A vibrant, abstract background composed of numerous 3D-style geometric shapes, primarily cubes and rectangular prisms, rendered in a variety of colors including orange, red, teal, blue, yellow, and pink. These shapes are arranged in a way that suggests a dense urban landscape or a complex architectural model.

ROADRUNNER

EXECUTIVE TOWER

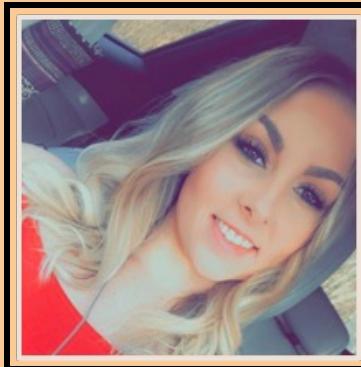
RAACC Civil Engineering, LP

MEET THE TEAM



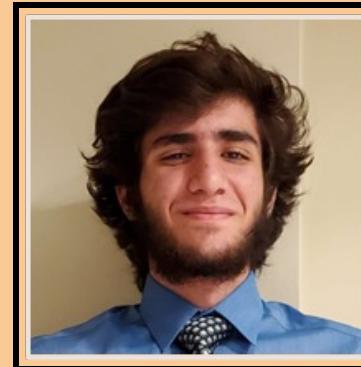
Carter Bryant

Land
Development, Codes,
LID



Cheyenne Stevens

Schedule & Cost,
Utilities, Environmental



Anar Yazji

Structural Design &
Detailing



Ahmad Alnourachi

Geotechnical Analysis,
Soil Treatment



Reynaldo Reyna

Drainage, Site Plans

ROADRUNNER EXECUTIVE TOWER

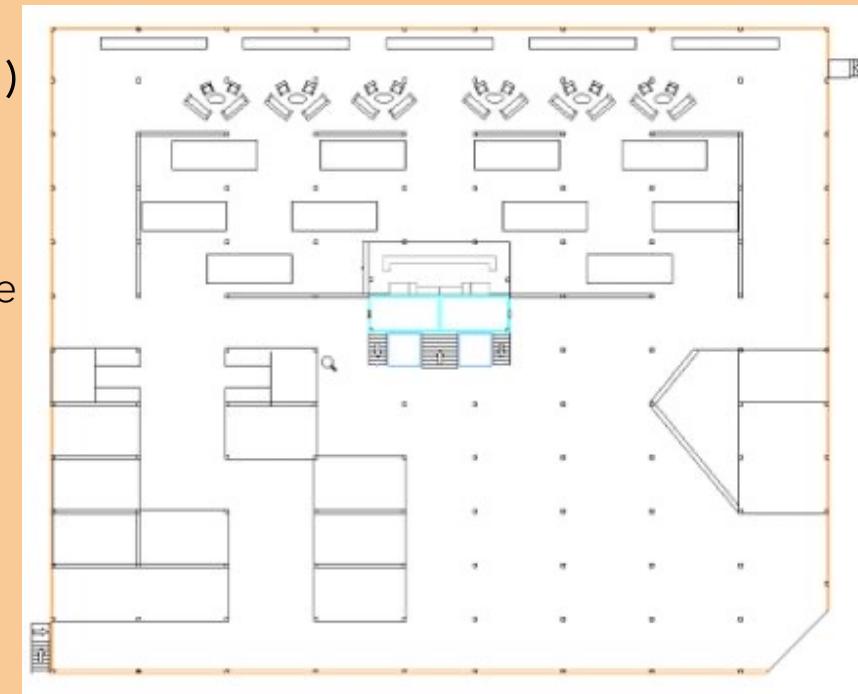
SPEAKER: CARTER BRYANT

-A two-story productivity space designed to promote and grow the relationship between academia, local professionals, and the environment.

Two-story building (220' x 180' x 38')

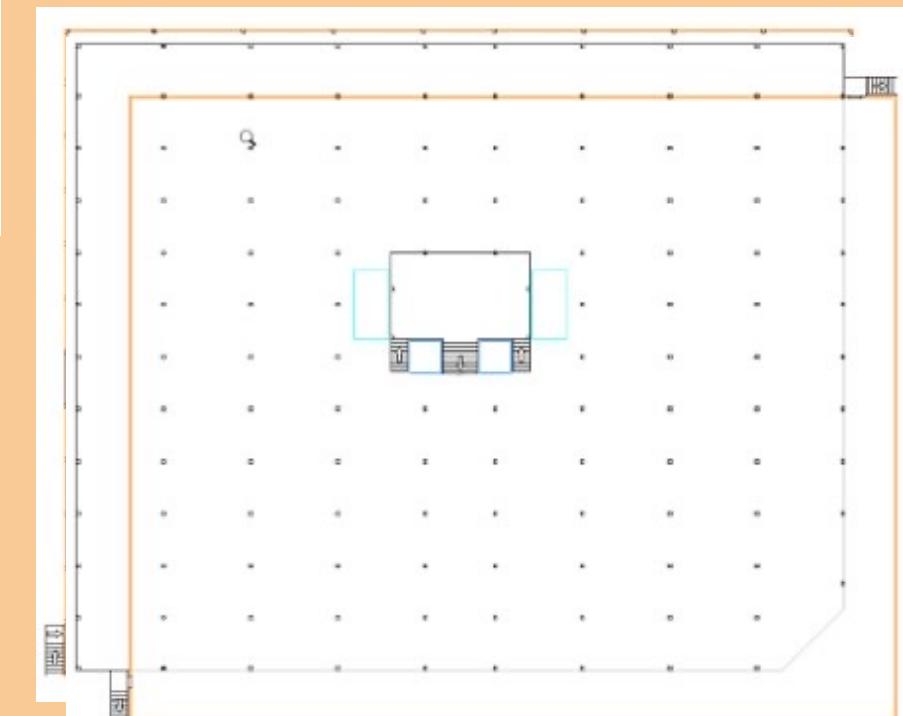
Low Impact Development Site Design

- Serve to improve existing site conditions and manage stormwater



First story accessible to public

- Subscription based and day passes
- Floor plan inspired by the UTSA Makerspace
- Coffee bar



Second story professional office space

- Local firms/businesses lease office space

ZONING

SPEAKER: CARTER BRYANT

Master Plan Community District (MPCD)

- "To encourage the development of areas of mixed uses that are internally compatible in an effort to achieve well designed development and provide a more efficient arrangement of land uses, building and circulation systems."

Parking

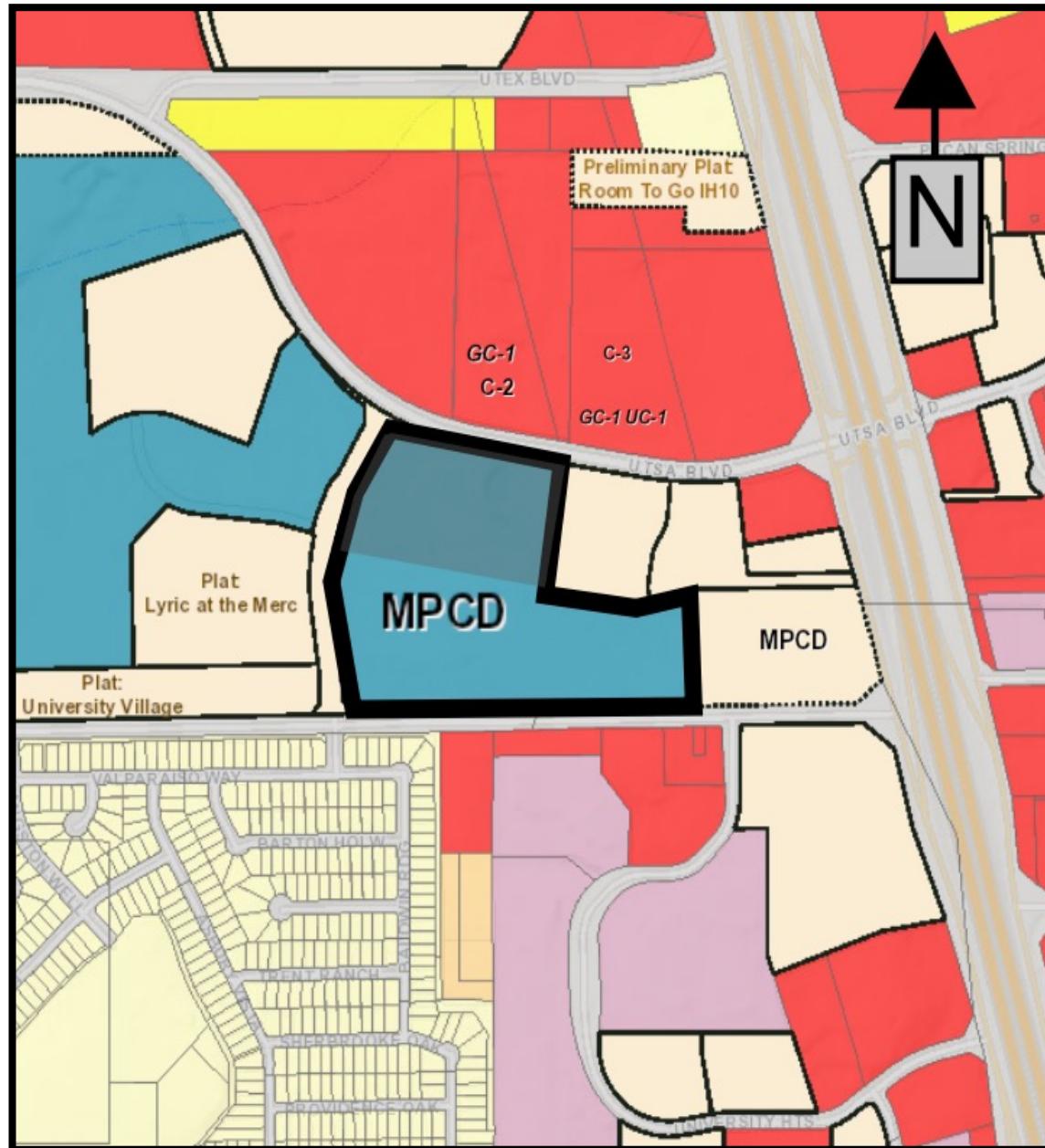
- 1 per 300 to 140 sf GFA = 260 parking spaces (min)
 - Can be reduced by LID

