

ADDENDUM NO. 3
to
PLANS and SPECIFICATIONS
for

Medina River Sewer Outfall, Segment 4
SAWS Job No. 12-2504



Issue Date: November 30, 2011

**SAN ANTONIO WATER SYSTEM
MEDINA RIVER SEWER OUTFALL, SEGMENT 4
SAWS PROJECT # 12-2504
ADDENDUM NO. 3**

November 30, 2011

This addendum, applicable to the project noted above, is an amendment to the bidding and specification documents and as such shall be a part of and included in the Contract. Acknowledge receipt of this addendum by entering the addendum number and issue date in the spaces provided on all submitted copies of the proposal.

1.0 Addendum Purpose

The purpose of this addendum is to issue revisions and clarifications for the Medina River Sewer Outfall (MRSO), Segment 4 (SAWS Job No. 12-2504).

2.0 Clarifications

A. The mandatory Pre-Bid Conference was held on November 21, 2011. Minutes from the meeting are attached and are considered part of this Addendum.

3.0 General

A. Asbestos Survey – See the attached Asbestos Survey.

4.0 Specifications and Contract Documents

A. Invitation to Bidders – Bid will not be accepted from any company not represented at the mandatory pre-bid meeting held on November 21, 2011 at 9:30 am. The following list is a record of the represented firms:

- Ledcor CMI, Inc.
- Don Kelly Construction
- Peasdo
- Pipelayers, Inc.
- Magnum Tunnel
- KFW Surveying
- Holloman
- Mid Tex Valve/Waterman
- S.J. Louis Construction
- United Rental Trench Safety
- Oscar Renda Construction
- Merryman Excavation
- JBL Trucking
- Hobas Pipe, USA
- T.S.I. Laboratories
- USCPS (Flowtite)

- BRH Garver Construction
 - Ace Pipe Cleaning
 - Sundt Construction
- B. Table of Contents – Delete Special Conditions Attachment E from the table of Contents. Remove and replace the Table of Contents with the one attached to this addendum.
- C. Bid Proposal – This section has been revised to update the bid quantities and add bid items. Remove and replace the Bid Proposal with the one attached to this addendum.
- D. Bid Proposal Checklist – Delete “Attachment E – Escrow Bid Documents Acknowledgement Form” from the Bid Proposal Checklist. Remove and replace the Bid Proposal Checklist with the one attached to this addendum.
- E. Supplementary Conditions, Pg. SS-4 - Remove the deletion of Article X. Disputes, Page GC 36: paragraph 10.1. The requirements set forth in Article X. Disputes, Page GC 36: Paragraph 10.1 will be utilized for this project.
- F. Special Conditions, Attachment E - Escrow Bid Documents Acknowledgement Form – Delete the Section.
- G. Section 01025, Measurement and Payment – This section has been revised. Remove and replace the Section 01025 with the section attached to this addendum.
- H. Section 01120, Dispute Review Board – Delete the entire section.
- I. Section 01130, Escrow Bid Documents – Delete the entire section.

5.0 Plans

- A. Drawing No. G-01, Sheet No. 02 – Revised to reflect the new quantities. Remove and Replace this sheet with the attached plan sheet.
- B. Drawing No. C-71, Sheet No. 12 – A bore has been added under gas line to plans and contact number has been revised in note. Remove and Replace this sheet with the attached plan sheet
- C. Drawing No. C-72, Sheet No. 13 – A bore has been added under gas line to plans and contact number has been revised in note. Remove and Replace this sheet with the attached plan sheet.
- D. Drawing No. C-73, Sheet No. 14 – A bore has been added to plans and contact number has been revised in note. Remove and Replace this sheet with the attached plan sheet.

- E. Drawing No. C-74, Sheet No. 15 – Added note to plan for gas line crossing requirements. Added hatching for concrete encasement on plan view. Remove and Replace this sheet with the attached plan sheet.
- F. Drawing No. C-78, Sheet No. 19 – At approximately station 1082+75 added 16' gate centered on alignment and 100 linear feet of fence (contractor to match existing steel fence) no separate pay item.
- G. Drawing No. C-79, Sheet No. 20 – At Station 1085+14 added 16' gate centered on alignment and 100 linear feet of fence (contractor to match existing steel fence) no separate pay item. Remove Note: Contractor to use steel casing across TxDOT R.O.W.
- H. Drawing No. C-74, Sheet No. 25 – Revised Northing and Easting and Stationing on MH 231. Revised MH 231 on profile to correct location and adjusted length between MH 230 and 231 and revised length between MH 231 and matchline at station 1153+00. Remove and Replace this sheet with the attached plan sheet
- I. Drawing No. C-91, Sheet No. 32 – Remove Note: Contractor to use steel casing across TxDOT R.O.W.
- J. Drawing No. C-92, Sheet No. 33 – Remove Note: Contractor to use steel casing across TxDOT R.O.W.
- K. Drawing No. C-86, Sheet No. 27 – Added text (drop) to MH 234 plan view. Remove and Replace this sheet with the attached plan sheet
- L. Drawing Nos. C-113 to C-119, Sheet Nos. 34 to 40 – Remove text on plans for call out of 24" DIA. PVC (SDR 26) pipe, "(160 PSI)" and replace with "(PS 115)".
- M. Drawing No. C-120, Sheet No. 41 – Remove text on plans for call out of 24" DIA. PVC (SDR 26) pipe, "(160 PSI)" and replace with "(PS 115)". Remove Note: Contractor to use steel casing across TxDOT R.O.W.
- N. Drawing No. C-121 to C-123, Sheet Nos. 42 to 44 – Remove text on plans for call out of 18" DIA. PVC (SDR 26) pipe, "(160 PSI)" and replace with "(PS 115)".
- O. Drawing No. C-145, Sheet No. 47 – Delete the callout on this sheet that states "CONTRACTOR SHALL REMOVE AND REPLACE EXISTING CONCRETE RIP-RAP (199 SY)".
- P. Drawing No. C-146, Sheet No. 48 – Delete the callout on this sheet that states "CONTRACTOR SHALL REMOVE AND REPLACE EXISTING ASPHALT (158 SY) REFER TO DETAIL D-15/C".

- Q. Drawing No. D-10, Sheet No. 62 – Remove “stainless” from steel casing spacers when indicated on sheet.
- R. Drawing No. D-11, Sheet No. 63 – Revise riser pipe from “SN 46” to “SN 72”. Remove and Replace this sheet with the attached plan sheet.
- S. Drawing No. D-12, Sheet No. 64 – Added X on MH 235 Drop. Remove and Replace this sheet with the attached plan sheet.

6.0 Questions and Answers

- A. Question: Section SS848 2.05 Dimensions states the pipe is to be 20’ in length. Can the pipe fabricated and installed in lengths longer than 20’?

Answer: No, twenty feet is what SAWS requires.
- B. Question: Is Tunnel Liner Plate material allowed on the railroad crossings? It is stipulated on the plans by a note that the IH-35 crossing shall be steel pipe casing only and normally the railroad requires steel casing in lieu of tunnel liner material but it is not delineated on the plans

Answer: Tunnel liner plate or steel pipe casing is acceptable underneath the IH-35 crossing and railroad crossings.
- C. Question: On the plans it shows for the pipe to be SDR 26 (160 PSI), 18” & 24” SDR26 CL160 Pipe is not made in this size. Should that pipe be SDR 26 (115 PSI) instead?

Answer: Pipe should be SDR 26 (PS 115).
- D. Question: Who owns / maintains the underground electrical line shown to be removed and replaced with no separate pay item on Plan Sheets 29-32?

Answer: Person leasing the land owns / maintains the underground electric line.
- E. Question: Is the underground electrical line shown to be removed and replaced with no separate pay item on Plan Sheets 29-32 in conduit or was it installed by means of direct burial?

Answer: Not known if in conduit. It is used to control the irrigation system.

- F. Question: Will a disruption in service be allowed for the underground electrical line shown to be removed and replaced with no separate pay item on Plan Sheets 29-32? If so, for what duration?
- Answer: Contractor will need to coordinate with farmer to see when he needs the irrigation line and when he is growing his crops.*
- G. Question: Is any part of the underground electrical line shown to be removed and replaced with no separate pay item on Plan Sheets 29-32 encased with concrete?
- Answer: No, should be able to keep in tack, expose wire and pull out of construction area.*
- H. Question: Bid Item No. 35, contains a combined description for the removal and replacement of existing asphalt pavement and gravel roads. Can these descriptions and their respective quantities be bid separately under different item numbers?
- Answer: This segment does not have asphalt pavement, just gravel roads and gravel parking lots. The bid proposal, bid quantities and measurement and payment section have been revised to remove the reference to asphalt pavement for bid item #35.*
- I. Question: Will tunnel liner plate be allowed for use at the TxDOT R.O.W. crossings in lieu of steel casing?
- Answer: Tunnel liner plate or steel casing will be acceptable.*
- J. Question: Should the exclusive use of steel casing be required at the TxDOT R.O.W. crossings, can separate bid items and their respective quantities be established on the bid form in lieu of the combined language (Steel Casing or Steel Liner Plate) currently provided?
- Answer: Tunnel liner plate or steel casing will be acceptable. A separate bid item will not be provided. It is up to the contractor to decide which method he elects to use.*
- K. Question: Please confirm that tunnel liner plate is allowed for use at the existing railroad crossings.
- Answer: Tunnel liner plate or steel casing will be an acceptable primary liner for the railroad crossing tunnels.*

- L. Question: Per Plan Sheet 62, the annular space between the carrier pipe and the steel casing pipe is to be grouted. Should steel casing be utilized for any crossing, please confirm that casing spacers made of stainless steel are required in lieu of other types of casing spacers.

Answer: Space between carrier pipe and steel casing is to be grouted. Steel casing can be used for any crossing, and regular steel casing spacers are acceptable.

- M. Question: It was mentioned at the pre-bid meeting that an "Asbestos Survey" was already completed for the existing house shown on Plan Sheet 27. What were the results of the survey? Can the survey be made available to the bidding Contractors?

Answer: The "Asbestos Survey" is attached.

- N. Question: Please confirm that the Contractor is required to perform all demolition and removal of the (3) buildings, (1) gas tank, (1) propane tank, (1) house shown on Sheet 27.

Answer: Contactor is responsible for all demolition and removal of the buildings, gas tank, propane tank and house.

- O. Question: The application for a City of San Antonio demolition permit is extensive and requires approvals from the Historic Preservation Department, City Public Service, and an Environmental Reviewer along with (9) other required items to be presented to the Development Services Department. Will the Owner and Engineer entertain an added demolition allowance or added bid item associated with the required removal of (3) buildings, (1) gas tank, (1) propane tank, (1) house, and the plugging of an existing well currently shown on Sheet 27?

Answer: A bid item for Demolition has been added

- P. Question: For consistency amongst bidders, can a complete list of all permits and their respective fees to be paid by the Contractor for this project be provided?

Answer: The fees for each type of permit are shown below and are based on fee information received from each regulatory agency. The fees shown below may not reflect the final fee required to obtain the permit and may be subject to change. The Contractor is required to verify and/or obtain their own permitting fees. The list may not be all inclusive.

PERMIT/AUTHORIZATION/APPROVAL	AGENCY	FEE
TPDES - General permit Notice of Intent (NOI)	TCEQ	\$325
Storm Water Quality Site Development Permit	Bexar County	\$500
Flood Plain Development Permit	CoSA	N/A
Flood Plain Development Permit	Bexar County	\$50
Utility Installation Permit	Bexar County	\$35
Notice of Proposed Installation (utility)	TxDOT	N/A
TPDES - General permit Notice of Termination (NOT)	TCEQ	\$325

- Q. Question: Please confirm that an Owner Representative's Field Office, per Specification 01500 Section 1.08.C is required on this project, as this requirement has been removed from previous segments of the overall program.
- Answer: An Owner representative's field office is required as described in the Specification Section 01500.*
- R. Question: Please confirm that a variance will not be granted in regards to the in-place density and moisture content testing of (1) test per 12-inch lift at intervals of every 400 feet of excavated trench.
- Answer: There will not be a variance for testing required in specifications.*
- S. Question: Is there any set of circumstances that could arise (contractor's experience, location of installation, etc.) in which a variance would be considered in regards to the compaction and moisture requirements of the secondary backfill as specified in Specification SS804, Section 3.08.C?
- Answer: No variance will be given for compaction and moisture requirements.*
- T. Question: In addition to the Upstream Siphon Structure #4 and Downstream Siphon Structure #4, please confirm that the use of the 5000 PSI concrete mix design as detailed in Section 2.05 of Specification 03300 applies to the following placement locations: Tee Base Encasement (Sheet 57, Detail 1), Manhole Drop Pipe Encasement (Sheet 57, Detail 4), & Manhole Top Slab (Sheet 57, Detail 2 &3).
- Answer: All locations listed require 5000 PSI concrete.*
- U. Question: Is the use of the 5000 PSI concrete mix design, as detailed in Section 2.05 of Specification 03300 required for the concrete encasement of

the drop piping and top slab associated with the “Typical Fiberglass Manhole Detail (DD-853-01)” shown on Sheet No. 64?

Answer: 5000 PSI concrete mix is required.

- V. Question: Please confirm that the Contractor is required to remove, stockpile, and replace 12 or 24-inches of topsoil (depending on location) from the entire width of the easement per Specification SS520, Section 2.05.A.

Answer: Contractor is required to remove, stockpile, and replace topsoil for the entire width of easement except for the location where topsoil is stockpiled.

- W. Question: There is a difference in pipe stiffness (SN) for the manhole riser pipe in the plans. DWG S-38 shows a pipe stiffness of SN 72 for the manhole riser pipe. DWG D-11 shows a pipe stiffness of SN 46 for the manhole riser pipe. The previous MRSO projects have SN 72 riser pipe being used. Please clarify.

Answer: All pipe stiffness should be SN 72. Drawing D-11 has been revised in section 5.0 Plans of this addendum to reflect this change.

- X. Question: MH 234 is shown as a drop tee base manhole on the MH schedule (DWG D-12), but is not labeled as a drop manhole on the plans. Please clarify.

Answer: MH 234 is a drop tee base manhole. Drawing C-86 has been revised in section 5.0 Plans of this addendum to reflect this change.

- Y. Question: MH 235 shows no drop on MH Schedule (DWG D-12), but a drop is shown and labeled on the plans. Please clarify.

Answer: MH 235 is a drop tee base manhole. Drawing D-12 has been revised in section 5.0 Plans of this addendum to reflect this change.

- Z. Question: If there are any changes to the MH Schedule, please note changes on corresponding bid items.

Answer: Please reference revised Bid Proposal and Bid Quantities that are attached to this addendum.

- AA. Question: Bid item No. 30 calls for 12” FRP for Siphon No. 4. The previous MRSO projects have 12” PVC being used. Please clarify.

Answer: SDR 26 PVC can be used for the 12" siphon barrel. Drawing D-74 has been revised in section 5.0 Plans of this addendum to reflect this change.

- BB. Question: Bid Item No. 22 and 23 call for boring or tunneling steel casing with 18" DIA FRP carrier pipe. The plans call for 18" PVC SDR 26 as the carrier pipe. Please clarify.

Answer: 18" PVC SDR 26 will be required as carrier pipe. The bid item description has been changed in the Bid Proposal, Measurement and Payment Section and on the Bid Quantities.

- CC. Question: Bid Item No. 24 and 25 call for boring or tunneling steel casing with 24" DIA FRP carrier pipe. The plans call for 24" PVC SDR 26 as the carrier pipe. Please clarify.

Answer: 24" PVC SDR 26 will be required as carrier pipe. The bid item description has been changed in the Bid Proposal, Measurement and Payment Section and on the Bid Quantities.

- DD. Question: The Revegetation quantity of 172,072 SY associated with Bid Item No. 3 does not account for the entire width of the easement in regards to the removal, stockpiling, and replacing of 12 or 24-inches of topsoil as detailed in Specification SS520, Section 2.05.A. Will this quantity be adjusted to account for the entire width? How was the current bid quantity of 172,072 SY calculated?

Answer: The re-vegetation quantities are for reseeding and establishing vegetation only in the areas that will be reseeded per the native seed mixture plan sheets. For clarification the contractor shall reference the description of the Bid Item #3, Re-vegetation in the measurement and payment specification section 01025.

- EE. Question: Tree preservation dwg. T-01. The box in the center of the dwg. labeled "tree stand delineation summary of tree preservation" - bottom of box "mitigation measures" - (A) "seeding area". How was the quantity of 9,404,324 sq. ft. arrived at? What does it represent? The quantity is equal to 216 acres. To the right of the box, "mitigation measures" A. 2nd paragraph - "seeding (50% reduction in canopy area to be mitigated)" the quantity is 130,087 sq. ft. Is there any correlation between the two quantities? Please clarify as 9,404,324 sq. ft. is a large qty. Do these seeding costs go into tree protection bid item no. 40?

Answer: The seeding area quantity shown on this sheet is for the entire program and is for the CoSA Tree Permit purposes only. The quantity shown on the bid proposal for re-vegetation bid item #3 is what shall be used as the seeding area for segment 4. The quantity shown for Bid Item #3 is the area that will be reseeded per the Native Seed Mixture Plans for segment 4 only. The Contractor shall reference section 01025 measurements and payment for a description of the bid items for clarification. Tree protection shall be estimated for the number of trees that are to be saved or protected within the project easement.

FF. Question: Bid item no. 3 – “Re-vegetation.” - 172,072 syds. Is this qty intended to cover all disturbed areas within the sewer easement along the entire alignment? Is this bid item in any way connected to the “T” drawings?

Answer: The quantity for re-vegetation is for the area that will be reseeded and corresponds to the areas delineated on the Native Seed Mixture Plans sheets for segment 4.

GG. Question: I.E. - Drawing no. C-113. Where shown on this and other drawings, is the 35' wide water utility & service easement available for use during the construction of this project?

Answer: Section 01010, Paragraph 1.06. A defines the contractor's work area limits. The Contractor shall stay within the project easement. Contractor will be issued a warning one (1) time if found to be working outside of the easement limits. Contractor will be required to install fence on easement limits if work outside of easement limits is performed after the first warning is issued. It is up to the contractor to make agreements with property owners to work outside the easement limits and the Contractor will be required to provide copies of any agreements with the land owners to the Owner and Owners Representative.

HH. Question: I.E. - Drawing no. C-115. Where shown on this and other drawings, is the area between the sewer easement and the 35' wide water service and utility easement available for use during the construction of this project?

Answer: Section 01010, Paragraph 1.06. A defines the contractor's work area limits. The Contractor shall stay within the project easement. Contractor will be issued a warning one (1) time if found to be working outside of the easement limits. Contractor will be required to install fence on easement limits if work outside of easement limits is performed after the first warning is issued. It is up to the contractor to

make agreements with property owners to work outside the easement limits and the Contractor will be required to provide copies of any agreements with the land owners to the Owner and Owners Representative.

II. Question: Could you please inform us as to where livestock fencing will be required?

Answer: Temporary livestock fencing will be required for areas where roaming livestock can enter the work area and become injured or trapped and for areas where the contractor has damaged or cut fencing for construction purposes. The use of temporary livestock fencing should be considered for use on all properties other than the Union Pacific Railroad Company Property and the AB Alamo Property.

JJ. Question: Dwg. T-01. "Tree Canopy Calculations" - No. 4 under both "inside" and "outside" the floodplain. Do the respective quantities of 118 and 180 trees represent the quantity that is to be pruned or removed?

Answer: The Calculations and quantities shown on this sheet are for the CoSA Tree Permit purposes only. They shall not be used for bidding purposes

KK. Question: Is there any SW3P plans for this project?

Answer: The SWPPP plan was issued with Addendum 2 on November 22, 2011.

LL. Question: The initial review of the plans and proposal has raised questions that we formally request to have reviewed and answered. Due to many items within this project being considered incidental, it is critical that the current pay items provided match up with the plan and expected true quantities of which the contractor shall be paid. In our initial takeoff of the pipe, it appears that the quantities for the tunnels on 66", 24" and 18" all are accurate. However; the lengths for the open cut work is not accurate. Our takeoff is as follows (taking in consideration the equation station changes): 66" = LF, 24" = 9,122 LF, and 18" = 5,536 LF. We request that the pay items in the bid proposal reflect the actual expected quantities due to incidentals that the contractor would be required to absorb in these pay items at time of construction.

Answer: The Contractor shall reference the revised bid proposal and bid quantities attached to this addendum.

MM. Question: Additionally, there are a couple other pay items that appear to require adjustments and possibly additional pay items. For example, the pay item 35. Remove & Replace Existing Asphalt Pavement and Gravel

Roads should not be within the same pay item. Should quantities over/under-run then there may be a major price gap should it be asphalt versus gravel and vice-versa. Item 37 - Concrete Encasement, the quantities again do not match up from bid item to shown on plans, and there are different sized pipes for the area of the siphon structure and then the area that requires concrete encasement for the 18" line. We request separate pay items, since again the item could over/under-run causing issue for payment.

Answer: There is no longer a need to remove and replace asphalt pavement of this segment the description for bid item #35 has been revised to remove asphalt pavement Item 37 Concrete Encasement has already been address on liner foot basis per item, single liner foot per barrel. This will not be a separate pay item see specification 1025 – per liner foot not per multiple barrels.

NN. Question: Bid Item 38. Bypass pumping. Please provide expected flow rates (highs / lows) for where the bypass pumping is expected to take place.

Answer: Listed below are the flow rates for the lift stations. LS 193 (Standard Electric) 600 gpm, LS 219 (Fischer Road) 800 gpm

OO. Question: On the plan sheets for the detail on cross sections there is a note on many of these details that state: "Gravel Subgrade Filler and Filter Fabric to be used as determined in field by inspector in conditions where subgrade is unstable". The issue we have is that there is no pay item for this. Is it expected that should we run into these conditions, that this material along with the extra excavation be paid for via change order? If not, please provide appropriate pay item.

Answer: This is incidental to the Gravity Sewer Outfall main cost. The Contractor shall reference specification 1025 and read the description of the bid item. No additional pay item will be added for such work. Currently, there are not any know, unstable areas where the gravel sub-grade filler/filter fabric are needed. If unstable areas are discovered during construction, the cost will be incidental to bid Items No. 4 through 8. The CONTRACTOR must use their own judgment when estimating of the amount of material and work required

PP. Question: In my experience with soil conditions in this area and based on geo reports along with field observations from work performed by others on SAWS projects that are related to this project (i.e. Segment 1 being performed by Oscar Renda), that there may be intermittent areas of rock that is not able to be excavated with the use of just a

large excavator, and rock blasting is not allowed it has required contractors to use excessive equipment that requires additional cost and time that is far greater than one can expect or anticipate based on the length of the project, access, and information available. We would request a token bid item to address this issue in order to place all contractors on the same playing field, and to protect the contractor from a potential risk that could be financially devastating to their company. In order to relieve this exposure of a huge unknown, we would request a bid item for 100 CY of Rock Excavation by means beyond typical hoe excavation (i.e. trenching or hammering).

