

Pacific Grove Unified School District
435 Hillcrest Avenue, Pacific Grove, CA 93950
Pacific Grove High School Site Improvements
Notice to Bidders - Addendum 02

Addendum Date: 09/09/2026

Addendum by: Ausonio Incorporated/Brailsford & Dunlavey

Attn: All Bidders

You are hereby notified of the following Additions/Deletions/Revisions to the Project Manual/Specifications and Drawings for this project, identified as Addendum 02.

Addendum 02 documents shall take precedence over the bidding documents previously issued.

Bidders shall acknowledge receipt and inclusion of Addendum 02 on their Bid Proposal.

AD02-01: DSA Approved Plans, Specifications and 103

Approved versions of the DSA plans, specifications and DSA-103 form are part of this addendum.

AD02-02: Clarifications from bid walk

1. On concrete pour days, contractor to coordinate with District on use of lower Parking Lot A.
2. Parking is permitted in the back of parking lot of Forest Lodge Road.

AD02-03: Pre-bid questions

1. What is the engineer's estimate for the project?
The engineer's estimate is \$900,000.
2. What is the extent of fingerprinting required for this project?
See section 004547 "Fingerprinting Acknowledgment" for code information regarding fingerprinting.
3. Are the as-builts available?
The as-builts can be found at this link:
https://drive.google.com/file/d/1kQKydf0ojUhb_us4s_K7uH2dmJTP0aSK/view?usp=sharing

AD02-04: Bleacher Concrete work

Additional concrete work will be required at the bleachers, as indicated on Exhibit D.

AD02-05: Pedestrian sidewalks and gates

SOW for this project is pedestrian sidewalks and gates and locations indicated on Exhibit E. Vehicle fencing and gates already installed.

AD02-06: Bid walk agenda and sign-in sheet

See Exhibit F for bid walk agenda and sign-in sheet.

Attachments:

Exhibit A: DSA Approved Drawings

Exhibit B: DSA Approved Specifications

Exhibit C: DSA 103

Exhibit D: Bleacher concrete work

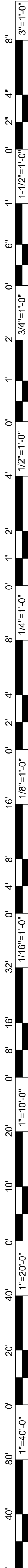
Exhibit E: Pedestrian sidewalks and gates

Exhibit F: Agenda and sign-in sheet.

[END OF ADDENDUM 02]

Autodesk Docs:125.054 PGUSD PGHS Site:25.054 PGUSD PGHS Site.rvt 7/22/2026 4:53:06 PM

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CONTRACTOR SHALL MAINTAIN FIRE DEPARTMENT ACCESS THROUGHOUT DEMOLITION AND CONSTRUCTION

COMPLIANCE WITH CHAPTER 33 (FIRE SAFETY DURING CONSTRUCTION AND DEMOLITION) AND CBC CHAPTER 33 (SAFETY DURING CONSTRUCTION) WILL BE ENFORCED.

-002 (E) REMOVABLE BOLLARD PER DSA #01-110348
-003 (E) EXTERIOR DOOR TO REMAIN LOCKED FOR STUDENTS & STAFFS
-009 ATTACH NON-EDUCATIONAL USE SIGNAGE TO THE BUILDING AT DOOR
ENTRANCES. SEE DETAIL 18/A1.23
-001 VEHICULAR PIPE GATES
-002 VEHICULAR BLACK VINYL CHAIN LINK FENCE & GATES
-004 TRANSITIONAL PAVEMENT TO PROPOSED COMPLIANT FIRE LANE

	AC PAVING, REFER TO CIVIL DRAWINGS
	CONCRETE PAVING, REFER TO CIVIL DRAWINGS
	(E) BUILDING - NOT IN SCOPE OF WORK
	PROPERTY LINE
	(E) FIRE LANE (DSA #01-110348)
	PROPOSED COMPLIANT FIRE LANE - PAVEMENT TO ACCOMMODATE FIRE APPARATUS PER CFC 503.2. SEE CIVIL DETAIL 4/C6.1 FOR ADD. INFO.
	(E) FIRE HYDRANT

DSA 810

FIRE & LIFE SAFETY SITE CONDITIONS SUBMITTAL

Division of the State Architect (DSA) documents referenced within this publication are available on the [DSA Forms](#) or [DSA Publications](#) webpages.

To facilitate the Division of the State Architect's (DSA) fire and life safety plan review of project site conditions, DSA requires the design professional to provide the following information at time of project submittal for project review. The information is required for all projects involving new construction of new buildings, additions to existing buildings, and for site alternate design means for fire department emergency vehicle access, and fire suppression water supply. Information associated with compliance items 1 through 3 below is to be provided for all project types indicated above. Information associated with items 4 through 7 is to be completed when an alternate means is utilized. The information associated with items 1 through 7 is required for all projects where the Local Fire Authority (LFA) is only required when an alternate design means is being requested.

The Project Information and Fire & Life Safety Information sections are to be completed for all projects and imaged onto the fire access site plan. When an alternate design/means is proposed, all sections on pages 1 and 2 are to be completed and imaged on the fire access site plan.

For additional information refer to the instructions at the end of this form and DSA Policy PL 09-01: *Fire Flow for Buildings*.

For additional information refer to the instructions at the end of this form and DSA Policy PL 09-01: Fire Flow for Buildings.

PROJECT INFORMATION			
School District/County: Pacific Grove Unified School District			
Project Name/School: Pacific Grove High School			
Project Address: 615 Sunset Drive, Pacific Grove, CA 93950			
FIRE & LIFE SAFETY INFORMATION			
1. Has a fire hydrant flow test been performed within the past 12 months? (If yes, provide a copy of the test data)	Yes ☐	No ☒	No ☒
2. Was the fire hydrant flow test performed as part of this LFA review?	Yes ☐	No ☒	
3. Is the project located within a designated fire hazard severity zone (FHZ) as established by CalFire? (If yes, indicate FHZ classification below)	Yes ☐	No ☒	
Refer to the following website for CalFire FHZ locations: (No additional information required)		Moderate ☐	
Wildland Interface Area (WIFA) (If designations are checked, project design must meet the requirements of CDR Chapter 40C)			WIFA ☐

DGS DSA 810 (revised 12/29/20) Page 1 of 4
 DIVISION OF THE STATE ARCHITECT DEPARTMENT OF GENERAL SERVICES STATE OF CALIFORNIA

DSA 810
FIRE & LIFE SAFETY SITE CONDITIONS SUBMITTAL

CONDITION MEANS AND METHODS RESOLUTION		ALTERNATE ACCEPTANCE			
		Yes	No	NA	NR
4.	Emergency vehicle access: roadways do not meet CFC requirements.			X	
4a.	Acceptable Alternates: Emergency vehicle and personnel access as proposed by the project architect is acceptable for providing fire suppression and protection of life and property.				
5.	Fire Hydrants: Number and spacing does not meet CFC requirements.				X
5a.	Acceptable Alternates: Number of fire hydrants and spacing as proposed by the project architect is acceptable for the suppression and protection of life and property.				
6.	Fire Hydrants: Water flow and pressure are less than CFC minimum.				X
6a.	Acceptable Alternates: The available flow and pressure is acceptable for providing the suppression and protection of life and property.				
7.	Location of the department connection(s) serving the sprinkler system or standpipe systems does not meet CFC requirements.				X
7a.	Acceptable Alternates: The location of the department connection serving the fire sprinkler system and/or standpipe system is acceptable for providing fire suppression and protection of the life and property.				

School District Acceptance of Acceptable Design Alternates

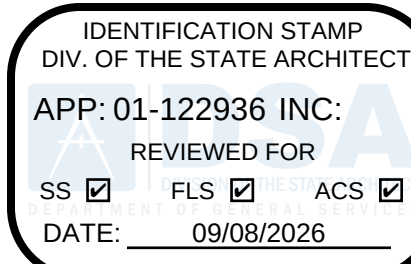
By signing this form, the school district acknowledges and accepts the proposed design as an alternative to California Building Code (CBC) and California Fire Code (CFC) minimum requirements, as indicated by one or more of the condition indicated at items 4a, 5a, 6a or 7a, for providing fire and life safety protection of life and property.

Accepted by: _____ Title: _____

LOCAL FIRE AUTHORITY (LFA) INFORMATION	
LFA Agency Name:	
LFA Review Official:	
Title:	Work Phone:
Work Email:	

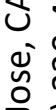
LEA Reviewer's Signature: _____ Date: _____

DGS DSA 810 (revised 12/29/20) DEPARTMENT OF GENERAL SERVICES Page 2 of 4
 DIVISION OF THE STATE ARCHITECT STATE OF CALIFORNIA



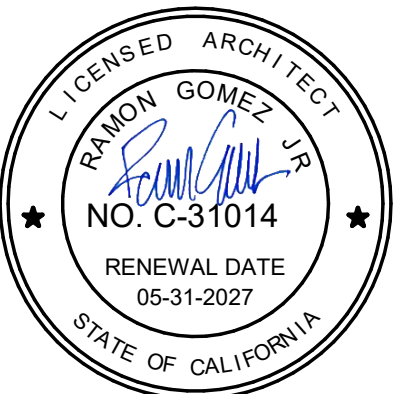
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Professional Seals



FIC GROVE UNIFIED SCHOOL DISTRICT

PACIFIC GROVE HIGH SCHOOL

SITE IMPROVEMENTS

615 SUNSET DR.
PACIFIC GROVE, CA 93950

SHEET TITLE:

FIRE LIFE SAFETY PLAN

[illegible]

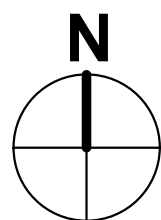
PROJECT #
25.054

ISSUE DATE
07/22/2026

SHEET #

A0.10

SCALE: 1" = 80'-0"



BUILDING ID	BUILDING DESCRIPTION	DSA APPLICATION #	SQUARE FOOTAGE	CONSTRUCTION TYPE	OCC.
A	ADMINISTRATION	12825, 01-103749, 01-103438	5,257 S.F.	V-B	E-1
B	CLASSROOMS	12825, 01-103749	5,280 S.F.	V-B	E-1
C	CLASSROOMS	13581, 01-103749, 01-103438	5,280 S.F.	V-B	E-1
D	CLASSROOMS	20015, 01-103749, 01-103438	5,280 S.F.	V-B	E-1
E	CLASSROOMS	12825, 20015, 103749, 01-103438	4,280 S.F.	V-B	E-1
F	CLASSROOMS	13581, 20015, 01-103749, 01-103438	4,200 S.F.	V-B	E-1
G	STORAGE - BASEMENT	20647, 01-103749, 01-103438	2,539 S.F.	V-B	E-1
H	LIBRARY - MAIN FLOOR	20647, 01-103749, 01-103438	7,445 S.F.	V-B	E-1
J	CLASSROOMS	20015, 01-103749	4,350 S.F.	V-B	E-1
I	PORTABLE	55482, 01-103749	960 S.F.	V-B	E-1
K+L	CLASSROOMS	22873, 01-103749	6,428 S.F.	V-B	E-1
M	CAFETERIA & ASSEMBLY	22873, 01-103749, 01-103438	11,938 S.F.	V-B	A-2, E-1
N	CLASSROOMS	22873, 01-103749, 01-103438	5,015 S.F.	V-B	E-1
O	CLASSROOMS	12825, 01-103749, 01-103438	5,946 S.F.	V-B	E-1
P	BOYS/GIRLS LOCKERS	16435, 20015, 01-103749, 01-103438	4,622 S.F.	V-B	E-1
Q	GYM/FITNESS ROOM	22873, 01-103749, 01-105051, 01-110348	13,322 S.F.	V-A	A-3
R	DAY ROOM	01-110348	3,070 S.F.	V-A	A-4
S	SPRINTCY GYMNASIUM	01-110348	5,163 S.F.	V-B	A-4
T	TICKETS	01-109277	96 S.F.	V-B	B
U	FIELD HOUSE	01-109277	2,496 S.F.	V-B	E-1
V	STORAGE	UNKNOWN	960 S.F.	UNK	UNK
W	CONCESSIONS/TOILETS	01-109277	1,695 S.F.	V-B	E-1
X	POOL EQUIPMENT	01-112909	590 S.F.	V-B	E-1

A. THIS SITE PLAN IS PROVIDED TO SHOW THE EXTENT OF THE SCHOOL PROPERTY AND ESTABLISH THE GENERAL AREA OF WORK ONLY. REFER TO LARGER SCALE DRAWINGS FOR DETAILED SCOPE OF WORK.

B. BOUNDARY OR PROPERTY LINES SHOWN ON THIS PLAN ARE FOR REFERENCE ONLY AND SHOULD NOT BE USED FOR HORIZONTAL CONTROL OR ONSITE CONSTRUCTION LOCATING

C. ONLY ACCESSIBILITY PATH OF TRAVEL IDENTIFIED IN THESE CONSTRUCTION DOCUMENTS HAS BEEN EVALUATED TO BE COMPLIANT WITH THE CURRENT APPLICABLE CALIFORNIA BUILDING CODE ACCESSIBILITY PROVISIONS. COMPLIANCE OF PATHS OTHER THAN THOSE INDICATED HEREIN IS NEITHER CONFIRMED OR IMPLIED

D.A. PATH OF TRAVEL IS INDICATED ON PLAN IS A BARRIER FREE ACCESS WITHOUT ANY ABRUPT LEVEL CHANGES EXCEEDING 1/2" BEVEL AT 1:2 MAXIMUM SLOPE OR VERTICAL LEVEL CHANGES NOT EXCEEDING 1/4" MAXIMUM AND AT LEAST 48" WIDE. SURFACE IS SLIP RESISTANT, STABLE, FIRM, AND SMOOTH. CROSS SLOPE DOES NOT EXCEED 2% AND SLOPE IN THE DIRECTION OF TRAVEL IS LESS THAN 5%. ALL OBSTRUCTIONS TO THE PATH OF TRAVEL SHALL BE 18" OR LESS IN HEIGHT AND BE FREE OF OVERHANGING OBSTRUCTIONS TO 80" MINIMUM HEIGHT AND "PROTRUDING OBJECTS GREATER THAN 4" PROJECTION FROM WALL ABOVE 27" AND BELOW 80". ARCHITECT SHALL VERIFY THAT THERE ARE NO BARRIERS IN THE PATH OF TRAVEL.

[illegible]

LEGEND

	AC PAVING, REFER TO CIVIL DRAWINGS
	CONCRETE PAVING, REFER TO CIVIL DRAWINGS
	(E) BUILDING - NOT IN SCOPE OF WORK
	(E) LANDSCAPE
	(E) PROPERTY LINE
	(E) ACCESSIBLE PATH OF TRAVEL PER DSA #01-112909
	PROPOSED ACCESSIBLE PATH OF TRAVEL

EXISTING PARKING LOT 1	
TOTAL PARKING SPACES	112
ACCESSIBLE SPACES REQUIRED (STANDARD+VAN)	5 (1 VAN MIN.)
STANDARD ACCESSIBLE SPACES PROVIDED	4
VAN ACCESSIBLE SPACES PROVIDED	1
TOTAL ACCESSIBLE SPACES PROVIDED (STANDARD+VAN)	5

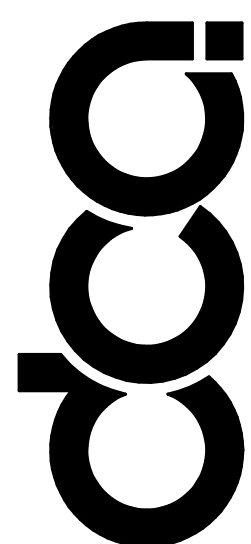
EXISTING PARKING LOT 2	
TOTAL PARKING SPACES	109
ACCESSIBLE SPACES REQUIRED (STANDARD+VAN)	5 (1 VAN MIN.)
STANDARD ACCESSIBLE SPACES PROVIDED	3
VAN ACCESSIBLE SPACES PROVIDED	2
TOTAL ACCESSIBLE SPACES PROVIDED (STANDARD+VAN)	5

EXISTING PARKING LOT 3	
TOTAL PARKING SPACES	4
ACCESSIBLE SPACES REQUIRED (STANDARD+VAN)	1 (1 VAN MIN.)
STANDARD ACCESSIBLE SPACES PROVIDED	1
VAN ACCESSIBLE SPACES PROVIDED	1
TOTAL ACCESSIBLE SPACES PROVIDED (STANDARD+VAN)	2

EXSISTING PARKING LOT 4	
TOTAL PARKING SPACES	14
ACCESSIBLE SPACES REQUIRED (STANDARD+VAN)	2 (1 VAN MIN.)
STANDARD ACCESSIBLE SPACES PROVIDED	1
VAN ACCESSIBLE SPACES PROVIDED	1
TOTAL ACCESSIBLE SPACES PROVIDED (STANDARD+VAN)	2

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Professional Seals



PACIFIC GROVE UNIFIED SCHOOL DISTRICT

615 SUNSET DR.
PACIFIC GROVE, CA 93950

SHEET TITLE:

ACCESS COMPLIANCE PLAN

[illegible]

PROJECT #

25.054

ISSUE DATE:

SHEET #

A0.11

M:\262 - Pacific Grove HS\DWG\3262_C01_NL.dwg 05:46:48 PM 7/21/26 MianKC Construction Contractor agrees that in accordance with generally accepted construction practices, construction contractor will be required to assume sole and complete responsibility for job site conditions during the course of construction of the project including safety of all persons and property, that this requirement shall be made to apply continuously and not be limited to normal working hours, and construction contractor further agrees to defend, indemnify and hold design professional harmless from any and all liability, real or alleged in connection with the performance of work on this project, excepting liability arising from the sole negligence of design professional.

GENERAL NOTES

1. All work shall be done in accordance with the following:
- a) Applicable sections of the State of California Department of Transportation Standard Specifications, latest edition, hereinafter called "Caltrans";
 - b) California Plumbing Code and California Building Code Provisions;
 - c) AWWA standards and specifications;
 - d) City of Pacific Grove Standard Details and Specifications where applicable;
 - e) These plans and details shown hereon;
 - f) Standards of the United States Department of Labor, Occupational Safety and Health Administration, Office of Standards and rules of the State Division of Industrial Safety;
 - g) Latest edition of the California State Code of Regulations Title 24.
 - h) The Project Specifications

Where conflicts exist between any of the above listed specifications, the most stringent listed specification shall prevail.

2. It is the responsibility of the Contractor to secure all permits necessary to perform the work, including but not limited to, work in the public right-of-way, grading, tree removal, and utility modifications.

3. Contractor shall supply all equipment, labor, and materials necessary to perform the work shown on this plan.

4. It shall be the responsibility of the various contractors to coordinate their work so as to eliminate conflicts and work toward the general good and completion of the entire project.

5. All workmanship and materials furnished by Contractor shall be of the kind and quality described in the specifications and shall be first class throughout. Neither final acceptance nor final payment by Owner shall relieve the Contractor of responsibility for faulty materials or workmanship.

6. In the event of any conflict of information shown in these plans or any conflict between these plans and the intent of a consistent and functional product, the Contractor shall so notify the Owner in writing, upon which notice the Owner shall resolve the conflict by the issuance of a written order, revised plans or both. The Contractor shall bear full cost and responsibility for work affected by such conflicts and performed by Contractor prior to such notice to the Owner and issuance of such order and/or revised plans.

7. Contractor shall provide adequate dust control at all times as required by Owner's representative.

8. Contractor shall exercise all necessary caution to avoid damage to any existing trees, or surface improvements, or to any existing drainage structure, water structures, sewer cleanouts, manholes, or junction boxes for underground electric, telephone, or cable TV, or storm sewer, sanitary sewer, water line, and underground utilities, which are to remain in place and shall bear full responsibility for any damage thereto. Contractor is advised to Contact Underground Service Alert (USA) at (800) 642-2444 or a private Underground Locator Service (at contractor's expense) and the affected utility company for marking underground lines prior to beginning work.

9. All known existing utility lines are shown for information only. Contractor shall exercise all necessary caution to avoid damage to any existing utility lines or facilities to remain in place, whether or not such lines or facilities are shown on these plans, and shall bear full responsibility for any damage thereto. Contractor is advised to Contact Underground Service Alert (USA) at (800) 642-2444 or a private Underground Locator Service (at contractor's expense) and the affected utility company for marking underground lines prior to beginning work.

10. Inspection of work: The City of Pacific Grove Public Works Department will inspect all work involving conformance to encroachment permit. A representative of Owner will inspect all work, including grades and compaction of earthwork. Contractor shall notify the City of Pacific Grove Public Works at least forty eight (48) hours prior to work within the public ROW.

11. Engineer shall have no responsibility for Contractor's work methods and procedures, jobsite conditions, jobsite safety or adherence to safety procedures and requirements.

12. The Contractor agrees that, in accordance with generally accepted construction practices, the Contractor will be required to assume sole and complete responsibility for jobsite conditions during the course of construction of the project, including safety of all persons and property. This requirement shall apply continuously and not be limited to normal working hours. The contractor agrees to defend, indemnify and hold Owner and Engineer harmless from any and all liability, real or alleged, in connection with the performance of the work on this project, exempting liability arising from the sole negligence of the Engineer or Owner.

13. Parking lot striping shall be laid out in accordance with the Horizontal Control Plan, and in accordance with the City of Pacific Grove Standard specifications.

14. Contractor shall provide appropriate traffic control measures as outlined in the City of Pacific Grove specifications and as directed by the City Engineer.

GRADING AND PAVING NOTES

1. Work shall consist of all clearing, grubbing, and stripping, preparation of land to be filled, excavation, spreading, compaction and control of the fill, and all subsidiary work necessary to complete the grading to conform to the lines, grades and slopes, as shown on the accepted plans and as specified in the Geotechnical Investigation Report.

2. Not used.

3. Not used.

4. The Contractor shall notify the Soil Engineer at least forty-eight (48) hours prior to commencement of any grading operations on-site.

5. A representative of the Soils Engineer shall be on site during grading operations and shall perform such testing as deemed necessary. The representative shall observe the grading operation for conditions that should be corrected, and identify those conditions with recommended corrective measures to the Contractor.

6. In the event that any unusual conditions not covered by these notes and the Soils Investigation are encountered during grading operations, the Soils Engineer shall be immediately notified for recommendations.

7. All existing trash, debris, roots, tree remains and other rubbish shall be removed from the site so as to leave the areas that have been disturbed with a neat and finished appearance free from unsightly debris. No burning shall be permitted.

8. Contractor shall grade to the line and elevations shown on the plan within the following horizontal and vertical tolerance, in the areas indicated:

	Horizontal	Vertical
a. Building Pad Subgrade	0.50'+	0.05'+
b. Driveway and parking area subgrade preparation	0.05'+	0.05'+

9. All aggregate base material and the handling and placement thereof shall be in accordance with the Caltrans Standard Specifications. Aggregate base materials shall be Class II.

10. Compacted building pads shall extend 5 feet minimum beyond building footprint.

11. Asphalt concrete (AC) shall be Type A, 3/4" maximum aggregate size for base course and 1/2" maximum aggregate size for surface course, as specified for surface course material in the Caltrans Specification. 2" thickness may be placed in one lift.

12. SS-1 emulsified asphalt paint binder conforming to the provisions of the Caltrans Specification shall be applied at the rate of 0.07+ gallons per square yard to existing asphalt concrete surface and vertical concrete surfaces to receive asphalt concrete.

13. SS-1 emulsified liquid asphalt seal coat conforming to the provisions of the Caltrans Specifications shall be diluted with equal parts water and applied at the rate of 0.15+ gallons per square yard to surface of the new finished asphalt paving surface and existing asphalt paving surfaces to remain in place. Existing asphalt surfaces shall be cleaned prior to seal coat operation.

14. Contractor shall adjust all inlets, valve boxes, manhole rims, and sewer cleanouts to new finish grade.

15. Materials handling and placement of Portland Cement Concrete shall be in accordance with applicable sections of the Caltrans Standard Specifications and these plans and details shown hereon. Concrete to be Class A, 6 sack, 3000 PSI concrete.

UNDERGROUND NOTES

1. Contractor shall expose and verify location and elevation of existing utilities, including sanitary and storm sewers, and water lines before constructing new facilities. Contractor shall cap existing irrigation lines where necessary so that the remaining irrigation system will continue to be operational for the existing landscaping to remain.

2. Materials for pipe, storm water inlets and cleanouts and installation procedures shall be in accordance with applicable California Building Code sections and the City of Pacific Grove Standard Specifications, the Project Specifications and these plans and details shown hereon.

Storm Sewer Pipe designated "SD" shall be SDR 26 PVC pipe or HDPE ADS N-12 pipe appropriate for such use. Storm Sewer Pipe designated "DiP" shall be ductile iron pipe appropriate for such use.

Storm Sewer Pipe designated "RCP" shall be reinforced concrete pipe appropriate for such use.

Sanitary Sewer Pipe designated "SS" shall be vitrified clay pipe or SDR 26 PVC pipe appropriate for such use.

Water Pipe designated "WATER" or "W" shall be Schedule 80 PVC pipe appropriate for such use

Fire Lines designated "FIRE LINE" or "F" shall be AWWA C900 PVC – DR 18 pipe appropriate for such use

3. Ensure grates are ADA compliant for all existing inlets to remain in travelled access paths, subject to pedestrian traffic. Replace as necessary.

4. All trench excavation and backfill for sewer lines shall conform to requirements of the City of Pacific Grove Standard Specifications. Jetting of backfill materials to achieve compaction is not allowed.

5. All trenches and excavations shall be constructed in strict compliance with the applicable sections of California and Federal O.S.H.A. requirements and other applicable safety ordinances. Contractor shall bear full responsibility for trench shoring design and installation.

6. Materials for pipe and installation requirements for domestic water lines shall be in accordance with applicable California Plumbing Code sections and the City of Pacific Grove Standard Specifications and these plans and details shown hereon.

7. Soils on the site have been found to be corrosive. All buried metallic pipes, fittings and appurtenances associated with the water pipelines shall be encased in 8-mil polyethylene per AWWA C-105. All buried copper water service lines shall be encased in 6-mil polyethylene sleeve in accordance with AWWA C-105

8. Storm Drain Cleaning: Remove dirt and sediment from all drain boxes and storm drain cleanouts in project area and downstream to public storm drain mainline, use vac truck where possible. Hydrowash/jet out storm drain line until free flowing. Start at downstream inlets and work towards project area. If clogged SD line cannot be unclogged by jetting, notify engineer, pothole blocked location and repair drain line as needed.

ABBREVIATIONS

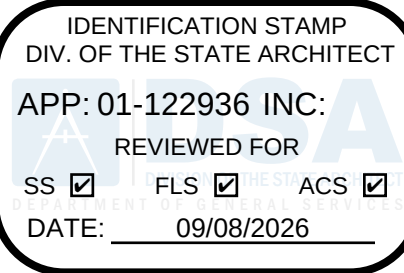
AB	AGGREGATE BASE	LTB	LIME TREATED BASE
AC	ASPHALT CONCRETE	(ME)	MATCH EXISTING ELEVATION
ACC	ACCESSIBLE	MH	MANHOLE
ARCH	ARCHITECTURAL	ML	MONUMENT LINE
BS	BOTTOM OF STEP	(N)	NEW
BW	BACK OF WALK ELEVATION	PAV	PAVEMENT SURFACE ELEVATION
BOW	BOTTOM OF WALL ELEVATIONS	E	PROPERTY LINE
CB	CATCH BASIN	PP	PERFORATED PIPE
CI	CAST IRON	RIM	RIM ELEVATION
CL	CENTER LINE	RS	TOP OF RAT SLAB ELEVATION
CLF	CHAIN LINK FENCE	RWL	RAIN WATER LEADER
C&G	CURB AND GUTTER	S=	SLOPE
CONC	CONCRETE	SD	STORM DRAIN
C	CONCRETE ELEVATION	S.A.D.	SEE ARCHITECT DRAWINGS
DWY	DRIVEWAY	S.E.D.	SEE ELECTRICAL DRAWINGS
E	ELECTRICAL	S.L.D.	SEE LANDSCAPE DRAWINGS
(E)	EXISTING	S.P.D.	SEE PLUMBING DRAWINGS
EBOX	ELECTRICAL BOX	SG	SUBGRADE ELEVATION
EC	EDGE OF CONCRETE	SS	SANITARY SEWER
EP	EDGE OF PAVEMENT	SSCO	SANITARY SEWER CLEANOUT
EV	ELECTRICAL VAULT	S/W	SIDEWALK
F	FIRE LINE	STLT	STREET LIGHT
FG	FINISH GRADE	T	TELEPHONE
FNC	FENCE	TC	TOP OF CURB
FH	FIRE HYDRANT	TD	TRENCH DRAIN
FF	FINISHED FLOOR ELEVATION	TILE	TOP OF TILE ELEVATION
FL	FLOW LINE	TOE	TOE OF BANK
FOC	FACE OF CURB	TOW	TOP OF WALL ELEVATION
G	GAS	TP	TELEPHONE POLE
GB	GRADE BREAK	TR	TOP OF RAMP
GND	GROUND ELEVATION	TS	TOP OF STEP
JP	JOINT POLE	TSB	TRAFFIC SIGNAL BOX
ICV	IRRIGATION CONTROL VALVE	VL	VAULT
INV	INVERT	W	WATER
LF	LINEAR FEET	WV	WATER VALVE
LS	LANDSCAPE		

SHEET INDEX

NOTES, LEGEND & INDEX	C0.1
DEMOLITION PLAN	C1.1
DEMOLITION PLAN	C1.2
GRADING & DRAINAGE PLAN	C2.1
GRADING & DRAINAGE PLAN	C2.2
HORIZONTAL CONTROL PLAN	C4.1
HORIZONTAL CONTROL PLAN	C4.2
EROSION CONTROL PLAN	C5.1
EROSION CONTROL PLAN	C5.2
DETAILS	C6.01
CONSTRUCTION DETAILS	C6.1
CONSTRUCTION DETAILS	C6.2
MATERIAL & DETAIL REFERENCE PLAN	C7.1
MATERIAL & DETAIL REFERENCE PLAN	C7.2

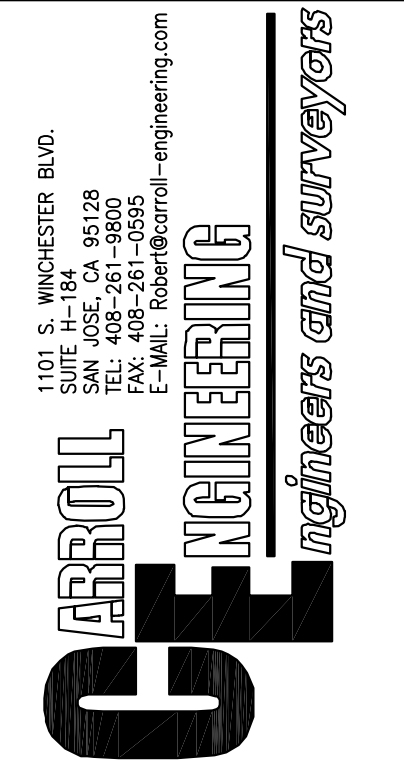
LEGEND

DESCRIPTION	PROPOSED	EXISTING
PROPERTY LINE		---
CENTERLINE		---
CURB & GUTTER		
VERTICAL CURB		
ASPHALT EDGE / SAWCUT		
EXPANSION JOINT	---	
SCORE JOINT		
VALLEY GUTTER		
RAINWATER LEADER		
STORM LINE		SD
SANITARY LINE		SS
WATER LINE		W
GAS LINE		
FIRE SPRINKLER	FS	
FIRE LINE	F	
FENCE		X
ROLLING FENCE		
CITY CONFORM		
ADA DROP OFF	---	
FIRE LANE	---	
TYPICAL RAMP		
ACCESSIBLE RAMP		
TRUNCATED DOWNS		
STORM DRAIN INLET		
PARKING BUMPER		
AREA DRAIN		
BUBBLER BOX		
END SECTION		
FLARED END SECTION		
END SECTION MITERED DRAIN GRATE		
DRY WELL CONDENSATE		
BOLLARD		
HYDRANT		
FIRE DEPARTMENT CONNECTION (FDC)		
POST INDICATOR VALVE (PIV)		
THRUST BLOCK		
SHUT OFF VALVE (SOV)		
CHECK VALVE		
BACKFLOW PREVENTER		
ELECTROUER		
ELECTROUER CONDUIT & CABLE W/PULL BOX		
DIRECTION & RATE OF SLOPE	0.01%	
SWALE		
CONTOUR		
LIGHTING POLE		
EV CHARGING STATION		



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Professional Seals



PACIFIC GROVE UNIFIED SCHOOL
DISTRICT
PACIFIC GROVE HIGH SCHOOL
SITE IMPROVEMENTS
615 SUNSET DRIVE
PACIFIC GROVE, CA 93950

SHEET TITLE:

NOTES, LEGEND,
& INDEX

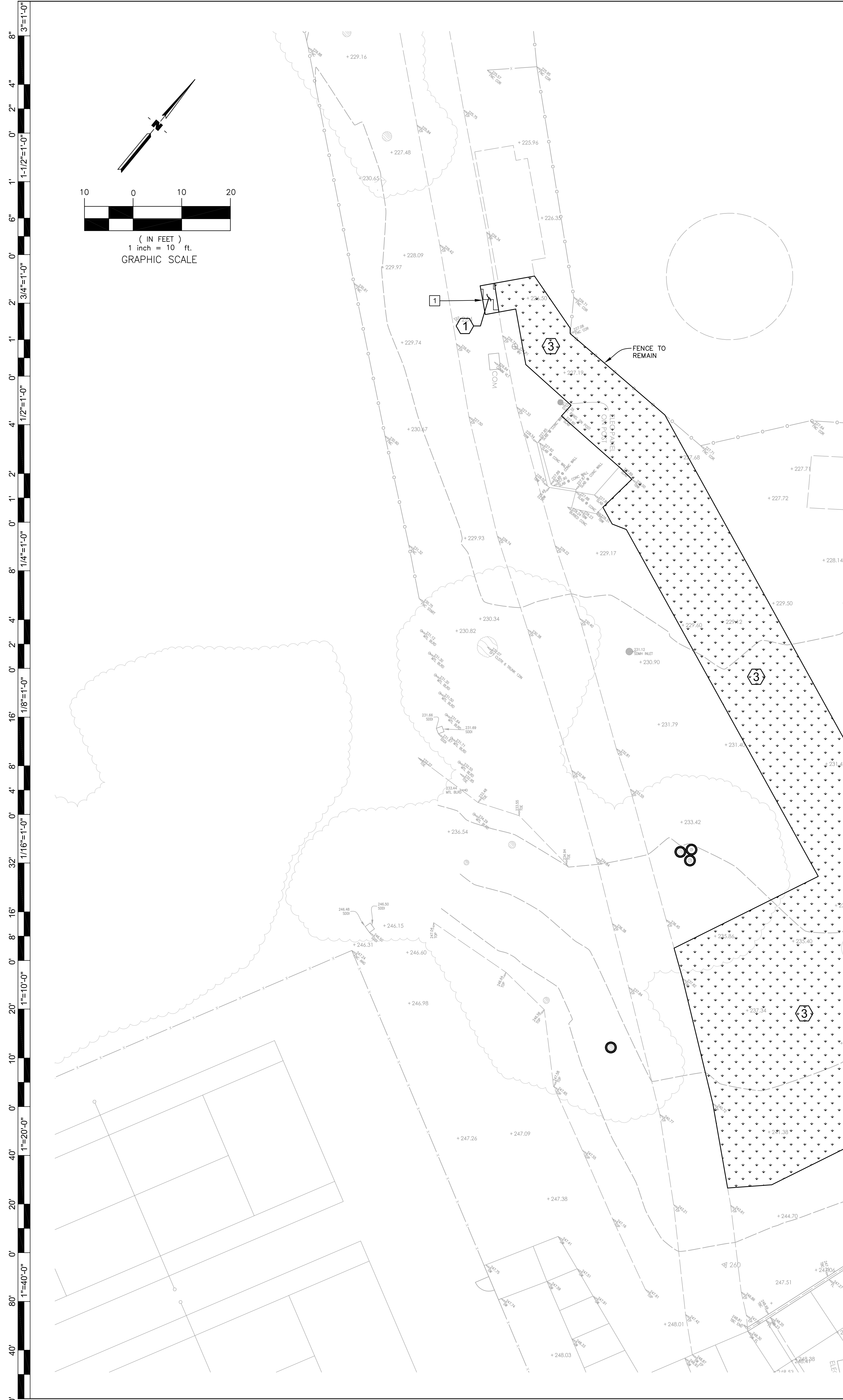
CONSTRUCTION DOCUMENTS

Revision Schedule		
NO.	Description	Date

PROJECT #
DCA 25.054
CEI 3262
ISSUE DATE:
07/22/2026

SHEET #
C0.1

M:\262 - Pacific Grove HS\DWG\3262_C1.1_DEMO.dwg 7-21-25 05:51:42 PM MilanMC continuously and not be limited to normal working hours, and construction contractor further agrees to defend, indemnify and hold design professional harmless from any and all liability, real or alleged in connection with the performance of work on this project, excepting liability arising from the sole negligence of design professional.



DEMOLITION LEGEND

DESCRIPTION	SYMBOL
TREE TO REMAIN. PROTECT FROM DAMAGE. SEE SPECIAL PROVISION 01 56 39 TREE AND PLANT PROTECTION AND LANDSCAPE DRAWINGS FOR TREE PROTECTION NOTES.	
TREE TO BE REMOVED. REMOVE ALL ROOTS.	
KEYNOTE	DESCRIPTION
1	ASPHALT PAVING & AGGREGATE BASE ROCK TO RE REMOVED. REMOVE HEADER BOARD, TYP.
2	CONCRETE TO BE REMOVED. REMOVE AGGREGATE BASE.
3	SHRUBS AND/OR LANDSCAPING TO BE REMOVED. GRUB OUT ALL VEGETATION / REMOVE BARK / WOOD CHIPS. REMOVE PLANTER BOXES. REMOVE ANY IRRIGATION LINES OR VALVES.
4	FENCE / GATES/ FOUNDATIONS TO BE REMOVED
KEYNOTE	DESCRIPTION
1	SAWCUT ASPHALT OR REMOVE CONCRETE TO NEAREST CONTROL JOINT
2	REMOVE CURB / CURB & GUTTER / VALLEY GUTTER
3	EXTENT OF REMOVAL OF CURB / CURB & GUTTER / VALLEY GUTTER
4	POLE / POST/ COLUMN / BOLLARD / HANDRAIL / FENCE / GATE TO REMAIN. PROTECT FROM DAMAGE.
5	STORM LINES, DRAIN INLET, SDMH, SDCO TO REMAIN. PROTECT FROM DAMAGE. ADJUST RIM TO NEW FG.
6	EXTENT OF FENCE / GATES / FOUNDATION REMOVAL
7	REMOVE POLE / BOLLARD AND FOUNDATION

NOTES:
1. THE LIMITS OF DEMOLITION SHOWN HEREON ARE TO PROVIDE THE CONTRACTOR WITH A GENERAL SCOPE OF WORK. PRECISE LIMITS OF PAVEMENT REMOVAL AND GRADING SHOULD BE TAKEN FROM THE GRADING AND DRAINAGE PLAN. THE CONTRACTOR SHOULD ALSO REFERENCE LANDSCAPE ARCHITECT PLANS, ARCHITECTURAL PLANS, AND THE CONSTRUCTION DOCUMENTS FOR A COMPLETE SCOPE OF WORK. (VERIFY ALL DEMOLITION WITH THE SCHOOL DISTRICT).
2. DEMOLITION WORK SHALL CONFORM TO CAL GREEN CODE SECTIONS 5.408.3 (CONSTRUCTION WASTE REDUCTION BY AT LEAST 50%) AND 5.408.4 (EXCAVATED SOIL AND LAND CLEARING DEBRIS), AND LOCAL CONSTRUCTION WASTE MANAGEMENT REQUIREMENTS. THE MOST STRINGENT CODE SHALL PREVAIL.
3. ALL SIGNS, POSTS, AND FOOTINGS TO BE REMOVED WITHIN THE LIMITS OF DEMOLITION UNLESS NOTED OTHERWISE.
4. REFER TO ORIGINAL DESIGN DRAWINGS, AVAILABLE FROM DISTRICT, FOR EXISTING BUILDINGS (FOOTINGS, MATERIALS, ETC.).
5. EXISTING TURF TO REMAIN. LANDSCAPE CONTRACTOR TO COORDINATE WITH GENERAL CONTRACTOR IF REPLACEMENT IS REQUIRED DUE TO STAGING, CONSTRUCTION ACCESS, OR CONSTRUCTION ACTIVITY. REPAIR WITH SOD TO THE SATISFACTION OF THE OWNER'S REPRESENTATIVE. TURF AREAS FENCED DURING CONSTRUCTION SHALL BE MAINTAINED (MOWED, WATERED, AND FERTILIZED) BY CONTRACTOR.
WHERE NEW SOD IS INSTALLED, SHOVEL CUT EDGE OF EXISTING TURF VERTICAL AND STRAIGHT, AMEND SOIL AND GRADE TO RECEIVE NEW SOD FLUSH WITH EXISTING EDGES. DO NOT SCALE SOD REPAIR FROM THIS DRAWING. COORDINATE WITH GENERAL CONTRACTOR FOR EXTENT OF REPAIR REQUIRED TO RESTORE TURF DUE TO CONSTRUCTION ACTIVITY.

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 01-122936 INC:
REVIEWED FOR
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DATE: 09/08/2026

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Professional Seals
REGISTERED PROFESSIONAL ENGINEER
MATTHEW PAUL MARCUS
No. C 68770
Exp. 09/30/27

PACIFIC GROVE UNIFIED SCHOOL
DISTRICT
PACIFIC GROVE HIGH SCHOOL
SITE IMPROVEMENTS

615 SUNSET DRIVE
PACIFIC GROVE, CA 93950

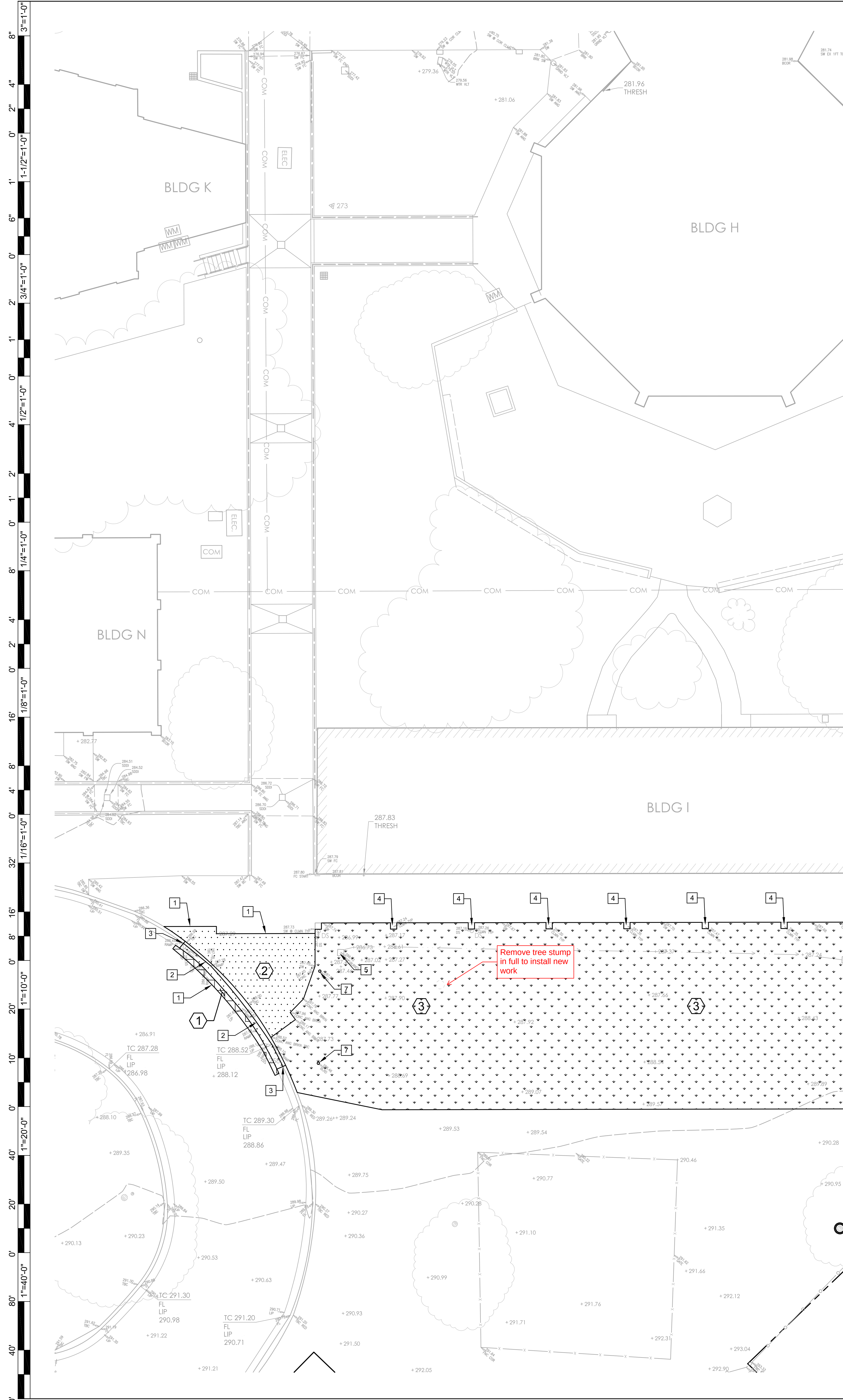
SHEET TITLE:
DEMOLITION PLAN

CONSTRUCTION DOCUMENTS

Revision Schedule		
NO.	Description	Date

PROJECT #
DCA 25.054
CEI 3262
ISSUE DATE:
07/22/2026
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M:\262 - Pacific Grove HS\DWG\3262_C1.1_DEMO.dwg 7-21-26 05:52:09 PM M:\KMC continuously and not be limited to normal working hours, and construction contractor further agrees to defend, indemnify and hold design professional harmless from any and all liability, real or alleged in connection with the performance of work on this project, excepting liability arising from the sole negligence of design professional.



DEMOLITION LEGEND

KEYNOTE	DESCRIPTION	SYMBOL
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	TREE TO BE REMOVED. REMOVE ALL ROOTS.	
①	ASPHALT PAVING & AGGREGATE BASE ROCK TO BE REMOVED. REMOVE HEADER BOARD, TYP.	
②	CONCRETE TO BE REMOVED. REMOVE AGGREGATE BASE.	
③	SHRUBS AND/OR LANDSCAPING TO BE REMOVED. GRUB OUT ALL VEGETATION / REMOVE BARK / WOOD CHIPS. REMOVE PLANTER BOXES. REMOVE ANY IRRIGATION LINES OR VALVES.	
④	FENCE / GATES/ FOUNDATIONS TO BE REMOVED	
①	SAWCUT ASPHALT OR REMOVE CONCRETE TO NEAREST CONTROL JOINT	
②	REMOVE CURB / CURB & GUTTER / VALLEY GUTTER	
③	EXTENT OF REMOVAL OF CURB / CURB & GUTTER / VALLEY GUTTER	
④	POLE / POST/ COLUMN / BOLLARD / HANDRAIL / FENCE / GATE TO REMAIN. PROTECT FROM DAMAGE.	
⑤	STORM LINES, DRAIN INLET, SDMH, SDCO TO REMAIN. PROTECT FROM DAMAGE. ADJUST RIM TO NEW FG.	
⑥	EXTENT OF FENCE / GATES / FOUNDATION REMOVAL	
⑦	REMOVE POLE / BOLLARD AND FOUNDATION	

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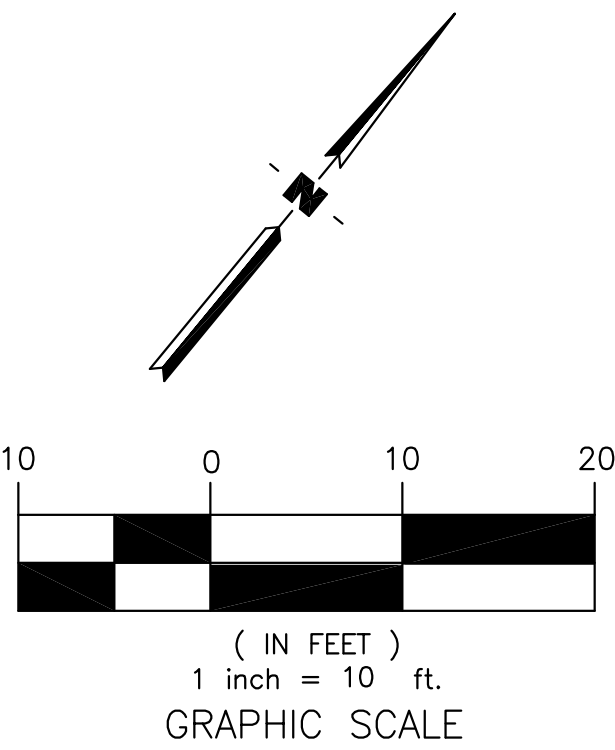
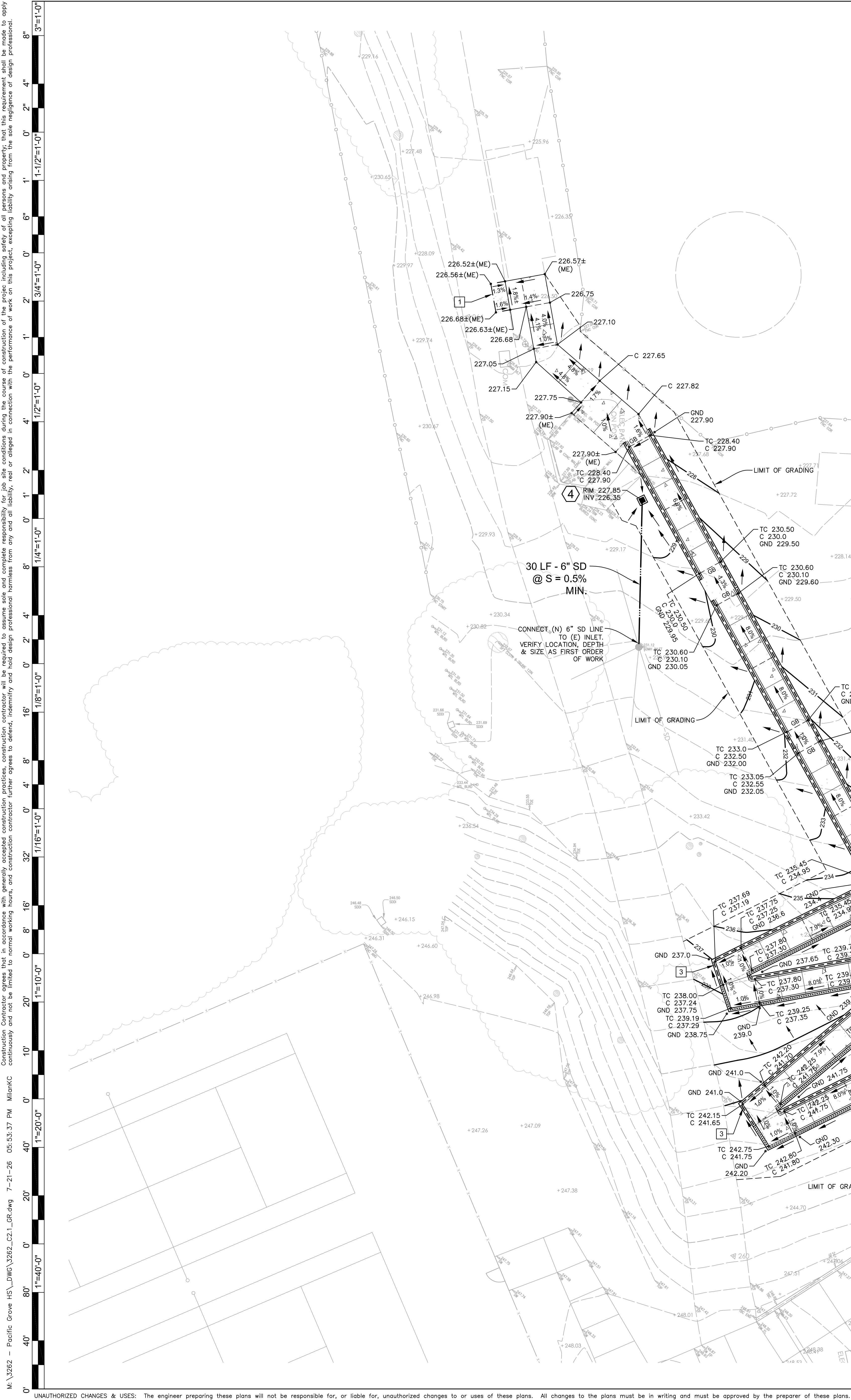
PACIFIC GROVE UNIFIED SCHOOL
DISTRICT
PACIFIC GROVE HIGH SCHOOL
SITE IMPROVEMENTS
615 SUNSET DRIVE
PACIFIC GROVE, CA 93950

SHEET TITLE:
DEMOLITION PLAN

CONSTRUCTION DOCUMENTS
Revision Schedule
NO. Description Date

PROJECT #
DCA 25.054
CEI 3262
ISSUE DATE:
07/22/2026

SHEET #
C1.2



GRADING CONSTRUCTION DETAIL REFERENCES

KEYNOTE	DETAIL NAME	SYMBOL	DETAIL REFERENCE
1	FLUSH VERTICAL CURB		1 / C6.01
2	VERTICAL CURB		2 / C6.01
3	DRIVEWAY		3 / C6.01
4	12" STORM DRAIN INLET		4 / C6.01
5	CONCRETE CURB WALL		6 / C6.01

GRADING PLAN NOTES

KEYNOTE	DETAIL NAME
1	SAWCUT AND CONFORM TO (E) ASPHALT
2	CONFORM TO (E) CONCRETE AT NEAREST CONTROL JOINT
3	PROVIDE 2" DIAMETER WEEP HOLE IN CURB FOR DRAINAGE TO PASS THROUGH
4	CLEAN OUT DEBRIS & HYDROJET STORM DRAIN SYSTEM TO BE FREE FLOWING. SEE UNDERGROUND NOTE #8 / SHEET C0.1
5	2 LF - CURB TRANSITION (0'-6")

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PACIFIC GROVE UNIFIED SCHOOL
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SITE IMPROVEMENTS
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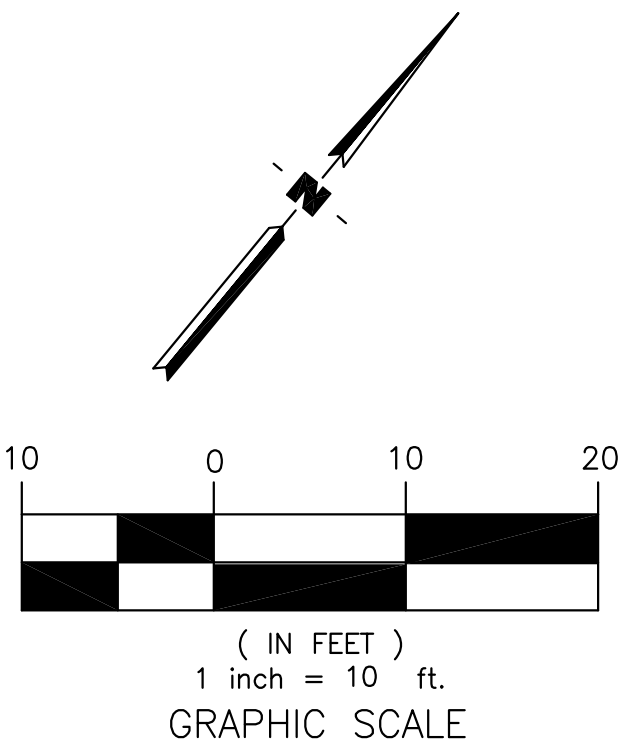
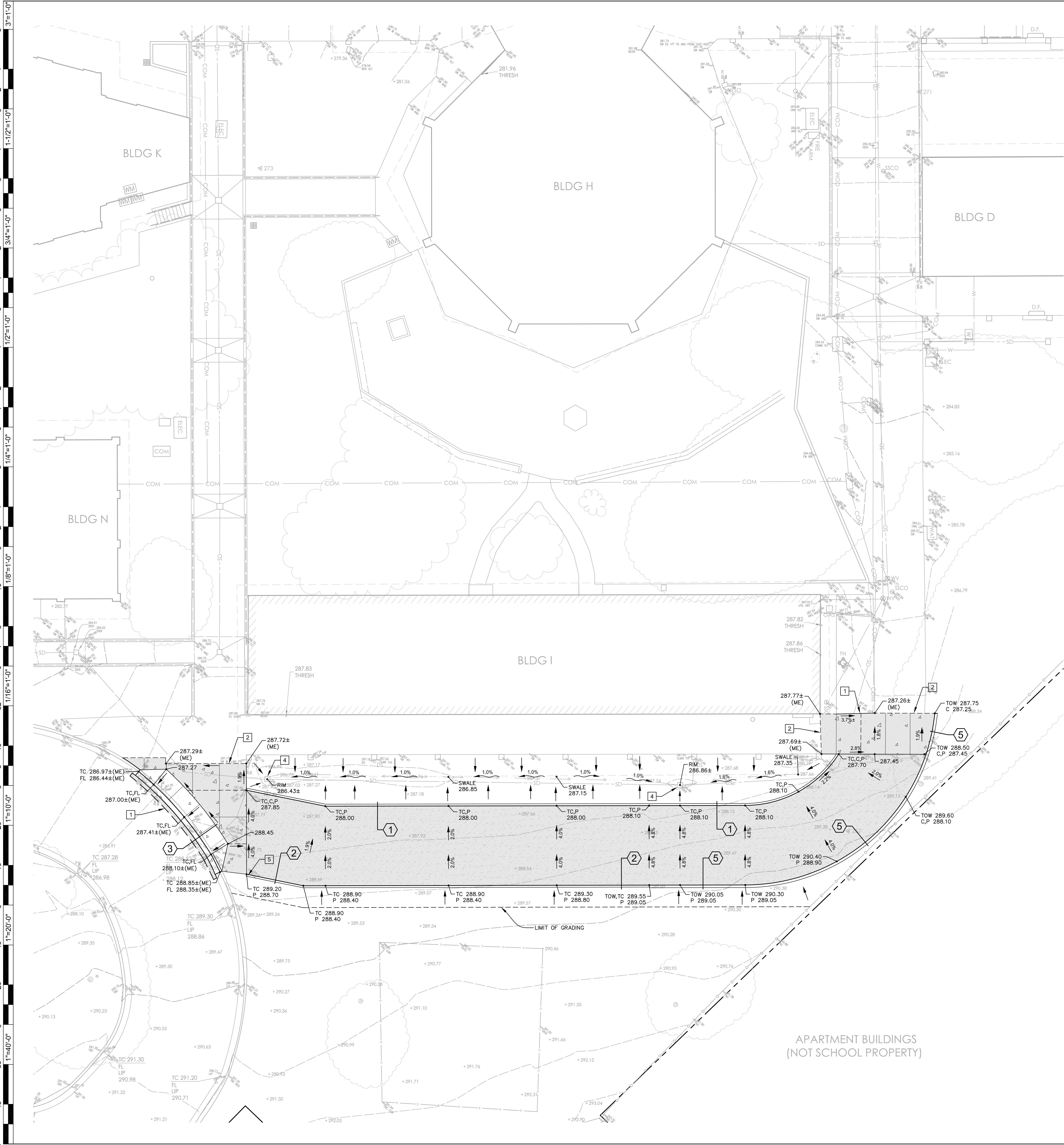
SHEET TITLE:
GRADING & DRAINAGE
PLAN

CONSTRUCTION DOCUMENTS

Revision Schedule		
NO.	Description	Date

PROJECT #
DCA 25.054
CEI 3262
ISSUE DATE:
07/22/2026
SHEET #
C2.1

M:\262 - Pacific Grove HS\DWG\3262_C2.1_GR.dwg 7-21-26 05:53:58 PM M:\KAC Construction Contractor agrees that in accordance with generally accepted construction practices, construction contractor will be required to assume sole and complete responsibility for job site conditions during the course of construction of the project including safety of all persons and property, that this requirement shall be made to apply continuously and not be limited to normal working hours, and construction contractor further agrees to defend, indemnify and hold design professional harmless from any and all liability, real or alleged in connection with the performance of work on this project, excepting liability arising from the sole negligence of design professional.



