CONSULTANTS

SURVEYOR:

Michael Ford, Inc.
2300 Bethards Dr.
Santa Rosa, CA 95405
(707)842-8513

CIVIL ENGINEER:

Ziegler Engineering
101 Lucas Valley Road #362
San Rafael, CA 94903
(707)479-2170

GEOTECNICAL ENGINEER:

Herzog Geotechnical
70 Woodside Ln.
Mill Valley, CA 94941
(415) 388-8355

BIOLOGIST:

LSA
157 Park Place
Pt. Richmond, CA 94801
(510) 236-6810

ARCHEOLOGIST:

ASC, Sonoma State Univ.
1801 E. Cotati Ave.
Rohnert Park, CA 94928
(707) 664-2381

TRAFFIC ENGINEER:

TJKM
4305 Hacienda Dr. #550
Pleasanton, CA 94588
(925) 463-0611

PROJECT DESCRIPTION

The subject property consists of approximately 6.02 acres, located at the intersection of Thomas Drive and North Knoll Road in the Alto area of unincorporated Mill Valley east of Hwy 101.

The project would be served by a new driveway of approximately 290 feet long with a turn-around for emergency vehicles.

The proposal is for a single-family residence of 2,662 square feet with a tuck-under garage of 970 square feet. In order to minimize visual impact on the neighborhood, the residence is sited on the lowest feasible location and generous landscaping is proposed.

The proposed residence is Nouveau Craftsman style, similar in design to 17 homes located on nearby Vista del Sol.
The living areas are to be sided with cedar shingles.
The garage and basement areas are to be finished in stucco.
The residence would feature clad wood windows and a composition roof.

Please see engineering drawings for utility, site, grading and driveway information.

RECEIVED
DEC 09 2019
COUNTY OF MARIN
COMMUNITY DEVELOPMENT AGENCY
PLANNING DIVISION

PRELIMINARY PLAN: NOT FOR CONSTRUCTION

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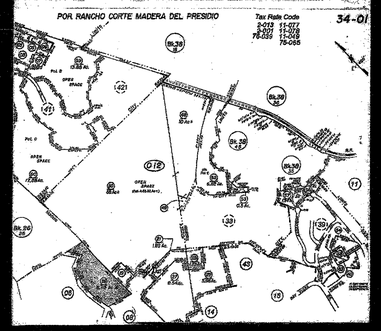
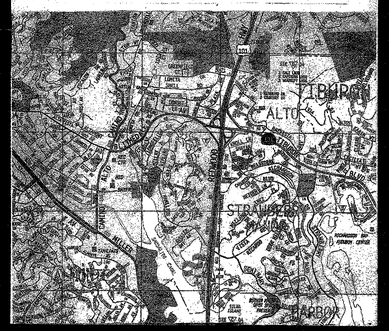
ASSESSORS PARCEL MAP



VICINITY MAP



SHEET INDEX

A0. Cover Sheet/Project Data
n/n Topography Map
A1. Site/Roof Plan
A2. Lower Level Plan
A3. Main/Upper Floorplan
A4. Sections
A5. Elevations
A6. Elevations
A7. Exterior Finishes
L1. Landscaping Plan

PROJECT DATA

APN: 034-012-26
ZONING: RMP-0.2
SLOPE: 31.5%
LOT AREA: 262,408 SF (6.024 acres)
FLOOR AREA:

RESIDENCE:	2,662 SF
GARAGE:	970 SF
TOTAL:	3,632 SF
Garage Allowance	-540 SF
NET SQUARE FEET:	3,092
Floor Area Ratio:	1.1783%

OWNERS:
Vikrum & Gagan Nijjar
134 Chesapeake Lane
Novato, CA 94949

55 Thomas Drive
Mill Valley, CA

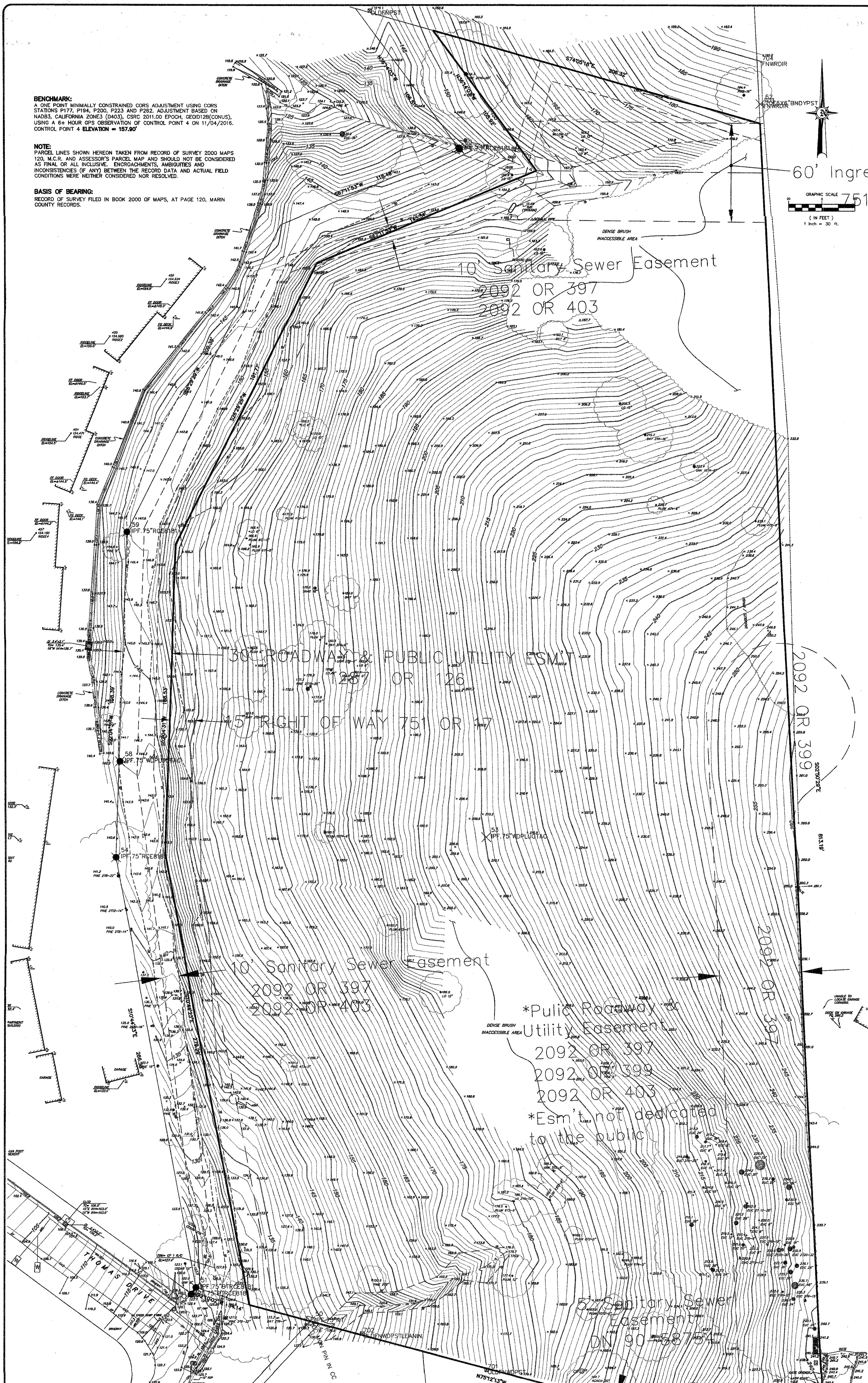
LONE TREE RESIDENTIAL DESIGN
P.O. Box 765, Mill Valley, CA 94942 Tel: (415) 787-2164
LoneTreeResidentialDesign@gmail.com

TOPOGRAPHIC MAP

BENCHMARK:
A ONE POINT MINIMALLY CONSTRAINED CORS ADJUSTMENT USING CORS STATIONS P177, P194, P200, P223 AND P262. ADJUSTMENT BASED ON NAD83, CALIFORNIA ZONE3 (0403), CSRC 2011.00 EPOCH, GEOID12B(CONUS), USING A 6+ HOUR GPS OBSERVATION OF CONTROL POINT 4 ON 11/04/2016. CONTROL POINT 4 **ELEVATION = 157.90'**

NOTE:
PARCEL LINES SHOWN HEREON TAKEN FROM RECORD OF SURVEY 2000 MAPS 120, M.C.R. AND ASSESSOR'S PARCEL MAP AND SHOULD NOT BE CONSIDERED AS FINAL OR ALL INCLUSIVE. ENCROACHMENTS, AMBIGUITIES AND INCONSISTENCIES (IF ANY) BETWEEN THE RECORD DATA AND ACTUAL FIELD CONDITIONS WERE NEITHER CONSIDERED NOR RESOLVED.

BASIS OF BEARING:
RECORD OF SURVEY FILED IN BOOK 2000 OF MAPS, AT PAGE 120, MARIN COUNTY RECORDS.



LEGEND

Symbol	Description	Symbol	Description	Abbrev.	Description
	WOOD FENCE		TBM= TEMPORARY BENCHMARK	LIP	LIP OF GUTTER
	WIRE FENCE		GAS METER	GB	GRADE BREAK
	CONCRETE	+ 100.0	SPOT ELEVATION	TB	TOP OF BANK
	CATCH BASIN (CURB INLET)	— OH —	OVERHEAD POWER & TELEPHONE	TO	TOE OF BANK
	SANITARY SEWER MANHOLE		TREE SYMBOL & DRIP LINE	FL	FLOWLINE
	SEWER CLEANOUT	LO	LIVE OAK	EP	EDGE OF PAVMENT
	ELECTRIC METER	EUC	EUCALYPTUS	DI	DRAIN INLET
	JOINT UTILITY POLE	UNK	UNKNOWN SPECIES	INV	INVERT TO PIPE
	FIRE HYDRANT	CLCB	CENTERLINE OF CATCH BASIN	CP	CONTROL POINT
	WATER VALVE	TG	TOP OF GRATE	R/C	REBAR & CAP
	GUY WIRE	TC	TOP OF CURB		
	FENCE POST				

SHEET 1 of 1
DWG. FILE 2947-TP.DWG
JOB NUMBER 162947
SCALE:
CHECKED BY: MEF
DRAWN BY: DC & JR
DATE: 11/15/06
REVISIONS: 05/24/17 DC; 09/14/18 AJ

APN 034-012-26
70 KNOLL ROAD
MILL VALLEY, CA

TOPOGRAPHIC MAP

PROFESSIONAL LAND SURVEYOR MICHAEL E. FORD NO. 7237 STATE OF CALIFORNIA

SURVEYOR' STATEMENT
THIS MAP IS BASED ON A FIELD SURVEY MADE BY ME OR UNDER MY DIRECTION ON 11/04/16, 02/01/17, 02/27/17, 04/26/17, 04/27/17, AND 05/11/17 AND REPRESENTS THE VISUAL SURFACE CONDITIONS AS OF THE DATE OF SURVEY.

boundary surveys
topographic mapping
aerial topography
subdivision mapping
construction staking
g.i.s. base maps

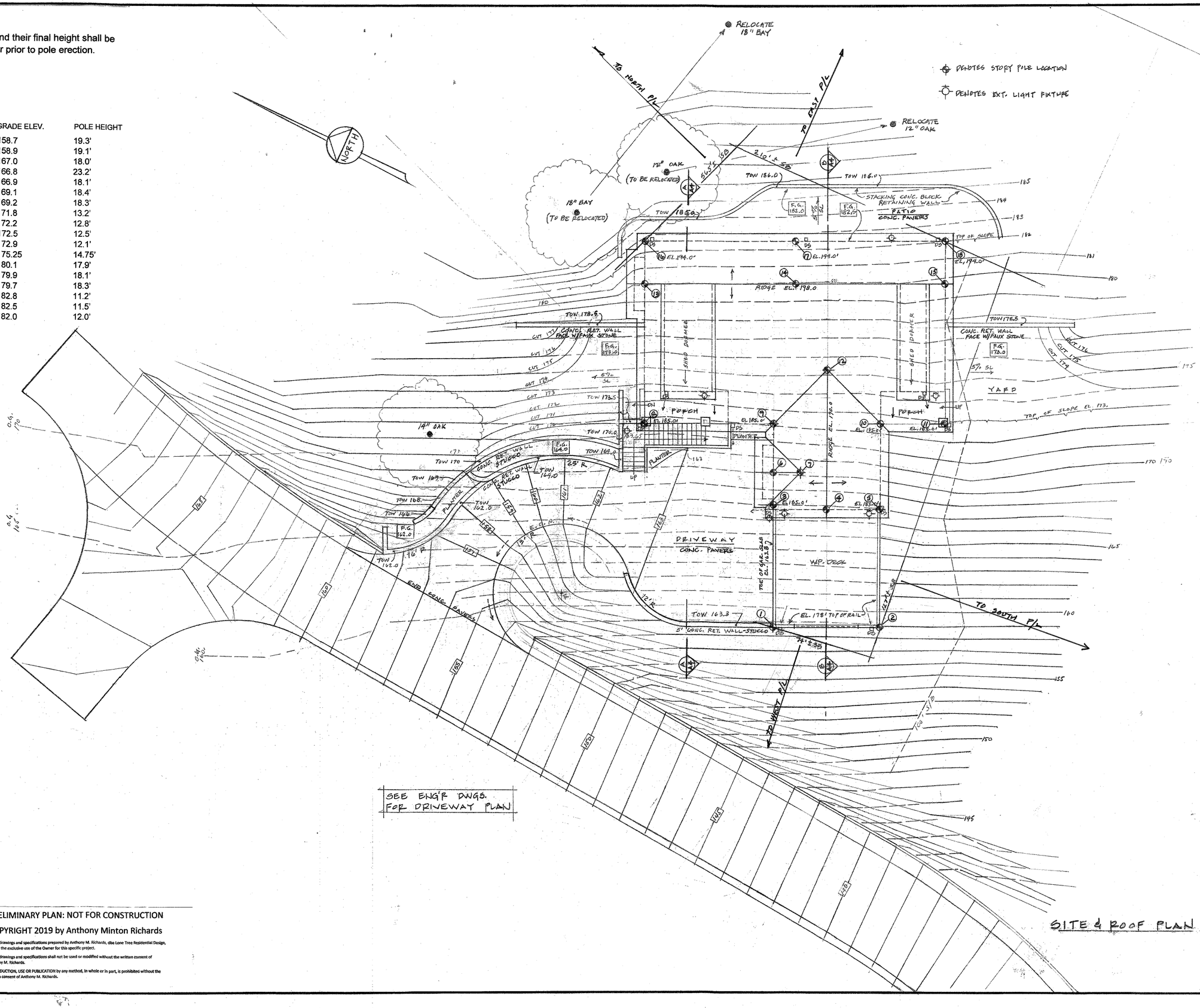
michael ford land surveying inc.
2300 bethards drive, ste. j
santa rosa, california, 95405
p 707.542.6815 - f 707.542.5835
www.michaelfordinc.com

NOTE:

Exact location of story poles and their final height shall be determined by project surveyor prior to pole erection.

STORY POLE KEY

#	TOP OF POLE	GRADE ELEV.	POLE HEIGHT
1.	178.0	158.7	19.3'
2.	178.0	158.9	19.1'
3.	185.0	167.0	18.0'
4.	190.0	166.8	23.2'
5.	185.0	166.9	18.1'
6.	187.5	169.1	18.4'
7.	187.5	169.2	18.3'
8.	185.0	171.8	13.2'
9.	185.0	172.2	12.8'
10.	185.0	172.5	12.5'
11.	185.0	172.9	12.1'
12.	190.0	175.25	14.75'
13.	198.0	180.1	17.9'
14.	198.0	179.9	18.1'
15.	198.0	179.7	18.3'
16.	194.0	182.8	11.2'
17.	194.0	182.5	11.5'
18.	194.0	182.0	12.0'



SITE & ROOF PLAN

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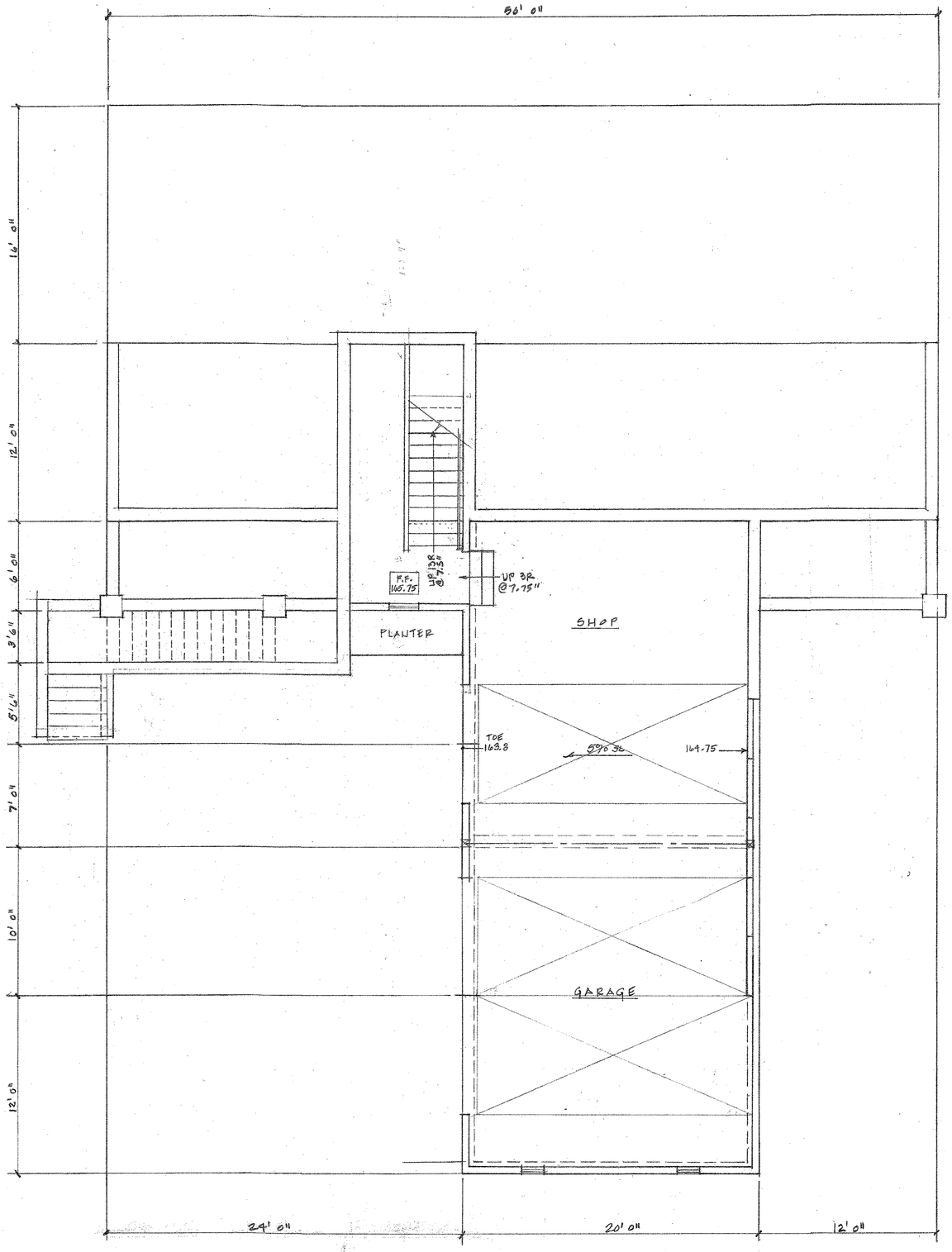
55 Thomas Drive Mill Valley, CA

APN 034-012-26

Date	10/08/19
Scale	1/8" = 1'0"
Drawn	AMR
Job	NIJJAR
Sheet	A1
Of 9	Sheets

24 X 36 CLEARPRINT®



LOWER LEVEL FLOORPLAN

970 S.F.

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Of 9	Sheets

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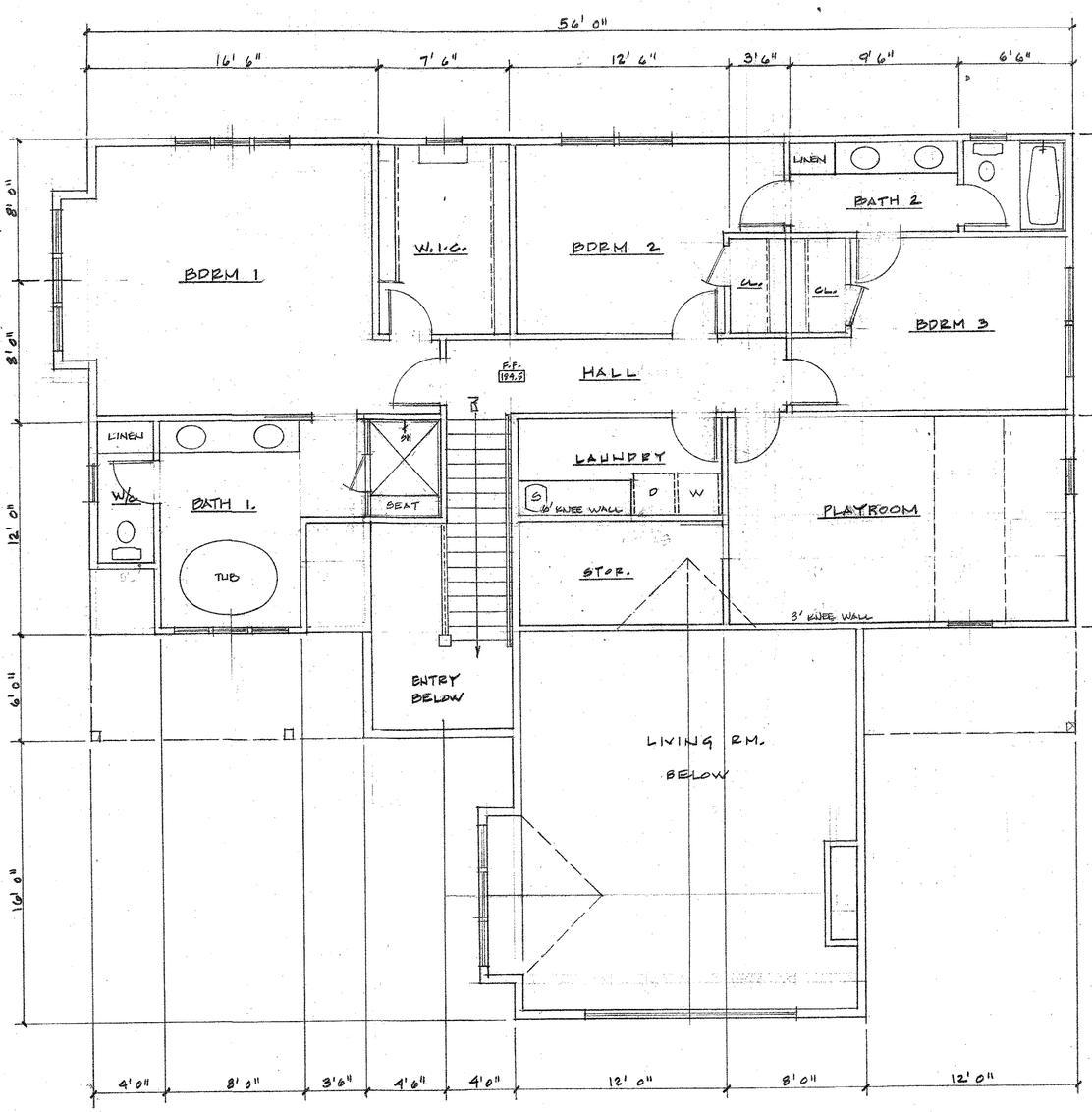
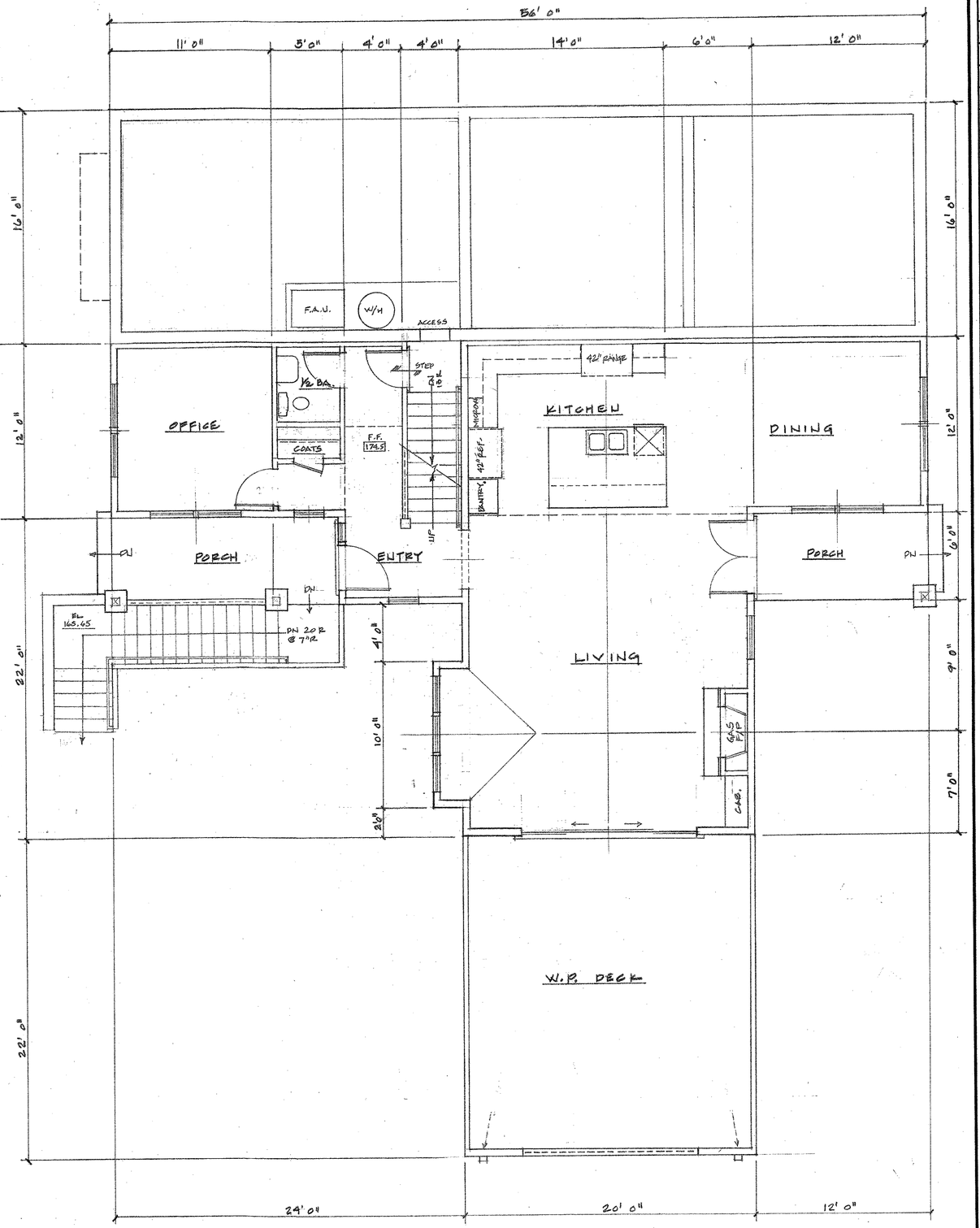


UPPER LEVEL FLOORPLAN

1,479 S.F.



MAIN LEVEL FLOORPLAN

1,183 S.F.

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APN 034-012-26

Date	10/08/19
Scale	1/4" = 1'0"
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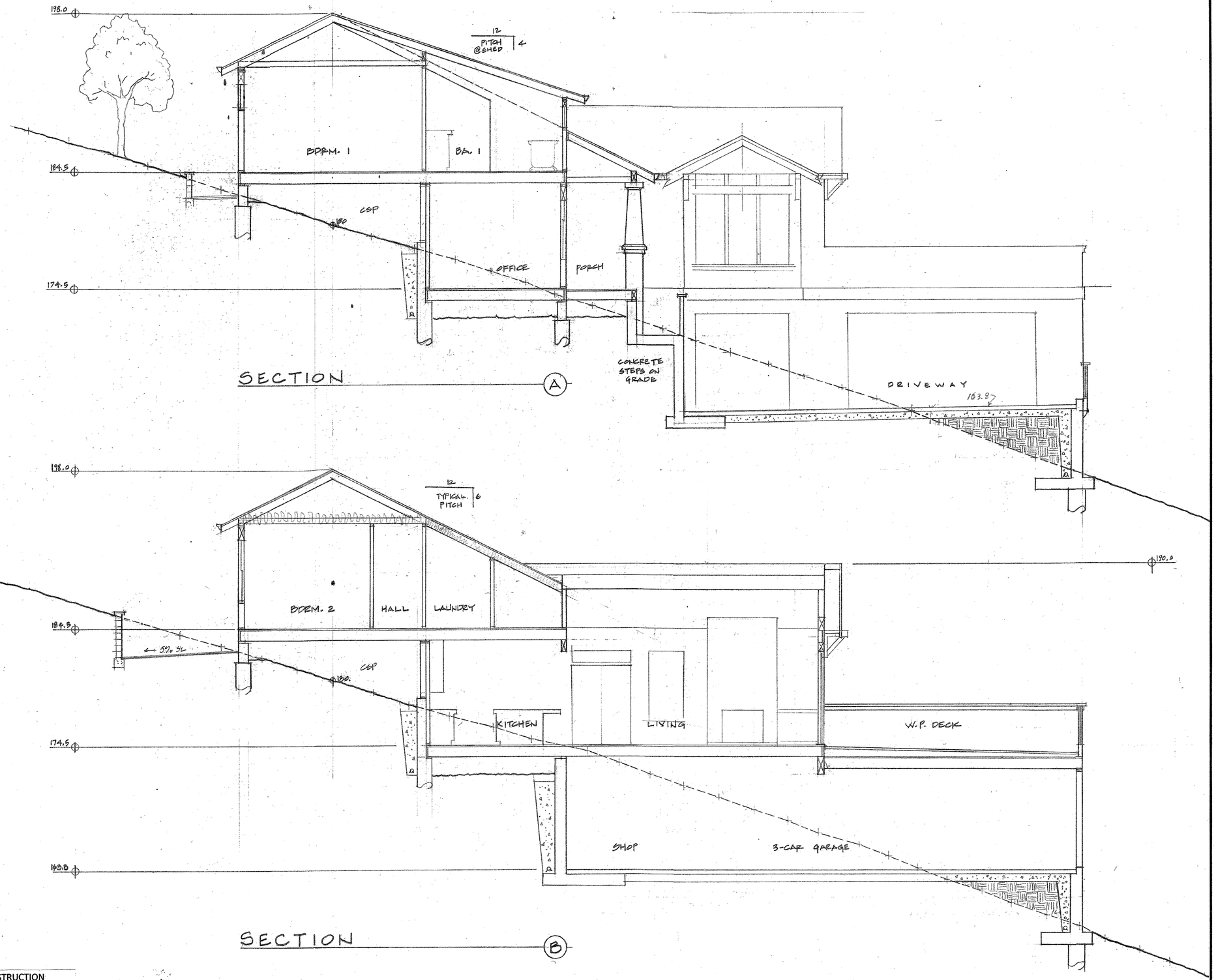
Job	NIJJAR
Sheet	A3
Of	9 Sheets

24 X 36 CLEARPRINT®



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24 X 36 CLEARPRINTS

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55 Thomas Drive Mill Valley, CA

APN 034-012-26

Date	12/08/19
Scale	1/4" = 1'-0"
Drawn	AMR
Job	NIJJAR
Sheet	A4
Of 9	Sheets

WEST ELEVATION

NORTH ELEVATION

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APN 034-012-26

Date	10/08/19
Scale	1/4" = 1'0"
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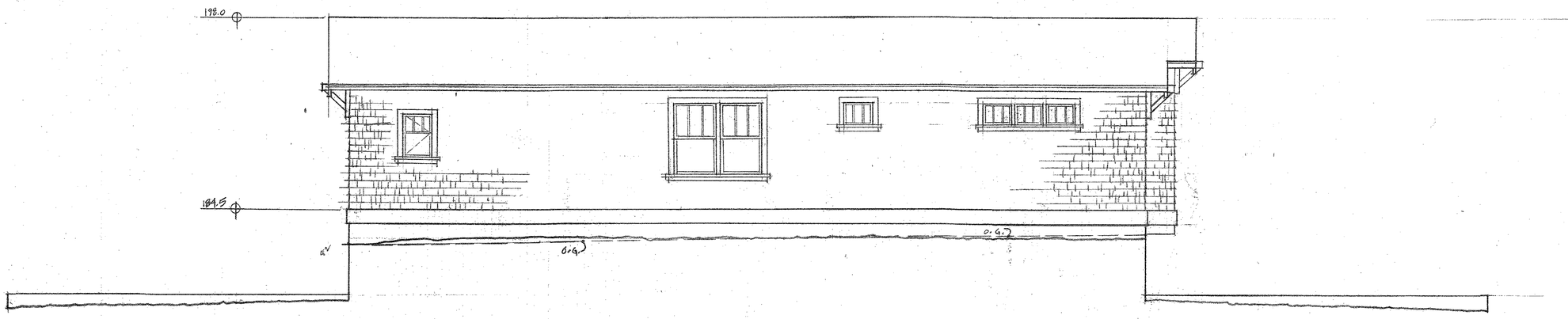
Job	NIJJAR
Sheet	A5
Of 9	Sheets

24 X 36 CLEARPRINT®



EAST ELEVATION

SOUTH ELEVATION

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24 X 36 CLEARPRINTs

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APN 034-012-26

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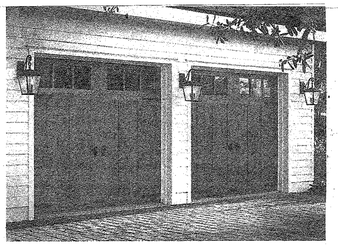
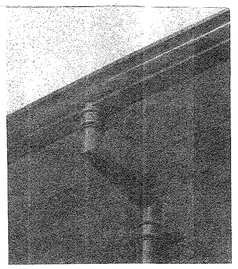
Job	NIJJAR
Sheet	A6
Of	9 Sheets

9. DRIVEWAY PAVERS



10.GARAGE DOORS

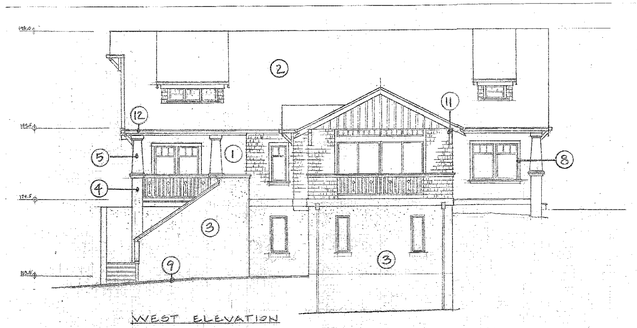
11.ROOF GABLE BRACKET

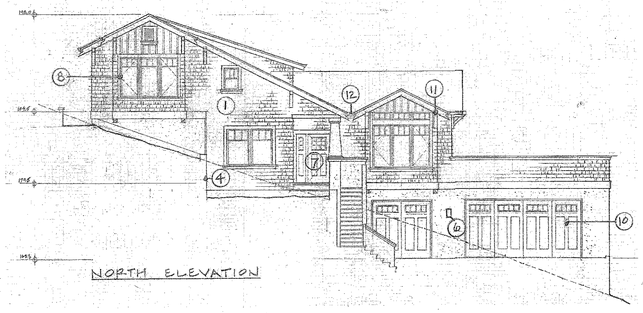


12.OGEE GUTTERS

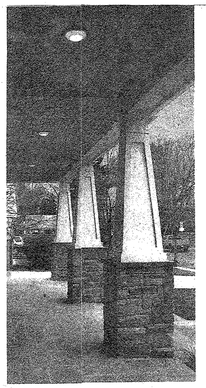
OVERALL STYLE OF HOUSE

Though not identical, this image is to illustrate "Nouveau Craftsman" style;
With the same green-clad wood-sash Marvin Windows and
fire-treated cedar shingles proposed for this project.
Also shown is the elephantine porch columns, also in a green color
to match the windows.

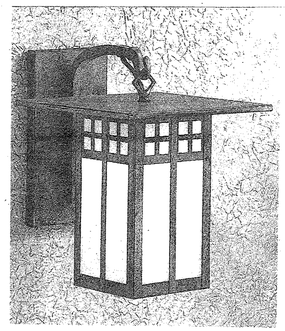




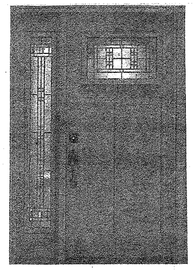
KEY-EXTERIOR FINISHES



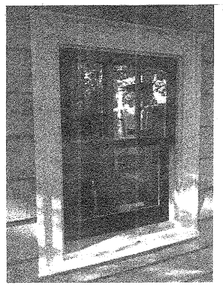
5. PORCH COLUMNS



6. EXTERIOR LIGHTING FIXTURES

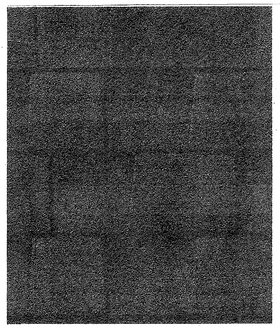


7. FRONT DOOR

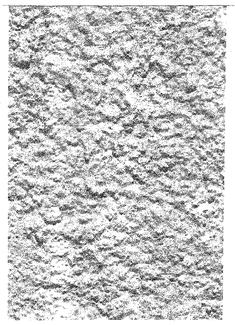


8. TYPICAL WINDOW STYLE

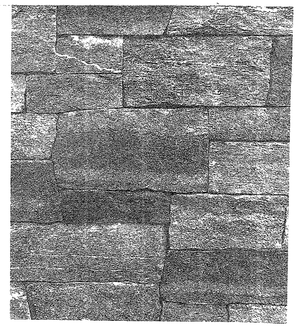
1. SIDING-CEDAR SHINGLES



2. ROOFING-COMPOSITION SHINGLES



3. BASE-STUCCO



4. ACCENT-FAUX STONE

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55 Thomas Drive Mill Valley, CA

APN 034-012-26

Date	10/08/19
Scale	N/A
Drawn	AMR
Job	NIJJAR
Sheet	A7
Of 9	Sheets

86 X 55 CLEARPRINT®

RELOCATED
18" BAY
LAUREL

30' DEFENSIBLE SPACE
CLEAR ALL GRASSES & BRUSH

RELOCATED
10" LIVE OAK
(LIMB UP 10')

D.G. PATH

RESIDENCE

PRIVEWAY

SEE SHT L-2 FOR DWY LANDSCAPING

LANDSCAPING KEY 9/30/2019

	Name	Common Name	Height	Qty	Size	Fire Safe
*	1 Cercis Occidentalis	California Redbud	20'	1	15gal	X
*	2 Aesculus Californica	California Buckeye	25'	3	15gal	
	3 Raphiolepis Delacouri	Indian Hawthorn	6'	15	5gal	X
	4 Escallonia Exoniensis	Escallonia Fradesii	6'	8	5gal.	X
	5 Viburnum Tinus	Laurus Tinus	6'	5	5gal	X
	6 Cotoneaster Microphyllus	Rockspray Cotoneaster	2'	6	1gal	
	7 Photinia Fraseri		6'	16	5gal	X
*	8 Ceanothus	Anchor Bay	2'	24	1gal	
*	9 Ceanothus	Point Reyes	2'	14	1gal	
*	10 Ceanothus	Emily Brown	3'	16	5gal	
*	11 Ceanothus	Ray Hartman	12'	10	5gal	
	12 Lonicera Pileata	Privet Honeysuckle	3'	3	5gal	X
	13 Camellia Japonica		6'	3	5gal	X
	14 Nandina		4'	3	5gal	
	15 Syzygium Paniculatum	Eugenia Brush Cherry	12'	3	5gal	
	16 Azalea		2'	6	1gal	X
*	17 Dendromecon Rigida	Bush Poppy	3-5'	8	5gal	
	18 Cotoneaster Buxifolius	Nanus	2'	30	5gal	
*	19 Ribes speciosum	"Fuschia-Flowering Gooseberry"	4'	20	1-gal	
*	20 Eriogonum arborescens	"Wild Buckwheat"	4'	12	1-gal	X

* DENOTES CALIFORNIA NATIVE PLANT

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1/24 D/R	AML

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APN 034-012-26

Date 10/08/19
Scale 1/8" = 1' 0"
Drawn AMR
Job NIJJAR
Sheet L1

24 X 36 CLEARPRINTS

RESIDENCE

PRIVEWAY

SEE SHT L-1 FOR LANDSCAPING IN THIS AREA.

