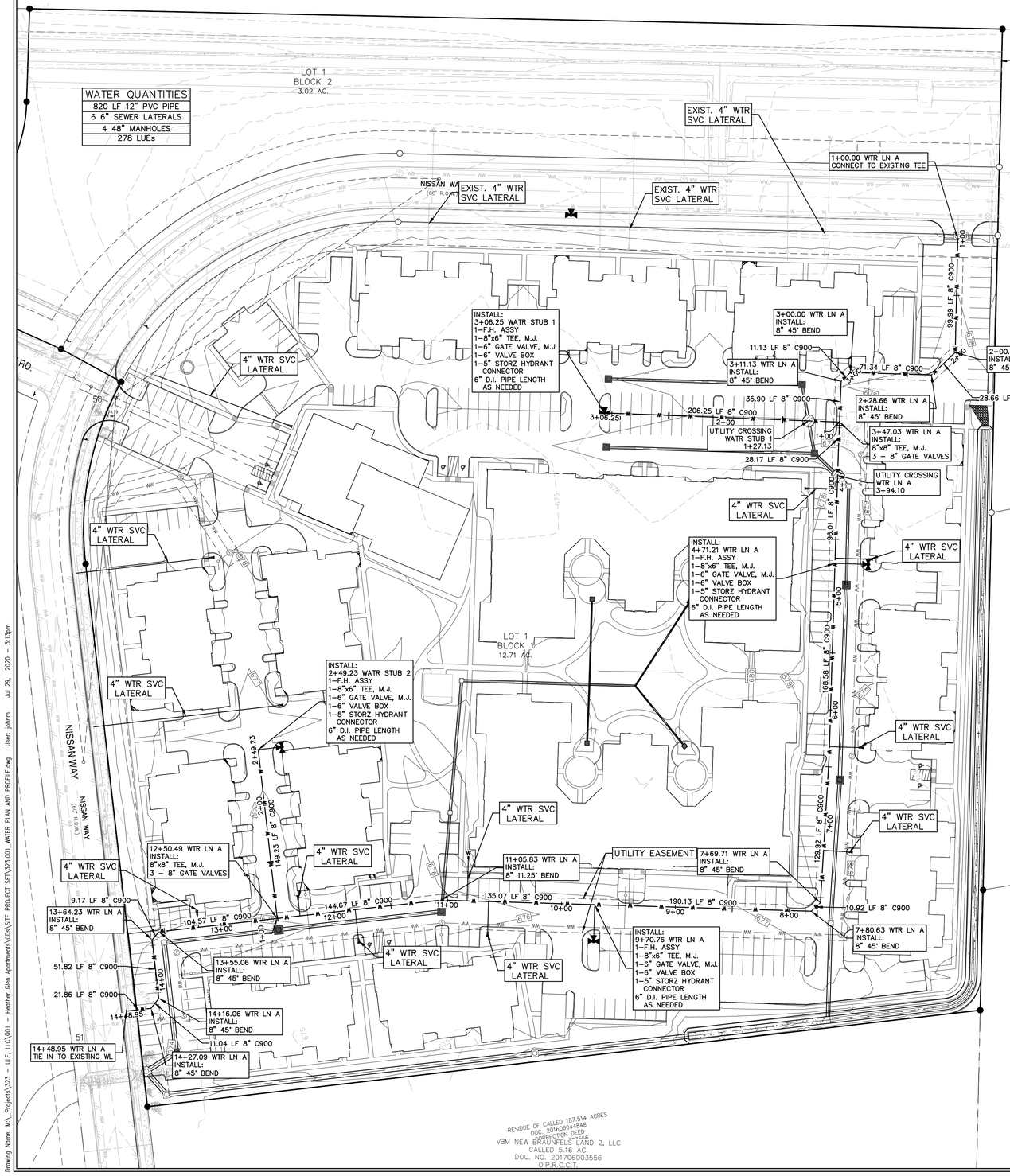
UTILITY TRENCH COMPACTION

ALL UTILITY TRENCH COMPACTION TESTS WITHIN THE STREET PAVEMENT SECTION SHALL BE THE RESPONSIBILITY OF THE DEVELOPER'S GEO-TECHNICAL ENGINEER. FILL MATERIAL SHALL BE PLACED IN UNIFORM LAYERS NOT TO EXCEED TWELVE INCHES (12") LOOSE. EACH LAYER OF MATERIAL SHALL BE COMPACTED TO A MINIMUM 95% DENSITY AND TESTED FOR DENSITY AND MOISTURE IN ACCORDANCE WITH TEST METHODS TEX-113-E, TEX-114-E, TEX-115-E. THE NUMBER AND LOCATION OF REQUIRED TESTS SHALL BE DETERMINED BY THE GEOTECHNICAL ENGINEER AND APPROVED BY THE CITY OF NEW BRAUNFELS STREET INSPECTOR. AT A MINIMUM, TESTS SHALL BE TAKEN EVERY 100LF FOR EACH LIFT. UPON COMPLETION OF TESTING THE GEO-TECHNICAL ENGINEER SHALL PROVIDE THE CITY OF NEW BRAUNFELS STREET INSPECTOR WITH ALL TESTING DOCUMENTATION AND A CERTIFICATION STATING THAT THE PLACEMENT OF FILL MATERIAL HAS BEEN COMPLETED IN ACCORDANCE WITH THE PLANS.

0 25 50 100
HORIZONTAL SCALE: 1:50



CONSTRUCTION NOTES:

1. ALL WATER MAINS SHALL BE AWWA C900 (CLASS 150 OR GREATER).
2. WATER SERVICES SHALL BE SINGLE 1" COPPER TUBING.
3. WATER LINE IS TO BE CONSTRUCTED IN ACCORDANCE WITH THE NBU SYSTEMS CONNECTION & CONSTRUCTION POLICY.
4. WATER MAIN SHALL HAVE A MINIMUM OF 48 INCHES OF COVER, OTHERWISE CONCRETE ENCASEMENT WILL BE REQUIRED.
5. EACH UNIT IN A DUPLEX, TRIPLEX, FOURPLEX, OR CONDOMINIUM SHALL BE PROVIDED WITH AN INDIVIDUAL WATER METER. A MASTER METER CAN BE CONSIDERED FOR SEPARATE BUILDINGS, HOWEVER, THOSE BUILDINGS MUST BE PLUMBED TO ALLOW SEPARATE METERS FOR FUTURE CONSIDERATION.
6. CONTRACTOR WILL KEEP THE AREA ON TOP OF AND AROUND THE WATER METER BOX FREE OF ALL OBJECTS AND DEBRIS.