GRADING CONSTRUCTION DETAIL REFERENCES

KEYNOTE	DETAIL NAME	SYMBOL	DETAIL REFERENCE
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2	VERTICAL CURB		2 / C&D.1
3	DRIVEWAY		3 / C&D.1
4	12' STORM DRAIN INLET		4 / C&D.1
5	CONCRETE CURB WALL		6 / C&D.1

GRADING PLAN NOTES

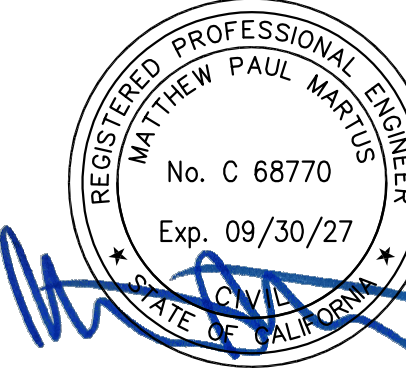
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2	CONFORM TO (E) CONCRETE AT NEAREST CONTROL JOINT
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5	2 LF - CURB TRANSITION (0'-6")

IDENTIFICATION STAMP
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DATE: 09/08/2026

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SHEET TITLE:

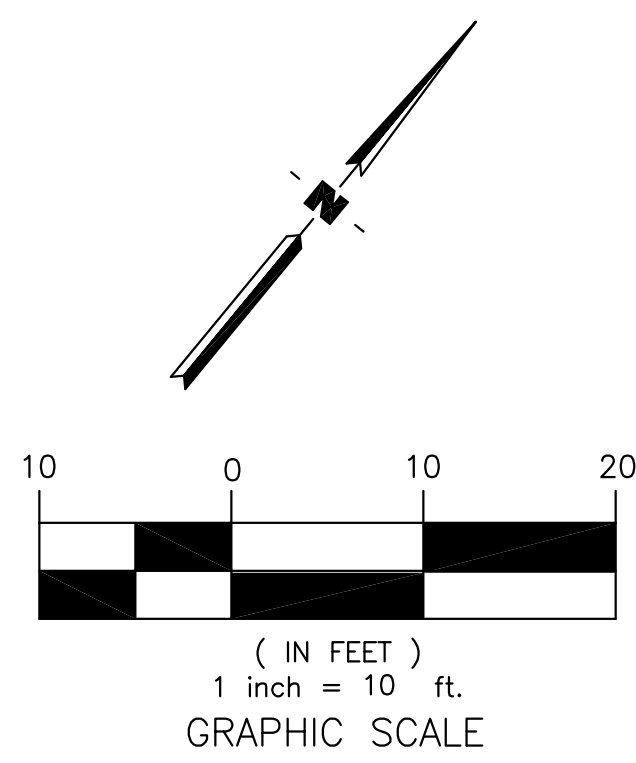
GRADING & DRAINAGE
PLAN

CONSTRUCTION DOCUMENTS

Revision Schedule		
NO.	Description	Date

PROJECT #
DCA 25.054
CEI 3262
ISSUE DATE:
07/22/2026

SHEET #
C2.2

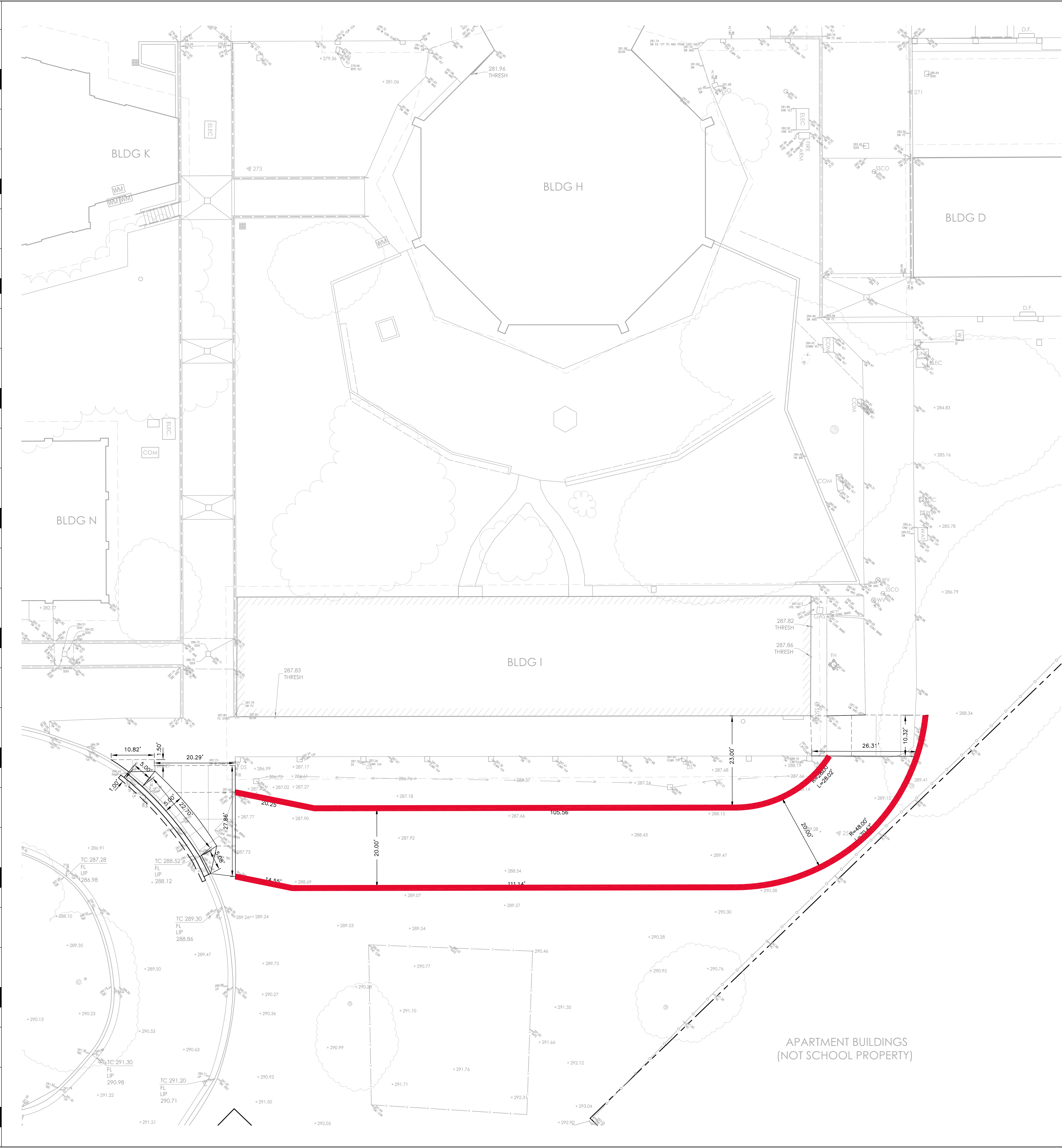


DETAIL NAME	SYMBOL
FIRE LANE OR BUS STOP - NO PARKING (RED PAINT)	

PROJECT #	DCA 25.054
	CEI 3262
ISSUE DATE:	07/22/2026

M:\2622 - Pacific Grove HS\DWG\3262_C4.1_H.C.dwg 7/21/26 06:24:31 PM MironKC Construction Contractor agrees that in accordance with generally accepted construction practices, construction contractor will be required to assume sole and complete responsibility for job site conditions during the course of construction of the project including safety of all persons and property, that this requirement shall be made to apply continuously and not be limited to normal working hours, and construction contractor further agrees to defend, indemnify and hold design professional harmless from any and all liability, real or alleged in connection with the performance of work on this project, excepting liability arising from the sole negligence of design professional.

UNAUTHORIZED CHANGES & USES: The engineer preparing these plans will not be responsible for, or liable for, unauthorized changes to or uses of these plans. All changes to the plans must be in writing and must be approved by the preparer of these plans.



PAINT & SIGNAGE LEGEND

DETAIL NAME	SYMBOL
FIRE LANE OR BUS STOP - NO PARKING (RED PAINT)	

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DISTRICT
PACIFIC GROVE HIGH SCHOOL
SITE IMPROVEMENTS

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SHEET TITLE:
HORIZONTAL
CONTROL PLAN

CONSTRUCTION DOCUMENTS
Revision Schedule
NO. Description Date

PROJECT #
DCA 25.054
CEI 3262
ISSUE DATE:
07/22/2026

SHEET #
C4.2

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Construction Contractor agrees that in accordance with generally accepted construction practices, construction contractor will be required to assume sole and complete responsibility for job site conditions during the course of construction of the project including safety of all persons and property, that this requirement shall be made to apply continuously and not be limited to normal working hours, and construction contractor further agrees to defend, indemnify and hold design professional harmless from any and all liability, real or alleged in connection with the performance of work on this project, excepting liability arising from the sole negligence of design professional.

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NOTE:
1. REMOVE SEDIMENT BEFORE REACHING ONE-THIRD FULL

SECTION A-A

PLAN
DI PROTECTION TYPE 3
NOT TO SCALE

NOTES:
1. FOR USE IN PAVED AREAS.
2. SHAPE BASIN SO THAT LONGEST INFLOW AREA FACES LONGEST LENGTH OF TRAP.
3. FOR CONCENTRATED FLOWS, SHAPE BASIN IN 2:1 RATIO WITH LENGTH ORIENTED TOWARDS DIRECTION OF FLOW.

STORM DRAIN INLET PROTECTION
- TYPE 3

ENTRENCHMENT
DETAIL IN SLOPE
AREA

ENTRENCHMENT
DETAIL
IN FLAT AREA

FIBER ROLLS

TEMP. CONSTRUCTION EXIT

- EROSION CONTROL NOTES:**
- 1.) EROSION CONTROL FACILITIES SHALL BE MAINTAINED IN GOOD CONDITION TO PREVENT SILTATION FROM ENTERING INLETS.
 - 2.) DUST GENERATED ON THE PROJECT SITE SHALL BE CONTROLLED BY SELECTIVE WATERING OF EXPOSED AREAS, ESPECIALLY DURING CLEARING AND GRADING OPERATIONS.
 - 3.) PAVING SHALL BE COMPLETED AS SOON AS IS PRACTICABLE TO REDUCE THE TIME THAT BARE SURFACES AND SOILS ARE EXPOSED IN AREAS WHERE CONSTRUCTION IS DELAYED FOR AN EXTENDED PERIOD OF TIME, THE GROUND SHALL BE REVEGETATED TO MINIMIZE THE GENERATION OF DUST.
 - 4.) STREET SWEEPING SHALL BE CONDUCTED TO CONTROL DUST AND DIRT TRACKED FROM THE PROJECT SITE ONTO ADJACENT STREETS.

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Professional Seals

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MATTHEW PAUL MARCUS
No. C 68770
Exp. 09/30/27

PACIFIC GROVE UNIFIED SCHOOL
DISTRICT
PACIFIC GROVE HIGH SCHOOL
SITE IMPROVEMENTS

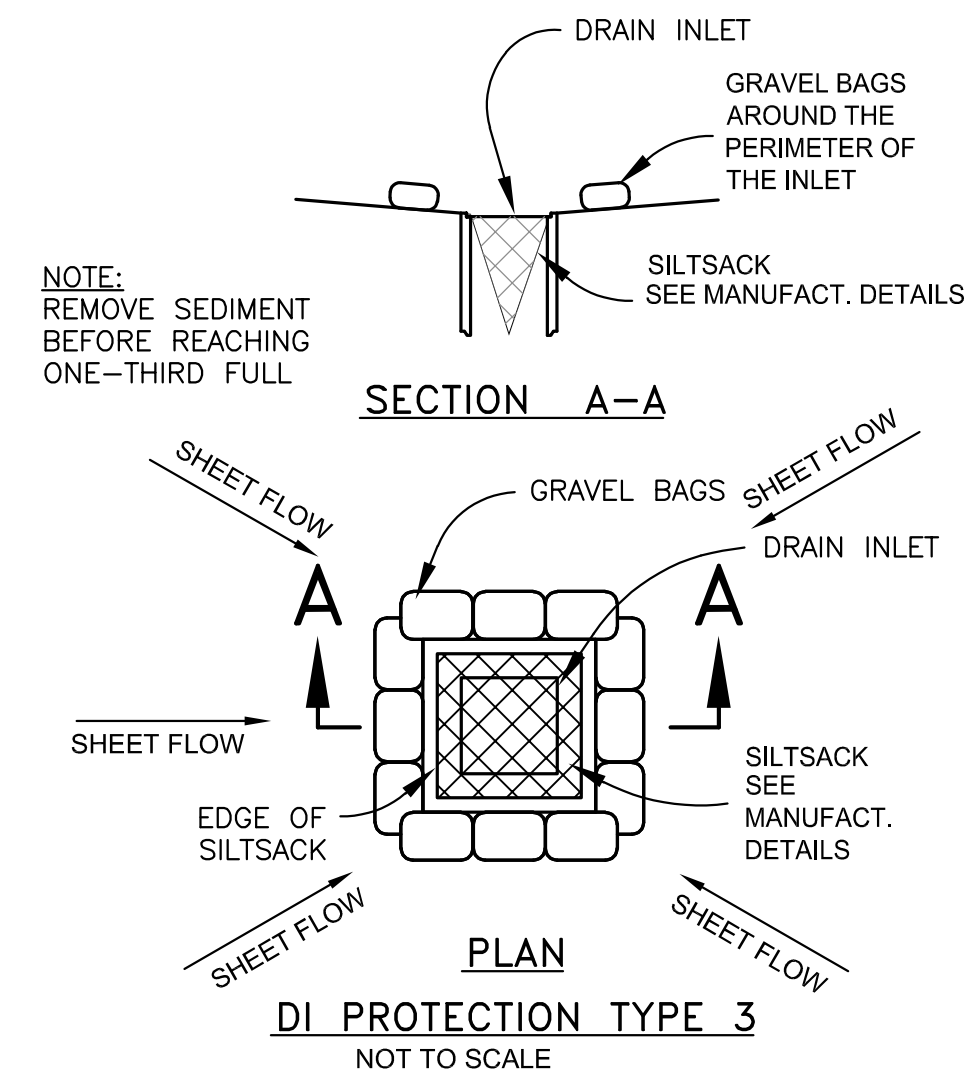
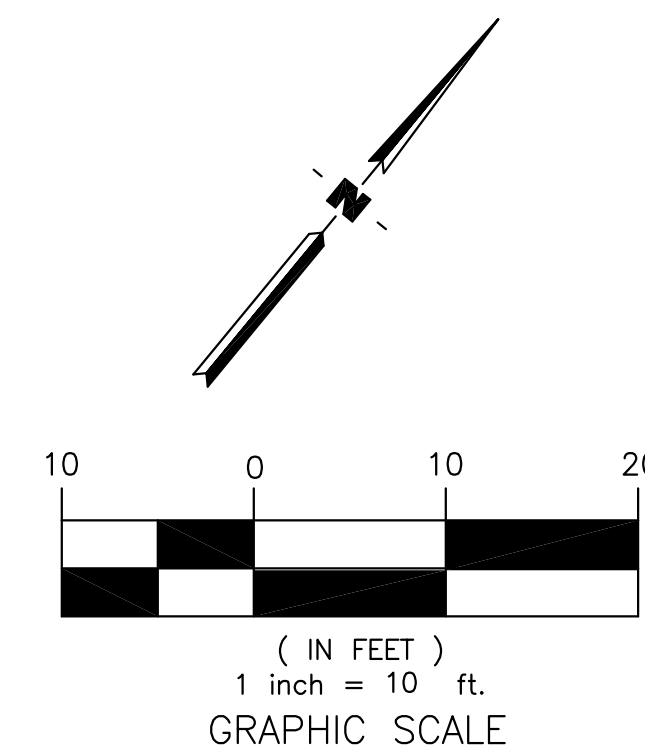
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SHEET TITLE:
EROSION CONTROL
PLAN

CONSTRUCTION DOCUMENTS

Revision Schedule		
NO.	Description	Date

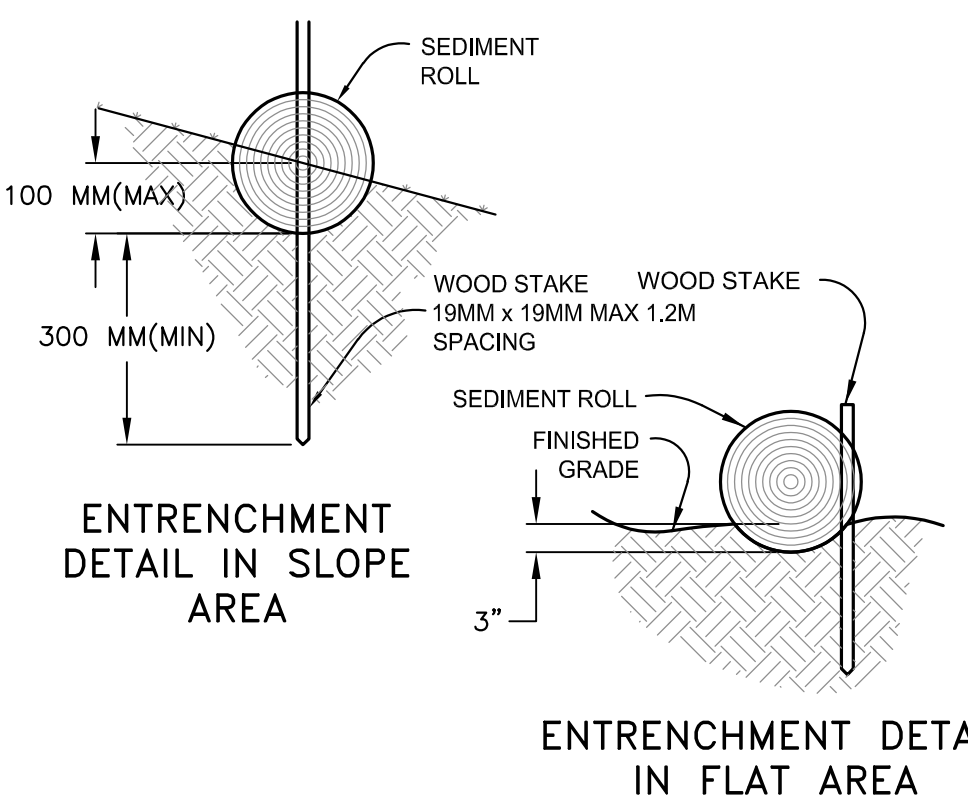
PROJECT # DCA 25.054 CEI 3262 ISSUE DATE: 07/22/2026	SHEET # C5.1
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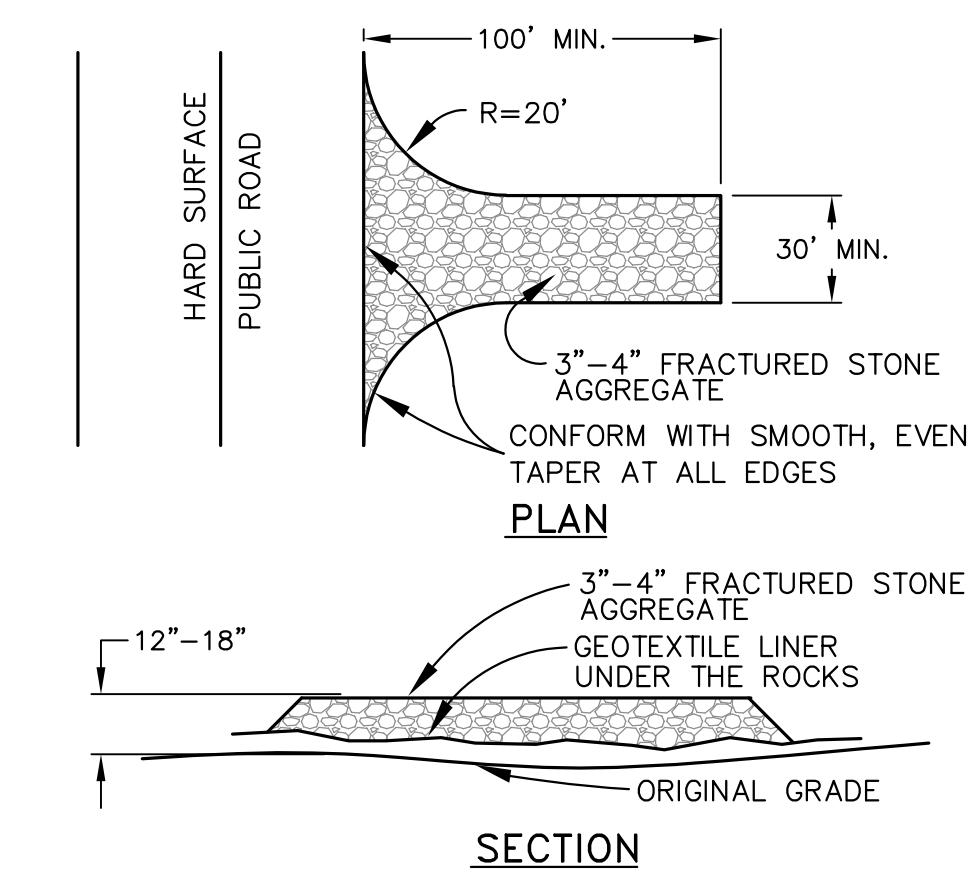
NOTES:

1. FOR USE IN PAVED AREAS.
2. SHAPE BASIN SO THAT LONGEST INFLOW AREA FACES LONGEST LENGTH OF TRAP.
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STORM DRAIN INLET PROTECTION

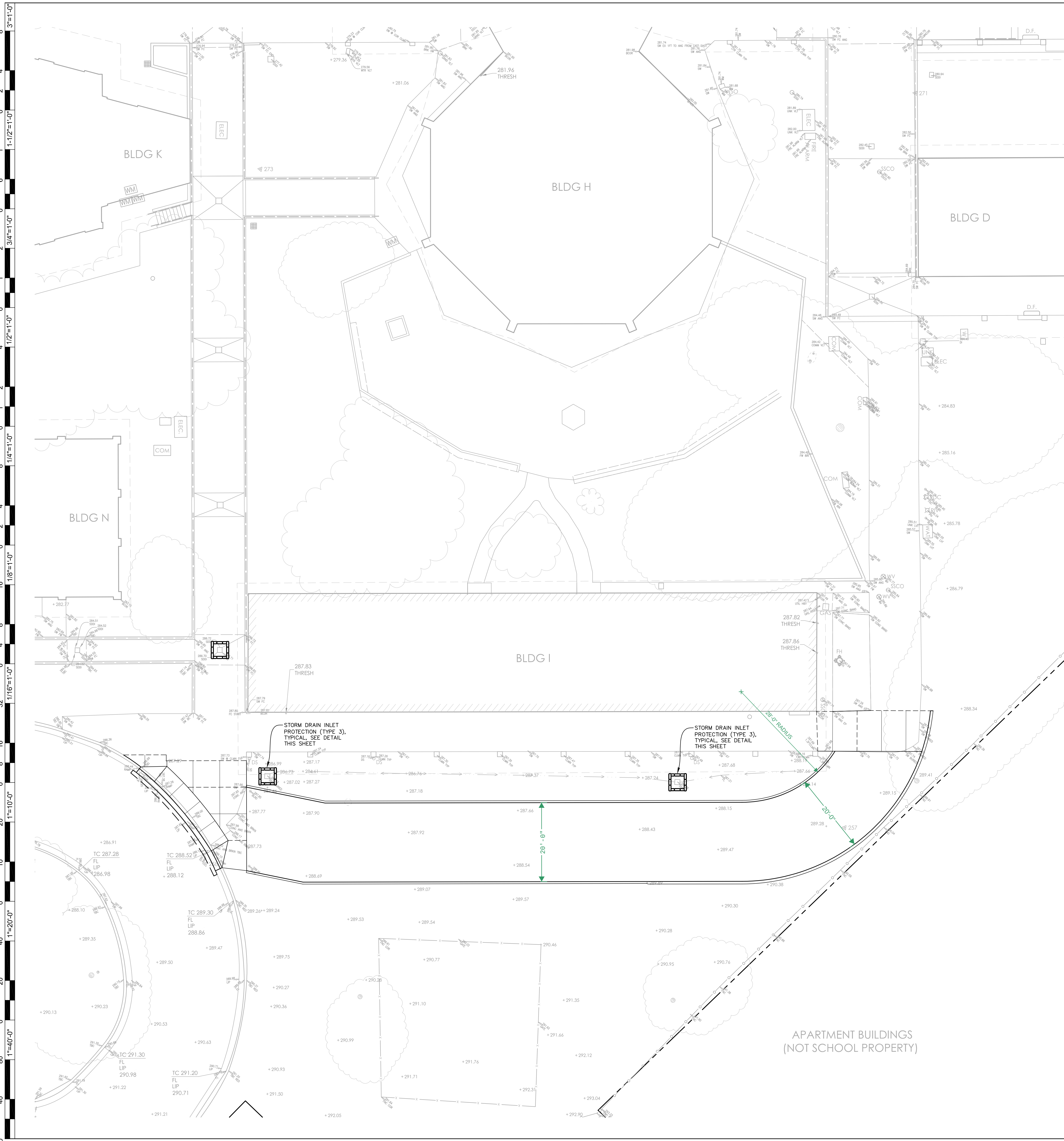


— — — — FIBER ROLLS

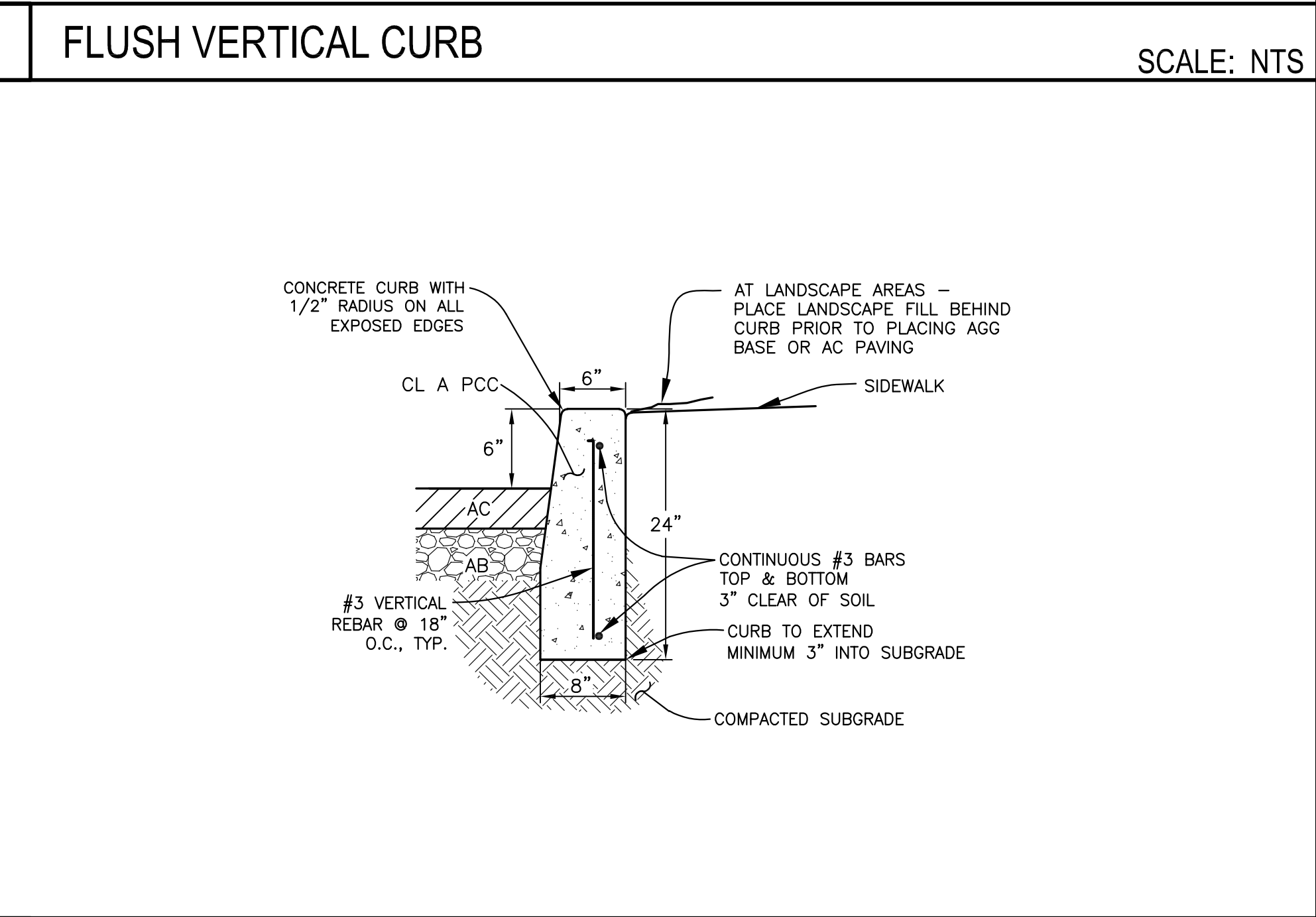
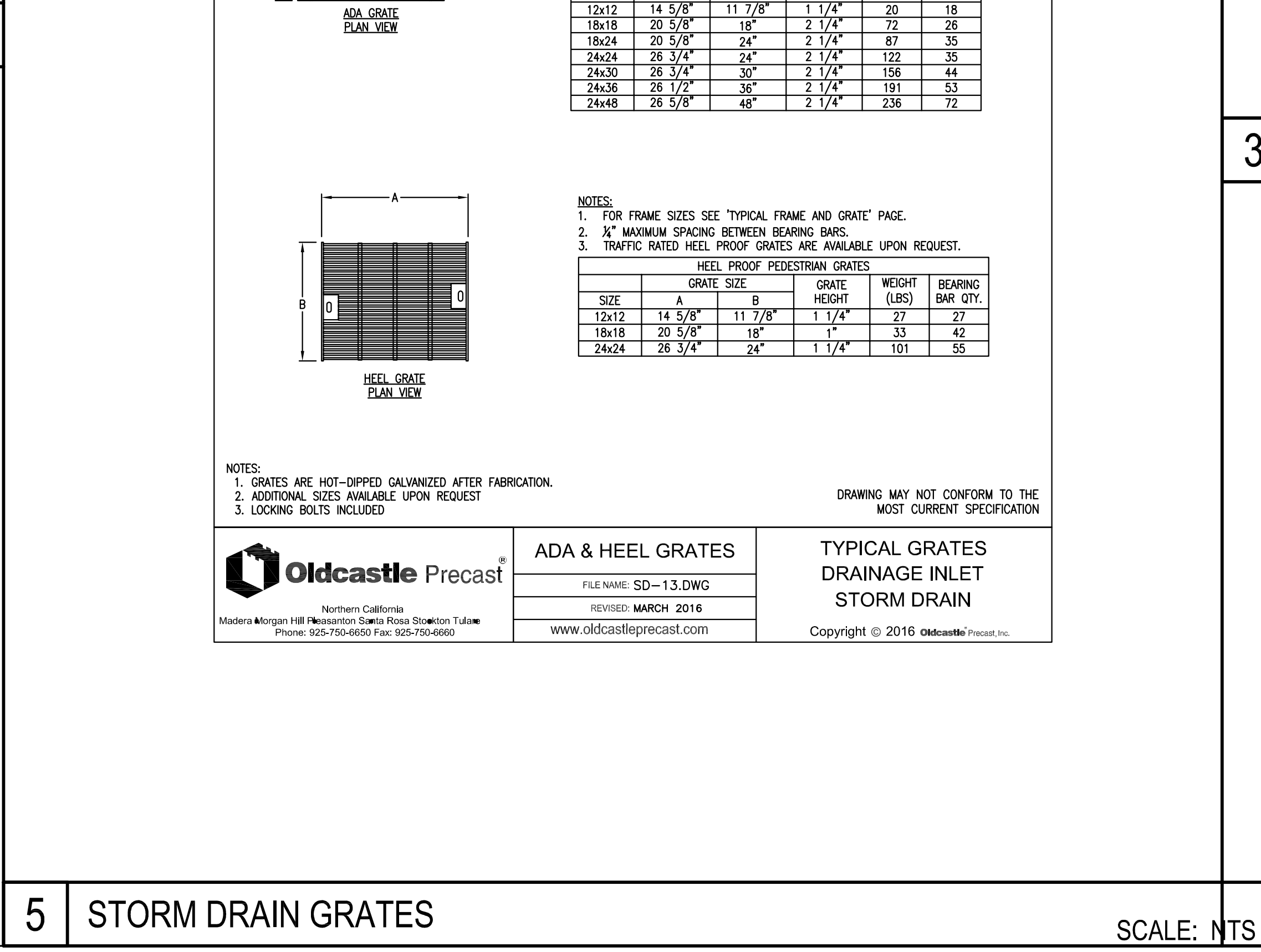
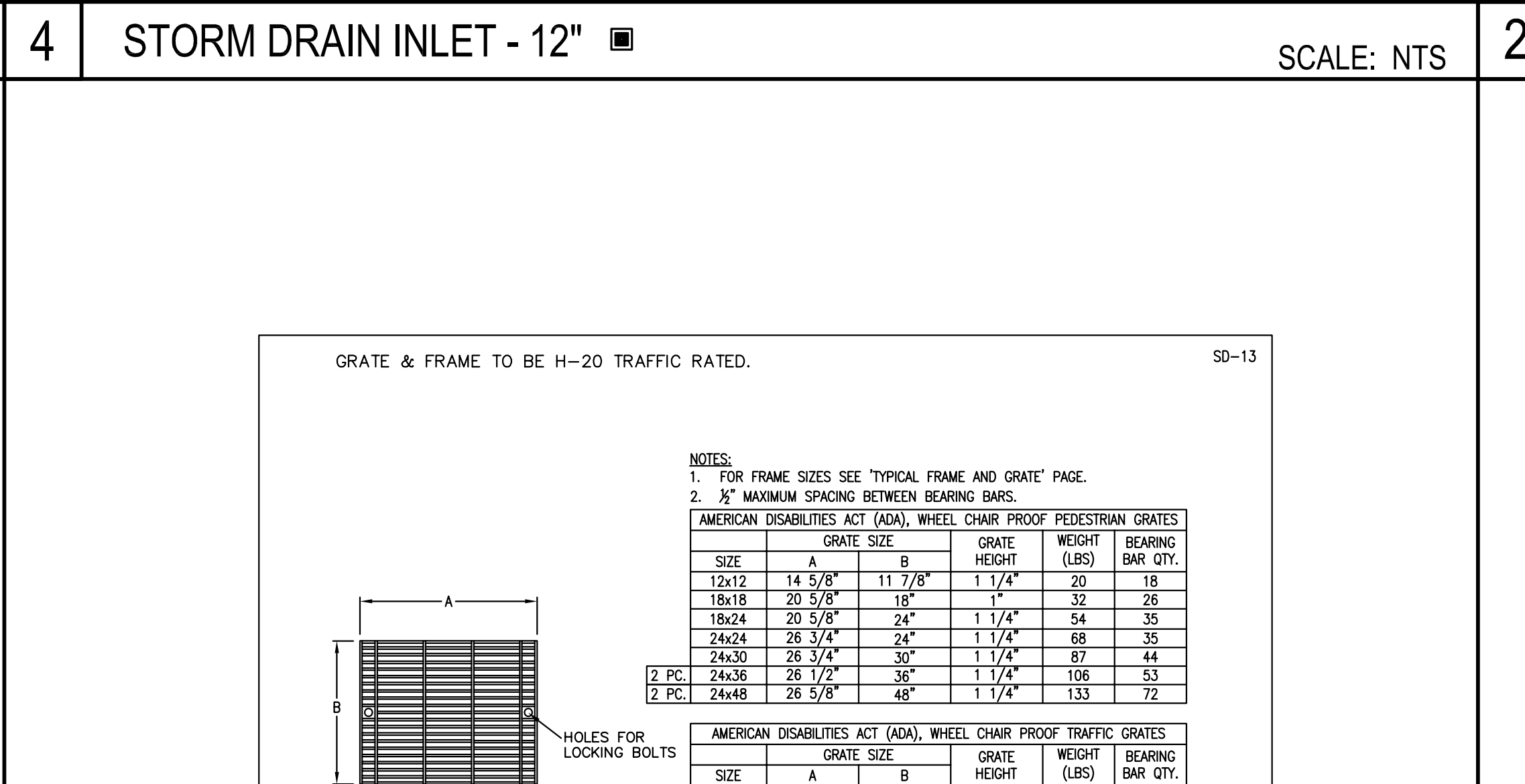
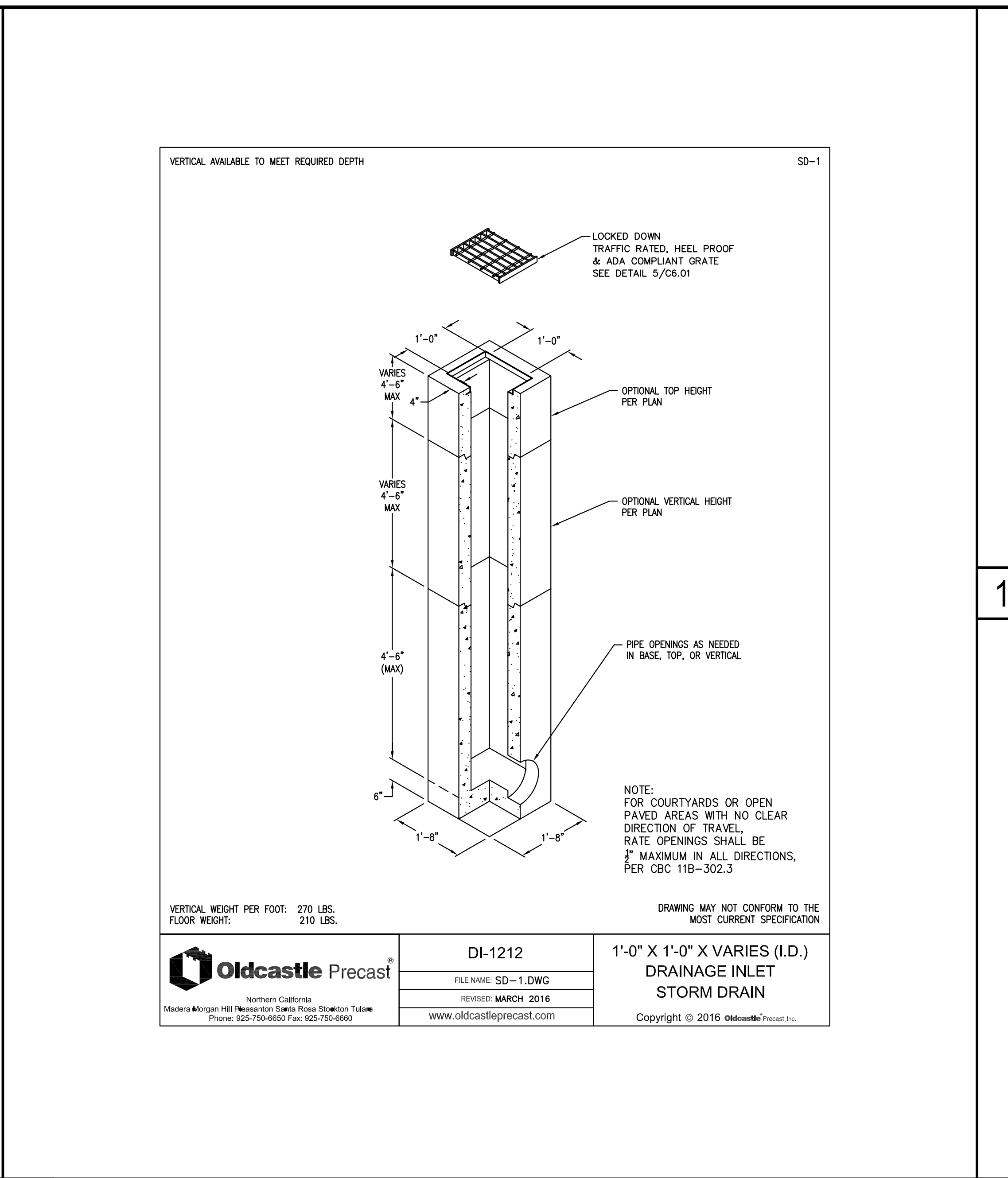
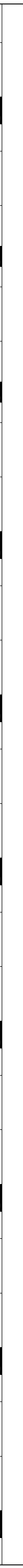


TEMP.CONSTRUCTION EXIT

4.) STREET SWEEPING SHALL BE CONDUCTED TO CONTROL DUST AND DIRT TRACKED FROM THE PROJECT SITE ONTO ADJACENT STREETS.



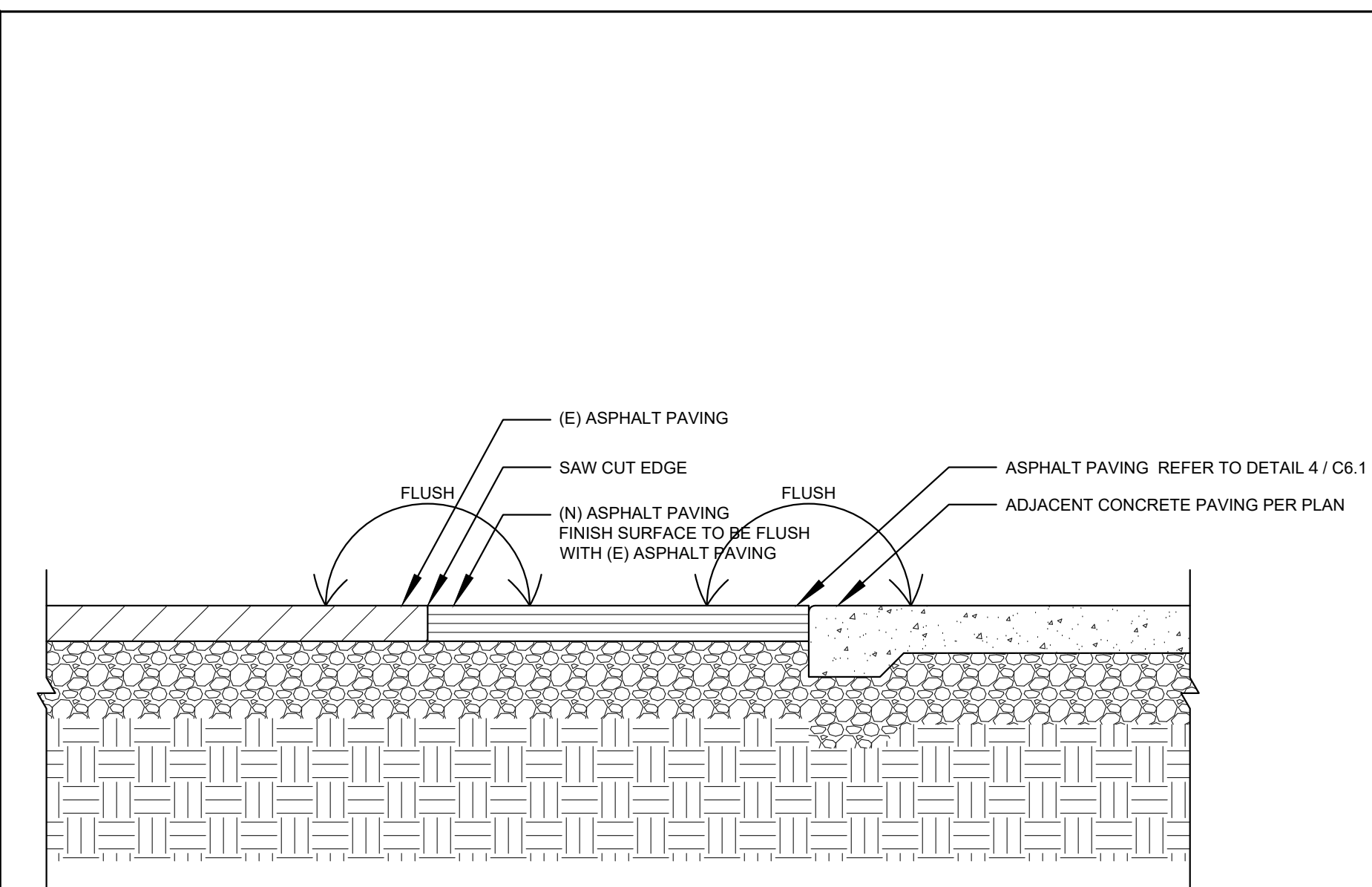
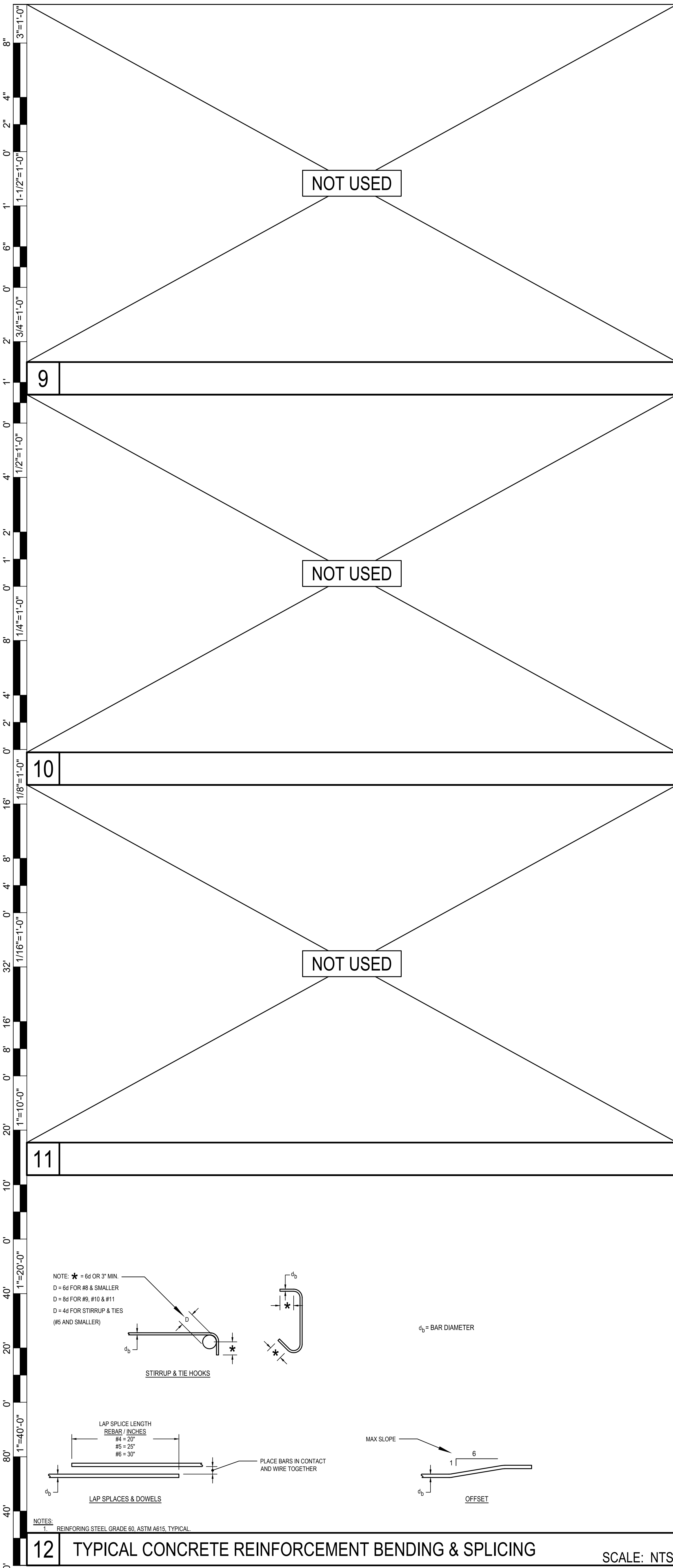
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7-21-26

20260809.dwg = Pacific Grove HS - WNO-Cdtn-3265 = Construction Details.dwg

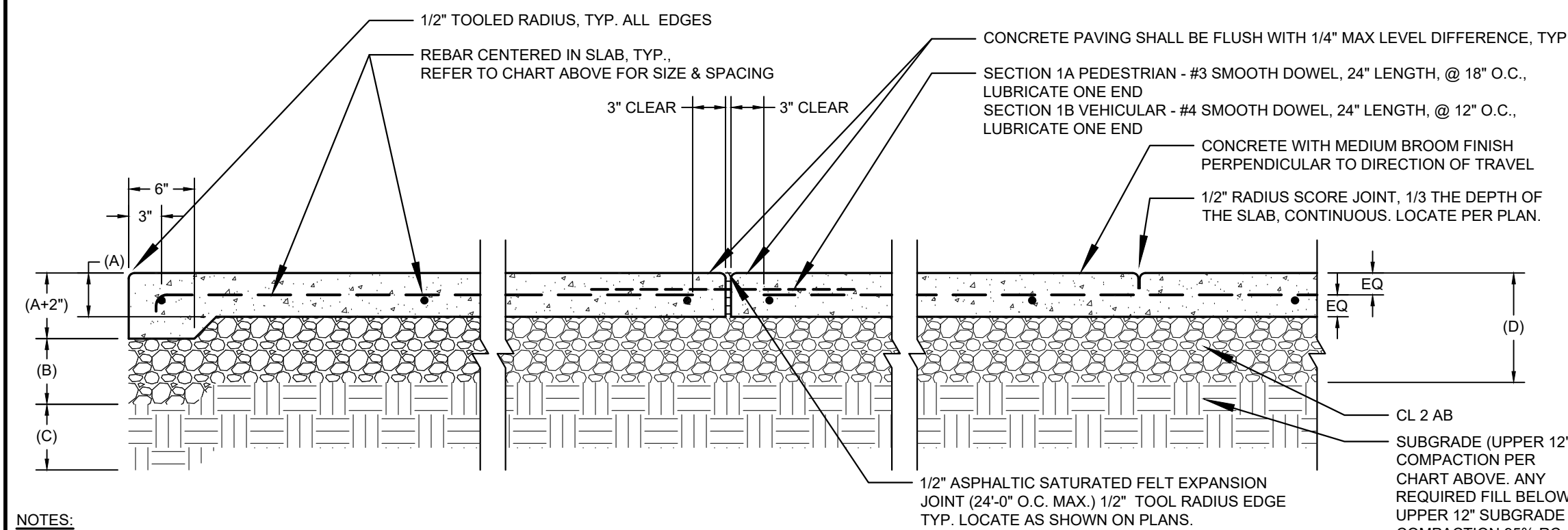


NOTES:
1. REFER TO GEOTECHNICAL REPORT

5 (N) ASPHALT TO (E) ASPHALT

SCALE: NTS

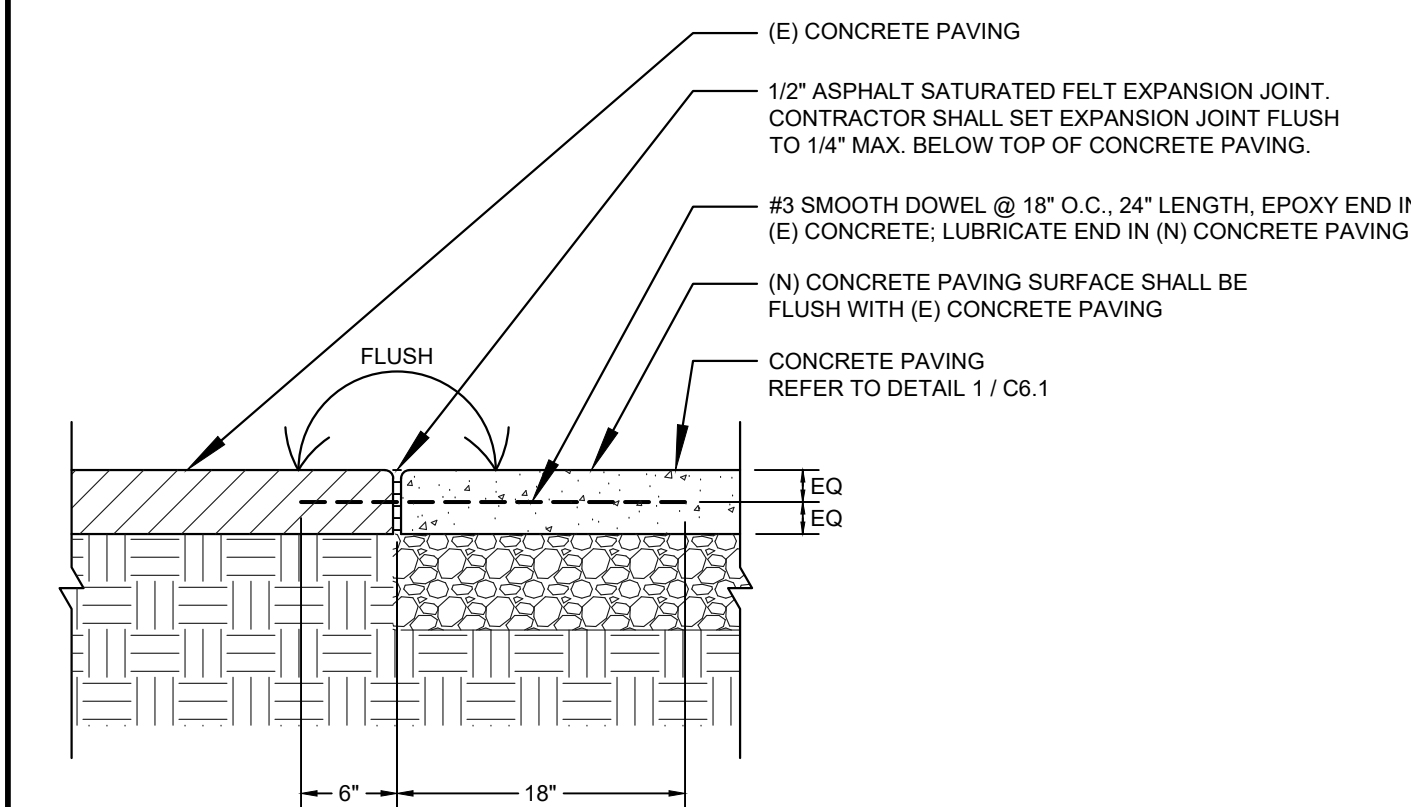
		(A)	(B)	(C)	(D)		
SECTION	CONCRETE SLAB THICKNESS	CL 2 BASE / COMPACTION	UPPER 12" SUBGRADE COMPACTION	TOTAL THICKNESS	ANY REQUIRED FILL BELOW UPPER 12" SUBGRADE COMPACTION	REBAR SIZE & SPACING	
1A CONCRETE PAVING - PEDESTRIAN	4"	6" / 95% RC	95% RC	10"	95% RC	#4 REBAR, TYP. @ 18" O.C. EACHWAY	
1B CONCRETE PAVING - VEHICULAR & TRASH ENCLOSURE	6"	8" / 95% RC	95% RC	14"	95% RC	#5 REBAR, TYP. @ 12" O.C. EACHWAY	



NOTES:	1. SCORE JOINTS SHALL BE PLACED A MAXIMUM OF 8'-0" O.C. REFER TO PLAN FOR EXACT LOCATIONS. 2. SCORE JOINTS TO BE 1/8" WIDE MAXIMUM, 1/2" RADIUS BOTH SIDES, SCORE DEPTH SHALL BE 1/3 OF CONCRETE PAVING DEPTH. 3. ADJACENT GRADE TO BE 1-1/2" BELOW CONCRETE IN PLANTING AND 1" BELOW CONCRETE IN SODDED TURF AND 1/2" BELOW CONCRETE IN SEEDED TURF. 4. REFER TO SPECIFICATION SECTION 32 13 13 - CONCRETE WORK FOR CONCRETE MIX DESIGN CRITERIA.	TYP. LOCATE AS SHOWN ON PLANS.
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1	CONCRETE PAVING
---	-----------------

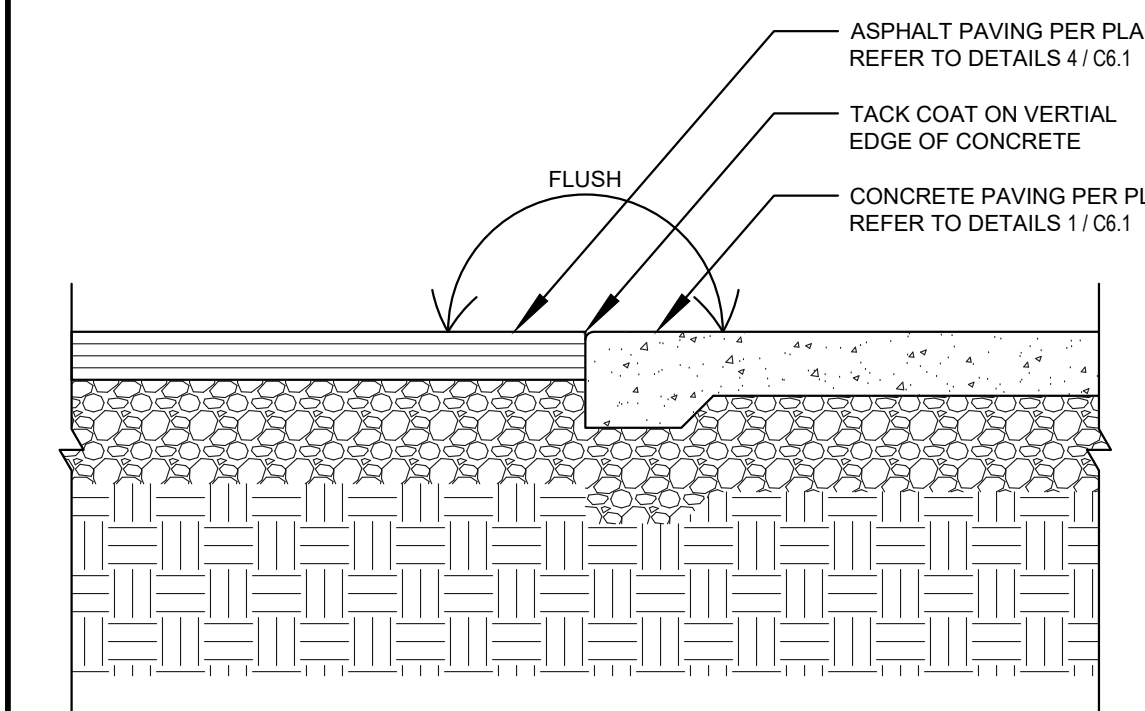
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NOTES:
1. REFER TO SPECIFICATION SECTION 32 13 13 - CONCRETE PAVING