REVEGETATION PLAN:
AREAS OF PURPLE NEEDLEGRASS & OAK GRASS TO BE STOCKPILED AND RE-DISTRIBUTED FOR EROSION CONTROL @ DISTURBED AREAS.

TYP. I-BEAM & TIMBER STABILIZATION WALLS PER GEOTECHNICAL REPORT

RE-PLANT CALIF. OAK GRASS PRAIRIE @ DISTURBED AREAS

RE-PLANT PURPLE NEEDLEGRASS ON DISTURBED AREAS AND AMONG RIP-RAP @ EMBANKMENT

PROP. LINE

16" PINES
10" PINES

18" PINE

16" PINE

APN 034-061-09

APN 034-061-12

LANDSCAPING KEY sht. L2

BOTANICAL NAME	COMMON NAME	HEIGHT	QTY	SIZE	DESIGNATED FIRESAFE
1. Platanus Racemosa	Calif. Sycamore	30'	5	15-gal	
2. Olea Europaea	Fruitless Olive	25'	9	15-gal	
3. Cercis Occidentalis	Calif. Redbud	20'	6	15-gal	X
4. Prunus Lyonii	Catalina Cherry	15'	20	5-gal	X
5. Cistus Incanus	Rockrose	3'	12	5-gal	
6. Mimulus Aurantiacus	Monkey Flower	4'	6	5-gal	X
7. Dodonea Viscosa	Purple Hopseed	10'	12	5-gal	X
8. Myrica Californica	Pacific Wax Myrtle	10'	8	5-gal	X
9. Carpenteria Calif.	Bush Anemone	4'	15	5-gal	X

NOTE: PROVIDE AUTOMATIC DRIP IRRIGATION TO ALL PLANTS.

REVISIONS	BY
1/24 P/R	AMR
3/24 P/R	AMR

LONE TREE RESIDENTIAL DESIGN
P.O. Box 765, Mill Valley, CA 94942 Tel: (415) 787-2164
LoneTreeResidentialDesign@gmail.com

OWNERS:
Vikrum & Gagan Nijjar
134 Chesapeake Lane
Novato, CA 94949

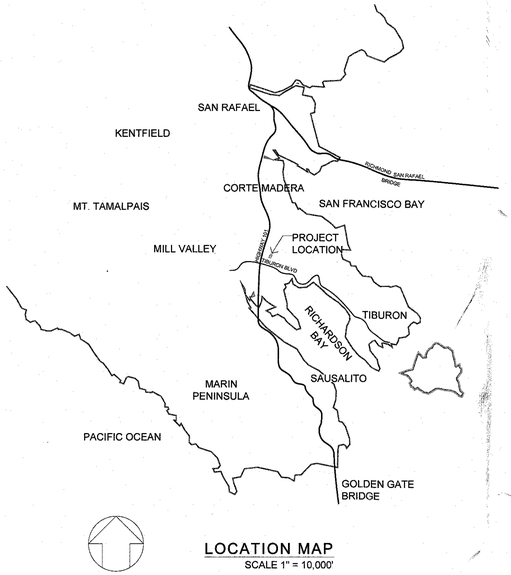
55 Thomas Drive Mill Valley, CA

APN 034-012-26

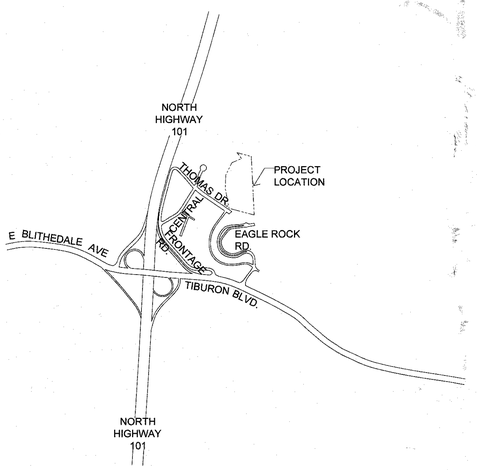
Date 1/24/2020
Scale 1/8" = 1'-0"
Drawn AMR
Job NIJJAR
Sheet L2

24 X 05 CLEARPRINT®

PROPOSED SINGLE FAMILY RESIDENCE
CIVIL ENGINEERING PLANS



LOCATION MAP
SCALE 1" = 10,000'



VICINITY MAP
SCALE 1" = 1,000'

PROPOSED SINGLE FAMILY HOME AND DRIVEWAY SCHEMATIC w/ 2015 USGS AERIAL PHOTOGRAPH
SCALE 1 " = 200'

0 100 200 300 400 500 600
SCALE 1" = 200'
(24" x 36" SHEET)

BASE MAP STANDARDS AND REFERENCE

A. MAP BASE DATA AND INFORMATION
FROM TOPOGRAPHIC AND BOUNDARY SURVEY
BY MICHAEL FORD LAND SURVEYING : 9 /14 / 2018

1. BENCHMARK AND ELEVATIONS ; NAD 83
BENCHMARK ELEVATION = 157.90 "POINT 4"

2. BOUNDARY: PRELIMINARY PER FLS NOTES

3. BASIS OF BEARING: PER FLS NOTES

Note: SUPPLEMENTAL TOPOGRAPHIC DATA FROM MARIN GIS AS NOTED ON SEVERAL EXHIBITS

DEVELOPMENT CODES AND BUILDING STANDARDS

1. MARIN COUNTY CODE - DATE: xx / xx / 20XX
2. MARIN COUNTY UNIFORM CONSTRUCTION STANDARDS: DATE xx / xx / 20XX
3. CALIFORNIA BUILDING CODE (TITLE 24) AND PUBLIC RESOURCES CODES - xx / xx / 20XX
4. CALTRANS STANDARD PLANS AND SPECIFICATIONS: DATE xx / xx / 20XX
5. SOUTHERN MARIN FIRE PROTECTION DISTRICT ORDINANCES : DATE xx / xx / 20XX
6. MARIN MUNICIPAL WATER DISTRICT STANDARDS AND SPECIFICATIONS: DATE xx / xx / 20XX
7. PACIFIC GAS AND ELECTRIC GREEN BOOK STANDARDS : DATE xx / xx / 20XX
8. ALTO SANITARY SEWER DISTRICT STANDARD SPECIFICATIONS/DRAWINGS : DATE xx / xx / 2015

NOTE: ALL REFERENCES CODES AND STANDARDS INCORORATED BY REFERENCE

REFERENCE BUILDING AND SITE PLAN SHEETS

ALL REFERENCE REPORTS AND PLAN REQUIREMENTS INCORPORATED BY REFERENCE

1. BUILDING PLANS BY TONY RICHARDS - LONE TREE DESIGN
2. GEOTECHNICAL REPORT SITE MAP - HERZOG GEOTECHNICAL
3. TOPOGRAPHIC AND BOUNDARY SURVEY. MICHAEL FORD LAND SURVEYING
4. BIOLOGICAL SITE ASSESSMENT MAPPING - LSA

CIVIL ENGINEERING SCOPE OF WORK

1. GENERAL SITE PLAN AND CONSTRAINTS MAPPING FOR PLANNING PURPOSES
2. GRADING PLAN FOR NEW DRIVEWAY AND SITE ACCESS
3. PAVING PLAN AND DRIVEWAY TIE IN PER MARIN COUNTY UCS.
4. ROUGH GRADING FOR HOME
5. SLIDE REPAIR PER GEOTECHNICAL REPORT WITHIN SITE PLAN AREAS
6. UTILITIES PLAN - WATER, ELECTRIC, GAS AND COMMUNICATIONS
7. SANITARY SEWER ONSITE
8. SANITARY SEWER OFFSITE TIE-IN TO ALTO SANITARY SEWER DISTRICT
9. HYDROLOGY AND DRAINAGE PLAN
10. STORMWATER TREATMENT AND MANAGEMENT PLAN PER BASMAA FOR A REGULATED PROJECT
11. STORMWATER CONTROL PLAN AND EROSION CONTROL PLAN
12. PRELIMINARY STAKING PLAN FOR PLANNING PURPOSES. NOT FOR CONSTRUCTION
13. RESIDENTIAL BUILDING AND SITE LIFE SAFETY / UNIFORM BUILDING CODE PROVISIONS ARE NOT IN CIVIL ENGINEERING SCOPE OF WORK. BY OTHERS.

REPORTS AND DOCUMENTS INCORPORATED BY REFERENCE

1. HOME AND HOME SITE PLANS - TONY RICHARDS
LONE TREE RESIDENTIAL DESIGN,AS SUBMITTED

2. TOPOGRAPHIC AND BOUNDARY SURVEY
MICHAEL FORD LAND SURVEYING
AS SUBMITTED

3. GEOTECHNICAL INVESTIGATION
HERZOG GEOTECHNICAL 9 /10 / 2019

4 BIOLOGICAL SITE ASSESSMENT AND ARBORIST REPORT
LSA, 11/12/2019

5. ARCHEOLOGY REPORT, AS SUBMITTED
ASC- SONOMA STATE UNIVERSITY

6. TRAFFIC ENGINEERING REPORT
TJKM TRAFFIC ENGINEERING CONSULTANTS
10 / 23 / 2019

7. ZIEGLER CIVIL ENGINEERING
PRELIMINARY HYDRAULICS AND HYDROLOGY REPORT 11/6/2019

8. ZIEGLER CIVIL ENGINEERING
PRELIMINARY STORMWATER CONTROL PLAN - REGULATED PROJECT
11/6/2019

MARIN COUNTY PLANNING AND OTHER APPROVALS

1. CERTIFICATE OF COMPLIANCE FOR THE PROJECT PARCEL
MARIN COUNTY PLANNING DEPARTMENT
MARIN COUNTY ASSESSOR PARCEL NUMBER :(APN)034-012-26
CERTIFIED FEBRUARY 1, 2019, PROJECT ID: P2162

2. LAFCO SANITARY SEWER DISTRICT ANNEXATION
SUBMITTED 2019. PENDING REVIEW.

WILL SERVE LETTERS

1. PACIFIC GAS AND ELECTRIC COMPANY
"WILL SERVE LETTER" SEPTEMBER 20, 2017

2. MARIN MUNICIPAL WATER DISTRICT
WATER AVAILABILITY LETTER MAY 11, 2018

3. ALTO SANITARY SEWER DISTRICT / LAFCO ANNEXATION
DRAFT SEWER EXTENSION AGREEMENT AND PRELIMINARY REVIEW
JUNE 14, 2019

4. AT AND T - TELEPHONE
WILL SERVE LETTER
PENDING - DEFERRED SUBMITTAL

5. CABLE COMMUNICATIONS PROVIDER - TBD
PENDING - DEFERRED SUBMITTAL

SHEET INDEX - CIVIL ENGINEERING SHEETS

SHEET	DESCRIPTION
1	COVER SHEET
2	SITE PLAN - OVERALL
3	SITE PLAN - FOCUSED
4	CONSTRAINTS MAP - SITE
5	CONSTRAINTS MAP - SLOPE EXHIBIT
6	CONSTRAINTS MAP - RIDGE LINE EXHIBIT
7	GRADING PLAN / EARTHWORK SUMMARY
8	GRADING PLAN - DRIVEWAY PLAN AND PROFILE
9	DRIVEWAY X - SECTIONS
10	SITE GRADING X- SECTIONS LOCATIONS, X-SECTION AT SIDEWALK
11	SITE GRADING X - SECTIONS A, B, C
12	SITE GRADING X - SECTIONS D, E
13	SITE GRADING X - SECTIONS E.1, F
14	UTILITY PLANS, SANITARY SEWER AND WATER
15	STORMWATER MANAGEMENT PLAN - DRAINAGE MANAGEMENT AREAS
16	STORMWATER MANAGEMENT PLANS CALCULATIONS
17	HYDROLOGY AND STORM DRAINAGE PLAN
18	STAKING PLAN AND STORY POLE PLAN
19	CONSTRUCTION NOTES AND CONSTRUCTION DETAILS
20	CONSTRUCTION DETAILS
21	CONSTRUCTION DETAILS
22	CONSTRUCTION DETAILS
23	CONSTRUCTION DETAILS
24	CONSTRUCTION DETAILS
25	CONSTRUCTION DETAILS

RECEIVED
DEC 09 2019
COUNTY OF MARIN
COMMUNITY DEVELOPMENT AGENCY
PLANNING DIVISION

REVISIONS / DATE

COVER SHEET - CIVIL ENGINEERING
PROPOSED SINGLE FAMILY HOME
DESIGN REVIEW SUBMITTAL

PROJECT LOCATION / OWNER
VIKRUM AND GAGAN NIJJAR
THOMAS DRIVE, MILL VALLEY, CA
MARIN COUNTY: APN: 034-012-26

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LONE TREE
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REGISTERED PROFESSIONAL ENGINEER
JAIME A. ZIEGLER
No. C52962
CIVIL
STATE OF CALIFORNIA

SIGNATURE
GREEN WATER BASED INK
CIVIL ENGINEERING AND SITE WORK ONLY
BUILDING DESIGN BY OTHERS
FOR PLANNING REVIEW
PRELIMINARY
NOT FOR CONSTRUCTION

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DATE 11 / 6 / 2019
SCALE AS NOTED
DRAWN JAZ
JOB 55 THOMAS DRIVE
SHEET C 1.0
OF 25 SHEETS

RIDGE LINE SETBACK (TYP)
RIDGE AND UPLAND GREENBELT
100' VERTICAL SETBACK IS CRITICAL
ELEVATION OF SETBACK = 250
300' HORIZONTAL SETBACK IS OFFSITE
SEE RIDGE LINE CONSTRAINT SHEET
FOR ADDITIONAL DETAILS

RIDGE=288.3
FF DECK = 277.2

ADJACENT OFFSITE STRUCTURES(E)
ROOF AND FLOOR ELEVATIONS AS NOTED (TYP)

OFFSITE EASEMENT (TYP)
MULTIPLE OFFSITE EASEMENTS
THIS AREA SEE TITLE REPORT

FF DECK= 278.2

FF DECK= 266.2

OFFSITE EASEMENT (TYP)

DESCENDING ELEVATION SETBACK
EL = 290 - EL = 280

100' VERTICAL SETBACK
CALCULATED FROM RIDGE ELEVATION
ELEVATION = 240'
THIS WHICH ACCOUNTS FOR THE DESCENDING
ELEVATION OF THE SETBACK CONSTRAINT

ADJACENT AND ONSITE EASEMENT (TYP)

15 ft SIDE SETBACK

ONSITE EASEMENT (TYP)

CONTOUR DATA THIS AREA
INTERPRETED FROM MARIN MAPS GIS
FOR PLANNING PURROSES

UNK
4-8", 15EA

PL-4EA
2"-8"

LO-8"

B-8

B-6

B-14"

B-16"

B-10"

LO-8"

PL-4EA

HERZOG GEOTECHNICAL
BORING LOCATION AND
CALLOUT (TYP)

B-7

NON-ORDINANCE TREES
(TYP)

PL-5"
8EA

P-8"

P-6"

PL-4-4"
7EA

PL-4-5"
8EA

B-18"

A-20"

PL-2-8"
10EA

PL-3-5"
8EA

U-5-8"
5 EA

PL-2-8"
13EA

ORDINANCE TREES (TYP)

RIDGE=250.0
FF=233.4
FF DECK=233.2

RIDGE=224.3
FF=211.7
FF DECK=211.7

35 ft
REAR
SETBACK

EPHEMERAL STREAM

LO-12"
LO-8"
W-12"

LO-16"

B-10"

ORDINANCE TREES (TYP)
SPECIES AS NOTED
DIAMETER AS NOTED

B-15"

B-5

B-15"

P-10",26"

CONTOUR DATA THIS AREA
INTERPRETED FROM MARIN MAPS GIS
FOR PLANNING PURROSES

LO-10"

LO-24"

P-12"

30 ft
FRONT
SETBACK

EPHEMERAL STREAM

10" L.O.
18" BAY
TO BE RELOCATED

B-12

LO-10"

B-18"

PROPOSED HOME
AND DRIVEWAY
SEE ARCHITECTURAL
PLANS

LIMITS OF GRADING
EROSION CONTROL
FENCING (TYP)

PL-2-8"
8EA

SEWER

JOINT
TRENCH

WATER

B-17

GAS

LO-6"

B-10

OFFSITE EASEMENT
(TYP)

RIDGE=175.2
FF=166.7
FF DECK=166.5

P-8"
2 EA

R-30"

R-10"

R-30"

R-30"

PROPERTY LINE (TYP)
APN: 034-012-26
SEE FORD LAND SURVEYING
FOR BEARINGS AND DISTANCES

R.O.W SEE FORD LAND
SURVEYING FOR BEARINGS
AND DISTANCES (TYP)

B-18"

22" PINE
TO BE REMOVED

JOINT TRENCH
UNDERGROUND

UTILITY POLE
OVERHEAD(E)

P-22"

WW-8"

15' SIDE SETBACK

P-8"

U E-36"

P-8"

B-16"

B-3

LO-6"

LO-8"

PL-4-6"
2EA

END OF
DRIVEWAY

B-18"

LO-14"

B-18"

SN-18"

LO-6"

LO-18"

LO-10"

PL-4-6"
10EA

LO-14"

B-13

PROPOSED DRIVEWAY
SLOPE REPAIR
WITH BIOSWALE

PL-3-4"
4EA

FIRE HYDRANT
AND SHUNT
TURNAROUND (P)

B-2

P-3"-5"

SEWER

JOINT TRENCH

WATER

B-1

B-9

LO-18"

PL-1-5" 6EA

PL-1-5" 8EA

PL-4-6"
10EA

B-6"

LO-6"

LO-6"

FORD BM
EL= 159.70

ONSITE EASEMENT LINE
SAME AS SIDE SETBACK LINE
15' FROM PROPERTY LINE
SEE SURVEY BY MICHAEL FORD
LAND SURVEYING

15' SIDE SETBACK

C-6"
2EA

C-15"

U-8"

EXISTING DITCH
ADD HEADWALL AND
CATCH BASIN PER USC.
LOWER INVERT EL OF
EXISTING 15" R.C.P. INLET

EPHEMERAL STREAM (TYP)

DRAINAGE BENCH (E)

P-8"

P-22",8"

P-12",14"

P-8",14"

P-12"

P-12"

P-10",16"

P-18"

P-16"

DRAINAGE DITCH(E)
IMPROVE TO BIOSWALE(P)

RIDGE=133.6

SIDEWALK AND DRIVEWAY
APRON PER USC (P)

OFFSITE EASEMENT
SEE FORD LAND
SURVEYING FOR BEARINGS
AND DISTANCES (TYP)

EDGE OF
PAVEMENT (E)
(TYP)

N. KNOLL ROAD
(NON COUNTY MAINTAINED ROAD)

THOMAS DRIVE
COUNTY MAINTAINED ROAD)

LOWER EXISTING STORM DRAIN AND UTILITES AS
NECESSARY ACROSS DRIVEWAY TIE-IN
FRONTAGE FINAL GRADES TO BE DETERMINED

SEWER LINE EXTENSION
TO ALTO SANITARY SEWER DISTRICT

OFFSITE EASEMENT
SEE FORD LAND
SURVEYING FOR BEARINGS
AND DISTANCES (TYP)

SEWER P.O.C.
EXISTING RODOUT
ALTO SANITARY SEWER DISTRICT

RIDGE=154.9
FF=145.0
FF DECK=144.9

RIDGE=154.5
FF=144.5
FF DECK=144.5

CONCRETE DRAINAGE DITCH
(OFFSITE) (E)

RIDGE=154.2
FF=144.2
FF DECK=144.1

RIDGE=144.1
FF=132.4(2ND)
SILL EL=136.2(2ND)
FF DECK 233.2

LEGEND

CONTOURS (EXISTING) — 210

TREES ORDINANCE SPECIES - DBH — R - 12"

TREES NOT ORDINANCE SPECIES - DBH — P - 5"

NOTE : OTHER FEATURES AS NOTED

NOTED TREE SPECIES

R- REDWOOD
L.O. - LIVE OAK
B - BAY
P - PLUMB
P - MONTEREY PINE
A - ACACIA
WW - WEEPING WILLOW
U - UNKNOWN
C - CEDAR SP.
E- EUCALYPTUS

TREES TO BE REMOVED

MONTEREY PINE - 2 EA

TREES TO RELOCATED

BAY - 1 EA

LIVE OAK - 1 EA

OVERALL SITE PLAN NOTES

1. SEE FOCUSED SITE PLAN FOR PROPOSED CONTOURS AND GRADES FOR HOME AND DRIVEWAY INCLUDING LOCALIZED CONSTRAINTS.
2. SEE CONSTRAINTS MAP FOR OVERALL SITE CONSTRAINTS.
3. PROPERTY LINE AND EASEMENTS BY FORD LAND SURVEYING. SEE EXISTING TOPOGRAPHIC AND BOUNDARY SURVEY FOR METES AND BOUNDS DATA AS IT RELATES TO ALL PROPERTY BOUNDARY AND EASMENTS.
4. OFFSITE PARCEL LINES NOT SHOWN. BY OTHERS.
5. RIGHT OF WAY LINES SHOWN AT THOMAS DRIVE FOR PLANNING PURPOSES ONLY. SEE TOPOGRAPHIC AND BOUNDARY SURVEY BY FORD LAND SURVEYING FOR ADDITIONAL DETAIL AND INFORMATION. PER THE COUNTY MAINTAINED ROAD PLAN, THOMAS DRIVE IS A COUNTY MAINTAINED ROAD. THE PROPOSED DRIVEWAY TIE IN WILL ABUT THOMAS DRIVE ONLY. NO IMPROVEMENTS ARE PROPOSED ON NON- COUNTY MAINTAINED, ROAD N. KNOLL ROAD.

OVERALL SITE PLAN
SCALE 1" = 30'

PARCEL AREA SUMMARY APN:034-012-26

PARCEL TOTAL AREA: 262,408 ft² = 6.02 ACRES

LIMITS OF NEW GRADING ONSITE = 36,355 ft²
(ONSITE HOME AND DRIVEWAY)

LIMITS OF NEW GRADING OFFSITE = 3,393 ft²
(OFFSITE DRIVEWAY AND JOINT TRENCH)

LIMITS OF GRADING LOWER BENCH = 3,226 ft²
(OFFSITE RECONSTRUCT DITCH AT BENCH)

TOTAL LIMITS OF NEW GRADING. = 42,974 ft² = 0.98 ACRES
(APPROXIMATE)

GRADING FOR UTILITY EXTENSIONS NOT INCLUDED
AS AREAS ARE CURRENTLY PAVED AND A PART OF
MARIN COUNTY IMPROVED RIGHTS OF WAY.

SCALE 1" = 30'
(24" x 36" SHEET)

0 10 20 30 40 50 60 70 80 90 100

REVISIONS / DATE

OVERALL SITE PLAN
PROPOSED SINGLE FAMILY HOME
DESIGN REVIEW SUBMITTAL

PROJECT LOCATION / OWNER
VIKRUM AND GAGAN NIJJAR
THOMAS DRIVE, MILL VALLEY, CA
MARIN COUNTY: APN: 034-012-26

RESIDENTIAL DESIGN
LONE TREE
RESIDENTIAL DESIGN
TONY RICHARDS
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CIVIL
STATE OF CALIFORNIA

SIGNATURE
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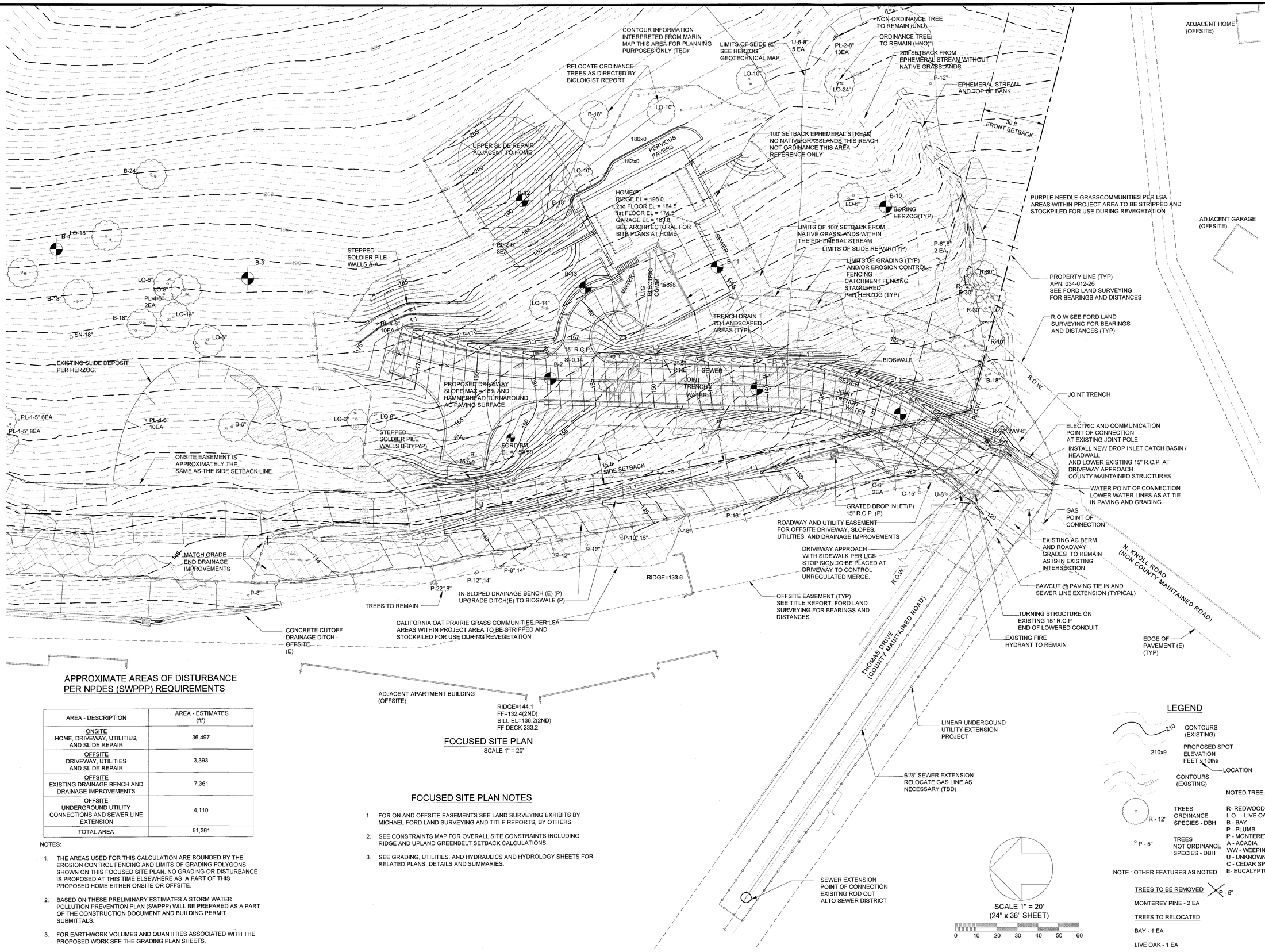
DATE 11 / 6 / 2019
SCALE 1 " = 30'
DRAWN JAZ
JOB 55 THOMAS DRIVE
SHEET C 2.0
OF 25 SHEETS



APPROXIMATE AREAS OF DISTURBANCE PER NPDES (SWPPP) REQUIREMENTS

AREA - DESCRIPTION	AREA - ESTIMATES (ft²)
ONSITE HOME, DRIVEWAY, UTILITIES, AND SLIDE REPAIR	36,497
OFFSITE DRIVEWAY, UTILITIES AND SLIDE REPAIR	3,393
OFFSITE EXISTING DRAINAGE BENCH AND DRAINAGE IMPROVEMENTS	7,361
OFFSITE UNDERGROUND UTILITY CONNECTIONS AND SEWER LINE EXTENSION	4,110
TOTAL AREA	51,361

NOTES:

1. THE AREAS USED FOR THIS CALCULATION ARE BOUNDED BY THE EROSION CONTROL FENCING AND LIMITS OF GRADING POLYGONS SHOWN ON THIS FOCUSED SITE PLAN. NO GRADING OR DISTURBANCE IS PROPOSED AT THIS TIME ELSEWHERE AS A PART OF THIS PROPOSED HOME EITHER ONSITE OR OFFSITE.
2. BASED ON THESE PRELIMINARY ESTIMATES A STORM WATER POLLUTION PREVENTION PLAN (SWPPP) WILL BE PREPARED AS A PART OF THE CONSTRUCTION DOCUMENT AND BUILDING PERMIT SUBMITTALS.
3. FOR EARTHWORK VOLUMES AND QUANTITIES ASSOCIATED WITH THE PROPOSED WORK SEE THE GRADING PLAN SHEETS.

FOCUSED SITE PLAN

SCALE 1" = 20'

FOCUSED SITE PLAN NOTES

1. FOR ON AND OFFSITE EASEMENTS SEE LAND SURVEYING EXHIBITS BY MICHAEL FORD LAND SURVEYING AND TITLE REPORTS, BY OTHERS.
2. SEE CONSTRAINTS MAP FOR OVERALL SITE CONSTRAINTS INCLUDING RIDGE AND UPLAND GREENBELT SETBACK CALCULATIONS.
3. SEE GRADING, UTILITIES, AND HYDRAULICS AND HYDROLOGY SHEETS FOR RELATED PLANS, DETAILS AND SUMMARIES.

LEGEND

- 210 CONTOURS (EXISTING)
- 210x9 PROPOSED SPOT ELEVATION FEET x 10ths
- LOCATION
- CONTOURS (EXISTING)
- R - 12" TREES ORDINANCE SPECIES - DBH
- P - 5" TREES NOT ORDINANCE SPECIES - DBH

NOTED TREE SPECIES

R- REDWOOD
L.O. - LIVE OAK
B - BAY
P - PLUMB
P - MONTEREY PINE
A - ACACIA
WW - WEEPING WILLOW
U - UNKNOWN
C - CEDAR SP.
E- EUCALYPTUS

NOTE : OTHER FEATURES AS NOTED

TREES TO BE REMOVED — R - 5"

MONTEREY PINE - 2 EA

TREES TO RELOCATED

BAY - 1 EA

LIVE OAK - 1 EA

REVISIONS / DATE

FOCUSED SITE PLAN

PROPOSED SINGLE FAMILY HOME
DESIGN REVIEW SUBMITTAL

PROJECT LOCATION / OWNER
VIKRUM AND GAGAN NIJJAR
THOMAS DRIVE, MILL VALLEY, CA
MARIN COUNTY: APN: 034-012-26

RESIDENTIAL DESIGN
LONE TREE RESIDENTIAL DESIGN
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REGISTERED PROFESSIONAL ENGINEER — JAIME A. ZIEGLER — No. C62962 — CIVIL — STATE OF CALIFORNIA

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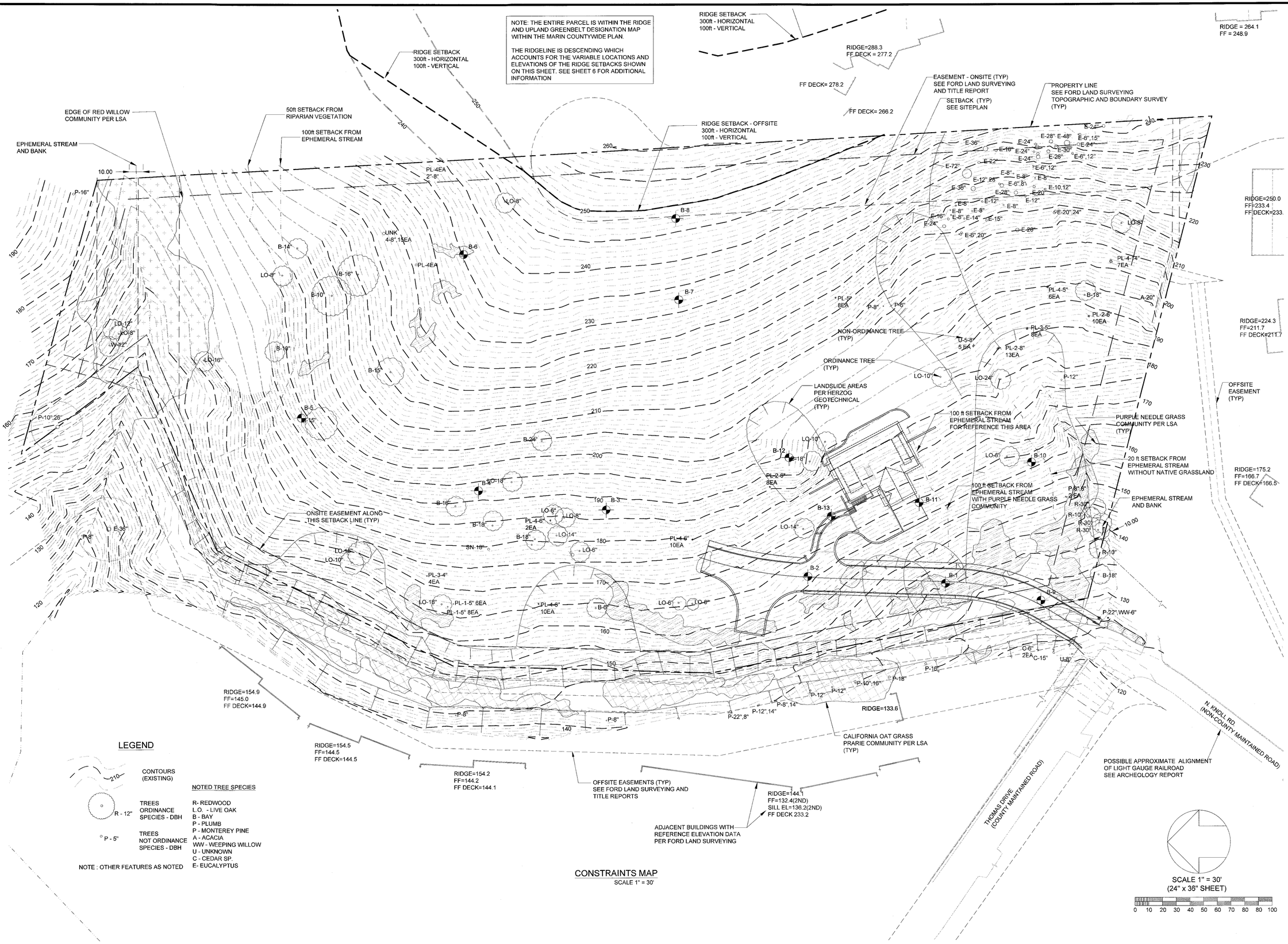

REVISIONS / DATE

CONSTRAINTS MAP

PROPOSED SINGLE FAMILY HOME
DESIGN REVIEW SUBMITTAL

PROJECT LOCATION / OWNER
VIKRUM AND GAGAN NIJJAR
THOMAS DRIVE, MILL VALLEY, CA
MARIN COUNTY, APN: 034-012-26

RESIDENTIAL DESIGN
LONE TREE RESIDENTIAL DESIGN
TONY RICHARDS
415-787-2164

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HERZOG GEOTECHNICAL
CRAIG HERZOG, PE., GE
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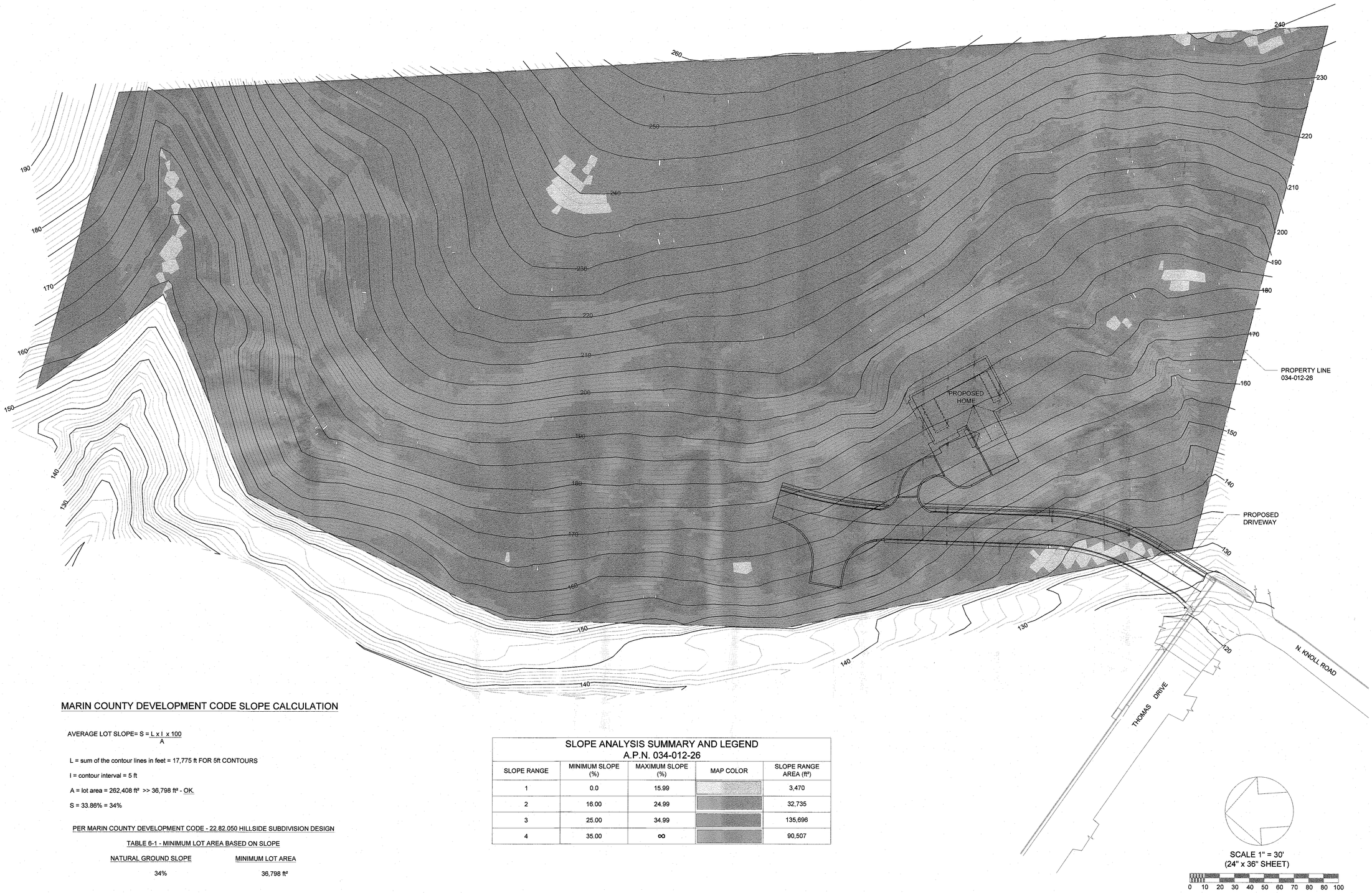