7. INITIAL BACKFILL OF WATER LINES SHALL BE MANUFACTURED SAND OR PEA GRAVEL AS PER NBU SYSTEMS CONNECTION & CONSTRUCTION POLICY.
8. SECONDARY BACKFILL OF WATER LINES SHALL GENERALLY CONSIST OF MATERIAL REMOVED FROM THE TRENCH AND SHALL BE FREE FROM BRUSH, DEBRIS AND TRASH OR STONES HAVING ANY DIMENSION LARGER THAN 6" INCHES AT THE LARGEST DIMENSION.
9. HYDROSTATIC TESTING IS DONE FROM VALVE TO VALVE.
10. NO METER BOXES TO BE SET IN DRIVEWAYS OR SIDEWALKS. ANY METER BOXES SET IN DRIVEWAYS OR SIDEWALKS WILL BE RELOCATED AT CONTRACTOR'S AND/OR DEVELOPER'S EXPENSE.
11. NO VALVES, HYDRANTS, ETC. SHALL BE CONSTRUCTED WITHIN CURBS, SIDEWALKS, OR DRIVEWAYS.
12. METER BOXES MUST BE SET AT THE PROPOSED GRADE. ANY METER BOXES THAT ARE NOT SET AT THE FINAL GRADE WILL BE ADJUSTED AT CONTRACTOR'S AND/OR DEVELOPER'S EXPENSE.
13. ACCEPTABLE METER BOXES ARE D13-BAMR AND D15-BAMR. NEW RESIDENTIAL LOTS ARE REQUIRED TO USE THE D15-BAMR METER BOXES (DOUBLE AMR). COMMERCIAL LOTS SHOULD CHOOSE WHICH BOX APPLIES TO THE DOMESTIC AND/OR IRRIGATION METER LAYOUT.
14. THRUST BLOCKS WILL NOT BE ALLOWED ON THE SYSTEM WITHOUT SPECIAL APPROVAL. JOINTS WILL BE RESTRAINED WITH RESTRAINING SYSTEMS APPROVED BY NBU AND RESTRAINT LENGTH SHALL BE SUBMITTED TO NBU AT THE TIME OF PLAN SUBMITTAL.
15. CONTRACTOR SHALL PLACE TRACER WIRE ON TOP OF THE WATER MAINS. TRACER WIRE SHOULD RUN FROM VALVE TO VALVE AND EXIT AT THE VALVE BOX. THE TRACER WIRE SHOULD BE ATTACHED TO THE TOP OF THE PIPE USING TAPE. EXCESS WIRE SHOULD BE LEFT WITHIN VALVE BOXES TO BE PLACED WITHIN LID OF COVER.
16. ALL VALVES, HYDRANTS, AND METERS ARE SHOWN SCHEMATICALLY AND SHALL BE INSTALLED ACCORDING TO THE DETAILS.