2 (N) CONCRETE TO (E) CONCRETE

SCALE: NTS



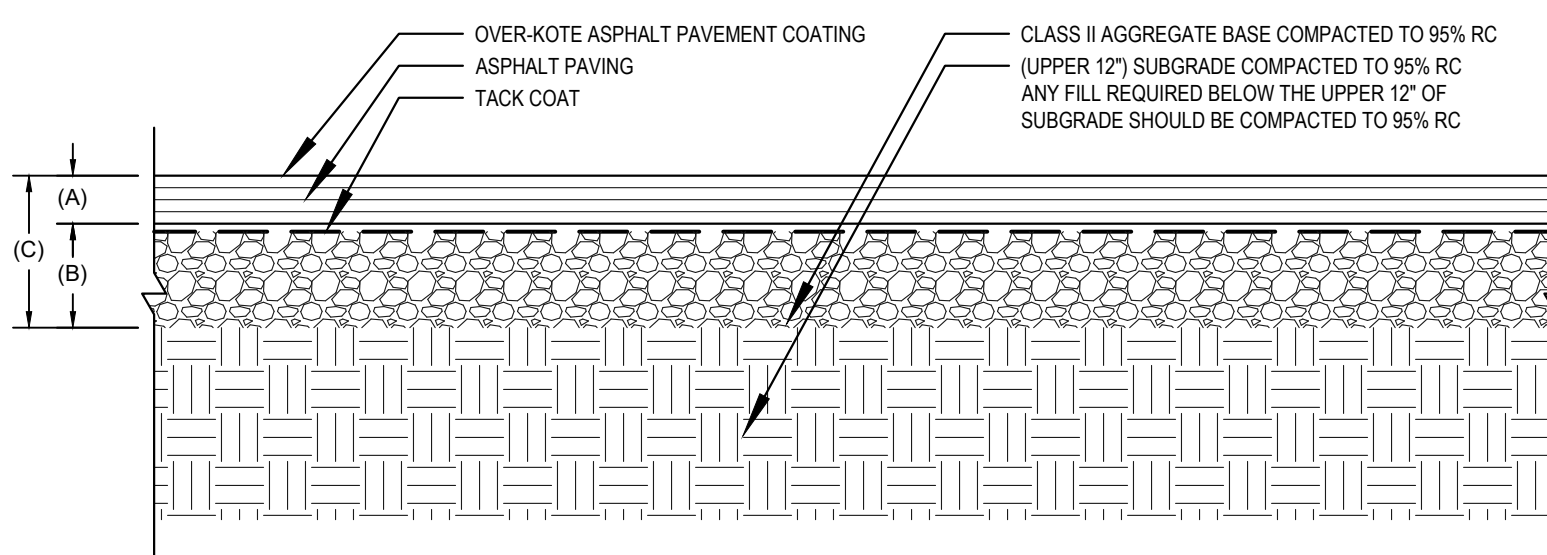
NOTES:

1. CONCRETE AND ASPHALT SURFACES SHALL BE FLUSH.
2. ASPHALT & OVER-KOTE SURFACING SHALL BE REMOVED FROM CONCRETE SURFACE PRIOR TO COMPLETION

3 CONCRETE TO ASPHALT

SCALE: NTS

		(A)	(B)	(C)
SECTION	TRAFFIC CONDITION	ASPHALTIC CONCRETE (INCHES)	CLASS 2 AGGREGATE (INCHES)	TOTAL THICKNESS
4A	PEDESTRIAN (T.L. = 4.5)	UNTREATED	3.0"	7.0"
				10"
4B ★	FIRE LANE (T.L. = 6.0)	UNTREATED	3.5"	11.5"
				15.0"



NOTES:

1. REFER TO SPECIFICATION SECTION 32 12 16 - ASPHALT PAVING
2. OVER-KOTE ASPHALT PAVEMENT COATING AVAILABLE THROUGH REED AND GRAHAM. INSTALL PER MANUFACTURES RECOMMENDATIONS
3. FIRE LANE PAVEMENT SECTION DESIGNED TO SUPPORT FIRE APPARATUS PER CFC SECTION 503.2

4 ASPHALT PAVING

SCALE: NTS

12 TYPICAL CONCRETE REINFORCEMENT BENDING & SPLICING

SCALE: NTS

8

NOT USED

NOT USED

NOT USED

NOT USED

ARROLL
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TEL 410-281-2820
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engineers and surveyors

Professional Seals

**PACIFIC GROVE UNIFIED SCHOOL
DISTRICT
PACIFIC GROVE HIGH SCHOOL
SITE IMPROVEMENTS**

615 SUNSET DRIVE
PACIFIC GROVE, CA 93950

SHEET TITLE:

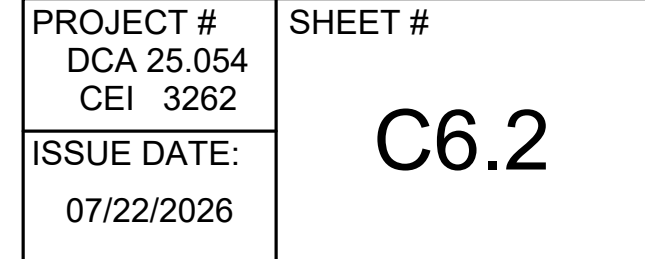
CONSTRUCTION
DETAILS

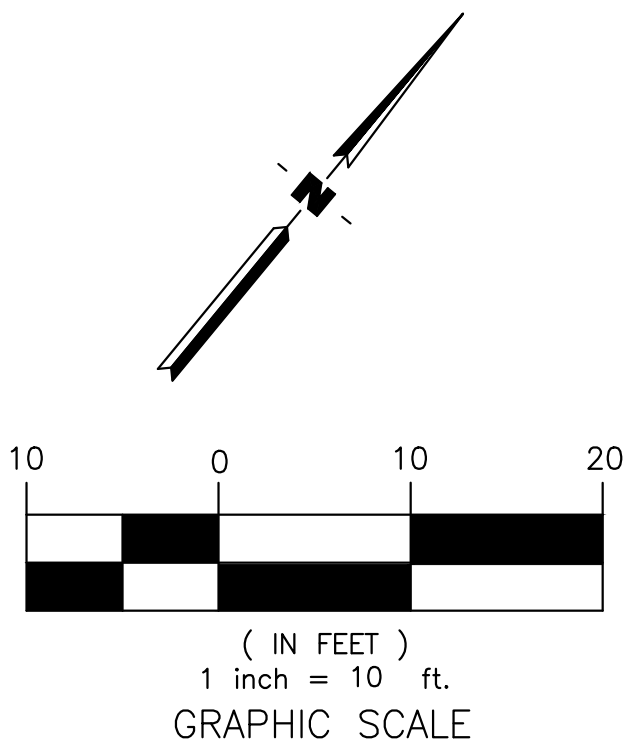
CONSTRUCTION DOCUMENTS		
Revision Schedule		
NO.	Description	Date

PROJECT # DCA 25.054 CEI 3262	SHEET # C6.1
ISSUE DATE: 07/22/2026	



SCALE: NTS





MATERIAL & DETAIL REFERENCE NOTES

- THESE NOTES ARE FOR GENERAL REFERENCE IN CONJUNCTION WITH AND AS A SUPPLEMENT TO THE WRITTEN SPECIFICATIONS, DETAILS, ADDENDA AND CHANGE ORDERS ASSOCIATED WITH THE CONTRACT DOCUMENTS.
- CONTRACTOR SHALL BECOME FAMILIAR WITH THE LOCATION OF EXISTING AND PROPOSED UNDERGROUND SERVICES. CONTACT UNDERGROUND SERVICE ALERT (USA) AT (800) 642-2444 PRIOR TO BEGINNING WORK. CONTACT DISTRICT REPRESENTATIVE SHOULD ANY CONFLICTS ARISE.
- SCORE AND EXPANSION JOINTS SHALL BE LOCATED AS INDICATED ON THIS PLAN. CONTRACTOR SHALL MAKE MINOR ADJUSTMENTS WHEN NECESSARY TO ALIGN SCORE AND EXPANSION JOINTS WITH RELATIVE ELEMENTS AS SHOWN ON THE PLAN.
- DETAIL CALLOUTS ON PLAN ARE PROVIDED FOR CONVENIENCE AND GENERAL REFERENCE ONLY. CONTRACTOR SHALL PROVIDE QUANTITY OF PRODUCTS, ELEMENTS AND MATERIALS AS SYMBOLIZED ON PLANS, ASSOCIATED DETAILS AND SPECIFICATIONS.
- FOR EACH CONCRETE FINISH SPECIFIED, CONTRACTOR SHALL POUR A 2x2' SAMPLE FOR APPROVAL BY DISTRICT REPRESENTATIVE PRIOR TO INSTALLING CONCRETE PAVING.
- CIVIL ENGINEER IS NOT RESPONSIBLE FOR MEANS AND METHODS OF CONSTRUCTION. IF WORK WITHIN THIS SCOPE REQUIRES REMOVAL, RENOVATION, OR DEMOLITION OF EXISTING TO REMAIN ELEMENTS, BOTH SURFACE AND KNOWN SUBSURFACE CONDITIONS, CONTRACTOR SHALL INCLUDE IN THE BID SUFFICIENT LABOR AND MATERIALS TO RESTORE EXISTING TO REMAIN IMPROVEMENTS IN-KIND AND AS ACCEPTABLE TO DISTRICT REPRESENTATIVE.
- THE CONTRACTOR SHALL BE RESPONSIBLE UNDER THIS CONTRACT FOR REPAIRING OR REPLACING, AT THEIR OWN EXPENSE, SURFACE AND SUBSURFACE SITE FEATURES TO REMAIN, INCLUDING BUT NOT LIMITED TO ANY STRUCTURES, FENCES, WALLS, PAVING SURFACES, PLANT MATERIAL AND/OR TREES DAMAGED OR DESTROYED, BOTH ON THIS PROPERTY OR THOSE PROPERTIES ADJACENT TO THIS SITE. THE DAMAGED ITEM(S) WILL BE RESTORED TO THEIR ORIGINAL CONDITION OR REPLACED TO THE SATISFACTION OF THE OWNER'S REPRESENTATIVE.
- CONTRACTOR SHALL ADJUST EXISTING UTILITY BOXES TO BE FLUSH WITH PROPOSED GRADES.
- REFER TO CONSTRUCTION DETAILS ON SHEETS C6.1 - C6.2
- REFER TO THE FOLLOWING SPECIFICATION SECTIONS:
 - 01 56 39 TEMPORARY TREE AND PLANT PROTECTION
 - 05 52 00 METAL RAILINGS
 - 32 12 16 ASPHALT PAVING
 - 32 13 13 CONCRETE WORK

MATERIAL & DETAIL REFERENCE LEGEND

PAVING DETAILS

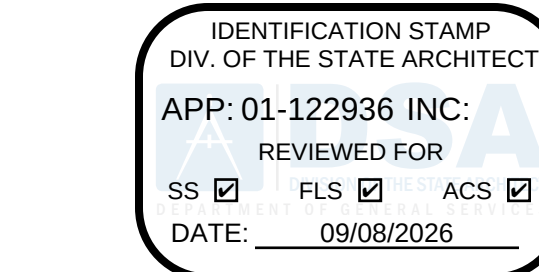
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P1A	CONCRETE PAVING - PEDESTRIAN		1/C6.1
P1B	CONCRETE PAVING - VEHICULAR		1/C6.1
P2	(N) CONCRETE TO (E) CONCRETE		2/C6.1
P3	CONCRETE TO ASPHALT		3/C6.1
P4A	ASPHALT PAVING - PEDESTRIAN		4/C6.1
P4B	ASPHALT PAVING - FIRE		4/C6.1
P5	(N) ASPHALT TO (E) ASPHALT (ASPHALT SAW CUT EDGE)		5/C6.1

RAMP DETAILS

KEYNOTE	DETAIL NAME	SYMBOL	DETAIL REFERENCE
ER1	EDGE OF RAMP - TYPE I		1/C6.2
ER2	EDGE OF RAMP - TYPE II		2/C6.2

METAL RAILING

KEYNOTE	DETAIL NAME	SYMBOL	DETAIL REFERENCE
H1	HANDRAIL IN RAMP - TYPE I		4/C6.2



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3031 W March Ln, Ste 334
Stockton, CA 95219
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PACIFIC GROVE HIGH SCHOOL
SITE IMPROVEMENTS
615 SUNSET DRIVE
PACIFIC GROVE, CA 93950

SHEET TITLE:
MATERIAL & DETAIL
REFERENCE PLAN

CONSTRUCTION DOCUMENTS

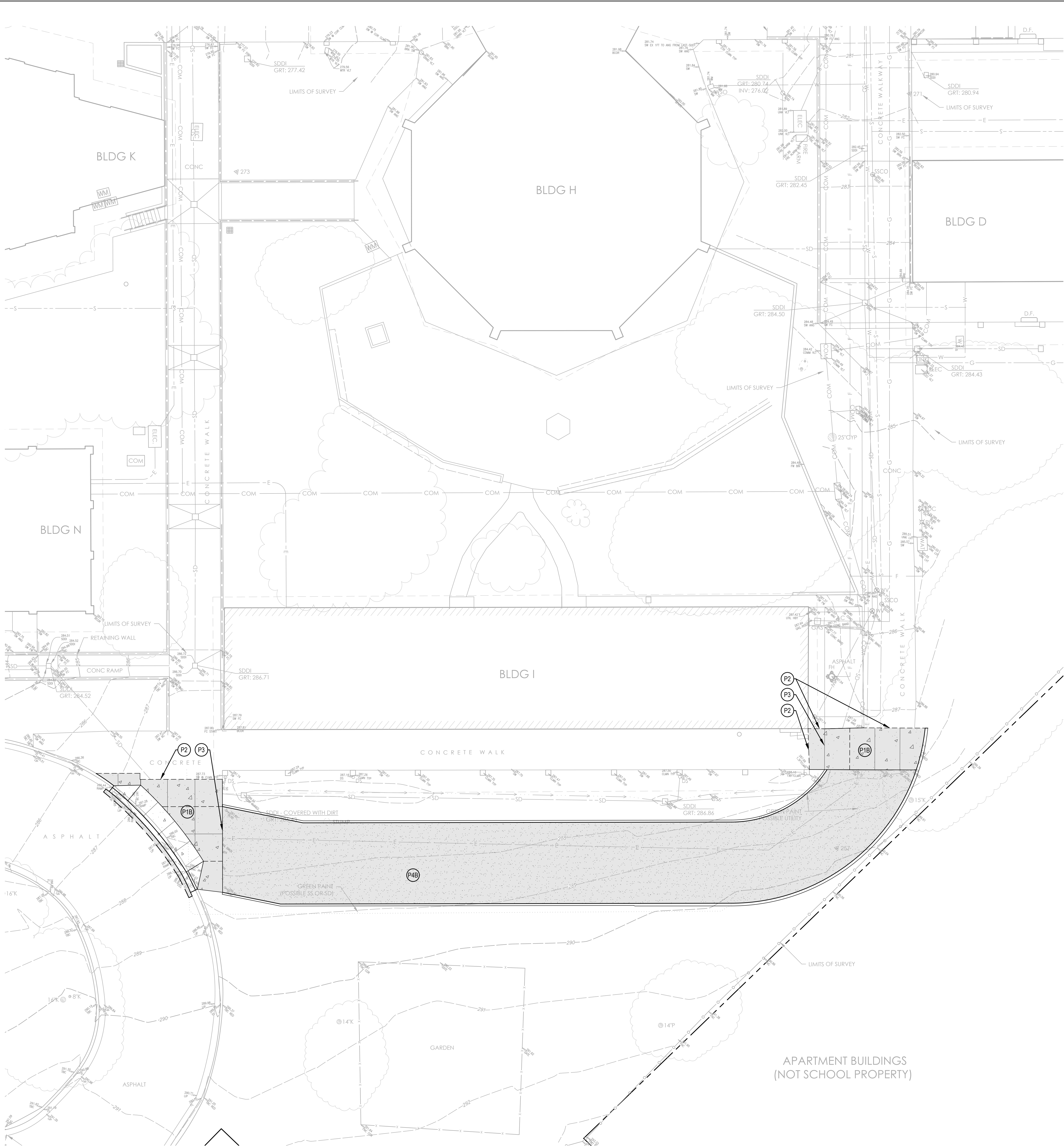
Revision Schedule		
NO.	Description	Date

PROJECT #
DCA 25.054
CEI 3262
ISSUE DATE:
07/22/2026
SHEET #
C7.1

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Construction Contractor agrees that in accordance with generally accepted construction practices, construction contractor will be required to assume sole and complete responsibility for job site conditions during the course of construction of the project including safety of all persons and property, that this requirement shall be made to apply continuously and not be limited to normal working hours, and construction contractor further agrees to defend, indemnify and hold design professional harmless from any and all liability, real or alleged in connection with the performance of work on this project, excepting liability arising from the sole negligence of design professional.

UNAUTHORIZED CHANGES & USES: The engineer preparing these plans will not be responsible for, or liable for, unauthorized changes to or uses of these plans. All changes to the plans must be in writing and must be approved by the preparer of these plans.



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1 CAMPUS DEMO SITE PLAN
SCALE: 1" = 80'-0"



SHEET NOTES

A. NO DEMOLITION SHALL BEGIN UNTIL PLANS, INCLUDING THE DEMOLITION WORK HAVE BEEN APPROVED BY DSA. SAFE OFF ALL UTILITIES, AS REQUIRED FOR DEMOLITION AND NEW WORK. SEE CIVIL DRAWINGS FOR ADDITIONAL INFORMATION.

KEYNOTES

02-102 REMEMOVE (E) BOLTED DOWN SPEED BUMPS AND PREP THE ASPHALT PAVEMENT FOR (N) SPEED BUMPS INSTALLATION

LEGEND

REMOVE (E) AC PAVING, (E) CONC. PAVING, AND/OR (E) LANDSCAPING AS REQUIRED FOR NEW WORK. PROTECT (E) UTILITIES TO REMAIN. COORDINATE WITH CIVIL DRAWINGS

(E) BLDG (E) BUILDING - NOT IN SCOPE OF WORK

PROPERTY LINE

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 01-122936 INC.
REVIEWED FOR
SS ☒ FLS ☒ ACS ☒
DATE: 09/08/2026

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Architects
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3031 W March Ln, Ste 334
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RAYMON GOMEZ, AIA
NO. C-31014
RENEWAL DATE 05-31-2027
STATE OF CALIFORNIA

PACIFIC GROVE UNIFIED SCHOOL DISTRICT
PACIFIC GROVE HIGH SCHOOL
SITE IMPROVEMENTS

615 SUNSET DR.
PACIFIC GROVE, CA 93950

SHEET TITLE:
CAMPUS DEMO SITE PLAN

Revision Schedule		
NO.	Description	Date

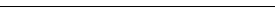
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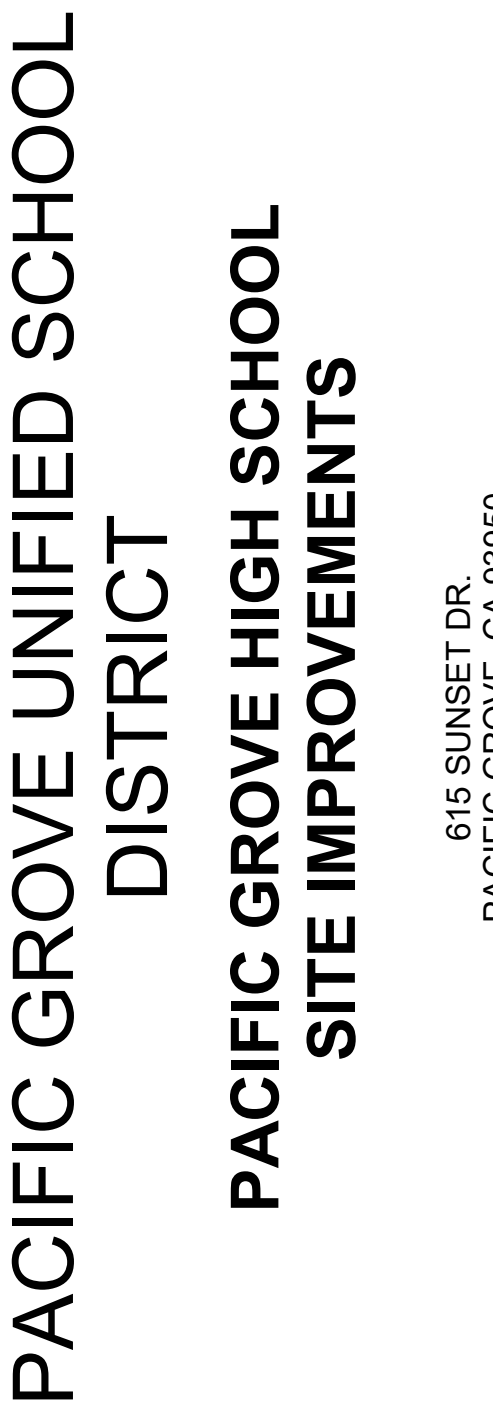
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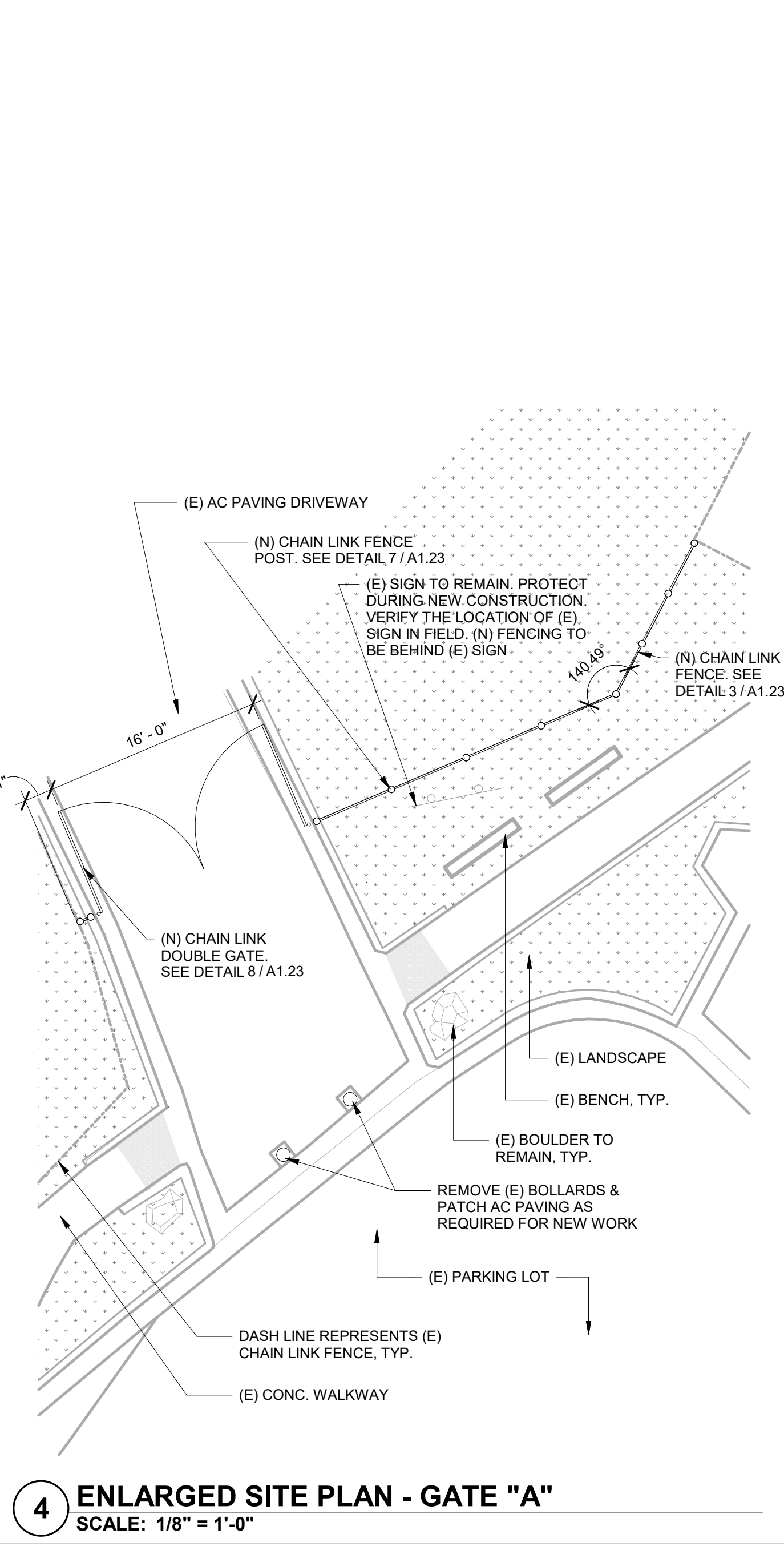
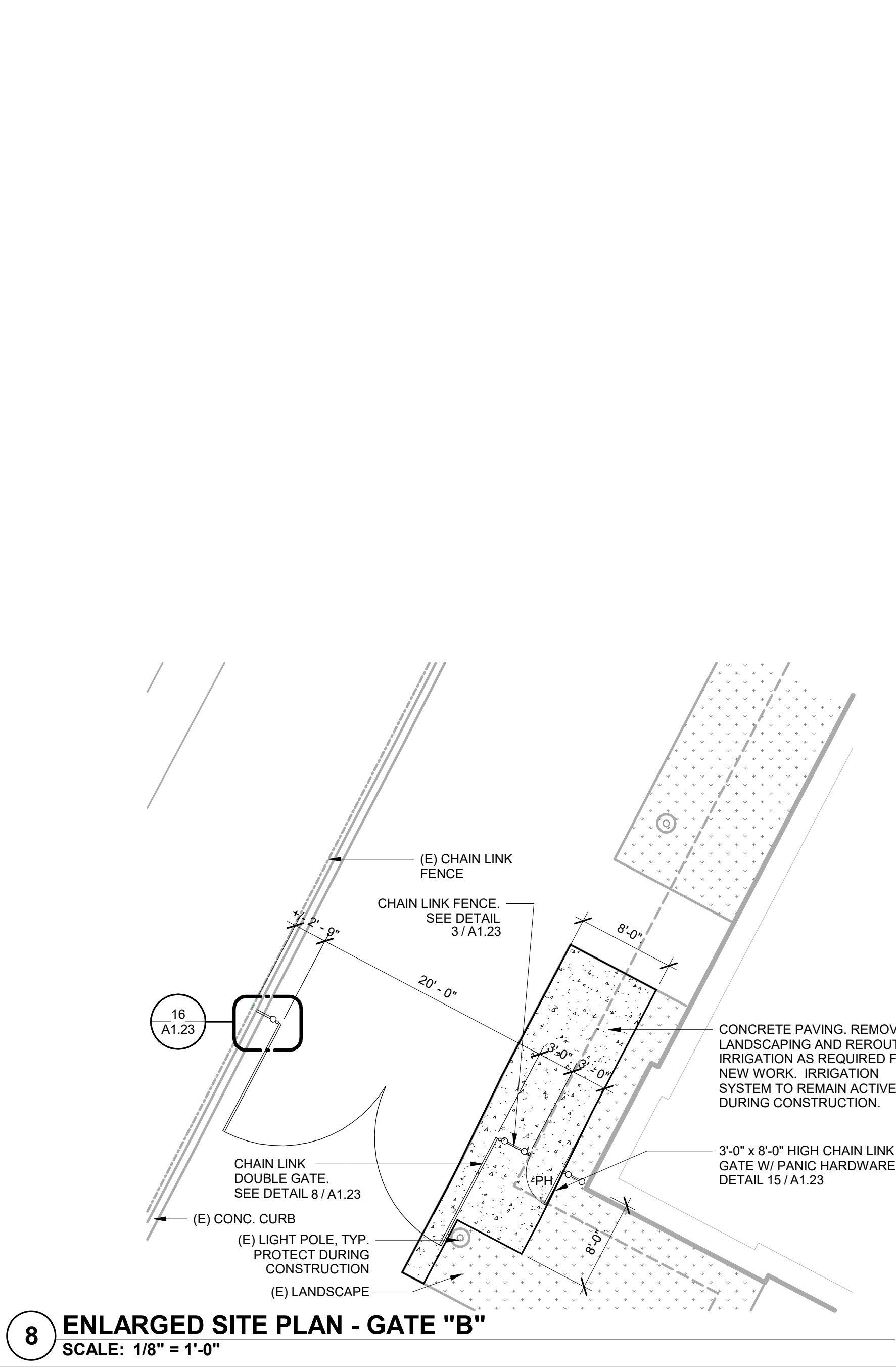
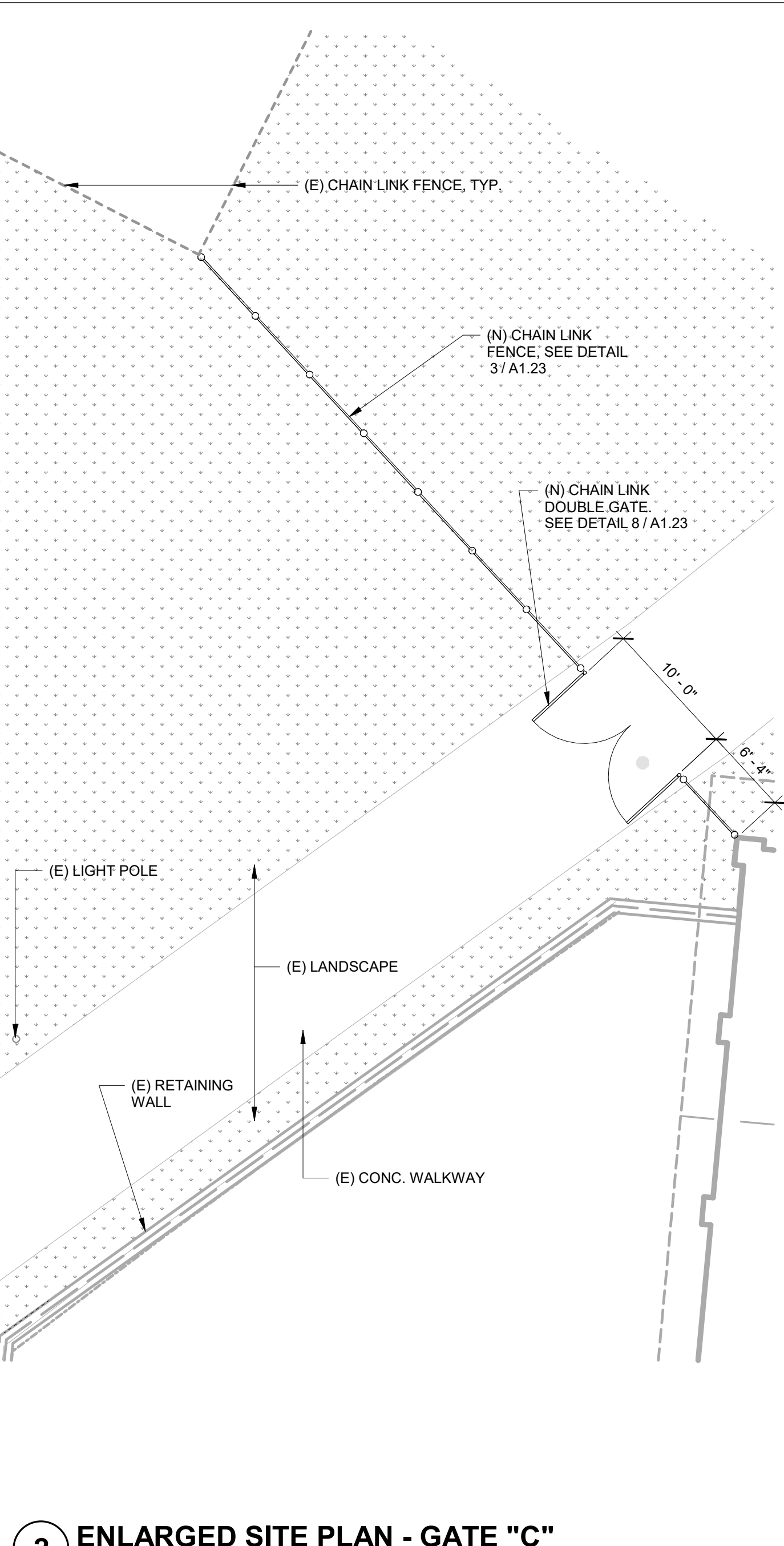
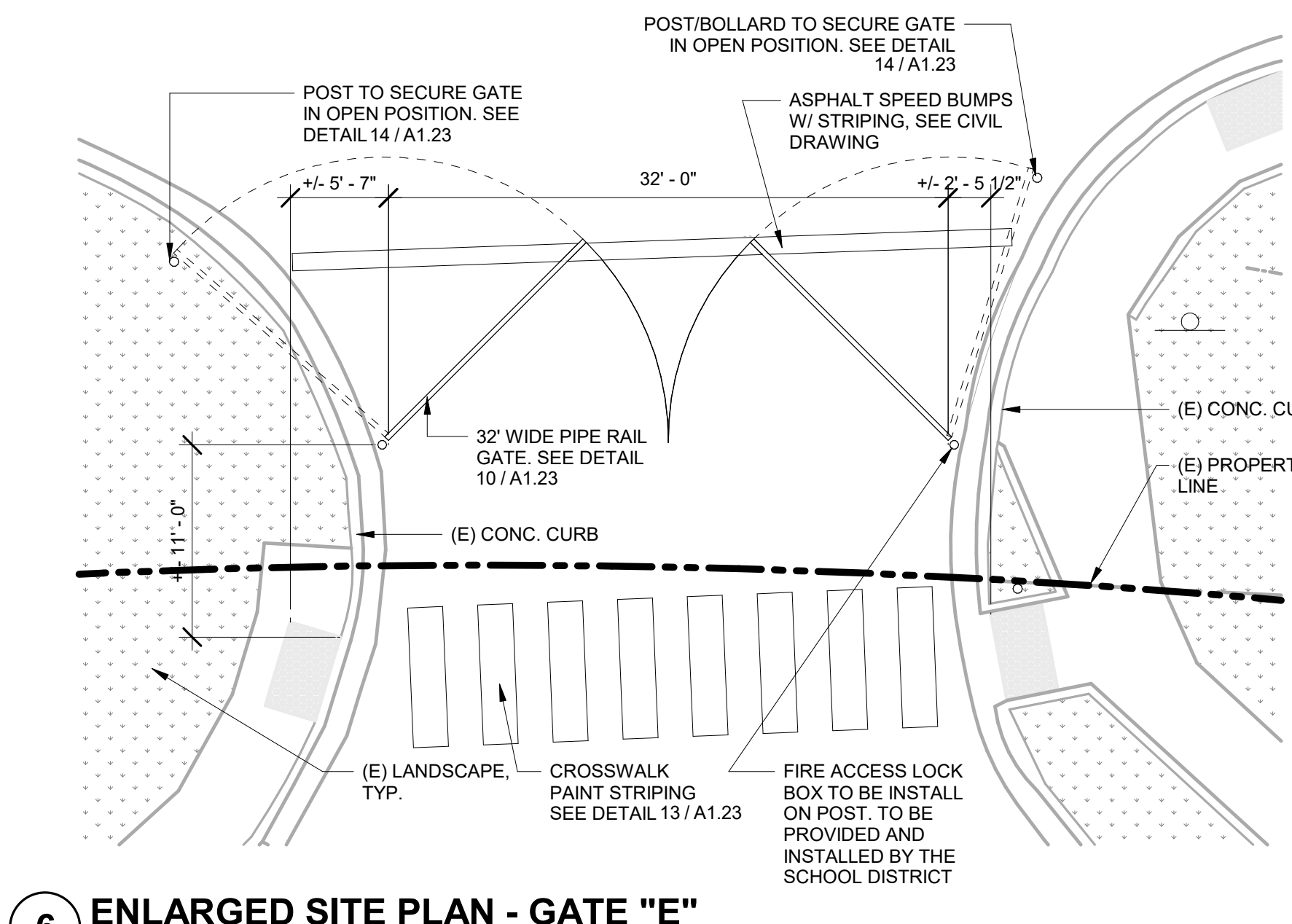
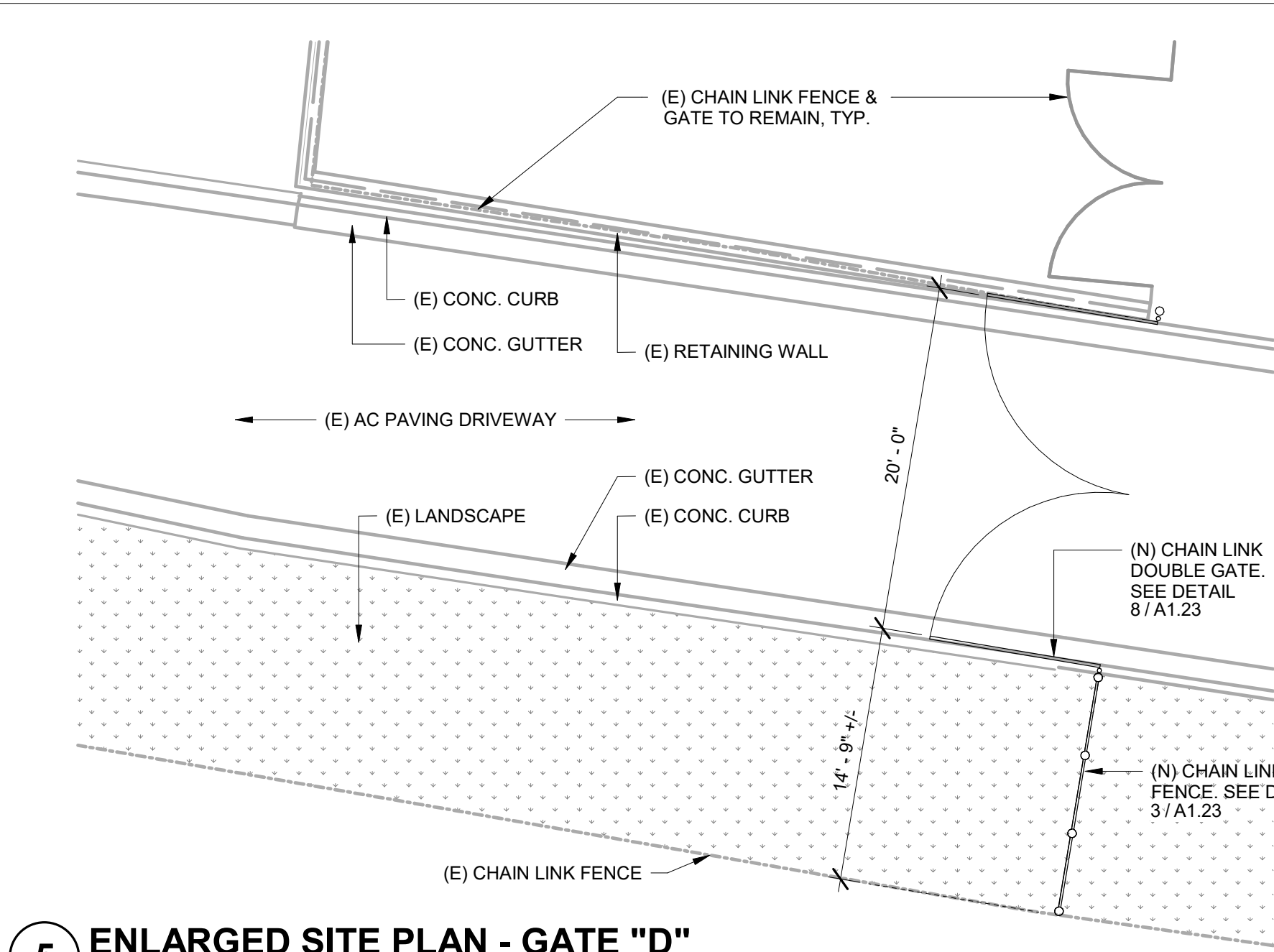


SHEET NOTES		KEYNOTES
A.	EXTERIOR SITE IMPROVEMENTS AND SCOPE OF WORK BOUNDARIES SHOWN ON THIS PLAN ARE GENERAL IN NATURE AND MAY NOT REFLECT ENTIRETY OF THE SCOPE	32-005 FIRE ACCESS LANE SHALL BE IDENTIFY BY RED PAINTED CURB WITH CLEARLY MARKED WORDS "FIRE LANE - NO PARKING"



LEGEND	
	PREP THE SITE AS REQUIRED FOR NEW WORK. REMOVE (E) AC PAVING, (E) CONC. PAVING, AND/OR (E) LANDSCAPING AS NECESSARY FOR NEW WORK. PROTECT (E) UTILITIES TO REMAIN. COORDINATE WITH CIVIL DRAWINGS
	AC PAVING, REFER TO CIVIL DRAWINGS
	CONCRETE PAVING, REFER TO CIVIL DRAWINGS

[illegible]



IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 01-122936 INC:
REVIEWED FOR
SS ☒ FLS ☒ ACS ☒
DATE: 09/08/2026

Derivi
Castellanos
Architects

Central Valley
3031 W March Ln, Ste 334
Stockton, CA 95219
(209) 462-2873

ooga

Silicon Valley
955 Market St, Ste 480
San Jose, CA 95113
(408) 320-4871
www.dcaiaa.com

Professional Seals

LICENSED ARCHITECT
RAYMON GOMEZ, J.S.
NO. C-31014
RENEWAL DATE
05-31-2027
STATE OF CALIFORNIA

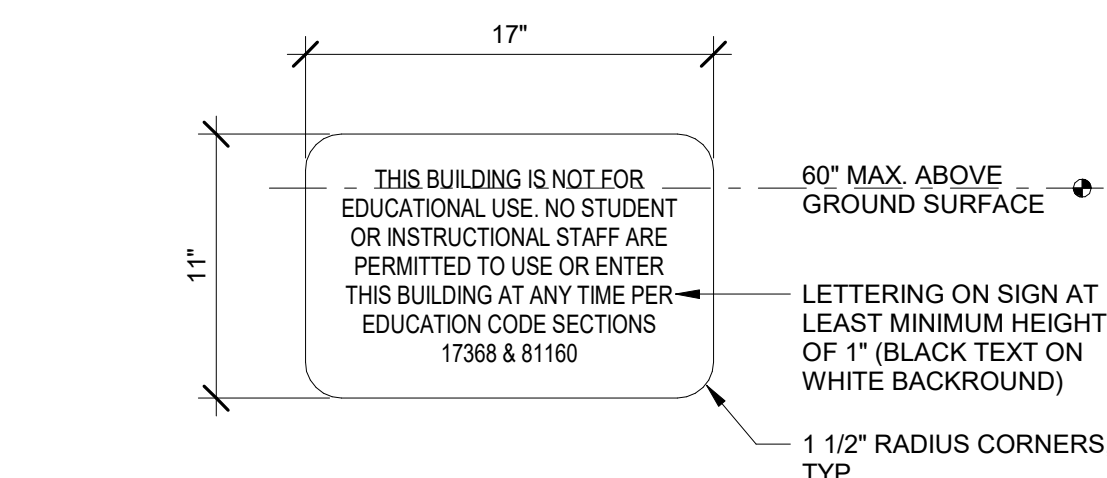
PACIFIC GROVE UNIFIED SCHOOL
DISTRICT
PACIFIC GROVE HIGH SCHOOL
SITE IMPROVEMENTS

615 SUNSET DR.
PACIFIC GROVE, CA 93950

SHEET TITLE:
SITE DETAILS

Revision Schedule		
NO.	Description	Date

PROJECT # 25.054	SHEET # A1.22
ISSUE DATE: 07/22/2026	



Technical drawing of a gate assembly, showing side and end views. The drawing includes dimensions and material specifications.

Dimensions:

- Gate height: 8'-0" U.O.N.
- Gate width: 3'-6"
- Gate thickness: 42"
- Gate post diameter: 18" DIA. x 42" DEEP
- Gate post spacing: 3'-6"
- Gate post height: 5' MAX.
- Gate post diameter: 18" DIA. x 42" DEEP

Materials and Components:

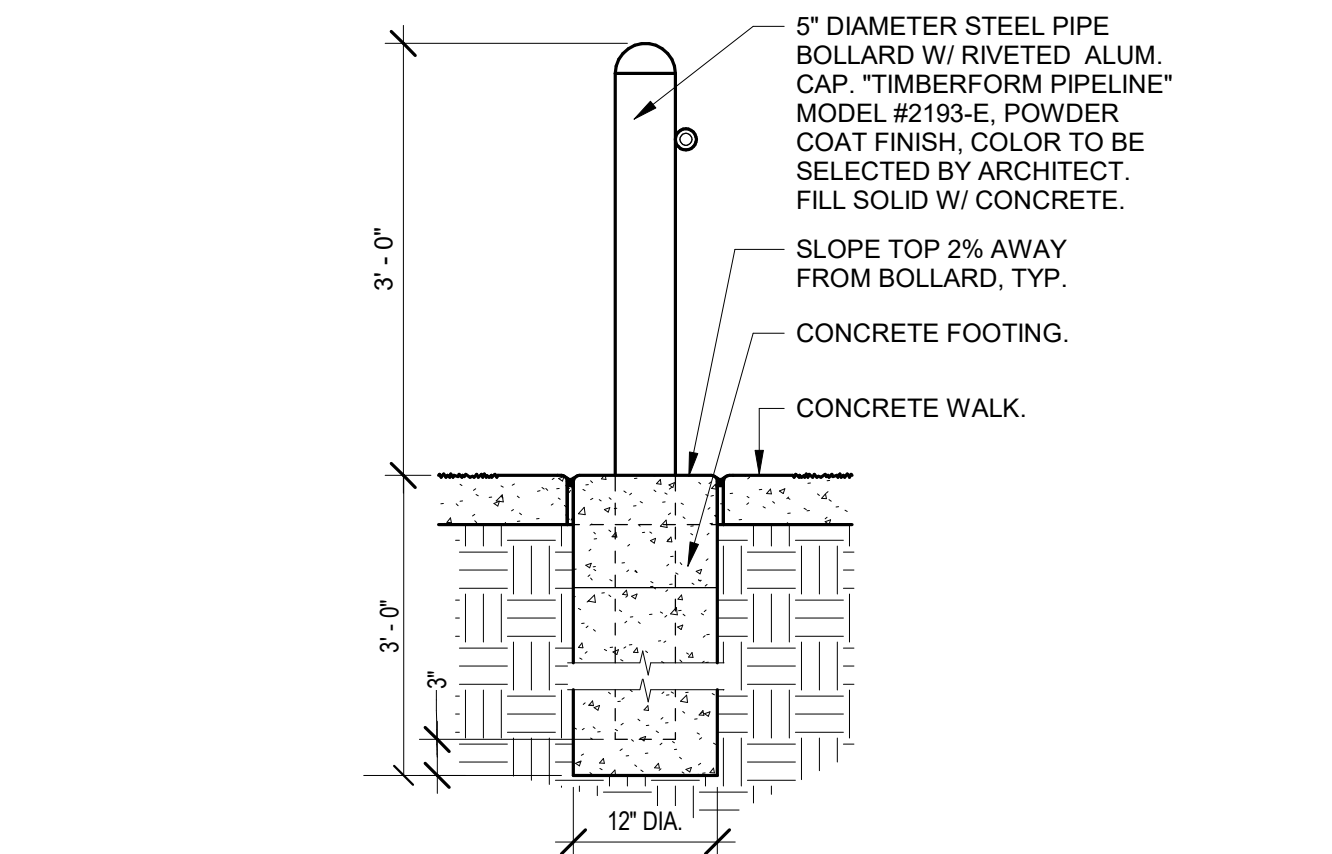
- STEEL PIPE GATE FRAME ASSEMBLY, WELD ALL CORNERS
- LOCINOX SERV-SID-R ADJUSTABLE GATE SPRING HINGE, TYP.
- STEEL PLATE SHROUD, WELD TO GATE FRAME AT BOTH ENDS
- EXIT DEVICES SHALL BE: VON DUPRIN CD-PA-AX-99-L KC-06, W/25001114 XQ11-949 MORTISE CYLINDER, 5-LB MAX. OPERATING FORCE
- 14 GA. WELDED STEEL LOCKSET BOX, BY KEEDEX OR APPROVED EQUAL, WELD GATE FRAME TO TOP & BOTTOM
- CHAIN-LINK FENCE ASSEMBLY, TYP.
- CHAIN-LINK FENCE POST, TYP.
- PAVEMENT TYP. SEE PLANS & LANDSCAPE DRAWINGS

NOTES:

- GRIND ALL WELDS SMOOTH PRIOR TO GALVANIZATION.
- ALL COMPONENTS TO BE VINYL-COATED. SEE SPEC.
- FIELD-WELDED OR ASSEMBLED COMPONENTS (GATE FRAME, GATE POST FRAME) TO BE GALVANIZED & PAINTED TO MATCH ADJACENT FENCE FINISH.
- CLOSER AND HINGE TO BE COLOR SILVER
- ADJUST GATE SPRING HINGES SO THAT FROM A 90 DEGREE OPEN POSITION, THE TIME REQUIRED TO MOVE THE GATE TO AN OPEN POSITION OF 12 DEGREES FROM THE LATCH IS 5 SECONDS MIN.

Technical drawing showing a cross-section of a chain-link fence assembly. The drawing includes the following components and dimensions:

- Top Rail:** 1-5/8" TOP RAIL
- End Rail Clamps:** 3" (2-7/8" O.D.) x 1-5/8" END RAIL CLAMP
- Tension Band:** TENSION BAND
- Tension Bar:** TENSION BAR
- Line Post:** 2.875" O.D. LINE POST
- Chain Link Fence:** CHAIN LINK FENCE
- Intermediate Rail:** PROVIDE INTERMEDIATE RAIL @ FENCES 6'-0" AND TALLER
- Chain Link Fence (E):** (E) CHAIN LINK FENCE
- Seat/Retaining Wall:** (E) SEAT/RETAINING WALL
- Concrete Footing:** 18" DIA. x 60" DEEP CONCRETE FOOTING
- End Rail Clamps (Bottom):** 3" (2-7/8" O.D.) x 1-5/8" END RAIL CLAMP
- Floor Flange:** 3" (2-7/8" O.D.) FLOOR FLANGE
- Bottom Rail:** BOTTOM RAIL
- Dimensions:**
 - 3" MAX.
 - 2'-0" MAX.
 - 1-5/8" x 1-5/8" GATE CORNER, TYP.
 - 8'-0" U.O.N.
 - 1'-0" CH
 - 8'-0"
- Other Labels:** DOME POST CAP, 3" (2-7/8" O.D.) x 1-5/8" LINE RAIL CLAMP, BLACK VINYL CHAIN LINK MESH, INSTALL ON OUTSIDE OF FENCE.



KNUCKLE SELVAGE TOP AND BOTTOM AT GATES AND ENDS, TYP.

GATE BRACE BEYOND

STEEL PIPE GATE FRAME ASSEMBLY, WELD ALL CORNERS

4" POST EACH SIDE OF GATE, TYP.

LOCINOX SERV-SD-R ADJUSTABLE GATE SPRING HINGE, TYP.

GATE OPENING PER PLAN

STEEL PIPE CROSS BAR, SIZE TO MATCH FENCE POSTS. WELD TO FENCE POSTS @ EITHER SIDE

SMALL-MESH CHAIN-LINK FABRIC, SEE SPEC.

STEEL PLATE 3/8" THK. WELD TO GATE FRAME AT BOTH ENDS

EXIT DEVICES SHALL BE: VON DUPRIN CD-PA-X90-L KC-06, W/20-001 114 X011-849 MORTISE CYLINDER, 5-LB MAX. OPERATING FORCE

14 GA. WELDED STEEL LOCKSET BOX, BY KEEDUX OR AN APPROVED EQUAL WELD GATE FRAME TO TOP & BOTTOM

CHAIN-LINK FENCE ASSEMBLY, TYP.

CHAIN-LINK FENCE POST, TYP.

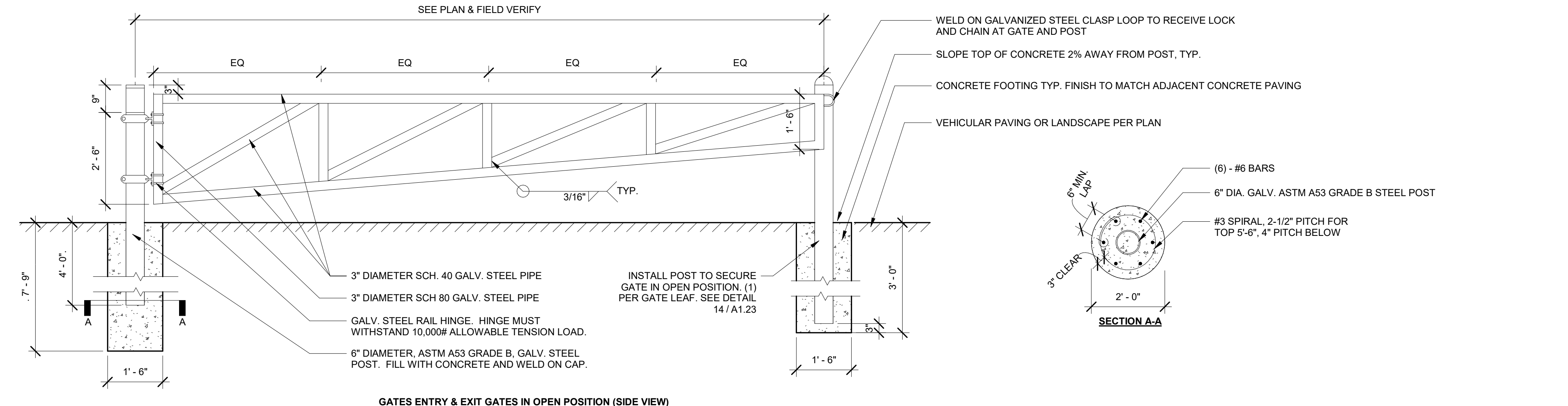
PAVEMENT TYP. SEE PLANS & LANDSCAPE DRAWINGS

18" DIA. x 42" DEEP CONCRETE FOOTING

Dimensions: 18'-0" U.O.N., 42", 30" MIN - 44" MAX, 5'-0" MAX, 5'-6"

Technical drawing of a fence assembly showing various components and dimensions. The drawing includes a cross-section of the fence structure, showing the chain link fence, tension bands, and rails. Key components and dimensions are labeled:

- 3" MAX.** and **2'-0" MAX.** dimensions for the top rail assembly.
- 1-5/8" x 1-5/8" GATE CORNER, TYP.** dimension for the gate corner.
- BLACK VINYL CHAIN LINK MESH. INSTALL ON OUTSIDE OF FENCE.** instruction for the chain link mesh.
- PROVIDE INTERMEDIATE RAIL @ FENCES 6'-0" AND TALLER.** instruction for intermediate rails.
- CHAIN LINK FENCE.** label for the chain link fence.
- (E) CHAIN LINK FENCE.** label for the chain link fence.
- (E) SEAT/RETAINING WALL.** label for the seat/retaining wall.
- 18" DIA. x 60" DEEP CONCRETE FOOTING.** dimension for the concrete footing.
- 3" (2-7/8" O.D.) x 1-5/8" LINE RAIL CLAMP.** dimension for the line rail clamp.
- 1-5/8" TOP RAIL.** dimension for the top rail.
- TENSION BAND.** label for the tension band.
- 2.875" O.D. LINE POST.** dimension for the line post.
- TENSION BAR.** label for the tension bar.
- 3" (2-7/8" O.D.) x 1-5/8" END RAIL CLAMP.** dimension for the end rail clamp.
- BOTTOM RAIL.** label for the bottom rail.
- 3" (2-7/8" O.D.) x 1-5/8" END RAIL CLAMP.** dimension for the end rail clamp.
- 3" (2-7/8" O.D.) FLOOR FLANGE.** dimension for the floor flange.
- 8'-0" U.O.N.** dimension for the overall height of the fence.
- DOME POST CAP.** label for the dome post cap.



1. WELD ALL PIPE JOINTS AND GRIND SMOOTH.
2. PAINT ALL ABOVE GROUND COMPONENTS WITH PRIMER AND TWO COATS FINISH PAINT COLOR. ARCHITECT TO SELECT COLOR.
3. DISTRICT SHALL PROVIDE LOCK AND CHAIN TO SECURE GATE.
4. TOP OF GATE TO BE LEVEL.

1 1/4" DIA. STEEL LEVERS
WELD LATCH EACH SIDE

2 1/2"

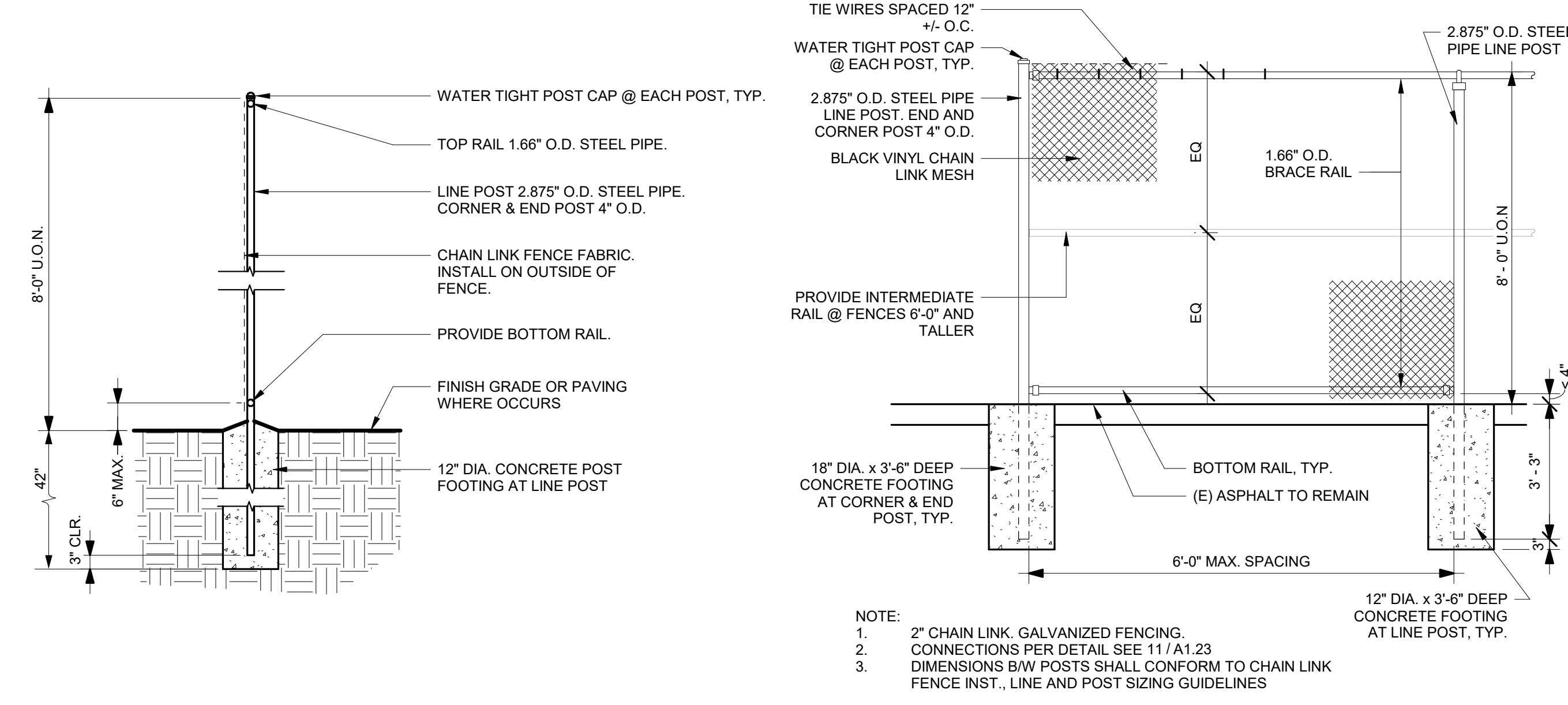
LATCH

SECTION - LEVERS ON CHAIN LINK GATE LATCH

1 - 1/2"

PADLOCK LOCKABLE
DEVICE, 3/8" MIN. OPENING

NOTE:
CONTRACTOR SHALL PROVIDE SHOP
DRAWINGS FOR ACCEPTANCE BY DISTRICT
REPRESENTATIVE PRIOR TO FABRICATION



Technical drawing of a gate assembly, showing side and end views with dimensions and material specifications.

