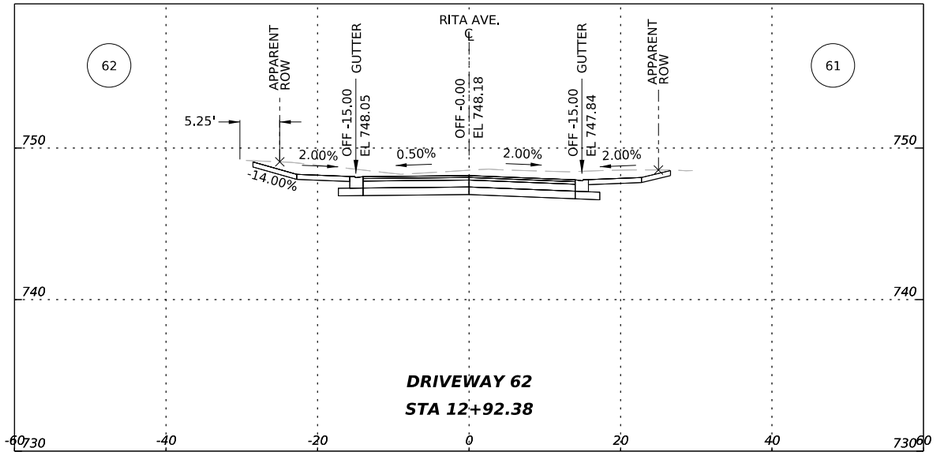
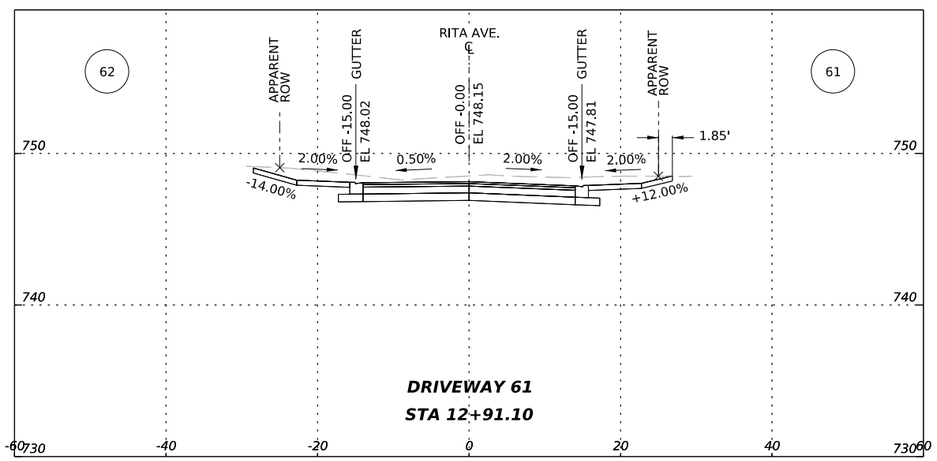
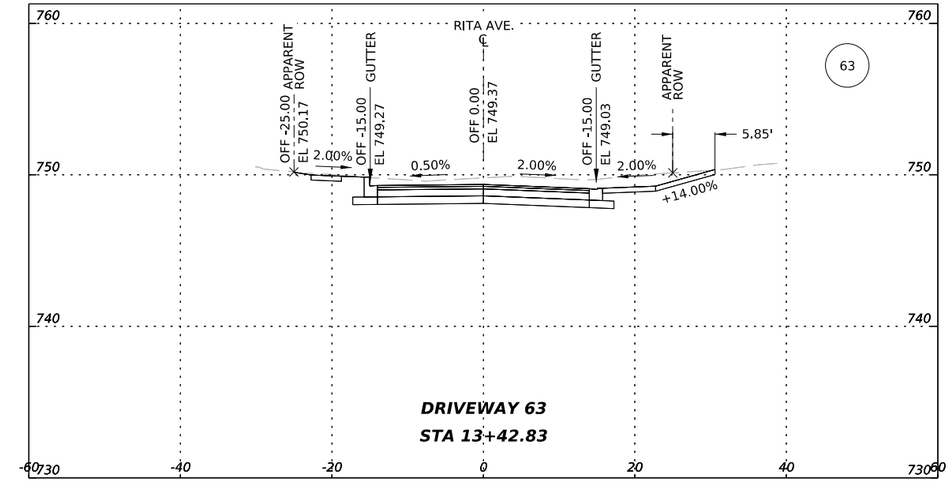


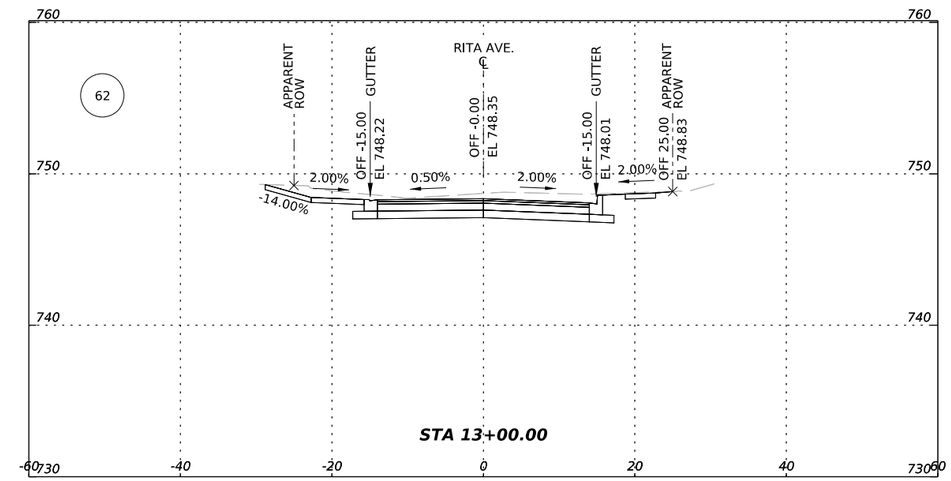
DRIVEWAY 62
STA 12+92.38



DRIVEWAY 61
STA 12+91.10



DRIVEWAY 63
STA 13+42.83



STA 13+00.00

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CULEBRA AREA STREETS

RITA AVE. CROSS SECTIONS

100% SUBMITTAL	PROJECT NO: 23-03873		DATE: 05/28/2025
DRWN. BY: SS	DSGN. BY: SS	CHKD. BY: MG	SHEET NO: 101

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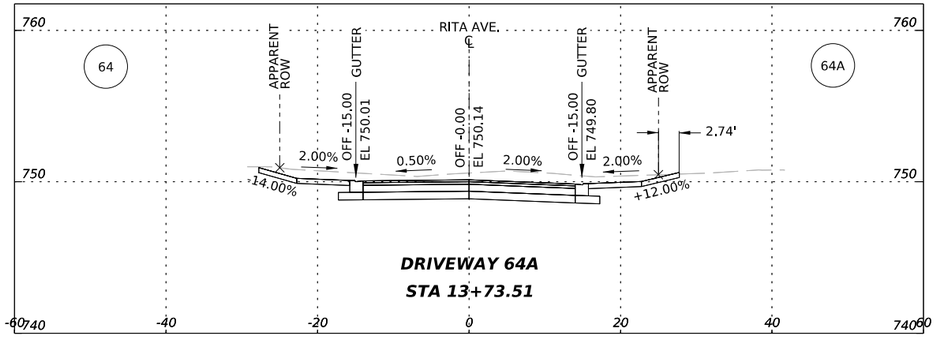
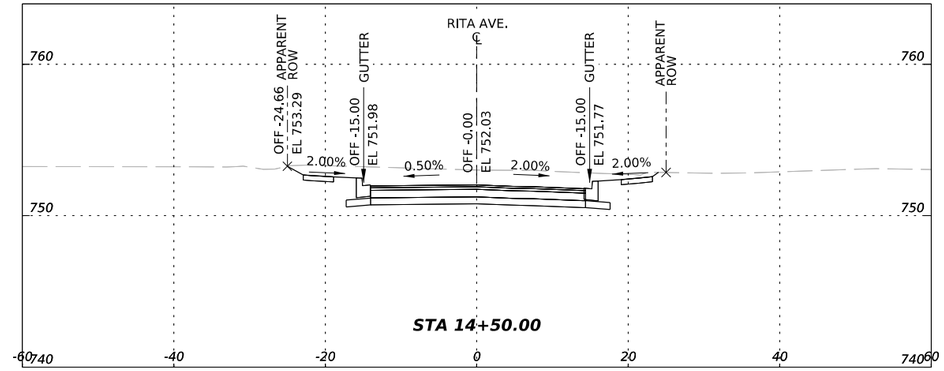
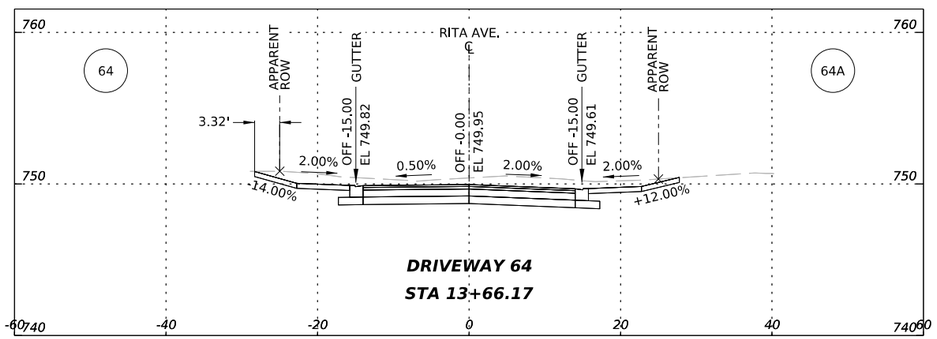


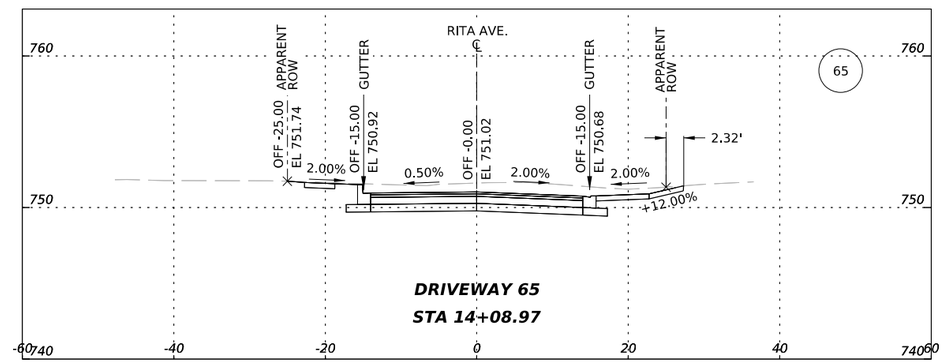
DRIVEWAY 64A
STA 13+73.51



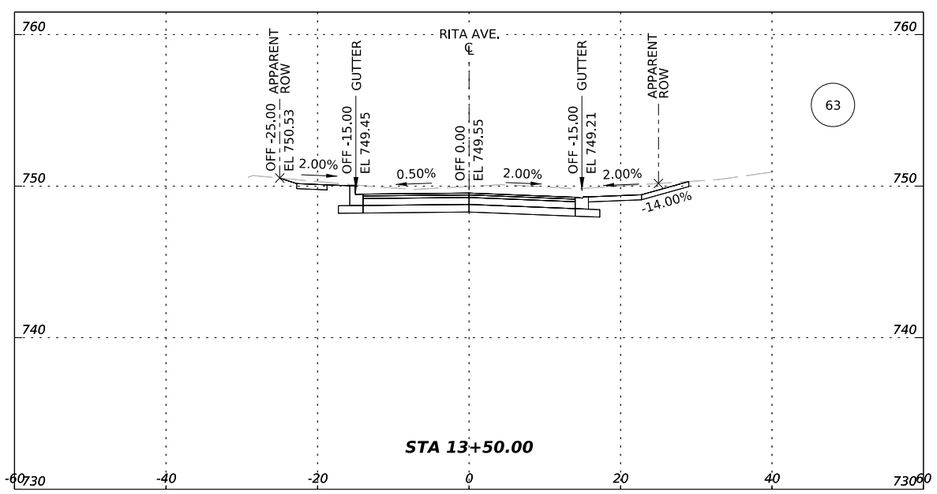
STA 14+50.00



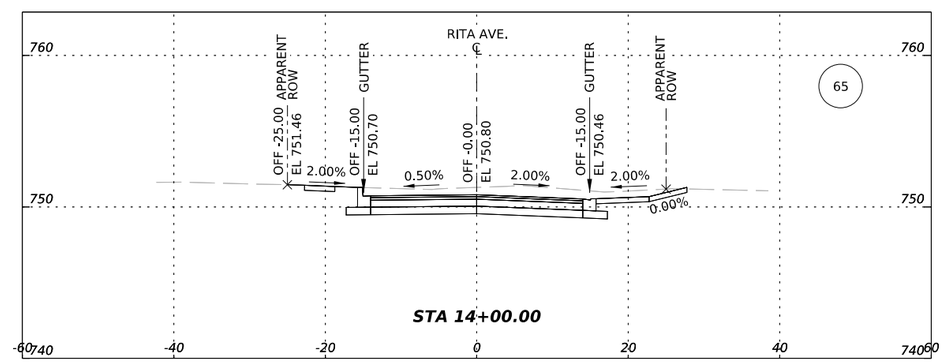
DRIVEWAY 64
STA 13+66.17



DRIVEWAY 65
STA 14+08.97



STA 13+50.00



STA 14+00.00

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CULEBRA AREA STREETS

RITA AVE. CROSS SECTIONS

100% SUBMITTAL	PROJECT NO: 23-03873		DATE: 05/28/2025
DRWN. BY: SS	DSGN. BY: SS	CHKD. BY: MG	SHEET NO: 102

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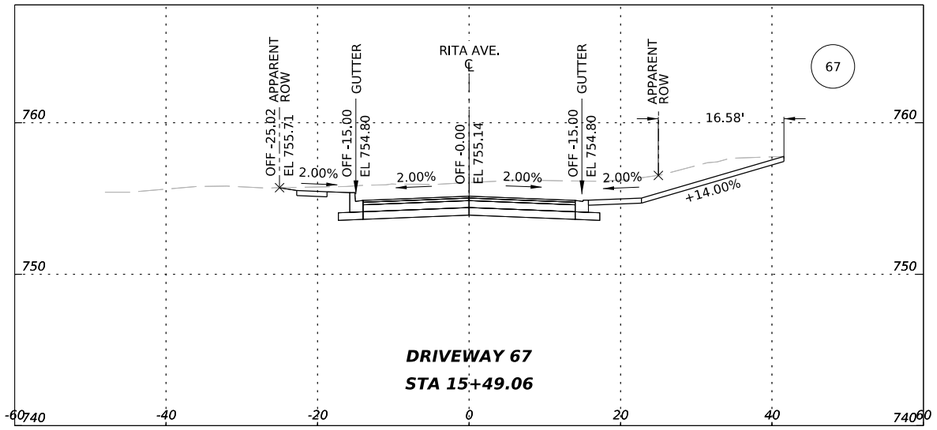
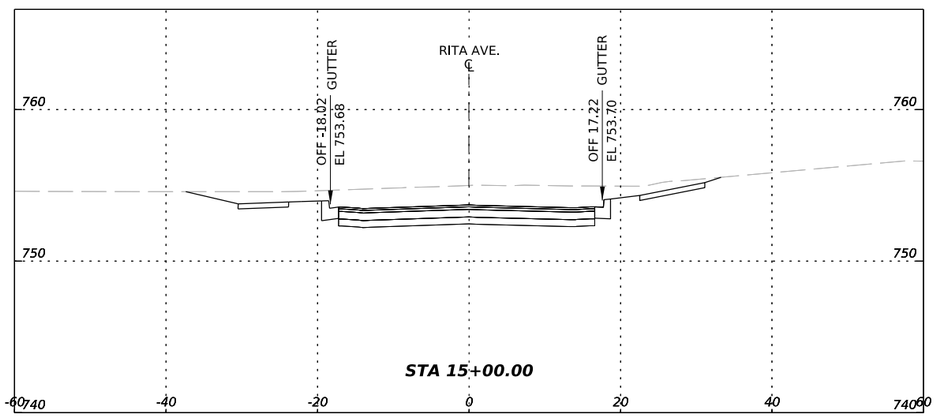
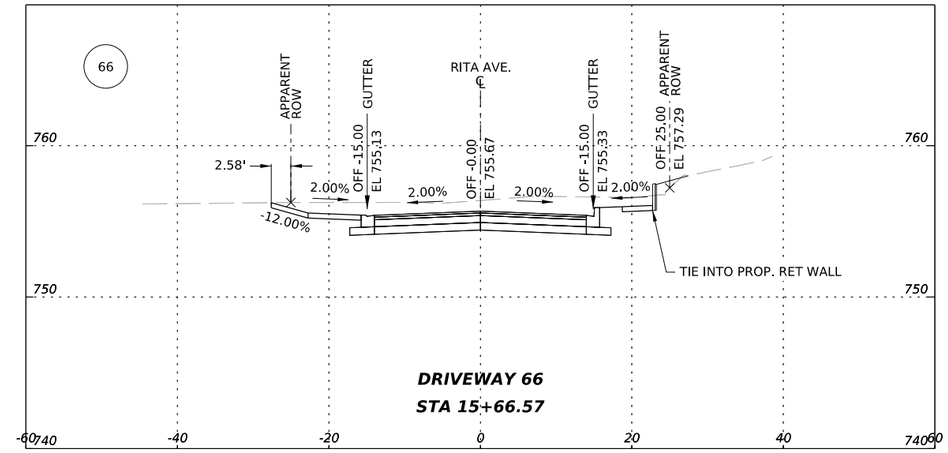


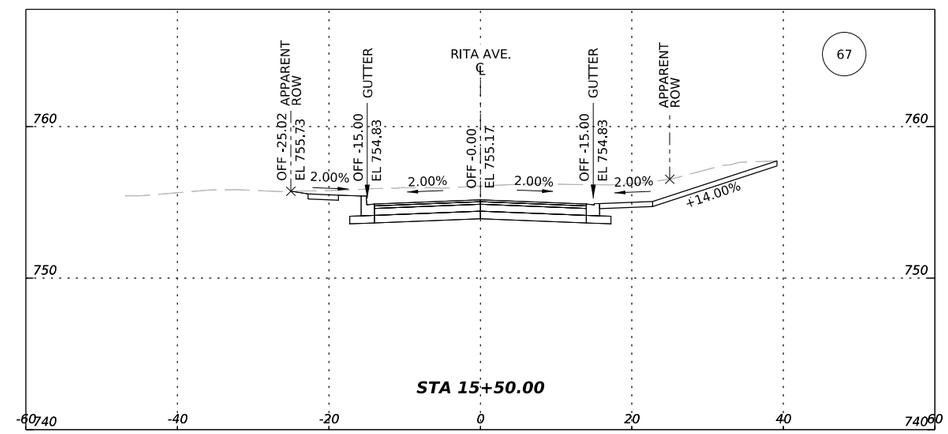
DRIVEWAY 67
STA 15+49.06



STA 15+00.00



DRIVEWAY 66
STA 15+66.57



STA 15+50.00

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CULEBRA AREA STREETS

RITA AVE. CROSS SECTIONS

100% SUBMITTAL	PROJECT NO: 23-03873		DATE: 05/28/2025
DRWN. BY: SS	DSGN. BY: SS	CHKD. BY: MG	SHEET NO: 103

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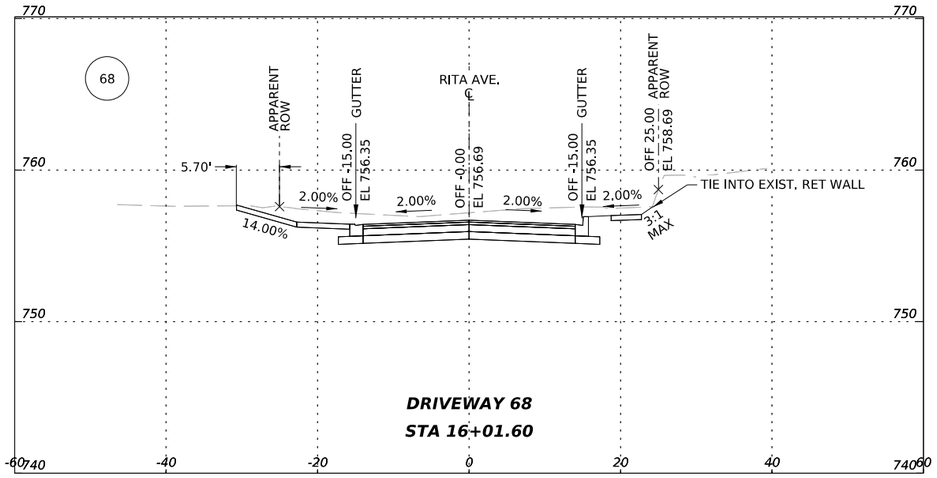

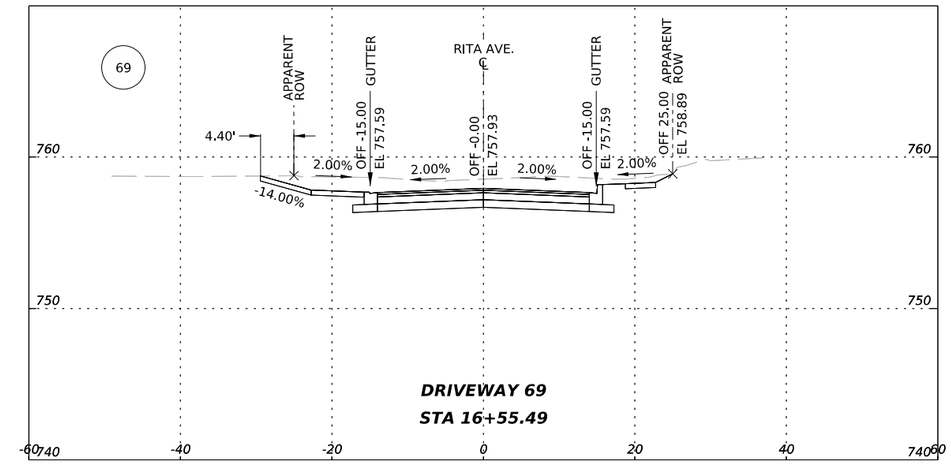

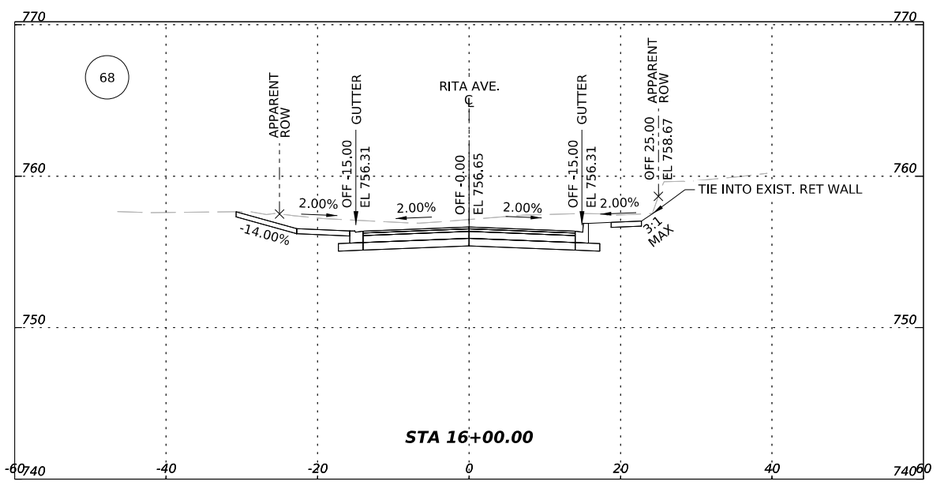

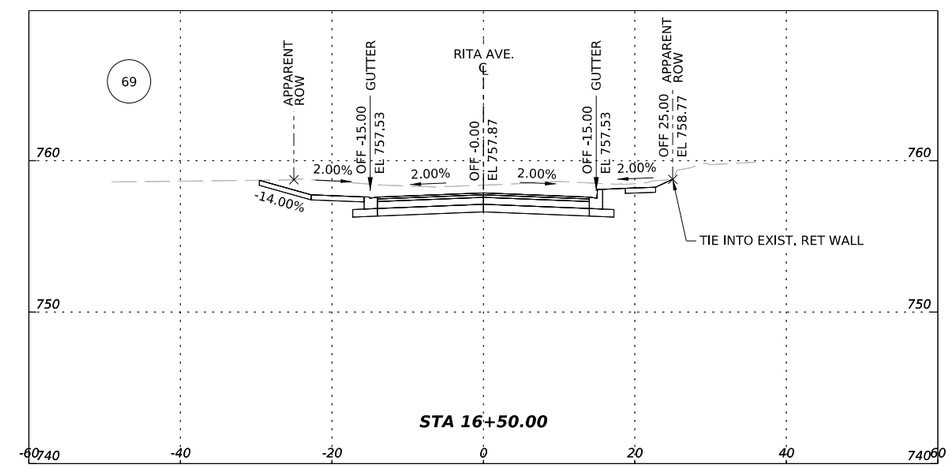

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RITA AVE. CROSS SECTIONS

100% SUBMITTAL	PROJECT NO: 23-03873		DATE: 05/28/2025
DRWN. BY: SS	DSGN. BY: SS	CHKD. BY: MG	SHEET NO: 104

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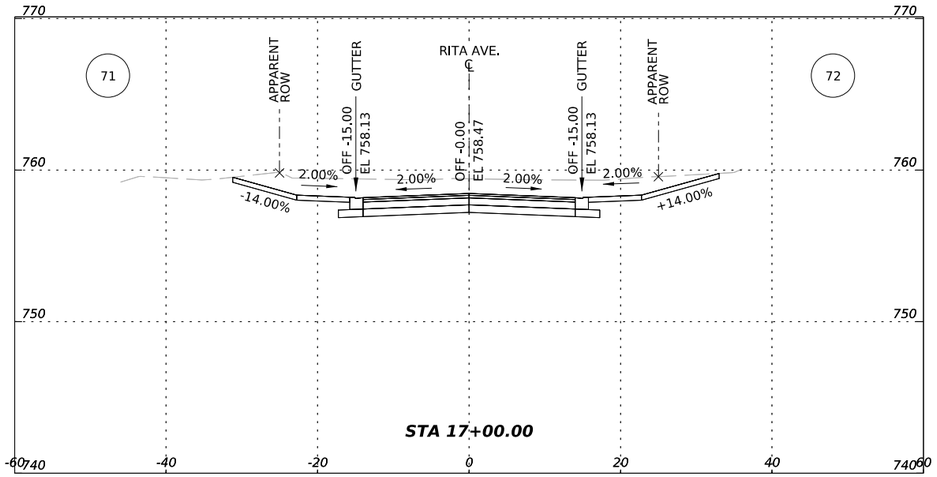

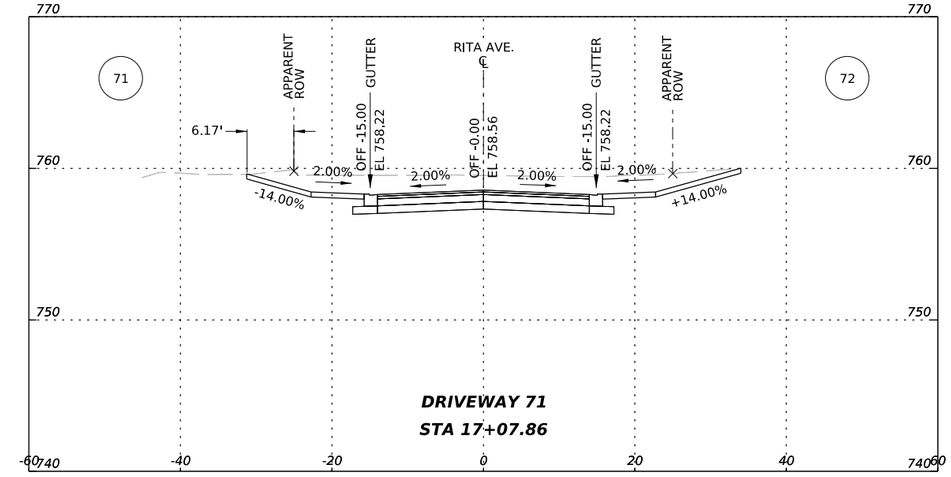

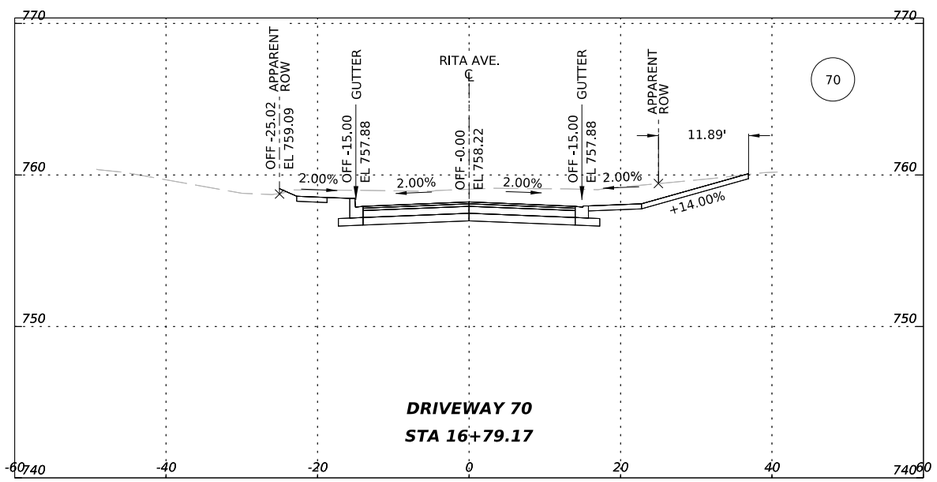

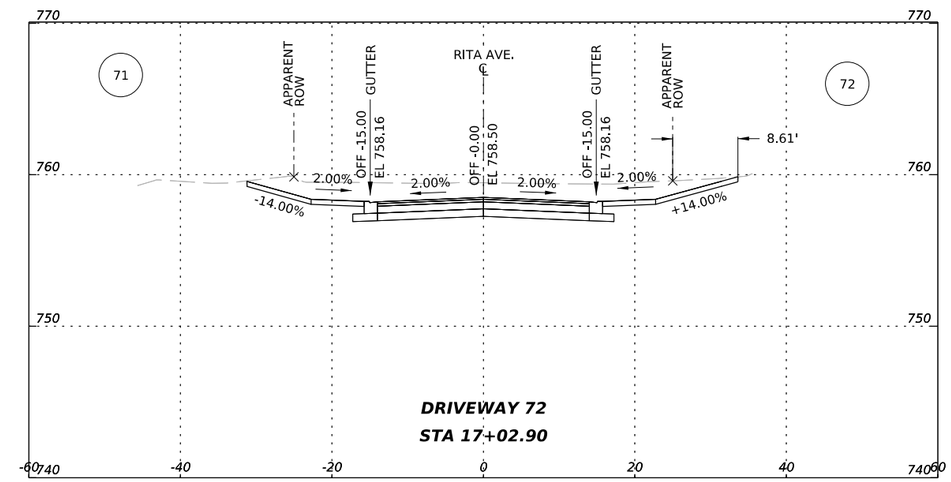

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CULEBRA AREA STREETS

RITA AVE. CROSS SECTIONS

100% SUBMITTAL	PROJECT NO: 23-03873		DATE: 05/28/2025
DRWN. BY: SS	DSGN. BY: SS	CHKD. BY: MG	SHEET NO: 105

5/22/2025 7:48:43 PM
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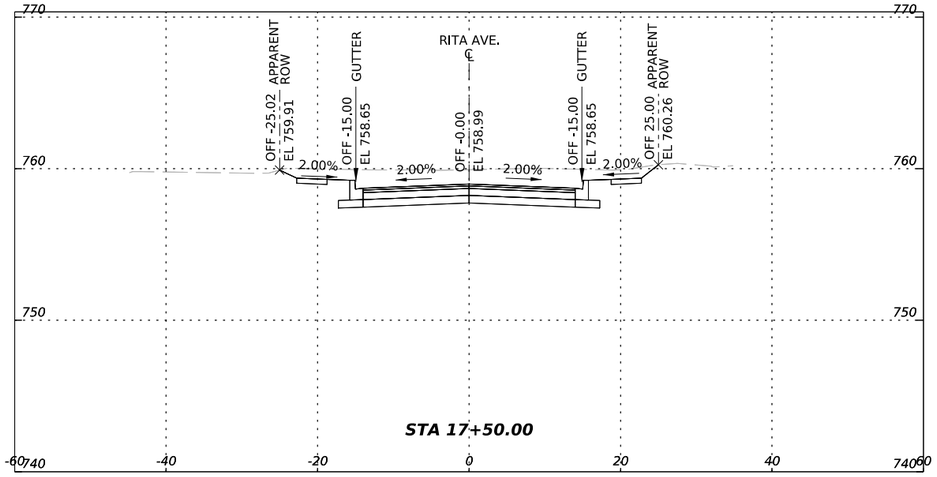
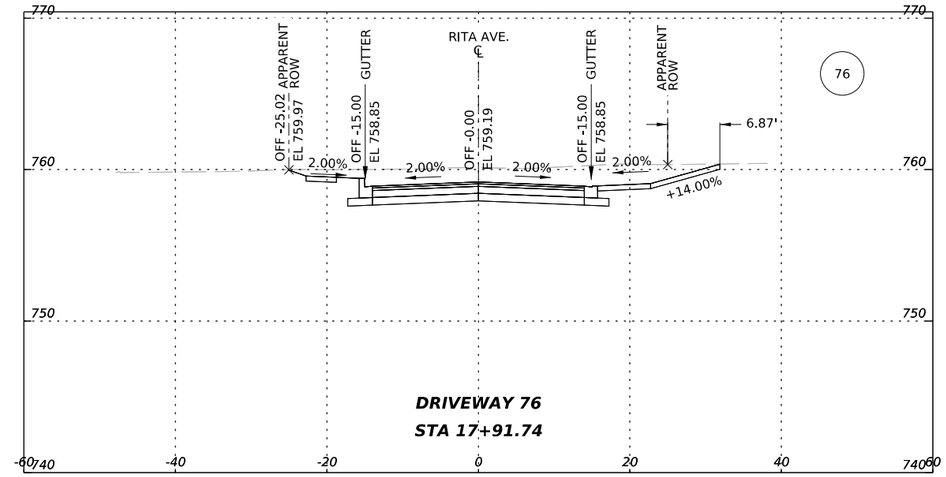
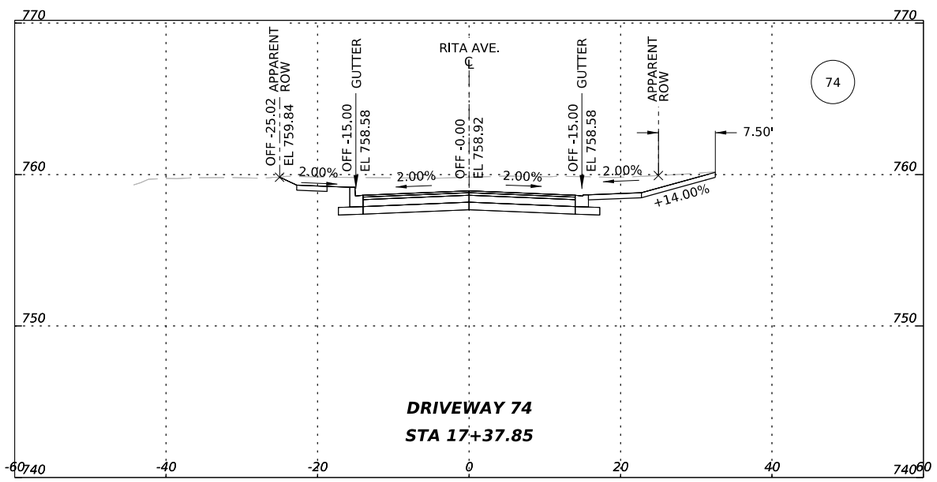


