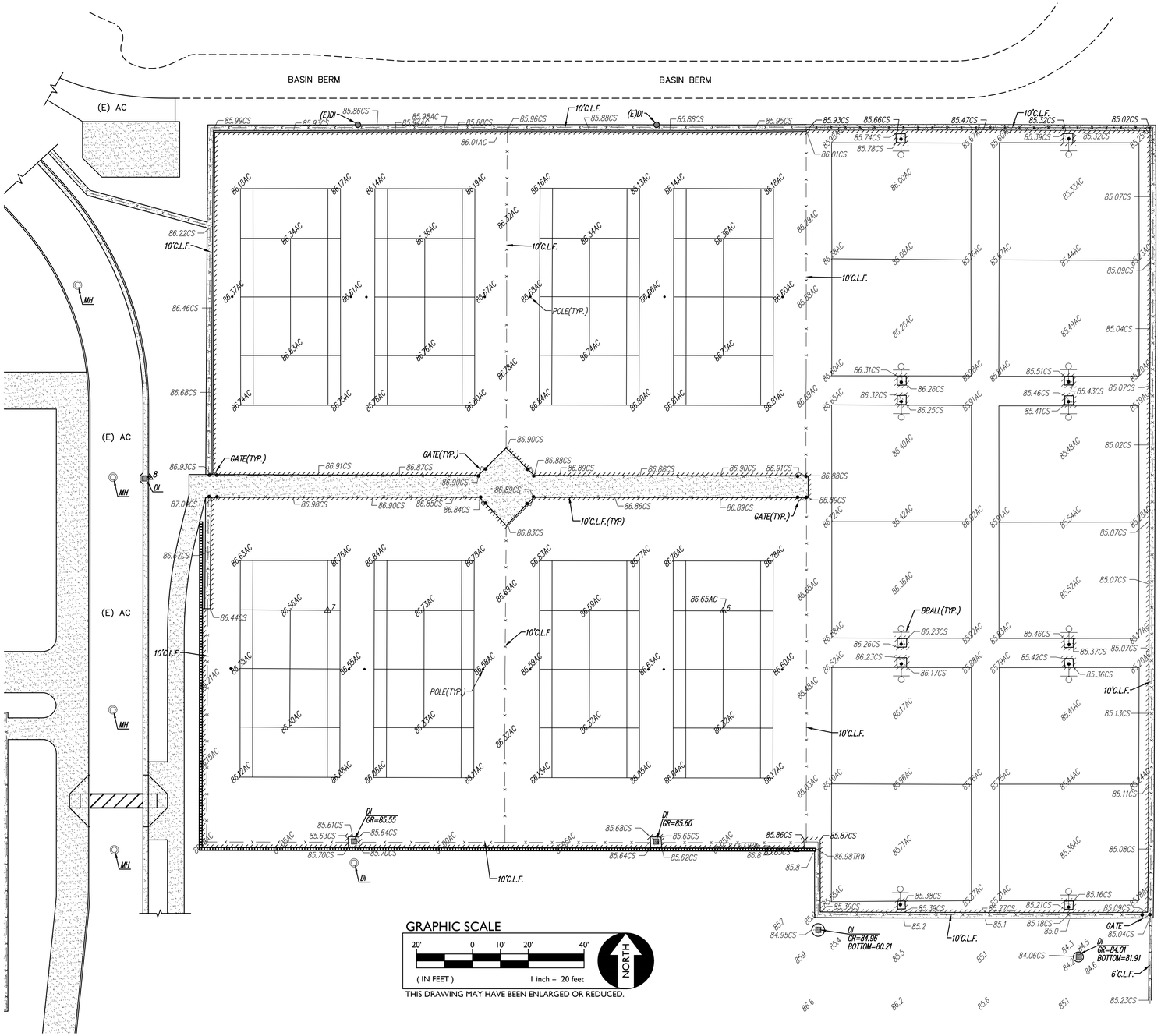
DRAWN: SMN	SCALE: AS NOTED
CHECKED: AT	PROJECT NO. 21-129
DESIGNED: SMN/AT	DATE: 11-11-2022

ISSUANCE: BID SET

SHEET TITLE: **COVER SHEET**

SHEET NO. **C0.0**

FILENAME:I:\21-129\CIVIL\DWG\21-129-C0.0.DWG PLOTTED:Tuesday, November 15, 2022



EXISTING TOPOGRAPHY

- = PROPERTY LINE
- = CENTERLINE
- = easement
- = PROPERTY CORNER FOUND AS NOTED
- = PROPERTY CORNER NOTHING FOUND OR SET
- 123 = TEMPORARY BENCHMARK (SEE TBM LIST FOR INFO)
- = SWALE OR DRAINAGE FLOW
- = DRAINAGE FLOW
- = FENCE (TYPE NOTED)
- = TREE (SIZE/TYPE INDICATED)
- = SLOPE
- 100 = CONTOUR
- = CONCRETE SURFACE
- = EDGE OF ASPHALT
- = EDGE OF BUILDING
- = SIGN
- = POST OR BOLLARD
- 99.9 = GROUND ELEVATION
- 99.99 = HARD SURFACE ELEVATION

EXISTING UTILITIES

- 12"SD = storm drain line (size & direction of flow)
- 12"SD = storm drain line (record information)
- 12"SD = storm drain line (UNDERGROUND LOCATING)
- SD = storm drain manhole
- = storm drain cleanout
- = drop inlet
- = AREA DRAIN
- RWL = RAIN WATER LEADER
- DS = downspout
- 12"SS = sanitary sewer line (size & direction of flow)
- 12"SS = sanitary sewer line (record information)
- 12"SS = sanitary sewer line (UNDERGROUND LOCATING)
- SS = sanitary sewer manhole
- = sanitary sewer cleanout
- W = water line (size indicated)
- W = water line (record information)
- W = water line (UNDERGROUND LOCATING)
- W = water manhole
- = water valve
- = water meter
- = water box
- = IRRIGATION CONTROL VALVE
- = FIRE HYDRANT
- = backflow preventer
- = SPRINKLER
- = hose bibb
- OH-E = OVERHEAD ELECTRIC LINE
- E = UNDERGROUND ELECTRIC LINE
- E = UNDERGROUND ELECTRIC LINE (record information)
- E = UNDERGROUND ELECTRIC LINE (UNDERGROUND LOCATING)
- E = ELECTRIC MANHOLE
- = UTILITY POLE (WITH GUY WIRE)
- = ELECTRIC METER
- E = ELECTRIC BOX
- = STREET LIGHTING BOX
- OR = LIGHT STANDARD
- = SIGNAL LIGHT
- = FLOOD LIGHT
- = ELECTRICAL OUTLET
- G = GAS LINE (SIZE INDICATED)
- G = GAS LINE (record information)
- G = GAS LINE (UNDERGROUND LOCATING)
- G = GAS MANHOLE
- = GAS VALVE
- = GAS METER
- t = telephone line
- t = telephone line (record information)
- t = telephone line (UNDERGROUND LOCATING)
- = STORM DRAIN BOX
- = TRAFFIC SIGNAL BOX

ABBREVIATIONS

NOTE: NOT ALL ABBREVIATIONS MAY BE USED ON THESE PLANS.

ac	asphaltic concrete
acC	ACCESSIBLE
acu	air conditioning unit
ad	area drain
apn	assessor's parcel number
arv	air release valve
bball	basketball pole
BCM	BRASS CAP MONUMENT
bfp	back flow preventer
BL	BLOCK
bldg	building
BOL	BOLLARD
bov	blow-off valve
BR.	BRICK
B.W.F.	BARBED WIRE FENCE
C	COMMUNICATION
c/l	centerline
CATV	CABLE TELEVISION
CIP	CAPPED IRON PIPE
C.L.F.	CHAIN LINK FENCE
cmp	corrugated metal pipe
co	cleanout
COL	COLUMN
conc.	concrete
cond.	condensate
cpf	control point found
cps	control point set
CS	CONCRETE SURFACE
D	DEPTH
ddc	double detector check valve
df	drinking fountain
dg	decomposed granite
di	drop inlet
dia	diameter
drwy	driveway
ds	downspout
dwg	drawing
E	ELECTRIC
ep	edge of pavement
esmt	easement
ex	existing
fa	fire alarm
fdc	fire department connection
ffe	finished floor elevation
fh	fire hydrant
FL	flowline
fo	fiber optic
fs	fire service
G	GAS
GB	GRADE BREAK
Gr	grate
grb	GROUND ROD BOX
grod	ground rod
gv	gas valve
HB	HOSE BIBB
HBD	HEADER BOARD
HP	high PRESSURE
HR	HANDRAIL
HVE	HIGH VOLTAGE ELECTRIC
HWF	HOG WIRE FENCE
ICP	irrigation control PANEL
icv	irrigation control valve
inv	pipe invert elevation
irr	irrigation
jp	joint utility pole
jt	joint trench
LNDG	LANDING
lve	low voltage ELECTRIC
M.	METAL
mh	manhole
MS	MOW STRIP
MSC	METAL STORAGE CONTAINER
nts	not to scale
oh	OVERHEAD
OHANG	OVERHANG
OIP	OPEN IRON PIPE
OSPH	OLD STEEL POST HOLE
p/l	property line
PA	PLANTER AREA
PB	PARKING BUMPER
PH	POSTHOLE
piv	post indicator valve
pp	power pole
prkg	parking
pue	public utility easement
pv	PAVERS
pvc	polyvinyl chloride
R	RUBBER
rim	manhole rim elevation
row	right of way
RP	REDUCED PRESSURE BACKFLOW PREVENTER
RWALL	RETAINING WALL
RWL	RAIN WATER LEADER
sd	storm drain
sdmh	storm drain manhole
SIG	SIGNAL
SL	STREET LIGHT
slb	street light box
ss	sanitary sewer
ssco	sanitary sewer cleanout
ssmh	sanitary sewer manhole
STL	STEEL
T	TELEPHONE
tball	tether ball pole
TBM	TEMPORARY BENCHMARK
tc	top of curb
tOW	top of wall
tp	telephone pole
trw	top of retaining wall
ug	underground
UNK	UNKNOWN
vball	volleyball
W	WATER
w/	with
w/o	without
wd.	wood
w.i.f.	wrought iron fence
W.R.F.	WOOD RAIL FENCE
xFRMR	TRANSFORMER
xwalk	crosswalk

TBM LIST

Number	DESCRIPTION	Northing	Easting	Elevation
1	CPS MAG NAIL	5000.00	5000.00	100.00
2	CPS MAG NAIL	4469.70	5000.00	99.95
3	CPS CHISELED "+"	4979.30	5866.55	92.56
4	CPS CHISELED "+"	4975.99	5536.91	93.04
5	CPS CHISELED "+"	5548.23	5960.08	91.88
6	CPS MAG NAIL	5919.49	6163.40	86.65
7	CPS MAG NAIL	5919.68	6021.63	86.65
8	CPS CHISELED "+"	5967.42	5957.90	91.78

BASIS OF BEARINGS:

ASSUMED
HELD TEMPORARY BENCHMARK (TBM) #1 (SET MAG NAIL) TO TBM #2 (SET MAG NAIL).
S00°00'00"E

NOTE:
EXISTING UTILITIES BASED ON VISIBLE SURFACE STRUCTURES ONLY.

DSA

ENGINEER:

WARREN CONSULTING ENGINEERS, INC.
1117 WINDFIELD WAY, SUITE 110
EL DORADO HILLS, CA 95762 | (916) 985-1870

CONSULTANT:

OWNER:

TRACY UNIFIED SCHOOL DISTRICT

Tracy Unified School District
1875 W. Lowell Avenue
Tracy, CA 95376
Phone: (209) 830-3200

REGISTERED PROFESSIONAL ENGINEER
ANTHONY J. TASSANO
NO. C74696
STATE OF CALIFORNIA
11/15/2022

John C. Kimball High School Tennis Court Repairs

3200 Jaguar Run
Tracy, CA 95377

REVISIONS

NO.	DESCRIPTION

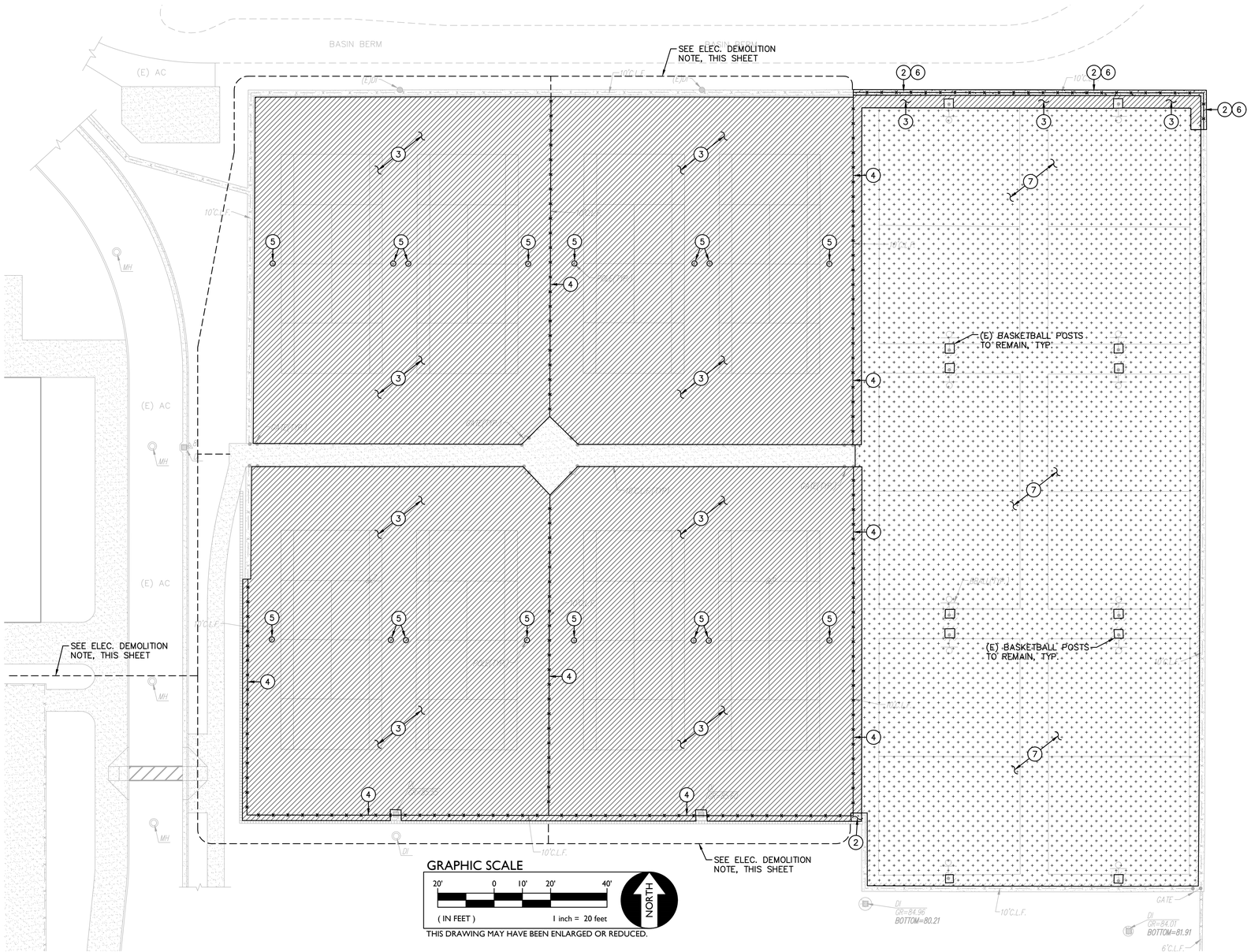
DRAWN: SMN	SCALE: AS NOTED
CHECKED: AT	PROJECT NO. 21-129
DESIGNED: SMN/AT	DATE: 11-11-2022

ISSUANCE: BID SET

SHEET TITLE: **TOPOGRAPHIC SURVEY**

SHEET NO. **C0.1**

FILENAME:I:\21-129\CIVIL\DWG\21-129-C0.1.DWG PLOTTED: Tuesday, November 15, 2022



1 DEMOLITION NOTES

SCALE 1" = 20'-0"

CAL-GREEN - Waste Diversion:

5.408.1 Construction waste management. Recycle and/or salvage for reuse a minimum of 65 percent of the nonhazardous construction and demolition waste in accordance with Section 5.408.1.1, 5.408.1.2 or 5.408.1.3; or meet a local construction and demolition waste management ordinance, whichever is more stringent.

5.408.1.1 Construction waste management plan. Where a local jurisdiction does not have a construction and demolition waste management ordinance that is more stringent, submit a construction waste management plan that:

1. Contractor shall Identify the construction and demolition waste materials to be diverted from disposal, to comply with 65% criteria listed above, by efficient usage, recycling, reuse on the project or salvage for future use or sale.
2. Contractor shall determines if construction and demolition waste materials will be sorted on-site (source-separated) or bulk mixed (single stream). Either method is the responsibility of the contractor.
3. Contractor shall Identify diversion facilities where construction and demolition waste material collected will be taken. Transport to such facilities is contractors responsibility.
4. Contractor shall record and provide record of the amount of construction and demolition waste materials diverted shall be calculated by weight or volume, but not by both.

5.408.1.2 Waste management company. Utilize a waste management company that can provide verifiable documentation that the percentage of construction and demolition waste material diverted from the landfill complies with this section.

Contractor shall make the determination if the construction and demolition waste material will be diverted by a waste management company. Contractor shall make any and all arrangements with waste management company for pickup of materials.

Exceptions to Sections 5.408.1.1 and 5.408.1.2:

1. Excavated soil and land-clearing debris.
2. Alternate waste reduction methods developed by working with local agencies if diversion or recycle facilities capable of compliance with this item do not exist.
3. Demolition waste meeting local ordinance or calculated in consideration of local recycling facilities and markets.

5.408.1.3 Waste stream reduction alternative. The combined weight of new construction disposal that does not exceed two pounds per square foot of building area may be deemed to meet the 65 percent minimum requirement as approved by the enforcing agency.

CAL-GREEN - Waste Diversion Documentation Required:

(Ref Calgreen 5.408.1.4)
Contractor shall prepare and provide documentation to the enforcing agency which demonstrates compliance with Calgreen Sections 5.408.1.1 through 5.408.1.3. The waste management plan shall be updated as necessary and shall be accessible during construction for examination by the enforcing agency.

Notes:

1. Sample forms found in "A Guide to the California Green Building Standards Code (Nonresidential)" located at http://www.bsc.ca.gov/Home/CALGreen. aspx may be used to assist in documenting compliance with the waste management plan.
2. Mixed construction and demolition debris (C&D) processors can be located at the California Department of Resources Recycling and Recovery (CalRecycle).

CAL-GREEN - Excavated Soil & Land Clearing:

5.408.3 Excavated soil and land clearing debris. 100 percent of trees, stumps, rocks and associated vegetation and soils resulting primarily from land clearing shall be reused or recycled. For a phased project, such material may be stockpiled on site until the storage site is developed.

Exception: Reuse, either on-or off-site, of vegetation or soil contaminated by disease or pest infestation.

Notes:

1. If contamination by disease or pest infestation is suspected, contact the County Agricultural Commissioner and follow its direction for recycling or disposal of the material. (www.cdfa.ca.gov/exec/county/county_contacts.html)
2. For a map of known pest and/or disease quarantine zones, consult with the California Department of Food and Agriculture. (www.cdfa.ca.gov)

Electrical & Other Utility Demolition

SAWCUTS AND SUBSEQUENT PATCH BACK OF CONCRETE WALKS, ASPHALT AND , PLANTING AND OTHER SURFACES MAY BE REQUIRE TO INSTALL UTILITIES DESIGNED BY OTHERS. REFER TO ELECTRICAL PLANS FOR ADDITIONAL DEMOLITION RELATED TO TRENCHING AND ELECTRICAL CONNECTIONS TO EXISTING SYSTEMS. PATCH BACK PAVING AND SURFACING IN ACCORDANCE WITH SECTION 31 23 33.

NOTE: ELECTRICAL PLANS ARE GENERALLY SCHEMATIC IN NATURE WITH REGARD TO TRENCH LOCATIONS. CONTRACTOR SHOULD REVIEW PATH IN FIELD AND MAKE MINOR CORRECTIONS RE-ALIGNMENTS AS NEEDED BASED ON FIELD CONDITIONS WITH THE APPROVAL OF THE ENGINEER.

Concrete Sawcut Note:

SAWCUTS AND SUBSEQUENT PATCH BACK OF CONCRETE WALKS, SHALL BE TO THE EXISTING CONCRETE JOINT BEYOND NEAREST THE LOCATION OF DEMOLITION AS SHOWN. A REASONABLE EFFORT HAS BEEN MADE TO LOCATE, SHOW AND COORDINATE WITH EXISTING JOINTS, HOWEVER IF FIELD CONDITIONS ARE OTHERWISE, IT IS UNDERSTOOD TO REMOVE AND PATCH BACK TO THE NEAREST JOINTS BEYOND DEMOLITION.

Dust Control:

CONTRACTOR SHALL PROVIDE DUST CONTROL MEASURES AT ALL TIMES WHEN A SITE CONSTRUCTION ACTIVITY MAY GENERATE AIRBORNE DUST, INCLUDING BUT NOT LIMITED TO, APPLICATION OF WATER, HAUL TRUCK COVERS, STOCKPILE COVERS, STRAW/MULCH, APPROVED SOIL STABILIZATION CHEMICALS/TACKIFIERS, RETAINED VEGITATION, HYDROSEED, ETC. REFER TO CONTRACTORS SWPPP, PROJECT SPECIFICATION SECTION 31 10 00, 1.06.

Utility Verification Note:

PRIOR TO THE START OF CONSTRUCTION, VERIFY AND POTHOLE ALL UTILITY POINTS OF CONNECTION FOR LOCATION, DEPTH, AND SIZE. IF CONFLICT IS FOUND, CONTACT THE ENGINEER IMMEDIATELY FOR DIRECTION.

DEMOLITION GENERAL NOTES

1. IN THE EVENT THAT ANY UNUSUAL CONDITIONS NOT COVERED BY THE GEOTECHNICAL INVESTIGATION REPORT OR ARE ENCOUNTERED DURING GRADING OPERATIONS THE GEOTECHNICAL ENGINEER AND THE ENGINEER SHALL BE IMMEDIATELY NOTIFIED FOR DIRECTIONS.
2. NO BURNING OR BLASTING SHALL BE PERMITTED.
3. ADDITIONAL DEMOLITION INFORMATION MAY BE SHOWN ON THE GRADING, DRAINAGE, AND UTILITY PLANS, AND THOSE PLANS PREPARED BY OTHER DISCIPLINES FOR THIS PROJECT.
4. ALL DEMOLISHED ITEMS SHALL BE DISPOSED OF OFFSITE AT A SUITABLE, LEGAL, DUMP SITE OR OTHER FACILITY.
5. ALL DISPOSED OF MATERIALS SHALL BE RECYCLED IF POSSIBLE.
6. THE TYPES, LOCATIONS, SIZES AND/OR DEPTHS OF EXISTING UNDERGROUND UTILITIES AS SHOWN IN THESE PLANS WERE OBTAINED FROM SOURCES OF VARYING RELIABILITY. THE CONTRACTOR IS CAUTIONED THAT ONLY ACTUAL EXCAVATION WILL REVEAL THE TYPES, EXTENT, SIZES, LOCATIONS, AND DEPTHS OF SUCH UNDERGROUND UTILITIES. A REASONABLE EFFORT HAS BEEN MADE TO LOCATE AND DELINEATE ALL KNOWN UNDERGROUND UTILITIES. HOWEVER, WARREN CONSULTING ENGINEERS CAN ASSUME NO RESPONSIBILITY FOR THE COMPLETENESS OR ACCURACY OF ITS DELINEATION OF SUCH UNDERGROUND UTILITIES, NOR FOR THE EXISTENCE OF OTHER BURIED OBJECTS OR UTILITIES WHICH MAY BE ENCOUNTERED BUT WHICH ARE NOT SHOWN ON THESE DRAWINGS. THE CONTRACTOR OR ANY SUBCONTRACTOR FOR THIS CONTRACT SHALL NOTIFY THE DISTRICT TWO (2) WORKING DAYS IN ADVANCE OF PERFORMING ANY EXCAVATION WORK IN ORDER TO VERIFY TO THE GREATEST EXTENT POSSIBLE THE EXISTING UTILITY LINES, CONFLICTS AND PROPOSED UTILITY CONNECTION POINTS.

811 Know what's below. Call before you dig.

7. THE SCHOOL DISTRICT SHALL HAVE SALVAGE RIGHTS TO ANY DEMOLISHED ITEMS SHOWN HEREON. THE CONTRACTOR SHALL GIVE THE DISTRICT NOTICE 7 DAYS PRIOR TO THE START OF DEMOLITION. THE DISTRICT SHALL MOVE ANY RETAINED ITEMS OUT OF THE CONTRACTORS WORK AREA, UNLESS ANOTHER ARRANGEMENT IS MADE WITH THE CONTRACTOR. ANY REMAINING ITEMS BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE SITE. ANY ITEMS NOT SHOWN FOR REMOVAL SHALL REMAIN AND SHALL BE PROTECTED FROM DAMAGE DURING CONSTRUCTION TO A REASONABLE EXTEND.
8. EXISTING UTILITY STRUCTURES IN AREAS OF NEW PAVING SHALL BE REMOVED AND REINSTALLED AT NEW GRADE UNLESS SPECIFICALLY NOTED OTHERWISE.
9. ITEMS OUTSIDE THE LIMITS OF DEMOLITION SHALL REMAIN AND BE PROTECTED FROM DAMAGE DURING CONSTRUCTION..
10. CONTRACTOR SHALL COMPLY WITH CHAPTER 33 OF THE 2014 CFC, "FIRE SAFETY DURING CONSTRUCTION AND DEMOLITION" AT ALL TIMES DURING CONSTRUCTION.
11. CONTRACTOR SHALL HIRE A UTILITY LOCATING COMPANY AND SHALL SCAN THE ENTIRE AREA WITHIN THE LIMITS OF NEW WORK. ALL UTILITIES LOCATED SHALL BE MARKED AND PROTECTED DURING THE LIMING OPERATIONS AS WELL AS ANY EXCAVATING TASKS. ANY LOCATED UTILITY DAMAGED WITHIN THE LIMITS OF WORK WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO REPAIR.
12. ALL DEMOLITION SHALL BE APPROPRIATELY SUPPORTED AND REINFORCED DURING REMOVAL TO PREVENT INJURY FROM FALLING, PROJECTILE, OR OTHERWISE MOVING DEBRIS OR OTHER DELETERIOUS MATERIAL. ONSITE SAFETY WITHIN THE LIMITS OF WORK IS THE CONTRACTORS SOLE RESPONSIBILITY.

DEMOLITION NOTES

LEGEND	AND/OR	DEMOLITION NOTES
		1. REMOVE ALL PLANTS, SHRUBS, EXISTING VEGETATION, AND IRRIGATION SYSTEMS. REFER TO EARTHWORK SPECIFICATIONS FOR ADDITIONAL SITE CLEARING REQUIREMENTS. SEE GENERAL IRRIGATION NOTE, THIS SHEET.
		2. REMOVE EXISTING CONCRETE PAVING AND BASE AGGREGATES (IF EXIST). WHERE SAWCUTS ARE NECESSARY, THEY SHALL BE A NEAT STRAIGHT LINE. CUT SHALL BE MADE AT NEAREST EXISTING JOINT TO LOCATION SHOWN.
		3. SAWCUT AND REMOVE EXISTING ASPHALT PAVING AND BASE AGGREGATE TO PROVIDE FOR NEW CONSTRUCTION. SAWCUTS SHALL BE NEAT AND STRAIGHT. MAINTAIN CLEAN STRAIGHT CUT EDGE UNTIL NEW PAVING PLACED, OR NEW CUTS WILL BE REQUIRED.
		4. TEMPORARILY REMOVE EXISTING FENCING FABRIC TO ALLOW NEW CONSTRUCTION. POSTS AND FOOTINGS TO REMAIN AND BE PROTECTED. SEE GRADING/CONSTRUCTION PLANS.
		5. REMOVE EXISTING TENNIS NET GAME POSTS AND CONCRETE BASE. BACKFILL VOID PER EARTHWORK SPECIFICATIONS, OR WITH CLASS II AB COMPACTED IN 6" LIFTS, EACH COMPACTED TO 95%.
		6. REMOVE EXISTING CHAIN LINK FENCING. SALVAGE FENCING MESH FOR RE-USE. SEE GRADING AND CONSTRUCTION PLAN FOR NEW FENCING.
		7. CRACK FILL AND PATCH EXISTING HARDCOURT FOR NEW SEALCOAT IN ACCORDANCE WITH SECTION 32 12 00. SEE ADD ALTERNATE NO. 1 LISTED BELOW.

ADD ALTERNATE NO.1

SAWCUT AND REMOVE EXISTING ASPHALT PAVING AND BASE AGGREGATE TO PROVIDE FOR NEW CONSTRUCTION. SAWCUTS SHALL BE NEAT AND STRAIGHT. MAINTAIN CLEAN STRAIGHT CUT EDGE UNTIL NEW PAVING PLACED, OR NEW CUTS WILL BE REQUIRED.