Side View Labels:

- GATE FRAME, MITER AND WELD ALL CORNERS
- GATE POST WITH CAP, TYP.
- DIAGONAL TRUSS ROD
- 4" OD STEEL PIPE POST, TYP.
- GATE OPENING PER PLAN
- EQ
- CHAIN-LINK FENCE ASSEMBLY W/ BLACK VINYL FENCING AND BLACK SLATS
- GATE LATCH, SEE DETAIL 12 / A1.23
- 180° SWING HINGES, (3) PER GATE PANEL

End View Labels:

- (E) ASPHALT TO REMAIN
- CONCRETE POST FOOTING, TYP.
- 48" MIN.
- 18"
- 1" I.D. GALV SCH 40 PIPE W/ CAP AT BOTTOM, INSERT INTO GALVANIZED SLEEVE SIZED TO FIT AND SET WITH NONSHRINK GROUT
- 14" MIN.
- 8" DIA. MIN.
- 36"x7/8" GALV. STEEL CANE
- CANE BOLT FOOTING

NOTES:

- GRIND ALL FIELD WELDS SMOOTH AND SPOT PRIME W/ GALVANIZING PAINT.
- ALL GATES AND HARDWARE SHALL BE POWDER COATED TO MATCH CHAIN-LINK FENCING.
- REFER TO SPECIFICATION XYZ FOR CHAIN LINK FENCING.



PACIFIC GROVE UNIFIED SCHOOL DISTRICT

Pacific Grove High School

Site Improvements Project

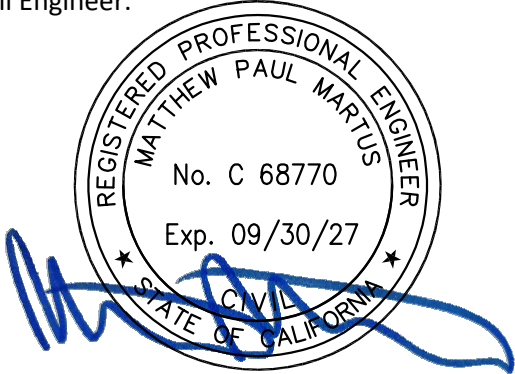
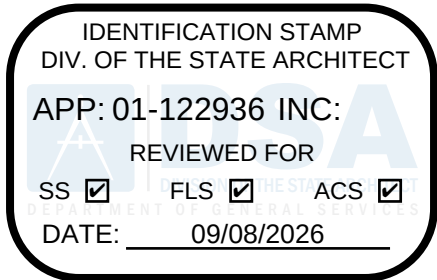
**DSA File: 27-H4
DSA Application No.: 01-122936**

CONSTRUCTION DOCUMENTS

Project Manual

Issue Date: 07/22/2026

DOCUMENT 000107 - SEALS PAGE

Architect: 	
Mechanical Engineer: NOT APPLICABLE	Electrical Engineer: NOT APPLICABLE
Civil Engineer: 	

END OF DOCUMENT 000107

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Not Used

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Not Used

DIVISION 07-THERMAL AND MOISTURE PROTECTION
Section

Not Used

DIVISION 08- OPENINGS
Section

Not Used

DIVISION 09- FINISHES
Section

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DIVISION 11- EQUIPMENT
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DIVISION 12- FURNISHINGS
Section

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DIVISION 13- SPECIAL CONSTRUCTION
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DIVISION 14- CONVEYING EQUIPMENT

Section

Not Used

DIVISION 22- PLUMBING

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DIVISION 23- HEATING, VENTILATING, AND AIR CONDITIONING

Section

Not Used

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Not Used

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END OF SECTION

SECTION 01 10 00 - SUMMARY

1.1 PROJECT INFORMATION

- A. Project Identification: Pacific Grove High School Site Improvements Project
 - 1. Project Location: 615 Sunset Drive, Pacific Grove, California 93950
- B. Owner: Pacific Grove Unified School District
 - 1. Address: 435 Hillcrest Ave, Pacific Grove, CA 93950
 - 2. Telephone: 831-645-1200
- C. Owner's Representative: BRAILSFORD & DUNLAVEY, Inc.
 - 1. Project Manager: Cody Carpino
 - 2. Address: 101 Metro Drive, Suite 330, San Jose, CA 95110
 - 3. Telephone: Direct 510-858-6317 | Mobile 530-320-7083
- D. Architect: Derivi Castellanos Architects
 - 1. Address: 95 S. Market St. San Jose, CA 95127
 - 2. Telephone: 408-320-4871
 - 3. Architect of Record: Ramon Gomez, CA license: C-31014
 - 4. Project Manager: Ronnie Lee
- E. Architect's Consultants: Architect has retained the following design professionals who will prepare designated portions of the Contract Documents:
 - 1. Structural: Not applicable
 - 2. Mechanical: Not applicable
 - 3. Electrical: AURUM Consulting Engineers
 - a. Address: 60 Garden Court Suite 210, Monterey CA. 93940
 - b. Telephone: 831-646-3330
 - c. Electrical Engineer of Record: Eldridge Bell, CA License 17789

1.2 WORK COVERED BY CONTRACT DOCUMENTS

- A. The Work of Project:

The scope of this project consists of site work and restroom modernization.

Site work scope includes new fencing, pedestrian gates and vehicle gates, partial replacement of a section of non-compliant fire lane with a new section of compliant fire lane, barrier removal work to install a new concrete accessible path from the campus parking area to the existing baseball field.

- B. Type of Contract: Design Bid Build
- C. Work by Owner:

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DSA File No.: 27-H4

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1. Preceding Work: None
2. Concurrent Work: None
3. Subsequent Work: None

D. Use of Site: Limited to work in areas indicated.

END OF SECTION 011000

SECTION 012500 - SUBSTITUTION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for substitutions.
- B. Where applicable, general provisions of the Contract, including General and Supplementary Conditions as related to product substitutions, shall supersede conflicting requirements within this section.

1.3 DEFINITIONS

- A. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents.
 - 1. Substitutions for Cause: Changes proposed by Contractor that are required due to changed Project conditions, such as unavailability of product, regulatory changes, or unavailability of required warranty terms.
 - 2. Substitutions for Convenience: Changes proposed by Contractor or Owner that are not required to meet other Project requirements but may offer advantage to Contractor or Owner.

1.4 ACTION SUBMITTALS

- A. Substitution Requests: Submit documentation identifying product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
 - 1. Substitution Request Form: Use form acceptable to Architect.
 - 2. Documentation: Show compliance with requirements for substitutions and the following, as applicable:
 - a. Statement indicating why specified product or fabrication or installation method cannot be provided, if applicable.
 - b. Coordination of information, including a list of changes or revisions needed to other parts of the Work and to construction performed by Owner and separate contractors that will be necessary to accommodate proposed substitution.
 - c. Detailed comparison of significant qualities of proposed substitutions with those of the Work specified. Include annotated copy of applicable Specification Section.

Significant qualities may include attributes, such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.

- d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
 - e. Samples, where applicable or requested.
 - f. Certificates and qualification data, where applicable or requested.
 - g. List of similar installations for completed projects, with project names and addresses as well as names and addresses of architects and owners.
 - h. Material test reports from a qualified testing agency, indicating and interpreting test results for compliance with requirements indicated.
 - i. Research reports evidencing compliance with building code in effect for Project, from ICC-ES.
 - j. Detailed comparison of Contractor's construction schedule using proposed substitutions with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.
 - k. Cost information, including a proposal of change, if any, in the Contract Sum.
 - l. Contractor's certification that proposed substitution complies with requirements in the Contract Documents, except as indicated in substitution request, is compatible with related materials and is appropriate for applications indicated.
 - m. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.
3. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within seven days of receipt of a request for substitution. Architect will notify Contractor through Construction Manager of acceptance or rejection of proposed substitution within 15 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.
- a. Forms of Acceptance: Change Order, Construction Change Directive, or Architect's Supplemental Instructions for minor changes in the Work.
 - b. Use product specified if Architect does not issue a decision on use of a proposed substitution within time allocated.

1.5 QUALITY ASSURANCE

- A. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials. Engage a qualified testing agency to perform compatibility tests recommended by manufacturers.

1.6 PROCEDURES

- A. Coordination: Revise or adjust affected work as necessary to integrate work of the approved substitutions.

1.7 SUBSTITUTIONS

- A. Substitutions for Cause: Submit requests for substitution immediately on discovery of need for change, but not later than 15 days prior to time required for preparation and review of related submittals.
1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:
- a. Requested substitution is consistent with the Contract Documents and will produce indicated results.
 - b. Substitution request is fully documented and properly submitted.
 - c. Requested substitution will not adversely affect Contractor's construction schedule.
 - d. Requested substitution has received necessary approvals of authorities having jurisdiction.
 - e. Requested substitution is compatible with other portions of the Work.
 - f. Requested substitution has been coordinated with other portions of the Work.
 - g. Requested substitution provides specified warranty.
 - h. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.
- B. Substitutions for Convenience: Not allowed.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012500

SECTION 013300 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Submittal schedule requirements.
 - 2. Administrative and procedural requirements for submittals.

1.3 DEFINITIONS

- A. Action Submittals: Written and graphic information and physical samples that require Architect's responsive action. Action submittals are those submittals indicated in individual Specification Sections as "action submittals."
- B. Informational Submittals: Written and graphic information and physical samples that do not require Architect's responsive action. Submittals may be rejected for not complying with requirements. Informational submittals are those submittals indicated in individual Specification Sections as "informational submittals."

1.4 SUBMITTAL SCHEDULE

- A. Submittal Schedule: Submit, as an action submittal, a list of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or revisions to submittals noted by Architect and additional time for handling and reviewing submittals required by those corrections.
 - 1. Coordinate submittal schedule with list of subcontracts, the schedule of values, and Contractor's construction schedule.
 - 2. Initial Submittal: Submit concurrently with startup construction schedule. Include submittals required during the first 60 days of construction. List those submittals required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.
 - 3. Final Submittal: Submit concurrently with the first complete submittal of Contractor's construction schedule.
 - a. Submit revised submittal schedule to reflect changes in current status and timing for submittals.

4. Format: Arrange the following information in a tabular format:

- a. Scheduled date for first submittal.
- b. Specification Section number and title.
- c. Submittal Category: Action; informational.
- d. Name of subcontractor.
- e. Description of the Work covered.
- f. Scheduled date for Architect's final release or approval.

- g. Scheduled dates for purchasing.
- h. Scheduled date of fabrication.
- i. Scheduled dates for installation.
- j. Activity or event number.

1.5 SUBMITTAL FORMATS

A. Submittal Information: Include the following information in each submittal:

1. Project name.
2. Date.
3. Name of Architect.

4. Name of Construction Manager.
5. Name of Contractor.
6. Name of firm or entity that prepared submittal.
7. Names of subcontractor, manufacturer, and supplier.

8. Unique submittal number, including revision identifier. Include Specification Section number with sequential alphanumeric identifier; and alphanumeric suffix for resubmittals.
9. Category and type of submittal.
10. Submittal purpose and description.
11. Number and title of Specification Section, with paragraph number and generic name for each of multiple items.
12. Drawing number and detail references, as appropriate.
13. Indication of full or partial submittal.
14. Location(s) where product is to be installed, as appropriate.
15. Other necessary identification.
16. Remarks.
17. Signature of transmitter.

B. Options: Identify options requiring selection by Architect.

C. Deviations and Additional Information: On each submittal, clearly indicate deviations from requirements in the Contract Documents, including minor variations and limitations; include relevant additional information and revisions, other than those requested by Architect on previous submittals. Indicate by highlighting on each submittal or noting on attached separate sheet.

D. PDF Submittals: Prepare submittals as PDF package, incorporating complete information into each PDF file. Name PDF file with submittal number as follows:

1. Section number_contractor's submittal number.PDF

1.6 SUBMITTAL PROCEDURES

- A. Prepare and submit submittals required by individual Specification Sections. Types of submittals are indicated in individual Specification Sections.
 - 1. Email: Prepare submittals as PDF package, and transmit to Architect by sending via email. Include PDF transmittal form. Include information in email subject line as requested by Architect.
 - a. Architect, through Construction Manager, will return annotated file. Annotate and retain one copy of file as a digital Project Record Document file.
- B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
 - 1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
 - 2. Submit all submittal items required for each Specification Section concurrently unless partial submittals for portions of the Work are indicated on approved submittal schedule.
 - 3. Submit action submittals and informational submittals required by the same Specification Section as separate packages under separate transmittals.
 - 4. Coordinate transmittal of submittals for related parts of the Work specified in different Sections so processing will not be delayed because of need to review submittals concurrently for coordination.
 - a. Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
- C. Processing Time: Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Architect's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.
 - 1. Initial Review: Allow 15 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Architect will advise Contractor when a submittal being processed must be delayed for coordination.
 - 2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
 - 3. Resubmittal Review: Allow 15 days for review of each resubmittal.
 - 4. Sequential Review: Where sequential review of submittals by Architect's consultants, Owner, or other parties is indicated, allow 21 days for initial review of each submittal.
- D. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.
 - 1. Note date and content of previous submittal.
 - 2. Note date and content of revision in label or title block and clearly indicate extent of revision.
 - 3. Resubmit submittals until they are marked with approval notation from Architect's action stamp.

- E. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.
- F. Use for Construction: Retain complete copies of submittals on Project site. Use only final action submittals that are marked with approval notation from Architect's action stamp.

1.7 SUBMITTAL REQUIREMENTS

- A. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
 - 1. If information must be specially prepared for submittal because standard published data are unsuitable for use, submit as Shop Drawings, not as Product Data.
 - 2. Mark each copy of each submittal to show which products and options are applicable.
 - 3. Include the following information, as applicable:
 - a. Manufacturer's catalog cuts.
 - b. Manufacturer's product specifications.
 - c. Standard color charts.
 - d. Statement of compliance with specified referenced standards.
 - e. Testing by recognized testing agency.
 - f. Application of testing agency labels and seals.
 - g. Notation of coordination requirements.
 - h. Availability and delivery time information.
 - 4. For equipment, include the following in addition to the above, as applicable:
 - a. Wiring diagrams that show factory-installed wiring.
 - b. Printed performance curves.
 - c. Operational range diagrams.
 - d. Clearances required to other construction, if not indicated on accompanying Shop Drawings.
 - 5. Submit Product Data before Shop Drawings, and before or concurrent with Samples.
- B. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.
 - 1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
 - a. Identification of products.
 - b. Schedules.
 - c. Compliance with specified standards.
 - d. Notation of coordination requirements.
 - e. Notation of dimensions established by field measurement.
 - f. Relationship and attachment to adjoining construction clearly indicated.
 - g. Seal and signature of professional engineer if specified.
- C. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other materials.

1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
 2. Identification: Permanently attach label on unexposed side of Samples that includes the following:
 - a. Project name and submittal number.
 - b. Generic description of Sample.
 - c. Product name and name of manufacturer.
 - d. Sample source.
 - e. Number and title of applicable Specification Section.
 - f. Specification paragraph number and generic name of each item.
 3. Email Transmittal: Provide PDF transmittal. Include digital image file illustrating Sample characteristics, and identification information for record.
 4. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
 - a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
 - b. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.
 5. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
 - a. Number of Samples: Submit one full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect will return submittal with options selected.
 6. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.
 - a. Number of Samples: Submit three sets of Samples. Architect will retain one Sample set; remainder will be returned.
 - 1) Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.
 - 2) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least three sets of paired units that show approximate limits of variations.
- D. Product Schedule: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:

1. Type of product. Include unique identifier for each product indicated in the Contract Documents or assigned by Contractor if none is indicated.
 2. Manufacturer and product name, and model number if applicable.
 3. Number and name of room or space.
 4. Location within room or space.
- E. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of architects and owners, and other information specified.
- F. Design Data: Prepare and submit written and graphic information indicating compliance with indicated performance and design criteria in individual Specification Sections. Include list of assumptions and summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Number each page of submittal.
- G. Certificates:
1. Certificates and Certifications Submittals: Submit a statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity. Provide a notarized signature where indicated.
 2. Installer Certificates: Submit written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.
 3. Manufacturer Certificates: Submit written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.
 4. Material Certificates: Submit written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.
 5. Product Certificates: Submit written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.
 6. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification and Procedure Qualification Record on AWS forms. Include names of firms and personnel certified.
- H. Test and Research Reports:
1. Compatibility Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.
 2. Field Test Reports: Submit written reports indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.
 3. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.
 4. Preconstruction Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.

5. Product Test Reports: Submit written reports indicating that current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
6. Research Reports: Submit written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:
 - a. Name of evaluation organization.
 - b. Date of evaluation.
 - c. Time period when report is in effect.
 - d. Product and manufacturers' names.
 - e. Description of product.
 - f. Test procedures and results.
 - g. Limitations of use.

1.8 CONTRACTOR'S REVIEW

- A. Action Submittals and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect.
- B. Contractor's Approval: Indicate Contractor's approval for each submittal with a uniform approval stamp. Include name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.
 1. Architect will not review submittals received from Contractor that do not have Contractor's review and approval.

1.9 ARCHITECT'S REVIEW

- A. Action Submittals: Architect will review each submittal, indicate corrections or revisions required.
 1. PDF Submittals: Architect will indicate, via markup on each submittal, the appropriate action
- B. Informational Submittals: Architect will review each submittal and will not return it, or will return it if it does not comply with requirements. Architect will forward each submittal to appropriate party.
- C. Partial submittals prepared for a portion of the Work will be reviewed when use of partial submittals has received prior approval from Architect.
- D. Incomplete submittals are unacceptable, will be considered nonresponsive, and will be returned for resubmittal without review.
- E. Architect will return without review submittals received from sources other than Contractor.
- F. Submittals not required by the Contract Documents will be returned by Architect without action.

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PART 2 - **PRODUCTS** (Not Used)

PART 3 - **EXECUTION** (Not Used)

END OF SECTION 013300

SECTION 013516 - ALTERATION PROJECT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes special procedures for alteration work.

1.3 DEFINITIONS

- A. Alteration Work: This term includes remodeling, renovation, repair, and maintenance work performed within existing spaces or on existing surfaces as part of the Project.
- B. Consolidate: To strengthen loose or deteriorated materials in place.
- C. Design Reference Sample: A sample that represents the Architect's prebid selection of work to be matched; it may be existing work or work specially produced for the Project.
- D. Dismantle: To remove by disassembling or detaching an item from the surface, using gentle methods and equipment to prevent damage to the item and surfaces; disposing of items unless indicated to be salvaged or reinstalled.
- E. Match: To blend with adjacent construction and manifest no apparent difference in material type, species, cut, form, detail, color, grain, texture, or finish; as approved by Architect.
- F. Refinish: To remove existing finishes to base material and apply new finish to match original, or as otherwise indicated.
- G. Repair: To correct damage and defects, retaining existing materials, features, and finishes. This includes patching, piecing-in, splicing, consolidating, or otherwise reinforcing or upgrading materials.
- H. Replace: To remove, duplicate, and reinstall entire item with new material. The original item is the pattern for creating duplicates unless otherwise indicated.
- I. Replicate: To reproduce in exact detail, materials, and finish unless otherwise indicated.
- J. Reproduce: To fabricate a new item, accurate in detail to the original, and from either the same or a similar material as the original, unless otherwise indicated.
- K. Retain: To keep existing items that are not to be removed or dismantled.
- L. Strip: To remove existing finish down to base material unless otherwise indicated.

1.4 COORDINATION

- A. Alteration Work Subschedule: A construction schedule coordinating the sequencing and scheduling of alteration work for entire Project, including each activity to be performed, and based on Contractor's Construction Schedule. Secure time commitments for performing critical construction activities from separate entities responsible for alteration work.
1. Schedule construction operations in sequence required to obtain best Work results.
 2. Coordinate sequence of alteration work activities to accommodate the following:
 - a. Owner's continuing occupancy of portions of existing building.
 - b. Owner's partial occupancy of completed Work.
 - c. Other known work in progress.
 - d. Tests and inspections.
 3. Detail sequence of alteration work, with start and end dates.
 4. Utility Services: Indicate how long utility services will be interrupted. Coordinate shutoff, capping, and continuation of utility services.
 5. Use of elevator and stairs.
 6. Equipment Data: List gross loaded weight, axle-load distribution, and wheel-base dimension data for mobile and heavy equipment proposed for use in existing structure. Do not use such equipment without certification from Contractor's professional engineer that the structure can support the imposed loadings without damage.
- B. Pedestrian and Vehicular Circulation: Coordinate alteration work with circulation patterns within Project building(s) and site. Some work is near circulation patterns. Circulation patterns cannot be closed off entirely and in places can be only temporarily redirected around small areas of work. Access to restricted areas may not be obstructed. Plan and execute the Work accordingly.

1.5 PROJECT MEETINGS FOR ALTERATION WORK

- A. Preliminary Conference for Alteration Work: Before starting alteration work, Construction Manager will conduct conference at Project site.
1. Attendees: In addition to representatives of Owner, Construction Manager, Architect, and Contractor, testing service representative, Project Inspector shall be represented at the meeting.
 2. Agenda: Discuss items of significance that could affect progress of alteration work, including review of the following:
 - a. Alteration Work Subschedule: Discuss and finalize; verify availability of materials, specialists' personnel, equipment, and facilities needed to make progress and avoid delays.
 - b. Fire-prevention plan.
 - c. Governing regulations.
 - d. Areas where existing construction is to remain and the required protection.
 - e. Hauling routes.
 - f. Sequence of alteration work operations.
 - g. Storage, protection, and accounting for salvaged and specially fabricated items.
 - h. Existing conditions, staging, and structural loading limitations of areas where materials are stored.
 - i. Qualifications of personnel assigned to alteration work and assigned duties.

- j. Requirements for extent and quality of work, tolerances, and required clearances.
 - k. Embedded work such as flashings and lintels, special details, collection of waste, protection of occupants and the public, and condition of other construction that affects the Work or will affect the work.
3. Reporting: Record conference results and distribute copies to everyone in attendance and to others affected by decisions or actions resulting from conference.
- B. Coordination Meetings: Conduct coordination meetings specifically for alteration work at weekly intervals. Coordination meetings are in addition to specific meetings held for other purposes, such as progress meetings and preinstallation conferences.
- 1. Attendees: In addition to representatives of Owner, Construction Manager, Architect, and Contractor, each specialist, supplier, installer, and other entity concerned with progress or involved in planning, coordination, or performance of alteration work activities shall be represented at these meetings. All participants at conference shall be familiar with Project and authorized to conclude matters relating to alteration work.
 - 2. Agenda: Review and correct or approve minutes of previous coordination meeting. Review other items of significance that could affect progress of alteration work. Include topics for discussion as appropriate to status of Project.
 - a. Alteration Work Subschedule: Review progress since last coordination meeting. Determine whether each schedule item is on time, ahead of schedule, or behind schedule. Determine how construction behind schedule will be expedited with retention of quality; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities are completed within the Contract Time.
 - b. Schedule Updating: Revise Contractor's Alteration Work Subschedule after each coordination meeting where revisions to schedule have been made or recognized. Issue revised schedule concurrently with report of each meeting.
 - c. Review present and future needs of each entity present, including review items listed in the "Preliminary Conference for Alteration Work" Paragraph in this article and the following:
 - 1) Interface requirements of alteration work with other Project Work.
 - 2) Status of submittals for alteration work.
 - 3) Access to alteration work locations.
 - 4) Effectiveness of fire-prevention plan.
 - 5) Quality and work standards of alteration work.
 - 6) Change Orders for alteration work.
 - 3. Reporting: Record meeting results and distribute copies to everyone in attendance and to others affected by decisions or actions resulting from each meeting.

1.6 MATERIALS OWNERSHIP

- A. Historic items, relics, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, antiques, and other items of interest or value to Owner that may be encountered or uncovered during the Work, regardless of whether they were previously documented, remain Owner's property.
- 1. Carefully dismantle and salvage each item or object in a manner to prevent damage and protect it from damage, then promptly deliver it to Owner where directed at Project site.

1.7 INFORMATIONAL SUBMITTALS

- A. Alteration Work Subschedule:
 - 1. Submit alteration work subschedule within seven days of date established for commencement of alteration work.
- B. Preconstruction Documentation: Show preexisting conditions of adjoining construction and site improvements that are to remain, including finish surfaces, that might be misconstrued as damage caused by Contractor's alteration work operations.
- C. Alteration Work Program: Submit 7 days before work begins.
- D. Fire-Prevention Plan: Submit 7 days before work begins.

1.8 QUALITY ASSURANCE

- A. Specialist Qualifications: An experienced firm regularly engaged in specialty work similar in nature, materials, design, and extent to alteration work as specified in each Section and that has completed a minimum of five recent projects with a record of successful in-service performance that demonstrates the firm's qualifications to perform this work.
 - 1. Field Supervisor Qualifications: Full-time supervisors experienced in specialty work similar in nature, material, design, and extent to that indicated for this Project. Supervisors shall be on-site when specialty work begins and during its progress. Supervisors shall not be changed during Project except for causes beyond the control of the specialist firm.
 - a. Construct new mockups of required work whenever a supervisor is replaced.
- B. Title X Requirement: Each firm conducting activities that disturb painted surfaces shall be a "Lead-Safe Certified Firm" according to 40 CFR 745, Subpart E, and use only workers that are trained in lead-safe work practices.
- C. Alteration Work Program: Prepare a written plan for alteration work for whole Project, including each phase or process and protection of surrounding materials during operations. Show compliance with indicated methods and procedures specified in this and other Sections. Coordinate this whole-Project alteration work program with specific requirements of programs required in other alteration work Sections.
 - 1. Dust and Noise Control: Include locations of proposed temporary dust- and noise-control partitions and means of egress from occupied areas coordinated with continuing on-site operations and other known work in progress.
 - 2. Debris Hauling: Include plans clearly marked to show debris hauling routes, turning radii, and locations and details of temporary protective barriers.
- D. Fire-Prevention Plan: Prepare a written plan for preventing fires during the Work, including placement of fire extinguishers, fire blankets, rag buckets, and other fire-control devices during each phase or process. Coordinate plan with Owner's fire-protection equipment and requirements. Include fire-watch personnel's training, duties, and authority to enforce fire safety.
- E. Safety and Health Standard: Comply with ANSI/ASSE A10.6.

1.9 STORAGE AND HANDLING OF SALVAGED MATERIALS

A. Salvaged Materials:

1. Clean loose dirt and debris from salvaged items unless more extensive cleaning is indicated.
2. Pack or crate items after cleaning; cushion against damage during handling. Label contents of containers.
3. Store items in a secure area until delivery to Owner.
4. Transport items to Owner's storage area designated by Owner.
5. Protect items from damage during transport and storage.

B. Salvaged Materials for Reinstallation:

1. Repair and clean items for reuse as indicated.
2. Pack or crate items after cleaning and repairing; cushion against damage during handling. Label contents of containers.
3. Protect items from damage during transport and storage.
4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment unless otherwise indicated. Provide connections, supports, and miscellaneous materials to make items functional for use indicated.

C. Existing Materials to Remain: Protect construction indicated to remain against damage and soiling from construction work. Where permitted by Architect, items may be dismantled and taken to a suitable, protected storage location during construction work and reinstalled in their original locations after alteration and other construction work in the vicinity is complete.

D. Storage: Catalog and store items within a weathertight enclosure where they are protected from moisture, weather, condensation, and freezing temperatures.

1. Identify each item for reinstallation with a nonpermanent mark to document its original location. Indicate original locations on plans, elevations, sections, or photographs by annotating the identifying marks.
2. Secure stored materials to protect from theft.
3. Control humidity so that it does not exceed 85 percent. Maintain temperatures 5 deg F (3 deg C) or more above the dew point.

E. Storage Space:

1. Owner will arrange for limited on-site location(s) for free storage of salvaged material. This storage space does not include security and climate control for stored material.
2. Arrange for off-site locations for storage and protection of salvaged material that cannot be stored and protected on-site.

1.10 FIELD CONDITIONS

- A. Survey of Existing Conditions: Record existing conditions that affect the Work by use of preconstruction photographs or preconstruction videotapes.
- B. Discrepancies: Notify Architect of discrepancies between existing conditions and Drawings before proceeding with removal and dismantling work.

- C. Size Limitations in Existing Spaces: Materials, products, and equipment used for performing the Work and for transporting debris, materials, and products shall be of sizes that clear surfaces within existing spaces, areas, rooms, and openings, including temporary protection, by 12 inches or more.

PART 2 - PRODUCTS - (Not Used)

PART 3 - EXECUTION

3.1 PROTECTION

- A. Protect persons, motor vehicles, surrounding surfaces of building, building site, plants, and surrounding buildings from harm resulting from alteration work.
 - 1. Use only proven protection methods, appropriate to each area and surface being protected.
 - 2. Provide temporary barricades, barriers, and directional signage to exclude the public from areas where alteration work is being performed.
 - 3. Erect temporary barriers to form and maintain fire-egress routes.
 - 4. Erect temporary protective covers over walkways and at points of pedestrian and vehicular entrance and exit that must remain in service during alteration work.
 - 5. Contain dust and debris generated by alteration work, and prevent it from reaching the public or adjacent surfaces.
 - 6. Provide shoring, bracing, and supports as necessary. Do not overload structural elements.
 - 7. Protect floors and other surfaces along hauling routes from damage, wear, and staining.
 - 8. Provide supplemental sound-control treatment to isolate demolition work from other areas of the building.
- B. Temporary Protection of Materials to Remain:
 - 1. Protect existing materials with temporary protections and construction. Do not remove existing materials unless otherwise indicated.
 - 2. Do not attach temporary protection to existing surfaces except as indicated as part of the alteration work program.
- C. Comply with each product manufacturer's written instructions for protections and precautions. Protect against adverse effects of products and procedures on people and adjacent materials, components, and vegetation.
- D. Utility and Communications Services:
 - 1. Notify Owner, Architect, authorities having jurisdiction, and entities owning or controlling wires, conduits, pipes, and other services affected by alteration work before commencing operations.
 - 2. Disconnect and cap pipes and services as required by authorities having jurisdiction, as required for alteration work.
 - 3. Maintain existing services unless otherwise indicated; keep in service, and protect against damage during operations. Provide temporary services during interruptions to existing utilities.

- E. Existing Drains: Prior to the start of work in an area, test drainage system to ensure that it is functioning properly. Notify Architect immediately of inadequate drainage or blockage. Do not begin work in an area until the drainage system is functioning properly.
 - 1. Prevent solids such as adhesive or mortar residue or other debris from entering the drainage system. Clean out drains and drain lines that become sluggish or blocked by sand or other materials resulting from alteration work.
 - 2. Protect drains from pollutants. Block drains or filter out sediments, allowing only clean water to pass.

3.2 PROTECTION FROM FIRE

- A. General: Follow fire-prevention plan and the following:
 - 1. Comply with NFPA 241 requirements unless otherwise indicated.
 - 2. Remove and keep area free of combustibles, including rubbish, paper, waste, and chemicals, unless necessary for the immediate work.
 - a. If combustible material cannot be removed, provide fire blankets to cover such materials.
- B. Heat-Generating Equipment and Combustible Materials: Comply with the following procedures while performing work with heat-generating equipment or combustible materials, including welding, torch-cutting, soldering, brazing, removing paint with heat, or other operations where open flames or implements using high heat or combustible solvents and chemicals are anticipated:
 - 1. As far as practicable, restrict heat-generating equipment to shop areas or outside the building.
 - 2. Do not perform work with heat-generating equipment in or near rooms or in areas where flammable liquids or explosive vapors are present or thought to be present. Use a combustible gas indicator test to ensure that the area is safe.
 - 3. Use fireproof baffles to prevent flames, sparks, hot gases, or other high-temperature material from reaching surrounding combustible material.
 - 4. Prevent the spread of sparks and particles of hot metal through open windows, doors, holes, and cracks in floors, walls, ceilings, roofs, and other openings.
 - 5. Fire Watch: Before working with heat-generating equipment or combustible materials, station personnel to serve as a fire watch at each location where such work is performed. Fire-watch personnel shall have the authority to enforce fire safety. Station fire watch according to NFPA 51B, NFPA 241, and as follows:
 - a. Train each fire watch in the proper operation of fire-control equipment and alarms.
 - b. Prohibit fire-watch personnel from other work that would be a distraction from fire-watch duties.
 - c. Cease work with heat-generating equipment whenever fire-watch personnel are not present.
 - d. Have fire-watch personnel perform final fire-safety inspection each day beginning no sooner than 30 minutes after conclusion of work in each area to detect hidden or smoldering fires and to ensure that proper fire prevention is maintained.
 - e. Maintain fire-watch personnel at each area of Project site until 60 minutes after conclusion of daily work.

- C. Fire-Control Devices: Provide and maintain fire extinguishers, fire blankets, and rag buckets for disposal of rags with combustible liquids. Maintain each as suitable for the type of fire risk in each work area. Ensure that nearby personnel and the fire-watch personnel are trained in fire-extinguisher and blanket use.

3.3 PROTECTION DURING APPLICATION OF CHEMICALS

- A. Protect motor vehicles, surrounding surfaces of building, building site, plants, and surrounding buildings from harm or spillage resulting from applications of chemicals and adhesives.
- B. Cover adjacent surfaces with protective materials that are proven to resist chemicals selected for Project unless chemicals being used will not damage adjacent surfaces as indicated in alteration work program. Use covering materials and masking agents that are waterproof and UV resistant and that will not stain or leave residue on surfaces to which they are applied. Apply protective materials according to manufacturer's written instructions. Do not apply liquid masking agents or adhesives to painted or porous surfaces. When no longer needed, promptly remove protective materials.
- C. Do not apply chemicals during winds of sufficient force to spread them to unprotected surfaces.
- D. Neutralize alkaline and acid wastes and legally dispose of off Owner's property.
- E. Collect and dispose of runoff from chemical operations by legal means and in a manner that prevents soil contamination, soil erosion, undermining of paving and foundations, damage to landscaping, or water penetration into building interior.

3.4 GENERAL ALTERATION WORK

- A. Have specialty work performed only by qualified specialists.
- B. Ensure that supervisory personnel are present when work begins and during its progress.
- C. Record existing work before each procedure (preconstruction), and record progress during the work. Use digital preconstruction documentation photographs or video recordings.
- D. Perform surveys of Project site as the Work progresses to detect hazards resulting from alterations.
- E. Notify Architect of visible changes in the integrity of material or components whether from environmental causes including biological attack, UV degradation, freezing, or thawing or from structural defects including cracks, movement, or distortion.
 - 1. Do not proceed with the work in question until directed by Architect.

END OF SECTION 013516

SECTION 01 56 39 – TEMPORARY TREE AND PLANT PROTECTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes general protection and pruning of existing trees and plants that are affected by execution of the Work, whether temporary or permanent construction.
- B. Description of Work:
 - 1. Protection of existing trees and vegetation to remain.
 - 2. Trimming of existing trees.
 - 3. Maintenance of existing trees during construction.
 - 4. Removal and re-installation of existing trees.
 - 5. Contractor shall retain the services of a certified arborist to perform routine visits and oversee the protection of the existing trees within the project area during demolition, construction and maintenance and to especially review and recommend treatment when roots are encountered and to perform routine maintenance during the construction phase.
- C. Traffic:
 - 1. Do not interfere with or close public ways without permission of the Owner's Representative.
 - 2. Do not interfere with adjacent private properties without permission of the Owner's Representative.
- D. Site Utilities:
 - 1. Advise utility companies of excavation activities before starting excavations.
 - 2. Locate and identify underground utilities passing through work area before starting work.

3. In event unidentified underground utilities are encountered during work, advise utility owner immediately before proceeding. Add any new utility information to project record drawings for actual location.
4. Protect all existing-to-remain utilities.
5. Do not interrupt existing utilities without advance notice to and approval from the Owner's Representative.

1.3 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For qualified arborist and tree service firm.
- B. Certification: From arborist, certifying that trees indicated to remain have been protected during construction according to recognized standards and that trees were promptly and properly treated and repaired when damage.
- C. Maintenance Recommendations: From arborist, for care and protection of trees affected by construction during and after completing the Work and for removal and re-installation of existing trees.
- D. Existing Conditions: Documentation of existing trees and plantings indicated to remain and/or relocate, which establishes preconstruction conditions that might be misconstrued as damage caused by construction activities.
 1. Use sufficiently detailed photographs.
 2. Include plans and notations to indicate specific wounds and damage conditions of each tree or other plants designated to remain.

1.4 QUALITY ASSURANCE

- A. Arborist Qualifications: Certified Arborist as certified by the International Society of Arboriculture (ISA) and having performed similar services for a minimum of five (5) years.
- B. Tree Service Firm Qualifications: An experienced tree service firm that has successfully completed temporary tree and plant protection work similar to that required for this Project and that will assign an experienced, qualified arborist to Project site during execution of the Work.
- C. Contractor shall be liable for the loss in value due to damaged trees and for the repair costs resulting as determined by the Owner's Representative. Due to the irreplaceable nature of many existing trees and vegetation, the liability to the General Contractor (Contractor in charge) shall be set at \$500.00 minimum per tree. The Trunk Formula method for Northern California established by the International Society of Arboriculture will be used to compute the actual value. Other vegetation lost due to construction activity and/or neglect shall be replaced by the General Contractor (Contractor in charge) in kind with similar size, potted plant stock to match existing plant material prior to construction.

1.5 PROJECT CONDITIONS

- A. The following practices are prohibited within protection zones:
 - 1. Storage of construction materials, debris, or excavated material.
 - 2. Parking vehicles or equipment.
 - 3. Foot traffic.
 - 4. Erection of sheds or structures.
 - 5. Impoundment of water.
 - 6. Excavation or other digging unless otherwise indicated.
 - 7. Attachment of signs to or wrapping materials around trees or plants unless otherwise indicated.
- B. Do not direct vehicle or equipment exhaust toward protection zones.
- C. Prohibit heat sources, flames, ignition sources, and smoking within or near protection zones and organic mulch.

1.6 Definitions

- A. Caliper: Caliper on young trees is taken six (6) inches above the soil level and measured by a diameter across the tree trunk. For a tree exceeding a four (4) inch caliper, the diameter measurement is then taken at twelve (12) inches above the soil level. For a mature tree, the caliper is taken at chest height, generally 4-1/2 to 5 feet above the soil level. The measurement is taken using a tree caliper, a utensil in the shape of an “F” with an adjustable cross arm to slide and rest up against the trunk to measure the precise distance of the trunk width.
- B. Plant-Protection Zone: Area surrounding individual trees, groups of trees, shrubs, or other vegetation to be protected during construction, and indicated on Drawings.
- C. Tree-Protection Zone: Area surrounding individual trees or groups of trees to be protected during construction, and defined by a circle concentric with each tree with a radius equal to the diameter of the drip line unless otherwise indicated.
- D. Vegetation: Trees, shrubs, groundcovers, grass, and other plants.

PART 2 - PRODUCTS

2.1 TREE PROTECTION PROTECTIVE FENCE

- A. Existing shrubs and/or trees to remain on the project site shall be protected with a five (5) foot high orange plastic snow fence erected and installed around the perimeter dripline of each shrub, tree or groups of shrubs or trees to remain.
 - 1. Snow Fence: Orange, UV resistance, 3-inch thickness, 48-inches in width, oval mesh, extruded thermal plastic polymer, Tenax or equal, fence fabric.
 - 2. Rough-sawn, sound, new hardwood, redwood, or pressure-preservative-treated Douglas Fir or lodgepole pine, free of knots, holes, cross grain, and other defects, two (2) inches in diameter by length required and pointed at one end.
- B. During planting and irrigation operations, protective fencing is not required beneath existing to remain trees and shrubs that fall within the newly landscaped and/or irrigation area.

2.2 TOPSOIL

- A. Natural or cultivated top layer of the soil profile or manufactured topsoil; containing organic matter and sand, silt, and clay particles; friable, pervious, and black or a darker shade of brown, gray, or red than underlying subsoil; reasonably free of subsoil, clay lumps, gravel, and other objects more than one (1) inch in diameter; and free of weeds, roots, and toxic and other non-soil materials.

2.3 ORGANIC MULCH

- A. Refer to specification section 32 90 00 "Planting" and match organic mulch material to use in non-bio-retention planting areas.
- B. If specification section 32 90 00 "Planting" is not issued as part of this project, provide organic mulch for non-bio-retention planting areas: Free from deleterious materials and suitable as a top dressing of trees and shrubs, consisting of organic bark from Republic Services (contact Jennifer White at (408) 687-1928 or jwhite5@RepublicServices.com) Pro-Chip decorative mulch, Republic Services, Newby Island Recyclery, Milpitas, CA (408) 945-2836. Color to be mahogany. Submit sample to Owners Representative's for review and approval.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Erosion and Sedimentation Control: Examine the site to verify that temporary erosion- and sedimentation-control measures are in place. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross protection zones.

- B. For the record, prepare written report, endorsed by arborist, listing conditions detrimental to tree and plant protection.

3.2 PREPARATION

- A. Inspections: Engage a qualified arborist to direct plant protection measures in the vicinity of trees, shrubs, and other vegetation indicated to remain, to over-see removal and re-installation of existing plant material and to prepare inspection reports.
- B. Locate and clearly identify trees, shrubs, and other vegetation to remain. Tie a 1-inch blue-vinyl tape around each tree trunk at 54 inches above the ground.
- C. Protect tree root systems from damage caused by runoff or spillage of noxious materials while mixing, placing, or storing construction materials. Protect root systems from ponding, eroding, or excessive wetting caused by dewatering operations.
- D. Tree-Protection Zones: Mulch areas inside tree-protection zones and other areas if indicated within Drawings.
 - 1. Apply 3-inch minimum thickness of organic mulch. Do not place mulch within 6 inches of tree trunks.

3.3 PROTECTIVE FENCE INSTALLATION

- A. Protection-Zone Fencing: Install protection-zone fencing along edges of protection zones before materials or equipment are brought on the site and construction operations begin. Install fencing in a manner that will prevent people from easily entering protected area except by entrance gates. Construct fencing so as not to obstruct safe passage or visibility at vehicle intersections where fencing is located adjacent to pedestrian walkways or in close proximity to street intersections, drives, or other vehicular circulation.
 - 1. Plastic Protection Zone Fencing: Neatly install protection zone plastic fabric by securing to posts with plastic bands or steel wires, a minimum of two per post, additionally if required to withstand typical construction activity.
 - 2. Posts: Set or drive posts into ground at least two (2) feet without concrete footings and no more than six (6) feet on center spacing. Where a post is located on existing paving or concrete to remain, provide appropriate means of post support acceptable to Owner's Representative.
 - 3. Access Gates: Install as necessary; adjust to operate smoothly, easily, and quietly, free of binding, warp, excessive deflection, distortion, nonalignment, misplacement, disruption, or malfunction, throughout entire operational range. Confirm that latches and locks engage accurately and securely without forcing or binding.
- B. Protection-Zone Signage: Install protection-zone signage in visibly prominent locations in a manner approved by Owner's Representative. Install one sign spaced approximately every 50

feet on protection-zone fencing, but no fewer than two signs with each facing a different direction.

- C. Maintain protection zones free of weeds and trash.
- D. Repair or replace trees, shrubs, and other vegetation indicated to remain or be relocated that are damaged by construction operations, in a manner approved by the Owner's Representative.
- E. Maintain protection-zone fencing and signage in good condition as acceptable to Owner's Representative and remove when construction operations are complete and equipment has been removed from the site.
 - 1. Do not remove protection-zone fencing, even temporarily, to allow deliveries or equipment access through the protection zone.
 - 2. Temporary access is permitted subject to preapproval in writing by arborist if a root buffer effective against soil compaction is constructed as directed by arborist. Maintain root buffer so long as access is permitted.
 - 3. Temporary access is permitted for landscape irrigation and planting operations.

3.4 ARBORIST SUPERVISION

- A. For construction within ten (10) horizontal feet of a tree and/or shrub to remain, with a trunk diameter of twelve (12) inches or larger measured three (3) feet above original finish grade, Contractor shall retain the services of a reputable Arborist certified by the International Society of Arboriculture (ISA) to review the tree(s) and/or shrubs(s), the work to be performed and provide written recommendations to minimize the impact on existing trees and/or shrubs to remain. Submit recommendations to Owner's Representative for review.
- B. Contractor shall implement Arborist recommendations.
- C. Contractor shall consult Arborist for further recommendations if tree(s) and/or shrub(s) appear in failing health until final completion and acceptance of landscape work.

3.5 EXCAVATION

- A. General: Excavation and trenching shall be performed at a minimum, in accordance with these specifications and per Drawings and Details and in accordance with recommendations from project Arborist retained by Contractor.
- B. Trenching near Trees: Where utility trenches are required within protection zones, hand excavate under or around tree roots or tunnel under the roots by drilling, auger boring, or pipe jacking. Do not cut main lateral tree roots or taproots; cut only smaller roots that interfere with installation of utilities. Cut roots as required for root pruning.
- C. Redirect roots in backfill areas where possible. If encountering large, main lateral roots, expose roots beyond excavation limits as required to bend and redirect them without breaking. If

encountered immediately adjacent to location of new construction and redirection is not practical, cut roots approximately 3 inches (75 mm) back from new construction and as required for root pruning.

- D. Do not allow exposed roots to dry out before placing permanent backfill. Provide temporary earth cover or pack with peat moss and wrap with burlap. Water and maintain in a moist condition. Temporarily support and protect roots from damage until they are permanently relocated and covered with soil.

3.6 REGRADING

- A. Lowering Grade: Where new finish grade is indicated below existing grade around trees, slope grade beyond the protection zone. Maintain existing grades within the protection zone.
- B. Lowering Grade within Protection Zone: Where new finish grade is indicated below existing grade around trees, slope grade away from trees as recommended by arborist unless otherwise indicated.
 - 1. Root Pruning: Prune tree roots exposed by lowering the grade. Do not cut main lateral roots or taproots; cut only smaller roots. Cut roots as required for root pruning.
- C. Raising Grade: Where new finish grade is indicated above existing grade around trees, slope grade beyond the protection zone. Maintain existing grades within the protection zone.
- D. Minor Fill within Protection Zone: Where existing grade is 2 inches or less below elevation of finish grade, fill with topsoil

3.7 ROOT PRUNING

- A. Prune roots that are affected by temporary and permanent construction. Prune roots as follows:
 - 1. Cut roots manually by digging a trench and cutting exposed roots with sharp pruning instruments; do not break, tear, chop, or slant the cuts. Do not use a backhoe or other equipment that rips, tears, or pulls roots.
 - 2. Cut Ends: Coat cut ends of roots more than 1-1/2 inches in diameter with an emulsified asphalt or other coating formulated for use on damaged plant tissues and that is acceptable to arborist.
 - 3. Temporarily support and protect roots from damage until they are permanently redirected and covered with soil.
 - 4. Cover exposed roots with burlap and water regularly.
 - 5. Backfill as soon as possible.

- B. Root Pruning at Edge of Protection Zone: Prune roots flush with the edge of the protection zone, by cleanly cutting all roots to the depth of the required excavation.
- C. Root Pruning within Protection Zone: Avoid cutting trenches within shrub and/or tree protection zone. If trenching is unavoidable, cut trenches with an air spade tool to expose roots without cutting them. Roots encountered smaller than two (2) inches in diameter may be cut, not torn for removal. Cleanly cut roots as close as possible to excavation. Roots larger than two (2) inches in diameter shall remain.

3.8 CANOPY PRUNING

- A. General Pruning Procedures:
 - 1. Prune trees according to ANSI A300 (Part 1).
 - 2. Cut branches with sharp pruning instruments; do not break or chop.
 - 3. Do not apply pruning paint to wounds.
- B. Pruning Goals (Prune as follows and under the direction of Certified Arborist):
 - 1. Prune trees to remain to compensate for root loss caused by construction damage. Provide subsequent maintenance during landscape irrigation and planting maintenance period and until “final completion” as recommended by Certified Arborist.
 - 2. Prune to remove dead wood, promote proper structure, thin and open canopy, and for general health for the specific tree species.
 - 3. Prune for clearance from structures, pathways and driveways and streets and for a balanced canopy.
- C. Shrubs, Vines, and Ground Covers:
 - 1. Prune, thin, and shape shrubs according to standard horticultural practices.
 - 2. Prune to remove injured or dead branches from shrubs.
 - 3. Cleaning: Chip removed branches and dispose of off-site.

3.9 IRRIGATION

- A. Irrigate existing vegetation and/or trees to remain and those relocated during hot and/or dry periods and as required to maintain material in a healthy, vigorous condition.

3.10 REMOVE AND RE-INSTALL EXISTING TREES

- A. Plant material noted on Drawing to be transplanted shall be carefully removed from planting area and planted in new location indicated on Planting Plan. Removal shall consist of digging around the dripline of each plant to be transplanted and to the depth where roots are present. Plant and rootball shall be carefully moved to new planting pit.
- B. Re-install transplanted plant material to location indicated on Drawing as follows:
 - 1. Excavate circular pits with sides sloped inward. Trim base leaving center area raised slightly to support root ball and assist in drainage. Do not further disturb base. Scarify sides of plant pit smeared or smoothed during excavation. Excavate approximately planting pit sizes twice the width of the planting pot and equal to the depth of the planting pot.
 - 2. Carefully install root ball without damaging root ball or plant.
 - 3. Set rootball onto compacted native soil so the rootball sits one (1) inch above adjacent finish grade.
 - 4. Amend backfill soil per tree planting detail and landscape planting specifications.
 - 5. Place planting soil around root ball in layers, tamping to settle mix and eliminate voids and air pockets. When pit is approximately one-half backfilled, water thoroughly before placing remainder of backfill. Repeat watering until no more water is absorbed. Water again after placing and tamping final layer of planting soil.
 - 6. Stake tree(s) per tree planting detail.

3.11 REPAIR AND REPLACEMENT

- A. General: Repair or replace trees, shrubs, and other vegetation indicated to remain or be relocated that are damaged by construction operations, in a manner approved by the Owner's Representative.
 - 1. Submit details of proposed root cutting and tree and shrub repairs.
 - 2. Have arborist perform the root cutting, branch pruning, and damage repair of trees and shrubs.
 - 3. Treat damaged trunks, limbs, and roots according to arborist's written instructions.
 - 4. Perform repairs within 24 hours.
 - 5. Replace vegetation that cannot be repaired and restored to full-growth status, as determined by the Owner's Representative.
- B. Trees: Remove and replace trees indicated to remain that are more than 25 percent dead or in an unhealthy condition before the end of the maintenance period or are damaged during

construction operations that the Owner's Representative determines are incapable of restoring to normal growth pattern.

1. Provide new trees of same size and species as those being replaced for each tree that measures three (3) inches or smaller in caliper size.
 2. Provide new trees of 48" box size and species as those being replaced for each tree that measures greater than three (3) inches. In addition, the liability to the General Contractor shall be set at \$500.00 minimum per tree. The Trunk Formula method for Northern California established by the International Society of Arboriculture must be used to compute the actual value.
 3. Plant and maintain new trees as specified in Section 32 90 00 "Planting."
- C. Soil Aeration: Where directed by the Owner's Representative, aerate surface soil compacted during construction. Aerate 10 feet beyond drip line and no closer than 36 inches to tree trunk. Drill two (2) inch diameter holes a minimum of 12 inches (300 mm) deep at 24 inches o.c. Backfill holes with an equal mix of augured soil and sand.

3.12 REMOVAL OF EXISTING TREES:

- A. Contractor shall remove and demolish from the site trees and vegetation indicated on the Drawings. Additional trees and vegetation conflicting with work require written approval by Owner or Architect.
- B. Tree removal shall include branches, leaves, roots, stumps and stump grindings to a minimum depth of 18" below proposed subgrade. Exact depth shall be determined in accordance with and as required for building and hardscape work included under this contract.
- C. Contractor shall fill depressions caused by tree removal with topsoil or site soil.
- D. Properly dispose of any vegetation debris in a legal and acceptable manner off project/site property.

END OF SECTION 01 56 39

(Revised 04/15/2026)

SECTION 016000 - PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; and comparable products.

1.3 DEFINITIONS

- A. Products: Items obtained for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
 - 1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature that is current as of date of the Contract Documents.
 - 2. New Products: Items that have not previously been incorporated into another project or facility. Products salvaged or recycled from other projects are not considered new products.
 - 3. Comparable Product: Product that is demonstrated and approved by Architect through submittal process to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.
- B. Basis-of-Design Product Specification: A specification in which a single manufacturer's product is named and accompanied by the words "basis-of-design product," including make or model number or other designation. In addition to the basis-of-design product description, product attributes and characteristics may be listed to establish the significant qualities related to type, function, in-service performance and physical properties, weight, dimension, durability, visual characteristics, and other special features and requirements for purposes of evaluating comparable products of additional manufacturers named in the specification.
- C. Subject to Compliance with Requirements: Where the phrase "Subject to compliance with requirements" introduces a product selection procedure in an individual Specification Section, provide products qualified under the specified product procedure. In the event that a named product or product by a named manufacturer does not meet the other requirements of the specifications, select another named product or product from another named manufacturer that does meet the requirements of the specifications. Submit a comparable product request, if applicable.

1.4 ACTION SUBMITTALS

- A. Comparable Product Request Submittal: Submit request for consideration of each comparable product. Identify basis-of-design product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
 - 1. Include data to indicate compliance with the requirements specified in "Comparable Products" Article.
 - 2. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within **[seven]** days of receipt of a comparable product request. Architect will notify Contractor of approval or rejection of proposed comparable product request within **[15]** days of receipt of request, or **[seven]** days of receipt of additional information or documentation, whichever is later.
 - a. Form of Architect's Approval of Submittal: As specified in Section 013300 "Submittal Procedures."
 - b. Use product specified if Architect does not issue a decision on use of a comparable product request within time allocated.
- B. Basis-of-Design Product Specification Submittal: Comply with requirements in Section 013300 "Submittal Procedures." Show compliance with requirements.

1.5 QUALITY ASSURANCE

- A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, select product compatible with products previously selected, even if previously selected products were also options.
 - 1. Each contractor is responsible for providing products and construction methods compatible with products and construction methods of other contractors.
 - 2. If a dispute arises between contractors over concurrently selectable but incompatible products, Architect will determine which products shall be used.
- B. Identification of Products: Except for required labels and operating data, do not attach or imprint manufacturer or product names or trademarks on exposed surfaces of products or equipment that will be exposed to view in occupied spaces or on the exterior.
 - 1. Labels: Locate required product labels and stamps on a concealed surface, or, where required for observation following installation, on a visually accessible surface that is not conspicuous.
 - 2. Equipment Nameplates: Provide a permanent nameplate on each item of service-connected or power-operated equipment. Locate on a visually accessible but inconspicuous surface. Include information essential for operation, including the following:
 - a. Name of product and manufacturer.
 - b. Model and serial number.
 - c. Capacity.
 - d. Speed.
 - e. Ratings.

1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft and vandalism. Comply with manufacturer's written instructions.
- B. Delivery and Handling:
 - 1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
 - 2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
 - 3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
 - 4. Inspect products on delivery to determine compliance with the Contract Documents and to determine that products are undamaged and properly protected.
- C. Storage:
 - 1. Store products to allow for inspection and measurement of quantity or counting of units.
 - 2. Store materials in a manner that will not endanger Project structure.
 - 3. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.
 - 4. Protect foam plastic from exposure to sunlight, except to extent necessary for period of installation and concealment.
 - 5. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
 - 6. Protect stored products from damage and liquids from freezing.
 - 7. Provide a secure location and enclosure at Project site for storage of materials and equipment by Owner's construction forces. Coordinate location with Owner.

1.7 PRODUCT WARRANTIES

- A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.
 - 1. Manufacturer's Warranty: Written warranty furnished by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.
 - 2. Special Warranty: Written warranty required by the Contract Documents to provide specific rights for Owner.
- B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution.
 - 1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
 - 2. Specified Form: When specified forms are included with the Specifications, prepare a written document using indicated form properly executed.

3. See other Sections for specific content requirements and particular requirements for submitting special warranties.
- C. Submittal Time: Comply with requirements in Section 017700 "Closeout Procedures."

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION PROCEDURES

- A. General Product Requirements: Provide products that comply with the Contract Documents, are undamaged and, unless otherwise indicated, are new at time of installation.
 1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
 2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
 3. Owner reserves the right to limit selection to products with warranties meeting requirements of the Contract Documents.
 4. Where products are accompanied by the term "as selected," Architect will make selection.
 5. Descriptive, performance, and reference standard requirements in the Specifications establish salient characteristics of products.
 6. Or Equal: For products specified by name and accompanied by the term "or equal," or "or approved equal," or "or approved," comply with requirements in "Comparable Products" Article to obtain approval for use of an unnamed product.
 - a. Submit additional documentation required by Architect in order to establish equivalency of proposed products. Evaluation of "or equal" product status is by the Architect, whose determination is final.
- B. Product Selection Procedures:
 1. Sole Product: Where Specifications name a single manufacturer and product, provide the named product that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
 - a. Sole product may be indicated by the phrase: "Subject to compliance with requirements, provide the following: ..."
 2. Sole Manufacturer/Source: Where Specifications name a single manufacturer or source, provide a product by the named manufacturer or source that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
 - a. Sole manufacturer/source may be indicated by the phrase: "Subject to compliance with requirements, provide products by the following: ..."
 3. Limited List of Products: Where Specifications include a list of names of both manufacturers and products, provide one of the products listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered unless otherwise indicated.

- a. Limited list of products may be indicated by the phrase: "Subject to compliance with requirements, provide one of the following: ..."
4. Non-Limited List of Products: Where Specifications include a list of names of both available manufacturers and products, provide one of the products listed, or an unnamed product, which complies with requirements.
 - a. Non-limited list of products is indicated by the phrase: "Subject to compliance with requirements, available products that may be incorporated in the Work include, but are not limited to, the following: ..."
5. Limited List of Manufacturers: Where Specifications include a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered unless otherwise indicated.
 - a. Limited list of manufacturers is indicated by the phrase: "Subject to compliance with requirements, provide products by one of the following: ..."
6. Non-Limited List of Manufacturers: Where Specifications include a list of available manufacturers, provide a product by one of the manufacturers listed, or a product by an unnamed manufacturer, which complies with requirements.
 - a. Non-limited list of manufacturers is indicated by the phrase: "Subject to compliance with requirements, available manufacturers whose products may be incorporated in the Work include, but are not limited to, the following: ..."
7. Basis-of-Design Product: Where Specifications name a product, or refer to a product indicated on Drawings, and include a list of manufacturers, provide the specified or indicated product or a comparable product by one of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product by one of the other named manufacturers.
 - a. For approval of products by unnamed manufacturers, comply with requirements in Section 012500 "Substitution Procedures" for substitutions for convenience.
- C. Visual Matching Specification: Where Specifications require "match Architect's sample," provide a product that complies with requirements and matches Architect's sample. Architect's decision will be final on whether a proposed product matches.
 1. If no product available within specified category matches and complies with other specified requirements, comply with requirements in Section 012500 "Substitution Procedures" for proposal of product.
- D. Visual Selection Specification: Where Specifications include the phrase "as selected by Architect from manufacturer's full range" or similar phrase, select a product that complies with requirements. Architect will select color, gloss, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

2.2 COMPARABLE PRODUCTS

- A. Conditions for Consideration of Comparable Products: Architect will consider Contractor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied, Architect may return requests without action, except to record noncompliance with these requirements:
1. Evidence that proposed product does not require revisions to the Contract Documents, is consistent with the Contract Documents, will produce the indicated results, and is compatible with other portions of the Work. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant product qualities include attributes such as type, function, in-service performance and physical properties, weight, dimension, durability, visual characteristics, and other specific features and requirements.
 2. Evidence that proposed product provides specified warranty.
 3. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners, if requested.
 4. Samples, if requested.
- B. Submittal Requirements: Approval by the Architect of Contractor's request for use of comparable product is not intended to satisfy other submittal requirements. Comply with specified submittal requirements.

