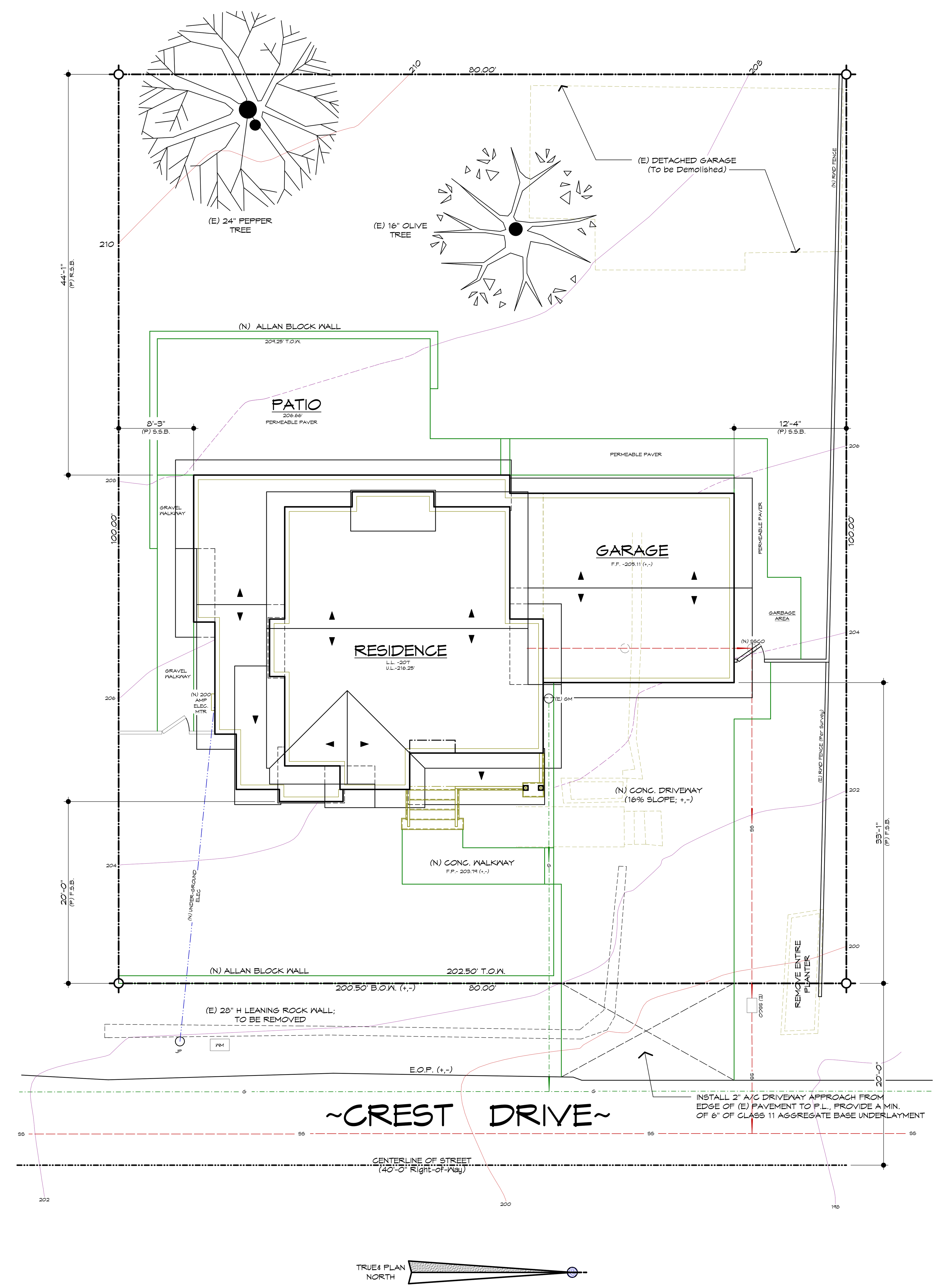
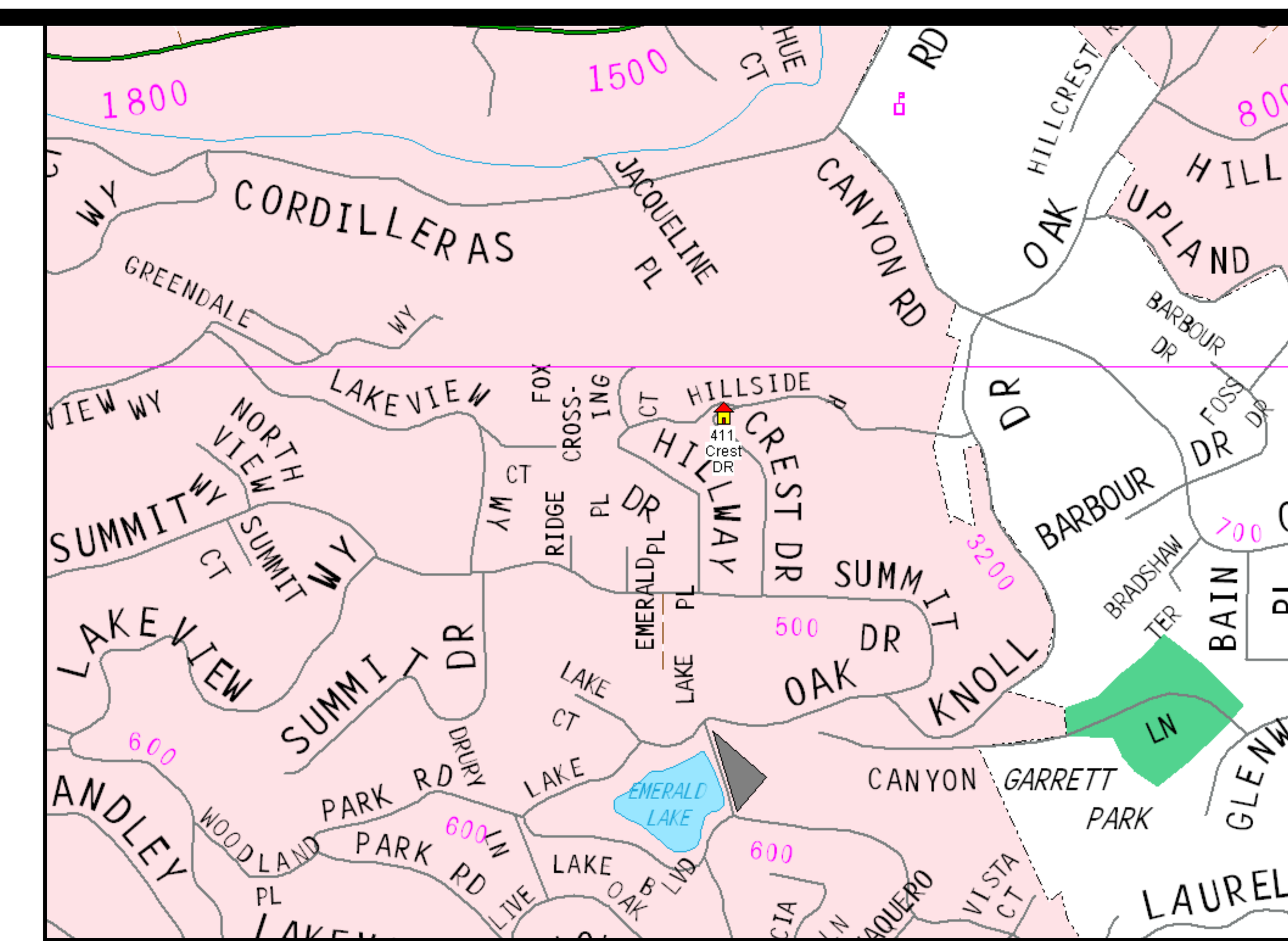


SITE PLAN

SITE NOTES:

1. THE "2016" I.B.C. AS AMENDED BY THE STATE OF CALIFORNIA AND LOCAL JURISDICTION ARE APPLICABLE TO THIS PROJECT, AS WELL AS THE 2016 C.B.C., C.R.C., C.P.C., C.M.C., C.F.C., C.E.C., CAL. GREEN BUILDING CODE & THE 2013 CAL. ENERGY CODE.
2. ALL FINISHED GRADES SHALL DRAIN SURFACE WATER AWAY FROM FOUNDATION, SLAB AND PAVEMENT AREAS, TO SUITABLE DISCHARGE POINTS. SEE CIVIL PLANS & SOILS REPORT FOR SPECIFIC REQUIREMENTS.
5. NEW DOWNSPOUT DRAINAGE SHALL BE COLLECTED IN A CLOSED PIPE SYSTEM, SEE CIVIL PLANS.
4. ALL CONSTRUCTION AND RELATED ACTIVITIES WHICH REQUIRE A COUNTY BUILDING PERMIT SHALL BE ALLOWED ONLY DURING THE HOURS OF 8:00 a.m. TO 5:00 p.m. MONDAY THROUGH FRIDAY, AND 10:00 a.m. TO 5:00 p.m. ON SATURDAYS. NO CONSTRUCTION ACTIVITY OR RELATED ACTIVITIES SHALL BE ALLOWED OUTSIDE OF THE AFOREMENTIONED HOURS OR ON SUNDAYS AND THE FOLLOWING HOLIDAYS: NEW YEARS DAY, PRESIDENT'S DAY, MEMORIAL DAY, 4th OF JULY, LABOR DAY, THANKSGIVING DAY AND CHRISTMAS DAY.
5. NOISE SOURCES ASSOCIATED WITH DEMOLITION, CONSTRUCTION, REPAIR, REMODELING OR GRADING OF ANY REAL PROPERTY SHALL BE LIMITED TO THE HOURS FROM 7:00am to 6:00pm WEEKDAYS AND 9:00am TO 5:00pm SATURDAYS. SAID ACTIVITIES ARE PROHIBITED ON SUNDAYS, THANKSGIVING, AND CHRISTMAS (SMO CODE SECTION 4.88.360)
6. THE OWNER/ CONTRACTOR WILL BE REQUIRED TO PROVIDE A CONSTRUCTION AND DEMOLITION RECYCLING PLAN. THE CONDITIONS OF APPROVAL FOR THIS PERMIT ALSO REQUIRE THE OWNER/ CONTRACTOR TO PERFORM ALL WORK IN CONFORMANCE WITH THE NPDES REQUIREMENTS.
7. ALL EARTHWORK AND FOUNDATION WORK REQUIRMENTS SHALL BE FOLLOWED PER GEOTECHNICAL INVESTIGATION PREPARED BY SIGMA PRIME GEOSCIENCES, INC. DATED OCTOBER 14, 2019 .
8. SIGMA PRIME GEOSCIENCES, INC. IS TO OBSERVE AND TEST THE EARTHWORK AND FOUNDATION INSTALLATION PHASES OF CONSTRUCTION.
9. THE PROPERTY OWNER/ CONTRACTOR SHALL APPLY FOR AND OBTAIN TEMPORARY ENCROACHMENT PERMITS FROM THE DEPARTMENT OF PUBLIC WORKS FOR WORK IN THE COUNTY PUBLIC RIGHT-OF-WAY, EASEMENTS OR PROPERTY IN WHICH THE CITY HOLDS AN INTEREST, INCLUDING DRIVEWAY, SIDEWALK, SEWER CONNECTIONS, SEWER CLEAN-OUTS, CURB DRAINS, STORM DRAIN CONNECTIONS, PLACEMENT OF A DEBRIS BOX.
10. STREETS, SIDEWALKS AND CURBS IN NEED OF REPAIR WITHIN AND BORDERING THE PROJECT SHALL BE REPAIRED AND/ OR REMOVED AND REPLACED IN ACCORDANCE WITH THE DEPARTMENT OF PUBLIC WORKS APPROVED STANDARDS. PHOTOGRAPHS OR VIDEO OF BEFORE CONDITIONS ARE RECOMMENDED.
11. CONTRACTOR/OWNER SHALL SUBMIT A CONSTRUCTION WASTE MANAGEMENT & DEMOLITION PLAN PER CALGREEN SECTION 4.408.2 (Or in accordinance with the local ordinance) DIVERT A MINIMUM OF 65% OF THE CONSTRUCTION WASTE TO RECYCLE OR SALVAGE PER SECTION 4.408.1
12. NEW & REMODELED BUILDINGS SHALL HAVE APPROVED ADDRESS NUMBERS. THE ADDRESS NUMBERS SHALL BE ILLUMINATED, SHALL CONTRAST WITH THEIR BACKGROUND AND SHALL BE A MINIMUM OF 1/2" STROKE BY 4" MINIMUM HEIGHT, ARABIC OR ALPHABETICAL LETTERS & BE VISIBLE FROM THE STREET.
13. AN AUTOMATIC RESIDENTIAL FIRE SPRINKLER SYSTEM IS REQUIRED THRUOUT THE ENTIRE RESIDENCE UNDER A SEPERATE PERMIT,.THE NEW SYSTEM SHALL MEET ALL SAN MATEO COUNTY FIRE DISTRICT STANDARDS, NFPA 13 & NFPA 13D 2010 EDITION. & SHALL BE DESIGNED & INSTALLED BY A CALIFORNIA LICENSED FIRE PROTECTION CONTRACTOR (C-16).
14. RESIDENTIAL FIRE SPRINKLERS MUST HAVE AN INTERIOR ALARM THAT IS ACTIVATED BY THE FLOW SWITCH AND AUDIBLE IN ALL SLEEPING AREAS ON ALL STORIES IN THE RESIDENCE.
15. PROVIDE PROTECTION MEASURES FOR ANY SUBSTANTIAL TREES WITHIN THE CONSTUCTION ZONE.
16.TREES LOCATED WITHIN THE DEFENSIBLE SPACE SHALL BE PRUNED TO REMOVE DEAD AND DYING PORTIONS, AND LIMBED UP 6'-0" ABOVE THE GROUND. NEW TREES PLANTED IN THE DEFENSIBLE SPACE SHALL BE LOCATED NO CLOSER THAN 10'-0" TO ADJACENT TREES WHEN FULLY GROWN OR AT MATURITY.
17.REMOVE THAT PORTION OF ANY EXISTING TREES, WHICH EXTENDS WITHIN 10'-0" OF THE OUTLET OF A CHIMNEY OR STOVE PIPE OR IS WITHIN 5'-0" OF ANY STRUCTURE. REMOVE THAT PORTION OF ANY EXISTING TREES, WHICH EXTENDS WITHIN 10'-0" OF THE OUTLET OF A CHIMNEY OR STOVEPIPE OR IS WITHIN 5'-0" OF ANY STRUCTURE. MAINTAIN ANY TREE ADJACENT TO OR OVERHANGING A BUILDING FREE OF DEAD OR DYING WOOD.
18. SHOULD ARCHAEOLOGICAL RESOURCES BE ENCOUNTERED DURING GRADING OR CONSTRUCTION, WORK SHALL IMMEDIATELY BE HALTED IN THE AREA OF DISCOVERY AND THE APPLICANT SHALL IMMEDIATELY NOTIFY THE PLANNING AND BUILDING DEPARTMENT OF HTE DISCOVERY. THE APPLICANT WOULDTHEN BE REQUIRED TO RETAIN THE SERVICES OF A QUALIFIED ARCHAEOLOGIST FOR THE PURPOSE OF RECORDING, PROTECTING, OR CURATING THE DISCOVERY, AS APPROPRIATE. THE COST OF THE QUALIFIED ARCHAEOLOGIST AND OF ANY RECORDING, PROTECTING, OR CURATING WOULD BE BORNE SOLELY BY THE APPLICANT. THE ARCHAEOLOGIST WOULD BE REQUIRED TO SUBMIT A REPORT OF THE FINDINGS AND METHODS OF CURATION OR PROTECTION OF THE RESOURCES TO THE PLANNING AND BUILDING DEPARTMENT FOR REVIEW AND APPROVAL. NO FURTHER GRADING OR SITE WORK WITHIN THE AREA OF DISCOVERY WOULD BE ALLOWED UNTIL THE PROCEDING HAS OCCURED.
19. IN THE EVENT OF THE ACCIDENTAL DISCOVERY OR RECOGNITION OF ANY HUMAN REMAINS IN ANY LOCATION OTHER THAN A DEDICATED CEMETERY, THE COUNTY CORONER MUST BE CONTACTED IMMEDIATELY. THERE SHALL BE NO FURTHER EXCAVATION OR DISTURBANCE OF THE SITE OR ANY NEARBY AREA REASONALBY SUSPECTED TO OVERLIE ADJACENT HUMAN REMAINS UNTIL THE CORONER DETERMINES THAT NO INVESTIGATION OF THE CAUSE OF DEATH IS REQUIRED. IF THE CORONER DETERMINES THE REMAINS TO BE NATIVE AMERICAN, THEN THE CORONER SHALL CONTACT THE NATIVE AMERICAN HERITAGE COMMISSION WITHIN 24 HOURS.
20. ALL POTABLE WATER PIPING AND FITTINGS SHALL BE BRASS, COPPER, CAST IRON, GALVINIZED MALLEABLE IRON, GALVINIZED WROUGHT IRON, OR GALVANIZED STEEL. ALL MATERIALS USED IN THE WATER SUPPY SYSTEM, EXCEPT VALVES AND SIMULAR DEVICES SHALL BE OF LIKE MATERIAL. NO PLASTIC PIPING IS ALLOWED WITHIN THE BUILDING FOOT PRINT; OR, FOR WATER SERVICE.
21. THIS PROJECT SHALL CONFORM TO THE 2016 CAL GREEN REQUIREMENTS. (See Sht# A2 "Cal Green" Notes)



SITE MAP

ZONE : RH-DR Single Family Residence
TYPE OF CONSTRUCTION: VB
BUILDING OCCUPANCY: R-3
PARKING: 2-Car Covered, 2-Car Uncovered
MAXIMUM HEIGHT: 28'-0"
DAYLIGHT PLANE: N/A
A.P.N: 057-203-050

SETBACKS:	REQUIRED (Min.)	EXISTING	PROPOSED
FRONT:	20'-0"	20'-0"	20'-0"
REAR:	20'-0"	50'-0"	44'-1"
SIDE (Left):	7'-6"	15'-10"	8'-3"
SIDE (Right):	12'-6"	32'-3"	12'-4"

LOT AREA: 8008.00 Sq.Ft.

LOT COVERAGE ALLOWED: 25% x 8008.00= 2002.00 Sq.Ft.
FLOOR AREA ALLOWED: 30% x 8008.00= 2402.00 Sq.Ft.

RESIDENTIAL CALCULATIONS:

AREA OF EXISTING MAIN LEVEL RESIDENCE (To be Demo'd):	<950.00 Sq.Ft.>
AREA OF EXISTING UPPER LEVEL RESIDENCE(To be Demo'd):	<621.00 Sq.Ft.>
AREA OF EXISTING DETACHED GARAGE(To be Demo'd):	<619.00 Sq.Ft.>
AREA OF EXISTING COV'D PORCH(To be Demo'd):	<67.00 Sq.Ft.>
AREA OF PROPOSED MAIN LEVEL RESIDENCE:	1157.00 Sq.Ft.
AREA OF PROPOSED GARAGE:	488.00 Sq.Ft.
AREA OF PROPOSED COVERED ENTRY PORCH:	65.00 Sq.Ft.
AREA OF PROPOSED ENTRY PORCH COUNTED TOWARDS FAR:	27.00 Sq.Ft.
AREA OF PROPOSED UPPER LEVEL RESIDENCE:	721.00 Sq.Ft.

PROPOSED LOT COVERAGE: 1710.00 Sq.Ft. (21.3%)
PROPOSED FLOOR AREA: 2393.00 Sq.Ft. (29.8%)

PROJECT DATA

SECTION
A / S3 — SECTION IDENTIFICATION / SHEET NUMBER

STRUCTUAL DETAIL
D1 / S4 — DETAIL IDENTIFICATION / SHEET NUMBER

SHEARWALL
A — SHEARWALL IDENTIFICATION / SHEARWALL NUMBER

INTERIOR ELEVATION
D — INT. ELEV. IDENTIFICATION / INT. ELEV. LETTER/ NUMBER

WINDOW SYMBOL
J — WIN. SYM. IDENTIFICATION / WIN. SYM. LETTER

NEW CONSTRUCTION (Additions Only)
EXISTING CONSTRUCTION (Additions Only)
EXISTING WALLS REMOVED (Additions Only)
AREA OF ADDITION (See Site Plan)
"SIMPSON" HOLDOWN: N/A
"SIMPSON" HOLDOWN: N/A
"SIMPSON" STRAP: N/A
"SIMPSON" STRAP: N/A

CONSTRUCTION LEGEND

REVISIONS	BY

Professional Members of AIBD

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MONJOIN RESIDENCE
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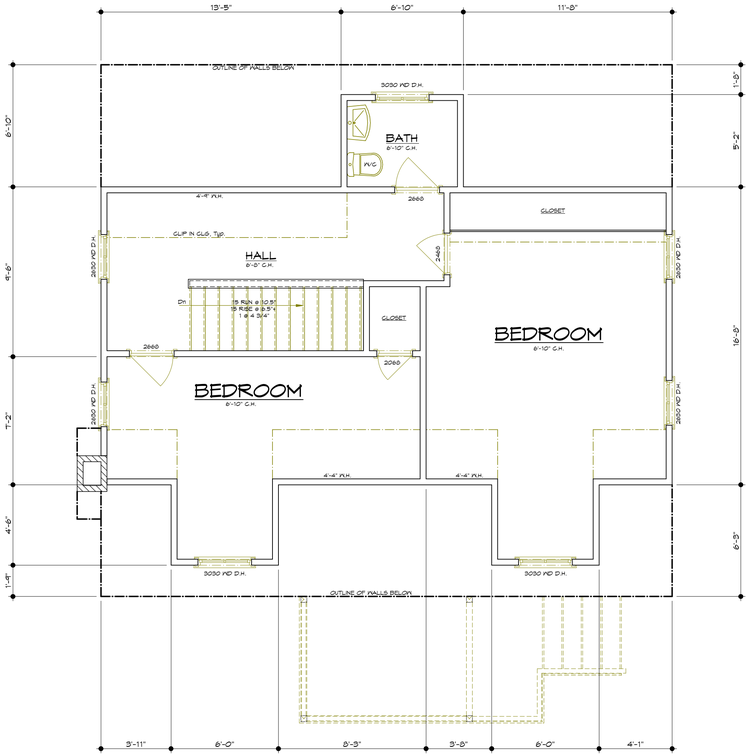
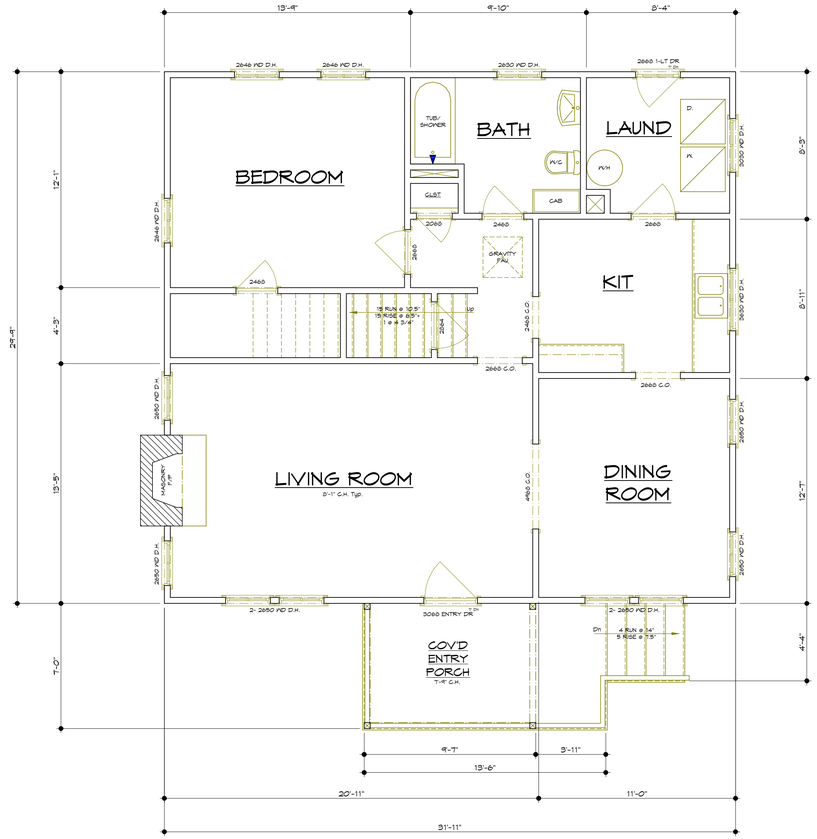
REDWOOD CITY, CALIF. 94062
A.P.N:057-203-050

-SITE PLAN
-SITE MAP
-PROJECT DATA
-CONSTRUCTION LEGEND

DRAWN: DB
CHECKED: DB
DATE: 2.26.20
SCALE: 1/8"=1'-0"
JOB NO.: 19-101
SHEET: A1
OF 29 SHEETS



EXISTING UPPER LEVEL FLOOR PLAN (To Be Demo'd)



EXISTING MAIN LEVEL FLOOR PLAN (To Be Demo'd)

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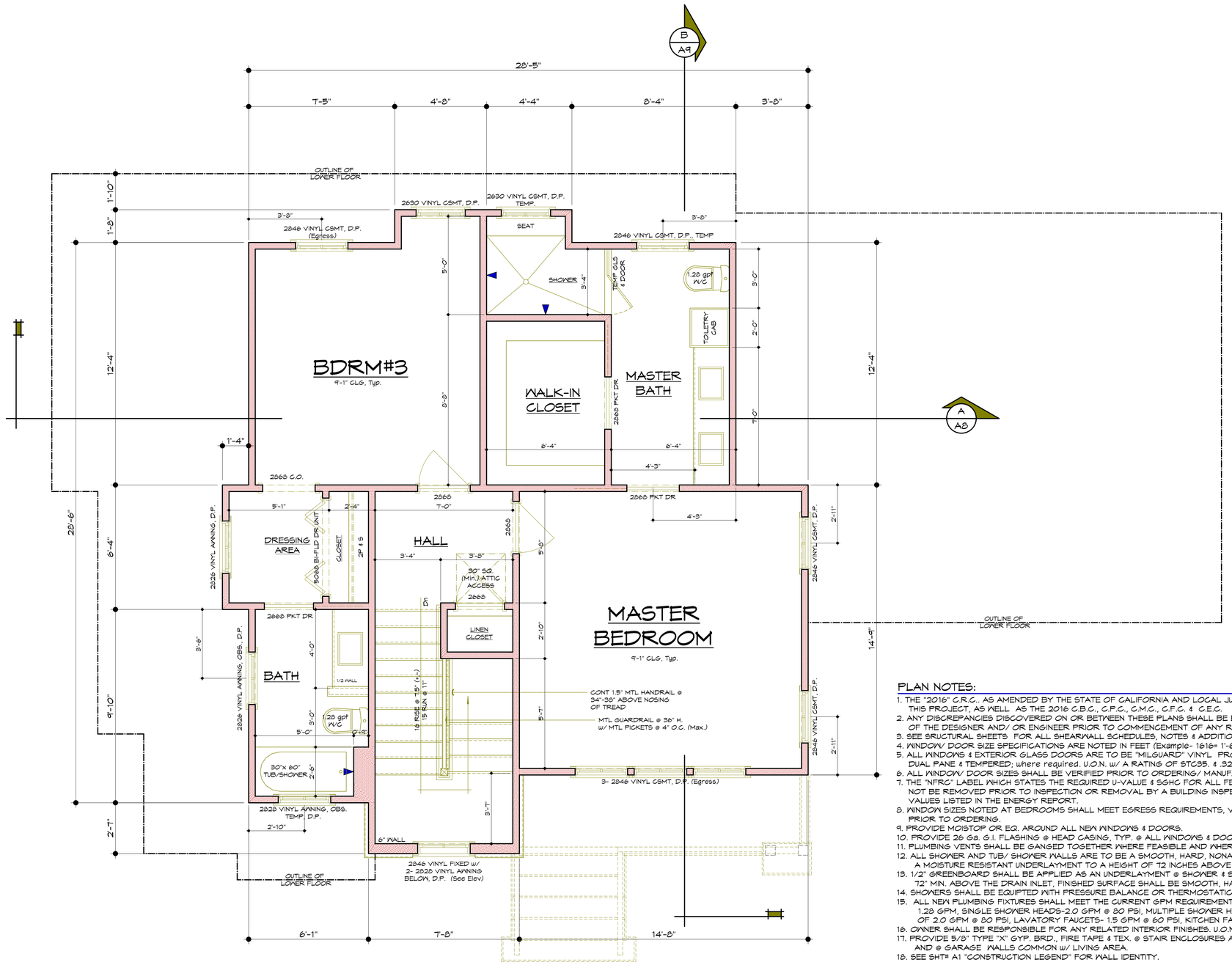
A.P.N.057-203-050

-EXISTING MAIN LEVEL & UPPER LEVEL FLOOR PLANS

DRAWN	DB
CHECKED	DB
DATE	2.26.20
SCALE	1/4"=1'-0"
JOB NO.	19-101
SHEET	A3

OF 29 SHEETS



PROPOSED UPPER LEVEL FLOOR PLAN

PLAN NOTES:

1. THE "2016" C.R.C., AS AMENDED BY THE STATE OF CALIFORNIA AND LOCAL JURISDICTION ARE APPLICABLE TO THIS PROJECT, AS WELL AS THE 2016 C.B.C., C.P.C., C.M.C., C.F.C. & C.E.C.
2. ANY DISCREPANCIES DISCOVERED ON OR BETWEEN THESE PLANS SHALL BE BROUGHT TO THE ATTENTION OF THE DESIGNER AND/ OR ENGINEER PRIOR TO COMMENCEMENT OF ANY RELATED WORK.
3. SEE SRUCTURAL SHEETS FOR ALL SHEARWALL SCHEDULES, NOTES & ADDITIONAL DETAILING.
4. WINDOW/ DOOR SIZE SPECIFICATIONS ARE NOTED IN FEET (Example- 1616= 1'-6"X 1'-6").
5. ALL WINDOWS & EXTERIOR GLASS DOORS ARE TO BE "MILGUARD" VINYL PRODUCTS, DUAL PANE & TEMPERED; where required. U.O.N. w/ A RATING OF STC35, & .32 U-VALUE
6. ALL WINDOW/ DOOR SIZES SHALL BE VERIFIED PRIOR TO ORDERING/ MANUFACTURING.
7. THE "NFRC" LABEL WHICH STATES THE REQUIRED U-VALUE & SGHC FOR ALL FENESTRATION PRODUCTS SHALL NOT BE REMOVED PRIOR TO INSPECTION OR REMOVAL BY A BUILDING INSPECTOR, AND SHALL REFLECT THE VALUES LISTED IN THE ENERGY REPORT.
8. WINDOW SIZES NOTED AT BEDROOMS SHALL MEET EGRESS REQUIREMENTS, VERIFY WITH MANUFACTURER PRIOR TO ORDERING.
9. PROVIDE MOISTOP OR EQ. AROUND ALL NEW WINDOWS & DOORS.
10. PROVIDE 26 Ga. G.I. FLASHING @ HEAD CASING, TYP. @ ALL WINDOWS & DOORS.
11. PLUMBING VENTS SHALL BE GANGED TOGETHER WHERE FEASIBLE AND WHERE CODE ALLOWS.
12. ALL SHOWER AND TUB/ SHOWER WALLS ARE TO BE A SMOOTH, HARD, NONABSORBENT SURFACE OVER A MOISTURE RESISTANT UNDERLAYMENT TO A HEIGHT OF 72 INCHES ABOVE THE DRAIN INLET.
13. 1/2" GREENBOARD SHALL BE APPLIED AS AN UNDERLAYMENT @ SHOWER & SHOWER/ TUB ENCLOSURES, 72" MIN. ABOVE THE DRAIN INLET, FINISHED SURFACE SHALL BE SMOOTH, HARD, & NON-ABSORBING.
14. SHOWERS SHALL BE EQUIPTED WITH PRESSURE BALANCE OR THERMOSTATIC MIXING VALVE CONTROLS.
15. ALL NEW PLUMBING FIXTURES SHALL MEET THE CURRENT GPM REQUIREMENTS AS NOTED; WATER CLOSETS- 1.28 GPM, SINGLE SHOWER HEADS-2.0 GPM @ 80 PSI, MULTIPLE SHOWER HEADS- COMBINED FLOW RATE OF 2.0 GPM @ 80 PSI, LAVATORY FAUCETS- 1.5 GPM @ 60 PSI, KITCHEN FAUCETS- 1.8 GPM @ 60 PSI.
16. OWNER SHALL BE RESPONSIBLE FOR ANY RELATED INTERIOR FINISHES. U.O.N.
17. PROVIDE 5/8" TYPE "X" GYP. BRD., FIRE TAPE & TEX. @ STAIR ENCLOSURES AND LIDS AND @ GARAGE WALLS COMMON w/ LIVING AREA.
18. SEE SHT# A1 "CONSTRUCTION LEGEND" FOR WALL IDENTITY.