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CONSULTANT:

OWNER:

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Tracy, CA 95376
Phone: (209) 830-3200

REGISTERED PROFESSIONAL ENGINEER ANTHONY J. TASSANO NO. C74696 STATE OF CALIFORNIA
11/15/2022

John C. Kimball High School Tennis Court Repairs

3200 Jaguar Run
Tracy, CA 95377

REVISIONS

NO.	DESCRIPTION

DRAWN: SMN	SCALE: AS NOTED
CHECKED: AT	PROJECT NO. 21-129
DESIGNED: SMN/AT	DATE: 11-11-2022

ISSUANCE: BID SET

SHEET TITLE: DEMOLITION PLAN

SHEET NO. C1.1

FILENAME:I:\21-129\CIVIL\DWG\21-129-C1.1.DWG PLOTTED: Tuesday, November 15, 2022

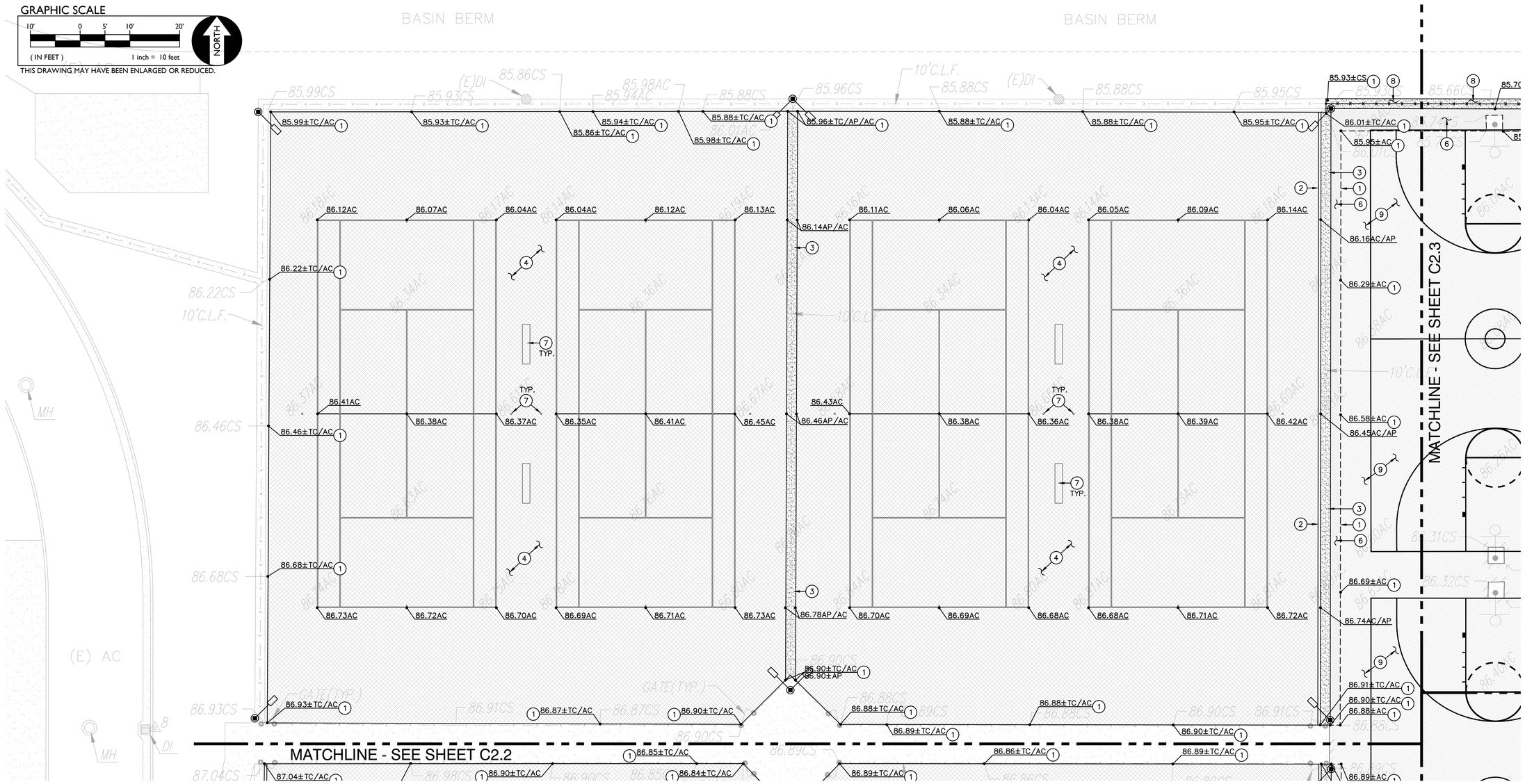
GRAPHIC SCALE

10' 0 5' 10' 20'

(IN FEET) 1 inch = 10 feet

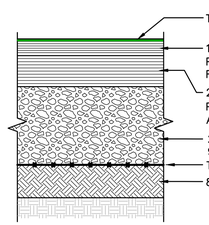
NORTH

THIS DRAWING MAY HAVE BEEN ENLARGED OR REDUCED.



1 GRADING AND CONSTRUCTION PLAN

SCALE 1" = 10'-0"



1 / C2.1 TYPICAL COURT SECTION

NO SCALE

GRADING NOTES

1. MATCH EXISTING GRADE/ELEVATION. WHEN MATCHING NEW SLABS TO EXISTING, DOWEL SLABS PER THE DETAIL PROVIDED AT 24" O.C.
2. CONSTRUCT CONCRETE BARRIER CURB PER THE DETAIL (1/C4.1) PROVIDED.
3. CONSTRUCT 24" WIDE CONCRETE APRON AT EXISTING FENCING (2/C4.1) PER THE DETAIL PROVIDED.
4. PLACE TWO LIFT TENNIS COURT PAVING, 1.5" THICK SURFACE COURSE WITH 3/8" TYPE "A" PG 64-28 POLYMER MODIFIED AC, OVER 2.5" THICK BASE COURSE OF 3/4" TYPE "A" PG 64-28 POLYMER MODIFIED AC WITH FORTI-FI (OR APPROVED EQUAL) AC REINFORCEMENT, OVER 24" CLASS II AB ON GEOGRID, TENSAR TX140 (OR APPROVED EQUAL) ON PREPARED SUBGRADE. SUBGRADE PREPARED IN ACCORDANCE WITH SPECIFICATIONS SECTION 31 00 00. ASPHALT SHALL BE PER SECTION 32 12 00. SEE STRIPING AND SURFACING PLAN FOR TENNIS COURT SURFACING. (1/C2.2)
5. SAWCUT EDGE OF EXISTING FENCE POST FOOTING TO ALLOW FLAT EDGE TO TIE IN NEW CONCRETE APRON AND CURB.
6. PLACE 3" TYPE B ASPHALT PAVING (3/8" OR 1/2") OVER 24" CLASS II AB ON GEOGRID, TENSAR TX140 (OR APPROVED EQUAL) ON PREPARED SUBGRADE. SUBGRADE PREPARED IN ACCORDANCE WITH SPECIFICATIONS SECTION 31 00 00. ASPHALT SHALL BE PER SECTION 32 12 00.
7. SEE SURFACING, STRIPING AND EQUIPMENT PLAN FOR GAME EQUIPMENT.
8. CONSTRUCT 24" WIDE CONCRETE APRON AT NEW FENCING PER (3/C4.1) THE DETAIL PROVIDED.
9. FOLLOWING CLEANING CRACK FILLING AND PATCHING, PLACE 2 COATS PAVEMENT SEALER PER SPECIFICATIONS, 31 12 00. SEE ADD ALTERNATE NO. 1 BELOW:

ADD ALTERNATE NO.1
PLACE NEW ASPHALT PAVING PER NOTE 6 ABOVE. AT CONTRACTORS OPTION, 24" OF CLASS II AB AND GEOGRID MAY BE SUBSTITUTED WITH 10" OF CLASS II AB OVER 18" OF LIME TREATED SUBGRADE.

DSA

ENGINEER:

WCE
WARREN CONSULTING ENGINEERS, INC.
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DRAWN: SMN	SCALE: AS NOTED
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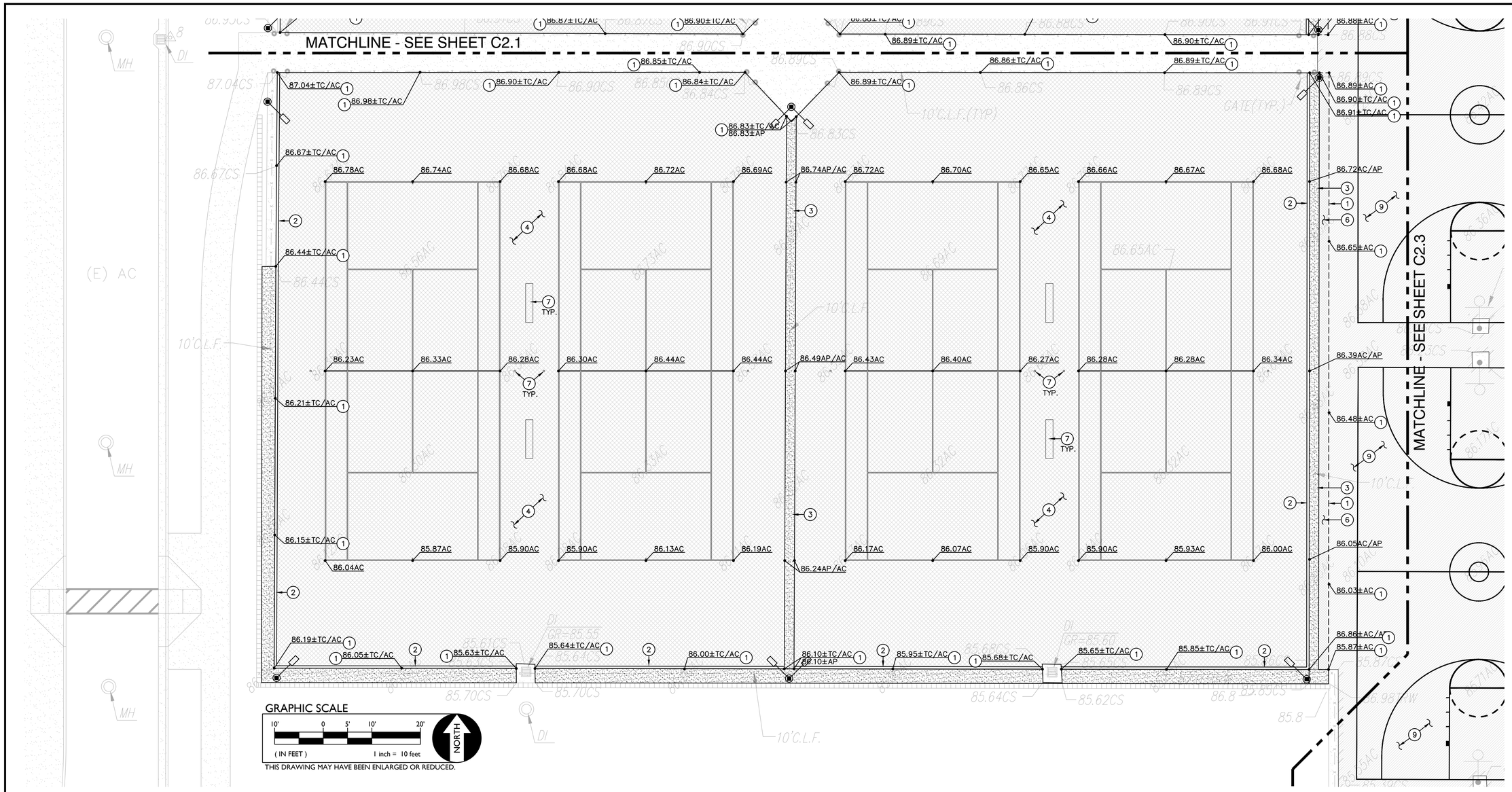
ISSUANCE: BID SET

SHEET TITLE: GRADING AND CONSTRUCTION PLAN

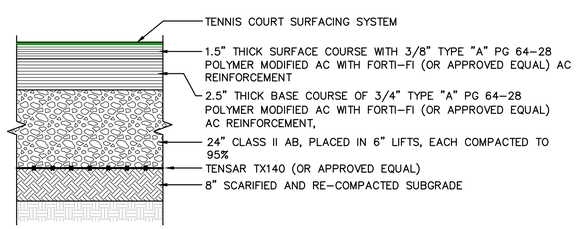
SHEET NO. C2.1

FILENAME:I:\21-129\CIVIL\DWG\21-129-C2.1.DWG PLOTTED: Tuesday, November 15, 2022



1 GRADING AND CONSTRUCTION PLAN

SCALE 1" = 10'–0"



1 / C2.2 TYPICAL COURT SECTION

NO SCALE

GRADING NOTES

1. MATCH EXISTING GRADE/ELEVATION. WHEN MATCHING NEW SLABS TO EXISTING, DOWEL SLABS PER THE DETAIL PROVIDED AT 24" O.C.
2. CONSTRUCT CONCRETE BARRIER CURB PER THE DETAIL (1 / C4.1) PROVIDED.
3. CONSTRUCT 24" WIDE CONCRETE APRON AT EXISTING FENCING (2 / C4.1) PER THE DETAIL PROVIDED.
4. PLACE TWO LIFT TENNIS COURT PAVING, 1.5" THICK SURFACE COURSE WITH 3/8" TYPE "A" PG 64–28 POLYMER MODIFIED AC, OVER 2.5" THICK BASE COURSE OF 3/4" TYPE "A" PG 64–28 POLYMER MODIFIED AC WITH FORTI–FI (OR APPROVED EQUAL) AC REINFORCEMENT, OVER 24" CLASS II AB ON GEOGRID, TENSAR TX140 (OR APPROVED EQUAL) ON PREPARED SUBGRADE. SUBGRADE PREPARED IN ACCORDANCE WITH SPECIFICATIONS SECTION 31 00 00. ASPHALT SHALL BE PER SECTION 32 12 00. SEE STRIPING AND SURFACING PLAN FOR TENNIS COURT SURFACING. (1 / C2.2)
5. SAWCUT EDGE OF EXISTING FENCE POST FOOTING TO ALLOW FLAT EDGE TO TIE IN NEW CONCRETE APRON AND CURB.
6. PLACE 3" TYPE B ASPHALT PAVING (3/8" OR 1/2") OVER 24" CLASS II AB ON GEOGRID, TENSAR TX140 (OR APPROVED EQUAL) ON PREPARED SUBGRADE. SUBGRADE PREPARED IN ACCORDANCE WITH SPECIFICATIONS SECTION 31 00 00. ASPHALT SHALL BE PER SECTION 32 12 00.
7. SEE SURFACING, STRIPING AND EQUIPMENT PLAN FOR GAME EQUIPMENT.
8. CONSTRUCT 24" WIDE CONCRETE APRON AT NEW FENCING PER (3 / C4.1) THE DETAIL PROVIDED.
9. FOLLOWING CLEANING CRACK FILLING AND PATCHING, PLACE 2 COATS PAVEMENT SEALER PER SPECIFICATIONS, 31 12 00. SEE ADD ALTERNATE NO. 1 BELOW:

ADD ALTERNATE NO.1
PLACE NEW ASPHALT PAVING PER NOTE 6 ABOVE. AT CONTRACTORS OPTION, 24" OF CLASS II AB AND GEOGRID MAY BE SUBSTITUTED WITH 10" OF CLASS II AB OVER 18" OF LIME TREATED SUBGRADE.

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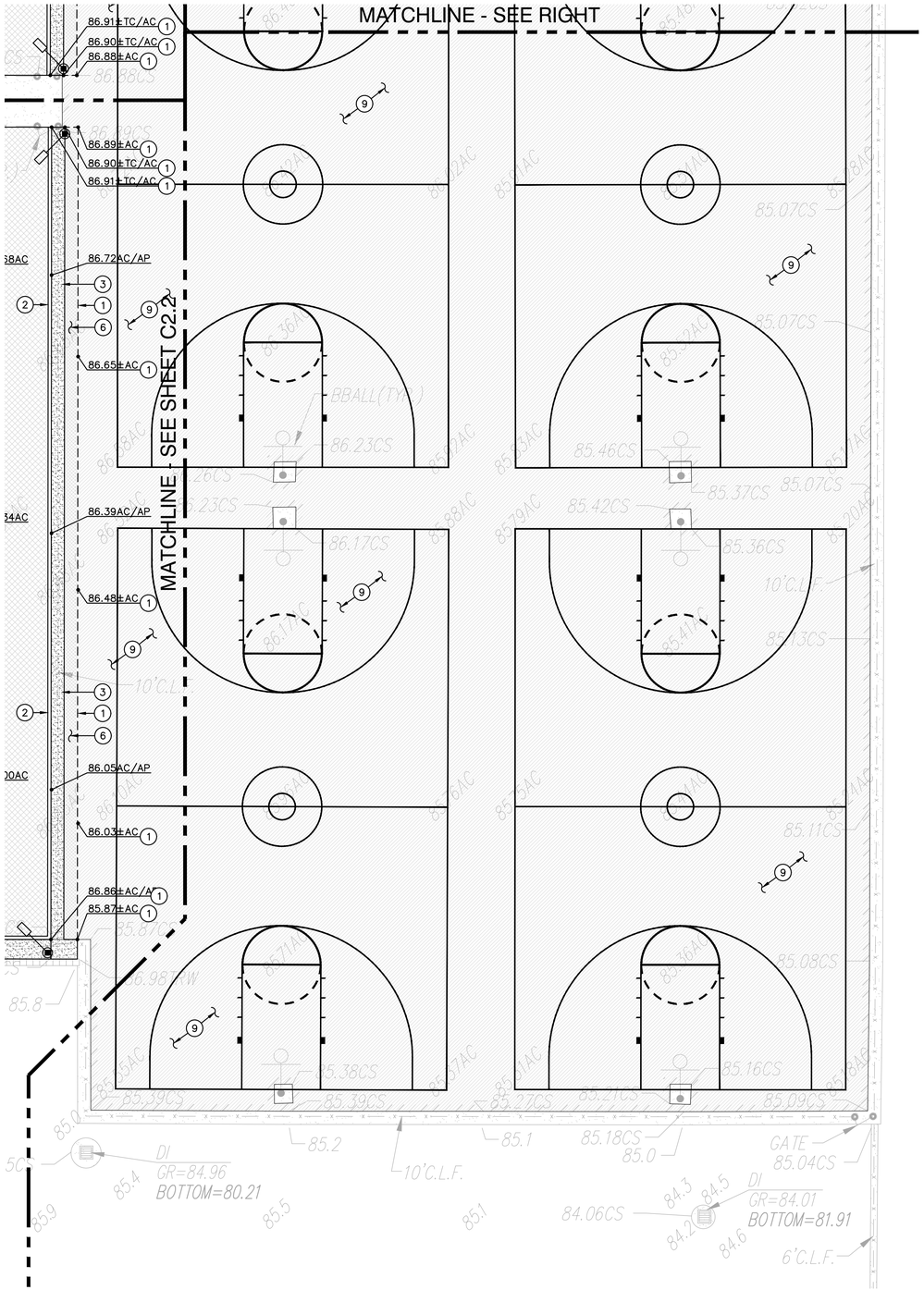
ISSUANCE: BID SET

SHEET TITLE: GRADING AND CONSTRUCTION PLAN

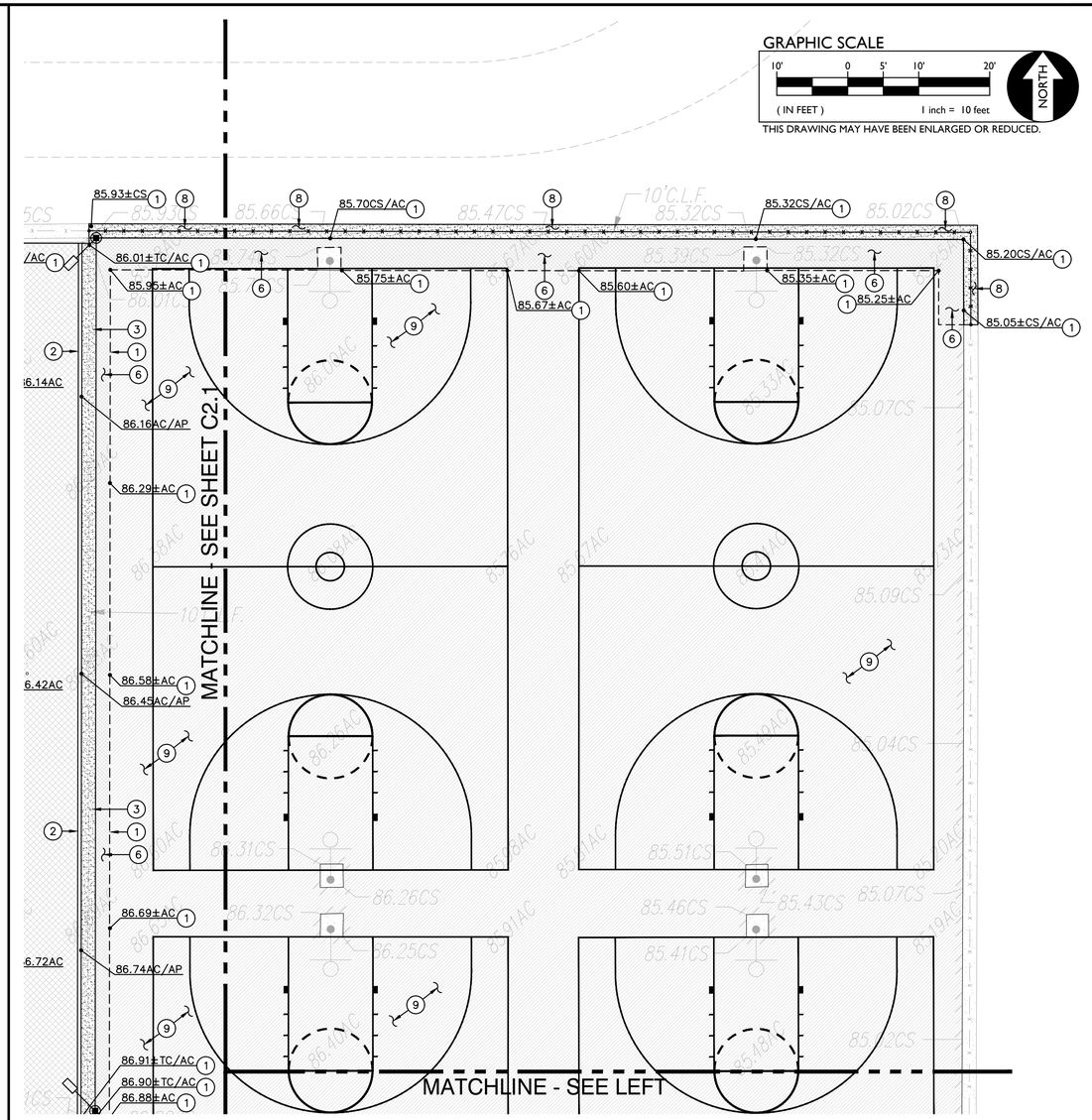
SHEET NO. C2.2

FILENAME:I:\21-129\CIVIL\DWG\21-129-C2.1.DWG PLOTTED:Tuesday, November 15, 2022



2 GRADING AND CONSTRUCTION PLAN

SCALE 1" = 10'-0"



1 GRADING AND CONSTRUCTION PLAN

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5. SAWCUT EDGE OF EXISTING FENCE POST FOOTING TO ALLOW FLAT EDGE TO TIE IN NEW CONCRETE APRON AND CURB.
6. PLACE 3" TYPE B ASPHALT PAVING (3/8" OR 1/2") OVER 24" CLASS II AB ON GEOGRID, TENSAR TX140 (OR APPROVED EQUAL) ON PREPARED SUBGRADE. SUBGRADE PREPARED IN ACCORDANCE WITH SPECIFICATIONS SECTION 31 00 00. ASPHALT SHALL BE PER SECTION 32 12 00.
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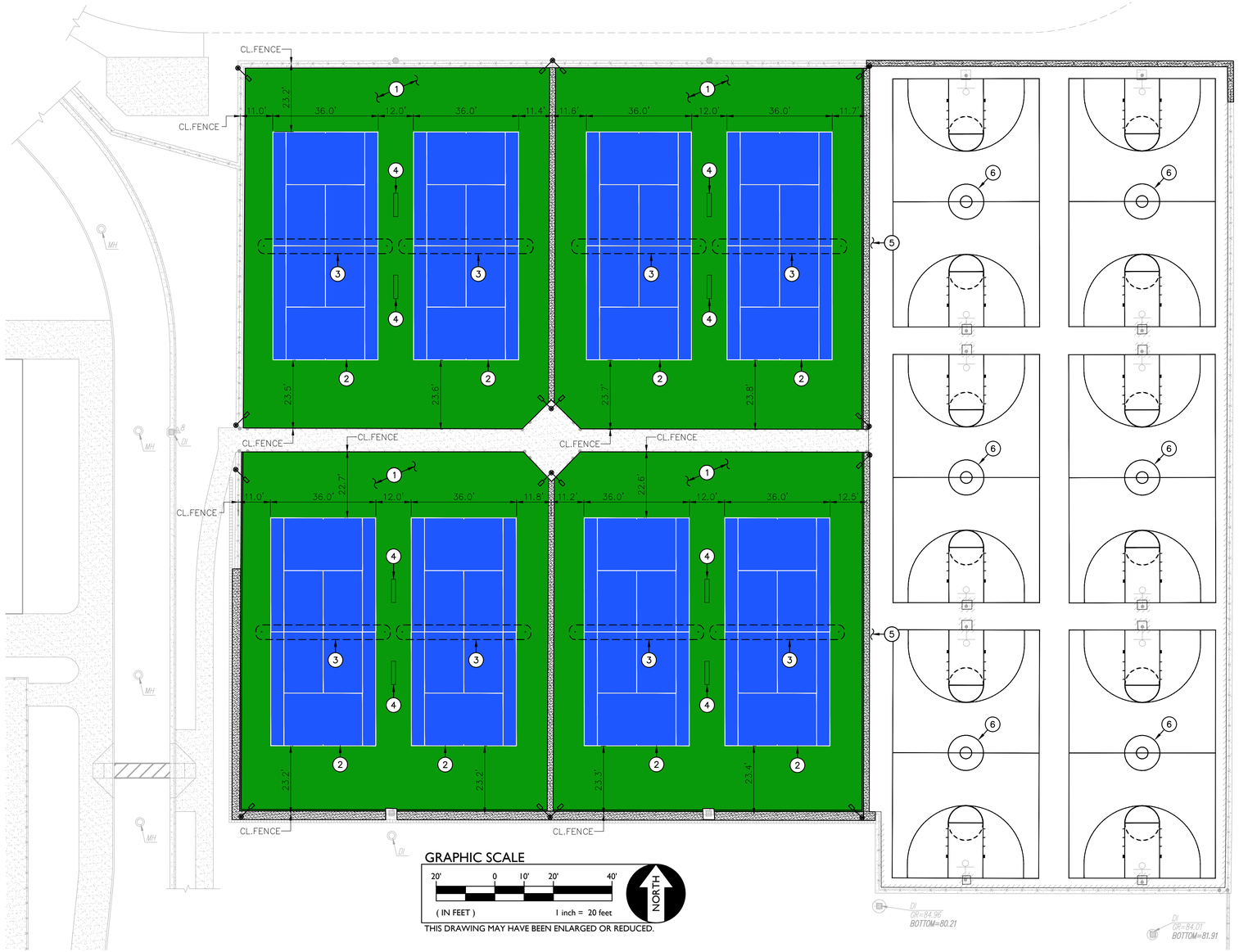
ISSUANCE: BID SET

SHEET TITLE: GRADING AND CONSTRUCTION PLAN

SHEET NO. C2.3

FILENAME:I:\21-129\CIVIL\DWG\21-129-C2.1.DWG PLOTTED:Tuesday, November 15, 2022



STRIPING & EQUIPMENT PLAN

(#) STRIPING NOTES

1. PROVIDE AND INSTALL COMPLETE PLEXI TENNIS COURT SURFACING SYSTEM OR APPROVED EQUAL. INSTALLATION SHALL INCLUDE MIN. 2 COATS SANDED PLEXI ACRYLIC RE-SURFACER AND 2 COATS PLEXIPAVE SAND FORTIFIED COLOR. PROVIDE ALTERNATE INNER COURT COLORING AS INDICATED BELOW. COMPLETE INSTALLATION SHALL BE IN ACCORDANCE WITH CALIFORNIA SPORT SURFACES INSTALLATION RECOMMENDATIONS.

   INNER COURT, DARK BLUE*

   OUTER COURT, MEDIUM GREEN*

   * = COLORING SUBJECT TO CHANGE. OWNER TO APPROVE FINAL COLORS THROUGH SHOP DRAWING REVIEW PRIOR TO CONTRACTOR ORDERING.

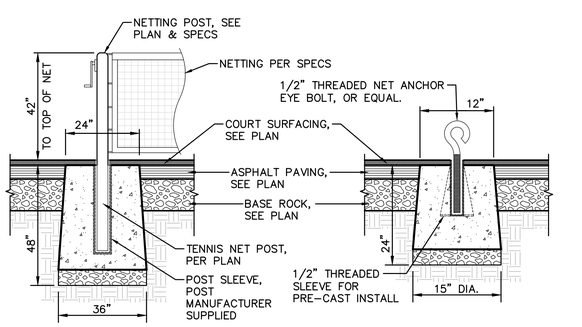
2. PROVIDE COURT LINE STRIPING WITH "PLEXIPAVE", WHITE, OR APPROVED EQUAL, STRIPE 2" WIDE. (2/C3.1)

3. PROVIDE AND INSTALL TENNIS COURT NETTING SYSTEM, EDWARDS, WIMBLEDON 3" SQUARE POST SYSTEM, OR APPROVED EQUAL, WITH CENTER COURT NET ANCHOR, COLOR GREEN WITH GROUND SLEEVE INSTALLATION. SEE MANUFACTURERS RECOMMENDATIONS FOR INSTALLATION. (1/C3.1)

4. PROVIDE AND LOCATE 6' LONG BACKLESS BENCH, WABASH VALLEY CONTEMPORARY SERIES, ROUND PERFORATED, OWNER TO SELECT COLOR. ADHERE 1/8" RUBBER DISC TO BOTTOM OF BENCH FEET TO PREVENT TENNIS COURT SURFACING DAMAGE, SEE DETAIL PROVIDED. (3/C3.1)

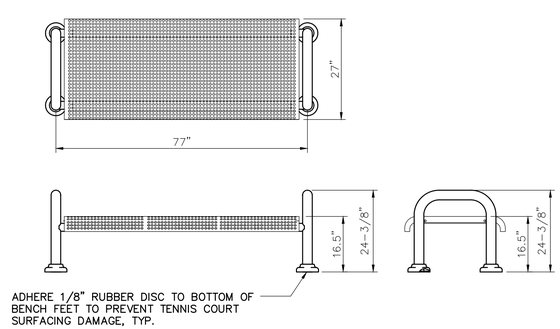
5. FOLLOWING PAVEMENT PATCH BACK ALONG NEW CONCRETE APRON, APPLY 2 COATS PAVEMENT SEALER PER SPECS, OVERLAP 12" ONTO EXISTING PAVING.