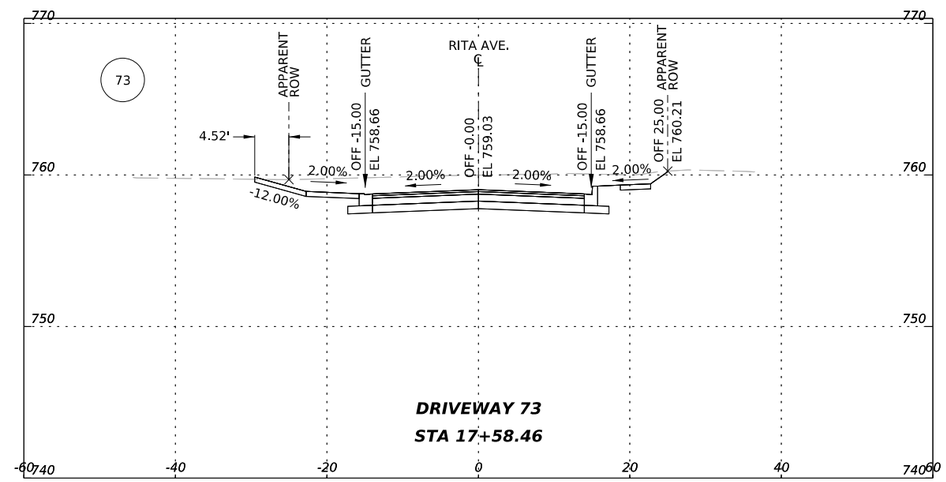
STA 17+50.00



DRIVEWAY 76
STA 17+91.74



DRIVEWAY 74
STA 17+37.85



DRIVEWAY 73
STA 17+58.46

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CULEBRA AREA STREETS

RITA AVE. CROSS SECTIONS

100% SUBMITTAL	PROJECT NO: 23-03873		DATE: 05/28/2025
DRWN. BY: SS	DSGN. BY: SS	CHKD. BY: MG	SHEET NO: 106

5/22/2025 7:49:19 PM
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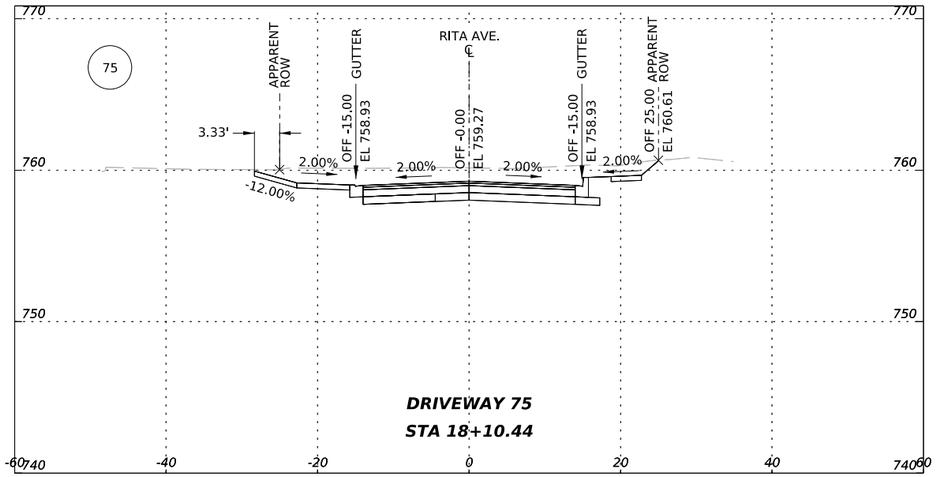

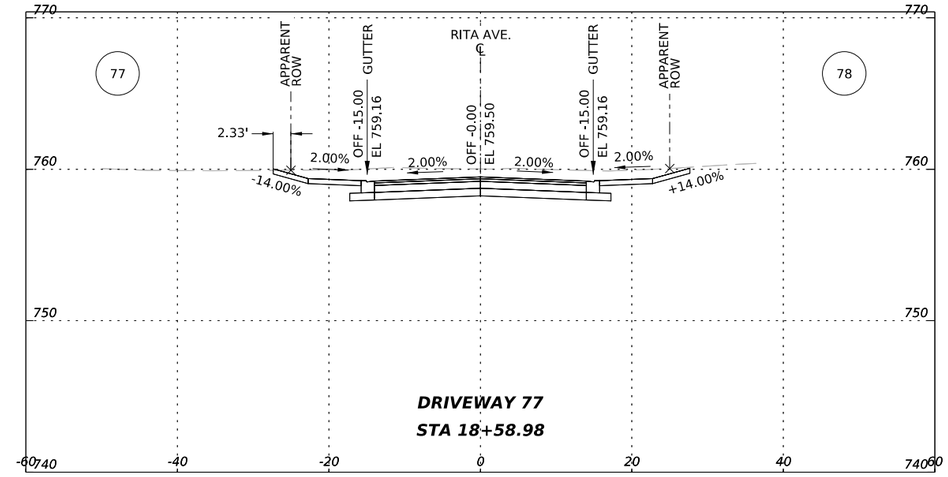

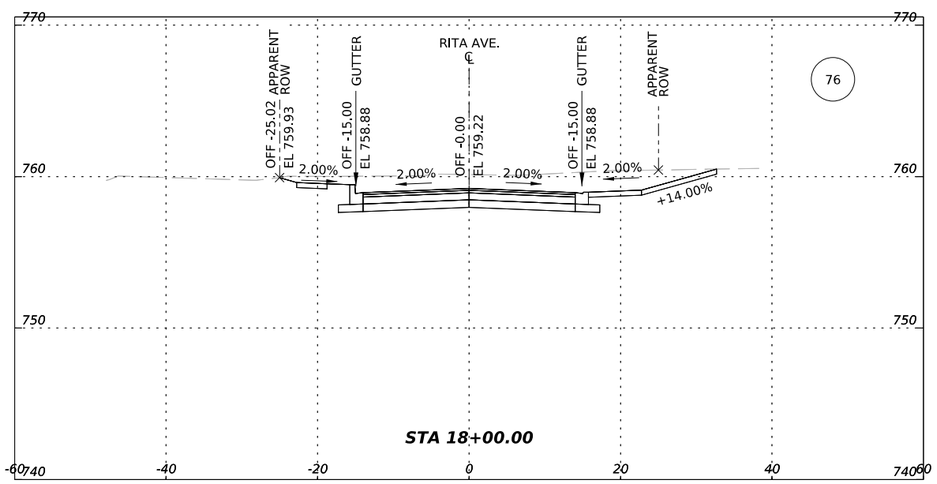

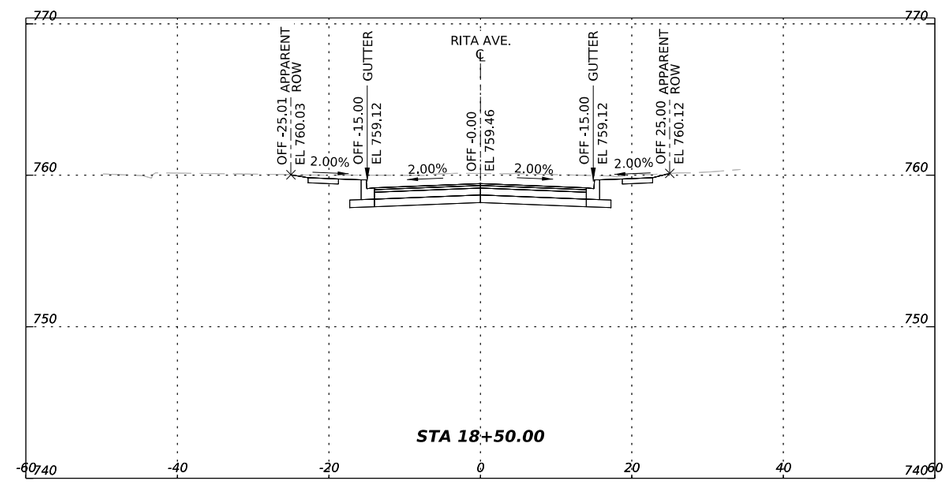

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CULEBRA AREA STREETS

RITA AVE. CROSS SECTIONS

100% SUBMITTAL	PROJECT NO: 23-03873		DATE: 05/28/2025
DRWN. BY: SS	DSGN. BY: SS	CHKD. BY: MG	SHEET NO: 107

5/22/2025 7:49:43 PM
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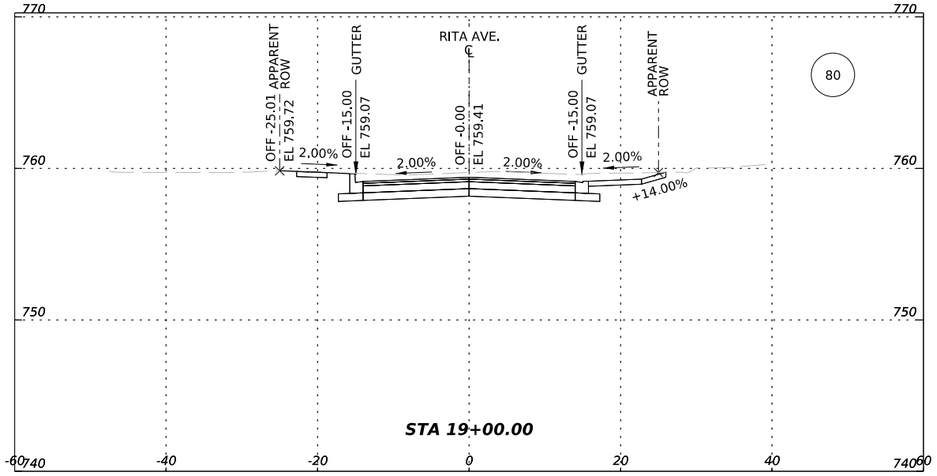

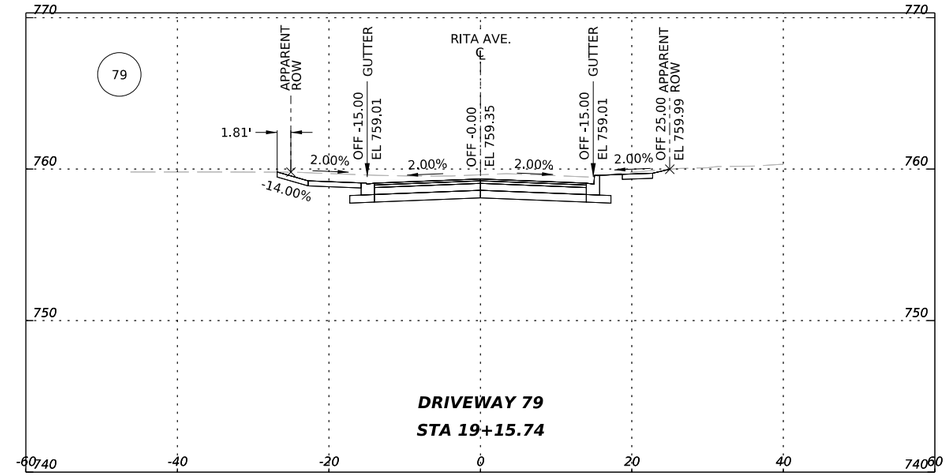

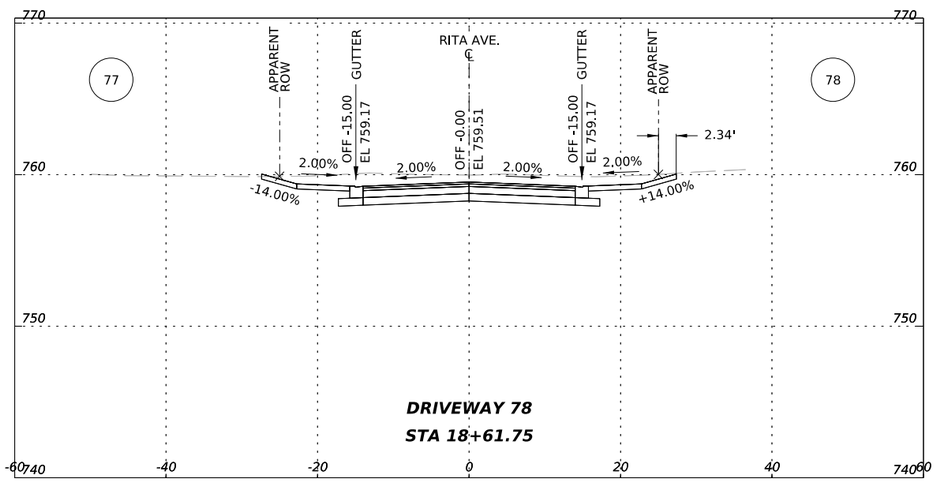

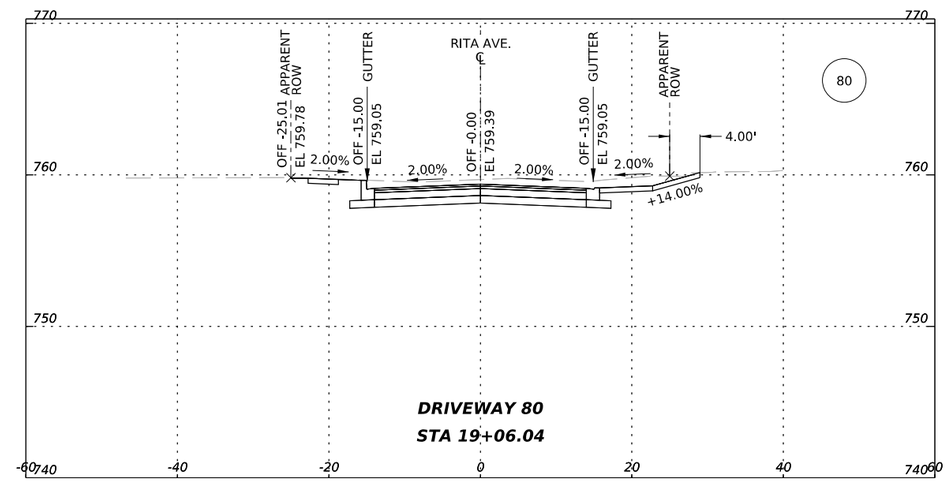

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CULEBRA AREA STREETS

RITA AVE. CROSS SECTIONS

100% SUBMITTAL	PROJECT NO: 23-03873		DATE: 05/28/2025
DRWN. BY: SS	DSGN. BY: SS	CHKD. BY: MG	SHEET NO: 108

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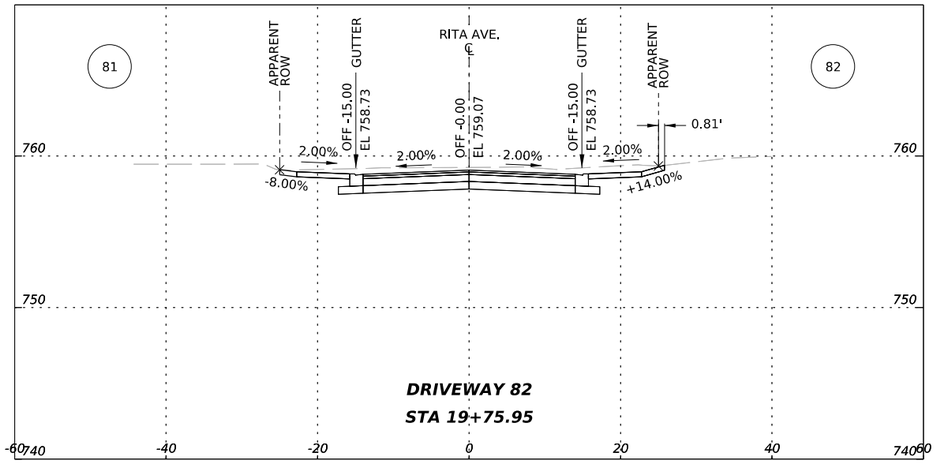
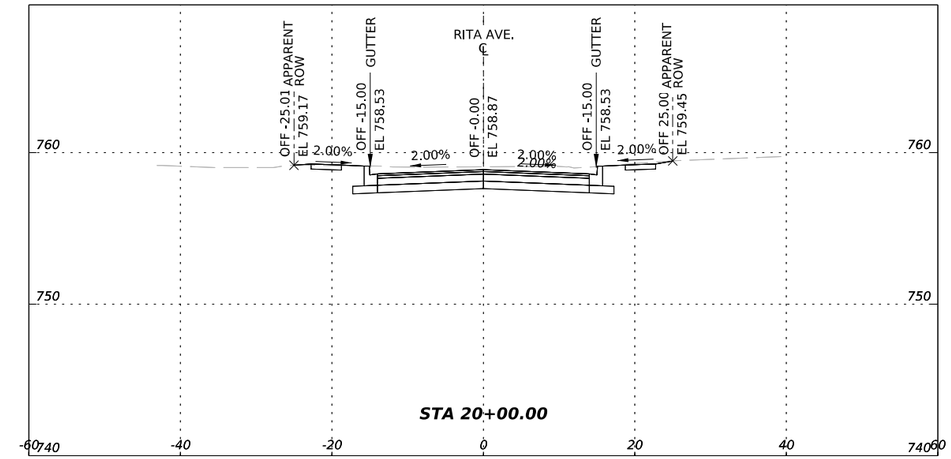
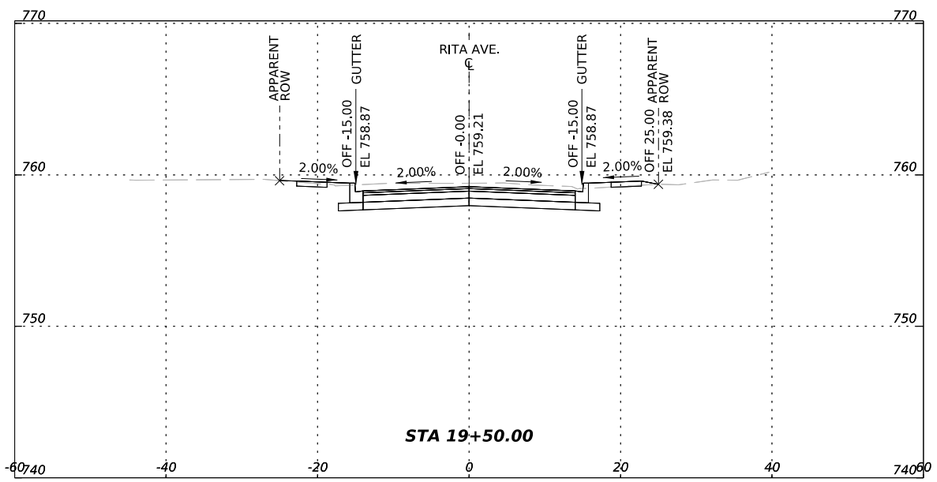


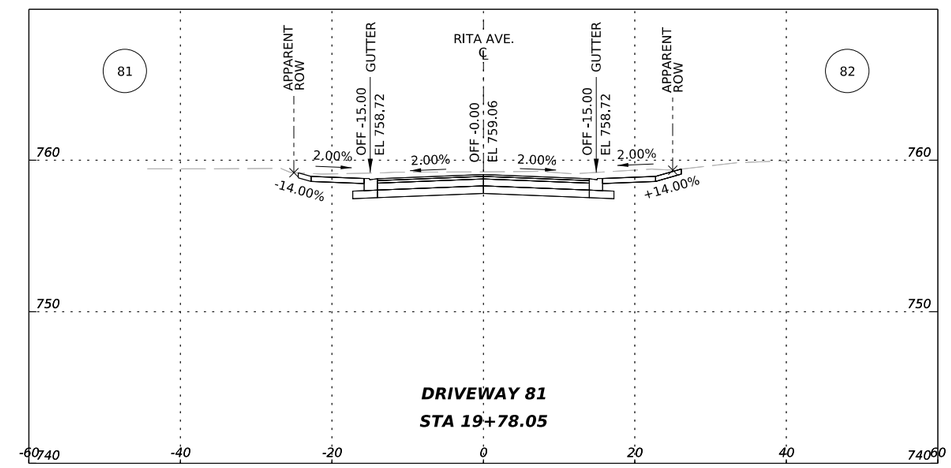
DRIVEWAY 82
STA 19+75.95



STA 20+00.00



STA 19+50.00



DRIVEWAY 81
STA 19+78.05

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CULEBRA AREA STREETS

RITA AVE. CROSS SECTIONS

100% SUBMITTAL	PROJECT NO: 23-03873		DATE: 05/28/2025
DRWN. BY: SS	DSGN. BY: SS	CHKD. BY: MG	SHEET NO: 109

5/22/2025 7:51:53 PM
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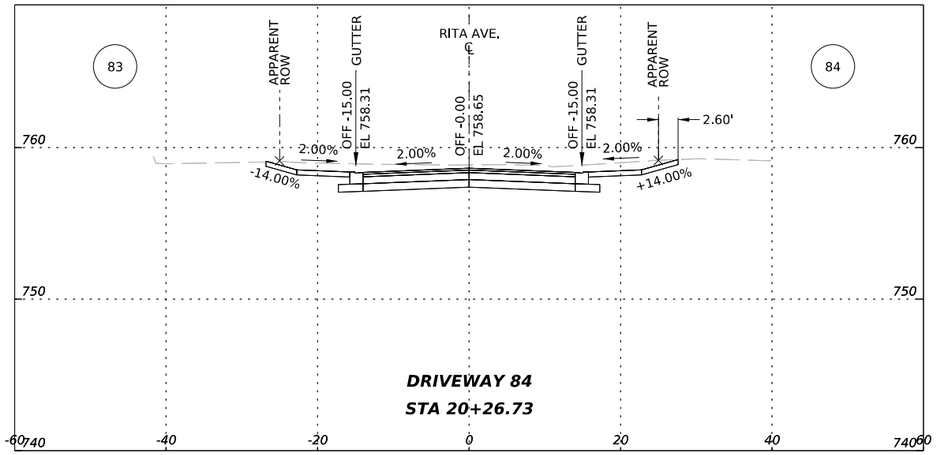

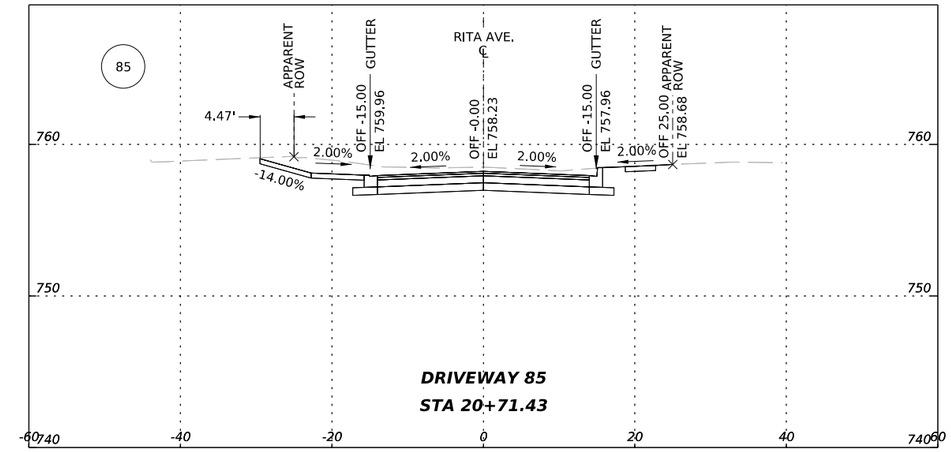

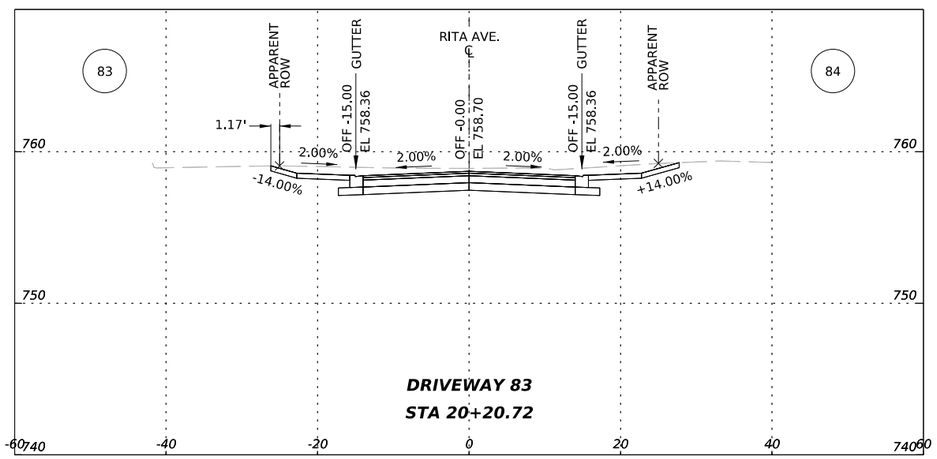

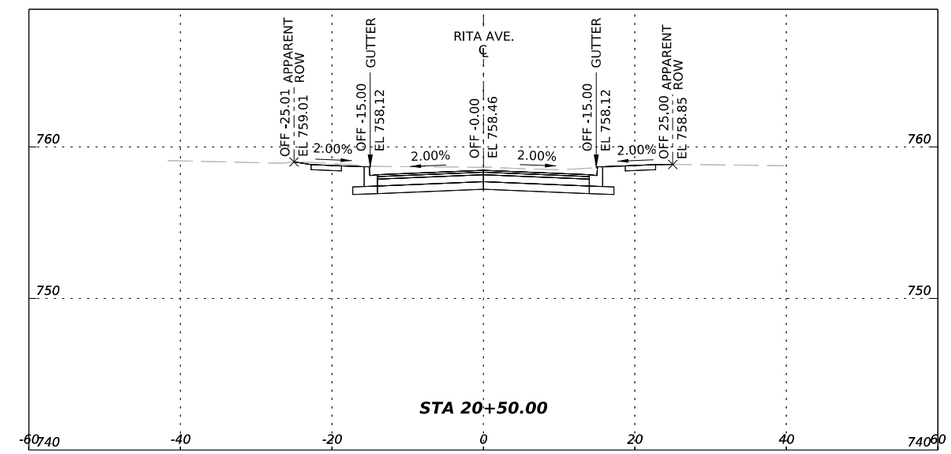

STATE OF TEXAS
MARTIN M. GONZALES
121996
LICENSED
PROFESSIONAL ENGINEER

5.28.25

AG3
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CITY OF SAN ANTONIO
PUBLIC WORKS DEPARTMENT

CULEBRA AREA STREETS

RITA AVE. CROSS SECTIONS

100% SUBMITTAL	PROJECT NO: 23-03873		DATE: 05/28/2025
DRWN. BY: SS	DSGN. BY: SS	CHKD. BY: MG	SHEET NO: 110

5/22/2025 7:52:27 PM
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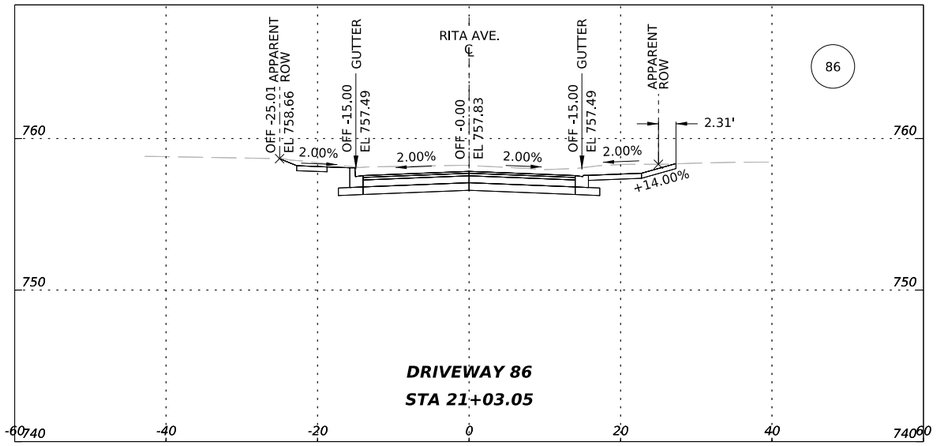

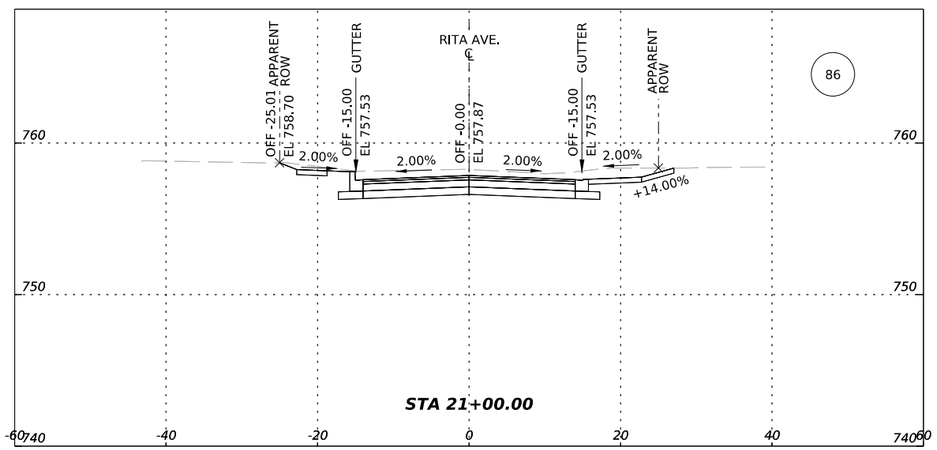

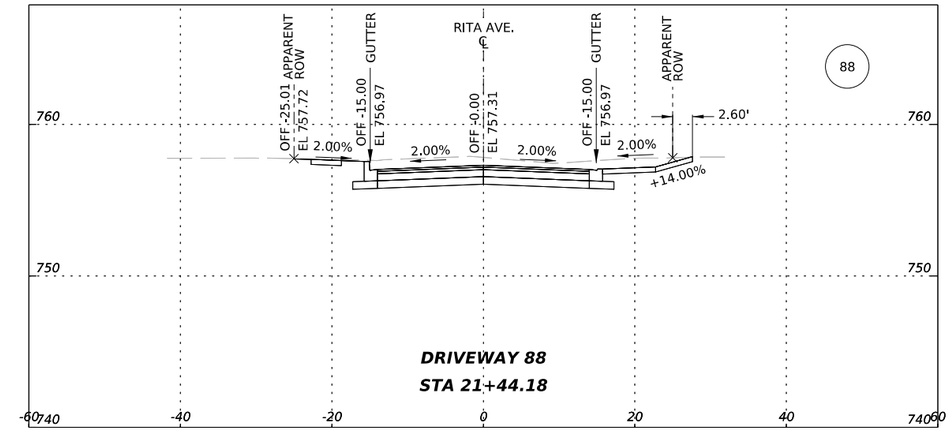

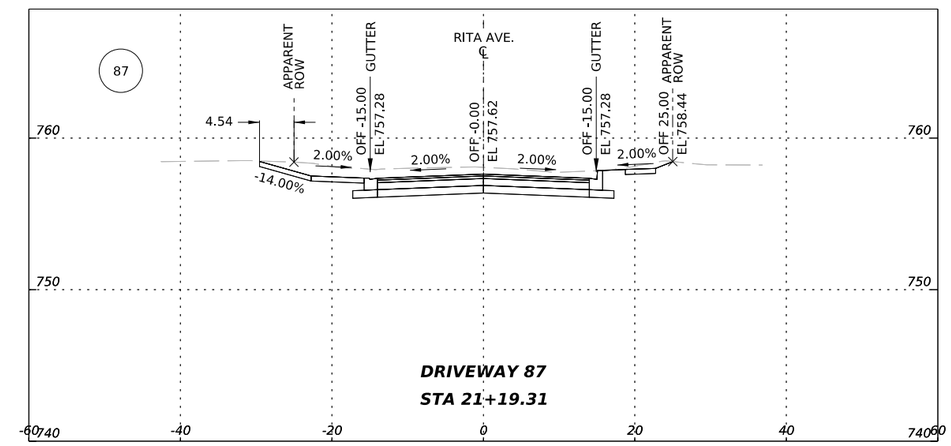

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CULEBRA AREA STREETS

RITA AVE. CROSS SECTIONS

100% SUBMITTAL	PROJECT NO: 23-03873		DATE: 05/28/2025
DRWN. BY: SS	DSGN. BY: SS	CHKD. BY: MG	SHEET NO: 111

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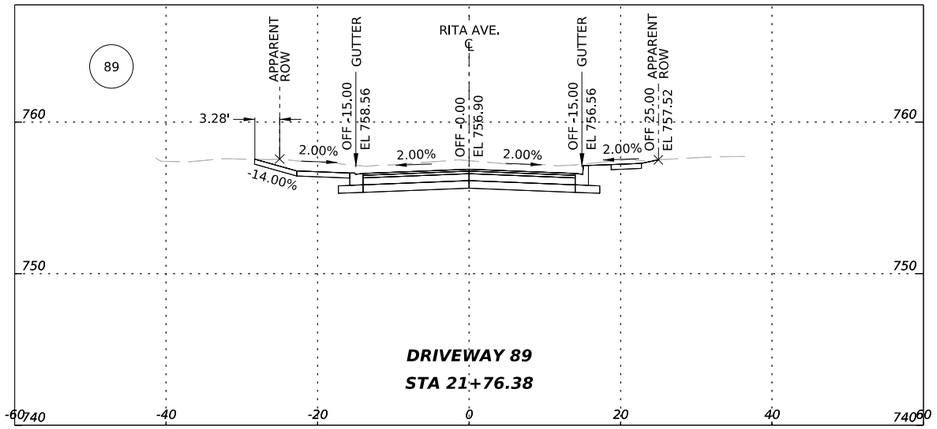

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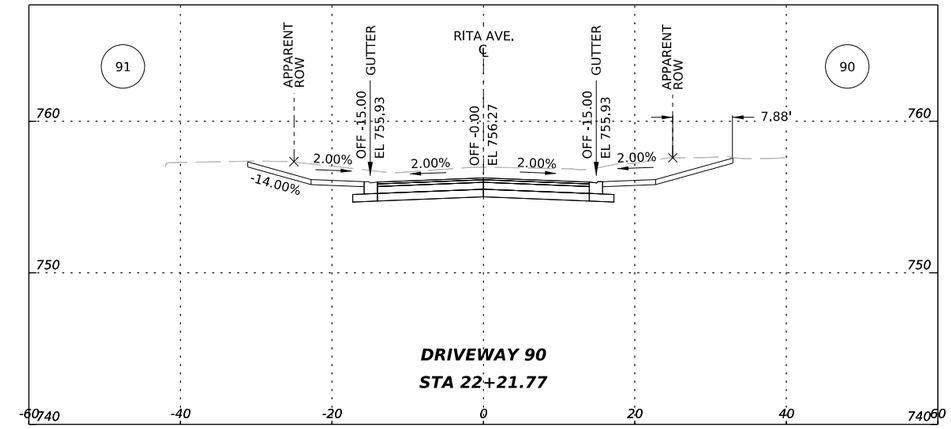
STA 21+76.38



