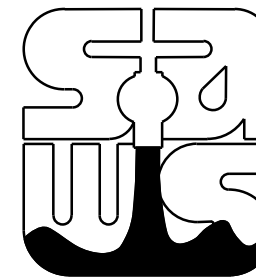
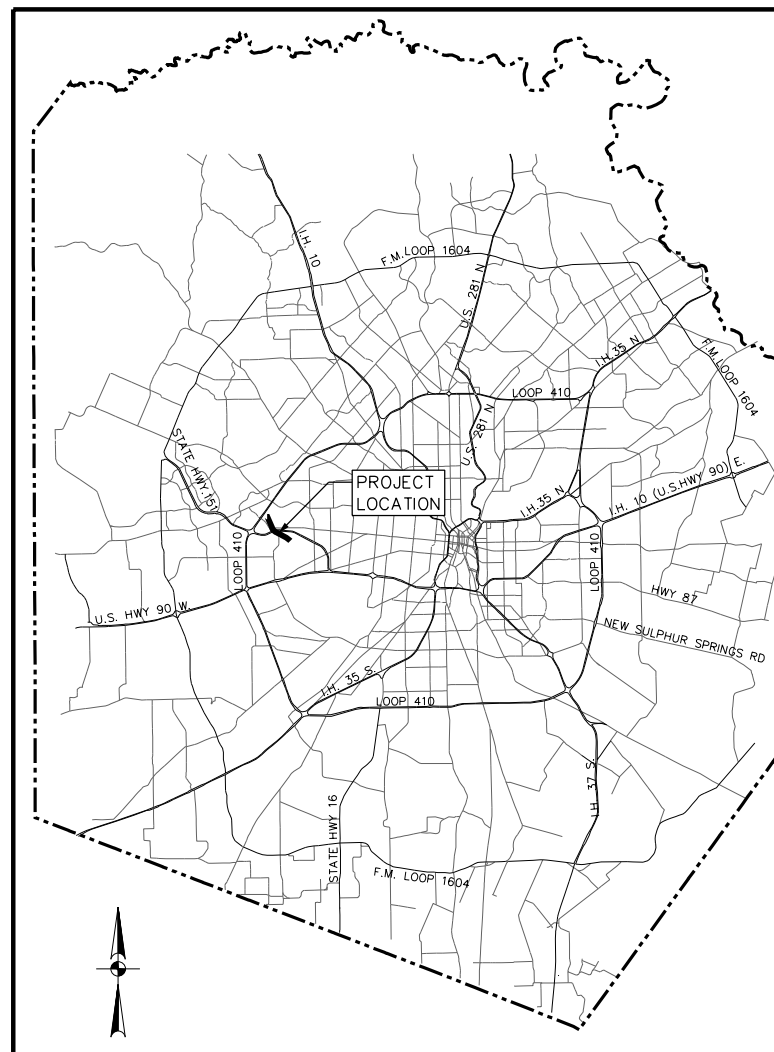


SAN ANTONIO WATER SYSTEM

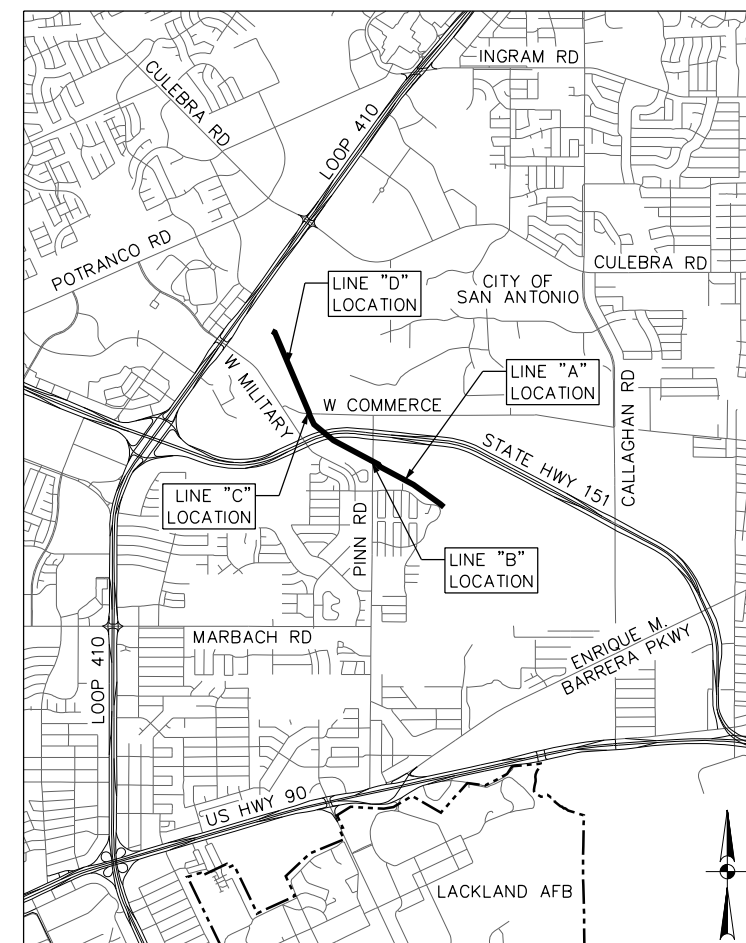


W-1 LEON CREEK: HWY 151 TO HWY 90 UPPER SEGMENT 100% SUBMITTAL



SAWS JOB NO. 19-4528
SOLICITATION NO. CO-00351

AUGUST 2020



SAWS JOB NO. 19-4528
W-1 LEON CREEK: HWY 151 TO HWY 90
UPPER SEGMENT
PD JOB NO. 8918-00



SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 HW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10028800



BOZNECKI AND AMARILLO
5855 CALLAGHAN RD, SUITE 200
SAN ANTONIO, TEXAS 78228
(210) 349-4300 (FAX)
(210) 349-9273 (PHONE)
http://www.bozack.com/



11550 HW 10 WEST, STE. 350 SAN ANTONIO, TX 78230
(210) 366-1988 TBPE No.: F-333



STRUCTURAL ENGINEERING
ASSOCIATES, INC.
CONSULTING ENGINEERS
TBPE FIRM REG. NO. F-199



CARA C. TACKETT
89491
8/17/2020



JASON T. DIAMOND
96532
8-17-20


PLOTTED ON: 8/17/2020

DESIGN FILENAME: P:\89\18\00\Design\Civil\Sewer\Phase 1\SS891800-01-C02.dgn

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| SHEET TITLE | SHEET DESC. | SHEET NO. |
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| | |
|-----------------|---|
| APP. | PAPE-DAWSON Job No. 8918-00 |
| REVISIONS |  <i>Jason T. Diamond</i> 8-17-20 |
| NO. | DATE |
| DESIGNED BY: MP | DATE: AUG 2020 |
| DRAWN BY: BS | |
| CHECKED BY: JO | |
| SCALE: | NOT TO SCALE |

PAPE-DAWSON ENGINEERS
 SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
 2000 HWY LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.0000
TYPE FIRM REGISTRATION #470 | TYPE IND REGISTRATION #1008880

SAN ANTONIO WATER SYSTEM

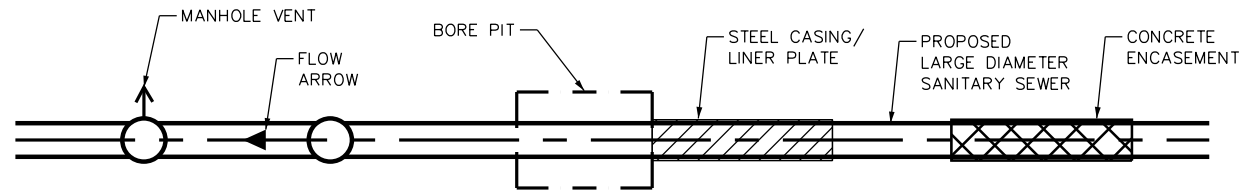


SAWS JOB NO. 19-4528
 W-1 LEON CREEK: HWY 151 TO HWY 90
 UPPER SEGMENT
 SHEET INDEX

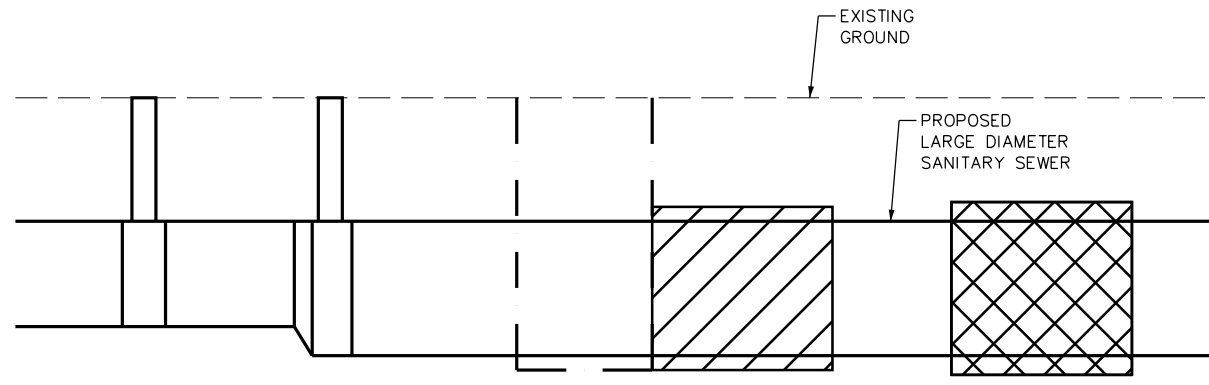
PLOTTED ON: 8/17/2020

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LEGEND (PROPOSED ITEMS)



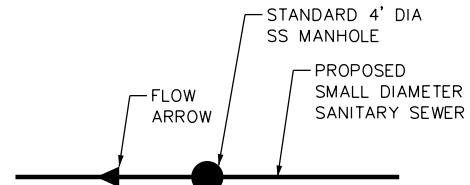
PLAN VIEW



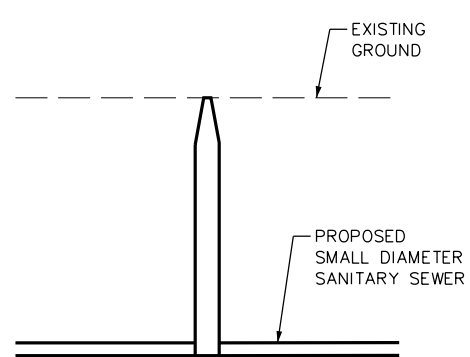
PROFILE VIEW

ABBREVIATION LEGEND

| | |
|--------|--|
| APPROX | APPROXIMATELY |
| CONST | CONSTRUCTION |
| COSA | CITY OF SAN ANTONIO |
| CSC | CONCRETE STEEL CYLINDER |
| DI | DUCTILE IRON |
| DIA | DIAMETER |
| E | EASTING |
| ESMT | EASEMENT |
| EX | EXISTING |
| EXIST | EXISTING |
| FRP | FIBERGLASS REINFORCED PIPE OR FIBERGLASS RESIN POLYMER |
| HMAC | HOT-MIXED ASPHALT CONCRETE |
| HWY | HIGHWAY |
| ID | IDENTIFICATION |
| INC | INCORPORATED |
| LF | LINEAR FEET |
| MH | MANHOLE |
| N | NORTHING |
| NO | NUMBER |
| NSPI | NO SEPARATE PAY ITEM |
| PG | PAGE |
| PROP | PROPOSED |
| PVC | POLYVINYL CHLORIDE |
| RCP | REINFORCED CONCRETE PIPE |
| SAN | SANITARY |
| SAWS | SAN ANTONIO WATER SYSTEM |
| SDR | STANDARD DIMENSION RATIO |
| SS | SANITARY SEWER |
| STA | STATION |
| SUE | SUBSURFACE UTILITY ENGINEERING |
| SY | SQUARE YARDS |
| TBA | TO BE ABANDONED |
| TXDOT | TEXAS DEPARTMENT OF TRANSPORTATION |
| TYP | TYPICAL |
| VCP | VITRIFIED CLAY PIPE |
| VOL | VOLUME |

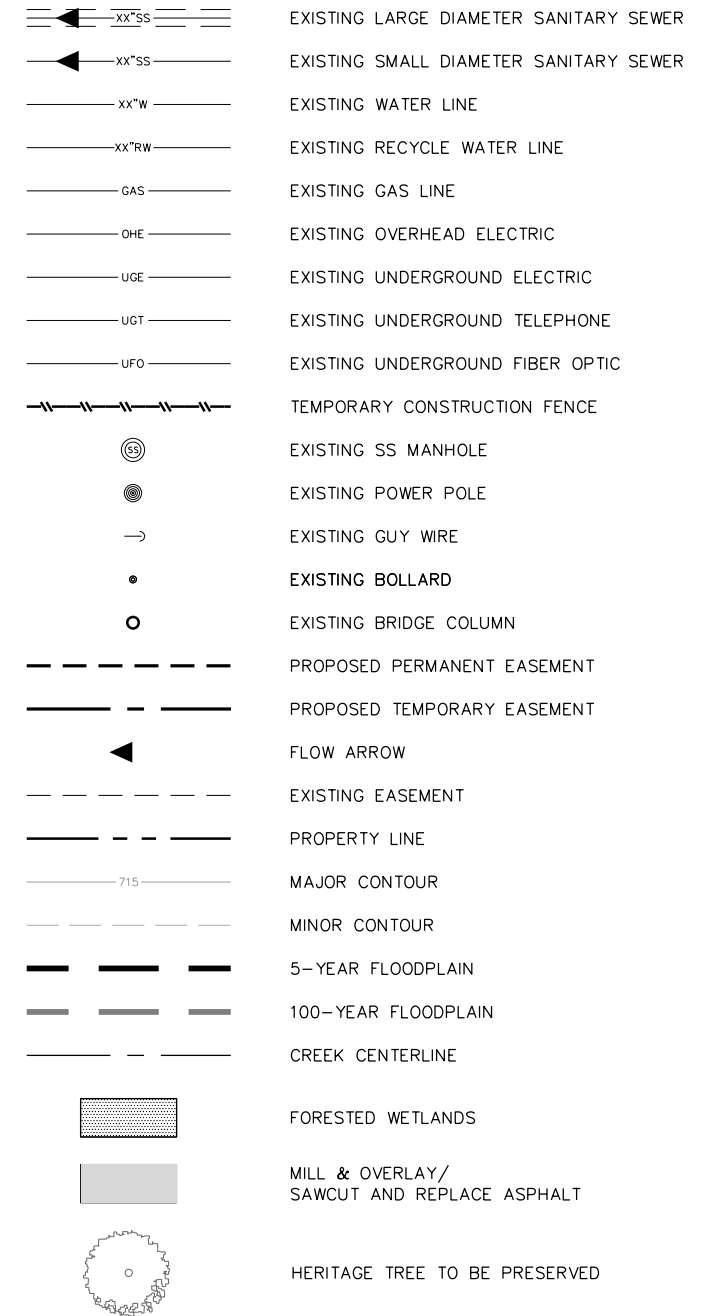


PLAN VIEW



PROFILE VIEW

LEGEND



| | |
|-------------|---------------------|
| APP. | PAPE-DAWSON |
| Job No. | 8918-00 |
| REVISIONS | |
| DATE | DATE: AUG 2020 |
| DESIGNED BY | DESIGNED BY: MP |
| DRAWN BY | DRAWN BY: BS |
| CHECKED BY | CHECKED BY: JO |
| SCALE | SCALE: NOT TO SCALE |

PAPE-DAWSON ENGINEERS
 SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
 2000 HWY LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
 TYPE FIRM REGISTRATION #470 | TYPE FIRM REGISTRATION #1008880

SAN ANTONIO WATER SYSTEM

SAWS JOB NO. 19-4528
 W-1 LEON CREEK: HWY 151 TO HWY 90
 UPPER SEGMENT
 LEGENDS AND ABBREVIATIONS SHEET

QUANTITIES TABLE

| NO | ITEM | UNIT | QUANTITY |
|----|---|------|----------|
| 1 | 202.1 PRIME COAT | GAL | 588 |
| 2 | 203.1 TACK COAT | GAL | 708 |
| 3 | 205.2 HOTMIX ASPHALT PAVEMENT TYPE B - 10 INCHES PAVEMENT THICKNESS | SY | 1,654 |
| 4 | 205.3 HOTMIX ASPHALT PAVEMENT TYPE D - 3 INCHES PAVEMENT THICKNESS | SY | 1,200 |
| 5 | 205.4 HOTMIX ASPHALT PAVEMENT TYPE D - 2 INCHES PAVEMENT THICKNESS | SY | 5,856 |
| 6 | 208.1 SALVAGING, HAULING & STOCKPILING RECLAIMABLE ASPHALT PAVEMENT (2 INCHES DEPTH) | SY | 5,856 |
| 7 | 208.1 SALVAGING, HAULING & STOCKPILING RECLAIMABLE ASPHALT PAVEMENT (3 INCHES DEPTH) | SY | 1,200 |
| 8 | 500.1 CONCRETE CURB | LF | 64 |
| 9 | 502.1 CONCRETE SIDEWALKS | SY | 12 |
| 10 | 503.1 PORTLAND CEMENT CONCRETE DRIVEWAYS | SY | 57 |
| 11 | 505.1 CONCRETE RIPRAP (6" THICK) | SY | 61 |
| 12 | 103.4 REMOVE MISC. CONCRETE | SF | 420 |
| 13 | SP-13 BYPASS PUMPING PAD 10'x10' WITH 4"-6" (D50) RIPRAP (COMPLETE) | LS | 1 |
| 14 | SP-13 EXISTING PAD RESTORATION | LS | 1 |
| 15 | 511.1 REPLACING WITH FLEXIBLE BASE & PAVEMENT (12" COMPACTED DEPTH) | SY | 16 |
| 16 | 522.1 SIDEWALK PIPE RAILING | LF | 44 |
| 17 | 536.1 4" WIDE YELLOW LINE | LF | 480 |
| 18 | 536.2 4" WIDE WHITE LINE | LF | 480 |
| 19 | 814 24" DI WATERLINE (OPEN CUT) | LF | 85 |
| 20 | 836 PIPE FITTINGS (ALL TYPES & SIZES) | TN | 1.55 |
| 21 | 840 24" WATER TIE-INS | EA | 2 |
| 22 | 841 HYDROSTATIC TESTING | EA | 1 |
| 23 | 844.4 4" BLOW-OFF, TEMPORARY | EA | 1 |
| 24 | 110/820 36" CSC RECYCLED WATER MAIN, RESTRAINED | LF | 61 |
| 25 | 110 30" MANWAY | EA | 1 |
| 26 | 846 2" AIR RELEASE VALVE | EA | 1 |
| 27 | 3100 TEMPORARY WATER MAIN (12" HDPE) | LS | 1 |
| 28 | 507.1 TEMPORARY CONSTRUCTION FENCE (4 FEET HIGH) | LF | 111 |
| 29 | 530 BARRICADES, SIGNS & TRAFFIC HANDLING | LS | 1 |
| 30 | SPTS 540 TEMPORARY EROSION, SEDIMENTATION AND WATER POLLUTION PREVENTION AND CONTROL | LS | 1 |
| 31 | 550.1 TRENCH EXCAVATION SAFETY PROTECTION | LF | 6,979 |
| 32 | 848A 8" PVC SDR 26 (OPEN CUT 0'-10') | LF | 106 |
| 33 | 848A 12" PVC SDR 26 (OPEN CUT 10'-20') | LF | 67 |
| 34 | 848B TESTING AND ACCEPTANCE OF PVC SDR 26 PIPE (ALL DEPTHS) | LS | 1 |
| 35 | 852A EXTRA DEPTH MANHOLE | VF | 13 |
| 36 | 852A 4 FEET SANITARY SEWER MANHOLE | EA | 1 |
| 37 | 852A REMOVE & REPLACE 4" SANITARY SEWER MANHOLE | EA | 2 |
| 38 | 852B TESTING AND ACCEPTANCE OF SANITARY SEWER MANHOLES (ALL TYPES) | LS | 1 |
| 39 | 853 EXTRA DEPTH TEE BASE MANHOLE | VF | 206 |
| 40 | 853A TEE BASE FIBERGLASS MANHOLE | EA | 3 |
| 41 | 853A TEE BASE FIBERGLASS MANHOLE, MITER | EA | 9 |
| 42 | 853A TEE BASE FIBERGLASS MANHOLE, MITER W/ SUMP | EA | 1 |
| 43 | 853A TEE BASE FIBERGLASS DROP MANHOLE | EA | 2 |
| 44 | 853A TEE BASE FIBERGLASS DROP MANHOLE, MITER | EA | 1 |
| 45 | 853B TESTING AND ACCEPTANCE OF FRP MANHOLES (ALL TYPES) | LS | 1 |
| 46 | SS 2426 CARRIER PIPE IN TUNNELS - 84" FRP (ASTM D-3262)(SN 72) | LF | 1,196 |
| 47 | SS2610/SS2314 102" STEEL CASING PIPE (0.5" THICKNESS) / 108" STEEL LINER PLATE | LF | 550 |
| 48 | SS2441/SS2314 PIPE-JACKED TUNNEL/TUNNELING WITH LINER PLATE | LF | 550 |
| 49 | SS2610 102" STEEL CASING PIPE (0.5" THICKNESS) | LF | 89 |
| 50 | SS2441 PIPE-JACKED TUNNEL | LF | 89 |
| 51 | SS2314 108" STEEL LINER PLATE | LF | 557 |
| 52 | SS2314 TUNNELING WITH LINER PLATE | LF | 557 |
| 53 | 857A 24" FRP (ASTM D-3262)(SN 72)(OPEN CUT 5'-10') | LF | 43 |
| 54 | 857A 66" FRP (ASTM D-3262)(SN 72)(OPEN CUT 15'-20') | LF | 67 |
| 55 | 857A 84" FRP (ASTM D-3262)(SN 72)(OPEN CUT 10'-15') | LF | 1,075 |
| 56 | 857A 84" FRP (ASTM D-3262)(SN 72)(OPEN CUT 15'-20') | LF | 4,940 |
| 57 | 857A 84" FRP (ASTM D-3262)(SN 72)(OPEN CUT 20'-25') | LF | 525 |
| 58 | 857B TESTING AND ACCEPTANCE OF FRP GRAVITY SEWER (ALL SIZES AND DEPTHS) | LS | 1 |
| 59 | 858 CONCRETE ENCASEMENT (MIN STRENGTH, 2,000 PSI) | CY | 4,126 |
| 60 | 413 FLOWABLE FILL | CY | 351 |
| 61 | 862 ABANDON EXISTING SEWER MAIN (>15-INCH DIAMETER) | LF | 7,706 |
| 62 | 862 ABANDON EXISTING SEWER MAIN (<15-INCH DIAMETER) | LF | 70 |
| 63 | 864-S1 BYPASS PUMPING SMALL DIAMETER (<24") | LS | 1 |
| 64 | SP 864-S2 BYPASS PUMPING LARGE DIAMETER (>24") | LS | 1 |
| 65 | 866 SEWER MAIN TV INSPECTION (ALL SIZES) | LF | 8,080 |
| 66 | 866 SEWER MAIN TV INSPECTION (PRE-ABANDONMENT) | LF | 7,776 |
| 67 | 910 MANHOLE REHABILITATION | SF | 692 |
| 68 | TP7-TP10 DRILL SEEDING (WITH NATIVE SEED MIXTURE) | SY | 630,506 |
| 69 | SS 804A ENVIRONMENTAL SERVICES, INCLUSIVE OF AIR MONITORING, WASTE CHARACTERIZATION, (LABOR, LAB, OTHER DIRECT COSTS), REPORTING, AND ENVIRONMENTAL OVERSIGHT | LS | 1 |
| 70 | SS 804A CLASS 1 SOIL WASTE DISPOSAL INCLUSIVE OF REMOVING, MANAGING, CHARACTERIZING, MANIFESTING, TRANSPORTING AND DISPOSING AT A PERMITTED LANDFILL | TON | 156 |
| 71 | SS 804A CLASS 2 SOIL WASTE DISPOSAL INCLUSIVE OF REMOVING, MANAGING, CHARACTERIZING, MANIFESTING, TRANSPORTING AND DISPOSING AT A PERMITTED LANDFILL | TON | 1,440 |
| 72 | SPTS 100A INTERMEDIATE DEMOBILIZATION/REMOBILIZATION (OPEN-CUT CONSTRUCTION) | EA | 2 |
| 73 | SPTS 100B INTERMEDIATE DEMOBILIZATION/REMOBILIZATION (TUNNEL CONSTRUCTION) | EA | 2 |
| 74 | 864-S1.3 BYPASS PUMPING DURING DEMOBILIZATION (SMALL DIAMETER) | DAY | 30 |
| 75 | 864-S1.4 INTERMEDIATE DEMOBILIZATION BYPASS PUMPING FUEL | DAY | 30 |
| 76 | 864-S1.5 INTERMEDIATE DEMOBILIZATION BYPASS PUMPING MONITORING | DAY | 30 |
| 77 | 864-SP-S2.3 BYPASS PUMPING DURING DEMOBILIZATION (LARGE DIAMETER) | DAY | 30 |
| 78 | 864-SP-S2.4 INTERMEDIATE DEMOBILIZATION BYPASS PUMPING FUEL | DAY | 30 |
| 79 | 864-SP-S2.5 INTERMEDIATE DEMOBILIZATION BYPASS PUMPING MONITORING | DAY | 30 |
| 80 | 100 MOBILIZATION (MAXIMUM 8% OF ITEMS 1-68) | LS | 1 |
| 81 | 101 PREPARATION OF RIGHT-OF-WAY (MAXIMUM 4% OF ITEMS 1-68) | LS | 1 |

SAWS GENERAL CONSTRUCTION NOTES

GENERAL SECTION

- 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:
 - CURRENT TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) "DESIGN CRITERIA FOR DOMESTIC WASTEWATER SYSTEM", TEXAS ADMINISTRATIVE CODE (TAC) TITLE 30 PART 1 CHAPTER 217 AND "PUBLIC DRINKING WATER", TAC TITLE 30 PART 1 CHAPTER 290.
 - CURRENT TXDOT "STANDARD SPECIFICATIONS FOR CONSTRUCTION OF HIGHWAYS, STREETS AND DRAINAGE."
 - CURRENT "SAN ANTONIO WATER SYSTEM STANDARD SPECIFICATIONS FOR WATER AND SANITARY SEWER CONSTRUCTION."
 - CURRENT CITY OF SAN ANTONIO "STANDARD SPECIFICATIONS FOR CONSTRUCTION."
 - CURRENT CITY OF SAN ANTONIO "UTILITY EXCAVATION CRITERIA MANUAL" (UECM).
- THE CONTRACTOR SHALL OBTAIN SAWS STANDARD DETAILS FROM SAWS WEBSITE: [HTTP://WWW.SAWS.ORG/BUSINESS_CENTER/SPECS](http://www.saws.org/business_center/specs). UNLESS OTHERWISE NOTED WITHIN DESIGN PLANS.
- THE CONTRACTOR IS TO NOTIFY AND MAKE ARRANGEMENTS WITH THE SAWS CONSTRUCTION INSPECTION DIVISION AT 210-233-3500, AND PROVIDE NOTIFICATION PROCEDURES THE CONTRACTOR WILL USE TO NOTIFY AFFECTED HOME RESIDENTS AND/OR PROPERTY OWNERS 72 HOURS PRIOR TO EXCAVATION.
- LOCATIONS AND DEPTHS 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.
- 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:

SAN ANTONIO WATER SYSTEM:
SAWS UTILITY LOCATES: [HTTP://WWW.SAWS.ORG/SERVICE/LOCATES](http://www.saws.org/service/locates)

COSA DRAINAGE 210-206-8433
COSA TRAFFIC SIGNAL OPERATIONS 210-207-7720
TEXAS STATE WIDE ONE CALL LOCATOR 1-800-545-6005 OR 811
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING EXISTING FENCES, CURBS, STREETS, DRIVEWAYS, SIDEWALKS, LANDSCAPING AND STRUCTURES TO ITS ORIGINAL OR BETTER CONDITION AS A RESULT OF DAMAGES DONE BY THE PROJECT'S CONSTRUCTION.
- ALL WORK IN TEXAS HIGHWAY DEPARTMENT AND BEXAR COUNTY RIGHT-OF-WAY SHALL BE DONE IN ACCORDANCE WITH RESPECTIVE CONSTRUCTION SPECIFICATIONS AND PERMIT.
- THE CONTRACTOR SHALL COMPLY WITH CITY OF SAN ANTONIO OR OTHER GOVERNING MUNICIPALITY'S TREE ORDINANCES WHEN EXCAVATING NEAR TREES.
- THE CONTRACTOR SHALL NOT PLACE ANY WASTE MATERIALS IN THE 100-YEAR FLOOD PLAIN WITHOUT FIRST OBTAINING AN APPROVED FLOOD PLAIN PERMIT.
- ANY WORK COMPLETED WITHOUT PRIOR WRITTEN AUTHORIZATION WHICH IS NOT INCLUDED IN THESE PLANS AND SPECIFICATIONS WILL NOT BE COMPENSATED BY THE SAN ANTONIO WATER SYSTEM.
- 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.
- PRE CON SITE VIDEO: BEFORE THE START OF ANY CONSTRUCTION, THE SITE MUST BE VIDEO RECORDED BY THE CONTRACTOR WITH ONE COPY SUBMITTED TO SAWS INSPECTIONS. A PRE-SITE VIDEO WILL PROVIDE ACCURATE DOCUMENTATION OF THE EXISTING CONDITIONS (NSPI).
- POWER POLE BRACING: CONTRACTORS SHOULD BE ADVISED THAT THERE ARE EXISTING OVERHEAD UTILITY POLES ALONG THE PROJECT CORRIDOR. CONTRACTORS SHOULD FURTHER BE ADVISED THAT IF THE DISTANCE FROM THE OUTSIDE FACE OF A UTILITY TRENCH TO THE FACE OF A UTILITY POLE IS LESS THAN 5 FEET, SAID UTILITY POLE IS SUBJECT TO BRACING, BASED ON A DETERMINATION MADE BY UTILITY POLE OWNER. COSTS INCURRED BY CONTRACTOR FOR BRACING OF THESE UTILITY POLES IS SUBSIDIARY TO THAT RESPECTIVE UTILITY COMPANY'S WORK. IT IS ADVISABLE FOR THE CONTRACTOR TO REVIEW THE CONSTRUCTION DOCUMENTS, AND VISIT THE CONSTRUCTION SITE TO DETERMINE POTENTIAL IMPACTS (NSPI).

- CONSTRUCTION SEQUENCING: IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO SCHEDULE SEQUENCING FOR REMOVAL AND INSTALLATION OF EXISTING AND PROPOSED SAWS UTILITIES IN CONJUNCTION WITH GENERAL PROJECT CONSTRUCTION. SEQUENCE OF CONSTRUCTION ACTIVITIES SHALL BE CONSIDERED IN ORDER TO MINIMIZE THE EXTENT AND DURATION OF DISTURBANCES.

WATER SECTION

- PRIOR TO TIE-INS, ANY SHUTDOWNS OF EXISTING MAINS OF ANY SIZE MUST BE COORDINATED WITH THE SAWS INSPECTION AND/OR SAWS PRODUCTION GROUPS AT LEAST ONE WEEK OR MORE 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 TO SEQUENCE THE WORK ACCORDINGLY.
SAWS PRODUCTION CONTROL CENTER 233-2016
- ASBESTOS CEMENT (AC) PIPE, ALSO KNOWN AS TRANSITE PIPE WHICH IS KNOWN TO CONTAIN ASBESTOS-CONTAINING MATERIAL (ACM), MAYBE LOCATED WITHIN THE PROJECT LIMITS. SPECIAL WASTE MANAGEMENT PROCEDURES AND HEALTH AND SAFETY REQUIREMENTS WILL BE APPLICABLE WHEN REMOVAL AND/OR DISTURBANCE OF THIS PIPE OCCURS, PAYMENT FOR SUCH WORK IS TO BE MADE UNDER SPECIAL SPECIFICATION ITEM NO. 3000, "SPECIAL SPECIFICATION FOR HANDLING ASBESTOS CEMENT PIPE".
- VALVE REMOVAL: WHERE THE CONTRACTOR IS TO ABANDON A WATER MAIN, THE CONTROL VALVE LOCATED ON THE ABANDONING BRANCH WILL BE REMOVED AND REPLACED WITH A CAP/PLUG. (NSPI)

SEWER SECTION

- 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:
 - IDENTIFY THE SOURCE OF THE SSO AND NOTIFY SAWS EMERGENCY OPERATIONS CENTER (EOC) IMMEDIATELY AT 210 704-SAWS (210-704-7297). PROVIDE THE ADDRESS OF THE SPILL AND AN ESTIMATED VOLUME OR FLOW.
 - ATTEMPT TO ELIMINATE THE SOURCE OF THE SSO.
 - CONTAIN SEWAGE FROM THE SSO TO THE EXTENT OF PREVENTING A POSSIBLE CONTAMINATION OF WATERWAYS.
 - CLEAN UP SPILL SITE (RETURN CONTAINED SEWAGE TO THE COLLECTION SYSTEM IF POSSIBLE) AND PROPERLY DISPOSE OF CONTAMINATED SOIL/MATERIALS.
 - CLEAN THE AFFECTED SEWER MAINS AND REMOVE ANY DEBRIS.
 - MEET ALL POST-SSO REQUIREMENTS AS PER THE EPA CONSENT DECREE, INCLUDING LINE CLEANING AND TELEVISIONING 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 COSTS INCURRED BY SAWS, INCLUDING ANY FINES FROM EPA.

NO SEPARATE MEASUREMENT OR PAYMENT SHALL BE MADE FOR THIS WORK. ALL WORK SHALL BE DONE ACCORDING TO GUIDELINES SET BY THE TCEQ AND SAWS.

- THE CONTRACTOR SHALL PROVIDE BYPASS PUMPING OF SEWAGE AROUND EACH SEGMENT OF PIPE TO BE REPLACED, IN ACCORDANCE WITH SAWS STANDARD SPECIFICATION FOR WATER AND SANITARY SEWER CONSTRUCTION, ITEM NO. 864 S-1A DND SP 864-S2, "BYPASS PUMPING". PAYMENT FOR SUCH WORK WILL BE MADE UNDER THE BID ITEM "SANITARY SEWER (BYPASS PUMPING)"(LUMP SUM) AS PER SAWS STANDARD SPECIFICATION FOR WATER AND SANITARY SEWER CONSTRUCTION, ITEM NO. 864, "BYPASS PUMPING".
- PRIOR TO TIE-INS, ANY SHUTDOWNS OF EXISTING FORCE MAINS OF ANY SIZE MUST BE COORDINATED WITH THE SAWS CONSTRUCTION INSPECTION DIVISION AT (210) 233-3500 AND/OR SAWS PRODUCTION GROUPS AT LEAST ONE WEEK OR MORE 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 TO SEQUENCE THE WORK ACCORDINGLY.
- 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).
- THE CONTRACTOR SHALL NOTIFY JUAN C. RAMIREZ AT (210) 233-3558 AND SAWS E.O.C. AT (210) 233-2015 A MINIMUM OF 72 HOURS, NOT COUNTING WEEKENDS OR SAWS HOLIDAYS, BEFORE WORKING ON THE PIPE OR MANHOLE, IN ORDER TO HAVE SAWS REMOVE THE SMART COVER. ANY DAMAGE DONE TO THE SMART COVER WILL BE CHARGED TO THE CONTRACTOR THROUGH A CHANGE ORDER.

EXCAVATION EQUIPMENT

OUR EXPLORATORY BORING LOGS ARE NOT INTENDED FOR USE IN DETERMINING CONSTRUCTION MEANS AND METHODS AND MAY THEREFORE BE MISLEADING IF USED FOR THAT PURPOSE. WE RECOMMEND THAT EARTH-WORK AND UTILITY CONTRACTORS INTERESTED IN BIDDING ON THE WORK PERFORM THEIR OWN TESTS IN THE FORM OF TEST PITS TO DETERMINE AND QUANTITIES OF THE DIFFERENT MATERIALS TO BE EXCAVATED, AS WELL AS THE PREFERRED EXCAVATION METHODS AND EQUIPMENT FOR THIS SITE. BORINGS COMPLETED FOR THIS PROJECT ARE WIDELY SPACED AND THEREFORE SUBSURFACE MATERIALS AND CONDITIONS CAN AND LIKELY WILL VARY BETWEEN BORINGS. MARL AND SHALE BEDROCK WERE ENCOUNTERED IN OUR BORINGS AT RELATIVELY SHALLOW DEPTHS, THUS THE NEED OF ROCK EXCAVATION EQUIPMENT SHOULD BE ANTICIPATED FOR CONSTRUCTION AT THIS SITE. CONTRACTORS BIDDING THIS PROJECT SHOULD BE REQUIRED TO PROVIDE COSTS FOR HARD ROCK EXCAVATION IN THE EVENT THESE CONDITIONS ARE ENCOUNTERED. ALL ADDITIONAL COSTS ASSOCIATED WITH THIS WORK ARE INCIDENTAL TO PIPE INSTALLATION.

PLOTTED ON: 8/18/2020

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APR. PAPE-DAWSON
Job No.
8918-00

REVISIONS

DATE: AUG 2020
DESIGNED BY: MP
DRAWN BY: BS
CHECKED BY: JO
SCALE: NOT TO SCALE

JASON T. DIAMOND
8-17-20

PAPE-DAWSON ENGINEERS

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 HWY LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.8000
TXPE FIRM REGISTRATION #475 | TXPLS FIRM REGISTRATION #1008890

SAN ANTONIO WATER SYSTEM

SAWS JOB NO. 19-4528
W-1 LEON CREEK: HWY 151 TO HWY 90
UPPER SEGMENT
QUANTITIES AND SAWS GENERAL
CONSTRUCTION NOTES SHEET

Sheet G-4

4 of 67

PLOTTED ON: 8/17/2020

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MISCELLANEOUS NOTES

- 1. ALL MANHOLES SHALL BE CONSTRUCTED UNLESS NOTED OTHERWISE SO THAT THE TOP OF THE RING IS AT LEAST SIX INCHES ABOVE THE FINISHED GRADE OR AS INDICATED ON THE DRAWINGS OF THE SURROUNDING GROUND EXCEPT WHEN LOCATED IN TXDOT R.O.W. OR PAVED AREAS, THE MANHOLE RING SHALL BE FLUSH WITH PAVEMENT.
2. THE USE OF ASBESTOS CEMENT PIPE WILL BE PROHIBITED UNDER THIS CONTRACT. ALL DUCTILE IRON PIPE USED IN THIS SYSTEM SHALL BE CORROSION PROTECTED ON BOTH THE INTERIOR AND EXTERIOR SURFACES. ALL CORROSION PROTECTION SHALL BE APPLIED AND INSTALLED IN SUCH A MANNER AS TO MAINTAIN A CONTINUOUSLY PROTECTED SURFACE AFTER FINAL PIPE INSTALLATION.
3. SEWER PIPE CONNECTIONS TO PRE-CAST MANHOLES WILL BE COMPRESSION JOINTS AS APPROVED BY SAWS. MECHANICAL JOINT "BOOT TYPE" CONNECTIONS ALONE WILL NOT BE ALLOWED. "BOOT TYPE" JOINTS MAY BE USED IN CONJUNCTION WITH COMPRESSION JOINTS AS APPROVED BY SAWS. ANY CHANGES FROM THESE METHODS MUST BE APPROVED BY SAWS.
4. STORMWATER PROTECTION: ALL TEMPORARY EROSION AND SEDIMENTATION CONTROLS MUST BE INSTALLED PRIOR TO CONSTRUCTION, SHALL BE MAINTAINED DURING CONSTRUCTION, AND SHALL BE REMOVED WHEN VEGETATION IS ESTABLISHED AND THE CONSTRUCTION AREA IS STABILIZED. ADDITIONAL PROTECTION MAY BE NECESSARY IF EXCESSIVE SOLIDS ARE BEING DISCHARGED FROM THE SITE.
5. ALL WATER AND WASTEWATER INSTALLATIONS SHALL BE IN ACCORDANCE WITH TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) REQUIREMENTS. WHERE A MINIMUM OF NINE (9) FEET OF SEPARATION CANNOT BE MAINTAINED BETWEEN SEWER LINES AND WATER LINES/MAINS, THE INSTALLATION OF SEWER LINES SHALL BE IN STRICT ACCORDANCE WITH TCEQ 30 TAC 217.53(d)

FENCING NOTES

- 1. CONTRACTOR SHALL MAINTAIN EXISTING FENCES ADJACENT TO AND ACROSS THE PROJECT CORRIDOR. CONTRACTOR IS RESPONSIBLE FOR CONSTRUCTING ANY TEMPORARY FENCES, GAPS, GATES, ETC. NECESSARY FOR CONSTRUCTION OF THE PROJECT.
2. AT THE COMPLETION OF THE PROJECT, CONTRACTOR SHALL RESTORE ALL FENCING AFFECTED BY THE PROJECT TO ITS ORIGINAL OR BETTER CONDITION.

SERVICE LATERALS NOTES

- 1. THE EXACT LOCATION AND ELEVATION OF THE SERVICE LATERALS AND MANHOLES SHALL BE FIELD VERIFIED BY THE CONTRACTOR AND CONTRACTOR SHALL NOTIFY SAWS AND ENGINEER OF ANY CONFLICTS PRIOR TO INSTALLING OR ADJUSTING (NSPI).
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DISCONNECTING EACH EXISTING SERVICE LINE FROM THE EXISTING MAIN AND RE-CONNECTING THE SERVICE TO THE NEW SERVICE MAIN. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING CONTINUOUS SERVICE (NSPI).

EXCAVATION NOTES

- 1. CONTRACTOR SHALL MAINTAIN UNRESTRICTED DRAINAGE OF THE PROJECT SITE AND ADJACENT AREAS DURING CONSTRUCTION.
2. NO WASTE MATERIAL SHALL BE PLACED IN EXISTING LOWS THAT WILL BLOCK OR ALTER FLOW LIMITS OF THE EXISTING NATURAL DRAINAGE OR PLACED WITHIN THE LIMITS OF THE EXISTING FLOODPLAIN.
3. CONSTRUCTION MATERIALS SHALL NOT BE STORED IN EXISTING LOWS THAT WILL BLOCK OR ALTER FLOW LIMITS OF THE EXISTING NATURAL DRAINAGE OR PLACED WITHIN THE LIMITS OF THE EXISTING FLOODPLAIN.
4. AT THE END OF EACH WORK DAY, THE CONTRACTOR SHALL CLOSE EXCAVATIONS/PIPELINE TRENCH EXCEPT FOR THE MINIMUM AMOUNT REQUIRED TO BEGIN THE NEXT DAYS WORK. IF IT IS NECESSARY TO LEAVE EXCAVATIONS OPEN AFTER THE WORKING HOURS, CONTRACTOR SHALL BARRICADE THE EXCAVATIONS TO PREVENT UNAUTHORIZED VEHICULAR/PEDESTRIAN ACCESS.

EXISTING UTILITIES NOTES

- 1. CONTRACTOR SHALL BE REQUIRED TO LOCATE ALL PUBLIC OR PRIVATE UTILITIES INCLUDING BUT NOT LIMITED TO: WATER, SEWER, TELEPHONE AND FIBER OPTIC LINES, SITE LIGHTING ELECTRIC, SECONDARY ELECTRIC, PRIMARY ELECTRICAL DUCT BANKS, LANDSCAPE IRRIGATION FACILITIES, GAS LINES, ETC. ANY UTILITY CONFLICTS THAT ARISE SHOULD BE COMMUNICATED TO THE ENGINEER IMMEDIATELY AND PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL CONTACT 1-800-DIG-TESS A MINIMUM OF 72 HOURS PRIOR TO THE START OF CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND THE REPAIR SHALL BE AT CONTRACTOR'S SOLE EXPENSE WHETHER THE UTILITY IS SHOWN ON THESE PLANS OR NOT.
2. CONTRACTOR TO EXERCISE EXTREME CAUTION WHEN WORKING UNDER AND/OR AROUND OVERHEAD ELECTRIC LINES. CONTRACTOR SHALL COORDINATE WITH CPS ENERGY TO ESTABLISH THE MAXIMUM WORKING HEIGHT FROM GROUND ELEVATION. COORDINATE ALL WORK WITH CPS ENERGY.
3. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE LOCATION AND DEPTHS OF ALL EXISTING UTILITIES SHOWN OR NOT SHOWN ON THESE PLANS 72 HOURS PRIOR TO THE COMMENCEMENT OF ANY WORK.
4. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY EXISTING UTILITY DISCREPANCIES IDENTIFIED DURING UTILITY VERIFICATIONS 48 HOURS PRIOR TO THE COMMENCEMENT OF ANY WORK.
5. 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 SHALL CONTACT THE TELEPHONE COMPANY CABLE LOCATOR 72 HOURS PRIOR TO EXCAVATION AT 1-800-828-5127. CONTRACTOR SHALL PROTECT AND SUPPORT TELEPHONE COMPANY FACILITIES DURING CONSTRUCTION.
6. IF EXISTING FIBER OPTIC CONDUIT SYSTEMS ARE LOCATED DURING EXCAVATION, A FIBER-OPTIC REPRESENTATIVE IS REQUIRED TO BE ON SITE AT NO EXPENSE TO SAWS. THE CONTRACTOR MUST PROVIDE SUPPORT AND/OR PROTECTION FOR THE CONDUIT AT ALL TIMES DURING BACKFILLING, WHICH IS SUITABLE TO THE FIBER-OPTIC REPRESENTATIVE. THE FIBER-OPTIC REPRESENTATIVE MAY PLACE UNDERGROUND MARKING DEVICES AS REQUIRED. REPAIR OF ANY DAMAGES TO THE CONDUIT SYSTEM AND ASSOCIATED FACILITIES SHALL BE MADE BY THE FIBER-OPTIC COMPANY PERSONNEL; AND THE CONTRACTOR SHALL REIMBURSE THEM FOR ALL COSTS OF SUCH REPAIRS, IF REQUIRED. THE CONTRACTOR SHALL CONTACT THE FIBER-OPTIC COMPANY 72 HOURS PRIOR TO THE START OF EXCAVATION. LOCATIONS SHOWN ON THESE PLANS ARE APPROXIMATE ONLY AND NOT GUARANTEED TO BE ACCURATE.

TRAFFIC CONTROL NOTE

- 1. CONTRACTOR SHALL PREPARE AND SUBMIT A TRAFFIC CONTROL PLAN TO TXDOT AND/OR CITY OF SAN ANTONIO FOR REVIEW AND APPROVAL. NECESSARY TRAFFIC CONTROL, DETOUR ROUTING AROUND WORK ACTIVITIES, MAINTENANCE OF DETOUR SIGNS AND FLAGMEN ARE THE CONTRACTOR'S RESPONSIBILITY. UNLESS DIRECTED OTHERWISE, THE CONTRACTOR SHALL MAINTAIN AT LEAST ONE OPEN TRAFFIC LANE (MINIMUM 12 FEET WIDE), CONTROLLED WITH FLAGMEN, DURING WORKING HOURS. DURING ALL NON-WORKING HOURS A MINIMUM OF TWO TRAFFIC LANES (EACH A MINIMUM 12 FEET WIDE) SHALL BE OPEN TO TRAFFIC. CONTRACTOR WILL FURNISH AND MAINTAIN ALL REQUIRED TRAFFIC CONTROL DEVICES PER TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD), TO PROPERLY WARN, GUIDE AND CONTROL TRAFFIC AT ALL TIMES THROUGHOUT CONSTRUCTION.

TXDOT NOTES

- 1. WITHIN TXDOT ROW, THE CONTRACTOR SHALL ADHERE TO THE TXDOT UTILITY PERMIT AND SPECIAL CONDITIONS.
2. CONTRACTOR IS PROHIBITED FROM PLACING FILL WITHIN THE TXDOT ROW.
3. BENCHING OF TRENCHES WITHIN TXDOT ROW IS PROHIBITED.
4. UNLESS SHOWN OTHERWISE IN THE PLANS, ANY DAMAGE TO EXISTING IMPROVEMENTS WITHIN THE TXDOT ROW CAUSED BY THE CONTRACTOR SHALL BE REPLACED TO ORIGINAL OR BETTER (AT NO ADDITIONAL COST TO SAWS OR TXDOT) PER TXDOT SPECIFICATIONS.

TRENCH EXCAVATION SAFETY PROTECTION

- 1. CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND ANY AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES 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 CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLIES WITH, AT 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 EXCAVATION.

GROUND AND SURFACE WATER NOTE

- 1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL NECESSARY MEANS AND METHODS OF CONSTRUCTION SHOULD GROUNDWATER AND SURFACE WATER BE ENCOUNTERED. CONTRACTOR SHALL REFER TO SUPPLEMENTARY SPECIFICATIONS 2140. THIS SHALL BE INCIDENTAL TO THE PIPE INSTALLATION.

TRENCHLESS CONSTRUCTION NOTES

- 1. THE CONTRACTOR SHALL SECURE ALL BORE AREAS AND RECEIVING PITS WITH SECURITY FENCING AND ALL PROPER SAFETY MEASURES. (NSPI).
2. THE TERM "BORE PIT" IS INTENDED FOR DRIVE/RECEIVING TUNNELING SHAFTS.
3. BORE PIT DIMENSIONS ARE SHOWN TO ILLUSTRATE APPROXIMATE LOCATION ONLY. SHAPE/SIZE TO BE DETERMINED BY CONTRACTOR AND INCLUDED IN SPECIFICATION SS-2242, SS-2314, AND SS-2400 JACKING, BORING OR TUNNELING SUBMITTAL.
4. APPROVED TRENCHLESS SEWER INSTALLATION METHODS ARE DEFINED WITHIN THE SUPPLEMENTARY SPECIFICATIONS AND CONTRACT DOCUMENTS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO SELECT ONE OF THE APPROVED TRENCHLESS METHODS FOR EACH TUNNELING LOCATION THAT THEY DETERMINE APPROPRIATE FOR INSTALLATION, GIVEN THE SITE CONDITIONS AND CONSTRAINTS AT EACH TUNNELING LOCATION.

FLOODPLAIN NOTES

- 1. THE CONTRACTOR SHALL COMPLY WITH THE APPROVED COSA FLOODPLAIN PERMIT. THE CONTRACTOR IS RESPONSIBLE FOR THE REMOVAL OF ALL WASTE MATERIALS UPON PROJECT COMPLETION.
2. CONTRACTOR IS RESPONSIBLE FOR PROTECTION OF WORK, MATERIAL, AND EQUIPMENT PRIOR TO RAIN EVENTS. THE PROJECT IS LOCATED WITHIN THE 100-YEAR FLOODPLAIN AND FLOODWAY AREAS OF LEON CREEK. THE PROJECT SITE IS SUSCEPTIBLE TO QUICKLY RISING WATER IN RESPONSE TO RAINFALL EVENTS. NO MATERIAL SHALL BE STORED IN THE 100-YEAR FLOODPLAIN LONGER THAN THE END OF THE SHIFT IN WHICH IT WAS GENERATED. CONTRACTOR IS SOLELY RESPONSIBLE FOR PROTECTING TRENCHES, PITS, MATERIALS, AND EQUIPMENT FROM DAMAGE/INUNDATION OF FLOOD WATERS. ROADWAYS TO THE PROJECT SITE CAN BE EXPECTED TO BE BLOCKED OFF AS LOW WATER CROSSING DURING STORM EVENTS AND FOR EXTENDED PERIODS THEREAFTER. CONTRACTOR SHALL COORDINATE WITH SAWS TO DETERMINE WHETHER CONTRACTOR MAY RETURN TO WORK ON SITE AFTER RAIN EVENT.
3. THE CONTRACTOR SHALL NOTIFY STORM WATER ENGINEERING (210-206-8433) AT LEAST 24 HOURS PRIOR TO THE INSTALLATION OF ANY DRAINAGE FACILITY WITHIN A DRAINAGE EASEMENT OF STREET RIGHT-OF-WAY NOT INDICATED ON THE CONSTRUCTION PLANS.
4. CONSTRUCTION SPOILS WILL NOT BE ALLOWED TO BE DEPOSITED ANYWHERE WITHIN A DRAINAGE EASEMENT, RIGHT-OF-WAY, OR FLOODPLAIN WITHIN THE LIMITS OF THE PROJECT AND SHALL BE DISPOSED OFF SITE IN COMPLIANCE WITH CURRENT APPLICABLE REGULATIONS.
5. NO STRUCTURE, FENCES, WALLS, LANDSCAPING, OR OTHER OBSTRUCTIONS THAT IMPEDE DRAINAGE SHALL BE PLACED WITHIN THE LIMITS OF THE DRAINAGE EASEMENTS SHOWN ON THE CONSTRUCTION DOCUMENTS.
6. THE CONTRACTOR IS RESPONSIBLE FOR PROTECTING EXISTING DRAINAGE FACILITIES FROM DAMAGE. ANY DAMAGE TO EXISTING DRAINAGE SYSTEMS, WHETHER OR NOT SHOWN ON THE PLANS, SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO REPAIR AT HIS EXPENSE. THE CONTRACTOR SHALL NOTIFY STORM WATER ENGINEERING AT 210-206-8433 AS SOON AS CONFLICTS WITH UTILITIES ARE ENCOUNTERED OR ANY DRAINAGE SYSTEM IS DAMAGED DURING CONSTRUCTION.
7. IMPROVED SECTIONS OF EARTHEN CHANNELS AND/OR WATERWAYS WILL BE VEGETATED BY SEEDING OR SODDING. EIGHTY-FIVE PERCENT OF THE CHANNEL SURFACE AREA MUST HAVE ESTABLISHED VEGETATION BEFORE THE CITY OF SAN ANTONIO WILL ACCEPT THE CHANNEL FOR MAINTENANCE.

Table with columns: NO., DATE, REVISIONS, APPR. Includes project name PAPE-DAWSON, Job No. 8918-00, and a signature of Jason T. Diamond dated 8-17-20.

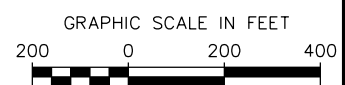
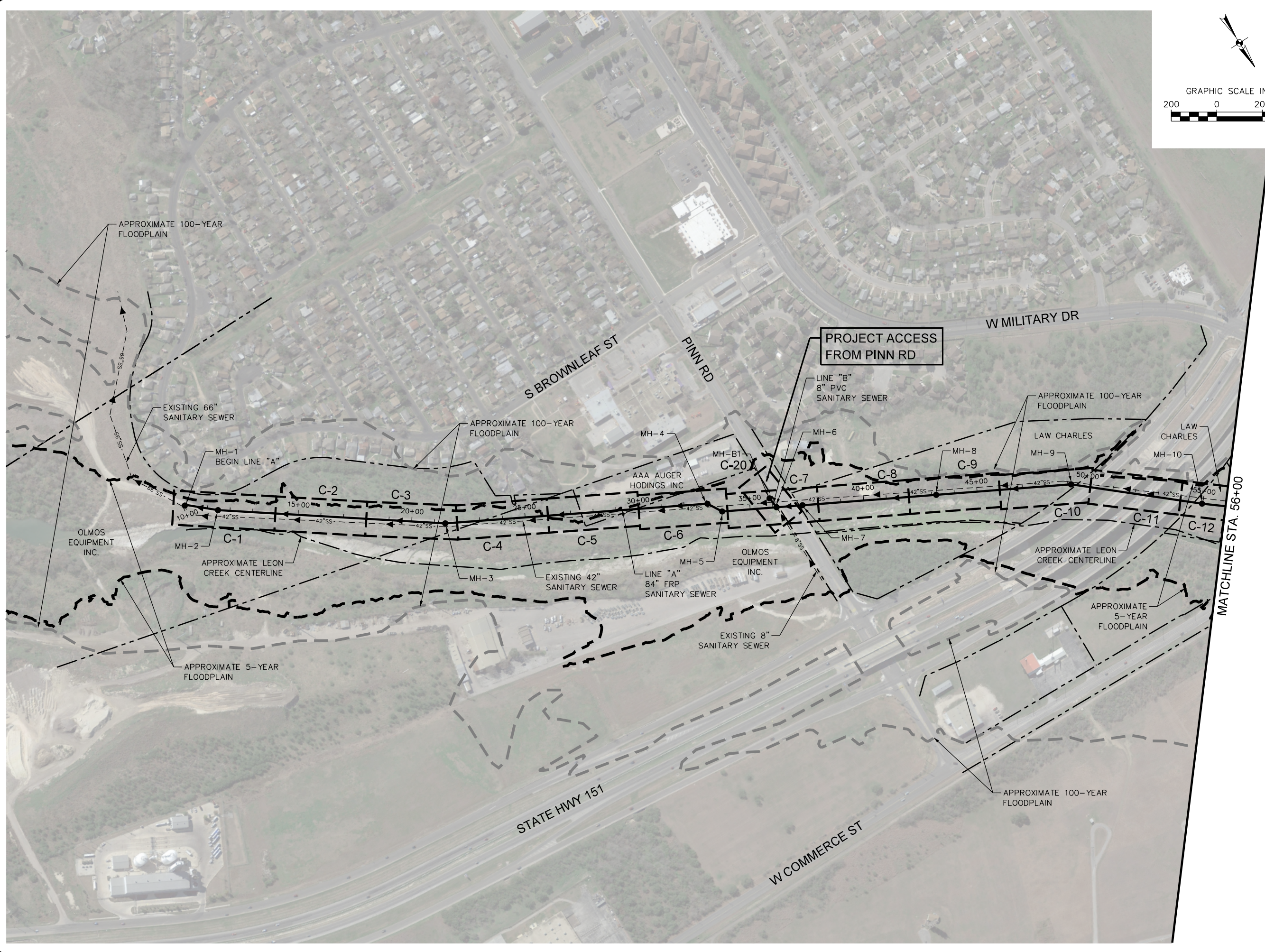
PAPE-DAWSON ENGINEERS logo and contact information: SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS | 2000 HWY LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.8000 | TEXAS ENGINEERING REGISTRATION #1008860

SAN ANTONIO WATER SYSTEM logo

SAWS JOB NO. 19-4528
W-1 LEON CREEK: HWY 151 TO HWY 90
UPPER SEGMENT
GENERAL NOTES

PLOTTED ON: 8/17/2020

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| APP. | PAPE-DAWSON |
| Job No. | 8918-00 |
| REVISIONS | <i>Jason T. Diamond</i> 8-17-20 |
| NO. | DATE |
| DESIGNED BY: | MP |
| DRAWN BY: | BS |
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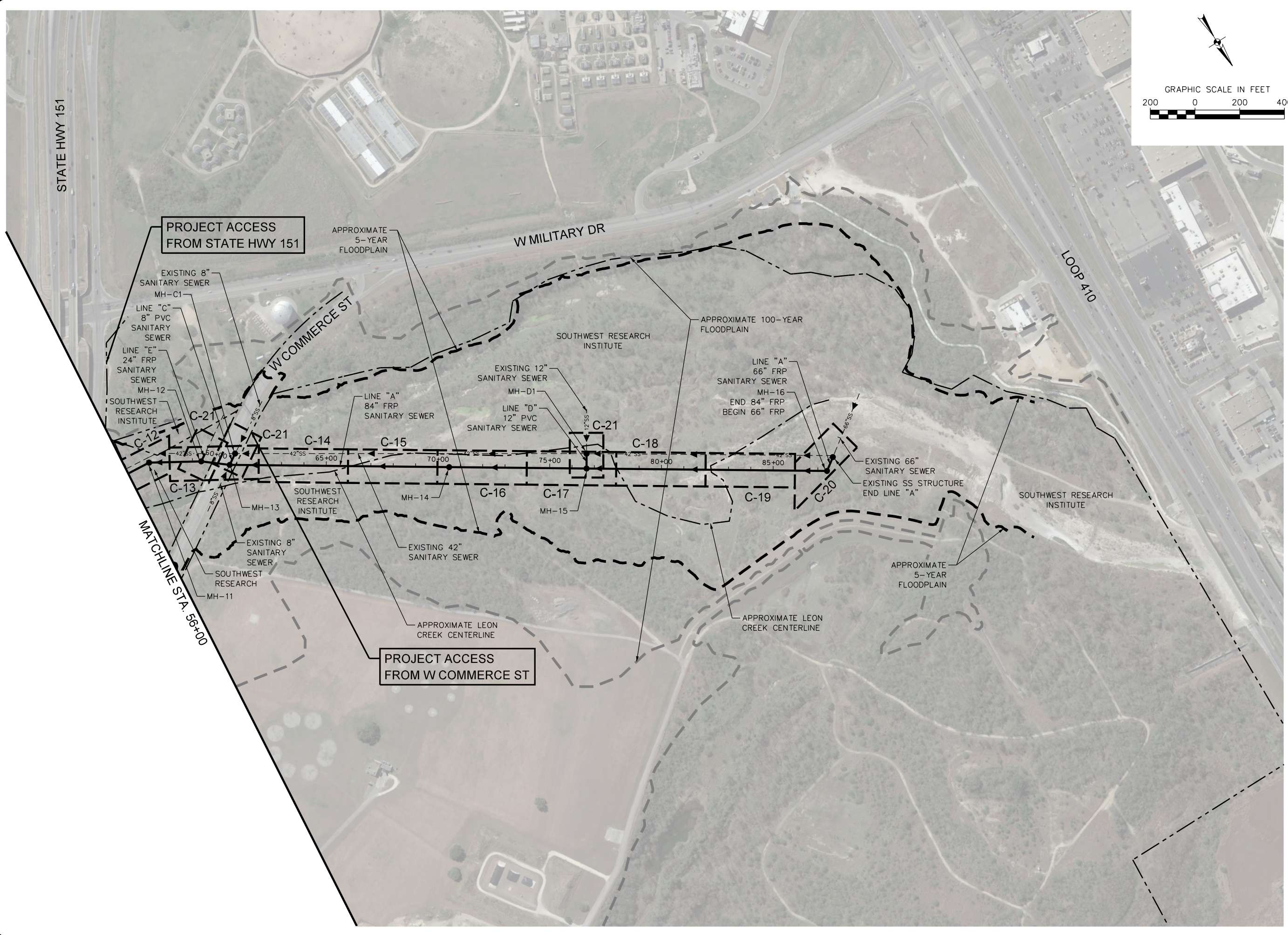
PAPE-DAWSON ENGINEERS
 SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
 2000 HW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
 TYPE FIRM REGISTRATION #470 | TYPE FIRM REGISTRATION #008886

SAN ANTONIO WATER SYSTEM

SAWS JOB NO. 19-4528
 W-1 LEON CREEK: HWY 151 TO HWY 90
 UPPER SEGMENT
 OVERALL KEYMAP AND CONTRACTOR ACCESS

PLOTTED ON: 8/17/2020

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| Job No. | 8918-00 |
| REVISIONS | <i>Jason T. Diamond</i> 8-17-20 |
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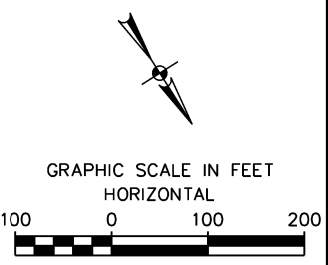
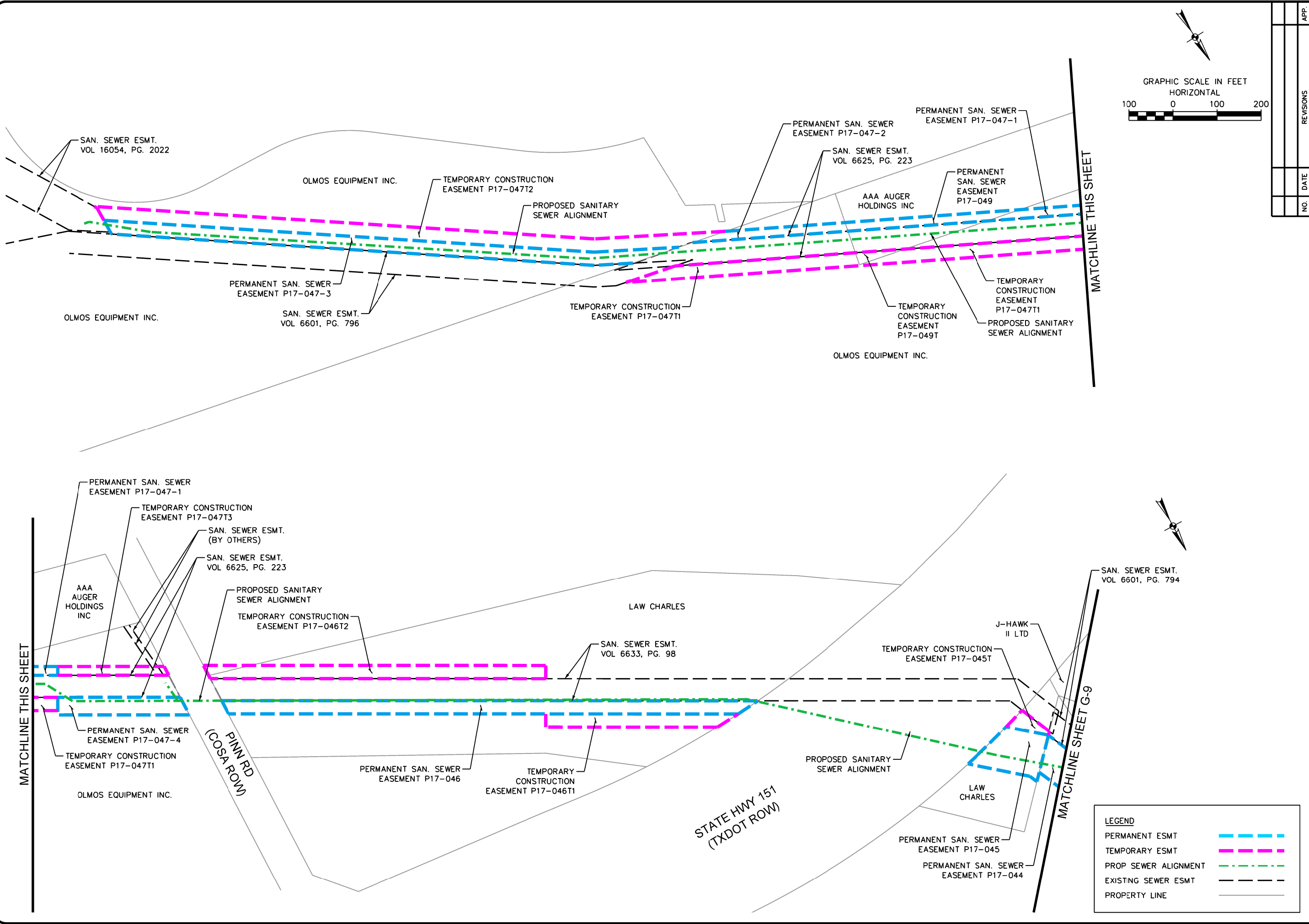
PAPE-DAWSON ENGINEERS
 SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
 2000 HWY LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
 TYPE FIRM REGISTRATION #470 | TYPE FIRM REGISTRATION #1003880

SAN ANTONIO WATER SYSTEM

SAWS JOB NO. 19-4528
 W-1 LEON CREEK: HWY 151 TO HWY 90
 UPPER SEGMENT
 OVERALL KEYMAP AND CONTRACTOR ACCESS

PLOTTED ON: 8/17/2020

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| APP. | PAPE-DAWSON |
| Job No. | 8918-00 |
| REVISIONS | <i>Jason T. Diamond</i> 8-17-20 |
| NO. | DATE |
| DESIGNED BY: MP | DATE: AUG 2020 |
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 SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
 2000 HWY LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
 TYPE FIRM REGISTRATION #070 | TYPE FIRM REGISTRATION #008860

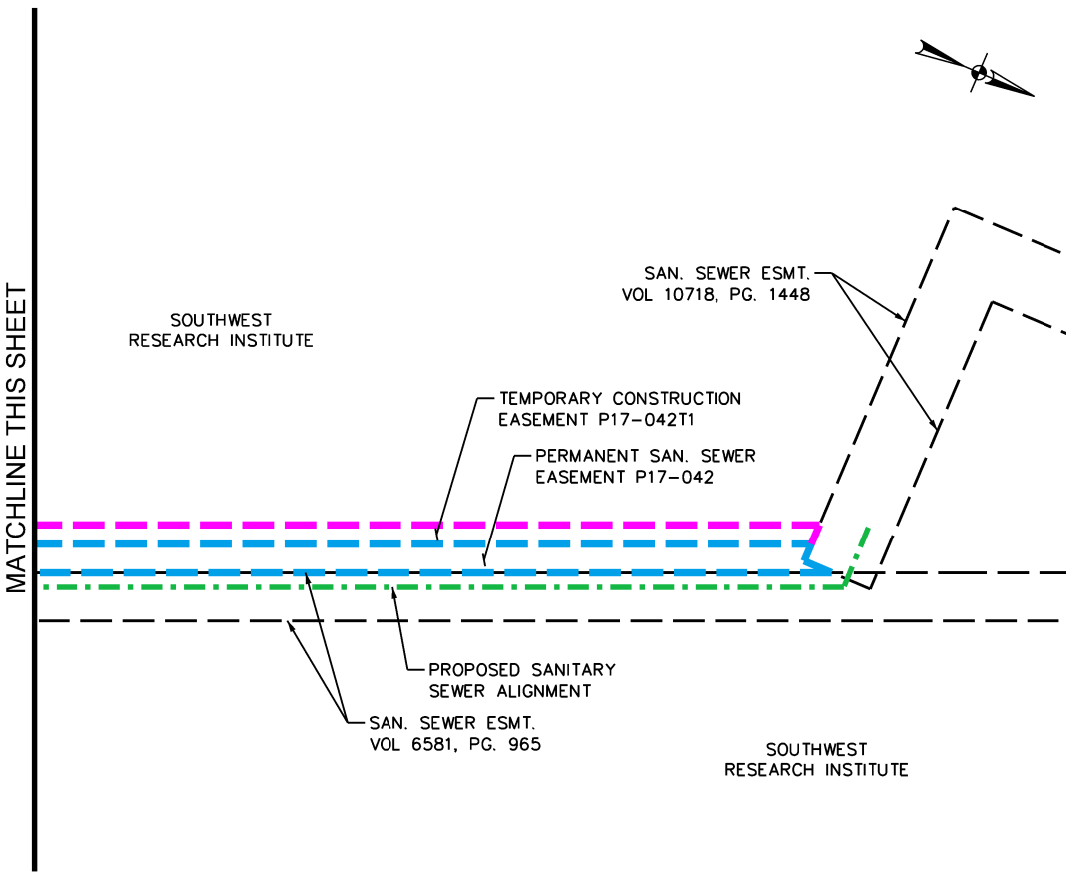
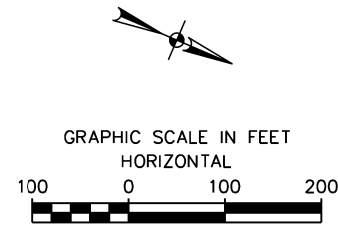
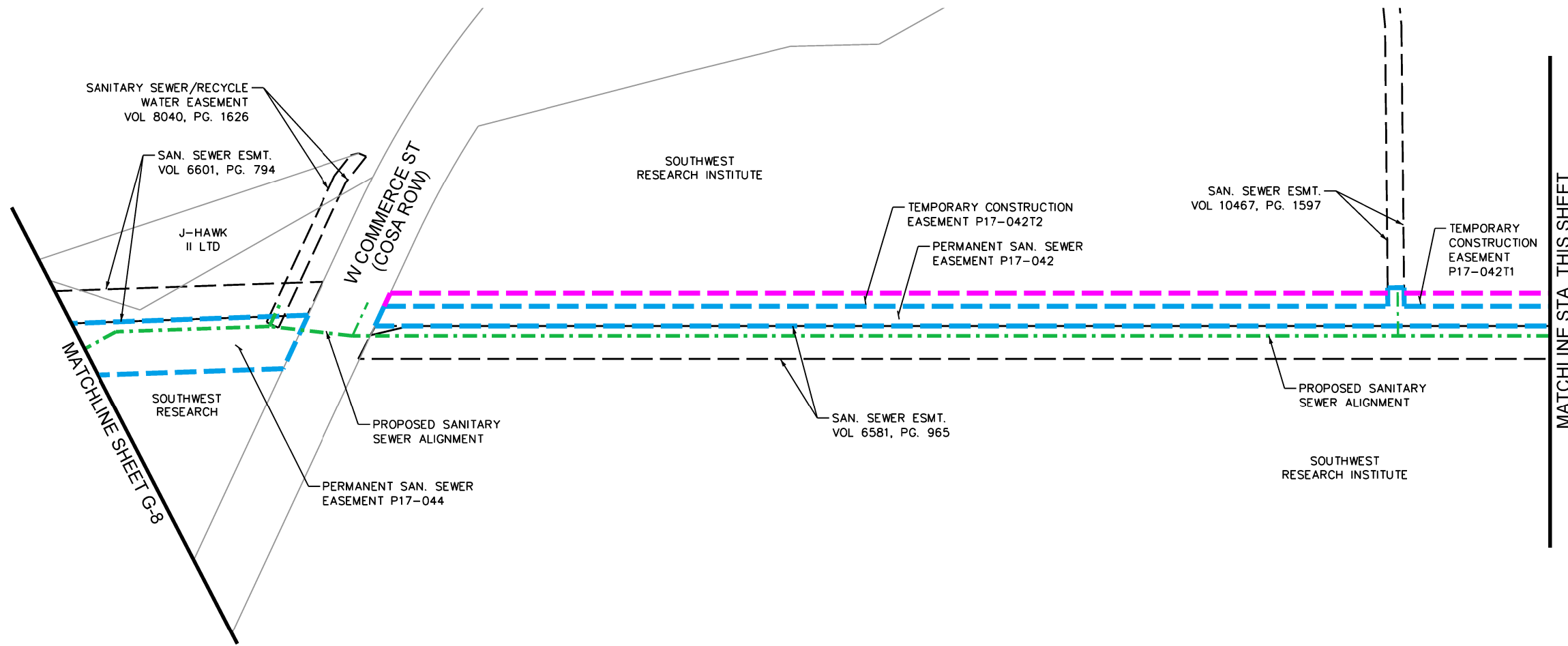
SAN ANTONIO WATER SYSTEM

SAWS JOB NO. 19-4528
 W-1 LEON CREEK: HWY 151 TO HWY 90
 UPPER SEGMENT
 CONSTRUCTION EASEMENTS

| LEGEND | |
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| PROPERTY LINE | |

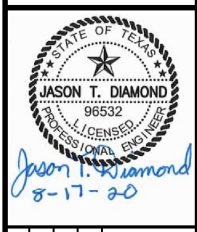
PLOTTED ON: 8/17/2020

DESIGN FILENAME: P:\89\18\00\Design\Civil\Sewer\Phase 1\SS891800-01-C09.dgn



| LEGEND | |
|----------------------|-----------|
| PERMANENT ESMT | — — — — — |
| TEMPORARY ESMT | — — — — — |
| PROP SEWER ALIGNMENT | — — — — — |
| EXISTING SEWER ESMT | — — — — — |
| PROPERTY LINE | — — — — — |

PAPE-DAWSON
Job No.
8918-00



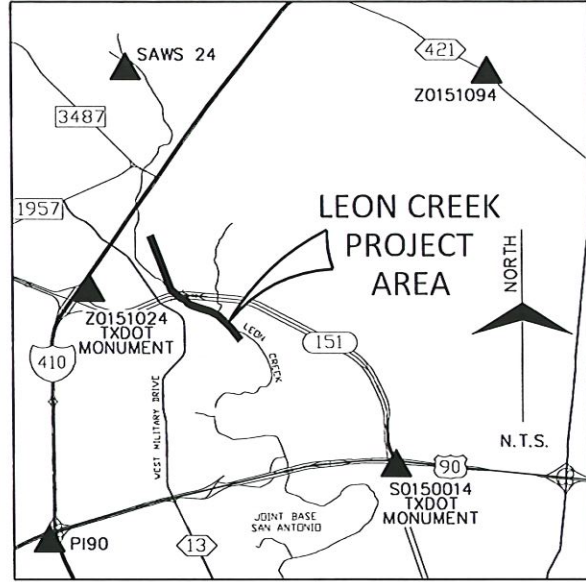
| NO. | DATE | REVISIONS |
|-----|------|-----------|
| | | |
| | | |

