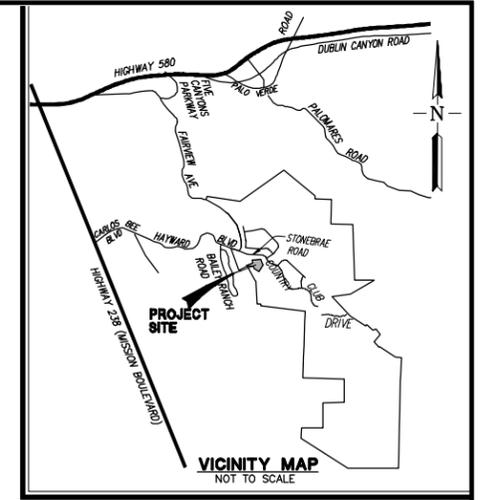


BENCHMARK:
 STREET MONUMENT LOCATED 256± EAST OF THE INTERSECTION OF
 ARBUTUS COURT AND FAIRVIEW AVENUE, CITY OF HAYWARD
 BENCHMARK B.M. J-21
 ELEVATION: 1018.966 FEET

VESTING TENTATIVE MAP TRACT 8353 - CAVALLO HIGHLANDS CITY OF HAYWARD, ALAMEDA COUNTY, CALIFORNIA



PROPOSED	DESCRIPTION	EXISTING
---	TRACT BOUNDARY	---
---	LOT LINE	---
---	RIGHT OF WAY	---
---	CENTER LINE	---
---	MATCH LINE	---
---	RETAINING WALL	---
---	EASEMENT LINE	---
---	STORM DRAIN	EX 12" SD
---	SANITARY SEWER	EX 12" SS
---	POTABLE WATER	EX 12" W
---	RECYCLED WATER	EX 8" WR
---	CURB & GUTTER	EX FC
---	SAWCUT	---
---	SIDEWALK	---
---	EARTH OR GRASS SWALE	---
---	VALLEY GUTTER	---
---	STORM WATER INLET	---
---	DROP INLET	---
---	AREA DRAIN	---
---	BUBBLE UP	---
---	MANHOLE	---
---	SANITARY SEWER CLEAN OUT	---
---	SANITARY SEWER LATERAL	---
---	FIRE HYDRANT	---
---	BLOW OFF	---
---	WATER SERVICE WITH METER BOX	---
---	BACKFLOW DEVICE	---
---	WATER VALVE	---
---	AIR RELEASE VALVE	---
---	POST INDICATOR VALVE	---
---	FIRE DEPARTMENT CONNECTION	---
---	SINGLE ARM STREET LIGHT	---
---	DOUBLE ARM STREET LIGHT	---
---	POST TOP LIGHT	---
---	PEDESTRIAN LIGHT	---
---	MONUMENT	---
---	TRAFFIC SIGN	---
---	STREET NAME SIGN	---
---	FENCE	---
---	BARRICADE	---
---	CURB RAMP	---
---	CONTOUR ELEVATIONS	---
---	SPOT ELEVATION	---
---	NEW ASPHALT PAVEMENT	---
---	IRRIGATION SLEEVE	---



GENERAL NOTES

- OWNER:** CARRIE AITKEN
C/O ERIK HAYDEN
HAYDEN LAND COMPANY, LLC
15732 LOS GATOS BLVD, #101
LOS GATOS, CA 95032
(408) 348-5679
- APPLICANT:** CARRIE AITKEN
C/O ERIK HAYDEN
HAYDEN LAND COMPANY, LLC
15732 LOS GATOS BLVD, #101
LOS GATOS, CA 95032
(408) 348-5679
- CIVIL ENGINEER:** RUGGERI-JENSEN-AZAR
4690 CHABOT DRIVE, SUITE 200
PLEASANTON, CA 94588
(925) 227-9100
CONTACT: JOSEPH AZAR
R.C.E # 44628
- GEOTECHNICAL ENGINEER:** ENCOE INCORPORATED
2010 CROW CANYON PLACE, SUITE 250
SAN RAMON, CA 94583
(925) 866-9000
CONTACT: KELSEY GERHART
- LEGAL DESCRIPTION:** THE LAND REFERRED TO HEREIN IS SITUATED IN THE CITY OF HAYWARD, COUNTY OF ALAMEDA, STATE OF CALIFORNIA, AND IS DESCRIBED AS FOLLOWS: COMMENCING AT THE SOUTHEASTERN CORNER OF THE RANCHO SAN LORENZO, THENCE ALONG THE EASTERN BOUNDARY LINE THEREOF TO THE TRUE POINT OF BEGINNING, THENCE ALONG THE PARCEL OF LAND DESCRIBED IN THE DEED BY A.C. SILVA TO ARTHUR M. GARDEN AND AGNES D. GARDEN, DATED APRIL 30, 1940, RECORDED OCTOBER 14, 1940, AND TRACT OF LAND DESCRIBED IN THE DEED, DATED JUNE 21, 1931, RECORDED FEBRUARY 16, 1932, IN BOOK 2728 OF OFFICIAL RECORDS OF ALAMEDA COUNTY, AND JANUARY 27, 1938, RECORDED DECEMBER 1, 1938, IN BOOK 3710 OF OFFICIAL RECORDS OF ALAMEDA COUNTY.
- ASSESSOR'S PARCEL NUMBER:** 085A-6428-002
- CURRENT USE:** RESIDENTIAL
- PROPOSED USE:** RESIDENTIAL
- EXISTING ZONING:** AGRICULTURAL B160A
- PROPOSED ZONING:** SDR (1-4.3 UNITS/ACRE)
- GROSS SITE AREA:** 8.9± ACRES
- NET AREA:** 7.5± ACRES
- TOTAL NUMBER OF PROPOSED LOTS:** 19 LOTS
- OPEN SPACE:** LOT A & B (OWNED AND MAINTAINED BY HOA)
- PRIVATE STREET:** LOT C (OWNED AND MAINTAINED BY HOA)
- DEVELOPMENT DENSITY:** 2.5 DWELLING UNITS/NET ACRES
- UTILITIES**
 - a. WATER: CITY OF HAYWARD
 - b. SANITARY SEWER: CITY OF HAYWARD
 - c. STORM DRAIN: CITY OF HAYWARD
 - d. FIRE: CITY OF HAYWARD
 - e. GAS AND ELECTRIC: PG&E
 - f. TELEPHONE: AT&T
 - g. CABLE TV: COMCAST
- THIS PROPERTY LIES WITHIN FLOOD ZONE X (AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN), AS SHOWN IN FLOOD INSURANCE RATE MAP, COMMUNITY PLAN NO. 0600100294G, DATED AUGUST 3, 2009.**
- ALL EROSION CONTROL MEASURES SHALL BE IN CONFORMANCE WITH THE CRITERIA AND STANDARDS OF THE CITY OF HAYWARD.**

ABBREVIATIONS

AB	AGGREGATE BASE	PAE	PUBLIC ACCESS EASEMENT
AC	ASPHALT CONCRETE	PAV	PAVEMENT
AD	AREA DRAIN	PCC	POINT OF COMPOUND CURVATURE
ARV	AIR RELEASE VALVE	PIV	POST INDICATOR VALVE
BC	BEGINNING OF CURVE	PL	PROPERTY LINE
BD	BLOWOFF	PMAE	PRIVATE MAINTENANCE ACCESS EASEMENT
BW	BOTTOM OF WALL	PPAE	PRIVATE PEDESTRIAN ACCESS EASEMENT
CL	CENTER LINE	PRC	POINT OF REVERSE CURVE
COMM	COMMUNICATION	PRUE	PRIVATE SERVICES AND UTILITY EASEMENT
DI	DROP INLET	PSDE	PRIVATE STORM DRAIN EASEMENT
DIP	DUCTILE IRON PIPE	PSE	PUBLIC SERVICE EASEMENT
DW	DOMESTIC WATER	PUE	PUBLIC UTILITY EASEMENT
EAE	EMERGENCY ACCESS EASEMENT	PVAE	PRIVATE VEHICLE ACCESS EASEMENT
EC	END OF CURVE	PVC	POLYVINYL CHLORIDE PIPE
EVAE	EMERGENCY VEHICLE ACCESS EASEMENT	PWLE	PRIVATE WATER LINE EASEMENT
EX	EXISTING	RCP	REINFORCED CONCRETE PIPE
FC	FACE OF CURB	RET	CURB RETURN
FG	FINISHED GRADE	RW	RIGHT OF WAY
FH	FIRE HYDRANT	SD	STORM DRAIN
FL	FLOW LINE	SS	SANITARY SEWER
FS	FIRE SERVICE	SNS	STREET NAME SIGN
FW	FIRE WATER	SL	STREET LIGHT
GE	GARAGE ELEVATION	STA	STATION
GB	GRADE BREAK	STD	STANDARD
HDPE	HIGH-DENSITY POLYETHYLENE PIPE	SWI	STORM WATER INLET
HP	HIGH POINT	SWK	SIDEWALK
HM	HYDROMODIFICATION	SLE	SANITARY SEWER LINE EASEMENT
INV	INVERT ELEVATION	TC	TOP OF CURB
LF	LINEAR FOOT	TFC	TOP OF FLUSH CURB
LP	LOW POINT	TG	TOP OF GRATE
MAX	MAXIMUM	TMC	TOP OF MOUNTABLE CURB
ME	MAINTENANCE EASEMENT	TRW	TOP OF RETAINING WALL
MH	MANHOLE	TW	TOP OF WALL
MIN	MINIMUM	TYP	TYPICAL
P	PAD ELEVATION	W(R)	RECYCLED WATER
		W	WATER LINE
		WLE	WATER LINE EASEMENT

LOCATION MAP
NOT TO SCALE

ALTERNATIVE STREET NAMES

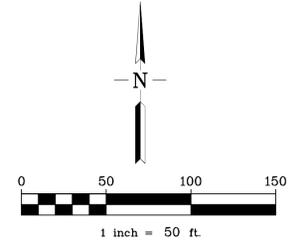
- CALLE TRAMONTO
- CALLE PENDIO

SHEET INDEX

SHEET NO.	DESCRIPTION
C1.0	COVER SHEET
C2.0	EXISTING CONDITIONS PLAN
C2.1	SLOPE CLASSIFICATION MAP
C3.0	PROPOSED LOTTING PLAN
C4.0	PRELIMINARY GRADING AND DRAINAGE PLAN
C5.0	PRELIMINARY UTILITY PLAN
C6.0	PRELIMINARY STORMWATER TREATMENT PLAN

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 PHONE: (925) 227-9100 FAX: (925) 227-9300

C1.0



GROSS AREA = 8.9 ± ACRES
 APN = 085A-0428-002

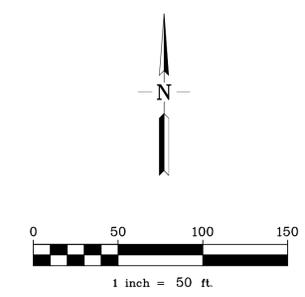
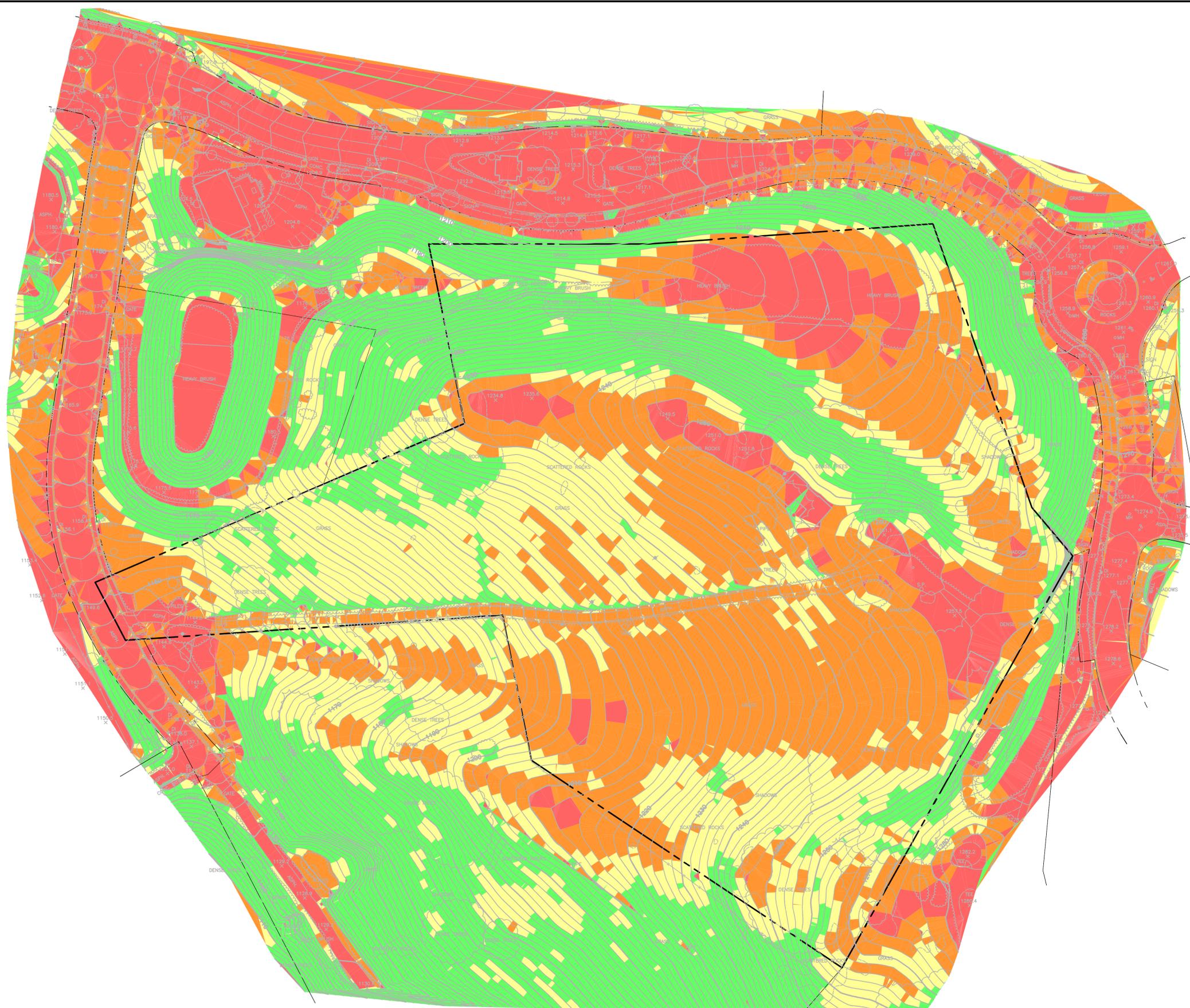
EXISTING CONDITIONS PLAN
TRACT 8353 - CAVALLO HIGHLANDS
 CITY OF HAYWARD, ALAMEDA COUNTY, CALIFORNIA