PART 3 - EXECUTION (Not Used)

END OF SECTION 016000

SECTION 017700 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
 - 1. Substantial Completion procedures.
 - 2. Final completion procedures.
 - 3. Warranties.
 - 4. Final cleaning.
 - 5. Repair of the Work.

1.3 ACTION SUBMITTALS

- A. Contractor's List of Incomplete Items: Initial submittal at Substantial Completion.
- B. Certified List of Incomplete Items: Final submittal at final completion.

1.4 CLOSEOUT SUBMITTALS

- A. Certificates of Release: From authorities having jurisdiction.
- B. Certificate of Insurance: For continuing coverage.
- C. Field Report: For pest control inspection.

1.5 MAINTENANCE MATERIAL SUBMITTALS

- A. Schedule of Maintenance Material Items: For maintenance material submittal items specified in other Sections.

1.6 SUBSTANTIAL COMPLETION PROCEDURES

- A. Contractor's List of Incomplete Items: Prepare and submit a list of items to be completed and corrected (Contractor's punch list), indicating the value of each item on the list and reasons why the Work is incomplete.

- B. Submittals Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.
1. Certificates of Release: Obtain and submit releases from authorities having jurisdiction permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
 2. Submit closeout submittals specified in other Division 01 Sections, including project record documents, operation and maintenance manuals, damage or settlement surveys, property surveys, and similar final record information.
 3. Submit closeout submittals specified in individual Sections, including specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
 4. Submit maintenance material submittals specified in individual Sections, including tools, spare parts, extra materials, and similar items, and deliver to location designated by Construction Manager. Label with manufacturer's name and model number.
 - a. Schedule of Maintenance Material Items: Prepare and submit schedule of maintenance material submittal items, including name and quantity of each item and name and number of related Specification Section. Obtain Construction Manager's or Owner's signature for receipt of submittals.
 5. Submit testing, adjusting, and balancing records.
 6. Submit sustainable design submittals not previously submitted.
 7. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
- C. Procedures Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.
1. Advise Owner of pending insurance changeover requirements.
 2. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
 3. Complete startup and testing of systems and equipment.
 4. Perform preventive maintenance on equipment used prior to Substantial Completion.
 5. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems.
 6. Advise Owner of changeover in utility services.
 7. Participate with Owner in conducting inspection and walkthrough with local emergency responders.
 8. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
 9. Complete final cleaning requirements.
 10. Touch up paint and otherwise repair and restore marred exposed finishes to eliminate visual defects.
- D. Inspection: Submit a written request for inspection to determine Substantial Completion a minimum of 10 days prior to date the Work will be completed and ready for final inspection and tests. On receipt of request, Architect and Construction Manager will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Architect, that must be completed or corrected before certificate will be issued.

1. Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
2. Results of completed inspection will form the basis of requirements for final completion.

1.7 FINAL COMPLETION PROCEDURES

- A. Submittals Prior to Final Completion: Before requesting final inspection for determining final completion, complete the following:
 1. Submit a final Application for Payment.
 2. Certified List of Incomplete Items: Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. Certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
 3. Certificate of Insurance: Submit evidence of final, continuing insurance coverage complying with insurance requirements.
 4. Submit pest-control final inspection report.
 5. Submit final completion photographic documentation.
- B. Inspection: Submit a written request for final inspection to determine acceptance a minimum of 10 days prior to date the work will be completed and ready for final inspection and tests. On receipt of request, Architect or Construction Manager will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.
 1. Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.8 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

- A. Organization of List: Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.
 1. Organize list of spaces in sequential order, starting with exterior areas first and proceeding from lowest floor to highest floor.
 2. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.
 3. Submit list of incomplete items in one of the following formats:
 - a. MS Excel electronic file. Architect will return annotated file.
 - b. PDF electronic file. Architect will return annotated file.

1.9 SUBMITTAL OF PROJECT WARRANTIES

- A. Time of Submittal: Submit written warranties on request of Architect for designated portions of the Work where warranties are indicated to commence on dates other than date of Substantial Completion, or when delay in submittal of warranties might limit Owner's rights under warranty.

- B. Partial Occupancy: Submit properly executed warranties within 15 days of completion of designated portions of the Work that are completed and occupied or used by Owner during construction period by separate agreement with Contractor.
- C. Organize warranty documents into an orderly sequence based on the table of contents of Project Manual.
- D. Warranty Electronic File: Provide warranties and bonds in PDF format. Assemble complete warranty and bond submittal package into a single electronic PDF file with bookmarks enabling navigation to each item. Provide bookmarked table of contents at beginning of document.
 - 1. Submit on digital media acceptable to Architect by email to Architect.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.
 - 1. Use cleaning products that comply with Green Seal's GS-37, or if GS-37 is not applicable, use products that comply with the California Code of Regulations maximum allowable VOC levels.

PART 3 - EXECUTION

3.1 FINAL CLEANING

- A. General: Perform final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.
- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.
 - 1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a designated portion of Project:
 - a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
 - b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
 - c. Rake grounds that are not planted, mulched, or paved to a smooth, even-textured surface.
 - d. Remove tools, construction equipment, machinery, and surplus material from Project site.
 - e. Remove snow and ice to provide safe access to building.

- f. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
- g. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
- h. Sweep concrete floors broom clean in unoccupied spaces.
- i. Vacuum carpet and similar soft surfaces, removing debris and excess nap; clean according to manufacturer's recommendations if visible soil or stains remain.
- j. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Polish mirrors and glass, taking care not to scratch surfaces.
- k. Remove labels that are not permanent.
- l. Wipe surfaces of mechanical and electrical equipment[, **elevator equipment**,] and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
- m. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
- n. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
- o. Clean ducts, blowers, and coils if units were operated without filters during construction or that display contamination with particulate matter on inspection.
 - 1) Clean HVAC system in compliance with NADCA ACR. Section 230130.52 "Existing HVAC Air-Distribution System Cleaning." Provide written report on completion of cleaning.
- p. Clean luminaires, lamps, globes, and reflectors to function with full efficiency.
- q. Leave Project clean and ready for occupancy.

C. Pest Control: Prepare written report.

3.2 REPAIR OF THE WORK

- A. Complete repair and restoration operations before requesting inspection for determination of Substantial Completion.
- B. Repair, or remove and replace, defective construction. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment. Where damaged or worn items cannot be repaired or restored, provide replacements. Remove and replace operating components that cannot be repaired. Restore damaged construction and permanent facilities used during construction to specified condition.
 - 1. Remove and replace chipped, scratched, and broken glass, reflective surfaces, and other damaged transparent materials.
 - 2. Touch up and otherwise repair and restore marred or exposed finishes and surfaces. Replace finishes and surfaces that already show evidence of repair or restoration.
 - a. Do not paint over "UL" and other required labels and identification, including mechanical and electrical nameplates. Remove paint applied to required labels and identification.

3. Replace parts subject to operating conditions during construction that may impede operation or reduce longevity.
4. Replace burned-out bulbs, bulbs noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.

END OF SECTION 017700

SECTION 017839 - PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for project record documents, including the following:
 - 1. Record Drawings.
 - 2. Record Specifications.
 - 3. Record Product Data.
 - 4. Miscellaneous record submittals.
- B. Related Requirements:
 - 1. Section 017700 "Closeout Procedures" for general closeout procedures.
 - 2. Section 017823 "Operation and Maintenance Data" for operation and maintenance manual requirements.

1.3 CLOSEOUT SUBMITTALS

- A. Record Drawings: Comply with the following:
 - 1. Number of Copies: Submit one Insert number set(s) of marked-up record prints.
 - 2. Number of Copies: Submit copies of record Drawings as follows:
 - a. Initial Submittal:
 - 1) Submit PDF electronic files of scanned record prints and one of file prints.
 - 2) Architect will indicate whether general scope of changes, additional information recorded, and quality of drafting are acceptable.
 - b. Final Submittal:
 - 1) Submit PDF electronic files of scanned record prints
 - 2) Include each drawing, whether or not changes and additional information were recorded.
 - c. Final Submittal:
 - 1) Submit record PDF digital data files
- B. Record Specifications: Submit annotated PDF electronic files of Project's Specifications, including addenda and contract modifications.

- C. Miscellaneous Record Submittals: See other Specification Sections for miscellaneous record-keeping requirements and submittals in connection with various construction activities. Submit annotated PDF electronic files and directories of each submittal.

1.4 RECORD DRAWINGS

- A. Record Prints: Maintain one set of marked-up paper copies of the Contract Drawings and Shop Drawings, incorporating new and revised drawings as modifications are issued.
1. Preparation: Mark record prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to provide information for preparation of corresponding marked-up record prints.
 - a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
 - b. Accurately record information in an acceptable drawing technique.
 - c. Record data as soon as possible after obtaining it.
 - d. Record and check the markup before enclosing concealed installations.
 - e. Cross-reference record prints to corresponding photographic documentation.
 2. Content: Types of items requiring marking include, but are not limited to, the following:
 - a. Dimensional changes to Drawings.
 - b. Revisions to details shown on Drawings.
 - c. Depths of foundations.
 - d. Locations and depths of underground utilities.
 - e. Revisions to routing of piping and conduits.
 - f. Revisions to electrical circuitry.
 - g. Actual equipment locations.
 - h. Duct size and routing.
 - i. Locations of concealed internal utilities.
 - j. Changes made by Change Order or Construction Change Documents (CCD)
 - k. Changes made following Architect's written orders.
 - l. Details not on the original Contract Drawings.
 - m. Field records for variable and concealed conditions.
 - n. Record information on the Work that is shown only schematically.
 3. Mark the Contract Drawings and Shop Drawings completely and accurately. Use personnel proficient at recording graphic information in production of marked-up record prints.
 4. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
 5. Mark important additional information that was either shown schematically or omitted from original Drawings.
 6. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.
- B. Record Digital Data Files: Immediately before inspection for Certificate of Substantial Completion, review marked-up record prints with Architect. When authorized, prepare a full set of corrected digital data files of the Contract Drawings, as follows:
1. Format: Annotated PDF electronic file with comment function enabled.

2. Incorporate changes and additional information previously marked on record prints. Delete, redraw, and add details and notations where applicable.
 3. Refer instances of uncertainty to Architect for resolution.
 4. Architect will furnish Contractor with one set of digital data files of the Contract Drawings for use in recording information.
 - a. Architect will provide data file layer information. Record markups in separate layers.
- C. Format: Identify and date each record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.
1. Format: Annotated PDF electronic file with comment function enabled.
 2. Record Digital Data Files: Organize digital data information into separate electronic files that correspond to each sheet of the Contract Drawings. Name each file with the sheet identification. Include identification in each digital data file.
 3. Identification: As follows:
 - a. Project name.
 - b. Date.
 - c. Designation "PROJECT RECORD DRAWINGS."
 - d. Name of Architect and Construction Manager.
 - e. Name of Contractor.

1.5 RECORD SPECIFICATIONS

- A. Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.
1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
 2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
 3. Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.
 4. For each principal product, indicate whether record Product Data has been submitted in operation and maintenance manuals instead of submitted as record Product Data.
 5. Note related Change Orders, record Product Data, and record Drawings where applicable.
- B. Format: Submit record Specifications as annotated PDF electronic file.

1.6 RECORD PRODUCT DATA

- A. Recording: Maintain one copy of each submittal during the construction period for project record document purposes. Post changes and revisions to project record documents as they occur; do not wait until end of Project.
- B. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
 2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
 3. Note related Change Orders, record Specifications, and record Drawings where applicable.
- C. Format: Submit record Product Data as annotated PDF electronic file.
1. Include record Product Data directory organized by Specification Section number and title, electronically linked to each item of record Product Data.

1.7 MISCELLANEOUS RECORD SUBMITTALS

- A. Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.
- B. Format: Submit miscellaneous record submittals as PDF electronic file.
1. Include miscellaneous record submittals directory organized by Specification Section number and title, electronically linked to each item of miscellaneous record submittals.

1.8 MAINTENANCE OF RECORD DOCUMENTS

- A. Maintenance of Record Documents: Store record documents in the field office apart from the Contract Documents used for construction. Do not use project record documents for construction purposes. Maintain record documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to project record documents for Architect's and Construction Manager's reference during normal working hours.

PART 2 - **PRODUCTS** – (NOT USED)

PART 3 - **EXECUTION**– (NOT USED)

END OF SECTION 017839

SECTION 024119 - SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Demolition and removal of selected portions of building or structure.
 - 2. Demolition and removal of selected site elements.
 - 3. Salvage of existing items to be reused or recycled.
- B. Related Requirements:
 - 1. Section 011000 "Summary" for restrictions on use of the premises, Owner-occupancy requirements, and phasing requirements.
 - 2. Section 013516 "Alteration Project Procedures" for general protection and work procedures for alteration projects.

1.3 DEFINITIONS

- A. Remove or Demolish: Detach items from existing construction and dispose of them off-site unless indicated to be salvaged or reinstalled.
- B. Remove and Salvage: Detach items from existing construction, in a manner to prevent damage, and deliver to Owner ready for reuse.
- C. Remove and Reinstall: Detach items from existing construction, in a manner to prevent damage, prepare for reuse, and reinstall where indicated.
- D. Existing to Remain: Leave existing items that are not to be removed and that are not otherwise indicated to be salvaged or reinstalled.
- E. Dismantle: To remove by disassembling or detaching an item from a surface, using gentle methods and equipment to prevent damage to the item and surfaces; disposing of items unless indicated to be salvaged or reinstalled.

1.4 MATERIALS OWNERSHIP

- A. Unless otherwise indicated, demolition waste becomes property of Contractor.

- B. Historic items, relics, antiques, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, and other items of interest or value to Owner that may be uncovered during demolition remain the property of Owner.

- 1. Carefully salvage in a manner to prevent damage and promptly return to Owner.

1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For refrigerant recovery technician.
- B. Schedule of Selective Demolition Activities: Indicate the following:
 - 1. Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity. Ensure Owner's and occupant on-site operations are uninterrupted.
 - 2. Interruption of utility services. Indicate how long utility services will be interrupted.
 - 3. Coordination for shutoff, capping, and continuation of utility services.
 - 4. Use of elevator and stairs.
 - 5. Coordination of Owner's continuing occupancy of portions of existing building and of Owner's partial occupancy of completed Work.
- C. Predemolition Photographs or Video: Show existing conditions of adjoining construction, including finish surfaces, that might be misconstrued as damage caused by demolition operations.
- D. Statement of Refrigerant Recovery: Signed by refrigerant recovery technician responsible for recovering refrigerant, stating that all refrigerant that was present was recovered and that recovery was performed according to EPA regulations. Include name and address of technician and date refrigerant was recovered.
- E. Warranties: Documentation indicating that existing warranties are still in effect after completion of selective demolition.

1.6 CLOSEOUT SUBMITTALS

- A. Inventory: Submit a list of items that have been removed and salvaged.

1.7 QUALITY ASSURANCE

- A. Refrigerant Recovery Technician Qualifications: Certified by an EPA-approved certification program.

1.8 FIELD CONDITIONS

- A. Owner will occupy portions of building immediately adjacent to selective demolition area. Conduct selective demolition so Owner's operations will not be disrupted.
- B. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.

- C. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.
- D. Hazardous Materials: Present in buildings and structures to be selectively demolished. A report on the presence of hazardous materials is on file for review and use. Examine report to become aware of locations where hazardous materials are present.
 - 1. Hazardous material remediation is specified elsewhere in the Contract Documents.
 - 2. Do not disturb hazardous materials or items suspected of containing hazardous materials except under procedures specified elsewhere in the Contract Documents.
 - 3. Owner will provide material safety data sheets for suspected hazardous materials that are known to be present in buildings and structures to be selectively demolished because of building operations or processes performed there.
- E. Storage or sale of removed items or materials on-site is not permitted.
- F. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.
 - 1. Maintain fire-protection facilities in service during selective demolition operations.

1.9 COORDINATION

- A. Arrange selective demolition schedule so as not to interfere with Owner's operations.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.
- B. Standards: Comply with ASSE A10.6 and NFPA 241.
- C. CA Fire Code Chapter 33 – Fire Safety During Construction and Demolition.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that utilities have been disconnected and capped before starting selective demolition operations.
- B. Review Project Record Documents of existing construction or other existing condition and hazardous material information provided by Owner. Owner does not guarantee that existing conditions are same as those indicated in Project Record Documents.

- C. Verify that hazardous materials have been remediated before proceeding with building demolition operations.
- D. Survey of Existing Conditions: Record existing conditions by use of preconstruction photographs or video.
 - 1. Inventory and record the condition of items to be removed and salvaged. Provide photographs or video of conditions that might be misconstrued as damage caused by salvage operations.
 - 2. Before selective demolition or removal of existing building elements that will be reproduced or duplicated in final Work, make permanent record of measurements, materials, and construction details required to make exact reproduction.

3.2 PREPARATION

- A. Refrigerant: Before starting demolition, remove refrigerant from mechanical equipment according to 40 CFR 82 and regulations of authorities having jurisdiction.

3.3 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

- A. Existing Services/Systems to Remain: Maintain services/systems indicated to remain and protect them against damage.
- B. Existing Services/Systems to Be Removed, Relocated, or Abandoned: Locate, identify, disconnect, and seal or cap off utility services and mechanical/electrical systems serving areas to be selectively demolished.
 - 1. Owner will arrange to shut off indicated services/systems when requested by Contractor.
 - 2. Arrange to shut off utilities with utility companies.
 - 3. If services/systems are required to be removed, relocated, or abandoned, provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of building.
 - 4. Disconnect, demolish, and remove fire-suppression systems, plumbing, and HVAC systems, equipment, and components indicated on Drawings to be removed.
 - a. Piping to Be Removed: Remove portion of piping indicated to be removed and cap or plug remaining piping with same or compatible piping material.
 - b. Piping to Be Abandoned in Place: Drain piping and cap or plug piping with same or compatible piping material and leave in place.
 - c. Equipment to Be Removed: Disconnect and cap services and remove equipment.
 - d. Equipment to Be Removed and Reinstalled: Disconnect and cap services and remove, clean, and store equipment; when appropriate, reinstall, reconnect, and make equipment operational.
 - e. Equipment to Be Removed and Salvaged: Disconnect and cap services and remove equipment and deliver to Owner.
 - f. Ducts to Be Removed: Remove portion of ducts indicated to be removed and plug remaining ducts with same or compatible ductwork material.
 - g. Ducts to Be Abandoned in Place: Cap or plug ducts with same or compatible ductwork material and leave in place.

3.4 PROTECTION

- A. Temporary Protection: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
 - 1. Provide protection to ensure safe passage of people around selective demolition area and to and from occupied portions of building.
 - 2. Provide temporary weather protection, during interval between selective demolition of existing construction on exterior surfaces and new construction, to prevent water leakage and damage to structure and interior areas.
 - 3. Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective demolition operations.
 - 4. Cover and protect furniture, furnishings, and equipment that have not been removed.
 - 5. Comply with requirements for temporary enclosures, dust control, heating, and cooling specified in Section 015000 "Temporary Facilities and Controls."
- B. Remove temporary barricades and protections where hazards no longer exist.

3.5 SELECTIVE DEMOLITION, GENERAL

- A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:
 - 1. Proceed with selective demolition systematically, from higher to lower level. Complete selective demolition operations above each floor or tier before disturbing supporting members on the next lower level.
 - 2. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping. Temporarily cover openings to remain.
 - 3. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
 - 4. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain portable fire-suppression devices during flame-cutting operations.
 - 5. Maintain fire watch during and for at least 2 hours after flame-cutting operations.
 - 6. Maintain adequate ventilation when using cutting torches.
 - 7. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
 - 8. Remove structural framing members and lower to ground by method suitable to avoid free fall and to prevent ground impact or dust generation.
 - 9. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
 - 10. Dispose of demolished items and materials promptly.
- B. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
- C. Removed and Salvaged Items:

1. Clean salvaged items.
2. Pack or crate items after cleaning. Identify contents of containers.
3. Store items in a secure area until delivery to Owner.
4. Transport items to Owner's storage area designated by Owner.
5. Protect items from damage during transport and storage.

D. Removed and Reinstalled Items:

1. Clean and repair items to functional condition adequate for intended reuse.
2. Pack or crate items after cleaning and repairing. Identify contents of containers.
3. Protect items from damage during transport and storage.
4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.

E. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Architect, items may be removed to a suitable, protected storage location during selective demolition and cleaned and reinstalled in their original locations after selective demolition operations are complete.

3.6 DISPOSAL OF DEMOLISHED MATERIALS

A. Remove demolition waste materials from Project site and dispose of them in an EPA-approved construction and demolition waste landfill acceptable to authorities having jurisdiction.

1. Do not allow demolished materials to accumulate on-site.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
3. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.
4. Comply with requirements specified in Section 017419 "Construction Waste Management and Disposal."

B. Burning: Do not burn demolished materials.

3.7 CLEANING

A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

END OF SECTION 024119

SECTION 031000 - CONCRETE FORMWORK

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Formwork for cast-in-place concrete.
- B. Form openings for mechanical and electrical work.
- C. Coordinate installation of items supplies under other specification sections.

1.2 RELATED SECTIONS

- A. Section 03 30 00: Cast-in-Place Concrete
- B. Section 03 20 00: Concrete Reinforcing
- C. Mechanical and electrical items to be embedded in concrete.

1.3 QUALITY ASSURANCE

A. Design Requirements:

- 1. All work shall be done in accordance with the California Code of Regulations. Title 24, 2025 edition, also known as California Building Code (CBC).
- 2. Responsibility: Design of formwork is the Subcontractor's responsibility. Comply with the following, except as modified by the Building Code or these specifications.
 - a. ACI 301 - "Specifications for Structural Concrete for Buildings."
 - b. ACI 347 - "Recommended Practice for Concrete Formwork."
 - c. ACI 303R - "Guide to Cast-in-Place Architectural Concrete Practice."
- 3. Allowable Tolerances:
 - a. Construct formwork to provide completed cast-in-place concrete surfaces complying with the tolerances specified in ACI 347.
 - b. Note special tolerance requirements for locations of drains where indicated on drawings.

1.4 SUBMITTALS

- A. Product Data: Submit Manufacturer's data and installation instructions for proprietary materials such as form coatings, manufactured form systems, ties and accessories.
- B. Submit manufacturer's certification that form release agent will provide clean, stain free surfaces of concrete and not interfere with bond of applied finishes.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Deliver form release agents in manufacturer's sealed and trademarked containers.

PART 2 - PRODUCTS

2.1 FORM MATERIALS

- A. General: Form material shall be as required to produce continuous, straight, smooth exposed surfaces. Materials selected shall be satisfactory to Architect for effect on finished appearance of concrete. Architectural concrete formwork shall be of one material throughout the work, for all similar types of concrete surfaces.
- B. Exposed Non-Architectural Concrete:
 - 1. Metal or APA graded Plyform, Grade BB, Class I or II, or HDO plywood exterior type, each piece graded, no mill oiling. Use one form face material throughout the project for similar types of concrete surfaces.
 - 2. Provide material and bracing with sufficient thickness to withstand pressure of newly placed concrete without bow or deflection.
- C. Concealed Concrete: Plywood, lumber, metal, or other acceptable material. Provide lumber that is dressed on at least 2 edges and 1 side. "Concealed" means not visible in the completed structure. (Painted concrete is not to be considered "concealed".)
- D. Form Ties:
 - 1. Provide snap ties with plastic cones of same size and shape and of same manufacturer as cement cone hole plugs provided under Concrete Section.
 - 2. Wire ties and site fabricated ties and wood separators are not acceptable.
- E. Form Coatings: Commercial formulation resin-based form-coating compounds that will not bond with, stain, nor adversely affect concrete surfaces, and will not impair subsequent treatment of concrete surfaces requiring bond, or adhesion, nor impede the wetting of surfaces to be cured with water or curing compounds. Oils and petroleum distillates are not acceptable. Verify compatibility of form coating with proposed surface finish.
- F. Metal Inserts: Provide metal inserts for anchorage of materials or equipment to concrete construction, where not supplied by other trades and required for the work.
- G. Earth forms permitted for footings.

2.2 FORMWORK SYSTEMS

- A. Design, erect, support, brace and maintain formwork so that it will safely support vertical and lateral loads that might be applied, until such loads can be supported by the concrete structure. Construct formwork so that concrete members and structures are of correct size, shape, alignment, elevation and position.
- B. Design forms to include assumed values of live load, dead load, weight of moving equipment operated on formwork, concrete mix, height of concrete drop, vibrator frequency, ambient temperature, foundation pressures, stresses, lateral stability, and other factors pertinent to safety of structuring during construction.
- C. Design formwork to be readily removable without impact, shock or damage to cast-in-place concrete surfaces and adjacent materials.
- D. Provide formwork sufficiently tight to prevent leakage of cement past during concrete placement. Solidly butt and gasket joints and provide backup material at joints to prevent leakage and fins.

PART 3 - EXECUTION

3.1 INSPECTION

- A. Examine surfaces and conditions receiving or affecting the work. Do not proceed until unsuitable conditions have been corrected.

3.2 FORM CONSTRUCTION

- A. General: Construct forms complying with ACI 347 and ACI 303R, as applicable to the sizes, shapes, lines and dimensions shown, and to accurate alignment, location, grades, levels, and plumbness. Provide for openings, sleeves, offsets, recesses, reglets, chamfers, inserts, and other features required. Use selected materials to obtain required finishes. Before placing concrete, check the lines and levels of erected formwork. Make corrections and adjustments to ensure proper size and location of concrete members and stability of forming system.
- B. Ties:
 - 1. Spacing: Space ties in a uniform pattern satisfactory to the Architect. Rest cones firmly against forms and seal to prevent leakage.
- C. Corner Treatment:
 - 1. Make all corners chamfered.
 - 2. Form chamfers with 3/4" x 3/4" strips, unless otherwise shown, accurately formed and surfaced to produce uniformly straight lines and tight edge joints. Extend terminal edges to required limit and miter chamfer strips at changes in direction.
 - 3. Concealed corners may be formed either square or chamfered.
- D. Provision for Other Trades: Provide openings in concrete formwork to accommodate work of other trades. Size and location of openings, recesses and chases are the responsibility of the trade requiring such items. Accurately place and securely support items built into forms. Openings for doors and windows shall be formed with a tolerance of minus 0" and plus 1/2" from indicated dimensions.
- E. Cleaning and Tightening: Thoroughly clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt or other debris just before concrete is to be placed. Retighten forms immediately after concrete placement as required to eliminate mortar leaks.
- F. Earth Forms:
 - 1. Construct wood edge strips at top sides of excavations.
 - 2. Provide forms for footings wherever concrete cannot be placed against solid earth excavation.
 - 3. Remove loose dirt and debris prior to concrete pours.
 - 4. Foundation concrete may be placed directly into neat excavations provided the foundation trench walls are stable as determined by the Geotechnical Engineer.
 - a. The horizontal dimensions of unformed concrete footings shall be increased 1 inch at every surface at which concrete is placed directly against the soil.

- b. The minimum formwork shown on the drawings is mandatory to ensure clean excavations immediately prior to and during the placing of concrete.

G. Footings and Grade Beams:

- 1. Provide forms for footings and grade beams if soil or other conditions are such that earth trench forms are unsuitable.

- H. For slabs-on-grade, secure edge forms in such a manner as to not move under weight of construction loads, construction and finishing equipment, or workers

3.3 INSTALLATION OF EMBEDDED ITEMS

- A. General: Set and build into the work anchorage devices and other embedded items required for other work that is attached to, or supported by, concrete. Use top and bottom templates, setting drawings, diagrams, instructions and directions provided by suppliers of the items to be attached thereto.
- B. Coordinate and schedule the work of this Section with the work of other Sections required to be set in, on, or contiguous with forms.
- C. Anchor bolts out of position or plumb by more than 1/4" shall be reinstalled in correct position and plumb at no increase in Contract Price.

3.4 REMOVAL OF FORMS

- A. Remove forms completely. Exposed surfaces of concrete shall be clean, smooth and free of irregularities.
- B. Form Ties:
 - 1. Do not remove ties until concrete has hardened sufficiently to permit removal without damaging concrete. Do not spall concrete on exposed surfaces. Pull ties of type that are wholly withdrawn from the wall toward the inside face. Cutting ties back from face of wall will not be permitted. Plug tie rod holes as specified in Concrete Section.
- C. Do not pry against face of concrete. Use wooden wedges only.
- D. Forms:
 - 1. Remove forms in manner to ensure safety of members. Do not disturb supporting forms until concrete has hardened sufficiently to permit removal with safety and without damage to concrete surface. Construct forms to permit their removal without disturbing the original shoring.
 - 2. Time of Removal: Time of removal will depend on weather conditions, the results of cylinder tests and effectiveness of curing. The following periods between depositing of concrete and removal of forms shall be considered a minimum, which may be extended if deemed necessary by the Architect. Subject to the requirements of paragraph A above, forms for walls may be removed after 8 hours of completing concrete placement.

END OF SECTION 031000

SECTION 032000 - CONCRETE REINFORCEMENT

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Reinforcing steel bars for cast-in-place concrete, complete with tie wire.
- B. Support chairs, bolsters, bars support, spacers, and other accessories for reinforcing.

1.2 RELATED SECTIONS

- A. Section 03 10 00: Concrete Formwork.
- B. Section 03 30 00: Cast-in-Place Concrete.

1.3 QUALITY ASSURANCE

- A. Perform concrete reinforcing work in accordance with CRSI 63 and 65 and ACI 301, 315 and 318, unless specified otherwise in this Section.
- B. The Owner's Testing Agency will:

- 1. Provide tests in accordance with the California Building Code (CBC) Section 1903.2.
- 2. Collect mill test reports for reinforcement.
- 3. Take samples from bundles at fabricators:
 - a. When bundles are identified by the heat number and accompanied by mill analysis, two specimens shall be taken from each ten (10) tons, or fraction thereof, of each size and grade.
 - b. When reinforcement is not positively identified by the heat numbers or when random sampling is intended, two specimens shall be taken from each 2-1/2 tons, or thereof, of each size and grade.
 - c. All costs associated with the test of reinforcing that not have mill test reports will be at the contractor's expense.
- 4. Test for tensile and bending strengths.

1.4 REFERENCES

- A. California Code of Regulations. Title 24, 2025 edition, also known as California Building Code (CBC).
- B. ACI 301 - American Concrete Institute - Specification for Structural Concrete for Buildings
- C. ACI 315 - American Concrete Institute - Details and Detailing of Concrete Reinforcement.
- D. ACI 318 - Building Code Requirements for Reinforced Concrete.
- E. CRSI 63 - Recommended Practice for Placing Reinforcing Bars.
- F. CRSI 65 - Recommended Practice for Placing Bar Supports, Specifications and Nomenclature.

1.5 SUBMITTALS

- A. Submit shop drawings including appropriate plans and details. Indicate bar sizes, spacings, locations, and quantities of reinforcing steel, bending and cutting schedules, and supporting and spacing device.

PART 2 - PRODUCTS

2.1 REINFORCING

- A. Reinforcing Steel: 60 ksi yield grade; deformed type as indicated on drawings.
 - 1. Bars: Billet steel, ASTM 615; as indicated.
 - 2. Finish: Plain unless indicated galvanized on drawings or so specified.

2.2 ACCESSORY MATERIALS

- A. Tie Wire: Minimum 16-gage annealed type, or patented system accepted by Architect.
- B. Chairs, Bolsters, Bar Supports, Spacers: Sized and shaped for strength and support of reinforcing during construction conditions.

2.3 FABRICATION

- A. Fabricate concrete reinforcing in accordance with ACI 315.
- B. Locate reinforcing splices, not indicated on drawings, at points of minimum stress. Location of splices shall be reviewed by Architect.

PART 3 - EXECUTION

3.1 PLACEMENT

- A. Place reinforcing supported and secured against displacement. Do not deviate from true alignment.
- B. Place reinforcing to obtain at least minimum coverage for concrete protection. Arrange, space and securely tie bars and bar supports to hold reinforcing in position during concrete placement operations.
- C. Before placing concrete, ensure reinforcing is clean, free of loose scale, dirt, or other foreign coatings, which would reduce bond to concrete.

3.2 FIELD QUALITY CONTROL

- A. General: The Owner's Testing Laboratory shall test and inspect concrete reinforcement and embedded assemblies as Work progresses. Failure to detect any defective work or material shall not in any way prevent later rejection when such defect is discovered nor shall it obligate the Design Professionals for final acceptance.
- B. Owner's Testing Laboratory shall provide qualified personnel at site to inspect reinforcement and embeds using the latest Drawings and reviewed shop drawings, as follows:
 - 1. Prior to placement, inspect reinforcement and embeds for grade, quality of material, absence of foreign matter, and for suitable storage.
 - 2. Provide continuous inspection of reinforcement and embedded assemblies during placement and immediately prior to concreting operations for: size,

- quantity, vertical and horizontal spacing and location, correctness of bends and splices, mechanical splices, clearances, compliance with specified tolerances, security of supports and ties, concrete cover, and absence of foreign matter.
3. Inspect epoxy-coated reinforcement for coating damage and required applied coatings.
- C. Owner's Testing Laboratory shall submit inspection, observation, and/or test reports to the Design Professionals as required herein and shall provide an evaluation statement in each report stating whether or not concrete reinforcement and embedded assemblies conforms to requirements of Specifications and Drawings and shall specifically note deviations there from.
- D. Immediately report deficiencies to the Contractor. Contractor shall prepare proposed remedy for deficiency. Contractor shall present proposal to the Design Professionals for approval. After an approved proposal is accepted by the Design Professionals, the Contractor shall correct the deficiency at no cost to the Owner.

END OF SECTION 032000

SECTION 033000 - CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Cast-in-place concrete footings, foundations and grade beams.
- B. Floors and slabs on grade.
- C. Cast-in-place equipment pads.
- D. Surface finish of floors.

1.2 RELATED WORK

- A. Section 03 10 00: Concrete Formwork.
- B. Section 03 20 00: Concrete Reinforcement.
- C. Mechanical and electrical items to be cast in concrete.

1.3 QUALITY ASSURANCE

- A. Perform cast-in-place concrete work in accordance with ACI 318, unless specified otherwise in this Section.
- B. Inspection and testing will be performed by owner's testing laboratory.
- C. Owner's testing agency shall check the first batch at the start of the day to verify materials and proportions conform to the approved mix design.

1.4 SUBMITTALS

- A. Submit proposed mix design of each class of concrete to inspection and testing firm and Architect and Engineer for review prior to commencement of work.
- B. Three concrete test cylinders will be taken not less than once for every 50 cubic yards of concrete placed or not less than once a day for each class of concrete placed by special inspector.
- C. The cement supplier shall submit certification of compliance in accordance with CBC Section 1910.1.
- D. One additional test cylinder will be taken during cold weather concreting and be cured on job site under same conditions as concrete it represents.
- E. One slump test will be taken for each set of test cylinders taken.
- F. The manufacturer of transit-mix concrete shall deliver to job inspector a certificate with each mixer truck. Certificate shall bear signature of representative of Testing Laboratory, stating quantity of cement, fine aggregate, coarse aggregate, and admixtures contained in load. Certificates shall indicate time, to the nearest minute, that batch was mixed.
- G. A licensed weighmaster shall positively identify the quantity and weight of materials and certify each load delivered to job site by a batch ticket. The batch tickets shall be transmitted to the Inspector of Record by truck driver with each load identified thereon. The load shall not be placed without a batch ticket identifying the mix. The Inspector of Record shall keep a daily record of placements, identifying each truck, its load, and time of receipt at the jobsite, and approximate location of deposit in structure, and shall maintain a copy of the daily record as required by the enforcement agency.

1.5 REFERENCES

- A. American Concrete Institute (ACI):
 - 1. ACI 318 - Building Code Requirements for Reinforced Concrete
 - 2. ACI 304 - Recommended Practice for Measuring, Mixing, Transporting and Placing concrete.
 - 3. ACI 301 - Specifications for Structural Concrete for Buildings.
 - 4. ACI 305 - Hot Weather Concreting.
 - 5. ACI 306 - Cold Weather Concreting.
- B. All work shall be done in accordance with California Code of Regulations. Title 24, 2025 edition, also known as California Building Code (CBC).

PART 2 - PRODUCTS

2.1 CONCRETE MATERIALS

- A. Cement: Portland, Type II; ASTM C150. Gray, except where noted, supplement with the following:
 - 1. Fly Ash: 25 percent maximum; Fly Ash shall conform to ASTM C618 Class N or F.
 - 2. Combined Fly Ash and Pozzolan: 19 percent maximum
 - 3. Ground Granulated Blast Furnace Slag: 50 percent maximum
 - 4. Combined Fly Ash or Pozzolan and Ground Granulated Blast Furnace Slag: 50 percent maximum with combined Fly Ash and Pozzolans not exceeding 25 percent
- B. Fine and Coarse Aggregates: ASTM C33 for normal weight concrete. Aggregate shall be from established sources with proven history of successful use in producing concrete with minimum shrinkage. The average drying shrinkage after 28 days shall not exceed 0.045 percent for hardrock concrete.
- C. Water: Clean, and free from injurious amounts of oil, alkali, organic matter, or other deleterious material.
- D. Source of aggregate shall remain constant for the duration of the work, as practical.

2.2 ADMIXTURES

- A. Air Entrainment: ASTM C260.
- B. Water-Reducing Admixture: ASTM C494, Type A, and containing not more than 0.1 percent chloride ions.
- C. Water-Reducing, Retarding Admixture: ASTM C494, Type D, and containing not more than 0.1 percent chloride ions.
- D. Pozzolan: ASTM A618, containing not more than 0.1 percent chloride ions.
- E. Calcium Chloride: Not permitted.
- F. ASTM C 494, Type C, 30% + 2% solution of Calcium Nitrite

2.3 ACCESSORIES

- A. Bonding Agent: "Anvil Bond" as manufactured by Master Builders or approved equal.

- B. Non-Shrink Grout: Premixed compound consisting of non-metallic aggregate, cement, water reducing and plasticizing agents; capable of developing minimum compressive strength of 2400 psi in two days and 6000 psi in 28 days.
- C. Absorptive Mats: Cotton fabric or burlap-polyethylene, minimum 8oz./sq. yd; bonded to prevent separation during handling, placement and curing.
- D. Liquid Membrane-Forming Curing Compound: Conforming to ASTM C309, Type I, and which will not discolor concrete or affect bonding or other finish applied thereover, and which restricts loss of water to not more than 0.500 grams per sq. cm. of surface when tested per ASTM C156.
- E. Provide Fly Ash or other reclaimed cementitious materials as indicated in Section 2.01.A.
- F. Slab-Leveling Compound. Provide leveling compound where required to meet floor flatness and levelness requirements. Acceptable products include Ardex SD-L, Burke 300 Durock or approved equal.

2.4 PROPORTIONING AND DESIGN OF MIXES

- A. Prepare design mixes for each type and strength of concrete by either laboratory trial batch or field experience methods as specified in ACI 301. If trial batch method used, use an independent testing facility acceptable to Engineer and Architect for preparing and reporting proposed mix designs. The testing facility shall not be the same as used for field quality control testing unless otherwise acceptable to Architect.
- B. Except as otherwise specified, submit written reports to Architect and Engineer of each proposed mix for each class of concrete at least 15 days prior to start of work. Do not begin concrete production until mixes have been reviewed by Architect and Engineer.
- C. Unless lower limits are stated in the contract documents, all concrete exposed to freezing and thawing in moist condition and/or required to be watertight or used in slabs-on-grade shall have a maximum W/cm ratio of 0.45.
- D. Provide concrete of following strength:
 - 1. Compressive strength (28 day) shall be as shown on Structural Drawings.
 - 2. Select proportions for normal weight concrete in accordance with ACI 301 by Method 1, 2 or 3 as applicable. Add air-entraining agent to concrete to entrain air as indicated in ACI 301.
- E. Adjustment to Concrete Mixes: Mix design adjustments may be requested by Contractor when characteristics of materials, job conditions, water, test results, or other circumstances warrant; at no additional cost to Owner and as accepted by Architect. Laboratory test data for revised mix design and strength results must be submitted to and accepted by architect before using in work.
- F. Admixtures:
 - 1. Use water-reducing admixture or high-range, water-reducing admixture (super plasticizer), may be used in concrete subject to approval by Architect.
 - 2. Use accelerating admixture in concrete slabs placed at ambient temperatures below 50 degrees F (10 degrees C).
 - 3. Use air-entraining admixture in exterior exposed concrete, unless otherwise indicated. Add air-entraining admixture at manufacturer's prescribed rate to result in concrete at point of placement having air content of 4 percent to 6 percent.

2.5 CONCRETE MIXES

- A. Ready-Mix Concrete: All concrete shall be ready-mix concrete unless otherwise approved by the Engineer and Architect.

- B. Self-Leveling Concrete Topping - Underlayment for Interior Applications:
1. Topping for epoxy terrazzo flooring application shall include latex modifier, such as "TERA-GEM III, Revocoat Latex #1 Additive". Follow manufacturer's recommendations and flooring installation requirements.
 2. Use self-leveling underlayment concrete formulated to level concrete floors without shrinking, cracking or spalling, and capable of being placed from feathered edge to 1" thickness without aggregate in one pour. If greater than 1" thickness is required, aggregate shall be used in accordance with manufacturer's requirements. Appropriate primer shall be utilized for all underlayment applications.
 3. Example acceptable product: Ardex Engineered Cements "ARDEX K-15"
 4. Example acceptable product: Euclid Chemical's "Flo-Top or Super Flo-Top"
 5. Example acceptable product: Sika Corporation "Sika Level Series"
 6. Example acceptable product: BASF "MasterTop 110SL"

PART 3 - EXECUTION

3.1 PLACING CONCRETE

- A. Pre-placement Inspection: Before placing concrete, inspect and complete formwork installation, reinforcing steel, and items to be embedded or cast-in. Notify other crafts to permit installation of their work; cooperate with other trades in setting such work. Moisten wood forms immediately before placing concrete where form coatings are not used.
- B. Place concrete in accordance with ACI 304, and as herein specified.
- C. Notify Structural Engineer minimum 48 hours prior to placing of concrete.
- D. Ensure anchors, seats, plates, and other items to be cast into concrete are placed, held securely, and will not cause problems in placing concrete. Rectify misplacements and proceed with work.
- E. Maintain records of poured concrete items. Record date, location of pour, quantity, air temperature and test samples taken.
- F. Ensure reinforcement, embedded parts, formed expansion and contraction joints, and other inserts are not disturbed during concrete placement.
- G. Prepare previously placed concrete by blowing joints and provide keyway.
- H. Deposit concrete continuously or in layers of such thickness that no concrete will be placed on concrete which has hardened sufficiently to cause the formation of seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as herein specified only with prior approval of the Architect. Deposit concrete as nearly as practicable to this final location to avoid aggregation.
- I. Placing Concrete in Forms: Deposit concrete in forms in horizontal layers not deeper than 24 inches and in a manner to avoid inclined construction joints. Where placement consists of several layers, place each layer while preceding layer is still plastic to avoid cold joints.
- J. Consolidate placed concrete by mechanical vibrating equipment supplemented by hand- spading, rodding or tamping. Use equipment and procedures for consolidation of concrete in accordance with ACI recommended practices.
- K. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations not farther than visible effectiveness of machine. Place vibrators to rapidly penetrate placed layer and at least 6 inches into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to set. At each insertion limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing segregation of mix.

- L. Consolidate concrete during placing operations so that concrete is thoroughly worked around reinforcement and other embedded items and into corners.
- M. Bring slab surfaces to correct level with straight-edge and strike off. Use bull floats or derbies to smooth surface, free of humps or hollows. Do not disturb slab surfaces prior to beginning finishing operations.
- N. Excessive honeycomb or embedded debris in concrete is not acceptable. Notify Engineer and Architect immediately on discovery.
- O. Conform to ACI 305 when concreting during hot weather.
- P. Conform to ACI 306 when concreting during cold weather.
- Q. Unless otherwise permitted, time for completion of discharge shall comply with ASTM C94/C94M. When discharge is permitted after more than 90 minutes have elapsed since batching or after the drum has revolved 300 revolutions, verify that air content of air-entrained concrete, slump, and temperature of concrete are as specified. When discharge is permitted after more than 90 minutes have elapsed since batching or after the drum has revolved 300 revolutions, no water may be added.

3.2 FINISH OF FORMED SURFACES

- A. Rough Form Finish: For all formed concrete surfaces except as noted below. This is the concrete surface having texture imparted by form facing material used, with tie holes and defective areas repaired and patched and fins and other projects exceeding 1/4" in height rubbed down or chipped off.
- B. Smooth Form Finish: For formed concrete surfaced exposed-to-view or to be covered with a material such as waterproofing that requires a smooth surface. This is as cast arranged orderly and symmetrically with a minimum of seams. Repair and patch defective areas, with fins or other projects completely removed and smoothed.

3.3 MONOLITHIC SLAB FINISHES

- A. General: finish slab surfaces in accordance with one of the finishes noted below, as designated in the Contract Documents. Finish all joints and edges with proper tools as approved.
- B. Placement: Place concrete at rate that allows spreading, straight-edging, and darbying or bull floating before bleed water appears. Screed all slabs, topping fills to true levels and slopes. Work surfaces as required to produce specified finish. Do no finishing in areas where water has accumulated; drain and re-screed. In no case use a sprinkling of cement and sand to absorb moisture.
- C. Tolerances: Measure slabs-on-grade to verify compliance with the tolerance requirements of ASTM E 1155 and ACI 117. Measure floor finish tolerances within 72 hours after slab finishing and before removed of supporting formwork or shoring.
 - 1. Concrete slab flatness and levelness tolerances to meet ACI 117, Section 4.5.6.
 - a. Minimum requirements at slab-on-ground: Flatness overall min Ff = 20 and levelness overall min FI = 17.
- D. Scratch Finish:
 - 1. Apply scratch finish to monolithic slab surfaces that are to receive mortar setting beds for tile, where mortar set tile is indicated on drawings.
 - 2. After placing slabs, plane surface to a tolerance not exceeding 1/4" in 10' when tested with a 10' straightedge. Slope surfaces uniformly to drains where required. After leveling, roughen surface before final set, with staff brushes, brooms, or rakes.

E. Float Finish:

1. Apply float finish to monolithic slab surfaces scheduled to receive trowel finish and other finishes as hereinafter specified.
2. After screeding, consolidating, and leveling concrete slabs, do not work surface until ready for floating. Begin floating when surface water has disappeared or when concrete has stiffened sufficiently to permit operation of power-driven floats, or both. Consolidate surface with power-driven floats, or by hand floating if area is small or inaccessible to power units. Check and level surface plane to a tolerance not exceeding 1/4" in 10' when tested with a 10' straightedge. Cut down high spots and fill low spots. Uniformly slope surfaces to drains. Immediately after leveling, re-float surfaces to a uniform, smooth, granular texture.

F. Trowel Finish:

1. Unless otherwise noted, apply trowel finish to monolithic slab surfaces to be left exposed-to-view, or scheduled to receive floor finishes other than setting bed types.
2. After floating, begin first trowel finish operation using a power-driven trowel. Begin final troweling when surface produces a ringing sound as trowel is moved over surface. Consolidate concrete surface by final hand-troweling operation, free of trowel marks, uniform in texture and appearance, and with a surface plane tolerance not exceeding those called out above in section C. Grind smooth surface defects, which would telegraph through applied floor covering system.

G. Non-Slip Broom Finish:

1. Apply non-slip broom finish to exterior concrete platforms, walkways, steps and ramps, and elsewhere as indicated.
2. Immediately after trowel finishing, slightly roughen concrete surface by brooming with fiber bristle broom perpendicular to main traffic route. Coordinate required final finish with Architect before application.

3.4 CONCRETE CURING AND PROTECTION

A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures.

1. Start curing procedures as soon as free water has disappeared from concrete surface after placing and finishing.
2. Continue curing as directed by Architect and in accordance with ACI 301 procedures. Avoid rapid drying at end of final curing period.

B. Curing Methods: Perform curing of concrete by either moist curing, by moisture retaining cover curing, membrane curing, or by combinations thereof, as herein specified.

1. Provide moisture curing by following methods:
 - a. Keep concrete surface continuously wet by covering with water.
 - b. Continuous water-fog spray.
 - c. Covering concrete surface with specified absorptive cover, thoroughly saturating cover with water and keeping continuously wet. Place absorptive cover to provide coverage of concrete surfaces and edges, with 4-inch lap over adjacent absorptive covers.

2. Provide moisture-cover curing as follows: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed at widest practicable width with sides and ends lapped at least 3 inches and sealed by waterproof tape or adhesive. Immediately repair any holes or tears during curing period using cover material and waterproof tape.
3. Provide liquid membrane curing as follows:
 - a. Apply the specified membrane-forming curing compound to damp concrete surfaces as soon as possible after final finishing operations are complete, but not later than 2 hours. Apply uniformly in a continuous operation by power spray equipment or roller equipment in accordance with the manufacturer's directions. Recoat areas that are subjected to heavy rainfall within three hours after initial application. Maintain the continuity of the coating and repair damage to the coat during the entire curing period.
 - b. Verify compatibility of membrane curing compounds on surfaces that are to be covered with a coating material applied directly to the concrete or with a covering material bonded to the concrete, such as other concrete, liquid floor hardener, waterproofing, dampproofing, membrane roofing, flooring, painting, and other coatings, and finish materials, unless otherwise acceptable to the Architect.
 - c. Do not use curing compounds that will diminish bond of subsequent materials.
4. Curing Formed surfaces: Cure formed concrete surfaces, including walls with forms in place for full curing period or until forms are removed. If forms are removed, continue curing by methods specified above, as applicable.
5. Curing Unformed surfaces: Cure unformed surfaces, such as slabs, floor topping, and other flat surfaces by any of the methods specified herein, as applicable.

3.5 PATCHING

- A. Allow Architect/Structural Engineer to inspect concrete surfaces immediately upon removal of forms. Patch imperfections as directed.

3.6 FIELD QUALITY CONTROL

- A. Contractors Testing Laboratory: As specified in Article 1.03 above.

3.7 DEFECTIVE CONCRETE

- A. Modify or replace concrete not conforming to required lines, details, and elevations.
- B. Repair or replace concrete not properly placed resulting in excessive honeycombing and other defects. Patch, fill, touch up, repair, or replace exposed architectural concrete for each individual area in accordance with Architect's particular directions.

END OF SECTION 033000

SECTION 055000 - METAL FABRICATIONS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Metal bollards.

B. Products furnished, but not installed, under this Section include the following:

1. Anchor bolts, steel pipe sleeves, slotted-channel inserts, and wedge-type inserts indicated to be cast into concrete or built into unit masonry.

1.2 COORDINATION

- A. Coordinate selection of shop primers with topcoats to be applied over them. Comply with paint and coating manufacturers' written instructions to ensure that shop primers and topcoats are compatible with one another.

- B. Coordinate installation of metal fabrications that are anchored to or that receive other work. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

1.3 ACTION SUBMITTALS

A. Product Data:

1. Shop primers.
2. Metal bollards.

- B. Shop Drawings: Show fabrication and installation details.[Include plans, elevations, sections, and details of metal fabrications and their connections. Show anchorage and accessory items.] Provide Shop Drawings for the following:

1. Miscellaneous framing and supports for applications where framing and supports are not specified in other Sections.
2. Metal bollards.

1.4 INFORMATIONAL SUBMITTALS

- A. Welding certificates.
- B. Paint Compatibility Certificates: From manufacturers of topcoats applied over shop primers, certifying that shop primers are compatible with topcoats.
- C. Research Reports: For post-installed anchors.
- D. Delegated design engineer qualifications.

1.5 QUALITY ASSURANCE

- A. Welding Qualifications: Qualify procedures and personnel in accordance with the following welding codes:
 - 1. AWS D1.1/D1.1M, "Structural Welding Code - Steel."

1.6 FIELD CONDITIONS

- A. Field Measurements: Verify actual locations of walls, floor slabs, decks, and other construction contiguous with metal fabrications by field measurements before fabrication.

PART 2 - PRODUCTS

2.1 METALS

- A. Metal Surfaces, General: Provide materials with smooth, flat surfaces unless otherwise indicated. For metal fabrications exposed to view in the completed Work, provide materials without seam marks, roller marks, rolled trade names, or blemishes.
- B. Steel Plates, Shapes, and Bars: ASTM A36/A36M.
- C. Rolled-Steel Floor Plate: ASTM A786/A786M, rolled from plate complying with ASTM A36/A36M or ASTM A283/A283M, Grade C or D.
- D. Steel Tubing: ASTM A500/A500M, cold-formed steel tubing.
- E. Steel Pipe: ASTM A53/A53M, Standard Weight (Schedule 40) unless otherwise indicated.

2.2 FASTENERS

- A. General: Unless otherwise indicated, provide Type 304 stainless steel fasteners for exterior use and zinc-plated fasteners with coating complying with ASTM B633 or ASTM F1941/F1941M, Class Fe/Zn 5, at exterior walls. Select fasteners for type, grade, and class required.

1. Provide stainless steel fasteners for fastening stainless steel.
 2. Provide bronze fasteners for fastening bronze.
- B. Steel Bolts and Nuts: Regular hexagon-head bolts, ASTM A307, Grade A (ISO 898-1, Property Class 4.6); with hex nuts, ASTM A563 (ASTM A563M); and, where indicated, flat washers.
- C. High-Strength Bolts, Nuts, and Washers: ASTM F3125/F3125M, Grade A325 (Grade A325M), Type 3, heavy-hex steel structural bolts; ASTM A563, Grade DH3, (ASTM A563M, Class 10S3) heavy-hex carbon-steel nuts; and where indicated, flat washers.
- D. Stainless Steel Bolts and Nuts: Regular hexagon-head annealed stainless steel bolts, ASTM F593 (ISO 3506-1); with hex nuts, ASTM F594 (ASTM F836M); and, where indicated, flat washers; Alloy [Group 1 (A1)] [Group 2 (A4)].
- E. Anchor Bolts: ASTM F1554, Grade 36, of dimensions indicated; with nuts, ASTM A563 (ASTM A563M); and, where indicated, flat washers.
1. Hot-dip galvanize or provide mechanically deposited, zinc coating where item being fastened is indicated to be galvanized.
- F. Anchors, General: Capable of sustaining, without failure, a load equal to six times the load imposed when installed in unit masonry and four times the load imposed when installed in concrete, as determined by testing in accordance with ASTM E488/E488M, conducted by a qualified independent testing agency.
- G. Cast-in-Place Anchors in Concrete: Either threaded or wedge type unless otherwise indicated; galvanized ferrous castings, either ASTM A47/A47M malleable iron or ASTM A27/A27M cast steel. Provide bolts, washers, and shims as needed, all hot-dip galvanized per ASTM F2329/F2329M.
- H. Post-Installed Anchors: Torque-controlled expansion anchors.
1. Material for Exterior Locations and Where Stainless Steel Is Indicated: Alloy [Group 1 (A1)] [Group 2 (A4)] stainless steel bolts, ASTM F593 (ISO 3506-1), and nuts, ASTM F594 (ASTM F836M).

2.3 MISCELLANEOUS MATERIALS

- A. Universal Shop Primer: Fast-curing, lead- and chromate-free, universal modified-alkyd primer complying with MPI#79 and compatible with topcoat.
1. Use primer that contains pigments that make it easily distinguishable from zinc-rich primer.
- B. Water-Based Primer: Emulsion type, anticorrosive primer for mildly corrosive environments that is resistant to flash rusting when applied to cleaned steel, complying with MPI#107 and compatible with topcoat.
- C. Epoxy Zinc-Rich Primer: Complying with MPI#20 and compatible with topcoat.

- D. Shop Primer for Galvanized Steel: Primer formulated for exterior use over zinc-coated metal and compatible with finish paint systems indicated.
- E. Galvanizing Repair Paint: High-zinc-dust-content paint complying with SSPC-Paint 20 and compatible with paints specified to be used over it.
- F. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D1187/D1187M.
- G. Shrinkage-Resistant Grout: Factory-packaged, nonmetallic, nonstaining, noncorrosive, nongaseous grout complying with ASTM C1107/C1107M. Provide grout specifically recommended by manufacturer for interior and exterior applications.
- H. Concrete: Comply with requirements in Section 033000 "Cast-in-Place Concrete" for normal-weight, air-entrained concrete with a minimum 28-day compressive strength of 3000 psi (20 MPa).

2.4 FABRICATION, GENERAL

- A. Shop Assembly: Preassemble items in the shop to greatest extent possible. Disassemble units only as necessary for shipping and handling limitations. Use connections that maintain structural value of joined pieces. Clearly mark units for reassembly and coordinated installation.
- B. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges to a radius of approximately 1/32 inch (1 mm) unless otherwise indicated. Remove sharp or rough areas on exposed surfaces.
- C. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work.
- D. Form exposed work with accurate angles and surfaces and straight edges.
- E. Weld corners and seams continuously to comply with the following:
 - 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
 - 2. Obtain fusion without undercut or overlap.
 - 3. Remove welding flux immediately.
 - 4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.
- F. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners or welds where possible. Where exposed fasteners are required, use Phillips flat-head (countersunk) fasteners unless otherwise indicated. Locate joints where least conspicuous.
- G. Fabricate seams and other connections that are exposed to weather in a manner to exclude water. Provide weep holes where water may accumulate.

- H. Cut, reinforce, drill, and tap metal fabrications as indicated to receive finish hardware, screws, and similar items.
- I. Provide for anchorage of type indicated; coordinate with supporting structure. Space anchoring devices to secure metal fabrications rigidly in place and to support indicated loads.
- J. Where units are indicated to be cast into concrete or built into masonry, equip with integrally welded steel strap anchors, 1/8 by 1-1/2 inches (3.2 by 38 mm), with a minimum 6-inch (150-mm) embedment and 2-inch (50-mm) hook, not less than 8 inches (200 mm) from ends and corners of units and 24 inches (600 mm) o.c., unless otherwise indicated.

2.5 METAL BOLLARDS

- A. Fabricate metal bollards from Schedule 80 steel pipe 1/4-inch (6.4-mm) wall-thickness steel shapes, as indicated.
 - 1. Cap bollards with 1/4-inch- (6.4-mm-) thick, steel plate with domed top.
- B. Fabricate sleeves for bollard anchorage from steel pipe with 1/4-inch- (6.4-mm-) thick, steel plate welded to bottom of sleeve. Make sleeves not less than 8 inches (200 mm) deep and 3/4 inch (19 mm) larger than OD of bollard.
- C. Fabricate internal sleeves for removable bollards from Schedule 80 steel pipe or 1/4-inch (6.4-mm) wall-thickness steel tubing with an OD approximately 1/16 inch (1.5 mm) less than ID of bollards. Match drill sleeve and bollard for 3/4-inch (19-mm) steel machine bolt.
- D. Prime steel bollards with zinc-rich primer.