Answer: There will not be an additional bid item added for Rock Excavation. The Contractor shall utilize the Geotechnical Data Report and Geotechnical Baseline Report to evaluate the soil conditions they shall expect to encounter during construction and bid accordingly.

QQ. Question: The access for this project appears to be limited and the easements based on the depths required appear to be very narrow with exception to the area that provides 400' wide easement for just 1069 LF. It appears that the owner is putting the contractor at risk to try and obtain their own easements to build this project properly and to allow the contractor to side-cast his materials and still stockpile materials and still maintain a trench that will suffice the standards of OSHA. If that is the case, we would request the contact names, phone numbers, addresses, and possibly email addresses if available to the appropriate landowners that own property running parallel to this project. Also, we request clarification on access for areas that easements are obtained but land locked with highways and railroads. For example the area west of I-35 and east of the Union Pacific Rail Road. Is the contractor allowed to cross the tracks with their equipment? The area east of Old Pearsall Road & the Union Pacific Railroad poses similar issues. It is critical for the contractors bidding to know what they can expect to have for accessibility to the entire project. Currently, the access appears to be very limited in several areas. Please provide greater clarification and actual usable access.

Answer: Plans have been revised to show work area of 100 linear feet on the property that has a 400' wide easement. Additional information can be provided to contractor on the land owners once the project is awarded. The contractor will be responsible for working out agreements with land owners to acquire additional easements if contractor wants additional working space and a copy of such agreements shall be provided to the Owner and the Representative. Contractor shall plan to only have access through the project easements. The Contractor will be responsible for working out

additional access points with land owners and a copy of such agreements shall be provided to the Owner and the Representative.

RR. Question: Drawing no. C-74. Please define the limits of re-vegetative seeding and erosion control mat required.

Answer: Contractor to refer to note on bottom left of Drawing C-74, Sheet No. 15.

SS. Question: I.E. Drawing no. C-88. The existing electrical line shown to be removed and replaced on this and other drawings - is this only required within the 100' +/- wide construction easement limits? If not, please specify a qty. as it runs off and back onto the plan pages. We also need additional information as to what type of replacement line is required.

Answer: The electrical line shown shall just be removed so contractor can install sanitary sewer without damaging electrical line.

TT. Question: Hydro-mulch Seeding - Spec. section SS520-5, 2.05, top-soil materials. States that the contractor is to "remove, stockpile and replace 12" of topsoil from the entire width of the easement", however the next sentence states 24" is required thru agricultural fields. Could you please identify / quantify how many trench l.f. go thru the two types of fields? Why is this required for the entire easement width as opposed to only the trench footprint?

Answer: The areas that will not be seeded as shown on the Native Seed Mixture Plans are the agricultural areas/fields. The Contractor is required to remove, stockpile, and replace topsoil for the entire width of easement except for the location where topsoil is stockpiled.

UU. Question: Drawing D-08, detail E, Typical Pipe Trench. Is the "gravel sub-grade filler and filter fabric" shown below the 6" thick pipe bedding to be included in the bid or will it be paid as extra work?

Please state a thickness if it is required to be in the bid.

Answer: This is incidental to the Gravity Sewer Outfall main cost. The Contractor shall reference specification 1025 and read the description of the bid item. No additional pay item will be added for such work. Currently, there are not any known, unstable areas where the gravel sub-grade filler/filter fabric are needed. If unstable areas are discovered during construction, the cost will be incidental to bid Items No. 4 through 8. The CONTRACTOR must use their own

judgment when estimating of the amount of material and work required.

VV. Question: Will there be any restrictions to the use of a sloped trench that stays within the construction easement relative to trees?

Answer: There will be no restrictions to use a sloped trench that stays with the construction easement.

WW. Question: Will spiral weld casing be allowed for the 36" and 42" casing on this project?

Answer: Casing must meet specification SS856.

Addendum No. 3
Medina River Sewer Outfall, Segment 4
Saws Project # 12-2504
November 30, 2011

ACKNOWLEDGEMENT BY BIDDER

Each bidder is requested to acknowledge receipt of this Addendum No. 3 and the associated attachments by his/her signature affixed hereto and to file same and attach with his/her bid.

The undersigned acknowledges receipt of this Addendum No. 3 along with the bid submitted herewith is in accordance with the information and stipulations set forth.

Date

Signature

END OF ADDENDUM NO. 3

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ADDENDUM 1 ATTACHMENTS

CLARIFICATIONS

LAND DEVELOPMENT ENVIRONMENTAL TRANSPORTATION WATER RESOURCES SURVEYING

PROJECT: San Antonio Water System
Medina River Sewer Outfall
Segment 4 Project
SAWS Job No. 12-2504
Solicitation No. B-11-029-DD

DATE: 11/28/11

CONFERENCE LOCATION: SAWS – Tower I
1st Floor Cafeteria

CONFERENCE DATE: 11/21/11
9:30 a.m.

PURPOSE OF MEETING: Mandatory Pre-Bid Meeting

ATTENDEES:
See Attached Sign In Sheet for Attendees

FROM: David M. Evans

PROJECT NO.: 6866-00 (2.6)

CC:

DISCUSSION:**Introduction**

- Jerry Berry with Pape-Dawson Engineers, Inc. introduced himself as the Design Consultant on the project. Jerry then introduced Patrick O'Connor of the San Antonio Water System (SAWS), who is the SAWS Project Manager for this project, along with David Gonzales (SAWS Contract Administration). Jerry also introduced, Mike Cude and Bobby Delgado (Cude Engineers, the Design Consultant on the project), and David Evans (Pape-Dawson).
- Jerry indicated that since this was a mandatory Pre-Bid meeting, he stated that all in attendance must sign the "sign-in" sheet that was being circulated, in order to submit a Bid for the project, per the *Invitation to Bidders*.
- Jerry then turned the meeting over to David to discuss the requirements of the bidding process.

Bidding Process

- David reported that sealed bids will be received by SAWS Contract Administration Division, per the *Invitation to Bidders* until 10:00 a.m., December 6, 2011. If mailing a bid, contractors should make arrangements to ensure that their bid is received prior to the deadline. If delivering a bid, personally, via Fed Ex (or other courier service) they must also be delivered to SAWS Contract Administration Division by the deadline.
- David also reminded the contractor to be sure that they check the bids for the unit price extensions (both numeral and written and the extensions), so that their bid won't be disqualified.

CONFERENCE MEMO

San Antonio Water System

Medina River Sewer Outfall – Segment 4 Project; SAWS Job No. 12-2504

Mandatory Pre-Bid Meeting

November 28, 2011

Page 2 of 7

- David reminded all in attendance to register on the SAWS website so that they are notified of all Addendums that are issued and any other related project documents.
- All technical questions, questions regarding this solicitation, or any additional information, should be submitted in writing via email to ddwyer@saws.org or by fax at 210-233-5218 to Diana W. Dwyer, Contract Administration, no later than 4:00 p.m. (CST) on November 28, 2011. Potential bidders or suppliers should not contact the design consultant or project engineer directly.
- Answers to the questions will be posted to the web site on November 30, 2011 as part of an Addendum.
- This project has an estimated cost of \$18,915,937.00, and is a 540-calendar day contract.
- Addendum No. 1 of the project was issued on November 14, 2011, which revised some of the plan/profile sheets to show a 100' Contractor Work Zone and the 400' Sewer Easement on the Timms properties, and insurance requirements.
- A copy of the Conference Memo of today's meeting would be issued by Addendum so that everyone had the benefit of what was discussed today.
- David reported that there is a "Site Visit" scheduled for this afternoon (11/21/11) at 1:30 pm, and that the Site Visit was not mandatory.
- David reviewed the mandatory items to be submitted with the Bid Packet, which are shown on the ***Bid Proposal Checklist*** in the bidding documents.
- The SMWB goal for this project is 17%. Contractors should make every effort to meet this goal. For assistance in the certification process or in the efforts to meet this goal, contractors may contact Marisol Robles, SMWB Program Manager at 210-233-3420 up until the bid opening date. Contractors will be required to utilize the Subcontracting Payment and Utilization Reporting (S.P.U.R.) system for verifying payment to subcontractors as indicated on the GFEP. Training will be made available by SAWS.
- A sample Insurance Certificate or a letter from the insurance company providing coverage should be submitted with the contractor's bid package. In addition, the contractor must be 100% compliant on any and all other SAWS projects. For any contractor currently performing SAWS work, the insurance must be up to date.
- The Escrow Bid Documents (referenced in the Special Conditions, sheet SC-1) are due to SAWS 3 days after the Bid Opening.
- David asked that the Statement of Bidder's Experience (Attachment A found on sheet SCA-1 of the Bid Documents) include recent projects as well.
- David asked if there were any questions about the Bidding Process at this time. One contractor asked if the Certified Financial Statement is required to be submitted with the bid. David responded that it was. There were no other questions.
- David turned the meeting back over to Jerry Berry to provide details of the project.

Program Overview

- 32 miles of sanitary sewer pipeline from the Dos Rios Water Recycling Center, westerly to southwest San Antonio, in the vicinity of US Hwy 90 and Montgomery Road (and extension of Hwy 211), south of US Hwy 90.

CONFERENCE MEMO

San Antonio Water System

Medina River Sewer Outfall – Segment 4 Project; SAWS Job No. 12-2504

Mandatory Pre-Bid Meeting

November 28, 2011

Page 3 of 7

- Proposed alignment is north of the Medina River.
- Overall project is being bid in six (6) segments.
- Segments 1, 2 & 6 are currently under construction.

Segment 4 Overview

- Segment 4 limits begin on the west side of Somerset Road and traverse westerly to the east side of Old Pearsall Road. A 24-inch segment traverses northeasterly to the existing Lift Station on Old Pearsall Road (LS #193). An 18-inch segment traverses northeasterly to the existing Lift Station on BNSF property (LS #219).
- Approximately 4 miles (21,187 LF) of sixty-six inch (66") diameter fiberglass sanitary sewer pipe.
- Approximately 2 miles (9,150 LF) of twenty-four inch (24") diameter PVC sanitary sewer pipe.
- Approximately 1 mile (5,408 LF) of eighteen inch (18") diameter PVC sanitary sewer pipe.
- Approximately 764 LF of 66-inch bores under roadways, railroad and existing water lines (323 feet under IH-35, 211 feet under UPRR near IH-35, 155 feet under Old Pearsall Road), and 75 feet under existing water lines on the UPRR Intermodal property.
- Approximately 468 LF of 24-inch bores under railroads and roadways (338 feet under existing railroads (2), 110 feet under Old Pearsall Road, and 20 feet under an existing electrical vault near the existing Lift Station # 193).
- Approximately 379 LF of 18-inch bore under railroad, roadway bridge and existing water line (180 feet under a roadway overpass on the UPRR Intermodal property, 149 feet under a railroad, and 50 under existing waterlines).
- Average depth is approximately thirty-five feet (35'). Contractor must demonstrate experience with pipeline installations in these depths.
- 725 LF of 3-Barrel (12, 36 & 42-inch) siphon with 30-inch Air Jumper.
- The Engineers' Opinion of Probable Construction Cost is approximately \$18.9 million.

Easement Status

- All easements have not been obtained.
- Two (2) of the easements are being acquired via condemnation (Timms – Condemnation hearing was held 11/18/11 and Askew hearing is scheduled for 11/30/11).
- One (1) easement is presently being negotiated with the property owner (BNSF).
- All easements are anticipated being acquired by the time of Notice To Proceed.

Construction Management Team

- Pape-Dawson Engineers will be providing Construction Management services on the project.
- Jerry will be the Construction Manager for the project. Jerry indicated that Joe Molina, of Pape-Dawson Engineers, would be the Project Manager on the project. There will also be a Construction Observer for each project.
- SAWS Inspectors will also be checking in on the project.

CONFERENCE MEMO

San Antonio Water System
Medina River Sewer Outfall – Segment 4 Project; SAWS Job No. 12-2504
Mandatory Pre-Bid Meeting
November 28, 2011
Page 4 of 7

Other Projects

- Medina River Sewer Outfall (MRSO), Segment 3 – Bid October 2011. SAWS Board approval 11/1/2011. S J Louis is the contractor. Awaiting NTP to be issued.
- MRSO Segment 5 – Bid Opening tentatively scheduled for December 9, 2011.

Addendum No. 1

- Issued November 14, 2011.
- Identified the Contractor's Work Zone on the Timms property (Easement ID# 09-166), Sheets 15, 16 & 17.
- Added Bid Proposal Checklist.
- Removed "in all cases, the written unit price in the bid shall govern." From IR-4, #9, in the Supplementary Conditions.
- Revised Paragraph 5.7.1.1.5 of the Supplementary Conditions, Page GC-19.
- Answered Questions received to date.

Addendum No. 2

- Include Storm Water Pollution Prevention Plan (SW3P) requirements.
- Lift Station Decommission plans for two (2) existing SAWS lift stations
- Additional response to questions during the bidding process.
- Revisions to Drawing and Specifications.

Permits

- Special Condition 3 (shown on Sheet SC-1) requires Contractor to obtain all necessary permits and pay all associated fees in obtaining the permits. Some of the permits have been preliminary applied for, but will need to be re-submitted by the contractor, or SAWS, and won't be official until the contractor pays the associated fees.
- The City of San Antonio (CoSA) Tree Permit has been approved.
- The CoSA Flood Plain Development Permit has been renewed until 10/03/12.
- Status of remaining permits –
 - TPDES (NOI, etc.) are included in Addendum No. 2
 - Bexar County Floodplain Development Permits (4 each) – Have been preliminary reviewed by BCDPW and await formal submittal request for the permit by the contractor.
 - Roadway crossing permits (3 each) – have been preliminary reviewed by TxDOT and await formal submittal request for the permit by SAWS, after the contractor submits their tunneling details to the design engineer.
 - Railroad crossing permits (4 each) – have been preliminary reviewed by UPRR and await formal submittal request by SAWS for the permit once the contractor submits their tunneling details to the design engineer.
 - Pape-Dawson will assist the contractor in coordinating with the agencies to obtain the remaining permits.

CONFERENCE MEMO

San Antonio Water System
Medina River Sewer Outfall – Segment 4 Project; SAWS Job No. 12-2504
Mandatory Pre-Bid Meeting
November 28, 2011
Page 5 of 7

General Requirements

- Work Area Limit
 - Section 01010, Paragraph 1.06.A defines the contractor's work area limits.
 - Contractor shall be confined to the easement limits.
 - Contractor will be required to install fence on easement limits if work outside of easement limits is performed after the first warning is issued.
 - Contractor to provide copies of any agreements outside of the easement areas with the landowners to the Construction Manager and SAWS.
 - Jerry also reported that the contractor, prior to beginning construction, must submit a DVD video of the entire proposed pipeline alignment to document existing conditions to SAWS prior to mobilization.
- Survey
 - Section 01050 defines contractor's responsibilities for surveying on the project.
 - A Registered Professional Land Surveyor is required.
 - Control points have been provided along the proposed pipeline alignment. The contractor is responsible for all of his survey control to construct the project.
 - The contractor will be required to submit a report to Pape-Dawson that he verified the primary control points, and secondary control points set by the contractor's surveyor.
- Disputes Review Board (DRB) & Escrow Bid Documents
 - Sections 01120 and 01130 define the Disputes Review Board (DRB) and Escrow Bid Documents, respectively.
 - The DRB consists of three (3) members. One selected by SAWS, one selected by the Contractor, and one selected by the two members selected by SAWS and the Contractor.
 - Escrow Documents shall be submitted three (3) days after the bid opening.
- QC/QA Testing
 - Section 01400 and individual specification sections define various QC/QA testing requirements.
 - Contactor provides Quality Control (QC) testing.
 - SAWS provides Quality Assurance (QA) testing.
 - Jerry also reported that the requirements for trench backfill material density testing are 1 test, per lift, for every 400 LF of trench backfill.
- Owner's Field Office
 - Section 01500 defines the requirements for the Owner's representative field office.
 - Trailer will be located at the Leon Creek Water Recycling Center on Mauermann Road.
- Digital As Builts
 - Section 01720 defines the requirements of the Contractor to furnish Project Record Documents (As-Builts).
 - SAWS is currently using a new system to develop Project Record Documents on this project. The use of a Records Document Application (RDA) will be utilized on this project.
 - Digital drawings will be required on a monthly basis as a basis for payment.
 - Contractor to provide actual survey data after installation.

CONFERENCE MEMO

San Antonio Water System
Medina River Sewer Outfall – Segment 4 Project; SAWS Job No. 12-2504
Mandatory Pre-Bid Meeting
November 28, 2011
Page 6 of 7

- Contractor's surveyor will be required to provide actual field data (i.e. elevations of manhole inverts, top of manholes, etc.).
- File requirements are provided in the referenced specification section.

Technical Requirements

- Specifications
 - SAWS Standard Specifications govern. See Special Conditions SC-5.0 (sheet SC-1) for web site locations, and downloads.
 - Supplementary Specification Sections amend those specifications.
- Compaction and Moisture Requirements
 - The Compaction requirement is 98%.
 - The moisture requirement is +/- 2%.
 - No variances.
 - Contractor shall be responsible for making arrangements to provide the water for trench compaction/moisture.
- Concrete
 - Permeability Requirement is 1500 coulombs or less. Jerry indicated that this requirement is indicated in the Structural Notes on the Structural Sheet Details. Jerry also indicated that at least one concrete supplier in town is supplying this concrete requirements now, on the other MRSO projects. This requirement is for the siphon structures and manhole top slabs.
- Stop Logs
 - Section 15113 defines the requirements for the stop logs at the siphons.
 - The contractor only needs to provide the frames.
 - The stop logs are owned by SAWS, and are stored at the Dos Rios WRC.
 - Kerry Averyt (SAWS) asked if the contractor would have to seat the stop logs in the forms, once constructed. Jerry replied yes.

Tour

- Scheduled for November 21, 2011, at 1:30 p.m., for those that want to attend (not mandatory).
- Meet at the Valero Station at IH-35 and Fischer Road.

Jerry asked if there were any questions from those in attendance. The following questions were presented:

1. Q: Is the owner of the gas lines at the crossings shown on the plans?
A: Yes.
2. Q: Are the building and silos to be removed by the contractor?
A: Will be clarified by Addendum.

CONFERENCE MEMO

San Antonio Water System

Medina River Sewer Outfall – Segment 4 Project; SAWS Job No. 12-2504

Mandatory Pre-Bid Meeting

November 28, 2011

Page 7 of 7

3. Q: Who does the contractor coordinate with for the underground electric lines shown to be removed and replaced?
A: David Gonzales requested that all technical questions be submitted to in writing.
4. Q: Will there be an allowance for the removal of the existing building and silos?
A: To be clarified by addendum.

David again reminded everyone that all questions, even those asked during today's meeting should be sent in writing to Diana Dwyer's (SAWS Contracting) attention no later than 4:00 p.m. on November 28, 2011. Do not send them to the Project Manager (Patrick) or the Design Engineer.

As per the *Invitation to Bidders*, the following companies were in attendance at the Mandatory Pre-Bid Meeting and will be allowed to bid the project:

- o Leducor CMI, Inc.
- o Don Kelly Construction
- o Pesado
- o Pipelayers, Inc.
- o Magnum Tunnel
- o KFW Surveying
- o Holloman
- o Mid Tex Valve/Waterman
- o S. J. Louis Construction
- o United Rental Trench Safety
- o Oscar Renda Construction
- o Merryman Excavation
- o JBL Trucking
- o Hobas Pipe, USA
- o T.S.I. Laboratories
- o USCPS (Flowtite)
- o BRH Garver Construction
- o Ace Pipe Cleaning
- o Sundt Construction

The "Minutes of the Meeting" outlined herein reflect Pape-Dawson Engineers' understanding of what was discussed and presented at this meeting. The minutes will stand for the record unless comments are received in writing within (3) days of the date of these minutes.