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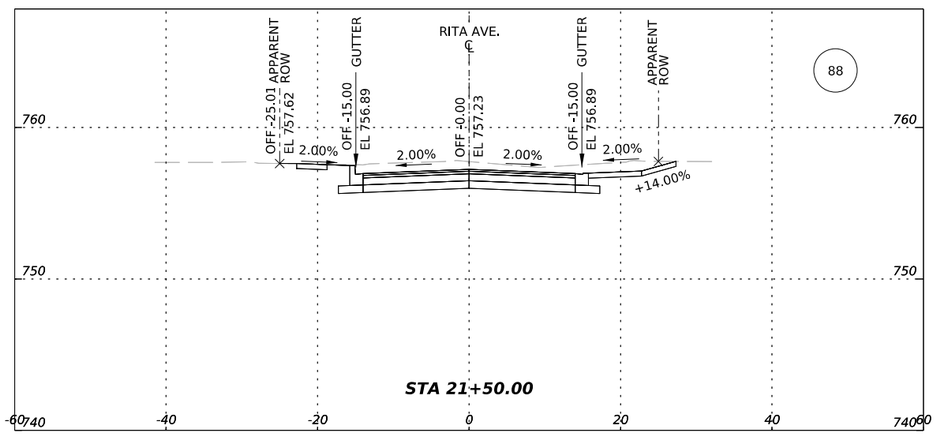

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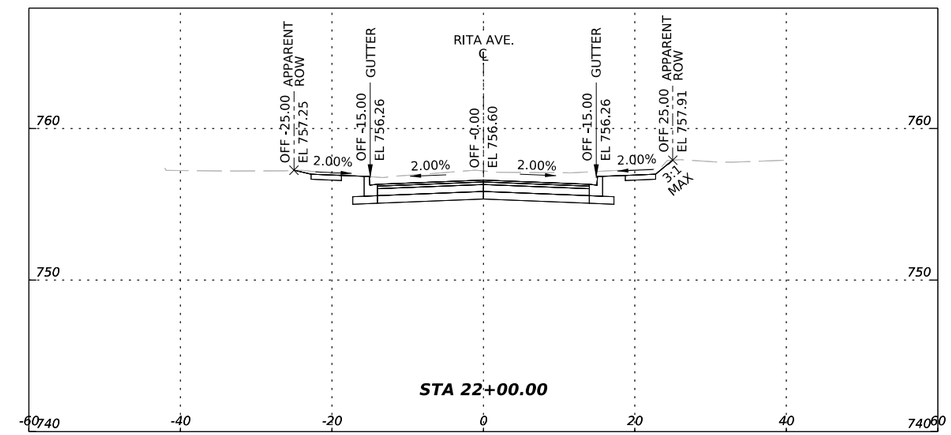

STA 22+00.00

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CULEBRA AREA STREETS

RITA AVE. CROSS SECTIONS

100% SUBMITTAL	PROJECT NO: 23-03873		DATE: 05/28/2025
DRWN. BY: SS	DSGN. BY: SS	CHKD. BY: MG	SHEET NO: 112

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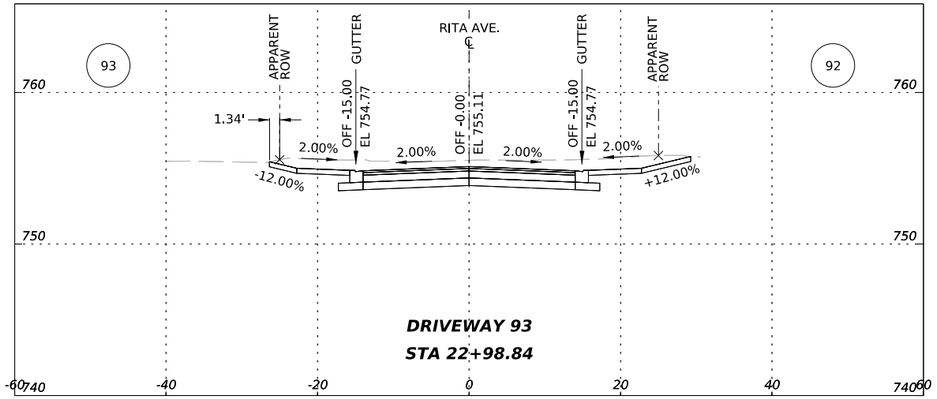
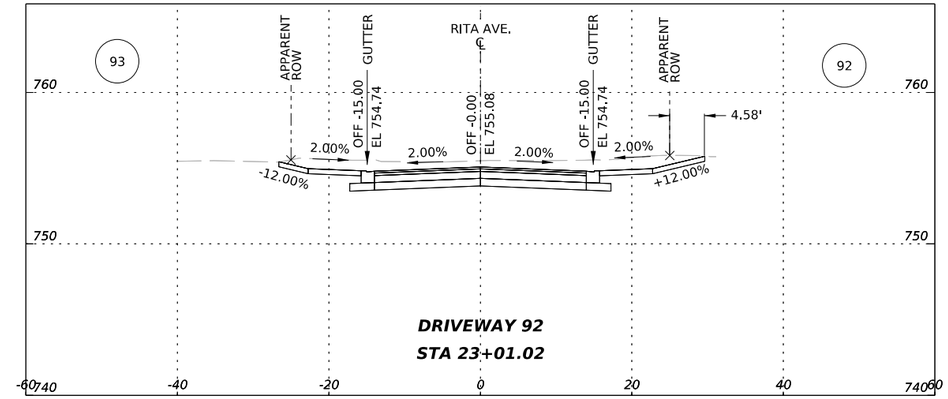
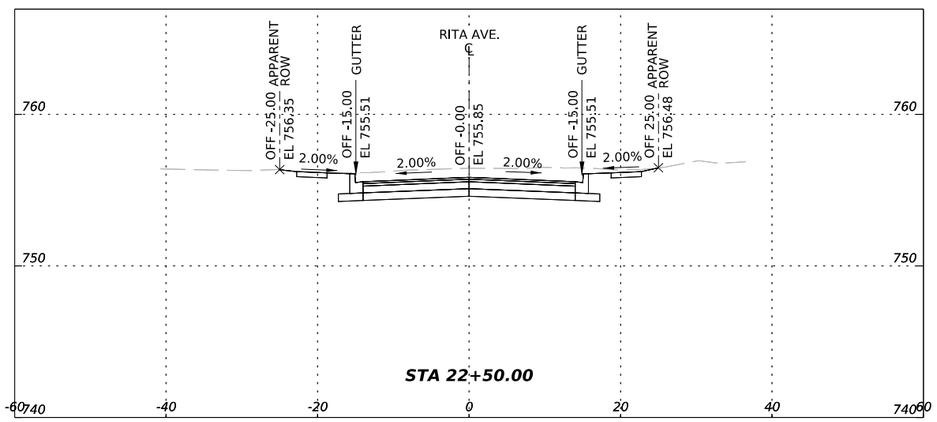


DRIVEWAY 93
STA 22+98.84



DRIVEWAY 92
STA 23+01.02



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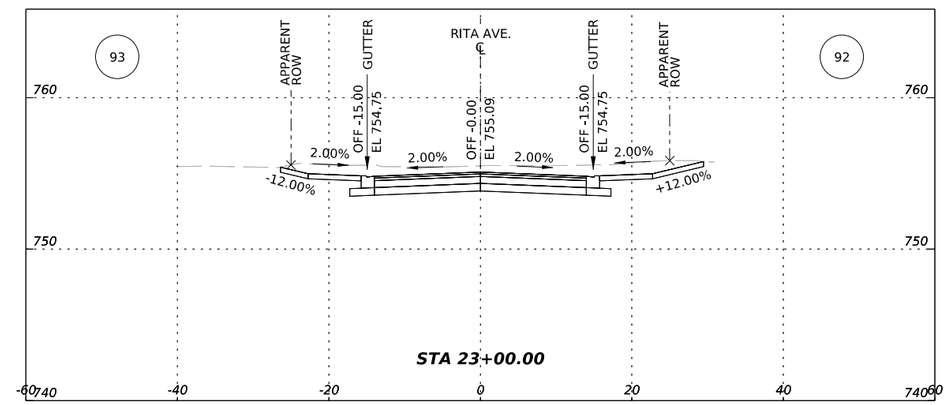
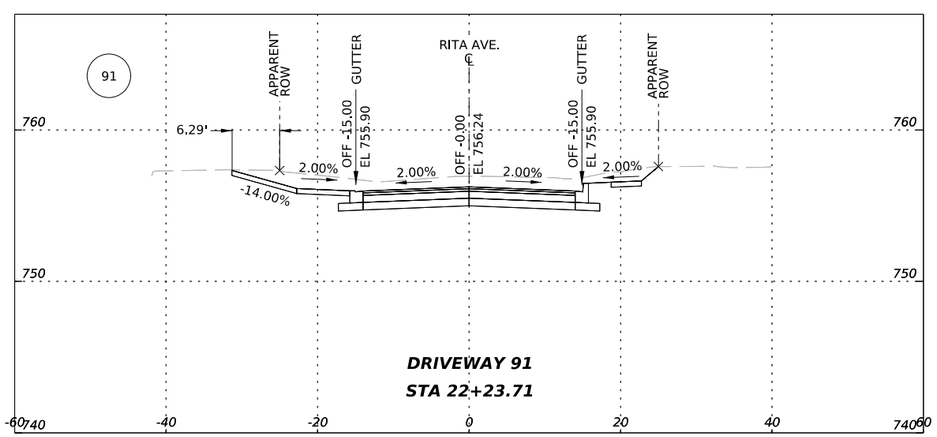


STA 23+00.00



DRIVEWAY 91
STA 22+23.71

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CITY OF SAN ANTONIO
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CULEBRA AREA STREETS

RITA AVE. CROSS SECTIONS

100% SUBMITTAL	PROJECT NO: 23-03873		DATE: 05/28/2025
DRWN. BY: SS	DSGN. BY: SS	CHKD. BY: MG	SHEET NO: 113

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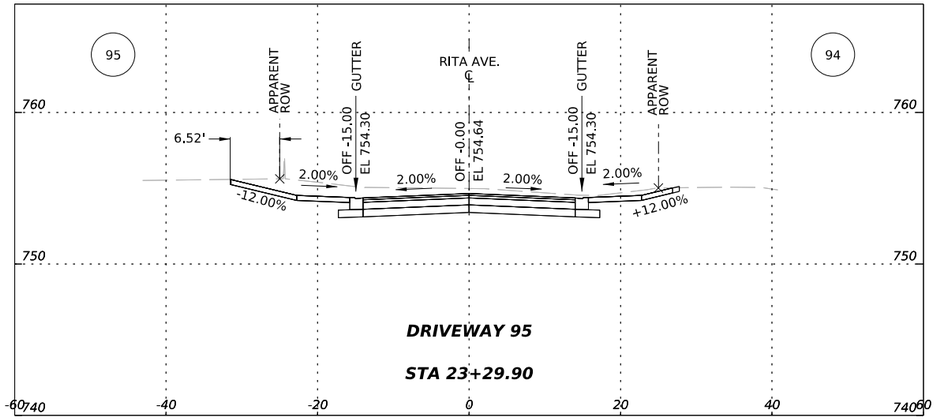

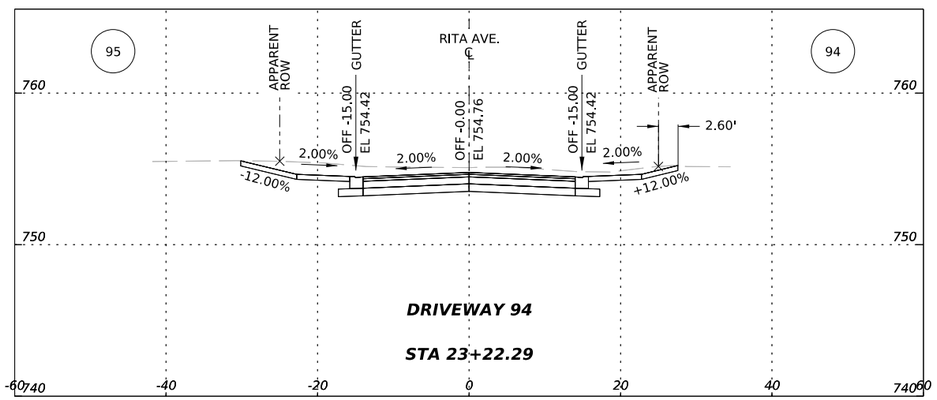

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CULEBRA AREA STREETS

RITA AVE. CROSS SECTIONS

100% SUBMITTAL	PROJECT NO: 23-03873		DATE: 05/28/2025
DRWN. BY: SS	DSGN. BY: SS	CHKD. BY: MG	SHEET NO: 114

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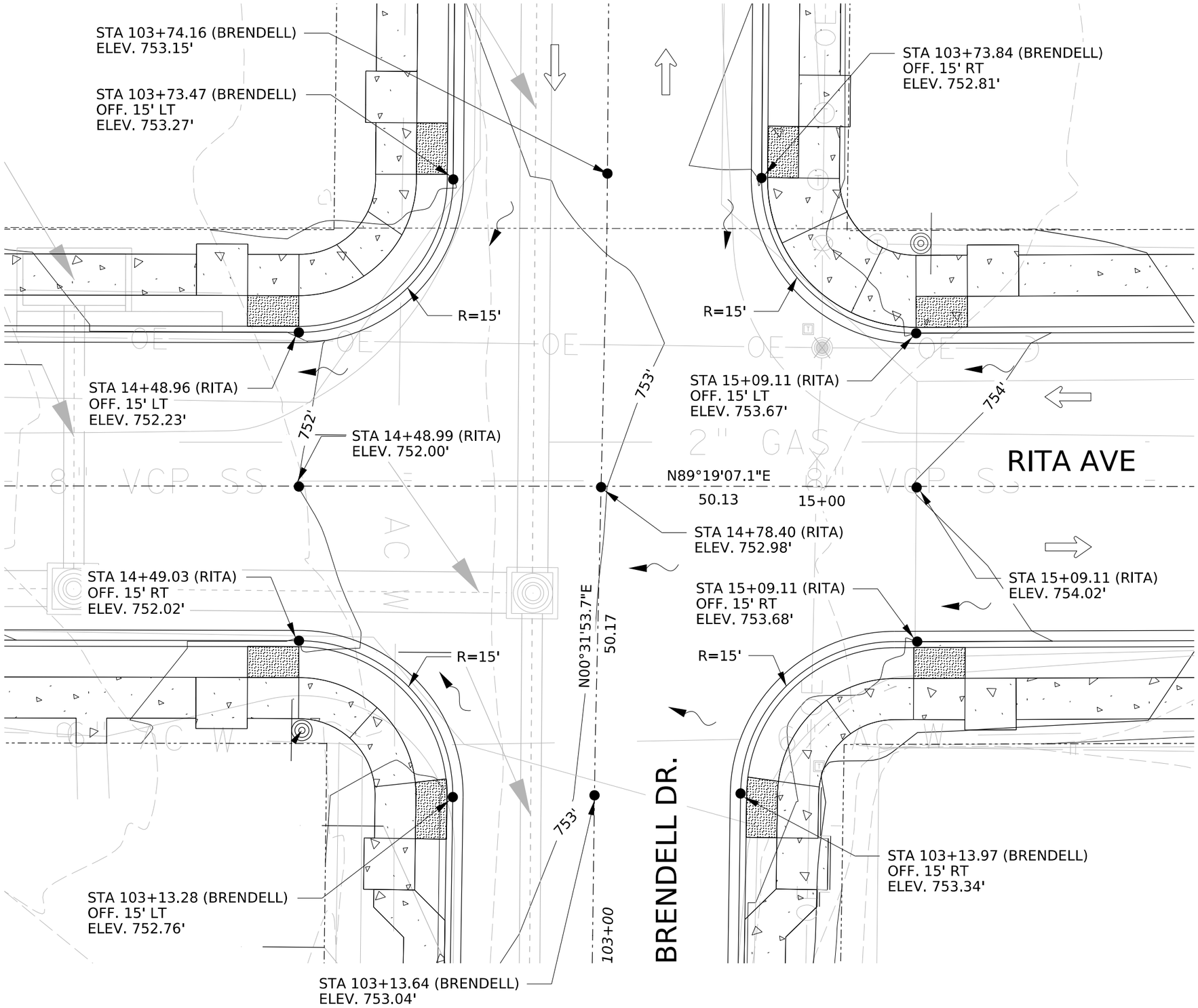

LEGEND

PROP CONC SDWK	
PROPERTY LINE	
EXIST ROW	
TRAFFIC FLOW	
FLOW ARROW	

NOTES

1. ALL RADII ARE MEASURED TO THE FACE OF CURB.
2. PROPOSED SIDEWALK, CURB, AND PEDESTRIAN RAMPS SHALL MATCH GRADES AND ELEVATIONS AT ALL TIE-IN LOCATIONS

GRAPHIC SCALE

0 2.5 5 10 15

1" = 10'
HORIZONTAL SCALE

STATE OF TEXAS
MARTIN M. GONZALES
121996
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5.28.25

NO.	REVISION	BY	DATE
3			
2			
1			

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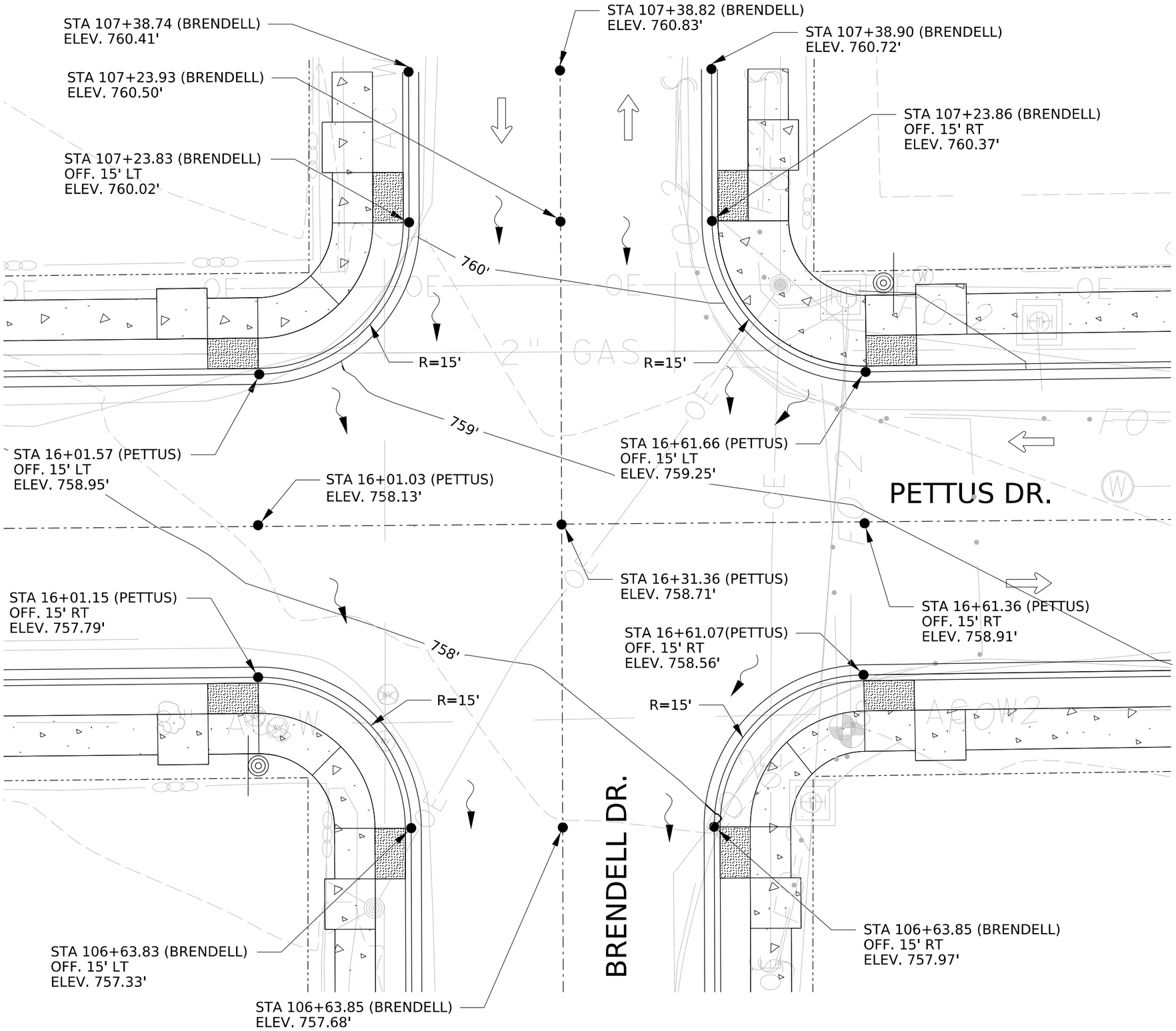
TBPLS #10194622

CITY OF SAN ANTONIO
PUBLIC WORKS DEPARTMENT

CULEBRA AREA STREETS

BRENDELL AND RITA INTERSECTION LAYOUT

100% SUBMITTAL	PROJECT NO: 23-03873		DATE: 05/28/2025
DRWN. BY: SS	DSGN. BY: SS	CHKD. BY: MG	SHEET NO: 115



LEGEND

PROP CONC SDWK	
PROPERTY LINE	
EXIST ROW	
TRAFFIC FLOW	
FLOW ARROW	

NOTES

1. ALL RADII ARE MEASURED TO THE FACE OF CURB.
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0 2.5 5 10 15

1" = 10'
HORIZONTAL SCALE

STATE OF TEXAS
MARTIN M. GONZALES
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5.28.25

NO.	REVISION	BY	DATE
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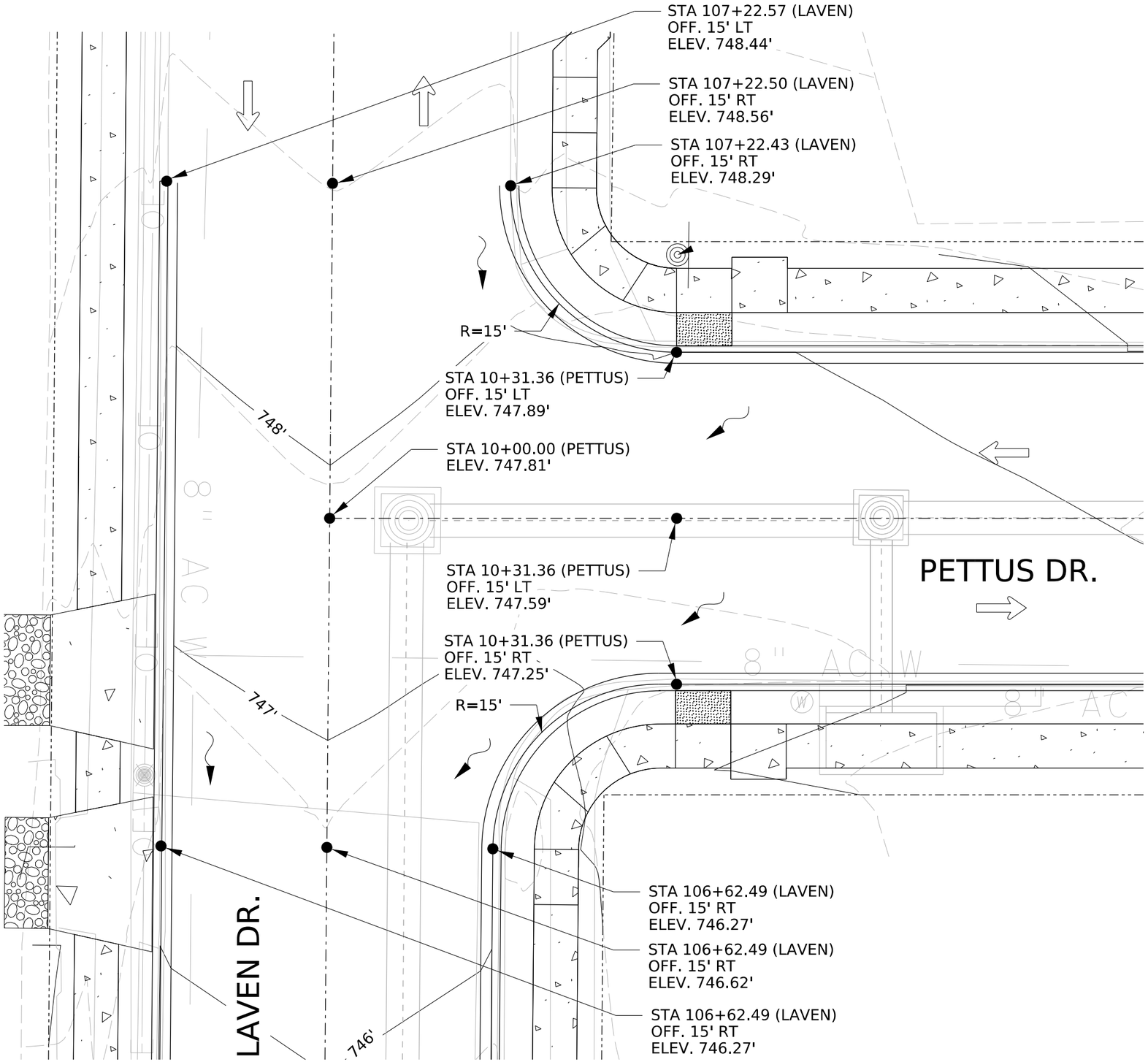
TBPLS #10194622

CITY OF SAN ANTONIO
PUBLIC WORKS DEPARTMENT

CULEBRA AREA STREETS

BRENDELL AND PETTUS INTERSECTION LAYOUT

100% SUBMITTAL	PROJECT NO: 23-03873		DATE: 05/28/2025
DRWN. BY: SS	DSGN. BY: SS	CHKD. BY: MG	SHEET NO: 116



LEGEND

PROP CONC SDWK	
PROPERTY LINE	
EXIST ROW	
TRAFFIC FLOW	
FLOW ARROW	

NOTES

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GRAPHIC SCALE

0 2.5 5 10 15

1" = 10'
HORIZONTAL SCALE

STATE OF TEXAS
MARTIN M. GONZALES
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NO.	REVISION	BY	DATE
3			
2			
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CITY OF SAN ANTONIO
PUBLIC WORKS DEPARTMENT

CULEBRA AREA STREETS

LAVEN AND PETTUS INTERSECTION LAYOUT

100% SUBMITTAL	PROJECT NO: 23-03873		DATE: 05/28/2025
DRWN. BY: SS	DSGN. BY: SS	CHKD. BY: MG	SHEET NO: 117

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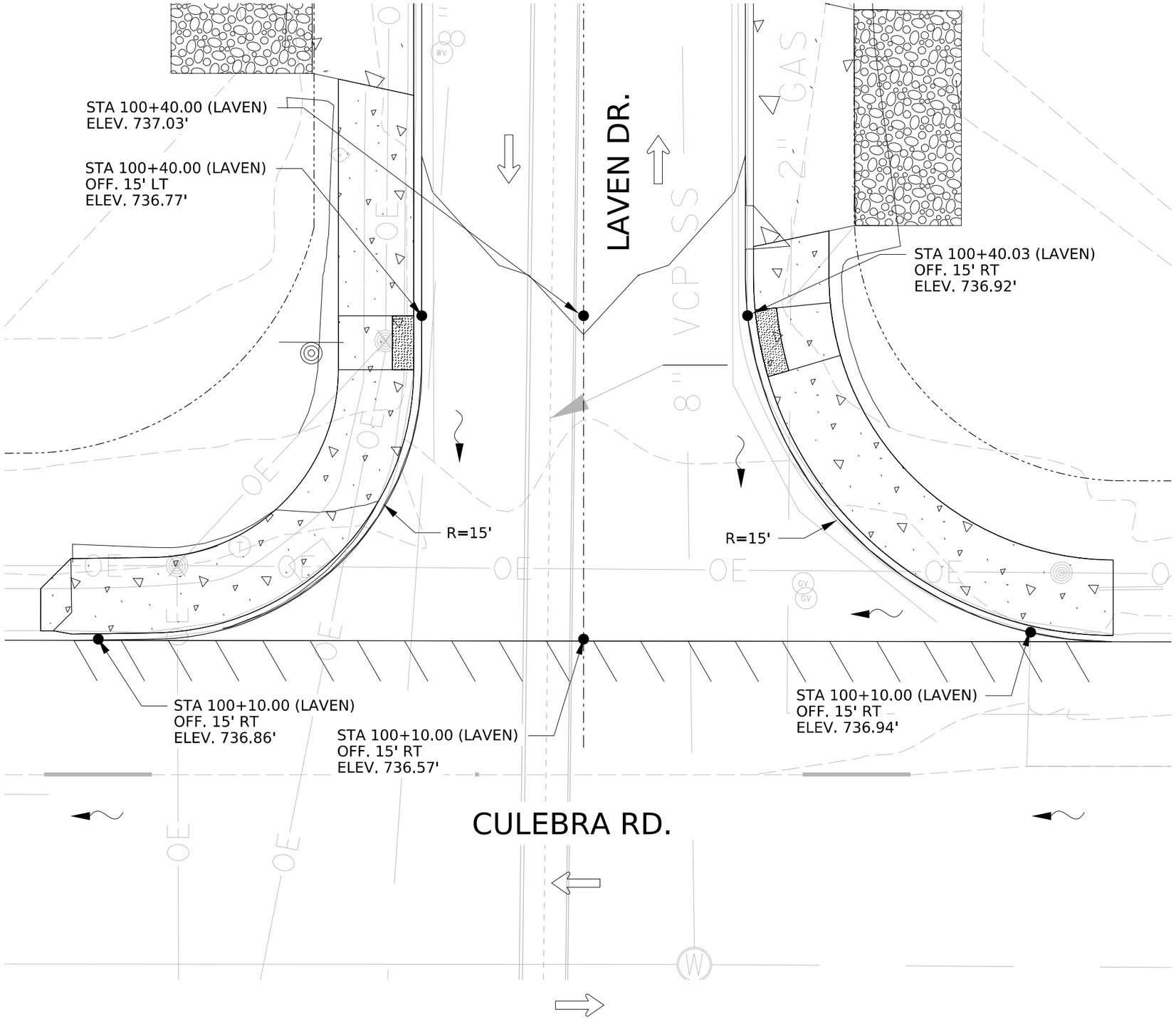

LEGEND

PROP CONC SDWK	
PROPERTY LINE	
EXIST ROW	
TRAFFIC FLOW	
FLOW ARROW	

NOTES

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1" = 10'
HORIZONTAL SCALE

STATE OF TEXAS
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NO.	REVISION	BY	DATE
3			
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CITY OF SAN ANTONIO
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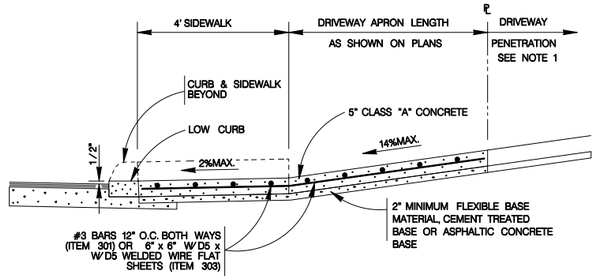
CULEBRA AREA STREETS

LAVEN AND CULEBRA INTERSECTION LAYOUT

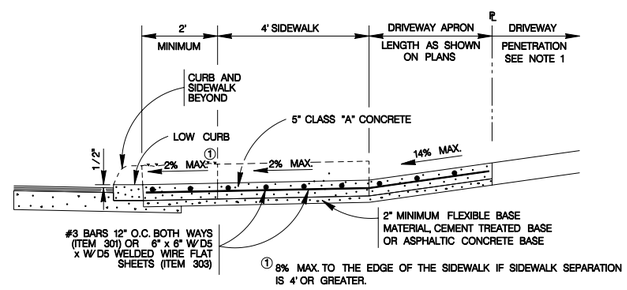
100% SUBMITTAL	PROJECT NO: 23-03873		DATE: 05/28/2025
DRWN. BY: SS	DSGN. BY: SS	CHKD. BY: MG	SHEET NO: 118



