

ROADRUNNER

EXECUTIVE TOWER

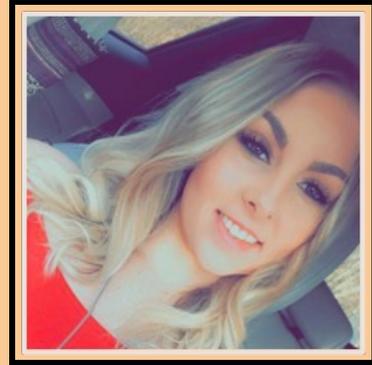
RAACC Civil Engineering, LP

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

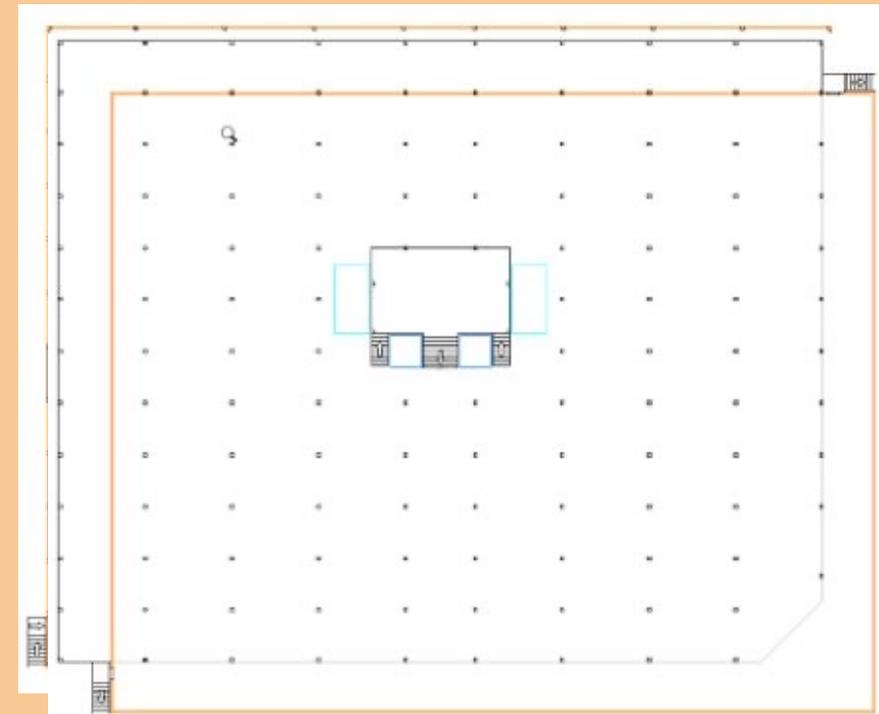
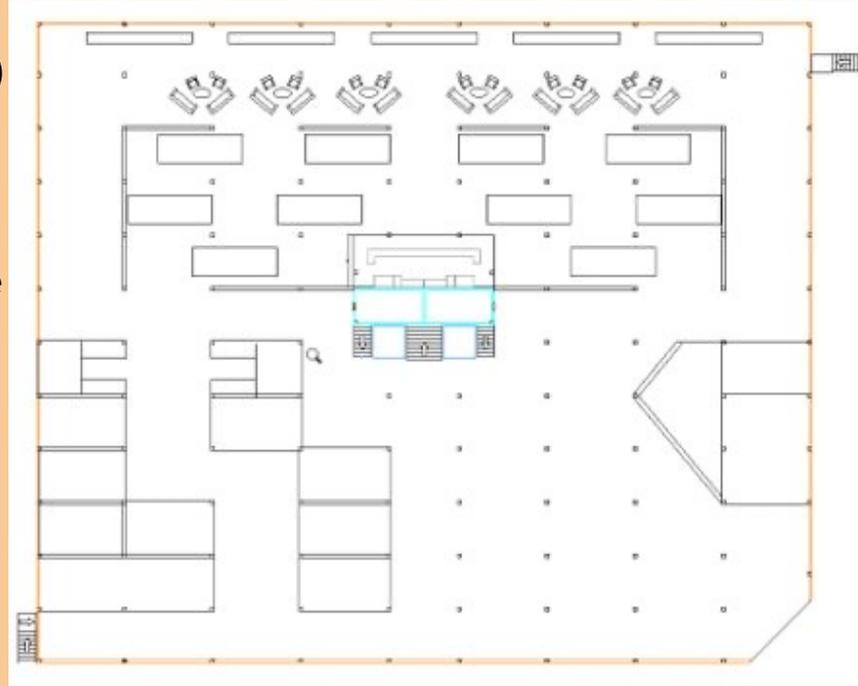
- Serve to improve existing site conditions and manage stormwater

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

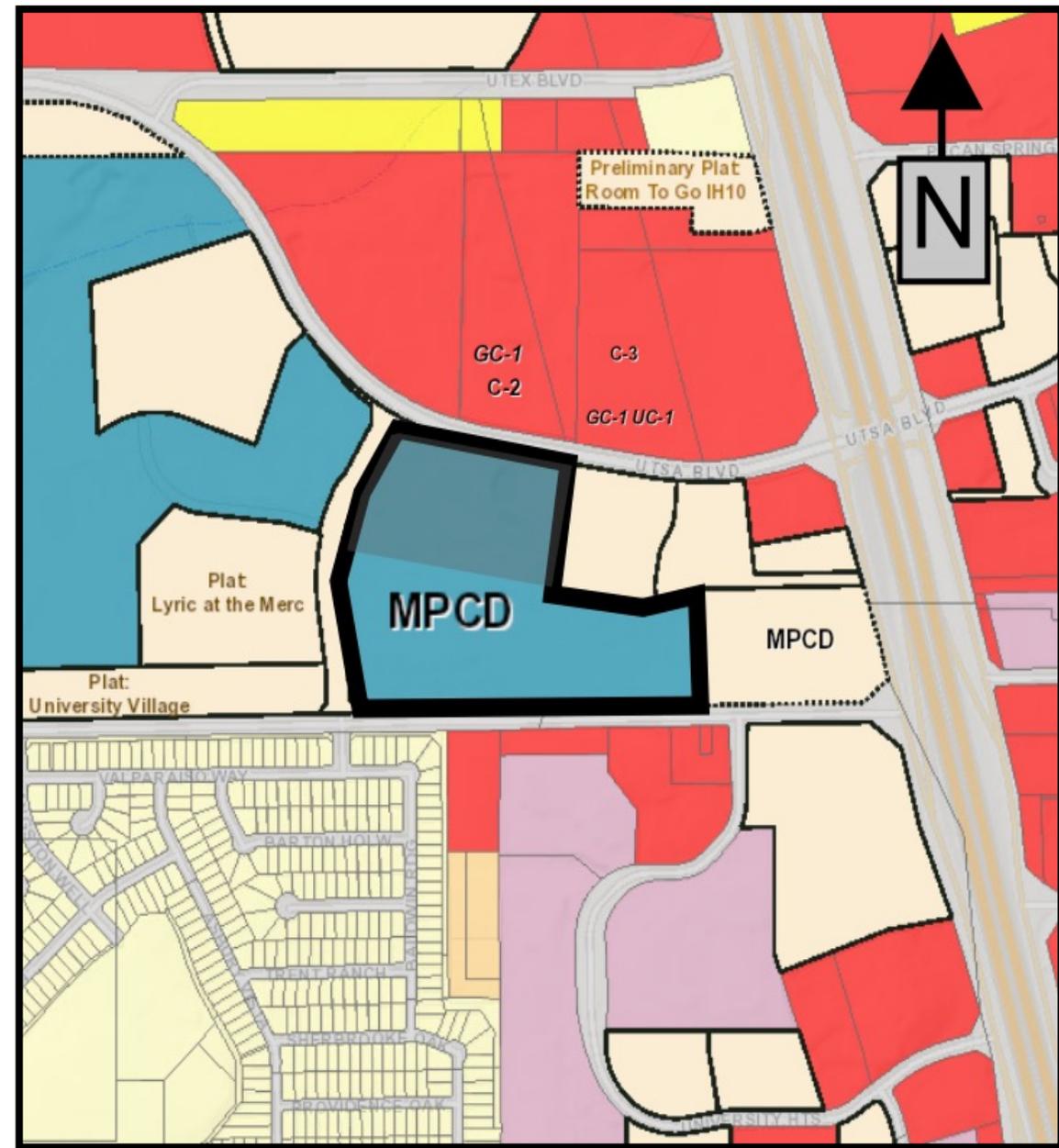
- 1 per 300 to 140 sf GFA = 260 parking spaces (min)
 - Can be reduced by LID