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C2.0

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DATE: JANUARY 7, 2019 JOB NO. 111044TM



Slopes Table			
Number	Minimum Slope	Maximum Slope	Color
1	0.00%	10.00%	Red
2	10.00%	20.00%	Orange
3	20.00%	30.00%	Yellow
4	30.00%	> 30.00%	Green

SLOPE CLASSIFICATION MAP
TRACT 8353 - CAVALLO HIGHLANDS
 CITY OF HAYWARD, ALAMEDA COUNTY, CALIFORNIA

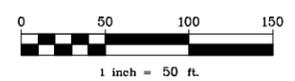
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C2.1

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DATE: MARCH 5, 2018

JOB NO. 111044TM

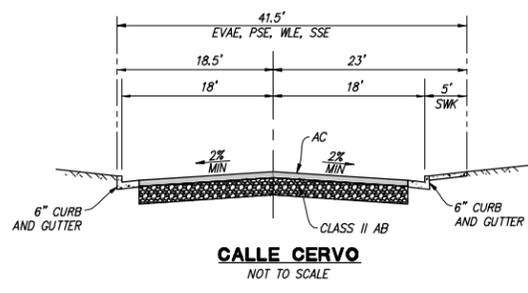
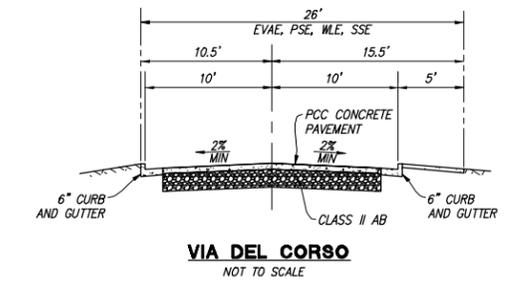


LOT AREA TABLE

LOT	AREA (SF)	LOT	AREA (SF)
1	19,280	A	56,684
2	13,790	B	42,077
3	11,420	C	63,390
4	11,353	TOTAL	386,900
5	11,353	AVG (LOTS 1-19)	11,829
6	10,804		
7	12,554		
8	9,017		
9	10,913		
10	15,202		
11	11,018		
12	11,377		
13	11,736		
14	12,138		
15	15,534		
16	9,885		
17	10,662		
18	8,804		
19	7,915		

LOT NOTES:

1. LOT C, SHALL BE DESIGNATED AS PRIVATE STREET AREA TO BE MAINTAINED BY HOA.
2. LOTS A & B SHALL BE DESIGNATED AS OPEN SPACE AREA TO BE OWNED AND MAINTAINED BY HOA.
3. LOTS 1-19 SHALL BE DESIGNATED AS RESIDENTIAL LOTS.



NOTE:

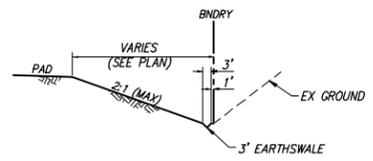
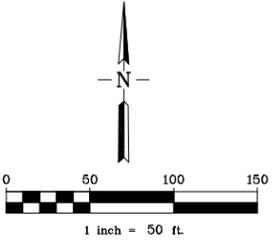
1. INSTALL PCC VALLEY GUTTER AND APRON PER CITY STD SD-110A ALONG GARDEN LANE AT STREET "A" ENTRANCE.

PROPOSED LOTTING PLAN
TRACT 8353 - CAVALLO HIGHLANDS
 CITY OF HAYWARD, ALAMEDA COUNTY, CALIFORNIA

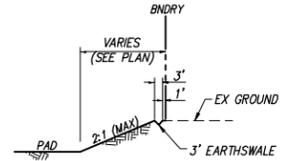
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C3.0

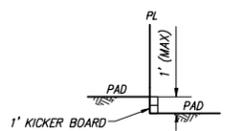
© LUBBOTT 1/10/24 CAD FILES 102-PLANNING\TENT-MAP\C3.001-11044.DWG 1/8/2019 6:11:24 PM ELISABETH MEDA



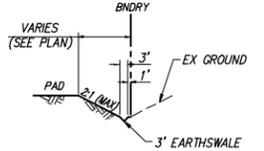
SECTION A-A
NOT TO SCALE



SECTION B-B
NOT TO SCALE



SECTION C-C
NOT TO SCALE



SECTION D-D
NOT TO SCALE

ESTIMATED EARTHWORK QUANTITIES

ITEMS	CUT (C.Y.)	FILL (C.Y.)
DEMOLITION (SEE NOTE 3 BELOW)	(150)	0
LOTS	46,200	57,500
STREETS	12,800	7,500
FOUNDATION & PLUMBING SPOILS	900	0
TRENCH SPOIL	3,000	0
C-3 SPOILS	800	0
HYDROMOD SPOILS	1,000	0
SHRINKAGE (ASSUME 2%)	0	1,300
TOTAL	64,700	66,300

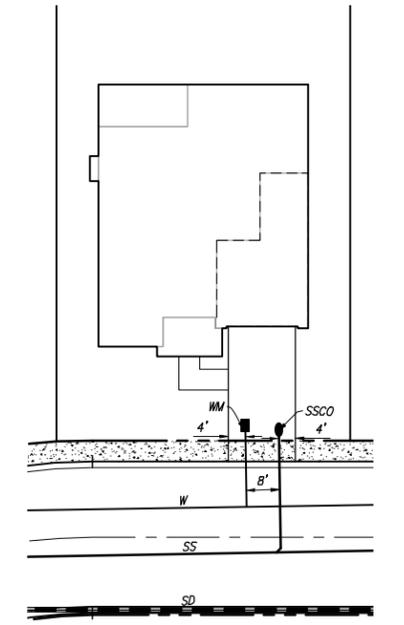
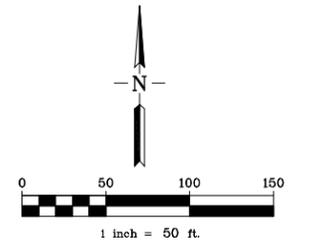
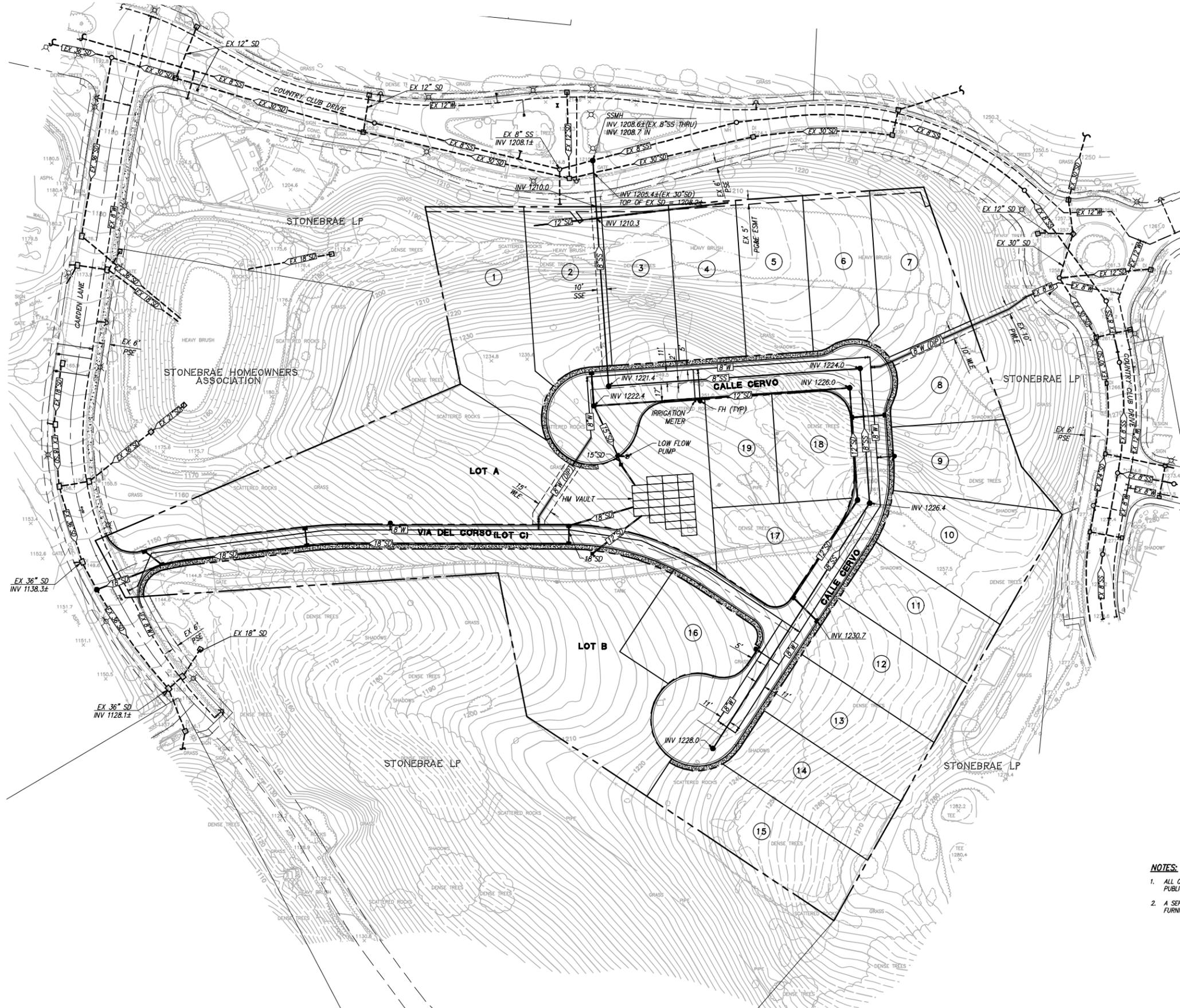
1. ALL QUANTITIES SHOWN ON THIS PLAN ARE APPROXIMATE. CALCULATED CUT AND FILL ARE TO "ROUGH GRADE" AND EXISTING GROUND. THE ACTUAL AMOUNT OF EARTH MOVED IS VARIABLE DEPENDENT ON COMPACTION, CONSOLIDATION, STRIPPING REQUIREMENTS, AND THE CONTRACTOR'S METHOD OF OPERATION.
2. THE CONTRACTOR SHALL VERIFY ALL EARTHWORK QUANTITIES BEFORE START OF WORK. THE CONTRACTOR SHALL CONTACT THE CIVIL ENGINEER WITH ANY DISCREPANCIES.
3. DEMOLITION MATERIAL TO BE OFFHAULED BY THE CONTRACTOR.
4. FOUNDATION AND PLUMBING SPOILS ARE ASSUMED AT 50 CY/BUILDING

PRELIMINARY GRADING AND DRAINAGE PLAN
TRACT 8353 - CAVALLO HIGHLANDS
CITY OF HAYWARD, ALAMEDA COUNTY, CALIFORNIA

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C4.0

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DETAIL 1 - TYPICAL UTILITY LAYOUT
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NOTES:

1. ALL ON-SITE SANITARY SEWER & WATER LINES WILL BE PUBLICLY OWNED AND MAINTAINED BY THE CITY OF HAYWARD.
2. A SEPARATE IRRIGATION METER AND SERVICE SHALL BE FURNISHED FOR COMMON AREA LANDSCAPING.

PRELIMINARY UTILITY PLAN
TRACT 8353 - CAVALLO HIGHLANDS
CITY OF HAYWARD, ALAMEDA COUNTY, CALIFORNIA

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DATE: JANUARY 7, 2019 JOB NO. 111044TM

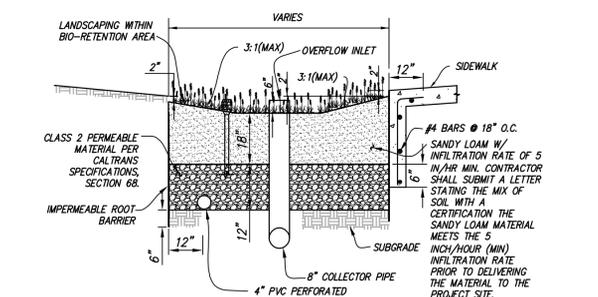
© LUBERTI 1/10/14 (CAD FILES) 02 - PLANNING TENT-MAP (S.D.001 - 111044.DWG) 1/8/2019 @ 10:57 PM ELISABETH HERDA