DATE: AUG 2020
DESIGNED BY: MP
DRAWN BY: BS
CHECKED BY: JO
SCALE: 1" = 100' HORZ

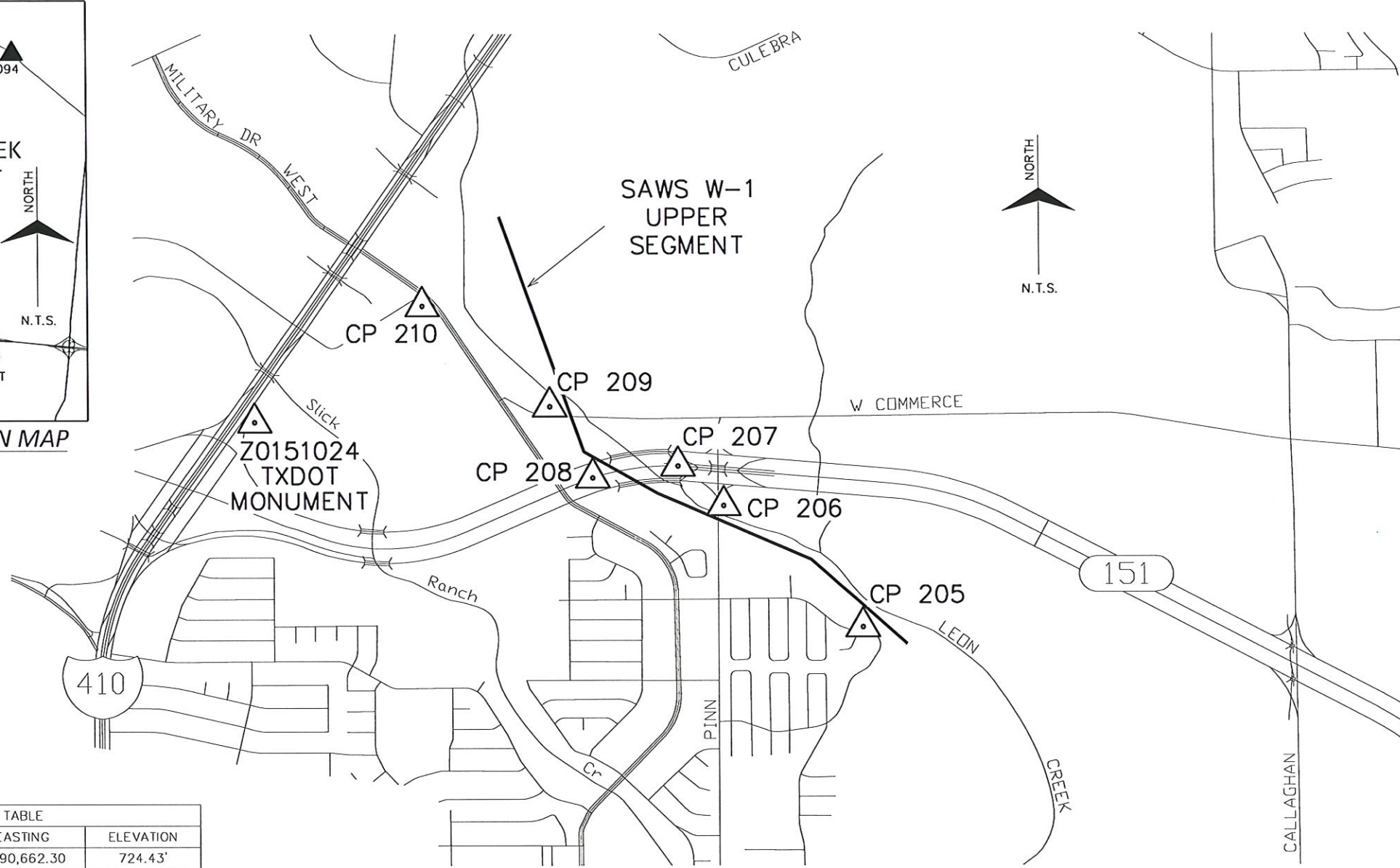
PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 HWY LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TYPE FIRM REGISTRATION #079 | TYPE FIRM REGISTRATION #008860

SAN ANTONIO WATER SYSTEM

SAWS JOB NO. 19-4528
W-1 LEON CREEK: HWY 151 TO HWY 90
UPPER SEGMENT
CONSTRUCTION EASEMENTS



PRIMARY CONTROL LOCATION MAP
N.T.S.



| CONTROL POINT TABLE | | | |
|---------------------|---------------|--------------|-----------|
| POINT NO. | NORTHING | EASTING | ELEVATION |
| CP 205 | 13,705,795.81 | 2,090,662.30 | 724.43' |
| CP 206 | 13,707,498.48 | 2,088,659.68 | 711.33' |
| CP 207 | 13,708,084.21 | 2,088,045.29 | 750.01' |
| CP 208 | 13,707,995.66 | 2,087,057.66 | 757.73' |
| CP 209 | 13,708,736.81 | 2,086,414.50 | 723.95' |
| CP 210 | 13,709,867.12 | 2,085,076.64 | 747.46' |

NOTES:

- HORIZONTAL AND VERTICAL CONTROL WAS ESTABLISHED AND VERIFIED USING REAL TIME KINEMATIC VRS NETWORK.
- ALL HORIZONTAL COORDINATES ARE REFERENCED TO THE TEXAS COORDINATE SYSTEM, NORTH AMERICAN DATUM OF 1983 (2011 ADJUSTMENT, WESTERN DATA SYSTEMS), SOUTH CENTRAL ZONE. ALL SURFACE VALUES SHOWN MAY BE CONVERTED TO GRID BY DIVIDING BY A COMBINED ADJUSTMENT FACTOR OF 1.00017.
- ELEVATIONS ARE REFERENCED TO NORTH AMERICAN VERTICAL DATUM OF 1988(NAVD88) GEOID 12A.
- CONTROL POINTS USED:
Z0151094, SAWS 24, Z0151024, PI90 AND S0150014.

| DELINATE ALIGNMENT | | REVISIONS | | APP. |
|--------------------|---------|---|-----------------|-------------|
| 1 | 7/25/18 | AS PER REMARKS BY PAPE-DAWSON | DATE: 6/1/2016 | PAPE-DAWSON |
| 2 | 2/25/19 | AS PER REMARKS BY PAPE-DAWSON | DESIGNED BY: PM | Job No. |
| 3 | 5/02/19 | AS PER REMARKS BY PAPE-DAWSON | DRAWN BY: PM | 8918-00 |
| 4 | 8/05/19 | AS PER REMARKS BY PAPE-DAWSON | CHECKED BY: RW | |
| 5 | 7/02/20 | REVISED SAWS JOB NUMBER AS PER SAWS DIRECTION | SCALE: | |
| | | | NOT TO SCALE | |



7/2/2020

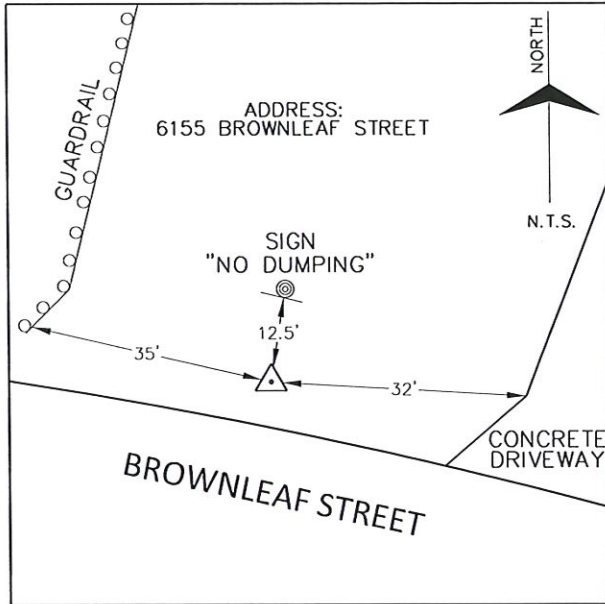
PAPE-DAWSON ENGINEERS
 935 EAST RIVER | SAN ANTONIO, TEXAS 78214 | PHONE: 210.212.2000
 FAX: 210.212.2001
 EMAIL: SALES@PAPE-DAWSON.COM | WWW.PAPE-DAWSON.COM

ROZNECKI CAMARILLO
 935 EAST RIVER | SAN ANTONIO, TEXAS 78214 | PHONE: 210.212.2000
 FAX: 210.212.2001
 EMAIL: SALES@ROZNECKI-CAMARILLO.COM | WWW.ROZNECKI-CAMARILLO.COM

SAN ANTONIO WATER SYSTEM

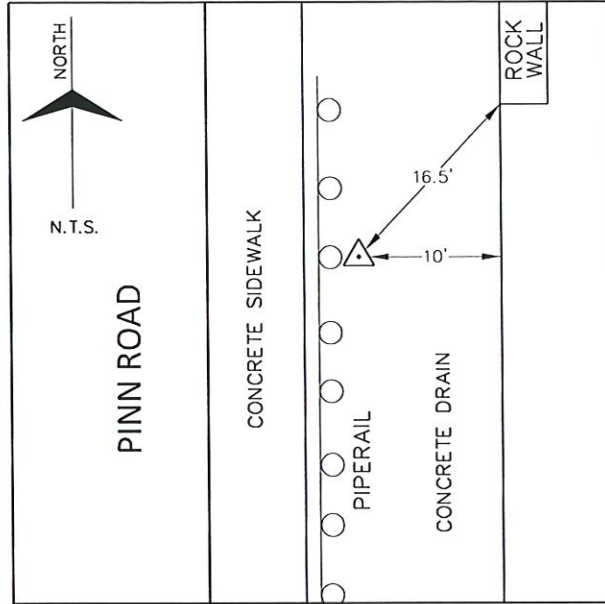
SAWS JOB NO. 19-4528
 W-1 LEON CREEK: HWY 151 TO HWY 90
 UPPER SEGMENT
 PROJECT HORIZONTAL AND VERTICAL CONTROL

CP 205



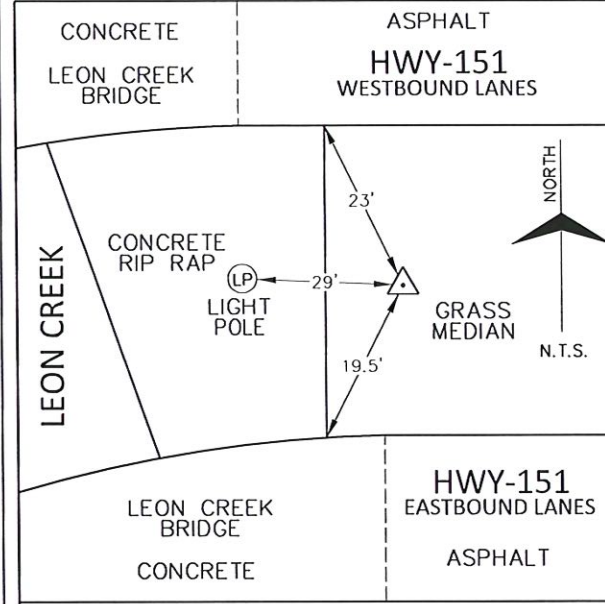
NORTHING - 13,705,795.81
 EASTING - 2,090,662.30
 ELEVATION - 724.43
 DESCRIPTION - 1/2" IRON ROD WITH ALUMINUM CAP SET. 6155 BROWNLEAF STREET.

CP 206



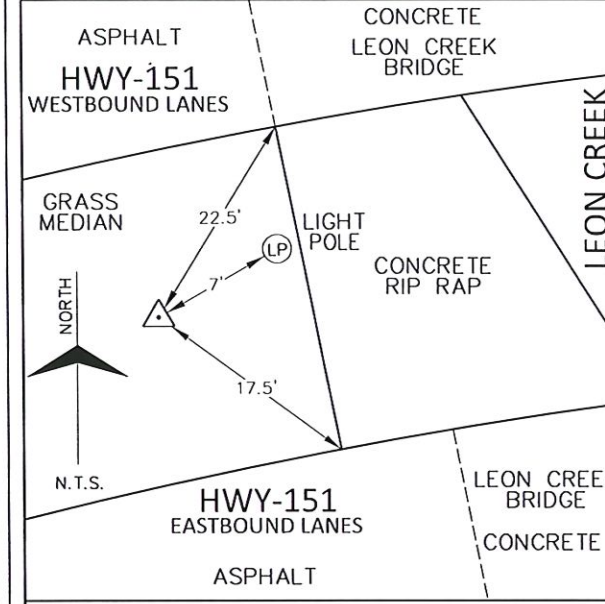
NORTHING - 13,707,498.48
 EASTING - 2,088,659.68
 ELEVATION - 711.33
 DESCRIPTION - 1/2" IRON ROD WITH ALUMINUM CAP SET. AT BASE OF THIRD PIPERAIL BASE FROM NORTH.

CP 207



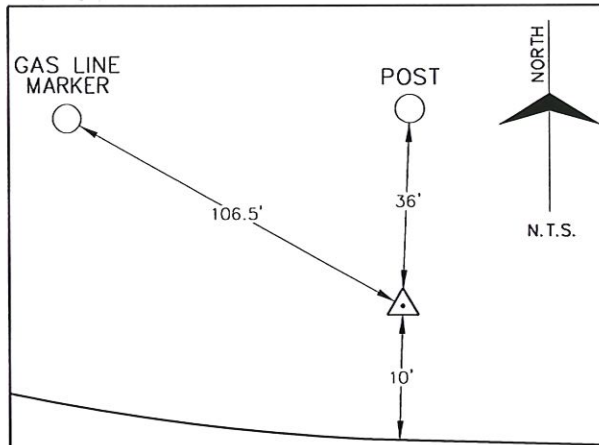
NORTHING - 13,708,084.21
 EASTING - 2,088,045.29
 ELEVATION - 750.01
 DESCRIPTION - 1/2" IRON ROD WITH ALUMINUM CAP SET. IN MEDIAN OF HWY 151, EAST OF LEON CREEK BRIDGE.

CP 208



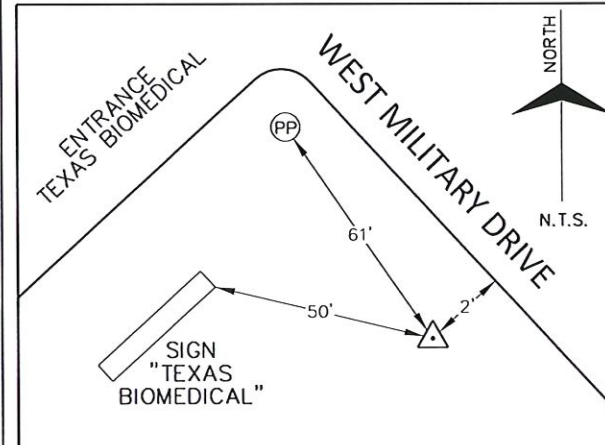
NORTHING - 13,707,995.66
 EASTING - 2,087,057.66
 ELEVATION - 757.73
 DESCRIPTION - 1/2" IRON ROD WITH ALUMINUM CAP SET. IN MEDIAN OF HWY 151, WEST OF LEON CREEK BRIDGE.

CP 209



NORTHING - 13,708,736.81
 EASTING - 2,086,414.50
 ELEVATION - 723.95
 DESCRIPTION - 1/2" IRON ROD WITH ALUMINUM CAP SET. 900'± SOUTHEAST OF INTERSECTION WITH WEST MILITARY DRIVE.

CP 210



NORTHING - 13,709,867.12
 EASTING - 2,085,076.64
 ELEVATION - 747.46
 DESCRIPTION - 1/2" IRON ROD WITH ALUMINUM CAP SET. 920'± NORTHWEST OF INTERSECTION WITH WEST COMMERCE STREET, AT ENTRANCE TO TEXAS BIOMEDICAL.

NOTES:

- HORIZONTAL AND VERTICAL CONTROL WAS ESTABLISHED AND VERIFIED USING REAL TIME KINEMATIC VRS NETWORK.
- ALL HORIZONTAL COORDINATES ARE REFERENCED TO THE TEXAS COORDINATE SYSTEM, NORTH AMERICAN DATUM OF 1983 (2011 ADJUSTMENT, WESTERN DATA SYSTEMS), SOUTH CENTRAL ZONE. ALL SURFACE VALUES SHOWN MAY BE CONVERTED TO GRID BY DIVIDING BY A COMBINED ADJUSTMENT FACTOR OF 1.00017.
- ELEVATIONS ARE REFERENCED TO NORTH AMERICAN VERTICAL DATUM OF 1988(NAVD88) GEOID 12A.
- CONTROL POINTS USED: Z0151094, SAWS 24, Z0151024, P190 AND S0150014.

| | | | |
|----------|---------|---|-----------|
| 1 | 7/25/18 | DELINEATE ALIGNMENT | APP. |
| 2 | 2/25/19 | AS PER REMARKS BY PAPE-DAWSON | |
| 3 | 8/05/19 | AS PER REMARKS BY PAPE-DAWSON | |
| 4 | 7/02/20 | REVISED SAWS JOB NUMBER AS PER SAWS DIRECTION | |
| NO. DATE | | | REVISIONS |

PAPE-DAWSON
 Job No.
 8918-00

DATE: 6/1/2016
 DESIGNED BY: PM
 DRAWN BY: PM
 CHECKED BY: RW
 SCALE: NOT TO SCALE



PAPE-DAWSON ENGINEERS
 155 EAST MAULEY | SAN ANTONIO, TEXAS 78214 | PHONE: 210.225.0000
 FAX: 210.225.0001 | WWW.PAPE-DAWSON.COM
 ADALBERTO CAMARILLO
 PROFESSIONAL ENGINEER
 LICENSE NO. 3929
 STATE OF TEXAS
 REGISTERED LAND SURVEYOR

SAN ANTONIO WATER SYSTEM

SAWS JOB NO. 19-4528
 W-1 LEON CREEK: HWY 151 TO HWY 90
 UPPER SEGMENT
 PROJECT HORIZONTAL AND VERTICAL CONTROL

Plotted on: \$DATES

Design Filename: \$FILES

SHEET NOTES:

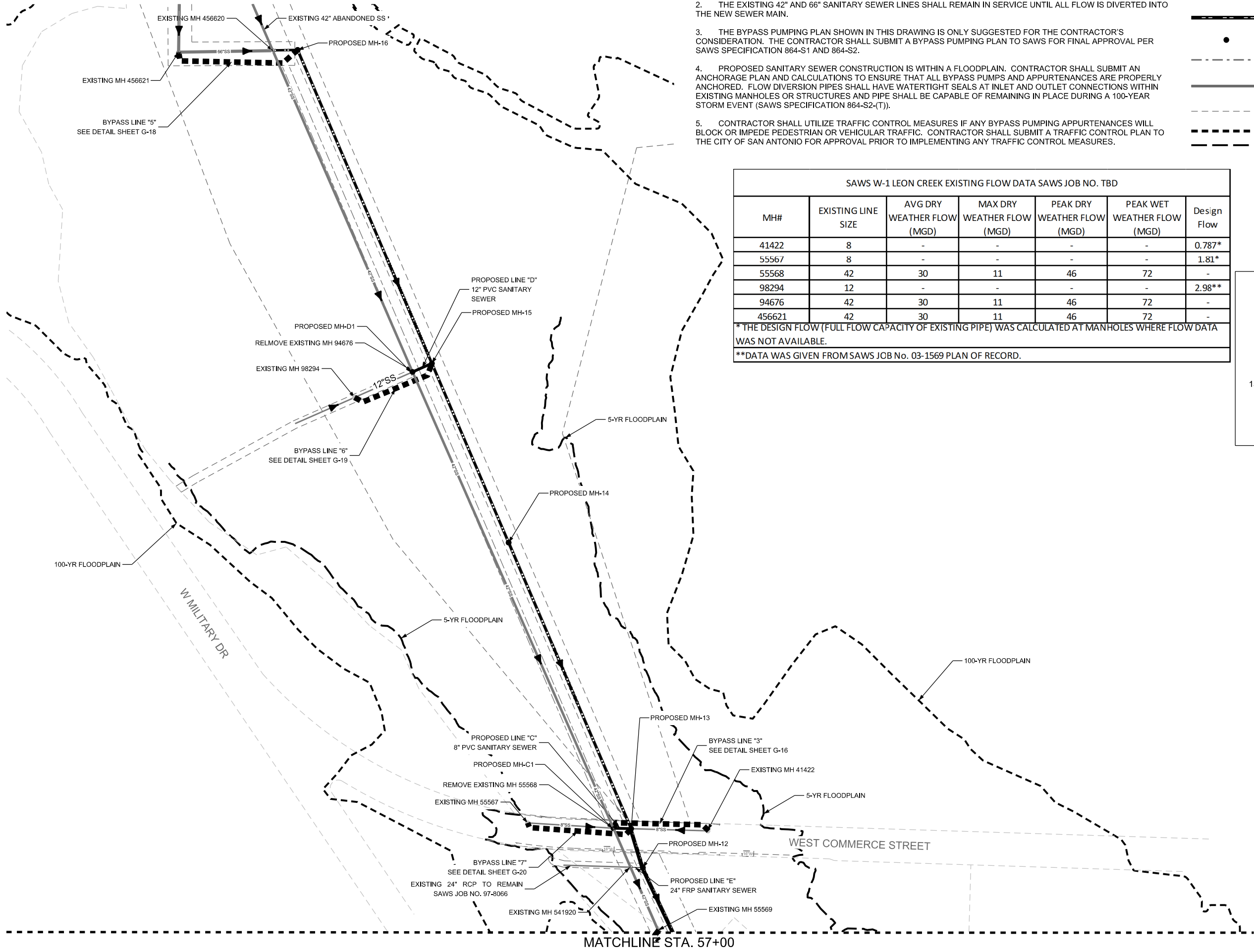
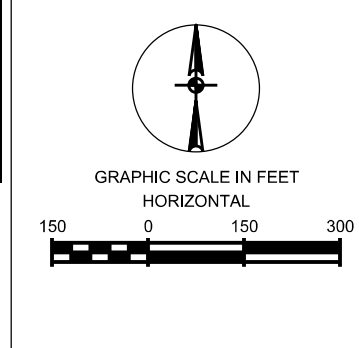
- REFER TO SHEETS G-14 TO G-20A FOR DETAILS OF EACH BYPASS AREA.
- THE EXISTING 42" AND 66" SANITARY SEWER LINES SHALL REMAIN IN SERVICE UNTIL ALL FLOW IS DIVERTED INTO THE NEW SEWER MAIN.
- THE BYPASS PUMPING PLAN SHOWN IN THIS DRAWING IS ONLY SUGGESTED FOR THE CONTRACTOR'S CONSIDERATION. THE CONTRACTOR SHALL SUBMIT A BYPASS PUMPING PLAN TO SAWS FOR FINAL APPROVAL PER SAWS SPECIFICATION 864-S1 AND 864-S2.
- PROPOSED SANITARY SEWER CONSTRUCTION IS WITHIN A FLOODPLAIN. CONTRACTOR SHALL SUBMIT AN ANCHORAGE PLAN AND CALCULATIONS TO ENSURE THAT ALL BYPASS PUMPS AND APPURTENANCES ARE PROPERLY ANCHORED. FLOW DIVERSION PIPES SHALL HAVE WATERTIGHT SEALS AT INLET AND OUTLET CONNECTIONS WITHIN EXISTING MANHOLES OR STRUCTURES AND PIPE SHALL BE CAPABLE OF REMAINING IN PLACE DURING A 100-YEAR STORM EVENT (SAWS SPECIFICATION 864-S2-(T)).
- CONTRACTOR SHALL UTILIZE TRAFFIC CONTROL MEASURES IF ANY BYPASS PUMPING APPURTENANCES WILL BLOCK OR IMPEDE PEDESTRIAN OR VEHICULAR TRAFFIC. CONTRACTOR SHALL SUBMIT A TRAFFIC CONTROL PLAN TO THE CITY OF SAN ANTONIO FOR APPROVAL PRIOR TO IMPLEMENTING ANY TRAFFIC CONTROL MEASURES.

LEGEND

- BYPASS LINE
- PROPOSED 84" RFP SANITARY SEWER LINE
- PROPOSED MANHOLE
- PROPERTY BOUNDARY
- EXISTING SANITARY SEWER LINE
- EASEMENT
- 100-YR FLOODPLAIN
- 5-YR FLOODPLAIN

| SAWS W-1 LEON CREEK EXISTING FLOW DATA SAWS JOB NO. TBD | | | | | | |
|---|--------------------|----------------------------|----------------------------|-----------------------------|-----------------------------|-------------|
| MH# | EXISTING LINE SIZE | AVG DRY WEATHER FLOW (MGD) | MAX DRY WEATHER FLOW (MGD) | PEAK DRY WEATHER FLOW (MGD) | PEAK WET WEATHER FLOW (MGD) | Design Flow |
| 41422 | 8 | - | - | - | - | 0.787* |
| 55567 | 8 | - | - | - | - | 1.81* |
| 55568 | 42 | 30 | 11 | 46 | 72 | - |
| 98294 | 12 | - | - | - | - | 2.98** |
| 94676 | 42 | 30 | 11 | 46 | 72 | - |
| 456621 | 42 | 30 | 11 | 46 | 72 | - |

* THE DESIGN FLOW (FULL FLOW CAPACITY OF EXISTING PIPE) WAS CALCULATED AT MANHOLES WHERE FLOW DATA WAS NOT AVAILABLE.
 **DATA WAS GIVEN FROM SAWS JOB No. 03-1569 PLAN OF RECORD.



App. PAPE-DAWSON Job No. 8918-00

Revisions

Date: MAY 2018

Designed by: TBL

Drawn by: M/G

Checked by: NC

Scale:

08/14/2020

PAPE-DAWSON ENGINEERS

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 W. LOOP 410 | SAN ANTONIO, TX 78213 | 214.375.8000
WWW.PAPE-DAWSON.COM | LICENSE # 00000000000000000000000000000000

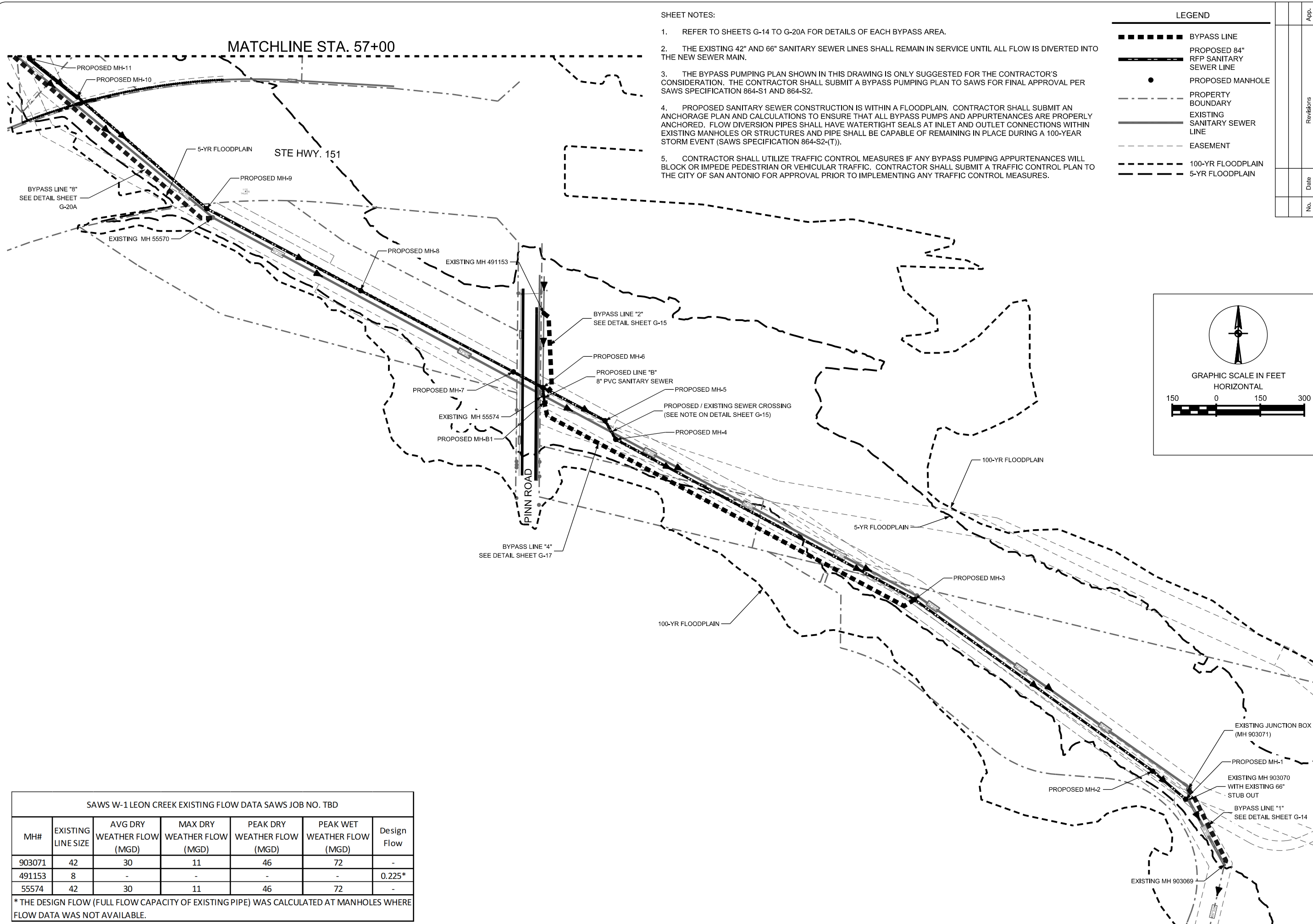
AECOM

SAN ANTONIO WATER SYSTEM

SAWS JOB NO. 19-4528
 W-1 LEON CREEK: HWY 151 TO HWY 90
 UPPER SEGMENT
 SUGGESTED BYPASS PUMPING LAYOUT

Plotted on: \$DATES

Design Filename: \$FILE\$



SHEET NOTES:

- REFER TO SHEETS G-14 TO G-20A FOR DETAILS OF EACH BYPASS AREA.
- THE EXISTING 42" AND 66" SANITARY SEWER LINES SHALL REMAIN IN SERVICE UNTIL ALL FLOW IS DIVERTED INTO THE NEW SEWER MAIN.
- THE BYPASS PUMPING PLAN SHOWN IN THIS DRAWING IS ONLY SUGGESTED FOR THE CONTRACTOR'S CONSIDERATION. THE CONTRACTOR SHALL SUBMIT A BYPASS PUMPING PLAN TO SAWS FOR FINAL APPROVAL PER SAWS SPECIFICATION 864-S1 AND 864-S2.
- PROPOSED SANITARY SEWER CONSTRUCTION IS WITHIN A FLOODPLAIN. CONTRACTOR SHALL SUBMIT AN ANCHORAGE PLAN AND CALCULATIONS TO ENSURE THAT ALL BYPASS PUMPS AND APPURTENANCES ARE PROPERLY ANCHORED. FLOW DIVERSION PIPES SHALL HAVE WATERTIGHT SEALS AT INLET AND OUTLET CONNECTIONS WITHIN EXISTING MANHOLES OR STRUCTURES AND PIPE SHALL BE CAPABLE OF REMAINING IN PLACE DURING A 100-YEAR STORM EVENT (SAWS SPECIFICATION 864-S2-(T)).
- CONTRACTOR SHALL UTILIZE TRAFFIC CONTROL MEASURES IF ANY BYPASS PUMPING APPURTENANCES WILL BLOCK OR IMPEDE PEDESTRIAN OR VEHICULAR TRAFFIC. CONTRACTOR SHALL SUBMIT A TRAFFIC CONTROL PLAN TO THE CITY OF SAN ANTONIO FOR APPROVAL PRIOR TO IMPLEMENTING ANY TRAFFIC CONTROL MEASURES.

LEGEND

- BYPASS LINE
- PROPOSED 84" RFP SANITARY SEWER LINE
- PROPOSED MANHOLE
- - - PROPERTY BOUNDARY
- EXISTING SANITARY SEWER LINE
- - - EASEMENT
- - - 100-YR FLOODPLAIN
- - - 5-YR FLOODPLAIN

App. PAPE-DAWSON
Job No. 8918-00

Revisions

| No. | Date | By | Checked by | Scale |
|-----|----------|-----|------------|-------|
| 1 | MAY 2018 | TBL | MG | NC |

Date: MAY 2018
Designed by: TBL
Drawn by: MG
Checked by: NC
Scale:

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 W. LOOP 410 | SAN ANTONIO, TX 78237 | 214.375.8000
TX REG. PROFESSIONAL ENGINEER LICENSE NO. 99338

SAN ANTONIO WATER SYSTEM

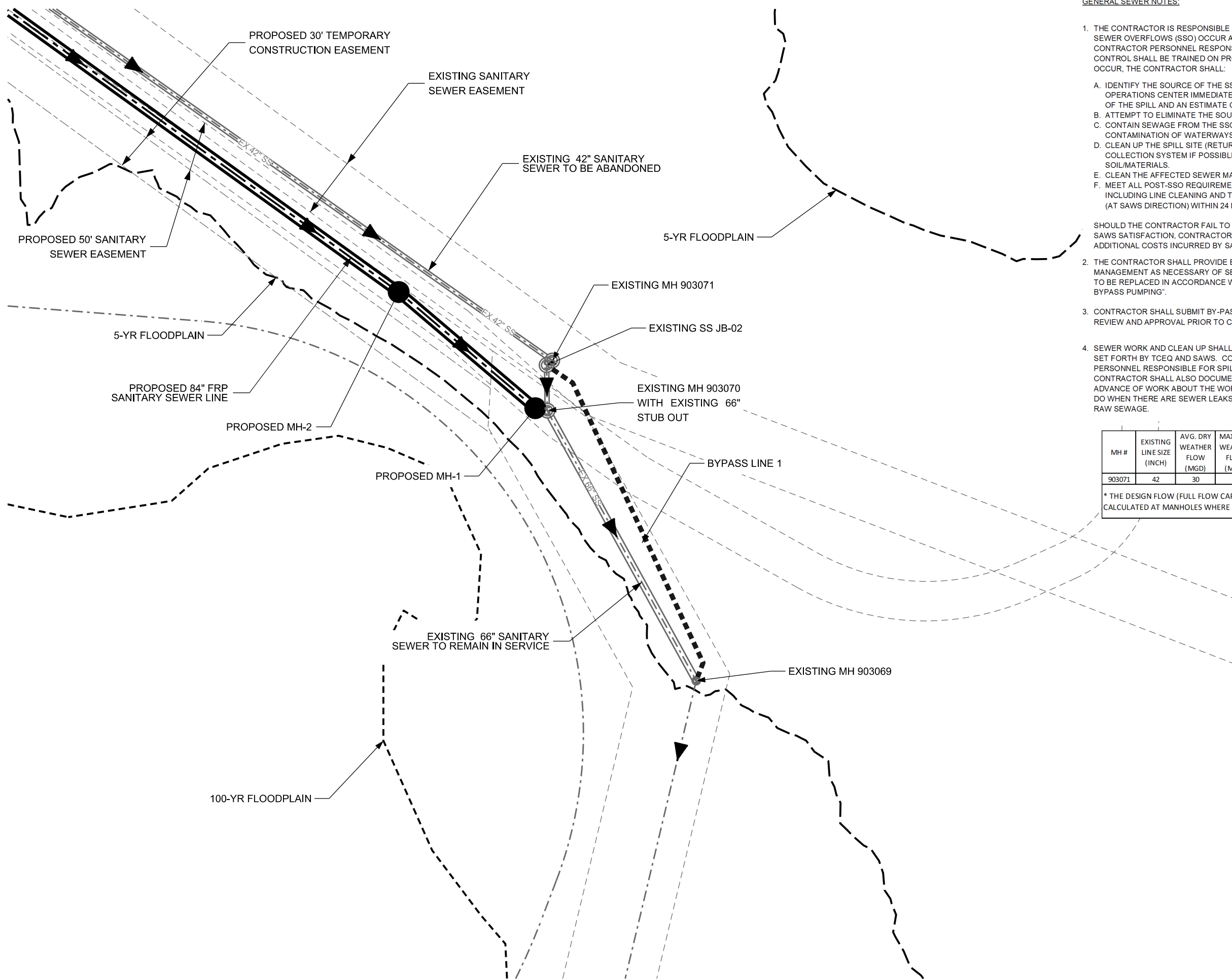
SAWS JOB NO. 19-4528
W-1 LEON CREEK: HWY 151 TO HWY 90
UPPER SEGMENT
SUGGESTED BYPASS PUMPING LAYOUT

| SAWS W-1 LEON CREEK EXISTING FLOW DATA SAWS JOB NO. TBD | | | | | | |
|---|--------------------|----------------------------|----------------------------|-----------------------------|-----------------------------|-------------|
| MH# | EXISTING LINE SIZE | AVG DRY WEATHER FLOW (MGD) | MAX DRY WEATHER FLOW (MGD) | PEAK DRY WEATHER FLOW (MGD) | PEAK WET WEATHER FLOW (MGD) | Design Flow |
| 903071 | 42 | 30 | 11 | 46 | 72 | - |
| 491153 | 8 | - | - | - | - | 0.225* |
| 55574 | 42 | 30 | 11 | 46 | 72 | - |

* THE DESIGN FLOW (FULL FLOW CAPACITY OF EXISTING PIPE) WAS CALCULATED AT MANHOLES WHERE FLOW DATA WAS NOT AVAILABLE.

Plotted on: \$DATES

Design Filename: \$FILES



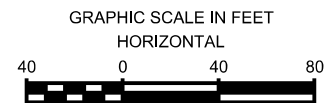
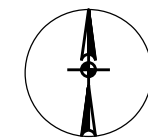
GENERAL SEWER NOTES:

1. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT NO SANITARY SEWER OVERFLOWS (SSO) OCCUR 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 SOURCE OF THE SSO AND NOTIFY SAWS EMERGENCY OPERATIONS CENTER IMMEDIATELY AT 210-2335. PROVIDE THE ADDRESS OF THE SPILL AND AN ESTIMATE OF VOLUME OF FLOW.
 - B. ATTEMPT TO ELIMINATE THE SOURCE OF THE SSO.
 - C. CONTAIN SEWAGE FROM THE SSO TO THE EXTENT POSSIBLE TO PREVENT CONTAMINATION OF WATERWAYS.
 - D. CLEAN UP THE SPILL SITE (RETURN CONTAINED SEWAGE TO THE COLLECTION SYSTEM IF POSSIBLE) AND DISPOSE OF CONTAMINATED SOIL/MATERIALS.
 - E. CLEAN THE AFFECTED SEWER MAINS AND REMOVE ANY DEBRIS.
 - F. MEET ALL POST-SSO REQUIREMENTS PER THE EPA CONSENT DECREE, INCLUDING LINE CLEANING AND TELEVISIONING THE AFFECTED SEWER MAINS (AT SAWS DIRECTION) WITHIN 24 HOURS.

SHOULD THE CONTRACTOR FAIL TO ADDRESS AN SSO IMMEDIATELY AND TO SAWS SATISFACTION, CONTRACTOR WILL BE RESPONSIBLE FOR ALL ADDITIONAL COSTS INCURRED BY SAWS, INCLUDING ANY FINES FROM EPA.
2. THE CONTRACTOR SHALL PROVIDE BY-PASS PUMPING AND FLOW MANAGEMENT AS NECESSARY OF SEWAGE AROUND EACH SEGMENT OF PIPE TO BE REPLACED IN ACCORDANCE WITH STANDARD SPECIFICATION "864 BYPASS PUMPING".
3. CONTRACTOR SHALL SUBMIT BY-PASS AND PHASING PLAN TO SAWS FOR REVIEW AND APPROVAL PRIOR TO COMMENCEMENT OF THE CONSTRUCTION.
4. SEWER WORK AND CLEAN UP SHALL BE IN ACCORDANCE WITH GUIDELINES SET FORTH BY TCEQ AND SAWS. CONTRACTOR SHALL IDENTIFY AND TRAIN PERSONNEL RESPONSIBLE FOR SPILLAGE PREVENTION AND CONTROL. CONTRACTOR SHALL ALSO DOCUMENT AND EDUCATE EMPLOYEES IN ADVANCE OF WORK ABOUT THE WORK ENVIRONMENT INCLUDING WHAT TO DO WHEN THERE ARE SEWER LEAKS AND HOW TO WORK SAFELY AROUND RAW SEWAGE.

| MH # | EXISTING LINE SIZE (INCH) | AVG. DRY WEATHER FLOW (MGD) | MAX. DRY WEATHER FLOW (MGD) | PEAK DRY WEATHER FLOW (MGD) | PEAK WET WEATHER FLOW (MGD) | *DESIGN FLOW (MGD) |
|--------|---------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|--------------------|
| 903071 | 42 | 30 | 11 | 46 | 72 | - |

* THE DESIGN FLOW (FULL FLOW CAPACITY OF EXISTING PIPE) WAS CALCULATED AT MANHOLES WHERE FLOW DATA WAS NOT AVAILABLE.



SUGGESTED BYPASS PUMPING LAYOUT DETAIL 1

| | |
|--------------|-----------------------------------|
| App. | PAPE-DAWSON Job No. 8918-00 |
| Revisions | |
| No. | Date |
| Designed by: | TBL |
| Drawn by: | MG |
| Checked by: | NC |
| Scale: | |

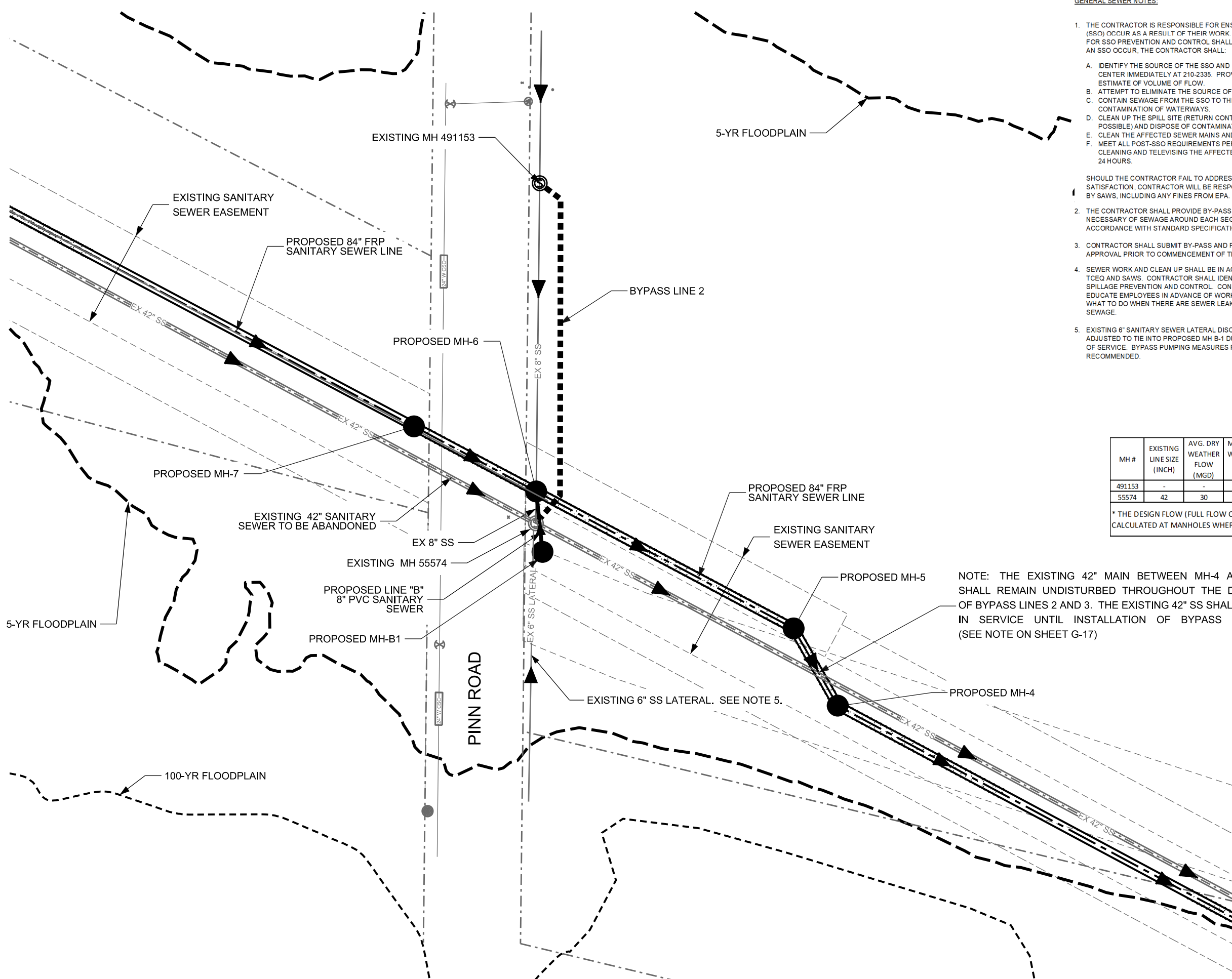
PAPE-DAWSON ENGINEERS
 SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
 2000 W. LOOP 410 | SAN ANTONIO, TX 78237 | 214.375.8000
 TCEQ REGISTRATION #00111111 | TSPS #0011111111111111

SAN ANTONIO WATER SYSTEM

SAWS JOB NO. 19-4528
 W-1 LEON CREEK: HWY 151 TO HWY 90
 UPPER SEGMENT
 SUGGESTED BYPASS PUMPING
 LAYOUT DETAIL 1

Plotted on: SDATE\$

Design Filename: SFILE\$



SUGGESTED BYPASS PUMPING LAYOUT DETAIL 2

GENERAL SEWER NOTES:

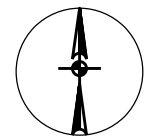
- THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT NO SANITARY SEWER OVERFLOWS (SSO) OCCUR AS A RESULT OF THEIR WORK. ALL CONTRACTOR PERSONNEL RESPONSIBLE FOR SSO PREVENTION AND CONTROL SHALL BE TRAINED ON PROPER RESPONSE. SHOULD AN SSO OCCUR, THE CONTRACTOR SHALL:
 - IDENTIFY THE SOURCE OF THE SSO AND NOTIFY SAWS EMERGENCY OPERATIONS CENTER IMMEDIATELY AT 210-2335. PROVIDE THE ADDRESS OF THE SPILL AND AN ESTIMATE OF VOLUME OF FLOW.
 - ATTEMPT TO ELIMINATE THE SOURCE OF THE SSO.
 - CONTAIN SEWAGE FROM THE SSO TO THE EXTENT POSSIBLE TO PREVENT CONTAMINATION OF WATERWAYS.
 - CLEAN UP THE SPILL SITE (RETURN CONTAINED SEWAGE TO THE COLLECTION SYSTEM IF POSSIBLE) AND DISPOSE OF CONTAMINATED SOIL/MATERIALS.
 - CLEAN THE AFFECTED SEWER MAINS AND REMOVE ANY DEBRIS.
 - MEET ALL POST-SSO REQUIREMENTS PER THE EPA CONSENT DECREE, INCLUDING LINE CLEANING AND TELEVISIONING THE AFFECTED SEWER MAINS (AT SAWS DIRECTION) WITHIN 24 HOURS.

SHOULD THE CONTRACTOR FAIL TO ADDRESS AN SSO IMMEDIATELY AND TO SAWS SATISFACTION, CONTRACTOR WILL BE RESPONSIBLE FOR ALL ADDITIONAL COSTS INCURRED BY SAWS, INCLUDING ANY FINES FROM EPA.
- THE CONTRACTOR SHALL PROVIDE BY-PASS PUMPING AND FLOW MANAGEMENT AS NECESSARY OF SEWAGE AROUND EACH SEGMENT OF PIPE TO BE REPLACED IN ACCORDANCE WITH STANDARD SPECIFICATION "864 BYPASS PUMPING".
- CONTRACTOR SHALL SUBMIT BY-PASS AND PHASING PLAN TO SAWS FOR REVIEW AND APPROVAL PRIOR TO COMMENCEMENT OF THE CONSTRUCTION.
- SEWER WORK AND CLEAN UP SHALL BE IN ACCORDANCE WITH GUIDELINES SET FORTH BY TCEQ AND SAWS. CONTRACTOR SHALL IDENTIFY AND TRAIN PERSONNEL RESPONSIBLE FOR SPILLAGE PREVENTION AND CONTROL. CONTRACTOR SHALL ALSO DOCUMENT AND EDUCATE EMPLOYEES IN ADVANCE OF WORK ABOUT THE WORK ENVIRONMENT INCLUDING WHAT TO DO WHEN THERE ARE SEWER LEAKS AND HOW TO WORK SAFELY AROUND RAW SEWAGE.
- EXISTING 6" SANITARY SEWER LATERAL DISCHARGES INTO EXISTING MH 55574 AND SHALL BE ADJUSTED TO TIE INTO PROPOSED MH B-1 DURING OFFPEAK HOURS TO AVOID DISRUPTION OF SERVICE. BYPASS PUMPING MEASURES FOR LATERAL ADJUSTMENT ARE NOT RECOMMENDED.

| MH # | EXISTING LINE SIZE (INCH) | AVG. DRY WEATHER FLOW (MGD) | MAX. DRY WEATHER FLOW (MGD) | PEAK DRY WEATHER FLOW (MGD) | PEAK WET WEATHER FLOW (MGD) | *DESIGN FLOW (MGD) |
|--------|---------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|--------------------|
| 491153 | - | - | - | - | - | 0.225* |
| 55574 | 42 | 30 | 11 | 46 | 72 | - |

* THE DESIGN FLOW (FULL FLOW CAPACITY OF EXISTING PIPE) WAS CALCULATED AT MANHOLES WHERE FLOW DATA WAS NOT AVAILABLE.

NOTE: THE EXISTING 42" MAIN BETWEEN MH-4 AND MH-5 SHALL REMAIN UNDISTURBED THROUGHOUT THE DURATION OF BYPASS LINES 2 AND 3. THE EXISTING 42" SS SHALL REMAIN IN SERVICE UNTIL INSTALLATION OF BYPASS LINE "4". (SEE NOTE ON SHEET G-17)



GRAPHIC SCALE IN FEET
HORIZONTAL



NOTE: ENTIRE SEGMENT ON THIS SHEET IS WITHIN THE 100 YEAR FLOOD PLAIN.

App: PAPE-DAWSON
Job No: 8918-00

Revisions:

| No. | Date | Appr. |
|-----|----------|-------|
| 1 | MAY 2018 | TBL |
| 2 | MG | NC |
| 3 | | NC |

Date: MAY 2018
Designed by: TBL
Drawn by: MG
Checked by: NC
Scale:

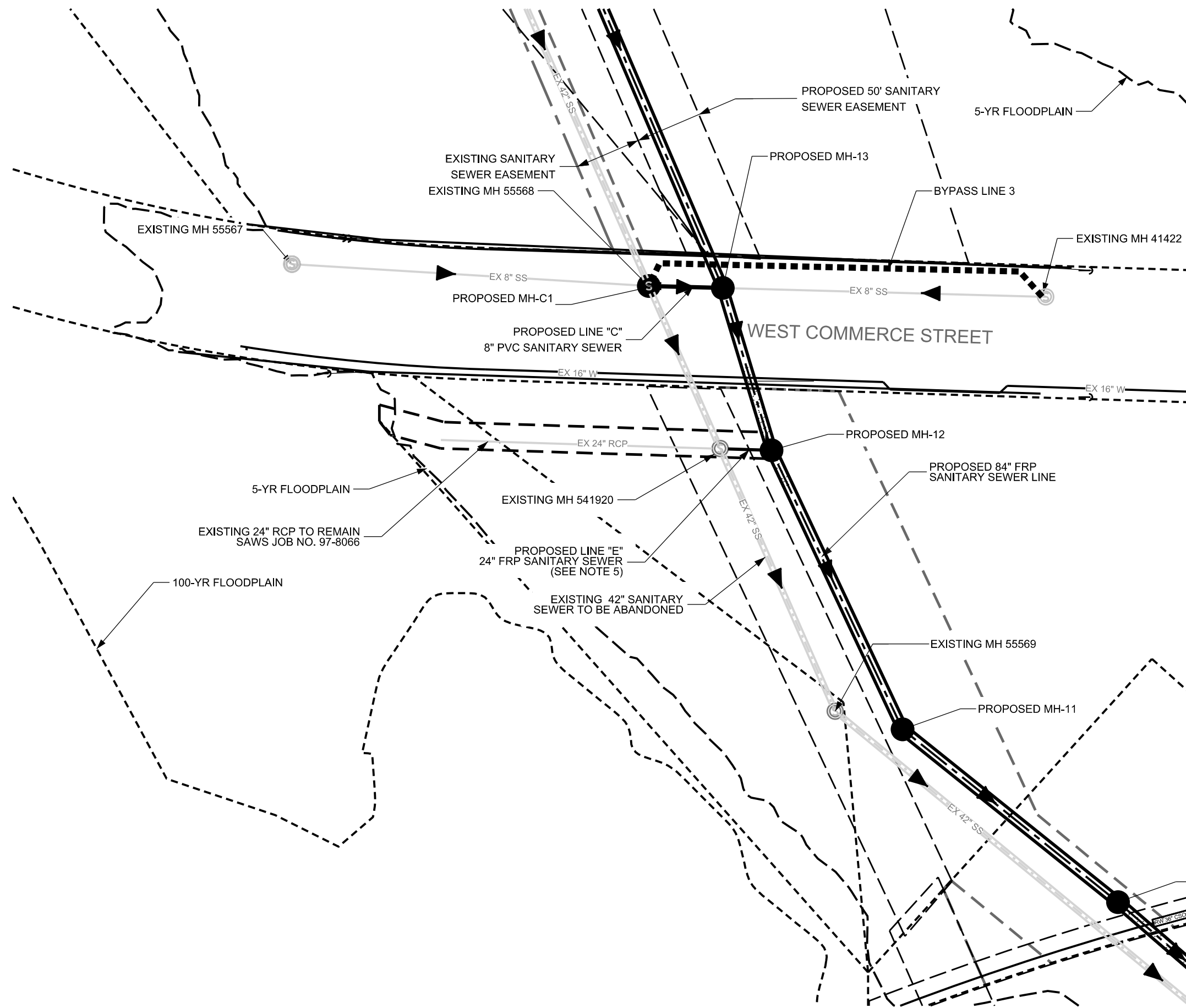
PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 W. LOOP 405 | SAN ANTONIO, TX 78237 | 214.375.9000
www.pape-dawson.com | Lic: 0034129000

SAN ANTONIO WATER SYSTEM

SAWS JOB NO. 19-4528
W-1 LEON CREEK: HWY 151 TO HWY 90
UPPER SEGMENT
SUGGESTED BYPASS PUMPING
LAYOUT DETAIL 2

Plotted on: SDATES

Design Filename: SFILES



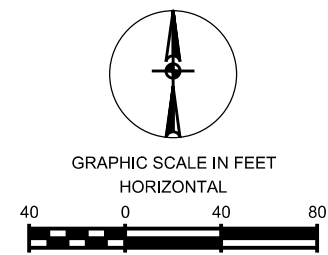
SUGGESTED BYPASS PUMPING LAYOUT DETAIL 3

GENERAL SEWER NOTES:

- THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT NO SANITARY SEWER OVERFLOWS (SSO) OCCUR 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:
 - IDENTIFY THE SOURCE OF THE SSO AND NOTIFY SAWS EMERGENCY OPERATIONS CENTER IMMEDIATELY AT 210-2335. PROVIDE THE ADDRESS OF THE SPILL AND AN ESTIMATE OF VOLUME OF FLOW.
 - ATTEMPT TO ELIMINATE THE SOURCE OF THE SSO.
 - CONTAIN SEWAGE FROM THE SSO TO THE EXTENT POSSIBLE TO PREVENT CONTAMINATION OF WATERWAYS.
 - CLEAN UP THE SPILL SITE (RETURN CONTAINED SEWAGE TO THE COLLECTION SYSTEM IF POSSIBLE) AND DISPOSE OF CONTAMINATED SOIL/MATERIALS.
 - CLEAN THE AFFECTED SEWER MAINS AND REMOVE ANY DEBRIS.
 - MEET ALL POST-SSO REQUIREMENTS PER THE EPA CONSENT DECREE, INCLUDING LINE CLEANING AND TELEVISIONING THE AFFECTED SEWER MAINS (AT SAWS DIRECTION) WITHIN 24 HOURS.
- SHOULD THE CONTRACTOR FAIL TO ADDRESS AN SSO IMMEDIATELY AND TO SAWS SATISFACTION, CONTRACTOR WILL BE RESPONSIBLE FOR ALL ADDITIONAL COSTS INCURRED BY SAWS, INCLUDING ANY FINES FROM EPA.
- THE CONTRACTOR SHALL PROVIDE BY-PASS PUMPING AND FLOW MANAGEMENT AS NECESSARY OF SEWAGE AROUND EACH SEGMENT OF PIPE TO BE REPLACED IN ACCORDANCE WITH STANDARD SPECIFICATION "884 BYPASS PUMPING".
- CONTRACTOR SHALL SUBMIT BY-PASS AND PHASING PLAN TO SAWS FOR REVIEW AND APPROVAL PRIOR TO COMMENCEMENT OF THE CONSTRUCTION.
- SEWER WORK AND CLEAN UP SHALL BE IN ACCORDANCE WITH GUIDELINES SET FORTH BY TCEQ AND SAWS. CONTRACTOR SHALL IDENTIFY AND TRAIN PERSONNEL RESPONSIBLE FOR SPILLAGE PREVENTION AND CONTROL. CONTRACTOR SHALL ALSO DOCUMENT AND EDUCATE EMPLOYEES IN ADVANCE OF WORK ABOUT THE WORK ENVIRONMENT INCLUDING WHAT TO DO WHEN THERE ARE SEWER LEAKS AND HOW TO WORK SAFELY AROUND RAW SEWAGE.
- CONTRACTOR TO COORDINATE WITH SAWS INSPECTOR PRIOR TO CONNECTION LINE 'E' TO MH-12 TO ENSURE THERE IS NO FLOW IN THE EXISTING 24" RCP OVERFLOW LINE. BYPASS PUMPING MEASURES DURING LINE 'E' CONNECTION ARE NOT RECOMMENDED.

| MH # | EXISTING LINE SIZE (INCH) | AVG. DRY WEATHER FLOW (MGD) | MAX. DRY WEATHER FLOW (MGD) | PEAK DRY WEATHER FLOW (MGD) | PEAK WET WEATHER FLOW (MGD) | *DESIGN FLOW (MGD) |
|-------|---------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|--------------------|
| 41422 | 8 | - | - | - | - | 0.787* |
| 55568 | 42 | 30 | 11 | 46 | 72 | - |

* THE DESIGN FLOW (FULL FLOW CAPACITY OF EXISTING PIPE) WAS CALCULATED AT MANHOLES WHERE FLOW DATA WAS NOT AVAILABLE.



NOTE:
ENTIRE SEGMENT ON THIS SHEET IS WITHIN THE 100 YEAR FLOOD PLAIN.

| | |
|--------------|-----------------------------------|
| App. | PAPE-DAWSON Job No. 8918-00 |
| Revisions | |
| No. | Date |
| Designed by: | TBL |
| Drawn by: | MG |
| Checked by: | NC |
| Scale: | |

PAPE-DAWSON ENGINEERS
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2000 HWY LOOP 410 | SAN ANTONIO, TX 78237 | 214.375.8000
TX REG. PROFESSIONAL ENGINEER LICENSE NO. 99338

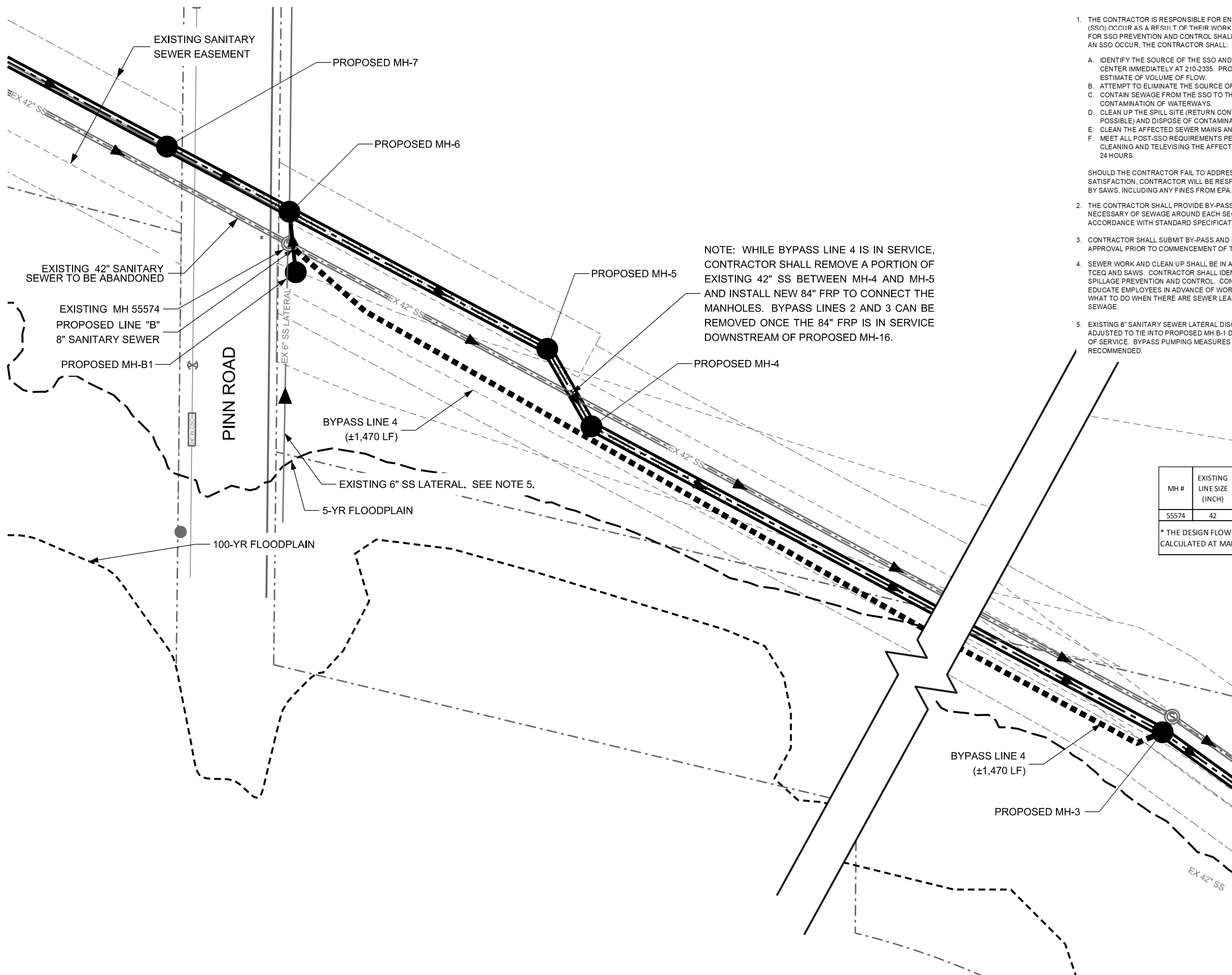
AECOM

SAN ANTONIO WATER SYSTEM

SAWS JOB NO. 19-4528
W-1 LEON CREEK: HWY 151 TO HWY 90
UPPER SEGMENT
SUGGESTED BYPASS LAYOUT
PUMPING DETAIL 3

Plotted on: \$DATES

Design Filename: \$FILES



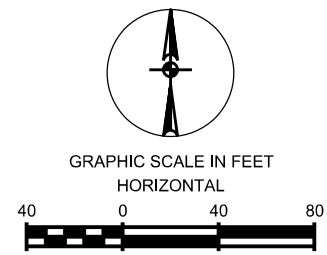
NOTE: WHILE BYPASS LINE 4 IS IN SERVICE, CONTRACTOR SHALL REMOVE A PORTION OF EXISTING 42" SS BETWEEN MH-4 AND MH-5 AND INSTALL NEW 84" FRP TO CONNECT THE MANHOLES. BYPASS LINES 2 AND 3 CAN BE REMOVED ONCE THE 84" FRP IS IN SERVICE DOWNSTREAM OF PROPOSED MH-16.

GENERAL SEWER NOTES:

1. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT NO SANITARY SEWER OVERFLOWS (SSO) OCCUR 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:
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 - B. ATTEMPT TO ELIMINATE THE SOURCE OF THE SSO.
 - C. CONTAIN SEWAGE FROM THE SSO TO THE EXTENT POSSIBLE TO PREVENT CONTAMINATION OF WATERWAYS.
 - D. CLEAN UP THE SPILL SITE (RETURN CONTAINED SEWAGE TO THE COLLECTION SYSTEM IF POSSIBLE) AND DISPOSE OF CONTAMINATED SOIL/MATERIALS.
 - E. CLEAN THE AFFECTED SEWER MAINS AND REMOVE ANY DEBRIS.
 - F. MEET ALL POST-SSO REQUIREMENTS PER THE EPA CONSENT DECREE, INCLUDING LINE CLEANING AND TELEVISIONING THE AFFECTED SEWER MAINS (AT SAWS DIRECTION) WITHIN 24 HOURS.
2. THE CONTRACTOR SHALL PROVIDE BY-PASS PUMPING AND FLOW MANAGEMENT AS NECESSARY OF SEWAGE AROUND EACH SEGMENT OF PIPE TO BE REPLACED IN ACCORDANCE WITH STANDARD SPECIFICATION '864 BYPASS PUMPING'.
3. CONTRACTOR SHALL SUBMIT BY-PASS AND PHASING PLAN TO SAWS FOR REVIEW AND APPROVAL PRIOR TO COMMENCEMENT OF THE CONSTRUCTION.
4. SEWER WORK AND CLEAN UP SHALL BE IN ACCORDANCE WITH GUIDELINES SET FORTH BY TCEQ AND SAWS. CONTRACTOR SHALL IDENTIFY AND TRAIN PERSONNEL RESPONSIBLE FOR SPILLAGE PREVENTION AND CONTROL. CONTRACTOR SHALL ALSO DOCUMENT AND EDUCATE EMPLOYEES IN ADVANCE OF WORK ABOUT THE WORK ENVIRONMENT INCLUDING WHAT TO DO WHEN THERE ARE SEWER LEAKS AND HOW TO WORK SAFELY AROUND RAW SEWAGE.
5. EXISTING 6" SANITARY SEWER LATERAL DISCHARGES INTO EXISTING MH 55574 AND SHALL BE ADJUSTED TO TIE INTO PROPOSED MH B-1 DURING OFFPEAK HOURS TO AVOID DISRUPTION OF SERVICE. BYPASS PUMPING MEASURES FOR LATERAL ADJUSTMENT ARE NOT RECOMMENDED.

| MH # | EXISTING LINE SIZE (INCH) | AVG. DRY WEATHER FLOW (MGD) | MAX. DRY WEATHER FLOW (MGD) | PEAK DRY WEATHER FLOW (MGD) | PEAK WET WEATHER FLOW (MGD) | *DESIGN FLOW (MGD) |
|-------|---------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|--------------------|
| 55574 | 42 | 30 | 11 | 46 | 72 | - |

* THE DESIGN FLOW (FULL FLOW CAPACITY OF EXISTING PIPE) WAS CALCULATED AT MAN-HOLES WHERE FLOW DATA WAS NOT AVAILABLE.



NOTE: ENTIRE SEGMENT ON THIS SHEET IS WITHIN THE 100 YEAR FLOOD PLAIN.

SUGGESTED BYPASS PUMPING LAYOUT DETAIL 4

| | | | |
|-----------|------|-----------------------------------|----------------|
| App. | | PAPE-DAWSON Job No. 8918-00 | |
| Revisions | | | |
| No. | Date | Designed by: TBL | Checked by: NC |
| | | Drawn by: MG | Scale: |

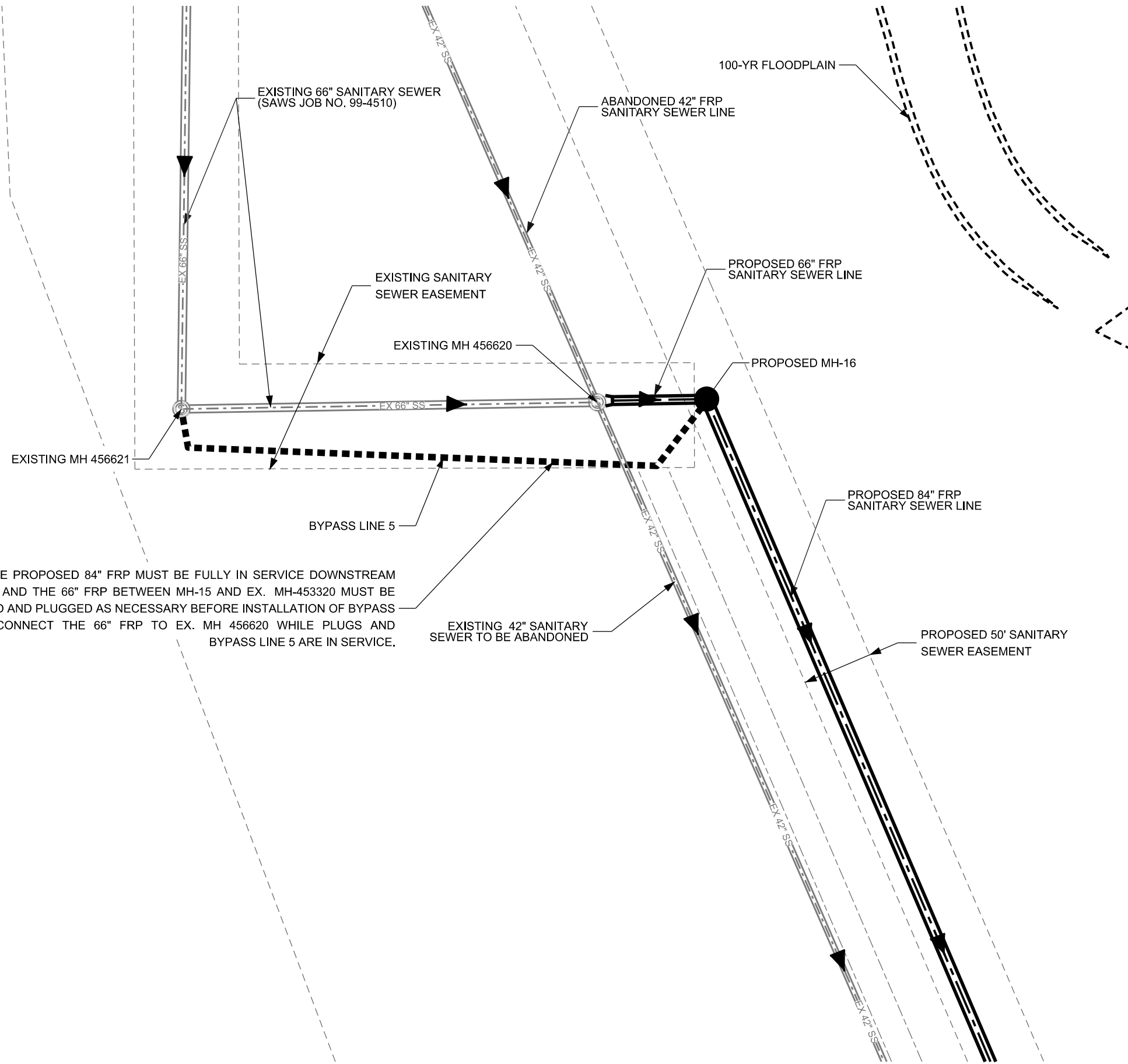
PAPE-DAWSON ENGINEERS
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2000 HWY LOOP 410 | SAN ANTONIO, TX 78213 | 214.375.8000

SAN ANTONIO WATER SYSTEM

SAWS JOB NO. 19-4528
 W-1 LEON CREEK: HWY 151 TO HWY 90
 UPPER SEGMENT
 SUGGESTED BYPASS PUMPING
 LAYOUT DETAIL 4

Plotted on: \$DATES

Design Filename: \$FILES



NOTE: THE PROPOSED 84" FRP MUST BE FULLY IN SERVICE DOWNSTREAM OF MH-15 AND THE 66" FRP BETWEEN MH-15 AND EX. MH-453320 MUST BE INSTALLED AND PLUGGED AS NECESSARY BEFORE INSTALLATION OF BYPASS LINE 5. CONNECT THE 66" FRP TO EX. MH 456620 WHILE PLUGS AND BYPASS LINE 5 ARE IN SERVICE.

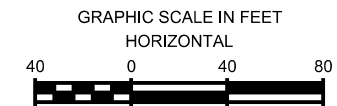
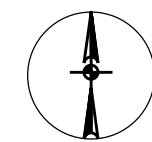
EXISTING 42" SANITARY SEWER TO BE ABANDONED

GENERAL SEWER NOTES:

1. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT NO SANITARY SEWER OVERFLOWS (SSO) OCCUR 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:
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 - B. ATTEMPT TO ELIMINATE THE SOURCE OF THE SSO.
 - C. CONTAIN SEWAGE FROM THE SSO TO THE EXTENT POSSIBLE TO PREVENT CONTAMINATION OF WATERWAYS.
 - D. CLEAN UP THE SPILL SITE (RETURN CONTAINED SEWAGE TO THE COLLECTION SYSTEM IF POSSIBLE) AND DISPOSE OF CONTAMINATED SOIL/MATERIALS.
 - E. CLEAN THE AFFECTED SEWER MAINS AND REMOVE ANY DEBRIS.
 - F. MEET ALL POST-SSO REQUIREMENTS PER THE EPA CONSENT DECREE, INCLUDING LINE CLEANING AND TELEVISIONING THE AFFECTED SEWER MAINS (AT SAWS DIRECTION) WITHIN 24 HOURS.
2. SHOULD THE CONTRACTOR FAIL TO ADDRESS AN SSO IMMEDIATELY AND TO SAWS SATISFACTION, CONTRACTOR WILL BE RESPONSIBLE FOR ALL ADDITIONAL COSTS INCURRED BY SAWS, INCLUDING ANY FINES FROM EPA.
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4. CONTRACTOR SHALL SUBMIT BY-PASS AND PHASING PLAN TO SAWS FOR REVIEW AND APPROVAL PRIOR TO COMMENCEMENT OF THE CONSTRUCTION.
5. SEWER WORK AND CLEAN UP SHALL BE IN ACCORDANCE WITH GUIDELINES SET FORTH BY TCEQ AND SAWS. CONTRACTOR SHALL IDENTIFY AND TRAIN PERSONNEL RESPONSIBLE FOR SPILLAGE PREVENTION AND CONTROL. CONTRACTOR SHALL ALSO DOCUMENT AND EDUCATE EMPLOYEES IN ADVANCE OF WORK ABOUT THE WORK ENVIRONMENT INCLUDING WHAT TO DO WHEN THERE ARE SEWER LEAKS AND HOW TO WORK SAFELY AROUND RAW SEWAGE.

| MH # | EXISTING LINE SIZE (INCH) | AVG. DRY WEATHER FLOW (MGD) | MAX. DRY WEATHER FLOW (MGD) | PEAK DRY WEATHER FLOW (MGD) | PEAK WET WEATHER FLOW (MGD) | *DESIGN FLOW (MGD) |
|--------|---------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|--------------------|
| 456621 | 42 | 30 | 11 | 46 | 72 | - |

* THE DESIGN FLOW (FULL FLOW CAPACITY OF EXISTING PIPE) WAS CALCULATED AT MANHOLES WHERE FLOW DATA WAS NOT AVAILABLE.



NOTE: ENTIRE SEGMENT ON THIS SHEET IS WITHIN THE 100 YEAR FLOOD PLAIN.