LEGEND

700	EXISTING CONTOURS
700	PROPOSED CONTOURS
B.L.	BUILDING SETBACK LINE
U.E.	UTILITY EASEMENT
D.E.	DRAINAGE EASEMENT
W W	EXISTING WATER LINE
W W	PROPOSED WATER LINE
	PROPOSED WATER SERVICE
	UTILITY CROSSING

UTILITY NOTES:

1. ALL UTILITIES TO BE CONSTRUCTED PRIOR TO THE STREETS.
2. NO VALVES, HYDRANTS, ETC. SHALL BE CONSTRUCTED WITHIN CURBS, SIDEWALKS OR DRIVEWAYS.
3. THIS SITE IS IN THE _____ PRESSURE ZONE ACCORDING TO NEW BRAUNFELS UTILITIES PRESSURE RECORDER LOCATIONS.
4. CONTRACTOR TO VERIFY EXISTING LATERAL HAS A MINIMUM LONGITUDINAL SLOPE OF 2%.
5. POINT OF DELIVERY SHALL BE IN ACCORDANCE WITH NBU WATER AND WASTEWATER DESIGN CRITERIA MANUAL, SECTION 2.3.0.

CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITY COMPANIES 48 HOURS PRIOR TO EXCAVATION:

New Braunfels Utilities	830-629-8400
Time Warner Cable	830-625-3408
Centerpoint Gas	830-643-6434
Robert Sanders	830-643-6903
Damaged Lines	888-876-5786
AT&T Telephone	830-303-1333
Eric White PM	210-283-1706
Scott McBrearty (Construction)	210-658-4886
Texas One Call	830-545-6005

C.P.E. LOCATOR

CALL CENTER POINT ENERGY LOCATOR AT 1-800-545-6005, 48HRS BEFORE BEGINNING ANY EXCAVATION. DUE TO FEDERAL REGULATIONS TITLE 49, PART 192.181, CENTER POINT ENERGY MUST MAINTAIN ACCESS TO GAS VALVES AT ALL TIMES. THE CONTRACTOR MUST PROTECT AND WORK AROUND ANY GAS VALVES THAT ARE IN THE PROJECT AREA.

TELEPHONE LOCATOR

THE EXISTENCE AND LOCATION OF UNDERGROUND CABLE INDICATED ON THE PLANS ARE TAKEN FROM THE BEST RECORDS AVAILABLE AND ARE NOT GUARANTEED TO BE ACCURATE. CONTRACTOR TO CONTACT THE TELEPHONE COMPANY CABLE LOCATOR 48HRS PRIOR TO EXCAVATION AT 1-800-545-6005,. CONTRACTOR HAS THE RESPONSIBILITY TO PROTECT AND SUPPORT TELEPHONE COMPANY DURING CONSTRUCTION.

TRENCH EXCAVATION SAFETY PROTECTION

CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITE(S) WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES FOR THE PROJECT DESCRIBED IN THE CONTRACT DOCUMENTS. THE CONTRACTORS IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATIONS.

RESTRAINED LENGTH NOTES:

1. CONTRACTOR TO COORDINATE WITH NEW BRAUNFELS UTILITIES (N.B.U.) FOR WATER, SEWER, AND ELECTRIC SERVICE TO THE SITE.
2. ALL IN-LINE VALVES, BENDS & PLUGS SHALL BE RESTRAINED, RESTRAINT TO BE PROVIDED ON EACH SIDE OF THE VALVE, FITTING OR ANY REQUIRED JOINT.
3. RL=RESTRAINT LENGTH
4. CONTRACTOR SHALL DETERMINE RESTRAINT LENGTH REQUIRED FOR HORIZONTAL VERTICAL FITTINGS BASED ON RESTRAINT LENGTH TABLE SHOWN BELOW.