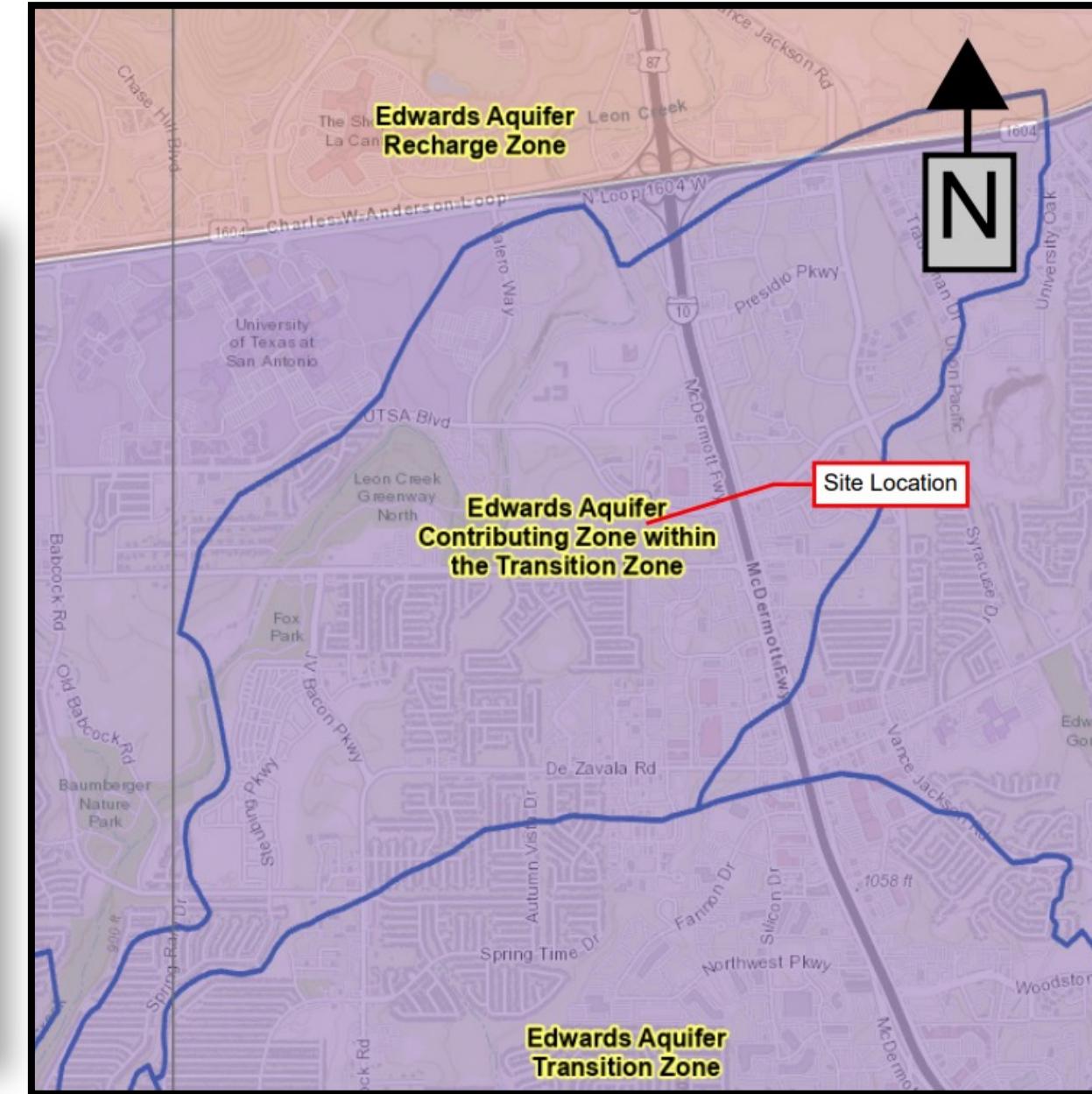
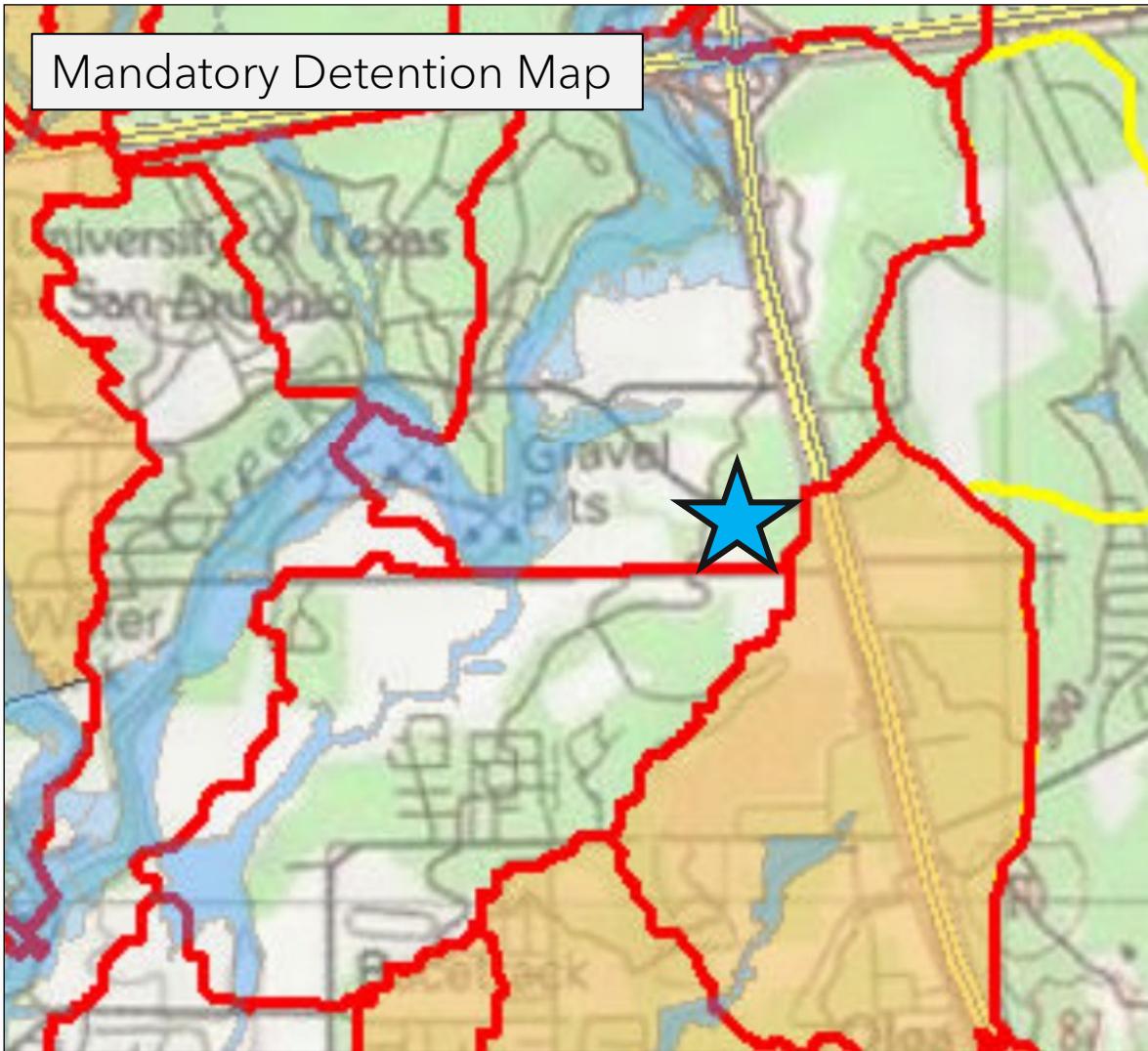
Building Height

- "May exceed two (2) stories or thirty (30) feet in height, but shall not exceed three (3) stories or forty (40) feet in height, if the structure is one hundred (100) feet or less from a single-family area"

Parkland Requirements

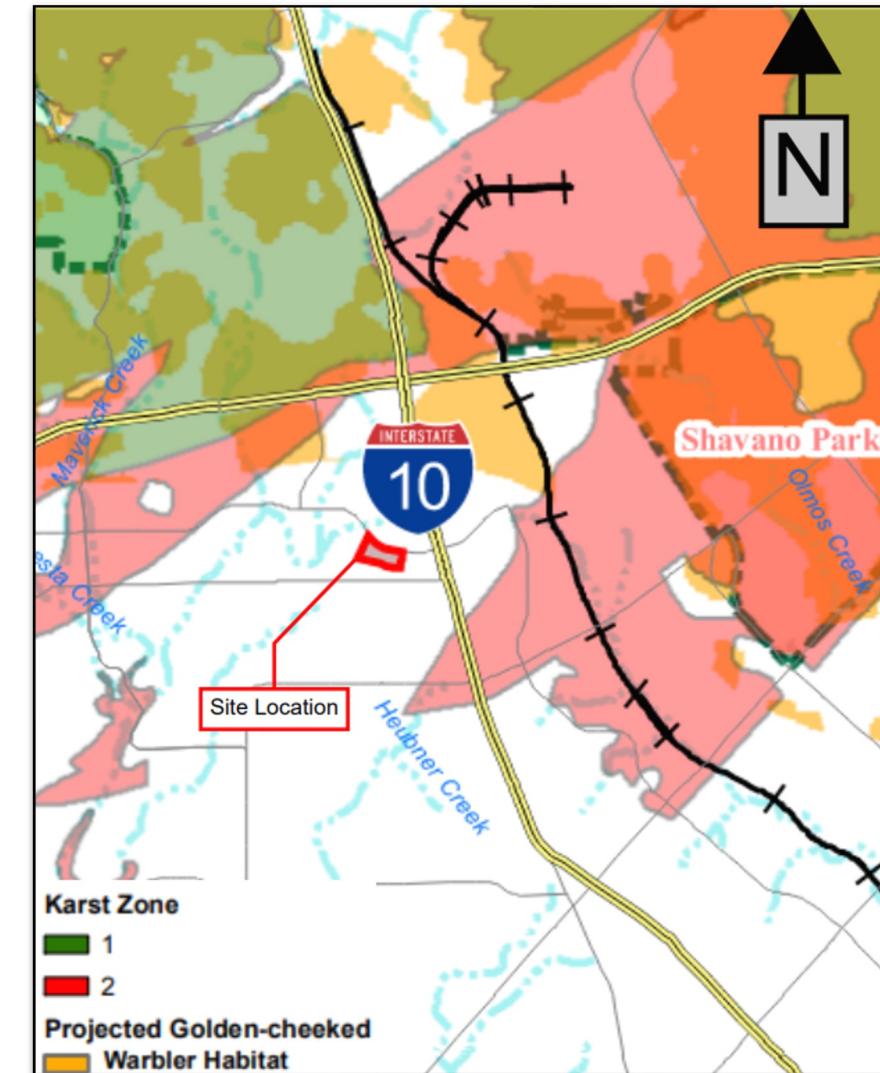
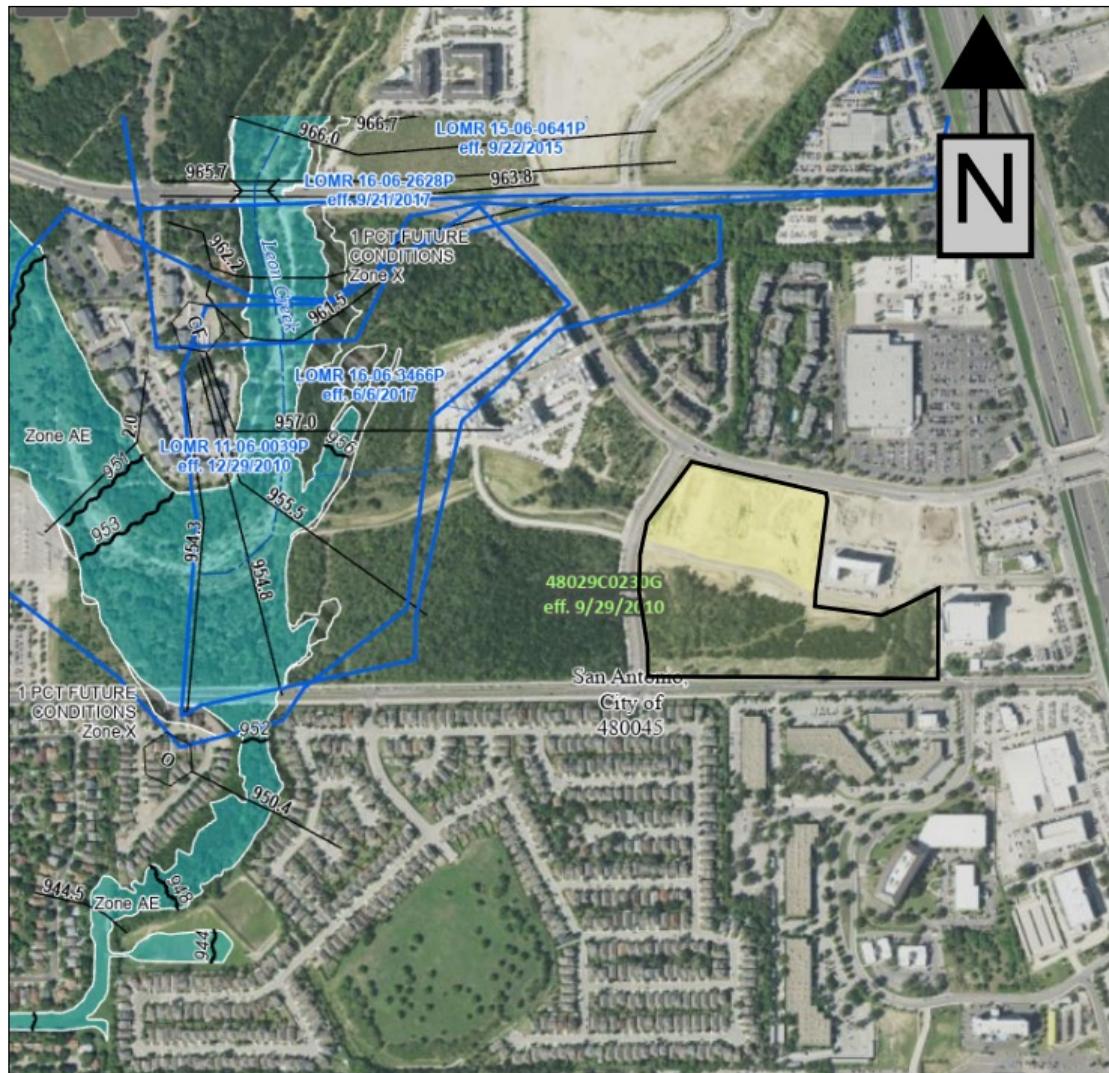
- Satisfied by LID and walking trail