END OF MEMO

Attachment

P:\68\66\00\02.0) Project Management\2.6) Meetings\111121 Segment 4 Pre-Bid Meeting\111121a1.doc

**SAN ANTONIO WATER SYSTEM
 MEDINA RIVER SEWER OUTFALL
 Segment 4 Project; SAWS Job No. 12-2504
 Solicitation No. B-11-029-DD
 November 21, 2011; 9:30 am
 SAWS Tower I, 1st Floor Cafeteria
 Purpose: Mandatory Pre-Bid Meeting**

NAME	COMPANY	PHONE#	FAX	EMAIL
Jerry Berry	Pape-Dawson	(210) 375-9000	(210) 375-940	jberry@pape-dawson.com
David Evans	Pape-Dawson	(210) 375-9000	(210) 375-9040	devans@pape-dawson.com
Justin Lieck	Pape-Dawson	(210) 375-9000	(210) 375-9040	jlieck@pape-dawson.com
Joe Molina	Pape-Dawson	(210) 375-9000	(210) 375-9040	jmolina@pape-dawson.com
Bobby Delgado	Cude Engineers	(210) 681-2951		bdelgado@mwcude.com
Mike Cude	Cude Engineers	(210) 681-2951		mwcude@mwcude.com
KERRY AVERY	SAWS	210-233-3591	210-233-4804	KAVERY@SAWS.ORG
Patrick O'Connor	SAWS	(210) 233-3020	(210) 2335468	Patrick.OConnor@saws.org
Diana W. Dwyer	SAWS	(210) 233-3372	(210) 233-5218	Diana.Dwyer@saws.org
MICHAEL DALZIEL	LED COR	602 595 3017	602 595 3602	MICHAEL.DALZIEL@LED COR.COM
KEN WERSHNER	LED COR	602-595-3017	602-595-3602	KEN.WERSHNER@LED COR.COM
FRANK CRUSE	DON KELLY CONST.	406-585-5606	406-585-5611	FRANK@DONKELLY CONSTRUCTION.COM
MIKE COX	PESADU	210 651 4452	210 651 4197	MCox@PESADU CONSTRUCTION CO.COM
CWESLEY SWANN	PIPELAYERS INC	210-684-7400	210-684-4633	CWESLEY@PIPELAYERSINC.COM
RON ROBERTS	MAGNUM TUNNEL	832-300-3333	832-300-3334	RON@MAGNUMTUNNELING.COM
JON GRAHAM	KFW SURVEYING	210-979-8444	210-979-0499	JGRAHAM@KFWENGINEERS.COM

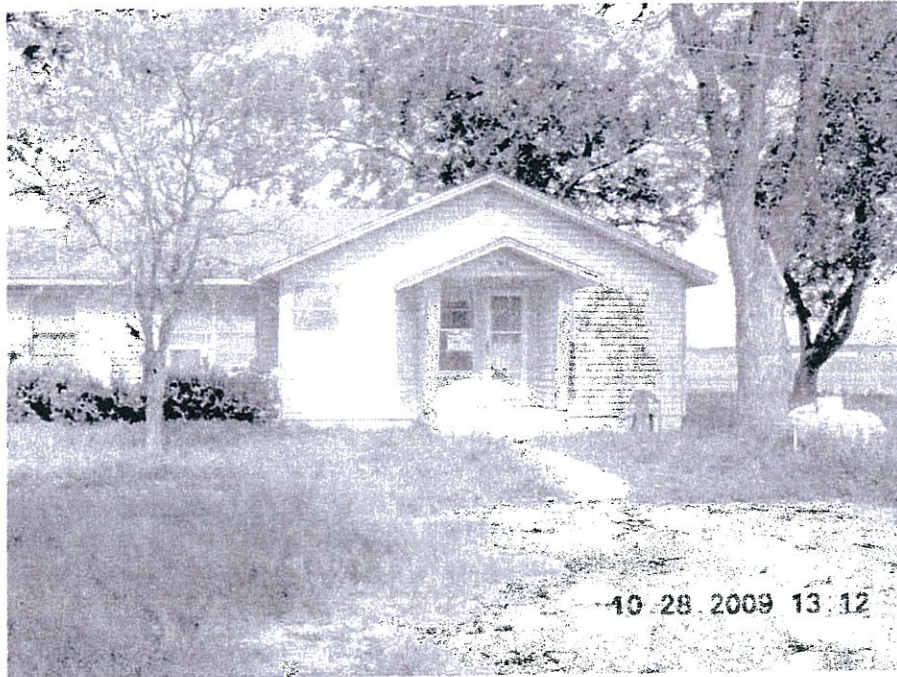
NAME	COMPANY	PHONE#	FAX	EMAIL
MIKE HAAS	Holloman	667-9925	667-9968	murrayholden@hollomancorp.com
Robert Delgado	CUDA	681 2951		bdelgado@mwcuda.com
Stephen Debner	MidTex Value/Waterman	830-538-9332		stephen@mid-texvalue.com
Jan GRAHAM	KFW SURVEYING	210-979-8444		JGRAHAM@KFWENGINEERS.COM
LUCAS MENEKROK	S.J. LOUIS CONSTRUCTION	(210) 340-9998	(210) 340-9997	LUCASM@SJLOUIS.COM
Adam Hackebeil	United Rentals Truck S.A.	210-862-4754	210-521-6600	ahackebe@ur.com
MIKE CUDE	CUDE ENR	210-681-2951	210-543-0055	mwcudef@mwaue.com
Tom Sink	Oscarreinde.com	817 491 2703		Janie@oscarreinde.com
Thomas MERRYMAN	MERRYMAN EXCAVATION	815-337-1700	815-337-1766	Tom@MERRYMANEXCAVATION.COM
JBL TRUCKING				
BRANDON JAMES	JBL TRUCKING	210-488-2687	210-522-9158	JBLTRUCKING@SBCGLOBAL.NET
VICTOR RIVERA	HOBAS PIPE USA	713-907-4406	866-619-8883	vrivera@hobaspipes.com
Gary Quintanilla	T.S.I. Laboratories	361-564-7501 210-392-2260	361-578-2601	tsilab@sbcglobal.net garyq1@grande.com.net
Shanlyn James	JBL TRUCKING	210-488-2687	210-522-9158	JBLTRUCKING@SBCGLOBAL.NET

NAME	COMPANY	PHONE#	FAX	EMAIL
Christopher Cameron	Acc Pipe Cleaning	1-800-565-1165	322-4557 817-565-7117	CCameron@accpipe.com
SCOTT Miller	Sundt	210-276-2773		Smiller@sundt.com

NAME	COMPANY	PHONE#	FAX	EMAIL
GEV'S HURTADO	SUNDT CONSTP.	212.276-2764		gahurtado@sundt.com

GENERAL

LIMITED ASBESTOS INSPECTION



**7844 Old Pearsall Rd. #2
San Antonio, TX**

**for
Pape-Dawson Engineers
Mr. Phil Pearce**

by
AEHS, Inc.
4402 Center Gate
San Antonio, Texas 78217
(210) 656-9300
www.aehs-sa.com

ASBESTOS INSPECTION
7844 Old Pearsall Rd. #2
San Antonio, Texas
for
Pape-Dawson Engineers

The on-site consultation was performed by Matthew Bishop CHSP, under the overall direction of Ronald M. Bishop, MPH, CIH. Matthew Bishop is a Texas Department of State Health Services (TDSHS) licensed Asbestos Management Planner and Lead Risk Assessor. Ron Bishop is a TDSHS licensed Asbestos Consultant, Lead Project Designer, and Mold Consultant as well as a Certified Industrial Hygienist, Certified Safety Executive, Registered Sanitarian, Diplomate in Environmental Health, Registered Environmental Professional and Environmental Manager, and Green Consultant.

1.0. GENERAL.

1.1. Construction materials containing asbestos have been used extensively in buildings because it possesses excellent properties for fire-proofing, insulation, and condensation control. Asbestos may be found in: (1) cement products; (2) spray applied or trowel applied materials on ceiling, walls, and other surfaces; (3) insulation on pipes, boilers, tanks, ducts, and other equipment; (4) vinyl floor tiles; (5) roofing; (6) flooring coatings; and (7) other miscellaneous products.

1.2. Friable materials are those materials that when dry can be crumbled, pulverized, or reduced to powder by hand pressure. Material that contains more than one percent asbestos by weight is considered to be asbestos containing material. Some of these asbestos-containing building materials are not considered friable now, but could become friable if not properly managed and maintained under an asbestos management program.

1.3. The concern about exposure to asbestos in buildings is based on evidence linking various respiratory diseases with occupational exposure in the shipbuilding, mining, milling, and fabricating industries. The presence of asbestos in a building does not mean that there is a significant health risk to building occupants. As long as asbestos-containing materials remain in good condition and are not disturbed, exposure is unlikely. Through proper control of building operations and maintenance activities, disturbance or damage to asbestos-containing materials is minimized, thus limiting the building occupant's exposure to airborne asbestos fibers.

1.4. Building alterations and/or demolition require knowledge of what materials contain asbestos and if they will be removed or disturbed during the project. Under the Clean Air Act, EPA has issued a National Emission Standard for Asbestos (40 CFR 61.140 - 61.156). This

Standard regulates reporting requirements, work practices, waste disposal, and emissions from facility modification and/or demolition operations. The Standard applies only to materials containing more than one percent asbestos. The State of Texas has adopted a set of regulations (25 TAC 295.31 - 295.70) known as "Texas Asbestos Health Protection Rules" which govern asbestos removal, encapsulation, or enclosure, including licensing and regulation, in all buildings of public occupancy or access. Any disturbance or removal of ACM in the building or facilities is subject to this Texas Statute.

2.0. BACKGROUND.

2.1. AEHS, Inc. was contacted by Mr. Phil Pearce, Pape-Dawson Engineers, concerning the need for an Asbestos Inspection at 7844 Old Pearsall Rd. #2, San Antonio, Texas.

2.2. The buildings of concern are a house and grain storage bins located on the Union Pacific property.

3.0. SCOPE OF WORK.

3.1. The inspection was performed on 28 October 2009 and consisted of visual assessments to determine the presence of suspect ACM. Bulk samples of suspect ACM (materials which possibly contain asbestos, as determined by an accredited EPA AHERA Building Inspector/Consultant) were collected. The visual inspection, bulk sampling, and inspection documentation was performed by Matthew Bishop, CHSP [Inspector and Management Planner (No. 205572)].

3.2. AEHS, Inc. is a TDSHS Licensed Asbestos Constant Agency (No.10-0335), PCM Laboratory (No. 30-0295), and an Asbestos Training Provider (No. 00-0068).

3.3. The specific objectives of the survey were to:

- Perform a visual inspection and physical assessment following the Asbestos Hazard Emergency Response Act (AHERA) protocol as a guideline to identify, quantify, and assess accessible friable and non-friable ACM;
- Collect and analyze bulk samples of suspect material for asbestos content and identification by an American Industrial Hygiene Association Accredited Laboratory that is also licensed by the Texas Department of State Health Services;
- Ensure the technical quality of all work by using the AHERA protocol and a TDSHS licensed consultant and inspector for the inspection; and
- Issue a final report that includes findings, bulk sample locations, and confirmed asbestos-containing building materials.

4.0. DESCRIPTION.

- 4.1. The residence contains bedrooms, living room, kitchen, bath, hall and a laundry.
- 4.2. The two grain storage bins are metal construction without any suspect ACM.

5.0. INVESTIGATIVE METHODS.

5.1. Visual Inspection.

5.1.1. Building materials were inspected and assessed using the methods presented in the federal AHERA regulations (40 CFR, Part 763) as a guideline. The procedures mandated are considered the industry standard and are applied to all surveys performed by AEHS, Inc. The suspect ACBM consisted of the following: floor tile and mastic underneath, wallboard, float mud, ceiling paint stipple and cementitious water heater pipe.

5.1.2. No other suspect materials were visible.

5.2. Bulk Sampling.

5.2.1. Bulk samples of all homogeneous materials from identified functional spaces containing suspect ACBM were collected. A homogeneous material is defined as a surfacing material, thermal system insulation, or miscellaneous material that is uniform in use, color and texture. Examples of homogeneous materials include:

- Pipe insulation produced by the same manufacturer and installed during the same time period;
- Floor or ceiling tile of identical size, color and/or pattern;
- Sprayed-on acoustical ceiling materials located in contiguous areas; and
- Trowelled on plaster of same texture and location.

5.2.2. A functional space is defined as any spatially distinct unit within a building that contains identifiable populations of current or previous building occupants. Examples of functional spaces include:

- Office areas;
- Storage (warehousing) areas; and
- Living quarters.

The functional space concept is helpful in determining the use and occupancy of building areas containing confirmed ACBM. Knowing the types of occupants and their use of an area also may influence the selection of an asbestos management option and/or corrective action. If multiple corrective actions are necessary, the occupancy and use of individual

areas may also become important factors when establishing the priority, or ranking, of each corrective action.

5.2.3. Prior to obtaining the samples, all friable suspect material are sprayed with amended (surfactant added) water to minimize fiber release. Small pieces of the suspect material were sampled by cutting off a sufficient quantity of the wetted suspect material in an inconspicuous location and securing the sample in a plastic bag. Samples were extracted from the center of the wetted area. The tool used to collect the suspect sample was then cleaned to ensure no cross-contamination occurred between samples. A plastic bag was used to contain the samples of the suspect material and quickly sealed to prevent the escape of the material or the introduction of ACBM contamination from outside sources.

5.3. Bulk Sample Analysis.

5.3.1. All bulk samples collected during this survey were analyzed by Environmental Hazards Services, Inc.'s Laboratory in Richmond, Virginia. Environmental Hazards Services laboratory is accredited under the National Institute of Standards and Technology's National Voluntary Laboratory Accreditation Program (NVLAP) and the American Industrial Hygiene Association. Additionally, the laboratory is a TDSHS licensed (No. 30-0188) Asbestos Laboratory (Polarized Light Microscopy). Their address, telephone number, and quality assurance review are depicted on their laboratory reports.

5.3.2. All asbestos samples were analyzed using Polarized Light Microscopy/Dispersion Staining (PLM/DS) techniques in accordance with methodology approved by the U.S. Environmental Protection Agency (EPA), method number 600/R-93/116. The percentage of asbestos present in the samples was determined on the basis of a visual area estimation as set forth in 40 CFR Part 763, Appendix A, Subpart F, Section 1.2 and 1.7.2.4. The lower limit of reliable detection for asbestos using the PLM/DS method is approximately 1% by volume.

5.3.2.1. The Environmental Protection Agency considers materials with greater than one percent (>1%) asbestos content to be asbestos containing. Therefore, when asbestos containing building material (ACBM) appear in this report, it should be interpreted as meaning the sample(s) taken contained greater than (>1%) asbestos and is considered a regulated material. However, material that contains equal to or less than one percent is not considered to be asbestos containing material. If the results of sampling indicate that the asbestos containing material is a trace or up to 10% asbestos, the results must be verified by polarized light microscopy point counting or presumed to be asbestos. For this survey, AEHS personnel used their experience with similar materials.

5.3.2.2. When "No Asbestos Detected" (NAD) appears in this report, it should be interpreted as meaning no asbestos was observed in the sample material above the reliable limit of detection for the PLM/DS method.

5.3.2.3. The Texas Department of State Health Services requires a minimum of three samples to be collected from each homogeneous area. In order for a material to be

considered negative, all samples must be negative. On the other hand, if one of the three samples is positive, then the material is considered positive.

6.0. RESULTS OF INSPECTION.

6.1. A total of fifteen (15) samples were collected which resulted in eighteen (18) analysis (including the point counting). See Appendix A for a copy of the laboratory analysis.

6.2. Photographs are at Appendix B and Sketch at Appendix C.

6.3. The laboratory results indicated "NAD – No Asbestos Detected" for all submitted samples except the float mud which contained <1%Chrysotile Asbestos. The float mud was point counted in accordance with paragraph 5.3.2.1 above, with the result of 0.025% Chrysotile Asbestos; therefore, the float mud is considered not to contain asbestos.

6.4. The cementitious water heater pipe that goes thru the attic and roof is presumed ACM.

7.0. ASSESSMENT.

7.1. **Friable Asbestos Material.** None

7.2. **Non-Friable Materials.** Cementitious water heater pipe approximately 4 linear feet .

8.0. RECOMMENDATIONS.

8.1. Maintain a copy of this report with the project files.

8.2. The cementitious water heater pipe should be abated (removed) prior to demolition.

8.2.1. It must be abated by a TDSHS abatement contractor using licensed/registered supervisors and workers.

8.2.2. It must be transported by a TDSHS licensed asbestos transporter to a regulated landfill.

8.2.3. A TDSHS notification is required.

8.2.4. A project design by a TDSHS licensed asbestos consultant is not required.

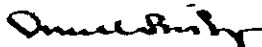
8.2.5. Asbestos project management and air monitoring is required during the abatement.

9.0. COST ESTIMATES.

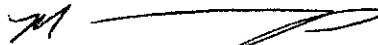
- 9.1. Pipe Removal, Transportation, and Disposal: \$750.00
- 9.2. TDSHS Notification Fee - \$100.00
- 9.3. Project Management/Air Monitoring - \$200.00

DISCLAIMER

This report, which contains inspections/measurements for hazardous material is given for the sole benefit of the aforementioned client (s). The client expressly confirms their understanding that the conclusions/ recommendations stated in this report are limited to and based solely upon the scope of the assignment, and samples and field measurements taken. In addition, the client understands that any field observations contained herein reflect the conditions present on the date and time of inspection. No representations or warranties are made or may be implied as to the validity of their applicability to any other days or times.



Ronald M. Bishop, MPH, CIH
ESH Consultant
TDSHS Asbestos Consultant (10-5492)
10 November 2009



Matthew Bishop CHSP
TDSHS Asbestos Management Planner (205572)
10 November 2009



Appendix A
Laboratory Analysis



Environmental Hazards Services, L.L.C.
7469 Whitepine Rd
Richmond, VA 23237
Telephone: 800.347.4010

Asbestos Bulk Analysis Report

Report Number: 09-10-03704

Client: AEHS
4402 Center Gate
San Antonio, TX 78217

Received Date: 10/30/2009
Analyzed Date: 11/03/2009
Reported Date: 11/04/2009

Project/Test Address: Pape-Dawson Ranch House; San Antonio, TX

Client Number:
45-5371

Laboratory Results

Fax Number:
210-656-8499 F

Lab Sample Number	Client Sample Number	Layer Type	Lab Gross Description	Asbestos	Other Materials
09-10-03704-001A	A1-PD	Linoleum	Tan Vinyl; Fib.	NAD	20% Cellulose 6% Fibrous Glass 75% Non-Fibrous
09-10-03704-001B	A1-PD	Mastic	Tan Adhes.; Gray Gran.	NAD	1% Cellulose 99% Non-Fibrous
09-10-03704-002A	A2-PD	Linoleum	Tan Vinyl; Fib.	NAD	20% Cellulose 6% Fibrous Glass 75% Non-Fibrous
09-10-03704-002B	A2-PD	Mastic	Tan Adhes.	NAD	1% Cellulose 99% Non-Fibrous
09-10-03704-003A	A3-PD	Linoleum	Tan Vinyl; Fib.	NAD	20% Cellulose 5% Fibrous Glass 75% Non-Fibrous

Fax:

Nov 4 2009 05:37pm P003/008

Environmental Hazards Services, L.L.C

Client Number: 45-5371

Report Number: 09-10-03704

Project/Test Address: Pape-Dawson Ranch House; San Antonio, TX

Lab Sample Number	Client Sample Number	Layer Type	Lab Gross Description	Asbestos	Other Materials
09-10-03704-003B	A3-PD	Mastic	Tan Adhes.	NAD	1% Cellulose 99% Non-Fibrous
09-10-03704-004	A4-PD		Tan Fib.; White Paint	NAD	88% Cellulose 12% Non-Fibrous
09-10-03704-005	A5-PD		Tan Fib.; White Paint	NAD	88% Cellulose 12% Non-Fibrous
09-10-03704-006	A6-PD		Tan Fib.; White Paint	NAD	88% Cellulose 12% Non-Fibrous
09-10-03704-007	A7-PD		White Powder; Gran.; Tan Fib.	NAD	20% Cellulose 80% Non-Fibrous
09-10-03704-008	A8-PD		White Powder; Gran.; Tan Fib.	NAD	20% Cellulose 80% Non-Fibrous
09-10-03704-009	A9-PD		White Powder; Gran.; Tan Fib.	NAD	20% Cellulose 80% Non-Fibrous
09-10-03704-010	A10-PD		White Gran.	NAD	4% Cellulose 96% Non-Fibrous

Environmental Hazards Services, L.L.C

Client Number: 45-5371

Report Number: 09-10-03704

Project/Test Address: Pape-Dawson Ranch House; San Antonio, TX

Lab Sample Number	Client Sample Number	Layer Type	Lab Gross Description	Asbestos	Other Materials
09-10-03704-011	A11-PD		White Powder; Gran.; Tan Fib.	NAD	20% Cellulose 80% Non-Fibrous
09-10-03704-012	A12-PD		White Gran.	Trace <1% Chrysotile	1% Cellulose 99% Non-Fibrous
Total Asbestos: Trace <1%					
09-10-03704-013	A13-PD		White Gran.	NAD	100% Non-Fibrous
09-10-03704-014	A14-PD		White Gran.	NAD	100% Non-Fibrous
09-10-03704-015	A15-PD		White Gran.	NAD	100% Non-Fibrous

Environmental Hazards Services, L.L.C

Client Number: 45-5371

Report Number: 09-10-03704

Project/Test Address: Pape-Dawson Ranch House; San Antonio, TX

Lab Sample Number	Client Sample Number	Layer Type	Lab Gross Description	Asbestos	Other Materials
-------------------	----------------------	------------	-----------------------	----------	-----------------

QC Sample: 37-M2-1990-2

QC Blank: SRM 1866 Fiberglass

Reporting Limit: 1% Asbestos

Method: EPA Method 800/R-93/116

Analyst: Vickie Holmes

Reviewed By Authorized Signatory:



Howard Varner
General Manager

The condition of the samples analyzed was acceptable upon receipt per laboratory protocol unless otherwise noted on this report. Results represent the analysis of samples submitted by the client. Sample location, description, area, volume, etc., was provided by the client. This report cannot be used by the client to claim product endorsement by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without the written consent of the Environmental Hazards Service, L.L.C. California Certification #2319 NY ELAP #11714. All information concerning sampling location, date, and time can be found on Chain-of-Custody. Environmental Hazards Services, L.L.C. does not perform any sample collection.

Environmental Hazards Services, L.L.C. recommends reanalysis by point count (for more accurate quantification) or Transmission Electron Microscopy (TEM), (for enhanced detection capabilities) for materials regulated by EPA NESHAP (National Emission Standards for Hazardous Air Pollutants) and found to contain less than ten percent (<10%) asbestos by polarized light microscopy (PLM). Both services are available for an additional fee.

* All California samples analyzed by Polarized Light Microscopy, EPA Method 800/M4-82-020, Dec. 1982.

LEGEND: NAD = no asbestos detected



Environmental Hazards Services, LLC

www.ehsllab.com 7400 Whitepine Rd
 (800)367-6970 Richmond, VA
 (804)379-6967 (fax) 23237

Asbestos Chain-of-Custody

Page 1 of 2

09-10-03/04



Due Date:
 11/04/2009
 (Wednesday)

S PD

Company Name: **AEHS**

Address: **4402 Center Gate**

City/State/Zip: **San Antonio, TX 78217**

Phone: **(210)656-9300**

Fax: **(210)656-9499 F**

E-mail: _____

Acct. Number: **45-5371**

Project Name/Testing Address: **PAGE-TANSON RANCH HOUSE**

City/State (required): **San Antonio, TX**

Collected by: **Matt Bishop** Certificate Number: **205572**

Purchase Order Number: _____

Turn Around Times :

If no TAT is specified, sample(s) will be processed and charged as 3-day TAT.