6. PAINT BASKETBALL COURT PER THE DETAILS PROVIDED. (4/C4.1) (5/C4.1)



1/C3.1 TENNIS NET POST DETAIL

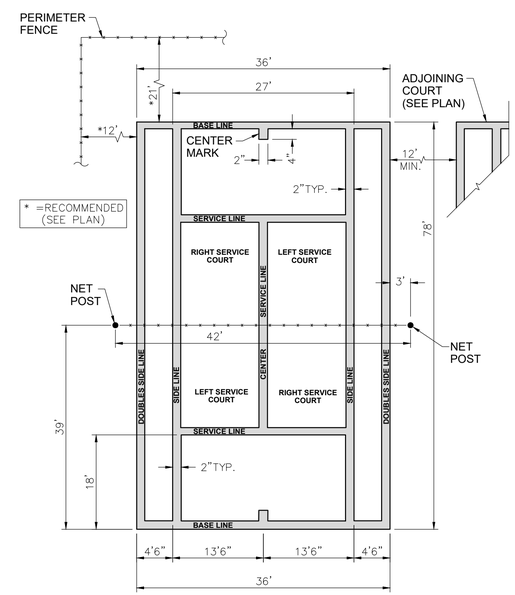
NO SCALE



3/C3.1 TENNIS COURT BENCH

WABASH VALLEY CONTEMPORARY SERIES, ROUND PERFORATED OR APPROVED EQUAL OR SIMILAR APPEARANCE AND FINISH.

NO SCALE



2/C3.1 TYPICAL TENNIS COURT LAYOUT

NO SCALE

DSA

ENGINEER:

WARREN CONSULTING ENGINEERS, INC.
1117 WINDFIELD WAY, SUITE 110
EL DORADO HILLS, CA 95762 | (916) 985-1870

CONSULTANT:

OWNER:

TRACY UNIFIED SCHOOL DISTRICT
Tracy Unified School District
1875 W. Lowell Avenue
Tracy, CA 95376
Phone: (209) 830-3200

REGISTERED PROFESSIONAL ENGINEER
ANTHONY J. TASSANO
NO. C74696
STATE OF CALIFORNIA
11/15/2022

John C. Kimball High School Tennis Court Repairs

3200 Jaguar Run
Tracy, CA 95377

REVISIONS

NO.	DESCRIPTION

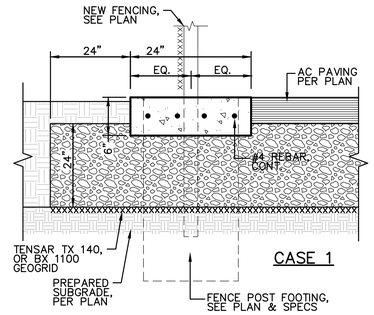
DRAWN: SMN	SCALE: AS NOTED
CHECKED: AT	PROJECT NO. 21-129
DESIGNED: SMN/AT	DATE: 11-11-2022

ISSUANCE: BID SET

SHEET TITLE: SURFACING, STRIPING AND EQUIPMENT PLAN

SHEET NO. C3.1

FILENAME:L:\21-129\CIVIL\DWG\21-129-C3.1.DWG PLOTTED: Tuesday, November 15, 2022

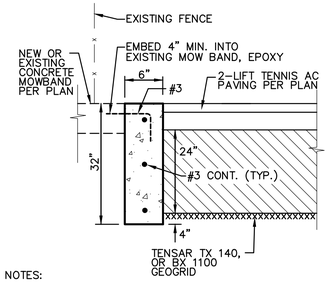


NOTES:

1. PROVIDE FELT EXPANSION JOINTS (E.J.) AT 60 FEET O.C. PROVIDE CONTROL JOINTS AT 10 FEET O.C., EXCEPT WHEN PLACING ADJACENT TO CONCRETE WALKS THE EXPANSION JOINTS SHALL ALIGN WITH THE EXPANSION JOINTS SHOWN FOR THE CONCRETE WALKS.
2. AT E.J. USE 1/2"X24" SMOOTH DOWELS, ALIGN WITH REBAR,GREASE 1/2 THE LENGTH BEFORE CONCRETE PLACEMENT.

3 / C4.1 CONCRETE APRON

NO SCALE



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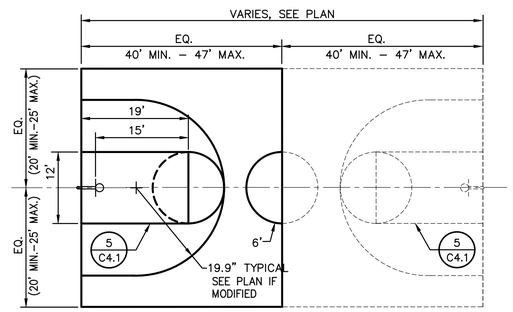
1 / C4.1 CONCRETE CURB

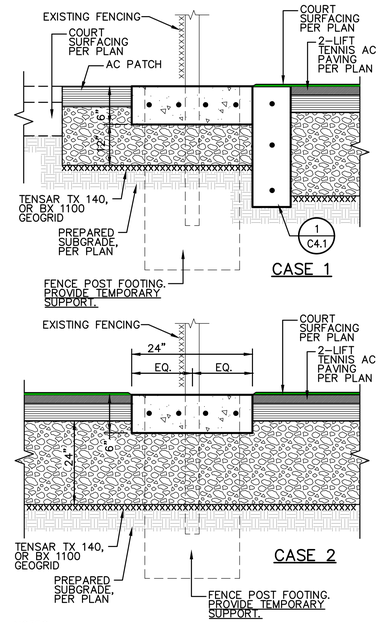
NO SCALE



NOTE: ALL STRIPES ARE 2" WIDE WHITE
NOTE: STRIPE HALF OR FULL COURT PER PLAN

4 / C4.1 BASKETBALL COURT

NO SCALE



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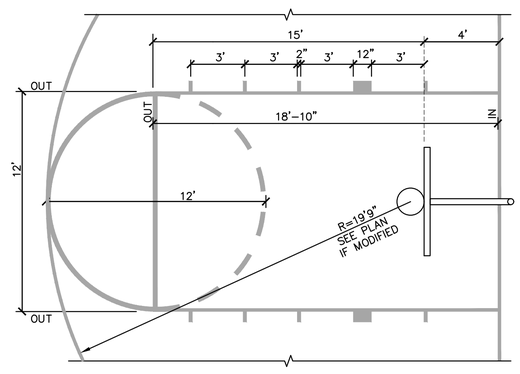
2 / C4.1 CONCRETE APRON

NO SCALE



NOTE: ALL LINE STRIPES ARE 2" WIDE WHITE

5 / C4.1 BASKETBALL KEY DETAIL

NO SCALE

DSA

ENGINEER:

WARREN CONSULTING ENGINEERS, INC.
1117 WINDFIELD WAY, SUITE 110
EL DORADO HILLS, CA 95762 | (916) 985-1870

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REVISIONS

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DESIGNED: SMN/AT	DATE: 11–11–2022

ISSUANCE:

BID SET

SHEET TITLE:

DETAILS AND SECTIONS

SHEET NO.

C4.1

FILENAME:I:\21-129\CIVIL\DWG\21-129-C4.1.DWG PLOTTED:Tuesday, November 15, 2022

GENERAL NOTES

ALL GENERAL NOTES SHOWN BELOW ARE NOT NECESSARILY USED ON PLANS IF NOT REQUIRED.

1. THESE GENERAL NOTES ARE INTENDED TO ASSIST THE CONTRACTOR IN THE EXECUTION OF THE ELECTRICAL WORK AND TO BE INCLUDED IN CONJUNCTION WITH THE CONTRACT DOCUMENT DRAWINGS AND SPECIFICATION REQUIREMENTS. SOME OF THE GENERAL NOTES ARE EXCERPTS FROM THE SPECIFICATION.
2. PROCURE PERMITS AND LICENSES REQUIRED. PAY ALL NECESSARY FEES AND ARRANGE FOR INSPECTIONS REQUIRED BY LOCAL CODES, ORDINANCES AND UTILITY COMPANIES.
3. COORDINATE ALL ELECTRICAL SERVICES WITH THE RESPECTIVE UTILITY COMPANIES AND PROVIDE ALL TRENCHING, CONDUITS, WIRING, METER FACILITIES, AND OUTLETS REQUIRED BY THEM.
4. WORKMANSHIP SHALL BE OF THE HIGHEST QUALITY. DEFECTIVE EQUIPMENT OR EQUIPMENT DAMAGED IN THE COURSE OF INSTALLATION OR TEST SHALL BE REPLACED OR REPAIRED IN A MANNER MEETING WITH THE ACCEPTANCE OF THE ARCHITECT.
5. INSTALL ALL EQUIPMENT, CONDUITS, OUTLETS, AND FIXTURES IN STRICT ACCORDANCE WITH THE CURRENT EDITION OF ALL APPLICABLE CODES (CEC, STATE, COUNTY, AND CITY).
6. DO NOT SCALE PLANS FOR FIXTURES, DEVICES, OR APPLIANCE LOCATIONS. USE FIGURED DIMENSIONS IF GIVEN OR CHECK MECHANICAL AND ARCHITECTURAL PLANS. ALSO REFER TO ACTUAL ON–SITE CONDITIONS.
7. ALL MATERIAL AND EQUIPMENT IS TO BE LISTED AND INSTALLED PER MANUFACTURER'S SPECIFICATIONS AND CEC 110.3.
8. ALL ELECTRICAL DEVICES, EQUIPMENT, FIXTURES, CONDUITS AND WIRING SHOWN ON THESE PLANS ARE NEW, UNLESS OTHERWISE NOTED.
9. OUTLET BOXES INSTALLED IN FIRE WALLS SHALL BE ONE–PIECE STEEL AND INSTALLED IN SEPARATE (STAGGERED) STUD PENETRATIONS, MINIMUM 24 INCHES HORIZONTAL SEPARATION. FIRE WALLS SHALL BE MADE IN ACCORDANCE WITH CBC AND ELECTRICAL CODES.
10. THE FINAL LOCATION OF ALL OUTLETS SHALL BE VERIFIED WITH THE ARCHITECT AND/OR OWNER AT TIME OF CONSTRUCTION.
11. ALL OUTDOOR ELECTRICAL EQUIPMENT SHALL BE WEATHER–PROTECTED.
12. CONTRACTOR SHALL VERIFY THAT ALL LIGHTING FIXTURES, CEILING TRIMS, AND FRAMES ARE COMPATIBLE WITH CEILING SYSTEM INSTALLED.
13. CONTRACTOR SHALL COORDINATE LIGHT FIXTURE LOCATIONS AND INSTALLATIONS WITH THE MECHANICAL CONTRACTOR. MAINTAIN REQUIRED CLEARANCES (MINIMUM 3 INCHES, PER CEC 410.116) BETWEEN THE LIGHT FIXTURES AND MECHANICAL DUCTS OR EQUIPMENT FOR PROPER OPERATION, INSTALLATION AND/OR REMOVAL OF FIXTURES.
14. BEFORE SUBMITTING FOR ARCHITECT'S REVIEW AND PLACING ORDER FOR THE LIGHT FIXTURES, THE CONTRACTOR SHALL VERIFY THE VOLTAGE OF ALL THE LIGHTING FIXTURES TO MATCH THE VOLTAGE OF THE SERVICE PANEL, WHETHER THE VOLTAGE FOR THE LIGHT FIXTURES ARE SHOWN ON THE PLAN OR NOT.
15. PLACEMENT AND CIRCUITING OF EXIT SIGNS AND EGRESS LIGHTING SHALL COMPLY WITH CBC REQUIREMENTS.
16. ALL CONDUIT SHALL BE ROUTED CONCEALED UNLESS NOTED ON PLAN OR ACCEPTED BY THE ARCHITECT.
17. PROVIDE ALL NECESSARY SLEEVES AND INSERTS FOR ALL WORK PASSING THROUGH OR ATTACHING TO WALLS, FLOORS, OR CEILINGS.
18. ALL WIRING SHALL BE INSTALLED IN RIGID METALLIC CONDUIT, UNLESS OTHERWISE NOTED. CONDUITS INSTALLED CONCEALED IN WALL AND CEILING MAY BE EMT WITH STEEL COMPRESSION TYPE FITTINGS. PVC WHERE INSTALLED UNDERGROUND AND/OR UNDER SLAB. ALL EXPOSED CONDUITS SHALL BE RIGID STEEL CONDUITS WITH THREADED TYPE FITTINGS. INSTALL ALL CONDUITS IN ACCORDANCE WITH CEC STANDARDS OF INSTALLATION.
19. ELECTRICAL NON–METALLIC TUBING (ENT) AND MC CABLE ARE NOT PERMITTED TO BE USED FOR THIS PROJECT, NO EXCEPTIONS.
20. WHERE EXISTING CONDUITS, CONCEALED OR EXPOSED, AND (WIREMOLD) SURFACE RACEWAY IS NOT IN PLACE AS SHOWN ON PLANS, PROVIDE NEW CONDUITS AND (WIREMOLD) SURFACE RACEWAY FOR THE NEW WORK. VERIFY EXISTING CONDITION ON SITE AND PROVIDE ALL NECESSARY NEW MATERIAL, APPARATUS, AND WORK THAT IS REQUIRED TO BE INCLUDED IN THE BID PACKAGE.
21. CONDUCTORS, #8 AND LARGER, SHALL BE STRANDED COPPER WITH THHN/THWN INSULATION, UNLESS OTHERWISE NOTED.
22. PROVIDE WORKING CLEARANCE PER CEC 110.26 FOR SERVICE PANEL, SUBPANELS, MOTOR DISCONNECT SWITCHES, CONTROL SECTIONS, HVAC EQUIPMENT, APPLIANCES, ETC.
23. PROVIDE A WARNING LABEL (SIGN) CLEARLY VISIBLE TO QUALIFIED PERSONS TO COMPLY WITH NEC AND CEC 110.16 OF POTENTIAL ELECTRIC ARC FLASH HAZARDS AT SWITCHBOARDS, PANELBOARDS, INDUSTRIAL CONTROL PANELS AND MOTOR CONTROL CENTERS THAT ARE LIKELY TO REQUIRE EXAMINATION, ADJUSTMENT, SERVICING, OR MAINTENANCE WHILE ENERGIZED. SERVICE EQUIPMENT SHALL BE LEGIBLY MARKED WITH THE MAXIMUM AVAILABLE FAULT CURRENT PER CEC SECTION 110.24(A).
24. BUILDING SERVICE AND SUBPANELS TO COMPLY WITH CEC 110.9 AND 110.10 INTERRUPTING RATING AND BRACING. PROVIDE A.I.C. CALCULATIONS FOR SUBPANELS IF INTERRUPTING RATING TO BE USED IS LOWER THAN MAIN SERVICE RATING.
25. ALL APPLIANCES SHALL COMPLY WITH CEC ARTICLE 422. APPLIANCE CONTROL AND PROTECTION PER CEC 422–III; BRANCH CIRCUITS PER 422–II.
26. BUILDING EXPANSION JOINTS MAY OR MAY NOT BE INDICATED ON THE ELECTRICAL DRAWINGS. VERIFY THE LOCATIONS OF ALL APPLICABLE BUILDING EXPANSION JOINTS WITH THE ARCHITECTURAL DRAWINGS. WIRING METHODS ACROSS EXPANSIONS JOINTS SHALL INCLUDE USE OF FLEXIBLE FITTINGS OR OTHER DEVICES AS APPROPRIATE TO EACH APPLICATION. IN NO CASE SHALL CONDUIT CROSS SUCH A JOINT IN BUILDING CONSTRUCTION WITHOUT USE OF THE APPROPRIATE WIRING METHODS.
27. CONTRACTOR SHALL SIZE ALL THE INTERIOR AND EXTERIOR BUILDING PULL BOXES AND UNDERGROUND PULL BOXES PER CEC 314.16 AND COMPLY WITH CEC 314.28 FOR INSTALLATION OF RACEWAYS AND WIRING AS REQUIRED BY CODE, UNLESS OTHERWISE NOTED.
28. WHERE ACCESSIBILITY IS NOT AVAILABLE TO ELECTRICAL OUTLETS, DEVICES AND/OR EQUIPMENT, COORDINATE WITH THE ARCHITECT FOR PROVISIONS TO PROVIDE ACCESSIBILITY TO THEM.
29. CONTRACTOR IS RESPONSIBLE FOR REVIEWING THE MECHANICAL DRAWINGS AND PROVIDING ALL CONDUITS, CONTROL WIRING, AND POWER WIRING SHOWN ON THE MECHANICAL DRAWINGS THAT IS NOT SHOWN ON THE ELECTRICAL PLANS.
30. CONTRACTOR SHALL REFER TO THE MECHANICAL DRAWINGS AND COORDINATE FOR THE EQUIPMENT LOCATIONS. COORDINATE ROOF PENETRATION WITH THE MECHANICAL CONTRACTOR FOR MECHANICAL CONNECTIONS. ENTER ROOF MOUNTED UNITS THROUGH EQUIPMENT MOUNTING CURES WHERE POSSIBLE. VERIFY ON–SITE.
31. PROVIDE CONVENIENCE OUTLET WITHIN 25 FEET OF MECHANICAL EQUIPMENT PER U.M.C. WHERE LOCATED OUTSIDE, PROVIDE WEATHER PROOF AND GFCI CONVENIENCE OUTLET. SECURE ROOF MOUNTED OUTLET TO THE MECHANICAL EQUIPMENT. VERIFY LOCATION IN FIELD WITH THE MECHANICAL CONTRACTOR.
32. VERIFY SINGLE–POINT CONNECTIONS TO ROOF MOUNTED HVAC UNITS WITH MECHANICAL CONTRACTOR ON–SITE PRIOR TO ELECTRICAL ROUGH–IN. PROVIDE DUAL DISCONNECTS IF TWO–POINT CONNECTION IS REQUIRED, WHETHER SHOWN ON PLANS OR NOT.
33. SWITCH DEVICES CONTROLLING MECHANICAL EQUIPMENT SHALL BE OF SIZE AND TYPE REQUIRED AND SHALL BE SERVED WITH QUANTITY OF WIRES AS REQUIRED. REFER TO DIVISION 15 MECHANICAL PLANS AND SPECIFICATIONS.
34. COORDINATE THE HVAC EQUIPMENT FOR FUSES REQUIRED. WHERE FUSES ARE REQUIRED, VERIFY FUSE SIZE ON–SITE AND PROVIDE FOR HVAC EQUIPMENT PER UNIT NAMEPLATE SPECIFICATIONS.
35. MOTOR DISCONNECT SWITCHES SHALL COMPLY WITH CEC 430–IX AND 440–II.
36. MOTOR STARTERS FOR HVAC EQUIPMENT ARE PROVIDED BY MECHANICAL CONTRACTOR AND CONNECTED BY ELECTRICAL CONTRACTOR, UNLESS NOTED OTHERWISE.
37. ALL CONNECTIONS FROM THE DISCONNECT SWITCHES TO HVAC UNITS SHALL BE COPPER CONDUCTORS. MOTOR DISCONNECT SWITCHES SHALL COMPLY WITH CEC 430–VII, 430–VIII, AND 440–II.
38. CONTRACTOR TO VERIFY LOCATION AND HEIGHT OF ALL MECHANICAL OR FIXTURE EQUIPMENT OUTLETS WITH SUPPLIER PRIOR TO ANY ROUGH–IN WORK. PROVIDE ALL RUNS AND CONNECTIONS TO EQUIPMENT.
39. ALL TERMINATION PROVISIONS OF EQUIPMENT, INCLUDING CIRCUITS RATED 100 AMPERES OR LESS, SHALL BE RATED AT 60 DEGREE, CENTIGRADE PER CEC 110.14(c).
40. ALL LIGHT FIXTURES INSTALLED OVER FOOD HANDLING OR FOOD PREPARATION AREAS, OPEN FOOD STORAGE, AND UTENSIL WASHING AREAS SHALL BE OF SHATTERPROOF CONSTRUCTION OR SHALL BE PROTECTED WITH SHATTERPROOF SHIELDS AND SHALL BE READILY CLEANABLE.
41. ALL CONDUITS SHALL BE CONCEALED BELOW SLAB, IN WALLS AND/OR ABOVE CEILINGS EXCEPT IN ELECTRICAL ROOMS, MECHANICAL ROOMS, AND OTHER SIMILAR UTILITY ROOMS AS APPROVED BY THE ARCHITECT. NO CONDUIT SHALL BE EXPOSED ON EXTERIOR BUILDING SURFACES WITHOUT PRIOR APPROVAL FROM THE ARCHITECT.
42. PROVIDE A CODE SIZED GROUND CONDUCTOR IN ALL CONDUITS WHETHER INDICATED ON PLANS OR NOT.

ELECTRICAL SHEET INDEX

SHEET NO.	SHEET TITLE
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E0.5	ELECTRICAL SPECIFICATIONS
E1.1	ELECTRICAL SITE PLAN
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E6.1	ELECTRICAL PANEL SCHEDULES
E7.1	ELECTRICAL DETAILS
E7.2	ELECTRICAL DETAILS

ELECTRICAL ABBREVIATIONS

SYMBOL	DESCRIPTIONS
AC	ABOVE COUNTER
AF	AMPERE FRAME OR FUSE
AFCI	ARC FAULT CIRCUIT INTERRUPTER
AFF	ABOVE FINISHED FLOOR
AFS	AUTOMATIC FIRE SPRINKLER
AIC	AMPS INTERRUPTING CAPACITY RATING
AMP, A	AMPERES
APPR	APPROVED
AS	AMPERE SWITCH RATING
AT	AMPERE TRIP RATING OF BREAKER
AUTO	AUTOMATIC
ATS	AUTOMATIC TRANSFER SWITCH
AWG	AMERICAN WIRE GAUGE
BFC	BELOW FINISHED CEILING
BMS	BUILDING MANAGEMENT SYSTEM
BKR	BREAKER
C	CONDUIT
cd	CANDELA
CEC	CALIFORNIA ELECTRICAL CODE
CFL	COMPACT FLUORESCENT
CFCI	CONTRACTOR FURNISHED, CONTRACTOR INSTALLED
CKT	CIRCUIT
CNTRL	CONTROL
CO	CONDUIT ONLY w/PULL STRING
CSFM	CALIFORNIA STATE FIRE MARSHALL
CT	CURRENT TRANSFORMER
CU	COPPER
CWP	COLD WATER PIPE
DEF	DEFROST
DISC	DISCONNECT
DIST	DISTRIBUTION
DWG	DRAWING
EC	ELECTRICAL CONTRACTOR
EDF	ELECTRIC DRINKING FOUNTAIN
EL	EVENING LIGHT
ELEV	ELEVATION
EM	EMERGENCY LIGHT
EMERG	EMERGENCY
EMT	ELECTRICAL METALLIC TUBING
EOL	END OF LINE RESISTOR
EP	EMERGENCY POWER
EQPT	EQUIPMENT
EXH	EXHAUST
(E)	EXISTING
(ED)	EXISTING TO BE DEMOLISHED
(F)	FUTURE
FAA	FIRE ALARM ANNUNCIATOR
FACP	FIRE ALARM CONTROL PANEL
FF	FINISHED FLOOR
FG	FINISHED GRADE
FLA	FULL LOAD AMPS
FLEX	FLEXIBLE
FLUOR	FLUORESCENT
GFCI	GROUND FAULT CURRENT INTERRUPTER
GND	GROUND
HP	HORSE POWER
HZ	HERTZ
IG	ISOLATED GROUND
INC	INCANDESCENT
ISC	SHORT CIRCUIT CURRENT
ISOL	ISOLATED
JBOX	JUNCTION BOX
kcmil	THOUSAND CIRCULAR MILS
kV	KILOVOLTS
kW	KILOWATTS
kVA	KILOVOLT AMPERES
LT, LTS	LIGHT, LIGHTS
LTG	LIGHTING
MAX	MAXIMUM
MCA	MINIMUM CIRCUIT AMPACITY
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MLO	MAIN LUG ONLY
MOCP	MAXIMUM OVERCURRENT PROTECTION
MPOE	MAIN POINT OF ENTRY
MS	MOTION SENSOR
MSB	MAIN SWITCHBOARD
MT	CONDUIT ONLY w/PULL STRING
MTD	MOUNTED
(N)	NEW
NEMA	NATIONAL ELECTRIC MANUFACTURER ASSOCIATION
NIES	NOT IN ELECTRICAL SECTION OF THESE PLANS & SPECIFICATIONS
N.I.C.	NOT IN CONTRACT
NL	NIGHT LIGHT
NT	NOT TO SCALE
OC	ON CENTER
OFCI	OWNER FURNISHED CONTRACTOR INSTALLED
OFOI	OWNER FURNISHED, OWNER INSTALLED
OL	OVERLOAD
PH, P	PHASE OR POLE
PB	PULLBOX
PFB	PROVIDE FOR FUTURE BREAKER
PIV	POST INDICATOR VALVE
PNL	PANEL
PVC	POLYVINYL CHLORIDE
PWR	POWER
(R)	RELOCATED
RCP	REFLECTED CEILING PLAN
RECPT	RECEPTACLE
REQD	REQUIRED
RGSC	RIGID GALVANIZED STEEL CONDUIT
SHLD	SHIELDED
SHT	SHEET
SPD	SURGE PROTECTION DEVICE
SPECS	SPECIFICATIONS
SW	SWITCH
SYM	SYMMETRICAL
TEMP	TEMPERATURE
TOF	TIMED OFF DELAY
TS	TAMPER SWITCH
TSTAT	THERMOSTAT
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSION
TYP	TYPICAL
UBC	UNIFORM BUILDING CODE
UGPS	UNDERGROUND PULL SECTION
UNO	UNLESS NOTED OTHERWISE
UPS	UNINTERRUPTABLE POWER SUPPLY
VFD	VARIABLE FREQUENCY DRIVE
V	VOLTS
VL	VERIFY LOCATION
W	WATTS
w/	WITH
WP	WEATHERPROOF
WPL	WEATHERPROOF LOCKING
WPU	WEATHERPROOF WHILE IN USE
(X)	REMOVE
XFMR	TRANSFORMER

DSA

ENGINEER:

WARREN CONSULTING ENGINEERS, INC.
1117 WINDFIELD WAY, SUITE 110
EL DORADO HILLS, CA 95762 [(916) 985-1870

CONSULTANT:

MEP & FS / Sustainability / CxA
CONSULTING ENGINEERS
1209 Pheasant Grove Blvd.
Roseville, CA 95678
p 916-771-0778
www.lpengineers.com
Job #: 22-2023

OWNER:

TRACY UNIFIED SCHOOL DISTRICT
Tracy Unified School District
1875 W. Lowell Avenue
Tracy, CA 95376
Phone: (209) 830-3200

REGISTERED PROFESSIONAL ENGINEER
RAMI S. ZEIDAN
No. E 16762
Exp. 9/30/24
ELECTRICAL
STATE OF CALIFORNIA

John C. Kimball High School Tennis Court Repairs

3200 Jaguar Run
Tracy, CA 95377

REVISIONS

NO.	DESCRIPTION

DRAWN: BS	SCALE: AS NOTED
CHECKED: RZ	PROJECT NO. 21–129
DESIGNED: RN	DATE: 11–11–2022

ISSUANCE: BID SET

SHEET TITLE: ELECTRICAL ABBREVIATIONS NOTES AND SHEET INDEX

SHEET NO. E0.1

FILENAME:P:\–PROJECT FILES\2022 LP PROJECTS\22–2023 WCE TUSD–KIMBALL HS TENNIS COURT\LP CAD\222023.E0.1 (COVER).DWG PLOTTED:Friday, November 18, 2022

ELECTRICAL SYMBOL LEGEND

ALL SYMBOLS SHOWN IN THIS LEGEND ARE NOT NECESSARILY USED ON PLANS IF NOT REQUIRED.