REVISIONS	BY

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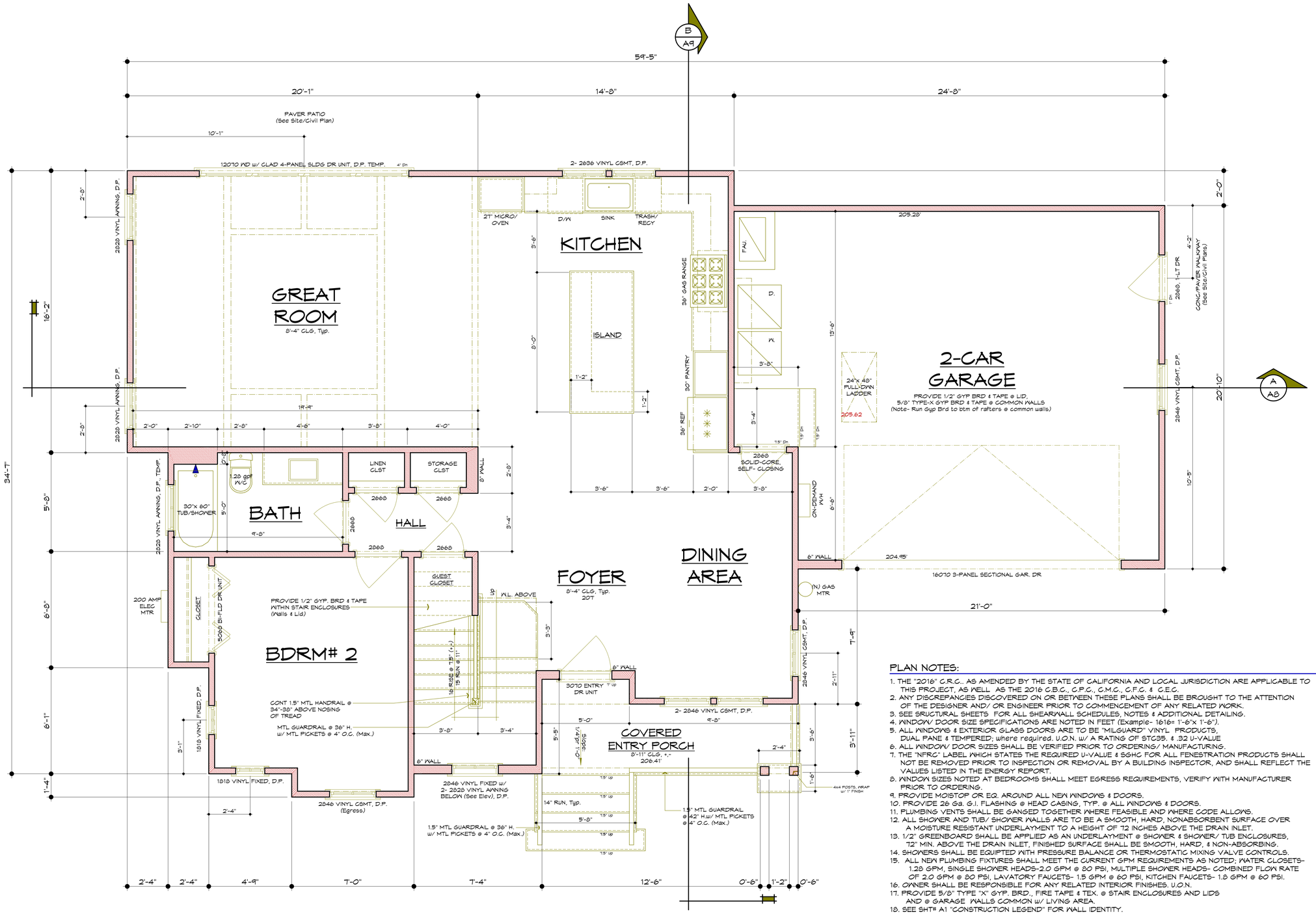
A.P.N.:051-203-050

-PROPOSED UPPER LEVEL FLOOR PLAN

DRAWN	DB/LN
CHECKED	DB
DATE	2.26.20
SCALE	3/8"=1'-0"
JOB NO.	19-101
SHEET	A4.1

OF 29 SHEETS



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8. WINDOW SIZES NOTED AT BEDROOMS SHALL MEET EGRESS REQUIREMENTS, VERIFY WITH MANUFACTURER PRIOR TO ORDERING.
9. PROVIDE MOISTOP OR EQ. AROUND ALL NEW WINDOWS & DOORS.
10. PROVIDE 26 Ga. G.I. FLASHING @ HEAD CASING, TYP. @ ALL WINDOWS & DOORS.
11. PLUMBING VENTS SHALL BE GANGED TOGETHER WHERE FEASIBLE AND WHERE CODE ALLOWS.
12. ALL SHOWER AND TUB/ SHOWER WALLS ARE TO BE A SMOOTH, HARD, NONABSORBENT SURFACE OVER A MOISTURE RESISTANT UNDERLAYMENT TO A HEIGHT OF 72 INCHES ABOVE THE DRAIN INLET.
13. 1/2" GREENBOARD SHALL BE APPLIED AS AN UNDERLAYMENT @ SHOWER & SHOWER/ TUB ENCLOSURES, 72" MIN. ABOVE THE DRAIN INLET, FINISHED SURFACE SHALL BE SMOOTH, HARD, & NON-ABSORBING.
14. SHOWERS SHALL BE EQUIPTED WITH PRESSURE BALANCE OR THERMOSTATIC MIXING VALVE CONTROLS.
15. ALL NEW PLUMBING FIXTURES SHALL MEET THE CURRENT GPM REQUIREMENTS AS NOTED; WATER CLOSETS- 1.28 GPM, SINGLE SHOWER HEADS- 2.0 GPM @ 80 PSI, MULTIPLE SHOWER HEADS- COMBINED FLOW RATE OF 2.0 GPM @ 80 PSI, LAVATORY FAUCETS- 1.5 GPM @ 60 PSI, KITCHEN FAUCETS- 1.8 GPM @ 60 PSI.
16. OWNER SHALL BE RESPONSIBLE FOR ANY RELATED INTERIOR FINISHES. U.O.N.
17. PROVIDE 5/8" TYPE "X" GYP. BRD., FIRE TAPE & TEX. @ STAIR ENCLOSURES AND LIDS AND @ GARAGE WALLS COMMON w/ LIVING AREA.
18. SEE SHT# A1 "CONSTRUCTION LEGEND" FOR WALL IDENTITY.

PROPOSED MAIN LEVEL FLOOR PLAN

REVISIONS	BY

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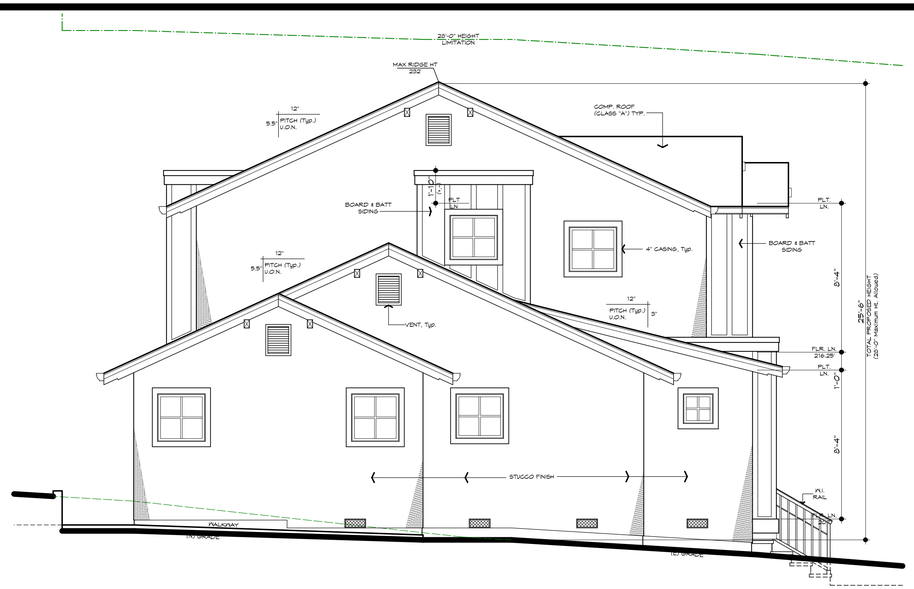
A.P.N:051-203-050

-PROPOSED MAIN LEVEL FLOOR PLAN

DRAWN	DB
CHECKED	DB
DATE	2.28.20
SCALE	3/8"=1'-0"
JOB NO.	19-101
SHEET	A4

OF 29 SHEETS



PROPOSED LEFT SIDE ELEVATION

PROPOSED FRONT ELEVATION

W/I MATERIALS
-STUCCO
-"HARDIE" BOARD
-"HARDIE" CASING
-"HARDIE" TRIM
-COMPOSITION ROOFING (Class "A")

PROPOSED REAR ELEVATION

PROPOSED RIGHT SIDE ELEVATION

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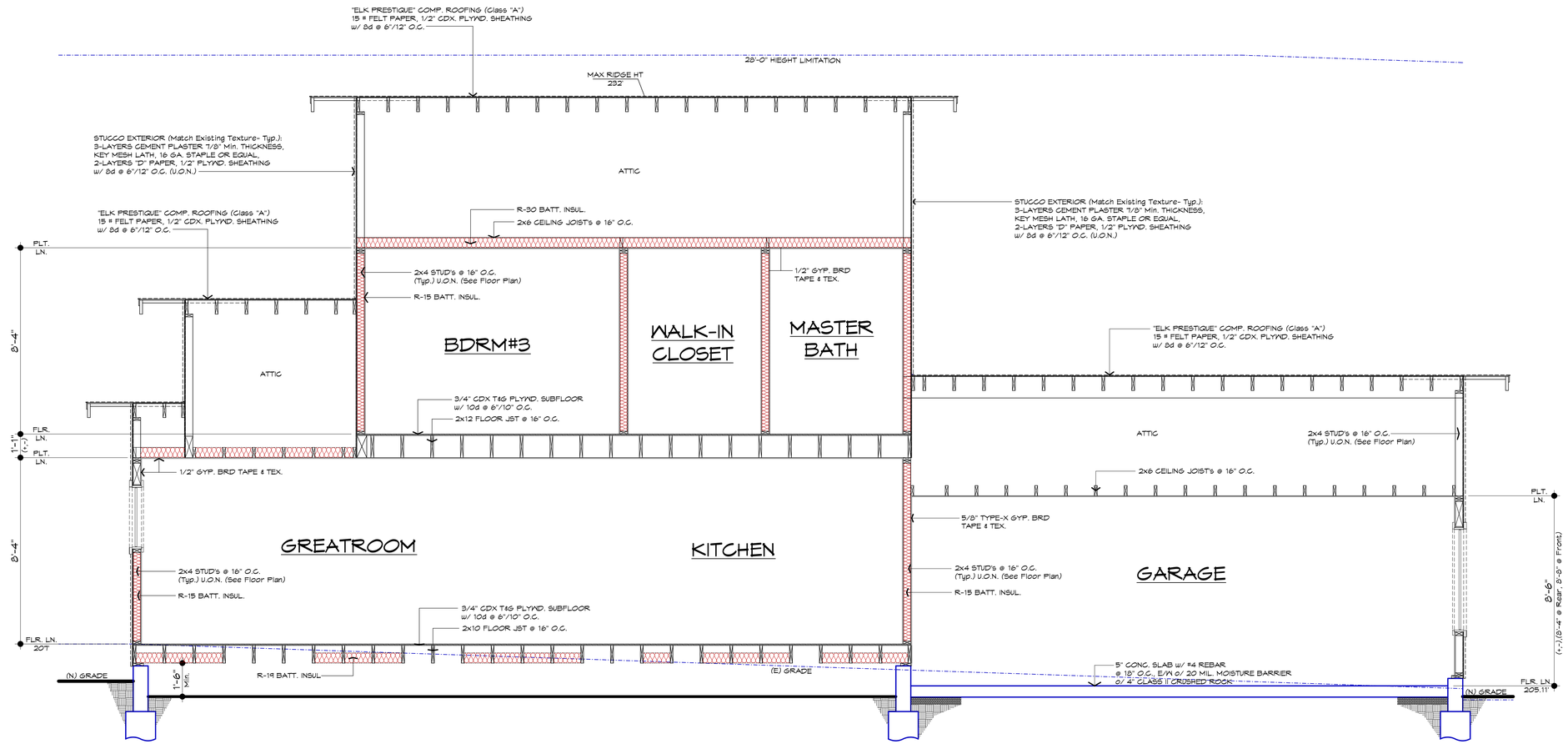
A.P.NO.:057-203-050

-PROPOSED EXTERIOR ELEVATIONS

DRAWN	DB/RG
CHECKED	DB
DATE	2.26.20
SCALE	1/4"=1'-0"
JOB NO.	19-101
SHEET	A5

OF 29 SHEETS



SECTION "A-A"

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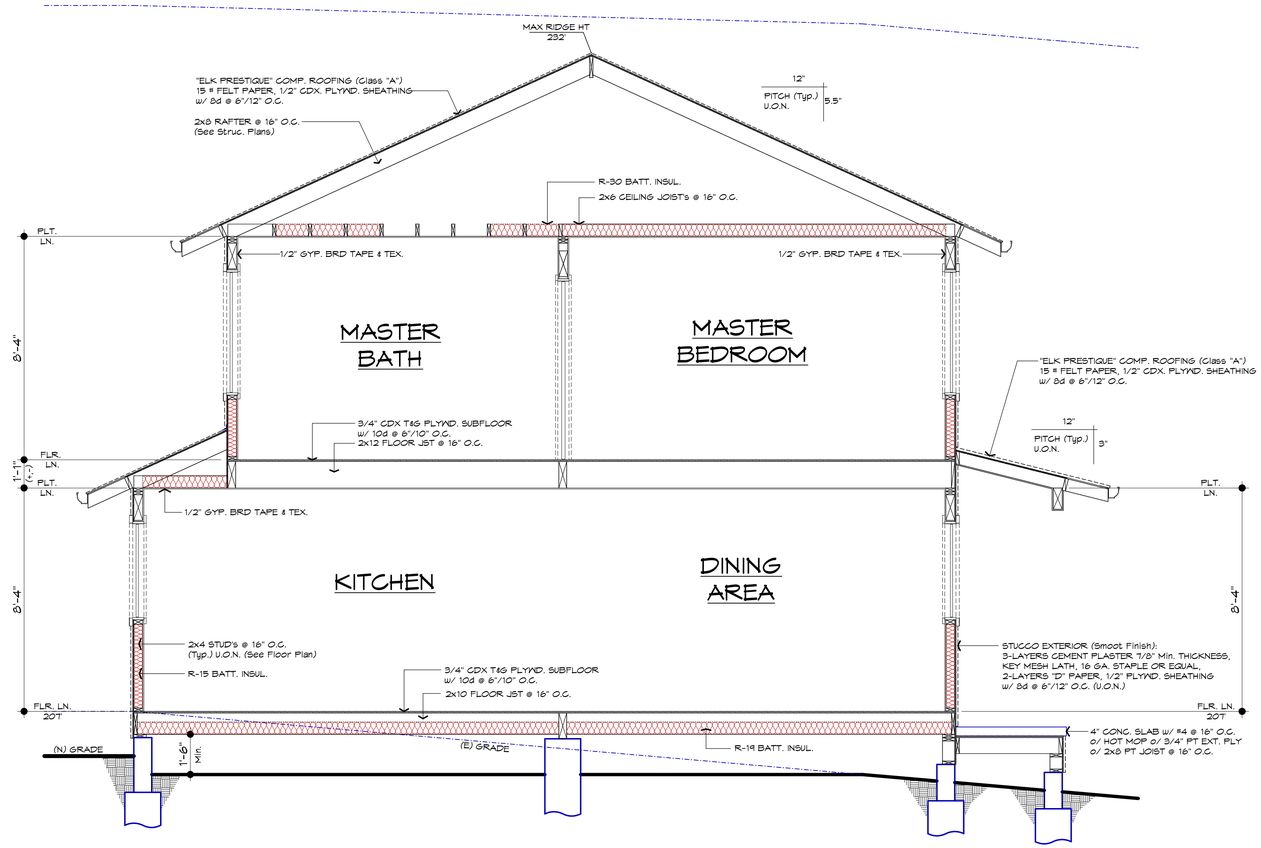
A.P.N.057-203-050

-SECTION "A-A"

DRAWN	DB
CHECKED	DB
DATE	2.26.20
SCALE	3/8"=1'-0"
JOB NO.	19-101
SHEET	A8

OF 29 SHEETS



SECTION "B-B"

REVISIONS	BY

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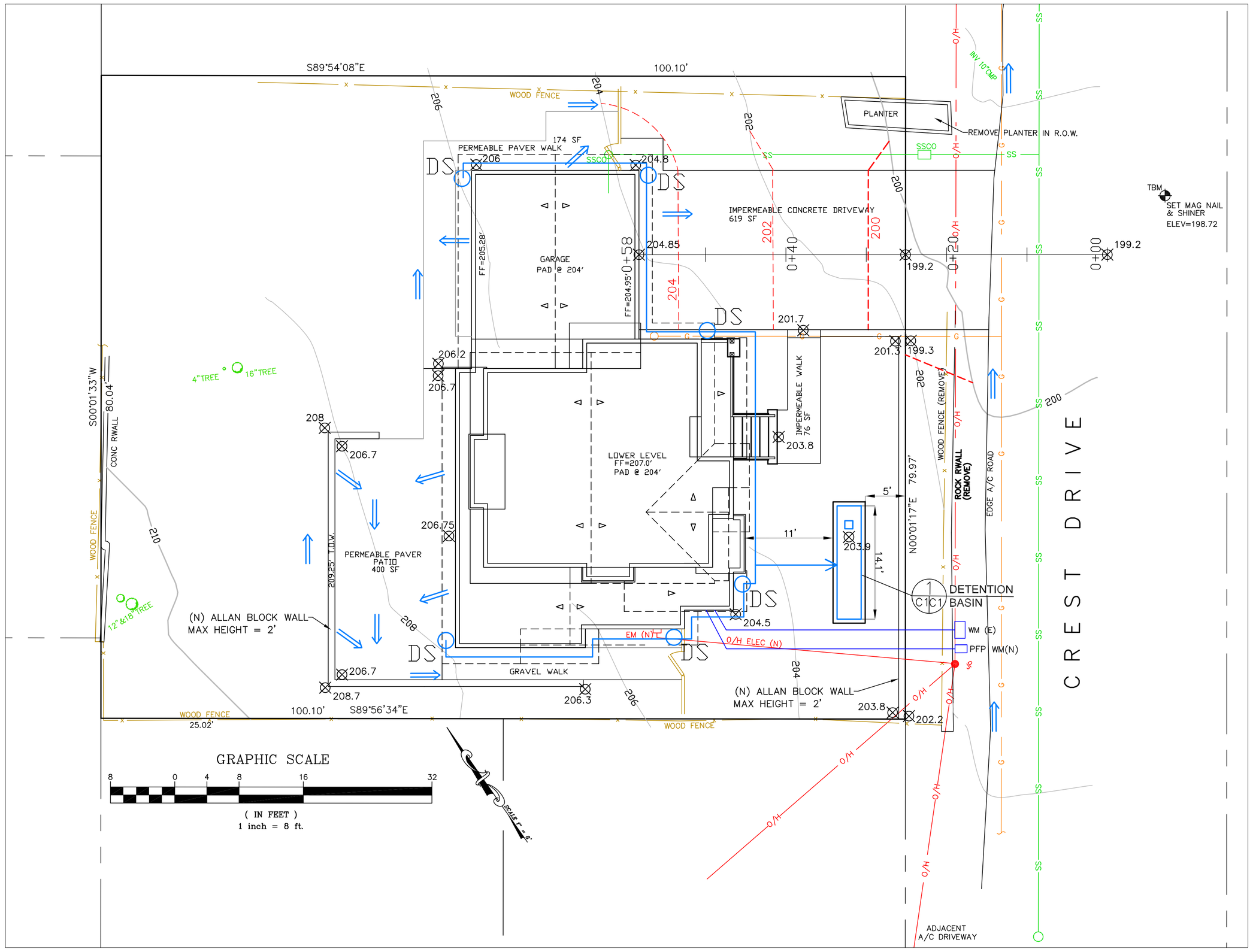
A.P.NO.57-203-050

-SECTION "B-B"

DRAWN	DB
CHECKED	DB
DATE	2.26.20
SCALE	3/8"=1'-0"
JOB NO.	19-101
SHEET	A9

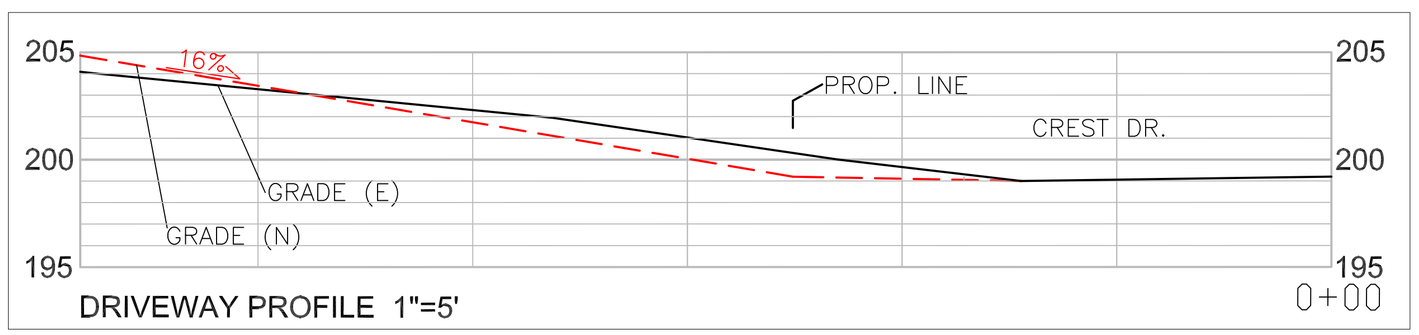
OF 29 SHEETS



GRAPHIC SCALE

8 0 4 8 16 32

(IN FEET)
1 inch = 8 ft.



DRIVEWAY PROFILE 1"=5'

LEGEND

- EXISTING 5' CONTOUR
- EXISTING 1' CONTOUR
- PROPOSED CONTOUR
- 199.2 SPOT ELEVATION (N)
- SURFACE DRAINAGE FLOW
- DS DOWNSPOUT
- 4" DIAM. PVC DRAIN PIPE

GENERAL NOTES

1. PLANS PREPARED AT REQUEST OF: EVELYNE MONJOIN, PROPERTY OWNER.
2. ELEVATION DATUM: ASSUMED
3. CONTOUR INTERVAL IS 1 FOOT.
4. SITE SURVEYED BY B&H SURVEYING, SURVEYED JUNE, 2019.
5. THIS IS NOT A BOUNDARY SURVEY.

DRAINAGE NOTES

1. DRAINAGE INTENT: IT IS THE INTENT OF THE DRAINAGE SYSTEM TO CONVEY ROOF RUNOFF AND RUNOFF FROM PAVED AREAS TO A SAFE LOCATION, AND TO MINIMIZE EXCESSIVE MOISTURE AROUND FOUNDATIONS.
2. ALL ROOF DRAIN LINES SHALL LEAD TO DETNETION BASIN SHOWN.
3. ALL DRAINAGE PIPES SHALL BE 4" MIN. DIAMETER SOLID PIPE, SLOPED AT 1% MINIMUM.
4. IT IS THE PROPERTY OWNER'S RESPONSIBILITY TO CHECK ON ALL STORMWATER FACILITIES SUCH AS ROOF GUTTERS, DOWNSPOUTS LINES, AND THE BIORETENTION AREA TO BE SURE THAT THEY ARE CLEAR OF EXCESSIVE DEBRIS AND OPERATING EFFICIENTLY. THE FACILITIES SHALL BE CHECKED EVERY FALL AND PERIODICALLY DURING THE RAINY SEASON.

GRADING NOTES

CUT VOLUME : 95 CY (FOR FOUNDATIONS, MINOR CUT FOR PATIO, CRAWL SPACE)
FILL VOLUME: 0 CY

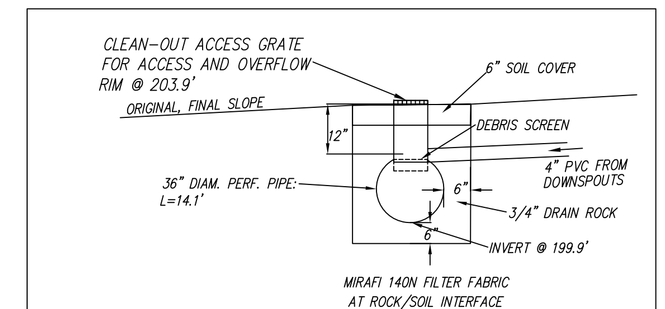
ABOVE VOLUMES ARE APPROXIMATE.

ALL GRADING SHALL CONFORM TO LOCAL CODES AND ORDINANCES.

SECTION AND DETAIL CONVENTION

SECTION OR DETAIL IDENTIFICATION — 1 / C1C1 — REFERENCE SHEET No. ON WHICH SECTION OR DETAIL IS SHOWN

REFERENCE SHEET No. FROM WHICH SECTION OR DETAIL IS TAKEN



DESIGN BASIS: 10-YEAR STORM EVENT WITH 1 HOUR DURATION ON HARD SURFACES.
RAINFALL INTENSITY = 0.883 IN/HR

1 / C1C1 DETENTION SYSTEM
NOT TO SCALE

REGISTERED PROFESSIONAL ENGINEER
CHARLES M. KISSICK
No. 62264
9-30-21
EXPIRES
CIVIL
STATE OF CALIFORNIA

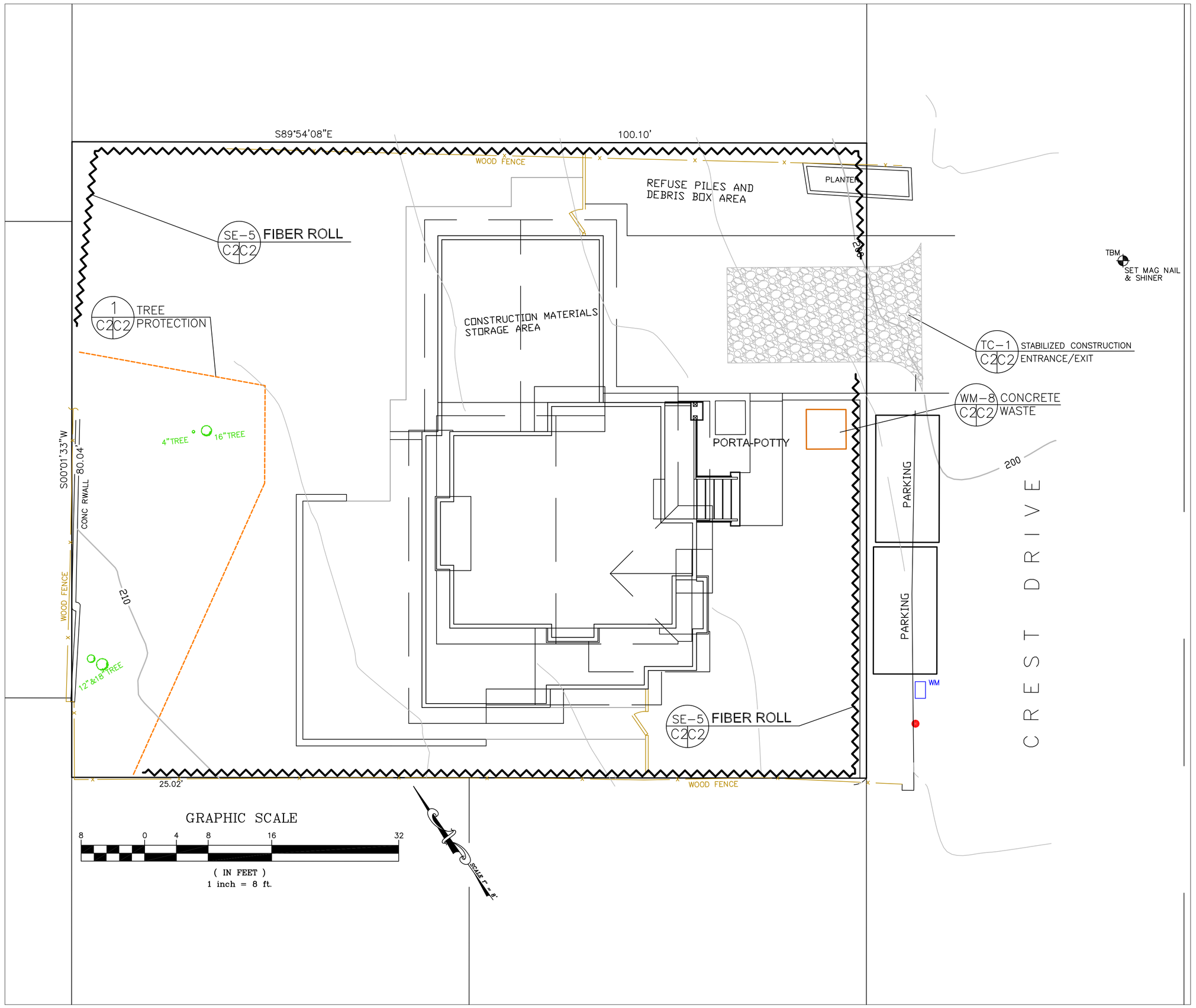
Sigma Prime Geosciences, Inc.
SIGMA PRIME GEOSCIENCES, INC.
332 PRINCETON AVENUE
HALF MOON BAY, CA 94019
(650) 728-3590
FAX 728-3593

DATE: 11-26-19
DRAWN BY: CMK
CHECKED BY: AZG
REV. DATE: 2-28-20
REV. DATE:
REV. DATE:
REV. DATE:
REV. DATE:

GRADING AND DRAINAGE PLAN

MONJOIN PROPERTY
411 CREST DRIVE,
EMERALD HILLS
APN 057-203-050

SHEET
C-1



GENERAL EROSION AND SEDIMENT CONTROL NOTES

FIBER ROLL
INSTALL AT LOCATIONS SHOWN.
AFIX AS SHOWN IN DETAIL SE-5

- There will be no stockpiling of soil. All excavated soil will be hauled off-site as it is excavated.
- Perform clearing and earth-moving activities only during dry weather. Measures to ensure adequate erosion and sediment control shall be installed prior to earth-moving activities and construction.
- Erosion control materials to be on-site during off-season.
- Measures to ensure adequate erosion and sediment control are required year-round. Stabilize all denuded areas and maintain erosion control measures continuously between October 1 and April 30.
- Store, handle, and dispose of construction materials and wastes properly, so as to prevent their contact with stormwater.
- Control and prevent the discharge of all potential pollutants, including pavement cutting wastes, paints, concrete, petroleum products, chemicals, wash water or sediments, and non-stormwater discharges to storm drains and watercourses.
- Avoid cleaning, fueling, or maintaining vehicles on-site, except in a designated area where wash water is contained and treated.
- Limit and time applications of pesticides and fertilizers to prevent polluted runoff.
- Limit construction access routes to stabilized, designated access points
- Avoid tracking dirt or other materials off-site; clean off-site paved areas and sidewalks using dry sweeping methods.
- Train and provide instruction to all employees and subcontractors regarding the Watershed Protection Maintenance Standards and construction Best Management Practices.
- Placement of erosion materials is required on weekends and during rain events.
- The areas delineated on the plans for parking, grubbing, storage etc., shall not be enlarged or "run over."
- Dust control is required year-round.
- Erosion control materials shall be stored on-site.

