

AREA #1
EXISTING DEVELOPMENT ESTIMATES:
RESIDENTIAL= 162 DWELLING UNITS

TOTAL FLOW = 56,700 GPD

AREA #2
EXISTING DEVELOPMENT ESTIMATES:
HOTEL= 152 ROOMS

TOTAL FLOW = 19,760 GPD

AREA #3
EXISTING DEVELOPMENT ESTIMATES:
RESIDENTIAL= 53 DWELLING UNITS

TOTAL FLOW = 18,550 GPD

TOTAL PEAK FLOW = 74,200 GPD = 0.07 MGD

AREA #4
EXISTING DEVELOPMENT ESTIMATES:
RESIDENTIAL= 256 DWELLING UNITS
OFFICE/RETAIL = 113,830 SF

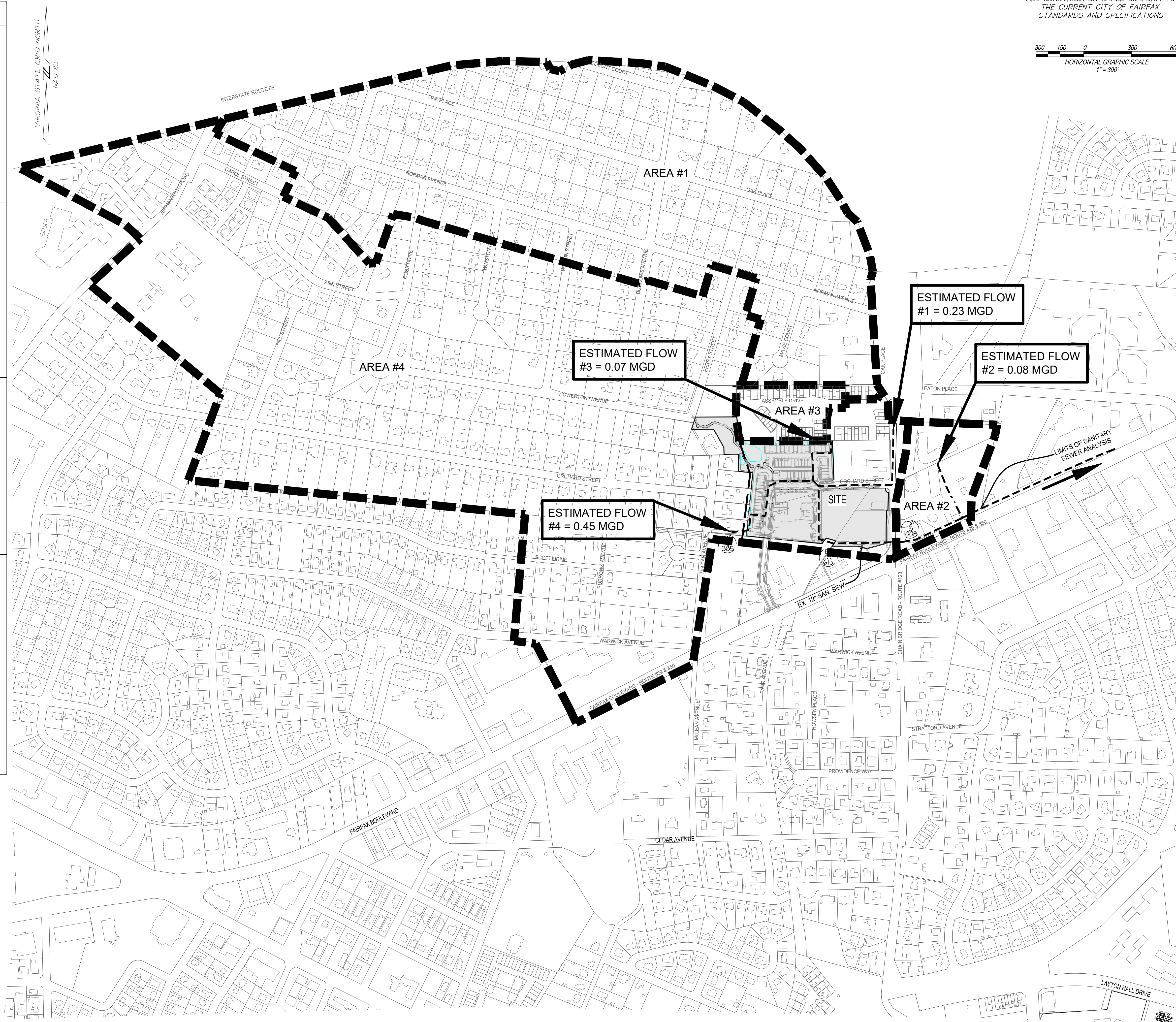
FLOW ESTIMATES:
256 UNITS x 350 GPD/UNIT = 89,600 GPD
113,830 SF OFFICE/RETAIL x 200 GPD/1000 SF =
22,766 GPD