MARIN COUNTY DEVELOPMENT CODE SLOPE CALCULATION

AVERAGE LOT SLOPE= S = $\frac{L \times I \times 100}{A}$

L = sum of the contour lines in feet = 17,775 ft FOR 5ft CONTOURS

I = contour interval = 5 ft

A = lot area = 262,408 ft² >> 36,798 ft² - OK

S = 33.86% = 34%

PER MARIN COUNTY DEVELOPMENT CODE - 22.82.050 HILLSIDE SUBDIVISION DESIGN

TABLE 6-1 - MINIMUM LOT AREA BASED ON SLOPE

NATURAL GROUND SLOPE	MINIMUM LOT AREA
34%	36,798 ft²

SLOPE ANALYSIS SUMMARY AND LEGEND
A.P.N. 034-012-26

SLOPE RANGE	MINIMUM SLOPE (%)	MAXIMUM SLOPE (%)	MAP COLOR	SLOPE RANGE AREA (ft²)
1	0.0	15.99		3,470
2	16.00	24.99		32,735
3	25.00	34.99		135,696
4	35.00	∞		90,507

CONSTRAINTS MAP - SLOPE EXHIBIT

PROPOSED SINGLE FAMILY HOME
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MARIN COUNTY: APN: 034-012-26

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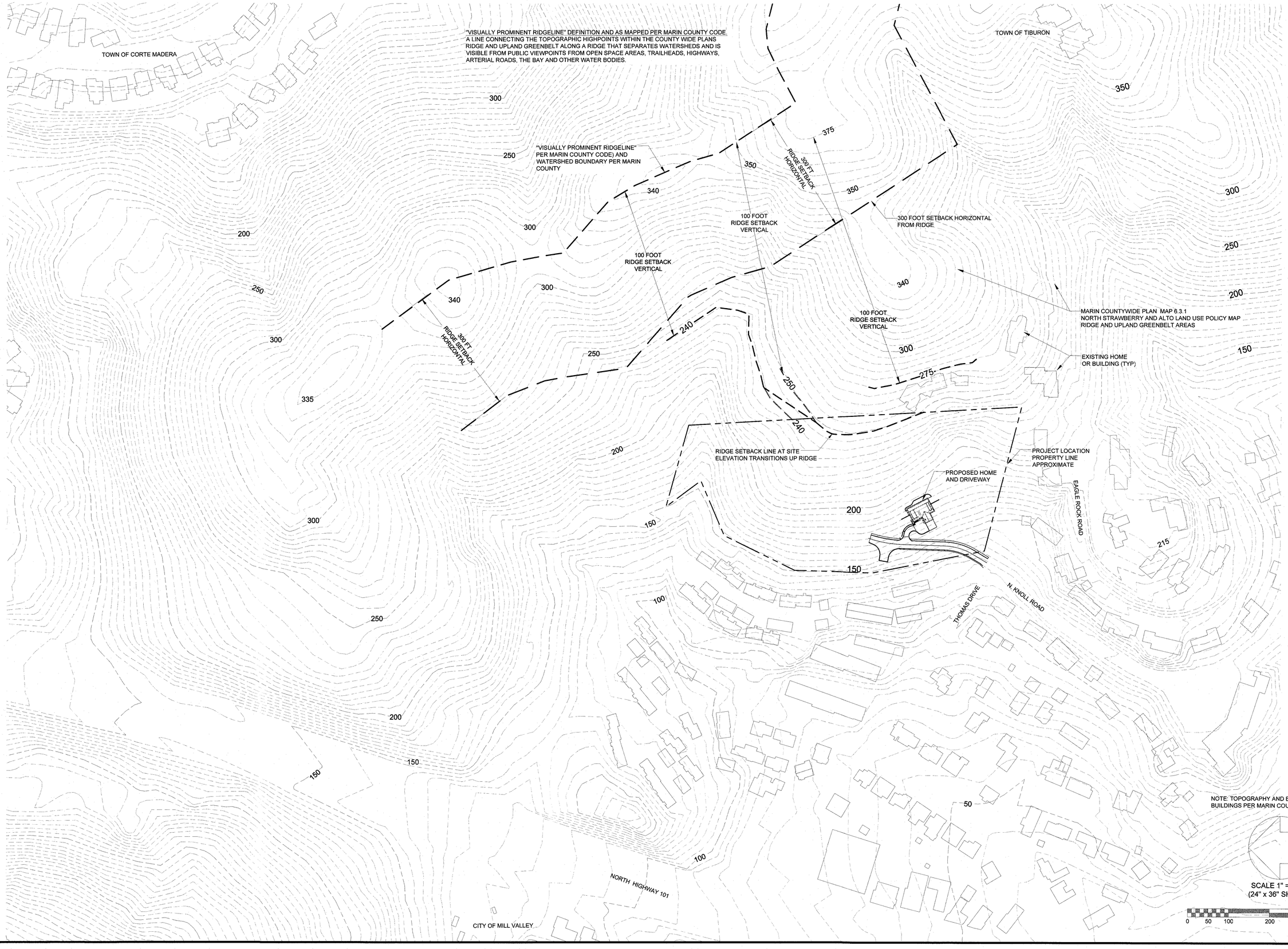

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CONSTRAINTS MAP - RIDGE LINE EXHIBIT

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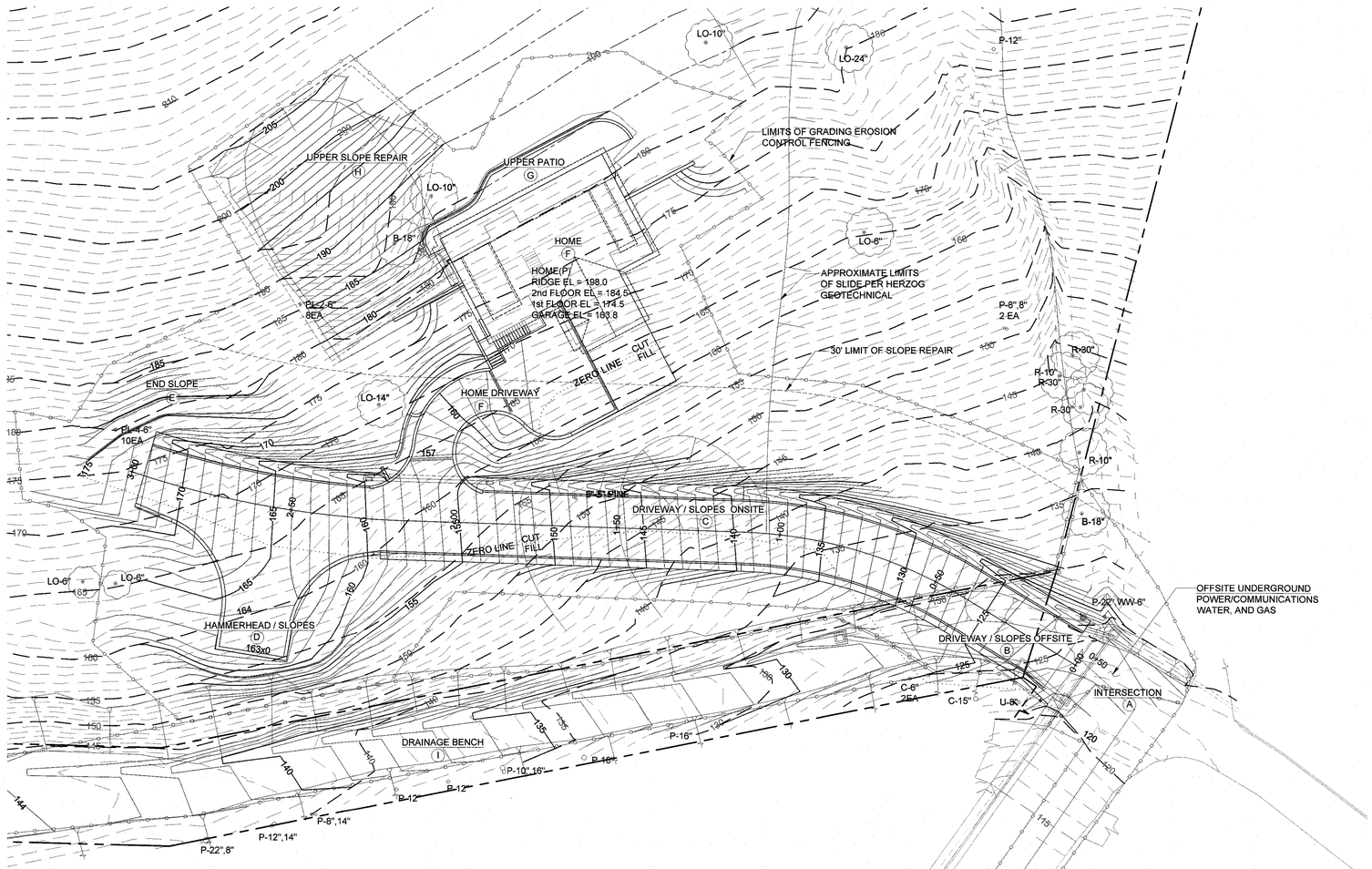
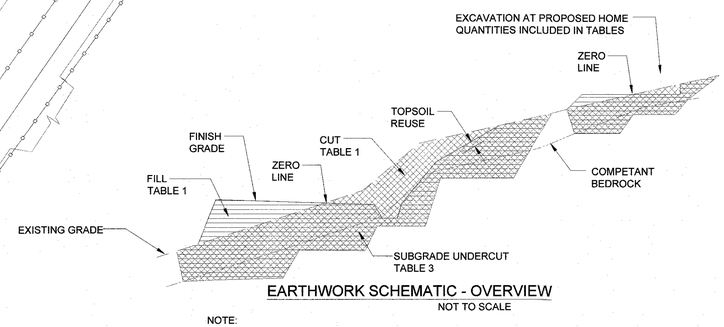


GRADING PLAN

SCALE 1" = 20'



EARTHWORK SCHEMATIC - OVERVIEW

NOT TO SCALE

NOTE:

1. SEE DRIVEWAY AND SITE SECTIONS FOR SITE SPECIFIC DATA.
2. ZERO LINE IS RELATIVE TO EXISTING AND PROPOSED FINISH GRADES.
3. EARTHWORK INCLUDES FINISH MATERIALS AT THIS TIME.

TABLE 1

EARTHWORK CALCULATIONS - EXISTING GRADE TO FINISH GRADE
FOR SUMMARY OF LOCATIONS AND QUANTITIES SEE BELOW
(PLANNING EARTHWORK QUANTITIES TOTAL)

DESCRIPTION	VOLUME - YD³
GROSS CUT	1,937
GROSS FILL	436
GROSS OFF HAUL	1,501

NOTES

1. THIS TABLE SHOWS THE GROSS EARTHWORK CHANGE IN VOLUME OF THE SITE BETWEEN THE EXISTING AND THE PROPOSED GRADES AS OUTLINED BY THE 2019 (AND CURRENT) MARIN COUNTY PLANNING APPLICATION, CHECKLIST AND EXAMPLE SUBMITTAL GUIDELINES.
2. AS THE PROPOSED HOME WILL REQUIRE HILLSIDE CONSTRUCTION METHODS AS IS TYPICAL IN MARIN COUNTY, THE ADDITIONAL EARTHWORK ESTIMATES ARE PRESENTED AS THEY REPRESENT A MORE COMPREHENSIVE SUMMARY OF THE EARTHWORK VOLUMES FOR THE PROJECT.
3. THE ESTIMATES OF THE ALL OF THE MAJOR COMPONENTS OF THE PROPOSED EARTHWORK IS SHOWN IN THE FOLLOWING SUMMARY TABLES.
4. THE EXCESS CUT WILL BE USED ONSITE TO BALANCE THE FILL AS NOTED IN THE EMBANKMENTS, SLOPE REPAIR, AND FOR REVEGETATION ONSITE.
5. THE FINAL OFFHAUL VOLUME IS DERIVED FROM THE CURRENT BEST AVAILABLE INFORMATION AND RELATES TO THE SUITABILITY OF THE ONSITE MATERIAL THAT WILL BE EXCAVATED AND CANNOT BE REUSED IN THE EMBANKMENT RECONSTRUCTION OR AS A PART OF THE REVEGETATION COMPONENTS OF THE PROJECT.

TABLE 2

EARTHWORK - BASE QUANTITIES
QUANTITIES REPRESENT THE CHANGE FROM EXISTING GRADE TO FINISH GRADE
(PLANNING EARTHWORK QUANTITIES SUMMARY)

CALLOUT - SUB-AREA DESCRIPTION	CUT (YD³)	FILL (YD³)
A - INTERSECTION	62	-
B - DRIVEWAY / SLOPES OFFSITE	79	-
C - DRIVEWAY / SLOPES ONSITE	715	76
D - HAMMERHEAD / SLOPES	-	272
E -END SLOPE	51	1
F - HOME / HOME DRIVEWAY	635	55
G - UPPER PATIO	43	2
H - UPPER SLOPE	135	30
I - DRAINAGE BENCH	217	-
TOTAL	1937	436

TABLE 3

EARTHWORK - ADDITIONAL SUBGRADE UNDERCUT
SLOPE REPAIR, OVER-EXCAVATION / EMBANKMENT REPLACEMENT

SUB-AREA	CUT (YD³)	FILL (YD³)	NOTE
TOTAL	7,389	7,389	REMOVE / REPLACE QUANTITY UNADJUSTED

TABLE 4

TOTAL ESTIMATED EARTHWORK - SUMMARY

EARTHWORK SUB-CATEGORY	CUT (YD³)	FILL (YD³)	NOTE
EXISTING GRADE TO FINISH GRADE EARTHWORK TABLES 1 & 2	1,937	436 x 1.25 = 545	SEE TABLE 1
SUB-GRADE UNDERCUT EARTHWORK TABLE 3	7,389	7,389 x 1.25 = 9,236	SEE TABLE 3 FILL EMBANKMENT x 1.25 (SHRINKAGE)
STOCKPILED TOPSOILS FOR REVEGETATION AND SLOPE RESORATION	-	668	SOURCE: STOCKPILED STRIPPED TOPSOILS RESTORATION AREA = 36,053 ft² 36,053 ft² x 0.5 ft = 18,026 ft² = 668 yd³
TOTAL	9,326	10,449	-
TOTAL EXPORT			TOTAL CUT - TOTAL FILL = TOTAL EXPORT

NOTES

1. QUANTITIES PRESENTED ARE BASED UPON THE PROPOSED PLANS AND SECTIONS. THE QUANTITIES PRESENTED ARE PRELIMINARY ESTIMATES ONLY AND SHOULD NOT BE USED FOR BID PURPOSES.
2. THE QUANTITIES PRESENTED DO NOT ACCOUNT FOR ADDITIONAL IMPORT AND EXPORT FOR FINISH AND SUBGRADE MATERIALS AS SHOWN ON THE PRELIMINARY PLANS SUCH AS PAVING, BASE, DRAIN ROCK, RIP RAP, PLANTING MEDIA OR STRUCTURAL FILL. EARTHWORK TOTALS INCLUDES FINISH MATERIALS.
3. FINAL EARTHWORK QUANTITIES MAY BE MORE OR LESS DEPENDING ON THE SUBSURFACE CONDITIONS ENCOUNTERED AND AS DIRECTED BY THE GETOTECHNICAL ENGINEER ONSITE DURING THE GRADING AND EARTHWORK.
4. BASED ON DISCUSSION WITH HERZOG GEOTECHNICAL IT IS PRESUMED THAT THE UPPER LEVEL SOILS IN THE SLOPE REPAIR AREA FROM STA 0+00 TO 1 +50± WILL NEED TO BE EXPORTED AS THEY WILL NOT HAVE THE INHERENT STRENGTH NECESSARY FOR USE AS EMBANKMENT.

SCALE 1" = 20'
(24" x 36" SHEET)

0 10 20 30 40 50 60

REVISIONS / DATE

GRADING PLAN

PROPOSED SINGLE FAMILY HOME
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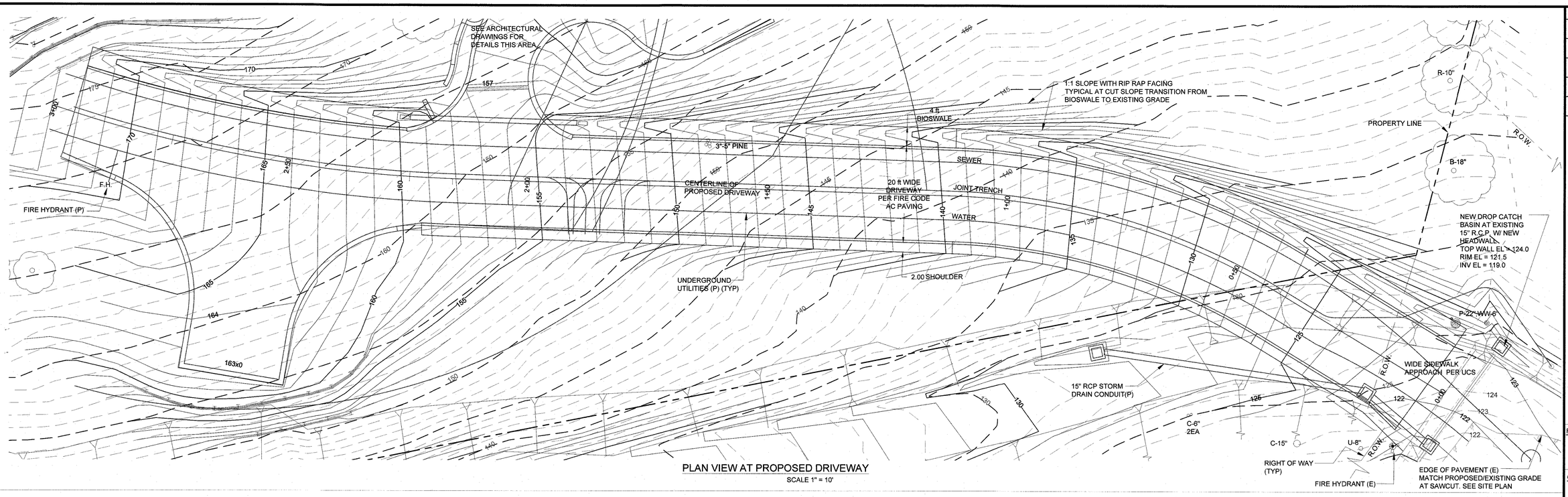
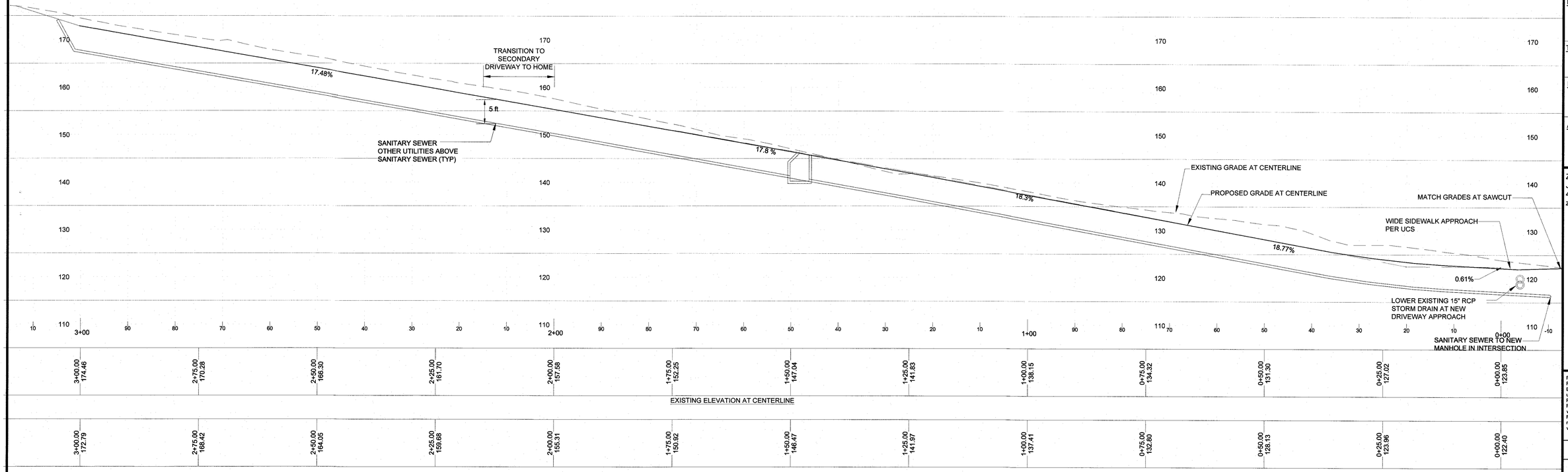


PLAN VIEW AT PROPOSED DRIVEWAY

SCALE 1" = 10'



PROFILE AT PROPOSED DRIVEWAY CENTERLINE

SCALE 1" = 10' HORIZONTAL / VERTICAL

REVISIONS / DATE

DRIVEWAY PLAN AND PROFILE

PROPOSED SINGLE FAMILY HOME
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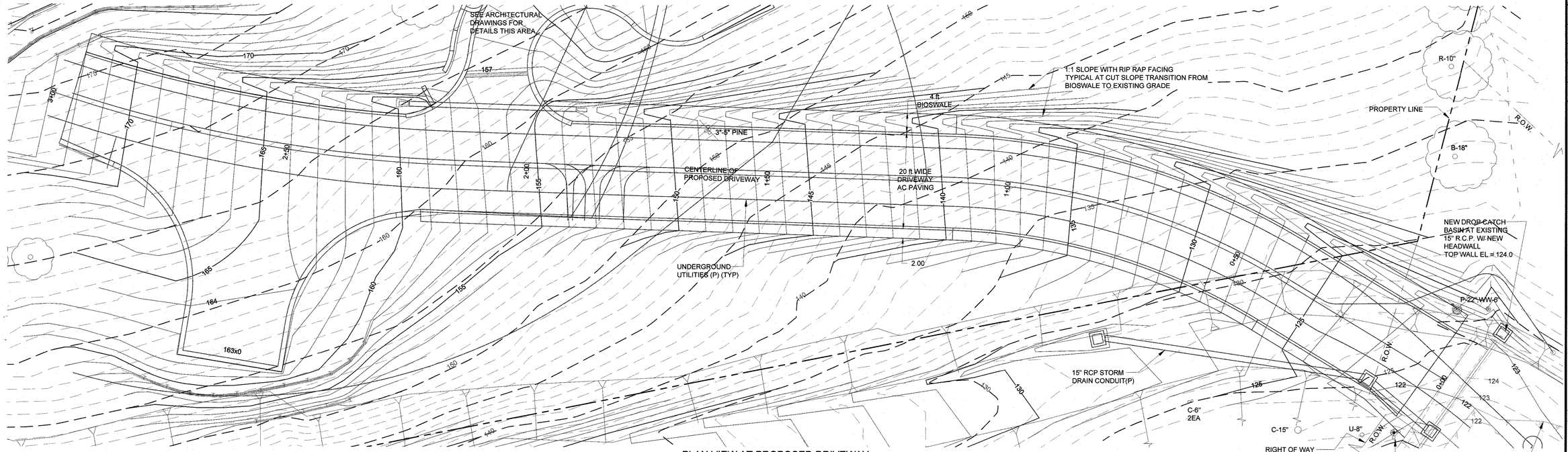
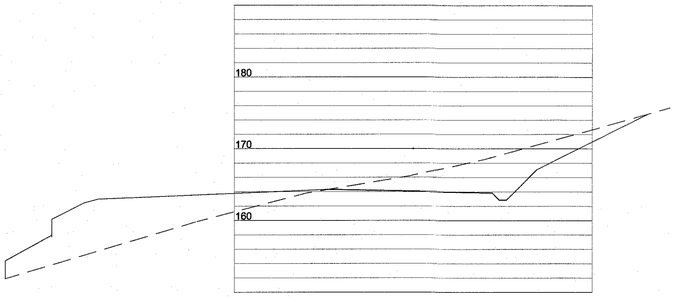


PLAN VIEW AT PROPOSED DRIVEWAY
SCALE 1" = 10'



SECTION AT STATION 2 + 50
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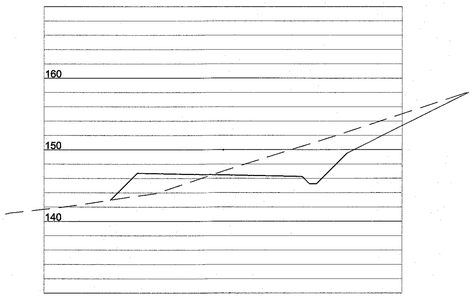

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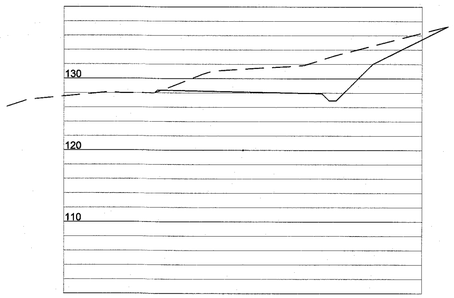

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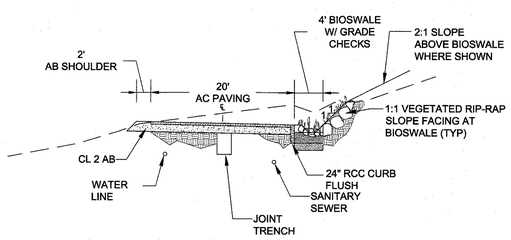

TYPICAL DRIVEWAY SECTION
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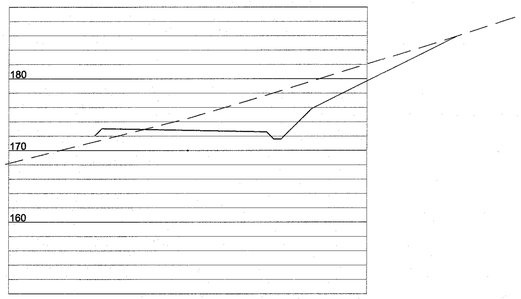

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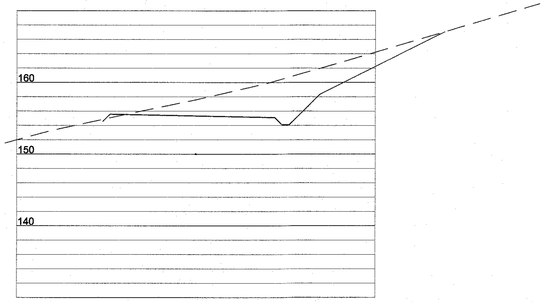

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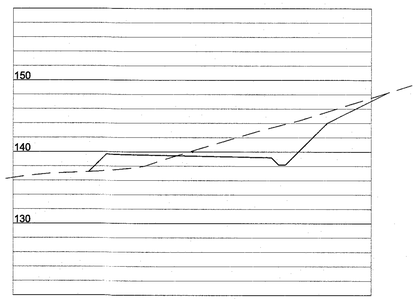

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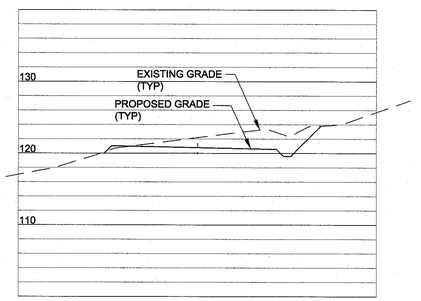

SECTION AT STATION 0 + 00
SCALE 1" = 10' H & V

DRIVEWAY PLAN AND SECTIONS

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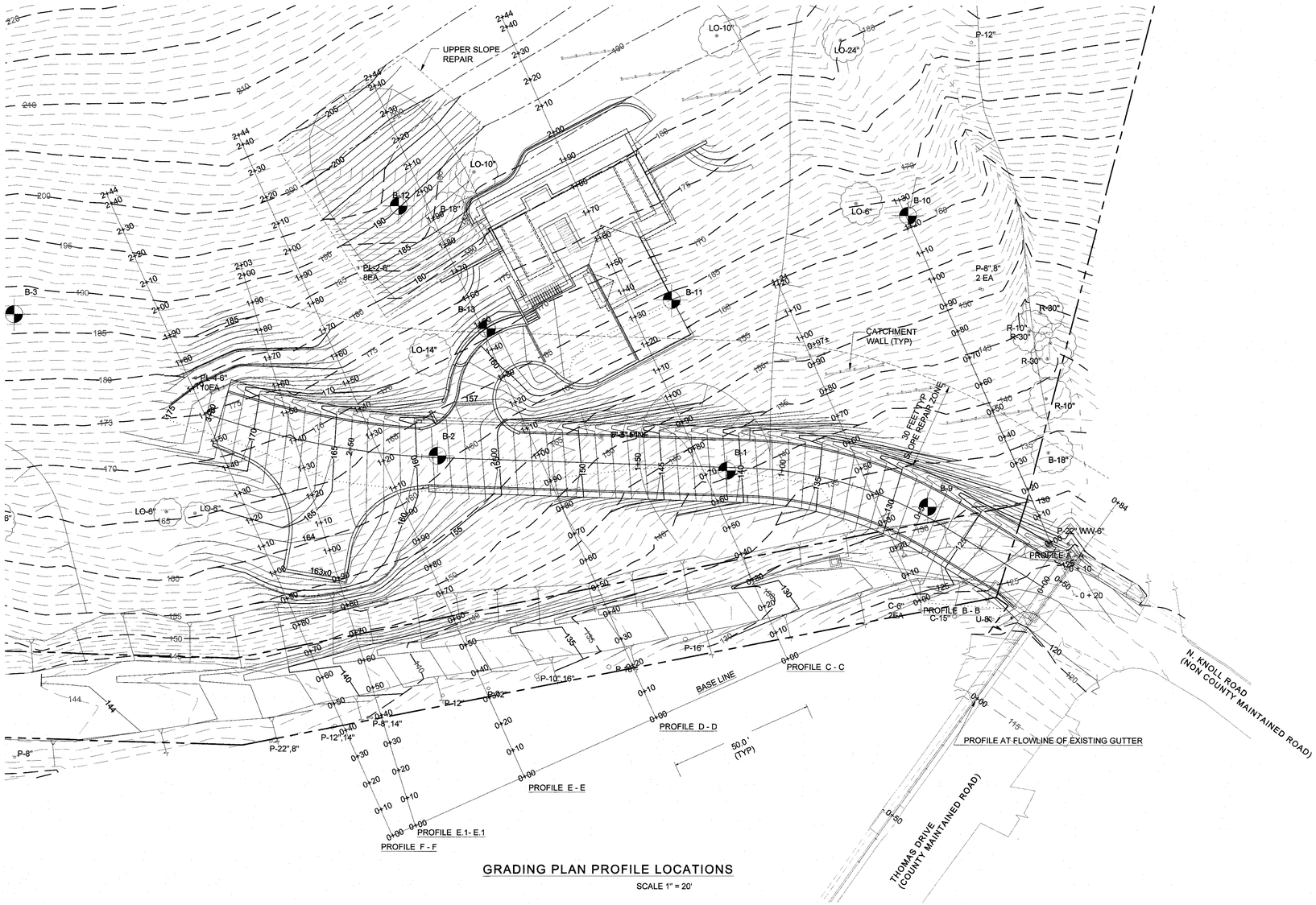
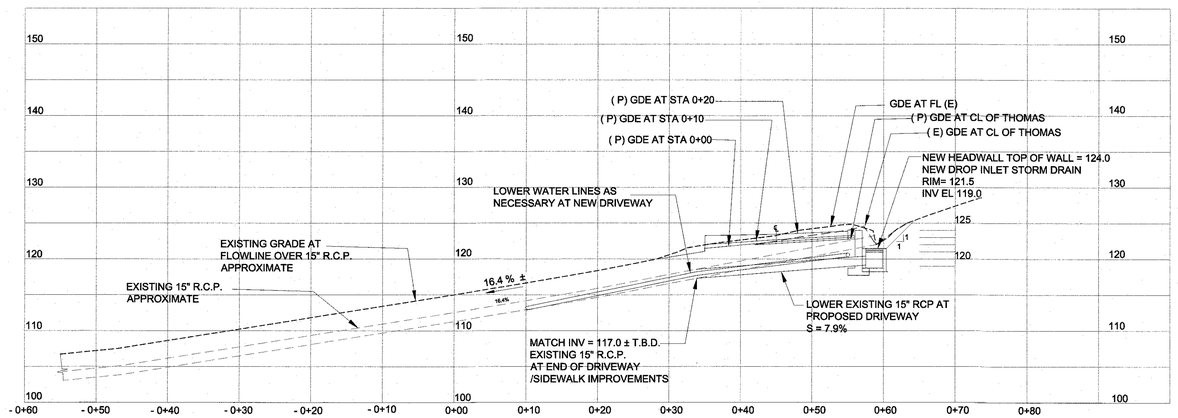
SHEET C 9.0
OF 25 SHEETS



GRADING PLAN PROFILE LOCATIONS

SCALE 1" = 20'



PROFILE AT EXISTING FLOWLINE OF PROPOSED DRIVEWAY

SCALE 1" = 10' (H & V)

SCALE 1" = 20'
(24" x 36" SHEET)

0 10 20 30 40 50 60

REVISIONS / DATE

GRADING X SECTIONS - THOMAS DR. / SLOPE

PROPOSED SINGLE FAMILY HOME
DESIGN REVIEW SUBMITTAL

PROJECT LOCATION / OWNER
VIKRUM AND GAGAN NIJJAR
THOMAS DRIVE, MILL VALLEY, CA
MARIN COUNTY: APN: 034-012-26

RESIDENTIAL DESIGN
LONE TREE
RESIDENTIAL DESIGN
TONY RICHARDS
415-787-2164

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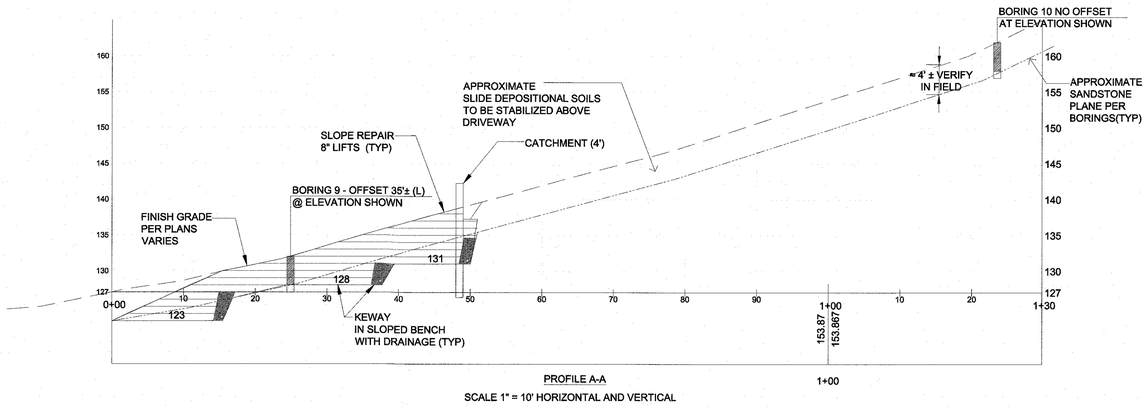
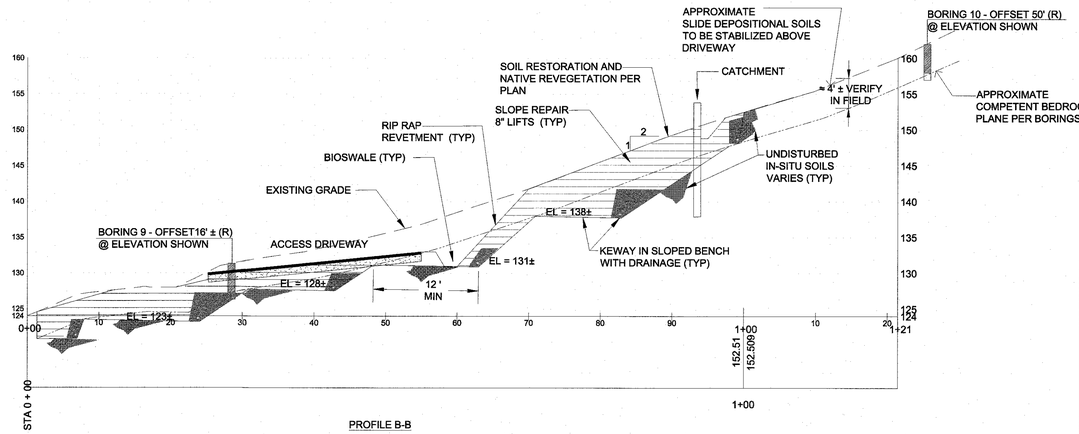
DATE 11 / 6 / 2019
SCALE 1 " = 20'
DRAWN JAZ
JOB 55 THOMAS DRIVE
SHEET C 10.0
OF 25 SHEETS



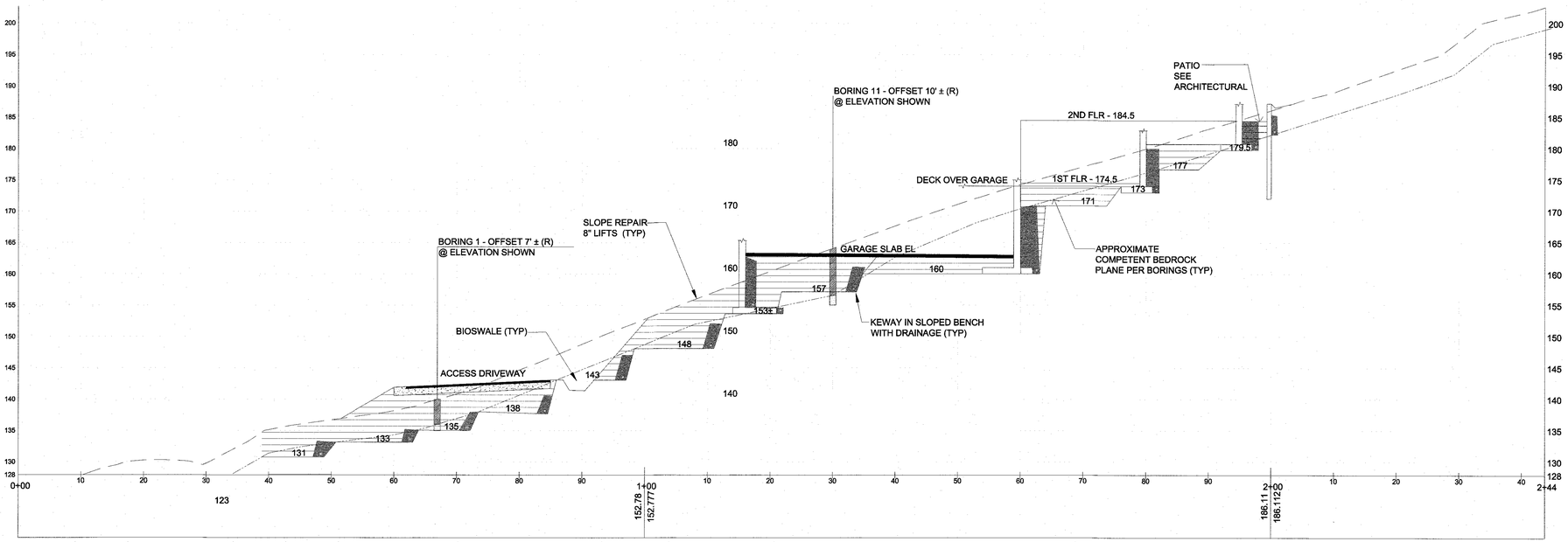
PROFILE A-A

SCALE 1" = 10' HORIZONTAL AND VERTICAL



PROFILE B-B

SCALE 1" = 10' HORIZONTAL AND VERTICAL



PROFILE C-C

SCALE 1" = 10' HORIZONTAL AND VERTICAL

SCALE 1" = 10'
(24" x 36" SHEET)