EROSION CONTROL POINT OF CONTACT

THIS PERSON WILL BE RESPONSIBLE FOR EROSION CONTROL AT THE SITE AND WILL BE THE COUNTY'S MAIN POINT OF CONTACT IF CORRECTIONS ARE REQUIRED.

NAME: EVELYNE MONJOIN

TITLE/QUALIFICATION: OWNER

PHONE: 650-767-7746

PHONE:

E-MAIL: EVELYNE.MONJOIN@GMAIL.COM

REGISTERED PROFESSIONAL ENGINEER
CHARLES M. KISSICK
No. 62264
9-30-21
EXPIRES
CIVIL
STATE OF CALIFORNIA

TREE PROTECTION NOTES

1. TREE PROTECTION FENCING SHALL BE INSTALLED PRIOR TO ANY GRADING AND REMAIN ON-SITE THROUGHOUT CONSRUCTION PROCESS.

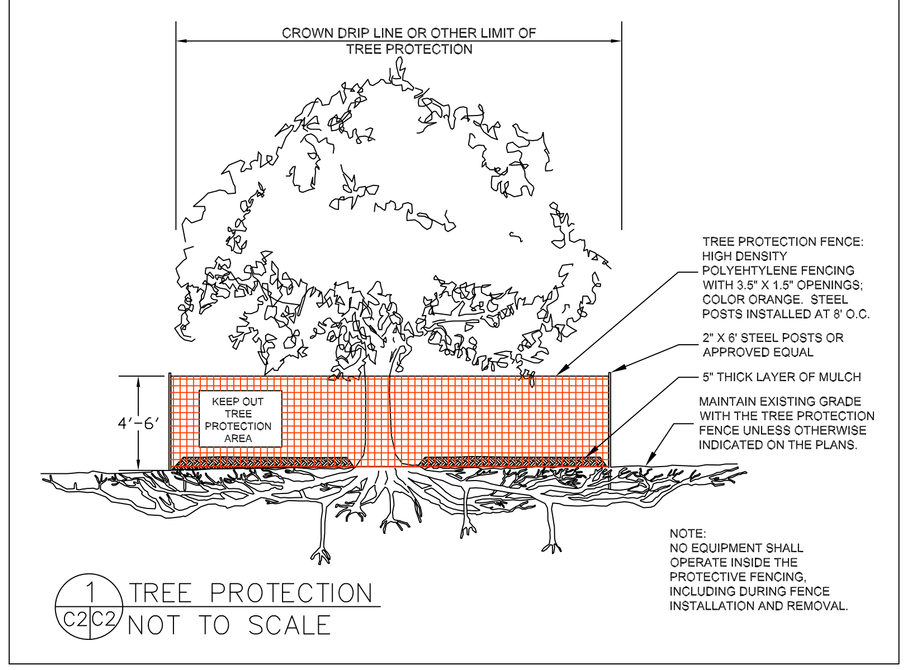
2. TREE PROTECTION FENCES SHALL BE INSTALLED AS CLOSE TO DRIP LINES AS POSSIBLE.

3. OWNER/BUILDER SHALL MAINTAIN TREE PROTECTION ZONES FREE OF EQUIPMENT AND MATERIALS STORAGE AND SHALL NOT CLEAN ANY EQUIPMENT WITHIN THESE AREAS.

4. ANY LARGE ROOTS THAT NEED TO BE CUT SHALL BE INSPECTED BY A CERTIFIED ARBORIST OR REGISTERED FORESTER PRIOR TO CUTTING, AND MONITORED AND DOCUMENTED.

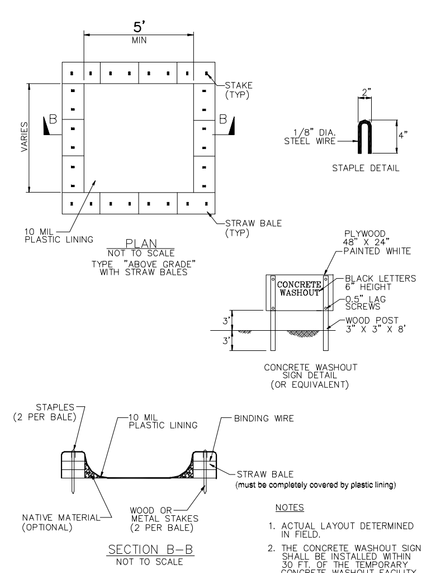
5. ROOTS TO BE CUT SHALL BE SEVERED WITH A SAW OR TOPPER.

6. PRE-CONSTRUCTION SITE INSPECTION WILL BE REQUIRED PRIOR TO ISSUANCE OF BUILDING PERMIT.

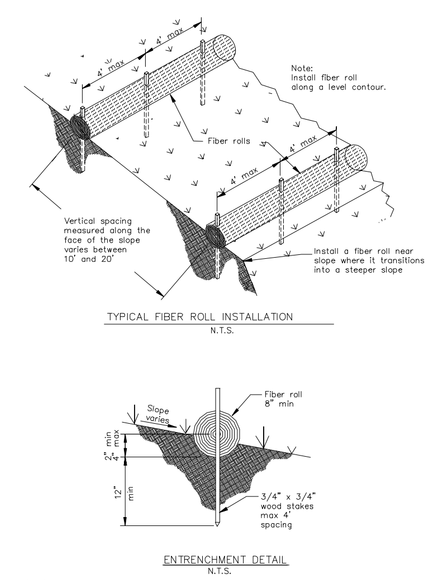


1 C2C2 TREE PROTECTION
NOT TO SCALE

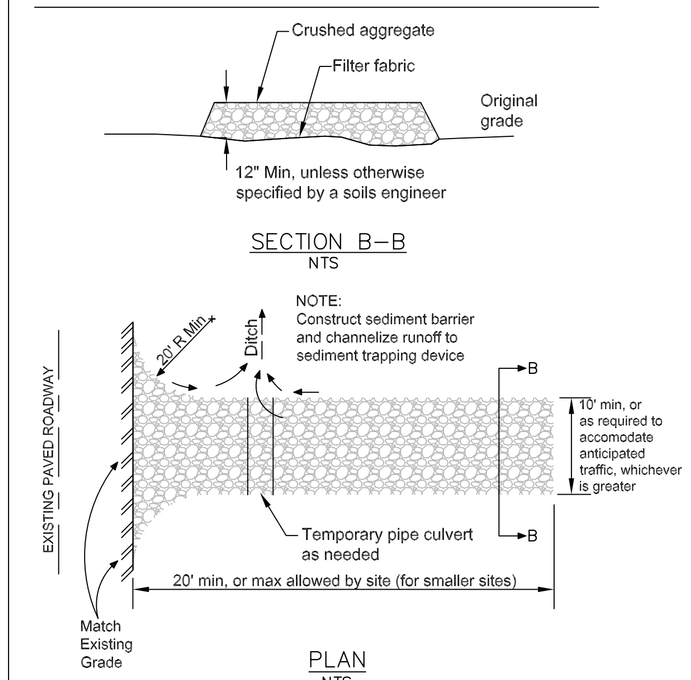
CONCRETE WASTE MANAGEMENT WM-8



FIBER ROLLS SE-5



STABILIZED CONSTRUCTION ENTRANCE/EXIT TC-1



Sigma Prime Geosciences, Inc.

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DATE: 11-26-19
DRAWN BY: CMK
CHECKED BY: AZG
REV. DATE:
REV. DATE:
REV. DATE:

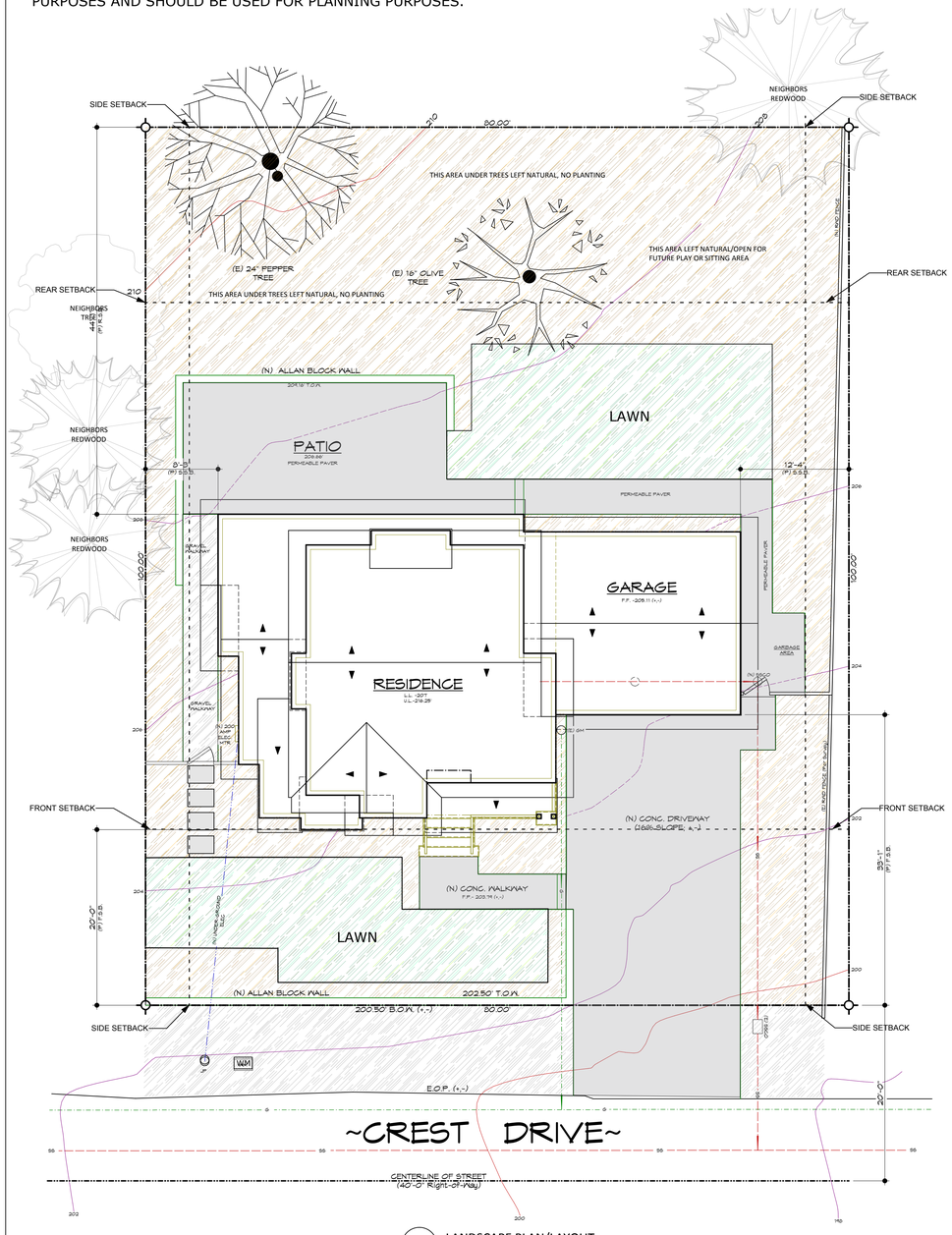
EROSION AND SEDIMENT CONTROL PLAN

MONJOIN PROPERTY
411 CREST DRIVE,
EMERALD HILLS
APN 057-203-050

SHEET
C-2

GENERAL NOTES

1. ALL HORIZONTAL AND VERTICAL DIMENSIONS SHOWN ARE APPROXIMATE, CONTRACTOR SHALL VERIFY EXISTING CONDITIONS ON SITE.
2. ALL WORK TO BE INSTALLED TO PROFESSIONAL STANDARDS AND MANUFACTURERS SPECIFICATIONS.
3. CONTRACTOR MUST DISCUSS AND CHANGES OR ALTERATIONS OF THE PLAN WITH DESIGNER AND OWNER.
4. CONTRACTOR SHALL CONFORM TO ALL LOCAL BUILDING CODES, LAWS AND REGULATIONS, AND OBTAIN ALL NECESSARY APPROVALS AND PERMITS PRIOR TO BEGINNING CONSTRUCTION.
5. THIS DRAWING IS NOT A SURVEY OR CONSTRUCTION DOCUMENT. IT IS PROVIDED FOR CONCEPTUAL PURPOSES AND SHOULD BE USED FOR PLANNING PURPOSES.



1 LANDSCAPE PLAN/LAYOUT
Scale: 1/8" = 1'-0"

TRUE# PLAN NORTH

0 5 10 15 20 25 FT

SITE INFORMATION

SITE ADDRESS: 411 CREST DRIVE
REDWOOD CITY, CA 94062

TOTAL LANDSCAPE AREA: 4211 SF
TOTAL IRRIGATED AREA: 2951 SF
TOTAL LAWN AREA: 1038 SF
WATER SUPPLY: MUNICIPAL WATER

PROJECT ADDRESS:	411 CREST DRIVE, REDWOOD CITY, CA 94062
TOTAL LANDSCAPE AREA:	4211 SF
IRRIGATED LANDSCAPE AREA:	3065 SF
LAWN AREA:	1035 SF
WATER SUPPLY:	MUNICIPAL WATER

MWELO

"I HAVE COMPLIED WITH THE CRITERIA OF THE ORDINANCE AND APPLIED THEM FOR THE EFFICIENT USE OF WATER IN THE LANDSCAPE DESIGN PLANS"

SIGNED:

EVELYNE MONJOIN
APPLICANT/OWNER

A DIAGRAM OF THE IRRIGATION PLAN SHOWING HYDROZONES SHALL BE KEPT WITH THE IRRIGATION CONTROLLER FOR SUBSEQUENT MANAGEMENT PURPOSES.

A CERTIFICATE OF COMPLETION SHALL BE FILLED OUT AND CERTIFIED BY EITHER THE DESIGNER OF THE LANDSCAPE PLANS, IRRIGATION PLANS, OR THE LICENSED LANDSCAPE CONTRACTOR FOR THE PROJECT.

AN IRRIGATION AUDIT REPORT SHALL BE COMPLETED AT THE TIME OF FINAL INSPECTION.

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MONJOIN PROJECT
411 CREST DRIVE
REDWOOD CITY, CA 94062

LANDSCAPE DESIGN CONCEPT PLAN

DATE
02/24/2020
REVISION

SCALE

NORTH

SHEET
L1

Sunland Analytical

11419 Sunrise Gold Circle, #10
Rancho Cordova, CA 95742
(916) 852-8557

Date Reported 11/13/2019
Date Submitted 11/06/2019

To: Tina Roushall
Roushall Gardens
160 Hillview Ave.
Redwood City, CA 94062

From: Gene Oliphant, Ph.D. \ Randy Horney
General Manager \ Lab Manager

The reported analysis was requested for the following:
Location : MONJOIN/411 CREST DR Site ID : REDWOOD CITY.
Thank you for your business.

* For future reference to this analysis please use SUN # 80920-169047.

SOIL ANALYSIS

Saturation Percent (SP)	64		Soil Texture Clay Loam
pH	6.71		
E.C.	0.71	mmho/cm	
Tot.Dissolved Salts	454.4	ppm	
Infiltration Rate (0% Slope)	0.25	in/hr	
% Organic Matter	15.2		
C.E.C.	33.7	meq/100g	
Sodium Absorption Ratio (SAR)	1.2		
Exchangable Sodium Percent (ESP)	0.5		
Gypsum Req. (CaSO4*2H2O)	None Required		
est. Nitrogen Release	3.9	#/1000 sq.ft.	

Nitrate	0.05	ppm	*
Phosphorus	2.47	ppm	**
Potassium	429.17	ppm	*************************
Sulfur	10.53	ppm	************
Chloride	30.64	ppm	************
Carbonates	338.18	ppm	******************************
Sodium	40.18	ppm	
Calcium	4132.91	ppm	************************
Magnesium	1434.66	ppm	**************************
Boron	0.49	ppm	**************
Copper	1.85	ppm	*****************
Iron	47.02	ppm	*****************
Manganese	15.67	ppm	*****************
Zinc	14.37	ppm	**********************************

Very Low | Low | Adequate | Excessive

* High Organic Matter creates significant error in Texture determinations.

Sunland Analytical

11419 Sunrise Gold Circle, #10
Rancho Cordova, CA 95742
(916) 852-8557

DATE 11/13/2019
SUN NUMBER 169047

Information requested by:
Tina Roushall
Roushall Gardens

Information for:
MONJOIN/411 CREST DR
Sample ID: REDWOOD CITY

SOIL RECOMMENDATIONS FOR LANDSCAPE GARDENING

SOIL pH (Acidity and Alkalinity)
The pH of this sample indicates the soil is in a range for normal growth of most plants. No modification is required.

DISSOLVED SALTS (Indicated by E.C. & TDS)
These conditions are in the normal range for plant growth.

SOIL TEXTURE AND RATE OF WATER INFILTRATION
The infiltration rate for all soil textures decreases with increasing ground slope. At 0 to 4%, 5 to 8%, 9 to 12%, 13 to 16% and above 16% the infiltration rate of this sample decreases from 0.25 to 0.20, 0.15, 0.10, 0.06, respectively. Infiltration rate also decreases with percent of ground cover and by compaction.

WATER PENETRATION OF SOIL DUE TO CHEMICAL CHARACTERISTICS
When exchangable Sodium increases in the soil, water penetration decreases. Based on SAR and ESP values this sample has no penetration problem due to soil Sodium. No Gypsum required.

ORGANIC MATTER
Organic matter provides a slow nitrogen release and aids water retention. This sample has a adequate Organic Matter content.
No further organic matter is essential, a 2-3 in. top dressing will aid water retention.

Sunland Analytical

11419 Sunrise Gold Circle, #10
Rancho Cordova, CA 95742
(916) 852-8557

PAGE #2

DATE 11/13/2019
SUN NUMBER 169047

Information requested by:
Tina Roushall
Roushall Gardens

Information for:
MONJOIN/411 CREST DR
Sample ID: REDWOOD CITY

SOIL RECOMMENDATIONS FOR LANDSCAPE GARDENING

SOIL BORON
Boron concenrations are in a range allowing normal plant growth.

SOIL MICRONUTRIENTS
Micronutrients, Copper, Iron, Manganese and Zinc, in soil are present in small amounts. However, they play a necessary role in plant metabolism. Without appropriate amounts plants will not thrive. Soil has adequate amounts - no application needed.
SOIL MACRONUTRIENTS : NITROGEN-PHOSPHORUS-POTASSIUM (N-P-K)
GENERAL N-P-K RECOMMENDATION

Use ONE of these NPK preparations for the first fertilizer application.

Standard NPK Fertilizer Preparations	6-20-20	5-20-10	16-16-16	0-10-10	28-3-4	21-0-0	Customer Choice None
#/1000 sq.ft.	21	25	N/A	N/A	N/A	N/A	**

GRASS OR SOD PREPARATION
Till in organic matter, N,P,K and micro nutrients in addition to any lime gypsum or sulfur as directed above. Smooth soil surface and follow seed or sod producers direction for moisture and product application.

TREES AND SHRUBS
Excavate holes for planting shrubs and trees to at least twice the volume of the container. Prepare backfill for tree and shrub planting holes by mixing three parts of native soil (or imported top soil) with one part organic amendment (preferably nitrogen and iron fortified) and 2.5 pounds of 6-20-20 per yard of mix. For extended fertilization, place slow release fertilizer tablets in each hole per manufacturer's instructions. If 6-20-20 was not directly added to backfill mix, during backfill apply uniformly 1/2 oz of 6-20-20 per gallon containers, 2.5 oz per 5 gallons, 6 oz per 24 inch boxes.

Sunland Analytical

11419 Sunrise Gold Circle, #10
Rancho Cordova, CA 95742
(916) 852-8557

PAGE #3

DATE 11/13/2019
SUN NUMBER 169047

Information requested by:
Tina Roushall
Roushall Gardens

Information for:
MONJOIN/411 CREST DR
Sample ID: REDWOOD CITY

SOIL RECOMMENDATIONS FOR LANDSCAPE GARDENING

Summary and Suggested Sequence of Soil Improvements (#/1000 Sq.Ft.)

Organic Amendment	None presently required
N-P-K Fertilizer	See above chart
Sulfate-Sulfur	2 # Ammonium Sulfate

Maintenance Fertilization
Apply 5 pounds of Ammonium sulfate (21-0-0) per 1000 sq.ft.every month until plants become established. After established, apply 28-3-4 (or similar preparation) to provide desired growth rate and color.

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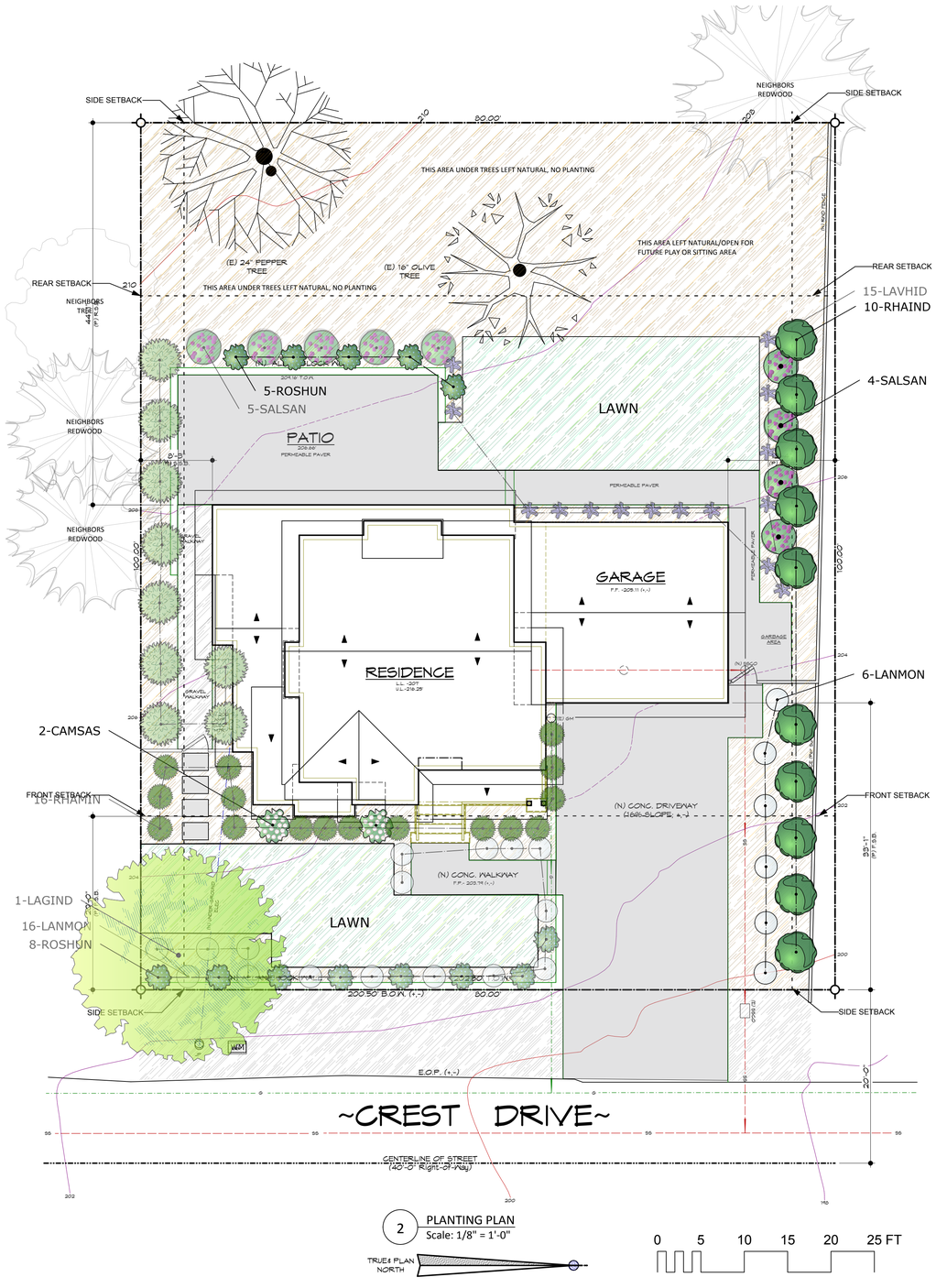
MONJOIN PROJECT
411 CREST DRIVE
REDWOOD CITY, CA 94062

SOIL MANAGEMENT REPORT

DATE
12/16/2019
REVISION

SCALE
NORTH

SHEET
L2.1



2 PLANTING PLAN
Scale: 1/8" = 1'-0"

TRUE & PLAN NORTH

0 5 10 15 20 25 FT

PLANT LIST - MONJOIN CREST PROJECT

HYDROZONE	ID	WUCOLS	Latin Name	Common Name	Scheduled Size	Notes
1	FULL SUN					
	LAGIND	Low	Lagerstroemia indica	Crapemyrtle	24" Box	White, Purple or Pink flowering
	LANMON	Low	Lantana montevidensis	Trailing Lantana	1 Gal	White, Purple or Yellow
	RHAIND	Low	Rhaphiolepis indica	Indian Hawthorn	5 Gal	Clara or Southern Moon
	ROSHUN	Low	Rosmarinus officinalis 'Huntington Carpet'	Huntington Carpet Rosemary	1 Gal	
2	FULL SUN					
	BOLPLU	High	Delta Blue Grass Bolero Plus			
3	PART SUN/PART SHADE					
	PITVAR	Low	Pittosporum tobira 'Variegatum'	Variegated Japanese Mock Orange	5 Gal	
	ROSHUN	Low	Rosmarinus officinalis 'Huntington Carpet'	Huntington Carpet Rosemary	1 Gal	
	SALSAN	Low	Salvia leucantha 'Santa Barbara'	Compact Mexican Sage	1 Gal	
4	MORNING SUN, LAWN BORDER					
	CAMSAS	Moderate	Camellia sasanqua	Sasanqua Camellia	5 Gal	'Buttermint'
	RHAMIN	Low	Rhaphiolepis umbellata 'Minor'	Dwarf Yedda Hawthorn	5 Gal	
5	EXISTING TREES					
	OLEEUR	Very Low	Olea europea	Olive	dbh 16"	
	SCHMOL	Very Low	Schinus molle	Peruvian Pepper	dbh 24"	
6	FULL SUN					
	BOLPLU	High	Delta Blue Grass Bolero Plus			

PLANTING NOTES

1. THE EXISTING SOIL SHALL BE MODIFIED ACCORDING TO RECOMMENDATIONS PROVIDED BY SOIL MANAGEMENT REPORT OR PER LOCAL OR STATE MWELO RECOMMENDATIONS WHICHEVER APPLIES (STATE MWELO - 4 YARDS ORGANIC COMPOST PER 1000SF INCORPORATED A MINIMUM OF 6 INCHES OF SOIL UNLESS CONTRAINDICATED BY A SOIL TEST)
2. DIG A PLANTING HOLE 2 TIMES WIDTH OF CONTAINER AND A LITTLE LESS THAN ONE TIME THE HEIGHT OF THE CONTAINER. SCARIFY THE BOTTOM AND SIDES OF PLANTING HOLE. FILL THE PLANTING HOLE WITH WATER. IF THE SOIL IS HEAVY CLAY, DIG A DRAINAGE SUMP INTO NON-CLAY LAYER (OR AT LEAST 2FT DEEP AND 1' DIAM) AND FILL WITH GRAVEL TO PROVIDE DRAINAGE. SOMETIMES IT IS POSSIBLE TO DRILL MULTIPLE HOLES THROUGH TO NEXT LAYER OF SOIL BELOW THAT WILL PROVIDE THIS DRAINAGE. REMOVE THE PLANT FROM THE CONTAINER. TRIM THE ROOTS OF ROOT-BOUND PLANTS AND BUTTERFLY IT. SET PLANT IN MIDDLE OF PLANTING HOLE SUCH THAT ROOT BALL IS SLIGHTLY ABOVE GROUND LEVEL. BACK FILL WITH A 66-34 MIX OF EXCAVATED SOIL AND COMPOST/PLANTING MIX, OR AS SPECIFIED BY SOIL ANALYSIS. TAMP FIRMLY AROUND ROOT BALL. DEEP WATER IMMEDIATELY.
3. APPLY A LAYER OF AT LEAST 3" OF BARK MULCH OVER THE ENTIRE PLANTING AREA OR EXPOSED SOIL AREAS EXCEPT TURF AFREA, CREEPING OR ROOTING GROUNDCOVERS, OR DIRECT SEEDING APPLICATIONS WHERE MULCH IS CONTRAINDICATED. KEEP MULCH AWAY FROM TRUNKS/STEM OF PLANT MATERIAL.
4. WATER REGULARLY AND KEEP MOISTER THAN USUAL DURING FIRST YEAR AFTER PLANTING.
5. TREES SHALL BE STAKED WITH A PAIR OF 2 INCH DIAMETER POLES. TREE TRUNK SHALL BE SECURED WITH TWO RUBBER TIES OR STRAPS FORMING A FIGURE-EIGHT BETWEEN THE TRUNK AND THE TWO STAKES. ONLY STAKE TREE IN THE LOWER TWO-THIRDS OF TREE HEIGHT. STAKES AND TIES SHOULD BE REMOVED AFTER ONE YEAR.
6. LANDSCAPE CONTRACTOR SHALL VERIFY PLANT QUANTITIES PRIOR TO SUBMITTING BID FOR WORK. DOCUMENTATION OF PLANTS INSTALLED AND FINAL QUANTITIES SHALL BE PROVIDED TO OWNER.
7. LANDSCAPE DESIGNER CANNOT GUARANTEE PLANT MATERIAL'S WILD LIFE RESISTANCE DUE TO EVER CHANGING HABITS. PLANT MATERIAL IS SELECTED BASED ON BEST KNOWLEDGE OF HABITS OF WILDLIFE IN THE AREA.