TOTAL FLOW = 112,366 GPD

TOTAL PEAK FLOW = 449,464 GPD = 0.45 MGD

NOTES:

1. SEE SHEET 9 FOR SANITARY SEWER ANALYSIS.
2. SEE THE NARRATIVE TITLED "ANALYSIS OF EXISTING 12" SEWER" NARRATIVE ON SHEET 9 FOR FLOW ASSUMPTIONS.
3. A PEAK FACTOR OF 4.0 WAS USED FOR ALL OFFSITE SANITARY FLOWS.

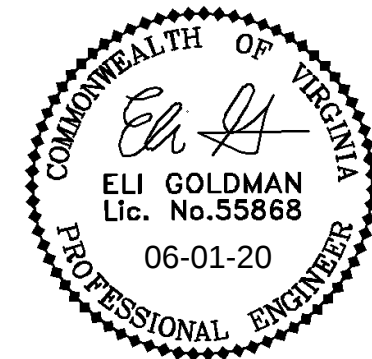


christopher
consultants

9900 main st.
suite 400
fairfax, va 22031

engineering surveying land planning

p 703.273.6820



**NORTHFAX WEST
MASTER DEVELOPMENT PLAN**

CITY OF FAIRFAX, VIRGINIA

[illegible]

PROJECT No.: 13139.005.00
DRAWING No.: 109632
DATE: 11-21-2019
DESIGN: EG
DRAWN: JS
CHECKED: KMW

SHEET TITLE:

SANITARY SEWER OFF-SITE MAP

SHEET No.

8

SCALE: 1"=300'



THE PURPOSE OF THIS ANALYSIS IS TO DEMONSTRATE THE CAPACITY AND HYDRAULIC ADEQUACY OF THE DOWN STREAM SANITARY SEWER MAIN.

EXISTING CONDITIONS:
CURRENTLY, THE EXISTING SITE CONSISTS OF TWO (2) 1-STORY BRICK & FRAME BUILDINGS, ONE (1) 4-STORY OFFICE BUILDING, AND ONE GASOLINE STATION WITH CONVENIENCE STORE. THE TWO (2) 1-STORY BRICK & FRAME BUILDINGS CONNECT TO EXISTING SANITARY LINE AT ORCHARD STREET. THE 4-STORY OFFICE BUILDING AND GASOLINE STORE CONNECT TO EXISTING SANITARY MAIN AT CHAIN BRIDGE ROAD AND ENTER INTO ORCHARD STREET (INTO THE PROJECT SITE). THE EXISTING SANITARY SEWER CONTINUE TOWARDS THE SOUTH INTO EXISTING MANHOLE 5615 AND RUNS ACROSS TH CHAIN BRIDGE ROAD TO A 12-INCH SEWER MAIN INTO EXISTING MANHOLE S1008.

THE UPSTREAM FOR THIS SEWER-SHED IS SHOWN ON SHEET 8, DESIGNATED AS ESTIMATED FLOW #1, #3 AND #4.

THE ON-SITE LATERALS WILL BE DEMOLISHED TO MAKE ROOM FOR THE NEW BUILDING. NEW LATERALS AND SANITARY MAIN WILL BE CONSTRUCTED. EXISTING SANITARY MAIN FROM THE WEST WILL BE REROUTED TO EX. S469. ALSO THE EXISTING SANITARY LINE FROM THE NORTH SIDE WILL BE REROUTED TO CONNECT TO THE PROPOSED MANHOLE S22.

