TREANORHL

4249 CHEENEY ROAD, SANTA CLARA, CALIFORNIA

HISTORIC RESOURCE EVALUATION – POTENTIAL IMPACTS

DRAFT

JANUARY 17, 2023

Table of Contents

1. INTRODUCTION & METHODOLOGY

David J. Powers has requested an evaluation of a proposed project located at 4249 Cheeney Street for potential effects to historic resources adjacent to and within 200 feet of the project site. Located approximately 90 feet north of the project site, the building at 2086 Agnew Road (APN 104-12-028) is identified as a locally designated property on the City of Santa Clara's Historic Preservation and Resource Inventory. This report provides a project description, impacts analysis, and mitigation measures pertaining to the proposed project's potential effects on 2086 Agnew Road.

The proposed project was reviewed in October 2019, and since then the design has changed. This updated report takes the latest designs, dated December 15, 2022, from MFA Engineers and Associates, into consideration.

TreanorHL conducted a site visit on January 9, 2023; and reviewed the Santa Clara Historic Preservation and Resource Inventory, Santa Clara City Code Chapter 18.106 Historic Preservation, the DPR form for 2086 Agnew Road, and drawings from MFA Engineers and Associates.

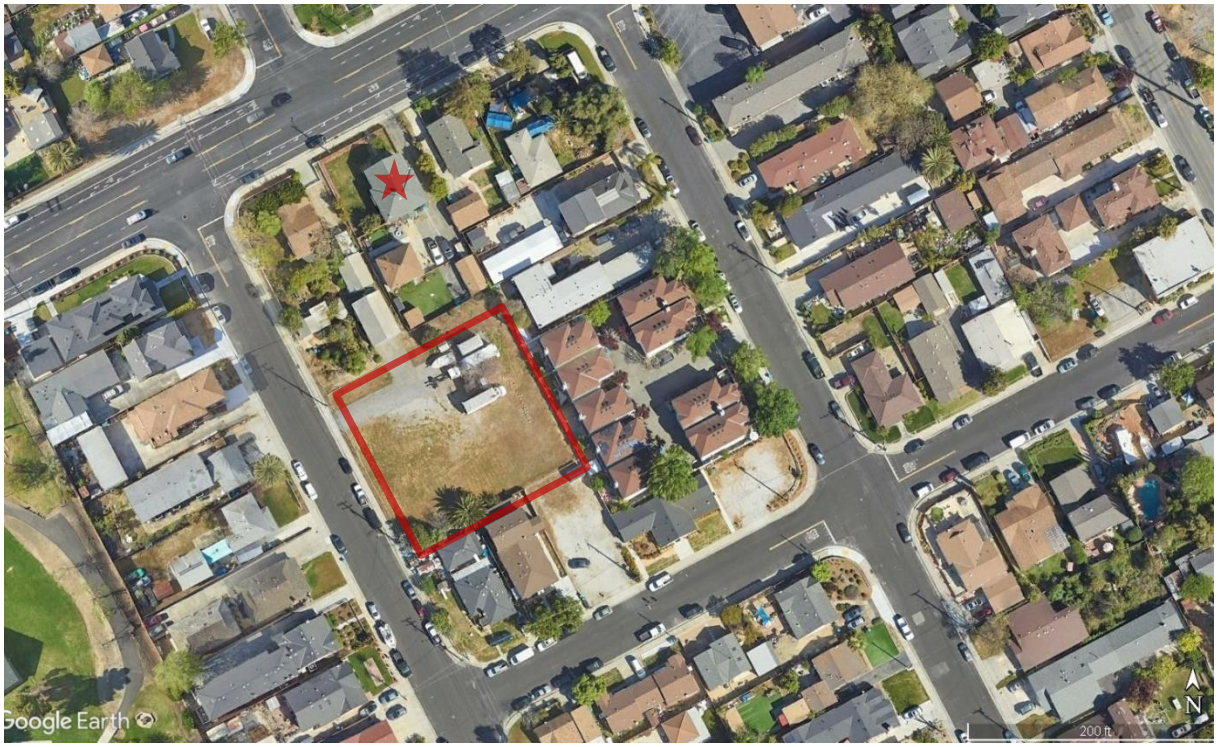


Figure 1. Aerial view of the area; the project site at 4249 Cheeney Street outlined in red and 2086 Agnew Road marked with a star (Google Earth, imagery date March 2022).

Figure 2. The project site at 4249 Cheeney Street, looking north (Imagery date January 2023).

2. 2086 AGNEW ROAD

The building at 2086 Agnew Road is locally designated as a historic resource. Listed on the City of Santa Clara's Historic Preservation and Resource Inventory, the Agnew School was constructed ca. 1890 and "served the surrounding community until 1927 when it was permanently closed." The building has been used as a residence ever since.[1]

Set back approximately 25 feet from the sidewalk, this tall one-story building is T-shaped in plan. The wood-frame structure has horizontal wood siding and a shingle-clad front-facing gabled and hipped roof with an enclosed cornice and a profiled frieze. A brick chimney pierces the roof at the center. The primary window type is wood-sash double-hung with simple wide trim. On the front (north) façade, a partial-width, central gabled porch with square pillars shelters the main entrance, which consists of a single wood door. The porch is raised on a concrete platform with three steps on all sides. A pair of double-hung windows flank each side of the porch. The detached garage at the southeast corner of the parcel is reached by an asphalt driveway. A two-story accessory unit is located to the southwest of the main house.

[1] *City of Santa Clara 2010-2035 General Plan,* "8.9 Historic Preservation and Resource Inventory;" City of Santa Clara/Planning, *2086 Agnew Road DPR Form,* 1992.

Figure 3. The building at 2086 Agnew Road, view of the north and east facades (Imagery date Janaury 2023).


Figure 4. The building at 2086 Agnew Road, view of the north and west facades (Imagery date January 2023).

Character-defining features of the property include the following:

- Tall one-story, T-shaped massing

- Wood-frame construction
- Front-facing gabled (front) and hipped (rear) roof
- Horizontal wood siding
- Symmetrical front (north) façade
- Central partial-width gabled porch with square pillars
- Raised entry platform
- Double-hung wood-sash windows with simple trim

3. PROJECT DESCRIPTION

The project site consists of two adjacent parcels at 4249 Cheeney Street (APN 104-12-025 and 104-12-026) in the Agnew Village neighborhood of the City of Santa Clara. The 150' by 150' site is currently vacant with no existing buildings or infrastructure. Vegetation is grassy with bushes and a handful of small trees. The surrounding lots contain one- or two-story single-family houses, scattered outbuildings, and driveways. A group of two-story townhomes are located immediately east of the project site.

The project proposes nine units of two-story single-family residential townhouses, each with a two-car garage. The garages are accessed by an L-shaped paved surface drive dividing the two rows of buildings. To the north is a set of five townhomes with asphalt-clad front gabled roofs, and to the south, along Cheeney Street, is a set of four units with hipped roofs. Each unit is roughly rectangular in plan and clad in cement plaster and board-and-batten siding. A mix of operable and fixed windows are on all the units.

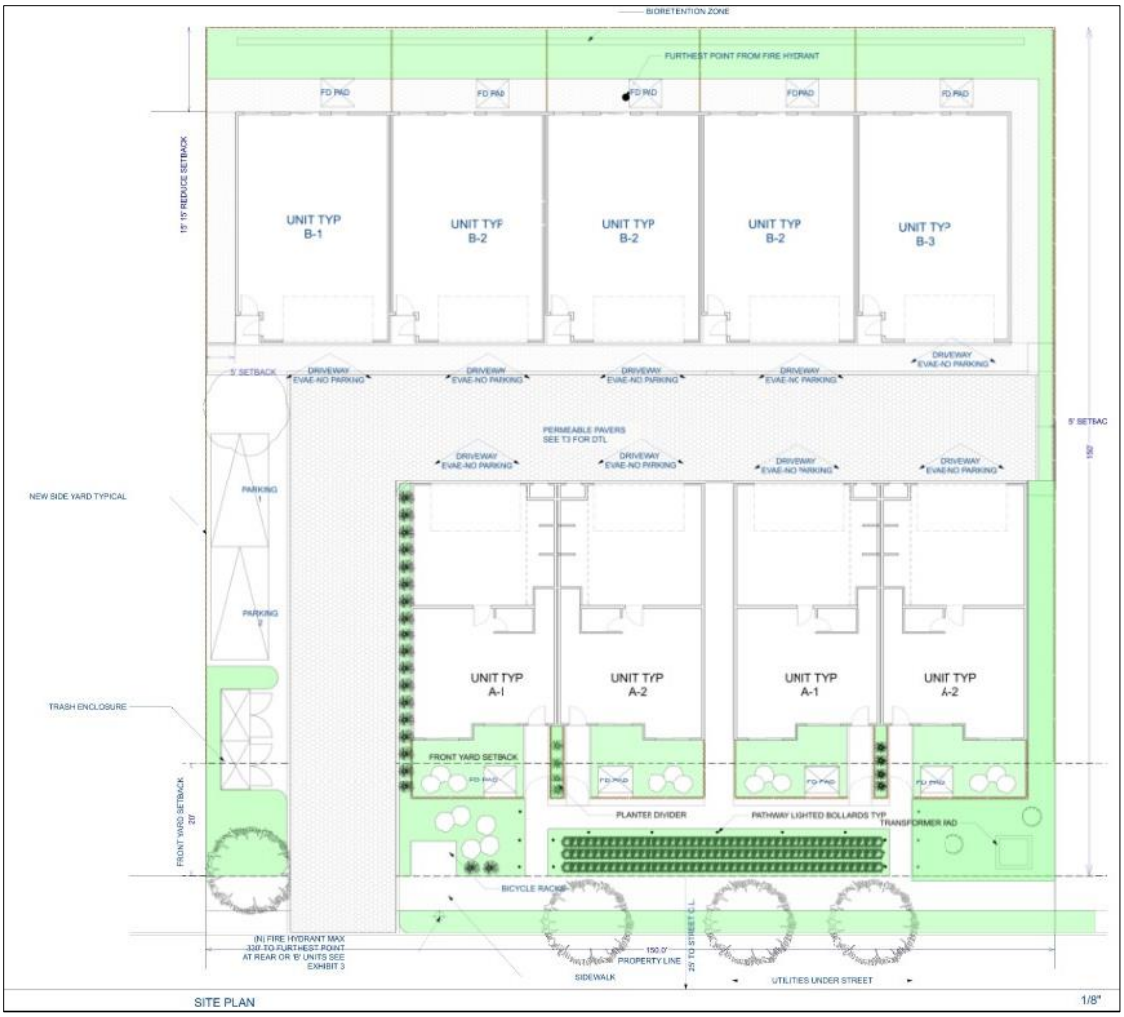


Figure 5. The proposed project, site plan (MFA Construction and Engineering, December 2022).

Figure 6. The proposed project, elevations (MFA Construction and Engineering, December 2022).

Figure 7. The proposed project, elevations (MFA Construction and Engineering, December 2022).

4. IMPACTS AND MITIGATION MEASURES

Historical resources include properties eligible for listing on the National Register of Historic Places, the California Register of Historical Resources, or a local register of historical resources (as defined in Public Resources Code §5020.1(k)). As discussed above, 2086 Agnew Road is listed on the *Historic Preservation and Resource Inventory* of Santa Clara. According to Public Resources Code §15064.5(b), a project

would have a significant effect on a historic resource if it would "cause a substantial adverse change in the significance" of that resource. Specifically, "[s]ubstantial adverse change in the significance of an historical resource means physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired."

In case of new construction, the Secretary of the Interior's Standards are applied to determine the compatibility of the proposed project with the existing historic resource. Of the ten Standards for Rehabilitation, only #9 and #10 apply to new construction.

9. *New additions, exterior alterations, or related new construction shall not destroy historic materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment.*

   The proposed development does not significantly alter the immediate surroundings of the property. The density and the scale of the proposed buildings are appropriate with the height of the historic resource at 2086 Agnew Road. The proposed design is modern with simple, cubic forms; therefore, it is easily distinguished from the historic. The proposed materials; i.e. wood and cement plaster, are compatible with the adjacent historic resource and its vicinity. Overall, the project at 4249 Cheeney Street will be compatible with the massing, size, scale, and architectural features of the historic resource at 2086 Agnew Road. Therefore, the proposed project complies with Standard 9.

10. *New additions and adjacent or related new construction shall be undertaken in such a manner that if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.*

    The proposed development will be constructed approximately 90 feet south of the historic resource at 2086 Agnew Road. The project will not diminish the integrity of the subject building or its surroundings. If new construction were to be removed in the future, the essential form and integrity of the historic property will be unimpaired. Therefore, the proposed project complies with Standard 10.

5. CONCLUSION

The revised December 2022 project proposed at 4249 Cheeney Street is consistent with the Secretary of the Interior's Standards for Rehabilitation and will not have any impacts on the historic resource at 2086 Agnew Road. The proposed project would not cause 2086 Agnew Road to lose its current historic status as a locally designated resource. The proposed development would be contemporary but compatible with the historic resource and its surroundings. The integrity of the historic resource would not be impaired. The construction of the project would not have a direct impact on 2086 Agnew Road. The proposed project would not have an indirect impact on 2086 Agnew Road from construction activities (i.e. vibration) since the historic resource is not immediately adjacent to the development.

APPENDIX

MFA Engineers & Associates, Cheeney St. Townhouses Plans, 4249 Cheeney St, Santa Clara, CA 95054, 12/19/2022

SYMBOLS:

BUILDING LAYOUT POINT — BLP

DATUM POINT ELEVATION

MATCH LINE

PROPERTY LINE

DIM. @ F.O.S./STRUC.

DIM. @ CENTER LINE

DIM. @ F.O.F./CLEAR

(N) OR REQUIRED ELEVATION POINT — +9'-0"

(E) ELEVATION POINT — +9'-0"

COLUMN GRID — A / 1

DETAIL NO. / SHEET NO. — 4 / A6

WALL SECTION NO. / SHEET NO. — 7 / A8

BUILDING SECTION — 9 / A2

INTERIOR ELEVATION — 1, 2, 3, 4 — 9 / A2

DOOR NO. / DOOR TYPE — # / A

WINDOW NO. — 5

REVISION NO. — 3

ROOM NAME / ROOM NO. — ENTRY 100

EARTH

POROUS FILL/ GRAVEL/ROCK

SAND/MORTAR/ CEMENT PLASTER

CONCRETE

MASONRY WALL

BRICK/BRICK VENEER/ PAVER

QUARRY/ CERAMIC TITLE

PLYWOOD

ROUGH WOOD

FINISH WOOD

METAL

GYPSUM BOARD

PROTECTION BOARD

ACOUSTICAL TILE

GLASS

WATERPROOFING/ FLASHING

BLANKET OR BATT INSULATION

ABBREVIATIONS:

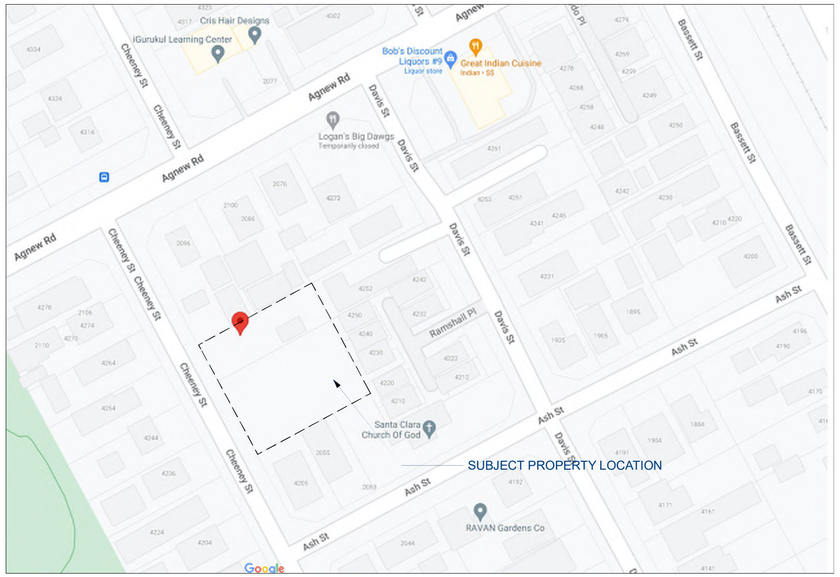
A	A.C.	Asphalt Concrete
	ACOUS	Acoustical
	AC.T.	Acoustical Tile
	AC.P.	Acoustical Panel
	A.D.	Area Drain
	ADJ.	Adjustable
	AGGR.	Aggregate
	A.F.F.	Above Finished Floor
	AL./ALUM.	Aluminum
	&	And
	ANG./<	Angle
	APPROX.	Approximate
	ARCH.	Architectural
	ASPH.	Asphalt
	@	At
B	BKG.	Backing
	BD.	Board
	BITUM.	Bituminous
	BLDG.	Building
	BLKG.	Blocking
	BM.	Beam
	B.O.	Bottom of
	BOT.	Bottom
	B.U.	Built-up
C	CAB.	Cabinet
	C.BA.	Carpet Base
	C.B.	Catch Basin
	CEM.	Cement
	CER.	Ceramic
	C.I.	Cast Iron
	C.J.	Construction/Control Joint
	℄	Center Line
	CLG.	Ceiling
	CLKG.	Caulking
	CLO.	Closet
	CLR.	Clear
	C.O.	Clean out
	COL.	Column
	CONC.	Concrete
	CONN.	Connection
	CONSTR.	Construction
	CONT.	Continuous
	CONTR.	Contractor
	CORR.	Corridor
	CPT.	Carpet
	C.P.	Cement Plaster
	C.SQ.	Carpet Square
	CTSK.	Countersink
	C.M.U./CMU	Conc. Masonry Unit
	CNTR.	Counter
	C.T.	Ceramic Tile
	CTR.	Center
	C.W.	Curtain Wall
D	DAT.	Datum
	DBL.	Double
	DEPT.	Department
	D.F.	Drinking Fountain
	DET.	Detail
	DIA.	Diameter
	DIM.	Dimension
	DISP.	Dispenser
	DKG.	Decking
	DN.	Down
	D.O.	Door Opening
	D.P.	Dimension Point
	DR.	Door
	DWR.	Drawer
	DS.	Downspout
	D.S.P.	Dry Standpipe
	DWG.	Drawing
E	E	East
	(E)	Existing
	EA.	Each
	E.J.	Expansion Joint
	EL./ELEV.	Elevation
	ELEC.	Electrical
	ELEV.	Elevator
	EMER.	Emergency
	ENCL.	Enclosure
	E.P.	Electrical Panelboard
	EQ.	Equal
	EQUIP.	Equipment
	E.W.C.	Electrical Water Cooler
	EXPO.	Exposed
	EXP.	Expansion
	EXT.	Exterior
F	F.A.	Fire Alarm
	F.B.O.	Furnished by Owner
	F.D.	Floor Drain
	FDN.	Foundation
	F.E.	Fire Extinguisher
	F.E.C.	Fire Extinguisher Cab.
	F.F.	Finish Floor
	F.G.	Fixed Glass
	F.H.C.	Fire Hose Cabinet
	FHWS.	Flat Head Wood Screw
	FIN.	Finish
	FL.	Floor
	FLASH.	Flashing
	FLUOR.	Fluorescent
	F.O.C.	Face of Concrete
	F.O.F.	Face of Finish
	F.O.M.	Face of Masonry
	F.O.S.	Face of Studs
	FRPF.	Fireproof
	FR.	Frame
	FRG.	Framing
	F.S.	Full Size
	F.S.R.	Fire Sprinkler Riser
	FT.	Foot or Feet
	FTG.	Footing
	FURR.	Furring
	FUT./(F)	Future
G	GA.	Gauge
	GALV.	Galvanized
	G.B.	Grab Bar
	G.CONC.	Gunite Concrete
	GL.	Glass
	GND.	Ground
	GR.	Grade
	GYP.	Gypsum
H	HB.	Hose Bibb
	H.C.	Hollow Core
	H.D.	Hot Dipped
	HDCP.	Handicapped
	HDWD.	Hardwood
	HDWR.	Hardware
	H.M.	Hollow Metal
	HORIZ.	Horizontal
	HR.	Hour
	HGT.	Height
I	I.D.	Inside Diameter
	IN.	Inch or Inches
	INCL.	Include
	INSUL.	Insulation
	INT.	Interior
J	JAN.	Janitor
	LB./#	Pound
	L.F.	Linear Feet
	LKR.	Locker
	LT.	Light
	LG.	Large
M	MAT.	Material
	M.B.	Machine Bolt
	M.C.	Medicinal Cabinet
	MD.	Medium
	MECH.	Mechanical
	MEMB.	Membrane
	MET.	Metal
	MFR.	Manufacturer
	MH.	Manhole
	MIN.	Minimum
	MIR.	Mirror
	MISC.	Miscellaneous
	M.O.	Masonry Opening
	MTD.	Mounted
	MUL.	Mullion
N	N	North
	(N)	New
	N.I.C.	Not In Contract
	NO./#	Number
	NOM.	Nominal
	N.T.S.	Not to Scale
O	O/	Over
	O.A.	Overall
	O.C.	On Center
	O.D.	Outside Diameter (Dim.)
	O.H.	Opposite Hand
	O.F.D.	Overflow Drain
	OBS.	Obscure
	OFF.	Office
	OPNG.	Opening
	OPP.	Opposite
P	P.C.	Painted Concrete
	P.G.B.	Painted Gypsum Board
	PKG.	Parking
	PRCST.	Pre-Cast
	PL.	Plate
	P.LAM.	Plastic Laminate
	PLAS.	Paster
	PLYWD.	Plywood
	PR.	Pair
	PT.	Point
	P.T.D.	Paper Towel Dispenser
	P.T.D/R.	Combination Paper Towel Dispenser & Receptacle
	PTN.	Partition
	P.T.R.	Paper Towel Receptacle
Q	QTY.	Quantity
	Q.T.	Quarry Tile
R	R.	Riser
	RAD.	Radius
	R.B.-4	4" Rubber Top Set Base
	R.B.-6	6" Rubber Top Set Base
	R.D.	Roof Drain
	REF.	Reference
	REFR.	Refrigerator
	REINF.	Reinforced
	REQ.	Required
	RESIL.	Resilient
	R.F.	Resilient Flooring
	RFG.	Roofing
	RGTR.	Register
	RHWS.	Round Head Wood Screw
	RM.	Room
	RND.	Round
	R.O.	Rough Opening
	RWD.	Redwood
	R.W.L.	Rain Water Leader
S	S	South
	S.C.	Solid Core
	S.C.D.	Seat Cover Dispenser
	S.CONC.	Sealed Concrete
	SCHED.	Schedule
	S.D.	Soap Dispenser
	SECT.	Section
	SH.	Shelf
	SHR.	Shower
	SHT.	Sheet
	SIM.	Similar
	SHT.MET.	Sheet Metal
	SM.	Small
	S.N.D.	Sanitary Napkin Dispenser
	SD.INSUL.	Sound Insulation
	SPEC.	Specification
	SQ.	Square
	S.S.P.	See Structural Plans
	S.S.D.	See Structural Drawings
	S.SK.	Service Sink
	S.STL.	Stainless Steel
	STA.	Station
	STD.	Standard
	STL.	Steel
	STOR.	Storage
	STRUC.	Structure/Structural
	SUSP.	Suspended
	S.V.	Sheet Vinyl
	SYM.	Symmetrical
	SYS.	System
T	TRD.	Tread
	T.B.	Towel Bar
	T.C.	Top of Curb
	TEL.	Telephone
	TEMP.	Temporary
	TER.	Terrazzo
	T.&G.	Tongue & Groove
	T.G.B.	Textured Gypsum Board
	THK.	Thick
	T.O.	Top of
	T.O.C.	Top of Concrete
	T.P.D.	Toilet Paper Dispenser
	T.V.	Television
	T.O.W.	Top of Wall
	TYP.	Typical
U	UNF.	Unfinished
	U.O.N.	Unless Otherwise Noted
	UR.	Urinal
V	VCR	Vinyl Carpet Reducer
	VCT	Vinyl Composition Tile
	VERT.	Vertical
	VEST.	Vestibule
	V.T.	Vinyl Tile
	V.W.C.	Vinyl Wall Convering
W	W	West
	W/	With
	W.C.	Water Closet
	WD.	Wood
	WDW.	Window

APPLICABLE CODES:

BUILDING	2019 CALIFORNIA BUILDING CODE (CBC)
MECHANICAL	2019 CALIFORNIA MECHANICAL CODE (CMC)
PLUMBING	2019 CALIFORNIA PLUMBING CODE (CPC)
ELECTRICAL	2019 CALIFORNIA ELECTRICAL CODE (CEC)
FIRE PREVENTION	2019 CALIFORNIAN FIRE CODE (CFC) AND LOCAL ORDINANCE
ENERGY	2019 CALIFORNIA T-24- CALIFORNIA ENERGY CODE
ACCESSIBILITY:	MORE STRINGENT OF CALIFORNIA BUILDING CODE OR APPLICABLE FEDERAL LAWS
	CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)
	CITY OF SANTA CLARA, CA MUNICIPAL CODE

SHEET INDEX:

CHEENEY STREET TOWNHOUSES



PROJECT TEAM:

OWNER:

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F. 000-000-000
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jrobison@robisonengineering.com

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598 E SANTA CLARA STREET
SUITE 270
SAN JOSE, CA 95112

NINH LE
T. (408) 806-7187
nle@lcengineering.net

PROJECT SUMMARY AND SCOPE OF WORK:

THE PROJECT SITE IS A 22,500 SQUARE FEET COMBINED LOTS IN THE AGNEW'S VILLAGE NEIGHBORHOOD OF THE CITY OF SANTA CLARA. ADJACENT PARCELS 104-12-025 AND 104-12-026 FROM THE SITE WHICH HAS A150' LONG WESTERN FRONTAGE ALONG CHEENEY STREET

THE 150' X 150' PROJECT SITE IS CURRENTLY VACANT WITH NO EXISTING BUILDINGS OR INFRASTRUCTURE, UTILITIES RUN BELOW CHEENEY STREET, WITH ABOVE GROUND POWER LINES COLINEAR WITH THE SIDEWALK.

THE PROPOSED PROJECT RECEIVED EARLY CONSIDERATION APPROVAL FOR REASSIGNMENT OF USE DESIGNATION FROM VERY LOW DENSITY RESIDENTIAL TO LOW DENSITY RESIDENTIAL, ALLOWING FOR UP TO 9 UNITS ON THIS HALF ACRE SITE. THE SCHEME INTRODUCES 9 TOTAL DWELLING UNITS; EACH UNIT CONTAINS A 2-CAR GARAGE AND DRIVEWAY ACCESS VIA A PERMEABLE PAVED SURFACE LOT.

THE PROPOSED TOWNHOMES WOULD CONTAIN APPROXIMATELY 15,520 TOTAL SQUARE FEET OF INTERIOR HABITABLE SPACES, EACH OWNERSHIP UNIT AT ROUGHLY 1,724 SQUARE FEET IN AREA. EACH DWELLING IS TWO STORY AND HAS 3 BEDROOMS AND 2-1/2 BATHS.

PROJECT DATA MATRIX:

	AREA	LOT COVERAGE
LOT	22,500 SF	
LEVEL 1 (SITE TOTAL)	10,121 SF	44.9%
LEVEL 2 (SITE TOTAL)	10,134 SF	-
BUILDING TOTAL	20,255 SF	
PAVING (PERMEABLE)	6,300 SF	28%
IMPERMEABLE SURFACE (PAVING & BUILDING SLAB)	12,187 SF	54%
LANDSCAPE	4,016 SF	17%

GUEST PARKING SPACES REQUIRED: 2

GUEST PARKING SPACES PROVIDED: 2

MFA

ENGINEERS & ASSOCIATES

370 GRAND PARK CIRCLE
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Tel: (408) 509-3461
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REGISTERED PROFESSIONAL ENGINEER — ALI ABIANI — NO C 57818 — CIVIL — STATE OF CALIFORNIA

CHEENEY ST TOWNHOUSES
4249 CHEENEY ST
SANTA CLARA, CA 95054

DATE: 12/19/2022
PROJECT No. 39-071322

COVER SHEET

REF. NORTH

G0.0

PINK CRAPE MYRTLE

TUPELO

YEW PINE

LITTLE GEM MAGNOLIA

AMBER MONROVIA

ELIJAH BLUE FESCUE

SISKIYOU BLUE FESCUE

LANDSCAPE SPECIES 4

CEMENT PLASTER - PAINTED LIGHT TAN

BOARD AND BATTEN SIDING - PAINTED LIGHT GREY

MATERIALS 3

VIEW 2 FACING TYPE 'B' UNITS N.T.S. 2

VIEW 1 FACING TYPE 'A' UNITS N.T.S. 1

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CHEENEY ST TOWNHOUSES

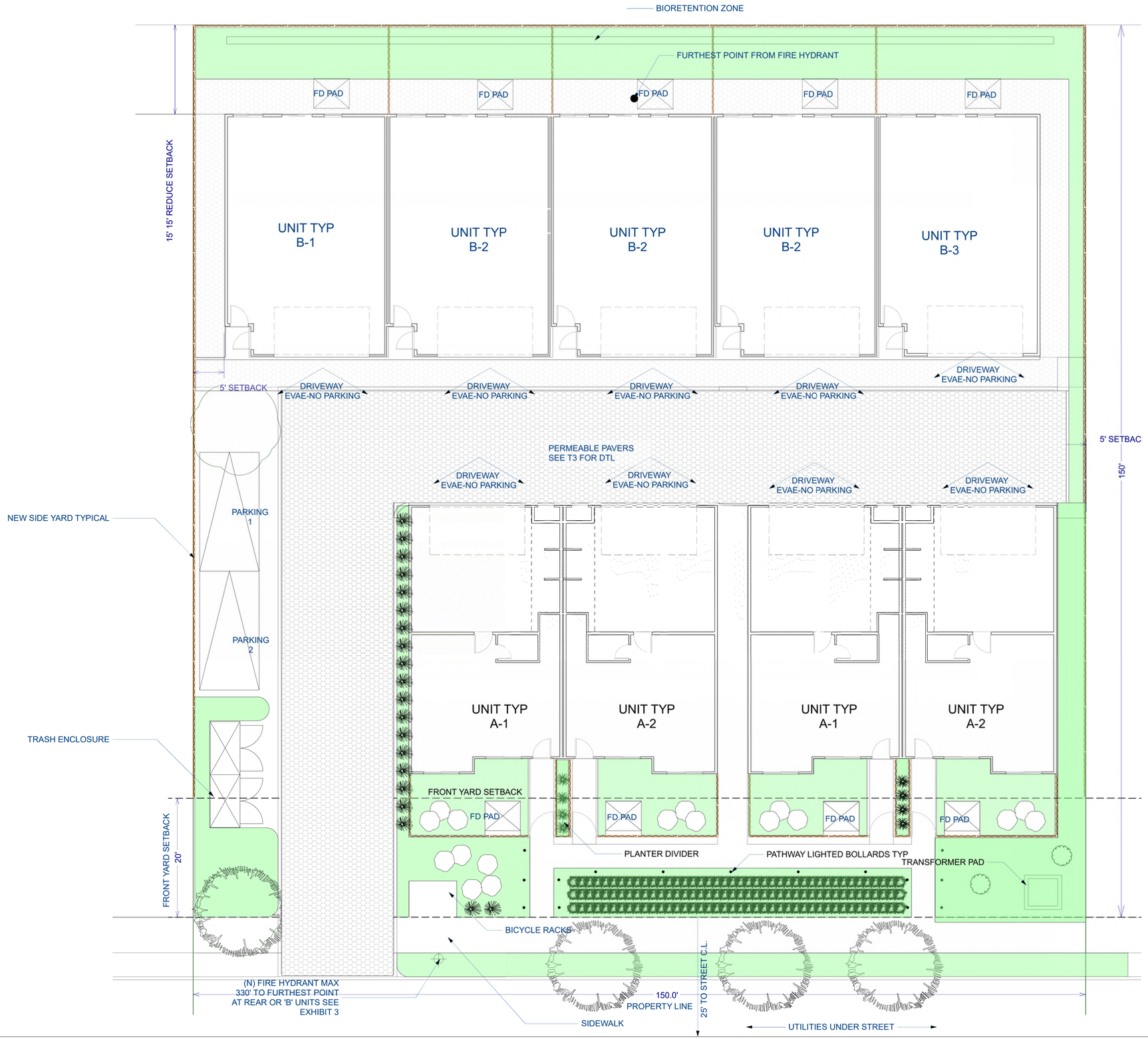
4249 CHEENEY ST
SANTA CLARA, CA 95054

DATE:	12/17/2022
PROJECT No.	39-071322

3D VIEWS AND MATERIALS

REF. NORTH

G1.0



SITE PLAN 1/8" 1

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CHEENEY ST TOWNHOUSES

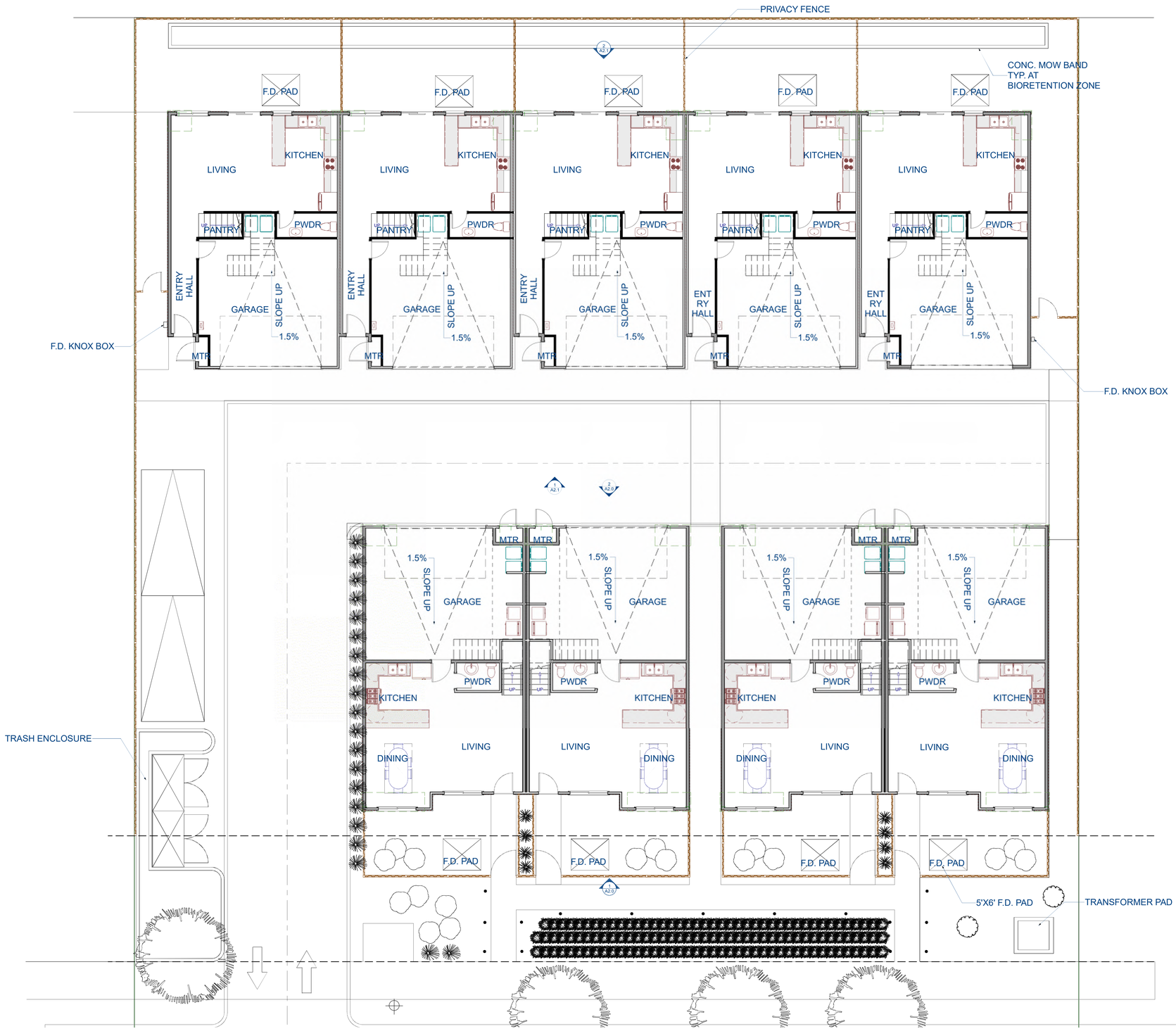
4249 CHEENEY ST
SANTA CLARA, CA 95054

DATE:	12/15/2022
PROJECT No.	39-071322

SITE PLAN

REF. NORTH

A1.0



LEVEL 1 — 1/8" — 1

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CHEENEY ST TOWNHOUSES

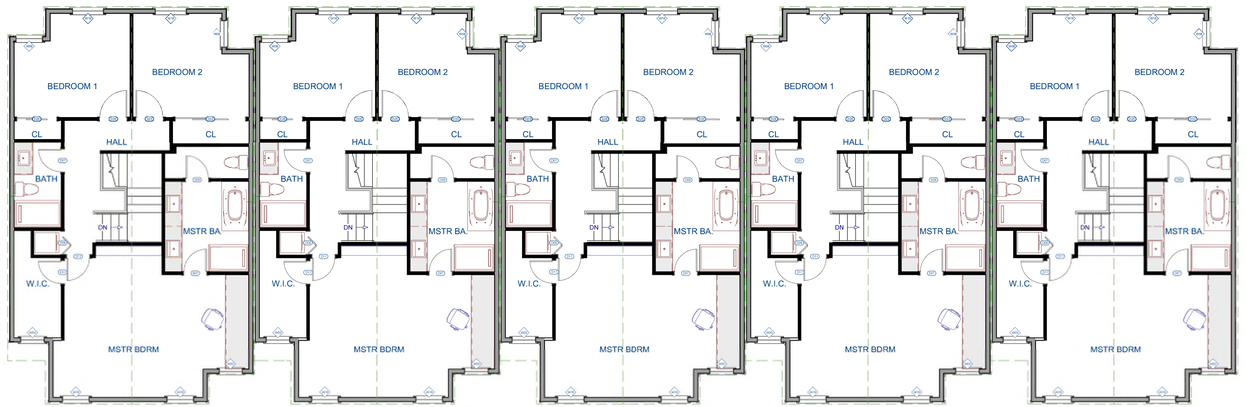
4249 CHEENEY ST
SANTA CLARA, CA 95054

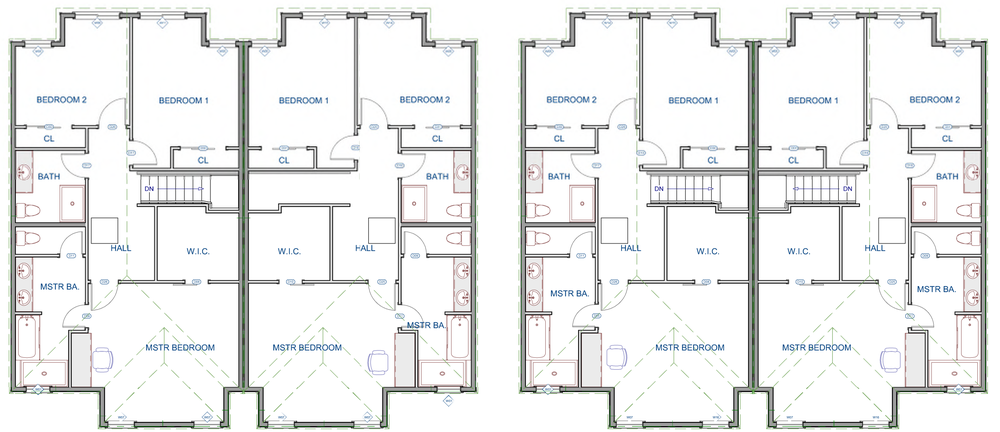
DATE:	12/16/2022
PROJECT No.	39-071322

LEVEL ONE

REF. NORTH

A1.1





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STATE OF CALIFORNIA

CHEENEY STREET TOWNHOUSES

4249 CHEENEY ST
SANTA CLARA, CA 95054

DATE:	12/15/2022
PROJECT No.	39-071322

LEVEL TWO

REF. NORTH

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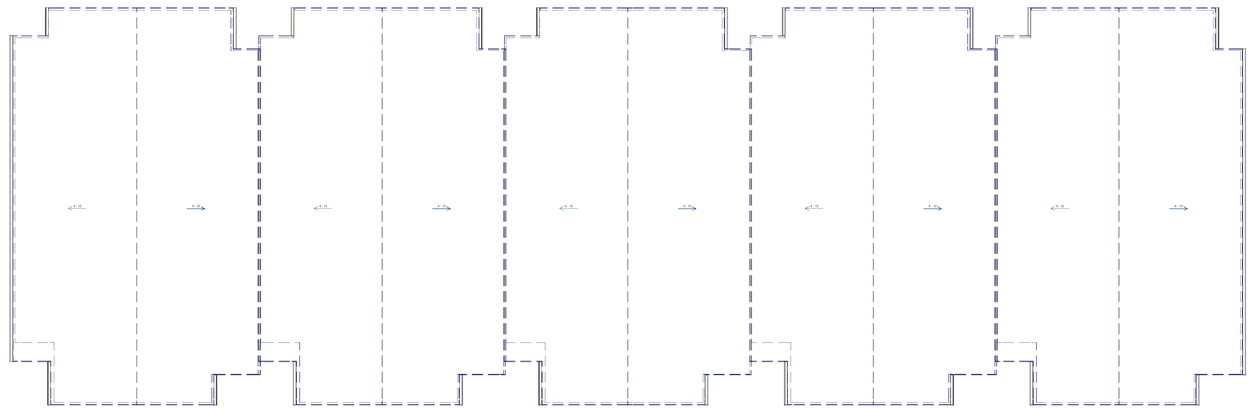

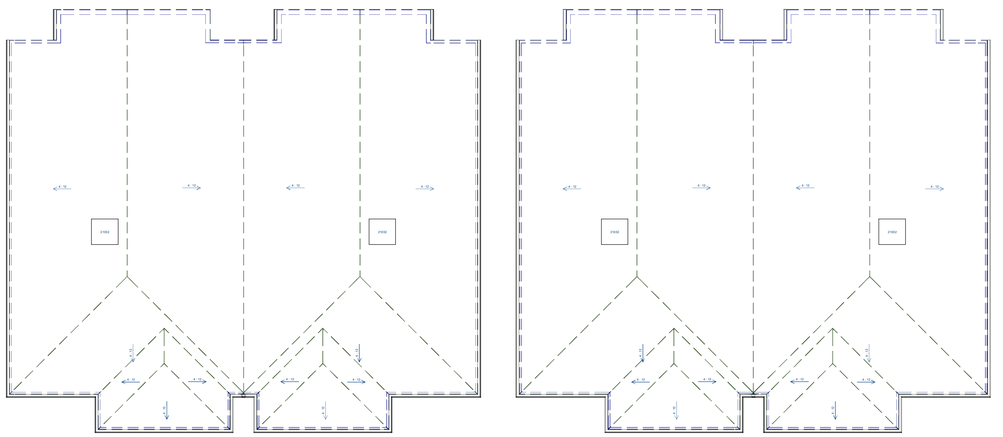

MFA

ENGINEERS & ASSOCIATES

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Tel: (408) 509-3461
aliabiani@sbcglobal.net

REGISTERED PROFESSIONAL ENGINEER
ALI ABIANI
NO C 57818
CIVIL
STATE OF CALIFORNIA

CHEENEY ST TOWNHOUSES

4249 CHEENEY ST
SANTA CLARA, CA 95054

DATE:	12/15/2022
PROJECT No.	39-071322

ROOF PLAN

REF. NORTH

A1.3

MFA

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NO C 57818
CIVIL

REAR ELEVATION UNITS 'A' 3/16 2

FRONT ELEVATION UNITS 'A' 3/16 1

CHEENEY ST TOWNHOUSES

4249 CHEENEY ST
SANTA CLARA, CA 95054

DATE:	12/15/2022
PROJECT No.	39-071322

ELEVATIONS
UNITS 'A'

REF. NORTH

A2.0

MFA

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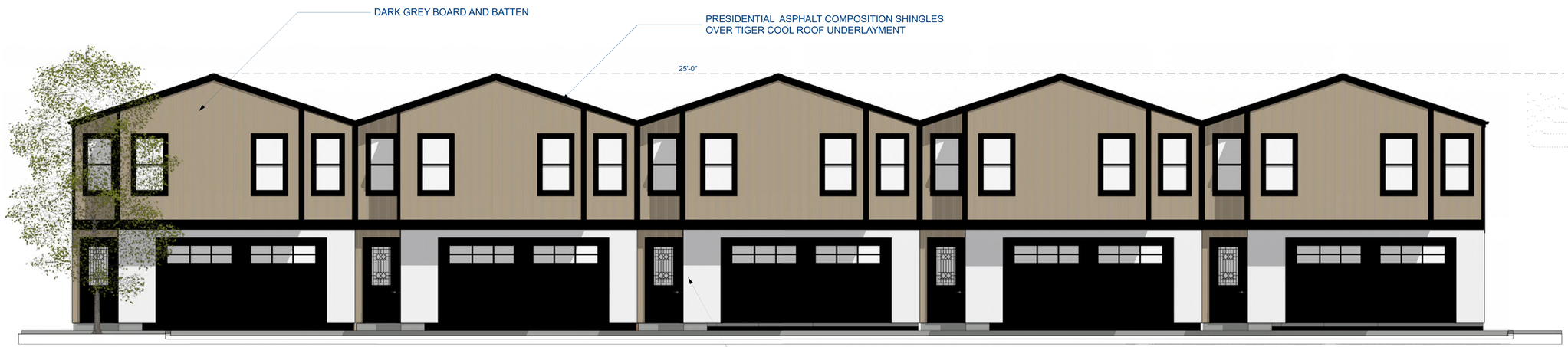
REAR ELEVATION UNITS 'B' 3/16 2



FRONT ELEVATION UNITS 'B' 3/16 1

CHEENEY ST TOWNHOUSES

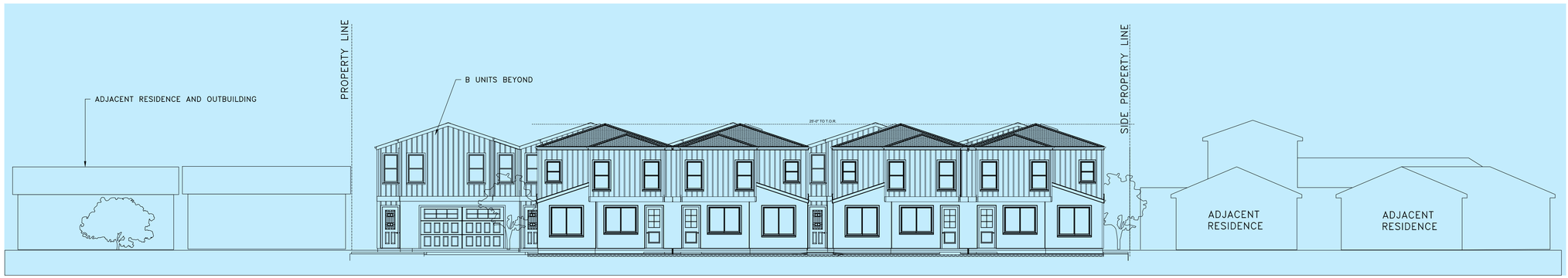
4249 CHEENEY ST
SANTA CLARA, CA 95054

DATE:	12/15/2022
PROJECT No.	39-071322

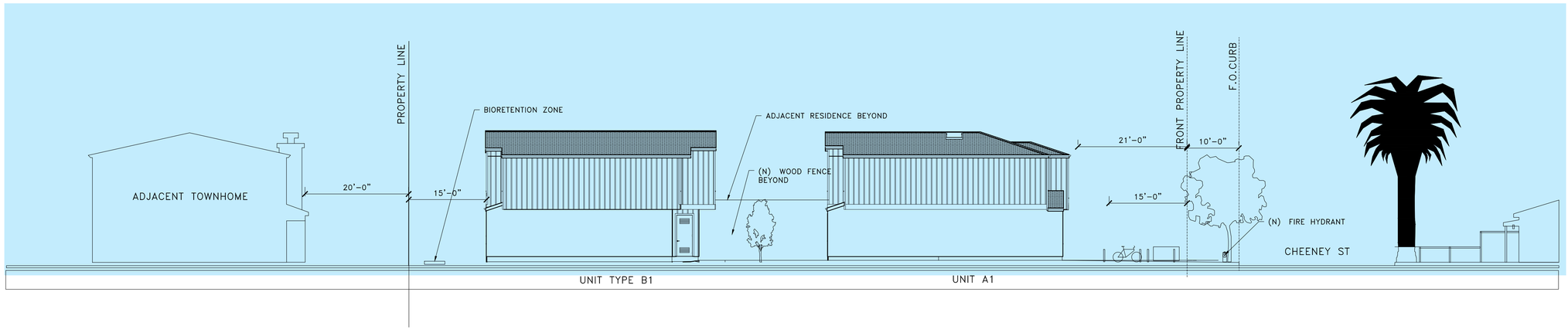
ELEVATIONS
UNITS 'B'