0 5 10 20 30 40 50

REVISIONS / DATE

GRADING X SECTIONS - A, B, C

PROPOSED SINGLE FAMILY HOME
DESIGN REVIEW SUBMITTAL

PROJECT LOCATION / OWNER
VIKRUM AND GAGAN NIJJAR
THOMAS DRIVE, MILL VALLEY, CA
MARIN COUNTY: APN: 034-012-26

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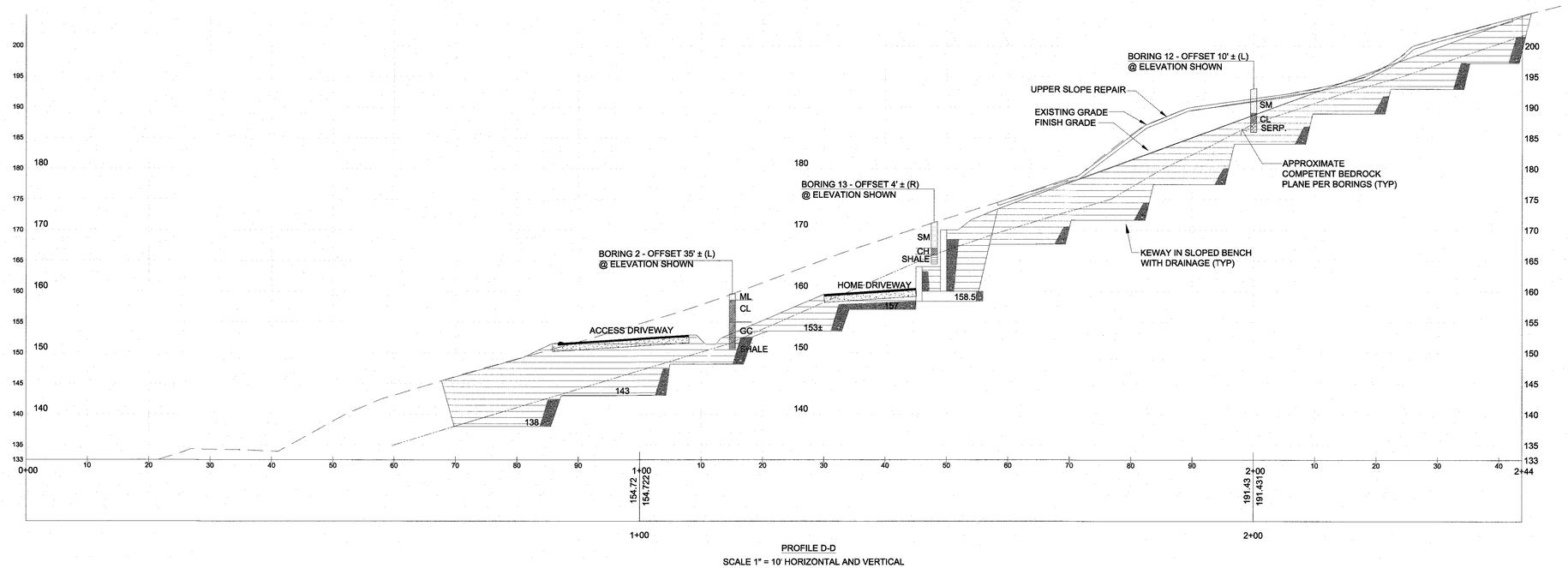
SCALE 1 " = 10'

DRAWN JAZ

JOB 55 THOMAS DRIVE

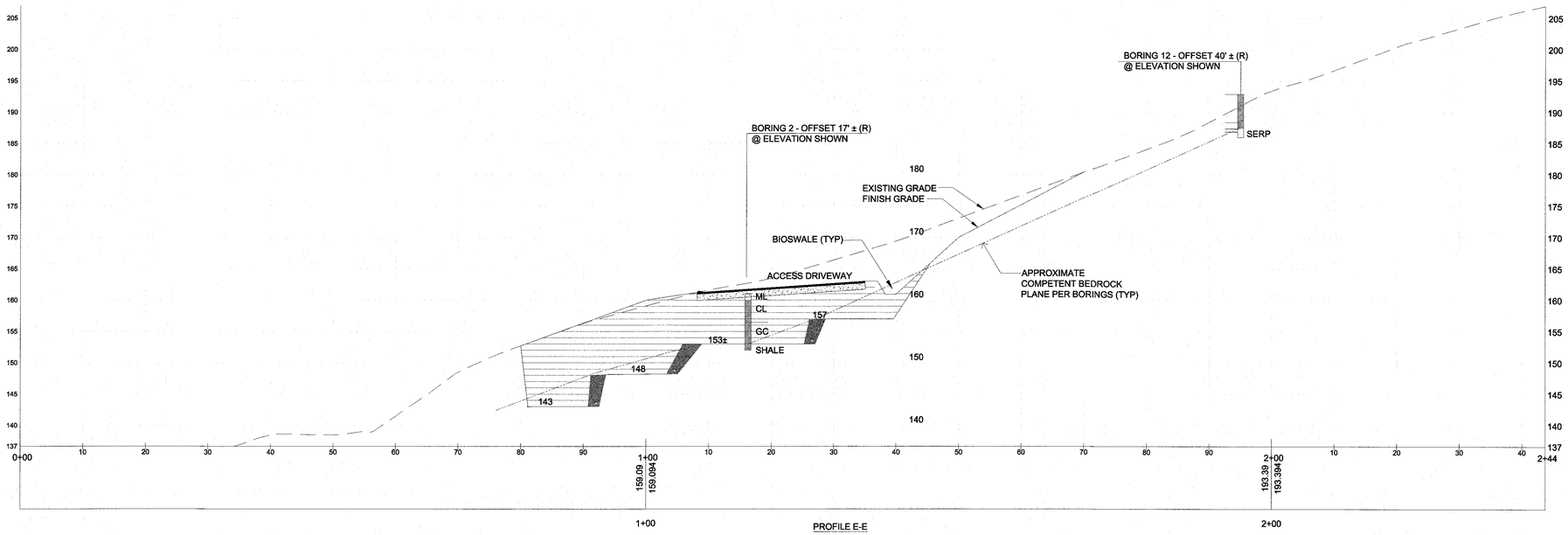
SHEET C 11.0

OF 25 SHEETS



PROFILE D-D

SCALE 1" = 10' HORIZONTAL AND VERTICAL



PROFILE E-E

SCALE 1" = 10' HORIZONTAL AND VERTICAL

SCALE 1" = 10'
(24" x 36" SHEET)

0 5 10 20 30 40 50

GRADING X SECTIONS - D, E

PROPOSED SINGLE FAMILY HOME
DESIGN REVIEW SUBMITTAL

PROJECT LOCATION / OWNER
VIKRUM AND GAGAN NIJJAR
THOMAS DRIVE, MILL VALLEY, CA
MARIN COUNTY: APN: 034-012-26

REVISIONS / DATE

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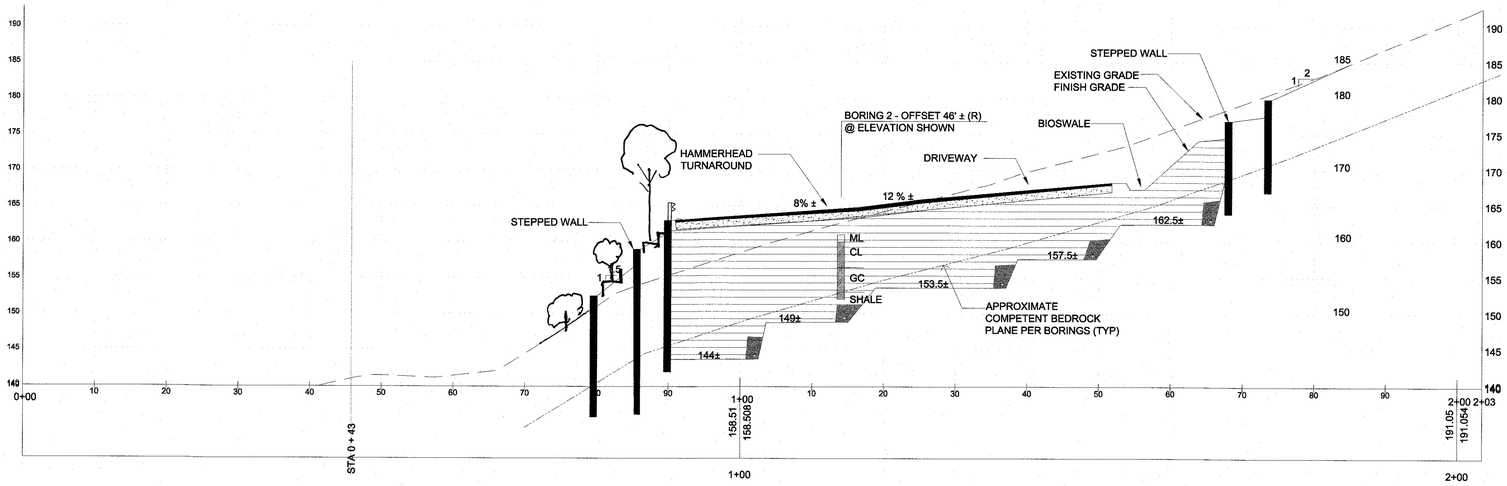
SCALE 1 " = 10'

DRAWN JAZ

JOB 55 THOMAS DRIVE

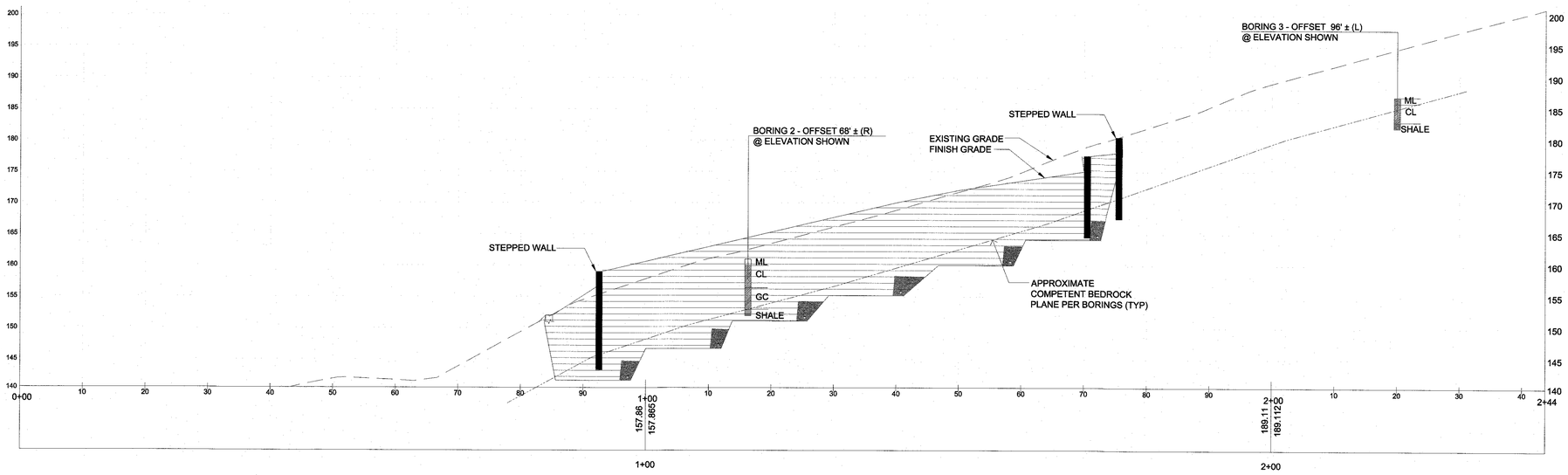
SHEET C 12.0

OF 25 SHEETS



SECTION E.1 - E.1

SCALE 1" = 10' HORIZONTAL AND VERTICAL



PROFILE F-F

SCALE 1" = 10' HORIZONTAL AND VERTICAL

SCALE 1" = 10'
(24" x 36" SHEET)

0 5 10 20 30 40 50

REVISIONS / DATE

GRADING X SECTIONS - E.1 AND F

PROPOSED SINGLE FAMILY HOME
DESIGN REVIEW SUBMITTAL

PROJECT LOCATION / OWNER
VIKRUM AND GAGAN NIJJAR
THOMAS DRIVE, MILL VALLEY, CA
MARIN COUNTY: APN: 034-012-26

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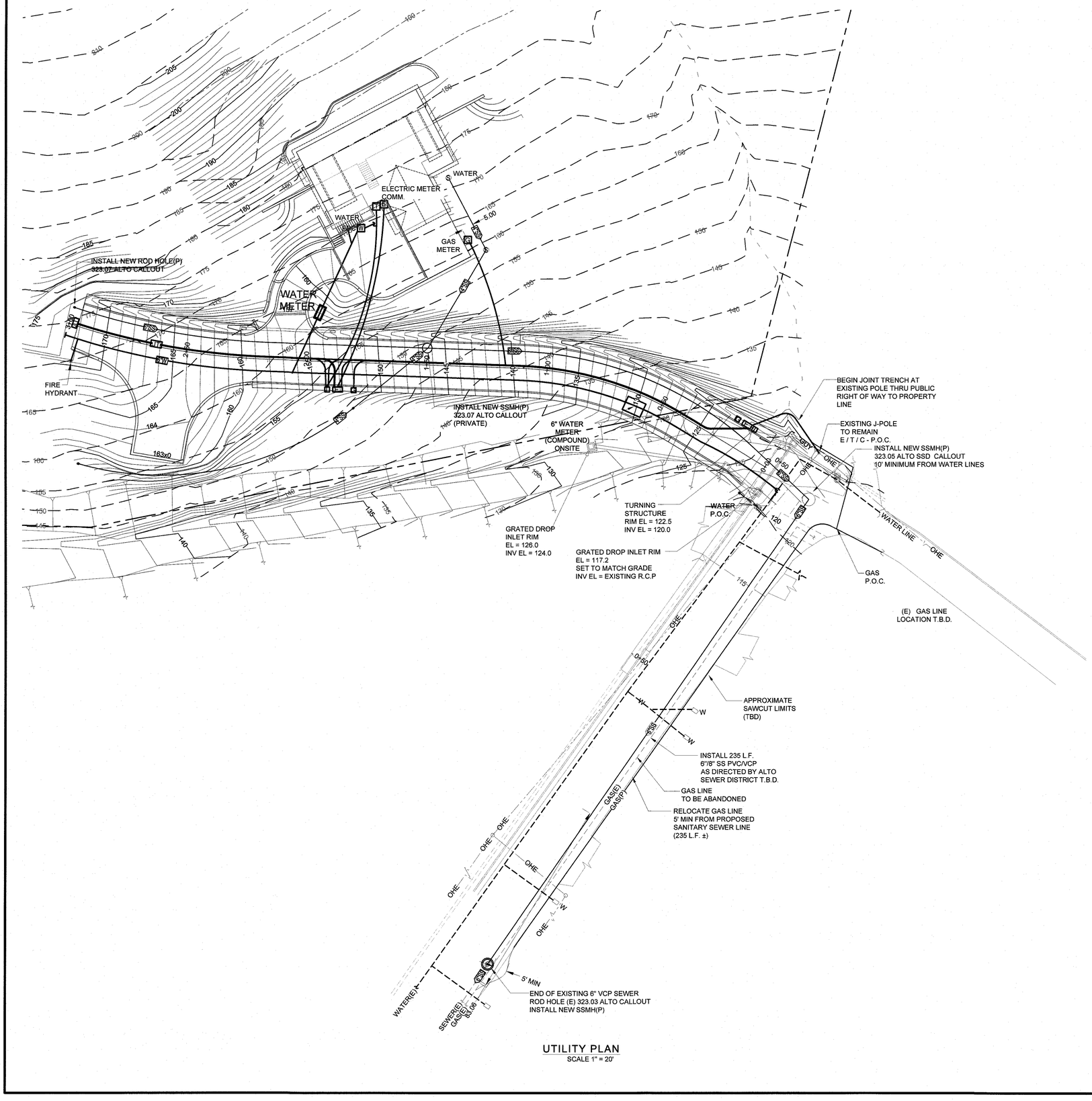
SCALE 1 " = 10'
DRAWN JAZ
JOB 55 THOMAS DRIVE
SHEET C 13.0
OF 25 SHEETS



UTILITY PLAN
SCALE 1" = 20'

UTILITIES SUMMARY UNDERGROUND

DESCRIPTION	LENGTH
6" SEWER LINE EXTENSION (OFFSITE)	220 Ft
6" SEWER LINE EXTENSION (ONSITE)	tbd
4" SEWER LATERAL (TO PROPOSED HOME)	0

NOTE:

THIS TABLE SHOWS THE GROSS EARTHWORK CHANGE IN VOLUME OF THE SITE BETWEEN THE EXISTING AND THE PROPOSED GRADES AS OUTLINED BY THE 2019 (AND CURRENT) MARIN COUNTY PLANNING APPLICATION, CHECKLIST AND EXAMPLE SUBMITTAL GUIDELINES.

THE DETAILED ANALYSIS OF THE ALL OF THE PROPSED EARTHWORK IS SHOWN IN THE FOLLOWING SUMMARY TABLE.

THE EXCESS CUT WILL BE USED ONSITE TO BALANCE THE FILL AS NOTED IN THE EMBANKMENTS, SLOPE REPAIR, AND FOR REVEGETATION ONSITE.

THE OFFHAUL VOLUME IS DERIVED FROM THE CURRENT BEST AVAILABLE INFORMATION IN REGARDS TO THE SUITABILITY OF THE ONSITE MATERIAL THAT WILL BE EXCAVATED AND CANNOT BE REUSED IN THE EMBANKMENT RECONSTRUCTION AS IT IS PREDICTED BY THE PRELIMINARY GEOTECHNICAL INVESTIGATION.

WATER LINE SUMMARY

DESCRIPTION	LENGTH (FT)
6" WATER LINE EXTENSION	310
4" WATER LINE SERVICE TO HOME FOR DOMESTIC, IRRIGATION AND FIRE SUPPRESSION	80
1" DOMESTIC SERVICE	@ HOME P.O.C. SEE ARCHITECTURAL
2" FIRE SPRINKLER SERVICE	@ HOME P.O.C. - SEE ARCHITECTURAL
1" IRRIGATION SERVICE	@ HOME AND DRIVEWAY FOR REVEGETATION

WATER METER SUMMARY

DESCRIPTION	METER TYPE
6" WATER LINE EXTENSION	6" METER SD00056 -PER MMWD
4" WATER SERVICE LINE LATERAL TO HOME FOR DOMESTIC, IRRIGATION, & FIRE SUPPRESSION PER UBC, NFPA, AND SMFPD	4" COMPOUND METER SD0055, PER MMWD
1 1/2" DOMESTIC SERVICE	SEE 4" SERVICE LINE
4" FIRE SUPRESSION SERVICE	SEE 4" WATER SERVICE LINE

SCALE 1" = 20'
(24" x 36" SHEET)
0 10 20 30 40 50 60

REVISIONS / DATE

UTILITY PLAN
PROPOSED SINGLE FAMILY HOME
DESIGN REVIEW SUBMITTAL

PROJECT LOCATION / OWNER
VIKRUM AND GAGAN NIJJAR
THOMAS DRIVE, MILL VALLEY, CA
MARIN COUNTY: APN: 034-012-26

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DATE 11 / 6 / 2019
SCALE 1 " = 20'
DRAWN JAZ
JOB 55 THOMAS DRIVE
SHEET C 14.0
OF 25 SHEETS

DRAINAGE MANAGEMENT AREA SUMMARY

DRAINAGE MANAGEMENT AREA (DMA)	SURFACE TYPE	AREA (ft^2)	RUNOFF FACTOR
1	VEGETATION	3831	0.1
2	VEGETATION	942	0.1
3	PERVIOUS PAVERS	556	0.2
4	ROOF	477	1.0
5	VEGETATION	357	0.1
6	ROOF	1200	1.0
7	ROOF	820	1.0
8	VEGETATION	2190	0.1
9	VEGETATION	736	0.1
10	DRIVEWAY	982	1.0
11	ROOF/DECK	415	1.0
12	VEGETATION	2446	0.1
13	VEGETATION	235	0.1
14	DRIVEWAY	425	1.0
15	VEGETATION	1176	0.1
16	VEGETATION	1631	0.1
17	VEGETATION	2606	0.1
18	VEGETATION	4891	0.1
19	DRIVEWAY	573	1.0
20	BIO-RETENTION	283	0.1
21	DRIVEWAY	1073	1.0
22	DRIVEWAY	4872	1.0
23	BIO-RETENTION	792	1.0
24	A.B. SHOULDER	411	1.0
25	VEGETATION	1726	0.1
26	DRIVEWAY	673	1.0
27	BIO-RETENTION	27	0.1
28	PUBLIC STREET	AS DIRECTED	1.0

SCALE 1" = 10'
(24" x 36" SHEET)

0 5 10 20 30 40 50

SURFACES LEGEND

DMA X — DMA - DRAINAGE MANAGEMENT AREA AREA CALLOUT

DMA BOUNDARY
DMA SURFACE

- ROOF
- ROOF/DECK
- PERVIOUS PAVERS
- PAVING
- VEGETATION
- BIORETENTION

REVISIONS / DATE

DRAINAGE MANAGEMENT AREAS

PROPOSED SINGLE FAMILY HOME
DESIGN REVIEW SUBMITTAL

PROJECT LOCATION / OWNER
VIKRUM AND GAGAN NIJJAR
THOMAS DRIVE, MILL VALLEY, CA
MARIN COUNTY: APN: 034-012-26

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RESIDENTIAL DESIGN
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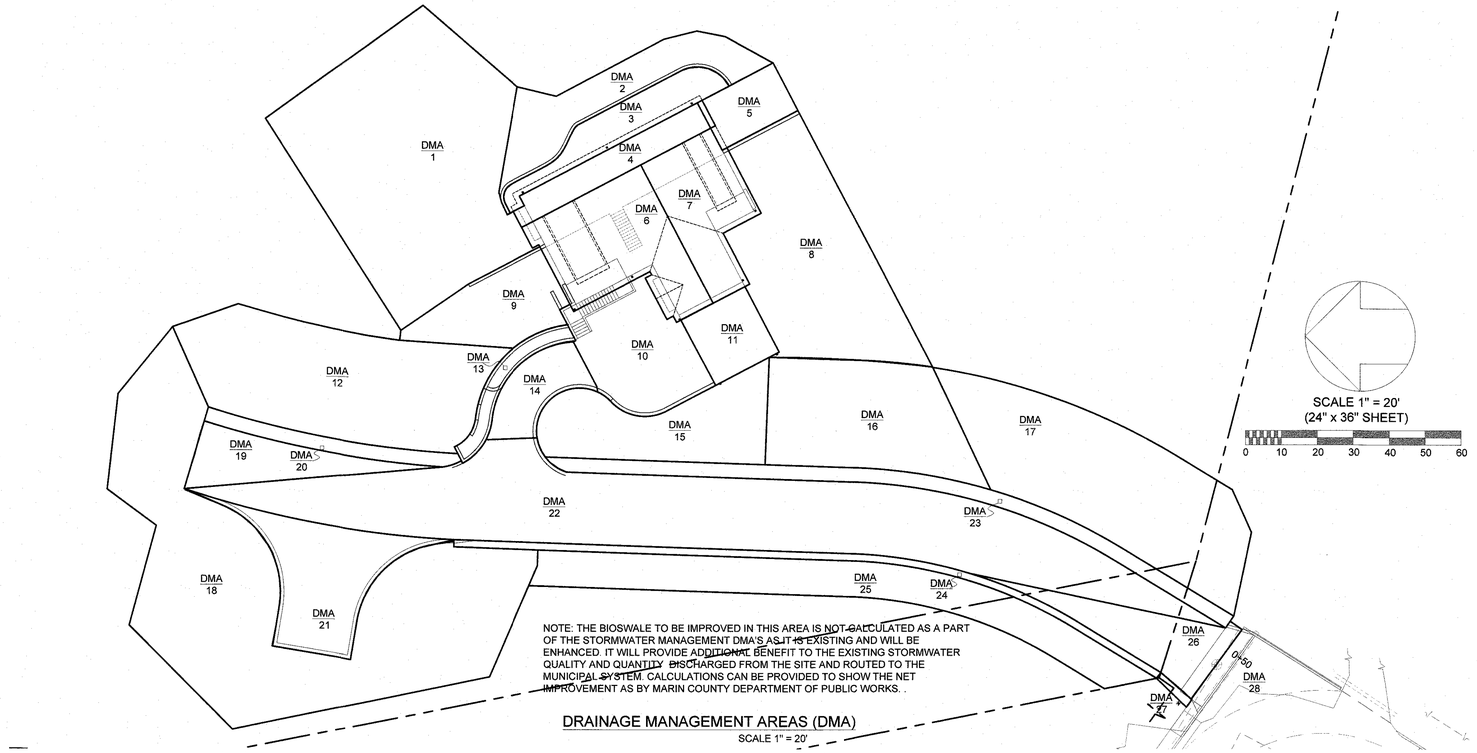
DRAWN JAZ
JOB 55 THOMAS DRIVE
SHEET C 15.0
OF 25 SHEETS



DRAINAGE MANAGEMENT AREAS (DMA)
SCALE 1" = 20'

DRAINAGE MANAGEMENT AREA SUMMARY

DRAINAGE MANAGEMENT AREA (DMA)	SURFACE TYPE	AREA (ft²)	RUNOFF FACTOR
1	VEGETATION	3831	0.1
2	VEGETATION	942	0.1
3	PERVIOUS PAVERS	556	0.2
4	ROOF	477	1.0
5	VEGETATION	357	0.1
6	ROOF	1200	1.0
7	ROOF	820	1.0
8	VEGETATION	2190	0.1
9	VEGETATION	736	0.1
10	DRIVEWAY	982	1.0
11	ROOF/DECK	415	1.0
12	VEGETATION	2446	0.1
13	VEGETATION	235	0.1
14	DRIVEWAY	425	1.0
15	VEGETATION	1176	0.1
16	VEGETATION	1631	0.1
17	VEGETATION	2606	0.1
18	VEGETATION	4891	0.1
19	DRIVEWAY	573	1.0
20	BIO-RETENTION	283	0.1
21	DRIVEWAY	1073	1.0
22	DRIVEWAY	4872	1.0
23	BIO-RETENTION	792	1.0
24	A.B. SHOULDER	411	1.0
25	VEGETATION	1726	0.1
26	DRIVEWAY	673	1.0
27	BIO-RETENTION	27	0.1
28	PUBLIC STREET	AS DIRECTED	1.0

BIO-RETENTION AREAS

DRAINAGE MANAGEMENT AREA (DMA)	SURFACE TYPE	AREA (ft²)	RUNOFF FACTOR
20	BIO-RETENTION	283	0.1
23	BIO-RETENTION	742	0.1
27	BIO-RETENTION	27	0.1

SELF TREATING AREAS

DRAINAGE MANAGEMENT AREA (DMA)	SURFACE TYPE	AREA (ft²)	RUNOFF FACTOR
1	VEGETATION	3831	0.1
2	VEGETATION	942	0.1
12	VEGETATION	2386	0.1
17	VEGETATION	2543	0.1
18	VEGETATION	4872	0.1
25	VEGETATION	1726	0.1

SELF RETAINING AREAS

DRAINAGE MANAGEMENT AREA (DMA)	SURFACE TYPE	AREA (ft²)	RUNOFF FACTOR
5	VEGETATION	357	0.1
8	VEGETATION	2190	0.1
9	VEGETATION	736	0.1
12	VEGETATION	2386	0.1
13	VEGETATION	237	0.1
15	VEGETATION	1120	0.1
16	VEGETATION	1570	0.1
17	VEGETATION	2606	0.1
18	VEGETATION	4872	0.1

IMPERVIOUS AREAS

DRAINAGE MANAGEMENT AREA (DMA)	SURFACE TYPE	AREA (ft²)	RUNOFF FACTOR
3	PERVIOUS PATIO	556	0.2
4	ROOF	477	1.0
6	ROOF	1200	1.0
7	ROOF	820	1.0
10	DRIVEWAY	982	1.0
11	ROOF/DECK	415	1.0
14	DRIVEWAY	425	1.0
19	DRIVEWAY	573	1.0
21	DRIVEWAY	1073	1.0
22	DRIVEWAY	4872	1.0
24	A.B SHOULDER	411	1.0
26	DRIVEWAY	673	1.0
28	PUBLIC STREET	AS DIRECTED	1.0

IMPERVIOUS AREAS DRAINING TO SELF RETAINING AREAS

DMA	AREA - A (ft²)	SURFACE	RUNOFF FACTOR RF	A x RF = [A]	RECEIVING DMA'S	RECIEVING DMA'S AREA (ft²) [B]	RATIO [A] / [B]
½ of 4	239	ROOF	1.0	239	5	357	-
7	820	ROOF	1	820	8	2190	-
½ of 11	208	ROOF/DECK	1	208	16	1631	-
½ of 3	278	PERVIOUS PAVERS	0.2	55	-	-	-
-	-	-	TOTAL [A] = 1322		TOTAL [B] = 4117		0.3 < 2 ok

IMPERVIOUS AREAS DRAINING TO SELF RETAINING AREAS

DMA	AREA - A (ft²)	SURFACE	RUNOFF FACTOR RF	A x RF = [A]	RECEIVING DMA'S	RECIEVING DMA'S AREA (ft²) [B]	RATIO [A] / [B]
½ of 6	600	ROOF	1.0	600	9	736	-
½ of 4	239	ROOF/DECK	1.0	239	13	235	-
½ of 3	226	PERVIOUS PAVERS	0.2	45	⅛ of 1	478	-
-	-	-	TOTAL [A] = 884		TOTAL [B] = 1449		0.6 < 2 ok

IMPERVIOUS AREAS DRAINING TO SELF RETAINING AREAS

DMA	AREA - A (ft²)	SURFACE	RUNOFF FACTOR RF	A x RF = [A]	RECEIVING DMA'S	RECIEVING DMA'S AREA (ft²) [B]	RATIO [A] / [B]
½ of 6	600	ROOF	1.0	600	15	1120	-
10	982	DRIVEWAY	1.0	982	-	-	-
14	425	DRIVEWAY	1.0	425	-	-	-
½ of 11	208	ROOF/DECK	1.0	208	-	-	-
-	-	-	TOTAL [A] = 2215		TOTAL [B] = 1120		1.9 < 2 ok

APPROXIMATE AREAS OF DISTURBANCE PER NPDES (SWPPP) REQUIREMENTS

AREA - DESCRIPTION	AREA - ESTIMATES (ft²)
ONSITE HOME, DRIVEWAY, UTILITIES, AND SLIDE REPAIR	36,497
OFFSITE DRIVEWAY, UTILITIES AND SLIDE REPAIR	3,393
OFFSITE EXISTING DRAINAGE BENCH AND DRAINAGE IMPROVEMENTS	7,361
OFFSITE UNDERGROUND UTILITY CONNECTIONS AND SEWER LINE EXTENSION	4,110
TOTAL AREA	51,361

NOTES:

1. THE AREAS USED FOR THIS CALCULATION ARE BOUNDED BY THE EROSION CONTROL FENCING AND LIMITS OF GRADING POLYGONS SHOWN ON THIS FOCUSED SITE PLAN. NO GRADING OR DISTURBANCE IS PROPOSED AT THIS TIME ELSEWHERE AS A PART OF THIS PROPOSED HOME EITHER ONSITE OR OFFSITE.
2. BASED ON THESE PRELIMINARY ESTIMATES A STORM WATER POLLUTION PREVENTION PLAN (SWPPP) WILL BE PREPARED AS A PART OF THE CONSTRUCTION DOCUMENT AND BUILDING PERMIT SUBMITTALS. ALSO A STORMWATER CONTROL PLAN FOR A REGULATED PROJECT WILL BE PREPARED FOR THE CONSTRUCTION DOCUMENT SUBMITTAL
3. FOR EARTHWORK VOLUMES AND QUANTITIES ASSOCIATED WITH THE PROPOSED WORK SEE THE GRADING PLAN SHEETS.

IMPERVIOUS AREAS DRAINING TO SELF RETAINING AREAS

DMA	AREA - A (ft²)	SURFACE	RUNOFF FACTOR RF	A x RF = [A]	RECEIVING DMA'S	RECIEVING DMA'S AREA (ft²) [B]	RATIO [A] / [B]
1 of 4	239	ROOF	1.0	239	5	357	-
7	820	ROOF	1	820	8	2190	-
½ of 11	208	ROOF/DECK	1	208	16	1631	-
½ of 3	278	PERVIOUS PAVERS	0.2	55	-	-	-
-	-	-	TOTAL [A] = 411		TOTAL [B] = 1726		0.2 < 2 ok

IMPERVIOUS AREAS DRAINING TO SELF RETAINING AREAS

DMA	AREA - A (ft²)	SURFACE	RUNOFF FACTOR RF	A x RF = [A]	RECEIVING DMA'S	RECIEVING DMA'S AREA (ft²) [B]	RATIO [A] / [B]
21	1073	DRIVEWAY	1.0	1073	⅓ 18	1630	-
-	-	-	TOTAL [A] = 1073		TOTAL [B] = 1726		1.5 < 2 ok

IMPERVIOUS AREAS DRAINING TO BIORETENTION FACILITIES

DMA	AREA - A (ft²)	SURFACE	RUNOFF FACTOR - RF	A x RF = [A]	FACILITY NAME : DMA 20		
12	2386	VEGETATION	0.10	239	SIZING FACTOR [F]	MINIMUM FACILITY SIZE = [A] x [F] (ft²)	PROPOSED FACILITY SIZE (ft²)
19	573	DRIVEWAY	1.0	573			
			TOTAL A x RF =	812	0.04	33	283

IMPERVIOUS AREAS DRAINING TO BIORETENTION FACILITIES

DMA	AREA - A (ft²)	SURFACE	RUNOFF FACTOR - RF	A x RF = [A]	FACILITY NAME : DMA23		
22	4872	DRIVEWAY	1.0	4872	SIZING FACTOR [F]	MINIMUM FACILITY SIZE = [A] x [F] (ft²)	PROPOSED FACILITY SIZE (ft²)
14	425	DRIVEWAY	1.0	425			
			TOTAL A x RF =	5297	0.04	212	792

IMPERVIOUS AREAS DRAINING TO BIORETENTION FACILITIES

DMA	AREA - A (ft²)	SURFACE	RUNOFF FACTOR - RF	A x RF = [A]	FACILITY NAME : DMA 27		
26	673	DRIVEWAY	1.0	673	SIZING FACTOR [F]	MINIMUM FACILITY SIZE = [A] x [F] (ft²)	PROPOSED FACILITY SIZE (ft²)
			TOTAL A x RF =	673	0.04	27	27

IMPERVIOUS AREAS DRAINING TO BIORETENTION FACILITIES

DMA	AREA - A (ft²)	SURFACE	RUNOFF FACTOR - RF	A x RF = [A]	FACILITY NAME : DMA 28 REMAINDER		
½ 3	278	PERVIOUS PAVERS	0.20	56	SIZING FACTOR [F]	MINIMUM FACILITY SIZE = [A] x [F] (ft²)	PROPOSED FACILITY SIZE (ft²)
½ 4	239	ROOF	1.0	239			
½ 6	600	ROOF	1.0	600			
7	820	ROOF	1.0	820			
10	982	DRIVEWAY	1.0	982			
11	415	ROOF/DECK	1.0	415			
14	425	DRIVEWAY	1.0	425			
NOTE: DMA 28 IS NOT REQUIRED TO BE IN COMPLIANCE WITH BASMAA. IT IS USED AS SECONDARY STORMWATER TREATMENT TO THE SELF RETAINING AREAS AND IS A PART OF THE PROPOSED DRIVEWAY IMPROVEMENTS.							
			TOTAL A x RF =	3547	0.04	142	580

REGULATED PROJECT - PROJECT DATA FORM

PROJECT NAME	SINGLE FAMILY RESIDENCE
APPLICATION SUBMITTAL DATE	T.B.D.
PROJECT LOCATION	THOMAS DRIVE MARIN COUNTY, CA
PROJECT TYPE	SINGLE FAMILY RESIDENCE - NEW CONSTRUCTION
TOTAL PROJECT SITE AREA'S	ONSITE PROJECT PARCEL SITE AREA : 262,408 ft² OFFSITE PROJECT AREA : 2,178 ft² (TO GUTTER @ THOMAS DRIVE, INCLUDING SIDEWALK) OFFSITE PROJECT AREA : 6,750 ft² (INTERSECTION AND SEWER LINE EXT.) OFFSITE EXISTING DRAINAGE BENCH = 7,361 ft² OFFSITE SITE AREA TOTAL: 14,111 ft² TOTAL PROJECT SITE AREA : ONSITE + OFFSITE = 262,408 ft² + 14,111 ft² = 276,519 ft²
TOTAL NEW AND REPLACED IMPERVIOUS SURFACE AREA	ONSITE NEW: 11,668 ft² OFFSITE NEW : 1,148 ft² OFFSITE REPLACED :4,500 ft² TOTAL ONSITE + OFFSITE IMPERVIOUS SURFACE NEW + REPLACED = 17,316 ft²
TOTAL PRE-PROJECT IMPERVIOUS SURFACE AREA	ONSITE EXISTING: 0 ft² OFFSITE EXISTING : 4500 ft² TOTAL EXISTING PRE - PROJECT IMPERVIOUS COVERAGE: 4,500 ft²
TOTAL POST-PROJECT NEW IMPERVIOUS SURFACE AREA	ONSITE NEW: 11,668 ft² OFFSITE NEW : 1,150 ft² TOTAL ONSITE + OFFSITE IMPERVIOUS SURFACE NEW = 12,818 ft²

REVISIONS / DATE

STORMWATER TREATMENT AREAS - BASMAA

PROPOSED SINGLE FAMILY HOME
DESIGN REVIEW SUBMITTAL

PROJECT LOCATION / OWNER
VIKRUM AND GAGAN NIJJAR
THOMAS DRIVE, MILL VALLEY, CA
MARIN COUNTY: APN: 034-012-26

RESIDENTIAL DESIGN
LONE TREE RESIDENTIAL DESIGN
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REGISTERED PROFESSIONAL ENGINEER
JAIME A. ZIEGLER
No. C52962
CIVIL
STATE OF CALIFORNIA