THE SANITARY SEWER WAS ANALYZED FROM THE ON-SITE 10-INCH AND 12-INCH SEWER TO EXISTING MANHOLE S469 AND THEN TO THE OUTFALL TO EXISTING MANHOLE S-S1.

THE VOLUME OF FLOW USED IN THIS ANALYSIS HAS BEEN COMPUTED IN ACCORDANCE WITH STATE CODE 9VAC25-790-460 AND 9VAC25-790-310. SEE COMPUTATIONS ON THIS SHEET.

IT IS OUR CONCLUSION THAT THE PROPOSED ON-SITE 12-INCH SEWER AND EXISTING DOWNSTREAM 12-INCH SEWER HAS CAPACITY AND HYDRAULIC ADEQUACY WITH THE ADDED REDEVELOPMENT FLOWS.

A SEPARATE SANITARY SEWER ANALYSIS WILL BE COMPLETED FOR THE FUTURE DEVELOPMENT PARCEL ONCE THE PROGRAM IS KNOWN.

 : PROPOSED SANITARY MANHOLE AND FLOW DIRECTION

 : PROPOSED SANITARY STRUCTURE NUMBER

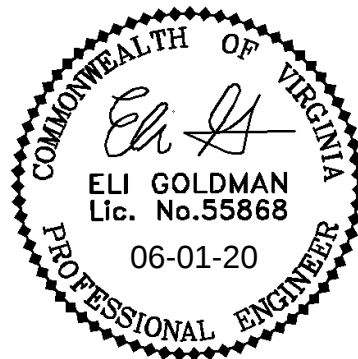
 : EXISTING SANITARY MANHOLE AND FLOW DIRECTION

 : EX. SANITARY STRUCTURE NUMBER

Discharge Facility	No. of Units		No. of People		No. of Dwellings		Average Flow for Dwellings (100 gpd/person)		No. of Beds		Average Flow per Bed (200 gpd/Bed)		Ultimate Floor Space		Average Flow per 1,000 sf (250 gpd/1,000sf)		Total Incremental Flow (gpd)		Total Cumulative Flow (gpd)		Sanitary From		Sanitary To	
Townhouses	15	5	75	7500												7,500	7,500	\$15		\$14				
Townhouses	41	5	205	20500												20,500	28,000	\$12		\$11				
Senior Living									200	40,000						40,200	68,200	\$11		\$10				
Future Development												114,000		28500		114,000	182,200	EX.\$615	EX.\$1008					

TO	UPPER INV	LOWER INV	L (FT)	SLOPE (%)	DIA (IN)	MATERIAL	N	CAPACITY (cfs)	CAPACITY (MGD)	DESIGN FLOW (cfs)	DESIGN FLOW (MGD)	V (ft/s)	Assumptions	Inc (MGD)	Peak Flow Factor	Design Inc (MGD)
S15	349.36	348.79	110.02	0.52	12	PVC	0.013	3.27	2.11	0.70	0.450	3.1	PEAK FLOW FROM OFFSITE AREA #4 = 0.45 MGD			0.450
S14	349.26	348.32	94.00	1.00	12	PVC	0.013	3.20	2.07	0.73	0.473	3.1		0.006	4.0	0.023
S13	348.22	346.72	279.62	0.54	12	PVC	0.013	3.20	2.07	0.73	0.473	3.1				0.000
S12	346.62	345.12	300.39	0.50	12	PVC	0.013	2.71	1.75	0.73	0.473	3.1				0.000
S11	342.60	342.35	31.20	0.80	12	PVC	0.013	3.43	2.22	0.93	0.604	4.1	PEAK FLOW FROM OFFSITE AREA #3 = 0.07 MGD	0.015	4.0	0.132
S11	342.25	341.50	102.40	0.73	12	PVC	0.013	3.27	2.11	0.93	0.604	3.8				0.000
S10	341.40	339.69	192.60	0.89	12	PVC	0.011	3.61	2.33	1.48	0.955	4.6	PEAK FLOW FROM OFFSITE AREA #1 = 0.23 MGD	0.030	4.0	0.351
EX. S615	339.59	337.15	114.70	2.13	12	RCP	0.015	4.85	3.13	1.48	0.955	5.0				0.000
EX. S1008	336.89	332.59	430.00	1.00	12	RCP	0.015	3.32	2.15	2.01	1.297	4.2		0.086	4.0	0.342

g sewage flow estimates on sheet 8.
shown are calculated per a partial flow analysis.
4.0 was used on all flows.
rt of EX. S1008 is an assumed elevation and will need to be surveyed.



