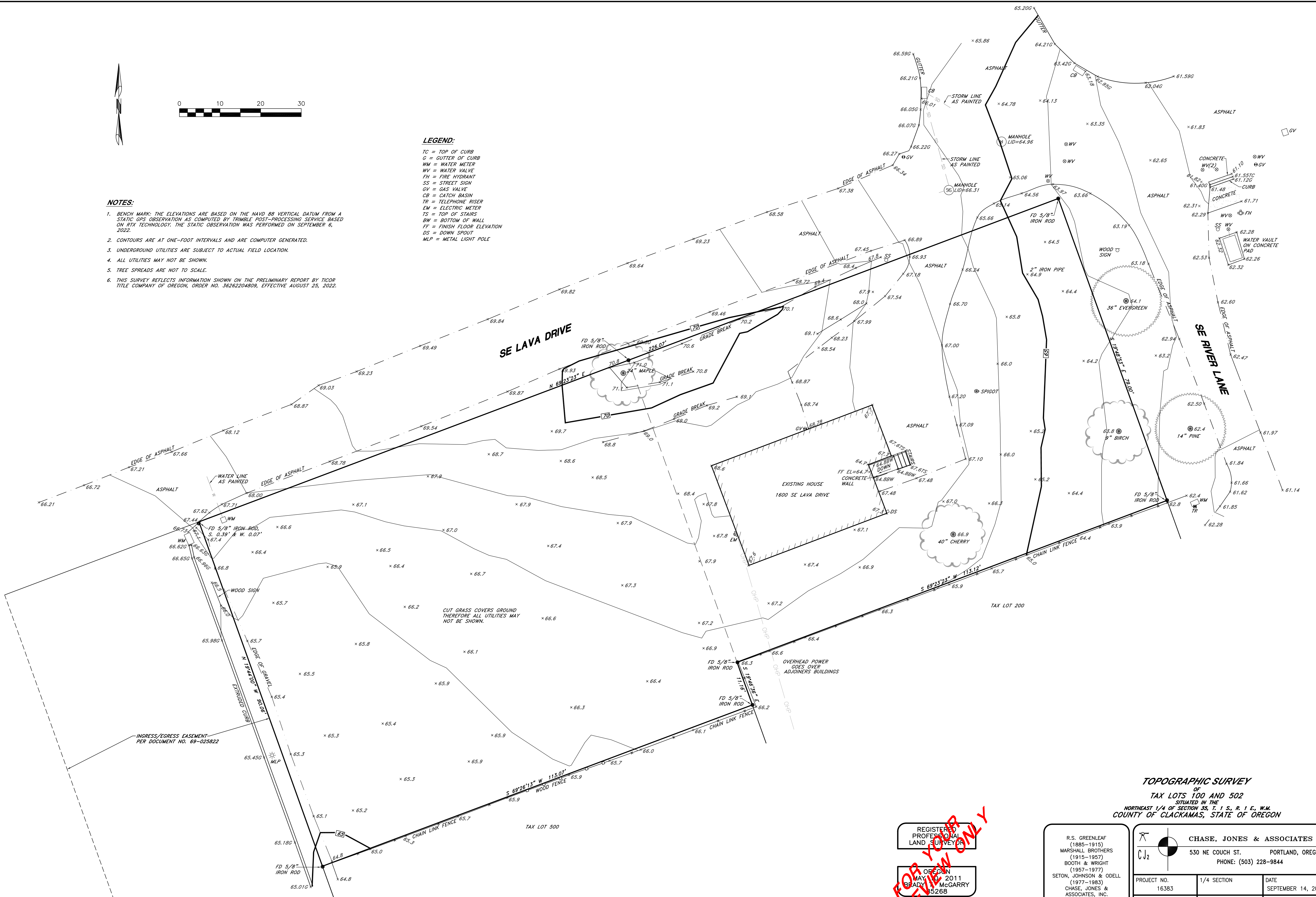


NOTES:

1. BENCH MARK: THE ELEVATIONS ARE BASED ON THE NAVD 88 VERTICAL DATUM FROM A STATIC GPS OBSERVATION AS COMPUTED BY TRIMBLE POST-PROCESSING SERVICE BASED ON RTX TECHNOLOGY. THE STATIC OBSERVATION WAS PERFORMED ON SEPTEMBER 6, 2022.
2. CONTOURS ARE AT ONE-FOOT INTERVALS AND ARE COMPUTER GENERATED.
3. UNDERGROUND UTILITIES ARE SUBJECT TO ACTUAL FIELD LOCATION.
4. ALL UTILITIES MAY NOT BE SHOWN.
5. TREE SPREADS ARE NOT TO SCALE.
6. THIS SURVEY REFLECTS INFORMATION SHOWN ON THE PRELIMINARY REPORT BY TICOR TITLE COMPANY OF OREGON, ORDER NO. 36262204809, EFFECTIVE AUGUST 25, 2022.

LEGEND:

- TC = TOP OF CURB
- G = GUTTER OF CURB
- WM = WATER METER
- WV = WATER VALVE
- FH = FIRE HYDRANT
- SS = STREET SIGN
- GV = GAS VALVE
- CB = CATCH BASIN
- TR = TELEPHONE RISER
- EM = ELECTRIC METER
- TS = TOP OF STAIRS
- BW = BOTTOM OF WALL
- FF = FINISH FLOOR ELEVATION
- DS = DOWN SPOUT
- MLP = METAL LIGHT POLE



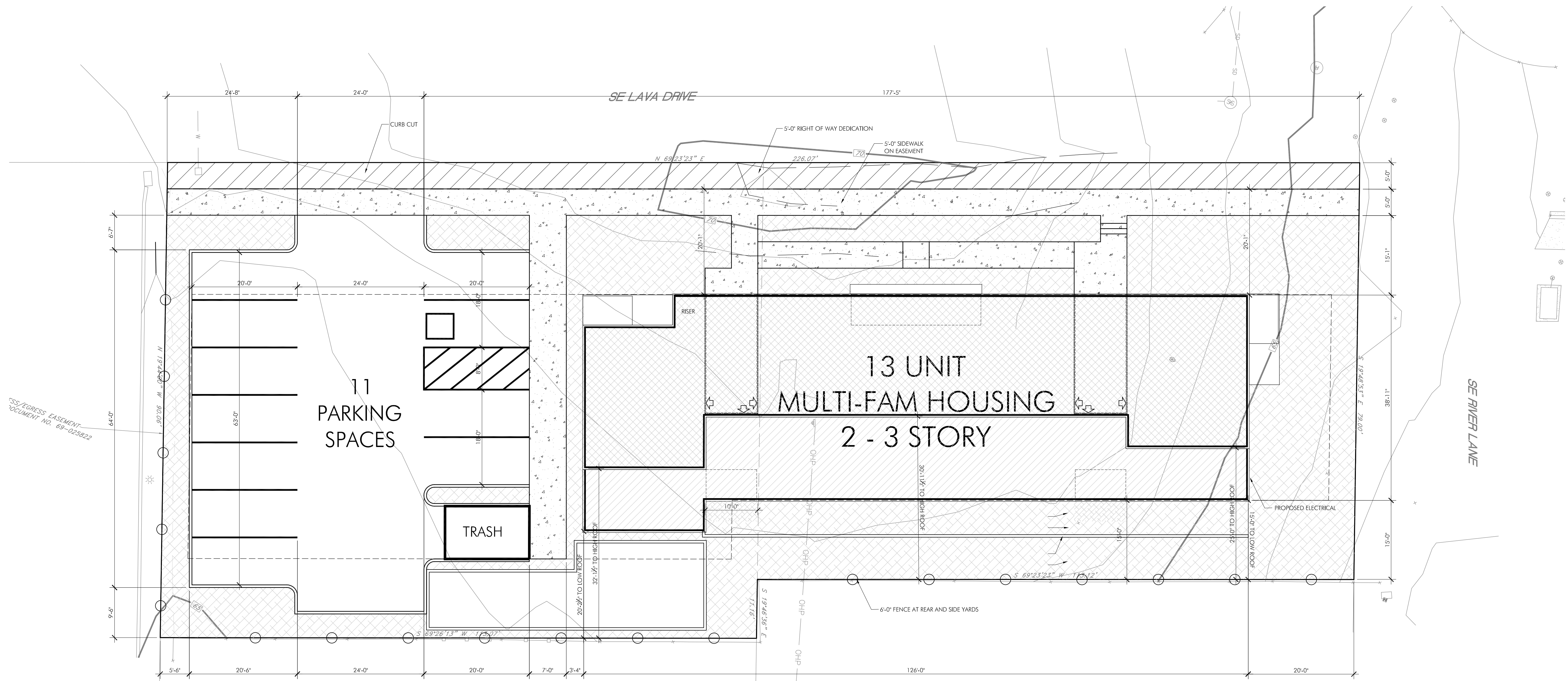
TOPOGRAPHIC SURVEY
 OF
TAX LOTS 100 AND 502
 SITUATED IN THE
 NORTHEAST 1/4 OF SECTION 35, T. 1 S., R. 1 E., W.M.
 COUNTY OF CLACKAMAS, STATE OF OREGON

REGISTERED
 PROFESSIONAL
 LAND SURVEYOR
 OF OREGON
 MAY 11, 2011
 BRADY MCGARRY
 35268
 EXPIRES: 12-31-24

R.S. GREENLEAF
 (1885-1915)
 MARSHALL BROTHERS
 (1915-1957)
 BOOTH & WRIGHT
 (1957-1977)
 SETON, JOHNSON & ODELL
 (1977-1983)
 CHASE, JONES &
 ASSOCIATES, INC.
 (1983-)

CHASE, JONES & ASSOCIATES INC.			
530 NE COUCH ST.		PORTLAND, OREGON 97232	
PHONE: (503) 228-9844			
PROJECT NO. 16383	1/4 SECTION	DATE SEPTEMBER 14, 2022	SHEET 1
DRAWN BY DLW	CHECKED BY EDJ	SCALE 1" = 10'	OF 1