STORMWATER TREATMENT CALCULATION

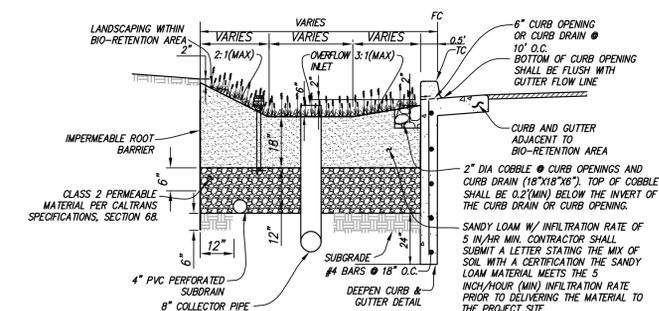
DMA ID	SURFACE	IMPERVIOUS AREA (SF)	REDUCTION IN IMPERVIOUS AREA (TREE CREDIT)	EFFECTIVE LANDSCAPE AREA (SF)	TOTAL EFFECTIVE IMPERVIOUS AREA	BMP USED	SIZING FACTOR	REQUIRED AREA (SF)	SURFACE AREA AS PROVIDED (SF)
DMA 1	ROOF	11,028	0	698	11,726	BIORETENTION	0.04	469	470
DMA 2	ROOF	13,432	0	777	14,209	BIORETENTION	0.04	568	569
DMA 3	ROOF	8,728	350	540	8,918	BIORETENTION	0.04	357	359
DMA 4	ROOF	9,434	925	980	9,489	BIORETENTION	0.04	380	382
DMA 5	ROOF	5,330	0	995	6,325	BIORETENTION	0.04	253	254
DMA 6	ROOF	13,451	1,975	2,087	13,563	BIORETENTION	0.04	543	549
DMA 7	ROOF	10,285	0	1,755	12,040	BIORETENTION	0.04	482	485
DMA 8	ROOF	7,026	0	344	7,370	BIORETENTION	0.04	295	295
DMA 9	ROOF	7,240	0	353	7,593	BIORETENTION	0.04	304	304
DMA 10	ROOF	10,909	150	608	11,367	BIORETENTION	0.04	455	459
DMA 11	PAV	38,000	0	0	38,000	BIORETENTION	0.04	1,520	1520
DMA 12	PAV	9,419	0	0	9,419	BIORETENTION	0.04	377	378
DMA 13	PAV	3,100	0	0	3,100	BIORETENTION	0.04	124	124
DMA 14	PAV	4,061	0	0	4,061	BIORETENTION	0.04	162	164
DMA 15	PAV	2,900	0	0	2,900	BIORETENTION	0.04	116	117
DMA 16	PAV	2,296	0	0	2,296	BIORETENTION	0.04	92	93
DMA 17	PAV	1,700	0	0	1,700	BIORETENTION	0.04	68	69

NOTES:

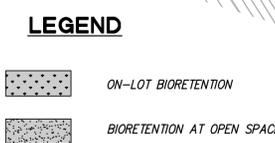
- THE ABOVE CALCULATIONS ARE BASED ON THE ALAMEDA COUNTYWIDE CLEAN WATER PROGRAM, C.3 STORMWATER TECHNICAL GUIDANCE, DATED JANUARY 1, 2015, AND THE FOLLOWING CRITERIA:
 - EFFECTIVE IMPERVIOUS AREA = IMPERVIOUS AREA + 10% OF PEROUS AREA
 - 0.2 INCHES/HOUR RAINFALL INTENSITY ON 100% OF EFFECTIVE IMPERVIOUS AREA.
 - SOIL FOR TREATMENT MEDIUM WITH A 5 INCHES/HOUR INFILTRATION RATE.
- SIZING FACTOR OF 0.04 NOTED ABOVE IS CALCULATED BASED ON THE FOLLOWING CRITERIA:
 - SIZING FACTOR=(0.2 IN/HR)/(5 IN/HR)=0.04
- SITE HAS A TOTAL OF 34 DECIDUOUS TREES. THIS ALLOWS FOR A 3,400 REDUCTION IN IMPERVIOUS AREA



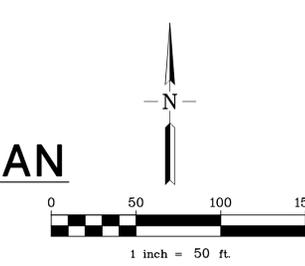
ON-LOT BIO-RETENTION (ADJACENT TO SIDEWALK)
NOT TO SCALE



BIORETENTION AT OPEN SPACE
NOT TO SCALE



PRELIMINARY STORMWATER TREATMENT PLAN
TRACT 8353 - CAVALLO HIGHLANDS
CITY OF HAYWARD, ALAMEDA COUNTY, CALIFORNIA



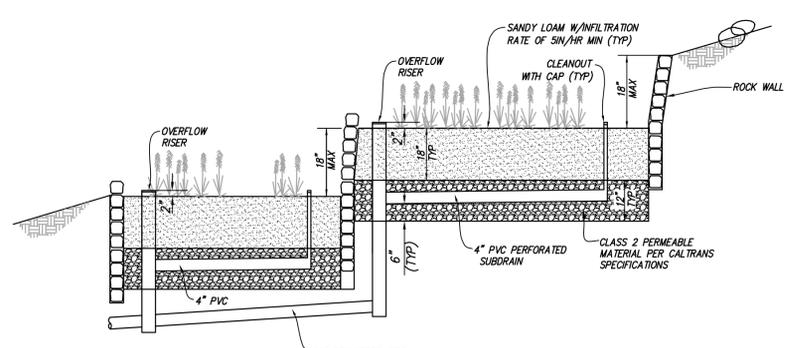
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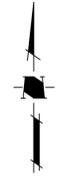
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DATE: JANUARY 7, 2019 JOB NO. 111044TM

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BIORETENTION AREAS FOR DMA #12-17
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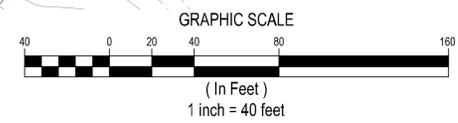


**CAVALLO HIGHLANDS
 TRACT 8353
 HAYWARD, CA**



EXISTING OFF SITE TREE TO REMAIN,
 TYPICAL

PROPERTY BOUNDARY, LIMIT OF WORK.



EXISTING TREE SUMMARY	
TOTAL TREES TO REMAIN "OFF SITE"	7
TOTAL TREES TO BE REMOVED "ON SITE"	78
TOTAL EXISTING TREES ON SITE	85

TREE PROTECTION LEGEND	
DESCRIPTION	SYMBOL
TREE (ON SITE) TO BE REMOVED	X#
TREE (OFF SITE) TO REMAIN/PROTECT	#

NOTES:
 1. SEE SHEET L1.2 FOR TREE MITIGATION SUMMARY CHART.
 2. SEE SHEET L1.3 FOR TREE INVENTORY AND TREE PROTECTION NOTES.
 3. TREE MITIGATION SHALL COMPLY WITH CITY OF HAYWARD TREE PRESERVATION ORDINANCE REQUIREMENTS, MUNICIPAL CODE CHAPTER 10, ARTICLE 15.

NO	DATE	DESCRIPTION

PROJECT NO.	4795.00
CAD DWG FILE:	479500CL.DWG
DESIGNED BY:	BG
DRAWN BY:	JH
CHECKED BY:	BG
DATE:	JANUARY 8, 2019
SCALE:	1" = 40'
© HMMH	

TREE REMOVAL PLAN

L1.1

Proposed Required Trees		
Required Street Trees	Quantity	Sizes
Required Street Trees	54	24" BOX
Required Alley Accent Tree	0	15 GALLON
Required Group Open Space	1	15 GALLON
Required Front Setback Tree	18	24" BOX
Required Evergreen Screening	0	15 GALLON
Required Parking Bay	0	15 GALLON
Total Trees Planted (Required)	73	24" BOX
Total	73	15 Gallon

COST OF MATERIALS - PERMEABLE PAVERS		COST OF MATERIALS - TREE UPGRADES	
STANDARD CONCRETE	PROPOSED PERMEABLE PAVEMENT	IMPROVEMENT COST	S.F.
\$3.00	\$8.00	\$13.00	11000
		\$148,500	
TOTAL MATERIAL UPGRADES		\$148,500	
DRIVE & WALKWAYS		REPLACE (1) OPEN SPACE 15 GALLON TREE WITH 24" BOX TREE	
		\$1,500	1
TOTAL MATERIAL UPGRADES		\$1,500	
COST OF LABOR - PERMEABLE PAVEMENT		COST OF LABOR - TREE UPGRADES	
STANDARD CONCRETE	PROPOSED PERMEABLE CONCRETE	IMPROVEMENT COST	S.F.
\$3.00	\$8.00	\$13.00	11000
		\$176,700	
TOTAL LABOR UPGRADES		\$176,700	
DRIVE & WALKWAYS		REPLACE (1) OPEN SPACE 15 GALLON TREE WITH 24" BOX TREE	
		\$200	1
TOTAL LABOR UPGRADES		\$200	
TOTAL UPGRADES		\$207,700	

Mitigation Summary	
Permeable Paver Mitigation Value	\$327,750.00
Tree Upgrade Mitigation Value	\$13,800.00
Total Mitigation	\$341,550.00
Total Value of Trees to be Removed	\$682,015.92
Total Value to Mitigate	\$340,465.92

Tree #	Species	Common Name	Nursery Group	Multi-stem	Total DBH (inches)	Species Rating	Estimated Height (feet)	Crown Radius (feet)	Condition Rating	Site Rating	Contribution Rating	Location Rating	Protected Tree Trunk Area (square inches)	Adjusted Trunk Area (square inches)	Replacement Tree Trunk Area (square inches)	Replacement Size Basic Price Per Trunk Area	Installed Tree Cost	Approximate Tree Trunk Increase	Average Regional Tree Cost	Unit Tree Cost	Difference Between Appraised Tree Increase and Replacement Tree Size	Basic Tree Cost	Appraised Tree Value	TO BE REMOVED	
1701	Pinus halepensis	Aleppo pine		3	no	16	50%	20	15	100%	50%	40%	50%	201	201	3.8	\$45.46	\$345.46	197	172.73	\$45	\$8,961.96	\$9,307.42	\$ 2,326.85	YES
1702	Pinus halepensis	Aleppo pine		3	no	22	50%	20	15	100%	50%	40%	50%	380	380	3.8	\$45.46	\$345.46	376	172.73	\$45	\$17,097.54	\$17,443.00	\$ 4,360.75	YES
1703	Pinus halepensis	Aleppo pine		3	no	28	50%	20	15	100%	50%	50%	615	615	3.8	\$45.46	\$345.46	612	172.73	\$45	\$27,802.26	\$28,147.72	\$ 7,036.93	YES	
1704	Quercus agrifolia	Coast live oak		1	no	4	90%	20	15	100%	50%	30%	50%	13	13	2.09	\$82.82	\$345.46	10	172.73	\$83	\$865.30	\$1,210.76	\$ 544.84	NO
1705	Quercus agrifolia	Coast live oak		1	no	5	90%	20	15	100%	50%	30%	50%	20	20	2.09	\$82.82	\$345.46	18	172.73	\$83	\$1,449.20	\$1,794.66	\$ 345.46	NO
1706	Quercus agrifolia	Coast live oak		1	no	5	90%	20	15	100%	50%	30%	50%	20	20	2.09	\$82.82	\$345.46	18	172.73	\$83	\$1,449.20	\$1,794.66	\$ 345.46	NO
1707	Quercus agrifolia	Coast live oak		1	no	9	90%	20	15	100%	50%	30%	50%	64	64	2.09	\$82.82	\$345.46	61	172.73	\$83	\$5,082.31	\$5,427.77	\$ 345.46	NO
1708	Quercus agrifolia	Coast live oak		1	no	10	90%	20	15	100%	50%	30%	50%	79	79	2.09	\$82.82	\$345.46	76	172.73	\$83	\$6,314.98	\$6,660.44	\$ 2,997.20	NO
1709	Umbellularia californica	California bay		1	yes	100	70%	30	30	100%	50%	50%	7,850	2,493	2.09	\$82.82	\$345.46	2,491	172.73	\$83	\$205,863.58	\$206,209.04	\$ 72,173.16	YES	
1710	Umbellularia californica	California bay		1	yes	60	70%	30	25	100%	50%	50%	2,826	1,865	2.09	\$82.82	\$345.46	1,863	172.73	\$83	\$153,961.94	\$154,307.40	\$ 54,007.59	YES	
1711	Umbellularia californica	California bay		1	yes	60	70%	30	20	100%	50%	50%	2,826	1,865	2.09	\$82.82	\$345.46	1,863	172.73	\$83	\$153,961.94	\$154,307.40	\$ 54,007.59	YES	
1712	Umbellularia californica	California bay		1	yes	90	70%	30	15	94%	50%	50%	6,359	2,437	2.09	\$82.82	\$345.46	2,434	172.73	\$83	\$201,194.09	\$201,539.55	\$ 66,130.16	YES	
1713	Umbellularia californica	California bay		1	no	48	70%	30	20	97%	50%	50%	1,809	1,468	2.09	\$82.82	\$345.46	1,465	172.73	\$83	\$121,115.14	\$121,460.60	\$ 41,182.73	YES	
1714	Umbellularia californica	California bay		1	no	48	70%	30	20	100%	50%	50%	1,809	1,468	2.09	\$82.82	\$345.46	1,465	172.73	\$83	\$121,115.14	\$121,460.60	\$ 42,511.21	YES	
1715	Quercus agrifolia	Coast live oak		1	no	15	90%	20	15	100%	50%	40%	50%	177	177	2.09	\$82.82	\$345.46	175	172.73	\$83	\$14,424.61	\$14,770.07	\$ 6,646.53	NO
1716	Eucalyptus globulus	Blue gum		5	no	52	10%	80	30	97%	50%	50%	2,123	1,611	4.75	\$36.36	\$345.46	1,606	172.73	\$36	\$58,401.29	\$58,746.75	\$ 2,845.55	YES	
1717	Eucalyptus globulus	Blue gum		5	no	24	10%	60	30	84%	50%	50%	452	452	4.75	\$36.36	\$345.46	447	172.73	\$36	\$16,269.71	\$16,615.17	\$ 700.95	YES	
1718	Eucalyptus globulus	Blue gum		5	no	20	10%	75	30	84%	50%	40%	50%	314	314	4.75	\$36.36	\$345.46	309	172.73	\$36	\$11,245.63	\$11,591.09	\$ 489.00	YES
1719	Eucalyptus globulus	Blue gum		5	no	32	10%	60	30	84%	50%	50%	804	788	4.75	\$36.36	\$345.46	783	172.73	\$36	\$28,466.27	\$28,811.73	\$ 1,215.49	YES	
1720	Eucalyptus globulus	Blue gum		5	no	48	10%	80	30	81%	50%	50%	1,809	1,468	4.75	\$36.36	\$345.46	1,463	172.73	\$36	\$53,193.93	\$53,539.39	\$ 2,175.04	YES	
1721	Eucalyptus globulus	Blue gum		5	no	24	10%	80	30	81%	50%	50%	452	452	4.75	\$36.36	\$345.46	447	172.73	\$36	\$16,269.71	\$16,615.17	\$ 674.99	YES	
1722	Eucalyptus globulus	Blue gum		5	no	14	10%	60	30	78%	50%	40%	50%	154	154	4.75	\$36.36	\$345.46	149	172.73	\$36	\$5,422.27	\$5,767.73	\$ 225.30	YES
1723	Eucalyptus globulus	Blue gum		5	no	16	10%	55	30	78%	50%	40%	50%	201	201	4.75	\$36.36	\$345.46	196	172.73	\$36	\$7,135.02	\$7,480.48	\$ 292.21	YES
1724	Eucalyptus globulus	Blue gum		5	no	16	10%	50	30	81%	50%	40%	50%	201	201	4.75	\$36.36	\$345.46	196	172.73	\$36	\$7,135.02	\$7,480.48	\$ 303.89	YES
1725	Eucalyptus globulus	Blue gum		5	no	16	10%	35	30	81%	50%	40%	50%	201	201	4.75	\$36.36	\$345.46	196	172.73	\$36	\$7,135.02	\$7,480.48	\$ 303.89	YES
1726	Eucalyptus globulus	Blue gum		5	no	16	10%	60	30	81%	50%	40%	50%	201	201	4.75	\$36.36	\$345.46	196	172.73	\$36	\$7,135.02	\$7,480.48	\$ 303.89	YES
1727	Eucalyptus globulus	Blue gum		5	no	48	10%	60	30	81%	50%	50%	1,809	1,468	4.75	\$36.36	\$345.46	1,463	172.73	\$36	\$53,193.93	\$53,539.39	\$ 2,175.04	YES	
1728	Eucalyptus globulus	Blue gum		5	no	22	10%	60	30	81%	50%	40%	50%	380	380	4.75	\$36.36	\$345.46	375	172.73	\$36	\$13,643.49	\$13,988.95	\$ 568.30	YES
1729	Eucalyptus globulus	Blue gum		5	no	28	10%	80	30	81%	50%	50%	615	615	4.75	\$36.36	\$345.46	611	172.73	\$36	\$22,207.26	\$22,552.72	\$ 916.20	YES	
1730	Eucalyptus globulus	Blue gum		5	no	12	10%	45	30	81%	50%	30%	50%	113	113	4.75	\$36.36	\$345.46	108	172.73	\$36	\$3,937.88	\$4,283.34	\$ 174.01	YES
1731	Eucalyptus globulus	Blue gum		5	no	20	10%	30	30	81%	50%	40%	50%	314	314	4.75	\$36.36	\$345.46	309	172.73	\$36	\$11,245.63	\$11,591.09	\$ 470.89	YES
1732	Eucalyptus globulus	Blue gum		5	no	48	10%	80	30	81%	50%	50%	1,809	1,468	4.75	\$36.36	\$345.46	1,463	172.73	\$36	\$53,193.93	\$53,539.39	\$ 2,175.04	YES	
1733	Eucalyptus globulus	Blue gum		5	no	10	10%	35	30	81%	50%	30%	50%	79	79	4.75	\$36.36	\$345.46	74	172.73	\$36	\$2,681.86	\$3,027.32	\$ 122.98	YES
1734	Eucalyptus globulus	Blue gum		5	no	6	0%	30	30	69%	50%	30%	50%	28	28	4.75	\$36.36	\$345.46	24	172.73	\$36	\$854.92	\$1,200.38	\$ 382.75	YES
1735	Eucalyptus globulus	Blue gum		5	no	18	10%	75	30	81%	50%	40%	50%	254	254	4.75	\$36.36	\$345.46	250	172.73	\$36	\$9,076.14	\$9,421.60	\$ 382.75	YES
1736	Eucalyptus globulus	Blue gum		5	no	42	10%	90	30	81%	50%	50%	1,385	1,233	4.75	\$36.36	\$345.46	1,228	172.73	\$36	\$44,651.98	\$44,997.44	\$ 1,828.02	YES	
1737	Eucalyptus globulus	Blue gum		5	no	23	10%	80	30	81%	50%	40%	50%	415	415	4.75	\$36.36	\$345.46	411	172.73	\$36	\$14,928.05	\$15,273.51	\$ 620.49	YES
1738	Eucalyptus globulus	Blue gum		5	no	22	10%	80	30	81%	50%	40%	50%	380	380	4.75	\$36.36	\$345.46	375	172.73	\$36	\$13,643.49	\$13,988.95	\$ 568.30	YES
1739	Eucalyptus globulus	Blue gum		5	yes	18	10%	35	30	69%	50%	40%	50%	254	254	4.75	\$36.36	\$345.46	250	172.73	\$36	\$9,076.14	\$9,421.60	\$ 323.87	YES
1740	Eucalyptus globulus	Blue gum		5	no	28	10%	40	30	69%	50%	50%	615	615	4.75	\$36.36	\$345.46	611	172.73	\$36	\$22,207.26	\$22,552.72	\$ 775.25	YES	
1741	Eucalyptus globulus	Blue gum		5	no	19	10%	60	30	81%	50%	40%	50%	283	283	4.75	\$36.36	\$345.46	279	172.73	\$36	\$10,132.34	\$10,477.80	\$ 425.66	YES
1742	Eucalyptus globulus	Blue gum		5	no	50	10%	90	30	78%	50%	50%	1,963	1,541	4.75	\$36.36	\$345.46	1,536	172.73	\$36	\$55,846.34	\$56,191.80	\$ 2,194.99	YES	