2.6 GENERAL FINISH REQUIREMENTS

- A. Finish metal fabrications after assembly.
- B. Finish exposed surfaces to remove tool and die marks and stretch lines, and to blend into surrounding surface.

2.7 STEEL AND IRON FINISHES

- A. Galvanizing: Hot-dip galvanize items as indicated to comply with ASTM A153/A153M for steel and iron hardware and with ASTM A123/A123M for other steel and iron products.
 - 1. Do not quench or apply post galvanizing treatments that might interfere with paint adhesion.
- B. Preparation for Shop Priming Galvanized Items: After galvanizing, thoroughly clean galvanized surfaces of grease, dirt, oil, flux, and other foreign matter, and treat with metallic phosphate process.

- C. Shop prime iron and steel items[not indicated to be galvanized] unless they are to be embedded in concrete, sprayed-on fireproofing, or masonry, or unless otherwise indicated.
 - 1. Shop prime with [universal shop primer] [primers specified in Section 099113 "Exterior Painting"] [primers specified in Section 099123 "Interior Painting"] unless [zinc-rich primer is] [primers specified in Section 099600 "High-Performance Coatings" are] indicated.
- D. Preparation for Shop Priming: Prepare surfaces to comply with [SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."] [SSPC-SP 3, "Power Tool Cleaning."] [requirements indicated below:]
 - 1. Exterior Items: SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."
 - 2. Items Indicated to Receive Zinc-Rich Primer: SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."
 - 3. Items Indicated to Receive Primers Specified in Section 099600 "High-Performance Coatings": SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."
 - 4. Other Steel Items: SSPC-SP 3, "Power Tool Cleaning."
 - 5. Galvanized-Steel Items: SSPC-SP 16, "Brush-off Blast Cleaning of Coated and Uncoated Galvanized Steel, Stainless Steels, and Non-Ferrous Metals."
- E. Shop Priming: Apply shop primer to comply with SSPC-PA 1, "Paint Application Specification No. 1: Shop, Field, and Maintenance Painting of Steel," for shop painting.
 - 1. Stripe paint corners, crevices, bolts, welds, and sharp edges.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installing metal fabrications. Set metal fabrications accurately in location, alignment, and elevation; with edges and surfaces level, plumb, true, and free of rack; and measured from established lines and levels.
- B. Fit exposed connections accurately together to form hairline joints. Weld connections that are not to be left as exposed joints but cannot be shop welded because of shipping size limitations. Do not weld, cut, or abrade surfaces of exterior units that have been hot-dip galvanized after fabrication and are for bolted or screwed field connections.
- C. Field Welding: Comply with the following requirements:
 - 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
 - 2. +
 - 3. Remove welding flux immediately.

4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.
- D. Fastening to In-Place Construction: Provide anchorage devices and fasteners where metal fabrications are required to be fastened to in-place construction. Provide threaded fasteners for use with concrete and masonry inserts, toggle bolts, through bolts, lag screws, wood screws, and other connectors.
- E. Provide temporary bracing or anchors in formwork for items that are to be built into concrete, masonry, or similar construction.
- F. Corrosion Protection: Coat concealed surfaces of aluminum that come into contact with grout, concrete, masonry, wood, or dissimilar metals with the following:
 1. Cast Aluminum: Heavy coat of bituminous paint.
 2. Extruded Aluminum: Two coats of clear lacquer.

3.2 INSTALLATION OF METAL BOLLARDS

- A. Fill metal-capped bollards solidly with concrete and allow concrete to cure seven days before installing.
 1. Do not fill removable bollards with concrete.
- B. Anchor bollards to existing construction with [expansion anchors] [anchor bolts] [through bolts]. Provide four 3/4-inch (19-mm) bolts at each bollard unless otherwise indicated.
 1. Embed anchor bolts at least 4 inches (100 mm) in concrete.
- C. Anchor bollards in concrete with pipe sleeves preset and anchored into concrete. Slope grout up approximately 1/8 inch (3 mm) toward bollard.
- D. Anchor bollards in place with concrete footings. Center and align bollards in holes 3 inches (75 mm) above bottom of excavation. Place concrete and vibrate or tamp for consolidation. Support and brace bollards in position until concrete has cured.

3.3 REPAIRS

- A. Touchup Painting:
 1. Immediately after erection, clean field welds, bolted connections, and abraded areas. Paint uncoated and abraded areas with same material as used for shop painting to comply with SSPC-PA 1 for touching up shop-painted surfaces.
 - a. Apply by brush or spray to provide a minimum 2.0-mil (0.05-mm) dry film thickness.

2. Cleaning and touchup painting of field welds, bolted connections, and abraded areas of shop paint as specified.
- B. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing to comply with ASTM A780/A780M.

END OF SECTION 055000

SECTION 05 52 00 – METAL RAILINGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Steel pipe and tube railings.
- B. Related Sections include the following:
 - 1. Specification Section 32 13 13 Concrete Work

1.3 PERFORMANCE REQUIREMENTS

- A. Thermal Movements: Provide exterior railings that allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening of joints, overstressing of components, failure of connections, and other detrimental effects. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
 - 1. Temperature Change (Range): 120 deg F, ambient; 180 deg F, material surfaces.
- B. Control of Corrosion: Prevent galvanic action and other forms of corrosion by insulating metals and other materials from direct contact with incompatible materials.
- C. Structural Performance: Provide railing and handrail assemblies which, when installed, comply with the following minimum requirements for structural performance, unless otherwise indicated.
 - 1. Handrail and Toprails: Capable of withstanding the following loads applied as indicated.
 - a. Uniform load of 50 lbs. per lineal ft. applied simultaneously in both vertical and horizontal directions.

1.4 SUBMITTALS

- A. Product Data: For the following:
 - 1. Manufacturer's product lines of mechanically connected railings.
 - 2. Grout, anchoring cement, and paint products.
- B. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.
 - 1. For installed products indicated to comply with design loads, include structural analysis data signed and sealed by the qualified professional engineer responsible for their preparation.
- C. Samples for Initial Selection: For products involving selection of color, texture, or design, including mechanical finishes on stainless steel.
- D. Samples for Verification: For each type of exposed finish required.
 - 1. Sections of each distinctly different linear railing member, including handrails, top rails, posts, and balusters.
 - 2. Fittings and brackets.
 - 3. Assembled Sample of railing system, made from full-size components, including top rail, post, handrail, and infill. Sample need not be full height.
 - a. Show method of finishing, connecting members at intersections.
- E. Mill Certificates: Signed by manufacturers of stainless-steel products certifying that products furnished comply with requirements.
- F. Welding certificates.
- G. Qualification Data: For professional engineer.
- H. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, according to ASTM E 894 and ASTM E 935.

1.5 QUALITY ASSURANCE

- A. Comply with 2025 California Building Code (CBC):
 - 1. CBC 10 – CBC Chapter 10, Means of Egress.
 - 2. CBC 11B – CBC Chapter 11B, Accessibility to Public Buildings, Public Accommodations, Commercial Facilities and Publicly Funded Housing.
 - 3. CBC 16A – CBC Chapter 16A, Structural Design.
 - 4. CBC 22A – CBC Chapter 22A, Steel.

1.6 PROJECT CONDITIONS

- A. Field Measurements: Verify actual locations of walls and other construction contiguous with railings by field measurements before fabrication and indicate measurements on Shop Drawings.
 - 1. Provide allowance for trimming and fitting at site.

1.7 COORDINATION AND SCHEDULING

- A. Coordinate installation of anchorages for railings. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.
- B. Schedule installation so wall attachments are made only to completed walls. Do not support railings temporarily by any means that do not satisfy structural performance requirements.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Steel Pipe and Tube Railings:
 - a. Pisor Industries, Inc.
 - b. Sharpe Products.
 - c. Wagner, R & B, Inc.; a division of the Wagner Companies.

2.2 METALS, GENERAL

- A. Metal Surfaces, General: Provide materials with smooth surfaces, without seam marks, roller marks, rolled trade names, stains, discolorations, or blemishes.
- B. Brackets, Flanges, and Anchors: Cast or formed metal of same type of material and finish as supported rails, unless otherwise indicated.

2.3 STEEL AND IRON

- A. Tubing: ASTM A 500 (cold formed) or ASTM A 513, Type 5 (mandrel drawn).

- B. Pipe: ASTM A 53/A 53M, Type F or Type S, Grade A, Standard Weight (Schedule 40), unless another grade and weight are required by structural loads.
- C. Plates, Shapes, and Bars: ASTM A 36/A 36M.
- D. Castings: Either gray or malleable iron, unless otherwise indicated.
 - 1. Gray Iron: ASTM A 48/A 48M, Class 30, unless another class is indicated or required by structural loads.
 - 2. Malleable Iron: ASTM A 47/A 47M.

2.4 FASTENERS

- A. General: Provide the following:
 - 1. Steel Railings: Plated steel fasteners complying with ASTM B 633, Class Fe/Zn 25 for electrodeposited zinc coating.
- B. Fasteners for Anchoring Railings to Other Construction: Select fasteners of type, grade, and class required to produce connections suitable for anchoring railings to other types of construction indicated and capable of withstanding design loads.
- C. Fasteners for Interconnecting Railing Components:
 - 1. Provide concealed fasteners for interconnecting railing components and for attaching them to other work, unless exposed fasteners are unavoidable or are the standard fastening method for railings indicated.
 - 2. Provide tamper-resistant or square or hex socket flat-head machine screws for exposed fasteners, unless otherwise indicated.
- D. Anchors: Provide cast-in-place or torque-controlled expansion anchors, fabricated from corrosion-resistant materials with capability to sustain, without failure, a load equal to six times the load imposed when installed in unit masonry and equal to four times the load imposed when installed in concrete, as determined by testing per ASTM E 488 conducted by a qualified independent testing agency.

2.5 MISCELLANEOUS MATERIALS

- A. Welding Rods and Bare Electrodes: Select according to AWS specifications for metal alloy welded.
 - 1. For aluminum railings, provide type and alloy as recommended by producer of metal to be welded and as required for color match, strength, and compatibility in fabricated items.
- B. Shop Primers: Provide primers that comply with Division 9 Section "High-Performance Coatings."

- C. Universal Shop Primer: Fast-curing, lead- and chromate-free, universal modified-alkyd primer complying with MPI#79.
 - 1. Use primer with a VOC content of 420 g/L (3.5 lb/gal.) or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
- D. Shop Primer for Galvanized Steel: Zinc-dust, zinc-oxide primer formulated for priming zinc-coated steel and for compatibility with finish paint systems indicated, and complying with SSPC-Paint 5.
- E. Galvanizing Repair Paint: High-zinc-dust-content paint for regalvanizing welds in steel, complying with SSPC-Paint 20.
- F. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D 1187.
- G. Nonshrink, Nonmetallic Grout: Factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C 1107. Provide grout specifically recommended by manufacturer for interior and exterior applications.
- H. Anchoring Cement: Factory-packaged, nonshrink, nonstaining, hydraulic-controlled expansion cement formulation for mixing with water at Project site to create pourable anchoring, patching, and grouting compound.
 - 1. Water-Resistant Product: At exterior locations and where indicated provide formulation that is resistant to erosion from water exposure without needing protection by a sealer or waterproof coating and that is recommended by manufacturer for exterior use.

2.6 FABRICATION

- A. General: Fabricate railings to comply with requirements indicated for design, dimensions, member sizes and spacing, details, finish, and anchorage, but not less than that required to support structural loads.
- B. Assemble railings in the shop to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation. Use connections that maintain structural value of joined pieces.
- C. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges to a radius of approximately 1/32 inch, unless otherwise indicated. Remove sharp or rough areas on exposed surfaces.
- D. Form work true to line and level with accurate angles and surfaces.
- E. Fabricate connections that will be exposed to weather in a manner to exclude water. Provide weep holes where water may accumulate.
- F. Cut, reinforce, drill, and tap as indicated to receive finish hardware, screws, and similar items.

- G. Connections: Fabricate railings with welded connections, unless otherwise indicated.
- H. Welded Connections: Cope components at connections to provide close fit, or use fittings designed for this purpose. Weld all around at connections, including at fittings.
 - 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
 - 2. Obtain fusion without undercut or overlap.
 - 3. Remove flux immediately.
 - 4. At exposed connections, finish exposed surfaces smooth and blended so no roughness shows after finishing and welded surface matches contours of adjoining surfaces.
- I. Welded Connections for Aluminum Pipe: Fabricate railings to interconnect members with concealed internal welds that eliminate surface grinding, using manufacturer's standard system of sleeve and socket fittings.
- J. Nonwelded Connections: Connect members with concealed mechanical fasteners and fittings. Fabricate members and fittings to produce flush, smooth, rigid, hairline joints.
- K. Form changes in direction as follows:
 - 1. By flush bends or by inserting prefabricated flush-elbow fittings.
- L. Form simple and compound curves by bending members in jigs to produce uniform curvature for each repetitive configuration required; maintain cross section of member throughout entire bend without buckling, twisting, cracking, or otherwise deforming exposed surfaces of components.
- M. Close exposed ends of railing members with prefabricated end fittings.
- N. Provide wall returns at ends of wall-mounted handrails, unless otherwise indicated. Close ends of returns unless clearance between end of rail and wall is 1/4 inch or less.
- O. Brackets, Flanges, Fittings, and Anchors: Provide wall brackets, flanges, miscellaneous fittings, and anchors to interconnect railing members to other work, unless otherwise indicated.
 - 1. At brackets and fittings fastened to plaster or gypsum board partitions, provide fillers made from crush-resistant material, or other means to transfer wall loads through wall finishes to structural supports and prevent bracket or fitting rotation and crushing of substrate.
- P. Provide inserts and other anchorage devices for connecting railings to concrete or masonry work. Fabricate anchorage devices capable of withstanding loads imposed by railings. Coordinate anchorage devices with supporting structure.
- Q. For railing posts set in concrete, provide steel sleeves not less than 6 inches long with inside dimensions not less than 1/2 inch greater than outside dimensions of post, with steel plate forming bottom closure.

- R. For removable railing posts, fabricate slip-fit sockets from steel tube or pipe whose ID is sized for a close fit with posts; limit movement of post without lateral load, measured at top, to not more than one-fortieth of post height. Provide socket covers designed and fabricated to resist being dislodged.
 - 1. Provide chain with eye, snap hook, and staple across gaps formed by removable railing sections at locations indicated. Fabricate from same metal as railings.

2.7 FINISHES, GENERAL

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- C. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.
- D. Provide exposed fasteners with finish matching appearance, including color and texture, of railings.

2.8 STEEL AND IRON FINISHES

- A. Galvanized Railings:
 - 1. Hot-dip galvanize indicated steel and iron railings, including hardware, after fabrication.
 - 2. Comply with ASTM A 123/A 123M for hot-dip galvanized railings.
 - 3. Comply with ASTM A 153/A 153M for hot-dip galvanized hardware.
- B. Fill vent and drain holes that will be exposed in the finished Work, unless indicated to remain as weep holes, by plugging with zinc solder and filing off smooth.
- C. For galvanized railings, provide hot-dip galvanized fittings, brackets, fasteners, sleeves, and other ferrous components.
- D. For nongalvanized steel railings, provide nongalvanized ferrous-metal fittings, brackets, fasteners, and sleeves, except galvanize anchors to be embedded in exterior concrete or masonry.
- E. Preparation for Shop Priming: After galvanizing, thoroughly clean railings of grease, dirt, oil, flux, and other foreign matter, and treat with metallic-phosphate process.

- F. Preparation for Shop Priming: Prepare uncoated ferrous-metal surfaces to comply with minimum requirements indicated below for SSPC surface preparation specifications and environmental exposure conditions of installed railings:
 - 1. Exterior Railings (SSPC Zone 1B): SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."
 - 2. Interior Railings (SSPC Zone 1A): SSPC-SP 7/NACE No. 4, "Brush-off Blast Cleaning."
- G. Apply shop primer to prepared surfaces of railings, unless otherwise indicated. Comply with requirements in SSPC-PA 1, "Paint Application Specification No. 1: Shop, Field, and Maintenance Painting of Steel," for shop painting. Primer need not be applied to surfaces to be embedded in concrete or masonry.
 - 1. Do not apply primer to galvanized surfaces.
 - 2. Stripe paint corners, crevices, bolts, welds, and sharp edges.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine plaster and gypsum board assemblies, where reinforced to receive anchors, to verify that locations of concealed reinforcements have been clearly marked for Installer. Locate reinforcements and mark locations if not already done.

3.2 INSTALLATION, GENERAL

- A. Fit exposed connections together to form tight, hairline joints.
- B. Perform cutting, drilling, and fitting required for installing railings. Set railings accurately in location, alignment, and elevation; measured from established lines and levels and free of rack.
 - 1. Do not weld, cut, or abrade surfaces of railing components that have been coated or finished after fabrication and that are intended for field connection by mechanical or other means without further cutting or fitting.
 - 2. Set posts plumb within a tolerance of 1/16 inch in 3 feet.
 - 3. Align rails so variations from level for horizontal members and variations from parallel with rake of steps and ramps for sloping members do not exceed 1/4 inch in 12 feet.
- C. Corrosion Protection: Coat concealed surfaces of aluminum that will be in contact with grout, concrete, masonry, wood, or dissimilar metals, with a heavy coat of bituminous paint.
- D. Adjust railings before anchoring to ensure matching alignment at abutting joints.
- E. Fastening to In-Place Construction: Use anchorage devices and fasteners where necessary for securing railings and for properly transferring loads to in-place construction.

3.3 RAILING CONNECTIONS

- A. Nonwelded Connections: Use mechanical joints for permanently connecting railing components. Use wood blocks and padding to prevent damage to railing members and fittings. Seal recessed holes of exposed locking screws using plastic cement filler colored to match finish of railings.
- B. Welded Connections: Use fully welded joints for permanently connecting railing components. Comply with requirements for welded connections in Part 2 "Fabrication" Article whether welding is performed in the shop or in the field.
- C. Expansion Joints: Install expansion joints at locations indicated but not farther apart than required to accommodate thermal movement. Provide slip-joint internal sleeve extending 2 inches beyond joint on either side, fasten internal sleeve securely to 1 side, and locate joint within 6 inches of post.

3.4 ANCHORING POSTS

- A. Use steel pipe sleeves preset and anchored into concrete for installing posts. After posts have been inserted into sleeves, fill annular space between post and sleeve with nonshrink, nonmetallic grout or anchoring cement, mixed and placed to comply with anchoring material manufacturer's written instructions.
- B. Leave anchorage joint exposed; wipe off surplus anchoring material; and leave 1/8-inch buildup, sloped away from post.
- C. Anchor posts to metal surfaces with oval flanges, angle type, or floor type as required by conditions, connected to posts and to metal supporting members as follows:
 - 1. For aluminum pipe railings, attach posts using fittings designed and engineered for this purpose.
 - 2. For stainless-steel pipe railings, weld flanges to post and bolt to supporting surfaces.
 - 3. For steel pipe railings, weld flanges to post and bolt to metal supporting surfaces.
- D. Install removable railing sections, where indicated, in slip-fit metal sockets cast in concrete.

3.5 ANCHORING RAILING ENDS

- A. Anchor railing ends to concrete and masonry with round flanges connected to railing ends and anchored to wall construction with anchors and bolts.
- B. Anchor railing ends to metal surfaces with flanges bolted to metal surfaces and welded to railing ends or connected to railing ends using nonwelded connections.

3.6 ATTACHING HANDRAILS TO WALLS

- A. Attach handrails to wall with wall brackets. Provide brackets with 1-1/2-inch clearance from inside face of handrail and finished wall surface.
 - 1. Use type of bracket with predrilled hole for exposed bolt anchorage.
- B. Locate brackets as indicated or, if not indicated, at spacing required to support structural loads.
- C. Secure wall brackets to building construction as follows:
 - 1. For concrete and solid masonry anchorage, use drilled-in expansion shields and hanger.
 - 2. For wood stud partitions, use hanger or lag bolts set into wood backing between studs. Coordinate with carpentry work to locate backing members.
 - 3. For steel-framed gypsum board and/or plaster partitions, fasten brackets directly to concealed steel reinforcements using self-tapping screws of size and type required to support structural loads.

3.7 ADJUSTING AND CLEANING

- A. Clean aluminum and stainless steel by washing thoroughly with clean water and soap and rinsing with clean water.
- B. Touchup Painting: Cleaning and touchup painting of field welds, bolted connections, and abraded areas of shop paint are specified in Division 9 painting Sections.
- C. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing to comply with ASTM A 780.

3.8 PROTECTION

- A. Protect finishes of railings from damage during construction period with temporary protective coverings approved by railing manufacturer. Remove protective coverings at time of Substantial Completion.
- B. Restore finishes damaged during installation and construction period so no evidence remains of correction work. Return items that cannot be refinished in the field to the shop; make required alterations and refinish entire unit, or provide new units.

END OF SECTION 05 52 00

(Revised 04/15/2026)

SECTION 31 05 13 – SOILS FOR EARTHWORK

PART 1 - GENERAL

1.1 SUMMARY

- A. All grading, earthwork, excavations, backfills, compaction, and other grading operations shall be accomplished in accordance with the soils report (which shall be a part of the contract documents). Contractor shall be responsible for securing a copy of the soils report. The project soils engineer shall be present during all grading operations. The soils engineer shall direct samples to be submitted and tests to be taken. Contractor shall cooperate with the requirements of the soils engineer.
- B. Related Sections:
 - 1. Section 31 22 13 – Rough Grading.
 - 2. Section 31 23 00 – Excavation and Fill.
 - 3. Section 31 23 23.13 – Backfill.
 - 4. Section 31 23 16.13 – Trenching.
 - 5. Section 32 12 16 – Asphalt Pavement.
 - 6. Section 32 11 23 – Aggregate Base Course.

1.2 REFERENCES

- A. The project Soils Report and any supplements to the Soils Report.

PART 2 - PRODUCTS

2.1 TOPSOIL MATERIALS

- A. Class II Permeable Material shall meet the requirement of Caltrans Standard Specifications 68-1.025.

PART 3 - EXECUTION

3.1 SOIL REMOVAL

- A. Conduct earthwork operations in accordance with the provisions of the Soils Report and any supplements to the Soils Report, and as directed by the Soils Engineer.

END OF SECTION 31 05 13

SECTION 31 10 00 – SITE CLEARING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes removal of surface debris; removal of paving, curbs, sidewalks; removal of trees, shrubs, and other plant life; removal of underground storage tanks; and removal of abandoned utilities.
- B. Related Sections:
 - 1. Section 31 05 13 – Soils for Earthwork.
 - 2. Section 31 22 13 – Rough Grading.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

3.1 PREPARATION

- A. Verify that existing plant life designated to remain is tagged or identified.
- B. Removed materials are to be removed from the site and disposed of in a lawful manner.

3.2 PROTECTION

- A. Locate, identify, and protect utilities from damage that are to remain.
- B. Protect trees, plant growth, and features designated to remain.
- C. Protect benchmarks, survey control points, and existing structures from damage or displacement.

3.3 CLEARING

- A. Clear areas required for access to site and execution of Work.
- B. Remove trees and shrubs indicated and in a manner specified on the drawings or in these specifications. Remove tree and shrub root bulbs in their entirety and to a maximum root diameter of one inch.

3.4 REMOVAL

- A. Remove debris, rock, and extracted plant life from site to the limits indicated on the drawings.
- B. Remove paving, curbs, and concrete from the site to the limits indicated on the drawings.
- C. Neatly saw cut edges at limits indicated for all pavement, curbs, and walkways to be removed.

- D. Excavate and remove any underground storage tanks and associated plumbing piping, as indicated on the drawings.

3.5 TOPSOIL EXCAVATION

- A. Excavate topsoil from areas to be further excavated, relandscaped, or regraded, without mixing with foreign materials for use in finish grading.
- B. Stockpile on site and protect from erosion.
- C. Remove excess topsoil not intended for reuse, from site.

END OF SECTION 31 10 00

SECTION 31 22 13 – ROUGH GRADING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes removal of topsoil and cutting, grading, filling, rough contouring, and compacting as indicated on the drawings.
- B. Related Sections:
 - 1. Section 31 05 13 – Soils for Earthwork.
 - 2. Section 31 10 00 – Site Clearing.
 - 3. Section 31 23 00 – Excavation and Fill.
 - 4. Section 31 23 16.13 – Trenching.
 - 5. Section 31 23 23.13 – Backfill.

1.2 CLOSEOUT SUBMITTALS

- A. Section 01 77 00 - Closeout Procedures.
- B. Project Record Documents: Accurately record actual locations of utilities remaining by horizontal dimensions, elevations or inverts, and slope gradients.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Topsoil.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Section 01 60 00 - Product Requirements.
- B. Verify site conditions.
- C. Verify that survey benchmark and intended elevations for the Work are as indicated.

3.2 PREPARATION

- A. Identify required lines, levels, contours, and datum.
- B. Stake and flag locations of known utilities.
- C. Locate, identify, and protect from damage utilities that are to remain.
- D. Notify affected utility companies to remove or relocate public utilities indicated on the plans to be removed or relocated by the utility company.

- E. Protect above and below grade utilities that are to remain.
- F. Protect plant life, lawns, and other features remaining as a portion of final landscaping.
- G. Protect bench marks, survey control point, existing structures, fences, sidewalks, paving, and curbs from excavating equipment and vehicular traffic.

3.3 SOIL EXCAVATION

- A. Excavate soil from areas to be further excavated, relandscaped, or regraded. as shown on the drawings.
- B. When excavating through roots, for trees to remain, perform work by hand and cut roots with sharp axe.
- C. Remove excess soil from site.
- D. Benching Slopes: Horizontally bench existing slopes steeper than 1:4 (vertical:horizontal) to key placed fill material to slope to provide firm bearing. Minimum horizontal bench shall be 2 feet wide.
- E. Stability: Replace damaged or displaced subsoil to same requirements as for specified fill.

3.4 FILLING

- A. Fill areas to contours and elevations with suitable materials.
- B. Place fill material on continuous layers and compact.
- C. Maintain optimum moisture content of fill materials to attain required compaction density.
- D. Slope grade away from buildings at a minimum slope of two (2%) percent unless noted otherwise.
- E. Make grade changes gradual. Blend slope into level areas.
- F. Remove surplus fill materials from site.

3.5 TOLERANCES

- A. Top Surface of Subgrade: Plus or minus 0.05 feet from required elevation on paved or walkway areas and zero (0) feet to minus 0.10 foot in building pad areas.

3.6 FIELD QUALITY CONTROL

- A. Testing and inspection shall be provided by the project soils engineer.
- B. If tests indicate Work does not meet specified requirements, remove Work, replace and retest at the Contractor's sole expense.

END OF SECTION 31 22 13

SECTION 31 23 00 – EXCAVATION AND FILL

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes excavating for building foundations, roads, parking areas, site grading, slabs-on-grade, landscaping areas, and for site structures.
- B. Related Sections:
 - 1. Section 31 05 13 – Soils for Earthwork.
 - 2. Section 31 22 13 – Rough Grading.
 - 3. Section 31 23 16.13 – Trenching.
 - 4. Section 31 23 23.13 – Backfill.

1.2 REFERENCES

- A. Local utility standards when working within 24 inches of the respective utility lines.

PART 2 - PRODUCTS

- A. Bio-Retention Soils
 - 1. Permeable Class II Aggregate Base or crushed drain rock.
 - 2. Planting soil is 60% sand, 40% compost mix allowing 5"/hour percolation.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Identify required lines, levels, contours, and datum locations.

3.2 EXCAVATING & FILL

- A. Underpin adjacent structures which may be damaged by excavating work.
- B. Excavate subsoil to accommodate building foundations, slabs-on-grade, paving and site structures.
- C. Compact disturbed load bearing soil in direct contact with foundations to original bearing capacity; perform compaction in accordance with Section 31 23 23.13 and 31 23 16.13.
- D. Slope banks with machine to angle of repose or less until shored.
- E. Do not interfere with 45 degree bearing splay of foundations.
- F. Grade top perimeter of excavating to prevent surface water from draining into excavation.

- G. Hand trim excavation. Remove loose matter.
 - H. Remove lumped subsoil, boulders, and rock per Geotechnical engineer present during the construction.
 - I. Notify Architect/Engineer of unexpected subsurface conditions and discontinue affected Work in area until notified to resume Work.
 - J. Correct areas over excavated with backfill and compact replacement as specified for authorized excavation.
 - K. Remove excess excavated material from site.
 - L. Imported fill and aggregate baserock placed within the building footprints should be virgin/non-recycled and free of ground-up asphalt.
- 3.3 FIELD QUALITY CONTROL
- A. The project Soils Engineer shall provide testing and inspection services.
- 3.4 PROTECTION
- A. Prevent displacement or loose soil from falling into excavation; maintain soil stability.
 - B. Protect structures, utilities and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earth operations.

END OF SECTION 31 23 00

SECTION 31 23 16.13 – TRENCHING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes excavating trenches for utilities from outside building to final connection point or public right-of-way or utility; compacted fill from top of utility bedding to subgrade elevations; and backfilling and compaction.
- B. Related Sections:
 - 1. Section 31 05 13 – Soils for Earthwork.
 - 2. Section 31 22 13 – Rough Grading.
 - 3. Section 31 23 00 – Excavation and Fill.
 - 4. Section 31 23 23.13 – Backfill.
 - 5. Section 33 40 00 – Storm Drainage Utilities.

1.2 DEFINITIONS

- A. Utility: Any buried pipe, duct, conduit, or cable.

1.3 FIELD MEASUREMENTS

- A. Verify field measurements prior to fabrication.

1.4 COORDINATION

- A. Section 01 60 00 - Product Requirements.
- B. Verify Work associated with lower elevation utilities is complete before placing higher elevation utilities.
- C. Verify elevations of existing facilities prior to placing new Work.

PART 2 - PRODUCTS

2.1 ACCESSORIES

- A. Filter Fabric: Non-biodegradable, woven as manufactured by TC Mirafi, Tenax Corp., Tensar Earth Technologies, Inc. or equal.

PART 3 - EXECUTION

3.1 LINES AND GRADES

- A. Grades:

1. Pipes shall be laid true to the lines and grades indicated.
2. The grade alignment of the pipe shall be maintained by the use of a string line parallel with the grade line and vertically above the centerline of the pipe. This line shall be established on level batter boards at intervals of not more than 25 feet. Batter boards shall span the trench and be rigidly anchored to substantial posts driven into the ground on each side of the trench. Three adjacent batter boards must be set before laying pipe to provide a check on the grades and line. Elevation and position of the string line shall be determined from the elevation and position of offset points or stakes located along the pipe route. Pipe shall not be laid using side lines for line or grade.
3. As an alternative means of establishing alignment and grade, a "Laser-Beam" instrument may be utilized with a competent operator.

B. Location of Pipe Lines:

1. The location and approximate depths of the proposed pipe lines are shown on the Drawings.
2. An underground locate service shall be enlisted to discover the location of existing utilities regardless if they are shown on the drawings.
3. The Architect/Engineer reserves the right to make changes in lines, grades, and depths of pipe lines and manholes when such changes are necessary.

3.2 PREPARATION

- A. Identify required lines, levels, contours, and datum locations.
- B. Protect plant life, lawns, and other features remaining as a portion of final landscaping.
- C. Protect bench marks, existing structures, fences, sidewalks, paving, and curbs from excavating equipment and vehicular traffic.
- D. Maintain and protect above and below grade utilities which are to remain.
- E. Cut out soft areas of subgrade not capable of compaction in place. Backfill and compact to density equal to or greater than requirements for subsequent backfill material.

3.3 EXCAVATING

- A. Excavate subsoil required for utilities.
- B. Cut trenches sufficiently wide to enable installation and allow inspection. Remove water or materials that interfere with Work.
- C. Do not interfere with 45 degree bearing splay of foundations.
- D. Hand trim excavation. Hand trim for bell and spigot pipe joints. Remove loose matter.
- E. Remove lumped subsoil, boulders, and rock as directed by the Soils Engineer or other inspector.

- F. Correct over excavated areas with backfill and compact replacement as specified for authorized excavation.
- G. Stockpile excavated material on site. Remove excess material not being used from site.

3.4 TRENCHING

A. Excavations:

1. Excavation shall be dug so that the pipe can be laid and jointed properly. The trench shall be made so that the pipe can be laid to the alignment and depth as shown on the Drawings, and it shall be excavated only so far in advance of pipe laying as permitted by the Architect/Engineer. The excavation shall not be more than two feet wider at the bottom than the outside diameter of the pipe or structure. If there is no interference with construction, or adjacent property, and if soil permits, the Contractor at his own expense shall be permitted to slope the side walls of the excavation starting at a point two (2) feet above the top of pipe.
2. The trench shall be excavated to the depth required so as to provide a uniform and continuous bearing and support for the pipe on bedding material at every point between joints, except where pipe slings or other lifting tackle are withdrawn.
3. Excavation Below Grade:
 - 1) Where excavation indicates that the subsurface materials at the bottom of the trench are in a loose or soft state, the Contractor shall be advised to excavate to a depth where suitable material is encountered, as directed by the Architect/Engineer.
 - 2) Where the bottom of the trench has been excavated by mistake to a greater depth than required, the Contractor shall refill this area using approved material. No additional compensation shall be given to the Contractor. Refilling with earth to bring the bottom of the trench to the proper grade will not be permitted.
4. Excavation within 24 inches of existing utilities shall be governed by specifications of the Owner of the respective utility. The Contractor shall obtain these specifications and follow the same at no extra cost.
5. Excavation and shoring shall adhere to the requirements and safety standards set by OSHA.

- B. Trenching in Advance of Pipe Laying: The trench for the pipe lines shall not be opened for a distance of more than 200 feet at any one time, unless authorized by the Architect/Engineer. At no time will the Contractor be permitted to leave more than 50 feet of trench open at the end of a working day. Adequate protection of open trench shall be provided by the Contractor and the Contractor shall be responsible therefore.

3.5 SHEETING AND BRACING

A. General:

1. Sheet piling and bracing of all excavations shall conform to the latest statutes of the State of California governing safety of workers in the construction industry. When necessary, in the opinion of the Contractor, adequate sheet piling and bracing shall be installed to prevent ground movement that may cause damage or settlement to adjacent structures, pipelines and utilities. Any damage due to settlement because of failure to use sheet piling or because of

inadequate bracing, or through negligence or fault of the Contractor in any other manner, shall be repaired at the Contractor's expense.

2. Sides of trenches in unsuitable, loose or soft material, five feet or more in depth, shall be shored, sheeted, braced, sloped, or otherwise supported by means of sufficient strength to protect employees working within them.

B. Sheeting Requirements:

1. Where excavations are made with vertical sides which require supporting, the sheeting and bracing shall be of sufficient strength to sustain the sides of the excavations and to prevent movement which could in any way injure the Work, or adjacent structures, or diminish the working space sufficiently to delay the Work. Special precautions shall be taken where there is additional pressure due to the presence of other structures.
2. It shall be the Contractor's responsibility to select sheeting and bracing of sufficient dimensions and strength and type to adequately support the sides of trenches and excavations.
3. Sheeting and bracing shall be removed before the completion of the Work.

3.6 BACKFILLING

- A. Backfill trenches to contours and elevations shown on the drawings.
- B. Systematically backfill to allow maximum time for natural settlement. Do not backfill over porous, wet, or spongy subgrade surfaces.
- C. Fill materials shall be as per the Caltrans.
- D. Employ a placement method that does not disturb or damage utilities in trench. Jetting of backfill materials to achieve compaction shall not be permitted.
- E. Maintain optimum moisture content of fill materials to attain required compaction density.
- F. Remove surplus fill materials from site.

3.7 TOLERANCES

- A. Top Surface of Backfilling Under Paved Areas: Plus or minus 0.05 feet from required elevations.
- B. Top Surface of General Backfilling: Plus or minus 1/10 feet from required elevations.

3.8 FIELD QUALITY CONTROL

- A. Compaction testing will be performed by the project Soils Engineer.
- B. If tests indicate Work does not meet specified requirements, remove Work, replace, compact, and retest.

3.9 PROTECTION OF FINISHED WORK

- A. Section 01 77 00 - Closeout Procedures.

- B. Reshape and re-compact fills subjected to vehicular traffic during construction.

END OF SECTION 31 23 16.13

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SECTION 31 23 23.13 - BACKFILL

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes building perimeter and site structure, filling and backfilling to subgrade elevations; fill under slabs-on-grade, paving; fill for over-excavation; consolidation and compaction.
- B. Related Sections:
 - 1. Section 31 05 13 – Soils for Earthwork.
 - 2. Section 31 23 00 – Excavation and Fill.
 - 3. Section 31 23 16.13 – Trenching.

PART 2 - PRODUCTS

2.1 FILL MATERIALS

- A. Fill and Structural Fill as approved by the Civil Engineer.

2.2 ACCESSORIES

- A. Geotextile Fabric: Non-biodegradable, woven as manufactured by TC Mirafi, Tensar Earth Technologies, Inc. or equal.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Section 01 33 00 – Submittal Procedures: Coordination and project conditions.
- B. Verify subdrainage, dampproofing, or waterproofing installation has been inspected.
- C. Verify structural ability of unsupported walls to support loads imposed by the fill.

3.2 PREPARATION

- A. Compact subgrade to density requirements for subsequent backfill materials.
- B. Cut out soft areas of subgrade not capable of compaction in place. Backfill and compact to density equal to or greater than requirements for subsequent fill material.
- C. Roll subgrade surface to identify soft spots; fill and compact to density equal to or greater than requirements for subsequent fill material.

3.3 BACKFILLING

- A. Backfill areas to contours and elevations shown on drawings.
- B. Employ a placement method that does not disturb or damage other work.
- C. Maintain optimum moisture content of backfill materials to attain required compaction density.
- D. Backfill against supported walls and structures. Do not backfill against unsupported walls or structures.
- E. Backfill simultaneously on each side of unsupported walls and structures until supports are in place.
- F. Slope grade away from building at a minimum slope of two (2%) percent, unless noted otherwise.
- G. Make gradual grade changes. Blend slope into level areas.
- H. Remove surplus backfill materials from site.

3.4 TOLERANCES

- A. Section 01 60 00 - Product Requirements.
- B. Top Surface of Backfilling Under Paved Areas: Plus or minus 0.05 feet from required elevations.
- C. Top Surface of General Backfilling: Plus or minus 1/10 feet from required elevations.

3.5 FIELD QUALITY CONTROL

- A. The project Soils Engineer shall provide testing and inspection services.

3.6 PROTECTION OF FINISHED WORK

- A. Section 01 77 00 - Closeout Procedures.
- B. Reshape and re-compact fills subjected to vehicular traffic.

END OF SECTION 31 23 23.13

SECTION 31 23 23.14 – CONTROLLED LOW STRENGTH MATERIAL

PART 1 – GENERAL

1.1 SUMMARY

- A. Section includes material for use in trench backfill where conditions require controlled density fill.

1.2 RELATED DOCUMENTS

- A. Drawings and general provisions of the contract, general and supplementary conditions and Division 1 Specification Sections apply to this Section.
- B. Related Sections:
 - 1. Section 31 23 16 13 – Trenching
 - 2. Section 31 23 23.13 – Backfill
 - 3. Section 32 11 23 – Aggregate Base Course

1.3 REFERENCES

- A. ASTM C-33
- B. ASTM C-231
- C. ASTM C-150, Type II
- D. ASTM C-260
- E. ASTM C-618, Class F
- F. California Building Code Section 1806A.11 – Pipes and Trenches.
- G. Soils Report

1.4 SUBMITTALS

- A. Refer to Section 01 33 00 for submittal procedures.
- B. Contractor shall submit concrete, mortar and grout mix designs, recent test data for submitted mixes, and test data for mix components confirming that the mixes meet the requirements of this section.

PART 2 - GENERAL

2.1 COMPONENTS

- A. Controlled Low Strength Material (CLSM) mix shall be composed of a cementitious material, water, fine and coarse aggregate, and an admixture.
- B. The cementitious materials shall be Portland cement in combination with fly ash.
- C. The admixture shall be an air-entraining agent.
- D. The proportions of all material used in the CLSM shall conform to the mix design.

- E. CLSM shall have an unconfined compressive 28-day strength from 50 psi to a maximum of 150 psi. CLSM with a 28-day compressive strength in excess of 200 psi shall be removed and replaced by the contractor as directed by the Engineer/IOR at no cost to the School District.
- F. CLSM shall have a minimum set time of 24 hours.

2.2 AGGREGATE CONTENT

- A. Aggregate need not conform to ASTM C-33. Any aggregates which produce performance characteristics of the CLSM may be submitted for approval.
- B. CLSM mixture shall contain no aggregate that is larger than 3/8 inch.
- C. The amount of material passing No. 200 sieve shall not exceed 12.0 percent.
- D. No plastic fines shall be present.

2.3 AIR CONTENT

- A. The air content by volume based on measurement immediately after discharge from the mixer shall be determined by ASTM C-231.
- B. The total calculated air content of the sample prepared in accordance with ASTM C-231 shall not exceed 6.0 percent.

2.4 COMPONENT MATERIALS

<u>Material</u>	<u>Weight</u>	<u>Sp. Gr.</u>	<u>Abs. Vol.</u>
Cement	30 lb	3.15	0.152
Fly Ash	300 lb	2.30	2.09
Water	317 lb	1.00	5.08
Course Aggregate	1645 lb	2.68	8.76
Fine Aggregate	1465 lb	2.68	9.835
Admixture	4 oz	===	1.08
Total	3757 lb	===	27.0 cu ft

2.5 COMPONENT STANDARDS

- A. Cement shall conform to ASTM C-150, Type II
- B. Fly Ash shall conform to ASTM C-618, Class F. The fly ash shall not inhibit the entrainment of air.
- C. Air entrainment admixture shall conform to ASTM C-260.
- D. Aggregates:
 - 1. Fine aggregate: #1 concrete sand.
 - 2. Course aggregate: #2 concrete sand – 3/8 pea gravel.

- E. Water shall conform to California State Specifications 90-2.03.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Division 1 – Administrative Requirements: Coordination and project conditions.
- B. Verify trench is ready to receive work.

3.2 DELIVERY TO SITE

- A. Provide the Engineer/IOR with delivery tickets for each truck load that show the CLSM mix, the batch quantity and time batched.

3.3 BATCHING, MIXING AND DELIVERING

- A. CLSM shall be batched at a Ready-Mix Concrete Plant and delivered to the job site by means of transit mixing trucks.

3.4 INSTALLATION

- A. CLSM shall be discharged from transit mix trucks by any reasonable means into the excavation to be backfilled.
- B. The CLSM shall be brought uniformly to the elevation of the:
 - 1. Underside of subgrade or asphalt concrete pavement.
 - 2. Underside of structural concrete.

3.5 FIELD QUALITY CONTROL

- A. The project Soils Engineer shall provide testing and inspection services.
- B. No equipment or traffic shall be allowed on the CLSM until the surface of the CLSM will withstand the weight of the equipment or traffic without damage or displacement.
- C. To prevent damage or displacement in traffic areas, provide steel plates that will span the trench until such time as the CLSM has obtained sufficient strength to support equipment and traffic loads.

3.6 FORMING

- A. Forms shall conform to the requirements of Section 51 of Caltrans Standard Specifications, July 92 edition.

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END OF SECTION 31 23 23.14

SECTION 32 11 23 – AGGREGATE BASE COURSE

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes aggregate base course.
- B. Related Sections:
 - 1. Section 31 05 13 - Soils for Earthwork.
 - 2. Section 31 22 13 - Rough Grading.
 - 3. Section 31 23 23.13 - Backfill.
 - 4. Section 31 23 16.13 - Trenching.
 - 5. Section 32 12 16 - Asphalt Pavement.
 - 6. Section 32 13 13 - Concrete Paving.
 - 7. Section 33 49 13 - Storm Drainage Manholes, Frames, and Covers.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Class II Aggregate Base per Caltrans Standard Specifications, or Local Municipality.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Section 01 33 00 – Submittal Procedures
- B. Verify substrate has been inspected, gradients and elevations are correct, and is dry.

3.2 PREPARATION

- A. Correct irregularities in substrate gradient and elevation by scarifying, reshaping, and re-compacting.
- B. Do not place fill on soft, muddy, or frozen surfaces.

3.3 AGGREGATE PLACEMENT

- A. Place aggregate in maximum 6-inch layers and compact to specified density.
- B. Level and contour surfaces to elevations and gradients indicated.
- C. Add small quantities of fine aggregate to coarse aggregate as appropriate to assist compaction.
- D. Add water to assist compaction. If excess water is apparent, remove aggregate and aerate to reduce moisture content.

- E. Use mechanical tamping equipment in areas inaccessible to compaction equipment.

3.4 TOLERANCES

- A. Section 01 60 00 - Product Requirements: Tolerances.
- B. Flatness: Maximum variation of 1/4 inch measured with 10-foot straight edge.
- C. Scheduled Compacted Thickness: Within 1/4 inch.
- D. Variation From Design Elevation: Within 1/2 inch.

3.5 FIELD QUALITY CONTROL

- A. Section 01 60 00 - Product Requirements: Testing and inspection services.
- B. Compaction testing will be performed in accordance with ASTM D1557.
- C. If tests indicate Work does not meet specified requirements, remove Work, replace and retest at no cost to owner.

END OF SECTION 32 11 23

SECTION 32 12 16 – ASPHALT PAVING

PART 1 - GENERAL

1.1 SUMMARY

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.
- B. Related Sections
 - 1. Section 31 05 13 – Soil for Earthwork
 - 2. Section 31 22 13 – Rough Grading: Preparation of site for paving and base
 - 3. Section 31 23 23.13 – Backfill: Compact subbase for Paving
 - 4. Section 32 11 23 – Aggregate Base Course
 - 5. Section 32 17 00 – Pavement Specialties

1.2 REFERENCES

- A. ASTM D946 - Penetration-Graded Asphalt Cement for Use in Pavement Construction.
- B. ASTM D3381 - Viscosity Graded Asphalt Cement for Use in Pavement Construction.
- C. TAI - (The Asphalt Institute) - MS-2 Mix Design Methods for Asphalt Concrete and Other Hot Mix Types.
- D. TAI – (The Asphalt Institute) – MS-3 Asphalt Plant Manual.
- E. TAI – (The Asphalt Institute) – MS-8 Asphalt Paving Manual.
- F. TAI – (The Asphalt Institute) – MS-19 Basic Asphalt Emulsion Manual.
- G. Caltrans Standard Specifications, 2010 Edition, Section 39.

1.3 SUBMITTALS:

- A. Product Data: Submit product information and mix designs.

1.4 SITE CONDITIONS:

- A. Weather Limitations: Apply prime and tack coats when ambient temperature is above 50 deg F (10 deg C), and when temperature has not been below 35 deg F (1 deg C) for 12 hours immediately prior to application. Do not apply when base is wet or contains an excess of moisture.

- B. Construct asphalt concrete surface course when atmospheric temperature is above 40 deg F (4 deg C), and when base is dry. Base course may be placed when air temperature is above 30 deg F (-1 deg C) and rising.
- C. Grade Control: Establish and maintain required lines and elevations.

PART 2 - PRODUCTS

2.1 MATERIALS:

- A. General: Use locally available materials and gradations which exhibit a satisfactory record of previous installations.
- B. Asphalt Paving Pedestrian:
 - 1. Base Course Aggregate: Refer to Aggregate Base Courses, specification section 32 11 23 for base course aggregates.
 - 2. Surface Course Aggregate: 3/8" maximum crushed stone, crushed gravel, crushed slag, and sharp-edged natural sand.
 - 3. Herbicide Treatment: Ronstar-G.
 - 4. Asphalt Cement: Comply with AASHTO M 226 (ASTM D 3381) for viscosity-graded material and AASHTO M 20 (ASTM D 946) for penetration-graded material.
 - 5. Prime Coat: Cut-back asphalt type; AASHTO M 82 (ASTM D 2027) MC-30, MC-70 or MC-250.
 - 6. Tack Coat: Emulsified asphalt, AASHTO M 140 (ASTM D 997) or M 208 (D 2397); SS-1, SS-1h, CSS-1 or CSS-1h, diluted with one part water to one-part emulsified asphalt.
 - 7. Slurry Seal: OverKote Asphalt Pavement Coating manufactured by Reed & Graham, Inc. (408) 287-1400 conforming to the following:

a.	Residue at 300 to 400 degrees F	55-65
b.	Dehydration, 96 hours at 100 degrees F	0.6 min
c.	Solubility of residue in C2HCL	15-20
d.	Loss on ignition of insoluble residue %	16 max
e.	Cone penetration at 77 degrees F	dmm 400-700
 - 8. Redwood Headerboard: Construction Heart Redwood. Size per detail.
- C. Asphalt Paving Vehicular:

1. Base Course Aggregate: Refer to Aggregate Base Courses, specification section 32 11 23 for base course aggregates.
2. Surface Course Aggregate: 3/8" maximum crushed stone, crushed gravel, crushed slag, and sharp-edged natural sand.
3. Herbicide Treatment: Ronstar-G.
4. Asphalt Cement: Comply with AASHTO M 226 (ASTM D 3381) for viscosity-graded material and AASHTO M 20 (ASTM D 946) for penetration-graded material.
5. Prime Coat: Cut-back asphalt type; AASHTO M 82 (ASTM D 2027) SC-70.
6. Tack Coat: Emulsified asphalt, AASHTO M 140 (ASTM D 997) or M 208 (D 2397); SS-1, SS-1h, CSS-1 or CSS-1h, diluted with one part water to one-part emulsified asphalt.
7. Slurry Seal: OverKote Asphalt Pavement Coating manufactured by Reed & Graham, Inc. (408) 287-1400 conforming to the following:
 - a. Residue at 300 to 400 degrees F 55-65
 - b. Dehydration, 96 hours at 100 degrees F 0.6 min
 - c. Solubility of residue in C2HCL 15-20
 - d. Loss on ignition of insoluble residue % 16 max
 - e. Cone penetration at 77 degrees F dmm 400-700
8. Redwood Headerboard: Construction Heart Redwood. Size per detail.

2.2 ASPHALT-AGGREGATE MIXTURE:

- A. Provide asphalt-aggregate mixture in accordance with Section 39, State of California "Standard Specifications", Latest Edition.

PART 3 - EXECUTION

3.1 SURFACE PREPARATION:

- A. Remove loose material from compacted subbase surface immediately before applying herbicide treatment or prime coat.
- B. Proof roll prepared subbase surface to check for unstable areas and areas requiring additional compaction.

- C. Notify Contractor of unsatisfactory conditions. Do not begin paving work until deficient subbase areas have been corrected and are ready to receive paving.
- D. Herbicide Treatment: Apply chemical weed control agent in strict compliance with manufacturer's recommended dosages and application instructions. Apply to compacted, dry subbase prior to application of prime coat.
- E. Base Course Aggregate: Refer to Aggregate Base Courses, specification section 32 11 23 for base course aggregate installation.
- F. Prime Coat: Apply at rate of 0.20 to 0.50 gal. per sq. yd., over compacted aggregate base. Apply material to penetrate and seal, but not flood, surface. Cure and dry as long as necessary to attain penetration and evaporation of volatile.
- G. Tack Coat: Apply to contact surfaces of previously constructed asphalt or Portland cement concrete and surfaces abutting or projecting into asphalt concrete pavement. Distribute at rate of 0.05 to 0.15 gal. per square yard of surface. Allow to dry until at proper condition to receive paving.
- H. Exercise care in applying bituminous materials to avoid smearing of adjoining concrete surfaces. Remove and clean damaged surfaces.
- I. Rigid Edging:
 - 1. Redwood Headerboard: Install wood headers or edgings where indicated on Drawings and where edge of asphalt paving does not abut a firm, vertical edge. Anchor with wood stakes, spaced per detail, driven at least one (1) inch below top elevation of header or edging. Use two (2) galvanized nails per stake to fasten headers and edging; length as needed to penetrate both members and provide ½-inch clinch at point. Pre-drill stakes if needed to avoid splitting.

3.2 PLACING MIX:

- A. General: Place asphalt concrete mixture on prepared surface, spread and strike off. Spread mixture at minimum temperature of 225 deg F (107 deg C). Place inaccessible and small areas by hand. Place each course to required grade, cross-section, and compacted thickness.
- B. Paver Placing: Place in strips not less than 10' wide, unless otherwise acceptable to Architect. After first strip has been placed and rolled, place succeeding strips and extend rolling to overlap previous strips. Complete base course for a section before placing surface course.
- C. Joints: Make joints between old and new pavements, or between successive days' work, to ensure continuous bond between adjoining work. Construct joints to have same texture, density and smoothness as other sections of asphalt concrete course. Clean contact surfaces and apply tack coat.

- D. Asphalt paving shall be installed in lifts not exceeding two (2) inches in thickness per lift.

3.3 ROLLING:

- A. General: Begin rolling when mixture will bear roller weight without excessive displacement.
- B. Compact mixture with hot hand tampers or vibrating plate compactors in areas inaccessible to rollers.
- C. Breakdown Rolling: Accomplish breakdown or initial rolling immediately following rolling of joints and outside edge. Check surface after breakdown rolling, and repair displaced areas by loosening and filling, if required, with hot material.
- D. Second Rolling: Follow breakdown as soon as possible, while mixture is still hot. Continue second rolling until mixture has been thoroughly compacted.
- E. Finish Rolling: Perform finish rolling while mixture is still warm enough for removal of roller marks. Continue rolling until roller marks are eliminated and course has attained maximum density.
- F. Patching: Remove and replace paving areas mixed with foreign materials and defective areas. Cut-out such areas and fill with fresh, hot asphalt concrete. Compact by rolling to maximum surface density and smoothness.
- G. Protection: After final rolling, do not permit vehicular or pedestrian traffic on pavement until it has cooled and hardened.
- H. Erect barricades to protect paving from traffic until mixture has cooled enough not to become marked.
- I. Slurry Seal: Apply slurry seal per manufacturer recommendations.
 - 1. Apply to a clean, smooth, and uniform surface.
 - 2. Apply when the ambient conditions are 50°F and rising with no precipitation or freezing temperatures in forecast for 24 hours.
 - 3. Substrate temperature must be 50°F and rising.
 - 4. Keep traffic off coating until it is completely dry.
 - 5. Spray with a texture sprayer or can be applied by squeegee.
 - 6. Apply (2) coats at a rate of 1 gallon per 100 square feet of surface area for both coats.
 - 7. Apply second coat as soon as the first coat is dry enough to walk on.

3.4 FIELD QUALITY CONTROL:

- A. General: Test in-place asphalt concrete courses for compliance with requirements for thickness and surface smoothness. Repair or remove and replace unacceptable paving as directed by Architect.
- B. Thickness In-place compacted thickness will not be acceptable if exceeding following allowable variation from required thickness:
- C. Base Course: 3/8", plus or minus.
- D. Surface Course: 1/4", plus or minus.
- E. Surface Smoothness: Test finished surface of each asphalt concrete course for smoothness, using 10' straightedge applied parallel with, and at right angles to centerline of paved area. Surfaces will not be acceptable if exceeding the following tolerances for smoothness.
 - 1. Base Course Surface: 1/4".
 - 2. Wearing Course Surface: 3/16".
 - 3. Check surface areas at intervals as directed by Owner's Representative.

END OF SECTION 32 12 16

(Revised 7/21/2026)

SECTION 32 12 36 – SLURRY SEAL EXISTING ASPHALT PAVING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.
- B. All grading, earthwork, excavations, backfills, compaction, and other grading operations shall be accomplished in accordance with the soils report (which shall be part of the Contract Documents). Contractor shall be responsible for securing a copy of the soils report. The project soils engineer shall be present during all grading operations. The soils engineer shall direct samples to be submitted and tests to be taken. Contractor shall cooperate with the requirements of the soils engineer.

1.2 DESCRIPTION OF WORK:

- A. Extent of asphalt slurry work is shown on drawings.

1.3 SUBMITTALS:

- A. Material Certificates: Provide copies of materials certificates signed by material producer and Contractor, certifying that each material item complies with, or exceeds, specified requirements.

1.4 SITE CONDITIONS:

- A. Weather Limitations: Do not apply when base is wet or contains an excess of moisture.

PART 2 - PRODUCTS

2.1 MATERIALS:

- A. General: Use locally available materials and gradations which exhibit a satisfactory record of previous installations.
- B. OverKote Seal: Asphalt pavement coating as manufactured by Reed & Graham, Inc. or approved equal.
- C. OverKote Crackfiller as manufactured by Reed & Graham, Inc. or approved equal.
- D. OverKote Oil Spot Sealer as manufactured by Reed & Graham, Inc. or approved equal.
- E. 30 Mesh Sand

PART 3 - EXECUTION

3.1 CRACK FILLING AND SURFACE PREPARATION:

- A. Cracks 1/8" or larger shall be cleaned and filled to a level surface with OverKote Crackfiller. A "V" shaped squeegee is recommended for this application. Mix and apply per manufacturer recommendations.
- B. All areas to be sealed shall be thoroughly cleaned. Dirt, loose pieces and other obstructions in joints or cracks shall be removed with an air jet and/or pressurized water.
- C. Excessive oil spots shall be removed with a scraper, stiff brush and detergent. OverKote Oil Spot Sealer shall be applied to prepared oil spots.
- D. In exceptionally hot weather, dampen the surface with water. Remove any excess water to leave the surface only slightly damp.

3.2 SLURRY SEAL APPLICATION –OverKote Asphalt Paving Coating

- A. Prior to bidding, consult manufacturer for recommendations on mix and number of applications required to result in a smooth and uniform surface for this application. A minimum of two applications shall be required, more if necessary.
- B. Depending on the surface, one or more applications may be required at the rate of 25 to 35 gallons per 1,000 square feet of surface area. The surface shall be smooth and uniform upon completion. For excessively rough areas, add 2 to 3 pounds of 30 mesh sand per gallon of OverKote Sealer. Additional sand may be added per custom specification request.
- C. Apply OverKote slurry seal to surface course in accordance with manufacturer recommendations. Spread immediately by machine, squeegee, stiff plastic bristle or soft hair push broom. Spread poured parallel lines by pulling material at an angle toward operator. Tools shall be wet before using. Repeat as necessary to spread sealer uniformly, eliminating all laps and ridges. Apply 2nd coat as soon as first coat is dry.
- D. A second application shall be made after first coat has dried to the touch. When sand is added to the first seal coat, two additional coats without extra sand shall be applied.
- E. Protect from trespass until sealed area is dry.
- F. Allow slurry seal to dry before permitting traffic or striping.

3.3 FIELD QUALITY CONTROL:

- A. Contractor shall obtain approval of surface preparation from Owner's Representative prior to application of slurry seal.
- B. Contractor shall obtain approval of slurry seal application finish surfaces from Owner's Representative prior to completion and prior to striping.

END OF SECTION 32 12 36

SECTION 32 13 13 – CONCRETE PAVING

PART 1 – GENERAL

1.1 RELATED DOCUMENTS:

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.
- B. All grading, earthwork, excavations, backfills, compaction, and other grading operations shall be accomplished in accordance with the soils report (which shall be part of the Contract Documents). Contractor shall be responsible for securing a copy of the soils report. The project soils engineer shall be present during all grading operations. The soils engineer shall direct samples to be submitted and tests to be taken. Contractor shall cooperate with the requirements of the soils engineer.
- C. Specification Division 31, Earthwork, Soils and Earthwork, Rough Grading, and Excavation and Fill.
- D. Specification 32 11 23 Aggregate Base Course.