REF. NORTH

A2.1



SITE SECTION N-S | 3/32" | 2



SITE SECTION E-W | 3/32" | 1

MFA
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REGISTERED PROFESSIONAL ENGINEER ALI ALBIANI NO C 57818 CIVIL

CHEENEY ST TOWNHOUSES
4249 CHEENEY ST.
SANTA CLARA, CA 95054

	REVISION	DATE
1		
2		
3		

DATE:	August 23, 2022
PROJECT No.	10-042122

SITE SECTIONS

REF. NORTH

A3.0

GRADING AND DRAINAGE IMPROVEMENTS

I. STANDARD GRADING NOTES

1. PRIOR TO COMMENCEMENT OF ANY EARTHWORK/GRADING ACTIVITIES, THE PERMITTEE SHALL ARRANGE A PRE-CONSTRUCTION ION MEETING. THE MEETING SHALL INCLUDE THE CITY OF WATSONVILLE GRADING INSPECTOR, THE GRADING CONTRACTOR AND THE PROJECT SOILS ENGINEER. THE PERMITTEE OR REPRESENTATIVE SHALL ARRANGE THE PRE-CONSTRUCTION MEETING AT LEAST 48 HOURS PRIOR TO THE START OF ANY EARTHWORK/ GRADING ACTIVITIES.
2. APPROVAL OF THIS PLAN APPLIES ONLY TO THE EXCAVATION, PLACEMENT AND COMPACTION OF NATURAL EARTH MATERIALS. THIS APPROVAL DOES NOT CONFER ANY RIGHTS OF ENTRY TO EITHER PUBLIC PROPERTY OR THE PRIVATE PROPERTY OF OTHERS. APPROVAL OF THIS PLAN ALSO DOES NOT CONSTITUTE APPROVAL OF ANY IMPROVEMENTS. PROPOSED IMPROVEMENTS ARE SUBJECT TO REVIEW AND APPROVAL BY THE RESPONSIBLE AUTHORITIES AND ALL OTHER REQUIRED PERMITS SHALL BE OBTAINED.
3. IT SHALL BE THE RESPONSIBILITY OF THE PERMITTEE TO IDENTIFY, LOCATE AND PROTECT ALL UNDERGROUND FACILITIES.
4. THE PERMITTEE SHALL MAINTAIN THE STREETS, SIDEWALKS AND ALL OTHER PUBLIC RIGHTS-OF-WAY IN A CLEAN, SAFE AND USABLE CONDITION. ALL SPILLS OF SOIL, ROCK OR CONSTRUCTION DEBRIS SHALL BE REMOVED FROM THE PUBLICLY OWNED PROPERTY DURING CONSTRUCTION AND UPON COMPLETION OF THE PROJECT. ALL ADJACENT PROPERTY, PRIVATE OR PUBLIC, SHALL BE MAINTAINED IN A CLEAN, SAFE AND USABLE CONDITION.
5. ALL GRADING AND EARTHWORK ACTIVITIES SHALL BE PERFORMED IN SUCH A MANNER AS TO COMPLY WITH STANDARDS ESTABLISHED BY THE BAY AREA AIR QUALITY MANAGEMENT DISTRICT FOR AIRBORNE PARTICULATES.
6. ALL WATER WELL LOCATIONS ON SITE SHALL BE MAINTAINED OR ABANDONED ACCORDING TO CURRENT REGULATIONS ADMINISTERED BY THE CITY WATER DISTRICT.
7. THIS PLAN DOES NOT APPROVE REMOVAL OF TREES. APPROPRIATE TREE REMOVAL PERMITS SHALL BE OBTAINED FROM THE COMMUNITY DEVELOPMENT DEPARTMENT. ANY REQUIRED TREE PROTECTION MEASURES SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION.
8. THE PROJECT CIVIL ENGINEER: LC ENGINEERING, 598 E SANTA CLARA STREET #270, SAN JOSE, CA 95112 HAS DESIGNED THIS PROJECT TO COMPLY WITH THE RECOMMENDATIONS OF THE GEOTECHNICAL REPORT PREPARED BY:_____
9. ALL GRADING AND EARTHWORK ACTIVITIES SHALL CONFORM TO THE APPROVED PLANS AND SPECIFICATIONS. ALL GRADING AND EARTHWORK ACTIVITIES SHALL BE OBSERVED AND APPROVED BY THE SOILS ENGINEER. THE SOILS ENGINEER SHALL BE NOTIFIED AT LEAST 48 HOURS PRIOR TO ANY GRADING OR EARTHWORK ACTIVITIES. UNOBSERVED OR UNAPPROVED WORK SHALL BE REMOVED AND REPLACED UNDER OBSERVATION OF THE PROJECT SOILS ENGINEER.
10. ALL CONSTRUCTION SITES ARE TO BE WINTERIZED WITH APPROPRIATE EROSION CONTROL MEASURES IN PLACE FROM OCTOBER 15TH TO APRIL 15TH OF EACH YEAR.
11. GRADING ACTIVITIES ARE ONLY ALLOWED MONDAY THROUGH FRIDAY, 7:30 AM TO 6:00 PM.
12. ALL GRADING SHALL COMPLY WITH THE CITY OF SANTA CLARA STANDARD SPECIFICATIONS, AND CHAPTER 18 AND APPENDIX 33 OF THE UNIFORM BUILDING 11/26/2018.
13. THE DESIGN SHOWN HEREON IS NECESSARY AND REASONABLE AND DOES NOT RESTRICT ANY HISTORIC DRAINAGE FLOWS FROM ADJACENT PROPERTIES NOR INCREASE DRAINAGE TO ADJACENT PROPERTIES.
14. THE EXISTENCE AND APPROXIMATE LOCATIONS OF UNDERGROUND UTILITIES AND STRUCTURES SHOWN ON THESE PLANS WERE DETERMINED BY THE ENGINEER OF WORK BY SEARCHING THE AVAILABLE PUBLIC RECORDS. THEY ARE SHOWN FOR GENERAL INFORMATION ONLY.
15. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY UTILITY LOCATIONS WITH THE APPROPRIATE AGENCY. THE CONTRACTOR IS REQUIRED TO TAKE DUE PRECAUTIONARY MEASURES TO PROTECT THE UTILITIES, STRUCTURES AND ANY OTHER IMPROVEMENTS FOUND AT THE WORK SITE.
16. ALL ROOF DOWNSPOUTS TO BE DIRECTED AWAY FROM HOME TO SUITABLE DRAINAGE FACILITY VIA DOWNSPOUTS, PAVEMENT AND COLLECTION PIPES THAT DISCHARGE DIRECTLY TO THE STORM DRAIN SYSTEM.
17. EROSION CONTROL PLANTING AND OTHER SILT RETENTION OR EROSION CONTROL MEASURES MAY BE REQUIRED IN ALL GRADED AREAS. SEE LANDSCAPE PLAN, IF APPLICABLE, FOR DETAILS OF PLANTING.
18. DRAINAGE, INCLUDING ALL ROOF AND PATIO DRAINS, SHALL BE DIRECTED AWAY FROM THE STRUCTURE. IT SHALL BE THE OWNER'S AND CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT THE DRAINAGE SYSTEM FACILITIES SHOWN HEREON ARE KEPT CLEAR OF OBSTRUCTIONS AND THE CONTRACTOR SHALL PROVIDE UNDERGROUND PIPES AND REGRADE AREAS THAT WILL NOT DRAIN AFTER FINAL GRADING. THE GROUND ADJACENT TO THE BUILDING SHALL SLOPE AWAY WITH A MINIMUM SLOPE OF 2%
19. THIS PLAN IS A PART OF PROJECT PLANS. SEE ARCHITECT AND LANDSCAPE PLANS, IF APPLICABLE, FOR DETAILS AND DIMENSIONS. FENCES AND WALLS ARE NOT A PART OF THESE PLANS.
20. SOIL ENGINEER TO PROVIDE FINAL LETTER OF INSPECTION AT COMPLETION OF THE GRADING IN ACCORDANCE WITH APPENDIX J, 2016 OF THE UNIFORM BUILDING CODE.
21. CONTRACTOR SHALL GRADE EVENLY BETWEEN SPOT ELEVATIONS SHOWN.
22. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE O.S.H.A. REGULATIONS.
23. CONTRACTOR TO VERIFY ALL EXISTING INVERT ELEVATIONS FOR STORM DRAIN CONSTRUCTION PRIOR TO ANY SITE WORK. SHOULD DISCREPANCIES EXIST BETWEEN THE ACTUAL ELEVATIONS AND LOCATIONS OF EXISTING STORM DRAIN CONNECTIONS AND THOSE AS SHOWN ON THESE PLANS, THE CONTRACTOR SHALL NOTIFY ENGINEER OF WORK BEFORE ADJUSTING THE DESIGN.
24. CONTRACTOR SHALL UNCOVER AND EXPOSE ALL EXISTING UTILITY, SEWER AND STORM DRAIN LINES WHERE THEY ARE TO BE CROSSED ABOVE OR BELOW BY THE NEW FACILITY BEING CONSTRUCTED IN ORDER TO VERIFY THE GRADE AND TO ASSURE THAT THERE IS SUFFICIENT CLEARANCE. HE OR SHE SHALL CALL THE ENGINEER OF WORK REGARDING POTENTIAL CONFLICTS BEFORE FIELD WORK BEGINS.
25. EARTHWORK QUANTITIES SHOWN ON THESE PLANS ARE ONLY TO BE USED TO DETERMINE THE AMOUNT OF THE GRADING PERMIT.
26. ADJUSTMENTS TO BUILDING PAD ELEVATIONS OR PARKING LOT GRADES TO ACHIEVE EARTHWORK BALANCE SHALL BE MADE ONLY WITH APPROVAL OF THE ENGINEER.
27. SOIL ENGINEER WILL NOT DIRECTLY CONTROL THE PHYSICAL ACTIVITIES OF THE CONTRACTOR OR ANY SUBCONTRACTORS OF THE CONTRACTOR OR SUBCONTRACTOR'S WORKMEN'S ACCOMPLISHMENT OF WORK ON THE PROJECT. CONTRACTOR WILL BE SOLELY AND COMPLETELY RESPONSIBLE FOR WORKING CONDITIONS ON THE JOB SITE, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY DURING PERFORMANCE OF THE WORK. THIS REQUIREMENT WILL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS.
28. DURING THE PROGRESS OF THE WORK, THE CONTRACTOR SHALL KEEP THE PREMISES OCCUPIED BY HIM IN A NEAT AND CLEAN CONDITION, DISPOSING OF REFUSE IN A SATISFACTORY MANNER AS OFTEN AS DIRECTED, OR AS MAY BE NECESSARY SO THAT THERE SHALL AT NO TIME BE ANY UNSIGHTLY ACCUMULATION OF RUBBISH.
29. IF HUMAN REMAINS ARE DISCOVERED DURING THE CONSTRUCTION, UNLESS THE CORONER HAS NOTIFIED THE PERMITTEE IN WRITING THAT THE REMAINS DISCOVERED HAVE BEEN DETERMINED NOT TO BE NATIVE AMERICAN, THE PERMITTEE SHALL NOTIFY ALL PERSONS ON THE COUNTY'S NATIVE AMERICAN NOTIFICATION LIST OF SUCH DISCOVERY. SUCH NOTIFICATION SHALL BE SENT BY FIRST CLASS U.S. MAIL WITHIN SEVEN (7) DAYS OF THE DATE ON WHICH THE PERMITTEE NOTIFIED THE CORONER AND SHALL STATE THAT THE CORONER HAS BEEN NOTIFIED IN ACCORDANCE WITH CALIFORNIA STATE LAW.
30. ANY ABANDONED UNDERGROUND PIPES EXPOSED DURING CONSTRUCTION SHALL BE REMOVED, ADEQUATELY PLUGGED, OR A COMBINATION OF BOTH IN ACCORDANCE WITH THE REQUIREMENTS OF THE CITY/COUNTY.
31. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOCATION AND PROTECTION OF ALL UTILITIES. FOR LOCATION OF UNDERGROUND UTILITIES, OR FOR EMERGENCY ASSISTANCE, CALL: UNDERGROUND SERVICE ALERT (USA)
32. THE CONTRACTOR SHALL ADVISE THE OWNER OF APPROPRIATE MAINTENANCE PROCEDURES OF DRAINAGE SYSTEM.
33. ON GRADED SITES, THE TOP OF ANY EXTERIOR FOUNDATION SHALL EXTEND ABOVE THE ELEVATION OF THE STREET GUTTER AT POINT OF DISCHARGE OR THE INLET OF AN APPROVED DRAINAGE DEVICE A MINIMUM OF 12 INCHES (305 mm) PLUS 2% THE BUILDING OFFICIAL MAY APPROVE ALTERNATE ELEVATIONS, PROVIDED IT CAN BE DEMONSTRATED THAT REQUIRED DRAINAGE TO THE POINT OF DISCHARGE AND AWAY FROM THE STRUCTURE IS PROVIDED AT ALL LOCATIONS ON THE SITE.
34. COMPLIANCE WITH THE LOCAL NON-POINT SOURCE ORDINANCE CONCERNING DISCHARGE OF MATERIALS TO THE STORM DRAINAGE SYSTEM SHALL BE THE RESPONSIBILITY OF THE GRADING CONTRACTOR.
35. ALL CONSTRUCTION SHALL COMPLY WITH SECTION 24 OF THE STATE OF CALIFORNIA ADMINISTRATIVE CODE AND CHAPTERS 10 AND 11 OF THE 2016 UNIFORM BUILDING CODE.

II. DUST CONTROL

1. ALL EXPOSED OR DISTURBED SOIL SURFACES SHALL BE WATERED AS NECESSARY, BUT NOT LESS THAN TWICE DAILY TO CONTROL DUST.
2. AREAS OF DIGGING AND GRADING OPERATIONS SHALL BE CONSISTENTLY WATERED TO CONTROL DUST.
3. GRADING OR OTHER DUST-PRODUCING ACTIVITIES SHALL BE SUSPENDED DURING PERIODS OF HIGH WIND WHEN DUST IS READILY VISIBLE IN THE AIR.
4. STOCKPILES OF SOIL, DEBRIS, SAND, OR OTHER DUST-PRODUCING MATERIALS SHALL BE WATERED OR COVERED.
5. THE CONSTRUCTION AREA AND THE SURROUNDING STREETS SHALL BE SWEPT (NO WATER) AS NECESSARY, BUT NOT LESS THAN TWICE DAILY.

NOTES:

1. TREE SIZES AND TYPES ARE APPROXIMATE AND SHOULD BE VERIFIED BY A CERTIFIED ARBORIST.
2. THE LOCATION OF THE UNDERGROUND UTILITIES SHOWN ON THIS MAP WERE BASED ON MARKINGS MADE IN THE FIELD BY OTHERS. THERE MAY BE OTHER UNDERGROUND UTILITIES THAT EXIST ON THIS SITE THAT ARE NOT SHOWN ON THIS PLAN. CLEARLY DEFINED MARKINGS THAT EXISTED AT THE TIME OF THE SURVEY WERE LOCATED AND ARE SHOWN ON THIS PLAN.
3. PRIOR TO REQUESTING A FOUNDATION INSPECTION BY THE CITY, THE GEOTECHNICAL ENGINEER OR CIVIL ENGINEER WHO PREPARED THE SOIL INVESTIGATION SHALL PROVIDE A FIELD REPORT (IN WRITING) WHICH SHALL STATE THE FOLLOWING:
   A. THE BUILDING PAD WAS PREPARED AND COMPACTED IN ACCORDANCE WITH THE SOIL REPORT AND SPECIFICATIONS.
   B. THE FOUNDATION AND/OR PIER EXCAVATION, DEPTH AND BACKFILL MATERIALS, AND DRAINAGE (IF APPLICABLE) SUBSTANTIALLY CONFORM TO THE SOIL REPORT AND APPROVED PLANS.
4. PRIOR TO FINAL INSPECTION FOR ANY BUILDING OR STRUCTURE, THE GEOTECHNICAL ENGINEER OR CIVIL ENGINEER WHO PREPARED THE SOIL INVESTIGATION SHALL ISSUE A FINAL REPORT STATING THE COMPLETED PAD, FOUNDATION, FINISH GRADING, AND ASSOCIATED SITE WORK SUBSTANTIALLY CONFORM TO THE APPROVED PLANS, SPECIFICATIONS, AND INVESTIGATION.

BENCHMARK B-8A

ELEVATION = 13.77'. LOCATED AT AGNEW ROAD, SOUTH SIDE, OPPOSITE GARRITY, CHISELED CROSS ON TOP OF CATCH BASIN HOOD.

BASIS OF BEARINGS

THE BEARINGS SHOWN ON THIS MAP ARE BASED ON THE CENTERLINE OF CHEENEY STREET, AS FOUND MONUMENTED AS N28°14'30"W SHOWN ON PARCEL MAP, RECORDED IN BOOK 476 OF MAPS, AT PAGE 37, SANTA CLARA COUNTY RECORDS.

SCOPE OF WORK

1. DEMOLISH EXISTING DRIVEWAY, BRICKS, SHED AND REMOVE TREES
2. REMOVE EXISTING CURB & GUTTERS, DRIVEWAY APPROACH AND SIDEWALK, UTILITIES. RELOCATE EXISTING POWER POLES WITHIN RIGHT OF WAY
3. 9 TOWNHOUSE DEVELOPMENT AND 10 LOT SUBDIVISION
4. GRADE DRIVEWAY & HOUSES; INSTALL DRAINAGE FACILITIES, EROSION AND SEDIMENT CONTROL, DRIVEWAY AND DRIVEWAY APPROACH, DRAINAGE IMPROVEMENTS; & SEED ALL DISTURBED AREAS.
5. CONSTRUCT CURB & GUTTERS, DRIVEWAY APPROACH AND SIDEWALK WITHIN RIGHT OF WAY
6. INSTALL UTILITY LINES AND SERVICES ON-SITE AND WITHIN RIGHT OF WAY
7. THE DEVELOPER IS RESPONSIBLE FOR THE INSTALLATION OF THE WORK PROPOSED ON THE EROSION CONTROL PLAN. THE ENGINEER OF RECORD IS RESPONSIBLE FOR THE DESIGN OF THE EROSION CONTROL PLANS AND ANY MODIFICATIONS OF THE EROSION CONTROL PLANS TO PREVENT ILLICIT DISCHARGES FROM THE SITE DURING CONSTRUCTION

PROJECT NOTES:

1. CONSTRUCTION SITE SHALL BE ENCLOSED BY 6' OPAQUE FENCE AT ALL TIMES DURING CONSTRUCTION.
2. NO CONSTRUCTION MATERIAL, EQUIPMENT, PORTABLE TOILETS, TRASH CONTAINERS, OR DEBRIS SHALL BE PLACED IN THE PUBLIC RIGHT-OF-WAY.
3. A TRASH CONTAINER SHALL BE MAINTAINED ON SITE AT ALL TIMES AND DEBRIS ON SITE WHICH COULD OTHERWISE BLOW AWAY, SHALL BE REGULARLY COLLECTED AND PLACED IN CONTAINER.
4. ALL CONSTRUCTION DEBRIS (WOOD SCRAPS AND OTHER DEBRIS, WHICH CANNOT BLOW AWAY) SHALL BE PILED WITHIN THE PROPERTY LINES OF THE PROJECT IN A NEAT AND SAFE MANNER.
5. THE PROJECT SHALL HAVE A SIGNAGE VIEWABLE FROM THE PUBLIC STREET THAT INDICATES THE HOURS OF CONSTRUCTION AS: MON- FRI FROM 7:30 AM TO 6 PM, SATURDAYS FROM 9AM TO 5 PM.
6. OBTAIN AN ENCROACHMENT PERMIT FROM PUBLIC WORKS PRIOR TO THE START OF ANY DRIVEWAY APPROACH DEMOLITION OR CONSTRUCTION AT THE STREET. CONTACT PUBLIC WORKS ENGINEER FOR INFORMATION REGARDING OBTAINING AN ENCROACHMENT PERMIT.
7. ALL ELECTRIC LINES, COMMUNICATION LINES AND APPURTENANCES, INCLUDING ALL PUBLIC UTILITY, CATV AND TELEGRAPH SYSTEMS, SHALL BE LOCATED AND INSTALLED UNDERGROUND.
8. PRIOR TO REQUESTING A FOUNDATION INSPECTION BY THE CITY, THE GEOTECHNICAL ENGINEER OR CIVIL ENGINEER WHO PREPARED THE SOIL INVESTIGATION SHALL PROVIDE A FIELD REPORT (IN WRITING) WHICH SHALL STATE THE FOLLOWING:
   - THE BUILDING PAD WAS PREPARED AND COMPACTED IN ACCORDANCE WITH THE SOIL REPORT AND SPECIFICATIONS.
   - THE FOUNDATION AND/OR PIER EXCAVATION, DEPTH AND BACKFILL MATERIALS, AND DRAINAGE (IF APPLICABLE) SUBSTANTIALLY CONFORM TO THE SOIL REPORT AND APPROVED PLANS.
9. PRIOR TO FINAL INSPECTION FOR ANY BUILDING OR STRUCTURE, THE GEOTECHNICAL ENGINEER OR CIVIL ENGINEER WHO PREPARED THE SOIL INVESTIGATION SHALL ISSUE A FINAL REPORT STATING THE COMPLETED PAD, FOUNDATION, FINISH GRADING, AND ASSOCIATED SITE WORK SUBSTANTIALLY CONFORM TO THE APPROVED PLANS, SPECIFICATIONS, AND INVESTIGATION.
10. PRIOR TO THE COMMENCEMENT OF ANY EARTHWORK OR GRADING ACTIVITIES, INCLUDING BASEMENT EXCAVATION AND TRENCHING THAT EXCEEDS 5 FOOT IN DEPTH, THE PERMITTEE SHALL ARRANGE A PRE-CONSTRUCTION MEETING. THE MEETING SHALL INCLUDE THE CITY OF WATSONVILLE GRADING INSPECTOR, THE GRADING CONTRACTOR AND THE PROJECT SOILS ENGINEER. the PERMITTEE OR REPRESENTATIVE SHALL ARRANGE THE PRE-CONSTRUCTION MEETING AT LEAST 48 HOURS PRIOR TO THE START OF ANY EARTHWORK/ GRADING ACTIVITIES.
11. EXCAVATION CUTS EXCEEDING 5 FEET TYPICALLY REQUIRE A DOSH PERMIT. ALL EXCAVATIONS MUST CONFORM TO APPLICABLE OSHA AND CAL OSHA REQUIREMENTS. CONTACT CALIFORNIA DEPARTMENT OF OCCUPATIONAL SAFETY AND HEALTH (DOSH) FOR INFORMATION ABOUT REQUIRED PERMITS. AT THE PRE-CONSTRUCTION MEETING, THE EXCAVATION CONTRACTOR SHALL SUBMIT PROOF, TO THE CITY BUILDING INSPECTOR, THAT SHOWS HE OR SHE HAS RECEIVED SUCH A PERMIT FROM DOSH.
12. PRIOR TO ANY GRADING, SCRAPING OR TRENCHING WITHIN/ UNDER THE CANOPY OF A PROTECTED TREE, A CERTIFIED ARBORIST SHALL BE RETAINED TO PROVIDE SUPERVISION AND RECOMMENDATIONS TO MINIMIZE POSSIBLE DAMAGE TO THE TREE. THE PROPOSED TRENCHING SHALL BE APPROVED BY THE CITY OF WATSONVILLE PLANNING DEPARTMENT PRIOR TO COMMENCING DIGGING.

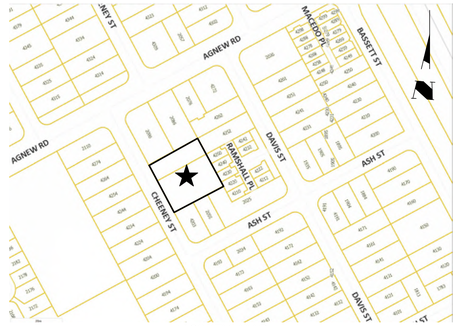
NOTES:

1. PROJECT NAME: CHEENEY STREET TOWNHOUSES
2. ASSESSOR PARCEL NO: 104-12-025 & 104-12-026
3. SITE ADDRESS: CHEENEY STREET, SANTA CLARA, CA 95054
4. LOT AREA: 0.2± ACRES (GROSS AREA)
5. OWNER: GROUND ZERO CONSTRUCTION
   ADDRESS: 101 SOUTH SANTA CRUZ AVE, UNIT 33192, LOS GATOS, CA 95031
   TELEPHONE: (408)-710-6725
6. ENGINEER: NINH M LE, PE
   ADDRESS: 598 E SANTA CLARA ST #270, SAN JOSE, CA 95112
   TELEPHONE: (408)-806-7187
7. SURVEYOR: TOM H. MILO
   ADDRESS: 2250 BOHANNON DRIVE, SAN CLARA, CA 95050
   TELEPHONE: (408)-761-5867
8. EXISTING ZONING: RM-3 MULTIPLE RESIDENTIAL-HIGH DENSITY
9. PROPOSED ZONING: NO CHANGE
10. EXISTING USE: VACANT
11. PROPOSED USE: RESIDENTIAL
12. PROPOSED NUMBER OF LOTS: 9 LOT
13. ALL DIMENSIONS AND PROPOSED GRADING ARE PRELIMINARY AND SUBJECT TO FINAL DESIGN
14. PROPOSED WATER, SANITARY SEWER,AND STORM DRAIN WILL BE CONSTRUCTED AS PER LOCAL AGENCY STANDARDS.
15. WATER: SANTA CLARA WATER AND UTILITIES
16. SEWER: SANTA CLARA WATER AND UTILITIES
17. STORM: SANTA CLARA WATER AND UTILITIES
18. GAS & ELECTRIC: PG&E
19. TELEPHONE: AT&T
20. CABLE TV: COMCAST
21. IF EXISTING WATER METER IS NOT BEING USED, IT SHALL BE REMOVED AND CAPPED AT MAIN
22. IF EXISTING INLETS ARE NOT BEING USED, THEY SHALL BE REMOVED AND CAPPED
23. REMOVE ALL EXISTING IMPROVEMENT WITHIN THE PROPERTY LIMITS

EARTHWORK QUANTITIES

CUT = 21 CY ; MAXIMUM CUT DEPTH = 0.50'±
FILL = 169 CY ; MAXIMUM CUT DEPTH = 0.66'±
IMPORT 148 CY
EXPORT 0 CY

EARTHWORK QUANTITIES AS SHOWN ON THE PLAN IS FOR INFORMATION ONLY. CONTRACTOR TO CALCULATE HIS/HER OWN EARTHWORK QUANTITIES FOR BIDDING PURPOSE.



VICINITY MAP
NTS

LEGEND & ABBREVIATIONS

AB	AGGREGATE BASE		BENCHMARK
AC	ASPHALT CONCRETE		BOUNDARY
BLDG	BUILDING		CATCH BASIN
BSL	BUILDING SETBACK LINE		COBBLE ROCK ENERGY DISSIPATOR
BW	BOTTOM OF WALL/BACK OF WALK		CONCRETE
CED	COBBLE ROCK ENERGY DISSIPATOR	550	CONTOUR: EXISTING
CG	CURB & GUTTER	550	CONTOUR: PROPOSED OR NEW
℄	CENTERLINE	100.46	DESIGN GRADE
CO	SANITARY SEWER CLEANOUT		DOWNSPOUT WITH SPLASHBLOCK
COP	CURB OPENING	DIV	DIVERSION VALVE
CONC	CONCRETE		EXTENDABLE BACKWATER VALVE (SEE PROJECT NOTES)
CSD	CITY STANDARD DETAIL		DRAINAGE SWALE
DI	DRAINAGE INLET		EASEMENT LINE
DS	DOWNSPOUT	+101.70 OR (101.70)	EXISTING ELEVATION
DWY	DRIVEWAY		EXISTING FENCE
EA	EASEMENT		EXISTING TREE TO BE REMOVED
ELEV	ELEVATION		EXISTING TREE TO REMAIN
EM	ELECTRIC METER	EM	ELECTRICAL METER
EOH	ELECTRIC OVERHEAD		FILTER FABRIC ROLLS
EUG	ELECTRIC UNDERGROUND	GM	GAS METER
EP	EDGE OF PAVEMENT	GV	GAS VALVE
EX	EXISTING		GRADE TO DRAIN
EVAE	EMERGENCY VEHICLE ACCESS EASEMENT		GUY POLE
FC	FACE OF CURB		GUY WIRE ANCHOR
FD	FOUND		EXISTING FIRE HYDRANT
FF	FINISH ELEVATION OF SUBFLOOR		HYDRANT: PROPOSED OR NEW
FG	GROUND FINISH GRADE		INLET 6"x6" GRATE OTHERWISE NOTED
FH	FIRE HYDRANT		JOINT POLE
FL	FLOW LINE		LIGHTING
G	GARAGE SLAB ELEVATION/GAS LINE		LIGHTING POLE
GM	GAS METER		OVERLAND FLOW DIRECTION
GV	GAS VALVE	PGE	PGE BOX
HP	HIGH POINT	BMP	POST CONSTRUCTION STORM WATER POLLUTION CONTROL MEASURE
INV	INVERT		PROJECT SITE
IP	IRON PIPE		RETAINING WALL
JT	JOINT TRENCH		RIGHT OF WAY
LIP	LIP OF GUTTER		SANITARY SEWER CLEAN OUT MANHOLE
LS	LANDSCAPED AREA		SANITARY SEWER MANHOLE
MAX	MAXIMUM		STORM DRAIN MANHOLE
MH	MANHOLE	TEL	TELEPHONE BOX
MIN	MINIMUM		TOP OF FILL
MW	MONUMENT WELL		TOE OF FILL
NTS	NOT TO SCALE		TOP OF CUT
OH	OVERHEAD		TOE OF CUT
OG	ORIGINAL GROUND	W	UTILITY: EXISTING
P	PAVEMENT FINISH GRADE	W	UTILITY: PROPOSED OR NEW
PAD	PAD ELEVATION	WM	WATER METER
PL	PROPERTY LINE	WV	WATER VALVE
PP	POWER POLE	W	WELL
PSE	PUBLIC SERVICE EASEMENT		
PSDRE	PRIVATE STORM DRAIN RELEASE EASEMENT		
PSSE	PRIVATE SANITARY SEWER EASEMENT		
PWLE	PRIVATE WATER LINE EASEMENT		
PVMT	PAVEMENT		
PVC	POLYVINYL CHLORIDE		
R	RADIUS		
RW	RETAINING WALL		
R/W	RIGHT OF WAY		
SD	STORM DRAIN		
SS	SANITARY SEWER/LATERAL		
STA	STATION		
SVP	SILICON VALLEY POWER		
SW	SIDEWALK		
TB	TOP OF BANK		
TC	TOP OF CURB		
TG	TOP OF GRATE		
TW	TOP OF WALL		
TYP	TYPICAL		
UGEE	UNDERGROUND ELECTRICAL EASEMENT		
VEG	VEGETATED		
W	WATER		
WLK	WALKWAY		
WM	WATER METER		
WV	WATER VALVE		

SHEET INDEX:

REGISTERED PROFESSIONAL ENGINEER
N. M. LE
No. 47518
CIVIL
STATE OF CALIFORNIA

NO.	REVISIONS	DATE	APP'D	BY

PT DESIGNED 12/02/22 DATE
PT. DRAWN 12/02/22 DATE
SCALE AS NOTED SCALE
NL CHECKED 12/02/22 DATE

LC ENGINEERING
598 E Santa Clara St #270
San Jose, CA 95112
Phone: (408) 806-7187
Fax: (408) 583-4006

TITLE SHEET
CHEENEY STREET TOWNHOUSES
CHEENEY STREET
APN 104-12-026
SANTA CLARA CALIFORNIA

PROJECT NO.
CONTRACT NO.

DRAWING NO. C1
SHT NO. 1 OF 9
FILE NO.

CHEENEY STREET (60' R/W)

APN 104-12-182

APN 104-12-028

APN 104-12-019

APN 104-12-020

APN 104-62-012

APN 104-62-013

APN 104-62-014

APN 104-62-015

APN 104-12-151

APN 104-12-150

APN 104-12-203

EX BARN

EX BLDG

EX WATER MAIN

EX 6" SS, S=0.76%

EX C&G & SW & DWY APPROACH

REMOVE 148.5'± EX C&G & SW & DWY APPROACH

EX DWY APROACH

EX FENCE

EX WALL

BRICK

SHED

LS

AC DWY

METAL POST

12" TREE

8" TREE

3" TREE

5" TREE

TOWN OF AGNEW'S
BLOCK D
"D" M 113
APN 104-12-025 & 104-12-026

RELOCATE EX POWER POLE BY OTHER

REMOVE EX SSCO

REMOVE EX WATER METER

RELOCATE EX EOH BY OTHER

PROJECT BENCHMARK
MAG NAIL
ELEV = 20.12'

℄ S61°45'58"W 150.00'

℄ N28°14'30"W (BASIS OF BEARINGS)

℄ S28°14'30"E 150.03'

℄ N28°13'58"W 150.03'

℄ N61°45'53"E 149.98'

30' 30'
60' R/W

NOTE:

REMOVE ALL EXISTING IMPROVEMENTS WITHIN THE PROPERTY LIMITS

GRAPHIC SCALE
0 10 20
(IN FEET)
1 inch = 10 ft.

REGISTERED PROFESSIONAL ENGINEER
N. M. LE
No. 47518
CIVIL
STATE OF CALIFORNIA

NO.	REVISIONS	APP'D	DATE	BY

PT 12/02/22
DESIGNED DATE
PT 12/02/22
DRAWN DATE
1" = 10'
SCALE
NL 12/02/22
CHECKED DATE

LC ENGINEERING
598 E Santa Clara St #270
San Jose, CA 95112
Phone: (408) 806-7187
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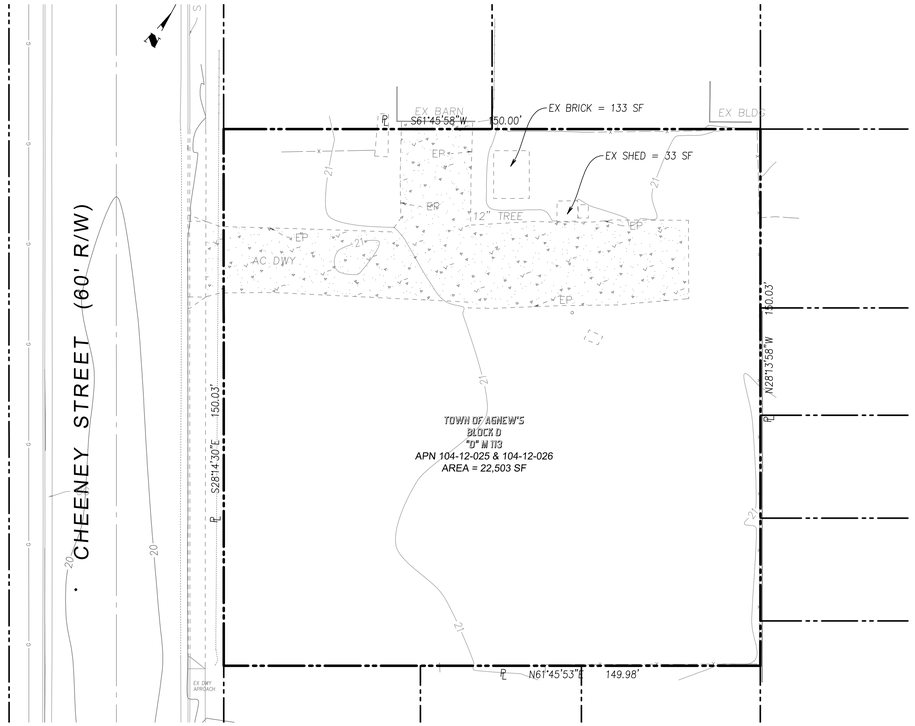
DEMOLITION PLAN
CHEENEY STREET TOWNHOUSES
CHEENEY STREET
APN 104-12-025 APN 104-12-026

CALIFORNIA
SANTA CLARA

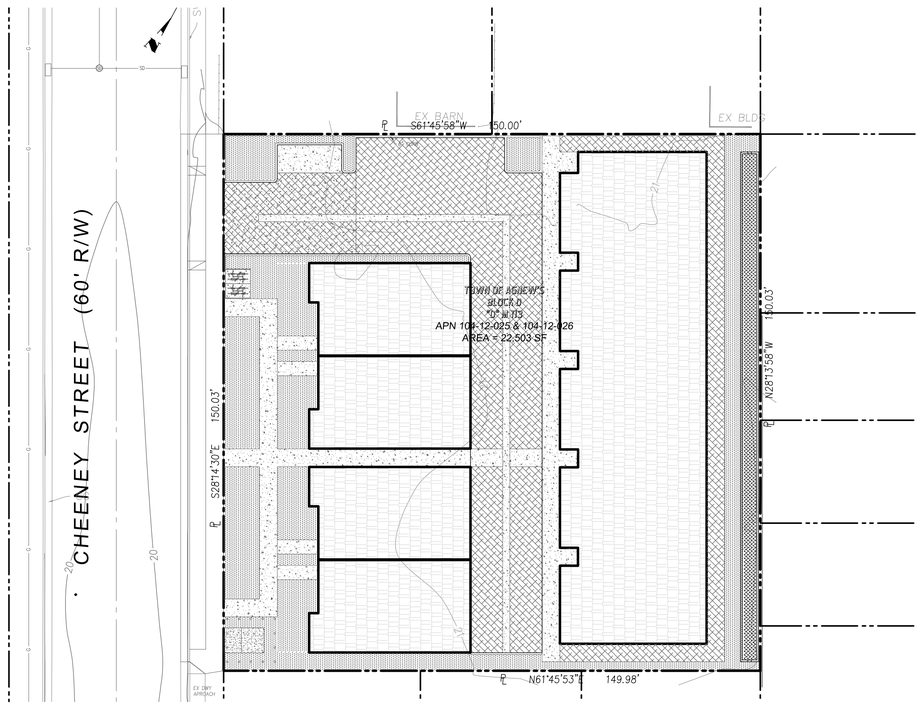
PROJECT NO.
CONTRACT NO.

DRAWING NO. C2
SHT NO. 2 OF 9



PRE-DEVELOPMENT PLAN

SCALE 1" = 20'



POST-DEVELOPMENT PLAN

SCALE 1" = 20'

LEGEND:

- PERMEABLE PAVER AREA
- PAVER W/ CONCRETE BELOW
- CONCRETE AREA
- ROOF
- LANDSCAPE AREA
- BIO-RETENTION

PRE - DEVELOPMENT

NO.	SURFACE AREA	IMPERVIOUS	PERVIOUS
1	CONCRETE DRIVEWAY	3,410 SF	
2	SHED & BRICK	166 SF	
3	LANDSCAPING		18,928 SF
	TOTAL	**3,576 SF**	**18,928 SF**

POST - DEVELOPMENT

NO.	SURFACE AREA	IMPERVIOUS	PERVIOUS
1	BUILDING	10,017 SF	
2	CONCRETE AREA	2,061 SF	
3	PAVER W/ CONCRETE BELOW	885 SF	
4	PERMEABLE PAVER DRIVEWAY		3,772 SF
5	PERMEABLE PAVER WALKWAY		1,148 SF
6	LANDSCAPING		4,621 SF
	TOTAL	**12,963 SF**	**9,541 SF**

SUMMARY

DESCRIPTION	IMPERVIOUS	PERVIOUS
PRE-DEVELOPMENT	3,576 SF	18,928 SF
POST-DEVELOPMENT	12,963 SF	9,541 SF
DIFFERENCE	9,387 SF	-9,387 SF

PERVIOUS AND IMPERVIOUS SURFACES COMPARISON TABLE

		Project Phase Number: (N/A, 1, 2, 3, etc.)	1
Total Site (acres):	**0.52**	Total Area of Site Disturbed (acres):	**0.468**
	Existing Condition of Site Area Disturbed (square feet)	Proposed Condition of Site Area Disturbed (square feet)	
Impervious Surfaces		Replaced	New
Roof Area(s)	0	0	10,017
Parking	3,410	0	0
Sidewalks, Patios, Paths, etc.	166	166	2,780
Streets (public)	0	0	0
Streets (private)	0	0	0
Total Impervious Surfaces:	**3,576**	**166**	**12,797**
Pervious Surfaces			
Landscaped Areas	18,927	4,621	0
Pervious Paving	0	0	4,920
Other Pervious Surfaces (green roof, etc.)	0	0	0
Total Pervious Surfaces:	**18,927**	**4,621**	**4,920**
		Total Proposed Replaced + New Impervious Surfaces:	**12,963**
		Total Proposed Replaced + New Pervious Surfaces:	**9,541**

GRAPHIC SCALE

0 10 20 40

(IN FEET)

1 inch = 20 ft.

REGISTERED PROFESSIONAL ENGINEER
N. M. LE
No. 47518
CIVIL
STATE OF CALIFORNIA

NO.	REVISIONS	BY	DATE	APP'D

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SCALE AS NOTED
SCALE
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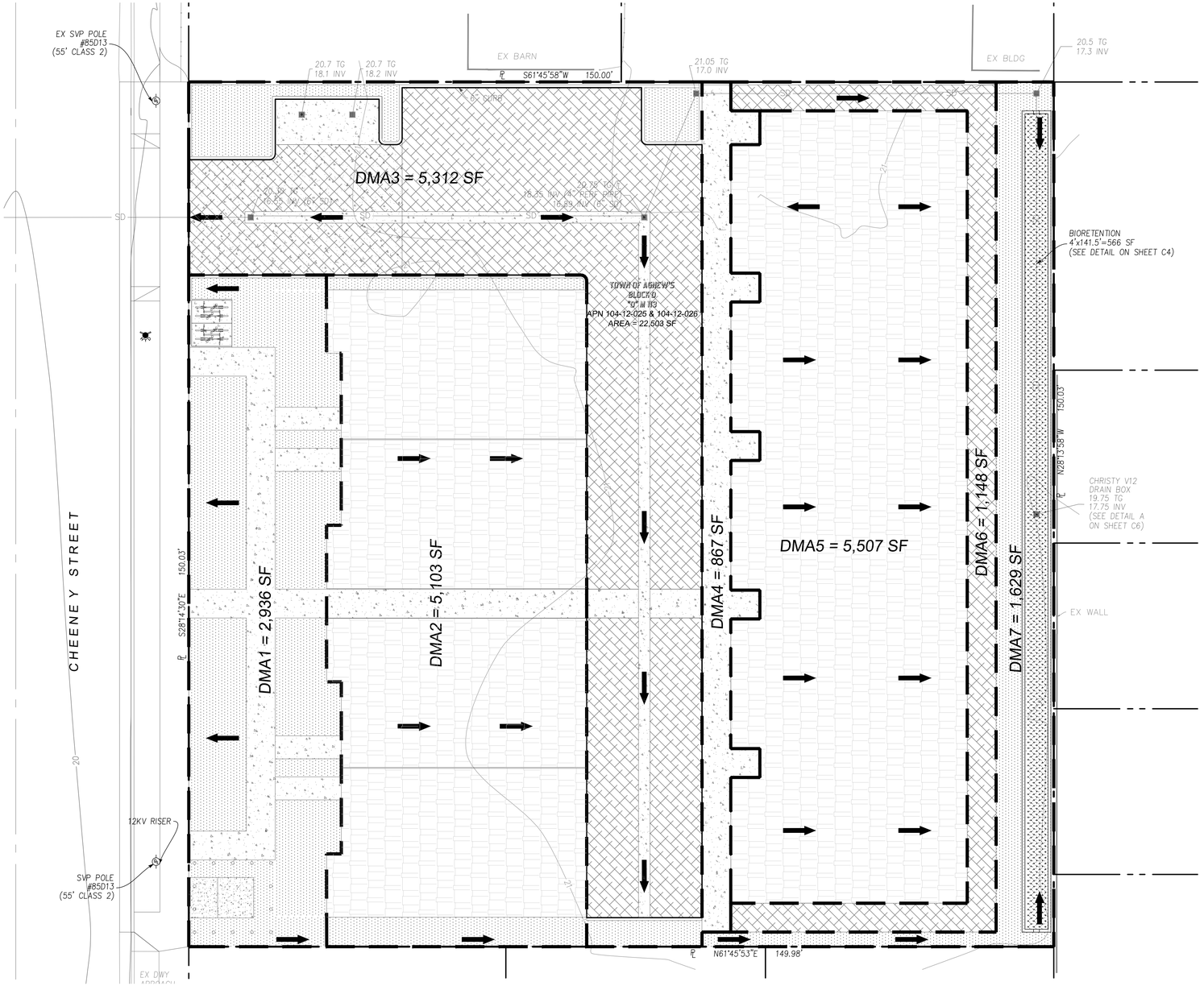
PRE AND POST DEVELOPMENT PLAN
CHEENEY STREET TOWNHOUSES
CHEENEY STREET
APN 104-12-025 APN 104-12-026
SANTA CLARA CALIFORNIA

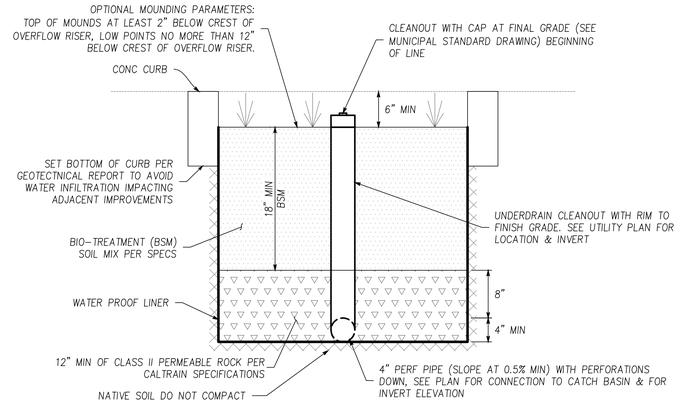
PROJECT NO.

CONTRACT NO.

DRAWING NO. C3

SHT NO. 3 OF 9





BIORETENTION DETAIL
NTS

BIOTREATMENT SOIL REQUIREMENTS

- BIORETENTION SOIL MIX SHALL MEET THE REQUIREMENTS AS OUTLINED IN APPENDIX C OF THE C.3 STORM WATER HANDBOOK AND SHALL BE A MIXTURE OF FINE SAND AND COMPOST MEASURED ON A VOLUME BASIS OF 60–70% SAND AND 30–40% COMPOST. CONTRACTOR TO REFER TO APPENDIX C FOR SAND AND COMPOST MATERIAL SPECIFICATIONS. CONTRACTOR MAY OBTAIN A COPY OF THE C3 HANDBOOK AT: HTTP://WWW.SANJOSECA.GOV/INDEX.ASPX?NID=1761
- PRIOR TO ORDERING THE BIOTREATMENT SOILMIX OR DELIVERY TO THE PROJECT SITE, CONTRACTOR SHALL PROVIDE A BIOTREATMENT SOIL MIX SPECIFICATION CHECKLIST, COMPLETED BY THE SOIL MIX SUPPLIER AND CERTIFIED TESTING LAB.

