DOCUMENT 00 91 01 –

ADDENDUM NO. 3

1. GENERAL

This document includes requirements that clarify or supersede portions of the bid and/or contract requirements for the project. This Addendum is a Contract Document.

2. SUMMARY

The following changes, additions and deletions shall be made to the following document(s); all other conditions shall remain the same.

Please see attached Construction Drawings and Technical Specification dated: 07-12-17 by Artik Art & Architecture, which are to supersede previous Drawings and Technical Specification.

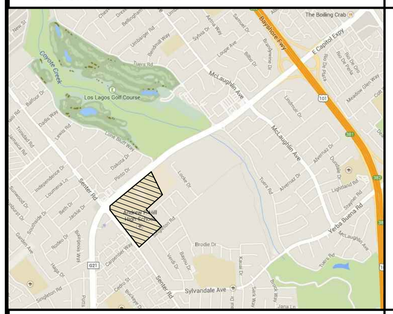
END OF DOCUMENT

ANDREW HILL HIGH SCHOOL VOLLEYBALL COURTS

3200 SENTER ROAD, SAN JOSE, CA 95111

EAST SIDE UNION HIGH SCHOOL DISTRICT

VICINITY MAP



PROJECT DIRECTORY

ARCHITECT	Artik Art & Architecture 394-A Umbarger Road San Jose, CA 95111 (408) 224-9890
CONSTRUCTION MANAGER	Van Pelt Construction Services 5030 Business Center Drive, Suite 240 Fairfield, CA 94534 (707) 438-3790
OWNER	East Side Union High School District 830 North Capitol Avenue San Jose, CA 95133 (408) 347-5000

SCOPE OF WORK

The following is a brief description of the scope of work. Contractor shall determine/verify the entire scope as shown in the Construction Documents (Drawings and Specifications) prior to submitting bids.

- REMOVAL OF (E) AC PAVING.

- GRADING, AC PAVING, AND COURT STRIPING.

SHEET INDEX

SYMBOL LEGEND

- 01 — DEMOLITION KEY NOTE NUMBER
- 01 — KEY NOTE NUMBER
- A — WINDOW TYPE
- CONTROL POINT
- 1 — GRID IDENTIFICATION
- 1 / A12.01 — DETAIL CUT
- REVISION 1
- N — NORTH ARROW

GOVERNING CODES

PARTIAL LIST OF APPLICABLE CODES AS OF JANUARY 1, 2014

1. 2013 California Administrative Code, Part 1, Title 24 C.C.R.
2. 2013 California Building Code (CBC), Part 2, Title 24 C.C.R. (2012 International Building Code Volumes 1-2 and 2013 Amendments)
3. 2013 California Electrical Code (CEC), Part 3, Title 24 C.C.R. (2011 National Electrical Code and 2013 Amendments)
4. 2013 California Mechanical Code (CMC), Part 4, Title 24 C.C.R. (2012 Uniform Mechanical Code and 2013 Amendments)
5. 2013 California Pl,umbing Code (CPC), Part 5, Title 24 C.C.R. (2012 Uniform Plumbing Code and 2013 Amendments)
6. 2013 California Energy Code (CEC), Part 6, Title 24 C.C.R.
7. 2013 California Fire Code, Part 9, Title 24 C.C.R. (2012 International Fire Code and 2013 Amendments)
8. 2013 California Green Building Standards Code, Part 11, Title 24 C.C.R.
9. 2013 California Reference Standards, Part 12, Title 24 C.C.R.
10. Title 19 C.C.R., Public Safety, State Fire Marshall Regulations

PARTIAL LIST OF APPLICABLE STANDARDS

NFPA 13	Automatic Fire Sprinklers	2013 Edition
NFPA 14	Standpipe Systems	2013 Edition
NFPA 17	Dry Chemical Extinguishing Systems	2013 Edition
NFPA 17a	Wet Chemical Systems	2013 Edition
NFPA 20	Stationary Pumps	2013 Edition
NFPA 22	Water Tanks for Private Fire Protection	2013 Edition
NFPA 24	Private Fire Mains	2013 Edition
NFPA 72	National Fire Alarm Code	2013 Edition
NFPA 80	Fire Doors and Other Opening Protectives	2013 Edition
NFPA 92	Standard for Smoke Control Systems	2012 Edition
NFPA 253	Critical Radiant Flux Floor Covering Systems	2006 Edition
NFPA 2001	Clean Agent Fire Extinguishing Systems	2012 Edition

NOTES

1. Compliance with CFC and CBC Chapter 33, Fire Safety During Construction and Demolition will be enforced.
2. Some codes may not apply if work regulated by such code is not within the scope of this project.

GENERAL NOTES

1. Existing construction data shown on the drawings was obtained from available drawings. The contractor shall verify all existing conditions and shall notify the architect of all exceptions before proceeding with the work.
2. See architectural drawings for layout dimensions and elevations except where indicated otherwise.
3. All discrepancies between drawings shall be clarified with the architect prior to proceeding with work.
4. In the event that certain features of the construction are not fully shown or detailed on the drawings or called for in the general notes, then their construction shall be of the same character as similar conditions that are shown or called for.
5. Dimensions, elevations, and existing conditions shall be checked and verified on the job site by each contractor. Errors, ommisions or discrepancies shall be reported to the architect before work begins or supplies are ordered.
6. Verify electrical, mechanical, fire alarm, telephone and security requirements before construction begins.
7. Work shall be performed in conformance with local, county, state and federal codes, laws, and regulations applicable to this work.
8. Any item identified to be demolished, removed or relocated is to be completely removed, including but not limited to any concealed items (pipes, curbs, framing, beams, fasteners, etc.).
9. All items within a demolished area that must be rerouted in order to maintain continuity shall be done so in accordance with appropriate specification sections in the project manual at no additional cost. If no specification can be found within the project manual, then continuity shall be maintained by current standard methods for construction but not lesser in quality then existing. Any area of demolition or removal shall be left in a completely finished condition as outlined in the project manual.