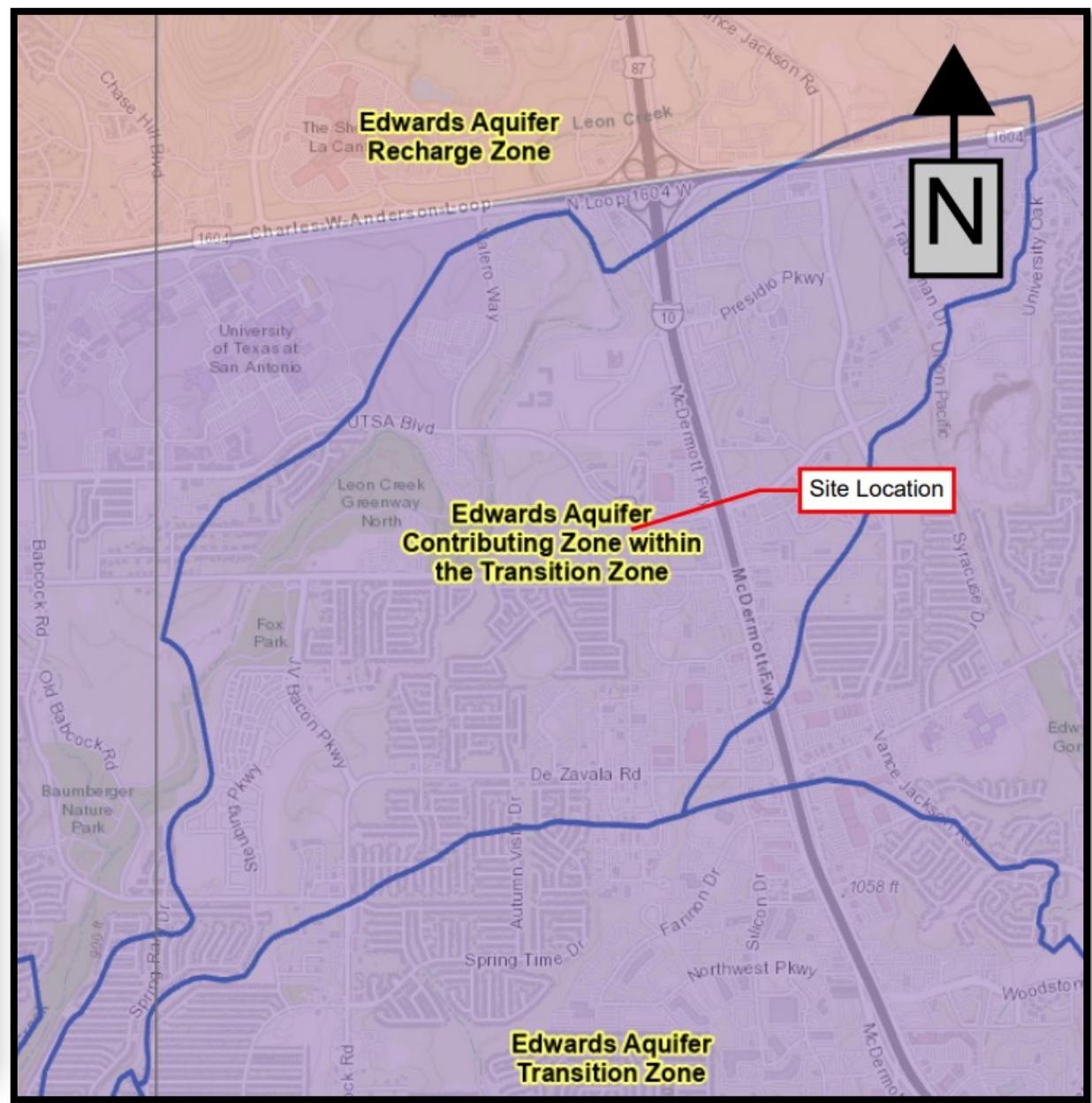
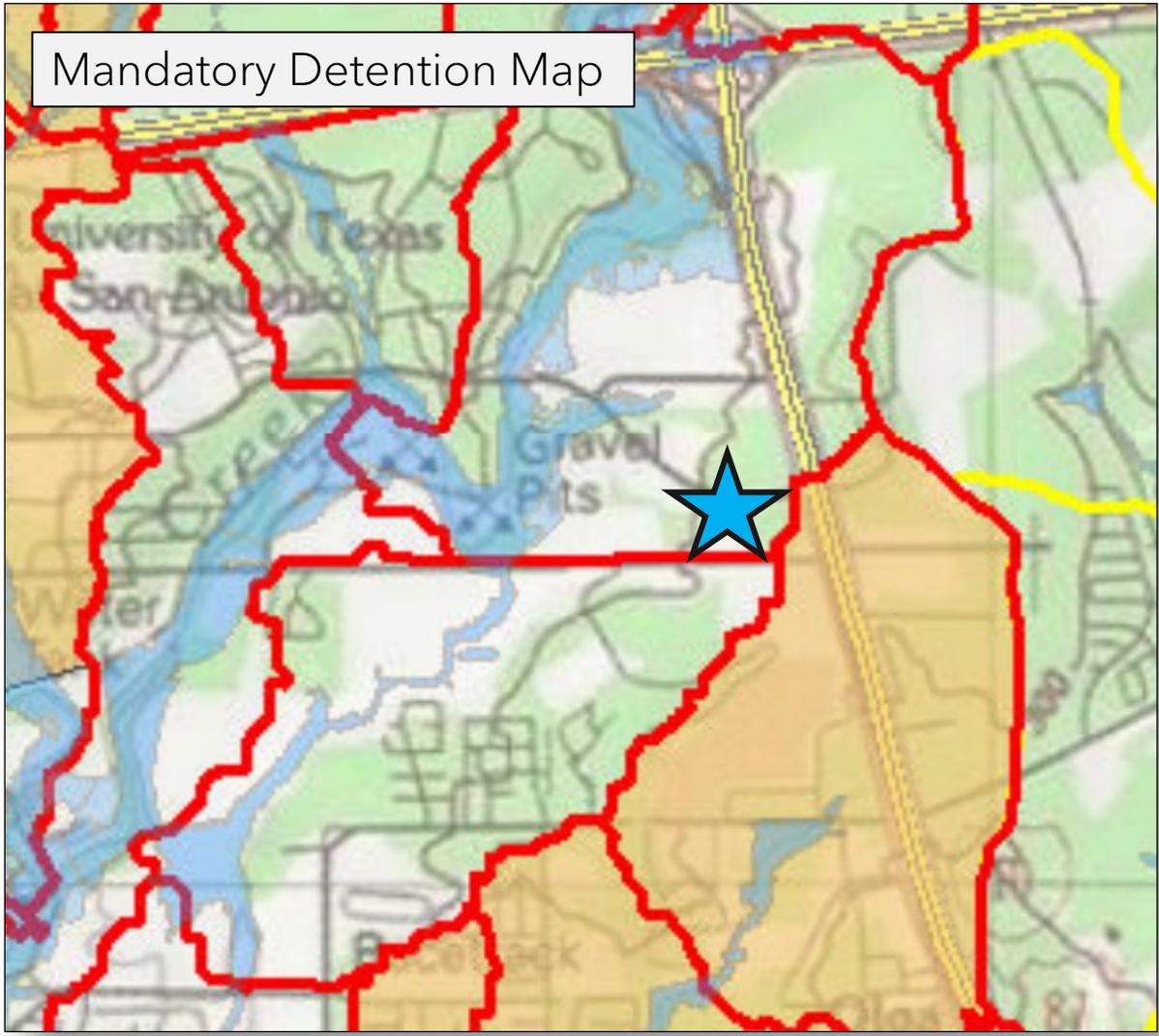
Building Height

- "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

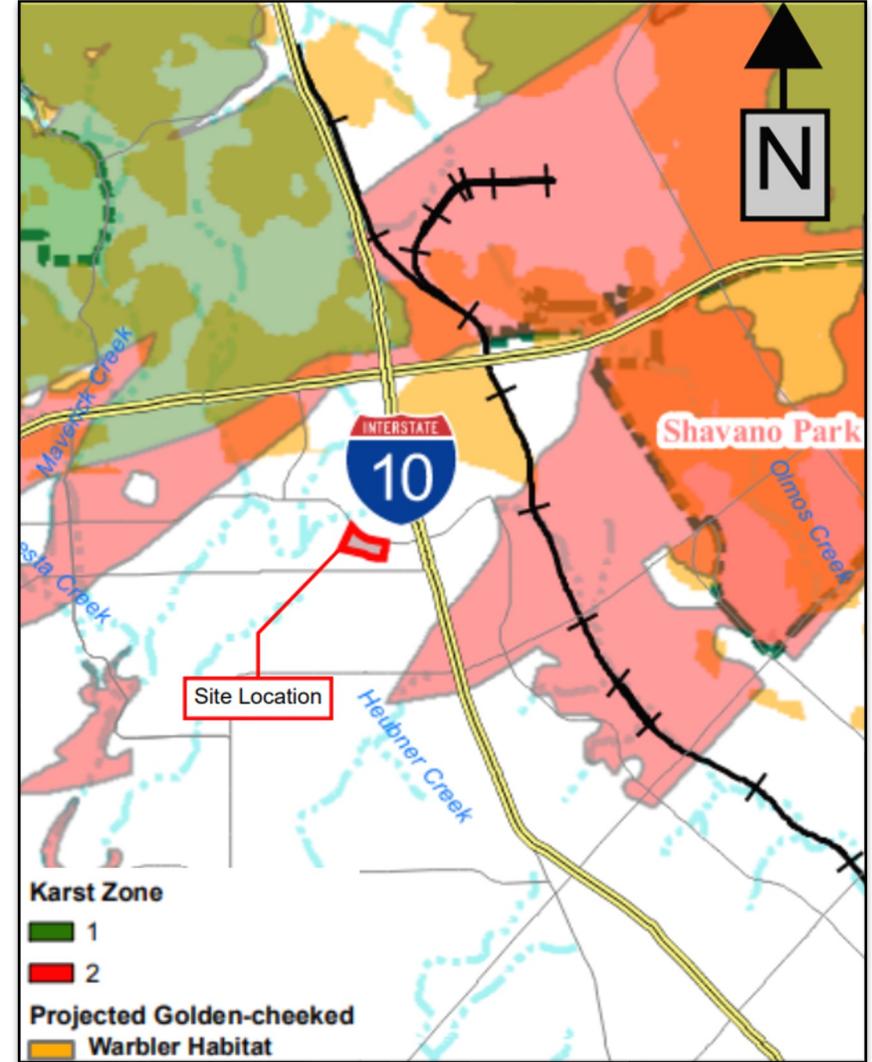
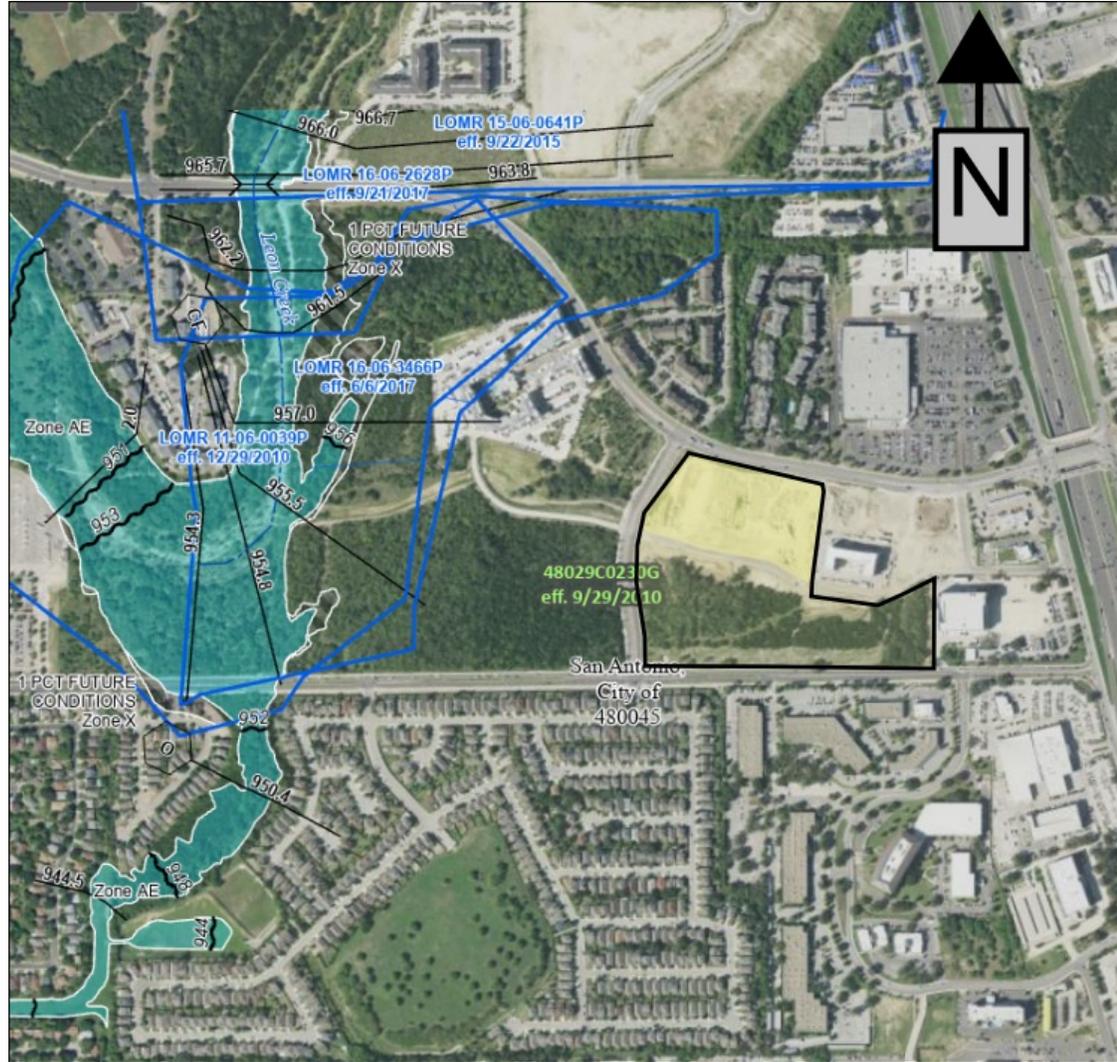
- Satisfied by LID and walking trail