_____ 1 - Day _____ 2 - Day _____ 3 - Day _____ Same Day (Must Call Ahead) _____ Weekend (Must Call Ahead)

No.	Client Sample ID	Date Collected	ASBESTOS						AIR			COMMENTS			
			PLM	PLM/PM10	PLM/PM10/PM2.5	PLM/PM10/PM2.5/PM10/PM2.5	PCOH	TEM/Chrys/Am/Anth	TEM/AMIB/MA/PM	Time OF	Time OF		Flow Rate (L./min)	Total Time (minutes)	Volume (Total Liters)
1	A1-PD	10/28/09	X												T&W Sweet Flooring ↓ Ceiling Tile ↓ Wallboard ↓ Floor MUD
2	A2-PD														
3	A3-PD														
4	A4-PD														
5	A5-PD														
6	A6-PD														
7	A7-PD														
8	A8-PD														
9	A9-PD														
10	A10-PD	10/28/09	X												

Released by: **Matt Bishop**

Signature: *[Signature]*

Date/Time: **10/28/09**

Received by: *[Signature]*

Signature: *[Signature]*

Date/Time: **10/29/09**

Nov 4 2009 05:38pm P006/008

Fax:

Nov 4 2009 05:39pm P007/008

Fax:



Asbestos Chain-of-Custody

~ For Lab Use Only ~

Environmental Hazards Services, LLC

www.ehsllab.com 7400 Whitepine Rd
 (800)347-0010 Richmond, VA
 (804)375-0007 (fax) 23237

Page 2 of 2

Company Name: AEHS

Address: 4402 Center Gate

City/State/Zip: San Antonio, TX 78217

Phone: (210)656-9300

Fax: (210)656-8499 F

E-mail: _____

Acct. Number: 45-5371

Project Name/Testing Address: Popo - Dawson Ranch House

City/State (required): San Antonio, TX

Collected by: Matt Bishop Certification Number: 205572

Purchase Order Number: _____

Turn Around Times : *If no TAT is specified, sample(s) will be processed and charged as 3-day TAT.*

1 - Day
 2 - Day
 3 - Day
 Same Day (Must Call Ahead)
 Weekend (Must Call Ahead)

No.	Client Sample ID	Date Collected	ASBESTOS						AIR			COMMENTS			
			PLM	PLM/air	PLM/air	PLM/air	PCM	TEMP (Celsius)	TEMP (F)	Time On	Time Off		Flow Rate (L./min)	Total Time (minutes)	Volume (Total Liters)
1	A11-PD	10/28/09	X												Floor Mud ↓ Culm. scraple ↓
2	A12-PD														
3	A13-PD														
4	A14-PD														
5	A15-PD	10/28/09	X												
6															
7															
8															
9															
10															

Released by: Matt Bishop
 Received by: TAL

Signature: TM
 Signature: _____

Date/Time: 10/28/09
 Date/Time: 10/20/09



Environmental Hazards Services, L.L.C.
7469 Whitepine Rd
Richmond, VA 23237
Telephone: 800.347.4010

Asbestos 400 Point Count Analysis Report

Client: AEHS
4402 Center Gate
San Antonio, TX 78217

Report Number: 09-11-00989
Received Date: 11/09/2009
Analyzed Date: 11/09/2009
Reported Date: 11/10/2009

Project/Test Address: Dade - Dawson Ranch House; San Antonio, TX: EHS#
09-10-03704

Client Number:
45-5371

Laboratory Results

Fax Number:
210-656-8499 F

Lab Sample Number	Client Sample Number	Lab Gross Description	% Asbestos	Narrative ID
09-11-00989-001	A10-PD	Off-White/White Brittle; Tan Fib.	NAD	
09-11-00989-002	A11-PD	Off-White/White Brittle; Tan Fib.	NAD	
09-11-00989-003	A12-PD	Off-White/White Brittle	<0.25 % Chrysotile	A12

Sample Narratives:

A12: Chrysotile fibers observed but did not fall under any counted points.

Environmental Hazards Services, L.L.C

Client Number: 45-5371
Project/Test Address: Dade - Dawson Ranch House; San Antonio, TX:
EHS# 09-10-03704

Report Number: 09-11-00989

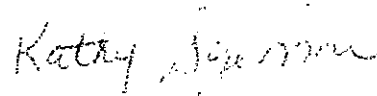
Lab Sample Number	Client Sample Number	Lab Gross Description	% Asbestos	Narrative ID
-------------------	----------------------	-----------------------	------------	--------------

Reporting Limit: 0.25 % Asbestos

Method: EPA Method 600/R-93/116

Analyst: Mark Case

Reviewed By Authorized Signatory:



Kathy Sizemore
Asbestos Supervisor

The condition of the samples analyzed was acceptable upon receipt per laboratory protocol unless otherwise noted on this report. Results represent the analysis of samples submitted by the client. Sample location, description, area, volume, etc., was provided by the client. This report cannot be used by the client to claim product endorsement by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without the written consent of the Environmental Hazards Service, L.L.C. California Certification #2319 NY ELAP #11714.

LEGEND NAD = No Asbestos Detected

Appendix B

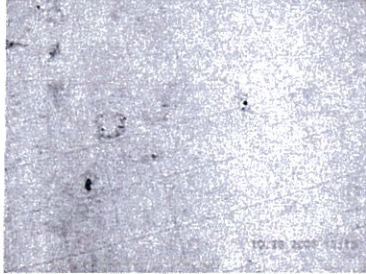
Photographs

7844 Old Pearsall Rd. #2

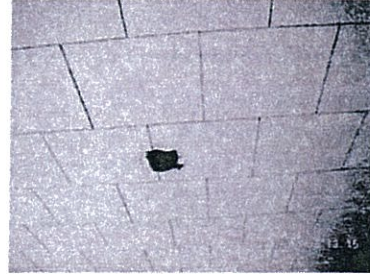
(Union Pacific)



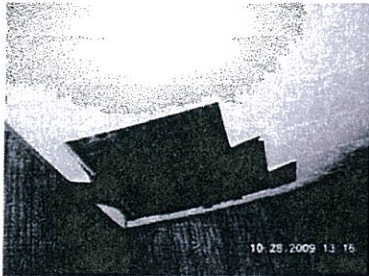
#1 Ranch House



#2 Tan Sheet Flooring



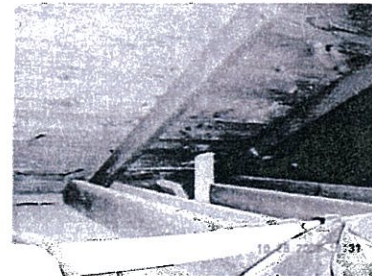
#3 Ceiling Tile



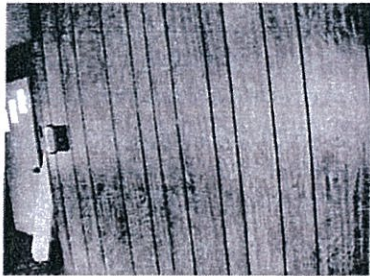
#4 Ceiling Tile



#5 Water Heater Exhaust



#6 Water Heater Exhaust



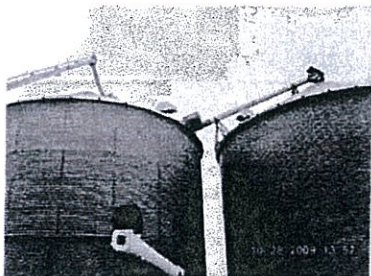
#7 Paneling



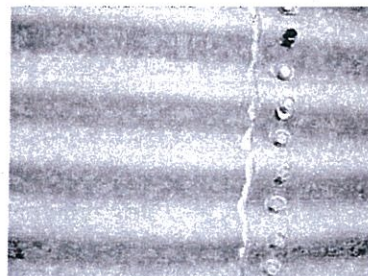
#8 Wallboard and Float Mud



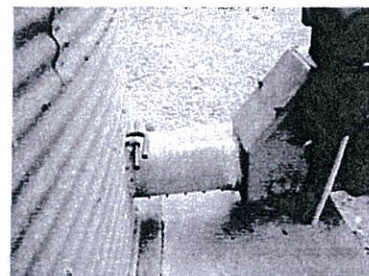
#9 Ceiling Stipple



#10 Grain Silo



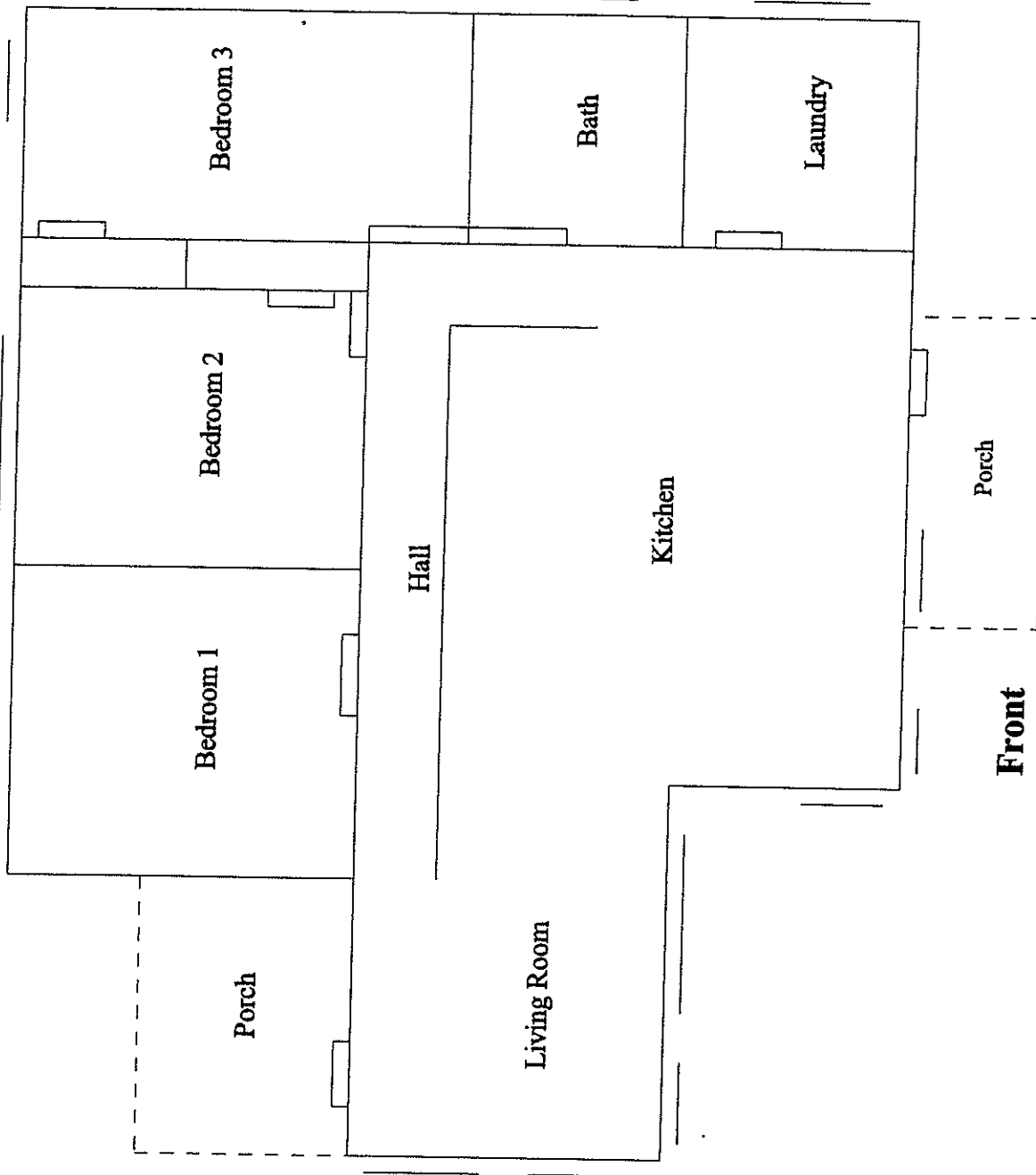
#11 Grain Silo Caulking



#12 Grain Silo Motor

Appendix C

Sketch



Case No. 09-143
 Date: October 28, 2009

Not to scale

Created with ArcView 3.2

Site Map for
 7844 Old Pearsall Rd. #2
 San Antonio, TX

AEHS, Inc.
 4402 Center Gate
 San Antonio, TX 78217
 (210) 656-9300
 www.aehs-sa.com

Sides A-D are located clockwise with Side A as the address or street side of the dwelling.

SPECIFICATIONS

**Contract Documents
Table of Contents**

<u>BIDDING AND CONTRACT REQUIREMENTS</u>	<u>PAGE</u>
Invitation to Bidders	IV-1
Instructions to Bidders.....	IB-1
Workers' Compensation Coverage Requirements	WC-1
Bid Proposal Checklist	BC-1
Bid Proposal.....	BP-1
Proposal Certification	BP-8
Good Faith Effort Plan	GFEP
Conflict of Interest	Form CIQ
SMWB Reporting Requirements	SMWB
General Conditions of the Contract.....	GC-1
Contract Agreement	CA-1
Performance and Payment Bonds.....	PB-1
Worker's Compensation Exhibit "A"	WA-1
Contractor Bid Suspension Hearings and Appeals Policy Exhibit "B".....	SP-1
Security Procedures Exhibit "C".....	SP-10
Request for Taxpayer Identification Number and Certification Form.....	W-9
Instructions for Completing the ACORD Certificate of Liability Insurance	ICS
Supplementary Conditions.....	SS-1
Special Conditions.....	SC-1
Attachment A – Statement of Bidder's Experience	SCA-1
Attachment B – Geotechnical Data Report (R-K).....	SCB-1
Attachment C – Geotechnical Baseline Report (R-K).....	SCC-1
Attachment D – Geotechnical Data Report & Geotechnical Baseline Report – Acknowledgement Form....	SCD-1

<u>SUPPLEMENTARY SPECIFICATIONS</u>	<u>PAGE</u>
Hydromulch Seeding	SS520-1
Construction Best Management Practices and Sediment and Erosion Control Measures	SS540-1
Trench Excavation Safety Protection	SS550-1
Excavation, Trenching and Backfill	SS804-1
Sanitary Sewers	SS848-1
Air and Deflection Testing (Sanitary Sewers)	SS849-1
Sanitary Sewer Structures	SS850-1
Sanitary Sewer Glass-Fiber Reinforced Polyester (FRP) Manholes	SS853-1
Boring or Tunneling and Primary Liner	SS856-1

<u>TECHNICAL SPECIFICATIONS</u>	<u>PAGE</u>
---------------------------------	-------------

DIVISION 1 – GENERAL REQUIREMENTS

Summary of Work.....	01010-1
Measurement and Payment	01025-1
Field Engineering	01050-1
Disputes Review Board	01120-1
Escrow Bid Documents	01130-1
Project Meetings.....	01200-1
Contractor Submittals	01300-1
Construction Schedule.....	01310-1
Quality Control - General	01400-1
Construction Facilities and Temporary Controls	01500-1
Project Record Documents	01720-1

DIVISION 2 – SITE WORK

Site Clearing	02110-1
Tree Protection	02112-1
Site Preparation	02200-1
HDPE (Air Bypass Pipe)	02731-1

DIVISION 3 - CONCRETE

Concrete Formwork.....	03100-1
Concrete Reinforcement	03200-1

Cast-in-Place Concrete	03300-1
Grout.....	03600-1

DIVISION 5 – METALS

Miscellaneous Metal Fabrications	05500-1
Anchor Bolts, Expansion Anchors and Concrete Inserts.....	05501-1
Grating and Floor Plates	05530-1

DIVISION 9 – FINISHES

Painting	09900-1
----------------	---------

DIVISION 15 – MECHANICAL

Sluice Gates	15112-1
Stop Log Frames	15113-1

(Separate Documents)

CoSA Standard Specifications for Public Works Construction (Latest Edition)

SAWS Specifications for Water and Sanitary Sewer Construction (Latest Edition)

TxDOT Standard Specifications for Construction and Maintenance of Highways, Streets, and Bridges
(Latest Edition)

Job No. 12-2504
 Medina River Sewer Outfall, Segment 4
 Solicitation No. B-11-029-DD

Date: _____

BID PROPOSAL

PROPOSAL OF _____

A corporation _____

A partnership consisting of _____

An individual doing business as _____

THE SAN ANTONIO WATER SYSTEM

Pursuant to Instructions and Invitations to Bidders, the undersigned proposes to furnish all labor and materials as specified and perform the work required for the construction of pipelines and appurtenances, San Antonio Water System Job Number 12-2504 in accordance with the Plans and Specifications for the following prices to wit:

ITEM NO.	DESCRIPTION & ESTIMATED QUANTITIES (Unit Price to be written in words)	UNIT	QTY	UNIT PRICE (Figures)	TOTAL PRICE (Figures)
1.	Erosion & Sedimentation Controls _____ Dollars _____ Cents	LS	1	\$XXXXXXXX	\$ _____
2.	Trench Excavation Safety Protection _____ Dollars _____ Cents	LF	36,401	\$ _____	\$ _____
3.	Re-vegetation _____ Dollars _____ Cents	SY	172,072	\$ _____	\$ _____
4.	8" (PVC, SDR 26, all depths) _____ Dollars _____ Cents	LF	38	\$ _____	\$ _____
5.	18" (PVC, SDR 26, all depths) _____ Dollars _____ Cents	LF	5,537	\$ _____	\$ _____
6.	24" (PVC, SDR 26, all depths) _____ Dollars _____ Cents	LF	9,130	\$ _____	\$ _____

Job No. 12-2504
 Medina River Sewer Outfall, Segment 4
 Solicitation No. B-11-029-DD

ITEM NO.	DESCRIPTION & ESTIMATED QUANTITIES (Unit Price to be written in words)	UNIT	QTY	UNIT PRICE (Figures)	TOTAL PRICE (Figures)
7.	60" FRP, SN72 (all depths) _____ Dollars _____ Cents	LF	60	\$_____	\$_____
8.	66" FRP, SN72 (all depths) _____ Dollars _____ Cents	LF	20,911	\$_____	\$_____
9.	Standard Manhole (Fiberglass) _____ Dollars _____ Cents	EA	34	\$_____	\$_____
10.	Standard Drop Manhole (Fiberglass) _____ Dollars _____ Cents	EA	1	\$_____	\$_____
11.	Standard Manhole Extra Depth, >15' (Fiberglass) _____ Dollars _____ Cents	VF	279	\$_____	\$_____
12.	Manholes Over Existing Sanitary Sewer Lines _____ Dollars _____ Cents	EA	3	\$_____	\$_____
13.	66" Tee Base MH _____ Dollars _____ Cents	EA	2	\$_____	\$_____
14.	66" & 60" Tee Base MH, Miter _____ Dollars _____ Cents	EA	7	\$_____	\$_____
15.	66" Tee Base MH (Drop) _____ Dollars _____ Cents	EA	6	\$_____	\$_____

Job No. 12-2504
 Medina River Sewer Outfall, Segment 4
 Solicitation No. B-11-029-DD

ITEM NO.	DESCRIPTION & ESTIMATED QUANTITIES (Unit Price to be written in words)	UNIT	QTY	UNIT PRICE (Figures)	TOTAL PRICE (Figures)
16.	66" Tee Base MH Miter (Drop)	EA	15	\$ _____	\$ _____
	_____ Dollars				
	_____ Cents				
17.	66" Tee Base MH (Drop x2)	EA	7	\$ _____	\$ _____
	_____ Dollars				
	_____ Cents				
18.	66" Tee Base MH Miter (Drop x2)	EA	2	\$ _____	\$ _____
	_____ Dollars				
	_____ Cents				
19.	Tee Base MH, 60" Riser Extra Depth (>15')	VF	671	\$ _____	\$ _____
	_____ Dollars				
	_____ Cents				
20.	Fence Gate 16' (Type 1)	EA	13	\$ _____	\$ _____
	_____ Dollars				
	_____ Cents				
21.	Remove and Replace Fencing	LF	2,040	\$ _____	\$ _____
	_____ Dollars				
	_____ Cents				
22.	Boring or Tunneling (18" DIA. PVC)	LF	379	\$ _____	\$ _____
	_____ Dollars				
	_____ Cents				
23.	Carrier Pipe Installed in Steel Casing and Steel Liner Plate (18" DIA. PVC)	LF	379	\$ _____	\$ _____
	_____ Dollars				
	_____ Cents				
24.	Boring or Tunneling for 24" DIA. PVC	LF	468	\$ _____	\$ _____
	_____ Dollars				
	_____ Cents				

Job No. 12-2504
 Medina River Sewer Outfall, Segment 4
 Solicitation No. B-11-029-DD

ITEM NO.	DESCRIPTION & ESTIMATED QUANTITIES (Unit Price to be written in words)	UNIT	QTY	UNIT PRICE (Figures)	TOTAL PRICE (Figures)
25.	Carrier Pipe Installed in Steel Casing or Tunnel Liner Plate (24" DIA. PVC) _____ Dollars _____ Cents	LF	468	\$ _____	\$ _____
26.	Boring or Tunneling for 66" DIA. FRP _____ Dollars _____ Cents	LF	964	\$ _____	\$ _____
27.	Carrier Pipe Installed in Steel Casing or Steel Line Plate (66" DIA. FRP) _____ Dollars _____ Cents	LF	964	\$ _____	\$ _____
28.	Downstream Siphon Structure No. 4 _____ Dollars _____ Cents	LS	1	\$XXXXXXXX	\$ _____
29.	Upstream Siphon Structure No. 4 _____ Dollars _____ Cents	LS	1	\$XXXXXXXX	\$ _____
30.	12" FRP for Siphon No.4 _____ Dollars _____ Cents	LF	725	\$ _____	\$ _____
31.	36" FRP for Siphon No.4 _____ Dollars _____ Cents	LF	725	\$ _____	\$ _____
32.	42" FRP for Siphon No.4 _____ Dollars _____ Cents	LF	725	\$ _____	\$ _____
33.	30" HDPE (Air By-Pass Pipe) _____ Dollars _____ Cents	LF	763	\$ _____	\$ _____

Job No. 12-2504
 Medina River Sewer Outfall, Segment 4
 Solicitation No. B-11-029-DD

ITEM NO.	DESCRIPTION & ESTIMATED QUANTITIES (Unit Price to be written in words)	UNIT	QTY	UNIT PRICE (Figures)	TOTAL PRICE (Figures)
34.	Air Bypass Manhole (FRP) _____ Dollars _____ Cents	EA	2	\$ _____	\$ _____
35.	Remove and Replace Existing Gravel Roads _____ Dollars _____ Cents	SY	17,615	\$ _____	\$ _____
36.	Demolition _____ Dollars _____ Cents	LS	1	\$ XXXXXXXX	\$ _____
37.	Concrete Encasement for 18" (PVC, SDR 26) _____ Dollars _____ Cents	LF	128	\$ _____	\$ _____
38.	Concrete Encasement for Siphon Barrels _____ Dollars _____ Cents	LF	391	\$ _____	\$ _____
39.	Bypass Pumping _____ Dollars _____ Cents	LS	1	\$ XXXXXXXX	\$ _____
40.	Abandonment of Sanitary Sewer Main and Manholes _____ Dollars _____ Cents	LF	354	\$ _____	\$ _____
41.	Lift Station #193 Decommissioning _____ Dollars _____ Cents	LS	1	\$ XXXXXXXX	\$ _____
42.	Lift Station #219 Decommissioning _____ Dollars _____ Cents	LS	1	\$ XXXXXXXX	\$ _____

Job No. 12-2504
 Medina River Sewer Outfall, Segment 4
 Solicitation No. B-11-029-DD

ITEM NO.	DESCRIPTION & ESTIMATED QUANTITIES (Unit Price to be written in words)	UNIT	QTY	UNIT PRICE (Figures)	TOTAL PRICE (Figures)
43.	Tree Protection _____ Dollars _____ Cents	LS	1	\$XXXXXXXX	\$ _____
44.	Connection to MRSO Segment 3 _____ Dollars _____ Cents	LS	1	\$XXXXXXXX	\$ _____
45.	Connection to MRSO Segment 5 _____ Dollars _____ Cents	LS	1	\$XXXXXXXX	\$ _____
46.	Gravity Sewer Outfall Testing _____ Dollars _____ Cents	LF	37,487	\$ _____	\$ _____

LINE ITEM "A"

SUB TOTAL BASE BID \$ _____

47.	Mobilization _____ Percent (Maximum of 5% of the <u>Line Item "A"</u> Sub-total Base Bid amount)	LS	1	\$XXXXXXXX	\$ _____
-----	---	----	---	------------	----------

LINE ITEM "B"

MOBILIZATION SUB TOTAL \$ _____

Note: Mobilization lump sum bid amount shall be limited to a maximum of 5% of the Sub-total base bid amount. **In the event of a discrepancy between the written percentage and dollar amount shown for the Mobilization bid item the written percentage will govern. If the percentage written exceeds the allowable maximum stated for mobilization, SAWS reserves the right to cap the amount at the percentage shown and adjust the extension of the bid item accordingly.**

TOTAL BID AMOUNT \$ _____
 (LINE ITEM "A" + LINE ITEM "B")

DOLLARS AND CENTS

BIDDER'S SIGNATURE & TITLE

FIRM'S NAME (TYPE OR PRINT)

FIRM'S ADDRESS

FIRM'S PHONE NO./FAX NO.

