TREVOR FIELDS PUBLIC SANITARY SEWER CITY OF SAN ANTONIO

GENERAL SEWER NOTES (REVISED JULY 2017)

1. All materials and construction procedures within the scope of this contract shall be approved by the San Antonio Water System (SAWS) and comply with the Plans, Specifications, General Conditions and with the following as applicable:

- A. Current Texas Commission on Environmental Quality (TCEQ) "Design Criteria for Domestic Waste water System", Texas Administrative Code (TAC) Title 30 Part 1 Chapter 217 and "Public Drinking Water", TAC Title 30 Part 1 Chapter 290.
- B. Current TXDOT "Standard Specifications for Construction of Highways, Streets and Drainage". C. Current "San Antonio Water System Standard Specifications for Water and Sanitary Sewer
- D. Current City of San Antonio "Standard Specifications for Public Works Construction". E. Current City of San Antonio "Utility Excavation Criteria Manual" (UECM).

Construction

2. The contractor shall not proceed with any pipe installation work until they obtain a copy of the approved Counter Permit or General Construction Permit (GCP) from the consultant and has been notified by SAWS Construction I nspection Division to proceed with the work and has arranged a meeting with the inspector and consultant for the work requirements. Work completed by the contractor without an approved Counter Permit and/or a GCP will be subject to removal and replacement at the expense of the contractors and/or the developer.

3. The Contractor shall obtain the SAWS Standard Details from the SAWS website, http://www.saws.org/business_center/specs. Unless otherwise noted within the design plans.

4. The Contractor is to make arrangements with the SAWS Construction Inspection Division at (210) 233-2973, on notification procedures that will be used to notify affected home residents and/or property owners 48 hours prior

to beginning any work. 5. Location and depth of existing utilities and service laterals shown on the plans are understood to be approximate

Actual locations and depths must be field verified by the Contractor at least 1 week prior to construction. It shall be the Contractor's responsibility to locate utility service lines as required for construction and to protect them during construction at no cost to SAWS.

6. The Contractor shall verify the exact location of underground utilities and drainage structures at least 1-2 weeks prior to construction whether shown on plans or not. Please allow up to 7 business days for locates requesting pipe location markers on SAWS facilities. The following contact information are supplied for verification purposes:

SAWS Utility Locates: http://www.saws.org/Service/Locates COSA Drainage (210) 207-0724 or (210) 207-6026 COSA Traffic Signal Operations (210) 206-8480 COSA Traffic Signal Damages (210) 207-3951 Texas State Wide One Call Locator 1-800-545-6005 or 811

7. The Contractor shall be responsible for restoring existing fences, curbs, streets, driveways, sidewalks, landscaping and structures to its original or better condition if damages are made as a result of the project's construction.

8. All work in Texas Department of Transportation (TxDOT) and/or Bexar County right-of-way shall be done in accordance with respective construction specifications and permit requirements.

9. The Contractor shall comply with City of San Antonio or other governing municipality's tree ordinances when excavating near trees.

10. The Contractor shall not place any waste materials in the 100-year Flood Plain without first obtaining an approved Flood Plain Permit.

11. Holiday Work: Contractors will not be allowed to perform SAWS work on SAWS recognized holidays. Request should be sent to constworkreq@saws.org. Weekend Work: Contractors are required to notify the SAWS Inspection Construction Department 48 hours in advance to request weekend work. Request should be sent to constworkreq@saws.org. Any and all SAWS utility work installed without holiday/weekend approval will be subject to be uncovered for proper inspection.

12. Compaction note (Item 804): The contractor shall be responsible for meeting the compaction requirements on all trench backfill and for paying for the tests performed by a third party. Compaction tests will be done at one location point randomly selected, or as indicated by the SAWS Inspector and/or the test administrator, per each 2-inch loose lift per 400 linear feet at a minimum. This project will not be accepted and finalized by SAWS withou this requirement being met and verified by providing all necessary documented test results.

13. A copy of all testing reports shall be forwarded to SAWS Construction Inspection Division.

Sewer Notes:

1. The Contractor is responsible for ensuring that no Sanitary Sewer Overflow (SSO) occurs as a result of their work. All contractor personnel responsible for SSO prevention and control shall be trained on proper response. Should an SSO occur, the contractor shall:

- A. Identify the soruce of the SSO and notify SAWS Emergency Operations Center (EOC) immediately at (210) 233-2014. Provide the address of the spill and en estimated volume or flow.
- B. Attempt to eliminate the source of the SSO C. Contain sewage from the SSO to the extent of preventing a possible contamination of waterways. D. Clean up spill site (return contained sewage to the collection system if possible) and properly
- dispose of contaminated soil/materials. E. Clean the affected sewer mains and remove any debris.
- F. Meet all post-SSO requirements as per the EPA Consent Decree, including line cleaning and televising the affected sewer mains (at SAWS direction) within 24 hours.

Should the Contractor fail to address an SSO immediately and to SAWS satisfaction, they will be responsible for all cost incurred by SAWS, including any fines from EPA, TCEQ and/or any other Federal, State or Local Agencies.

No separate measurement or payment shall be made for this work. All work shall be done according to guidelines set by TCEQ and SAWS.

2. If bypass pumping is required, the Contractor shall perform such work in accordance with SAWS Standard Specification for Water and Sanitary Sewer Construction, Item No. 864, "Bypass Pumping".

3. Prior to tie-ins, any shutdowns of existing force mains of any size must be coordinated with the SAWS Construction Inspection Division at (210) 233-2973 at least one week in advance of the shutdown. The Contractor must also provide a sequence of work as related to the tie-ins: this is at no additional cost to SAWS or the project and it is the responsibility of the Contractor sequence the work accordingly.

4. Sewer pipe where water line crosses shall be 160 psi and meet the requirements of ASTM D2241, TAC 217.53 and TCEQ 290.44(Ee)(4)(B). Contractor shall center a 20' joint of 160 psi pressure rated PVC at the proposed water crossing.

5. ELEVATIONS POSTED FOR TOP OF MANHOLES ARE FOR REFERENCE ONLY: It shall be the responsibility of the Contractor to make allowances and adjustments for top of manholes to match the finished grade of the project's improvements. (NSPI).