PROJECT INFORMATION

PROJECT ADDRESS:	411 CREST DRIVE, REDWOOD CITY, CA 94062
TOTAL LANDSCAPE AREA:	4211 SF
IRRIGATED LANDSCAPE AREA:	3065 SF
LAWN AREA:	1035 SF
WATER SUPPLY:	MUNICIPAL WATER

MWELO SPECIFIC NOTES

1. RECIRCULATING WATER SYSTEMS SHALL BE USED FOR WATER FEATURES.
2. A MINIMUM 3-INCH LAYER OF MULCH SHALL BE APPLIED ON ALL EXPOSED SOIL SURFACES OF PLANTING AREAS EXCEPT TURF AREAS, CREEPING OR ROOTING GROUNDCOVERS, OR DIRECT SEEDING APPLICATIONS WHERE MULCH IS CONTRAINDICATED.
3. FOR SOILS LESS THAN 6% ORGANIC MATTER IN THE TOP 6 INCHES OF SOIL, COMPOST AT A RATE OF A MINIMUM OF FOUR CUBIC YARDS PER 1,000 SQUARE FEET OF PERMEABLE AREA SHALL BE INCORPORATED TO A DEPTH OF SIX INCHES INTO THE SOIL.
4. I HAVE COMPLIED WITH THE CRITERIA OF THE ORDINANCE AND APPLIED THEM FOR THE EFFICIENT USE OF WATER IN THE LANDSCAPE DESIGN PLANS.
5. A DIAGRAM OF THE IRRIGATION PLAN SHOWING HYDROZONES SHALL BE KEPT WITH THE IRRIGATION CONTROLLER FOR SUBSEQUENT MANAGEMENT PURPOSES.
6. A CERTIFICATE OF COMPLETION SHALL BE FILLED OUT AND CERTIFIED BY EITHER THE DESIGNER OF THE LANDSCAPE PLANS, IRRIGATION PLANS, OR THE LICENSED LANDSCAPE CONTRACTOR FOR THE PROJECT.
7. AN IRRIGATION AUDIT REPORT SHALL BE COMPLETED AT THE TIME OF FINAL INSPECTION.

MWELO IRRIGATION AUDIT PREP NOTES

1. MWELO REQUIRES AN AUDIT AFTER THE IRRIGATION IS COMPLETED.
2. INSTALL IRRIGATION AS SPECIFIED. TEST SYSTEM ONCE INSTALLED. MARK DEVIATIONS ON THE PLAN. HAVE THIS "AS BUILT" PLAN HANDY FOR THE AUDIT.
3. INSTALL LAWN AND PLANTS. NOTE DEVIATIONS OF PLANT MATERIAL ON PLANS.
4. HAVE CONTROLLER PROGRAMMED AND WIFI PASSWORD HANDY.
5. CALL AUDITOR AT LEAST 1 WEEK PRIOR TO AUDIT DATE.
6. BE ON SITE WITH AUDITOR FOR APPROX. 1 TO 2 HOURS TO WALK THE PROPERTY AND DISCUSS DEVIATIONS.

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LANDSCAPE DESIGN & CONSULTATION
650.868.6510
www.roushallgardens.com

MONJOIN PROJECT
411 CREST DRIVE
REDWOOD CITY, CA 94062

PLANTING PLAN

DATE
02/24/2020
REVISION

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

SHEET
L2

MWELO SUBMITTAL CHECKLIST

Submittal Date: _____

Project Address: 411 Crest Drive, Redwood City, CA 94062

Applicant Name: Evelyne Monjoin Phone: 650-867-7746

The following checklist provides a list of information that must be included on the plans before your permit application can be processed. This checklist covers both the performance compliance method and the prescriptive compliance method. Please indicate which compliance method is used and provide the appropriate information on the plans.

☑ Performance Approach ☐ Prescriptive Approach (Skip to Page Four)

PERFORMANCE APPROACH
(>2,500 sq ft of landscape area)

Landscape Documentation Package (Title 23, Chapter 2.7 §492.3)

☑ The project's address, total landscape area, water supply type, and contacts shall be stated on the plans.
☑ Add, sign and date the following statement on the plans: "I agree to comply with the requirements of the water efficient landscape ordinance and submit a complete Landscape Documentation Package."
☑ Water Efficient Landscape Worksheet that includes a hydrozone information table and water budget calculations shall be submitted for plan check.
☑ A landscape design plan and irrigation design plan shall be submitted for plan check.
☑ A soil management report shall be submitted with the initial submittal unless the project scope includes mass grading. If a grading permit is required, the report shall be submitted with the Certificate of Completion.

Model Water Efficient Landscape Worksheet (Title 23, Chapter 2.7 §492.4 and §492.13)

☑ Incorporate the Water Efficient Landscape Worksheet into plans. Show that the Maximum Applied Water Allowance (MAWA) meets or exceeds the calculated Estimated Total Water Use (ETWU).
☑ The evapotranspiration adjustment factor (ETAF) for the landscape project shall not exceed a factor of (0.55 for residential areas) (0.45 for non-residential areas).
☑ The plant factor used shall be from WUCOLS or from horticultural researchers with academic institutions. WUCOLS plants database can be found on-line at: http://ucanr.edu/sites/WUCOLS/
☑ All water features shall be included in the high water use hydrozone. All temporary irrigated areas shall be included in the low water use hydrozone.
☑ All Special Landscape areas shall be identified on the plans. The ETAF for new and existing (non-rehabilitated) Special Landscape Areas shall not exceed 1.0.
☑ For the purpose of calculating ETWU, the irrigation efficiency is assumed to be 0.75 for overhead spray devices and 0.81 for drip system devices.

Landscape Design Plan (Title 23, Chapter 2.7 §492.6)

☑ The landscape design plans, at a minimum, shall:
  ☑ Delineate and label each hydrozone by number, letter, or other methods.
  ☑ Identify each hydrozone as low, moderate, high water, or mixed water use.

- ☑ Identify recreational areas, areas solely dedicated to edible plants, areas irrigated with recycled water, type and surface area of water features, impermeable and permeable hardscape, and any infiltration systems.

☑ For hydrozone with a mix of both low and moderate water use plants or both moderate and high water use plants, the higher plant factor or the plant factor based on the proportions of the respective plant water uses shall be used. Hydrozones containing a mix of low and high water use plants is not permitted.

☑ Turf is not allowed on slopes greater than 25% where the toe of the slope is adjacent to an impermeable hardscape.

☑ Add note to plans: "Recirculating water systems shall be used for water features"

☑ Add note to plans: "A minimum 3-inch layer of mulch shall be applied on all exposed soil surfaces of planting areas except turf areas, creeping or rooting groundcovers, or direct seeding applications where mulch is contraindicated."

☑ Add note to plans: "For soils less than 6% organic matter in the top 6 inches of soil, compost at a rate of a minimum of four cubic yards per 1,000 square feet of permeable area shall be incorporated to a depth of six inches into the soil"

Irrigation Design Plan (Title 23, Chapter 2.7 §492.7)

☑ The irrigation plans, at a minimum, shall contain the following:

- ☑ Location and size of spate water meters for landscape
- ☑ Location, type, and size of all components of the irrigation system, including controllers, main and lateral lines, valves, sprinkler heads, moisture sensing devices, rain switches, quick couplers, pressure regulators, and backflow prevention devices.
- ☑ Static water pressure at the point of connection the public water supply
- ☑ Flow rate (gallons per minute), application rate (inches per hour), and design operating pressure (pressure per square inch) for each station.

☑ A dedicated water service meter or private submeter shall be installed for all (non-residential irrigated landscapes of at least 1,000sqft) (residential irrigated landscape areas of at least 5,000sqft).

☑ Add note to plans: "Pressure regulating devices are required if water pressure is below or exceeds the recommended pressure of the specified irrigation devices."

☑ Manual shut-off valves shall be required, as close as possible to the point of connection of the water supply, to minimize water loss in case of an emergency or routine repair.

☑ Add note to plans: "Check valves or anti-drain valves are required on all sprinkler heads where low point drainage could occur."

☑ Areas less than 10-feet in width in any direction shall be irrigated with subsurface or drip irrigation.

☑ Overhead irrigation shall not be permitted within 24-inches of any non-permeable surface.

Soil Management Report (Title 23, Chapter 2.7 §492.5)

☑ The soil management report, at a minimum, shall contain the following:

- ☑ soil texture; N-P-K and minor trace elements
- ☑ infiltration rate determined by laboratory test or soil texture infiltration rate table;
- ☑ pH
- ☑ total soluble salts
- ☑ sodium
- ☑ percent organic matter
- ☑ recommendations

☑ The soil management report shall be both integrated into the plans and submitted as a separate document.

Required Statements and Certification (Title 23, Chapter 2.7 §492.6, §492.7 and §492.9)

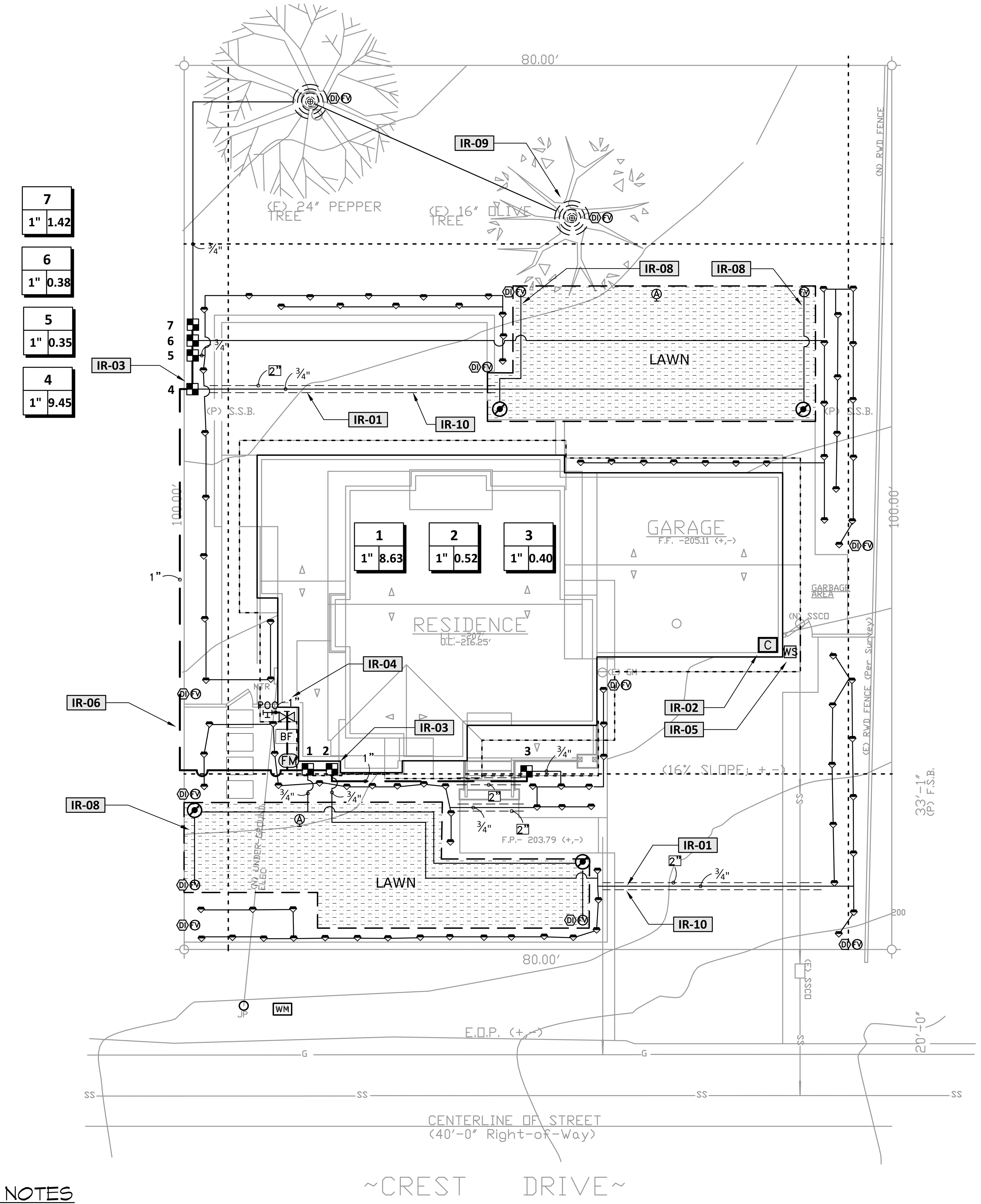
- ☑ Add the following statement on the landscape and irrigation plans: “I have complied with the criteria of the ordinance and applied them for the efficient use of water in the landscape design plans”.
- ☑ The final set of landscape and irrigation plans shall bear the signature of a licensed landscape architect, licensed landscape contractor, certified irrigation designer, licensed architect, licensed engineer, licensed land surveyor, or personal property owner.
- ☑ Add note to plans: “A diagram of the irrigation plan showing hydrozones shall be kept with the irrigation controller for subsequent management purposes.”
- ☑ Add note to plans: “A Certificate of Completion shall be filled out and certified by either the designer of the landscape plans, irrigation plans, or the licensed landscape contractor for the project”.
- ☑ Add note to plans: “An irrigation audit report shall be completed at the time of final inspection.”

IRRIGATION REFERENCE NOTES

SYMBOL	DESCRIPTION
IR-01	LATERAL LINES- ALL LATERALS ARE SIZED 3/4" UNLESS OTHERWISE NOTED.
IR-02	CONTROLLER LOCATION- CONTRACTOR TO CONFIRM LOCATION WITH OWNER OR GENERAL CONTRACTOR. PREFERENCE IS TO INSTALL ON BUILDING EXTERIOR WALL FOR FULL MAINTENANCE ACCESS. INSTALL WEATHER SENSOR ON SW SIDE OF BUILDING WITH NO OVERHANG OBSTRUCTIONS.
IR-03	SCHEMATIC VALVE BOX LOCATION- INSTALL ALL VALVE BOXES IN PLANTER AREAS AND SET BACK 5 FEET FROM ANY PATHS, PATIO OR OTHER HARDSCAPE AREAS.
IR-04	POINT OF CONNECTION- CONTRACTOR TO CONFIRM POC LOCATION, SIZE OF WATER METER, STATIC PRESSURE AND FLOWS AVAILABLE. IF LOCATION IS DIFFERENT INDICATE ON AS BUILT PLANS. IF METER SIZE OR STATIC PRESSURE AVAILABLE IS UNDER 50 PSI NOTIFY LANDSCAPE ARCHITECT PRIOR TO PROCEEDING WITH IRRIGATION.
IR-05	WEATHER BASED SENSOR LOCATION- INSTALL WEATHER SENSOR ON SW SIDE OF BUIDLING WITH NO OVERHANG OBSTRUCTIONS.
IR-06	MAIN LINE- INSTALL MAIN LINE IN PLANTER AREAS WITHIN THE SITES PROPERTY BOUNDARIES AND SET BACK 2 FEET FROM ANY PATHS, ROADS OR OTHER HARDSCAPE AREAS. THE PROPOSED MAIN LINE LOCATION(S) IS DIAGRAMMATIC.
IR-08	INLINE DRIP SUPPLY AND EXHAUST HEADERS- CONTRACTOR MUST INSTALL PVC SUPPLY AND EXHAUST HEADERS ON ALL DRIP SYSTEMS PER DETALS ON THE IRRIGAITON DETAIL SHEET(S). ALL SUBSURFACE DRIP MUST TERMINATE IN A PVC EXHAUST HEADER. PLANS ONLY SHOW SUPPLY TAP-IN LOCAITON.
IR-09	TREE DRIP EMITTER/BUBBLER/TREE RING- FOR PROPOSED TREES
IR-10	SLEEVING - INSTALL 2" MINIMUM SIZE SCHEDULE 40 SLEEVING PIPE, 12" BELOW GRADE.

MWELO GENERAL NOTES:

- A CERTIFICATE OF COMPLETION SHALL BE COMPLETED BY EITHER THE OWNER, THE DESIGNER OF THE LANDSCAPE PLANS OR BY THE LICENSED INSTALLING CONTRACTOR.
- AN AS BUILT DIAGRAM OF THE INSTALLED IRRIGATION SHOWING NUMBERED ZONES, VALVE LOCATION, MAINLINE LOCATION, IRRIGATION CONTROLLER AND P.O.C LOCATION SHALL BE KEPT WITH THE CONTROLLER FOR SUBSEQUENT MANAGEMENT PURPOSES.
- CHECK VALVES ARE REQUIRED ON ALL SPRINKLER HEADS WHERE LOW HEAD DRAINAGE COULD OCCUR.
- PRESSURE REGULATING DEVICES ARE REQUIRED IF WATER OPTIMUM PRESSURE OF THE SPECIFIED IRRIGATION DEVICE PRESSURE EXCEEDS THE OPERATING RECOMMENDATIONS.
- NO OVERHEAD IRRIGATION IS PERMITTED IN LANDSCAPE AREAS THAT ARE LESS THAN 10' WIDE. DRIP OR LOW FLOW BUBBLER IRRIGATION MUST BE USED AS AN ALTERNATIVE.
- INSTALLING CONTRACTOR IS RESPONSIBLE FOR INSTALLING AND PROGRAMMING ALL SELF ADJUSTING WEATHER/SOIL MOISTURE SENSING BASED CONTROLLERS. RAIN SENSORS ARE TO BE INSTALLED WITH ANY CONTROLLER WHERE AN OFFSITE WEATHER STATION IS USED.
- ALL SPECIFIED FLOW SENSORS AND MASTER VALVES MUST BE INSTALLED AND PROGRAMMED AS PER MANUFACTURERS REQUIREMENTS.
- AN IRRIGATION AUDIT AND COMMISSIONING IS REQUIRED ON ALL PROJECTS. CONTACT ANDREW BOLT 209-404-1746 TO SET UP.
- THESE PLANS HAVE BEEN PREPARED BY A CERTIFIED PROFESSIONAL AND ARE MEANT AS A GUIDE ONLY. PIPING AND VALVE PLACEMENT ARE DIAGRAMTIC ONLY. ALL PIPING UNDER HARDSCAPES MUST BE SLEEVED WITH SPECIFIED SLEEVING MATERIALS.
- PROTECT ALL EXISTING TREES DURING IRRIGATION TRENCHING AND PIPE INSTALLATION. CONSULT WITH LANDSCAPE ARCHITECT BEFORE CUTTING ANY ROOTS.
- NOTE TO CONTRACTOR: ALL IRRIGATION ZONES HAVE BEEN LAYED OUT AND APPROVED BY THE CITY OR COUNTY BASED ON PLANT WATER USE. SHOULD THE INSTALLING CONTRACTOR CHANGE OR MODIFY THE APPROVED IRRIGATION LAYOUT IN ANYWAY WITHOUT PRIOR AUTHORIZATION THE CONTRACTOR WILL ASSUME ALL LIABILITY AND COST OF ALL CHANGES TO THE IRRIGATION LAYOUT AND ALL ADDITIONAL WATER USAGE OVER AND ABOVE FOR THE LIFE OF THE IRRIGATION SYSTEM(S) AND ALL COSTS THAT ARE ASSOCIATED WITH OVER WATER USAGE.



IRRIGATION NOTES:

POINT OF CONNECTION (P.O.C).

1. CONNECT IRRIGATION MAINLINE TO MAIN WATER SUPPLY (SEE CIVIL OR ARCHITECTURAL DRAWINGS FOR LOCATION). LANDSCAPE CONTRACTOR TO VERIFY LOCATION, SIZE, FLOW AND PRESSURES AVAILABLE AND TO NOTIFY LANDSCAPE ARCHITECT OF ANY NECESSARY CHANGES NEEDED TO BE MADE SO THAT THE IRRIGATION SYSTEM PERFORMS TO AN IRRIGATION EFFICIENCY OF A MINIMUM OF 81 PERCENT.
2. SYSTEM MAXIMUM OPERATING PRESSURES. 80 PSI (AT P.O.C) INSTALL PRESSURE REDUCER IF PRESSURES EXCEED EQUIPMENT MANUFACTURERS SUGGESTED MAXIMUM OPERATING PRESSURES.
3. SYSTEM MINIMUM OPERATING PRESSURES. 40 PSI (AT P.O.C)

IRRIGATING AROUND EXISTING TREES.

ANY IRRIGATION (MAINLINE OR LATERALS) WITCHING DRIP LINES OF EXISTING TREES SHALL BE FIELD APPROVED BY CONSULTING ARBORIST AND OR LANDSCAPE ARCHITECT PRIOR TO ANY TRENCHING WORK COMMENCES. HAND TRENCH AND OR FOLLOW ALL ARBORISTS/LANDSCAPE ARCHITECTS RECOMMENDATIONS.

DO NOT STACK OR STORE ANY MATERIALS, EQUIPMENT OR MACHINERY UNDER DRIP LINE OF EXISTING TREES.

MWELO NOTES

CERTIFICATION OF COMPLETION REQUIREMENTS

1. UPON COMPLETION OF LANDSCAPE AND IRRIGATION INSTALLATION THE LANDSCAPE CONTRACTOR SHALL SUBMIT THE FOLLOWING AS REQUIRED BY CALIFORNIA MODEL CERTIFICATION FROM LANDSCAPE ARCHITECT FOR INSTALLATION ACCORDING TO THE APPROVED LANDSCAPE DOCUMENTATION PACKAGE.
2. SOIL MANAGEMENT REPORT AND RECEIPTS FOR SOIL IMPROVEMENT PRODUCTS.
3. LANDSCAPE MAINTENANCE MANAGEMENT REPORT.
4. IRRIGATION MAINTENANCE MANAGEMENT REPORT.
5. IRRIGATION SCHEDULE FOR NEW AND ESTABLISHED PLANT MATERIALS
6. IRRIGATION AUDIT REPORT INDICATING SITE IRRIGATION EFFICIENCY,
7. IRRIGATION DISTRIBUTION UNIFORMITY, ALL INSTALLED EQUIPMENT COMPLIES WITH APPROVED MWELO GUIDELINES.
8. CERTIFICATION OF COMPLETION (COC) FORM.

CONTACT LOCAL ENFORCING AGENCY FOR APPROVED SUBMITTAL FORMS AND PROCEDURES.

"I have complied with the criteria of the Model Water Efficient Landscape Ordinance and have applied them for the efficient use of water in the Irrigation Design Plan."

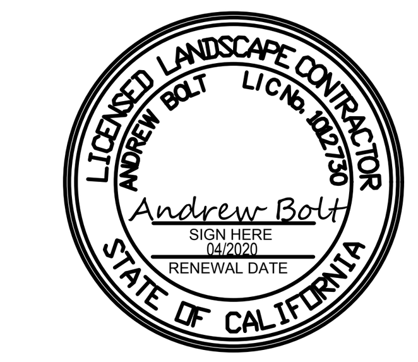
DATED: 3/5/2020

BY: Andrew Bolt

0 8 16 24 32 feet

1/8" = 1'-0"

General Notes



IRRIGATION LAYOUT

No.	Revision/Issue	Date

Firm Name and Address

4Binc Select Certified IRRIGATION ASSOCIATION Experienced professionals. Efficient solutions. LIC # 1012730 IA CERT # 57436 ASIC COMMERCIAL MEMBER

Project Name and Address

MONJOIN RESIDENCE

411 CREST DRIVE,
REDWOOD CITY, CA

Project	Drawn By
257-2019	AJBB
Date: 12/11/2019	Checked By
Scale: 1/8" = 1'	Approved By
NORTH	Sheet: IR1-0.0

Know what's below. Call before you dig.

CRITICAL ANALYSIS

Generated:	2019-12-13 17:08
P.O.C. NUMBER: 01	
Water Source Information:	Contractor to Confirm POC Location,
Size and Pressures available.	
FLOW AVAILABLE	
Point of Connection Size:	3/4"
Flow Available:	12.50 gpm
PRESSURE AVAILABLE	
Static Pressure at POC:	60.00 psi
Pressure Available:	60.00 psi
DESIGN ANALYSIS	
Maximum Station Flow:	9.45 gpm
Flow Available at POC:	12.50 gpm
Residual Flow Available:	3.05 gpm
Critical Station:	4
Design Pressure:	30.00 psi
Friction Loss:	1.75 psi
Fittings Loss:	0.17 psi
Elevation Loss:	0.00 psi
Loss through Valve:	3.31 psi
Pressure Req. at Critical Station:	35.23 psi
Loss for Fittings:	0.00 psi
Loss for Main Line:	1.51 psi
Loss for POC to Valve Elevation:	0.00 psi
Loss for Backflow:	11.28 psi
Critical Station Pressure at POC:	48.02 psi
Pressure Available:	60.00 psi
Residual Pressure Available:	11.98 psi

VALVE SCHEDULE

NUMBER	MODEL	SIZE	TYPE	GPM	DESIGN PSI	FRICTION LOSS	VALVE LOSS	PSI	PSI @ POC
1	TORO DZK-700-1-DRIP VALVE KIT	1"	AREA FOR DRIPLINE	8.63	30	0.56	3.14	33.70	45.15
2	TORO DZK-700-1-DRIP VALVE KIT	1"	DRIP EMITTER	0.52	30	0.01	3	33.01	44.31
3	TORO DZK-700-1-DRIP VALVE KIT	1"	DRIP EMITTER	0.40	30		3	33.00	44.30
4	TORO DZK-700-1-DRIP VALVE KIT	1"	AREA FOR DRIPLINE	9.45	30	1.92	3.31	35.23	48.02
5	TORO DZK-700-1-DRIP VALVE KIT	1"	DRIP EMITTER	0.35	30		3	33.00	44.30
6	TORO DZK-700-1-DRIP VALVE KIT	1"	DRIP EMITTER	0.38	30	0.01	3	33.01	44.31
7	TORO DZK-700-1-DRIP VALVE KIT	1"	DRIP EMITTER	1.42	30	0.06	3	33.06	44.41

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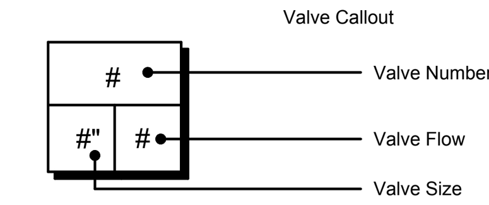
IRRIGATION LEGEND

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION
	TORO DZK-700-1-DRIP VALVE KIT DRIP CONTROL VALVE KIT. WITH 1" TORO 700 ULTRAFLOW INLINE VALVE, TORO Y-FILTER, AND 40 PSI PRESSURE REGULATOR AND FITTINGS. RANGES 0.25GPM-30GPM.
	PIPE TRANSITION POINT PVC TO 1/2" POLY PIPE TRANSITION POINT.
FV	TORO T-FCH-H-FIPT FLUSH VALVE FLUSH VALVE, PLUMBED TO FLUSH MANIFOLD AT LOW POINT. INSTALL IN 9" VALVE BOX WITH LOCKING LID.
A	TORO T-YD-500-34 AIR VENT 1/2" AIR VENT- MIPT AIR RELEASE AND VACUUM RELIEF VALVE. INSTALL IN 6" SELF LOCKING VALVE BOX AT HIGHEST POINT IN DRIP ZONE.
DI	RAIN BIRD OPERIND DRIP SYSTEM OPERATION INDICATOR, STEM RISES 6" FOR CLEAR VISIBILITY WHEN DRIP SYSTEM IS CHARGED TO A MINIMUM OF 20PSI. INCLUDES 16" OF 1/4" DISTRIBUTION TUBING WITH CONNECTION FITTING PRE-INSTALLED. INSTALL A MINIMUM OF TWO PER DRIP ZONE. PLACE NEXT TO FLUSH VALVE.
0.5 1.0 2.0	TORO T-DPC-DC DRIP EMITTER SINGLE OUTLET EMITTER. SELF-FLUSHING, PRESSURE COMPENSATING, WITH COLOR-CODED DUST CAP. 0.5GPH=BLUE; 1.0 GPH=BLACK; 2.0 GPH=RED. INSTALL QUANTITY AS FOLLOWS: 2 EACH 1 GPH EMITTERS PER 1 GALLON PLANT 3 EACH1 GPH EMITTERS PER 5 GALLON PLANT 4 EACH 2 GPH EMITTERS PER 15 GALLON PLANT
	TREE DRIP RING 1.0 GPH TREE DRIP RING TORO RGP-212 1.0 GPH. INSTALL PER DETAIL. 3 RINGS = 42.5 GPH 4 RINGS = 69.5 GPH. INSTALL 4 EACH ROOTWELL 318C EVENLY AROUND THE ROOT BALL. CONTACT IMPERIAL SPRINKLER 925-667-2190
	AREA TO RECEIVE DRIPLINE TORO RGP-412 (12) SUB-SURFACE PRESSURE COMPENSATING LANDSCAPE DRIPLINE WITH ROOTGUARD TECHNOLOGY. 1.0GPH EMITTERS AT 12.0" O.C. DRIPLINE LATERALS SPACED AT 12.0" APART, WITH EMITTERS OFFSET FOR TRIANGULAR PATTERN. BURY 4" BELOW GRADE. ALL HEADERS AND FOOTERS PIPING TO BE 3/4" IF FLOW IS BELOW 6 GPM AND 1" IF FLOW IS 7-15 GPM

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION
	MATCO-NORCA 514T BRASS GATE VALVE 1/2"-4" BRASS GATE VALVE, FULL PORT, WITH SOLID WEDGE. IPS. WHEEL HANDLE. SAME SIZE AS MAINLINE PIPE. INSTALL IN A 10" ROUND VALVE BOX.
BF	FEBCO 825YA LEAD FREE BACKFLOW PREVENTER 3/4" REDUCED PRESSURE PRINCIPLE ASSEMBLY. INSTALL FREEZE BLANKET DEKORRA MODEL, GREEN OR SIMILAR. INSTALL BACKFLOW AS PER LOCAL PLUMBING CODES. WHEN INLET PRESSURES EXCEED 80 PSI INSTALL WATTS BRASS PRESSURE REGULATOR AND SET TO 50 PSI. INSTALL PER LOCAL CITY STANDARD
C	HUNTER HCC-800-PL 8 STATION OUTDOOR WI-FI ENABLED, FULL-FUNCTIONING CONTROLLER WITH TOUCHSCREEN, COMMERCIAL USE. PLASTIC CABINET. CONNECT TO OWNER WIFI FOR WEATHER SCHEDULING
WS	HUNTER WRF-CLIK RAIN/FREEZE SENSOR, INSTALL WITHIN 1000 FT OF CONTROLLER, IN LINE OF SIGHT. 22-28 VAC/VDC 100 MA POWER FROM TIMER TRANSFORMER. MOUNT AS NOTED ON GUTTER OR BUILDING IN AN AREA THAT IS NOT OBSTRUCTED BY TREES OR OVERHANGS. CONNECT TO HC CONTROLLER.
FM	HUNTER HC-075-FLOW 3/4" FLOW METER FOR USE WITH HYDRAWISE ENABLED CONTROLLER TO MONITOR FLOW AND PROVIDE SYSTEM ALERTS. ALSO FUNCTIONS AS STAND ALONE FLOW TOTALIZER/SUB METER ON ANY RESIDENTIAL OR COMMERCIAL IRRIGATION SYSTEM. CONNECT TO IRRIGATION CONTROLLER WITH PAIGE P7171D-A
POC	POINT OF CONNECTION 3/4" CONTRACTOR TO CONFIRM POC LOCATION, SIZE AND PRESSURES AVAILABLE.
	IRRIGATION LATERAL LINE: PVC CLASS 200 SDR 21
	IRRIGATION MAINLINE: PVC SCHEDULE 40
	PIPE SLEEVE: CPVC SCHEDULE 40 INSTALL SLEEVE 12" PAST EDGE OF HARDSCAPE TO A DEPTH OF 24" FOR MAINLINE AND 18" FOR LATERAL LINES. ALL OTHER SLEEVING INSTALL TO A DEPTH OF 12".

Valve Callout



"I have complied with the criteria of the Model Water Efficient Landscape Ordinance and have applied them for the efficient use of water in the Irrigation Design Plan."