FLOODPLAIN AND HABITAT COMPLIANCE

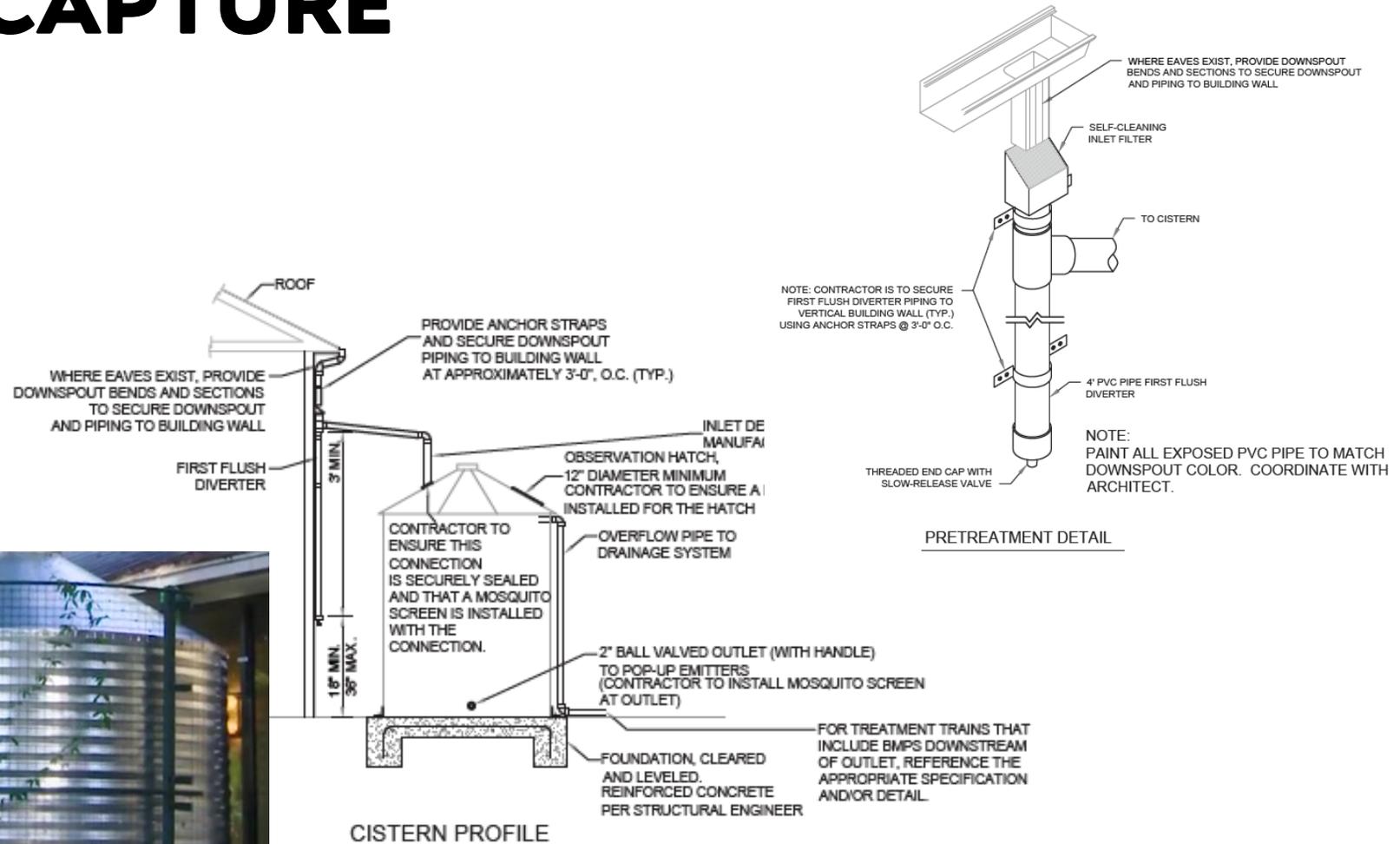
SPEAKER: CARTER BRYANT



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

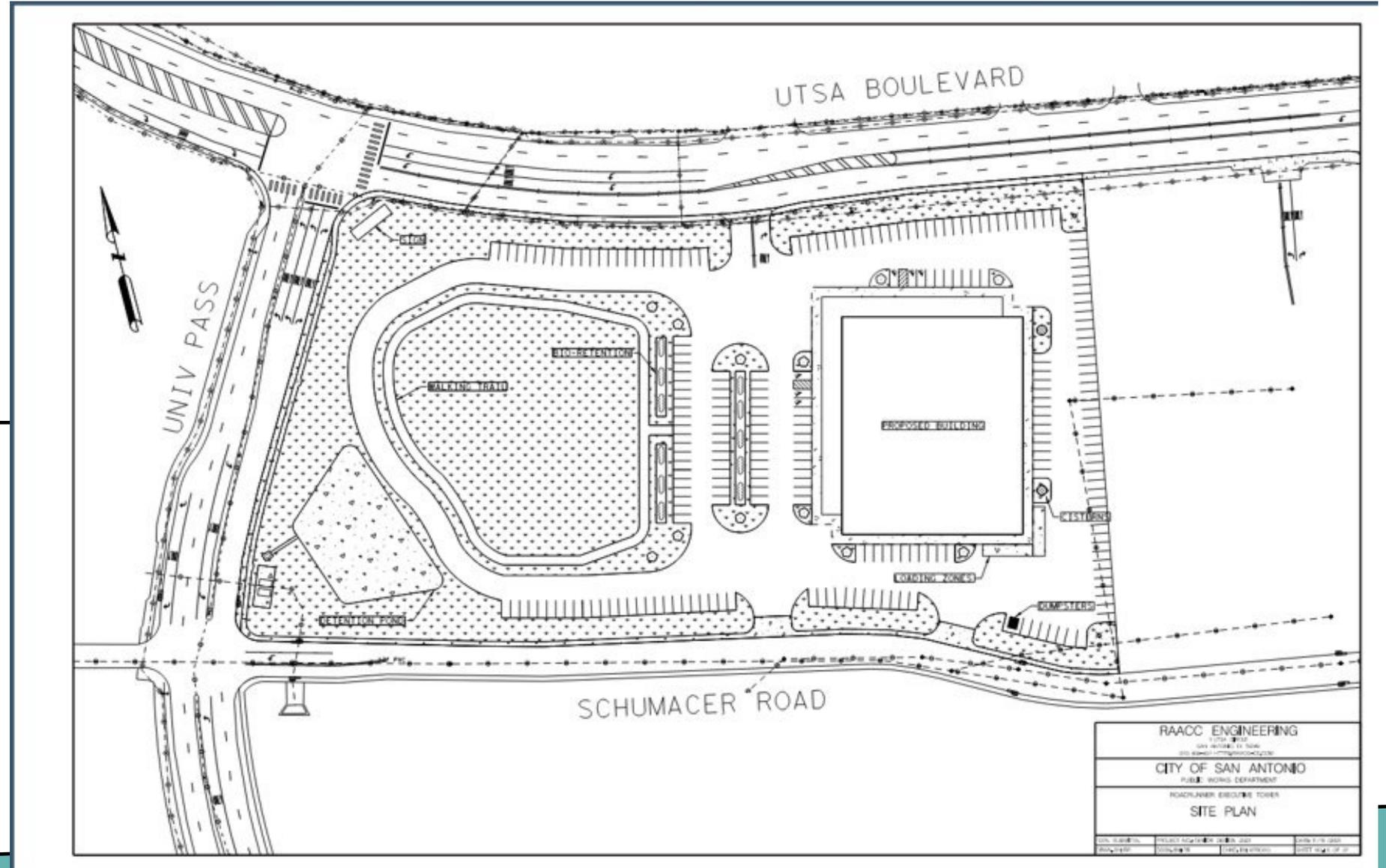
- Bioswale/natural channels (north and south)
 - Facilitate drainage east to west
- Bioretention at middle parking islands
 - Capture runoff from across the site
- Bioretention at grade at perimeter of balcony
 - Sloped deck into recessed trench drain



PROPOSED SITE PLAN

SPEAKER: REYNALDO REYNA

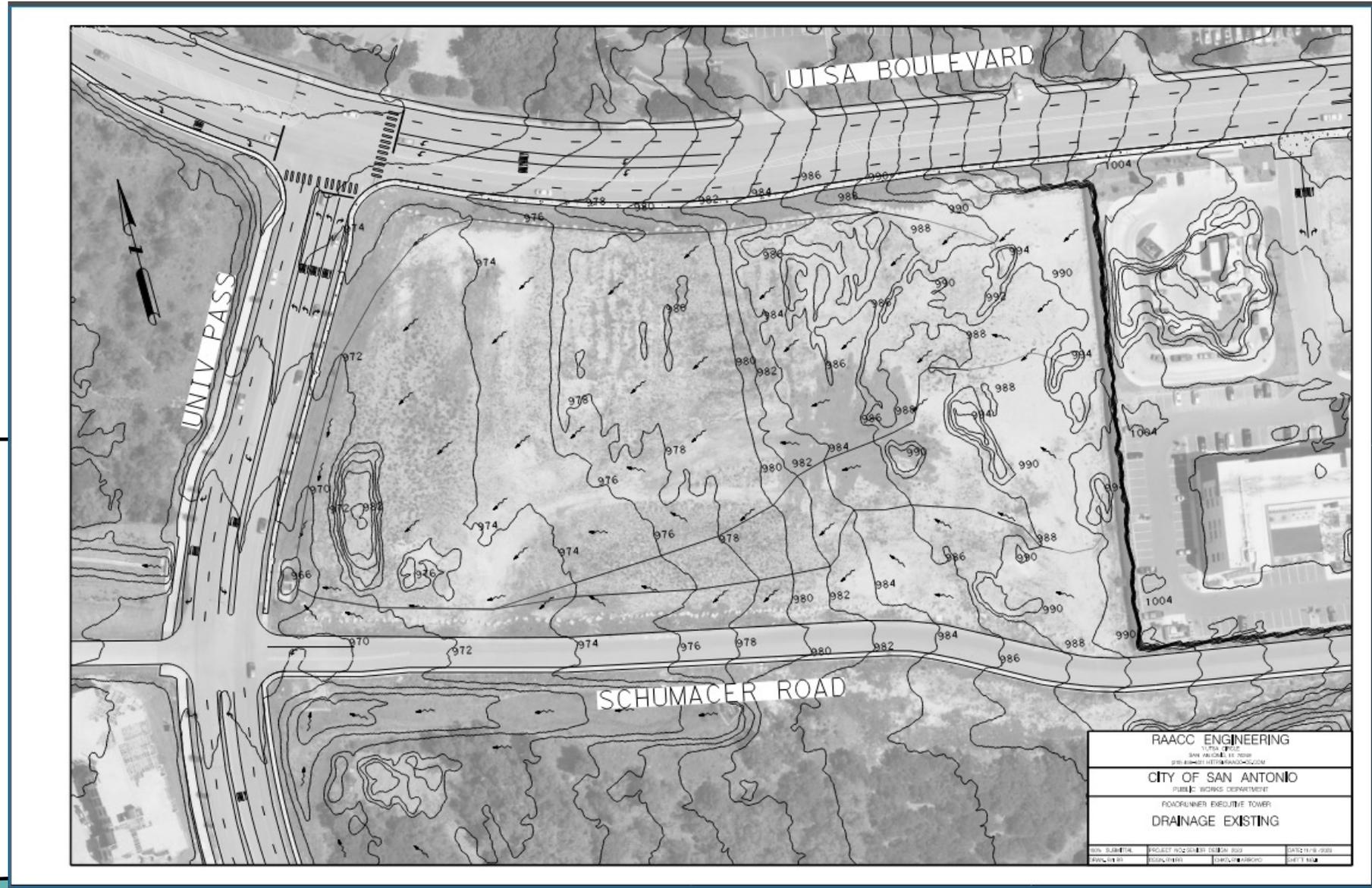
- 240 Parking Spots
- 3 Driveways
- 3 Bio-Retention
- 2 Cisterns
- Walking Trail
- Future Development
- Detention Pond
- Existing Storm Drain