**NORTHFAX WEST
MASTER DEVELOPMENT PLAN**

CITY OF FAIRFAX, VIRGINIA

[illegible]

PROJECT No.: 13139.005.00
DRAWING No.: 109632
DATE: 11-21-2019
DESIGN: EG
DRAWN: JS
CHECKED: KMW

SANITARY SEWER ANALYSIS

SHEET No.

**NORTHFAX WEST
MASTER DEVELOPMENT PLAN**

CITY OF FAIRFAX, VIRGINIA

[illegible]

PROJECT No.: 13139.005.00
DRAWING No.: 109632
DATE: 11-21-2019
DESIGN: EG
DRAWN: JS
CHECKED: KMW

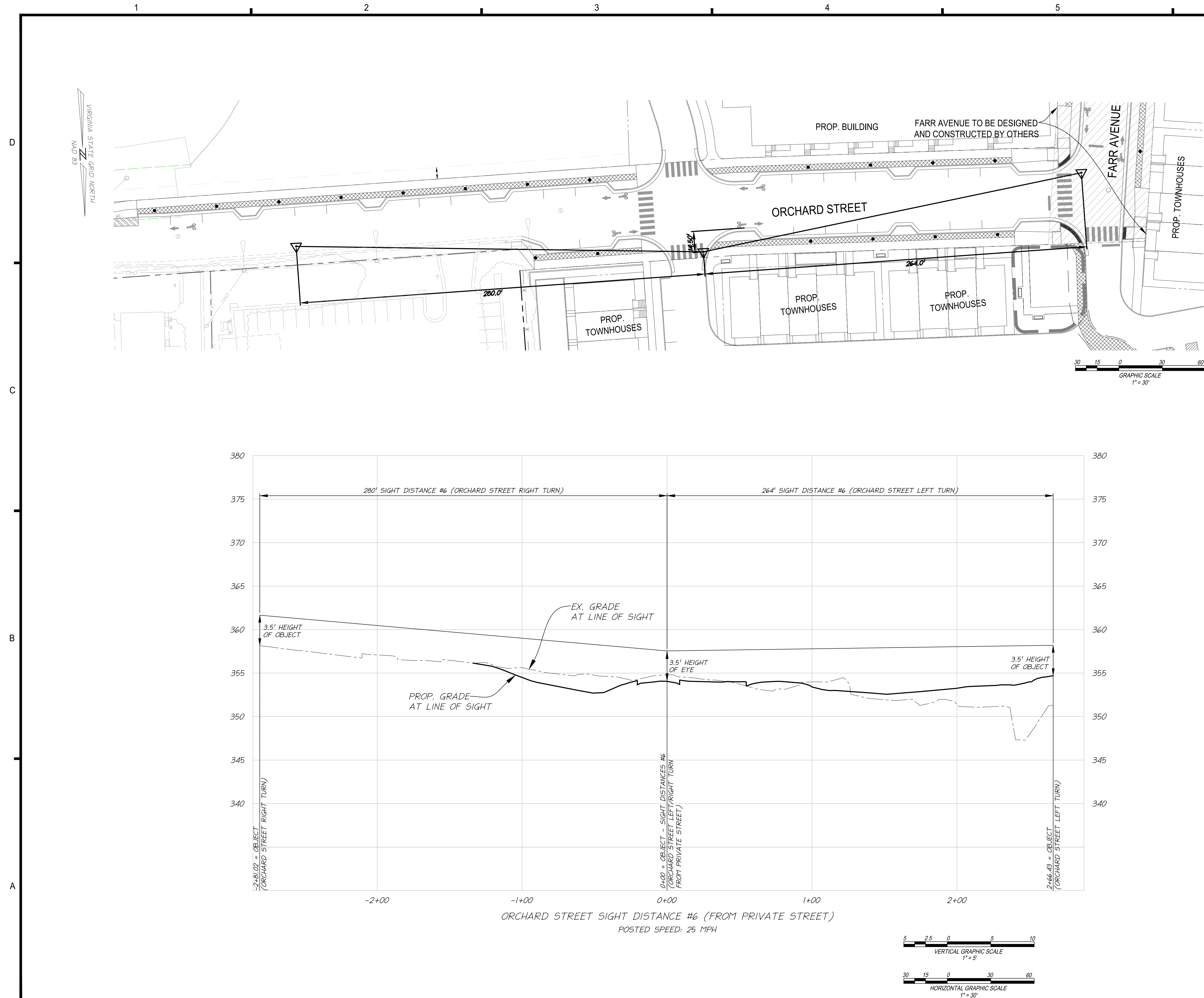
SHEET TITLE:

SIGHT DISTANCE

SHEET No.

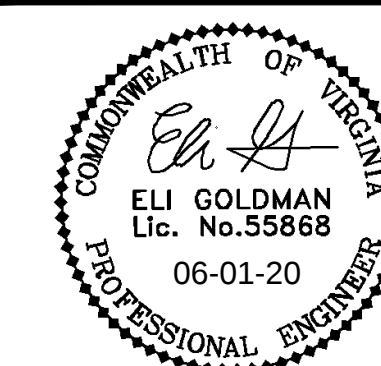
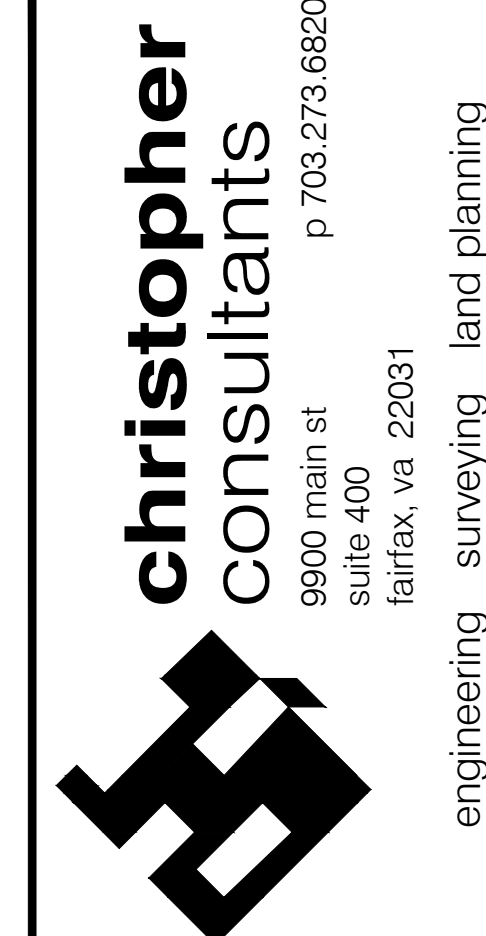