DATED: 3/5/2020

BY: Andrew Bolt

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

General Notes

LICENSED LANDSCAPE CONTRACTOR
ANDREW BOLT LIC No. 1012730
Andrew Bolt
SIGN HERE
04/2020
RENEWAL DATE
STATE OF CALIFORNIA

IRRIGATION LEGEND

No.	Revision/Issue	Date

Firm Name and Address

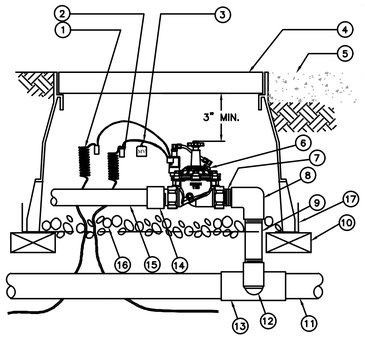
4Binc
Select Certified IRRIGATION ASSOCIATION
Experienced professionals. Efficient solutions.
LIC # 1012730 IA CERT # 57436
ASIC COMMERCIAL MEMBER

Project Name and Address

MONJOIN RESIDENCE

411 CREST DRIVE,
REDWOOD CITY, CA

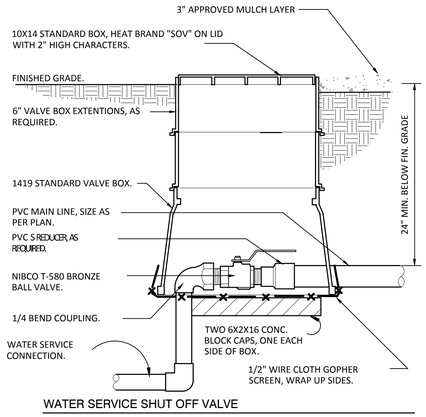
Project 257-2019	**Drawn By** AJBB
Date 12/11/2019	**Checked By**
Scale	**Approved By**
	Sheet IR1-1.1



1. 30-INCH LINEAR LENGTH WIRE, COILED
2. WATERPROOF CONNECTION 3M DBYR
3. CHRISTY ID TAG
4. VALVE BOX WITH COVER
5. TOP OF 3"MULCH LAYER
6. CONTROL VALVE: SUPERIOR 3200 SERIES VALVE
7. PVC SCH 80 NIPPLE (CLOSE)
8. PVC SCH 40 ELL
9. PVC SCH 80 NIPPLE (AS REQD LENGTH)
10. BRICK (1 OF 4)
11. PVC MAINLINE PIPE
12. SCH 80 NIPPLE (2-INCH LENGTH, HIDDEN) AND SCH 40 ELL
13. PVC SCH 40 TEE OR ELL
14. PVC SCH 40 MALE ADAPTER
15. PVC LATERAL PIPE
16. 3-INCH MINIMUM DEPTH OF 3/4-INCH WASHED GRAVEL
17. 1/2" GALVANISED GOPHER WIRE MESH, WRAP UP SIDES

3 BUCKNER SUPERIOR N/C 3200 MASTER VALVE

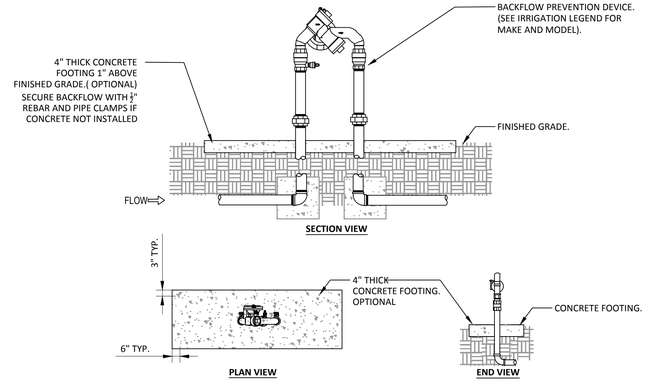
NTS — AB-IR-VAL-MAST-08



WATER SERVICE SHUT OFF VALVE

2 WATER SERVICE CONNECTION

NTS — AB-IR-POC-10



NOTES:
1- INSTALL BACKFLOW FREEZE BLANKET PER MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS.
2- SEE BACKFLOW PREVENTION DEVICE DETAIL FOR REFERENCE.

1 BACKFLOW FEBCO 825YA PREVENTER

NTS — AB-IR-BAC-02

6 BRASS ISOLATION VALVE

1 1/2" = 1'-0" — AB-IR-VAL-ISOL-02

DETAIL LEGEND:
1. IRRIGATION CONTROLLER (HCC-800-M) PER PLAN
2. IRRIGATION CONTROL WIRE IN CONDUIT - SIZE AND TYPE PER LOCAL CODES
3. ELECTRICAL SUPPLY CONDUIT - CONNECT TO POWER SOURCE, J-BOX INSIDE CONTROLLER
4. ADJACENT SURFACE TO MOUNT CONTROLLER PER PLAN

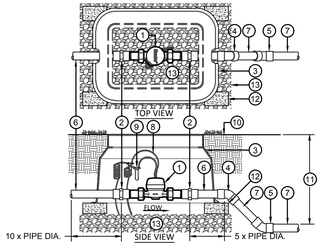
NOTES:
1. CONTROLLER ACCEPTS 120 VOLTS A.C. OR 230 VOLTS A.C. (INTERNATIONAL MODEL).
2. MOUNT CONTROLLER LCD SCREEN AT EYE LEVEL, CONTROLLER SHALL BE HARD-WIRED TO GROUNDED 110 VAC POWER SOURCE.
3. REFER TO THE HUNTER HCC INSTALLATION GUIDE FOR FURTHER INSTRUCTIONS.
4. CONNECT TO LOCAL WIFI AND SET UP CONTROLLER

5 HUNTER HCC-PRO 800M_WRS

1" = 1'-0" — AB-IR-TIM-HUNT-328409-10

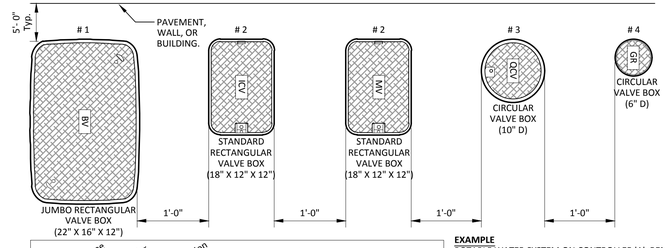
NOTE: INLET PIPE ENTERING METER: LENGTH MUST BE A MIN. OF 10 X PIPE DIA.
OUTLET PIPE LEAVING METER: LENGTH MUST BE MIN. OF 5 X PIPE DIA.
INLET AND OUTLET PIPE MUST BE STRAIGHT PIPE WITH NO FITTINGS OR TURNS UNTIL AFTER THESE SPECIFIED LENGTHS. PIPE AND FITTINGS MAY BE SCH 80 PVC SOLVENT WELD, THREADED SCH 80 PVC OR BRASS, AS REQUIRED FOR PROJECT.

DETAIL LEGEND:
1. HUNTER HC FLOW METER HC-100 WITH UNION CONNECTIONS
2. SCH 80 PVC FEMALE ADAPTER (S X T)
3. RECTANGULAR VALVE BOX PER SPECIFICATIONS
4. SCH 80 PVC 45 DEGREE ELBOW (S X S) TO LOWER MAIN LINE TO PROPER DEPTH (SIZE FOR LARGER MAIN LINE AS NEEDED)
5. SCH 80 PVC 45 DEGREE ELBOW (S X S) TO LOWER MAIN LINE TO PROPER DEPTH
6. 1.5" DIA. (40 mm) MAIN LINE AT INLET & OUTLET
7. MAIN LINE TO SYSTEM (SEE LEGEND AND PLANS FOR TYPE AND SIZE)
8. TWO WIRES TO FLOW SENSOR TERMINALS AT CONTROLLER. MIN. 18 AWG-UF (2.08 mm²) SHIELDED WIRE WITH DIFFERENT COLOUR FROM CONTROL/COMMON WIRE.
9. WEATHERPROOF WIRE CONNECTOR
10. FINISH GRADE
11. SPECIFIED SOIL COVER (SEE LEGEND)
12. COMMON BRICK
13. GRAVEL BASE, 6" (15 cm) DEEP



4 HC-100 FLOW METER

NTS — AB-IR-FLO-328409-20



Water type	Controller	Designation	Box size	Lid Color	IDENTIFICATION GUIDE
PW	A	MV	# 2	Match top dress	Master valve
PW	A	FS	# 2	Match top dress	Flow sensor
PW	A	HM	# 2	Match top dress	Hydrometer
PW	A	BV	# 2	Match top dress	Ball valve 3" or less
PW	A	BV	# 1	Match top dress	Ball valve 4" or more
PW	A	GV	# 2	Match top dress	Gate valve
PW	A	ARV	# 2	Match top dress	Air release valve
PW	A	QCV	# 3	Match top dress	Quick coupler valve
PW	A	RCV	# 2	Match top dress	Remote control valve
PW	A	MS	# 2	Match top dress	Moisture sensor
PW	A	GR	# 4	Match top dress	Grounding rod
PW	A	SB	# 3	Match top dress	Splice box
PW	A	FC	# 3	Match top dress	Future connection

EXAMPLE
POTABLE WATER SYSTEM ON CONTROLLER 'A', REMOTE CONTROL VALVE STATION # 3. (ALL NON POTABLE SHALL BE PURPLE)

NOTES:
1- LOCK ALL VALVE BOXES WITH BOLT PROVIDED
2- VALVE BOXES SHALL BE LABELED BY HOT IRON BRANDING OR BRASS NUMBER TAG
3- LOCATE VALVE ASSEMBLIES IN PLANTING OR TURF AREA.
4- VALVE LOCATIONS SHALL BE APPROVED BY THE OWNER'S REPRESENTATIVE PRIOR TO INSTALLATION.
5- VALVE BOXES SHALL BE CENTERED ABOVE VALVE ASSEMBLIES TO FACILITATE ACCESS AND MAINTENANCE.
6- VALVE BOXES SHALL BE FLUSH WITH TURF OR 3" ABOVE GRADE FOR MULCH INSTALLATION.
7- VALVE BOXES SHALL BE SET PARALLEL TO EACH OTHER AND PERPENDICULAR TO THE EDGE OF PAVEMENT.
8- SEE OTHER IRRIGATION DETAILS FOR FURTHER INFORMATION.

7 RESIDENTIAL VALVE BOX LAYOUT

DO NOT SCALE — AB-IR-VAL-VALV-10

General Notes

LICENSED LANDSCAPE CONTRACTOR
ANDREW BOLT
LICENSE #879795
Andrew Bolt
SIGN HERE
DATED
RENEWAL DATE
STATE OF CALIFORNIA

IRRIGATION DETAILS

No.	Revision/Issue	Date

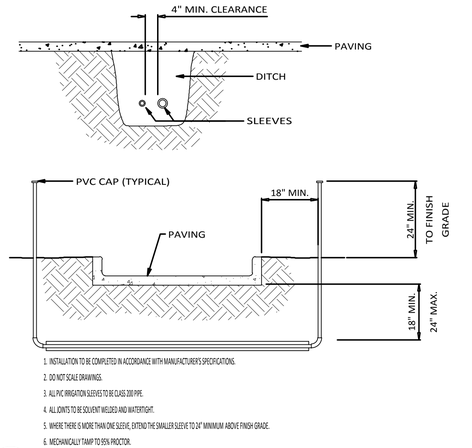
Firm Name and Address
4Binc Select Certified IRRIGATION ASSOCIATION
Experimentally Mechanically Efficient Auto Mixers
LIC # 1012730 IA CERT # 57436
ASIC COMMERCIAL MEMBER

Project Name and Address

MONJOIN RESIDENCE

411 CREST DRIVE,
REDWOOD CITY, CA

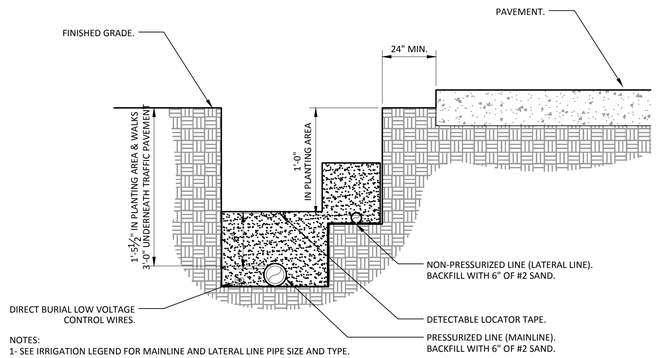
Project	Drawn By
257-2019	AJBB
Date	Checked By
12/11/2019	
Scale	Approved By
	Sheet
	IR1-2.0



1. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
2. DO NOT SCALE DRAWINGS.
3. ALL PVC IRRIGATION SLEEVES TO BE CLASS 200 PIPE.
4. ALL JOINTS TO BE SOLVENT WELDED AND WATERTIGHT.
5. WHERE THERE IS MORE THAN ONE SLEEVE, EXTEND THE SMALLER SLEEVE TO 24" MINIMUM ABOVE FINISH GRADE.
6. MECHANICALLY TAMP TO 95% PROCTOR.

3 SLEEVING DETAIL

NTS AB-IR-MAI-328409-06



NOTES:
1- SEE IRRIGATION LEGEND FOR MAINLINE AND LATERAL LINE PIPE SIZE AND TYPE.

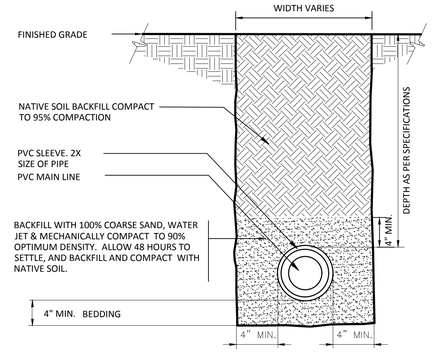
2- DIRECT BURIAL CONTROL WIRES SHALL BE INSTALLED IN SCH. 40 PVC ELECTRICAL CONDUIT IF REQUIRED.

3- 2-WIRE IRRIGATION WIRE SHALL BE INSTALLED IN SCH. 40 PVC ELECTRICAL CONDUIT.

4- DETECTABLE LOCATOR TAPE SHALL BE LOCATED SIX INCHES (6") ABOVE THE ENTIRE MAINLINE RUN.

2 IRRIGATION TRENCHING

NTS AB-IR-MAI-08



1 MAINLINE & SLEEVING

1 1/2" = 1'-0" AB-IR-MAI-07

6 BRASS BALL ISOLATION VALVE

NTS AB-IR-VAL-ISOL-328406-67

STEP 1: STRIP WIRES ½" FROM ENDS.

STEP 2: APPLY SIZED WIRE NUT AND TURN CLOCKWISE DIRECTION.

STEP 3: INSERT SPLICE INTO 3M GEL FILLED CLEAR TUBE. PUSH SO THAT THE WIRE NIT MAKES CONTACT WITH END OF TUBE.

STEP 4: POSITION WIRES IN CHANNELS AND CLOSE TUBE COVER.

NOTE: MAXIMUM WIRES PER CONNECTOR ARE THREE EACH # 14's OR TWO EACH # 12's.

5 3M-DBYR WIRE SPLICES

NTS AB-IR-VAL-16

4 RCV WITH UNION S.O.V.

NTS AB-IR-VAL-328406-08

NOTES:

1. TREE PROTECTION FENCING MUST BE INSTALLED AT A MINIMUM RADIUS OF THE CRITICAL ROOT ZONE (CRZ) OF TREES. (CRZ DEFINED AS RADIUS x 1.25' (FT) PER INCH AT DBH FROM TRUNK OF TREE, SEE TREE PROTECTION FENCE LAYOUT DETAIL)
2. IF CONSTRUCTION OCCURS WITHIN THE CRZ AT LEAST 12" OF MULCH AND/OR LOGGING MATTS SHALL BE PLACED WHERE MACHINERY MANEUVERS TO REDUCE SOIL COMPACTION IN THIS ZONE.
3. THE TREE PROTECTION FENCING MUST NOT BE VIOLATED FOR THE ENTIRE DURATION OF THE PROJECT WITHOUT APPROVAL FROM URBAN FORESTRY STAFF.
4. THERE WILL BE ZERO TOLERANCE FOR STORING OR PARKING VEHICLES, SUPPLIES, OR EQUIPMENT UNDER PROTECTED TREES.
5. IMPACT PROTECTION DEVICES MUST BE REMOVED AFTER CONSTRUCTION.
6. WARNING SIGNS TO BE MADE OF DURABLE, WEATHERPROOF MATERIAL. LETTERS TO BE 3" HIGH MINIMUM, CLEARLY LEGIBLE AND SPACED AS SHOWN.
7. SIGNS SHALL BE PLACED AT 50' MAXIMUM INTERVALS. PLACE A SIGN AT EACH END OF LINEAR TREE PROTECTION AND 50' ON CENTER THEREAFTER. FOR TREE PROTECTION AREAS LESS THAN 200' IN PERIMETER, PROVIDE NO LESS THAN ONE SIGN PER PROTECTION AREA.
8. ATTACH SIGNS SECURELY TO FENCE POSTS AND FABRIC. MAINTAIN TREE PROTECTION FENCE THROUGHOUT DURATION OF PROJECT.
9. A TREE IMPACT PERMIT IS REQUIRED.
10. ADHERE TO STANDARDS IN THE CITY TREE MANUAL.

8 TREE PROTECTION FENCING

1" = 1" AB-TR-329332-02

NOTES:

1. CONTRACTOR MUST PROVIDE AND INSTALL TREE PROTECTION SIGNAGE.
2. A TREE IMPACT PERMIT IS REQUIRED PRIOR TO INITIATION OF CONSTRUCTION IF ANY TREES ON CITY PROPERTY ARE TO BE IMPACTED BY PRUNING, TRENCHING, BORING, REMOVAL, PAVING, PLANTING, ETC.

7 TREE PROTECTION FENCE LAYOUT

1" = 1" AB-TR-329332-01

General Notes

LICENSED LANDSCAPE CONTRACTOR ANDREW BOLT LICENSE EXPIRES Andrew Bolt SIGN HERE 06/2021 RENEWAL DATE STATE OF CALIFORNIA

IRRIGATION DETAILS

No.	Revision/Issue	Date

Firm Name and Address

4Binc Select Certified IRRIGATION ASSOCIATION Experienced professionals. Efficient solutions. LIC # 1012730 IA CERT # 57436 — ASIC COMMERCIAL MEMBER

Project Name and Address

MONJOIN RESIDENCE

411 CREST DRIVE, REDWOOD CITY, CA

Project	Drawn By
257-2019	AJBB
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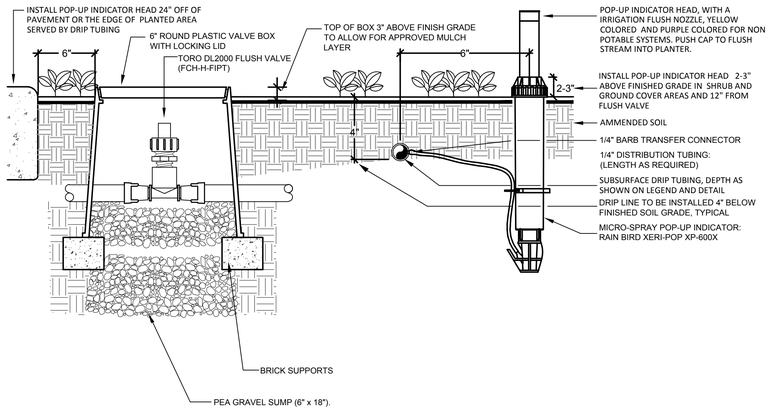
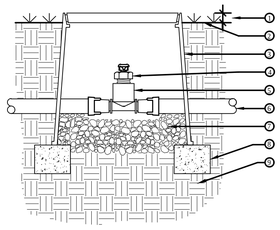


NOTE: INSTALL INDICATOR HEAD 24" MAX FROM THE EDGE OF PAVING OR THE PLANTER EDGE. INSTALL YELLOW COLORED INDICATOR CAP ON XERI POP HEAD. FOR RECYCLED WATER USE A PURPLE IRRIGATION CAP.

3 RAIN BIRD XERI POP XP 600X DRIP INDICATOR OFF OF DRIP LINE

1" = 1" — AB-IR-DRI-328413-06



SECTION/ELEVATION
NOT TO SCALE

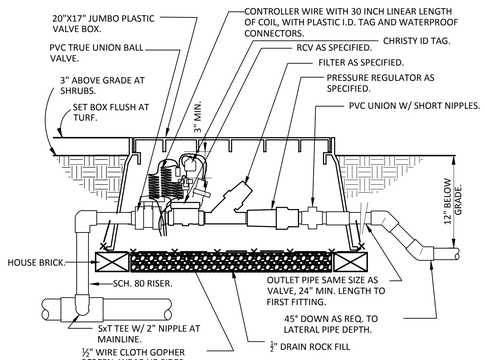
LEGEND:

1. 1" ABOVE FINISH GRADE.
2. FINISH GRADE.
3. 6" ROUND PLASTIC VALVE BOX. HEAT BRAND "AR" ON LID IN 1" HIGH CHARACTERS.
4. TORO DL2000 AIR/VACUUM RELIEF VALVE (YD-500-34).
5. TORO LOC-EZE X 1/2" FPT TEE (FTF16).
6. TORO DL2000 TUBING (RGP-XX-XXX) OR TORO BLUE STRIPE POLY TUBING (EHD1645-XXX) AIR-RELIEF LATERAL.
7. PEA GRAVEL SUMP (6" DEEP).
8. BRICK SUPPORTS (2 COMMON BRICKS REQUIRED).
9. NATIVE SOIL PER SPECIFICATIONS.

NOTES:
1. USE ONE AIR/RELIEF VALVE FOR EVERY 7 GPM PER ZONE. LOCATE AT HIGH POINTS. REFER TO TORO PUBLICATION #ALT111 FOR SPECIFICATIONS.
2. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
3. DO NOT SCALE DRAWING.
4. THIS DRAWING IS INTENDED FOR USE BY ARCHITECTS, ENGINEERS, CONTRACTORS, CONSULTANTS AND DESIGN PROFESSIONALS FOR PLANNING PURPOSES ONLY. THIS DRAWING MAY NOT BE USED FOR CONSTRUCTION.
5. ALL INFORMATION CONTAINED HEREIN WAS CURRENT AT THE TIME OF DEVELOPMENT BUT MUST BE REVIEWED AND APPROVED BY THE PRODUCT MANUFACTURER TO BE CONSIDERED ACCURATE.
6. INSTALL PURPLE BOXES ON ALL NON POTABLE WATER PROJECTS

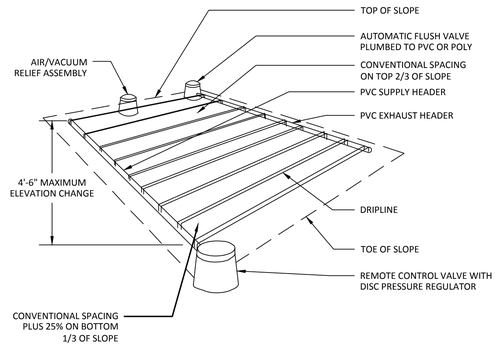
2 TORO AIR RELIEF VALVE

NTS — AB-IR-DRI-INLI-17



1 1" DRIP VALVE/FILTER/REGULATOR

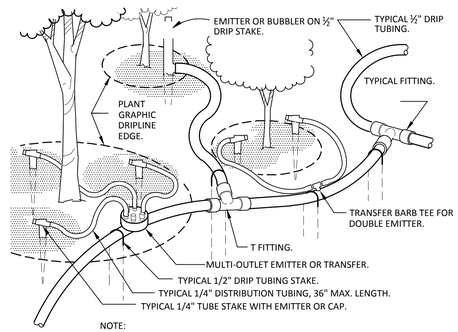
1 1/2" = 1'-0" — AB-IR-DRI-VALV-328413-02



NOTE TO DESIGNER:
1. ALIGN DRIP LINE LATERALS PARALLEL TO THE CONTOURS OF THE SLOPE.

6 DRIP LINE GRID PATTERN ON SLOPE

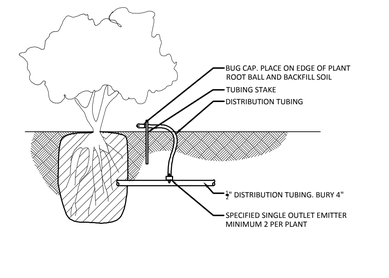
NTS — AB-IR-DRI-INLI-10



NOTE:
1. PLACE EMITTERS ¾ BETWEEN THE TRUNK AND OUTTER DRIPLINE.
2. EVENLY SPACE EMITTERS AROUND PLANT.
3. STAKE THE DRIP TUBING AT EACH TEE, ELL, COUPLER, AT EACH EMITTER OR TRANSFER, AND AT 6'-0" MAX O.C.
4. PLACE 2 EMITTERS PER ONE GALLON, 3 PER FIVE GALLON & 4 PER FIFTEEN GALLON PLANT

5 TYPICAL DRIP TUBING

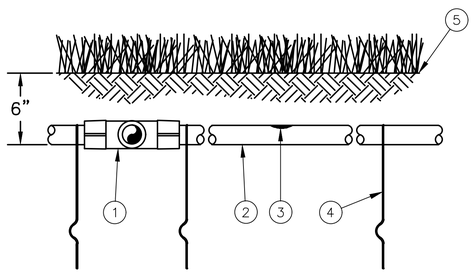
NTS — AB-IR-DRI-24



NOTES:
1. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
2. DO NOT SCALE DRAWING.
3. ALL INFORMATION CONTAINED HEREIN WAS CURRENT AT THE TIME OF DEVELOPMENT BUT MUST BE REVIEWED AND APPROVED BY THE PRODUCT MANUFACTURER TO BE CONSIDERED ACCURATE.

4 DRIP EMITTER DETAIL

NTS — AB-IR-DRI-14

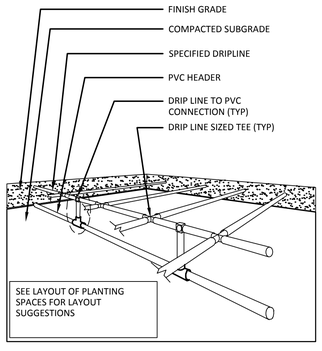


1. EASY FIT BARBED TEE:
2. SUB–SURFACE DRIPLINE: SEE IRRIGATION LEGEND FOR SPECIFICATION
3. INLINE DRIP EMITTER
4. TIE DOWN STAKE: PLACE EVERY THREE FEET
5. TURF FINISH GRADE

NOTES:
1. PLACE TIE DOWN STAKES EVERY TWO FEET IN SAND, THREE FEET IN LOAM, AND FOUR FEET IN CLAY.
2. AT FITTINGS WHERE THERE IS A CHANGE OF DIRECTION SUCH AS TEES OR ELBOWS, USE TIE–DOWN STAKES ON EACH LEG OF THE CHANGE OF DIRECTION.
3. TEMPORARY OVERHEAD IRRIGATE UNTIL ROOT SYSTEM IS ESTABLISHED.

9 SUBSURFACE DRIP BELOW TURF

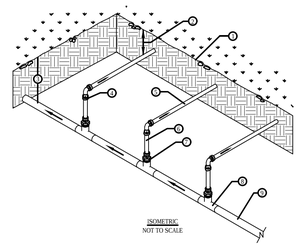
1" = 1'-0" — AB-IR-DRI-01



NOTE:
1. SEE PLANS AND LEGEND FOR ALL DIMENSIONS AND DRIPLINE SPACING.
2. RATIO OF DRIPLINES TO START CONNECTIONS IS SHOWN AT 2:1, BUT MAY VARY PER HYDRAULIC DEMAND ON START CONNECTIONS. SEE PLANS AND LEGEND.

8 SUB SURFACE HEADER INSTALLATION

NTS — AB-IR-DRI-INLI-11



ISOMETRIC
NOT TO SCALE

1. FINISH GRADE.
2. DEPTH OF TUBING PER SPECIFICATIONS
3. DEPTH OF PVC SUPPLY MANIFOLD PER - 12"
4. TORO LOC-EZE TEE.
5. DRIPLINE LATERAL
6. POLY TUBING, LENGTH AS NECESSARY.
7. TORO LOC-EZE X 1/2" MTP ADAPTER (FAM16).
8. PVC TEE (SxSxT) WITH 1/2" FPT OUTLET.
9. PVC SUPPLY MANIFOLD FROM DRIP ZONE KIT.

NOTES:
1. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
2. DO NOT SCALE DRAWINGS.
3. ALL DIMENSIONS ARE CONSIDERED TRUE AND REFLECT MANUFACTURER'S SPECIFICATIONS.
4. CONTRACTOR'S NOTE: CONSULT MANUFACTURER FOR INSTALLATION RECOMMENDATIONS

7 DRIP END FEED HEADER

MANIFOLD END FEED
NTS — AB-IR-DRI-INLI-06

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General Notes

LICENSED LANDSCAPE CONTRACTOR — ANDREW BOLT — LIC No. 1012730 — SIGN HERE — RENEWAL DATE — STATE OF CALIFORNIA

DRIP DETAILS

No.	Revision/Issue	Date

Firm Name and Address

4Binc Select Certified IRRIGATION ASSOCIATION — Experienced professionals. Efficient solutions. — LIC # 1012730 — IA CERT # 57436 — ASIC COMMERCIAL MEMBER

Project Name and Address

MONJOIN RESIDENCE

411 CREST DRIVE,
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Project	Drawn By
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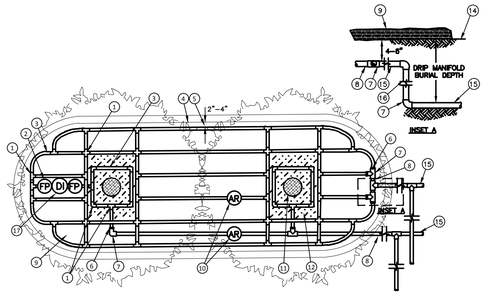
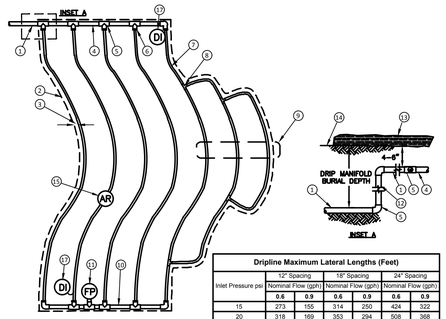


1. BARB X BARB INSERT EL, TEE OR CROSS
2. FLUSH POINT (TYPICAL) SEE DETAILS FOR FLUSH POINT INSTALLATION
3. SUB-SURFACE DRIPLINE PIPE:
4. PARKING ISLAND CURB
5. PERIMETER DRIPLINE PIPE TO BE INSTALLED 2"-4" FROM PARKING ISLAND CURB
6. BARB X MALE FITTING
7. PVC SCH 40 TEE OR EL (TYPICAL)
8. PVC SUPPLY MANIFOLD
9. TURF, SHRUB OR GROUNDCOVER BED
10. ½" AIR RELIEF VALVE: SEE DETAILS FOR AIR RELIEF INSTALLATION
11. TREE (TYPICAL) SEE IRRIGATION LEGEND FOR TREE IRRIGATION SPECIFICATIONS
12. MULCH BED FOR TREE
13. TURF OR MULCH MULCH
14. FINISH GRADE
15. PVC DRIP MANIFOLD FROM CONTROL ZONE VALVE KIT (SIZED TO MEET LATERAL FLOW DEMAND)
16. PVC RISER PIPE
17. DRIP INDICATOR

NOTES:
1. DISTANCE BETWEEN LATERAL ROWS AND EMITTER SPACING TO BE BASED ON SOIL TYPE, PLANT MATERIALS AND CHANGES IN ELEVATION.
2. LENGTH OF LONGEST DRIPLINE LATERAL SHOULD NOT EXCEED THE MAXIMUM SPACING SHOWN IN THE ACCOMPANYING TABLE.
3. INSTALL AIR RELIEF VALVE AT HIGH POINTS IN DRIP ZONE.
4. WHEN USING 17MM INSERT FITTINGS WITH DESIGN PRESSURE OVER 50PSI, IT IS RECOMMENDED THAT STAINLESS STEEL CLAMPS BE INSTALLED ON EACH FITTING.