FIRM'S EMAIL ADDRESS

The Contractor herein acknowledges receipt of the following

Addendum No. _____ Dated _____ Signed: _____

Addendum No. _____ Dated _____ Signed: _____

Addendum No. _____ Dated _____ Signed: _____

Addendum No. _____ Dated _____ Signed: _____

OWNER RESERVES THE RIGHT TO ACCEPT THE OVERALL MOST RESPONSIBLE BID.

The bidder offers to construct the Project in accordance with the Contract Documents for the contract price, and to complete the Project with 540 calendar days after the start date, as set forth in the Authorization to Proceed. The Bidder understands and accepts the provisions of the contract Documents relating to liquidated damages of the Project if not completed on time.

Complete the additional requirements of the Proposal which are included on the following pages.

BID PROPOSAL CHECKLIST:
Medina River Sewer Outfall – Segment 4 Project
SAWS Job No. 12-2504
Solicitation No. B-11-029-DD

Mandatory items to be submitted with the Bid Packet for the above-referenced project:

- Bid proposal
- Bid Proposal Certification
- Bid Bond
- Signed page(s) of Addendum(s)
- Good Faith Effort Plan
- Conflict of Interest Questionnaire (Form CIQ)
- Signed W-9
- Letter of Insurance Verification and/or sample Certificate of Insurance verifying insurance coverage
- Financial Statement prepared within the last twelve months by an independent Certified Public Accountant (per Supplementary Conditions, page SS-1)
- Company Information Packet (per Supplementary Conditions, page SS-1)
- Prepared statement regarding ability to complete project (per Supplementary Conditions, page SS-1)
- Statement of Bidder's Experience (Attachment A)/Record of Performance on three (3) similar projects in the last five (5) years (per Supplementary Conditions, page SS-1)
- Attachment D – Geotechnical Data Report and Geotechnical Baseline Report Acknowledgement Form

SECTION 01025

MEASUREMENT AND PAYMENT

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

This section defines the method which will be used to determine the quantities of work performed, or materials supplied, and establish the basis upon which payment will be made for the Medina River Sewer Outfall (MRSO), San Antonio Water System (SAWS) Job No. 12-2504 (Segment 4).

1.02 MEASUREMENT AND PAYMENT

Item No. 1 - Erosion and Sedimentation Controls

1. Description - This item shall govern the installation of erosion and sedimentation controls as specified on the plans and within the TPDES to assure effective and continuous erosion and sedimentation control throughout the construction and post-construction period. The controls may include silt fences, rock berms, erosion control matting, stabilized construction entrances, concrete washout pits or other approved non-structural erosion/sediment controls.
2. Measurement – Measurement of the item “Erosion and Sedimentation Controls” will be by the lump sum as the work progresses.
3. Payment – This item will be paid for at the contract lump sum price for testing. The lump sum will be pro-rated based on the percentage of work successfully tested.
4. References – Project Specification Section SS540

Item No. 2 - Trench Excavation Safety Protection

1. Description - This item shall govern trench excavation safety protection required for the installation of all trench excavation protection systems to be utilized in the project, and including all additional excavation and backfill required by the protection system. Such work shall include but not be limited to sloping, sheeting, trench boxes or trench shields, sheet piling, cribbing, bracing, shoring, and temporary pumping or diversion and recapture of storm water to provide adequate drainage. The work shall also include any over excavation and additional backfill necessary to accommodate the trench protection system, as well as any jacking or removal of jacks and trench supports after completion.

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2. Measurement - Trench excavation safety protection shall be measured along the centerline of the pipeline.
3. Payment - Payment shall be made at the unit price bid per horizontal linear foot regardless of the depth of trench. Crossing trench length is incidental to the longitudinal length of the pipe trenches.
4. References – SAWS Standard Specification Item No. 550 and Project Specification Section SS550

Item No. 3 – Revegetation

1. Description - This item shall govern for preparing ground, final grading, providing for sowing of seeds, mulching with cellulose fiber and other management practices along and across such areas as are designated on the plans and in accordance with plans and specifications. All areas shall be covered with live grass before acceptance as specified in items SS 520 and SS 540.
2. Measurement - Measurement of acceptable "Revegetation", complete in place, shall be made by the square yard as the work progresses.
3. Payment - Payment for "Revegetation" will be made at the contract unit price bid upon completion of the work as the work progresses up to a maximum of 80% of the contract amount for revegetation. The remaining 20% will be paid upon final completion of the project.
4. References – Project Specification Section SS520 and SS 540

Item No. 4-8 – Gravity Sewer Outfall Main – Open Cut (all depths)

1. Description - The CONTRACTOR shall provide all labor, supervision, tools, equipment, and materials necessary to make the sewer outfall main line complete and operable, except for testing specified in Item No. 43. This shall include, but not be limited to acquisition of the pipe, transportation of the pipe to the site, unloading the pipe from the trucks, preparing right-of-way (shall be conducted in accordance with SAWS Standard Specification Item No.101), relocating existing electric lines, remove and stockpile topsoil, excavation of the trench, pre-installation pipe laying, providing and installing gravel subgrade/filter fabric, providing and installing pipe bedding material, lowering the carrier pipe into the trench, coupling of the pipe, backfilling, compaction, site restoration, and hauling and disposal of surplus excavated material.
2. Measurement – Sewer line shall be measured by the horizontal linear foot as shown on the plan stationing for each size and type as follows:
 - a. From the centerline intersection of manholes.

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- b. The measurement of each line of pipe shall be continuous and shall include the horizontal plan lengths as shown in the plan stationing of all fittings and between the ends.
3. Payment - Payment for sewer outfall line installed will be made at the unit price bid per horizontal linear foot of pipe, as shown in the plan stationing, for the various sizes installed by the open cut method. All fittings, unless specified otherwise, are considered subsidiary to the cost of the pipe. Preparation of Right-of-Way is considered incidental to the cost of pipe installation and thus there will be no specific payment item for Preparation of Right-of-Way.
4. References – SAWS Standard Specification Item No. 101, 804, 848 and Project Specification Section SS804 and SS848, 02110, and 02200

Item No. 9 – Standard Manhole (Fiberglass)

1. Description – The CONTRACTOR shall provide all labor, supervision, tools, equipment, and materials necessary to furnish and install the standard manholes as shown on the plans and in the specifications. Such work shall include excavation, installation of the manholes, manhole ring and covers, concrete ring encasements, throat ring adjustments, concrete encasement, placement of select embedment material, backfill and compaction, vacuum testing and hauling and disposal of surplus excavated materials.
2. Measurement – Standard manholes shall be measured by each size and type as shown on the plans. Extra depth of manholes over fifteen (15) feet deep shall be paid by the vertical foot under Item 11.
3. Payment – Payment for this item will be made at the contract unit price bid for each standard manhole shown on the plans.
4. References – SAWS Standard Specification Item No. 852, 853, and Project Specification Section SS853

Item No. 10 – Standard Drop Manhole (Fiberglass)

1. Description – The CONTRACTOR shall provide all labor, supervision, tools, equipment, and materials necessary to furnish and install the standard drop manholes as shown on the plans and in the specifications. Such work shall include excavation, installation of the manholes, drop piping, manhole ring and covers, concrete ring encasements, throat ring adjustments, concrete encasement, placement of select embedment material, backfill and compaction, vacuum testing and hauling and disposal of surplus excavated materials.
2. Measurement – Standard drop manholes shall be measured by each size and type as shown on the plans. Extra depth of manholes over fifteen (15) feet deep shall be paid by the vertical foot under Item 11.

3. Payment – Payment for this item will be made at the contract unit price bid for each standard drop manhole shown on the plans.
4. References – SAWS Standard Specification Item No. 852, 853, and Project Specification Section SS853

Item No. 11 – Standard Manhole Extra Depth (Fiberglass)

1. Description – The CONTRACTOR shall provide all labor, supervision, tools, equipment, and materials necessary to furnish and install the standard manhole having a depth greater than 15 feet as shown on the plans. Such work shall include excavation, installation of the extra depth greater than 6 feet, backfill and compaction, and hauling and disposal of surplus excavated materials.
2. Measurement – Measurement shall be by the vertical foot for the extra depth of each standard manhole greater than 15 feet in depth.
3. Payment – Payment for this item will be made at the contract unit price bid for each vertical foot of standard manhole extra depth shown on the plans.
4. References – SAWS Standard Specification Item No. 852, 853, and Project Specification Section SS853

Item No. 12 – Manholes over Existing Sanitary Sewer Lines

1. Description – The CONTRACTOR shall provide all labor, supervision, tools, equipment, and materials necessary to furnish and install the manholes over existing sanitary sewer lines as shown on the plans and in the specifications. Such work shall include excavation, installation of manhole, tie to existing sanitary sewer line, manhole ring and covers, concrete ring encasements, throat ring adjustments, concrete encasement, placement of select embedment material, backfill and compaction, vacuum testing and hauling and disposal of surplus excavated materials.
2. Measurement – Manholes over existing sanitary sewer lines shall be measured by each size and type as shown on the plans.
3. Payment – Payment for this item will be made at the contract unit price bid for each manhole over existing sanitary sewer line shown on the plans.
4. References – SAWS Standard Specification Item No. 852, 853, and Project Specification Section SS853

Item No. 13, 14 – Tee Base Manhole

1. Description – The CONTRACTOR shall provide all labor, supervision, tools, equipment, and materials necessary to furnish and install the tee base manholes as shown on the plans and in the specifications. Such work shall include excavation, installation of the tee base manhole, riser pipe, manhole ring and covers, concrete flat tops, concrete ring encasements, throat adjustment rings, concrete encasement, placement of select embedment

material, backfill and compaction, and hauling and disposal of surplus excavated materials. (A "Miter" Tee Base Manhole refers to manholes that are located on a horizontal bend when they are fabricated by placing two or more miter sections together.)

2. Measurement – Tee base manholes shall be measured by each size and type as shown on the plans. Extra depth of manholes over fifteen (15) feet deep shall be paid by the vertical foot under Item 19.
3. Payment – Payment for this item will be made at the contract unit price bid for each tee base manholes shown on the plans.
4. References – SAWS Standard Specification Item No. 850, 852, and Project Specification Section SS850

Item No. 15-18 – Tee Base Manholes with Drop Pipe Connection

1. Description – The CONTRACTOR shall provide all labor, supervision, tools, equipment, and materials necessary to furnish and install the tee base structure with drop pipe connections as shown on the plans and in the specifications. Such work shall include excavation, installation of the tee base manholes, riser pipe, drop piping, manhole ring and covers, concrete flat tops, concrete ring encasements, throat adjustment rings, concrete encasement, placement of select embedment material, backfill and compaction, vacuum testing and hauling and disposal of surplus excavated materials. (A "Drop X2" refers to Tee Base Manholes that have two (2) drop pipe connections.)
2. Measurement – Tee base manholes with a drop pipe connection shall be measured by each size and type as shown on the plans. Extra depth of manholes over fifteen (15) feet deep shall be paid by the vertical foot under Item 19.
3. Payment – Payment for this item will be made at the contract unit price bid for each tee base manhole with a drop pipe connection shown on the plans.
4. References – SAWS Standard Specification Item No. 850, 852, and Project Specification Section SS850

Item No. 19 – Tee Base Manhole 60" Riser Extra Depth

1. Description – The CONTRACTOR shall provide all labor, supervision, tools, equipment, and materials necessary to furnish and install the tee base manhole riser having a depth greater than 15 feet as shown on the plans. Such work shall include excavation, installation of the extra depth greater than 15 feet, backfill and compaction, and hauling and disposal of surplus excavated materials.

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2. Measurement – Measurement shall be by the vertical foot for the extra depth of each tee base manhole greater than 15 feet in depth.
3. Payment – Payment for this item will be made at the contract unit price bid for each vertical foot of extra depth tee base manholes shown on the plans.
4. References – SAWS Standard Specification Item No. 850, 852 and Project Specification Section SS850

Item No. 20 – Fence Gates

1. Description - The CONTRACTOR shall provide all labor, supervision, tools, equipment, and materials necessary to make/purchase and install all gates as specified in the plans. This shall include, but not be limited to acquisition of the new gate and appurtenances, transportation of the gate and appurtenances to the site, unloading the gate and appurtenances from the trucks, Installation of gate and appurtenances, and hauling and disposal of any surplus material.
2. Measurement – Gates shall be measured by the size and type as shown in the plans.
3. Payment – Payment for this item will be made at the contract unit price bid for each gate as shown on the plans.
4. References – Construction Drawings

Item No. 21 – Remove and Replace Fencing

1. Description – The CONTRACTOR shall provide all labor, supervision, tools, equipment, and materials necessary to remove and replace all existing fencing. This shall include, but not be limited to the removal and disposal of existing fencing, acquisition of the new comparable fencing material, transportation of the fencing material to the site, unloading the fencing material from the trucks, Installation of fencing material, and hauling and disposal of any surplus material.
2. Measurement – Fencing shall be measured by the horizontal linear foot and shall be limited to only the fencing that falls within the limits of the Medina River Sewer Outfall easement as shown in the plans. Should fencing beyond the limits of the easement become damaged, the contractor shall replace at no additional cost to the owner.
3. Payment – Payment for removal and replacement of Fencing will be made at the unit price bid per horizontal linear foot of fencing. Temporary livestock control fencing is considered a no separate pay item and is incidental to the project cost.
4. References – Construction Drawings

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Item No. 22, 24, and 26 – Boring or Tunneling

1. Description – This item includes all work associated with furnishing and installing steel casing pipe or steel liner plate as specified in the plans and specifications. The work includes providing all materials, labor, supervision, equipment, tools, and all other incidentals necessary to complete the work in place and restore the site to its original condition. This work does not include installation of the carrier pipe into the casing.
2. Measurement – Quantities for boring or tunneling shall be determined by the horizontal linear foot of steel casing or steel liner plate, as shown on the plan stationing, for the size and type shown in the plans, from the face of the working pit to the face of the receiving pit.
3. Payment – Payment shall be made at the contract unit price per horizontal linear foot, as shown on the plan stationing, for the size and type shown in the plans.
4. References – SAWS Standard Specification Item No. 856 and Project Specification Section SS856

Item No. 23, 25 and 27 – Carrier Pipe Installed in Steel Casing or Steel Liner Plate

1. Description – This item consists of furnishing carrier pipe of the size and type shown on the plans or covered in the specifications, acquisition of the pipe with joints that comply with the appropriate section of the specifications, and providing all materials, tools, equipment, labor, and supervision necessary to install gravity sewer outfall line within steel casing pipe or liner plate.
2. Measurement – Carrier pipe installed in steel casing pipe or steel liner plate shall be measured by the horizontal linear foot, as shown on the plan stationing, for each size and type shown in the plans or specifications. It shall be measured along the centerline of the steel casing pipe or tunnel liner plate from the beginning to the end of the steel casing pipe and steel liner plate.
3. Payment – Payment will be made at the unit bid price per horizontal linear foot, as shown on the plan stationing, for carrier pipe installed in steel casing pipe or steel liner plate for the various sizes and types shown. All fittings, included but not limited to casing spacers, pipe support materials, and end seals, unless specified otherwise, are considered subsidiary to the cost of the pipe.
4. References – SAWS Standard Specification Item No. 856 and Project Specification Section SS856

Item No. 28, 29 – Inverted Siphon Structures

1. Description – The CONTRACTOR shall provide all labor, supervision, tools, equipment, and materials necessary to furnish and install the inverted siphon structures as shown on the plans and in the specifications. Such work shall include excavation, special trench protection as required, concrete formwork, and placement of reinforcement, placement of concrete including foundations and mud slabs, finishing, application of protective coating, installation of the sluice gates, stop log frames and any other appurtenances as shown in plans. Work shall also include placement and compaction, select embedment, foundation, sub-grade and base materials, backfill and compaction, grading, hydrostatic testing, hauling, and disposal of surplus excavated materials.
2. Measurement – Inverted Siphon Structures shall be measured by each type as shown on the plans.
3. Payment – This item will be paid for at the contract lump sum price for siphon structures. Payment for the inverted siphon structure will be limited to 90% until the siphon is successfully tested and accepted by the OWNER at which time the remaining ten (10) % will be paid.
4. References – Project Specification Section 3100, 3200, 3300, 3600, 5500, 5501, 5530, 9900, 15112, and 15113

Item No. 30-32 – Inverted Siphon Sewer Pipe – Open Cut (all depths)

1. Description – The CONTRACTOR shall provide all labor, supervision, tools, equipment, and materials necessary to make the siphon sewer pipe complete and operable. This shall include, but not be limited to acquisition of the pipe, transportation of the pipe to the site, unloading the pipe from the trucks, preparing right-of-way (shall be conducted in accordance with SAWS Standard Specification Item No.101), remove and stockpile topsoil, excavation of the trench, providing and installing gravel subgrade/filter fabric, providing and installing pipe bedding material, lowering the siphon sewer pipe into the trench, coupling of the pipe, testing, backfilling, compaction, and hauling and disposal of surplus excavated material.
2. Measurement – Inverted Siphon Sewer Pipe shall be measured by the horizontal linear foot as shown on the plan stationing for each size and type as follows:
 - a. From the centerline intersection at inside face of inverted siphon structures.
 - b. The measurement of each line of pipe shall be continuous and shall include the horizontal plan lengths, as shown in the plan stationing, of all fittings and valves between the ends.
3. Payment – Payment for inverted siphon pipe installed will be made at the unit price bid per horizontal linear foot of pipe, as shown in the plan stationing, for

the various sizes installed by the open cut method. Payment for the inverted siphon sewer pipe will be limited to 90% until the pipe is successfully tested and accepted by the OWNER at which time the remaining ten (10) % will be paid. All fittings, unless specified otherwise, are considered subsidiary to the cost of the pipe.

4. References – SAWS Standard Specification Item No. 101, 804, 848 and Project Specification Section SS804, SS848, 02110, 02200

Item No. 33 – HDPE (Air Bypass Pipe) – Open Cut (all depths)

1. Description – The CONTRACTOR shall provide all labor, supervision, tools, equipment, and materials necessary to make the air bypass pipe complete and operable. This shall include, but not be limited to acquisition of the pipe, transportation of the pipe to the site, unloading the pipe from the trucks, excavation of the trench, providing and installing pipe bedding material, lowering the air bypass pipe into the trench, coupling of the pipe, testing, backfilling, compaction, site restoration, and hauling and disposal of surplus excavated material.
2. Measurement – air bypass pipe shall be measured by the horizontal linear foot as shown on the plan stationing for each size and type as follows:
 - a. From the inside face of inverted siphon structure, as shown in the plans.
 - b. The measurement of each line of pipe shall be continuous and shall include the horizontal plan lengths, as shown in the plan stationing, of all fittings and between the ends.
3. Payment - Payment for air bypass pipe installed will be made at the unit price bid per horizontal linear foot of pipe, as shown in the plan stationing, for the various sizes installed by the open cut method. Payment for the air bypass pipe will be limited to 90% until the pipe is successfully air and mandrel tested and accepted by the OWNER at which time the remaining ten (10) % will be paid. All fittings, unless specified otherwise, are considered subsidiary to the cost of the pipe.
4. References – SAWS Standard Specification Item No. 804 and Project Specification Section 02731, SS804

Item No. 34 – FRP Manholes (Air Bypass Manholes)

1. Description – The CONTRACTOR shall provide all labor, supervision, tools, equipment, and materials necessary to furnish and install the FRP manholes as shown on the plans and in the specifications. Such work shall include excavation, installation of the manholes, manhole ring and covers, concrete ring encasements, throat ring adjustments, concrete encasement, placement of select

- embedment material, backfill and compaction, vacuum testing and hauling and disposal of surplus excavated materials.
2. Measurement – FRP manholes shall be measured by each size and type as shown on the plans.
 3. Payment – Payment for this item will be made at the contract unit price bid for each FRP manhole shown on the plans.
 4. References – SAWS Standard Specification Item No. 852, 853 and Project Specification Section SS853

Item No. 35 – Remove and Replace Existing Gravel and Gravel Roads

1. Description - The CONTRACTOR shall provide all labor, supervision, tools, equipment, and materials necessary to remove and replace all existing gravel necessary for installation for sewer outfall pipe. This shall include, but not be limited to removal and disposal of existing gravel, acquisition of the new pavement, asphalt, concrete rip rap, gravel and base material, transportation of the gravel and material to the site, unloading the gravel and base material from the trucks, installation of gravel and base material, and hauling and disposal of any surplus material.
2. Measurement – Removal and replacement of existing gravel shall be measured by the surface area in square yards and shall be limited to only the areas as shown in the plans. Any placement or repair necessary beyond the limits shown due to damage caused by the contractor shall be done at no additional cost to the owner.
3. Payment - Payment for removal and replacement of existing gravel will be made at the unit price bid per square yard of material.
4. References – Construction Drawings

Item No. 36 – Demolition

1. Description – The CONTRACTOR shall provide all permits, labor, supervision, tools, equipment, and materials necessary to complete the demolition of the existing buildings, propane tanks, gas tanks water well and silos as indicated on the plans.
2. Measurement – Measurement of the item “Demolition” will be by the lump sum as the work progresses.
3. Payment – This item will be paid for at the contract lump sum price for Demolition. The lump sum price will be pro-rated based on the percentage of work completed.
4. References – Construction Drawings

Item No. 37, 38 - Concrete Encasement

1. Description – This work shall govern the finishing and placement of concrete encasement per project specification where indicated on plans.
2. Measurement – Concrete encasement will be measured in place to the horizontal length as indicated on the plans. The multiple siphon barrels shall be measured as a single horizontal unit as indicated on the plans. The siphon barrels shall not be measured individually.
3. Payment - Concrete encasement will be paid for at the contract unit price bid per horizontal linear foot upon completion and acceptance.
4. References – SAWS Standard Specification Item No. 858

Item No. 39 – Bypass Pumping (See SAWS Item No. 864)

Item No. 40 – Abandonment of Sanitary Sewer Main and Manholes (See SAWS Item No. 862)

Item No. 41 – Lift Station #193 Decommissioning

4. Description – The CONTRACTOR shall provide all labor, supervision, tools, equipment, and materials necessary to complete the decommissioning of LS #193 Old Pearsall Road Lift Station per project specifications and as indicated on the plans.
5. Measurement – Measurement of the item “Lift Station #193 Decommissioning” will be by the lump sum as the work progresses.
6. Payment – This item will be paid for at the contract lump sum price for the Lift Station #193 Decommissioning. The lump sump price will be pro-rated based on the percentage of work completed.
4. References – Construction Drawings

Item No. 42 – Lift Station #219 Decommissioning

7. Description – The CONTRACTOR shall provide all labor, supervision, tools, equipment, and materials necessary to complete the decommissioning of LS #219 Freeport Lift Station per project specifications and as indicated on the plans.
8. Measurement – Measurement of the item “Lift Station #219 Decommissioning” will be by the lump sum as the work progresses.
9. Payment – This item will be paid for at the contract lump sum price for the Lift Station #219 Decommissioning. The lump sump price will be pro-rated based on the percentage of work completed.