Exhibit F – Site Plan



NEW APARTMENT BUILDING
LAVA DRIVE APARTMENTS
 1600 SE LAVA DRIVE
 MILWAUKIE, OREGON 97206

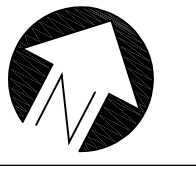
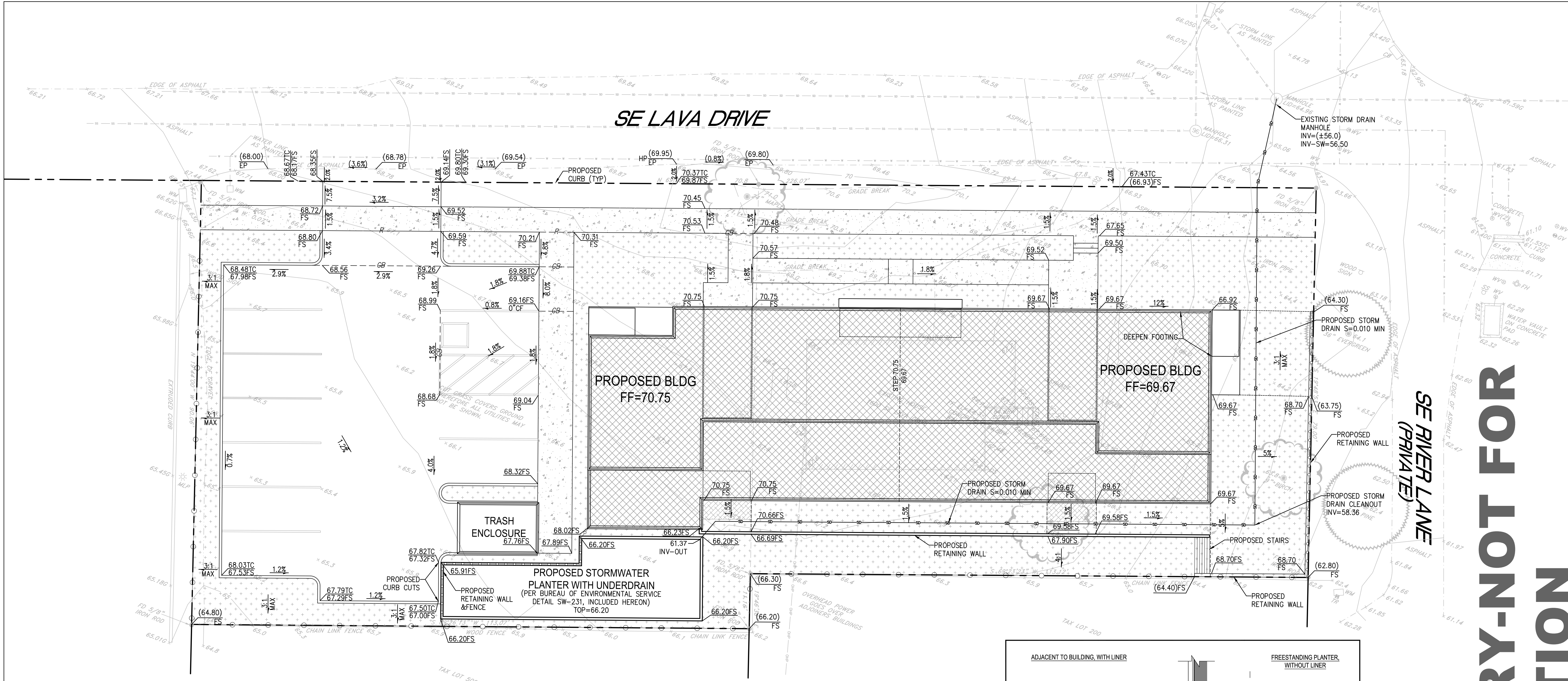
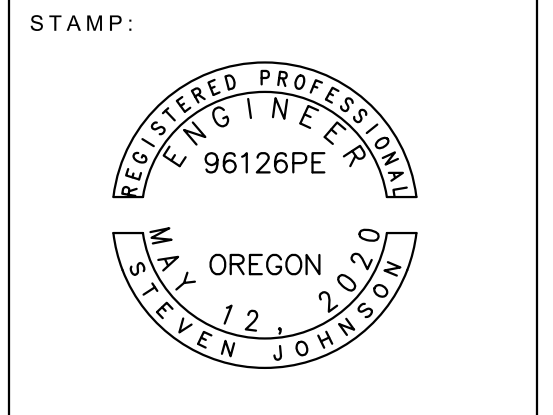


Exhibit G – Preliminary Grading Plan



7 OAKS
ENGINEERING

345 WESTFIELD ST. #107
SILVER CREEK, OR. 97361
ADMIN@7OAKSENGINEERING.COM



NO	DATE	ISSUE DESCRIPTION

NO CHANGES, MODIFICATIONS OR REPRODUCTIONS TO BE MADE TO THESE DRAWINGS WITHOUT WRITTEN AUTHORIZATION FROM THE DESIGN ENGINEER.

DRAWINGS AND NOTES TAKE PRECEDENCE OVER GRAPHICAL REPRESENTATION.

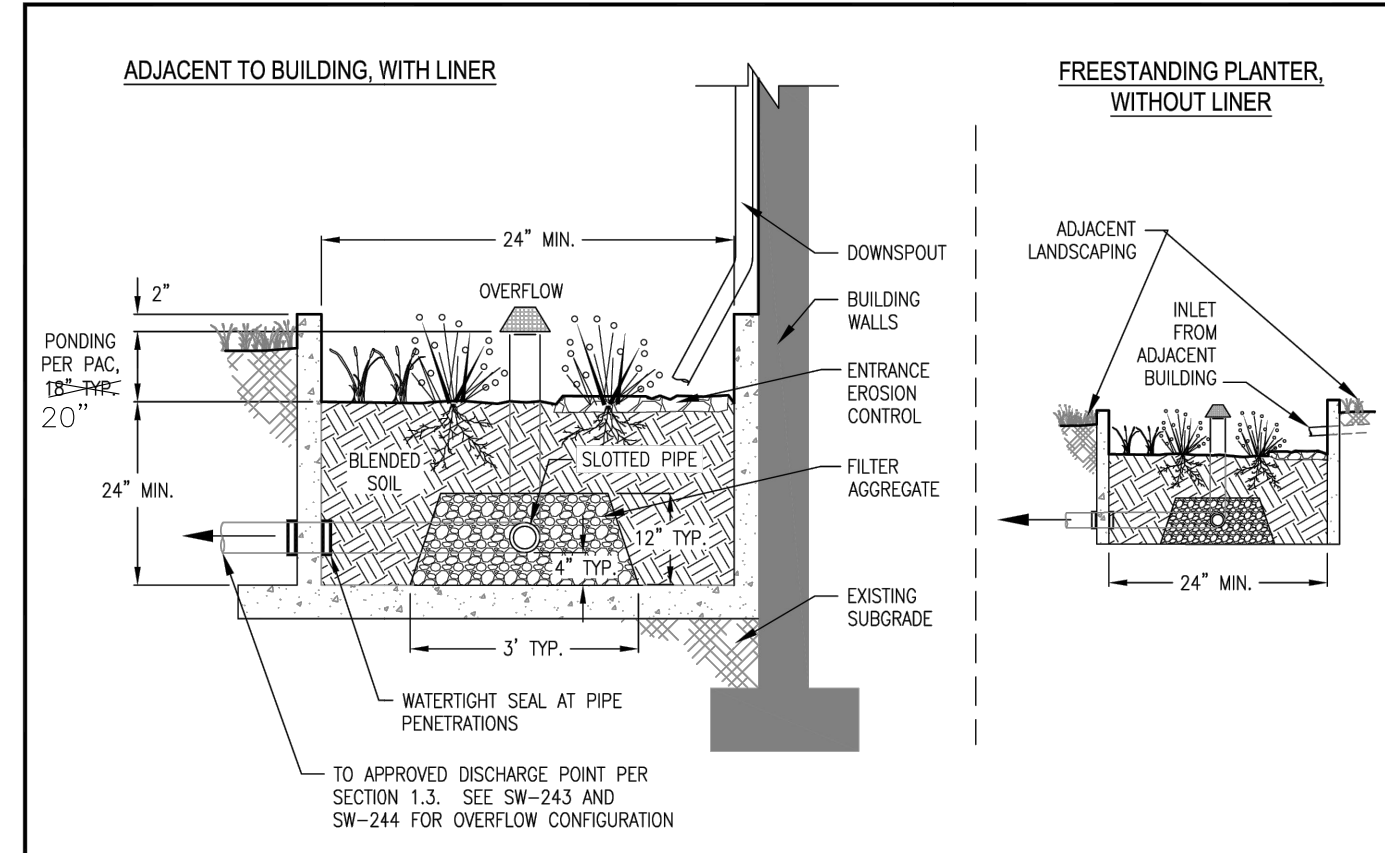
THESE DRAWINGS MAY HAVE BEEN REPRODUCED AT A SIZE DIFFERENTLY THAN ORIGINALLY DRAWN. OWNER AND ENGINEER ASSUME NO RESPONSIBILITY FOR USE OF INCORRECT SCALE.

CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS PRIOR TO PROCEEDING WITH CONSTRUCTION AND NOTIFY ARCHITECT IMMEDIATELY OF ANY DISCREPANCIES OR CONFLICTS.

DC BY: DRAWN BY:

PRELIMINARY-NOT FOR CONSTRUCTION

SE RIVER LANE (PRIVATE)



- Detail intended as an example. Detail must match PAC assumptions and/or design report.
- Setbacks: No setback is required for lined planters. For infiltration planters the setbacks are 5' from property lines except next to right-of-way, and 10' from building foundations. The planter wall height must be less than 30" above finished grade if within 5' of property line.
- Planter Structure: A single pour, monolithic concrete shell without cold joints is required unless otherwise approved.
- Waterproofing: No additional waterproofing is needed if the structure is a single pour, monolithic concrete shell.
- Blended Soil: Use BES standard soil blend for stormwater facilities (SWM Section 6.3) unless otherwise approved. Install minimum of 2" of blended soil.
- Underdrain System: Sizing is per the PAC. The underdrain must be 4" slotted schedule 40 PVC well casing pipe manufactured with .050" slots, 6 slots per row. Embed the underdrain in 2" No. 10 washed angular aggregate. See SW-243 for longitudinal section and SW-244 for office examples. Conform with Oregon Plumbing Specialty Code (OPSC) requirements. Alternative configurations and materials such as cellular storage systems, drainage mats, and non-standard aggregates may be used under the Performance Approach, with BES approval.
- Overflow: Overflow elevation must allow for 2" of freeboard, minimum. Protect from debris and sediment with strainer or grate.
- Vegetation: Refer to plant list in SWM Section 3.5. Minimum container size is 1 gal. Number of plantings per 100sf of facility area: 80 herbaceous plants OR 72 herbaceous plants and 4 small shrubs.
- Entrance Erosion Control: Install river rock, flagstone, or similar to dissipate the energy of incoming water at entrances and ends of downspout extensions.
- Check Dams: Spacing per the PAC. Check dam length must equal the full width of the planter.
- Inspections: Call BOS NR Inspection Line, (503) 823-7000, request 487. 3 inspections required.

CONSTRUCTION REQUIREMENTS

Do not allow temporary storage of construction waste or materials in the facilities. Do not allow entry of runoff or sediment during construction.

STORMWATER MANAGEMENT TYPICAL DETAILS FOR PRIVATE PROPERTY

PLANTER WITH UNDERDRAIN SW-231

9-8-20

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(NOTE: THE TELEPHONE NUMBER FOR THE OREGON UTILITY NOTIFICATION CENTER IS 503-232-1987).

