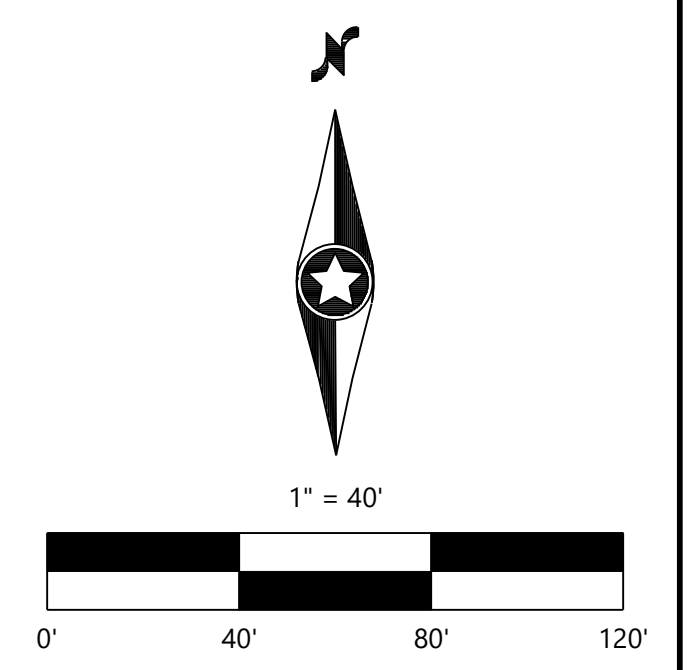


STORM SEWER DRAINAGE CALCULATIONS TABLE AND FLOW INFORMATION

Line Desc.	Run-Off Collection Point		Dist Between Collection Points	D A (Ac)	Runoff Coeff. C	Incr CA	Accumulated CA	Time of Upstream Station (Min)	Design Storm Frequency (yrs)	Rainfall Intensity, I (in/hr)	Storm Water Run-off Q (CFS)	Accumulated Run-off Q (CFS)	Number of Barrels	Storm Sewer Size, ϕ (in)	RCBC, ϕ			Slope of Storm Pipe % (Ft/Ft)	Mann. Coeff. (n)	Velocity in Storm Pipe V (fps)	Velocity at Capacity (fps)	Slope of Hyd. Grad. SF (Ft/Ft)	Capacity of Storm Q (CFS)	Friction Loss, L'SF	Head Loss Coeff K	Type of Junction (L, S, B, I) or P	Val H. Lateral Upstream, $V_L^2/2g$ (V, 2/2g)	Val H. Structure Upstream, $V_S^2/2g$ (K, V, 2/2g)	Inlet & Bend Losses, $K_B(V^2/2g)$ (ft)	Effective Head Loss (ft)	Flow Time Dist/ (V/60) (Min)	Time of Downstream Station (Min)	Downstream HGL	Upstream HGL	Inlet Capacity (CFS)
	Span (ft)	Rise (ft)													Wall T. in																				
Line ST-1	118.36	100.00	18.36	1.6600	0.90	1.40	1.40	10.00	100-yr	9.80	13.76	13.76	1	24	0	0	0	15.96%	0.013	4.38	26.77	0.0037	90.38	0.07	1.50	I	L	S	B, I	0.45	0.07	10.07	564.07	564.51	16.59
Line ST-2	108.24	100.00	9.24	0.8600	0.90	0.59	0.59	10.00	100-yr	9.80	5.82	5.82	1	18	0	0	0	23.48%	0.013	3.29	26.80	0.0031	50.90	0.03	1.50	I	0.17	0.17	0.25	0.25	0.05	10.05	564.43	564.68	8.46