SIGNATURE
GREEN WATER BASED INK
CIVIL ENGINEERING AND SITE WORK ONLY
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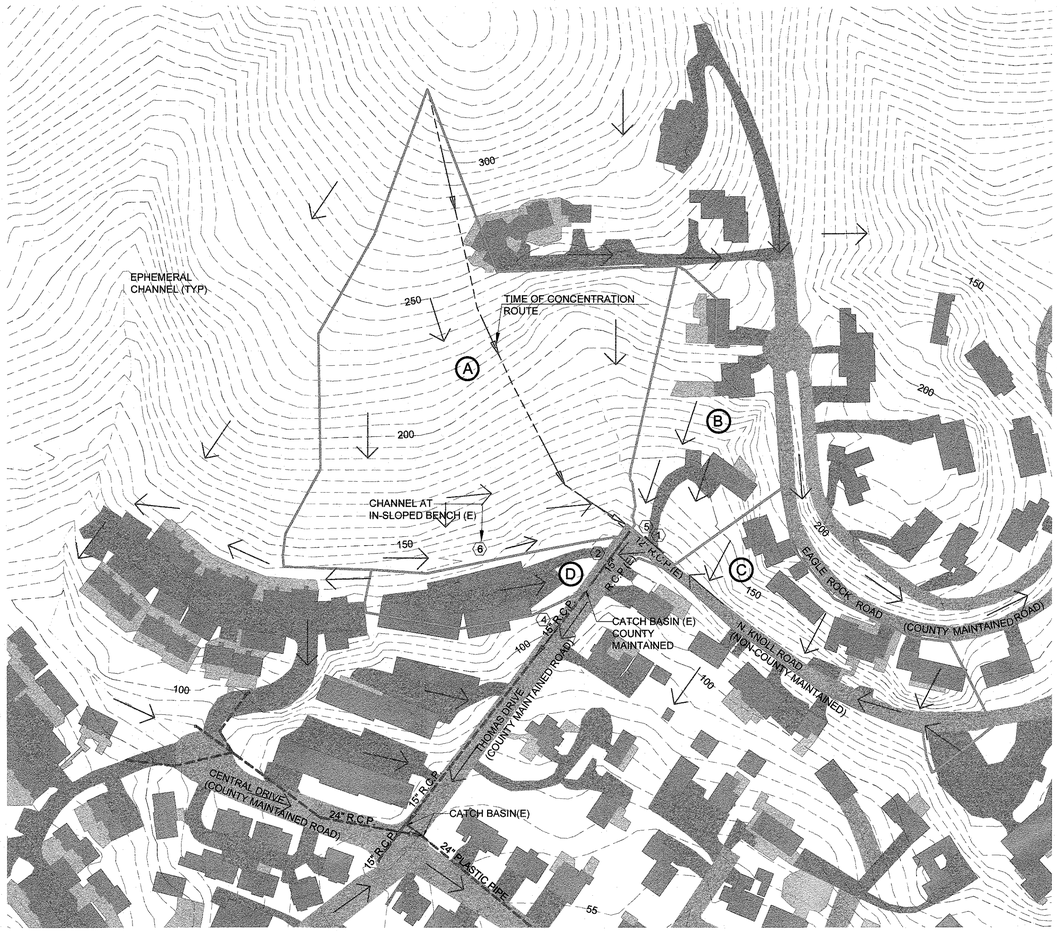
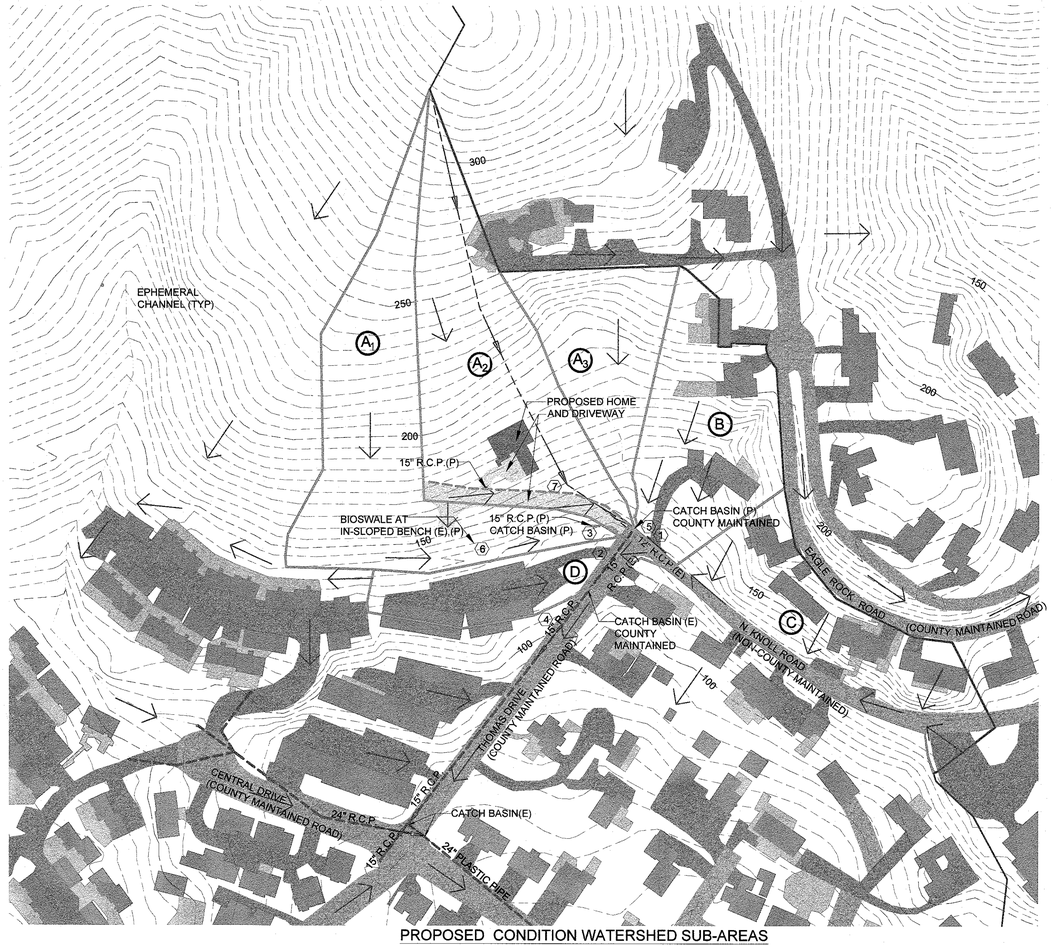
DATE 11 / 6 / 2019
SCALE 1 " = 20'
DRAWN JAZ
JOB 55 THOMAS DRIVE
SHEET C 16.0
OF 25 SHEETS



EXISTING CONDITION WATERSHED SUB-AREAS



PROPOSED CONDITION WATERSHED SUB-AREAS

TIME OF CONCENTRATION DATA

C = 0.95
L = 750 ft
S= 0.28 ft/ft

$$T_C = \frac{1.8\,(1.1 - C)(L)^{0.5}}{[(S)(100)]^{0.33}} + 5 \text{ min}$$

TIME OF CONCENTRATION = T_C = 7 MINUTES

I_{50}, 100 yr = 1.3in/hr I_7, 100 yr = 3.7 in/hr for 7 minute duration storm

100 YEAR PEAK RUNOFF CALCULATIONS
EXISTING CONDITION

SUB-AREA	AREA (ft^2)	AREA (ACRES)	RUNOFF COEFFICIENT (C)	I_{100} (in/hr)	Q_{100} (ft^3/s)
A	210,990	4.84	0.95	3.7	17.0
B	56,067	1.29	0.95	3.7	4.5
C	63,649	1.46	0.95	3.7	5.1
D	25,071	0.57	0.95	3.7	2.0
TOTAL	355,777	8.17			28.6

100 YEAR PEAK RUNOFF CALCULATIONS
EXISTING CONDITION

SUB-AREA	AREA (ft^2)	AREA (ACRES)	RUNOFF COEFFICIENT (C)	I_{100} (in/hr)	Q_{100} (ft^3/s)
A_1	86,159	1.98	0.95	3.7	6.9+
A_2	82,850	1.90	0.95	3.7	6.7
A_3	41,981	0.96	0.95	3.7	3.4
B	56,067	1.29	0.95	3.7	4.5
C	63,649	1.46	0.95	3.7	5.1
D	25,071	0.58	0.95	3.7	2.0
TOTAL	355,777	8.17	0.95	3.7	28.6

NOTES

1. Q_{100} AND HYDROLOGY PER COUNTY OF MARIN, DEPARTMENT OF PUBLIC WORKS HYDROLOGY MANUAL - REVISED 8 / 2 / 2000)
2. SEE DRAINAGE CALCULATIONS USING CALTRANS HIGHWAY DESIGN MANUAL CHAPTER 810 METHODOLOGY FOR CROSS CHECK. USING THIS METHOD THE POST DEVELOPMENT 100 YR PEAK RUNOFF FLOW RATE IS 28 ft^3/s FOR THE PROPOSED DEVELOPMENT CONDITION, WHICH IS CONSISTENT WITH THE MARIN COUNTY MANUAL.
3. FOR THE 100 YR RUNOFF FLOW RATES, NO ATTENUATION OF PEAK RUNOFF IS DERIVED FROM THE STORMWATER MANAGEMENT FACILITIES. THESE FACILITIES ATTENUATE THE FLOWS FOR THE MORE FREQUENT LOW INTENSITY EVENTS WHICH GENERATE ONE (1) INCH OF RUNOFF PER THE BASMAA MANUAL AND GUIDELINES AND REQUIREMENTS.
4. A = A1 + A2 + A3, AND REPRESENTS THE SAME SUB AREA.

EXISTING / PROPOSED DRAINAGE CONDUITS
PEAK RUNOFF AND CAPACITIES

	CONDUIT	NOTE	ROUGHNESS COEFFICIENT (n)	SLOPE (ft/ft)	CAPACITY AS OPEN CHANNEL (ft^3/s)	Q_{100} TRIBUTARY AREA (ft^3/s)	(0.75) x (Q_{100}) TRIBUTARY AREAS (ft^3/s)	TRIBUTARY AREAS
①	12" CULVERT (E)	AT EXISTING DRIVEWAY	0.011	0.02	6	4.5	3.4	B
②	15" R.C.P. (E) LOWERED AT DRIVEWAY	LOWER INLET AT AND DECREASE EXISTING SLOPE	0.011	.079	23	14.5	10.9	A_2+ B
③	15" R.C.P. (P)	FROM EXISTING INBOARD CUTOFF DITCH TO NEW CATCH BASIN TURNING STRUCTURE	0.011	0.08 (minimum)	23	7.0	5.3	A_1
④	15" R.C.P. (E)	REACH BELOW EXISTING CATCH BASIN TO CENTRAL DR.	0.011	0.147	31	28.6	21.3	$A_1 + A_2 + B + C + D$

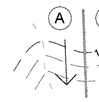
NOTE: HYDRAULICS EQUATIONS, GUIDANCE PER FHA URBAN DRAINAGE MANUAL No. 22 2013
ACCEPTANCE AND DESIGN STANDARDS CRITERIA PER MARIN COUNTY CODE SECTION 24.04.520

EXISTING / PROPOSED OPEN CHANNELS
PEAK RUNOFF AND CAPACITIES

	OPEN CHANNEL	NOTE	ROUGHNESS COEFFICIENT (n)	SLOPE (ft/ft)	B FLOW DEPTH @ Q_{100} (ft^3/s)	VELOCITY @ Q_{100} (ft/s)	A TOTAL CHANNEL DEPTH (ft)	FREEBOARD MIN VELOCITY HEAD - $V^2/2g$ @ Q_{100} (ft)	A - B = F FREEBOARD @ Q_{100} (ft)	Q_{100} TRIBUTARY AREAS (ft^3/s)	TRIBUTARY AREAS
⑤	BIO-SWALE AT (E) DRIVEWAY	FROM (E) 12" R.C.P. TO (P) CATCH BASIN	0.05	0.16	0.4	5.2	1.5 (min.)	0.4	1.1	4.5	B
⑥	EXISTING DITCH AT INSLOPED GRADED BENCH	IMPROVE TO BIO-SWALE	0.05	0.06	0.6	4.2	1.5	0.3	0.9	6.9+	A_1
⑦	BIO-SWALE AT PROPOSED DRIVEWAY	TOP OF DRIVEWAY TO (E) 15" R.C.P.	0.05	0.18	0.5 0.35 (over weir)	7.2 6.7 (over weir)	1.5 1.0(over weir)	0.8 0.7 (over weir)	0.9 0.7 (over weir)	6.7	A_2

NOTE: HYDRAULICS EQUATIONS, GUIDEANCE PER FHA URBAN DRAINAGE MANUAL No. 22 2013, AND CHOW ET. AL
ACCEPTANCE AND DESIGN STANDARDS CRITERIA PER MARIN COUNTY CODE SECTION 24.04.520

LEGEND



EXISTING CONTOURS - 5 FT INTERVAL
DRAINAGE SUB-AREA
EXISTING EPHEMERAL STREAM
RUNOFF ROUTING

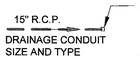
EXISTING PAVING - COUNTY MAINTAINED ROADS
NON-COUNTY MAINTAINED ROADS
DRIVEWAYS

EXISTING BUILDINGS

EXISTING DECKS AND PATIOS

PROPOSED HOME

PROPOSED DRIVEWAY AND HAMMERHEAD TURNAROUND



DRAINAGE CONDUIT SIZE AND TYPE

CATCH BASIN DRAINAGE CONDUIT SIZE AND TYPE
(E) - EXISTING AS NOTED IN PROJECT VICINITY
(P) - PROPOSED AS NOTED
- UN-TAGGED TO REMAIN AS-IS

NOTES:

1. ALL UN-KEYED AC PAVING ARE PRIVATE DRIVEWAYS AND ROADS UNLESS NOTED OTHERWISE.
2. CONTOUR INFORMATION FROM COUNTY GIS DATA SET AVAILABLE ONLINE.
3. IMPROVEMENT POLYGONS FROM INTERPRETATION OF THE 2014 AERIAL IMAGERY ORTHOPHOTOS AVAILABLE FROM MARIN COUNTY AND THE USGS.
4. SEE SITE PLANS AND GRADING PLAN FOR DETAILED PROPOSED CONTOUR INFORMATION. ROUTING DELINEATED PER PROPOSED GRADING PLAN.
5. PROPOSED CONTOURS OMITTED FOR CLARITY.

SCALE 1" = 100'
(24" x 36" SHEET)

0 50 100 150 200 300

REVISIONS / DATE

HYDROLOGY AND HYDRAULICS
PROPOSED SINGLE FAMILY HOME
DESIGN REVIEW SUBMITTAL

PROJECT LOCATION / OWNER
VIKRUM AND GAGAN NIJJAR
THOMAS DRIVE. MILL VALLEY, CA

RESIDENTIAL DESIGN
LONE TREE
RESIDENTIAL DESIGN
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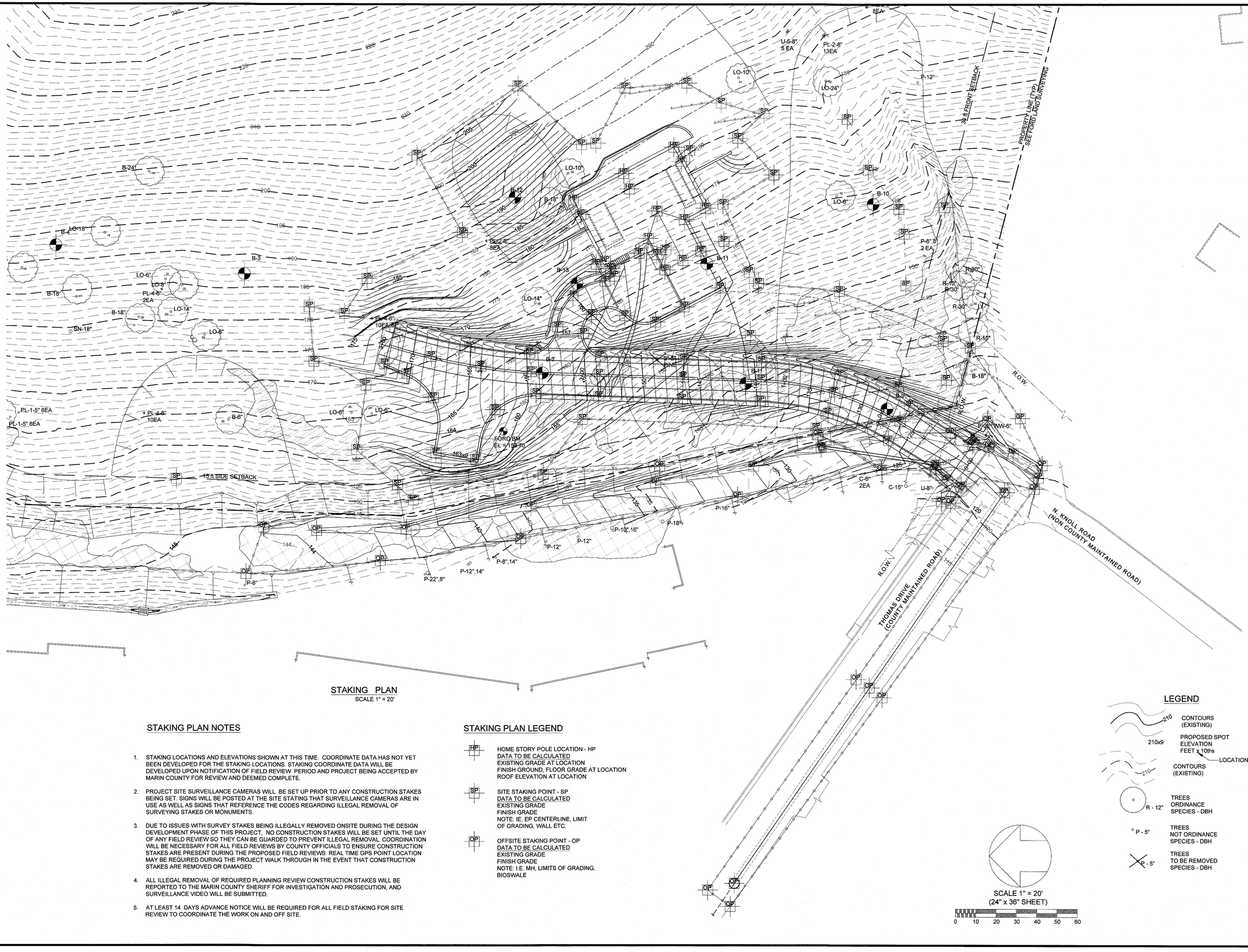
DATE 11 / 6 / 2019
SCALE 1 " = 100'
DRAWN JAZ
JOB 55 THOMAS DRI
SHEET C 17.(
OF 25 SHEETS



STAKING PLAN

SCALE 1" = 20'

STAKING PLAN NOTES

1. STAKING LOCATIONS AND ELEVATIONS SHOWN AT THIS TIME. COORDINATE DATA HAS NOT YET BEEN DEVELOPED FOR THE STAKING LOCATIONS. STAKING COORDINATE DATA WILL BE DEVELOPED UPON NOTIFICATION OF FIELD REVIEW PERIOD AND PROJECT BEING ACCEPTED BY MARIN COUNTY FOR REVIEW AND DEEMED COMPLETE.
2. PROJECT SITE SURVEILLANCE CAMERAS WILL BE SET UP PRIOR TO ANY CONSTRUCTION STAKES BEING SET. SIGNS WILL BE POSTED AT THE SITE STATING THAT SURVEILLANCE CAMERAS ARE IN USE AS WELL AS SIGNS THAT REFERENCE THE CODES REGARDING ILLEGAL REMOVAL OF SURVEYING STAKES OR MONUMENTS.
3. DUE TO ISSUES WITH SURVEY STAKES BEING ILLEGALLY REMOVED ONSITE DURING THE DESIGN DEVELOPMENT PHASE OF THIS PROJECT, NO CONSTRUCTION STAKES WILL BE SET UNTIL THE DAY OF ANY FIELD REVIEW SO THEY CAN BE GUARDED TO PREVENT ILLEGAL REMOVAL. COORDINATION WILL BE NECESSARY FOR ALL FIELD REVIEWS BY COUNTY OFFICIALS TO ENSURE CONSTRUCTION STAKES ARE PRESENT DURING THE PROPOSED FIELD REVIEWS. REAL TIME GPS POINT LOCATION MAY BE REQUIRED DURING THE PROJECT WALK THROUGH IN THE EVENT THAT CONSTRUCTION STAKES ARE REMOVED OR DAMAGED.
4. ALL ILLEGAL REMOVAL OF REQUIRED PLANNING REVIEW CONSTRUCTION STAKES WILL BE REPORTED TO THE MARIN COUNTY SHERIFF FOR INVESTIGATION AND PROSECUTION, AND SURVEILLANCE VIDEO WILL BE SUBMITTED.
5. AT LEAST 14 DAYS ADVANCE NOTICE WILL BE REQUIRED FOR ALL FIELD STAKING FOR SITE REVIEW TO COORDINATE THE WORK ON AND OFF SITE.

STAKING PLAN LEGEND

HP — HOME STORY POLE LOCATION - HP
DATA TO BE CALCULATED
EXISTING GRADE AT LOCATION
FINISH GROUND, FLOOR GRADE AT LOCATION
ROOF ELEVATION AT LOCATION

SP — SITE STAKING POINT - SP
DATA TO BE CALCULATED
EXISTING GRADE
FINISH GRADE
NOTE: IE, EP CENTERLINE, LIMIT OF GRADING, WALL ETC.

OP — OFFSITE STAKING POINT - OP
DATA TO BE CALCULATED
EXISTING GRADE
FINISH GRADE
NOTE: I.E. MH, LIMITS OF GRADING, BIOSWALE

LEGEND

210 — CONTOURS (EXISTING)
210x9 — PROPOSED SPOT ELEVATION FEET x 10ths — LOCATION
210 — CONTOURS (EXISTING)
R - 12" — TREES ORDINANCE SPECIES - DBH
P - 5" — TREES NOT ORDINANCE SPECIES - DBH
R - 5" — TREES TO BE REMOVED SPECIES - DBH

SCALE 1" = 20'
(24" x 36" SHEET)
0 10 20 30 40 50 60

STAKING - STORY POLE PLAN

PROPOSED SINGLE FAMILY HOME
DESIGN REVIEW SUBMITTAL

PROJECT LOCATION / OWNER
VIKRUM AND GAGAN NIJJAR
THOMAS DRIVE, MILL VALLEY, CA
MARIN COUNTY: APN: 034-012-26

REVISIONS / DATE

RESIDENTIAL DESIGN
LONE TREE RESIDENTIAL DESIGN
TONY RICHARDS
415-787-2164

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DATE 11 / 6 / 2019
SCALE 1 " = 20'
DRAWN JAZ
JOB 55 THOMAS DRIVE
SHEET C 18.0
OF 25 SHEETS

1 X CONSTRUCTION NOTES

1. ALL CONSTRUCTION SHALL CONFORM TO THESE PLANS, DETAILS AND SPECIFICATIONS. UNLESS NOTED OTHERWISE ALL CONSTRUCTION SHALL ALSO CONFORM TO THE PLANNING REQUIREMENTS, CONDITIONS OF APPROVAL , DESIGN REVIEW REQUIREMENTS. ALL BUILDING PERMIT REQUIREMENTS, MARIN COUNTY STANDARDS, MMWD STANDARDS, PG AND E, AND THE LATEST EDITIONS OF THE STATE OF CALIFORNIA, DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS" AND "STANDARD PLANS", THE 2016 STATE OF CALIFORNIA TITLE 24 CODE OF REGULATIONS AND ALL REFERENCE MARIN COUNTY CODES, STANDARDS AND REGULATIONS NOTED THEREIN.

2. THESE PLANS, THE REFERENCED SPECIFICATIONS AND CODES, COUNTY, STANDARDS, CALTRANS STANDARD SPECIFICATIONS AND PLANS, TITLE 24 REGULATIONS AND ANY SPECIAL PROVISIONS OR SUPPLEMENTARY DOCUMENTS ARE ESSENTIAL PARTS OF A PERMIT AND A REQUIREMENT OCCURRING IN ONE IS AS BINDING AS THOUGH OCCURRING IN ALL. THEY ARE INTENDED TO BE COMPLEMENTARY AND TO DESCRIBE AND PROVIDE FOR COMPLETE WORK. CONSULTING ENGINEER TO RESOLVE DISCREPANCIES THROUGH WRITTEN REQUEST FOR INFORMATION , AND BY RELEASE OF ADDENDUMS AND RESPONSES.

3. BY REFERENCE ALL WORK SHALL CONFORM TO THESE PLANS, DETAILS AND SPECIFICATIONS IN ADDITION TO ANY ENCROACHMENT PERMIT REQUIREMENTS, CONDITIONS OF APPROVAL, OR ANY OTHER REQUIREMENTS IMPOSED DUE TO CHANGES IN REGULATION DURING THE LIFE OF THE PROJECT IN ORDER TO MAINTAIN PUBLIC HEALTH AND SAFETY. REGULATORY CODES INCLUDE BUT ARE NOT LIMITED TO THOSE ENFORCED BY MARIN COUNTY, CALTRANS, CALIFORNIA STATE WATER QUALITY CONTROL BOARD, THE CALIFORNIA BUILDING CODE. IT SHALL BE THE RESPONSIBILITY OF THE REGULATORY AGENCY TO NOTIFY THE OWNER OF ANY CHANGES WHICH AFFECT THIS PROJECT AFTER ISSUANCE OF THE ORIGINAL PERMIT.

4. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND DETAILS ON THESE PLANS PRIOR TO CONSTRUCTION AND SHALL NOTIFY THE ENGINEER OF RECORD OF ANY DISCREPANCIES FOUND PRIOR TO COMMENCING WORK SO THAT APPROPRIATE ADDENDUM'S MAY BE MADE. DISCREPANCIES DISCOVERED DURING CONSTRUCTION SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER OF RECORD IMMEDIATELY.

5. IF ANY CHANGES AND/OR SUBSTITUTIONS ARE MADE FROM THESE PLANS AND SPECIFICATIONS, THE ENGINEER OF RECORD SHALL BE NOTIFIED PRIOR TO MAKING SUCH CHANGES AND/OR SUBSTITUTIONS AND THE OWNER SHALL OBTAIN THE NECESSARY CERTIFIED ADDENDUM'S AND CALCULATIONS FOR RE-SUBMITTAL AND APPROVAL BY THE BUILDING OFFICIAL ISSUING THE PERMIT.. IF CHANGES ARE MADE WITHOUT THE WRITTEN APPROVAL OF THE ENGINEER OF RECORD AND THE REGULATORY AGENCIES, THEN THE ENGINEER OF RECORD WILL ASSUME NO RESPONSIBILITY FOR ANY ASPECT OF THE PROPOSED IMPROVEMENTS SHOWN ON THESE PLANS AND SHALL BE HELD HARMLESS FROM ANY DAMAGES RESULTING.

6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TEMPORARY BRACING, TRENCH SHORING AND PROTECTION USED DURING CONSTRUCTION AND SHALL COMPLY WITH ALL STATE, COUNTY AND FEDERAL CODES.

7 48 HOURS PRIOR TO COMMENCING WORK, THE CONTRACTOR SHALL NOTIFY ALL APPLICABLE REGULATORY AGENCIES, UNDERGROUND SERVICE ALERTS, AND CONSULTANTS.

8. TRAFFIC CONTROL SHALL BE PROVIDED DURING CONSTRUCTION ACCORDING TO APPROVED CITY OF MARIN COUNTY, STATE AND COUNTY SPECIFICATIONS AND AS REQUIRED IN THE APPLICABLE ENCROACHMENT PERMITS.

9. ALL FIELD STAKING SHALL BE DONE BY A REGISTERED CIVIL ENGINEER OR SURVEYOR. DISCREPANCIES BETWEEN IMPROVEMENT PLANS AND FIELD CONDITIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER OF RECORD PRIOR TO CONSTRUCTION OF THE AFFECTED IMPROVEMENTS FOR RESOLUTION.

10. PRIOR TO CONSTRUCTION THE ENGINEER OF RECORD SHALL MARK ALL SURVEY CONTROL MONUMENTS. CONTRACTOR SHALL MAKE EVERY EFFORT TO PROTECT EXISTING SURVEY CONTROL MONUMENTS. THE ENGINEER OF RECORD SHALL BE NOTIFIED PRIOR TO REMOVAL OF ANY SURVEY CONTROL MONUMENTS. DAMAGE OR REMOVAL OF PERMANENT SURVEY MONUMENTS DURING CONSTRUCTION SHALL BE REPLACED AT THE CONTRACTORS EXPENSE.

11. PRIOR TO ANY CONSTRUCTION OCCURRING BETWEEN OCTOBER 15 AND MAY 1, THE CONTRACTOR SHALL INSTALL ALL PERMANENT STORM WATER RUNOFF MITIGATION MEASURES. TEMPORARY STORM WATER RUNOFF AND EROSION CONTROL MEASURES SHOWN ON THE PLANS SHALL BE INSTALLED AS NOTED ON THE PLANS REGARDLESS OF THE TIME OF YEAR.

12. THE CONTRACTOR SHALL INSTALL AND MAINTAIN ALL STORM WATER POLLUTION PREVENTION PLAN DETAILS AS SHOWN ON THESE PLANS. SITE CONDITIONS ENCOUNTERED DURING CONSTRUCTION WHICH MAY CAUSE STORM WATER POLLUTION SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER OF RECORD PRIOR TO ANY DISCHARGES IN ORDER TO MODIFY THESE PLANS..

13. VEGETATION REMOVAL SHALL BE LIMITED TO THOSE IN DIRECT CONFLICT WITH PROPOSED IMPROVEMENTS. TOPSOIL SHALL BE STOCKPILED FOR USE ON THE INSTALLED FEATURES AS NOTED ON THE PLANS. TREES WITHIN GRADED AREAS SHALL BE SAVED USING BERMS AND SUMPS UNTIL FINAL SITE PLANS ARE DEVELOPED.

14. ALL TREES TO REMAIN SHALL BE PROTECTED FROM BUTT SCARRING DURING CONSTRUCTION. THE EXISTING SOIL BENEATH THE DRIP LINE OF THE TREES TO BE PROTECTED SHALL REMAIN UNDISTURBED TO THE EXTENT FEASIBLE. DISTURBED SOIL SHOULD BE MULCHED AS SOON AS IT IS PRACTICABLE. FENCING MAY BE USED ON SIGNIFICANT TREES TO BE RETAINED.

15. VEGETATION AND STREAM CHANNELS ADJACENT TO THE CONSTRUCTION AREA SHALL BE PRESERVED UNLESS OTHER WISE SPECIFIED. DISTURBED AREA SHALL BE TREATED ACCORDING TO THE EROSION CONTROL PLAN AND REVEGETATION DETAILS AS SOON AS IT IS PRACTICABLE.

16. EVERY EFFORT HAS BEEN MADE TO LOCATE EXISTING UNDERGROUND AND OVERHEAD UTILITIES ON THESE PLANS. AS THE PARCEL HAS HAD A VARIETY OF PAST IMPROVEMENTS THE CONTRACTOR SHOULD BE AWARE THAT EXCAVATION AND CONSTRUCTION OF THE PROPOSED IMPROVEMENTS MAY REVEAL ADDITIONAL ABANDONED IMPROVEMENTS. UTILITY LOCATION BY OUTSIDE CONSULTANTS MAY BE USED IN ADDITION TO THE SERVICES PROVIDED BY USA NORTH.

17. CONTRACTOR SHALL MAINTAIN DUST CONTROL DURING CONSTRUCTION ACCORDING TO CALTRANS SPECIFICATIONS. THE SEDIMENT AND DEBRIS GENERATED FROM DAILY CONSTRUCTION ACTIVITIES SHALL BE CLEANED UP, STORED AND DISPOSED OF BY THE END OF EACH DAY. CITY ROADWAYS SHALL BE CLEANED AT THE END OF EACH DAY.

18. AT ROAD AND GRADE TRANSITIONS THE CONTRACTOR SHALL MATCH ALL EXISTING GRADES AND PAVEMENTS ACCORDING TO THESE PLANS. SHOULD THE PLANS RESULT IN ABRUPT TRANSITIONS NOT SHOWN ON THE PLANS THE ENGINEER OF RECORD SHALL BE NOTIFIED PRIOR TO FINAL PAVING OR GRADING.

19. THE CONTRACTOR SHALL VERIFY ALL PROPOSED UTILITY CROSSING GRADES PRIOR TO CONSTRUCTION. POT HOLING SHALL BE USED AS NECESSARY TO VERIFY THE PLANS.

20. CONTRACTOR SHALL COMPLY WITH ALL CONSTRUCTION SAFETY RULES AND REGULATIONS ACCORDING TO CAL-OSHA STANDARDS. SITE CONDITIONS MAY DICTATE MORE RIGEROUS LIFE SAFETY MEASURES AND SHALL BE IMPLEMENTED AS NECESSARY TO PROTECT THE PUBLIC, OWNERS, WORKERS AND STRUCTURES.

21. THE CONTRACTOR AGREES THAT THEY SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT INCLUDING SAFETY OF ALL PERSONS AND PROPERTY. THIS REQUIREMENT SHALL APPLY CONTINUOUSLY DURING THE PROJECT AND NOT BE LIMITED TO NORMAL WORKING HOURS. THE CONTRACTOR SHALL DEFEND, INDEMNIFY, AND HOLD HARMLESS THE OWNER AND ENGINEER OF RECORD FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE ENGINEER OF RECORD.

27. ALL EQUIPMENT AND SHALL BE MAINTAINED AND OPERATED ACCORDING TO STATE EMISSIONS REQUIREMENTS AS PRACTICAL.

28. ANY ARCHEOLOGICAL RESOURCES DISCOVERED DURING EXCAVATION SHALL BE MANAGED ACCORDING TO STATE AND FEDERAL LAW.

29. PROVIDE PERSONAL SANITATION ONSITE AS REQUIRED BY THE PERMIT.

30. CONTRACTOR SHALL MEET ALL FIRE CODE REQUIREMENTS FOR EQUIPMENT OPERATION, FIRE SUPPRESSION EQUIPMENT, AND HIGH FIRE HAZARD DAYS. THE FIRE DEPARTMENT SHALL BE NOTIFIED IMMEDIATLY IF ANY CONSTRUCTION ACTIVITY GENERATES A HAZARD THAT COULD SPREAD AND BECOME A WILDLAND FIRE. THE CONTRACTOR SHALL HAVE A FIRE EXTINGUISHER AND HOSES ONSITE IN ORDER TO INITIALLY SUPRESS POSSIBLE FIRE IGNITION SOURCES.

31. THE CONTRACTOR SHALL SUPPLY WRITTEN SUBMITTALS VERIFYING THAT ALL MATERIALS USED IN THE CONSTRUCTION OF THE PROJECT SPECIFIED ON THESE PLANS OR ADDENDUMS ARE IN CONFORMANCE WITH THE STANDARDS PRESENTED. ADDITIONAL TESTING, OR FIELD OBSERVATION MAY BE REQUIRED TO VERIFY CONFORMANCE OF THE CONSTRUCTED IMPROVEMENTS.

2 X EROSION / SEDIMENT CONTROL NOTES

1. SITE EARTHWORK MAY OCCUR DURING THE WINTER PROVIDED ALL MARIN COUNTY AND SITE SPECIFIC WINTER EROSION CONTROL MEASURES ARE IMPLEMENTED. TOP SOIL SHALL BE STRIPPED AND STOCKPILED FOR REUSE ACCORDING TO THE PLANS AND AS DIRECTED BY THE ENGINEER.

2. ALL DISTURBED AREAS MEETING FINAL GRADES SHALL BE STABILIZED AND REVEGETATED ACCORDING TO THESE PLANS PRIOR TO WINTER. WINTERIZATION PLANS FOR PARTIALLY COMPLETED IMPROVEMENTS SHALL BE REVIEWED BY THE ENGINEER FOR WRITTEN APPROVAL PRIOR TO IMPLEMENTATION.

3. LAND DISTURBANCE SHALL BE MINIMIZED TO AREAS WHICH ARE SHOWN FOR IMPROVEMENTS AND PREVIOUSLY DISTURBED AREAS. DISTURBED AREAS SHALL BE RESTORED AS SOON AS POSSIBLE AFTER THE CONSTRUCTION OF THE IMPROVEMENT IS COMPLETE, OR IS SUSPENDED.

4. ALL EROSION CONTROL FEATURES (I.E. SEDIMENT TRAPS, MULCHES, SLOPES, FENCING, RETENTION BASINS, GRAVEL APRONS, DRAINAGE CONDUITS)SHALL BE INSPECTED AND MAINTAINED AS NECESSARY TO ENSURE THAT THEY ARE FULLY OPERATIONAL AS INTENDED PRIOR TO ANY STORMS. ALL FEATURES SHALL BE INSPECTED AFTER ANY RUNOFF PRODUCING STORMS. ANY DEFICIENCIES SHALL BE REPORTED AS NECESSARY AND BROUGHT TO THE ATTENTION OF THE ENGINEER-OF-RECORD SO THAT THE DEFICIENCIES CAN BE REMEDIED.

5. POTENTIAL SEDIMENTATION GENERATED FROM RUNOFF FROM STOCKPILES SHALL BE CONTAINED USING FILTER FABRIC FENCING ON THE DOWN SLOPE SIDE OF THE PILES.

6. DUST CONTROL MITIGATION MEASURES SHALL BE EMPLOYED ACCORDING TO THE STANDARD SPECIFICATIONS AS NECESSARY TO PREVENT EXCESSIVE DUST. ASPHALT SHALL BE KEPT FREE OF DIRT, SOIL AND AGGREGATE, AS PRACTICAL, TO PREVENT OFF SITE SEDIMENTATION.

7. OPEN CHANNELS SHOULD BE ARMORED ACCORDING TO THE FINAL DESIGN AS SOON A PRACTICAL TO PREVENT EROSION AND SEDIMENTATION.

8. CONSTRUCTION STAGING SHALL OCCUR IN DESIGNATED AREAS. SPILL CONTAINMENT SUPPLIES SHALL BE AVAILABLE FOR REFUELING AND EQUIPMENT MAINTENANCE FLUIDS IN USE.

9. DEWATERING DISCHARGES SHOULD BE DIRECTED TO TEMPORARY INFILTRATION SUMPS WITH FILTER FABRIC BERMS AS NECESSARY TO PREVENT CONCENTRATED RUNOFF. DEWATERING DISCHARGE MAY BE DIRECTED TO PERMANENT DRAINAGE CONDUITS OR RETENTION BASINS.

10. SURPLUS OR WASTE MATERIALS AND FILL SHALL NOT BE STORED IN ANY DRAINAGE OR FLOOD PLAIN.

11. ALL SURPLUS EARTHEN MATERIAL AND CONSTRUCTION DEBRIS SHALL BE REMOVED FROM THE CONSTRUCTION AREA AND DISPOSED OF OR STORED IN THE STOCKPILE AND SORTING AREA.

12. ANY CONDITIONS WHICH ARE RECOGNIZED DURING ROUTINE SITE INSPECTIONS OR NORMAL WORK PERIODS, RESULTING IN UNANTICIPATED STORM WATER POLLUTION DISCHARGES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER AS SOON AS POSSIBLE. MODIFICATIONS WILL BE MADE AS NECESSARY TO THIS PLAN TO REMEDY THE DEFICIENCY.

3 X REVEGETATION/ SEDIMENT CONTROL NOTES

1. UPON COMPLETION OF FINAL GRADING ALL AREAS SHALL BE STABILIZED AND REVEGETATED PER THE PLANS, SPECIFICATIONS AND DETAILS.

2. ENGINEERED FILL AREAS NEED NOT BE MULCHED OR REVEGETATED UNTIL FINAL GRADES ARE ATTAINED. SEE DETAILS FOR MASS GRADING AREAS TO PREVENT EXCESSIVE OFF SITE SEDIMENTATION.

3. PREPARE DISTURBED SOILS PER SOIL RESTORATION AND SLOPE STABILIZATION DETAILS INCLUDING REPLACEMENT OF STOCKPILED TOP SOIL

4. CONTAINER PLANTS OR SEED MIXES MAY SUPPLEMENT REVEGETATION PLANS AS DIRECTED BY THE OWNER OR ENGINEER.

5. AS THE SITE VARIES, PLANTS SHOULD BE PLACED ACCORDING TO THEIR SUITABILITY FOR THE SPECIFIC LOCATION. NATIVE SPECIES SHOULD BE PREFERRED OVER EXOTICS.

6. IN ADDITION TO TOPOSOIL STOCKPILING, NATIVE SEED AND PLANTS MAY BE SAVED FROM EXCAVATION AREAS AND STOCKPILED FOR REPLACEMENT INTO THE PROPOSED AREAS TO BE RE-VEGETATED.