1.2 DESCRIPTION OF WORK:

- A. The extent of concrete work is shown on the landscape architectural drawings and details and shall include, but is not limited to, pedestrian concrete walkways, steps, ramps, curbs, mowbands, footings and walls.

1.3 QUALITY ASSURANCE:

- A. Codes and Standards: Comply with provisions of following codes, specifications and standards, except where more stringent requirements are shown or specified:
 - 1. Concrete Reinforcing Steel Institute, "Manual of Standard Practice".
 - 2. ACI 318 Building Code Requirements for Structural Concrete.
 - 3. ASTM C150, for Type I, Type II or Type III Portland cement concrete.
 - 4. Chapter 19A, 2022 C.B.C.
- B. Certification: Weighmaster Certificate
- C. Duties of the Inspector: The inspector shall notify the Architect, Structural Engineer and the Division of State Architect at least 48 hours in advance of the first pour of concrete and sufficiently in advance of subsequent pours. Comply with Section 4-333.1 and Chapter 7, Part I, Title 24, California Code of Regulations (CCR).
- D. Installer Qualifications:
 - 1. Experience: The concrete installing firm shall have contracted for and successfully completed construction of a minimum of five (5) California public school district construction projects, approved by the Division of the State Architect (DSA), within the past five (5) years of similar size, complexity, budget and scope.

2. Licensure: The concrete installation firm shall hold a current, active C8 "Concrete Contractor" license classification by the California State License Board that has been consistently active for at least five (5) years and that has not been suspended or revoked.
 3. Supervision: The concrete installing firm shall have a qualified and experienced concrete technician on site during concrete installation.
- E. "Colored" Concrete Installer Qualifications: Installer of "colored" concrete shall be qualified by Scofield. Contact local Scofield Representative or the Division Office (323) 720-3055 for a list of locally qualified installers.
- 1.4 SUBMITTALS:
- A. Shop Drawings Reinforcement: Submit shop drawings for fabrication, bending, and placement of concrete reinforcement. Comply with ACI 315 "Manual of Standard Practice for Detailing Reinforced Concrete Structures" showing bar schedules, stirrup spacing, diagrams of bent bars, arrangement of concrete reinforcement. Include special reinforcement required and openings through concrete structures.
 - B. Design Mixes Submittal: Submit written reports of design mixes to the Architect of each proposed mix for each class of concrete within thirty-five (35) days after the issuance of the "Notice to Proceed", but no later than ten (10) days prior to the first scheduled concrete pour. Do not begin concrete production until all design mixes have been reviewed by the Architect and independent testing facility.
- Separate submittal data shall be submitted for each mixture for the following:
- 1) Concrete Paving – Pedestrian, steps, curbs, walls and footings.
 - 2) Concrete Paving – Vehicular.
- C. Job-site Samples: Contractor shall pour concrete samples as indicated below for each concrete color and finish specified on Drawings for written approval from Owner's Representative prior to installation as follows:
1. Two (2) foot by two (2) foot concrete flatwork.
 2. Two linear feet by width and height detailed for each concrete wall specified to include decorative tile if specified.

PART 2 - PRODUCTS

2.1 FORM MATERIALS:

- A. Forms for Exposed Finish Concrete: Unless otherwise indicated, construct formwork for exposed concrete surfaces with plywood, metal, metal-framed plywood faced or other acceptable panel-type materials, to provide continuous, straight, smooth, exposed surfaces. Furnish in largest practicable sizes to minimize number of joints and to conform to joint system shown on drawings. Provide form material with sufficient thickness to withstand pressure of newly-placed concrete without bow or deflection.

- B. Forms for Unexposed Finish Concrete: Form concrete surfaces which will be unexposed in finished structure with plywood, lumber, metal or other acceptable material. Provide lumber dressed on at least 2 edges and one side for tight fit.
- C. Form Coatings: Provide commercial formulation form-coating compounds that will not bond with, stain nor adversely affect concrete surfaces, and will not impair subsequent treatments.
- D. Expansion Joint for flatwork that does not have a stamp pattern: Asphalt impregnated felt fiber expansion material, one half inch (1/2") thick by full depth of concrete, in compliance with ASTM D1751.
- E. Expansion Joint for poured-in-place walls: Asphalt impregnated felt fiber expansion material, one half inch (1/2") thick by full depth of concrete, in compliance with ASTM D1751.

2.2 REINFORCING MATERIALS:

- A. Reinforcing Bars (Rebar): ASTM A 615, Grade 60, deformed, except #3 and smaller may be Grade 40. Test in accordance with Section 1903A and 1910A.2, 2025 C.B.C.
- B. Supports for Reinforcement: Provide supports for reinforcement including bolsters, chairs, spacers and other devices for spacing, supporting and fastening reinforcing bars and welded wire fabric in place.

2.3 CONCRETE MATERIALS:

- A. Portland Cement: ASTM C 150, Type V, conforming to ACI 318-14 and test in accordance with Section 1903A, 2025 C.B.C.
- B. Fly Ash or other pozzolan can be used as a partial substitute for ASTM 150 Portland cement as follows:
 - 1. Fly Ash conforming to ASTM C618, Class F, the maximum Loss on Ignition (LOI) shall be less than 3%. Class C is not permitted.
 - 2. Slag, Ground Granulated Blast Furnace Slag Cement (GGBFS) shall conform to ASTM C989 or AASHTO M 302 Grade 100 or 120.
 - 3. Silica Fume: ASTM C1240, Standard Specification for Silica Fume used in cementitious mixtures.
 - 4. High-Reactivity Metakaolin (HRM): ASTM C618, aluminosilicate pozzolan.
- C. Water: Water used in mixing concrete shall be clean and free from injurious amounts of oils, acids, alkalis, salts, organic materials or other substances that may be deleterious to concrete or reinforcement and shall be tested and verified through ASTM C1602.
- D. Admixtures: Admixtures certified by manufacturer to contain not more than 0.1 percent water-soluble chloride ions by mass of cementitious material and to be compatible with other admixtures and cementitious materials. Do not use admixtures containing calcium chloride.
 - 1. Air-Entraining Admixture: ASTM C 260.
 - 2. Water-Reducing Admixture: ANSI/ASTM C 494, Type A, and contain not more than 1% chloride ions.

3. High-Range, Water-Reducing Admixture: ASTM C 494, Type F
 4. Water-Reducing and Accelerating Admixture: ASTM C 494, Type E
 5. Water-Reducing and Retarding Admixture: ASTM C 494, Type D
- E. Crushed Aggregate Base Rock: Shall be coarse aggregate for regular weight concrete. Aggregate shall be hard, durable, uncoated, graded, cleaned and screened crushed rock or gravel conforming to current requirements of ASTM C33. Crusher-run stone or bank-run gravel will not be permitted.
- F. Liquid Membrane-Forming Curing Compound: Liquid type membrane-forming curing compound complying with ASTM C-309, Type I, Class A unless other type acceptable to Architect. Comply with Volatile Organic Compounds (VOC) content limits, as required by Air Pollution Control Regulations on Architectural Coatings (less than 350 g/l).
- G. Curing Methods:
1. Moist Curing: continuous misting, sprinkling or ponding.
 2. Moisture-retaining cover curing: After wetting the concrete surface, cover with wet-curing blanket. Lay blanket in accordance with manufacturer's instructions, over-lapping edges and extending edges twelve (12) inches beyond area of concrete to be cured. Remove air pockets. Repair any holes or tears that occur using sheeting material and waterproof tape.
 3. Compound curing: Apply specified curing compound as soon as final finishing operations are complete. Use as recommended by the manufacturer's written instructions.
- H. Color Materials:
1. Liquid lamp black shall be default color for concrete not specified on drawings as "Natural" or "Colored". Add one pint of liquid lamp black per cubic yard of exterior concrete.
 2. Concrete specified as "Natural" shall have no color added.
 3. Concrete specified as "Colored" shall be LM Scofield Systems Chromix Admixtures for Color-Conditioned Concrete and/or Scofield Integral Color SG Standard Grade, to include Standard Colors, Custom Colors and Special Order Colors for all concrete specified on drawing as "colored". Colored concrete shall be sealed per manufacturer with LM Scofield Cureseal-W with matte gloss finish, LM Scofield Cureseal-100 with glossy, wet-look, LM Scofield Lithochrome Colorwax concrete curing compound or equal as selected by Architect or Owner's Representative. Contractor shall pour samples on site as necessary for architect and/or owner's representative to select final color(s) for project.

2.4 PROPORTIONING AND DESIGN OF MIXES:

- A. Prepare design mixes for each type and strength of concrete. Use an independent testing facility acceptable to Architect for preparing and reporting proposed mix designs. The testing facility shall not be the same as used for field quality control testing unless otherwise acceptable to Architect.

- B. Comply with Section ACI 318-14. The compressive strength of concrete shall be proportioned by one of the following methods: Design Mix (Method B) or Pre-Test Mix (Method C).
- C. Submit written reports to Architect of each proposed mix for each class of concrete at least 10 days prior to the first scheduled concrete pour. Do not begin concrete production until mixes have been reviewed by Architect.
- D. Design mixes to provide normal weight concrete with the following properties:
 - 1. Concrete Paving – Pedestrian, steps, curbs, walls and footings:
 - a. 3,000 psi 28-day compressive strength
 - b. 0.60, maximum, water to cement (W/C) ratio
 - c. Minimum cementitious content shall be 470 pounds, minimum, per cubic yard.
 - d. Aggregate to be 1" maximum.
 - e. 28-day shrinkage, SEAONC Method: 0.050 maximum.
 - 2. Concrete Paving – Vehicular:
 - a. 4,000 psi 28-day compressive strength
 - b. 0.50, maximum, water to cement (W/C) ratio
 - c. Minimum cementitious content shall be 470 pounds, minimum, per cubic yard.
 - d. Aggregate to be 1" maximum.
 - e. 28-day shrinkage, SEAONC Method: 0.050 maximum.
- E. Adjustment to Concrete Mixes: Mix design adjustments may be requested by Contractor when characteristics of materials, job conditions, weather, test results, or other circumstances warrant; at no additional cost to Owner and as accepted by Architect. Laboratory test data for revised mix design and strength results must be submitted to and accepted by Architect before using in work.
- F. Admixtures: Use only as indicated by approved design mix.
- G. Color Additive for concrete not specified as "colored": add one pint of liquid lamp black per cubic yard of all exterior concrete which will be visible when cured.
- H. Color for concrete specified as "colored": Color mixture as determined by manufacturer in accordance with color selected and sealed per manufacturer recommendations.
- I. Slump Limits: Proportion and design mixes to result in concrete slump at point of placement as follows:

All concrete: Shall be four (4) inches, plus or minus one (1) inch.

2.5 CONCRETE MIXES:

Ready-Mix Concrete: Comply with ASTM C94. Measure, batch and mix concrete materials and concrete according to ASTM C-94. Furnish batch certificates, indicating project identification, name and number, date, mixture type, mixing time, quantity and amount of water added for each batch discharged and used in the Work to the Architect.

2.6 SACK FINISH MORTAR

- A. Mortar shall be composed of Portland cement, sand, and water proportioned and mixed as specified in this Section 51-1.135.
- B. Mortar shall be furnished and placed in recesses and holes, on surfaces, under structural members, and at other locations specified in these specifications, the special provisions or shown on the plans.
- C. The proportion of cement to sand, measured by volume, shall be one to two (1:2) unless otherwise specified.
- D. Materials shall conform to the provisions in Section 90, "Portland Cement Concrete."
- E. The maximum size of sand shall not be larger than 0.5 of the size of the recess, hole or space where the mortar is to be placed.
- F. The mortar shall contain only enough water to permit placing and packing.
- G. Concrete areas to be in contact with the mortar shall be cleaned of all loose or foreign material that would in any way prevent bond between the mortar and the concrete surfaces and shall be flushed with water and allowed to dry to a surface dry condition immediately prior to placing the mortar.
- H. The mortar shall completely fill and shall be tightly packed into recesses and holes, on surfaces, under structural members, and at other locations specified. After placing, all surfaces of mortar shall be cured by the water method as provided in Section 90-7, "Curing Concrete," for a period of not less than 3 days.
- I. Keyways, spaces between structural members, holes, spaces under structural members and other locations where mortar could escape shall be mortar-tight before placing mortar.
- J. No load shall be allowed on mortar that has been in place less than 72 hours, unless otherwise permitted by the Engineer.
- K. All improperly cured or otherwise defective mortar shall be removed and replaced by the Contractor at the Contractor's expense.

2.7 WATERPROOF MEMBRANE:

Rolled, self-adhering waterproof membrane, composed of nominally 56 millimeter thick layer of polymeric waterproofing membrane on a heavy duty, four-millimeter thick, cross-laminated polyethylene carrier film laminated together, MEL-ROL, product of W. R. Meadows/Sea Tight, or equal conforming to A.R.E.M.A. Specifications Chapter 29, Waterproofing.

PART 3 - EXECUTION

3.1 FORMS:

- A. Design, erect, support, brace and maintain formwork to support vertical and lateral loads that might be applied until such loads can be supported by concrete structure. Construct formwork

so concrete members and structures are of correct size, shape, alignment, elevation and position.

- B. Form removal shall comply with ACI 318 Section 26.11.2.
- C. Design formwork to be readily removable without impact, shock or damage to cast-in-place concrete surfaces and adjacent materials.
- D. Construct forms to sizes, shapes, lines and dimensions shown, and to obtain accurate alignment, location, grades, level and plumb work in finished structures. Provide for openings, offsets, sinkages, keyways, recesses, moldings, rustications, reglets, chamfers, blocking, screeds, bulkheads, anchorages and inserts and other features required in work. Use selected materials to obtain required finishes. Solidly butt joints and provide backup at joints to prevent leakage of cement paste.
- E. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush plates or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces where slope is too steep to place concrete with bottom forms only. Kerf wood inserts for forming keyways, reglets, recesses, and the like, to prevent swelling and for easy removal.
- F. Provisions for Other Trades: Provide openings in concrete formwork to accommodate work of other trades. Determine size and location of openings, recesses and chases from trades providing such items. Accurately place and securely support items build into forms. Comply with ACI 318 Section 26.11.2.
- G. Cleaning and Tightening: Thoroughly clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt or other debris just before concrete is placed. Retighten forms and bracing after concrete placement is required to eliminate mortar leaks and maintain proper alignment.
- H. Nonstructural concrete has a negligible freeze-thaw exposure class as defined in ACI 318 based on the anticipated exposure of nonstructural concrete.

3.2 PLACING REINFORCEMENT:

- A. Comply with Concrete Reinforcing Steel Institute's recommended practice for "Placing Reinforcing Bars", for details and methods of reinforcement placement and supports, and as herein specified.
- B. Clean reinforcement of loose rust and mill scale, earth, ice, and other materials which reduce or destroy bond with concrete.
- C. Accurately position, support and secure reinforcement against displacement by formwork, construction, or concrete placement operations. Locate and support reinforcing by metal chairs, runners, bolsters, spacers, and hangers, as required.
- D. Place reinforcement to obtain at least minimum coverage for concrete protection. Arrange, space and securely tie bars and bar supports to hold reinforcement in position during concrete placement operations. Set wire ties so ends are directed into concrete, not toward exposed concrete surfaces.
- E. Where concrete is installed at door thresholds and/or transitions to building interior spaces, 24" length, #3 smooth rebar dowels shall be installed 12" into the new concrete paving and 12" into

the adjacent building structure, spaced at 18" on center with a minimum of two in each location. Epoxy to secure end of dowel set into building and lubricate end cast into new concrete paving.

- F. Where concrete is installed at door thresholds of modular buildings with steel framing, #5 rebar shall be welded securely to building floor plate, extending 12" into new concrete paving, spaced 18" on center with a minimum of two at each door threshold. Lubricate end cast into new concrete paving.
- G. Where concrete is installed adjacent to concrete walkways that are part of the building structural pad, 24" length, #3 smooth rebar dowels shall be installed 12" into the new concrete paving and 12" into the adjacent building structure pad, spaced at 18" on center spacing. Epoxy to secure end of dowel set into building structural pad and lubricate end cast into new concrete paving.

3.3 EXPANSION AND CONTROL JOINTS:

- A. Locate and install joints so as not to impair strength and appearance of the structure, and as acceptable to Architect.
- B. Continue reinforcement across expansion and control joints or install smooth rebar dowels.
- C. Control/score joints (for walkways, steps, ramps and curbs): Unless shown otherwise on plan, install ½" radius score joints evenly spaced at a maximum of eight feet in two perpendicular directions, continuous and one third the depth of the slab.
- D. Control/score joints (for walls, steps and vertical surfaces): Unless shown otherwise on plan, install ½" radius score joints evenly spaced at a maximum of eight feet in on center. Align vertical wall score joints with horizontal paving joints whenever possible. Install ½" radius or chamfered edge at each side of joint as called for in drawings, continuous and 1 ½" in depth.
- E. Expansion Joints (for walkways, steps, ramps and curbs): Unless shown otherwise on plan, install expansions joints where walkways meet existing or proposed structures and evenly spaced at a maximum of 24 feet in two perpendicular directions. Install ½" asphalt saturated felt expansion joint material 1/4" below the finish surface and continuously throughout the full depth of slab.
- F. Expansion Joints (for walls, steps and vertical surfaces): Unless shown otherwise on plan, install expansions joints where walls meet existing or proposed structures and evenly spaced at a maximum of 24 feet in two perpendicular directions. Align vertical wall expansion joints with horizontal paving joints whenever possible. Install ½" asphalt saturated felt expansion joint material ½" below the finish surface where ½" radius concrete edges are indicated and flush with base of chamfer where chamfer edges are indicated and continuously throughout the concrete section. Install ½" radius or chamfered edge at each side of joint as called for in drawings.

3.4 INSTALLATION OF EMBEDDED ITEMS:

- A. General: Set and build into work anchorage devices and other embedded items required for other work that is attached to, or supported by, cast-in-place concrete. Use setting drawings, diagrams, instructions and directions provided by suppliers of items to be attached thereto.
- B. Edge Forms and Screed Strips for Slabs: Set edge forms or bulkheads and intermediate screed strips for slabs to obtain required elevations and contours in finished slab surface.

Provide and secure units sufficiently strong to support types of screed strips by use of strike-off templates or accepted compacting type screeds.

3.5 PREPARATION OF FORM SURFACES:

- A. Coat contact surfaces of forms with a form-coating compound before reinforcement is placed.

3.6 CONCRETE PLACEMENT:

- A. Pre-placement Inspection: Before placing concrete, inspect and complete formwork installation, reinforcing steel, and items to be embedded or cast-in, in accordance with ACI 318-08. Notify other crafts to permit installation of their work; cooperate with other trades in setting such work. Moisten wood forms immediately before placing concrete where form coatings are not used.
- B. Coordinate the installation of joint materials with placement of forms and reinforcing steel.
- C. General: Comply with ACI 304, and as herein specified.
- D. Deposit concrete continuously or in layers of such thickness that no concrete will be placed on concrete which has hardened sufficiently to cause the formation of seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as herein specified. Deposit concrete as nearly as practicable to its final location to avoid segregation.
- E. Placing Concrete in Forms: Deposit concrete in forms in horizontal layers not deeper than 24" and in a manner to avoid inclined construction joints. Where placement consists of several layers, place each layer while preceding layer is still plastic to avoid cold joints.
- F. Consolidate placed concrete by mechanical vibrating equipment supplemented by hand-spading, rodding or tamping. Use equipment and procedures for consolidation of concrete in accordance with ACI recommended practices.
- G. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations not farther than visible effectiveness of machine. Place vibrators to rapidly penetrate placed layer and at least 6" in to preceding layer. Do not insert vibrators into lower layers of concrete that have begun to set. At each insertion limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing segregation of mix.
- H. Placing Concrete Slabs: Deposit and consolidate concrete slabs in a continuous operation, within limits of construction (expansion) joints, until the placing of a panel or section is completed.
- I. Consolidate concrete during placing operations so that concrete is thoroughly worked around reinforcement and other embedded items and into corners.
- J. Bring slab surfaces to correct level with straightedge and strikeoff. Use bull floats or darbies to smooth surface, free of humps or hollows. Do not disturb slab surfaces prior to beginning finishing operations.
- K. Maintain reinforcing in proper position during concrete placement operations.
- L. Cold Weather Placing: Do not place concrete when air temperature is below 40 degrees F., or expected to fall below within 24 hours. Comply with ACI 306.

- M. Hot Weather Placing: When hot weather conditions exist that would seriously impair quality and strength of concrete, place concrete in compliance with ACI 305.
- N. Concrete flatwork over-pour: Over-pour is excess concrete spilling beyond the limits of the concrete forms. Contractor shall remove over-pour to allow for installation of tree root barriers, irrigation and similar landscape improvements.

3.7 FINISH OF FORMED SURFACES:

- A. Rough Form Finish: For formed concrete surfaces not exposed-to-view in the finish work or by other construction, unless otherwise indicated. This is the concrete surface having texture impaired by form facing material used, with tie holes and defective areas repaired and patched and fine and other projections exceeding 1/4" in height rubbed down or chipped off.
- B. Smooth Form Finish: For formed concrete surfaces exposed-to-view, or that are to be covered with a coating material applied directly to concrete, or a covering material applied directly to concrete, such as waterproofing, damp proofing, painting or other similar system. For "as-cast" concrete surface obtained with selected form facing material, arranged orderly and symmetrically with a minimum of seams, repair and patch defective areas with fins or other projections completely removed and smoothed
- C. Related Unformed Surfaces: At tops of walls, horizontal offsets surfaces occurring adjacent to formed surfaces, strike-off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces, unless otherwise indicated.

3.8 CONCRETE EXTERIOR FLATWORK FINISHES:

- A. Float Finish: Apply float finish to concrete slab surfaces to receive trowel finish and other finishes as hereinafter specified.
- B. After screeding, consolidating, and leveling concrete slabs, do not work surface until ready for floating. Begin floating when surface water has disappeared or when concrete has stiffened sufficiently to permit operation of power-driven floats, or both. Consolidate surface with power-driven floats, or by hand-floating if area is small or inaccessible to power units. Check and level surface plane to a tolerance not exceeding 1/8" in 10' when tested with a 10' straightedge. Cut down high spots and fill low spots. Uniformly slope surfaces to drains. Immediately after leveling, refloat surface to a uniform, smooth, granular texture.
- C. Round top edges of all exposed slabs, nosing, etc. with 3/8" radius edging tool, unless chamfered or otherwise noted.
- D. Non-Slip Broom Finish (NSBrm-Fn): Unless specified otherwise, apply non-slip broom finish to exterior concrete walks, platforms, steps and ramps, and elsewhere as indicated. Slopes less than 6% shall have a medium broom finish. Slopes 6% and greater shall be heavy broom slip resistant. Concrete finish to be stable, firm and slip resistant per CBC Section 11B-302 and 11B-403.
- E. Immediately after trowel finishing, slightly roughen concrete surface by brooming with fiber bristle broom perpendicular to main traffic route. Coordinate required final finish with Architect before application.

3.9 CONCRETE CURING AND PROTECTION:

- A. General: Protect freshly placed concrete from premature drying and excessive hot temperatures. Comply with ACI 305R-10, Guide to Hot Weather Concreting.
- B. Start initial curing as soon as free water has disappeared from concrete surface after placing and finishing. Weather permitting, keep continuously moist for not less than 7 days and above 50 deg. F.
- C. Begin final curing procedures immediately following initial curing and before concrete has dried. Continue final curing for at least 7 days in accordance with ACI 301 procedures. Avoid rapid drying at end of final curing period.
- D. Curing Method: Perform curing of concrete by moist curing, by moisture-retaining cover curing, by curing compound, and/or by combinations thereof, at contractor's option except as noted during hot weather.
- E. Cold Weather Requirements: Protect concrete from freezing conditions during the first seven (7) days after placement.
- F. Hot Weather Requirements: When hot weather conditions will cause an evaporation rate exceeding 0.2 pounds of water per square foot per hour, as determined by Figure 2.1.5 of ACI 305, cure for initial 24 hours minimum by moisture retaining cover methods.

3.10 REMOVAL OF FORMS:

- A. Formwork not supporting weight of concrete, such as sides of beams, walls, columns, and similar parts of the work, may be removed after cumulatively curing at not less than 50 deg F (10 deg C) for 24 hours after placing concrete, provided concrete is sufficiently hard to not be damaged by form removal operations, and provided curing and protection operations are maintained.

3.11 RE-USE OF FORMS:

- A. Clean and repair surfaces of forms to be re-used in work. Split, frayed, delaminated or otherwise damaged form facing material will not be acceptable for exposed surfaces. Apply new form coating compound as specified for new formwork.
- B. When forms are extended for successive concrete placement, thoroughly clean surfaces, remove fins and laitance, and tighten forms to close joints. Align and secure joint to avoid offsets. Do not use "patched" forms for exposed concrete surfaces, except as acceptable to Architect.

3.12 MISCELLANEOUS CONCRETE ITEMS:

- A. Filling-In: Fill-in holes and openings left in concrete structures for passage of work by other trades, unless otherwise shown or directed, after work of other trades is in place. Mix, place and cure concrete as herein specified, to blend with in-place construction. Provide other miscellaneous concrete filling shown or required to complete work.
- B. Curbs: Provide monolithic finish to interior curbs by stripping forms while concrete is still green and steel-troweling surfaces to a hard, dense finish with corners, intersections and terminations slightly rounded.
- C. Equipment and Enclosure Bases and Foundations: Provide machine and equipment bases and foundations, as shown on drawings. Set anchor bolts for machines and equipment to template

at correct elevations, complying with certified diagrams or templates of manufacturer furnishing machines and equipment.

3.13 CONCRETE SURFACE REPAIRS

- A. Patching Defective Areas: Repair and patch defective areas with cement mortar immediately after removal of forms, when acceptable to Owner's Representative.
- B. Cut out honeycomb, rock pockets, voids over 1/4" in any dimension, and holes left by tie rods and bolts, down to solid concrete but, in no case to a depth of less than 1". Make edges of cuts perpendicular to the concrete surface. Thoroughly clean, dampen with water and brush-coat the area to be patched with specified bonding agent. Place patching mortar, colored to match surrounding surfaces after bonding compound has dried. Surfaces exposed-to-view shall be sacked with colored mortar as directed by Owner's Representative.
- C. Repair of Formed Surfaces: Remove and replace concrete having defective surfaces if defects cannot be repaired to satisfaction of Owner's Representative. Surface defects, as such, include color and texture irregularities, cracks, spalls, air bubbles, honeycomb, rock pockets; fins and other projections on surface; and stains and other discolorations that cannot be removed by cleaning.
- D. Flush out form tie holes, fill with dry pack mortar.
- E. Repair concealed formed surfaces, where possible, that contain defects that affect the durability of concrete. If defects cannot be repaired, remove and replace concrete.
- F. Repair of Unformed Surfaces: Test unformed surfaces, such as monolithic slabs, for smoothness and verify surface plane to tolerances specified for each surface and finish. Correct low and high areas as herein specified. Test unformed surfaces sloped to drain for trueness of slope, in addition to smoothness, using a template having required slope.
- G. Repair finished unformed surfaces that contain defects, which affect durability of concrete. Surface defects, as such, include crazing, cracks in excess of 0.01" wide or which penetrate reinforcement or completely through non-reinforced sections regardless of width, spalling, pop-outs, honeycomb, rock pockets, and other objectionable conditions. Color of repair shall match surrounding surface color.
- H. Correct high areas in unformed surfaces by grinding, after concrete has cured at least 14 days.
- I. Correct low areas in unformed surfaces during, or immediately after completion of surface finishing operations by cutting out low areas and replacing with fresh concrete. Finish repaired areas to blend into adjacent concrete. Proprietary patching compounds may be used when acceptable to Owner's Representative.
- J. Repair methods not specified above may be used, subject to acceptance of Owner's Representative.

3.14 WATERPROOFING SITE RETAINING WALLS:

- A. Contractor shall apply waterproof membrane to site retaining walls. Membrane shall continuously cover the surface in contact with soil, vertically from the footing to 2" above the finished grade level of the soil retained.

- B. Prepare surface as recommended by manufacturer by filling cracks, priming, filling joint and voids, penetrations and corners.
- C. Apply waterproof membrane as recommended by manufacturer.

3.15 SACK FINISH WALLS, STEP SEATING AND CURBS

- A. Sack finish shall consist of filling holes or depressions in the surface of the concrete, repairing all rock pockets, removing fins, and removing stains and discolorations visible from traveled ways. Sack finish, unless otherwise specified, shall be considered as a final finish where designated on the plans and details.
- B. Except as provided herein, form bolts and any metal placed for the convenience of the Contractor shall be removed to a depth of at least one inch below the surface of the concrete. All rock pockets and other unsound concrete shall be removed. The resulting holes or depressions shall be cleaned and filled with mortar. Form bolts projecting into the cells of box girders need not be removed unless deck forms are removed from the cells, in which case the bolts shall be removed flush with the surface of the concrete.
- C. Mortar used to fill bolt holes shall conform to the provisions in this Section for "Mortar." Other depressions and pockets shall be filled with packed mortar as directed by the Architect and the mortar shall be cured in conformance with the provisions in this Section.
- D. For exposed surfaces, integral concrete color (LM Scofield Chromix) cement shall be added to the mortar in an amount sufficient to result in a patch which, when dry, matches the surrounding concrete.
- E. If rock pockets, in the opinion of the Architect, are of such an extent or character as to affect the strength of the structure materially or to endanger the life of the steel reinforcement, the Architect may declare the concrete defective and require the removal and replacement of the portions of the structure affected.

3.16 QUALITY CONTROL TESTING DURING CONSTRUCTION:

- A. The Owner will employ a testing laboratory to perform other tests and to submit test reports.
- B. Reinforcing steel shall be supplied with heat number and mill analysis per ACI 318-89.
- C. Shrinkage Limitation: All concrete shall meet drying shrinkage limitations as follows:
- D. 0.032 percent at age 21 days, with tolerance of +25% for specimens taken during the course of the work.
- E. The use of aggregates with a proven history of compliance with the above limitations will be accepted as fulfilling this requirement. In the absence of satisfactory evidence, the laboratory shall prepare specimens (4" x 4" prisms 10" gage length, ASTM C-157-64T) and test for compliance prior to approval.

PROJECT CLOSE-OUT: (not applicable)

END OF SECTION 32 13 13

(Revised 04/26/2025)

SECTION 32 17 00 – PAVEMENT SPECIALTIES

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Parking lot striping.
- B. Disabled loading zone striping and disabled parking symbol.
- C. Traffic symbols.
- D. Curb painting.
- E. Traffic and parking control signage.
- F. Sport Court striping.

1.2 RELATED SECTIONS

- A. Section 32 12 16 - Asphalt Pavement.
- B. Section 32 13 13 - Concrete Paving.

1.3 QUALITY ASSURANCE

- A. Materials and work of this section shall conform with Local Municipality Public Works standards and specifications.

1.4 REGULATORY REQUIREMENTS

- A. Conform to regulations of Bay Area Air Quality Management District and California Air Resources Board regarding use of paint.

1.5 ENVIRONMENTAL REQUIREMENTS

- A. Do no painting when surface and air temperatures are below 40 degrees F or below those temperatures recommended by the paint manufacturer.

PART 2 - PRODUCTS

2.1 STANDARD CATALOG PRODUCTS

- A. Symbol Marking Paint and Traffic Marking Paint: Water borne product conforming to State Specification 8010-426-30; Dunn-Edwards Traffic Paint W801, Sinclair 160 Vinyl Traffic Paint, or equal product.
 - 1. ISA Symbol Background: Color - Blue. Size: As indicated in the drawings.
 - 2. Parking Stall Striping, Traffic Symbols and Disabled Loading Zone Striping and Lettering: Color - White. Width for all striping: Three inches, or as indicated in the drawings. Blue border around access aisle.
 - 3. Disabled Stall Curbs: Color - Blue. Width for all striping: Three inches, or as indicated in the drawings.

4. Sport Court Striping: Color - White.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine receiving surfaces and verify that surfaces are proper for installation.
- B. Do not start work until unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Remove dirt, oil, grease, and other foreign matter from the areas of the pavement and curbs to be painted.
- B. Do not apply traffic paint to surfaces which are excessively dirty, damp, and cold.

3.3 INSTALLATION

- A. Apply parking lot as a 4 inch wide solid line. Apply loading zone striping as 8 inch wide solid line.
- B. Stripe parking stalls to the dimensions as shown on the Drawings; traffic symbols shall be as shown. Stripe loading zone to dimensions shown on Drawings.
- C. Paint the ISA parking symbol in each accessible parking stall as indicated on the Drawings and in accordance with the American National Standard Institute Figure A117.1.
- D. Paint horizontal and vertical face of curbs abutting accessible parking stalls. See Drawings for extent of painted curbs.
- E. Apply traffic paint with atomizing spray type striping machine equipped with separate thermostatically controlled heating devices for each paint pot and capable of applying paint whereby the lines and markings have clear-cut edges, true and smooth alignments and uniform thicknesses.
- F. Apply paint with completed lines and marking clean, sharp and to dimensions.
 1. Ragged ends of segments, fogginess along the sides or objectionable dribbling of paint along the unpainted portions of the strips will not be permitted.
 2. The finished paint shall have an opaque, well painted appearance with no black or other discolorations showing through.
- G. Set posts for parking sign plumb in minimum 12 inch diameter concrete footings with top of footing 6 inches below finished grade and bottom of footing minimum 36 inches below finished grade. Slope top of concrete for water runoff. Cap top of pipe.
- H. Secure signs to posts with saddles and vandal-proof nuts.
- I. Install parking control signs with bottom of upper sign 60 inches above finished grade. Install accessible parking signs with bottom of upper sign 80 inches above finished grade. Install lower signs in two sign assemblies with top within 1 inch of bottom of upper sign.

3.4 PROTECTION

- A. Exercise reasonable precautions to protect the paint, as applied, during drying time. Remove objectionable tracking.

END OF SECTION 32 17 00

(Revised 12/11/2024)

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SECTION 32 13 13 - CHAIN LINK FENCING AND GATES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Chain-Link Fences: Industrial.
 - 2. Gates: Horizontal slide and swing.
- B. Related Sections include the following:
 - 1. Division 31 Section "Earthwork" for site excavation, fill, and backfill where chain-link fences and gates are located.

1.3 SUBMITTALS

- A. Product Data: Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for chain-link fences and gates.
 - 1. Fence and gate posts, rails, and fittings.
 - 2. Chain-link fabric, reinforcements, and attachments.
 - 3. Gates and hardware.
 - 4. Accessories: Privacy slats.
- B. Samples for Initial Selection: Manufacturer's color charts or 6-inch lengths of actual units showing the full range of colors available for components with factory-applied color finishes.
- C. Samples for Verification: For each type of chain-link fence and gate indicated.
 - 1. Polymer-coated steel wire (for fabric) in 6-inch lengths.
 - 2. Polymer coating, in 6-inch lengths on shapes for posts, rails, wires, and] gate framing and on full-sized units for accessories.
 - 3. Vinyl slat material.

- D. Product Certificates: For each type of chain-link fence, and gate, signed by product manufacturer.

- 1. Strength test results for framing according to ASTM F 1043.

- E. Qualification Data: For Installer.

1.4 QUALITY ASSURANCE

- A. Installer Qualifications: An experienced installer who has completed chain-link fences and gates similar in material, design, and extent to those indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.
- B. Pre-installation Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Management and Coordination."
- C. Gates within accessible path of travel shall conform with the requirements of C.B.C. Section 11B-404.

1.5 PROJECT CONDITIONS

- A. Field Measurements: Verify layout information for chain-link fences and gates shown on Drawings in relation to property survey and existing structures. Verify dimensions by field measurements.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Chain-Link Fences and Gates:
 - a. Builders Fence Company, Inc., Sacramento, CA 916 381-4065
 - b. Master Halco, Hayward, CA 800 899-4174
 - c. Security Contractor Services, Inc., San Jose, CA 800 843-7893
 - d. Steel and Fence Supply, San Jose, CA 408 573-3779

2.2 CHAIN-LINK FENCE FABRIC

- A. General: Height indicated on Drawings. Provide fabric in one-piece heights measured between top and bottom of outer edge of knuckled selvage. Comply with ASTM A 392, CLFMI CLF 2445.

- B. Zinc-coated fabric shall be galvanized after weaving with a minimum 1.2 ounces of zinc per square foot or surface area and conform to ASTM A392, Class 1. Fabric to be 9 gauge wire woven in a 2" or 1" diamond mesh (or sized as required for privacy slat inserts). Top and bottom selvage to be knuckled.
- C. Polymer Coating (PVC Coated): Minimum 7 mil PVC plastic resin finish. ASTM D 668, Class 2 over metallic-coated steel wire.
1. Color: As selected by Architect from manufacturer's standard color range, complying with ASTM F 934.
 2. Coat selvage ends of fabric that is metallic coated before the weaving process with manufacturer's standard clear protective coating.
 3. Furnish one piece fabric widths for fencing up to 12 feet high.
 4. When PVC coating is specified on drawing, fabric and all exposed fence components shall also be PVC coated.
- D. Vinyl Slat/Privacy Fencing: Viewguard plus slatted fencing from Security Contractor Services, 1 (800) 843-7893, www.scsfence.com, local supplier San Jose/SF Bay Area (408 295-8556).
1. Wire mesh: Galvanized wire is woven using 9 gauge weaving wire (.148 inch diameter) with an average of 1.2 ounce Zinc coating per square foot. The diamond size to accommodate slats shall be 3.5" x 5". Wire mesh shall be 8 gauge vinyl coated fused bonded wire available in standard colors of black, green, brown, beige and white.
 2. Slats: factory installed, 2 3/8" wide, high density, UV stabilized, polyethylene slat inserted vertically and individually secured to the wire with stainless steel staple using optional PVC coated bonded (fusion adhered) wire to match the plastic slat color. Slat color shall match wire mesh color.
 3. Selvage: Knuckle both selvages for chain link fence mesh and vinyl slatted fence mesh.
 4. Color to be selected by Architect from standard colors.

2.3 INDUSTRIAL FENCE FRAMING

- A. Posts and Rails: Comply with ASTM F 1043 for framing, ASTM F 1083 for Group IC round pipe, schedule 40 minimum, hot-dipped galvanized, and the following:
1.

<u>End, Corner and Pull Post height</u>	<u>Pipe Size</u>
Up to 6 foot fabric height	2.375" OD steel pipe, 3.65 lbs./ lin. ft.
Over 6 and up to 8 foot fabric height	2.875" OD steel pipe, 5.79 lbs./lin. ft.
Over 8 and up to 10 foot fabric height	4.00" OD steel pipe, 9.12 lbs./lin. ft.
Over 10 and up to 12 foot fabric height	4.00" OD steel pipe, 9.12 lbs./lin. ft.
 2.

<u>Line Posts</u>	<u>Pipe Size</u>
Up to 6 foot fabric height	1.90" OD steel pipe, 2.70 lbs./ lin. ft.
Over 6 and up to 8 foot fabric height	2.375" OD steel pipe, 3.65 lbs./lin. ft.
Over 8 foot up to 10 foot fabric height	2.875" OD steel pipe, 5.79 lbs./lin.ft.
Over 10 and up to 12 foot fabric height	2.875" OD steel pipe, 5.79 lbs./lin.ft.
 3.

<u>Top, Mid and Bottom Rails</u>	<u>Pipe Size</u>
----------------------------------	------------------

Up to 12 foot fabric height 1.66" OD steel pipe, 2.27 lbs./lin.ft.

4. Posts, bracing and framing for fences supporting signs, windscreens, shade cloths or anything increasing the load, shall be installed as recommended by a structural engineer for that purpose.

B. Swing Gate Post: Furnish posts for supporting single gate leaf, or one leaf of a double gate installation, for nominal gate widths as follows:

1. Gate fabric height up to and including six (6) feet in height (1.2 m):

<u>Gate Leaf Width</u>	<u>Gate Post Outside Diameter</u>
Up to 4 feet (1.2 m)	2.375 inches (60.3 mm)
Over 4 feet to 10 feet (1.2 to 3.05 m)	2.875 inches (73.0 mm)
Over 10 feet to 18 feet (3.05 to 5.5 m)	4.000 inches (101.6 mm)

2. Gate fabric height over six (6) feet (1.2 m), up to and including twelve (12) feet in height:

<u>Gate Leaf Width</u>	<u>Gate Post Outside Diameter</u>
Up to 6 feet (1.8 m)	2.875 inches (73.0 mm)
Over 6 feet to 12 feet (1.8 to 3.7 m)	4.000 inches (101.6 mm)
Over 12 feet to 18 feet (3.7 to 5.5 m)	6.625 inches (168.3 mm)
Over 18 feet to 24 feet (5.5 m to 7.3 m)	8.625 inches (219.1 mm)

C. Horizontal-Slide Gate Post: According to ASTM F 1184.

1. Openings up to 12 Feet: Steel post, 2.875" OD steel pipe, 4.64-lbs. per lin. ft.
2. Openings Wider than 12 Feet: Steel post, 4.00" OD, 8.65 lbs. per lin. ft..
3. Guide posts for Class 1 horizontal-slide gates equal the gate post height, 1 size smaller, but weight is not less than 3.11 lb/ft.; installed adjacent to gate post to permit gate to slide in space between.

D. Coating for Steel Framing:

1. Metallic Coating:
 - a. Type A, consisting of not less than minimum 2.0-oz./sq. ft. average zinc coating per ASTM A 123/A 123M or 4.0-oz./sq. ft. zinc coating per ASTM A 653/A 653M.
 - b. Thermally bonded (PVC) plastic resin finish over metallic coating (galv) not less than 10 mils. Color to match chain link fabric.

2.4 INDUSTRIAL SWING GATES

A. General: Comply with ASTM F 900 for single and double swing gate types.

1. Metal Pipe and Tubing: Galvanized steel. Comply with ASTM F 1043 and ASTM F 1083 for materials and protective coatings.

2. Fabric and finish: shall match adjacent fencing.
- B. Frames and Bracing: Fabricate members from round, galvanized steel tubing with outside dimension and weight according to ASTM F 900 and the following:
1. Gate Fabric Height: 2 inches less than adjacent fence height.
 2. Gate Frame: Assembly using 1 7/8" OD pipe (Group IA or IC) with welded joints. Weld areas repaired with zinc rich coating applied per manufacturer's directions.
 3. Leaf Width: As indicated.
- C. Frame Corner Construction:
1. Welded or assembled with corner fittings and rivets, and 3/8-inch diameter, adjustable truss rods for gate panels.
- D. Hardware: Provide hardware and accessories for each gate, galvanized per ASTM A153, finish to match adjacent fencing, quality for commercial and industrial applications and in accordance with the following:
1. Latches for maintenance gates, fork type or plunger-bar type, permitting operation from both sides of gate, hinges, center gate stops and keepers for each gate leaf more than 5 feet wide. Fabricate latches with integral eye openings for padlocking; padlock accessible from both sides of gate. Install concrete footing to receive drop rod in closed position. Install gate latches at a consistent height above grade throughout the campus, recommended 36" minimum and 44" maximum.
 2. Latches for gates in the ADA Path of Travel: refer to Drawings for "accessible gate latch" detail. Install gate latches at a consistent height above grade throughout the campus, recommended 36" minimum and 44" maximum.
 3. Panic Hardware: Refer to Architectural Drawings for panic hardware locations and specifications.
 4. Kick Plate: Install on accessible path of travel gates. Fabricate 10" high by width of gate, 1/8" thickness steel, finish to match fence material.
 5. Hinges: Size and material to suit gate size, non-lift-off type, offset to permit 180 degree gate opening. Provide one (1) pair of hinges for each leaf under 6' in nominal height and one and one-half (1-1/2) pair of hinges for each leaf 6' and over in nominal height. Adjust and maintain gate spring hinges on accessible man-gates per CBC 11B-404.2.8.2 so that from the open position of 70 degrees, the door shall move to the closed position in 1.5 seconds minimum.
 6. Keeper: Provide keeper for vehicle gates, which automatically engages gate leaf and holds it open position until manually released.
 7. Double Gates: Provide gate stops for double gates (one for each gate), consisting of standard drop rod with concrete footings installed to receive and secure drop rods. Install fork-type, drop latch with padlock eyes as integral part of latch, permitting both gate leaves to be locked with a single padlock.

E. INDUSTRIAL HORIZONTAL-SLIDE GATES

1. General: Comply with ASTM F 1184 for single or double slide gate types. Provide manufacturer's standard heavy-duty inverted channel track, ball bearing hanger sheaves, overhead framing and supports, guides, stays, bracing, hardware, and accessories as required for commercial and industrial quality applications. Finish for gate and fittings to match adjacent fencing.

2.5 FITTINGS

A. General: Comply with ASTM F 626.

B. Post and Line Caps: Provide for each post.

1. Pressed steel, cast iron or cast aluminum alloy designed to fit snugly over posts to exclude moisture. Fittings to conform to ASTM F626.
2. Supply dome style caps for terminal posts.
3. Supply post caps with loop to receive tension wire or top rail on line posts.

C. Rail and Brace Ends: Pressed steel, cast iron or cast alloy, cup shaped to receive rail brace ends.

D. Rail Fittings: Provide the following:

1. Top Rail Sleeves: Pressed-steel or round-steel tubing 0.051 thickness by 7" long, expansion type.
2. Rail Clamps: Line and corner boulevard clamps for connecting intermediate and bottom rails in the fence line-to-line posts.

E. Brace Bands: Pressed steel, 12 gauge thickness by 3/4" wide.

F. Tension Bands: Pressed steel, 14 gauge thickness by 3/4" wide.

G. Tension Bars: Steel, length not less than 2 inches shorter than full height of chain-link fabric. Provide one bar for each gate and end post, and two for each corner and pull post, unless fabric is integrally woven into post. Bars shall be 3/4" wide by 3/16" thick.

H. Truss Rod Assemblies: Steel rod, 3/8" diameter merchant quality with turnbuckle, hot-dip galvanized.

I. Tie Wires, Clips, and Fasteners: According to ASTM F 626.

1. Standard Round Wire Ties: For attaching chain-link fabric to posts, rails, and frames, complying with the following:
 - a. Hot-Dip Galvanized Steel: 0.148-inch diameter wire; galvanized coating thickness matching coating thickness of chain-link fence fabric.

2.6 CAST-IN-PLACE CONCRETE

- A. Materials: Portland cement complying with ASTM C 150, Type I aggregates complying with ASTM C 33, and potable water. Measure, batch, and mix Project-site-mixed concrete according to ASTM C 94/C 94M.
 - 1. Concrete Mixes: Normal-weight concrete, 2% to 4% air entrained with not less than 3000-psi compressive strength (28 days), 3-inch slump, and 1-inch maximum size aggregate.
- B. Materials: Dry-packaged concrete mix complying with ASTM C 387 for normal-weight concrete mixed with potable water according to manufacturer's written instructions.

2.7 POLYMER FINISHES

- A. Supplemental Color Coating: In addition to specified metallic coatings for steel, provide fence components with polymer coating.
- B. Metallic-Coated Steel Tension Wire: PVC-coated wire complying with ASTM F 1664, Class 2b.
- C. Metallic-Coated Steel Framing and Fittings: Comply with ASTM F 626 and ASTM F 1043 for polymer coating applied to exterior surfaces and, except inside cap shapes, to exposed interior surfaces.
 - 1. Polymer Coating: Not less than 10-mil- thick PVC finish.
- D. Color: As selected by Architect from manufacturer's full range, complying with ASTM F 934.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas and conditions, with Installer present, for compliance with requirements for a verified survey of property lines and legal boundaries, site clearing, earthwork, pavement work, and other conditions affecting performance.
 - 1. Do not begin installation before final grading is completed, unless otherwise permitted by Architect.
 - 2. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Stake locations of fence lines, gates, and terminal posts. Do not exceed intervals of 500 feet or line of sight between stakes. Indicate locations of utilities, lawn sprinkler system, underground structures, benchmarks, and property monuments.

3.3 INSTALLATION, GENERAL

- A. Install chain-link fencing to comply with ASTM F 567 and more stringent requirements specified.
 - 1. Install fencing on established boundary lines inside property line or as indicated.

3.4 CHAIN-LINK FENCE INSTALLATION

- A. Post Excavation: Drill or hand-excavate holes for posts to diameters and spacings indicated and not more than ten 10 feet, in firm, undisturbed soil.
 - 1. If diameter is not indicated, excavate holes for line and end posts to twelve (12) inches minimum width. If depth is not indicated, excavate holes for line and end posts to not less than 24" minimum plus an additional 3" for each 12" over 4' fence height. Gate posts shall be larger and as required to support heavy lateral loads. Trowel finish surface and slope to drain away from posts and flush with finish grade.
- B. Post Setting: Set posts in concrete at indicated spacing into firm, undisturbed soil.
 - 1. Verify that posts are set plumb, aligned, and at correct height and spacing, and hold in position during setting with concrete or mechanical devices.
 - 2. Concrete Fill: Place concrete around posts to dimensions indicated and vibrate or tamp for consolidation. Extend concrete 2 inches above grade; shape and smooth to shed water. Protect aboveground portion of posts from concrete splatter.
 - 3. Center and align posts in holes 3 inches above bottom of excavation.
- C. Terminal Posts: Locate terminal end, corner, and gate posts per ASTM F 567 and terminal pull posts at changes in horizontal or vertical alignment of 15 degrees or more.
- D. Line Posts: Space line posts uniformly at 10 feet on center maximum unless specified otherwise on Drawing.
- E. Post Tops: Provide weather tight closure cap with loop to receive top rail. One cap for each post.
- F. Post Bracing and Intermediate Rails: Install according to ASTM F 567, maintaining plumb position and alignment of fencing. Install braces at end and gate posts and at both sides of corner and pull posts.
 - 1. Locate horizontal braces at mid-height of fabric 6 feet or higher, on fences with top rail. Install so posts are plumb when diagonal rod is under proper tension.
- G. Tension Wire: Install according to ASTM F 567, maintaining plumb position and alignment of fencing. Pull wire taut, without sags. Fasten fabric to tension wire with 0.120-inch- diameter hog rings of same material and finish as fabric wire, spaced a maximum of 24 inches o.c. Install tension wire in locations indicated before stretching fabric.
 - 1. Top Tension Wire: Install tension wire through post cap loops.

2. Bottom Tension Wire: Install tension wire within 6 inches of bottom of fabric and tie to each post with not less than same diameter and type of wire.
- H. Top Rail: Install according to ASTM F 567, maintaining plumb position and alignment of fencing. Run rail continuously through line post caps, bending to radius for curved runs and terminating into rail end attached to posts or post caps fabricated to receive rail at terminal posts. Provide expansion couplings as recommended in writing by fencing manufacturer.
- I. Bottom Rails: Install as indicated on drawing in same fashion as top rail installation, spanning between posts. Install tension wire if bottom rail is not called for on drawing.
- J. Chain-Link Fabric: Apply fabric to outside of enclosing framework. Leave 2 inches between finish grade or surface and bottom selvage (except at Tennis Courts, which shall be 1 inch), unless otherwise indicated. Pull fabric taut and tie to posts, rails, and tension wires. Anchor to framework so fabric remains under tension after pulling force is released.
- K. Tension or Stretcher Bars: Thread through fabric and secure to end, corner, pull, and gate posts with tension bands spaced not more than 15 inches o.c. At gates, install fabric with stretcher bars at vertical edges and top and bottom edges. Attach stretcher bars to gate frame at not more than 15 inches o.c.
- L. Tie Wires: Use wire of proper length to firmly secure fabric to line posts and rails. Attach wire at 1 end to chain-link fabric, wrap wire around post a minimum of 180 degrees, and attach other end to chain-link fabric per ASTM F 626. Bend ends of wire to minimize hazard to individuals and clothing.
 1. Maximum Spacing: Tie fabric to line posts at 12 inches o.c. and to braces at 24 inches o.c.
- M. Fasteners: Install nuts for tension bands and carriage bolts on the side of the fence opposite the fabric side. Peen ends of bolts or score threads to prevent removal of nuts.
- N. Privacy Slats: Install slats in vertical direction, securely locked in place.
- O. Tennis Court Fencing: Construct tennis court fence according to ASTM F 969.

3.5 GATE INSTALLATION

- A. Install gates according to manufacturer's written instructions, level, plumb, and secure for full opening without interference. Attach fabric as for fencing. Attach hardware using tamper-resistant or concealed means. Install ground-set items in concrete for anchorage. Adjust hardware for smooth operation and lubricate where necessary.
- B. Install kick-plate on bottom of gate as shown on details, weld ends to gate frame at 8" o.c. spacing, finish to match fencing material.

3.6 CANTILEVER FENCE SECTIONS

- A. If Contractor elects to install cantilever fence sections where support posts cannot be installed immediately adjacent to a structure:
 - 1. Cantilever section shall terminate 1-1/2" from adjacent structure.
 - 2. Cantilever section shall not extend more than 30" from center of post to adjacent structure.
 - 3. Cantilever section shall be securely welded to nearest post to prevent rotational movement around nearest post.

3.7 ADJUSTING

- A. Gate: Adjust gate to operate smoothly, easily, and quietly, free of binding, warp, excessive deflection, distortion, nonalignment, misplacement, disruption, or malfunction, throughout entire operational range. Confirm that latches and locks engage accurately and securely without forcing or binding.
- B. Lubricate hardware and other moving parts.

3.8 DEMONSTRATION

- A. Engage a factory-authorized service representative to train Owner's personnel to adjust, operate, and maintain gates.

END OF SECTION 32 31 13

SECTION 33 40 00 – STORM DRAINAGE UTILITIES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes gravity site storm sewerage drainage piping, fittings and accessories, and bedding; bio-retention facilities connection of drainage system to municipal sewers and on-site points of connection; and catch basins, area drains, and cleanouts.
- B. Related Sections:
 - 1. Section 31 05 13 - Soils for Earthwork.
 - 2. Section 31 23 00 - Excavation.
 - 3. Section 31 23 16.13 - Trenching.
 - 4. Section 31 23 23.13 - Backfill.
 - 5. Section 33 49 13 - Storm Drainage Manholes, Frames, and Covers.

1.2 REFERENCES

- A. AASHTO M36 (American Association of State Highway and Transportation Officials) - Metallic (Zinc or Aluminum) Coated Corrugated Steel Culverts and Underdrains.
- B. ASTM A74 - Cast Iron Soil Pipe and Fittings.
- C. ASTM C14 - Concrete Sewer, Storm Drain, and Culvert Pipe.
- D. ASTM C76 - Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe.
- E. ASTM C425 - Compression Joints for Vitrified Clay Pipe and Fittings.
- F. ASTM C443 - Joints for Circular Concrete Sewer and Culvert Pipe, Using Rubber Gaskets.
- G. ASTM C564 - Rubber Gaskets for Cast Iron Soil Pipe and Fittings.
- H. ASTM D2729 - Poly(Vinyl Chloride) (PVC) Sewer Pipe and Fittings.
- I. ASTM D2751 - Acrylonitrile-Butadiene-Styrene (ABS) Sewer Pipe and Fittings.
- J. ASTM D3033 - Type PSP Poly(Vinyl Chloride) (PVC) Sewer Pipe and Fittings.
- K. ASTM D3034 - Type PSM Poly(Vinyl Chloride) (PVC) Sewer Pipe and Fittings.
- L. ASTM D7613 – Polypropylene Liner.
- M. Class II Permeable Materials – To meet the requirements of Caltrans Standard Specification 68-1.025.
- N. ASTM D6707 – Mirafi Filter Fabric.

1.3 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Submittal procedures.
- B. Product Data: Submit data indicating pipe, pipe accessories, and fittings.
- C. Manufacturer's Installation Instructions: Submit special procedures required to install Products specified.
- D. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

1.4 CLOSEOUT SUBMITTALS

- A. Section 01 77 00 - Closeout Procedures.
- B. Project Record Documents:
 - 1. Accurately record actual locations of pipe runs, connections, catch basins, cleanouts, and invert elevations.
 - 2. Identify and describe unexpected variations to subsoil conditions or discovery of uncharted utilities.
- C. Operation and Maintenance Data: Procedures for submittals.

1.5 COORDINATION

- A. Coordinate the Work with termination of storm sewer connection outside building, trenching, connection to foundation drainage system, municipal sewer utility service, and on-site points of connection.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Sewer Pipe Materials:
 - 1. Cast Iron Pipe: ASTM A74, Service type, inside nominal diameter of 4 to 12 inches, bell and spigot end.
 - 2. Cast Iron Pipe Joint Device: ASTM C564, rubber gasket joint devices.
 - 3. Concrete Pipe: ASTM C14, Class 3; unreinforced; inside nominal diameter of 10 inches, bell and spigot end joints.
 - 4. Concrete Pipe Joint Devices: ASTM C443, rubber compression gasket joint.
 - 5. Reinforced Concrete Pipe: ASTM C76, Class III or IV; inside nominal diameter of 12 to 60 inches, bell and spigot end joints.
 - 6. Reinforced Concrete Pipe Joint Device: ASTM C443, rubber compression gasket joint.
 - 7. Plastic Pipe: ASTM D2751, SDR 26, Acrylonitrile-Butadiene-Styrene (ABS) material; inside nominal diameter of 4 to 24 inches, bell and spigot style solvent sealed joint end.

8. Plastic Pipe: ASTM D3034, Type PSM, Poly(Vinyl Chloride) (PVC) SDR-26 material; inside nominal diameter of 4 to 24 inches, bell and spigot style rubber ring sealed gasket joint.
9. Corrugated Steel Pipe: AASHTO M36; nominal diameter of 12 to 60 inches, end joints; helical lock seam; coated inside and out with 0.050 inch thick bituminous coating.
10. Corrugated Steel Pipe Coupling Bands: Galvanized steel, 0.052 inches thick x 10 inches wide; connected with two neoprene "O" ring gaskets and two galvanized steel bolts.
11. Perforated Plastic Pipe: ASTM D3034, PVC with perforations.

B. Liner:

1. 30 mil polypropylene liner.

2.2 ACCESSORIES

- A. Fittings: Same material as pipe molded or formed to suit pipe size and end design, in required tee, bends, elbows, cleanouts, reducers, traps and other configurations required.
- B. Grout: Specified in Section 03 30 00.

2.3 CATCH BASINS AND PLANT AREA DRAINS

- A. NEW - As specified on the drawings.
- B. EXISTING – Adjust as specified on the drawings. For inlets in pedestrian areas, ensure grates are ADA compliant. Replace non-compliant grates as necessary.

2.4 CLEANOUTS

- A. As specified on the drawings.

2.5 BEDDING AND COVER MATERIALS

- A. Bedding: Fill as specified by pipe manufacturer and approved by Soils Engineer.
- B. Cover: Fill as specified in the project Soils Report and any supplements to the Soils Report.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Section 01 60 00 - Product Requirements: Coordination and project conditions.
- B. Verify that trench cut is ready to receive work and excavations, dimensions, and elevations are as indicated on drawings.

3.2 PREPARATION

- A. Hand trim excavations to required elevations. Correct over excavation with bedding material.

- B. Remove large stones or other hard matter which could damage piping or impede consistent backfilling or compaction.

3.3 BEDDING

- A. Excavate pipe trench in accordance with Section 31 23 16.13 for work of this Section. Hand trim excavation for accurate placement of pipe to elevations indicated.
- B. Place bedding material at trench bottom, level materials in continuous layer not exceeding 6 inches compacted depth.
- C. Maintain optimum moisture content of bedding material to attain required compaction density.