3 DRIP LINE LAYOUT IN PLANTING ISLAND

NTS AB-IR-DRI-DRIP-11



1. PVC SUPPLY PIPE FROM CONTROL ZONE KIT (SIZED TO MEET LATERAL FLOW DEMAND)
2. PERIMETER OF AREA
3. PERIMETER DRIPLINE PIPE TO BE INSTALLED 2"-4" FROM PERIMETER OF AREA
4. PVC SUPPLY MANIFOLD
5. PVC SCH 40 TEE OR EL (TYPICAL)
6. BARB X MALE FITTING
7. SUB-SURFACE DRIPLINE: SEE IRRIGATION LEGEND FOR SPECIFICATION
8. BARB X BARB INSERT TEE
9. TOTAL LENGTH OF SELECTED DRIPLINE SHOULD NOT EXCEED LENGTH SHOWN IN TABLE
10. PVC FLUSH HEADER
11. FLUSH POINT: SEE DETAILS FOR FLUSH POINT INSTALLATION
12. PVC RISER PIPE
13. TURF OR MULCH
14. FINISH GRADE
15. ½" AIR RELIEF VALVE: RAIN BIRD MODEL: SEE DETAILS FOR AIR RELIEF INSTALLATION
16. DRIP INDICATOR

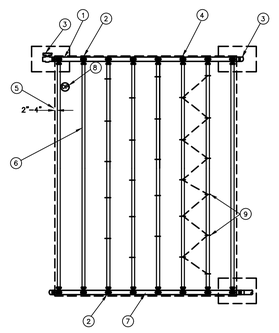
Dripline Maximum Lateral Lengths (Feet)

Inlet Pressure psi	12" Spacing		18" Spacing		24" Spacing	
	Nominal Flow (gph)		Nominal Flow (gph)		Nominal Flow (gph)	
	0.6	0.9	0.6	0.9	0.6	0.9
15	273	155	314	250	424	322
20	318	169	353	294	508	368
30	360	230	413	350	586	414
40	395	255	465	402	652	474
50	417	285	528	420	720	488
60	460	290	596	455	780	514

NOTES:
1. DISTANCE BETWEEN LATERAL ROWS AND EMITTER SPACING TO BE BASED ON SOIL TYPE, PLANT MATERIALS AND CHANGES IN ELEVATION.
2. LENGTH OF LONGEST DRIPLINE LATERAL SHOULD NOT EXCEED THE MAXIMUM SPACING SHOWN IN THE ACCOMPANYING TABLE.
3. INSTALL AIR RELIEF VALVE AT HIGH POINTS IN DRIP LATERAL.
4. WHEN USING BARBED INSERT FITTINGS WITH DESIGN PRESSURE OVER 50PSI, IT IS RECOMMENDED THAT STAINLESS STEEL CLAMPS BE INSTALLED ON EACH FITTING.

2 DRIP LAYOUT IN ODD SHAPED PLANTER

NTS AB-IR-DRI-DRIP-09

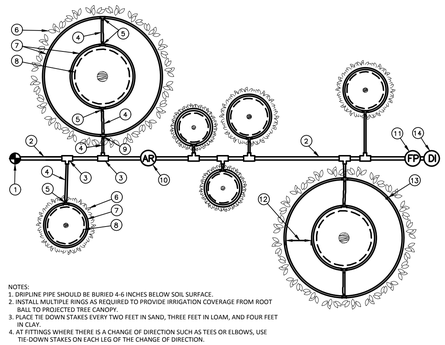


1. QF-FLUSH HEADER/PVC OR ¾" BLANK DRIP PIPE
2. PRE-INSTALLED BARB FITTING IF USING QF HEADER
3. FLUSH POINT WITH PVC CAP OR OPTIONAL PVC BALL VALVE
4. PERIMETER OF AREA
5. PERIMETER DRIPLINE PIPE TO BE INSTALLED 2"-4" FROM PERIMETER OF AREA
6. SPECIFIED DRIPLINE (TYPICAL)
7. QF-SUPPLY HEADER/PVC OR BLANK DRIP TUBING
8. OPERATION INDICATOR RAIN BIRD MODEL: OPERIND
9. SPECIFIED DRIP LINE GRID PATTERN WITH STAGGERED EMITTERS.

NOTES:
1. DISTANCE BETWEEN LATERAL ROWS AND EMITTER SPACING TO BE BASED ON SOIL TYPE, PLANT MATERIALS AND CHANGES IN ELEVATION.

6 STAGGERED DRIP LINE EMITTER PATTERN

NTS AB-IR-DRI-DRIP-21

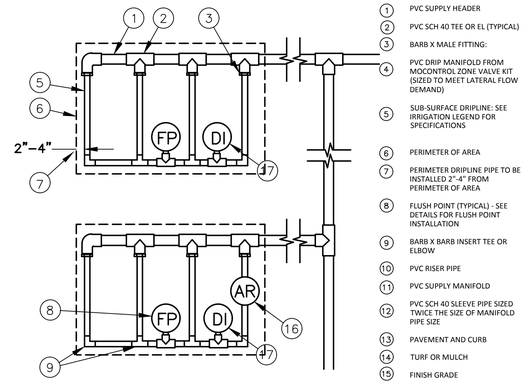


1. VALVE CONTROL ZONE KIT (SIZED TO ACCOMMODATE LATERAL FLOW DEMAND)
2. PVC DRIP SUPPLY MANIFOLD PIPE: OPTION ¾" POLY TUBING BURIED 6".
3. PVC SCH 40 TEE OR EL (TYPICAL)
4. BLANK TUBING (TYPICAL)
5. BARB X BARB INSERT TEE:
6. PROJECTED CANOPY LINE OF TREE OR SHRUB
7. SUB-SURFACE DRIPLINE: NON-POTABLE: MARKED AS PURPLE PLACE AS SHOWN (LENGTH AS REQUIRED, TYPICAL)
8. ROOT BALL (TYPICAL)
9. BARB X BARB INSERT CROSS
10. ½" AIR RELIEF VALVE
11. DRIPLINE FLUSH POINT
12. SPACING PER SPECIFICATION
13. TIE DOWN STAKES: (QUANTITY AS REQUIRED, SEE NOTE BELOW
14. DRIP INDICATOR

NOTES:
1. DRIPLINE PIPE SHOULD BE BURIED 4-6 INCHES BELOW SOIL SURFACE.
2. INSTALL MULTIPLE RINGS AS REQUIRED TO PROVIDE IRRIGATION COVERAGE FROM ROOT BALL TO PROJECTED TREE CANOPY.
3. PLACE TIE DOWN STAKES EVERY TWO FEET IN SAND, THREE FEET IN LOAM, AND FOUR FEET IN CLAY.
4. AT FITTINGS WHERE THERE IS A CHANGE OF DIRECTION SUCH AS TEES OR ELBOWS, USE TIE-DOWN STAKES ON EACH LEG OF THE CHANGE OF DIRECTION.

5 SPARSE PLANTING DRIP RINGS

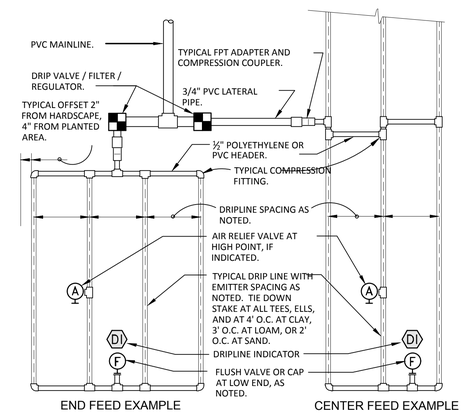
NTS AB-IR-DRI-DRIP-10



1. PVC SUPPLY HEADER
2. PVC SCH 40 TEE OR EL (TYPICAL)
3. BARB X MALE FITTING:
4. PVC DRIP MANIFOLD FROM MOCONTROL ZONE VALVE KIT (SIZED TO MEET LATERAL FLOW DEMAND)
5. SUB-SURFACE DRIPLINE: SEE IRRIGATION LEGEND FOR SPECIFICATIONS
6. PERIMETER OF AREA
7. PERIMETER DRIPLINE PIPE TO BE INSTALLED 2"-4" FROM PERIMETER OF AREA
8. FLUSH POINT (TYPICAL) - SEE DETAILS FOR FLUSH POINT INSTALLATION
9. BARB X BARB INSERT TEE OR ELBOW
10. PVC RISER PIPE
11. PVC SUPPLY MANIFOLD
12. PVC SCH 40 SLEEVE PIPE SIZED TWICE THE SIZE OF MANIFOLD PIPE SIZE
13. PAVEMENT AND CURB
14. TURF OR MULCH
15. FINISH GRADE
16. ½" AIR RELIEF VALVE
17. DRIP INDICATOR

4 DRIP HEADER DETAIL

NTS AB-IR-DRI-DRIP-15



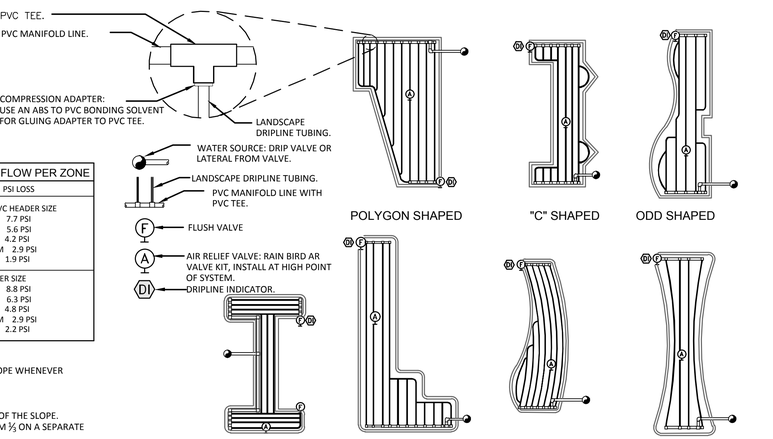
MAXIMUM LATERAL LENGTH (FEET)						
	EMITTER FLOW RATE GPH					
	12" SPACING		18" SPACING		24" SPACING	
PSI	0.6	0.9	0.6	0.9	0.6	0.9
10	125	96	175	135	218	171
20	249	191	350	171	442	340
30	307	236	434	333	550	422
40	350	268	495	380	627	171
50	125	96	175	135	218	171
60	125	96	175	135	218	171

GRID PRECIPITATION RATES (IN/HR)			
		EMITTER FLOW RATE	
EMITTER SPACING	LATERAL SPACING	0.6	0.9
12	12	0.96	1.44
18	18	0.69	1.03
24	24	0.28	0.41

LATERAL FLOW PER 100 FT (GPM)			
EMITTER FLOW	12" SPACING	18" SPACING	24" SPACING
0.6 GPH	1.0 GPM	0.67 GPM	0.50 GPM
0.9 GPH	1.5 GPM	1.0 GPM	0.75 GPM

MAXIMUM FLOW PER ZONE	
MAX GPM	PSI LOSS
SCHEDULE 40 PVC HEADER SIZE	
1/2"	4.7 GPM 7.7 PSI
3/4"	8.3 GPM 5.6 PSI
1"	13.5 GPM 4.2 PSI
1-1/2"	33.9 GPM 2.9 PSI
2"	52.4 GPM 1.9 PSI
POLY PIPE HEADER SIZE	
1/2"	4.7 GPM 8.8 PSI
3/4"	8.3 GPM 6.3 PSI
1"	13.5 GPM 4.8 PSI
1-1/2"	31.8 GPM 2.9 PSI
2"	52.4 GPM 2.2 PSI

SLOPED CONDITION NOTE:
1. DRIPLINE LATERALS SHOULD FOLLOW THE CONTOURS OF THE SLOPE WHENEVER POSSIBLE.
2. INSTALL AIR RELIEF VALVE AT HIGHEST POINT.
3. NORMAL SPACING WITHIN THE TOP ⅔ OF SLOPE,
4. INSTALL DRIPLINE AT 25% GREATER SPACING AT THE BOTTOM ⅓ OF THE SLOPE.
5. WHEN ELEVATION CHANGE IS 10 FT OR MORE, ZONE THE BOTTOM ⅓ ON A SEPARATE VALVE.



7 TYPICAL DRIPLINE REQUIREMENTS

NTS AB-IR-DRI-DRIP-19

General Notes

LICENSED LANDSCAPE CONTRACTOR ANDREW BOLT LIC/HIC 962750 Andrew Bolt SIGN HERE RENEWAL DATE STATE OF CALIFORNIA

DRIP DETAILS

No.	Revision/Issue	Date

Firm Name and Address

4Binc Select Certified IRRIGATION ASSOCIATION Experienced professionals. Efficient systems. LIC # 1012730 IA CERT # 57436 ASIC COMMERCIAL MEMBER

Project Name and Address

MONJOIN RESIDENCE

411 CREST DRIVE, REDWOOD CITY, CA

Project	Drawn By
257-2019	AJBB
Date	Checked By
12/11/2019	
Scale	Approved By
	Sheet
	IR1-3.1

File Path: C:\Users\Andrew Bolt\OneDrive - Architectural Solutions\Desktop\Monjoin\Monjoin Irrigation Layout 121119.dwg - Save Date: March 6, 2020 - Saved By: Andrew Bolt

SECTION 32 8400
IRRIGATION

PART 1 GENERAL

1.1 SUMMARY

A. Irrigation system required for this work includes but is not limited to the furnishing of all labor, tools, materials, appliances, tests, permits, taxes, etc., necessary for the installation of a landscape irrigation system as herein specified and shown on the drawings, and the removal of all debris from the site.

1. Locate, purchase, deliver and install piping, conduit, sleeves, 120 volt and low voltage electrical and water connections, valves, backflow preventer devices, controllers, rain sensors, spray and bubbler heads, drip irrigation lines, and associated accessories for a fully operational automatic irrigation system.
2. Trenching and water settling of backfill material.
3. Testing and startup of the irrigation system.
4. Prepare an as built record set of drawings.
5. Training of the Owner's maintenance personnel in the operational requirements of the Irrigation system.
6. Clean up and disposal of all excess and surplus material.
7. Maintenance of the irrigation system during the proscribed maintenance period.

B. The system shall efficiently and evenly irrigate all areas and be complete in every respect and shall be left ready for operation to the satisfaction of the Owner's Representative.

C. Coordinate with other trades, as needed to complete work, including but not limited to Water Meter, Point of Connection (POC) and Backflow Preventer Device (BFPD) location and electrical hookups.

1.2 CONTRACT DOCUMENTS

A. Shall consist of specifications and its general conditions and the drawings. The intent of these documents is to include all labor, materials, and services necessary for the proper execution of the work. The documents are to be considered as one. Whatever is called for by any part shall be as binding as if called for in all parts.

1.3 RELATED DOCUMENTS AND REFERENCES

A. Related Documents: Refer to Landscape Documents or Landscape Architect provided documentation and specifications

References:

1. American Society of Testing Materials (ASTM): cited section numbers.
2. National Sanitation Foundation (NSF): rating system.
3. Irrigation Association: Turf & Landscape Irrigation Best Management Practices

1.4 VERIFICATION

A. Irrigation piping and related equipment are drawn diagrammatically. Scaled dimensions are approximate only. Before proceeding with work, carefully check and verify dimensions and immediately notify the Owner's Representative of discrepancies between the drawings or specifications and the actual conditions. Although sizes and locations of plants and or irrigation equipment are drawn to scale wherever possible, it is not within the scope of the drawings to show all necessary offsets, obstructions, or site conditions. The Contractor shall be responsible to install the work in such a manner that it will be in conformance to site conditions, complete, and in good working order.

B. Piping and equipment is to be located within the designated planting areas wherever possible unless specifically defined or dimensioned otherwise.

1.5 PERMITS AND REGULATIONS

A. The Contractor shall obtain and pay for all permits related to this section of the work unless previously excluded under provision of the contract or general conditions. The Contractor shall comply with all laws and ordinances bearing on the operation or conduct of the work as drawn and specified. If the Contractor observes that a conflict exists between permit requirements and the work outlined in the contract documents, the Contractor shall promptly notify the Owner's Representative in writing including a description of any necessary changes and changes to the contract price resulting from changes in the work.

B. Wherever references are made to standards or codes in accordance with which work is to be performed or tested, the edition or revision of the standards and codes current on the effective date of this contract shall apply, unless otherwise expressly set forth.

C. In case of conflict among any referenced standards or codes or between any referenced standards and codes and the specifications, the more restrictive standard shall apply or Owner's Representative shall determine which shall govern.

1.6 PROTECTION OF WORK, PROPERTY AND PERSON

A. The Contractor shall adequately protect the work, adjacent property, and the public, and shall be responsible for any damages or injury due to the Contractor's actions.

1.7 CHANGES IN THE WORK

A. The Owner's Representative may order changes in the work, and the contract sum being adjusted accordingly. All such orders and adjustments plus claims by the Contractor for extra compensation must be made and approved in writing before executing the work involved.

B. All changes in the work, notifications and Contractor's request for information (RFI) shall conform to the contract general condition requirements.

1.8 CORRECTION OF WORK

A. The Contractor shall re-execute any work that fails to conform to the requirements of the contract and shall remedy defects due to faulty materials or workmanship upon written notice from the Owner's Representative, at the soonest as possible time that can be coordinated with other work, and seasonal weather demands, but not more than 90 (ninety) days after notification.

1.9 DEFINITIONS

A. Owner's Representative: The person appointed by the Owner to represent their interest in the review and approval of the work and to serve as the contracting authority with the Contractor. The Owner's Representative may appoint other persons to review and approve any aspects of the work.

B. Substantial Completion Acceptance: The date at the end of the Planting, Planting Soil, and Irrigation installation where the Owner's Representative accepts that all work in these sections is complete and the Warranty period has begun. This date may be different that the date of substantial completion for the other sections of the project.

C. Final Acceptance: The date when the Owner's Representative accepts that the plants and work in this section meet all the requirements of specification. It is intended that the materials and workmanship warranty for Planting, Planting Soil, and Irrigation work run concurrently.

1.10 SUBMITTALS

A. See the contract General Conditions for policy and procedures related to submittals.

B. Product data

1. Submit a minimum of (3) complete lists of all irrigation equipment to be used, manufacturer's brochures, maintenance manuals, warrantees and operating instructions, within 15 days after the notice to proceed.
   a. This submission may be done digitally and all documents shall be submitted in one PDF document.
2. The submittals shall be packaged and presented in an organized manner, in the quantity described in Division 1 of the specifications. Provide a table of contents of all submitted items.
3. Clearly identify on each submitted sheet by underlining or highlighting (on each copy) the specific product being submitted for approval. Failure to clearly identify the specific product being submitted will result in a rejection for the entire submittal. No substitutions of material or procedures shall be made concerning these documents without the written consent of an accepted equivalent by the Owner's Representative.
4. Equipment or materials installed or furnished without prior approval of the Owner's Representative, may be rejected by the Owner's Representative and the Contractor shall be required to remove such materials from the site at their own expense.
5. Approval of substitution of material and/or products, other than those specified shall not relieve the Contractor from complying with the requirements of the contract documents and specifications. The Contractor shall be responsible, at their own expense, for all changes that may result from the approved substitutions, which affect the installation or operations other items of their own work and/or the work of other Contractors.

C. Samples: Samples of the equipment may be required at the request of the Owner's Representative if the equipment is other than that specified.

D. Other Submittals: Submit for approval:

1. Documentation of the installer's qualifications.
2. As built record set of drawings.
3. Testing data from all required pressure testing.
4. Backflow prevention device certification: Certification from the manufacturer or their representative that the back flow prevention device has been installed correctly according to the manufactures requirements.
5. Booster pump certification: Certification from the manufacturer or their representative that the booster pump has been installed correctly according to the manufacturer's requirements.
6. Irrigation controller certification: Certification from the manufacturer or an authorized distributor that the Controller has been installed correctly according to the manufactures requirements.

1.11 OBSERVATION OF THE WORK

A. The Owner's Representative may inspect the work at any time. They may remove samples of materials for conformity to specifications. Rejected materials shall be immediately removed from the site and replaced at the Contractor's expense. The cost of testing materials not meeting specifications shall be paid by the Contractor.

B. The Owner's Representative shall be informed of the progress of the work so the work may be observed at the following key times in the construction process. The Owner's Representative shall be afforded sufficient time to schedule visit to the site. Failure of the Owner's Representative to make field observations shall not relieve the Contractor from meeting all the requirements of this specification.

1. Trenching, directional boring, and sleeving review.
2. Hydrostatic pressure testing.
3. Adjustment and coverage test.
4. Pre-maintenance observation.
5. Final acceptance / system malfunction corrections.

1.12 PRE-CONSTRUCTION CONFERENCE

A. Schedule a pre-construction meeting with the Owner's Representative at least seven (7) days before beginning work to review any questions the Contractor may have regarding the work, administrative procedures during construction and project work schedule.

1.13 QUALITY ASSURANCE

A. It is the intention of this specification to accomplish the work of installing an automatic irrigation system, which will operate in an efficient and satisfactory manner. The irrigation system shall be installed and made operational according to the workmanlike standards established for landscape installation and sprinkler irrigation operation as set forth by the most recent Best Management Practices (BMP) of the Irrigation Association.

B. The specification can only indicate the intent of the work to be performed rather than a detailed description of the performance of the work. It shall be the responsibility of the Contractor to install said materials and equipment in such a manner that they shall operate efficiently and evenly and support optimum plant growth and health.

C. The Owner's Representative shall be the sole judge of the true intent of the drawings and specifications and of the quality of all materials furnished in performance of the contract.

D. The Contractor shall keep one copy of all drawings and specifications on the work site, in good order. The Contractor shall make these documents available to the Owner's Representative when requested.

E. In the event of any discrepancies between the drawings and the specification, the final decision as to which shall be followed, shall be made by the Owner's Representative.

F. In the event the installation is contradictory to the direction of the Owner's Representative, the installation shall be rectified by the Contractor at no additional cost to the Owner. The Contractor shall immediately bring any such discrepancies to the attention of the Owner's Representative.

G. It shall be distinctly understood that no oral statement of any person shall be allowed in any manner to modify any of the contract provisions. Changes shall be made only on written authorization of the Owner's Representative.

H. Installer Qualifications: The installer shall be a firm having at least 5 years of successful experience of a scope similar to that required for the work.
   a. Installer Field Supervision: The installer shall maintain on site an experienced full-time supervisor who can communicate in English with the Owner's Representative.
   b. Submit the installer's qualifications for approval.

1.14 IRRIGATION SYSTEM WARRANTY:

A. The Contractor shall Warrantee all workmanship and materials for a period of 1year (s) following the acceptance of the work.

6. Any parts of the irrigation work that fails or is defective shall be replaced or reconstructed at no expense to the Owner including but not limited to: restoring grades that have settled in trenches and excavations related to the work. Reconstruction shall include any plantings, soil, mulch or other parts of the constructed landscape that may be damaged during the repair or that results from soil settlement.

B. The date of acceptance of the work and start of the Guarantee period shall be determined by the Owner's Representative, upon the finding that the entire irrigation system is installed as designed and specified, and found to be operating correctly, supplying water evenly to all planting and/or lawn areas.

C. The system controller shall be warranted by the equipment manufacturer against equipment malfunction and defects for a period of 5 years, following the acceptance of the work.

D. Neither the final acceptance nor any provision in the contract documents shall relieve the Contractor of responsibility for faulty materials or workmanship. The Contractor shall remedy any defects within a period of 7 days (s) from the date of notification of a defect.

1.15 SITE CONDITIONS

A. It is the responsibility of the Contractor to be aware of all surface and sub-surface conditions, and to notify the Owner's Representative, in writing, of any circumstances that would negatively impact the installation of the work. Do not proceed with work until unsatisfactory conditions have been corrected.

1.16 DELIVERY, STORAGE, AND HANDLING

A. All materials and equipment shall be stored properly and protected as required by the Contractor. The Contractor shall be entirely responsible for damages or loss by weather or other cause to work under the contract. Materials shall be furnished in ample quantities and at such times as to ensure uninterrupted progress of the work.

B. Deliver the products to the job site in their original unopened container with labels intact and legible at time of use.

C. Store in accordance with the manufacturers' recommendations.

1.17 PROTECTION

A. The Contractor shall continuously maintain adequate protection of all their work from damage, destruction, or loss, and shall protect the owner's property from damage arising in connection with this contract. Contractor shall make good any such damage, destruction, loss or injury. Contractor shall adequately protect adjacent property as provided by law and the contract documents.

B. The Contractor shall maintain sufficient safeguards, such as railings, temporary walks, lights, etc., against the occurrence of accidents, injuries or damage to any person or property resulting from their work, and shall alone be responsible for the same if such occurs.

C. All existing paving, structures, equipment or plant material shall be protected at all times, including the irrigation system related to plants, from damage by workers and equipment. The Contractor shall follow all protection requirements including plant protection provision of the general contract documents. All damages shall be repaired or replaced at the Contractor's expense. Repairs and or replacement shall be to the satisfaction of the Owner's Representative, including the selection of a Contractor to undertake the repair or maintenance. Repairs shall be at no cost to the owner.

1. For trees damaged to the point where they will not be expected to survive or which are severely disfigured and that are too large to replace, the cost of damages shall be as determined by the Owner's arborist using accepted tree value evaluation methods.

D. The Contractor shall refrain from trenching within the drip line of any existing tree to remain. The Owner's Representative may require the Contractor to relocate proposed irrigation work, bore lines beneath roots or use air spade technology to dig trenches through and under the root system to avoid damage to existing tree root areas.

1.18 EXCAVATING AROUND UTILITIES

A. Contractor shall carefully examine the civil, record, and survey drawings to become familiar with the existing underground conditions before digging.

1. Do not begin any excavation until all underground utilities have been located and marked.

Determine location of underground utilities and perform work in a manner that will avoid possible damage. Hand excavate, as required. Maintain stakes and or markings set by others until parties concerned mutually agree to their removal.

B. Notification to 811 is required for all excavation around utilities. The Contractor is responsible for knowing the location and avoiding utilities that are not covered by the *Local Utility Locator Service*.

C. Section 4216/4217 of the government code requires a dig-alert identification number be issued before a "permit to excavate" will be valid. For your dig-alert identification number call underground service alert toll free 1-800-422-4133 two working days before beginning construction.

1.19 POINT OF CONNECTION

Point of connection option 1 - Irrigation Contractor provided

A. The point of connection of the irrigation system to its electrical power sources shall be provided by the irrigation installer. All connections shall be made by a licensed electrical Contractor per governing codes at the location shown on the drawings.

B. The point of connection of the irrigation system to its potable and or non-potable water sources, including the main shutoff valve and backflow preventer shall be provided by the irrigation installer. All connections shall be made by a licensed Contractor per governing codes, at the location shown on the drawings.

Point of connection option 2 - General Contractor provided

A. The point of connection of the irrigation system to its electrical power sources shall be provided by the General Contractor's licensed electrical Contractor per governing codes at the location shown on the drawings. The irrigation Contractor will connect the power to provided junction box or grounded plug receptacle.

B. The point of connection of the irrigation system to its potable and or non-potable water sources, including the main shutoff valve and backflow preventer shall be provided by the General Contractor's licensed plumbing Contractor per governing codes at the location shown on the drawings. The minimum size and water pressure of the pressurized line will be as noted on the irrigation drawing.

1.20 TEMPORARY UTILITIES

A. All temporary piping, wiring, meters, panels and other related appurtenances required between source of supply and point of use shall be provided by the Contractor and coordinated with the Owner's Representative. Existing utilities may be used with the written permission of the owner.

1.21 CUTTING, PATCHING, TRENCHING AND DIGGING

A. The Contractor shall do all cutting, fitting, trenching or patching of their work that may be required to make its several parts come together as shown upon, or implied by, the drawings and specifications for the completed project.

B. Digging and trenching operations shall be suspended when the soil moisture is above field capacity.

1.22 USE OF PREMISES

A. The Contractor shall confine their apparatus; the storage of materials, and the operations of their workers to limits indicated by the law, ordinances, or permits and shall not unreasonably encumber the premises with their materials.

B. Contractor parking, and material and equipment storage shall in areas approved by the Owner's Representative.

1.23 AS BUILT RECORD SET OF DRAWINGS

A. Immediately upon the installation of any buried pipe or equipment, the Contractor shall indicate on the progress record drawings the locations of said pipe or equipment. The progress record drawings shall be made available at any time for review by the Owner's Representative.

B. Before final acceptance of work, the Contractor shall provide an as built record set of drawings showing the irrigation system work as built. The drawings shall be transmitted to the Owner's Representative in paper format and as a pdf file of each document on compact disk or flash drive. The drawings shall include all information shown on the original contract document and revised to reflect all changes in the work. The drawings shall include the following additional information

1. All valves shall be numbered by station and corresponding numbers shall be shown on the as built record set of drawings.
2. All main line pipe or irrigation equipment including sleeves, valves, controllers, irrigation wire runs which deviate from the mainline location, backflow preventers, remote control valves, grounding rods, shut-off valves, rain sensors, wire splice locations, and quick coupling valves shall be located by two (2) measured dimensions, to the nearest one-half foot. Dimensions shall be given from permanent objects such as buildings, sidewalks, curbs, walls, structures and driveways. All changes in direction and depth of main line pipe shall be noted exactly as installed. Dimensions for pipes shall be shown at no greater than a 50 ft. maximum interval.
3. As built record set of drawings shall be signed and dated by the Contractor attesting to and certifying the accuracy of the as built record set of drawings. As built record set of drawings shall have "As Built Record Set of Drawings", company name, address, phone number and the name of the person who created the drawing and the contact name (if different).

C. The Owner shall make the original contract drawing files available to the Contractor.

1.24 CONTROLLER CHARTS:

A. Provide one controller chart for each automatic controller installed.

1. On the inside surface of the cover of each automatic controller, prepare and mount a color-coded chart showing the valves, main line, and systems serviced by that particular controller. All valves shall be numbered to match the operation schedule and the drawings. Only those areas controlled by that controller shall be shown. This chart shall be a plot plan, entire or partial, showing building, walks, roads and walls. The plan, reduced as necessary and legible in all details, shall be made to a size that will fit into the controller cover. This print shall be approved by the Owner's Representative and shall be protected in laminated in a plastic cover and be secured to the inside back of the controller cabinet door.
2. The controller chart shall be completed and approved prior to acceptance of the work.

1.25 TESTING

A. Provide all required system testing with written reports as described in part 3.

1.26 OPERATION AND MAINTENANCE MANUALS AND GUARANTEES

A. Prepare and deliver to the Owner's Representative within ten calendar days prior to completion of construction, two 3-ring hard cover binders containing the following information:

1. Index sheet stating Contractor's address and telephone number, list of equipment with name and addresses of local manufacturers' representatives.
2. Catalog and parts sheets on all material and equipment.
3. Guarantee statement. The start of the guarantee period shall be the date the irrigation system is accepted by the Owner.
4. Complete operating and maintenance instruction for all major equipment.
5. Irrigation product manufacturers warrantees.