Tree #	Species	Common Name	Nursery Group	Multi-stem	Total DBH (inches)	Species Rating	Estimated Height (feet)	Crown Radius (feet)	Condition Rating	Site Rating	Contribution Rating	Location Rating	Protected Tree Trunk Area (square inches)	Adjusted Trunk Area (square inches)	Replacement Tree Trunk Area (square inches)	Replacement Size Basic Price Per Trunk Area	Installed Tree Cost	Approximate Tree Trunk Increase	Average Regional Tree Cost	Unit Tree Cost	Difference Between Appraised Tree Increase and Replacement Tree Size	Basic Tree Cost	Appraised Tree Value	TO BE REMOVED	
1743	Eucalyptus globulus	Blue gum		5	no	19	10%	25	30	78%	50%	40%	50%	283	283	4.75	\$36.36	\$345.46	279	172.73	\$36	\$10,132.34	\$10,477.80	\$ 409.29	YES
1744	Eucalyptus globulus	Blue gum		5	no	72	10%	100	30	78%	50%	50%	4,069	2,166	4.75	\$36.36	\$345.46	2,161	172.73	\$36	\$78,590.70	\$78,936.16	\$ 3,083.44	YES	
1745	Eucalyptus globulus	Blue gum		5	no	12	10%	30	30	63%	50%	30%	50%	113	113	4.75	\$36.36	\$345.46	108	172.73	\$36	\$3,937.88	\$4,283.34	\$ 133.85	YES
1746	Eucalyptus globulus	Blue gum		5																					

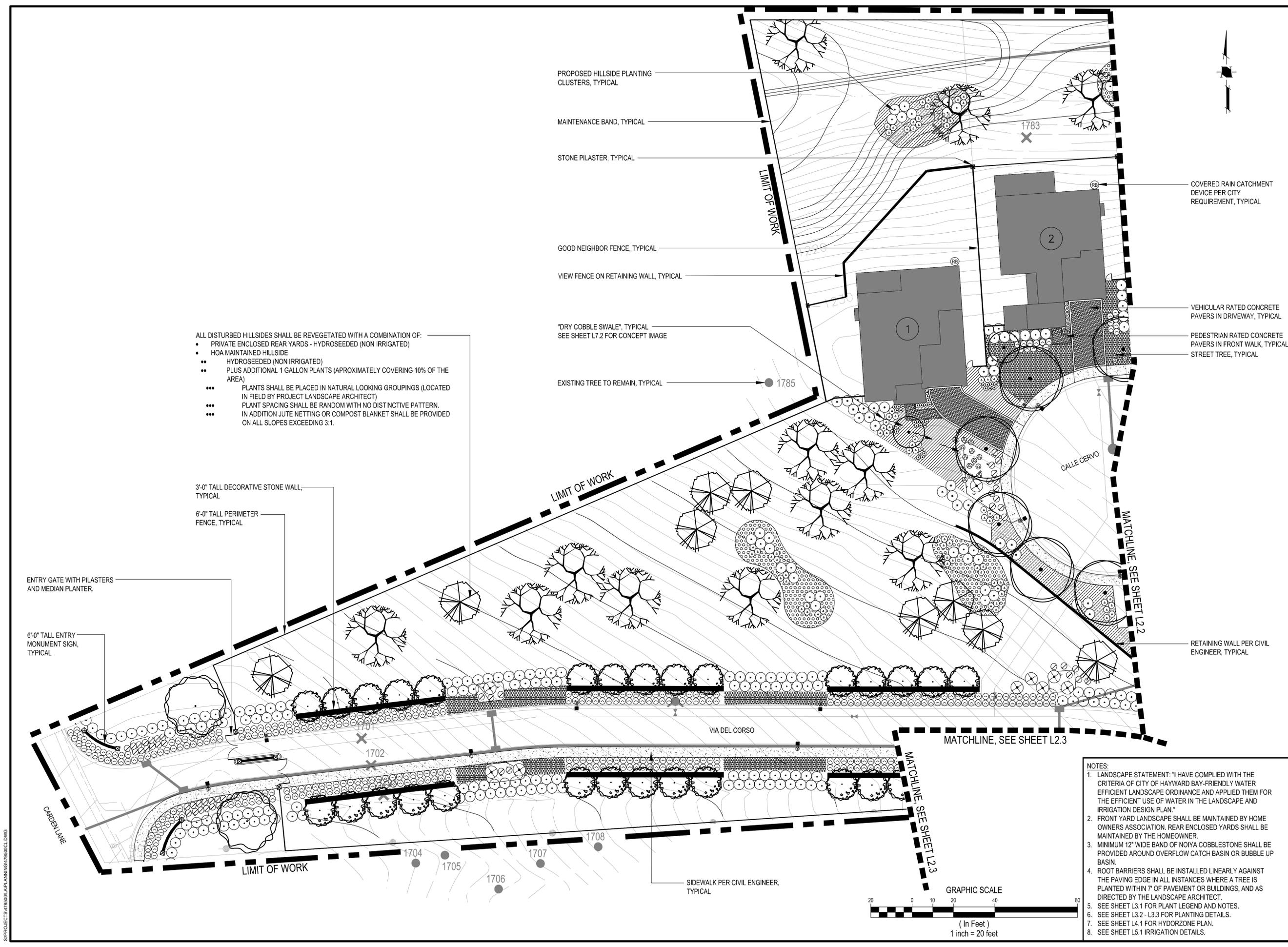
**CAVALLO HIGHLANDS
 TRACT 8353
 HAYWARD, CA**

NO	DATE	DESCRIPTION

NO	DATE	DESCRIPTION
PROJECT NO.	4795.00	
CAD DWG FILE:	479500CL.DWG	
DESIGNED BY:	BG	
DRAWN BY:	JH	
CHECKED BY:	BG	
DATE:	JANUARY 8, 2019	
SCALE:	1" = 20'	
©	HMH	

LANDSCAPE PLAN

L2.1

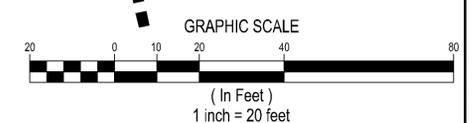


ALL DISTURBED HILLSIDES SHALL BE REVEGETATED WITH A COMBINATION OF:
 • PRIVATE ENCLOSED REAR YARDS - HYDROSEEDDED (NON IRRIGATED)
 • HOA MAINTAINED HILLSIDE
 • HYDROSEEDDED (NON IRRIGATED)
 • PLUS ADDITIONAL 1 GALLON PLANTS (APROXIMATELY COVERING 10% OF THE AREA)
 • PLANTS SHALL BE PLACED IN NATURAL LOOKING GROUPINGS (LOCATED IN FIELD BY PROJECT LANDSCAPE ARCHITECT)
 • PLANT SPACING SHALL BE RANDOM WITH NO DISTINCTIVE PATTERN.
 • IN ADDITION JUTE NETTING OR COMPOST BLANKET SHALL BE PROVIDED ON ALL SLOPES EXCEEDING 3:1.

3'-0" TALL DECORATIVE STONE WALL, TYPICAL
 6'-0" TALL PERIMETER FENCE, TYPICAL

LIMIT OF WORK

MATCHLINE, SEE SHEET L2.3



- NOTES:
- LANDSCAPE STATEMENT: "I HAVE COMPLIED WITH THE CRITERIA OF CITY OF HAYWARD BAY-FRIENDLY WATER EFFICIENT LANDSCAPE ORDINANCE AND APPLIED THEM FOR THE EFFICIENT USE OF WATER IN THE LANDSCAPE AND IRRIGATION DESIGN PLAN."
 - FRONT YARD LANDSCAPE SHALL BE MAINTAINED BY HOME OWNERS ASSOCIATION. REAR ENCLOSED YARDS SHALL BE MAINTAINED BY THE HOMEOWNER.
 - MINIMUM 12" WIDE BAND OF NOIYA COBBLESTONE SHALL BE PROVIDED AROUND OVERFLOW CATCH BASIN OR BUBBLE UP BASIN.
 - ROOT BARRIERS SHALL BE INSTALLED LINEARLY AGAINST THE PAVING EDGE IN ALL INSTANCES WHERE A TREE IS PLANTED WITHIN 7' OF PAVEMENT OR BUILDINGS, AND AS DIRECTED BY THE LANDSCAPE ARCHITECT.
 - SEE SHEET L3.1 FOR PLANT LEGEND AND NOTES.
 - SEE SHEET L3.2 - L3.3 FOR PLANTING DETAILS.
 - SEE SHEET L4.1 FOR HYDORZONE PLAN.
 - SEE SHEET L5.1 IRRIGATION DETAILS.