3.4 INSTALLATION - PIPE

- A. Install pipe, fittings, and accessories in accordance with ASTM D2321. Seal joints watertight.
- B. Lay pipe to slope gradients noted on drawings with maximum variation from true slope of 1/8 inch in 10 feet.
- C. Perforated pipe shall be installed with perforations down.
- D. Install trench fill at sides and over top of pipe. Provide top cover to minimum compacted thickness of 12 inches, compact to 95 percent.
- E. Refer to Section 31 23 23.13 for backfilling and compacting requirements. Do not displace or damage pipe when compacting.
- F. Refer to Section 33 49 13 for manhole requirements.

3.5 INSTALLATION - CATCH BASINS AND CLEANOUTS

- A. Form bottom of excavation clean and smooth to correct elevation.
- B. Form and place Cast-In-Place Concrete base pad, with provision for storm sewer pipe end sections.
- C. Level top surface of base pad; sleeve concrete shaft sections to receive storm sewer pipe sections.
- D. Establish elevations and pipe inverts for inlets and outlets as indicated.
- E. Mount lid and frame level in grout, secured to top cone section to elevation indicated.

3.6 INSTALLATION – BIO-RETENTION FACILITIES

- A. Form bottom of excavation smooth to correct elevation.
- B. Install welded seam 30 mil polypropylene liner in basin bottom.
- C. Install Class II permeable material minimum 2" under perforated pipe.
- D. Install remainder of Class II permeable material.

E. Install Mirafi Filber Fabric over permeable materials.

F. Install top soil.

3.7 FIELD QUALITY CONTROL

A. Section 01 40 00 - Quality Requirements: Testing and inspection services.

B. Request inspection prior to and immediately after placing aggregate cover over pipe.

C. Compaction testing will be performed in accordance with ASTM D1557.

D. If tests indicate Work does not meet specified requirements, remove Work, replace and retest at no cost to owner.

3.8 INSTALLATION, FLUSHING & CLEANING

A. All new pipe installed and existing pipe connected to shall be flushed, cleaned and videoed for at least 200 feet downstream, or to the next downstream inlet or manhole, whichever is farther, of last point of connection to ensure clean and functioning system.

3.9 PROTECTION OF FINISHED WORK

A. Protect pipe and aggregate cover from damage or displacement until backfilling operation is in progress.

1. Take care not to damage or displace installed pipe and joints during construction of pipe supports, backfilling, testing, and other operations.

2. Where pipe is damaged or displaced, take remedial measures as directed by the Architect/Engineer including, but not limited to, retesting of joints, relaying pipe or replacing pipe. Provide remedial measures at no additional cost to the Owner.

END OF SECTION 33 40 00

SECTION 33 49 13 – STORM DRAINAGE MANHOLES, FRAMES, AND COVERS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Modular precast concrete manhole sections with tongue-and-groove joints, covers, anchorage, and accessories.

B. Related Sections:

1. Section 31 23 00 - Excavation and Fill.
2. Section 31 23 23.13 - Backfill.
3. Section 03 30 00 - Cast-In-Place Concrete.

1.2 REFERENCES

- A. ACI (American Concrete Institute) 318 - Building Code Requirements for Reinforced Concrete.
- B. ASTM A48 - Gray Iron Castings.
- C. ASTM A536 - Ductile Iron Castings.
- D. ASTM C39 - Test Method for Compressive Strength of cylindrical Concrete Specimens.
- E. ASTM C478 - Precast Reinforced Concrete Manhole Sections.
- F. ASTM C923 - Resilient Connectors Between Reinforced Concrete Manhole Structures and Pipes.

1.3 DESIGN REQUIREMENTS

- A. Equivalent strength shall be based on structural design of reinforced concrete as outlined in ACI 318.
- B. Design of lifting devices for precast structures shall conform to ASTM C 913.
- C. Design of joints for precast structures shall conform to ASTM C 913.

1.4 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Submittal procedures.
- B. Shop Drawings: Indicate manhole locations, elevations, piping, and sizes and elevations of penetrations.
- C. Product Data: Submit manhole covers, component construction, features, configuration, and dimensions.

1.5 QUALITY ASSURANCE

- A. Perform Work in accordance with local municipality Public Work's standard.
- B. Maintain one copy of each document on site.

1.6 DELIVERY, STORAGE AND HANDLING

- A. Section 01 60 00 - Product Requirements: Product storage and handling requirements.
- B. Comply with precast concrete manufacturer's instructions for unloading, storing and moving precast manholes and drainage structures.
- C. Store precast concrete manholes and drainage structures to prevent damage to the Owner's property or other public or private property, and any property so damaged shall be repaired at the Contractor's expense.
- D. Clearly mark each precast structure by indentation or waterproof paint to indicate the date of manufacture, manufacturer and identifying symbols and/or numbers shown on the Contract Drawings to indicate its intended use.

PART 2 - PRODUCTS

2.1 MANHOLES, FRAMES, AND COVERS

- A. As specified by the local municipality.

2.2 COMPONENTS

- A. As specified by the local municipality.

2.3 CONFIGURATION

- A. As specified by the local municipality.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Section 01 60 00 - Product Requirements: Coordination and Project Conditions.
- B. Verify items provided by other sections of Work are properly sized and located.
- C. Verify that built-in items are in proper location, and ready for roughing into Work.
- D. Verify excavation for manholes is correct.

3.2 PREPARATION

- A. Coordinate placement of inlet and outlet pipe or duct sleeves required by other sections.

- B. Do not install structures under site conditions known to result in loads heavier than that for which the structure was designed.
- C. Inspect precast concrete structures immediately prior to placement in the excavation to verify that they are internally clean and free from damage. Remove damaged units from the construction site and replaced, at no additional cost to the Owner.

3.3 INSTALLATION

A. Excavation and Backfill:

- 1. Excavate for manholes and drainage structures in accordance with Section 31 23 00 in the location and to depth shown. Provide clearance around the sidewalls of the structure as required for construction.
- 2. If groundwater is encountered, prevent accumulation of water in excavations. Place manholes or drainage structures in a dry trench.
- 3. Where the possibility exists of a watertight structure becoming buoyant in a flooded excavation, take necessary steps to avoid flotation of the structure.

B. Place base pad, trowel top surface level.

C. Place manhole sections plumb and level, trim to correct elevations, anchor to base pad.

D. Backfill excavations for manholes and drainage structures in accordance with Section 31 23 00.

E. Form and place manhole cylinder plumb and level, to correct dimensions and elevations.

F. Cut and fit for pipe.

G. Grout base of shaft sections to achieve slope to exit piping. Trowel smooth. Contour as required.

H. Set cover frames and covers level without tipping, to correct elevations.

I. Coordinate with other sections of Work to provide correct size, shape, and location.

3.4 PRECAST CONCRETE MANHOLE AND DRAINAGE STRUCTURE INSTALLATION

A. To ensure safety, lift precast structures at the lifting points designated by the manufacturer.

B. When lowering manholes and drainage structures into the excavations and joining pipe to the units, take precautions to ensure that the interior of the pipeline and structure remains clean.

C. Set precast structures so that they firmly and fully bear on crushed stone bedding, compacted in accordance with the provisions of Sections 31 23 00 and 31 23 23.13, or on other support system shown on the Contract Drawings.

D. Assemble multi-section structures by lowering each section into the excavation. Lower, set level, and firmly position the base section before placing additional sections.

E. Ensure joint integrity by removing all foreign materials from joint surfaces and verifying that sealing materials are placed properly. Avoid misalignment by using guide devices affixed to the lower

section.

- F. Joint sealing materials may be installed at the site or at the manufacturer's plant.
- G. Verify that manholes and drainage structures installed satisfy required alignment and grade.
- H. Remove knockouts or cut structure to receive piping so as not to create openings more than that required to receive pipe. Fill annular space with mortar.
- I. Cut pipe to finish flush with interior of structure.
- J. Shape inverts through manhole as shown on the Contract Drawings.

3.5 FIELD QUALITY CONTROL

- A. Testing and inspection services.
- B. Field tests will be used to evaluate and approve cast-in-place concrete in accordance with Section 03 30 00.
- C. Vertical Adjustment of Existing Manhole and Drainage Structures:
 - 1. Where required, adjust the top elevation of existing manholes and drainage structures to suit finished grades shown on the Contract Drawings.
 - 2. Reset existing frames, grates and covers, carefully removed, cleaned of all mortar fragments, to the required elevation in accordance with the requirements specified for installation of castings.
 - 3. Remove the concrete so as not to damage the existing vertical reinforcing bars when removal of an existing concrete wall is required. The vertical bars shall be cleaned of all concrete and bent into the new concrete top slab or spliced to required vertical reinforcement, as shown on the Contract Drawings.
 - 4. Clean and apply sand-cement bonding compound on all existing concrete surfaces to receive cast-in-place concrete. Sand-cement bonding compound and its application shall be in accordance with Section 03 30 00.

END OF SECTION 33 49 13

LIST OF STRUCTURAL TESTS AND SPECIAL INSPECTIONS

- ☐ Project has a geotechnical report or construction documents require special inspection by a geotechnical engineer.
☒ Project does NOT have and does NOT require a geotechnical report.

	TYPE	BY		TYPE	BY
S1 SOILS - GENERAL			C1 CAST-IN-PLACE CONCRETE		
☐ S1a: Site Preparation	See Notes	PI	☒ C1a: Mix Design	Continuous	SI
S2 COMPACTION AND FILL			☒ C1b: Reinforcing Steel	Test	LOR
☐ S2a: Fill Materials	Test	LOR*	☒ C1c: Concrete Material	Test	LOR
☒ S2b: Fill Placement	Continuous	LOR*	☒ C1d: Strength Test	Test	LOR
☒ S2c: Compaction	Test	LOR*	☐ C1e: Batch Plant Inspection		SI
S3 DRIVEN DEEP FOUNDATIONS (PILES)			C2 PRESTRESSED CONCRETE		
☐ S3a: Materials and Members	Continuous	GE*	☐ C2a: Tendons and Anchorage	Test	LOR
☐ S3b: Pile Capacity	Test	LOR*	☐ C2b: Tendon Placement	Periodic	SI
☐ S3c: Driving Operations	Continuous	GE*	☐ C2c: Concrete Strength	Periodic	SI
☐ S3d: Pile Installation	Continuous	GE*	☐ C2d: Stressing Operations	Continuous	SI
☐ S3e: Specialty Piles	*	*	C3 PRECAST CONCRETE		
S4 CAST-IN-PLACE DEEP FOUNDATIONS (PIERS)			☐ C3a: General Fabrication	Continuous	SI
☐ S4a: Drilling Operations	Continuous	PI	☐ C3b: General Erection	Periodic	SI*
☐ S4b: Pier Construction	Continuous	PI	☐ C3c: Diaphragm Connections	Continuous	SI
☐ S4c: Bearing Strata	Continuous	GE*	☐ C3d: Diaphragm Tolerances	Periodic	SI
S5 RETAINING WALLS			C4 SHOTCRETE		
☐ S5a: Backfill Placement	Continuous	GE*	☐ C4a: Placement	Continuous	SI
☐ S5b: Soil Reinf. and Drainage	Continuous	GE*	☐ C4b: Shotcrete Material	Test	LOR
☐ S5c: Segmental Retaining Walls	Continuous	GE*	C5 POST-INSTALLED ANCHORS		
S6 OTHER SOILS			☐ C5a: Inspection	See notes	SI*
☐ S6a: Soil Improvement Test	Test	GE*	☐ C5b: Test	Test	LOR
☐ S6b: Soil Improvement Inspection	Continuous	GE*	C6 OTHER CONCRETE		
☐ S6c: Not used.	N/A	N/A	☐ C6a: Not used.	N/A	N/A
☐ S6d: Not used.	N/A	N/A	☐ C6b: Not used.	N/A	N/A
☐ S6e: Not used.	N/A	N/A	☐ C6c: Not used.	N/A	N/A
☐ S6f: Not used.	N/A	N/A	☐ C6d: Not used.	N/A	N/A
☐ S6g: Not used.	N/A	N/A	☐ C6e: Not used.	N/A	N/A
☐ S6h: Not used.	N/A	N/A	☐ C6f: Not used.	N/A	N/A
☐ S6i: Not used.	N/A	N/A	☐ C6g: Not used.	N/A	N/A
☐ S6j: Not used.	N/A	N/A	☐ C6h: Not used.	N/A	N/A
☐ S6k: Not used.	N/A	N/A	☐ C6i: Not used.	N/A	N/A
☐ S6l: Not used.	N/A	N/A	☐ C6k: Not used.	N/A	N/A
☐ S6m: Not used.	N/A	N/A	☐ C6l: Not used.	N/A	N/A
☐ S6n: Not used.	N/A	N/A	Not used.		

* See Appendix for additional information.

* See Appendix for additional information.

Project Name: **Pacific Grove High School**
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LIST OF STRUCTURAL TESTS AND SPECIAL INSPECTIONS

	TYPE	BY		TYPE	BY
M1 STRUCTURAL MASONRY			S/A1 STEEL AND ALUMINUM		
f'm PSI:			☐ S/A1a: Material Identification	Periodic	*
☐ M1a: Mill Certificates - Reinf.	Periodic	SI*	☐ S/A1b: Unidentified Material	Test	LOR
☐ M1b: Material Certificates	Test	LOR	☐ S/A1c: Steel Fabrication	Periodic	SI
☐ M1c: Strength Test	Test	LOR	☐ S/A1d: Buckling Restrained Brace	Test*	LOR
☐ M1d: Mortar Proportions	Periodic	SI	S/A2 HIGH-STRENGTH BOLTS		
☐ M1e: Grout Proportions	Periodic	SI	☐ S/A2a: Product Verification	Periodic	SI
☐ M1f: Batch Plant Inspection		SI	☐ S/A2b: Bolts, Nuts, and Washers	Test	LOR
☐ M1g: Core Tests	Test	LOR	☐ S/A2c: Snug Tight	Periodic	SI
☐ M1h: Prisms	Continuous	SI	☐ S/A2d: Pretensioned / Slip-Critical	*	SI
☐ M1i: Dowels and Supports	Periodic	SI	S/A3 WELDING		
☐ M1j: Reinforcement and Members	Periodic	SI	☒ S/A3a: Weld Material	Periodic	SI
☐ M1k: Reinforcement Placement	Continuous	SI	☒ S/A3b: Certificate of Compliance	Periodic	SI
☐ M1l: Grout Placement	Continuous	SI	☒ S/A3c: WPS and Qualifications	Periodic	SI
☐ M1m: Unit Layup and Joints	Periodic	SI*	S/A4 SHOP WELDING		
☐ M1n: Cold/Hot Weather Work	Periodic	SI	☐ S/A4a: Weld Category A	Continuous	SI
☐ M1o: Anchors and Embeds	Continuous	SI	☐ S/A4b: Weld Category B	Periodic	SI
☐ M1p: Grout Cavity	Continuous	SI	☐ S/A4c: Stairs and Railing	Periodic	SI
M2 VENEER OR GLASS BLOCK PARTITIONS			☐ S/A4d: Reinf. Steel Weldability	Periodic	SI
☐ M2a: Mortar and Grout	Periodic	SI	☐ S/A4e: Reinforcing Steel	Continuous	SI
☐ M2b: Unit Layup and Joints	Periodic	SI	S/A5 FIELD WELDING		
☐ M2c: Wires and Connector	Periodic	SI	☐ S/A5a: Weld Category A	Continuous	SI
☐ M2d: Anchors and Embeds	Periodic	SI	☐ S/A5b: Weld Category B	Periodic	SI
☐ M2e: Cold/Hot Weather Work	Periodic	SI*	☐ S/A5c: End Welded Studs	Periodic	SI
☐ M2f: Adhered Veneer Bond	Test	LOR	☐ S/A5d: Deck Welds	Periodic	SI
M3 POST-INSTALLED ANCHORS			☐ S/A5e: Cold-Formed Steel	Periodic	SI
☐ M3a: Inspection	Varies*	SI*	☐ S/A5f: Stairs and Railing	Periodic	SI
☐ M3b: Test	Test	LOR	☐ S/A5g: Reinf. Steel Weldability	Periodic	SI
M4 OTHER MASONRY			☐ S/A5h: Reinforcing Steel	Continuous	SI
☐ M4a: Not used.	N/A	N/A	S/A6 NONDESTRUCTIVE TESTING		
☐ M4b: Not used.	N/A	N/A	☐ S/A6a: Ultrasonic	Test	LOR
☐ M4c: Not used.	N/A	N/A	☐ S/A6b: Magnetic Particle	Test	LOR
☐ M4d: Not used.	N/A	N/A	☐ S/A6c: Not used.	N/A	N/A
☐ M4e: Not used.	N/A	N/A	☐ S/A6d: Not used.	N/A	N/A
☐ M4f: Not used.	N/A	N/A	☐ S/A6e: Not used.	N/A	N/A
☐ M4g: Not used.	N/A	N/A	S/A7 STEEL JOISTS AND TRUSSES		
☐ M4h: Not used.	N/A	N/A	☐ S/A7a: Fabrication	Continuous	SI
☐ M4i: Not used.	N/A	N/A	S/A8 METAL BUILDING		
☐ M4j: Not used.	N/A	N/A	☐ S/A8a: Inspection	Periodic	SI
☐ M4k: Not used.			S/A9 SPRAYED FIRE-RESISTANT MATERIALS		
☐ M4l: Not used.			☐ S/A9a: Surface and Installation	Periodic	SI
☐ M4m: Not used.			☐ S/A9b: Density	Test	LOR
Not used.			☐ S/A9c: Bond: Adhesion/Cohesion	Test	LOR
* See Appendix for additional information.			* See Appendix for additional information.		

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LIST OF STRUCTURAL TESTS AND SPECIAL INSPECTIONS

	TYPE	BY		TYPE	BY
S/A10 ANCHOR BOLTS AND ANCHOR RODS			X OTHER		
☐ S/A10a: Anchor Rods and Bolts	Test	LOR	☐ X01: Product Load Test*	Test	LOR
☐ S/A10b: Other Threaded Rods	Test	LOR	☐ X02: Non-HSB Installation Torque	Continuous	SI*
S/A11 STORAGE RACK SYSTEMS			☐ X03: Not used.	N/A	N/A
☐ S/A11a: Material Verification	Periodic	SI	☐ X04: Not used.	N/A	N/A
☐ S/A11b: Fabrication	Periodic	SI	☐ X05: Not used.	N/A	N/A
☐ S/A11c: Anchorage	Periodic	SI	☐ X06: Not used.	N/A	N/A
☐ S/A11d: Completed System	Periodic	SI*	☐ X07: Not used.	N/A	N/A
S/A12 OTHER STEEL AND ALUMINUM			☐ X08: Not used.	N/A	N/A
☐ S/A12a: Not used.	N/A	N/A	☐ X09: Not used.	N/A	N/A
☐ S/A12b: Not used.	N/A	N/A	☐ X10: Not used.	N/A	N/A
☐ S/A12c: Not used.	N/A	N/A	EXEMPTIONS		
☐ S/A12d: Not used.	N/A	N/A	Those items identified on the DSA-approved construction documents with a note indicating they are not part of the DSA approval or those items checked below are exempt from test and special inspection requirements. The project inspector shall verify all construction complies with the approved construction documents.		
☐ S/A12e: Not used.	N/A	N/A			
☐ S/A12f: Not used.	N/A	N/A			
☐ S/A12g: Not used.	N/A	N/A			
☐ S/A12h: Not used.	N/A	N/A			
☐ S/A12i: Not used.	N/A	N/A			
☐ S/A12j: Not used.	N/A	N/A			
W1 PREFABRICATED WOOD TRUSSES					
☐ W1a: Open Web Truss Fabrication	Continuous	SI			
☐ W1b: Metal Plate Truss Fabrication	Continuous	SI			
W2 MANUFACTURED WOOD ELEMENTS					
☐ W2a: GL Timber Fabrication	Continuous	SI	☐ Soils: Eligible shallow foundation elements**.		
☐ W2b: CLT Fabrication	Continuous	SI	☐ Soils: Eligible deep foundation elements - type 1**.		
☐ W2c: Mass Timber Erection	Periodic	SI	☐ Soils: Eligible deep foundation elements - type 2**.		
☐ W2d: Connections Type A	Periodic	SI	☐ Concrete/Masonry: Eligible post-installed anchors**.		
☐ W2e: Connections Type B	Continuous	SI	☐ Concrete: Batch plant inspection for items listed in and complying with CBC Section 1705A.3.3.2.		
☐ W2f: Sealants	Periodic	SI	☐ Concrete: Epoxy shear dowels in nonstructural slab-on-grade per CBC Section 1910A.5.4, Exception #4.		
W3 OTHER WOOD			☒ Concrete/Masonry: Reinforcing bar testing for items listed in and complying with CBC Section 1910A.2.		
☐ W3a: Not used.	N/A	N/A	☐ Masonry: Freestanding site walls and retaining walls per DSA IR 21-1.		
☐ W3b: Not used.	N/A	N/A	Concrete: Eligible precast elements**.		
☐ W3c: Not used.	N/A	N/A	☒ Welding: Eligible fences and gates**.		
☐ W3d: Not used.	N/A	N/A	☐ Welding: Eligible railing and ramps**.		
☐ W3e: Not used.	N/A	N/A	☐ Welding: Eligible interior cold-formed steel framing**.		
☐ W3f: Not used.	N/A	N/A	☐ Welding: Eligible equipment curbs**.		
☐ W3g: Not used.	N/A	N/A	☐ Welding: Eligible components supporting MEP distribution systems**.		
☐ W3h: Not used.	N/A	N/A	☐ Welding: Eligible mounts and recreational equipment**.		
			☐ Welding: Eligible nonstructural components**.		
* See Appendix for additional information.			** See Appendix for eligibility requirements.		

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LIST OF STRUCTURAL TESTS AND SPECIAL INSPECTIONS

IMPORTANT: This form is only a summary list of structural tests and some of the special inspections required for the project. Any items indicated on the approved construction documents with a note stating that the items are not part of the DSA approval are not considered in this form. Generally, the structural tests and special inspections noted on this form are those that will be performed by the Geotechnical Engineer of Record, Laboratory of Record, or Special Inspector. The actual complete test and inspection program must be performed as detailed on the DSA approved documents. The exemption appendix at the end of this form identifies work NOT subject to DSA requirements for special inspection or structural testing. The project inspector is responsible for providing inspection of all facets of construction, including but not limited to, special inspections not listed on this form such as structural wood framing, high-load wood diaphragms, cold-formed steel framing, anchorage of nonstructural components, etc., per Title 24, Part 2, Chapter 17A.

Legend to TYPE and BY Columns:

Continuous - Indicates continuous special inspection is required.

Periodic - Indicates periodic special inspection is required.

Test - Indicates a test is required.

GE - Indicates special inspection shall be performed by a registered geotechnical engineer or his/her authorized representative, usually associated with the Laboratory of Record.

LOR - Indicates test or special inspection shall be performed by a testing laboratory accepted in the DSA Laboratory Evaluation and Acceptance (LEA) Program (i.e., the Laboratory of Record for the project). See CAC Section 4-335.

PI - Indicates special inspection may be performed by a project inspector when specifically approved by DSA.

SI - Indicates special inspection shall be performed by an appropriately qualified/approved special inspector.

Required Verified Reports:

1. Structural Testing and Inspection: Form DSA 291
2. Shop Welding Inspection: Form DSA 291 or DSA 292
3. Field Welding Inspection: Form DSA 291 or Form DSA 292

Verified reports are required on the following DSA forms:

DSA 291: Laboratory of Record Verified Report

DSA 292: Special Inspectors Employed Directly by the District Verified Report

DSA 293: Geotechnical Verified Report

Note: To facilitate DSA electronic mark-ups and identification stamp application, DSA recommends against using secured electronic or digital signatures.

Name of Design Professional in General Responsible Charge:

Ramon Gomez

Name of Structural Engineer of Record (when applicable):

Signature of Architect or Structural Engineer: **Date:**



09/03/2026

DSA STAMP	
IDENTIFICATION STAMP DIV. OF THE STATE ARCHITECT APP: 01-122936 INC: REVIEWED FOR SS ☒ FLS ☒ ACS ☒ DATE: 09/08/2026	

Project Name: Pacific Grove High School

School District: Pacific Grove Unified School District

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Appendix: LIST OF STRUCTURAL TESTS AND SPECIAL INSPECTIONS

NOTE: Undefined sections and table references found in this appendix are from the CBC, or California Building Code

S1. GENERAL:	
Test or Special Inspection	Code References and Notes
S1a: Site Preparation Verify that: • Site has been prepared properly prior to placement of controlled fill and/or excavations for foundations. • Foundation excavations are extended to proper depth and have reached proper material. • Materials below footings are adequate to achieve the design bearing capacity.	Refer to specific items identified in the Appendix listing exemptions for limitations. Placement of controlled fill exceeding 12" depth under foundations is not permitted without a geotechnical report.

S2. SOIL COMPACTION AND FILL:	
Test or Special Inspection	Code References and Notes
S2a: Fill Materials Perform classification and testing of fill materials.	* Under the supervision of the geotechnical engineer.
S2b: Fill Placement Verify use of proper materials, densities and inspect lift thicknesses, placement and compaction during placement of fill.	* Under the supervision of a geotechnical engineer or LOR's engineering manager. Refer to specific items identified in the end of this form listing exemptions for limitations.
S2c: Compaction Compaction testing.	Refer to specific items identified in the Appendix listing exemptions for limitations. Placement of controlled fill exceeding 12" depth under foundations is not permitted without a geotechnical report.

S3. DRIVEN DEEP FOUNDATIONS (PILES):	
Test or Special Inspection	Code References and Notes
S3a: Materials and Members Verify pile materials, sizes and lengths comply with the requirements.	* By geotechnical engineer or his or her qualified representative.
S3b: Pile Capacity Determine capacities of test piles and conduct additional load tests as required.	* Under the supervision of the geotechnical engineer.
S3c: Driving Operations Inspect driving operations and maintain complete and accurate records for each pile.	* By geotechnical engineer or his or her qualified representative.

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Appendix: LIST OF STRUCTURAL TESTS AND SPECIAL INSPECTIONS

C1. CAST-IN-PLACE CONCRETE	
Test or Special Inspection	Code References and Notes
C1a: Mix Design Verify use of required design mix.	Table 1705A.3 Item 5, 1903A.4, 1904A.1, 1904A.2, 1910A.1 ; ACI 318 Ch. 19, 26.4, 26.13.3.2.
C1b: Reinforcing Steel Identify, sample, and test reinforcing steel.	Table 1705A.3 Item 1, 1705A.3.9, 1908A.1, 1910A.2; ACI 318 Ch. 20 and Sections 25.2, 25.3, 25.5.1, 26.6.1; DSA IR 17-10 and BU 24-02. (See Appendix (end of this form) for exemptions.)
C1c: Concrete Material During concrete placement, fabricate specimens for strength tests, perform slump and air content tests, and determine the temperature of the concrete.	Table 1705A.3 Item 6, 1705A.3.9, 1905A.1.16; ASTM C31, ASTM C172; ACI 318 Sections 26.4, 26.5 & 26.12.
C1d: Strength Test Test concrete (f'_c).	1905A.1.16; ACI 318 Section 26.12.
C1e: Batch Plant Inspection Batch plant inspection: Continuous	Default of "Continuous" per 1705A.3.3. If approved by DSA, batch plant inspection may be reduced to "Periodic" subject to requirements in Section 1705A.3.3.1, or not required per 1705A.3.3.2. See IR 17-13. (See Appendix (end of this form) for exemptions.)

C2. PRESTRESSED / POST-TENSIONED CONCRETE (IN ADDITION TO SECTION C1):	
Test or Special Inspection	Code References and Notes
C2a: Tendons and Anchorage Sample and test prestressing tendons and anchorages.	1705A.3.4, Table 1705A.3 Item 1, 1910A.3; ACI 318 Ch. 20 and Sections 25.2, 26.6.1.
C2b: Tendon Placement Inspect placement of prestressing tendons.	1705A.3.4, Table 1705A.3 Items 1 & 9; ACI 318 Ch. 20 and Sections 25.2, 26.6.1-26.6.3.
C2c: Concrete Strength Verify in-situ concrete strength prior to stressing of post-tensioning tendons.	Table 1705A.3 Item 13; ACI 318 Sections 26.10.2, 26.11.2, 26.13.3.3. Special inspector to verify specified concrete strength test prior to stressing.
C2d: Stressing Operations Inspect application of post-tensioning or prestressing forces and grouting of bonded prestressing tendons.	1705A.3.4, Table 1705A.3 Item 9; ACI 318 Sections 26.10.2, 26.13.1, 26.13.3.2.

C3. PRECAST CONCRETE (IN ADDITION TO SECTION C1):	
Test or Special Inspection	Code References and Notes
C3a: General Fabrication 1. Inspect fabrication of precast concrete members. * 2. Inspect reinforcement of the following precast concrete elements or system(s): a. special moment frames. b. boundary elements of special structural walls. c. coupling beams.	1705A.3 Item 1, 7. See Appendix for exemptions. *May be periodic where fabrication occurs in a PCI-certified plant. For underground structures, NPCA plant certification is acceptable. PCI MNL-116-21; PCI MNL-117-13; NPCA Quality Control Manual (QCM) 17th Edition. See IR A-15.

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Appendix: LIST OF STRUCTURAL TESTS AND SPECIAL INSPECTIONS

S/A1. STRUCTURAL STEEL, COLD-FORMED STEEL AND ALUMINUM USED FOR STRUCTURAL PURPOSES	
Test or Special Inspection	Code References and Notes
S/A1a: Material Identification Verify identification of all materials and: • Mill certificates indicate material properties that comply with requirements. • Material sizes, types and grades comply with requirements.	Table 1705A.2.1 Item 3a–3c. 2201A.2; AISI S100 Section A3.1 & A3.2, AISI S240 Section A3 & A5, AISI S220 Sections A4 & A6. *By special inspector or qualified technician when performed off-site.
S/A1b: Unidentified Material Test unidentified materials	2201A.2.
S/A1c: Steel Fabrication Verify and document steel fabrication per DSA- approved construction documents.	Not applicable to cold-formed steel light-frame construction, except for trusses (1705A.2.5).
S/A1d: Buckling Restrained Brace Verify and document steel fabrication per DSA-approved construction documents.	Testing and special inspections in accordance with IR 22-4. For DSA accepted fabrication shops, BRB manufacturer's Certificate of Compliance in lieu of testing and special inspections. See IR 22-4.

S/A2. HIGH-STRENGTH BOLTS:	
Test or Special Inspection	Code References and Notes
S/A2a: Product Verification Verify identification markings and manufacturer's certificates of compliance conform to ASTM standards specified in the DSA-approved documents.	Table 1705A.2.1 Items 1a & 1b, 2201A.2; AISC 360 Section A3.3, J3.1, and N3.2; RCSC Section 1.5 & 2.1; DSA IR 17-8 & DSA IR 17-9.
S/A2b: Bolts, Nuts, and Washers Test high-strength bolts, nuts and washers.	Table 1705A.2.1 Item 1c, 2216A.1; RCSC Section 7.2; DSA IR 17-8.
S/A2c: Snug Tight Bearing-type ("snug tight") connections.	Table 1705A.2.1 Item 2a, 1705A.2.8, 2201 A.4; AISC 360 J3.1, J3.2, M2.5 & N5.6; RCSC Section 9.1; DSA IR 17-9.
S/A2d: Pretensioned / Slip-Critical Pretensioned and slip-critical connections.	Table 1705A.2.1 Items 2b & 2c, 1705A.2.8, 2201A.4; AISC 360 J3.1, J3.2, M2.5 & N5.6; RCSC Sections 9.2 & 9.3; DSA IR 17-9 **"Continuous" or "Periodic" depends on the tightening method used.

S/A3. WELDING:	
Test or Special Inspection	Code References and Notes
S/A3a: Weld Material Verify weld filler material identification markings per AWS designation listed on the DSA-approved documents and the WPS.	1705A.2.7, Table 1705A.2.1 Items 4 & 5; AWS D1.1 and AWS D1.8 for structural steel; AWS D1.2 for Aluminum; AWS D1.3 for cold-formed steel; AWS D1.4 for reinforcing steel; DSA IR 17-3.
S/A3b: Certificate of Compliance Verify weld filler material manufacturer's certificate of compliance.	DSA IR 17-3.
S/A3c: WPS and Qualifications Verify WPS, welder qualifications and equipment.	DSA IR 17-3.

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EXEMPTIONS

SOILS - EXEMPTIONS:

Soils: Eligible shallow foundation elements | Shallow foundations, are exempt from special inspections and testing by a Geotechnical Engineer for the following cases: A) buildings without a geotechnical report and meeting the exception Item #1 criteria in CBC Section 1803A.2 supported by native soil (any excavation depth) or fill soil (not exceeding 12" depth per CBC, Section 1804A.6), B) soil scarification/recompaction not exceeding 12" depth, C) native or fill soil supporting exterior non-structural flatwork (e.g., sidewalks, site concrete ramps, site stairs, parking lots, driveways, etc.), D) unpaved landscaping and playground areas, or E) utility trench backfill with depth not exceeding 12". These exempt structures shall be identified on the approved construction documents.

Soils: Eligible deep foundation elements, Type 1 | Deep foundation acting as cantilever footing with a design based on minimum allowable pressures per CBC Table 1806A.2 and without a geotechnical report are exempt from special inspection and testing by a Geotechnical Engineer for the following cases: A) free standing sign or scoreboard, B) cell or antenna towers and poles less than 35'-0" tall (e.g., lighting poles, flag poles, poles supporting open mesh fences, etc.). These exempt structures shall be identified on the approved construction documents.

Soils: Eligible deep foundation elements Type 2 | Deep foundation acting as cantilever footing with a design based on minimum allowable pressures per CBC Table 1806A.2 and without a geotechnical report are exempt from special inspection and testing by a Geotechnical Engineer for the following cases: A) single-story open fabric shade structure, or B) covered walkway structure with an apex height less than 10'-0" above adjacent grade. These exempt structures shall be identified on the approved construction documents.

CONCRETE/MASONRY - EXEMPTIONS:

Concrete/Masonry: Eligible post-installed anchors | Post-installed anchors for the following: A) exempt non-structural components (e.g., mechanical, electrical, plumbing equipment – see item 7 for "Welding" in the Appendix below) given in CBC Section 1617A.1.18 or B) interior nonstructural wall partitions meeting criteria listed in exempt item 3 for "Welding" in the Appendix below.

Concrete: Batch plant inspection for items listed in and complying with CBC Section 1705A.3.3.2. | Concrete batch plant inspection is not required for items given in CBC Section 1705A.3.3.2 subject to the requirements and limitations in that section.

Concrete: Epoxy shear dowels in nonstructural slab-on-grade per CBC Section 1910A.5.4, Exception #4. | Epoxy shear dowels in site flatwork and/or other nonstructural concrete.

Concrete/Masonry: Reinforcing bar testing for items listed in and complying with CBC Section 1910A.2. | Testing of reinforcing bars is not required for items given in CBC Section 1910A.2 subject to the requirements and limitations in that section. These exempt structures shall be identified on the approved construction documents.

Masonry: Freestanding site walls and retaining walls per DSA IR 21-1. | Freestanding and site retaining masonry walls may be exempt from certain DSA masonry testing and special inspection items as allowed per DSA IR 21-1.

Eligible precast elements | Structural tests and special inspections are not required for the following concrete precast elements. Provide a certificate of compliance at delivery. Exemptions shall be identified on the approved construction documents.

1. Underground vaults no greater than 5 feet x 5 feet x unlimited height and pipe manufactured to an ASTM standard, 5 foot or less in diameter.
2. Elements manufactured in a PCI or NPCA certified manufacturing plant:

Project Name: **Pacific Grove High School**
School District: **Pacific Grove Unified School District**

Application No.: **01-122936** Increment:
File No.: **27-H4**

Appendix: LIST OF STRUCTURAL TESTS AND SPECIAL INSPECTIONS

- | | |
|----|---|
| A. | Underground vaults no greater than 16 feet in both length and width, of unlimited height, not subject to loading greater than HS 20-44. |
| B. | Pipe. |
| C. | Stair treads, landing planks. |

WELDING - EXEMPTIONS:

Welding: Eligible fences and gates | Fences, gates with maximum leaf span of 10', and gates with a maximum rolling section of 10' all having an apex height less than 8'-0" above lowest adjacent grade.

Welding: Eligible railing and ramps | Handrails, guardrails, and modular or relocatable ramps associated with walking surfaces less than 30" above adjacent grade; fillet welds shall not be ground flush.

Welding: Eligible interior cold-formed steel framing | Non-bearing non-shearwall interior cold-formed steel framing spanning less than 15'-0" in height and header less than 10'-0" in opening width, such as in interior partitions, interior soffits, etc.

Welding: Eligible equipment curbs | Manufactured support frames and curbs using hot rolled or cold-formed steel (i.e., light gauge) for mechanical, electrical, or plumbing equipment weighing less than 2000# (equipment only) (connections of such frames to superstructure elements using welding will require special inspection.)

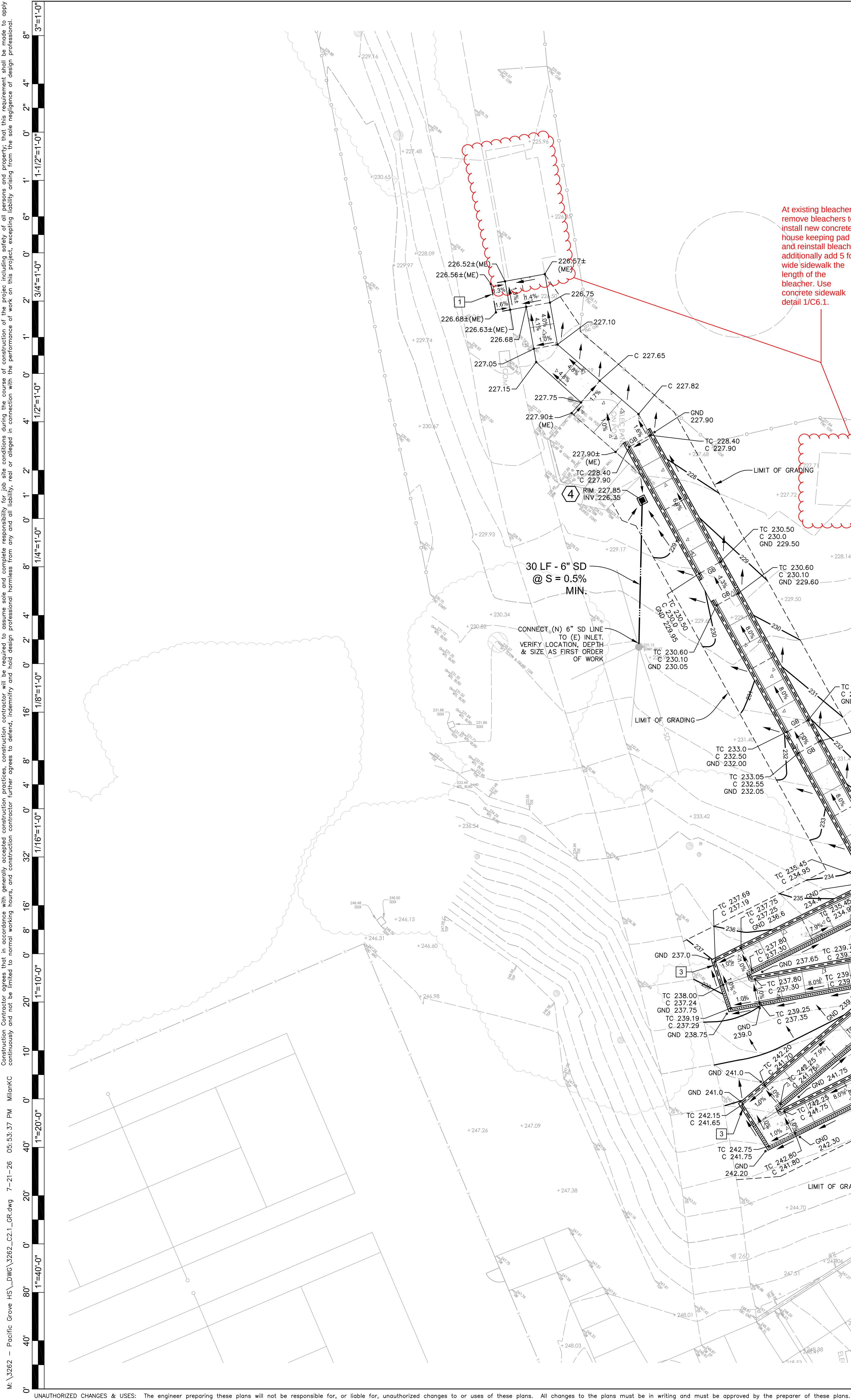
Welding: Eligible components supporting MEP distribution systems | Manufactured components (e.g., Tolco, B-Line, Afcon, etc.) for mechanical, electrical, or plumbing hanger support and bracing (connections of such components to superstructure elements using welding will require special inspection.)

Welding: Eligible mounts and recreational equipment | TV Brackets, projector mounts with a valid listing (see DSA IR A-5) and recreational equipment (e.g., playground structures, basketball backstops, etc.) (connections of such elements to superstructure elements using welding will require special inspection.)

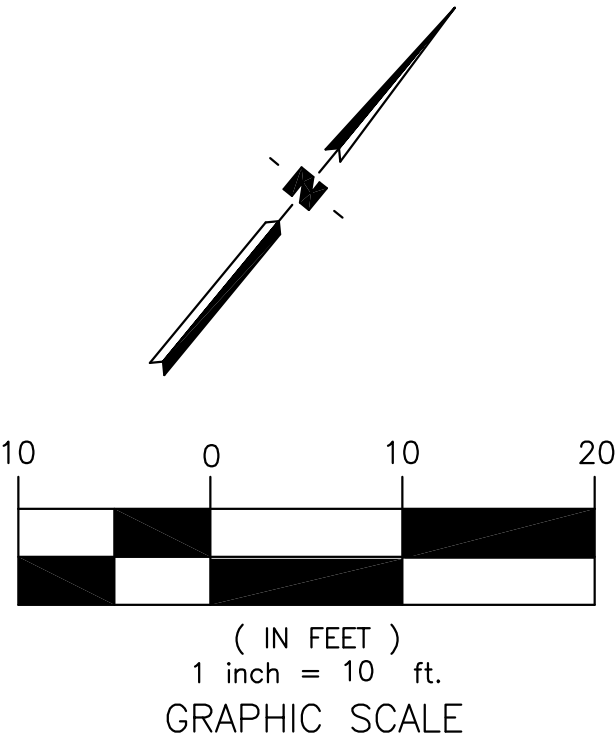
Welding: Eligible nonstructural components | Any support for exempt non-structural components given in CBC Section 1617A.1.18 meeting the following: A) when supported on a floor/roof, <400# or resulting composite center of mass (including component's center of mass) $\leq 4'$ above supporting floor/roof, B) when hung from a wall or roof/floor, and <20# for discrete units or <5 plf for distributed systems.

Project Name: **Pacific Grove High School**
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PGUSD - HS ADA - AD2 - Exhibit D - Bleacher Concrete work



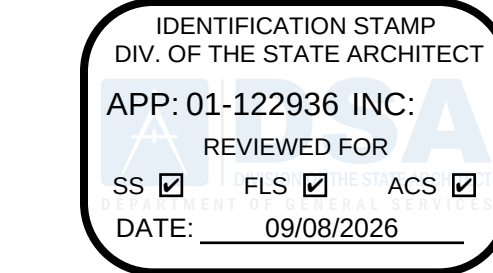
At existing bleachers remove bleachers to install new concrete house keeping pad and reinstall bleacher. additionally add 5 foot wide sidewalk the length of the bleacher. Use concrete sidewalk detail 1/C6.1.

GRADING CONSTRUCTION DETAIL REFERENCES

KEYNOTE	DETAIL NAME	SYMBOL	DETAIL REFERENCE
1	FLUSH VERTICAL CURB		1 / C6.01
2	VERTICAL CURB		2 / C6.01
3	DRIVEWAY		3 / C6.01
4	12" STORM DRAIN INLET		4 / C6.01
5	CONCRETE CURB WALL		6 / C6.01

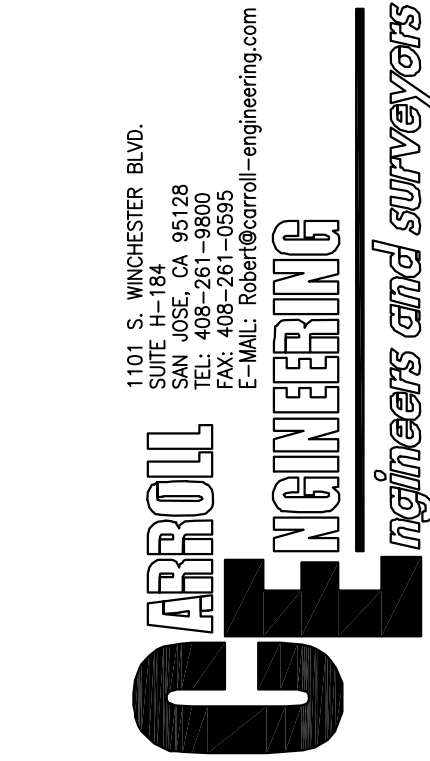
GRADING PLAN NOTES

KEYNOTE	DETAIL NAME
1	SAWCUT AND CONFORM TO (E) ASPHALT
2	CONFORM TO (E) CONCRETE AT NEAREST CONTROL JOINT
3	PROVIDE 2" DIAMETER WEEP HOLE IN CURB FOR DRAINAGE TO PASS THROUGH
4	CLEAN OUT DEBRIS & HYDROJET STORM DRAIN SYSTEM TO BE FREE FLOWING. SEE UNDERGROUND NOTE #8 / SHEET C0.1
5	2 LF - CURB TRANSITION (0'-6")



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PACIFIC GROVE UNIFIED SCHOOL DISTRICT
PACIFIC GROVE HIGH SCHOOL
SITE IMPROVEMENTS

615 SUNSET DRIVE
PACIFIC GROVE, CA 93950

SHEET TITLE:
GRADING & DRAINAGE PLAN

CONSTRUCTION DOCUMENTS

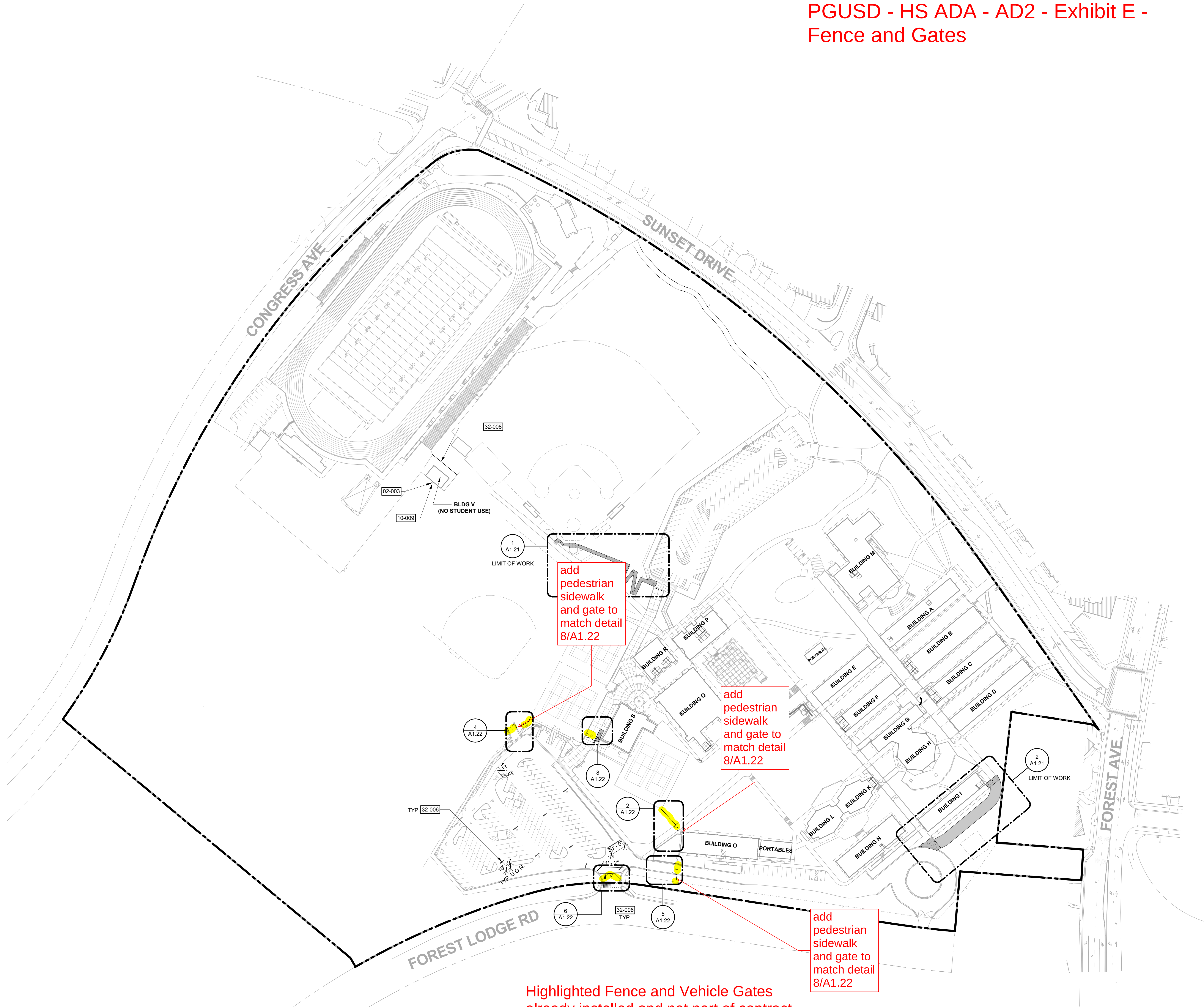
Revision Schedule		
NO.	Description	Date

PROJECT #
DCA 25.054
CEI 3262
ISSUE DATE:
07/22/2026

SHEET #
C2.1

7/22/2026 4:53:10 PM
Autodesk Docs: /25.054 PGUSD PGHS Site/25.054 PGUSD PGHS Site.rvt
3"=1'-0"
8"
4"
2"
0'
1'-1/2"=1'-0"
6"
0'
2'
3/4"=1'-0"
1'
0'
1/2"=1'-0"
4"
0'
1/4"=1'-0"
8"
0'
1/8"=1'-0"
16"
0'
1/16"=1'-0"
32"
0'
1"=10'-0"
20'
10'
1"=20'-0"
40'
20'
1"=40'-0"
80'

PGUSD - HS ADA - AD2 - Exhibit E -
Fence and Gates



SHEET NOTES

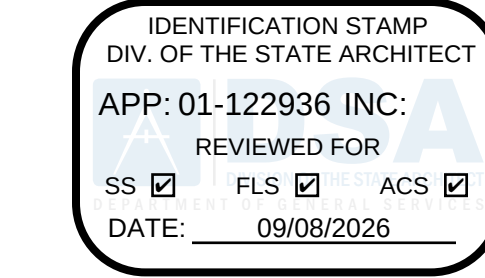
- A. THIS SITE PLAN IS PROVIDED TO SHOW THE EXTENT OF THE SCHOOL PROPERTY AND ESTABLISH THE GENERAL AREA OF WORK ONLY. REFER LARGER SCALE DRAWINGS FOR DETAILED SCOPE OF WORK.
- B. BOUNDARY OR PROPERTY LINES SHOWN ON THIS PLAN ARE FOR REFERENCE ONLY AND SHOULD NOT BE USED FOR HORIZONTAL CONTROL OR ONSITE CONSTRUCTION LOCATING
- C. ONLY ACCESSIBILITY PATH OF TRAVEL IDENTIFIED IN THESE CONSTRUCTION DOCUMENTS HAS BEEN EVALUATED TO BE COMPLIANT WITH THE CURRENT APPLICABLE CALIFORNIA BUILDING CODE ACCESSIBILITY PROVISIONS. COMPLIANCE OF PATHS OTHER THAN THOSE INDICATED HEREIN IS NEITHER CONFIRMED OR IMPLIED

KEYNOTES

- 02-003 (E) EXTERIOR DOOR TO REMAIN LOCKED FOR STUDENTS & STAFFS
- 10-009 ATTACH NON-EDUCATIONAL USE SIGNAGE TO THE BUILDING AT DOOR ENTRANCES. SEE DETAIL 18/A1.23
- 32-006 NEW ASPHALT BUMP WITH STRIPING. TO BE IN SIMILAR LOCATION OF THE EXISTING SPEED BUMP. SEE CIVIL DETAIL 7/C6.01
- 32-008 GALVANIZED CHAIN LINK FENCE. REFER TO DETAIL 3/A1.23 & 7/A1.23. SIMILAR. HEIGHT TO MATCH (E) ADJACENT FENCE

LEGEND

- AC PAVING, REFER TO CIVIL DRAWINGS
- CONCRETE PAVING, REFER TO CIVIL DRAWINGS
- BLDG (E) BUILDING - NOT IN SCOPE OF WORK
- (E) RESTROOM
- (E) LANDSCAPE
- PROPERTY LINE



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SITE IMPROVEMENTS

615 SUNSET DR.
PACIFIC GROVE, CA 93950

SHEET TITLE:
CAMPUS SITE PLAN

Revision Schedule		
NO.	Description	Date

PROJECT #
25.054

ISSUE DATE:
07/22/2026

SHEET #
A1.11

Pacific Grove Unified School District

Pacific Grove High School

Attendance

(831) 238-8639 FAX (831) 645-1304

DATE: Tuesday, September 8th, 2026

PROJECT: Pacific Grove High School Site Improvements

MEETING: Pre-Bid Conference and Site Walk

TIME: 2:00pm – 3:00pm

PLACE: Front of school (Sunset Drive)

Pre-Bid Meeting Sign In Sheet

Name	Company	Contact Number	Email Address
Victor Saldaña	Bosco Construction	(669) 328-1367	Estimating@BoscoCo.com
Conner Schiro	Monterey Peninsula Engineering	831-384-4081	bids@mpc2000.com
Bill Sparaco	CSG INC	831-915-9680	bill@csghmonterey.com
ADRIAN PANAJO	CSG INC	831-760-5391	adrian@csghmonterey.com
Catherine Schred	101 Builders	530 520 8080	Catherine@101BuildersInc.com
Craig Coons	Silcon Constructors	805-712-7271	cconson@silconconstructors.com
Matt Coolipilly	R&M Paving	408 724-0525	matt@randmpaving.com
Nick White	DMC Commercial	831 756-1600	Bids@DMCmp.com
Spencer Harris	Bothman	409 279 oh 77	estimating@bothman.com
Justin Gin	Avila Construction	831-884-4080	Jgin@avilacnst.com
Nick Locke	Tombleson Inc.	(831) 422-9696	nickl@tomblesoninc.com

Pacific Grove High School Site Improvements Pre-Bid Conference Agenda

Tuesday, September 8, 2026

**Bids due Tuesday, September 29, 2026 at 2:00 pm at
District Office – 433 Hillcrest Avenue**

1. Introductions:
 - a. Owner: Pacific Grove Unified School District
 - b. Architect: DCA
 - c. Construction Manager: Ausonio, Inc.
Dustin Conner, Program Manager
Gerardo Ramirez, Project Manager
 - d. Inspector of Record: TBD
2. Bid Documents available at <https://www.pgusd.org/Parents--Community/Facilities/BID-OPPORTUNITIES/index.html>.
3. Project Overview: Including but not limited to:
 - a. **30-Day Per Diem:** The bid proposals require a daily rate of compensation for general overhead and administrative costs/expenses associated with or arising out of Compensable Delays, if any. The proposed per diem compensable delay rate multiplied by thirty (30) days will be applied to the total bid as part of basis of award.
4. Bid/Project Schedule
 - a. All pre-bid questions should be by email to jill@ausonio.com by September 15, 2026 at 5:00 pm.
 - b. Final addendum to be issued via email on September 21, 2026.
 - c. Bids due at 2:00 pm on September 29, 2026.
 - d. Lowest bid will be submitted to Board for approval on October 8, 2026.
 - e. Notice to Proceed issued by October 16, 2026.
 - f. Pull planning session to be held by October 26, 2026.
 - g. Construction to start November 2, 2026.
 - h. Substantial completion to be achieved by January 25, 2027.
5. Bid Forms Required to be submitted with Bid Proposal:
 - a. Bid Bond
 - b. List of Subcontractors (fully filled out)
 - c. Statement of Bidder Qualifications
 - d. Non-collusion Affidavit
 - e. Drug Free Workplace Certification
 - f. Certificate of Workers Compensation Insurance

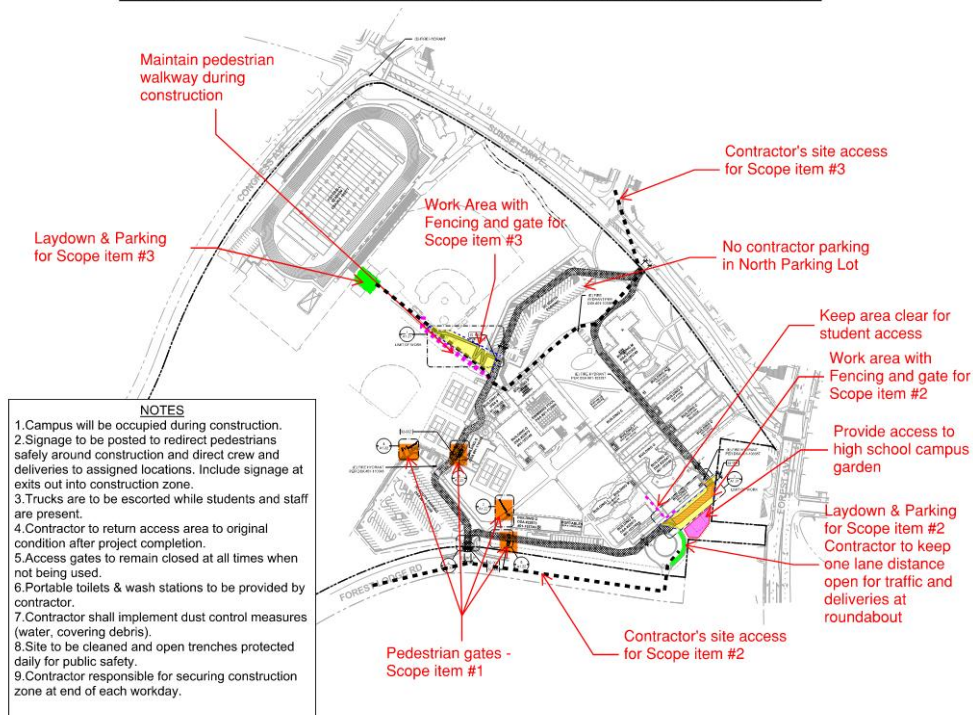
6. Contracting Requirements

- Prevailing Wage
- Contract Time: All work shown in the contract drawings and noted in the specifications are required to be completed within **102** calendar days from Notice to Proceed. (Section 007313 - Special Conditions Item 15)
- Liquidated damages listed in Section 007313 - Special Conditions Item 17

7. Contractor Site Access and Parking – logistics plan below

PGHS SITE IMPROVEMENTS SITE LOGISTICS PLAN

EXHIBIT A



8. Work coordination

- Secure site from public use on daily basis
- Limited access due to site constraints
- Campus will be occupied during construction. All contractors and subcontractors will be required to be fingerprinted to perform work on site.

9. Questions and Discussion

10. Site Walk