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CONSTRUCTION CONTRACTOR AGREES THAT IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, CONSTRUCTION CONTRACTOR WILL BE REQUIRED TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION FOR THE PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY; THAT THIS REQUIREMENTS SHALL BE MADE TO APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS, AND CONSTRUCTION CONTRACTOR FURTHER AGREES TO DEFEND, INDEMNIFY, AND HOLD HARMLESS THE CITY, ITS EMPLOYEES, AND AGENTS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT.

THE CONTRACTOR SHALL BE RESPONSIBLE TO REPORT DISCREPANCIES IN PLANS AND/OR FIELD CONDITIONS IMMEDIATELY TO THE DESIGN ENGINEER FOR RESOLUTION PRIOR TO CONSTRUCTION, AND SHALL BE RESPONSIBLE FOR DISCREPANCIES NOT SO REPORTED AND RESOLVED.

POTENTIAL UNDERGROUND FACILITY OWNERS

Dig Safely.

Call the Oregon One-Call Center
DIAL 811 or 1-800-332-2344

PROJECT NAME:
LAVA DRIVE APARTMENTS

PROJECT ADDRESS:
1600 SE LAVA DRIVE

MILWAUKIE, OR 97206

SHEET TITLE:
PRELIMINARY GRADING PLAN

DATE:
06/09/2023

SHEET NUMBER:
C2

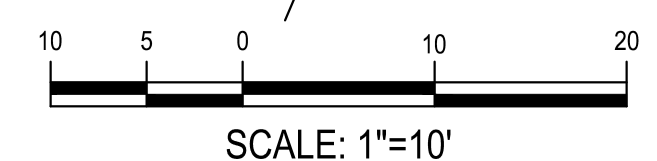


Exhibit H – Preliminary Wet Utility Plan

Exhibit I – Preliminary Landscape Plan

Preliminary Plant Schedule

TREES	QTY	BOTANICAL / COMMON NAME	SIZE
	3	Calocedrus decurrens / Incense Cedar	8-10" Ht. Min., B&B
	4	Cercis canadensis / Eastern Redbud	2" Cal., B&B
	4	Chamaecyparis nootkatensis 'Glauca Pendula' / Blue Weeping Nootka Cypress	8-10" Ht. Min., B&B
	1	Cornus nuttallii x florida 'Eddie's White Wonder' / Eddie's White Wonder Dogwood	2" Cal., B&B
	5	Fagus sylvatica 'Dawyck Purple' / Dawyck Purple European Beech	2" Cal., B&B
	4	Nyssa sylvatica 'Wildfire' / Black Gum	2" Cal., B&B
	5	Parrotia persica 'Vanessa' / Vanessa Persian Parrotia	2" Cal., B&B
	2	Picea glauca 'Pendula' / Weeping White Spruce	8-10" Ht. Min., B&B
	3	Quercus robur 'Fastigiata' / Skyrocket English Oak	2" Cal., B&B

GROUND COVERS	QTY	BOTANICAL / COMMON NAME	SIZE	SPACING
	374 (808 sf)	Fragaria chiloensis / Beach Strawberry	4" Pot	18" o.c.
	6 (86 sf)	Rubus pentalobus 'Emerald Carpet' / Emerald Carpet Creeping Raspberry	1 Gal.	48" o.c.
	1,897 sf	Pro Time 501 Water Smarter Fescue or Equal	Seed at rate of 7-10 lbs per 1,000 sf	

SHRUBS	QTY	BOTANICAL / COMMON NAME	SIZE
	57	Abelia x grandiflora 'Kaleidoscope' / Kaleidoscope Glossy Abelia	2 Gal.
	39	Euonymus japonicus 'Green Spire' / Green Spire Japanese Euonymus	1 Gal.
	3	Ilex crenata 'Sky Pencil' / Sky Pencil Japanese Holly	24"-30" Ht.
	16	Ilex crenata 'Soft Touch' / Soft Touch Japanese Holly	2 Gal.
	37	Nandina domestica 'Atropurpurea Nana' / Dwarf Nandina	1 Gal.
	14	Osmanthus heterophyllus 'Goshiki' / Goshiki Holly Olive	5 Gal.
	48	Rhaphiolepis indica 'Ballerina' / Ballerina Indian Hawthorn	2 Gal.
	31	Rhaphiolepis umbellata 'Snow White' / Yedda Hawthorn	3 Gal.
	18	Sarcococca confusa / Fragrant Sarcococca	1 Gal.

GRASSES/PERENNIALS	QTY	BOTANICAL / COMMON NAME	SIZE
	17	Calamagrostis x acutiflora 'Karl Foerster' / Feather Reed Grass	1 Gal.
	15	Liriope muscari 'Big Blue' / Big Blue Lilyturf	1 Gal.
	27	Pennisetum alopecuroides 'Hameln' / Hameln Fountain Grass	1 Gal.

Stormwater Plant Schedule

GROUND COVERS	QTY	BOTANICAL / COMMON NAME	SIZE	SPACING
	181	Carex densa / Dense Sedge	1 Gal.	9" o.c., Plant randomly for full coverage
	181	Juncus tenuis / Slender Rush		
	181	Scirpus microcarpus / Small Fruited Bulrush		

General Notes:

1. PLANS ARE PRELIMINARY, NOT FOR CONSTRUCTION OR BIDDING.
2. SEE ARCHITECTURAL DRAWINGS FOR SITE PLAN.
3. SEE CIVIL DRAWINGS FOR GRADING AND UTILITIES.
4. STREET TREES SELECTED FROM MILWAUKIE APPROVED STREET TREE LIST.
5. SITE TO BE IRRIGATED BY AN AUTOMATIC UNDERGROUND IRRIGATION SYSTEM.
6. PRELIMINARY PLANT SCHEDULE SEE THIS SHEET.

Legend:

- EXISTING TREES TO REMAIN
- PICNIC TABLE

Site Information

TOTAL SITE SQUARE FOOTAGE: 17,984 SF
 MINIMUM LANDSCAPE REQUIRED: 15%
 PROPOSED LANDSCAPE SF: 5,565 SF

1 TREE PER 2,000 SF OF SITE AREA
 17,984 SF = 9 TREES
 TREES TO PROVIDE AT LEAST 1/3 CANOPY COVERAGE OF COMMON OPEN SPACE WITHIN 5 YEARS

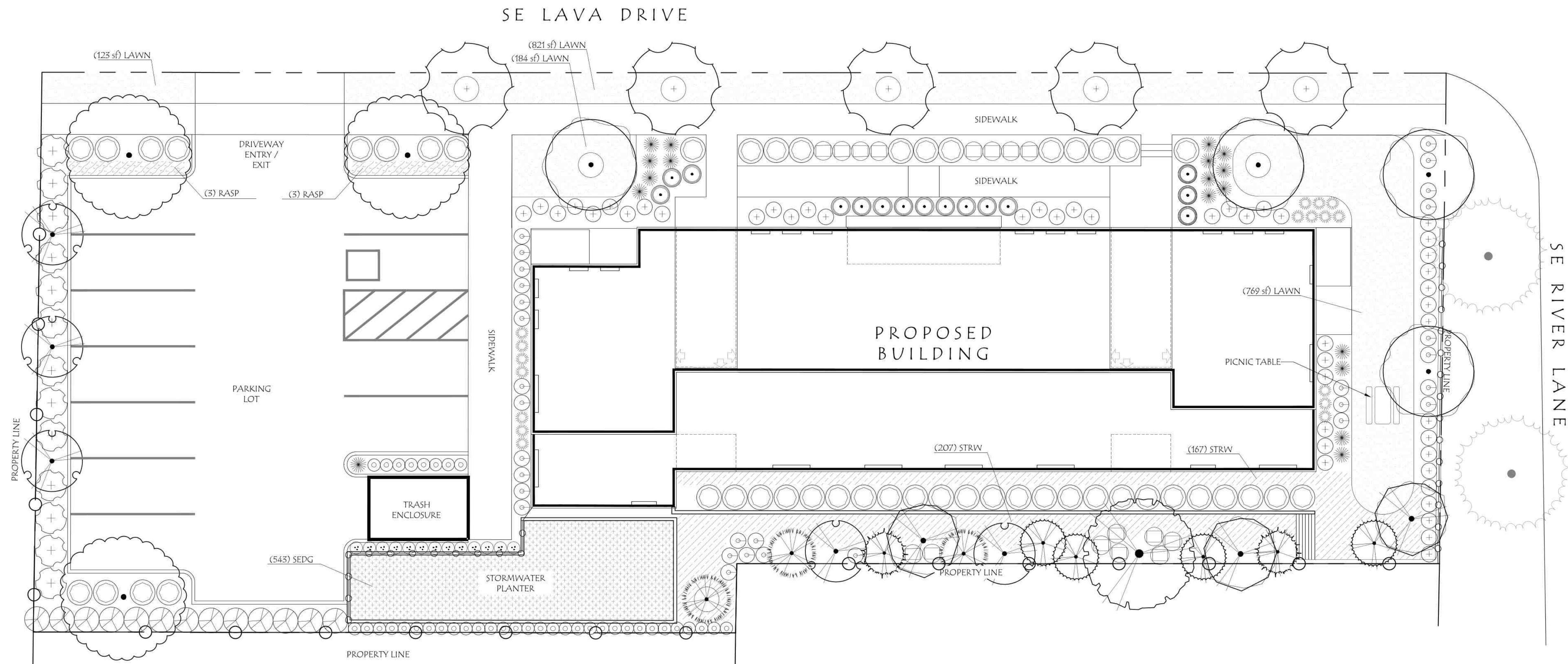
STREET TREES ALONG LAVA: 40' O.C.

NO MORE THAN 20% LANDSCAPE TO BE OPEN BARK MULCH.