ABBREVIATIONS

AB	ANCHOR BOLT	EP	END PANEL	LT	LIGHT	SECT	SECTION
ABV	ABOVE	EPB	ELECTRICAL PANEL BOARD	LVR	LOUVER	S.E.D.	SEE ELECTRICAL DRAWING
AC	ASPHALT CONCRETE	EQ	EQUAL	LWR	LOW WALL RETURN AIR GRILL	SH	SHELF
A/C	AIR CONDITIONING	EQPT	EQUIPMENT	LWS	LOW WALL SUPPLY AIR GRILL	SHT	SHEET
ACOUS	ACOUSTICAL	ESA	EXPOSED TO STRUCTURE	MAS	MASONRY	SHTG	SHEATHING
ACP	ACOUSTICAL CEILING PANEL		ABOVE	MATL	MATERIAL	SIM	SIMILAR
ACT	ACOUSTICAL CEILING TILE	EWC	ELECTRIC WATER COOLER	MAX	MAXIMUM	SKL	SKYLIGHT
AD	AREA DRAIN	EXH	EXHAUST	MB	MACHINE BOLT	S.L.D.	SEE LANDSCAPE DRAWINGS
ADD	ADDENDUM	EXP	EXPANSION	MC	MEDICINE CABINET	S.M.D.	SEE MECHANICAL DRAWINGS
ADD'L	ADDITIONAL	EXPO	EXPOSED	MECH	MECHANICAL	SMS	SHEET METAL SCREW
ADJ	ADJUSTABLE/ADJACENT	EXST	EXISTING	MED	MEDIUM	SND	SANITARY NAPKIN DISPENSER
AFF	ABOVE FINISH FLOOR	EXT	EXTERIOR	MEMB	MEMBRANE	SP	STANDPIPE
AGGR	AGGREGATE	FA	FIRE ALARM	MTL	METAL	S/P	SHELF & POLE
ALT	ALTERNATE	FAB	FABRICATION	MFG	MANUFACTURING	SPEC	SPECIFICATION
ALUM	ALUMINUM	FAC	FACTORY	MFR	MANUFACTURER	SPVC	STANDPIPE VALVE CABINET
APL	ASSUMED PROPERTY LINE	FAS	FASTEN/ FASTENER	MH	MANHOLE	S.P.D.	SEE PLUMBING DRAWING
APPROX	APPROXIMATE	FB	FLAT BAR	MIN	MINIMUM	SQ	SQUARE
ARCH	ARCHITECTURAL	FBD	FIBERBOARD	MIR	MIRROR	S.S.	STAINLESS STEEL
ASPH	ASPHALT	FBGL	FIBERGLASS	MISC	MISCELLANEOUS	SST	STAINLESS STEEL
BB	BOTTOM OF BEAM	FBLK	FIRE BLOCKING	MKRBD	MARKER BOARD	S.S.D.	SEE STRUCTURAL
BD	BOARD	FBO	FURNISHED BY OTHERS	MLD	MOLDING	DRAWINGS	
BEL	BELOW	FD	FLOOR DRAIN	MMB	MEMBRANE	SSK	SERVICE SINK
BITUM	BITUMINOUS	FDC	FIRE DEPARTMENT	MO	MASONRY OPENING	STD	STANDARD
BLDG	BUILDING		CONNECTION	MOD	MODULAR	STL	STEEL
BLK	BLOCK	FDN	FOUNDATION	MT	METAL THRESHOLD	STOR	STORAGE
BLKG	BLOCKING	FE	FIRE EXTINGUISHER	MTD	MOUNTED	STRL	STRUCTURE/STRUCTURAL
BM	BEAM	FEC	FIRE EXTINGUISHER CABINET	MUL	MULLION	SUSP	SUSPENDED
BOT	BOTTOM	FF	FINISHED FLOOR	N	NORTH	SV	SHEET VINYL
BRG	BEARING	FFT	FLOOR FINISH TRANSITION	(N)	NEW	SYM	SYMMETRICAL
BRZ	BRONZE	FG	FIXED GLASS	NAT	NATURAL	SYS	SYSTEM
BTWN	BETWEEN	FHC	FIRE HOSE CABINET	NIC	NOT IN CONTRACT	T	TREAD
BUR	BUILT UP ROOFING	FHMS	FLATHEAD MACHINE SCREW	NO	NUMBER	T&B	TOP AND BOTTOM
CAB	CABINET	FHS	FLAT HEAD SCREW	NOM	NOMINAL	T&G	TONGUE AND GROOVE
CB	CATCH BASIN	FHWS	FLATHEAD WOOD SCREW	NTS	NOT TO SCALE	TB	TOWEL BAR
CEM	CEMENT	FIN	FINISH	O/	OVER	TD	TRENCH DRAIN
CER	CERAMIC	FJ	FLOOR JOIST	OA	OVERALL	TEL	TELEPHONE
CG	CORNER GUARD	FL	FLOOR	OBS	OBSCURE	TEMP	TEMPERED
CF	CUBIC FOOT	FLASH	FLASHING	O/C	ON CENTER	THK	THICK, -NESS
CFL	COUNTERFLASHING	FLUOR	FLUORESCENT	OD	OUTSIDE DIAMETER	THRU	THROUGH
CHAM	CHAMFER	FLX	FLEXIBLE	OFD	OVERFLOW DRAIN	TJ	TOOL JOINT
CHLKBD	CHALKBOARD	FND	FOUNDATION	OFF	OFFICE	TKBD	TACKBOARD
CI	CAST IRON	FOC	FACE OF CONCRETE	OH	OPPOSITE HAND	TME	TO MATCH EXISTING
CJ	CEILING JOIST	FOF	FACE OF FINISH	OPNG	OPENING	TOB	TOP OF BEAM
CJT	CONTROL JOINT	FOM	FACE OF MASONRY	OPP	OPPOSITE	TOC	TOP OF CURB OR CONCRETE
CLG	CEILING	FOS	FACE OF STUDS	OPQ	OPAQUE	TOM	TOP OF MASONRY
CLKG	CAULKING	FPRF	FIREPROOF	OPT	OPTIONAL	TOS	TOP OF STEEL
CLR	CLEAR	FR	FRAME, -D, -ING	PAD	POWER ACTUATED DEVICE	TOW	TOP OF WALL
CMU	CONCRETE MASONRY UNIT	FS	FULL SIZE	PDB	PARTICLE BOARD	TP	TOP OF PAVEMENT
CNTR	COUNTER	FSK	FLOOR SINK	PEN	PENETRATION, -S	TPD	TOILET PAPER DISPENSER
CO	CLEAN OUT	FT	FOOT OR FEET	PERF	PERFORATE, -D	TPTN	TOILET PARTITION
COL	COLUMN	FTG	FOOTING	PERM	PERIMETER	TRD	TREAD
COMB	COMBINATION	FURR	FURRING	PFB	PREFABRICATE, -D	TS	TUBE STEEL
COMPO	COMPOSITION (COMPOSITE)	FUT	FUTURE	PIP	POURED-IN-PLACE	TSB	TOP SET BASE
CONC	CONCRETE	FX	FIXTURE	PL	PROPERTY LINE	TSCD	TOILET SEAT COVER DISP.
CONN	CONNECTION	GA	GAGE, GAUGE	PLAM	PLASTIC LAMINATE	TSL	TOP OF SLAB
CONSTR	CONSTRUCTION	GALV	GALVANIZED	PLAS	PLASTER	TV	TELEVISION
CONT	CONTINUOUS OR CONTINUE	GB	GRAB BARS	PLT	PLATE	TYP	TYPICAL
CORR	CORRIDOR OR CORRUGATED	GEN	GENERAL	PLYWD	PLYWOOD	UNF	UNFINISHED
COTF	CLEAN OUT THROUGH FLOOR	GI	GALVANIZED IRON	PNL	PANEL	UON	UNLESS OTHERWISE NOTED
COTG	CLEAN OUT TO GRADE	GKT	GASKET, GASKETED	PNT	PAINT, -ED	UR	URINAL
COTW	CLEAN OUT THROUGH WALL	GL	GLASS, GLAZING	POC	POINT OF CONNECTION	VAR	VARIES
CR	CURB RETURN	GND	GROUND	PP	PERMIT PACKAGE	VAT	VINYL ASBESTOS TILE
CRC	COLD ROLLED CHANNEL	GR	GRADE	PR	PAIR	VB	VAPOR BARRIER
CSK	COUNTERSINK	GVL	GRAVEL	PRCST	PRE-CAST	VCT	VINYL COMPOSITION TILE
CSMT	CASEMENT	GWB	GYPSUM WALL BOARD	PT	POINT	VCTB	VINYL COVERED TACKBOARD
CSP	COMBINATION STANDPIPE	GYP	GYPSUM	PTD	PAPER TOWEL DISPENSER	VERT	VERTICAL
CT	CERAMIC MOSAIC (TILE)	HB	HOSE BIBB	PTD/R	PAPER TOWEL DISPENSER &	VEST	VESTIBULE
CTR	CENTER	HC	HOLLOW CORE		RECEPTACLE	VG	VERTICAL GRAIN
CTSK	COUNTERSUNK	HCA	HANDICAPPED ACCESSIBLE	PTDF	PRESSURE TREATED	VIF	VERIFY IN FIELD
CW	COLD WATER	HDB	HARDBOARD		DOUGLAS FIR	VNR	VENEER
DBL	DOUBLE	HDR	HEADER	PTN	PARTITION	VO	VENT OVER/OFFSET
DEPT	DEPARTMENT	HDWD	HARDWOOD	PVA	POLYVINYL ACETATE	VR	VENT RISER
DET	DETAIL	HDWE	HARDWARE	PVC	POLYVINYL CHLORIDE	VTR	VENT THROUGH ROOF
DF	DRINKING FOUNTAIN	HEX	HEXAGONAL	QT	QUARRY TILE	VWC	VINYL WALL COVERING
DIA	DIAMETER	HGT	HEIGHT	R	RISER	W	WEST
DIAG	DIAGONAL	HM	HOLLOW METAL	RAD	RADIUS	W/	WITH
DIM	DIMENSION	HO	HOLD OPEN	RCP	REFLECTED CEILING PLAN	WC	WATER CLOSET
DISP	DISPENSER	HORIZ	HORIZONTAL	RD	ROOF DRAIN	WD	WOOD
DIV	DIVISION	HR	HOUR	RDWD	REDWOOD	WFG	WIRED FIXED GLASS
DN	DOWN	HRC	HOT ROLLED CHANNEL	REF	REFERENCE	WHC	WALL HUNG CABINET
DO	DOOR OPENING	HTG	HEATING	REFR	REFRIGERATOR	WI	WROUGHT IRON
DPRS	DEPRESSED	HVAC	HEATING/VENTILATING/	REINF	REINFORCE, -D, -ING	WIN	WINDOW
DR	DOOR		AIR CONDITIONING	REM	REMOVE	WIM	WIRE MESH
DS	DOWNSPOUT	HW	HOT WATER	REQ	REQUIRED	W/O	WITHOUT
DSP	DRY STANDPIPE	ID	INSIDE DIAMETER	RESIL	RESILIENT	WO	WHERE OCCURS
DWG	DRAWING	INCL	INCLUDE, -D, -ING	RET	RETURN	WP	WATERPROOF
DWR	DRAWER	INSTR	INSTRUCTION, -S	REV	REVISION, -S, REVISED	WSCT	WAINSCOT
DWS	DRYWALL SCREW	INSUL	INSULATE, -D, -ION	RFG	ROOFING	WSP	WET STANDPIPE
E	EAST	INT	INTERIOR	RFL	REFLECT, -ED, -IVE	WST	WASTE
(E)	EXISTING	INV	INVERT	RGTR	REGISTER	WT	WEIGHT
EA	EACH	IS	INTERMEDIATE SUPPORT	RH	RIGHT HAND	WWF	WELDED WIRE FABRIC
EB	EXPANSION BOLT	JAN	JANITOR	RL	RIDGE LINE	L	
EDF	ELECTRIC DRINKING FOUNTAIN	JST	JOIST	RM	ROOM	&	AND
EIR	ENVIRONMENTAL IMPACT	JT	JOINT	RO	ROUGH OPENING	<	ANGLE
	REPORT	KIT	KITCHEN	ROW	RIGHT OF WAY	@	AT
EJ	EXPANSION JOINT	KO	KNOCKOUT	RT	RESILIENT TILE	L C	CENTER LINE
EL	ELEVATION	LAB	LABORATORY	RWL	RAINWATER LEADER	Ø	DIAMETER
ELEC	ELECTRIC	LAD	LADDER	S	SOUTH	#	NUMBER OR POUND
ELECT	ELECTRICAL	LAM	LAMINATE	S/FEC	SURFACE-MOUNTED FEC	±	PLUS/MINUS
ELEV	ELEVATION	LAV	LAVATORY	SC	SOLID CORE	P	PROPERTY LINE
EMER	EMERGENCY	LB	LAG BOLT	S.C.D.	SEE CIVIL DRAWINGS		
ENAM	ENAMEL	LH	LEFT HAND	SCHED	SCHEDULE		
ENCL	ENCLOSURE	LKR	LOCKER	SD	STORM DRAIN		

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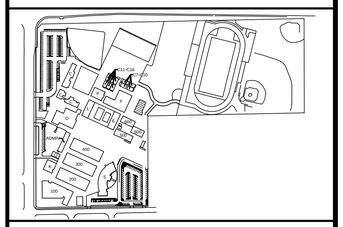
Key Plan



Project Title

ANDREW HILL HS
VOLLEYBALL COURTS

3200 SENTER ROAD
SAN JOSE, CA 95111

EAST SIDE UNION HIGH SCHOOL DISTRICT

No	Revisions/Submissions	Date

Drawing Title

TITLE SHEET

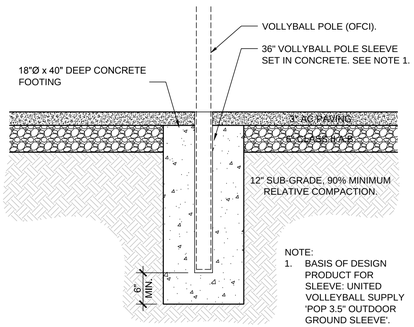
Regulatory Agency Approval

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
OFFICE OF REGULATION SERVICES
AC FLS
DATE