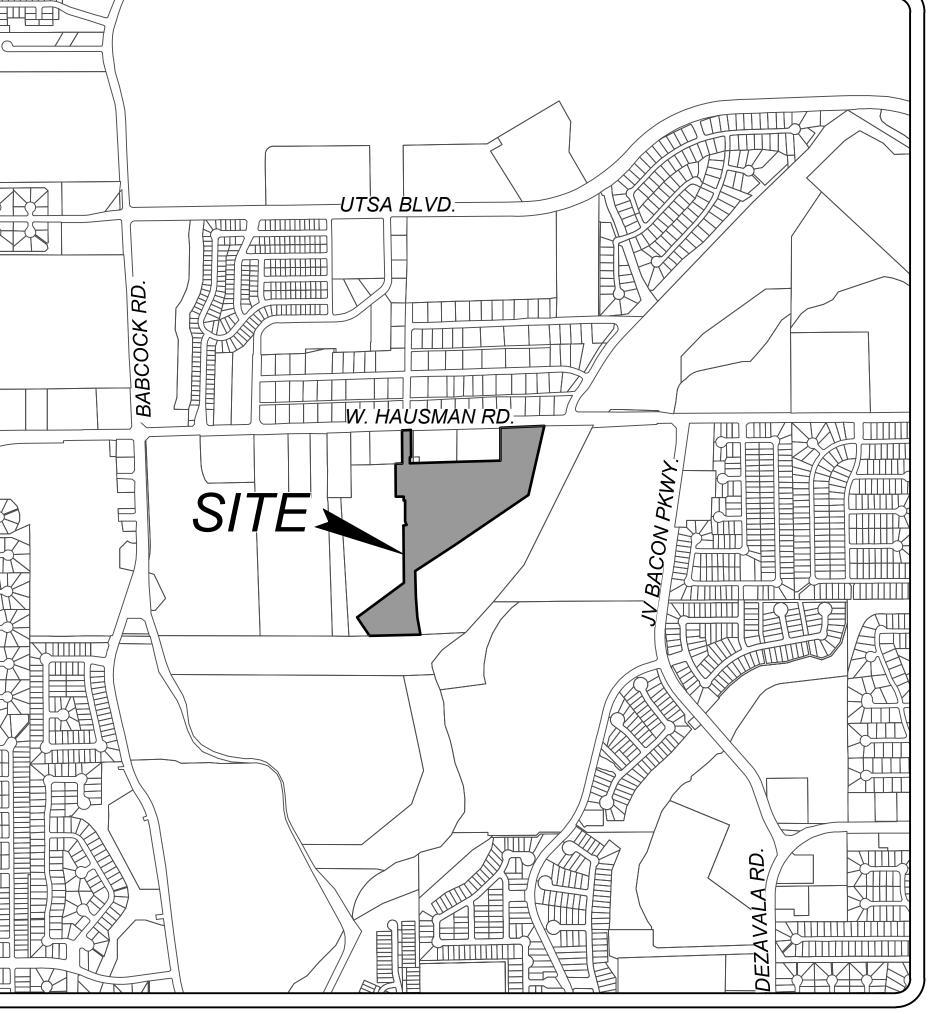
6. Spills, Overflows, or Discharges of Wastewater: All Spills, overflows, or discharges of wastewater, recycled water, petroleum products, or chemicals must be reported immediately to the SAWS Inspector assigned to the Counter Permit or GEneral Construction Permit (GCP). This requirement applies to every spill, overflow, or discharge regardless of size.

7. Manhole and all pipe testing (including the TV inspection) must be performed and passed prior to Final Field Acceptance by SAWS Construction Inspection Division, as per SAWS Specifications For Water and Sanitary Sewer Construction.

8. All PVC pipe over 14 feet of cover shall be extra strength with minimum pipe stiffness of 115 psi.



PUBLIC SANITARY SEWER IMPROVEMENTS



SANITARY SEWER CC OVERALL SANITARY S OVERALL SANITARY S LINE "A" PLAN & PROP LINE "A" (SHT 2 OF 2) SANITARY SEWER PL SANITARY SEWER DE SANITARY SEWER DE

LOCATION MAP NOT-TO-SCALE

INDEX

DESCRIPTION	SHEET NUMBER
OVER SHEET	1.0
SEWER (SHT 1 OF 2)	
SEWER (SHT 2 OF 2)	
FILE (SHT 1 OF 2)	
& LINE "B" PLAN & PROFILE	
AN NOTES	
ETAIL (SHT 1 OF 2)	
ETAIL (SHT 2 OF 2)	1.7

DEVELOPER'S NAME: BEAZER HOMES

CITY: SAN ANTONIO

NUMBER OF LOTS:

PHONE#:

DEVELOPER'S ADDRESS: 11467 HUEBNER ROAD, SUITE 225

SAWS BLOCK MAP#: 118630, 118632, 120630, 120632

FAX#:

TOTAL LINEAR FOOTAGE OF PIPE: <u>487.52 L.F. ~ SDR 26 PVC</u> PLAT NO.:

STATE: TX

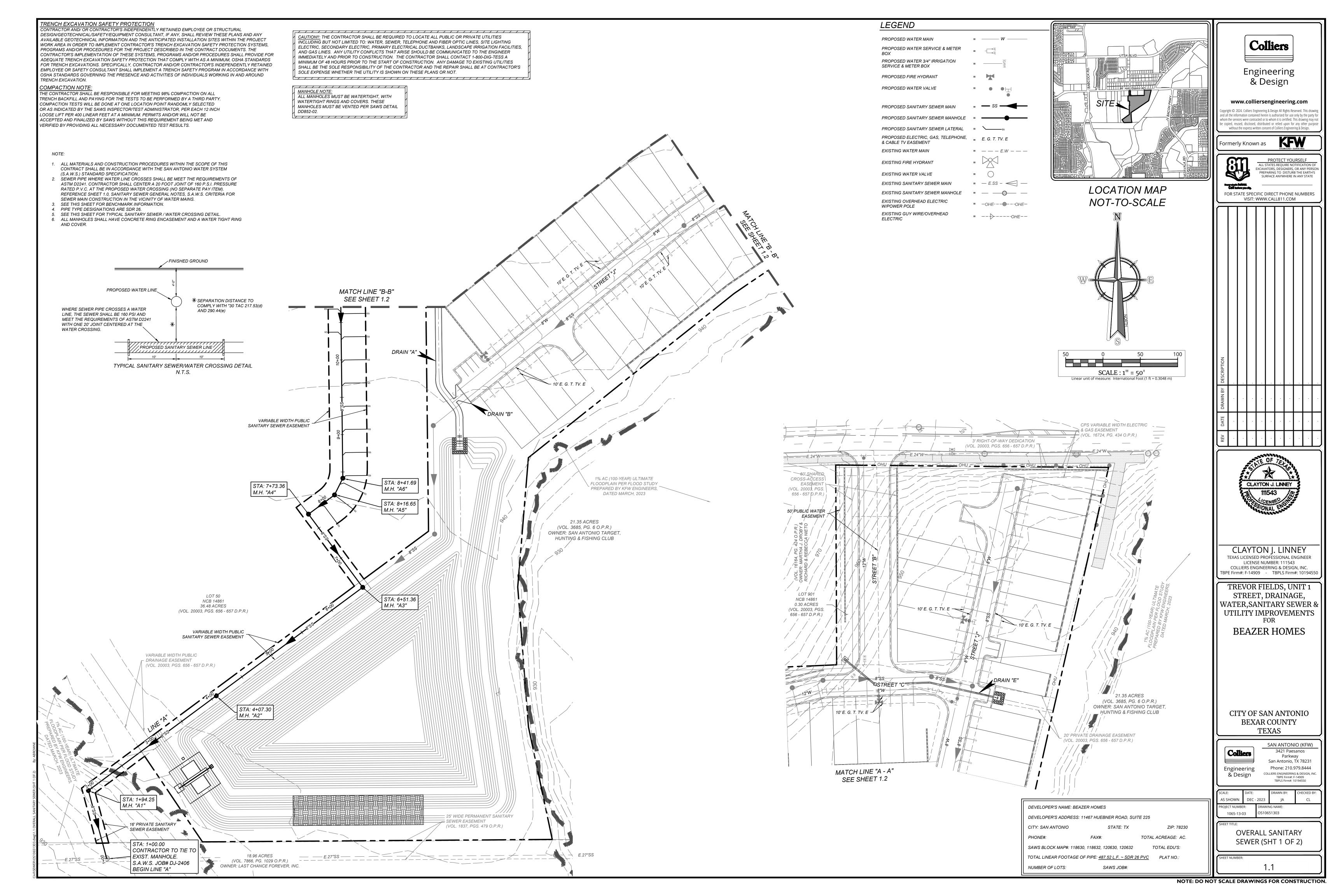
SAWS JOB#:

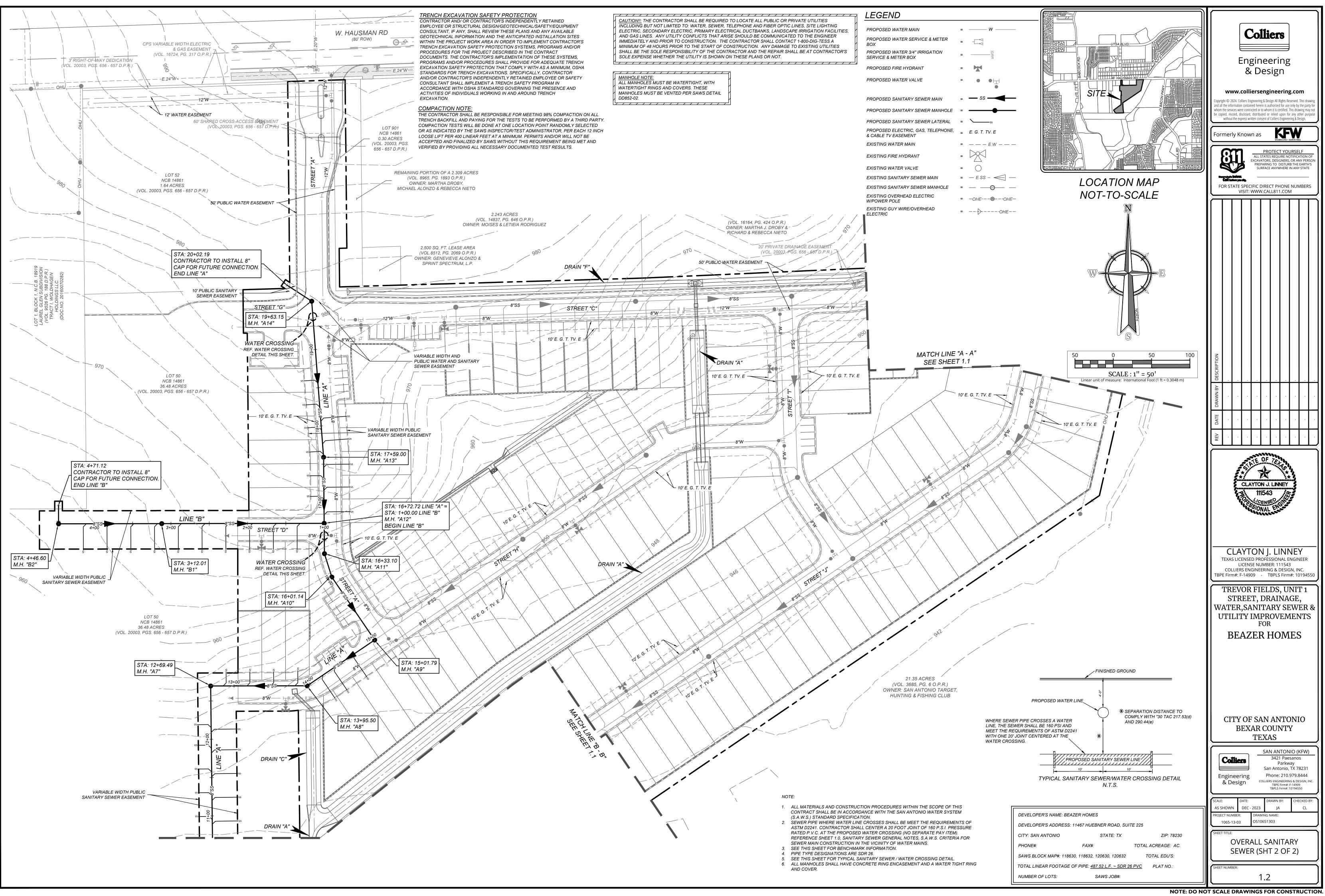
ZIP: 78230

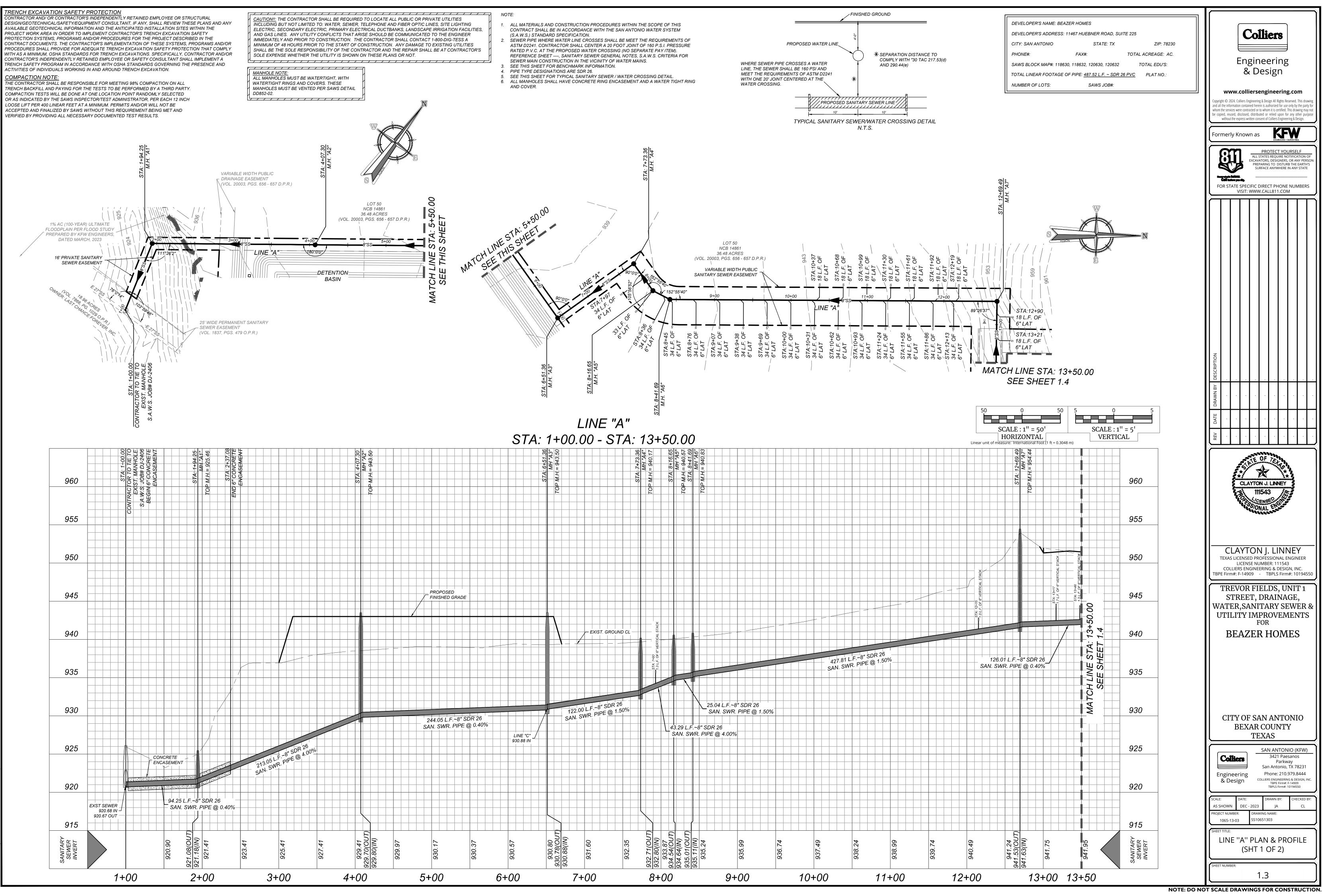
TOTAL ACREAGE: AC.