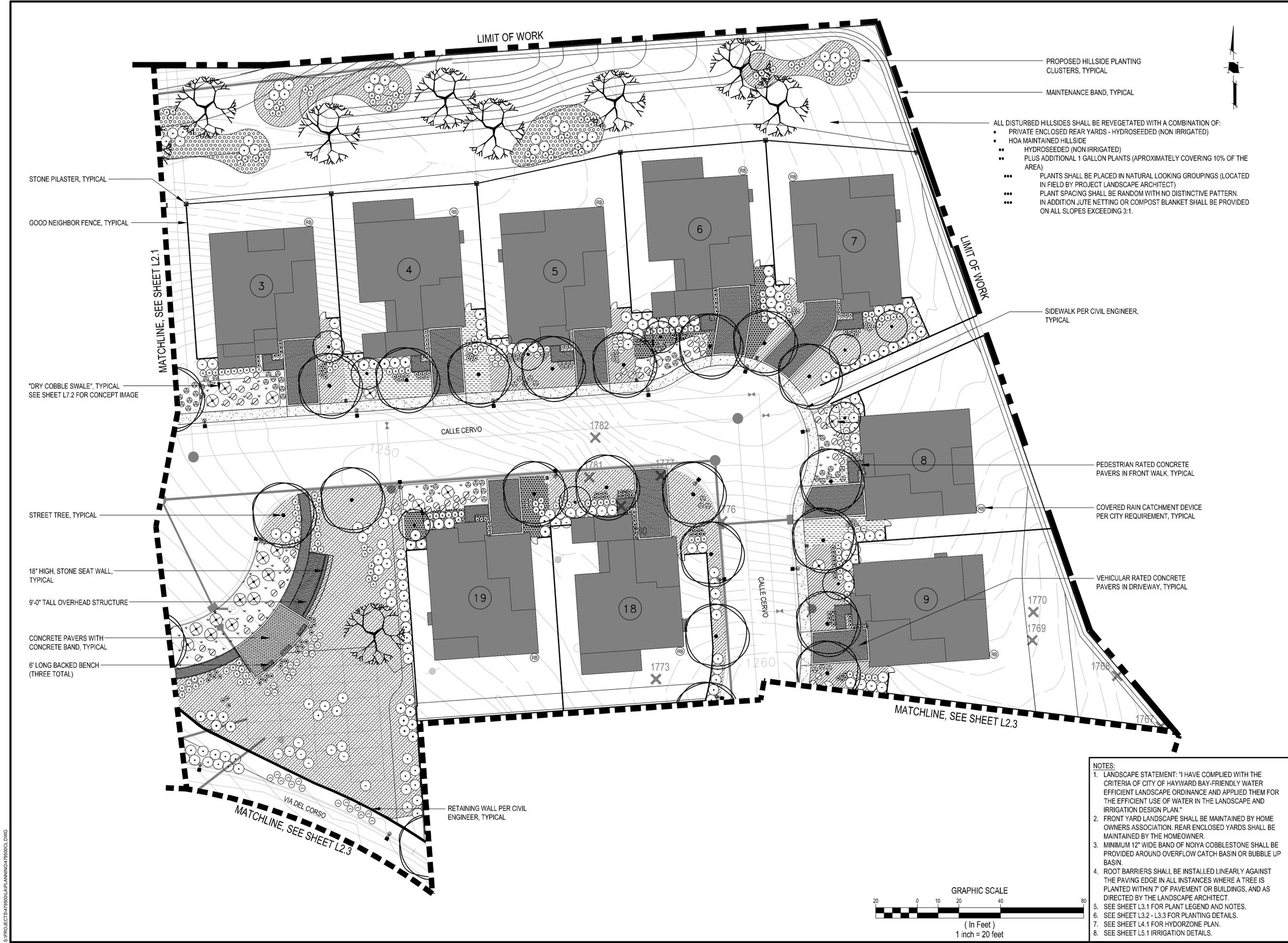
**CAVALLO HIGHLANDS
 TRACT 8353
 HAYWARD, CA**

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PROJECT NO.	4795.00	
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DESIGNED BY:	BG	
DRAWN BY:	JH	
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DATE:	JANUARY 8, 2019	
SCALE:	1" = 20'	
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LANDSCAPE PLAN

L2.2



PROPOSED HILLSIDE PLANTING CLUSTERS, TYPICAL
 MAINTENANCE BAND, TYPICAL

- ALL DISTURBED HILLSIDES SHALL BE REVEGETATED WITH A COMBINATION OF:
- PRIVATE ENCLOSED REAR YARDS - HYDROSEED (NON IRRIGATED)
 - HOA MAINTAINED HILLSIDE HYDROSEED (NON IRRIGATED)
 - PLUS ADDITIONAL 1 GALLON PLANTS (APPROXIMATELY COVERING 10% OF THE AREA)
 - PLANTS SHALL BE PLACED IN NATURAL LOOKING GROUPINGS (LOCATED IN FIELD BY PROJECT LANDSCAPE ARCHITECT)
 - PLANT SPACING SHALL BE RANDOM WITH NO DISTINCTIVE PATTERN. IN ADDITION JUTE NETTING OR COMPOST BLANKET SHALL BE PROVIDED ON ALL SLOPES EXCEEDING 3:1.

STONE PILASTER, TYPICAL
 GOOD NEIGHBOR FENCE, TYPICAL

"DRY COBBLE SWALE", TYPICAL
 SEE SHEET L7.2 FOR CONCEPT IMAGE

STREET TREE, TYPICAL

18" HIGH, STONE SEAT WALL, TYPICAL

9'-0" TALL OVERHEAD STRUCTURE

CONCRETE PAVERS WITH CONCRETE BAND, TYPICAL

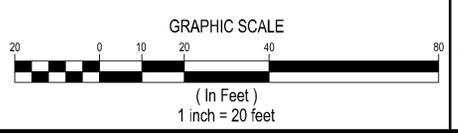
6' LONG BACKED BENCH (THREE TOTAL)

PEDESTRIAN RATED CONCRETE PAVERS IN FRONT WALK, TYPICAL

COVERED RAIN CATCHMENT DEVICE PER CITY REQUIREMENT, TYPICAL

VEHICULAR RATED CONCRETE PAVERS IN DRIVEWAY, TYPICAL

RETAINING WALL PER CIVIL ENGINEER, TYPICAL



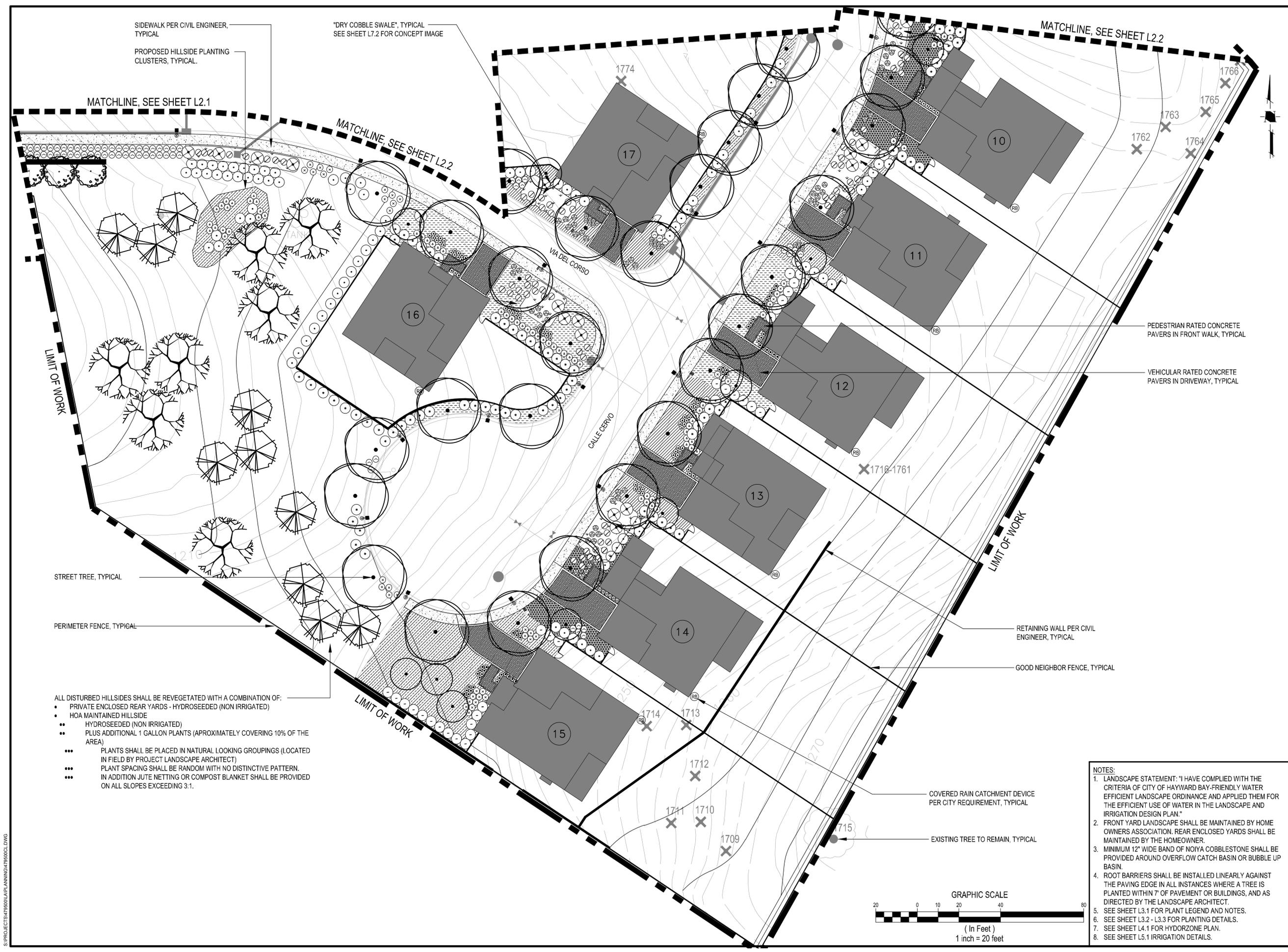
- NOTES:
- LANDSCAPE STATEMENT: "I HAVE COMPLIED WITH THE CRITERIA OF CITY OF HAYWARD BAY-FRIENDLY WATER EFFICIENT LANDSCAPE ORDINANCE AND APPLIED THEM FOR THE EFFICIENT USE OF WATER IN THE LANDSCAPE AND IRRIGATION DESIGN PLAN."
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 - SEE SHEET L3.1 FOR PLANT LEGEND AND NOTES.
 - SEE SHEET L3.2 - L3.3 FOR PLANTING DETAILS.
 - SEE SHEET L4.1 FOR HYDORZONE PLAN.
 - SEE SHEET L5.1 IRRIGATION DETAILS.

**CAVALLO HIGHLANDS
 TRACT 8353
 HAYWARD, CA**

NO	DATE	DESCRIPTION

NO	DATE	DESCRIPTION
PROJECT NO.	4795.00	
CAD DWG FILE:	479500CL.DWG	
DESIGNED BY:	BG	
DRAWN BY:	JH	
CHECKED BY:	BG	
DATE:	JANUARY 8, 2019	
SCALE:	1" = 20'	
© HMMH		

LANDSCAPE PLAN



SIDWALK PER CIVIL ENGINEER, TYPICAL
 PROPOSED HILLSIDE PLANTING CLUSTERS, TYPICAL.
 "DRY COBBLE SWALE", TYPICAL SEE SHEET L2.2 FOR CONCEPT IMAGE

MATCHLINE, SEE SHEET L2.2

MATCHLINE, SEE SHEET L2.1

MATCHLINE, SEE SHEET L2.2

LIMIT OF WORK

STREET TREE, TYPICAL

PERIMETER FENCE, TYPICAL

ALL DISTURBED HILLSIDES SHALL BE REVEGETATED WITH A COMBINATION OF:
 • PRIVATE ENCLOSED REAR YARDS - HYDROSEEDED (NON IRRIGATED)
 • HOA MAINTAINED HILLSIDE
 • HYDROSEEDED (NON IRRIGATED)
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 • PLANT SPACING SHALL BE RANDOM WITH NO DISTINCTIVE PATTERN.
 • IN ADDITION JUTE NETTING OR COMPOST BLANKET SHALL BE PROVIDED ON ALL SLOPES EXCEEDING 3:1.

LIMIT OF WORK

PEDESTRIAN RATED CONCRETE PAVERS IN FRONT WALK, TYPICAL

VEHICULAR RATED CONCRETE PAVERS IN DRIVEWAY, TYPICAL

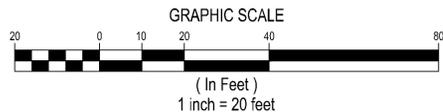
LIMIT OF WORK

RETAINING WALL PER CIVIL ENGINEER, TYPICAL

GOOD NEIGHBOR FENCE, TYPICAL

COVERED RAIN CATCHMENT DEVICE PER CITY REQUIREMENT, TYPICAL

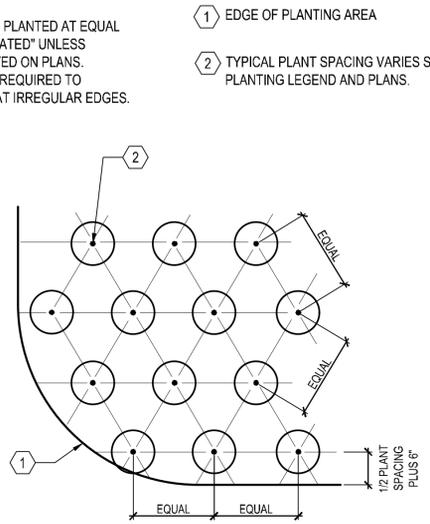
EXISTING TREE TO REMAIN, TYPICAL



- NOTES:
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 - SEE SHEET L3.1 FOR PLANT LEGEND AND NOTES.
 - SEE SHEET L3.2 - L3.3 FOR PLANTING DETAILS.
 - SEE SHEET L4.1 FOR HYDORZONE PLAN.
 - SEE SHEET L5.1 IRRIGATION DETAILS.