SYMBOL	DESCRIPTION
	POWER
	MAIN SWITCHBOARD OR DISTRIBUTION BOARD, PAD OR FLOOR MOUNTED AS NOTED.
	RECESSED MOUNTED LIGHTING OR DISTRIBUTION PANEL
	SURFACE MOUNTED LIGHTING OR DISTRIBUTION PANEL
	RECESSED TERMINAL CABINET WITH 3/4"C PLYWOOD BACKBOARD, DUPLEX RECEPTACLE & #6 CU GND, UON.
	SURFACE MOUNTED TERMINAL CABINET WITH 3/4"C PLYWOOD BACKBOARD, DUPLEX RECEPTACLE & #6 CU GND, UON.
T	DISTRIBUTION TRANSFORMER, MOUNTING AND SIZE AS NOTED
	NON-FUSED DISCONNECT SWITCH
	ENCLOSED CIRCUIT BREAKER DISCONNECT SWITCH
F	FUSED DISCONNECT SWITCH; SIZE DISCONNECT AND FUSES PER UNIT LABEL
F	NON-FUSED / FUSED DISCONNECT; SEE DISCONNECT SWITCH SCHEDULE
	MOTOR STARTER/CONTROLLER
	COMBINATION CIRCUIT BREAKER DISCONNECT/MOTOR STARTER.
F	COMBINATION FUSIBLE DISCONNECT/MOTOR CONTROLLER; PROVIDE FUSES PER MANUFACTURERE'S REQUIREMENTS. N.F. INDICATES NON-FUSED.
	MOTOR
	POWER POINT OF CONNECTION
	DUPLEX RECEPTACLE OUTLET 20A, 125V, @ +16" TO BOTTOM OF BOX, UNO. SPLIT-WIRED CIRCUIT, TOP RECEPTACLE SWITCHED CONTROLLED.
	DUPLEX RECEPTACLE OUTLET 20A, 125V, @ +16" TO BOTTOM OF BOX, UNO.
LC	DUPLEX RECEPTACLE OUTLET 20A, 125V, WITH "LC" LOCKING COVER @ +16" TO BOTTOM OF BOX, UNO.
	DUPLEX RECEPTACLE MOUNTED ABOVE COUNTER TOP AND/OR SINK BACKSPLASH. PROVIDE 44" MAX. TO TOP OF BOX AT AREAS WITH FORWARD APPROACH KNEE CLEARENCE, OR PROVIDE 46" MAX. TO TOP OF BOX AT AREAS WITH PARALLEL APPROACH. (CBC 11B-308).
	ISOLATED GROUND DUPLEX RECEPTACLE, 20A, 125V @ +16" TO BOTTOM OF BOX, UNO.
	DEDICATED DUPLEX RECEPTACLE OUTLET 20A, 125V, @ +16" TO BOTTOM OF BOX, UNO.
	GFCI DUPLEX RECEPTACLE OUTLET 20A, 125V, @ +16" TO BOTTOM OF BOX, UNO.
LC	GFCI DUPLEX RECEPTACLE OUTLET 20A, 125V, WITH "LC" LOCKING COVER @ +16" TO BOTTOM OF BOX, UNO.
	GFCI DUPLEX RECEPTACLE OUTLET MOUNTED ABOVE COUNTER TOP AND/OR SINK BACKSPLASH. PROVIDE 44" MAX. TO TOP OF BOX AT AREAS WITH FORWARD APPROACH KNEE CLEARENCE, OR PROVIDE 46" MAX. TO TOP OF BOX AT AREAS WITH PARALLEL APPROACH. (CBC 11B-308).
	ISOLATED GROUND GFCI DUPLEX RECEPTACLE 20A, 125V, @ +16" TO BOTTOM OF BOX, UNO.
	DEDICATED GFCI DUPLEX RECEPTACLE OUTLET 20A, 125V, @ +16" TO BOTTOM OF BOX, UNO
	DOUBLE DUPLEX RECEPTACLE OUTLET 20A, 125V, @ +16" TO BOTTOM OF BOX, UNO.
	ISOLATED GROUNDED DOUBLE DUPLEX RECEPTACLE 20A, 125V @ +16" TO BOTTOM OF BOX, UNO.
	DEDICATED DOUBLE DUPLEX RECEPTACLE OUTLET 20A, 125V, @ +16" TO BOTTOM OF BOX, UNO.
	CONTROLLED/UNCONTROLLED DOUBLE DUPLEX RECEPTACLE
	GFCI DOUBLE DUPLEX RECEPTACLE OUTLET 20A, 125V, @ +16" TO BOTTOM OF BOX, UNO.
	GFCI DOUBLE DUPLEX RECEPTACLE OUTLET MOUNTED ABOVE COUNTER TOP AND/OR SINK BACKSPLASH. PROVIDE 44" MAX. TO TOP BOX AT AREAS WITH FORWARD APPROACH KNEE CLEARENCE, OR PROVIDE 46" MAX. TO TOP BOX AT AREAS WITH PARALLEL APPROACH. (CBC 11B-308).
	ISOLATED GROUND GFCI DOUBLE DUPLEX RECEPTACLE OUTLET 20A, 125V, @ +16" TO BOTTOM OF BOX, UNO.
	DEDICATED GFCI DOUBLE DUPLEX RECEPTACLE OUTLET 20A, 125V, @ +16" TO BOTTOM OF BOX. UNO
	SPECIAL RECEPTACLE OUTLET, SIZE AND NEMA CONFIGURATION AS NOTED, MOUNTED @ +16" TO BOTTOM OF BOX, UNO.
	FLOOR MOUNTED DUPLEX RECEPTACLE, 20A, 125V FLUSH IN FINISHED FLOOR
	FLOOR MOUNTED DOUBLE DUPLEX RECEPTACLE, 20A, 125V FLUSH IN FINISHED FLOOR
	CEILING MOUNTED DUPLEX RECEPTACLE, 20A, 125V
	CEILING MOUNTED DOUBLE DUPLEX RECEPTACLE, 20A, 125V
$T	THERMAL OVERLOAD SWITCH
$M	MOTOR RATED SWITCH
	WALL MOUNTED JUNCTION BOX – SIZE AS REQUIRED BY CODE.
	CEILING MOUNTED JUNCTION BOX – SIZE AS REQUIRED BY CODE.
	FLOOR MOUNTED JUNCTION BOX – SIZE AS REQUIRED BY CODE.
	PLUGMOLD
	POWER POLE
	FLOOR MOUNTED COMBO DUPLEX RECEPTACLE / TELEPHONE/DATA
	FLOOR MOUNTED COMBO DOUBLE DUPLEX RECEPTACLE / TELEPHONE/DATA
PLD	PRODUCTION LIGHTING DEVICE

SYMBOL	DESCRIPTION
	CIRCUITS
	STUB
	CONTINUATION
	CONDUIT RISER – UP
	CONDUIT DROP – DOWN
	CONDUIT CONCEALED IN CEILING OR WALL.
	CONDUIT CONCEALED IN UNDERFLOOR OR UNDERGROUND
	EXISTING CONDUIT TO REMAIN.
	CONDUIT & CONDUCTORS FOR LOW VOLTAGE MOTION SENSORS
	EXISTING CONDUIT & CONDUCTORS TO REMAIN FOR LOW VOLTAGE MOTION SENSORS
	EXISTING CONDUIT AND/OR CONDUCTORS TO BE REMOVED. UNDERGROUND CONDUIT MAY BE ABANDONED IN PLACE.
	HOMERUN TO PANELBOARD OR TERMINAL CABINET WITH CONDUCTORS AS NOTED
#	CIRCUIT CONDUTORS: LONG DASH INDICATES NEUTRAL CONDUCTOR; SHORT DASHES INDICATE PHASE CONDUCTORS; CURVED DASH INDICATES EQUIPMENT GROUNDING CONDUCTOR; ADDITIONAL CURVED DASH INDICATES ISOLATED GROUNDING CONDUCTOR. NUMBER BY DASHES INDICATE WIRE GAUGE OTHER THAN 12 AWG CU. NO DASHES INDICATE 2#12 CU, 1#12 CU GND, IN1/2" CONDUIT. OTHERS AS NOTED ON PLAN. NOTE: PROVIDE A CODE SIZED EQUIPMENT GROUNDING CONDUCTOR IN ALL CONDUITS FOR THIS PROJECT, WHETHER SHOWN ON PLAN OR NOT.
	FLEXIBLE CONDUIT, 6'-0" LONG MAX. WITH #12 CU GROUND UON.
	LEADERS
	BRACKET
	LEADERS
	LIGHTING
	LED LUMINAIRE – T-BAR LAY-IN
	LED LUMINAIRE – RECESSED IN GYPBOARD
	LED LUMINAIRE – SURFACE
	LED LUMINAIRE – SUSPENDED
	LED STRIP LIGHT – SURFACE OR SUSPENDED
	DOWNLIGHT LUMINAIRE – RECESSED
	WALLWASH LUMINAIRE – RECESSED
	LUMINAIRE – SURFACE
	LUMINAIRE – WALL
	LUMINAIRE – PENDANT
	TRACK LIGHT – SUSPENDED OR SURFACE MOUNTED
	CONTINUOUS LINEAR LED TAPE OR LED COVE LIGHT
EM EM EM EM EM	HATCHED LUMINAIRE WITH "EM" ABBREVIATION INDICATES AN EMERGENCY LUMINAIRE WITH EMERGENCY POWER CONNECTION (VIA INVERTER OR LED EMERGENCY DRIVER OR EMERGENCY GENERATOR).
	SINGLE FACE EXIT SIGN. SEE LIGHTING FIXTURE SCHEDULE FOR SPECIFICATION.
	DOUBLE FACE EXIT SIGN. SEE LIGHTING FIXTURE SCHEDULE FOR SPECIFICATION. DIRECTIONAL ARROW AS INDICATED ON PLANS. (CEILING OR WALL)
	COMBINATION EMERGENCY EXIT SIGN WITH DUAL HEAD LIGHTS WITH EMERGENCY BATTERY BACK-UP.
	BATTERY POWERED EMERGENCY EGRESS LUMINAIRE – SURFACE MOUNTED
	SPOT/FLOOD LUMINAIRE – GROUND MOUNTED. FOR BLDG WALL MOUNTED AS WELL.
	EXTERIOR POLE FIXTURE – SINGLE HEAD
	EXTERIOR POLE FIXTURE – TWIN HEAD
	EXTERIOR PATHWAY POST TOP POLE FIXTURE
	BOLLARD FIXTURE
	STEP LUMINAIRE
	LIGHTING CONTROLS
$	SINGLE POLE TOGGLE SWITCH, 20A, 120-277V @ +46" TO TOP OF BOX, UNO.
$3	THREE WAY TOGGLE SWITCH 20A,120-277V @ +46" TO TOP OF BOX, UNO.
$a,b,c	SUBSCRIPTS "a,b,c" DESIGNATE THE QUANTITY OF SWITCHES AT EACH LOCATION (TYPICAL FOR ALL SWITCH TYPES).
$K	SINGLE POLE KEYED BARREL SWITCH 20A, 120-277 @ +46" TO TOP OF BOX, UNO.
	PUSH BUTTON
	WALL DIMMER SEE CONTROL DRAWINGS FOR TYPE.
DR	DIGITAL WALL CONTROL OVERRIDE SWITCH. RUN CABLING BACK TO LIGHTING CONTROL PANEL.
OS	OCCUPANCY SENSOR. SEE OCCUPANCY SENSOR & CONTROL SCHEDULE AND CONTROL DRAWINGS. TYPE
OS	CORNER MOUNT MOTION SENSOR. DUAL TECHNOLOGY, PIR OR ULTRASONIC. SEE OCCUPANCY SENSOR & CONTROL SCHEDULE AND CONTROL DRAWING. TYPE
OS	PHOTOCONTROL DAYLIGHT SENSOR. SEE OCCUPANCY SENSOR & CONTROL SCHEDULE AND CONTROL DRAWINGS. TYPE

SYMBOL	DESCRIPTION
	TAGS
X	KEYNOTE SHOWN ON SAME SHEET
'XX' XX-Xx	LIGHT FIXTURE TAG: FIXTURE TAG – 'XX'; PANEL – XX-Xx; CIRCUIT NUMBER; SWITCH LEG
X	FEEDER DESIGNATION TAG
X	FOOD SERVICE EQUIPMENT DESIGNATION TAG
x Ex.1	DETAIL DESIGNATION: TOP LETTER INDICATES DETAIL, BOTTOM LETTER/NUMBER INDICATES SHEET
REF x	MECHANICAL EQUIPMENT I.D. TAG – MP&S
	ONE LINE DIAGRAM
(N) PANEL "A"	PANEL IDENTIFICATION
100A 3P	CIRCUIT BREAKER
100A 3P	FUSED SWITCH
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
	GROUND
	UNDERGROUND TERMINATION SERVICE LUG
M	UTILITY METER
M	UTILITY METER WITH CURRENT TRANSFORMER COMPARTMENT METER SOCKET
	TRANSFORMER WITH GROUND
	UFER GROUND
	BOND TO COLD WATER PIPE, GAS PIPE, BUILDING STEEL
	AUTOMATIC TRANSFER SWITCH
	NEUTRAL LINK
SPD	SURGE PROTECTION DEVICE

DSA

ENGINEER:

WARREN CONSULTING ENGINEERS, INC.
1117 WINDFIELD WAY, SUITE 110
EL DORADO HILLS, CA 95762 | (916) 985-1870

CONSULTANT:

CONSULTING ENGINEERS
MEP & FS / Sustainability / CxA
1209 Pheasant Grove Blvd.
Roseville, CA 95678
p 916-771-0778
www.lpengineers.com
Job # 22-2023

OWNER:

TRACY UNIFIED SCHOOL DISTRICT
Tracy Unified School District
1875 W. Lowell Avenue
Tracy, CA 95376
Phone: (209) 830-3200

REGISTERED PROFESSIONAL ENGINEER
RAMI S. ZEIDAN
No. E 16762
Exp. 9/30/24
ELECTRICAL
STATE OF CALIFORNIA

John C. Kimball High School Tennis Court Repairs

3200 Jaguar Run
Tracy, CA 95377

REVISIONS

NO.	DESCRIPTION

DRAWN: BS	SCALE: AS NOTED
CHECKED: RZ	PROJECT NO. 21-129
DESIGNED: RN	DATE: 11-11-2022

ISSUANCE: BID SET

SHEET TITLE: ELECTRICAL SYMBOL LEGEND

SHEET NO. E0.2

FILENAME:P:\1-PROJECT FILES\2022 LP PROJECTS\22-2023 WCE TUSD-KIMBALL HS TENNIS COURT\LP CAD\222023 E0.2 (SYMBOL LAGEND).DWG PLOTTED:Friday, November 18, 2022

ELECTRICAL SPECIFICATIONS

PART 1 _ GENERAL

1.01 SCOPE OF WORK

A. FURNISH ALL NECESSARY LABOR, MATERIALS, EQUIPMENT, AND INCIDENTALS REQUIRED TO INSTALL A COMPLETE AND OPERATIONAL ELECTRICAL SYSTEM ACCORDING TO THE INTENT OF THIS SPECIFICATION WHETHER ITEMIZED OR NOT.

B. EXAMINE THE MECHANICAL PLANS AND SPECIFICATIONS FOR MECHANICAL EQUIPMENT AND PROVIDE ALL STARTERS, CIRCUIT BREAKERS, SWITCHES, PUSH BUTTONS, AND APPURTENANCES, WHICH ARE NOT SPECIFIED TO BE WITH THE MECHANICAL EQUIPMENT. ERECT ALL ELECTRICAL EQUIPMENT NOT DEFINITELY STATED TO BE ERECTED BY OTHERS, FURNISH AND INSTALL CONDUIT, WIRE, AND CABLE AND MAKE CONNECTIONS REQUIRED TO PLACE ALL EQUIPMENT IN COMPLETE OPERATION.

C. THE GENERAL EXTENT OF THE ELECTRICAL WORK INCLUDES, AMONG OTHERS, THE FURNISHING AND INSTALLING OF THE FOLLOWING ITEMS:

1. LIGHTING AND POWER INSTALLATION, INCLUDING FIXTURES, RECEPTACLE OUTLETS, SWITCHING, AND CIRCUITS AS INDICATED ON THE DRAWINGS.
2. ALL SUPPORTS, BASES, ANCHORS, SLEEVES, HANGERS AND THE LIKE, ALL ELECTRICAL WORK SHOWN AND/OR SPECIFIED, NOT PARTICULARLY MENTIONED ABOVE.
3. COMPLETE GROUNDING AND BONDING SYSTEMS.
4. TELEPHONE (MPOE) SERVICE ENTRANCE CONDUIT, BACKBOARDS, AND INTERCONNECTING CONDUIT.
5. CABLE TELEVISION SERVICE ENTRANCE CONDUIT, BACKBOARD OR CABINET, AND INTERCONNECTING CONDUIT.
6. THE CONTRACTOR WILL COORDINATE WITH THE LOCAL UTILITY COMPANIES FOR VERIFICATION OF THEIR REQUIREMENTS PRIOR TO BID CLOSURE AND PRIOR TO INSTALLATION. IT WILL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY VOLTAGE, PHASE, CONDUIT SIZE; TYPE AND QUANTITY, WIRE SIZE; TYPE AND QUANTITY, AND THE LOCATION OF ALL EQUIPMENT REQUIRED FOR THIS PROJECT.
7. STANDBY EMERGENCY POWER GENERATOR, CONCRETE PAD, AND AUTO–TRANSFER SWITCH.
8. POWER CONNECTION TO HVAC AND PLUMBING EQUIPMENT.

1.02 RELATED WORK INCLUDED IN OTHER DIVISIONS

A. FINISH PAINTING EXCEPT FACTORY APPLIED FINISHES AND REPAIR OF FACTORY FINISHES SHALL BE PROVIDED IN ACCORDANCE WITH APPROPRIATE SECTIONS OF THIS SPECIFICATION. COORDINATE "PAINTING" REQUIREMENTS OF THIS DIVISION WITH OTHER TRADES AS REQUIRED TO ASSURE TIMELY AND SATISFACTORY COMPLETION OF REQUIRED WORK. IN FINISHED AREAS, ALL EXPOSED RACEWAY, BOXES, GALVANIZED STEEL BOX COVERS (WHERE ALLOWED), AND OTHER ELECTRICAL "STRUCTURE" SHALL BE FINISHED TO MATCH ADJACENT STRUCTURES. VERIFY THAT ALL RACEWAY OPENINGS ARE CLOSED AND BOX COVERS ARE IN PLACE PRIOR TO FINISHING WORK DONE BY OTHERS.

B. EXAMINE THE DRAWINGS AND SPECIFICATIONS FOR MECHANICAL EQUIPMENT AND PROVIDE ELECTRICAL INSTALLATION FOR HEATING, VENTILATION, AND AIR CONDITIONING EQUIPMENT, MOTORS, PUMPS, ASSOCIATED MOTOR STARTERS, AND CONTROLS AS DESCRIBED IN 1.15 EQUIPMENT IDENTIFICATION.

C. EXAMINE THE DRAWINGS AND SPECIFICATIONS OF OTHER TRADES FOR ELECTRICAL EQUIPMENT WHICH MAY NOT BE SHOWN ON THE PLANS TO INCLUDE AND PROVIDE ELECTRICAL INSTALLATIONS AS DESCRIBED IN OTHER TRADES WORK, I.E. MODULAR OFFICE SYSTEM FURNITURE, INFORMATION TECHNOLOGY (I.T.) SYSTEM EQUIPMENT, AUDIO/VIDEO SYSTEMS EQUIPMENT, ETC.

D. EXAMINE THE ARCHITECTURAL DRAWINGS AND SPECIFICATIONS FOR ELECTRICAL APPLIANCES AND EQUIPMENT WHICH MAY NOT BE SHOWN ON THE PLANS TO INCLUDE AND PROVIDE ELECTRICAL INSTALLATIONS AS DESCRIBED IN THE ARCHITECTURAL DIVISION OF WORK.

E. EXAMINE THE ARCHITECTURAL DRAWINGS AND PROVIDE ALL CONSTRUCTION NECESSARY TO MAINTAIN THE INTEGRITY OF THE FIRE RATED BARRIERS.

F. EXAMINE THE ARCHITECTURAL DRAWINGS AND COORDINATE WITH THE ARCHITECT TO PROVIDE ACCESS DOORS, WHETHER SHOWN ON DRAWINGS OR NOT, WHERE FLOORS, WALLS, OR CEILING MUST BE PENETRATED FOR ACCESS TO ELECTRICAL EQUIPMENT, OUTLET BOXES, DEVICES, ETC., AND AS SPECIFIED IN THIS SPECIFICATION.

G. PROVIDE AND INSTALL, AS PART OF THE WORK DESCRIBED IN THIS DIVISION, ALL POWER AND CONTROL WIRING FED FROM A SOURCE OF 30 VOLTS OR MORE (I.E. ALL WIRING EXCEPT TEMPERATURE CONTROL WIRING) FOR MECHANICAL EQUIPMENT DESCRIBED IN 1.15 EQUIPMENT IDENTIFICATION.

1.03 APPLICATION OF OTHER DIVISIONS

A. WHERE CARPENTRY, MASONRY, CONCRETE WORK, PAINTING, ETC., IS REQUIRED IN THE INSTALLATION OF EQUIPMENT SPECIFIED UNDER THIS DIVISION, THE WORK SHALL BE DONE IN ACCORDANCE WITH THE APPLICABLE DIVISION OF THESE SPECIFICATIONS. THIS WORK COULD INCLUDE FOR EXAMPLE: WORK ASSOCIATED WITH PANELBOARD INSTALLATION, EQUIPMENT PADS OR BASES, SUPPORT STRUCTURES, ETC.

1.04 DRAWINGS AND SPECIFICATIONS

A. THE INFORMATION PRESENTED IN THESE SPECIFICATIONS AND ON THE DRAWINGS IS INTENDED TO DESCRIBE THE UTILITARIAN AND PHYSICAL ASPECTS OF THE SYSTEMS SHOWN AS WELL AS THE QUALITY OF THE ENTIRE INSTALLATION. ALL INFORMATION IS AS COMPLETE AND THOROUGH AS POSSIBLE, BUT EVERY CONDITION OR SITUATION CANNOT BE ANTICIPATED. EXACT LOCATIONS, DIMENSIONS, ELEVATIONS, ETC. MUST BE DETERMINED "ON THE JOB" WITH CAREFUL ATTENTION TO THE "INTENT" OF THE DRAWINGS AND SPECIFICATIONS.

B. THE ABOVE PARAGRAPH SHALL NOT BE CONSTRUED AS TO ALLOW SIGNIFICANT DEVIATION FROM EITHER THE DRAWINGS OR SPECIFICATIONS WITHOUT PRIOR APPROVAL OF THE ARCHITECT, BUT MINOR CHANGES IN CONDUIT ROUTING OR EQUIPMENT LOCATIONS MAY BE REQUIRED OR DESIRED DUE TO SPECIFIC CONDITIONS ENCOUNTERED. THIS WORK SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THESE SPECIFICATIONS AND NO "EXTRA CHARGES" ARE TO BE CREATED FOR ANY UNANTICIPATED LABOR OR MATERIAL.

C. ANY ERROR OR OMISSIONS OF DETAIL IN EITHER THE DRAWINGS OR THE SPECIFICATIONS SHALL NOT RELIEVE THE CONTRACTOR FROM CORRECTLY INSTALLING ALL MATERIALS NECESSARY FOR COMPLETE AND OPERATING ELECTRICAL SYSTEMS.

D. CONTRACTOR SHALL INSPECT THE SITE AND VERIFY ALL MEASUREMENTS AND CONDITIONS. NO EXTRA COMPENSATION WILL BE ALLOWED BECAUSE OF DIFFERENCES BETWEEN WORK SHOWN ON THE DRAWINGS AND MEASUREMENTS AT THE SITE.

E. THE DRAWINGS ARE DIAGRAMMATIC IN NATURE, BUT THE LOCATIONS OF DEVICES, EQUIPMENT, OUTLETS, AND LIGHTING FIXTURES ARE SHOWN APPROXIMATELY WHERE INSTALLATIONS ARE INTENDED. ARCHITECTURAL, STRUCTURAL, MECHANICAL, AND OTHER DRAWINGS SHALL BE EXAMINED, NOTING ALL CONDITIONS THAT MAY AFFECT THIS WORK. REPORT CONFLICTING CONDITIONS TO THE ARCHITECT/ENGINEER FOR ADJUSTMENT BEFORE PROCEEDING WITH THE WORK. SHOULD THE CONTRACTOR PROCEED WITH WORK WITHOUT REPORTING THE MATTER, HE DOES SO ON HIS OWN RESPONSIBILITY AND SHALL ALTER WORK IF DIRECTED BY THE ARCHITECT/ENGINEER AT HIS OWN EXPENSE.

F. EXAMINE THE ARCHITECTURAL, STRUCTURAL, MECHANICAL, AND MANUFACTURER'S DRAWINGS FOR VARIOUS EQUIPMENT IN ORDER TO DETERMINE EXACT ROUTING AND FINAL TERMINATIONS FOR ALL CONDUITS AND CABLES. CONDUITS SHALL BE STUBBED UP AS NEAR AS POSSIBLE TO EQUIPMENT ENCLOSURE.

G. ALL EQUIPMENT SHALL BE LOCATED AND INSTALLED SO THAT IT WILL BE READILY ACCESSIBLE FOR OPERATION AND MAINTENANCE. THE OWNER RESERVES THE RIGHT TO REQUIRE MINOR CHANGES IN LOCATION OF OUTLETS OR EQUIPMENT, PRIOR TO ROUGH IN WITHOUT INCURRING ANY ADDITIONAL COST OR CHANGES.

H. IF SIGNIFICANT DEPARTURES FROM THE DRAWINGS OR SPECIFICATIONS ARE CONSIDERED NECESSARY BY THE CONTRACTOR, DETAILS OF THE CHANGES AND THE REASONS THEREFORE SHALL BE SUBMITTED TO THE ARCHITECT WITHIN THIRTY DAYS AFTER AWARD OF CONTRACT. PRIOR WRITTEN ACCEPTANCE OF THE ARCHITECT IS REQUIRED FOR THESE DEPARTURES.

I. CLARIFICATION OF PLANS AND SPECIFICATIONS FOR THE PURPOSE OF FACILITATING CONSTRUCTION, BUT NOT INVOLVING ADDITIONAL LABOR AND MATERIALS, MAY BE PREPARED DURING CONSTRUCTION BY THE ARCHITECT/ENGINEER. SAID REVISED PLANS AND SPECIFICATIONS SHALL BECOME A PART OF THE CONTRACT. THE CONTRACTOR SHALL CONFORM TO THE REVISED PLANS AND SPECIFICATIONS AT NO ADDITIONAL COST TO THE OWNER.

J. WHERE EXISTING UNDERGROUND OR OTHERWISE CONCEALED FACILITIES ARE INDICATED ON THE DRAWINGS, THESE ARE LOCATED AS WELL AS CAN BE DETERMINED FROM AVAILABLE INFORMATION. THE CONTRACTOR IS REQUIRED TO VERIFY ACTUAL LOCATIONS AS NECESSARY FOR THIS CONSTRUCTION.

1.05 CODES AND STANDARDS

A. ALL WORK SHALL CONFORM TO THE FOLLOWING CODES:

1. 2019 CALIFORNIA ELECTRICAL CODE (CEC).
2. TITLE 24 _ STATE OF CALIFORNIA ADMINISTRATIVE CODE
3. UNIFORM BUILDING CODE _ CURRENT EDITION
4. CITY OR COUNTY ELECTRICAL CODE AS APPLICABLE
5. APPLICABLE REGULATIONS OF LOCAL UTILITY COMPANIES
6. E.U.S.E.R.C. STANDARDS
7. ANY ADDITIONAL CODES EFFECTIVE AT THE JOB SITE

B. FURNISH WITHOUT EXTRA CHARGE ANY ADDITIONAL MATERIAL AND LABOR WHICH MAY BE REQUIRED FOR COMPLIANCE WITH THESE LAWS, RULES, AND REGULATIONS, EVEN THOUGH THE WORK IS NOT MENTIONED IN THESE PARTICULAR SPECIFICATIONS.

C. APPLY AND PAY FOR ALL PERMITS REQUIRED BY ANY OF THE LEGALLY CONSTITUTED PUBLIC AUTHORITIES FOR THE INSTALLATION OR CONSTRUCTION OF THE WORK INCLUDED UNDER THIS SPECIFICATION.

D. ARRANGE AND PAY FOR ANY INSPECTIONS OR EXAMINATIONS SO REQUIRED AND DELIVER CERTIFICATES OF ALL SUCH INSPECTIONS TO THE OWNER. WHEN THESE SPECIFICATIONS CALL FOR MATERIALS OR CONSTRUCTION OF A BETTER QUALITY OR LARGER SIZES THAN REQUIRED BY THE ABOVE MENTIONED RULES AND REGULATIONS, THE PROVISIONS OF THE SPECIFICATIONS SHALL TAKE PRECEDENCE.

1.06 EXAMINATION OF THE SITE

A. THE CONTRACTOR IS REQUIRED TO VISIT THE SITE OF CONSTRUCTION PRIOR TO BID TO DETERMINE EXISTING CONDITIONS AND THEIR EFFECT UPON THE WORK HE WILL BE REQUIRED TO PERFORM. NO ADDITIONAL COMPENSATION WILL BE ALLOWED FOR ANY EXTRA EXPENSES INCURRED BY FAILURE TO DETECT AND EVALUATE ALL EXISTING CONDITIONS THAT WILL AFFECT HIS WORK TO BE INCLUDED IN THE BID TO ACCOMPLISH THIS CONTRACT DOCUMENT'S GOAL.

1.07 COORDINATION WITH OTHER TRADES

A. EXAMINE THE ELECTRICAL DRAWINGS AND REFER TO THE DRAWINGS AND SPECIFICATIONS DESCRIBING OTHER WORK TO BE ACCOMPLISHED. VERIFY AND COORDINATE PRIOR TO BID. CONTINUE TO COORDINATE WORK PLANNING AND ALL WORK IN THE FIELD TO AVOID CONFLICTS, ERRORS, AND/OR DELAYS. NO COMPENSATION WILL BE ALLOWED FOR EXTRA WORK NECESSITATED BY LACK OF COORDINATION.

1.08 STRUCTURAL REQUIREMENTS

A. SECURE ALL ANCHORS FOR ELECTRICAL EQUIPMENT IN A MANNER, WHICH WILL NOT DECREASE THE STRUCTURAL VALUE OF ANY STRUCTURE TO AN UNSAFE LEVEL. INSTALL ALL EQUIPMENT, FIXTURES, ETC. TO RESIST SEISMIC MOVEMENTS. INFORM THE ARCHITECT IN ADVANCE AND PROVIDE DRAWINGS OF ANY PROPOSED MODIFICATIONS TO THE STRUCTURE THAT INVOLVES CUTTING OR PATCHING OF CONCRETE, MASONRY, STEEL, OR WOOD IN THIS PROJECT.

1.09 MANUFACTURER'S INSTRUCTIONS

A. FOLLOW THE MANUFACTURER'S INSTRUCTIONS WHEN SPECIFIC INSTALLATION OR CONNECTION DETAILS ARE NOT INDICATED OR SPECIFIED ON THE CONTRACT DOCUMENTS.

B. NOTIFY THE ARCHITECT/ENGINEER OF CONFLICTS BETWEEN THE MANUFACTURER'S INSTRUCTIONS AND INSTALLATION OR CONNECTION DETAILS PRIOR TO THE INSTALLATION OF MATERIALS.

1.10 SERVICE AND METERING

A. NEW UNDERGROUND FACILITIES (CONDUIT) SHALL BE PROVIDED FOR THE POWER COMPANY'S PRIMARY LINES.

B. NEW UNDERGROUND FACILITIES (CONDUIT AND CONDUCTORS) SHALL BE PROVIDED FOR THE POWER COMPANY'S SECONDARY LINES.

C. PAY ALL COSTS AND POWER COMPANY CHARGES.

D. POWER IS PROVIDED BY PG&E.

E. COORDINATE ALL REQUIREMENTS WITH THE UTILITY COMPANY PRIOR TO BID.

1.11 INSPECTION

A. COOPERATE WITH THE OWNER AND PROVIDE ASSISTANCE AT ALL TIMES FOR THE INSPECTION OF THE ELECTRICAL WORK. REMOVE COVERS, OPERATE MACHINERY, OR PERFORM ANY REASONABLE WORK, WHICH IN THE OPINION OF THE OWNER, WILL BE NECESSARY TO DETERMINE THE QUALITY OR ADEQUACY OF THE WORK.

B. IF ANY MATERIAL DOES NOT CONFORM TO THESE SPECIFICATIONS, REMOVE THE MATERIALS FROM THE PREMISES, WITHIN THREE DAYS AFTER BEING NOTIFIED BY THE OWNER.

C. WORK SHALL NOT BE CLOSED IN OR COVERED BEFORE INSPECTION AND APPROVAL BY THE OWNER.

1.12 QUALITY OF MATERIALS

A. ALL ELECTRICAL MATERIALS USED ON THIS PROJECT SHALL BE NEW AND FREE FROM DEFECTS.

B. ALL ELECTRICAL MATERIALS USED ON THIS PROJECT SHALL CONFORM WHERE APPLICABLE, TO THE FOLLOWING STANDARDS, UNLESS OTHERWISE NOTED:

1. NEMA _ NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
2. ANSI _ AMERICAN NATIONAL STANDARDS INSTITUTE
3. UL _ UNDERWRITERS LABORATORIES, INC.