LEGEND:

- PERMEABLE PAVER AREA
- PAVER W/ CONCRETE BELOW
- CONCRETE AREA
- ROOF
- LANDSCAPE AREA
- BIO–RETENTION
- TRIBUTARY AREA

TREATMENT CONTROL MEASURES (TCM) SUMMARY TABLE

ID AREA	TCM No	LANDSCAPE (SF)	PERVIOUS PAVER (SF)	PARKING & SIDEWALK AREA (SF)	ROOF AREA (SF)	TOTAL AREA (SF)	TOTAL AREA (ACRES)	TOTAL IMPERVIOUS (SF)	TREATMENT TYPE	TREATMENT AREA REQUIRED (SF)	TREATMENT AREA PROPOSED	DEPTH OF PONDING (IN)
		(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)
DMA-1	1	2,076		861		2,937	0.067	861	Bio-Retention	34	566	6
DMA-2		361		232	4,510	5,103	0.117	4,742	Bio-Retention	190		
DMA-3		555	3,772	985		5,312	0.122	985	Bio-Retention	39		
DMA-4				867		867	0.020	867	Bio-Retention	35		
DMA-5					5,507	5,507	0.126	5,507	Bio-Retention	220		
DMA-6			1,148			1,148	0.026	0	Bio-Retention	0		
DMA-7		1,629				1,629	0.037	0	Bio-Retention	0		
TOTAL AREA		**4,621**	**4,920**	**2,945**	**10,017**	**22,503**	**0.515**	**12,962**		**518**	**566**	

GRAPHIC SCALE
0 5 10 20
(IN FEET)
1 inch = 10 ft.

PROFESSIONAL ENGINEER — N. M. LE — No. 47518 — CIVIL — STATE OF CALIFORNIA

NO.	REVISIONS	DATE	APP'D	BY

PT DESIGNED 12/02/22 DATE
PT. DRAWN 12/02/22 DATE
1" = 10' SCALE
NL CHECKED 12/02/22 DATE

LG ENGINEERING
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San Jose, CA 95112
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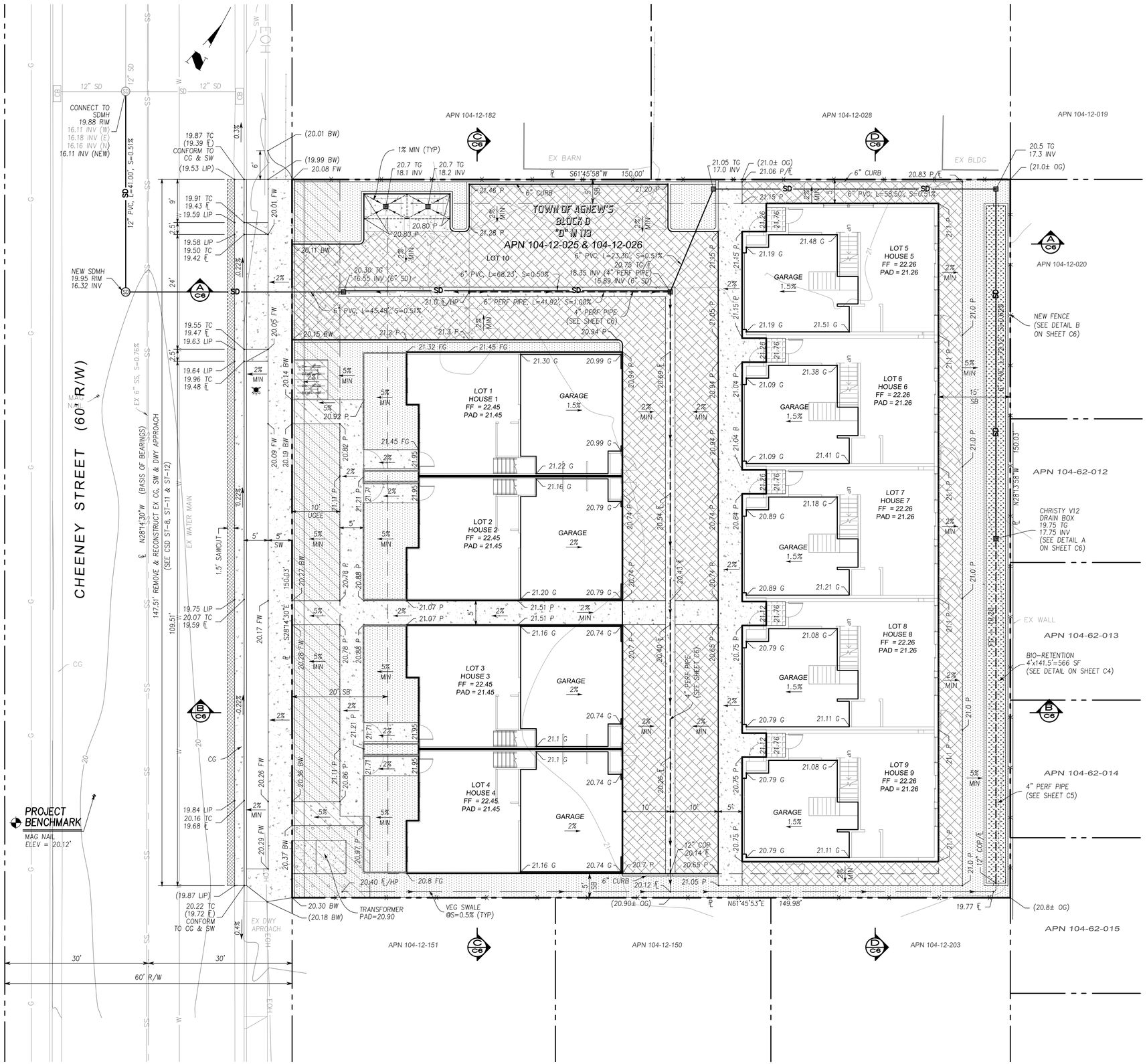
STORMWATER CONTROL PLAN
CHEENEY STREET TOWNHOUSES
CHEENEY STREET
APN 104-12-025 APN 104-12-026
SANTA CLARA CALIFORNA

PROJECT NO.
CONTRACT NO.
DRAWING NO. C4
SHT NO. 4 OF 9



LEGEND:

- PAVER W/ CONCRETE BELOW
- PERMEABLE PAVER AREA
- CONCRETE AREA
- CONC PORCH
- LANDSCAPE AREA
- UGEE

GRAPHIC SCALE
0 10 20
(IN FEET)
1 inch = 10 ft.

NO.	REVISIONS	DATE	APP'D

PT	12/02/22	DATE
DESIGNED		
PT	12/02/22	DATE
DRAWN		
1" = 10'		
SCALE		
NL	12/02/22	DATE
CHECKED		

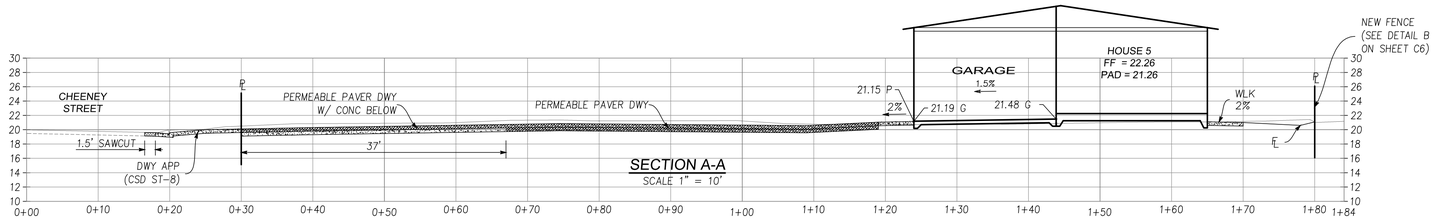
LC ENGINEERING
598 E Santa Clara St #270
San Jose, CA 95112
Phone: (408) 806-7187
Fax: (408) 583-4006

GRADING AND DRAINAGE PLAN
CHEENEY STREET TOWNHOUSES
CHEENEY STREET
APN 104-12-025 APN 104-12-026

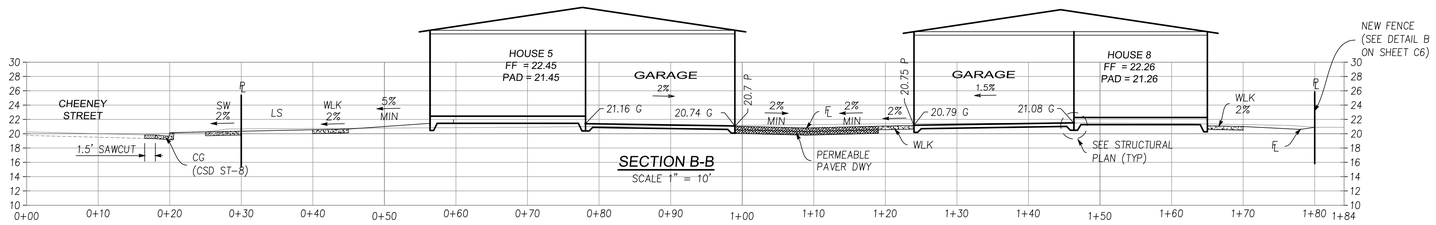
CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER
N. M. LE
No. 47518
CIVIL
STATE OF CALIFORNIA

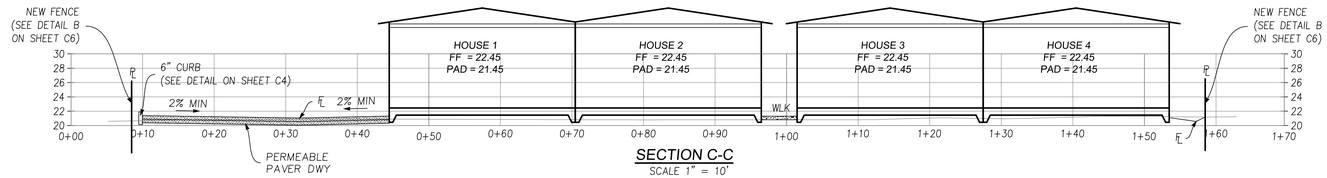
DRAWING NO.	SHT NO.	CONTRACT NO.	PROJECT NO.
C5	5 OF 9	SANTA CLARA	



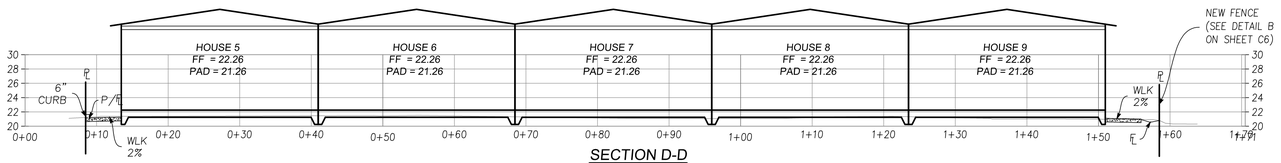
SECTION A-A
SCALE 1" = 10'



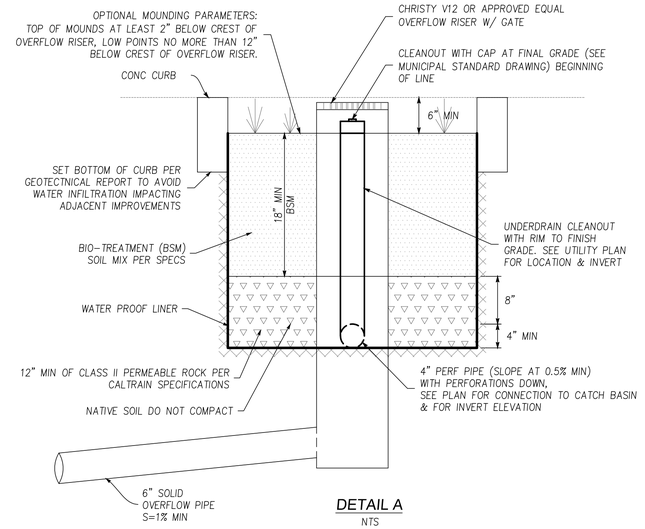
SECTION B-B
SCALE 1" = 10'



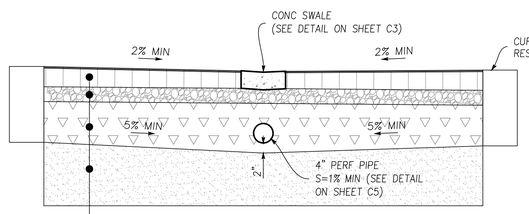
SECTION C-C
SCALE 1" = 10'



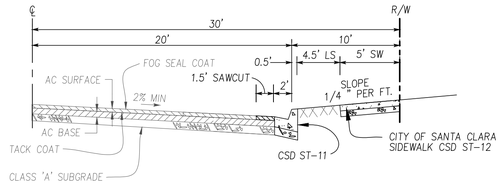
SECTION D-D
SCALE 1" = 10'



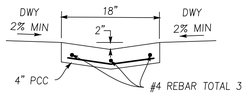
DETAIL A
NTS



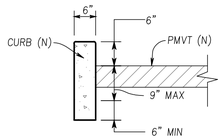
PERVIOUS PAVER DETAIL
NTS



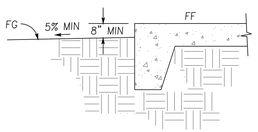
TYPICAL HALF STREET SECTION
CHEENEY DRIVE
NTS



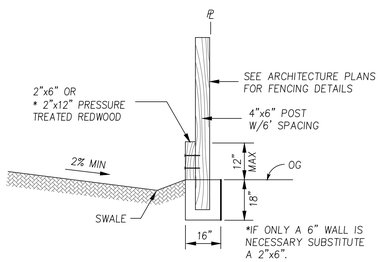
CONCRETE SWALE SECTION
NTS



6" CURB
NTS



FINISH GRADE DETAIL
AT BUILDING FOUNDATION
NTS



DETAIL "B"
12" MAX. WALL/FENCE DETAIL @ PERIMETER
NTS

NO.	REVISIONS	BY	DATE	APP'D

PT	12/02/22	DESIGNED	DATE
PT	12/02/22	DRAWN	DATE
SCALE AS NOTED		SCALE	
NL	12/02/22	CHECKED	DATE

LC ENGINEERING
598 E Santa Clara St #270
San Jose, CA 95112
Phone: (408) 806-7187
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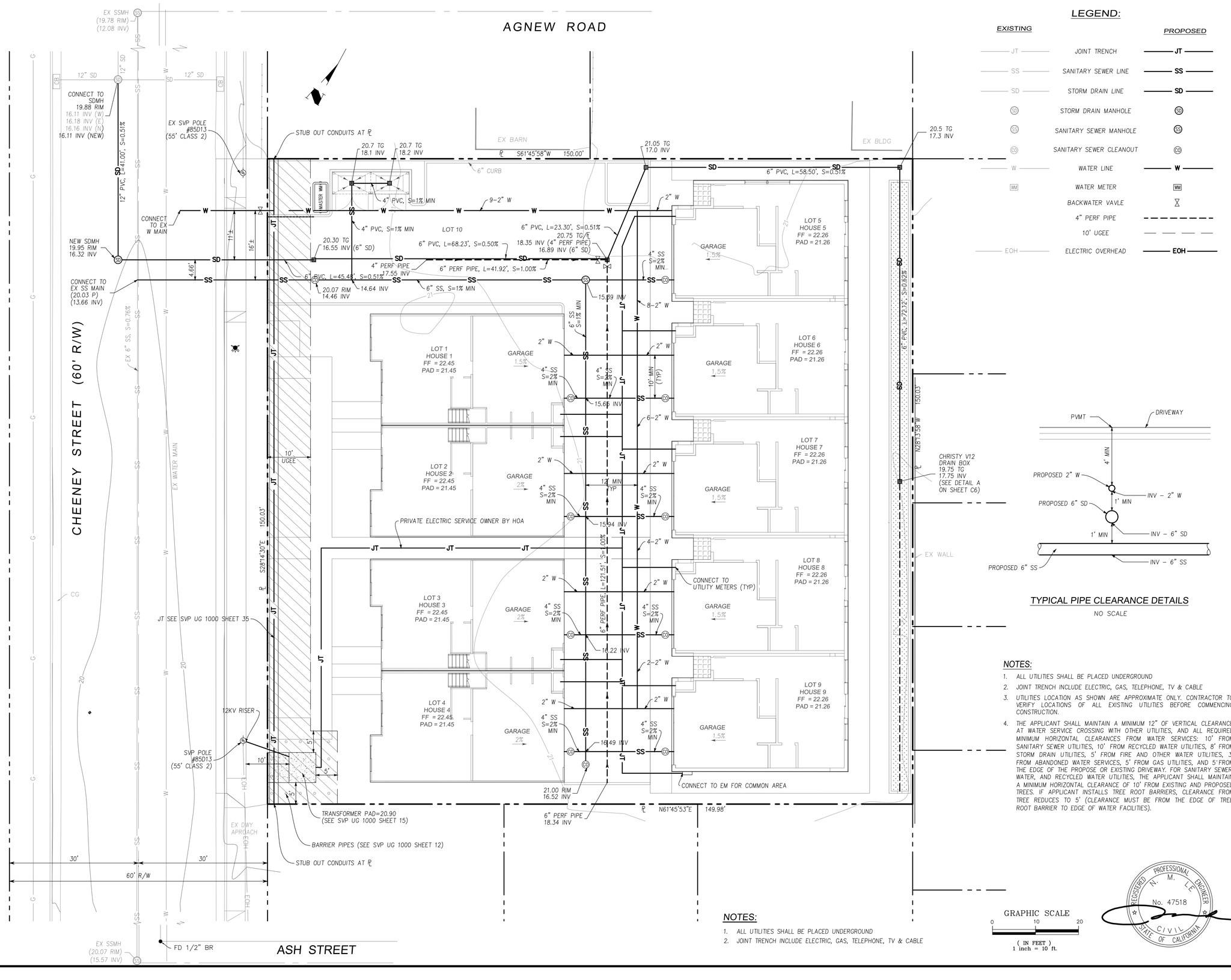
BUILDING CROSS SECTIONS
CHEENEY STREET TOWNHOUSES
CHEENEY STREET
APN 104-12-026
APN 104-12-025
SANTA CLARA **CALIFORNIA**

PROJECT NO.
CONTRACT NO.

REGISTERED PROFESSIONAL ENGINEER
N. M. LE
No. 47518
CIVIL
STATE OF CALIFORNIA

DRAWING NO. C6
SHT NO. 6 OF 9



LEGEND:

EXISTING		PROPOSED
JT	JOINT TRENCH	JT
SS	SANITARY SEWER LINE	SS
SD	STORM DRAIN LINE	SD
SD	STORM DRAIN MANHOLE	SD
SS	SANITARY SEWER MANHOLE	SS
CO	SANITARY SEWER CLEANOUT	CO
W	WATER LINE	W
WM	WATER METER	WM
	BACKWATER VAVLE	
	4" PERF PIPE	
	10' UGEE	
EOH	ELECTRIC OVERHEAD	EOH

TYPICAL PIPE CLEARANCE DETAILS

NO SCALE

NOTES:

1. ALL UTILITIES SHALL BE PLACED UNDERGROUND
2. JOINT TRENCH INCLUDE ELECTRIC, GAS, TELEPHONE, TV & CABLE
3. UTILITIES LOCATION AS SHOWN ARE APPROXIMATE ONLY. CONTRACTOR TO VERIFY LOCATIONS OF ALL EXISTING UTILITIES BEFORE COMMENCING CONSTRUCTION.
4. THE APPLICANT SHALL MAINTAIN A MINIMUM 12" OF VERTICAL CLEARANCE AT WATER SERVICE CROSSING WITH OTHER UTILITIES, AND ALL REQUIRED MINIMUM HORIZONTAL CLEARANCES FROM WATER SERVICES: 10' FROM SANITARY SEWER UTILITIES, 10' FROM RECYCLED WATER UTILITIES, 8' FROM STORM DRAIN UTILITIES, 5' FROM FIRE AND OTHER WATER UTILITIES, 3' FROM ABANDONED WATER SERVICES, 5' FROM GAS UTILITIES, AND 5'FROM THE EDGE OF THE PROPOSE OR EXISTING DRIVEWAY. FOR SANITARY SEWER, WATER, AND RECYCLED WATER UTILITIES, THE APPLICANT SHALL MAINTAIN A MINIMUM HORIZONTAL CLEARANCE OF 10' FROM EXISTING AND PROPOSED TREES. IF APPLICANT INSTALLS TREE ROOT BARRIERS, CLEARANCE FROM TREE REDUCES TO 5' (CLEARANCE MUST BE FROM THE EDGE OF TREE ROOT BARRIER TO EDGE OF WATER FACILITIES).

NOTES:

1. ALL UTILITIES SHALL BE PLACED UNDERGROUND
2. JOINT TRENCH INCLUDE ELECTRIC, GAS, TELEPHONE, TV & CABLE

GRAPHIC SCALE
0 10 20
(IN FEET)
1 inch = 10 ft.

REGISTERED PROFESSIONAL ENGINEER
N. M. LEE
No. 47518
CIVIL
STATE OF CALIFORNIA

NO.	REVISIONS	DATE	APP'D	BY

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San Jose, CA 95112
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UTILITY PLAN
CHEENEY STREET TOWNHOUSES
CHEENEY STREET
APN 104-12-025 APN 104-12-026

CALIFORNA
PROJECT NO.
SANTA CLARA
CONTRACT NO.

DRAWING NO. C7
SHT NO. 7 OF 9

LEGEND:

- FIBER ROLLS
- TEMPORARY DRAINAGE INLET PROTECTION
- TEMPORARY CONSTRUCTION ENTRANCE/EXIT
- CONCRETE WASHOUT

NOTES:
CONTRACTOR TO PROTECT ALL INLETS WITHIN 150' OF PROJECT SITE.

GRAPHIC SCALE
0 10 20
(IN FEET)
1 inch = 10 ft.

REGISTERED PROFESSIONAL ENGINEER
N. M. LE
No. 47518
CIVIL
STATE OF CALIFORNIA

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EROSION CONTROL PLAN
CHEENEY STREET TOWNHOUSES
CHEENEY STREET
APN 104-12-025 APN 104-12-026

CALIFORNIA
SANTA CLARA
PROJECT NO.
CONTRACT NO.

DRAWING NO. C8
SHT NO. 8 OF 9

EROSION CONTROL NOTES

1. THIS PLAN IS INTENDED TO BE USED FOR INTERIM EROSION AND SEDIMENT CONTROL ONLY AND IS NOT TO BE USED FOR FINAL PLAN ELEVATIONS OR PERMANENT IMPROVEMENTS. THE CITY INSPECTOR MAY REQUIRE INSTALLING ADDITIONAL EROSON CONTROL MEASURES DURING EARTHWORK OPERATION.

2. OWNER/CONTRACTOR SHALL BE RESPONSIBLE FOR MONITORING EROSION AND SEDIMENT CONTROL MEASURES PRIOR, DURING, AND AFTER STORM EVENTS.

3. REASONABLE CARE SHALL BE TAKEN WHEN HAULING ANY EARTH, SAND, GRAVEL, STONE, DEBRIS, PAPER OR ANY OTHER SUBSTANCE OVER ANY PUBLIC STREET, ALLEY OR THER PUBLIC PLACE. SHOULD ANY BLOW, SPILL, OR TRACK OVER AND UPON SAID PUBLIC OR ADJACENT PRIVATE PROERTY, IMMEDIATE REMEDY SHALL OCCUR.

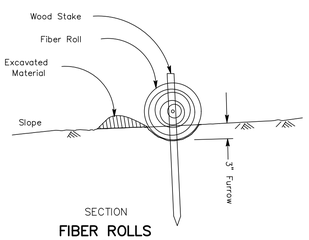
4. DURING THE RAINY SEASON, ALL PAVED AREAS SHALL BE KEPT CLEAR OF EARTH MATERIAL AND DEBRIS. THE SITE SHALL BE MAINTAINED SO AS TO MINIMIZE SEDIMENT LADEN RUNOFF TO ANY STORM DRAINAGE SYSTEM, INCLUDING EXISTING DRAINAGE SWALES AND WATER COURSES.

5. CONTRACTOR SHALL PROVIDE DUST CONTROL AS REQUIRED BY THE APPROPRIATE FEDERAL, STATE AND LOCAL AGENCY.

6. THE FACILITIES SHOWN ON THIS PLAN ARE DESIGNED TO CONTROL EROSION AND SEDIMENT DURING THE RAINY SEASON, OCTOBER 15 TO APRIL 15. GRADING OPERATIONS DURING THE RAINY SEASON WHICH LEAVE DENUDED SLOPES SHALL BE PROTECTED WITH EROSION CONTROL MEASURES IMMEDIATELY FOLLOWING GRADING ON THE SLOPES.

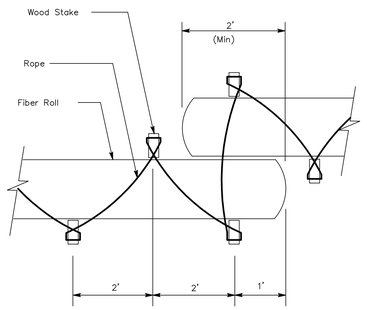
7. FINISHED SLOPES ON THE SITE SHALL BE STABILIZED USING SEED AND STRAW OR HYDROSEED TREATMENTS.

8. UNFINISHED ROADWAY AREAS SHALL BE PROTECTED FROM EROSION AS SHOWN ON THE EROSION CONTROL PLAN. HAY BALE CHECK DAMS WILL BE REQUIRED ON ROADWAY SLOPES STEEPER THAN FIVE PERCENT.



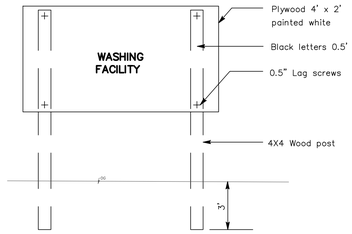
SECTION

FIBER ROLLS
IN FURROWS



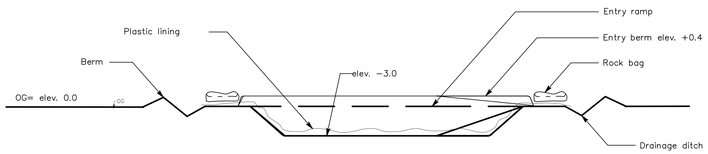
PLAN

FIBER ROLLS
ROPE RESTRAINT METHOD

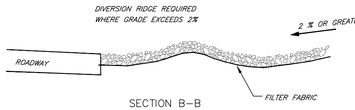


SIGN ELEVATION

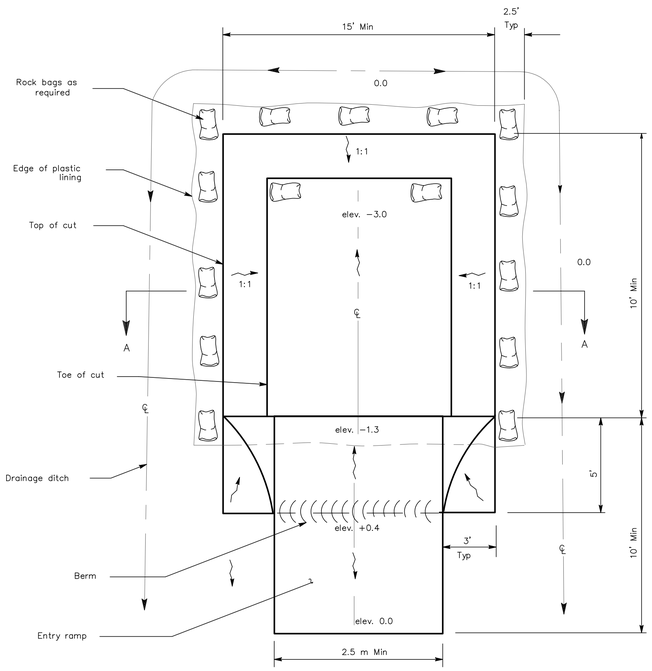
NOTE:
The temporary equipment washing facility sign shall be installed within 20 feet of the temporary concrete washout facility.



SECTION A–A

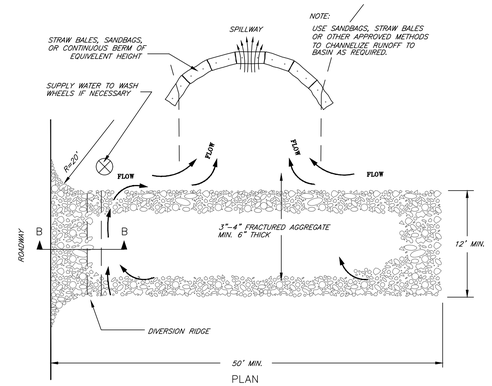


SECTION B–B



PLAN

TEMPORARY EQUIPMENT WASHING FACILITY
(Below Grade)



PLAN

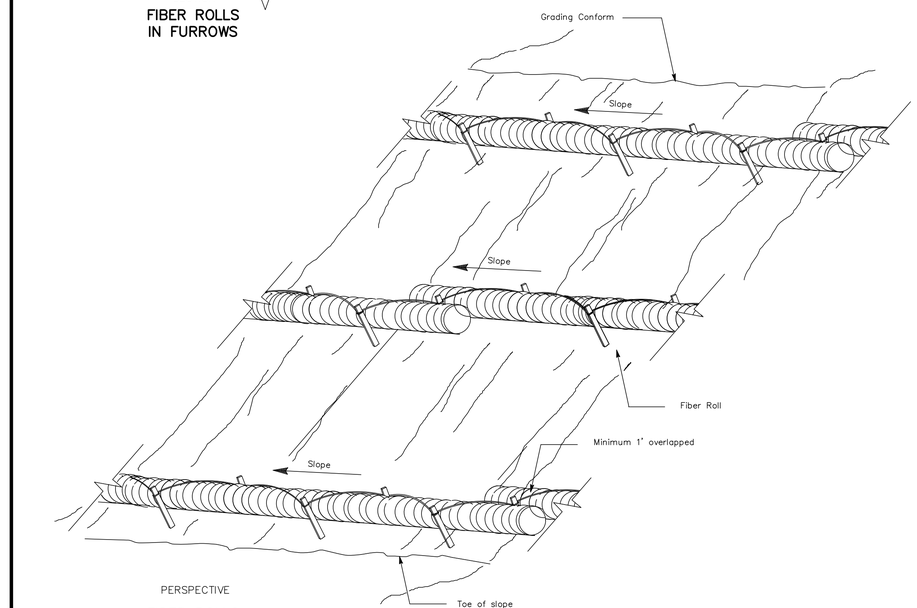
TEMPORARY
GRAVEL CONSTRUCTION
ENTRANCE/EXIT

NOTES:

1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT–OF–WAYS. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.

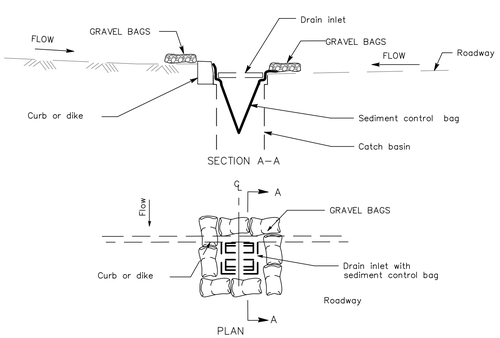
2. WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE ONTO PUBLIC RIGHT–OF–WAY.

3. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABLIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.

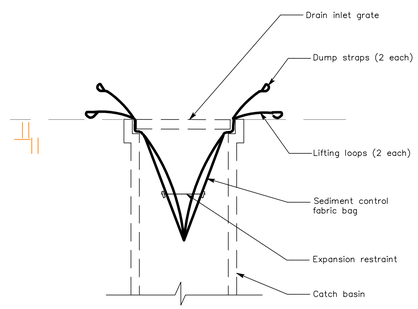


PERSPECTIVE

FIBER ROLLS
ROPE RESTRAINT METHOD



TEMPORARY DRAINAGE INLET PROTECTION
For paved areas exposed to traffic



SECTION

SEDIMENT CONTROL BAG

NO.	REVISIONS	DATE	APP'D	BY

PT	12/02/22	DATE
DESIGNED		
PT	12/02/22	DATE
DRAWN		
NTS		
SCALE		
NL	12/02/22	DATE
CHECKED		

LC ENGINEERING
598 E Santa Clara St #270
San Jose, CA 95112
Phone: (408) 806-7187
Fax: (408) 583-4006

REGISTERED PROFESSIONAL ENGINEER
N. M. LE
No. 47518
CIVIL
STATE OF CALIFORNIA

EROSION CONTROL DETAILS
CHEENEY STREET TOWNHOUSES
CHEENEY STREET
APN 104-12-025 APN 104-12-026

CALIFORNIA

SANTA CLARA

PROJECT NO.

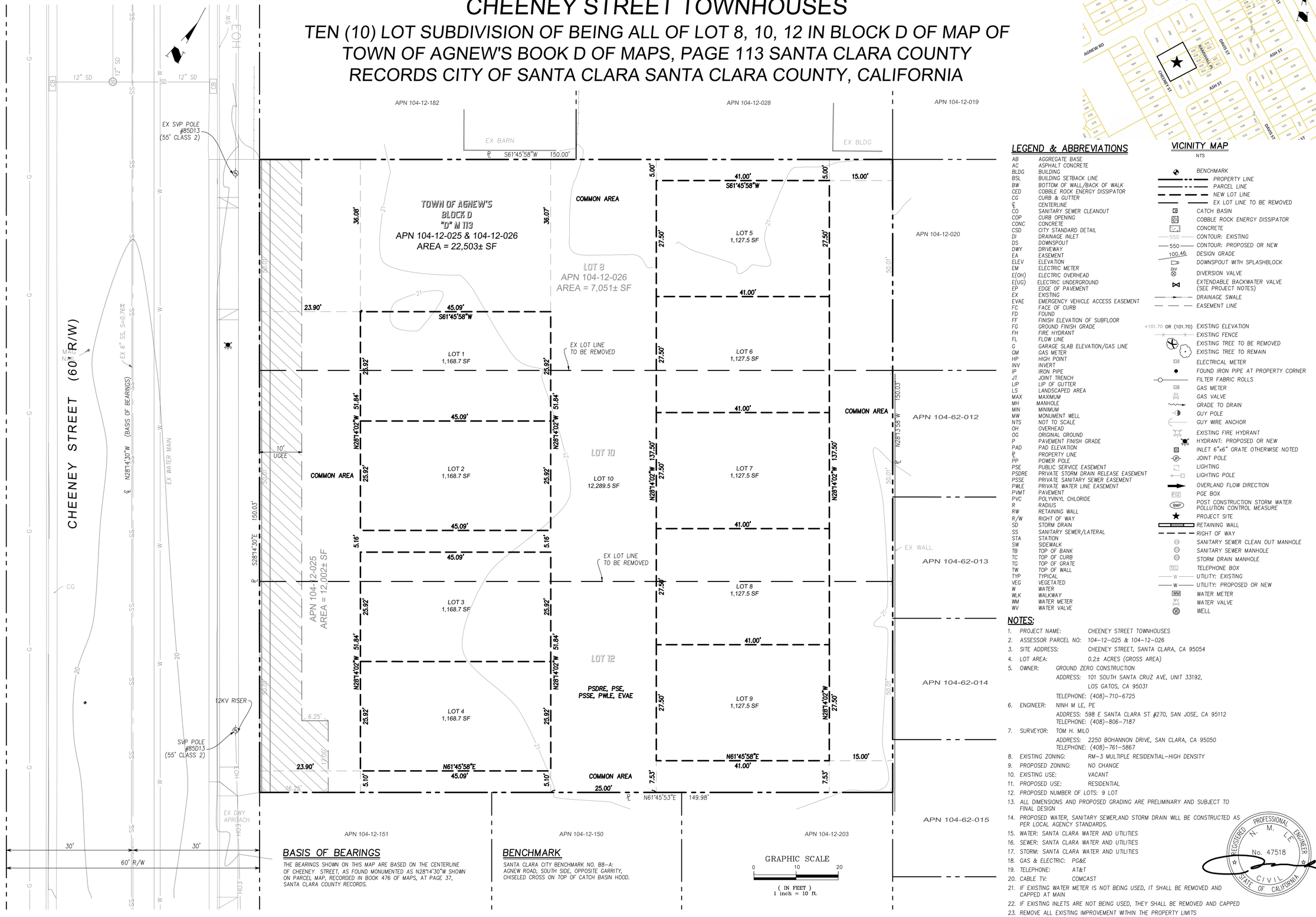
CONTRACT NO.

DRAWING NO. C8

SHT NO. 9 OF 9

VESTING TENTATIVE MAP
CHEENEY STREET TOWNHOUSES

TEN (10) LOT SUBDIVISION OF BEING ALL OF LOT 8, 10, 12 IN BLOCK D OF MAP OF TOWN OF AGNEW'S BOOK D OF MAPS, PAGE 113 SANTA CLARA COUNTY RECORDS CITY OF SANTA CLARA SANTA CLARA COUNTY, CALIFORNIA



BASIS OF BEARINGS

THE BEARINGS SHOWN ON THIS MAP ARE BASED ON THE CENTERLINE OF CHEENEY STREET, AS FOUND MONUMENTED AS N28°14'30"W SHOWN ON PARCEL MAP, RECORDED IN BOOK 476 OF MAPS, AT PAGE 37, SANTA CLARA COUNTY RECORDS.

BENCHMARK

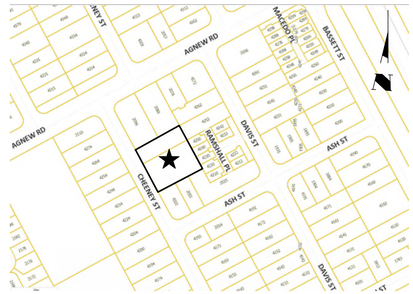
SANTA CLARA CITY BENCHMARK NO. B8-A: AGNEW ROAD, SOUTH SIDE, OPPOSITE GARRITY, CHISELED CROSS ON TOP OF CATCH BASIN HOOD.

LEGEND & ABBREVIATIONS

AB	AGGREGATE BASE
AC	ASPHALT CONCRETE
BLDG	BUILDING
BSL	BUILDING SETBACK LINE
BW	BOTTOM OF WALL/BACK OF WALK
CED	COBBLE ROCK ENERGY DISSIPATOR
CG	CURB & GUTTER
℄	CENTERLINE
CO	SANITARY SEWER CLEANOUT
COP	CURB OPENING
CONC	CONCRETE
CSD	CITY STANDARD DETAIL
DI	DRAINAGE INLET
DS	DOWNSPOUT
DWY	DRIVEWAY
EA	EASEMENT
ELEV	ELEVATION
EM	ELECTRIC METER
E(OH)	ELECTRIC OVERHEAD
E(UG)	ELECTRIC UNDERGROUND
EP	EDGE OF PAVEMENT
EX	EXISTING
EVAE	EMERGENCY VEHICLE ACCESS EASEMENT
FC	FACE OF CURB
FD	FOUND
FF	FINISH ELEVATION OF SUBFLOOR
FG	GROUND FINISH GRADE
FH	FIRE HYDRANT
FL	FLOW LINE
G	GARAGE SLAB ELEVATION/GAS LINE
GM	GAS METER
HP	HIGH POINT
INV	INVERT
IP	IRON PIPE
JT	JOINT TRENCH
LIP	LIP OF GUTTER
LS	LANDSCAPED AREA
MAX	MAXIMUM
MH	MANHOLE
MIN	MINIMUM
MW	MONUMENT WELL
NTS	NOT TO SCALE
OH	OVERHEAD
OG	ORIGINAL GROUND
P	PAVEMENT FINISH GRADE
PAD	PAD ELEVATION
ℙ	PROPERTY LINE
PP	POWER POLE
PSE	PUBLIC SERVICE EASEMENT
PSDRE	PRIVATE STORM DRAIN RELEASE EASEMENT
PSSE	PRIVATE SANITARY SEWER EASEMENT
PWLE	PRIVATE WATER LINE EASEMENT
PVMT	PAVEMENT
PVC	POLYVINYL CHLORIDE
R	RADIUS
RW	RETAINING WALL
R/W	RIGHT OF WAY
SD	STORM DRAIN
SS	SANITARY SEWER/LATERAL
STA	STATION
SW	SIDEWALK
TB	TOP OF BANK
TC	TOP OF CURB
TG	TOP OF GRATE
TW	TOP OF WALL
TYP	TYPICAL
VEG	VEGETATED
W	WATER
WLK	WALKWAY
WM	WATER METER
WV	WATER VALVE

VICINITY MAP

NTS



- BENCHMARK
- PROPERTY LINE
- PARCEL LINE
- NEW LOT LINE
- EX LOT LINE TO BE REMOVED
- CATCH BASIN
- COBBLE ROCK ENERGY DISSIPATOR
- CONCRETE
- 550 — CONTOUR: EXISTING
- 550 — CONTOUR: PROPOSED OR NEW
- 100.46 DESIGN GRADE
- DOWNSPOUT WITH SPLASHBLOCK
- DIV DIVERSION VALVE
- EXTENDABLE BACKWATER VALVE (SEE PROJECT NOTES)
- DRAINAGE SWALE
- EASEMENT LINE
- +101.70 OR (101.70) EXISTING ELEVATION
- EXISTING FENCE
- EXISTING TREE TO BE REMOVED
- EXISTING TREE TO REMAIN
- ELECTRICAL METER
- FOUND IRON PIPE AT PROPERTY CORNER
- FILTER FABRIC ROLLS
- GAS METER
- GAS VALVE
- GRADE TO DRAIN
- GUY POLE
- GUY WIRE ANCHOR
- EXISTING FIRE HYDRANT
- HYDRANT: PROPOSED OR NEW
- INLET 6"x6" GRATE OTHERWISE NOTED
- JOINT POLE
- LIGHTING
- LIGHTING POLE
- OVERLAND FLOW DIRECTION
- PGE PGE BOX
- BMP POST CONSTRUCTION STORM WATER POLLUTION CONTROL MEASURE
- PROJECT SITE
- RETAINING WALL
- RIGHT OF WAY
- SANITARY SEWER CLEAN OUT MANHOLE
- SANITARY SEWER MANHOLE
- STORM DRAIN MANHOLE
- TELEPHONE BOX
- W UTILITY: EXISTING
- W UTILITY: PROPOSED OR NEW
- WM WATER METER
- WATER VALVE
- W WELL

NOTES:

1. PROJECT NAME: CHEENEY STREET TOWNHOUSES
2. ASSESSOR PARCEL NO: 104-12-025 & 104-12-026
3. SITE ADDRESS: CHEENEY STREET, SANTA CLARA, CA 95054
4. LOT AREA: 0.2± ACRES (GROSS AREA)
5. OWNER: GROUND ZERO CONSTRUCTION
   ADDRESS: 101 SOUTH SANTA CRUZ AVE, UNIT 33192, LOS GATOS, CA 95031
   TELEPHONE: (408)-710-6725
6. ENGINEER: NINH M LE, PE
   ADDRESS: 598 E SANTA CLARA ST #270, SAN JOSE, CA 95112
   TELEPHONE: (408)-806-7187
7. SURVEYOR: TOM H. MILO
   ADDRESS: 2250 BOHANNON DRIVE, SAN CLARA, CA 95050
   TELEPHONE: (408)-761-5867
8. EXISTING ZONING: RM-3 MULTIPLE RESIDENTIAL-HIGH DENSITY
9. PROPOSED ZONING: NO CHANGE
10. EXISTING USE: VACANT
11. PROPOSED USE: RESIDENTIAL
12. PROPOSED NUMBER OF LOTS: 9 LOT
13. ALL DIMENSIONS AND PROPOSED GRADING ARE PRELIMINARY AND SUBJECT TO FINAL DESIGN
14. PROPOSED WATER, SANITARY SEWER,AND STORM DRAIN WILL BE CONSTRUCTED AS PER LOCAL AGENCY STANDARDS.
15. WATER: SANTA CLARA WATER AND UTILITIES
16. SEWER: SANTA CLARA WATER AND UTILITIES
17. STORM: SANTA CLARA WATER AND UTILITIES
18. GAS & ELECTRIC: PG&E
19. TELEPHONE: AT&T
20. CABLE TV: COMCAST
21. IF EXISTING WATER METER IS NOT BEING USED, IT SHALL BE REMOVED AND CAPPED AT MAIN
22. IF EXISTING INLETS ARE NOT BEING USED, THEY SHALL BE REMOVED AND CAPPED
23. REMOVE ALL EXISTING IMPROVEMENT WITHIN THE PROPERTY LIMITS

REGISTERED PROFESSIONAL ENGINEER N. M. LE No. 47518 CIVIL STATE OF CALIFORNIA

NO.	REVISIONS	DATE	APP'D

PT	12/02/22	DESIGNED	DATE
PT	12/02/22	DRAWN	DATE
1" = 10'		SCALE	
NL	12/02/22	CHECKED	DATE

LE ENGINEERING
598 E Santa Clara St #270
San Jose, CA 95112
Phone: (408) 806-7187
Fax: (408) 583-4006

TENTATIVE MAP
CHEENEY STREET TOWNHOUSES
CHEENEY STREET
APN 104-12-025 APN 104-12-026
SANTA CLARA CALIFORNIA

PROJECT NO.
CONTRACT NO.
DRAWING NO. T1
SHT NO. 1 OF 2
FILE NO.

CHEENEY STREET (60' R/W)

℄ N28°14'30"W (BASIS OF BEARINGS)

EX 6" SS, S=0.76%

EX WATER MAIN

12" SD

EX SVP POLE #85013 (55' CLASS 2)

TO (S)

RELOCATE EX POWER POLE BY OTHER

REMOVE EX SSCO FROM MH

REMOVE EX SSCO

REMOVE EX WATER METER

RELOCATE EX EOH BY OTHER

REMOVE EX SSCO

12KV RISER

EX FENCE

TO

SVP POLE #85013 (55' CLASS 2)

RELOCATE EX POWER POLE BY OTHER

FROM

EX DWY APROACH

30'

30'

60' R/W

APN 104-12-182

APN 104-12-028

APN 104-12-019

EX BARN

℄ S61°45'58"W 150.00'

EX BLDG

12" TREE

BRICK

SHED

LS

APN 104-12-020

AC DWY

LOT 9
APN 104-12-026
AREA = 7,051± SF

METAL POST

3-6" TREE

5-6" TREE

EX FENCE

APN 104-62-012

LOT 10

℄ N28°14'30"E 150.03'

TOWN OF AGNEW'S
BLOCK D
"D" M 113
APN 104-12-025 & 104-12-026
AREA = 22,503± SF

APN 104-12-025
AREA = 12,002± SF

EX WALL

APN 104-62-013

EX LOT LINE TO BE REMOVED (TYP)

LOT 12

APN 104-62-014

8" TREE

EX FENCE

℄ N61°45'53"E 149.98'

APN 104-62-015

APN 104-12-151

APN 104-12-150

APN 104-12-203

EXISTING SITE CONDITIONS

GRAPHIC SCALE
0 10 20
(IN FEET)
1 inch = 10 ft.

REGISTERED PROFESSIONAL ENGINEER
N. M. LE
No. 47518
CIVIL
STATE OF CALIFORNIA

NO.	REVISIONS	DATE	APP'D	BY

PT 11/26/2018
DESIGNED DATE
PT 11/26/2018
DRAWN DATE
1" = 10'
SCALE
NL 11/26/2018
CHECKED DATE

LE ENGINEERING
598 E Santa Clara St #270
San Jose, CA 95112
Phone: (408) 806-7187
Fax: (408) 583-4006

TENTATIVE MAP
CHEENEY STREET TOWNHOUSES
CHEENEY STREET
APN 104-12-025 APN 104-12-026

SANTA CLARA CALIFORNA

DRAWING NO. T2
SHT NO. 2 OF 2
FILE NO.
CONTRACT NO.
PROJECT NO.