SUGGESTED BYPASS PUMPING LAYOUT DETAIL 5

| | |
|--------------|-----------------------------------|
| App. | PAPE-DAWSON Job No. 8918-00 |
| Revisions | |
| No. | Date |
| Designed by: | TBL |
| Drawn by: | MG |
| Checked by: | NC |
| Scale: | |

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2000 W. LOOP 410 | SAN ANTONIO, TX 78237 | 214.375.8000
WWW.PAPE-DAWSON.COM | LICENSE NO. 00000000000000000000000000000000

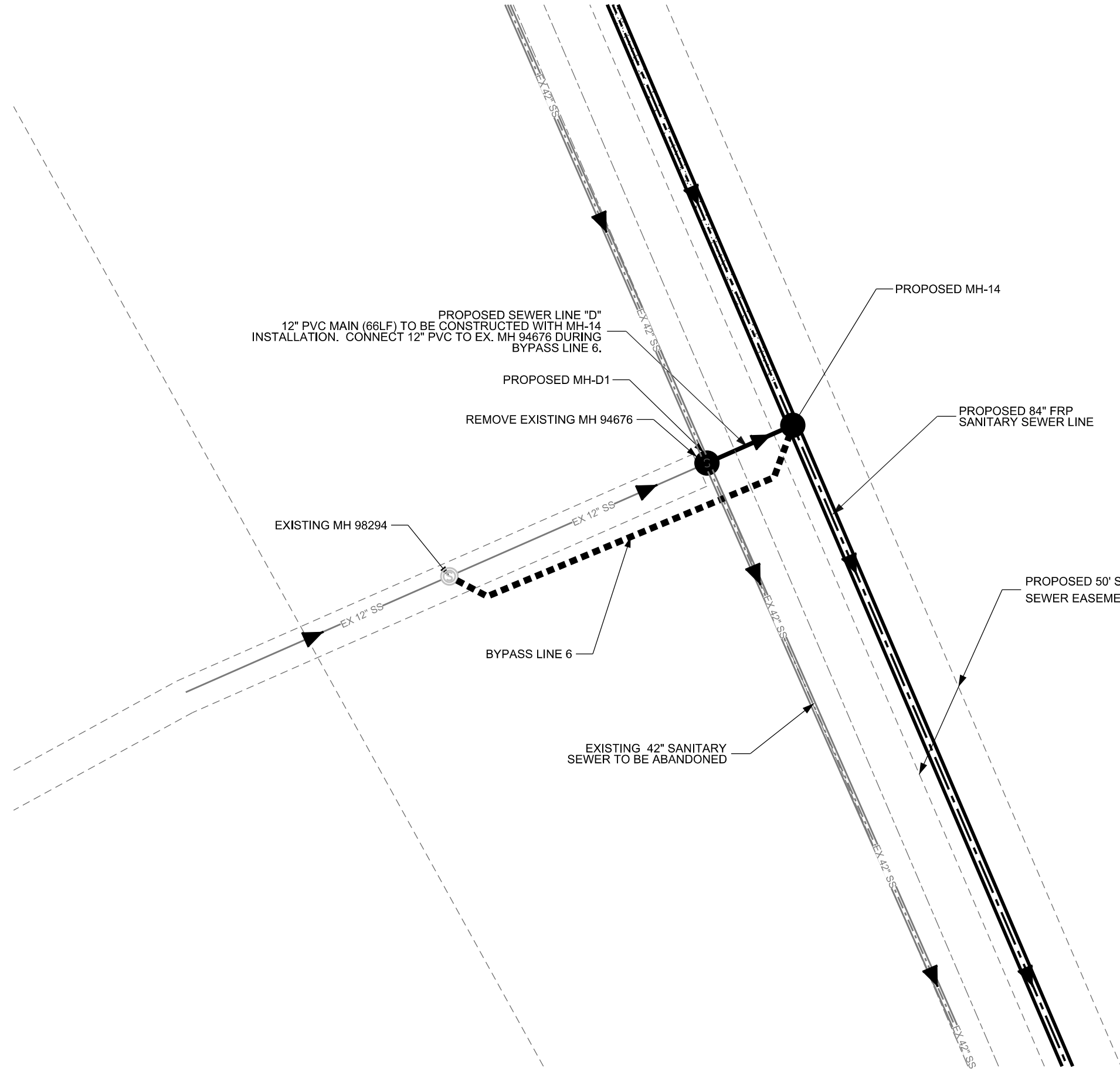
AECOM

SAN ANTONIO WATER SYSTEM

SAWS JOB NO. 19-4528
W-1 LEON CREEK: HWY 151 TO HWY 90
UPPER SEGMENT
SUGGESTED BYPASS LAYOUT
PUMPING DETAIL 5

Plotted on: \$DATES

Design Filename: \$FILES



SUGGESTED BYPASS PUMPING LAYOUT DETAIL 6

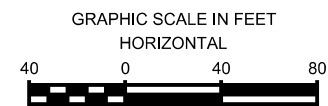
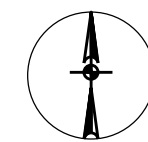
GENERAL SEWER NOTES:

1. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT NO SANITARY SEWER OVERFLOWS (SSO) OCCUR 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:
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 - C. CONTAIN SEWAGE FROM THE SSO TO THE EXTENT POSSIBLE TO PREVENT CONTAMINATION OF WATERWAYS.
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| MH # | EXISTING LINE SIZE (INCH) | AVG. DRY WEATHER FLOW (MGD) | MAX. DRY WEATHER FLOW (MGD) | PEAK DRY WEATHER FLOW (MGD) | PEAK WET WEATHER FLOW (MGD) | *DESIGN FLOW (MGD) |
|-------|---------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|--------------------|
| 98294 | 12 | - | - | - | - | 2.98* |

* THE DESIGN FLOW (FULL FLOW CAPACITY OF EXISTING PIPE) WAS CALCULATED AT MANHOLES WHERE FLOW DATA WAS NOT AVAILABLE.



NOTE: ENTIRE SEGMENT ON THIS SHEET IS WITHIN THE 100 YEAR FLOOD PLAIN.

| | | | |
|-----------|------|-----------------------------------|-------------|
| App. | | PAPE-DAWSON Job No. 8918-00 | |
| Revisions | | | |
| No. | Date | Designed by: | Checked by: |
| | | TBL | NC |
| | | MG | |
| | | | |
| | | | |

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 2000 W. LOOP W. #1000 SAN ANTONIO, TX 78237-2000
 TEL: 214.343.1000 FAX: 214.343.1001

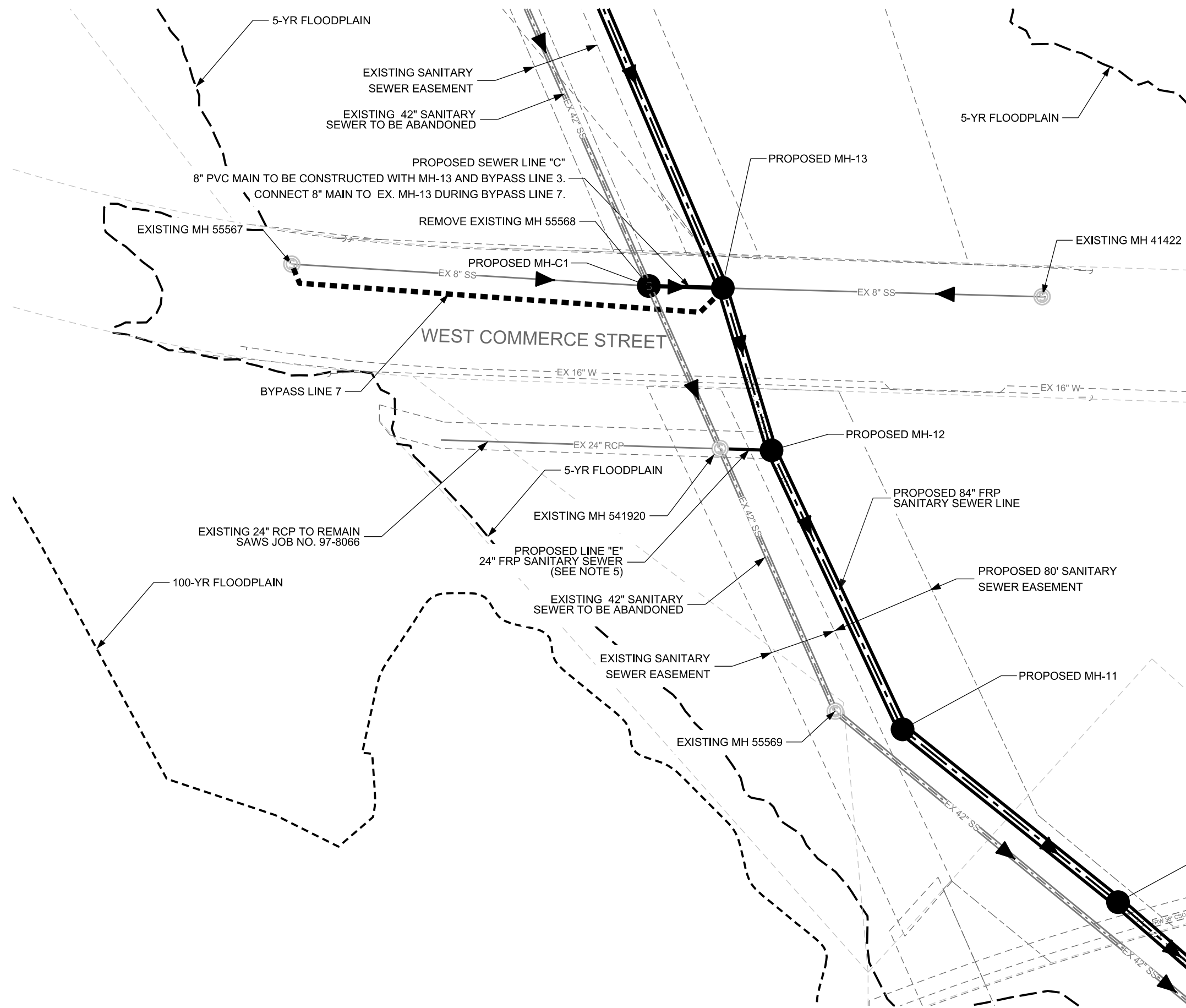
AECOM

SAN ANTONIO WATER SYSTEM

SAWS JOB NO. 19-4528
 W-1 LEON CREEK: HWY 151 TO HWY 90
 UPPER SEGMENT
 SUGGESTED BYPASS LAYOUT
 PUMPING DETAIL 6

Plotted on: SDATES

Design Filename: SFILES



SUGGESTED BYPASS PUMPING LAYOUT DETAIL 7

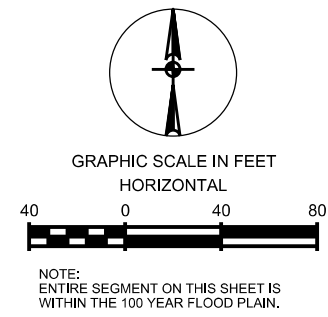
GENERAL SEWER NOTES:

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|-------|---------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|--------------------|
| 55567 | 8 | - | - | - | - | 1.81* |

* THE DESIGN FLOW (FULL FLOW CAPACITY OF EXISTING PIPE) WAS CALCULATED AT MANHOLES WHERE FLOW DATA WAS NOT AVAILABLE.



App. PAPE-DAWSON Job No. 8918-00

Revisions: [Table with columns for No., Date, and Description]

Date: MAY 2018
 Designed by: TBL
 Drawn by: MG
 Checked by: NC
 Scale:

Professional Engineer License No. 99338
 Tracy B. Lindsey
 08/14/2020

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 SAN ANTONIO, AUSTIN, HOUSTON, FORT WORTH, DALLAS
 2000 W. LOOP W. #1 SAN ANTONIO, TX 78237-2408
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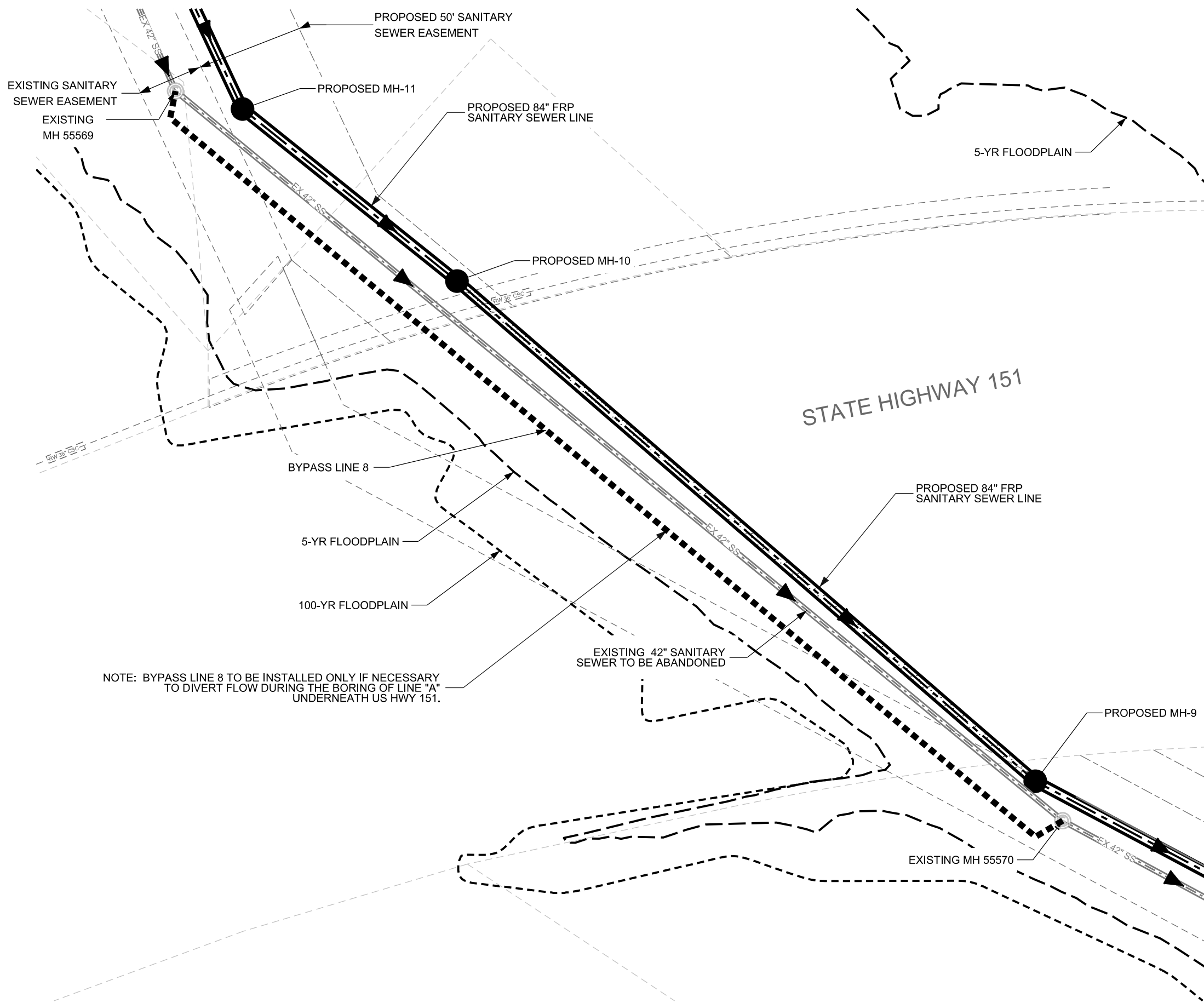
SAN ANTONIO WATER SYSTEM

SAWS

SAWS JOB NO. 19-4528
 W-1 LEON CREEK: HWY 151 TO HWY 90
 UPPER SEGMENT
 SUGGESTED BYPASS LAYOUT
 PUMPING DETAIL 7

Plotted on: \$DATES

Design Filename: \$FILES



NOTE: BYPASS LINE 8 TO BE INSTALLED ONLY IF NECESSARY TO DIVERT FLOW DURING THE BORING OF LINE "A" UNDERNEATH US HWY 151.

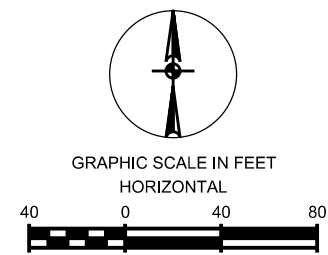
EXISTING 42" SANITARY SEWER TO BE ABANDONED

GENERAL SEWER NOTES:

1. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT NO SANITARY SEWER OVERFLOWS (SSO) OCCUR 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:
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|-------|---------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|--------------------|
| 55569 | 42 | 30 | 11 | 46 | 72 | - |

* THE DESIGN FLOW (FULL FLOW CAPACITY OF EXISTING PIPE) WAS CALCULATED AT MANHOLES WHERE FLOW DATA WAS NOT AVAILABLE.



NOTE: ENTIRE SEGMENT ON THIS SHEET IS WITHIN THE 100 YEAR FLOODPLAIN.

SUGGESTED BYPASS PUMPING LAYOUT DETAIL 8

| | |
|--------------|-----------------------------------|
| App. | PAPE-DAWSON Job No. 8918-00 |
| Revisions | |
| Date | May 2018 |
| Designed by: | TBL |
| Drawn by: | MG |
| Checked by: | NC |
| Scale: | |

PAPE-DAWSON ENGINEERS
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TYPED AND ELECTRONICALLY SIGNED BY TRACY B. LINDSEY, LICENSE NO. 99338

AECOM

SAN ANTONIO WATER SYSTEM

SAWS JOB NO. 19-4528
W-1 LEON CREEK: HWY 151 TO HWY 90
UPPER SEGMENT
SUGGESTED BYPASS LAYOUT
PUMPING DETAIL 8

SEWER ABANDONMENT NOTES

1. CONTRACTOR SHALL MAINTAIN EXISTING FLOWS DURING CONSTRUCTION.
2. LINES INDICATED AS "ABANDONED" SHALL BE FILLED WITH GROUT FOR THE ENTIRE LENGTH OF THE PIPE.
3. GROUT SHALL CONFORM TO SAWS SPECIFICATION ITEM NO. 862. THE GROUT MIX DESIGN SHALL BE SUBMITTED BY THE CONTRACTOR TO THE ENGINEER FOR REVIEW.
4. MANHOLES AND JUNCTION BOX SHOWN PROPOSED FOR ABANDONMENT SHALL BE REMOVED TO MIN. OF 2 FEET BELOW GRADE AND BACKFILL IN ACCORDANCE WITH SAWS SPECIFICATION NO. 862.
5. ABANDONING OF SANITARY SEWER LINES AND MANHOLES SHALL NOT OCCUR UNTIL ALL EXISTING SANITARY SEWER SERVICES HAVE BEEN TRANSFERRED TO ANOTHER LINE AND DIRECTED BY THE INSPECTOR.
6. THE CONTRACTOR SHOULD REFER TO SAWS SPECIFICATION 862 AND SP862 ABANDONMENT OF SANITARY SEWER MAIN AND MANHOLES.

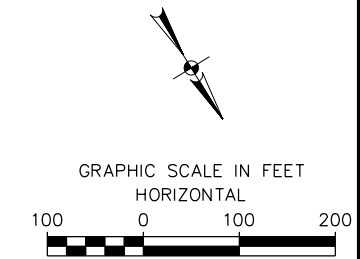
| EXISTING SEWER LINE TO BE ABANDONED | | | |
|---|--------------------|--------------|---------------------|
| FROM MH# / CROSSING | TO MH # / CROSSING | SIZE OF PIPE | LENGTH OF PIPE (LF) |
| MH 903070 | JB-903071 | 66" | 31 |
| JB-903071 | MH-32018 | 42" | 1,130 |
| MH-32018 | PROP SEWER | 42" | 1,157 |
| PROP SEWER | MH-55574 | 42" | 242 |
| MH-55574 | PROP MH-6 | 8" | 25 |
| TOTAL LENGTH OF PIPE ABANDONED OVER 15" DIAMETER | | | 2,560 |
| TOTAL LENGTH OF PIPE ABANDONED UNDER 15" DIAMETER | | | 25 |
| TO BE ABANDONED PER SAWS SPECIFICATION NO. 862 | | | |

| EXISTING MANHOLES & JUNCTION BOX TO BE ABANDONED |
|--|
| JB-903071 |
| MH-32018 |
| MH-55574 |

REMOVE RING AND COVER, CUT AND PLUG ALL SIDES IN ACCORDANCE WITH SAWS SPECIFICATION NO. 862

EXISTING LINES ABANDONMENT NOTE

ALL EXISTING LINES TO BE ABANDONED MUST BE CCTV INSPECTED PRIOR TO GROUTING FOR POSSIBLE, EXISTING UNKNOWN SERVICE LATERAL(S). ALL SERVICE LATERALS MUST BE TIED TO NEW LINES. CONTRACTOR SHALL NOTIFY OWNER IMMEDIATELY IF UNKNOWN ACTIVE LATERAL CONNECTIONS ARE ENCOUNTERED.



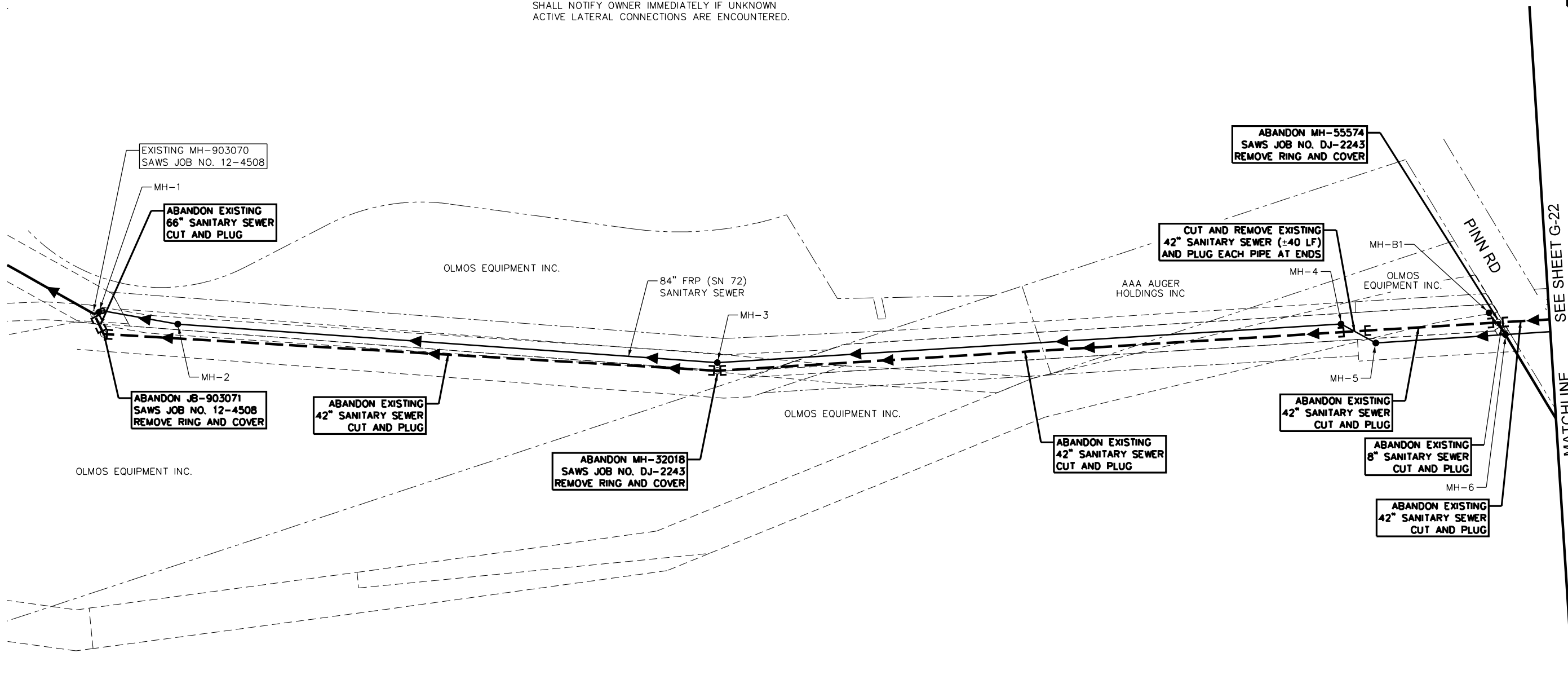
PAPE-DAWSON
Job No.
8918-00

DATE: AUG 2020
DESIGNED BY: MP
DRAWN BY: BS
CHECKED BY: JO
SCALE: 1" = 200' HORZ

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 HWY LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TYPE FIRM REGISTRATION #0703880

SAN ANTONIO WATER SYSTEM

SAWS JOB NO. 19-4528
W-1 LEON CREEK: HWY 151 TO HWY 90
UPPER SEGMENT
ABANDONMENT PLAN
FOR EXISTING SEWER SYSTEM



LEGEND

- EXISTING SANITARY SEWER LINE
- EXISTING SANITARY SEWER LINE TO BE ABANDONED
- PROPOSED SANITARY SEWER LINE
- CUT AND PLUG LOCATION
- PROPERTY LINE
- PERMANENT EASEMENT
- TEMPORARY EASEMENT

PLOTTED ON: 8/17/2020

DESIGN FILENAME: P:\89\18\00\Design\Civil\Sewer\Phase 1\SS891800-01-C21.dgn

SEWER ABANDONMENT NOTES

1. CONTRACTOR SHALL MAINTAIN EXISTING FLOWS DURING CONSTRUCTION.
2. LINES INDICATED AS "ABANDONED" SHALL BE FILLED WITH GROUT FOR THE ENTIRE LENGTH OF THE PIPE.
3. GROUT SHALL CONFORM TO SAWS SPECIFICATION ITEM NO. 862. THE GROUT MIX DESIGN SHALL BE SUBMITTED BY THE CONTRACTOR TO THE ENGINEER FOR REVIEW.
4. MANHOLES AND JUNCTION BOX SHOWN PROPOSED FOR ABANDONMENT SHALL BE REMOVED TO MIN. OF 2 FEET BELOW GRADE AND BACKFILL IN ACCORDANCE WITH SAWS SPECIFICATION NO. 862.
5. ABANDONING OF SANITARY SEWER LINES AND MANHOLES SHALL NOT OCCUR UNTIL ALL EXISTING SANITARY SEWER SERVICES HAVE BEEN TRANSFERRED TO ANOTHER LINE AND DIRECTED BY THE INSPECTOR.
6. THE CONTRACTOR SHOULD REFER TO SAWS SPECIFICATION 862 AND SP862 ABANDONMENT OF SANITARY SEWER MAIN AND MANHOLES.

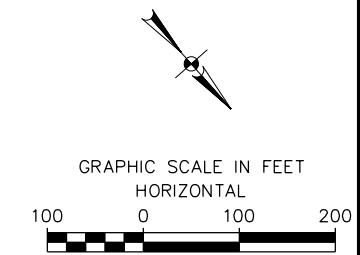
| EXISTING SEWER LINE TO BE ABANDONED | | | |
|---|--------------------|--------------|---------------------|
| FROM MH# / CROSSING | TO MH # / CROSSING | SIZE OF PIPE | LENGTH OF PIPE (LF) |
| MH-55574 | MH-55570 | 42" | 1,272 |
| MH-55570 | MH-55569 | 42" | 868 |
| MH-55569 | MH-54192 | 42" | 211 |
| MH-54192 | MH-55568 | 42" | 128 |
| MH-55568 | PROP MH-12 | 8" | 45 |
| TOTAL LENGTH OF PIPE ABANDONED OVER 15" DIAMETER | | | 2,479 |
| TOTAL LENGTH OF PIPE ABANDONED UNDER 15" DIAMETER | | | 45 |
| TO BE ABANDONED PER SAWS SPECIFICATION NO. 862 | | | |

| EXISTING MANHOLES TO BE ABANDONED |
|-----------------------------------|
| MH-55570 |
| MH-55569 |
| MH-54192 |
| MH-55568 |

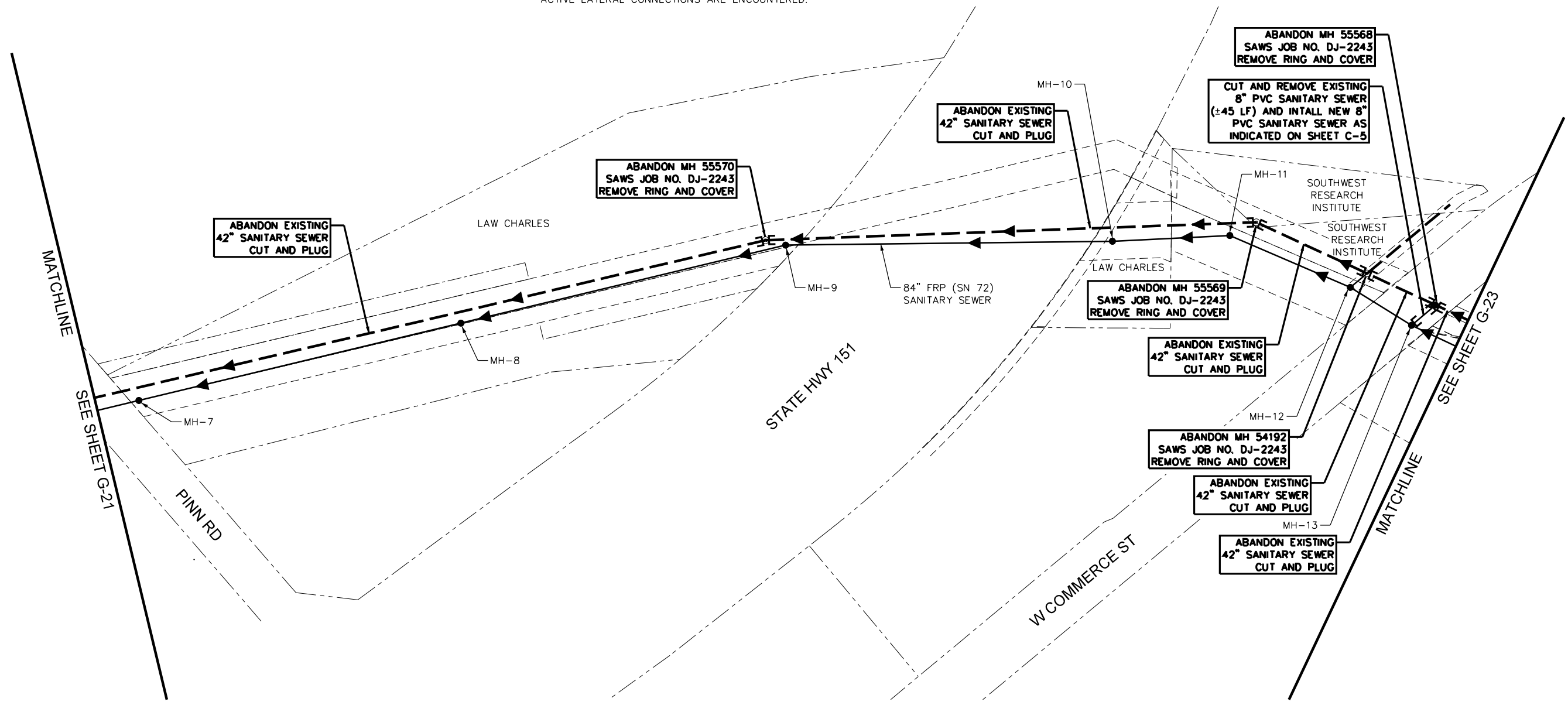
REMOVE RING AND COVER, CUT AND PLUG ALL SIDES IN ACCORDANCE WITH SAWS SPECIFICATION NO. 862

EXISTING LINES ABANDONMENT NOTE

ALL EXISTING LINES TO BE ABANDONED MUST BE CCTV INSPECTED PRIOR TO GROUTING FOR POSSIBLE, EXISTING UNKNOWN SERVICE LATERAL(S). ALL SERVICE LATERALS MUST BE TIED TO NEW LINES. CONTRACTOR SHALL NOTIFY OWNER IMMEDIATELY IF UNKNOWN ACTIVE LATERAL CONNECTIONS ARE ENCOUNTERED.



| | |
|-----------------|-----------------------------------|
| APP. | PAPE-DAWSON Job No. 8918-00 |
| REVISIONS | Jason T. Diamond 8-17-20 |
| NO. | DATE |
| DESIGNED BY: MP | DATE: AUG 2020 |
| DRAWN BY: BS | |
| CHECKED BY: JO | |
| SCALE: | 1" = 200' HORZ |



LEGEND

- EXISTING SANITARY SEWER LINE
- EXISTING SANITARY SEWER LINE TO BE ABANDONED
- PROPOSED SANITARY SEWER LINE
- CUT AND PLUG LOCATION
- PROPERTY LINE
- PERMANENT EASEMENT
- TEMPORARY EASEMENT

PLOTTED ON: 8/17/2020

DESIGN FILENAME: P:\89\18\00\Design\Civil\Sewer\Phase 1\SS891800-01-C22.dgn

PAPE-DAWSON ENGINEERS
 SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
 2000 HWY LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
 TYPE FIRM REGISTRATION #470 | TYPE FIRM REGISTRATION #1008880

SAN ANTONIO WATER SYSTEM

SAWS JOB NO. 19-4528
 W-1 LEON CREEK: HWY 151 TO HWY 90
 UPPER SEGMENT
 ABANDONMENT PLAN
 FOR EXISTING SEWER SYSTEM

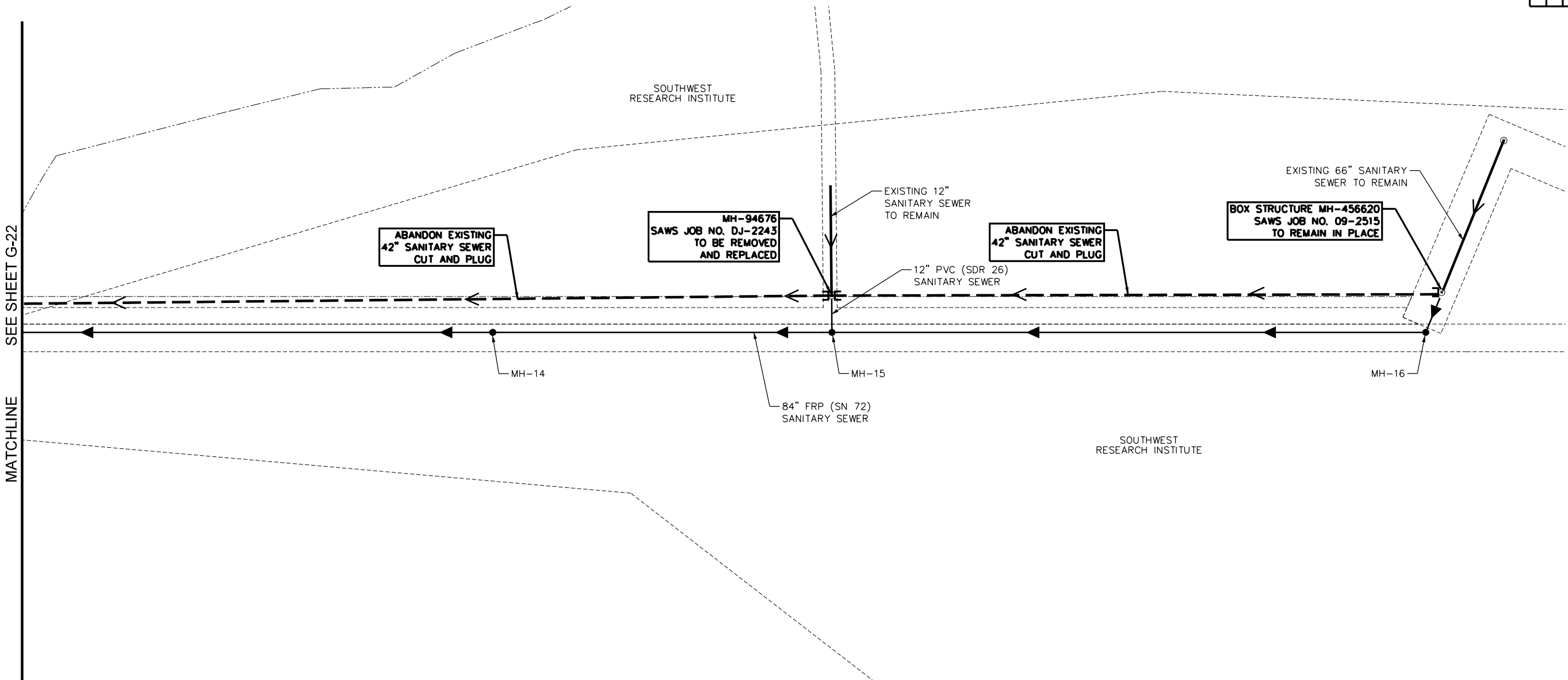
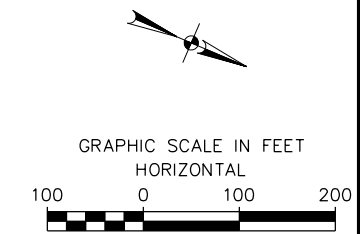
SEWER ABANDONMENT NOTES

1. CONTRACTOR SHALL MAINTAIN EXISTING FLOWS DURING CONSTRUCTION.
2. LINES INDICATED AS "ABANDONED" SHALL BE FILLED WITH GROUT FOR THE ENTIRE LENGTH OF THE PIPE.
3. GROUT SHALL CONFORM TO SAWS SPECIFICATION ITEM NO. 862. THE GROUT MIX DESIGN SHALL BE SUBMITTED BY THE CONTRACTOR TO THE ENGINEER FOR REVIEW.
4. MANHOLES AND JUNCTION BOX SHOWN PROPOSED FOR ABANDONMENT SHALL BE REMOVED TO MIN. OF 2 FEET BELOW GRADE AND BACKFILL IN ACCORDANCE WITH SAWS SPECIFICATION NO. 862.
5. ABANDONING OF SANITARY SEWER LINES AND MANHOLES SHALL NOT OCCUR UNTIL ALL EXISTING SANITARY SEWER SERVICES HAVE BEEN TRANSFERRED TO ANOTHER LINE AND DIRECTED BY THE INSPECTOR.
6. THE CONTRACTOR SHOULD REFER TO SAWS SPECIFICATION 862 AND SP862 ABANDONMENT OF SANITARY SEWER MAIN AND MANHOLES.

| EXISTING SEWER LINE TO BE ABANDONED | | | |
|--|--------------------|--------------|---------------------|
| FROM MH# / CROSSING | TO MH # / CROSSING | SIZE OF PIPE | LENGTH OF PIPE (LF) |
| MH-55568 | MH-94676 | 42" | 1,567 |
| MH-94676 | MH-456620 | 42" | 1,100 |
| TOTAL LENGTH OF PIPE ABANDONED OVER 15" DIAMETER | | | 2,667 |
| TO BE ABANDONED PER SAWS SPECIFICATION NO. 862 | | | |

EXISTING LINES ABANDONMENT NOTE

ALL EXISTING LINES TO BE ABANDONED MUST BE CCTV INSPECTED PRIOR TO GROUTING FOR POSSIBLE, EXISTING UNKNOWN SERVICE LATERAL(S). ALL SERVICE LATERALS MUST BE TIED TO NEW LINES. CONTRACTOR SHALL NOTIFY OWNER IMMEDIATELY IF UNKNOWN ACTIVE LATERAL CONNECTIONS ARE ENCOUNTERED.



LEGEND

- EXISTING SANITARY SEWER LINE
- EXISTING SANITARY SEWER LINE TO BE ABANDONED
- PROPOSED SANITARY SEWER LINE
- CUT AND PLUG LOCATION
- PROPERTY LINE
- PERMANENT EASEMENT
- TEMPORARY EASEMENT

PLOTTED ON: 8/17/2020

DESIGN FILENAME: P:\89\18\00\Design\Civil\Sewer\Phase 1\SS891800-01-C23.dgn

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|-------------|----------------|
| APP. | PAPE-DAWSON |
| | Job No. |
| | 8918-00 |
| REVISIONS | |
| DATE | AUG 2020 |
| DESIGNED BY | MP |
| DRAWN BY | BS |
| CHECKED BY | JO |
| SCALE | 1" = 200' HORZ |

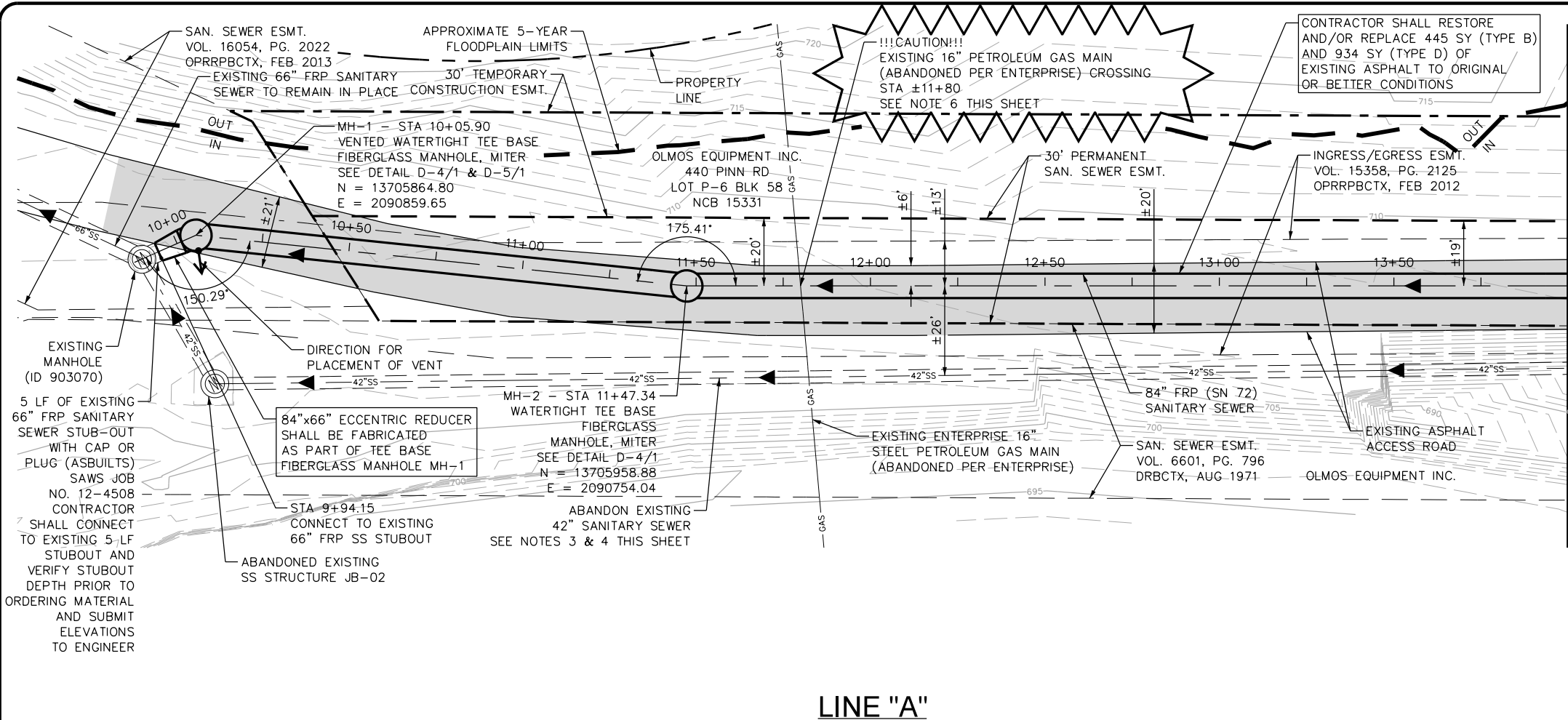
PAPE-DAWSON ENGINEERS
 SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
 2000 HWY LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
 TYPE FIRM REGISTRATION #470 | TYPE FIRM REGISTRATION #1003880

SAN ANTONIO WATER SYSTEM

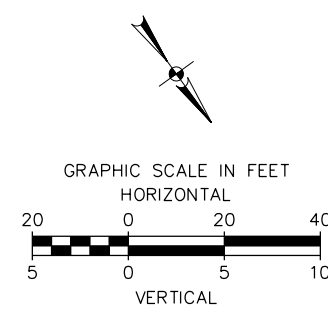
SAWS JOB NO. 19-4528
 W-1 LEON CREEK: HWY 151 TO HWY 90
 UPPER SEGMENT
 ABANDONMENT PLAN
 FOR EXISTING SEWER SYSTEM

PLOTTED ON: 8/17/2020

DESIGN FILENAME: P:\89\18\00\Design\Civil\Sewer\Phase 1\SS891800-01-C01.dgn

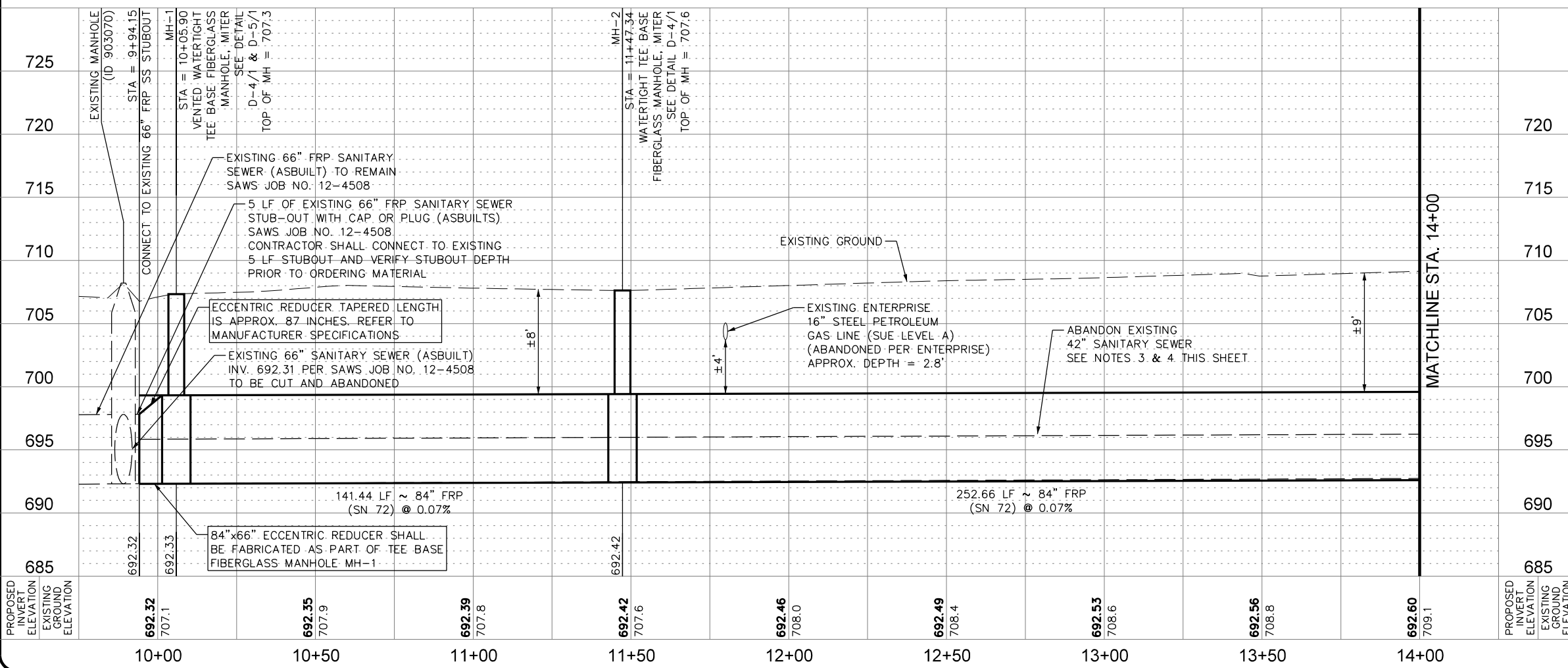


MATCHLINE STA. 14+00



| QUANTITY TABLE | | | |
|----------------|---|------|----------|
| ITEM | DESCRIPTION | UNIT | QUANTITY |
| 857A | 84" FRP (ASTM D-3262)(SN 72) (OPEN CUT 15'-20') | LF | 395 |
| 853A | TEE BASE FIBERGLASS MANHOLE, MITER | EA | 2 |
| 853 | EXTRA DEPTH TEE BASE MANHOLE | VF | 18 |
| 202.1 | PRIME COAT | GAL | 95 |
| 203.1 | TACK COAT | GAL | 95 |
| 205.2 | HOTMIX ASPHALT PAVEMENT TYPE B - 10 INCHES PAVEMENT THICKNESS | SY | 445 |
| 205.4 | HOTMIX ASPHALT PAVEMENT TYPE D - 2 INCHES PAVEMENT THICKNESS | SY | 943 |
| 208.1 | SALVAGING, HAULING & STOCKPIILING RECLAIMABLE ASPHALT PAVEMENT (2 INCHES DEPTH) | SY | 943 |
| 550.1 | TRENCH EXCAVATION SAFETY PROTECTION | LF | 405 |
| 866 | SEWER MAIN TV INSPECTION | LF | 405 |

LINE "A"



MATCHLINE STA. 14+00

- NOTES:**
- CONTRACTOR SHALL REFER TO THE TREE PRESERVATION PLAN SHEETS TP-1 TO TP-10 FOR TREE REMOVAL AND PRESERVATION.
 - CONTRACTOR MAY ENCOUNTER THE PRESENCE OF GROUND WATER DURING CONSTRUCTION. CONTRACTOR SHALL REFER TO THE SUPPLEMENTARY SPECIFICATIONS FOR CONTROL OF GROUND WATER.
 - CONTRACTOR SHALL REFER TO SHEETS G-21 TO G-23 FOR ABANDONMENT PLAN, NOTES AND QUANTITIES.
 - CONTRACTOR SHALL PROTECT EXISTING 42" SANITARY SEWER DURING CONSTRUCTION OF PROPOSED SANITARY SEWER MAIN.
 - ENTIRE AREA SHOWN ON THIS PLAN SHEET IS IN THE 100-YEAR FLOODPLAIN.
 - PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL FIELD VERIFY THE LOCATION AND DEPTH OF THE EXISTING GAS LINE. CONTRACTOR SHALL REPORT, TO THE ENGINEERS, ANY DEVIATION FROM PLAN LOCATION OR ELEVATION.

PAPE-DAWSON
Job No.
8918-00

Jason T. Diamond
8-17-20

PAPE-DAWSON ENGINEERS

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 HWY LOOP 410 | SAN ANTONIO, TX 78211 | 210.375.8000
TYPE FIRM REGISTRATION #475 | TYPE FIRM REGISTRATION #1008880

DESIGNED BY: MP
DRAWN BY: BS
CHECKED BY: JO

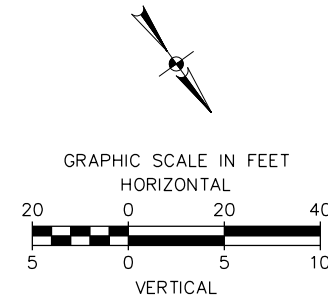
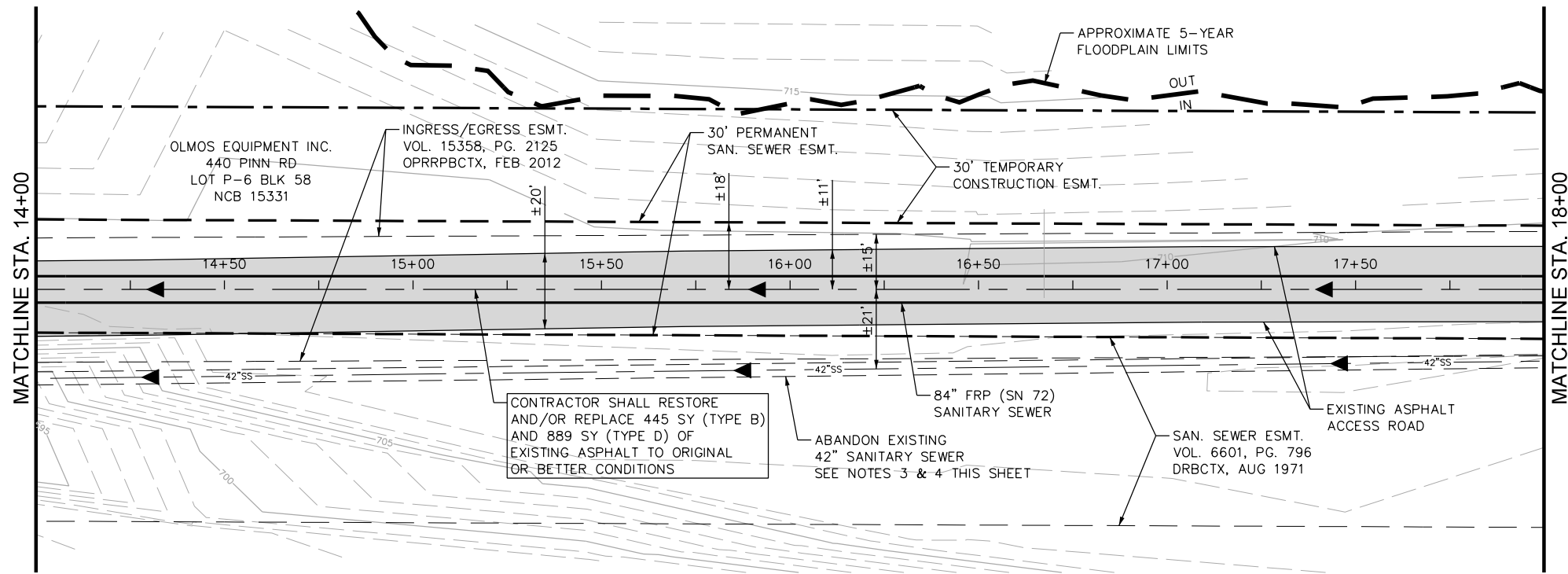
DATE: AUG 2020
SCALE: 1" = 40' HORZ
1" = 10' VERT

SAN ANTONIO WATER SYSTEM

SAWS JOB NO. 19-4528
W-1 LEON CREEK: HWY 151 TO HWY 90
UPPER SEGMENT
LINE "A" PLAN AND PROFILE
STA 9+94.15 TO STA 14+00

PLOTTED ON: 8/17/2020

DESIGN FILENAME: P:\89\18\00\Design\Civil\Sewer\Phase 1\SS891800-01-C02.dgn

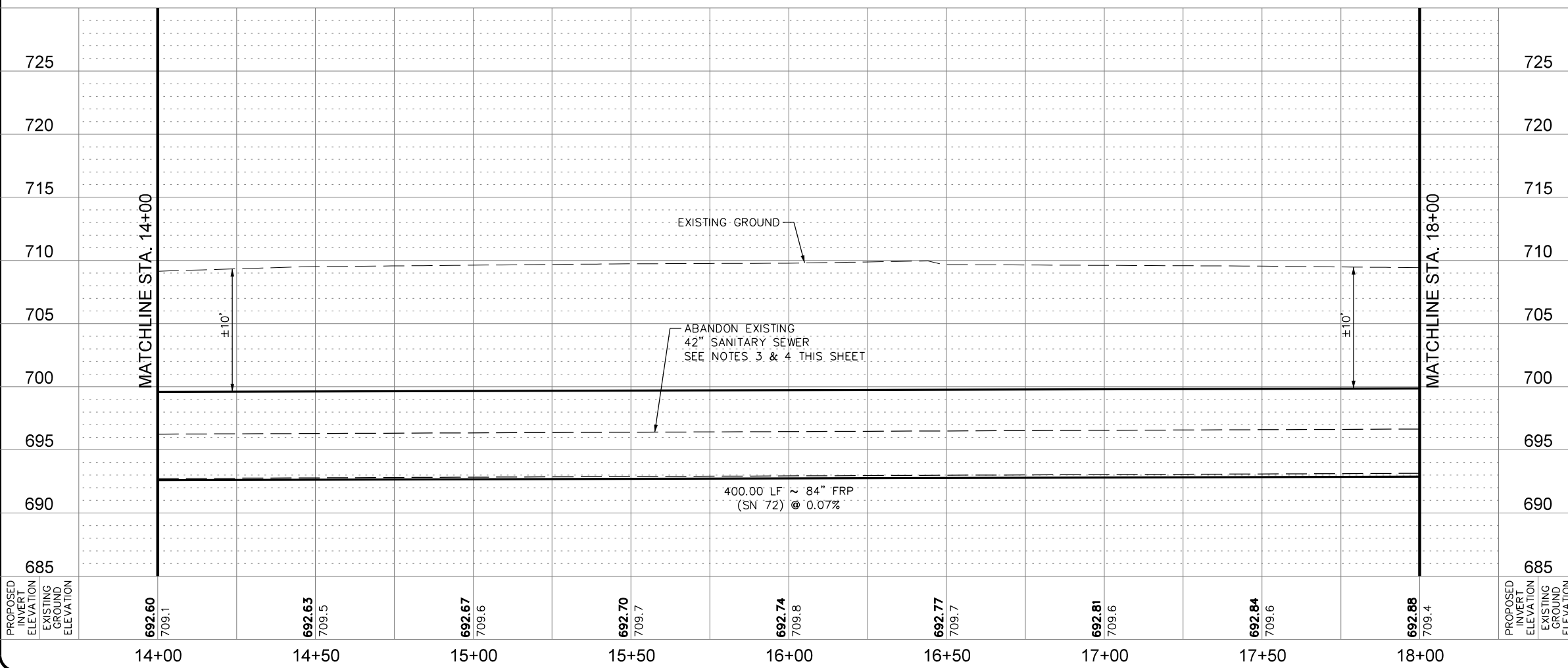


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|-------------|--------------------------------|
| APP. | PAPE-DAWSON |
| NO. | Job No. |
| DATE | 8918-00 |
| DESIGNED BY | MP |
| DRAWN BY | BS |
| CHECKED BY | JO |
| SCALE | 1" = 40' HORZ 1" = 10' VERT |

PAPE-DAWSON ENGINEERS
 SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
 2000 HWY LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.8000
 TYPE FIRM REGISTRATION #030880

| QUANTITY TABLE | | | |
|----------------|---|------|----------|
| ITEM | DESCRIPTION | UNIT | QUANTITY |
| 857A | 84" FRP (ASTM D-3262)(SN 72) (OPEN CUT 15'-20') | LF | 400 |
| 202.1 | PRIME COAT | GAL | 89 |
| 203.1 | TACK COAT | GAL | 89 |
| 205.2 | HOTMIX ASPHALT PAVEMENT TYPE B - 10 INCHES PAVEMENT THICKNESS | SY | 445 |
| 205.4 | HOTMIX ASPHALT PAVEMENT TYPE D - 2 INCHES PAVEMENT THICKNESS | SY | 889 |
| 208.1 | SALVAGING, HAULING & STOCKPIILING RECLAIMABLE ASPHALT PAVEMENT (2 INCHES DEPTH) | SY | 889 |
| 550.1 | TRENCH EXCAVATION SAFETY PROTECTION | LF | 400 |
| 866 | SEWER MAIN TV INSPECTION | LF | 400 |

LINE "A"



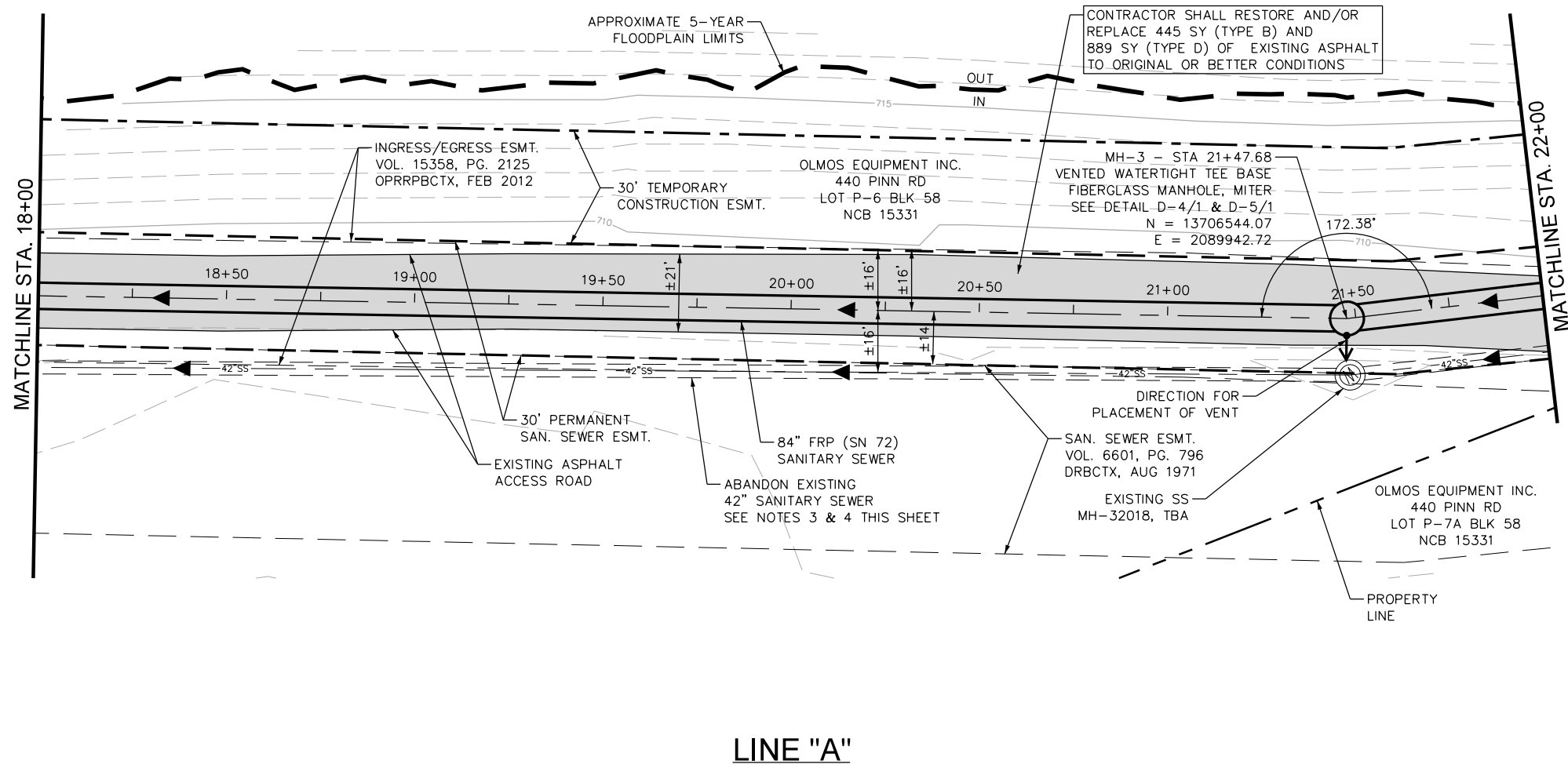
- NOTES:**
- CONTRACTOR SHALL REFER TO THE TREE PRESERVATION PLAN SHEETS TP-1 TO TP-10 FOR TREE REMOVAL AND PRESERVATION.
 - CONTRACTOR MAY ENCOUNTER THE PRESENCE OF GROUND WATER DURING CONSTRUCTION. CONTRACTOR SHALL REFER TO THE SUPPLEMENTARY SPECIFICATIONS FOR CONTROL OF GROUND WATER.
 - CONTRACTOR SHALL REFER TO SHEETS G-21 TO G-23 FOR ABANDONMENT PLAN, NOTES AND QUANTITIES.
 - CONTRACTOR SHALL PROTECT EXISTING 42" SANITARY SEWER DURING CONSTRUCTION OF PROPOSED SANITARY SEWER MAIN.
 - ENTIRE AREA SHOWN ON THIS PLAN SHEET IS IN THE 100-YEAR FLOODPLAIN.

SAN ANTONIO WATER SYSTEM

SAWS JOB NO. 19-4528
 W-1 LEON CREEK: HWY 151 TO HWY 90
 UPPER SEGMENT
 LINE "A" PLAN AND PROFILE
 STA 14+00 TO STA 18+00

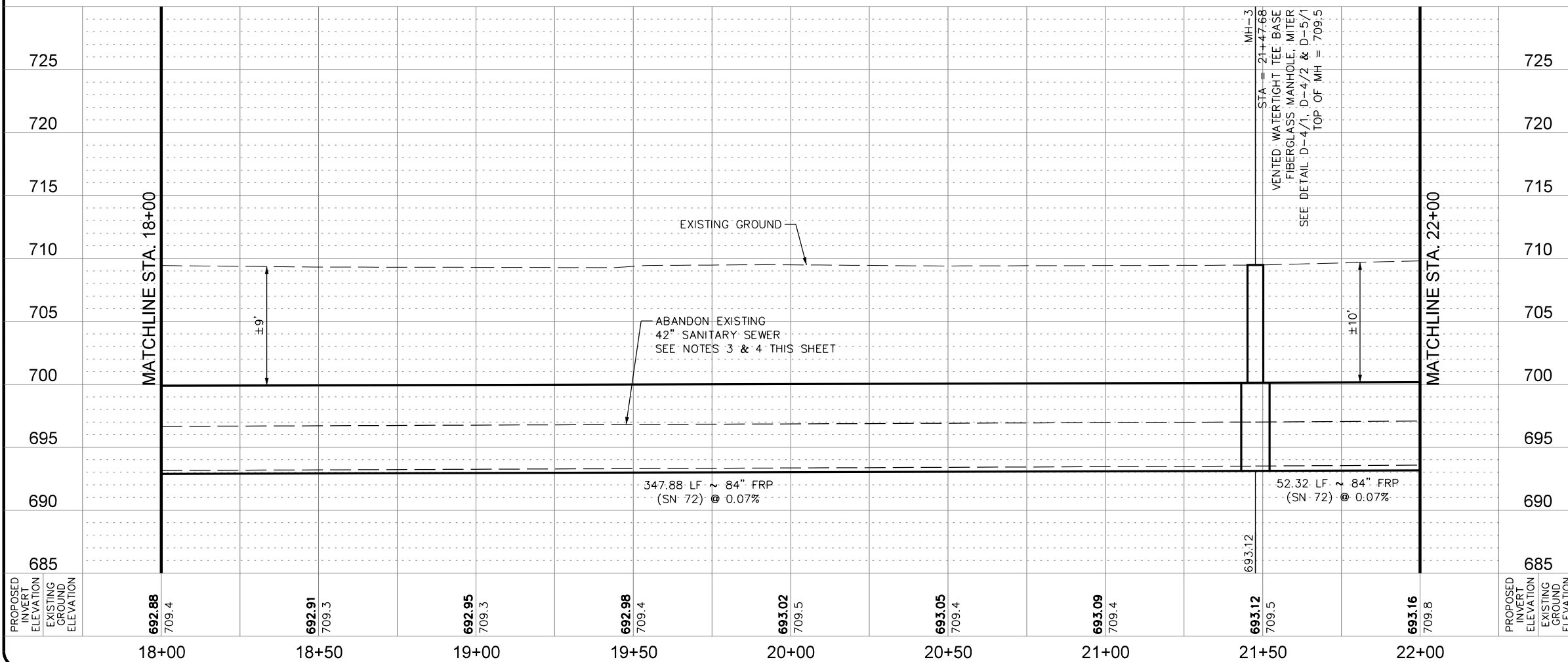
PLOTTED ON: 8/17/2020

DESIGN FILENAME: P:\89\18\00\Design\Civil\Sewer\Phase 1\SS891800-01-C03.dgn

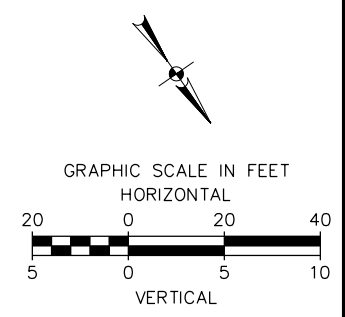


LINE "A"

| QUANTITY TABLE | | | |
|----------------|---|------|----------|
| ITEM | DESCRIPTION | UNIT | QUANTITY |
| 857A | 84" FRP (ASTM D-3262)(SN 72) (OPEN CUT 15'-20') | LF | 400 |
| 853A | TEE BASE FIBERGLASS MANHOLE, MITER | EA | 1 |
| 853 | EXTRA DEPTH TEE BASE MANHOLE | VF | 11 |
| 202.1 | PRIME COAT | GAL | 89 |
| 203.1 | TACK COAT | GAL | 89 |
| 205.2 | HOTMIX ASPHALT PAVEMENT TYPE B - 10 INCHES PAVEMENT THICKNESS | SY | 445 |
| 205.4 | HOTMIX ASPHALT PAVEMENT TYPE D - 2 INCHES PAVEMENT THICKNESS | SY | 889 |
| 208.1 | SALVAGING, HAULING & STOCKPIILING RECLAIMABLE ASPHALT PAVEMENT (2 INCHES DEPTH) | SY | 889 |
| 550.1 | TRENCH EXCAVATION SAFETY PROTECTION | LF | 400 |
| 866 | SEWER MAIN TV INSPECTION | LF | 400 |



- NOTES:**
- CONTRACTOR SHALL REFER TO THE TREE PRESERVATION PLAN SHEETS TP-1 TO TP-10 FOR TREE REMOVAL AND PRESERVATION.
 - CONTRACTOR MAY ENCOUNTER THE PRESENCE OF GROUND WATER DURING CONSTRUCTION. CONTRACTOR SHALL REFER TO THE SUPPLEMENTARY SPECIFICATIONS FOR CONTROL OF GROUND WATER.
 - CONTRACTOR SHALL REFER TO SHEETS G-21 TO G-23 FOR ABANDONMENT PLAN, NOTES AND QUANTITIES.
 - CONTRACTOR SHALL PROTECT EXISTING 42" SANITARY SEWER DURING CONSTRUCTION OF PROPOSED SANITARY SEWER MAIN.
 - ENTIRE AREA SHOWN ON THIS PLAN SHEET IS IN THE 100-YEAR FLOODPLAIN.



| | |
|-------------|--------------------------------|
| APP. | PAPE-DAWSON |
| | Job No. |
| | 8918-00 |
| REVISIONS | |
| DATE | AUG 2020 |
| DESIGNED BY | MP |
| DRAWN BY | BS |
| CHECKED BY | JO |
| SCALE | 1" = 40' HORZ 1" = 10' VERT |

PAPE-DAWSON ENGINEERS

STATE OF TEXAS
JASON T. DIAMOND
96532
LICENSED PROFESSIONAL ENGINEER

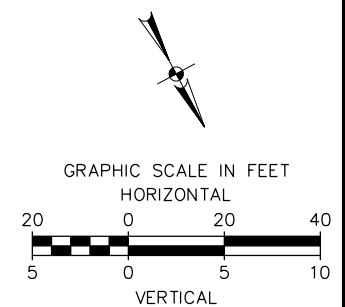
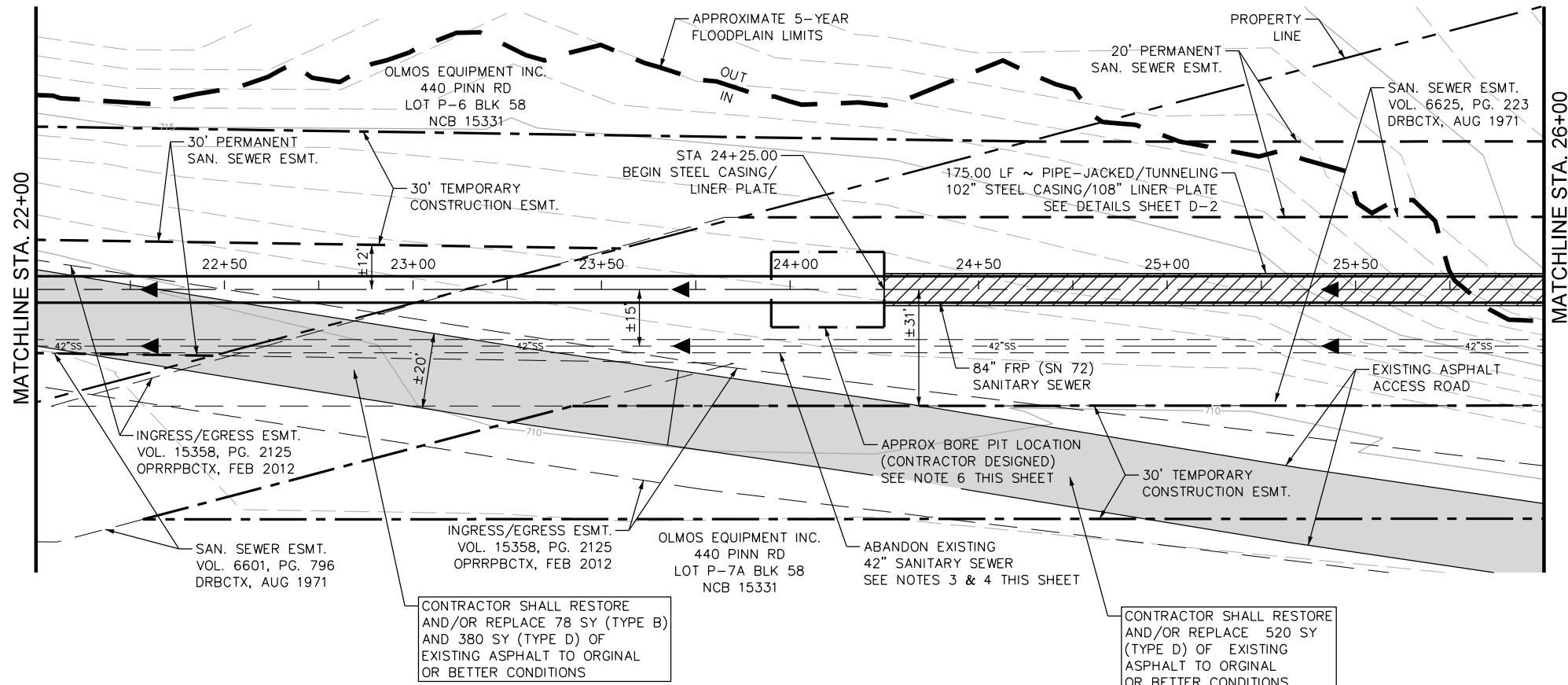
SAWS JOB NO. 19-4528
W-1 LEON CREEK: HWY 151 TO HWY 90
UPPER SEGMENT
LINE "A" PLAN AND PROFILE
STA 18+00 TO STA 22+00

SAN ANTONIO WATER SYSTEM

SAWS JOB NO. 19-4528
W-1 LEON CREEK: HWY 151 TO HWY 90
UPPER SEGMENT
LINE "A" PLAN AND PROFILE
STA 18+00 TO STA 22+00

PLOTTED ON: 8/17/2020

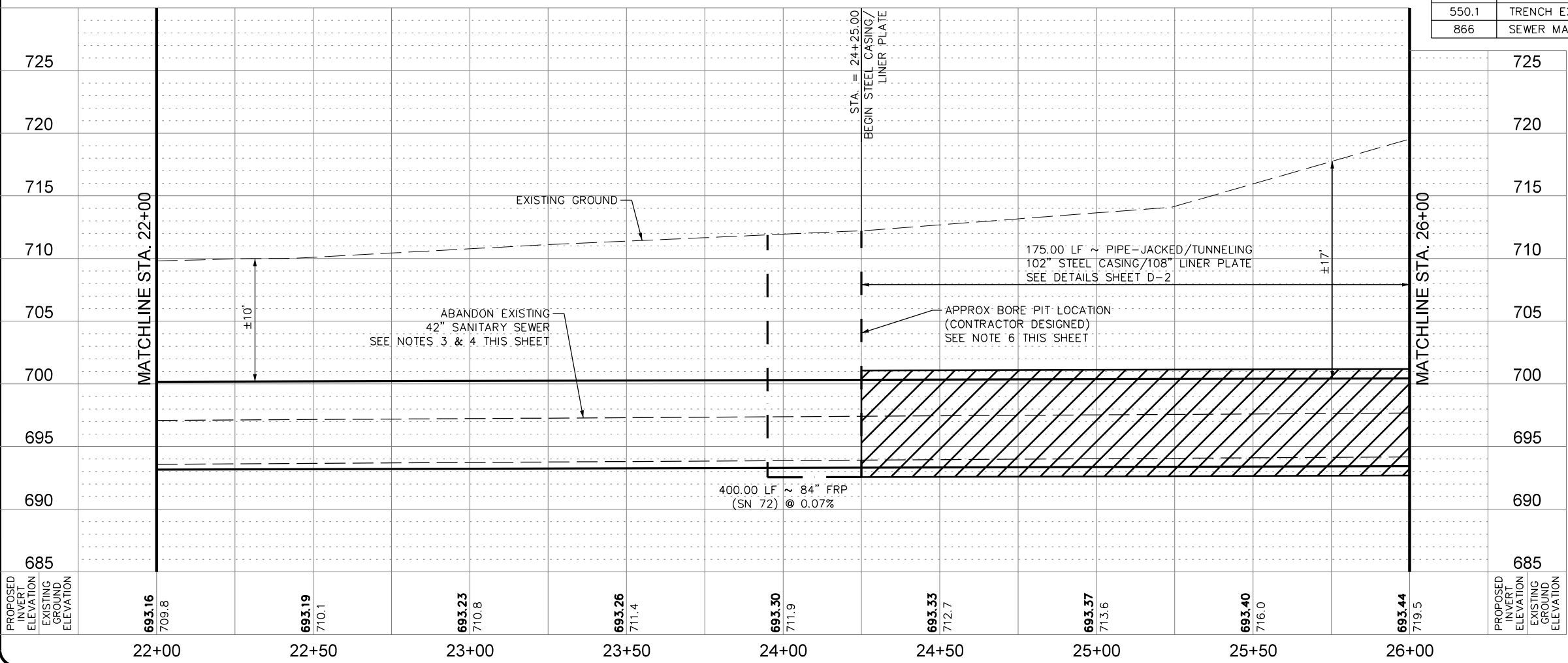
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| | |
|-----------------|-----------------------------------|
| APP. | PAPE-DAWSON Job No. 8918-00 |
| REVISIONS | Jason T. Diamond 8-17-20 |
| NO. | DATE |
| DESIGNED BY: MP | DATE: AUG 2020 |
| DRAWN BY: BS | |
| CHECKED BY: JO | |
| SCALE: | 1" = 40' HORZ 1" = 10' VERT |

| QUANTITY TABLE | | | |
|---------------------|--|------|----------|
| ITEM | DESCRIPTION | UNIT | QUANTITY |
| 857A | 84" FRP (ASTM D-3262)(SN 72) (OPEN CUT 15'-20') | LF | 225 |
| SS 2426 | CARRIER PIPE IN TUNNELS 84" FRP (ASTM D-3262)(SN 72) | LF | 175 |
| SS 2610/ SS 2314 | 102" STEEL CASING PIPE (0.5" THICKNESS)/108" STEEL LINER PLATE | LF | 175 |
| SS 2441/ SS 2314 | PIPE-JACKED TUNNEL/ TUNNELING WITH LINER PLATE | LF | 175 |
| 202.1 | PRIME COAT | GAL | 90 |
| 203.1 | TACK COAT | GAL | 90 |
| 205.2 | HOTMIX ASPHALT PAVEMENT TYPE B - 10 INCHES PAVEMENT THICKNESS | SY | 78 |
| 205.4 | HOTMIX ASPHALT PAVEMENT TYPE D - 2 INCHES PAVEMENT THICKNESS | SY | 900 |
| 208.1 | SALVAGING, HAULING & STOCKPILING RECLAIMABLE ASPHALT PAVEMENT (2 INCHES DEPTH) | SY | 900 |
| 550.1 | TRENCH EXCAVATION SAFETY PROTECTION | LF | 225 |
| 866 | SEWER MAIN TV INSPECTION | LF | 400 |

LINE "A"



- NOTES:**
- CONTRACTOR SHALL REFER TO THE TREE PRESERVATION PLAN SHEETS TP-1 TO TP-10 FOR TREE REMOVAL AND PRESERVATION.
 - CONTRACTOR MAY ENCOUNTER THE PRESENCE OF GROUND WATER DURING CONSTRUCTION. CONTRACTOR SHALL REFER TO THE SUPPLEMENTARY SPECIFICATIONS FOR CONTROL OF GROUND WATER.
 - CONTRACTOR SHALL REFER TO SHEETS G-21 TO G-23 FOR ABANDONMENT PLAN, NOTES AND QUANTITIES.
 - CONTRACTOR SHALL PROTECT EXISTING 42" SANITARY SEWER DURING CONSTRUCTION OF PROPOSED SANITARY SEWER MAIN.
 - ENTIRE AREA SHOWN ON THIS PLAN SHEET IS IN THE 100-YEAR FLOODPLAIN.
 - CONTRACTOR NEEDS TO ADEQUATELY SHORE TUNNEL SHAFT TO PREVENT DISTURBING BACKFILL OF EXISTING 42-INCH SANITARY SEWER MAIN.