C. EACH TYPE OF MATERIAL SHALL BE OF THE SAME MANUFACTURER AND QUALITY THROUGHOUT THE WORK.

1.13 SUBMITTAL & SHOP DRAWINGS

A. SHOP DRAWINGS AND SUPPLEMENTAL DATA WHERE CALLED FOR, SHALL BE PREPARED AND SUBMITTED AS PER GENERAL CONDITIONS. FINAL CORRECTED COPIES OF SCHEDULES AND SHOP DRAWINGS OR SUPPLEMENTAL DATA TO ARCHITECT FOR REVIEW, SHALL BE SUCH AS TO PROVIDE ONE (1) FOR ARCHITECT'S FILES, ONE (1) FOR ELECTRICAL ENGINEER'S FILES, TWO (2) FOR THE OWNER, ONE (1) TO CONTRACTOR'S JOB FILES, AND SUCH ADDITIONAL COPIES AS CONTRACTOR MAY DESIRE FOR HIS OWN OFFICE FILES AND/OR FOR DISTRIBUTION BY HIM TO SUBCONTRACTORS OR VENDORS. EXCEPTIONS SHALL BE AS NOTED IN THE DIVISION 1 SPECIFICATION SECTIONS.

B. SHOP DRAWINGS AND SUPPLEMENTAL DATA ARE REQUIRED UNLESS SPECIFICALLY NOT REQUESTED BY THE ENGINEER. SHOP DRAWINGS SHALL BE SUBMITTED FOR ALL ELECTRICAL EQUIPMENT PERTAINING TO JOB. (NOT LIMITED TO ELECTRICAL EQUIPMENT, LIGHTS, RECEPTACLES, BOXES, ENCLOSURES, CONDUIT, WIRE, ETC.)

C. THE SHOP DRAWINGS AND SUPPLEMENTAL DATA SHOWN CALLED FOR SHALL BE SUBMITTED AS THE INSTRUMENTS OF THE CONTRACTOR, EVEN THOUGH THEY MAY HAVE BEEN PREPARED BY A SUBCONTRACTOR, SUPPLIER, DEALER, MANUFACTURER, OR BY ANY OTHER PERSON, FIRM OR ORGANIZATION. PRIOR TO SUBMISSION, THE CONTRACTOR SHALL UNDERTAKE HIS OWN REVIEW AND STAMP WITH HIS ACCEPTANCE, THEN SUBMIT TO THE ENGINEER FOR HIS REVIEW. BY ACCEPTING AND SUBMITTING SHOP DRAWINGS AND SUPPLEMENTAL DATA, THE CONTRACTOR REPRESENTS THAT HE HAS DETERMINED AND VERIFIED ALL FIELD MEASUREMENTS, THE PHYSICAL CONSTRUCTION, THE QUALITY OF MATERIALS, THE APPLICABILITY OF CATALOG NUMBERS, AND SIMILAR DATA, OR WILL DO SO, AND THAT HE HAS CHECKED AND COORDINATED EACH SHOP DRAWINGS WITH THE REQUIREMENTS OF THE TRADES SHALL BE RESOLVED BY THE CONTRACTOR IN THE SHOP DRAWINGS, IF POSSIBLE, BUT IN ANY EVENT PRIOR TO THE ACTUAL CONSTRUCTION.

D. ALL SHOP DRAWINGS SHALL BE DRAWN ACCURATELY ON PAPER SUITABLE FOR DUPLICATE COPYING BY BLACK OR BLUE LINE PRINTING PROCESSES OR XEROX.

E. SUPPLEMENTAL DATA SHALL INCLUDE INFORMATION AS NOTED IN THE SPECIFICATION PARAGRAPHS REQUIRING THEM, OR AS REQUESTED BY THE ARCHITECT.

F. THE ENGINEER WILL REVIEW SHOP DRAWINGS AND SUPPLEMENTAL DATA SUBMITTED BY THE CONTRACTOR ONLY FOR GENERAL DESIGN CONFORMANCE WITH THE CONCEPT OF THE PROJECT AND COMPLIANCE WITH THE INFORMATION GIVEN IN THE CONTRACT DOCUMENTS.

G. IF MORE THAN ONE (1) SUBMISSION OF SHOP DRAWINGS OR SUPPLEMENTAL DATA IS REQUIRED FOR ANY GIVEN ITEM TO MEET THE PROJECT SPECIFICATIONS, THE COST OF REVIEWING THESE ADDITIONAL SUBMISSIONS SHALL BE CHARGED DIRECTLY AGAINST THE CONTRACTOR AND THE OWNER WILL WITHHOLD THE FUNDS NECESSARY TO COVER THESE COSTS.

H. SHOP DRAWINGS, IF REQUESTED, MUST BE SUBMITTED TO AND FAVORABLY REVIEWED BY THE ARCHITECT AND/OR ENGINEER BEFORE BEING USED BY THE CONTRACTOR ON THE JOB.

I. SHOP DRAWINGS DEADLINE: IN ADDITION TO REQUIREMENTS AS ESTABLISHED IN DIVISION 1 OF THE GENERAL CONDITIONS, THE CONTRACTOR SHALL, WITHIN 35 CALENDAR DAYS AFTER THE NOTICE TO PROCEED OF THE CONTRACT, SUBMIT TO THE ARCHITECT FOR APPROVAL THE SHOP DRAWINGS FOR EQUIPMENT AND/OR SPECIALTY ITEMS AS LISTED IN EACH DIVISION OF WORK. THE SHOP DRAWINGS SHALL BE SUBMITTED IN ADDITION TO THE LIST OF MATERIALS REQUIRED BY THE "SPECIFIED ITEMS _ SUBSTITUTES" PARAGRAPH.

J. SHOP DRAWINGS DELINEATION: THE SHOP DRAWINGS SHALL BE DRAWN TO SCALE AND SHALL BE COMPLETELY DIMENSIONED, BRINGING THE PLAN TOGETHER WITH SUCH SECTIONS AS ARE NECESSARY TO CLEARLY SHOW CONSTRUCTION DETAIL.

K. RESPONSIBILITY: THESE SHOP DRAWINGS AND ALL SUPPORTING DATA, CATALOGS, ETC., SHALL BE PREPARED BY THE CONTRACTOR OR HIS SUPPLIERS, BUT SHALL BE SUBMITTED AS THE INSTRUMENTS OF THE CONTRACTOR. THEREFORE, THE CONTRACTOR SHALL CHECK THE DRAWINGS OF HIS SUPPLIERS AS WELL AS HIS OWN DRAWINGS BEFORE SUBMITTING THEM TO THE ARCHITECT. IN PARTICULAR, THE CONTRACTOR SHALL ASCERTAIN THAT THE SHOP DRAWINGS MEET ALL REQUIREMENTS OF THE FINAL DESIGN DRAWINGS AND SPECIFICATIONS AND ALSO CONFORM TO THE STRUCTURAL AND SPACE CONDITIONS. EACH SHOP DRAWING SUBMITTED FOR APPROVAL SHALL BEAR A STAMP CERTIFYING THAT IT HAS BEEN CHECKED BY THE CONTRACTOR IN ACCORDANCE WITH THE SPECIFICATIONS. IF SUCH SHOP DRAWINGS SHOW VARIATIONS FROM CONTRACT DOCUMENTS, WHETHER BECAUSE OF STANDARD SHOP PRACTICE OR OTHER REASONS, THE CONTRACTOR SHALL MAKE SPECIAL MENTION THEREOF IN HIS LETTER TRANSMITTAL. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR OBSERVING THE NEED FOR AND MAKING ANY CHANGES IN THE ARRANGEMENT OF PIPING, CONNECTIONS, WIRING, MANNER OF INSTALLATION ETC., WHICH MAY BE REQUIRED BY THE EQUIPMENT HE PROPOSES TO SUPPLY BOTH AS IT PERTAINS TO HIS OWN WORK AND ANY WORK AFFECTED UNDER OTHER PARTS, HEADINGS, OR DIVISIONS OF DRAWINGS, AND SPECIFICATIONS.

L. IDENTIFICATION: SHOP DRAWINGS SHALL BE ENTITLED WITH THE NAME OF THE PROJECT ON EACH SHEET AND SHALL OTHERWISE BE IDENTIFIED BY LISTING THE PARTICULAR DIVISION, SECTION, ARTICLE OR REFERENCE OF THE WORK PERTAINING. SUBMIT DIFFERENT ITEMS ON SEPARATE SHEETS. ALL SUBMITTALS SHALL BE NUMBERED SERIALLY.

M. MANNER: FURNISH FOR ARCHITECT'S APPROVAL SEPARATE SHEETS OF SUBMITTAL OF EACH SPECIALTY ITEM IN THE FOLLOWING MANNER:

1. CATALOG CUTS SHALL BE PHOTOCOPIED OR REPRODUCED IN SOME OTHER ACCEPTABLE MANNER AND SUBMITTED SEVEN (7) COPIES ON ONE SIDE ONLY OF AN 8 ½" X 11" SHEET, NOTING ONLY THE ITEMS IN QUESTION, TOGETHER WITH THE DESCRIPTIVE (SPECIFICATION) DATA COMPLETE. DRAWINGS SHALL BE SUBMITTED IN OZALID TRANSPARENCY FORM.
2. EACH SHEET SHALL BE IDENTIFIED WITH THE DIVISION, SECTION, ARTICLE OR REFERENCE IN THE CONTACT DOCUMENTS, WHICH COVERS THE ITEM SUBMITTED FOR APPROVAL.
3. EACH SHEET SHALL BE IDENTIFIED WITH THE PROJECT NAME AND THE ARCHITECT.
4. EACH SHEET SHALL BEAR THE CONTRACTOR'S STAMP AND SIGNATURE OF APPROVAL.

1.14 SPECIFIED ITEMS _ SUBSTITUTES

A. WHEREVER CATALOG NUMBERS AND SPECIFIC BRANDS OR TRADE NAMES FOLLOWED BY THE DESIGNATION "OR EQUAL" ARE USED IN CONJUNCTION WITH A DESIGNATED MATERIAL, PRODUCT, THICKNESS, OR SERVICE MENTIONED IN THIS SPECIFICATION, THEY ARE USED TO ESTABLISH THE STANDARDS OF QUALITY, UTILITY AND APPEARANCE REQUIRED. SUBSTITUTIONS, WHICH ARE EQUAL IN QUALITY, UTILITY, AND APPEARANCE TO THOSE SPECIFIED, WILL BE APPROVED, SUBJECT TO THE FOLLOWING PROVISIONS: ALL SUBSTITUTIONS MUST BE APPROVED BY THE ARCHITECT AND/OR ENGINEER IN WRITING. FOR THIS PURPOSE, THE CONTRACTOR SHALL SUBMIT TO THE ARCHITECT, WITHIN 30_CALENDAR DAYS AFTER THE DATE OF COMMENCEMENT SPECIFIED IN THE NOTICE TO PROCEED, A TYPEWRITTEN LIST CONTAINING A DESCRIPTION OF EACH PROPOSED SUBSTITUTE ITEM OR MATERIAL. THE ARCHITECT MAY INCREASE THE SUBMITTAL PERIOD BEYOND 30 CALENDAR DAYS IF THE SCHEDULE ALLOWS. SUFFICIENT DATA, DRAWINGS, SAMPLES, LITERATURE OR OTHER DETAILED INFORMATION THAT WILL DEMONSTRATE TO THE ARCHITECT THAT THE PROPOSED SUBSTITUTE IS EQUAL IN QUALITY, UTILITY, AND APPEARANCE TO THE MATERIAL SPECIFIED SHALL BE APPENDED TO THIS LIST. THE ARCHITECT WILL APPROVE, IN WRITING, SUCH PROPOSED SUBSTITUTION WHICH AFFECT OTHER PARTS OF THE CONTRACTOR'S OWN WORK OR THE WORK OF OTHERS.

B. FAILURE OF THE CONTRACTOR TO SUBMIT PROPOSED SUBSTITUTIONS FOR APPROVAL IN THE MANNER DESCRIBED ABOVE AND WITHIN THE TIME PRESCRIBED SHALL BE SUFFICIENT CAUSE FOR DISAPPROVAL BY THE ENGINEER OF ANY SUBSTITUTIONS OTHERWISE PROPOSED.

C. WHEREVER CATALOG NUMBERS AND SPECIFIC BRANDS OR TRADE NAMES NOT FOLLOWED BY THE DESIGNATION "OR EQUAL" MATERIAL, PRODUCT, THING OR SERVICE MENTIONED IN THESE SPECIFICATIONS, NO SUBSTITUTIONS WILL BE ACCEPTED FOR APPROVAL.

D. WHEREVER MORE THAN ONE MANUFACTURER'S PRODUCT IS SPECIFIED, THE FIRST_NAME PRODUCT IS THE BASIS FOR THE PROJECT DESIGN AND THE USE OF ALTERNATIVE NAME MANUFACTURER'S PRODUCTS OR SUBSTITUTES MAY REQUIRE MODIFICATIONS IN THE PROJECT DESIGN AND CONSTRUCTION. IF SUCH ALTERNATIVES ARE PROPOSED BY THE CONTRACTOR AND ARE FAVORABLY REVIEWED BY THE ENGINEER THE CONTRACTOR SHALL ASSUME COSTS REQUIRED TO MAKE NECESSARY REVISIONS AND MODIFICATIONS INCLUDING ADDITIONAL COSTS TO THE OWNER FOR EVALUATIONS OF MODIFICATIONS OF THE PROJECT DESIGN SUBMITTED BY THE CONTRACTOR TO THE ARCHITECT.

E. WHEN MATERIALS ARE SPECIFIED BY THE FIRST MANUFACTURER'S NAME, AND PRODUCT NUMBER, SECOND MANUFACTURER'S NAME, OR EQUAL, THE SECOND MANUFACTURER'S PRODUCT SHALL BE SUBMITTED IN ACCORDANCE WITH THE ABOVE PARAGRAPH.

F. IF THE ENGINEER IN THIS REVIEW OF THE LIST OF MATERIALS AND EQUIPMENT REQUIRES REVISIONS OR CORRECTIONS TO BE MADE OR SHOP DRAWINGS AND/OR SUPPLEMENTAL DATA TO BE SUBMITTED, THE CONTRACTOR SHALL PROMPTLY DO SO. IF ANY PROPOSED MATERIAL IS JUDGED BY THE ENGINEER TO BE UNACCEPTABLE, THE SPECIFIED ITEM SHALL BE PROVIDED; FURTHER SUBMISSIONS WILL NOT BE ALLOWED, UNLESS DIRECTED BY THE ENGINEER.

G. PHYSICAL SAMPLES MAY BE REQUIRED. IF TESTS FOR THE DETERMINATION OF EQUALITY AND UTILITY ARE REQUIRED BY THE ENGINEER THEY SHALL BE MADE BY A TESTING LABORATORY, WITH ACCEPTANCE OF THE TEST PROCEDURE FIRST GIVEN BY THE ENGINEER, AND AT THE EXPENSE OF THE CONTRACTOR.

H. IN REVIEW OF THE DATA SUBMITTED IN SUPPORT OF SUBSTITUTIONS, THE ENGINEER WILL USE FOR PURPOSES OF COMPARISON ALL OF THE CHARACTERISTICS OF THE SPECIFIED ITEM AS THEY APPEAR IN THE MANUFACTURER'S PUBLISHED DATA EVEN THOUGH ALL OF THE CHARACTERISTICS OF THE SPECIFIED ITEM MAY NOT HAVE BEEN PARTICULARLY MENTIONED IN THE MANUFACTURER'S PUBLISHED DATA. IF MORE THAN TWO SUBMISSIONS OF DATA ARE REQUIRED, THE COST OF REVIEWING THE DATA GOES AGAINST THE CONTRACTOR, AND THE OWNER WILL WITHHOLD THE FUNDS NECESSARY TO COVER THESE COSTS. ONLY ONE (1) SUCH REQUEST MAY BE SUBMITTED. THE ENGINEER'S REJECTION OF ANY SUBSTITUTE SHALL AUTOMATICALLY REQUIRE THE CONTRACTOR TO FURNISH THE SPECIFIED ITEM WITHOUT FURTHER DISCUSSION OR DELAY.

1.15 EQUIPMENT IDENTIFICATION

A. THE MAIN SWITCHBOARD, AND ALL PANELBOARDS, BOXES, ETC., SHALL BE PROPERLY IDENTIFIED WITH A DESCRIPTIVE NAMEPLATE. NAMEPLATES SHALL BE MADE OF 1/16 INCH LAMINATED PLASTIC WITH BLACK BACKGROUND AND WHITE LETTERS. SIZE OF LETTERS SHALL BE 1/4 INCH HIGH. LETTERS SHALL BE MACHINE ENGRAVED. ALL NAMEPLATES SHALL BE SCREW MOUNTED WITH OVAL HEAD MACHINE SCREWS TAPPED INTO FRONT OF PANEL.

B. PROVIDE HOLDERS WITH IDENTIFICATION CARDS FILLED OUT IN TYPEWRITTEN FORMAT OF CIRCUIT DESIGNATIONS FOR EACH PANELBOARD.

C. EACH BRANCH CIRCUIT, CONTROL, AND SIGNAL CONDUCTOR SHALL BE LABELED WITH THE CIRCUIT NUMBER OR TERMINAL NUMBER IT IS CONNECTED TO. USE T&B VINYL OR BRANDY PERMASHIELD MYLAR MARKERS. CONDUCTORS SHALL BE LABELED AT EACH PANELBOARD, SWITCHBOARD, CONTROL CENTER, TERMINAL CABINET, PULL BOX AND EACH POINT OF UTILIZATION SUCH AS FIXTURES, MOTORS, CONTROLS, ETC. LABELING SHALL CORRESPOND TO CONTROL DIAGRAMS WHERE APPLICABLE.

1.16 WARRANTY

A. GUARANTEE ALL WORK FOR ONE YEAR FROM DATE OF ACCEPTANCE AGAINST ALL DEFECTS IN MATERIAL, EQUIPMENT AND WORKMANSHIP.

1.17 RECORD AS–BUILT DRAWINGS

A. THE CONTRACTOR SHALL KEEP A SEPARATE SET OF ELECTRICAL DRAWINGS AT THE JOB SITE TO BE USED AS RECORD DRAWINGS. THESE DRAWINGS ARE TO BE KEPT CURRENT AND IN A NEAT AND CLEAN CONDITION AT ALL TIMES. THEY ARE TO BE AVAILABLE FOR INSPECTION BY THE ARCHITECT OR ENGINEER AT ANY TIME DURING SITE VISITATIONS. THESE DRAWINGS SHALL BE "RED LINED" TO INDICATE ALL CHANGES IN EQUIPMENT, DEVICE, AND OUTLET LOCATIONS; AND TO INDICATE THE TRUE LOCATIONS OF ALL CONCEALED OR UNDERGROUND WORK WHERE DIFFERENT FROM THAT SHOWN ON THE DRAWINGS. EACH SHEET OF THIS SET SHALL BE CLEARLY AND PERMANENTLY MARKED "RECORD AS–BUILT DRAWINGS".

B. UPON COMPLETION OF THE PROJECT AND PRIOR TO FINAL PAYMENT, TRANSFER ALL RECORD DRAWINGS INFORMATION TO THE PROVIDED ORIGINAL DRAWINGS. ALL INFORMATION SHALL BE CLEARLY DRAWN WITH "RED" INK. THE DRAWINGS SHALL BE SCANNED, 100% EDITED, AND CONVERTED INTO AN AUTOCAD ".DWG" VERSION 2000 (OR HIGHER) ELECTRONIC FILE. DELIVER THE ORIGINAL, FINAL SETS AND ELECTRONIC FILES (CD) TO THE ARCHITECT FOR REVIEW AND DELIVERY TO THE DISTRICT'S REPRESENTATIVE/OWNER.

PART 2 _ PRODUCTS

2.01 MATERIALS

A. UNLESS SPECIFICALLY INDICATED OTHERWISE, ALL MATERIAL SHALL BE NEW AND FREE FROM DEFECTS; IT SHALL BE LISTED BY UNDERWRITERS LABORATORIES WHERE APPLICABLE. LIKE ITEMS SHALL BE OF THE SAME MANUFACTURER (EXCEPT LIGHTING FIXTURES – WHICH SHALL BE AS SPECIFIED).

B. EXCEPT AS NOTED OTHERWISE, WHERE MATERIAL OF A PARTICULAR MANUFACTURER IS SPECIFIED, THE INTENT IS TO DESCRIBE THE QUALITY AND FUNCTION OF THE ITEM. THE TERM "...OR APPROVED EQUAL" IS IMPLIED. A SUBSTITUTION OF ANY OF THESE ITEMS WILL REQUIRE THAT THE ITEM BE PRESENTED IN A SUBMITTAL WHERE SPECIFICALLY LISTED IN THE "SUBMITTALS" PARAGRAPH ABOVE.

2.02 ENCLOSURES

A. PROVIDE ENCLOSURES SUITABLE FOR THE SPECIFIC TYPE OF LOCATION IN WHICH THEY ARE INSTALLED.

1. PROVIDE NEMA 1 OR NEMA 12 BOXES AND ENCLOSURES FOR DRY LOCATIONS. DRY LOCATIONS ARE ALL INDOOR AREAS THAT DO NOT FALL WITHIN THE DEFINITIONS BELOW FOR WET OR DAMP LOCATIONS.
2. PROVIDE NEMA 3R BOXES AND ENCLOSURES FOR WET LOCATIONS. WET LOCATIONS ARE ALL LOCATIONS EXPOSED TO WEATHER, WHETHER UNDER A ROOF OR NOT.
3. PROVIDE NEMA 4 BOXES AND ENCLOSURES FOR DAMP LOCATIONS. DAMP LOCATIONS ARE ALL INDOOR SPACES WHOLLY OR PARTIALLY UNDERGROUND OR ANY AREA SUBJECT TO WATER SPRAY.

DSA

ENGINEER:
WARREN CONSULTING ENGINEERS, INC.
1117 WINDFIELD WAY, SUITE 110
EL DORADO HILLS, CA 95762 | (916) 985-1870

CONSULTANT:
LP CONSULTING ENGINEERS
MEP & FS / Sustainability / CxA
1209 Pleasant Grove Blvd.
Roseville, CA 95678
p 916-771-0778
www.lpengineers.com
Job #: 22-2023

OWNER:
TRACY UNIFIED SCHOOL DISTRICT
Tracy Unified School District
1875 W. Lowell Avenue
Tracy, CA 95376
Phone: (209) 830-3200

REGISTERED PROFESSIONAL ENGINEER
RAMI S. ZEIDAN
No. E 16762
Exp. 9/30/24
ELECTRICAL
STATE OF CALIFORNIA

John C. Kimball High School Tennis Court Repairs
3200 Jaguar Run
Tracy, CA 95377

REVISIONS	
NO.	DESCRIPTION

DRAWN: BS	SCALE: AS NOTED
CHECKED: RZ	PROJECT NO. 21–129
DESIGNED: RN	DATE: 11–11–2022

ISSUANCE: BID SET

SHEET TITLE: ELECTRICAL SPECIFICATIONS

SHEET NO. E0.3

FILENAME: P:\1–PROJECT FILES\2022 LP PROJECTS\22–2023 WCE_TUSD–KIMBALL HS TENNIS COURT\LP CAD\222023_E0.3 (SPECS).DWG PLOTTED: Friday, November 18, 2022

2.03 PANELBOARDS

C. ACCEPTABLE MANUFACTURERS:

1. CUTLER HAMMER
2. SQUARE D
3. SIEMENS

B. PANELBOARDS SHALL BE OF A TYPE AND RATING AS INDICATED ON THE PANEL SCHEDULE(S) ON THE DRAWINGS. THEY SHALL BE DEAD FRONT WITH HARDWARE FOR ACCEPTING MOLDED CASE BOLT-ON CIRCUIT BREAKERS OF THE MAXIMUM SIZE ALLOWABLE IN EACH SPACE. THE ENTIRE ASSEMBLY INCLUDING CIRCUIT BREAKERS SHALL BE RATED FOR NOT LESS THAN THE AVAILABLE SHORT CIRCUIT CURRENT SHOWN ON THE DRAWINGS (22,000 AMPS SYMMETRICAL WHEN NOT OTHERWISE INDICATED).

C. RATINGS:

1. SEE PANEL SCHEDULES.
2. INTERRUPTING RATING: REFER TO ONE LINE DIAGRAM. COMPLY WITH CEC 110.9 AND 110.10. PROVIDE AIC CALCULATIONS IF REQUIRED.

D. FINISH: ALL PAINTED STEEL WORK SHALL BE TREATED WITH A PRIMER COAT AND FINISH COAT OF THE MANUFACTURER'S STANDARD GRAY COLOR OR ANSI 61.

E. BUSSING:

1. BUSSING SHALL BE RECTANGULAR CROSS SECTION COPPER.

2. EACH PANELBOARD SHALL BE EQUIPPED WITH A GROUND BUS SECURED TO THE INTERIOR OF THE ENCLOSURE. THE BUS SHALL BE EQUAL TO THE PANELBOARD NEUTRAL BUS AND SHALL HAVE A SEPARATE LUG FOR EACH GROUND CONDUCTOR. NOT MORE THAN ONE CONDUCTOR SHALL BE INSTALLED PER LUG.

F. BREAKERS:

1. VOLTAGE 240 VAC OR 480 VAC AS SHOWN ON PLANS.

2. INTERRUPTING RATING: SEE PANEL SCHEDULES.

3. MANUFACTURER SHALL BE THE SAME AS THE PANELBOARD OR SWITCHBOARD IN WHICH THEY ARE MOUNTED.

4. WHERE TWO OR THREE POLE BREAKERS OCCUR IN THE PANELS, THEY SHALL BE COMMON TRIP UNITS. SINGLE POLE BREAKERS WITH TIE_BAR BETWEEN HANDLES WILL NOT BE ACCEPTED.

5. BREAKERS SHALL HAVE TOGGLE, QUICK_MAKE, AND QUICK_BREAK OPERATING MECHANISMS WITH TRIP_FREE FEATURE TO PREVENT CONTACTS BEING HELD CLOSED AGAINST OVERCURRENT CONDITIONS IN THE CIRCUIT. TRIP POSITION OF THE BREAKERS SHALL BE CLEARLY INDICATED BY MOVEMENT OF THE OPERATING HANDLES TO THE CENTER POSITION.

G. HACR RATED CIRCUIT BREAKERS SHALL BE PROVIDED TO PROTECT ALL FEEDERS AND BRANCH CIRCUITS TO NON-FUSED HVAC AND REFRIGERATION EQUIPMENT AND WHERE REQUIRED BY EQUIPMENT LISTING CONDITIONS.

H. NAMEPLATES AND DIRECTORY: EACH PANEL SHALL HAVE A NEATLY TYPEWRITTEN DIRECTORY WITH THE NAME AND NUMBER OF THE ROOM OR THE EQUIPMENT SERVED BY EACH CIRCUIT BREAKER WHICH SHALL CORRESPOND WITH THE FINAL CIRCUIT ARRANGEMENT. SPACES IN DIRECTORIES FOR SPARE CIRCUIT BREAKERS SHALL BE NEATLY MARKED "SPARE" IN PENCIL. THE DIRECTORY SHALL ALSO INDICATE THE PANEL DESIGNATION, VOLTAGE AND PHASE AT THE TOP. EACH DIRECTORY SHALL BE MOUNTED IN METALLIC INDEX CARD HOLDER BEHIND A CLEAR PLASTIC WINDOW.

2.04 MOTOR STARTERS

A. DISCONNECT SWITCH TYPE COMPLETE WITH (3) OVERLOAD RELAYS AND ENCLOSURE SUITABLE FOR APPLICATION. CUTLER_HAMMER, SIEMENS, OR SQUARE D.

2.05 FUSES

A. FUSES SHALL BE PROVIDED PER MANUFACTURER'S EQUIPMENT NAMEPLATE FOR ALL FUSE HOLDERS AS SHOWN ON THE DRAWINGS AND AS REQUIRED FOR SUPPLEMENTAL PROTECTION AND SPECIFIED HEREIN. THEY SHALL BE CURRENT-LIMITING, NON-RENEWABLE AS INDICATED ON THE DRAWINGS – FUSETRON OR LIMITRON TYPE MANUFACTURED BY BUSSMAN OR EQUAL. ALL FUSES SHALL BE THE PRODUCT FROM THE SAME MANUFACTURER. PROVIDE (3) SPARE FUSES FOR EACH SIZE AND CLASS OF FUSE USED.

B. MAIN AND FEEDER PROTECTION:

1. WHERE RATING OF PROTECTIVE DEVICE IS GREATER THAN 600 AMPERE, PROVIDE BUSSMAN HI-CAP FUSES, CLASS L, CURRENT LIMITING, HAVING AN INTERRUPTING RATING OF 200,000 AMPERE RMS.

2. WHERE RATING OF PROTECTIVE DEVICE IS 600 AMPERE OR LESS, PROVIDE BUSSMAN CLASS R FUSES, CLASS RK1 CURRENT LIMITING FUSES, HAVING AN INTERRUPTING RATING OF 200,000 AMPERE RMS.

C. MOTOR PROTECTION:

1. WHERE RATING OF PROTECTIVE DEVICE IS 600 AMPERE OR LESS, PROVIDE BUSSMAN FUSETRON DUAL-ELEMENT FUSES, CLASS RK5, HAVING AN INTERRUPTING RATING OF 200,000 AMPERE RMS.

2. WHERE FUSES FEEDING MOTORS ARE INDICATED BUT NOT SIZED, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE THE FUSE SIZE WITH THE MOTOR TO PROVIDE PROPER MOTOR RUNNING PROTECTION.

2.06 RACEWAY AND FITTINGS

A. RIGID STEEL CONDUIT:

1. COMPLY WITH UNDERWRITERS LABORATORIES UL 6 SPECIFICATION, ANSI C80.1 AND FEDERAL SPECIFICATION WW_C_581E OR LATEST REVISIONS. HOT DIP GALVANIZED ON THE EXTERIOR, ZINC OR ENAMEL ON THE INTERIOR.

2. COUPLINGS, LOCKNUTS, AND ALL OTHER FITTINGS SHALL BE GALVANIZED OR SHERARDIZED, WATERPROOF AND THREADED TYPE ONLY. APPLETON, CROUSE_HINDS OR EQUAL.