NOTES:

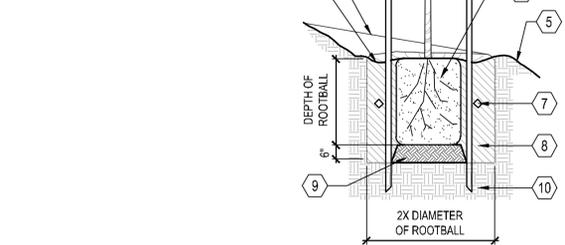
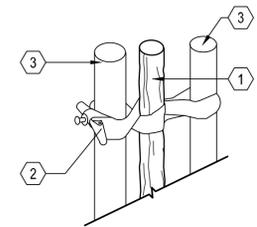
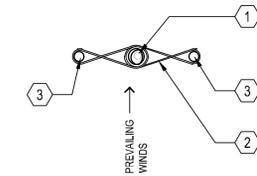
1. ALL PLANTS TO BE PLANTED AT EQUAL SPACING "TRIANGULATED" UNLESS OTHERWISE INDICATED ON PLANS.
2. INFILL PLANTS AS REQUIRED TO MAINTAIN SPACING AT IRREGULAR EDGES.



E GROUNDCOVER SPACING
SCALE: N.T.S.

NOTES:

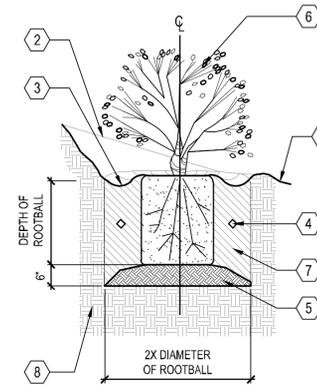
1. SEE PLANTING SPECIFICATIONS PRIOR TO INSTALLATION OF PLANT MATERIALS.
2. THIS DETAIL APPLIES TO 15 GALLON, 24" AND 36" BOX TREES.
3. ROOTBALL CROWN TO EXTEND 1" ABOVE FINISH GRADE.
4. TREES INSTALLED WITHIN TURF AREAS SHALL BE INSTALLED WITH 'ARBOR-GARD' AT BASE OF TRUNK.



F TREE STAKING SLOPE (DOUBLE)
SCALE: N.T.S.

NOTES:

1. SEE PLANTING SPECIFICATIONS PRIOR TO INSTALLATION OF PLANT MATERIALS.
2. ROOTBALL CROWN TO BE 1" ABOVE FINISH GRADE.



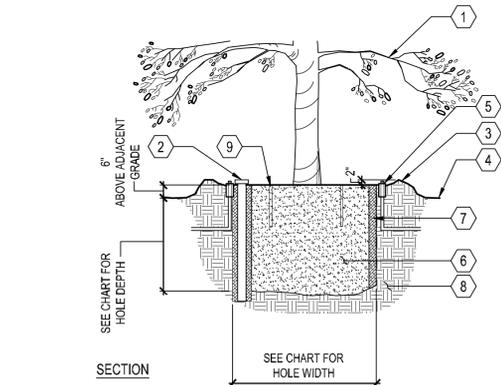
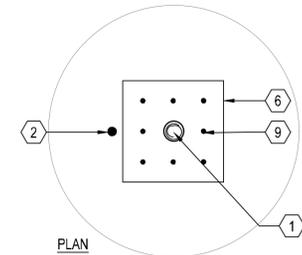
C SHRUB PLANTING ON SLOPE
SCALE: N.T.S.

NOTES:

1. SEE PLANTING SPECIFICATIONS PRIOR TO INSTALLATION OF PLANT MATERIALS.

HOLE SIZING CHART

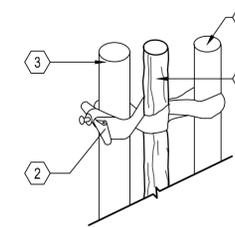
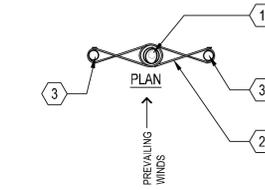
BOX SIZE	24"	36"	48"	54"	60"
HOLE DEPTH	23"	34"	43"	44"	44"
HOLE WIDTH	36"	48"	60"	66"	72"



D OLIVE TREE PLANTING
SCALE: N.T.S.

NOTES:

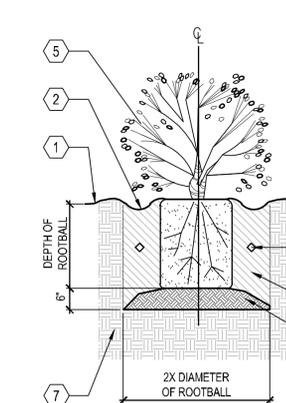
1. SEE PLANTING SPECIFICATIONS PRIOR TO INSTALLATION OF PLANT MATERIALS.
2. THIS DETAIL APPLIES TO 15 GALLON AND 24" BOX TREES.
3. ROOTBALL CROWN TO EXTEND 1" ABOVE FINISH GRADE.
4. TREES INSTALLED WITHIN TURF AREAS SHALL BE INSTALLED WITH 'ARBOR-GARD' AT BASE OF TRUNK.



A TREE STAKING (DOUBLE)
SCALE: N.T.S.

NOTES:

1. SEE PLANTING SPECIFICATIONS PRIOR TO INSTALLATION OF PLANT MATERIALS.
2. ROOTBALL CROWN TO BE 1" ABOVE FINISH GRADE.



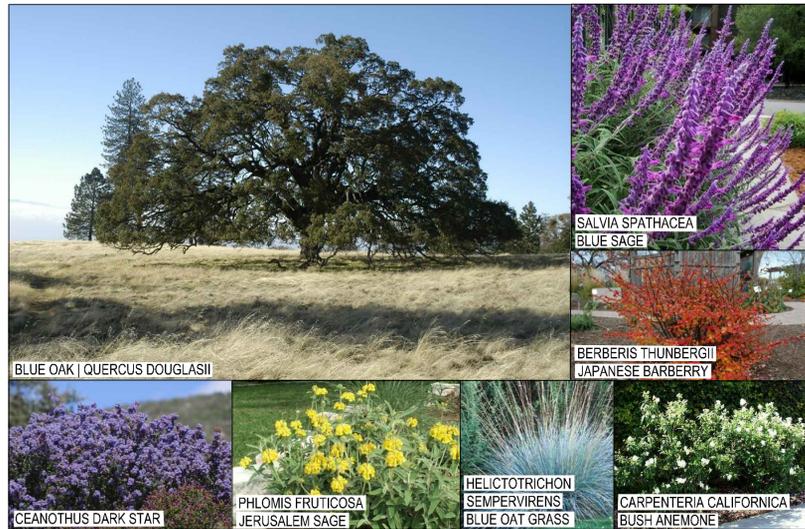
B SHRUB PLANTING
SCALE: N.T.S.

1. TREE-SEE PLAN FOR SIZE AND TYPE
2. CINCH TIE OR APPROVED EQUAL
3. 2" DIAMETER TREATED LODGE POLE PINE STAKE PLACED ON WINDWARD SIDES OF TREE, AND OUTSIDE OF ROOTBALL
4. A SHALLOW BASIN 2" DEEP SHALL BE FORMED AROUND ROOTBALL BELOW FINISH GRADE. TREES PLANTED IN TURF SHALL NOT HAVE BASINS.
5. FINISH GRADE
6. ROOTBALL
7. AGRIFORM PLANT TABLETS 3 PER 15 GALLON, 6 PER 24" BOX AND 8 FOR 36" BOX
8. APPROVED BACKFILL, THOROUGHLY MIXED PRIOR TO INSTALLATION. PUDDLE AND SETTLE PRIOR TO PLANTING TREE.
9. FOOT TAMP BASE
10. NATIVE GRADE

1. TREE-SEE PLAN FOR SIZE AND TYPE
2. 4" DIAMETER PLASTIC DRAIN PIPE WITH REMOVABLE CAP FOR MAINTENANCE CHECK. PIPE TO BE SET 1" ABOVE GRADE
3. A SHALLOW BASIN 2" DEEP SHALL BE FORMED AROUND ROOTBALL.
4. FINISH GRADE
5. IRRIGATION HEAD (TYPICAL) SEE IRRIGATION PLAN FOR QUANTITY
6. ROOTBALL
7. NATIVE BACKFILL AROUND ROOTBALL. RUN WATER INTO PLANTING HOLE WHILE BACKFILLING TO HELP SETTLE THE BACKFILL AND AVOID VOIDS OR AIR POCKETS. TAMP FREQUENTLY.
8. NATIVE GRADE OR CERTIFIED COMPACTED SUBGRADE
9. 2"-3" DIAMETER HOLES, 3/4 THE DEPTH OF THE CONTAINER. FILL HOLES WITH COARSE SAND AND OSMOCOTE 15-9-10 @ 20 POUNDS PER CUBIC YARD. *4 HOLES FOR A 6" DIAMETER TREE TRUNK *8 HOLES FOR A 6-12" OR LARGER DIAMETER TREE TRUNK

1. FINISH GRADE
2. A SHALLOW BASIN 2" DEEP SHALL BE FORMED AROUND ROOTBALL BELOW FINISH GRADE
3. AGRIFORM PLANT TABLETS 2 PER 1 GALLON, 3 PER 5 AND 15 GALLON
4. FOOT TAMP BASE
5. SHRUB-SEE PLAN AND LEGEND FOR SIZE AND TYPE
6. APPROVED BACKFILL, THOROUGHLY MIXED PRIOR TO INSTALLATION
7. NATIVE GRADE OR CERTIFIED COMPACTED SUBGRADE

NO	DATE	DESCRIPTION
PROJECT NO.		4795.00
CAD DWG FILE:		479500CL.DWG
DESIGNED BY:		BG
DRAWN BY:		JH
CHECKED BY:		BG
DATE:		JANUARY 8, 2019
SCALE:		AS SHOWN
© HMM		