4. References – Construction Drawings

Item No. 43 – Tree Protection

1. Description – The CONTRACTOR shall provide all labor, supervision, tools, equipment, and material necessary to protect the trees within the project easement of the sanitary sewer gravity lines which are shown on the tree protection plans. Tree protection shall comply with the requirements contained in the latest version of the City of San Antonio Tree Ordinance.
2. Measurement – Measurement of the item "Tree Protection" will be by the lump sum as the work progresses.
3. Payment – This item will be paid for at the contract lump sum price for tree protection. The lump sump price will be pro-rated based on the percentage of facilities installed.
4. References – Project Specification Section 02112

Item No. 44 – Connection to MRSO Segment 3

10. Description – The CONTRACTOR shall provide all labor, supervision, tools, equipment, and materials necessary to complete the Connection to MRSO Segment 3 per project specifications and as indicated on the plans.
11. Measurement – Measurement of the item "Connection to MRSO Segment 3" will be by the lump sum as the work progresses.
12. Payment – This item will be paid for at the contract lump sum price for the Connection to MRSO Segment 3. The lump sump price will be pro-rated based on the percentage of work completed.
4. References – Project Specification Section 01010 and Construction Drawings

Item No. 45 – Connection to MRSO Segment 5

1. Description – The CONTRACTOR shall provide all labor, supervision, tools, equipment, and materials necessary to complete the Connection to MRSO Segment 5 per project specifications and as indicated on the plans.
2. Measurement – Measurement of the item "Connection to MRSO Segment 5" will be by the lump sum as the work progresses.
3. Payment – This item will be paid for at the contract lump sum price for the Connection to MRSO Segment 5. The lump sump price will be pro-rated based on the percentage of work completed.
4. References – Project Specification Section 01010 and Construction Drawings

Item No. 46 - Gravity Sewer Outfall Testing

1. Description – The CONTRACTOR shall provide all labor, supervision, tools, equipment and materials to successfully perform inspection, and testing of the entire length of the gravity sewer outfall lines installed, including air, deflection, lamping, televising, and any other tests required for acceptance. This bid item does not include any work associated with testing required for the inverted siphon structure, inverted siphon sewer pipe, and the air bypass pipes.

All testing shall be witnessed by the OWNER'S representative.

2. Measurement – Measurement of the item "Gravity Sewer Outfall Testing" will be by the Horizontal linear foot.
3. Payment – Gravity Sewer Outfall Testing will be paid for at the contract unit price bid per horizontal linear foot upon completion and acceptance.
4. References – SAWS Standard Specification Item No. 849 and Project Specification Section SS849

Item No. 47 – Mobilization

1. Description - This item shall govern the mobilization of personnel, equipment and supplies to the project site in preparation for the beginning work on contract items and the acquisition of insurance and bonds. Mobilization shall include, but not be limited to the movement of equipment, personnel, material, supplies, etc. to the project site and the establishment of temporary offices and other facilities necessary to the start of the work.
2. Measurement - Measurement of the item, "Mobilization" will be by the lump sum as the work progresses. "Mobilization" lump sum bid shall be limited to a maximum 5% of the adjusted contract amount bid. The adjusted contract amount is defined as the total contract amount less the lump sum bid total for Item No. 47, Mobilization.
3. Payment - Partial payments of the lump sum bid for mobilization will be in accordance with SAWS Specification Item No. 100.
4. References – SAWS Specification Item No. 100

END OF SECTION

PLANS

SHEET INDEX

Table with columns: DRAWING NUMBER, SHEET NUMBER, DESCRIPTION. Includes title sheet, general notes, control sheets, and profile sheets.

Table with columns: DRAWING NUMBER, SHEET NUMBER, DESCRIPTION. Includes structural deep excavations, typical sections, siphon details, detail sheets, connection details, grading details, trench details, boring and tunneling details, manhole details, fencing details, tree preservation plan sheets, native seed mixture plan sheets, traffic control sheets, and barricade standards.

LEGEND (EXISTING ITEMS)

Legend table for existing items, listing symbols for contours, fences, property lines, gas lines, electric lines, underground utilities, power poles, drainage, trees, sanitary sewers, force mains, sewer manholes, water lines, fire hydrants, benchmarks, signs, guardrails, and railroads.

Legend table for existing items, listing symbols for trees, sanitary sewers, force mains, sewer manholes, water lines, fire hydrants, benchmarks, signs, guardrails, and railroads.

Legend table for abbreviations, listing symbols for FRP, HDPE, CMP, RCP, PVC, MH, SS, FM, WL, BM, ECM, ROW, DS, US, UPRR, OPR, P, EXTG, IRR, and UFO.

BID QUANTITIES

Table with columns: ITEM NUMBER, DESCRIPTION, UNIT, QTY. Lists 46 items including erosion controls, trench excavation safety, revegetation, siphons, manholes, boring, tunneling, siphon structures, and construction standards.

LEGEND (ABBREVIATIONS)

LEGEND (PROPOSED ITEMS)

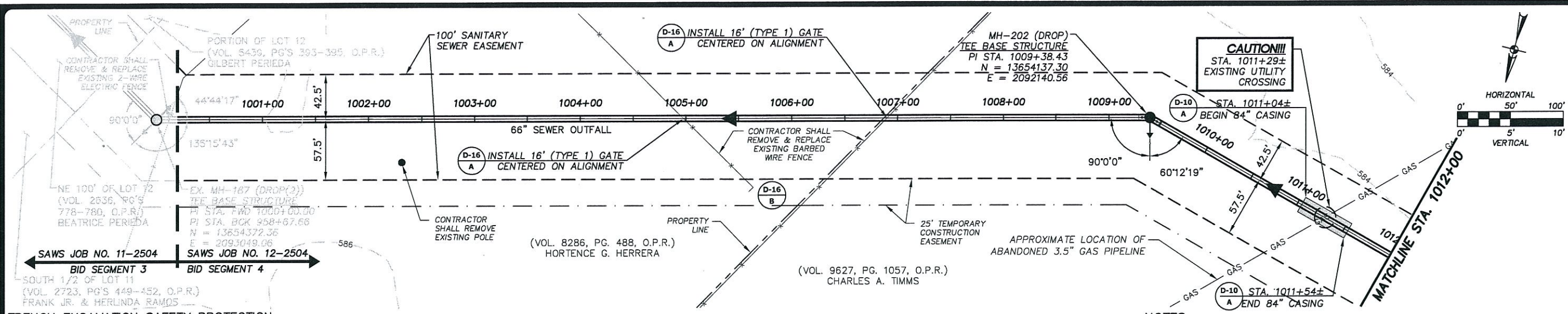
Legend table for proposed items, listing symbols for grading contours, sewer easement, centerline stations, sewer pipes, flow direction, detail references, manhole tee bases, drop manhole locations, siphon structures, concrete encasement, concrete caps, casing, erosion control mats, and removable bollards.

Printed vertically on the left margin: Date: Nov. 30, 2011, 2:28pm User: J. K. ...

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Professional Engineer seal for PRICE B. MCCOYEMBA, License No. 65747. Includes contact information for PAPE-DAWSON ENGINEERS.

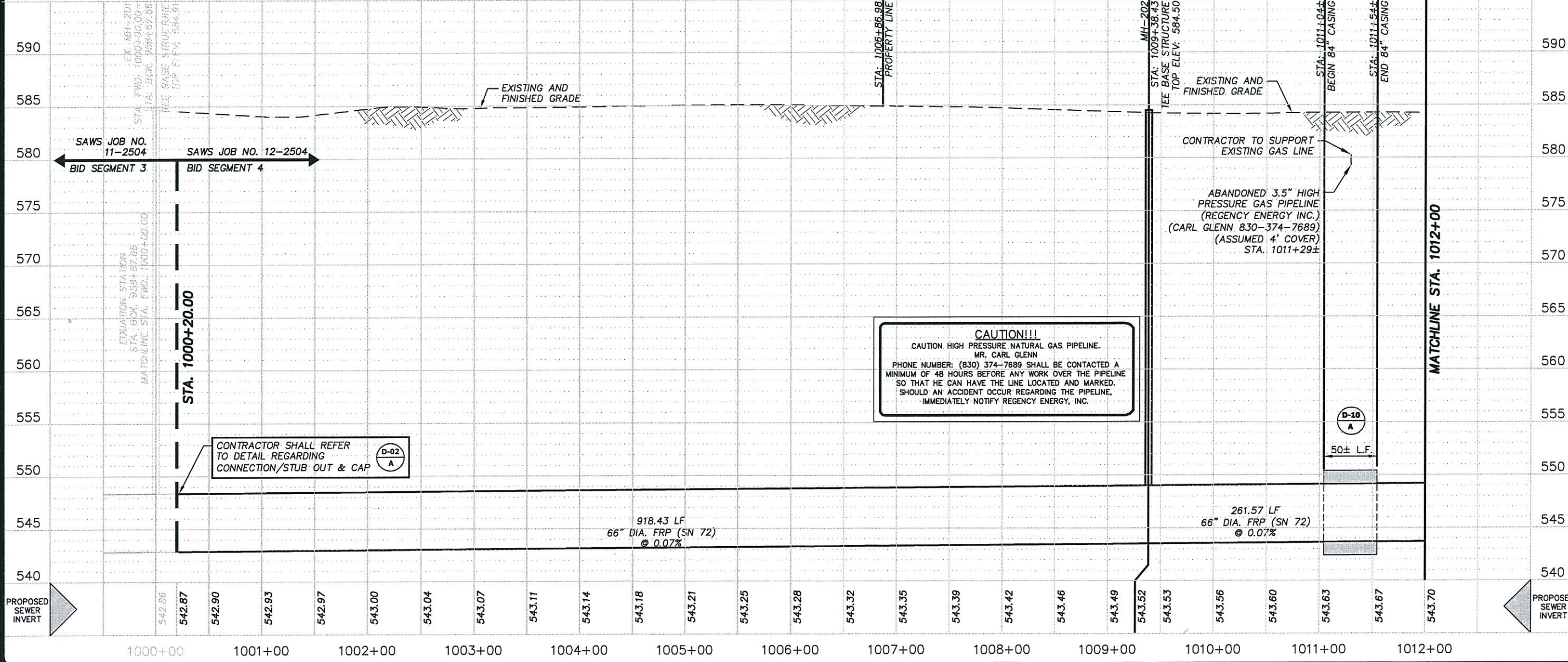
Project information for SAN ANTONIO WATER SYSTEM MEDINA RIVER SEWER OUTFALL PROJECT. Includes sheet index, bid quantities, and legend.



TRENCH EXCAVATION SAFETY PROTECTION
 CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/ GEOTECHNICAL/ SAFETY/ EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND 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 COMPLY WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

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- NOTES:**
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CAUTION!!!
 CAUTION HIGH PRESSURE NATURAL GAS PIPELINE.
 MR. CARL GLENN
 PHONE NUMBER: (830) 374-7689 SHALL BE CONTACTED A MINIMUM OF 48 HOURS BEFORE ANY WORK OVER THE PIPELINE SO THAT HE CAN HAVE THE LINE LOCATED AND MARKED. SHOULD AN ACCIDENT OCCUR REGARDING THE PIPELINE, IMMEDIATELY NOTIFY REGENCY ENERGY, INC.

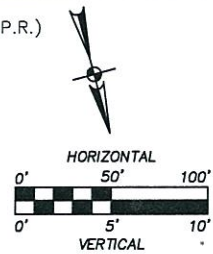
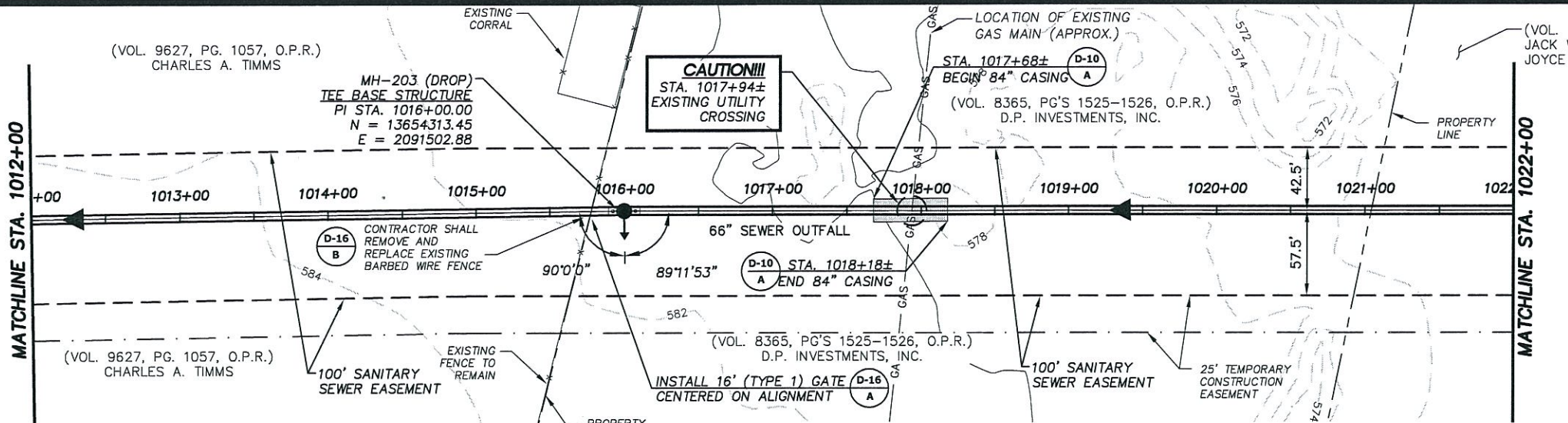
NO.	DATE	REVISION	ANGLE	ADDED
1	10.17			CASING
2	11.28			

PAPE-DAWSON ENGINEERS
 M.W. CUDE ENGINEERS, L.L.C.
 10025 MANHATTAN ROAD
 SAN ANTONIO, TEXAS 78260
 TEL 210.681.2951 • FAX 210.223.7112
 IPE REGISTERED ENGINEERING FIRM #455

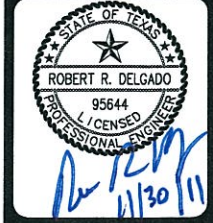
SAN ANTONIO WATER SYSTEM
 MEDINA RIVER SEWER OUTFALL PROJECT
 SAWS JOB NO. 12-2504

PLAN AND PROFILE SHEET
 STA. 1000+20 TO STA. 1012+00

JOB NO.	6866-00
DATE	FEBRUARY 2010
DESIGNER	RRD
DRAWN	BMO
CHECKED	LJC
DRAWING No.	C-71
SHEET No.	12



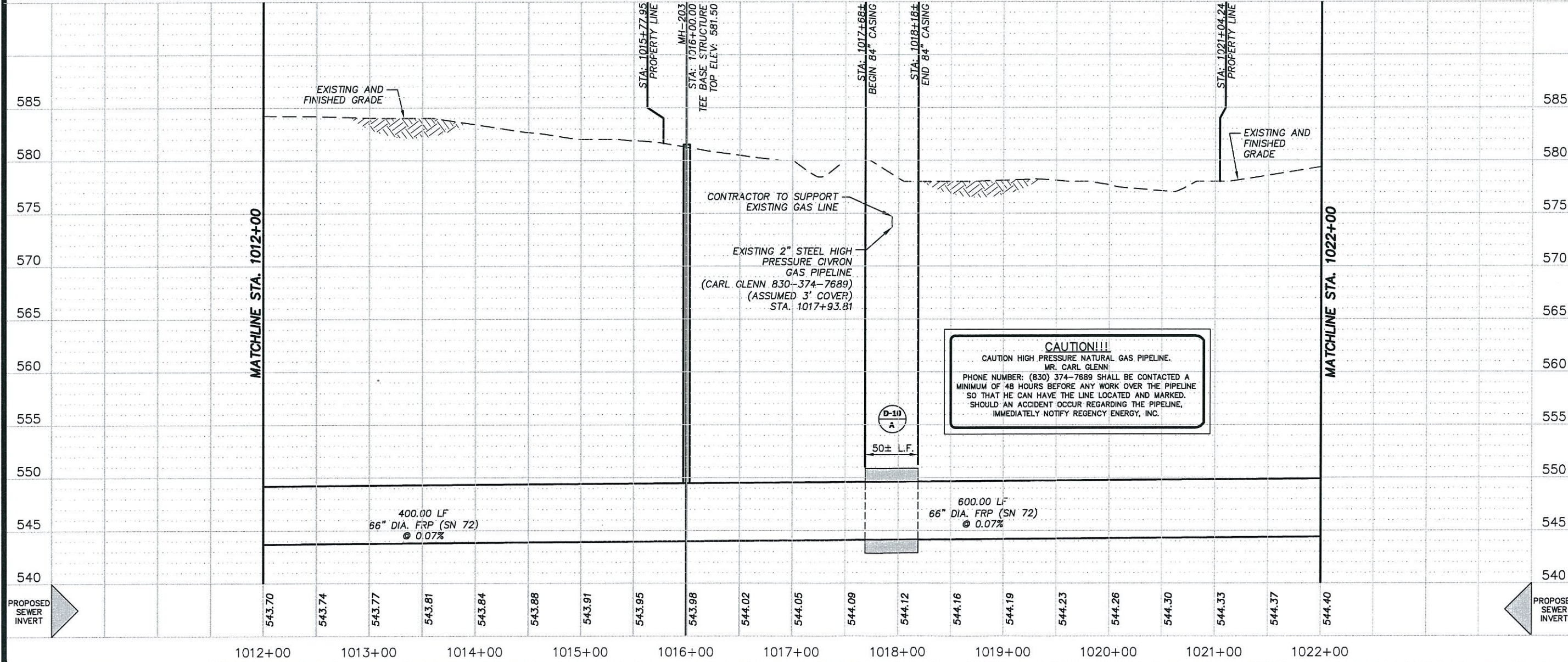
NO.	DATE	REVISION	ANGLE	ADDED
1	10.17			
2	11.28			



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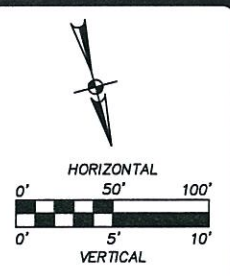
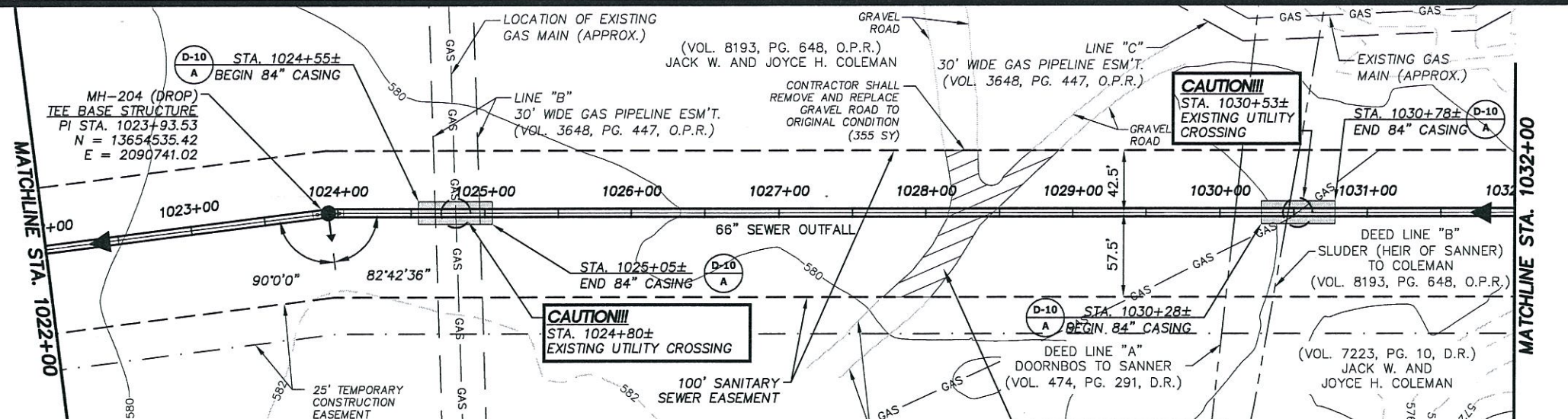
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PAPE-DAWSON ENGINEERS
 M.W. CUDE ENGINEERS, L.L.C.
 10225 SANDHURST ROAD
 SAN ANTONIO, TEXAS 78259
 TEL 210.481.2951 • FAX 210.523.7112
 WWW.AMJCUDE.COM
 TYPE REGISTERED PROFESSIONAL ENGINEER