B. INTERMEDIATE METALLIC CONDUIT (IMC):

1. COMPLY TO PROPOSED UNDERWRITERS LABORATORIES UL 1242 AND FEDERAL SPECIFICATION WW_C_581E OR LATEST REVISION. HOT DIPPED GALVANIZED ON THE EXTERIOR, CORROSION INHIBITING COATING ON THE INTERIOR.

2. COUPLINGS, LOCKNUTS, AND ALL OTHER FITTINGS SHALL BE GALVANIZED OR SHERARDIZED, WATERPROOF AND THREADED TYPE ONLY. SAME MATERIAL AS CONDUIT. APPLETON, CROUSE_HINDS OR EQUAL.

C. ELECTRICAL METALLIC TUBING (EMT):

1. COMPLY WITH UNDERWRITERS LABORATORIES UL 797, ANSI C80.3 AND FEDERAL SPECIFICATION WW_C_563 OR LATEST REVISIONS. EMT SHALL BE GALVANIZED OR SHERARDIZED.

2. COUPLINGS AND CONNECTORS FOR EMT SHALL BE GALVANIZED OR CADMIUM PLATED AND SHALL BE OF THE COMPRESSION TYPE REQUIRING THE TIGHTENING OF A NUT ON A GLAND RING OR AN APPROVED STEEL SET SCREW TYPE. APPLETON, CROUSE_HINDS OR EQUAL. NO DIE CAST TYPE ALLOWED.

D. FLEXIBLE METALLIC CONDUIT:

1. GALVANIZED INTERLOCKED SPIRALLY WOUND STEEL STRIP.

2. NEOPRENE JACKETED FLEXIBLE METALLIC CONDUIT SHALL BE USED IN ALL MOIST OR WEATHERPROOF LOCATIONS WHERE FLEXIBLE CONDUIT IS REQUIRED.

3. FITTINGS SHALL BE HOT DIPPED GALVANIZED COMPRESSION OR CLAMP TYPE. FITTINGS WHICH USE A SCREW TO BIND AGAINST TUBING OR WHICH SCREW INTO THE END OF THE CONDUIT, WILL NOT BE ACCEPTED. FITTINGS FOR NEOPRENE JACKETED FLEXIBLE CONDUIT SHALL BE OF THE SCREW IN TYPE. APPLETON STB SERIES. APPLETON, CROUSE_HINDS OR EQUAL MAY BE USED.

E. POLYVINYLCHLORIDE (PVC): RIGID HEAVY WEIGHT TYPE, SCHEDULE 40, COMPLETE WITH PVC FITTINGS.

F. ELECTRICAL NON_METALLIC TUBING (ENT): ELECTRICAL NON_METALLIC TUBING (ENT) IS NOT PERMISSIBLE FOR USE ON THIS PROJECT.

G. CONDUIT SUPPORTS:

1. PIPE HANGERS FOR INDIVIDUAL CONDUITS SHALL BE THREADED SUSPENSION ROD. THE PIPE RING SHALL BE MALLEABLE IRON, SPLIT AND HINGED, OR SHALL BE SPRINGABLE WROUGHT STEEL. RINGS SHALL BE BOLTED TO OR INTERLOCKED WITH THE SUSPENSION ROD SOCKET.

2. PIPE RACKS FOR GROUPS OF PARALLEL CONDUITS SHALL BE CONSTRUCTED OF GALVANIZED STRUCTURAL STEEL PREFORMED CHANNELS OF LENGTH AS REQUIRED, SUSPENDED ON THREADED RODS AND SECURED THERETO WITH NUTS ABOVE AND BELOW THE CROSS BAR.

3. FACTORY MADE PIPE STRAPS SHALL BE ONE_HOLE MALLEABLE IRON OR TWO_HOLE GALVANIZED CLAMPS.

4. STRUT CHANNEL SHALL BE: KINDORF, UNISTRUT, T&B OR EQUAL.

H. OUTLET BOXES: GALVANIZED STEEL. BOXES INSTALLED IN ANY EXTERIOR LOCATION, WHERE EXPOSED TO RAIN OR WHERE EXPOSED TO MOISTURE LADEN ATMOSPHERE SHALL BE CAST SCREW HUB TYPE WITH GASKETED WEATHERPROOF COVERS. BOXES FOR VAPOR PROOF OR EXPLOSION PROOF APPLICATIONS SHALL BE DESIGNED SPECIFICALLY FOR SUCH USE.

1. EACH BOX SHALL BE LARGE ENOUGH TO ACCOMMODATE THE REQUIRED NUMBER AND SIZES OF CONDUITS, WIRES, SPLICES AND DEVICES BUT NOT SMALLER THAN SIZE SHOWN OR SPECIFIED.

I. PULL BOXES AND CABINETS:

1. PRE_FABRICATED CONCRETE TYPE, CHRISTY CONCRETE PRODUCTS, BROOKS, OR EQUAL. ALL BOXES SHALL HAVE STANDARD BRASS HOLD_DOWN BOLTS AND HARDWARE. BOXES LOCATED IN PAVED AREAS OR OTHER AREAS OVER WHICH VEHICLES NORMALLY MAY TRAVEL SHALL HAVE TRAFFIC COVERS.

2. ALL PULL BOXES AND CABINETS SHALL BE CODE GAUGE GALVANIZED STEEL.

2.07 WIRE AND CABLE

A. LABELING:

MARKED ON 24 INCH CENTERS AS FOLLOWS:

1. UNDERWRITERS LABEL
2. GAUGE
3. VOLTAGE
4. KIND OF INSULATION
5. NAME OF MANUFACTURER
6. TRADE NAME

B. INSULATION:

1. ALL CONDUCTORS #10 AND SMALLER, SHALL BE 600 VOLT, TYPE THWN, THW, TW OR THHN UNLESS NOTED OTHERWISE.

2. ALL CONDUCTORS FOR UNDERGROUND AND CONDUCTORS #8 AND LARGER SHALL BE 600 VOLT, TYPE XHHW OR THWN UNLESS NOTED OTHERWISE.

3. INSULATION TYPE XHHW SHALL BE USED FOR WIRE SIZES #2 AND LARGER.

4. ALL CIRCUIT CONDUCTORS INSTALLED WITHIN FLUORESCENT FIXTURE RACEWAYS SHALL BE 600 VOLT, 105-DEGREE TYPE RHH, OR THHN, EXCEPT IN FIXTURES THAT HAVE WIRING RACEWAYS SPECIFICALLY APPROVED FOR 75 DEGREE CENTIGRADE WIRE.

C. GROUNDING WIRE:

1. GROUNDING WIRE #1/0 OR LARGER TINNED STRANDED COPPER CABLE. ALL SMALLER GROUND WIRES SHALL BE INSULATED WITH GREEN COLOR INSULATION

D. COLOR CODING OF CONDUCTORS:

1. THE GUIDELINES OF THE NEC SHALL BE FOLLOWED WHEN SELECTING WIRE COLORS. GENERALLY, ALL PHASE WIRES FOR POWER CONDUCTORS OF THE SAME SYSTEM MAY BE THE SAME COLOR EXCEPT AS FOLLOWS:

PHASE	120/208 VOLTS	277/480 VOLTS
PHASE A	BLACK	BROWN
PHASE B	RED	ORANGE
PHASE C	BLUE	YELLOW
NEUTRAL	WHITE	GRAY
GROUND	GREEN	GREEN
ISOLATED GROUND	LIGHT GREEN OR LIGHT GREEN WITH WHITE STRIPE	

2. THESE COLORS MAY BE THE CONDUCTOR INSULATION COLORS OR THE COLORS MAY BE APPLIED USING INDICATING TAPE MANUFACTURED FOR THE PURPOSE.

3. IN ADDITION TO COLOR CODING, ALL POWER, CONTROL, AND ALARM WIRING SHALL BE NUMBERED AND IDENTIFIED BY MEANS OF WIRE MARKERS AT ALL SWITCHBOARDS, PANELBOARDS, AUXILIARY GUTTERS, JUNCTION BOXES, PULL BOXES, RECEPTACLE OUTLETS, LIGHT OUTLETS, DISCONNECT SWITCHES, AND CIRCUIT BREAKERS. THESE MARKERS SHALL CORRESPOND TO NUMBERS ON SHOP DRAWINGS.

4. CONDUCTORS IN SIZES UP THROUGH #10 AWG SHALL HAVE SOLID COLOR FINISH AS LISTED ABOVE. NO. EIGHT (#8) AWG AND LARGER SHALL BE CODED BY APPLICATION OF PHASE TAPE FOR MINIMUM OF 6 INCH LENGTH ON CONDUCTOR. CODING SHALL OCCUR ON ALL SPLICES AND TERMINATION AND PULL BOXES.

E. CONDUCTORS:

1. UNLESS SPECIFICALLY NOTED OTHERWISE HEREIN, ALL CONDUCTORS FOR GENERAL WIRING SHALL BE A MINIMUM OF 98% CONDUCTIVITY, STRANDED, SOFT DRAWN COPPER.

2. CONDUCTORS FOR LIGHTING AND RECEPTACLE BRANCH CIRCUITS NO. 8 AND SMALLER SHALL BE SIMILAR TO THE ABOVE EXCEPT SOLID COPPER MAY BE USED.

3. EXCEPT WHERE NOTED ON THE PLANS OR IN THIS SPECIFICATION, THE MINIMUM CONDUCTOR SIZE FOR BRANCH CIRCUITS SHALL BE NO. 12. MINIMUM SIZE MECHANICAL EQUIPMENT CONTROL CIRCUITS WHERE COVERED UNDER THIS SPECIFICATION SHALL BE NO. 14.

4. ALUMINUM CONDUCTORS ARE NOT ALLOWED UNLESS SPECIFICALLY CALLED OUT FOR ON DRAWINGS.

F. PULLING LUBRICANT: UL APPROVED.

G. CONNECTIONS:

1. NUMBER EIGHT (#8) AND SMALLER, PRE_INSULATED SPRING TYPE CONNECTORS. THREADED OR CRIMP TYPES WILL NOT BE ACCEPTED. USE SCOTCHLOCK, HYDENT, T&B OR EQUAL.

2. TERMINALS FOR STRANDED CONDUCTORS NO. 8 AND SMALLER SHALL BE A PRE_INSULATED CRIMP TYPE.

3. LUGS AND CONNECTORS FOR CONDUCTORS NO. 6 AND LARGER SHALL BE COMPRESSION TYPES OF ONE PIECE TUBULAR CONSTRUCTION WITH FLAT RECTANGULAR TONGUES. TWO HOLE LUGS SHALL BE USED FOR SIZES 4/0 AND LARGER. FITTINGS FOR COPPER CONDUCTORS SHALL BE TIN_PLATED COPPER. FITTINGS FOR ALUMINUM CONDUCTORS SHALL BE TIN_PLATED ALUMINUM, FACTORY FILLED WITH A CORROSION INHIBITING AND OXIDE PENETRATING COMPOUND.

4. CAST RESIN KITS SHALL BE SCOTCHLOCK SEALING PACKS FOR WIRE SIZE TO #10 AND SCOTCHLOCK KITS FOR LARGER SPLICES AS RECOMMENDED BY 3M COMPANY.

2.08 WIRING DEVICES

A. WALL SWITCHES:

1. UREA BASE, TOGGLE TYPE WITH 20A 120_277V. A.C. RATING FOR FULL CAPACITY OF CONTACTS FOR INCANDESCENT OR FLUORESCENT LAMP LOADS. SWITCHES SHALL BE BACK AND SIDE WIRED, SELF GROUNDING. CONTACTS SHALL BE SILVER_CADMIUM OXIDE DESIGNED FOR QUIET OPERATION. COMPLY WITH FEDERAL SPECIFICATION W_S_896E WITH NEMA WD_1_3.02 AND UL 20 TESTS OR LATEST REVISIONS. COLOR AS SELECTED BY ARCHITECT OR OWNER.

2. SCHEDULE OF ACCEPTABLE TYPES:

SWITCH TYPE	COOPER	LEVITON	HUBBELL
TOGGLE SWITCH:			
SINGLE POLE	1221I	1221-2I	1221I
DOUBLE POLE	1222I	1222-2I	1222I
THREE WAY	1223I	1223-2I	1223I
FOUR WAY	1224I	1224-2I	1224I
DECORATOR ROCKER SWITCH:			
SINGLE POLE	7621V	5621-2I	DS120I
DOUBLE POLE	7622V		DS220I
THREE WAY	7623V	5623-2I	DS320I
FOUR WAY	7624V	5624-2I	DS420I
SPECIAL:			
SPDT CNTR OFF	4356	1285	1385
DPDT CNTR OFF	4361	1285	1385
DPDT (2-POS)	1276		
MOMENTARY:			
SPDT CNTR OFF	4354	4921	1557
DOOR JAMB: N.O.	4029	2968	NA
DOOR JAMB: N.C.	4030	2969	NA

3. WEATHERPROOF SWITCH (SP 125V, 10A) – HUBBELL #5121-0, OR ACCEPTED EQUAL, COMPLETE WITH SWITCH AND GASKET.

4. KEY SWITCHES: EQUIVALENT TO LISTED SWITCHES, ACTIVATED WITH REMOVABLE KEY.

5. SWITCH WITH PILOT LIGHT – COOPER #2221PL, OR ACCEPTED EQUAL.

B. CONVENIENCE OUTLETS:

1. GROUNDING, 20 AMPERE, 125 VOLT, NEMA 5_20R CONFIGURATION, NYLON HOUSING, SELF GROUNDING. COMPLY TO FEDERAL SPECIFICATION W_C_596E, NEMA WD1_4.02 AND UL 498 OR LATEST REVISIONS. COLOR AS SELECTED BY ARCHITECT OR OWNER.

2. SCHEDULE OF APPROVED TYPES:

OUTLET TYPE	COOPER	LEVITON	HUBBELL
20 A, 125 V; HEAVY USE DUPLEX	5362	5362A	5362
20 A, 125 V; DUPLEX	5362	5362A	5352
30 A, 125/250 V	5744N*	278	9430A
50 A, 125/250 V	5754N**	279	9450A
20 A, 125 V; ISOLATED GND	IG5362	5362IG	IG5362
20 A, 125 V, GFI	GF5342	6899GFI	GF53522.03

3. WEATHERPROOF RECEPTACLE 'GFCI' – HUBBELL #5103-0.

4. WEATHERPROOF AND LOCKABLE RECEPTACLE, WEATHERPROOF WITH PROVISION FOR PADLOCK-BRYANT #63101-PL.

5. WEATHERPROOF RECEPTACLE INTENDED FOR UNATTENDED USE (IRRIGATION CONTROLLER OUTLET, SUMP PUMP OUTLET, ETC) – COVER PLATE SHALL BE PROVIDED WITH A POLYCARBONATE CORD CAP GASKET ENCLOSURE LISTED "SUITABLE FOR WET LOCATIONS WHILE IN USE". USE TAYMAC SAFETY OUTLET ENCLOSURE OR EQUAL.

6. ISOLATED GROUND RECEPTACLE, NEMA 5-20R WITH AN ORANGE COLOR TRIANGLE LOCATED ON THE FACE OF THE RECEPTACLE PER NEC 406.2(D).

C. PLATES: PLATES SHALL BE SUPPLIED FOR EVERY LOCAL SWITCH, RECEPTACLE, ETC. PLATES SHALL BE STAINLESS STEEL OR NYLON TO MATCH WALL FINISH. FURNISH WITH ENGRAVED OR ETCHED DESIGNATIONS UNDER ANY ONE OF THE FOLLOWING CONDITIONS:

1. THREE GANG OR LARGER GANG SWITCHES.

2. SWITCHES IN LOCATIONS FROM WHICH THE EQUIPMENT OR CIRCUITS CONTROLLED CANNOT BE READILY SEEN.

3. WHERE SO INDICATED ON THE DRAWINGS.

4. AS REQUIRED ON ALL CONTROL CIRCUIT SWITCHES, SUCH AS HEATER CONTROLS, ETC.

5. WHERE RECEPTACLES ARE OTHER THAN STANDARD DUPLEX RECEPTACLES, TO INDICATE VOLTAGE AND PHASE.

6. PROVIDE COVER PLATES FOR ALL TELEPHONE AND COMPUTER OUTLETS.

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DSA

ENGINEER:

WARREN CONSULTING ENGINEERS, INC.
1117 WINDFIELD WAY, SUITE 110
EL DORADO HILLS, CA 95762 | (916) 985-1870

CONSULTANT:

CONSULTING ENGINEERS
MEP & FS / Sustainability / CxA
1209 Pheasant Grove Blvd.
Roseville, CA 95678
p 916-771-0778
www.lpengineers.com
Job #: 22-2023

OWNER:

TRACY UNIFIED SCHOOL DISTRICT
Tracy Unified School District
1875 W. Lowell Avenue
Tracy, CA 95376
Phone: (209) 830-3200

REGISTERED PROFESSIONAL ENGINEER
RAMI S. ZEIDAN
No. E 16762
Exp. 9/30/24
ELECTRICAL
STATE OF CALIFORNIA

John C. Kimball High School Tennis Court Repairs

3200 Jaguar Run
Tracy, CA 95377

REVISIONS

NO.	DESCRIPTION

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ELECTRICAL SPECIFICATIONS

SHEET NO.

E0.4

2.09 LIGHTING FIXTURES AND ACCESSORIES

B. LIGHT FIXTURES: SUPPLY LIGHT FIXTURES AS INDICATED ON FIXTURE SCHEDULE.

1. MANUFACTURER OF FIXTURES: ALL FIXTURES OF ONE TYPE SHALL BE OF ONE MANUFACTURER AND OF IDENTICAL FINISH AND APPEARANCE.

C. ACCESSORIES: ALL FIXTURES SHALL BE COMPLETE WITH ACCESSORIES, END REQUIRED FOR THE SPECIFIC INSTALLATION.

D. LAMPS: SUPPLY LAMPS AS INDICATED ON FIXTURE SCHEDULE.

1. LAMP MANUFACTURER: LAMPS SHALL BE MANUFACTURED BY GENERAL ELECTRIC CO., SYLVANIA, OR EQUAL.

D. BALLASTS: BALLASTS FOR FLUORESCENT FIXTURES SHALL BE ENERGY EFFICIENT SOLID STATE TYPE, INTEGRAL WITH THE FIXTURE, AND HAVE A HIGH POWER FACTOR (MINIMUM 90% P.F.) HID BALLASTS SHALL BE HIGH POWER FACTOR TYPE. EACH TYPE OF BALLAST SHALL BE UL LISTED (CLASS P) WITH INTEGRAL THERMAL PROTECTION IN BOTH THE CORE AND COIL ASSEMBLY AND THE CAPACITOR ASSEMBLY.

1. BALLASTS SHALL MAINTAIN CONSTANT LIGHT OUTPUT OF ALL RAPID START FLUORESCENT LAMPS OVER OPERATING RANGES OF 90 V TO 145 V (120 V BALLASTS) AND 200 V TO 320 V (277 V BALLASTS). INPUT CURRENT TOTAL HARMONIC DISTORTION CONTENT SHALL BE LESS THAN 10% OF RATED (FUNDAMENTAL) INPUT CURRENT. BALLASTS SHALL WITHSTAND LINE TRANSIENTS AS DEFINED IN ANSI/IEEE C62.41, CATEGORY A. BALLASTS SHALL MEET THE REQUIREMENTS OF FCC, PART 18, CLASS A.

2. BALLASTS SHALL HAVE A SEQUENCED START PROGRESSION WHICH FIRST HEATS CATHODE FILAMENTS AND THEN IGNITES LAMP(S). BALLASTS SHALL OPERATE AT A FREQUENCY ABOVE 20 KHZ. BALLAST CASE TEMPERATURE SHALL NOT EXCEED 25° C TEMPERATURE RISE OVER 40° C AMBIENT.

3. BALLAST NOISE: ALL BALLASTS SOUND LEVELS SHALL NOT EXCEED CLASS A AMBIENT NOISE LEVELS. SOUND RATED "A" BALLASTS FOUND TO BE NOISY AFTER INSTALLATION, IN THE OPINION OF THE OWNER, SHALL BE REMOVED AND REPLACED.

4. BALLAST MANUFACTURER: BALLASTS SHALL BE AS MANUFACTURED BY GENERAL ELECTRIC CO., UNIVERSAL, ADVANCE OR EQUAL, UNLESS OTHERWISE SPECIFIED ON DRAWINGS.

E. DIMMABLE LED DRIVERS
1. DIMMING RANGE: CONTINUOUS DIMMING FROM 100 PERCENT TO 10 PERCENT RELATIVE LIGHT OUTPUT UNLESS DIMMING CAPABILITY TO LOWER LEVEL IS INDICATED, WITHOUT FLICKER.

F. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE FIXTURES WITH CEILING TYPES AND SUPPLY VOLTAGES.

G. FIXTURES INSTALLED IN RATED CEILINGS SHALL BE LISTED FOR USE IN SUCH CEILINGS.

2.10 LIGHTING CONTROL

A. REFER TO DRAWINGS FOR SCHEDULES AND/OR SPECIFICATION NOTES.

2.11 OCCUPANCY SENSORS

A. REFER TO DRAWINGS FOR SCHEDULES AND/OR SPECIFICATION NOTES.

2.12 TERMINAL CABINETS

A. ALL TERMINAL CABINETS SHALL BE SIZED PER APPLICABLE ELECTRICAL CODE, U.L. LISTED, AND SUITABLE FOR THE CONDITIONS OF INSTALLATION. EACH CABINET SHALL BE PROVIDED HAVING SUFFICIENT VOLUME, PROPER DIMENSIONS, AND GEOMETRY FOR THE DEVICE(S) TO BE INSTALLED AND THE NUMBER OF CONDUITS AND WIRES AT THAT LOCATION.

B. ALL TERMINAL CABINETS SHALL BE PROVIDED WITH HINGED LOCKABLE DOORS SUITABLE TO THE CONDITIONS OF THE INSTALLATION.

C. CONSTRUCTION OF TERMINAL AND DEVICE CABINETS SHALL BE SIMILAR TO PANELBOARDS, FLUSH COMBINATION LATCH AND LOCK, RECESSED IN FINISHED AREAS, ETC. ALL LOCKS SHALL BE KEYED ALIKE BUT DIFFERENT FROM PANELBOARDS. ENCLOSURE SHALL BE NEMA 3 (RAIN AND DUST TIGHT) WHERE INSTALLED OUTDOORS UNLESS OTHERWISE SPECIFIED. A "PLAN POUCH" SHALL BE FACTORY ASSEMBLED TO THE INTERIOR OF THE CABINET DOOR SUITABLE FOR HOLDING A PLAN OF THE ASSOCIATED CONTROL SCHEME.

D. BUILDING SIGNAL TERMINAL CABINET SIZES SHALL BE SUFFICIENT FOR THE RACEWAYS INDICATED ON THE DRAWINGS AND FOR THE TERMINATION AND CONTROL EQUIPMENT REQUIRED. THE CONTRACTOR SHALL SIZE THE CABINETS TO PROVIDE AMPLE WIRING AND TERMINATION SPACE FOR THE EQUIPMENT, WIRES, AND CABLES INDICATED ON THE DRAWINGS. THE SIZES SHALL NOT BE LESS THAN THOSE INDICATED ON THE DRAWINGS. MINIMUM TERMINAL CABINET SIZE FOR ANY LOCATION SHALL BE 24"H X 24"W X 6"D WHERE NOT NOTED OTHERWISE.

E. A BACKBOARD OF 5/8" MINIMUM PLYWOOD, UNLESS NOTED ON PLANS, OR A METAL EQUIPMENT MOUNTING PANEL PROVIDED BY THE CABINET MANUFACTURER HAVING A SIZE APPROXIMATELY THE SAME AS THE DOOR OPENING SHALL BE INSTALLED WITHIN THE CABINET.

F. METAL DIVIDERS SHALL BE PROVIDED WHERE INDICATED ON THE DRAWINGS. FINISH SAME AS PANEL INTERIOR.

G. TERMINAL STRIPS OR BLOCKS SHALL BE DOUBLE ROW STRAP SCREW WITH CLAMP OR TUBE-SCREW TYPE WITH WRITE-ON STRIP DOWN THE CENTER. THEY SHALL ACCEPT WIRE SIZES AS INDICATED ON THE DRAWINGS AND HAVE BARRIERS BETWEEN THE POLES. EXCEPT WHERE NOTED OTHERWISE, PROVIDE AT LEAST 10% SPARE TERMINAL POINTS. PUNCH BLOCKS SHALL BE USED TO TERMINATE COMMUNICATIONS CABLES AND OTHER SMALL SIZE WIRES.

H. EXCEPT WHERE OTHERWISE SPECIFICALLY NOTED, PROVIDE ALL TERMINAL STRIPS, WIRING CHANNELS, MARKERS, AND OTHER DEVICES AS REQUIRED.

PART 3 _ EXECUTION

3.01 EXCAVATION AND BACKFILL

A. PERFORM EXCAVATION AND BACKFILL REQUIRED FOR ELECTRICAL INSTALLATION. RESTORE ALL SURFACES, ROADWAYS, WALKS, CURBS, WALLS, EXISTING UNDERGROUND INSTALLATIONS, ETC., CUT BY INSTALLATIONS TO ORIGINAL CONDITION IN AN ACCEPTABLE MANNER.

B. DIG TRENCHES STRAIGHT AND TRUE TO LINE AND GRADE, WITH BOTTOM SMOOTHED OF ANY ROCK POINTS. SUPPORT CONDUIT FOR ENTIRE LENGTH ON UNDISTURBED, ORIGINAL EARTH. MINIMUM CONDUIT DEPTH TO PIPE CROWN SHALL BE 24 INCHES BELOW FINISHED GRADE. CONSULT SERVING UTILITY COMPANIES FOR MINIMUM UTILITY CONDUIT DEPTHS.

C. BACKFILL AND TAMP IN SIX_INCH LAYERS WITH EARTH FROM EXCAVATION TO FINISH GRADE. MAKE ALLOWANCES FOR SETTLEMENT.

3.02 INSTALLATIONS

A. CIRCUIT BREAKERS AND FUSES ARE TO BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS' INSTRUCTIONS. FUSES MUST SEAT SOLIDLY WITH ALL CONTACT SURFACES BEARING EVENLY. REPLACE WARPED, WEAK, OR BROKEN FUSE CLAMP TERMINALS. DO NOT ATTEMPT TO REPAIR OR BEND BACK INTO POSITION.

3.03 PANELBOARD INSTALLATION

A. PANELBOARDS ARE TO BE INSTALLED PLUMB AND RIGIDLY SECURED TO STRUCTURE WITH WOOD SCREWS, MACHINE BOLTS AND CONCRETE ANCHORS, OR MACHINE BOLTS AND LOCKNUTS AS APPLICABLE.

B. NAME PLATES SHALL BE INSTALLED AS INDICATED IN THIS SECTION.

C. RECESSED PANELBOARDS SHALL HAVE COVERS FLUSH WITH THE WALL. INSTALL 1-SPARE 3/4" EMPTY CONDUIT FOR EACH (3) SINGLE POLE SPACES OR SPARE CIRCUIT BREAKER POLES. STUB AND CAP IN ACCESSIBLE ATTIC SPACE, ABOVE THE CEILING, OR BELOW THE FLOOR AS APPLICABLE. WHERE BOTH ACCESSIBLE FLOOR AND ATTIC SPACES ARE AVAILABLE, STUB SPARE CONDUITS HALF EACH WAY (ONE EACH WAY MINIMUM). IDENTIFY SPARE CONDUITS. WHERE BUILDING CONSTRUCTION IS FIRE RATED, ENCLOSE RECESSED PANEL IN 5/8" GYPSUM BOARD AS DIRECTED BY THE ARCHITECT.

D. COORDINATE FRAMING REQUIREMENTS WITH OTHERS TO ACCOMMODATE PANELBOARD LOCATIONS WITHOUT REQUIRING FRAMING MEMBERS TO BE CUT AWAY FOR INSTALLATION. PROVIDE ADEQUATE BLOCKING FOR SURFACE MOUNTED PANELBOARDS AS APPLICABLE.

3.04 RACEWAY INSTALLATION

A. CONDUIT APPLICATION:

1. MINIMUM SIZE OF CONDUIT SHALL BE 1/2 INCH. IN NO CASE SHALL THE CONDUIT SIZE BE SMALLER THAN THAT SHOWN ON THE DRAWINGS.

2. PVC CONDUIT, MINIMUM SIZE 1", MAY ONLY BE INSTALLED BENEATH GRADE OR IN CONCRETE; A MAXIMUM OF 4 FEET. PVC MAY BE INSTALLED IN ELECTRICAL ROOMS OR CONCEALED IN STUD SPACES WHEN DESIGNATED ON PLANS. PVC SHALL NOT BE INSTALLED IN FIRE RATED AREAS OR WHERE SUBJECT TO MECHANICAL DAMAGE. THE PVC IS TO EXTEND ONLY FROM THE CONCRETE SLAB TO THE BOTTOM OF THE SWITCHBOARD, PANELBOARD, OR SIMILAR EQUIPMENT. (CEC 300.5, CEC 300.50, AND CEC 352).

3. ALL CONDUIT RUNS EXPOSED ABOVE GRADE AND BELOW 8 FEET SHALL BE RIGID STEEL OR IMC, EXCEPT AS NOTED IN CONDUIT APPLICATIONS ITEMS 2 AND 4.

4. ELECTRICAL METALLIC TUBING (EMT) MAY BE INSTALLED IN PROTECTED ATTIC SPACES AND HOLLOW STUD SPACES. IT MAY BE EXPOSED ON THE SURFACE OF ELECTRICAL AND MECHANICAL ROOMS WHERE DESIGNATED ON THE PLANS.

5. FLEXIBLE METALLIC CONDUIT SHALL BE USED ONLY WHERE REQUIRED FOR CONNECTION TO MOTORS, ETC., OR WITH THE APPROVAL OF THE OWNER WHERE ABSOLUTELY NECESSARY DUE TO STRUCTURAL CONDITIONS.

6. BOXES INSTALLED INDOORS OR EMBEDDED IN CONCRETE SHALL BE GALVANIZED STEEL TYPE. BOXES INSTALLED EXPOSED OR OUTDOORS SHALL BE GALVANIZED CAST STEEL WITH THREADED HUBS.

7. CONDUIT FOR POWER COMPANY 12 KV PRIMARY LINES SHALL BE INSTALLED 54" BELOW GRADE.

8. BRANCH CIRCUIT CONDUITS UNDER SLAB SHALL BE SEPARATED BY AT LEAST ONE INCH. IN ALL CASES TWO OR MORE CONDUITS INSTALLED IN A COMMON CONCRETE ENCASEMENT SHALL BE SEPARATED BY AT LEAST THREE INCHES.