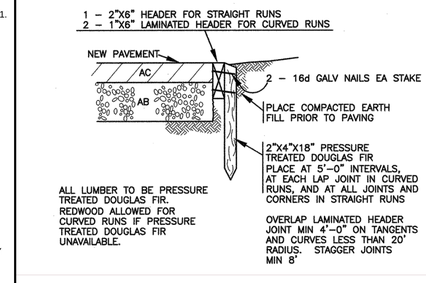
Architect Seal

LICENSED ARCHITECT
WILLIAM E. GOULD
No. C-23919
REN. 9-30-13
STATE OF CALIFORNIA

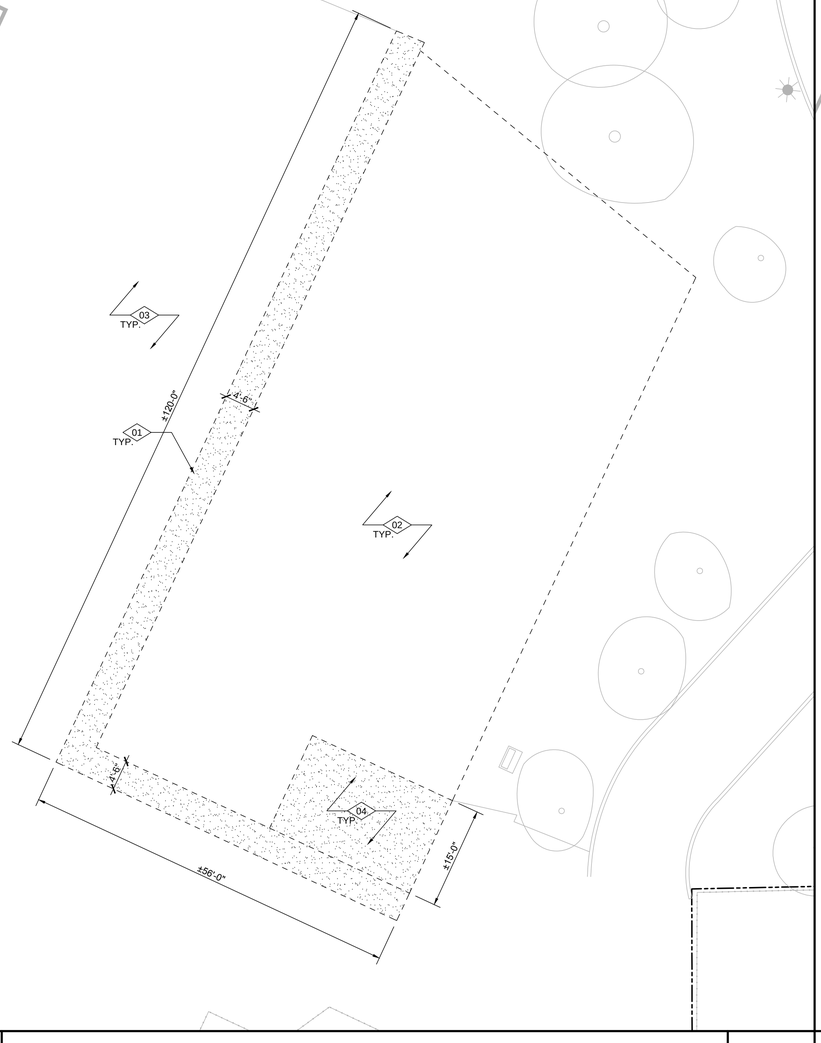
DSA File Number	N/A
DSA Application Number	N/A
Project No.	135044
Date	07.11.17
Drawing No	A0.01



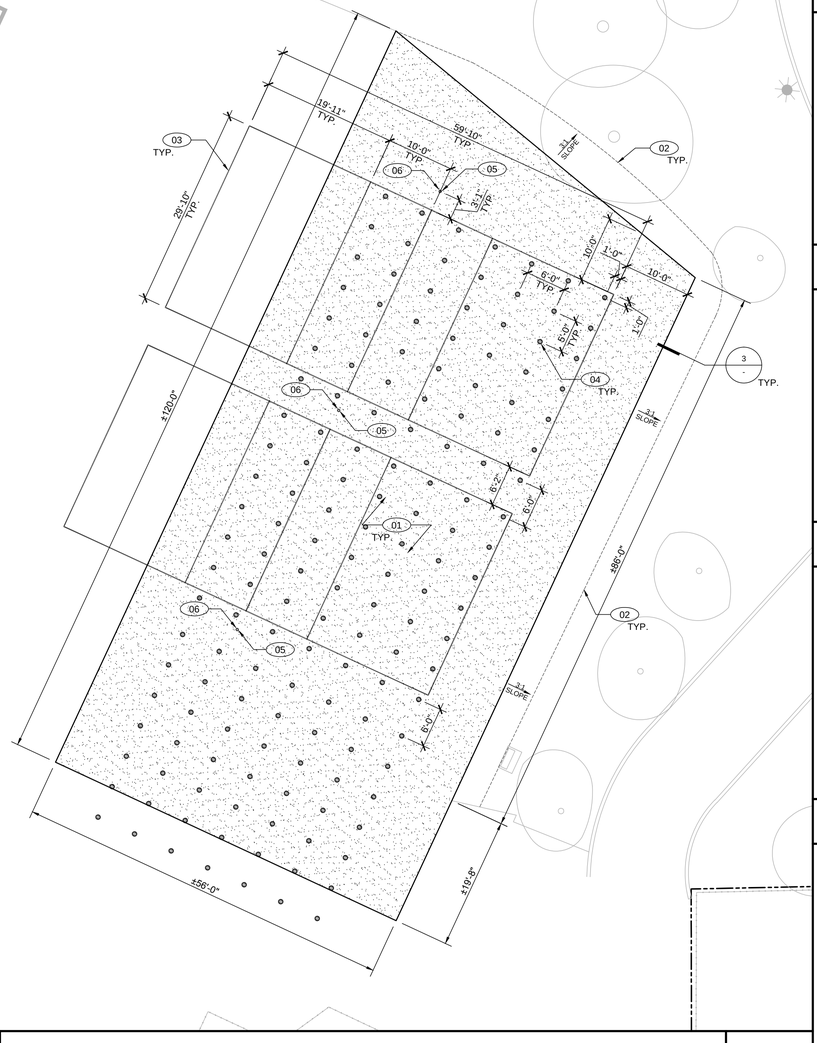
4	VOLLEYBALL POLE SLEEVE	3/4"=1'-0"



3	HEADER BOARD	3/32"=1'-0"



1	ENLARGED DEMOLITION SITE PLAN - BUILDING F VOLLEYBALL	3/32"=1'-0"



2	ENLARGED SITE PLAN - BUILDING F VOLLEYBALL	3/32"=1'-0"

GENERAL NOTES

1. TYPICAL, EXISTING TO REMAIN U.O.N.; PROTECT ALL ITEMS TO REMAIN. ANY DAMAGE SHALL BE REPAIRED/ REPLACED TO OWNER'S SATISFACTION.
2. CONTRACTOR TO FIELD VERIFY EXTENT OF ALL WORK REQUIRED.
3. CONTRACTOR TO PROTECT ALL (E) SITE FEATURES FROM DAMAGE.
4. ALL STRIPING DIMENSIONS ARE TO CENTERLINE/CENTER OF STRIPE. ALL AC PAVING DIMENSIONS ARE TO EDGE OF PAVING.

KEYNOTES

01 AC PAVING PER LEGEND.
02 CONFORM (E) SURFACE TO ADJACENT GRADES AT 3:1 MAX SLOPE.
03 2" WIDE COURT STRIPING, WHITE.
04 3" Ø DOT STRIPING, YELLOW.
05 VOLLEYBALL POLE SLEEVE AND FOOTING, REFER TO DETAIL 4/-.
06 VOLLEYBALL POLE AND NET SYSTEM (OFCI).

HATCH LEGEND

3" AC PAVING OVER 6" CLASS II A.B. OVER 12" OF 90% MINIMUM RELATIVELY COMPACTED SUB-GRADE.

DEMOLITION GENERAL NOTES

1. TYPICAL, EXISTING TO REMAIN U.O.N.; PROTECT ALL WORK TO BE REINSTALLED. ANY DAMAGE SHALL BE REPAIRED/ REPLACED TO OWNER'S SATISFACTION.
2. CONTRACTOR TO FIELD VERIFY EXTENT OF ALL DEMOLITION REQUIRED.
3. CONTRACTOR TO PROTECT ALL (E) FEATURES FROM DAMAGE INCLUDING BUT NOT LIMITED TO: STRUCTURES, UTILITIES, LIGHTING, AND LANDSCAPING.

DEMOLITION KEYNOTES

01 REMOVE PORTION OF (E) ASPHALT PAVING.
02 PREPARE AREA TO RECEIVE ASPHALT PAVING.
03 CLEAN (E) ASPHALT PAVING PREPARE AREA TO RECEIVE STRIPING.
04 REMOVE PORTION OF (E) CONCRETE PAVING.

DEMOLITION LEGEND

(E) PAVING TO BE REMOVED.

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Key Plan

Project Title

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EAST SIDE UNION HIGH SCHOOL DISTRICT

No	Revisions/Submissions	Date

Drawing Title

ENLARGED DEMOLITION SITE PLAN & SITE PLAN

Regulatory Agency Approval

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
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AC_____ FLS_____
DATE_____

Architect Seal

LICENSED ARCHITECT
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DSA File Number: N/A
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Project No.: 135044
Date: 07.11.17

Drawing No: A1.02

TECHNICAL SPECIFICATIONS

ANDREW HILL HIGH SCHOOL
VOLLEYBALL COURTS

3200 SENTER ROAD
SAN JOSE, CA 95111

JULY 12TH, 2017

EAST SIDE UNION HIGH SCHOOL DISTRICT

830 NORTH CAPITOL AVENUE
SAN JOSE, CA 95133

Prepared by Architect:
Artik Art & Architecture
394-A Umbarger Road
San Jose, CA 95111
(408) 224-9890
Artik #135044

TABLE OF CONTENTS TO PROJECT MANUAL

DIVISION 31 – EARTHWORK

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DIVISION 32 – EXTERIOR IMPROVEMENTS

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32 13 13	Site Cast-In-Place Concrete
32 17 23	Pavement Marking and Accessories

DIVISION 33 – UTILITIES – **NOT USED**

SECTION 02 41 13
SELECTIVE SITE DEMOLITION

1.00 GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.02 SUMMARY

A. This Section requires the selective removal and subsequent off-site disposal of, but not limited to, the following:

1. Portions of site improvements indicated on drawings and as required to accommodate new construction.

2. Removal and protection of existing fixtures, materials, and equipment items indicated "salvage."

1.03 SUBMITTALS

A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.