PAPE-DAWSON ENGINEERS

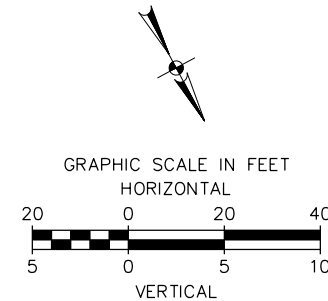
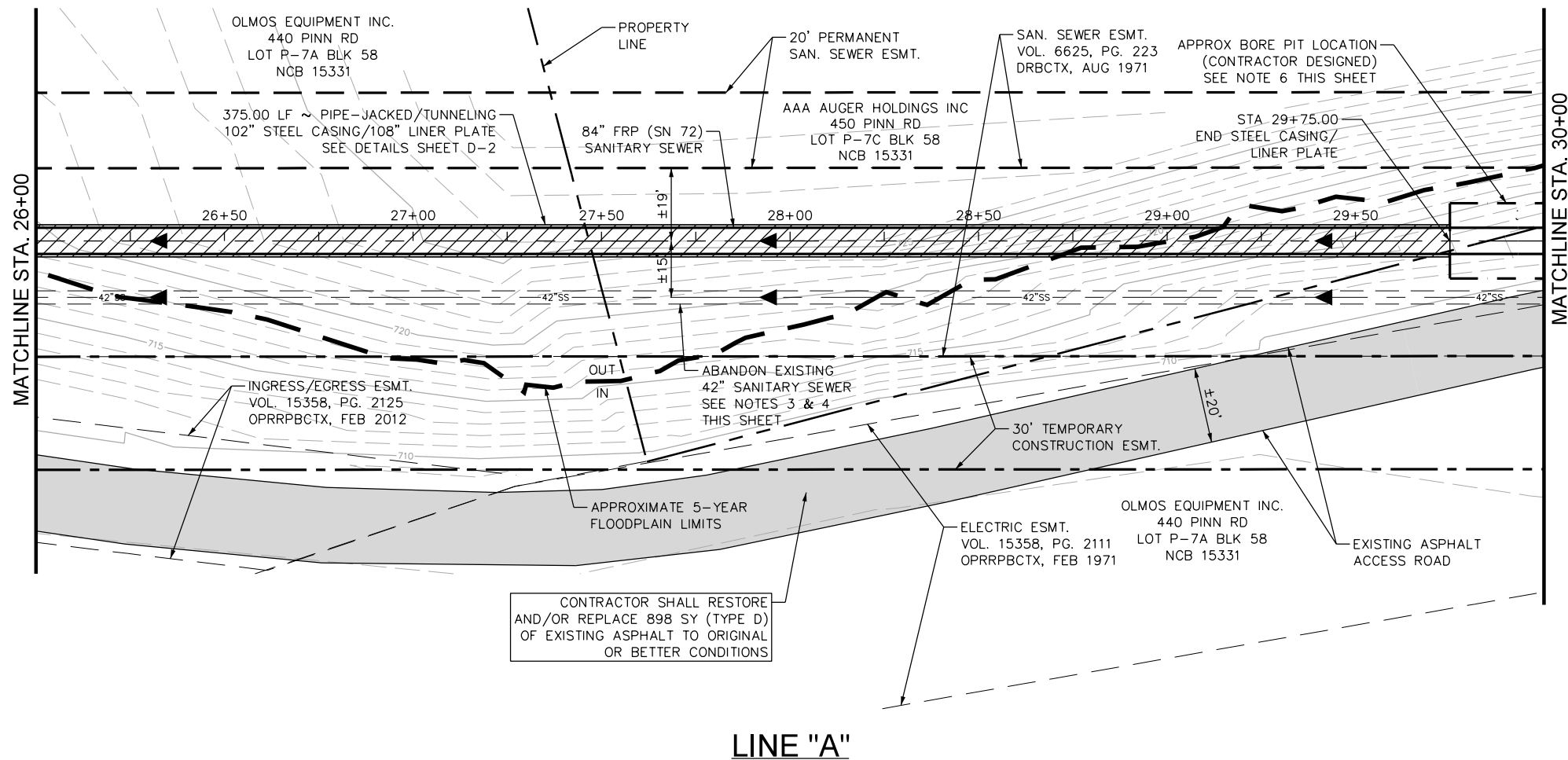
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
 2000 HWY LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
 TYPE FIRM REGISTRATION #470 | TYPE FIRM REGISTRATION #1008880

SAN ANTONIO WATER SYSTEM

SAWS JOB NO. 19-4528
 W-1 LEON CREEK: HWY 151 TO HWY 90
 UPPER SEGMENT
 LINE "A" PLAN AND PROFILE
 STA 22+00 TO STA 26+00

PLOTTED ON: 8/17/2020

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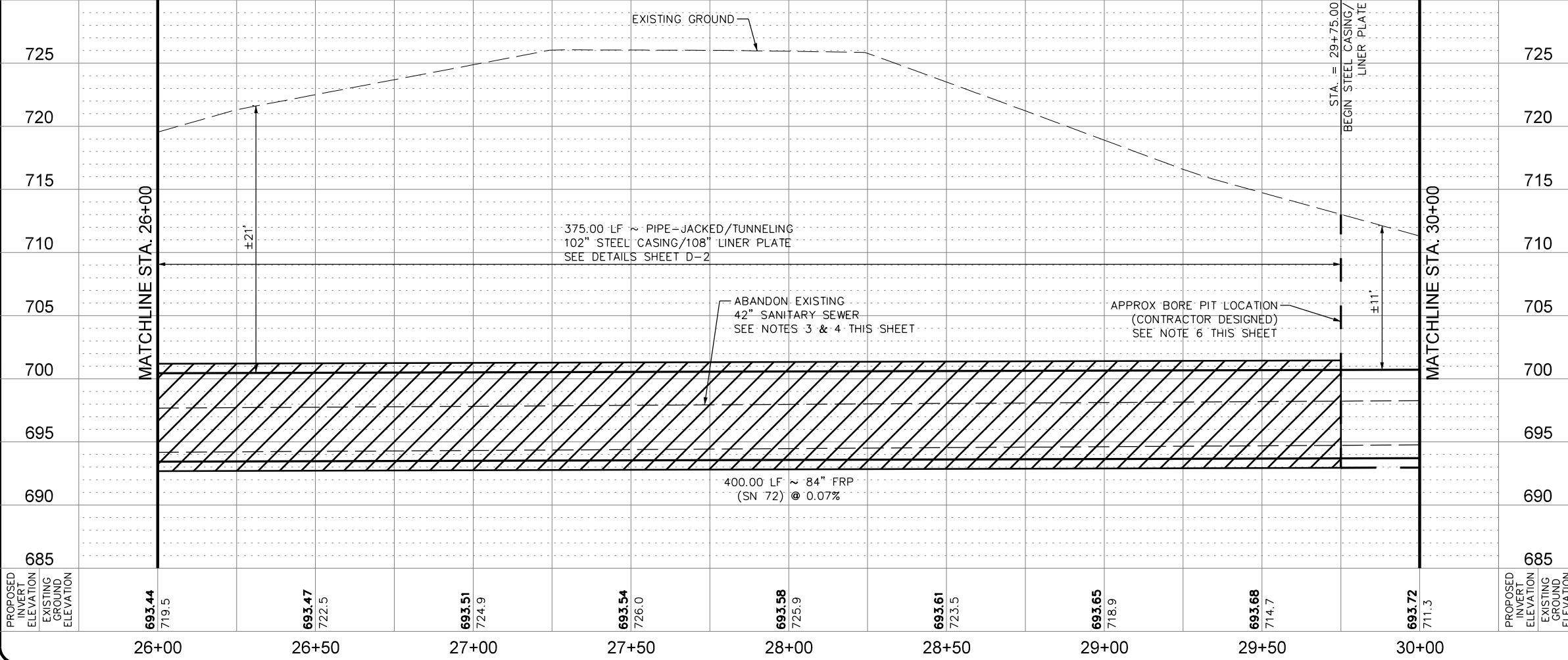
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|-----------------|---------------------------------------|
| APP. | PAPE-DAWSON |
| NO. | Job No. |
| DATE | 8918-00 |
| DESIGNED BY: MP | |
| DRAWN BY: BS | |
| CHECKED BY: JO | |
| DATE: AUG 2020 | SCALE: 1" = 40' HORZ 1" = 10' VERT |

| QUANTITY TABLE | | | |
|-----------------|--|------|----------|
| ITEM | DESCRIPTION | UNIT | QUANTITY |
| 857A | 84" FRP (ASTM D-3262)(SN 72) (OPEN CUT 20'-25') | LF | 25 |
| SS 2426 | CARRIER PIPE IN TUNNELS | LF | 375 |
| SS 2610/SS 2314 | 84" FRP (ASTM D-3262)(SN 72) | LF | 375 |
| SS 2441/SS 2314 | 102" STEEL CASING PIPE (0.5" THICKNESS)/108" STEEL LINER PLATE | LF | 375 |
| 202.1 | PIPE-JACKED TUNNEL/TUNNELING WITH LINER PLATE | LF | 375 |
| 202.1 | PRIME COAT | GAL | 90 |
| 203.1 | TACK COAT | GAL | 90 |
| 205.4 | HOTMIX ASPHALT PAVEMENT TYPE D - 2 INCHES PAVEMENT THICKNESS | SY | 898 |
| 208.1 | SALVAGING, HAULING & STOCKPILING RECLAIMABLE ASPHALT PAVEMENT (2 INCHES DEPTH) | SY | 898 |
| 550.1 | TRENCH EXCAVATION SAFETY PROTECTION | LF | 25 |
| 866 | SEWER MAIN TV INSPECTION | LF | 400 |

PAPE-DAWSON ENGINEERS
 SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
 2000 HWY LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
 TYPE FIRM REGISTRATION #470 | TYPE FIRM REGISTRATION #1008880

SAN ANTONIO WATER SYSTEM

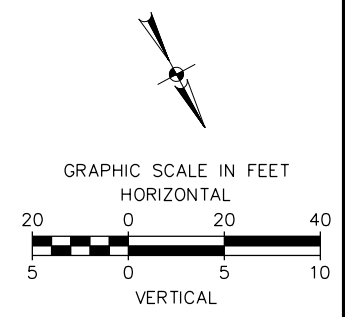
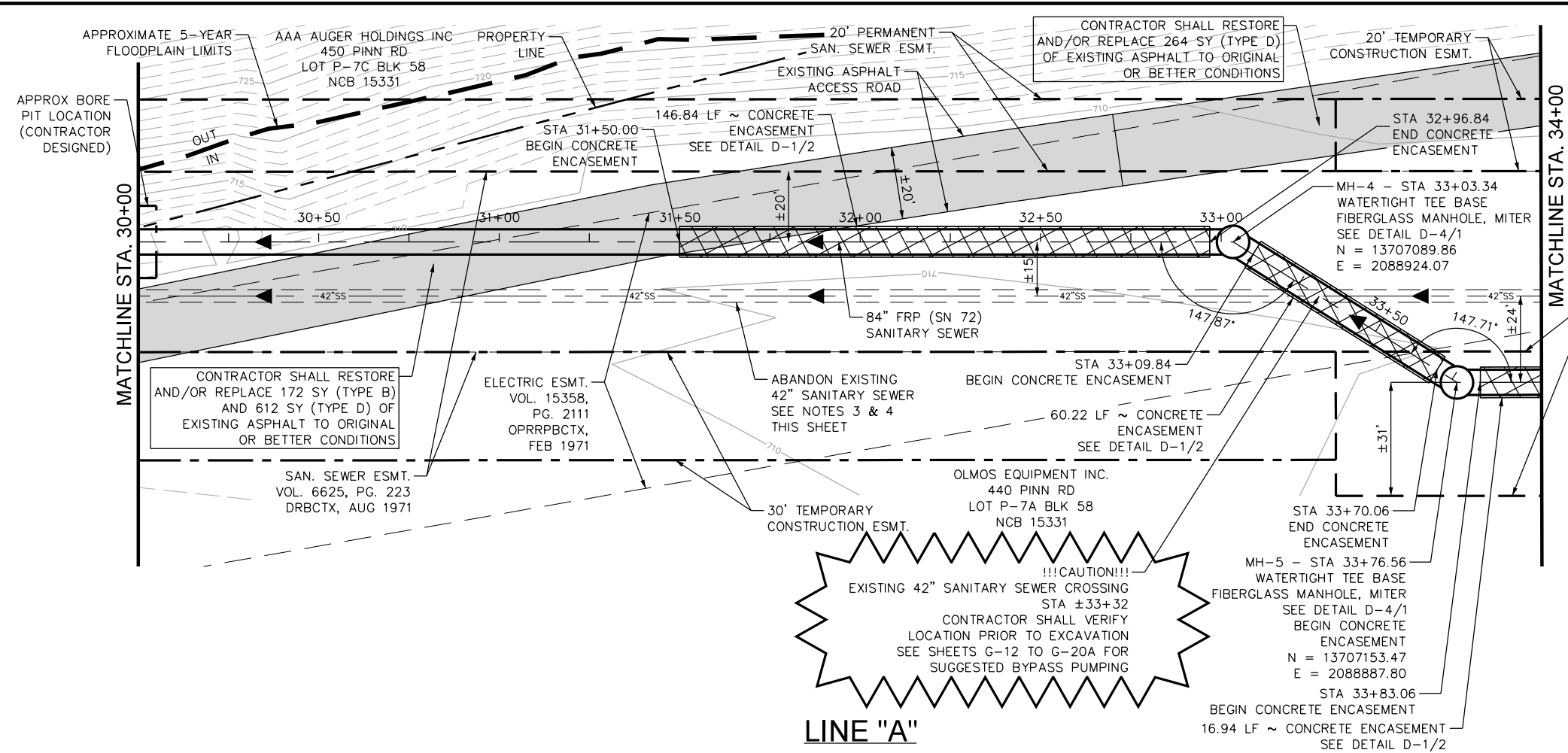
SAWS JOB NO. 19-4528
 W-1 LEON CREEK: HWY 151 TO HWY 90
 UPPER SEGMENT
 LINE "A" PLAN AND PROFILE
 STA 26+00 TO STA 30+00



- NOTES:**
- CONTRACTOR SHALL REFER TO THE TREE PRESERVATION PLAN SHEETS TP-1 TO TP-10 FOR TREE REMOVAL AND PRESERVATION.
 - CONTRACTOR MAY ENCOUNTER THE PRESENCE OF GROUND WATER DURING CONSTRUCTION. CONTRACTOR SHALL REFER TO THE SUPPLEMENTARY SPECIFICATIONS FOR CONTROL OF GROUND WATER.
 - CONTRACTOR SHALL REFER TO SHEETS G-21 TO G-23 FOR ABANDONMENT PLAN, NOTES AND QUANTITIES.
 - CONTRACTOR SHALL PROTECT EXISTING 42" SANITARY SEWER DURING CONSTRUCTION OF PROPOSED SANITARY SEWER MAIN.
 - ENTIRE AREA SHOWN ON THIS PLAN SHEET IS IN THE 100-YEAR FLOODPLAIN.
 - CONTRACTOR NEEDS TO ADEQUATELY SHORE TUNNEL SHAFT TO PREVENT DISTURBING BACKFILL OF EXISTING 42-INCH SANITARY SEWER MAIN.

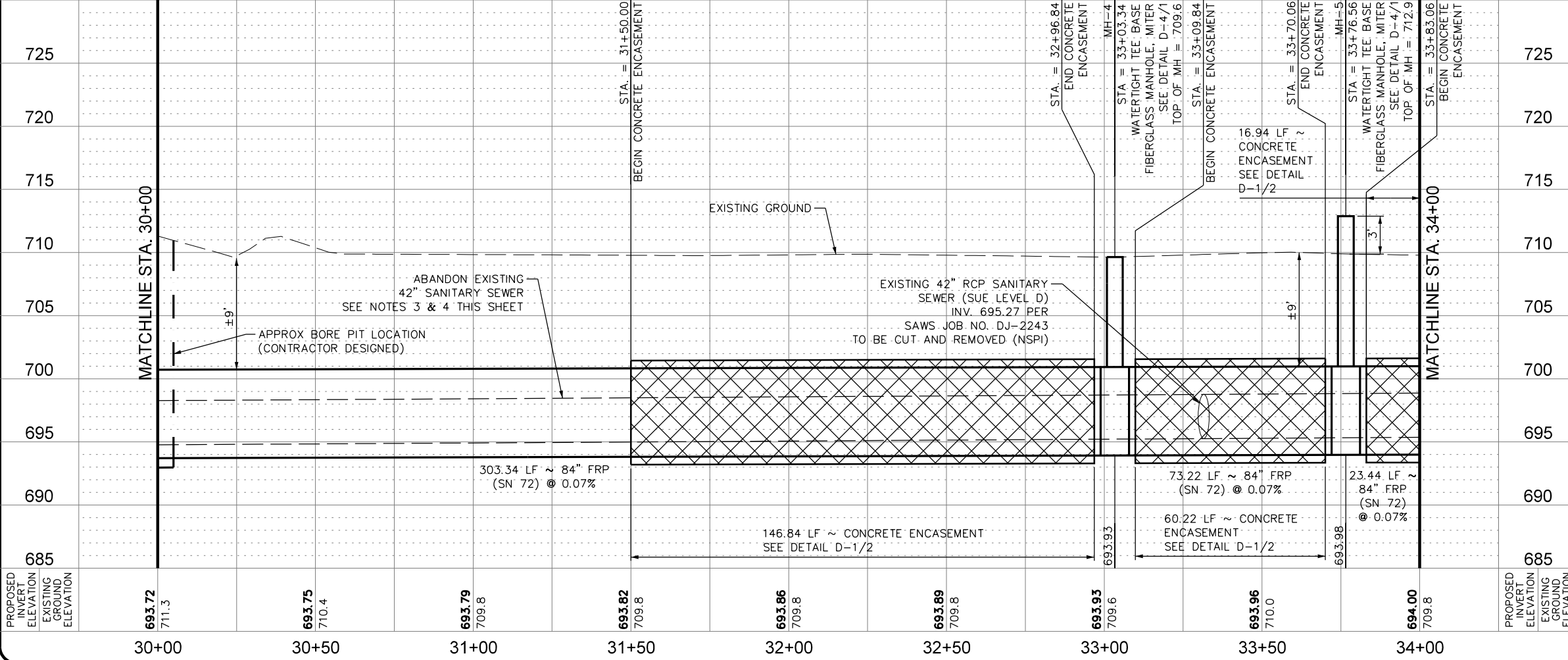
PLOTTED ON: 8/17/2020

DESIGN FILENAME: P:\89\18\00\Design\Civil\Sewer\Phase 1\SS891800-01-C06.dgn



| QUANTITY TABLE | | | |
|----------------|--|------|----------|
| ITEM | DESCRIPTION | UNIT | QUANTITY |
| 857A | 84" FRP (ASTM D-3262)(SN 72) (OPEN CUT 15'-20') | LF | 400 |
| 853A | TEE BASE FIBERGLASS MANHOLE, MITER | EA | 2 |
| 853 | EXTRA DEPTH TEE BASE MANHOLE | VF | 23 |
| 858 | CONCRETE ENCASEMENT (MIN STRENGTH, 2,000 PSI) | CY | 409 |
| 202.1 | PRIME COAT | GAL | 88 |
| 203.1 | TACK COAT | GAL | 88 |
| 205.2 | HOTMIX ASPHALT PAVEMENT TYPE B - 10 INCHES PAVEMENT THICKNESS | SY | 172 |
| 205.4 | HOTMIX ASPHALT PAVEMENT TYPE D - 2 INCHES PAVEMENT THICKNESS | SY | 876 |
| 208.1 | SALVAGING, HAULING & STOCKPILING RECLAIMABLE ASPHALT PAVEMENT (2 INCHES DEPTH) | SY | 876 |
| 550.1 | TRENCH EXCAVATION SAFETY PROTECTION | LF | 400 |
| 866 | SEWER MAIN TV INSPECTION | LF | 400 |

!!!CAUTION!!!
 EXISTING 42" SANITARY SEWER CROSSING STA ±33+32
 CONTRACTOR SHALL VERIFY LOCATION PRIOR TO EXCAVATION
 SEE SHEETS G-12 TO G-20A FOR SUGGESTED BYPASS PUMPING



- NOTES:**
- CONTRACTOR SHALL REFER TO THE TREE PRESERVATION PLAN SHEETS TP-1 TO TP-10 FOR TREE REMOVAL AND PRESERVATION.
 - CONTRACTOR MAY ENCOUNTER THE PRESENCE OF GROUND WATER & SURFACE WATER DURING CONSTRUCTION. CONTRACTOR SHALL REFER TO THE SUPPLEMENTARY SPECIFICATIONS FOR CONTROL OF GROUND WATER.
 - CONTRACTOR SHALL REFER TO SHEETS G-21 TO G-23 FOR ABANDONMENT PLAN, NOTES AND QUANTITIES.
 - CONTRACTOR SHALL PROTECT EXISTING 42" SANITARY SEWER DURING CONSTRUCTION OF PROPOSED SANITARY SEWER MAIN.
 - ENTIRE AREA SHOWN ON THIS PLAN SHEET IS IN THE 100-YEAR FLOODPLAIN.

PAPE-DAWSON
 Job No.
8918-00

DATE: AUG 2020
 DESIGNED BY: MP
 DRAWN BY: BS
 CHECKED BY: JO

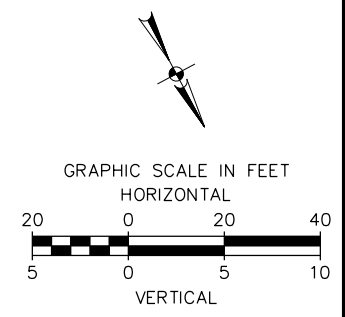
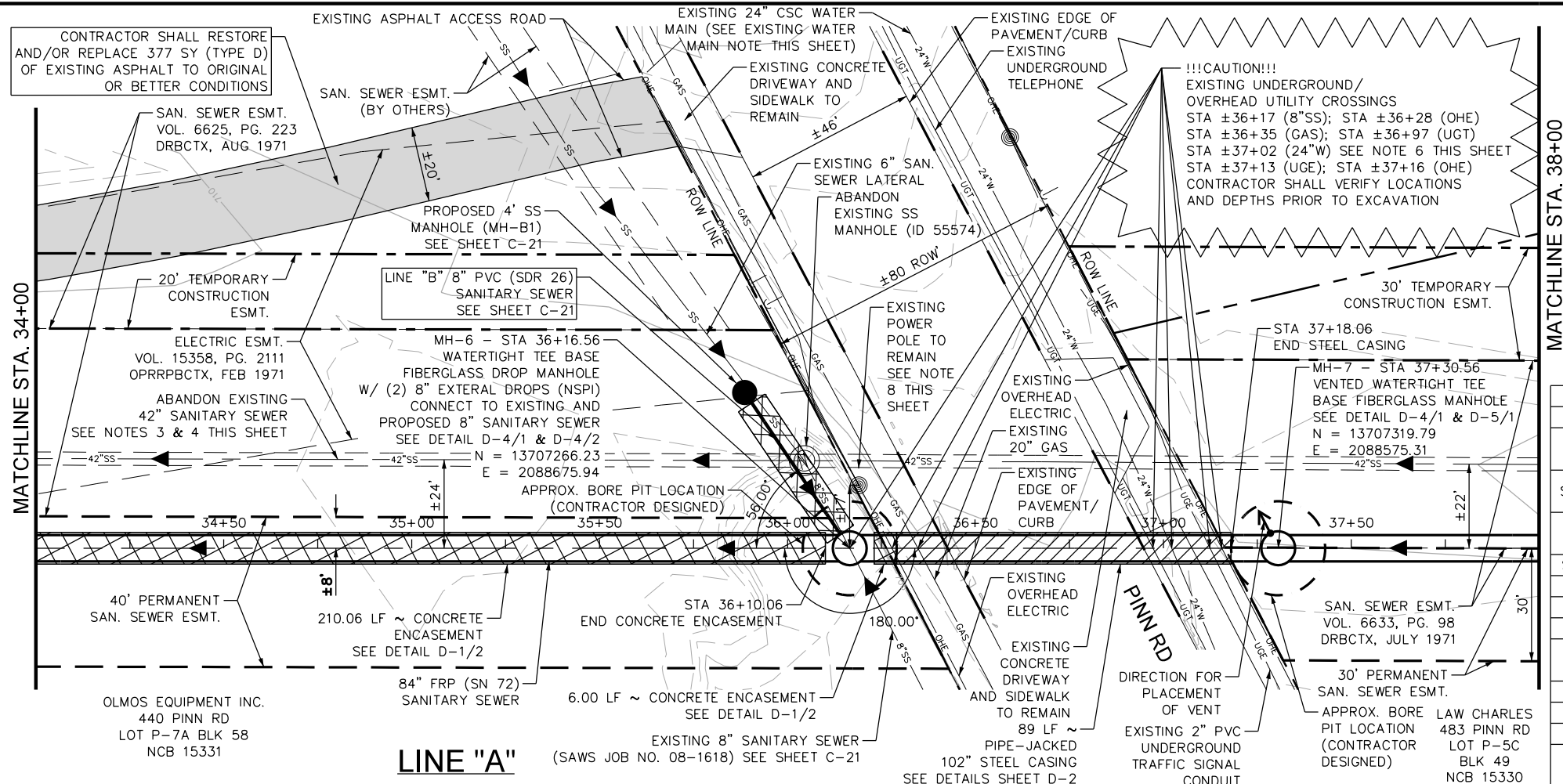
PAPE-DAWSON ENGINEERS
 SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
 2000 HWY LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.0000
 TYPE FIRM REGISTRATION #470 | TYPE FIRM REGISTRATION #1008880

SAN ANTONIO WATER SYSTEM

SAWS JOB NO. 19-4528
 W-1 LEON CREEK: HWY 151 TO HWY 90
 UPPER SEGMENT
 LINE "A" PLAN AND PROFILE
 STA 30+00 TO STA 34+00

PLOTTED ON: 8/17/2020

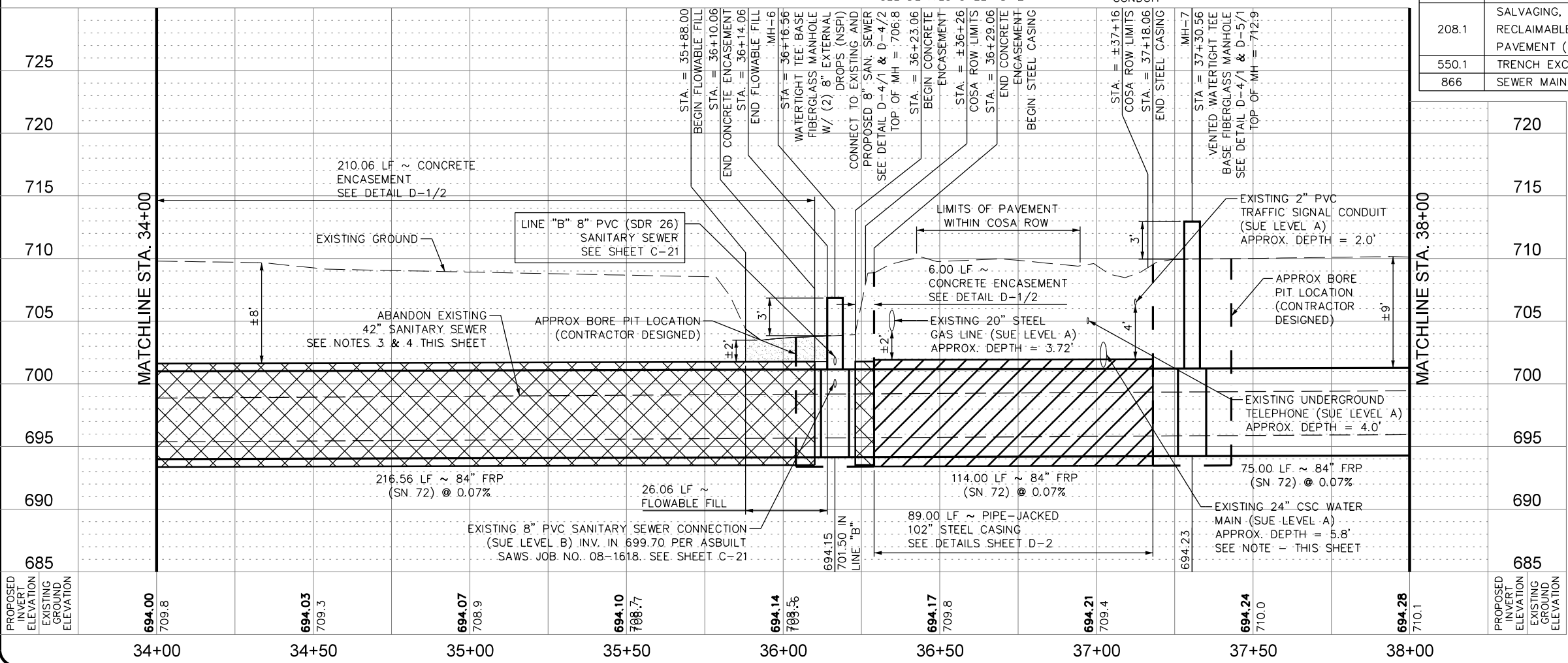
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CPS ENERGY NOTE:
CONTRACTOR SHALL NOTIFY CPS ENERGY PRIOR TO JACKING AND BORING UNDER EXISTING 20" STEEL GAS LINE. CONTACT BILL FEY, P.E. AT (210) 353-4267 OR (210) 216-3957.

| QUANTITY TABLE | | | |
|----------------|--|------|----------|
| ITEM | DESCRIPTION | UNIT | QUANTITY |
| 857A | 84" FRP (ASTM D-3262)(SN 72) (OPEN CUT 10'-15') | LF | 311 |
| SS 2426 | CARRIER PIPE IN TUNNELS 84" FRP (ASTM D-3262)(SN 72) | LF | 89 |
| SS2610 | 102" STEEL CASING PIPE (0.5" THICKNESS) | LF | 89 |
| SS 2441 | PIPE-JACKED TUNNEL | LF | 89 |
| 853A | TEE BASE FIBERGLASS MANHOLE | EA | 1 |
| 853A | TEE BASE FIBERGLASS DROP MANHOLE | EA | 1 |
| 853 | EXTRA DEPTH TEE BASE MANHOLE | VF | 20 |
| 858 | CONCRETE ENCASUREMENT (MIN STRENGTH, 2,000 PSI) | CY | 396 |
| 413 | FLOWABLE FILL | CY | 22 |
| 202.1 | PRIME COAT | GAL | 38 |
| 203.1 | TACK COAT | GAL | 38 |
| 205.4 | HOTMIX ASPHALT PAVEMENT TYPE D - 2 INCHES PAVEMENT THICKNESS | SY | 378 |
| 208.1 | SALVAGING, HAULING & STOCKPILING RECLAIMABLE ASPHALT PAVEMENT (2 INCHES DEPTH) | SY | 378 |
| 550.1 | TRENCH EXCAVATION SAFETY PROTECTION | LF | 311 |
| 866 | SEWER MAIN TV INSPECTION | LF | 400 |

- NOTES:**
- CONTRACTOR SHALL REFER TO THE TREE PRESERVATION PLAN SHEETS TP-1 TO TP-10 FOR TREE REMOVAL AND PRESERVATION.
 - CONTRACTOR MAY ENCOUNTER THE PRESENCE OF GROUND WATER DURING CONSTRUCTION. CONTRACTOR SHALL REFER TO THE SUPPLEMENTARY SPECIFICATIONS FOR CONTROL OF GROUND WATER.
 - CONTRACTOR SHALL REFER TO SHEETS G-21 TO G-23 FOR ABANDONMENT PLAN, NOTES AND QUANTITIES.
 - CONTRACTOR SHALL PROTECT EXISTING 42" SANITARY SEWER DURING CONSTRUCTION OF PROPOSED SANITARY SEWER MAIN.
 - ENTIRE AREA SHOWN ON THIS PLAN SHEET IS IN THE 100-YEAR FLOODPLAIN AND 5-YEAR FLOODPLAIN.
 - CONTRACTOR SHALL ADJUST EXISTING 24" CSC WATER MAIN TO AVOID CONFLICT WITH PROPOSED 84" SANITARY SEWER. SEE SHEET C-22 FOR ADJUSTMENT OF EXISTING WATER MAIN.
 - CONTRACTOR SHALL MONITOR SURFACE SETTLEMENT DIRECTLY ON TOP OF EXISTING GAS LINE AND CONFIRM TUNNEL EXCAVATION DOES NOT LEAD TO SETTLEMENT VALUES BEYOND THOSE ALLOWED BY SPECIFICATIONS.
 - CONTRACTOR SHALL MAINTAIN A MINIMUM OF 5-FOOT CLEARANCE FROM CPS POLE TO OUTSIDE OF TRENCH EXCAVATION FOR ANY OPEN EXCAVATION. IF MINIMUM CLEARANCE CAN NOT BE OBTAINED, CONTRACTOR SHALL COORDINATE AND SCHEDULE WITH CPS TO BRACE UTILITY POLE.



PAPE-DAWSON
Job No.
8918-00

Jason T. Diamond
8-17-20

| NO. | DATE | REVISIONS |
|-----|------|-----------|
| | | |

DATE: AUG 2020
DESIGNED BY: MP
DRAWN BY: BS
CHECKED BY: JO
SCALE: 1" = 40' HORZ
1" = 10' VERT

PAPE-DAWSON ENGINEERS

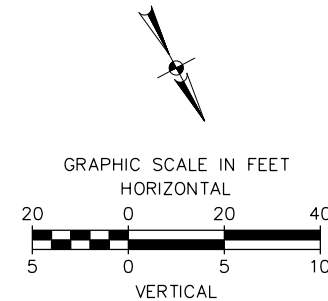
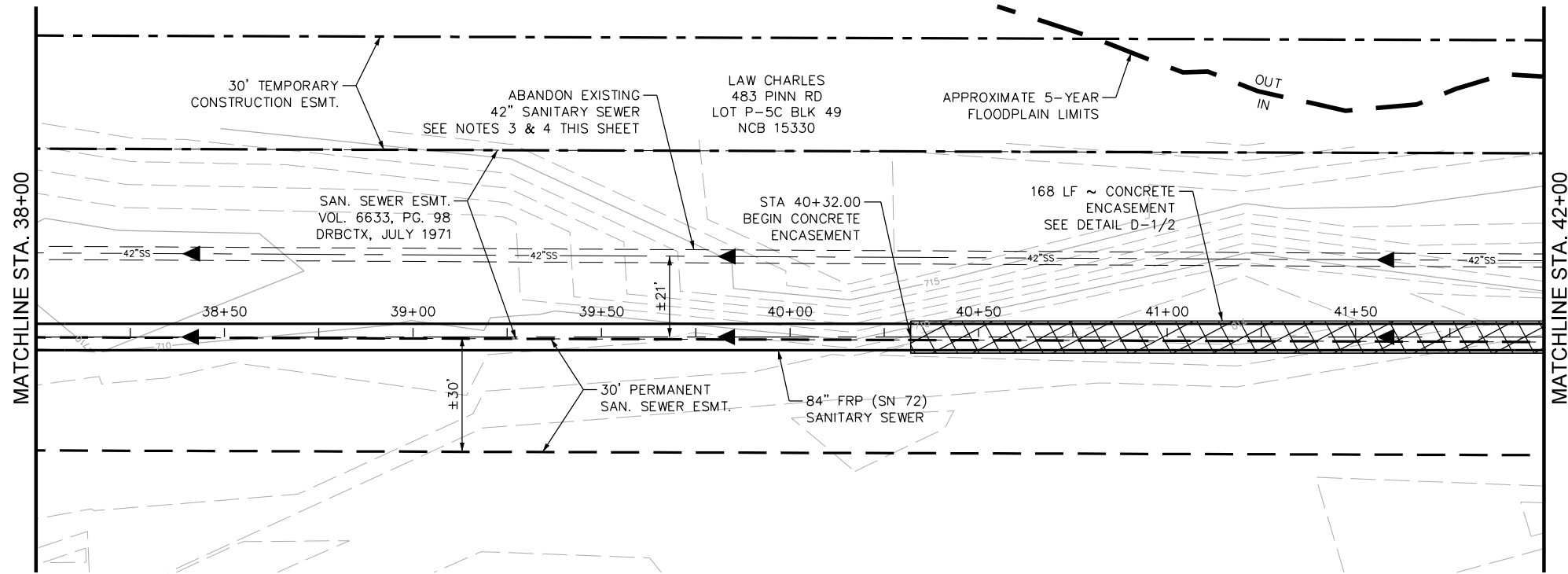
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 HWY LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.8000
TXPE REGISTRATION #470 | TXPLS REGISTRATION #1008800

SAN ANTONIO WATER SYSTEM

SAWS JOB NO. 19-4528
W-1 LEON CREEK: HWY 151 TO HWY 90
UPPER SEGMENT
LINE "A" PLAN AND PROFILE
STA 34+00 TO STA 38+00

PLOTTED ON: 8/17/2020

DESIGN FILENAME: P:\89\18\00\Design\Civil\Sewer\Phase 1\SS891800-01-C08.dgn



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|-----------------|-----------------------------------|
| APP. | PAPE-DAWSON Job No. 8918-00 |
| REVISIONS | Jason T. Diamond 8-17-20 |
| NO. | DATE |
| DESIGNED BY: MP | DATE: AUG 2020 |
| DRAWN BY: BS | |
| CHECKED BY: JO | |
| SCALE: | 1" = 40' HORZ 1" = 10' VERT |

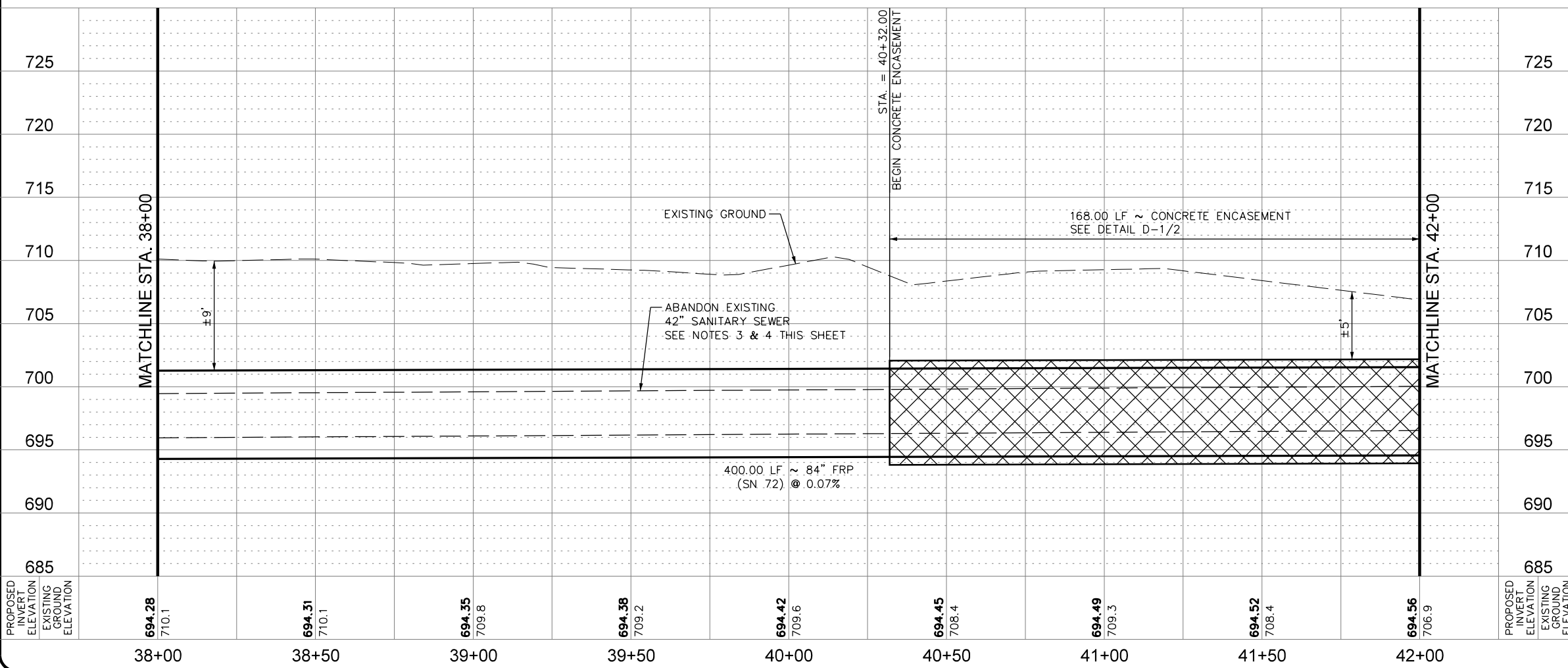
PAPE-DAWSON ENGINEERS
 SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
 2000 HWY LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
 TYPE FIRM REGISTRATION #470 | TYPE FIRM REGISTRATION #1008860

SAN ANTONIO WATER SYSTEM

SAWS JOB NO. 19-4528
 W-1 LEON CREEK: HWY 151 TO HWY 90
 UPPER SEGMENT
 LINE "A" PLAN AND PROFILE
 STA 38+00 TO STA 42+00

| QUANTITY TABLE | | | |
|----------------|--|------|----------|
| ITEM | DESCRIPTION | UNIT | QUANTITY |
| 857A | 84" FRP (ASTM D-3262)(SN 72) (OPEN CUT 10'-15') | LF | 400 |
| 858 | CONCRETE ENCASEMENT (MIN STRENGTH, 2,000 PSI) | CY | 308 |
| 550.1 | TRENCH EXCAVATION SAFETY PROTECTION | LF | 400 |
| 866 | SEWER MAIN TV INSPECTION | LF | 400 |

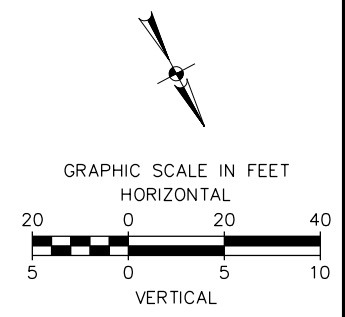
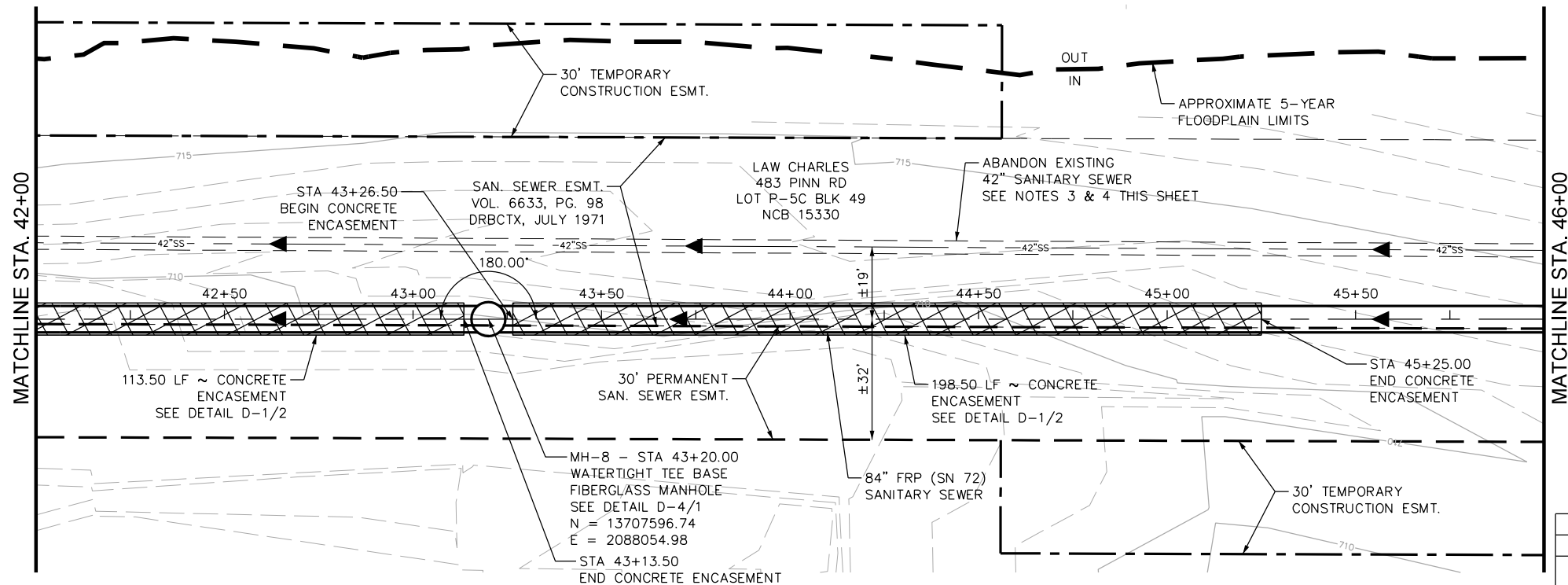
LINE "A"



- NOTES:**
- CONTRACTOR SHALL REFER TO THE TREE PRESERVATION PLAN SHEETS TP-1 TO TP-10 FOR TREE REMOVAL AND PRESERVATION.
 - CONTRACTOR MAY ENCOUNTER THE PRESENCE OF GROUND WATER DURING CONSTRUCTION. CONTRACTOR SHALL REFER TO THE SUPPLEMENTARY SPECIFICATIONS FOR CONTROL OF GROUND WATER.
 - CONTRACTOR SHALL REFER TO SHEETS G-21 TO G-23 FOR ABANDONMENT PLAN, NOTES AND QUANTITIES.
 - CONTRACTOR SHALL PROTECT EXISTING 42" SANITARY SEWER DURING CONSTRUCTION OF PROPOSED SANITARY SEWER MAIN.
 - ENTIRE AREA SHOWN ON THIS PLAN SHEET IS IN THE 100-YEAR FLOODPLAIN.

PLOTTED ON: 8/17/2020

DESIGN FILENAME: P:\89\18\00\Design\Civil\Sewer\Phase 1\SS891800-01-C09.dgn



PAPE-DAWSON
Job No.
8918-00

Jason T. Diamond
8-17-20

| NO. | DATE | REVISIONS |
|-----|------|-----------|
| | | |

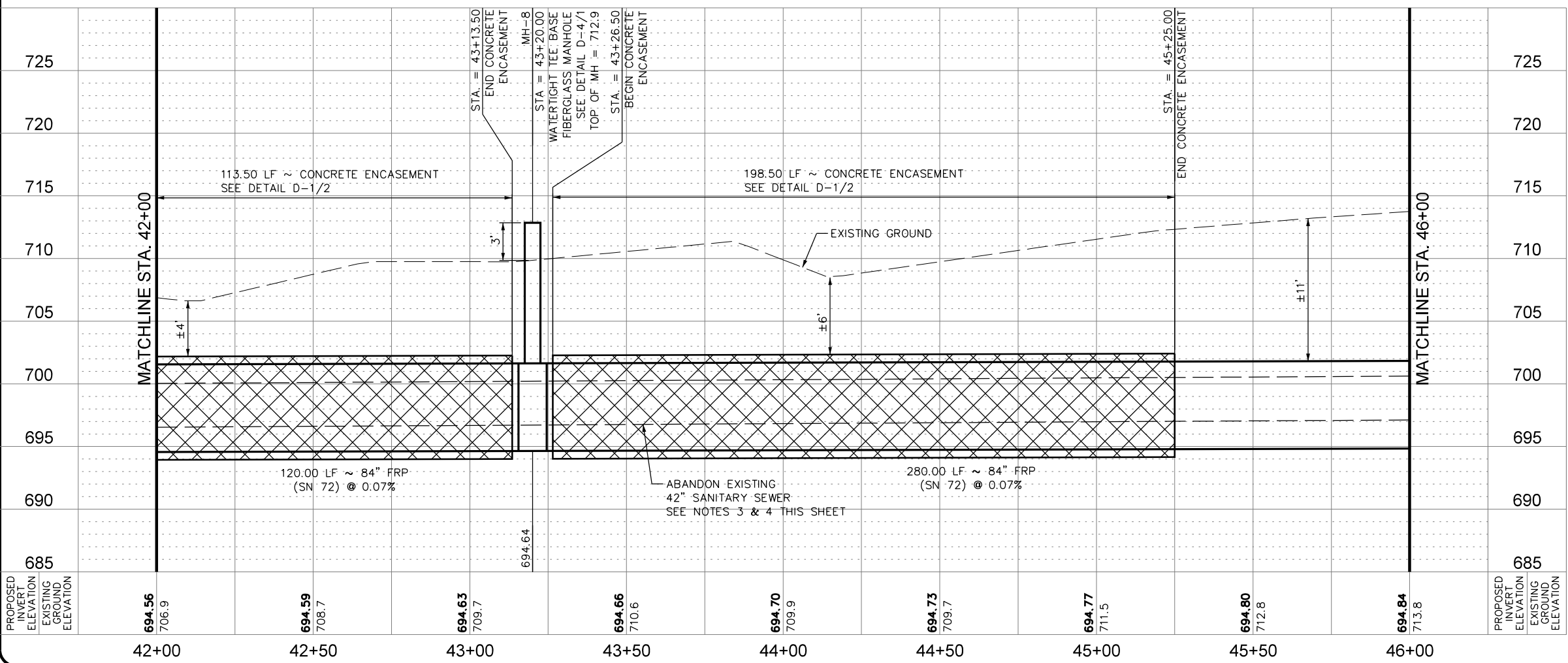
DATE: AUG 2020
DESIGNED BY: MP
DRAWN BY: BS
CHECKED BY: JO
SCALE: 1" = 40' HORZ
1" = 10' VERT

PAPE-DAWSON ENGINEERS

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 HWY LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.8000
TYPE FIRM REGISTRATION #470 | TYPE FIRM REGISTRATION #1008880

| QUANTITY TABLE | | | |
|----------------|--|------|----------|
| ITEM | DESCRIPTION | UNIT | QUANTITY |
| 857A | 84" FRP (ASTM D-3262)(SN 72) (OPEN CUT 10'-15') | LF | 250 |
| 857A | 84" FRP (ASTM D-3262)(SN 72) (OPEN CUT 15'-20') | LF | 150 |
| 853A | TEE BASE FIBERGLASS MANHOLE | EA | 1 |
| 853 | EXTRA DEPTH TEE BASE MANHOLE | VF | 13 |
| 858 | CONCRETE ENCASEMENT (MIN STRENGTH, 2,000 PSI) | CY | 571 |
| 550.1 | TRENCH EXCAVATION SAFETY PROTECTION | LF | 400 |
| 866 | SEWER MAIN TV INSPECTION | LF | 400 |

LINE "A"



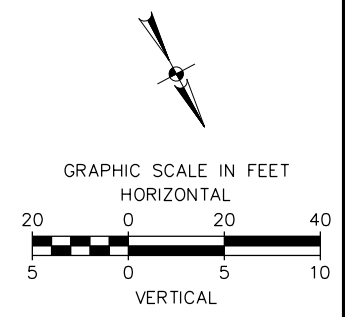
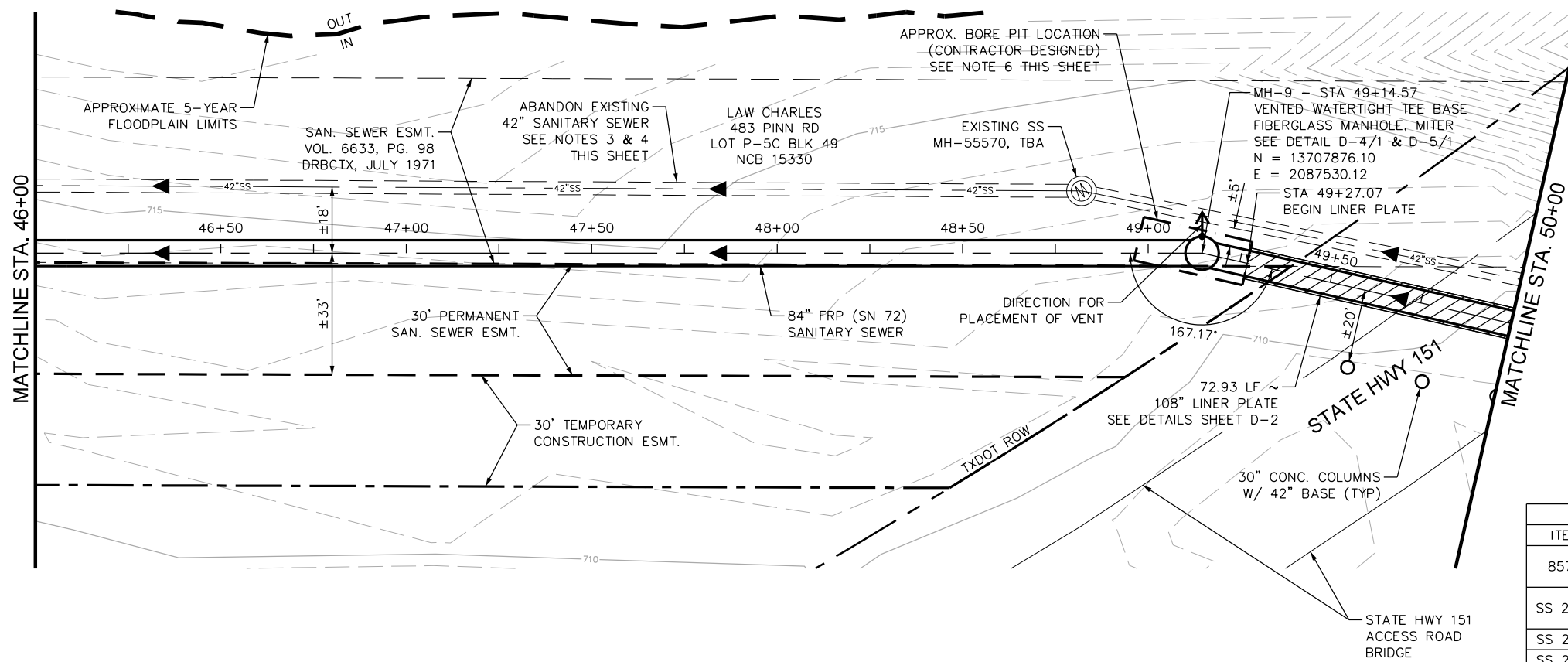
- NOTES:**
- CONTRACTOR SHALL REFER TO THE TREE PRESERVATION PLAN SHEETS TP-1 TO TP-10 FOR TREE REMOVAL AND PRESERVATION.
 - CONTRACTOR MAY ENCOUNTER THE PRESENCE OF GROUND WATER DURING CONSTRUCTION. CONTRACTOR SHALL REFER TO THE SUPPLEMENTARY SPECIFICATIONS FOR CONTROL OF GROUND WATER.
 - CONTRACTOR SHALL REFER TO SHEETS G-21 TO G-23 FOR ABANDONMENT PLAN, NOTES AND QUANTITIES.
 - CONTRACTOR SHALL PROTECT EXISTING 42" SANITARY SEWER DURING CONSTRUCTION OF PROPOSED SANITARY SEWER MAIN.
 - ENTIRE AREA SHOWN ON THIS PLAN SHEET IS IN THE 100-YEAR FLOODPLAIN.

SAN ANTONIO WATER SYSTEM

SAWS JOB NO. 19-4528
W-1 LEON CREEK: HWY 151 TO HWY 90
UPPER SEGMENT
LINE "A" PLAN AND PROFILE
STA 42+00 TO STA 46+00

PLOTTED ON: 8/18/2020

DESIGN FILENAME: P:\89\18\00\Design\Civil\Sewer\Phase 1\SS891800-01-C10.dgn



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| APP. | PAPE-DAWSON |
| NO. | Job No. |
| DATE | 8918-00 |
| DESIGNED BY | JASON T. DIAMOND |
| DRAWN BY | 8-17-20 |
| CHECKED BY | |
| SCALE | 1" = 40' HORZ 1" = 10' VERT |

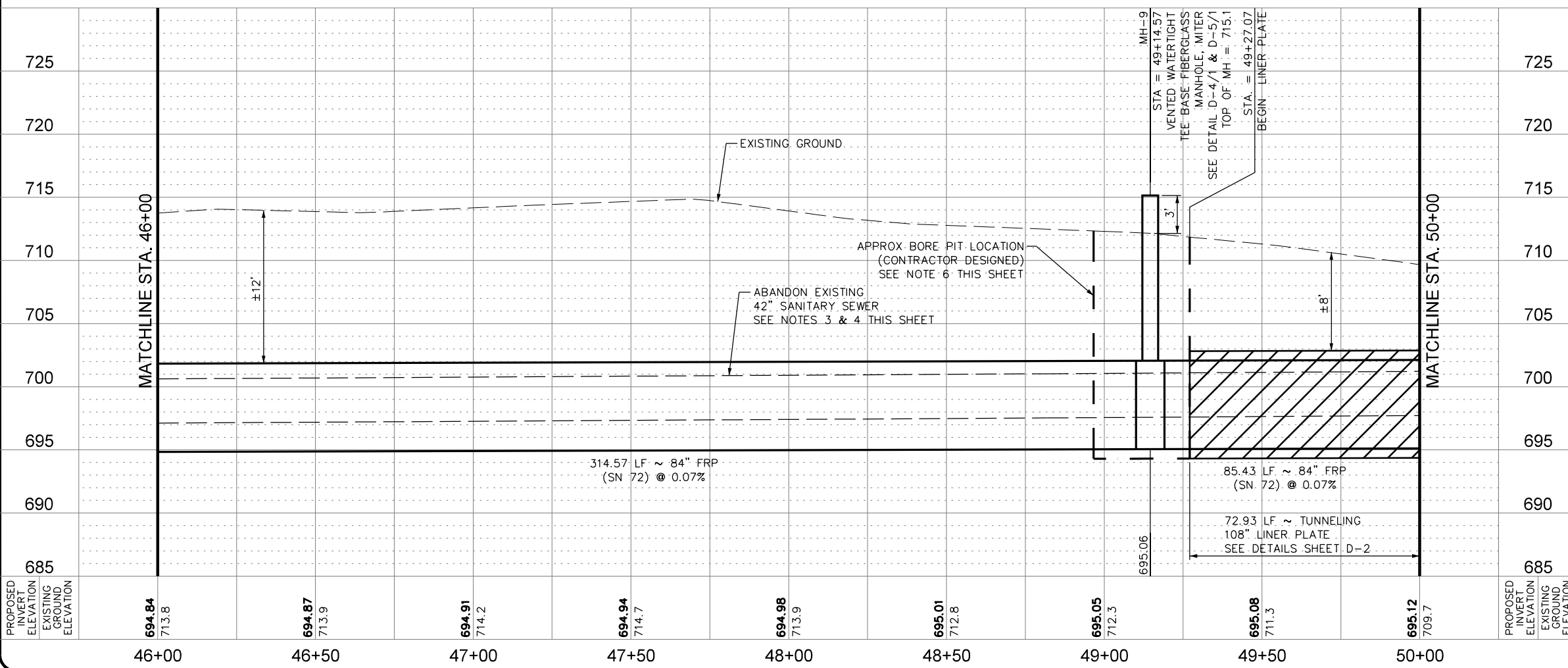
PAPE-DAWSON ENGINEERS
 SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
 2000 HWY LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
 TYPE FIRM REGISTRATION #470 | TYPE FIRM REGISTRATION #1008880

SAN ANTONIO WATER SYSTEM

SAWS JOB NO. 19-4528
 W-1 LEON CREEK: HWY 151 TO HWY 90
 UPPER SEGMENT
 LINE "A" PLAN AND PROFILE
 STA 46+00 TO STA 50+00

LINE "A"

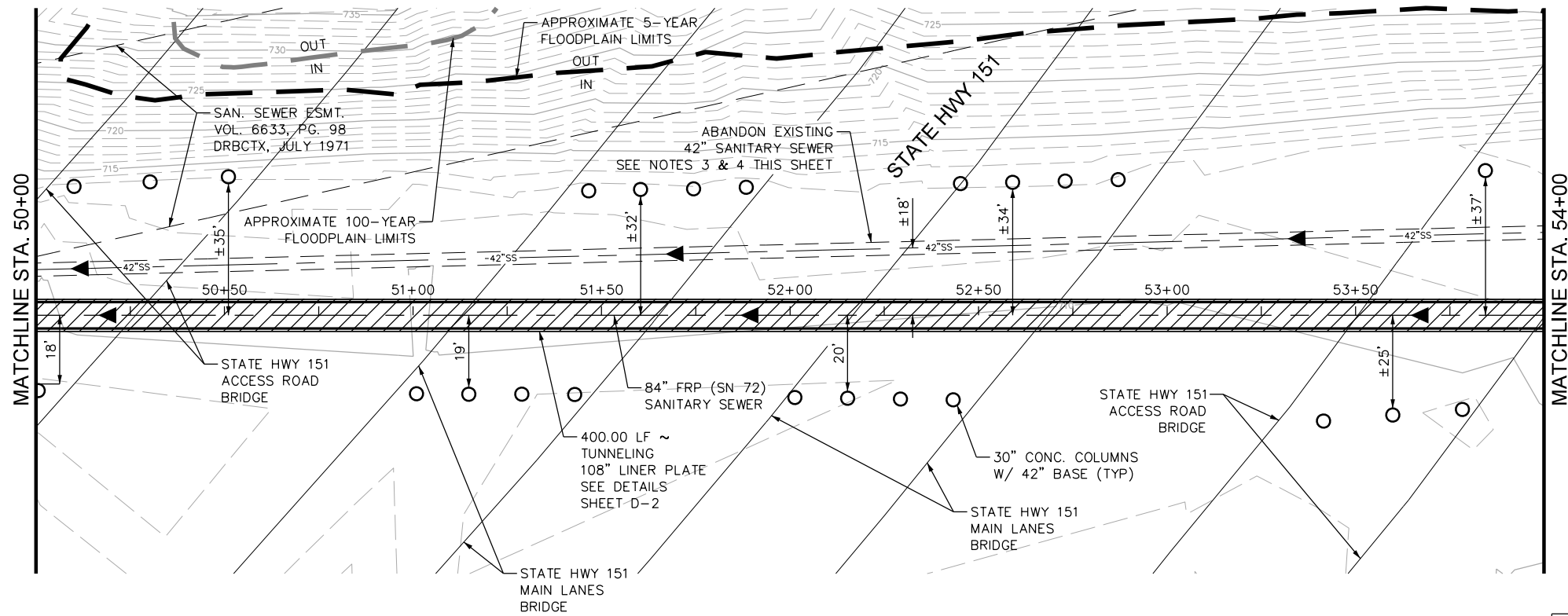
| QUANTITY TABLE | | | |
|----------------|--|------|----------|
| ITEM | DESCRIPTION | UNIT | QUANTITY |
| 857A | 84" FRP (ASTM D-3262)(SN 72) (OPEN CUT 15'-20') | LF | 327 |
| SS 2426 | CARRIER PIPE IN TUNNELS 84" FRP (ASTM D-3262)(SN 72) | LF | 73 |
| SS 2314 | 108" STEEL LINER PLATE | LF | 73 |
| SS 2314 | TUNNELING WITH LINER PLATE | LF | 73 |
| 853A | TEE BASE FIBERGLASS MANHOLE, MITER | EA | 1 |
| 853 | EXTRA DEPTH TEE BASE MANHOLE | VF | 14 |
| 550.1 | TRENCH EXCAVATION SAFETY PROTECTION | LF | 327 |
| 866 | SEWER MAIN TV INSPECTION | LF | 400 |



- NOTES:**
- CONTRACTOR SHALL REFER TO THE TREE PRESERVATION PLAN SHEETS TP-1 TO TP-10 FOR TREE REMOVAL AND PRESERVATION.
 - CONTRACTOR MAY ENCOUNTER THE PRESENCE OF GROUND WATER DURING CONSTRUCTION. CONTRACTOR SHALL REFER TO THE SUPPLEMENTARY SPECIFICATIONS FOR CONTROL OF GROUND WATER.
 - CONTRACTOR SHALL REFER TO SHEETS G-21 TO G-23 FOR ABANDONMENT PLAN, NOTES AND QUANTITIES.
 - ENTIRE AREA SHOWN ON THIS PLAN SHEET IS IN THE 100-YEAR FLOODPLAIN.
 - CONTRACTOR SHALL PROTECT EXISTING 42" SANITARY SEWER DURING CONSTRUCTION OF PROPOSED SANITARY SEWER MAIN.
 - CONTRACTOR NEEDS TO ADEQUATELY SHORE TUNNEL SHAFT TO PREVENT DISTURBING BACKFILL AND EXISTING 42-INCH SANITARY SEWER MAIN.

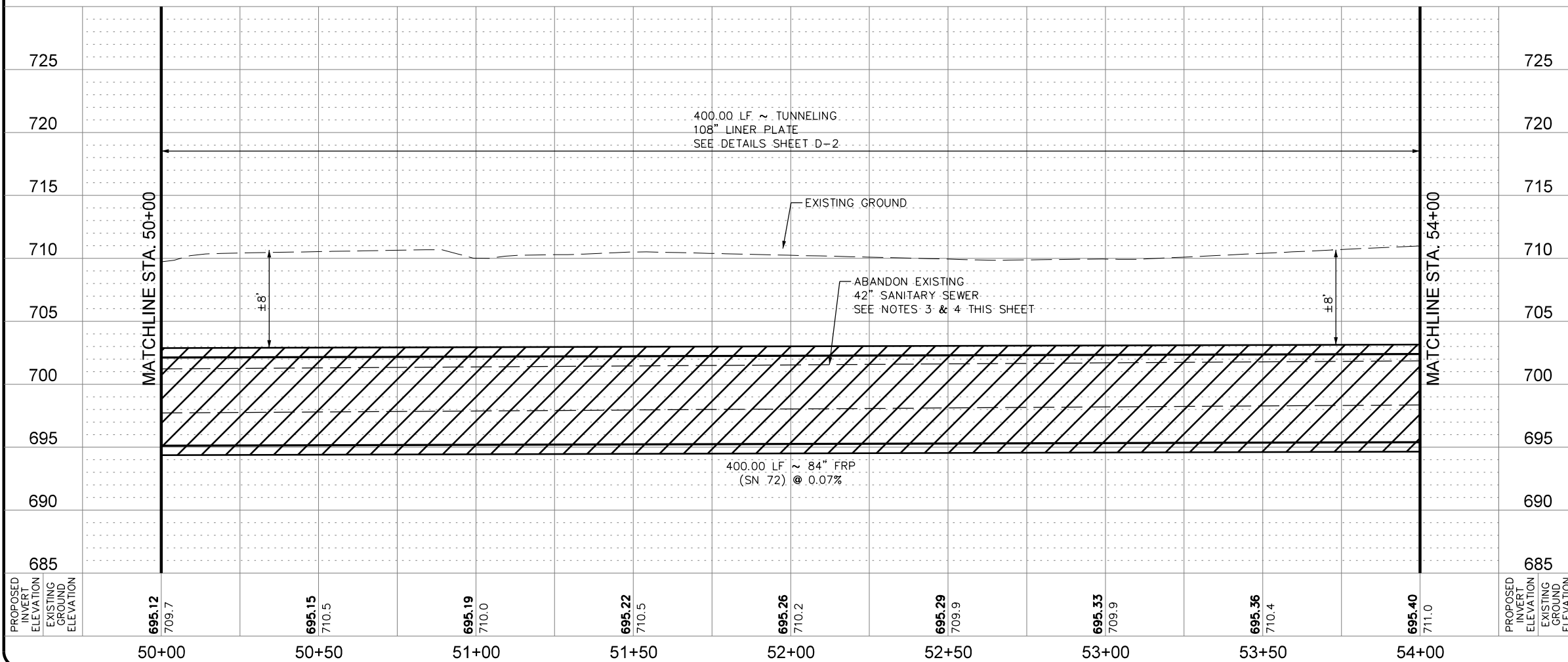
PLOTTED ON: 8/17/2020

DESIGN FILENAME: P:\89\18\00\Design\Civil\Sewer\Phase 1\SS891800-01-C11.dgn



| QUANTITY TABLE | | | |
|----------------|---|------|----------|
| ITEM | DESCRIPTION | UNIT | QUANTITY |
| SS 2426 | CARRIER PIPE IN TUNNELS 84" FRP (ASTM D-3262)(SN 72) | LF | 400 |
| SS 2314 | 108" STEEL LINER PLATE | LF | 400 |
| SS 2314 | TUNNELING WITH LINER PLATE | LF | 400 |
| 866 | SEWER MAIN TV INSPECTION | LF | 400 |

LINE "A"



- NOTES:**
- CONTRACTOR SHALL REFER TO THE TREE PRESERVATION PLAN SHEETS TP-1 TO TP-10 FOR TREE REMOVAL AND PRESERVATION.
 - CONTRACTOR MAY ENCOUNTER THE PRESENCE OF GROUND WATER DURING CONSTRUCTION. CONTRACTOR SHALL REFER TO THE SUPPLEMENTARY SPECIFICATIONS FOR CONTROL OF GROUND WATER.
 - CONTRACTOR SHALL REFER TO SHEETS G-21 TO G-23 FOR ABANDONMENT PLAN, NOTES AND QUANTITIES.
 - CONTRACTOR SHALL PROTECT EXISTING 42" SANITARY SEWER DURING CONSTRUCTION OF PROPOSED SANITARY SEWER MAIN.
 - ENTIRE AREA SHOWN ON THIS PLAN SHEET IS IN THE 100-YEAR FLOODPLAIN.