SAN ANTONIO WATER SYSTEM
 MEDINA RIVER SEWER OUTFALL PROJECT
 SAWS JOB NO. 12-2504

PLAN AND PROFILE SHEET
 STA 1012+00 TO STA. 1022+00

JOB NO.	6866-00
DATE	FEBRUARY 2010
DESIGNER	RRD
DRAWN	BMO
CHECKED	IJC
DRAWING No.	C-72
SHEET No.	13

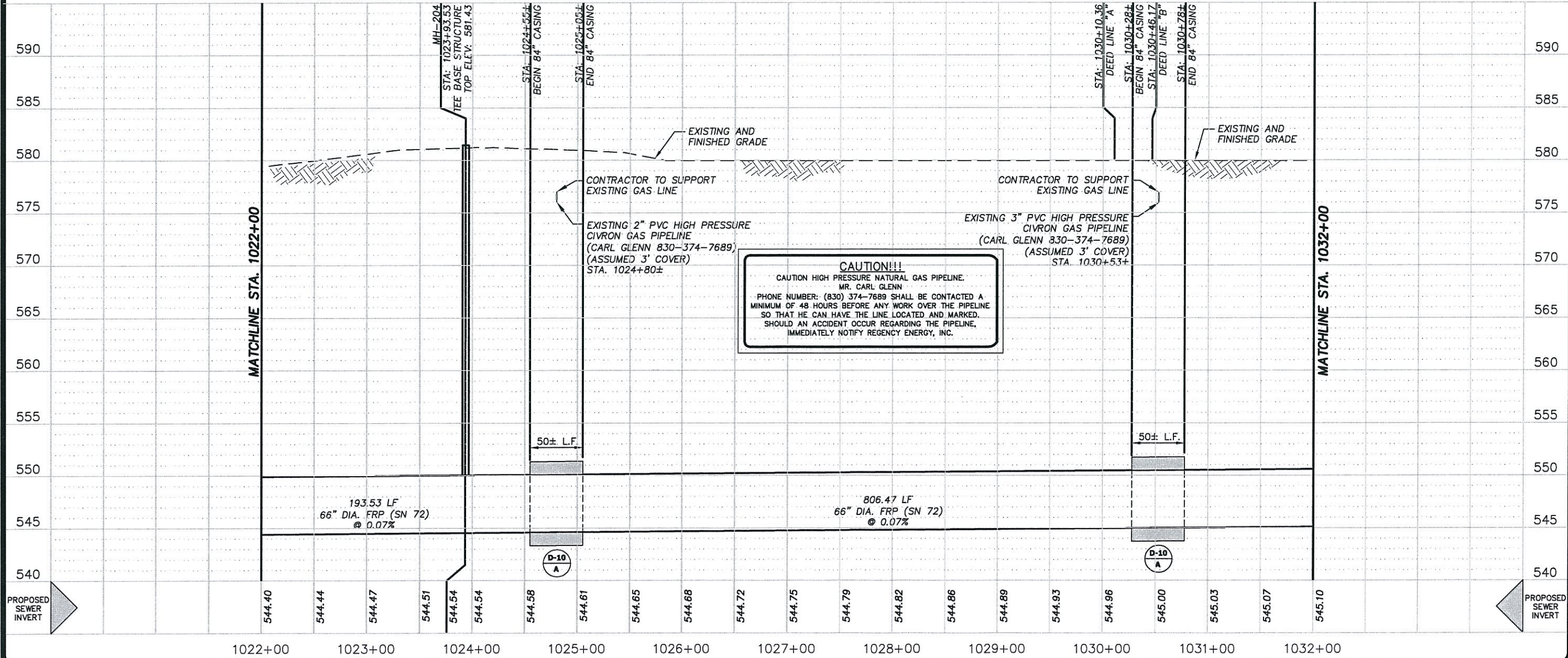


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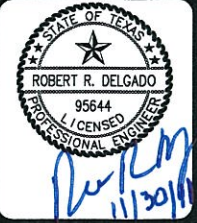
CONTRACTOR TO PROVIDE CONTINUOUS ACCESS FOR PROPERTY OWNERS

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NO.	DATE	REVISION	ANGLE	ADDED
1	10.17			
2	11.28			



PAPE-DAWSON ENGINEERS
 M.W. CUDE ENGINEERS, L.L.C.
 10329 BANDERA ROAD
 SAN ANTONIO, TEXAS 78250
 TEL 210.481.2951 • FAX 210.523.7112
 WWW.AMCUDE.COM
 TPE REGISTERED ENGINEERING FIRM #45

SAN ANTONIO WATER SYSTEM
 MEDINA RIVER SEWER OUTFALL PROJECT
 SAWS JOB NO. 12-2504

PLAN AND PROFILE SHEET
 STA. 1022+00 TO STA. 1032+00

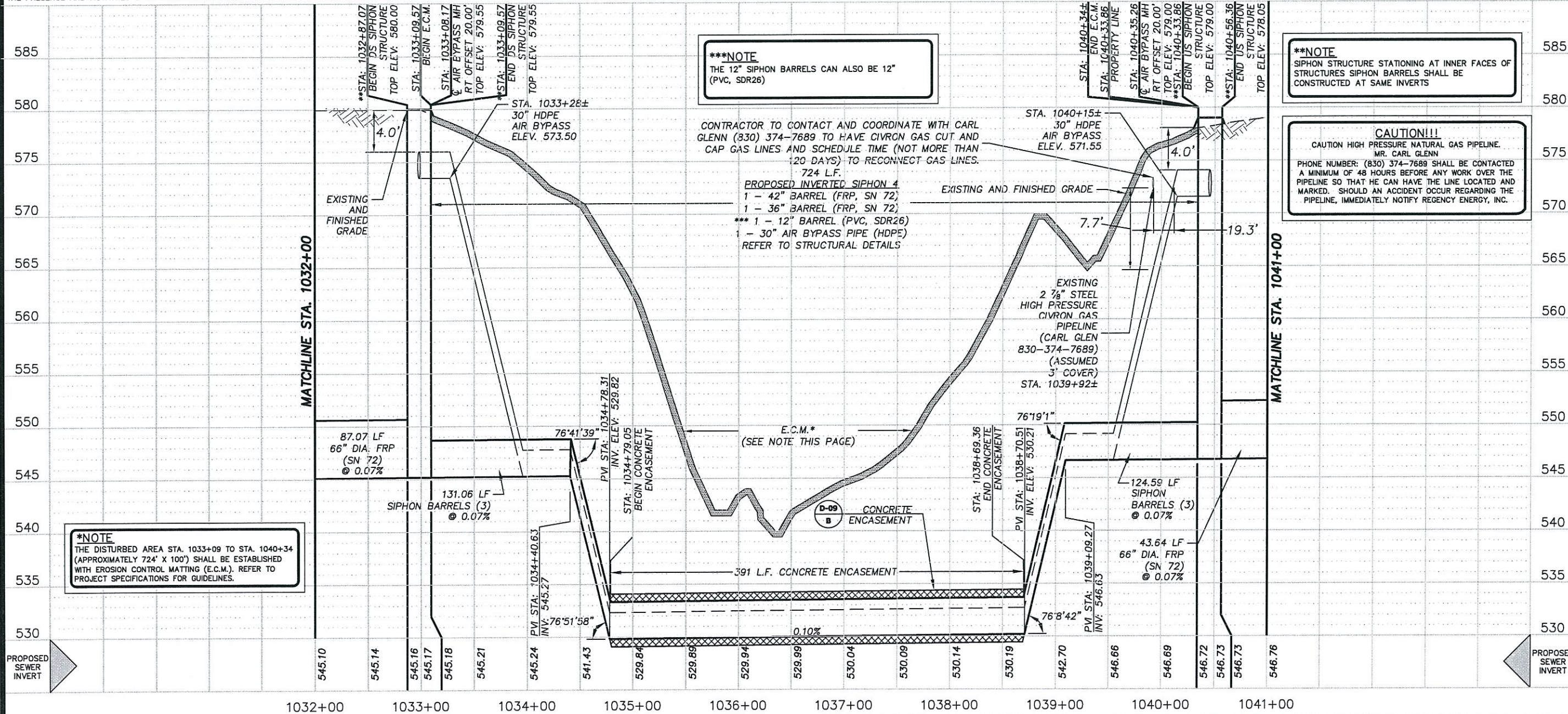
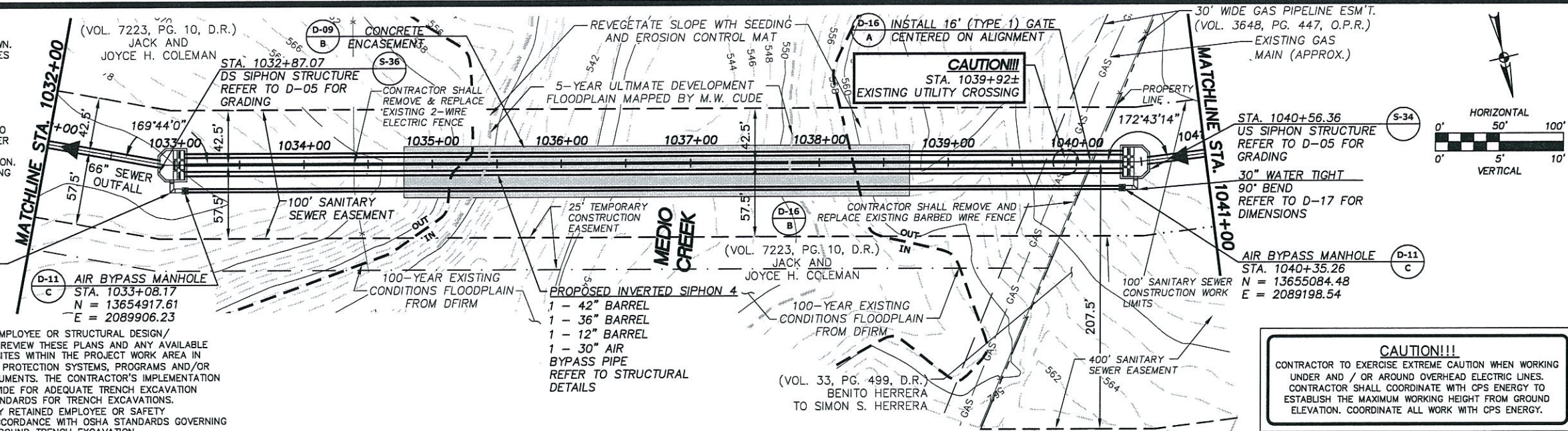
JOB NO.	6866-00
DATE	FEBRUARY 2010
DESIGNER	RRD
DRAWN	BMO
CHECKED	LIC
DRAWING No.	C-73
SHEET No.	14

NOTES:

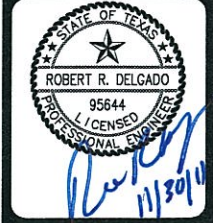
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NO.	DATE	REVISION	PROFILE	WORK LIMITS	REVISED GAS NOTE	ADDED EASEMENT
1	10.17					
2	11.9					
3	11.28					
4	11.30					



PAPE-DAWSON ENGINEERS

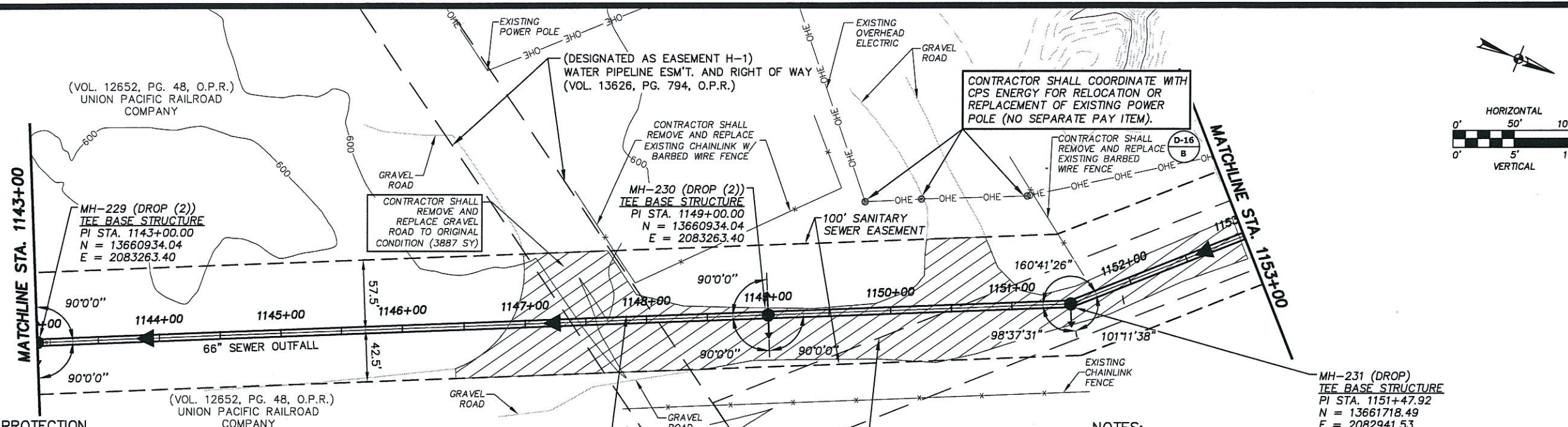
M.W. CUDE ENGINEERS, L.L.C.
 10025 BANDERA ROAD
 SAN ANTONIO, TEXAS 78250
 TEL 210.481.2951 • FAX 210.232.7112
 TYPE REGISTERED ENGINEERING FIRM #45

SAN ANTONIO WATER SYSTEM
 MEDINA RIVER SEWER OUTFALL PROJECT
 SAWS JOB NO. 12-2504

PLAN AND PROFILE SHEET
 STA. 1032+00 TO STA. 1041+00

JOB NO.	6866-00
DATE	FEBRUARY 2010
DESIGNER	RRD
DRAWN	BMO
CHECKED	LJC
DRAWING No.	C-74
SHEET No.	15

THIS DOCUMENT HAS BEEN PRODUCED FROM MATERIAL THAT WAS STORED AND/OR TRANSMITTED ELECTRONICALLY AND MAY HAVE BEEN INADVERTENTLY ALTERED. RELY ONLY ON FINAL HARDCOPY MATERIALS BEARING THE CONSULTANT'S ORIGINAL SIGNATURE AND SEAL.



TRENCH EXCAVATION SAFETY PROTECTION

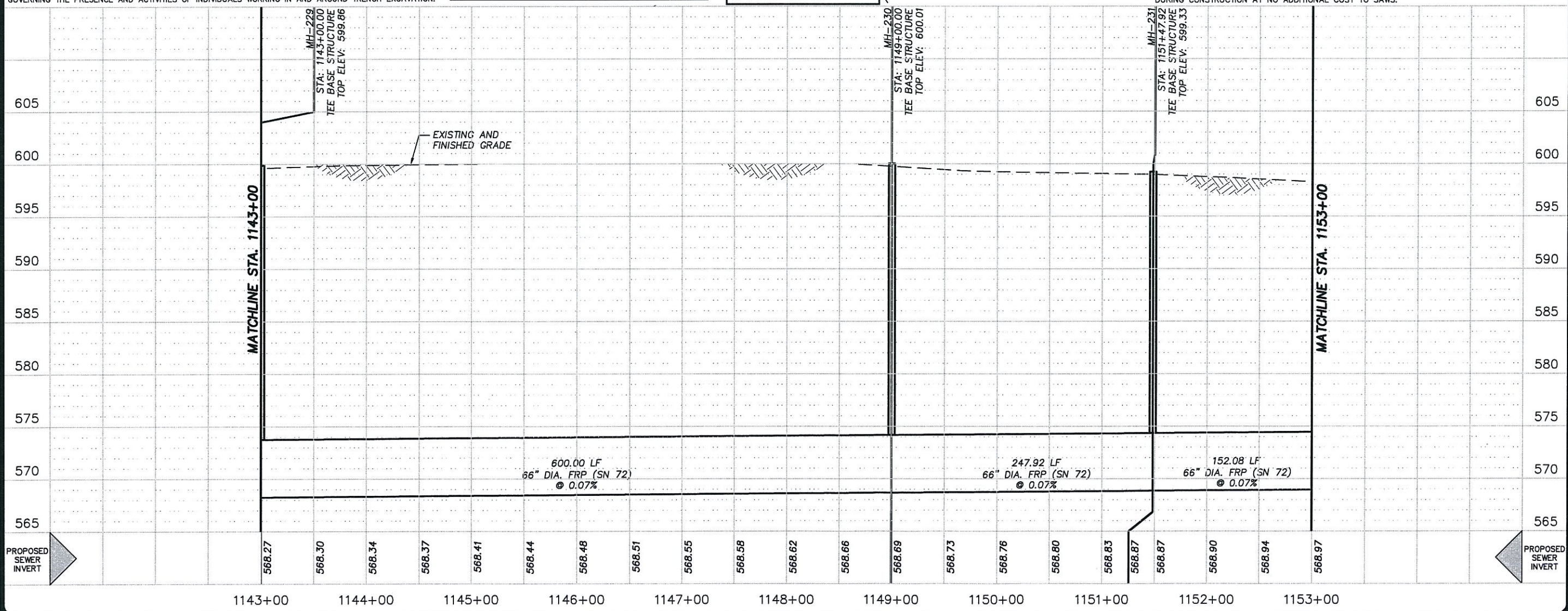
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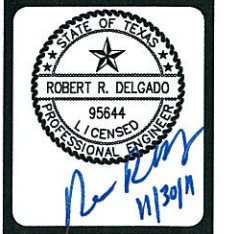
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APP	
REVISION	ALIGNMENT
NO.	DATE
1	10/12
2	11/28
	REVISED MANHOLE LOCATION



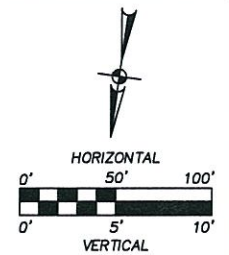
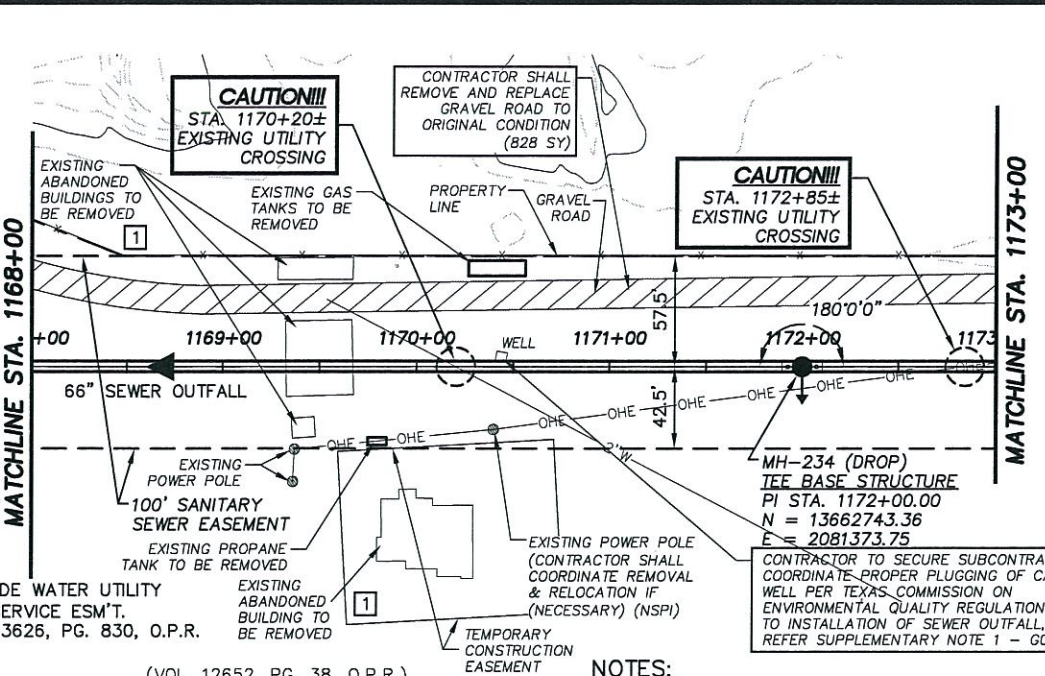
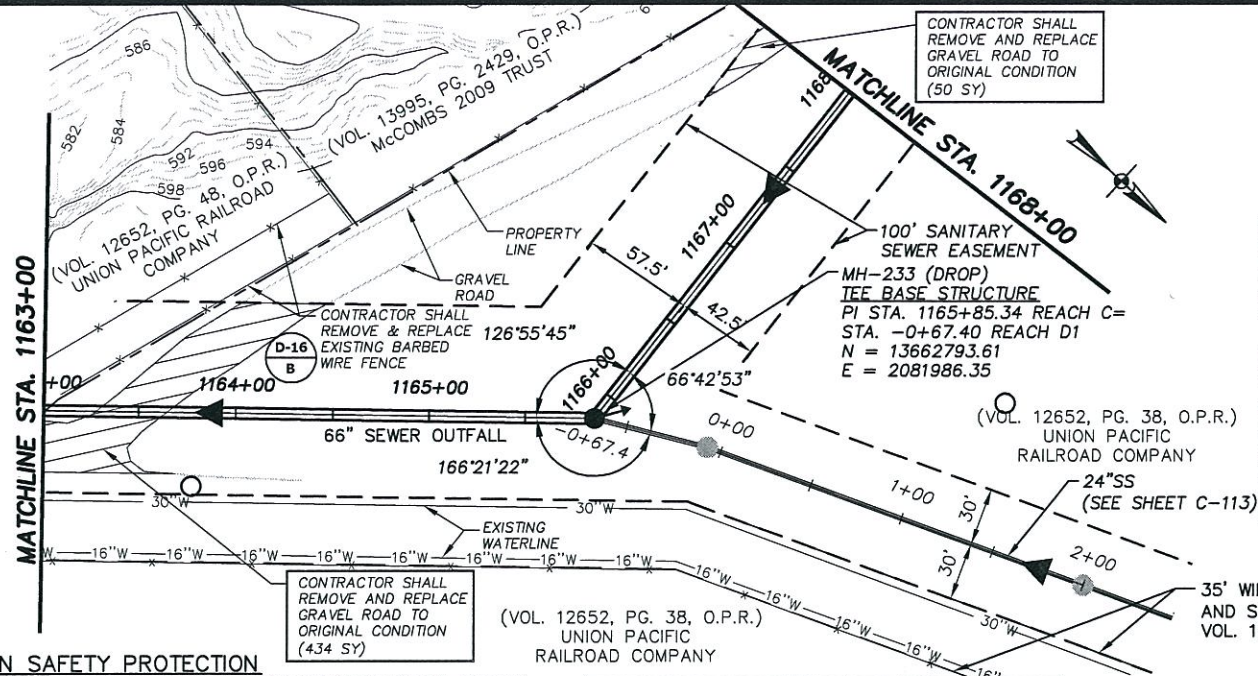
PAPE-DAWSON ENGINEERS