B. Schedule indicating proposed sequence of operations for selective demolition work to Architect for review prior to start of work. Include coordination for shutoff, capping, and continuation of utility services as required, together with details for dust and noise control protection.

1. Provide detailed sequence of demolition and removal work to ensure uninterrupted progress of Owner's on-site operations, if any.

2. Coordinate with Owner's continuing occupation, if any, of portions of existing building and with Owner's partial occupancy, if any, of completed new addition.

C. Photographs of existing conditions of structure surfaces, equipment, and adjacent improvements that might be misconstrued as damage related to removal operations. File with Architect prior to start of work.

1.04 JOB CONDITIONS

A. Occupancy: Owner will occupy portions of the building immediately adjacent to areas of selective demolition. Conduct selective demolition work in manner that will minimize need for disruption of Owner's normal operations. Provide minimum of 72 hours advance notice to Owner of demolition activities that will affect Owner's normal operations.

B. Condition of Structures: Owner assumes no responsibility for actual condition of items or structures to be demolished.

1. Conditions existing at time of inspection for bidding purposes will be maintained by Owner insofar as practicable. However, minor variations within structure may occur by Owner's removal and salvage operations prior to start of selective demolition work.

C. Partial Demolition and Removal: Items indicated to be removed but of salvageable value to Contractor may be removed from structure as work progresses. Transport salvaged items from site as they are removed.

1. Storage or sale of removed items on site will not be permitted.

D. Environmental Controls: Comply with governing regulations pertaining to environmental protection.

1. Lead in Construction: All contractors shall comply with Title 8, California Code of Regulations (CCR), Section 1532.1, when abating lead relating to demolition of remodel activity in all public buildings. Workers must be trained by the Department of Health Services (DHS) accredited trainer provider and certified by DHS. Exposure assessment (air monitoring) must be performed in all workplaces where employees may be exposed to lead. Exposure assessment is an eight hour period when air monitoring takes place to determine permissible exposure limit for each activity taken.

E. Protections: Provide temporary barricades and other forms of protection to protect Owner's personnel and general public from injury due to selective demolition work.

1. Provide protective measures as required to provide free and safe passage of Owner's personnel and general public to occupied portions of building.

2. Erect temporary covered passageways as required by authorities having jurisdiction.

3. Provide interior and exterior shoring, bracing, or support to prevent movement, settlement, or collapse of structure or element to be demolished and adjacent facilities or work to remain.

4. Protect from damage existing finish work that is to remain in place and becomes exposed during demolition operations.

5. Protect floors with suitable coverings when necessary.

6. Construct temporary insulated dustproof partitions where required to separate areas where noisy or extensive dirt or dust operations are performed. Equip partitions with dust proof doors and security locks.

7. Provide temporary weather protection during interval between demolition and removal of existing construction on exterior surfaces and installation of new construction to ensure that no water leakage or damage occurs to structure or interior areas of existing building.

8. Remove protections at completion of work.

F. Damages: Promptly repair damages caused to adjacent facilities by demolition work.

G. Traffic: Conduct selective demolition operations and debris removal to ensure minimum interference with roads, streets, walks, and other adjacent occupied or used facilities.

1. Do not close, block, or otherwise obstruct streets, walks, or other occupied or used facilities without written permission from authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by governing regulations.

H. Flame Cutting: Do not use cutting torches for removal until work area is cleared of flammable materials. At concealed spaces, such as interior of ducts and pipe spaces, verify condition of hidden space before starting flame-cutting operations. Maintain portable fire suppression devices during flame-cutting operations.

I. UtilityServices: Maintain existing utilities indicated to remain in service and protect them against damage during demolition operations.

1. Do not interrupt utilities serving occupied or used facilities, except when authorized in writing by Owner/Occupant. Provide temporary services during interruptions of existing utilities, as acceptable to governing authorities.

2. Maintain fire protection services during selective demolition operations.

J. Dust Control: Use water sprinkling, temporary enclosures, and other methods to limit dust and dirt migration. Comply with governing regulations pertaining to environmental protection.

1. Do not use water when it may create hazardous or objectionable conditions such as ice, flooding, and pollution.

2.00 PRODUCTS (Not Applicable)

3.00 EXECUTION

3.01 PREPARATION

A. General: Provide interior and exterior shoring, bracing, or support to prevent movement, settlement, or collapse of areas to be demolished and adjacent facilities to remain.

1. Cease operations and notify Architect immediately if safety of structures, or improvements to remain appears to be endangered. Take precautions to support structure until determination is made for continuing operations.
2. Cover and protect furniture, equipment, and fixtures from soilage or damage when demolition work is performed in areas where such items have not been removed.
3. Erect and maintain dust-proof partitions and closures as required to prevent spread of dust or fumes to occupied portions of the building.

    a. Where selective demolition occurs immediately adjacent to occupied portions of the building, construct dust-proof partitions of minimum 4-inch studs, 5/8-inch drywall Uointstaped) on occupied side,1/2-inch fire-retardant plywood, or equivalent, on demolition side and fill partition cavity with sound-deadening insulation, or as otherwise directed.
    b. Provide weatherproof closures for exterior openings resulting from demolition work.

4. Locate, identify, stub off, and disconnect utility services that are not indicated to remain.

    a. Provide bypass connections as necessary to maintain continuity of service to occupied areas of building.

3.02 DEMOLITION

A. General: Perform selective demolition work in a systematic manner. Use such methods as required to complete work indicated on Drawings in accordance with demolition schedule and governing regulations.

1. Demolish concrete and masonry in small sections. Cut concrete and masonry at junctures with construction to remain using power-driven masonry saw or hand tools; do not use power-driven impact tools.
2. Locate demolition equipment throughout structure and promptly remove debris to avoid imposing excessive loads on supporting walls, floors, or framing.

3. Provide services for effective air and water pollution controls as required by local authorities having jurisdiction.

4. Demolish foundation walls to a depth of not less than 12 inches below lowest foundation level. Demolish and remove below-grade wood or metal construction. Break up below-grade concrete slabs.

5. For interior slabs on grade, use removal methods that will not crack or structurally disturb adjacent slabs or partitions. Use power saw where possible.

B. If unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure both nature and extent of the

conflict. Submit report to Architect in written, accurate detail. Pending receipt of directive from Architect, rearrange selective demolition schedule as necessary to continue overall job progress without undue delay.

3.03 SALVAGED MATERIALS

A. Salvaged Items: Where indicated on Drawings as "Salvage - Deliver to Owner," carefully remove indicated items, clean, store, and turn over to Owner and obtain receipt.

1. Historic artifacts, including cornerstones and their contents, commemorative plaques and tablets, antiques, and other articles of historic significance, remain property of Owner. Notify Architect if such items are encountered and obtain acceptance regarding method of removal and salvage for Owner.

2. Carefully remove, clean, and deliver to Owner the following items:

a. As indicated on the Construction Documents.

3.04 DISPOSAL OF DEMOLISHEDMATERIALS

A. Remove from building site debris, rubbish, and other materials resulting from demolition operations. Transport and legally dispose off site.

B. If hazardous materials are encountered during demolition operations, comply with applicable regulations, laws, and ordinances concerning removal, handling, and protection against exposure or environmental pollution.

1. Burning of removed materials is not permitted on project site.

3.05 CLEANUPAND REPAIR

A. **General:** Upon completion of demolition work, remove tools, equipment, and demolished materials from site. Remove protections and leave interior areas broom clean.

B. Repair demolition performed in excess of that required. Return elements of construction and surfaces to remain to condition existing prior to start operations. Repair adjacent construction or surfaces soiled or damaged by selective demolition work.

END OF SECTION 02 41 13

SECTION 31 00 00
EARTHWORK

1.00 GENERAL

1.01 DESCRIPTION

A. Principal work in this Section:

1. All excavating, filling, backfilling, compacting and grading required for the Project.

2. Adjusting manhole rims, grates, valve boxes, etc. to finished grade indicated.

3. Pumping, draining, shoring, cribbing and other protective measures.

4. Importing fill materials.

5. Shoring and cribbing.

6. Removing excess and unsatisfactory excavated materials from the site.

B. Related work in other Sections:

1. Selective Demolition: Section 02 41 13.

2. Site Clearing: Section 31 10 00.

3. Aggregate base under asphalt paving: Section 32 12 16.

4. Finish grading for landscaping and asphalt paving: Section 32 12 16.

1.02 QUALITY ASSURANCE

A. Lines and levels: All construction staking shall be provided by Contractor.

1.03 SUBMITTALS

A. Imported fill materials: Submit samples of proposed imported materials, minimum 40 lbs., tagged with source location and manufacturer to the Owner's Representative at least 15 days prior to import. Material shall not be imported to job site without written approval by the Owner's Representative.

1.04 GEOTECHNICAL INVESTIGATION

A. A geotechnical investigation report has been prepared for the site by Earth Systems Pacific (510) 353-3833, (File No. SH-12903-SA, dated December 4, 2015), and is available for the

Contractor's review from the Owner, the Owner's Representative or the Geotechnical Engineer.

2.00 PRODUCTS

2.01 FILL MATERIALS

A. Select (porous) fill under building slab-on-grade and behind retaining and basement walls: Clean gravel or crushed rock complying with CalTrans Standard Specifications, Section 68, Class 2.