Stormwater Planter with Underdrain Planting Requirements

FACILITY NUMBER	FACILITY SF	ZONE A SF	HERBACEOUS
1	679 SF	679 SF	543

Requirements per 100 SF
 80 Herbaceous -OR-
 72 Herbaceous and 4 Small Shrubs
 24" Min. Depth BES Standard Blended Soil Mix



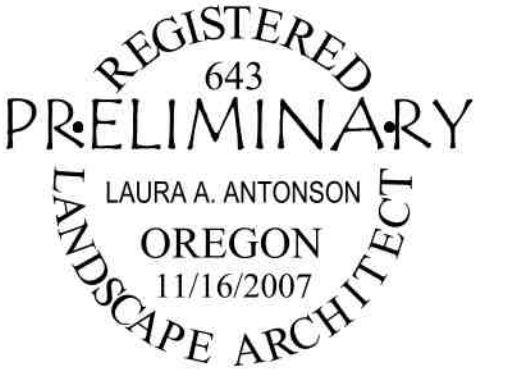
Laurus Designs, LLC



1012 Pine Street
 Silverton, Oregon
 503.784.6494

Lava Drive Apartments

SE Lava Drive
 Milwaukie, Oregon



PRELIMINARY PLANTING PLAN



SCALE: 1"=10'-0"
 0' 5' 10' 20'
 SCALE

July 27th, 2023

REVISIONS

#	DATE	NOTES	INITIALS

L1.1

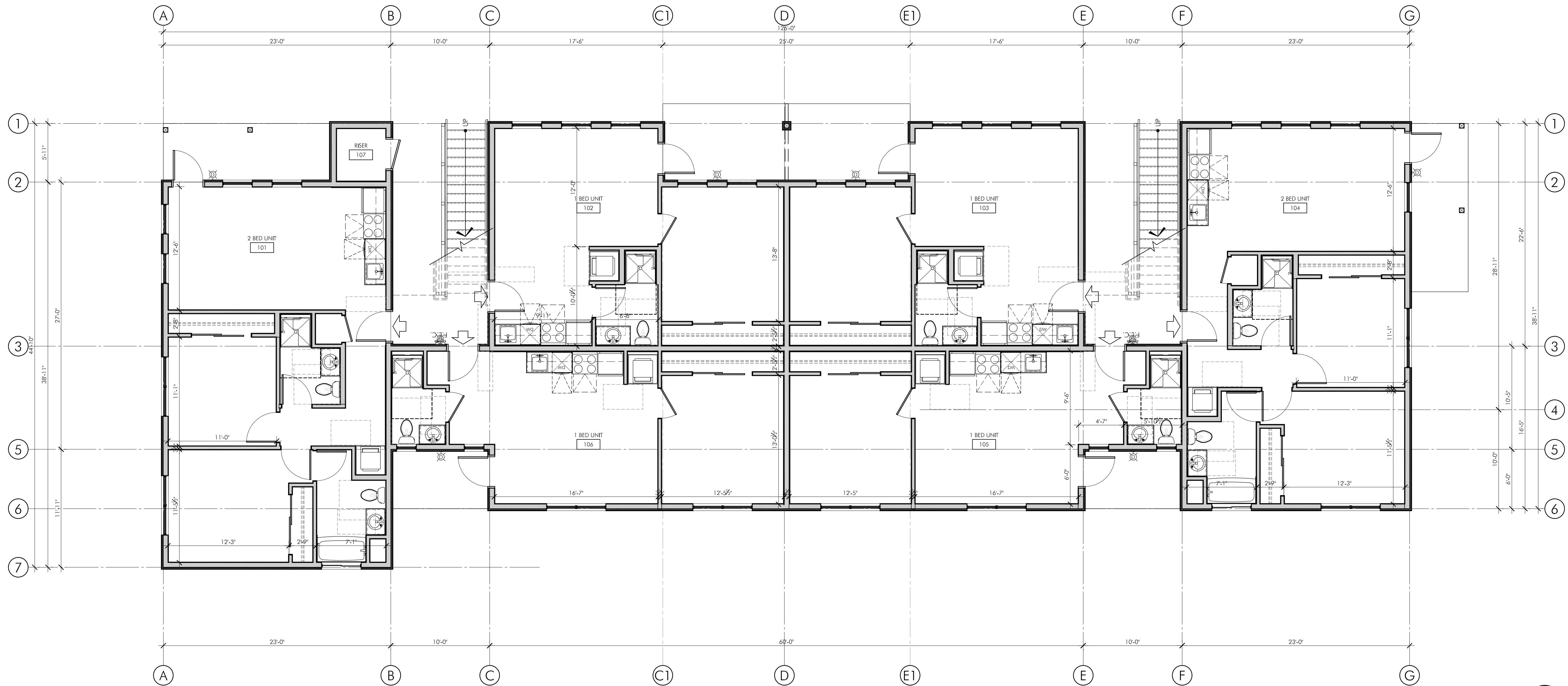
SHEET 1 OF 1

PROJECT #: 1543R

Exhibit J – Architectural Plans

IN THE EVENT CONFLICTS ARE DISCOVERED
BETWEEN THE ORIGINAL SIGNED AND SEALED
DOCUMENTS PREPARED BY THE ARCHITECTS
AND/OR THEIR CONSULTANTS, AND ANY COPY OF
THE DOCUMENTS TRANSMITTED BY MAIL, FAX,
ELECTRONICALLY OR OTHERWISE, THE ORIGINAL
SIGNED AND SEALED DOCUMENTS SHALL GOVERN.

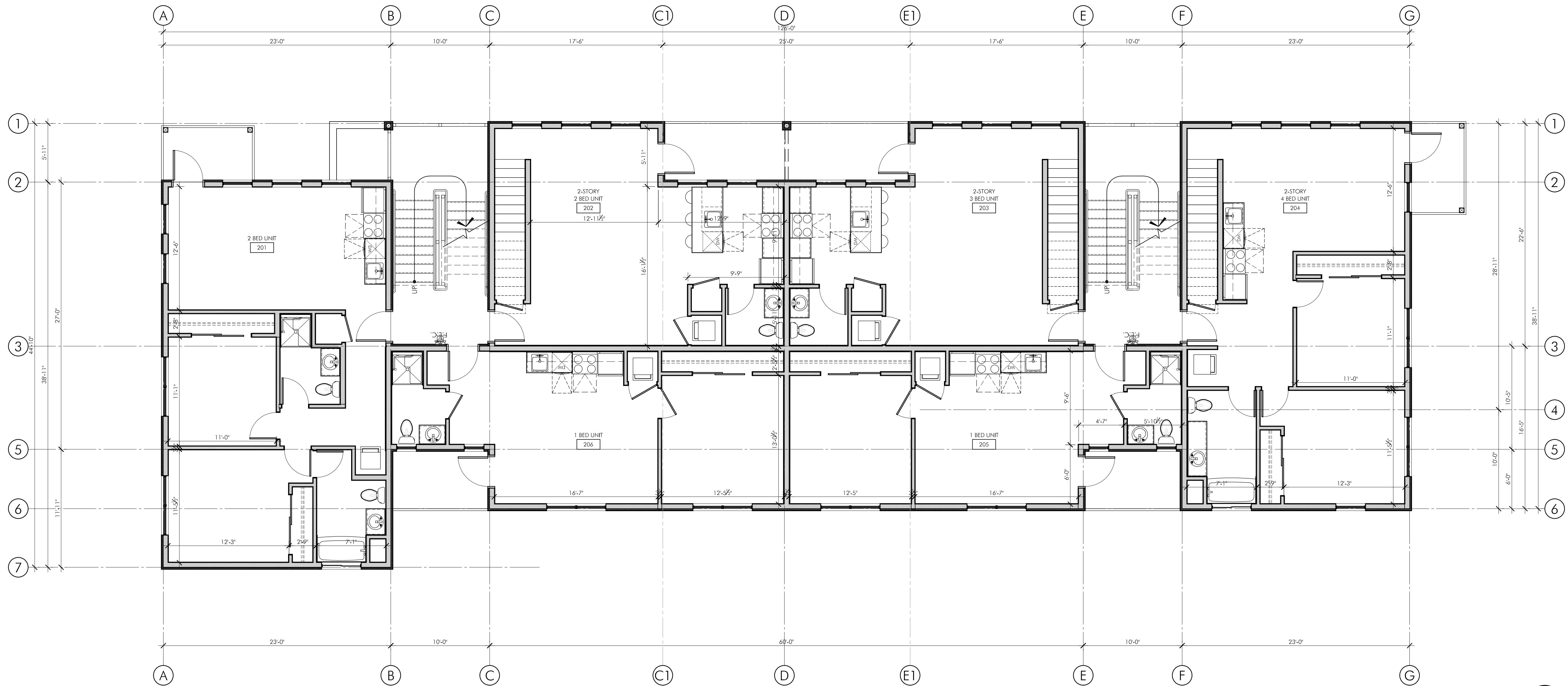
PROJECT # 2022-175
DATE: 10 MAY 2023
REVISIONS



1 LEVEL 01: FLOOR PLAN



NEW APARTMENT BUILDING
LAVA DRIVE APARTMENTS
 1600 SE LAVAN DRIVE
 MILWAUKIE, OREGON 97206



1 LEVEL 02: FLOOR PLAN

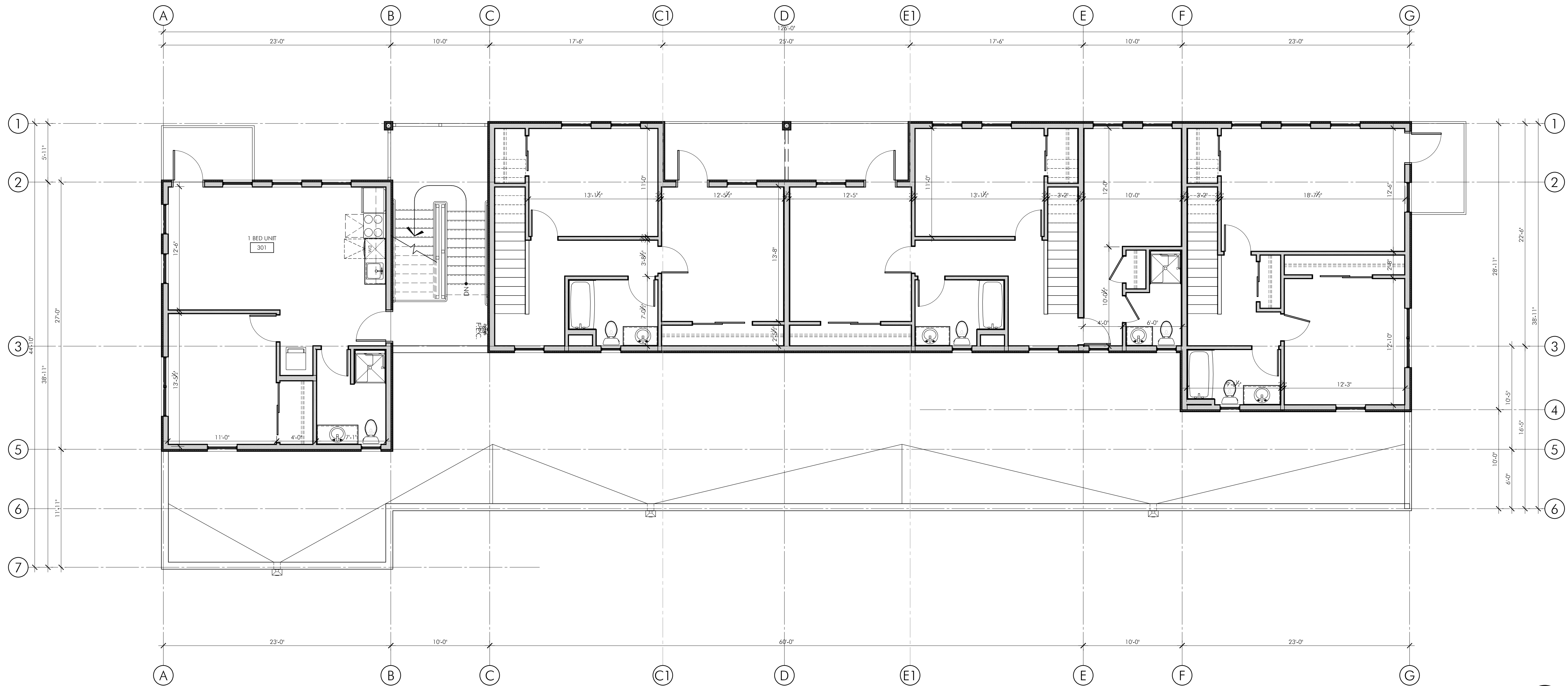
0' 2' 4' 6' 8' 10' 16' 3/16" = 1'-0"