B. In addition to the above-mentioned maintenance manuals, provide the Owner's maintenance personnel with instructions for maintaining major equipment and show evidence in writing to the Owner's Representative at the conclusion of the project that this has been rendered.

PART 2 PRODUCTS

2.1 MATERIALS GENERAL

A. All materials shall be of standard, approved and first grade quality and shall be new and in perfect condition when installed and accepted.

B. See the parts schedule on the drawings for specific components and manufacturers. The use of a manufacturer's name and model or catalog number is for the purpose of establishing the standard of quality and configuration desired only. Other manufacturer's equipment may be submitted for approval with written approval by the Owner's Representative. Substituted equipment shall not substantially alter the operations of the system.

C. Approval of any items or substitutions indicates only that the product(s) apparently meet the requirements of the drawings and specifications on the basis of the information or samples submitted. The Contractor shall be responsible for the performance of substituted items. If the substitution proves to be unsatisfactory or not compatible with other parts of the system, the Contractor shall replace said items with the originally specified items, including all necessary work and modifications to replace the items, at no cost to the owner.

2.2 RECLAIMED WATER SYSTEM DESIGNATION

A. Where irrigation systems use reclaimed water, all products including valve boxes, lateral and main line pipe, etc. where applicable and/or required by local code shall have the reclaimed water purple color designation.

2.3 PIPING MATERIAL

A. Individual types of pipe and fittings supplied are to be of compatible manufacturer unless otherwise approved. Pipe sizes shown are nominal inside diameter unless otherwise noted.

B. Plastic pipe:

1. All pipe shall be free of blisters, internal striations, cracks, or any other defects or imperfections. The pipe shall be continuously and permanently marked with the following information: manufacturer's name or trade mark, size, class and type of pipe pressure rating, quality control identifications, date of extrusion, and National Sanitation Foundation (NSF) rating.
2. Pressure main line for piping upstream of remote control valves and quick coupling valves:
   a. Pipe smaller than 2 inch diameter shall be plastic pipe for use with solvent weld or threaded fittings. Shall be manufactured rigid virgin polyvinyl chloride (PVC) 1220, Type 1, Grade 2 conforming to ASTM D 1785, designated as Schedule 40.
   b. Pipe 2 - 3 inch diameter shall be manufactured rigid virgin polyvinyl chloride (PVC), Type 1, Grade 2 conforming to ASTM D 1785, designated as bell gasket Class 315.
   c. Pipe larger than 3 inch diameter shall be manufactured rigid virgin polyvinyl chloride (PVC), Type 1, Grade 2 conforming to ASTM D 1785, designated as bell gasket Class 200 PVC.
3. Non_pressure lateral line for piping downstream of remote control valves: plastic pipe for use with solvent weld or threaded fittings. Shall be manufactured rigid virgin polyvinyl chloride PVC 1220 (type 1, grade 2) conforming to ASTM d 1785, designated as Class 200, 3/4 minimum size.

C. Galvanized pipe shall be used for above ground connections to, backflow prevention device assemblies, hose bibs, and booster pumps and as shown on the plans and details.

1. Pipe shall be hot dip galvanized continuous welded, seamless, Schedule 40 conforming to applicable current ASTM standards.

2.4 FITTINGS AND CONNECTIONS:

A. Polyvinyl chloride pipe fittings and connections: Type II, Grade 1, Schedule 40, high impact molded fittings, manufactured from virgin compounds as specified for piping tapered socket or molded thread type, suitable for either solvent weld or screwed connections. Machine threaded fittings and plastic saddle and flange fittings are not acceptable. Furnish fittings permanently marked with following information: nominal pipe size, type and schedule of material, and National Sanitation Foundation (NSF) seal of approval. PVC fittings shall conform to ASTM D2464 and D2466.

B. Brass pipe fittings, unions and connections: standard 125 pound class 85% red brass fittings and connections, IPS threaded.

C. PVC Schedule 80 threaded risers and nipples: Type I, grade 1, Schedule 80, high impact molded, manufactured from virgin compounds as specified for piping and conforming to ASTM D-2464. Threaded ends shall be molded threads only. Machined threads are not acceptable.

D. Galvanized pipe fittings shall be galvanized malleable iron ground joint Schedule 40 conforming to applicable current ASTM standards.

2.5 SOLVENT CEMENTS AND THREAD LUBRICANT

A. Solvent cements shall comply with ASTM D2564. Socket joints shall be made per recommended procedures for joining PVC plastic pipe and fittings with PVC solvent cement and primer by the pipe and fitting manufacturer and procedures outlined in the appendix of ASTM D2564.

B. Thread lubricant shall be Teflon ribbon-type, or approved equal, suitable for threaded installations as per manufacturer's recommendations.

C. Pipe Joint Compound (Pipe dope) shall be used on all galvanized threaded connections. Pipe Joint Compound is a white colored, non-separating thread sealant compound designed to seal threaded connections against leakage due to internal pressure. It shall contain PTFE (Polytetrafluoroethylene) to permit a tighter assembly with lower torque, secure permanent sealing of all threaded connections and allow for easy disassembly without stripping or damaging threads.

2.6 BACKFLOW PREVENTION DEVICES

A. The backflow prevention device shall be certified to NSF/ANSI 372 shall be ASSE Listed 1013, rated to 180 degree F, and supplied with full port ball valves.

B. The main body and access covers shall be low lead bronze (ASTM B 584)

C. The seat ring and all internal polymers shall be NSF Listed Noryl and the seat disc elastomers shall be silicone.

D. Backflow Preventer shall be as indicated on the drawings.

2.7 PRESSURE REGULATOR

A. Pressure regulator shall certified to NSF/ANSI 372, consisting of low lead bronze body bell housing, a separate access cap shall be threaded to the body and shall not require the use of ferrous screws.

B. The main valve body shall be cast bronze (ASTM B 584).

C. The access covers shall be bronze (ASTM B 584 or Brass ASTM B 16)

D. The assembly shall be of the balanced piston design and shall reduce the pressure in both flow and no flow conditions.

E. Pressure regulator shall be as indicated on the drawings.

2.7. WYE STRAINER

A. Strainer shall conform to MIL -S-16293, and be ANSI 3rd party certified to comply with the states lead plumbing law 0.25% maximum weighted average lead content.

B. The main body shall be low lead bronze (ASTM B 584)

C. The access covers shall be yellow brass or cast bronze (ASTM B 16 or ASTM B 584)

D. Strainer screen shall be 300 series stainless steel available in 20, 40, 60, 80, or 100 mesh.

F. Wye strainer shall be as indicated on the plans.

G. 2.8 BACKFLOW PREVENTER CAGE & FROST BLANKET

H. A heavy-duty steel mesh cage with rust proof finish. The caging shall be sized to allow space for the entire piping assembly associated with the Backflow Preventer unit, and all associated equipment.

I. The cage shall include the manufacturers' standard tamper proof locking mechanism.

J. Provide a concrete base as detailed on the drawings.

K. Backflow Preventer Cage type, manufacturer and color shall be as indicated on the plans.

L. A Frost Blanket, manufacturer and color shall be as indicated on the plans.

2.9 BOOSTER PUMP (where applicable)

A. Booster pump shall be housed in a sturdy, locking, weather-resistant case, furnished for maximum exterior protection.

B. Booster pump shall be as indicated on the drawings. .

2.10 BALL VALVES

A. Ball valves for 3/4 inch through 2 - 1/2 inch shall be of PVC, block, tru-union design with EDPDM seals and o-ring.

B. Ball valves for 3 inch and larger shall be gate design and shall be iron body, brass or bronze mounted AWWA gate valves, and shall have a clear waterway equal to the full nominal diameter of the valve, and shall be rubber gasket, flanged or mechanical joint only, and shall be able to withstand a continuous working pressure of 150 PSI. Valve shall be equipped with a square-operating nut.

C. All ball valves located in a valve manifold shall be the same size as the main line (1-1/2 inch size minimum). Provide pipe-reducing adapters down stream of valves, as required. All ball valves in line shall be the same size as the pipe.

D. Ball valves shall be as indicated on the drawings.

2.11 CHECK VALVES

A. Swing check valves 2 inch and smaller shall be 200 lbs., W.O.G., bronze construction with replaceable composition, neoprene or rubber disc and shall meet or exceed federal specification WW-V-5ld, class a, type iv.

B. Anti_drain valves shall be of heavy-duty virgin PVC construction with female iron pipe thread inlet and outlet. Internal parts shall be stainless steel and neoprene. Anti-drain valves shall be field adjustable against draw out from 5 to 40 feet of head.

C. Check valves shall be as indicated on the drawings.

2.12 REMOTE CONTROL VALVES

A. Remote control valves shall be electrically operated, single seat, normally closed configuration, equipped with flow control adjustment and capability for manual operation.

B. Valves shall be actuated by a normally closed low wattage solenoid using 24 volts, 50/60 cycle solenoid power requirement. Solenoid shall be epoxy encased. A union shall be installed on the discharge end.

C. Remote control valves shall be wired to controller in same numerical sequence as indicated on drawings.

D. Remote control valves shall be as indicated on the drawings.

2.13 MASTER CONTROL VALVES

E. Master Control Valve shall be compatible with the irrigation controller.

F. Master control valves shall be as indicated on the drawings.

2.14 FLOW SENSOR

A. Flow sensor shall be compatible with the irrigation controller.

B. Flow sensor shall be as indicated on the drawings.

2.15 HYDROMETER

C. Hydrometer shall be compatible with the irrigation controller.

D. Hydrometer shall be as indicated on the drawings.

2.16 QUICK COUPLER VALVES

A. Quick coupler valves shall be a one or two piece, heavy-duty brass construction with a working pressure of 150 PSI with a built in flow control and a self_closing valve.

B. Quick coupler shall be equipped with locking red brass cap covered with durable yellow thermo-plastic rubber cover. Key size shall be compatible with quick coupler and of same manufacturer.

C. Quick coupler valves shall be as indicated on the drawings.

2.17 SPRINKLER HEADS

D. All sprinkler heads shall have check valves installed.

E. All sprinkler heads shall be as indicated on the drawings.

F. Riser nipples for all sprinkler heads shall be the same size as the riser opening in the sprinkler body and fabricated as shown on the drawings.

2.18 AUTOMATIC CONTROLLER

A. Controller shall be housed in a sturdy, locking, weather_resistant case, furnished for maximum exterior protection.

B. Controller shall be equipped with evapo-transpiration (ET) sensor, which adjusts the controller programming based on local climatic conditions. The sensor shall also have a rain sensing shut-off switch, wind sensing shut off switch, and freeze sensing shut-off of switch.

1. If a moisture sensor is used in lieu of an evapo-transpiration sensor an additional sensor, which has a rain-sensing shut-off switch, wind sensing shut-off switch, and freeze sensing shut-off switch shall be provided.

C. Automatic controller shall be as indicated on the drawings.

2.19 CONTROLLER DECODERS

D. All decoders shall be per the controller manufacturer's specifications.

E. Decoder model number shall be as shown on the drawings.

2.20 ELECTRICAL CONTROL WIRING

A. Low voltage

1. The electrical control wire shall be direct burial type UF, no. 14 AWG, solid, single conductor, copper wire UL approved or larger, if required to operate system as designed.
2. For 2-Wire controllers all irrigation wire for the controller, flow sensor, master valve, hydrometer, remote control valves and moisture sensors shall be per the controller manufacturer's specifications and recommendations.
3. Color code wires to each valve. Common wire shall be white.
4. If multiple controllers are being utilized, and wire paths of different controllers cross each other, both common and control wires from each controller to be of different colors.
5. Control wire splices: Splices are when required shall be placed in splice boxes.
6. Wire connections shall be per the controller manufacturer's specifications and recommendations.

B. High voltage

1. Shall be of type as required by local codes and ordinances.
2. Shall be of proper size to accommodate needs of equipment it is to serve.

2.21 VALVE BOXES AND MATERIALS

A. Valve boxes: valve boxes shall be constructed of ABS (acrylonitrile butadiene styrene) plastic, green in color, with rigid base and sides and shall be supplied with bolt lock cover secured with stainless steel bolts. Cover shall be identified as shown on drawings. Provide box extensions as required.

1. Master valves, flow sensors, remote control irrigation valves, gate valves, and ball valves 3 inch or less in size shall use a 14 inch x 19 inch x 12 inch rectangular box.
2. Quick coupler valves, wire splices, and grounding rods shall use a 10 inch circular box.

2.22 CONCRETE THRUST BLOCKS

A. Concrete thrust blocks shall be sized per the pipe manufactures requirement or as indicated on the drawings.

2.23 VALVE IDENTIFICATION TAGS

A. Valve Identification Tags shall be 2.25 inch x 2.65 inch polyurethane. Color: potable water; yellow / Non-potable water; purple. Tags shall be permanently attached to each remote control valve with tamper proof seals as indicated on the drawings.

2.24 EQUIPMENT TO BE FURNISHED TO OWNER

A. Two (2) sets of keys for each automatic controller.

B. Two (2) 48 inch tee wrenches for operating the gate valves.

C. Three (3) sets of special tools required for removing, disassembling and adjusting each type of sprinkler and valve supplied on this project.

D. Five (5) Extra sprinkler heads, nozzles, shrub adapters, nozzle filter screens, for each type used on the project.

E. Two (2) quick coupler keys to match manufacturer type of quick coupler.

2.25 INCIDENTAL MATERIALS AND EQUIPMENT

A. Furnish all materials and equipment not specified above, but which are necessary for completion of the work as intended.

2.26 MAIN LINE LOCATOR TAPE

A. 3 - inch wide plastic detectable locator tape.

2.27 MAIN LINE AND LATERAL LINE BEDDING SAND

A. Sand shall consist of natural or manufactured granular material, free of organic material, mica, loam, clay or other substances not suitable for the intended purpose.

B. Sand shall be masonry sand ASTM C 144 or coarse concrete sand, ASTM C 33.

General Notes

LICENSED LANDSCAPE CONTRACTOR
ANDREW BOLT LIC No. 1012730
SIGN HERE
RENEWAL DATE
STATE OF CALIFORNIA

IRRIGATION NOTES

No.	Revision/Issue	Date

Firm Name and Address
4Binc
Select Certified
IRRIGATION ASSOCIATION
Experienced professionals. Efficient solutions.
LIC # 1012730 IA CERT # 57436
ASIC
COMMERCIAL MEMBER

Project Name and Address
MONJOIN RESIDENCE

411 CREST DRIVE,
REDWOOD CITY, CA

Project	Drawn By
257-2019	AJBB
Date	**Checked By**
12/11/2019	
Scale	**Approved By**
	Sheet
	IR1-4.0

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PART 3 EXECUTION

3.1 GENERAL REQUIREMENTS

A. Code requirements shall be those of state and municipal codes and regulations locally governing this work, providing that any requirements of the drawings and specifications, not conflicting therewith, but exceeding the code requirements, shall govern unless written permission to the contrary is granted by the Owner's Representative.

B. Extreme care shall be exercised at all times by the Contractor in excavating and working in the project area due to existing utilities and irrigation systems to remain. Contractor shall be fully responsible for expenses incurred in the repair of damages caused by their operation.

1. The Contractor is responsible for identifying and maintaining existing irrigation main lines that supply water to areas on the site as noted on the drawings and outside of the proposed limit of work. The Contractor shall relocate or replace existing irrigation main line piping as required to provide a continuous supply of water to all areas of existing irrigation on site.

a. Providing continuous water supply shall include hand watering and or the use of watering trucks to provide adequate water.

C. Plan locations of backflow preventers, valves, controllers, irrigation lines, sleeves, spray heads and other equipment are diagrammatic and indicate the spacing and relative locations of all installations. Final site conditions and existing and proposed plantings shall determine final locations and adjusted as necessary and as directed to meet existing and proposed conditions and obtain complete water coverage. Minor changes in locations of the above from locations shown shall be made as necessary to avoid existing and proposed trees, piping, utilities, structures, etc. at the Contractor's expense or when directed by the Owner's Representative.

1. The Contractor shall be held responsible for relocation of any items without first obtaining the Owner's Representative's approval. The Contractor shall remove and relocate such items at their expense if so directed by the Owner's Representative.

D. Prior to any work the Contractor shall stake out locations of all pipe, valves, equipment and irrigation heads and emitters using an approved staking method and maintain the staking of the approved layout in accordance with the drawings and any required modifications. Verify all horizontal and vertical site dimensions prior to staking of heads. Do not exceed spacing shown on drawings for any given area. If such modified spacing demand additional or less material than shown on the drawings, notify the Owner's Representative before beginning any work in the adjacent area.

E. Stub out main line at all end runs and as shown on drawings. Stub out wires for future connection where indicated on plan and as directed.

F. Point of connection shall be approximately as shown on drawings. Connect new underground piping and valves and provide all flanges, adapters or other necessary fittings for connection.

G. Permission to shut off any existing in-use water line must be obtained 48 hours in advance, in writing from the Owner. The Contractor shall receive instructions from the Owner's Representative as to the exact length of time of each shut-off.

H. No fittings shall be installed on pipe underneath pavement or walls.

I. Prior to starting any work, Contractor shall obtain a reading of existing static water pressure (no flow condition) at the designated point of connection and immediately submit written verification of pressure with date and time of recording to Owner's Representative.

3.2 TRENCHING, DIRECTIONAL BORING AND SLEEVING

A. Perform all trenching, directional boring, sleeving and excavations as required for the installation of the work included under this section, including shoring of earth banks to prevent cave_ins.

B. The Contractor may directional bore lines where it is practical or where required on the plans.

1. Extend the bore 1' past the edge of pavement unless noted differently on the plans

2. Cap ends of each bore and locate ends at finished grade using metal stakes.

3. All boring and sleeving shall have detectable locator tape placed at the ends of the pipe.

C. Make trenches for mains, laterals and control wiring straight and true to grade and free of protruding stones, roots or other material that would prevent proper bedding of pipe or wire.

D. Excavate trenches wide enough to allow a minimum of 4 - inch between parallel pipelines and 8 inch from lines of other trades. Maintain 3 - inch vertical clearance between irrigation lines. Minimum transverse angle is 45 degrees. All pipes shall be able to be serviced or replaced without disturbing the other pipes.

E. Trenches for pipelines shall be made of sufficient depth to provide the minimum cover from finished grade as follows:

4. Pressure main line: 18 inches below finish grade and 24-30 inches below paved areas in Schedule 40 PVC sleeves.

5. Reclaimed water constant pressure main lines shall cross at least twelve (12) inches below potable water lines.

a. If a constant pressure reclaimed water main line must be installed above a potable water line or less than twelve (12) inches below a potable water line, then reclaimed water line shall be installed within an approved protective sleeve. The sleeve shall extend ten (10) feet from each side of the center of the potable line, for a total of twenty (20) feet. The sleeve shall be color-coded (purple) for use with reclaimed water.

3. Lateral lines: 12 inches below finish grade and 18 inches below paved areas in Schedule 40 PVC sleeves.

4. Control wiring: to the side of pressure main line and 24 inches below paved areas in Schedule 40 PVC sleeves.

F. On new on-site systems (post-meter), the required horizontal separation between potable water lines, reclaimed water constant pressure main lines and sewer lines shall be a minimum of four (4) feet apart as directed by the project engineer and/ or regulatory agency. Measurements shall be between facing surfaces, not pipe centerlines.

G. When trenching through areas of imported or modified soil, deposit imported or modified soils on one side of trench and subsoil on opposite side.

H. Backfill the trench per the requirements in paragraphs “Backfilling and Compacting” below.

3.3 PIPE INSTALLATION

A. General Pipe Installation

1. Exercise caution in handling, loading and storing, of plastic pipe and fittings to avoid damage.

a. The pipe and fittings shall be stored under cover until using, and shall be transported in a vehicle with a bed long enough to allow the length of pipe to lay flat so as not to be subjected to undue bending or concentrated external load at any point.

b. All pipe that has been dented or damaged shall be discarded unless such dent or damaged section is cut out and pipe rejoined with a coupling.

2. Trench depth shall be as specified above from the finish grade to the top of the pipe.

3. Install a detectable pipe locator tape 6 to 8 inches above all main line pipes.

B. Polyvinyl Chloride Pipe (PVC) Installation

1. Under no circumstance is pipe to rest on concrete, rock, wood blocks, construction debris or similar items.

2. No water shall be permitted in the pipe until a period of at least 24 hours has elapsed for solvent weld setting and curing.

3. Install assemblies and pipe to conform to respective details and where shown diagrammatically on drawings, using first class workmanship and best standard practices as approved. All fittings that are necessary for proper connections such as swing joints, offsets, and reducing bushings that are not shown on details shall be installed as necessary and directed as part of the work.

4. Dielectric bushings shall be used in any connections of dissimilar metals.

5. Gasketed plastic pipe: pipe-to-pipe joints or pipe to fittings shall be made in accordance with manufacturer's specifications.

6. Solvent weld or threaded plastic pipe:

a. Installation of all pipe and fittings shall be in strict accordance with manufacturer's specifications.

b. Pipe shall be cut using approved PVC pipe cutters only. Sawed joints are disallowed. All field cuts shall be beveled to remove burrs and excess before gluing.

c. Welded joints shall be given a minimum of 15 minutes to set before moving or handling. Excess solvent on the exterior of the joint shall be wiped clean immediately after assembly.

d. Plastic to metal connections shall be made with plastic adapters and if necessary, short (not close) brass threaded_nipples. Connection shall be made with two (2) wraps of Teflon tape and hand tightened plus one turn with a strap wrench.

e. Snake pipe horizontally in trench to allow one (1) foot of expansion and contraction per 100 feet of straight run.

f. Threaded pipe joints shall be made using Teflon tape. Solvent shall not be used with threaded joints. Pipe shall be protected from tool damage during assembly. All damaged pipe shall be removed and replaced. Take up threaded joints with light wrench pressure.

g. No close nipples or risers are allowed. Cross connections in piping is disallowed.

h. Center load pipe at 10 feet on center intervals with small amount of backfill to prevent arching and slipping under pressure. Other than this preliminary backfill all pipe joints, fittings and connections are to remain uncovered until successful completion of hydrostatic testing and written approval of the testing report.

i. Concrete thrust blocks shall be constructed behind all pipe fittings 1-1/2 inch diameter and larger at all changes of direction of 45 degrees or more.

C. Galvanized Pipe Installation

1. All joints shall be threaded with pipe joint compound used on all threads.

2. Dielectric bushings shall be used in any connections of dissimilar metals.

3.4 TRENCHING, DIRECTIONAL BORING, AND SLEEVING REVIEW:

A. Upon completion and installation of all trenching, directional boring, and sleeving, all installed irrigation control wiring, lines and fittings shall be visually observed by the Owner's Representative unless otherwise authorized. Do not cover any wires, lines or fittings until they have been tested and observed by the Owner's Representative.

3.5 FLUSHING

A. Openings in piping system during installation are to be capped or plugged to prevent dirt and debris from entering pipe and equipment. Remove plugs when necessary to flush or complete system.

B. After completion and prior to the installation of any terminal fittings, the entire pipeline system shall be thoroughly flushed to remove dirt, debris or other material.

3.6 HYDROSTATIC PRESSURE TESTING

A. After flushing, and the installation of valves the following tests shall be conducted in the sequence listed below. The Contractor shall furnish all equipment; materials and labor necessary to perform the tests and all tests shall be conducted in the presence of the Owner's Representative.

B. Water pressure tests shall be performed on all pressure main lines before any couplings, fittings, valves and the like are concealed.

C. Immediately prior to testing, all irrigation lines shall be purged of all entrapped air or debris by adjusting control valves and installing temporary caps forcing water and debris to be discharged from a single outlet.

D. Test all pressure main line at 150 PSI. For a minimum of four (4) hours with an allowable loss of 5 PSI. Pressure and gauges shall be read in PSI, and calibrated such that accurate determination of potential pressure loss can be ascertained.

E. Re_test as required until the system meets the requirements. Any leaks, which occur during test period, will be repaired immediately following the test. All pipe shall be re_tested until final written acceptance.

F. The Contractor is responsible for proving documentation stating the weather conditions, date, the start time and initial water pressure readings, the finish time and final water pressure readings and the type of equipment used to perform the test. The documentation must be signed by a witness acceptable to the Owner, verifying all of the above-mentioned conditions.

G. Submit a written report of the pressure testing results with the other above required information to the Owner's Representative for approval.

3.7 BACKFLOW PREVENTER TESTING

A. The backflow preventer shall be tested according to procedures and results per the requirements of the Foundation for Cross-Connection Control and Hydraulic Research, University of Southern California or American Water Works Association whichever is more stringent.

B. Testing shall be performed by a Backflow Prevention Assembly Tester with a current certification from the American Backflow Preventer Association.

3.8 CONTROLLER AND BOOSTER PUMP TESTING AND CERTIFICATION

A. Controller and booster Pump shall be certified by a factory approved certified professional. Contact xxxxxxxx at xxx.xxx.xxxx.

3.9 BACKFILLING AND COMPACTING

A. Irrigation trenches shall be carefully backfilled with material approved for backfilling and free of rocks and debris one (1) inch in diameter and larger. When back filling trenches in areas of imported or modified planting soil, replace any excavated subsoil at the bottom and the imported soil or modified planting soil at the top of the trench.

B. Backfill shall be compacted with approved equipment to the following densities

1. Backfill under pavement and within 2 feet of the edge of pavement: Compact to 95% or greater of maximum dry density standard proctor.

2. Backfill of subsoil under imported planting mixes or modified existing planting soil: Between 85 and 90% of maximum dry density standard proctor.

3. Backfill of imported planting mixes or modified existing planting soil: Compact to the requirements of the adjacent planting mix or planting soil as specified in section “Planting Soil”.

C. Finish grade of all trenches shall conform to adjacent grades without dips or other irregularities. Dispose of excess soil or debris off site at Contractor's expense.

D. Any settling of backfill material during the maintenance or warranty period shall be repaired at the Contractor's expense, including any replacement or repair of soil, lawn, and plant material or paving surface.

3.10 RESURFACING PAVING OVER TRENCHES

A. Restore all surfaces and repair existing underground installations damaged or cut as a result of the excavation to their original condition, satisfactory to the Owner's Representative.

B. Trenches through paved areas shall be resurfaced with same materials quality and thickness as existing material. Paving restoration shall be performed by the project paving Sub-contractor or an approved Contractor skilled in paving work.

C. The cost of all paving restoration work shall be the responsibility of the irrigation Contractor unless the trenching thru the paving was, by previous agreement, part of the general project related construction.

3.11 INSTALLATION OF EQUIPMENT

A. General:

1. All equipment shall be installed to meet all installation requirements of the product manufacturer. In the event that the manufactures requirements cannot be implemented due to particular condition at the site or with other parts of the design, obtain the Owner's Representative's written authorization and approval for any modifications.

2. Install all equipment at the approximately at the location(s) and as designated and detailed on the drawings. Verify all locations with the Owner's Representative.

3. Install all valves within a valve box of sufficient size to accommodate the installation and servicing of the equipment. Group valves together where practical and locate in shrub planting areas.

4. All sprinkler irrigation systems that are using water from potable water systems shall require backflow prevention. All backflow prevention devices shall meet and be installed in accordance with requirements set forth by local codes and the health department.

B. Pressure regulator:

1. Set regulator for required PSI per manufacturer's specifications.

C. Check Valve:

1. Install check valves approximately at the locations necessary to prevent low head run off.

D. Remote control valves:

1. Install one remote control valve per valve box.

2. Remote control valve manifolds and quick coupler valves shall be separate allowing use of a quick coupler with all remote control valves shut off.

3. Install boxes no farther than 12 inches from edge of paving and perpendicular to edge of paving and parallel to each other. Allow 12 inches clearance between adjacent valve boxes.

E. Quick coupler valve:

1. Install each quick coupler valve in its own valve box.

2. Install thrust blocks on quick couplers.

3. Place no closer than 12 inches to adjacent paving.

4. Install 18 inches off set from main line.

F. Sprinkler heads:

1. All main lines and lateral lines, including risers, shall be flushed and pressure tested before installing sprinkler heads.

2. Install specified sprinkler heads as shown in details at locations shown on the drawings. Adjust layout for full coverage, spacing of heads shall not exceed the maximum spacing recommended by the manufacturer.

3. All sprinkler heads shall be set perpendicular to finish grade unless otherwise designated on the drawings or details.

G. Irrigation controllers:

1. Remote control valves shall be connected to controller in numerical sequence as shown on the drawings.

2. Controller shall be tested with complete electrical connections. The Contractor shall be responsible for temporary power to the controller for operation and testing purposes.

3. Connections to control wiring shall be made within the pedestal of the controller. All wire shall follow the pressure main insofar as possible.

4. Electrical wiring shall be in a rigid gray PVC plastic conduit from controller to electrical outlet. The electrical Contractor shall be responsible for installing all wiring to the controller, in order to complete this installation. A disconnect switch shall be included.

H. Wiring:

1. Low Voltage

a. Control wiring between controller and electrical valves shall be installed in the same trench as the main line where practical. The wire shall be bundled and secured to the lower quadrant of the trench at 10 foot intervals with plastic electrical tape.

b. When the control wiring cannot be installed in the same main line trench it shall be installed a minimum of 18 inches below finish grade and a bright colored plastic ribbon with suitable markings shall be installed in the trench 6 inches below grade directly over the wire.

c. An expansion loop shall be provided every 500 feet in a box and inside each valve box. Expansion loop shall be formed by wrapping wire at least eight (8) times around a ¾ inch pipe and withdrawing pipe.

d. Provide one control wire to service each valve in system.

e. Provide 03 common wire(s) per controller, or as needed.

f. Run two (2) spare #14 - 1 wires from controller along entire main line to last electric remote control valve on each and every leg of main line. Label spare wires at controller and wire stub to be located in a box.

g. All control wire splices not occurring at control valve shall be installed in a separate splice valve box.

h. Wire markers (sealed, 1 inch to 3 inch square) are to identify control wires at valves and at terminal strips of controller. At the terminal strip mark each wire clearly indicting valve circuit number.

2. High Voltage

a. All electrical work shall conform to local codes, ordinances and any authorities having jurisdiction. All high voltage electrical work to be performed by licensed electrician.

b. The Contractor shall provide 120-volt power connection to the automatic controller unless noted otherwise on drawings.

I. Valve boxes:

1. Install one valve box for each type of valve installed as per the details.

2. Gravel sump shall be installed after compaction of all trenches. Final portion of gravel shall be placed inside valve box after valve is backfilled and compacted.

3. Permanently label valve number and or controller letter on top of valve box lid using a method approved by the Owners Representative.

J. Tracer wire:

1. Tracer wire shall be installed with non_metallic plastic irrigation main lines where controller wires are not buried in the same trench as the main line.

2. The tracer wire shall be placed on the bottom of the trench under the vertical projection of the pipe with spliced joints soldered and covered with insulation type tape.

3. Tracer wire shall be of a color not used for valve wiring. Terminate wire in a valve box. Provide enough length of wire to make a loop and attach wire marker with the designation "tracer wire".

K. Drip Installation:

1. Clamp fittings with Oetiker clamps or approved equal when operating pressure exceeds specific drip tubing fitting requirements.

2. When installing drip tubing, install soil staples as listed below:

a. Sandy Soil - One staple every three (3') feet and two (2) staples on each change of direction (tee, elbow, or cross).

b. Loam Soil - One staple every four (4') feet and two (2) staples on each change of direction (tee, elbow, or cross).

c. Clay Soil - One staple every five (5') feet and two (2) staples on each change of direction (tee, elbow, or cross).