PAPE-DAWSON
Job No.
8918-00

Jason T. Diamond
8-17-20

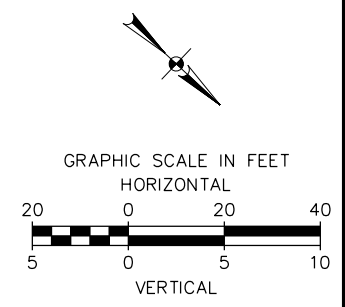
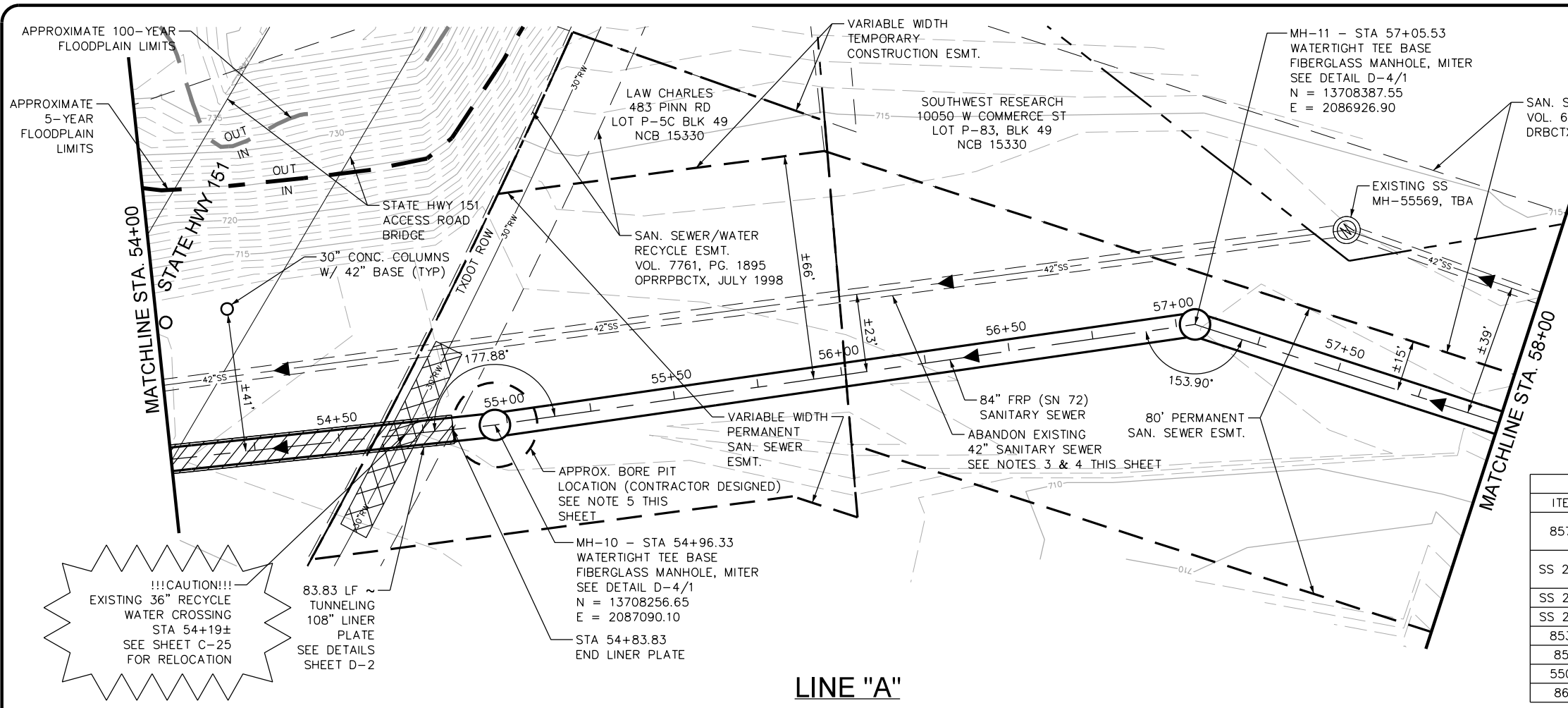
PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 HW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TYPE FIRM REGISTRATION #470 | TYPE FIRM REGISTRATION #1008880

SAN ANTONIO WATER SYSTEM

SAWS JOB NO. 19-4528
W-1 LEON CREEK: HWY 151 TO HWY 90
UPPER SEGMENT
LINE "A" PLAN AND PROFILE
STA 50+00 TO STA 54+00

PLOTTED ON: 8/17/2020

DESIGN FILENAME: P:\89\18\00\Design\Civil\Sewer\Phase 1\SS891800-01-C12.dgn



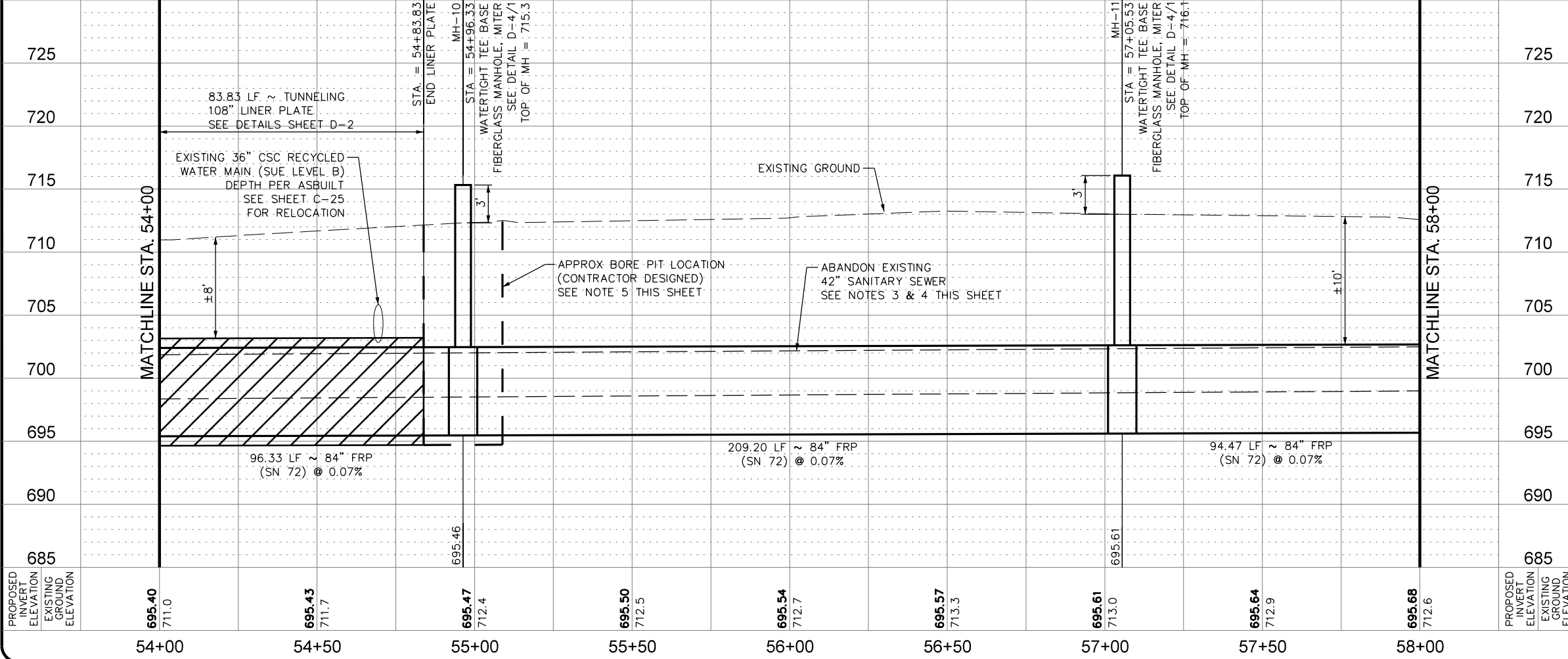
| APP. | |
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| NO. | DATE |
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| | |

DATE: AUG 2020
DESIGNED BY: MP
DRAWN BY: BS
CHECKED BY: JO
SCALE: 1" = 40' HORZ
1" = 10' VERT

PAPE-DAWSON ENGINEERS

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 HW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.0000
TXPE REGISTRATION #470 | TXPLS REGISTRATION #1008868

| QUANTITY TABLE | | | |
|----------------|--|------|----------|
| ITEM | DESCRIPTION | UNIT | QUANTITY |
| 857A | 84" FRP (ASTM D-3262)(SN 72) (OPEN CUT 15'-20') | LF | 316 |
| SS 2426 | CARRIER PIPE IN TUNNELS 84" FRP (ASTM D-3262)(SN 72) | LF | 84 |
| SS 2314 | 108" STEEL LINER PLATE | LF | 84 |
| SS 2314 | TUNNELING WITH LINER PLATE | LF | 84 |
| 853A | TEE BASE FIBERGLASS MANHOLE, MITER | EA | 2 |
| 853 | EXTRA DEPTH TEE BASE MANHOLE | VF | 29 |
| 550.1 | TRENCH EXCAVATION SAFETY PROTECTION | LF | 316 |
| 866 | SEWER MAIN TV INSPECTION | LF | 400 |



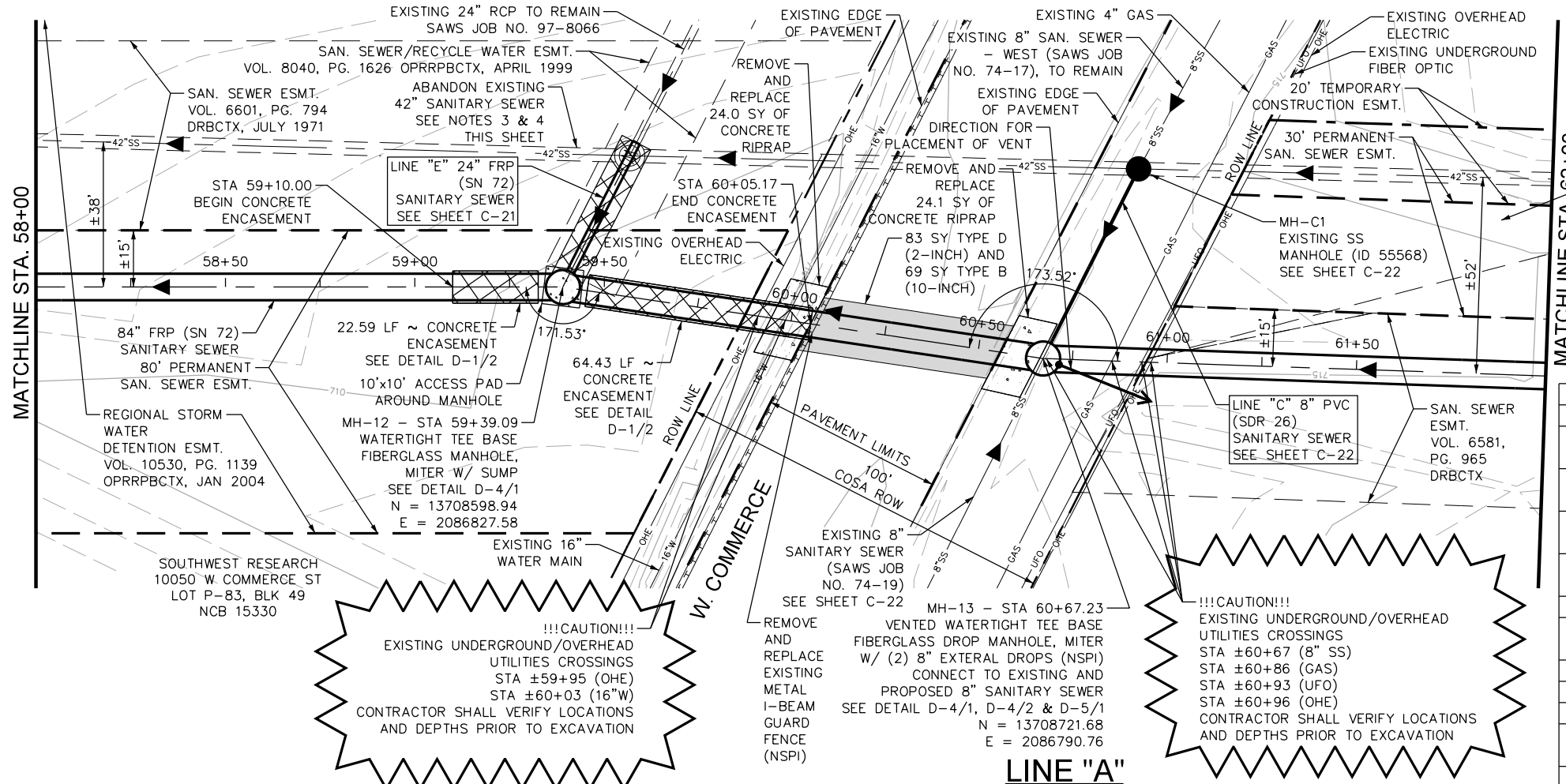
- NOTES:**
- CONTRACTOR SHALL REFER TO THE TREE PRESERVATION PLAN SHEETS TP-1 TO TP-10 FOR TREE REMOVAL AND PRESERVATION.
 - CONTRACTOR MAY ENCOUNTER THE PRESENCE OF GROUND WATER DURING CONSTRUCTION. CONTRACTOR SHALL REFER TO THE SUPPLEMENTARY SPECIFICATIONS FOR CONTROL OF GROUND WATER.
 - CONTRACTOR SHALL REFER TO SHEETS G-21 TO G-23 FOR ABANDONMENT PLAN, NOTES AND QUANTITIES.
 - CONTRACTOR SHALL PROTECT EXISTING 42" SANITARY SEWER DURING CONSTRUCTION OF PROPOSED SANITARY SEWER MAIN.
 - CONTRACTOR NEEDS TO ADEQUATELY SHORE TUNNEL SHAFT TO PREVENT DISTURBING BACKFILL OF EXISTING 42-INCH SANITARY SEWER MAIN.
 - ENTIRE AREA SHOWN ON THIS PLAN SHEET IS IN THE 100-YEAR FLOODPLAIN.
 - ACCESS TO SOUTHWEST RESEARCH INSTITUTE IS LIMITED TO THE ACQUIRED SAWS EASEMENTS SHOWN ON PLANS, NO OTHER ACCESS WILL BE ALLOWED.

SAN ANTONIO WATER SYSTEM

SAWS JOB NO. 19-4528
W-1 LEON CREEK: HWY 151 TO HWY 90
UPPER SEGMENT
LINE "A" PLAN AND PROFILE
STA 54+00 TO STA 58+00

PLOTTED ON: 8/17/2020

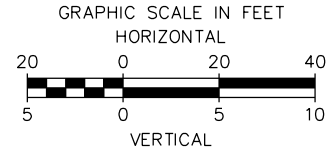
DESIGN FILENAME: P:\89\18\00\Design\Civil\Sewer\Phase 1\SS891800-01-C13.dgn



!!!CAUTION!!!
EXISTING UNDERGROUND/OVERHEAD UTILITIES CROSSINGS
STA ±59+95 (OHE)
STA ±60+03 (16"W)
CONTRACTOR SHALL VERIFY LOCATIONS AND DEPTHS PRIOR TO EXCAVATION

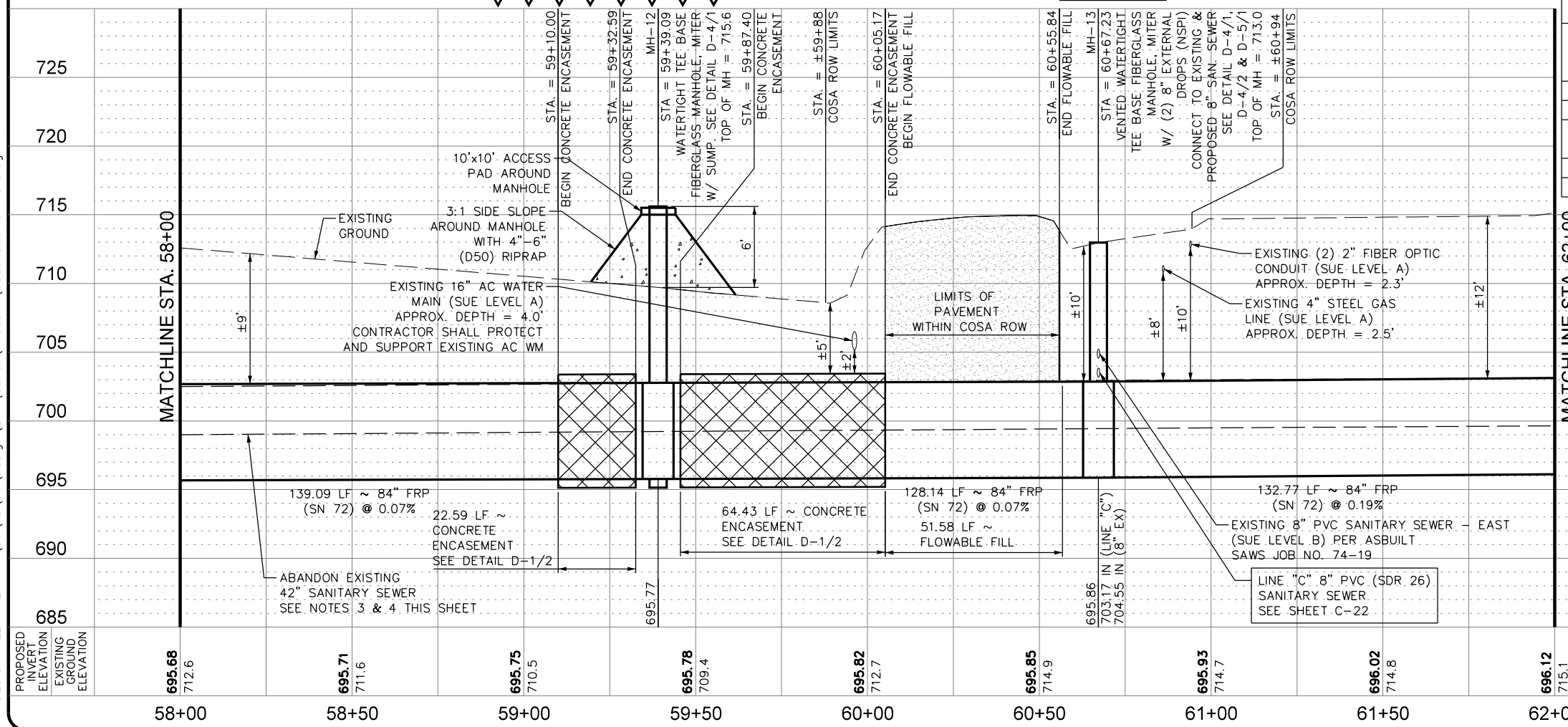
!!!CAUTION!!!
EXISTING UNDERGROUND/OVERHEAD UTILITIES CROSSINGS
STA ±60+67 (8" SS)
STA ±60+86 (GAS)
STA ±60+93 (UFO)
STA ±60+96 (OHE)
CONTRACTOR SHALL VERIFY LOCATIONS AND DEPTHS PRIOR TO EXCAVATION

SOUTHWEST RESEARCH INSTITUTE
W COMMERCE ST
BLK LOT W IRR
313.00 FT OF 41
6220 CULEBRA RD
BLK LOT MID IRR
819.69 FT OF 41
NCB 11493



| QUANTITY TABLE | | | |
|----------------|--|------|----------|
| ITEM | DESCRIPTION | UNIT | QUANTITY |
| 857A | 84" FRP (ASTM D-3262)(SN 72) (OPEN CUT 10'-15') | LF | 114 |
| 857A | 84" FRP (ASTM D-3262)(SN 72) (OPEN CUT 15'-20') | LF | 286 |
| 853A | TEE BASE FIBERGLASS MANHOLE, MITER W/ SUMP | EA | 1 |
| 853A | TEE BASE FIBERGLASS DROP MANHOLE, MITER | EA | 1 |
| 853 | EXTRA DEPTH TEE BASE MANHOLE | VF | 25 |
| 858 | CONCRETE ENCASEMENT (MIN STRENGTH, 2,000 PSI) | CY | 166 |
| 413 | FLOWABLE FILL | CY | 224 |
| 202.1 | PRIME COAT | GAL | 9 |
| 203.1 | TACK COAT | GAL | 9 |
| 205.2 | HOTMIX ASPHALT PAVEMENT TYPE B - 10 INCHES PAVEMENT THICKNESS | SY | 69 |
| 205.4 | HOTMIX ASPHALT PAVEMENT TYPE D - 2 INCHES PAVEMENT THICKNESS | SY | 83 |
| 208.1 | SALVAGING, HAULING & STOCKPILING RECLAIMABLE ASPHALT PAVEMENT (2 INCHES DEPTH) | SY | 83 |
| 505.1 | CONCRETE RIPRAP (6" THICK) | SY | 49 |
| 103.4 | REMOVE MISC. CONCRETE | SF | 420 |
| SP-13 | BYPASS PUMPING PAD 10'x10' WITH 4"-6" (D50) RIPRAP (COMPLETE) | LS | 1 |
| 550.1 | TRENCH EXCAVATION SAFETY PROTECTION | LF | 400 |
| 866 | SEWER MAIN TV INSPECTION | LF | 400 |

- NOTES:**
- CONTRACTOR SHALL REFER TO THE TREE PRESERVATION PLAN SHEETS TP-1 TO TP-10 FOR TREE REMOVAL AND PRESERVATION.
 - CONTRACTOR MAY ENCOUNTER THE PRESENCE OF GROUND WATER DURING CONSTRUCTION. CONTRACTOR SHALL REFER TO THE SUPPLEMENTARY SPECIFICATIONS FOR CONTROL OF GROUND WATER.
 - CONTRACTOR SHALL REFER TO SHEETS G-21 TO G-23 FOR ABANDONMENT PLAN, NOTES AND QUANTITIES.
 - CONTRACTOR SHALL PROTECT EXISTING 42" SANITARY SEWER DURING CONSTRUCTION OF PROPOSED SANITARY SEWER MAIN.
 - ENTIRE AREA SHOWN ON THIS PLAN SHEET IS IN THE 100-YEAR FLOODPLAIN AND 5-YEAR FLOODPLAIN.
 - CONTRACTOR SHALL NOT DISRUPT CURRENT SAWS BYPASSING EFFORTS AT MH ID 54192. CONTRACTOR SHALL NOTIFY SAWS PRIOR TO ABANDONING MH ID 54192.
 - ACCESS TO SOUTHWEST RESEARCH INSTITUTE IS LIMITED TO THE ACQUIRED SAWS EASEMENTS SHOWN ON PLANS, NO OTHER ACCESS WILL BE ALLOWED.
 - A VARIANCE REQUEST HAS BEEN SUBMITTED TO TCEQ FOR THE SUMP AT MH-12.



APP: PAPE-DAWSON
Job No. 8918-00

REVISIONS:

| NO. | DATE | BY | DESCRIPTION |
|-----|----------|----|-------------|
| 1 | AUG 2020 | MP | DESIGNED BY |
| 2 | | BS | DRAWN BY |
| 3 | | JO | CHECKED BY |

SCALE: 1" = 40' HORZ
1" = 10' VERT

PAPE-DAWSON ENGINEERS

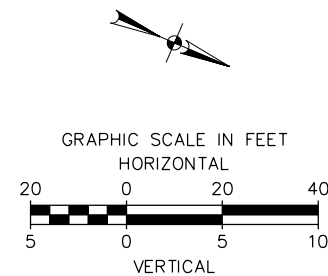
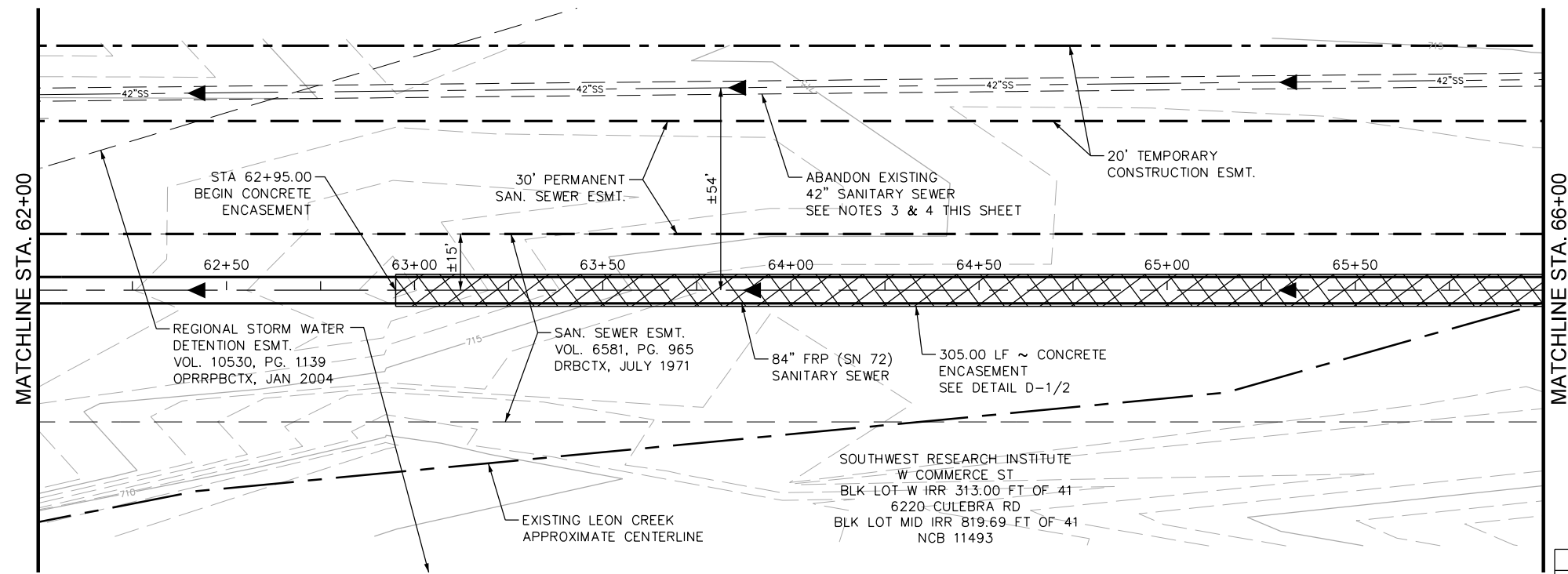
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 HW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.8000
TXPE FIRM REGISTRATION #070 | TEPIS FIRM REGISTRATION #1008800

SAN ANTONIO WATER SYSTEM

SAWS JOB NO. 19-4528
W-1 LEON CREEK: HWY 151 TO HWY 90
UPPER SEGMENT
LINE "A" PLAN AND PROFILE
STA 58+00 TO STA 62+00

PLOTTED ON: 8/17/2020

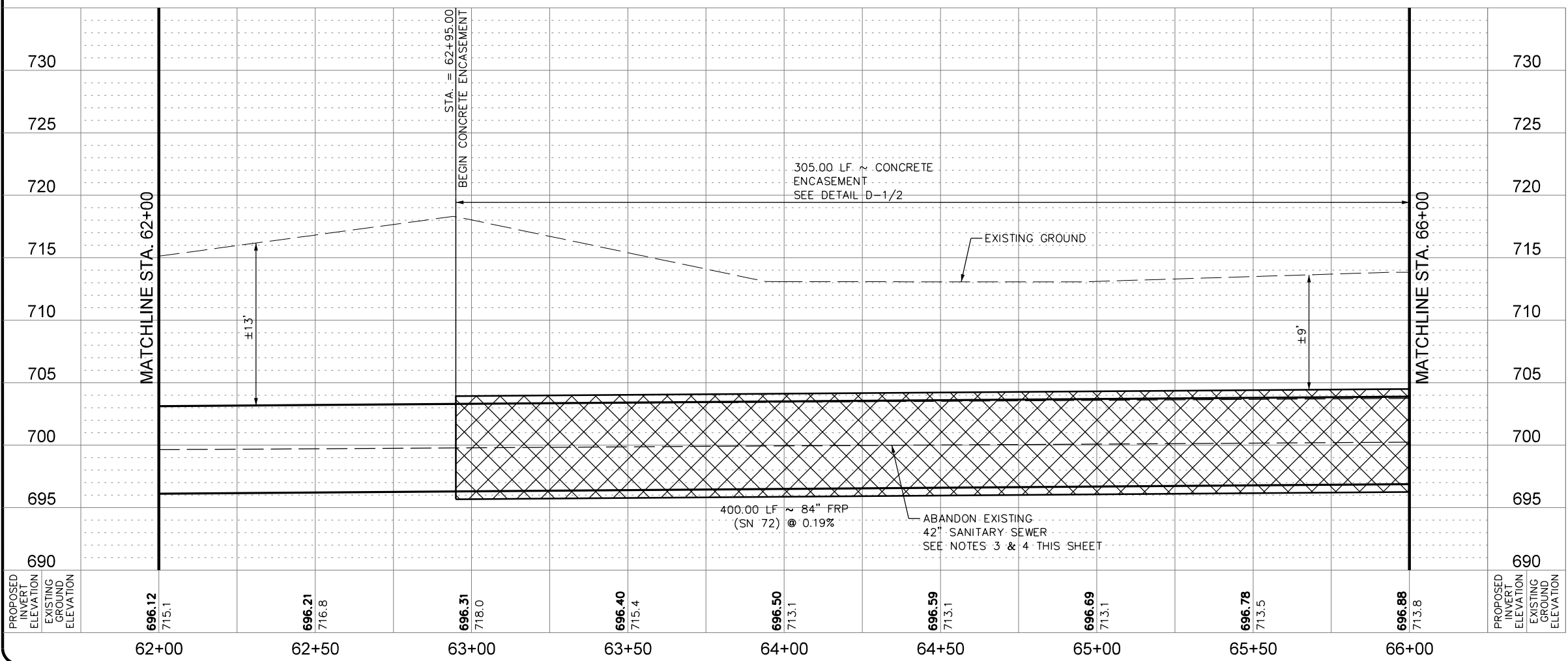
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| | |
|-----------|---------------------------------------|
| APP. | PAPE-DAWSON |
| Job No. | 8918-00 |
| REVISIONS | |
| DATE | DATE: AUG 2020 |
| NO. | DESIGNED BY: MP |
| | DRAWN BY: BS |
| | CHECKED BY: JO |
| | SCALE: 1" = 40' HORZ 1" = 10' VERT |

LINE "A"

| QUANTITY TABLE | | | |
|----------------|---|------|----------|
| ITEM | DESCRIPTION | UNIT | QUANTITY |
| 857A | 84" FRP (ASTM D-3262)(SN 72) (OPEN CUT 15'-20') | LF | 300 |
| 857A | 84" FRP (ASTM D-3262)(SN 72) (OPEN CUT 20'-25') | LF | 100 |
| 858 | CONCRETE ENCASEMENT (MIN STRENGTH, 2,000 PSI) | CY | 559 |
| 550.1 | TRENCH EXCAVATION SAFETY PROTECTION | LF | 400 |
| 866 | SEWER MAIN TV INSPECTION | LF | 400 |



- NOTES:**
- CONTRACTOR SHALL REFER TO THE TREE PRESERVATION PLAN SHEETS TP-1 TO TP-10 FOR TREE REMOVAL AND PRESERVATION.
 - CONTRACTOR MAY ENCOUNTER THE PRESENCE OF GROUND WATER DURING CONSTRUCTION. CONTRACTOR SHALL REFER TO THE SUPPLEMENTARY SPECIFICATIONS FOR CONTROL OF GROUND WATER.
 - CONTRACTOR SHALL REFER TO SHEETS G-21 TO G-23 FOR ABANDONMENT PLAN, NOTES AND QUANTITIES.
 - CONTRACTOR SHALL PROTECT EXISTING 42" SANITARY SEWER DURING CONSTRUCTION OF PROPOSED SANITARY SEWER MAIN.
 - ENTIRE AREA SHOWN ON THIS PLAN SHEET IS IN THE 100-YEAR FLOODPLAIN AND 5-YEAR FLOODPLAIN.
 - ACCESS TO SOUTHWEST RESEARCH INSTITUTE IS LIMITED TO THE ACQUIRED SAWS EASEMENTS SHOWN ON PLANS, NO OTHER ACCESS WILL BE ALLOWED.

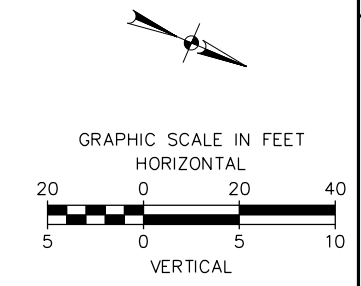
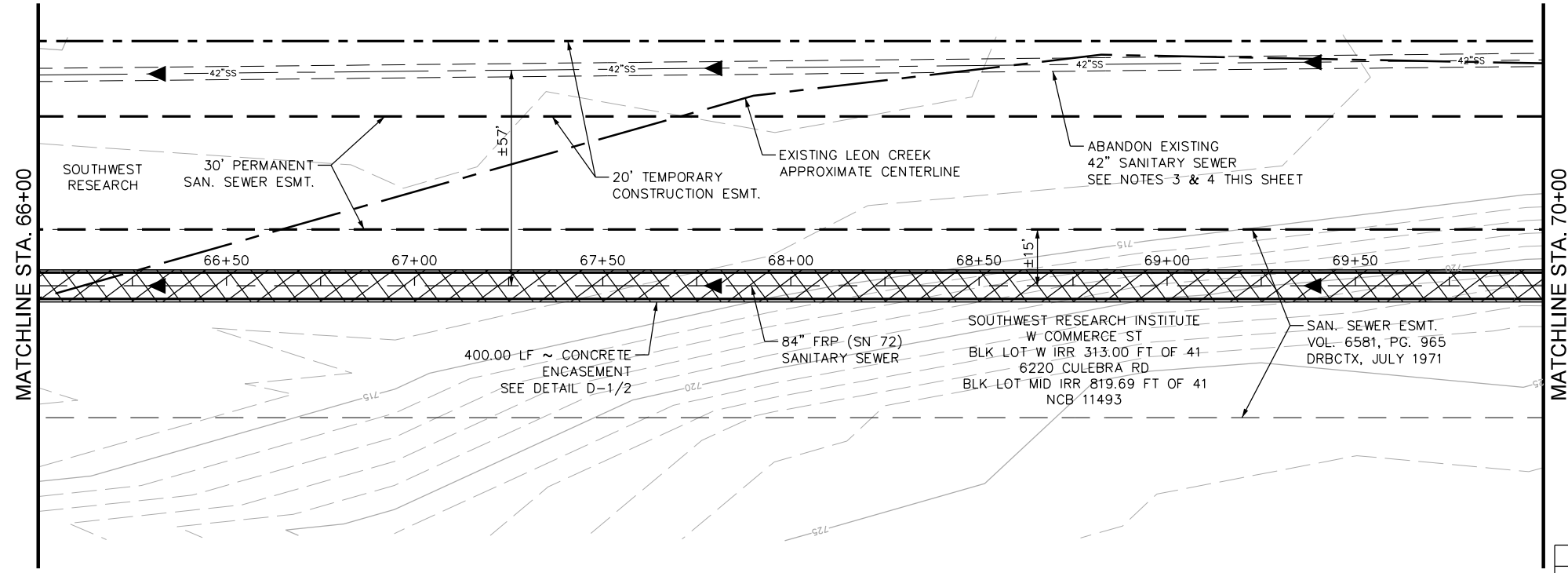
PAPE-DAWSON ENGINEERS
 SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
 2000 HW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
 TYPE FIRM REGISTRATION #1002890

SAN ANTONIO WATER SYSTEM

SAWS JOB NO. 19-4528
 W-1 LEON CREEK: HWY 151 TO HWY 90
 UPPER SEGMENT
 LINE "A" PLAN AND PROFILE
 STA 62+00 TO STA 66+00

PLOTTED ON: 8/17/2020

DESIGN FILENAME: P:\89\18\00\Design\Civil\Sewer\Phase 1\SS891800-01-C15.dgn



| | |
|--------------|-----------------------------------|
| APP. | PAPE-DAWSON Job No. 8918-00 |
| REVISIONS | |
| DATE | AUG 2020 |
| DESIGNED BY: | MP |
| DRAWN BY: | BS |
| CHECKED BY: | JO |
| SCALE: | 1" = 40' HORZ 1" = 10' VERT |

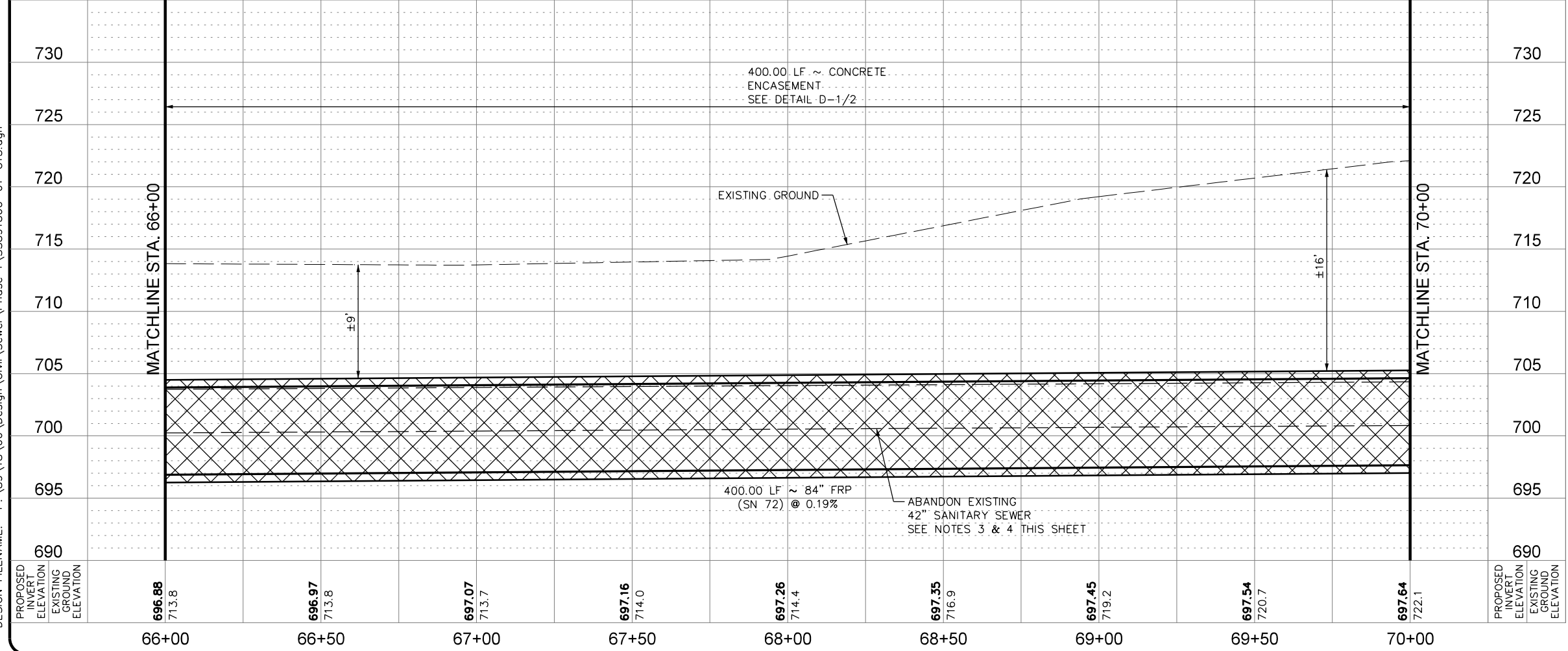


LINE "A"

| QUANTITY TABLE | | | |
|----------------|--|------|----------|
| ITEM | DESCRIPTION | UNIT | QUANTITY |
| 857A | 84" FRP (ASTM D-3262)(SN 72) (OPEN CUT 15'-20') | LF | 275 |
| 857A | 84" FRP (ASTM D-3262)(SN 72) (OPEN CUT 20'-25') | LF | 125 |
| 858 | CONCRETE ENCASEMENT (MIN STRENGTH, 2,000 PSI) | CY | 732 |
| 550.1 | TRENCH EXCAVATION SAFETY PROTECTION | LF | 400 |
| 866 | SEWER MAIN TV INSPECTION | LF | 400 |

PAPE-DAWSON ENGINEERS
 SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
 2000 HW LOOP 410 | SAN ANTONIO, TX 78218 | 210.375.9000
 TEPER FIRM REGISTRATION #1002890

SAN ANTONIO WATER SYSTEM

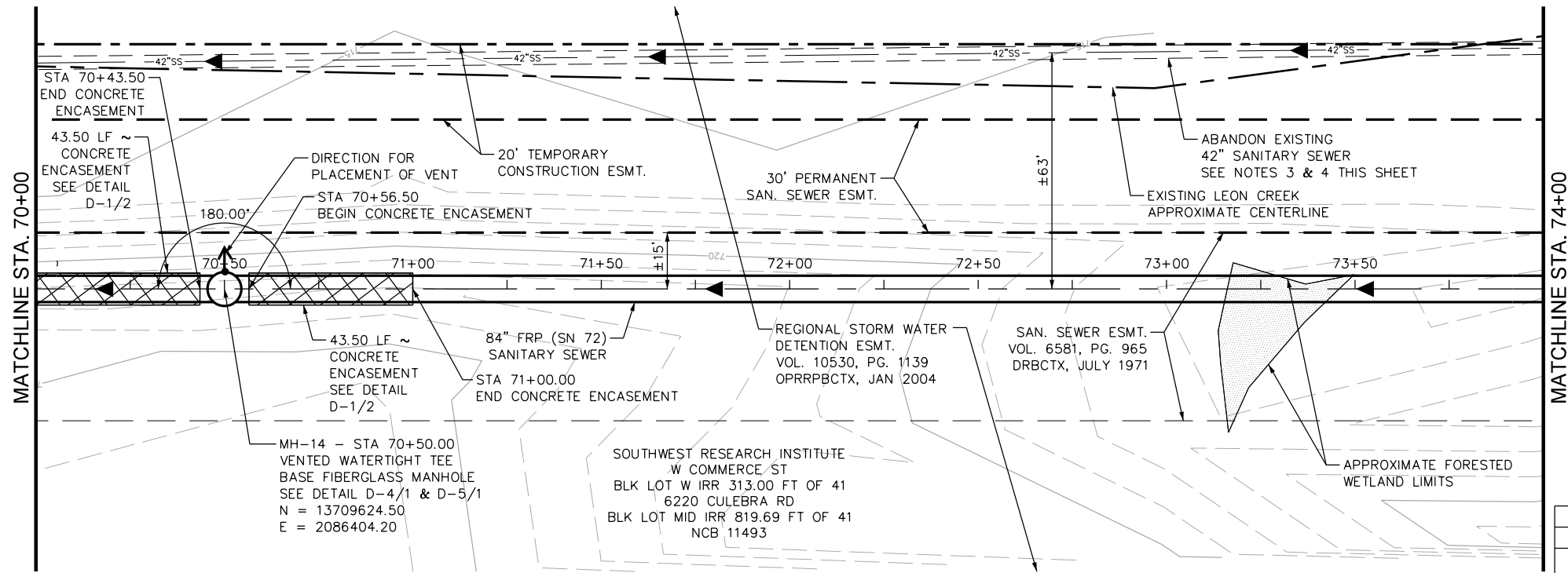


- NOTES:**
- CONTRACTOR SHALL REFER TO THE TREE PRESERVATION PLAN SHEETS TP-1 TO TP-10 FOR TREE REMOVAL AND PRESERVATION.
 - CONTRACTOR MAY ENCOUNTER THE PRESENCE OF GROUND WATER DURING CONSTRUCTION. CONTRACTOR SHALL REFER TO THE SUPPLEMENTARY SPECIFICATIONS FOR CONTROL OF GROUND WATER.
 - CONTRACTOR SHALL REFER TO SHEETS G-21 TO G-23 FOR ABANDONMENT PLAN, NOTES AND QUANTITIES.
 - CONTRACTOR SHALL PROTECT EXISTING 42" SANITARY SEWER DURING CONSTRUCTION OF PROPOSED SANITARY SEWER MAIN.
 - ENTIRE AREA SHOWN ON THIS PLAN SHEET IS IN THE 100-YEAR FLOODPLAIN AND 5-YEAR FLOODPLAIN.
 - ACCESS TO SOUTHWEST RESEARCH INSTITUTE IS LIMITED TO THE ACQUIRED SAWS EASEMENTS SHOWN ON PLANS, NO OTHER ACCESS WILL BE ALLOWED.

SAWS JOB NO. 19-4528
 W-1 LEON CREEK: HWY 151 TO HWY 90
 UPPER SEGMENT
 LINE "A" PLAN AND PROFILE
 STA 66+00 TO STA 70+00

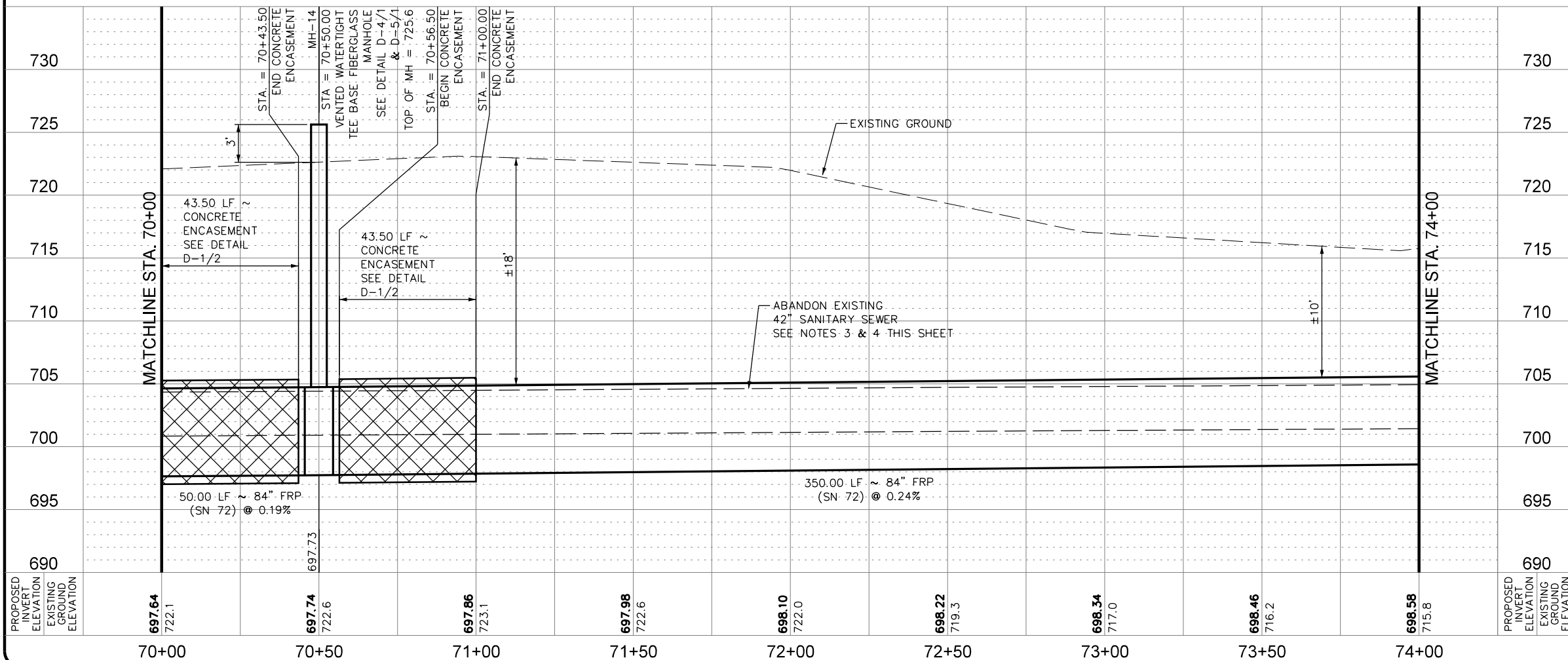
PLOTTED ON: 8/17/2020

DESIGN FILENAME: P:\89\18\00\Design\Civil\Sewer\Phase 1\SS891800-01-C16.dgn

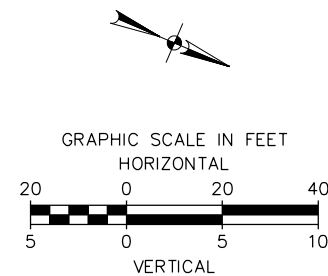


LINE "A"

| QUANTITY TABLE | | | |
|----------------|---|------|----------|
| ITEM | DESCRIPTION | UNIT | QUANTITY |
| 857A | 84" FRP (ASTM D-3262)(SN 72) (OPEN CUT 15'-20') | LF | 125 |
| 857A | 84" FRP (ASTM D-3262)(SN 72) (OPEN CUT 20'-25') | LF | 275 |
| 853A | TEE BASE FIBERGLASS MANHOLE | EA | 1 |
| 853 | EXTRA DEPTH TEE BASE MANHOLE | VF | 22 |
| 858 | CONCRETE ENCASUREMENT (MIN STRENGTH, 2,000 PSI) | CY | 160 |
| 550.1 | TRENCH EXCAVATION SAFETY PROTECTION | LF | 400 |
| 866 | SEWER MAIN TV INSPECTION | LF | 400 |



- NOTES:**
- CONTRACTOR SHALL REFER TO THE TREE PRESERVATION PLAN SHEETS TP-1 TO TP-10 FOR TREE REMOVAL AND PRESERVATION.
 - CONTRACTOR MAY ENCOUNTER THE PRESENCE OF GROUND WATER DURING CONSTRUCTION. CONTRACTOR SHALL REFER TO THE SUPPLEMENTARY SPECIFICATIONS FOR CONTROL OF GROUND WATER.
 - CONTRACTOR SHALL REFER TO SHEETS G-21 TO G-23 FOR ABANDONMENT PLAN, NOTES AND QUANTITIES.
 - CONTRACTOR SHALL PROTECT EXISTING 42" SANITARY SEWER DURING CONSTRUCTION OF PROPOSED SANITARY SEWER MAIN.
 - ENTIRE AREA SHOWN ON THIS PLAN SHEET IS IN THE 100-YEAR FLOODPLAIN AND 5-YEAR FLOODPLAIN.
 - ACCESS TO SOUTHWEST RESEARCH INSTITUTE IS LIMITED TO THE ACQUIRED SAWS EASEMENTS SHOWN ON PLANS, NO OTHER ACCESS WILL BE ALLOWED.



APP: PAPE-DAWSON
Job No. 8918-00

REVISIONS:

DATE: AUG 2020
DESIGNED BY: MP
DRAWN BY: BS
CHECKED BY: JO

SCALE: 1" = 40' HORZ
1" = 10' VERT

PAPE-DAWSON ENGINEERS

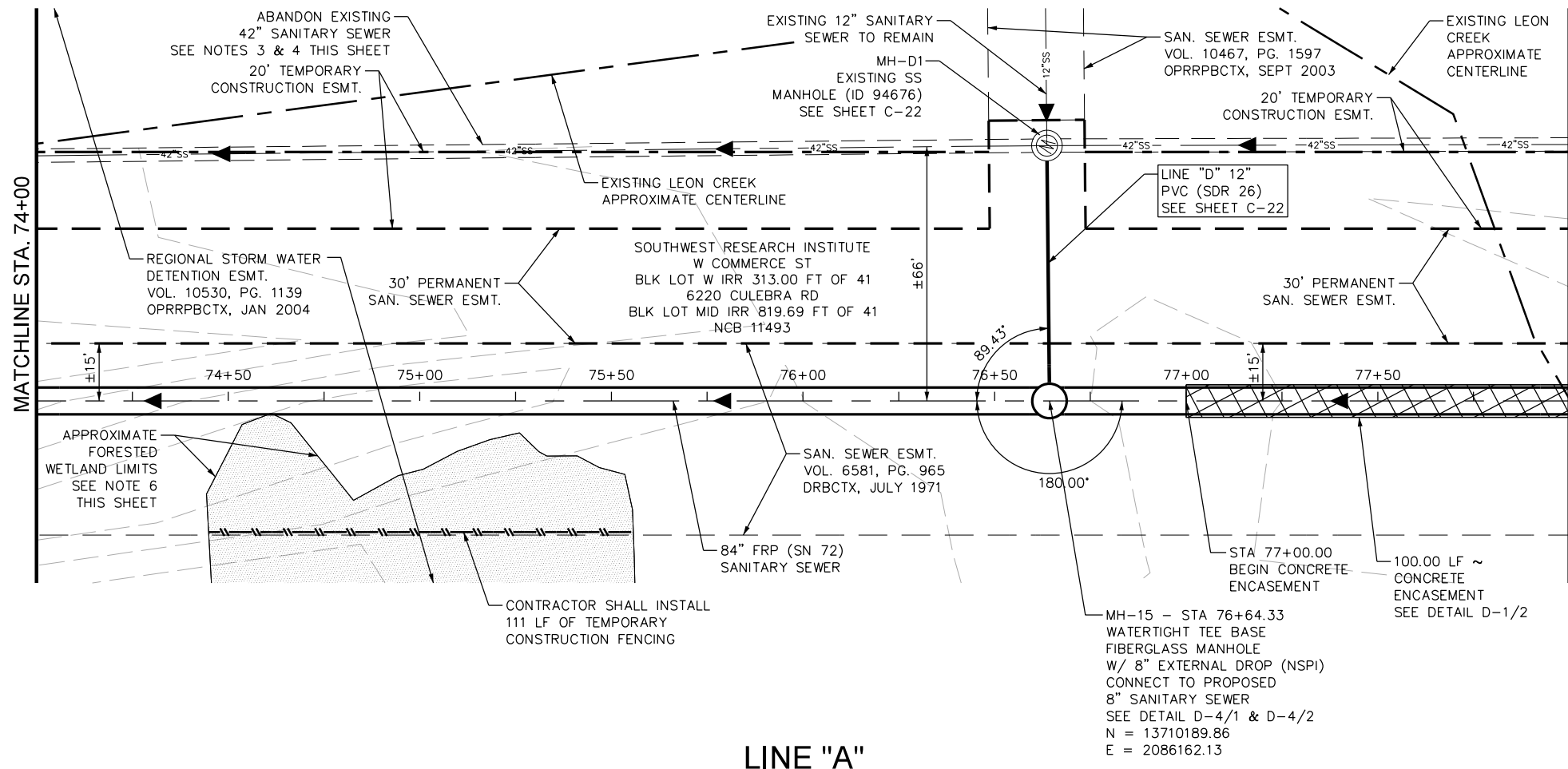
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TYPE FIRM REGISTRATION #0701 | TYPE FIRM REGISTRATION #1008990

SAN ANTONIO WATER SYSTEM

SAWS JOB NO. 19-4528
W-1 LEON CREEK: HWY 151 TO HWY 90
UPPER SEGMENT
LINE "A" PLAN AND PROFILE
STA 70+00 TO STA 74+00

PLOTTED ON: 8/17/2020

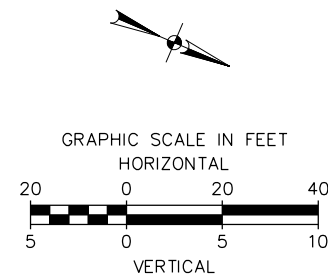
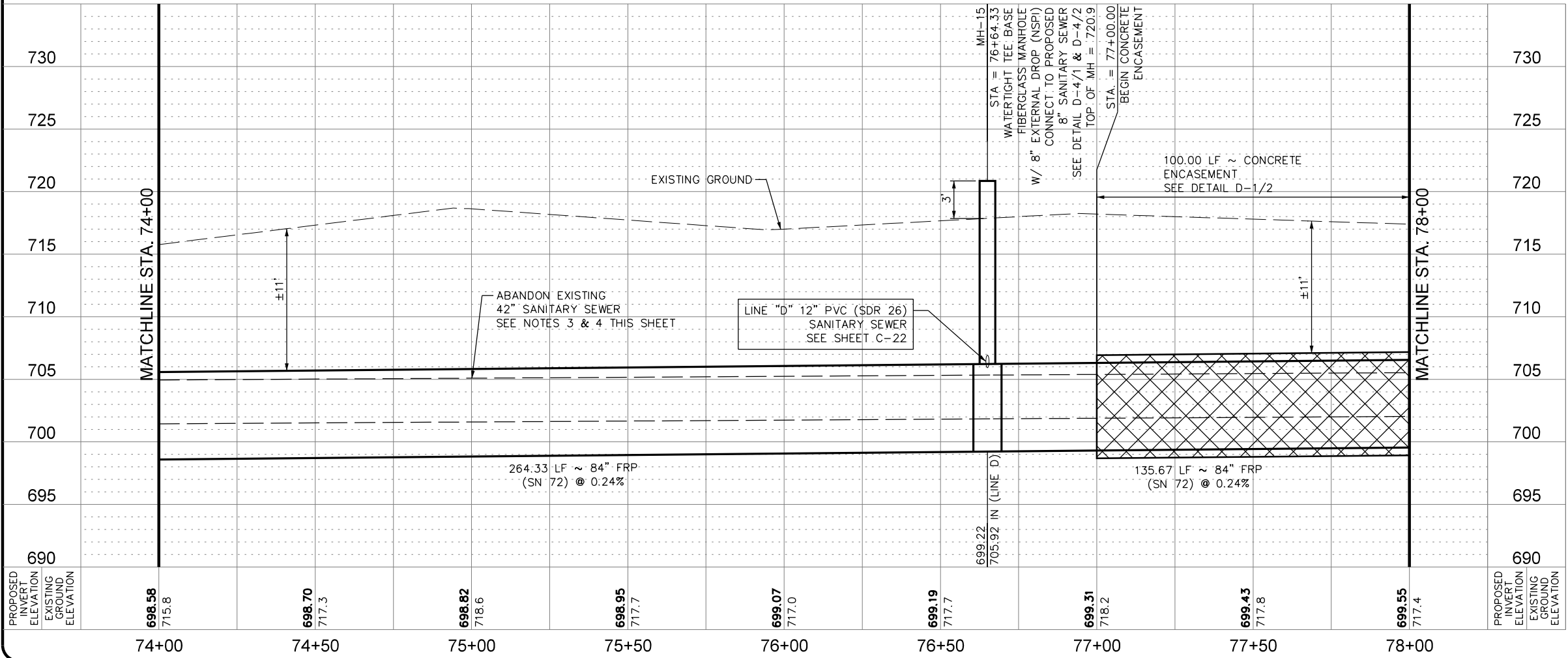
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QUANTITY TABLE

| ITEM | DESCRIPTION | UNIT | QUANTITY |
|-------|---|------|----------|
| 857A | 84" FRP (ASTM D-3262)(SN 72) (OPEN CUT 15'-20') | LF | 400 |
| 853A | TEE BASE FIBERGLASS DROP MANHOLE | EA | 1 |
| 853 | EXTRA DEPTH TEE BASE MANHOLE | VF | 16 |
| 858 | CONCRETE ENCASUREMENT (MIN STRENGTH, 2,000 PSI) | CY | 183 |
| 507.1 | TEMPORARY CONST. FENCE (4' HIGH) | LF | 111 |
| 550.1 | TRENCH EXCAVATION SAFETY PROTECTION | LF | 400 |
| 866 | SEWER MAIN TV INSPECTION | LF | 400 |

- NOTES:**
- CONTRACTOR SHALL REFER TO THE TREE PRESERVATION PLAN SHEETS TP-1 TO TP-10 FOR TREE REMOVAL AND PRESERVATION.
 - CONTRACTOR MAY ENCOUNTER THE PRESENCE OF GROUND WATER DURING CONSTRUCTION. CONTRACTOR SHALL REFER TO THE SUPPLEMENTARY SPECIFICATIONS FOR CONTROL OF GROUND WATER.
 - CONTRACTOR SHALL REFER TO SHEETS G-21 TO G-23 FOR ABANDONMENT PLAN, NOTES AND QUANTITIES.
 - CONTRACTOR SHALL PROTECT EXISTING 42" SANITARY SEWER DURING CONSTRUCTION OF PROPOSED SANITARY SEWER MAIN.
 - ENTIRE AREA SHOWN ON THIS PLAN SHEET IS IN THE 100-YEAR FLOODPLAIN AND 5-YEAR FLOODPLAIN.
 - APPROXIMATE FORESTED WETLAND LIMITS. CONTRACTOR SHALL INSTALL ORANGE PLASTIC CONSTRUCTION FENCING (APPROXIMATELY 4' TALL) ALONG BOUNDARY SHOWN ON PLAN VIEW OF FORESTED WETLANDS. CONTRACTOR SHALL NOT DISTURB FENCED AREA.
 - ACCESS TO SOUTHWEST RESEARCH INSTITUTE IS LIMITED TO THE ACQUIRED SAWS EASEMENTS SHOWN ON PLANS, NO OTHER ACCESS WILL BE ALLOWED.



APP. PAPE-DAWSON
Job No. 8918-00

REVISIONS

DATE: AUG 2020
DESIGNED BY: MP
DRAWN BY: BS
CHECKED BY: JO

SCALE: 1" = 40' HORZ
1" = 10' VERT

PAPE-DAWSON ENGINEERS

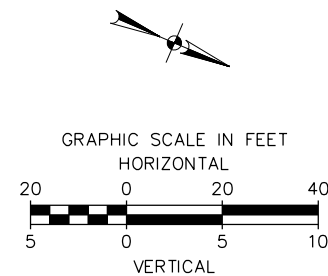
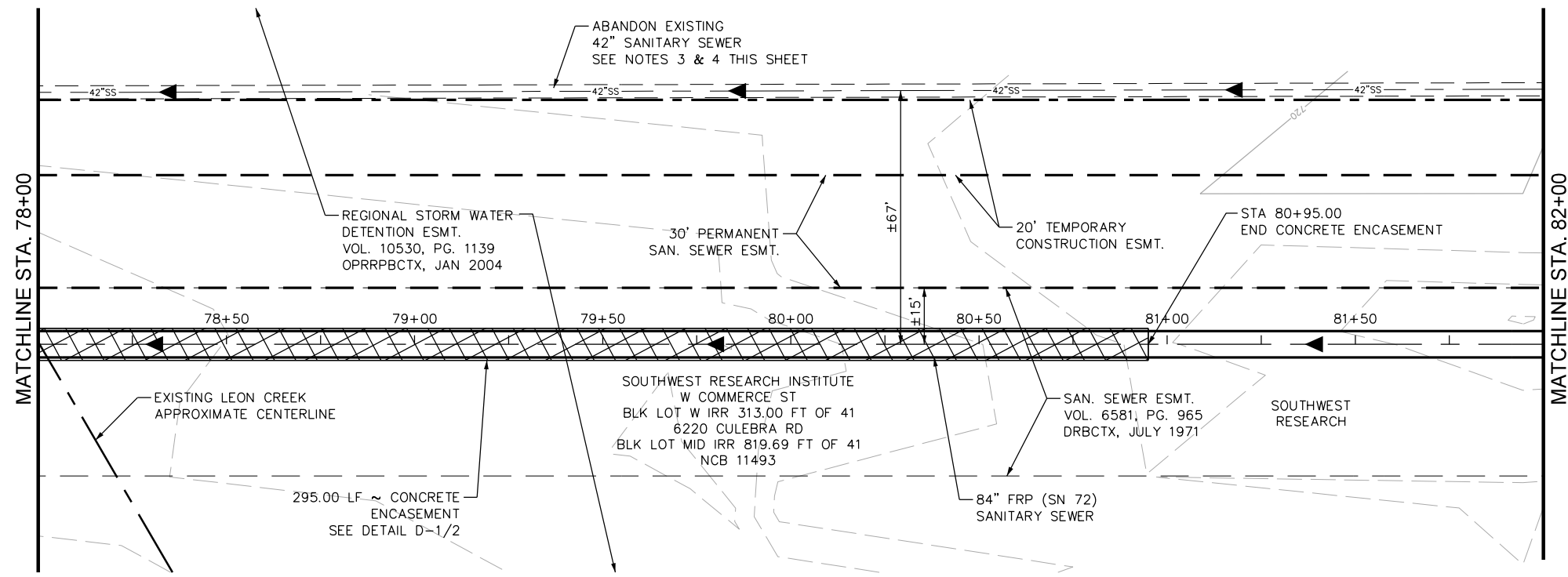
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 HW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TYPE FIRM REGISTRATION #1008980

SAN ANTONIO WATER SYSTEM

SAWS JOB NO. 19-4528
W-1 LEON CREEK: HWY 151 TO HWY 90
UPPER SEGMENT
LINE "A" PLAN AND PROFILE
STA 74+00 TO STA 78+00

PLOTTED ON: 8/17/2020

DESIGN FILENAME: P:\89\18\00\Design\Civil\Sewer\Phase 1\SS891800-01-C18.dgn



APP. PAPE-DAWSON
Job No. 8918-00

REVISIONS

| NO. | DATE | REVISIONS |
|---------------------------------------|----------|-----------------|
| 1 | AUG 2020 | DESIGNED BY: MP |
| 2 | | DRAWN BY: BS |
| 3 | | CHECKED BY: JO |
| SCALE: 1" = 40' HORZ 1" = 10' VERT | | |

PAPE-DAWSON ENGINEERS

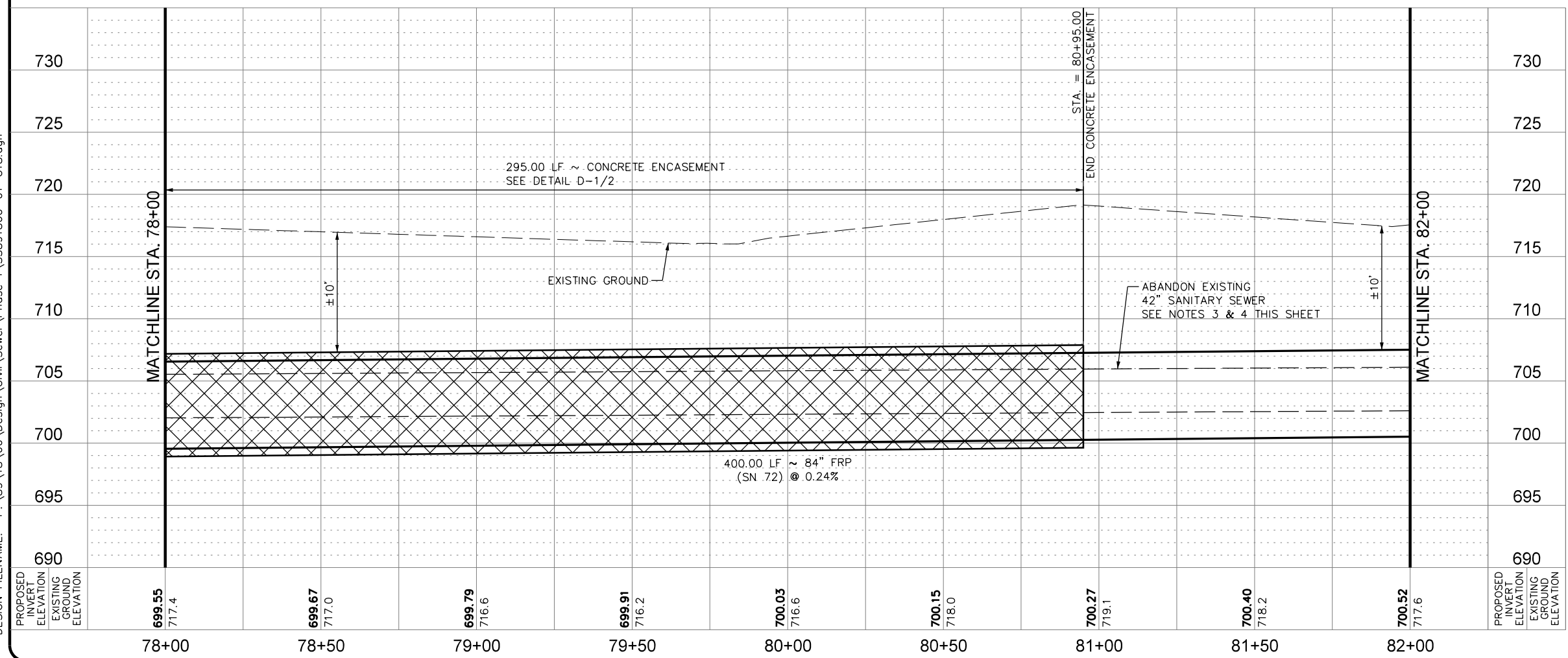
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 HW LOOP 410 | SAN ANTONIO, TX 78218 | 210.375.8000
TYPE FIRM REGISTRATION #470 | TYPE FIRM REGISTRATION #1008890

SAN ANTONIO WATER SYSTEM

SAWS JOB NO. 19-4528
W-1 LEON CREEK: HWY 151 TO HWY 90
UPPER SEGMENT
LINE "A" PLAN AND PROFILE
STA 78+00 TO STA 82+00

LINE "A"

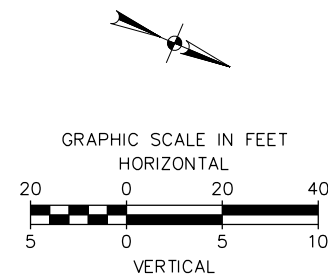
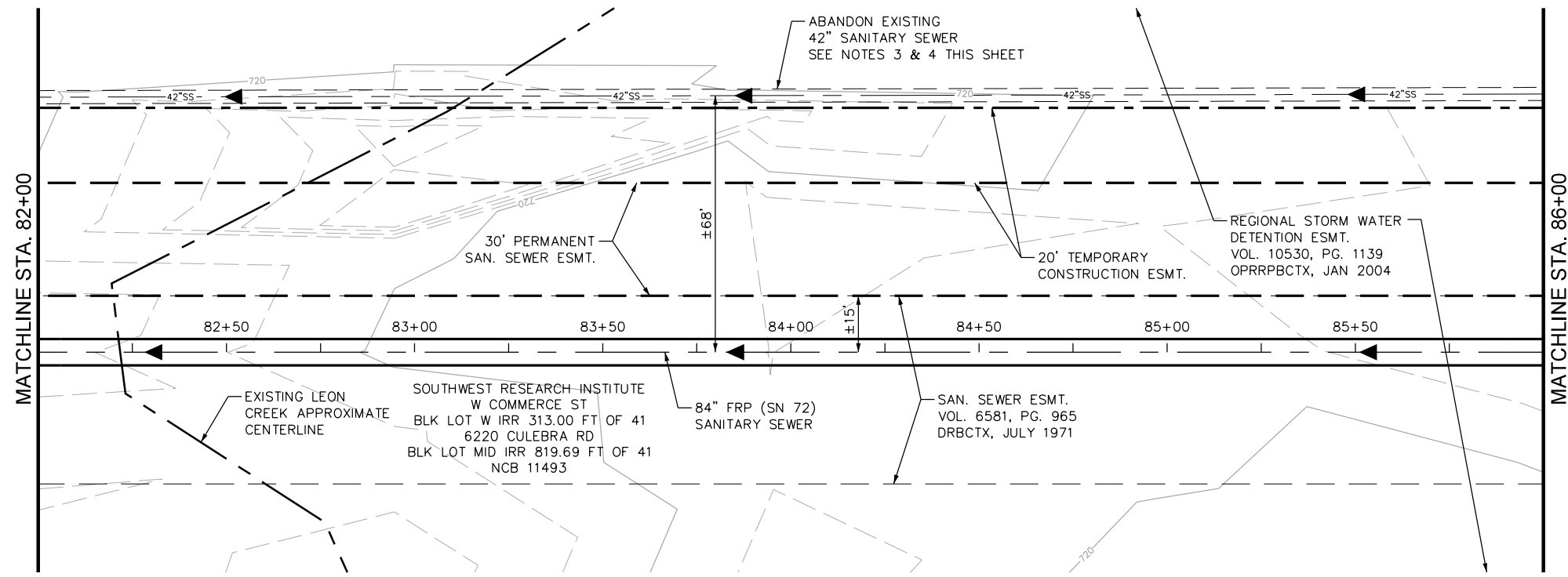
| QUANTITY TABLE | | | |
|----------------|--|------|----------|
| ITEM | DESCRIPTION | UNIT | QUANTITY |
| 857A | 84" FRP (ASTM D-3262)(SN 72) (OPEN CUT 15'-20') | LF | 400 |
| 858 | CONCRETE ENCASEMENT (MIN STRENGTH, 2,000 PSI) | CY | 540 |
| 550.1 | TRENCH EXCAVATION SAFETY PROTECTION | LF | 400 |
| 866 | SEWER MAIN TV INSPECTION | LF | 400 |



- NOTES:**
- CONTRACTOR SHALL REFER TO THE TREE PRESERVATION PLAN SHEETS TP-1 TO TP-10 FOR TREE REMOVAL AND PRESERVATION.
 - CONTRACTOR MAY ENCOUNTER THE PRESENCE OF GROUND WATER DURING CONSTRUCTION. CONTRACTOR SHALL REFER TO THE SUPPLEMENTARY SPECIFICATIONS FOR CONTROL OF GROUND WATER.
 - CONTRACTOR SHALL REFER TO SHEETS G-21 TO G-23 FOR ABANDONMENT PLAN, NOTES AND QUANTITIES.
 - CONTRACTOR SHALL PROTECT EXISTING 42" SANITARY SEWER DURING CONSTRUCTION OF PROPOSED SANITARY SEWER MAIN.
 - ENTIRE AREA SHOWN ON THIS PLAN SHEET IS IN THE 100-YEAR FLOODPLAIN AND 5-YEAR FLOODPLAIN.
 - ACCESS TO SOUTHWEST RESEARCH INSTITUTE IS LIMITED TO THE ACQUIRED SAWS EASEMENTS SHOWN ON PLANS, NO OTHER ACCESS WILL BE ALLOWED.