NEW APARTMENT BUILDING
LAVA DRIVE APARTMENTS
1600 SE LAVAN DRIVE
MILWAUKIE, OREGON 97206

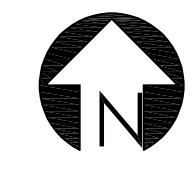


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PROJECT # 2022-175
DATE: 10 MAY 2023
REVISIONS



1 LEVEL 03: FLOOR PLAN
0' 2' 4' 6' 8' 10' 16' 3/16" = 1'-0"



NEW APARTMENT BUILDING
LAVA DRIVE APARTMENTS
1600 SE LAVAN DRIVE
MILWAUKIE, OREGON 97206

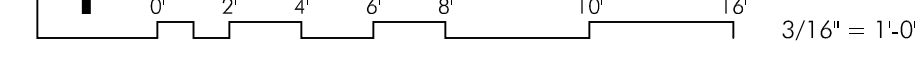
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PROJECT # 2022-175
DATE: 2 JUNE 2023
REVISIONS

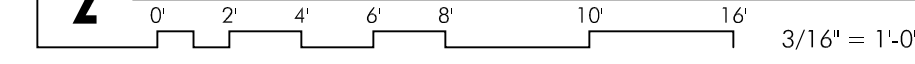
NEW APARTMENT BUILDING
LAVA DRIVE APARTMENTS
1600 SE LAVAN DRIVE
MILWAUKIE, OREGON 97206



1 NORTH ELEVATION



2 EAST ELEVATION





1 SOUTH ELEVATION
0 2 4 6 8 10 16
3/16" = 1'-0"



2 WEST ELEVATION
0 2 4 6 8 10 16
3/16" = 1'-0"

Exhibit K – Preliminary Stormwater Report

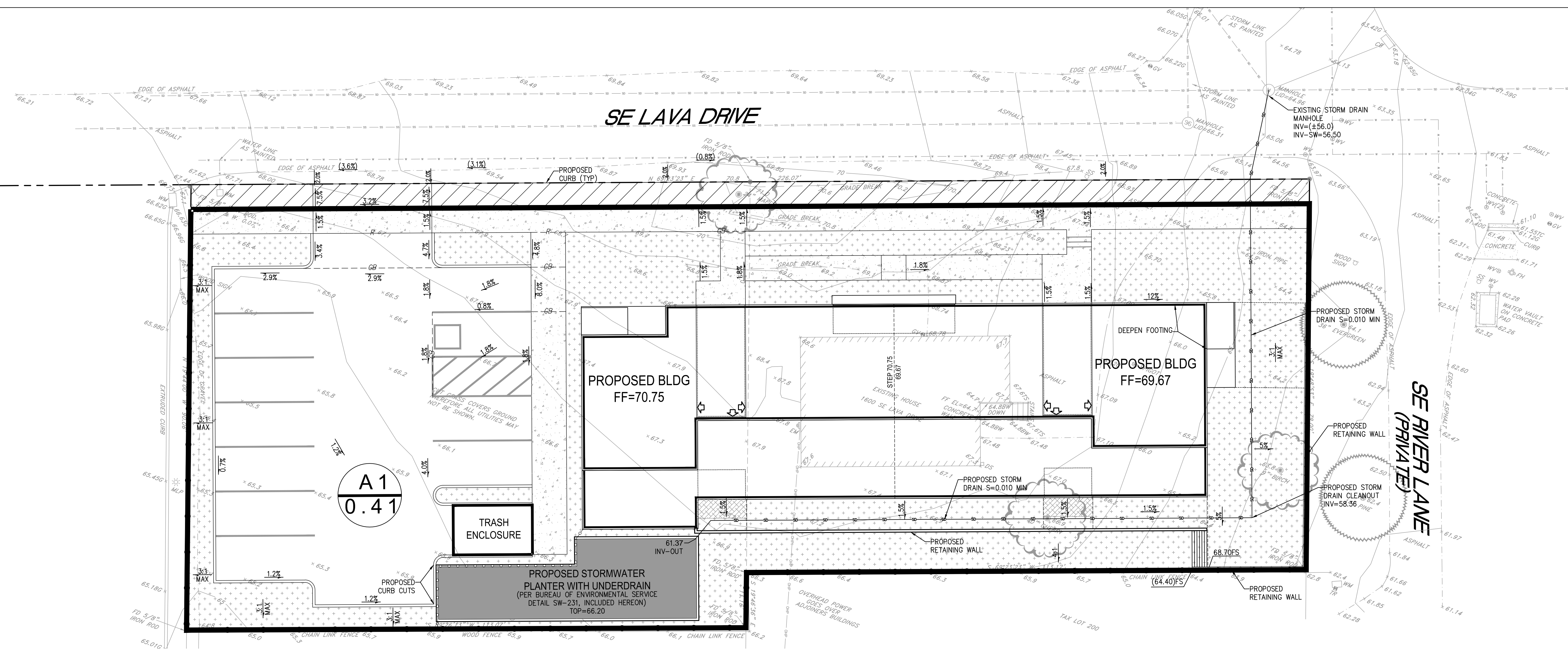


APPENDIX C – PLANS

OREGON OFFICE
345 WESTFIELD ST. #107
SILVERTON, OR. 97381
503.308.8554

HELLO@7OAKSENGINEERING.COM

CALIFORNIA OFFICE
12337 SEAL BEACH BLVD. #1028
SEAL BEACH, CA. 90740
562.537.6038



LEGEND:

- PERVIOUS/LANDSCAPE AREA
- STORMWATER PLANTER
- HYDROLOGY SUBAREA BOUNDARY LINE
- SUB-AREA LABEL

POST DEVELOPMENT INPUT PARAMETERS						
AREA	TOTAL AREA (SF)/(AC.)	IMPERVIOUS AREA (SF)	PERVIOUS AREA (SF)	IMPERVIOUS PERCENTAGE (%)	CN (POST)	SOIL TYPE
A	17,987/0.41	11,431	6,556	63.5%	91(WEIGHTED)	C

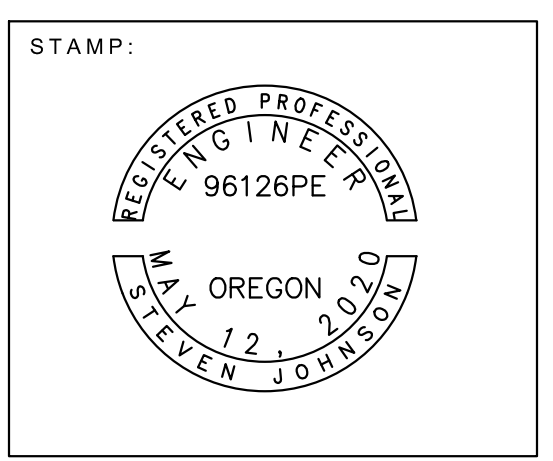
TOTAL SITE-RESULTS			
AREA	PRE-DEVELOPMENT (CFS)	POST-DEVELOPMENT INFILTRATION DISCARDED RATE (CFS)	VOLUME STORED IN BASIN
WQV		0.04 CFS @ 12.65 HRS	705
2-YR	0.08	0.05 CFS @ 13.15 HRS	1,279
5-YR	0.11	0.05 CFS @ 13.5 HRS	1,689
10-YR	0.12	0.06 CFS @ 13.7 HRS	2,124

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7 OAKS
 ENGINEERING
 345 WESTFIELD ST. #107
 SEASIDE, OR. 97138
 ADMIN@7OAKSENGINEERING.COM



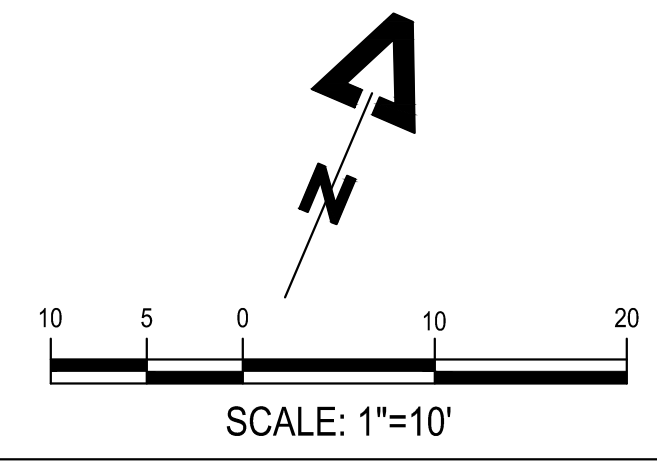
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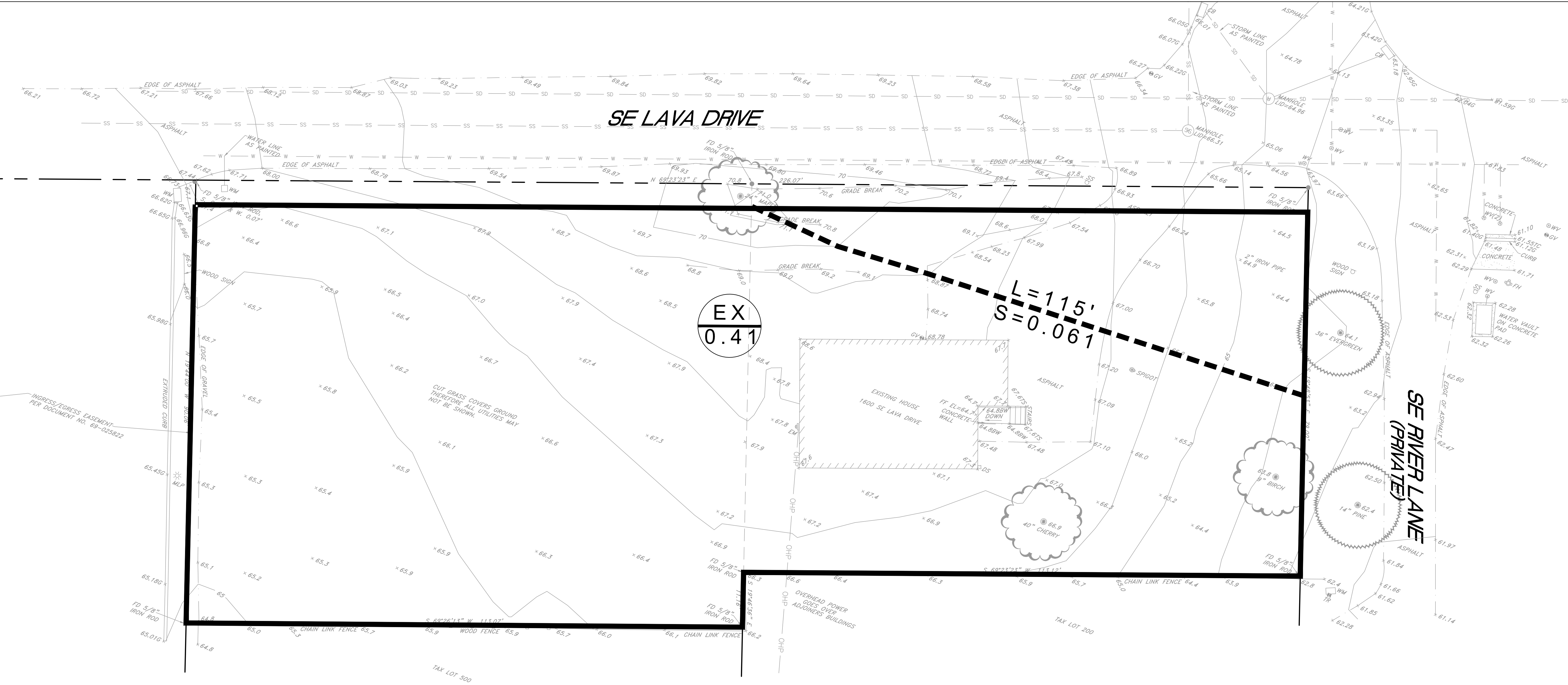
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PROJECT NAME:
LAVA DRIVE APARTMENTS
 PROJECT ADDRESS:
1600 SE LAVA DRIVE
MILWAUKIE, OR 97206