TYPICAL RESIDENTIAL DRIVEWAY SECTION

WITH SIDEWALK ABUTTING CURB

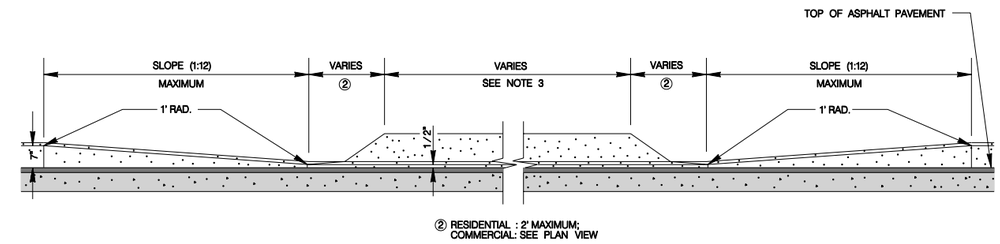
ITEM 503.1



TYPICAL RESIDENTIAL DRIVEWAY SECTION

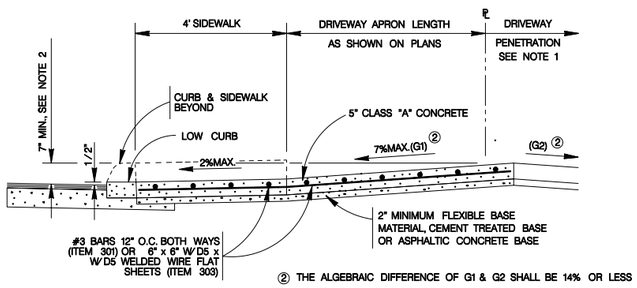
WITH SIDEWALK SEPARATED FROM CURB

ITEM 503.1



CURB PROFILE AT DRIVEWAY

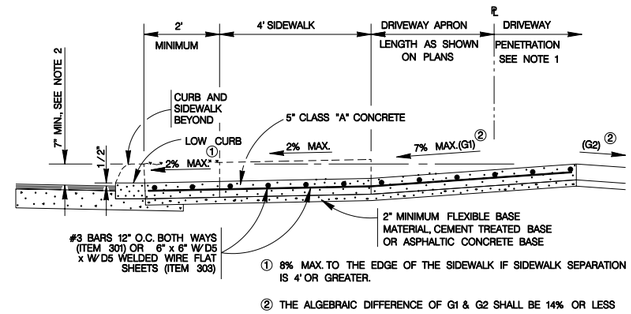
WITH SIDEWALK ABUTTING CURB



TYPICAL RESIDENTIAL DRIVEWAY SECTION

WHERE PROPERTY IS LOWER THAN STREET & SIDEWALK IS ABUTTING CURB

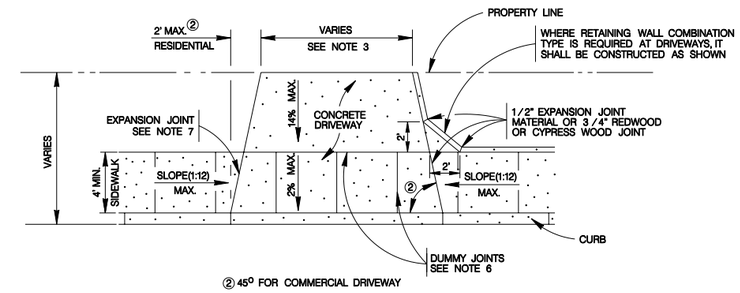
ITEM 503.1



TYPICAL RESIDENTIAL DRIVEWAY SECTION

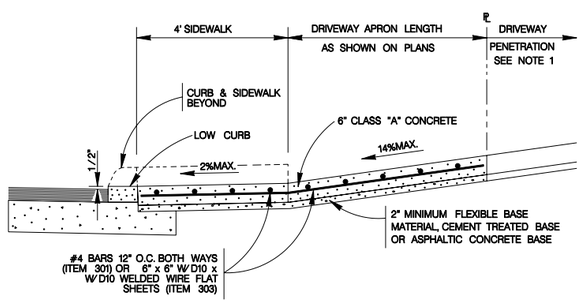
WHERE PROPERTY IS LOWER THAN STREET & SIDEWALK IS SEPARATED FROM CURB

ITEM 503.1



TYPICAL DRIVEWAY PLAN VIEW

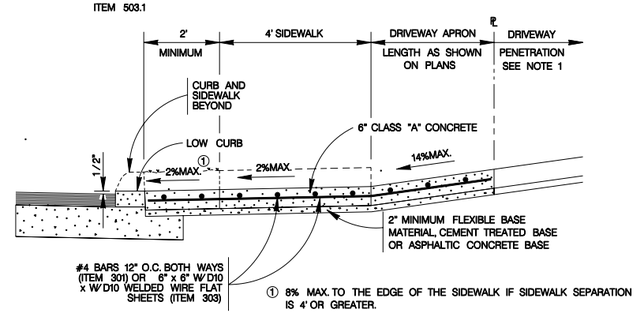
WITH SIDEWALK ABUTTING CURB



TYPICAL COMMERCIAL DRIVEWAY SECTION

WITH SIDEWALK ABUTTING CURB

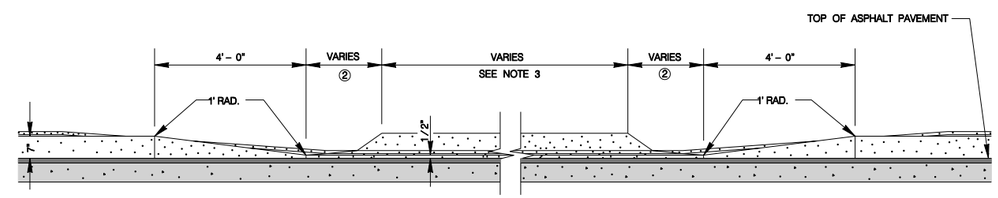
ITEM 503.2



TYPICAL COMMERCIAL DRIVEWAY SECTION

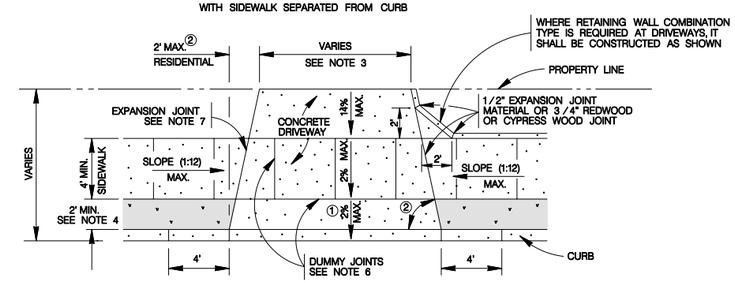
WITH SIDEWALK SEPARATED FROM CURB

ITEM 503.2



CURB PROFILE AT DRIVEWAY

WITH SIDEWALK SEPARATED FROM CURB



TYPICAL DRIVEWAY PLAN VIEW

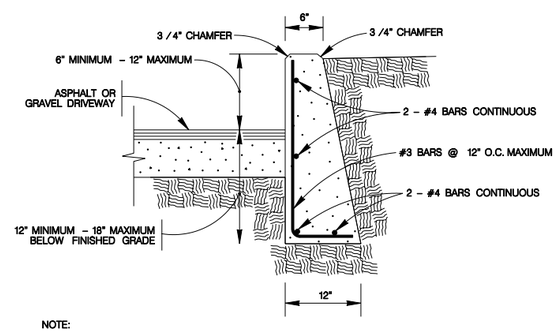
WITH SIDEWALK SEPARATED FROM CURB

CONCRETE DRIVEWAY NOTES

1. DRIVEWAY PENETRATION REFERS TO A PORTION OF THE DRIVEWAY THAT MAY BE NECESSARY TO RECONSTRUCT WITHIN PRIVATE PROPERTY TO COMPLY WITH A MAXIMUM DRIVEWAY SLOPE. THIS PORTION OF THE DRIVEWAY SHALL BE PAID FOR UNDER THE FOLLOWING ITEMS AS MAY APPLY:
   A.) CONCRETE DRIVEWAY PAID FOR UNDER ITEM NO. 503.1 OR 503.2.
   B.) ASPHALTIC CONCRETE DRIVEWAY PAID FOR UNDER ITEM NO. 503.4 AND SHALL INCLUDE A MINIMUM OF 1" ASPHALT TYPE 'D' & 6" FLEXIBLE BASE
   C.) GRAVEL DRIVEWAY PAID FOR UNDER ITEM NO. 503.5 AND SHALL INCLUDE A MINIMUM OF 6" FLEXIBLE BASE
2. 7" MINIMUM HEIGHT WILL NOT NECESSARILY OCCUR AT THE PROPERTY LINE. IT MAY OCCUR WITHIN THE RIGHT OF WAY OR WITHIN THE DRIVEWAY PENETRATION ON PRIVATE PROPERTY.
3. THE PROPOSED DRIVEWAY SHOULD MATCH THE EXISTING WIDTH AT THE PROPERTY LINE BUT UNLESS AUTHORIZED BY THE CITY TRAFFIC ENGINEER, THE WIDTH SHALL BE WITHIN THE FOLLOWING VALUES:

TYPE	MINIMUM	MAXIMUM
RESIDENTIAL	10'	20'
COMMERCIAL – ONE WAY	12'	20'
COMMERCIAL – TWO WAY	24'	30'

4. FOR LOCAL TYPE "A" STREETS, SIDEWALK SHALL HAVE A MINIMUM WIDTH OF 4' AND IF SEPARATED FROM THE CURB, THE SIDEWALK SHALL BE LOCATED A MINIMUM OF 2' FROM THE BACK OF CURB.
5. FOR OTHER THAN LOCAL TYPE "A" STREETS, THE SIDEWALK SHALL HAVE A MINIMUM WIDTH OF 4' AND SEPARATED A MINIMUM OF 2' FROM THE BACK OF CURB OR, AS AN OPTION, THE SIDEWALK SHALL HAVE A MINIMUM WIDTH OF 6' WHEN LOCATED AT THE BACK OF CURB.
6. DUMMY JOINTS PARALLEL TO THE CURB SHALL BE PLACED WHERE THE SIDEWALK MEETS THE DRIVEWAY. DUMMY JOINTS PERPENDICULAR TO THE CURB, AND WITHIN THE BOUNDARIES OF THE PARALLEL DUMMY JOINTS, SHALL BE PLACED AT INTERVALS EQUAL TO THE WIDTH OF THE SIDEWALK.
7. A MINIMUM OF TWO ROUND AND SMOOTH DOWEL BARS 3/6" IN DIAMETER AND 18" IN LENGTH SHALL BE SPACED 18" APART AT EACH EXPANSION JOINT.
8. SIDEWALK RAMP LENGTHS SHALL BE OF SUFFICIENT LENGTH TO MAINTAIN 8.33% (1:12) MAXIMUM SLOPE. WHERE SIDEWALKS CROSS DRIVEWAYS, SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2%.
9. SIDEWALK RAMP SURFACE SHALL BE BRUSH FINISHED.



NOTE:

1. COST OF REINFORCEMENT TO BE INCLUDED IN UNIT COST OF ITEM 307.1.
2. CONCRETE RETAINING WALL COMBINATION TYPE SHALL BE USED FOR CONCRETE DRIVEWAYS.

DRIVEWAY – CONCRETE RETAINING WALL

ON COMPACTED SUBGRADE

ITEM 307.1

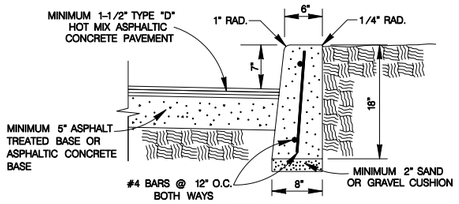
MAY 2009

CITY OF SAN ANTONIO

CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT

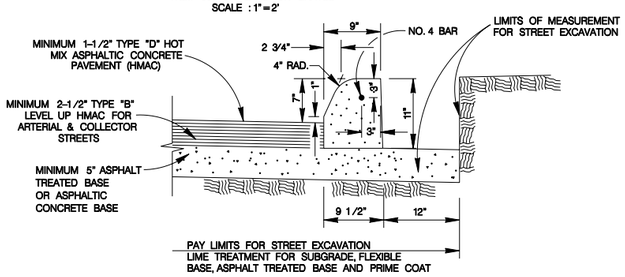
CONCRETE DRIVEWAY STANDARDS

____% SUBMITTAL	PROJECT NO.:_____		DATE:_____
DRWN. BY: V. VASQUEZ	DSGN. BY:_____	CHKD. BY: R.S. HOSSEINI, P.E.	SHEET NO.: 119



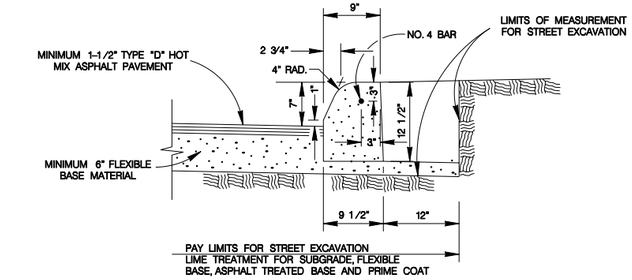
HEADER CURB

ITEM 500 ON SAND OR GRAVEL
SCALE : 1"=2'



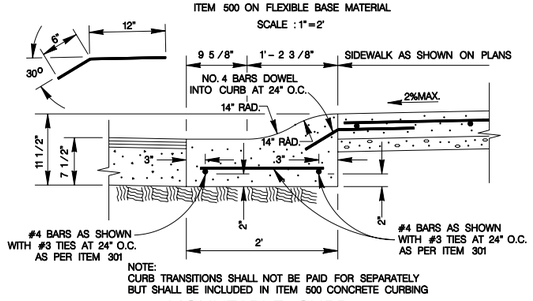
CONCRETE CURB

ITEM 500 ON ASPHALT TREATED BASE OR ASPHALTIC CONCRETE BASE
SCALE : 1"=2'



CONCRETE CURB

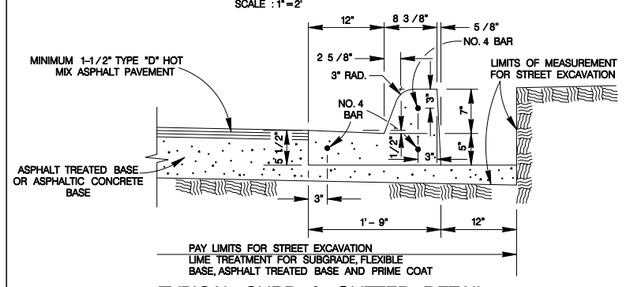
ITEM 500 ON FLEXIBLE BASE MATERIAL
SCALE : 1"=2'



NOTE:
CURB TRANSITIONS SHALL NOT BE PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN ITEM 500 CONCRETE CURBING

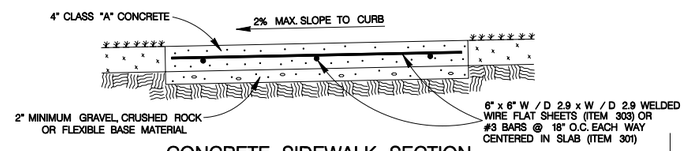
MOUNTABLE CURB

ITEM 500 ON COMPACTED SUBGRADE
SCALE : 1"=2'



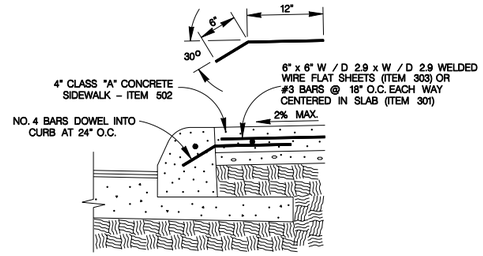
TYPICAL CURB & GUTTER DETAIL

ITEM 500 ON ASPHALT TREATED BASE OR ASPHALTIC CONCRETE BASE
SCALE : 1"=2'



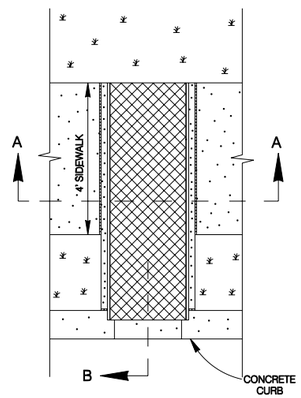
CONCRETE SIDEWALK SECTION

ITEM 502
SCALE : 1"=2'



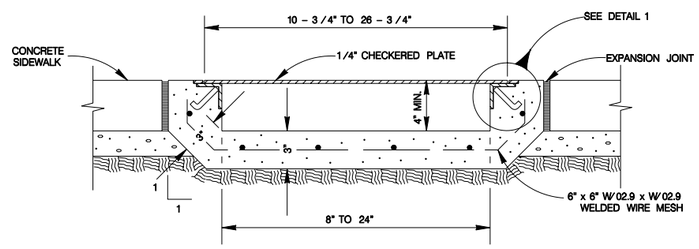
CONCRETE SIDEWALK ABUTTING CURB SECTION

ITEM 502
SCALE : 1"=2'



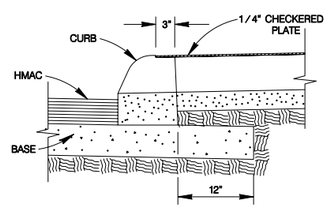
CONCRETE SIDEWALK DRAIN DETAIL

SCALE : 1"=4'



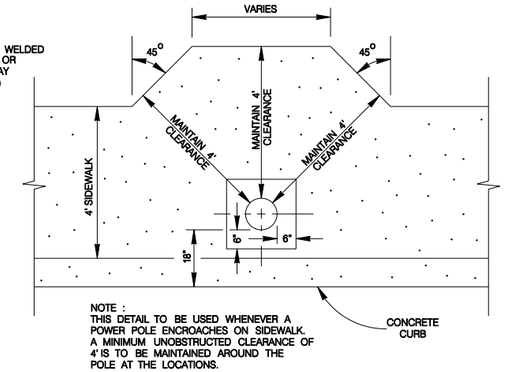
SECTION A–A

SCALE=1 : 12



SECTION B

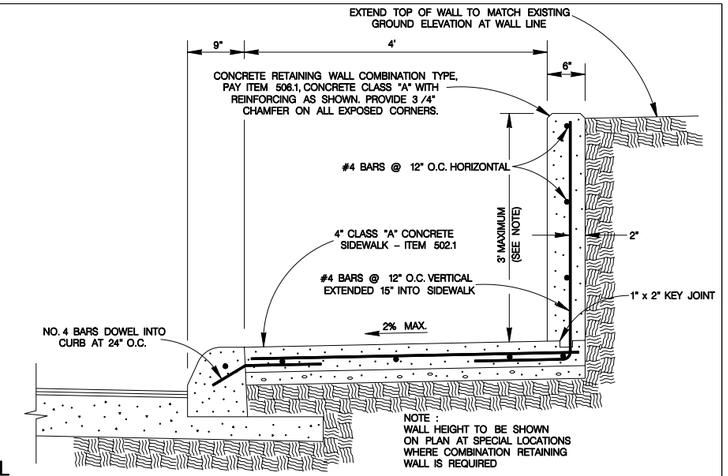
SCALE : 1"=2'



NOTE :
THIS DETAIL TO BE USED WHENEVER A POWER POLE ENCROACHES ON SIDEWALK. A MINIMUM UNOBSTRUCTED CLEARANCE OF 4' IS TO BE MAINTAINED AROUND THE POLE AT THE LOCATIONS.

CONCRETE SIDEWALK @ UTILITY POWER POLE DETAIL

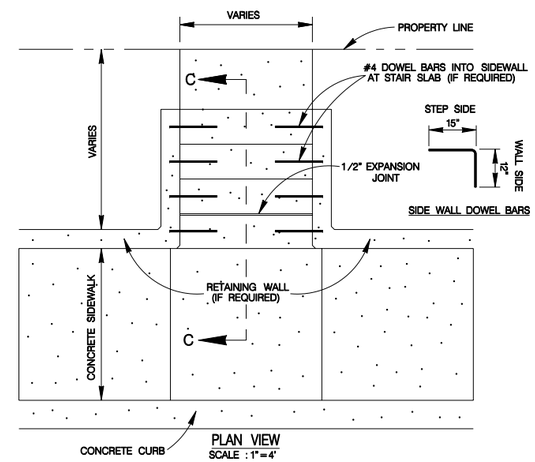
SCALE : 1"=4'



NOTE :
WALL HEIGHT TO BE SHOWN ON PLAN AT SPECIAL LOCATIONS WHERE COMBINATION RETAINING WALL IS REQUIRED

CONCRETE RETAINING WALL – COMBINATION TYPE

ITEM 506
SCALE : 1"=2'

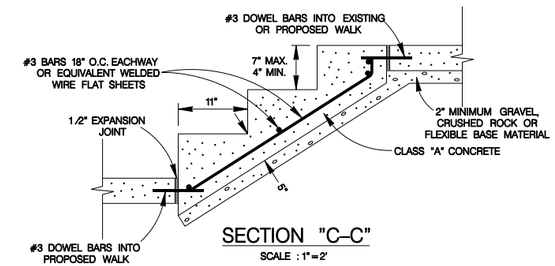


PLAN VIEW

SCALE : 1"=4'

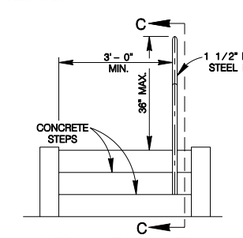
CONCRETE STEPS

ITEM 524



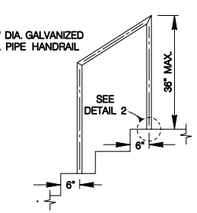
SECTION "C–C"

SCALE : 1"=2'



PIPE HANDRAIL DETAIL

PROFILE VIEW
SCALE : 1"=4'



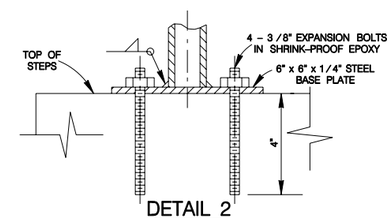
SECTION "D–D"

FRONT VIEW
SCALE : 1"=4'

NOTES :
1. PLACE STEPS TO CONFORM WITH PROPOSED PARKWAY GRADING
2. 1-1/2" DIA. GALVANIZED STEEL PIPE HANDRAIL REQUIRED ON ONE SIDE OF THE STEPS WHEN 3 OR MORE RISERS ARE USED, OR AS DESIGNED BY ENGINEER. TO BE PAID UNDER ITEM 522

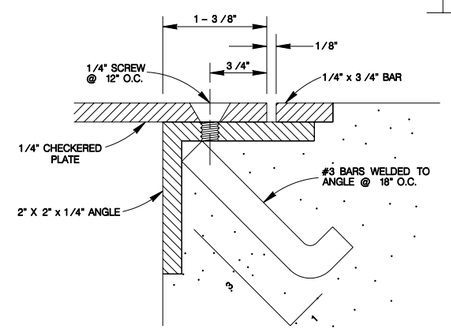
HANDRAIL FOR CONCRETE STEPS

ITEM 522



DETAIL 2

SCALE = 1 : 6



DETAIL 1

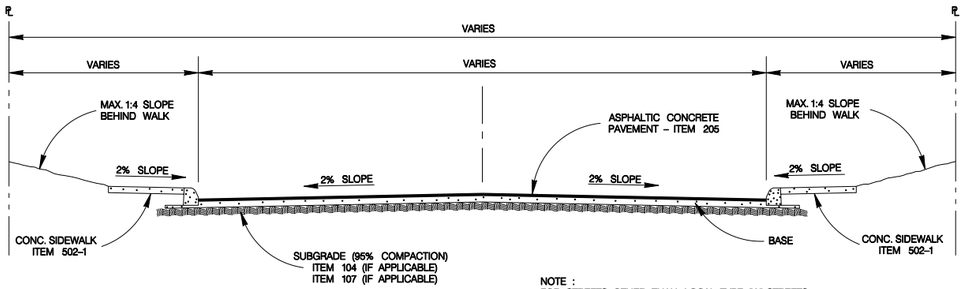
SCALE=1 : 1

MAY 2009

CITY OF SAN ANTONIO
CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT

MISCELLANEOUS CONSTRUCTION STANDARDS I

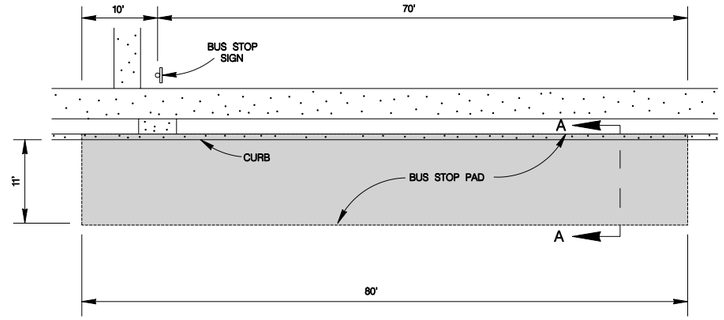
% SUBMITTAL	PROJECT NO.:	DATE:
DRWN. BY: V. VASQUEZ	DSGN. BY:	CHKD. BY: R.S. HOSSEINI, P.E.	SHEET NO.: 120



NOTE :
FOR STREETS OTHER THAN LOCAL TYPE "A" STREETS, THE EDGE OF THE SIDEWALK MUST BE LOCATED A MINIMUM OF TWO FEET AWAY FROM THE BACK OF THE CURB.

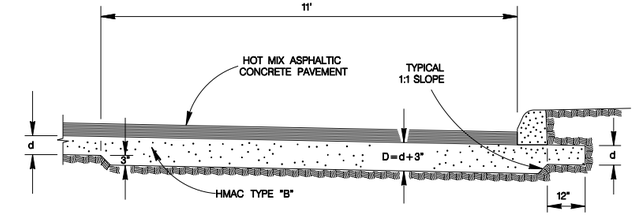
TYPICAL STREET SECTION

SCALE : 1" = 8'



PLAN VIEW

SCALE : 1" = 20'



SECTION "A–A"

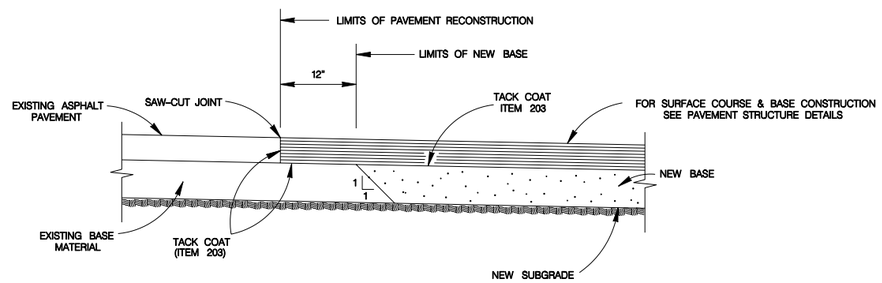
SCALE : 1" = 4'

NOTES :
1. EXCAVATION FOR THICKENED PAVEMENT SECTION WILL BE PAID UNDER ITEM NO. 104 "STREET EXCAVATION".

2. BASE MATERIALS :
   A.) IF THE MEASUREMENT FOR THE HMAC MATERIAL IS PER TON, THICKENED PAVEMENT SECTION WILL BE PAID FOR UNDER ITEM NO. 205, TYPE "B" – PER TON.
   B.) IF THE MEASUREMENT FOR THE HMAC MATERIAL IS PER SQUARE YARD, NO EXTRA PAYMENT WILL BE MADE FOR THE THICKENED PAVEMENT.

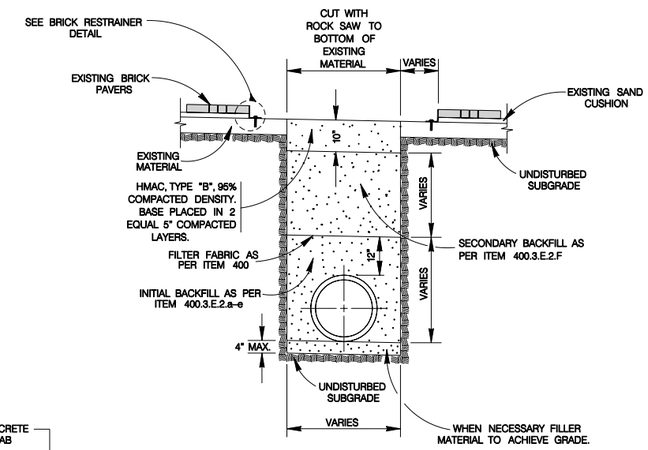
HMAC BUS STOP PAD

NEED CITY ENGINEER'S APPROVAL TO USE HMAC BUS PAD



PAVEMENT JUNCTION DETAILS

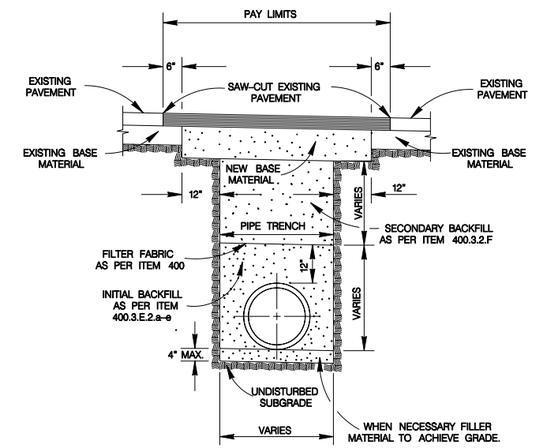
SCALE : 1" = 2'



TYPICAL BASE REPLACEMENT FOR BRICK SURFACED STREET SECTION

ITEM 511.3

SCALE : 1" = 4'



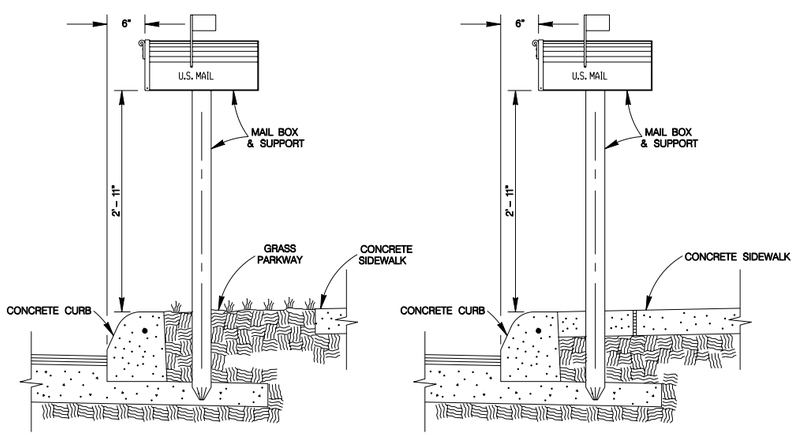
NOTES :
1. FOR LOCAL TYPE "A" & "B" STREETS (RESIDENTIAL) USE 6" ASPHALT CONCRETE BASE TYPE "B" WITH 1–1/2" TYPE "D" HOT MIX ASPHALTIC CONCRETE PAVEMENT.

2. FOR ARTERIAL & SECONDARY STREETS (COMMERCIAL) USE 12.5" TYPE "B" HOT MIX ASPHALTIC CONCRETE PAVEMENT LEVELING–UP COURSE & 1–1/2" TYPE "D" HOT MIX ASPHALTIC CONCRETE PAVEMENT SURFACE COURSE.

TYPICAL PAVEMENT REPLACEMENT

ITEM 511

SCALE : 1" = 4'



MAIL BOX PERPENDICULAR TO CURB

WHEN SIDEWALK IS DETACHED FROM CURB

SCALE : 1" = 2'

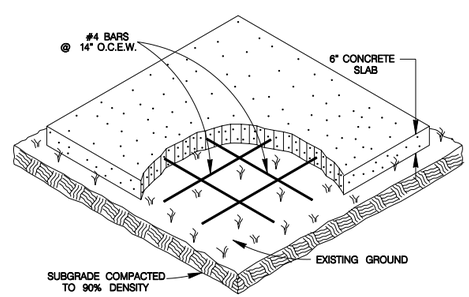
MAIL BOX PERPENDICULAR TO CURB

WHEN SIDEWALK IS ATTACHED TO CURB

SCALE : 1" = 2'

MAIL BOX LOCATION

ITEM 513.1



MAIL BOX PAD NOTES :
1. THE CONTRACTOR WILL CONSTRUCT SLABS FOR "TEMPORARY MAIL BOX COLLECTION PAD" FOR THE UNITED STATES POSTAL SERVICE WITH LOCATIONS AND SIZES SPECIFIED BY THE CITY ENGINEER DURING CONSTRUCTION.

2. THE CONSTRUCTION OF SLABS SHALL CONFORM TO ITEM 513 "REMOVING AND RELOCATING MAILBOXES".

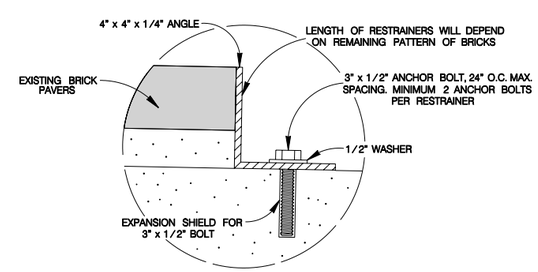
3. PAYMENT WILL BE MADE UNDER ITEM 513.2 "COMMUNITY MAILBOX SLAB – PER SQUARE YARD".

4. UNIT PRICE WILL INCLUDE REMOVAL OF "TEMPORARY MAIL BOX COLLECTION PAD" SLABS AT THE END OF THE PROJECT. NO SEPARATE PAY ITEM.

COMMUNITY MAIL BOX SLAB

ITEM 513.2

SCALE : 1" = 4'



BRICK RESTRAINER DETAIL

SCALE = 1 : 6

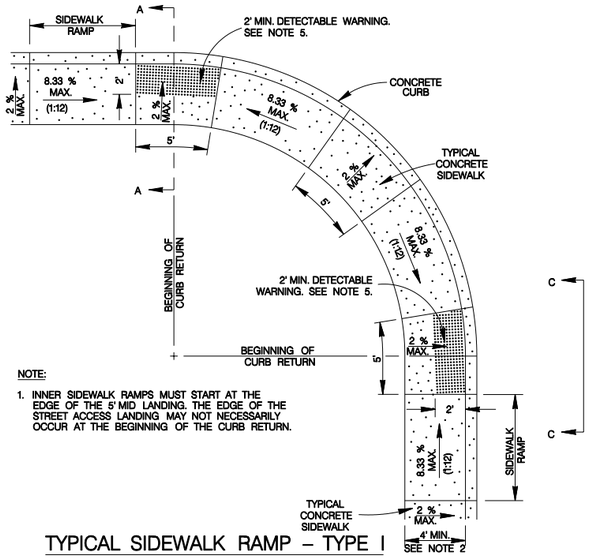
FEBRUARY 2010

CITY OF SAN ANTONIO

CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT

MISCELLANEOUS CONSTRUCTION STANDARDS II

% SUBMITTAL	PROJECT NO.:		DATE:
DRWN. BY: V. VASQUEZ	DSGN. BY:	CHKD. BY: R.S. HOSSEINI, P.E.	SHEET NO.: 121



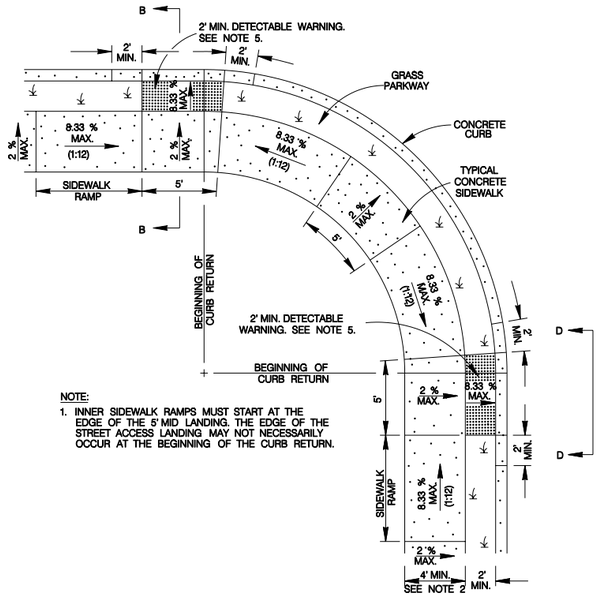
NOTE:

1. INNER SIDEWALK RAMPS MUST START AT THE EDGE OF THE 5' MID LANDING. THE EDGE OF THE STREET ACCESS LANDING MAY NOT NECESSARILY OCCUR AT THE BEGINNING OF THE CURB RETURN.

TYPICAL SIDEWALK RAMP – TYPE I

SIDEWALK ABUTS THE CURB

SCALE : 1" = 10'



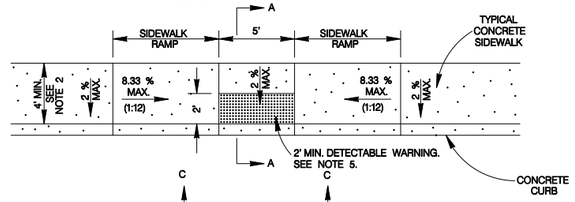
NOTE:

1. INNER SIDEWALK RAMPS MUST START AT THE EDGE OF THE 5' MID LANDING. THE EDGE OF THE STREET ACCESS LANDING MAY NOT NECESSARILY OCCUR AT THE BEGINNING OF THE CURB RETURN.