PRELIMINARY PLANT LEGEND

SUNSET ZONE 15

SYMBOL	SIZE	BOTANICAL NAME	COMMON NAME	COMMENTS
STREET TREES:				
PHIS CHI	15 GAL	PISICACIA CHINENSIS 'KEITH DAVEY'	CHINESE PISTACHE	
TRESS:				
LAG TUS	15 GAL	LAGERSTROEMIA INDICA 'TUSCARORA'	CRAPE MYRTLE – PINK	
NYS SYL	24" BOX	NYSSA SYVATICA	TUPELO	
PIS CHI	24" BOX	PISTACIA CHINENSIS	CHINESE PISTACHE	
POD MAC	15 GAL	PODOCARPUS MACROPHYLLUS	YEW PINE	
SHRUBS:				
ABE EDW	5 GAL	ABELIA G. 'EDWARD GOUCHER'	GLOSSY ABELIA DWARF	
DIE BIC	5 GAL	DIETES BICOLOR	CREAM FORTNIGHT LILY	
DIE VEG	5 GAL	DIETES VEGATA	WHITE FORTNIGHT LILY	
HEM ELI	5 GAL	HEMEROCALLIS 'ELIZABETH PURPLE'	DAYLILY – PURPLE	
HEM SDO	5 GAL	HEMEROCALLIS 'STELLA DE ORO'	DAYLILY – ORANGE	
HEU MAX	5 GAL	HEUCHERA MAXIMA	ISLAND ALUM ROOT	
LAV INT	5 GAL	LAVANDULA X 'PROVENCE'	PROVENCE LAVANDER	
NAN SIE	5 GAL	NANDINA D MONFAR 'SIENNA SUNRISE'	HEAVENLY BAMBO	
PHO MAI	5 GAL	PHORMIUM C. 'MAORI MAIDEN'	DWARF NEW ZEALAND FLAX	
PHO QUE	5 GAL	PHORMIUM C. 'MAORI QUEEN'	DWARF NEW ZEALAND FLAX	
PHO RUB	5 GAL	PHORMIUM T. RUBRUM	NEW ZEALAND FLAX – RED	
PHO TOM	5 GAL	PHORMIUM T. 'TOM THUMB'	FLAX – TOM THUMB	
ROS ICE	5 GAL	ROSA FLORIBUNDA 'ICEBERG'	ICEBERG ROSE	
ROS AMB	5 GAL	ROSA FLOWER CARPET –'AMBER'	AMBER GROUNDCOVER ROSE (MONROVIA)	
ROS RED	5 GAL	ROSA X. NOARE – RED	RED GROUNDCOVER ROSE (MONROVIA)	
TUL VIO	5 GAL	TULBAGHIA VIOLACEA	SOCIETY GARLIC	
GRASSES:				
FES ELI	5 GAL	FESTUCA CLAUCA 'ELIJAH BLUE'	ELIJAH BLUE FESCUE	
FES SIS	5 GAL	FESTUCA GLAUCA 'SISKIYOU BLUE'	SISKIYOU BLUE FESCUE	
VINES:				
CLE ARM	5 GAL	CLEMATIS ARMANDII	EVERGREEN CLEMATIS	
GROUND COVERS:				
	SOD	MEDALLION VARIETY AVAILABLE FROM PACIFIC SOD 800-692-8690		
	FLATS	CAMPANULA PORCHARSKYANA	SERBIA BELLFLOWER	
	FLATS	HYPERICUM CALYCINUM	ST. JOHNSWORT	
		BARK MULCH – 3" COVER, CLACK IN COLOR IN ALL PLANTERS NOT PLANTED AND FILLED IN AROUND ALL PLANTS, TYPICAL.		

PLANT NOTES:

1. 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.
2. CONTRACTOR SHALL COORDINATE ALL WORK WITH OTHER TRADES PRIOR TO INSTALLATION.
3. CONTRACTOR SHALL BECOME FAMILIAR WITH THE LOCATION OF ALL EXISTING AND FUTURE UNDERGROUND SERVICES AND IMPROVEMENTS WHICH MAY CONFLICT WITH WORK TO BE DONE. CONTACT UNDERGROUND SERVICE ALERT (USA) AT (800) 227-2600 PRIOR TO DIGGING. NOTIFY OWNER'S REPRESENTATIVE IMMEDIATELY SHOULD CONFLICTS ARISE.
4. FINE GRADING, HEADERS AND IRRIGATION COVERAGE SHALL BE APPROVED BY OWNER'S REPRESENTATIVE PRIOR TO PLANTING OPERATIONS.
5. CONTRACTOR SHALL LAY OUT PLANT MATERIAL PER PLAN AND FACE TO GIVE BEST APPEARANCE OR RELATION TO ADJACENT PLANTS, STRUCTURES OR VIEWS. CONTRACTOR TO OBTAIN APPROVAL FROM OWNER'S REPRESENTATIVE PRIOR TO INSTALLATION.
6. PLANT MATERIALS SHALL NOT BE INSTALL IN AN AREA WHICH WILL COST HARM TO ADJACENT STRUCTURES OF OBSTRUCT IRRIGATION SPRAY PATTERN. NOTIFY THE OWNER'S REPRESENTATIVE SHOULD CONFLICTS ARISE.
7. PRIOR TO PLANTING INSTALLATION, CONTRACTOR SHALL OBTAIN APPROVAL OF PLANT LAYOUT FROM OWNER'S REPRESENTATIVE. PLANT LOCATIONS ARE DIAGRAMMATIC AND MAY BE ADJUSTED ON THE FIELD AT THE OWNER'S REPRESENTATIVE'S REQUEST.
8. CONTRACTOR SHALL COORDINATE PLAT LOCATION TO DRIP TUBING LOCATION AND ADJUST PLANTING AS NECESSARY TO ACHIEVE BEST RESULTS.
9. ALL NON-TURF AREAS SHALL BE MULCHED WITH A MINIMUM 3" LAYER OF BARK MULCH. UNLESS OTHERWISE NOTED, FINISH GRADE OF PLANTING AREAS SHALL BE 3" BELOW ADJACENT PAVING. TAPER 3" DEPTH BARK MULCH TOP DRESSING TO 1/2" BELOW ADJACENT PAVING (1-1/2" DEPTH) WITHIN 2-FEET OF PAVING. CONTRACTOR SHALL SUBMIT A SAMPLE TO THE CITY FOR REVIEW AND APPROVAL PRIOR TO MULCH DELIVERY TO THE SITE. FOR FURTHER INFORMATION, SEE SPECIFICATIONS.
10. GROUND COVERS SHALL BE PLANTED EVENLY AND CONTINUOUSLY UNDER TREE AND SHRUB MASSES.
11. CONTRACTOR SHALL USE A NATURAL PRE-EMERGENT, SUCH AS CORN WEED BLOCKER OR COMPARABLE, AND SHALL APPLY ACCORDING TO THE MANUFACTURES DIRECTIONS PRIOR TO APPLYING MULCH.
12. ALL NEWLY PLANTED MATERIAL SHALL BE THOROUGHLY SOAKED WITH WATER WITHIN 3 HOURS OF PLANTING.
13. 30 DAYS AFTER PLANTING, CONTRACTOR SHALL RE-STAKE AND STRAIGHTEN TREES AS NEEDED.
14. BENEATH PROPOSED SOD, EXCAVATE EXISTING SOIL TO A DEPTH OF 12" BELOW PROPOSED FINISHED GRADE. REPLACE WITH IMPORTED LOAN SOIL AND BRING TO FINISHED GRADE.
15. THE CONTRACTOR SHALL PROVIDE FOR IN THEIR BID FOR A BASE AMENDMENT FOR SOIL AMENDMENT. AFTER ROUGH GRADING OF THE SITE A SOIL NUTRIENT TEST WILL BE CONDUCTED OF VARIOUS PLANTED AREAS AND THE PLANTED AREAS SHALL BE AMENDED BASED ON THIS SOILS REPORT.

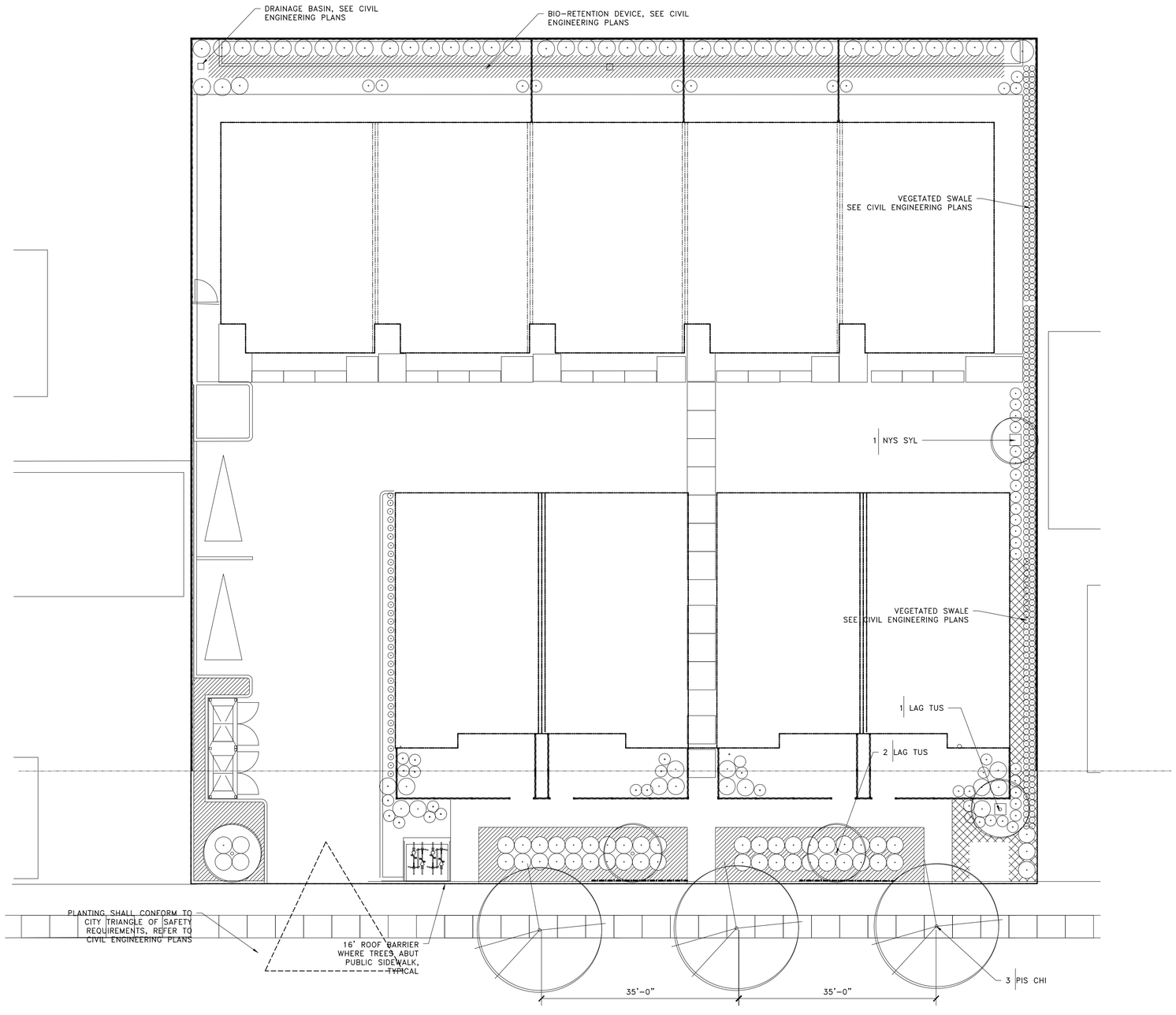
MODEL WATER EFFICIENCY LANDSCAPE ORDINANCE COMPLIANCE

I AGREE TO COMPLY WITH THE REQUIREMENTS OF THE WATER EFFICIENCY LANDSCAPE ORDINANCE AND SUBMIT A COMPLETE LANDSCAPE DOCUMENTATION PACKAGE
TITLE 23 CH. 2.7 SECTION 492.3

I HAVE AND COMPLY WITH THE CRITERIA OF THE MODEL WATER EFFICIENCY LANDSCAPE ORDINANCE AND HAVE APPLIED THEM FOR THE EFFICIENCY USE OF THE WATER IN THE LANDSCAPE DESIGN PLAN

MODEL WATER EFFICIENCY TURF ALLOWANCE CALCULATION

3,504 S.F. TOTAL LANDSCAPE AREA
876 S.F. TOTAL TURF AREA ALLOWED (25%)
286 S.F. TOTAL PROPOSED TURF AREA FOR PROJECT



MFA
ENGINEERS & ASSOCIATES
370 GRAND PARK CIRCLE
SAN JOSE CA, 95136
TEL: (408) 509-3464
alialbiani@sbcglobal.net

CHEENEY ST TOWNHOUSES
4249 CHEENEY ST.
SANTA CLARA, CA 95054

REVISION	DATE
1	
2	
3	

DATE: August 23, 2022
PROJECT No. 10-042122

LANDSCAPE PLAN

REF. NORTH

TRUE NORTH

L1.1

TREE INVENTORY LEGEND

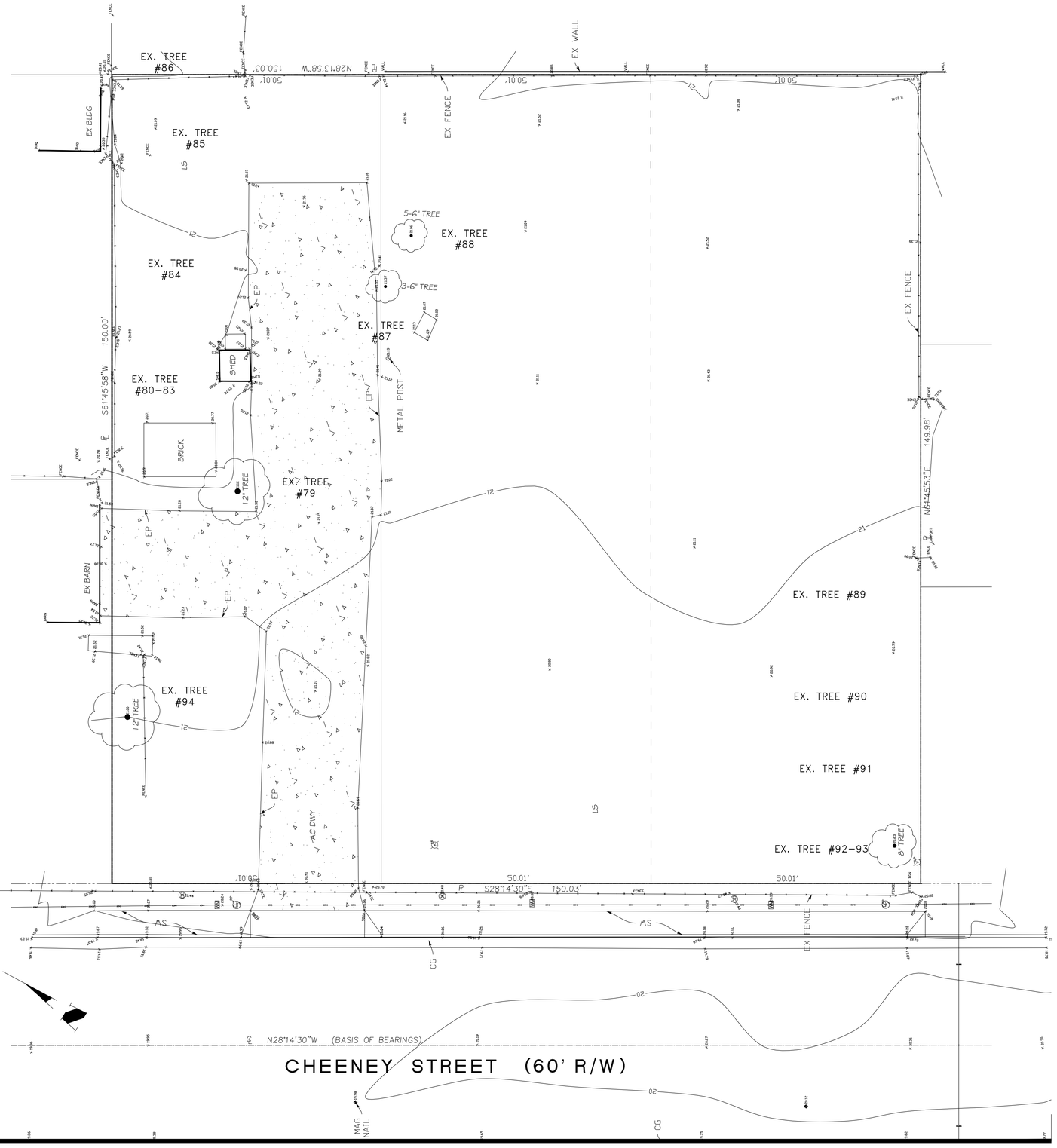
TREE #	TREE SPECIES BOTANICAL NAME	TREE SPECIES COMMON NAME	SIZE DBH @ 54"	STD OR MULTI TRUNK	TREE TO BE REMOVED
79	MALUS SPECIES	APPLE	4", 3", 3"	MULTI	YES
80	LIGUSTRUM SPECIES	PRIVET	2",1"	MULTI	YES
81	LIGUSTRUM SPECIES	PRIVET	2"	STD	YES
82	LIGUSTRUM SPECIES	PRIVET	3",2"	MULTI	YES
83	JUNGLANS REGIA	ENGLISH WALNUT	2"	STD	YES
84	PERSIA AMERICANA	AVOCADO	4"	STD	YES
85	PERSIA AMERICANA	AVOCADO	4",3"	MULTI	YES
86	PERSIA AMERICANA	AVOCADO	3"	STD	YES
87	PERSIA AMERICANA	AVOCADO	0'-4", 0'-5", 0'-4"	MULTI	YES
88	PERSIA AMERICANA	AVOCADO	5",5",4",4"	MULTI	YES
89	PHOENIX CCANARIENSIS	DATA PALM	NA	STD	YES
90	JUGLANS REGIA	ENGLISH WALNUT	3",3",2"	MULTI	YES
91	CELTIS SPECIES	HACKBERRY	3"	STD	YES
92	SCHINUS TEREBINTHIFOLIUS	BRAZILIAN PEPER	3",3",3"	MULTI	YES
93	JUGLANS HINDSII	BLACK WALNUT	5"	STD	YES
94	CITRUS SPECIES	ORANGE	12"	STD	YES

EXISTING TREES TO REMAIN

EXISTING TREES INTENDED FOR REMOVAL

UNK- UNKNOWN INFORMATION TO BE DETERMINED
TBD - TO BE DETERMINED

NOTE:
1. ALL TREES HERE SHOWN HAVE BEEN SURVEYED BY A LICENSED SURVEYOR. ALL TREE SPECIES HAVE BEEN IDENTIFIED BY A LICENSED ARBORIST.
2. ALL TREES DIAMETERS HAVE BEEN MEASURES 54" ABOVE GRADE BY A LICENSED ARBORIST



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CHEENEY ST TOWNHOUSES
4249 CHEENEY ST.
SANTA CLARA, CA 95054

REVISION	DATE
1	
2	
3	

DATE:	August 23, 2022
PROJECT No.	10-042122

TREE INVENTORY PLAN

REF. NORTH

L1.2

LEGEND

NEW CONDUIT AND WIRE CONCEALED IN WALL OR ABOVE CEILING

NEW CONDUIT AND WIRE CONCEALED UNDERFLOOR OR UNDERGROUND

EXISTING CONDUIT AND WIRE CONCEALED IN WALL OR ABOVE CEILING

EXISTING CONDUIT AND WIRE CONCEALED UNDERFLOOR OR UNDERGROUND

HOMERUN SHOWING GROUND, HOT, AND NEUTRAL

LIGHT FIXTURES – SEE LIGHT FIXTURE SCHEDULE

$ SINGLE POLE, SINGLE THROW SWITCH

$3 THREE–WAY LIGHT SWITCH

$PIR OCCUPANCY SENSOR SWITCH, PROXIMITY INFRA–RED

$MS SWITCH WITH MOTION SENSOR

EQUIPMENT CONNECTION

JUNCTION BOX

DUPLEX RECEPTACLE

QUAD RECEPTACLE

SIMPLEX RECEPTACLE, GROUNDED

IG DUPLEX RECEPTACLE, ISOLATED GROUND

GFCI DUPLEX RECEPTACLE WITH GROUND FAULT CIRCUIT INTERRUPTION (GFCI)

WP GFCI DUPLEX RECEPTACLE, GFCI WITH WEATHERPROOF–IN–USE COVER

FLOOR BOX WITH DUPLEX RECEPTACLE

SPECIAL PURPOSE RECEPTACLE AS NOTED

DUPLEX RECEPTACLE WITH USB PLUGS

(SD) FIRE ALARM SYSTEM SMOKE DETECTOR

DSD FIRE ALARM SYSTEM DUCT MOUNT SMOKE DETECTOR

FSD 120V CONNECTION TO FIRE/SMOKE DAMPER

DISCONNECT SWITCH, FUSED

DISCONNECT SWITCH, UN–FUSED

TELEPHONE OUTLET, AT 18" UNLESS OTHERWISE NOTED

TELEPHONE/DATA OUTLET

FLOOR BOX WITH TELEPHONE/DATA OUTLET

COMBINATION FLOORBOX: DUPLEX RECEPTACLE AND TELEPHONE/DATA OUTLET

PANELBOARD

(T) THERMOSTAT

T TRANSFORMER

(PS) PHOTO SENSOR

(OS) OCCUPANCY SENSOR

X FLAG NOTE

1 REVISION NUMBER

REVISION CLOUD

SOME SYMBOLS NOT USED IN THIS PROJECT.

GENERAL NOTES

1. PROVIDE ELECTRICAL INSTALLATION IN ACCORDANCE WITH NATIONAL ELECTRICAL CODE, NATIONAL ELECTRICAL SAFETY CODE, LOCAL CODES, ORDINANCES AND REQUIREMENTS OF UTILITY COMPANIES FURNISHING SERVICES TO INSTALLATION.
2. PROVIDE ITEMS NECESSARY TO COMPLETE ELECTRICAL SYSTEMS. THE ELECTRICAL DRAWINGS ARE DIAGRAMMATIC AND DO NOT NECESSARILY SHOW EVERY CONDUIT, BOX, CONDUCTOR OR SIMILAR ITEMS FOR A COMPLETE INSTALLATION.
3. THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO BID AND DETERMINE CONDITIONS WHICH MAY AFFECT BID. ANY ITEMS NOT FULLY UNDERSTOOD SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT PRIOR TO BIDDING.
4. WHEREVER THE WORD "PROVIDE" IS USED, IT MEANS, "FURNISH AND INSTALL COMPLETE AND READY FOR USE."
5. COORDINATE LOCATION OF ELECTRICAL WITH OTHER TRADES.
6. REFER TO MECHANICAL DRAWINGS FOR CHARACTERISTICS (SIZE, LOCATION, ETC.) OF MECHANICAL EQUIPMENT, UNLESS OTHERWISE INDICATED.
7. PROVIDE CONDUCTORS AND RACEWAYS PER NATIONAL ELECTRICAL CODE.
8. REFER TO ARCHITECTURAL AND INTERIOR DESIGN DRAWINGS FOR EXACT LOCATION OF ALL LIGHTING FIXTURES, RECEPTACLES, SWITCHES, AND ALL OTHER ELECTRICAL DEVICES.
9. PROVIDE LIGHT FIXTURES WITH PROPER FITTING, FLANGES, MOUNTING SUPPORTS AND ACCESSORY ITEMS. ALL FIXTURES SHALL BE UL LISTED FOR CONDITIONS OF USE.

MATERIALS AND METHODS

1. PROVIDE RACEWAY AND WIRING ROUTED CONCEALED WITHIN BUILDING STRUCTURE WHERE POSSIBLE. WHERE RACEWAY CANNOT BE CONCEALED, IT SHALL BE INSTALLED PER PROJECT MANAGER'S DIRECTION. PROVIDE EMT CONDUIT INSIDE BUILDING.
2. EXPOSED CONDUIT ROUTING: CONDUITS MAY BE ROUTED EXPOSED IN MECHANICAL AND ELECTRICAL ROOMS ONLY. EXPOSED CONDUITS SHALL BE SECURED A MINIMUM OF 6" ABOVE FLOOR.
3. OUTDOOR EXPOSED CONDUIT ROUTING: CONDUITS ROUTED ON ROOF OR EXPOSED TO WEATHER SHALL BE EMT OR LIQUID–TIGHT FLEX. PROVIDE WATER–TIGHT CONNECTIONS AND FITTINGS. PROVIDE PVC ELECTRICAL CONDUIT UNDERGROUND AND ON ROOF.
4. CLEARANCES: VERIFY PHYSICAL DIMENSIONS OF EQUIPMENT TO ENSURE THAT ACCESS CLEARANCES CAN BE MET.
5. CONNECTIONS: PROVIDE GRS, METALLIC FLEX, OR LIQUIDTITE FLEX CONDUITS FOR CONNECTIONS TO MOTORS OR MOTORIZED EQUIPMENT.
6. WIRING: PROVIDE MINIMUM #12 AWG WIRE SIZE AND MINIMUM 3/4" CONDUIT FOR ALL BRANCH CIRCUITRY.
7. WIRING: PROVIDE MINIMUM #10 AWG CONDUCTOR SIZE IN 120V BRANCH CIRCUIT RUNS OVER 75' IN LENGTH.
8. WIRING: POWER WIRING SHALL BE COPPER, THWN/THHN, INSULATED FOR 600V. ALUMINUM CONDUCTORS PERMITTED FOR FEEDERS 100 AMPS OR LARGER. INCREASE WIRE AND CONDUIT SIZE TO EQUAL OR EXCEED DESIGNED COPPER RATING.
9. DISCONNECTS: PROVIDE DISCONNECTS, FUSED AND UNFUSED, SHOWN AND REQUIRED BY CODE FOR EQUIPMENT FURNISHED UNDER ELECTRICAL AND MECHANICAL SCOPES OF WORK.
10. FUSES: PROVIDE FUSES PER EQUIPMENT NAMEPLATE UNLESS OTHERWISE INDICATED . FUSES SHALL BE PROVIDED WITH REJECTION TYPE FUSE HOLDERS.
11. SUPPORT: SUPPORT LIGHT FIXTURES FROM BUILDING STRUCTURE. DO NOT SUPPORT FIXTURES FROM SUSPENDED CEILING.
12. LABELS: ELECTRICAL PANEL, TIME SWITCH, DISCONNECT, STARTER, CONTRACTOR, PULL BOX, ETC. ENCLOSURES SHALL BE PERMANENT LABELED TO IDENTIFY ITS DESIGNED OR UNIT SERVED.
13. PAINTING: ELECTRICAL ENCLOSURES IN PUBLIC AREA SHALL BE PAINTED TO MATCH ADJUSTMENT WALL
14. COVERPLATES: PROVIDE AS FOLLOWS. SUBMIT SAMPLE OF EACH FOR APPROVAL.
    a. MECHANICAL AND ELECTRICAL ROOMS: GALVANIZED STEEL
    b. ALL OTHER AREAS: TO MATCH SURROUNDING SURFACE
15. HOME RUN NEUTRALS MAY BE COMBINED AT CONTRACTORS OPTION UNLESS CIRCUIT IS DEDICATED.
16. NEUTRAL CONDUCTORS: NEUTRAL MAY BE OMITTED ON EQUIPMENT CONNECTIONS IF CONTRACTOR VERIFIES THAT A NEUTRAL IS NOT REQUIRED FOR OPERATION OR CONTROL OF EQUIPMENT.
17. MULTIWIRE BRANCH CIRCUITS: PROVIDING POWER TO MORE THAN ONE DEVICE OR EQUIPMENT ON THE SAME YOLK SHALL HAVE MEANS TO DISCONNECT SIMULTANEOUSLY ALL UNGROUNDED CONDUCTORS SUPPLYING THESE DEVICES AT THE POINT WHERE THE BRANCH CIRCUIT ORIGINATES PER NEC 210.4(B). AS–BUILT PANEL SCHEDULES SHALL SHOW ALL MULTIPOLE BREAKERS INSTALLED TO MEET THIS REQUIREMENT.

SPECIAL SYSTEMS

1. FIRE ALARM SYSTEM:
   PROVIDED AND INSTALLED BY FIRE ALARM CONTRACTOR. FIRE ALARM CONTRACTOR SHALL DESIGN AND PROVIDE COMPLETE, OPERATING, AND CODE COMPLIANT FIRE ALARM CONTRACTOR SHALL SUBMIT FULL SET OF PLANS INDICATING DEVICE LOCATIONS, WIRING, CONNECTIONS AND SPECIAL MOUNTING DETAILS TO THE FIRE MARSHALL.
2. SOLAR PHOTOVOLTAIC SYSTEM:
   SOLAR CONTRACTOR SHALL DESIGN AND PROVIDE COMPLETE, OPERATING AND CODE COMPLIANT SOLAR SUBMIT FULL SET OF PLANS INDICATING DEVICE LOCATIONS, WIRING, CONNECTIONS, AND SPECIAL MOUNTING DETAILS TO THE CITY BUILDING DEPARTMENT. SOLAR CONTRACTOR SHALL BE RESPONSIBLE FOR ALL WORK REQUIRED FOR INTERCONNECTION OF SOLAR PV SYSTEM WITH UTILITY GRID.

ADA REQUIREMENTS

1. RECEPTACLE OUTLETS SHALL BE LOCATED 18' AFF UNLESS NOTED OTHERWISE
2. LIGHT SWITCHES SHALL BE INSTALLED WITHIN 34–48 INCHES OF THE FLOOR.
3. PUBLIC TELEPHONES MUST COMPLY WITH CBC 117B.2 FOR CLEARANCES AND FEATURES.

ABBREVIATIONS

A	AMPERE
AC	ALTERNATING CURRENT, ABOVE COUNTER
AFF	ABOVE FINISHED FLOOR
AIC	AMPS INTERRUPTING CAPACITY
AL	ALUMINUM
AMP	AMPERE
AWG	AMERICAN WIRE GAUGE
BKR	BREAKER
BLDG	BUILDING
BOH	BACK OF HOUSE
C	COIL or CONDUIT
CKT	CIRCUIT
CO	CONDUIT/RACEWAY ONLY
CT	CURRENT TRANSFORMER
Cu	COPPER
Cw	COOL WHITE
DSD	DUCT SMOKE DETECTOR
EF	EXHAUST FAN
ELEC	ELECTRICAL
EMT	ELECTRICAL METALLIC TUGBING
EQUIP	EQUIPMENT
(E)	EXISTING
FLR	FLOOR
FLUOR	FLUORESCENT
FOH	FRONT OF HOUSE
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GND	GROUND
GRS	GALVANIZED RIGID STEEL
HID	HIGH INTENSITY IDISCHARGE
HP	HEAT TRACE
KCMIL	THOUSAND CIRCULAR MILLS
KEC	KITCHEN EQUIPMENT CONTRACTOR
KVA	KILOVOLT AMPERES
KW	KILOWATT
LTG	LIGHTING
MFR	MANUFACTURER
MIN	MINIMUM
MLO	MAIN LUGS ONLY
MS	MOTION SENSOR
N	NEUTRAL
(N)	NEW
NEC	NATIONAL ELECTRICAL CODE (NFPA–70)
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
NT	NEON TRANSFORMER
NTS	NOT TO SCALE
OC	OCCUPANCY SENSOR
PB	PUSHBUTTON
PIR	PROXIMITY INFRARED
PNL	PANEL
POC	POINT OF CONNECTION
POS	POINT OF SCALE
PWR	POWER
QTY	QUANTITY
RECEPT	RECEPTACLE
RI	ROUGH–I N
RM	ROOM
RTU	ROOFTOP UNIT
SPEC	SPECIFICATIONS
SW	SWITCH
SWBD	SWITCHBOARD
SWGR	SWITCHGEAR
TYP	TYPICAL
UG	UNDERGROUND
UL	UNDERWRITERS LABORATORIES
UON	UNLESS OTHERWISE NOTED
V	VOLTS
W	WATTS
WW	WARM WHITE
WP	WATERPROOF
W/O	WITHOUT
XFMR	TRANSFOMER
XFR	TRANSFER
Z	IMPEDANCE OR ZONE

INDEX OF DRAWINGS

DWG	DESCRIPTION	INCLUDED IN SET: PERMIT SET 12/08/2022				
E000	COVER SHEET, GENERAL NOTES, & INDEX	X				
E100	ONE–LINE DIAGRAM, FAULT, & PANEL SCHEDULES	X				
E1.01	LUMINAIRE SCHEDULE	X				
E2.00	SITE PLAN	X				
E3.00	TYPICAL UNIT POWER PLAN	X				
E3.01	TYPICAL UNIT POWER PLAN	X				

ROBISON ENGINEERING, INC
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REI PROJECT NO.: 590-054
CONTACT: ARIK ESPINELI

MFA CONSTRUCTION INC.
GENERAL CONTRACTOR & ENGINEER
101 South Santa Cruz Ave., #33192
Los Gatos, CA 95030

NEW DEVELOPMENT:
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4249 CHENEY ST.
SANTA CLARA, CA 95054

REVISION	DATE
1	
2	
3	

REGISTERED PROFESSIONAL ENGINEER
MARK D. ROBISON
No. E–15095
EXP. 3–31–23
ELECTRICAL
STATE OF CALIFORNIA
12/8/22

DATE: DECEMBER 8. 2022
PROJECT No. 590–054

COVER SHEET, GENERAL NOTES, & INDEX

REF. NORTH

E0.00

PA ◁2

ROOM
MOUNTING **FLUSH**
FED FROM
NOTE

VOLTS **240/120V 2P 3W**
BUS AMPS **125**
NEUTRAL **100%**

AIC **AS NOTED IN FAULT SHCEDULE**
MAIN BKR **MLO**
LUGS **STANDARD**

CKT #	CKT BKR	CIRCUIT DESCRIPTION	LOAD KVA A	LOAD KVA B	CKT #	CKT BKR	CIRCUIT DESCRIPTION	LOAD KVA A	LOAD KVA B
4 1	20/1	CO/SD, LIGHTING, RECEPTACLE, SMOKE	0.753		2	20/1	FAN/LIGHT COMBO, RECEPTACLE	1.36	
3	20/1	EXHAUST FAN, GARAGE DOOR, LIGHTING, RECEPTACLE		1.7	4	20/1	LIGHTING, RECEPTACLE		0.925
5	30/2	EV CHARGER	2.88		6	20/1	EXHAUST FAN, LIGHTING, RECEPTACLE	0.414	
7	|			2.88	8	20/1	EXHAUST FAN, LIGHTING, RECEPTACLE		0.638
9	20/1	WASHER	1.5		10	20/1	GAS STOVE	0.1	
11	30/2	DRYER		2.5	12	20/1	LIGHTING, RECEPTACLE		0.81
13	|		2.5		14	−/2	ELECTRIC COOKING LOAD ◁1	4	
15	20/1	SPARE		0	16	|			4
17	20/1	EXHAUST FAN, LIGHTING, RECEPTACLE	0.394		18	20/1	RECEPTACLE	0.18	
19	20/1	DISHWASHER, DISPOSAL		1.8	20	20/2	GAS WATER HEATER		0.1
21	20/1	KICTHEN	1.5		22	|		0	
23	20/1	KICTHEN, REFRIG		1.5	24	25/2	SOLAR BREAKER		0
25	20/1	HOOD	0.4		26	|		0	
27	20/1	LIGHTING, RECEPTACLE		0.78	28	20/2	FC, OAC		2.1
29	20/1	LIGHTING, RECEPTACLE	0.925		30	|		2.1	
							TOTAL CONNECTED KVA BY PHASE	19	19.7

OPTIONAL DWELLING UNIT CALCULATION (NEC 220.82)

	CONN KVA	
LIGHTING AND RECEPTACLES	6.78	2,261 SF (3 VA/SF)
SMALL−APPLIANCE	3	
LAUNDRY	1.5	
APPLIANCES	12.7	
ELECTRIC COOKING	8	
MOTORS	0.4	
TOTAL GENERAL LOAD	32.3	

GENERAL LOAD	CONN KVA	CALC KVA	
UP TO 10 KVA	10	10	(100%)
OVER 10 KVA	22.3	8.94	(40%)
MAX HEATING OR COOLING		4.27	(220.82(C)(3))
TOTAL LOAD		23.2	
BALANCED LOAD		96.7 A	

PB ◁3

ROOM
MOUNTING **FLUSH**
FED FROM
NOTE

VOLTS **240/120V 2P 3W**
BUS AMPS **125**
NEUTRAL **100%**

AIC **AS NOTED IN FAULT SHCEDULE**
MAIN BKR **125**
LUGS **STANDARD**

CKT #	CKT BKR	CIRCUIT DESCRIPTION	LOAD KVA A	LOAD KVA B	CKT #	CKT BKR	CIRCUIT DESCRIPTION	LOAD KVA A	LOAD KVA B
4 1	20/1	CO/SD, LIGHTING, RECEPTACLE, SMOKE	1.41		2	30/2	DRYER	2.5	
3	20/1	GARAGE DOOR, LIGHTING, RECEPTACLE		1.32	4	|			2.5
5	20/1	KICTHEN	1.5		6	20/1	GAS STOVE	0.1	
7	20/1	KICTHEN, KITCHEN, REFRIG		1.5	8	20/1	SPARE		0
9	20/1	DISHWASHER, DISPOSAL	1.8		10	30/2	EV CHARGER	2.88	
11	20/1	HOOD		0.4	12	|			2.88
13	20/1	SPARE	0		14	−/2	ELECTRIC COOKING LOAD ◁1	4	
15	20/1	EXHAUST FAN, LIGHTING, RECEPTACLE		0.394	16	|			4
17	20/1	LIGHTING, RECEPTACLE	0.925		18	20/1	RECEPTACLE	0.18	
19	20/1	LIGHTING, RECEPTACLE		0.925	20	20/2	SPARE		0
21	20/1	EXHAUST FAN, LIGHTING, RECEPTACLE	0.409		22	|		0	
23	20/1	FAN/LIGHT COMBO, RECEPTACLE		1.72	24	25/2	SOLAR BREAKER		0
25	20/1	EXHAUST FAN, LIGHTING, RECEPTACLE	1.01		26	|		0	
27	20/1	EXHAUST FAN, LIGHTING, RECEPTACLE		0.618	28	20/2	FC, OAC		2.1
29	20/1	WASHER	1.5		30	|		2.1	
							TOTAL CONNECTED KVA BY PHASE	20.3	18.4

OPTIONAL DWELLING UNIT CALCULATION (NEC 220.82)

	CONN KVA	
LIGHTING AND RECEPTACLES	6.78	2,261 SF (3 VA/SF)
SMALL−APPLIANCE	3	
LAUNDRY	1.5	
APPLIANCES	12.7	
ELECTRIC COOKING	8	
MOTORS	0.4	
TOTAL GENERAL LOAD	32.3	

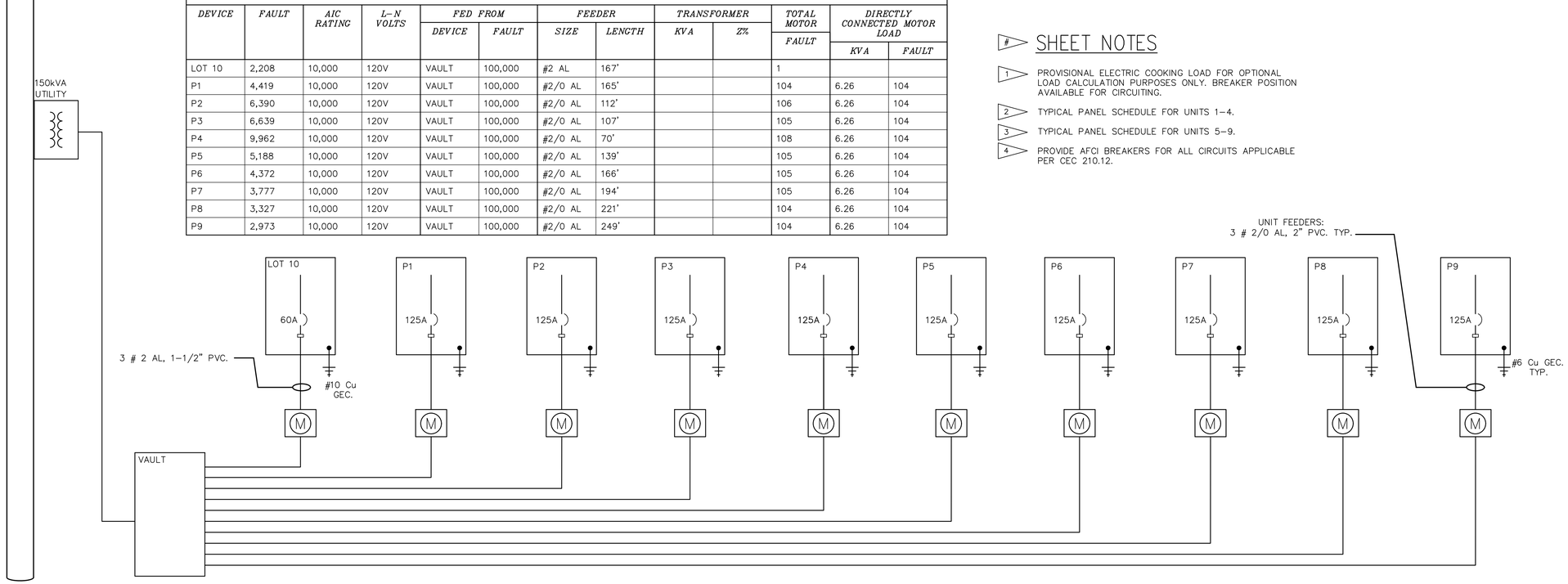
GENERAL LOAD	CONN KVA	CALC KVA	
UP TO 10 KVA	10	10	(100%)
OVER 10 KVA	22.3	8.94	(40%)
MAX HEATING OR COOLING		4.2	(220.82(C)(1))
TOTAL LOAD		23.1	
BALANCED LOAD		96.4 A	

FAULT CURRENT SCHEDULE

DEVICE	*FAULT*	*AIC RATING*	*L−N VOLTS*	*FED FROM*		*FEEDER*		*TRANSFORMER*		*TOTAL MOTOR*	*DIRECTLY CONNECTED MOTOR LOAD*	
				DEVICE	*FAULT*	*SIZE*	*LENGTH*	*KVA*	*Z%*	*FAULT*	*KVA*	*FAULT*
LOT 10	2,208	10,000	120V	VAULT	100,000	#2 AL	167'			1		
P1	4,419	10,000	120V	VAULT	100,000	#2/0 AL	165'			104	6.26	104
P2	6,390	10,000	120V	VAULT	100,000	#2/0 AL	112'			106	6.26	104
P3	6,639	10,000	120V	VAULT	100,000	#2/0 AL	107'			105	6.26	104
P4	9,962	10,000	120V	VAULT	100,000	#2/0 AL	70'			108	6.26	104
P5	5,188	10,000	120V	VAULT	100,000	#2/0 AL	139'			105	6.26	104
P6	4,372	10,000	120V	VAULT	100,000	#2/0 AL	166'			105	6.26	104
P7	3,777	10,000	120V	VAULT	100,000	#2/0 AL	194'			105	6.26	104
P8	3,327	10,000	120V	VAULT	100,000	#2/0 AL	221'			104	6.26	104
P9	2,973	10,000	120V	VAULT	100,000	#2/0 AL	249'			104	6.26	104

SHEET NOTES

1. PROVISIONAL ELECTRIC COOKING LOAD FOR OPTIONAL LOAD CALCULATION PURPOSES ONLY. BREAKER POSITION AVAILABLE FOR CIRCUITING.
2. TYPICAL PANEL SCHEDULE FOR UNITS 1−4.
3. TYPICAL PANEL SCHEDULE FOR UNITS 5−9.
4. PROVIDE AFCI BREAKERS FOR ALL CIRCUITS APPLICABLE PER CEC 210.12.