B. Imported fill materials and on-site select materials shall be granular in nature, non-expansive, free of organic materials, with a plasticity index of less than 12, and an expansion index of less than 20 and graded as follows:

Sieve Size	Percentage Passing Sieve
3"	100
No. 4	60 - 100
No. 200	Less than 20

C. On-site materials, less debris and organic matter, shall be approved by the Geotechnical Engineer.

D. Import shall be approved by the Geotechnical Engineer.

3.00 EXECUTION

3.01 PROTECTIVE MEASURES

A. Underground utilities: Report any lines encountered that are not indicated, or are in location other than indicated, on the Drawings to the Engineer's attention who will issue instruction for proceeding with the work.

B. Moisture control: Remove water and debris, which would interfere with construction, from excavated areas and keep working areas dry when work is in progress. Grade perimeter of excavations so that water run-off drains away from the excavations.

1. Keep excavations free from loose material and water while fill is placed and compacted.

2. Dispose of water resulting from dewatering operations in a manner that will not cause damage to public or private property, or constitute a nuisance or menace to the public.

3. Make sure that debris and dirt generated by this work does not block existing storm drain system. Keep adjacent paving (outside Contract area) broom clean and free of debris and dirt. Clean any existing facilities that become plugged.

C. Shoring, cribbing and bracing: Provide and install shoring, cribbing and bracing of the excavations as necessary to prevent cave-ins and to support and protect adjacent construction in accordance with Federal, State and local laws. Contractor shall be completely responsible for adequacy and safety of shoring design, construction, and removal.

D. Benchmarks and monuments: Protect benchmarks, monuments and other reference points against displacement and damage. Repair or replace benchmarks, monuments and other permanent survey data that becomes displaced or damaged due to the performance of the work of this Section.

E. Dust palliation: Keep down dust at the site by intermittent watering and sprinkling while the work of this Section is being performed. Earthwork operations shall be conducted so as to prevent windblown dust and dirt. Assume liability for all claims related to windblown dust and dirt. Apply water in accordance with applicable provisions of Section 17 of California Transportation Standard Specifications and with Section 1590 (e) of CAL/OSHA, Title 8.

F. Protection of existing facilities and landscape: Protect all trees, plants, utilities and existing improvements to remain from injury and damage resulting from the work of this Section. Replace all damaged landscaping, improvements or utilities in kind. Refer to Section 31 10 00 for additional requirements on tree protection. Clean staging and other use areas of debris and dust upon completion of project. Re-stripe portions of parking lot where, in the opinion of the Owner's Representative, the striping was damaged or destroyed by Contractor's operations.

G. Protection of completed work:

1. Protect finished areas from weather damage to prevent erosion of graded areas.

2. Hauling and other activities on prepared grades which will deform them from required cross sections will not be permitted. Repair and re-compact damage to prepared grades caused by such operations at no additional cost to the Owner.

3.02 EXCAVATING AND FILLING

A. Site clearing is specified in Section 31 10 00 and/or soils report. Verify that existing paving, curbs, light posts and other improvements, and all debris are removed from the site.

B. After site has been properly cleared, stripped, and excavations to rough grade have been made, exposed surface soils in those areas to receive engineered fills, concrete slabs-on-grade, or pavements should be scarified to a depth of 12 inches, moisture conditioned, and compacted (see D). In building areas to receive concrete slabs-on-grade, sub-grade preparation shall extend at least 5 feet beyond the limits of the proposed structures and any adjoining flat work. In pavement areas and for exterior flatwork not connected to buildings, sub-grade preparation shall extend at least 2 feet beyond the back of the curbs or outside limits of flatwork.

C. Any portions of the site which are disturbed or softened by standing water shall be re-graded and re-compacted to 90% of maximum density (ASTM D-1557) as recommended by the Owner's Representative. Portions of the site which show evidence of "pumping" or movement under load shall be excavated, dried out, or filled with bridging rock or other material determined to be suitable by the Owner's Representative, then recompacted to the above standards. All this work shall be done at no additional cost to the Owner.

D. Place fill materials in loose lifts no more than 8" in uncompacted thicknesses. Compaction of fill should be accomplished by mechanical means only. Compact engineering fills consisting of expansive clay soil between 88% to 93% relative compaction at soil moisture content of between 3 and 5 percent above the laboratory optimum moisture content. Compact on-site or imported soils with low expansion potential to at least 90% relative compaction at soil moisture content of between 1 and 3 percent above the laboratory optimum moisture content. In pavement areas, the upper 12 inches of sub-grade shall be compacted to at least 95% percent relative compaction at soil moisture content 1 to 3 percent above optimum value. Aggregate base material in pavement areas shall be compacted slightly above the optimum moisture content to at least 95% relative compaction. Behind retaining walls, care should be taken to avoid over-compaction of the backfill materials. Avoid excessive wall movements and lateral pressures use lightweight hand-operated equipment to compact backfill within 3 feet behind retaining walls.

E. Do not place fill during unfavorable weather conditions. If work is interrupted by heavy rain, do not resume operations until the proper moisture content and density of the materials have been achieved.

F. Earth and rock, regardless of character and subsurface conditions, shall be excavated to depths shown on Drawings and to the neat dimensions of the footings wherever practicable, to permit pouring of footings and grade beams without use of side forms, except at slab perimeters.

3.04 BACKFILLING

A. Place backfill in loose layers not exceeding 8" thick, as construction operations permit, but not before work to be covered has been inspected and approved, and loose soils and debris have been removed from the excavations.

B. Do not place backfill during unfavorable weather conditions as specified for fill above.

C. Compact backfill to 95% of maximum density (ASTM D1557).

D. Where backfill is required on both sides of a structure, place it simultaneously so that the height of fill remains approximately equal on both sides at all times.

E. Brace construction which has not been designed to withstand eccentric loading during backfilling.

F. Backfill only after the structure to be backfilled against has attained its design strength or has been properly braced, to resist the load of the backfill. No compacting by jetting permitted.

G. Keep rollers and other heavy equipment at least 4 feet from footings, foundations, piers and walls of building and appurtenances.

3.05 GRADING

A. The locations and elevations of all construction are indicated on the Drawings and, unless inconsistencies are brought to the Owner's Representatives attention prior to commencement of work, the Contractor will be held responsible for the proper location and elevations of the completed work.

B. Grade all areas to the lines and levels required. Keep grades straight between changes in elevations. Finish grading tolerance shall not exceed plus or minus one half inch (½") of required elevations, if evenly distributed.

C. The required subgrade elevation shall be such that when subbase and indicated construction are added, the final elevations will be those shown on the Drawings.

3.07 FRAMES, COVERS, GRATES AND VALVE BOXES

A. Adjust frames, grates, valve boxes, and covers of existing manholes, inlets, or other facilities to grade in conformance with Sections 15 of the CDT Standard Specifications.

B. A structure located in a paved area shall not be constructed to final grade until the adjacent pavement or surfacing has been compacted.

3.08 DISPOSAL OF SURPLUS AND UNSUITABLE EXCAVATED MATERIALS

A. Remove these materials from the Owner's site and dispose of them in a legal manner; this includes materials resulting from all excavations including elevator cylinder, concrete piles and utility excavations. Burning and burying materials on-site is prohibited.

3.09 FIELD QUALITY CONTROL

A. Field density tests: To check the degree of compaction of native soils and fill will be taken by the Owner's Representative. The location and frequency of the tests will be at the Owner's Representative discretion.

B. Verification of elevations: Owner will provide the services of a licensed Civil Engineer or Land Surveyor upon completion of earthwork operations to verify that grades are within the tolerances specified. Should the grades be found to be out of tolerance, the site shall be reworked and resurveyed by the Owner at the Contractor's expense.

END OF SECTION 31 00 00

SECTION 31 10 00
SITE CLEARING

1.00 GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.02 SUMMARY

A. This Section includes, but is not limited to, the following:

1. Protection of existing trees.

2. Removalof trees and other vegetation.

3. Topsoil stripping.

4. Clearing and grubbing.

5. Removing above-grade improvements.

6. Removing below-grade improvements.

B. Related work in other Sections: The following sections are noted as containing requirements that relate to this Section, but may not be limited to this listing.

1. Earthwork: Section 31 00 00.

2. Selective Site Demolition: Section 02 41 13.

1.03 PROJECT CONDITIONS

A. Traffic: Conduct site clearing operations to ensure minimum interference with roads, streets, walks, and other adjacent occupied or used facilities. Do not close or obstruct streets, walks or other occupied or used facilities, unless otherwise noted, without permission from authorities having jurisdiction.

B. Protection of Existing Improvements: Provide protections necessary to prevent damage to existing improvements indicated to remain in place.

1. Protect improvements on adjoining properties and on Owner's property.

2. Restore damaged improvements to their original condition, as acceptable to property owners.

C. Protection of Existing Trees and Vegetation: Protect existing trees and other vegetation indicated to remain in place, against unnecessary cutting, breaking or skinning of roots, skinning or bruising of bark, smothering of trees by stockpiling construction materials or excavated materials within drip line, excess foot or vehicular traffic, or parking of vehicles within drip line. Provide temporary guards to protect trees and vegetation to be left standing.

1. Water trees and other vegetation to remain within limits of contract work as required to maintain their health during course of construction operations.

2. Provide protection for roots over 1-1/2 inch diameter that are cut during construction operations. Coat cut faces with an emulsified asphalt, or other acceptable coating, formulated for use on damaged plant tissues. Temporarily cover exposed roots with wet burlap to prevent roots from drying out; cover with earth as soon as possible.

3. Repair or replace trees and vegetation indicated to remain which are damaged by construction operations, in a manner acceptable to Architect. Employ a licensed arborist to repair damages to trees and shrubs.

4. Replace trees which cannot be repaired and restored to full-growth status, as determined by arborist.

D. **Improvements on Adjoining Property:** Authority for performing removal and alteration work on property adjoining Owner's property will be obtained by Owner prior to award of contract.

1. Extent of work on adjacent property is indicated on Drawings.

E. **Salvable Improvements:** Carefully remove items indicated to be salvaged (to remain property of Owner), and store on Owner's premises where indicated or directed.

2.00 PRODUCTS (Not Applicable)

3.00 EXECUTION

3.01 SITE CLEARING

A. **General:** Remove trees, shrubs, grass and other vegetation, improvements, or obstructions as required to permit installation of new construction. Remove similar items elsewhere on site or premises as specifically indicated. "Removal" includes digging out and oft-site disposing of stumps and roots or other material.