TYPICAL SIDEWALK RAMP – TYPE III

SIDEWALK SEPARATED FROM CURB

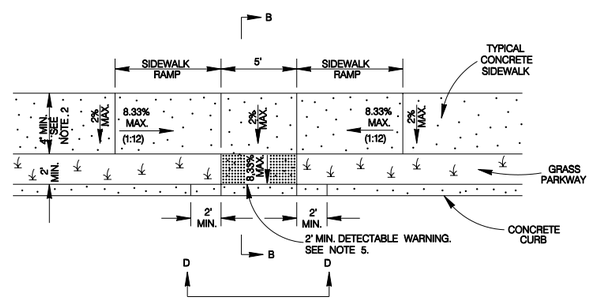
SCALE : 1" = 10'



TYPICAL SIDEWALK RAMP – TYPE II

USED AT TEE INTERSECTIONS WHERE SIDEWALK ABUTS CURB

SCALE : 1" = 10'



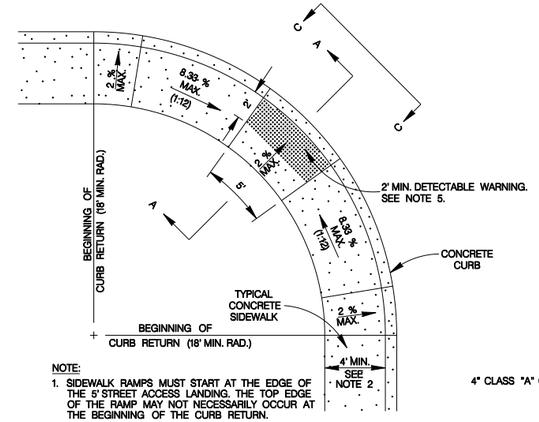
TYPICAL SIDEWALK RAMP – TYPE IV

USED AT TEE INTERSECTIONS WHERE SIDEWALK IS SEPARATED FROM CURB

SCALE : 1" = 10'

GENERAL NOTES

1. WHEN POSSIBLE SIDEWALKS SHOULD BE PLACED NEXT TO THE PROPERTY LINE, ALLOWING A MININMUM OF 1 FOOT BUFFER. DEVIATION OF THE PATHWAY FROM A STRAIGHT LINE IS ENCOURAGED TO AVOID TREES OR OTHER OBSTRUCTIONS.
2. FOR LOCAL TYPE "A" STREETS, SIDEWALKS SHALL HAVE A MINIMUM UNOBSTRUCTED WIDTH OF 4' AND IF SEPARATED FROM THE CURB, THE SIDEWALK SHALL BE LOCATED A MINIMUM OF 2' FROM THE BACK OF CURB.
3. FOR OTHER THAN LOCAL TYPE "A" STREETS, SIDEWALKS SHALL HAVE A MINIMUM UNOBSTRUCTED WIDTH OF 4' AND SEPARATED A MINIMUM OF 2' FROM THE BACK OF CURB OR AS AN OPTION, THE SIDEWALK SHALL HAVE A MINIMUM WIDTH OF 6' WHEN LOCATED AT THE BACK OF CURB.
4. SIDEWALK RAMP LENGTHS PRESENTED IN TABLE 1 ARE GUIDELINES ONLY. SIDEWALK RAMP LENGTHS SHALL BE OF SUFFICIENT LENGTH TO MAINTAIN 8.33% (1:12) MAXIMUM SLOPE.
5. ALL CURB-RAMPS OR LANDINGS ABUTTING THE CROSSWALK SHALL HAVE A DETECTABLE WARNING 24 INCHES DEEP (IN THE DIRECTION OF PEDESTRIAN TRAVEL) AND EXTENDING THE FULL WIDTH OF THE CURB RAMP OR LANDING. THE DETECTABLE WARNING SHALL CONSIST OF RAISED TRUNCATED DOMES, ALIGNED IN A GRID PATTERN WITH A DIAMETER OF A NOMINAL 0.9 INCHES (23 MM), A HEIGHT OF NOMINAL 0.2 INCHES (5 MM) AND A CENTER-TO-CENTER SPACING OF NOMINAL 2.35 INCHES (60 MM). THE DETECTABLE WARNING SURFACE SHALL BE A CAST-IN-PLACE TILE CONFORMING TO THE CITY OF SAN ANTONIO STANDARD SPECIFI-CATIONS OR PAVERS CONFORMING TO TXDOT STANDARD PED-05, PEDESTRIAN FACILITIES.
6. DETECTABLE WARNINGS SHALL CONTRAST VISUALLY WITH ADJOINING SURFACES, EITHER LIGHT-ON-DARK, OR DARK-ON-LIGHT. THE MATERIAL USED TO PROVIDE CONTRAST SHALL BE AN INTEGRAL PART OF THE WALKING SURFACE.
7. SIDEWALK RAMP TYPE V SHALL BE USED ONLY WHERE THERE IS SIGNIFICANT RESTRICTION WITHIN THE PARKWAY TO CONSTRUCT TYPE I OR TYPE III RAMPS.
8. CONSTRUCTION OF ALL WHEELCHAIR RAMPS TO BE INCLUDED UNDER ITEMS "500 – CONCRETE CURB, GUTTER, AND CONCRETE CURB AND GUTTER" AND /OR "502 – CONCRETE SIDEWALKS". RAMP SURFACE SHALL BE BRUSH FINISHED.
9. THESE DETAILS ARE FOR REFERENCE ONLY. ACTUAL LOCATIONS OF WHEELCHAIR RAMPS TO BE SHOWN ON CONSTRUCTION PLANS. CITY CONSTRUCTION INSPECTOR CAN ADJUST LOCATIONS FOR SAFETY OR UTILITY CLEARANCE.
10. SIDEWALKS LESS THAN 5 FEET IN WIDTH SHALL BE PROVIDED WITH A PASSING SPACE AT A MAXIMUM SPACING OF 200 FEET.
11. WHEELCHAIR RAMP SHALL BE CONSTRUCTED WITH 4" CLASS "A" CONCRETE AND 2" MINIMUM GRAVEL, CRUSHED ROCK OR FLEXIBLE BASE MATERIAL.
12. REINFORCING STEEL SHALL BE #3 BARS AT 18" O.C.E.W. OR 6" x 6" – W2.9 x W2.9 WIRE MESH.
13. SIDEWALK GRADES SHALL NOT EXCEED THE GRADE ESTABLISHED FOR THE ADJACENT ROADWAY, ANY SIDEWALK CONSTRUCTION THAT DEVIATES FROM THE NATURAL GRADE OF THE ROADWAY TO CREATE A GRADE STEEPER THAN THE EXISTING ROADWAY WILL REQUIRE RAMPS, HANDRAILS AND RESTING PLATFORMS TO BE CONSTRUCTED IN ACCORDANCE WITH ADA AND TAS STANDARDS.
14. SIDEWALK CROSS GRADE SHALL HAVE A MAXIMUM SLOPE OF 2%. LANDINGS SHALL HAVE A MAXIMUM SLOPE OF 2% IN ANY DIRECTION.
15. THE CHANGE OF GRADE BETWEEN ADJACENT SURFACES SHALL BE LESS THAN 11%. THE CHANGE OF GRADE SHALL BE DEFINED AS THE ALGEBRAIC DIFFERENCE OF THE ADJACENT SURFACE SLOPES. IN THE CASE OF A STREET ACCESS RAMP DESIGNED AT THE 8.33% MAXIMUM SLOPE, THE ADJACENT PAVEMENT CROSS SLOPE SHALL BE LESS THAN 2.67% (I.E. 8.33–(–2.67) = 11). IN ADDITION, THE ADJACENT PAVEMENT CROSS SLOPE SHALL BE LESS THAN OR EQUAL TO 5%.
16. IF THE CHANGE OF GRADE BETWEEN ADJACENT SURFACES IS GREATER THAN OR EQUAL TO 11%, A LEVELING STRIP, 2 FEET IN LENGTH, SHALL BE PROVIDED TO TRANSITION THE ADJACENT SURFACES.
17. ADA COMPLIANCE IN ALTERATIONS INCLUDE ONLY THAT WORK WITHIN THE LIMITS, BOUNDARIES OR SCOPE OF A PLANNED PROJECT.



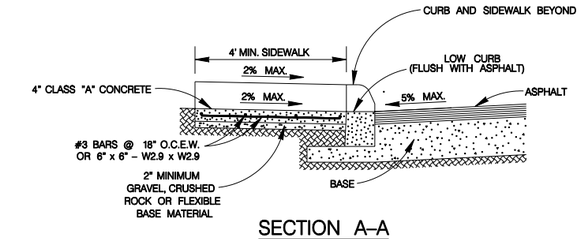
NOTE:

1. SIDEWALK RAMPS MUST START AT THE EDGE OF THE 5' STREET ACCESS LANDING. THE TOP EDGE OF THE RAMP MAY NOT NECESSARILY OCCUR AT THE BEGINNING OF THE CURB RETURN.
2. TYPE V RAMPS MUST HAVE 18' MIN. RADIUS.

TYPICAL SIDEWALK RAMP – TYPE V

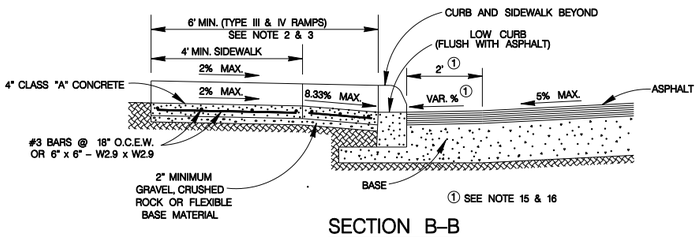
SIDEWALK ABUTS CURB

SCALE : 1" = 10'



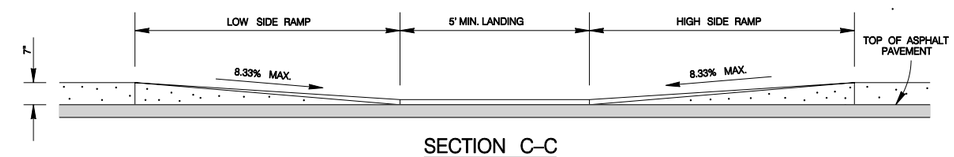
SECTION A–A

SCALE : 1" = 4'



SECTION B–B

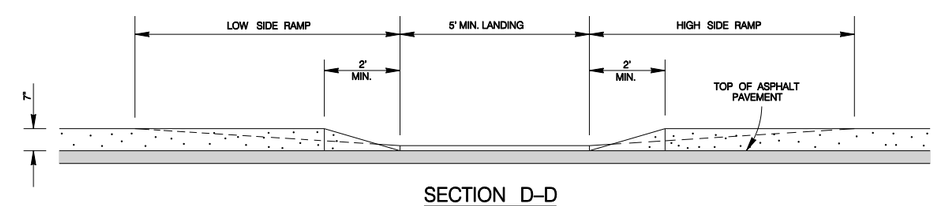
SCALE : 1" = 4'



SECTION C–C

CURB PROFILE WHERE SIDEWALK ABUTS CURB

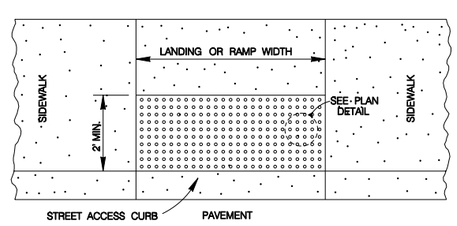
SCALE : 1" = 4'



SECTION D–D

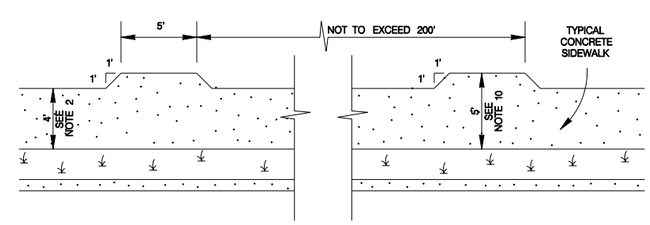
CURB PROFILE WHERE SIDEWALK IS SEPARATED FROM CURB

SCALE : 1" = 4'



DETECTABLE WARNING SURFACE

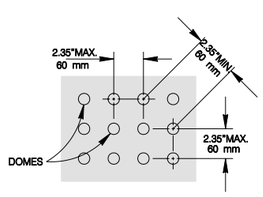
SCALE : 1" = 4'



SIDEWALK PASSING SPACE

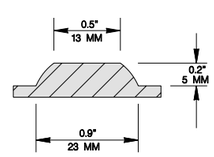
SCALE : 1" = 10'

TABLE 1 (SEE NOTE 4)		
GUTTER SLOPE	SIDEWALK RAMP LENGTH (1:12)	
	LOW SIDE	HIGH SIDE
1%	5'–6"	7'–2"
2%	5'–0"	8'–4"
3%	4'–6"	10'–0"
4%	4'–2"	12'–6"
5%	3'–10"	16'–8"



PLAN DETAIL

NO SCALE



DOME SECTION

NO SCALE

NOTE:

STAMPED CONCRETE TRUNCATED DOMES WILL NOT BE ALLOWED TO BE USED FOR DETECTABLE WARNING ON WHEELCHAIR RAMPS. CONTRACTOR MUST SUBMIT TRUNCATED DOME INFORMATION THAT IS TO BE USED ON WHEELCHAIR RAMPS TO THE PROJECT MANAGER FOR APPROVAL AT LEAST 30 DAYS PRIOR TO INSTALLATION.

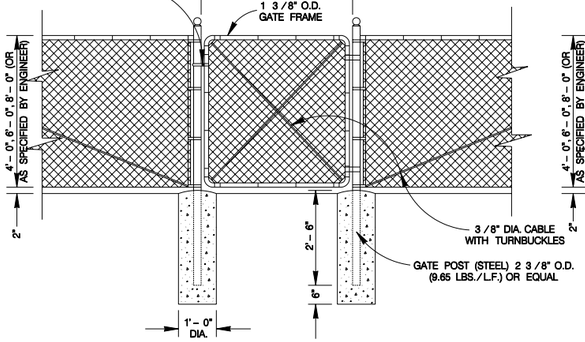
MAY 2009

CITY OF SAN ANTONIO

CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT

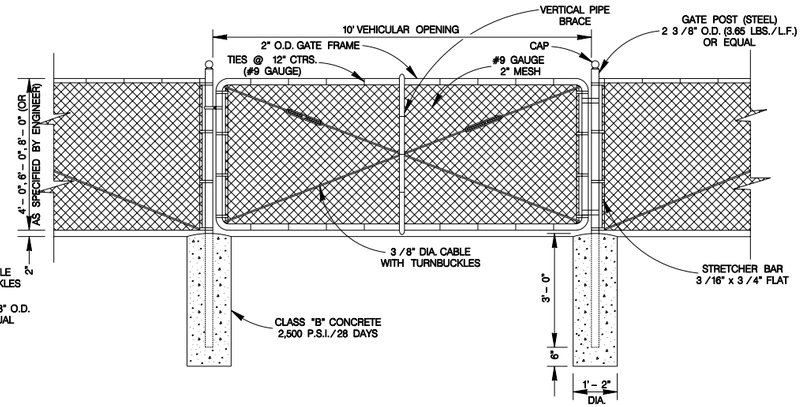
WHEELCHAIR RAMP STANDARDS

_____% SUBMITTAL	PROJECT NO.:_____	DATE:_____
DRWN. BY: V. VASQUEZ	DSGN. BY:_____ CHKD. BY: R.S. HOSSEINI, P.E.	SHEET NO.: 122



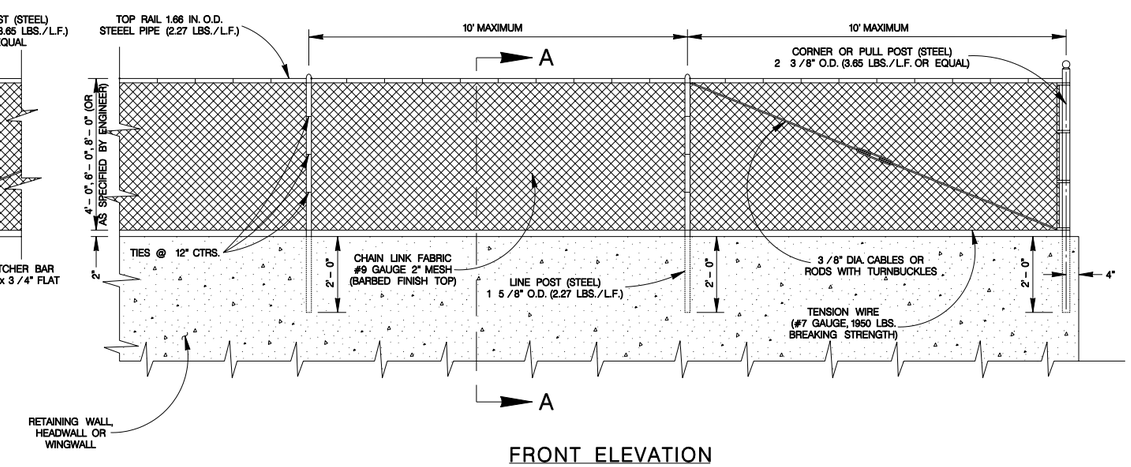
PEDESTRIAN GATE

ITEM 507.4
SCALE : 1" = 4'



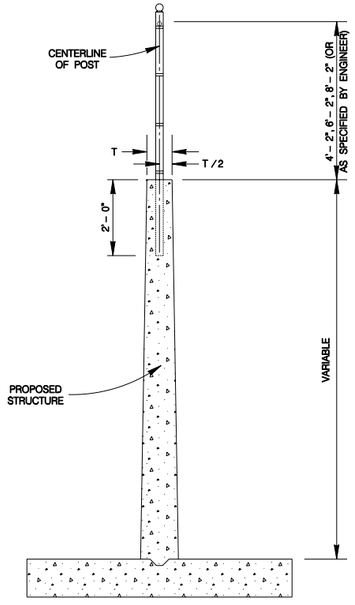
VEHICULAR GATE

ITEM 507.5
SCALE : 1" = 4'



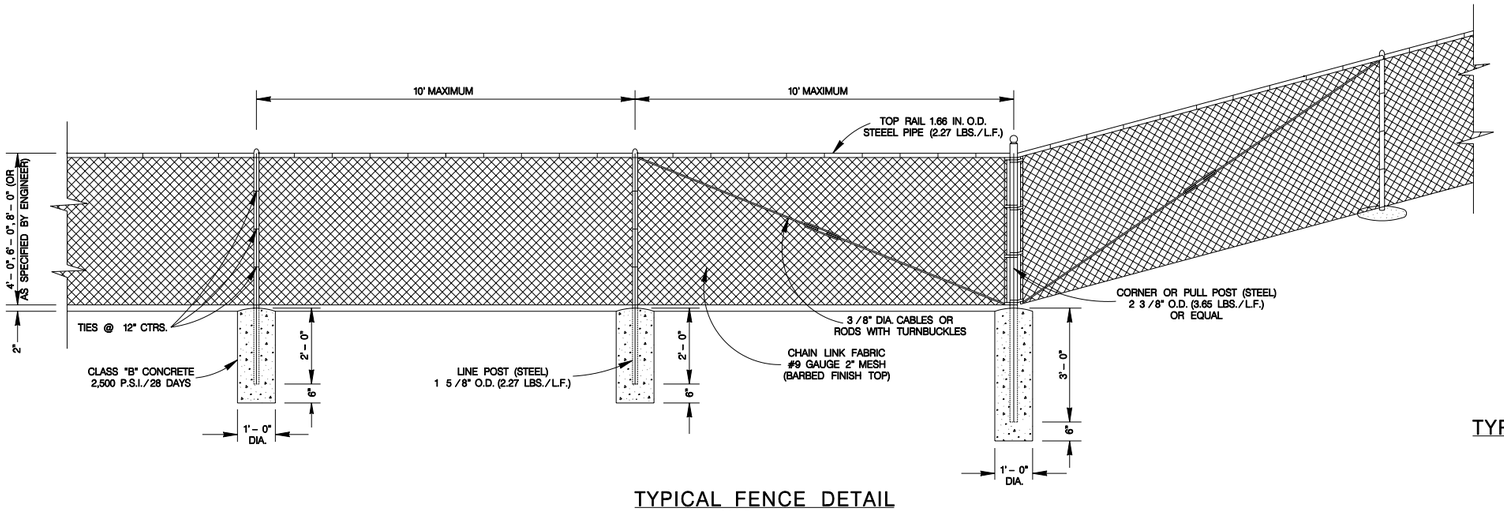
FRONT ELEVATION

SCALE : 1" = 4'



SECTION VIEW "A-A"

SCALE : 1" = 4'



TYPICAL FENCE DETAIL

SCALE : 1" = 4'

TYPICAL FOR FENCING IN RETAINING WALLS, HEADWALLS & WINGWALLS

GENERAL NOTES

1. ALL CONCRETE FOOTINGS SHALL BE CROWNED A MINIMUM OF 1" ABOVE THE EXISTING GROUND, WHERE FOOTINGS ARE REQUIRED ONLY.
2. FENCING SHALL BE LOCATED IN RETAINING WALLS, HEADWALLS & WINGWALLS AT LOCATIONS SHOWN ON THE PLANS.
3. CORNER OR PULL POSTS WILL BE REQUIRED AT ALL END POINTS AND ANGLE POINTS.
4. CONCRETE FOR SEPARATE POST FOOTINGS SHALL BE IN ACCORDANCE WITH ITEM 300-B CLASS B CONCRETE.
5. PAYMENT SHALL BE MADE AS SPECIFIED IN ITEM NO. 507 "CHAIN LINK WIRE FENCE OF CITY OF SAN ANTONIO" STANDARD SPECIFICATIONS FOR CONSTRUCTION.

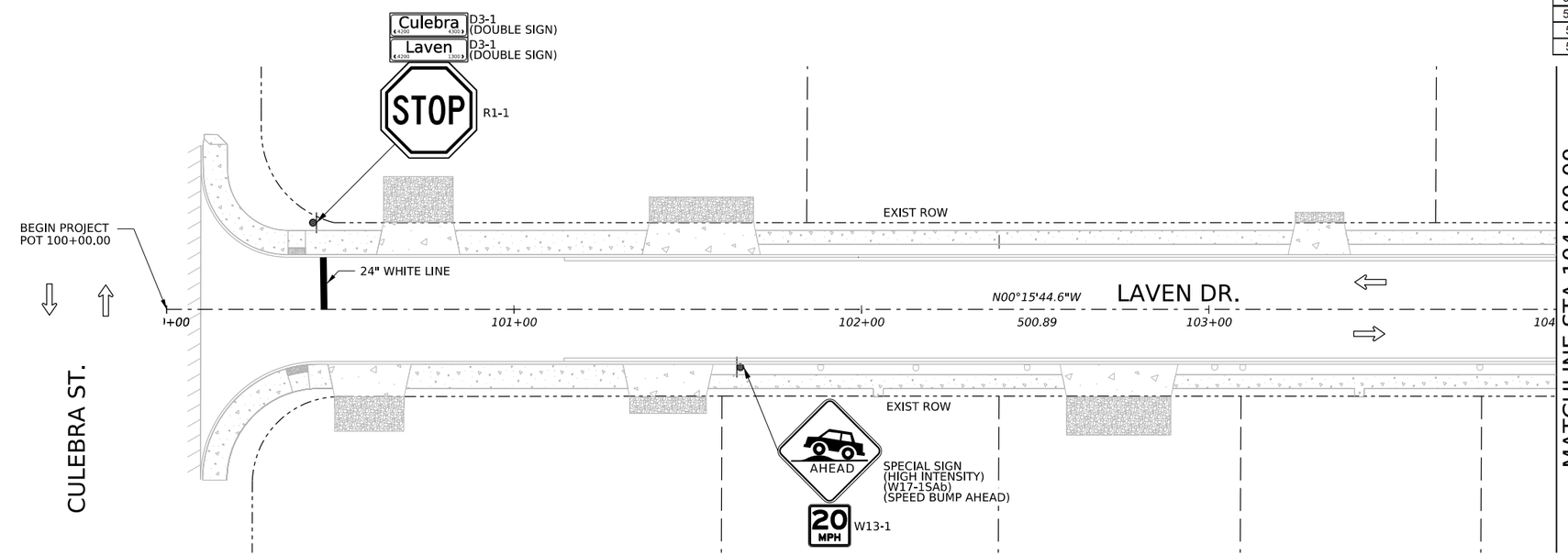
MAY 2009

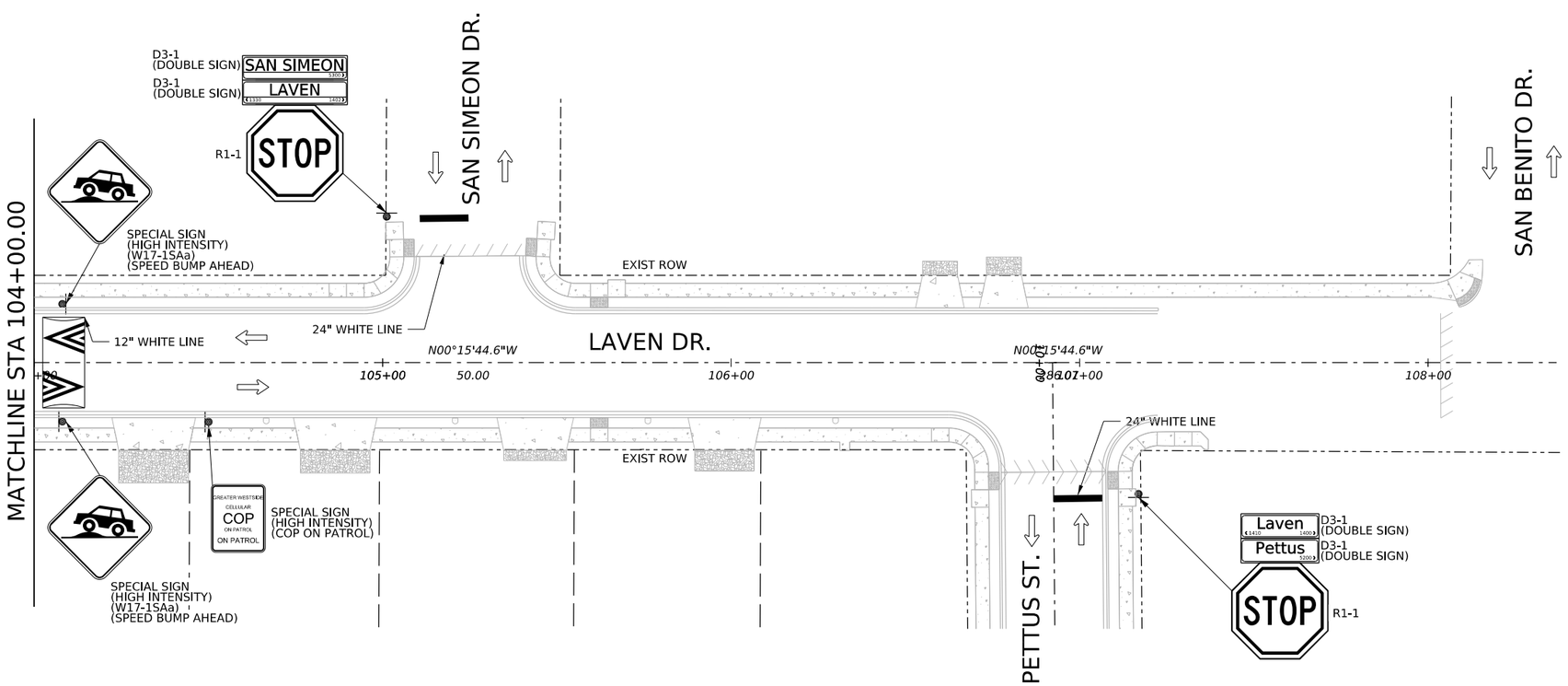
CITY OF SAN ANTONIO
CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT

CHAIN LINK WIRE FENCE STANDARDS

____% SUBMITTAL	PROJECT NO.:_____	DATE:_____
DRWN. BY: V. VASQUEZ	DSGN. BY:_____ CHKD. BY: R.S. HOSSEINI, P.E.	SHEET NO.: 123

ITEM NO.	QUANTITY SUMMARY	UNIT	QUANTITY
531.3	R1-1 STOP (30")(HIGH INTENSITY)	EA	3
531.52	W13-1 ADVISORY SPEED (18"X18")(HIGH INTENSITY)	EA	1
531.57	9 INCH STREET NAME, NLOCK NUMBER (VARIES X 9")(HIGH INTENSITY)	EA	3
531.59	SPECIAL SIGN (HIGH INTENSITY)(W17-1SAa SPEED BUMP AHEAD)	EA	2
531.59	SPECIAL SIGN (HIGH INTENSITY)(W17-1SAb SPEED BUMP AHEAD)	EA	1
531.59	SPECIAL SIGN (HIGH INTENSITY)(COP ON PATROL)	EA	1
535.5	12 INCH WIDE WHITE LINE	LF	38
535.7	24 INCH WIDE WHITE LINE (<1,500 LF)	LF	42





LEGEND

EXIST ROW

PROPERTY LINE

TRAFFIC FLOW

GRAPHIC SCALE

0 10 20 40 60

1" = 40'
HORIZONTAL SCALE

STATE OF TEXAS
MARTIN M. GONZALES
121996
LICENSED
PROFESSIONAL ENGINEER

5.28.25

NO.	REVISION	BY	DATE
3			
2			
1			

AG3 Group, LLC
ENGINEERING • SURVEY • CONSTRUCTION

4800 FREDERICKSBURG RD SUITE 200SL
SAN ANTONIO, TX 78229
P:210-208-9400 F:210-208-9401
TBPE #F-21809
TBPLS #10194622

CITY OF SAN ANTONIO
PUBLIC WORKS DEPARTMENT

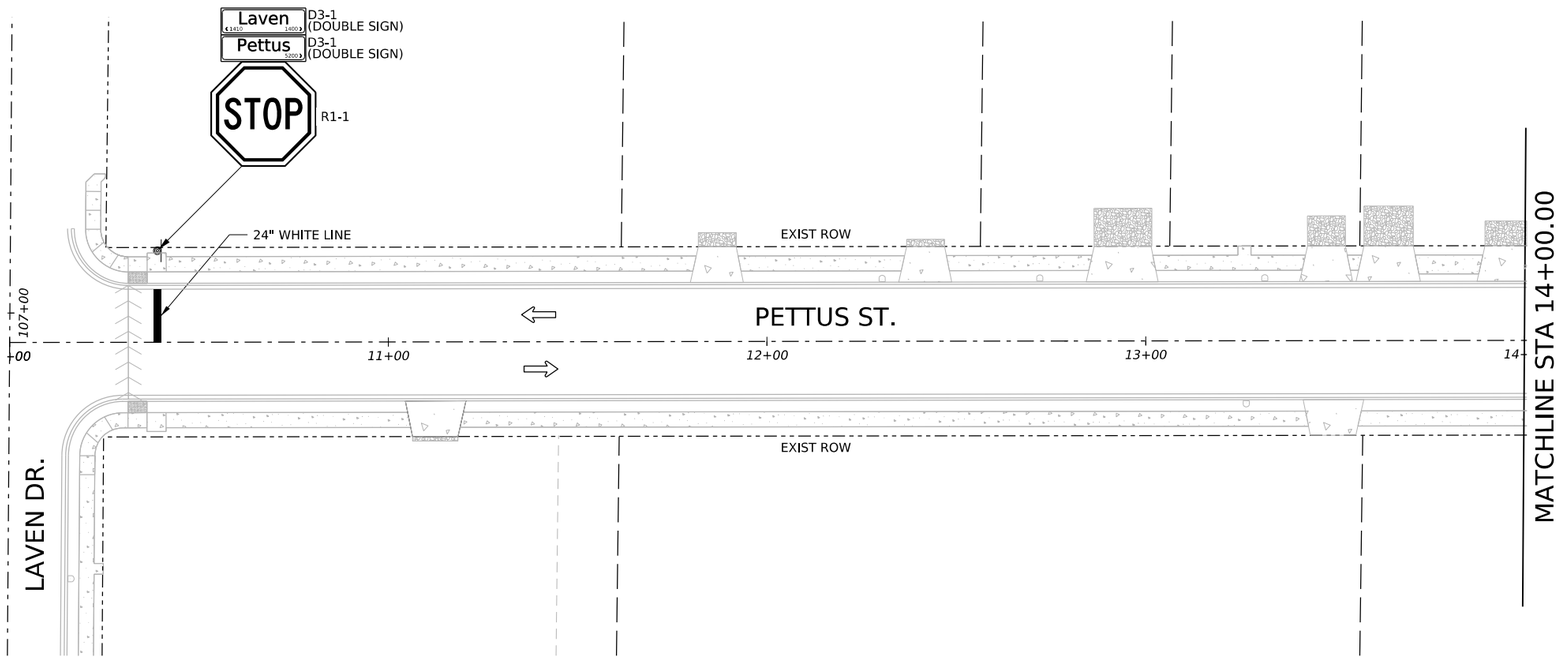
CULEBRA AREA STREETS

LAVEN DR. SIGNING AND PAVEMENT MARKING LAYOUT

100% SUBMITTAL	PROJECT NO: 23-03873		DATE: 05/28/2025
DRWN. BY: SS	DSGN. BY: SS	CHKD. BY: MG	SHEET NO: 124

5/21/2025 7:41:10 PM
R:\ESC 23004 Culebra Part Area Street (CoSA)\07_Sheets\10_SIGN_PVMRK\SHEETS\COSA_CULEBRA_LAVEN DR_PLAN_01.dgn

ITEM NO.	QUANTITY SUMMARY	UNIT	QUANTITY
531.3	R1-1 STOP (30")(HIGH INTENSITY)	EA	3
531.57	9 INCH STREET NAME, NLOCK NUMBER (VARIES X 9")(HIGH INTENSITY)	EA	2
535.7	24 INCH WIDE WHITE LINE (<1,500 LF)	LF	42

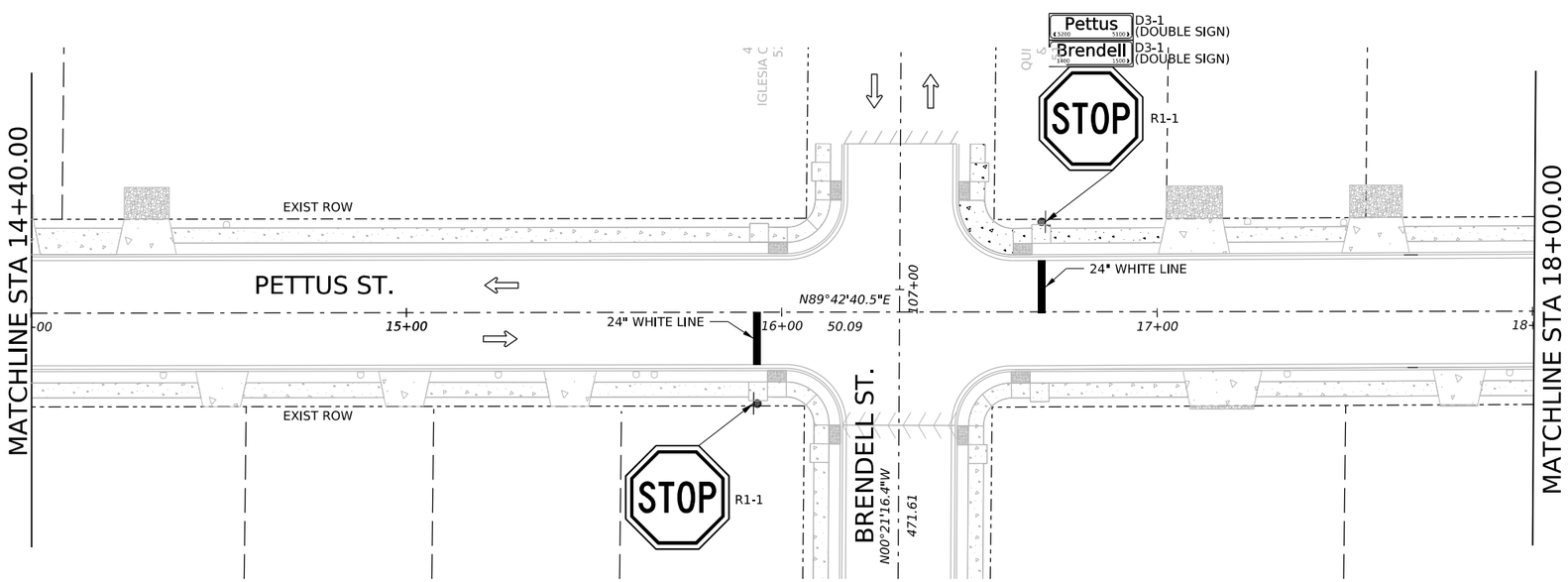


LEGEND

EXIST ROW

PROPERTY LINE

TRAFFIC FLOW



GRAPHIC SCALE

0 10 20 40 60

1" = 40'
HORIZONTAL SCALE

STATE OF TEXAS
MARTIN M. GONZALES
121996
LICENSED
PROFESSIONAL ENGINEER

5.28.25

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2			
1			

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P:210-208-9400 F:210-208-9401
TBPE #F-21809
TBPLS #10194622