EXISTING SITE CONDITIONS DRAINAGE

SPEAKER: REYNALDO REYNA

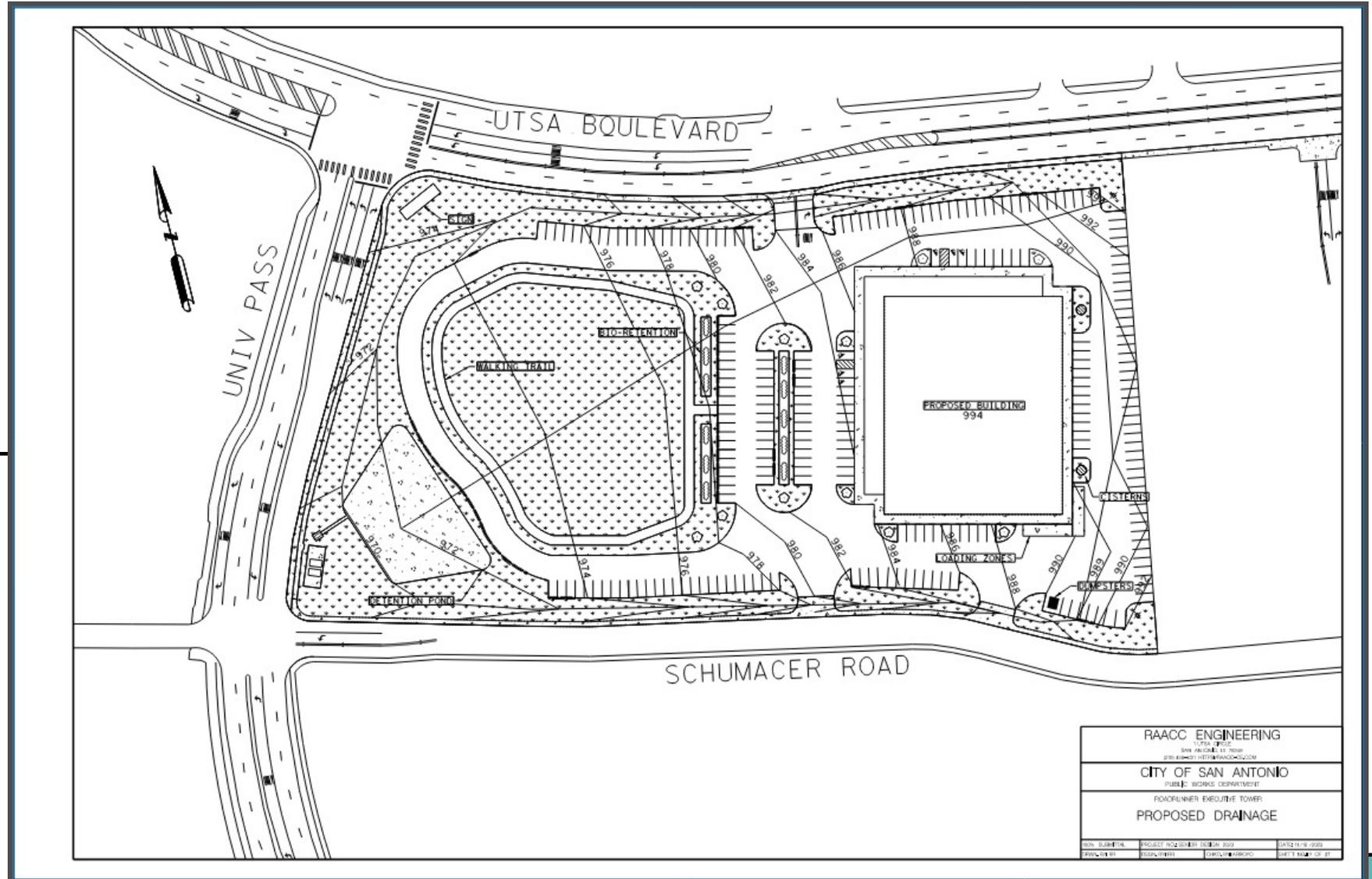
- Natural Channels
- Sheet Flow 100'
- Drains into Leon Creek



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)	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	1.853	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 1105 S. W. 10th St. SAN ANTONIO, TX 78204 (214) 520-1000 www.raacc.com			
CITY OF SAN ANTONIO PUBLIC WORKS DEPARTMENT			
ROADPLANNER EXECUTIVE TOWER PRE-DEVELOPMENT HYDROLOGIC CALCULATIONS			
REV. 01/2014	PROJECT NO. 100101	DESIGN 2020	DATE: 08.19.2023
DRYING/12	DRYING/12	DRYING/12	SHEET 14 OF 27

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	1.550	8.033	10.603	11.951	14.035	16.362	18.197
3	8.44	0.9	1.838	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	

RAACC ENGINEERING <small>11705 QUINN</small> <small>SAN ANTONIO, TX 78240</small> <small>2102 BURNETT STREET/SANANTONIO.COM</small>		
CITY OF SAN ANTONIO <small>PUBLIC WORKS DEPARTMENT</small>		
ROADRUNNER EXECUTIVE TOWER POST-DEVELOPMENT HYDROLOGIC CALCULATIONS		
<small>REV</small>	<small>DATE</small>	<small>BY</small>
001	11/18/2023	REYNALDO REYNA

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:

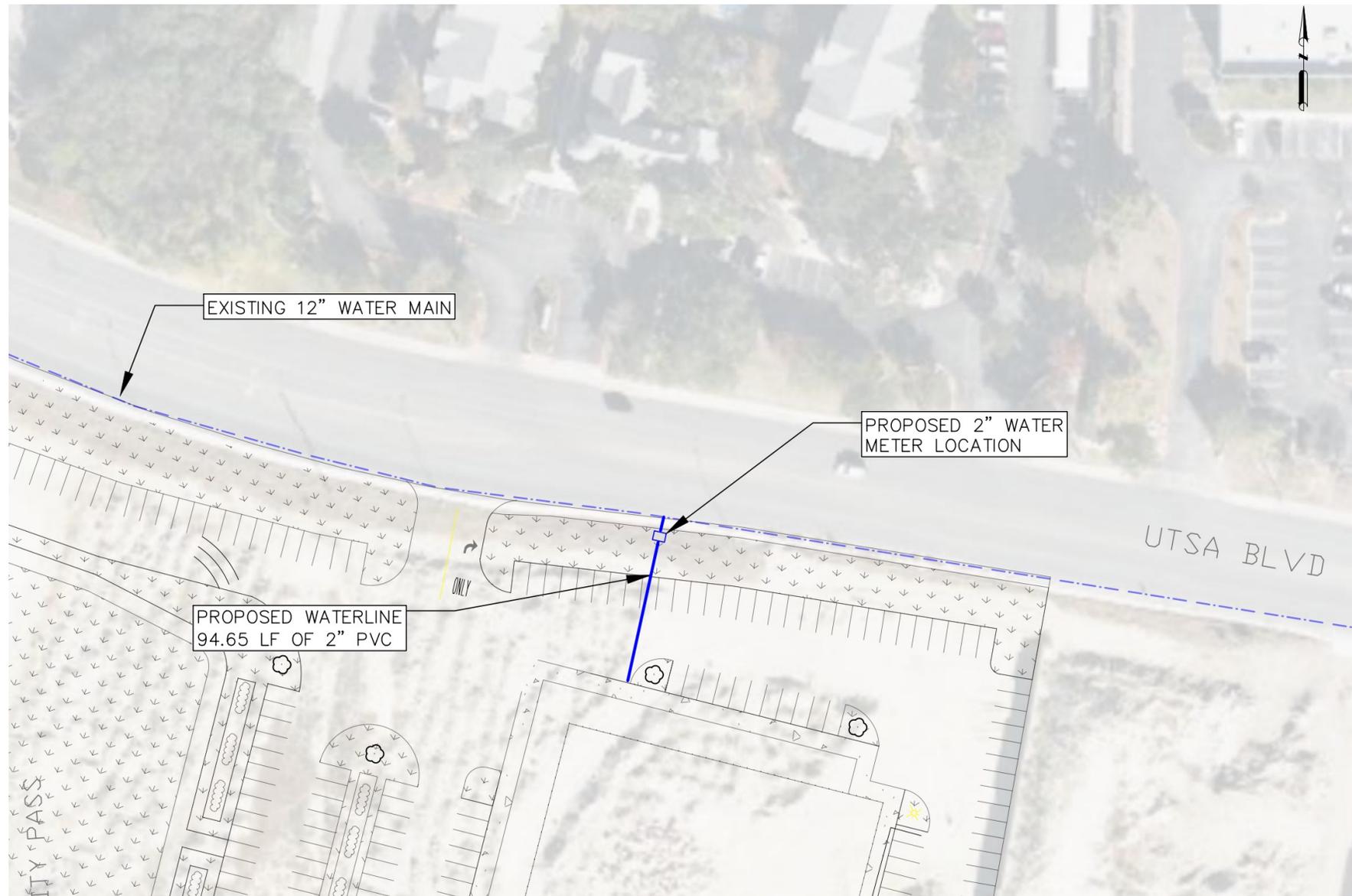
SAWS Service area

- 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:

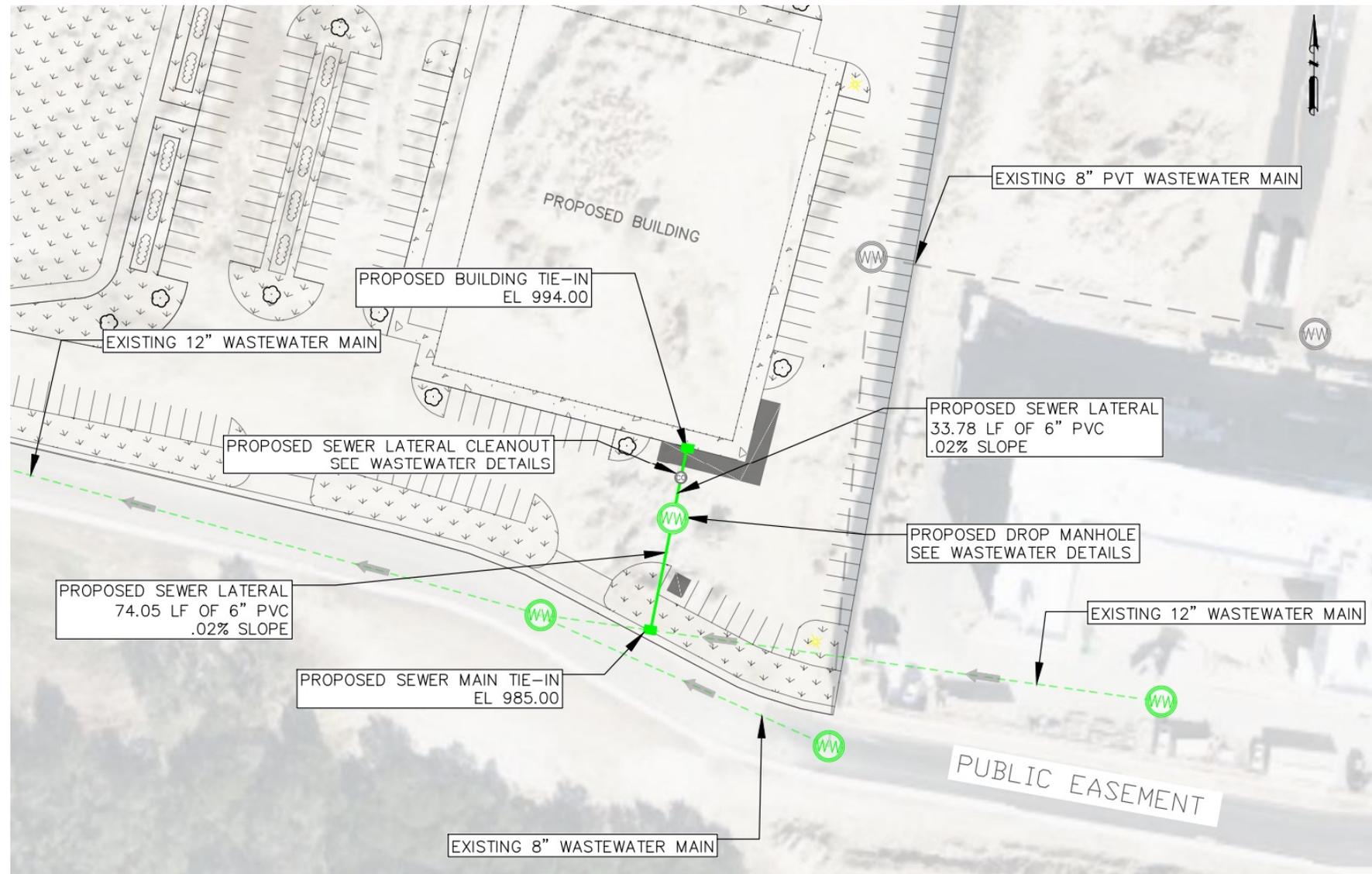
SAWS Service area

- Upper Collection Zone

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

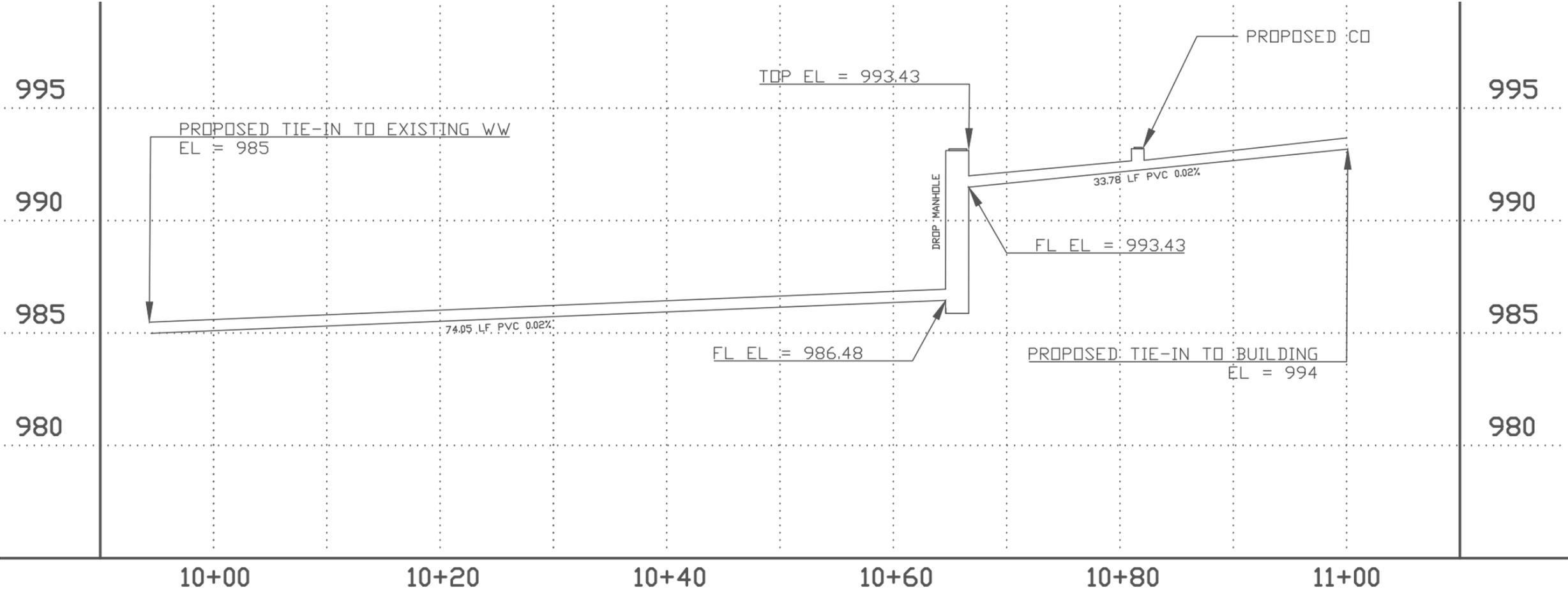
Proposed Plan:

- 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

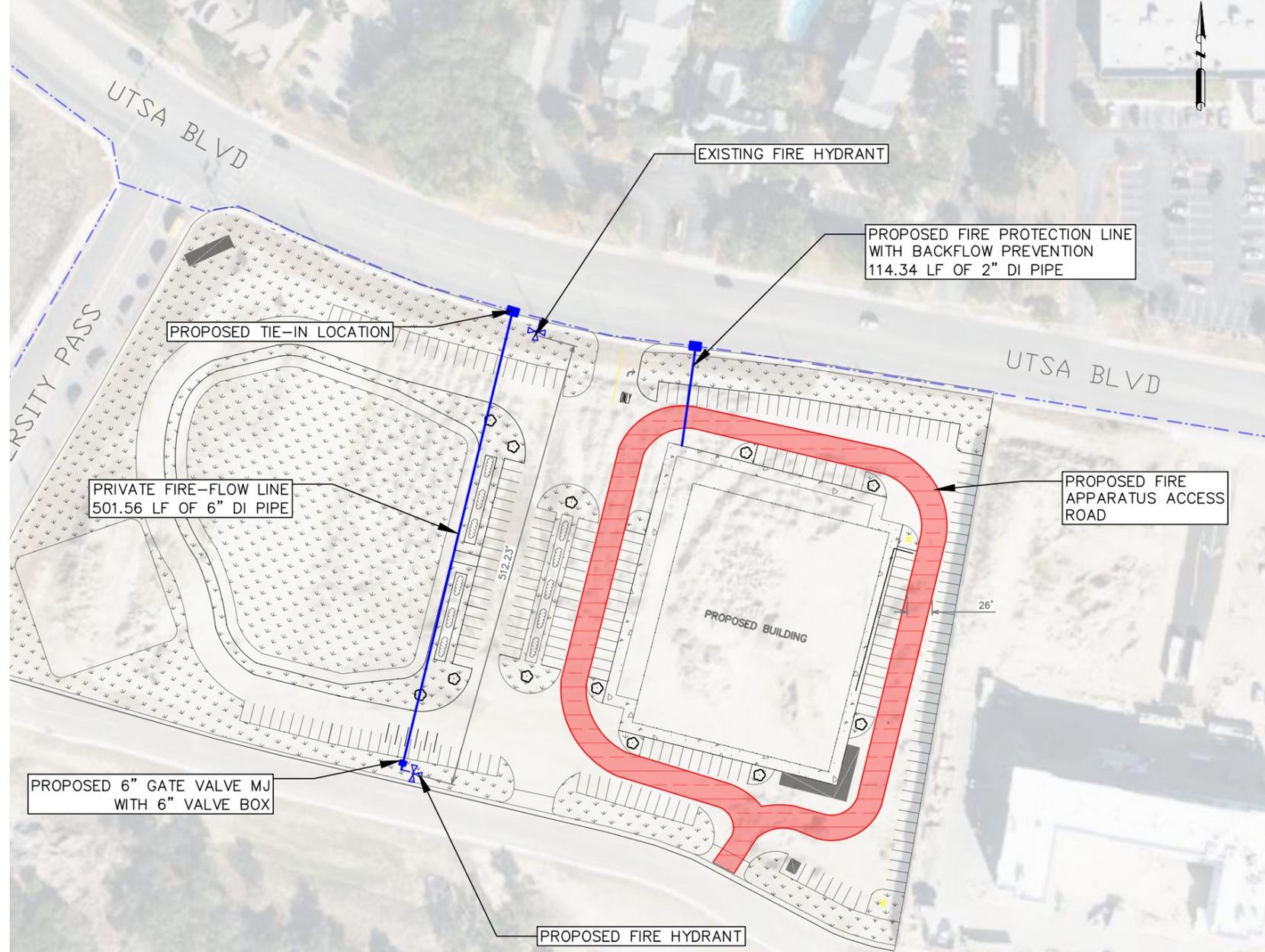
- NFPA 13 Sprinkler System
- 2" DI Pipe w/ BFP

Minimum Fire Flow Required:

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

Fire Apparatus Access Road

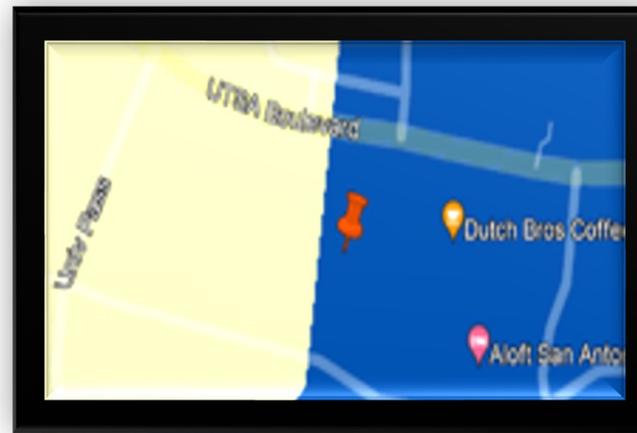
- Min of 26FT in width



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

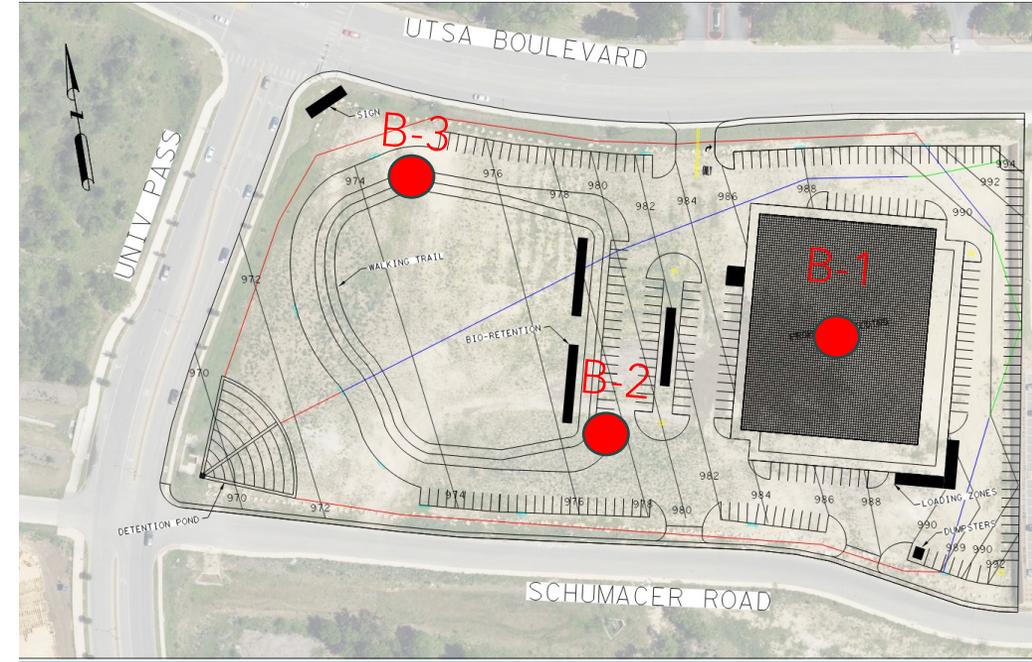
Soils:

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

Lime Treatment:

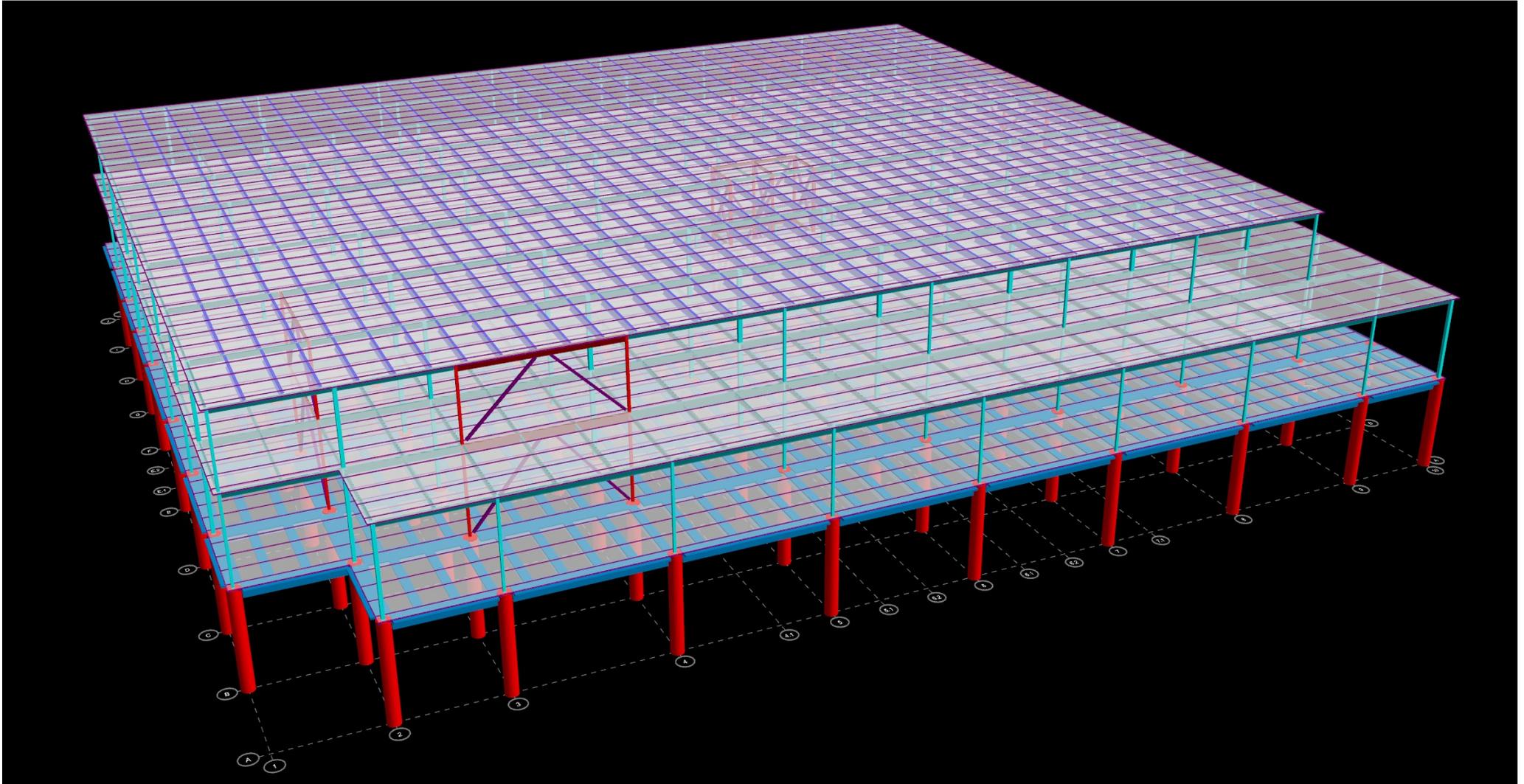
- Upper 6" of Fat Clay
- Stabilize Subgrade
- Increase Bearing Capacity
- 25 lbs/ sq yrd

BORING LOG NO. B-1									
PROJECT: Roadrunner Executive Tower					CLIENT: RoadRunner Development LLC San Antonio, TX				
SITE: 5644 UTSA Blvd, San Antonio, Texas 78249 San Antonio, Texas									
MODEL LAYER	GRAPHIC LOG	LOCATION See Exploration Plan Latitude: 29.5746° Longitude: -98.5994°	DEPTH (FL) ELEVATION (FL)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	ATTEENRENG LIMITS	PERCENT FINES
1		FAT CLAY (CH), dark brown, very stiff	Surface Elev: 994 (FL) 996.0			5-7-8 N=15	17.9		
						9-11-12 N=23	16.8	70-23-47	79
						9-10-11 N=21	19.3		
						7-9-12 N=21	15.9		
2		LEAN CLAY (CL), brown, very stiff to hard, with calcareous deposits	996.0			12-17-27 N=44	10.1	40-17-23	68
						50/5"	6.9		
						50/3"	5.6		
4		LIMESTONE, gray, hard, (rock-like)	974.0			50/0"			
						50/0"			
						50/0"			
			954.0						
Boring Terminated at 30 Feet									
Stratification lines are approximate. In-situ, the transition may be gradual. Hammer Type: Automatic									
Advancement Method: Air Rotary			See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (if any).			Notes:			
Abandonment Method: Boring backfilled with sugar cuttings upon completion.			See Supporting Information for explanation of symbols and abbreviations.			Boring Started: 10-16-2023 Boring Completed: 10-16-2023			
WATER LEVEL OBSERVATIONS No free water observed			Roadrunner Development LLC 11 WINDSOR TOWER SQUARE			Drill Rig: CME 75		Driller: Ramco	
						Project No.: 902301			



FRAMING

SPEAKER: ANAR YAZJI



ROOF FRAMING

SPEAKER: ANAR YAZJI

[1.5B Gr50 22-Gage Roof Deck]

Interior Girders: W16x26

Perimeter Beams: W12x19

20' LENGTH

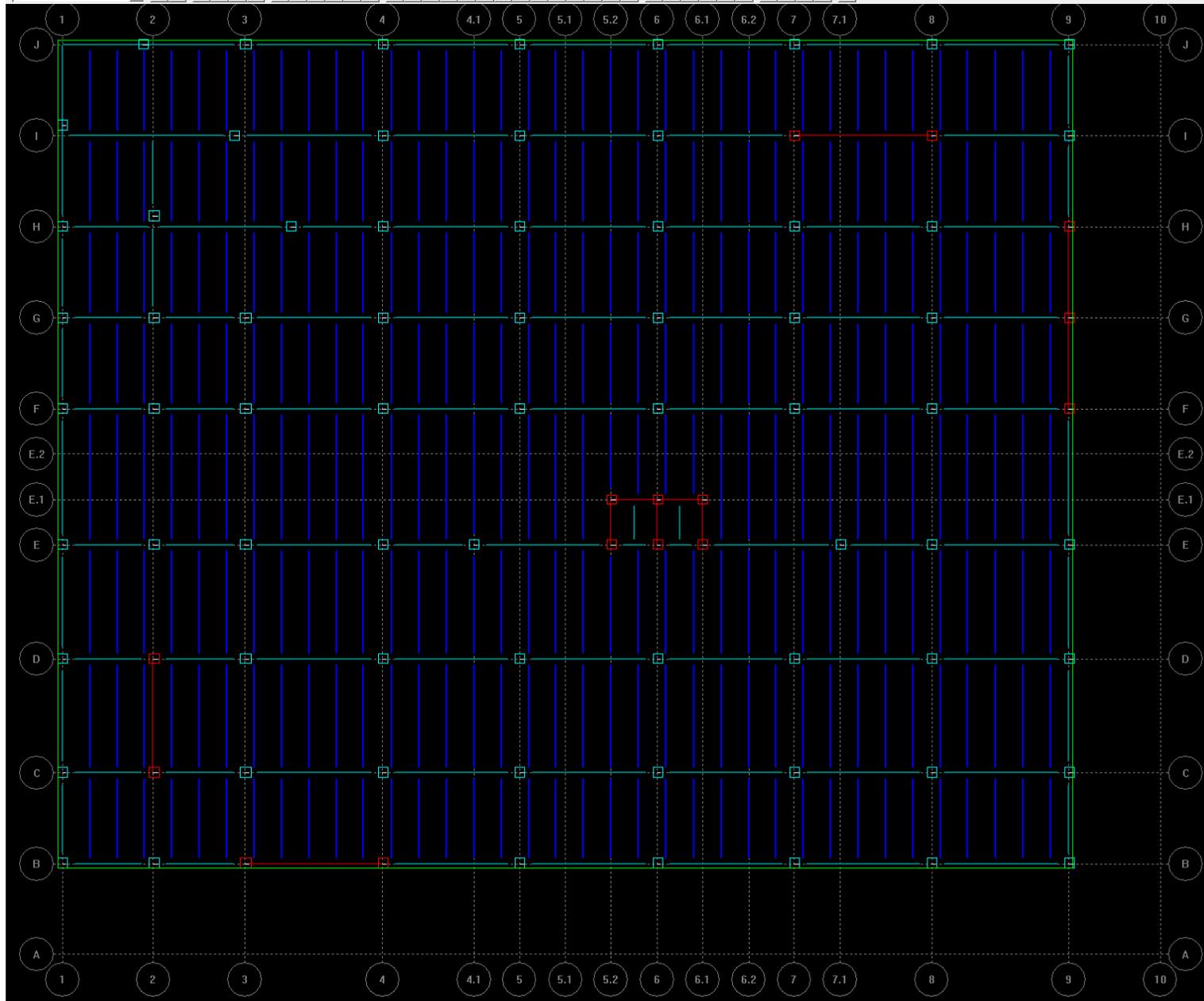
12K1	241	142	362	5.1	4	2/0/0
14K1	284	197	426	5.3	4	2/0/0