ONE−LINE DIAGRAM

ROBISON ENGINEERING, INC
19401 40TH AVE W., SUITE 302
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206-364-3343 TEL
REI PROJECT NO.: 590-054
CONTACT: ARIK ESPINELI

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101 South Santa Cruz Ave., #33192
Los Gatos, CA 95030

NEW DEVELOPMENT:
CHEENEY ST TOWNHOUSES
4249 CHEENEY ST.
SANTA CLARA, CA 95054
590-054

	REVISION	DATE
1		
2		
3		

REGISTERED PROFESSIONAL ENGINEER
ARIK D. ROBISON
No. E−15095
EXP. 3-31-23
ELECTRICAL
STATE OF CALIFORNIA
12/8/22

DATE: DECEMBER 8. 2022
PROJECT No. 590−054

ONE-LINE DIAGRAM, PANEL & FAULT SCHEDULES

REF. NORTH

E1.00

Panel: LOT 10

ROOM
MOUNTING **SURFACE**
FED FROM **VAULT**
NOTE **NEMA 3R ENCLOSURE**

VOLTS **240/120V 2P 3W**
BUS AMPS **60**
NEUTRAL **100%**

AIC **10,000**
MAIN BKR **60**
LUGS **STANDARD**

CKT #	CKT BKR	LOAD KVA	CIRCUIT DESCRIPTION		CKT #	CKT BKR	LOAD KVA	CIRCUIT DESCRIPTION
1	20/1	0	SPARE	a	2	20/1	0	SPARE
3	20/1	0	SPARE	b	4	20/1	0	SPARE
5	20/1	0	SPARE	a	6	20/1	0	SPARE
7	20/1	0	SPARE	b	8	20/1	0	SPARE
9	20/1	0	SPARE	a	10	20/1	0	SPARE
11	20/1	0	SPARE	b	12	20/1	0	SPARE
13	20/1	0	SPARE	a	14	20/1	0	SPARE
15	20/1	0	SPARE	b	16	20/1	0	SPARE
17	20/1	0	SPARE	a	18	20/1	0	SPARE
19	20/1	0	SPARE	b	20	20/1	0	SPARE
21	20/1	0	SPARE	a	22	20/1	0	SPARE
23	20/1	0	SPARE	b	24	20/1	0	SPARE

	CONN KVA	CALC KVA	CALC KVA
TOTAL LOAD			0
BALANCED LOAD			0 A
PHASE A			0.00%
PHASE B			0.00%

LUMINAIRE SCHEDULE

CALLOUT	SYMBOL	MOUNTING	DESCRIPTION	MODEL	VOLTAGE	LAMPING	WATTAGE	NOTES
L1	○	CEILING	GEN. LED LIGHT	TBD	120	(1) LED	14	
L2	⊟	WALL	GEN. LED LIGHT	TBD	120	(1) LED	14	
L3	□	CEILING	LED DOWNLIGHT	TBD	120	(1) LED	25	
L5	⊢—⊣	CEILING	8' LED STRIP	TBD	120	(1) LED	40	
L6	○	CEILING	4" LED DOWNLIGHT	TBD	120	(1) LED	15	
L7	⊼	WALL	EXT. LED LIGHT	TBD	120	(1) LED	15	W/ INTEGRAL PHOTOCELL AND MOTION SENSOR
L8	⊢	WALL	LED VANITY LIGHT	TBD	120	(1) LED	25	
L10	⊕	CEILING	WET RATED LED SHOWER LIGHT	TBD	120	(1) LED	20	
L11	✕	CEILING	FAN/LIGHT COMBO	TBD	120	(1) LED	100	

VOLTAGE DROP SCHEDULE

DEVICE	FEEDER			BRANCH CIRCUIT		TOTAL VOLTAGE DROP	FEEDER
	VOLTAGE DROP	WIRE SIZE	LENGTH	MAX VOLTAGE DROP	WIRE SIZE		VOLTAGE DROP
UTILITY	0%		–	–	–	0%	0%
VAULT	0%	(3)#400kcmil AL		–	–	0%	0%
LOT 10	0%	#2 AL	167'	–	–	0%	0%
P1	2.1%	#2/0 AL	165'	1.42% (CKT 2)	#12	3.52%	2.1%
P2	1.43%	#2/0 AL	112'	1.42% (CKT 2)	#12	2.85%	1.43%
P3	1.37%	#2/0 AL	107'	1.42% (CKT 2)	#12	2.8%	1.37%
P4	0.78%	#2/0 AL	61'	1.42% (CKT 2)	#12	2.2%	0.78%
P5	1.77%	#2/0 AL	139'	1.79% (CKT 9)	#12	3.56%	1.77%
P6	2.12%	#2/0 AL	166'	1.79% (CKT 9)	#12	3.91%	2.12%
P7	2.47%	#2/0 AL	194'	1.79% (CKT 9)	#12	4.26%	2.47%
P8	2.82%	#2/0 AL	221'	1.79% (CKT 9)	#12	4.61%	2.82%
P9	***3.18%***	#2/0 AL	249'	1.79% (CKT 9)	#12	4.96%	3.18%

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GENERAL CONTRACTOR & ENGINEER
101 South Santa Cruz Ave., #33192
Los Gatos, CA 95030

NEW DEVELOPMENT:
CHEENEY ST TOWNHOUSES
4249 CHEENEY ST.
SANTA CLARA, CA 95054

	REVISION	DATE
1		
2		
3		

REGISTERED PROFESSIONAL ENGINEER
MARK D. ROBISON
No. E-15095
EXP. 3-31-23
ELECTRICAL
STATE OF CALIFORNIA
12/8/22

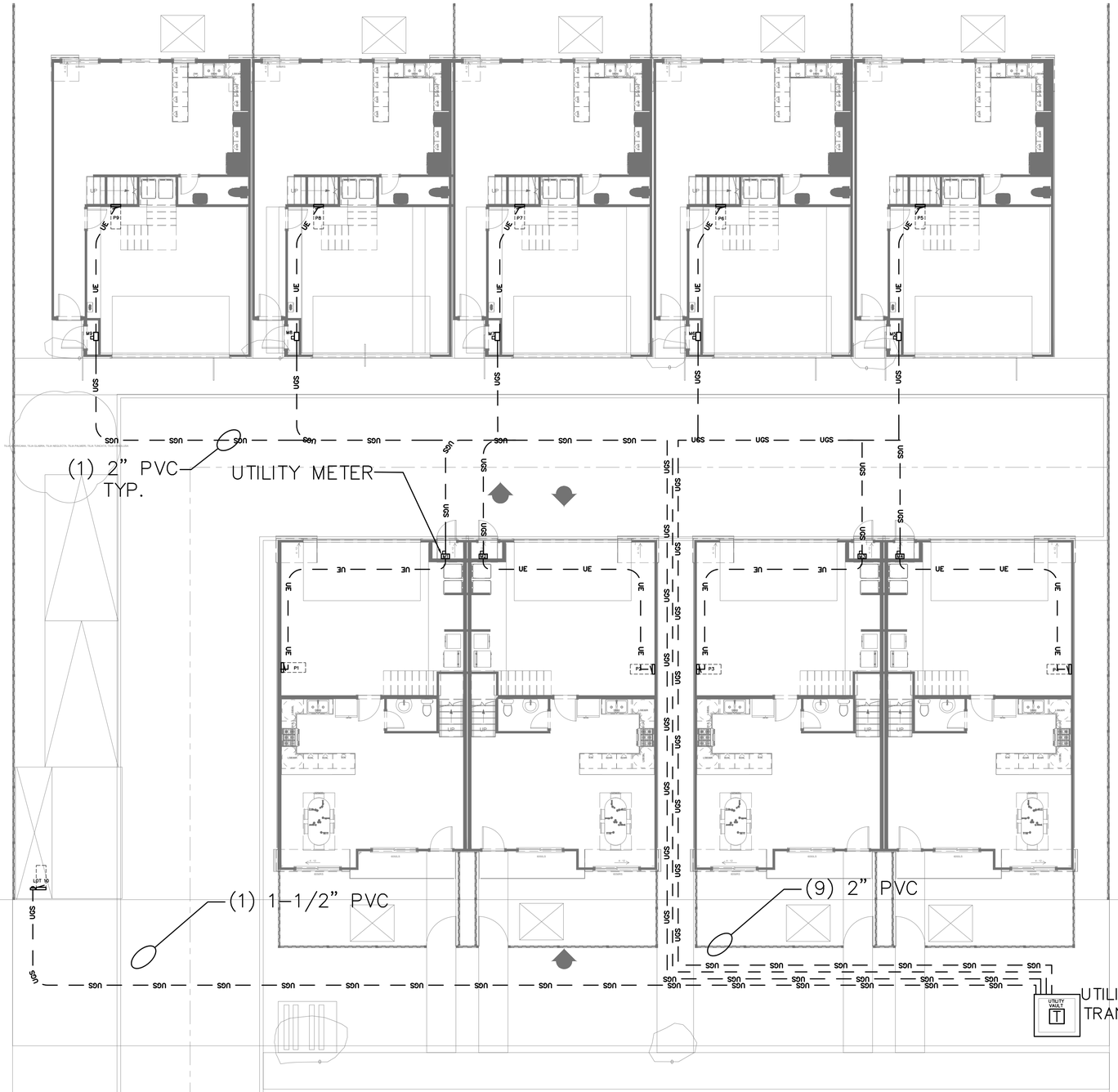
LUMINAIRE SCHEDULE

DATE: DECEMBER 8. 2022
PROJECT No. 590-054

LUMINAIRE SCHEDULE

REF. NORTH

E1.01



1 SITE PLAN
SCALE: 1/8" = 1'-0"

0 1 2 5 10 15 20

ROBISON ENGINEERING, INC
19401 40TH AVE W., SUITE 302
LYNNWOOD, WA 98036
206-364-3343 TEL
REI PROJECT NO.: 590-054
CONTACT: ARIK ESPINELI

MFA CONSTRUCTION INC.
GENERAL CONTRACTOR & ENGINEER
101 South Santa Cruz Ave., #33192
Los Gatos, CA 95030

NEW DEVELOPMENT:
CHEENEY ST TOWNHOUSES
4249 CHEENEY ST.
SANTA CLARA, CA 95054

	REVISION	DATE
1		
2		
3		

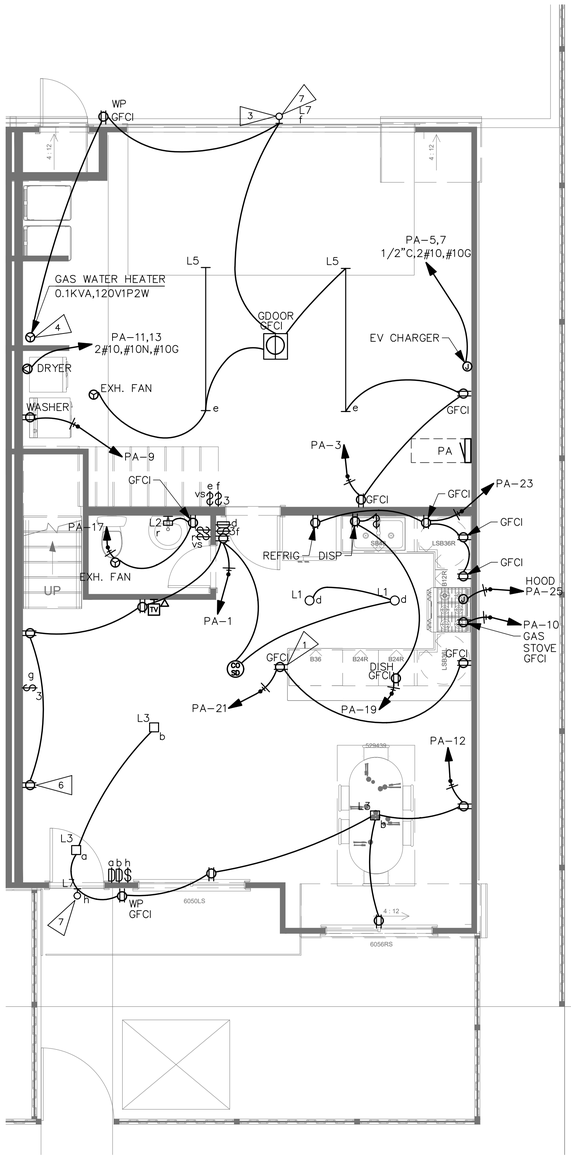
REGISTERED PROFESSIONAL ENGINEER
ARIK D. ROBISON
No. M-28712
EXP. 9-30-23
MECHANICAL
STATE OF CALIFORNIA
12/8/22

DATE: DECEMBER 8. 2022
PROJECT No. 590-054

SITE PLAN

REF. NORTH

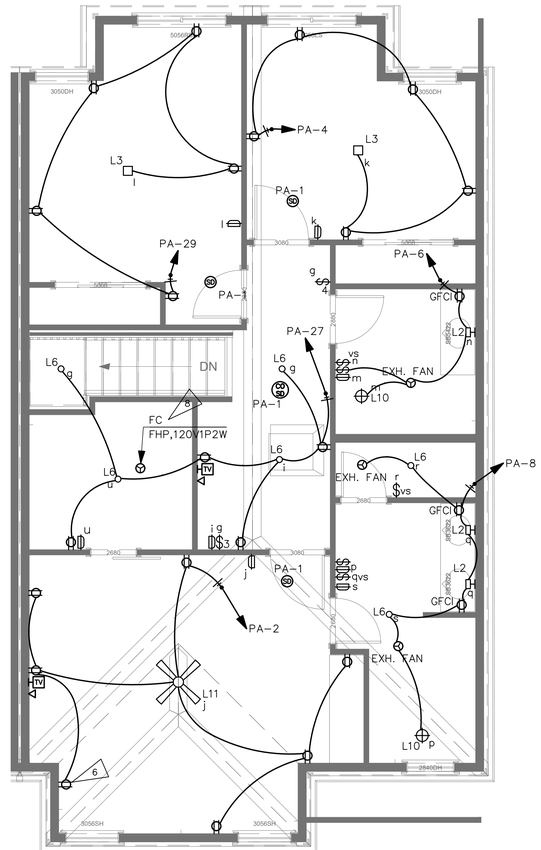
E2.00



1 UNIT A FIRST FLOOR

SCALE: 1/4" = 1'-0"

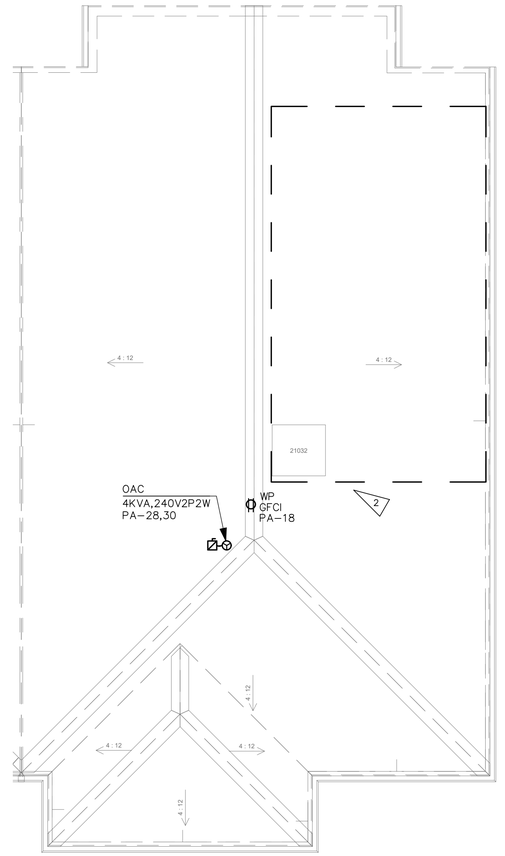
0 1 2 5 10



2 UNIT A SECOND FLOOR

SCALE: 1/4" = 1'-0"

0 1 2 5 10



3 UNIT A ROOF

SCALE: 1/4" = 1'-0"

0 1 2 5 10

SHEET NOTES

1. 6" MAX COUNTERTOP OVERHANG FROM BASE CABINET. MOUNT RECEPTACLE WITHIN 12" OF COUNTERTOP SURFACE.
2. REQUIRED SOLAR READY ZONE PER TITLE 24 110.10.
3. ALL OPENINGS AROUND PENETRATIONS THROUGH EXTERIOR WALLS AND SILL PLATES SHALL BE SEALED FOR RODENT PROOFING. TYP.
4. TIE TO GARAGE CIRCUIT IF GAS WATER HEATER REQUIRES ELECTRICAL CONNECTION.
5. PROVIDE DOUBLE HASP LOCKING ARRANGEMENT OR UTILITY LOCK BOX FOR UNIT UTILITY ROOM DOORS.
6. PROVIDE TAMPER PROOF RECEPTACLES PER CBC 406.12. TYP.
7. OUTDOOR LIGHTING SHALL BE INTEGRALLY CONTROLLED BY BOTH PHOTOCELL CONTROL AND MOTION SENSOR
8. FC POWER FED FROM OUTDOOR UNIT

ROBISON ENGINEERING, INC
19401 40TH AVE W., SUITE 302
LYNNWOOD, WA 98036
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NEW DEVELOPMENT: CHEENEY ST TOWNHOUSES
4249 CHEENEY ST. SANTA CLARA, CA 95054

REVISION	DATE
1	
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3	

REGISTERED PROFESSIONAL ENGINEER — MARK D. ROBISON — No. M-28712 — EXP. 9-30-23 — MECHANICAL — STATE OF CALIFORNIA

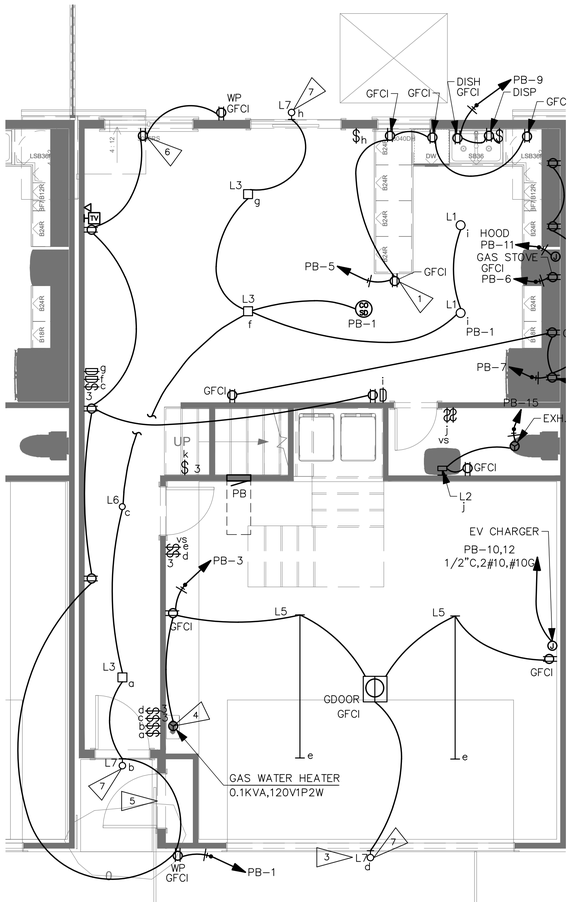
12/8/22

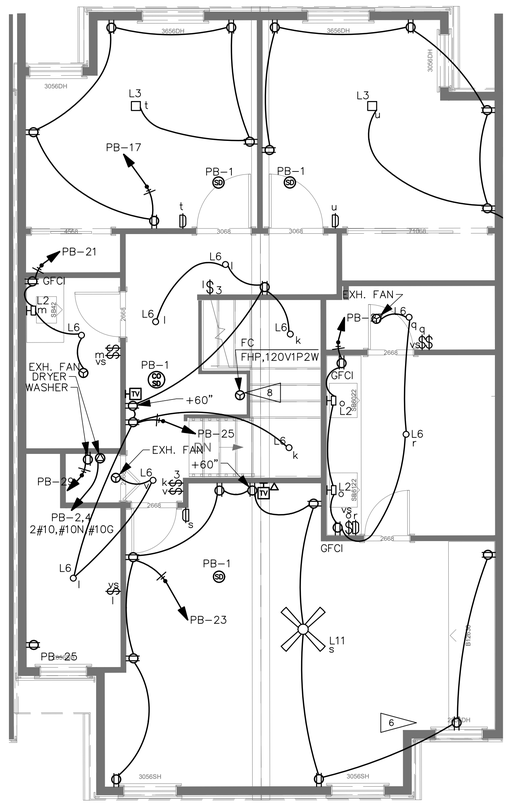
DATE:	DECEMBER 8. 2022
PROJECT No.	590-054

TYPICAL UNIT POWER PLAN

REF. NORTH

E3.00





7 UNIT B FIRST FLOOR

SCALE: 1/4" = 1'-0"

0 1 2 5 10

8 UNIT B SECOND FLOOR

SCALE: 1/4" = 1'-0"

0 1 2 5 10

9 UNIT B ROOF

SCALE: 1/4" = 1'-0"

0 1 2 5 10

SHEET NOTES

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D. ROBISON
No. M-28712
EXP. 9-30-23
12/8/22

DATE: DECEMBER 8. 2022
PROJECT No. 590-054

TYPICAL UNIT POWER PLAN

REF. NORTH

E3.01

GENERAL NOTES

GENERAL NOTES – MECHANICAL

1. REFERENCE TO RELATED WORK: "REF" INDICATIONS DENOTE WORK COVERED ELSEWHERE (ARCHITECTURAL, STRUCTURAL, CIVIL, ELECTRICAL, LANDSCAPE, OR KITCHEN), OR ITEM BASED ON A SPECIFIC MANUFACTURER'S DIMENSIONS (VERIFY).

2. ELECTRICAL CHARACTERISTICS: REFER TO ELECTRICAL DRAWINGS FOR ELECTRICAL CHARACTERISTICS (VOLTAGES, ETC. OF MECHANICAL EQUIPMENT, UNLESS OTHERWISE INDICATED.

3. CODES: COMPLETE INSTALLATION OF THE MECHANICAL SYSTEM SHALL BE PER THE APPLICABLE BUILDING, MECHANICAL, ENERGY, PLUMBING, FIRE, AND HEALTH CODES AND REGULATIONS AS ADOPTED BY THE LOCAL AHJ.

4. PREPARE AND SUBMIT FOR REVIEW A SHOP DRAWING BASED ON FINAL STRUCTURAL SHOP DRAWINGS FOR LOCATING AND ROUTING ALL DUCTWORK, DAMPERS, EQUIPMENT, PIPING, ETC.
   A. COORDINATE FLOOR AND BEAM PENETRATIONS WITH STRUCTURAL.
   B. COORDINATE FINAL LOCATION AND ROUTING WITH CEILING, LIGHTS, WALLS, FIRE SPRINKLER PIPING, AND OTHER TRADES WORK.
   C. INCLUDE ADDITIONAL OFFSETS, ELBOWS, ROUTING, EQUIVALENT DUCT SIZING EXCHANGE, RELOCATING, ETC. AS REQUIRED FOR A COMPLETE OPERATING MECHANICAL SYSTEM.
   D. PROVIDE SHOP DRAWINGS AT NO ADDITIONAL COST TO THE OWNER.

5. MECHANICAL CONTRACTOR SHALL LOCATE AND COORDINATE EXACT LOCATION OF ALL MECHANICAL EQUIPMENT WITHIN THE STRUCTURE.

6. ACCESS DOORS: COORDINATE WITH ARCHITECT AND LOCATE ALL ACCESS DOORS ON SHOP DRAWINGS PRIOR TO BEGINNING OF CONSTRUCTION. ACCESS DOORS IN FIRE RATED STRUCTURE SHALL BE FIRE RATED. VERIFY ACCESS DOOR LOCATIONS WITH GENERAL CONTRACTOR PRIOR TO BIDDING.

7. RATED PENETRATION: DUCT PENETRATIONS THROUGH RATED ENCLOSURES SHALL BE FIRE/SMOKE DAMPERED PER THE LATEST EDITION OF THE UNDERWRITERS LABORATORIES(UL) FIRE RESISTANCE WITH HOURLY RATINGS FOR THROUGH–PENETRATION FIRE STOPS SYSTEM VOLUME #2, OR SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S UL LISTINGS (3M OR EQUIVALENT). DETERMINE REQUIREMENTS WITH GENERAL CONTRACTOR PRIOR TO BID.

8. EXHAUST OUTLETS: SOURCE–SPECIFIC FANS SHALL BE VENTED TO OUTDOORS WITH A MINIMUM 3' CLEARANCE BETWEEN VENT OUTLETS AND BUILDING OPENINGS, AND 10' MINIMUM BETWEEN VENT OUTLETS AND MECHANICAL AIR INTAKES.

9. ROOF PENETRATIONS: SEE ARCHITECTURAL DRAWINGS FOR ROOF CAP, ROOF CURB, ROOF DRAIN, AND VTR DETAILS.

10. EXPOSED PIPING: PROVIDE CHROME PLATING FOR EXPOSED PIPING IN FINISHED ROOMS.

11. PENETRATIONS: PROVIDE ESCUTCHEON PLATES FOR EXPOSED PIPING PENETRATIONS AND SHEET METAL FLASHING FOR EXPOSED DUCTWORK PENETRATIONS.

12. SHAFT AND PLENUM CONNECTIONS: SEAL CONNECTIONS TO AIR SHAFTS AIRTIGHT. PROVIDE AIRTIGHT SEAL AROUND PENETRATIONS IN AIR PLENUMS.

13. LIGHT FIXTURE CLEARANCE: COORDINATE LOCATIONS OF MECHANICAL WORK TO PROVIDE CLEARANCES OVER LIGHTING FIXTURES FOR REMOVAL AND REPLACEMENT.

14. CABLE TRAYS: DUCTWORK AND PIPING INSTALLED ADJACENT TO ELECTRICAL CABLE TRAYS SHALL ALLOW MINIMUM ACCESS OF 6" ABOVE AND TO THE SIDE OF CABLE TRAYS.

15. MOTORS: COMPLY WITH ENERGY CODE ENFORCED BY AHJ FOR MINIMUM EFFICIENCIES UNDER FULL LOAD.

16. ACCESS CLEARANCES FOR MAINTENANCE AND REPLACEMENT: VERIFY PHYSICAL DIMENSIONS OF EQUIPMENT TO ENSURE THAT ACCESS CLEARANCES CAN BE MET. COORDINATE LOCATIONS OF MECHANICAL WORK AND WORK OF OTHER TRADES TO PROVIDE ACCESS CLEARANCES FOR SERVICE AND MAINTENANCE.

COORDINATION REQUIREMENTS

1. PIPING: COORDINATE WITH STRUCTURAL FOR EXACT LOCATION OF ALL STRUCTURAL FRAMING AND FOOTINGS AND FINALIZE THE EXACT ROUTING OF ALL PIPES WITH STRUCTURAL AND AT THE SITE PRIOR AND DURING THE CONSTRUCTION.

2. DUCTWORK: LOCATE AND COORDINATE THE EXACT LOCATION OF DUCTWORK WITH STRUCTURAL PLANS AND WITH THE GENERAL CONTRACTOR PRIOR TO INSTALLATION OF ANY STRUCTURE OR EQUIPMENT. COORDINATE WITH FRAMING CONTRACTOR TO ASSURE JOIST SPACES LINE UP WHEN DUCTWORK MUST PASS THROUGH DIFFERENT JOIST SPACES.

3. ADJUSTMENTS: ALL EQUIPMENT, MOTORS, FANS GAS BURNERS, IGNITION DEVICES, DRIVES, ETC. SHALL BE ADJUSTED AND BALANCED TO OPERATE AT SPECIFIED RATINGS AS REQUIRED FOR THIS PROJECT SITE AND ACCOUNTING FOR ELEVATION ABOVE SEA LEVEL.

4. APPROVALS: MECHANICAL AND PLUMBING EQUIPMENT SHALL BE APPROVED FOR INSTALLATION IN THE PROJECT LOCATION AND SHALL HAVE ALL CERTIFICATIONS AND RATINGS TO MEET ALL ENERGY, POLLUTION, ENVIRONMENTAL, SEISMIC, ETC. CODES AND REGULATIONS. THE CONTRACTOR SHALL COORDINATE WITH HIS MANUFACTURE SUPPLIERS AND SHALL INCLUDE ALL COSTS REQUIRED TO MEET THESE REQUIREMENTS IN HIS BID.

5. FIRE PROTECTION: CONTRACTOR SHALL PROVIDE A FULLY DESIGNED FIRE PROTECTION SPRINKLER SYSTEM IN COMPLIANCE WITH NFPA AND LOCAL CODES. PROVIDE DESIGN, PERMITS, MATERIALS, INSTALLATION, TESTING AND ALL OTHER FOR A FULLY OPERATIONAL SYSTEM. LOCATION OF ALL PIPING TO BE COORDINATED WITH OTHER TRADES.

6. FIREPLACES: COORDINATE WITH THE GENERAL CONTRACTOR TO DETERMINE GAS FIREPLACE FLUE AND COMBUSTION AIR DUCTWORK REQUIREMENTS PRIOR TO BIDDING.

PIPING NOTES

1. DISASSEMBLY PROVISIONS: PROVIDE UNIONS OR FLANGES AT PIPING CONNECTIONS TO EQUIPMENT, COILS, TRAPS, CONTROL VALVES, AND OTHER COMPONENTS TO ALLOW DISASSEMBLY FOR MAINTENANCE.

2. REDUCERS: PROVIDE AS REQUIRED FROM LINE PIPE SIZE TO EQUIPMENT, TRAP, COIL, AND CONTROL VALVE CONNECTION SIZES.

3. OFFSETS: PROVIDE FOR BRANCH LINES TO EQUIPMENT.

4. DIELECTRIC UNIONS: PROVIDE AT CONNECTIONS OF DISSIMILAR PIPE.

5. REFRIGERANT PIPING: PROVIDE SIZING & INSTALLATION IN STRICT ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

6. CONDENSATE DRAIN: PROVIDE A P–TRAP FOR EACH HVAC UNIT CONDENSATE PAN WITH PLUG TEES FOR CLEANING. CONDENSATE DRAINS SHALL BE DISCHARGED TO AN INDIRECT WASTE OR OUTSIDE.

INSULATION/LINING NOTES

1. ENERGY CODE: AS A MINIMUM, COMPLY WITH THICKNESSES AND TYPES LISTED IN ENERGY CODE ENFORCED BY AHJ.

PLAN NOTES

1. DUCTWORK SHALL BE METALLIC DUCTWORK

2. TEST AND BALANCE WORK SHALL BE PERFORMED BY AN INDEPENDENT TEST AND BALANCE AGENCY. PROVIDE (3) COPIES OF TEST AND BALANCE REPORT TO OWNER.

3. COORDINATE DUCTWORK WITH MISCELLANEOUS OBSTRUCTIONS IN CEILING SPACE.

4. RESTROOM EXHAUST SHALL BE A MINIMUM OF 10' FROM ANY MECHANICAL OUTSIDE AIR INTAKES.

5. ROUTE DUCTWORK UNDERNEATH JOISTS UON.

6. TRANSITION DUCT UNDER BEAMS AND DUCTS. FIELD VERIFY AVAILABLE CEILING CAVITY DIMENSIONS.

7. COORDINATE MOUNTING HEIGHT OF DIFFUSERS WITH ARCHITECTURAL PLANS.

SHEET METAL NOTES

1. REFERENCE: SMACNA HVAC DUCT CONSTRUCTION STANDARDS, METAL AND FLEXIBLE, CURRENT EDITION.

2. CLEARANCE: COORDINATE DUCTWORK WITH MISCELLANEOUS OBSTRUCTIONS IN CEILING SPACE.

3. ROUND ELBOWS AND OFFSETS: FULL RADIUS (R/D = 1.5), 5–PIECE SEGMENTED OR STAMPED. REFER TO SMACNA HVAC FIG 2–7, 3–3. DO NOT USE ANGLED OFFSET (TYPE 1). MITERED OFFSET (TYPE 2) MAY BE USED UP TO 30 DEGREE OFFSET ANGLE.

4. ROUND TEES AND LATERALS: CONICAL TEE PER SMACNA HVAC FIG 3–5; DO NOT USE STRAIGHT TEE; DO NOT USE CONICAL SADDLE TAP FOR EXPOSED DUCTWORK IN FINISHED SPACES. 90–DEGREE TEE WITH OVAL TO ROUND TAP, LATERAL, AND 45–DEGREE RECTANGULAR LEAD–IN PER SMACNA HVAC FIG 3–4.

5. RECTANGULAR ELBOWS AND OFFSETS: FULL RADIUS WHERE SPACE PERMITS, R/W = 1.5; OTHERWISE USE SQUARE CORNER ELBOW WITH TURNING VANES.

6. RECTANGULAR DIVIDED FLOW FITTINGS: USE GENERALLY, EXCEPT BRANCHES TO TERMINALS; SMACNA HVAC FIG 2–5, TYPES 1, 2, 4A, AND 4B. DO NOT USE TYPE 3.

7. TURNING VANES: H.E.P. MANUFACTURER OR APPROVED HIGH EFFICIENCY PROFILE AIRFOIL TYPE FOR RECTANGULAR SQUARE THROAT ELBOWS. ACOUSTICAL TYPE FOR RETURN AIR MITERED ELBOWS.

8. TAKEOFFS TO OPENINGS: CONICAL TYPE WITH VOLUME DAMPER FOR ROUND DUCT BRANCHES PER SMACNA HVAC FIG 2–6, MINIMUM INLET DIAMETER 2 INCHES LARGER THAN DUCT SIZE. 45 DEGREE ENTRY FITTING FOR RECTANGULAR DUCT BRANCHES PER SMACNA HVAC FIG 2–6.

9. FLEXIBLE CONNECTIONS: PROVIDE AT EACH DUCT CONNECTION TO FANS, PACKAGED HVAC EQUIPMENT, EXTERNALLY ISOLATED AIR HANDLING UNITS, FAN COIL UNITS, AND SIMILAR EQUIPMENT. EXCEPTION: EQUIPMENT IN CORRIDOR CEILING SPACES WHERE FIRE RATING IS REQUIRED.

HVAC NOTES

1. ATTACHMENTS: AIR DISTRIBUTION OUTLETS AND LOUVERS SHALL HAVE ALL REQUIRED ACCESSORIES AND ATTACHMENTS FOR A COMPLETE CONNECTION TO THE SPECIFIC TYPE OF STRUCTURE THAT THEY ARE BEING ATTACHED TO. THIS INCLUDES, BUT IS NOT LIMITED TO, EXTERIOR BRICKS, GWB WALLS, GWB CEILING, ETC.

2. DUCTWORK: DUCTWORK SHALL BE SMOOTH SHEET METAL (CLASS–1). DUCTWORK THROUGH FIRE RATED STRUCTURE AND FLOOR SHALL BE MIN. 26 GA. STEEL. MAXIMUM LENGTH OF FLEXIBLE DUCTS SHALL BE 5'–0", UNLESS OTHERWISE NOTED ON DRAWINGS. DUCTWORK SIZES SHOWN ARE INSIDE CLEAR DIMENSIONS.

3. VOLUME DAMPERS: PROVIDE AN ACCESSIBLE MANUAL VOLUME DAMPER FOR EACH SUPPLY, RETURN, OSA, AND EXHAUST OPENING, LOCATED AS FAR UPSTREAM AS POSSIBLE FROM THE OPENING. PROVIDE A MANUAL VOLUME DAMPER FOR BRANCH MAINS SERVING MORE THAN ONE OPENING. VOLUME DAMPERS IN NON–ACCESSIBLE CEILINGS SHALL HAVE A CONTROL ARM EXTENDED TO AN ACCESSIBLE LOCATION.

4. SEISMIC: PROVIDE SEISMIC RESTRAINTS FOR MECHANICAL EQUIPMENT, PIPING, AND DUCTWORK PER SMACNA AND LOCAL REGULATIONS.

5. FILTER CLEARANCE: PROVIDE ADEQUATE CLEARANCE FOR CHANGING AIR FILTERS.

6. DUCTWORK AND PIPING OUTSIDE OF MECHANICAL ROOMS SHALL BE CONCEALED, COORDINATE WITH THE GENERAL CONTRACTOR TO FUR–OUT AS REQUIRED.

7. FIRE RATINGS: RATED FLOOR/CEILING JOINT SPACES HAVING DUCTWORK INSIDE THEM SHALL BE FIRE/SMOKE PROTECTED TO MAINTAIN THE 1–HOUR FLOOR/CEILING RATING PER LOCAL JURISDICTIONS. EXHAUST DUCTWORK PENETRATING THE 1–HOUR ROOF/CEILING OR FLOOR/CEILING ASSEMBLY SHALL HAVE ACCESSIBLE CEILING FIRE DAMPERS. ALTERNATIVELY, THE EXHAUST DUCTWORK SHALL BE ROUTED INSIDE A RATED SHAFT TO PROTECT THE CEILING/ROOF RATING PER THE LOCAL JURISDICTIONS.

8. FIRESTOP: PIPE, DUCT AND CONDUIT PENETRATIONS THROUGH RATED ASSEMBLIES SHALL BE FIRE AND SMOKE STOPPED PER CODE.

9. CORRIDOR THERMOSTAT: PROVIDE TAMPERPROOF THERMOSTATS IN CORRIDORS. DO NOT PROVIDE PLASTIC GUARDS TO MAKE THE THERMOSTATS TAMPERPROOF. PROVIDE BLANK SECURABLE THERMOSTAT COVERS.

10.

CONTRACTOR SUBSTITUTIONS & REVISIONS

CONTRACTOR SUBSTITUTIONS & REVISIONS: PLEASE SUBMIT PROPOSALS FOR SUBSTITUTIONS OR REVISIONS FOR REVIEW AND APPROVAL PRIOR TO ORDERING MATERIAL OR DOING WORK. FOR EQUIPMENT THAT IS SCHEDULED BY MANUFACTURER'S NAME AND CATALOG DESIGNATIONS, THE MANUFACTURER'S PUBLISHED DATA AND/OR SPECIFICATION FOR THAT ITEM ARE CONSIDERED PART OF SPECIFICATION. ENGINEERING COSTS FOR REVISING MEP PLANS SHALL BE ADDRESSED IN THE COST ANALYSIS OF THE SUBSTITUTION PROPOSAL. CONTRACTOR TO COORDINATE WITH ENGINEER AND DETERMINE ASSOCIATED DESIGN AND PERMITTING COSTS. CONTRACTOR SHALL BE RESPONSIBLE FOR OTHER COSTS ASSOCIATED WITH UNFORESEEN ISSUES RESULTING FROM SUBSTITUTIONS OR REVISIONS.

PRE-CON MEETING NOTES

CONTRACTORS SHALL ATTEND A PRE–CONSTRUCTION MEETING WITH THE ENGINEER FOR THE PURPOSE OF REVIEWING THE WORK PRIOR TO ORDERING ANY EQUIPMENT OR PERFORMING ANY WORK. THE MEETING SHALL BE LOCATED AT THE PROJECT SITE ON A DATE AND TIME TO BE MUTUALLY AGREED. THE MEETING WILL BE A WORKING SESSION. THE MEETING WILL BE FACILITATED BY THE ENGINEER AND THE AGENDA WILL INCLUDE A DETAILED REVIEW OF THE PLANS AND SPECIFICATIONS, CROSS CHECK WITH OTHER TRADES FOR COORDINATION ISSUES, REVIEW OF PROPOSED PRODUCTS, REVIEW OF PLANNED MEANS AND METHODS,AND ON–SITE INVESTIGATION OF FIELD CONDITIONS RELATIVE TO EXISTING CONDITIONS THAT COULD AFFECT THE WORK. PERSONS ATTENDING THE MEETING SHALL BE KNOWLEDGEABLE OF THE PROJECT AND SHALL BE THE SPECIFIC PERSONS INTENDED TO CONTINUE WITH THE PROJECT THROUGH TO COMPLETION. IF REQUIRED, REVISED PLANS WILL BE ISSUED THROUGH OFFICIAL CHANNELS. CHANGES IN THE BID PRICE WILL BE DISCUSSED, BUT NO CHANGE ORDERS WILL BE ISSUED UNLESS PROCESSED THOUGH OFFICIAL CHANNELS. IT SHALL BE UNDERSTOOD THAT THE ENGINEER HAS NO AUTHORITY TO ISSUE CHANGE ORDERS.

THE FOLLOWING TRADES SHALL BE REPRESENTED FOR THE MINIMUM TIME INDICATED:

MECHANICAL SHEET METAL	4 HOURS
PLUMBING/PIPING	4 HOURS
ELECTRICAL	4 HOURS
SPRINKLER	2 HOURS
GENERAL CONTRACTOR	ALL SESSIONS

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ABBREVIATIONS

ACU	AIR CONDITIONING UNIT
AFF	ABOVE FINISHED FLOOR
AHJ	AUTHORITY HAVING JURISDICTION
AHU	AIR HANDLING UNIT
AP	ACCESS PANEL
BDD	BACKDRAFT DAMPER
BHP	BRAKE HORSEPOWER
BTUH	BRITISH THERMAL UNIT PER HOUR
C	COMMON
CAP	CAPACITY
CC	COOLING COIL
CD	CEILING DIFFUSER
CFM	CUBIC FEET PER MINUTE
CLG	CEILING, COOLING
CO	CLEANOUT
COMB	COMBUSTION
CONT	CONTINUE, CONTROL
COP	COEFFICIENT OF PERFORMANCE
CWS	CHILLED/CONDENSER WATER SUPPLY
CWR	CHILLED/CONDENSER WATER RETURN
D	DIAMETER
DB	DRY BULB, DECIBEL
DIM	DIMENSION
DISCH	DISCHARGE
DN	DOWN
EA	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
EER	ENERGY EFFICIENCY RATIO
EF	EXHAUST FAN
EFF	EFFICIENCY
EG	EXHAUST GRILLE
ELEC	ELECTRIC
ESP	EXTERNAL STATIC PRESSURE
EXH	EXHAUST
EXT	EXTERIOR, EXTERNAL
F	FAHRENHEIT
FCU	FAN COIL UNIT
FLR	FLOOR
FPM	FEET PER MINUTE
FPS	FEET PER SECOND
FSD	FIRE/SMOKE DAMPER
G	GAS
GAL	GALLONS
GPM	GALLONS PER MINUTE
GRD	GRILLES, REGISTERS, DIFFUSERS
GWB	GYPSUM WALLBOARD
HD	HEAD
HORIZ	HORIZONTAL
HP	HORSEPOWER
HPU	HEAT PUMP UNIT
HRU	HEAT RECOVERY UNIT
HVAC	HEATING, VENTILATING, AND AIR CONDITIONING
HVU	HEATING & VENTILATION UNIT
HWR	HOT WATER RETURN
HWS	HOT WATER SUPPLY
HX	HEAT EXCHANGER
ID	INDIRECT DRAIN, INSIDE DIAMETER
IN	INCH
KW	KILOWATT
L	LONG, LENGTH
LB	POUND
MBH	THOUSAND BTU PER HOUR
MECH	MECHANICAL
MCA	MIN. CIRCUIT AMPACITY
MOCP	MAX. OVER CURRENT PROTECTION
MTD	MOUNTED
OSA	OUTDOOR AIR
OBD	OPPOSED BLADE DAMPER
OD	OUTSIDE DIMENSION OR DIAMETER
OPNG	OPENING
P	PUMP
PD	PRESSURE DROP, PUMPED DRAIN
POC	POINT OF CONNECTION
PRV	PRESSURE REDUCING VALVE
PSIG	POUNDS PER SQUARE IN GAUGE
RA	RETURN AIR
RD	ROOF DRAIN
REF	REFERENCE
RF	RELIEF FAN
RG	RETURN GRILLE
RPM	REVOLUTIONS PER MINUTE
SA	SUPPLY AIR
SCH	SCHEDULE
SF	SUPPLY FAN, SQUARE FOOT
SENS	SENSIBLE
SG	SUPPLY GRILLE
SMACNA	SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION
SO	SCREENED OPENING
SP	STATIC PRESSURE
SS	STAINLESS STEEL, SANITARY SEWER
SQ	SQUARE
TG	TRANSFER GRILLE
TYP	TYPICAL
UH	UNIT HEATER
UON	UNLESS OTHERWISE NOTED
V	VENT
VENT	VENTILATION, VENTILATOR
VTR	VENT THRU ROOF
W	WASTE, WATT, WIDE
WB	WET BULB (TEMPERATURE)

SYMBOLS

EQUIPMENT

- EF–1 — TYPICAL EQUIPMENT DESIGNATION (EXHAUST FAN SHOWN)
- DSD — DUCT SMOKE DETECTOR
- T — ROOM THERMOSTAT OR TEMPERATURE TRANSMITTER
- H — ROOM HUMIDISTAT OR HUMIDITY TRANSMITTER
- CO — CARBON MONOXIDE SENSOR
- SD — SMOKE DETECTOR

TERMINALS

- CD–12x12 OR CD–1 400 — DIFFUSER/GRILLE TYPE, AND NUMBER OR SIZE
- 400 — DESIGN CFM (WHERE APPLICABLE)
- CEILING DIFFUSER (FLOW ARROWS SHOWN FOR NON SYMMETRICAL AIRFLOW)
- CEILING RETURN/EXHAUST GRILLE
- LINEAR DIFFUSER, CEILING OR WALL MOUNTED (FLOW ARROWS SHOWN FOR NON SYMMETRICAL AIRFLOW)
- WALL SUPPLY GRILLE (SG)
- WALL RETURN/EXHAUST GRILLE (RG, EG)
- 50 — TRANSFER GRILLE (TG), DUCT CONNECTED, WALL MOUNTED W/ OPTIONAL CFM SHOWN
- TRANSFER GRILLE, CEILING MOUNTED W/ TH FULL–SIZED LINED DUCT CONNECTION

PIPING

- CD — CONDENSATE DRAINAGE
- G — NATURAL GAS – STD. PRESSURE
- MPG — NATURAL GAS – MEDIUM PRESSURE
- PIPE CAP
- PIPE PLUG
- UNION
- FLANGE
- GATE VALVE (EXISTING ONLY)
- BALL VALVE
- PRESSURE REDUCING VALVE (PRV)
- BREAK IN PIPING OR DUCTWORK
- RL — RAIN LEADER (RL)
- OL — OVERFLOW RAIN LEADER (OL)
- CHECK VALVE

DUCTWORK

- 18x12 — DUCT (1ST FIGURE = SIDE SHOWN, 2ND FIGURE = SIDE NOT SHOWN)
- UP DOWN — DUCT SECTION, POSITIVE PRESSURE
- UP DOWN — DUCT SECTION, NEGATIVE PRESSURE
- UP DOWN — ROUND DUCT SECTION
- UP UP UP — DUCT PENETRATION THRU FLOOR OR ROOF
- VOLUME DAMPER
- FSD FSD — FIRE/SMOKE DAMPER (–––◀ = HORIZ DUCT, ––◆ = VERT DUCT), 2–HR RATED, UON
- FD FD — FIRE DAMPER (–––◀ = HORIZ DUCT, ––◆ = VERT DUCT), 2–HR RATED, UON
- 90° ELBOW, R/D OR R/W=1.5
- SQUARE CORNER ELBOW WITH TURNING VANES
- 90° TAKE–OFF OR TEE
- 90° CONICAL TAKE–OFF
- 45° LATERAL TAKE–OFF
- TRANSITION OR REDUCER (FOT = FLAT ON TOP, FOB = FLAT ON BOTTOM)
- WYE FITTING
- 90° RECTANGULAR TAKE–OFF WITH 45° TAPER
- 90° DIVERGING RECTANGULAR TEE, EITHER RADIUS OR TURNING VANES
- PARALLEL FLOW BRANCH CONNECTION, EITHER RADIUS OR TURNING VANES
- FLEXIBLE DUCT
- Ø — ROUND DUCT INDICATOR

DRAWINGS ARE DIAGRAMMATIC, SHOWING THE GENERAL LOCATION, TYPE, LAYOUT, AND EQUIPMENT REQUIRED. THE DRAWINGS SHALL NOT BE SCALED FOR EXACT MEASUREMENT. REFER TO ARCHITECTURAL DRAWINGS FOR DIMENSIONS. REFER TO MANUFACTURER'S STANDARD INSTALLATION DRAWINGS FOR EQUIPMENT CONNECTIONS AND INSTALLATION REQUIREMENTS. PROVIDE DUCTWORK, CONNECTIONS, ACCESSORIES, OFFSETS, AND MATERIALS NECESSARY FOR A COMPLETE SYSTEM.

DRAWING INDEX

ROBISON ENGINEERING, INC
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206-364-3343 TEL
REI PROJECT NO.: 590-054
CONTACT: ARIK ESPINELI

MFA CONSTRUCTION INC.
GENERAL CONTRACTOR & ENGINEER
101 South Santa Cruz Ave., #33192
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NEW DEVELOPMENT:
CHEENY ST TOWNHOUSES
4249 CHEENEY ST.
SANTA CLARA, CA 95054

REVISION	DATE
1	
2	
3	

REGISTERED PROFESSIONAL ENGINEER — HARRY D. ROBISON — No. M–28712 — EXP. 9/30–23 — MECHANICAL — STATE OF CALIFORNIA
12/8/22

DATE: DECEMBER 8. 2022
PROJECT No. 590–054

LEGEND, GENERAL NOTES, DRAWING INDEX

REF. NORTH

M0.0

PROJECT NOTES

PROJECT NOTES

1. THE PERSON WITH OVERALL RESPONSIBILITY FOR CONSTRUCTION OR THE PERSON RESPONSIBLE FOR THE INSTALLATION OF REGULATED FEATURES, MATERIALS, COMPONENTS, OR MANUFACTURED DEVICES SHALL POST, OR MAKE AVAILABLE WITH THE BUILDING PERMIT(S) ISSUED FOR THE BUILDING, THE REQUIRED INSTALLATION CERTIFICATE(S) FOR FEATURES, MATERIALS, COMPONENTS, OR MANUFACTURED DEVICES REGULATED BY THE APPLIANCE EFFICIENCY REGULATIONS OR PART 6. SUCH INSTALLATION CERTIFICATE(S) SHALL BE MADE AVAILABLE TO THE ENFORCEMENT AGENCY FOR ALL APPROPRIATE INSPECTIONS. THESE CERTIFICATES SHALL:

   1.1. IDENTIFY FEATURES, MATERIALS, COMPONENTS, OR MANUFACTURED DEVICES REQUIRED TO VERIFY COMPLIANCE WITH THE APPLIANCE EFFICIENCY REGULATIONS AND PART 6.

   1.2. INCLUDE A STATEMENT INDICATING THAT THE FEATURES, MATERIALS, COMPONENTS, OR MANUFACTURED DEVICES CONFORM TO THE APPLIANCE EFFICIENCY REGULATIONS AND PART 6 AND THE REQUIREMENTS FOR SUCH FEATURES, MATERIALS, COMPONENTS, OR MANUFACTURED DEVICES GIVEN IN THE PLANS AND SPECIFICATIONS APPROVED BY THE LOCAL ENFORCEMENT AGENCY.

   1.3. STATE THE NUMBER OF THE BUILDING PERMIT UNDER WHICH THE CONSTRUCTION OR INSTALLATION WAS PERFORMED.

2. AFTER INSTALLING WALL, CEILING, OR FLOOR INSULATION, THE INSTALLER SHALL MAKE AVAILABLE TO THE ENFORCEMENT AGENCY OR POST IN A CONSPICUOUS LOCATION IN THE BUILDING A CERTIFICATE SIGNED BY THE INSTALLER STATING THAT THE INSTALLATION IS CONSISTENT WITH THE PLANS AND SPECIFICATIONS DESCRIBED IN SEC. 10-103 (A) 2. THE CERTIFICATE SHALL ALSO STATE THE MANUFACTURER'S NAME, MATERIAL IDENTIFICATION, AND THE INSTALLED R-VALUE.

3. WITHIN 90 DAYS AFTER ISSUANCE OF CERTIFICATE OF OCCUPANCY RECORD DRAWINGS SHALL BE PROVIDED TO THE OWNER. IF ANY CHARACTERISTIC IS MATERIALLY CHANGED BEFORE FINAL CONSTRUCTION AND INSTALLATION, SUCH THAT THE BUILDING MAY NO LONGER COMPLY WITH PART 6, THE BUILDING MUST BE BROUGHT INTO COMPLIANCE, AND SO INDICATED ON AMENDED PLANS AND CERTIFICATE OF COMPLIANCE THAT SHALL BE SUBMITTED FOR PLAN APPROVAL.

4. THE BUILDER SHALL PROVIDE THE BUILDING OWNER OR THE PERSON(S) RESPONSIBLE FOR BUILDING MAINTENANCE (IN CASE OF MULTI-TENANT OR CENTRALLY OPERATED BUILDINGS) AT OCCUPANCY THE FOLLOWING:

   4.1. OPERATING INFORMATION: THE APPROPRIATE CERTIFICATE(S) OF COMPLIANCE AND A LIST OF THE FEATURES, MATERIALS, COMPONENTS, AND MECHANICAL DEVICES INSTALLED IN THE BUILDING AND INSTRUCTIONS ON HOW TO OPERATE THEM EFFICIENTLY.

   4.2. MAINTENANCE INFORMATION: REQUIRED ROUTINE MAINTENANCE ACTIONS SHALL BE CLEARLY STATED AND INCORPORATED ON A READILY ACCESSIBLE LABEL. THE LABEL MAY BE LIMITED TO IDENTIFYING THE OPERATION AND MAINTENANCE MANUAL.

   4.3. VENTILATION INFORMATION: A DESCRIPTION OF THE QUANTITIES OF OUTDOOR AND RECIRCULATED AIR THAT THE VENTILATION SYSTEMS ARE DESIGNED TO PROVIDE TO EACH AREA.