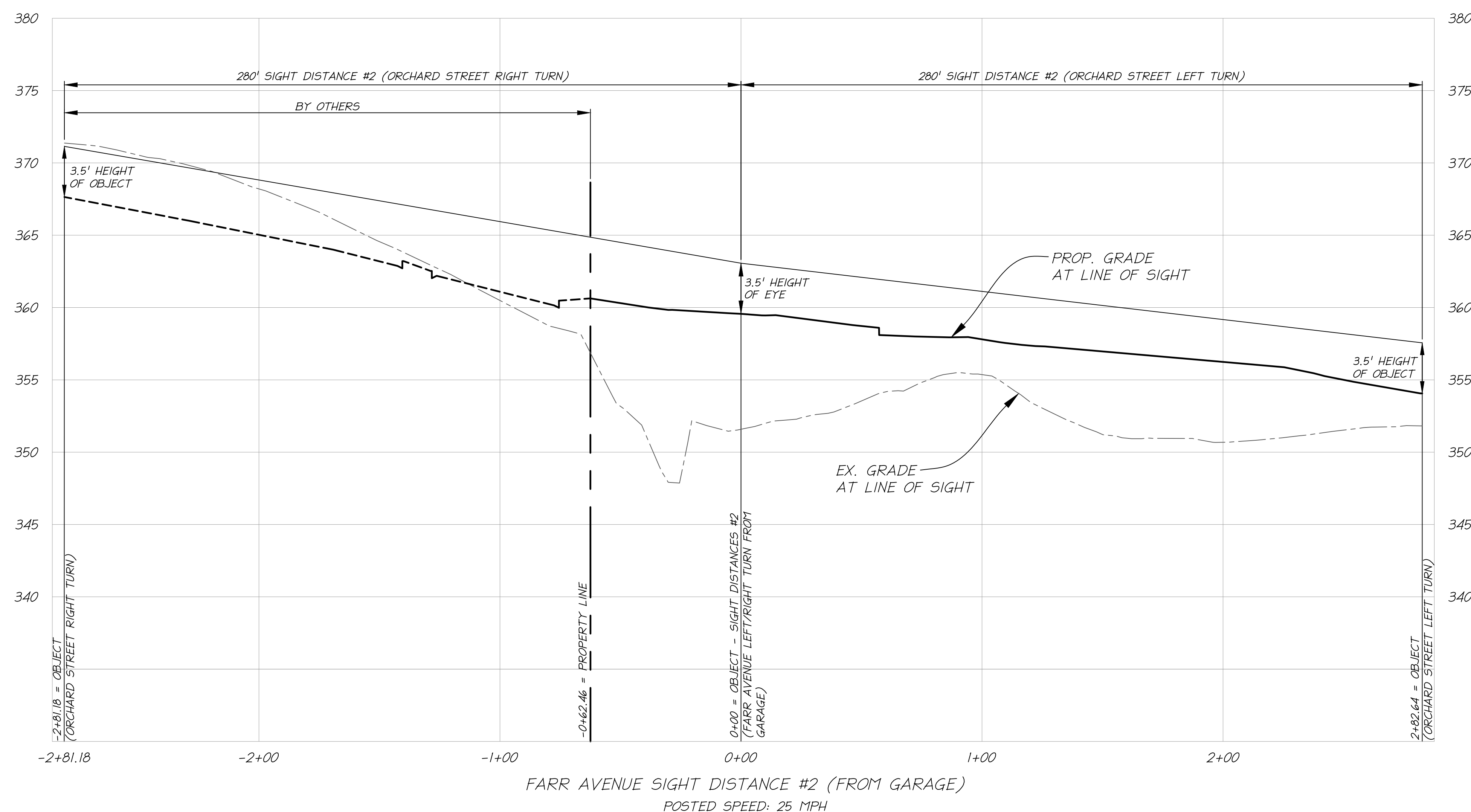
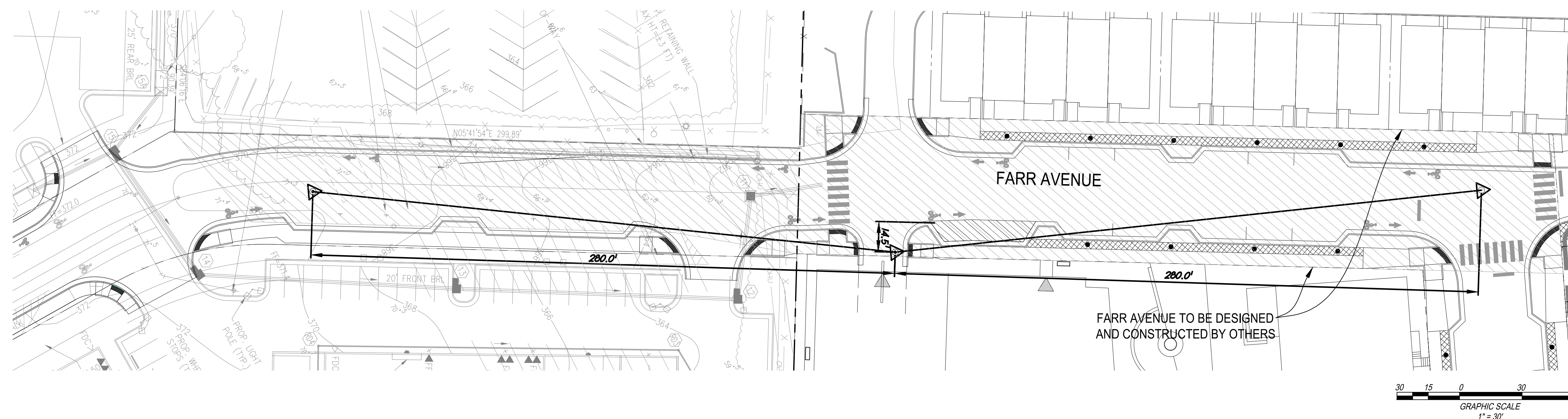
3

SCALE: SEE DWGS.