FLOODPLAIN AND HABITAT COMPLIANCE

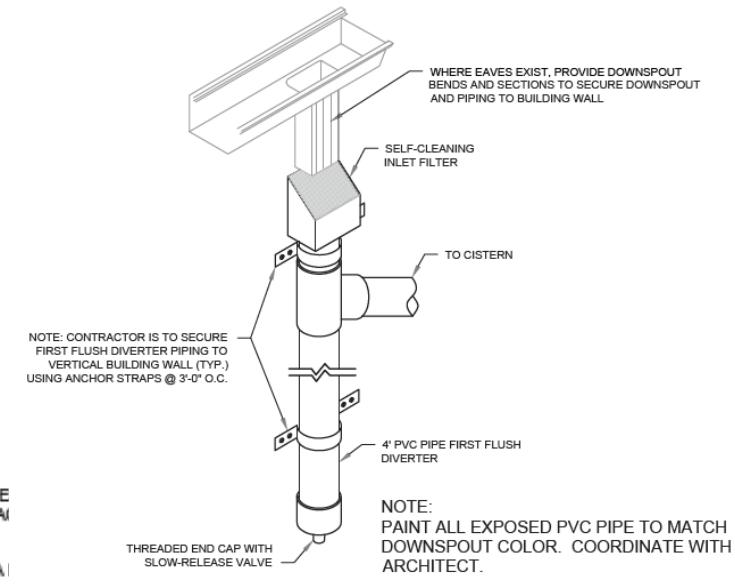
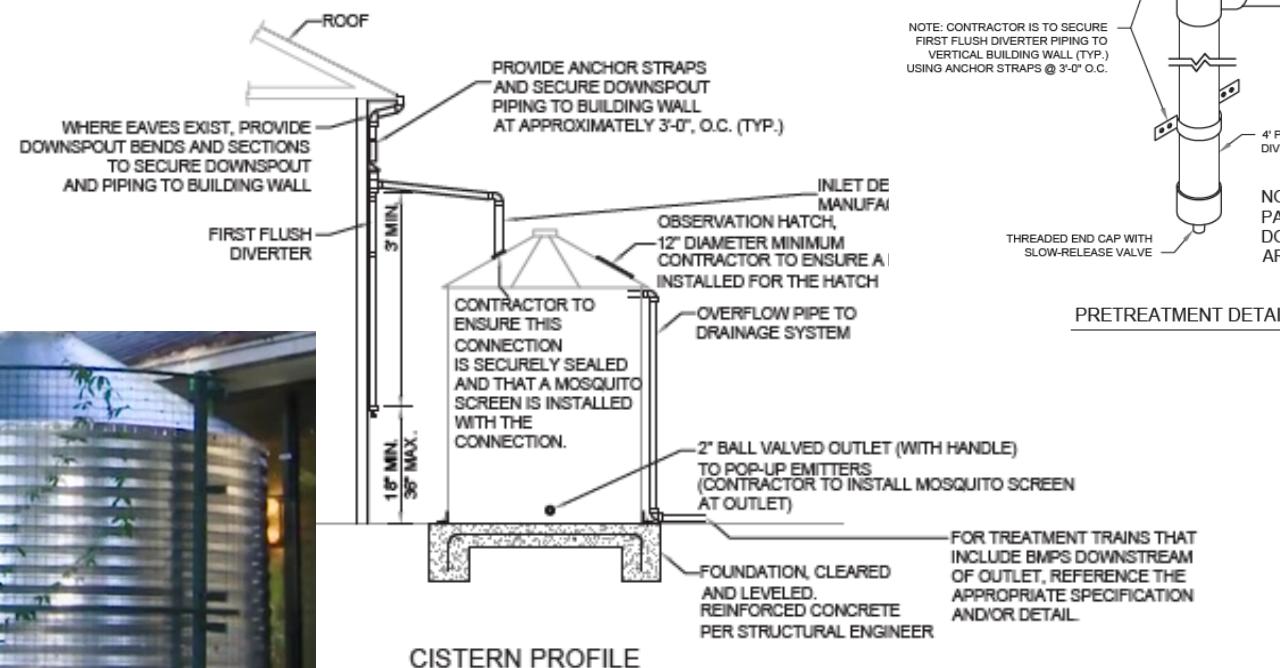
SPEAKER: CARTER BRYANT



ROOFTOP RAIN CAPTURE

SPEAKER: CARTER BRYANT

- 39,600 SF of standing seam metal roof
 - Single pitch at 2% slope
- Sloped gutter design to capture rainfall into 2 cisterns for irrigation and flow mitigation



LID FEATURES

SPEAKER: CARTER BRYANT

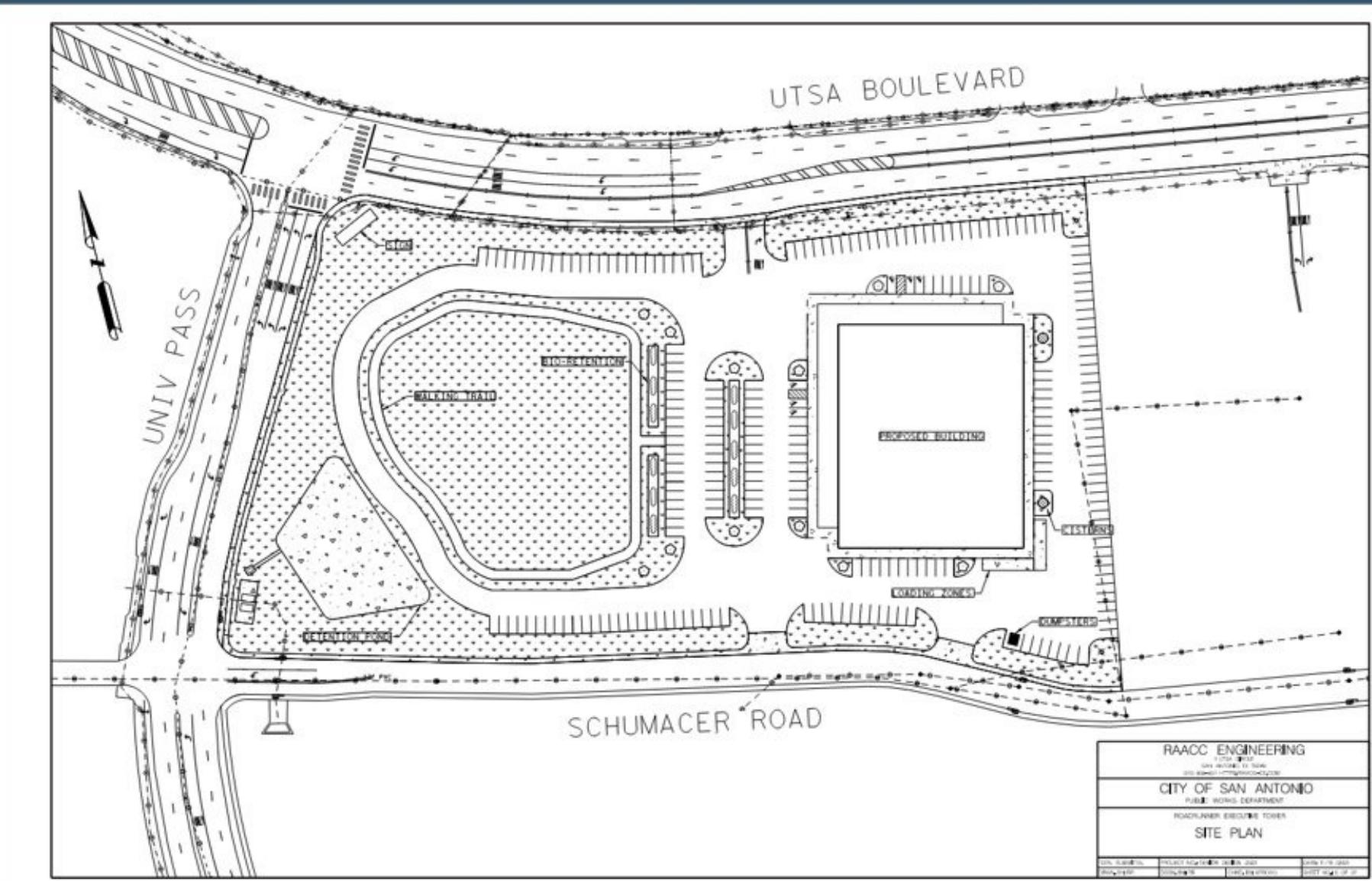
- Bioswale/natural channels (north and south)
 - Facilitate drainage east to west
- Bioretention at middle parking islands
 - Capture runoff from across the site
- Bioretention at grade at perimeter of balcony
 - Sloped deck into recessed trench drain



PROPOSED SITE PLAN

SPEAKER: REYNALDO REYNA

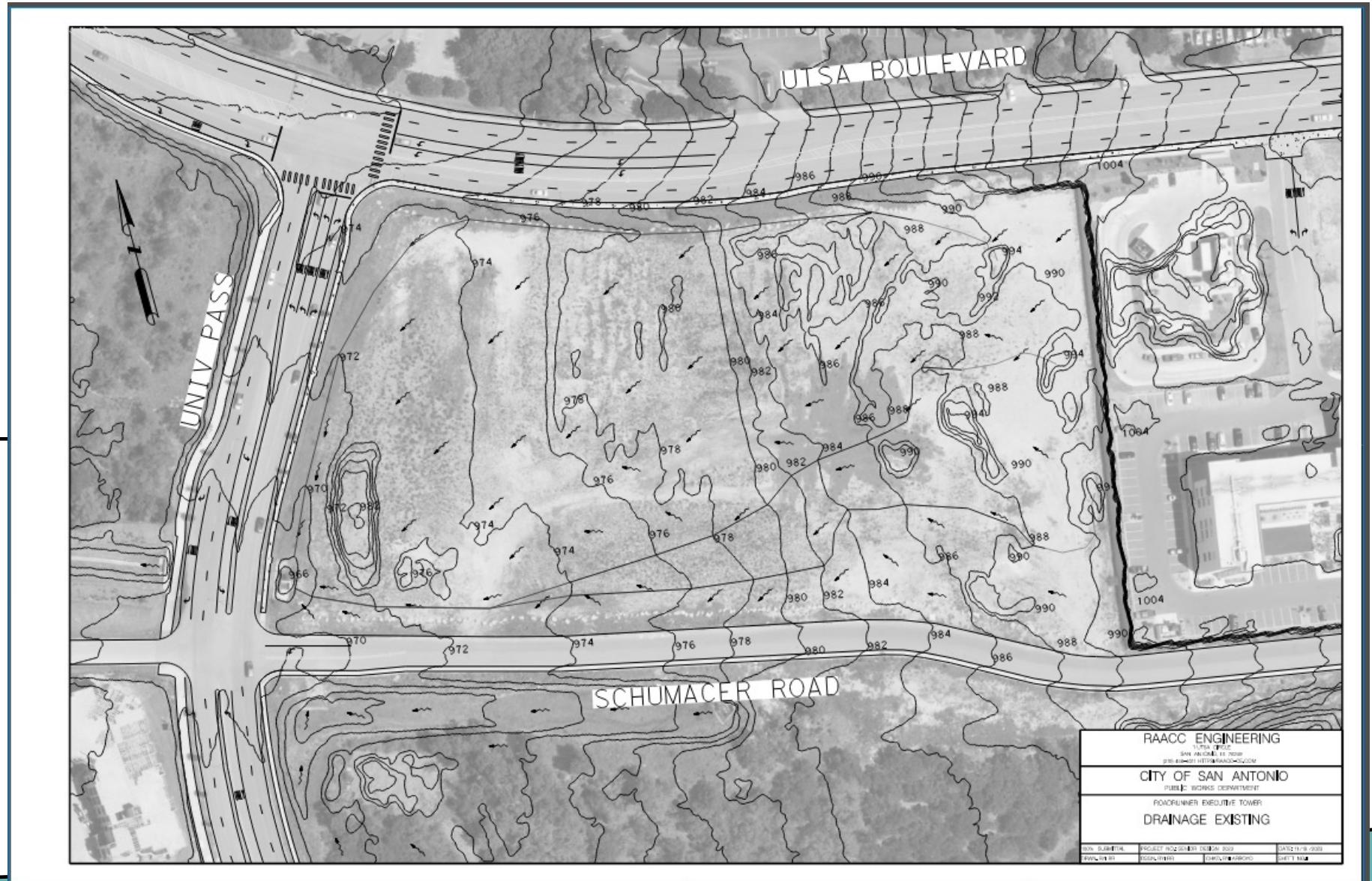
- 240 Parking Spots
- 3 Driveways
- 3 Bio-Retention
- 2 Cisterns
- Walking Trail
- Future Development
- Detention Pond
- Existing Storm Drain



EXISTING SITE CONDITIONS DRAINAGE

SPEAKER: REYNALDO REYNA

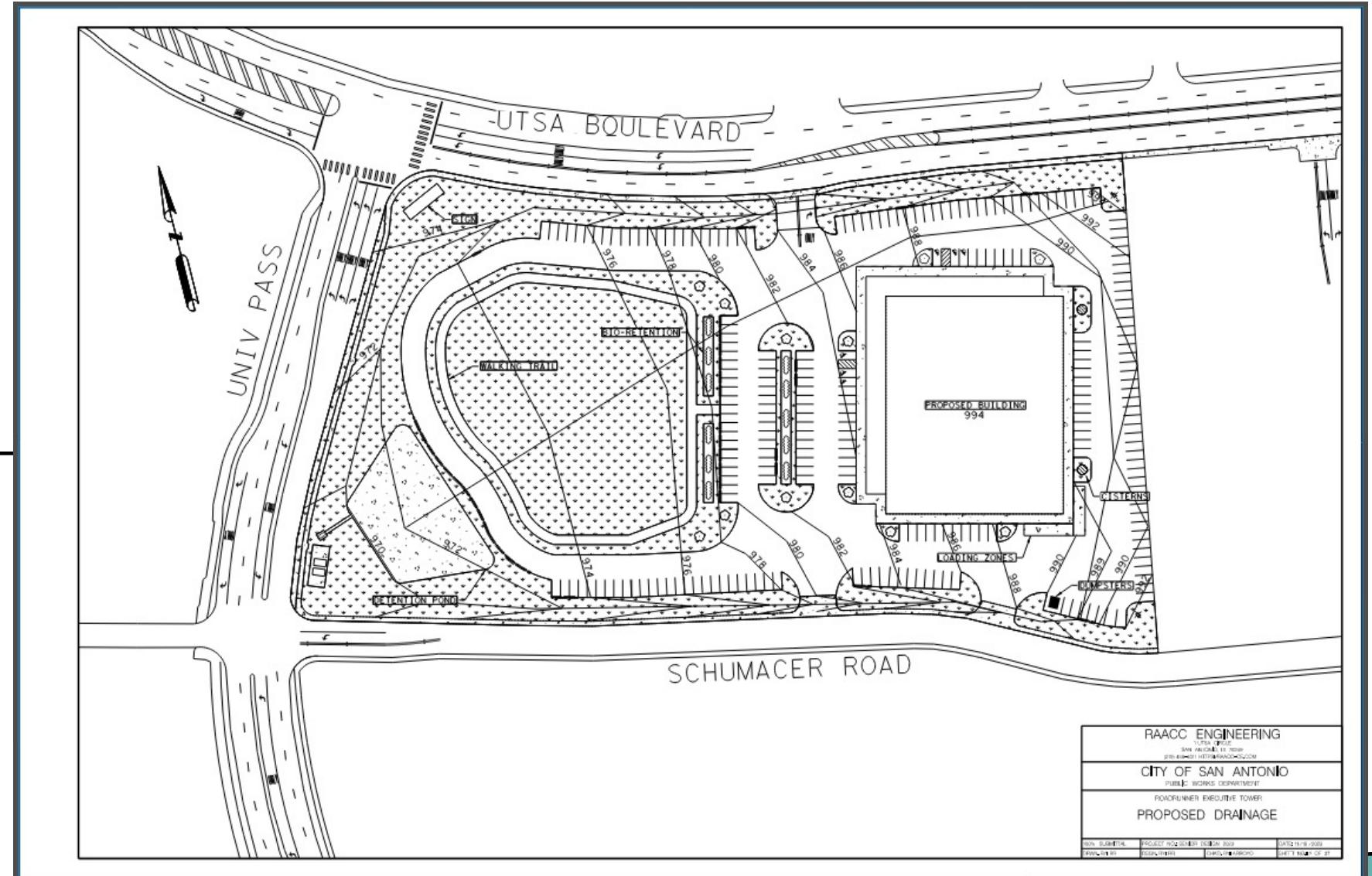
- Natural Channels
- Sheet Flow 100'
- Drains into Leon Creek