WATER QUANTITIES
1,703 LF 8" PVC PIPE
12 4" WATER LATERALS
10 8" 45° BENDS
1 8" 11.25° BEND
2 8"x8" TEES
4 FIRE HYDRANTS

RESTRAINED LENGTH FOR PIPE

PIPE INSIDE DIAMETER	MATERIAL	HORIZONTAL BENDS				VERTICAL BENDS						DEAD END/ INCLINE VALVES
						UPPER			LOWER			
		90°	45°	22.5°	11.25°	45°	22.5°	11.25°	45°	22.5°	11.25°	
8"	PVC	32	14	7	4	37	18	9	10	5	3	88
8"	DUCTILE IRON	27	11	6	3	33	16	8	12	6	3	56
12"	PVC	45	19	9	5	52	25	13	14	7	4	124

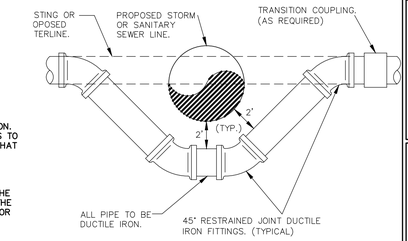
TEE

PIPE INSIDE DIAMETER OF RUN	PIPE INSIDE DIAMETER OF BRANCH	MATERIAL	FT.
8"	8"	PVC	77
8"	8"	DUCTILE IRON	50
12"	8"	PVC	72

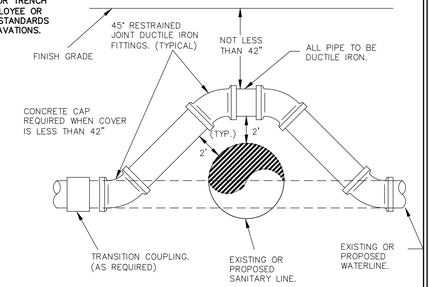
NOTES:

LENGTHS SHOWN ABOVE WERE COMPUTED BASED ON THE FOLLOWING VALUES:

1) SAFETY FACTOR = 1.5 TO 1
2) TEST PRESSURE = 200psi.
3) SOIL DESIGNATION = IN ORGANIC CLAY OF HIGH PLASTICITY
4) DEPTH OF COVER = 3.5 FEET (TYPICAL AND UPPER BEND)
5) DEPTH OF COVER = 5 FEET (LOWER BEND)
6) LENGTH ALONG RUN = 2 FEET



WATERLINE ADJUSTMENT DETAIL
N.T.S



WATERLINE ADJUSTMENT DETAIL
N.T.S

REFER TO THE COVER SHEET FOR BENCHMARK INFORMATION.

THE LOCATION OF ALL EXISTING UNDERGROUND UTILITIES ARE SHOWN IN APPROXIMATE LOCATIONS ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. THE CONTRACTOR WILL AGREE TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE INCURRED BY THEIR FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES, STRUCTURES OR FACILITIES. CONTRACTOR SHALL NOTIFY ENGINEER OF ANY DISCREPANCIES 24-HOURS PRIOR TO COMMENCING CONSTRUCTION.

HMT ENGINEERING & SURVEYING
290 S. CASTELL AVE., STE. 100
NEW BRAUNFELS, TX 78130
TBPE FIRM F-10961
TBPLS FIRM 1053600

STATE OF TEXAS
CHRISTOPHER P. VAN HEERDE
93047
LICENSED
PROFESSIONAL ENGINEER

07/29/2020

OVERALL WATER PLAN

VANGUARD FARMS APARTMENTS

NO.	REVISION DESCRIPTION	REVISION DATE

DATE: JULY 2020
DRAWN BY: LB
DESIGNED BY: JMM
REVIEWED BY: CVH
HMT PROJECT NO.: 323.001

SHEET
C9.0

Drawing Name: M:_Projects\323 - ULF, LLC\001 - Heather Glen Apartments\03a\SITE PROJECT SET\323.001_WATER PLAN AND PROFILE.dwg User: johnm Jul 29, 2020 - 3:13pm