TOTAL EDU'S:

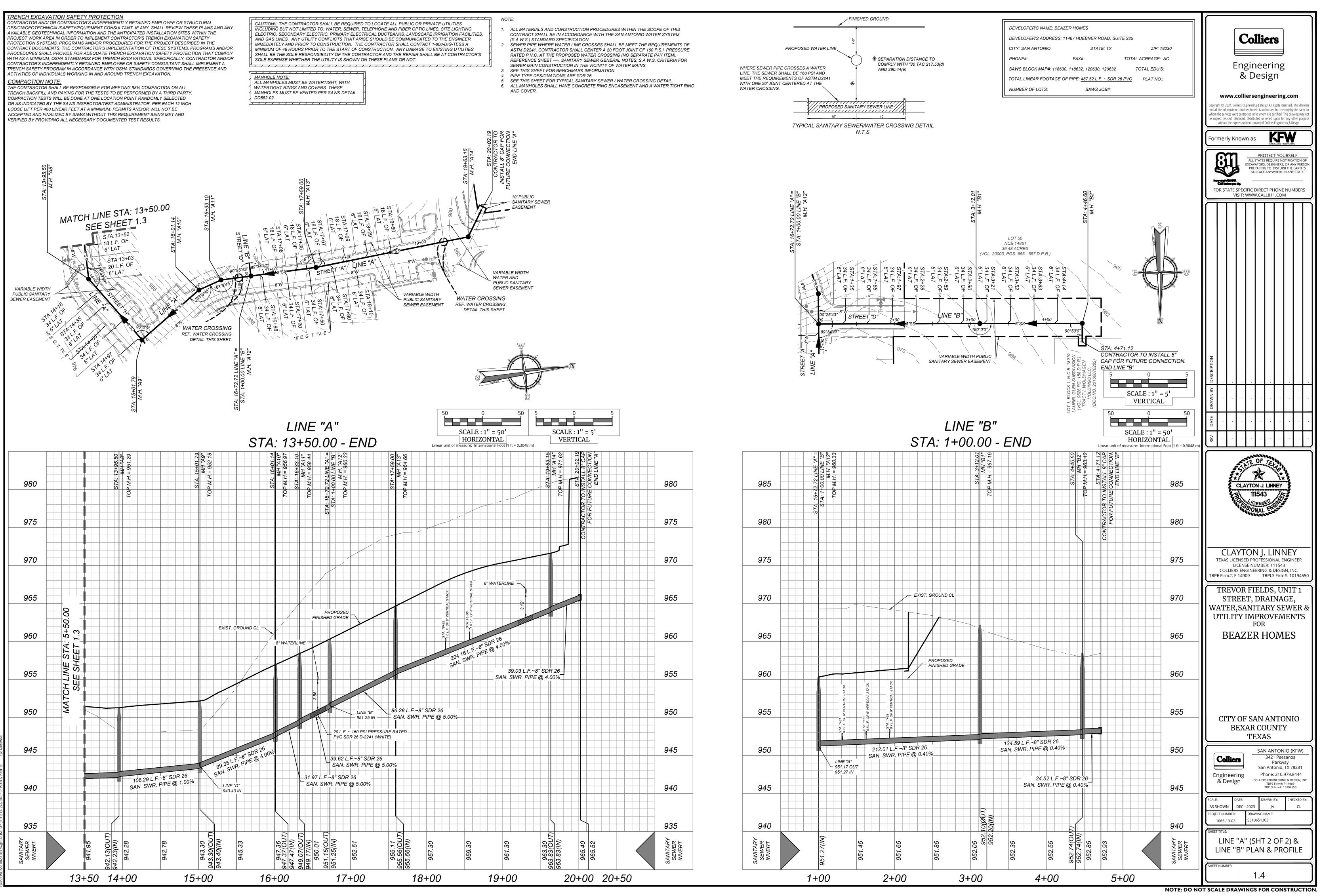
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SHEET	NUMI	BER:			1.0						







WER\SS10651303.dwg\1.3 LINE ''A'' PLAN & PROFILE (SHT 1 OF 2) By: ABROWNE



Texas Commission on Environmental Quality Organized Sewage Collection System General Construction Notes TCEQ-0596 (Rev. July 15, 2015)

Edwards Aquifer Protection Program Construction Notes – Legal Disclaimer

The following/listed "construction notes" are intended to be advisory in nature only and do not constitute an approval or conditional approval by the Executive Director, nor do they constitute a comprehensive listing of rules or conditions to be followed during construction. Further actions may be required to achieve compliance with TCEQ regulations found in Title 30, Texas Administrative Code, Chapters 213 and 217, as well as local ordinances and regulations providing for the protection of water quality. Additionally, nothing contained in the following/listed "construction notes" restricts the powers of the Executive Director, the commission or any other governmental entity to prevent, correct, or curtail activities that result or may result in pollution of the Edwards Aguifer or hydrologically connected surface waters. The holder of any Edwards Aguifer Protection Plan containing "construction notes" is still responsible for compliance with Title 30, Texas Administrative Code, Chapters 213 or any other applicable TCEQ regulation, as well as all conditions of an Edwards Aquifer Protection Plan through all phases of plan implementation. Failure to comply with any condition of the Executive Director's approval, whether or not in contradiction of any "construction notes," is a violation of TCEQ regulations and any violation is subject to administrative rules, orders, and penalties as provided under Title 30, Texas Administrative Code § 213.10 (relating to Enforcement). Such violations may also be subject to civil penalties and injunction. The following/listed "construction notes" in no way represent an approved exception by the Executive Director to any part of Title 30 Texas Administrative Code, Chapters 213 and 217, or any other TCEQ applicable regulation.

1. This Organized Sewage Collection System (SCS) must be constructed in accordance with 30 Texas Administrative Code (TAC) §213.5(c), the Texas Commission on Environmental Quality's (TCEQ) Edwards Aquifer Rules and any local government standard specifications.

2. All contractors conducting regulated activities associated with this proposed regulated project must be provided with copies of the SCS plan and the TCEQ letter indicating the specific conditions of its approval. During the course of these regulated activities, the contractors must be required to keep on-site copies of the plan and the approval letter.

3. A written notice of construction must be submitted to the presiding TCEQ regional office at least 48 hours prior to the start of any regulated activities. This notice must include:

- the name of the approved project;
- the activity start date; and the contact information of the prime contractor.

4. Any modification to the activities described in the referenced SCS application following the date of approval may require the submittal of an SCS application to modify this approval, including the payment of appropriate fees and all information necessary for its review and approval.

5. Prior to beginning any construction activity, all temporary erosion and sedimentation (E&S) control measures must be properly installed and maintained in accordance with the manufacturers specifications. These controls must remain in place until the disturbed areas have been permanently stabilized.