PROPOSED GRADING

SPEAKER: REYNALDO REYNA

- 994' Building Elevation
- Saw-Tooth Curb Outlets



EXISTING DRAINAGE CALCS

SPEAKER: REYNALDO REYNA

Time of Concentration - Pre Development Conditions															
Basin ID	Sheet Flow				Shallow Concentrated Flow				Channel Flow				Total		
	Length (ft)	Mannings "n"	Slope %	P (in)	Tc (min)	Length (ft)	K	Slope %	Tc (min)	Length (ft)	Mannings (n)	Slope %	Channel Hydraulic Radius (ft)	Tc (min)	
1	100	0.011	0.06	4.44	0.663	100	16.13	0.02	0.844	753	0.03	0.03	1.78	0.347	1.853
2	100	0.011	0.06	4.44	0.663	780	16.13	0.02	6.024	283	0.03	0.03	1.85	0.127	6.814
3	100	0.011	0.06	4.44	0.663	532	16.13	0.03	3.174	281	0.03	0.03	1.85	0.126	3.963

Coeff.	2-YEAR	5-YEAR	10-YEAR	25-YEAR	50-YEAR	100-YEAR
e	0.8208	0.8043	0.8075	0.7943	0.7893	0.7889
b (in.)	59.68	73.54	90.56	102.29	116.01	133.97
d (min)	9.96	9.56	10.73	10.64	10.41	11.01

Intensity - Pre Development Conditions									
Basin ID	Basin Area (Acres)	Basin C Value	Time of Concentration (Tc)	Intensity 2-yr (in/hr)	Intensity 5-yr (in/hr)	Intensity 10-yr (in/hr)	Intensity 25-yr (in/hr)	Intensity 50-yr (in/hr)	Intensity 100-yr (in/hr)
1.000	8.440	0.700	1853	7.864	10.376	11.718	13.764	16.042	17.858
2.000	8.440	0.700	6.814	5.897	7.762	8.960	10.554	12.269	13.807
3.000	8.440	0.700	3.963	6.872	9.053	10.340	12.160	14.153	15.842

Q - Pre Development Conditions						
Q 2-yr (cfs)	Q 5-yr (cfs)	Q 10-yr (cfs)	Q 25-yr (cfs)	Q 50-yr (cfs)	Q 100-yr (cfs)	
46.458	61.303	69.229	81.317	94.775	105.506	
34.841	45.859	52.935	62.350	72.487	81.570	
40.598	53.487	61.086	71.840	83.616	93.595	

RAACC ENGINEERING 100% GENERAL SAN ANTONIO, TX 78209 USA http://www.raacc.com	CITY OF SAN ANTONIO PUBLIC WORKS DEPARTMENT ROADMAINTENANCE EXECUTIVE TOWER PRE-DEVELOPMENT HYDROLOGIC CALCULATIONS	100% GENERAL PROJECT NUMBER: 0000000000 DATE: 01/01/2020 DRAWING NUMBER: 00000000 CROSS SECTION NUMBER: 00000000
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PROPOSED DRAINAGE CALCS

SPEAKER: REYNALDO REYNA

Time of Concentration - Post Development Conditions															
Basin ID	Sheet Flow					Shallow Concentrated Flow				Channel Flow					Total
	Length (ft)	Mannings "n"	Slope %	P (in)	Tc (min)	Length (ft)	K	Slope %	Tc (min)	Length (ft)	Mannings (n)	Slope %	Channel Hydraulic Radius (ft)	Tc (min)	Tc (min)
1	100	0.011	0.04	4.44	0.780	621	20.32	0.03	2.941	71	0.035	0.03	10	0.012	3.732
2	100	0.011	0.04	4.44	0.780	105	20.32	0.02	0.609	877	0.035	0.02	10	0.162	1.550
3	100	0.011	0.04	4.44	0.780	163	20.32	0.02	0.945	664	0.035	0.03	10	0.113	1.838

Coeff.	2-YEAR	5-YEAR	10-YEAR	25-YEAR	50-YEAR	100-YEAR
e	0.8208	0.8043	0.8075	0.7943	0.7893	0.7889
b (in.)	59.68	73.54	90.56	102.29	116.01	133.97
d (min)	9.96	9.56	10.73	10.64	10.41	11.01

Intensity - Post Development Conditions									
Basin ID	Basin Area (Acres)	Basin C Value	Time of Concentration (Tc)	Intensity 2-yr (in/hr)	Intensity 5-yr (in/hr)	Intensity 10-yr (in/hr)	Intensity 25-yr (in/hr)	Intensity 50-yr (in/hr)	Intensity 100-yr (in/hr)
1	8.44	0.9	3.732	6.966	9.179	10.472	12.314	14.335	16.037
2	8.44	0.9	1550	8.033	10.603	11.951	14.035	16.362	18.197
3	8.44	0.9	1838	7.872	10.388	11.730	13.777	16.058	17.875

Q - Post Development Conditions					
Q 2-yr (cfs)	Q 5-yr (cfs)	Q 10-yr (cfs)	Q 25-yr (cfs)	Q 50-yr (cfs)	Q 100-yr (cfs)
52.917	69.726	79.548	93.539	108.886	121.818
61.020	80.544	90.779	106.610	124.285	138.227
59.797	78.905	89.098	104.654	121.976	135.780



DETENTION BASIN CALCS

SPEAKER: REYNALDO REYNA

Q - Pre Development Conditions					
Q 2-yr (cfs)	Q 5-yr (cfs)	Q 10-yr (cfs)	Q 25-yr (cfs)	Q 50-yr (cfs)	Q 100-yr (cfs)
46.458	61.303	69.229	81.317	94.775	105.506
34.841	45.859	52.935	62.350	72.487	81.570
40.598	53.487	61.086	71.840	83.616	93.595

Q - Post Development Conditions					
Q 2-yr (cfs)	Q 5-yr (cfs)	Q 10-yr (cfs)	Q 25-yr (cfs)	Q 50-yr (cfs)	Q 100-yr (cfs)
52.917	69.726	79.548	93.539	108.886	121.818
61.020	80.544	90.779	106.610	124.285	138.227
59.797	78.905	89.098	104.654	121.976	135.780

1-hr Retention (25-yr)			
Required Retention (cfs)	Volume of Flow (cf)	Detention Area (ft^2)	Detention Height (ft)
12.22	44000.64	13500	3.26
44.26	159334.13	13500	11.80
32.81	118130.42	13500	8.75
25.29	91055.14	13500	7.00
Basin Volume	94500.00		

UTILITIES

SPEAKER: CHEYENNE STEVENS



Water Utilities for Site:

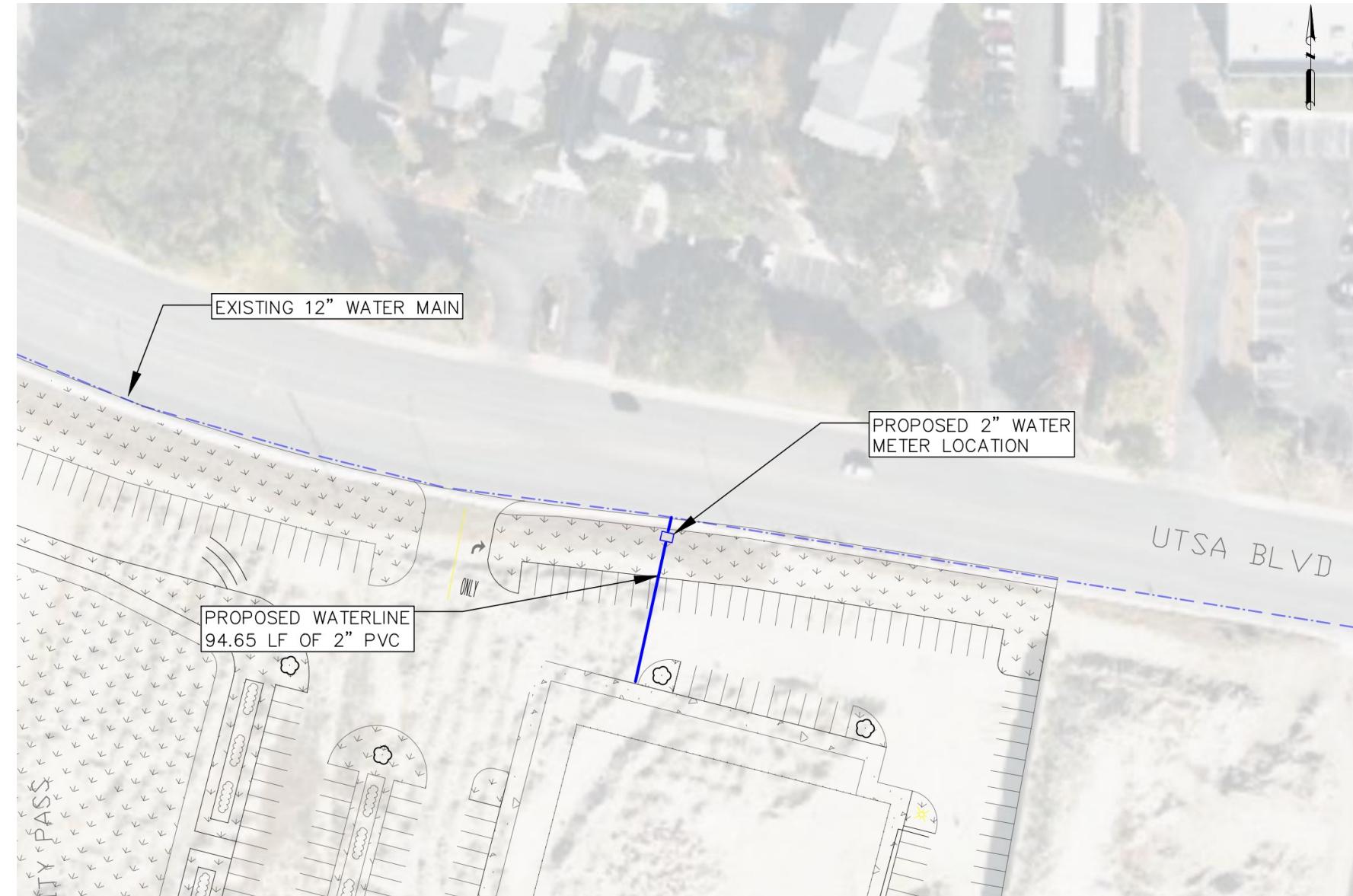
SAWS Service area

- Located in Pressure Zone 8
- Middle Elevation area

Approximate EDU required per SAWS Infrastructure Planning EDU Calculation Sheet - 9.5 EDU

Proposed Plan:

- 2" water meter
- 2" Service Line
- No PRV Required
 - (Static pressure < 80PSI)
- Length of connection - 94.65LF



UTILITIES

SPEAKER: CHEYENNE STEVENS

Wastewater Utilities for Site:

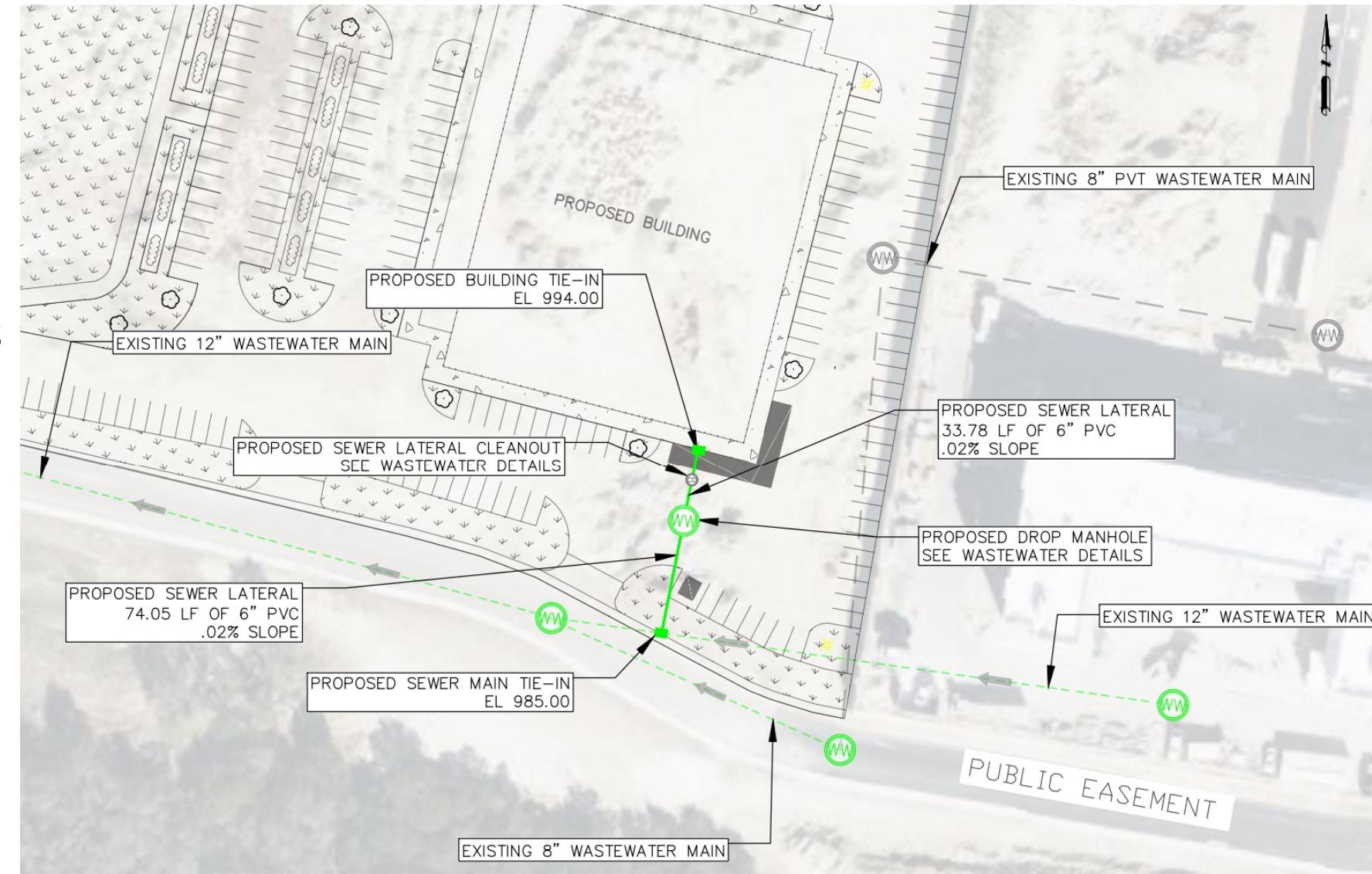
SAWS Service area

- Upper Collection Zone

Approximate EDU required per SAWS Infrastructure Planning EDU Calculation
Sheet - 13.86 EDU

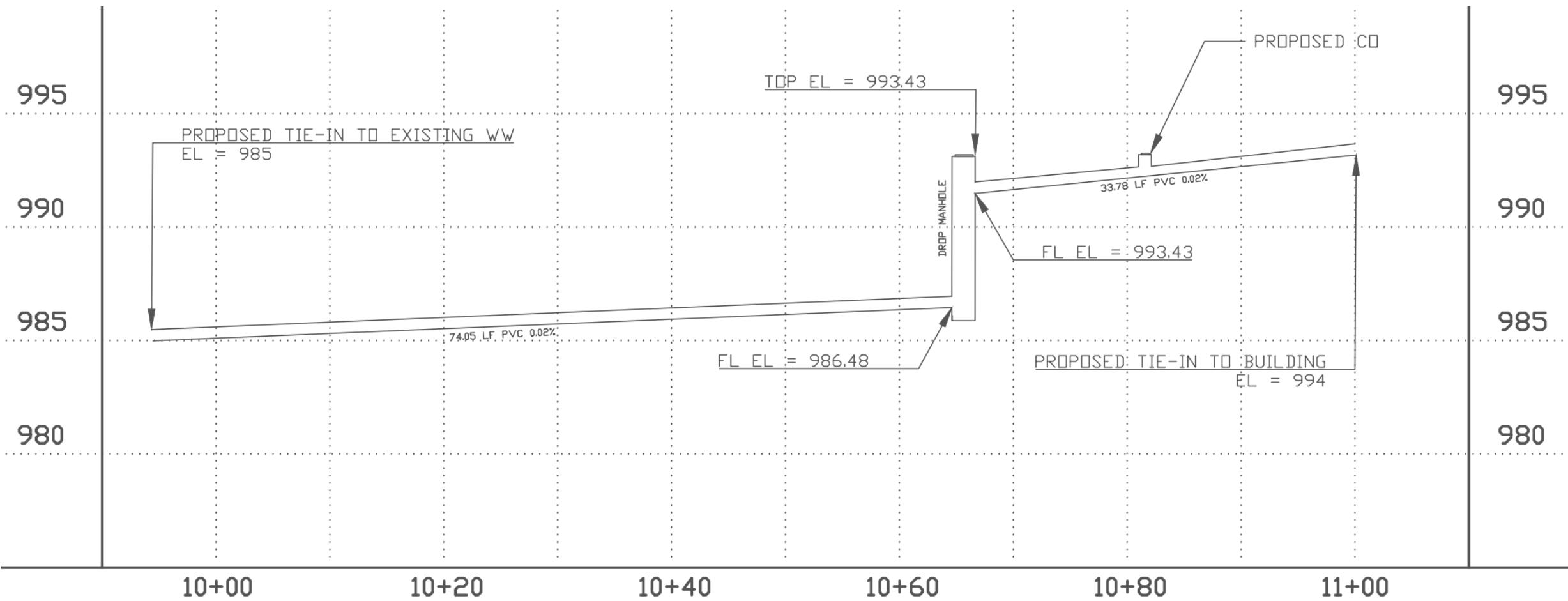
Proposed Plan:

- 6" PVC Pipe @ 2% Slope
- Drop Manhole required
- Cleanout required



WASTEWATER PLAN AND PROFILE

SPEAKER: CHEYENNE STEVENS



UTILITIES

SPEAKER: CHEYENNE STEVENS

Fire Protection Plan:

Fire-Resistance rating for the building:

- Type IIA per 2021 IFC

Fire Protection Line

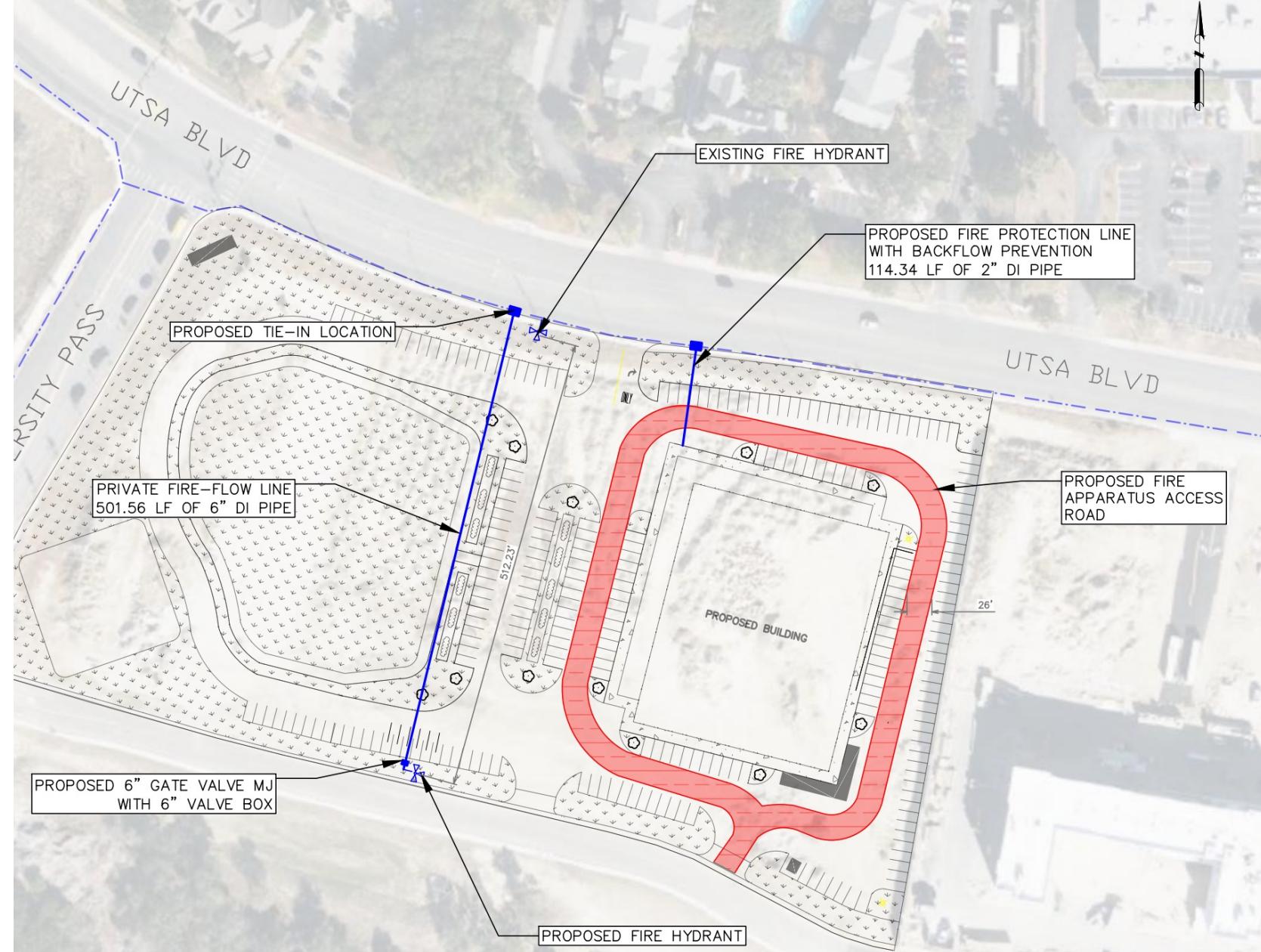
- NFPA 13 Sprinkler System
- 2" DI Pipe w/ BFP

Minimum Fire Flow Required:

- 1,000 GPM
- 1 Fire Hydrant Required
- 6" DI Pipe w/ MJ gate valve

Fire Apparatus Access Road

- Min of 26FT in width



SITE GEOLOGY

SPEAKER: AHMAD ALNOURACHI

- Located on UTSA Boulevard and Univ Pass
- Del Rio Clay (Blue)
- Buda Limestone (Yellow)