CITY OF SAN ANTONIO

PUBLIC WORKS DEPARTMENT

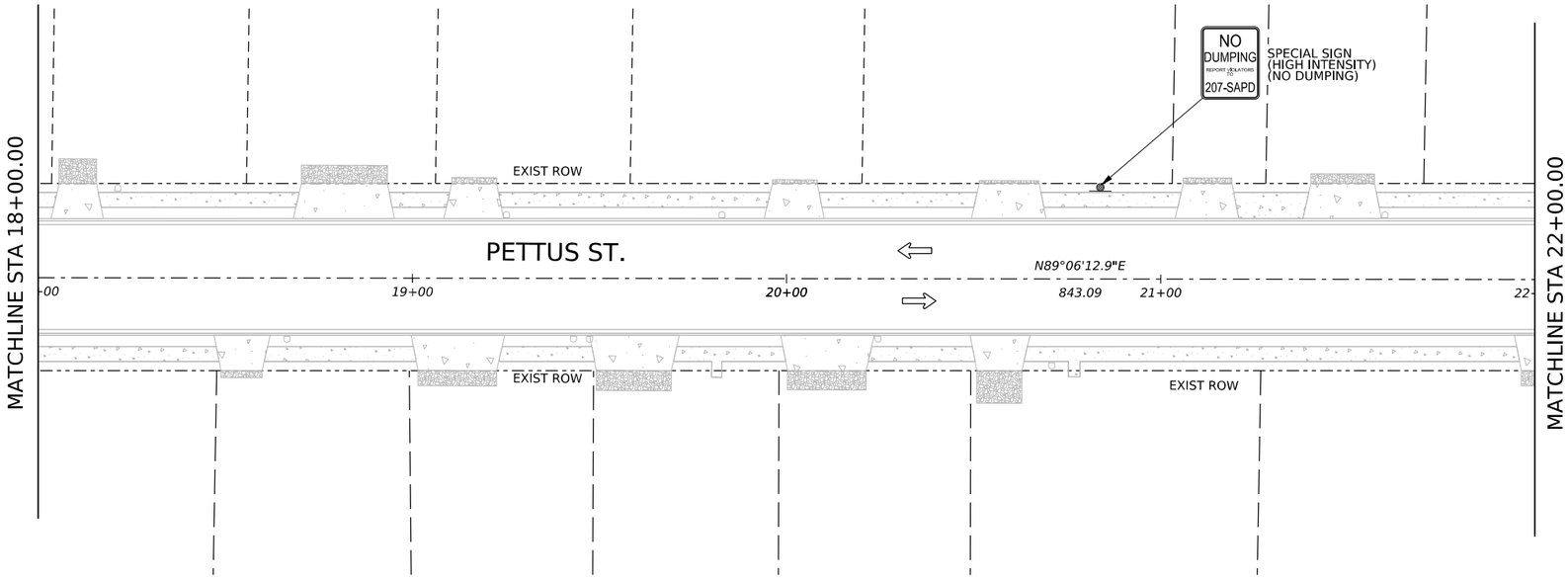
CULEBRA AREA STREETS

PETTUS ST. SIGNING AND PAVEMENT MARKING LAYOUT

100% SUBMITTAL	PROJECT NO: 23-03873		DATE: 05/28/2025
DRWN. BY: SS	DSGN. BY: SS	CHKD. BY: MG	SHEET NO: 125

5/21/2025 7:42:58 PM
R:\ESC 23004 Culebra Part Area Street (CoSA)\07_Sheets\10_SIGN_PWMRK\SHEETS\COSA_CULEBRA_PETTUS ST_PLAN_01.dgn

ITEM NO.	QUANTITY SUMMARY	UNIT	QUANTITY
531.3	R1-1 STOP (30")(HIGH INTENSITY)	EA	1
531.59	SPECIAL SIGN (HIGH INTENSITY)(NO DUMPING)	EA	1
531.57	9 INCH STREET NAME, NLOCK NUMBER (VARIES X 9")(HIGH INTENSITY)	EA	0
535.7	24 INCH WIDE WHITE LINE (<1,500 LF)	LF	14

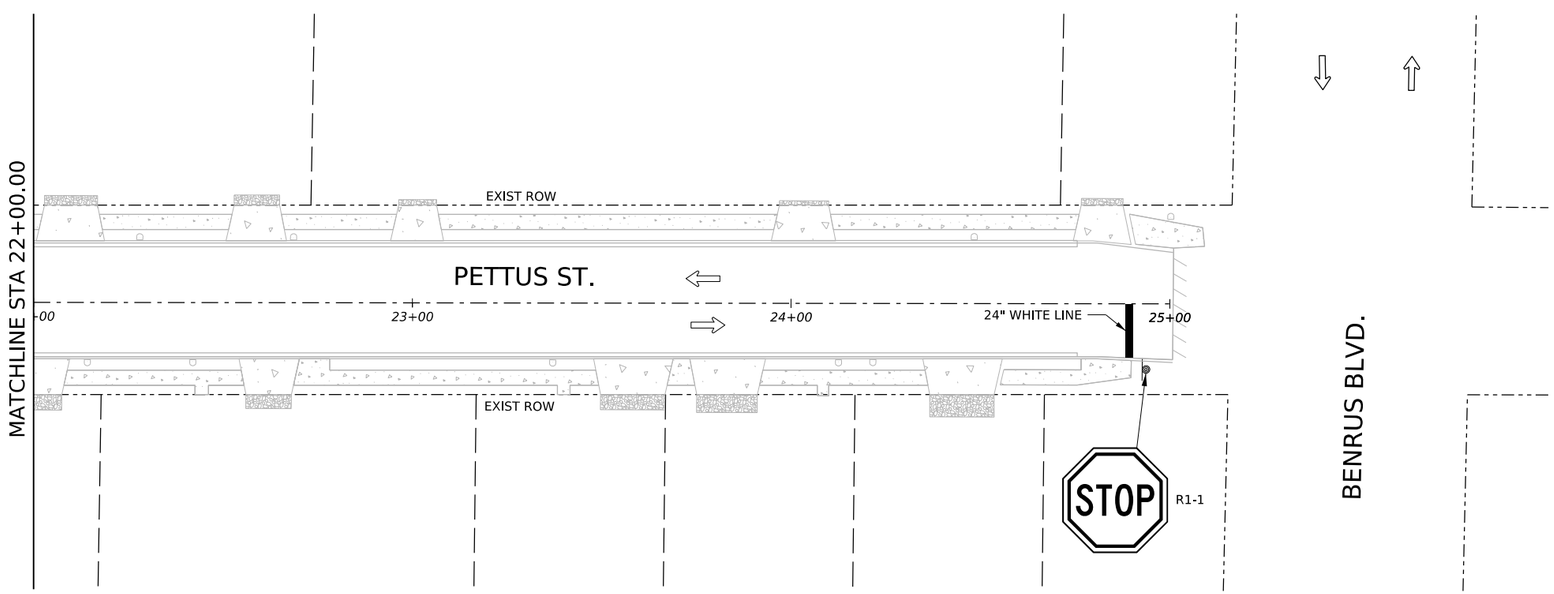


LEGEND

EXIST ROW

PROPERTY LINE

TRAFFIC FLOW



GRAPHIC SCALE

0 10 20 40 60

1" = 40'
HORIZONTAL SCALE

STATE OF TEXAS
MARTIN M. GONZALES
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5.28.25

NO.	REVISION	BY	DATE
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2			
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P:210-208-9400 F:210-208-9401
TBPE #F-21809
TBPLS #10194622

CITY OF SAN ANTONIO

PUBLIC WORKS DEPARTMENT

CULEBRA AREA STREETS

PETTUS ST, SIGNING AND PAVEMENT MARKING LAYOUT

100% SUBMITTAL	PROJECT NO: 23-03873		DATE: 05/28/2025
DRWN. BY: SS	DSGN. BY: SS	CHKD. BY: MG	SHEET NO: 126

5/21/2025 7:44:10 PM
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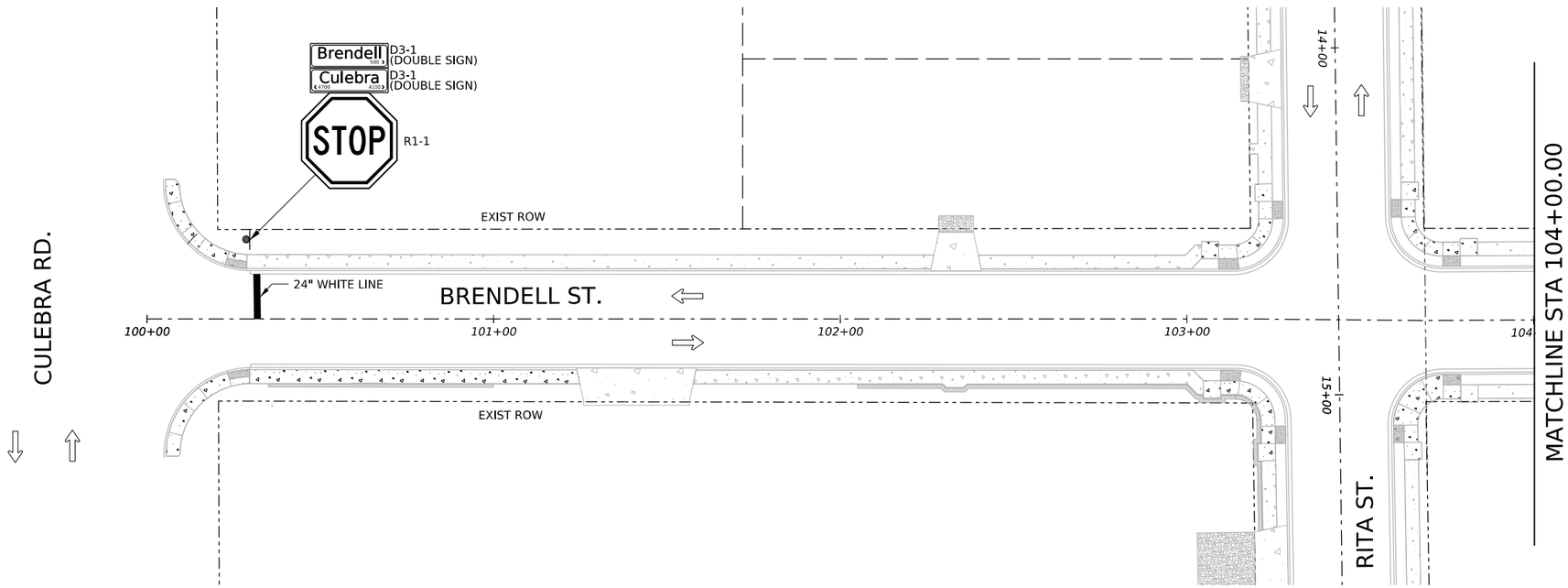
ITEM NO.	QUANTITY SUMMARY	UNIT	QUANTITY
531.3	R1-1 STOP (30")(HIGH INTENSITY)	EA	1
531.57	9 INCH STREET NAME, NLOCK NUMBER (VARIES X 9")(HIGH INTENSITY)	EA	1
535.7	24 INCH WIDE WHITE LINE (<1,500 LF)	LF	14

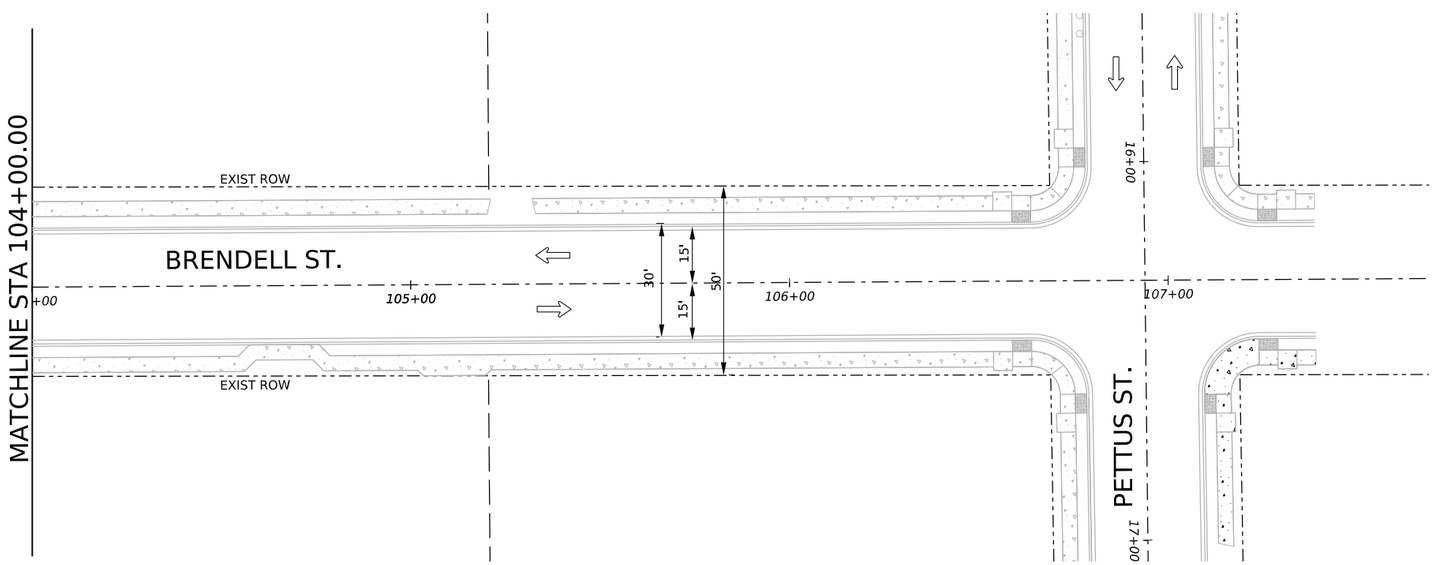


LEGEND

EXIST ROW

PROPERTY LINE

TRAFFIC FLOW



GRAPHIC SCALE

0 10 20 40 60

1" = 40'
HORIZONTAL SCALE

STATE OF TEXAS
MARTIN M. GONZALES
121996
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5.28.25

NO.	REVISION	BY	DATE
3			
2			
1			

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4800 FREDERICKSBURG RD SUITE 200SL
SAN ANTONIO, TX 78229
P:210-208-9400 F:210-208-9401
TBPE #F-21809
TBPLS #10194622

CITY OF SAN ANTONIO

PUBLIC WORKS DEPARTMENT

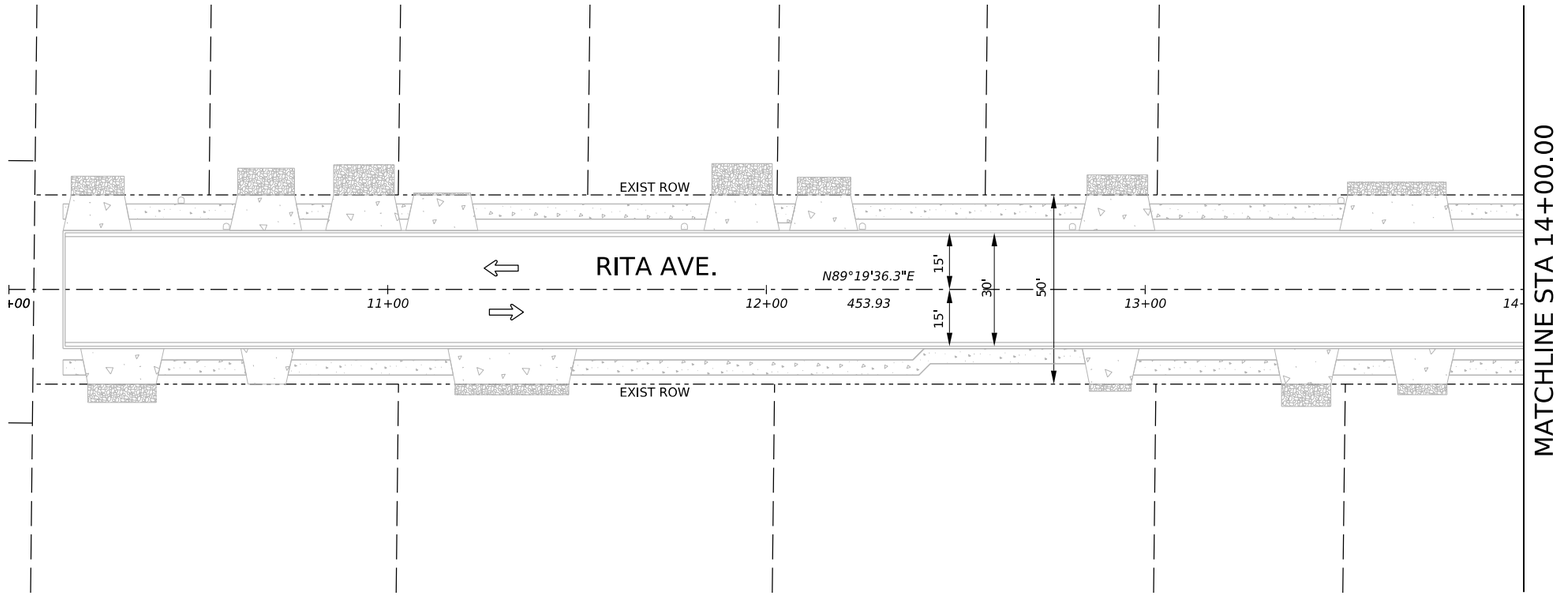
CULEBRA AREA STREETS

BRENDELL ST. SIGNING AND PAVEMENT MARKING LAYOUT

100% SUBMITTAL	PROJECT NO: 23-03873		DATE: 05/28/2025
DRWN. BY: SS	DSGN. BY: SS	CHKD. BY: MG	SHEET NO: 127

5/21/2025 7:45:31 PM
R:\ESC 23004 Culebra Part Area Street (CoSA)\07_Sheets\10_SIGN_PWMRK\SHEETS\COSA_CULEBRA_BRENDELL ST_PLAN_01.dgn

ITEM NO.	QUANTITY SUMMARY	UNIT	QUANTITY
531.3	R1-1 STOP (30")(HIGH INTENSITY)	EA	2
531.57	9 INCH STREET NAME, NLOCK NUMBER (VARIES X 9")(HIGH INTENSITY)	EA	1
535.7	24 INCH WIDE WHITE LINE (<1,500 LF)	LF	28



LEGEND

EXIST ROW

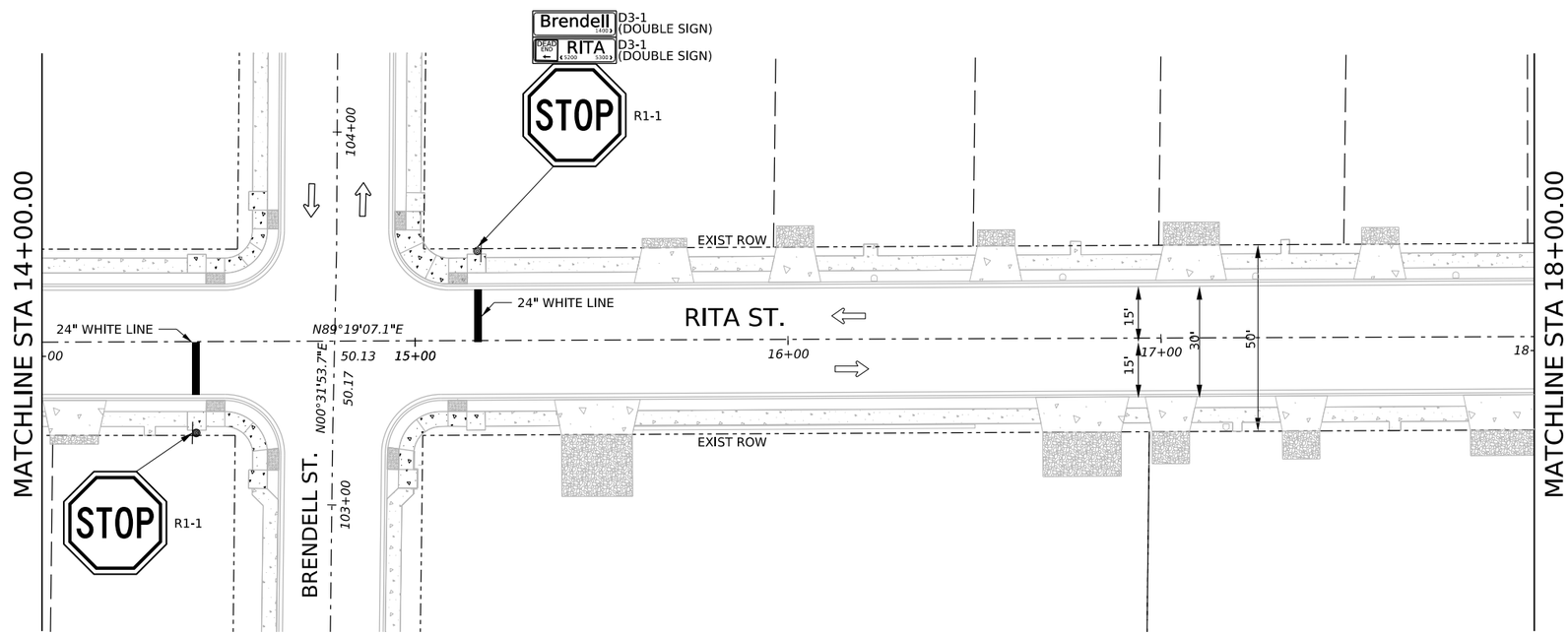
PROPERTY LINE

TRAFFIC FLOW

GRAPHIC SCALE

0 10 20 40 60

1" = 40'
HORIZONTAL SCALE



STATE OF TEXAS
MARTIN M. GONZALES
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5.28.25

NO.	REVISION	BY	DATE
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2			
1			

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TBPE #F-21809
TBPLS #10194622

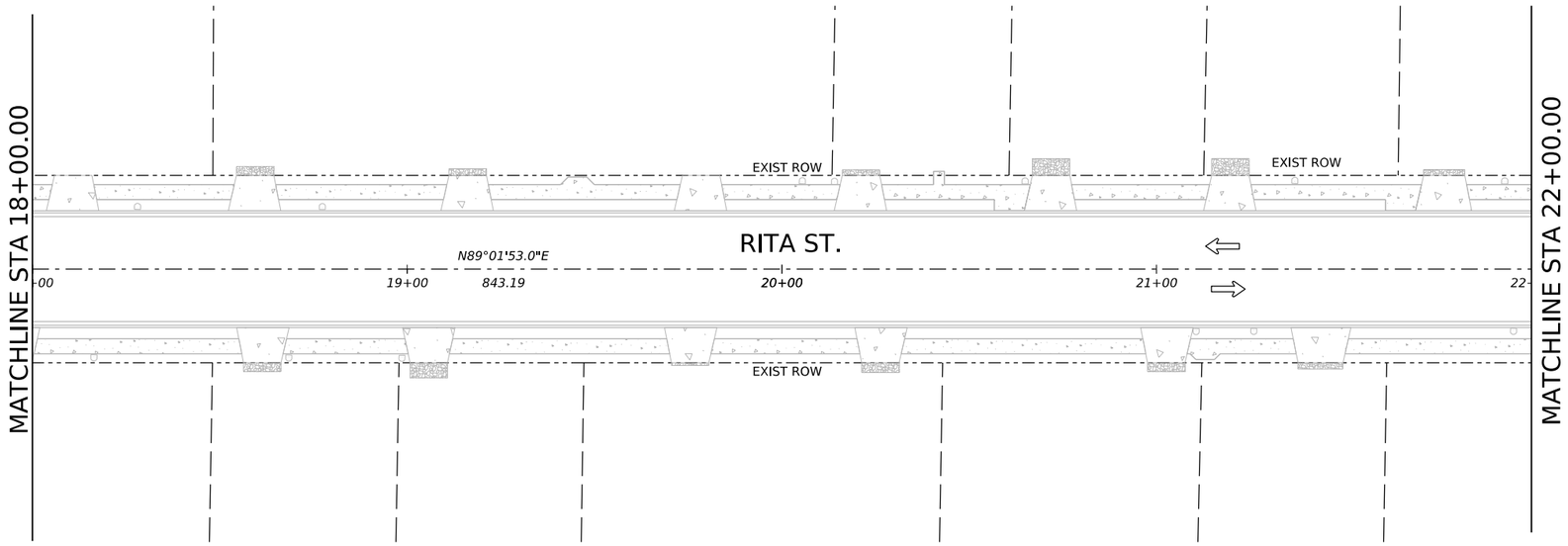
CITY OF SAN ANTONIO
PUBLIC WORKS DEPARTMENT

CULEBRA AREA STREETS

RITA AVE. SIGNING AND PAVEMENT MARKING LAYOUT

100% SUBMITTAL	PROJECT NO: 23-03873		DATE: 05/28/2025
DRWN. BY: SS	DSGN. BY: SS	CHKD. BY: MG	SHEET NO: 128

ITEM NO.	QUANTITY SUMMARY	UNIT	QUANTITY
531.3	R1-1 STOP (30")(HIGH INTENSITY)	EA	1
531.57	9 INCH STREET NAME, NLOCK NUMBER (VARIES X 9")(HIGH INTENSITY)	EA	0
535.7	24 INCH WIDE WHITE LINE (<1,500 LF)	LF	14

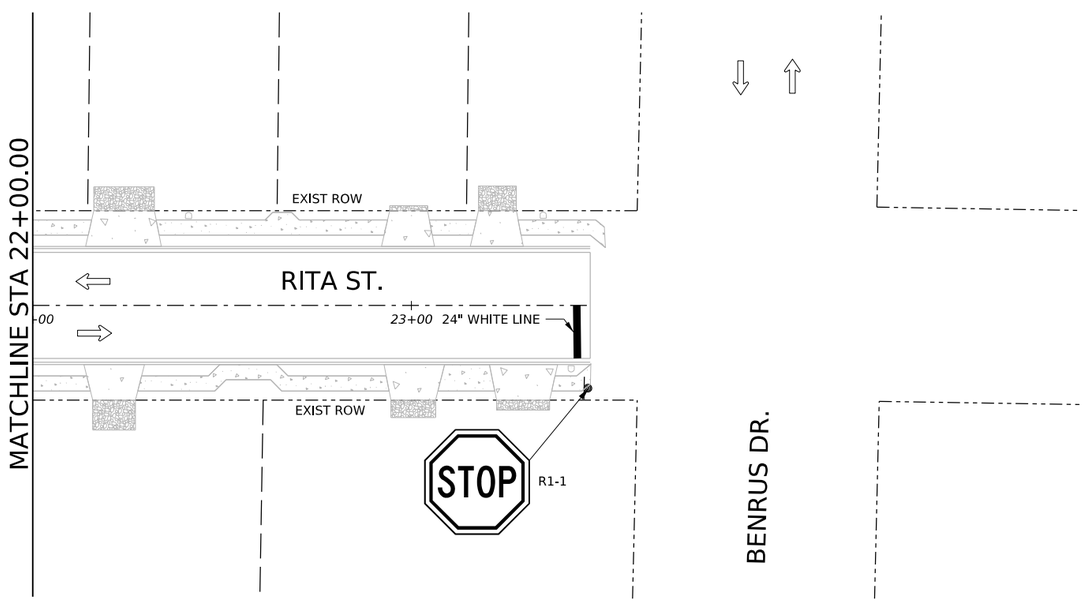


LEGEND

EXIST ROW

PROPERTY LINE

TRAFFIC FLOW



GRAPHIC SCALE

0 10 20 40 60

1" = 40'
HORIZONTAL SCALE

STATE OF TEXAS
MARTIN M. GONZALES
121996
LICENSED
PROFESSIONAL ENGINEER

5.28.25

NO.	REVISION	BY	DATE
3			
2			
1			

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ENGINEERING • SURVEY • CONSTRUCTION

4800 FREDERICKSBURG RD SUITE 200SL
SAN ANTONIO, TX 78229
P:210-208-9400 F:210-208-9401
TBPE #F-21809
TBPLS #10194622

CITY OF SAN ANTONIO

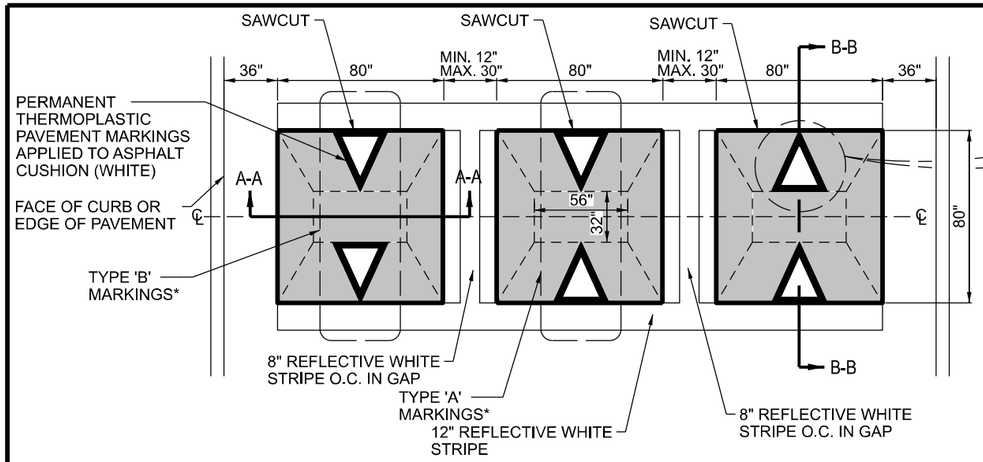
PUBLIC WORKS DEPARTMENT

CULEBRA AREA STREETS

RITA AVE, SIGNING AND PAVEMENT MARKING LAYOUT

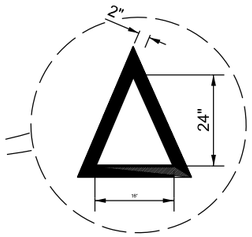
100% SUBMITTAL	PROJECT NO: 23-03873		DATE: 05/28/2025
DRWN. BY: SS	DSGN. BY: SS	CHKD. BY: MG	SHEET NO: 129

5/21/2025 7:47:51 PM
R:\ESC 23004 Culebra Part Area Street (CoSA)\07_Sheets\10_SIGN_PWMRK\SHEETS\COSA_CULEBRA_RITA ST_PLAN_02.dgn



SPEED HUMP CONFIGURATION DETAIL

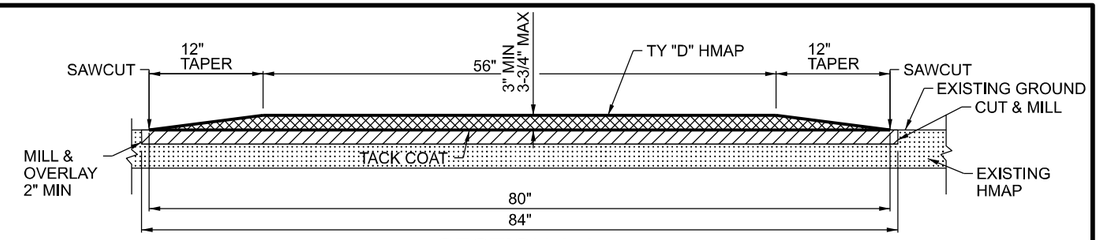
NTS



16"X24" PREFORMED WHITE TRIANGLE WITH 2" BLACK CONTRAST

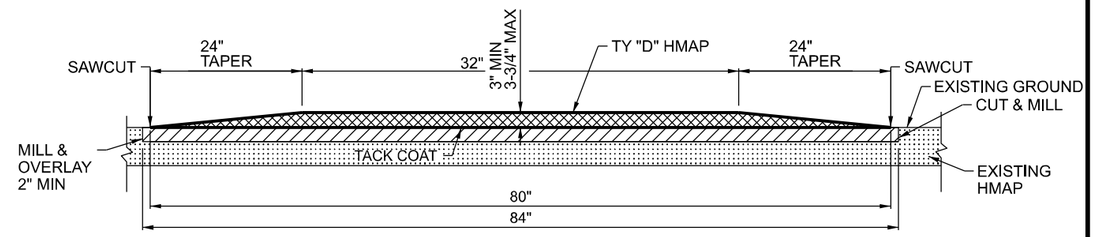
NTS

* PREFORMED WHITE TRIANGLE WITH BLACK CONTRAST MARKINGS SHALL POINT TOWARD THE DIRECTION OF TRAVEL. CENTERLINE TRIANGLES SHALL POINT TOWARD EACH OTHER.



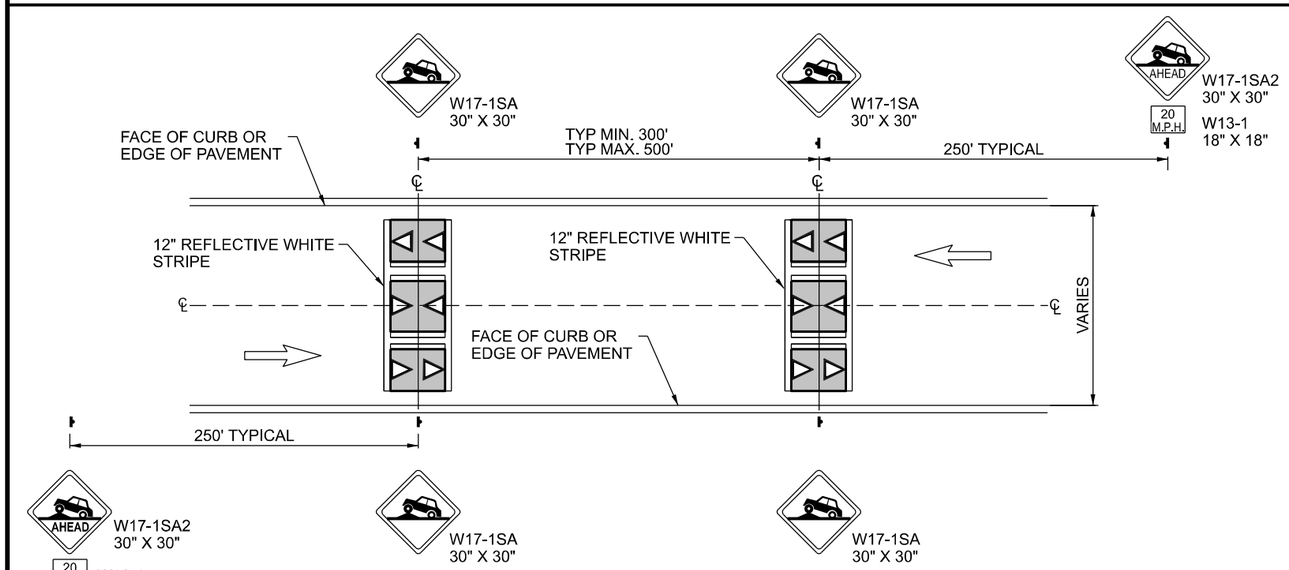
SECTION A-A

NTS



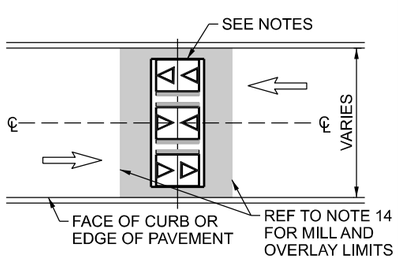
SECTION B-B

NTS



SPEED HUMP TYPE III (TYPICAL)

NTS



MILL AND OVERLAY LIMITS

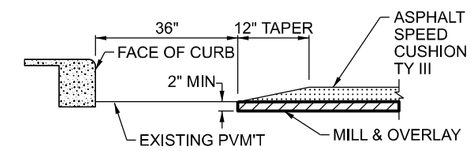
NTS

PAVEMENT WIDTH (FT)	NO. OF CUSHIONS	GAP (IN)	CUSHION (IN)	GAP (IN)	CUSHION (IN)	GAP (IN)	CUSHION (IN)	GAP (IN)	CUSHION (IN)	GAP (IN)	CUSHION (IN)	GAP (IN)
30	3	36	80	24	80	24	80	36	-	-	-	-
36	4	36	80	12	80	16	80	12	80	36	-	-
40	4	36	80	29	80	30	80	29	80	36	-	-
44	5	36	80	14	80	14	80	14	80	14	80	36

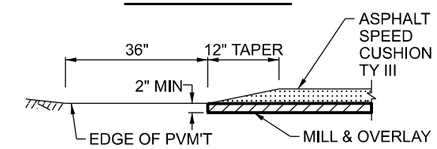
CUSHION SPACING

GENERAL NOTES:

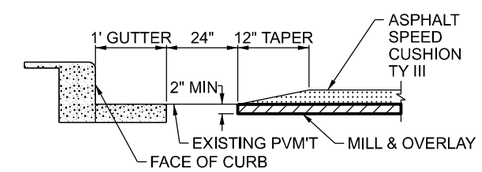
1. ALL NEW SPEED CUSHION INSTALLATIONS, MUST BE APPROVED PER THE CITY'S NEIGHBORHOOD TRAFFIC CALMING REQUEST APPLICATION.
2. NO PART OF A SPEED CUSHION SHALL BE LOCATED IN FRONT OF A DRIVEWAY APPROACH. THEY SHOULD BE A MINIMUM OF 6 FEET FROM THE EDGE OF THE DRIVEWAY, WHEN PRACTICAL.
3. SPEED CUSHIONS SHOULD BE PLACED AS CLOSE AS POSSIBLE TO PROPERTY LINES INSTEAD OF MID-LOT, WHEN PRACTICAL.
4. SPEED CUSHIONS SHOULD BE PLACED A MINIMUM OF 50 FEET FROM THE EDGE OF AN INTERSECTION, WHEN PRACTICAL.
5. PUBLIC WORKS DEPARTMENT WILL IDENTIFY THE LOCATIONS OF ALL TRAFFIC SIGNS RELATED TO THE SPEED HUMPS BY MARKING THE LOCATIONS IN THE FIELD FOR ALL NEW INSTALLATIONS.
6. ALL TRAFFIC SIGNS AND PAVEMENT MARKINGS WILL BE PROVIDED AND INSTALLED BY THE CONTRACTOR AS PER COSA SPECIFICATIONS.
7. SPEED CUSHIONS SHALL BE INSTALLED AT A RIGHT ANGLE TO THE CENTERLINE TANGENT OF ROADWAY.
8. CONTRACTOR SHALL NOT OPEN SPEED CUSHION TO TRAFFIC UNTIL ALL REQUIRED WARNING SIGNS AND PAVEMENT MARKINGS ARE COMPLETE.
9. CONTRACTOR SHALL ALSO MAINTAIN TEMPORARY PAVEMENT MARKINGS UNTIL PERMANENT MARKINGS ARE INSTALLED. THE SHORT TERM TABS SHALL BE PLACED EVERY 14 CALENDAR DAYS UNTIL PERMANENT MARKINGS ARE PLACED.
10. ASIDE FROM LONG LANE LINE MARKINGS, ALL OTHER PAVEMENT MARKINGS SHALL BE PREFORMED MATERIAL. HOT-APPLIED MARKINGS MAY BE USED ONLY IF APPROVED BY PWD TRAFFIC ENGINEERING & OPERATIONS.
11. ASPHALT CONCRETE SHALL BE TYPE D, WITH THE PROVISIONS OF "HOT MIX ASPHALT CONCRETE PAVEMENT," OR THE STANDARD SPECIFICATIONS.
12. CONTRACTOR TO TAKE INTO ACCOUNT COMPACTION TO ACHIEVE REQUIRED DIMENSIONS.
13. SPEED HUMP HEIGHT SHALL BE 3" MINIMUM WITH A MAXIMUM HEIGHT OF 3-3/4" AFTER COMPACTION.
14. ASPHALT MILL AND OVERLAY LIMITS TO BE VERIFIED BY PROJECT ENGINEER PRIOR TO INSTALLATION OF TYPE III SPEED CUSHION. CITY MAY CHOOSE TO COMPLETE BASE AND PAVEMENT REPLACEMENT AS PART OF MILL AND OVERLAY LIMITS. ACTUAL MILL AND OVERLAY LIMITS TO VARY DEPENDING ON CONDITION OF EXISTING PAVEMENT.
15. EXISTING RUBBER CUSHIONS THAT ARE REMOVED FOR INSTALLATION OF TYPE III SPEED CUSHIONS SHALL BECOME THE PROPERTY OF THE CONTRACTOR.