6. If any sensitive features are discovered during the wastewater line trenching activities, all regulated activities near the sensitive feature must be suspended immediately. The applicant must immediately notify the appropriate regional office of the TCEQ of the feature discovered. A geologist's assessment of the location and extent of the feature discovered must be reported to that regional office in writing and the applicant must submit a plan for ensuring the structural integrity of the sewer line or for modifying the proposed collection system alignment around the feature. The regulated activities near the sensitive feature may not proceed until the executive director has reviewed and approved the methods proposed to protect the sensitive feature and the Edwards Aquifer from any potentially adverse impacts to water quality while maintaining the structural integrity of the line.

7. Sewer lines located within or crossing the 5-year floodplain of a drainage way will be protected from inundation and stream velocities which could cause erosion and scouring of backfill. The trench must be capped with concrete to prevent scouring of backfill, or the sewer lines must be encased in concrete. All concrete shall have a minimum thickness of 6 inches.

8. Blasting procedures for protection of existing sewer lines and other utilities will be in accordance with the National Fire Protection Association criteria. Sand is not allowed as bedding or backfill in trenches that have been blasted. If any existing sewer lines are damaged, the lines must be repaired and retested.

9. All manholes constructed or rehabilitated on this project must have watertight size on size resilient connectors allowing for differential settlement. If manholes are constructed within the 100-year floodplain, the cover must have a gasket and be bolted to the ring. Where gasketed manhole covers are required for more than three manholes in sequence or for more than 1500 feet, alternate means of venting will be provided. Bricks are not an acceptable construction material for any portion of the manhole.

The diameter of the manholes must be a minimum of four feet and the manhole for entry must have a minimum clear opening diameter of 30 inches. These dimensions and other details showing compliance with the commission's rules concerning manholes and sewer line/manhole inverts described in 30 TAC §217.55 are included on SAWS WEBSITE, HTTP://WWW.SAWS.ORG/BUSINESS_CENTER/SPECS.

It is suggested that entrance into manholes in excess of four feet deep be accomplished by means of a portable ladder. The inclusion of steps in a manhole is prohibited.

10. Where water lines and new sewer line are installed with a separation distance closer than nine feet (i.e., water lines crossing wastewater lines, water lines paralleling wastewater lines, or water lines next to manholes) the installation must meet the requirements of 30 TAC §217.53(d) (Pipe Design) and 30 TAC §290.44(e) (Water Distribution).

11. Where sewers lines deviate from straight alignment and uniform grade all curvature of sewer pipe must be achieved by the following procedure which is recommended by the pipe manufacturer: .

If pipe flexure is proposed, the following method of preventing deflection of the joint must be used: N/A.

Specific care must be taken to ensure that the joint is placed in the center of the trench and properly bedded in accordance with 30 TAC §217.54.

12. New sewage collection system lines must be constructed with stub outs for the connection of anticipated extensions. The location of such stub outs must be marked on the ground such that their location can be easily determined at the time of connection of the extensions. Such stub outs must be manufactured wyes or tees that are compatible in size and material with both the sewer line and the extension. At the time of original construction, new stub-outs must be constructed sufficiently to extend beyond the end of the street pavement. All stub-outs must be sealed with a manufactured cap to prevent leakage. Extensions that were not anticipated at the time of original construction or that are to be connected to an existing sewer line not furnished with stub outs must be connected using a manufactured saddle and in accordance with accepted plumbing techniques.

If no stub-out is present an alternate method of joining laterals is shown in the detail on SAWS WEBSITE, HTTP://WWW.SAWS.ORG/BUSINESS_CENTER/SPECS. (For potential future laterals).

The private service lateral stub-outs must be installed as shown on the plan and profile sheets on Plan Sheet <u>1.3 to 1.4</u> and marked after backfilling as shown in the detail on PSAWS WEBSITE, HTTP://WWW.SAWS.ORG/BUSINESS_CENTER/SPECS.

13. Trenching, bedding and backfill must conform with 30 TAC §217.54. The bedding and backfill for flexible pipe must comply with the standards of ASTM D-2321, Classes IA, IB, II or III. Rigid pipe bedding must comply with the requirements of ASTM C 12 (ANSI A 106.2) classes A, B or C.

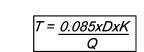
14. Sewer lines must be tested from manhole to manhole. When a new sewer connected to an existing stub or clean-out, it must be tested from existing man new manhole. If a stub or clean-out is used at the end of the proposed sewer l private service attachments may be connected between the last manhole and cleanout unless it can be certified as conforming with the provisions of 30 TAC §213.5(c)(3)(E).

15. All sewer lines must be tested in accordance with 30 TAC §217.57. The er must retain copies of all test results which must be made available to the exect director upon request. The engineer must certify in writing that all wastewater passed all required testing to the appropriate regional office within 30 days of completion and prior to use of the new collection system. Testing method will (a) For a collection system pipe that will transport wastewater by gravity flow, a must specify an infiltration and exfiltration test or a low-pressure air test. A conform to the following requirements:

- (1) Low Pressure Air Test.
 (A) A low pressure air test must follow the procedures described in Ame Society For Testing And Materials (ASTM) C-828, ASTM C- 924, or A F-1417 or other procedure approved by the executive director, except testing times as required in Table C.3 in subparagraph (C) of this part
- or Equation C.3 in subparagraph (B)(ii) of this paragraph.
 (B) For sections of collection system pipe less than 36 inch average insi diameter, the following procedure must apply, unless a pipe is to be required by paragraph (2) of this subsection.
- (i) A pipe must be pressurized to 3.5 pounds per square inch (psi) g than the pressure exerted by groundwater above the pipe.
- (ii) Once the pressure is stabilized, the minimum time allowable for the pressure to drop from 3.5 psi gauge to 2.5 psi gauge is computed following equation:

Equation C.3

Where:



T = time for pressure to drop 1.0 pound per square inch gauge in second. K = 0.000419 X D X L, but not less than 1.0

D = average inside pipe diameter in inches *L* = length of line of same size being tested, in feet

Q = rate of loss, 0.0015 cubic feet per minute per square foot internal surf (C) Since a K value of less than 1.0 may not be used, the minimum testin for each pipe diameter is shown in the following Table C.3:

TIME FOR LONGER
LENGTH
0.855
1.520
2.374
3.419
5.342
7.693
10.471
13.676
17.309
21.369
25.856

(D) An owner may stop a test if no pressure loss has occurred during the

- 25% of the calculated testing time.(E) If any pressure loss or leakage has occurred during the first 25% of period, then the test must continue for the entire test duration as out
- above or until failure.
 (F) Wastewater collection system pipes with a 27 inch or larger average diameter may be air tested at each joint instead of following the proc outlined in this section.
- (G)A testing procedure for pipe with an inside diameter greater than 33 must be approved by the executive director.
- (2) Infiltration/Exfiltration Test.
 (A) The total exfiltration, as determined by a hydrostatic head test, must exceed 50 gallons per inch of diameter per mile of pipe per 24 hours minimum test head of 2.0 feet above the crown of a pipe at an upstre manhole.
- (B) An owner shall use an infiltration test in lieu of an exfiltration test wh are installed below the groundwater level.
- (C)The total exfiltration, as determined by a hydrostatic head test, must exceed 50 gallons per inch diameter per mile of pipe per 24 hours at minimum test head of two feet above the crown of a pipe at an upstro manhole, or at least two feet above existing groundwater level, which greater.
- (D) For construction within a 25-year flood plain, the infiltration or exfiltration of exceed 10 gallons per inch diameter per mile of pipe per 24 hours same minimum test head as in subparagraph (C) of this paragraph.
 (C) If the guartity of infiltration or exfiltration or exfiltration or exfiltration of the maximum gallon.
- (E) If the quantity of infiltration or exfiltration exceeds the maximum quant specified, an owner shall undertake remedial action in order to reduce infiltration or exfiltration to an amount within the limits specified. An or shall retest a pipe following a remediation action.