7. A LIST OF NATIVE PLANTS ADAPTED TO THE SITE MAY BE FOUND FROM A VARIETY OF SOURCES AND THESE PLANS. CONTACT THE ENGINEER FOR ADDITIONAL INFORMATION. COMPOSITION OF NATIVE SEED MIXES WILL BE DEPENDANT ON SUPPLY. . GRASSES, NATIVE OR NOT ARE NOT ALLOWED TO BE USED AS REVEGETATION PLANTING PER THE MARIN COUNTY FIRE CODES.

8. PLANTS AND SEED PLACED DURING THE GROWING SEASON SHALL BE IRRIGATED AS NECESSARY TO ESTABLISH THE VEGETATION. VEGETATION MORTALITY LOST PRIOR TO ESTABLISHMENT, SHALL BE REPLACED AS NECESSARY.

4 X ADDITIONAL POLLUTION PREVENTION NOTES

1. MAINTAIN PORTABLE BATHROOM FACILITIES AS NECESSARY FOR CONSTRUCTION CREW.

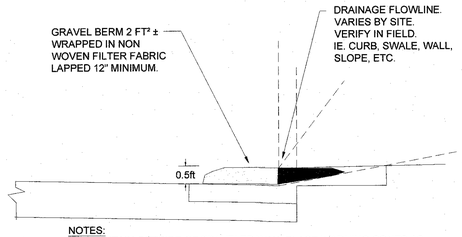
2.. DISCHARGE OF TRASH OR CHEMICALS TO MUNICIPAL STORMDRAIN SYSTEM IS PROHIBITED. DAILY AND AS REQUIRED SWEEPING OF SITE AND STREET TO MAINTAIN A CLEAN WORK SITE AND TO CONTROL AND MITIGATE SOURCES OF SEDIMENT AND STORMWATER POLLUTION.

3. IN ADDITION TO THE REQUIREMENTS ON THESE PLANS, CONTRACTOR SHALL MEET ALL REQUIREMENTS OF THE STATE MUNICIPAL STORMWATER DISCHARGE PERMIT FOR MILL VALLEY, MARIN COUNTY AS NECESSARY.

4. CONTRACTOR SHALL NOTIFY ENGINEER OF POTENTIAL SOURCES OF DISCHARGE NOT MITIGATED PER THESE PLANS AS NOTED BY FIELD CONDITIONS IN ORDER TO DEVELOP ADDITIONAL MITIGATION MEASURES.

5. CONCRETE WASHOUT PLAN SHALL BE PRESENTED FOR REVIEW AND APPROVAL BY ENGINEER. CONCRETE TOOLS AND EQUIPMENT SHALL NOT BE WASHED OUT IN STORMWATER MITIGATION MEASURES, ON OR OFFSITE OR IN DRAINAGE OR CONVEYANCE STRUCTURES. DISCHARGE OF ANY CONCRETE MATERIALS IS PROHIBITED BY LAW.

6. TRASH SHALL BE MANAGED AS NECESSARY TO PREVENT A HAZARD TO THE RESIDENCE, NEIGHBORHOOD, OR CITY.

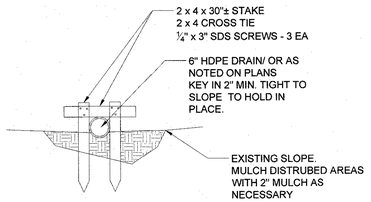


NOTES:
1. MAINTAIN OUTSIDE OF TRAVELED WAY. PLACE WARNING CONES AS NECESSARY TO MARK LOCATION.

2. MAINTAIN AS NECESSARY AFTER EVENT OR SEDIMENTATION BY CONSTRUCTION ACTIVITIES.

5 X GRAVEL FILTER BERM AT EDGE OF PAVEMENT

SCALE 1/2" = 1'



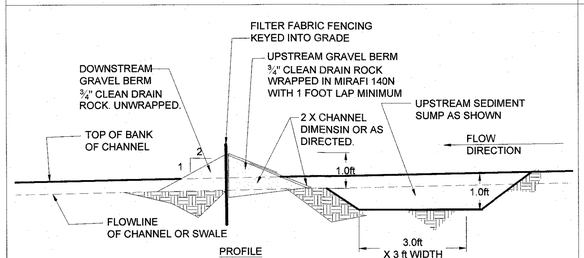
NOTES:
1. PLACE TEMPORARY ANCHOR STAKES AT 6' O.C. MAXIMUM OR AS NECESSARY TO HOLD PIPE IN PLACE.

2. PLACE AT TRANSITIONS AS NECESSARY AND AS SHOWN ON PLANS.

3. TO BE USED AS A BYPASS AROUND CONSTRUCTION AREAS IN THE EVENT OF A CONSTRUCTION SEASON RAINSTORM OR TO DIVERT NATURAL SPRINGS I N ORDER TO COMPLETE FINAL GRADING AND PAVING.

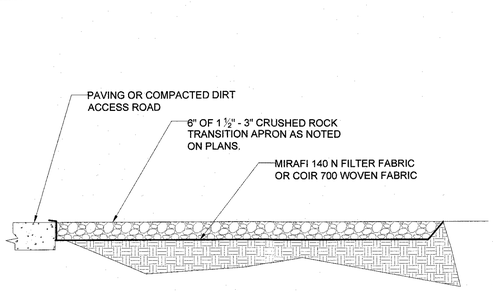
6 X TEMPORARY PIPE ANCHOR

SCALE 1/2" = 1'



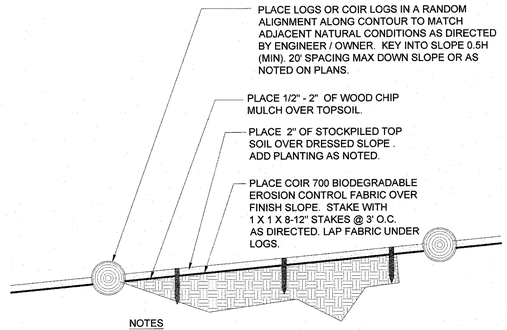
7 X TEMPORARY SEDIMENT TRAP

SCALE 1/2" = 1'



8 X ROCK BALLAST APRON

SCALE 1/2" = 1'

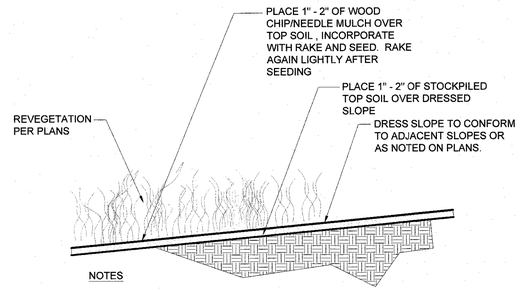


NOTES

1. GRADE PER PLANS AND SPECIFICATIONS. SLOPES VARY.

9 X SOIL RESTORATION DETAIL W/COIR CHECKS

SCALE 1/2" = 1'



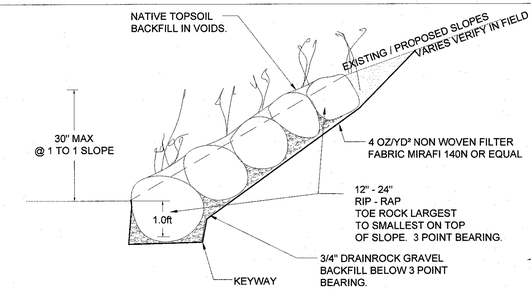
NOTES

1. THIS DETAIL IS TO BE USED ON SLOPES LESS THAN 16%. FOR SLOPES GREATER THAN 16%, USE SOIL RESTORATION WITH COIR CHECK DETAIL.

2. AREAS COMPACTED DUE TO EQUIPMENT OPERATIONS, GRADING CUT AND EMBANKMENT CONSTRUCTION OUTSIDE OF THE PROPOSED PAVEMENT AND SHOULDER AREAS SHALL BE ROUGHENED TO A DEPTH OF 2" PRIOR TO DRESSING AND MULCHING.

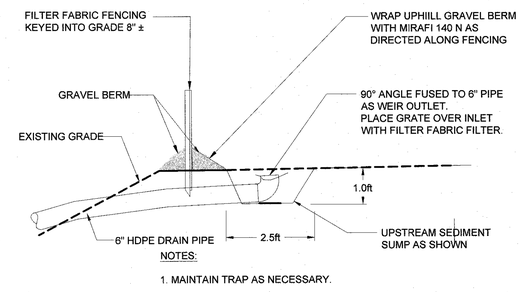
10 X SLOPE RESTORATION WITHOUT FABRIC

NO SCALE



11 X RIP-RAP SLOPE PROTECTION / BUTRESS

SCALE 1/2" = 1'



NOTES:

1. MAINTAIN TRAP AS NECESSARY.

2. 6" HDPE PIPE SHALL BE USED AS PERMANENT DRAIN PIPE. FUSE WELD APPROPRIATE LENGTH TO USE AS FINAL DRAIN.

12 X TEMPORARY STORM DRAIN INLET AT ROAD CROSSING

SCALE 1/2" = 1'

REVISIONS / DATE

CONSTRUCTION NOTES / DETAILS

PROPOSED SINGLE FAMILY HOME
DESIGN REVIEW SUBMITTAL

PROJECT LOCATION / OWNER
VIKRUM AND GAGAN NIJJAR
THOMAS DRIVE, MILL VALLEY, CA
MARIN COUNTY: APN: 034-012-26

RESIDENTIAL DESIGN
LONE TREE
RESIDENTIAL DESIGN
TONY RICHARDS
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GEOTECHNICAL ENGINEER
HERZOG GEOTECHNICAL
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LAND SURVEYOR
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707-842-8513

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PLESANTON, CA
925-463-0611

BIOLOGY AND ARBORIST
LSA
RICHMOND, CA
510-236-6810

ARCHEOLOGY
ASC - ANTHROPOLOGICAL STUDIES CENTER, SONOMA STATE UNIVERSITY
707-664-2381

ZIEGLER CIVIL ENGINEERING
JAIME ZIEGLER, P.E.
415-472-1225
zieglercivilengineering.com

REGISTERED PROFESSIONAL ENGINEER — JAIME A. ZIEGLER — No. C52962 — CIVIL — STATE OF CALIFORNIA

SIGNATURE
GREEN WATER BASED INK
CIVIL ENGINEERING AND SITE WORK ONLY
BUILDING DESIGN BY OTHERS
FOR PLANNING REVIEW
PRELIMINARY
NOT FOR CONSTRUCTION

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DATE 11 / 6 / 2019
SCALE 1 " = 10'
DRAWN JAZ
JOB 55 THOMAS DRIVE
SHEET C19.0
OF 25 SHEETS

%	PERCENTAGE
@	AT
AASHTO	AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS
AB	AGGREGATE BASE
AC	ASPHALT CONCRETE
AGG	AGGREGATE
ASTM	AMERICAN SOCIETY FOR TESTING OF MATERIALS
AWPA	AMERICAN PUBLIC WORKS ASSOCIATION
BC	BEGINNING OF CURVE
CALIF	CALIFORNIA
CDF	CONTROLLED DENSITY FILL
CE	CIVIL ENGINEER
CI	CAST IRON
CL, CLR	CLEAR
CO	COUNTY/COMPANY
CONC	CONCRETE
CTB	CEMENT TREATED BASE
CU	CUBIC
D	DEPTH
DIA, ø	DIAMETER
DWG	DRAWING
DWY, D/W	DRIVEWAY
EC	END OF CURVE
EX, (E)	EXISTING
FB	FLAT BAR
FC	FACE OF CURB
FL	FLOWLINE
FT, '	FEET
GALV	GALVANIZED
H, HT	HEIGHT
HDPE	HIGH DENSITY POLYETHYLENE
HORIZ	HORIZONTAL
ID	INSIDE DIAMETER
IN, "	INCHES
INTERMED	INTERMEDIATE
L	LENGTH
LB	POUND
LS	LAND SURVEYOR
LTB	LIME TREATED BASE
MAT	MATERIAL
MAX	MAXIMUM
MFG	MANUFACTURER
MIN	MINIMUM
NO, #	NUMBER
NOS	NUMBERS
NTS	NOT TO SCALE
OC	ON CENTER
OD	OUTSIDE DIAMETER
OSHA	OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
PCC	PORTLAND CEMENT CONCRETE
PERF	PERFORATED
PSI	POUNDS PER SQUARE INCH
PTDF	PRESSURE TREATED DOUGLAS FIR
PVC	POLYVINYL CHLORIDE
R, RAD	RADIUS
REV	REVISION
R/W, ROW	RIGHT OF WAY
S/W	SIDEWALK
SCH	SCHEDULE
SPEC	SPECIFICATION
STD	STANDARD
T	THICKNESS
TRANS	TRANSITION
TYP	TYPICAL
V, VERT	VERTICAL
W	WIDTH
W/O	WITHOUT
X	CROSS
YD	YARD

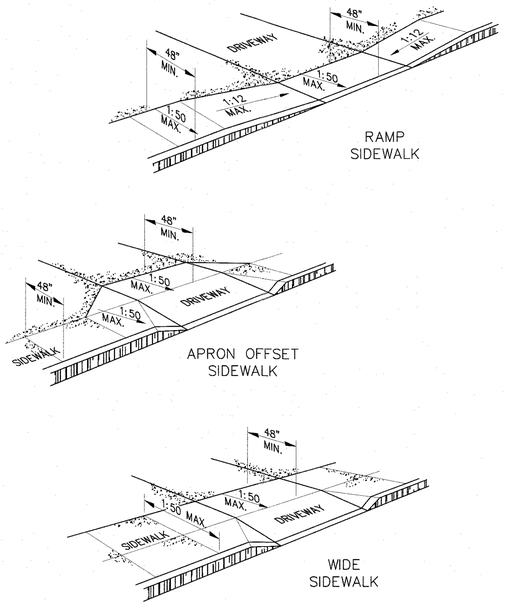
UNIFORM STANDARDS ALL CITIES AND COUNTY OF MARIN | ABBREVIATIONS FOR PLANS | REV. | DATE | BY | MAY 2008 | DWG. NO. 1

1 MARIN COUNTY U.C.S. DWG 1
NO SCALE

1. EXISTING CONCRETE SHALL BE REMOVED AT EXPANSION OR WEAKENED PLANE JOINTS OR AT SAWCUTS AS FIELD MARKED BY AGENCY ENGINEER. SAWCUTS MUST GO ENTIRELY THROUGH CONCRETE.
2. FOR NEW DEVELOPMENT, NO UTILITY BOXES OR POLES WILL BE PERMITTED IN THE SIDEWALK AREA WITHOUT THE PRIOR WRITTEN APPROVAL OF THE AGENCY ENGINEER.
3. WHERE UNDERCUT SUBGRADE OR UNSUITABLE SUBGRADE MATERIAL IS ENCOUNTERED, THE AGENCY ENGINEER MAY REQUIRE REMEDIAL WORK TO BE DONE, INCLUDING OVER EXCAVATION AND BACKFILLING WITH CRUSHED ROCK AND, WHEN DIRECTED BY THE ENGINEER, PLACING GEOTEXTILE FABRIC BENEATH THE NEW CONCRETE SECTION.
4. SUBGRADE SHALL BE COMPACTED TO AT LEAST 95% RELATIVE COMPACTION IN THE TOP SIX INCHES.
5. NEW WORK SHALL MATCH EXISTING AS CLOSELY AS POSSIBLE IN FINISH, SCORING AND COLOR. FOR NEW INSTALLATIONS PLACED ADJACENT TO EXISTING, 2LB. DAVIS BLACK #8084 (OR EQUIVALENT) PER CU. YD. CONCRETE SHALL BE ADDED TO MIX.
6. EXCEPT WHERE SPECIFIED OTHERWISE HEREIN, NO ADMIXTURES SHALL BE USED WITHOUT THE PERMISSION OF THE AGENCY ENGINEER.
7. FORMS SHALL MEET GRADE AND FORM FACES SHALL NOT VARY FROM THE DIMENSIONS SHOWN BY MORE THAN 1/2 INCH.
8. NO CONCRETE SHALL BE PLACED UNTIL THE AGENCY ENGINEER HAS INSPECTED AND APPROVED FORMS AND SUBGRADE/BASE.
9. SUBGRADE/BASE SHALL BE THOROUGHLY WETTED IMMEDIATELY PRIOR TO PLACING CONCRETE.
10. CONCRETE SHALL BE A MINIMUM CLASS B (5 SACK MIX) WITH 1 INCH MAXIMUM AGGREGATE FROM AN APPROVED MIXING PLANT. NO BAGGED MIX IS PERMITTED.
11. CONCRETE SHALL HAVE A SLUMP OF NOT MORE THAN FOUR INCHES.
12. FOR SIDEWALKS AND DRIVEWAY APPROACHES, 1/4 INCH DEEP SCORE LINES SHALL BE PLACED AT FOUR FEET ON CENTER OR AS DIRECTED BY THE AGENCY ENGINEER.
13. WEAKENED PLANE JOINTS AT LEAST 3/4" DEEP SHALL BE PLACED AT A MINIMUM 16 FEET ON CENTER EXCEPT FOR SIDEWALKS AND DRIVEWAY APPROACHES WHICH SHALL BE A MINIMUM 5 FEET ON CENTER.
14. 3/8 INCH THICK EXPANSION JOINTS SHALL BE PLACED ON BOTH SIDES OF DRIVEWAY APPROACHES, AT CURB AND SIDEWALK RETURN POINTS, DRAINAGE STRUCTURES AND OTHER LOCATIONS AS SHOWN ON THE PLANS.
15. ALL EXPOSED EDGES SHALL BE ROUNDED WITH 1/2 INCH RADIUS TOOL.
16. ALL FLAT SURFACES SHALL BE LIGHT BROOM FINISHED UNLESS OTHERWISE SPECIFIED BY AGENCY ENGINEER.
17. CURBS, SIDEWALKS AND DRIVEWAY APPROACHES SHALL HAVE FORMS REMOVED AND BE BACKFILLED WITHIN SEVEN DAYS AFTER POURING.
18. THE DESIGNATED DIMENSIONS AND SLOPES MAYBE MODIFIED TO ACCOMMODATE EXISTING ADJACENT FACILITIES SUBJECT TO THE APPROVAL OF THE AGENCY ENGINEER.

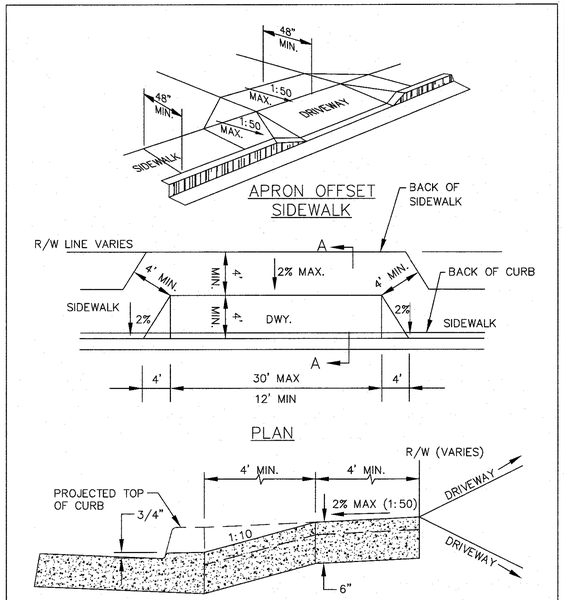
UNIFORM STANDARDS ALL CITIES AND COUNTY OF MARIN | REQUIREMENTS FOR CONCRETE CURB, GUTTER, SIDEWALK, DRIVEWAY AND OTHER "FLATWORK" | REV. | DATE | BY | MAY 2008 | DWG. NO. 100

2 MARIN COUNTY U.C.S. DWG 100
NO SCALE



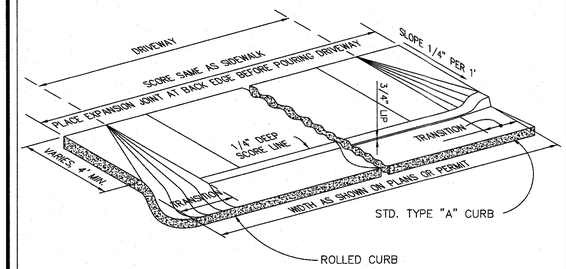
UNIFORM STANDARDS ALL CITIES AND COUNTY OF MARIN | EXAMPLES OF SIDEWALK DRIVEWAY CONNECTIONS | REV. | DATE | BY | MAY 2008 | DWG. NO. 115

3 MARIN COUNTY U.C.S. DWG 115
NO SCALE



UNIFORM STANDARDS ALL CITIES AND COUNTY OF MARIN | OFFSET SIDEWALK AT DRIVEWAY | REV. | DATE | BY | MAY 2008 | DWG. NO. 120

4 MARIN COUNTY U.C.S. DWG 120
NO SCALE

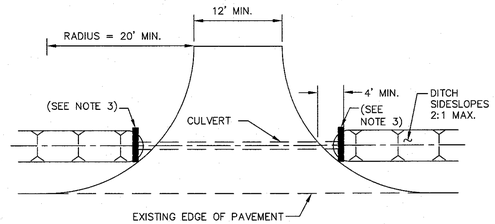


TYPE	TRANSITION WIDTH FROM DRIVEWAY PROJECTION TO OUTER EDGE OF APPROACH	THICKNESS
RESIDENTIAL	2' MIN.	6"
COMMERCIAL	4' MIN.	8"

NOTES:
1. SEE DRAWING NO. 100 FOR GENERAL NOTES.
2. THIS DRIVEWAY STANDARD MAY ONLY BE USED WHERE ANY EXISTING SIDEWALKS (OR PATHWAYS) ARE LOCATED MORE THAN 48" FROM BACK OF CURB (OR EDGE OF PAVEMENT).

UNIFORM STANDARDS ALL CITIES AND COUNTY OF MARIN | DRIVEWAY APPROACH ROLLED CURB AND STANDARD CURB | REV. | DATE | BY | MAY 2008 | DWG. NO. 130

5 MARIN COUNTY U.C.S. DWG 130
NO SCALE

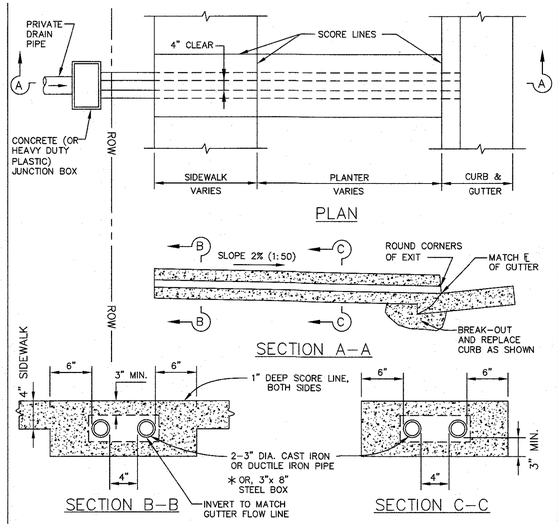


NOTES:
1. SUBJECT TO APPROVAL OF AGENCY ENGINEER, INDICATED DRIVEWAY CONFIGURATION MAY BE MODIFIED TO BETTER ACCOMMODATE TOPOGRAPHIC CONSTRAINTS.
2. CULVERT SHALL BE A MINIMUM 15 INCH DIAMETER AND BE PLACED IN LINE WITH ROADSIDE DITCH.
3. FOR CMP* OR HDPE* CULVERTS, A HEADWALL IS REQUIRED AT EACH END. FOR RCP* CULVERTS, HEADWALLS ARE RECOMMENDED BUT NOT REQUIRED.
4. MINIMUM 1 FOOT COVER IS REQUIRED FOR CMP*, HDPE* OR CLASS III RCP CULVERT. MINIMUM 6 INCH COVER IS REQUIRED FOR CLASS IV RCP CULVERT.
5. RADIUS MAY BE SMALLER THAN 20' IF REQUIRED TO MEET FIELD CONDITIONS AND APPROVED BY AGENCY ENGINEER.

*CMP – CORRUGATED METAL PIPE
*HDPE – HIGH DENSITY POLYETHYLENE PIPE
*RCP – REINFORCED CONCRETE PIPE

UNIFORM STANDARDS ALL CITIES AND COUNTY OF MARIN | DRIVEWAY APPROACH NO CURB & GUTTER | REV. | DATE | BY | MAY 2008 | DWG. NO. 135

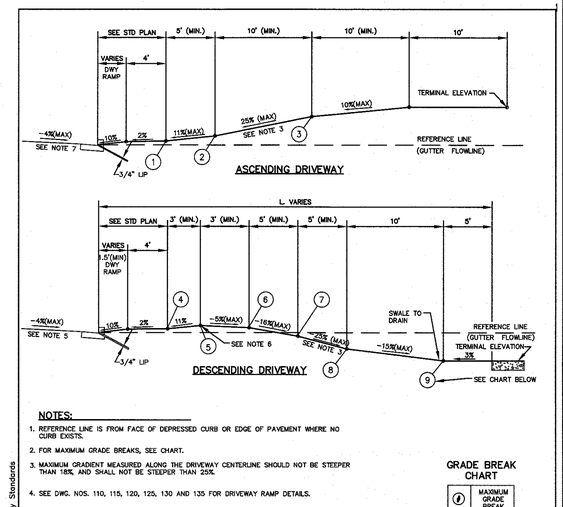
6 MARIN COUNTY U.C.S. DWG 135
NO SCALE



NOTES:
1. CONCRETE SHALL BE CLASS "B" (5 SACK MIX).
2. PLASTIC PIPE IS NOT ALLOWED.
3. WHERE UNDERDRAINS ARE INSTALLED AT LOCATIONS WHERE CURB, GUTTER AND SIDEWALK IS EXISTING, REMOVE 20" OF CURB AND 1 SQUARE OF SIDEWALK BETWEEN SAW-CUTS. REPLACE CURB AS SHOWN IN SECTION A–A ABOVE.
4. NO CONCRETE SHALL BE PLACED PRIOR TO FORM INSPECTION BY THE AGENCY ENGINEER.
5. ALL CONCRETE SHALL BE BROOM FINISHED.
* 6. IF REQUIRED BY AGENCY ENGINEER FOR HEAVY FLOWS.

UNIFORM STANDARDS ALL CITIES AND COUNTY OF MARIN | SIDEWALK UNDERDRAIN | REV. | DATE | BY | MAY 2008 | DWG. NO. 145

7 MARIN COUNTY U.C.S. DWG 145
NO SCALE



NOTES:
1. REFERENCE LINE IS FROM FACE OF DEPRESSED CURB OR EDGE OF PAVEMENT WHERE NO CURB EXISTS.
2. FOR MAXIMUM GRADE BREAKS, SEE CHART.
3. MAXIMUM GRADIENT MEASURED ALONG THE DRIVEWAY CENTERLINE SHOULD NOT BE STEEPER THAN 18% AND SHALL NOT BE STEEPER THAN 25%.
4. SEE DWG. NOS. 110, 115, 120, 125, 130 AND 135 FOR DRIVEWAY RAMP DETAILS.
5. IF PAVEMENT CROSS SLOPE EXCEEDS 4% A MODIFIED DRIVEWAY PROFILE SHALL BE USED WITH THE SLOPE OF THE DRIVEWAY RAMP REDUCED SUCH THAT THE DIFFERENCE IN SLOPE OF THE DRIVEWAY RAMP AND THE SLOPE OF A LINE BETWEEN THE GUTTER AND A POINT ON THE ROADWAY 5' FROM GUTTER LINE SHALL NOT EXCEED 15%. REDUCE DRIVEWAY RAMP SLOPE, NOT THE GUTTER SLOPE. OTHER DIMENSIONS SHALL BE MODIFIED AS APPROVED BY THE AGENCY ENGINEER.
6. THE GRADE AT (5) SHALL BE A MINIMUM OF 0.5" ABOVE REFERENCE LINE.
7. SPECIAL ENGINEERING DESIGNS MAY BE REQUIRED FOR UNIQUE SITUATIONS.
8. THE GEOMETRIC LAYOUT OF A PROPOSED DRIVEWAY SHALL BE REVIEWED AND APPROVED BY THE AGENCY ENGINEER PRIOR TO CONSTRUCTION.

GRADE BREAK CHART

#	MAXIMUM GRADE BREAK
1	9%
2	14%
3	15%
4	9%
5	16%
6	11%
7	9%
8	10%
9	12%

M:\Standards\County Standards (UCS)\2008 Updated County Standards

UNIFORM STANDARDS ALL CITIES AND COUNTY OF MARIN | STEEP DRIVEWAY DESIGN | REV. | DATE | BY | MAY 2008 | DWG. NO. 140

8 MARIN COUNTY U.C.S. DWG 140
NO SCALE

REVISIONS / DATE

MARIN COUNTY UCS ABBREVIATIONS / DETAILS

PROPOSED SINGLE FAMILY HOME
DESIGN REVIEW SUBMITTAL

PROJECT LOCATION / OWNER
VIKRUM AND GAGAN NIJJAR
THOMAS DRIVE, MILL VALLEY, CA
MARIN COUNTY; APN: 034-012-26

RESIDENTIAL DESIGN
LONE TREE
RESIDENTIAL DESIGN
TONY RICHARDS
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ASC - ANTHROPOLOGICAL STUDIES CENTER, SONOMA STATE UNIVERSITY
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STATE OF CALIFORNIA
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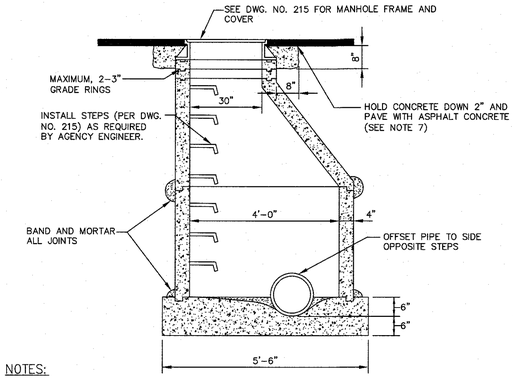
DATE 11 / 6 / 2019
SCALE AS NOTED
DRAWN JAZ
JOB 55 THOMAS DRIVE
SHEET C 20.0
OF 25 SHEETS

CATCH BASIN, TURNING STRUCTURE, MANHOLE AND DROP INLET NOTES

1. CONCRETE SHALL BE CLASS "A" (6 SACK MIX) UNLESS OTHERWISE NOTED. STRUCTURE TOPS CAST WITH ADJACENT CURB/SIDEWALK MAY BE CLASS "B" CONCRETE.
2. BASE SHALL BE PLACED AGAINST UNDISTURBED EARTH, SIDES MAY BE FORMED OR PLACED AGAINST UNDISTURBED EARTH.
3. WHERE CONDUITS ARE ENCOUNTERED THAT ARE LARGER IN DIAMETER THAN THE WIDTH OF THE WALL THROUGH WHICH THEY PASS, THE INSIDE DIMENSION OF THE WALLS PERPENDICULAR TO THE DIRECTION OF THE PIPE SHALL BE INCREASED TO 12" WIDER THAN THE OUTSIDE DIAMETER OF THE PIPE.
4. EXPANSION JOINTS SHALL BE PLACED THROUGH CURB AND SIDEWALK AT BOTH SIDES OF CATCH BASINS AND SHALL BE LIMIT OF PAYMENT FOR CURB AND GUTTER. UNIT PRICES FOR DRAINAGE STRUCTURES SHALL INCLUDE CURB, GUTTER AND SIDEWALK POURED WITH DRAINAGE STRUCTURE.
5. NO CONCRETE SHALL BE PLACED PRIOR TO FORM AND STEEL APPROVAL BY THE AGENCY ENGINEER.
6. SEE DRAWING NO. 215 FOR STEP (AS REQUIRED BY AGENCY ENGINEER) AND MANHOLE CASTING DETAIL.
7. SEE DRAWING NO. 220 FOR CATCH BASIN GRATE DETAIL.
8. WALL THICKNESS, REINFORCING, AND STEP (AS REQUIRED BY AGENCY ENGINEER) REQUIREMENTS SHALL BE IN ACCORDANCE WITH THE TABLE BELOW, UNLESS OTHERWISE INDICATED BY THE PROJECT PLANS OR DIRECTED BY THE AGENCY ENGINEER.
9. PLACE 2" WEEPHOLES AS REQUIRED BY THE AGENCY ENGINEER.
10. EQUIVALENT PRECAST STRUCTURES MAY BE SUBSTITUTED AS APPROVED BY THE AGENCY ENGINEER.
11. WALL THICKNESS SHALL NOT EXCEED 10" ON ANY STRUCTURE.
12. PRECAST INLETS AND MANHOLES SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI AT 28 DAYS AND BE DESIGNED TO WITHSTAND H–20 LOADING.

DEPTH	WALL THICKNESS (SEE NOTE #11)	WALL REINFORCEMENT	STEPS REQUIRED
LESS THAN 3'	6"	NO. 4 AT 12" BOTH WAYS	NO
LESS THAN 3'	8"	NONE OUTSIDE ROADWAY. NO. 4 AT 12" BOTH WAYS WITHIN OR ADJACENT TO ROAD.	NO
3' TO 8'	6"	NO. 4 AT 12" BOTH WAYS	AS REQUIRED BY THE AGENCY ENGINEER
OVER 8'	8"	NO. 4 AT 12" BOTH WAYS	AS REQUIRED BY THE AGENCY ENGINEER

UNIFORM STANDARDS ALL CITIES AND COUNTY OF MARIN	NOTES FOR CATCH BASIN, MANHOLE, DROP INLET & TURNING STRUCTURE	REV.	DATE	BY	MAY 2008 DWG. NO. 200

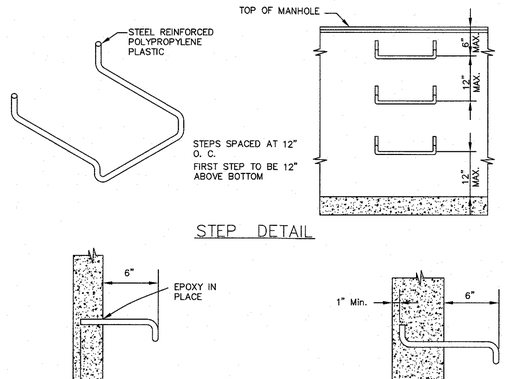


NOTES:

1. BASE SHALL BE CLASS "B" (5 SACK) CONCRETE PLACED AGAINST UNDISTURBED EARTH.
2. CONDUIT SHALL BE LAID THROUGH MANHOLE WHENEVER POSSIBLE.
3. CONCRETE CHANNELS SHALL BE BRUSH FINISHED.
4. PRECAST BARREL AND ECCENTRIC CONE SHALL CONFORM TO ASTM SPECIFICATION C–478 EXCEPT THAT TYPE II CEMENT SHALL BE USED.
5. MORTAR JOINTS SHALL BE 2 PARTS SAND TO 1 PART CEMENT.
6. MANHOLE FRAME MAY BE ADJUSTED EITHER BEFORE OR AFTER PAVING, BUT THE FINAL GRADE OF THE FRAME MUST MATCH THAT OF THE PAVING WITHIN 1/4".
7. WHERE FRAME IS SET AFTER PAVING, EXPOSED CONCRETE SURFACES WILL NOT BE ALLOWED EXCEPT AS PERMITTED BY AGENCY ENGINEER IN WRITING.
8. COLLAR SHALL BE CLASS "B" (5 SACK) CONCRETE.
9. NO CONCRETE SHALL BE PLACED PRIOR TO FORM INSPECTION BY THE AGENCY ENGINEER.

UNIFORM STANDARDS ALL CITIES AND COUNTY OF MARIN	TYPE "A" MANHOLE (6" THROUGH 18" DIA. PIPE)	REV.	DATE	BY	MAY 2008 DWG. NO. 205

2 - MARIN COUNTY U.C.S. DWG 205 — NO SCALE



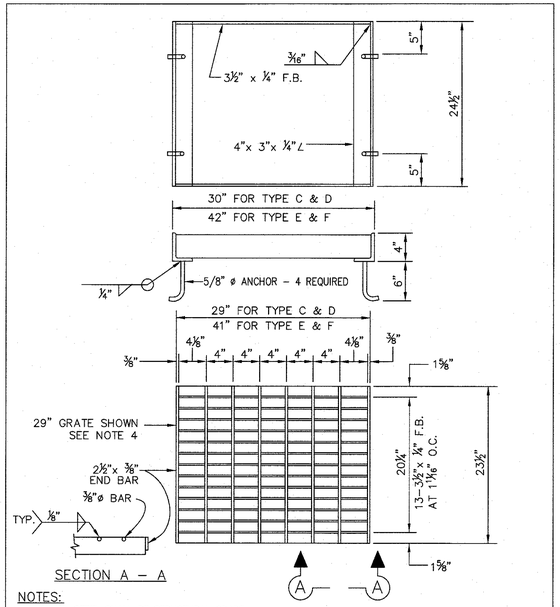
MANHOLE FRAME AND COVER

INSTALLED IN SIDEWALK	NON–SIDEWALK INSTALLATIONS
PHOENIX P–1067	PHOENIX P–1067; P–1090; P–1005
SOUTH BAY FOUNDRY SBF–1967	SOUTH BAY FOUNDRY SBF–1900–REG; SBF–1905
OR APPROVED EQUAL	OR APPROVED EQUAL

NOTE:
INSTALLATION OF STEPS SHALL BE AS REQUIRED BY AGENCY ENGINEER.
WHERE INSTALLED, STEPS SHALL BE STEEL REINFORCED POLYPROPYLENE PLASTIC. CENTRAL PRECAST CONCRETE CO. DWG. No. PS2–PF OR EQUIVALENT. STEPS TO BE CAST IN PLACE OR PRESS FITTED INTO PROVIDED HOLES AS PER MANUFACTURER. INSTALL STEPS WITH LOWEST RUNG 1'–0" ABOVE THE FLOOR AND HIGHEST RUNG NOT MORE THAN 6" BELOW TOP OF MANHOLE. THE SPACING BETWEEN STEPS SHALL NOT EXCEED 1'–0" AND SHALL BE UNIFORM THROUGHOUT THE LENGTH OF THE WALL. PLACE STEPS IN THE WALL WITHOUT A PIPE OPENING. NO STEPS REQUIRED WHERE HEIGHT FROM BOTTOM TO TOP OF MANHOLE IS LESS THAN 30".

UNIFORM STANDARDS ALL CITIES AND COUNTY OF MARIN	STEP & MANHOLE CASTING DETAIL (WHERE REQUIRED BY AGENCY ENGINEER)	REV.	DATE	BY	MAY 2008 DWG. NO. 215

3 - MARIN COUNTY U.C.S. DWG 215 — NO SCALE

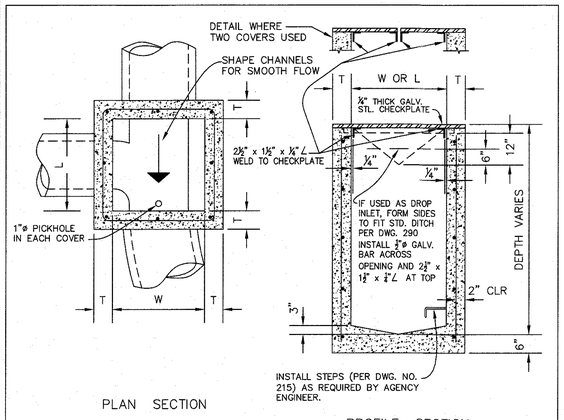


NOTES:

1. ALL STEEL SHALL BE STRUCTURAL GRADE.
2. ALL STEEL SHALL BE HOT DIPPED GALVANIZED AFTER FABRICATION.
3. TOP AND BOTTOM SURFACES OF GRATE SHALL BE GROUND FLUSH AFTER WELDING.
4. FOR 40" GRATE USE STATE STD. GRATE TYPE 24–9 OR 24–12.
5. FOR GRATES IN A PEDESTRIAN PATH OF TRAVEL, GRATE OPENINGS SHALL BE ½" PERPENDICULAR TO THE WALKING DIRECTION.