1. Cut minor roots and branches of trees indicated to remain in a clean and careful manner, where such roots and branches obstruct installation of new construction.

B. **Topsoil:** Topsoil is defined as friable clay loam surface soil found in a depth of not less than 4 inches. Satisfactory topsoil is reasonably free of subsoil, clay lumps, stones, and

other objects over 2 inches in diameter, and without weeds, roots, and other objectionable material.

1. Strip topsoil to whatever depths encountered in a manner to prevent intermingling with underlying subsoil or other objectionable material.

2. Stockpile suitable topsoil in storage piles in areas indicated or directed. Construct storage piles to provide free drainage of surface water. Cover storage piles, if required, to prevent wind erosion.

3. Dispose of unsuitable or excess topsoil same as specified for disposal of waste material, or use for fill if approved by Architect or Soils Engineer.

C. **Clearing and Grubbing:** Clear site of trees, shrubs and other vegetation, except for those indicated to be left standing.

1. Completely remove stumps, roots, and other debris protruding through ground surface.

2. Use only hand methods for grubbing inside drip line of trees indicated to remain.

3. Fill depressions caused by clearing and grubbing operations with satisfactory soil material, unless further excavation or earthwork is indicated.

D. Removal of Improvements: Remove existing above-grade and below-grade improvements as indicated and as necessary to facilitate new construction.

1. Abandonment or removal of certain underground pipe or conduits may be indicated on civil, plumbing, mechanical or electrical drawings. Removal of abandoned underground piping or conduit is included under this Section.

2. Back-filling of underground trenches resulting from removal of piping or conduits shall be completed as follows per specification section 31 23 33.

3.02 DISPOSAL OF WASTE MATERIALS

A. Burning on Owner's Property: Burning is not permitted on Owner's property.

B. Removal from Owner's Property: Remove waste materials and unsuitable or excess topsoil from Owner's property, except as otherwise noted.

END OF SECTION 31 10 00

SECTION 32 12 16
ASPHALT CONCRETE PAVING

1.00 GENERAL

1.01 DESCRIPTION

A. Principal work in this Section:

1. Aggregate base material.

2. Prime coating.

3. Paint binder as required herein.

4. Asphalt concrete.

5. Seal coat.

B. Related work in other Sections:

1. Earthwork: Section 31 00 00.

2. Pavement marking and accessories: Section 32 17 23.

1.02 QUALITY ASSURANCE

A. Reference standards: Applicable provisions of the following govern the work of this Section.

1. American Association of State Highway and Transportation Officials (AASHTO), M 288-96 or Latest Version Thereof.

2. California Department of Transportation (CDT).
   a. Standard Specifications: Sections 26, 37, 39, 92, 93, and 94.

   b. Standard Test Method No. 399A.

B. All work in this Section shall conform to Sections 26, 37, 92, 93, and 94 of the Standard Specifications (CDT).

1.03 SUBMITTALS

A. Certificates: Submit the following:

1. Two copies of material certificates signed by the material producer and the Contractor, certifying that each material item complies with, or exceeds specified requirements.

2. Certified weight or load slip to the Owner's representative for each load of material used in the construction of the asphalt concrete pavement.

1.04 SITE CONDITIONS

A. Prime coat, seal coat and paint binder.

1. Apply only when the ambient temperature is above 50°F and when temperature has not been below 30°F for 12 hours immediately prior to application.

2. Do not apply when base or surfaces are wet or contain an excess of moisture.

B. Construct asphalt concrete surface course only when atmospheric temperature is above 40°F and when base is dry.

2.00 PRODUCTS

2.01 AGGREGATE BASE

A. Class 2 aggregate base, three quarter inch (¾") maximum size, as specified in Section 26 of the CDT Standard Specifications.

B. Mineral aggregate shall be Type B mineral aggregate as specified in Section 39 of the CDT Standard Specifications.

C. Grading of combined aggregates for new pavement shall be ½" maximum size, medium grading, except asphaltic concrete for overlaying existing paved surfaces shall be 3/8" maximum size.

D. Liquid asphalt for prime coat: Grade SC-70 in conformance with Section 93 of the CDT Standard Specifications.

E. Asphaltic emulsion for paint binder and fog seal coat: Emulsified asphalt, Type SS-1h, conforming to Section 94 of the CDT Standard Specifications.

3.00 EXECUTION

3.01 PREPARATION

A. Subgrade: The upper 12" of subgrade shall be compacted to 90% per Section 31 00 00 of these Specifications.

B. Crack sealing:

1. Before sealing, cracks shall be cleared of dirt, dust, soil vegetation debris, and other deleterious materials by means of air blowing to a depth of ¼" to ½".

2. Cracks 1/8" in width and greater in existing AC paving to be overlaid and shall be sealed.

3. Applications of crack sealer shall be in accordance with the manufacturer's recommendations or as directed by the Owner's representative.

3.02 AGGREGATE BASE

A. Place, spread and compact in conformance with Section 26 of the CDT Standard Specifications.

3.03 ASPHALT CONCRETE PAVING

A. Proportion, mix, place, spread and compact in conformance with Section 39 of the CDT Standard Specifications.

B. Before placing asphalt concrete on untreated base, apply liquid asphalt prime coat to base course in conformance with Section 39 of the CalTrans Standard Specifications. Apply prime coat at the rate of 0.25 gallons per square yard.

C. Before placing asphalt concrete, apply an asphalt emulsion tack coat (paint binder) to vertical surfaces of existing pavement, curbs, gutters, construction joints and existing pavement to be surfaced, in conformance with Section 39 of the CDT Standard Specifications.

D. Spread and compact asphalt concrete in accordance with Section 39 of CDT Standard Specifications.

E. Apply seal coat to all finished surfaces of asphalt concrete pavement in accordance with Section 37 of the CDT Standard Specifications.

F. After seal coat has been applied, allow ample time for drying before traffic is allowed on the pavement or paint striping is applied.

3.04 FIELD QUALITY CONTROL

A. Aggregate Base: The surface of finished aggregate base shall vary no more than 0.05' above or below the grade indicated.

B. Asphalt Concrete Paving:

1. The finished asphalt pavement, where not controlled by adjacent structures or features, shall not vary more than 0.05 feet above or below the planned grade, providing it is uniform and free of sharp breaks and does not pond water.

2. The cross section of the finished pavement shall be free of ridges and valleys and shall not vary more than 0.03' above or below the theoretical section at any point on the cross section.

3. The specified thickness of the finished pavement shall be the minimum acceptable.

4. Conforms shall form a smooth, pond free, transition between existing and new pavement.

END OF SECTION 32 12 16

SECTION 32 13 13
SITE CAST-IN-PLACE CONCRETE

1.00 GENERAL

1.01 DESCRIPTION

A. Principal work in this Section:

1. Site Cast-in-place concrete.

B. Related work in other Sections:

1. Earthwork: Section 31 00 00.

1.02 QUALITY ASSURANCE

A. Reference standards: Applicable provisions of the following govern the work of this Section.

1. ACI 301, Specifications for Structural Concrete for Buildings.

2. ACI302, Recommended Practice for Concrete Floor and Slab Construction.

3. ACI 304, Recommended Practice for Measuring, Mixing, Transporting and Placing Concrete.

4. ACI 305, Recommended Practice for Hot Weather Concreting.

5. ACI 306, Recommended Practice for Cold Weather Concreting.

B. Source quality control:

1. Employ a testing laboratory, acceptable to the Owner, and Engineer, to test the materials for conformance with these Specifications before concrete mixes are established, and when source is changed, unless recent test results of materials to be used on the Project, performed by an acceptable testing laboratory, are accepted by the Engineer.

2. Testing coarse aggregates:

a. Test aggregate before and after concrete mix is established and whenever the character source of material is changed, but not less than one test for each 50 cubic yards.

b. Perform a sieve analysis to determine conformity with limits of gradation. Perform sampling and testing according to ASTM C33, and as follows:

1) Sampling of aggregates: ASTM D75. Take samples of aggregates at source of supply, or if source of supply has been approved, from storage bunkers at ready- mixed concrete plant.

2) Testing of aggregates shall include:

a) Sieve analysis: ASTM C136.

b) Organic impurities: ASTM C40. Fine aggregate shall develop a color not darker than the referenced standard color.

c) Soundness: ASTM C88. Loss after 5 cycles not over 8% for coarse aggregate, nor 10% for fine aggregate.

d) Abrasion of concrete aggregate: ASTM C131. Weight loss not over 10-1/2% after 100 revolutions, nor 42% after 500 revolutions.

e) Deleterious materials: ASTM C33.

f) Materials passing No. 200 sieve: ASTM C117, not over 1% for gravel, 1.5% for crushed aggregate per ASTM C33.

g) Reactive materials: ASTM C289. aggregates shall indicate no potential deleterious reactivity.

h) Definitions: ASTM C125.

3. Cement test:

a. The cement mill laboratory will be acceptable as testing laboratory for this purpose when approved by the Building Department. Submit evidence to show that the cement mill laboratory is qualified to perform tests. The laboratory shall make tests for every 500 barrels or fraction thereof for of cement used in accordance with ASTM C150.

b. Make tensile strength test at 7 days. Tag the cement for identification at the location of sampling. A representative of the Testing Laboratory shall certify that materials being used are taken from the lots sampled and tested for this report.

2.00 PRODUCTS

2.01 MATERIALS

A. Portland cement: ASTM C150, Type I or II low alkali with air entrainment as required. Do not change brand or type of cement without Engineer's written approval.

B. Aggregates:

1. Hardrock aggregates: ASTM C33 graded so that coarse aggregates nominal size is not larger than 1/5 the narrowest dimensions between form faces; nor 3/4 of the minimum clear spacing between individual reinforcing bars or bundles of bars, but never greater than 3/4" in any dimension for slabs 4" thick or less; 1-1/2" at all other locations.

C. Admixtures: ASTM C494, Type A, admixtures shall contain no chlorides and may be used only with the Engineers approval, except as specified. Submit manufacturer's data for products proposed for use to the Engineer.