PLOTTED ON: 8/17/2020

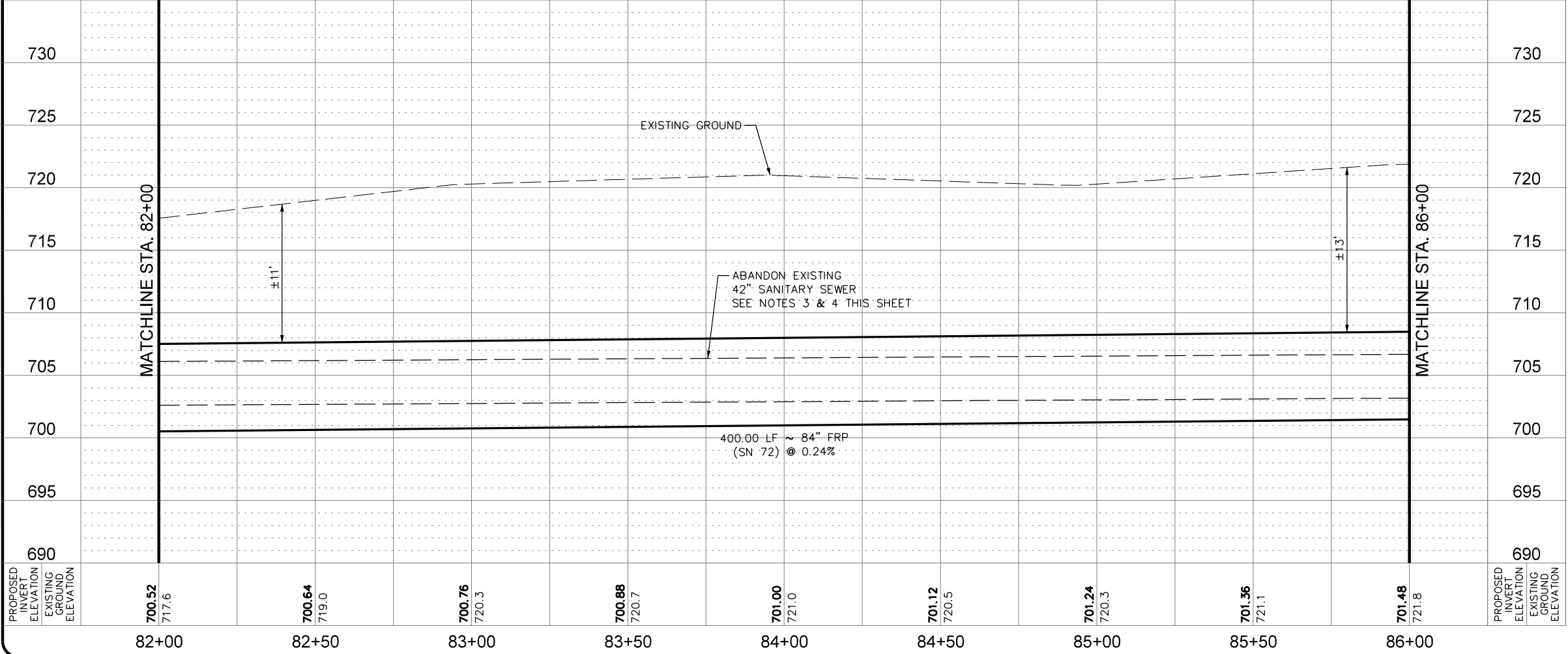
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| | |
|--------------|--|
| APP. | PAPE-DAWSON Job No. 8918-00 |
| REVISIONS | <i>Jason T. Diamond</i> 8-17-20 |
| NO. | DATE |
| 1 | AUG 2020 |
| DESIGNED BY: | MP |
| DRAWN BY: | BS |
| CHECKED BY: | JO |
| SCALE: | 1" = 40' HORZ 1" = 10' VERT |

LINE "A"

| QUANTITY TABLE | | | |
|----------------|--|------|----------|
| ITEM | DESCRIPTION | UNIT | QUANTITY |
| 857A | 84" FRP (ASTM D-3262)(SN 72) (OPEN CUT 15'-20') | LF | 400 |
| 550.1 | TRENCH EXCAVATION SAFETY PROTECTION | LF | 400 |
| 866 | SEWER MAIN TV INSPECTION | LF | 400 |



- NOTES:**
- CONTRACTOR SHALL REFER TO THE TREE PRESERVATION PLAN SHEETS TP-1 TO TP-10 FOR TREE REMOVAL AND PRESERVATION.
 - CONTRACTOR MAY ENCOUNTER THE PRESENCE OF GROUND WATER DURING CONSTRUCTION. CONTRACTOR SHALL REFER TO THE SUPPLEMENTARY SPECIFICATIONS FOR CONTROL OF GROUND WATER.
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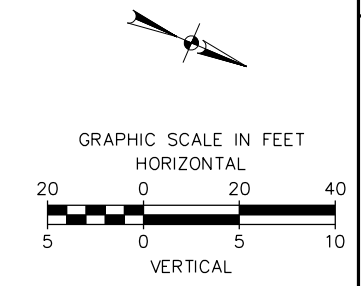
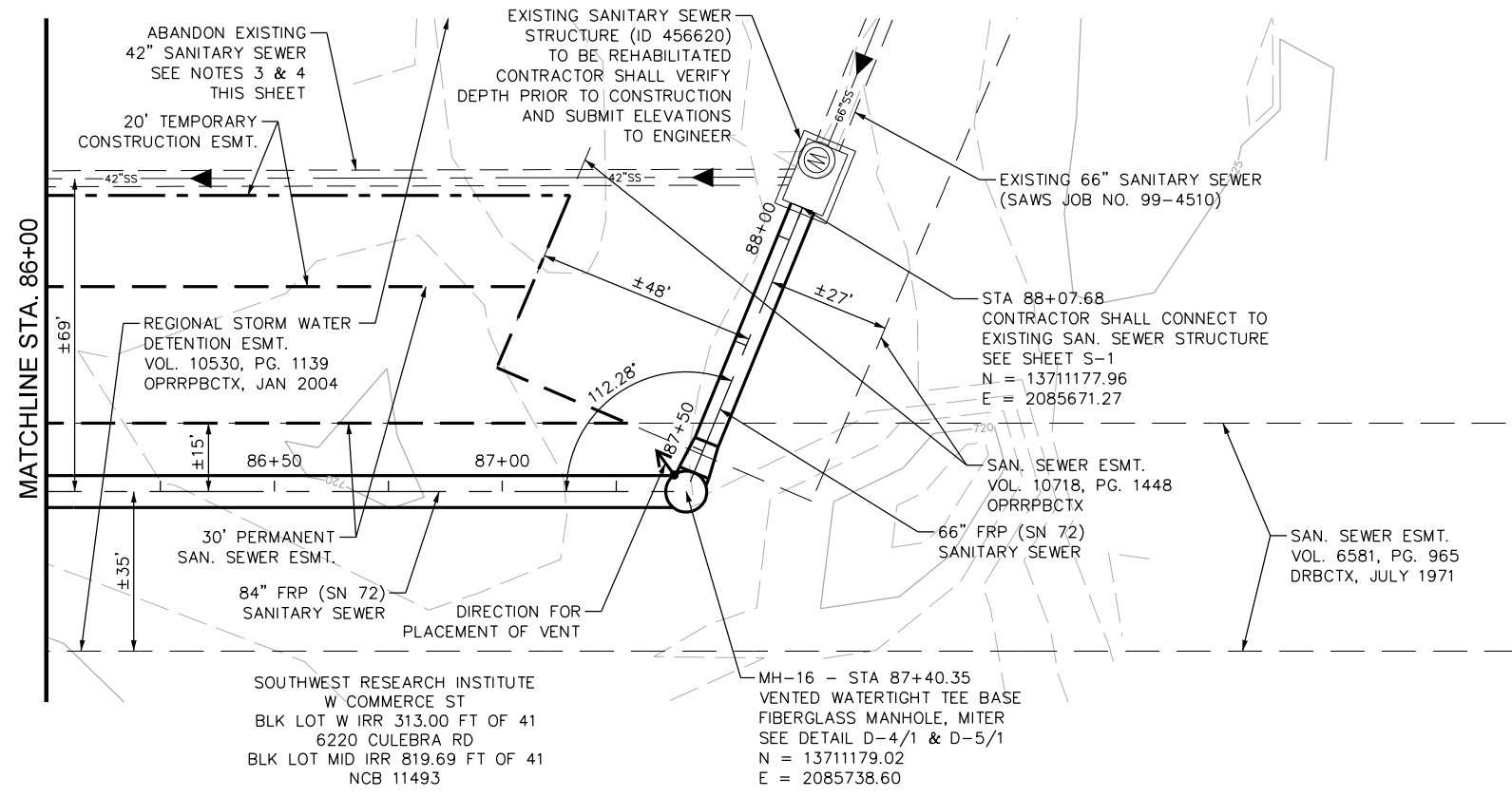
PAPE-DAWSON ENGINEERS
 SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
 2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.8000
 TYPE FIRM REGISTRATION #470 | TYPE FIRM REGISTRATION #1008890

SAN ANTONIO WATER SYSTEM

SAWS JOB NO. 19-4528
 W-1 LEON CREEK: HWY 151 TO HWY 90
 UPPER SEGMENT
 LINE "A" PLAN AND PROFILE
 STA 82+00 TO STA 86+00

PLOTTED ON: 8/17/2020

DESIGN FILENAME: P:\89\18\00\Design\Civil\Sewer\Phase 1\SS891800-01-C20.dgn



APP. PAPE-DAWSON
Job No. 8918-00

REVISIONS

DATE: AUG 2020
DESIGNED BY: MP
DRAWN BY: BS
CHECKED BY: JO

SCALE: 1" = 40' HORZ
1" = 10' VERT

PAPE-DAWSON ENGINEERS

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 HW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TYPE FIRM REGISTRATION #1002890

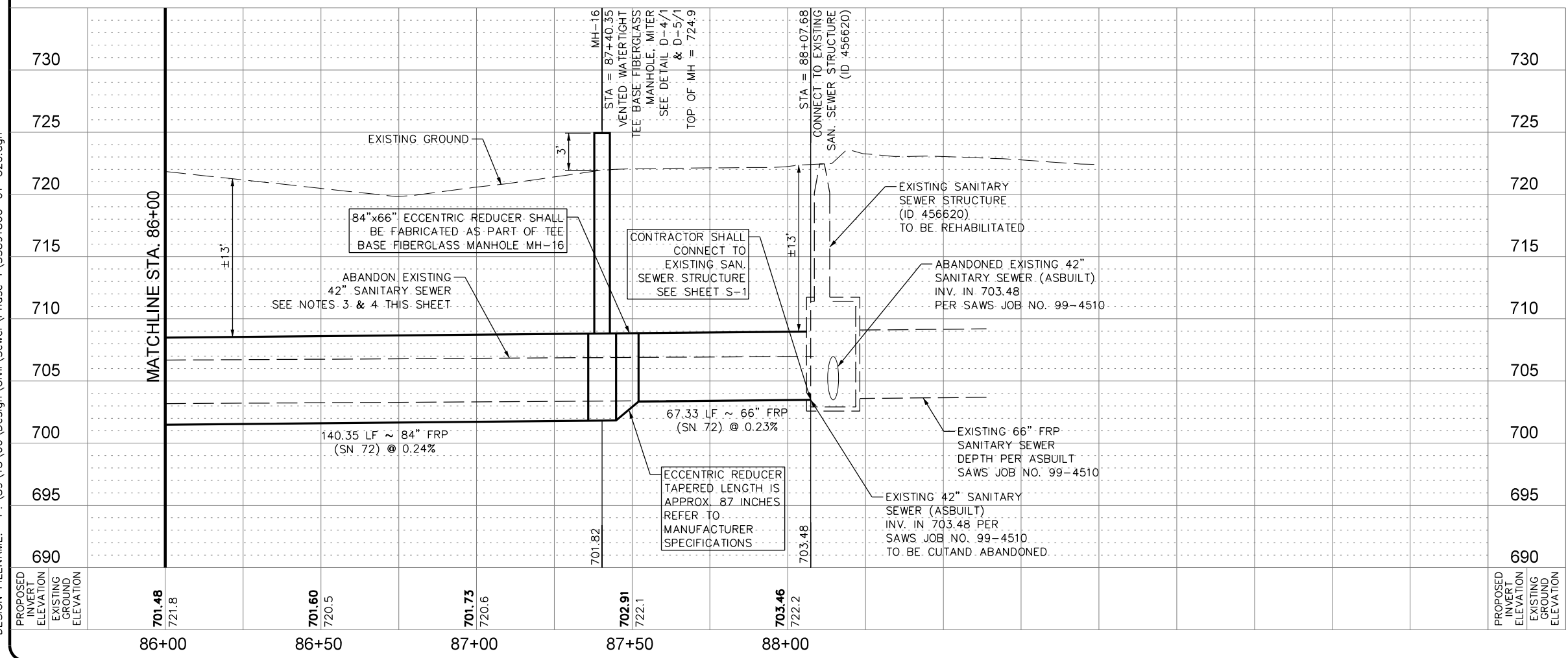
SAN ANTONIO WATER SYSTEM

SAWS JOB NO. 19-4528
W-1 LEON CREEK: HWY 151 TO HWY 90
UPPER SEGMENT
LINE "A" PLAN AND PROFILE SHEET
STA 86+00 TO STA 88+07.68

| QUANTITY TABLE | | | |
|----------------|---|------|----------|
| ITEM | DESCRIPTION | UNIT | QUANTITY |
| 857A | 84" FRP (ASTM D-3262)(SN 72) (OPEN CUT 15'-20') | LF | 141 |
| 857A | 66" FRP (ASTM D-3262)(SN 72) (OPEN CUT 15'-20') | LF | 67 |
| 853A | TEE BASE FIBERGLASS MANHOLE, MITER | EA | 1 |
| 853 | EXTRA DEPTH TEE BASE MANHOLE | VF | 18 |
| 910.2 | MANHOLE REHABILITATION | SF | 692 |
| 550.1 | TRENCH EXCAVATION SAFETY PROTECTION | LF | 208 |
| 866 | SEWER MAIN TV INSPECTION | LF | 208 |

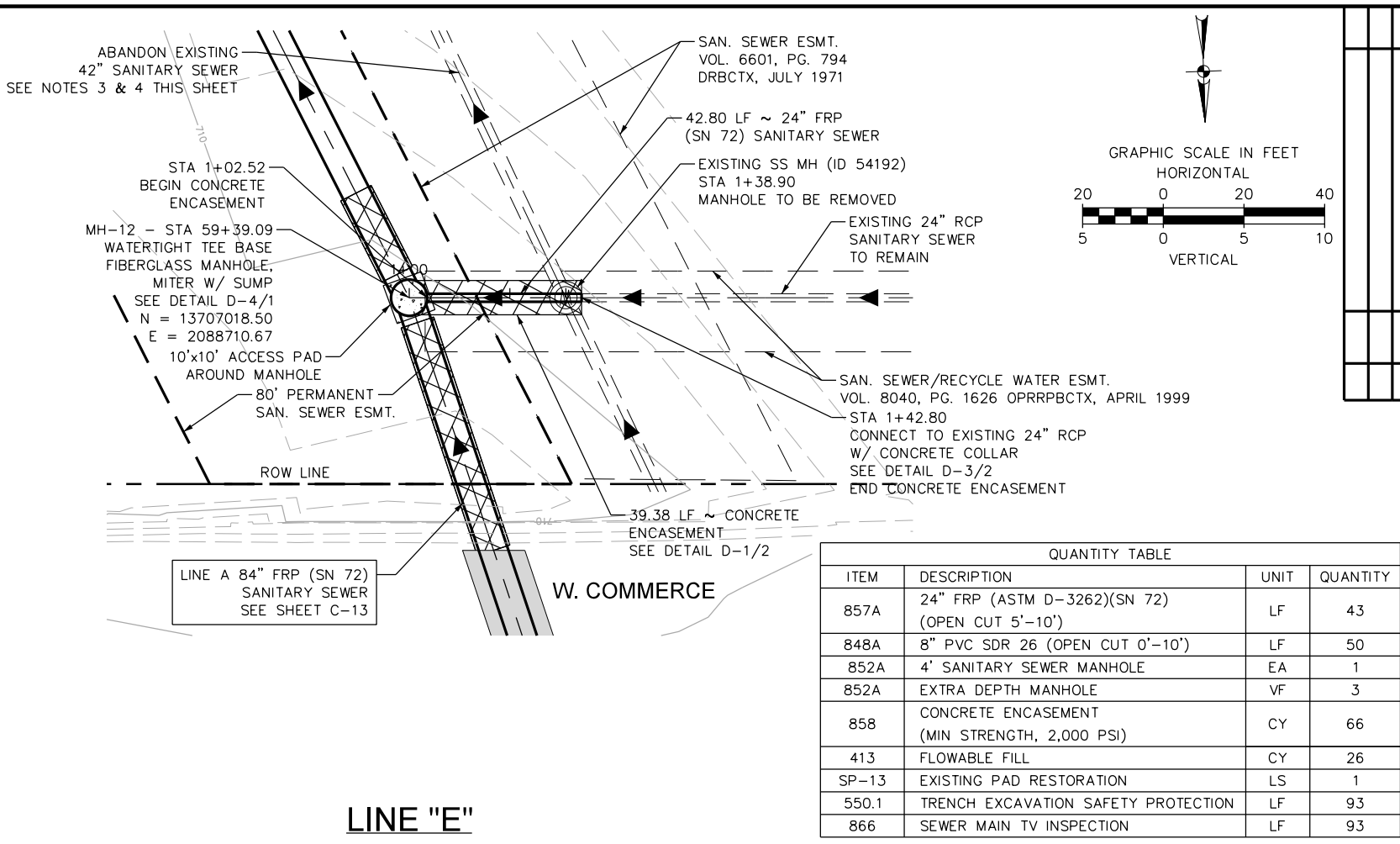
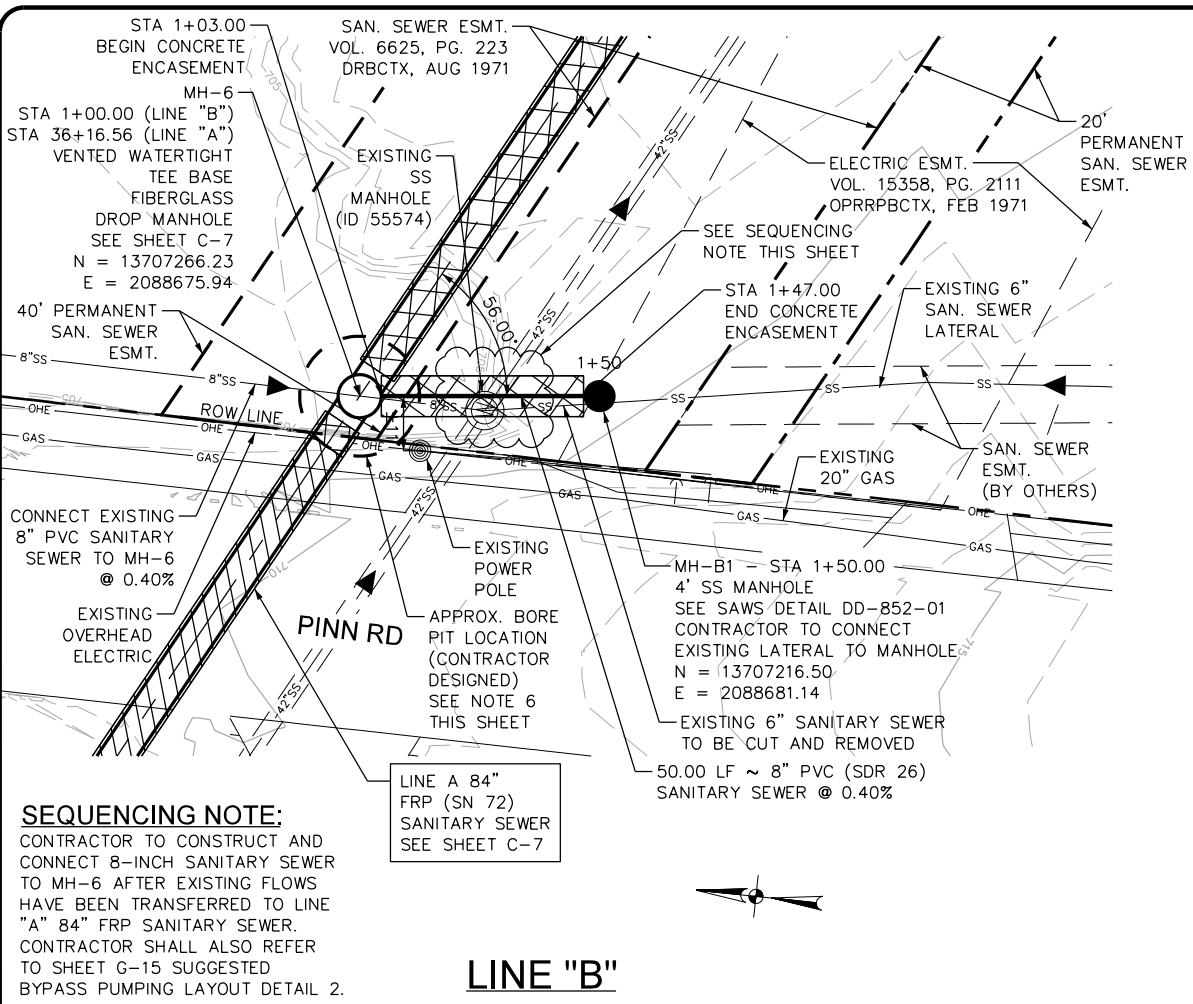
- NOTES:**
- CONTRACTOR SHALL REFER TO THE TREE PRESERVATION PLAN SHEETS TP-1 TO TP-10 FOR TREE REMOVAL AND PRESERVATION.
 - CONTRACTOR MAY ENCOUNTER THE PRESENCE OF GROUND WATER DURING CONSTRUCTION. CONTRACTOR SHALL REFER TO THE SUPPLEMENTARY SPECIFICATIONS FOR CONTROL OF GROUND WATER.
 - CONTRACTOR SHALL REFER TO SHEETS G-21 TO G-23 FOR ABANDONMENT PLAN, NOTES AND QUANTITIES.
 - CONTRACTOR SHALL PROTECT EXISTING 42" SANITARY SEWER DURING CONSTRUCTION OF PROPOSED SANITARY SEWER MAIN.
 - ENTIRE AREA SHOWN ON THIS PLAN SHEET IS IN THE 100-YEAR FLOODPLAIN AND 5-YEAR FLOODPLAIN.
 - ACCESS TO SOUTHWEST RESEARCH INSTITUTE IS LIMITED TO THE ACQUIRED SAWS EASEMENTS SHOWN ON PLANS, NO OTHER ACCESS WILL BE ALLOWED.

LINE "A"



PLOTTED ON: 8/17/2020

DESIGN FILENAME: P:\89\18\00\Design\Civil\Sewer\Phase 1\SS891800-01-C21.dgn



QUANTITY TABLE

| ITEM | DESCRIPTION | UNIT | QUANTITY |
|-------|---|------|----------|
| 857A | 24" FRP (ASTM D-3262)(SN 72) (OPEN CUT 5'-10') | LF | 43 |
| 848A | 8" PVC SDR 26 (OPEN CUT 0'-10') | LF | 50 |
| 852A | 4' SANITARY SEWER MANHOLE | EA | 1 |
| 852A | EXTRA DEPTH MANHOLE | VF | 3 |
| 858 | CONCRETE ENCASUREMENT (MIN STRENGTH, 2,000 PSI) | CY | 66 |
| 413 | FLOWABLE FILL | CY | 26 |
| SP-13 | EXISTING PAD RESTORATION | LS | 1 |
| 550.1 | TRENCH EXCAVATION SAFETY PROTECTION | LF | 93 |
| 866 | SEWER MAIN TV INSPECTION | LF | 93 |

| PROPOSED INVERT ELEVATION | EXISTING GROUND ELEVATION | LINE "B" (84" LINE "A") | LINE "E" (84" LINE "A") | PROPOSED INVERT ELEVATION | EXISTING GROUND ELEVATION |
|---------------------------|---------------------------|--|--|---------------------------|---------------------------|
| 725 | | MH-6 STA = 1+00.00 (LINE "B") STA = 36+16.56 (LINE "A") VENTED WATERTIGHT TEE BASE FIBERGLASS DROP MANHOLE SEE SHEET C-7 TOP OF MH = 706.8 | MH-12 STA = 59+39.09 (LINE "E") WATERTIGHT TEE BASE FIBERGLASS MANHOLE, MITER W/ SUMP SEE DETAIL D-4/1 TOP OF MH = 715.6 | 725 | |
| 720 | | BEGIN CONCRETE ENCASUREMENT AND FLOWABLE FILL STA. = 1+03.00 | BEGIN CONCRETE ENCASUREMENT STA. = 1+38.90 | 720 | |
| 715 | | END CONCRETE ENCASUREMENT AND FLOWABLE FILL STA. = 1+47.00 | MANHOLE TO BE REMOVED STA = 1+42.80 | 715 | |
| 710 | | MH-B1 STA = 1+50.00 4' SS MANHOLE SEE SAWS DETAIL DD-852-01 TOP OF MH = 709.8 | CONNECT TO EXISTING 24" RCP SANITARY SEWER W/ CONCRETE COLLAR SEE DETAIL D-3/2 | 710 | |
| 705 | | 44.00 LF ~ CONCRETE ENCASUREMENT AND FLOWABLE FILL SEE DETAIL D-1/2 | END CONCRETE ENCASUREMENT | 705 | |
| 700 | | CONNECT EXISTING 8" PVC SAN. SEWER TO MH-6 @ 0.40% | 39.38 LF ~ CONCRETE ENCASUREMENT AND FLOWABLE FILL SEE DETAIL D-1/2 | 700 | |
| 695 | | EXISTING GROUND | EXISTING GROUND | 695 | |
| 690 | | EXISTING SANITARY SEWER LATERAL | 41.80 LF ~ 8" PVC (SDR 26) @ 3.39% | 690 | |
| 685 | | 50.00 LF ~ 8" PVC (SDR 26) @ 0.40% | CONNECT EXISTING 24" RCP SANITARY SEWER (SAWS JOB NO. 97-8066) TO PROPOSED 24" FRP SANITARY SEWER | 685 | |
| | | EXISTING 42" SANITARY SEWER (AS-BUILT) SAWS JOB NO. DJ-2243 TO BE ABANDONED | EXISTING 42" SANITARY SEWER (AS-BUILT) SAWS JOB NO. DJ-2243 TO BE CUT AND ABANDONED | | |

- NOTES:**
- CONTRACTOR SHALL REFER TO THE TREE PRESERVATION PLAN SHEETS TP-1 TO TP-10 FOR TREE REMOVAL AND PRESERVATION.
 - CONTRACTOR MAY ENCOUNTER THE PRESENCE OF GROUND WATER DURING CONSTRUCTION. CONTRACTOR SHALL REFER TO THE SUPPLEMENTARY SPECIFICATIONS FOR CONTROL OF GROUND WATER.
 - CONTRACTOR SHALL REFER TO SHEETS G-21 TO G-23 FOR ABANDONMENT PLAN, NOTES AND QUANTITIES.
 - CONTRACTOR SHALL PROTECT EXISTING 42" SANITARY SEWER DURING CONSTRUCTION OF PROPOSED SANITARY SEWER MAIN.
 - ENTIRE AREA SHOWN ON THIS PLAN SHEET IS IN THE 100-YEAR FLOODPLAIN AND 5-YEAR FLOODPLAIN.
 - CONTRACTOR NEEDS TO ADEQUATELY SHORE TUNNEL SHAFT TO PREVENT DISTURBING BACKFILL OF EXISTING 42-INCH SANITARY SEWER MAIN.
 - CONTRACTOR SHALL RESTORE EXISTING ACCESS PAD AT MANHOLE ON 42-INCH SEWER MAIN TO ORIGINAL CONDITIONS.
 - CONTRACTOR TO VERIFY INVERT OF EXISTING 24" RCP PRIOR TO THE MANUFACTURING OF MH-12.
 - CONTRACTOR SHALL COORDINATE WITH PIPE AND MANHOLE MANUFACTURER FOR CONNECTION OF 24" RCP TO 24" FRP AND CONNECTION TO MH-12.

PAPE-DAWSON
 Job No.
8918-00

STATE OF TEXAS
 JASON T. DIAMOND
 96532
 LICENSED PROFESSIONAL ENGINEER

DATE: AUG 2020
 DESIGNED BY: MP
 DRAWN BY: BS
 CHECKED BY: JO

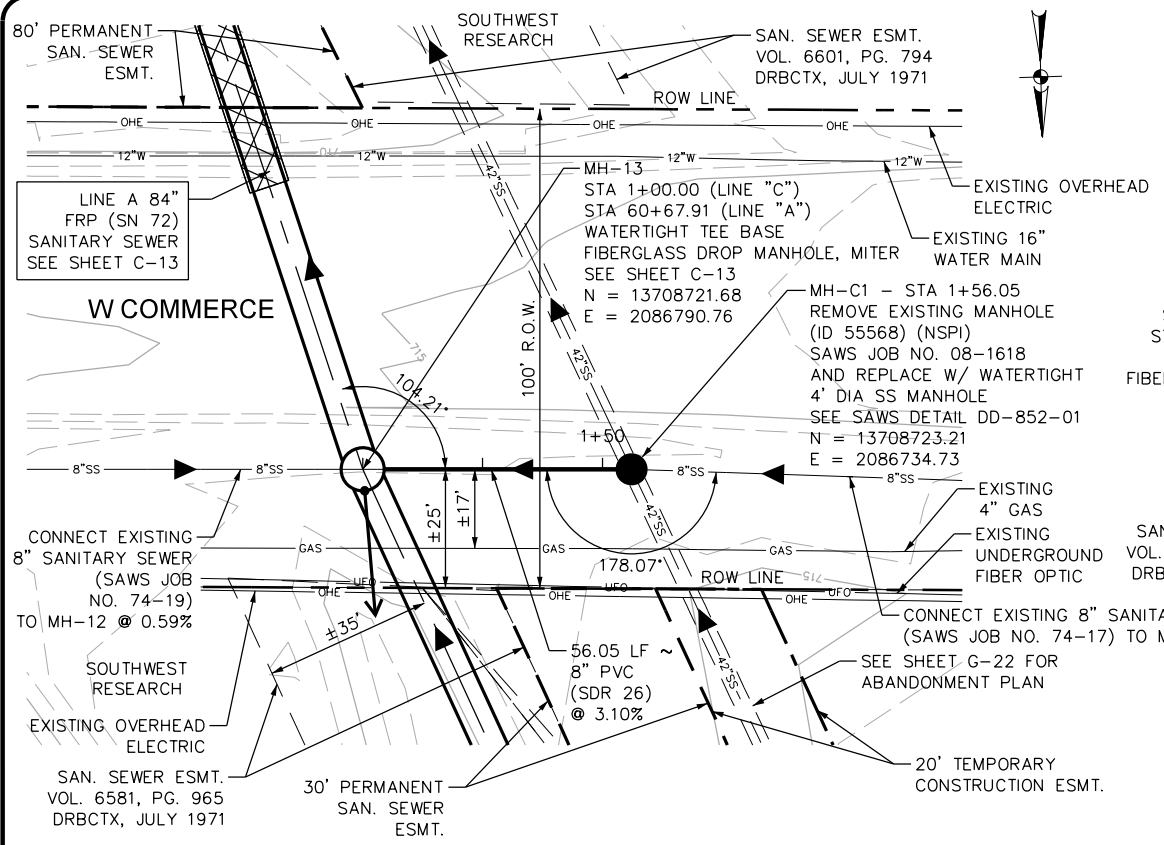
SCALE:
 1" = 40' HORZ
 1" = 10' VERT

SAWS JOB NO. 19-4528
 W-1 LEON CREEK: HWY 151 TO HWY 90
 UPPER SEGMENT
 LINE "A" AND "E" PLAN AND PROFILE SHEET
 STA 1+00 TO STA 1+50.00; STA 1+00 TO STA 1+42.80

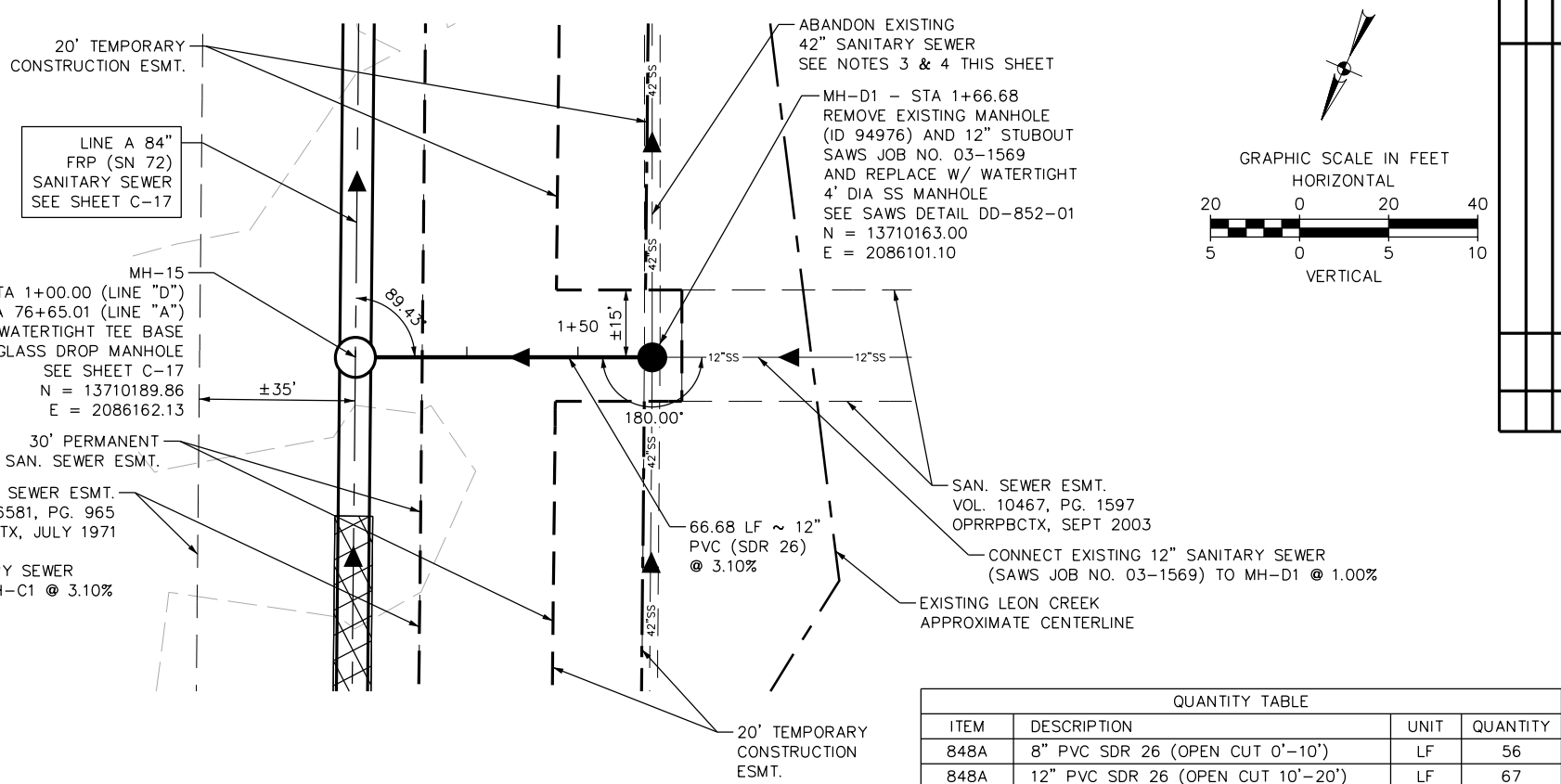
Sheet **C-21**
 44 of 67

PLOTTED ON: 8/17/2020

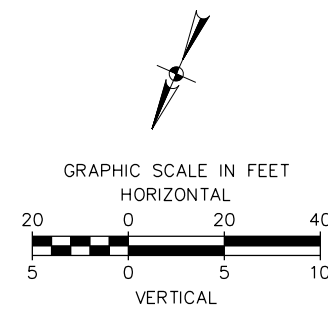
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LINE "C"



LINE "D"



| QUANTITY TABLE | | | |
|----------------|--|------|----------|
| ITEM | DESCRIPTION | UNIT | QUANTITY |
| 848A | 8" PVC SDR 26 (OPEN CUT 0'-10') | LF | 56 |
| 848A | 12" PVC SDR 26 (OPEN CUT 10'-20') | LF | 67 |
| 852A | REMOVE & REPLACE 4' SANITARY SEWER MANHOLE | EA | 2 |
| 852A | EXTRA DEPTH MANHOLE | VF | 10 |
| 550.1 | TRENCH EXCAVATION SAFETY PROTECTION | LF | 123 |
| 866 | SEWER MAIN TV INSPECTION | LF | 123 |

| PROPOSED INVERT ELEVATION | EXISTING GROUND ELEVATION | LINE "C" DESCRIPTION | PROPOSED INVERT ELEVATION | EXISTING GROUND ELEVATION | LINE "D" DESCRIPTION | PROPOSED INVERT ELEVATION | EXISTING GROUND ELEVATION |
|---------------------------|---------------------------|---|---------------------------|---------------------------|---|---------------------------|---------------------------|
| 725 | | MH-13 STA 1+00.00 (LINE "C") | 725 | 730 | MH-15 STA 1+00.00 (LINE "D") | 725 | 730 |
| 720 | | CONNECT EXISTING 8" SANITARY SEWER (SAWS JOB NO. 74-19) TO MH-12 @ 0.59% | 720 | 725 | REMOVE EXISTING MANHOLE (ID 94976) AND 12" STUBOUT AND REPLACE W/ WATER TIGHT 4' DIA SS MANHOLE | 720 | 725 |
| 715 | | EXISTING GROUND | 715 | 720 | REMOVE EXISTING MANHOLE (ID 94976) AND 12" STUBOUT AND REPLACE W/ WATER TIGHT 4' DIA SS MANHOLE | 715 | 720 |
| 710 | | | 710 | 715 | REMOVE EXISTING MANHOLE (ID 94976) AND 12" STUBOUT AND REPLACE W/ WATER TIGHT 4' DIA SS MANHOLE | 710 | 715 |
| 705 | | | 705 | 710 | REMOVE EXISTING MANHOLE (ID 94976) AND 12" STUBOUT AND REPLACE W/ WATER TIGHT 4' DIA SS MANHOLE | 705 | 710 |
| 700 | | 56.05 LF ~ 8" PVC (SDR 26) @ 3.10% | 700 | 705 | 66.68 LF ~ 12" PVC (SDR 26) @ 1.00% | 700 | 705 |
| 695 | | CONNECT EXISTING 8" SANITARY SEWER (SAWS JOB NO. 74-17) TO MH-C1 @ 3.10% | 695 | 700 | CONNECT EXISTING 12" SANITARY SEWER (SAWS JOB NO. 03-1569) TO MH-D1 @ 1.00% | 695 | 700 |
| 690 | | EXISTING 42" SANITARY SEWER (AS-BUILT) SAWS JOB NO. DJ-2243 TO BE CUT AND ABANDONED | 690 | 695 | EXISTING 42" SANITARY SEWER (AS-BUILT) SAWS JOB NO. DJ-2243 TO BE CUT AND ABANDONED | 690 | 695 |
| 685 | | LINE A 84" FRP (SN 72) SANITARY SEWER SEE SHEET C-13 | 685 | 690 | LINE A 84" FRP (SN 72) SANITARY SEWER SEE SHEET C-17 | 685 | 690 |
| 703.17 | 713.0 | 695.35 OUT (84" LINE "A") | 705.92 | 717.9 | 699.23 OUT (84" LINE "A") | 706.42 | 717.4 |
| 704.90 | 713.2 | 703.17 IN (8" NEW) | 706.69 | 717.9 | 706.59 OUT (8" NEW) | | |

- NOTES:**
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 - CONTRACTOR SHALL REFER TO SHEETS G-21 TO G-23 FOR ABANDONMENT PLAN, NOTES AND QUANTITIES.
 - CONTRACTOR SHALL PROTECT EXISTING 42" SANITARY SEWER DURING CONSTRUCTION OF PROPOSED SANITARY SEWER MAIN.
 - ENTIRE AREA SHOWN ON THIS PLAN SHEET IS IN THE 100-YEAR FLOODPLAIN AND 5-YEAR FLOODPLAIN.

SAWS JOB NO. 19-4528
W-1 LEON CREEK: HWY 151 TO HWY 90
UPPER SEGMENT
LINE "C" AND "D" PLAN AND PROFILE SHEET
STA 1+00 TO STA 1+56.05; STA 1+00 TO STA 1+66.68

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 HWY LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.8000
TYPE FIRM REGISTRATION #470 | TPLS FIRM REGISTRATION #1008860

JASON T. DIAMOND
LICENSED PROFESSIONAL ENGINEER
8-17-20

DATE: AUG 2020
DESIGNED BY: MP
DRAWN BY: BS
CHECKED BY: JO
SCALE: 1" = 40' HORZ
1" = 10' VERT

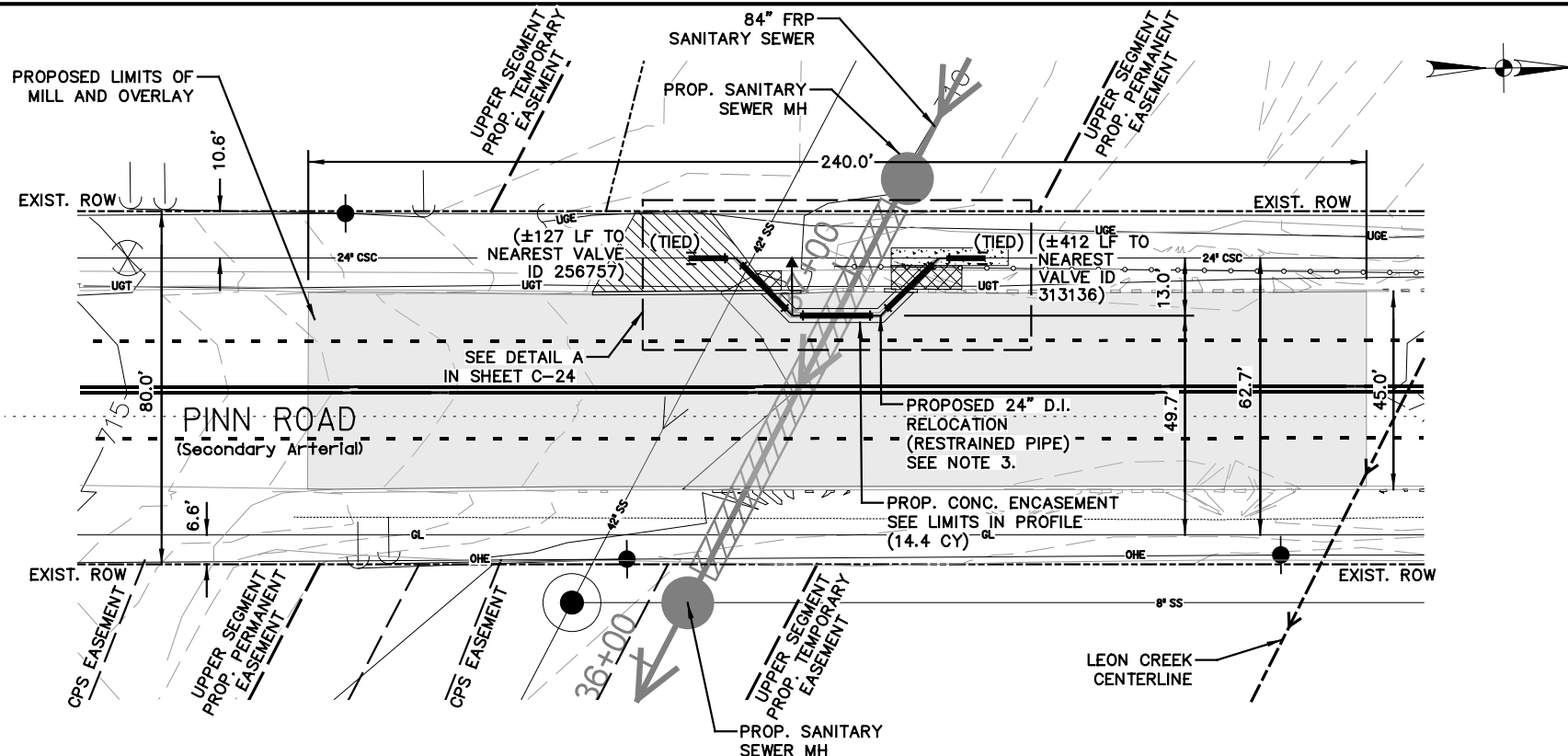
REVISIONS

| NO. | DATE | APP. |
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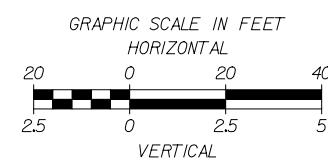
Job No. 8918-00

State of Texas Seal

Sheet **C-22**
45 of 67



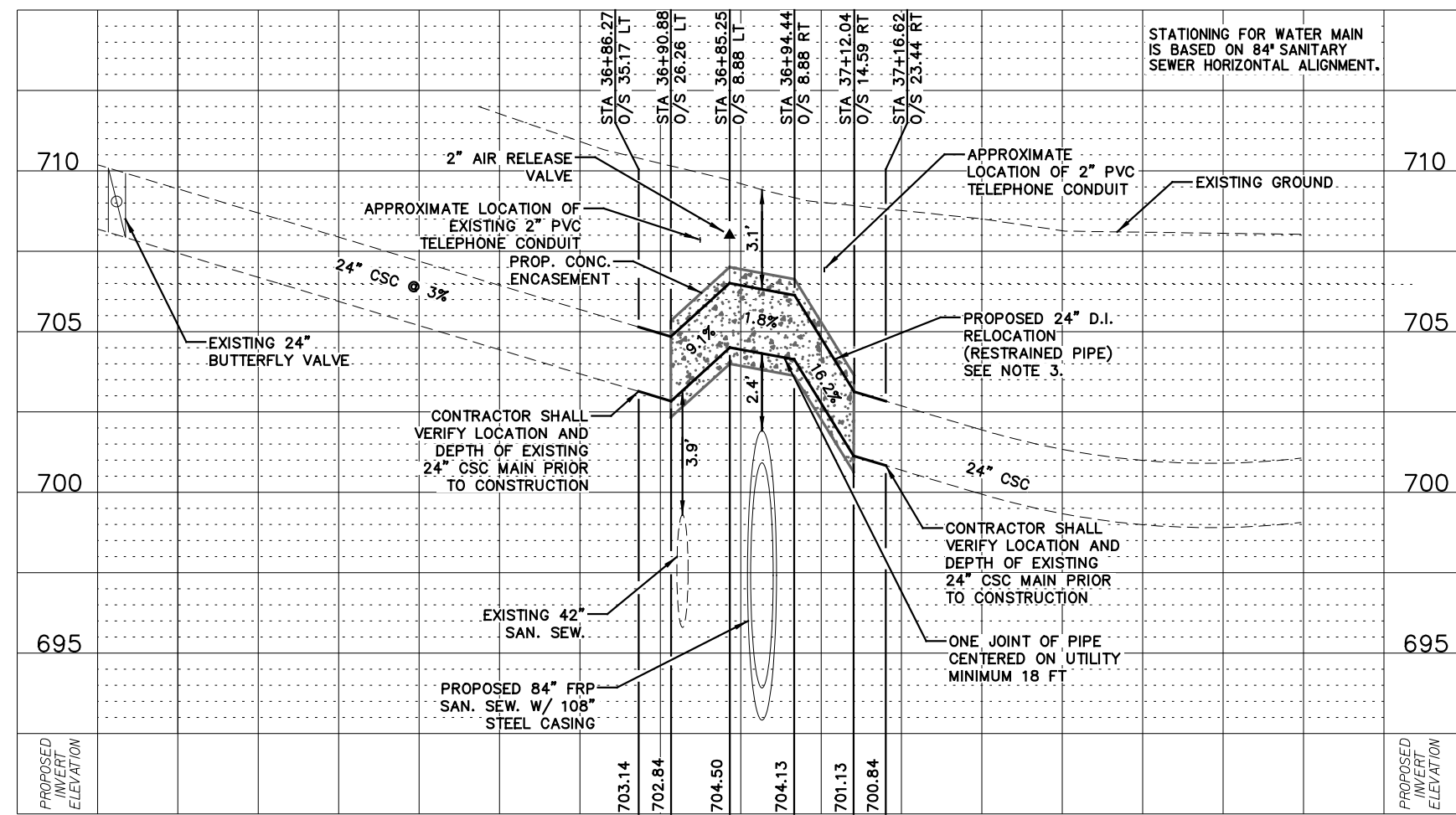
CAUTION!!!
 CONTRACTOR TO EXERCISE EXTREME CAUTION WHEN WORKING UNDER AND / OR AROUND OVERHEAD ELECTRIC LINES. CONTRACTOR SHALL COORDINATE WITH CPS ENERGY TO ESTABLISH THE MAXIMUM WORKING HEIGHT FROM GROUND ELEVATION. COORDINATE ALL WORK WITH CPS ENERGY.



PLAN VIEW LEGEND

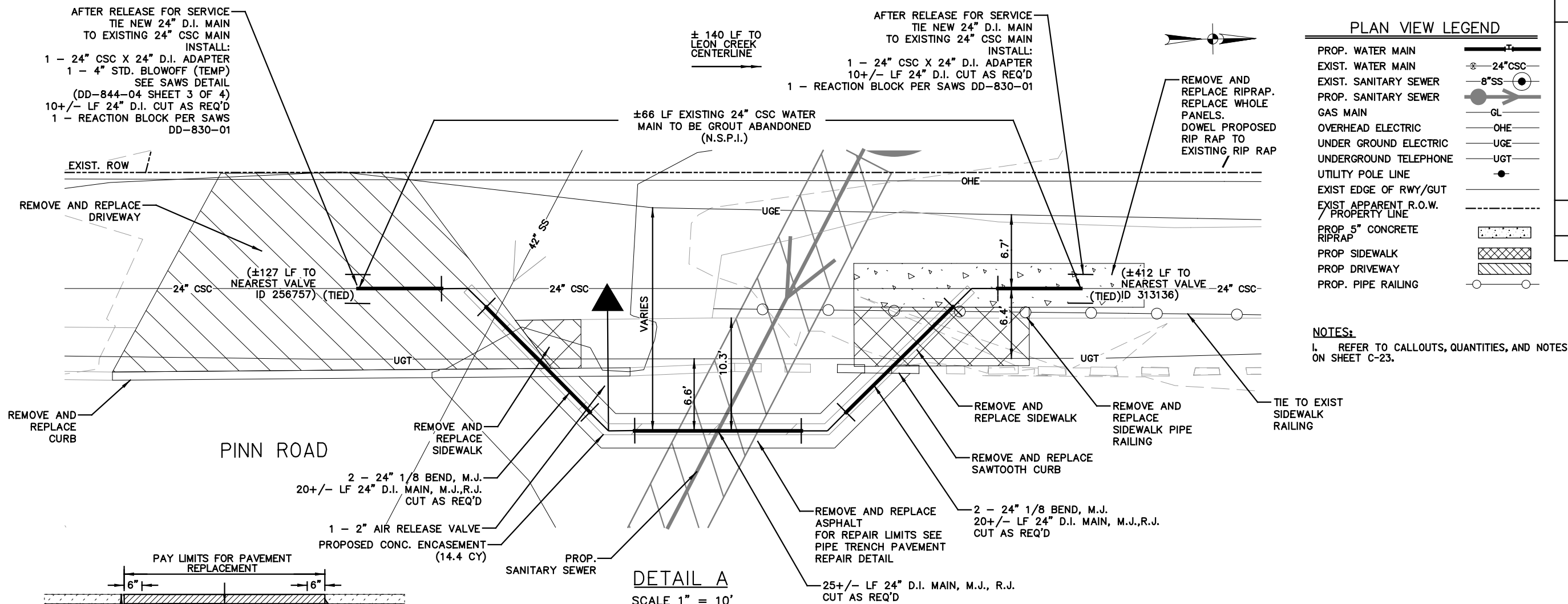
| | |
|---------------------------------------|-----------|
| PROP. WATER MAIN | — |
| EXIST. WATER MAIN | — 24" CSC |
| EXIST. SANITARY SEWER | — 8" SS |
| PROP. SANITARY SEWER | — |
| GAS MAIN | GL |
| OVERHEAD ELECTRIC | OHE |
| UNDER GROUND ELECTRIC | UGE |
| UNDERGROUND TELEPHONE | UGT |
| UTILITY POLE LINE | — |
| EXIST EDGE OF RWY/GUT | --- |
| EXIST APPARENT R.O.W. / PROPERTY LINE | --- |
| PROP 5" CONCRETE RIPRAP | [Pattern] |
| PROP SIDEWALK | [Pattern] |
| PROP DRIVEWAY | [Pattern] |
| MILL AND OVERLAY LIMITS | [Pattern] |
| PROP. PIPE RAILING | [Pattern] |

- NOTES:**
- REFER TO GENERAL NOTES IN SHEET G-5 FOR TRENCH EXCAVATION SAFETY PROTECTION ADDITIONAL INFORMATION.
 - CONTRACTOR SHALL CHLORINATE NEW MAINS WITH 'HTH' IF WATER MAIN LENGTH IS 800 FEET OR LESS.
 - PROPOSED D.I. PIPE (ENTIRE LENGTHS AND JOINTS) SHALL BE FULLY RESTRAINED. ANCHORAGE/ THRUST/ REACTION BLOCKING OR JOINT RESTRAINTS ARE CONSIDERED SUBSIDIARY TO THE WORK AND NO SEPARATE PAYMENT WILL BE MADE TO THE CONTRACTOR FOR THIS WORK. CONTRACTOR TO CONFIRM RECOMMENDED RESTRAINT LENGTHS AND SIZING OF ANCHOR/THRUST BLOCKS FROM PIPE MANUFACTURER.
- TEMPORARY WATER MAIN NOTES:**
- A 12" HDPE TEMPORARY WATER MAIN ("JUMPER") WILL BE REQUIRED TO MAINTAIN SERVICE TO MATHESON GAS PLANT [6400 TEXAS 151 ACCESS RD, SAN ANTONIO, TX 78227] DURING THE INSTALLATION OF THE 24" D.I. WATER MAIN.
 - CONTRACTOR SHALL PROVIDE ENGINEERED TEMPORARY WATER MAIN PLANS PREPARED BY A TEXAS LICENSED PROFESSIONAL ENGINEER AS A MATERIAL SUBMITTAL. PLANS WILL BE SUBMITTED TO BOTH SAWS AND COSA ROW DEPARTMENT PRIOR TO COMMENCING WORK. THE CONTRACTOR SHALL NOT BE ALLOWED TO BEGIN ANY FORM OF WORK UNTIL SUBMITTED PLANS HAVE BEEN APPROVED.
 - THE CONTRACTOR SHALL NOTIFY SAWS INSPECTOR, MATHESON GAS, RESIDENTS, AND PROPERTY OWNERS A MINIMUM OF 48 HOURS PRIOR TO INSTALLATION OF THE TEMPORARY MAIN. TEMPORARY MAIN MUST BE CHLORINATED, SAMPLED, AND TESTED PRIOR TO ACTIVATION.
 - LOCATION OF TEMPORARY WATER MAIN MUST BE INCLUDED IN CONTRACTOR'S MATERIAL SUBMITTAL TO SAWS AND COSA ROW DEPARTMENT. IF TEMPORARY WATER MAIN IS TO BE BURIED, RECOMMENDED BURIED DEPTH IS ONE (1) FOOT MINIMUM. CONTRACTOR MUST COORDINATE REQUIREMENTS OF PAVEMENT REPAIR FOR THE BURIED TEMPORARY WATER MAIN WITH SAWS AND COSA INSPECTORS. CONTRACTOR MAY REFER TO PAVEMENT TRENCH REPAIR DETAIL ON SHEET C-24.
 - PAYMENT OF THE TEMPORARY WATER MAIN SHALL BE COVERED UNDER ITEM 3100, "TEMPORARY WATER MAIN (12" HDPE)", AND SHALL INCLUDE ALL NECESSARY PIPE MATERIALS, FITTINGS, BENDS, VALVES, SERVICE CONNECTIONS, TIE-INS, AND TESTING REQUIRED BY SAWS. PAYMENT OF THE ALL TRENCHING AND TRENCH REPAIR, INCLUDING TRENCH REPAIR IN PAVEMENT, SHALL BE COVERED UNDER ITEM 3100, "TEMPORARY WATER MAIN (12" HDPE)".



| ESTIMATED QUANTITIES | | | |
|----------------------|---|------|------|
| ITEM | DESCRIPTION | UNIT | QTY |
| 203.1 | TACK COAT | GAL | 120 |
| 205.3 | HOT MIX ASPHALTIC PAVEMENT, TYPE C (3" COMP DEPTH) | SY | 1200 |
| 208.1 | SALVAGING, HAULING & STOCKPILING RECLAIMABLE ASPHALT PAVEMENT (3" DEPTH) | SY | 1200 |
| 500.1 | CONCRETE CURB | LF | 64 |
| 502.1 | CONCRETE SIDEWALKS | SY | 12.0 |
| 503.1 | PORTLAND CEMENT CONCRETE DRIVEWAYS | SY | 57.0 |
| 505.1 | CONCRETE RIPRAP (6" THICK) | SY | 11.8 |
| 511.1 | REPLACING WITH HOT MIX ASPHALTIC CONCRETE PAVEMENT TYPE B (12" COMPACTED DEPTH) | SY | 15.2 |
| 522.1 | SIDEWALK PIPE RAILING | LF | 44 |
| 536.1 | 4 INCH WIDE YELLOW LINE | LF | 480 |
| 536.2 | 4 INCH WIDE WHITE LINE | LF | 480 |
| 550.1 | TRENCH EXCAVATION SAFETY PROTECTION | LF | 85 |
| 814 | 24" D.I. WATERLINE (OPEN CUT) | LF | 85 |
| 836 | PIPE FITTINGS (ALL SIZES & TYPES) | TN | 1.55 |
| 840 | 24" WATER TIE-INS | EA | 2 |
| 841 | HYDROSTATIC TESTING | EA | 1 |
| 844.4 | 4" BLOW-OFF, TEMPORARY | EA | 1 |
| 846 | 2" AIR RELEASE VALVE | EA | 1 |
| 858 | CONCRETE ENCASEMENT | CY | 14.4 |
| 3100 | TEMPORARY WATER MAIN (12" HDPE) | LS | 1 |

| | |
|--|---|
| MAI Job No. M061 | |
| Date: 8/14/2020 Designed by: ETM Drawn by: CAD Checked by: ETM Scale: | Revisions No. Date |
| SAN ANTONIO, TEXAS 2000 HWY 410 SAN ANTONIO, TX 78213 214.375.8000 WWW.PAPE-DAWSON.COM P.E. ERNEST T. MATHESON | 8122 DATAPoint DR, STE. 800 SAN ANTONIO, TX 78229 (210) 396-1888 TOLL FREE: 1-800-855-1015 |
| SAWS JOB NO. 19-4528 W-1 LEON CREEK: HWY 151 TO HWY 90 UPPER SEGMENT PLAN AND PROFILE SHEET PINN RD WATER RELOCATION | SAN ANTONIO WATER SYSTEM |
| Sheet C-23 | 46 of 67 |



PLAN VIEW LEGEND

- PROP. WATER MAIN
- EXIST. WATER MAIN
- EXIST. SANITARY SEWER
- PROP. SANITARY SEWER
- GAS MAIN
- OVERHEAD ELECTRIC
- UNDER GROUND ELECTRIC
- UNDERGROUND TELEPHONE
- UTILITY POLE LINE
- EXIST EDGE OF RWY/GUT
- EXIST APPARENT R.O.W. / PROPERTY LINE
- PROP 5" CONCRETE RIPRAP
- PROP SIDEWALK
- PROP DRIVEWAY
- PROP. PIPE RAILING

NOTES:
 1. REFER TO CALLOUTS, QUANTITIES, AND NOTES ON SHEET C-23.

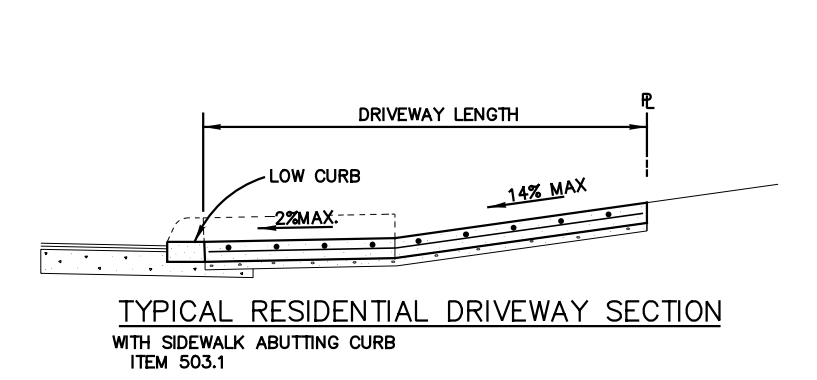
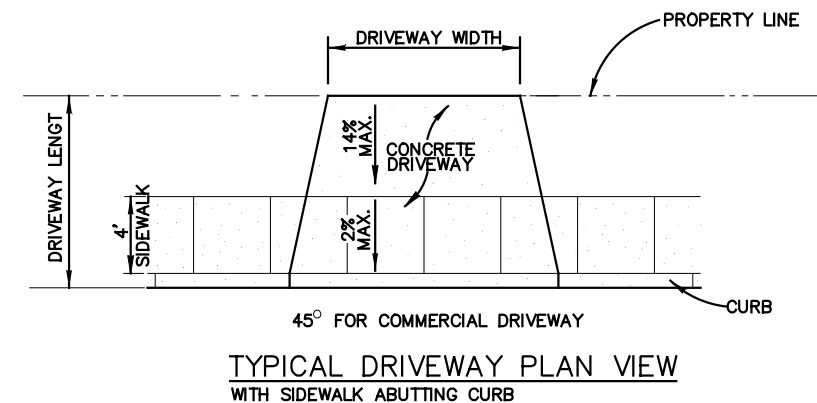
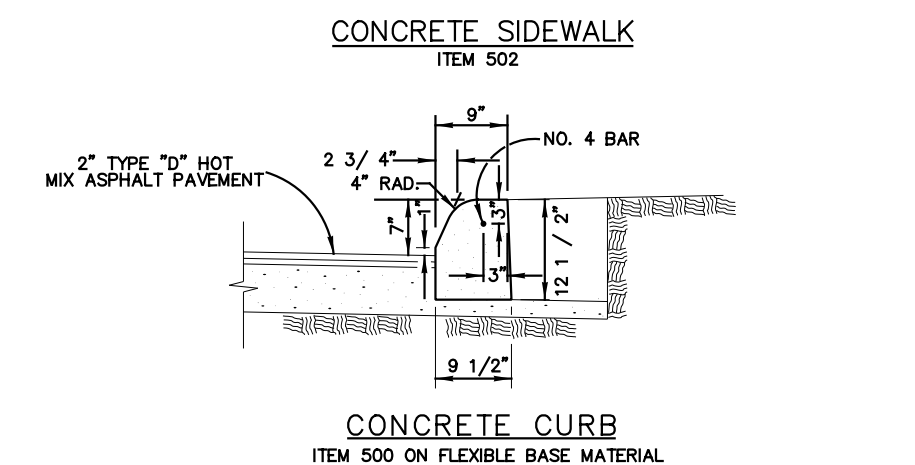
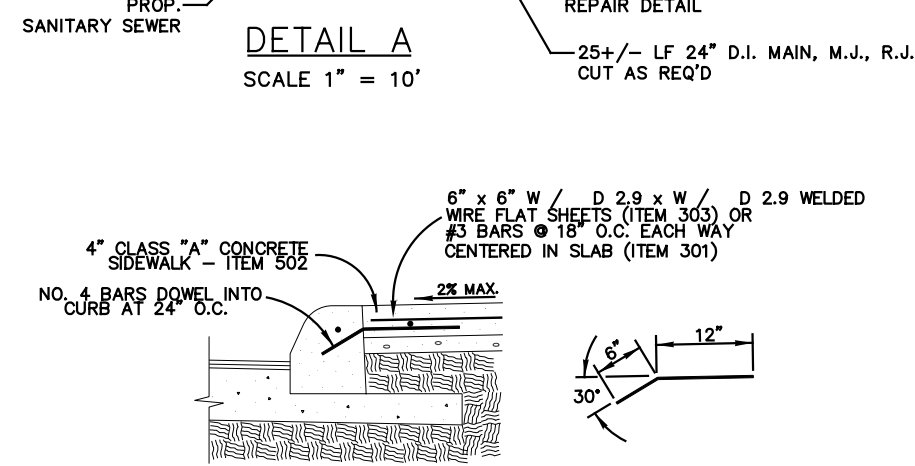
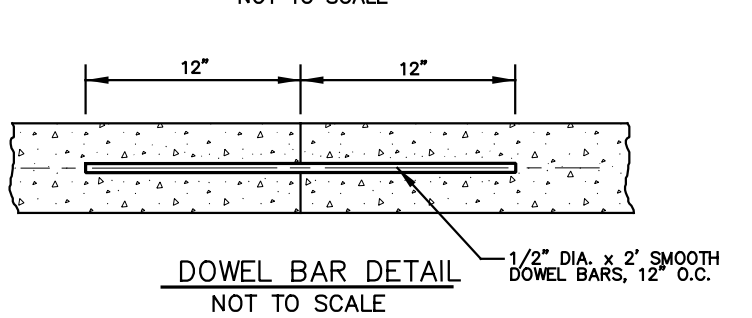
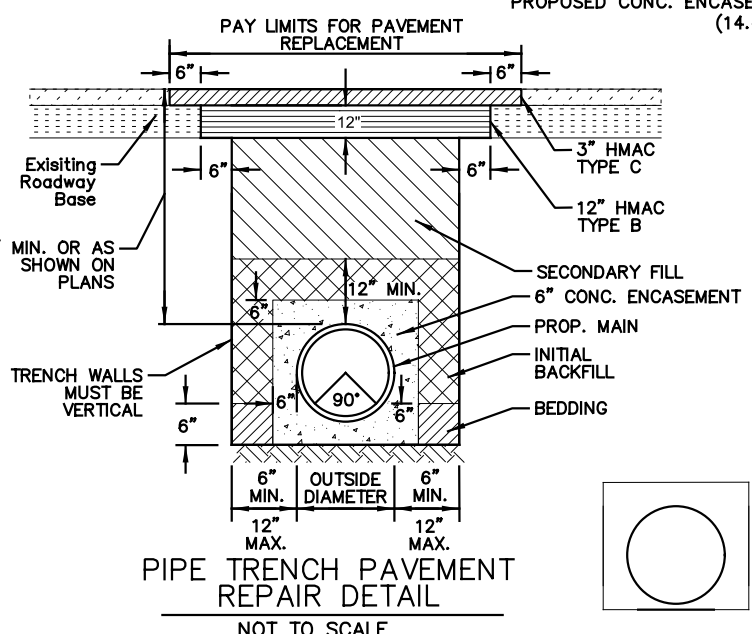
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| MAI Job No. M061 |
| |
| Date: 8/14/2020 Designed by: ETM Drawn by: CAD Checked by: ETM Scale: |

PAPE-DAWSON ENGINEERS
 SAN ANTONIO, AUSTIN, HOUSTON, FORT WORTH, DALLAS
 2000 W. LOOP 410 | SAN ANTONIO, TX 78237 | 214.375.8000
 8122 DATAPoint DR., STE. 800 SAN ANTONIO, TX 78229
 (210) 396-1888 TDD: (210) 396-1888 FAX: (210) 396-1888

MAESTAS

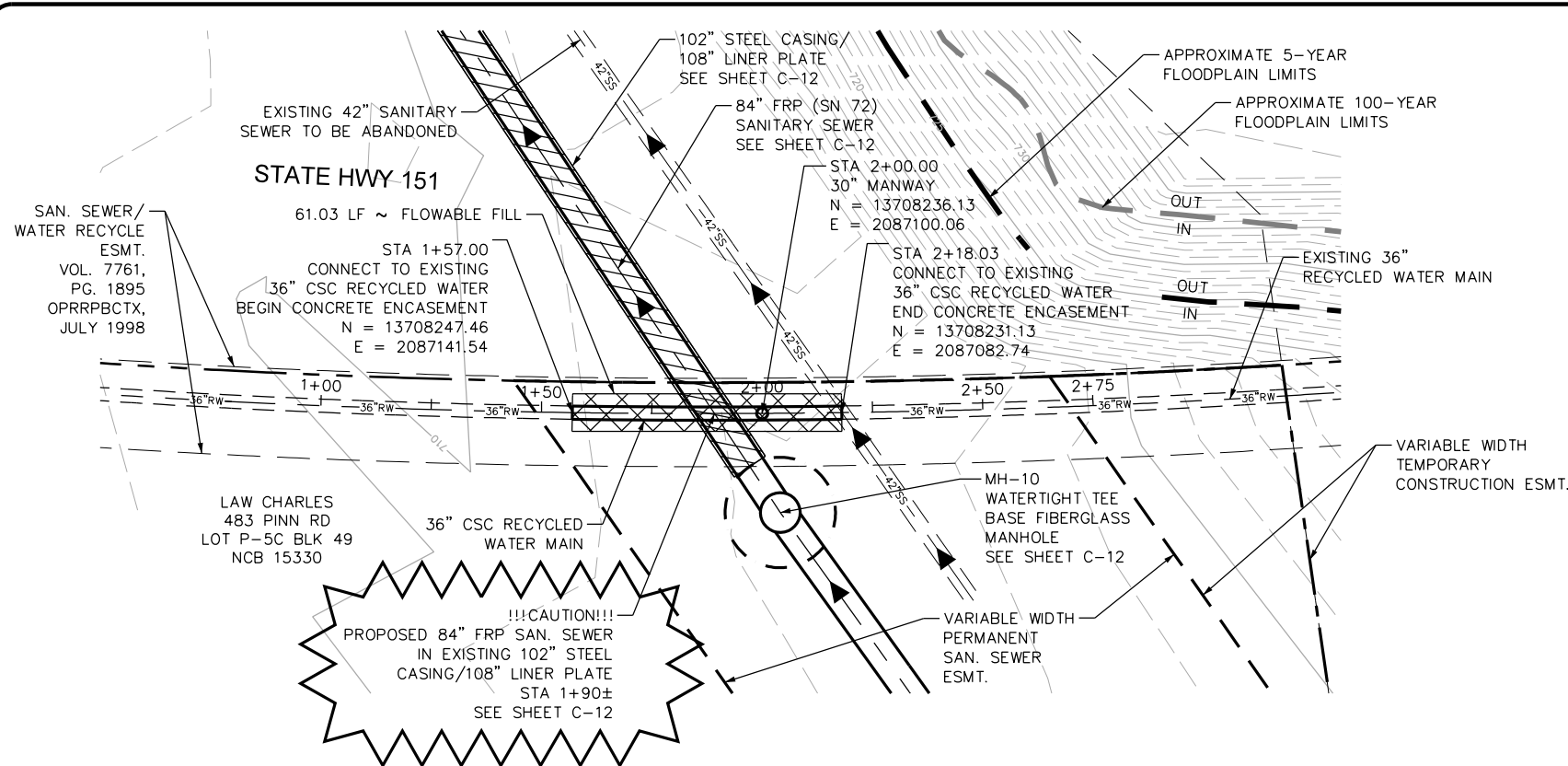
SAN ANTONIO WATER SYSTEM

SAWS JOB NO. 19-4528
 W-1 LEON CREEK: HWY 151 to HWY 90
 UPPER SEGMENT
 MISCELLANEOUS DETAILS
 PINN RD WATER RELOCATION



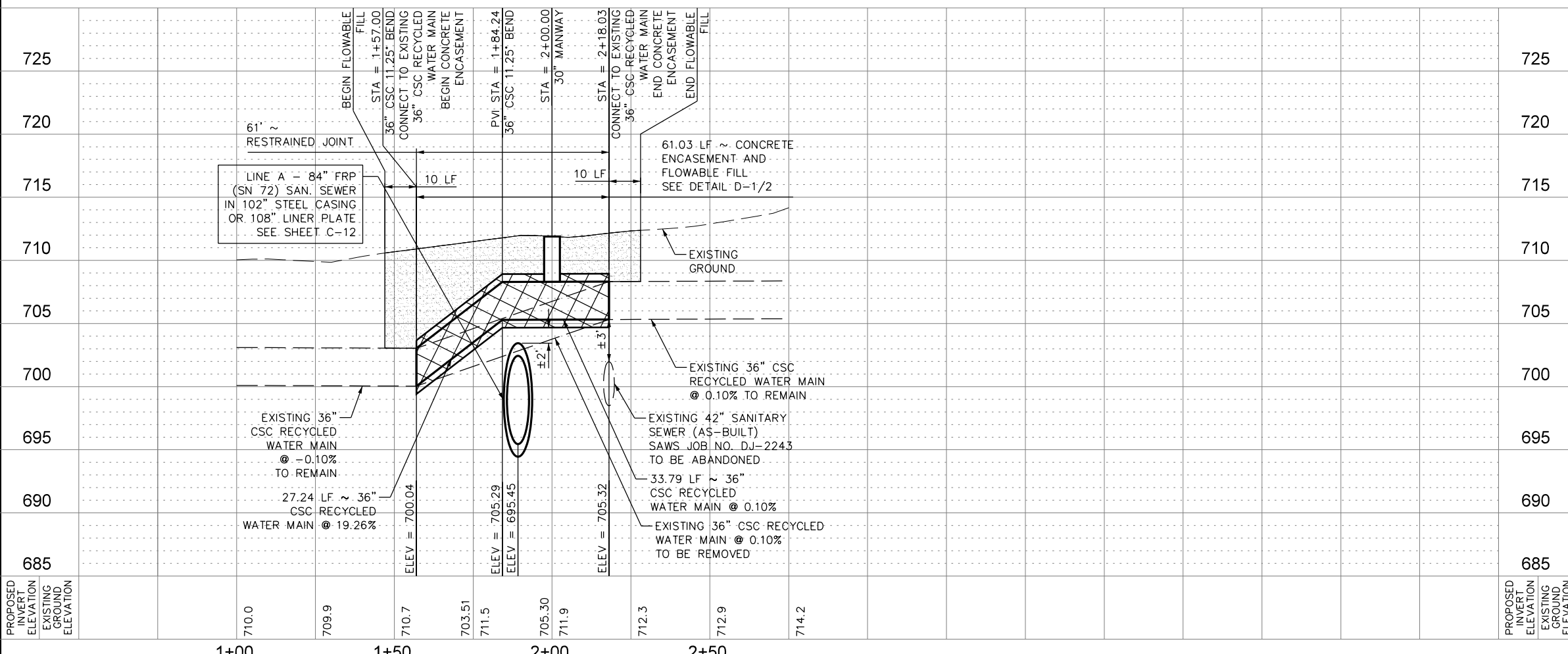
PLOTTED ON: 8/17/2020

DESIGN FILENAME: P:\89\18\00\Design\Civil\Sewer\Phase 1\SS891800-01-C25.dgn



36" RECYCLE WATER

| QUANTITY TABLE | | | |
|----------------|---|------|----------|
| ITEM | DESCRIPTION | UNIT | QUANTITY |
| 110/820 | 36" CSC RECYCLED WATER MAIN, RESTRAINED | LF | 61 |
| 110 | 30" MANWAY | EA | 1 |
| 858 | CONCRETE ENCASEMENT (MIN STRENGTH, 2,000 PSI) | CY | 21 |
| 413 | FLOWABLE FILL | CY | 79 |
| 550.1 | TRENCH EXCAVATION SAFETY PROTECTION | LF | 61 |



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 - CONTRACTOR MAY ENCOUNTER THE PRESENCE OF GROUND WATER DURING CONSTRUCTION. CONTRACTOR SHALL REFER TO THE SUPPLEMENTARY SPECIFICATIONS FOR CONTROL OF GROUND WATER.
 - CONTRACTOR SHALL PROTECT EXISTING 42" SANITARY SEWER DURING CONSTRUCTION OF PROPOSED RECYCLE WATER MAIN.
 - CONTRACTOR SHALL RESTRAIN ALL SECTIONS OF 36" CSC PIPE AFFECTED AND VERIFY THE NEXT JOINT ON EITHER SIDE OF CONNECTIONS ARE RESTRAINED.
 - CONTRACTOR SHALL NOTIFY SAWS THIRTY (30) DAYS PRIOR TO SHUTTING DOWN EXISTING RECYCLED WATER MAIN.
 - CONTRACTOR CAN ONLY SHUT DOWN THE RECYCLE WATER MAIN IN THE MONTHS BETWEEN NOVEMBER TO MARCH.