(b) If a gravity collection pipe is composed of flexible pipe, deflection testing is required. The following procedures must be followed:

 (1) For a collection pipe with inside diameter less than 27 inches, deflection measurement requires a rigid mandrel.
 (A) Mandrel Sizing.

- (i) A rigid mandrel must have an outside diameter (OD) not less than the base inside diameter (ID) or average ID of a pipe, as specified appropriate standard by the ASTMs, American Water Works Asso UNI-BELL, or American National Standards Institute, or any relate appendix.
- (ii) If a mandrel sizing diameter is not specified in the appropriate sta the mandrel must have an OD equal to 95% of the ID of a pipe. Ir case, the ID of the pipe, for the purpose of determining the OD of mandrel, must equal be the average outside diameter minus two wall thicknesses for OD controlled pipe and the average inside dia for ID controlled pipe.
- (iii) All dimensions must meet the appropriate standard. (B) Mandrel Design.
- (i) A rigid mandrel must be constructed of a metal or a rigid plastic r that can withstand 200 psi without being deformed.
- (ii) A mandrel must have nine or more odd number of runners or leg
 (iii) A barrel section length must equal at least 75% of the inside dian pipe.
- (iv)Each size mandrel must use a separate proving ring. (C)Method Options.
- (i) An adjustable or flexible mandrel is prohibited.
- (ii) A test may not use television inspection as a substitute for a defle
 (iii) If requested, the executive director may approve the use of a deflectometer or a mandrel with removable legs or runners on a case-by-case basis.
- (2) For a gravity collection system pipe with an inside diameter 27 inches a greater, other test methods may be used to determine vertical deflection
- (3) A deflection test method must be accurate to within plus or minus 0.2% deflection.
 (4) An owner shall not conduct a deflection test until at least 30 days after the statement of the statem
- backfill.
 (5) Gravity collection system pipe deflection must not exceed five per
- (5) Gravity collection system pipe deflection must not exceed five percent (5

ver line is nanhole to	(6) If a pipe section fails a deflection test, an owner shall o test after the final backfill has been in place at least 30		COM	IPACTI	<u>ON NOTE:</u>
er line, no nd the	16. All manholes must be tested to meet or exceed the requi		ALL	TRENC	RACTOR SHALL BE RESPONSIBLE FOR CH BACKFILL AND PAYING FOR THE TE
AC	(a) All manholes must pass a leakage test. (b) An owner shall test each manhole (after assembly and	l backfilling) for leakage, separate and	SELE	ECTED	MPACTION TESTS WILL BE DONE AT (OR AS INDICATED BY SAWS INSPECT
engineer	independent of the collection system pipes, by hydros other method approved by the executive director.	tatic exfiltration testing, vacuum testing, or	WILL	NOTE	ICH LOOSE LIFT PER 400 LINEAR FEET BE ACCEPTED AND FINALIZED BY SAM TAND VERIFIED BY PROVIDING ALL NE
kecutive er lines have	 (1) Hydrostatic Testing. (A) The maximum leakage for hydrostatic testing or 	•		ULTS.	
of test vill be: w, the design	gallons per foot diameter per foot of manhole de (B) To perform a hydrostatic exfiltration test, an owr into a manhole with an internal pipe plug, fill the	er shall seal all wastewater pipes coming	20 T	AC 217	.54 "PIPE BEDDING AND TRENCH REQ
A test must	test for at least one hour. (C) A test for concrete manholes may use a 24-hou		30 T/		Embedment
merican	saturation of the concrete. (2) Vacuum Testing.			1.	A rigid pipe must be laid with the adequa the anticipated load. The bedding classe
or ASTM cept as to	(A) To perform a vacuum test, an owner shall plug a non-shrink grout and plug all pipes entering a m				American Society for Testing and Materi Institute (ANSI) A 106.2, Water Environm
paragraph	(B) No grout must be placed in horizontal joints before (C) Stub-outs, manhole boots, and pipe plugs must	-		2.	American Society of Civil Engineers (AS A flexible pipe must be laid with the adec
inside be tested as	vacuum is drawn. (D) An owner shall use a minimum 60 inch/lb torque that accurre a test accurre to the test of a manhola			۷.	support the anticipated load. The beddin described in ASTM D-2321 or ANSI K65
i) greater	that secure a test cover to the top of a manhole. (E) A test head must be placed at the inside of the tinflated in accordance with the manufacturer's re	op of a cone section, and the seal		3.	Debris, large clods, or stones that are gro
or the Ited from the	(F) There must be a vacuum of 10 inches of mercui test.			4.	other unstable materials are prohibited a Backfill must not disturb the alignment of
	(G)A test does not begin until after the vacuum pur (H)A manhole passes the test if after 2.0 minutes a			4. 5.	If trenching encounters significant fractur
	at least 9.0 inches of mercury.				the rock strata, an owner must halt const detailing how construction will accommo
ndo	17. All private service laterals must be inspected and certi §213.5(c)(3)(l). After installation of and, prior to covering and	connecting a private service lateral to an	В.	Comp 1.	paction Compaction of an embedment envelope
nds	existing organized sewage collection system, a Texas Licens Registered Sanitarian, or appropriate city inspector must visu the connection to the sewage collection system, and certify the	ally inspect the private service lateral and		1.	the collection system pipe used in a proje
surface	applicable provisions of this section. The owner of the collect certifications for five years and forward copies to the appropr	ion system must maintain such		2.	Compaction of an embedment envelope bedding material necessary to ensure a
esting time	Connections may only be made to an approved sewage colle			•	integrity as required by §217.53 of this til
7	Austin Regional OfficeSan Antonio Re12100 Park 35 Circle, Building A14250 Judson H	Road	C.	3. Envel	The placement of the backfill above a pip lope Size
,	Phone (512) 339-2929 Phone (210) 49			1.	A minimum clearance of 6.0 inches below trench walls and floor is required.
-	Fax (512) 339-3795Fax (210) 545-4THESE GENERAL CONSTRUCTION NOTES MUST BE INCOMPARENT			2.	The embedment material used for haunc
	PLANS PROVIDED TO THE CONTRACTOR AND ALL SUB		D.	Trenc	minimum depth of 12 inches above the c
-	I. WHERE A SEWER MAIN CROSSES OVER A WATER MA	AIN AND THE SEPARATION DISTANCE		1.	The width of a trench must allow a pipe to backfill to be placed and compacted as r
	IS LESS THAN NINE (9) FEET, ALL PORTIONS OF THE THE WATER LINE SHALL BE CONSTRUCTED USING 15	50 PSI PRESSURE RATED DUCTILE		2.	The maximum and minimum trench width
_	IRON, CAST IRON OR PVC PIPE AND JOINED WITH EQ RING GASKET CONNECTIONS OR CORROSION PROT	ECTED MECHANICAL COUPLING		3.	must be included in the report. The width of a trench must be sufficient t
-	DEVICES OF A CAST IRON OR DUCTILE IRON MATERI RATED PIPE AT LEAST EIGHTEEN (18) FEET IN LENGT MAIN IN LIEU OF PIPE CONNECTION REQUIREMENTS	TH MAY BE CENTERED ON THE WATER		0.	materials.
	II. WHERE A SEMI-RIGID OR RIGID SEWER MAIN CROSS			4.	The space between a pipe and a trench used in the pipe zone.
	SEPARATION DISTANCE IS LESS THAN NINE FEET BU INITIAL BACKFILL SHALL BE CEMENT STABILIZED SA	ND (TWO OR MORE BAGS OF CEMENT			
the first	PER CUBIC YARD OF SAND) FOR ALL SECTIONS OF T WATER MAIN.	THE SEWER WITHIN NINE FEET OF THE			
of a testing outlined	III. WHERE A SEWER MAIN CROSSES UNDER A WATER DISTANCE IS LESS THAN TWO FEET, THE SEWER MA				
ge inside rocedure	IRON, DUCTILE IRON, OR PVC WITH A MINIMUM PRES NINE FEET OF THE WATER MAIN, SHALL HAVE A SEG	SSURE RATING OF 150 PSI WITHIN			
33 inches	THE WATER MAIN, SHALL BE PLACED NO CLOSER THE DIAMETERS, AND SHALL BE JOINED WITH PRESSUR	E RING GASKET CONNECTIONS OR			
	CORROSION PROTECTED MECHANICAL COUPLING E IRON MATERIAL. A SECTION CENTERED ON THE WA CONNECTION REQUIREMENTS. (NO SEPARATE PAY	TER MAIN IN LIEU OF PIPE			
ust not urs at a stroom	IV. WHERE A SEWER MAIN PARALLELS A WATER MAIN A	ND THE SEPARATION DISTANCE IS			
stream when pipes	LESS THAN NINE FEET, THE SEWER MAIN SHALL BE CONSTRUCTED OF CAST IRON, DUCTILE IRON, OR P	VC WITH A MINIMUM PRESSURE			
ust not	RATING OF 150 PSI FOR BOTH PIPE AND JOINTS FOF BEYOND THE POINT OF CONFLICT, SHALL MAINTAIN BETWEEN OUTER DIAMETERS OF TWO FEET VERTIC	A MINIMUM SEPARATION DISTANCE			
s at a ostream	HORIZONTALLY, AND SHALL BE JOINED WITH PRESS OR CORROSION PROTECTED MECHANICAL COUPLIN	URE RING GASKET CONNECTIONS			
hichever is	DUCTILE IRON MATERIAL.				
ltration must ours at the h.	V. SANITARY SEWER MANHOLES SHALL NOT BE INSTAL TO WATER MAINS.	LED ANY CLOSER THAN NINE FEET			
uantity ducethe	30 TAC 217.58 "TESTING REQUIREMENTS FOR MANHOLES	"			
n owner	(a) All manholes must pass a leakage test.				
is also	(b) An owner shall test each manhole (after assembly and backf independent of the collection system pipes, by hydrostatic exfiltr				
tion	method approved by the executive director.				
han 95% of ified in the	(1) Hydrostatic Testing.(A) The maximum leakage for hydrostatic testing or any alternational structure in the structure in th	ive test methods is 0.025 gallons per foot			
ssociation, lated	diameter per foot of manhole depth per hour.				
standard,	(B) To perform a hydrostatic exfiltration test, an owner shall sea manhole with an internal pipe plug, fill the manhole with water, a				
e. In this 0 of the wo minimum	(C) A test for concrete manholes may use a 24-hour wetting per the concrete.	iod before testing to allow saturation of			
e diameter	(2) Vacuum Testing.				
ia matavial	(A) To perform a vacuum test, an owner shall plug all lift holes a and plug all pipes entering a manhole.	nd exterior joints with a non-shrink grout			
ic material legs.	(B) No grout must be placed in horizontal joints before testing.				
liameter of a	(C) Stub-outs, manhole boots, and pipe plugs must be secured t drawn.	o prevent movement while a vacuum is			
	(D) An owner shall use a minimum 60 inch/lb torque wrench to a	tighten the external clamps that secure a			
eflection test.	test cover to the top of a manhole.	section and the seal inflated in			
a	(E) A test head must be placed at the inside of the top of a cone accordance with the manufacturer's recommendations.	שיש איז			
s and tion.	(F) There must be a vacuum of 10 inches of mercury inside a ma	anhole to perform a valid test.			
2%	(G) A test does not begin until after the vacuum pump is off. (H) A manhole passes the test if after 2.0 minutes and with all va	alves closed, the vacuum is at least 9.0			
er the final nt (5%).	inches of mercury.				
- (-,•).					