SHEET TITLE:
POST-DEVELOPMENT HYDROLOGY PLAN

DATE:
 05/31/2023
 SHEET NUMBER:
 (Blank)





EX
0.41

L=115'
S=0.061

LEGEND:
 HYDROLOGY SUBAREA BOUNDARY LINE
 SUB-AREA LABEL

PRE DEVELOPMENT INPUT PARAMETERS								
AREA	TOTAL AREA (SF)/(AC.)	IMPERVIOUS AREA (SF)	PERVIOUS AREA (SF)	IMPERVIOUS PERCENTAGE (%)	CN (PRE)	SOIL TYPE	LENGTH	SLOPE
EX	17,987/0.41	2,362	15,625	13%	79	C	115	6.1%

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 DIAL 811 or 1-800-332-2344

7 OAKS ENGINEERING
 345 WESTFIELD ST. #107
 SELVIA, OR 97136
 503-768-8585
 ADMIN@7OAKSENGINEERING.COM

STAMP:

NO	DATE	ISSUE DESCRIPTION

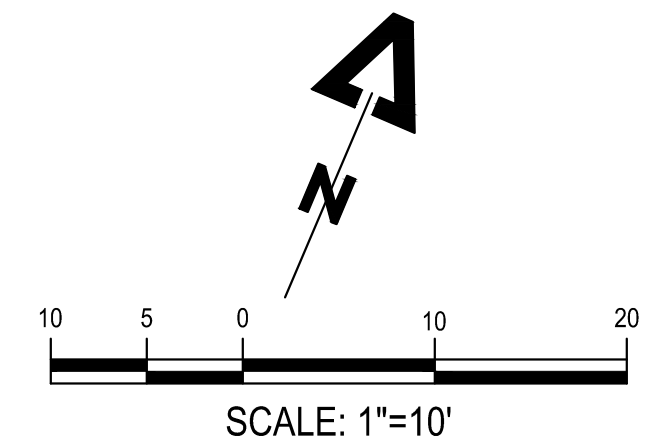
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QC BY: _____ DRAWN BY: _____

PROJECT NAME:
LAVA DRIVE APARTMENTS
 PROJECT ADDRESS:
1600 SE LAVA DRIVE
MILWAUKIE, OR 97206

SHEET TITLE:
PRE-DEVELOPMENT HYDROLOGY PLAN

DATE:
06/09/2023
 SHEET NUMBER:



PROJECT DIRECTORY:

CIVIL ENGINEER: ARCHITECT:

7 OAKS ENGINEERING, INC.
STEVEN JOHNSON, P.E.
345 WESTFIELD ST. #107
SILVERTON, OR. 97381
503.308.8520
STEVEN@7OAKSENGINEERING.COM

STUDIO 3 ARCHITECTURE, INC.
GENE BOLANTE, AIA
275 COURT STREET NE
SALEM, OREGON 97301
971.239.0269
GENE@STUDIO3ARCHITECTURE.COM

LAND SURVEYOR: OWNER:

CHASE, JONES & ASSOCIATES, INC.
BRADY T. MCGARRY
503 NE COUCH ST.
PORTLAND, OREGON 97232
503.228.9844

WDC PROPERTIES
FRANK STOCK
PO BOX 96068
PORTLAND, OREGON 97296
FSTOCK@WDCPROPERTIES.COM

GEOTECHNICAL:

GEO PACIFIC, INC.
JAMES D. IMBRIE, G.E.
14835 SW 72ND AVENUE
PORTLAND, OREGON 97224
503.598.8445

UTILITY PURVEYORS:

WATER:

CITY OF MILWAUKIE
10722 SE MAIN STREET
MILWAUKIE, OR 97222
503.786.7525

STORM DRAIN:

CITY OF MILWAUKIE
10722 SE MAIN STREET
MILWAUKIE, OR 97222
503.786.7525

SEWER:

CITY OF MILWAUKIE
10722 SE MAIN STREET
MILWAUKIE, OR 97222
503.786.7525

NATURAL GAS:

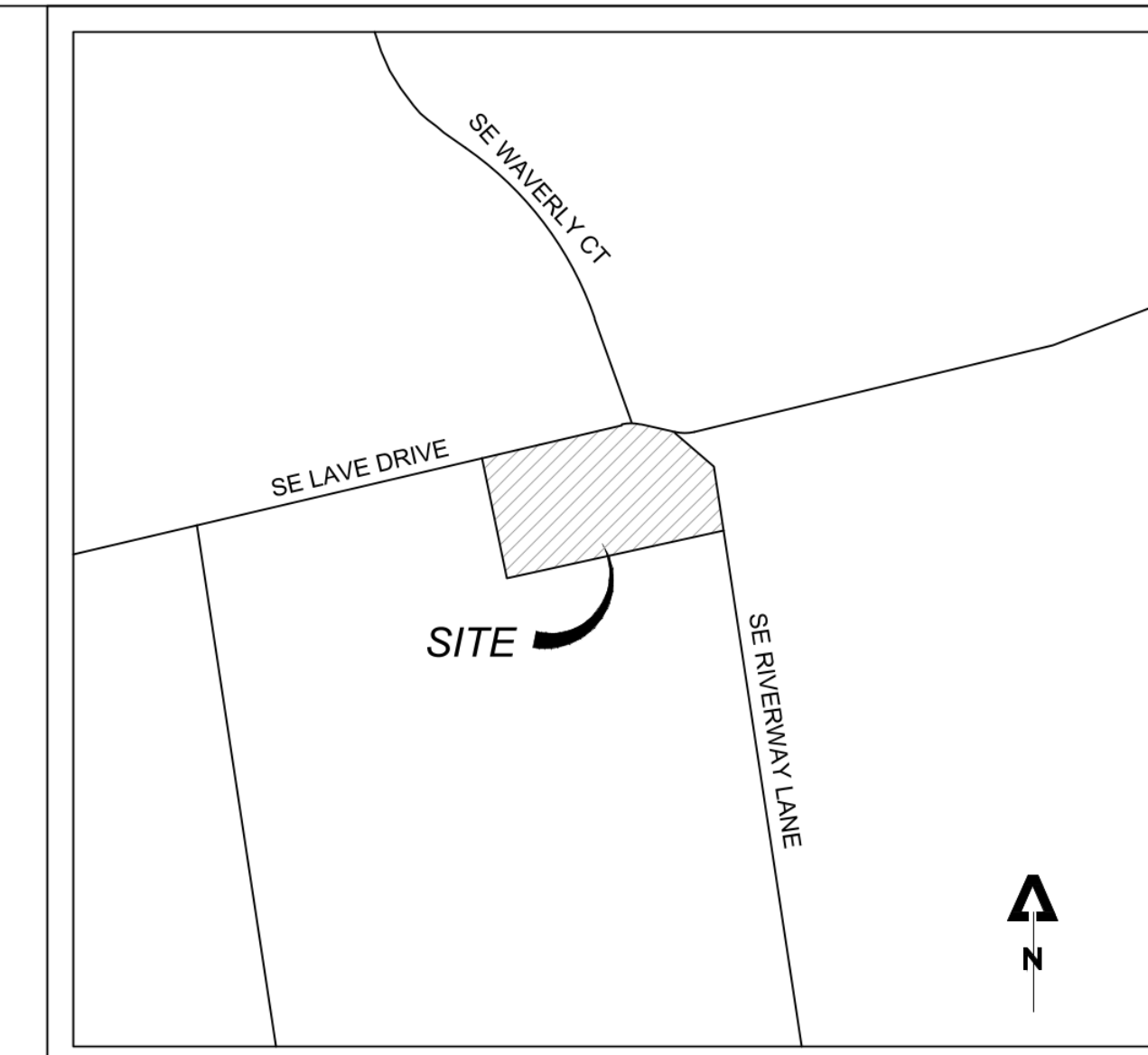
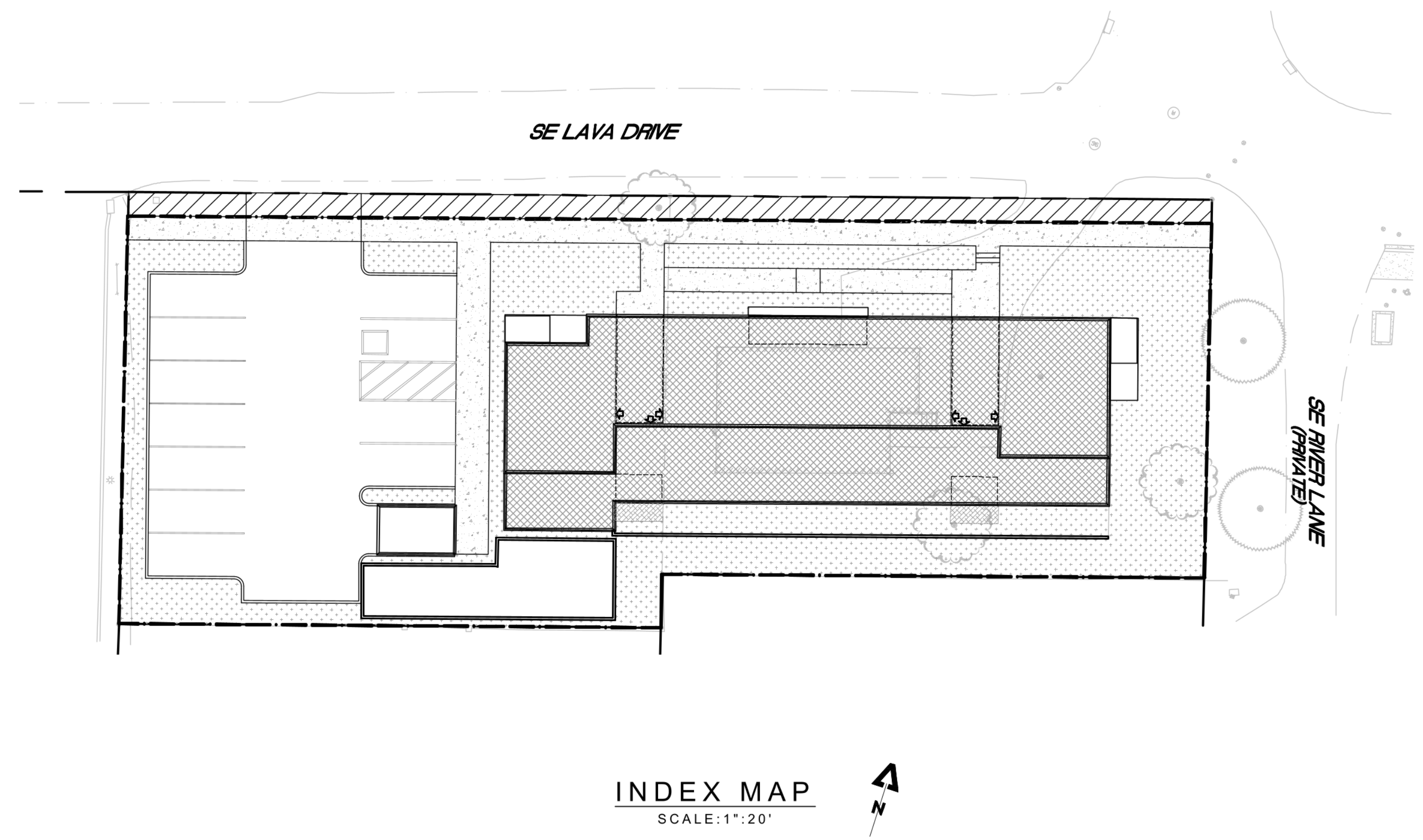
NORTHWEST NATURAL GAS COMPANY
220 NW 2ND AVE.
PORTLAND, OR.
800.422.4012