ALL CONSTRUCTION SHALL CONFORM TO
THE CURRENT FAIRFAX CITY AND VIRGINIA
DEPARTMENT OF TRANSPORTATION
STANDARDS AND SPECIFICATIONS



**NORTHFAX WEST
MASTER DEVELOPMENT PLAN**

CITY OF FAIRFAX, VIRGINIA

[illegible]

PROJECT No.: 13139.005.00
DRAWING No.: 109632
DATE: 11-21-2019
DESIGN: EG
DRAWN: JS
CHECKED: KMW

SHEET TITLE:

SIGHT DISTANCE

SHEET No.

14

SCALE: SEE DWGS



Copy of Tower 403 Fire Truck

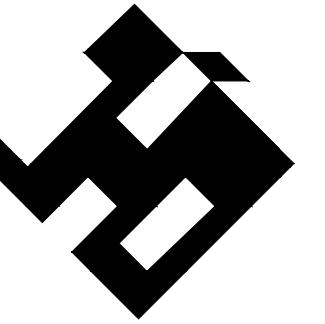
Overall Length	47.375ft
Overall Width	10.083ft
Overall Body Height	12.125ft
Min Body Ground Clearance	1.512ft
Track Width	7.667ft
Lock-to-lock time	4.00s
Wall to Wall Turning Radius	54.980ft



B

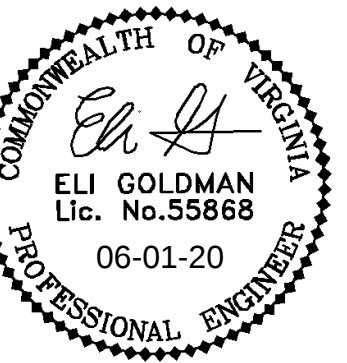
A

VIRGINIA STATE GRID NORTH
NAD 83



3500 main st
suite 400
fairfax, va 22031
surveying land planning

engineering	surveying	land planning
-------------	-----------	---------------



**NORTHFAX WEST
MASTER DEVELOPMENT PLAN**

CITY OF FAIRFAX, VIRGINIA

[illegible]

PROJECT No.: 13139.005.00
DRAWING No.: 109632
DATE: 11-21-2019
DESIGN: EG
DRAWN: JS
CHECKED: KMW

SHEET TITLE:

TURNING MOVEMENTS

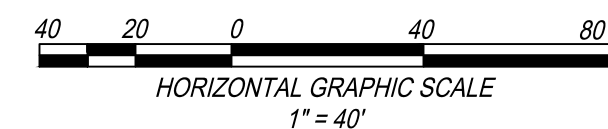
SHEET No.