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

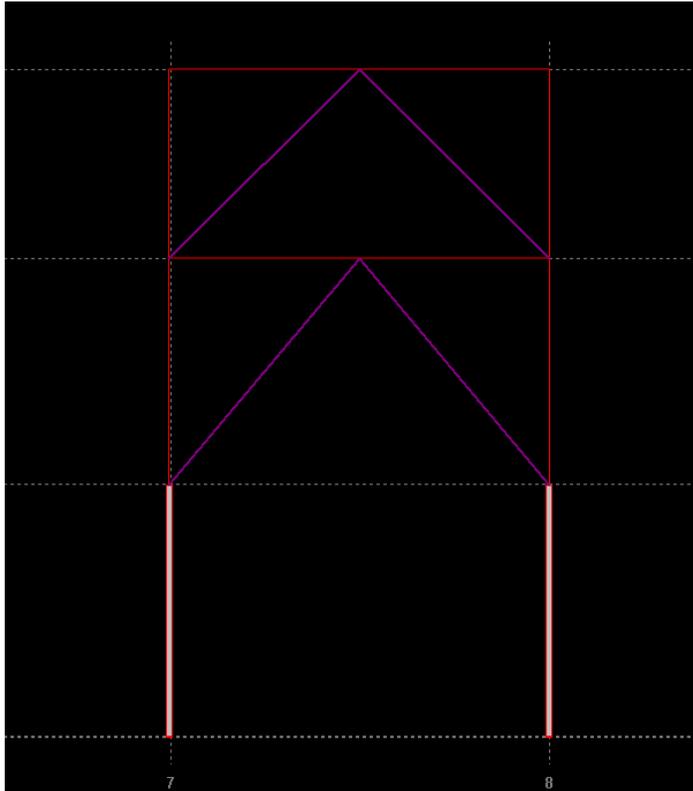
16K4	217	112	326	6.4	4	2/0/0
20K3	227	153	341	6.6	5	3/0/0
16K5	244	126	366	7.3	4	2/0/0
16K6	266	137	399	7.8	5	2/0/0
24K6	406	319	609	8.2	5	2/0/0



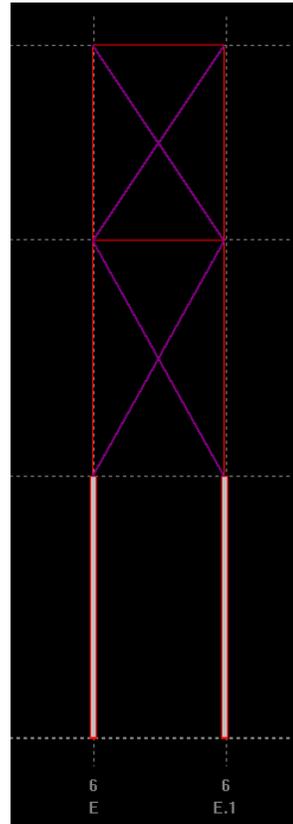
BRACE PROFILES

SPEAKER: ANAR YAZJI

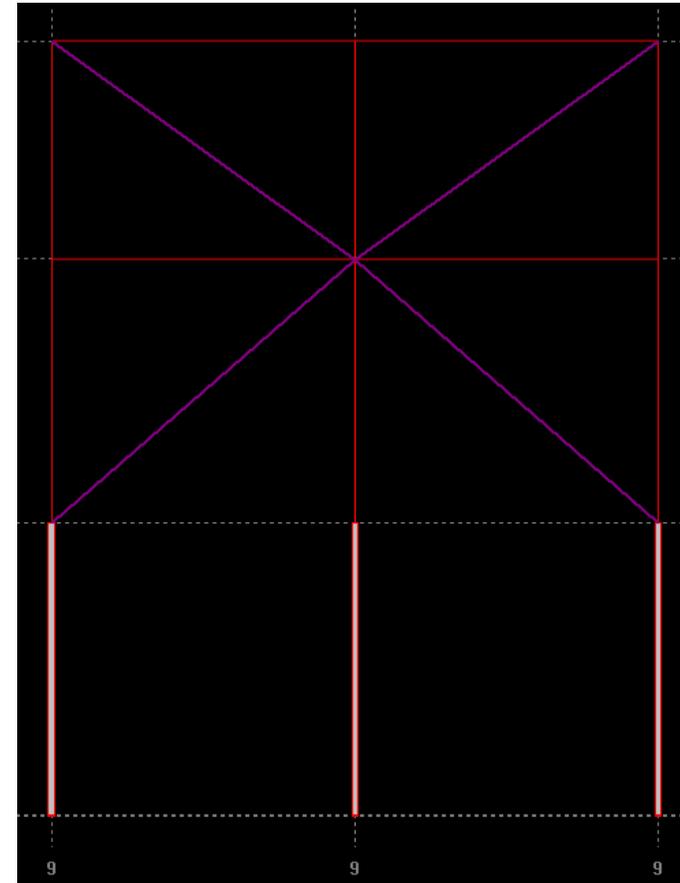
HSS 6x6x1/4
+/- 55 kips



HSS 6x6x1/4
+/- 30 kips

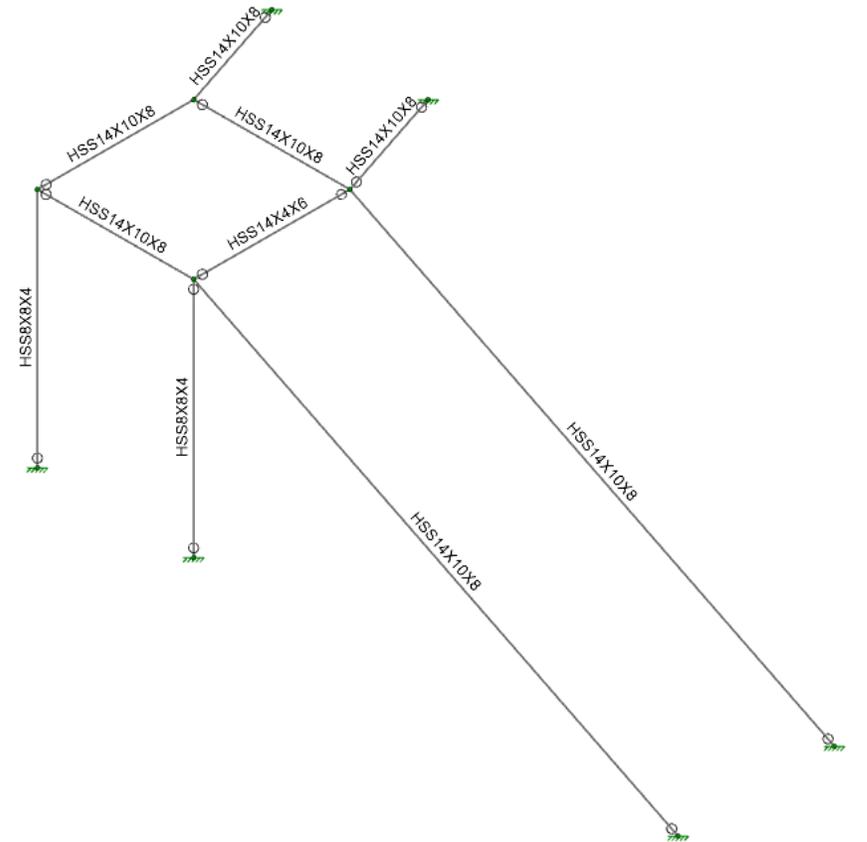
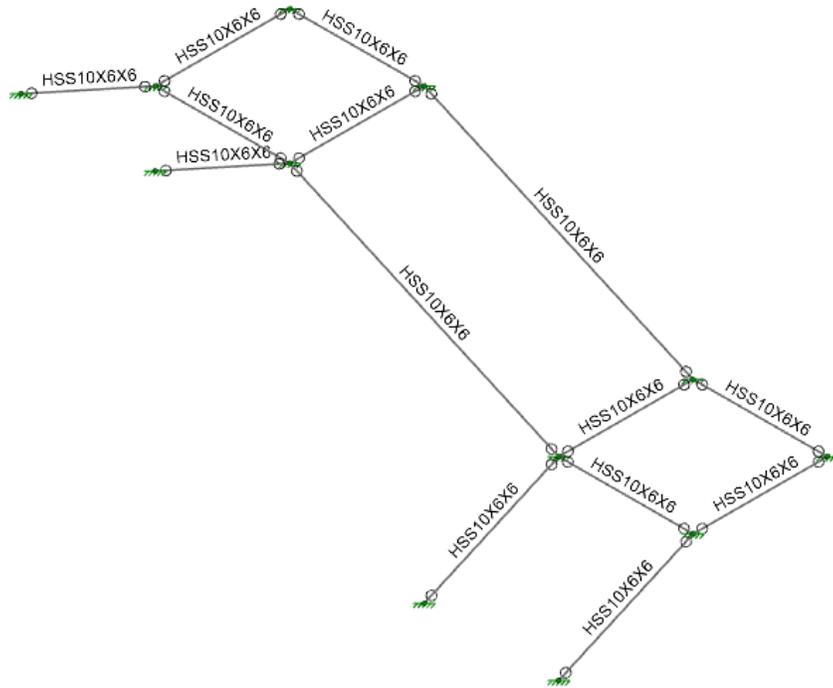
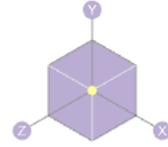
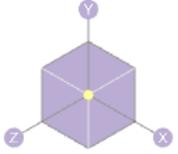