PAPE-DAWSON
Job No.
8918-00

Jason T. Diamond
8-17-20

| NO. | DATE | REVISIONS |
|-----|------|-----------|
| | | |

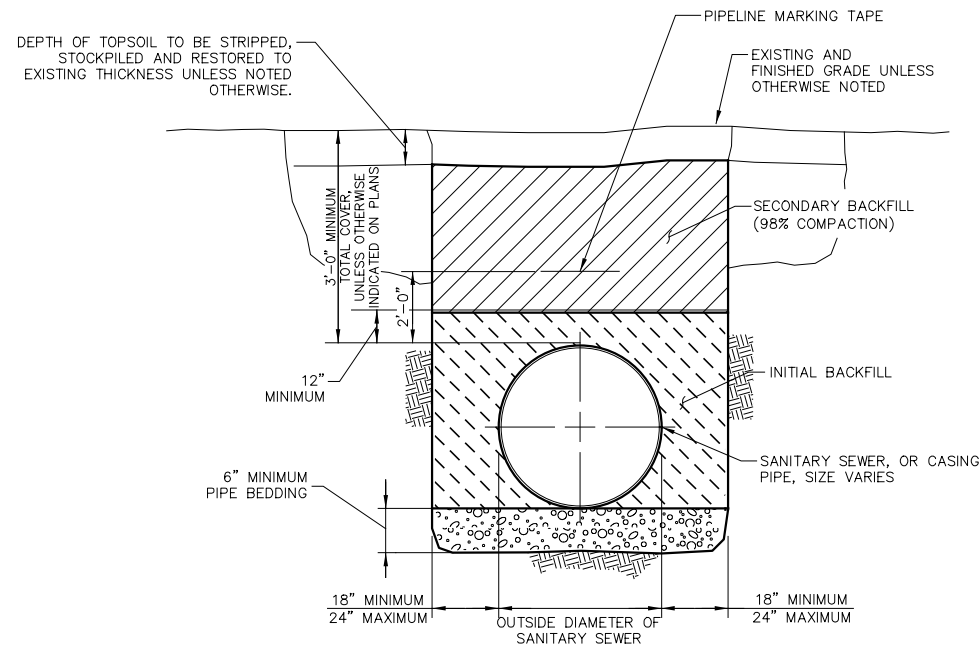
DATE: AUG 2020
DESIGNED BY: MP
DRAWN BY: BS
CHECKED BY: JO
SCALE: 1" = 40' HORZ
1" = 10' VERT

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2000 HWY LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.8000
TDRS FIRM REGISTRATION #038880

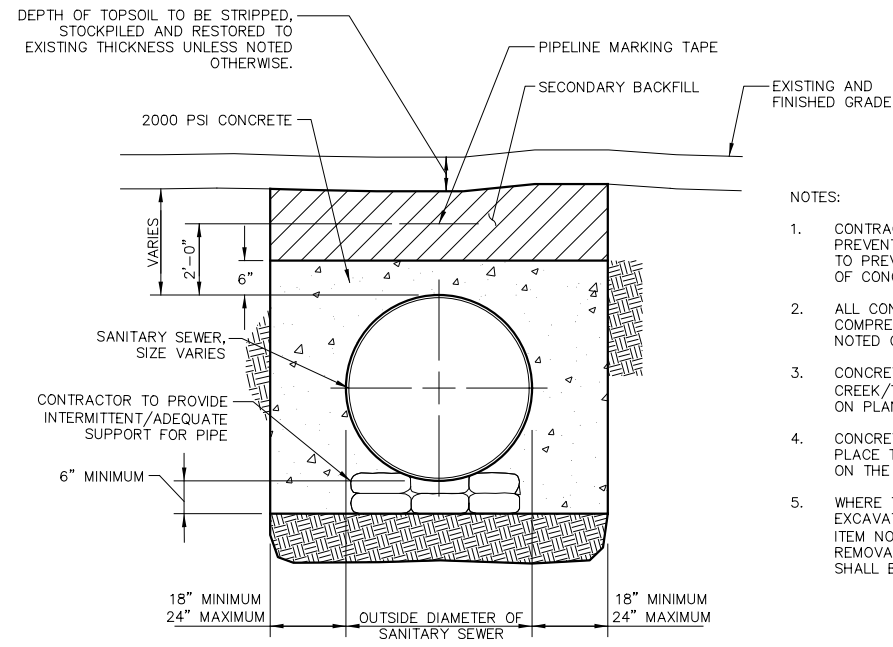
SAN ANTONIO WATER SYSTEM

SAWS JOB NO. 19-4528
W-1 LEON CREEK: HWY 151 TO HWY 90
UPPER SEGMENT
36" RECYCLED WATER PLAN AND
PROFILE SHEET - STA 1+00 TO STA 2+75



CROSS SECTION

1 TYPICAL PIPE TRENCH (UNPAVED SURFACE)
N.T.S. (GREATER THAN 27" DIAMETER SEWER PIPE)

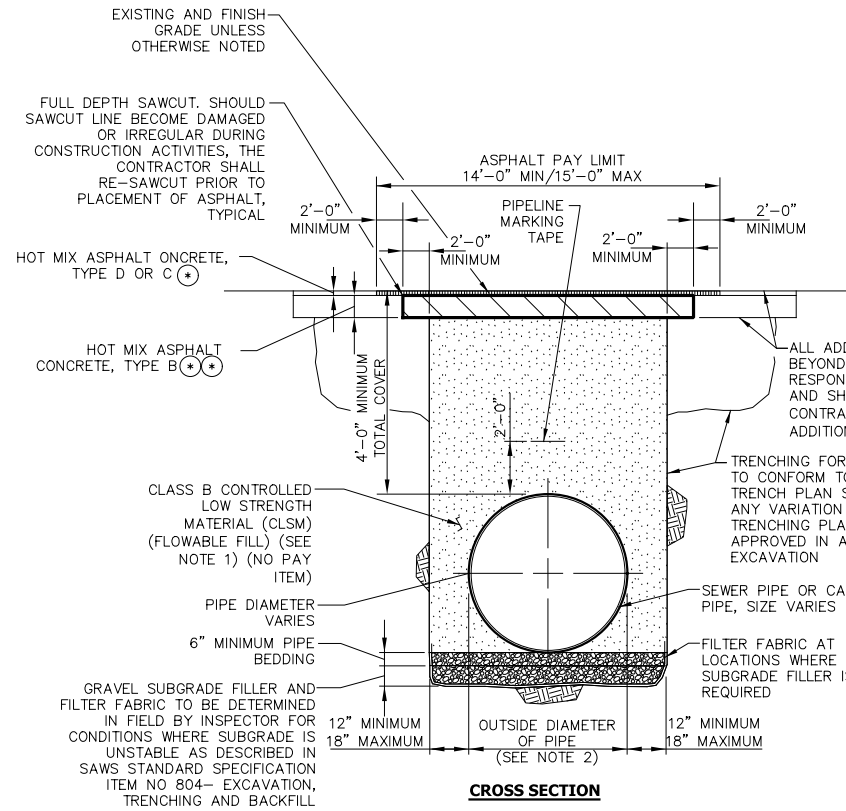


CROSS SECTION

2 CONCRETE ENCASEMENT
N.T.S. (FOR FIBERGLASS PIPE)

NOTES:

1. CONTRACTOR SHALL TAKE REQUIRED PREVENTATIVE MEASURES TO HOLD PIPE IN PLACE TO PREVENT PIPE FLOTATION DURING PLACEMENT OF CONCRETE ENCASEMENT.
2. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 2000 PSI UNLESS NOTED OTHERWISE.
3. CONCRETE ENCASEMENT APPLIES TO DESIGNATED CREEK/TRIBUTARY CROSSINGS FOR LIMITS SHOWN ON PLAN AND PROFILE SHEETS.
4. CONCRETE ENCASEMENT SHALL BE MEASURED IN PLACE TO THE HORIZONTAL LENGTH AS INDICATED ON THE PLANS.
5. WHERE THE TRENCH BOTTOM HAS BEEN OVER EXCAVATED BEYOND THE LIMITS AS DEFINED IN ITEM NO. 848, "SANITARY SEWERS", DUE TO REMOVAL OF UNUSABLE MATERIAL, THE PIPE SHALL BE CONCRETE ENCASED.



CROSS SECTION

3 TYPICAL PIPE TRENCH (ASPHALT SURFACE)
FOR 84" FRP PIPE
N.T.S.

PIPE TRENCH NOTES:

1. CONTRACTOR SHALL TAKE REQUIRED PREVENTIVE MEASURES TO HOLD PIPE IN PLACE TO PREVENT PIPE FLOTATION DURING PLACEMENT OF CONTROLLED LOW STRENGTH MATERIAL (CLSM).
 2. OUTSIDE DIAMETER OF PIPE SHALL BE SEWER PIPE OR CASING PIPE AS SHOWN ON PLANS.
- (2) 2" HMAC TY D FOR LOCAL STREETS
 3" HMAC TY C FOR ARTERIAL/COLLECTOR STREETS
 (3) TY B (10" MIN) FOR LOCAL STREETS
 TY B (12" MIN) FOR ARTERIAL/COLLECTOR STREETS

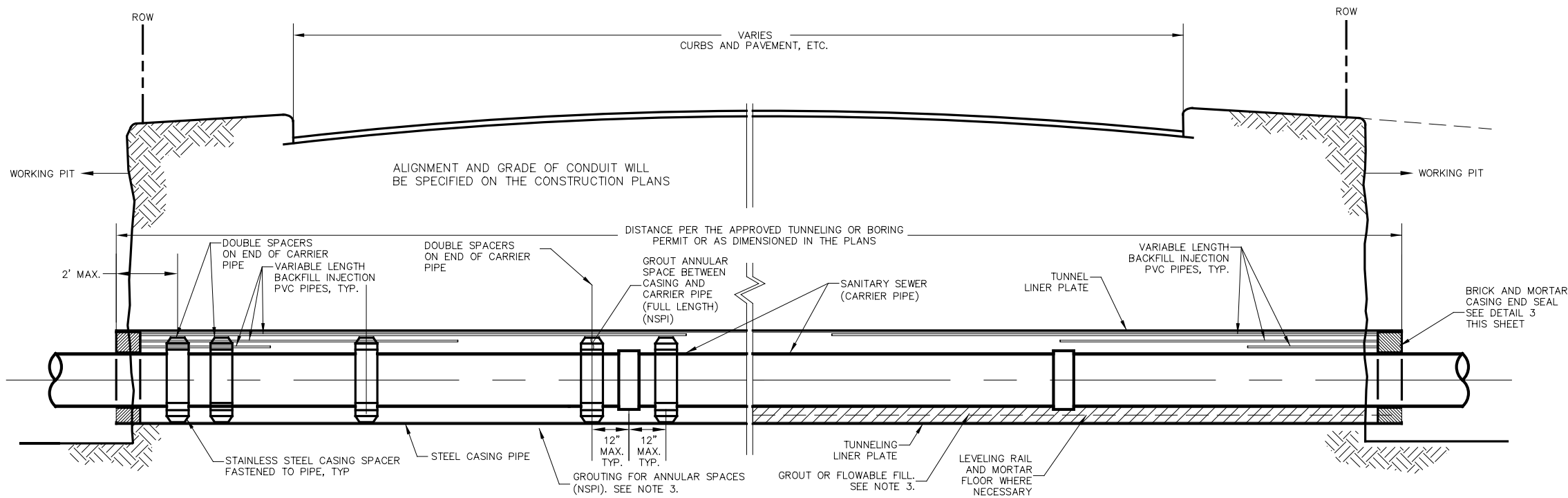
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| App. | MAI |
| Job No. | M061 |
| Revisions | |
| Date | 8/14/2020 |
| Designed by: | ETM |
| Drawn by: | CAD |
| Checked by: | ETM |
| Scale: | |

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(210) 396-1888 TBE No. 1533 TBE No. 10194506

SAN ANTONIO WATER SYSTEM

SAWS JOB NO. 19-4528
W-1 LEON CREEK: HWY 151 to HWY 90
UPPER SEGMENT
TYPICAL TRENCH DETAILS



1 INSTALLATION OF CARRIER PIPE IN STEEL CASING OR LINER PLATE
N.T.S.

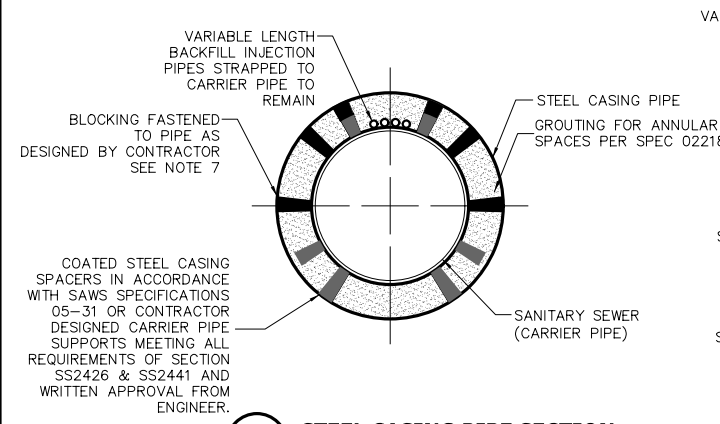
| TUNNEL LINER TABLE | | | | | | | | | |
|----------------------------|-----------------------|---------------------|--|---------------------------|--|----------------------------------|-----------------------|-------------------------------------|--|
| CROSSING NAME | SHAFT APPROX. STATION | SHAFT APPROX. DEPTH | RECOMMENDED SHAFT CONSTRUCTION METHODS | APPROX. DRIVE LENGTH (FT) | ALLOWABLE TUNNELING METHODS | TUNNEL SHIELD REQUIREMENT | CARRIER PIPE DIAMETER | MINIMUM CASING/LINER PLATE DIAMETER | MINIMUM STEEL CASING PIPE WALL THICKNESS |
| LEON CREEK BANK | 24+25 | ±20 | -ROCK BOLTS & SHOTCRETE -SLIDE RAILS -TRENCH BOXES -SOLDIER PILE & LAGGING -LINER PLATE ⁴ | 550 | - OPEN-SHIELD PIPEJACKING TUNNELING - OPEN-SHIELD LINER PLATE TUNNELING - DIRECT-PIPEJACKING | YES TUNNEL SHIELD IS REQUIRED | 84" I.D. | 102"/108" | 0.50" |
| | 29+75 | ±20 | -ROCK BOLTS & SHOTCRETE -SLIDE RAILS -TRENCH BOXES -SOLDIER PILE & LAGGING -LINER PLATE ⁴ | | | | | | |
| PINN ROAD | 36+24 | ±17 | -ROCK BOLTS & SHOTCRETE -SLIDE RAILS -TRENCH BOXES -SOLDIER PILE & LAGGING -LINER PLATE | 94 | - OPEN-SHIELD PIPEJACKING TUNNELING - DIRECT-PIPEJACKING | YES TUNNEL SHIELD IS REQUIRED | 84" I.D. | 102"/NA | 0.50" |
| | 37+18 | ±18 | -ROCK BOLTS & SHOTCRETE -SLIDE RAILS -TRENCH BOXES -SOLDIER PILE & LAGGING -LINER PLATE | | | | | | |
| SH-151 BRIDGE ⁵ | 49+27 | ±18 | -ROCK BOLTS & SHOTCRETE ⁶ -SLIDE RAILS -SOLDIER PILE & LAGGING | 573 | - OPEN-SHIELD LINER PLATE TUNNELING | YES TUNNEL SHIELD IS REQUIRED | 84" I.D. | NA/108" | N/A |
| | 55+00 | ±18 | -ROCK BOLTS & SHOTCRETE ⁵ -SLIDE RAILS -SOLDIER PILE & LAGGING | | | | | | |

NOTES:

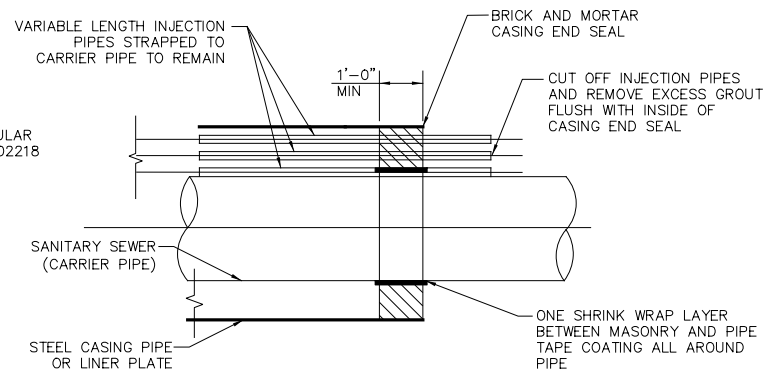
- CONTRACTOR SHALL REFER TO PROJECT SPECIFICATIONS FOR FURTHER INFORMATION REGARDING TUNNELING PROCESS/CRITERIA.
- TUNNEL EXCAVATION METHODS MUST HAVE THE CAPACITY TO EXCAVATE THROUGH ROCK CONDITIONS AS IDENTIFIED IN GEOTECHNICAL REPORT.
- CONTRACTOR SHALL REFER TO PROJECT SPECIFICATION 02314 FOR LINER PLATE THICKNESS.
- CONTRACTOR IS RESPONSIBLE TO PROPERLY SIZING TUNNEL SHAFT TO AVOID IMPACTS TO EXISTING 42-INCH SANITARY SEWER.
- CONTRACTOR SHALL SHORE SHAFT EXCAVATION TO PROTECT ADJACENT 42-INCH SANITARY SEWER OR PROVIDE MEANS TO TEMPORARY SUPPORT SANITARY SEWER.
- ROCK BOLT & SHOTCRETE SHAFT CONSTRUCTION METHOD SHALL NOT BE ALLOWED AROUND EXISTING 42-INCH SANITARY SEWER.
- OPEN-SHIELD CAN BE PERFORMED BY HAND-MINING OR MECHANICAL METHODS.

CONTRACTOR NOTES:

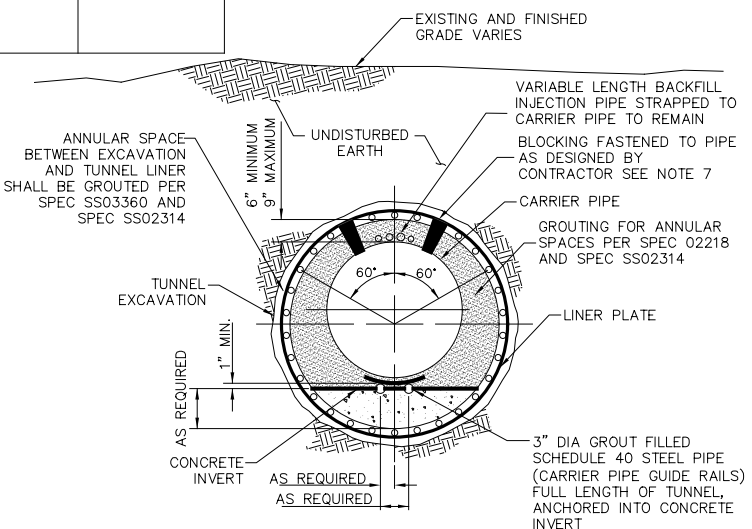
- CONTRACTOR SHALL SELECT CARRIER PIPE INSTALLATION METHOD BASED ON CONTRACTOR'S OWN EXPERIENCE AND ENCOUNTERED GROUND CONDITIONS. ALL MEAN, METHODS, AND DEVIATIONS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.
- CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PREVENT PIPE DAMAGE OR FLOTATION AS A RESULT OF BACKFILL PLACEMENT.
- CONTRACTOR SHALL REFER TO SAWS SPECIFICATIONS 856 - BORING OR TUNNELING, SS0218 - LOW DENSITY CELLULAR GROUT, & SS02314 - TUNNELING WITH LINER PLATE FOR ADDITIONAL GROUTING OPERATIONS.
- CONTRACTOR SHALL USE STAINLESS STEEL CASING SPACERS FOR CARRIER PIPE INSTALLATION WHEN USING STEEL CASING OR GUIDE RAILS.
- CONTRACTOR SHALL USE CARRIER PIPE GUIDE RAILS FOR CARRIER PIPE INSTALLATION WHEN USING LINER PLATE OR CASING.
- CONTRACTOR SHALL PLACE DOUBLE SPACERS AS DIRECTED BY SAWS.
- INSTALL HOLD DOWN JACKS OR BLOCKING BETWEEN TUNNEL PRIMARY LINER AND CARRIER PIPE ON EACH JOINT TO RESIST FORCES/MOVEMENTS DURING ANNULAR GROUTING OF THE PRIMARY LINER AND CARRIER PIPE.
- THE DRILLING OF ADDITIONAL INJECTION HOLES FROM THE SURFACE TO FACILITATE GROUTING MAY BE ALLOWED IF APPROVED BY THE SAWS.



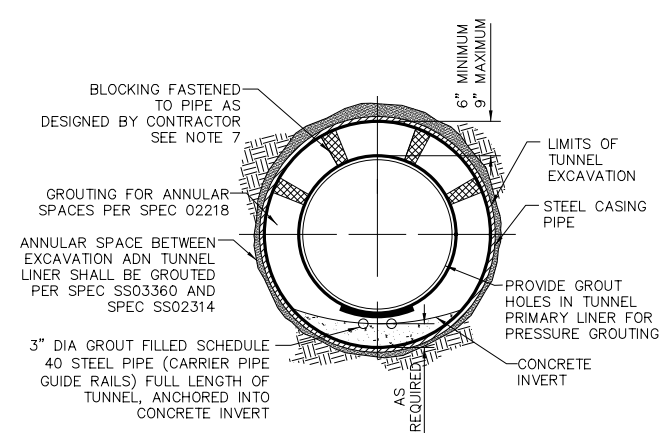
2 STEEL CASING PIPE SECTION
N.T.S.



3 CASING END SEAL DETAIL
N.T.S.



4 TUNNELING SECTION - LINER PLATE
N.T.S.



5 TUNNELING SECTION - RAIL SYSTEM
N.T.S.

MAI Job No. M061

Revisions

Date: 8/14/2020

Designed by: ETM

Drawn by: CAD

Checked by: ETM

Scale:

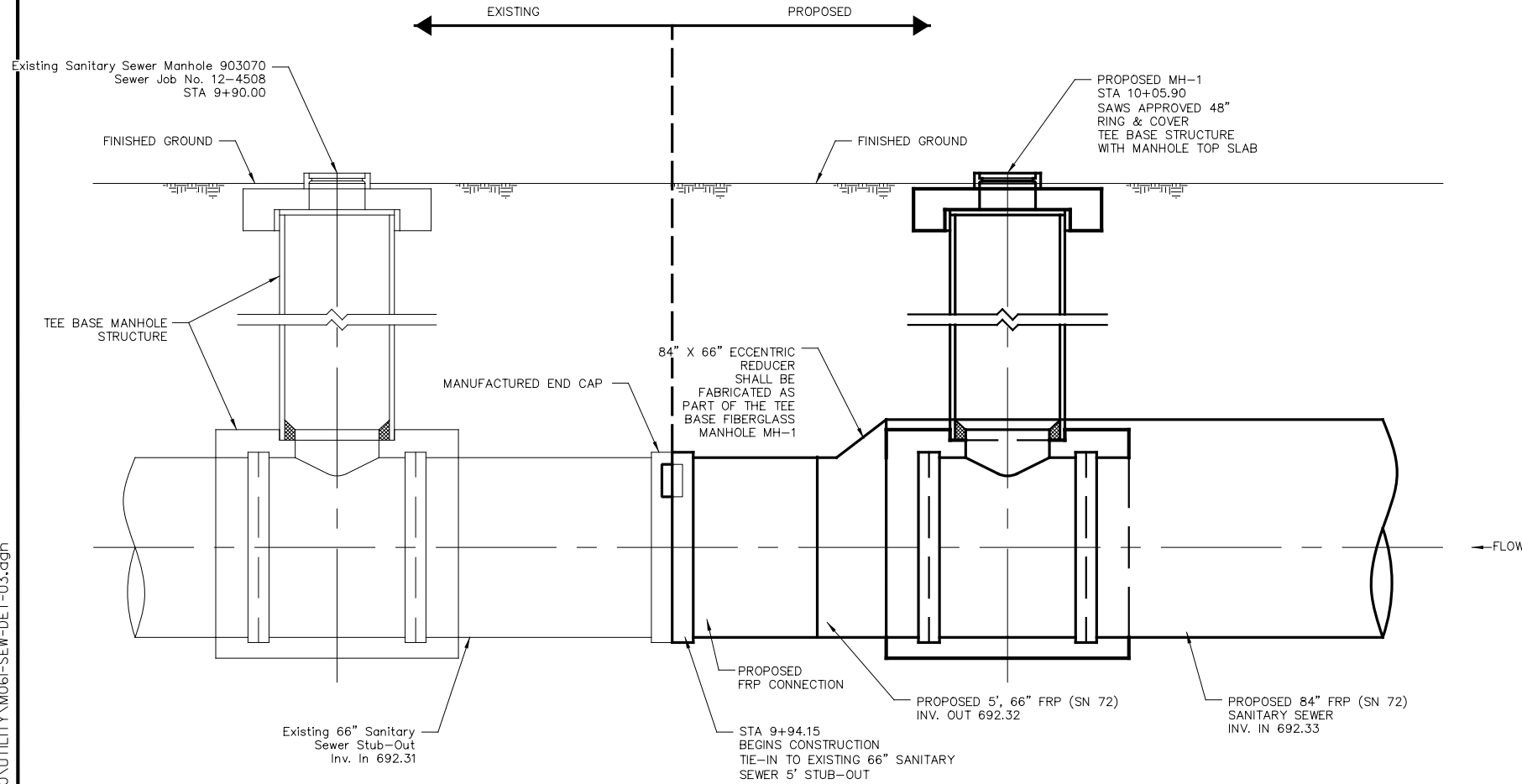
MAESTAS ENGINEERS

1210 DATAPoint DR., STE. 800 SAN ANTONIO, TX 78229

TEL: 210.396.1888 FAX: 210.396.1889

SAN ANTONIO WATER SYSTEM

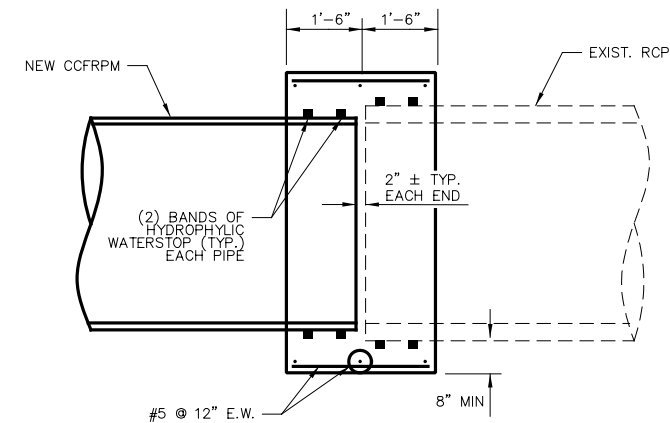
SAWS JOB NO. 19-4528
W-1 LEON CREEK: HWY 151 TO HWY 90
UPPER SEGMENT
CARRIER PIPE INSTALLATION
DETAIL



1 BEGINNING DETAIL FOR FIBERGLASS PIPE AND CAP
N.T.S.

CONNECTION NOTES:

- CONTRACTOR TO EXPOSE END OF EXISTING 66" STUB-OUT AND VERIFY INVERT ELEVATIONS AND HORIZONTAL POSITIONS. PRIOR TO REMOVAL OF CAP, CONTRACTOR TO REPORT TO THE ENGINEER ANY DEVIATION FROM PLAN LOCATION OR ELEVATION.
- CONTRACTOR TO REMOVE EXISTING END CAP AND PERFORM CONNECTION IN ACCORDANCE WITH PIPE MANUFACTURER'S RECOMMENDATION.



2 CONCRETE COLLAR DETAIL FOR CONNECTIONS TO EXISTING CONCRETE PIPE
N.T.S.

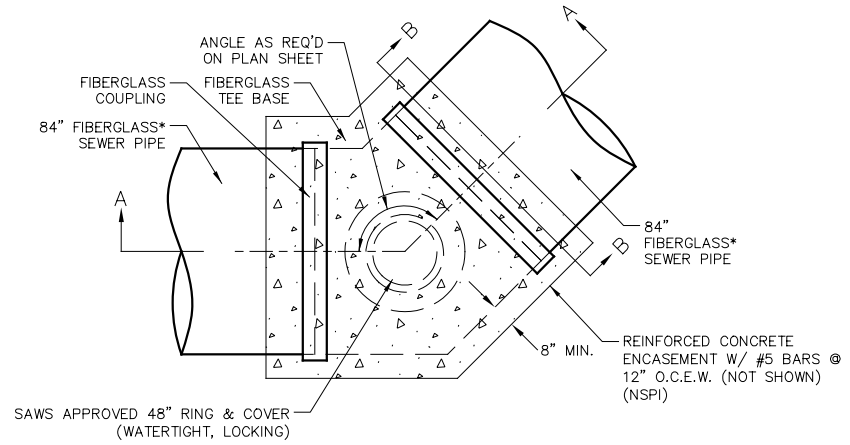
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| MAI Job No. M061 |
| Revisions |
| Date: 8/14/2020 |
| Designed by: ETM |
| Drawn by: CAD |
| Checked by: ETM |
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TX REG. PROFESSIONAL ENGINEER NO. 11965 | TX REG. PROFESSIONAL SURVEYOR NO. 11965

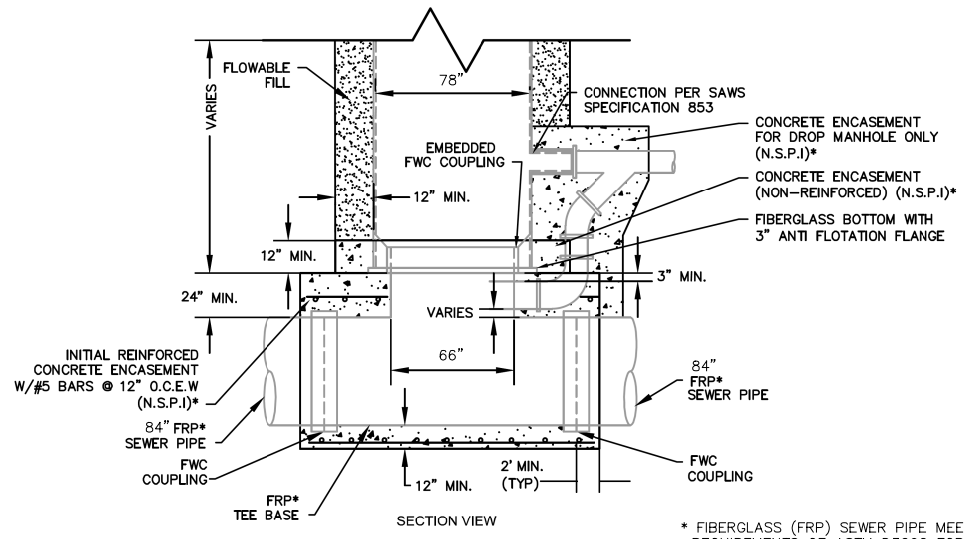
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SAN ANTONIO WATER SYSTEM

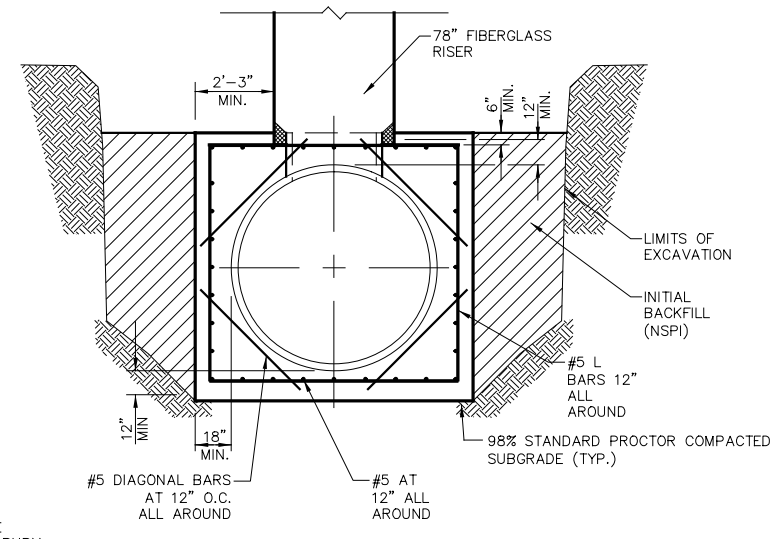
SAWS JOB NO. 19-4528
W-1 LEON CREEK: HWY 151 to HWY 90
UPPER SEGMENT
CONNECTION DETAILS



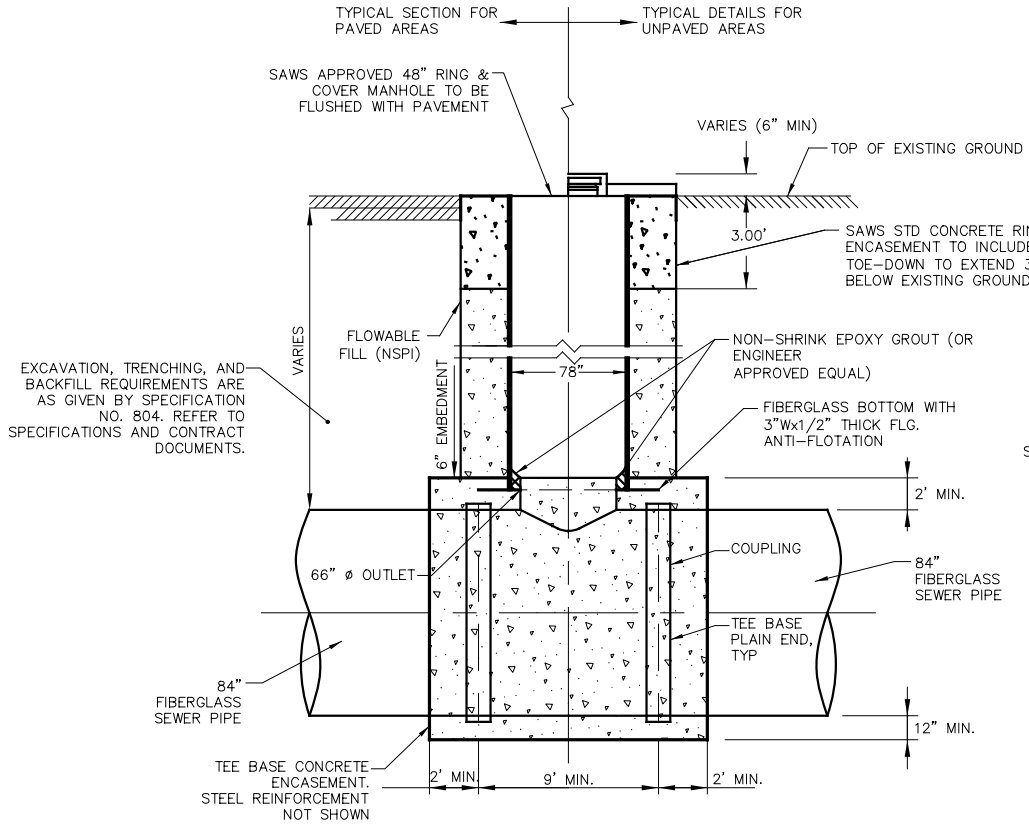
1 TEE-BASE FIBERGLASS MANHOLE DETAIL PLAN VIEW
N.T.S.



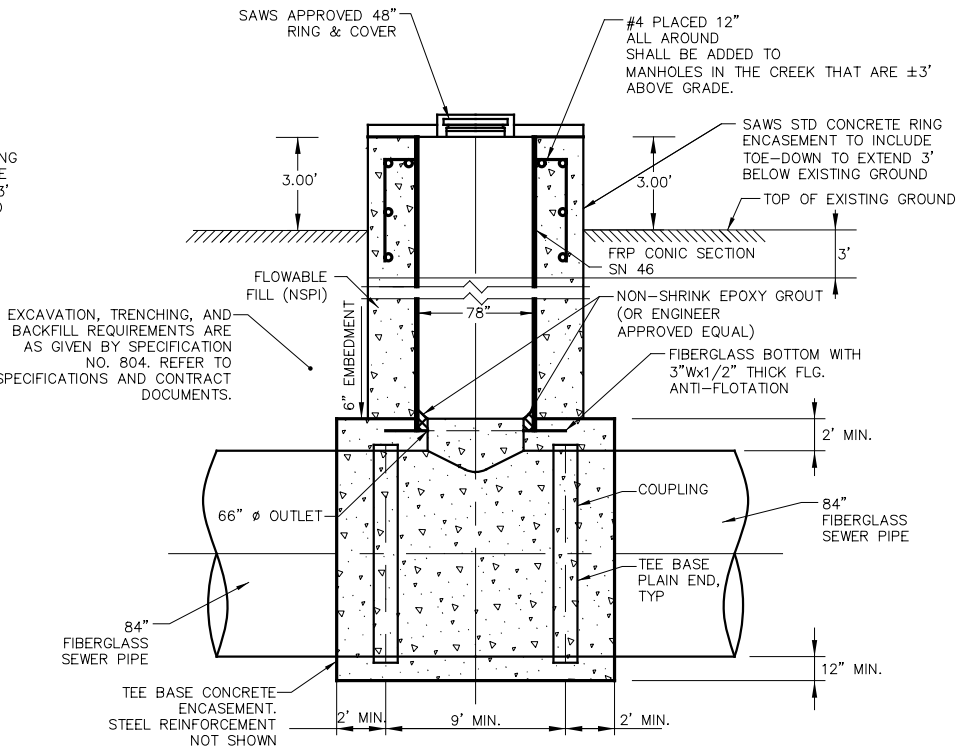
2 FRP TEE BASE DROP MANHOLE
N.T.S.



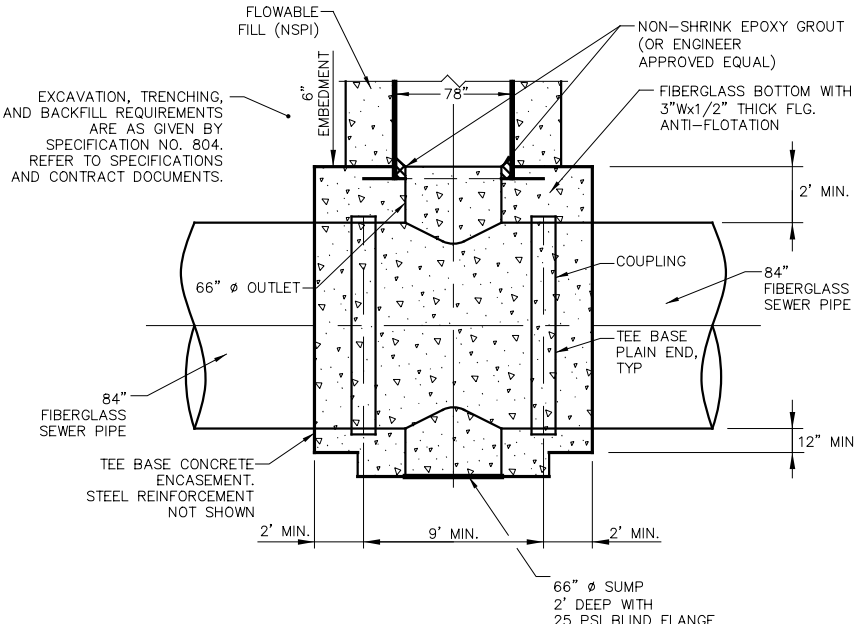
SECTION B
N.T.S.



SECTION A
MANHOLE TO EXISTING GRADE SECTION
N.T.S.



SECTION A
MANHOLE RAISED ±3' ABOVE EXISTING GRADE SECTION
N.T.S.



SECTION A
MANHOLE WITH SUMP SECTION
N.T.S.

- NOTES:
1. ALL TEE-BASE MANHOLES SHALL CONSIST OF FIBERGLASS RISER AND WITH PREFABRICATED FRP TEES.
 2. SHOP DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER PRIOR TO BEGINNING CONSTRUCTION.
 3. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND MAKE NECESSARY ALLOWANCES FOR RISER LENGTHS, BEARINGS PADS, SPACE FILLERS AND RING & COVER (NSPI).
 4. TEE-BASE MANHOLE SHALL BE CONCRETE ENCASED TO CONFORM H2O LOADING.
 5. REFER TO SANITARY SEWER SPECIFICATIONS FOR ALL STANDARDS GOVERNING T-BASE MANHOLES.
 6. TAKE ALL NECESSARY PRECAUTIONS TO PREVENT DEFORMATION WHILE POURING ENCASEMENT. FIBERGLASS RISER TO BE SUPPORTED BY CONCRETE ENCASEMENT.
 7. FLOTATION TO BE PREVENTED DURING ENCASEMENT CONCRETE POURS.
 8. ALL CONCRETE SHALL HAVE A MIN. COMPRESSIVE STRENGTH OF 4000 PSI.
 9. ENCASEMENT TO BE DESIGNED TO RESIST ALL TEE BASE DEFORMATIONS AND IS TO EXTEND PAST THE FIRST JOINT ON EITHER SIDE OF THE TEE BASE BY 2' TO 3'.

- NOTES CONT:
10. ALL CONCRETE ENCASEMENT REQUIRED FOR TEE BASE MANHOLES SHALL BE CONSIDERED SUBSIDIARY TO THE COST OF THE MANHOLES.
 11. THE TEE-BASE IS TO BE FULLY CONCRETE ENCASED AND ALLOWED TO CURE PRIOR TO INSTALLATION OF MANHOLE RISER.
 12. THE TEE-BASE THROAT SHALL BE FLUSH WITH THE UPPER EDGE OF THE FRP COUPLING CONNECTING THE MANHOLE RISER TO THE TEE BASE.
 13. BACKFILL AROUND MANHOLE SHALL BE FLOWABLE WITH A MINIMUM THICKNESS OF 12-INCHES AND FILL SHALL BE PLACED TO WITHIN 36-INCHES OF FINAL GRADE. THIS COST SHALL BE SUBSIDIARY TO THE COST OF THE MANHOLE.
 14. CONCRETE ENCASEMENT (DESIGNED BY OTHERS) IS TO RESIST ALL T-BASE DEFORMATIONS.
 15. CONTRACTOR TO COORDINATE TOP ELEVATION OF CONCRETE ENCASEMENT WITH FRP MANHOLE MANUFACTURER

| |
|----------------------------|
| MAI Job No. M061 |
| Revisions |
| Date |
| No. |

Date: 8/14/2020
 Designed by: ETM
 Drawn by: CAD
 Checked by: ETM
 Scale:

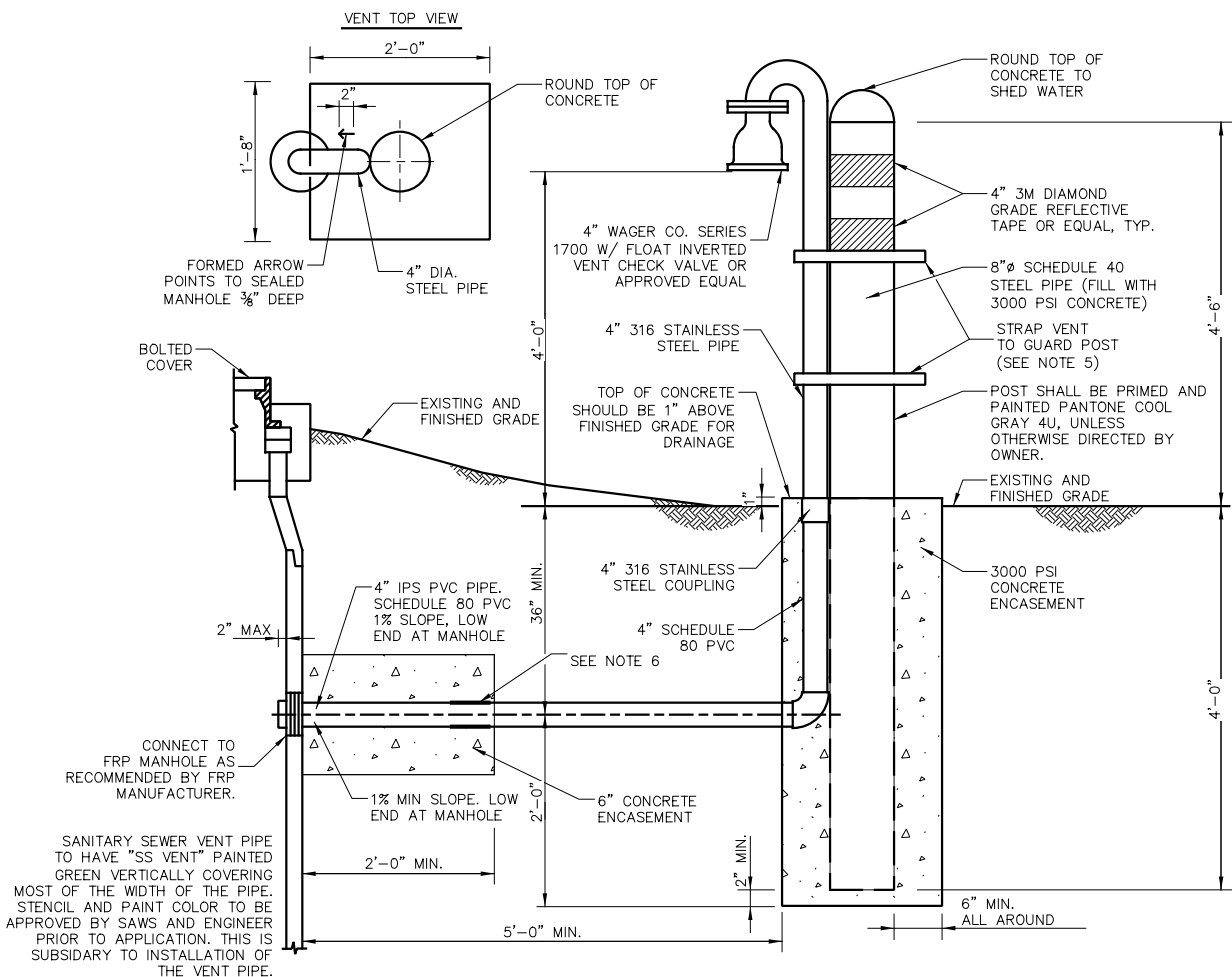
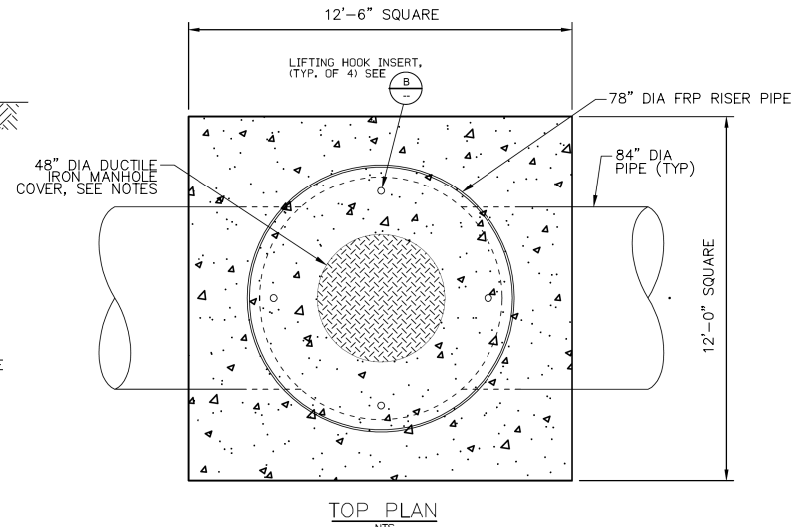
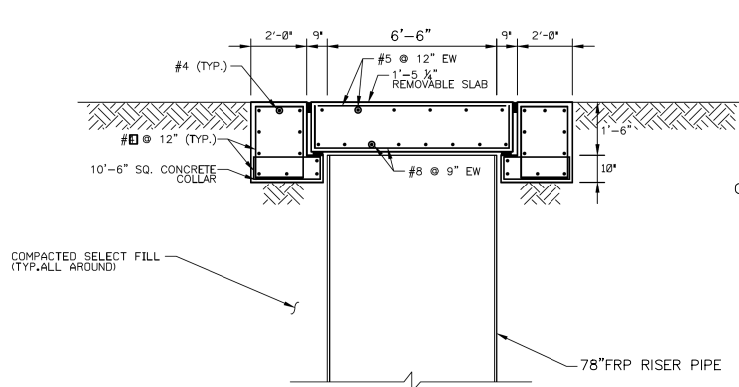
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SAN ANTONIO WATER SYSTEM

SAWS JOB NO. 19-4528
 W-1 LEON CREEK: HWY 151 TO HWY 90
 UPPER SEGMENT
 MANHOLE DETAILS

| Manhole Floodplain Elevations | | | | | | |
|-------------------------------|---------|------|--------------------------|----------------|---|-----------------------------|
| STA | Manhole | Vent | Floodplain Elev. At Vent | Vent Elevation | Length of Pipe from Manhole to Vent (Ft.) | Vent Location (LT/RT of BL) |
| 10+05.90 | MH-1 | Y | 722.55 | 711.30 | 5 | LT |
| 21+47.68 | MH-3 | Y | 727.65 | 713.50 | 5 | LT |
| 37+30.56 | MH-7 | Y | 734.31 | 713.90 | 5 | RT |
| 49+14.57 | MH-9 | Y | 736.29 | 716.10 | 10 | RT |
| 60+67.91 | MH-13 | Y | 739.59 | 717.00 | 18 | RT |
| 70+50.00 | MH-14 | Y | 741.87 | 726.60 | 5 | RT |
| 87+41.02 | MH-16 | Y | 743.42 | 725.29 | 5 | RT |

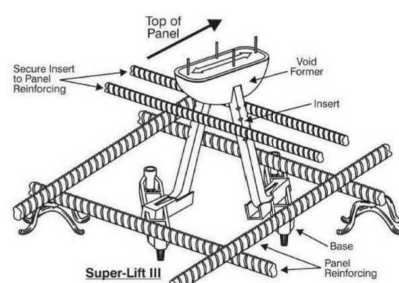


1 TEE BASE FIBERGLASS MANHOLE VENT FOR SEALED MANHOLE
N.T.S.

- NOTES:
- REFER TO TABLE FOR MINIMUM ELEVATIONS OF VENT OPENING.
 - ALL PIPING BETWEEN MANHOLE AND GUARD POST MUST BE UNDERGROUND.
 - BACKFILL AROUND 4" IPS PVC PIPE, SCH80, SHALL BE FLOWABLE FILL WITH A MINIMUM THICKNESS OF 12-INCHES AT NO SEPARATE PAY ITEM.
 - MANHOLE VENTS SHALL BE SUBSIDIARY TO THE COST OF THE MANHOLE (NSPI).
 - MINIMUM OF 2 VENT STRAPS. VENT STRAPS TO BE 316 STAINLESS STEEL.
 - WRAP PVC PIPE W/ 1" THICK CLOSED CELL FOAM AND TAPE IN PLACE PRIOR TO PLACING CONCRETE.

A TOP SLAB AND COLLAR FOR 60" FRP SEWER WATERTIGHT BOLTED MANHOLE
N.T.S.

- NOTE:
- ADJUST DIMENSIONS AS REQUIRED FOR SPECIFIC GEOMETRY OF FRP RISER PIPE.
 - MANHOLE COVER AND EMBEDDED FRAME NOT SHOWN FOR CLARITY.



- NOTES:
- LIFTING HOOK INSERTS SHALL BE SUPER-LIFT III INSERTS BY MEADOW BURKE.
 - PRECAST CONCRETE MANUFACTURER SHALL SPECIFY ALLOWABLE TENSILE AND SHEAR CAPACITY.
 - PROVIDE MINIMUM OF 4 LIFTING HOOKS PER TOP SLAB. PRECAST CONCRETE MANUFACTURER SHALL SPECIFY INSERT LOCATIONS.

B LIFTING HOOK INSERT
N.T.S.

2 MANHOLE TOP SLAB DETAIL
N.T.S.

- NOTES:
- ALL TEE-BASE MANHOLES SHALL CONSIST OF FIBERGLASS RISER AND WITH PREFABRICATED FRP TEES.
 - SHOP DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER PRIOR TO BEGINNING CONSTRUCTION.
 - CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND MAKE NECESSARY ALLOWANCES FOR RISER LENGTHS, BEARINGS PADS, SPACE FILLERS AND RING & COVER (NSPI).
 - TEE-BASE MANHOLE SHALL BE CONCRETE ENCASED TO CONFORM H20 LOADING.
 - REFER TO SANITARY SEWER SPECIFICATIONS FOR ALL STANDARDS GOVERNING T-BASE MANHOLES.
 - TAKE ALL NECESSARY PRECAUTIONS TO PREVENT DEFORMATION WHILE POURING ENCASEMENT. FIBERGLASS RISER TO BE SUPPORTED BY CONCRETE ENCASEMENT.
 - FLOTATION TO BE PREVENTED DURING ENCASEMENT CONCRETE POURS.
 - ALL CONCRETE SHALL HAVE A MIN. COMPRESSIVE STRENGTH OF 4000 PSI.
 - ENCASEMENT TO BE DESIGNED TO RESIST ALL TEE BASE DEFORMATIONS AND IS TO EXTEND PAST THE FIRST JOINT ON EITHER SIDE OF THE TEE BASE BY 2' TO 3'.
 - ALL CONCRETE ENCASEMENT REQUIRED FOR TEE BASE MANHOLES SHALL BE CONSIDERED SUBSIDIARY TO THE COST OF THE MANHOLES.
 - THE TEE BASE IS TO BE FULLY CONCRETE ENCASED AND ALLOWED TO CURE PRIOR TO INSTALLATION OF MANHOLE RISER.
 - THE TEE BASE THROAT SHALL BE FLUSH WITH THE UPPER EDGE OF THE FRP COUPLING CONNECTING THE MANHOLE RISER TO THE TEE BASE.
 - BACKFILL AROUND MANHOLE SHALL BE FLOWABLE WITH A MINIMUM THICKNESS OF 12-INCHES AND FILL SHALL BE PLACED TO WITHIN 12-INCHES OF FINAL GRADE. THIS COST SHALL BE SUBSIDIARY TO THE COST OF THE MANHOLE.
 - CONCRETE ENCASEMENT (DESIGNED BY OTHERS) IS TO RESIST ALL T-BASE DEFORMATIONS.
 - CONTRACTOR TO COORDINATE TOP ELEVATION OF CONCRETE ENCASEMENT WITH FRP MANHOLE MANUFACTURER
 - SEE HOBAS TEE BASE MANHOLE SYSTEM TECHNICAL ADVISE SHEETS FOR ADDITIONAL INFORMATION.
 - ALL LINEAR DIMENSIONS ARE +/- 0.50"

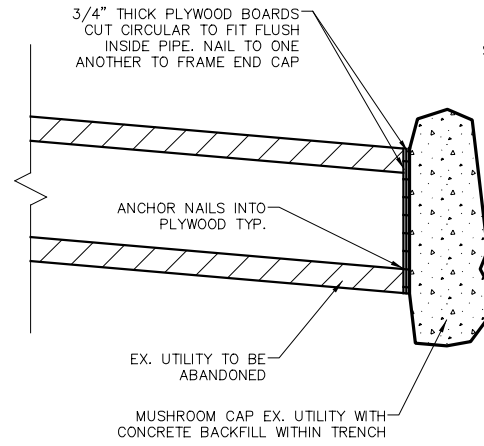
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| App. | MAI |
| Job No. | M061 |
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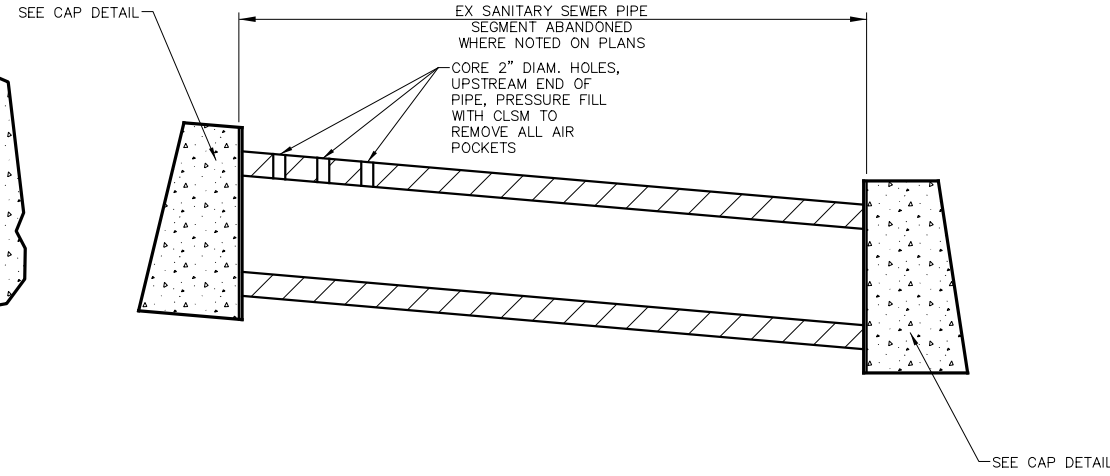
MAESTAS
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(210) 396-1888 TBE No. 15337 TBE No. 10194506

SAN ANTONIO WATER SYSTEM

SAWS JOB NO. 19-4528
W-1 LEON CREEK: HWY 151 to HWY 90
UPPER SEGMENT
MANHOLE DETAILS



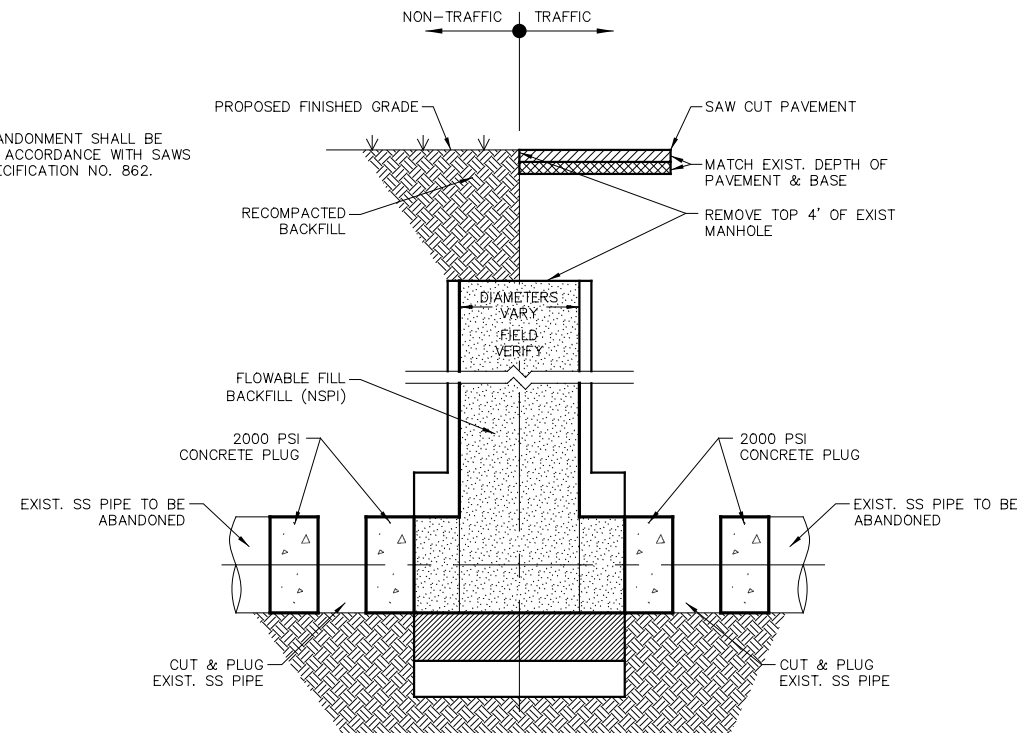
1 ABANDON UTILITY CAP DETAIL
N.T.S.



2 EX SANITARY SEWER PIPE ANBANDONMENT DETAIL
N.T.S.

NOTE:

1. MANHOLE ABANDONMENT SHALL BE COMPLETED IN ACCORDANCE WITH SAWS STANDARD SPECIFICATION NO. 862.



3 TYPICAL ABANDONED MANHOLE
N.T.S.

| | | |
|-----------|------|--|
| App. | | MAI |
| Job No. | | M061 |
| Revisions | | |
| No. | Date | Designed by: ETM Drawn by: CAD Checked by: ETM Scale: |

PAPE-DAWSON ENGINEERS
 SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
 2000 W. LOOP 410 | SAN ANTONIO, TX 78213 | 214.375.8008
 1000 W. UNIVERSITY BLVD. | FORT WORTH, TX 76102 | 817.335.2200

MAESTAS
 8122 DATAMOUNT DR., STE. 8403 SAN ANTONIO, TX 78229
 (210) 395-1888 TDD: (210) 395-1888

SAN ANTONIO WATER SYSTEM

SAWS JOB NO. 19-4528
 W-1 LEON CREEK: HWY 151 to HWY 90
 UPPER SEGMENT
 MISCELLANEOUS DETAILS

PROJECT: _____

COST: _____ **JOB NO:** _____

ENGINEER: _____

CONTRACTOR: **San Antonio Water System**

For Information Call
233-3500 (Business Hours) or 704-SAWS (After Hours)

A A

Provide adequate supports for sign (as site conditions may require) and keep sign a proper distance above prevailing grade to permit public viewing.

Grade

Notes:

- SAWS logo (with lettering) and sign border are SAWS blue
- All other lettering is black (sized to fit space)
- 4' x 8' sheet of 3/4" plywood, Grade A-C
- Signs to be placed in prominent location along a major thoroughfare within the project limits

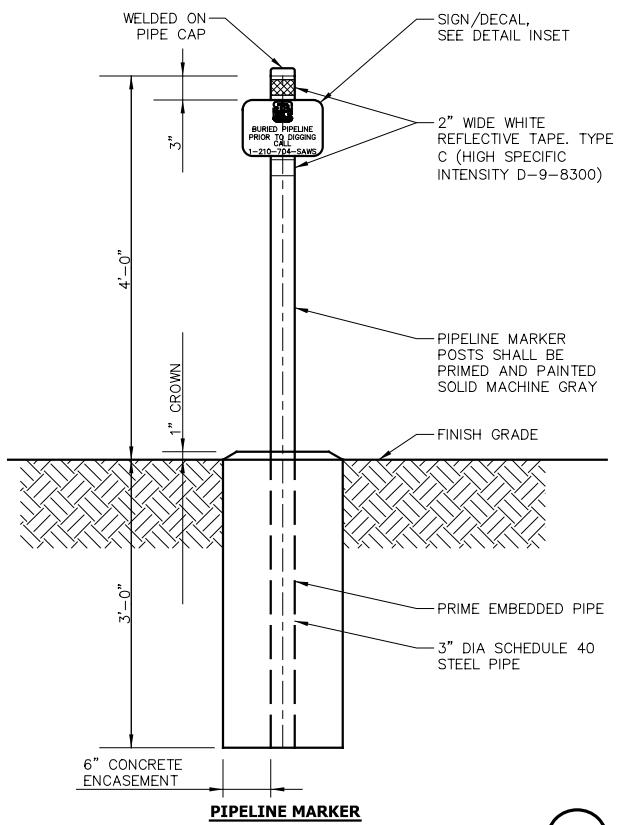
SECTION A-A

1 1/4" Chamfer all edges

1/2" Exterior-type high density, overlaid plywood or other approved material suitable for signs.

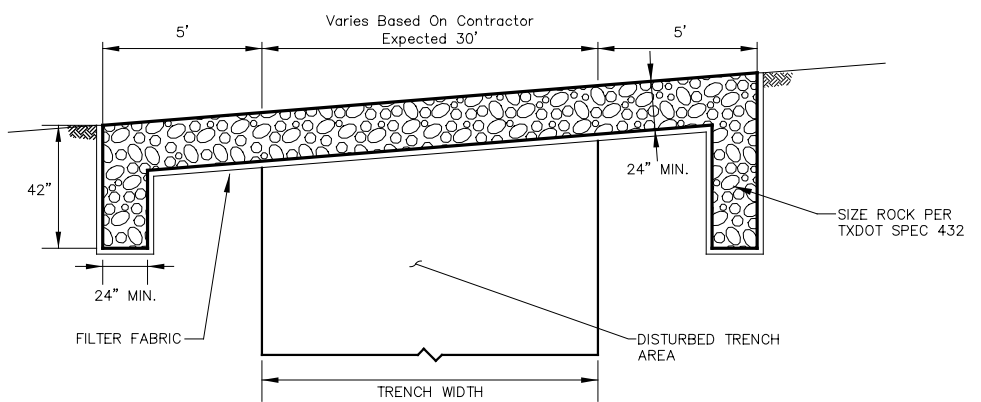
| | | | | | |
|--|---------------------------------------|------------------------|-----------------------|-----------|-----------------|
| PROPERTY OF SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS | PROJECT SIGN FOR SAWS CONSTRUCTION | APPROVED MARCH 2008 | REVISED APRIL 2014 | DD-869-01 | SHEET 1 OF 1 |
|--|---------------------------------------|------------------------|-----------------------|-----------|-----------------|

1 PROJECT SIGN FOR SAWS CONSTRUCTION
N.T.S.



2 PIPELINE MARKER & SIGN/DECAL DETAILS
N.T.S.

- SIGN/DECAL NOTES:**
- SIGNS AND DECALS SHALL BE WHITE BACKGROUND WITH DARK BLUE LETTERING. FINISH SHALL BE DESIGNED FOR LONG TERM OUTDOOR USE AND SHALL BE UV RESISTANT AND WATER DAMAGE RESISTANT.
 - SIGNS SHALL BE FABRICATED FROM 14 GAUGE ALUMINUM. PREDRILL SIGNS FOR MOUNTING BOLTS.
 - BLUE LETTERING SHALL BE 2 MIL CAST VINYL BY ARKON OR EQUAL.
 - SIGNS SHALL BE MOUNTED TO MARKER POSTS WITH 2-3/8" DIA. THROUGH-BOLTS AND TAMPER-PROOF NUTS. SIGNS SHALL BE MOUNTED TO GUARD POSTS WITH STAINLESS STEEL BANDING.
- PIPELINE MARKER NOTE:**
- PIPELINE MARKER POSTS SHALL BE INSTALLED AT EACH SIDE OF WHERE THE PIPE CROSSES ROADWAYS, RAILROADS, MAJOR SURFACE WATER CHANNELS AND OTHER LOCATIONS AS INDICATED ON PLANS. ONE SIGN SHALL BE INSTALLED AT WHERE THE PIPE CROSS PROPERTY LINES AND AT ANY OTHER LOCATIONS SHOWN ON THE PLAN SHEETS.



3 ROCK RIPRAP DETAIL
N.T.S.

| | | |
|-----------|------|---|
| App. | MAI | Job No. M061 |
| Revisions | | |
| No. | Date | Date: 8/14/2020 Designed by: ETM Drawn by: CAD Checked by: ETM Scale: |

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 W. LOOP 410 | SAN ANTONIO, TX 78213 | 214.375.8008
TX REG. PROFESSIONAL ENGINEER LICENSE NO. 11893 | TX REG. PROFESSIONAL SURVEYOR LICENSE NO. 10194506

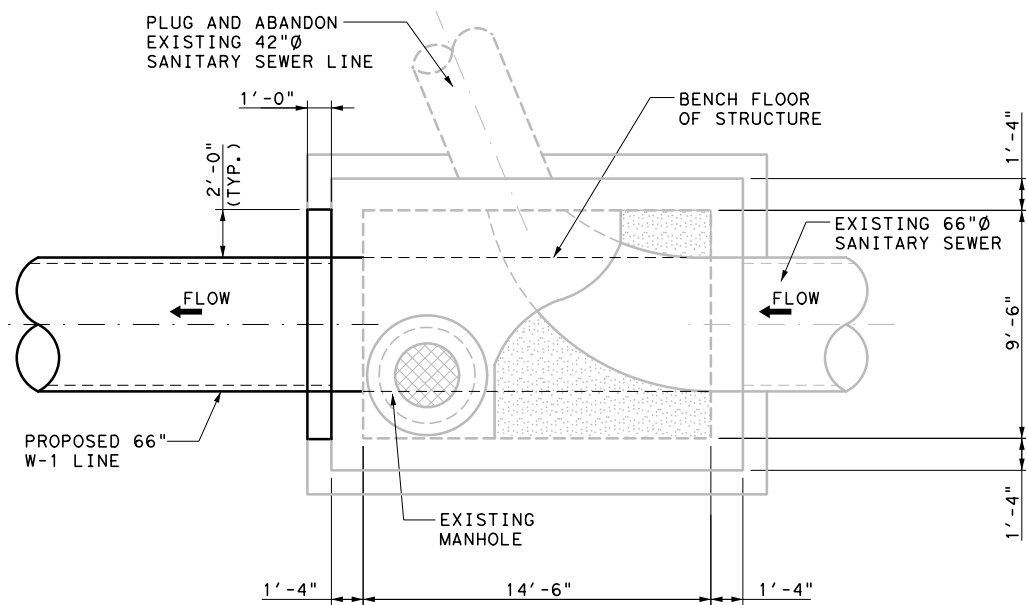
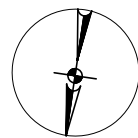
MAESTAS
8122 DATAROUND DR., STE. 800 SAN ANTONIO, TX 78229
(210) 396-1888 | TBE No. 1533 | TBE No. 10194506

SAN ANTONIO WATER SYSTEM

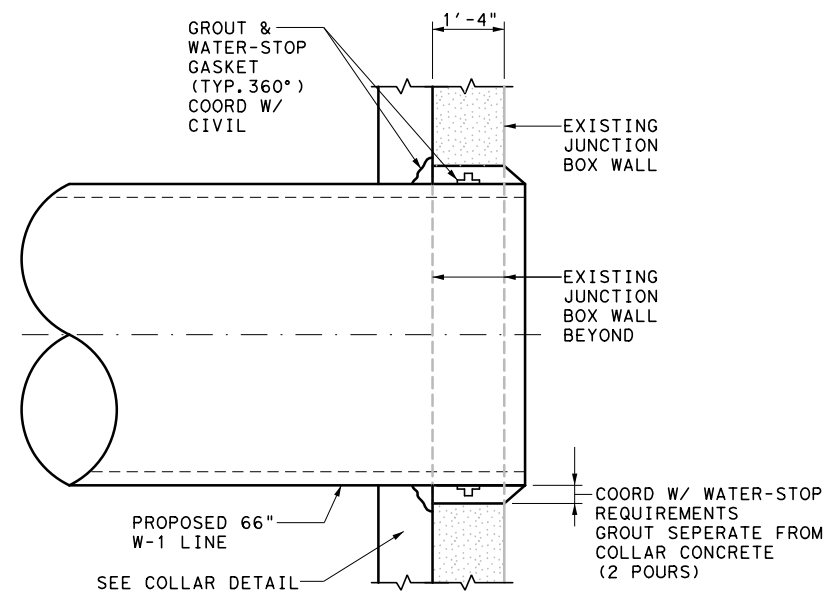
SAWS JOB NO. 19-4528
 W-1 LEON CREEK: HWY 151 to HWY 90
 UPPER SEGMENT
 MISCELLANEOUS DETAILS

Plotted on: 12/13/2019

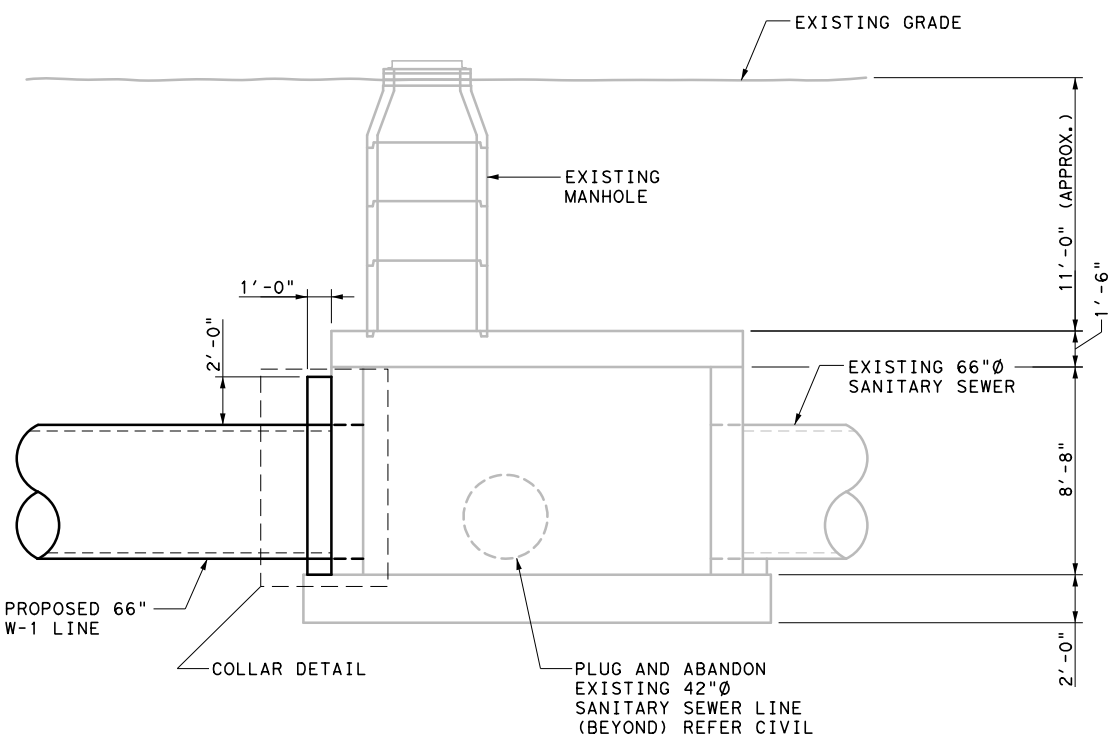
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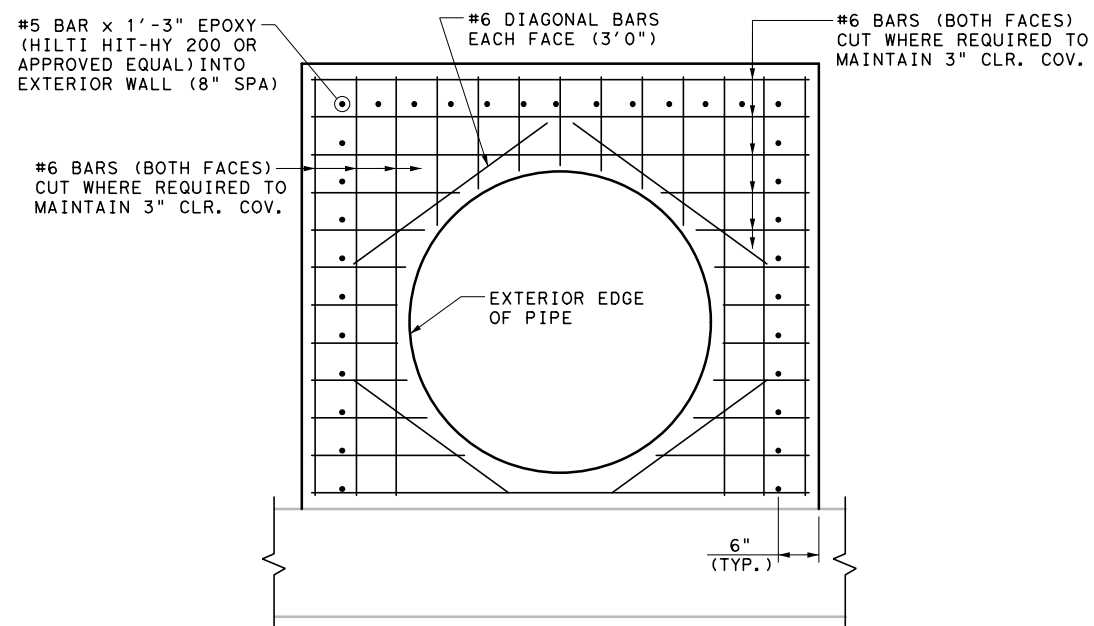
PLAN



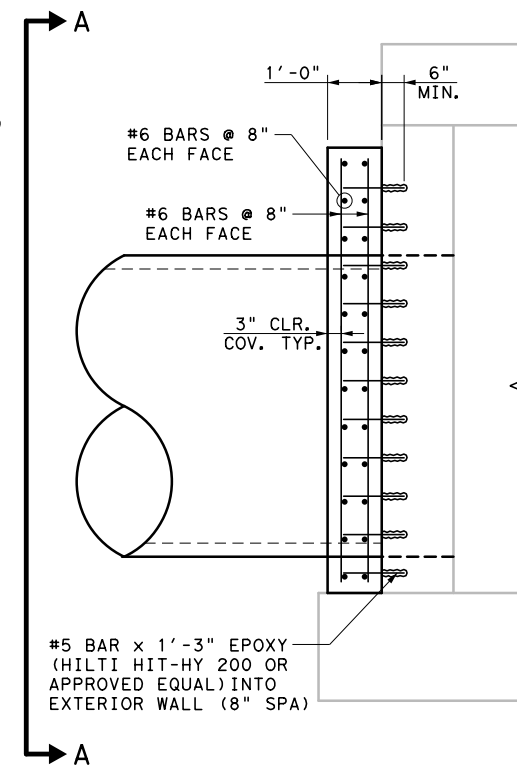
CONNECTION DETAIL



ELEVATION



ELEVATION A-A

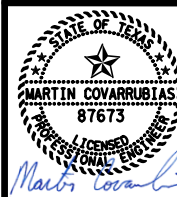


COLLAR DETAIL

GENERAL NOTES:

1. STRUCTURAL NON-SHRINK GROUT (SIKAGROUT 212 OR APPROVED EQUAL) SHALL ACHIEVE 5,000 psi MINIMUM COMPRESSIVE STRENGTH PRIOR TO BACKFILLING OF SOILS.
2. FOLLOW ALL MANUFACTURERS RECOMMENDATIONS FOR PROPER INSTALLATION OF WATER-STOP.
3. SEE CIVIL DETAILS FOR F.R.P. PIPE DETAILS AND INFORMATION.
4. REPAIR ALL INTERNAL SURFACES DAMAGED BY CORING AND PLACEMENT OF NEW F.R.P.
5. REPAIR ALL EXTERIOR DAMAGED VAPOR BARRIER DUE TO CORING AND PLACEMENT OF NEW F.R.P.
6. REFER TO CIVIL PLANS FOR PIPE BEDDING REQUIREMENTS.
7. SHORE JUNCTION BOX WALLS AS NEEDED TO PREVENT ANY DAMAGE DURING CORING PROCESS. DAMAGES SHALL BE REPAIRED AT CONTRACTORS EXPENSE.
8. TEMPORARY SPECIAL SHORING WILL BE REQUIRED DURING CONSTRUCTION OF THE PROPOSED EXCAVATIONS. THIS IS THE RESPONSIBILITY OF THE CONTRACTOR AND IS SUBSIDIARY TO OTHER PAY ITEMS. THE CONTRACTOR SHALL:
 - A. PROVIDE A SAFE AND SECURE WORK SITE DURING CONSTRUCTION OF THE EXCAVATION.
 - B. HOLD AND PREVENT SURROUNDING EARTH, WATER OR BOTH FROM ENTERING THE WORK AREA.
 - C. PREVENT ANY DAMAGE FROM OCCURRING TO THE EXISTING STRUCTURE AS A RESULT OF THE PROPOSED CONSTRUCTION.
9. CONCRETE F'C = 3,000 psi.
10. REINFORCING STEEL SHALL CONFORM TO ASTM A-615, GRADE 60.