E HILLSIDE PLANTING CLUSTER
NTS



F BIOTREATMENT PLANTING
NTS



F HILLSIDE PLANTING WITH TEMPORARY IRRIGATION
NTS



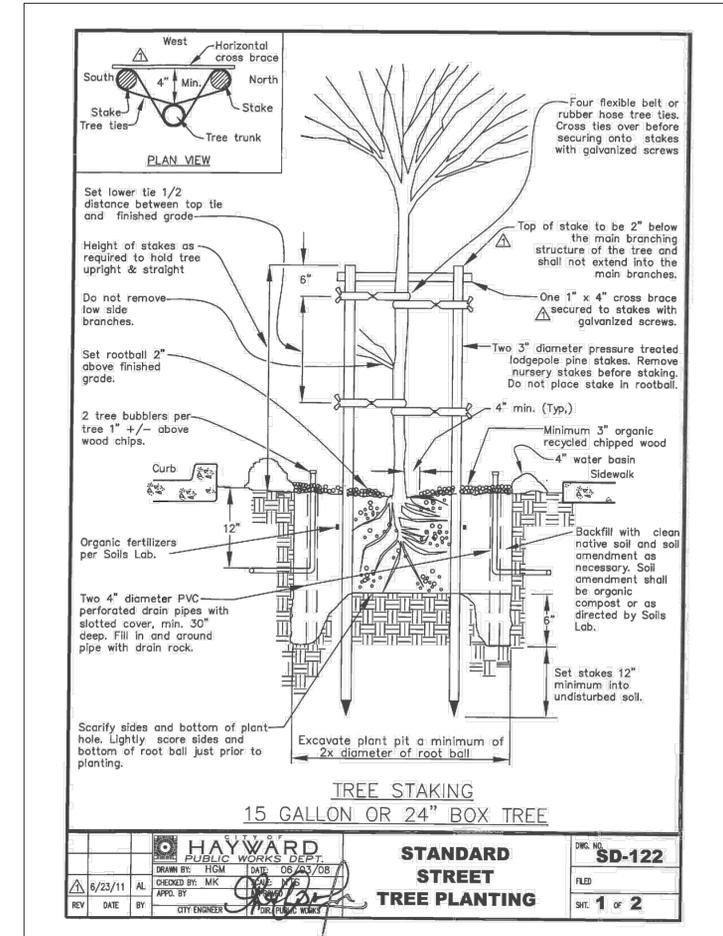
B MULTI TRUNK FRUITLESS OLIVE TREE
NTS



C LAVENDER MASS PLANTING
NTS



D BLUE OAK TREE
NTS



A HILLSIDE PLANTING CLUSTER
NTS

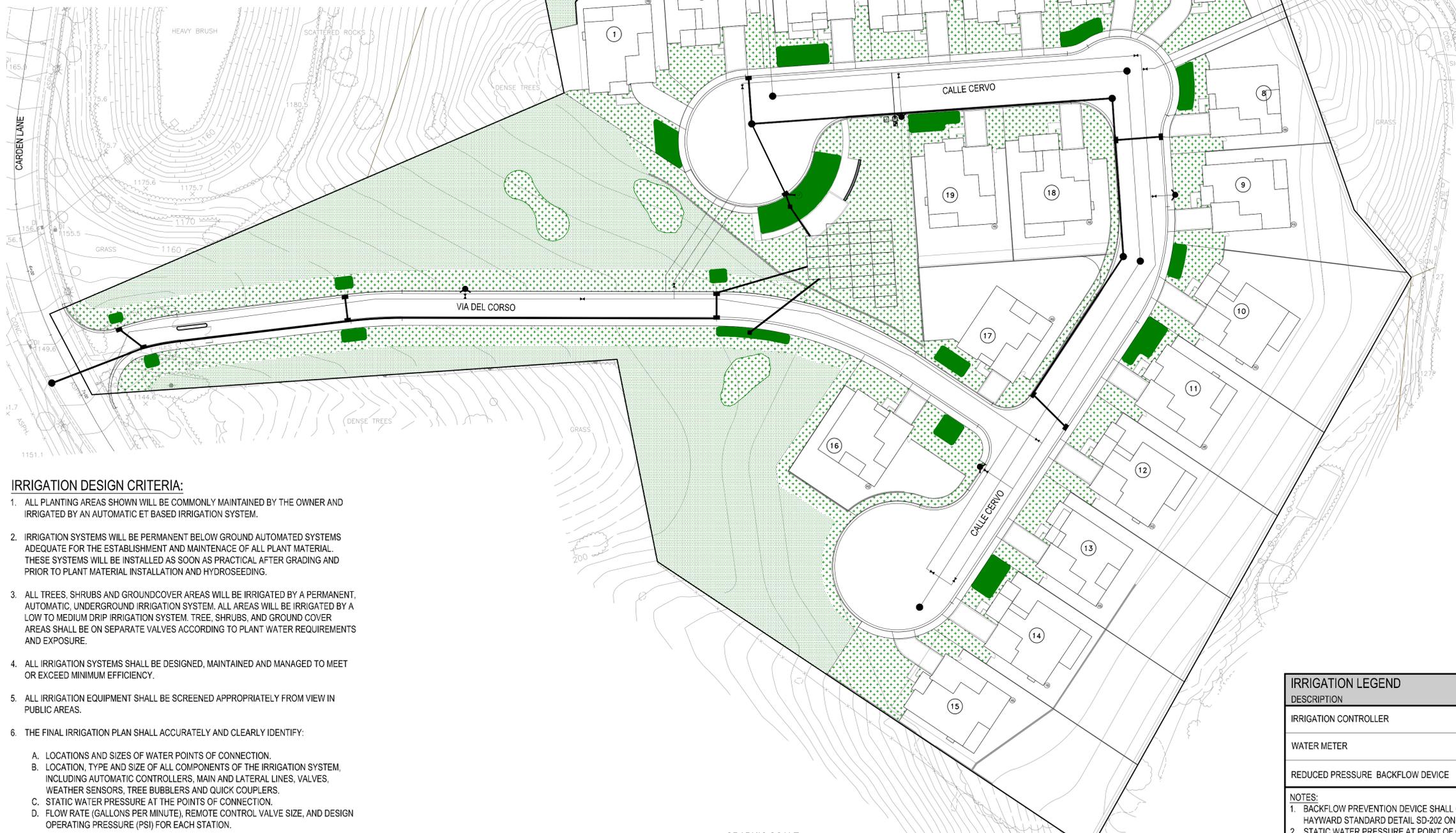
NO	DATE	DESCRIPTION
PROJECT NO.	4795.00	
CAD DWG FILE:	479500CL.DWG	
DESIGNED BY:	BG	
DRAWN BY:	JH	
CHECKED BY:	BG	
DATE:	JANUARY 8, 2019	
SCALE:	AS SHOWN	
© HMH		

**PLANTING
DETAILS**

WATER USE	DESCRIPTION	SYMBOL
ZONE 1 - VERY LOW	TEMPORARY BUBBLERS FOR HILLSIDE WITH PERMANENT BUBBLERS ON TREES	
ZONE 2 - LOW-MODERATE	DRIP IRRIGATION	
ZONE 3 - LOW-MODERATE (BIOTREATMENT)	DRIP IRRIGATION	

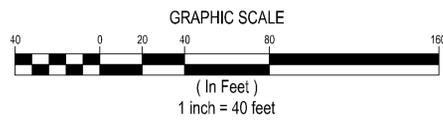
HYDROZONE AND IRRIGATION NOTES:

- ALL HILLSIDE PLANTING, ENTRY DRIVE, ENTRY MONUMENT, FRONT YARD LANDSCAPING, AND BIO-TREATMENT PLANTING SHALL HAVE THE FOLLOWING:
- VERY LOW, LOW AND A SMALL PERCENTAGE OF MODERATE WATER USE HYDROZONES
 - DRIP IRRIGATION FOR ALL SHRUBS AND GROUND COVER AREAS.
 - LOW VOLUME BUBBLERS FOR ALL TREES.



IRRIGATION DESIGN CRITERIA:

- ALL PLANTING AREAS SHOWN WILL BE COMMONLY MAINTAINED BY THE OWNER AND IRRIGATED BY AN AUTOMATIC ET BASED IRRIGATION SYSTEM.
- IRRIGATION SYSTEMS WILL BE PERMANENT BELOW GROUND AUTOMATED SYSTEMS ADEQUATE FOR THE ESTABLISHMENT AND MAINTENANCE OF ALL PLANT MATERIAL. THESE SYSTEMS WILL BE INSTALLED AS SOON AS PRACTICAL AFTER GRADING AND PRIOR TO PLANT MATERIAL INSTALLATION AND HYDROSEEDING.
- ALL TREES, SHRUBS AND GROUND COVER AREAS WILL BE IRRIGATED BY A PERMANENT, AUTOMATIC, UNDERGROUND IRRIGATION SYSTEM. ALL AREAS WILL BE IRRIGATED BY A LOW TO MEDIUM DRIP IRRIGATION SYSTEM. TREE, SHRUBS, AND GROUND COVER AREAS SHALL BE ON SEPARATE VALVES ACCORDING TO PLANT WATER REQUIREMENTS AND EXPOSURE.
- ALL IRRIGATION SYSTEMS SHALL BE DESIGNED, MAINTAINED AND MANAGED TO MEET OR EXCEED MINIMUM EFFICIENCY.
- ALL IRRIGATION EQUIPMENT SHALL BE SCREENED APPROPRIATELY FROM VIEW IN PUBLIC AREAS.
- THE FINAL IRRIGATION PLAN SHALL ACCURATELY AND CLEARLY IDENTIFY:
 - LOCATIONS AND SIZES OF WATER POINTS OF CONNECTION.
 - LOCATION, TYPE AND SIZE OF ALL COMPONENTS OF THE IRRIGATION SYSTEM, INCLUDING AUTOMATIC CONTROLLERS, MAIN AND LATERAL LINES, VALVES, WEATHER SENSORS, TREE BUBBLERS AND QUICK COUPLERS.
 - STATIC WATER PRESSURE AT THE POINTS OF CONNECTION.
 - FLOW RATE (GALLONS PER MINUTE), REMOTE CONTROL VALVE SIZE, AND DESIGN OPERATING PRESSURE (PSI) FOR EACH STATION.
- A NEW IRRIGATION WATER METER TO BE INSTALLED AS PART OF LANDSCAPE IMPROVEMENTS, LOCATION SHOWN ON PLAN.



DESCRIPTION	SYMBOL
IRRIGATION CONTROLLER	
WATER METER	
REDUCED PRESSURE BACKFLOW DEVICE	

- NOTES:**
- BACKFLOW PREVENTION DEVICE SHALL CONFORM TO CITY OF HAYWARD STANDARD DETAIL SD-202 ON SHEET L5.1.
 - STATIC WATER PRESSURE AT POINT OF CONNECTION TO BE DETERMINED.
 - FRONT YARD LANDSCAPE SHALL BE MAINTAINED BY HOME OWNERS ASSOCIATION. REAR ENCLOSED YARDS SHALL BE MAINTAINED BY THE HOMEOWNER.
 - SEE SHEET L5.1 IRRIGATION DETAILS.
 - SEE SHEET L6.1 FOR WATER EFFICIENCY CALCULATIONS.

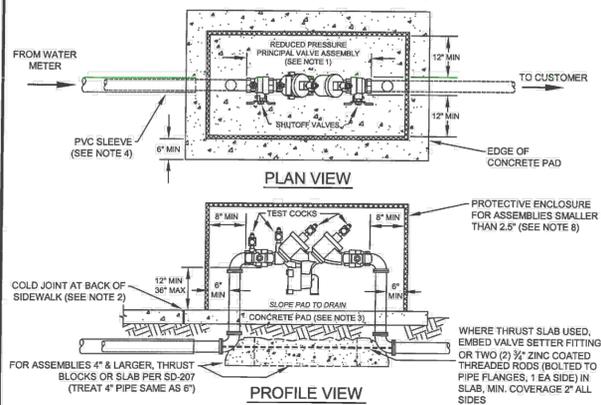
**CAVALLO HIGHLANDS
 TRACT 8353
 HAYWARD, CA**

NO	DATE	DESCRIPTION

PROJECT NO.	4795.00
CAD DWG FILE:	479500CL-HYDROZONE.DWG
DESIGNED BY:	BG
DRAWN BY:	JH
CHECKED BY:	BG
DATE:	JANUARY 8, 2019
SCALE:	1" = 40'
©	HMMH

HYDROZONE PLAN

FOR IRRIGATION AND WATER SERVICES WHERE REQUIRED BY CCR, TITLE 17, § 7604

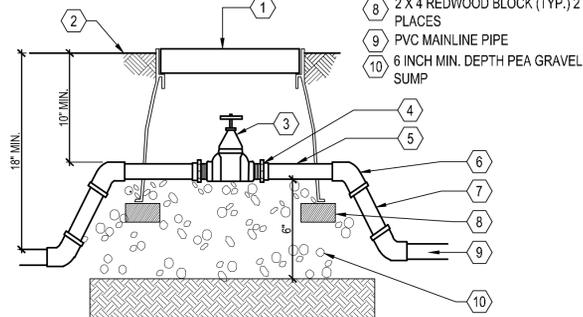


- NOTES:**
1. ALLOWED BACKFLOW ASSEMBLIES AND THEIR ORIENTATIONS SHALL BE LIMITED TO THOSE SPECIFIED ON THE LIST OF APPROVED BACKFLOW PREVENTION ASSEMBLIES BY THE UNIVERSITY OF SOUTHERN CALIFORNIA'S FOUNDATION FOR CROSS-CONNECTION CONTROL AND HYDRAULIC RESEARCH, 2010 OR LATEST REVISION.
 2. THE BACKFLOW DEVICE SHALL BE LOCATED: (A) A MAXIMUM OF 6' FROM BACK OF SIDEWALK (TYP.); (B) WHERE SCREENING IS REQUIRED, A MAXIMUM OF 30' FROM BACK OF SIDEWALK; OR (C) AT A LOCATION DETERMINED BY THE WATER DISTRIBUTION CROSS CONNECTION PERSONNEL IN THE FIELD.
 3. CONCRETE PAD SHALL BE CLASS B CONCRETE, 4" MINIMUM THICKNESS, REINFORCED WITH WELDED WIRE MESH.
 4. WHERE SERVICE LINES SMALLER THAN 4" PASS UNDER A SIDEWALK, THEY SHALL BE INSTALLED IN A PVC CASING/SLEEVE AT LEAST 1" LARGER THAN THE SERVICE LINE AND EXTENDS AT LEAST 6" BEYOND THE EDGES OF THE SIDEWALK.
 5. METAL PIPES EXPOSED TO SOIL OR CONCRETE SHALL BE COATED WITH 3M SCOTCHWRAP PIPE PRIMER AND WRAPPED WITH 3M SCOTCHWRAP NO. 51 BLACK PVC TAPE (¾" OVERLAP).
 6. THE PORTION OF THE TRENCH FROM BACK OF METER TO THE DEVICE SHALL REMAIN OPEN UNTIL WATER DISTRIBUTION CROSS CONNECTION PERSONNEL HAVE INSPECTED AND APPROVED THE INSTALLATION.
 7. THE TESTING SIDE OF THE DEVICE SHALL HAVE A MINIMUM 24" OF CLEARANCE FROM OBSTRUCTIONS (NON-TRIMMABLE LANDSCAPING, BUILDINGS, UTILITIES, ETC.). MULTIPLE BACKFLOW DEVICES SHALL BE SEPARATED BY A MINIMUM OF 18".
 8. BACKFLOW ASSEMBLIES SMALLER THAN 2 ½" SHALL BE COVERED WITH AN INSULATION BLANKET, MIN R-13, GREEN, WEATHERGUARD OR EQUAL, AND PROTECTED BY A LOCKABLE WIRE CAGE ENCLOSURE FASTENED TO THE PAD. THE ENCLOSURE SHALL BE HINGED, POWDER COATED GREEN AND SECURED WITH A DOUBLE-LOCKED GALVANIZED CHAIN SUCH THAT EITHER LOCK CAN RELEASE THE CHAIN. ONE LOCK WILL BE SUPPLIED BY CITY.
 9. BACKFLOW ASSEMBLIES 2 ½" AND LARGER SHALL BE SECURED BY A DOUBLE-LOCKED, GALVANIZED, STRAIGHT LINK CHAIN THAT LOCKS THE VALVE HANDWHEELS IN THE OPEN POSITION AND EITHER LOCK CAN RELEASE THE CHAIN. ONE LOCK WILL BE SUPPLIED BY CITY. IN AREAS PRONE TO VANDALISM, CITY MAY ADDITIONALLY REQUIRE A LOCKABLE PROTECTIVE ENCLOSURE (SEE NOTE 8).
 10. BOLLARDS MAY BE REQUIRED BY CITY TO PROVIDE ADDITIONAL PROTECTION (SEE SD-223 FOR BOLLARD DETAIL).
 11. BACKFLOW ASSEMBLIES INSTALLED ON POTABLE WATER SERVICES SHALL BE LEAD FREE.
 12. BACKFLOW ASSEMBLIES SHALL BE AT LEAST THE SIZE OF THE WATER METER OR THE WATER SUPPLY LINE ON THE PROPERTY SIZE OF THE METER, WHICHEVER IS LARGER.

HAYWARD PUBLIC WORKS DEPT.		STANDARD - REDUCED PRESSURE PRINCIPAL BACKFLOW PREVENTION ASSEMBLIES		SD-202
DRW BY: KS	DATE: 11/30/12	SCALE: NTS	REVISED BY: [Signature]	SHEET 1 OF 1
CHKD BY: AA	APPR. BY: [Signature]	CITY ENGINEER	DR. PUBLIC WORKS	

- NOTES:**
1. PLACE AGGREGATE PRIOR TO INSTALLATION OF VALVE BOX
 2. INSTALL VALVE BOX SO TOP OF BOX IS FLUSH WITH ADJACENT HARDSCAPE

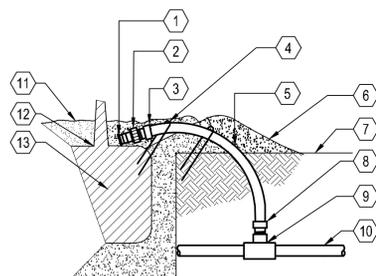
- 1 VALVE BOX (CARSON 910-12B) OR EQUAL W/ GREEN LID
- 2 FINISHED GRADE/ BEFORE PLANTING
- 3 GATE VALVE- SEE LEGEND FOR MAKE AND MODEL LINE SIZE
- 4 SCH 40 PVC MALE ADAPTOR
- 5 PVC SCH 40 MIN 8" LONG
- 6 PVC 45 FITTING SCH 40 (TYP.)
- 7 PVC SCH 40
- 8 2 X 4 REDWOOD BLOCK (TYP.) 2 PLACES
- 9 PVC MAINLINE PIPE
- 10 6 INCH MIN. DEPTH PEA GRAVEL SUMP



D GATE VALVE
N.T.S.