9. CONDUIT SHALL BE SECURELY FASTENED IN PLACE SO THAT ABSOLUTELY NO SHIFTING WILL OCCUR DURING PLACING OF CONCRETE ENCASEMENT.

10. JOINTS IN ALL CONDUIT INSTALLED IN CONCRETE, OR EXPOSED TO WEATHER, SHALL BE LIQUID AND GAS TIGHT.

B. CONDUIT LOCATION:

1. ALL CONDUITS SHALL BE RUN CONCEALED IN ALL FINISHED AREAS.

2. EXPOSED CONDUIT SHALL BE NEATLY INSTALLED PARALLEL TO OR AT RIGHT ANGLES TO THE STRUCTURAL MEMBERS.

3. EXPOSED CONDUIT STUBBING UP THROUGH THE FLOOR INTO THE BOTTOM OF EXPOSED PANELS, CABINETS OR EQUIPMENT SHALL BE LINED UP, PROPERLY SPACED AND SHALL BE STRAIGHT AND PLUMB. CONDUITS SHALL BE INSTALLED AT SUFFICIENT DEPTH BELOW THE FLOOR TO ELIMINATE ANY PART OF THE BEND ABOVE.

4. MAINTAIN 12-INCH SEPARATION BETWEEN POWER AND INTERCOMMUNICATION CABLES.

5. CONDUIT SHALL BE KEPT AT LEAST 6" FROM THE COVERING ON HOT WATER PIPES, AND 18" FROM THE COVERING ON FLUES AND BREECHINGS.

C. CONDUIT SUPPORT:

1. CONDUIT SHALL BE SUPPORTED WITH FACTORY MADE PIPE STRAPS OR SUSPENDED WITH PIPE HANGERS OR RACKS.

2. HANGER STRAPS, RODS, OR PIPE SUPPORTS UNDER WOOD SHALL BE ATTACHED TO THE WOOD STRUCTURE USING BOLTS, LAG BOLTS, OR LAG SCREWS. ATTACH TO TRUSSES USING BEAM CLAMPS.

3. CONDUITS, WHICH ARE SUSPENDED ON RODS MORE THAN 2 FEET LONG SHALL BE RIGIDLY BRACED TO PREVENT HORIZONTAL MOTION OR SWAYING.

4. CONDUIT SHALL BE SUPPORTED AT INTERVALS NOT EXCEEDING 10 FEET AND IN ALL CASES WITH A SUPPORT NOT MORE THAN 3 FEET FROM THE OUTLET AND AT ANY POINT WHERE IT CHANGES IN DIRECTION.

5. PERFORATED STRAP AND PLUMBER'S TAPE SHALL NOT BE USED IN THE SUPPORT OF CONDUITS.

6. CONDUIT PLACED AGAINST CONCRETE OR MASONRY ABOVE GROUND SHALL BE FASTENED TO THE CONCRETE WITH PIPE STRAPS OR ONE_SCREW CONDUIT CLAMPS ATTACHED TO THE CONCRETE BY MEANS OF EXPANSION ANCHORS AND SCREWS. EXPANDERS AND SHIELDS SHALL BE STEEL OR MALLEABLE IRON. SIZES OF SHIELDS AND BOLTS SHALL BE SUCH THAT THE PROOF TEST LOAD WILL NOT BE LESS THAN FOUR TIMES THE ACTUAL WORKING LOAD.

D. CONDUIT BENDS:

1. FIELD BENDS OR OFFSETS ARE PERMITTED IN 1 INCH AND SMALLER CONDUIT ONLY.

2. ELBOWS IN 1_1/4 INCH CONDUIT AND LARGER SIZES SHALL BE FACTORY MADE.

3. MINIMUM RADIUS BEND FOR TELEPHONE SERVICE ENTRANCE CONDUIT SHALL BE 36".

4. CONDUIT BENDS, OTHER THAN FACTORY ELBOWS, SHALL HAVE A RADIUS OF NOT LESS THAN 10 TIMES THE INTERNAL DIAMETER OF THE CONDUIT.

5. 90 DEGREE BENDS IN PVC LARGER THAN 2 INCHES SHALL BE STEEL.

6. USE OF A BLOW TORCH TO BEND CONDUIT IS SPECIFICALLY PROHIBITED.

E. EMPTY CONDUITS: ALL CONDUITS, WHICH ARE INSTALLED AT THIS TIME AND LEFT EMPTY FOR FUTURE USE OR WHERE CONDUCTORS ARE TO BE INSTALLED BY A REPRESENTATIVE OF THE TELEPHONE COMPANY SHALL HAVE A 3/16 INCH POLYPROPYLENE ROPE LEFT IN PLACE FOR FUTURE USE.

F. CONDUIT PROTECTION:

1. CAP ALL CONDUIT DURING CONSTRUCTION BY MEANS OF MANUFACTURED SEALS. SWAB OUT ALL CONDUITS BEFORE PULLING IN WIRE.

2. ALL CONDUIT SYSTEMS MUST BE INSTALLED COMPLETE BEFORE CONDUCTORS ARE PULLED IN.

G. OUTLET BOXES:

1. BOXES MUST BE ACCURATELY PLACED FOR FINISH, INDEPENDENTLY AND SECURELY SUPPORTED BY MANUFACTURED BOX HANGERS. FIXTURE OUTLETS SHALL BE LOCATED SYMMETRICALLY.

2. LOCAL SWITCHES SHALL BE LOCATED +46 INCHES ABOVE THE FLOOR (TOP OF BOX) UNLESS OTHERWISE NOTED.

3. CONVENIENCE OUTLETS SHALL BE LOCATED +16 INCHES ABOVE THE FINISHED FLOOR (BOTTOM OF BOX) UNLESS OTHERWISE NOTED.

4. CHANGES IN OUTLET LOCATIONS OF FIXTURES, WALL SWITCHES, RECEPTACLES, AND SPECIAL EQUIPMENT FOUND NECESSARY DUE TO INTERFERENCE WITH STRUCTURE, PIPES, DUCTS, ETC. SHALL BE REPORTED TO THE OWNER FOR APPROVAL.

5. ALL BOXES SHALL BE OF PROPER CODE SIZE FOR THE NUMBER OF WIRES OR CONDUITS PASSING THROUGH OR TERMINATING THEREIN, BUT IN NO CASE SHALL ANY BOX BE LESS THAN 4" SQUARE, UNLESS SPECIFICALLY NOTED AS SMALLER. COVERS SHALL BE OF THE TYPES MOST SUITABLE FOR THE FIXTURE OR DEVICE USED AT THE OUTLET, AND SHALL FINISH FLUSH WITH PLASTER OR OTHER FINISHED SURFACE. APPROVED FACTORY MADE KNOCKOUT SEALS SHALL BE USED IN ALL BOXES WHERE KNOCKOUTS ARE NOT INTACT. BOXES IN CONCRETE SHALL BE A TYPE, WHICH WILL ALLOW THE PLACING OF CONDUIT WITHOUT DISPLACING THE REINFORCING BARS.

6. OUTLET BOXES SHALL BE USED AS PULL BOXES WHEREVER POSSIBLE, AND JUNCTION OR PULL BOXES SHALL BE INSTALLED ONLY AS REQUIRED BY THE SPECIFICATIONS, OR AS DIRECTED.

7. FOR LIGHT OUTLET BOXES USE MINIMUM OF 4" SQUARE, 1_1/2" DEEP, EQUIPPED WITH PLASTER RING AND FIXTURE SUPPORTING DEVICE AS REQUIRED BY THE UNIT.

8. FOR WALL SWITCH OUTLETS, USE 4" BOXES WITH SINGLE OR TWO GANG PLASTER RINGS FOR ONE OR TWO SWITCHES AND SOLID GANG BOXES WITH GANG PLASTER RINGS FOR MORE THAN TWO SWITCHES, UNLESS NOTED OTHERWISE ON THE DRAWINGS.

9. FOR CONVENIENCE OUTLETS, USE 4" BOXES WITH SINGLE GANG PLASTER RING.

10. FOR TELEPHONE OUTLETS, USE 4" BOXES WITH SINGLE GANG PLASTER RING.

3.05 WIRE INSTALLATION

A. CLEANING: ALL DEBRIS AND MOISTURE SHALL BE REMOVED FROM RACEWAYS, BOXES, AND CABINETS BEFORE INSTALLING WIRE OR CABLE.

B. PULLING:

1. NO OIL, GREASE OR SIMILAR SUBSTANCES SHALL BE USED TO FACILITATE THE PULLING IN OF CONDUCTORS. USE A UL APPROVED WIRE PULLING COMPOUND.

2. NO WIRE OR CABLE SHALL BE PULLED IN UNTIL ALL CONSTRUCTION, WHICH MIGHT DAMAGE INSULATION OR FILL CONDUIT WITH FOREIGN MATERIAL IS COMPLETED.

3. WIRE SHALL BE PULLED INTO CONDUITS WITH CARE TO PREVENT DAMAGE TO INSULATION. USE BASKET PULLING GRIPS TO AVOID SLIPPING OF INSULATION ON CONDUCTORS. NYLON ROPE OR OTHER "SOFT" SURFACE CABLE MUST BE USED FOR PULLING IN CONDUITS OTHER THAN STEEL.

C. CONNECTIONS:

1. STRANDED CONDUCTORS NO. 8 AND SMALLER SHALL BE TERMINATED WITH TERMINALS OF APPROPRIATE SIZE WHERE CONNECTED TO SCREW TYPE LUGS.

2. JOINTS, SPLICES AND TAPS IN DRY LOCATIONS FOR CONDUCTORS NO. 8 AND SMALLER SHALL BE MADE WITH TWIST ON CONNECTORS SUITABLY SIZED FOR THE NUMBER AND GAUGE OF THE CONDUCTORS.

3. FURNISH AND INSTALL PROPER LUGS IN ALL PANELBOARDS, SWITCHBOARDS, AND GUTTERS AS REQUIRED TO PROPERLY TERMINATE EVERY CABLE. LUGS FOR ALUMINUM CONDUCTORS SHALL BE COMPRESSION TYPE.

4. CONNECTIONS OF ALUMINUM CABLE TO ALUMINUM BUS BARS SHALL BE MADE USING ALL ALUMINUM COMPONENTS (LUGS, WASHER, BOLTS, NUTS). COPPER TO ALUMINUM CONNECTIONS OF BUS BARS AND LUGS SHALL BE MADE USING BELLEVILLE WASHERS AND FLAT WASHERS TO COMPENSATE FOR DIFFERING RATES OF THERMAL EXPANSION.

5. ONLY CRIMPING TOOLS APPROVED BY THE MANUFACTURER OF THE TERMINALS OR LUGS SHALL BE USED.

6. UNINSULATED LUGS AND WIRE ENDS SHALL BE INSULATED WITH LAYERS OF PLASTIC TAPE EQUAL TO INSULATION OF WIRE, WITH ALL IRREGULAR SURFACES PROPERLY PADDED WITH INSULATING PUTTY PRIOR TO APPLICATION OF TAPE.

7. SPLICES IN UNDERGROUND PULL BOXES OR IN OTHER AREAS SUBJECT TO MOISTURE SHALL BE PROVIDED WITH CAST RESIN KITS. PREPARE ALL SPLICES AS HEREINBEFORE SPECIFIED BEFORE RESIN KITS ARE APPLIED.

3.06 LIGHTING FIXTURE INSTALLATION

A. MOUNTING:

1. UNLESS SPECIFICALLY INDICATED OTHERWISE, ALL LIGHTING FIXTURES SHALL BE PLACED SYMMETRICALLY WITH RESPECT TO THE CEILING TILE PATTERN, OR OTHER ARCHITECTURAL CEILING, AND WALL MODULES.

B. SUPPORT:

1. IN SUSPENDED GRID LAY_IN CEILINGS, IN ADDITION TO SUPPORTING FROM CEILING TEES, SUPPORT ALL LUMINAIRE HOUSINGS FROM STRUCTURAL MEMBERS WITH A MINIMUM OF FOUR NO.12 GALVANIZED WIRES FOR EACH LUMINAIRE.

2. ALL FIXTURE MOUNTING SHALL MEET SEISMIC REQUIREMENTS OF THE STATE OF CALIFORNIA.

3. PROVIDE SUPPORT FOR ALL FIXTURES FROM (OR ON) BUILDING STRUCTURAL WALL MEMBERS. SUPPORT FROM CEILING TILES ONLY IS SPECIFICALLY PROHIBITED.

C. FIRE PROTECTION:

1. ALL RECESSED FIXTURES SHALL BE PROTECTED FROM CONTACT WITH COMBUSTIBLE BUILDING MATERIALS, SUCH AS WOOD FRAMING MEMBERS AND INSULATION VAPOR BARRIERS, AS REQUIRED BY APPLICABLE CODES.

2. FIXTURES INSTALLED IN RATED 1-HOUR CEILINGS SHALL BE ENCASED BY A 1-HOUR ENCLOSURE TO MAINTAIN THE FIRE INTEGRITY OF THE CEILING. ALL FIXTURE ENCLOSURES WILL COMPLY WITH UL FIRE RESISTANCE DIRECTORY DESIGN REQUIREMENTS.

D. CLEANING UP: ALL FIXTURES SHALL BE LEFT IN A CLEAN CONDITION, FREE OF DIRT AND DEFECTS, BEFORE ACCEPTANCE BY THE OWNER.

3.07 RECEPTACLE INSTALLATION

A. ALL RECEPTACLES IN FLUSH TYPE OUTLET BOXES SHALL BE INSTALLED WITH A BONDING JUMPER FOR GROUND BETWEEN THE GROUNDED OUTLET BOX AND THE RECEPTACLE GROUND TERMINAL, EXCEPT WHERE RECEPTACLE IS EQUIPPED WITH A UL APPROVED SELF-GROUNDING DEVICE. GROUNDING THROUGH THE RECEPTACLE MOUNTING STRAPS IS NOT ACCEPTABLE. BONDING JUMPER SHALL BE ATTACHED AT EACH OUTLET TO THE BACK OF THE BOX USING DRILLED AND TAPED HOLES AND WASHED HEAD SCREWS 6/32" OR LARGER. FOR RECEPTACLES IN SURFACE MOUNTED OUTLET BOXES DIRECT METAL TO METAL CONTACT BETWEEN RECEPTACLE MOUNTING STRAP (IF IT IS CONNECTED TO THE GROUNDING CONTACTS) AND OUTLET BOX MAY BE USED.

3.08 TERMINAL CABINET INSTALLATION

A. CABINETS ARE TO BE INSTALLED PLUMB AND RIGIDLY SECURED TO STRUCTURE WITH WOOD SCREWS, BOLTS AND CONCRETE ANCHORS, OR MACHINE BOLTS AND LOCKNUTS AS APPLICABLE.

B. RECESSED CABINETS SHALL HAVE COVERS FLUSH WITH THE WALL. WHERE BUILDING CONSTRUCTION IS FIRE RATED, ENCLOSE RECESSED CABINET IN 5/8" GYPSUM BOARD AS DIRECTED BY THE ARCHITECT.

C. INSTALL (2) 1" EMPTY CONDUITS FROM ALL RECESSED CABINETS TO ACCESSIBLE SPACE ABOVE CEILINGS AND/OR BELOW FLOOR AS APPLICABLE (4 CONDUITS IF BOTH CAVITIES EXIST). IDENTIFY THE EMPTY CONDUITS.

D. COORDINATE FRAMING REQUIREMENTS WITH OTHERS TO ACCOMMODATE CABINET LOCATIONS WITHOUT REQUIRING FRAMING MEMBERS TO BE CUT AWAY FOR INSTALLATION. PROVIDE ADEQUATE BLOCKING FOR SURFACE MOUNTED CABINETS AS APPLICABLE.

E. FOR CONTROL EQUIPMENT CABINETS, A DRAWING OF THE CONTROL SCHEME SHALL BE PLACED IN THE DOOR RACK PROVIDED.

F. ALL CONDUCTORS ENTERING OR LEAVING THE CABINET SHALL BE TERMINATED ON TERMINAL STRIPS OR PUNCH BLOCKS. EACH TERMINAL POINT SHALL BE LABELED, AND ALL WIRES WITHIN THE ENCLOSURE SHALL BE IDENTIFIED WITH BRADY OMNI-GRIP WIRE MARKERS OR OTHER SIMILAR METHOD.

G. WIRES SHALL BE NEATLY ARRANGED WITHIN THE CABINET AND SECURED WITH TY-RAP OR RUN IN PANDUIT WIRE WAYS AS REQUIRED OR AS INDICATED ON THE DRAWINGS.

3.09 GROUNDING AND BONDING

A. THE ENTIRE ELECTRICAL RACEWAY SYSTEM SHALL FORM A CONTINUOUS METALLIC ELECTRICAL CONDUCTOR FROM SERVICE POINT TO EVERY OUTLET AND SHALL BE GROUNDED BY CONNECTION TO THE MAIN SERVICE GROUND.

B. A GROUND WIRE SHALL BE INSTALLED IN ALL PVC AND FLEXIBLE CONDUIT.

C. ALL RACEWAY SYSTEMS, SUPPORTS, CABINETS, SWITCHBOARDS, CONTROL EQUIPMENT, MOTOR FRAMES, LIGHTING FIXTURES, AND UTILIZATION APPARATUS SHALL BE PERMANENTLY AND EFFECTIVELY GROUNDED.

D. WHERE CABINETS ARE FURNISHED WITH GROUNDING BUS, ALL REQUIRED BONDING CONDUCTORS SHALL CONNECT THERETO, EACH WITH A SEPARATE LUG.

E. ALL GROUNDING CONDUCTORS ARE TO BE COPPER ONLY. ALUMINUM WILL NOT BE ALLOWED.

3.10 TESTS

A. UPON COMPLETION OF THE WORK AND ADJUSTMENTS OF ALL EQUIPMENT, ALL SYSTEMS SHALL BE TESTED TO DEMONSTRATE THAT ALL EQUIPMENT FURNISHED, INSTALLED, AND/OR CONNECTED UNDER THE PROVISIONS OF THESE SPECIFICATIONS SHALL FUNCTION IN THE REQUIRED MANNER.

B. ALL SYSTEMS SHALL TEST FREE FROM SHORT CIRCUITS AND GROUNDS, AND BE FREE FROM MECHANICAL AND ELECTRICAL DEFECTS. ALL CIRCUITS SHALL BE TESTED FOR THE PROPER NEUTRAL CONNECTION, AND ROTATION OF MOTORS.

C. WHERE TESTS INDICATE FAULTY INSTALLATION OR OTHER DEFECTS, THEY SHALL BE LOCATED, REPAIRED, AND RETESTED AT THE CONTRACTOR'S EXPENSE.

DSA

ENGINEER:

WARREN CONSULTING ENGINEERS, INC.
1117 WINDFIELD WAY, SUITE 110
EL DORADO HILLS, CA 95762 | (916) 985-1870

CONSULTANT:

CONSULTING ENGINEERS
MEP & FS / Sustainability / CxA
1209 Pheasant Grove Blvd.
Roseville, CA 95678
p 916-771-0778
www.lpengineers.com
Job #: 22-2023

OWNER:

TRACY UNIFIED SCHOOL DISTRICT
Tracy Unified School District
1875 W. Lowell Avenue
Tracy, CA 95376
Phone: (209) 830-3200

REGISTERED PROFESSIONAL ENGINEER
RAMI S. ZEIDAN
No. E 16762
Exp. 9/30/24
ELECTRICAL
STATE OF CALIFORNIA

John C. Kimball High School Tennis Court Repairs

3200 Jaguar Run
Tracy, CA 95377

REVISIONS

NO.	DESCRIPTION

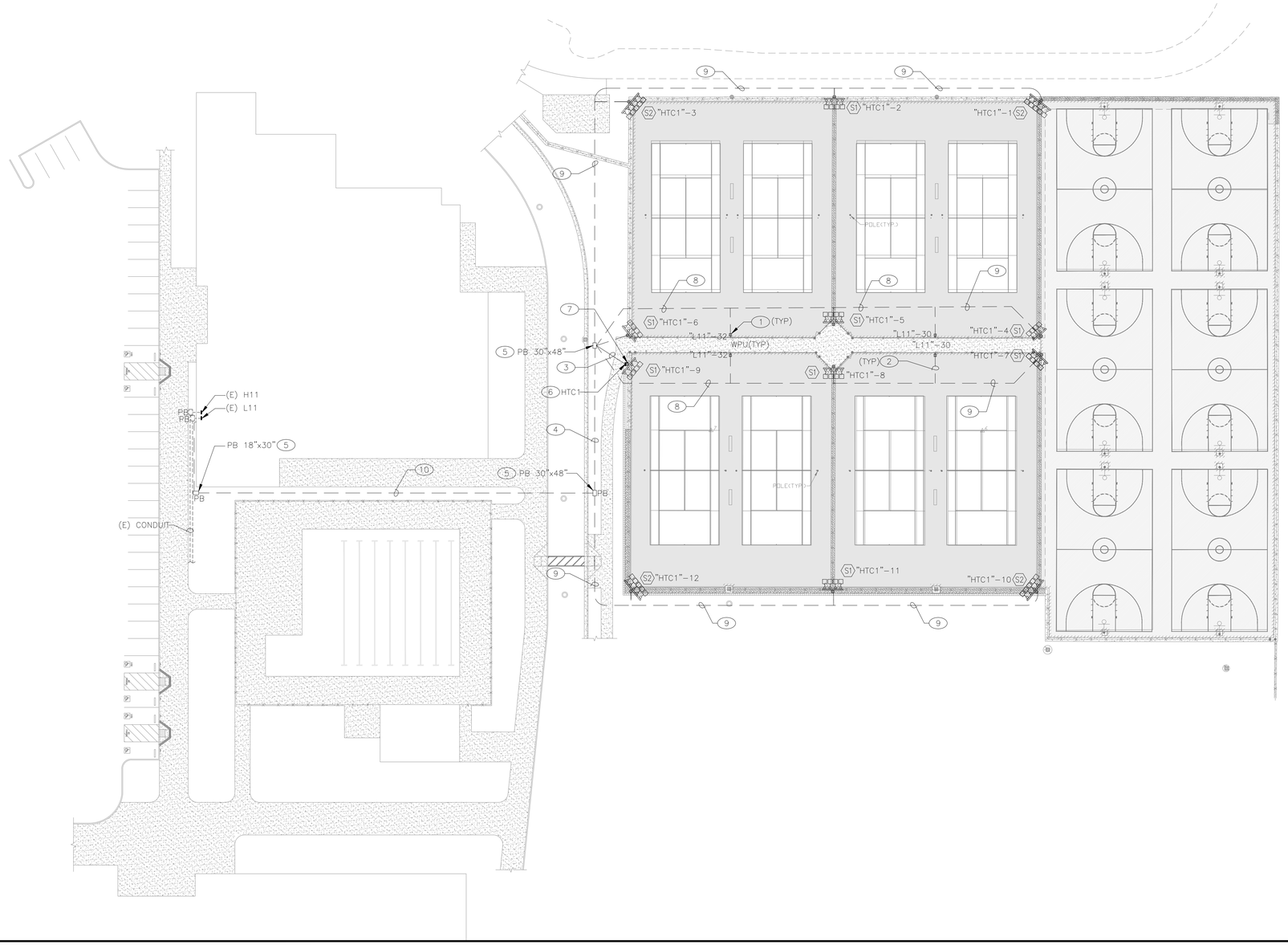
DRAWN: BS	SCALE: AS NOTED
CHECKED: RZ	PROJECT NO. 21-129
DESIGNED: RN	DATE: 11-11-2022

ISSUANCE: BID SET

SHEET TITLE: ELECTRICAL SPECIFICATIONS

SHEET NO. E0.5

FILENAME:P:\1-PROJECT FILES\2022 LP PROJECTS\22-2023 WCE_TUSD-KIMBALL HS TENNIS COURT\LP CAD\222023_E0.5 (SPECS).DWG PLOTTED:Friday, November 18, 2022



1 ELECTRICAL SITE PLAN

SCALE 1" = 30'-0"

GENERAL NOTES

1. FIELD VERIFY ALL EXISTING CONDITIONS, PRIOR TO ANY WORKS, AND REPORT TO ENGINEERS ANY DISCREPANCIES.
2. UNDERGROUND CONDUITS SHALL BE SCH-40 PVC.

KEY NOTES

1. ALL OUTDOOR GFCI RECEPTACLES SHALL BE INSTALLED IN A LOCKABLE BOX. PROVIDE VANDAL STOP BOX MODEL # AA-FB-3R-304L-12G.
2. PROVIDE UNDERGROUND CONDUITS AND CONDUCTORS FOR RECEPTACLES. PROVIDE 1 1/2" C W/2#8 AWG CU + 1# 8 AWG CU FOR RECEPTACLES.
3. PROVIDE UNDERGROUND CONDUITS AND CONDUCTORS FOR TENNIS COURT LIGHTING PANEL. PROVIDE 2"C W/4#1 AWG CU + 1# 8 AWG CU FOR PANEL HTC1. PROVIDE 1 1/2" C W/2#8 AWG CU + 1# 8 AWG CU FOR LIGHTING.
4. PROVIDE UNDERGROUND CONDUITS AND CONDUCTORS FOR TENNIS COURT LIGHTING PANEL ,RECEPTACLES AND LIGHTING. PROVIDE 2"C W/4#1 AWG CU + 1# 8 AWG CU FOR PANEL HTC1. PROVIDE 1 1/2" C W/2#8 AWG CU + 1# 8 AWG CU FOR RECEPTACLES. PROVIDE 1 1/2" C W/2#8 AWG CU + 1# 8 AWG CU FOR LIGHTING.
5. PROVIDE UNDERGROUND ELECTRICAL PULL BOX, TRAFFIC RATED, BOLT-ON REINFORCED LID AND "ELECTRICAL" ENGRAVED ON LID. SEE 4/E7.1 FOR TYPICAL PULL BOX DETAIL.
6. PROVIDE OUTDOOR RATED PANEL "HTC1" SEE SHEET E6.1 FOR PANEL SCHEDULE.
7. AIRMESH HUB CONTROL BOX AND SPORT LIGHTS CONTACTORS CABINET, INSTALL AND COMPLETE THE LIGHTING CONTROLS CONNECTION PER MANUFACTURER RECOMMENDATION. SEE SHEET E7.1 FOR CONTROL DIAGRAM.
8. PROVIDE UNDERGROUND CONDUITS AND CONDUCTORS FOR LIGHTING AND RECEPTACLES. PROVIDE 1 1/2" C W/2#8 AWG CU + 1# 8 AWG CU FOR RECEPTACLES. PROVIDE 1 1/2" C W/2#8 AWG CU + 1# 8 AWG CU FOR LIGHTING.
9. PROVIDE UNDERGROUND CONDUITS AND CONDUCTORS FOR LIGHTING. PROVIDE 1 1/2" C W/2#8 AWG CU + 1# 8 AWG CU FOR LIGHTING.
10. PROVIDE UNDERGROUND CONDUITS AND CONDUCTORS FOR TENNIS COURT LIGHTING PANEL AND RECEPTACLES. PROVIDE 2"C W/4#1 AWG CU + 1# 8 AWG CU FOR PANEL HTC1. PROVIDE 1 1/2" C W/2#8 AWG CU + 1# 8 AWG CU FOR RECEPTACLES.

LIGHTING FIXTURE SCHEDULE - SPORTS LIGHTING

TYPE	MANUFACTURER & CATALOG NUMBER	LAMP (CROSS SECTION)	VOLTS / VA	MOUNTING	REMARKS
S1	COOPER LIGHTING EPH-VN-04-E-LV-LCF-YOKE-760-T4FT-AMS-A05-NN-ST	59158 LUMEN	277V / 532.7VA	POLE	EPHESUS LUMAVISION WHITE LED SPORTS & ENTERTAINMENT LUMINAIRE TENNIS COURTS. @30' AFF, WITH 4 LIGHT SQUARES.
S2	COOPER LIGHTING EPH-VN-06-E-LV-LCF-YOKE-760-T4FT-AMS-A05-NN-ST	59158 LUMEN	277V / 532.7VA	POLE	EPHESUS LUMAVISION WHITE LED SPORTS & ENTERTAINMENT LUMINAIRE TENNIS COURTS. @30' AFF, WITH 5 LIGHT SQUARES.

LIGHTING FIXTURE NOTES:
1. COORDINATE LUMINAIRE FINISH WITH ARCHITECT (TYPICAL).
2. ALL BALLASTS SHALL BE C.E.C. CERTIFIED.