5. ANY ROOFING PRODUCT USED AS A COOL ROOF SHALL BE CERTIFIED AND LABELED IN ACCORDANCE WITH THE REQUIREMENTS OF SEC. 10-113 BY THE COOL ROOF RATING COUNCIL (CRRC) AND MEET CONDITIONS SET IN SEC. 118 (I).

6. DUCT SYSTEMS USED WITH BLOWER TYPE EQUIPMENT WHICH ARE PORTIONS OF A HEATING, COOLING, ABSORPTION, EVAPORATIVE COOLING OR OUTDOOR AIR VENTILATION SYSTEM SHALL BE SIZED IN ACCORDANCE WITH CHAPTER 17 OF THE CALIFORNIA MECHANICAL CODE.

7. SUPPLY AIR, RETURN AIR, AND OUTSIDE AIR FOR HEATING, COOLING, OR EVAPORATIVE COOLING SYSTEMS SHALL BE CONDUCTED THROUGH DUCT SYSTEMS CONSTRUCTED OF METAL AS SET FORTH IN THE ANSI/SMACNA 006-2006 HVAC DUCT CONSTRUCTION STANDARDS – METAL AND FLEXIBLE, OR ANOTHER APPROVED DUCT CONSTRUCTION STANDARD.

8. MATERIALS EXPOSED WITHIN DUCTS OR PLENUMS SHALL BE NONCOMBUSTIBLE OR SHALL HAVE A FLAME-SPREAD INDEX NOT GREATER THAN TWENTY-FIVE (25) AND A SMOKE DEVELOPED INDEX NOT GREATER THAN FIFTY (50) WHEN TESTED AS A COMPOSITE PER APPLICABLE TESTING STANDARD.

9. WHEN FIRE DETECTION OR ALARM SYSTEMS ARE PROVIDED FOR THE BUILDING, ANY REQUIRED SMOKE DETECTORS SHALL BE SUPERVISED BY SUCH SYSTEMS AND SHALL BE CAPABLE OF ACTIVATING THE FIRE ALARM SYSTEM.

10. REFRIGERANT SERVICE PORTS LOCATED OUTDOORS SHALL BE FITTED WITH LOCKING TYPE TAMPER RESISTANT CAPS OR SHALL BE PROTECTED FROM UNAUTHORIZED ACCESS BY AN ACCEPTABLE MEANS.

11. ALL APPLIANCES DESIGNED TO BE FIXED IN POSITION SHALL BE SECURELY FASTENED IN PLACE PER BUILDING CODE REQUIREMENTS OR APPLICABLE MANUFACTURER INSTALLATION REQUIREMENTS.

12. ROOF MOUNTED EQUIPMENT SHALL BE LABELED AS TO THE SPACE IT SERVES.

13. AT THE TIME OF ROUGH INSTALLATION, OR DURING STORAGE ON THE CONSTRUCTION SITE AND UNTIL FINAL STARTUP OF THE HEATING, COOLING, AND VENTILATING EQUIPMENT, ALL DUCT AND OTHER RELATED AIR DISTRIBUTION COMPONENT OPENINGS SHALL BE COVERED WITH TAPE, PLASTIC, SHEET METAL, OR OTHER ACCEPTABLE METHODS TO REDUCE THE AMOUNT OF DUST, WATER, AND DEBRIS WHICH MAY ENTER THE SYSTEM.

14. PRIOR TO PERMIT BEING FINALED, A COMPLETE REPORT OF THE COMMISSIONING PROCESS SHALL BE PROVIDED TO THE OWNER OR OWNER'S REPRESENTATIVE AND FORM 5.410 – VERIFICATION SHALL BE COMPLETED AND PROVIDED TO THE INSPECTOR.

THROUGH PENETRATIONS FOR 4" DUCT

PER EXCEPTION TO **CBC SECTION 717.6.1**, A DUCT IS PERMITTED TO PENETRATE THREE FLOORS OR LESS WITHOUT A FIRE DAMPER AT EACH FLOOR, PROVIDED IT MEETS ALL OF THE FOLLOWING REQUIREMENTS:

1. THE DUCT SHALL BE CONTAINED AND LOCATED WITHIN THE CAVITY OF A WALL AND SHALL BE CONSTRUCTED OF STEEL NOT LESS THAN 0.019 INCH (26 GAGE) IN THICKNESS.
2. THE DUCT SHALL OPEN INTO ONLY ONE DWELLING OR SLEEPING UNIT AND THE DUCT SYSTEM SHALL BE CONTINUOUS FROM THE UNIT TO THE EXTERIOR OF THE BUILDING.
3. THE DUCT SHALL NOT EXCEED 4-INCH NOMINAL DIAMETER AND THE TOTAL AREA OF SUCH DUCTS SHALL NOT EXCEED 100 SQUARE INCHES IN ANY 100 SQUARE FEET OF FLOOR AREA.
4. THE ANNULAR SPACE AROUND THE DUCT IS PROTECTED WITH MATERIALS THAT PREVENT THE PASSAGE OF FLAME AND HOT GASES SUFFICIENT TO IGNITE COTTON WASTE WHERE SUBJECTED TO ASTM E 119 TIME-TEMPERATURE CONDITIONS UNDER A MINIMUM POSITIVE PRESSURE DIFFERENTIAL OF 0.01 INCH (2.49 Pa) OF WATER AT THE LOCATION OF THE PENETRATION FOR THE TIME PERIOD EQUIVALENT TO THE FIRE-RESISTANCE RATING OF THE CONSTRUCTION PENETRATED.
5. GRILLE OPENINGS LOCATED IN A CEILING OF A FIRE-RESISTANCE-RATED FLOOR/CEILING OR ROOF/CEILING ASSEMBLY SHALL BE PROTECTED WITH A LISTED CEILING RADIATION DAMPER INSTALLED IN ACCORDANCE WITH **SECTION 716.6.2.1.**

MAXIMUM VENT AREA CALCULATIONS
AT MAX: (8) 4ø PIPES
SINGLE PIPE = 12.5 SQ. IN.
8 * 12.5 = 100 SQ. IN. MAX

CODE
VENTS SHALL NOT EXCEED 100 SQ. IN. PER 100 SF OF FLOOR AREA.

NATURAL VENTILATION

UNIT A:
MINIMUM OPENABLE AREA PER IMC 402.2:
1600 SF MAX. X 4% = 64 SF

ENTRANCE DOOR: 30 SF
OPERABLE WINDOW: 243 SF
TOTAL OF 273 SF OF OPEN AREA

UNIT B:
MINIMUM OPENABLE AREA PER IMC 402.2:
1619 SF MAX. X 4% = 64.76 SF

ENTRANCE DOOR: 30 SF
PATIO DOOR: 46.76 SF
OPERABLE WINDOW: 202.98 SF
TOTAL OF 279.74 SF OF OPEN AREA

2019 CALIFORNIA DUCT INSULATION SCHEDULE (1)(2)(3)(5)(6)(7)(8)

SERVICE	MATERIAL	R-VALUE (MIN.INSTALLED)	VAPOR RETARDER REQUIRED
SUPPLY & RETURN AIR DUCTS IN EXTERIOR SPACE	MINERAL-WOOL BLANKET	8.0	YES
SUPPLY & RETURN AIR DUCTS IN UNVENTED ATTIC ABOVE INSULATED CEILING SPACE	MINERAL-WOOL BLANKET	8.0	YES
SUPPLY & RETURN AIR DUCTS IN VENTED ATTIC SPACE	MINERAL-WOOL BLANKET	8.0	YES
SUPPLY & RETURN AIR DUCTS IN UNCONDITIONED AND CRAWL SPACE	MINERAL-WOOL BLANKET	8.0	YES
SUPPLY AIR DUCTS ENCLOSED IN CONDITIONED SPACE	N/A	0.0	N/A
SUPPLY AIR DUCTS BURIED AND OTHER SPACES NOT LISTED ABOVE	MINERAL-WOOL BLANKET	4.2	N/A
ROUND & RECTANGULAR EXHAUST AIR DUCTS IN UNCONDITIONED SPACE	MINERAL-WOOL BLANKET	N/A	N/A
ROUND & RECTANGULAR SUPPLY AIR DUCTS, EXPOSED WITHIN CONDITIONED SPACE	MINERAL-WOOL BLANKET	N/A	N/A
ROUND & RECTANGULAR RETURN AIR DUCTS, EXPOSED WITHIN CONDITIONED SPACE	MINERAL-WOOL BLANKET	N/A	N/A
OUTSIDE AIR DUCTS WITHIN CONDITIONED SPACE, ATTIC SPACE OR CONCEALED IN CEILING	MINERAL-WOOL BLANKET	4.0	YES (9)
OUTSIDE AIR DUCTS WITHIN PARKING, CRAWL SPACE	MINERAL-WOOL BLANKET	N/A	N/A

NOTES:
(1) DUCT INSULATION SHALL COMPLY WITH CMC AND CEC.
(2) VAPOR RETARDER SHALL BE INSTALLED ONLY ON SUPPLY AND OUTSIDE AIR DUCTS.
(3) INSULATION SHALL BE PROTECTED PER 2019 CEC SECTION 120.4
(4) PER 2019 CMC SECTION 604.1.2 INSULATION SHALL HAVE A MAXIMUM FLAME SPREAD INDEX OF 25 MAXIMUM SMOKE DEVELOPED INDEX OF 50 HAVE LISTING OF ASTM E84 OR UL 723.
(5) DETERIORATION: FIELD APPLIED JACKET SHALL BE PROVIDED ON INSULATION EXPOSED TO OUTDOOR ELEMENTS (UV & MOISTURE).
(6) ACOUSTIC: INSULATION SHALL BE DUCT LINER ON MIXING BOX AND FIRST 5 FEET OF DUCTWORKS FROM MECHANICAL UNITS. INSULATION ON ALL OTHER DUCTS SHALL BE DUCT WRAPPING.
(7) DUCT LINER: PER 2019 CMC SECTION 604.1.1, DUCT LINER SHALL HAVE MOLD, HUMIDITY AND EROSION-RESISTANT SURFACE LISTED PER UL 181. PROVIDE LINER FASTENER AS RECOMMENDED BY MANUFACTURER/NAIMA IN COMPLIANCE WITH CODE.
FOR HILTON™ PROJECTS, DUCT LINER SHALL BE CLOSED CELL ELASTOMERIC TYPE. (K-FLEX OR EQUIVALENT.)
(8) ADDITIONAL PROVISIONS: INSULATION MATERIAL & THICKNESS ARE BASED ON CODE MINIMUM REQUIREMENT ONLY. ADDITIONAL PROVISIONS SHALL BE PROVIDED BY CONTRACTOR AS REQUIRED BY LOCAL AUTHORITIES, MANUFACTURER'S INSTRUCTION, OWNER, BRAND STANDARD AND PROJECT SPECIFICATIONS.
(9) CONDENSATION: INSULATION & VAPOR RETARDER IS REQUIRED BY ENGINEERING BASED ON BEST PRACTICE.

APPLICABLE CODES

2019 CALIFORNIA BUILDING CODE (CBC)
2019 CALIFORNIA MECHANICAL CODE (CMC)
2019 CALIFORNIA PLUMBING CODE (CPC)
2019 CALIFORNIA ELECTRICAL CODE (CEC)
2019 CALIFORNIA ENERGY CODE (CENC)
2019 CALGREEN BUILDING CODE

ROBISON ENGINEERING, INC
19401 40TH AVE W., SUITE 302
LYNNWOOD, WA 98036
206-364-3343 TEL
REI PROJECT NO.: 590-054
CONTACT: ARIK ESPINELI

MFA CONSTRUCTION INC.
GENERAL CONTRACTOR & ENGINEER
101 South Santa Cruz Ave., #33192
Los Gatos, CA 95030

NEW DEVELOPMENT:
CHEENEY ST TOWNHOUSES
4249 CHENEY ST.
SANTA CLARA, CA 95054

REVISION	DATE
1	
2	
3	

REGISTERED PROFESSIONAL ENGINEER
MARK D. ROBISON
No. M-28712
EXP. 9/30-23
MECHANICAL
STATE OF CALIFORNIA
12/8/22

DATE: DECEMBER 8. 2022
PROJECT No. 590-054

PROJECT NOTES

REF. NORTH

M0.1

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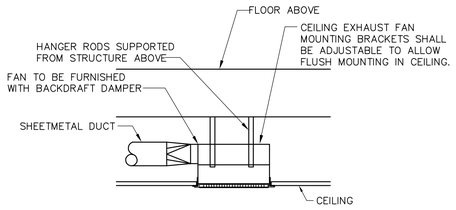
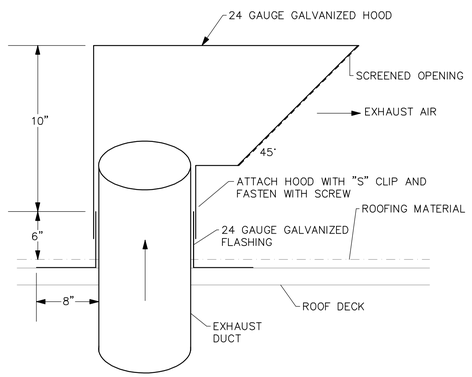
DETAILS



CEILING EXHAUST FAN
DETAIL — 1 / M0.3

SCALE: NONE



NOTE:
SIZE WIDTH OF HOOD TO THE NUMBER OF DUCTS, ALLOW 1/4" AROUND DUCTS.

DETAIL
EXHAUST DUCT ROOF CAP — 2 / M0.3

SCALE: NONE

MECHANICAL SCHEDULES

SPLIT HEAT PUMP SCHEDULE – INDOOR UNIT

EQUIP NO.	SERVICE	MOUNTING/ DISCHARGE	FAN		ELECTRICAL			WEIGHT, LBS	BASIS OF DESIGN (1)	CONNECTED OUTDOOR UNIT
			AIRFLOW, CFM	W	VOLTAGE	MCA	MOCP			
FC–1	2–TON SYSTEM	HORIZONTAL	798	230	(2)	(2)	(2)	82	DAIKIN FDMQ24RVJU	HP–1

NOTES:
(1) REFRIGERANT SHALL BE R–410A.
(2) POWERED BY OUTDOOR UNIT

SPLIT HEAT PUMP SCHEDULE – OUTDOOR UNIT

EQUIP NO.	SERVICE	TOTAL COOLING CAPACITY, BTUH	SEER	TOTAL HEATING CAPACITY, BTUH	HSPF	ELECTRICAL			WEIGHT, LBS	BASIS OF DESIGN (1)(2)(3)	CONNECTED INDOOR UNIT
						VOLTAGE	MCA	MOCP			
HP–1	BLDG 1 UNITS	21,800	18.6	24,000	10	230V/1P	16.9	20	108	DAIKIN RX24RMVJUA	FC–1

NOTES:
(1) ARI LISTED WITH ALL STANDARD FEATURES, INSTALLATION ACCESSORIES AND COMPRESSOR SHORT CYCLING PROTECTION. FILTER DRIER, REFRIGERANT LINE FILTER, LIQUID SOLENOID VALVE, AND SAFETY PRESSURE SWITCHES. INSTALL REFRIGERANT TUBING IN STRICT ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
(2) REFRIGERANT SHALL BE R–410A.

FAN SCHEDULE

EQUIP NO.	SERVICE	MOUNTING	AIRFLOW, CFM	ESP. IN WG	ELECTRICAL		OPERATION	WEIGHT, LBS	BASIS OF DESIGN (1)(2)
					VOLTAGE	HP			
BEF–1	UNIT BATHROOM	CEILING MOUNTED	100	0.3	115V/1P	FHP	(4)	10	GREENHECK SP–AP0511W (3)

NOTES:
(1) PROVIDE BACKDRAFT DAMPERS ON EXHAUST FANS.
(2) VIBRATION ISOLATION: FANS < 125 LBS RUBBER ISOLATORS, FANS > 125 LBS SPRING ISOLATORS
(3) ENERGY STAR CERTIFIED
(4) FAN CAN BE ACTIVATED BY BOTH HUMIDITY SENSOR AND WALL SWITCH.

AESPINELI I:\0_JOBS\590-054 CHEENY TOWNHOMES\DWG\M00.DWG 11-21-2022 08:50

ROBISON ENGINEERING, INC
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206-364-3343 TEL
REI PROJECT NO.: 590-054
CONTACT: ARIK ESPINELI

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NEW DEVELOPMENT:
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4249 CHEENEY ST.
SANTA CLARA, CA 95054

	REVISION	DATE
1		
2		
3		

REGISTERED PROFESSIONAL ENGINEER
MARK D. ROBISON
No. M–28712
EXP. 9/30–23
MECHANICAL
STATE OF CALIFORNIA
12/8/22

DATE: DECEMBER 8. 2022
PROJECT No. 590–054

MECHANICAL SCHEDULES

REF. NORTH

M0.3

GENERAL NOTES

1. MOUNT REMOTE THERMOSTAT AT 48" AFF.
2. CONDENSATE DRAIN TO TERMINATE AT APPROVED RECEPTOR WITH INDIRECT CONNECTION. REFER TO PLUMBING PLANS FOR CONDENSATE PIPE ROUTING AND ADDITIONAL INFORMATION.

FLAG NOTES

1. POC TO RANGE HOOD (TYP).
2. POC TO DRYER (TYP).

HVAC PLAN

FIRST FLOOR

SCALE: 1/8" = 1'-0"

ROBISON C:\USERS\ROBISON\DESKTOP\NEW PROJECT FOLDER\DWG\VR_HVAC.DWG 04-10-2017 06:49

ROBISON ENGINEERING, INC
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STATE OF CALIFORNIA
12/8/22

DATE: DECEMBER 8. 2022
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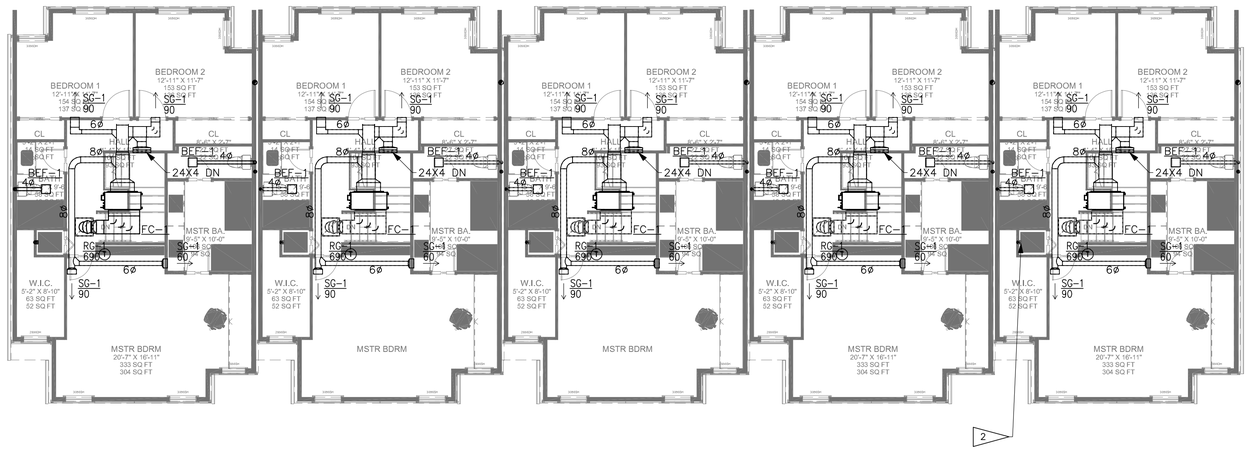
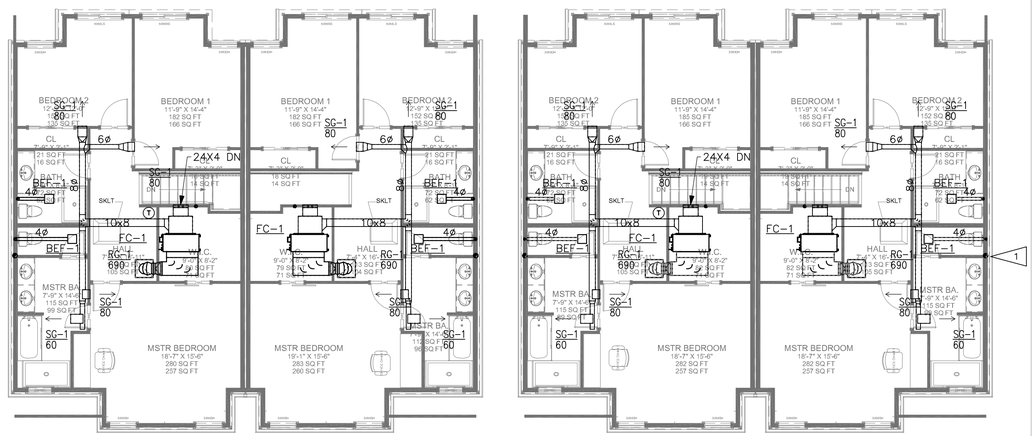
HVAC PLAN - FIRST FLOOR

REF. NORTH

M2.0





GENERAL NOTES

1. MOUNT REMOTE THERMOSTAT AT 48" AFF.
2. CONDENSATE DRAIN TO TERMINATE AT APPROVED RECEPTOR WITH INDIRECT CONNECTION. REFER TO PLUMBING PLANS FOR CONDENSATE PIPE ROUTING AND ADDITIONAL INFORMATION.

FLAG NOTES

1. 4" EXHAUST DUCT UP THROUGH ROOF
2. POC TO DRYER (TYP).

HVAC PLAN

SECOND FLOOR

SCALE: 1/8" = 1'-0"

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REGISTERED PROFESSIONAL ENGINEER
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No. M-28712
EXP. 9-30-23
MECHANICAL
STATE OF CALIFORNIA
12/8/22

DATE: DECEMBER 8. 2022
PROJECT No. 590-054

HVAC PLAN - SECOND FLOOR

REF. NORTH

M2.1

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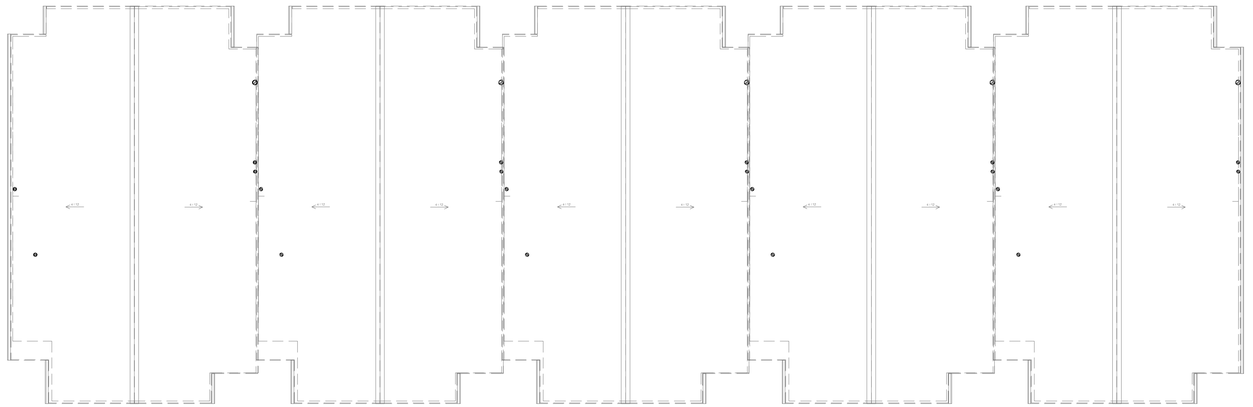

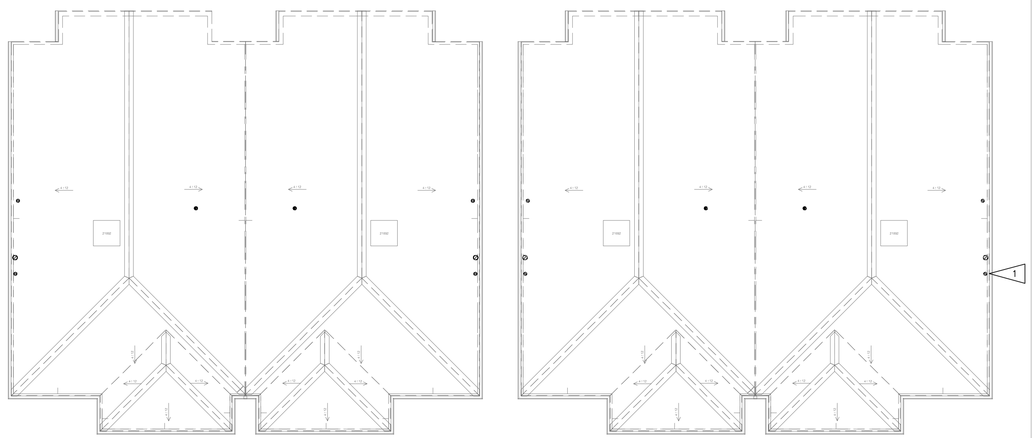

OAC-1

FLAG NOTES #

1. 4ø BATHROOM EXHAUST VENT TERMINATION. PROVIDE VENT CAP SEE DETAIL M0.3/2 (TYP).

HVAC PLAN

ROOF

SCALE: 1/8" = 1'-0"

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ROBISON ENGINEERING, INC
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JARIK D. ROBISON
No. M-28712
EXP. 9-30-23
MECHANICAL
STATE OF CALIFORNIA
12/8/22

DATE: DECEMBER 8. 2022
PROJECT No. 590-054

HVAC PLAN - ROOF

REF. NORTH

M2.2

CERTIFICATE OF COMPLIANCE **CF1R-PRF-01E**

Project Name: CHEENY ST TOWNHOMES **Calculation Date/Time:** 2022-12-08T15:08:23-08:00 **(Page 6 of 16)**

Calculation Description: Title 24 Analysis **Input File Name:** Cheeny Townhomes.ribd19x

OPAQUE SURFACES

01 Name	02 Zone	03 Construction	04 Azimuth	05 Orientation	06 Gross Area (ft²)	07 Window and Door Area (ft2)	08 Tilt (deg)
S wall 3	Townhome A-2	R-19 Wall Stud	180	Back	549	214	90
W wall 3	Townhome A-2	R-19 Wall Stud	270	Right	484	0	90
N wall 4	Townhome A-2	R-19 Wall Stud	0	Front	499	216	90
E wall 4	Townhome A-2	R-19 Wall Stud	90	Left	439	0	90
S wall 4	Townhome A-2	R-19 Wall Stud	180	Back	499	117	90
W wall 4	Townhome A-2	R-19 Wall Stud	270	Right	439	0	90
N wall 5	Townhome B	R-19 Wall Stud	0	Front	1416	486	90
E wall 5	Townhome B	R-19 Wall Stud	90	Left	425	0	90
S wall 5	Townhome B	R-19 Wall Stud	180	Back	1416	152	90
W wall 5	Townhome B	R-19 Wall Stud	270	Right	425	0	90
N wall 6	Townhome B	R-19 Wall Stud	0	Front	1302	352	90
E wall 6	Townhome B	R-19 Wall Stud	90	Left	391	0	90
S wall 6	Townhome B	R-19 Wall Stud	180	Back	1300	411	90
W wall 6	Townhome B	R-19 Wall Stud	270	Right	391	0	90
Roof	Townhome A-1	R-30 Roof Attic	n/a	n/a	2106	n/a	n/a
Roof 2	Townhome A-2	R-30 Roof Attic	n/a	n/a	2106	n/a	n/a
Roof 3	Townhome B	R-30 Roof Attic	n/a	n/a	5284	n/a	n/a
Interior Floor	Townhome A-1	R-0 Floor No Crawlspace	n/a	n/a	2106	n/a	n/a
Interior Floor 2	Townhome A-2	R-0 Floor No Crawlspace	n/a	n/a	2106	n/a	n/a
Interior Floor 3	Townhome B	R-0 Floor No Crawlspace	n/a	n/a	5284	n/a	n/a

ATTIC

01 Name	02 Construction	03 Type	04 Roof Rise (x in 12)	05 Roof Reflectance	06 Roof Emittance	07 Radiant Barrier	08 Cool Roof
Attic Townhome A-1	Attic Rooftownhome A-1	Ventilated	4	0.1	0.85	No	No

CERTIFICATE OF COMPLIANCE **CF1R-PRF-01E**

Project Name: CHEENY ST TOWNHOMES **Calculation Date/Time:** 2022-12-08T15:08:23-08:00 **(Page 3 of 16)**

Calculation Description: Title 24 Analysis **Input File Name:** Cheeny Townhomes.ribd19x

REQUIRED SPECIAL FEATURES

The following are features that must be installed as condition for meeting the modeled energy performance for this computer analysis.

- Non-standard duct location (any location other than attic)

HERS FEATURE SUMMARY

The following is a summary of the features that must be field-verified by a certified HERS Rater as a condition for meeting the modeled energy performance for this computer analysis. Additional detail is provided in the building tables below. Registered CF2Rs and CF3Rs are required to be completed in the HERS Registry

Building-level Verifications:
- Indoor air quality ventilation
- Enclosure air leakage for each dwelling unit

Cooling System Verifications:
- Minimum Airflow
- Verified EER
- Verified SEER
- Fan Efficacy Watts/CFM

Heating System Verifications:
- Verified HSPF
- Verified heat pump rated heating capacity

HVAC Distribution System Verifications:
- Duct leakage testing
- Ducts located entirely in conditioned space confirmed by duct leakage testing

Domestic Hot Water System Verifications:
- -- None --

BUILDING - FEATURES INFORMATION

01 Project Name	02 Conditioned Floor Area (ft²)	03 Number of Dwelling Units	04 Number of Bedrooms	05 Number of Zones	06 Number of Ventilation Cooling Systems	07 Number of Water Heating Systems
CHEENY ST TOWNHOMES	14488	9	27	3	0	9

CERTIFICATE OF COMPLIANCE **CF1R-PRF-01E**

Project Name: CHEENY ST TOWNHOMES **Calculation Date/Time:** 2022-12-08T15:08:23-08:00 **(Page 5 of 16)**

Calculation Description: Title 24 Analysis **Input File Name:** Cheeny Townhomes.ribd19x

DWELLING UNIT TYPES

01 Name	02 CFA (ft2)	03 Number of Bedrooms	04 Number in Building	05 Space Conditioning Systems Assigned	06 DHW System Name	07 IAQ Vent Fan Name
DU-2	1602	3	2	DDU-2 1/2 | :Heat Pump System 2:Air Distribution System 2:HVAC Fan 2:2:3 DDU-2 2/2 | :Heat Pump System 2:Air Distribution System 2:HVAC Fan 2:2:3	DHW Sys 1	Minimum Exhaust IAQ Fan
DU-3	1616	3	5	DDU-3 1/5 | :Heat Pump System 3:Air Distribution System 3:HVAC Fan 3:2:3 DDU-3 2/5 | :Heat Pump System 3:Air Distribution System 3:HVAC Fan 3:2:3 DDU-3 3/5 | :Heat Pump System 3:Air Distribution System 3:HVAC Fan 3:2:3 DDU-3 4/5 | :Heat Pump System 3:Air Distribution System 3:HVAC Fan 3:2:3 DDU-3 5/5 | :Heat Pump System 3:Air Distribution System 3:HVAC Fan 3:2:3	DHW Sys 1	Minimum Exhaust IAQ Fan

OPAQUE SURFACES

01 Name	02 Zone	03 Construction	04 Azimuth	05 Orientation	06 Gross Area (ft²)	07 Window and Door Area (ft2)	08 Tilt (deg)
N wall	Townhome A-1	R-19 Wall Stud	0	Front	549	0	90
E wall	Townhome A-1	R-19 Wall Stud	90	Left	483	0	90
S wall	Townhome A-1	R-19 Wall Stud	180	Back	549	214	90
W wall	Townhome A-1	R-19 Wall Stud	270	Right	484	0	90
N wall 2	Townhome A-1	R-19 Wall Stud	0	Front	499	216	90
E wall 2	Townhome A-1	R-19 Wall Stud	90	Left	439	0	90
S wall 2	Townhome A-1	R-19 Wall Stud	180	Back	499	117	90
W wall 2	Townhome A-1	R-19 Wall Stud	270	Right	439	0	90
N wall 3	Townhome A-2	R-19 Wall Stud	0	Front	549	0	90
E wall 3	Townhome A-2	R-19 Wall Stud	90	Left	483	0	90

CERTIFICATE OF COMPLIANCE **CF1R-PRF-01E**

Project Name: CHEENY ST TOWNHOMES **Calculation Date/Time:** 2022-12-08T15:08:23-08:00 **(Page 2 of 16)**

Calculation Description: Title 24 Analysis **Input File Name:** Cheeny Townhomes.ribd19x

ENERGY DESIGN RATING

	Energy Design Ratings		Compliance Margins	
	Efficiency[1] (EDR)	Total[2] (EDR)	Efficiency[1] (EDR)	Total[2] (EDR)
Standard Design	57.1	29.6		
Proposed Design	56.7	29.2	0.4	0.4

RESULT: [3] COMPLIES

1: Efficiency EDR includes improvements to the building envelope and more efficient equipment
2: Total EDR includes efficiency and demand response measures such as photovoltaic (PV) systems and batteries
3: Building complies when efficiency and total compliance margins are greater than or equal to zero

- Standard Design PV Capacity: 21.71 kWdc
- PV System resized to 21.71 kWdc (a factor of 21.707) to achieve 'Standard Design PV' PV scaling

ENERGY USE SUMMARY

Energy Use (kTDV/ft²-yr)	Standard Design	Proposed Design	Compliance Margin	Percent Improvement
Space Heating	13.25	19.4	-6.15	-46.4
Space Cooling	13.97	9.43	4.54	32.5
IAQ Ventilation	4.14	4.14	0	0
Water Heating	16.1	13.91	2.19	13.6
Self Utilization/Flexibility Credit	n/a	0	0	n/a
Compliance Energy Total	**47.46**	**46.88**	**0.58**	**1.2**

REQUIRED PV SYSTEMS - SIMPLIFIED

01 DC System Size (kWdc)	02 Exception	03 Module Type	04 Array Type	05 Power Electronics	06 CFI	07 Azimuth (deg)	08 Tilt Input	09 Array Angle (deg)	10 Tilt: (x in 12)	11 Inverter Eff. (%)	12 Annual Solar Access (%)
21.71	NA	Standard	Fixed	none	true	150-270	n/a	n/a	<=7:12	96	98

CERTIFICATE OF COMPLIANCE **CF1R-PRF-01E**

Project Name: CHEENY ST TOWNHOMES **Calculation Date/Time:** 2022-12-08T15:08:23-08:00 **(Page 4 of 16)**

Calculation Description: Title 24 Analysis **Input File Name:** Cheeny Townhomes.ribd19x

ZONE INFORMATION

01 Zone Name	02 Zone Type	03 Zone Floor Area (ft²)	04 Avg. Ceiling Height	05 Number of Dwelling Units
Townhome A-1	Conditioned	3204	8	2
Townhome A-2	Conditioned	3204	8	2
Townhome B	Conditioned	8080	8	5

DWELLING UNIT INFORMATION

01 Dwelling Unit Name	02 Dwelling Unit Type	03 Zone
DDU-1 -(1/2)	DU-1	Townhome A-1
DDU-1 -(2/2)	DU-1	Townhome A-1
DDU-2 -(1/2)	DU-2	Townhome A-2
DDU-2 -(2/2)	DU-2	Townhome A-2
DDU-3 -(1/5)	DU-3	Townhome B
DDU-3 -(2/5)	DU-3	Townhome B
DDU-3 -(3/5)	DU-3	Townhome B
DDU-3 -(4/5)	DU-3	Townhome B
DDU-3 -(5/5)	DU-3	Townhome B

DWELLING UNIT TYPES

01 Name	02 CFA (ft2)	03 Number of Bedrooms	04 Number in Building	05 Space Conditioning Systems Assigned	06 DHW System Name	07 IAQ Vent Fan Name
DU-1	1602	3	2	DDU-1 1/2 | :Heat Pump System 1:Air Distribution System 1:HVAC Fan 1:2:3 DDU-1 2/2 | :Heat Pump System 1:Air Distribution System 1:HVAC Fan 1:2:3	DHW Sys 1	Minimum Exhaust IAQ Fan

CERTIFICATE OF COMPLIANCE **CF1R-PRF-01E**

Project Name: CHEENY ST TOWNHOMES **Calculation Date/Time:** 2022-12-08T15:08:23-08:00 **(Page 1 of 16)**

Calculation Description: Title 24 Analysis **Input File Name:** Cheeny Townhomes.ribd19x

GENERAL INFORMATION

01	Project Name: CHEENY ST TOWNHOMES		
02	Run Title: Title 24 Analysis		
03	Project Location: 4249 Cheeney St		
04	City: Santa Clara	05	Standards Version: 2019
06	Zip code: 95054	07	Software Version: EnergyPro 8.3
08	Climate Zone: 4	09	Front Orientation (deg/ Cardinal): 0
10	Building Type: Multifamily	11	Number of Dwelling Units: 9
12	Project Scope: NewConstruction	13	Number of Bedrooms: 27
14	Addition Cond. Floor Area (ft²): 0	15	Number of Stories: 2
16	Existing Cond. Floor Area (ft²): n/a	17	Fenestration Average U-factor: 0.39
18	Total Cond. Floor Area (ft²): 14488	19	Glazing Percentage (%): 16.17%
20	ADU Bedroom Count: n/a	21	ADU Conditioned Floor Area: n/a
22	Is Natural Gas Available?: Yes		

COMPLIANCE RESULTS

01	Building Complies with Computer Performance
02	This building incorporates features that require field testing and/or verification by a certified HERS rater under the supervision of a CEC-approved HERS provider.
03	This building incorporates one or more Special Features shown below

REF. NORTH

M7.0

TITLE 24 COMPLIANCE FORMS

PROJECT No. 590-054

DATE: DECEMBER 8, 2022

REGISTERED PROFESSIONAL ENGINEER — MARK D. ROBISON — No. M-28212 — Exp. 9-30-23 — STATE OF CALIFORNIA — MECHANICAL

12/8/22

	REVISION	DATE
3		
2		
1		

NEW DEVELOPMENT:

CHEENEY ST TOWNHOUSES

4249 CHEENEY ST.

SANTA CLARA, CA 95054

MFA CONSTRUCTION INC.
GENERAL CONTRACTOR & ENGINEER
101 South Santa Cruz Ave., #33192
Los Gatos, CA 95030

ROBISON ENGINEERING, INC
19401 40TH AVE W., SUITE 302
LYNNWOOD, WA 98036
206.364.3343 TEL
REI PROJECT NO: 590-054
CONTACT: ARK ESPINELI

ATTIC

01	02	03	04	05	06	07	08
Name	Construction	Type	Roof Rise (x in 12)	Roof Reflectance	Roof Emittance	Radiant Barrier	Cool Roof
Attic Townhome A-2	Attic RoofTownhome A-2	Ventilated	4	0.1	0.85	No	No
Attic Townhome B	Attic RoofTownhome B	Ventilated	0	0.1	0.85	No	No

FENESTRATION / GLAZING

01	02	03	04	05	06	07	08	09	10	11	12	13	14
Name	Type	Surface	Orientation	Azimuth	Width (ft)	Height (ft)	Mult.	Area (ft²)	U-factor	U-factor Source	SHGC	SHGC Source	Exterior Shading
Fixed Window	Window	S wall	Back	180			1	154	0.3	NFRC	0.25	NFRC	Bug Screen
Glazed Door	Window	S wall	Back	180			1	60	0.45	NFRC	0.23	NFRC	Bug Screen
Fixed Window 2	Window	N wall 2	Front	0			1	216	0.3	NFRC	0.25	NFRC	Bug Screen
Fixed Window 3	Window	S wall 2	Back	180			1	117	0.3	NFRC	0.25	NFRC	Bug Screen
Fixed Window 4	Window	S wall 3	Back	180			1	154	0.3	NFRC	0.25	NFRC	Bug Screen
Glazed Door 2	Window	S wall 3	Back	180			1	60	0.45	NFRC	0.23	NFRC	Bug Screen
Fixed Window 5	Window	N wall 4	Front	0			1	216	0.3	NFRC	0.25	NFRC	Bug Screen
Fixed Window 6	Window	S wall 4	Back	180			1	117	0.3	NFRC	0.25	NFRC	Bug Screen
Operable Window	Window	N wall 5	Front	0			1	252	0.46	NFRC	0.22	NFRC	Bug Screen
Glazed Door 3	Window	N wall 5	Front	0			1	234	0.45	NFRC	0.23	NFRC	Bug Screen
Operable Window 2	Window	N wall 6	Front	0			1	352	0.46	NFRC	0.22	NFRC	Bug Screen
Operable Window 3	Window	S wall 6	Back	180			1	411	0.46	NFRC	0.22	NFRC	Bug Screen

OPAQUE DOORS

01	02	03	04
Name	Side of Building	Area (ft²)	U-factor
Door	S wall 5	152	0.5

SLAB FLOORS

01	02	03	04	05	06	07	08
Name	Zone	Area (ft²)	Perimeter (ft)	Edge Insul. R-value and Depth	Edge Insul. R-value and Depth	Carpeted Fraction	Heated
Slab-on-Grade	Townhome A-1	1098	0.1	none	0	80%	No
Slab-on-Grade 2	Townhome A-2	1098	0.1	none	0	80%	No
Slab-on-Grade 3	Townhome B	2796	0.1	none	0	80%	No

OPAQUE SURFACE CONSTRUCTIONS

01	02	03	04	05	06	07	08
Construction Name	Surface Type	Construction Type	Framing	Total Cavity R-value	Interior / Exterior Continuous R-value	U-factor	Assembly Layers
R-19 Wall Stud	Exterior Walls	Wood Framed Wall	2x6 @ 16 in. O. C.	R-19	None / None	0.074	Inside Finish: Gypsum Board Cavity / Frame: R-19 in 5-1/2 in. (R-18) / 2x6 Exterior Finish: 3 Coat Stucco
Attic RoofTownhome A-1	Attic Roofs	Wood Framed Ceiling	2x4 @ 24 in. O. C.	R-0	None / None	0.644	Roofing: Light Roof (Asphalt Shingle) Roof Deck: Wood Siding/sheathing/decking Cavity / Frame: no insul. / 2x4
Attic RoofTownhome A-2	Attic Roofs	Wood Framed Ceiling	2x4 @ 24 in. O. C.	R-0	None / None	0.644	Roofing: Light Roof (Asphalt Shingle) Roof Deck: Wood Siding/sheathing/decking Cavity / Frame: no insul. / 2x4
Attic RoofTownhome B	Attic Roofs	Wood Framed Ceiling	2x4 @ 24 in. O. C.	R-0	None / None	0.644	Roofing: Light Roof (Asphalt Shingle) Roof Deck: Wood Siding/sheathing/decking Cavity / Frame: no insul. / 2x4

OPAQUE SURFACE CONSTRUCTIONS

01	02	03	04	05	06	07	08
Construction Name	Surface Type	Construction Type	Framing	Total Cavity R-value	Interior / Exterior Continuous R-value	U-factor	Assembly Layers
R-30 Roof Attic	Ceilings (below attic)	Wood Framed Ceiling	2x4 @ 24 in. O. C.	R-30	None / None	0.032	Over Ceiling Joists: R-20.9 insul. Cavity / Frame: R-9.1 / 2x4 Inside Finish: Gypsum Board
R-0 Floor No Crawlspace	Interior Floors	Wood Framed Floor	2x12 @ 16 in. O. C.	R-0	None / None	0.196	Floor Surface: Carpeted Floor Deck: Wood Siding/sheathing/decking Cavity / Frame: no insul. / 2x12 Ceiling Below Finish: Gypsum Board

BUILDING ENVELOPE - HERS VERIFICATION

01	02	03	04
Quality Insulation Installation (QII)	High R-value Spray Foam Insulation	Building Envelope Air Leakage	CFM50
Not Required	Not Required	Not Required	n/a

WATER HEATING SYSTEMS

01	02	03	04	05	06	07	08	09
Name	System Type	Number of Systems in Building	Multi-Family Distribution Type	Dwelling Unit Distribution Type	Water Heater Name (#)	Solar Heating System	Compact Distribution	HERS Verification
DHW Sys 1	Domestic Hot Water (DHW)	9	n/a	Standard Distribution System	DHW Heater 1 (1)	n/a	None	n/a

WATER HEATERS

01	02	03	04	05	06	07	08	09	10	11	12
Name	Heating Element Type	Tank Type	# of Units	Tank Vol. (gal)	Energy Factor or Efficiency	Input Rating or Pilot	Tank Insulation R-value (Int/Ext)	Standby Loss or Recovery Eff	1st Hr. Rating or Flow Rate	NEEA Heat Pump Brand or Model	Tank Location or Ambient Condition
DHW Heater 1	Gas	Consumer Instantaneous	9	0	0.96-UEF	<= 200 kBtu/hr	0	n/a	n/a	n/a	n/a

WATER HEATING - HERS VERIFICATION

01	02	03	04	05	06	07	08
Name	Pipe Insulation	Parallel Piping	Compact Distribution	Compact Distribution Type	Recirculation Control	Central DHW Distribution	Shower Drain Water Heat Recovery
DDU-1 1/2 | DHW Sys 1	Not Required	Not Required	Not Required	None	Not Required	Not Required	Not Required
DDU-1 2/2 | DHW Sys 1	Not Required	Not Required	Not Required	None	Not Required	Not Required	Not Required
DDU-2 1/2 | DHW Sys 1	Not Required	Not Required	Not Required	None	Not Required	Not Required	Not Required
DDU-2 2/2 | DHW Sys 1	Not Required	Not Required	Not Required	None	Not Required	Not Required	Not Required
DDU-3 1/5 | DHW Sys 1	Not Required	Not Required	Not Required	None	Not Required	Not Required	Not Required
DDU-3 2/5 | DHW Sys 1	Not Required	Not Required	Not Required	None	Not Required	Not Required	Not Required
DDU-3 3/5 | DHW Sys 1	Not Required	Not Required	Not Required	None	Not Required	Not Required	Not Required
DDU-3 4/5 | DHW Sys 1	Not Required	Not Required	Not Required	None	Not Required	Not Required	Not Required
DDU-3 5/5 | DHW Sys 1	Not Required	Not Required	Not Required	None	Not Required	Not Required	Not Required

SPACE CONDITIONING SYSTEMS

01	02	03	04	05	06	07	08	09	10	11
Name	System Type	Heating Unit Name	Cooling Unit Name	Fan Name	Distribution Name	Required Thermostat Type	Status	Verified Existing Condition	Heating Equipment Count	Cooling Equipment Count
DDU-1 1/2 | :Heat Pump System 1:Air Distribution System 1:HVAC Fan 1:2:3	Heat pump heating cooling	Heat Pump System 1	Heat Pump System 1	HVAC Fan 1	Air Distribution System 1	Setback	New	NA	1	1
DDU-1 2/2 | :Heat Pump System 1:Air Distribution System 1:HVAC Fan 1:2:3	Heat pump heating cooling	Heat Pump System 1	Heat Pump System 1	HVAC Fan 1	Air Distribution System 1	Setback	New	NA	1	1
DDU-2 1/2 | :Heat Pump System 2:Air Distribution System 2:HVAC Fan 2:2:3	Heat pump heating cooling	Heat Pump System 2	Heat Pump System 2	HVAC Fan 2	Air Distribution System 2	Setback	New	NA	1	1
DDU-2 2/2 | :Heat Pump System 2:Air Distribution System 2:HVAC Fan 2:2:3	Heat pump heating cooling	Heat Pump System 2	Heat Pump System 2	HVAC Fan 2	Air Distribution System 2	Setback	New	NA	1	1
DDU-3 1/5 | :Heat Pump System 3:Air Distribution System 3:HVAC Fan 3:2:3	Heat pump heating cooling	Heat Pump System 3	Heat Pump System 3	HVAC Fan 3	Air Distribution System 3	Setback	New	NA	1	1
DDU-3 2/5 | :Heat Pump System 3:Air Distribution System 3:HVAC Fan 3:2:3	Heat pump heating cooling	Heat Pump System 3	Heat Pump System 3	HVAC Fan 3	Air Distribution System 3	Setback	New	NA	1	1
DDU-3 3/5 | :Heat Pump System 3:Air Distribution System 3:HVAC Fan 3:2:3	Heat pump heating cooling	Heat Pump System 3	Heat Pump System 3	HVAC Fan 3	Air Distribution System 3	Setback	New	NA	1	1
DDU-3 4/5 | :Heat Pump System 3:Air Distribution System 3:HVAC Fan 3:2:3	Heat pump heating cooling	Heat Pump System 3	Heat Pump System 3	HVAC Fan 3	Air Distribution System 3	Setback	New	NA	1	1