STANDARD CURB



NO CURB



CURB AND GUTTER

EDGE DETAILS

NTS

SEPTEMBER 2024

CITY OF SAN ANTONIO

PUBLIC WORKS DEPARTMENT

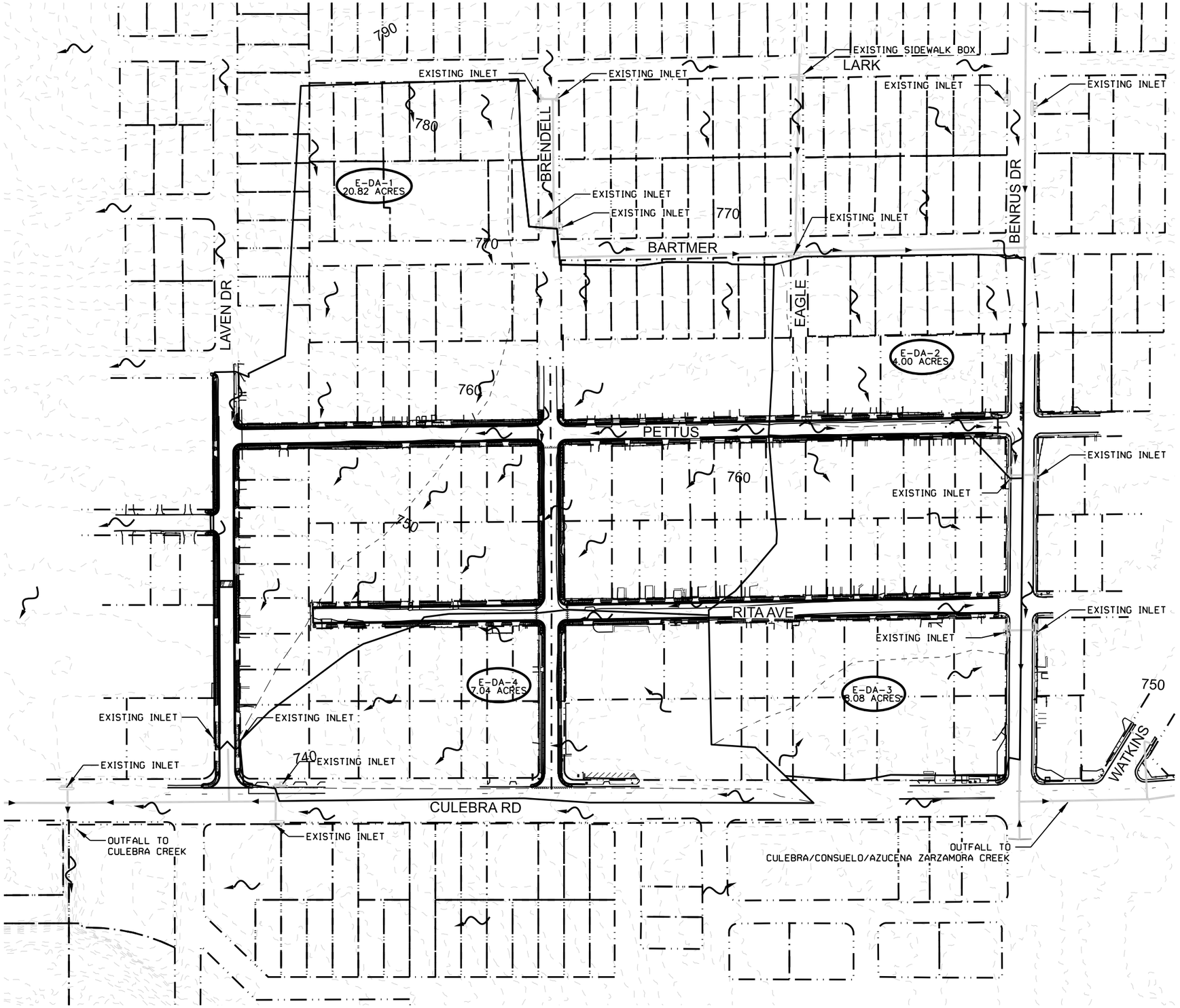
TRAFFIC ENGINEERING & OPERATIONS STANDARDS

ASPHALT CONCRETE SPEED CUSHION TYPE III DETAIL

SHEET 01 OF 01

ACSC-24

____% SUBMITTAL	PROJECT NO.:_____		DATE: $DATE$
DRWN. BY:_____	DSGN. BY:_____	CHKD. BY: L BANDA, P.E._____	SHEET NO.: 130



GRAPHIC SCALE

0 50 0 100 200

1" = 200'

HORIZONTAL SCALE

LEGEND

EXISTING CONTOURS	775
DRAINAGE ID	DA-X X.XX ACRES
FLOW ARROW	
EXISTING INLET	
EXISTING RCP	
TC OVERLAND FLOW	
TC SHALLOW FLOW	
TC CHANNEL FLOW	

NOTE: TOPOGRAPHY SHOWN IS FROM THE TEXAS GEOGRAPHICAL INFORMATION OFFICE (TxGIO, FORMERLY TNRIS), 2021-2FT LIDAR DATASET.

STATE OF TEXAS
SHIVA SANDRANA, P.E.
97425
LICENSED
PROFESSIONAL ENGINEER

05/20/2025

NO.	REVISION	BY	DATE
3			
2			
1			

floodace
14603 HUEBNER RD #20
SAN ANTONIO, TX 78230
P:210-857-7991
TBPE #F-19785

CITY OF SAN ANTONIO
PUBLIC WORKS DEPARTMENT

CULEBRA AREA STREETS

DRAINAGE AREA MAP EXISTING CONDITIONS

100% SUBMITTAL	PROJECT NO: EC-22009		DATE: 05/20/2025
DRWN. BY: CFP	DSGN. BY: CFP	CHKD. BY: SKS	SHEET NO: 131

$TIME$
$DATE$
$FILE$

NOTE: USED PA-3 ATLAS 14 RAINFALL INTENSITY (INCHES/HOUR) BY STORM FREQUENCY

Existing Time of Concentration Calculations for Culebra Area Streets														
	Overland Flow					Shallow Concentrated Flow					Channel Flow			
Sub-Basin	Condition	n	L (ft)	S (ft/ft)	T_t (min)	Paved?	S (ft/ft)	V (fps)	L (ft)	T_t (min)	L (ft)	V (fps)	T_t (min)	T_c (min)
E-DA-1	Existing	0.15	100	0.040	6.66	n	0.03	2.79	1000	5.96	362	6	1.01	13.63
E-DA-2	Existing	0.15	100	0.035	7.02	n	0.01	1.61	210	2.17	494	6	1.37	10.56
E-DA-3	Existing	0.15	100	0.010	11.59	n	0.01	1.61	512	5.29	51	6	0.14	17.02
E-DA-4	Existing	0.15	100	0.010	11.59	n	0.01	1.61	154	1.59	787	6	2.19	15.37

EXISTING CULEBRA AREA STREETS								
Sub-Basin	C	Area (Acres)	Intensity 5yr (IN/HR)	Intensity 25yr (IN/HR)	Intensity 100yr (IN/HR)	Q=CIA 5-Yr Flow (CFS)	Q=CIA 25-yr Flow (CFS)	Q=CIA 100-yr Flow (CFS)
E-DA-1	0.83	20.82	5.66	7.89	9.85	98	136	170
E-DA-2	0.83	4.00	6.08	8.50	10.64	20	28	35
E-DA-3	0.84	8.08	4.94	6.84	8.50	34	46	58
E-DA-4	0.88	7.04	5.28	7.32	9.12	33	45	57

COMPOSITE Runoff C to E-DA-1			
Field Type	ACRES	C	C*Acres
Residential Medium	17.247	0.8	13.798
Roadway	3.508	0.97	3.403
Commercial	0.069	0.9	0.062
Total	**20.824**		**17.262**
Composite C			**0.83**

COMPOSITE Runoff C to E-DA-3			
Field Type	ACRES	C	C*Acres
Residential Medium	6.034	0.8	4.827
Roadway	1.014	0.97	0.984
Industrial	0.920	0.96	0.883
Commercial	0.110	0.9	0.099
Total	**8.078**		**6.793**
Composite C			**0.84**

COMPOSITE Runoff C to E-DA-2			
Field Type	ACRES	C	C*Acres
Residential Medium	3.19	0.8	2.552
Roadway	0.81	0.97	0.7857
Total	**4**		**3.338**
Composite C			**0.83**

COMPOSITE Runoff C E-to DA-4			
Field Type	ACRES	C	C*Acres
Residential Medium	3.057	0.8	2.4456
Roadway	1.415	0.97	1.37255
Industrial	1.843	0.9	1.6587
Commercial	0.725	0.96	0.696
Total	**7.04**		**6.173**
Composite C			**0.88**

STATE OF TEXAS
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05/20/2025

NO.	REVISION	BY	DATE
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2			
1			

floodace

14603 HUEBNER RD #20
SAN ANTONIO, TX 78230
P:210-857-7991
TBPE #F-19785

CITY OF SAN ANTONIO
PUBLIC WORKS DEPARTMENT

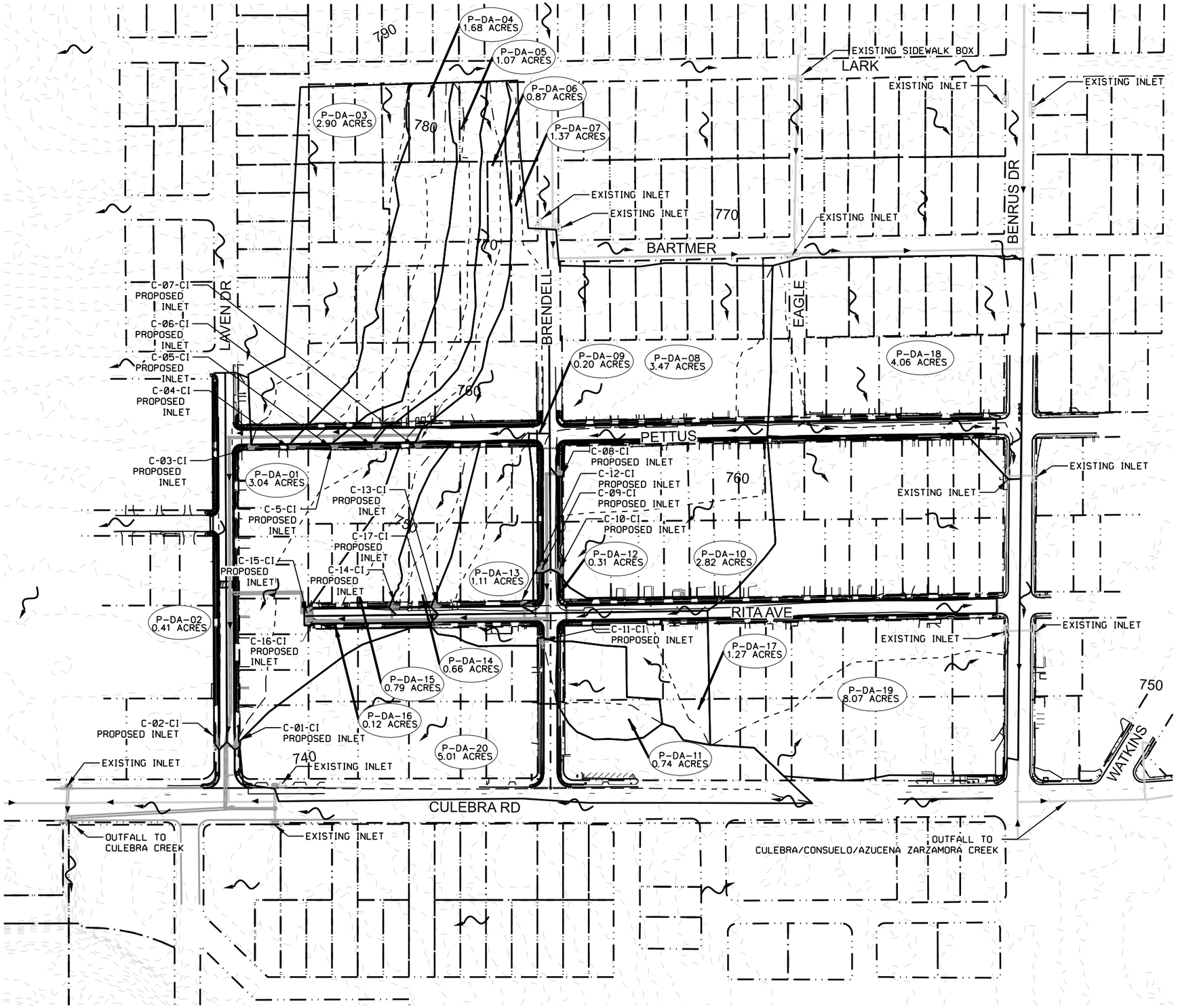
CULEBRA AREA STREETS

EXISTING DRAINAGE AREA PLAN CALCULATIONS

100% SUBMITTAL	PROJECT NO: EC-22009		DATE: 05/20/2025
DRWN. BY: CFP	DSGN. BY: CFP	CHKD. BY: SKS	SHEET NO: 132

$TIME$

$DATE$
$FILE$



GRAPHIC SCALE

0 50 0 100 200

1" = 200'

HORIZONTAL SCALE

LEGEND

EXISTING CONTOURS	775
DRAINAGE ID	DA-X X.XX ACRES
FLOW ARROW	
EXISTING INLET	
EXISTING RCP	
TC OVERLAND FLOW	
TC SHALLOW FLOW	
TC CHANNEL FLOW	

NOTE: TOPOGRAPHY SHOWN IS FROM THE TEXAS GEOGRAPHICAL INFORMATION OFFICE (TxGIO, FORMERLY TNRIS), 2021-2FT LIDAR DATASET.

STATE OF TEXAS
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05/20/2025

NO.	REVISION	BY	DATE
3			
2			
1			

floodace

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SAN ANTONIO, TX 78230
P:210-857-7991
TBPE #F-19785

CITY OF SAN ANTONIO
PUBLIC WORKS DEPARTMENT

CULEBRA AREA STREETS

DRAINAGE AREA MAP PROPOSED CONDITIONS

100% SUBMITTAL	PROJECT NO: EC-22009		DATE: 05/20/2025
DRWN. BY: CFP	DSGN. BY: CFP	CHKD. BY: SKS	SHEET NO: 133

$TIME$

$DATE$
$FILE$

NOTE: USED PA-3 ATLAS 14 RAINFALL INTENSITY (INCHES/HOUR) BY STORM FREQUENCY

Proposed Time of Concentration Calculations for Culebra Area Streets

		Overland Flow					Shallow Concentrated Flow					Channel Flow			
Sub-Basin	Inlet ID#	Condition	n	L (ft)	S (ft/ft)	T_t (min)	Paved?	S (ft/ft)	V (fps)	L (ft)	T_t (min)	L (ft)	V (fps)	T_t (min)	T_c (min)
P-DA-01	C-01-CI	Proposed	0.15	100	0.030	7.47	y	0.02	2.87	410	2.38	135	6.49	0.35	10.19
P-DA-02	C-02-CI	Proposed	0.15	18	0.030	1.89	y	0.02	2.87	501	2.90	208	5.62	0.62	5.42
P-DA-03	C-03-CI	Proposed	0.15	81	0.040	5.63	n	0.03	2.79	677	4.04	66	6.25	0.18	9.84
P-DA-04	C-04-CI	Proposed	0.15	100	0.030	7.47	n	0.03	2.79	562	3.35	117	6.49	0.30	11.12
P-DA-05	C-05-CI	Proposed	0.15	88	0.020	7.93	n	0.02	2.28	663	4.84	107	6.49	0.27	13.05
P-DA-06	C-06-CI	Proposed	0.15	95	0.040	6.39	n	0.03	2.79	637	3.80	91	6.49	0.23	10.42
P-DA-07	C-07-CI	Proposed	0.15	39	0.010	5.46	y	0.01	2.03	638	5.23	259	7.15	0.60	11.29
P-DA-08	C-08-CI	Proposed	0.15	100	0.030	7.47	n	0.01	1.61	227	2.34	428	7.25	0.98	10.80
P-DA-09	C-09-CI	Proposed	0.15	40	0.030	3.59	y	0.02	2.87	347	2.01	279	7.25	0.64	6.24
P-DA-10	C-10-CI	Proposed	0.15	100	0.010	11.59	n	0.007	1.35	414	5.11	103	5.62	0.31	17.01
P-DA-11	C-11-CI	Proposed	0.15	88	0.020	7.93	n	0.04	3.23	126	0.65	117	4.59	0.42	9.01
P-DA-12	C-12-CI	Proposed	0.15	36	0.010	5.12	y	0.01	2.03	50	0.41	312	7.20	0.72	6.25
P-DA-13	C-13-CI	Proposed	0.15	100	0.030	7.47	n	0.02	2.28	262	1.91	50	6.35	0.13	9.52
P-DA-14	C-14-CI	Proposed	0.15	100	0.027	7.79	y	0.02	2.87	70	0.41	18	5.62	0.05	8.25
P-DA-15	C-15-PAZD	Proposed	0.15	95	0.020	8.43	n	0.02	2.28	277	2.02	93	5.25	0.30	10.75
P-DA-16	C-16-PAZD	Proposed	0.15	19	0.010	3.07	n	0.01	1.61	50	0.52	170	7.25	0.39	3.98
P-DA-17	C-17-CI	Proposed	0.15	100	0.024	8.17	y	0.02	2.87	205	1.19	426	7.94	0.89	10.25
P-DA-18	EXISTING	Proposed	0.15	100	0.035	7.02	n	0.01	1.61	210	2.17	494	3.97	2.07	11.27
P-DA-19	EXISTING	Proposed	0.15	100	0.010	11.59	n	0.01	1.61	512	5.29	51	4.59	0.19	17.07
P-DA-20	EXISTING	Proposed	0.15	100	0.010	11.59	n	0.01	1.61	154	1.59	787	6	2.19	15.37

PROPOSED CULEBRA AREA STREETS

Sub-Basin	Inlet ID#	C	Area (Acres)	Intensity 5yr (IN/HR)	Intensity 25yr (IN/HR)	Intensity 100yr (IN/HR)	Q=CIA 5-Yr Flow (CFS)	Q=CIA 25-yr Flow	Q=CIA 100-yr Flow (CFS)
P-DA-01	C-01-CI	0.83	3.04	6.08	8.50	10.64	15	21	27
P-DA-02	C-02-CI	0.97	0.41	6.08	8.50	10.64	2	3	4
P-DA-03	C-03-CI	0.81	2.90	6.30	8.82	11.05	15	21	26
P-DA-04	C-04-CI	0.82	1.68	6.08	8.50	10.64	8	12	15
P-DA-05	C-05-CI	0.81	1.07	5.66	7.89	9.82	5	7	9
P-DA-06	C-06-CI	0.81	0.87	6.08	8.50	10.64	4	6	8
P-DA-07	C-07-CI	0.84	1.37	6.08	8.50	10.64	7	10	12
P-DA-08	C-08-CI	0.83	3.47	6.08	8.50	10.64	17	24	31
P-DA-09	C-09-CI	0.89	0.20	6.30	8.82	11.05	1	2	2
P-DA-10	C-10-CI	0.83	2.82	5.86	8.19	10.24	14	19	24
P-DA-11	C-11-CI	0.91	0.74	6.54	9.17	11.49	4	6	8
P-DA-12	C-12-CI	0.87	0.31	7.45	10.43	13.08	2	3	3
P-DA-13	C-13-CI	0.82	1.11	6.54	9.17	11.49	6	8	10
P-DA-14	C-14-CI	0.81	0.66	6.81	9.54	11.97	4	5	6
P-DA-15	C-15-PAZD	0.81	0.79	6.08	8.50	10.64	4	5	7
P-DA-16	C-16-PAZD	0.91	0.12	7.45	10.43	13.08	1	1	1
P-DA-17	C-17-CI	0.87	1.27	6.30	8.82	11.05	7	10	12
P-DA-18	EXISTING	0.83	4.06	6.08	8.50	10.64	20	29	36
P-DA-19	EXISTING	0.84	8.07	4.94	6.84	8.50	33	46	58
P-DA-20	EXISTING	0.90	5.01	5.28	7.32	9.12	24	33	41

COMPOSITE Runoff C to P-DA-01

Field Type	ACRES	C	(C*Acres)
Residential Medium	2.547	0.8	2.038
Transportation	0.420	0.97	0.407
Commercial	0.070	0.96	0.067
Total	3.037		2.512
Composite C			0.83

COMPOSITE Runoff C to P-DA-02

Field Type	ACRES	C	(C*Acres)
Residential Medium	0.003	0.8	0.003
Transportation	0.410	0.97	0.3977
Total	0.413		0.400
Composite C			0.97

COMPOSITE Runoff C to P-DA-03

Field Type	ACRES	C	(C*Acres)
Residential Medium	2.84	0.8	2.272
Transportation	0.06	0.97	0.057
Total	2.899		2.329
Composite C			0.80

COMPOSITE Runoff C to P-DA-04

Field Type	ACRES	C	(C*Acres)
Residential Medium	1.620	0.8	1.296
Transportation	0.057	0.97	0.055
Total	1.677		1.351
Composite C			0.81

COMPOSITE Runoff C to P-DA-05

Field Type	ACRES	C	(C*Acres)
Residential Medium	1.015	0.8	0.812
Trasnportation	0.059	0.97	0.057
Total	1.074		0.869
Composite C			0.81

COMPOSITE Runoff C to P-DA-06

Field Type	ACRES	C	(C*Acres)
Residential Medium	0.820	0.8	0.656
Trasnportation	0.053	0.97	0.051
Total	0.873		0.707
Composite C			0.81

COMPOSITE Runoff C to P-DA-07

Field Type	ACRES	C	(C*Acres)
Residential Medium	1.080	0.8	0.864
Trasnportation	0.294	0.97	0.285
Total	1.374		1.149
Composite C			0.84

COMPOSITE Runoff C to P-DA-08

Field Type	ACRES	C	(C*Acres)
Residential Medium	2.850	0.8	2.280
Trasnportation	0.624	0.97	0.606
Total	3.474		2.886
Composite C			0.83

COMPOSITE Runoff C to P-DA-09

Field Type	ACRES	C	(C*Acres)
Residential Medium	0.100	0.8	0.080
Trasnportation	0.100	0.97	0.097
Total	0.200		0.177
Composite C			0.89

COMPOSITE Runoff C to P-DA-10

Residential Medium	2.394	0.8	1.915
Trasnportation	0.215	0.97	0.209
Industrail	0.215	0.9	0.194
Total	2.824		2.317
Composite C			0.82

COMPOSITE Runoff C to P-DA-11

Field Type	ACRES	C	(C*Acres)
Transportation	0.084	0.97	0.081
Industrail	0.660	0.9	0.594
Total	0.744		0.675
Composite C			0.91

COMPOSITE Runoff C to P-DA-12

Field Type	ACRES	C	(C*Acres)
Residential Medium	0.183	0.8	0.146
Transportation	0.131	0.97	0.127
Total	0.314		0.273
Composite C			0.87

COMPOSITE Runoff C to P-DA-13

Field Type	ACRES	C	(C*Acres)
Residential Medium	1.003	0.8	0.802
Transportation	0.111	0.97	0.108
Total	1.114		0.910
Composite C			0.82

COMPOSITE Runoff C to P-DA-14

Field Type	ACRES	C	(C*Acres)
Residential Medium	0.630	0.8	0.504
Transportation	0.028	0.97	0.027
Total	0.658		0.531
Composite C			0.81

COMPOSITE Runoff C to P-DA-15

Field Type	ACRES	C	(C*Acres)
Residential Medium	0.730	0.8	0.584
Transportation	0.060	0.97	0.058
Total	0.790		0.642
Composite C			0.81

COMPOSITE Runoff C to P-DA-16

Field Type	ACRES	C	(C*Acres)
Residential Medium	0.043	0.8	0.034
Transportation	0.080	0.97	0.078
Total	0.123		0.112
Composite C			0.91

COMPOSITE Runoff C to P-DA-17

Field Type	ACRES	C	(C*Acres)
Residential Medium	0.735	0.8	0.588
Transportation	0.535	0.97	0.519
Total	1.270		1.107
Composite C			0.87

COMPOSITE Runoff C to P-DA-18

Field Type	ACRES	C	(C*Acres)
Residential Medium	3.250	0.8	2.6
Transportation	0.813	0.97	0.789
Total	4.063		3.389
Composite C			0.83

COMPOSITE Runoff C to P-DA-19

Field Type	ACRES	C	(C*Acres)
Residential Medium	6.030	0.8	4.824
Transportation	1.014	0.97	0.984
Commercial	0.920	0.96	0.883
Industrial	0.110	0.9	0.099
Total	8.074		6.790
Composite C			0.84

COMPOSITE Runoff C to P-DA-20

Field Type	ACRES	C	(C*Acres)
Residential Medium	1.575	0.8	1.260
Transportation	0.737	0.97	0.715
Commercial	2.103	0.96	2.019
Industrial	0.597	0.9	0.537
Total	5.012		4.531
Composite C			0.90

STATE OF TEXAS
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97425
LICENSED
PROFESSIONAL ENGINEER

05/20/2025

NO.	REVISION	BY	DATE
3			
2			
1			

floodace
14603 HUEBNER RD #20
SAN ANTONIO, TX 78230
P:210-857-7991
TBPE #F-19785

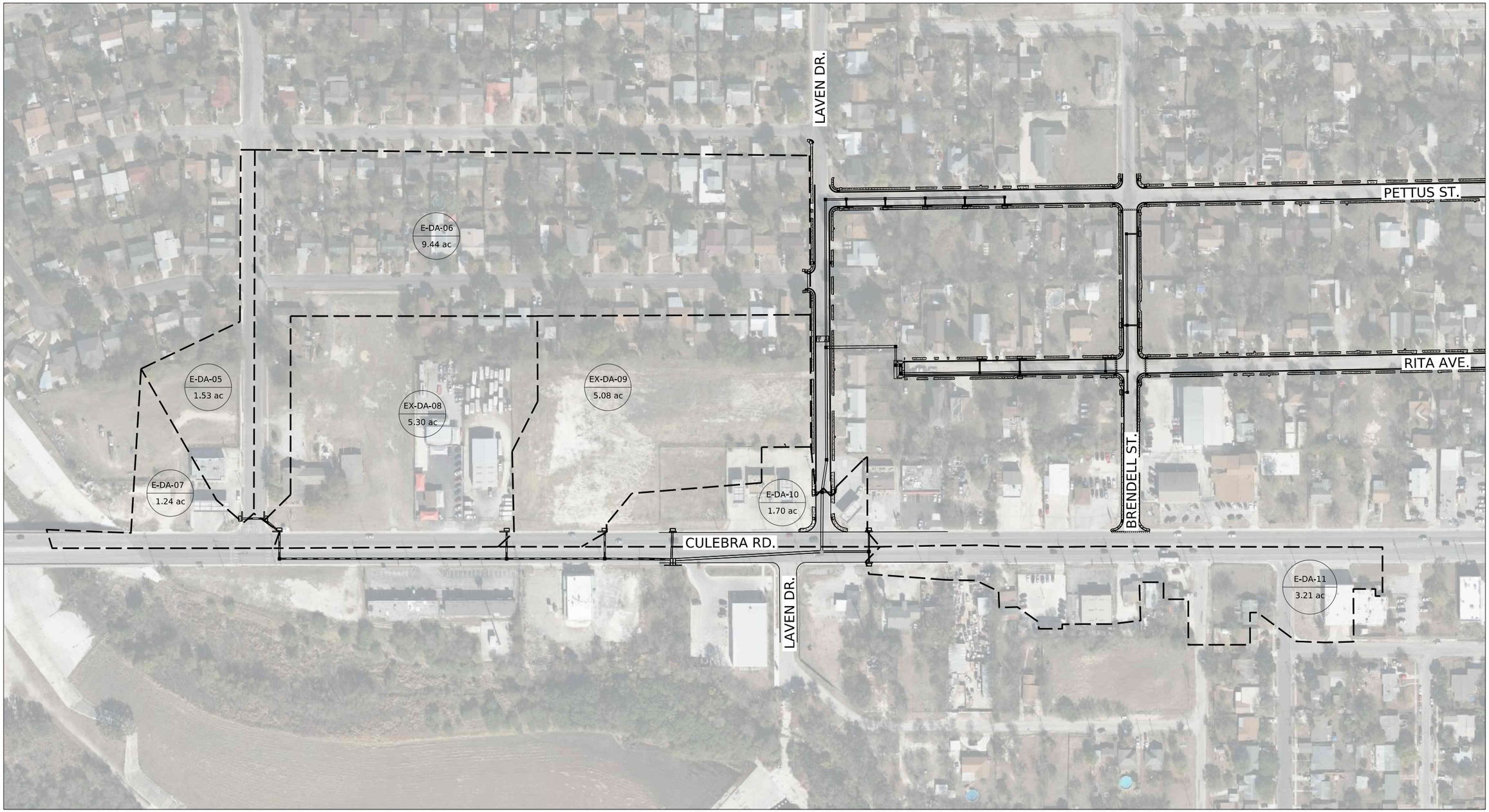
CITY OF SAN ANTONIO
PUBLIC WORKS DEPARTMENT

CULEBRA AREA STREETS

PROPOSED DRAINAGE AREA PLAN CALCULATIONS

100% SUBMITTAL	PROJECT NO: EC-22009		DATE: 05/20/2025
DRWN. BY: CFP	DSGN. BY: CFP	CHKD. BY: SKS	SHEET NO: 134

$TIME$
$DATE$
$FILE$



LEGEND

DRAINAGE AREA BOUNDARY

X-X / XX.XX ac — DRAINAGE AREA I.D.