OR MEETING 98% COMPACTION ON TESTS TO BE PERFORMED BY A THIRD TONE LOCATION POINT RANDOMLY CTOR/TEST ADMINISTRATOR, PER EET AT A MINIMUM. PERMITS AND/OR AWS WITHOUT THIS REQUIREMENT NECESSARY DOCUMENTED TEST

EQUIREMENTS"

quate bedding, haunching, and initial backfill to support sses that are allowed are A, B, or C, as described in terials (ASTM) C 12, American National Standards onment Federation Manual of Practice No. 9 or (ASCE) MOP 37.

dequate bedding, haunching, and initial backfill to Iding classes that are allowed are IA, IB, II, or III, as K65.171.

e greater than six inches in diameter, organic matter, or ed as bedding, haunching, or initial backfill.

t of a collection system pipe.

cture, fault zones, caves, or solutional modification to onstruction until an engineer prepares a written report modate these site conditions.

ppe must meet the manufacturer's recommendations for project.

ppe must provide the modulus of soil reaction for the e a wastewater collection system pipe's structural is title (relating to Pipe Design).

pipe must not affect the structural integrity of a pipe.

elow and on each side of the bell of all pipes to the

unching and initial backfill must be installed to a ne crown of a pipe.

be to be laid and jointed properly and must allow the as needed.

vidth needed for safety and a pipe's structural integrity

nt to properly and safely place and compact haunching

ch wall must be wider than the compaction equipment

DEVELOPER'S NAME: BEAZER HOMES

CITY: SAN ANTONIO

NUMBER OF LOTS:

PHONE#:

DEVELOPER'S ADDRESS: 11467 HUEBNER ROAD, SUITE 225

SAWS BLOCK MAP#: 118630, 118632, 120630, 120632

FAX#:

TOTAL LINEAR FOOTAGE OF PIPE: <u>487.52 L.F. ~ SDR 26 PVC</u> PLAT NO.:

STATE: TX

SAWS JOB#:

ZIP: 78230

TOTAL ACREAGE: AC.