SPACE CONDITIONING SYSTEMS

01	02	03	04	05	06	07	08	09	10	11
Name	System Type	Heating Unit Name	Cooling Unit Name	Fan Name	Distribution Name	Required Thermostat Type	Status	Verified Existing Condition	Heating Equipment Count	Cooling Equipment Count
DDU-3 5/5 | :Heat Pump System 3:Air Distribution System 3:HVAC Fan 3:2:3	Heat pump heating cooling	Heat Pump System 3	Heat Pump System 3	HVAC Fan 3	Air Distribution System 3	Setback	New	NA	1	1

HVAC - HEAT PUMPS

01	02	03	04	05	06	07	08	09	10	11
Name	System Type	Number of Units	Heating			Cooling		Zonally Controlled	Compressor Type	HERS Verification
			HSPF/COP	Cap 47	Cap 17	SEER	EER/CEER			
Heat Pump System 1	Central split HP	2	10	21800	15000	18.6	12.5	Not Zonal	Single Speed	Heat Pump System 1-hers-htpump
Heat Pump System 2	Central split HP	2	10	21800	15000	18.6	12.5	Not Zonal	Single Speed	Heat Pump System 2-hers-htpump
Heat Pump System 3	Central split HP	5	10	21800	15000	18.6	12.5	Not Zonal	Single Speed	Heat Pump System 3-hers-htpump

HVAC HEAT PUMPS - HERS VERIFICATION

01	02	03	04	05	06	07	08	09
Name	Verified Airflow	Airflow Target	Verified EER	Verified SEER	Verified Refrigerant Charge	Verified HSPF	Verified Heating Cap 47	Verified Heating Cap 17
Heat Pump System 1-hers-htpump	Required	350	Required	Required	No	Yes	Yes	Yes
Heat Pump System 2-hers-htpump	Required	350	Required	Required	No	Yes	Yes	Yes
Heat Pump System 3-hers-htpump	Required	350	Required	Required	No	Yes	Yes	Yes

ROBISON ENGINEERING, INC
19401 40TH AVE W., SUITE 302
LYNNWOOD, WA 98036
206-364-3343 TEL
REI PROJECT NO.: 590-054
CONTACT: ARIK ESPINELI

MFA CONSTRUCTION INC.
GENERAL CONTRACTOR & ENGINEER
101 South Santa Cruz Ave., #33192
Los Gatos, CA 95030

NEW DEVELOPMENT:
CHEENEY ST TOWNHOUSES
4249 CHEENEY ST.
SANTA CLARA, CA 95054

REVISION	DATE
1	
2	
3	

REGISTERED PROFESSIONAL ENGINEER
MARK D. ROBISON
No. M-28712
EXP. 9-30-23
MECHANICAL
STATE OF CALIFORNIA
12/8/22

DATE: DECEMBER 8. 2022
PROJECT No. 590-054

TITLE 24 COMPLIANCE FORMS

REF. NORTH

M7.1

CERTIFICATE OF COMPLIANCE **CF1R-PRF-01E**

Project Name: CHEENY ST TOWNHOMES **Calculation Date/Time:** 2022-12-08T15:08:23-08:00 **(Page 15 of 16)**

Calculation Description: Title 24 Analysis **Input File Name:** Cheeny Townhomes.ribd19x

IAQ (INDOOR AIR QUALITY) FANS

01	02	03	04	05	06	07
Dwelling Unit	IAQ CFM	IAQ Watts/CFM	IAQ Fan Type	IAQ Recovery Effectiveness - SRE	IAQ Recovery Effectiveness - ASRE	HERS Verification
DDU-1 2/2	78	0.35	Exhaust	n/a	n/a	Yes
DDU-2 1/2	78	0.35	Exhaust	n/a	n/a	Yes
DDU-2 2/2	78	0.35	Exhaust	n/a	n/a	Yes
DDU-3 1/5	78	0.35	Exhaust	n/a	n/a	Yes
DDU-3 2/5	78	0.35	Exhaust	n/a	n/a	Yes
DDU-3 3/5	78	0.35	Exhaust	n/a	n/a	Yes
DDU-3 4/5	78	0.35	Exhaust	n/a	n/a	Yes
DDU-3 5/5	78	0.35	Exhaust	n/a	n/a	Yes

CERTIFICATE OF COMPLIANCE **CF1R-PRF-01E**

Project Name: CHEENY ST TOWNHOMES **Calculation Date/Time:** 2022-12-08T15:08:23-08:00 **(Page 14 of 16)**

Calculation Description: Title 24 Analysis **Input File Name:** Cheeny Townhomes.ribd19x

HVAC DISTRIBUTION - HERS VERIFICATION

01	02	03	04	05	06	07	08	09
Name	Duct Leakage Verification	Duct Leakage Target (%)	Verified Duct Location	Verified Duct Design	Buried Ducts	Deeply Buried Ducts	Low-leakage Air Handler	Low Leakage Ducts Entirely in Conditioned Space
Air Distribution System 3-hers-dist	Yes	total leakage <= 12.0 or leakage to outdoors <= 6.0	Required	Not Required	Not Required	Credit not taken	Not Required	No

HVAC - FAN SYSTEMS

01	02	03	04
Name	Type	Fan Power (Watts/CFM)	Name
HVAC Fan 1	HVAC Fan	0.58	HVAC Fan 1-hers-fan
HVAC Fan 2	HVAC Fan	0.58	HVAC Fan 2-hers-fan
HVAC Fan 3	HVAC Fan	0.58	HVAC Fan 3-hers-fan

HVAC FAN SYSTEMS - HERS VERIFICATION

01	02	03
Name	Verified Fan Watt Draw	Required Fan Efficacy (Watts/CFM)
HVAC Fan 1-hers-fan	Required	0.58
HVAC Fan 2-hers-fan	Required	0.58
HVAC Fan 3-hers-fan	Required	0.58

IAQ (INDOOR AIR QUALITY) FANS

01	02	03	04	05	06	07
Dwelling Unit	IAQ CFM	IAQ Watts/CFM	IAQ Fan Type	IAQ Recovery Effectiveness - SRE	IAQ Recovery Effectiveness - ASRE	HERS Verification
DDU-1 1/2	78	0.35	Exhaust	n/a	n/a	Yes

CERTIFICATE OF COMPLIANCE **CF1R-PRF-01E**

Project Name: CHEENY ST TOWNHOMES **Calculation Date/Time:** 2022-12-08T15:08:23-08:00 **(Page 16 of 16)**

Calculation Description: Title 24 Analysis **Input File Name:** Cheeny Townhomes.ribd19x

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

1. I certify that this Certificate of Compliance documentation is accurate and complete.

Documentation Author Name:	Documentation Author Signature:
Arik Espineli	Arik Espineli
Company: Robison Engineering	Signature Date: 12/08/2022
Address: 19401 40th Avenue W, Suite 302	CEA/ HERS Certification Identification (If applicable):
City/State/Zip: Lynnwood, WA 98036	Phone: 206-364-3343

RESPONSIBLE PERSON'S DECLARATION STATEMENT

I certify the following under penalty of perjury, under the laws of the State of California:

1. I am eligible under Division 3 of the Business and Professions Code to accept responsibility for the building design identified on this Certificate of Compliance.
2. I certify that the energy features and performance specifications identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of Regulations.
3. The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.

Responsible Designer Name:	Responsible Designer Signature:
Asim Drebi	Asim Drebi
Company: Robison Engineering	Date Signed: 12/08/2022
Address: 19401 40th Avenue W, Suite 302	License:
City/State/Zip: Lynnwood, WA 98036	Phone: 206-364-3343

Digitally signed by CenSol Home Energy Efficiency Rating System Services, Inc. (CHEERS). This digital signature is provided in order to secure the content of this registered document, and in no way implies Registration Provider responsibility for the accuracy of the information.

CERTIFICATE OF COMPLIANCE **CF1R-PRF-01E**

Project Name: CHEENY ST TOWNHOMES **Calculation Date/Time:** 2022-12-08T15:08:23-08:00 **(Page 13 of 16)**

Calculation Description: Title 24 Analysis **Input File Name:** Cheeny Townhomes.ribd19x

HVAC - DISTRIBUTION SYSTEMS

01	02	03	04	05	06	07	08	09	10	11	12
			Duct Ins. R-value		Duct Location		Surface Area				
Name	Type	Design Type	Supply	Return	Supply	Return	Supply	Return	Bypass Duct	Duct Leakage	HERS Verification
Air Distribution System 1	Conditioned space-entirely	Non-Verified	R-8	R-8	Conditioned Zone	Conditioned Zone	n/a	n/a	No Bypass Duct	Sealed and Tested	Air Distribution System 1-hers-dist
Air Distribution System 2	Conditioned space-entirely	Non-Verified	R-8	R-8	Conditioned Zone	Conditioned Zone	n/a	n/a	No Bypass Duct	Sealed and Tested	Air Distribution System 2-hers-dist
Air Distribution System 3	Conditioned space-entirely	Non-Verified	R-8	R-8	Conditioned Zone	Conditioned Zone	n/a	n/a	No Bypass Duct	Sealed and Tested	Air Distribution System 3-hers-dist

HVAC DISTRIBUTION - HERS VERIFICATION

01	02	03	04	05	06	07	08	09
Name	Duct Leakage Verification	Duct Leakage Target (%)	Verified Duct Location	Verified Duct Design	Buried Ducts	Deeply Buried Ducts	Low-leakage Air Handler	Low Leakage Ducts Entirely in Conditioned Space
Air Distribution System 1-hers-dist	Yes	total leakage <= 12.0 or leakage to outdoors <= 6.0	Required	Not Required	Not Required	Credit not taken	Not Required	No
Air Distribution System 2-hers-dist	Yes	total leakage <= 12.0 or leakage to outdoors <= 6.0	Required	Not Required	Not Required	Credit not taken	Not Required	No

REF. NORTH

M7.2

TITLE 24 COMPLIANCE FORMS

PROJECT No. 590-054

DATE: DECEMBER 8, 2022

REGISTERED PROFESSIONAL ENGINEER — ASIM D. REBDI — No. M-28212 — Exp. 9-30-24 — MECHANICAL — STATE OF CALIFORNIA

12/8/22

	REVISION	DATE
3		
2		
1		

NEW DEVELOPMENT:

CHEENEY ST TOWNHOUSES

4249 CHEENEY ST.

SANTA CLARA, CA 95054

MFA CONSTRUCTION INC.
GENERAL CONTRACTOR & ENGINEER
101 South Santa Cruz Ave, #33192
Los Gatos, CA 95030

ROBISON ENGINEERING, INC
19401 40TH AVE W., SUITE 302
LYNNWOOD, WA 98036
206.364.3343 TEL
REI PROJECT NO: 590-054
CONTACT: ARIK ESPINELI

GENERAL NOTES

GENERAL NOTES

1. REFERENCE TO RELATED WORK: "REF" INDICATIONS DENOTE WORK COVERED ELSEWHERE (ARCHITECTURAL, STRUCTURAL, CIVIL, ELECTRICAL, LANDSCAPE, OR KITCHEN), OR ITEM BASED ON A SPECIFIC MANUFACTURER'S DIMENSIONS (VERIFY).
2. ELECTRICAL CHARACTERISTICS: REFER TO ELECTRICAL DRAWINGS FOR ELECTRICAL CHARACTERISTICS (VOLTAGES, ETC. OF MECHANICAL EQUIPMENT, UNLESS OTHERWISE INDICATED.
3. CODES: COMPLETE INSTALLATION OF THE PLUMBING SYSTEM SHALL BE PER THE APPLICABLE BUILDING, MECHANICAL, ENERGY, PLUMBING, FIRE, AND HEALTH CODES AND REGULATIONS AS ADOPTED BY THE LOCAL AHJ.
4. PREPARE AND SUBMIT FOR REVIEW A SHOP DRAWING BASED ON FINAL STRUCTURAL SHOP DRAWINGS FOR LOCATING AND ROUTING ALL EQUIPMENT, PIPING, ETC.
   A. COORDINATE FLOOR AND BEAM PENETRATIONS WITH STRUCTURAL.
   B. COORDINATE FINAL LOCATION AND ROUTING WITH CEILING, LIGHTS, WALLS, FIRE SPRINKLER PIPING, AND OTHER TRADES WORK.
   C. INCLUDE ADDITIONAL OFFSETS, ELBOWS, ROUTING, EQUIVALENT DUCT SIZING EXCHANGE, RELOCATING, ETC. AS REQUIRED FOR A COMPLETE OPERATING MECHANICAL SYSTEM.
   D. PROVIDE SHOP DRAWINGS AT NO ADDITIONAL COST TO THE OWNER.
5. PLUMBING CONTRACTOR SHALL LOCATE AND COORDINATE EXACT LOCATION OF ALL PLUMBING EQUIPMENT WITHIN THE STRUCTURE.
6. ACCESS DOORS: COORDINATE WITH ARCHITECT AND LOCATE ALL ACCESS DOORS ON SHOP DRAWINGS PRIOR TO BEGINNING OF CONSTRUCTION. ACCESS DOORS IN FIRE RATED STRUCTURE SHALL BE FIRE RATED. VERIFY ACCESS DOOR LOCATIONS WITH GENERAL CONTRACTOR PRIOR TO BIDDING.
7. ROOF PENETRATIONS: SEE ARCHITECTURAL DRAWINGS FOR ROOF CAP, ROOF CURB, ROOF DRAIN, AND VTR DETAILS.
8. EXPOSED PIPING: PROVIDE CHROME PLATING FOR EXPOSED PIPING IN FINISHED ROOMS.
9. PENETRATIONS: PROVIDE ESCUTCHEON PLATES FOR EXPOSED PIPING PENETRATIONS AND SHEET METAL FLASHING FOR EXPOSED DUCTWORK PENETRATIONS.
10. SHAFT AND PLENUM CONNECTIONS: SEAL CONNECTIONS TO AIR SHAFTS AIRTIGHT. PROVIDE AIRTIGHT SEAL AROUND PENETRATIONS IN AIR PLENUMS.
11. LIGHT FIXTURE CLEARANCE: COORDINATE LOCATIONS OF MECHANICAL WORK TO PROVIDE CLEARANCES OVER LIGHTING FIXTURES FOR REMOVAL AND REPLACEMENT.
12. CABLE TRAYS: PIPING INSTALLED ADJACENT TO ELECTRICAL CABLE TRAYS SHALL ALLOW MINIMUM ACCESS OF 6" ABOVE AND TO THE SIDE OF CABLE TRAYS.
13. MOTORS: COMPLY WITH ENERGY CODE ENFORCED BY AHJ FOR MINIMUM EFFICIENCIES UNDER FULL LOAD.
14. ACCESS CLEARANCES FOR MAINTENANCE AND REPLACEMENT: VERIFY PHYSICAL DIMENSIONS OF EQUIPMENT TO ENSURE THAT ACCESS CLEARANCES CAN BE MET. COORDINATE LOCATIONS OF MECHANICAL WORK AND WORK OF OTHER TRADES TO PROVIDE ACCESS CLEARANCES FOR SERVICE AND MAINTENANCE.

COORDINATION REQUIREMENTS

1. IRRIGATION: COORDINATE WITH IRRIGATION CONTRACTOR FOR THEIR WATER SUPPLY REQUIREMENTS AND LOCATIONS.
2. GAS: CONTRACTOR/GAS COMPANY SHALL FINALIZE GAS METER AND GAS SERVICE LOCATIONS.
3. UTILITIES: COORDINATE WITH SITE UTILITY CONTRACTOR AND CIVIL DRAWINGS FOR UTILITY CONNECTIONS AND EXTENSIONS.
4. ROOF DRAINAGE: COORDINATE WITH GENERAL CONTRACTOR FOR ROOF DRAIN AND OVERFLOWS, SCUPPER DRAINS, AND CONDENSATE DRAINS.
5. PLUMBING FIXTURES: COORDINATE WITH ARCHITECTURAL AND OTHER TRADES EXACT LOCATION OF ALL PLUMBING FIXTURES.
6. PIPING: COORDINATE WITH STRUCTURAL FOR EXACT LOCATION OF ALL STRUCTURAL FRAMING AND FOOTINGS AND FINALIZE THE EXACT ROUTING OF ALL PIPES WITH STRUCTURAL AND AT THE SITE PRIOR AND DURING THE CONSTRUCTION.
7. ADJUSTMENTS: ALL EQUIPMENT, MOTORS, FANS GAS BURNERS, IGNITION DEVICES, DRIVES, ETC. SHALL BE ADJUSTED AND BALANCED TO OPERATE AT SPECIFIED RATINGS AS REQUIRED FOR THIS PROJECT SITE AND ACCOUNTING FOR ELEVATION ABOVE SEA LEVEL.
8. APPROVALS: MECHANICAL AND PLUMBING EQUIPMENT SHALL BE APPROVED FOR INSTALLATION IN THE PROJECT LOCATION AND SHALL HAVE ALL CERTIFICATIONS AND RATINGS TO MEET ALL ENERGY, POLLUTION, ENVIRONMENTAL, SEISMIC, ETC. CODES AND REGULATIONS. THE CONTRACTOR SHALL COORDINATE WITH HIS MANUFACTURE SUPPLIERS AND SHALL INCLUDE ALL COSTS REQUIRED TO MEET THESE REQUIREMENTS IN HIS BID.
9. FIRE PROTECTION: CONTRACTOR SHALL PROVIDE A FULLY DESIGNED FIRE PROTECTION SPRINKLER SYSTEM IN COMPLIANCE WITH NFPA AND LOCAL CODES. PROVIDE DESIGN, PERMITS, MATERIALS, INSTALLATION, TESTING AND ALL OTHER FOR A FULLY OPERATIONAL SYSTEM. LOCATION OF ALL PIPING TO BE COORDINATED WITH OTHER TRADES.

PLUMBING NOTES

1. CONNECTIONS: PROVIDE PLUMBING FIXTURE CONNECTIONS TO BUILDING WASTE, VENT, COLD WATER, AND HOT WATER SYSTEM IN ACCORDANCE WITH DRAWINGS, MANUFACTURER'S RECOMMENDATIONS, AND LOCAL CODES. CONNECT TO EACH FIXTURE, EQUIPMENT, ETC. WITH ALL ACCESSORIES, VALVES, VACUUM BREAKERS, REGULATORS, UNIONS, ETC. AS REQUIRED AND AS RECOMMENDED BY THE MANUFACTURERS. REFER TO PLUMBING FIXTURE CONNECTION SCHEDULE ON PLANS.
2. HOT AND COLD: WATER PIPING CONNECTION TO EACH FIXTURE SHALL BE COLD WATER ON THE RIGHT HAND SIDE AND HOT WATER ON THE LEFT HAND SIDE.
3. HOT WATER: NON-CIRCULATING HOT WATER PIPE SHALL NOT EXCEED 10' UNLESS OTHERWISE SHOWN ON DRAWINGS.
4. VENT STACKS: COORDINATE VENT STACK WITH HVAC EQUIPMENT TO MAINTAIN MINIMUM 10' CLEARANCE FROM OUTSIDE AIR INTAKES.
5. CLEANOUTS: PROVIDE CLEANOUTS PER CURRENT CPC AND AS REQUIRED BY LOCAL JURISDICTIONS. CLEANOUTS SHALL BE LOCATED IN WALLS/FLOORS WHERE THEY ARE NOT HIGHLY VISIBLE. FLOOR CLEANOUTS IN CARPETED AREAS TO BE FITTED WITH CARPET INSERTS. LOCATIONS SHALL BE SUBMITTED TO ARCHITECT FOR APPROVAL. NOTE: NOT ALL CLEANOUTS ARE SHOWN ON THE PLUMBING DRAWINGS. CLEANOUTS SHALL BE INSTALLED PER 2019 CPC SEC. 707.0 AND 719.0.
6. SUDS RELIEF: PROVIDE SUDS RELIEF IN ACCORDANCE WITH CURRENT CPC.
7. SHUT-OFFS: PROVIDE 1/4 TURN BALL VALVE ANGLE STOP SHUT-OFF VALVES AND BRAIDED STAINLESS STEEL FLEX CONNECTORS AT HOT AND COLD WATER SUPPLY TO EACH FIXTURE. EXCEPTION: PROVIDE SCREWDRIVER STOPS AT BATH/SHOWERS.
8. TUB SPOUTS SHALL BE THREADED (NO PUSH-ON FITTINGS).
9. TRAP ARMS: PROVIDE TRAP ARMS SUCH THAT THE MAXIMUM LENGTH WILL NOT EXCEED CODE REQUIREMENTS.
10. ADA INSULATION: AT PLUMBING PIPING EXPOSED UNDER LAVATORIES, INSULATE THE EXPOSED PIPING AND TRAPS WITH PRODUCT SPECIFICALLY DESIGNED FOR THIS APPLICATION MEETING ADA REQUIREMENTS. PROVIDE HANDI-LAV GUARD OR EQUIVALENT. OFFSET P-TRAPS TO CLEAR WHEELCHAIR ACCESS.
11. GAS EQUIPMENT: GAS EQUIPMENT SHALL BE INSTALLED PER EQUIPMENT LISTINGS, LOCAL CODES, AND NFPA.
12. GAS CONNECTIONS: INSTALL FLEXIBLE QUICK DISCONNECT ASSEMBLIES FOR ALL GAS FIRED KITCHEN EQUIPMENT PER LOCAL JURISDICTIONS.
13. WATER HAMMER ARRESTORS: PROVIDE AT THE END OF HOT AND COLD WATER LINES SERVING TWO OR MORE FIXTURES; SIZE IN ACCORDANCE WITH PLUMBING AND DRAINAGE INSTITUTE (PDI) REQUIREMENTS. WATER HAMMER ARRESTORS ARE REQUIRED FOR QUICK CLOSING VALVES, SUCH AS LAUNDRY WASHERS, FLUSH VALVES (PUBLIC TOILETS), ETC.
14. TRAP PRIMERS: PROVIDE TRAP PRIMERS AND PIPING FOR DRAINS AND FLOOR SINKS. ARRANGE PIPING TO ACHIEVE EQUAL FLOW TO EACH DRAIN AND FLOOR SINK FOR TRAP PRIMERS SERVING MULTIPLE DRAINS AND FLOOR SINKS.
15. P-TRAPS: ALL EXPOSED P-TRAPS SHALL BE CHROME-PLATED BRASS.
16. PROVIDE BALL VALVES. GATE VALVES SHALL NOT BE USED. NO EXCEPTIONS.
17. HOT WATER RECIRCULATING BALANCING VALVES TO BE BELL & GOSSETT CIRCUIT SETTER (OR WATTS EQUIVALENT) WITH INTEGRAL READOUT PORTS, ADJUSTMENT KNOB, DRAIN CONNECTION, AND POSITIVE SHUTOFF.
18. DISASSEMBLY PROVISIONS: PROVIDE UNIONS OR FLANGES AT PIPING CONNECTIONS TO EQUIPMENT, COILS, TRAPS, CONTROL VALVES, AND OTHER COMPONENTS TO ALLOW DISASSEMBLY FOR MAINTENANCE.
19. REDUCERS: PROVIDE AS REQUIRED FROM LINE PIPE SIZE TO EQUIPMENT, TRAP, COIL, AND CONTROL VALVE CONNECTION SIZES.
20. OFFSETS: PROVIDE FOR BRANCH LINES TO EQUIPMENT.
21. DIELECTRIC UNIONS: PROVIDE AT CONNECTIONS OF DISSIMILAR PIPE.
22. VALVE TAGS: PROVIDE VALVE TAGS TO IDENTIFY EACH VALVE AND THE AREA IT SERVES.
23. ROOF DRAINS, OVERFLOW DRAINS, AND OTHER RAINWATER PIPING WITHIN THE INTERIOR OF THE BUILDING SHALL BE TESTED IN ACCORDANCE WITH THE 2019 CPC PROVISIONS. STORM DRAIN PIPING WITHIN THE BUILDING SHALL UTILIZE APPROVED DRAINAGE FITTINGS.

INSULATION/LINING NOTES

1. ENERGY CODE: AS A MINIMUM, COMPLY WITH THICKNESSES AND TYPES LISTED IN ENERGY CODE ENFORCED BY AHJ.

DRAWINGS ARE DIAGRAMMATIC, SHOWING THE GENERAL LOCATION, TYPE, LAYOUT, AND EQUIPMENT REQUIRED. THE DRAWINGS SHALL NOT BE SCALED FOR EXACT MEASUREMENT. REFER TO ARCHITECTURAL DRAWINGS FOR DIMENSIONS. REFER TO MANUFACTURER'S STANDARD INSTALLATION DRAWINGS FOR EQUIPMENT CONNECTIONS AND INSTALLATION REQUIREMENTS. PROVIDE DUCTWORK, CONNECTIONS, ACCESSORIES, OFFSETS, AND MATERIALS NECESSARY FOR A COMPLETE SYSTEM.

ABBREVIATIONS

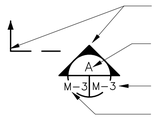
ABV	ABOVE
ACU	AIR CONDITIONING UNIT
AFF	ABOVE FINISHED FLOOR
AHJ	AUTHORITY HAVING JURISDICTION
BHP	BRAKE HORSEPOWER
BOH	BACK OF HOUSE
BTUH	BRITISH THERMAL UNIT PER HOUR
C	COMMON
CAP	CAPACITY
CC	COOLING COIL
CD	CONDENSATE DRAIN
CFF	CAPPED FOR FUTURE
CFM	CUBIC FEET PER MINUTE
CI	CAST IRON
CO	CLEANOUTS
COMB	COMBUSTION
CONT	CONTINUE, CONTROL
CONTR	CONTRACTOR
COTG	CLEANOUTS TO GRADE
CW	COLD WATER
D	DIAMETER
DB	DRY BULB, DECIBEL
DIM	DIMENSION
DN	DOWN
DS	DOWN SPOUT
EFF	EFFICIENCY
ELEC	ELECTRIC
EWC	ELECTRIC WATER COOLER
EXT	EXTERIOR, EXTERNAL
F	FAHRENHEIT
FCO	FLOOR CLEANOUTS
FCU	FAN COIL UNIT
FD	FLOOR DRAIN
FLR	FLOOR
FPM	FEET PER MINUTE
FPS	FEET PER SECOND
FS	FLOOR SINK
G	GAS
GAL	GALLONS
GPG	GRAINS PER GALLON
GPM	GALLONS PER MINUTE
GWB	GYPSUM WALLBOARD
HB	HOSE BIBB
HD	HEAD
HEDV	HOSE END DRAIN VALVE
HORIZ	HORIZONTAL
HP	HORSEPOWER
HPCW	HIGH PRESSURE COLD WATER
HVAC	HEATING, VENTILATING, AND AIR CONDITIONING
HW	HOT WATER
HWC	HOT WATER RE-CIRCULATION
HX	HEAT EXCHANGER
ID	INDIRECT DRAIN, INSIDE DIAMETER
IE	INVERT ELEVATION
IN	INCH
KS	KITCHEN SINK
KW	KILOWATT
L	LONG, LENGTH
LAV	LAVATORY
LB	POUND
MBH	THOUSAND BTU PER HOUR
MECH	MECHANICAL
MCA	MIN. CIRCUIT AMPACITY
MOCP	MAX. OVER CURRENT PROTECTION
MPG	MEDIUM PRESSURE GAS
MTD	MOUNTED
OD	OUTSIDE DIMENSION/DIAMETER
	OVERFLOW DRAIN/DECK DRAIN
OPNG	OPENING
P	PUMP
PD	PRESSURE DROP, PUMPED DRAIN
POC	POINT OF CONNECTION
PRV	PRESSURE REDUCING VALVE
	PRESSURE RELIEF VALVE
PSD	PUMPED STORM DRAINAGE
PSS	PUMPED SANITARY SEWER
PSIG	POUNDS PER SQUARE INCH GAUGE
RD	ROOF DRAIN
REF	REFERENCE
RPBP	REDUCED PRESSURE BACKFLOW PREVENTER
RPM	REVOLUTIONS PER MINUTE
SCH	SCHEDULE
SCW	SOFTENED COLD WATER
SD	STORM DRAIN
SF	SQUARE FOOT
SH	SHOWER
SO	STORM OVERFLOW
SP	STATIC PRESSURE
SR	SUDS RELIEF
SS	STAINLESS STEEL, SANITARY SEWER
SQ	SQUARE
TR	TEMPERATURE RISER
TYP	TYPICAL
UH	UNIT HEATER
UON	UNLESS OTHERWISE NOTED
V	VENT
VTR	VENT THRU ROOF
W	WASTE, WATT, WIDE
WC	WATER CLOSET
WCO	WALL CLEANOUTS
WH	WALL HYDRANT, WATER HEATER
WM	WASHING MACHINE

SYMBOLS

GENERAL

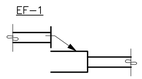
- ARCHITECTURAL BACKGROUND (THIN LINE)
- NEW MECHANICAL WORK (HEAVY LINE)
- MATCHLINE OR PROPERTY LINE

SECTION IDENTIFICATION (DETAIL SIMILAR)



- INDICATES DIRECTION OF CUTTING PLANE
- LETTER INDICATES SECTION (NO. INDICATES DETAIL)
- SHEET NUMBER WHERE SECTION IS DRAWN
- SHEET NUMBER WHERE SECTION IS TAKEN

EQUIPMENT



- TYPICAL EQUIPMENT DESIGNATION (EXHAUST FAN SHOWN)

PIPING

- SS — SANITARY SEWER (SS)
- PW — PUMPED WASTE
- V — VENT (V)
- RL — RAIN LEADER
- OL — OVERFLOW RAIN LEADER
- CD — CONDENSATE DRAIN
- CW — COLD WATER (CW)
- HOT WATER, POTABLE, 120°F
- 140 — HOT WATER, POTABLE, TEMPERATURE OTHER THAN 120°F
- HOT WATER CIRCULATING (HWC), POTABLE, 120°F
- 140 — HOT WATER CIRCULATING, POTABLE, TEMPERATURE OTHER THAN 120°F
- FOF — FUEL OIL FILL
- FOS — FUEL OIL SUPPLY
- FOR — FUEL OIL RETURN
- FOV — FUEL OIL VENT
- RV — RELIEF VENT
- G — LOW PRESSURE NATURAL GAS
- MPG — MEDIUM PRESSURE NATURAL GAS
- I — IRRIGATION
- PIPE CAP
- PIPE PLUG
- UNION
- FLANGE
- WYE STRAINER
- WYE STRAINER WITH CAPPED HOSE END BLOWDOWN VALVE
- BALL VALVE
- CHECK VALVE
- BALANCING OR PLUG VALVE
- BUTTERFLY VALVE
- PRESSURE REDUCING VALVE (PRV)
- AUTOMATIC CONTROL VALVE, 2-WAY
- AUTOMATIC CONTROL VALVE, 3-WAY
- ID — RELIEF VALVE
- BALANCING/MEASURING VALVE
- FLEXIBLE CONNECTION IN PIPING
- A — PIPE ANCHOR
- PIPE ALIGNMENT GUIDE
- PS — PIPE SUPPORT
- VALVE STATION OR ASSEMBLY
- ID — INDIRECT DRAIN, PIPE TO DRAIN
- FLOOR DRAIN
- HOSE BIBB
- BREAK IN PIPING OR DUCTWORK
- PUMP
- PRESSURE GAUGE
- THERMOMETER
- P/T — PRESSURE/TEMPERATURE TEST PORT
- RPBP — REDUCED PRESSURE BACKFLOW PREVENTER
- DCVA — DOUBLE CHECK VALVE ASSEMBLY

INDEX OF DRAWINGS

DWG	DESCRIPTION	CHECK SET 10/16/2019	PERMIT SET 12/08/2022				
P000	LEGEND, NOTES, AND DRAWING INDEX	X	X				
P001	SCHEDULES AND CALCULATIONS	X	X				
P002	NOTES AND CALCULATIONS	X	X				
P200	UNDERSLAB WASTE & VENT PLUMBING PLAN	X	X				
P201	LEVEL 1 WASTE & VENT PLAN	X	X				
P202	LEVEL 2 WASTE & VENT PLAN	X	X				
P203	ROOF PLUMBING PLAN	X	X				
P301	LEVEL 1 SUPPLY PLAN	X	X				
P302	LEVEL 2 SUPPLY PLAN	X	X				
P401	WASTE & VENT RISER DIAGRAM		X				
P501	SUPPLY RISER DIAGRAM		X				
P700	DETAILS		X				
P701	DETAILS		X				

ROBISON ENGINEERING, INC
19401 40TH AVE W., SUITE 302
LYNNWOOD, WA 98036
206-364-3343 TEL
REI PROJECT NO.: 590-054
CONTACT: ARIK ESPINELI

MFA CONSTRUCTION INC.
GENERAL CONTRACTOR & ENGINEER
101 South Santa Cruz Ave., #33192
Los Gatos, CA 95030

NEW DEVELOPMENT:
CHEENEY ST TOWNHOUSES
4249 CHENEY ST.
SANTA CLARA, CA 95054

REVISION	DATE
1	
2	
3	

REGISTERED PROFESSIONAL ENGINEER — MARK D. ROBISON — No. M-28712 — EXP. 9-30-23 — MECHANICAL — STATE OF CALIFORNIA
12/8/22

DATE: December 8, 2022
PROJECT No. 590-054

LEGEND, NOTES, AND DRAWING INDEX

REF. NORTH

P000

CONTRACTOR SUBSTITUTIONS & REVISIONS

CONTRACTOR SUBSTITUTIONS & REVISIONS: PLEASE SUBMIT PROPOSALS FOR SUBSTITUTIONS OR REVISIONS FOR REVIEW AND APPROVAL PRIOR TO ORDERING MATERIAL OR DOING WORK. FOR EQUIPMENT THAT IS SCHEDULED BY MANUFACTURER'S NAME AND CATALOG DESIGNATIONS, THE MANUFACTURER'S PUBLISHED DATA AND/OR SPECIFICATION FOR THAT ITEM ARE CONSIDERED PART OF SPECIFICATION. ENGINEERING COSTS FOR REVISING MEP PLANS SHALL BE ADDRESSED IN THE COST ANALYSIS OF THE SUBSTITUTION PROPOSAL. CONTRACTOR TO COORDINATE WITH ENGINEER AND DETERMINE ASSOCIATED DESIGN AND PERMITTING COSTS. CONTRACTOR SHALL BE RESPONSIBLE FOR OTHER COSTS ASSOCIATED WITH UNFORESEEN ISSUES RESULTING FROM SUBSTITUTIONS OR REVISIONS.

APPLICABLE CODES

THESE DRAWINGS ARE BASED ON THE FOLLOWING CODES:

2019 CALIFORNIA BUILDING CODE (CBC)
2019 CALIFORNIA MECHANICAL CODE (CMC)
2019 CALIFORNIA PLUMBING CODE (CPC)
2019 CALIFORNIA ENERGY CODE (CEC)

PRE-CON MEETING NOTES

CONTRACTORS SHALL ATTEND A PRE-CONSTRUCTION MEETING WITH THE ENGINEER FOR THE PURPOSE OF REVIEWING THE WORK PRIOR TO ORDERING ANY EQUIPMENT OR PERFORMING ANY WORK. THE MEETING SHALL BE LOCATED AT THE PROJECT SITE ON A DATE AND TIME TO BE MUTUALLY AGREED. THE MEETING WILL BE A WORKING SESSION. THE MEETING WILL BE FACILITATED BY THE ENGINEER AND THE AGENDA WILL INCLUDE A DETAILED REVIEW OF THE PLANS AND SPECIFICATIONS, CROSS CHECK WITH OTHER TRADES FOR COORDINATION ISSUES, REVIEW OF PROPOSED PRODUCTS, REVIEW OF PLANNED MEANS AND METHODS,AND ON-SITE INVESTIGATION OF FIELD CONDITIONS RELATIVE TO EXISTING CONDITIONS THAT COULD AFFECT THE WORK. PERSONS ATTENDING THE MEETING SHALL BE KNOWLEDGEABLE OF THE PROJECT AND SHALL BE THE SPECIFIC PERSONS INTENDED TO CONTINUE WITH THE PROJECT THROUGH TO COMPLETION. IF REQUIRED, REVISED PLANS WILL BE ISSUED THROUGH OFFICIAL CHANNELS. CHANGES IN THE BID PRICE WILL BE DISCUSSED, BUT NO CHANGE ORDERS WILL BE ISSUED UNLESS PROCESSED THOUGH OFFICIAL CHANNELS. IT SHALL BE UNDERSTOOD THAT THE ENGINEER HAS NO AUTHORITY TO ISSUE CHANGE ORDERS.

THE FOLLOWING TRADES SHALL BE REPRESENTED FOR THE MINIMUM TIME INDICATED:

MECHANICAL SHEET METAL	4 HOURS
PLUMBING/PIPING	4 HOURS
ELECTRICAL	4 HOURS
SPRINKLER	2 HOURS
GENERAL CONTRACTOR	ALL SESSIONS

ADDITIONAL PLUMBING NOTES

1. LAVATORY FAUCETS IN PUBLIC RESTROOMS SHALL BE THE SELF-CLOSING OR SELF-CLOSING METERING TYPES.
2. NON-REMOVABLE VACUUM BREAKERS SHALL BE PROVIDED AT ALL HOSE BIBBS.
3. FLOOR DRAINS OR SIMILAR TRAPS DIRECTLY CONNECTED TO THE DRAINAGE SYSTEM AND SUBJECT TO INFREQUENT USE SHALL BE PROVIDED WITH AN APPROVED AUTOMATIC MEANS OF MAINTAINING THEIR WATER SEALS.
4. INSULATION MATERIAL SHALL MEET THE CALIFORNIA QUALITY STANDARDS PER ENERGY EFFICIENCY STANDARDS SEC. 120.3.
5. ALL PIPING SHALL BE INSULATED CONSISTENT WITH THE REQUIREMENTS OF ENERGY EFFICIENCY STANDARDS SEC. 120.3.
6. SERVICE WATER HEATING SYSTEMS AND EQUIPMENT SHALL COMPLY WITH ENERGY EFFICIENCY STANDARDS SEC. 110.3.
7. SWIMMING POOL AND SPA HEATING SYSTEMS AND EQUIPMENT SHALL COMPLY WITH ENERGY EFFICIENCY STANDARDS SEC. 110.4.
8. BUILDING DRAIN AND VENT PIPING MATERIALS SHALL COMPLY WITH CPC 2019 SEC. 701.0 AND 903.0.
9. ALL SANITARY SYSTEM MATERIALS SHALL BE LISTED BY AN APPROVED LISTING AGENCY.
10. CHEMICAL WASTE PIPING SHALL COMPLY WITH CPC 2019 SEC. 811.0.
11. ALL STORAGE WATER HEATING EQUIPMENT SHALL BE PROVIDED WITH AN APPROVED, LISTED EXPANSION TANK OR OTHER DEVICE DESIGNED FOR INTERMITTENT OPERATION FOR THERMAL EXPANSION CONTROL PER CPC 2019 SEC. 608.3.
12. WATER HEATERS SHALL BE ANCHORED OR STRAPPED TO RESIST HORIZONTAL DISPLACEMENTS DUE TO SEISMIC MOTION PER CPC 2019 SEC. 507.2.
13. MATERIALS EXPOSED WITHIN A DUCT OR PLENUM SHALL COMPLY WITH CMC 2019 SEC. 601.1.3.
14. HVAC EQUIPMENT AND WATER HEATERS SHALL COMPLY WITH CMC 2019 CHAPTER 3.
15. MEDIUM PRESSURE GAS PIPING SHALL BE LABELED EVERY FIVE FEET.
16. BOILERS SHALL COMPLY WITH ALL THE REQUIREMENTS OF CHAPTER 10 OF CMC 2019.
17. PROVIDE EXPANSION TANK FOR BOILERS PER SECTION 1005.0 CMC 2019.
18. ROUTING AND TERMINATION OF FLUE FOR BOILERS SHALL COMPLY WITH CH.8, CMC 2019 AND WITH MANUFACTURERS SPECIFICATIONS.
19. COMBUSTION AIR INTAKE FOR BOILERS SHALL-COMPLY WITH CH. 7, CMC 2019 AND WITH MANUFACTURERS SPECIFICATIONS.
20. SHOWERS AND TUB/SHOWER COMBINATIONS SHALL BE PROVIDED WITH PRESSURE BALANCE OR THERMOSTATIC MIXING VALVES PER 2019 CPC SEC. 408.3.
21. PLUMBING FIXTURES AND FITTINGS SHALL COMPLY WITH ALL THE REQUIREMENTS LISTED IN TABLES 5.303.2.2 OR 5.303.2.3 AND IN TABLE 5.303.6 IN THE CALIFORNIA GREEN BUILDING STANDARDS CODE.
22. CONTRACTOR SHALL PROVIDE FIRESTOPPING AT PENETRATIONS AS NECESSARY TO RETAIN THE FIRE RATING OF ALL ASSEMBLIES. ALL WORK SHALL BE IN COMPLIANCE WITH CODE REQUIREMENTS FOR THE BUILDING CONSTRUCTION TYPE.
23. FLUSHING PROCEDURES AS OUTLINED IN CPC 604.1.2 SHALL BE OBSERVED ALL ALL PEX PIPING.
24. NEW POTABLE WATER SYSTEM SHALL BE DISINFECTED PRIOR TO USE PER 2019 CPC SEC. 609.9.

BACKFLOW PREVENTION REQUIREMENTS:

PLUMBING CONTRACTOR SHALL PROVIDE REDUCED PRESSURE BACKFLOW PREVENTERS OR OTHER APPROVED BACKFLOW PREVENTION DEVICE WHERE REQUIRED BY HEALTH AUTHORITIES, FOOD SERVICE DRAWINGS, APPLIANCE MANUFACTURER INSTRUCTIONS AND BY CODE.

WATER PRESSURE CALCULATIONS

WATER SUPPLY PRESSURE LOSS CALCULATION AND PIPE SIZING

CHARLOTTE SDR-11 CPVC & SCH. 80 CPVC.
CALCULATIONS ARE PER 2016 CPC APPENDIX A.

UTILITY SUPPLY WATER PRESSURE: 60 PSI STATIC PRESSURE

WATER METER LOSS: 5 PSI
TYPICALLY 5 PSI.

BACKFLOW PREVENTER LOSS: 10 PSI
TYPICALLY 10 PSI.

TENANT SUB-METER LOSS: 5 PSI
TYPICALLY 5 PSI.

STATIC LIFT: 25 FEET = 10.8 PSI

REQUIRED MINIMUM PRESSURE AT FURTHEST PLUMBING FIXTURE: 20.0 PSI

PRESSURE AVAILABLE TO OFFSET FRICTION LOSSES: 9.2 PSI

PIPING SYSTEM LENGTH FROM SERVICE TO FURTHEST FIXTURE: 300 FEET
FITTING ALLOWANCE: 100 FEET

MAXIMUM ALLOWABLE FRICTION LOSS FACTOR FOR ENTIRE SYSTEM: 2.3 PSI/100 FT

SELECTED FRICTION LOSS FACTOR: 2.0 PSI/100 FT
PER MANUFACTURER 'S RECOMMENDATION MAXIMUM VELOCITY FOR CW AND HW IS 8 FPS FOR SIZES UP TO 2" AND 5 FPS FOR SIZES LARGER THAN 2"

CPVC SUPPLY PIPE SIZING SCHEDULE

	FLUSH TANK CW			HOT WATER			FLUSH VALVE CW		
PIPE SIZE	FLOW, GPM	VEL. FPS	FIXTURE UNITS	FLOW, GPM	VEL. FPS	FIXTURE UNITS	FLOW, GPM	VEL. FPS	FIXTURE UNITS
1/2"	1.2	2.1	0.2	1.2	2.1	0.2	1.2	2.1	----
3/4"	3.3	2.6	3.3	3.3	2.6	3.3	3.3	2.6	----
1"	6.4	3.1	7.4	6.4	3.1	7.4	6.4	3.1	----
1-1/4"	10.9	3.5	14.8	10.9	3.5	14.8	10.9	3.5	----
1-1/2"	16.9	3.9	23.9	16.9	3.9	23.9	16.9	3.9	----
2"	34.2	4.6	63.6	34.2	4.6	63.6	34.2	4.6	18.4
2-1/2"	64.1	5.0	195.7	64.1	5.0	195.7	64.1	5.0	88.5
3"	100.4	5.0	382.1	100.4	5.0	382.1	100.4	5.0	247.0
4"	175.4	5.0	780.8	175.4	5.0	780.8	175.4	5.0	742.2
6"	399.1	5.0	2661.2	399.1	5.0	2661.2	399.1	5.0	2661.2

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REGISTERED PROFESSIONAL ENGINEER
MARK D. ROBISON
No. M-28712
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STATE OF CALIFORNIA
12/8/22

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NOTES AND CALCULATIONS

REF. NORTH

P001

FIXTURE UNIT COUNTS

FIXTURE UNIT CALCULATIONS												
CALCULATIONS BASED ON 2019 CPC TABLES A103.1 AND 702.1.												
A UNITS												
FIXTURE	FIXTURE UNITS							TOTAL QTY	TOTAL FIXTURE UNITS			
	TOTAL	CW	HW	W/V	1	2	R	OF FIXTURES	SERVICE	CW ONLY	HW ONLY	W/V ONLY
LAVATORY	1	0.75	0.75	1	1	3		4	4	3	3	4
WATER CLOSET (TANK)	2.5	2.5	0	3	1	2		3	7.5	7.5	0	9
SHOWER	2	1.5	1.5	2		2		2	4	3	3	4
BATHTUB	4	3	3	2		1		1	4	3	3	2
CLOTHES WASHER	4	3	3	3	1			1	4	3	3	3
KITCHEN SINK W/ DISHWASHER	3	1.125	2.625	2	1			1	3	1.125	2.625	2
HOSE BIBB	2.5/1	2.5/1	0	0	1			1	2.5	2.5	0	0
									29	23.125	14.625	24
	TOTAL	CW	HW	W/V								
UNIT A FIXTURE UNITS:	29	23.125	14.625	24								
PEAK FLOW:	19.5 GPM											
REQUIRED SERVICE SIZE IN BUILDING:	1-1/2" COPPER			3" @ 2%								
B UNITS												
FIXTURE	FIXTURE UNITS							TOTAL QTY	TOTAL FIXTURE UNITS			
	TOTAL	CW	HW	W/V	1	2	R	OF FIXTURES	SERVICE	CW ONLY	HW ONLY	W/V ONLY
LAVATORY	1	0.75	0.75	1	1	3		4	4	3	3	4
WATER CLOSET (TANK)	2.5	2.5	0	3	1	2		3	7.5	7.5	0	9
SHOWER	2	1.5	1.5	2		2		2	4	3	3	4
BATHTUB	4	3	3	2		1		1	4	3	3	2
CLOTHES WASHER	4	3	3	3		1		1	4	3	3	3
KITCHEN SINK W/ DISHWASHER	3	1.125	2.625	2	1			1	3	1.125	2.625	2
HOSE BIBB	2.5/1	2.5/1	0	0	1			1	2.5	2.5	0	0
									29	23.125	14.625	24
	TOTAL	CW	HW	W/V								
UNITB FIXTURE UNITS:	29	23.125	14.625	24								
PEAK FLOW:	19.5 GPM											
REQUIRED SERVICE SIZE IN BUILDING:	1-1/2" COPPER			3" @ 2%								

PLUMBING EQUIPMENT SCHEDULES

DOMESTIC WATER HEATER SCHEDULE – GAS (1)

EQUIP NO.	SERVICE	DHW FLOW RATE GPM	WEIGHT, LBS	ENERGY FACTOR	MAX GAS CONSUMPTION (BTU)	DIMENSIONS LxHxW (IN)	ELECTRICAL	BASIS OF DESIGN
WH–1	TOWNHOMES	11	64	0.96	199K	18.5x26.4x11.5	84W 120V 60HZ	RINNAI RU199iN

NOTES: (1) SEE DETAIL 1, P7.00 FOR WATER HEATER PIPING DIAGRAM.
(2) WATER HEATER RECOVERY AND POWER REQUIREMENT ARE BASED ON NON–SIMULTANEOUS OPERATION.