D. Pozzolanic Fly Ash: ASTM C618, Class F.

E. Water: Fresh, clean, and free of oil and other materials injurious to concrete.

F. Concrete curing compound:

1. Liquid membrane-curing compound containing a fugitive dye, conforming to ASTM C309, Type I, guaranteed not to affect the bond, adhesion, or effectiveness of finishes and surface treatment specified herein to be applied to concrete.

G. Expansion joint materials:

1. Joint filler: Homex Expansion Joint by Homasote Co. or equal non-bituminous product compatible with sealant specified in Section 07 90 00 per ASTM D 1751.

2. Joint sealant and back-up rod: As specified in Section 07 90 00.

H. Dry pack and grout: One of the following or equal.

1. Masterflow 713 by Master Builders.

2. Five Star Grout by U.S. Grout Corporation.

3. Fondag Nonshrink Grout by Specrete Products, Ltd.

I. Aggregate Base: Class 2 aggregate base, three quarter inch (¾") maximum size, as specified in Section 26 of the CalTrans Standard Specifications.

2.02 MIXES

A. Mix design:

1. Employ a testing laboratory, acceptable to the Owner's Representative, to design all structural concrete mixes required for the Project to provide:

a. Normal weight concrete with 3000 psi 28-day compressive strength, unless noted otherwise on the Drawings.

b. Adequate workability and proper consistency to permit concrete to be worked readily into the forms and around reinforcement without segregation and excessive bleeding.

c. Other requirements of these Specifications.

2. Proper proportions for design mixes shall be in accordance with ACI 211 or ACI 318.

3. Proper water-cement ratio shall be determined by the preliminary test made in accordance with ASTM C192.

4. Slump limits: Proportion and design mixes to result in the following concrete slump at point of placement.

a. Tieback anchors: Not more than 7".

b. Piers: Not less than 4" and not more than 6".

c. All other concrete: Not less than 1" and not more than 4".

5. Use air-entering admixture in all concrete, unless otherwise shown or specified. Add air-entering admixture at manufacturer's prescribed rate to result in concrete at point of placement having air content within 3% to 6%.

6. Tests shall be conducted in accordance with ASTM C39.

B. Submit report showing results of sieve analysis, mix design and results of compression tests. Make test specimens from not less than 3 batches of each design specimens from not less than 3 batches of each design mix. The trial batch strength for each mix shall exceed indicated f'c by 25% or a lesser amount based on standard deviations of strength test records according to ACI 318. Do not start concrete production until mixes have been reviewed and are acceptable to the Engineer.

C. For each batch, weigh the fine and coarse aggregate separately, measure cement and water separately and introduce separately into the mix so that proportions can be accurately controlled and easily checked.

D. Do not change proportions established by the accepted mix design without the Engineer's written approval.

1. Cement: If concrete develops less than required minimum strength, adjust mix proportions and increase the amount of cement, as necessary.

2. Water: Do not exceed predetermined amount of water because of slowness of discharge from mixer necessary to produce concrete that will work readily into corners and angles of forms and around reinforcements, without segregation of materials and without free water collecting on the surface.

3. Aggregates: Reasonable variations in grading will be allowed by the Engineer because of characteristics of available materials and the need for workability and strength.

E. Concrete mixing:

1. Mixing and delivery shall comply with ASTM C94, these Specifications, and applicable Building Code requirements. If the referenced specifications, these Specifications or the Building Code conflict, comply with the most restrictive requirement.

2. The Owner's Testing Agency will perform check sieve analysis of the aggregates being used, check compliance with mix design and the cement being used against mix design; check that water has been removed from the drum before adding mix ingredients for the following load and shall witness the loading of mixing trucks. The Owner's Testing Agency will send a written report of each inspection to Engineer indicating compliance with these Specifications.

3. Provide a ticket signed by an authorized representative of the batching plant with each mixer truck of concrete delivered to the site indicating:

Name of Project.
Date of Delivery
Supplier of Concrete.
Brand of Cement.
Truck Identity and
Cement Content.
Ticket Serial Number.
Strength Classification.
Batching Time.
Admixture Content.
Point of Deposit.
Name of Contractor.
Total Amount of Water.
Water Added at Jobsite.
Name of Driver.
Weight of Aggregate.
Time loaded and First
Daily Temperature
Mixing Concrete.
Number of Cubic Yards

Reading of Revolution in Load.

4. Store batch tickets at time concrete is delivered in job file for reference at the site.

5. Remove all materials, including water, remaining in the ready-mix truck drum completely before ingredients for the following loads are introduced into the drum.

6. Retempered concrete: Do not use concrete which has not been placed 30 minutes after leaving the mixer, or concrete that is not placed within 60 minutes after water is introduced into the mix.

3.00 EXECUTION

3.01 PREPARATION

A. Inspect excavations, subgrades and formwork, as applicable for each placing operation, for accuracy of lines, levels, elevations and dimensions. Make necessary corrections to obtain concrete within the tolerances specified.

B. Inspect placement of reinforcement and accessories for proper positions, sizes, clearances, fastenings, laps and splices.

C. Moisten, do not saturate, earth subgrade and bearing surfaces. Moisten the sand base under slabs-on-grade the day before concrete is to be cast thereon.

D. Wet wood forms thoroughly when they are not treated with form release agent. Wet other materials sufficiently to reduce suction and maintain concrete workability.

E. Recompact disturbed gravel fill and install vapor barrier under building slabs on grade. Lap joints 4". Lap on walls 2". Cut patches at penetrations for a tight fit. Tape all joints to make moisture tight. Cover vapor barrier with a minimum of 2" of damp concrete sand.

F. Embedded items including, but not limited to, conduits, anchors and rough hardware, built into concrete as indicated or required.

1. Do not embed piping and conduits, other than electrical conduits, in structural concrete. Locate conduits so as to reduce strength of the structure the least amount, as approved by the Engineer, and as indicated on the Drawings.

2. Embed bolts, inserts and other items in the concrete, accurately secured so that they are not displaced during concrete placing and compacting operations.

3. Set embedded bolts for materials and equipment attached to concrete to template, layouts and shop drawings. Verify size, length and location of electric conduit with respect to equipment supports.

G. Do not proceed with placement of concrete until all conditions are satisfactory.

3.02 CONVEYING

A. Rapid handling: Transport concrete from the mixer to location of placing as rapidly as practical to avoid separation or loss of ingredients.

B. Transporting methods: Use cranes, carts, buggies or other approved means to deliver concrete to final locations. Do not use delivery systems (pipe, chutes, etc.) formed of aluminum for transporting concrete. If pumping of concrete is contemplated, first obtain Engineer's approval for the design mix and the placement method before placing concrete.

C. Free fall: Not more than 4 ft. in concrete which will remain exposed in the Work; no more than 6 ft. elsewhere. Avoid large concentration of concrete in one location which would produce unacceptable deflection in supporting formwork or on one side of steel soldier beam.

D. Lifts: No more than 2 ft. high.

E. Concrete flow: Carry concrete up uniformly for the length of walls being placed to reduce lateral flow of concrete to 5 ft. maximum.

F. Runways: Construct substantial runways and scaffolding to avoid movement and vibration in the forms and rein- forcing steel as a result of transporting and placing concrete.

3.03 PLACING

A. General: Comply with ACI 304. Do not place concrete in or under water.

B. Consolidation: Thoroughly consolidate concrete and work it around reinforcement and embedded items and into corners and angles of forms, by spading, rodding and tamping to exclude rock pockets, air bubbles and "honeycombs" and to obtain required density and strength.

C. Internal vibration:

1. Use mechanical vibrators to consolidate each layer with that previously placed, to completely consolidate the concrete in forms. Take care to avoid over-vibration, causing separation of ingredients. Keep extra standby vibrator at the site.

2. Vibration of pier concrete below grade is not required.

D. Flow of concrete: Keep surface of concrete level during placing, with a minimum of concrete allowed to flow from one position to another. Place concrete in a continuous operation until each section or panel has been completed.

E. Record: Keep records showing location, date and time of placement of all concrete batches.

F. Temperature: Do not place concrete when the ambient temperature is above +85□°F or below +40°F. at the time of placing, or if it is likely to go above +85□°F or below +40°F before the concrete has taken its initial set, unless special precautions recommended by ACI 305 and 306 are provided.

G. Construction joints:

1. Location:

a. Locate construction joints where indicated. When not shown, submit layout showing location of construction joints and placing procedure, for the Engineer's approval, before placing concrete.

b. Locate construction joints to least impair the strength and appearance of structure.

c. Off-set construction joints not less than 5 ft. with a minimum of 2 offsets.

2. Joints in channels: Locate as detailed on the Drawings.

3. Contact surfaces: Keep exposed face of construction joints continuously moist from time of initial set until subsequent placing of concrete against them, but not to exceed the curing period.

a. Clean contact surfaces thoroughly by chipping entire surface not earlier than 5 days after initial placing.

b. As an option, jet wash or sandblast the surface to expose clean aggregate solidly embedded in the mortar matrix; remove wash water entirely from surface.

c. If a contact surface becomes coated with foreign materials of any nature, after being cleaned, chip or rechip the surface completely, to suitable condition.

H. Tolerances: In compliance with ACI 117 as follows.

1. Paragraph 2.1, except for reference to slip-forming.

2. Paragraph 2.2, Class AX.

3. Paragraph 3.6.

3.04 FINISHING

A. Formed concrete surfaces:

1. General:

a. Remove fins, laitance and loose material from concrete surfaces when forms are removed.

b. Repair concrete honeycombs, rock pockets, sand runs, spalls, or otherwise damaged surfaces by removing the damaged or unsatisfactory area to sound concrete, with slightly undercut edges, and filling-in with the same mix as the adjacent concrete minus the coarse aggregate.

c. Tamp and float the patch flush with adjacent surface.

2. Shotcrete walls: Provide a "rubbed finish" as defined in ACI 301 to produce a uniform surface by float trowel or rub board immediately after shotcrete is applied.

3. Clean surface of pier cast below grade by sandblasting. Apply a sand-cement mortar, trowel and rub to match shotcrete finish.

B. Top of grade beams, footings and pier caps: Screed to elevations indicated.

C. Channels:

1. Protection: Protect exposed flatwork as necessary to prevent damage resulting from impact or from subsequent work.

a. Protect work of other trades from damage by covering it with heavy kraft paper securely taped in place. Leave protection in place as long as its need exists.

b. Control the use of water and other contaminants within the area so that no damage to previously installed work or existing structure and finish occurs.