SITE GEOLOGY

SPEAKER: AHMAD ALNOURACHI

3 Borings

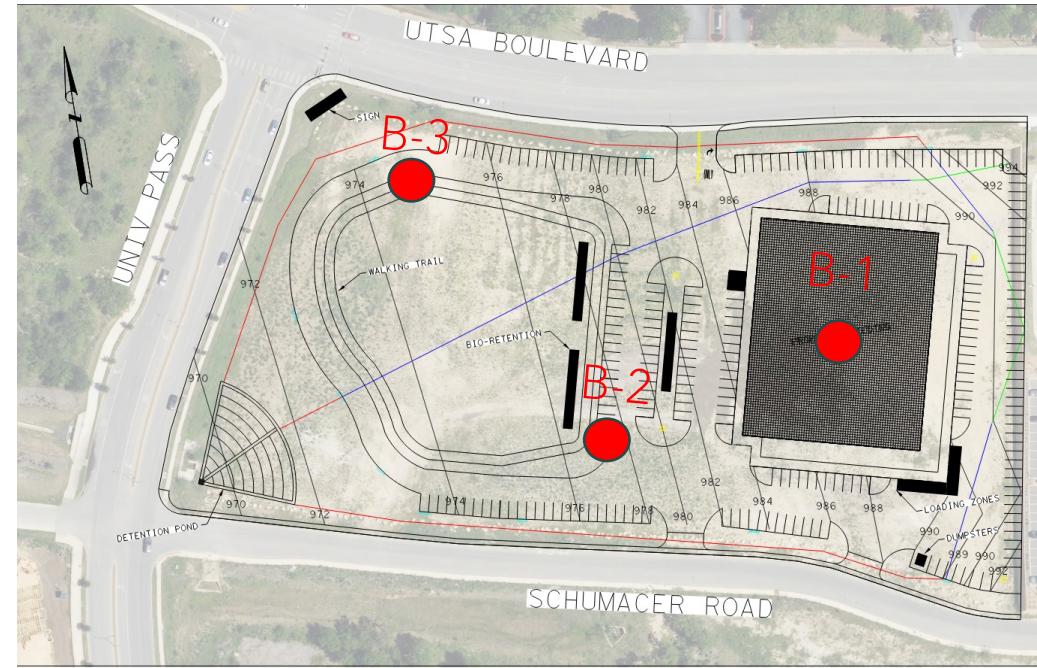
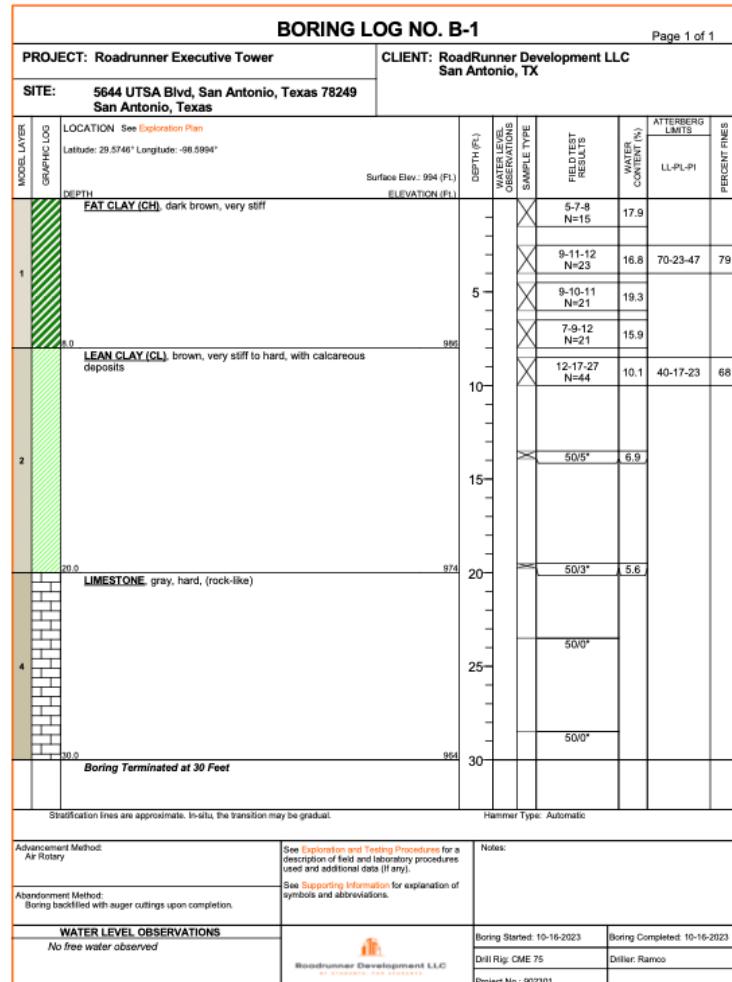
- 1 for the Building
 - 2 for the Parking Lot
 - Depths 10 to 30 feet
 - No water observed while drilling

Soils:

- Fat Clay - PI of 47
 - Lean Clay - PI of 23
 - Lime Stone

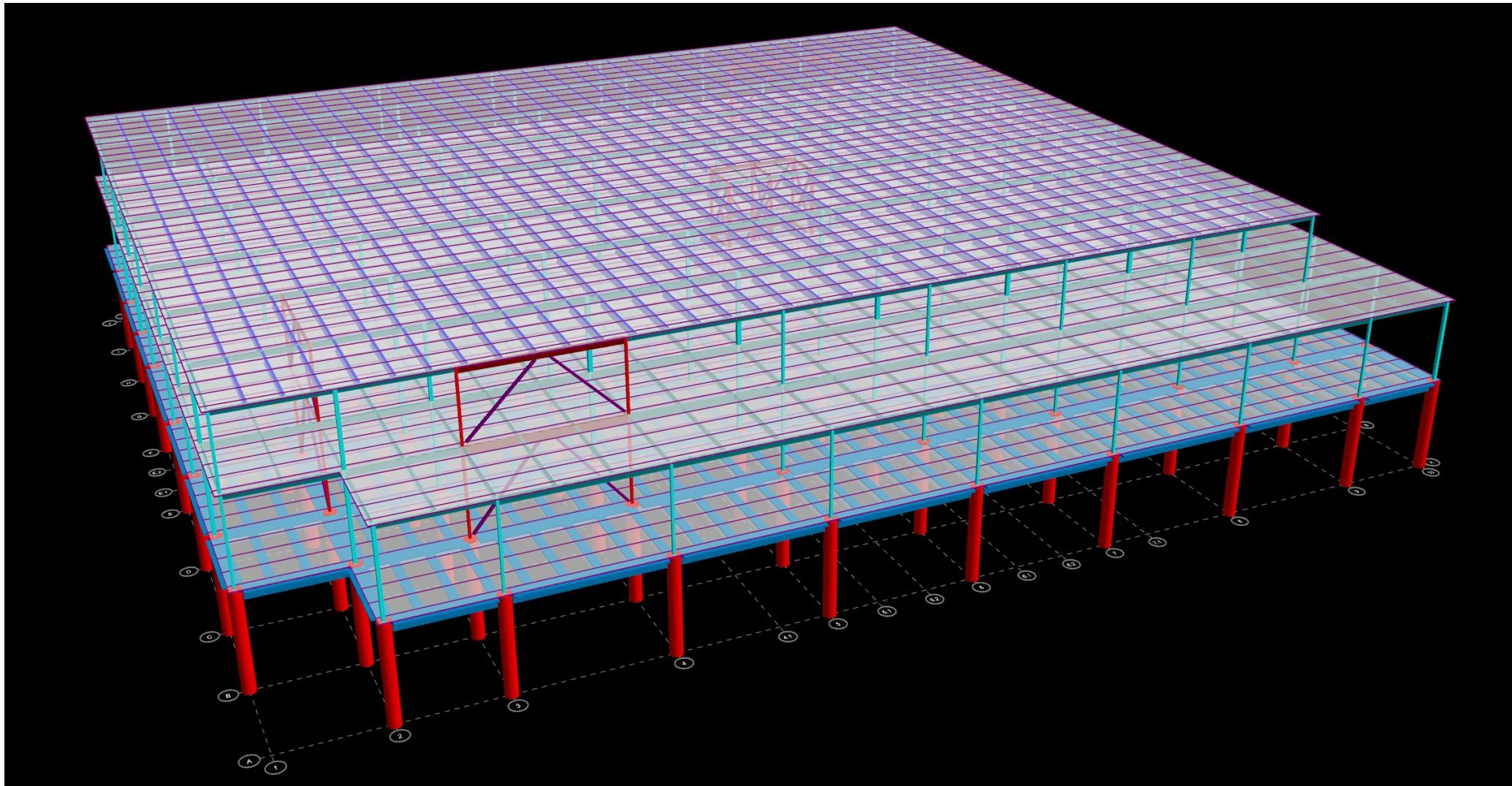
Lime Treatment:

- Upper 6" of Fat Clay
 - Stabilize Subgrade
 - Increase Bearing Capacity
 - 25 lbs/ sq yrd



FRAMING

SPEAKER: ANAR YAZJI



ROOF FRAMING

SPEAKER: ANAR YAZJI

[1.5B Gr50 22-Gage Roof Deck]

Interior Girders: W16x26

Perimeter Beams: W12x19

20' LENGTH

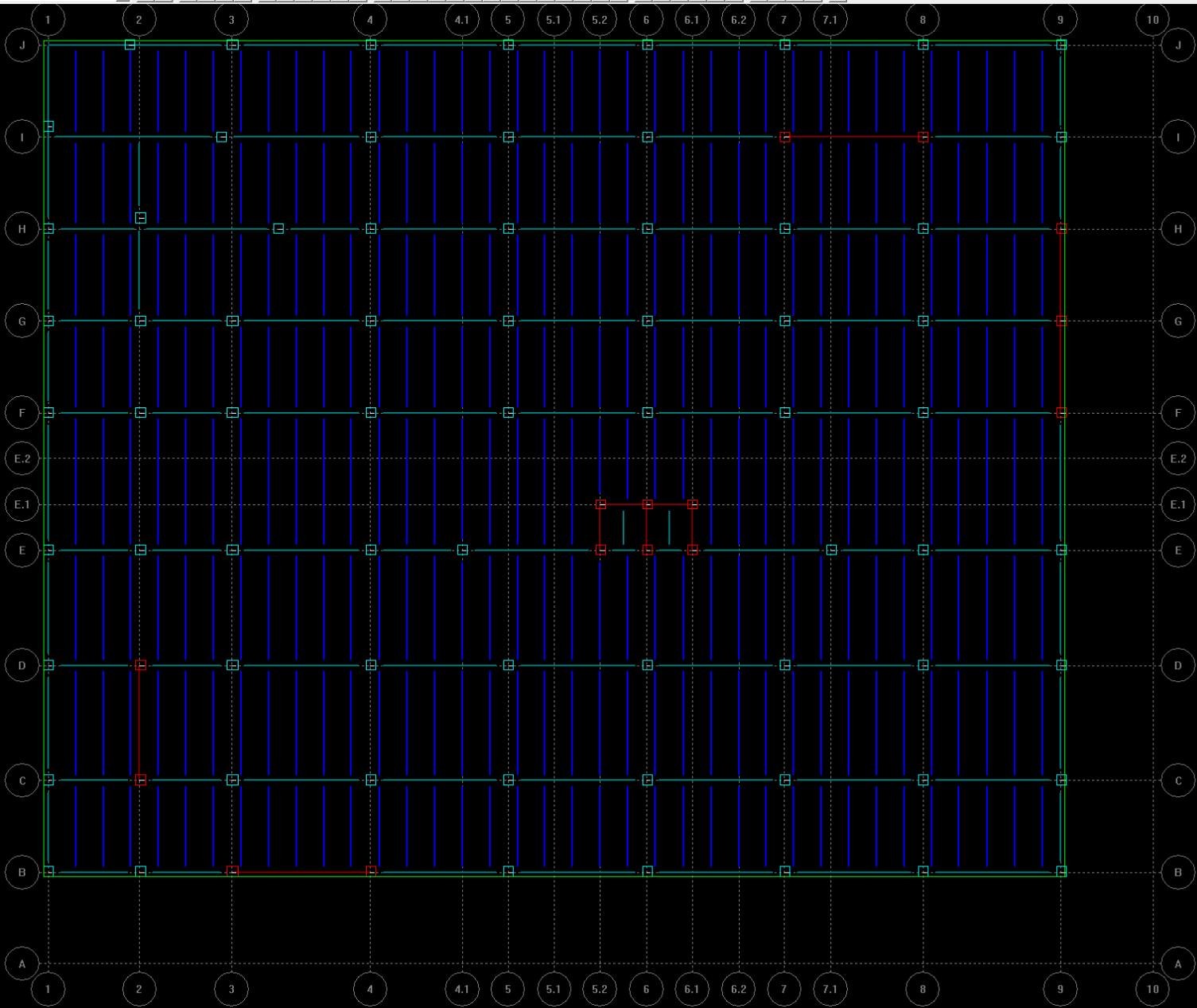
12K1	241	142	362	5.1	4	2/0/0
14K1	284	197	426	5.3	4	2/0/0

25' LENGTH

14K1	180	100	270	5.3	4	2/0/0
16K2	234	150	351	5.7	4	2/0/0
18K3	295	214	443	6.5	4	2/0/0

30' LENGTH

16K4	217	112	326	6.4	4	2/0/0
20K3	227	153	341	6.6	5	3/0/0
16K5	244	126	366	7.3	4	2/0/0
16K6	266	137	399	7.8	5	2/0/0
24K6	406	319	609	8.2	5	2/0/0



SECOND FLOOR FRAMING

SPEAKER: ANAR YAZJI

[1.5VL (4" Total) 18-Gage Composite Deck]