PAPE-DAWSON
Job No.
8918-00



Date: DEC 2019
Designed by: MC
Drawn by: JS
Checked by: WAG
Soil et



SAWS JOB NO. 19-4528
W-1 LEON CREEK: HWY 151 TO HWY 90 UPPER SEGMENT

Sheet S-1

56 of 67

PLOTTED ON: 8/17/2020

DESIGN FILENAME: P:\89\18\00\Design\Civil\TCP\SS891800-01-TC01.dgn

LEGEND

A CW21-7D
48"x48"



E W20-20
48"x48"



I M4-9N
VARIABLEx8"

PINN RD

B R11-4
60"x30"



F M4-9S
30"x24"



J M4-9N
VARIABLEx8"

COMMERCE ST

C TYPE III
BARRICADE



G M4-9AR
30"x30"



K R11-2
48"x30"

ROAD
CLOSED

D WORK AREA



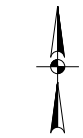
H M4-9AL
30"x30"



L M4-A1
24"x18"

END
DETOUR

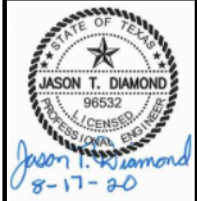
SIGN



GRAPHIC SCALE IN FEET



PAPE-DAWSON
Job No.
8918-00



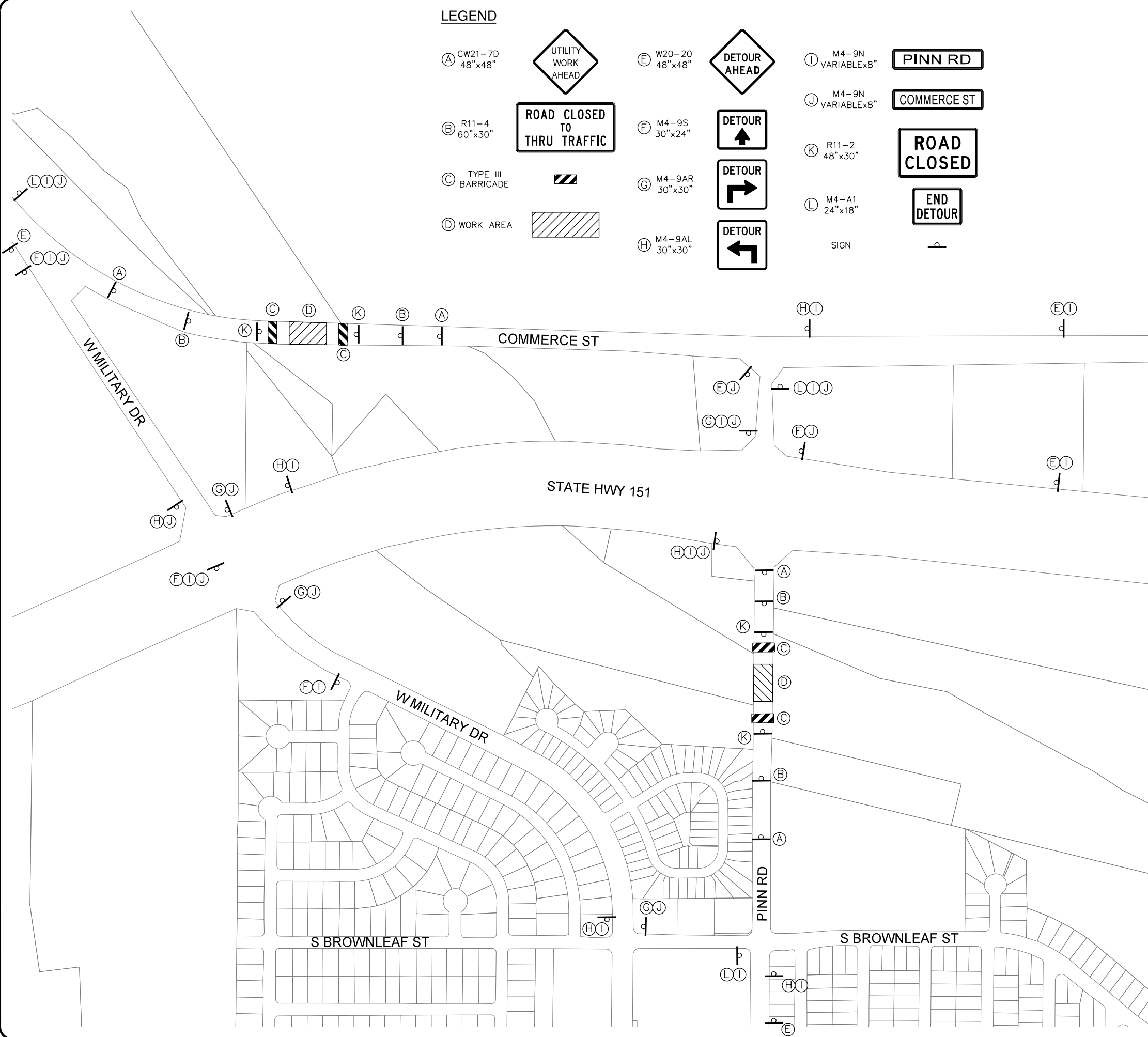
| NO. | DATE | REVISIONS |
|-----|------|-----------|
| | | |
| | | |

DATE: AUG 2020
 DESIGNED BY: MP
 DRAWN BY: BS
 CHECKED BY: JO
 SCALE: 1" = 400'

PAPE-DAWSON ENGINEERS
 SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
 2000 HW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
 TYPE FIRM REGISTRATION #470 | TYPE FIRM REGISTRATION #1008860

TRAFFIC CONTROL PLAN NOTES:

1. ALL TRAFFIC CONTROL SHALL CONFORM TO THE LATEST VERSION OF THE CITY OF SAN ANTONIO STANDARD DETAILS, TRAFFIC CONTROL STANDARDS AND TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD), PART VI. FIELD MODIFICATIONS MAY BE MADE TO ADDRESS LOCAL CONDITIONS WITH THE APPROVAL OF THE ENGINEER.
2. WHEN TRAFFIC CONTROL PLAN IS NOT IN EFFECT, REMOVE ALL DEVICES FROM THE TRAVELED LANES AND COVER OR REMOVE ALL WARNING SIGNS.
3. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING ACCESS TO ALL DRIVEWAYS DURING CONSTRUCTION PROVIDING A RIDING SURFACE FOR VEHICLES AND RESIDENTS TO ACCESS EACH PROPERTY. NO SEPARATE PAYMENT SHALL BE MADE FOR MAINTAINING ACCESS TO DRIVEWAYS. ALL DRIVEWAY ACCESS COSTS SHALL BE INCLUDED IN THE VARIOUS ITEMS IN THE PROJECT.
4. CONTRACTOR IS RESPONSIBLE FOR INSTALLATION, MAINTENANCE, AND REMOVAL OF TRAFFIC CONTROL DEVICES. TRAFFIC CONTROL DEVICES SHOULD BE INSPECTED DAILY AND REPAIRED OR REPLACED AS NECESSARY. AFTER REMOVAL, CONTRACTOR IS RESPONSIBLE FOR RESTORATION OF MODIFICATIONS TO ROADWAY AND SIDEWALK SURFACES, ROADWAY MARKINGS, AND SIGNAGE DUE TO TRAFFIC CONTROL DEVICES OR CONSTRUCTION ACTIVITY.
5. POLICE OFFICER IS NOT ANTICIPATED PER TRAFFIC CONTROL PLAN. CONTRACTOR SHALL COORDINATE WITH COSA AND TXDOT IF REQUIRED AND/OR DEVIATING FROM PLANS.
6. CONTRACTOR IS TO FOLLOW THE COSA REQUIREMENT FOR IMPACTED COLLECTOR OR ARTERIAL STREETS, WHICH REQUIRES THE CONTRACTOR TO PROVIDE A SEVEN (7) DAY NOTIFICATION BY ELECTRONIC MESSAGE BOARD BEFORE WORK IS TO OCCUR AND A THREE (3) DAY NOTIFICATION BE MADE BY DOOR HANGER TO IMPACTED RESIDENTS OR BUSINESSES.



SAWS JOB NO. 19-4528
 W-1 LEON CREEK: HWY 151 TO HWY 90
 UPPER SEGMENT
 TRAFFIC CONTROL PLAN

PLOTTED ON: 8/17/20

DESIGN FILENAME: P:\89\18\00\Design\Civil\Tree Preservation\Upper Segment\200710 Trees.dwg

| CANOPY PRESERVATION SUMMARY | UPLAND | BUFFER | FLOODPLAIN |
|--|---------|---------|---------------|
| SF OF EXISTING TREE CANOPY | 0 | 0 | 258,837 |
| REQUIRED TO REMAIN | 35% = 0 | 80% = 0 | 80% = 207,070 |
| SF OF EXISTING TREE CANOPY TO BE REMOVED | 0 | 0 | 204,302 |
| SF OF EXISTING TREE CANOPY TO REMAIN | 0 | 0 | 54,535 |
| PERCENTAGE AREA PRESERVED | 0 | 0 | 21.1% |
| SF OF CANOPY REQUIRED TO BE MITIGATED | 0 | 0 | 152,535 |

MITIGATION REQUIRED FOR CANOPY WITHIN FLOODPLAIN

CANOPY WITHIN FLOODPLAIN MITIGATION REQUIREMENTS*

NUMBER OF TREES REQUIRED = 152,535 SF ÷ (875 SF/TREE) = 174 TREES TO BE PLANTED
 INCHES OF CANOPY REQUIRED = 174 TREES * 16.7 INCHES = 2,906 INCHES TO BE MITIGATED

TOTAL MITIGATION

FLOODPLAIN INCHES = 2,906 INCHES

MITIGATION FEE @ \$200.00/INCH

FLOODPLAIN FEE = 2,906 INCHES * \$200.00 = \$581,200

DISTURBED AREA

TOTAL DISTURBED AREA = 630,506 SF

TOTAL AREA TO BE REVEGETATED (SEEDING AREA) = 630,506 SF

RECLAMATION CRITERIA:

- A. RE-SEEDING 630,506 SF OF DISTURBED AREA WITHIN THE FLOODPLAIN AND ADJACENT RIPARIAN BUFFER
- B. RECLAIMING DISTURBED AREAS BY DRILL SEEDING WITH A NATIVE SEED MIX AND ENSURING 85% ESTABLISHMENT

GENERAL NOTES

1. ALL THE TREES WITH A DIAMETER GREATER THAN 3 INCHES AFFECTED BY CONSTRUCTION SHALL HAVE THE LIMBS AND ROOTS TRIMMED AND PRUNED ACCORDING TO ITEM No. 802. TREE PRUNING, SOIL AMENDING AND FERTILIZATION, UNLESS SPECIFIED TREES SHALL RECEIVE LEVEL 2 PROTECTION AS PER ITEM No. 802. TREES TO RECEIVE LEVEL 1 PROTECTION AS PER ITEM No. 802 ARE SHOWN ON TREE PROTECTION TABLE ON THIS SHEET.
2. ALL TREES SHALL REMAIN UNLESS NOTED ON THE PLANS.
3. NO SITE PREPARATION WORK SHALL BEGIN IN AREAS WHERE TREE PRESERVATION AND TREATMENT MEASURES HAVE NOT BEEN COMPLETED AND APPROVED.
4. TREE PROTECTION FENCING SHALL BE REQUIRED. TREE PROTECTION FENCING SHALL BE INSTALLED, MAINTAINED AND REPAIRED BY THE CONTRACTOR DURING SITE CONSTRUCTION.
5. THE CONTRACTOR SHALL AVOID CUTTING ROOTS LARGER THAN THREE INCHES IN DIAMETER WHEN EXCAVATING NEAR EXISTING TREES. EXCAVATION IN THE VICINITY OF TREES SHALL PROCEED WITH CAUTION. THE CONTRACTOR SHALL CONTACT THE CITY INSPECTOR.
6. THE ROOT PROTECTION ZONE IS THAT AREA SURROUNDING A TREE, AS MEASURED BY A RADIUS FROM THE TREE TRUNK, IN WHICH NO EQUIPMENT, VEHICLES OR MATERIALS MAY OPERATE OR BE STORED. THE REQUIRED RADIUS LENGTH IS 1 FOOT PER DIAMETER INCH OF THE TREE. FOR EXAMPLE, A 10-INCH DIAMETER TREE WOULD HAVE A 5-FOOT RADIUS ROOT PROTECTION ZONE AROUND THE TREE. ROOTS OR BRANCHES THAT ARE IN CONFLICT WITH THE CONSTRUCTION SHALL BE CUT CLEANLY ACCORDING TO PROPER PRUNING METHODS. LIVE OAK WOUNDS SHALL BE PAINTED OVER, WITHIN 20 MINUTES TO PREVENT OAK WILT.
7. ACCESS TO FENCED AREAS WILL BE PERMITTED ONLY WITH THE APPROVAL OF THE ENGINEER OR CITY INSPECTOR.
8. GRADING, IF REQUIRED, SHALL BE LIMITED TO A 3 INCH CUT OR FILL WITHIN THE FENCED ROOT ZONE AREAS.
9. TREES, SHRUBS OR BUSHES TO BE CLEARED FROM PROTECTED ROOT ZONE AREAS SHALL BE REMOVED BY HAND AS DIRECTED BY THE PROJECT MANAGER OR CITY INSPECTOR.
10. TREES DAMAGED OR LOST DUE TO CONTRACTOR'S NEGLIGENCE DURING CONSTRUCTION SHALL BE MITIGATED TO THE ENGINEER'S SATISFACTION.
11. EXPOSED ROOTS SHALL BE COVERED AT THE END OF EACH DAY USING TECHNIQUES SUCH AS COVERING WITH SOIL, MULCH OR WET BURLAP.
12. ANY TREE REMOVAL SHALL BE APPROVED BY THE CITY ARBORIST PRIOR TO ITS REMOVAL.
13. TREE PLANTING AND MAINTENANCE: ALL PRESERVED AND PLANTED TREES SHALL BE MAINTAINED IN A HEALTHY CONDITION AT ALL TIMES. THIS INCLUDES IRRIGATING, FERTILIZING, PRUNING, AND OTHER MAINTENANCE AS NEEDED. TREES THAT DIE WITHIN TWELVE MONTHS SHALL BE REPLACED WITH A TREE OF COMPARABLE SIZE AND SPECIES. REGARDING REPLACEMENT OF PRESERVED TREES, SIGNIFICANT TREES SHALL BE REPLACED AT A 1:1 RATIO (OR INCH-FOR-INCH) AND HERITAGE TREES SHALL BE REPLACED AT A 3:1 RATIO (OR THREE-TO-ONE INCHES).

APP. PAPE-DAWSON
Job No. 8918-00

REVISIONS

DATE: AUGUST 2019
DESIGNED BY: MP
DRAWN BY: MA
CHECKED BY: JO
SCALE:

STATE OF TEXAS
JASON DIAMOND
98532
LICENSED PROFESSIONAL ENGINEER

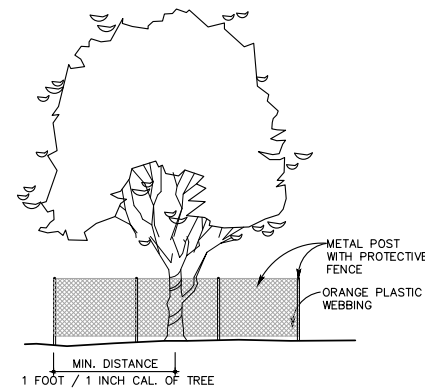
Jason T. Diamond
8-17-20

PAPE-DAWSON ENGINEERS

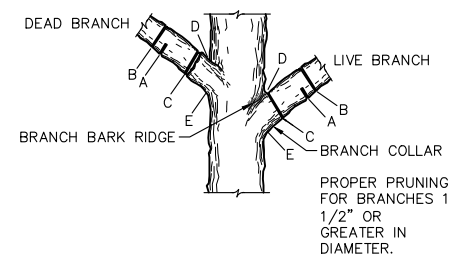
5001 SAN LEON CREEK | SUITE 100 | SAN ANTONIO, TX 78248 | TEL: 214-343-8888
 TREE PRESERVATION PLAN | TREE REMOVAL | TREE RESTORATION | TREE SURVEY

SAN ANTONIO WATER SYSTEM

SAWS JOB NO. 19-4528
 W-1 LEON CREEK: HWY 151 TO HWY 90
 UPPER SEGMENT
 TREE STAND DELINEATION PLAN
 TREE PLAN DETAILS



TREE PROTECTION DETAIL EXISTING TREES
N.T.S.



TREE PRUNING DETAIL
N.T.S.

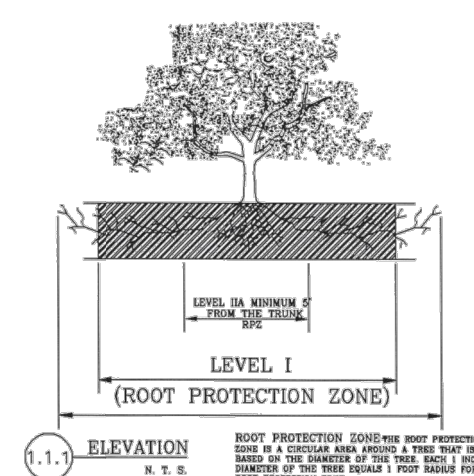
TREE PRESERVATION NOTES

1. ALL TREES TO REMAIN ON SITE REQUIRE PROTECTIVE FENCING, PRUNING, WATERING, AND FERTILIZATION AS DIRECTED BY A QUALIFIED ARBORIST.
2. PROTECTIVE FENCING CONSISTS OF 4'-0" HIGH FENCE.
3. FENCE TO EXTEND FROM TRUNK ONE FOOT FOR EVERY CALIPER INCH OF TREE (MINIMUM). THE OPTIMUM DISTANCE IS TO INSTALL FENCE DIRECTLY BENEATH DRIPLINE OF TREE TO REMAIN AS SHOWN.
4. DURING CONSTRUCTION, NO EXCESS SOIL, FILL MATERIAL, EQUIPMENT, LIQUIDS, OR CONSTRUCTION DEBRIS SHALL BE PLACED WITHIN THE PROTECTIVE FENCING, NOR SHALL ANY SOIL BE REMOVED FROM WITHIN THE FENCING.
5. ALL TREE PROTECTION MUST BE IN PLACE BEFORE CONSTRUCTION BEGINS.
6. INSTALL 4" MINIMUM DEPTH OF SHREDDED MULCH BENEATH THE DRIPLINE OF THE TREE.

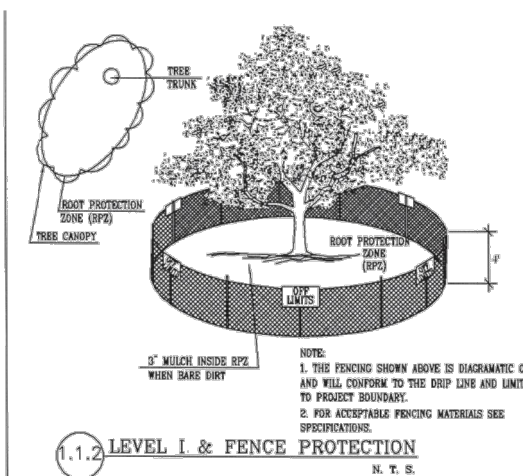
NOTE: DO NOT CUT FROM D TO E

- A. **FIRST CUT** - TO PREVENT THE BARK FROM BEING PEELED WHEN THE BRANCH FALLS.
- B. **SECOND CUT** - TO REDUCE THE WEIGHT OF BRANCH.
- C. **FINAL CUT** - ALLOW FOR HEALING COLLAR BUT NO STUBS
- D. **BRANCH RIDGES** - INDENT PROPERLY BRANCH RIDGES WHICH ARE SITE FOR DECAY.

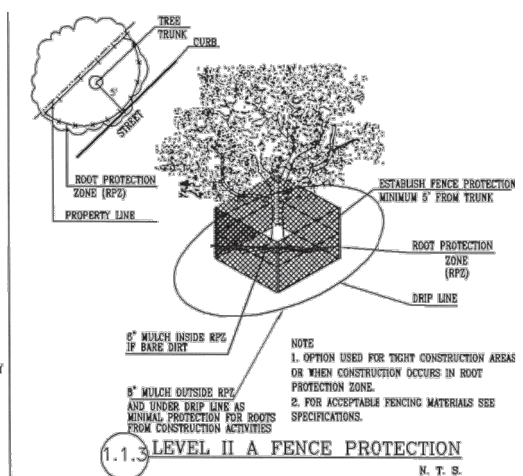
FOR OAKS ONLY: PAINT ALL WOUNDS OR CUTS WITH PRUNING PAINT WITHIN 20 MIN. TO PREVENT THE SPREAD OF OAK WILT.



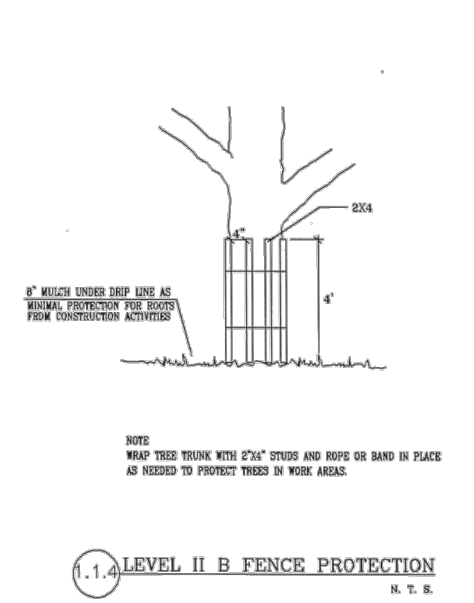
1.1.1 ELEVATION
N. T. S.



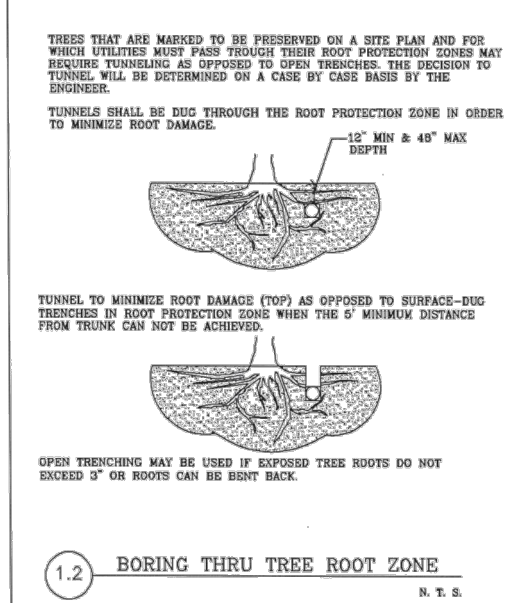
1.1.2 LEVEL I & FENCE PROTECTION
N. T. S.



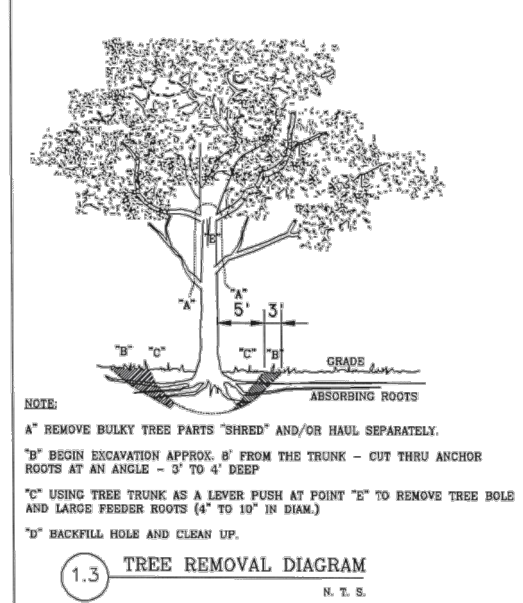
1.1.3 LEVEL II A FENCE PROTECTION
N. T. S.



1.1.4 LEVEL II B FENCE PROTECTION
N. T. S.



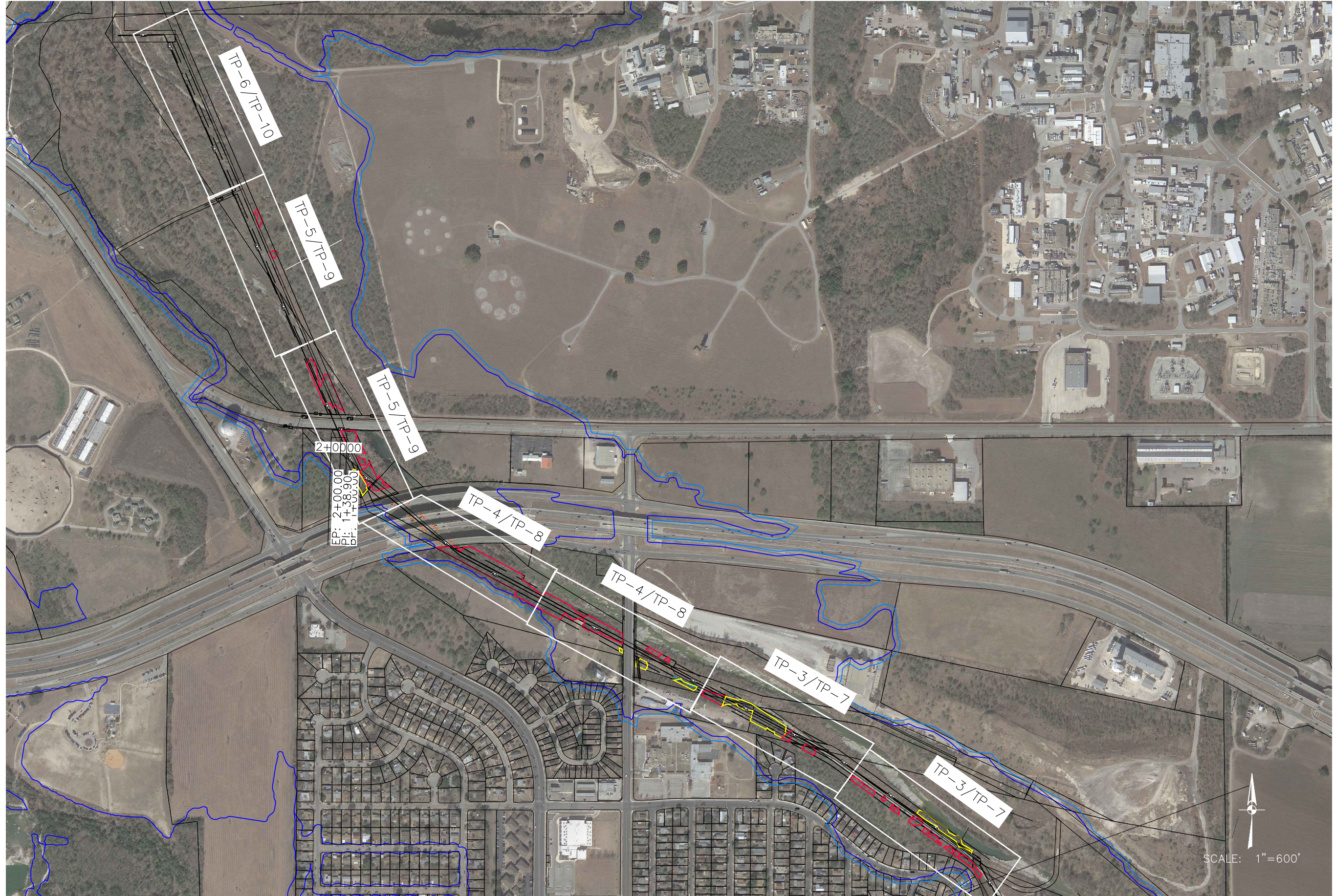
1.2 BORING THRU TREE ROOT ZONE
N. T. S.




1.3 TREE REMOVAL DIAGRAM
N. T. S.

PLOTTED ON: 8/17/20

DESIGN FILENAME: P:\89\18\00\Design\Civil\Tree Preservation\Upper Segment\200710 Trees.dwg



SCALE: 1"=600'



| NO. | DATE | REVISIONS | APP. |
|-----|------|-----------|------|
| | | | |

DATE: AUGUST 2019
 DESIGNED BY: MP
 DRAWN BY: MA
 CHECKED BY: JO
 SCALE:

PAPE-DAWSON
 Job No.
 8918-00



PAPE-DAWSON ENGINEERS
 SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
 5000 W. LOOP-400 | SUITE 400 | SAN ANTONIO, TX 78249 | 210-583-8888
 TREE PRESERVATION PLAN | TREE PRESERVATION PLAN



SAWS JOB NO. 19-4528
 W-1 LEON CREEK: HWY 151 TO HWY 90
 UPPER SEGMENT
 TREE STAND DELINEATION PLAN
 TREE PLAN OVERALL KEY

PLOTTED ON: 8/17/20

DESIGN FILENAME: P:\89\18\00\Design\Civil\Tree Preservation\Upper Segment\200710 Trees.dwg



MATCH LINE STA. 20+00
SEE THIS SHEET

SCALE: 1"=100'

| | | | |
|-------------------|------|-----------------|-----------------------------------|
| REVISIONS | | APP. | PAPE-DAWSON Job No. 8918-00 |
| NO. | DATE | | |
| DATE: AUGUST 2019 | | DESIGNED BY: MP | Jason T. Diamond 8-17-20 |
| DRAWN BY: MA | | CHECKED BY: JO | |
| SCALE: | | | |

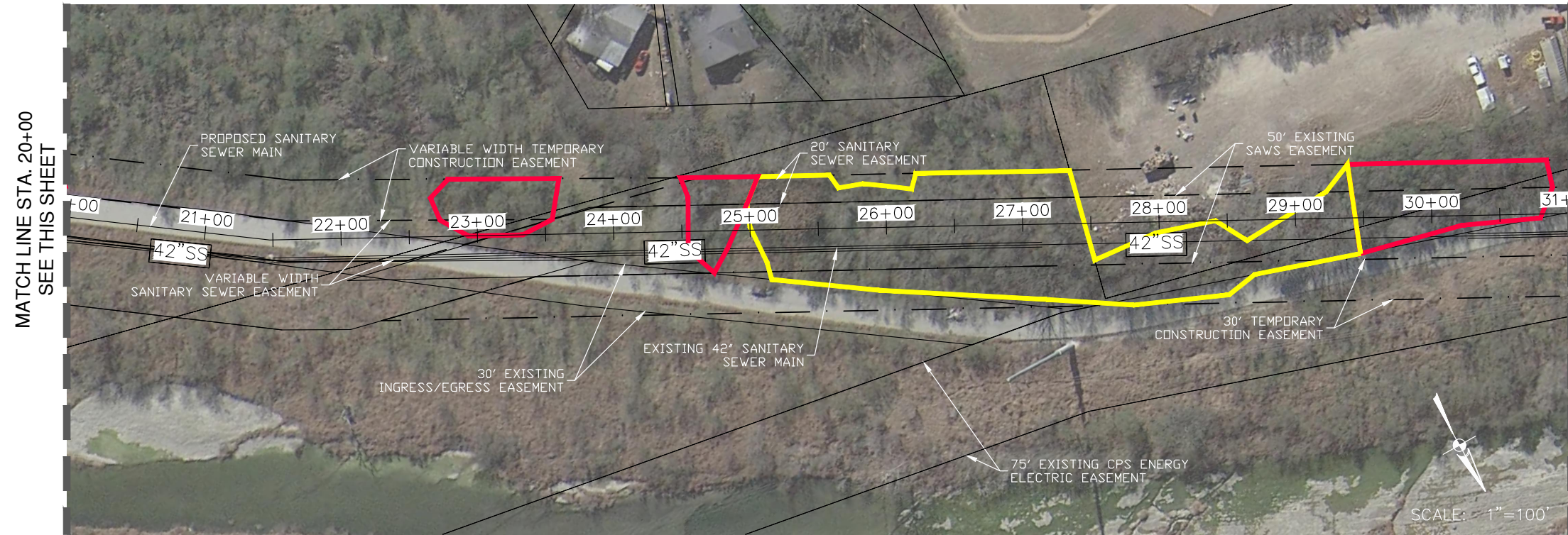
PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 ZEE LOOP-400 | 9801 ATHERTON, TX 78240 | 210-483-8888
Tree Care | Restoration | Preservation | Construction | Construction | Construction

SAN ANTONIO WATER SYSTEM

SAWS JOB NO. 19-4528
W-1 LEON CREEK: HWY 151 TO HWY 90
UPPER SEGMENT
TREE STAND DELINEATION PLAN
TREE PLAN 1

Sheet TP-3

60 of 67



MATCH LINE STA. 20+00
SEE THIS SHEET

MATCH LINE STA. 31+00
SEE SHEET TP-4

SCALE: 1"=100'

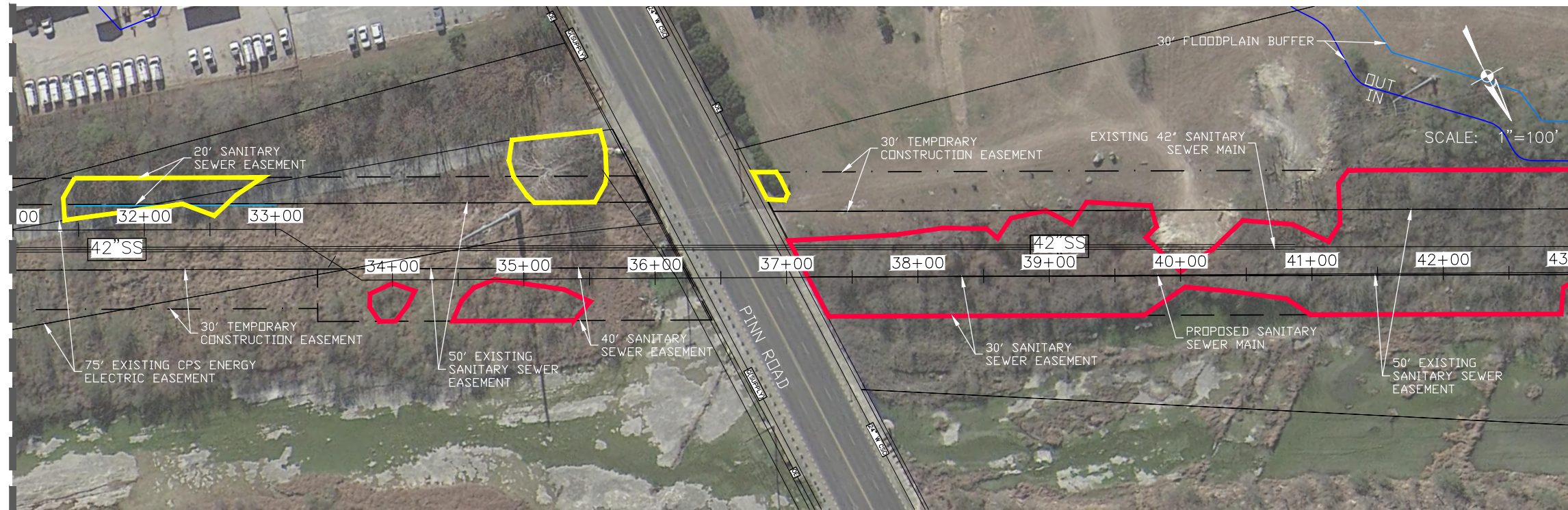
LEGEND

- CANOPY TO BE REMOVED INSIDE FLOODPLAIN
- CANOPY TO BE PRESERVED INSIDE FLOODPLAIN
- CANOPY TO BE REMOVED INSIDE 30' BUFFER
- CANOPY TO BE PRESERVED INSIDE 30' BUFFER
- CANOPY TO BE REMOVED OUTSIDE FLOODPLAIN
- CANOPY TO BE PRESERVED OUTSIDE FLOODPLAIN
- HERITAGE TREE TO BE REMOVED
- HERITAGE TREE TO BE PRESERVED
- HERITAGE TREE NON-NATIVE
- PROPOSED SAN. SEWER
- PERMANENT SEWER ESMT
- TEMP CONSTRUCTION ESMT
- EXISTING SAWS EASEMENT
- 100-YEAR FLOODPLAIN
- 30' FLOODPLAIN BUFFER
- PROPERTY LINE

PLOTTED ON: 8/17/20

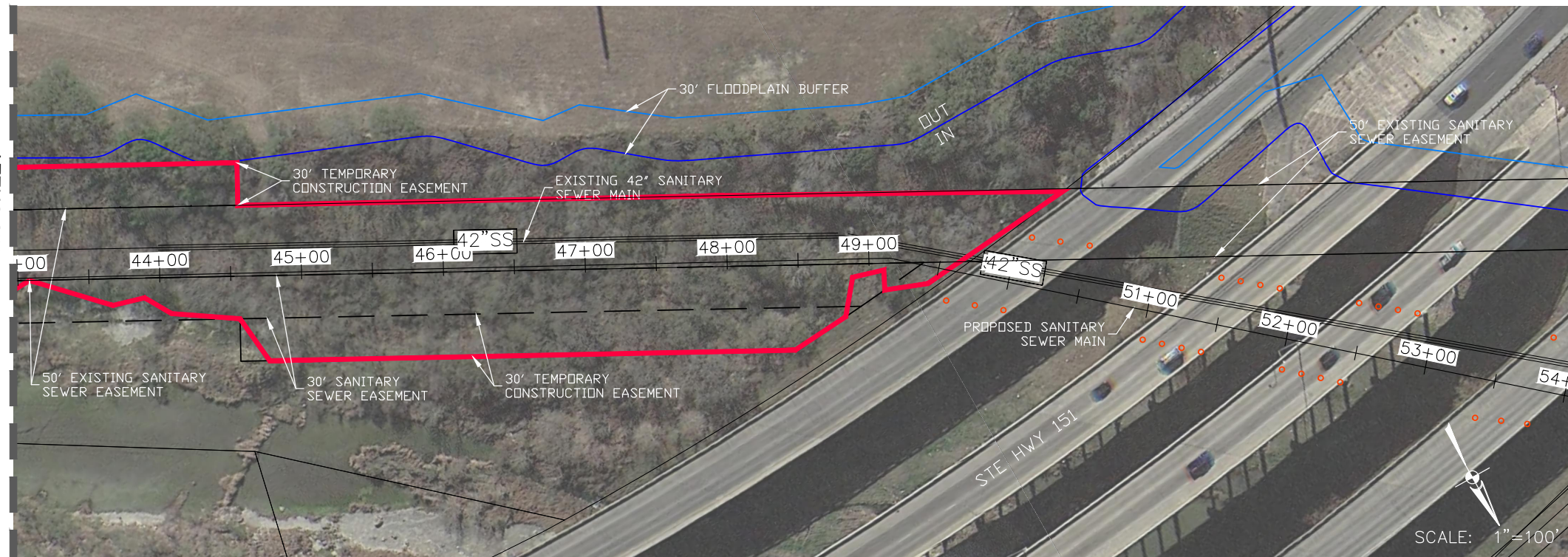
DESIGN FILENAME: P:\89\18\00\Design\Civil\Tree Preservation\Upper Segment\200710 Trees.dwg

MATCH LINE STA. 31+00
SEE SHEET TP-3



MATCH LINE STA. 43+00
SEE THIS SHEET

MATCH LINE STA. 43+00
SEE THIS SHEET



MATCH LINE STA. 54+00
SEE SHEET TP-5

LEGEND

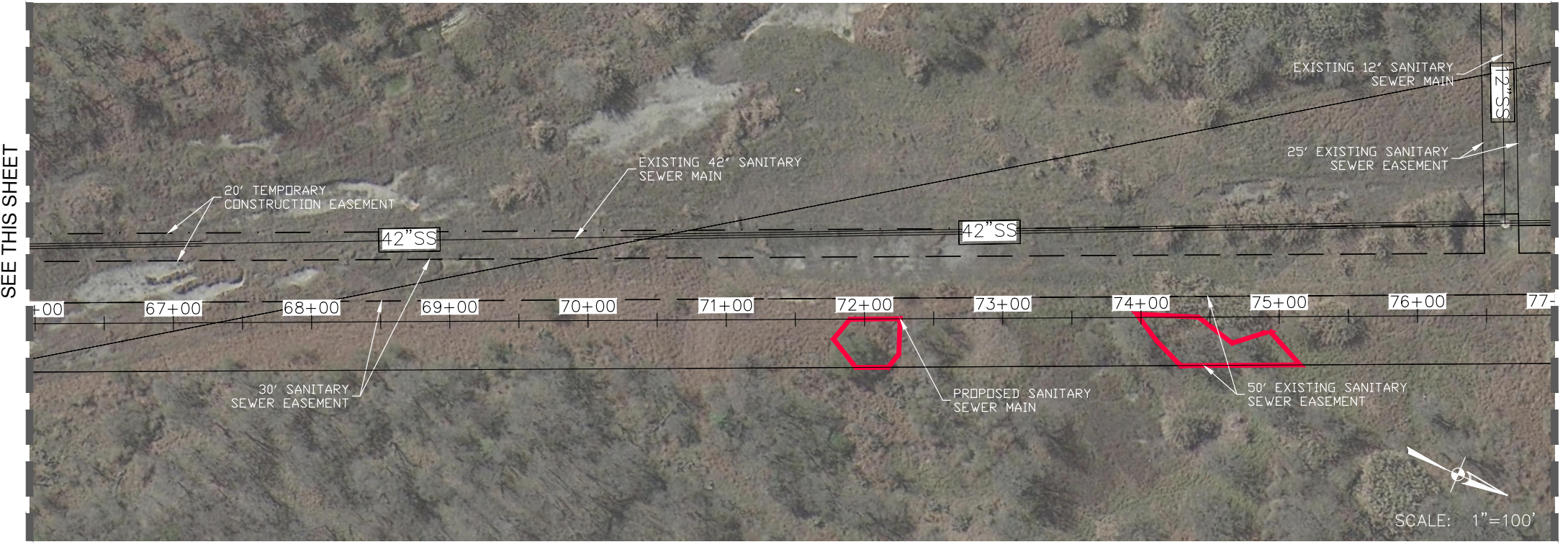
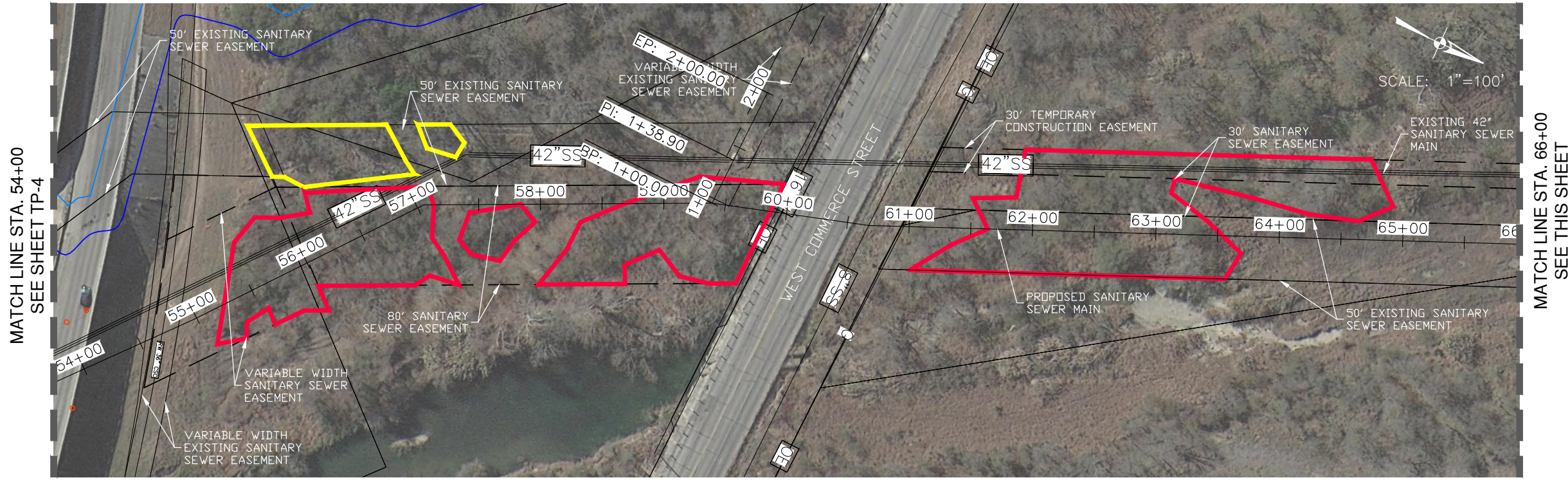
- CANOPY TO BE REMOVED INSIDE FLOODPLAIN
- CANOPY TO BE PRESERVED INSIDE FLOODPLAIN
- CANOPY TO BE REMOVED INSIDE 30' BUFFER
- CANOPY TO BE PRESERVED INSIDE 30' BUFFER
- CANOPY TO BE REMOVED OUTSIDE FLOODPLAIN
- CANOPY TO BE PRESERVED OUTSIDE FLOODPLAIN
- HERITAGE TREE TO BE REMOVED
- HERITAGE TREE TO BE PRESERVED
- HERITAGE TREE NON-NATIVE
- PROPOSED SAN. SEWER
- PERMANENT SEWER ESMT
- TEMP CONSTRUCTION ESMT
- EXISTING SAWS EASEMENT
- 100-YEAR FLOODPLAIN
- 30' FLOODPLAIN BUFFER
- PROPERTY LINE

| | | | |
|-----------|------|-----------------|-------------------------------------|
| REVISIONS | | APP. | PAPE-DAWSON Job No. 8918-00 |
| NO. | DATE | DESIGNED BY: MP | <p>Jason T. Diamond 8-17-20</p> |
| | | DRAWN BY: MA | |
| | | CHECKED BY: JO | |
| | | SCALE: | |

PAPE-DAWSON ENGINEERS
 SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
 5000 W. LOOP-400 | SUITE 400 | SAN ANTONIO, TX 78249 | 210-481-0000
 TREE STAND DELINEATION PLAN

SAN ANTONIO WATER SYSTEM

SAWS JOB NO. 19-4528
 W-1 LEON CREEK: HWY 151 TO HWY 90
 UPPER SEGMENT
 TREE STAND DELINEATION PLAN
 TREE PLAN 2



LEGEND

- CANOPY TO BE REMOVED INSIDE FLOODPLAIN ▬
- CANOPY TO BE PRESERVED INSIDE FLOODPLAIN ▬
- CANOPY TO BE REMOVED INSIDE 30' BUFFER ▬
- CANOPY TO BE PRESERVED INSIDE 30' BUFFER ▬
- CANOPY TO BE REMOVED OUTSIDE FLOODPLAIN ▬
- CANOPY TO BE PRESERVED OUTSIDE FLOODPLAIN ▬
- HERITAGE TREE TO BE REMOVED 🌳
- HERITAGE TREE TO BE PRESERVED 🌳
- HERITAGE TREE NON-NATIVE 🌳
- PROPOSED SAN. SEWER ▬
- PERMANENT SEWER ESMT ▬
- TEMP CONSTRUCTION ESMT ▬
- EXISTING SAWS EASEMENT ▬
- 100-YEAR FLOODPLAIN ▬
- 30' FLOODPLAIN BUFFER ▬
- PROPERTY LINE ▬

MATCH LINE STA. 66+00
SEE THIS SHEET

MATCH LINE STA. 66+00
SEE THIS SHEET

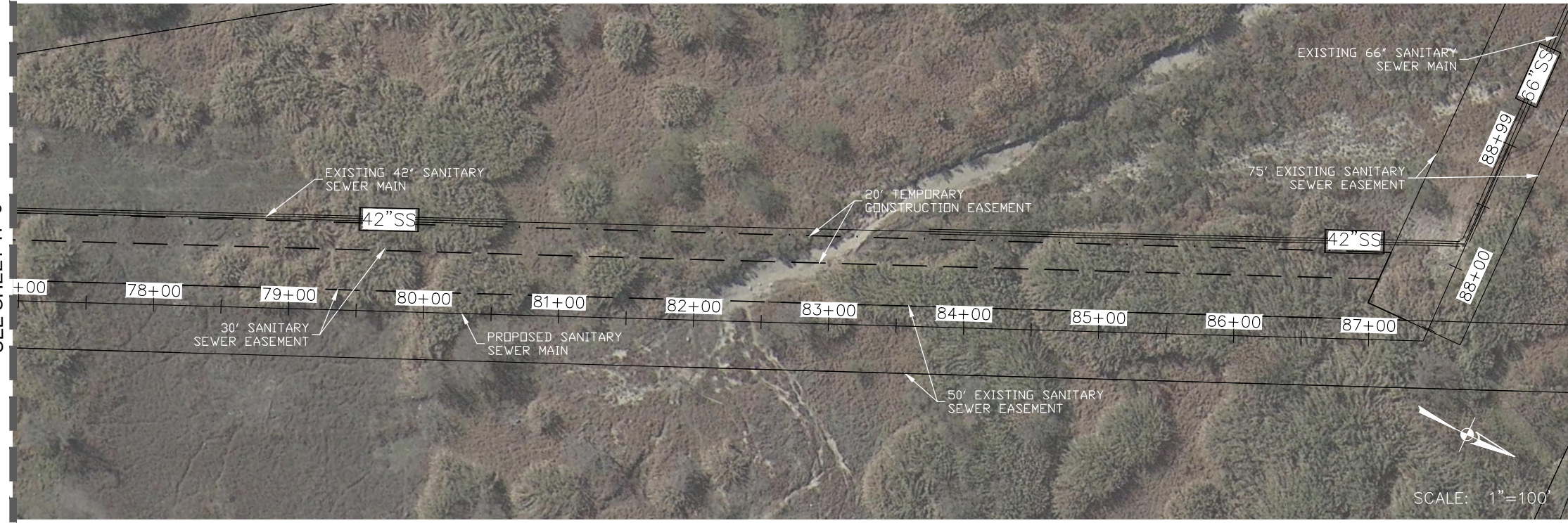
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| REVISIONS | | APP. | PAPE-DAWSON Job No. 8918-00 |
| NO. | DATE | | |
| DATE: AUGUST 2019 | | DESIGNED BY: MP | <p>Jason T. Diamond 8-17-20</p> |
| DRAWN BY: MA | | CHECKED BY: JO | |
| SCALE: | | | |
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PAPE-DAWSON ENGINEERS
 SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
 5000 W. LOOP-400 | SUITE 400 | SAN ANTONIO, TX 78249 | 210-481-0000
 Tree Care | Restoration | Removal | Pruning | Stump Removal | Preservation

SAN ANTONIO WATER SYSTEM


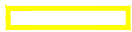














SAWS JOB NO. 19-4528
 W-1 LEON CREEK: HWY 151 TO HWY 90
 UPPER SEGMENT
 TREE STAND DELINEATION PLAN
 TREE PLAN 3


MATCH LINE STA. 77+00
SEE SHEET TP-5



SCALE: 1"=100'

LEGEND

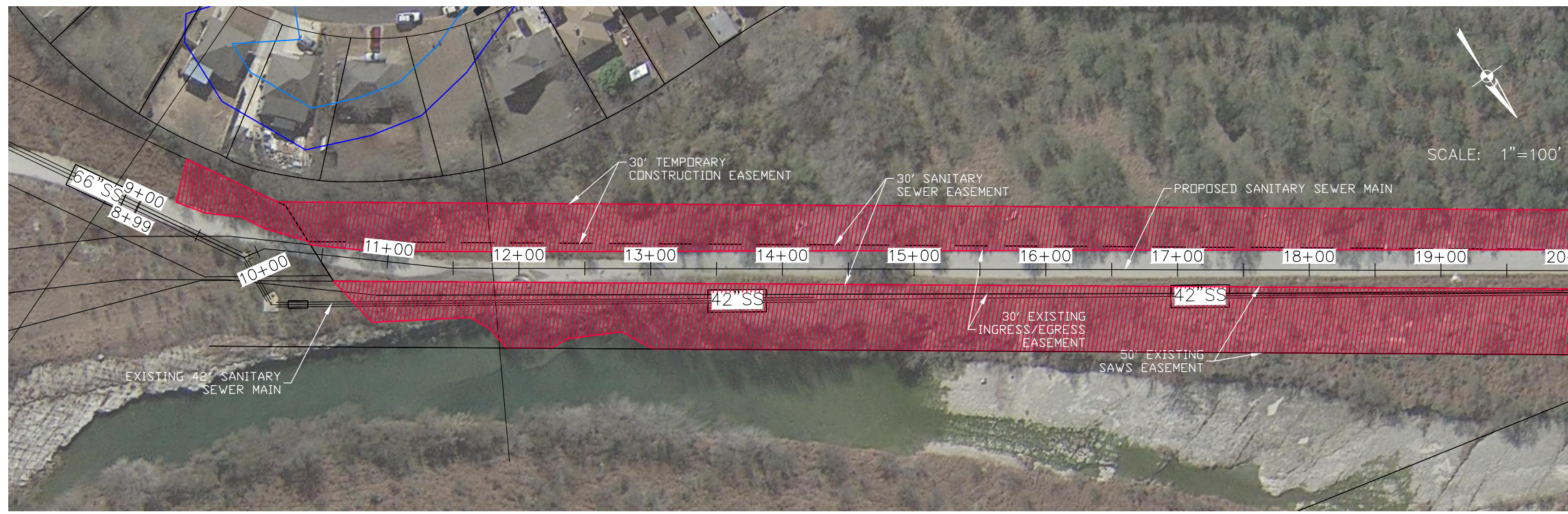
- CANOPY TO BE REMOVED INSIDE FLOODPLAIN 
- CANOPY TO BE PRESERVED INSIDE FLOODPLAIN 
- CANOPY TO BE REMOVED INSIDE 30' BUFFER 
- CANOPY TO BE PRESERVED INSIDE 30' BUFFER 
- CANOPY TO BE REMOVED OUTSIDE FLOODPLAIN 
- CANOPY TO BE PRESERVED OUTSIDE FLOODPLAIN 
- HERITAGE TREE TO BE REMOVED 
- HERITAGE TREE TO BE PRESERVED 
- HERITAGE TREE NON-NATIVE 
- PROPOSED SAN. SEWER 
- PERMANENT SEWER ESMT 
- TEMP CONSTRUCTION ESMT 
- EXISTING SAWS EASEMENT 
- 100-YEAR FLOODPLAIN 
- 30' FLOODPLAIN BUFFER 
- PROPERTY LINE 

| | |
|-----------------|--|
| APP. | PAPE-DAWSON |
| | Job No. |
| | 8918-00 |
| REVISIONS |  Jason T. Diamond 8-17-20 |
| NO. | DATE |
| DESIGNED BY: MP | DATE: AUGUST 2019 |
| DRAWN BY: MA | |
| CHECKED BY: JO | |
| SCALE: | |

PAPE-DAWSON ENGINEERS
 SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
 5000 BOX LOOP 400 | 78741-4000 | SAN ANTONIO, TX 78203 | 210-223-8888
 TREE CARE | RESTORATION | FIRE | ELECTRICAL | REMEDIATION | PESTS

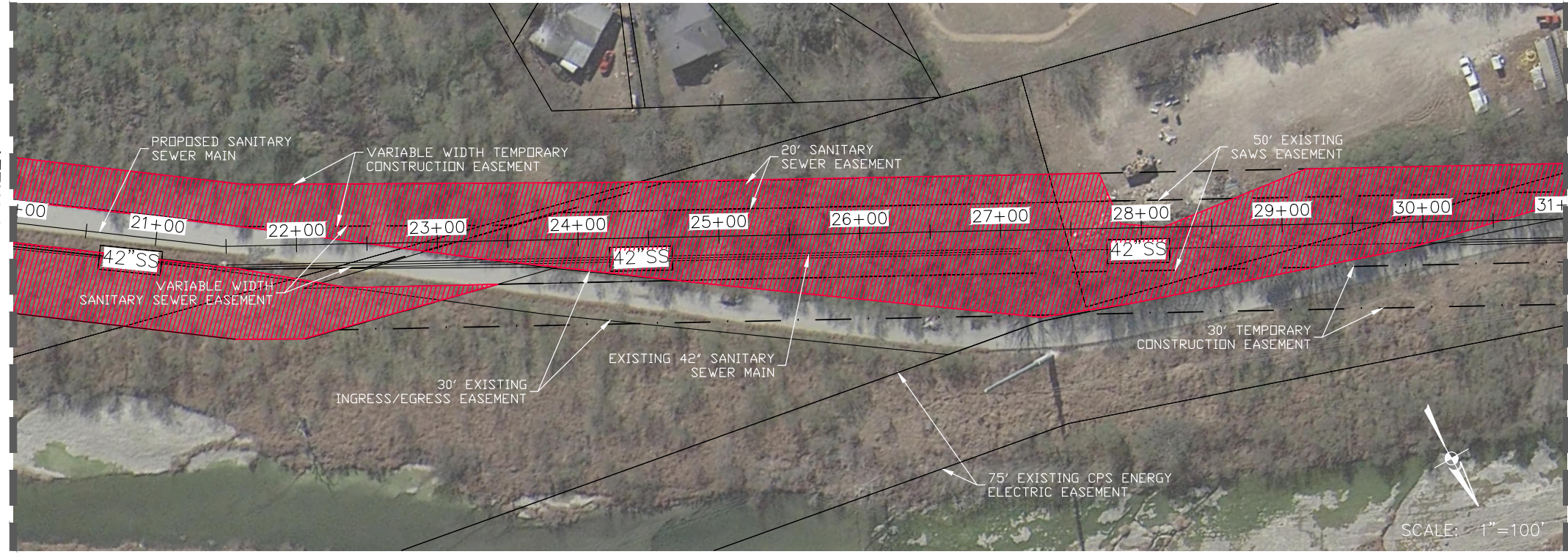
SAN ANTONIO WATER SYSTEM


SAWS JOB NO. 19-4528
 W-1 LEON CREEK: HWY 151 TO HWY 90
 UPPER SEGMENT
 TREE STAND DELINEATION PLAN
 TREE PLAN 4



MATCH LINE STA. 20+00
SEE THIS SHEET

SCALE: 1"=100'



MATCH LINE STA. 20+00
SEE THIS SHEET

MATCH LINE STA. 31+00
SEE SHEET TP-8

SCALE: 1"=100'

LEGEND

- AREA TO BE SEEDED WITH NATIVE SEED MIXTURE [Red Hatched Box]
- PROPOSED SAN. SEWER [Red Solid Line]
- PERMANENT SEWER ESMT [Red Dashed Line]
- TEMP CONSTRUCTION ESMT [Red Dotted Line]
- EXISTING SAWS EASEMENT [Black Dashed Line]
- 100-YEAR FLOODPLAIN [Blue Solid Line]
- 30' FLOODPLAIN BUFFER [Blue Dashed Line]
- PROPERTY LINE [Black Solid Line]

| | | | |
|-----------|------|-------------------|-----------------------------------|
| REVISIONS | | APP. | PAPE-DAWSON Job No. 8918-00 |
| NO. | DATE | DATE: AUGUST 2019 | DESIGNED BY: MP |
| | | DRAWN BY: MA | CHECKED BY: JO |
| | | SCALE: | |



PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
8000 ZEE LOOP #200 | 9801 ATHERTON, TX 78240 | 214-343-6666
Tree Plant Restoration Plan | Tree Plant Restoration Plans



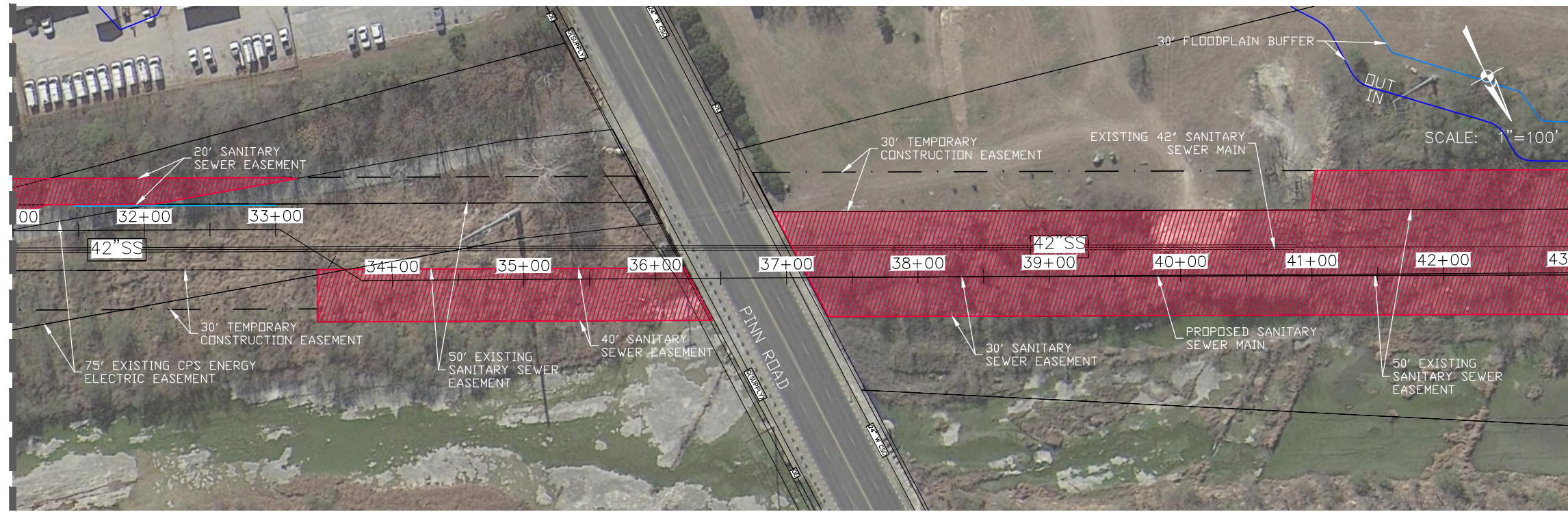
SAWS JOB NO. 19-4528
W-1 LEON CREEK: HWY 151 TO HWY 90
UPPER SEGMENT
NATIVE SEED MIXTURE PLAN
TREE PLAN 1

Sheet TP-7

PLOTTED ON: 8/17/20

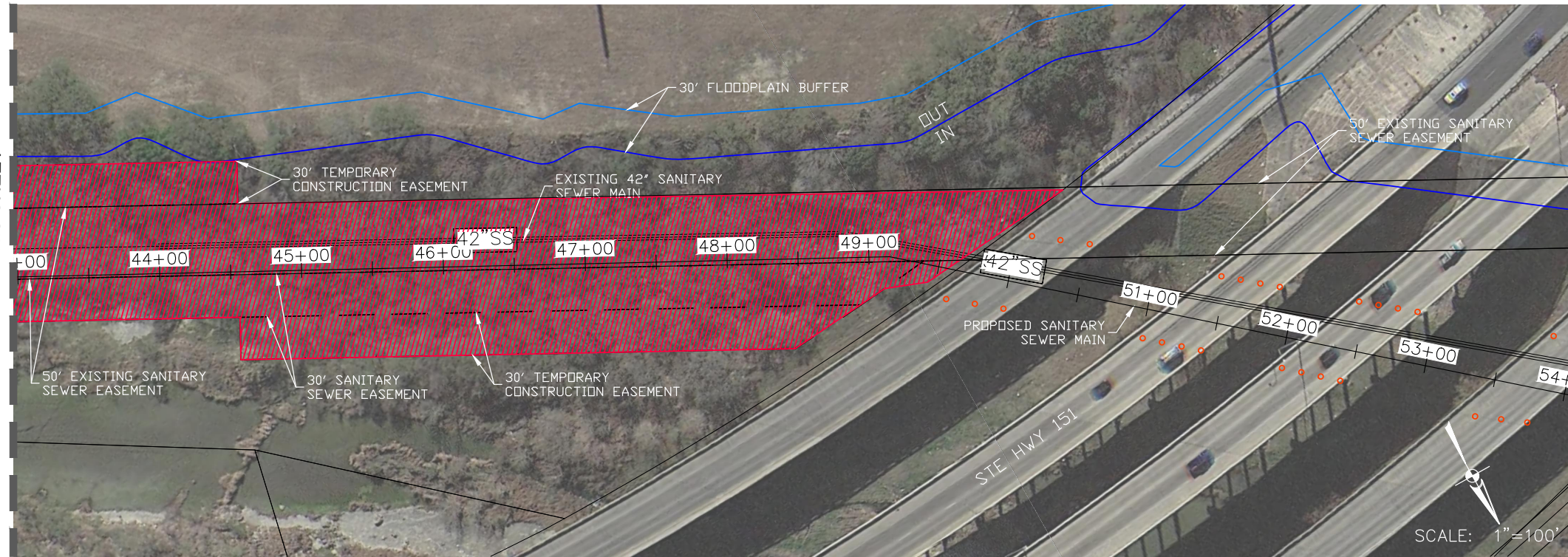
DESIGN FILENAME: P:\89\18\00\Design\Civil\Tree Preservation\Upper Segment\200710 Trees.dwg

MATCH LINE STA. 31+00
SEE SHEET TP-7



MATCH LINE STA. 43+00
SEE THIS SHEET


MATCH LINE STA. 43+00
SEE THIS SHEET



MATCH LINE STA. 54+00
SEE SHEET TP-9

LEGEND

- AREA TO BE SEEDD WITH NATIVE SEED MIXTURE
- PROPOSED SAN. SEWER
- PERMANENT SEWER ESMT
- TEMP CONSTRUCTION ESMT
- EXISTING SAWS EASEMENT
- 100-YEAR FLOODPLAIN
- 30' FLOODPLAIN BUFFER
- PROPERTY LINE

| | |
|--|-----------------|
| PAPE-DAWSON Job No. 8918-00 | |
|  Jason T. Diamond 8-17-20 | |
| DATE: AUGUST 2019 | DESIGNED BY: MP |
| NO. | DATE |
| REVISIONS | APP. |
| DRAWN BY: MA | CHECKED BY: JO |
| SCALE: | |

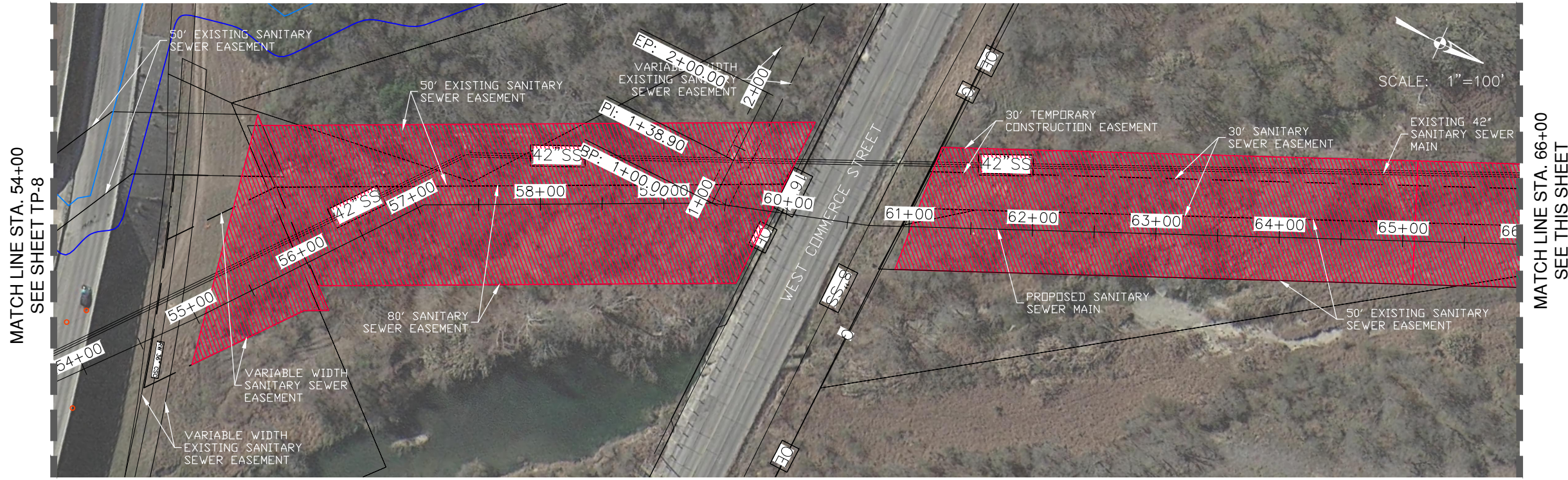
PAPE-DAWSON ENGINEERS
 SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
 5000 W. LOOP-400 | SUITE 4000 | SAN ANTONIO, TX 78249 | 210-481-0000
 TREE PRESERVATION PLAN | TREE PRESERVATION PLAN

SAN ANTONIO WATER SYSTEM

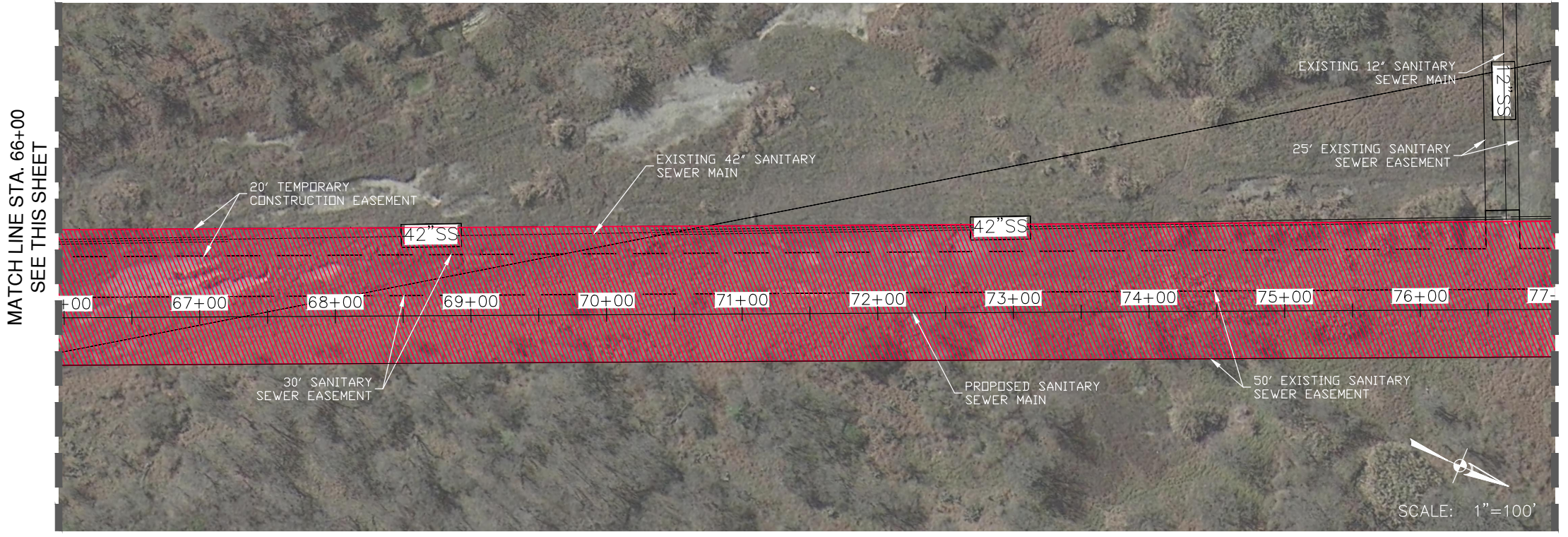

SAWS JOB NO. 19-4528
 W-1 LEON CREEK: HWY 151 TO HWY 90
 UPPER SEGMENT
 NATIVE SEED MIXTURE PLAN
 TREE PLAN 2

PLOTTED ON: 8/17/20

DESIGN FILENAME: P:\89\18\00\Design\Civil\Tree Preservation\Upper Segment\200710 Trees.dwg



MATCH LINE STA. 66+00
SEE THIS SHEET



MATCH LINE STA. 77+00
SEE THIS SHEET

LEGEND

- AREA TO BE SEEDD WITH NATIVE SEED MIXTURE
- PROPOSED SAN. SEWER
- PERMANENT SEWER ESMT
- TEMP CONSTRUCTION ESMT
- EXISTING SAWS EASEMENT
- 100-YEAR FLOODPLAIN
- 30' FLOODPLAIN BUFFER
- PROPERTY LINE

| NO. | DATE | REVISIONS | APP. |
|-----|------|-----------|------|
| | | | |

DATE: AUGUST 2019
 DESIGNED BY: MP
 DRAWN BY: MA
 CHECKED BY: JO
 SCALE:

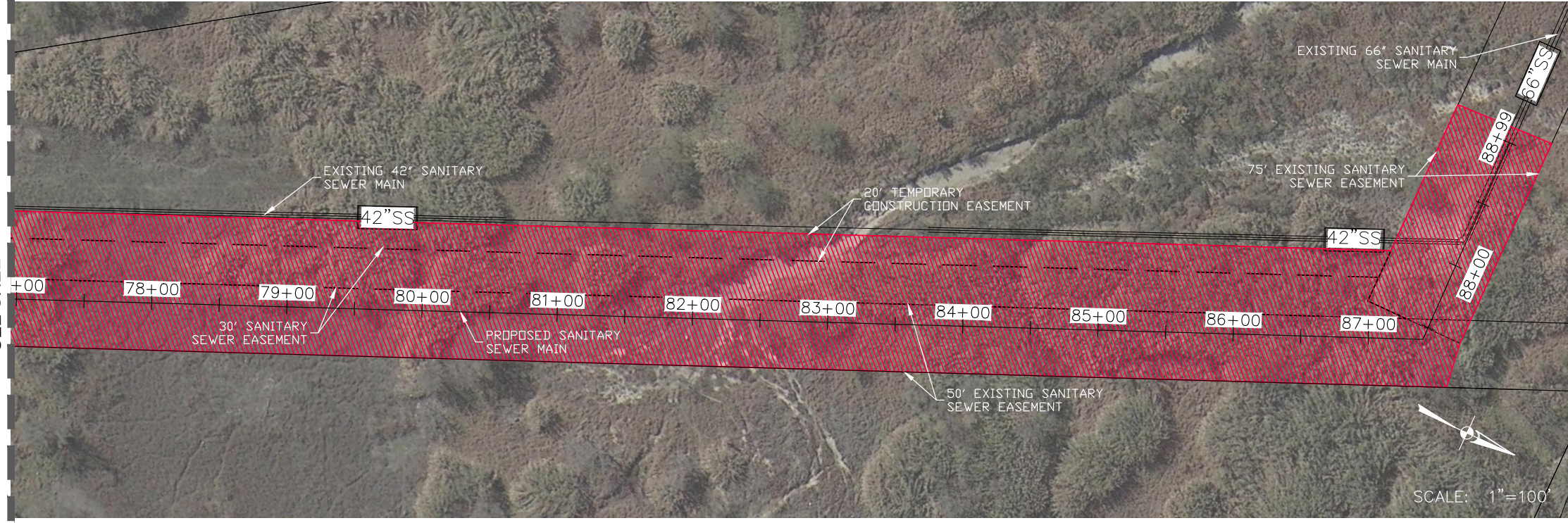
PAPE-DAWSON
Job No.
8918-00



SAWS JOB NO. 19-4528
 W-1 LEON CREEK: HWY 151 TO HWY 90
 UPPER SEGMENT
 NATIVE SEED MIXTURE PLAN
 TREE PLAN 3

Sheet TP-9


MATCH LINE STA. 77+00
SEE SHEET TP-9



SCALE: 1"=100'

LEGEND

- AREA TO BE SEEDED WITH NATIVE SEED MIXTURE
- PROPOSED SAN. SEWER
- PERMANENT SEWER ESMT
- TEMP CONSTRUCTION ESMT
- EXISTING SAWS EASEMENT
- 100-YEAR FLOODPLAIN
- 30' FLOODPLAIN BUFFER
- PROPERTY LINE

| | | |
|-----------|------|---|
| APP. | | PAPE-DAWSON Job No. 8918-00 |
| REVISIONS | |  <i>Jason T. Diamond</i> 8-17-20 |
| NO. | DATE | DATE: AUGUST 2019 |
| | | DESIGNED BY: MP |
| | | DRAWN BY: MA |
| | | CHECKED BY: JO |
| | | SCALE: |

PAPE-DAWSON ENGINEERS
 SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
 5000 ZEE LOOP-400 | 5601 AUSTIN, TX 78753 | 281-282-0000
 TREE PRESERVATION PLAN | TREE PRESERVATION PLAN

SAN ANTONIO WATER SYSTEM



SAWS JOB NO. 19-4528
 W-1 LEON CREEK: HWY 151 TO HWY 90
 UPPER SEGMENT
 NATIVE SEED MIXTURE PLAN
 TREE PLAN 4