2. Compacting and floating:

a. Bring channels to proper elevations and strike off with a straightedge. Remove excess water and laitance.

1) Compact by rolling with weighted rollers or by tamping with grid tampers. Thoroughly hand-tamp areas not accessible to rollers.

2) Float and test surfaces with a 10 ft. straightedge and eliminate high and low spots to comply with tolerances specified.

3) From this point, use the methods and tools necessary to produce surface tolerances and finishes specified.

b. Use screeds to type and spacing required to produce specified channel tolerance.

3. Moisture control: In addition to other finishing requirements, use a water fog spray to reduce plastic shrinkage cracks during flatwork finishing operations when conditions of low humidity and/or high temperature exist.

a. Immediately after concrete has been brought to a flat surface and the shiny film of moisture disappears, restore it and maintain until final troweling by applying a light film of moisture with an atomizing type fog sprayer.

b. Use frequent light applications of moisture rather than excessive amounts at any one time. Adjust the amount and refrequency of fog spray as required by variable conditions of weather, wind, temperature and humidity.

4. General requirements:

a. Finish surfaces to produce a uniform appearance throughout area involved and throughout adjacent areas with the same treatment.

b. Where concrete finishing occurs adjacent to finished metal or other surfaces, particularly where serrated or indented surfaces before allowing to harden.

c. Use no troweling machines within 12" of electrical junction and outlet boxes which are set to finish flush with concrete floors. Float and trowel such areas by hand with wood floats and steel trowels, taking care to see that concrete is finished flush with box cover and matches adjacent surfaces.

5. Schedule of finishes:

a. Float surfaces to produce a uniform broom sweep texture and finish throughout.

b. Provide an equivalent of a medium salted finish along concrete surfaces at slopes of less than 6%.

c. Provide an equivalent of a heavy broom slip resistant finish along concrete surfaces at slopes of 6% and greater.

D. Curbs: Immediately after removing forms, finish faces and top with a steel trowel.

3.05 CURING

A. Formed concrete:

1. Wet the tops and exposed portions of formed concrete and keep moist until forms are removed.

2. If forms are removed before 14 days after concrete is cast, coat concrete with curing compound as specified for flatwork below.

B. Concrete flatwork:

1. After finishing, spray the specified curing compound uniformly in 2 coats at 90 ☐ to each other not exceeding coverage rates recommended by the manufacturer.

2. Inspect treated surfaces daily for 14 days for evidence of drying. Re-wet the surfaces and apply a new application of curing compound if premature drying occurs, as soon as can be done after finishing without marring the surfaces.

C. Pits, trenches and curbs: Construct pits for transformers, sumps, valves, trenches, curbs, gutters, and other miscellaneous concrete work.

D. Grouting and drypacking: Install as indicated and required, except for items grouted by other trades.

1. Mix material, in accordance with its manufacturer's instructions, with sufficient water so it flows under its own weight for grout, and to just moisten and bind the materials together for drypack.

2. Place drypack by forcing and rodding to fill all voids and provide complete bearing under plates. Place fluid grout from one side only and puddle to completely fill voids; do not remove dams or forms until grout attains initial set. Finish exposed surfaces smooth, and damp cure at least 3 days.

E. Splash block: Precast in tight molds, to the dimensions and profiles indicated. Use a mix with coarse aggregates passing 3/8" sieve to obtain a compressive strength of 3,500 psi minimum at 28 days. Steel trowel unformed surface.

3.06 PROTECTING AND CLEARING

A. Protect finished surfaces from stains or abrasions. Do not allow fire in direct contact with concrete. Provide adequate protection against injurious action by sun or wind. Protect fresh concrete from heavy rain and mechanical injury.

B. Upon completion, wash and clean exposed concrete and leave free of oil, paint, plaster and foreign substances, ready to receive applied finishes or to be left exposed.

3.07 DEFECTIVE CONCRETE

A. Concrete finishes which are not within the specified tolerances nor finished as specified which do not connect properly to adjoining work, do not slope to drains or are not properly cured, or do not meet other provisions of the Specifications, will be deemed defective.

B. Remove defective concrete as directed by Engineer and replace with concrete of specified strength.

3.08 FIELD QUALITY CONTROL

A. Concrete quality control (refer also to Section 01 40 00): The following will be performed by the Owner's Testing Agency.

1. Samples will be taken during progress of the work for determination of slump, compression strength, aggregate sieve analysis, and grout-mix tests, with assistance furnished by the Contractor.

2. 3 cylinders will be made for each day's pour or for each 100 cubic yards or less, or once for each 5,000 square feet of surface area, whichever is less, for each type of concrete being cast.

3. 1 cylinder will be tested at 7 days, and 1 cylinder at 28 days. The remaining cylinder will be kept in reserve in case tests are unsatisfactory.

4. Samples will be made in accordance with ASTM C172.

5. Specimens will be made and laboratory cured in accordance with ASTM C31.

6. The 28-day values will be the criteria for acceptance of concrete regarding strength only.

a. 7-day tests may be regarded as indicative of compliance or non-compliance with the 28-day strength requirements, and the Contractor should be guided accordingly in matter of adjusting proportions, if necessary, and notify the Engineer.

b. 7-day tests shall also be a guide to the Contractor regarding time for form removal.

7. Slump tests will be made for each set of tests cylinders in accordance with ASTM C142.

B. Tests evaluation:

1. Concrete cylinder test will be evaluated in accordance with ACI 214 and 318.

2. If 28-day test results indicate the concrete strength is not as specified, core concrete as directed by the Engineer in accordance with ASTM C42.

   a. Plug core hole solid as specified in Article 3.04 of this Section.

   b. The cost of cores, tests and patching shall be borne by the Contractor.

3. In the event that additional core tests do not show strength required, or as determined by load tests made in accordance with ACI 318, the defective concrete shall be removed and replaced or shall be reinforced as directed by the Engineer at the Contractor's expense.

4. If core tests results fall below design strength specified, adjust the concrete mix or water content for future batches, at not additional cost to the Owner.

END OF SECTION 32 13 13

SECTION 32 17 23
PAVEMENT MARKING AND ACCESSORIES

1.00 DESCRIPTION

A. Principal work in this Section:

1. Stripes and pavement markings and removal of existing striping, if required.

B. Related work in other Sections:

1. Asphalt Concrete Paving: Section 32 12 16.

1.01 QUALITY ASSURANCE

A. Reference standards: Applicable provisions of the following govern the work of this Section as listed below:

1. California Department of Transportation (CDT)

a. Maintenance manual.

b. Standard Specifications: Sections 56, 82, 84, 85, 90, 91, 94 and 95.

c. Traffic manual: Chapters 4, 6, and 7.

B. Specifications, standards, tests and recommended methods cited herein from the following trade, industry and government organizations shall determine quantity and quality of materials and methods unless specifically designated otherwise.

1. The State of California Materials and Research Department.

2. The State of California Traffic Manual, latest edition.

3. The California Maintenance Manual, latest edition.

1.02 SUBMITTALS

A. Submit Product Data under 2.00 Products, certifying that each product complies with specified requirements.

2.00 PRODUCTS

2.01 TRAFFIC PAINT

A. Paint shall be a good quality traffic paint conforming to or exceeding the standards set forth by Section 84 “Traffic Stripes and Pavement Markings”. Common brands are Kelly Moore, Crown Products, Desoto and Ennis.

B. Paint shall be thoroughly mixed prior to placing in painting equipment.

3.00 EXECUTION

3.01 TRAFFIC PAINT AND GLASS BEADS

A. Types of traffic paint:

1. White:

   a. Solid 2" line: court striping.

2. Yellow:

   a. Solid 3" diameter circle: court striping.

B. Rates of application:

1. New surfaces shall have the traffic paint applied in two applications. The first or priming coat shall be in light applications without glass beads to seal the pavement. The second heavier coat of paint is the wearing surface and the rates of application are shown on Table 1.

2. Restriping where indicated on the drawings, shall coincide with the original painting and shall be applied in one application at the rates indicated in Table 1 (below).

3. Surfaces to be painted shall be clean and dry prior to painting. Allow ample time between the asphalt pavement seal coat and the initial painting application. Usually the drying time of the seal coat is approximately three to four days, depending upon weather conditions. There shall be a minimum drying time between paint applications of approximately 20 minutes.

4. Place glass beads on all traffic stripes and pavement markings except for the first or priming coat on new asphalt surfaces. Rates of application are shown in Table 1 below. Apply glass beads directly to the wet traffic paint with a method that provides uniform distribution. Do not apply glass beads to paint for parking stripes.

5. TABLE 1-Rates of Application

Solid Strip (4" Wide):	
New surface (1st coat)	12-14 gallons per mile or 1 gallon per 125-150 SF of line.
2nd coat or restriping	16-18 gallons per mile or 1 gallon per 100-110 SF of line.
Glass beads with 2nd coat	Approx. 110 lbs/mile or 6 lbs/gallon of paint.
Pavement Markings:	
New surface (1st coat)	Approx. 1 gallon per 200 SF of area.
2nd coat or restriping	1 gallon per 100 SF of area.
Glass beads with 2nd coat	6 lbs/gallon paint

6. Provide sufficient evidence to the Engineer that the quantity of paint specified has been applied to the job. Such evidence can be invoice tickets made out to the specific job, counting empty paint cans, or a method acceptable to the Architect.

7. Do not apply striping at temperatures below 40°F or if pavement surfaces are wet.

8. The alignment of striping shall be accurately laid out. Lines which do not conform to the alignment indicated, or which have a wavy appearance, shall be removed and replaced by the Contractor at his expense.

3.02 REMOVAL OF STRIPES

A. Remove existing stripes and pavement markings by sandblasting. Painting out black paint will not be allowed.

B. After removal of paint, apply fog seal coat of SS-1h emulsified asphalt per Section 94 of the ACDT Standard Specifications to asphalt surfaces affected by the removal operations. The fog seal coat must be given ample time to dry prior to the initial painting application.

END OF SECTION 32 17 23