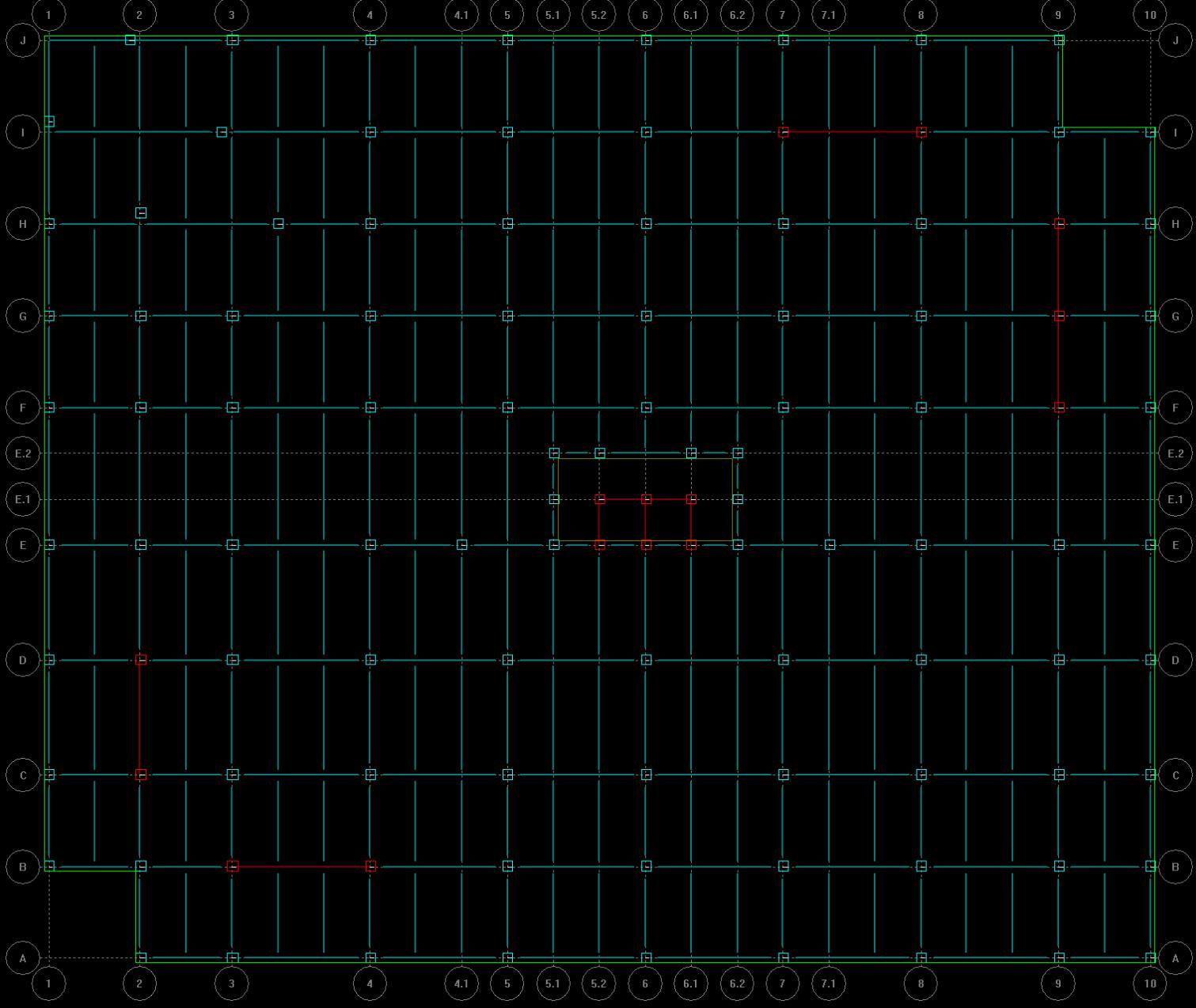
Floor Beams: W12x19 / W16x26

Interior Girders: W21x44 / W21x50

Perimeter Beams: W12x19 / W16x31

1-story columns: HSS 6x6x1/4

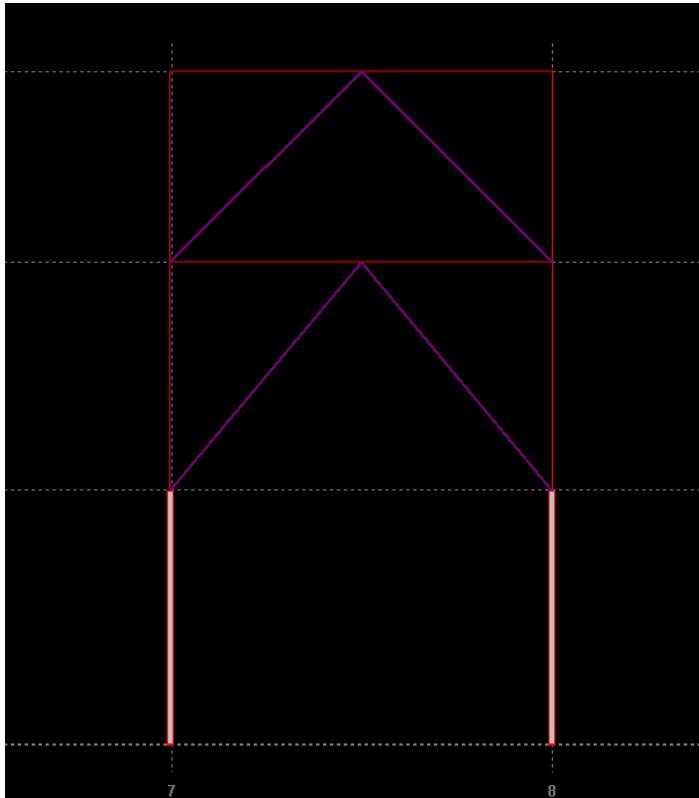
2-story columns: HSS 8x8x1/4



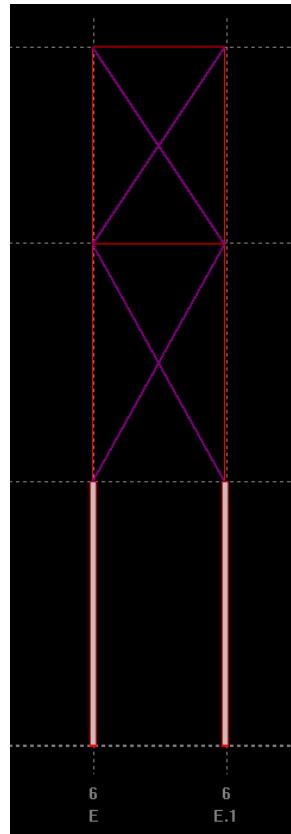
BRACE PROFILES

SPEAKER: ANAR YAZJI

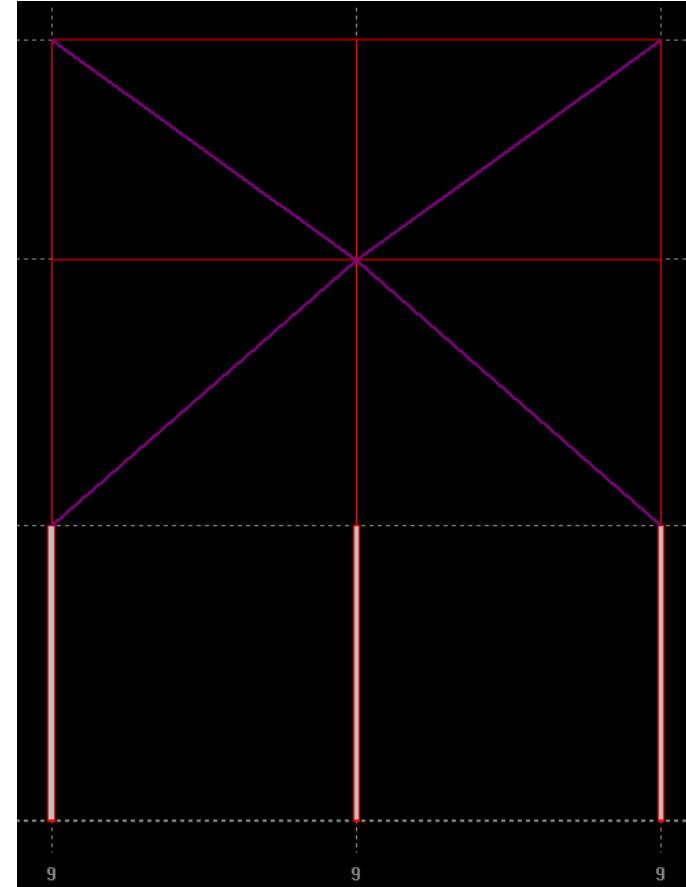
HSS 6x6x1/4
+/- 55 kips



HSS 6x6x1/4
+/- 30 kips

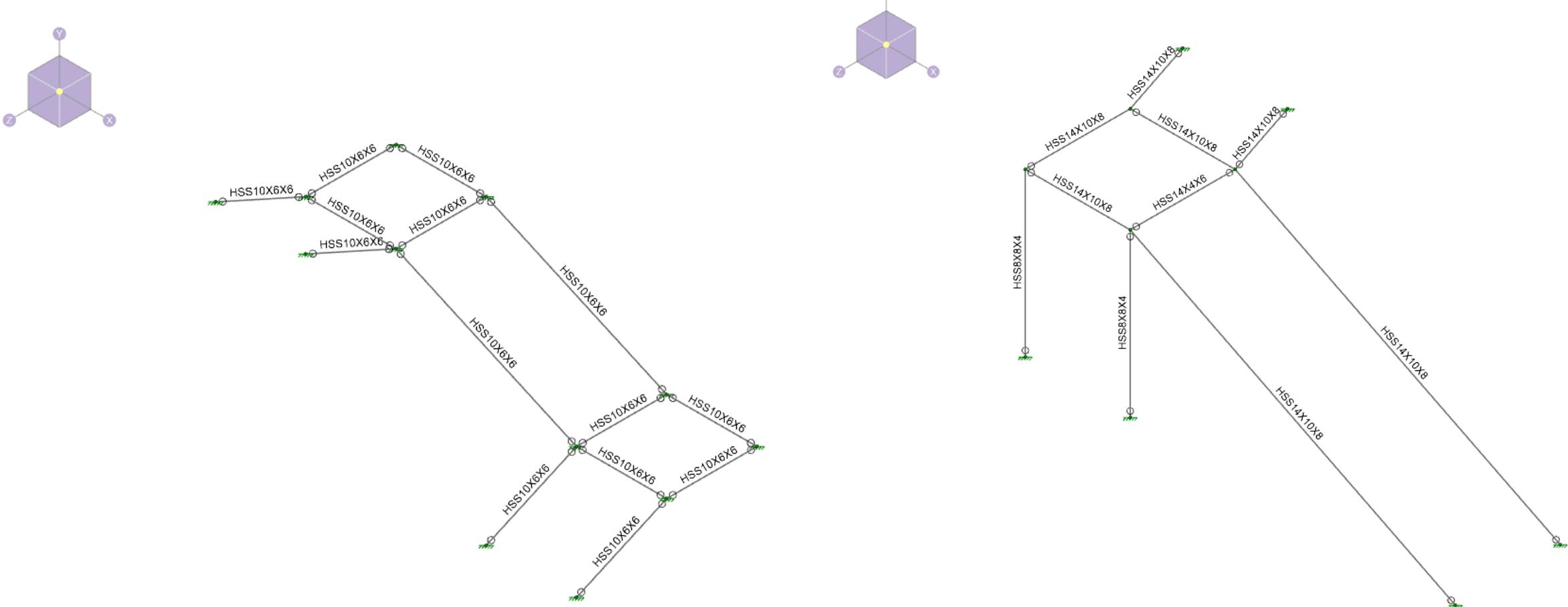


HSS 6x6x5/16
+/- 68 kips



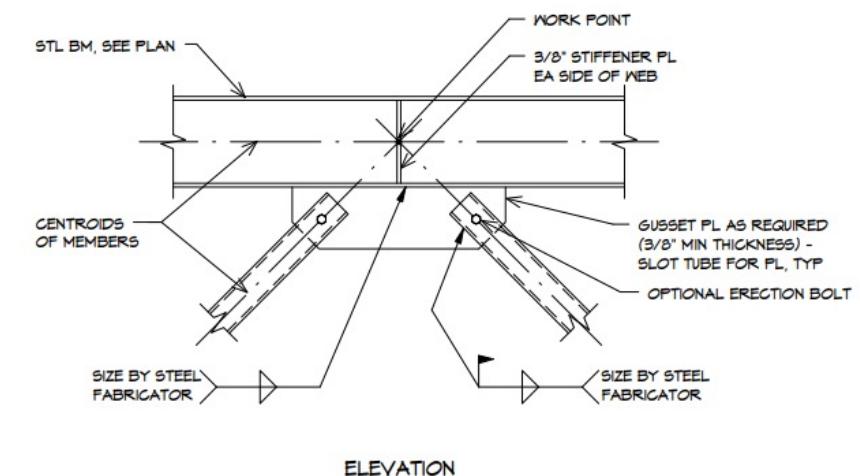
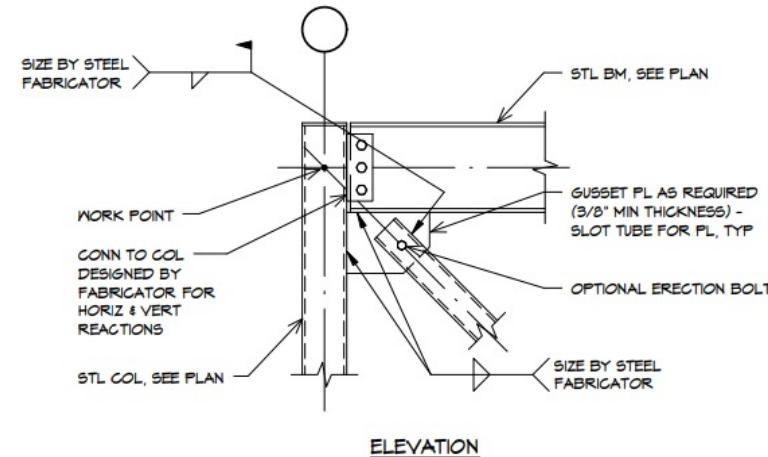
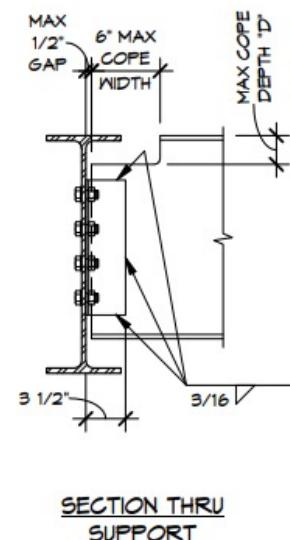
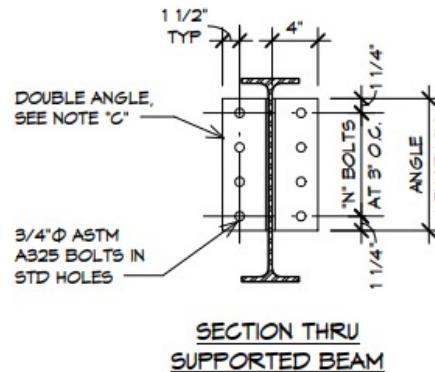
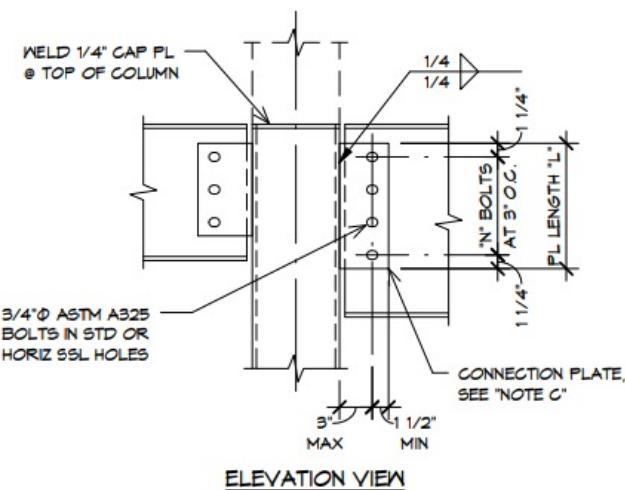
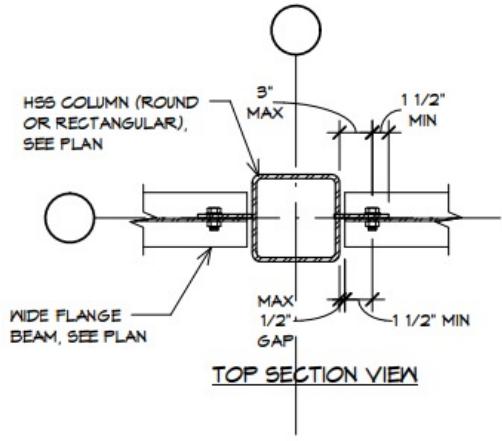
STAIR DESIGNS