UNIFORM STANDARDS ALL CITIES AND COUNTY OF MARIN	CATCH BASIN GRATE DETAIL	REV.	DATE	BY	MAY 2008 DWG. NO. 220
		1	4/16/10	SAS	

4 - MARIN COUNTY U.C.S. DWG 220 — NO SCALE



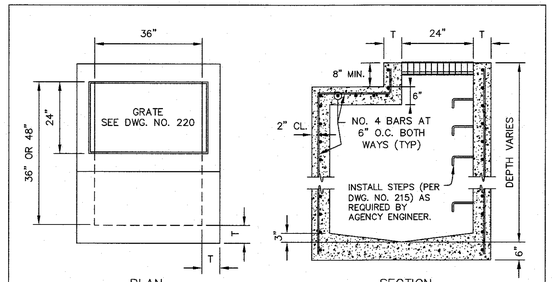
DEPTH	L	W	COVER(S)
LESS THAN 3'	24"	24"	1–36"x36"
3' TO 6'	36"	36"	2–24"x48"
OVER 6'	36"	48"	2–30"x48"

NOTES:

1. LENGTHS AND WIDTHS WILL VARY AS NECESSARY TO ACCOMMODATE SIZE AND ANGLES OF CONNECTING PIPES.
2. SEE DRAWING NO. 200 FOR GENERAL NOTES, WALL THICKNESS (T), REINFORCING AND STEP REQUIREMENTS.
3. SIDE ENTRY CONFIGURATION MAY BE MODIFIED TO ACCOMMODATE FIELD CONDITIONS WITH THE APPROVAL OF THE AGENCY ENGINEER.

UNIFORM STANDARDS ALL CITIES AND COUNTY OF MARIN	DROP INLET AND TURNING STRUCTURE	REV.	DATE	BY	MAY 2008 DWG. NO. 260

5 - MARIN COUNTY U.C.S. DWG 260 — NO SCALE



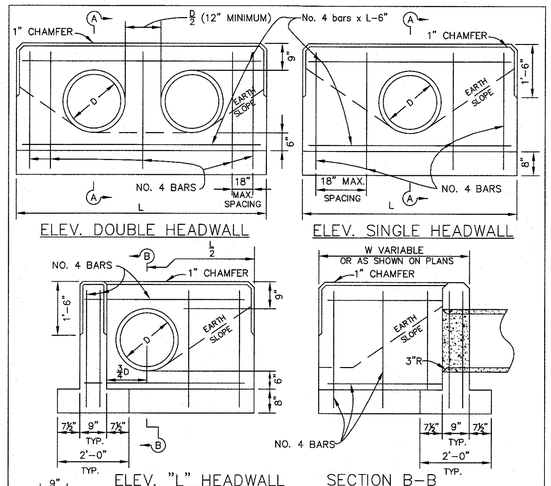
DEPTH	INSIDE DIMENSION	FRAME SIZE
LESS THAN 3'	24" X 24" OR 24" X 36"	24 1/2" X 30" OR 24 1/2" X 41"
5' TO 6'	36" X 36"	24 1/2" X 41"
OVER 6'	36" X 48"	24 1/2" X 41"

* REFER TO PLAN FOR SIZE.

NOTE: SEE DRAWING NO. 200 FOR GENERAL NOTES, WALL THICKNESS (T), REINFORCING AND STEP REQUIREMENTS.

UNIFORM STANDARDS ALL CITIES AND COUNTY OF MARIN	GRATED DROP INLET AND TURNING STRUCTURE	REV.	DATE	BY	MAY 2008 DWG. NO. 265

6 - MARIN COUNTY U.C.S. DWG 265 — NO SCALE



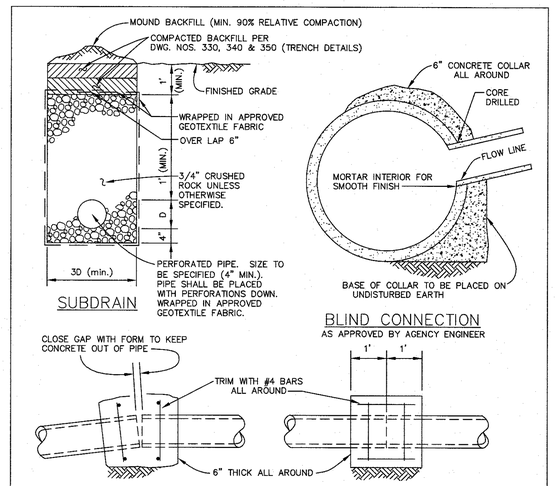
Pipe Dia "D"	L Single	L Double	L/2 "L"
12"	4'–0"	6'–0"	2'–0"
15"	5'–0"	7'–0"	2'–6"
18"	5'–6"	8'–0"	2'–9"
24"	7'–6"	10'–6"	3'–9"
30"	9'–0"	12'–9"	4'–6"
36"	10'–6"	15'–0"	5'–3"
42"	12'–0"	17'–3"	6'–0"
48"	14'–0"	20'–0"	7'–0"
54"	15'–6"	22'–3"	7'–9"

NOTES:

1. CONCRETE SHALL BE CLASS "A" (6 SACK MIX) UNLESS OTHERWISE NOTED.
2. FINISH ON EXPOSED SURFACES SHALL BE CLASS 1 FINISH PER SECTION 51 OF THE STATE STANDARD SPECIFICATIONS.
3. NO CONCRETE SHALL BE PLACED PRIOR TO FORM AND STEEL INPECTION BY THE AGENCY ENGINEER.

UNIFORM STANDARDS ALL CITIES AND COUNTY OF MARIN	TYPE "A" HEADWALL	REV.	DATE	BY	MAY 2008 DWG. NO. 275

7 - MARIN COUNTY U.C.S. DWG 275 — NO SCALE



NOTES:

1. PERFORATED PIPE SHALL BE SCH. 40 PVC, HDPE, OR APPROVED EQUAL.
2. ALL CONCRETE SHALL BE CLASS "B" (5 SACK MIX) UNLESS OTHERWISE NOTED.

UNIFORM STANDARDS ALL CITIES AND COUNTY OF MARIN	BLIND CONNECTION, CONCRETE COLLAR, & SUBDRAIN	REV.	DATE	BY	MAY 2008 DWG. NO. 295

8 - MARIN COUNTY U.C.S. DWG 295 — NO SCALE

REVISIONS / DATE

MARIN COUNTY UCS DETAILS

PROPOSED SINGLE FAMILY HOME
DESIGN REVIEW SUBMITTAL

PROJECT LOCATION / OWNER
VIKRUM AND GAGAN NIJJAR
THOMAS DRIVE, MILL VALLEY, CA
MARIN COUNTY: APN: 034-012-26

RESIDENTIAL DESIGN
LONE TREE RESIDENTIAL DESIGN
TONY RICHARDS
415-787-2164

GEOTECHNICAL ENGINEER
HERZOG GEOTECHNICAL
CRAIG HERZOG, PE., GE
MILL VALLEY, CA
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LAND SURVEYOR
MICHAEL FORD, P.L.S.
LAND SURVEYING
SANTA ROSA, CA
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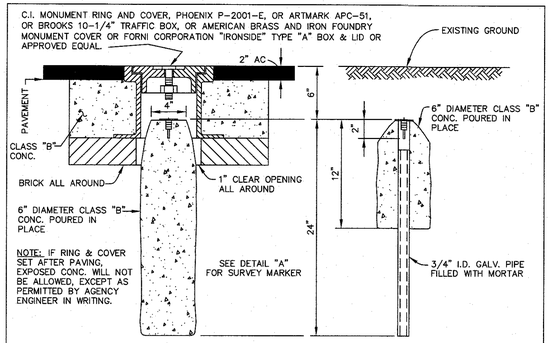
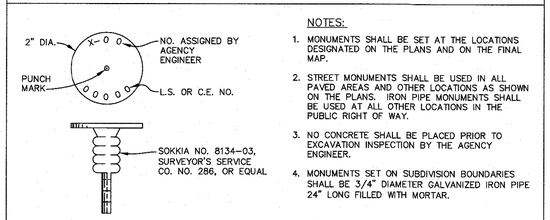
DATE 11 / 6 / 2019
SCALE AS NOTED
DRAWN JAZ
JOB 55 THOMAS DRIVE
SHEET C 21.0
OF 25 SHEETS



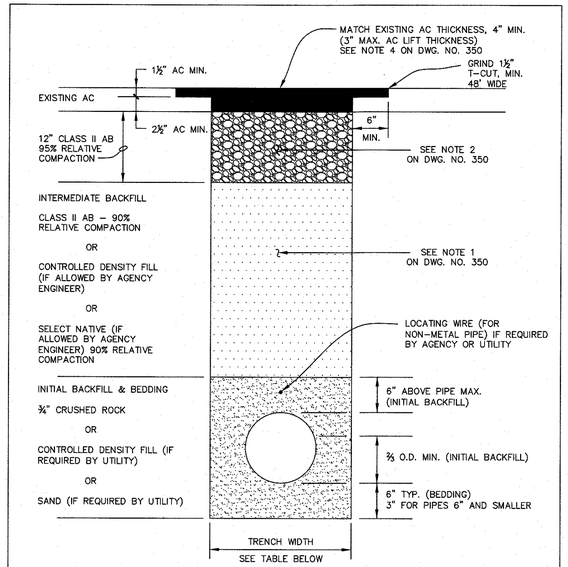


NOTES:

1. MONUMENTS SHALL BE SET AT THE LOCATIONS DESIGNATED ON THE PLANS AND ON THE FINAL MAP.
2. STREET MONUMENTS SHALL BE USED IN ALL PAVED AREAS AND OTHER LOCATIONS AS SHOWN ON THE PLANS. IRON PIPE MONUMENTS SHALL BE USED AT ALL OTHER LOCATIONS IN THE PUBLIC RIGHT OF WAY.
3. NO CONCRETE SHALL BE PLACED PRIOR TO EXCAVATION INSPECTION BY THE AGENCY ENGINEER.
4. MONUMENTS SET ON SUBDIVISION BOUNDARIES SHALL BE 3/4" DIAMETER GALVANIZED IRON PIPE 24" LONG FILLED WITH MORTAR.

UNIFORM STANDARDS ALL CITIES AND COUNTY OF MARIN	MONUMENTS	REV.	DATE	BY	MAY 2008 DWG. NO. 300

1 MARIN COUNTY U.C.S. DWG 300
NO SCALE



NOTE: IF ROADWAY HAS EXISTING AC OVER CONCRETE, TRENCH RESTORATION SHALL BE DETERMINED BY THE AGENCY ENGINEER.

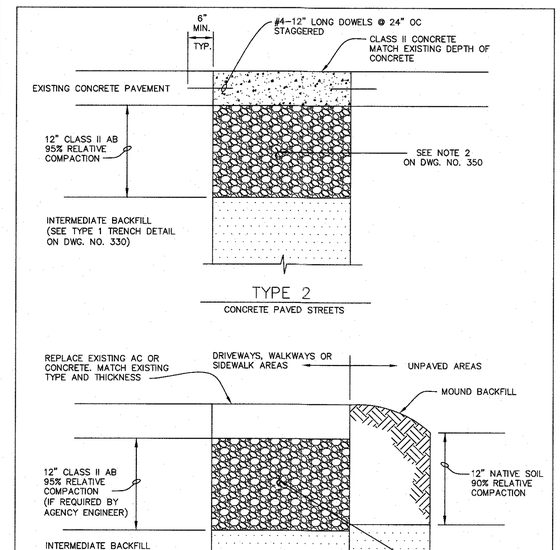
TYPE 1
ASPHALT CONCRETE PAVED STREETS

CONDUIT SIZE	LESS THAN 6"	6" TO 24"	OVER 24" TO 60"	OVER 60"
TRENCH WIDTH	O.D. + 12"	O.D. + 24"	O.D. + 24"	O.D. + 24"

FOR PIPES WITH MORE THAN 36" OF COVER, THE AGENCY ENGINEER MAY ALLOW A REDUCED TRENCH WIDTH INCLUDING A CHANGE TO A SELF-COMPACTING ENGINEERED TYPE OF INITIAL BACKFILL MATERIAL.

UNIFORM STANDARDS ALL CITIES AND COUNTY OF MARIN	TRENCH DETAILS SHEET 1 OF 3	REV.	DATE	BY	MAY 2008 DWG. NO. 330

2 MARIN COUNTY U.C.S. DWG 330
NO SCALE



NOTE: FOR TRENCHES IN UNPAVED SHOULDERS, TOP 12" SHALL BE CLASS II AB 95% RELATIVE COMPACTION.

TYPE 3
AREAS OTHER THAN STREETS IN THE PUBLIC RIGHT OF WAY

UNIFORM STANDARDS ALL CITIES AND COUNTY OF MARIN	STANDARD TRENCH BACKFILL & RESURFACING SHEET 2 OF 3	REV.	DATE	BY	MAY 2008 DWG. NO. 340

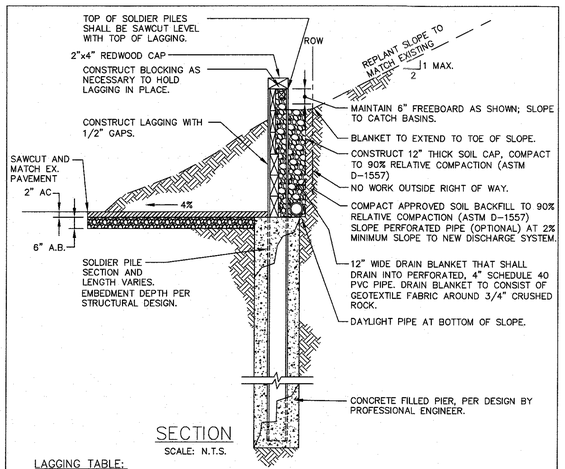
3 MARIN COUNTY U.C.S. DWG 340
NO SCALE

MATERIAL AND COMPACTION REQUIREMENT FOR TRENCH BACKFILL

1. INTERMEDIATE BACKFILL SHALL BE CLASS II AGGREGATE BASE. SUITABLE NATIVE OR IMPORTED GRANULAR MATERIAL MAY BE USED IF ALLOWED BY AGENCY ENGINEER. RELATIVE COMPACTION SHALL BE AT LEAST 90%.
2. CLASS II AGGREGATE BASE SHALL CONFORM TO THE STATE STANDARD SPECIFICATIONS. MINIMUM RELATIVE COMPACTION SHALL BE 95%. IF PAVEMENT HAVING A STRUCTURAL SECTION GREATER THAN 15" IS CUT, ADDITIONAL BASE MATERIAL MAY BE REQUIRED BY THE AGENCY ENGINEER. BASE SHALL BE PLACED AND COMPACTED PRIOR TO PLACING OF TEMPORARY PAVING.
3. TESTING OF MATERIALS AND PERFORMANCE SHALL BE IN CONFORMANCE WITH THE METHODS STATED IN THE LATEST EDITION OF THE STATE OF CALIFORNIA, DEPARTMENT OF TRANSPORTATION, STANDARD SPECIFICATIONS, EXCEPT THAT RELATIVE COMPACTION MAY BE TESTED BY AASHTO METHOD T180, ASTM D-1557, OR TEST METHOD CALIF. 231 (NUCLEAR DENSITOMETER).
4. PLACE AC IN 3" MAX, LIFTS, EXCEPT FINAL LIFT SHALL BE 2 1/2" MAX. ADDITIONAL THICKNESS AND LIFTS OF ASPHALT CONCRETE MAY BE REQUIRED TO MATCH EXISTING STRUCTURAL SECTION ON MAJOR ROADS, OR PER LOCAL JURISDICTION REQUIREMENTS.
5. "JETTING" OF BACKFILL MATERIAL IS NOT PERMITTED.
6. THE USE OF PEA GRAVEL (OR SIMILAR ROUNDED AGGREGATE), IS NOT PERMITTED.
7. THE USE OF CONTROLLED DENSITY FILL (CDF) SHALL BE APPROVED BY THE AGENCY ENGINEER PRIOR TO PLACEMENT.
8. TRENCH EDGES SHALL BE TRIMMED TO A NEAT LINE AS REQUIRED BY THE AGENCY ENGINEER. TRIMMING SHALL BE BY SAWCUT OR ROTARY GRINDER.
9. THE SURFACE COURSE OF TRENCH RESTORATION SHALL EXTEND TO THE LIP OF GUTTER IF THE EDGE OF TRENCH IS WITHIN 4' OF THE LIP OF GUTTER, AND TO THE EDGE OF PAVEMENT IF THE EDGE OF TRENCH IS WITHIN 4' OF AN UNPAVED SHOULDER.
10. CONTRACTOR MUST SHORE ALL TRENCHES IN CONFORMANCE WITH OSHA AND STATE SAFETY STANDARDS.

UNIFORM STANDARDS ALL CITIES AND COUNTY OF MARIN	TRENCH NOTES SHEET 3 OF 3	REV.	DATE	BY	MAY 2008 DWG. NO. 350

4 MARIN COUNTY U.C.S. DWG 350
NO SCALE



LAGGING TABLE:
FOR 3' DEPTH & LESS USE 2"x12" PRESSURE TREATED DOUGLAS FIR (PTDF).
FOR 3' TO 4' DEPTH USE 3"x12" PRESSURE TREATED DOUGLAS FIR (PTDF).
PRESSURE TREATMENT SHALL MEET THE FOLLOWING: 0.40 pcf ACQ & CCA-C, 0.41 pcf CBA-A, 0.21 pcf CA-B.

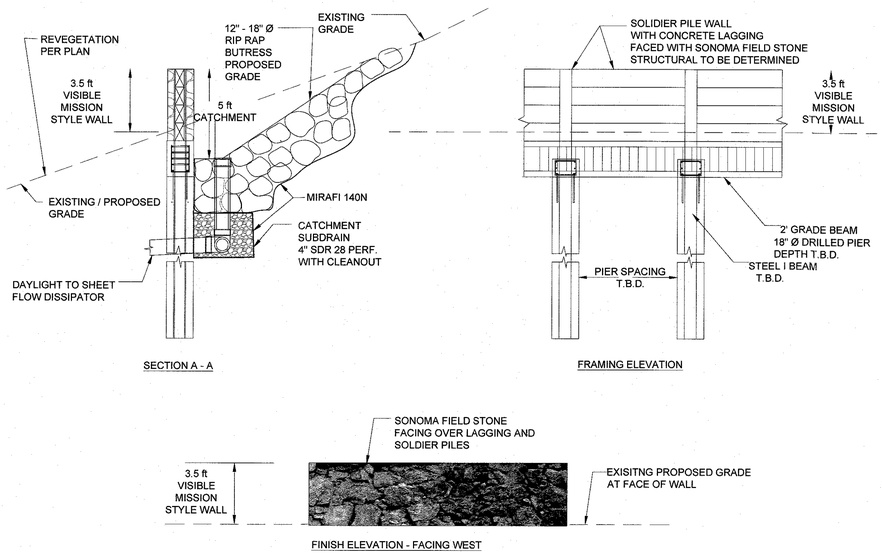
CORROSION PROTECTION:
ALL I-BEAMS SHALL BE COATED WITH COAL TAR EPOXY OR APPROVED EQUAL PER MFG. SPECIFICATIONS.

WALL HT.	PIER DEPTH (EMBEDMENT)	I-BEAM (GRADE 50)	LAGGING
4'	5'	W5 x 16	3" x 12"

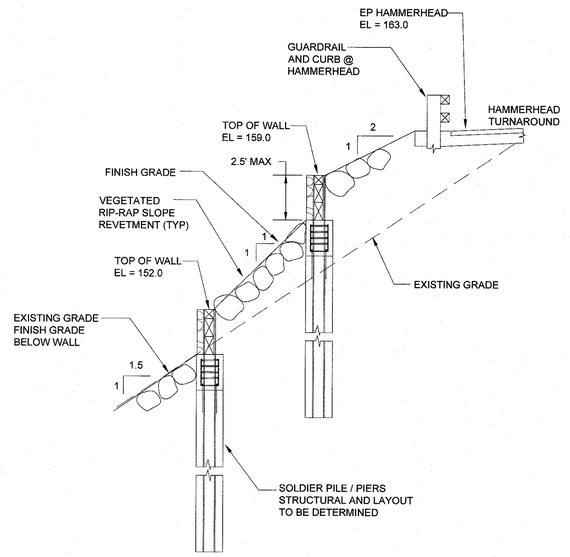
NOTE:
THE AGENCY ENGINEER MAY MODIFY THE ABOVE SCHEDULE.

UNIFORM STANDARDS ALL CITIES AND COUNTY OF MARIN	TYPICAL SOLDIER PILE WALL	REV.	DATE	BY	MAY 2008 DWG. NO. 165

5 MARIN COUNTY U.C.S. DWG 165
NO SCALE



6 CATCHMENT WALL AT SLOPE REPAIR
NO SCALE



7 STEPPED SOLDIER PILE WALL B-B
SCALE : 1 / 4" = 1'

REVISIONS / DATE

MARIN COUNTY UCS DETAILS / DETAILS

PROPOSED SINGLE FAMILY HOME
DESIGN REVIEW SUBMITTAL

PROJECT LOCATION / OWNER
VIKRUM AND GAGAN NIJJAR
THOMAS DRIVE, MILL VALLEY, CA
MARIN COUNTY: APN: 034-012-26

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LONE TREE
RESIDENTIAL DESIGN
TONY RICHARDS
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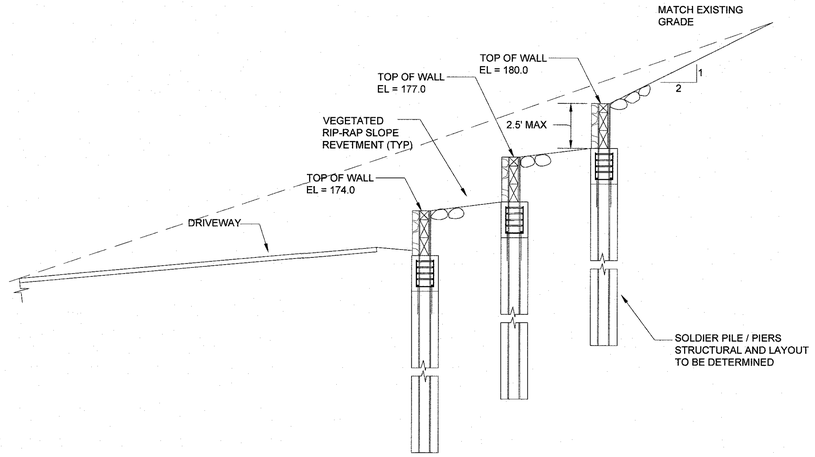
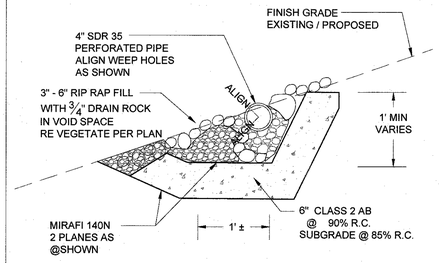
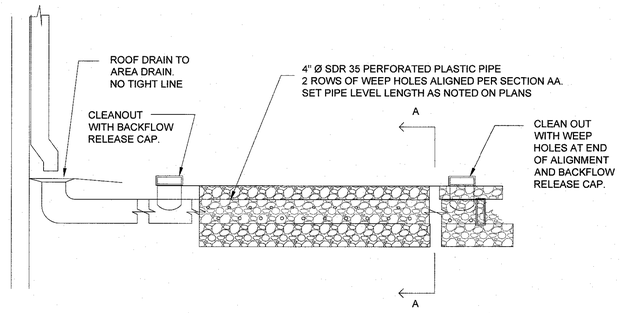
DATE 11 / 6 / 2019
SCALE AS NOTED
DRAWN JAZ
JOB 55 THOMAS DRIVE
SHEET C 22.0
OF 25 SHEETS



STEPPED SOLDIER PILE WALL A-A



SECTION A-A



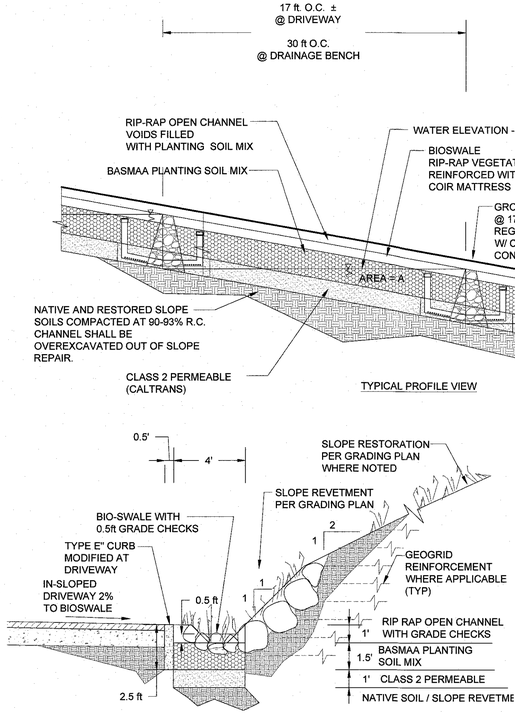
TYPICAL ELEVATION VIEW

GENERAL NOTES

1. FINAL LOCATONS AND LENGTHS OF SHEET FLOW SPREADERS SHALL BE DETERMINED AT FINAL CONSTRUCTION DOCUMENT PHASE OF THE PROJECT.
2. SHEET FLOW SPREADERS SHALL BE USED ON ALL ROOF DOWNDRAIN LEADERS, FOUNDATION DRAIN OUTLETS, AND GEOTECHNICAL SLOPE REPAIR SUBDRAINS ROUTED TO ADJACENT VEGETATED AREAS,
3. ALL SHEET FLOW SPREADERS SHALL BE PLACED LEVEL ON CONTOUR. ALL CLEANOUTS SHALL HAVE A BACKFLOW PREVENTION RELEASE CAP TO PREVENT BACKFLOW INTO THE DRAINAGE SYSTEMS.

2 - SHEET FLOW SPREADER

SCALE 1" = 1'



TYPICAL PROFILE VIEW

APPROXIMATE STORAGE VOLUME FOR BIOSWALE - EXCLUSIVE OF INFILTRATION - CONSERVATIVE

A = 25.8 ft²
W = 4'
V = 103 ft³
STORAGE VOLUME = 0.25 x 103 ft³ = 26 ft³
16.9 ft

STORAGE VOLUME PER 265 ft = 430 ft³ ok

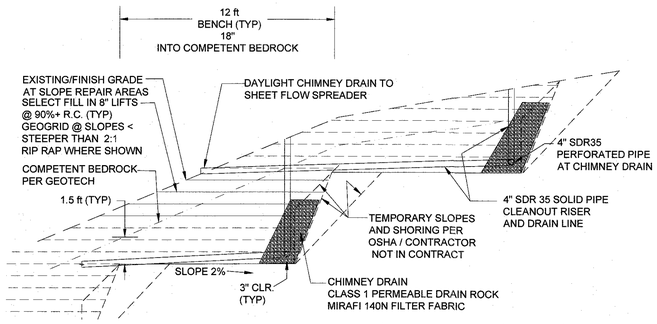
SECTION A-A

BIOSWALE GENERAL NOTES

1. PLANT MIX FROM APPROVED MATRIX AND STOCKPILED NATIVE SOILS. FINAL PLANT MIX WILL TO BE DETERMINED AT THE CONSTRUCTION DOCUMENT PHASE OF THE PROJECT.
2. RED WILLOW WATTLES TO BE PLACED ALONG BIOSWALE AT 5ft ON CENTER, STAGGERED SIDES.
3. BIOSWALE TO BE IRRIGATED TO ASSIST IN PROPAGATION OF VEGETATION AND SEED MIX(S) AHEAD OF RAINY SEASON.
4. BASMAA SPECIAL PLANT BLEND SOIL IS THEORETICALLY 60-70% SAND, 30-40% COMPOST. THE FINAL BLEND OF AGGREGATES AND ORGANIC COMPOSTS WILL BE DETERMINED AND WILL BE BASED UPON THE HYDRAULIC, GEOTECHNICAL AND BOTANICAL CONSTRAINTS.
5. HOT COMPOSTS WILL NOT BE ALLOWED. ALL COMPOSTS SHALL BE TESTED AND APPROVED PRIOR TO ACCEPTANCE. THE FINAL RATIO OF THE BLEND WILL BE DETERMINED WHEN THE FINAL PLANT PALETTE IS ENGINEERED.
6. BIOSWALE SHALL BE OVER EXCAVATED OUT OF FINISH GRADES OF ROADWAY SUB GRADE.
7. SUB GRADE TREATMENT MAY BE REQUIRED AS DIRECTED BY THE GEOTECHNICAL ENGINEER TO CONTROL INFILTRATION RATES. THE SYSTEM HAS BEEN SIZED TO ACHIEVE STORMWATER STORAGE WITHOUT THE NEED FOR INFILTRATION.

3 - BIOSWALE- W/GRADE CHECKS @ DRIVEWAY

NO SCALE

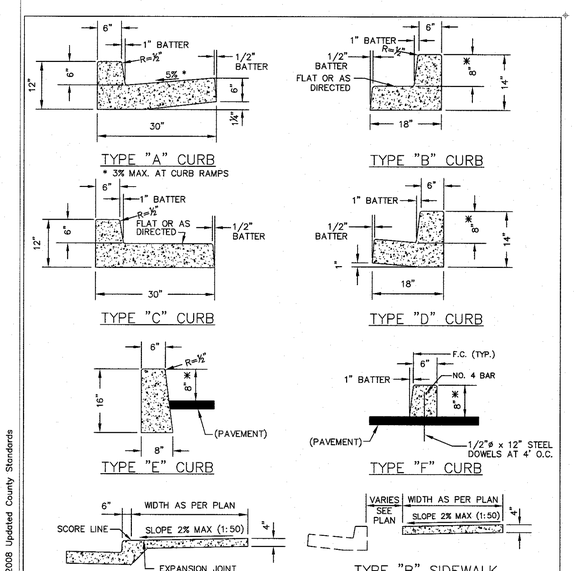


SLOPE RESTORATION AND EXCAVATION GENERAL NOTES:

1. FINAL ENGINEERING DESIGN FOR SLOPE REPAIR, CATCHMENTS, REVETMENTS SHALL BE AT THE CONSTRUCTION DOCUMENT PHASE OF THE PROJECT, AND SHALL BE CONSISTENT WITH HERZOG GEOTECHNICAL INVESTIGATION REPORT AND REQUIREMENTS.
2. SLIDE REPAIRS SHALL EXTEND A MINIMUM OF 30 FEET UPSLOPE OF THE PROPOSED DRIVEWAY
3. FINSIH SLOPES GREATER THAN 2:1 (H:V) SHALL BE REINFORCED WITH GEOGRID, RIP-RAP OR RETAINING WALLS.
4. KEYWAYS FOR SLOPE REPAIRS SHALL EXTEND A MINIMUM OF 18" INCHES INTO COMPETENT BEDROCK, AND BE AT LEAST 12 FEET WIDE. ALL BENCHES SHALL BE SLOPED TO THE DRAINS @ 2%
5. ALL NATIVE FILL MATERIAL SHALL BE APPROVED BY HERZOG GEOTECHNICAL PRIOR TO USE OR PLACEMENT. ALL IMPORTED STRUCTURAL FILL SHALL BE APPROVED BY HERZOG GEOTECHNICAL PRIOR TO IMPORT.
6. ADDITIONAL REQUIREMENTS FOR FIELD REVIEW AS WELL AS THE PROPOSED ENGINEERING DESIN PARAMETERS AS OUTLINED IN THE HERZOG GEOTECHNICAL REPORT WILL BE INCORPORATED INTO THE FINAL ENGINEERING DESIGNS.
7. FINAL EARTHWORK MAY VARY DUE TO LOCALIZED VARIATIONS IN THE SUBSURFACE CONDITIONS ENCOUNTERED ONSITE. VOLUMES PRESENTED REPRESENT THE BEST AVAILABLE INFORMATION AT THIS TIME.
8. ALL SUBDRAINAGE PIPES SHALL DAYLIGHT TO THE BIOSWALE OR SHEETING FLOW SPREADERS AS NOTED ON THE PLANS OR DETERMINED IN THE FIELD.
9. ALL TEMPORARY SLOPES PER OSHA AND CAL OSHA STANDARDS BY THE CONTRACTOR. SHORING PLANS ARE NOT A PART OF THIS CONTRACT.
10. ALL SECTIONS AND GENERAL DETAILS SHOWN ON THESE PLANS ARE SCHEMATIC ONLY AND FOR PLANNING PURPOSES ONLY. NOT FOR CONSTRUCTION.

4 - SLOPE RESTORATION - TYPICAL

NO SCALE



NOTES:

1. SEE DRAWING NO. 100 FOR GENERAL REQUIREMENTS.
2. * 8" CURB HEIGHT UNLESS 6" HEIGHT APPROVED BY AGENCY ENGINEER.

M:\Standards\County Standards (UCS)\2008 Updated County Standards

UNIFORM STANDARDS ALL CITIES AND COUNTY OF MARIN	CURB, GUTTER AND SIDEWALK DETAILS	REV.	DATE	BY	MAY 2008 DWG. NO. 105

5 - MARIN COUNTY U.C.S. DWG 105

NO SCALE

REVISIONS / DATE

MARIN COUNTY UCS DETAILS / DETAILS

PROPOSED SINGLE FAMILY HOME
DESIGN REVIEW SUBMITTAL

PROJECT LOCATION / OWNER
VIKRUM AND GAGAN NIJJAR
THOMAS DRIVE, MILL VALLEY, CA
MARIN COUNTY: APN: 034-012-26

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DATE 11 / 6 / 2019
SCALE AS NOTED
DRAWN JAZ
JOB 55 THOMAS DRIVE
SHEET C23.0
OF 25 SHEETS