SUB-METER

EQUIP NO.	SERVICE	CONNECTION SIZE	DESIGN FLOW/MAX FLOW (GPM)	PRESSURE LOSS (PSI)	BASIS OF DESIGN	NOTES
CWM–1	DCW SUPPLY	¾"	15/30	6	NEXT CENTURY M201C	1

NOTES:

1. ALL DOMESTIC WATER EQUIPMENT SHALL BE NSF–61 LISTED.

PIPE MATERIALS SCHEDULE (1)

PIPE TYPE	MATERIAL	JOINT	NOTES
UNDERGROUND WATER SERVICE ENTRANCE PIPING	COPPER, TYPE K.	SOLDERED	(2)
ABOVE GROUND WATER DISTRIBUTION PIPING	PEX, CPVC	SOLVENT CEMENT	(4)
UNDERGROUND WASTE AND VENT PIPING	SCHEDULE 40 SOLID CORE PVC	SOLVENT CEMENT	
ABOVE GROUND WASTE AND VENT PIPING	CAST IRON	HUBLESS COUPLINGS	
UNDERGROUND STORM PIPING	SCHEDULE 40 SOLID CORE PVC	SOLVENT CEMENT	
ABOVE GROUND STORM PIPING	CAST IRON	HUBLESS COUPLINGS	
CONDENSATE DRAIN PIPING	COPPER, TYPE M.	SOLDERED	(3)
NATURAL GAS PIPING	STEEL PIPE, ASTM A 53; TYPE E OR S; GRADE B; SCHEDULE 40	THREADED, WELDED, OR MEGAPRESS	

NOTES: (1) ALL SANITARY SYSTEM MATERIALS SHALL BE LISTED BY AN APPROVED LISTING AGENCY.
(2) PLASTIC WRAP UNDERGROUND WATER SUPPLY PIPING TO PREVENT CORROSION.
(3) CPVC IS ACCEPTABLE FOR CONDENSATE PIPING IN LIEU OF COPPER IF APPROVED BY AHJ.
(4) PROVIDE THERMAL EXPANSION LOOPS FOR ALL CPVC PIPING PER MANUFACTURER REQUIREMENTS.

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ARIK D. ROBISON
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EXP. 9/30–23
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STATE OF CALIFORNIA
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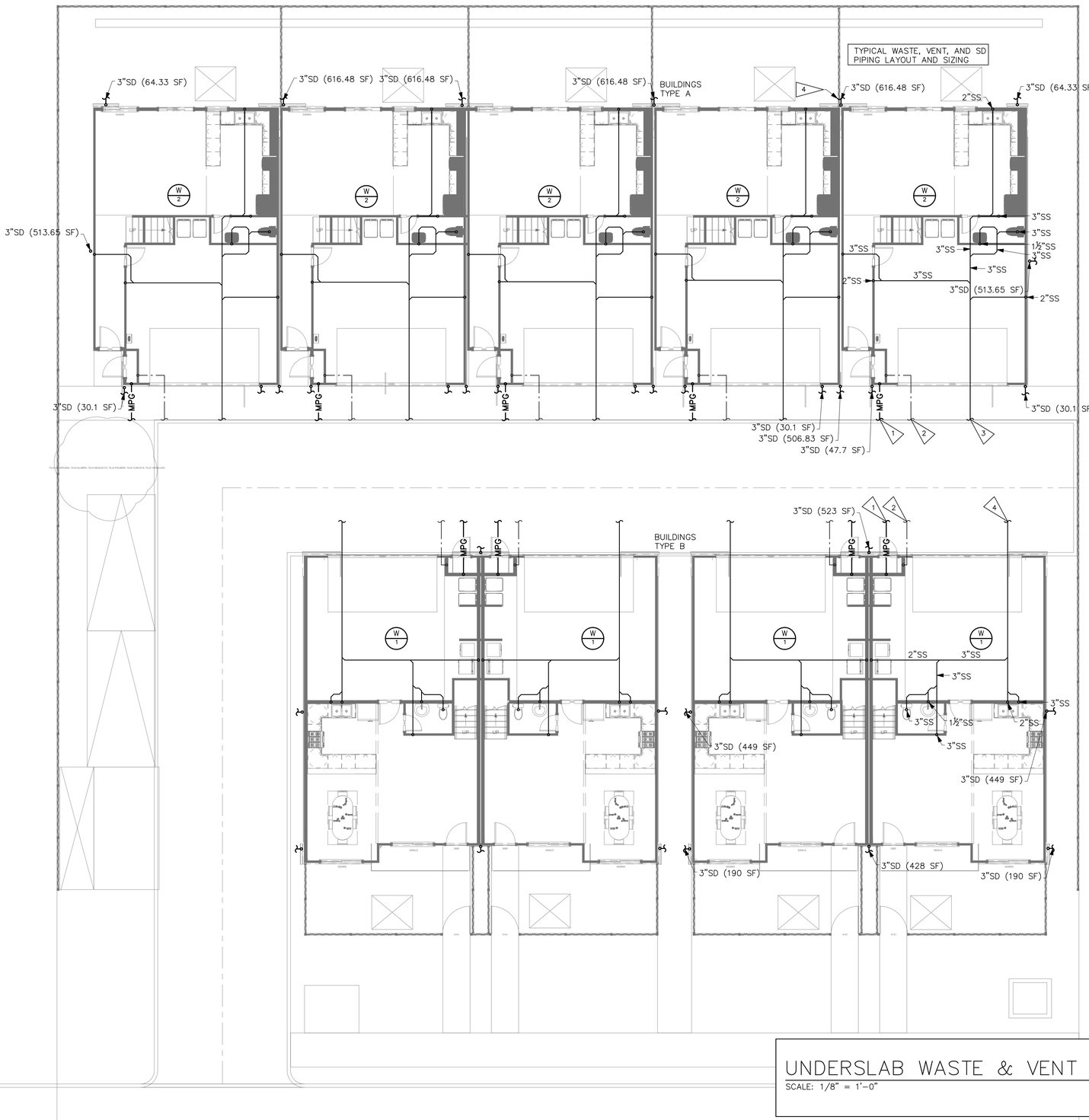
SCHEDULES AND CALCULATIONS

REF. NORTH

P002



GENERAL NOTES:

(W #) = WASTE/VENT RISER IDENTIFICATION (I.E. RISER "#"). REFER TO P400 SERIES FOR RISER DETAILS AND SIZING.

1. STORM DRAIN: STORM DRAINAGE PIPING SIZED PER 2019 CPC CHAPTER 11, FOR 1.5"/HR RAINFALL RATE, AT ⅛"/FT SLOPE UNLESS NOTED OTHERWISE:

PIPE SIZE	1% HORIZONTAL	VERTICAL
3"	2,192 SF	5,866 SF
4"	5,013 SF	12,266 SF
6"	14,266 SF	36,000 SF
8"	30,666 SF	77,333 SF
10"	55,200 SF	---- SF

2. WASTE & VENT: WASTE & VENT PIPING IS SIZED PER 2019 CPC TABLE 703.2. DRAINAGE PIPING SHALL BE SLOPED AT 1/4" OR 2% UON. WHERE IT IS IMPRACTICAL TO OBTAIN A SLOPE OF 2% DUE TO THE DEPTH OF THE STREET SEWER OR TO A STRUCTURAL FEATURES OF THE BUILDING. DRAINAGE PIPING MAY BE SLOPED AT 1/8" PER FOOT OR 1% WITH APPROVAL OF AHJ.

PIPE SIZE	VERT.	2% HORIZ.	VENT
1½"	2 DFU	1 DFU	8 DFU
2"	16 DFU	8 DFU	24 DFU
3"	48 DFU	35 DFU	84 DFU
4"	256 DFU	172 DFU	256 DFU
6"	1,380 DFU	576 DFU	1,380 DFU
8"	3,600 DFU	2,112 DFU	3,600 DFU

SHEET NOTES: (X)

1. ½"MPG POC. SEE CIVIL PLANS FOR CONT. IN JOINT TRENCH (TYP. FOR ALL TOWNHOUSES)
2. 1½"CW POC. SEE CIVIL DRAWINGS FOR CONTINUATION. (TYP. FOR ALL TOWNHOUSES.)
3. 3"SS POC AT 2% SLOPE. IE = 19.739' (BASED ON 6" SOG)
4. 3"SS POC AT 2% SLOPE. IE = 20.08' (BASED ON 6" SOG)
5. DOWNSPOUT POC TO SITE PLAN SD PIPING. SEE CIVIL PLANS FOR CONT. (TYP. FOR ALL DOWNSPOUTS.)

BACKWATER VALVE ANALYSIS

EAST TOWNHOUSES LEVEL 1 FF = 22.26'
WEST TOWNHOUSES LEVEL 1 FF = 22.45'

UPSTREAM MANHOLE RIM =20.07'

THEREFORE, A BACKWATER VALVE IS NOT REQUIRED FOR FIXTURES ON LEVEL 1

UNDERSLAB WASTE & VENT PLAN
SCALE: 1/8" = 1'-0"
0' 4' 8' 16'

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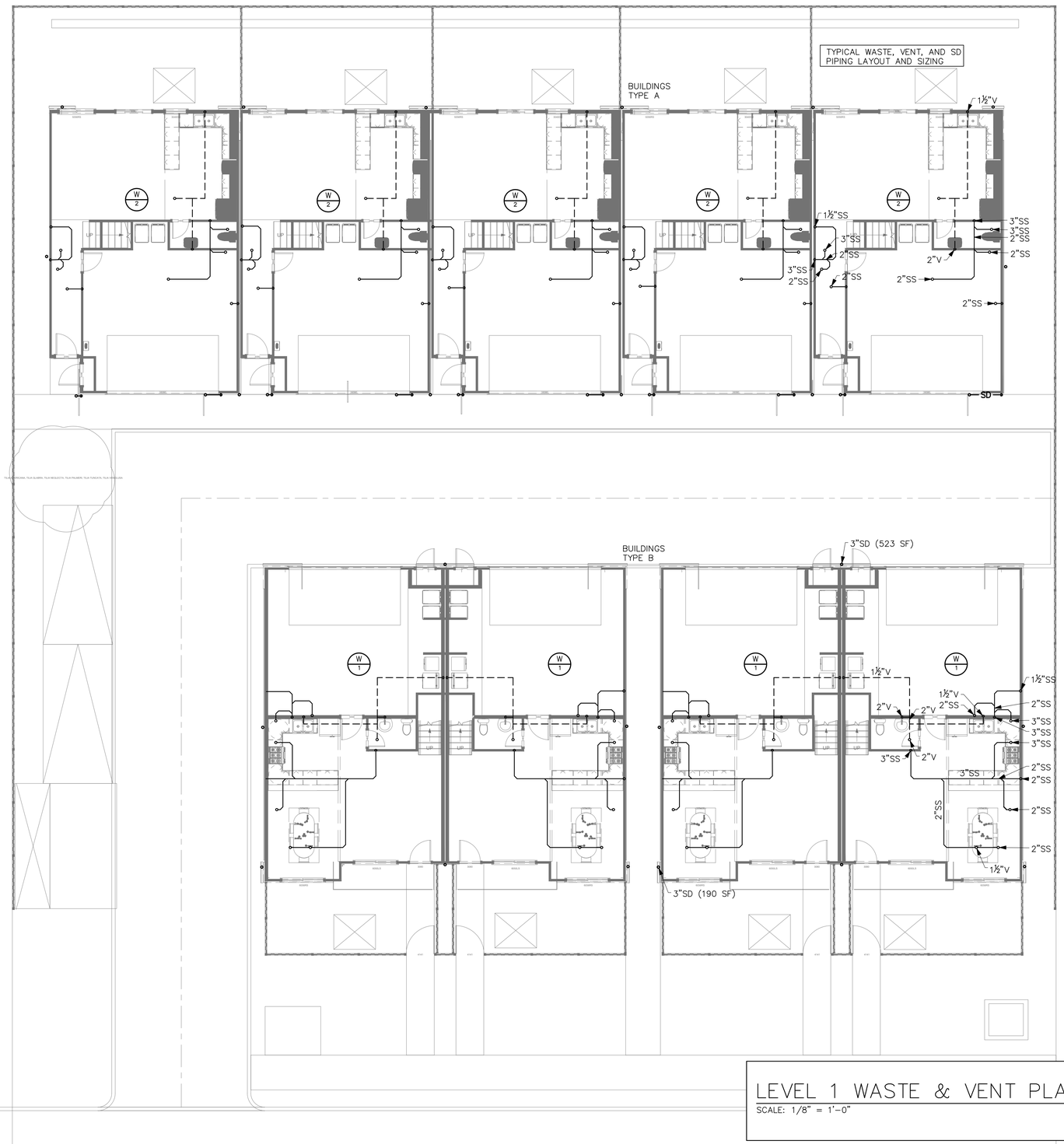
UNDERSLAB WASTE & VENT PLAN

REF. NORTH

P200



LEVEL 1 WASTE & VENT PLAN

SCALE: 1/8" = 1'-0"

0' 4' 8' 16'

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8"	3,600 DFU	2,112 DFU	3,600 DFU

SHEET NOTES: (X)

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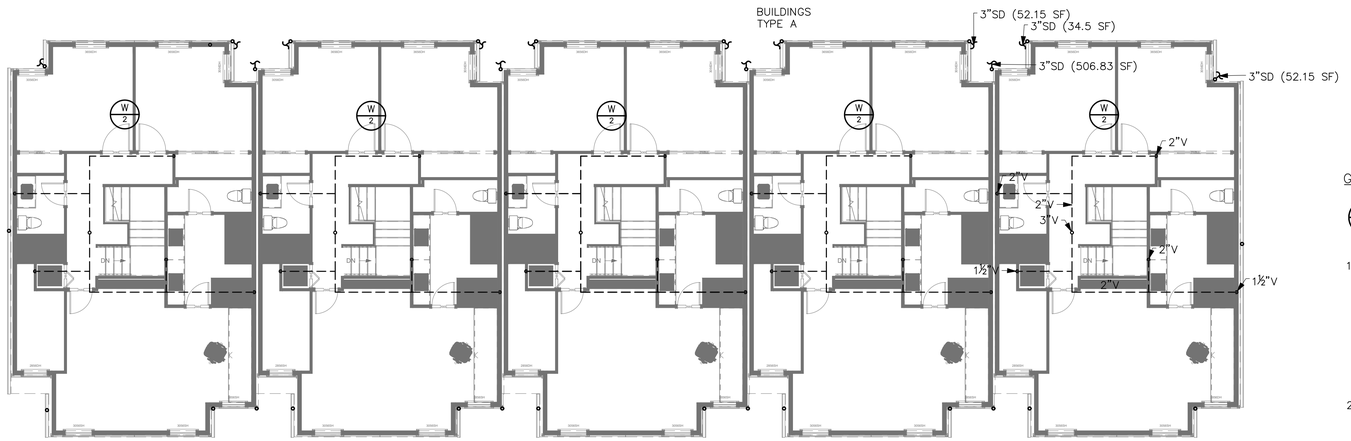
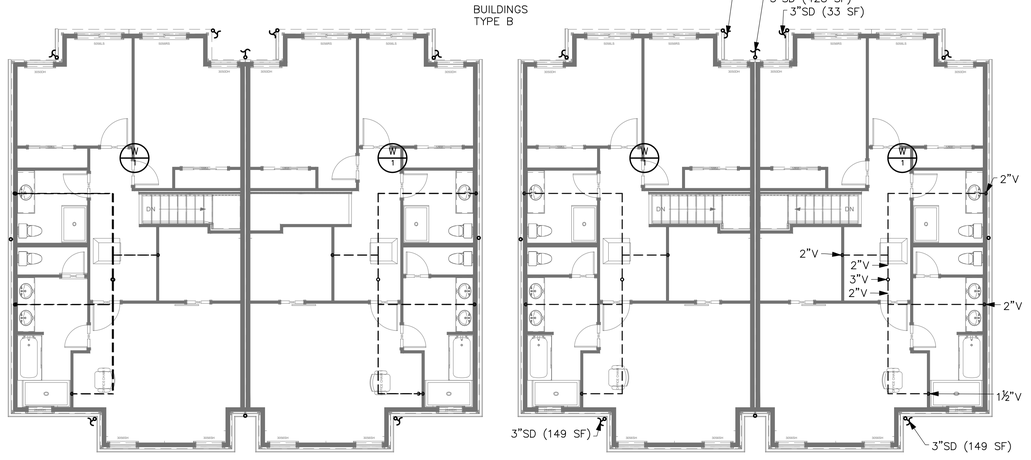
LEVEL 1 WASTE & VENT PLAN

REF. NORTH

P201

TYPICAL WASTE, VENT, AND SD PIPING LAYOUT AND SIZING





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3"	48 DFU	35 DFU	84 DFU
4"	256 DFU	172 DFU	256 DFU
6"	1,380 DFU	576 DFU	1,380 DFU
8"	3,600 DFU	2,112 DFU	3,600 DFU

SHEET NOTES: x

LEVEL 2 WASTE & VENT PLAN
SCALE: 1/8" = 1'-0"
0' 4' 8' 16'

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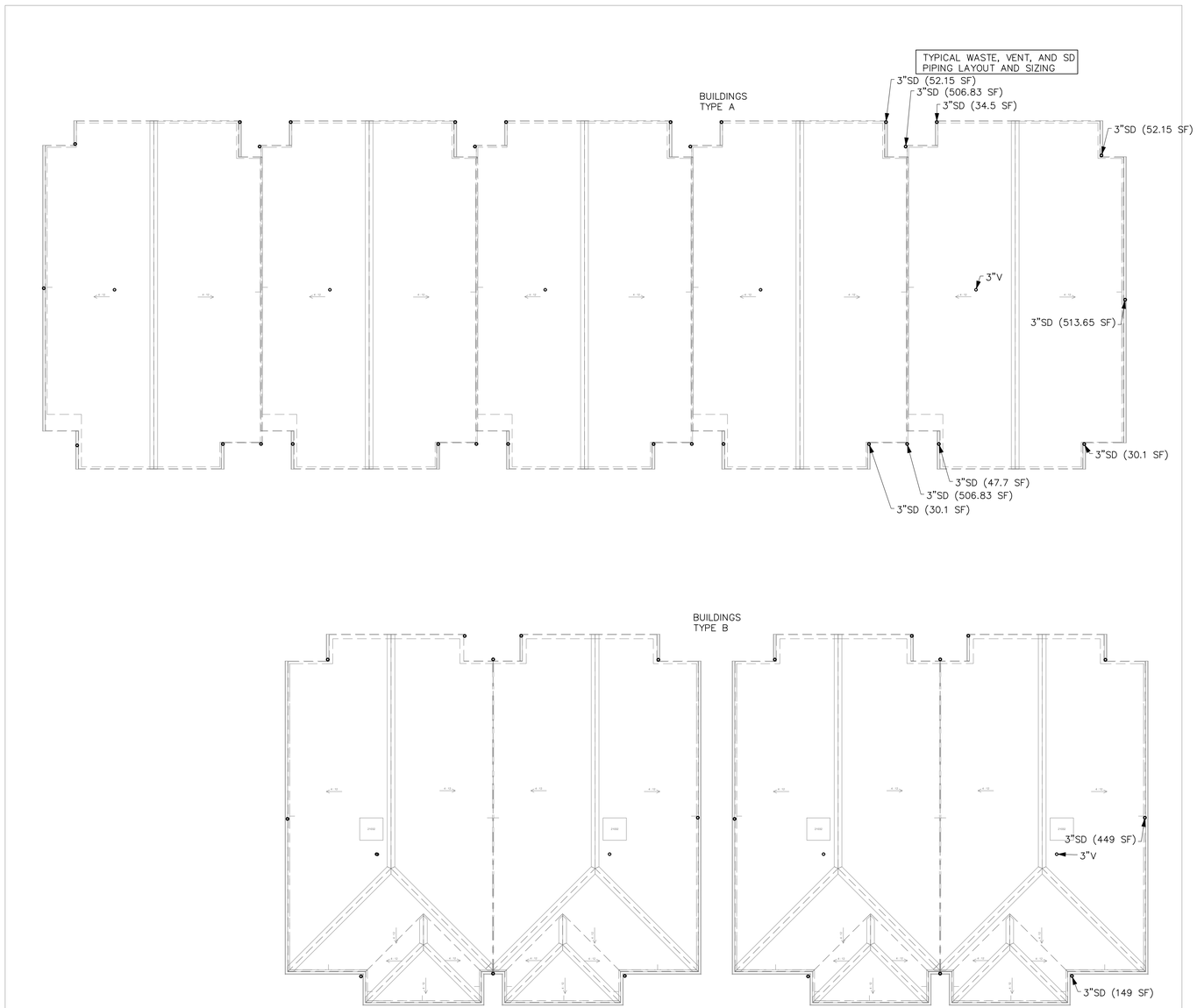
LEVEL 2 WASTE & VENT PLAN

REF. NORTH

P202



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SHEET NOTES: (X)

ROOF PLUMBING PLAN
SCALE: 1/8" = 1'-0"
0' 4' 8' 16'

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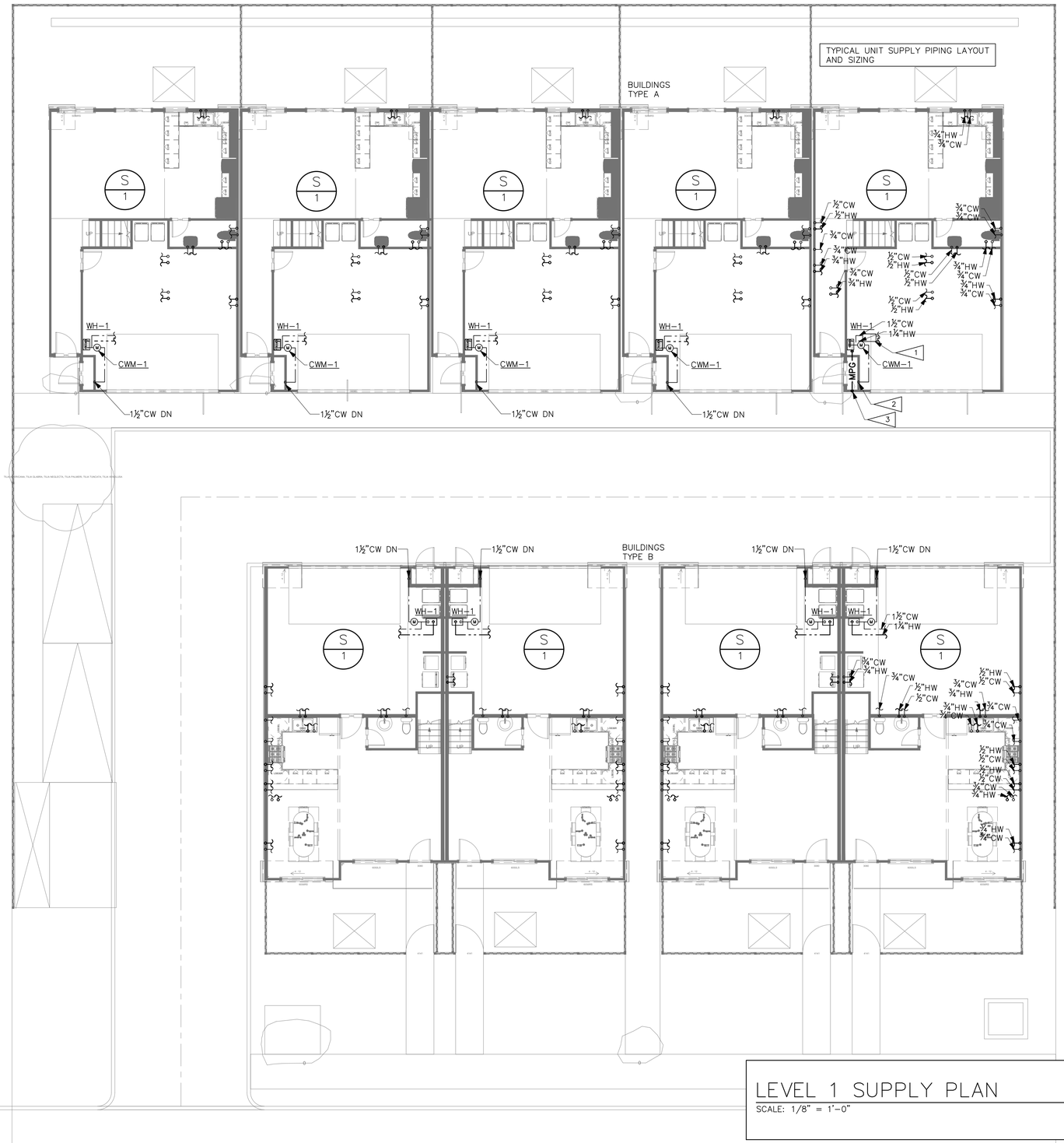
ROOF PLUMBING PLAN

REF. NORTH

P203



GENERAL NOTES:

(S/#) = WASTE/VENT RISER IDENTIFICATION (I.E. RISER "#"). REFER TO P400 SERIES FOR RISER DETAILS AND SIZING.

SHEET NOTES: (X)

1. PEX MANIFOLD FOR SUPPLY PIPING. SEE DETAIL 1,P701.
2. 2" CW DOWN. PROVIDE WATER SHUTOFF VALVE (TYP.)
3. ½" MPG DOWN

LEVEL 1 SUPPLY PLAN

SCALE: 1/8" = 1'-0"

0' 4' 8' 16'

ROBISON ENGINEERING, INC
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LYNNWOOD, WA 98036
206-364-3343 TEL
REI PROJECT NO.: 590-054
CONTACT: ARIK ESPINELI

MFA CONSTRUCTION INC.
GENERAL CONTRACTOR & ENGINEER
101 South Santa Cruz Ave., #33192
Los Gatos, CA 95030

NEW DEVELOPMENT:
CHEENEY ST TOWNHOUSES
4249 CHEENEY ST.
SANTA CLARA, CA 95054

	REVISION	DATE
1		
2		
3		

REGISTERED PROFESSIONAL ENGINEER
ARIK D. ROBISON
No. M-28712
EXP. 9-30-23
MECHANICAL
STATE OF CALIFORNIA
12/8/22

DATE: December 8, 2022
PROJECT No. 590-054

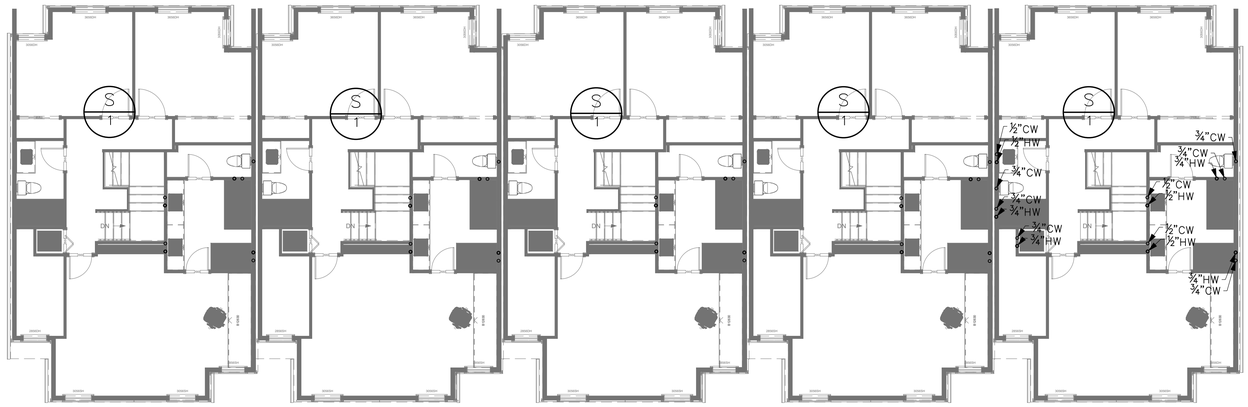
LEVEL 1 SUPPLY PLAN

REF. NORTH

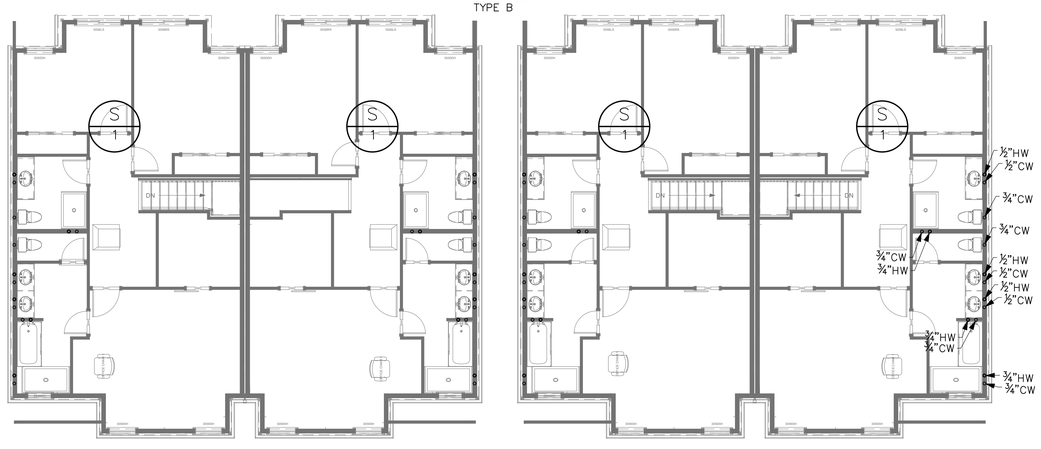
P301

TYPICAL UNIT SUPPLY PIPING LAYOUT AND SIZING

BUILDINGS TYPE A



BUILDINGS TYPE B



LEVEL 2 SUPPLY PLAN

SCALE: 1/8" = 1'-0"

0' 4' 8' 16'

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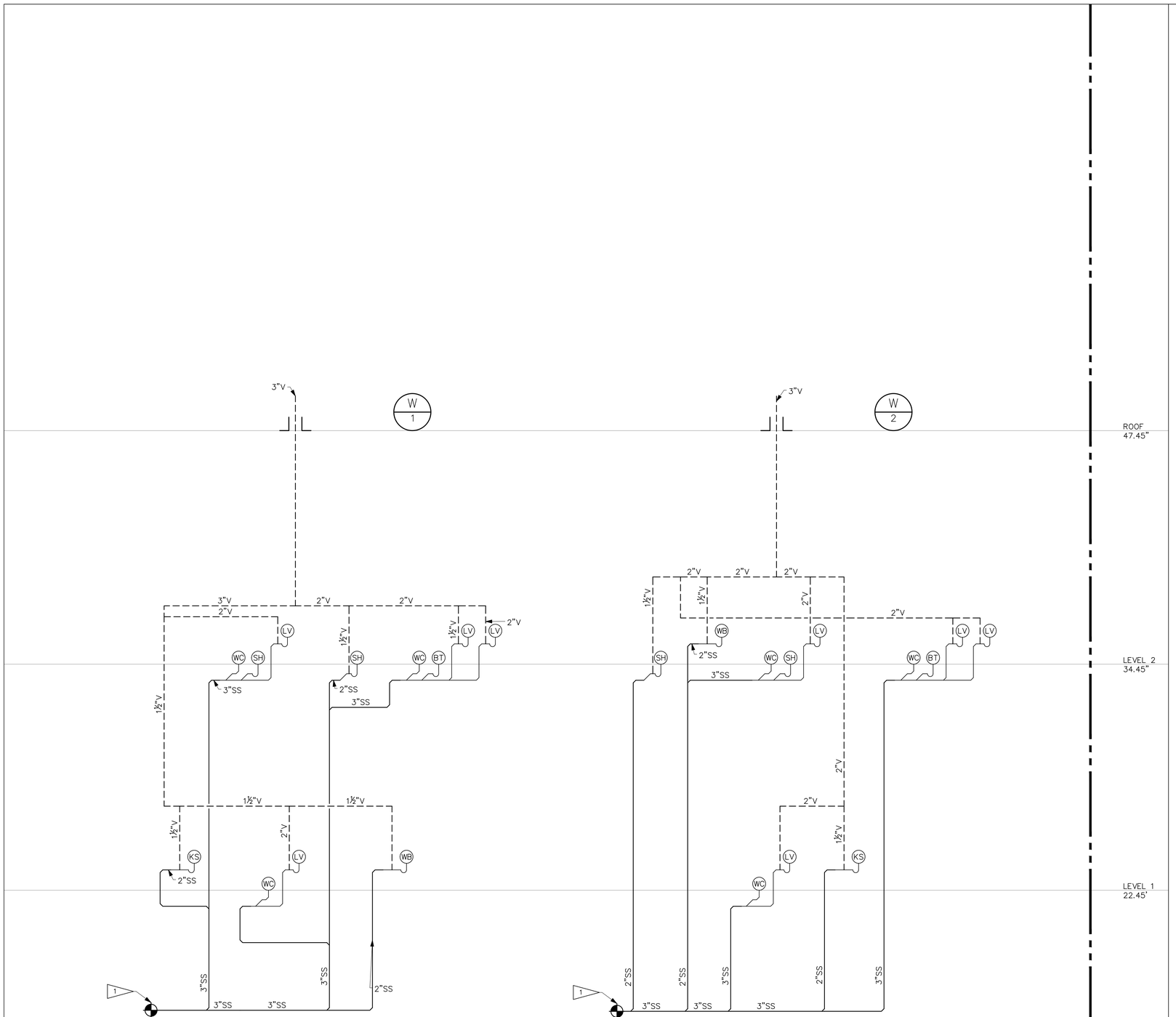
LEVEL 2 SUPPLY PLAN

REF. NORTH

P302



GENERAL NOTES

W / # = WASTE RISER IDENTIFICATION (I.E. RISER "#")

1. WASTE & VENT SIZING: WASTE & VENT PIPING SIZED PER 2019 CPC TABLE 703.2. DRAINAGE PIPING SHALL BE SLOPED AT 1/4" PER FOOT OR 2%. WHERE IT IS IMPRACTICAL TO OBTAIN A SLOPE OF 2% DUE TO THE DEPTH OF THE STREET SEWER OR TO STRUCTURAL FEATURES OF THE BUILDING, DRAINAGE PIPING MAY BE SLOPED AT 1/8" PER FOOT OR 1%.

PIPE SIZE	VERTICAL	2% HORIZONTAL	VENT
1½"	2 DFU	1 DFU	8 DFU
2"	16 DFU	8 DFU	24 DFU
3"	48 DFU	35 DFU	84 DFU
4"	256 DFU	216 DFU	256 DFU
6"	1,380 DFU	720 DFU	1,380 DFU
8"	3,600 DFU	2,640 DFU	3,600 DFU

DRAINAGE FIXTURE UNIT (DFU) VALUES BASED ON 2019 CPC TABLE 702.1		
FIXTURES	MIN TRAP ARM SIZE(IN)	DFU
BATHTUB (TUB)	2	2
SHOWER (SH)	2	2
WATER CLOSET (WC)	3	3
LAVATORY (LAV)	2	1
CLOTHES WASHER (WB)	2	3
KITCHEN SINK (KS)	2	2

NOTES:

(1) ONLY 4 WATER CLOSETS ALLOWED ON A 3" VERTICAL STACK, AND NOT TO EXCEED 3 WATER CLOSETS ON A 3" HORIZONTAL BRANCH/DRAIN.

SHEET NOTES #

1. 3"SS POC AT 2% SLOPE. SEE CIVIL DRAWINGS FOR CONTINUATION.

BACKWATER VALVE ANALYSIS:

EAST TOWNHOUSES LEVEL 1 FF = 22.26'
WEST TOWNHOUSES LEVEL 1 FF = 22.45'

UPSTREAM MANHOLE RIM =20.07'

THEREFORE, A BACKWATER VALVE IS NOT REQUIRED FOR FIXTURES ON LEVEL 1

WASTE & VENT RISER DIAGRAM

SCALE: NONE

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WASTE & VENT RISER DIAGRAM

REF. NORTH

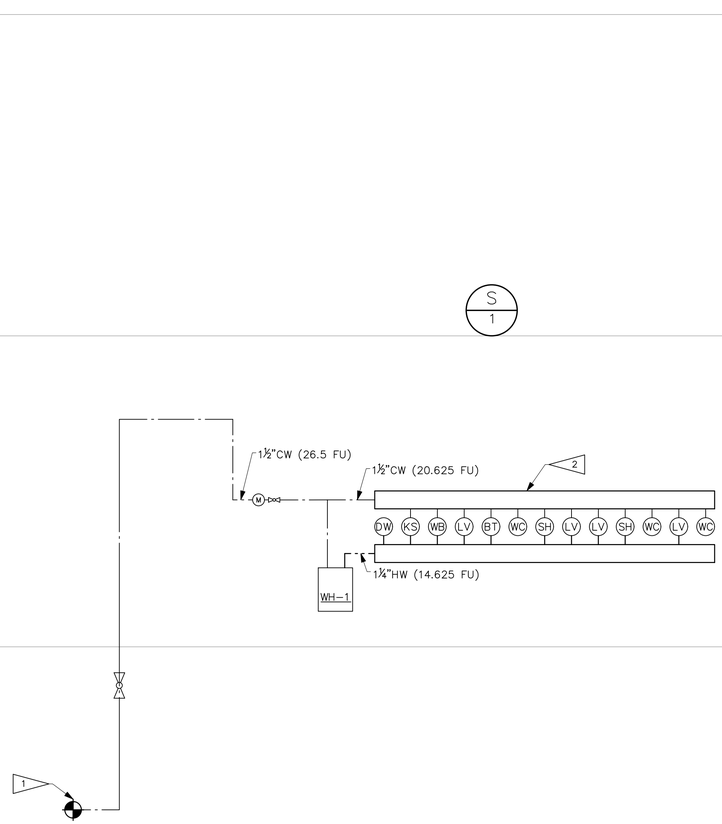
P401

GENERAL NOTES

S/# = DOMESTIC WATER SUPPLY RISER IDENTIFICATION (I.E. RISER "#")

LEGEND:

LAV = LAVATORY – 1 WSFU (0.75 CW/HW)
WC = WATER CLOSET – 2.5 WSFU (CW)
BT = BATHTUB 4 WSFU (3 CW/HW)
SH = SHOWER 2 WSFU (1.5 CW/HW)
WB = WASHER BOX 4 WSFU (3 CW/HW)
KS = KITCHEN SINK W/ DISHWASHER 3 WSFU (1.125 CW 2.625 HW)
HB = HOSEBIB – 2.5 WSFU (CW ONLY, OR CW/HW)
WM = WATER METER



SHEET NOTES #

1. 1½" CW POC. SEE CIVIL DRAWINGS FOR CONTINUATION.
2. PEX MANIFOLD TO FEED FIXTURES ON SECOND FLOOR PER FLOOR PLANS P3XX. SEE DWG 1,P701 FOR MANIFOLD DETAIL

SUPPLY RISER DIAGRAM

SCALE: NONE

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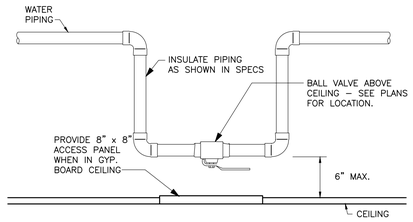
SUPPLY RISER DIAGRAM

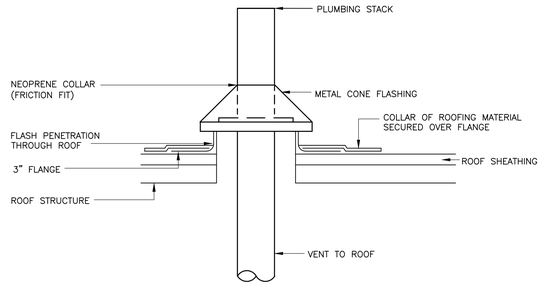
REF. NORTH

P501



TYPICAL VALVE PLACEMENT 7

SCALE: NONE



VENT THROUGH ROOF 6

SCALE: NONE

EQUIPMENT SCHEDULE

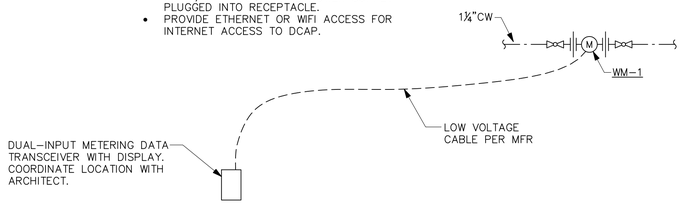
WATER METER (NEXT CENTURY MULTI–JET WATER METER MODEL M201C, 3/4").

TRANSCEIVER: WIRELESS METERING DATA TRANSCEIVER DUAL INPUT WITH DISPLAY, WITH BATTERIES. TEHAMA WIRELESS MODEL TW–165A–PP.

WIRELESS REPEATERS: TEHAMA COMPATIBLE REPEATERS; QUANTITY TWO. TEHAMA WIRELESS TW–191X.

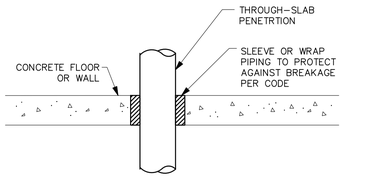
UDATA CONCENTRATING ACCESS POINT (DCAP): TEHAMA WIRELESS TW–203X–T–150.

- DCAP TO BE INSTALLED ON MAIN COMM/DATA BOARD AND POWER SUPPLY PLUGGED INTO RECEPTACLE.
- PROVIDE ETHERNET OR WIFI ACCESS FOR INTERNET ACCESS TO DCAP.



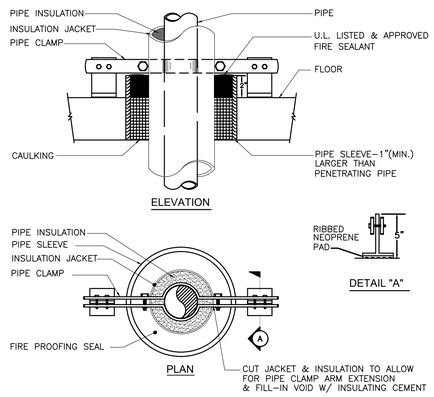
WATER SUB–METER DETAIL 3

SCALE: NONE



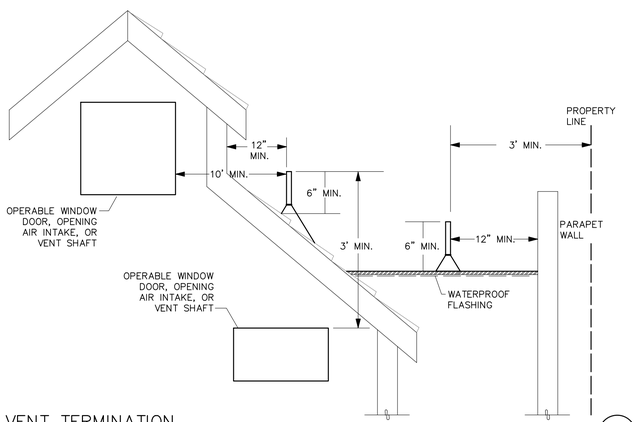
PIPE SLAB PENETRATION 5

SCALE: NONE



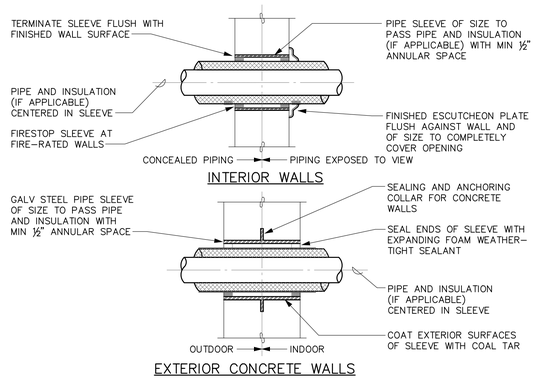
RISER PIPE SUPPORT 4

SCALE: NONE



VENT TERMINATION 2

SCALE: NONE



PIPE SLEEVES THROUGH WALLS 1

SCALE: NONE

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DETAILS

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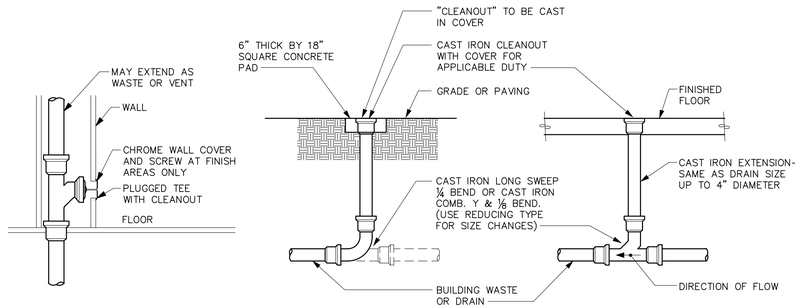
P700

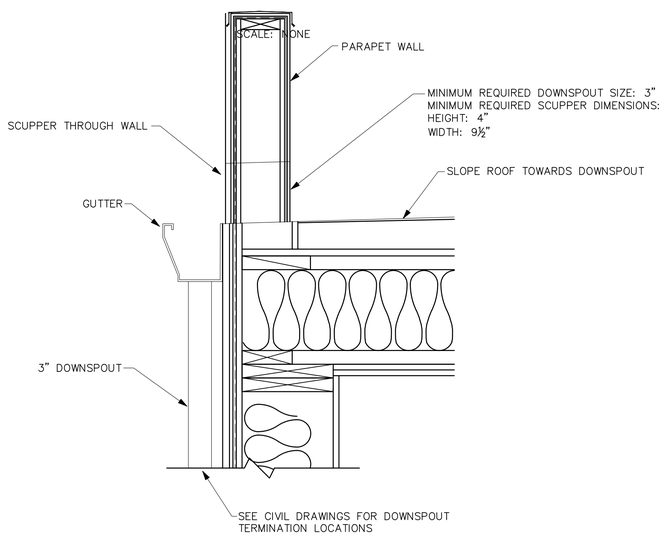


INTERIOR WALL CLEANOUT (WCO) | EXTERIOR CLEANOUT TO GRADE (COTG) (LIGHT TRAFFIC AREA) | INTERIOR FLOOR CLEANOUT (FCO)

CLEANOUTS

SCALE: NONE

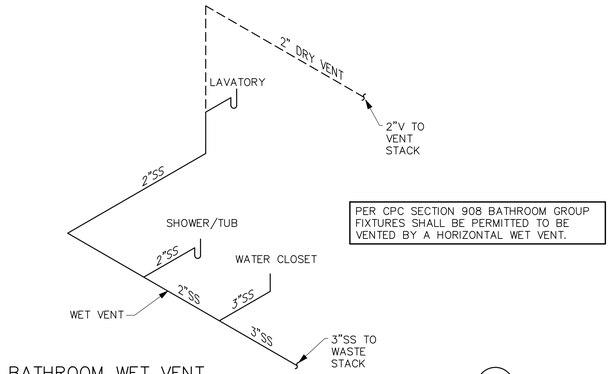
4



GUTTER TO DOWNSPOUT

SCALE: NONE

2

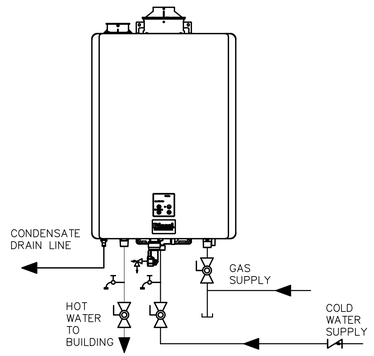


PER CPC SECTION 908 BATHROOM GROUP FIXTURES SHALL BE PERMITTED TO BE VENTED BY A HORIZONTAL WET VENT.

BATHROOM WET VENT

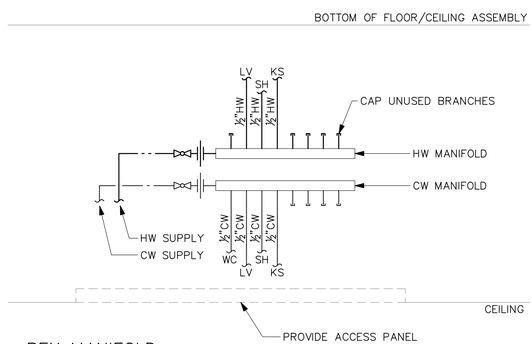
SCALE: NONE

5



WATER HEATER PIPING

3



PEX MANIFOLD

DETAIL

SCALE: NONE

1

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P701