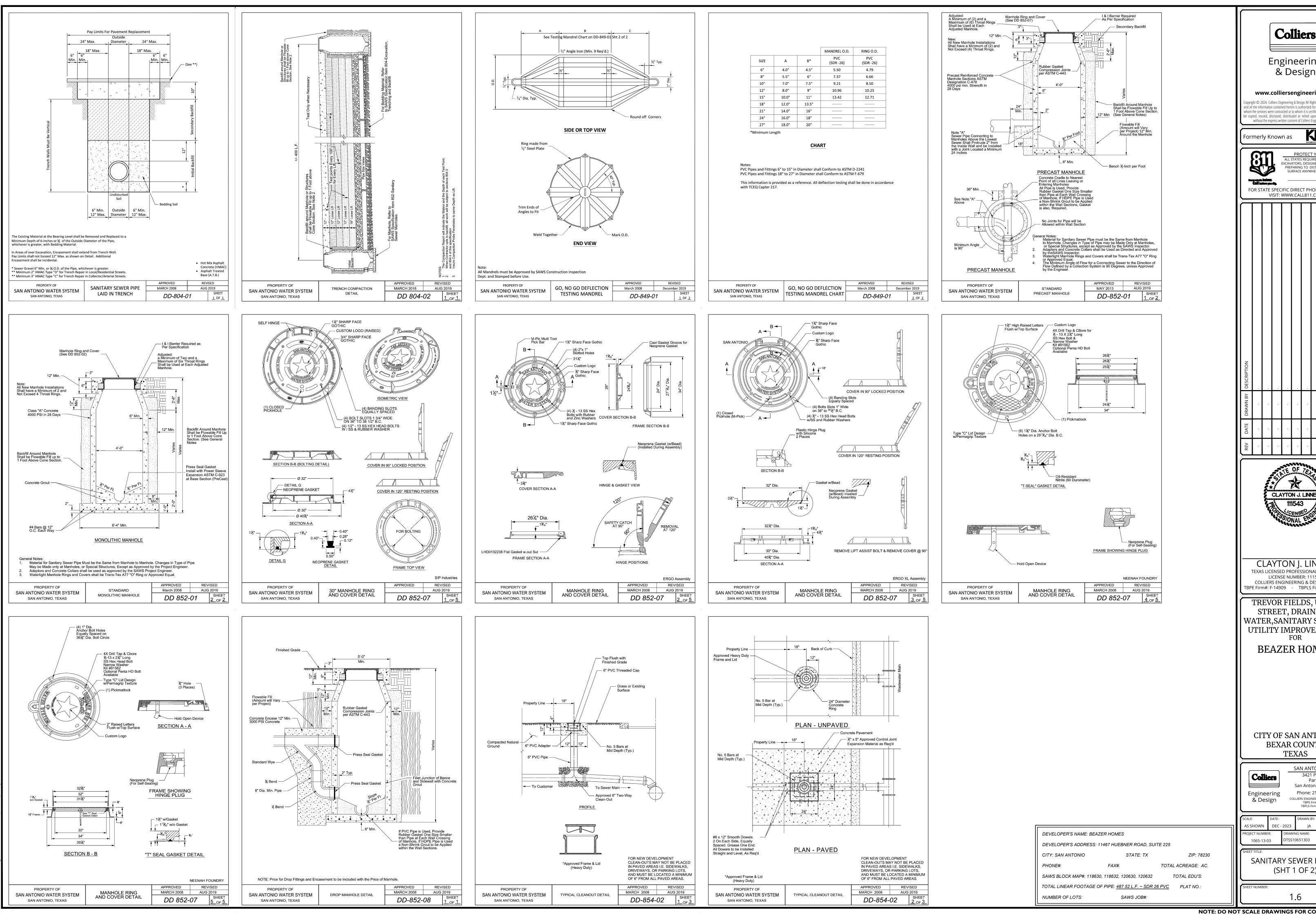
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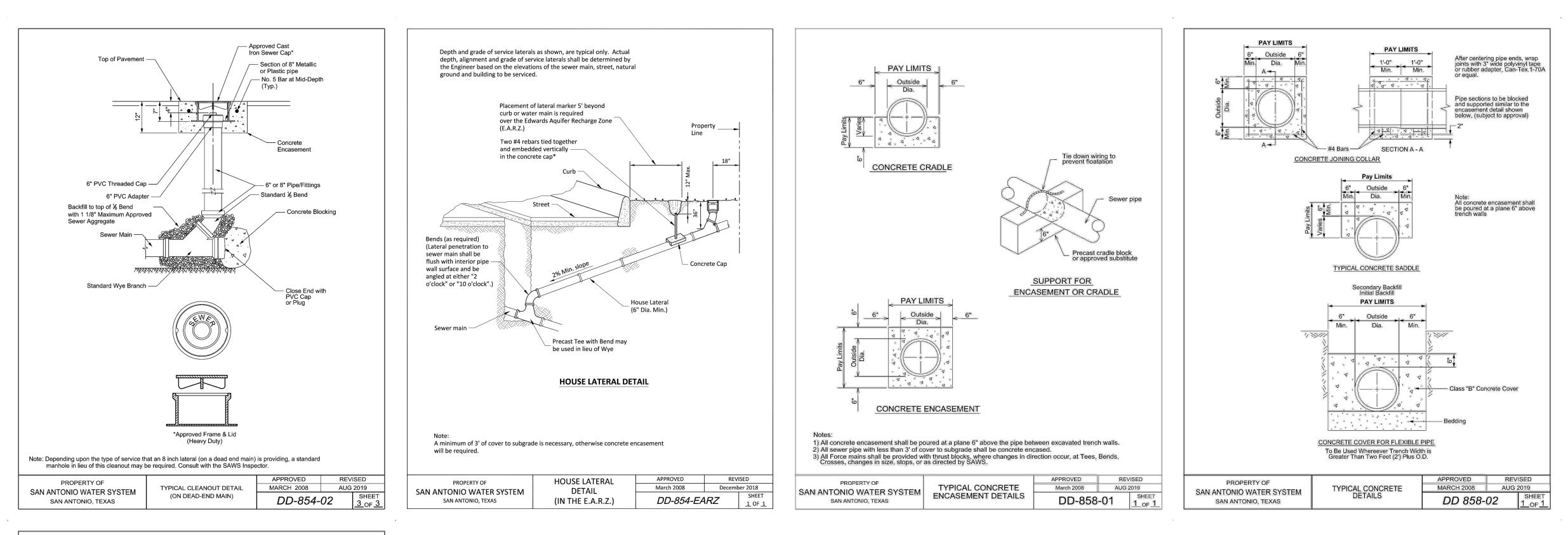
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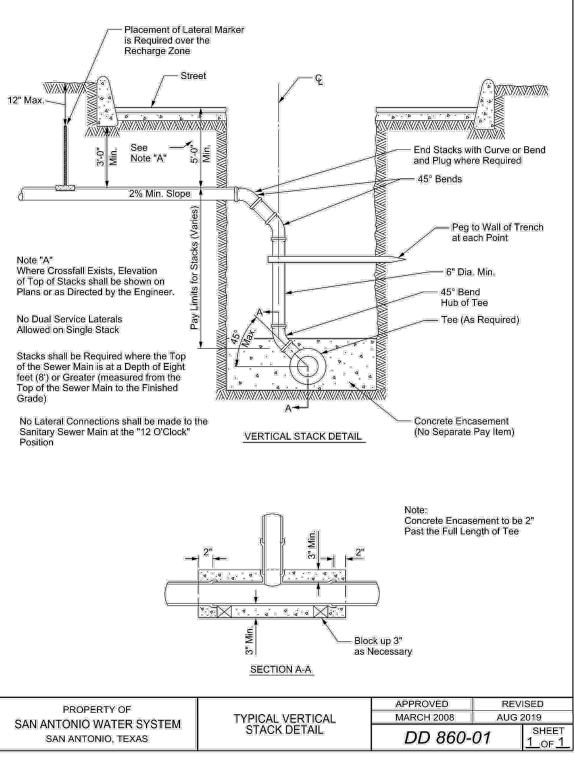
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