Scientific name	Common name	Plant Categories	Light Preference			Size (feet)		Watering				Tolerances					High Performers		CA Native	Notes
			Sun	Part	Shade	Ht.	Width	L	M	H	Summer	Heat	Coast	Wind	Zone 1	Zone 2	Best for irrigated sites	Best for non-irrigated sites		
Agrostis exerata	Spike bentgrass	*Grasses and Grass-like Plants*	✓	✓		1	1.25		✓	✓	✓		✓		✓	✓				Moist sand dunes ;adapts to shady woodlands from San Diego to Sonoma County
Bouteloua gracilis	blue grama	*Grasses and Grass-like Plants*	✓			1.5	1	✓				✓		✓		✓				Tolerates no summer water, good for non-irrigated remote sites. AKA= Mosquito Grass
Bromus carinatus	California brome	*Grasses and Grass-like Plants*	✓			2	1	✓			ok	✓		✓		✓			✓	Good for erosion control ; not a good meadow grass
Carex barbarea	Santa Barbara sedge	*Grasses and Grass-like Plants*	✓	✓		3	2	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	Stays green w/ summer H20, moist to drought tolerant, spreading large statured sedge
Carex divulsa	grassland sedge	*Grasses and Grass-like Plants*	✓	✓	✓	1	1		✓		ok		✓		✓	✓	✓			Widely sold in CA as Carex tumulicola (Berkeley sedge). Native to Eurasia. Full sun along coast. Tolerates drought once established. Needs regular water in sun
Carex nudata	California black sedge	*Grasses and Grass-like Plants*	✓	✓		2	2	✓	✓		✓	✓			✓	✓			✓	Turns orange in frost, showy black flower spikes
Carex obnupta	slough sedge	*Grasses and Grass-like Plants*	✓	✓		2	1		✓	✓	✓		✓	✓	✓				✓	Some salt tolerance, drought tolerant once established. Thick, graceful, bright green stands in wetlands.
Carex pansa	dune sedge	*Grasses and Grass-like Plants*	✓	✓		2	2		✓		✓	✓	✓	✓	✓	✓	✓		✓	Native to Asilomar; Plug not seed planting; mow end of summer if desired.
Carex praegracilis	clustered field sedge	*Grasses and Grass-like Plants*	✓	✓		1.5	1.5		✓	✓	✓		✓	✓	✓	✓			✓	Lawn alternative, tolerates some foot traffic, summer dormant in warmer areas
Chondropetalum tectorum	small cape rush	*Grasses and Grass-like Plants*	✓	✓		4	3			✓	✓	✓	✓		✓	✓				Native to S. Africa, drought tolerant
Danthonia californica	California oat grass	*Grasses and Grass-like Plants*	✓	✓		1.5	1.5		✓		✓		✓		✓	✓			✓	Bunch grass, recommend plugs not seed.to start, tolerates some foot traffic
Distichlis spicata	salt grass	*Grasses and Grass-like Plants*	✓			0.3	3		✓	✓	✓	✓	✓	✓	✓	✓			✓	Looks like bermuda grass, withstands foot traffic, for soils with high salt
Festuca californica	California fescue	*Grasses and Grass-like Plants*	✓	✓	✓	2	2	✓			ok	✓	✓						✓	Use only in driest areas of basin
Festuca idahoensis	Idaho fescue	*Grasses and Grass-like Plants*	✓	✓		1	1	✓	✓		ok	✓	✓	✓		✓			✓	Can mow. Needs light summer water at hot sites
Festuca rubra	red fescue	*Grasses and Grass-like Plants*	✓	✓		1	1.5		✓	✓	ok	✓	✓	✓		✓			✓	Can mow. Lawn alternative; Water conservation LDS; Bio Strips; Infiltration basins
Festuca rubra 'molate'	molate fescue	*Grasses and Grass-like Plants*	✓	✓		1	1.5	✓	✓		ok	✓	✓	✓		✓			✓	Can mow. Lawn alternative
Juncus effusus	common rush	*Grasses and Grass-like Plants*	✓	✓		2.5	2.5		✓		ok		✓	✓	✓	✓	✓		✓	Forms dense clumps
Juncus pallidus	giant rush	*Grasses and Grass-like Plants*	✓			4	2	✓			ok	✓	✓	✓	✓	✓	✓			Evergreen, heat and drought tolerant.
Juncus patens	blue rush	*Grasses and Grass-like Plants*	✓			2	1		✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	Plant from plugs; Irrigate occasionally summer
Leymus triticoides	creeping wildrye	*Grasses and Grass-like Plants*	✓	✓		3	1	✓	✓		ok	✓	✓	✓	✓	✓			✓	Can mow 4 x yr.. Sub-surface H20 best. Can be aggressive in moist areas.
Muhlenbergia rigens	deergrass	*Grasses and Grass-like Plants*	✓			3	3	✓	✓		ok								✓	Evergreen, forms mounds.
Sisyrinchium bellum	blue eyed grass	*Grasses and Grass-like Plants*	✓	✓		1	1		✓		ok		✓	✓		✓	✓		✓	Needs occasional summer water, tolerates some foot traffic
Achillea millefolium	common yarrow	*Herbaceous Perennials and Groundcovers*	✓			1.5	1	✓			ok	✓			✓	✓	✓	✓	✓	Good for hot sites. Tolerates mowing, and can be used in a lawn replacement mix.
Artemisia douglasiana	mugwort	*Herbaceous Perennials and Groundcovers*	✓	✓	✓	3	3	✓	✓		ok	✓	✓	✓	✓	✓	✓	✓	✓	Rhizomatous
Artemisia ludoviciana	white sagebrush	*Herbaceous Perennials and Groundcovers*	✓	✓	✓	1.5	2	✓	✓		✓	✓	✓		✓	✓	✓	✓	✓	Aromatic. Tolerates foot traffic and wide range of conditions
Asclepias fascicularis	narrowleaf milkweed	*Herbaceous Perennials and Groundcovers*	✓			3	2	✓	✓		ok	✓	✓		✓	✓	✓	✓	✓	Monarch butterfly host plant, deciduous
Darmera peltata	Indian rhubarb	*Herbaceous Perennials and Groundcovers*		✓	✓	3	5			✓	✓								✓	Prefers cool summers. Native to N CA, S OR; found on stream banks and in woodlands.
Epilobium canum	California fuchsia	*Herbaceous Perennials and Groundcovers*	✓	✓		1	4	✓			ok	✓				✓			✓	dormant in winter, best with winter mowing
Epipactis gigantea	stream orchid	*Herbaceous Perennials and Groundcovers*	✓	✓	✓	3	1.5		✓	✓			✓		✓	✓			✓	Goes dormant with drought, salt tolerant
Fragaria chiloensis	beach strawberry	*Herbaceous Perennials and Groundcovers*	✓	✓	✓	0.3	2	✓	✓		ok		✓	✓					✓	Evergreen groundcover, performs well as filler at the upper edges of facility.
Heuchera micrantha	alum root	*Herbaceous Perennials and Groundcovers*		✓	✓	2	1.5	✓	✓		✓			✓		✓			✓	Dainty white flowers
Heuchera pilosissima	hairy alum root	*Herbaceous Perennials and Groundcovers*		✓	✓	1.5	1.5	✓	✓		✓		✓			✓			✓	Tolerates sand, best at basin edges
Iris douglasiana	Douglas iris	*Herbaceous Perennials and Groundcovers*	✓	✓		1.5	2	✓	✓		ok	✓	✓	✓		✓	✓		✓	Also, iris hybrids
Lilium pardalinum	leopard lily	*Herbaceous Perennials and Groundcovers*	✓	✓		6	4	✓	✓				✓		✓	✓			✓	Native to dry summer areas, deciduous
Lobelia cardinalis	cardinal flower	*Herbaceous Perennials and Groundcovers*		✓	✓	2	2		✓			✓		✓		✓			✓	Not drought tolerant, requires regular water
Lotus scoparius	deerweed	*Herbaceous Perennials and Groundcovers*	✓			4	3	✓				✓				✓			✓	Short-lived, nitrogen fixer
Mimulus aurantiacus	common monkeyflower	*Herbaceous Perennials and Groundcovers*	✓	✓		3	3	✓			ok	✓				✓			✓	Drought tolerant, stress deciduous
Mimulus cardinalis	scarlet monkeyflower	*Herbaceous Perennials and Groundcovers*	✓	✓	✓	3	3		✓	✓	✓	✓				✓			✓	Aggressive seeder, needs summer water
Mimulus guttatus	seep monkeyflower	*Herbaceous Perennials and Groundcovers*	✓	✓		3	3		✓	✓	✓	✓	✓	✓	✓	✓			✓	Attracts Bees, stress deciduous, needs summer water
Mirabilis multiflora	Giant four o'clock	*Herbaceous Perennials and Groundcovers*		✓	✓	2	4	✓			✓	✓				✓			✓	Best for hot sites, native to Southern California
Oenothera hookeri	Hooker's evening primrose	*Herbaceous Perennials and Groundcovers*	✓	✓		3	2	✓			ok	✓			✓	✓	✓	✓	✓	Easy to establish biennial, self seeds
Polypodium californicum	California Polypody fern	*Herbaceous Perennials and Groundcovers*		✓	✓	2	2	✓			✓		✓							Summer dormant except at coast, spreads slowly by rhizomes, frost tender
Prunella vulgaris	self heal	*Herbaceous Perennials and Groundcovers*	✓	✓		0.5	2	✓	✓		ok		✓	✓	✓	✓			✓	Somewhat drought tolerant, long flowering
Rudebeckia californica	California coneflower	*Herbaceous Perennials and Groundcovers*	✓			3	2	✓	✓		ok	✓			✓	✓			✓	Native to dry summer areas, deciduous
Scaevola 'mauve clusters'	fan flower	*Herbaceous Perennials and Groundcovers*	✓	✓		1	4	✓				✓		✓		✓				Native to Australia, sensitive to frost
Scutellaria austinae	skullcap	*Herbaceous Perennials and Groundcovers*	✓			1	2	✓	✓		✓	✓		✓					✓	Dies back in drought
Sisyrinchium californicum	yellow eyed grass	*Herbaceous Perennials and Groundcovers*	✓	✓		1	1		✓		✓		✓	✓	✓	✓			✓	Can be drought tolerant
Verbena lasiostachys	Western vervain	*Herbaceous Perennials and Groundcovers*	✓	✓		2	2	✓			ok	✓			✓	✓	✓	✓	✓	Attracts butterflies, can be weedy pioneer species
Verbena lilacina	Cedros Island verbena	*Herbaceous Perennials and Groundcovers*	✓	✓		2	4	✓			ok	✓	✓			✓				Drought tolerant, best with minimal irrigation; native to Baja CA
Alyogyne huegelii	blue hibiscus	*Shrubs*	✓			8	7	✓				✓				✓				Very low water after second year, Sunset zones 15-17 & 20-24, prune to encourage flowering
Baccharis pilularis consanguinea	bush baccharis	*Shrubs*	✓			6	6	✓	✓		ok	✓	✓	✓	✓	✓	✓	✓	✓	Fast-growing, somewhat short-lived; deer proof
Calycanthus occidentalis	western spicebush	*Shrubs*	✓	✓		8	8	✓			✓		✓		✓	✓			✓	Deer resistant, deciduous. Bright green leaves, good for hedgerow/screen. Riparian areas.
Carpenteria californica	bush anemone	*Shrubs*	✓	✓		6	4	✓	✓		ü	✓			✓	✓			ü	Interior climate with occasional water,otherwise low water needs
Cornus sericea	redtwig dogwood	*Shrubs*	✓	✓		5	4	✓			✓	✓	✓		✓	✓			✓	Deciduous, red stems for winter color, best with afternoon shade. Can cut to ground to maintain small size and red stems.
Erigeron glaucus	seaside daisy	*Shrubs*	✓			1	1.5				ok		✓	✓		✓			✓	Not good for dusty sites
Lonicera hispidula	California honeysuckle	*Shrubs*	✓	✓	✓	4	2		✓	✓	✓		✓			✓			✓	Climbing vine-like. Best in part shade. Attracts birds
Lonicera involucrata	twinberry honeysuckle	*Shrubs*	✓	✓	✓	6	3		✓	✓	✓		✓			✓			✓	Needs good drainage. Best in part shade. Attracts birds
Mahonia pinnata	California holly grape	*Shrubs*	✓	✓	✓	4	4	✓	✓			✓		✓	✓	✓			✓	Slow but easy to grow
Physocarpus capitatus	pacific ninebark	*Shrubs*	✓	✓		8	8	✓	✓	✓	✓	✓	✓		✓	✓			✓	Part shade and summer water required in hot locations
Rhamnus californica	California coffeeberry	*Shrubs*	✓	✓		12	8	✓			✓	✓		✓		✓	✓	✓	✓	'Eve Case' is compact with broad foliage. Syn. *Frangula californica*
Rhamnus crocea	redberry	*Shrubs*	✓	✓	✓	5	5	✓				✓	✓	✓		✓			✓	Pea sized fruits attract birds, stain concrete
Rhododendron occidentale	western azalea	*Shrubs*	✓	✓	✓	8	8		✓	✓	✓		✓		✓	✓			✓	Summer deciduous
Ribes aureum gracillimum	golden current	*Shrubs*	✓	✓		4	3	✓	✓	✓	ok	✓	✓		✓	✓			✓	Easy, fall color, deciduous
Ribes divericatum	coast black gooseberry	*Shrubs*		✓	✓	5	5	✓	✓		ok		✓	✓		✓			✓	Thorny, good for discouraging entry, deciduous
Ribes sanguineum	red flowering currant	*Shrubs*		✓	✓	5	5	✓	✓		✓		✓	✓	✓	✓	✓		✓	Needs good air movement to avoid white fly, more drought tolerant at coast
Ribes speciosum	fuchsia-flowered gooseberry	*Shrubs*	✓	✓	✓	4	4	✓	✓			✓	✓			✓			✓	Prefers only light summer water after 2nd year, stress deciduous
Rosa californica	California wild rose	*Shrubs*		✓		3	6		✓	✓	ok	✓	✓	✓	✓	✓	✓		✓	Hooked thorns, good for discouraging entry. Shade in interior, sun at coast
Rosa gymnocarpa	wood rose	*Shrubs*	✓	✓	✓	2	3		✓		ok	✓	✓			✓	✓		✓	Easy to grow, thorny
Rubus parviflorus	thimbleberry	*Shrubs*	✓	✓		8	5			✓	✓		✓		✓	✓			✓	Spreads readily in wet areas, prefers regular water
Rubus spectabilis	salmonberry	*Shrubs*		✓	✓	8	5		✓	✓	✓		✓	✓	✓	✓			✓	deciduous, soft spiny stems
Rubus ursinus	California blackberry	*Shrubs*		✓	✓	3	5		✓	✓	ok	✓	✓	✓	✓	✓			✓	Thorny, good for discouraging entry. Harbors beneficial insects
Symphoricarpos albus	common snowberry	*Shrubs*	✓	✓	✓	4	4	✓	✓	✓	ok	✓				✓	✓		✓	Adaptable to many conditions, try *Sympholcarpos mollis* at coast
Whipplea modesta	whipplevine	*Shrubs*		✓	✓	0.5	3		✓	✓	✓			✓		✓			✓	Best for moist shady spots near coast
Acer circinatum	vine maple	*Small Trees*		✓	✓	20	10		✓	✓	✓					✓			✓	In wide riparian areas; top of slope. Avoid hot inland climates and coastal conditions/salt spray.
Baccharis viminea	seep-willow	*Small Trees*	✓			8	5	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	Important plant for butterflies and beneficial insects.
Chilopsis linearis	desert-willow	*Small Trees*	✓			15	15		✓		✓	✓			✓	✓	✓		✓	Does best inland
Corylus cornuta v. californica	California hazel	*Small Trees*		✓	✓	10	10		✓				✓		✓	✓			✓	Deciduous, edible nut
Fraxinus dipetala	California ash	*Small Trees*	✓	✓		20	20				ok	✓			✓	✓	✓		✓	drought tolerant, slow to establish, then fast
Garrya elliptica	coast silktassel	*Small Trees*	✓	✓		12	12	✓	✓		ok	✓	✓	✓		✓			✓	Winter blooms. 'Evie' is compact variety. Best at coast. Afternoon shade inland, deer resistant
Heteromeles arbutifolia	toyon	*Small Trees*	✓	✓	✓	8	5	✓	✓		✓	✓	✓		✓				✓	Doesn't respond well to pruning low branches, no summer water at coast
Laurus nobilis 'Saratoga'	Grecian bay	*Small Trees*	✓	✓		20	20	✓					✓	✓		✓				Specify 'standard' and prune for tree form; easy
Myrica californica	Pacific wax myrtle	*Small Trees*	✓	✓	✓	25	12	✓	✓					✓	✓		✓		✓	Best at coast
Sambucus mexicana	elderberry	*Small Trees*	✓	✓		20	15	✓	✓					✓	✓	✓	✓		✓	Deciduous, edible fruit, attracts bees and birds, unripe fruits are poisonous but useful and common landscape plant
Acer negundo	box elder	*Trees*	✓	✓	✓	35	35	✓	✓		ok	✓	✓	✓	✓	✓	✓		✓	Tough shade tree, deciduous
Fraxinus latifolia	Oregon ash	*Trees*	✓	✓	✓	70	40			✓	✓		✓		✓	✓			✓	Plant in moist areas with rich soil.
Fraxinus velutina	velvet ash	*Trees*	✓			30	45	✓	✓		ok	✓		✓		✓	✓			Withstands poor drainage and drought
Pittosporum eugenioides	tarata	*Trees*	✓	✓		40	15	✓	✓		✓	✓		✓		✓				Shear to control height
Platanus acerifolia	London plane tree	*Trees*	✓	✓		80	30		✓			✓				✓				Large tree, aggressive roots will lift pavement
Platanus racemosa	California sycamore	*Trees*	✓	✓		80	30		✓	✓	ok	✓				✓			✓	Asymmetrical shape and wide trunk when mature. Give lots of room.
Populus fremontii	cottonwood	*Trees*	✓	✓		80	30		✓			✓				✓			✓	Riparian species with limited drought tolerance. Aggressive roots will lift pavement. Give lots of room.
Quercus agrifolia	coast live oak	*Trees*	✓	✓		60	60	✓				✓	✓	✓		✓			✓	Large evelgreen tree, tolerant and widespread, important for wildlife, no summer water
Vitis californica	California grape	*Vine*	✓	✓		10	1-3	✓	✓		✓	✓	✓	✓	✓	✓			✓	Climbing vine. Best in full sun. Can be aggressive in moist area.

1 - BASMAA BIO-RETENTION (BIOSWALE) FACILITY PLANT MATRIX

NO SCALE

Plant Categories	
Grasses and Grass-like Plants	Grass refer to those species that are monocotyledonous plants with slender-leaved herbage.
Herbaceous Perennials and Groundcovers	Herbaceous refers to those species with soft upper growth rather than woody growth. Some species will die back to the roots at the end of the growing season and grow again at the start of the next season. This list only includes those that are perennial, i.e. live for several years.
Shrubs	Shrub is a horticultural distinction that refers to those species of woody plants which are distinguished from trees by their multiple stems and lower height. A large number of plants can be either shrubs or trees, depending on the growing conditions they experience.
Small Tree	Small trees refers to those species of woody plants with one main trunk and a distinct and elevated head with a maximum size of 25' tall and wide.
Tree	Tree refers to those species of woody plants with one main trunk and a rather distinct and elevated head with a size greater than 25' tall or wide.
Water Preference	
Water Preference-Low/Moderate/High	We have provided recommendations for irrigation. All plants should be watered with more frequency during the first two years after planting. After this establishment period, Low water use plants will only need supplemental irrigation at the hottest and driest sites. Plants with Moderate irrigation needs will be best with occasional supplemental water (once per week to once per month) and plants with High irrigation needs will be best with more frequent watering especially during periods of drought in the cooler seasons.
Water Preference-Summer Irrigation	Plants with a check in this column will not withstand a long period of summer drought without irrigation. Plants with an 'ok' in this column are tolerant of, but do not require, frequent summer irrigation. Plants with nothing in this column may not tolerate summer irrigation after establishment.
Stress Tolerance	
Tolerates Heat	A check in the heat column indicates that the plant will tolerate hot sites. It should not be confused with a plants preference for sun. Absence of the check indicates it should only be used in areas close to the Bay or other cool sites.
Tolerates Coast	The coast column indicates plants that perform well within 1,000 feet of the ocean or bay. Most of these plants tolerate some amount of salt air, fog, and wind.
Tolerates Wind	A check in the wind column means that the plant will tolerate winds of ten miles per hour or more.
Zone 1	Plants that tolerate Zone 1 are common riparian, wetland and bog plants capable of surviving in saturated soils for long durations throughout the year. Most of these plants are not drought tolerant and require some water throughout the growing season.
Zone 2	Plants that tolerate Zone 2 are common in riparian/upland transition areas, moist woodlands, and seasonal wetlands. They are capable of surviving in saturated soils for shorter durations especially in the winter or spring. Many of these plants tolerate summer drought but could benefit from some year-round moisture.
High Performers	
Best for irrigated sites	These plants have been used successfully in irrigated bioretention areas in the Bay Area.
Best for non-irrigated sites	These plants have been used successfully in non-irrigated bioretention areas in the Bay Area. Temporary irrigation for establishment is highly recommended.
Origin	
CA Native	Indicates native or cultivar of California native. Cultivars offer habitat benefits to native wildlife and are adopted to the local climate but have reduced genetic diversity.

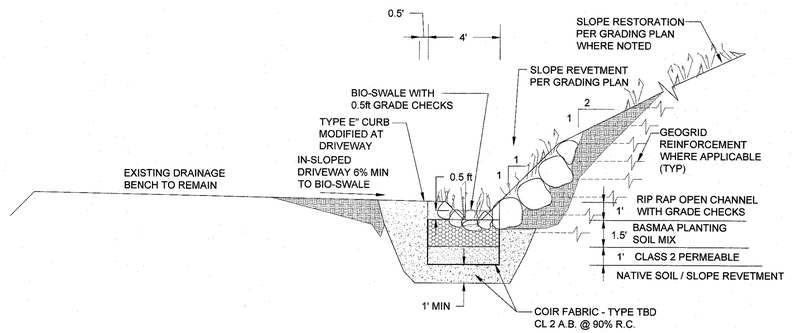
BASMAA BIO-RETENTION FACILITY PLANT MATRIX KEY

BIORETENTION REVEGETATION GENERAL NOTES

1. SPECIFIC PLANT MIX FOR BIOSWALES REVEGETATION WILL BE SPECIFIED AT THE CONSTRUCTION DOCUMENT PLAN PHASE OF THE PROJECT. THE REFERENCED BIORETENTION PLANT MATRIX PALETTE ATTACHED FROM THE BASMAA DOCUMENTS WILL ASSIST AND GUIDE THE FINAL PLANT SELECTION AS WILL THE BIOLOGICAL REPORT AND THE FINAL LANDSCAPING PLANS.

2. COORDINATION AND APPROVAL WITH SOUTHERN MARIN FIRE WILL BE NECESSARY PRIOR TO SPECIFYING ALL FINAL RE-VEGETATION PLANT MIX PALETTES BALANCING FIRE PREVENTION, SITE CHARACTERISTICS, SLOPE AND CHANNEL CHARACTERISTICS AND HYDRAULIC REQUIREMENTS, AND THE AESTHETIC GOALS OF THE OWNER AND ARCHITECT.

3. STOCKPILED NATIVE SOILS WITH ENDEMIC NATIVE SEED/PLANT STOCK WILL BE USED WITH ALL RE-VEGETATION AND SOIL RESTORATION PLANS TO AUGMENT ALL SPECIFIED PLANT PALETTES.



2 - BIOSWALE AT EXISTING DRAINAGE BENCH

NO SCALE

REVISIONS / DATE

BIORETENTION REVEGETATION PLANT MATRIX

PROPOSED SINGLE FAMILY HOME
DESIGN REVIEW SUBMITTAL

PROJECT LOCATION / OWNER
VIKRUM AND GAGAN NIJJAR
THOMAS DRIVE, MILL VALLEY, CA
MARIN COUNTY: APN: 034-012-26

RESIDENTIAL DESIGN
LONE TREE
RESIDENTIAL DESIGN
TONY RICHARDS
415-787-2164

GEOTECHNICAL ENGINEER
HERZOG GEOTECHNICAL
CRAIG HERZOG, PE., GE
MILL VALLEY, CA
415-388-8355

LAND SURVEYOR
MICHAEL FORD, P.L.S.
LAND SURVEYING
SANTA ROSA, CA
707-842-8513

TRAFFIC ENGINEER
TJKM
PLESANTON, CA
925-463-0611

BIOLOGY AND ARBORIST
LSA
RICHMOND, CA
510-236-6810

ARCHEOLOGY
ASC - ANTHROPOLOGICAL STUDIES CENTER, SONOMA STATE UNIVERSITY
707-664-2381

ZIEGLER CIVIL ENGINEERING
JAIME ZIEGLER, P.E.
415-472-1225
zieglercivilengineering.com

REGISTERED PROFESSIONAL ENGINEER
JAIME A. ZIEGLER
No. C52962
CIVIL
STATE OF CALIFORNIA

SIGNATURE
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BUILDING DESIGN BY OTHERS
FOR PLANNING REVIEW
PRELIMINARY
NOT FOR CONSTRUCTION

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DATE 11 / 6 / 2019
SCALE AS NOTED
DRAWN JAZ
JOB 55 THOMAS DRIVE
SHEET C 24.0
OF 25 SHEETS

TYPICAL DISTRIBUTION TRENCH

Joint Trench - Franchise Area or P.U.E.

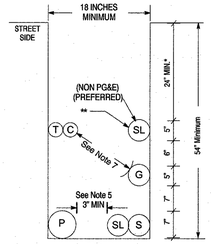


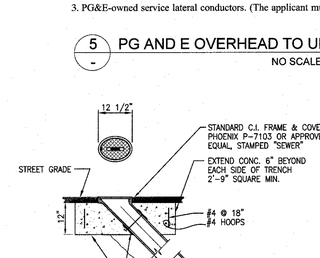
FIG. 1

Placement of the Distribution Trench within a P.U.E. is the preferred method. Trenching in the Franchise Area should only be used when a P.U.E. is unobtainable or otherwise infeasible.

* Increase cover to 30" in the street area (see Note 3).

** Separation must be 12" unless a reduction (6") is mutually agreed upon by affected utilities.

STANDARD TRENCH LOCATIONS



TYPICAL SERVICE TRENCH

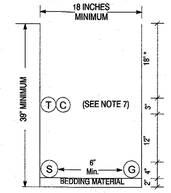


FIG. 2
(View facing Distribution Trench)

MINIMUM SEPARATION AND CLEARANCE REQUIREMENTS

		DUCT: T	DB T	C	S	P
G	(GAS) SEE NOTES 4, 7 & 13	—	12"	12"	12"	6"	12"
T	(TELEPHONE) DUCT	12"	—	1"	1"	12"	12"
T	(TELEPHONE) DIRECT BURY	12"	1"	—	1"	12"	12"
C	(CATV)	12"	1"	1"	—	12"	12"
S	(ELECTRIC SECONDARY)	6"	12"	12"	12"	—	3"
P	(ELECTRIC PRIMARY)	12"	12"	12"	12"	3"	—
SL	(STREETLIGHT) SEE NOTE 5	6"	12"	12"	12"	1"	3"

SEPARATION AND CLEARANCE DEFINITIONS

Cover:
The term "cover" means the radial distance between the surface of an underground cable, conduit, pipe, or other substructure and the surface elevation (grade).

Backfill:
The term "backfill" refers to the materials used to refill a cut or other excavation, or the act of such refilling after any needed shading is performed.

Shading:
The term "shading" refers to the materials used to provide a measure of separation between facilities installed at different levels within an excavation or cut.

Lift:
The term "lift" is a layer of fill as spread or as compacted or a measurement of material depth that is the rated effective soil depth a compactor can achieve.

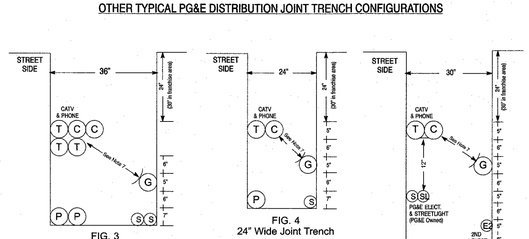
Bedding:
The term "bedding" refers to the materials installed beneath facilities at the bottom of a cut or other excavation and intended to provide support and/or protection for those facilities.

JOINT TRENCH CONFIGURATIONS & OCCUPANCY GUIDE 09-27-06

S5453, Exhibit B PACIFIC GAS AND ELECTRIC COMPANY **Page 1 of 4**

1 - PG and E JOINT TRENCH CONFIGURATIONS 1 of 4
NO SCALE

OTHER TYPICAL PG&E DISTRIBUTION JOINT TRENCH CONFIGURATIONS



Trench Configuration Notes

The trench configurations shown in this guide are to be considered "typical" only and that other trench widths, depths, as well as utility configurations (placement) may be used, provided all minimum requirements for separation, clearances, and cover are observed. In no case shall electric primary or secondary (excluding street lighting) be placed at a level higher than that of the gas and communications level. Gas shall be placed at the same level or below communications when gas is placed above the electric facilities.

Special Notes for Joint Trench With Second Electric Utility

A. Refer to Sheet 3 for General Notes.

B. A red 3-inch wide "PG&E Electric Line in Conduit" plastic marking tape, Code 375054, shall be installed, spiral wound in a manner that allows for the tape to be readily visible every 3 feet, with each conduit intended to be used for PG&E electric facilities. An equivalent red tape marked to identify the owner shall be installed with the conduit intended to be used for the second electric facility.

C. Each utility shall ensure adequate grounding between electric facilities is provided (See UO Standard S5453, "Joint Trench").

D. Provide a minimum of 2 inches of compacted PG&E approved bedding material as a trench leveling concourse, where required. See General Notes Items 11 and 12 (on Page 3), in order to obtain proper compaction.

JOINT TRENCH CONFIGURATIONS & OCCUPANCY GUIDE 09-27-06

S5453, Exhibit B PACIFIC GAS AND ELECTRIC COMPANY **Page 2 of 4**

2 - PG and E JOINT TRENCH CONFIGURATIONS 2 of 4
NO SCALE

General Notes

1. The preferred trench location is in a Public Utility easement (P.U.E.).
2. All depths and resulting cover requirements are measured from final grade.
3. Cover, clearances, and separation shall be as great as practicable under the circumstances, but under no circumstances shall be less than the minimum cover, clearance, and separation requirements set forth in General Order 128 and 49CFR 192.321, 49CFR 192.325, and 49CFR 192.327. All facilities shall be anchored in place prior to compaction, or other means shall be taken to ensure no motion of the facilities. Dimensional requirements for shading, leveling, and backfilling shall be determined subsequent to compaction.
4. Trench dimensions shown are typical. Trench sizes and configurations may vary depending upon occupancy and/or field conditions. Trench size and configuration must at all times be constructed in a manner that ensures proper clearances and cover requirements are met. Any "change" to the trench width and configurations as shown in this exhibit must be designed to ensure this requirement.
5. It is preferred to have non-PG&E owned streetlights at a level other than the gas or electric level. Non-PG&E owned streetlights may be at the electric level of the trench as long as minimum clearances are provided and comply with all special notes for a joint trench with a second electric utility.
6. Non-Utility facilities are not allowed in any Joint Utility trench, e.g., irrigation control lines, building fire alarm systems, private telephone systems, outdoor electrical cable, etc.
7. When communication ducts are installed, a minimum of 12" radial separation shall be maintained from gas facilities. Exception: With mutual agreement, when 4-inch diameter or smaller gas pipe is installed, the separation may be reduced to not less than 6 inches.
8. Provide separation from trench wall and other facilities sufficient to ensure proper compaction.
9. Maintain proper separation between PG&E facilities and "wet" utility lines as described in UO Standard S5453. The minimum allowable horizontal separation between Company facilities and "wet" facilities is 3' with a minimum 1' of undisturbed earth or the installation of a suitable barrier between the facilities.

   If a 3' horizontal separation cannot be attained between "wet" utilities and Company dry facilities, a variance may be approved by the local Inspection Supervisor and submitted to the Service Planning Support Program Manager for approval. Separations of 1' or less are not permissible and will not be allowed. The Company may agree to waive the minimum 3' separation requirement at the request of an applicant if warranted and the need is justified. The request for a waiver must:

   - Be made in writing and submitted to the Company ADE during the planning and design phase of the project,
   - Clearly describe the conditions necessitating the waiver,
   - Include a proposed design,
   - And, include a design for a barrier between the "wet" utilities and Company dry facilities in the event 1' of undisturbed earth cannot be maintained.

   Note: Drain lines connected to downspouts on buildings are considered a "wet" utility for the purposes of this standard.
10. Separations shall be maintained at aboveground termination points.
11. Procedures for approving native backfill for shading of PG&E gas facilities:
    - Random soil samples shall be taken from a minimum of 3 locations per 1,000' of trench. 100% of the sample must pass through a 1/2" sieve and 75% must pass through a #4 screen. Additional samples must be taken if existing soil conditions change and are to be taken at the discretion of the PG&E representative on site.
    - The soils must not contain any rocks that have sharp edges or that may otherwise be abrasive.
    - The soils must not contain clods larger than 1/2" if to be used as shading, bedding, or leveling materials.
    - Compaction requirements must meet any applicable PG&E, Federal, State, County, or local requirements.
    - At no time shall the over saturation of native soils be used to achieve these requirements.

    The sieves and screens shall be:
    - 1/2" Sieve: 8" diameter by 2" deep, stainless steel mesh screen.
    - #4 Screen: 8" diameter by 2" deep, stainless steel mesh screen.

Notes continued on the next page

JOINT TRENCH CONFIGURATIONS & OCCUPANCY GUIDE 09-27-06

S5453, Exhibit B PACIFIC GAS AND ELECTRIC COMPANY **Page 3 of 4**

3 - PG and E JOINT TRENCH CONFIGURATIONS 3 of 4
NO SCALE

General Notes, continued

12. Procedures for approving native backfill for shading at PG&E electric facilities:
    - Random soil samples shall be taken from a minimum of 3 locations per 1,000' of trench. Additional samples must be taken if existing soil conditions change and are to be taken at the discretion of the PG&E representative on site.
    - Shading material containing large rock, paving material, cinders, sharply angular substances, or corrosive material shall not be placed in the trench where such material may damage the conduits and/or prevent proper compaction over or around the conduits.
    - Native soils containing clods not to exceed 6" in diameter may be included in the shading material provided the clods are readily breakable by hand.

      Note: Soils consisting primarily of adobe, hard compact (dense) clay, and bay muds shall not be used as shading material.
    - At no time shall the over saturation of native soils be used to achieve these requirements.
    - Refer to Engineering Document 062288, Item 13 on Page 2.
13. Competent native soils are preferred to be used for shading, bedding, and backfilling throughout the trench.
    - Where native soils exceed 1/2" minus and/or where gas is to be placed at the bottom of a trench in areas that exceed 1/2" minus soil conditions, or where the bottom of a trench is considered to consist of hard pan, PG&E approved 1/2" minus import material shall be used for shading and/or bedding of gas facilities.
    - PG&E approved import material is per CGT Engineering Guideline 4123.
    - If a leveling course is required for gas facilities, the use of native soils is preferred, but if 1/2" minus conditions are not attainable with the native soils, then the use of PG&E approved import materials is required. Bedding under gas facilities will be a minimum of 2" of compacted 1/2" minus native soils or PG&E approved import material.
    - For electric facilities, refer to Note 12. This applies to leveling courses as well as shading.
    - The minimum PG&E approved bedding material may be increased at the discretion of PG&E when warranted by existing field conditions (e.g., rocky soils, hard pan, etc.).
    - The use of any imported material for backfilling purposes shall be limited to those situations when native soils do not allow for required compaction.
14. The applicant is responsible for the removal of excess spoil and associated costs.
15. Separation between gas facilities and electric facilities may be reduced to 6" when crossing.
16. Service saddles are the preferred service fittings for use throughout the joint trench project. All projects will be designed and estimated using service saddles. However, service tees may be used if all clearances, separation, and coverage requirements are maintained.

Revision Notes

1. Revised Note 9 to clarify the minimum allowable horizontal separations requirements.
2. This document was revised on 09-27-2006.

JOINT TRENCH CONFIGURATIONS & OCCUPANCY GUIDE 09-27-06

S5453, Exhibit B PACIFIC GAS AND ELECTRIC COMPANY **Page 4 of 4**

4 - PG and E JOINT TRENCH CONFIGURATIONS 4 of 4
NO SCALE

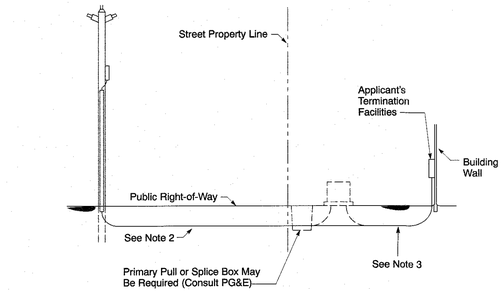


Figure 3-3
Overhead-to-Underground Service Connection

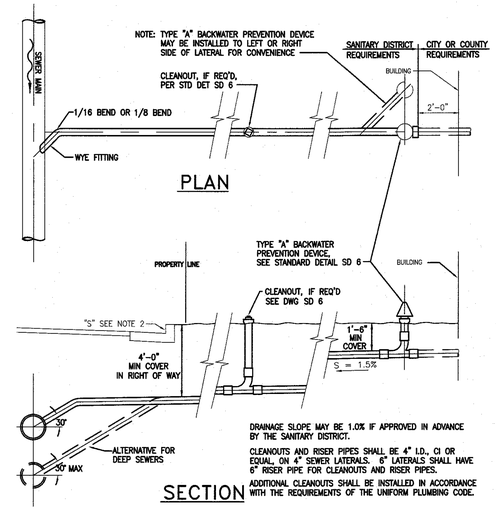
Notes in reference to Figure 3-3.

1. When the service delivery voltage is the same as the available, primary distribution voltage (i.e., over 2,000 volts), typically the applicant will provide a primary splice box according to PG&E's requirements.
2. PG&E's pole and secondary riser. (The applicant must pay the installed cost of the pole riser and conduit within the right-of-way.)
3. PG&E-owned service lateral conductors. (The applicant must furnish the conduit, as required.)

5 - PG AND E OVERHEAD TO UNDERGROUND TYPICAL
NO SCALE

MARIN COUNTY SANITARY DISTRICTS CALIFORNIA	
STANDARD 6 INCH RODDING INLET	
1995	SD 3

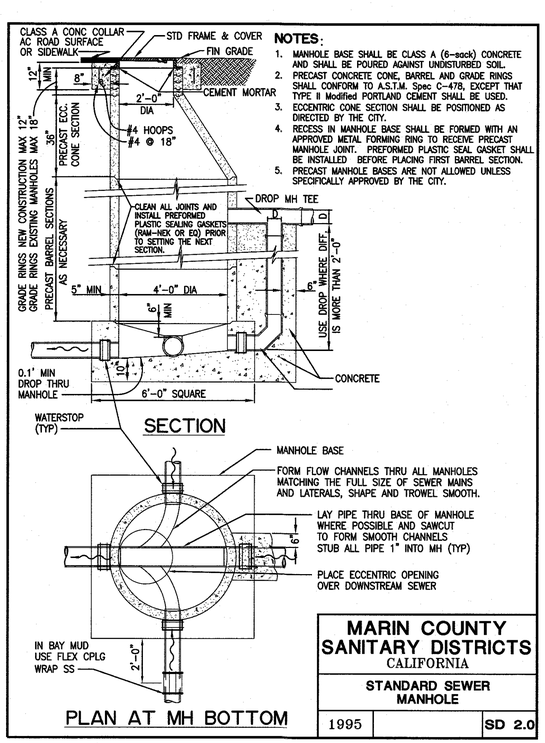
6 - ALTO SANITARY DISTRICT - RODDING INLET
NO SCALE



NOTES:
1. WHEN A LATERAL SEWER IS INSTALLED IN ADVANCE OF THE BUILDING SEWER, IT SHALL BE TERMINATED AT OR NEAR THE PROPERTY LINE. THE END OF THE LATERAL SHALL BE MARKED WITH A 4" x 4" REDWOOD STAKE.
2. WHERE CONCRETE CURBS AND GUTTERS EXIST OR ARE TO BE A PART OF AN IMPROVEMENT, EACH SIDE SEWER SHALL BE PERMANENTLY LOCATED BY IMPRINTING OR CHISELING AN "S" (3" size) IN THE FACE OF THE CURB VERTICALLY ABOVE THE SEWER PIPE.
3. BACKFILL SHALL NOT BE PLACED UNTIL PIPE INSTALLATION HAS BEEN INSPECTED AND APPROVED BY THE DISTRICT.
4. LATERAL TRENCHES SHALL BE THE SAME AS TYPICAL TRENCH DETAIL SD4.
5. THE SIZE OF THE SEWER LATERAL OR MAIN MUST BE EQUAL TO OR LARGER THAN THE SIZE OF THE BUILDING DRAIN.

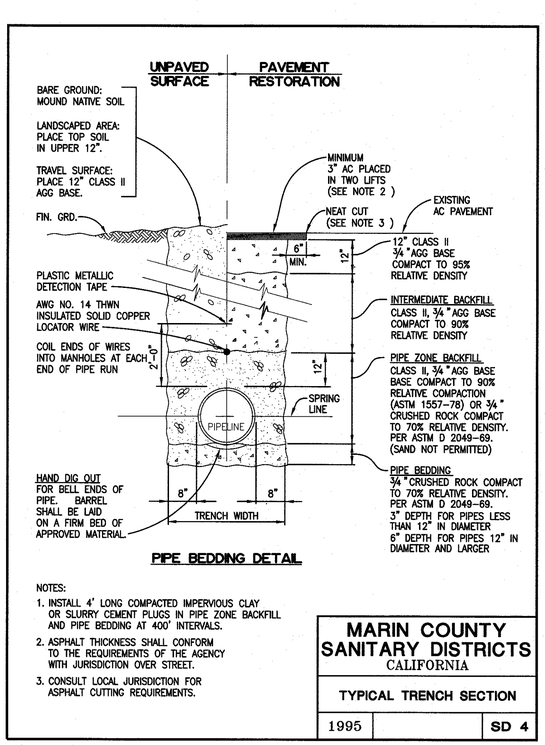
MARIN COUNTY SANITARY DISTRICTS CALIFORNIA		
TYPICAL SIDE SEWER DETAILS		
1995		SD 5

7 - ALTO SANITARY DISTRICT - SIDE SEWER (TYP)
NO SCALE



MARIN COUNTY SANITARY DISTRICTS CALIFORNIA		
STANDARD SEWER MANHOLE		
1995		SD 2.0

8 - ALTO SANITARY DISTRICT - SIDE SEWER (TYP)
NO SCALE



NOTES:
1. INSTALL 4' LONG COMPACTED IMPERVIOUS CLAY OR SLURRY CEMENT PLUGS IN PIPE ZONE BACKFILL AND PIPE BEDDING AT 400' INTERVALS.
2. ASPHALT THICKNESS SHALL CONFORM TO THE REQUIREMENTS OF THE AGENCY WITH JURISDICTION OVER STREET.
3. CONSULT LOCAL JURISDICTION FOR ASPHALT CUTTING REQUIREMENTS.

MARIN COUNTY SANITARY DISTRICTS CALIFORNIA		
TYPICAL TRENCH SECTION		
1995		SD 4

9 - ALTO SANITARY DISTRICT - SIDE SEWER (TYP)
NO SCALE

REVISIONS / DATE

GENERAL NOTES ABBREVIATIONS

PROPOSED SINGLE FAMILY HOME
DESIGN REVIEW SUBMITTAL

PROJECT LOCATION / OWNER
VIKRAM AND GAGAN NIJJAR
THOMAS DRIVE, MILL VALLEY, CA
MARIN COUNTY; APN: 034-012-26

RESIDENTIAL DESIGN
LONE TREE
RESIDENTIAL DESIGN
TONY RICHARDS
415-787-2164

GEOTECHNICAL ENGINEER
HERZOG GEOTECHNICAL
CRAIG HERZOG, PE., GE
MILL VALLEY, CA
415-388-8355

LAND SURVEYOR
MICHAEL FORD, P.L.S.
LAND SURVEYING
SANTA ROSA, CA
707-842-8513

TRAFFIC ENGINEER
TJKM
PLESANTON, CA
925-463-0611

BIOLOGY AND ARBORIST
LSA
RICHMOND, CA
510-236-6810

ARCHEOLOGY
ASC - ANTHROPOLOGICAL STUDIES CENTER, SONOMA STATE UNIVERSITY
707-664-2381

ZIEGLER CIVIL ENGINEERING
JAIME ZIEGLER, P.E.
415-472-1225
zieglercivilengineering.com

REGISTERED PROFESSIONAL ENGINEER — JAIME A. ZIEGLER — No. C52962 — CIVIL — STATE OF CALIFORNIA

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DATE 11 / 6 / 2019
SCALE AS NOTED
DRAWN JAZ
JOB 55 THOMAS DRIVE
SHEET **C 25.0**
OF 25 SHEETS