HSS 6x6x5/16
+/- 68 kips



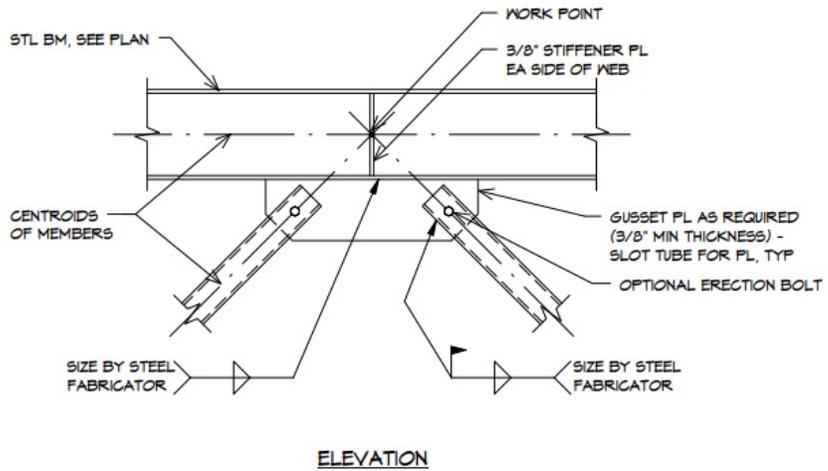
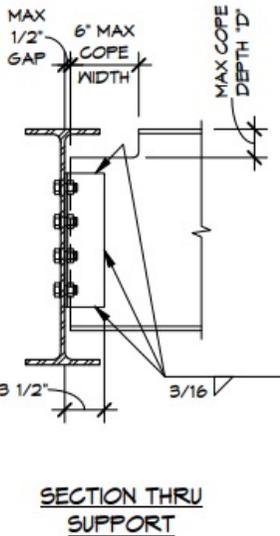
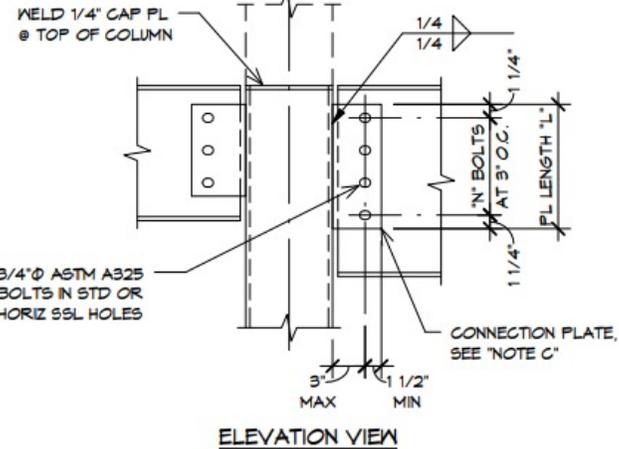
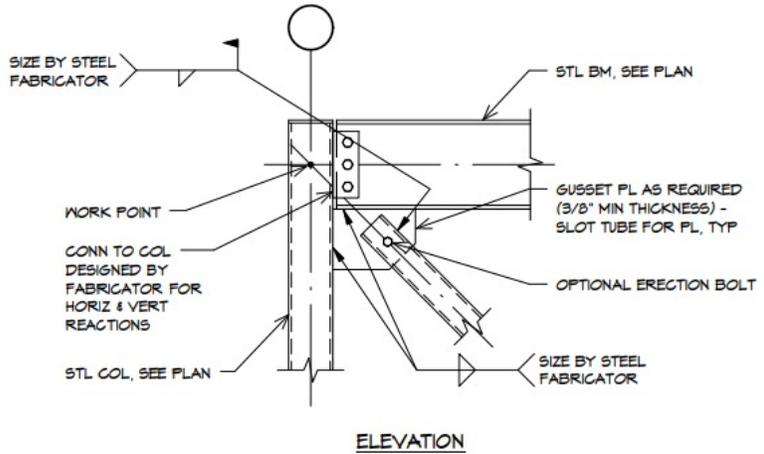
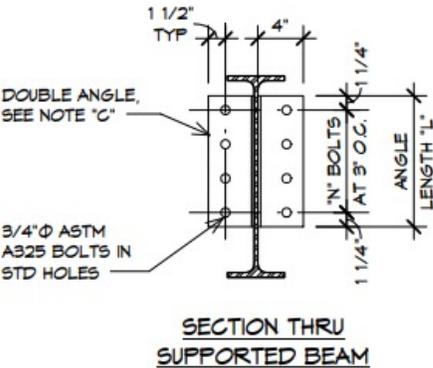
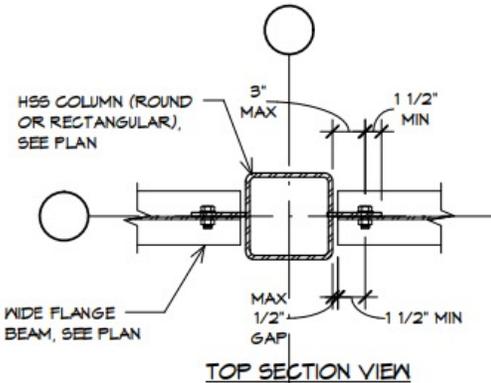
STAIR DESIGNS

SPEAKER: ANAR YAZJI



CONNECTION DETAILS

SPEAKER: ANAR YAZJI



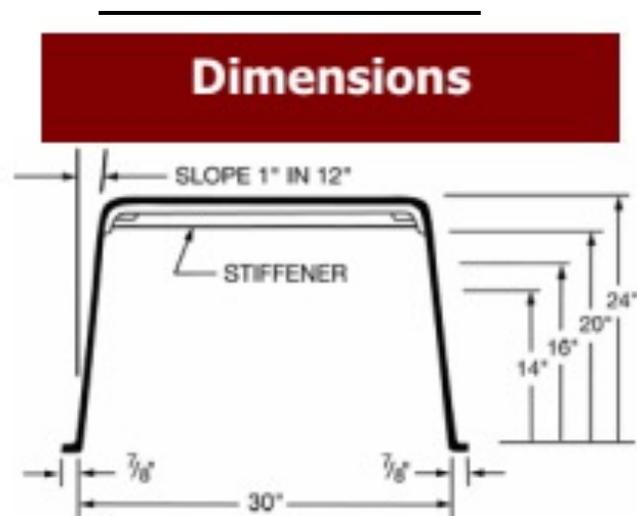
FOUNDATION FRAMING

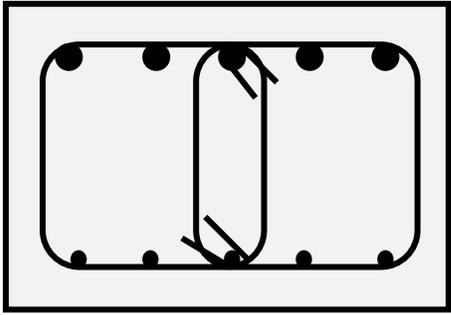
SPEAKER: ANAR YAZJI

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)





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

Reinforcement hooks into end supports

FOUNDATION REINFORCEMENT

SPEAKER: ANAR YAZJI

(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

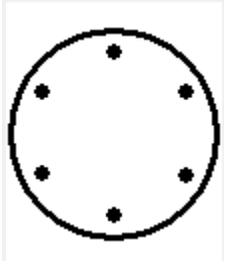
Top: 2-#8s

Bottom: 2-#8s

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

PIER DESIGN

SPEAKER: ANAR YAZJI

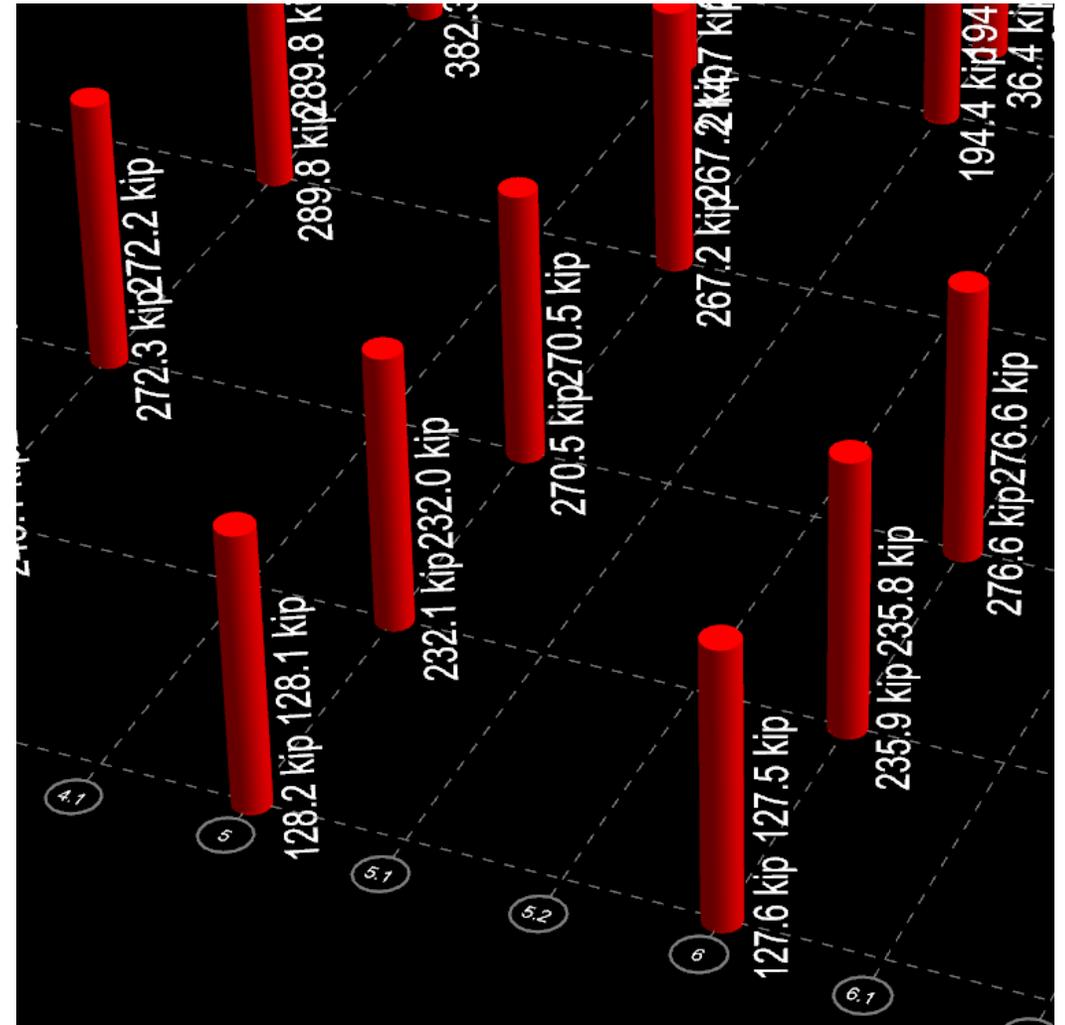
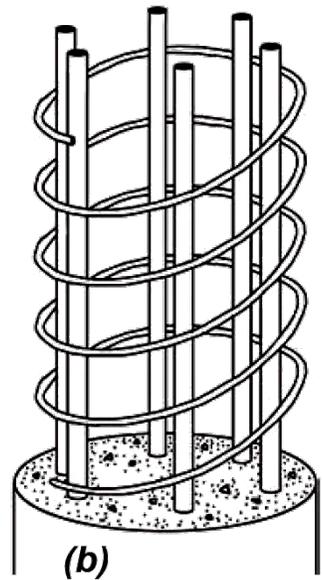


30" Diameter

6- #6 Longitudinal

#4 Spiral Stirrup

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

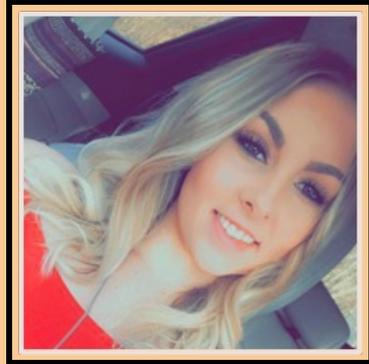


QUESTIONS?



Carter Bryant

Land
Development, Codes,
LID



Cheyenne Stevens

Schedule & Cost,
Utilities, Environmental



Anar Yazji

Structural Design &
Detailing



Ahmad Alnourachi

Geotechnical Analysis,
Soil Treatment



Reynaldo Reyna

Drainage, Site Plans