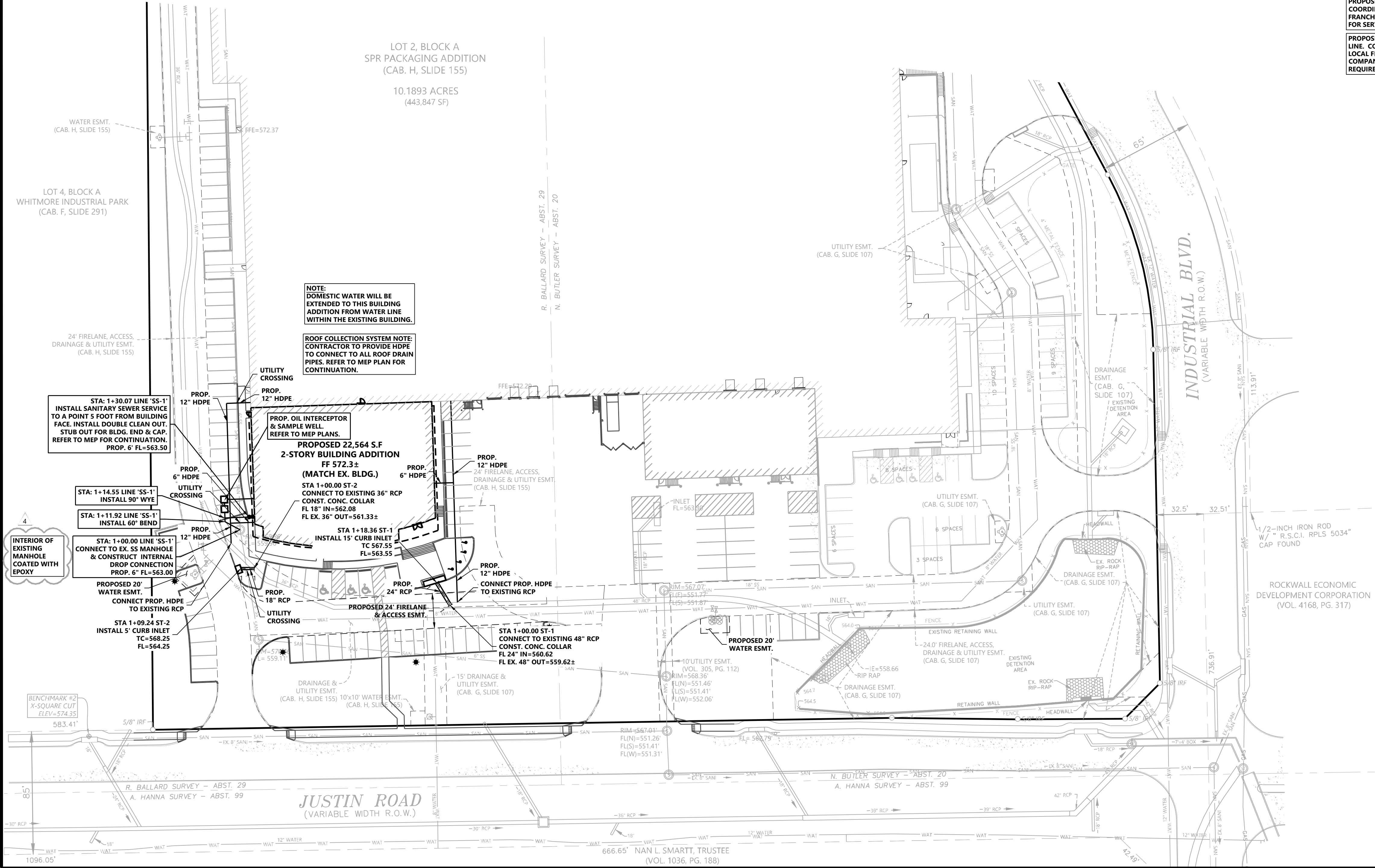
BENCHMARK LIST:
BENCHMARK #1
 X-CUT FOUND ON THE TOP OF CURB OF THE SOUTHERN CURB RETURN AT EAST SIDE OF INDUSTRIAL BLVD. 590' ± SOUTH FROM CENTERLINE OF RAILROAD. ELEVATION = 564.27
BENCHMARK #2
 X-CUT SET AT THE SOUTHEAST CORNER OF CURB INLET LOCATED IN NORTH SIDE OF JUSTIN ROAD 40' ± WEST OF SOUTHWEST CORNER OF SITE. ELEVATION = 574.35



PROVIDE CONDUIT AND POWER TO SITE LIGHTING AS REQUIRED. COORDINATE WITH MEP/ARCH AND LOCAL FRANCHISE UTILITY COMPANY AS REQUIRED.
 PROVIDE CONDUIT AND POWER TO SIGN AS REQUIRED. COORDINATE WITH MEP/ARCH AND LOCAL FRANCHISE UTILITY COMPANY AS REQUIRED.
 PROPOSED TELEPHONE SERVICE LINE. COORDINATE WITH LOCAL FRANCHISE UTILITY COMPANY FOR SERVICE AS REQUIRED.
 PROPOSED GAS SERVICE LINE. COORDINATE WITH LOCAL FRANCHISE UTILITY COMPANY FOR SERVICE AS REQUIRED.
 PROPOSED ELECTRIC SERVICE LINE. COORDINATE WITH LOCAL FRANCHISE UTILITY COMPANY FOR SERVICE AS REQUIRED.