3. Cap or plug all openings as soon as lines have been installed to prevent the intrusion of materials that would obstruct the pipe. Leave in place until removal is necessary for completion of installation.

4. Thoroughly flush all water lines before installing valves and other hydrants.

3.12 ADJUSTMENT AND COVERAGE TEST

A. Adjustment:

1. The Contractor shall flush and adjust all sprinkler heads, valves and all other equipment to ascertain that they function according to the manufacturer's data.

2. Adjust all sprinkler heads not to overspray onto walks, roadways and buildings when under maximum operating pressure and during times of normal prevailing winds.

B. Coverage test:

1. The Contractor shall perform the coverage test in the presence of the Owner's Representative after all sprinkler heads have been installed, flushed and adjusted. Each section is tested to demonstrate uniform and adequate coverage of the planting areas serviced.

2. Any systems that require adjustments for full and even coverage shall be done by the Contractor prior to final acceptance at the direction of the Owner's Representative at no additional cost. Adjustments may also include realignment of pipes, addition of extra heads, and changes in nozzle type or size.

3. The Contractor at no additional cost shall immediately correct all unauthorized changes or improper installation practices.

4. The entire irrigation system shall be operating properly with written approval of the installation by the Owner's representative prior to beginning any planting operations.

3.13 REPAIR OF PLANTING SOIL

A. Any areas of planting soil including imported or existing soils or modified planting soil which become compacted or disturbed or degraded as a result of the installation of the irrigation system shall be restored to the specified quality and compaction prior to beginning planting operations at no additional expense to the Owner. Restoration methods and depth of compaction remediation shall be approved by the Owner's Representative.

3.14 CLEAN-UP

A. During installation, keep the site free of trash, pavements reasonably clean and work area in an orderly condition at the end of each day. Remove trash and debris in containers from the site no less than once a week.

a. Immediately clean up any spilled or tracked soil, fuel, oil, trash or debris deposited by the Contractor from all surfaces within the project or on public right of ways and neighboring property.

B. Once installation is complete, wash all soil from pavements and other structures.

1. Make all repairs to grades ruts, and damage to the work or other work at the site.

2. Remove and dispose of all excess soil, packaging, and other material brought to the site by the Contractor.

3.15 PROTECTION

A. The Contractor shall protect installed irrigation work from damage due to operations by other Contractors or trespassers.

1. Maintain protection during installation until Acceptance. Treat, repair or replace damaged work immediately. The Owner's Representative shall determine when such treatment, replacement or repair is satisfactory.

3.16 PRE-MAINTENANCE OBSERVATION:

A. Once the entire system shall be completely installed and operational and all planting is installed, the Owner's Representative shall observe the system and prepare a written punch list indicating all items to be corrected and the beginning date of the maintenance period.

B. The irrigation/landscape contractor is responsible for scheduling an irrigation audit prior to general maintenance taking effect. The irrigation auditor must be CLIA certified, in good standing and must comply with all Irrigation Associations methods and code of ethics.

C. This is not final acceptance and does not relieve the Contractor from any of the responsibilities in the contract documents.

3.17 GENERAL MAINTENANCE AND THE MAINTENANCE PERIOD

A. General maintenance shall begin immediately after installation of irrigation system. The general maintenance and the maintenance period shall include the following:

1. On a weekly basis the Contractor shall keep the irrigation system in good running order and make observations on the entire system for proper operation and coverage. Repair and cleaning shall be done to keep the system in full operation.

2. Records of all timing changes to control valves from initial installation to time of final acceptance shall be kept and turned over to the Owner's Representative at the time of final acceptance.

3. During the last week of the maintenance period, provide equipment familiarization and instruction on the total operations of the system to the personnel who will assume responsibility for running the irrigation system.

4. At the end of the maintenance period, turn over all operations logs, manuals, instructions, schedules, keys and any other equipment necessary for operation of the irrigation system to the Owner's Representative who will assume responsibility for the operations and maintenance of the irrigation system.

B. The maintenance period for the irrigation system shall coincide with the maintenance period for the Planting. (See specification section “Planting”

3.18 SUBSTANTIAL COMPLETION ACCEPTANCE

A. Upon written notice from the Contractor, the Owners Representative shall review the work and make a determination if the work is substantially complete.

B. The date of substantial completion of the irrigation shall be the date when the Owner's Representative accepts that all work in Planting, Planting Soil, and Irrigation installation sections is complete.

3.19 FINAL ACCEPTANCE / SYSTEM MALFUNCTION CORRECTIONS

A. At the end of the Plant Warrantee and Maintenance period, (See specification section “Planting”) the Owner's Representative shall inspect the irrigation work and establish that all provisions of the irrigation system are complete and the system is working correctly.

1. Restore any soil settlement over trenches and other parts of the irrigation system.

2. Replace, repair or reset any malfunctioning parts of the irrigation system.

B. The Contractor shall show all corrections made from punch list. Any items deemed not acceptable shall be reworked and the maintenance period will be extended.

C. The Contractor shall show evidence that the Owner's Representative has received all charts, records, drawings, and extra equipment as required before final acceptance.

D. Failure to pass review: If the work fails to pass final review, any subsequent observations must be rescheduled as per above. The cost to the Owner for additional observations will be charged to the Contractor at the prevailing hourly rate of the reviewer.

END OF SECTION 32 8400

General Notes

LICENSED LANDSCAPE CONTRACTOR
ANDREW BOLT LIC No. 1012730
Andrew Bolt
SIGN HERE
04/2020
RENEWAL DATE
STATE OF CALIFORNIA

IRRIGATION NOTES

No.	Revision/Issue	Date

Firm Name and Address

4Binc
Select Certified
IRRIGATION ASSOCIATION
Experienced professionals. Efficient solutions.
LIC # 1012730 IA CERT # 57436
ASIC
COMMERCIAL MEMBER

Project Name and Address

MONJOIN RESIDENCE

411 CREST DRIVE,
REDWOOD CITY, CA

Project: 257-2019	Drawn By: AJBB
Date: 12/11/2019	Checked By:
Scale:	Approved By:
	Sheet: IR1-4.1

MAWA-WATER USE CALCULATIONS

IRRIGATION MAINTENANCE

- Irrigation/Watering Responsibility
  - It is the responsibility of the Maintenance Contractor to operate the irrigation system in an efficient manner and to minimize water waste. It is the Maintenance Contractor's responsibility to adjust the system to apply water in accordance with plant requirements based on weather, soil, and site conditions. The irrigation program shall be scheduled to minimize water waste through runoff, excessive irrigation run times, utilize CYCLE SOAK scheduling when applicable. It is the responsibility of the Maintenance Contractor to operate the irrigation system based on local municipal guidelines.
- Irrigation Activation
  - Activate irrigation system in spring (or when weather permits). Charge mainline in February or March to check for leaks and/or malfunctioning valves.
  - Turn on backflow preventers, open gate valves and activate booster pumps if installed.
  - Set the irrigation controller to RUN MODE and verify that all programs are activated and set up to be run in Self Adjusted mode.
  - Site verification and adjustments. This includes turning on each zone, monitoring for leaks or malfunctioning parts, cutting grass away from sprinkler heads and adjusting sprinklers for proper arc and maximum efficiency.
  - Verify that drip irrigation is functional and that distribution tubing has not been cut or broken during non operational period.
  - Service, clean and adjust and weather sensor system. This is critical for ALL self adjusting controllers.
  - If applicable service irrigation booster pump, this need to be completed by the manufacturers certified technician.
- Irrigation Monitoring/Landscape Watering
  - Check the ET/Weather Based self adjusting system programming, Flow Sensor and Master Valve operation and programming; adjust as required to ensure proper operation.
  - ALL Backflow Prevention Devices are to be maintained as per Local city or county codes.
  - All turf areas shall be monitored to determine the need for supplemental irrigation. Frequency and duration of each watering will be dependent on local weather conditions. To determine the need for watering, Landscape Maintenance Contractor shall use a soil probe to examine the first 6-12" of the soil profile. If the soil is cool, damp and holds its shape, watering is not necessary. Plant material roots should be encourage to root as deep as possible, this is accomplished by deep root watering, longer irrigation run times and utilizing CYCLE SOAK method. Frequent shallow irrigation scheduling is ineffective and will only promote shallow rooting and require excessive water waste.
  - Groundcover and shrub beds shall be watered using an automatic irrigation system. The entire groundcover/shrub bed shall be soaked to a depth to maximize healthy plant root growth. Irrigation run time to be based on irrigation device precipitation rate (not flow rate) and plant material irrigation demand. (Use WUCOLS reference for plant watering needs). In the event of establishing plants, or compromised soil profile, watering frequencies may be adjusted.
  - Establish time settings and intervals of irrigation water application for each valve of all irrigation zones. Make adjustments when necessary to correspond to variable watering requirements. Check for coverage and plugged emission/nozzle devices. Clean devices and adjust devices while maintaining the system in proper working order.
  - ALL automatic controllers will be programmed to apply water during hours as permitted by local town, city or county ordinances.
- Irrigation System Repair
  - Cleaning and adjusting the sprinklers heads are the Maintenance Contractor's responsibility. Repair and/or replacement of any vandalized or malfunctioning component beyond Maintenance Contractor's control is the responsibility of the Owner/Agent. Any damage caused by Maintenance Contractor will be repaired by Maintenance Contractor at no cost to the Owner/Agent.
  - All irrigation repaired or replaced MUST be in accordance with the original irrigation design, local city or county guidelines and must provide the maximum efficiency as possible so as NOT to waste water.
  - ALL Drip systems are to be manually flushed a minimum one time per year and filters to be cleaned on a regular basis.
  - All damaged and repaired pipe MUST be flushed of all debris. Maintenance Contractor to guarantee full operational and efficient performance of repaired systems.
  - Repairs to Backflow Prevention Devices must be conducted by a trained certified backflow technician.
  - It is recommended that ALL irrigation maintenance and repair be performed by California Licensed and/or Certified contractor. Not maintaining irrigation systems in an efficient manner will result in plant and landscape degradation and additional maintenance costs.
- Irrigation System Winterization
  - Where applicable, shut off and drain irrigation system(s) at the end of the irrigation season. Turn off all main supply valves, open all manual drain valves, and bleed valves on backflow prevention devices. Perform winterization prior to November 1st.
- Irrigation Start up
  - Flush all drip lines at flush points.
  - Remove and clean all filters and replace any damaged filters.
  - Check that all weathers sensors are functioning and replace batteries as needed.

IRRIGATION MAINTENANCE

PRECIPITATION RATES & SOIL INTAKE RATES

EMITTER COUNT FOR 1" VALVE

GPM	GPH	GPH	GPM	DEVICES / 1" VALVE	FLOW GPM
0.25	15	0.5	0.01	1700	14.2
0.5	30	1	0.02	850	14.2
1	60	5	0.08	180	15.0
2	120	7	0.12	100	11.7
4	240	10	0.17	90	15.0
6	360	12	0.2	75	15.0
8	480	18	0.3	50	15.0
10	600	24	0.4	37	14.8
		30	0.5	30	15.0
		60	1	15	15.0
				1" VALVE BASED ON 15 GPM MAX	

DRIP PRECIPITATION RATES

GPH	GPM	Wr	Cr	# Devices	WA	Precip Rate
1	0.017	1	1	1	3.1	0.51
2	0.033	1.5	1	1	7.1	0.45
5	0.083	2	1	1	12.6	0.64
7	0.117	2.5	1	1	19.6	0.57
10	0.167	3	1	1	28.3	0.57
12	0.2	3.5	1	1	38.5	0.50
18	0.3	4	1	1	50.2	0.58
24	0.4	4.5	1	1	63.6	0.61
30	0.5	5	1	1	78.5	0.61
60	1	7	1	1	153.9	0.63

DRIP LINE CHART

GPH	GPM	SPACING	SQUARE FOOTAGE	FLOW GPM	PRECIP RATE
0.27	0.0045	12x12	100	0.44	0.42
0.27	0.0045	12x18	100	0.29	0.28
0.27	0.0045	12x24	100	0.22	0.21
0.27	0.0045	18x18	100	0.19	0.19
0.27	0.0045	18x24	100	0.13	0.14
0.27	0.0045	24x24	100	0.11	0.1
0.4	0.066	12x12	100	0.65	0.64
0.4	0.066	12x18	100	0.43	0.43
0.4	0.066	12x24	100	0.33	0.32
0.4	0.066	18x18	100	0.29	0.29
0.4	0.066	18x24	100	0.20	0.21
0.4	0.066	24x24	100	0.16	0.16
0.6	0.01	12X12	100	0.99	0.96
0.6	0.01	12X18	100	0.66	0.64
0.6	0.01	12X24	100	0.50	0.48
0.6	0.01	18X18	100	0.44	0.43
0.6	0.01	18X24	100	0.33	0.32
0.6	0.01	24x24	100	0.25	0.24
0.9	0.015	12X12	100	1.48	1.44
0.9	0.015	12X18	100	0.99	0.96
0.9	0.015	12X24	100	0.75	0.72
0.9	0.015	18X18	100	0.66	0.64
0.9	0.015	18X24	100	0.50	0.48
0.9	0.015	24X24	100	0.38	0.36

INLINE FORMULA
PR= 231.1 x Emitter Flow /Emitter Spacing x Row Spacing

WETTED AREA OF SOIL TYPES

SOIL TYPE	Cr (FT)	SOIL TYPE	Cr (FT)
CLAY	1.0	LOAM	0.7
CLAY LOAM	1.0	LOAMY SAND	0.4
COURSE SAND	0.2	SANDY LOAM	0.6
FINE SAND	0.3	SILT LOAM	0.9

LEGEND

Cr	Soil Coefficient
TWr	Total Wetted Area
WA	Wetted Area

BASIC INTAKE RATE

SOIL TYPE	BASIC INFILTRATION RATE
SANDY	Less than 1.5"/hr
SANDY LOAM	.75 - 1.25"/hr
LOAM	.75"/hr
CLAY LOAM	.40"/hr
CLAY	.20"/hr

TREE RINGS 12" O.C EMITTER SPACING. MIN 3 RINGS PER TREE

RADIUS	CIRCUMF	TOTAL LF	FLOW RATE	TOTAL FLOW	PRECIP RATE	TOTAL FLOW/RING COUNT
18"	3.14*DIA	9.42	0.6 GPH	5 GPH	0.96"/HR	3 RINGS@ .6 GPH = 29 GPH
30"	3.14*DIA	15.7	0.6 GPH	9 GPH	0.96"/HR	4 RINGS@ .6 GPH = 47 GPH
48"	3.14*DIA	25.12	0.6 GPH	15 GPH	0.96"/HR	
60"	3.14*DIA	31.4	0.6 GPH	18 GPH	0.96"/HR	
18"	3.14*DIA	9.42	0.9 GPH	7.5 GPH	1.44"/HR	3 RINGS@ .9 GPH = 42.5 GPH
30"	3.14*DIA	15.7	0.9 GPH	13 GPH	1.44"/HR	4 RINGS@ .9 GPH = 69.5 GPH
48"	3.14*DIA	25.12	0.9 GPH	22 GPH	1.44"/HR	
60"	3.14*DIA	31.4	0.9 GPH	27 GPH	1.44"/HR	

Formula A 96.25 x GPH / 60 /Wetted Area*Cr
Formula B 1.605 x GPH / Wetted Area *Cr

PRECIPITATION RATES & SOIL INTAKE RATES

MWELO CALCULATIONS

Job Name: MONJOIN RESIDENCE

Date: 12/12/2019

California Water Efficient Landscape Worksheet

	Reference Evapotranspiration (ET_o)		42.8	Project Type		Residential		0.55		
	Rain Fall (Inches)			Usable Rain Fall (Inches)		0				
	Hydrozone # / Planting Description[a]	Plant Factor (PF)	Irrigation Method[b]	Irrigation Efficiency (IE)[c]	ETAF (PF/IE)	Landscape Area (Sq. Ft.)	ETAF x Area	Estimated Total Water Use (ETWU)[d]	Gallons Per Minute GPM	% Landscape Area
Zone#	Regular Landscape Areas									
1	SHRUBS-LOW	0.2	Drip	0.81	0.25	653	161	4279	0.00	22.13%
2	TURF-HIGH	0.7	Drip	0.81	0.86	494	427	11329	0.00	16.74%
3	SHRUBS-LOW	0.2	Drip	0.81	0.25	335	83	2195	0.00	11.35%
4	SHRUBS-MED	0.4	Drip	0.81	0.49	302	149	3957	0.00	10.23%
5	EX TREES-V LOW	0.1	Drip	0.81	0.12	628	78	2057	0.00	21.28%
6	TURF-HIGH	0.7	Drip	0.81	0.86	539	466	12361	0.00	18.26%
					Totals	2951	1363	36177	0.00	100%
	Special Landscape Areas									
		[redacted]			1	0	0	0		0.00%
					1	0	0	0		0.00%
					1	0	0	0		0.00%
					1	0	0	0		0.00%
					Totals	0	0	0		
							ETWU Total	36177		
							Maximum Allowed Water Allowance (MAWA)[e]	43069		

ETAF Calculations

Regular Landscape Areas

Total ETAF x Area	1363
Total Area	2951
Average ETAF	0.38

All Landscape Areas

Total ETAF x Area	1363
Total Area	2951
Average ETAF	0.38

Average ETAF for Regular Landscape Areas must be 0.55 or below for residential areas, and 0.45 or below for non-residential areas.

ETWU ACRE FEET	**0.111024**
MAWA ACRE FEET	**0.132175**
% ETWU OF MAWA	**0.84**
PASS:	**YES**

[a] Hydrozone # / Planting Descriptione.g.
1.) Front lawn
2.) Low water use planting
3.) Medium water use planting

[b] Irrigation Method
1.) Overhead Spray
2.) Drip

[c] Irrigation Efficiency
1.) 0.75 for Overhead Spray
2.) 0.81 for Drip

[d] ETWU (Annual Gallons Required) =
Eto x 0.62 x ETAF x Area
Where 0.62 is a conversion factor to change acre-inches per acre per year to gallons per square foot per year

[e] MAWA (Annual Gallons Allowed) =
(Eto-EPPT)X (0.62) [(ETAF x LA) + ((1-ETAF) x SLA)]
Where 0.62 is a conversion factor to change acre-inches per acre per year to gallons per square foot per year, LA is the total regular landscape area in square feet, SLA is the total special landscape area in square feet, and ETAF is 0.55 for residential areas and 0.45 for non-residential areas

SUMMARY HYDROZONE

HYDROZONE		AREA SQ FEET
HIGH WATER USE		1033
MODERATE WATER USE		302
LOW WATER USE		1616
VERY LOW		800

0.45	Non-Residential
0.55	Residential
0.81	Drip
0.81	Bubblers
0.81	Micro Spray
0.75	Spray
0.75	Rotary Nozzle
0.75	Rotor

MWELO CALCULATIONS

ESTABLISHED PLANT IRRIGATION SCHEDULE

CLIENT: MONJOIN RESIDENCE — July Eto: 6.20 — Site Annual Eto: 42.8

Avg Plant Factor Et: 0.4

Controller: HUNTER — HCC-PLASTIC — ET SOURCE: WEB SERVER — Soil Type: CLAY 0.2 — % Site Irrigation Effic: 0.81

Zone #	Program	Plant Type	Plant Factor	ET Plant Factor	Plant Factor x Eto	Root Depth "	Shade Factor	Density Factor	Irrigation Type	Inches Precip Rate	% Dist Unif	Irri Water Requirement Inches	Total Period Run Time	Valve Cycle Time	Cycles	Totals Days Per July	Zone GPM	Total GPM	Total Run Days/Yr	Total Gallons/Yr
1	A	Turf	High Water Use	0.7	4.3	6	1	1	Inline Drip	1.48	0.9	0.78	16	5	3	12	8.63	141	76	10,685.13
2	B	Shrub	Low Medium	0.2	1.2	12	1	1	Drip Device	0.43	0.9	0.22	24	12	2	8	0.52	12	51	637.30
3	B	Shrub	Medium	0.5	3.1	12	1	1	Drip Device	0.43	0.9	0.56	60	30	2	8	0.4	24	51	1,225.58
4	A	Turf	High Water Use	0.7	4.3	6	1	1	Inline Drip	1.48	0.9	0.78	16	5	3	12	9.45	154	76	11,700.41
5	B	Shrub	Low Medium	0.2	1.2	12	1	1	Drip Device	0.43	0.9	0.22	24	12	2	8	0.35	8	51	428.95
6	B	Shrub	Low Medium	0.2	1.2	12	1	1	Drip Device	0.43	0.9	0.22	24	12	2	8	0.38	9	51	465.72
7	C	Tree	Low Medium	0.2	1.2	18	1	1	Inline Drip	0.96	0.9	0.22	11	5	2	8	1.42	15	51	779.52
									Average Site % DU		0.90		176	Total Run Time						

Estimated Total Water Use: Gallons 18,544.40

IRRIGATION DAYS

	JANUARY	FEBRUARY	MARCH	APIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	TOTAL DAYS
Program A	1	3	5	7	10	11	12	10	8	5	3	1	76
Program B	1	2	4	5	7	8	8	7	5	3	2	1	51
Program C	1	2	4	5	7	8	8	7	5	3	2	1	51

Program	LANDSCAPE TYPE	CYCLES	CYCLE RUN		SOAK TIME	TOTAL SOAK TIME	
A	TURF DRIP	3	11	MINS	40	160	MINS
B	SHRUBS DRIP	2	66	MINS	40	320	MINS
C	EX TREES	1	11	MINS	40	40	MINS
D				MINS			MINS
E				MINS			MINS

Notes: CONTRACTOR TO SET UP CYCLE SOAK ON ALL SCHEDULES OR MULTIPLE START TIMES. THIS WILL ELIMINATE PUDDLING OR RUN OFF. RUN MULTIPLE START TIME TO ACCOMPLISH WATER WINDOW RESTRICTIONS. IT OS THE OPERATORS RESPONSIBILITY TO MANAGE THIS SITE SO AS NOT TO EXCEED THE ESTIMATED. TOTAL WATER USE ETWU

NOTES: This irrigation schedule is set up as a base guide only, contractor must adjust irrigation controller so as to irrigate based on plants needs and not to exceed the ETWU usage. Set irrigation controller to maximise Cycle Soak through programming.We are not responsible for overseeing controller scheduling.

RUN TIM E FORMULA = 60 X ET X Kc/PRXEA

IRRIGATION SCHEDULE

General Notes

LICENSED LANDSCAPE CONTRACTOR — ANDREW BOLT — Andrew Bolt — STATE OF CALIFORNIA

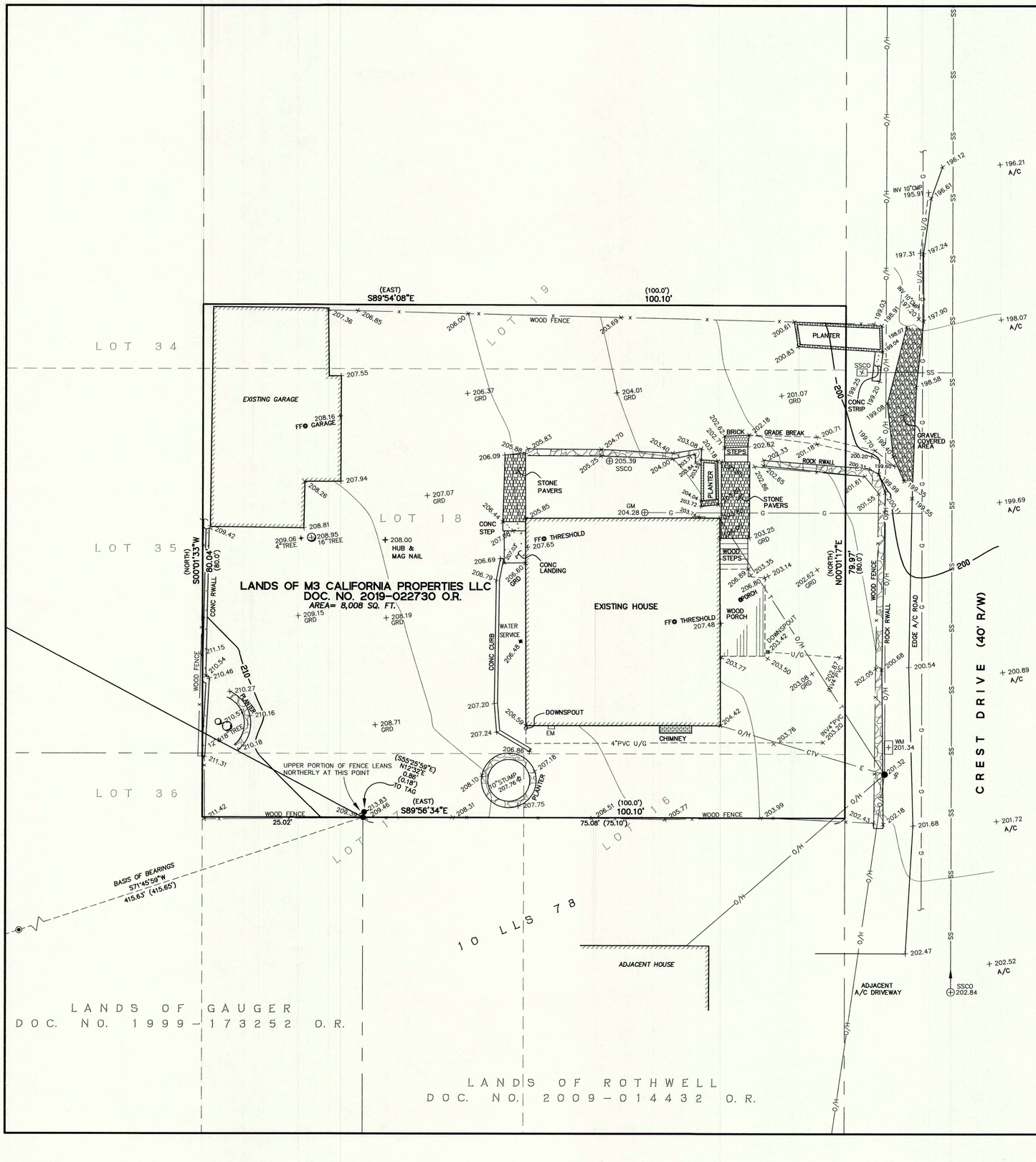
No.	Revision/Issue	Date

Firm Name and Address
4Binc — Select Certified Irrigation Association — Experienced professionals. Efficient solutions. — LIC # 1012730 IA CERT # 57436 — ASIC COMMERCIAL MEMBER

Project Name and Address
MONJOIN RESIDENCE
411 CREST DRIVE,
REDWOOD CITY, CA

Project 257-2019	Drawn By AJBB
Date 12/11/2019	Checked By
Scale	Approved By
	Sheet IR1-5.0

File Path: C:\Users\Andrew Bolt\OneDrive - Architectural Solutions\Desktop\Monjoin\Monjoin Irrigation Layout 121119.dwg - Save Date: March 6, 2020 - Saved By: Andrew Bolt



EASEMENT NOTES:

1) NO EASEMENTS ARE SHOWN ON THE THE RECORD SUBDIVISION MAP OTHER THAN SHOWN ON THIS MAP, IF ANY.

2) NO TITLE REPORT WAS PROVIDED BY THE CLIENT AND NO REPRESENTATION IS MADE BY B & H SURVEYING, INC. AS TO THE EXISTANCE OR NON - EXISTANCE OF ANY EASEMENTS.

BASIS OF ELEVATIONS:

ELEVATIONS ARE BASED UPON AN ASSUMED DATUM.

TBM: SET MAG NAIL & SHINER
ELEVATION = 198.72

BASIS OF BEARINGS:

THE CALCUATED BEARING N71°45'59"E BETWEEN A FOUND IRON PIPE, AS SHOWN ON THAT CERTAIN RECORD OF SURVEY FILED IN VOLUME 10 OF L.L.S. MAPS AT PAGE 78, AND A FOUND BRASS DISK MONUMENT, AS SHOWN ON THAT CERTAIN SUBDIVISION MAP FILED IN VOLUME 121 OF MAPS AT PAGES 16-17, SAN MATEO COUNTY RECORDS, WAS USED AS THE BASIS OF BEARINGS FOR THIS SURVEY.

LEGEND:

●	FOUND 1" IRON PIPE WITH PLASTIC PLUG "LS 4850" AND TACK, PER 10 LLS 78
⌀	FOUND 3/4" BRASS TAG "LS 3138", ON TOP OF FENCE PER 10 LLS 78
◉	FOUND BRASS DISK WITH PUNCH, IN CASING PER 121 MAPS 16 - 17
A/C	ASPHALTIC CONCRETE
BW	BACK OF WALK
CB	CATCH BASIN
CIP	CAST IRON PIPE
CMP	CORRUGATED METAL PIPE
CONC	CONCRETE
CO	CLEAN-OUT
DI	DROP INLET
EM	ELECTRIC METER
FD	FOUND
FF	FINISHED FLOOR
FL	FLOW LINE
FH	FIRE HYDRANT
GA	GUY ANCHOR
GM	GAS METER
GRD	GROUND
HCR	HANDICAP RAMP
INV.	INVERT
IP	IRON PIPE
JP	JOINT POLE
LAT.	LATERAL
LC	LIP OF GUTTER
O/H	OVERHEAD
P.U.E.	PUBLIC UTILITIES EASEMENT
RCP	REINFORCED CONCRETE PIPE
RWALL	RETAINING WALL
R/W	RIGHT OF WAY
SSCO	SANITARY SEWER CLEAN-OUT
SSMH	SANITARY SEWER MANHOLE
SDMH	STORM DRAIN MANHOLE
TBC	TOP BACK OF CURB
T/W	TOP OF WALL
U/G	UNDERGROUND
VCP	VITRIFIED CLAY PIPE
WV	WATER VALVE
WM	WATER METER BOX
-CTV-	CABLE TELEVISION LINE
-E-	ELECTRICAL LINE
-G-	GAS LINE
-SS-	SANITARY SEWER LINE
-SD-	STORM DRAIN LINE
-T-	TELEPHONE LINE
-W-	WATER LINE

UTILITY NOTE:

THE UTILITIES EXISTING ON THE SURFACE AND SHOWN ON THIS DRAWING HAVE BEEN LOCATED BY FIELD SURVEY. ALL UNDERGROUND UTILITIES SHOWN ON THIS DRAWING ARE FROM RECORDS OF THE VARIOUS UTILITY COMPANIES AND THE SURVEYOR DOES NOT ASSUME RESPONSIBILITY FOR THEIR COMPLETENESS, INDICATED LOCATION, OR SIZE. RECORD UTILITY LOCATION SHOULD BE CONFIRMED BY EXPOSING THE UTILITY.

LICENSED LAND SURVEYOR
WAYNE HAAS
LS 7701
Exp. 12-31-20
STATE OF CALIFORNIA

Wayne Haas

BOUNDARY AND TOPOGRAPHIC SURVEY

LANDS OF M3 CALIFORNIA PROPERTIES LLC
DOC. NO. 2019-022730 O.R.
BEING LOT 18 AND A PORTION
OF LOTS 16, 17 AND 19
"OAK KNOLL HEIGHTS"
VOLUME 17 OF MAPS AT PAGES 22 - 23

ASSESSOR'S PARCEL NUMBER: 057-203-050

(411 CREST DRIVE, EMERALD HILLS)

UNINCORPORATED	SAN MATEO COUNTY	CALIFORNIA
SCALE: 1" = 8'		JUNE, 2019

B & H SURVEYING, INC.
PROFESSIONAL LAND SURVEYING
901 WALTERMIRE ST.
BELMONT, CA 94002
OFFICE (650) 637-1590

JOB: 7401-19
DWG: 7401-FIN2
BY: R. JOSE