- NOTES:**
1. BUBBLER DISTANCE TO ROOT BALL WILL VARY DEPENDING ON THE CONTAINER SIZE OF THE PLANT.
 2. PLACE ALL BUBBLER ON UPHILL SIDE OF SLOPE IF APPLICABLE CONCEAL ALL EQUIPMENT UNDER MULCH.

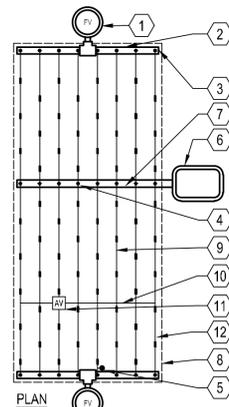
- 1 POSITION BUBBLER OVER ROOT BALL
- 2 FLOOD BUBBLER NOZZLE (SEE LEGEND FOR MODEL) SECURED TO SHRUB ADAPTER
- 3 UV RADIATION RESISTANT 1/2" PVC SCHED 40 (MIPT X SLIP) MALE ADAPTER
- 4 TUBING STAKES PVC COATED 12 GAUGE WIRE U STAKES QUANTITY AS NEEDED TO SECURE TUBING (2 MINIMUM) SALCO OR EQUAL
- 5 I.P.S. FLEXIBLE SCH 40 PVC HOSE (BLACK)
- 6 SOIL RING (SEE PLANTING DETAILS)
- 7 FINISHED GRADE
- 8 1/2" PVC SCH 40 (MIPT X SLIP) MALE ADAPTER UV RADIATION RESISTANT
- 9 PVC SCH 40 TEE OR ELL 3/4" X 3/4" X 1/2" (SLIP XSLIP X FIPT)
- 10 PVC LATERAL PIPE
- 11 MULCH PER SPECIFICATIONS
- 12 PLANT CROWN
- 13 ROOT BALL



E SHRUB BUBBLER
N.T.S.

- NOTE:**
1. THE TOTAL LENGTH OF ALL INTERCONNECTED DRIP LINE SHALL NOT EXCEED THE MAXIMUM RUN LENGTH

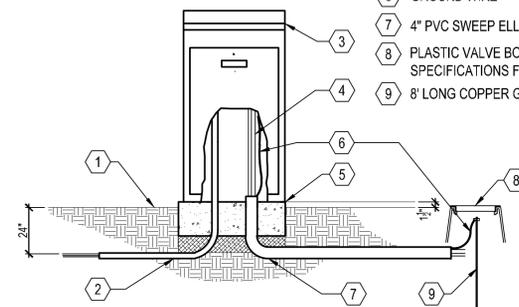
- 1 DRIPLINE AUTOMATIC FLUSH VALVE PLUMBED TO FLUSH MANIFOLD AT LOW POINT
- 2 PVC FLUSH MANIFOLD
- 3 DRIPLINE MANIFOLD-TO-ELBOW CONNECTION
- 4 DRIPLINE MANIFOLD-TO-TEE CONNECTION
- 5 DRIPLINE OPERATION INDICATOR
- 6 REMOTE CONTROL VALVE WITH FILTER AND PRESSURE REGULATOR
- 7 PVC SUPPLY MANIFOLD
- 8 ZONE PERIMETER
- 9 DRIPLINE LATERAL
- 10 AIR/VACUUM RELIEF LATERAL DRIPLINE BLANK TUBING CENTERED ON MOUND OR BERM
- 11 DRIPLINE AIR/VACUUM RELIEF VALVE PLUMBED TO DRIPLINE BLANK TUBING AT EACH HIGH POINT
- 12 PERIMETER LATERALS 2" TO 4" FROM EDGE



F DRIPLINE CENTER-FEED LAYOUT
N.T.S.

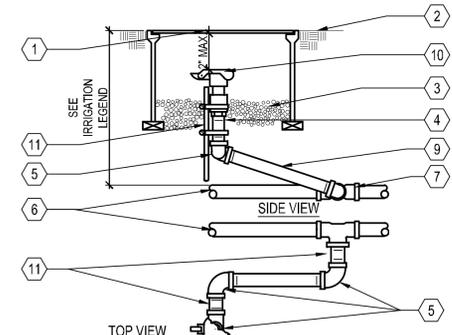
- NOTE:**
1. VERIFY POWER SOURCE WITH PROJECT ELECTRICIAN.
 2. ALL ELECTRICAL WORK MUST CONFORM TO LOCAL CODES.

- 1 FINISHED GRADE
- 2 2-1" PVC CONDUITS FOR 120 VOLT A.C. AND SIGNAL WIRE
- 3 IRRIGATION CONTROLLER-SEE IRRIGATION LEGEND FOR SPECIFICATION
- 4 24 VOLT CONTROL WIRING
- 5 CONCRETE PAD-6" THICK (MIN.) EXTEND 6" BEYOND EACH SIDE AND BACK AND 24" IN FRONT
- 6 GROUND WIRE
- 7 4" PVC SWEEP ELL ROUND
- 8 PLASTIC VALVE BOX SEE SPECIFICATIONS FOR TYPE
- 9 8' LONG COPPER GROUND ROD



A PEDESTAL MOUNT CONTROLLER
N.T.S.

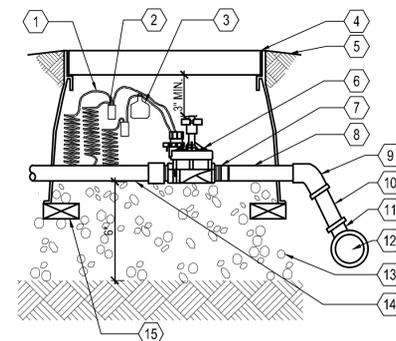
- 1 10" ROUND PLASTIC VALVE BOX WITH BOLT DOWN LID
- 2 FINISHED GRADE
- 3 3/4" CRUSHED ROCK, 6" MIN. DEPTH
- 4 3" LONG SCHEDULE 80 PVC THREADED NIPPLE
- 5 SCH 80 PVC THREADED 90 DEGREE ELL
- 6 PVC MAINLINE
- 7 MAINLINE FITTING
- 8 10" LONG SCH 80 PVC THREADED NIPPLE
- 9 QUICK COUPLING VALVE
- 10 1 1/4" x 1 1/4" x 3/16" ANGLE IRON 30" LONG, 2 STAINLESS STEEL STRAPS



B QUICK COUPLING VALVE
N.T.S.

- NOTES:**
1. DO NOT LOCATE REMOTE CONTROL VALVE IN LAWN

- 1 18" LENGTH EXPANSION LOOP
- 2 SCOTCH LOK #3577 CONNECTOR SEALING PACK OR EQUAL ID TAG FOR VALVE STATION NUMBER
- 3 VALVE BOX (CARSON 910-12B) OR EQUAL
- 4 TOP OF MULCH
- 5 REMOTE CONTROL VALVE: SEE IRRIG. LEGEND
- 6 PVC SCH 80 NIPPLE (CLOSE)
- 7 PVC SCH 40 MIN 8" LONG
- 8 PVC 45 FITTING SCH 40
- 9 PVC SCH 40
- 10 S X S FITTING
- 11 PVC MAINLINE PIPE
- 12 6" MIN. DEEP PEA GRAVEL SUMP
- 13 LATERAL LINE CL 200 PVC
- 14 BRICK-1 PER CORNER, 4 TOTAL



C REMOTE CONTROL VALVE
N.T.S.

NO	DATE	DESCRIPTION

PROJECT NO:	4795.00
CAD DWG FILE:	479500CL.DWG
DESIGNED BY:	BG
DRAWN BY:	JH
CHECKED BY:	BG
DATE:	JANUARY 8, 2019
SCALE:	AS SHOWN
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IRRIGATION DETAILS

Appendix B – Water Efficient Landscape Worksheet.

WATER EFFICIENT LANDSCAPE WORKSHEET
 This worksheet is filled out by the project applicant and it is a required element of the Landscape Documentation Package.

City of Hayward Reference Evapotranspiration (ETo) 4.4.2

Hydrozone # /Planting Description ¹	Plant Factor (PF)	Irrigation Method ²	Irrigation Efficiency (IE) ³	ETAF (PF/IE)	Landscape Area (sq. ft.)	ETAF x Area	Estimated Total Water Use (ETWU) ⁴	
Regular Landscape Areas								
PLANTING (L & LV)	.2	DRIP	.81	.247	63,355	10,263	428,836	
PLANTING (M)	.5	DRIP	.81	.617	7,040	4,346	119,034	
					Totals	70,395	14,609	
Special Landscape Areas								
-NA-				1				
					Totals	(C)	(D)	
							ETWU Total	547,870
							Maximum Allowed Water Allowance (MAWA)	868,096

¹Hydrozone #/Planting Description
 E.g.
 1.) front lawn
 2.) low water use plantings
 3.) medium water use planting

²Irrigation Method
 overhead spray or drip
 or drip

³Irrigation Efficiency
 0.75 for spray head
 0.81 for drip

⁴ETWU (Annual Gallons Required) =
 Eto x 0.62 x ETAF x Area
 where 0.62 is a conversion factor that
 converts acre-inches per acre per year
 to gallons per square foot per year.

⁵MAWA (Annual Gallons Allowed) =
 (Eto) / (0.62) [(ETAF x LA) + ((1-ETAF) x SLA)]
 where 0.62 is a conversion factor that converts
 acre-inches per acre per year to gallons per
 square foot per year. LA is the total landscape
 area in square feet, SLA is the total special
 residential areas and 0.45 for non-residential areas.

ETAF Calculations

All Landscape Areas

Total ETAF x Area	(B+D)
Total Area	(A+C)
Sitewide ETAF	(B+D) ÷ (A+C)

Regular Landscape Area

Total ETAF x Area	(B)	14,609
Total Area	(A)	70,395
Sitewide ETAF	B ÷ A	0.208

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

Appendix A - Reference Evapotranspiration (ETo) Table*

County and City	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual ETo
ALAMEDA													
Fremont	1.5	1.9	3.4	4.7	5.4	6.3	6.7	6.0	4.5	3.4	1.8	1.5	47.0
Livermore	1.2	1.5	2.9	4.4	5.9	6.6	7.4	6.4	5.3	3.2	1.5	0.9	47.2
Oakland	1.5	1.5	2.8	3.9	5.1	5.3	6.0	5.5	4.8	3.1	1.4	0.9	41.8
Oakland Foothills	1.1	1.4	2.7	3.7	5.1	6.4	5.8	4.9	3.6	2.6	1.4	1.0	39.6
Pleasanton	0.8	1.5	2.9	4.4	5.6	6.7	7.4	6.4	4.7	3.3	1.5	1.0	46.2
Union City **	1.4	1.8	3.1	4.2	5.4	5.9	6.4	5.7	4.4	3.1	1.5	1.2	44.2

*The values in this table were derived from:

- 1) California Irrigation Management Information System (CIMIS);
- 2) Reference EvapoTranspiration Zones Map, UC Dept. of Land, Air & Water Resources and California Dept of Water Resources 1999; and
- 3) Reference Evapotranspiration for California, University of California, Department of Agriculture and Natural Resources (1987) Bulletin 1922;
- 4) Determining Daily Reference Evapotranspiration, Cooperative Extension UC Division of Agriculture and Natural Resources (1987), Publication Leaflet 21426

**ETo of Union City shall be used for City of Hayward.

Appendix C – Certificate of Completion.

PART 1. CERTIFICATE OF COMPLETION

This certificate is filled out by the project applicant upon completion of the landscape project.

Project Street Address:		Building Permit Number:	
City:	State:	Zip Code:	
Property Owner:			
Name:		Telephone No.:	
		Fax No.:	
Title:		Email Address:	
Company:		Street Address:	
City:	State:	Zip Code:	

Property Owner
 I/we certify that I/we have received copies of all the documents within the Landscape Documentation Package and the Certificate of Completion and that it is our responsibility to see that the project is maintained in accordance with the Landscape and Irrigation Maintenance Schedule.

Property Owner Signature _____ Date _____

PART 2. CERTIFICATION OF INSTALLATION

"I/we certify that based upon periodic site observations, the work has been completed in accordance with the ordinance and that the landscape planting and irrigation installation conform with the criteria and specifications of the approved Landscape Documentation Package."

Signature*	Date	
Name (print)	Telephone No.	Fax No.
Title	Email Address	
License No. or Certification No.		
Company	Street Address	
City	State	Zip Code

*Signer of the landscape design plan, signer of the irrigation plan, or a licensed landscape contractor.

PART 3. IRRIGATION SCHEDULING

Attach parameters for setting the irrigation schedule on controller per ordinance Section 10.12-08.

PART 4. SCHEDULE OF LANDSCAPE AND IRRIGATION MAINTENANCE

Attach schedule of Landscape and Irrigation Maintenance per ordinance Section 10.12-10.

PART 5. LANDSCAPE IRRIGATION AUDIT REPORT

Attach Landscape Irrigation Audit Report per ordinance Section 10-12.11.

PART 6. SOIL MANAGEMENT REPORT

Attach soil analysis report, if not previously submitted with the Landscape Documentation Package per ordinance Section 10-12.07.
 Attach documentation verifying implementation of recommendations from soil analysis report per ordinance Section 10-12-06.

PART 7. LANDFILL DIVERSION VERIFICATION

Attach Landfill Diversion Verification Statement per ordinance Section 10-12.07

CAVALLO HIGHLANDS
TRACT 8353
HAYWARD, CA

NO	DATE	DESCRIPTION
PROJECT NO.	4795.00	
CAD DWG FILE:	479500CLDWG	
DESIGNED BY:	BG	
DRAWN BY:	JH	
CHECKED BY:	BG	
DATE:	JANUARY 8, 2019	
SCALE:	AS SHOWN	
© HMH		

WATER EFFICIENCY CALCULATIONS