15

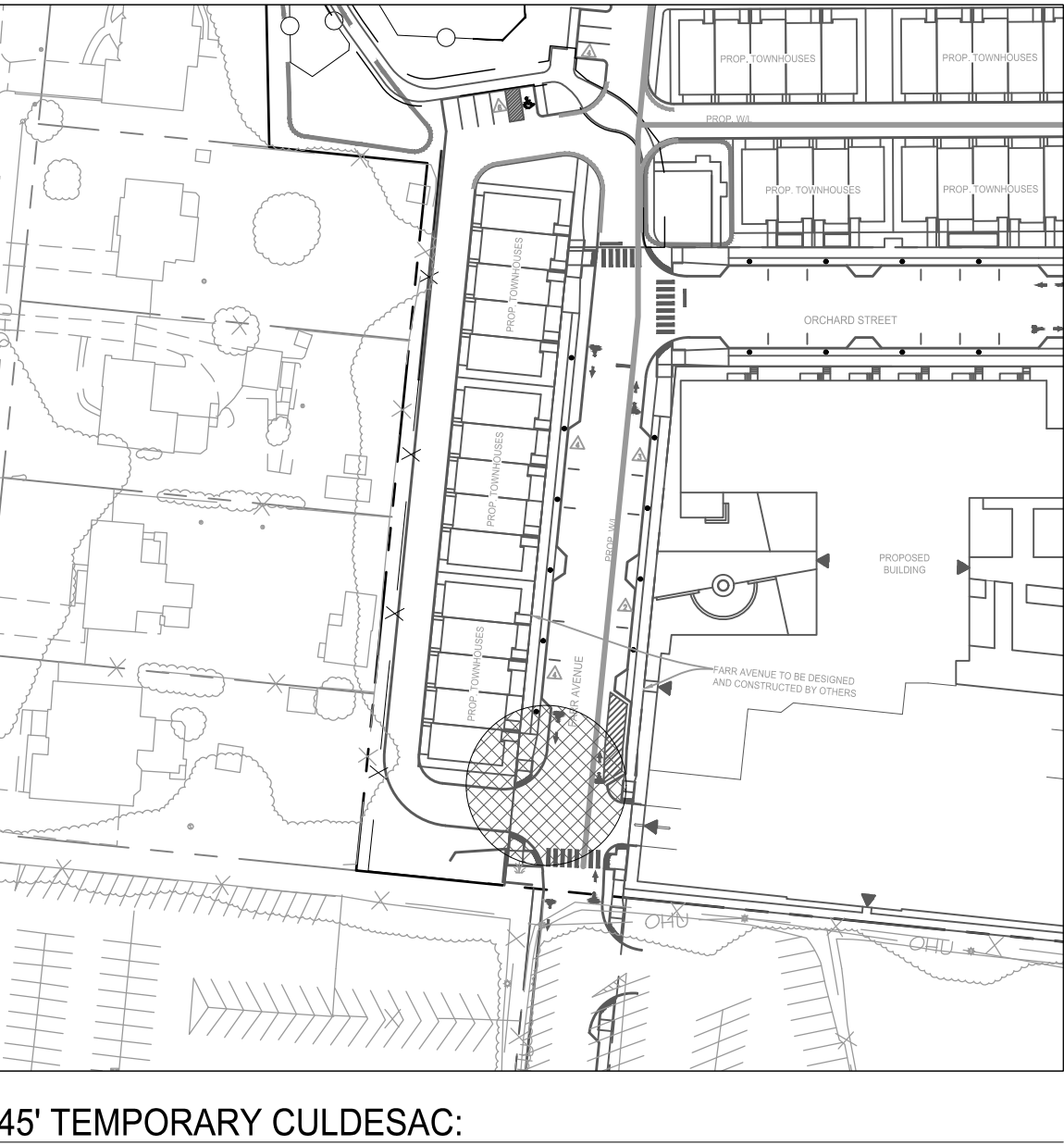
SCALE: 1"=40'

FIRE TRUCK TURNING MOVEMENTS

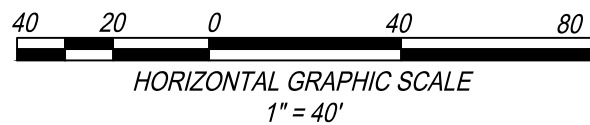
SCALE: 1"=40'



ALL CONSTRUCTION SHALL CONFORM TO
THE CURRENT FAIRFAX CITY AND VIRGINIA
DEPARTMENT OF TRANSPORTATION
STANDARDS AND SPECIFICATIONS



ALL CONSTRUCTION SHALL CONFORM TO
THE CURRENT CITY OF FAIRFAX
STANDARDS AND SPECIFICATIONS



**NORTHFAX WEST
MASTER DEVELOPMENT PLAN**

CITY OF FAIRFAX, VIRGINIA

**christopher
consultants**

9900 main st
suite 400
fairfax, va 22031

p 703.273.6820

engineering surveying land planning

[illegible]

PROJECT No.: 13139.005.00
DRAWING No.: 109632
DATE: 11-21-2019
DESIGN: EG
DRAWN: JS
CHECKED: KMW

SHEET TITLE:

FIRE SERVICE PLAN

SHEET No.

16

SCALE: 1"=40'