PROVIDE CONDUIT AS REQUIRED FOR PHONE, ELECTRICAL, GAS, IRRIGATION & LIGHTING. COORDINATE WITH LANDSCAPE, MEP & FRANCHISE UTILITY COMPANIES FOR LOCATIONS NUMBER & SIZES OF CONDUITS AND SERVICES.
 THE SERVICE WOULD REQUIRE THAT THE DEVELOPER PROVIDE THE STANDARD 2-4" PVC CONDUITS WITH PULL STRINGS FROM THE TELEPHONE EQUIPMENT TO THE RIGHT-OF-WAY OR UTILITY EASEMENT UNDER AREAS OF THE PAVEMENT. PVC CONDUITS NEED TO BE EXPOSED OR TURNED UP AT THE RIGHT-OF-WAY OR UTILITY EASEMENT. ALL 90° BENDS IN THE CONDUITS SHOULD BE LONG RADIUS. A BACKBOARD IN THE BUILDING SHALL CONSIST OF STANDARD 4"x8"x3/4" SHEET OF PLYWOOD MOUNTED AT THE TERMINATION POINT. ALSO, AN ELECTRICAL OUTLET AND #6 SOLID INSULATED GROUND WIRE FROM THE GROUND BAR OF THE POWER PANEL TO PLYWOOD BACKBOARD WITH A 6' COIL OF WIRE LEFT AT THE BACKBOARD WILL BE REQUIRED AT THE BUILDING.

CAUTION !!!
 EXISTING UTILITIES
 EXISTING UTILITIES AND UNDERGROUND FACILITIES INDICATED ON THESE PLANS HAVE BEEN LOCATED FROM REFERENCE INFORMATION. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY BOTH HORIZONTALLY AND VERTICALLY THE LOCATION OF ALL EXISTING UTILITIES AND UNDERGROUND FACILITIES PRIOR TO CONSTRUCTION. TO TAKE NECESSARY PRECAUTIONS IN ORDER TO PROTECT ALL FACILITIES ENCOUNTERED. THE CONTRACTOR SHALL PRESERVE AND PROTECT ALL EXISTING UTILITIES FROM DAMAGE DURING CONSTRUCTION.



Line	Station	Ground	HGL	Prop. HGL	Prop. Ground
Line ST-1	580	580	580	580	580
	575	575	575	575	575
Line ST-2	570	570	570	570	570
	565	565	565	565	565
Line ST-1	560	560	560	560	560
	555	555	555	555	555

Line ST-1
 100.00 118.36
 Pipe Size = 24 IN
 Q100 = 13.76 CFS
 V = 4.38 FPS
 V²/2g = 0.30 FT
 Sf = 0.0037 FT/FT
 n = 0.013
 C = 90.38 CFS

Line ST-2
 100.00 109.24
 Pipe Size = 18 IN
 Q100 = 5.82 CFS
 V = 3.29 FPS
 V²/2g = 0.17 FT
 Sf = 0.0031 FT/FT
 n = 0.013
 C = 50.90 CFS

RECORD DRAWINGS:
 IT WAS THE INTENT THAT THE IMPROVEMENTS SHOWN BE CONSTRUCTED ACCORDING TO THESE PLANS AS APPROVED BY THE CITY. THE LINES AND GRADES WERE SET ON THE GROUND FOR CONSTRUCTION ACCORDING TO SAID PLANS. THE CITY INSPECTED THE CONSTRUCTION. WE ARE NOT AWARE OF ANY CHANGES OR REVISIONS TO THESE PLANS DURING CONSTRUCTION OTHER THAN THOSE SHOWN. TO THE BEST OF OUR KNOWLEDGE, WESTWOOD PROFESSIONAL SERVICES, INC. HEREBY STATES THAT THIS PLANS IS AS-BUILT. THE INFORMATION PROVIDED IS BASED ON SURVEYING AT THE SITE AND INFORMATION PROVIDED BY THE CONTRACTOR. DATE: 02-08-2021

DESIGNED:	AWS
CHECKED:	AWS
DRAWN:	WTV
HORIZONTAL SCALE:	##
VERTICAL SCALE:	## OF ##

INITIAL ISSUE:	11-08-2019
REVISIONS:	
03-16-2020	SITE REVISIONS
05-13-2020	FOR CONSTRUCTION
12-16-2020	REMOVE AND REPLACE SIDEWALK ALONG JUSTIN ROAD
02-05-2021	REVISED ENTRY PLAZA AREA
02-08-2021	RECORD DRAWINGS

PREPARED FOR:
PROSS DESIGN GROUP, INC.
 5310 HARVEST HILL ROAD, SUITE 180
 DALLAS, TEXAS 75230



SPR OFFICE ADDITION
 ROCKWALL, TEXAS

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 Westwood Professional Services, Inc.
 TPEL FIRM REGISTRATION NO. F-11756
 TPEL FIRM REGISTRATION NO. 10074301

SHEET NUMBER:
5.01
 UTILITY PLAN
 PROJECT NUMBER: 0014830-02 DATE: 11-08-2019

SPR OFFICE ADDITION