DSA

ENGINEER:
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Tracy, CA 95377

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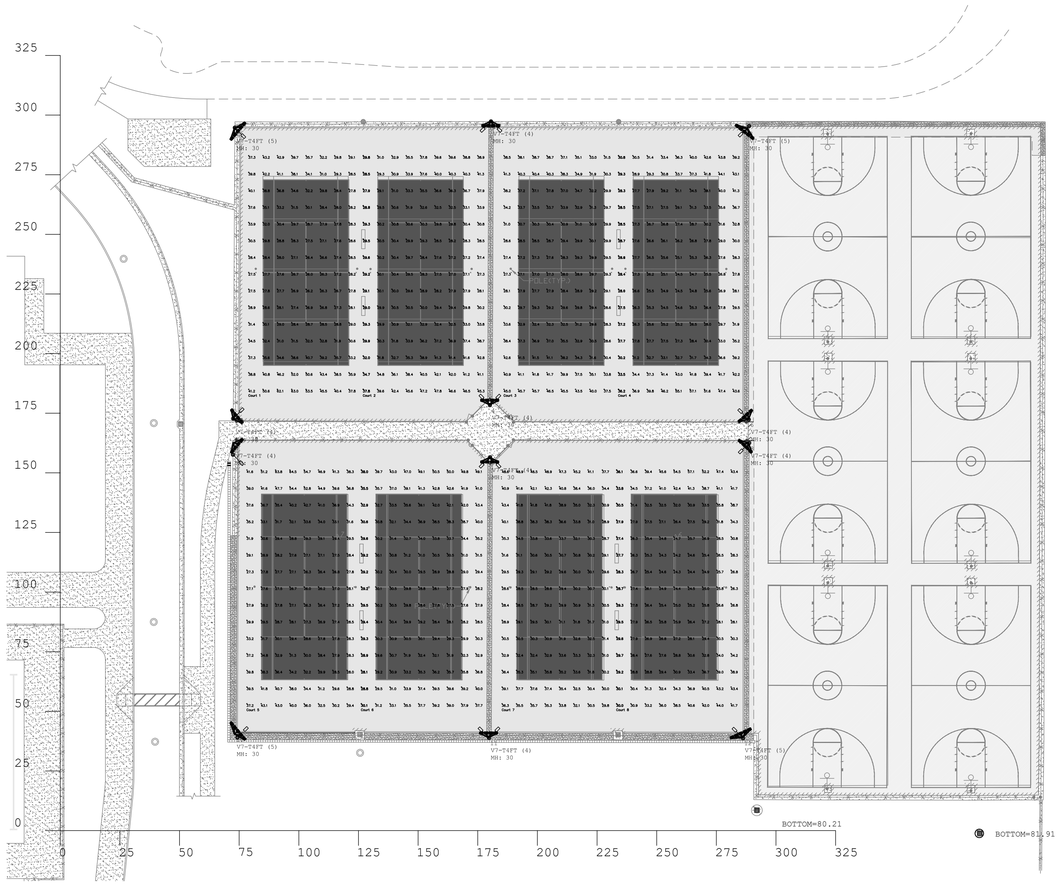
DESIGNED: RN	DATE: 11-11-2022

ISSUANCE: BID SET

SHEET TITLE: ELECTRICAL SITE PLAN

SHEET NO. E1.1

FILENAME:P:\1-PROJECT FILES\2022 LP PROJECTS\22-2023 WCE TUSD-KIMBALL HS TENNIS COURT\LP CAD\22023_E1.1 (SP).DWG PLOTTED:Friday, November 18, 2022



Luminaire Schedule								
Symbol	Qty	Label	Arrangement	LLF	Description	Lum. Watts	Total Watts	Lum. Lumens
	4	V7-T4FT (5)	5 IN LINE	0.950	EPH-VN-07-E-760-U-T4FT	532.7	10654	59158
	8	V7-T4FT (4)	4 IN LINE	0.950	EPH-VN-07-E-760-U-T4FT	532.7	17046.4	59158

Calculation Summary										
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min	CV	UG	Grid Z
Court 1	Illuminance	Fc	32.73	63.0	26.0	1.26	2.42	0.21	1.23	6
Court 2	Illuminance	Fc	33.33	47.8	27.0	1.23	1.77	0.16	1.11	3
Court 3	Illuminance	Fc	33.05	46.5	27.0	1.22	1.72	0.15	1.11	6
Court 4	Illuminance	Fc	31.56	57.1	24.5	1.29	2.33	0.21	1.19	3
Court 5	Illuminance	Fc	33.02	64.5	26.0	1.27	2.48	0.22	1.25	6
Court 6	Illuminance	Fc	33.70	50.5	27.5	1.23	1.84	0.16	1.10	3
Court 7	Illuminance	Fc	33.44	48.9	27.4	1.22	1.78	0.15	1.11	6
Court 8	Illuminance	Fc	31.31	57.1	24.2	1.29	2.36	0.21	1.20	3

Luminaire Location Summary									
LumNo	Label	X	Y	Z	Orient	X-Aimpt	Y-Aimpt	Z-Aimpt	Tilt
1	V7-T4FT (4)	180.5	297.5	30	270	N.A.	N.A.	N.A.	0
2	V7-T4FT (5)	73	294.5	30	320	N.A.	N.A.	N.A.	0
3	V7-T4FT (5)	288	294.5	30	232	N.A.	N.A.	N.A.	0
4	V7-T4FT (4)	180	178.5	30	90	N.A.	N.A.	N.A.	0
5	V7-T4FT (4)	72.5	172.5	30	39	N.A.	N.A.	N.A.	0
6	V7-T4FT (4)	288.5	172.5	30	132	N.A.	N.A.	N.A.	0
7	V7-T4FT (4)	72.5	162.5	30	321	N.A.	N.A.	N.A.	0
8	V7-T4FT (4)	288.5	162.5	30	226	N.A.	N.A.	N.A.	0
9	V7-T4FT (4)	180	156.5	30	270	N.A.	N.A.	N.A.	0
10	V7-T4FT (5)	73	40.5	30	40	N.A.	N.A.	N.A.	0
11	V7-T4FT (4)	179.5	39	30	90	N.A.	N.A.	N.A.	0
12	V7-T4FT (5)	286	39	30	114.305	N.A.	N.A.	N.A.	0
Total Quantity: 12									

Recommended Illuminance Criteria - Outdoor Sport and Recreation

SPORTS	Lighted Area	Class of Play											
		I - over 5000 spectators			II - under 5000 spectators			III - some spectators			IV - no spectators		
		Horiz. FC	Max /Min	CV Max	Horiz. FC	Max /Min	CV Max	Horiz. FC	Max /Min	CV Max	Horiz. FC	Max /Min	CV Max
Baseball & Softball	Infield	150	1.3:1	0.07	100	1.5:1	0.10	50	2:1	0.17	30	2.5:1	0.21
	Outfield	100	1.7:1	0.13	75	2:1	0.17	30	2.5:1	0.21	20	3:1	0.25
Football		100	1.7:1	0.13	50	2:1	0.17	30	2.5:1	0.21	20	3:1	0.25
Rodeo		100	1.7:1	0.17	75	2:1	0.17	50	2.5:1	0.21	30	3:1	0.25
Soccer		75	1.7:1	0.13	50	2:1	0.17	30	2.5:1	0.21	20	3:1	0.25
Tennis		150 Avg.	1.5:1	0.10	75 Avg	1.7:1	0.13	50 Avg	2:1	0.17	30 Avg	2.5:1	0.21
Track					30	3:1	0.25	30	4:1	0.30	20	4:1	0.30
Field					50		0.21	30		0.30	20		0.30
Volleyball & Basketball								30	3:1	0.25	20	4:1	0.30

FC level recommendations based on RP-6-00 Table A-2 Outdoor Sports and Recreation Areas
Horizontal levels are taken at the height of the Visual Task or Task Surface

1 PHOTOMETRIC PLAN

SCALE 1" = 30'-0"

DSA

ENGINEER:

WARREN CONSULTING ENGINEERS, INC.
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EL DORADO HILLS, CA 95762 | (916) 985-1870

CONSULTANT:

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p 916-771-0778
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3200 Jaguar Run
Tracy, CA 95377

REVISIONS

NO.	DESCRIPTION

DRAWN: BS	SCALE: AS NOTED
CHECKED: RZ	PROJECT NO. 21-129
DESIGNED: RN	DATE: 11-11-2022

ISSUANCE: BID SET

SHEET TITLE: PHOTOMETRIC PLAN

SHEET NO. E1.2

FILENAME:P:\1-PROJECT FILES\2022 LP PROJECTS\22-2023 WCE TUSD-KIMBALL HS TENNIS COURT\LP CAD\222023_E1.2 (SITE PM).DWG PLOTTED:Friday, November 18, 2022

NEW PANEL "HTC1"

277/480 Volt, 3 Phase, 4 Wire
100 Amp BUS CU.
100 Amp MCB
Amp MLO

10 KAIC Rating
SURFACE Mounted
NEMA 3R Type

CKT.	BKR	DESCRIPTION	PHASE SUMMARY (WATTS) A	B	C	A	B	C	DESCRIPTION	BKR	CKT.
1	20/1	TENNIS COURT SPORTS LIGHTS	2,664			2,664			TENNIS COURT SPORTS LIGHTS	20/1	2
3	20/1	TENNIS COURT SPORTS LIGHTS		2,131			2,131		TENNIS COURT SPORTS LIGHTS	20/1	4
5	20/1	TENNIS COURT SPORTS LIGHTS			2,131			2,131	TENNIS COURT SPORTS LIGHTS	20/1	6
7	20/1	TENNIS COURT SPORTS LIGHTS	2,131			2,131			TENNIS COURT SPORTS LIGHTS	20/1	8
9	20/1	TENNIS COURT SPORTS LIGHTS		2,131			2,664		TENNIS COURT SPORTS LIGHTS	20/1	10
11	20/1	TENNIS COURT SPORTS LIGHTS			2,131			2,664	TENNIS COURT SPORTS LIGHTS	20/1	12
13	20/1	SPARE							SPARE	20/1	14
15	PFP	SPACE							SPACE	PFP	16
17	PFP	SPACE							SPACE	PFP	18
19	PFP	SPACE							SPACE	PFP	20
21	PFP	SPACE							SPACE	PFP	22
23	PFP	SPACE							SPACE	PFP	24
			PHASE TOTALS A	B	C						
			9,589	9,056	9,056						

PANEL AND CIRCUIT BREAKER NOTES:
[1]
[2]

DEMAND LOADS		
LIGHTING / CONTINUOUS LOAD x 125%	34,626	Watts
RECEPTACLES / OTHER x 100%		Watts
LARGEST MOTOR x 25%		Watts
TOTAL DEMAND LOADS	34,626	Watts
TOTAL DEMAND AMPS	42	AMPS

EXISTNG PANEL "H11"

277/480 Volt, 3 Phase, 4 Wire
400 Amp BUS CU.
Amp MCB
400 Amp MLO

65 KAIC Rating
SURFACE Mounted
NEMA 1 Type

CKT.	BKR	DESCRIPTION	PHASE SUMMARY (WATTS) A	B	C	A	B	C	DESCRIPTION	BKR	CKT.
1	[E] 20/1	(E) BLDG EXT.LTS	1,909			2,300			(E) PARKING LOT LIGHTS	[E] 20/2	2
3	[E] 20/1	(E) BLDG EXT.LTS		2,009					-	-	4
5	[E] 20/1	(E) LIGHTS			750			2,560	(E) LIGHTS	[E] 20/1	6
7	[E] 30/3	(E) AC-N3	4,321			2,560			(E) LIGHTS	[E] 20/1	8
9	-	(E) FLA 15.6		4,321			2,560		(E) LIGHTS	[E] 20/1	10
11	-	-			4,321			2,560	(E) LIGHTS	[E] 20/1	12
13	[E] 40/3	(E) AC-N5	5,346						(E) SPARE	[E] 20/1	14
15	-	(E) FLA 19.3		5,346					(E) SPARE	[E] 20/1	16
17	-	-			5,346				(E) SPARE	[E] 20/1	18
19	[E] 60/3	(E) AC-N6/PE-N6	8,809			2,825			(E) AC-N9	[E] 20/3	20
21	-	(E) FLA 26.4+5.4		8,809			2,825		(E) FLA 10.2	-	22
23	-	-			8,809			2,825	-	-	24
25	[E] 60/3	(E) AC-N7/PE-N7	8,809			15,290			(E) LOAD	(N) 80/3	26
27	-	(E) FLA 26.4+5.4		8,809			15,290		-	-	28
29	-	-			8,809			15,290	-	-	30
31	[E] 60/3	(E) AC-N8/PE-N8	8,809			14,571			(E) LOAD	(E) 100/3	32
33	-	(E) FLA 26.4+5.4		8,809			14,571		-	-	34
35	-	-			8,809			14,571	-	-	36
37	**[N][1] 100/3**	**(N) PANEL HTC1**	**9,589**								38
39	**-**	**-**		**9,056**							40
41	**-**	**-**			**9,056**						42
			PHASE TOTALS A	B	C						
			85,137	82,405	83,706						

PANEL AND CIRCUIT BREAKER NOTES:
[1] PROVIDE NEW CIRCUIT BREAKER IN SPACES FOR NEW CIRCUIT.
PROVIDE THE CORRECT SIZE AS SHOWN.MATCH THE EXISTING A.I.C RATING.

DEMAND LOADS		
LIGHTING / CONTINUOUS LOAD x 125%	21,510	Watts
RECEPTACLES / OTHER x 100%	234,039	Watts
LARGEST MOTOR x 25%	3,823	Watts
TOTAL DEMAND LOADS	259,372	Watts
TOTAL DEMAND AMPS	312	AMPS

EXISTNG PANEL "L11"

120/208 Volt, 3 Phase, 4 Wire
400 Amp BUS CU.
400 Amp MCB
Amp MLO

CKT.	BKR	DESCRIPTION	PHASE SUMMARY (WATTS) A	B	C	A	B	C	DESCRIPTION	BKR	CKT.
1	[E] 20/1	(E) HAIR DRYER OUTLET	1,600			1,080			(E) INTRUSION	[E] 20/1	2
3	[E] 20/1	(E) HAIR DRYER OUTLET		1,600			600		(E) OUTLET IDF-11 MNT.ALLY LGT	[E] 20/1	4
5	[E] 20/1	(E) HAIR DRYER OUTLET			1,600			1,000	(E) OUTLET IDF-11 MNT.ALLY LGT	[E] 30/1	6
7	[E] 20/1	(E) HAIR DRYER OUTLET	1,600			600			(E) OUTLET IDF-11 MNT.ALLY LGT	[E] 20/1	8
9	[E] 20/1	(E) HAIR DRYER OUTLET		1,600					(E) IDF	[E] 30/2	10
11	[E] 20/1	(E) HAIR DRYER OUTLET			1,600				-	-	12
13	[E] 20/1	(E) HAIR DRYER OUTLET	1,600						(E) IDF	[E] 30/2	14
15	[E] 20/1	(E) HAIR DRYER OUTLET		1,600					-	-	16
17	[E] 20/1	(E) EM RELAY						2,040	(E) TWIST LOCK	[E] 20/1	18
19	[E] 20/1	(E) EM RELAY				2,040			(E) SPARE	[E] 20/1	20
21	[E] 20/1	(E) OUTLETS, ATTIC,LTS		360			900		(E) OUTLETS/ROOF ACCESS LIGHT	[E] 20/1	22
23	[E] 20/1	(E) SPARE						900	(E) OUTLETS/ROOF ACCESS LIGHT	[E] 30/1	24
25	[E] 20/2	(E) DWH=N1, CP=N1	2,000			1,080			(E) OUTLETS/ROOF ACCESS LIGHT	[E] 20/1	26
27	[E] 20/1	(E) SPARE					1,080		(E) OUTLETS/ROOF ACCESS LIGHT	[E] 20/1	28
29	[E] 20/1	(E) DWH=N1, CP=N1			1,224			**360**	**(N) EXTERIOR OUTLET**	[E] 20/1	30
31	[E] 20/1	(E) EF-N1	696			**360**			**(N) EXTERIOR OUTLET**	[E] 20/1	32
33	[E] 20/1	(E) EF-N3		696					(E) SPARE	[E] 20/1	34
35	[E] 20/1	(E) EF-N4, EF-N6			1,392				(E) SPARE	[E] 20/1	36
37	[E] 20/1	(E) EF-NF, EFN2	696			120			(E) IRRIG. CONTROLLER	[E] 20/1	38
39	[E] 20/1	(E) SPARE					130		(E) SMOKE FIRE DAMPERS	[E] 20/1	40
41	[E] 20/1	(E) OUTLETS, ROOF			720			360	(E) BPS-7	[E] 20/1	42
			PHASE TOTALS A	B	C						
			13,472	8,566	11,196						

PANEL AND CIRCUIT BREAKER NOTES:
[1] PROVIDE NEW CIRCUIT BREAKER IN SPACES FOR NEW CIRCUIT.
PROVIDE THE CORRECT SIZE AS SHOWN.MATCH THE EXISTING A.I.C RATING.

DEMAND LOADS		
LIGHTING / CONTINUOUS LOAD x 125%		Watts
RECEPTACLES / OTHER x 100%	33,234	Watts
LARGEST MOTOR x 25%	510	Watts
TOTAL DEMAND LOADS	33,744	Watts
TOTAL DEMAND AMPS	94	AMPS

DSA

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EL DORADO HILLS, CA 95762 | (916) 985-1870

CONSULTANT:
MEP & FS / Sustainability / CxA
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Roseville, CA 95678
p 916-771-0778
CONSULTING ENGINEERS
www.lpengineers.com
Job #: 22-2023

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Tracy Unified School District
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Tracy, CA 95376
Phone: (209) 830-3200

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No. E 16762
Exp. 9/30/24
ELECTRICAL
STATE OF CALIFORNIA

John C. Kimball High School Tennis Court Repairs

3200 Jaguar Run
Tracy, CA 95377

REVISIONS

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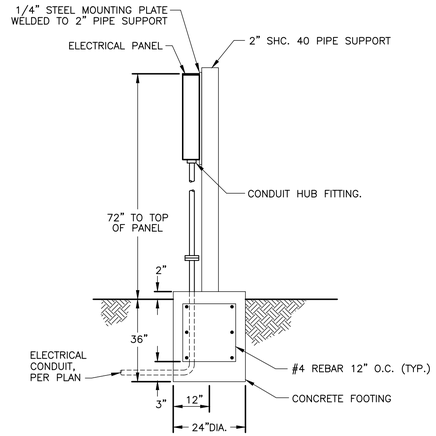
CHECKED: RZ	PROJECT NO. 21-129
DESIGNED: RN	DATE: 11-11-2022

ISSUANCE: BID SET

SHEET TITLE: ELECTRICAL PANEL SCHEDULES

SHEET NO. E6.1

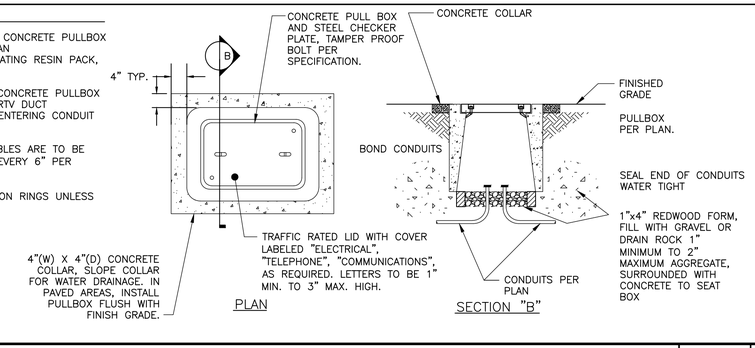
FILENAME:P:\1-PROJECT FILES\2022 LP PROJECTS\22-2023 WCE TUSD-KIMBALL HS TENNIS COURT\LP CAD\222023 E6.1 (SCHEDULE).DWG PLOTTED:Friday, November 18, 2022



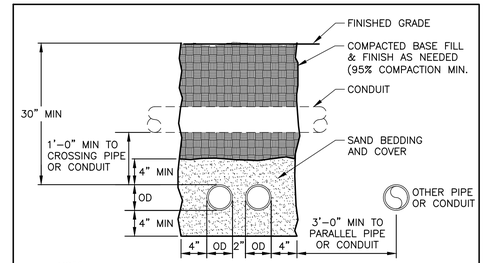
FILENAME
REMOTE PANEL MOUNTING DETAIL | NTS | 5

NOTES:

1. ALL SPLICES WITH-IN THE CONCRETE PULLBOX ARE TO BE SEALED WITH AN INSULATING AND ENCAPSULATING RESIN PACK, SCOTCHCAST 4 OR EQUAL.
2. ALL CONDUIT WITHIN THE CONCRETE PULLBOX ARE TO BE SEALED WITH RTV DUCT SEAL TO PREVENT WATER ENTERING CONDUIT SYSTEM.
3. ALL CONDUCTORS AND CABLES ARE TO BE GROUPED AND WIRE TIED EVERY 6" PER CONDUIT FILL.
4. PROVIDE TWO 12" EXTENSION RINGS UNLESS NOTED OTHERWISE

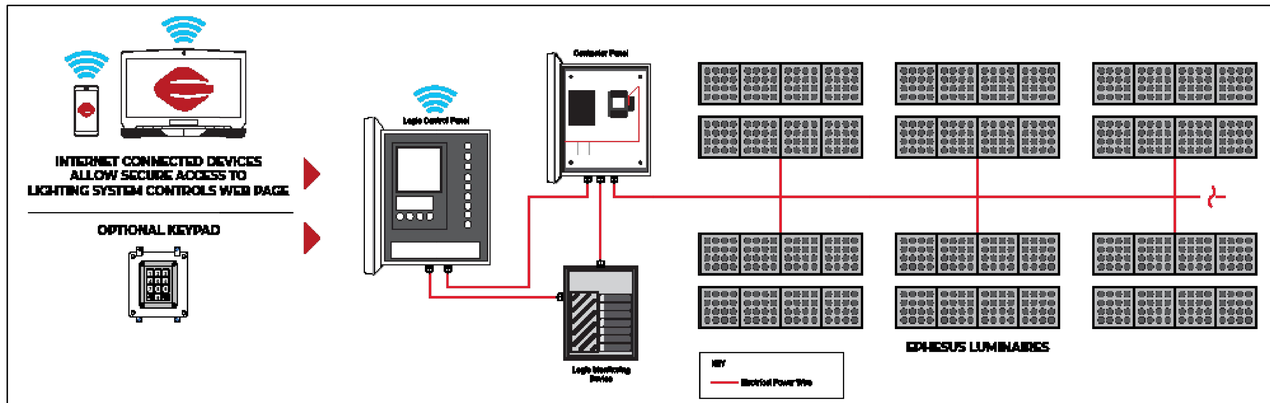


FILE NAME
TYPICAL UNDERGROUND CONCRETE PULLBOX DETAIL | NTS | 4

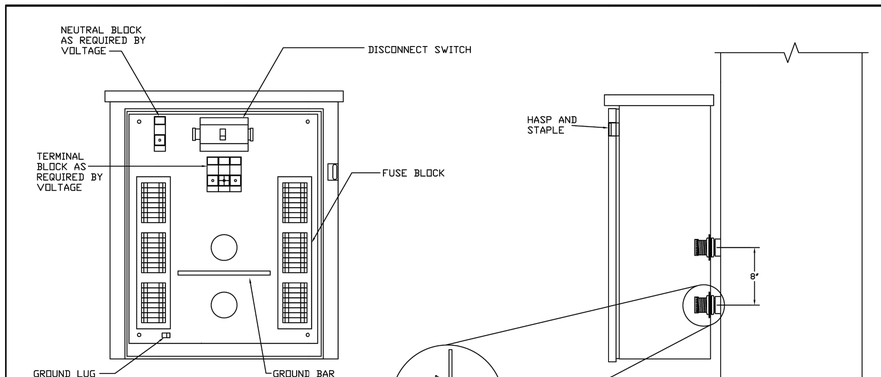


NOTE:
TRENCHING LOCATED IN PAVED AREAS – ALL EARTHWORK AND REPAIR SHALL BE IN ACCORDANCE WITH AGENCY THAT HAS JURISDICTION.

FILENAME
TYPICAL TRENCH DETAIL | NTS | 1



FILENAME
CONTROLS PROTOCOL: CONTACTOR CONTROLS | NTS | 2



HARDWARE	
QTY	FURNISHED
2	2" NIPPLES
2	2 SEALING LOCKNUTS
2	2" X 2 1/2" GASKETED REDUCING WASHERS
2	2" PLASTIC BUSHINGS
1	4" 1/2" HDG BOLT & WASHERS

NOTE:
1. QTY OF COMPONENTS ACCORDING TO # OF FIXTURES AND VOLTAGE
2. PREWIRED FROM FACTORY

FILENAME
DISTRIBUTION BOX | NTS | 3

DSA

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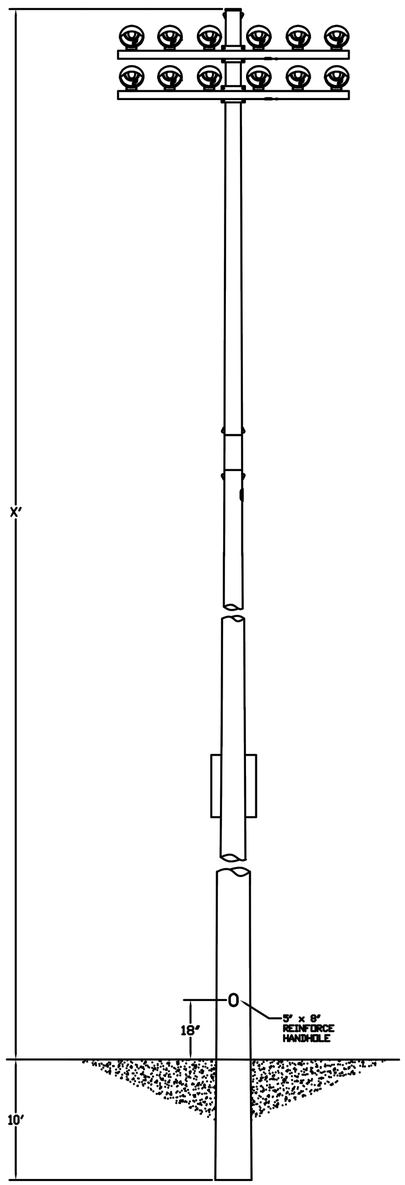
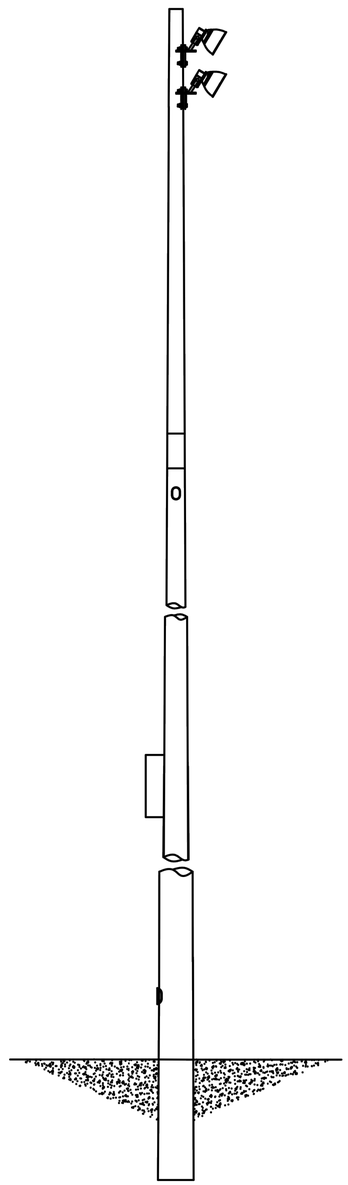
SHEET NO. E7.1

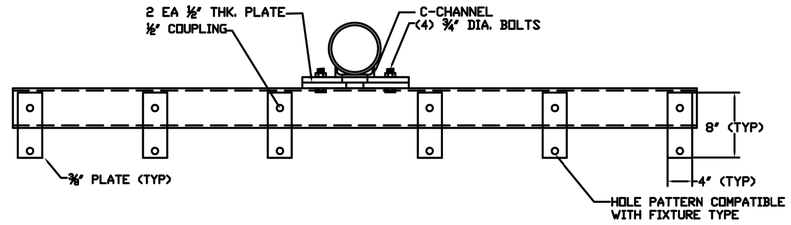
FILENAME:P:\1-PROJECT FILES\2022 LP PROJECTS\22-2023 WCE TUSD-KIMBALL HS TENNIS COURT\LP CAD\222023_E71 (DETAILS).DWG PLOTTED:Friday, November 18, 2022



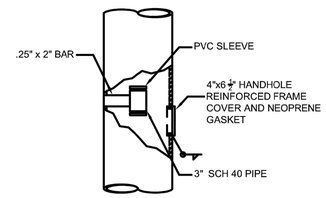
FRONT VIEW



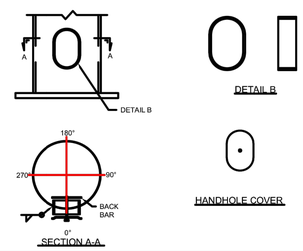
SIDE VIEW

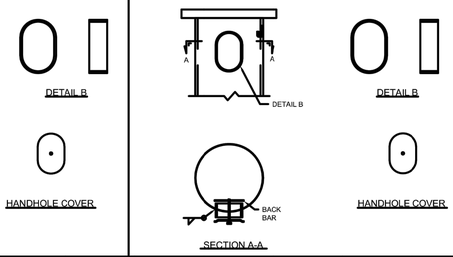


CROSSARM - SEE DETAILS



CABLE GUIDE





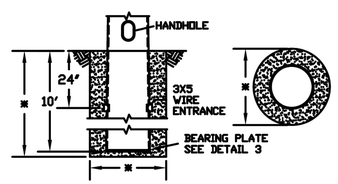
5" x 8" REINFORCE HANDHOLE

4 X 6 1/2" REINFORCE HANDHOLE

	BASE OD (in)	TOP OD (in)	WALL THC	LENGHT (ft)	WEIGHT (lbs)
TOP	X	X	.188	X	X
BOTTOM	X	X	.188	X	X

POLE DIMENSION

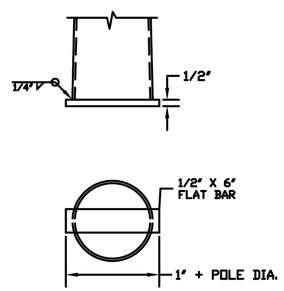
STEP DETAILS



* DIMENSIONS TO BE DETERMINED BY ENGINEER.

NOTE:
EXTERIOR TOP COATED WITH COAL TAR MASTIC FOR EMBEDMENT DEPTH PLUS 6".

FOUNDATION



BEARING PLATE

COMPONENT	SPECIFICATION
POLE TOP	ASTM A572 GR. 65
POLE BOTTOM	ASTM A572 GR. 65
MISC. STEEL	ASTM A36

GENERAL NOTES:

1. ALL HARDWARE TO BE GALVANIZED TO ASTM A153.
2. POLE ASSEMBLY TO BE GALVANIZED TO ASTM A123.
3. ALL WELDING TO CONFORM TO AWS D1.1 MOST RECENT EDITION.
4. DESIGN INCORPORATE GUST FACTOR PER REF CODE.
5. REFER TO GENERAL INSTALLATION INSTRUCTIONS PRIOR TO ASSEMBLY.

FINISH:
- [x] GALVANIZED
- [ ] PAINTED
- PAINTED & GALV

WIND SPEED:
- [ ] 80 MPH
- [ ] 90 MPH
- [ ] 100 MPH
- [ ] 110 MPH
- [ ] 120 MPH
- [ ] 130 MPH

DESIGN CRITERIA:
- [ ] AASHTO LTS3
- [x] AASHTO LTS 6
- [ ] IBC
- [ ] ASCE
- [ ] DSA
- [ ] UBC

MATERIAL SPECIFICATIONS

FILENAME
POLE DETAILS

NTS

1

DSA

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SHEET NO.

E7.2

FILENAME:P:\1-PROJECT FILES\2022 LP PROJECTS\22-2023 WCE TUSD-KIMBALL HS TENNIS COURT\LP CAD\222023_E7.2 (DETAILS).DWG PLOTTED:Friday, November 18, 2022