ELECTRIC:

PORTLAND GENERAL ELECTRIC
121 SW SALMON STREET
PORTLAND, OR. 97204
800.542.8818

PRELIMINARY ENGINEERING PLANS FOR: LAVA DRIVE APARTMENTS

AT 1600 SE LAVA DRIVE
MILWAUKIE, OREGON 97206



VICINITY MAP

INDEX MAP

SCALE: 1"=20'

ABBREVIATIONS:

PL	PROPERTY LINE	TYP.	TYPICAL
FF	FINISHED FLOOR	MIN.	MINIMUM
TC	TOP OF CURB	SS	SANITARY SEWER
FS	FINISHED SURFACE	SD	STORM DRAIN
FL	FLOW LINE	CF	CURB FACE
FG	FINISHED GRADE	WM	WATER METER
GB	GRADE BREAK	FDC	FIRE DEPARTMENT CONNECTION
CL	CENTERLINE	APN	ACCESSOR'S PARCEL MAP
R	RIDGE LINE	SQ.FT	SQUARE FEET
R/W	RIGHT OF WAY	INV.	INVERT
WV	WATER VALVE	BF	BACKFLOW
PR.	PROPOSED	CFS	CUBIC FEET PER SECOND
NAP	NOT A PART	SCH.	SCHEDULE
FT	FEET	PVC	POLYVINYL CHLORIDE
EV	ELECTRIC VEHICLE	SDR	SPECIAL DRAWING RIGHT
CAV	CLEAN AIR VEHICLE	PSI	POUNDS PER SQUARE INCH
STD.	STANDARD	NFPA	NATIONAL FIRE PREVENTION ASSOCIATION
AC.	ACRES	CB	CATCH BASIN
CUP	CONDITIONAL USE PERMIT	D	DIAMETER
EX.	EXISTING	VCP	VITRIFIED CLAY PIPE

SHEET INDEX:

- 1 - TITLE SHEET
- 2 - PRELIMINARY GRADING PLAN
- 3 - PRELIMINARY WET UTILITY PLAN

NOTICE TO EXCAVATORS:

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PROJECT SURVEY:

THIS SURVEY IS BASED UPON FIELD WORK COMPLETED BY SEPTEMBER 14, 2022.

BENCHMARK: THE ELEVATIONS ARE BASED ON THE NAVD 88 VERTICAL DATUM FROM A STATIC GPS OBSERVATION AS COMPUTED BY TRIMBLE POST-PROCESSING SERVICE BASED ON RTX TECHNOLOGY. THE STATIC OBSERVATION WAS PERFORMED ON SEPTEMBER 6, 2022.

7 OAKS ENGINEERING

345 WESTFIELD ST. #107
SILVERTON, OR. 97381
503.308.8520
ADMIN@7OAKSENGINEERING.COM

STAMP:



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GC BY: DRAWN BY:

PROJECT NAME:
LAVA DRIVE APARTMENTS
PROJECT ADDRESS:
1600 SE LAVA DRIVE
MILWAUKIE, OR 97206

SHEET TITLE:

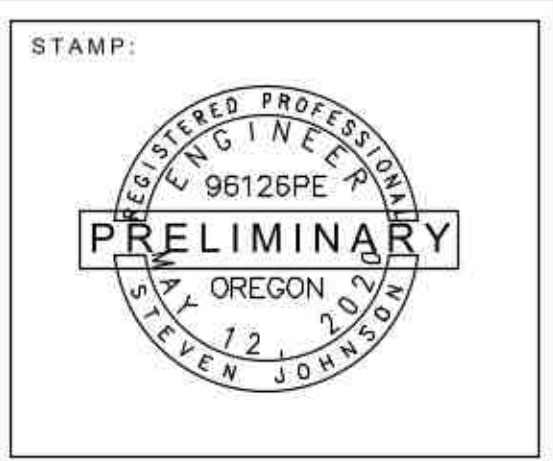
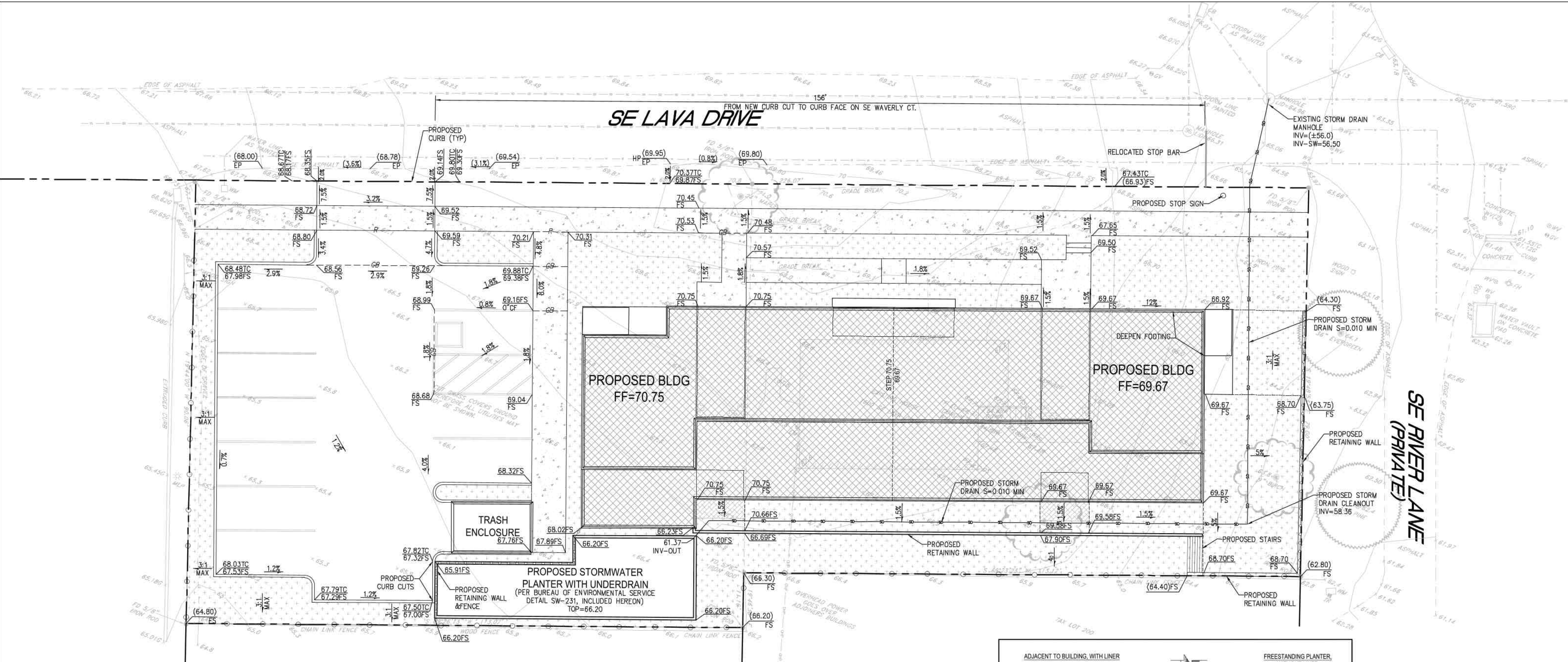
TITLE SHEET

DATE:
07/27/2023

SHEET NUMBER:
C1

FEMA:

PROJECT IS LOCATED WITHIN FEMA FLOOD ZONE 'X'
PER MAP 41005C0009D, EFFECTIVE 06/17/2008



NO.	DATE	ISSUE DESCRIPTION

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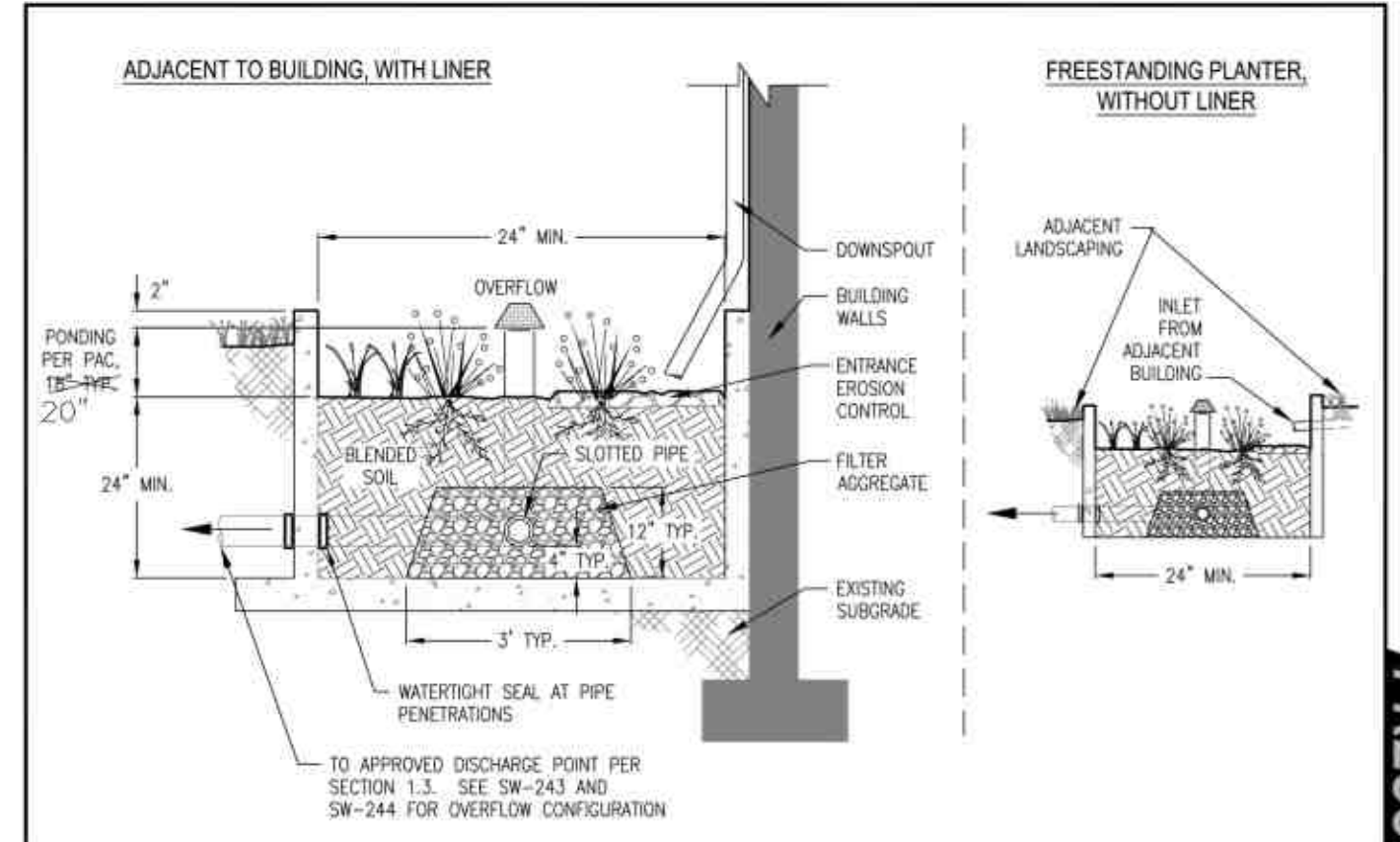
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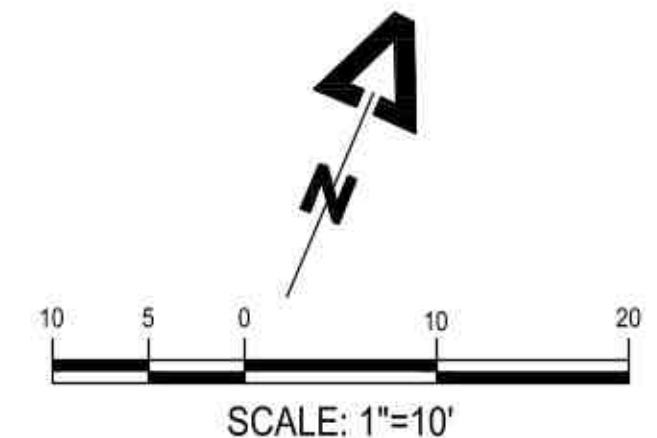


- Detail intended as an example. Detail must match PAC assumptions and/or design report.
- Setbacks: No setback is required for lined planters. For infiltration planters the setbacks are 5' from property lines except need to right-of-way, and 17' from building foundations. The planter wall height must be less than 30" above finished grade if within 5' of property line.
- Planter Structure: A single pour, monolithic concrete shell without cold joints is required unless otherwise approved.
- Waterproofing: No additional waterproofing is needed if the structure is a single pour, monolithic concrete shell.
- Blended Soil: Use BS Standard soil blend for stormwater facilities (SWM Section 6.3) unless otherwise approved. Install minimum of 2" of blended soil.
- Underdrain System: Sizing is per the PAC. The underdrain must be 4" slotted schedule 40 PVC well casing pipe manufactured with .055" slots, 6 slots per row. Embed the underdrain in 2" No.10 washed angular aggregate. See SW-243 for longitudinal section and SW-244 for office examples. Conform with Oregon Plumbing Specialty Code (OPSC) requirements. Alternative configurations and materials such as cellular storage systems, drainage mats, and non-standard aggregates may be used under the Performance Approach, with BES approval.
- Overflow: Overflow elevation must allow for 2" of freeboard, minimum. Protect from debris and sediment with strainer or grate.
- Vegetation: Refer to plant list in SWM Section 3.5. Minimum container size is 1 gal. Number of plantings per 100sf of facility area: 80 herbaceous plants OR 72 herbaceous plants and 4 small shrubs.
- Entrance Erosion Control: Install river rock, flagstone, or similar to dissipate the energy of incoming water at entrances and ends of downspout extensions.
- Check Dams: Spacing per the PAC. Check dam lengths must equal the full width of the planter.
- Inspections: Call BDS NR Inspection Line, (503) 823-7000, request 487. 3 inspections required.

CONSTRUCTION REQUIREMENTS
Do not allow temporary storage of construction waste or materials in the facilities. Do not allow entry of runoff or sediment during construction.

STORMWATER MANAGEMENT TYPICAL DETAILS FOR PRIVATE PROPERTY

PLANTER WITH UNDERDRAIN SW-231



PROJECT NAME:
LAVA DRIVE APARTMENTS

PROJECT ADDRESS:
1600 SE LAVA DRIVE

MILWAUKIE, OR 97206

SHEET TITLE:
PRELIMINARY GRADING PLAN

SHEET NUMBER:
C2

DATE:
07/27/2023

7OAKS
ENGINEERING

345 WESTFIELD ST. #107
SUNVISTON, OR. 97131
503.684.6545
ADMIN@7OAKSENGINEERING.COM

STAMP:



NO DATE ISSUE DESCRIPTION

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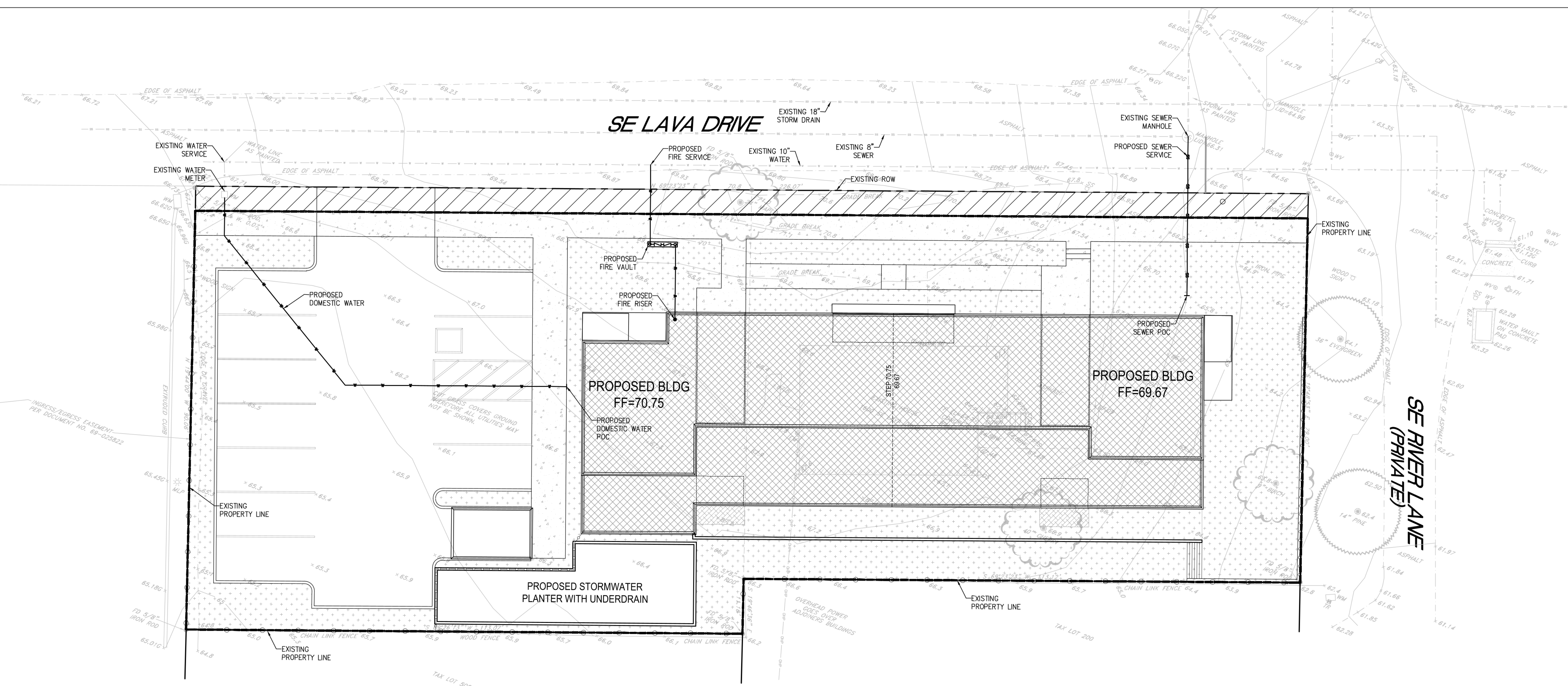
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QC BY: DRAWN BY:

PROJECT NAME:
LAVA DRIVE APARTMENTS
PROJECT ADDRESS:
1600 SE LAVA DRIVE
MILWAUKIE, OR 97206

SHEET TITLE:
PRELIMINARY WET UTILITY PLAN

DATE: **07/27/2023**
SHEET NUMBER:
C3



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