SPEAKER: ANAR YAZJI



CONNECTION DETAILS

SPEAKER: ANAR YAZJI



FOUNDATION FRAMING

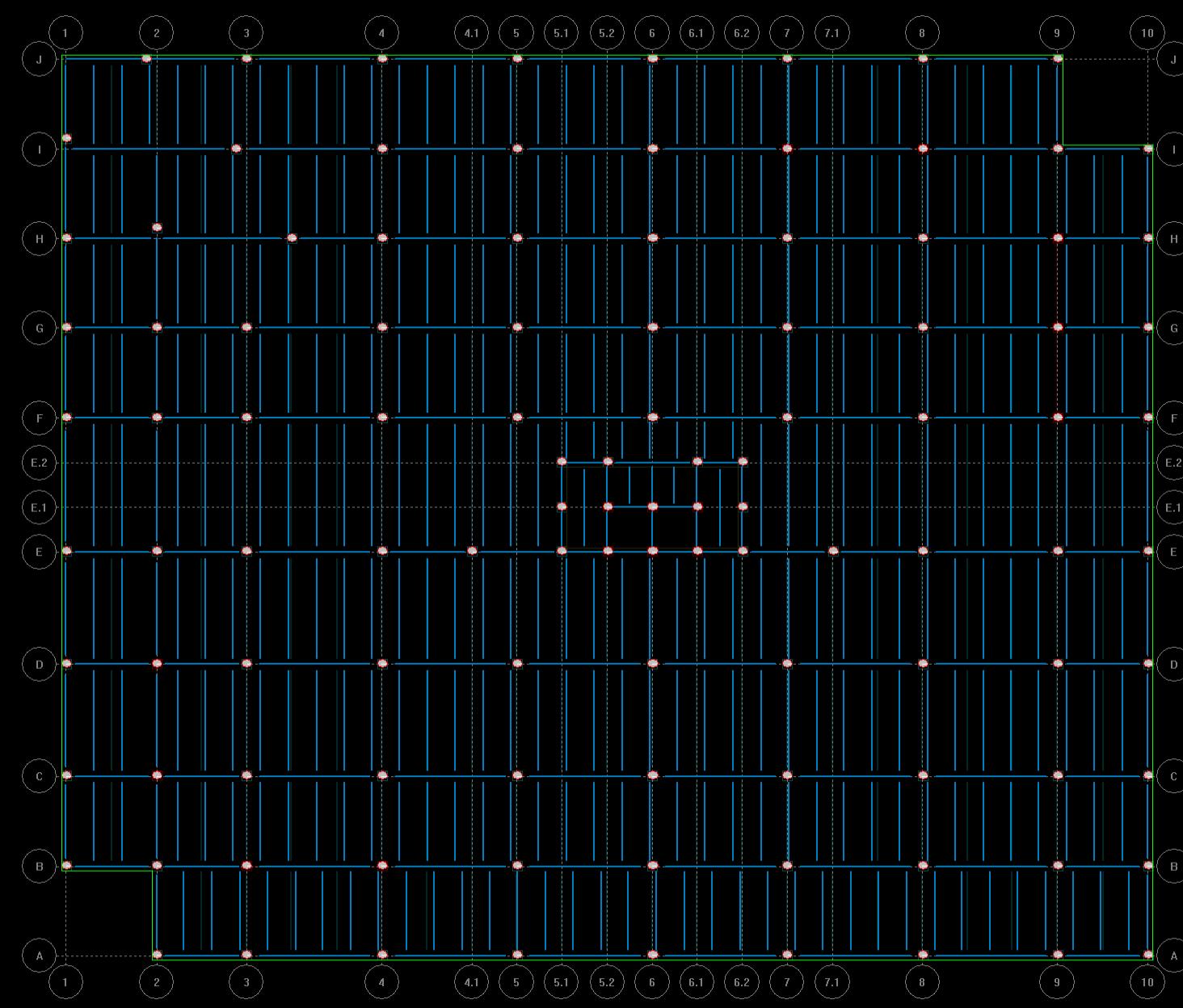
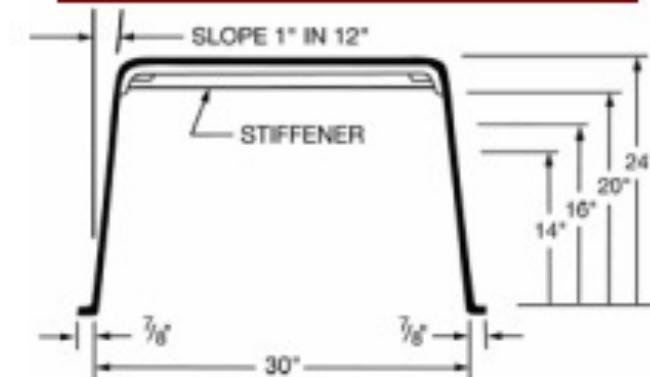
SPEAKER: ANAR YAZJI

Slab: 5" w/ #4 @12" Each Way

Beams:

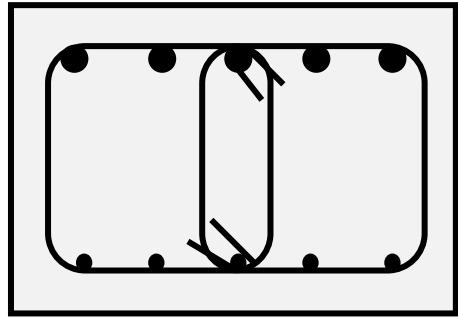
- 25"D x 36"W (Interior Girders)
- 25"D x 30"W (Perimeter)
- 25"D x 8"W (Pan-Joists)

Dimensions



FOUNDATION REINFORCEMENT

SPEAKER: ANAR YAZJI



Top reinforcement is lap-spliced at midspan, bottom reinforcement is lap-spliced over supports

Reinforcement hooks into end supports

(Interior Girders)

25"D x 36"W

Top: 5-#10s

Bottom: 5-#8s

#4 (4-legged) stirrups:
1@3", 1@6", X@18"
BAL@24"

(Perimeter Beams)

25"D x 30"W

Top: 5-#8s

Bottom: 5-#6s

#4 (4-legged) stirrups:
1@3", 1@6", X@18"
BAL@24"

(Pan-Joists)

25"D x 8"W

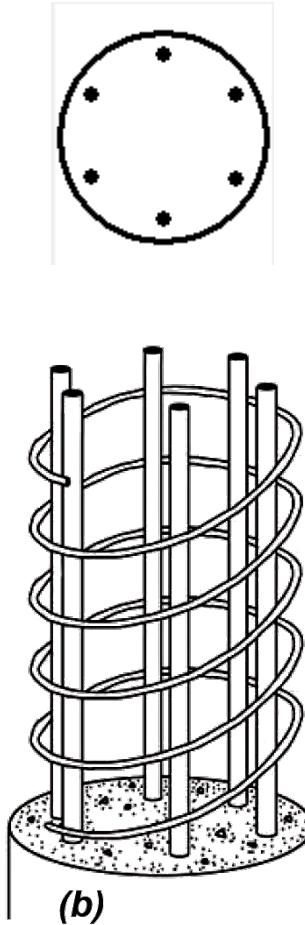
Top: 2-#8s

Bottom: 2-#8s

#4 (2-legged) stirrups:
1@3", 1@6", X@18"
BAL@24"

PIER DESIGN

SPEAKER: ANAR YAZJI

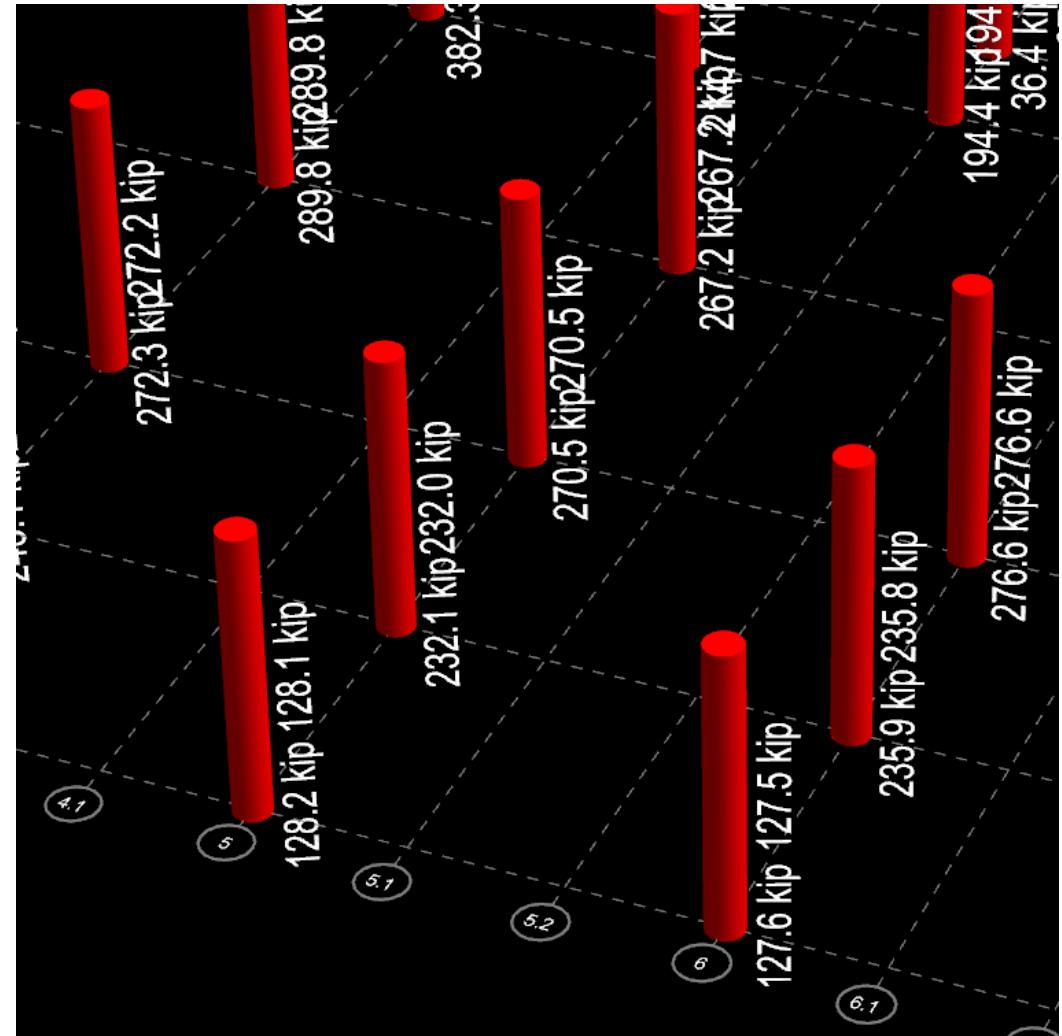


30" Diameter

6- #6 Longitudinal

#4 Spiral Stirrup

Straight shaft, embeds 2-4ft into
the limestone (24ft total height)

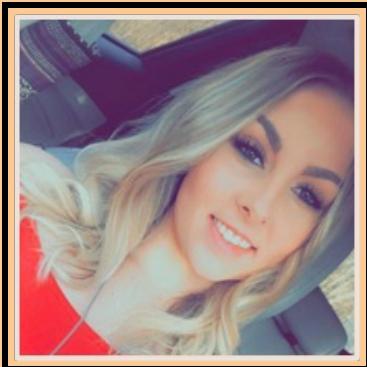


QUESTIONS?



Carter Bryant

Land
Development, Codes,
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Cheyenne Stevens

Schedule & Cost,
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Drainage, Site Plans