M.W. CUDE ENGINEERS, L.L.C.
 10325 SANDHIA ROAD
 SAN ANTONIO, TEXAS 78250
 TEL: 210.681.2991 • FAX: 210.623.7112
 LP# REGISTERED ENGINEERING TEXAS #455

SAN ANTONIO WATER SYSTEM
 MEDINA RIVER SEWER OUTFALL PROJECT
 SAWS JOB NO. 12-2504

PLAN AND PROFILE SHEET
 STA. 1143+00 TO STA. 1153+00

JOB NO.	6866-00
DATE	FEBRUARY 2010
DESIGNER	RRD
DRAWN	BMO
CHECKED	IJC
DRAWING No.	C-84
SHEET No.	25



1 PRIOR TO DEMOLITION OF BUILDING, CONTRACTOR SHALL ENSURE DEMOLITION PERMIT HAS BEEN OBTAINED.

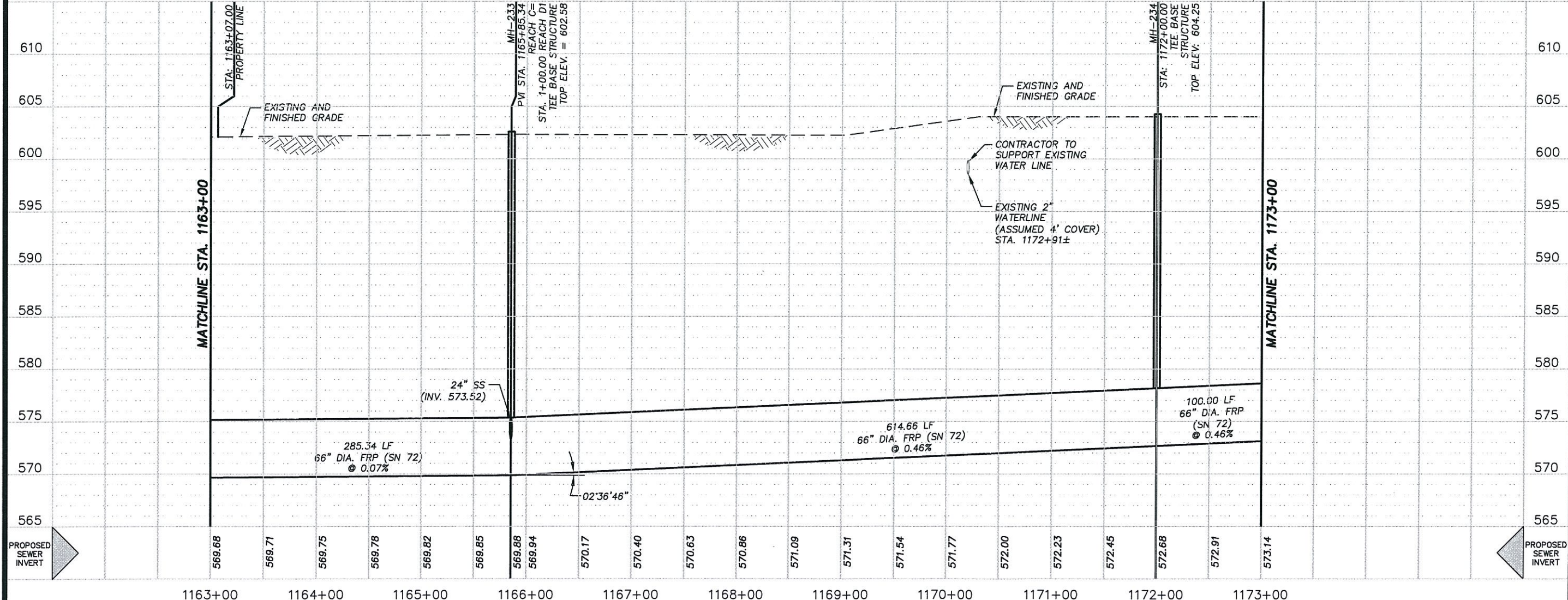
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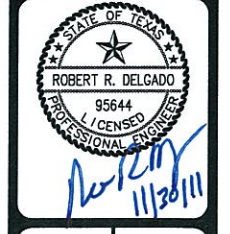
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APP	REVISION	DATE	DESCRIPTION
	ALIGNMENT	10.17	
	ADDED DROP TO MH-234	11.29	

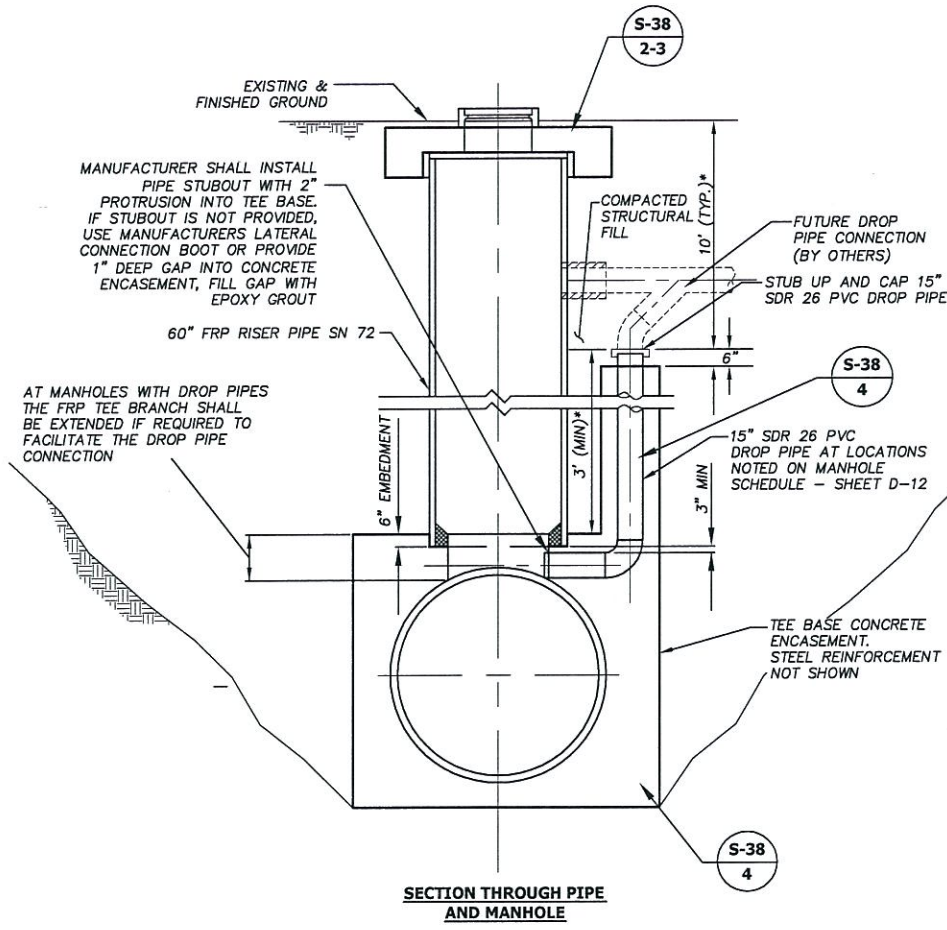


PAPE-DAWSON ENGINEERS
M.V. CUDE ENGINEERS, L.L.C.
SAN ANTONIO, TEXAS 78209
TEL: 210.481.2951 • FAX: 210.523.7112
WWW.MVWCHUBB.COM
TBE REGISTERED ENGINEERING FIRM #465

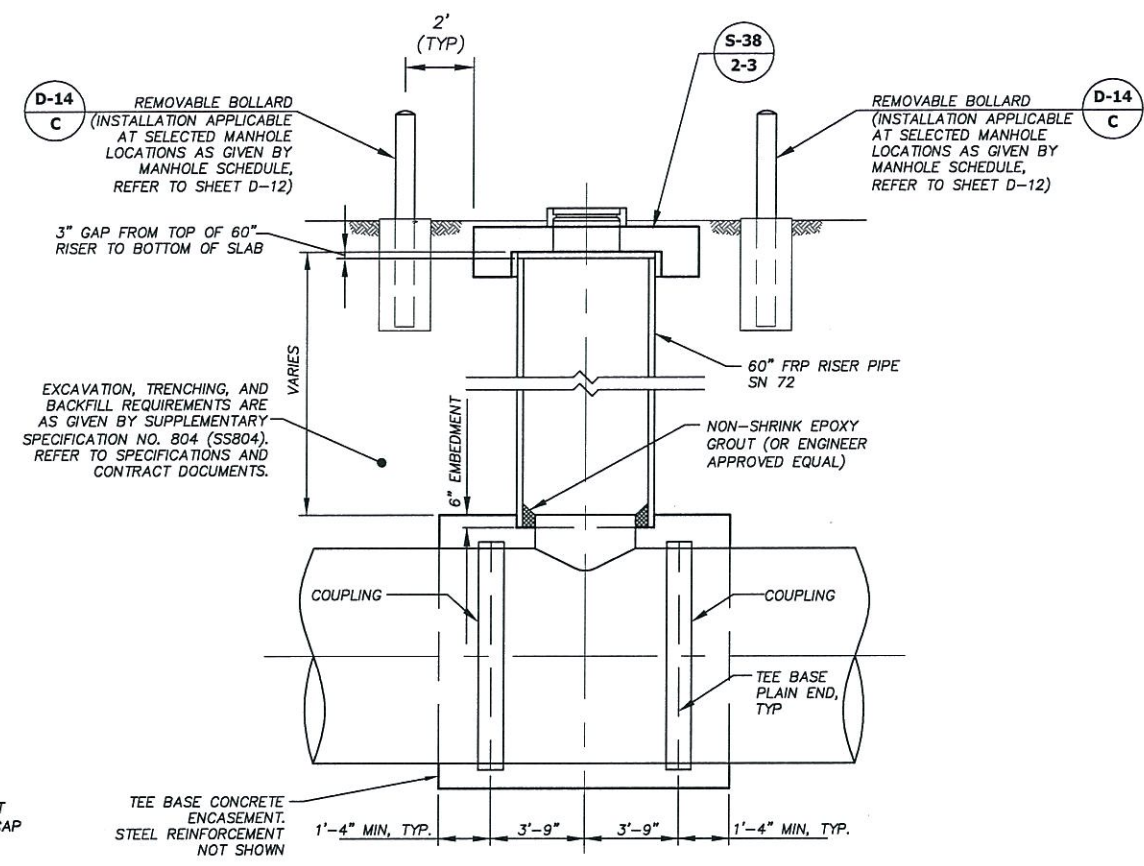
SAN ANTONIO WATER SYSTEM
MEDINA RIVER SEWER OUTFALL PROJECT
SAWS JOB NO. 12-2508

PLAN AND PROFILE SHEET
STA. 1163+00 TO STA. 1173+00

JOB NO.	6886-00
DATE	FEBRUARY 2010
DESIGNER	RRD
DRAWN	BMO
CHECKED	LJC
DRAWING No.	C-86
SHEET No.	27

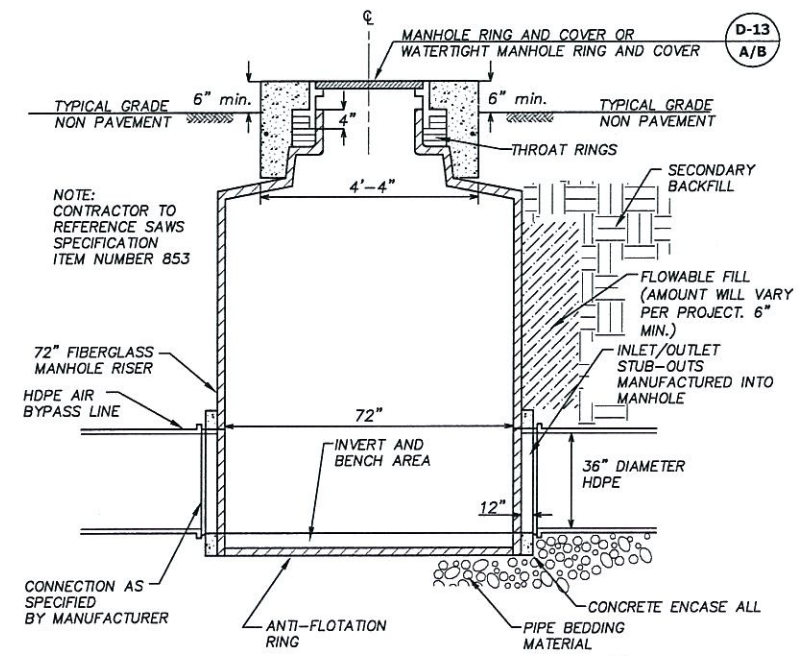


DROP MANHOLE DETAIL FOR TEE BASE STRUCTURE
N.T.S. (D-11 A)



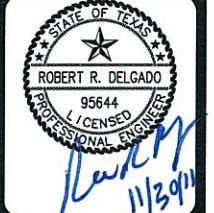
TYPICAL TEE BASE STRUCTURE
N.T.S. (D-11 B)

- * NOTE:**
- WHERE GROUND COVER IS NOT SUFFICIENT TO ALLOW EXTENSION OF THE MANHOLE RISER 10' FROM FINISHED GROUND TO TOP OF 15" PVC CAP, DROP PIPE STUBOUT SHALL EXTEND UPWARD SUCH THAT TOP OF 15" PVC CAP IS 3" ABOVE TEE BASE CONCRETE ENCASUREMENT.
 - ORIENTATION OF DROP PIPE IS ASSUMED TO BE 90° FROM OUTFALL ALIGNMENT UNLESS OTHERWISE NOTED ON PLAN AND PROFILE SHEET.
 - EXCAVATION, TRENCHING, AND BACKFILL SHALL BE CONDUCTED IN ACCORDANCE WITH SAWS ITEM NO. 804 AND SS804. REFER TO PROJECT SPECIFICATIONS AND CONTRACT DOCUMENTS.



AIR BYPASS MANHOLE (FRP) - 30" PIPE
N.T.S. (D-11 C)

APP	NO.	DATE	REVISION	ADDED REFERENCES	CHANGED PIPE TYPE
	1	10.17			
	2	11.30			



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TYPE REGISTERED ENGINEERING FIRM HAS

CUDE ENGINEERS SURVEYORS PLANNERS

SAN ANTONIO WATER SYSTEM
MEDINA RIVER SEWER OUTFALL PROJECT
SAWS JOB NO. 12-2504

TEE BASE AND DROP MANHOLE DETAILS

JOB NO.	6866-00
DATE	FEBRUARY 2010
DESIGNER	RRD
DRAWN	BMO
CHECKED	IJC
DRAWING No.	D-11
SHEET No.	63

MANHOLE SCHEDULE							
MATERIALS							
STATION	MANHOLE ID	FRP	FIBERGLASS	WATERTIGHT	ALTERNATE VENT	DROP *	BOLLARDS
1009+38.43	MH-202	X				X	X
1016+00	MH-203	X				X	X
1023+93.53	MH-204	X				X	X
1045+47.51	MH-207	X				X	X
1050+76.22	MH-208	X				XX	X
1060+76.22	MH-209	X				XX	
1068+64.49	MH-210	X				XX	
1077+80.91	MH-211	X				XX	
1084+97.20	MH-212	X				XX	X
1088+41.92 = 1+00	MH-213	X		X		X	
7+37.24	MH D2-22		X	X			X
15+00	MH D2-23		X	X			X
18+09.75	MH D2-24		X	X	X		
18+66.32	MH D2-25		X	X			
20+61.78	MH D2-26		X	X			
21+18.34	MH D2-27		X	X			
29+00	MH D2-28		X	X	X		
36+00	MH D2-29		X	X			
44+00	MH D2-30		X				
51+35.60	MH D2-31		X				
51+75.60	MH D2-32		X				
57+87.55	MH D2-33		X				
60+15.15	MH D2-34		X			X	
1088+81.92	MH-214	X		X			
1092+84.91	MH-215	X		X			X
1098+54.31 BACK - 1098+58.92 FWD	MH-216	X				XX	X
1106+45.59	MH-217	X				X	X
1109+07.41	MH-218	X					X
1110+18.98	MH-219	X					X
1112+48.98	MH-220	X					X
1114+38.98	MH-221	X				X	
1119+17.91 BACK 1118+80.57 FWD	MH-225	X					
1125+00	MH-226	X				XX	
1131+00	MH-227	X				XX	X
1137+00	MH-228	X				XX	X
1143+00	MH-229	X				XX	X
1149+00	MH-230	X				XX	X
1151+95.11	MH-231	X				X	
1159+50	MH-232	X					
1165+85.34	MH-233	X				X	

* DROP: X = 1 DROP, XX = 2 DROPS

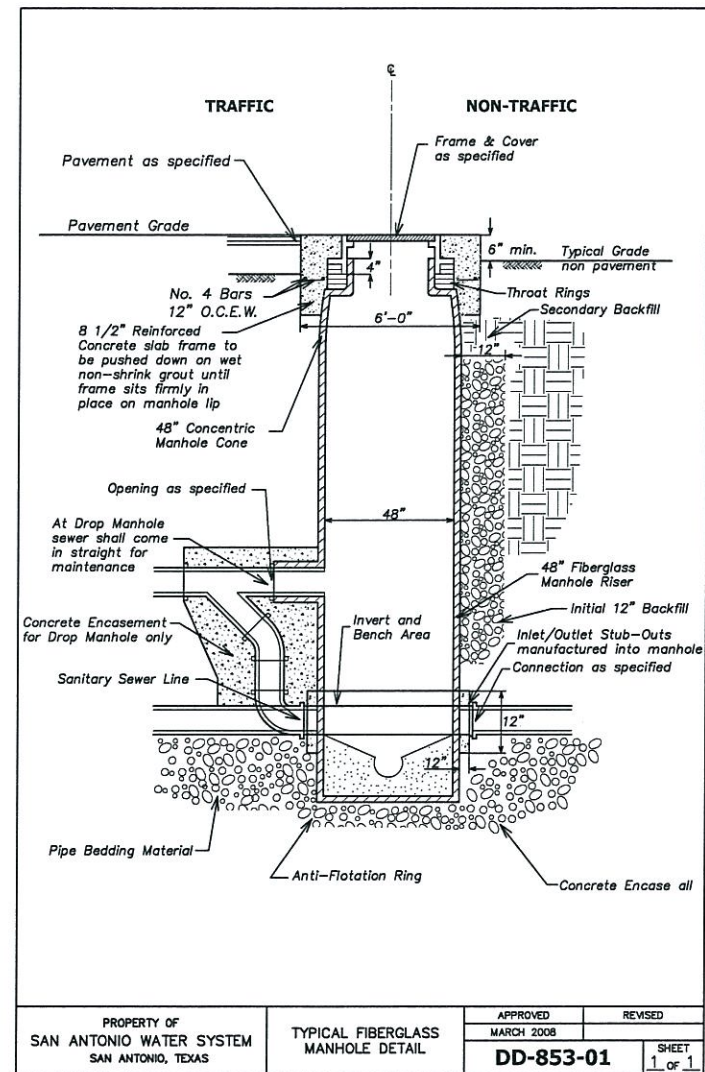
NOTE: AIR BYPASS MANHOLES ARE NOT INCLUDED IN MANHOLE SCHEDULE.

NOTE: ALL MANHOLES SHALL BE A VENTED MH RING & COVER UNLESS NOTED OTHERWISE ON THE MANHOLE SCHEDULE.

MANHOLE SCHEDULE							
MATERIALS							
STATION	MANHOLE ID	FRP	FIBERGLASS	WATERTIGHT	ALTERNATE VENT	DROP *	BOLLARDS
-0+07.26	MH D1-0		X				
2+00	MH D1-1		X				
8+00	MH D1-2		X				
15+00	MH D1-3		X				
21+00	MH D1-4		X				
27+58.30	MH D1-5		X				X
34+00	MH D1-6		X				X
39+00	MH D1-7		X	X			X
45+75.11	MH D1-8		X	X			
52+00	MH D1-9		X	X			
54+88.32	MH D1-10		X	X	X		
58+00	MH D1-11		X	X			
60+50	MH D1-12		X	X			X
68+00	MH D1-13		X	X			X
75+64.86 BACK - 77+21.86 FWD	MH D1-14		X	X	X		
79+66.21	MH D1-15		X	X			
85+00	MH D1-16		X	X			
89+96.53	MH D1-17		X	X			
93+61.38	MH D1-18		X	X	X	X	
0+37.72	MH D1A-1		X	X			
95+31.52	MH D1-20		X	X		X	X
96+87	MH D1-21		X	X			X
1172+00.00	MH-234	X				X	X
1177+82.26	MH-235	X				X	X
1180+93.72	MH-236	X				X	X
1183+35.64	MH-237	X				X	X
1184+49.28	MH-238	X				X	X
NOT USED	MH-239						
NOT USED	MH-240						
1199+37.16	MH-241	X				X	X
1209+02.93	MH-242	X					X
1210+33.60	MH-243	X				X	X
1218+33.60	MH-244	X				X	X
1227+51.29	MH-245	X				X	X
1229+56.15	MH-246	X				X	X
1229+96.15	MH-247	X				X	X

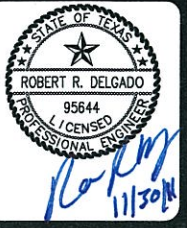
* DROP: X = 1 DROP, XX = 2 DROPS

NOTE: AIR BYPASS MANHOLES ARE NOT INCLUDED IN MANHOLE SCHEDULE.



TYPICAL FIBERGLASS MANHOLE DETAIL D-12
N.T.S. A

NO.	DATE	REVISION	APP.
1	10.17	ALIGNMENT	
2	10.17	ADDED NOTE	
3	11.29	ADDED DROP TO MH-235	



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TYPE REGISTERED ENGINEERING FIRM #45

**SAN ANTONIO WATER SYSTEM
MEDINA RIVER SEWER OUTFALL PROJECT
SAWS JOB NO. 12-2504**

**MANHOLE SCHEDULE AND
MANHOLE DETAILS**

JOB NO.	6866-00
DATE	FEBRUARY 2010
DESIGNER	RRD
DRAWN	BMO
CHECKED	IJC
DRAWING No.	D-12
SHEET No.	64

Q&A ATTACHMENTS