STATE OF TEXAS
MARTIN M. GONZALES
121996
LICENSED PROFESSIONAL ENGINEER

5.28.25

GRAPHIC SCALE
100 50 0 100 200
1" = 200'
HORIZONTAL SCALE

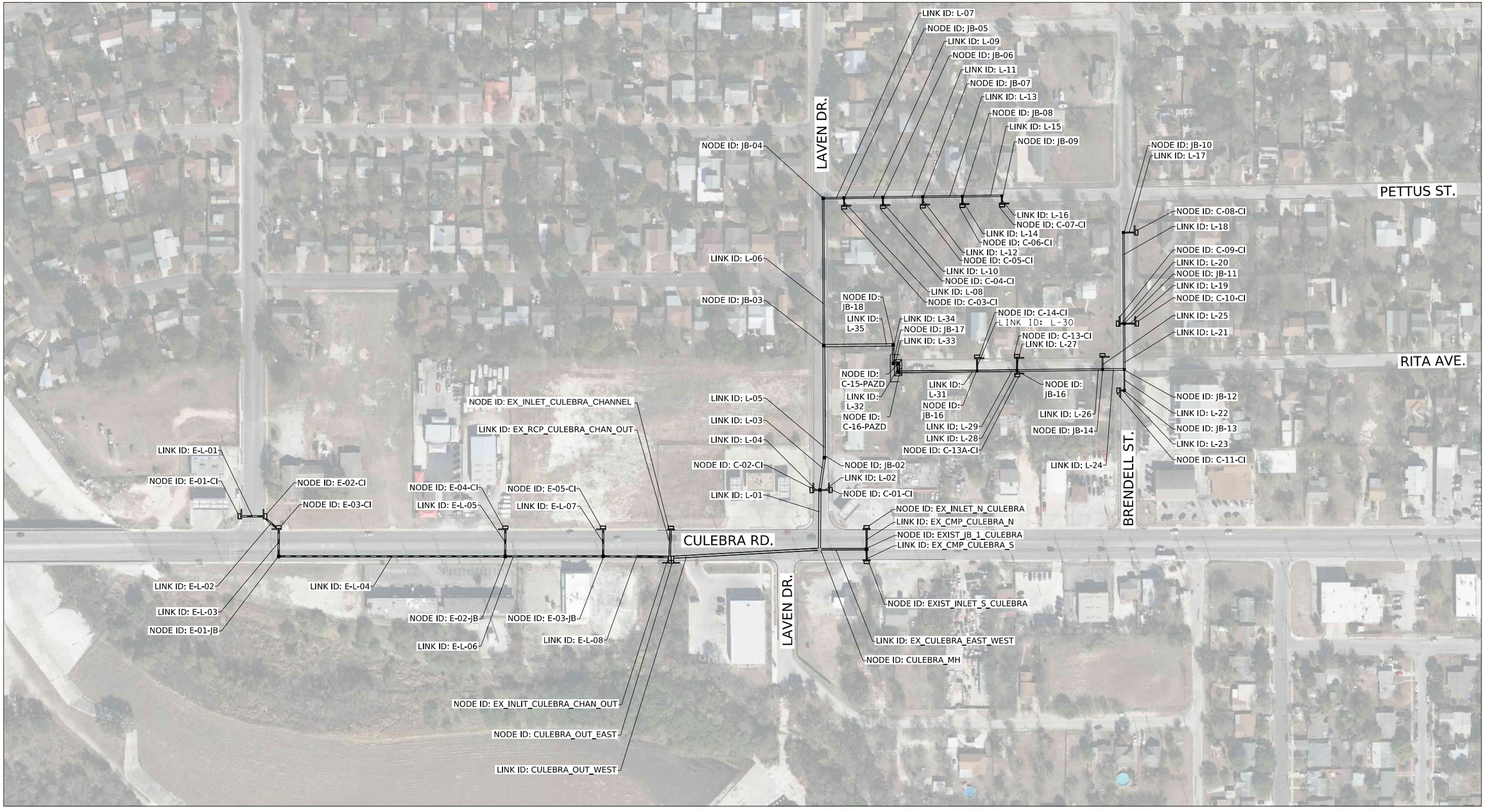
AG3 Group, LLC
ENGINEERING · SURVEY · CONSTRUCTION
4800 FREDERICKSBURG RD SUITE 200SL
SAN ANTONIO, TX 78229
P:210-208-9400 F:210-208-9401
TBPE #F-21809
TBPLS #10194622

CITY OF SAN ANTONIO
PUBLIC WORKS DEPARTMENT

CULEBRA AREA STREETS

SYSTEM 1 DRAINAGE AREA LAYOUT

100% SUBMITTAL	PROJECT NO: 23-03873		DATE: 05/28/2025
DRWN. BY: JE	DSGN. BY: JE	CHKD. BY: MG	SHEET NO: 135



STATE OF TEXAS
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121996
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PROFESSIONAL ENGINEER

5.28.25

GRAPHIC SCALE
100 50 0 100 200
1" = 200'
HORIZONTAL SCALE

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TBPE #F-21809
TBPLS #10194622

CITY OF SAN ANTONIO
PUBLIC WORKS DEPARTMENT

CULEBRA AREA STREETS

SYSTEM 1 STORM SEWER LAYOUT

100% SUBMITTAL	PROJECT NO: 23-03873		DATE: 05/28/2025
DRWN. BY: JE	DSGN. BY: JE	CHKD. BY: MG	SHEET NO: 136

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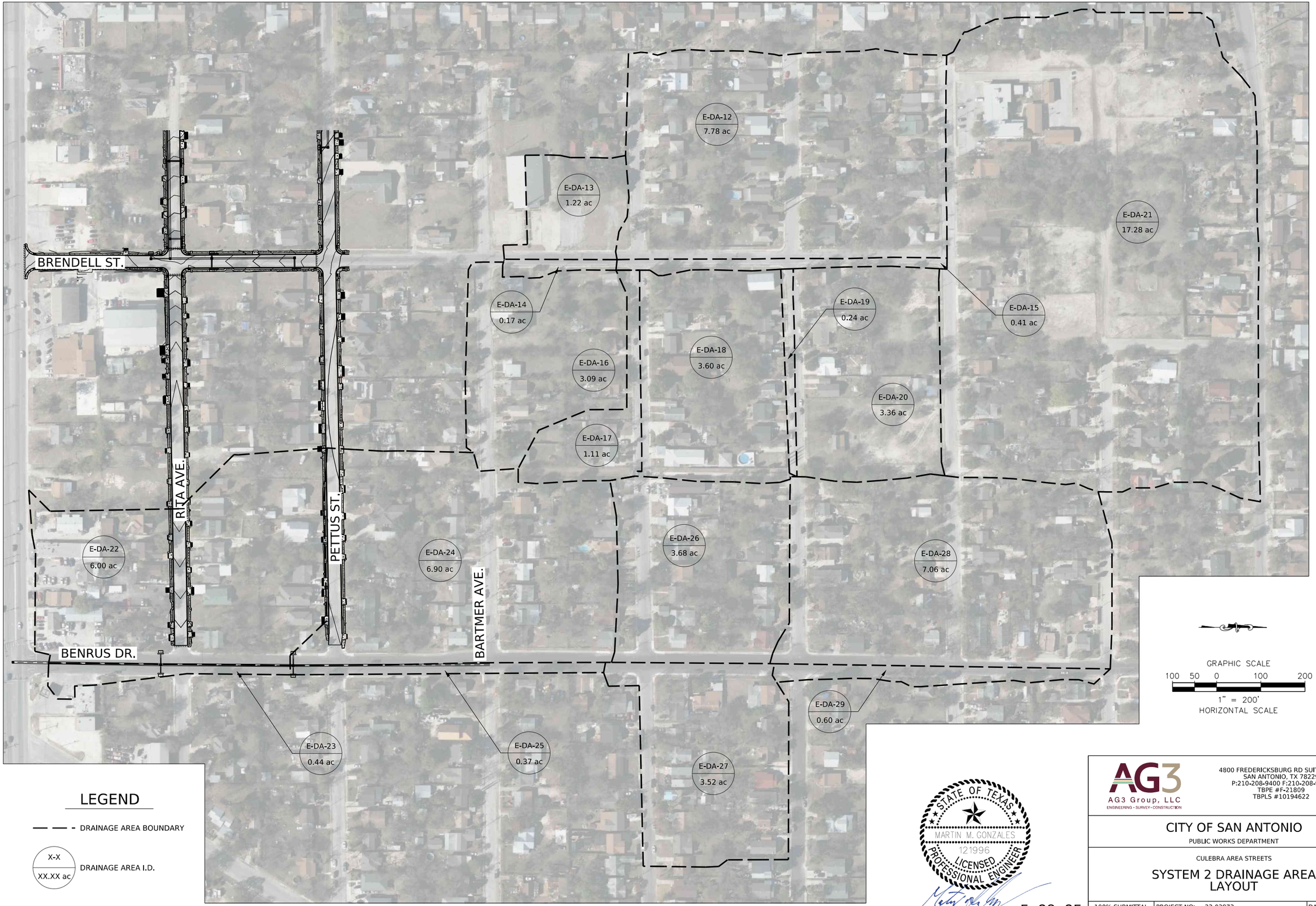

LEGEND

DRAINAGE AREA BOUNDARY

X-X / XX.XX ac — DRAINAGE AREA I.D.

STATE OF TEXAS
MARTIN M. GONZALES
121996
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TBPLS #10194622

CITY OF SAN ANTONIO
PUBLIC WORKS DEPARTMENT

CULEBRA AREA STREETS

SYSTEM 2 DRAINAGE AREA LAYOUT

100% SUBMITTAL	PROJECT NO: 23-03873		DATE: 05/28/2025
DRWN. BY: JE	DSGN. BY: JE	CHKD. BY: MG	SHEET NO: 137

5/28/2025 6:46:54 PM
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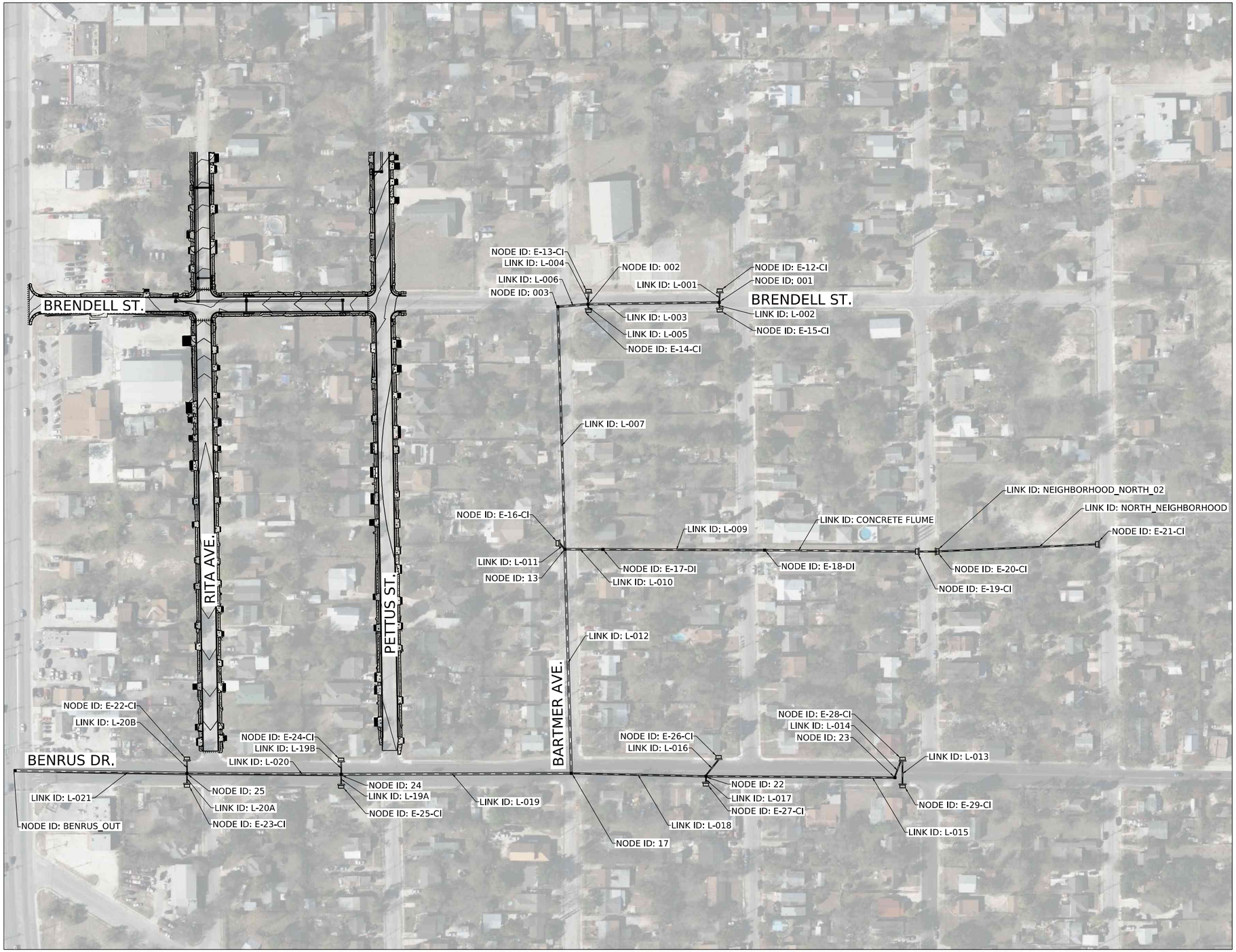

STATE OF TEXAS
MARTIN M. GONZALES
121996
LICENSED
PROFESSIONAL ENGINEER

5.28.25

GRAPHIC SCALE
100 50 0 100 200
1" = 200'
HORIZONTAL SCALE

AG3 Group, LLC
ENGINEERING • SURVEY • CONSTRUCTION
4800 FREDERICKSBURG RD SUITE 200SL
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P:210-208-9400 F:210-208-9401
TBPE #F-21809
TBPLS #10194622

CITY OF SAN ANTONIO
PUBLIC WORKS DEPARTMENT

CULEBRA AREA STREETS

SYSTEM 2 STORM SEWER LAYOUT

100% SUBMITTAL	PROJECT NO: 23-03873		DATE: 05/28/2025
DRWN. BY: JE	DSGN. BY: JE	CHKD. BY: MG	SHEET NO: 138

HYDRAULIC INLET TABLE : 25-YR

NODE IN (LABEL)	INLET PROFILE TYPE (INLET LOCATION)	DRAINAGE AREA	TOTEL INLET DISCHARGE (TOTAL RATIONAL FLOW TO INLET) (CFS)	INLET CAPACITY (FLOW CAPTURED) (CFS)	CAPACITY INLET (CFS)	FLOW (TOTAL OUT) (CFS)	INLET BYPASS FLOW (BYPASSED RATIONAL FLOW) (CFS)	BYPASS TO NODE (BYPASS TARGET)	CURB OPENING LENGTH (FT)	INLET LONGITUDINAL SLOPE (%)	GUTTER CROSS SLOPE (%)	ROAD CROSS SLOPE (%)	INLET ALLOWABLE PONDED WIDTH (MAXIMUM SPREAD) (FT)	INLET COMPUTED PONDED WIDTH (SPREAD / TOP WIDTH) (FT)	INLET ALLOWABLE PONDED DEPTH (MAX. GUTTER DEPTH - DESIGN) (IN)	INLET COMPUTED PONDED DEPTH (DEPTH GUTTER) (IN)	ENTRANCE LOSS (IN)	TOTAL STRUCTURE ENERGY LOSSES (IN)
C-01-CI	On Grade	E-DA-1	136.52	35.95	8.29	35.95	100.57	EX_CHANNEL_INLET	25.00	1.25	10.42	2.00	15.30	40.22	7.00	11.170	(N/A)	(N/A)
C-02-CI	On Grade	C-02-CI	4.22	4.13	8.29	4.13	0.08	EX_CHANNEL_INLET	25.00	1.25	10.42	2.00	15.30	10.19	7.00	3.961	(N/A)	(N/A)
EX_INLET_S_CULEBRA	On Grade	E-DA-11	25.20	9.96	5.53	9.96	15.24	<None>	15.00	0.70	16.70	2.00	15.30	23.30	7.00	8.238	(N/A)	(N/A)
EX_INLET_N_CULEBRA	On Grade	E-DA-4	47.96	22.53	7.88	22.53	25.43	EX_CHANNEL_INLET	25.00	0.70	16.70	2.00	15.30	29.97	7.00	9.839	(N/A)	(N/A)
EX_CHANNEL_INLET	In Sag	E-DA-10	210.98	210.98	62.59	210.98	0.00	<None>	15.00	-	16.70	2.00	15.30	1,355.09	7.00	330.868	0.00	0.00
E-01-CI	In Sag	E-DA-05	9.36	9.36	55.84	9.36	0.00	<None>	25.00	-	10.42	2.00	15.30	5.12	7.00	8.018	0.00	0.00
E-02-CI	On Grade	E-DA-06	80.30	80.24	0.76	88.64	0.06	E-03-CI	25.00	0.01	10.42	2.00	15.30	93.04	7.00	24.351	0.00	0.00
E-03-CI	On Grade	E-DA-07	6.47	3.40	4.41	91.28	3.07	E-04-CI	10.00	0.97	10.42	2.00	15.30	12.36	7.00	4.987	0.00	0.00
E-04-CI	On Grade	E-DA-08	29.29	17.91	5.84	17.91	11.38	E-05-CI	20.00	0.30	10.42	2.00	15.30	29.17	7.00	9.023	0.00	0.00
E-05-CI	On Grade	E-DA-09	38.18	16.44	5.23	16.44	21.74	EX_CHANNEL_INLET	15.00	0.30	10.42	2.00	15.30	32.32	7.00	9.778	0.00	0.00

HYDRAULIC DATA CONDUIT TABLE : 25-YR

PIPE ID (LABEL)	UPSTREAM NODE (START)	DOWNSTREAM NODE (STOP)	DIAMETER (IN)	MANNING'S N	CAPACITY (FULL FLOW) (CFS)	LENGTH (CONSTRUCTION) (FT)	Slope (Construction) (%)	VELOCITY (FT/S)	ACTUAL DEPTH DOWNSTREAM (OUT) (IN)	HEADLOSS FT)	EXIT LOSS (IN)	HGL UPSTREAM (IN) (FT)	HGL (DOWNSTREAM (OUT) (FT)	UPSTREAM INVERT (START) (FT)	DOWNSTREAM INVERT (START) (FT)
C-01-L	C-01-CI	C-01-OUT	36.0	0.013	92.02	13.42	2.61	11.71	2.29	0.01	0	735.15	(N/A)	733.20	732.85
C-02-L	C-02-CI	C-01-OUT	36.0	0.013	91.53	13.59	2.58	6.97	1.89	-0.01	0	734.73	(N/A)	733.20	732.85
E-L-01	E-01-CI	E-02-CI	42.0	0.013	89.55	44.49	0.90	0.97	64.80	-1.60	0.07	738.01	738.00	733.00	732.60
E-L-02	E-02-CI	E-03-CI	42.0	0.013	73.57	33.83	0.59	9.21	68.40	-1.10	6.33	738.29	738.00	732.50	732.30
E-L-03	E-03-CI	E-01-JB	42.0	0.013	58.80	53.06	0.38	9.49	75.58	-1.88	6.71	738.78	738.30	732.20	732.00
E-L-04	E-01-JB	E-02-JB	42.0	0.013	54.81	461.10	0.30	9.45	69.36	0.97	6.67	740.11	736.30	731.90	730.52
E-L-05	E-04-CI	E-02-JB	42.0	0.013	117.94	52.71	-1.52	1.86	75.02	-3.62	0.26	736.32	736.30	729.25	730.05
E-L-06	E-02-JB	E-03-JB	42.0	0.013	55.85	196.53	0.32	10.81	74.40	2.14	8.72	738.16	736.00	730.42	729.80
E-L-07	E-05-CI	E-03-JB	42.0	0.013	134.85	52.53	-1.98	1.71	75.59	-1.06	0.22	736.02	736.00	728.66	729.70
E-L-08	E-03-JB	EXIST_CHAN_OUT	42.0	0.013	70.47	134.24	0.50	12.11	42.00	1.84	0.00	734.37	732.53	729.70	729.03
EX_LAVEN_OUT	C-01-OUT	CULEBRA_MH	36.0	0.013	102.02	115.96	2.43	13.42	3.46	1.39	0.00	(N/A)	734.69	732.65	729.83
CULEBRA_OUT_WEST	CULEBRA_MH	transition	54.0	0.013	113.39	296.58	0.34	8.25	4.50	0.19	0.00	(N/A)	733.17	729.80	728.80
EXIST_CULEBRA_CMP_1	EX_INLET_N_CULEBRA	PJB_1_exist_culebra	30.0	0.024	24.98	39.46	1.44	5.75	1.91	0.52	0.00	(N/A)	734.12	732.26	731.69
EXIST_CULEBRA_CMP_2	EX_INLET_S_CULEBRA	PJB_1_exist_culebra	24.0	0.024	25.07	21.74	5.24	7.54	1.74	0.54	0.00	(N/A)	733.98	732.84	731.70
EXIST_CULEBRA_RCP_1	PJB_1_exist_culebra	CULEBRA_MH	36.0	0.013	88.37	91.33	1.86	(N/A)	3.37	0.11	0.00	(N/A)	733.33	731.55	729.85
EX_RCP_INLET_OUT	EX_CHANNEL_INLET	EXIST_CHAN_OUT	36.0	0.013	75.07	54.65	-1.34	29.85	36.00	5.77	0.00	737.80	732.03	728.30	729.03

HYDRAULIC DATA DRAINAGE AREA TABLE : 25-YR

DESIGNATION (DA) - LABEL	CATCHMENT INLET (CATCHMENT OUTFALL)	DRAINAGE AREA (UNIFIED) A (acres)	RUNOFF COEFFICIENT (RATIONAL) C	CONTRIBUTING AREA (CATCHMENT) CA (acres)	TIME OF CONCENTRATION (min)	INTENSITY (25-YR) (CATCHMENT) (in/h)	RUN-OFF (25-YR) (CATCHMENT RATIONAL FLOW) (cfs)	FLOW (TOTAL OUT) (cfs)
C-02-CI	C-02-CI	0.416	0.93000	0.387	5	10.806	4.22	4.22
E-DA-11	EX_INLET_S_CULEBRA	3.213	0.72000	2.313	0	10.806	25.20	25.20
E-DA-4	EX_INLET_N_CULEBRA	8.749	0.72000	6.300	15	7.553	47.96	47.96
C-01-CI	C-01-CI	20.559	0.83000	17.064	14	7.937	136.52	136.52
E-DA-07	E-03-CI	1.174	0.50000	0.587	5	10.806	6.39	6.39
E-DA-05	E-01-CI	1.530	0.60000	0.918	7	10.114	9.36	9.36
E-DA-06	E-02-CI	9.438	0.93000	8.778	9	9.076	80.30	80.30
E-DA-08	E-04-CI	5.299	0.49000	2.597	7	10.094	26.42	26.42
E-DA-09	E-05-CI	5.084	0.49000	2.491	6	10.494	26.35	26.35
E-DA-10	EX_CHANNEL_INLET	1.702	0.82000	1.395	5	10.806	15.20	15.20

NOTES:

1. ANALYSIS PERFORMED USING GEOPAK DRAINAGE (SS10) EDITION WHICH PERFORMS HYDRAULIC COMPUTATIONS IN ACCORDANCE WITH FHWA (HEC-22 GUIDELINES)

2. REPORTED CALCULATED PONDED WIDTH FOR SAG INLETS IS THE GREATEST VALUE OF LEFT, RIGHT, AND TOTAL PONDED WIDTH.

3. ELEVATION DATA FOR EXISTING LINKS WAS OBTAINED FROM SURVEY DATA. IF SURVEY WAS NOT AVAILABLE AS- BUILT DATA WAS USED

STATE OF TEXAS
MARTIN M. GONZALES
121996
LICENSED
PROFESSIONAL ENGINEER

5.28.25

NO.	REVISION	BY	DATE
3			
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AG3 Group, LLC
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TBPE #F-21809
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CITY OF SAN ANTONIO
PUBLIC WORKS DEPARTMENT

CULEBRA AREA STREETS

EXISTING SYSTEM 1 HYDRAULIC DATA

100% SUBMITTAL	PROJECT NO: 23-03873		DATE: 05/28/2025
DRWN. BY: SS	DSGN. BY: SS	CHKD. BY:	SHEET NO: 139

HYDRAULIC DATA INLET TABLE : 25-YR

NODE ID (LABEL	INLET TYPE (INLET)	INLET PROFILE TYPE (INLET LOCATION)	DRAINAGE AREA	TOTAL RATIONAL FLOW TO INLET (cfs)	FLOW (CAPTURED) (cfs)	CAPACITY (INLET) (cfs)	FLOW (TOTAL OUT) (cfs)	INLET BYPASS FLOW (BYPASSED RATIONAL FLOW) (cfs)	BYPASS TARGET	CURB OPENING LENGTH (ft)	INLET LONGITUDINAL SLOPE (%)	GUTTER CROSS SLOPE (%)	ROAD CROSS SLOPE (%)	INLET ALLOWABLE PONDED WIDTH (MAXIMUM SPREAD) (ft)	INLET COMPUTED PONDED WIDTH (SPREAD / YOP WIDTH) (ft)	INLET ALLOWABLE PONDED DEPTH (MAX. GUTTER DEPTH - DESIGN) (in)	INLET COMPUTED PONDED DEPTH (DEPTH GUTTER) (in)	ENTRANCE LOSS (in)	TOTAL STRUCTURE ENERGY LOSSES (in)
C-01-CI	PCO_6ft_LT/RT	On Grade	P-DA-01	36.38	14.55	18.08	14.55	21.83	EX_CHANNEL_INLET	20.00	0.91	3.00	2.00	30.00	26.08	7.00	6.499	0.40	0.40
C-02-CI	PCO_6ft_LT/RT	On Grade	P-DA-02	4.32	3.98	18.69	3.98	0.34	EX_CHANNEL_INLET	20.00	0.91	10.42	2.00	30.00	11.03	7.00	4.162	0.01	0.01
C-08-CI	PCO_6ft_LT/RT	On Grade	P-DA-08	25.19	10.78	20.63	10.78	14.41	C-10-CI	20.00	2.20	10.42	2.00	30.00	18.52	7.00	6.466	1.75	1.75
C-11-CI	PCO_6ft_LT/RT	On Grade	P-DA-11	6.38	5.04	20.58	5.04	1.34	C-17-CI	20.00	1.97	10.42	2.00	30.00	10.42	7.00	4.523	0.10	0.10
C-13-CI	PCO_6ft_LT/RT	On Grade	P-DA-13	22.42	10.07	20.65	10.07	12.35	C-14-CI	20.00	2.26	10.42	2.00	30.00	17.56	7.00	6.236	0.78	0.78
C-03-CI	PCO_6ft_LT/RT	On Grade	P-DA-03	27.10	13.14	33.11	13.14	13.97	C-01-CI	20.00	1.42	3.00	3.00	30.00	16.70	7.00	6.013	2.33	2.33
C-05-CI	PCO_6ft_LT/RT	On Grade	P-DA-05	9.61	6.91	35.86	6.91	2.70	C-04-CI	20.00	2.43	10.42	3.00	30.00	9.38	7.00	5.158	0.86	0.86
C-09-CI	PCO_6ft_LT/RT	On Grade	P-DA-09	1.98	1.98	19.92	1.98	0.00	C-12-CI	20.00	0.76	10.42	2.00	30.00	7.22	7.00	3.755	0.01	0.01
C-17-CI	PCO_6ft_LT/RT	On Grade	P-DA-17	11.16	6.86	20.65	6.86	4.30	C-16-PAZD	20.00	2.26	10.42	2.00	30.00	13.05	7.00	5.154	0.18	0.18
C-10-CI	PCO_6ft_LT/RT	On Grade	P-DA-10	29.12	12.33	20.51	12.33	16.80	C-12-CI	20.00	1.70	10.42	2.00	30.00	20.69	7.00	6.987	0.63	0.63
EX_INLET_N_CULEBRA	PCO_6ft_Both	On Grade	P-DA-20	34.40	14.03	21.33	14.03	20.37	EX_CHANNEL_INLET	25.00	1.56	10.42	2.00	30.00	22.99	7.00	6.527	(N/A)	(N/A)
EXIST_INLET_S_CULEBRA	PCO_6ft_Both	On Grade	E-DA-11	22.31	7.26	13.63	7.26	15.05	EX_INLIT_CULEBRA_CHAN_OUT	14.00	1.56	16.70	2.00	30.00	18.90	7.00	7.181	(N/A)	(N/A)
EX_CHANNEL_INLET	PCO_6ft_Both	In Sag	E-DA-10	88.10	88.10	49.88	88.10	0.00	<None>	15.00		10.42	2.00	30.00	231.00	7.00	59.449	(N/A)	(N/A)
C-14-CI	PCO_6ft_LT/RT	On Grade	P-DA-14	18.10	9.32	20.56	9.32	8.78	C-15-PAZD	20.00	1.87	10.42	2.00	30.00	16.71	7.00	6.031	1.35	1.35
C-12-CI	PCO_6ft_LT/RT	On Grade	P-DA-12	26.68	10.81	20.69	10.81	15.87	C-13-CI	20.00	2.51	10.42	2.00	30.00	18.46	7.00	6.452	1.76	1.76
C-15-PAZD	PAZD_RG_4x4	On Grade	P-DA-15	13.09	3.12	9.10	60.72	9.97	<None>		10.00		1.54	30.00	14.72	7.00	2.354	2.80	9.00
C-16-PAZD	PAZD_RC_5x5	In Sag	P-DA-16	6.60	6.60	49.97	58.21	0.00	<None>				10.00	30.00	5.40	7.00	3.316	1.09	3.45
C-07-CI	PCO_6ft_LT/RT	On Grade	P-DA-07	9.95	7.18	35.81	7.18	2.77	C-06-CI	20.00	2.23	10.42	3.00	30.00	9.71	7.00	5.277	0.89	0.89
C-04-CI	PCO_6ft_LT/RT	On Grade	P-DA-04	14.90	9.30	35.77	9.30	5.60	C-03-CI	20.00	2.09	10.42	3.00	30.00	11.72	7.00	5.999	1.35	1.35
C-06-CI	PCO_6ft_LT/RT	On Grade	P-DA-06	9.19	6.51	35.96	6.51	2.68	C-05-CI	20.00	2.90	10.42	3.00	30.00	8.83	7.00	4.960	0.83	0.83

HYDRAULIC DATA CONDUIT TABLE : 25-YR

PIPE ID (LABEL)	UPSTREAM NODE (START)	DOWNSTREAM NODE (STOP)	DIAMETER (IN)	MANNING'S N	CAPACITY (FULL FLOW) (CFS)	LENGTH (FT)	SLOPE (%)	VELOCITY (FT/S)	ACTUAL DEPTH DOWNSTREAM (OUT) (IN)	HEADLOSS (FT)	EXIT LOSS (IN)	HGL UPSTREAM (IN) (FT)	HGL DOWNSTREAM (OUT) (FT)	ENERGY GRADE LINE (IN) (FT)	ENERGY GRADE LINE (OUT) (FT)	UPSTREAM INVERT (START) (FT)	DOWNSTREAM INVERT (STOP) (FT)
L-05	JB-03	JB-02	-	0.013	163.02	224.57	1.78	14.17	36.52	3.88	0.00	738.80	735.24	740.10	736.22	736.20	732.20
L-06	JB-04	JB-03	-	0.013	47.28	297.90	0.96	6.65	37.51	2.03	0.00	741.45	739.43	742.14	740.11	739.15	736.30
L-07	JB-05	JB-04	36.0	0.013	88.29	37.88	1.98	12.18	18.94	0.41	0.00	742.06	740.83	742.99	742.57	740.00	739.25
L-09	JB-06	JB-05	36.0	0.013	127.86	75.00	3.92	14.53	32.14	2.41	0.00	744.76	742.78	745.47	743.06	743.04	740.10
L-17	C-08-CI	JB-10	24.0	0.013	24.58	20.42	1.47	7.57	11.73	0.21	0.00	754.58	754.08	755.07	754.85	753.40	753.10
L-21	JB-11	JB-12	30.0	0.013	42.29	89.05	1.12	8.77	26.63	0.73	0.00	751.08	750.68	751.79	751.06	749.46	748.46
L-22	JB-13	JB-12	18.0	0.013	18.38	39.12	3.41	2.84	42.80	0.10	0.00	751.03	750.93	751.16	751.06	748.70	747.37
L-23	C-11-CI	JB-13	24.0	0.013	71.49	6.98	17.14	1.60	38.93	0.01	0.00	751.15	751.15	751.19	751.19	749.10	747.90
L-27	C-13-CI	JB-15	24.0	0.013	32.13	23.00	2.50	9.05	24.27	0.06	0.00	745.56	745.65	745.87	745.81	744.20	743.63
L-26	JB-14	JB-15	36.0	0.013	107.56	170.37	2.68	13.50	35.56	3.94	0.00	748.90	745.40	749.71	745.77	747.00	742.44
L-35	JB-18	JB-03	-	0.013	110.10	136.80	0.83	9.42	41.25	0.33	0.00	739.86	739.74	740.46	740.13	737.43	736.30
L-02	C-01-CI	JB-01	30.0	0.013	95.88	12.30	8.13	14.10	37.56	0.02	0.00	735.92	735.93	736.09	736.07	733.80	732.80
L-04	C-02-CI	JB-01	36.0	0.013	95.07	12.59	3.00	6.65	38.54	0.00	0.00	736.06	736.06	736.07	736.07	733.23	732.85
L-03	JB-02	JB-01	-	0.013	231.60	62.61	1.76	13.74	53.92	0.18	0.00	735.43	735.49	736.21	736.04	732.10	731.00
L-29	JB-15	JB-16	36.0	0.013	99.18	77.76	2.35	13.87	18.84	1.10	0.00	744.67	742.17	745.76	744.66	742.43	740.60
L-34	JB-17	JB-18	-	0.013	74.19	32.30	0.43	7.03	27.04	0.13	0.00	739.89	739.79	740.62	740.49	737.67	737.53
L-08	C-03-CI	JB-05	24.0	0.013	26.84	13.06	2.00	8.49	13.00	0.16	0.00	744.81	744.32	745.38	745.21	743.50	743.24
L-12	C-05-CI	JB-07	24.0	0.013	37.13	13.06	3.83	9.04	7.93	0.23	0.00	746.86	746.09	747.22	747.00	745.93	745.43
L-20	C-09-CI	JB-11	24.0	0.013	29.82	6.01	3.33	0.63	26.49	0.00	0.00	751.81	751.81	751.82	751.82	749.80	749.60
L-28	C-17-CI	JB-15	24.0	0.013	54.52	3.11	16.09	2.18	38.25	0.01	0.00	745.70	745.69	745.77	745.76	743.00	742.50
L-01	JB-01	CULEBRA_JB	54.0	0.013	185.42	114.34	0.94	12.11	61.38	0.36	0.00	735.30	734.95	736.03	735.67	730.90	729.83
L-19	C-10-CI	JB-11	24.0	0.013	26.92	19.92	1.81	8.38	25.64	0.07	0.00	751.79	751.74	752.05	751.98	749.96	749.60
CULEBRA_OUT_WEST	CULEBRA_JB	CULEBRA_CUT_EAST	54.0	0.013	129.77	297.50	0.44	9.30	54.00	1.15	0.00	734.11	732.98	735.11	733.96	729.79	728.48
L-18	JB-10	JB-11	30.0	0.013	46.81	182.85	1.33	7.74	26.90	1.63	0.00	753.10	751.80	753.52	751.89	752.00	749.56
EX_CMP_CULEBRA_N	EX_INLET_N_CULEBRA	EXIST_JB_1_CULEBRA	30.0	0.024	25.02	39.46	1.44	2.86	43.61	0.18	0.00	735.50	735.33	735.63	735.45	732.26	731.69
EX_CMP_CULEBRA_S	EXIST_INLET_S_CULEBRA	EXIST_JB_1_CULEBRA	24.0	0.024	25.88	20.02	5.69	2.31	43.61	0.09	0.00	735.43	735.34	735.51	735.42	732.84	731.70
EX_CULEBRA_EEAST_WEST	EXIST_JB_1_CULEBRA	CULEBRA_JB	36.0	0.013	88.33	90.83	1.87	2.78	63.99	0.08	0.00	735.27	735.18	735.39	735.30	731.55	729.85
EX_RCP_CULEBRA_CHAN_OUT	EX_CHANNEL_INLET	EX_INLET_CULEBRA_CHAN_OUT	36.0	0.013	11.96	54.65	0.03	12.46	36.00	1.01	0.00	733.04	732.03	735.45	734.45	729.05	729.03
L-30	C-14-CI	JB-16	24.0	0.013	29.96	23.00	2.17	8.42	21.14	0.11	0.00	743.53	743.70	743.97	743.86	742.44	741.94
L-31	JB-16	C-16-PAZD	42.0	0.013	111.86	156.79	1.28	11.54	47.23	0.89	2.37	742.81	742.44	743.82	742.93	740.50	738.50
L-32	C-15-PAZD	C-16-PAZD	-	0.013	162.27	12.45	-2.41	12.51	47.20	0.05	1.76	741.99	742.03	742.45	742.40	738.10	738.40
L-33	C-15-PAZD	JB-17	-	0.013	188.77	4.39	5.24	14.16	23.10	0.09	0.00	740.34	739.70	741.50	741.41	738.00	737.77
L-24	JB-12	JB-14	30.0	0.013	71.12	40.23	3.38	13.43	23.93	1.31	0.00	750.22	749.10	751.02	749.72	748.46	747.10
L-25	C-12-CI	JB-14	24.0	0.013	30.25	22.47	2.23	8.82	21.86	0.15	0.00	749.40	749.54	749.89	749.74	748.22	747.72
L-16	C-07-CI	JB-09	24.0	0.013	39.99	13.06	4.44	9.64	12.46	0.57	0.00	750.78	750.29	751.15	750.58	749.83	749.25
L-13	JB-08	JB-07	36.0	0.013	126.40	76.48	3.83	11.64	21.06	2.62	0.00	748.19	745.86	748.63	746.01	747.03	744.10
L-10	C-04-CI	JB-06	24.0	0.013	36.62	13.58	3.68	9.73	9.45	0.22	0.00	745.59	744.79	746.03	745.81	744.50	744.00
L-11	JB-07	JB-06	36.0	0.013	68.36	76.87	1.12	8.36	25.42	0.50	0.00	745.42	745.26	745.98	745.47	744.00	743.14
L-15	JB-09	JB-08	36.0	0.013	109.52	76.65	2.87	8.75	17.10	1.85	0.00	750.18	748.56	750.48	748.63	749.33	747.13
L-14	C-06-CI	JB-08	24.0	0.013	37.31	13.00	3.87	8.92	18.01	0.15	0.00	748.44	748.53	748.78	748.63	747.53	747.03

HYDRAULIC DATA DRAINAGE AREA TABLE : 25-YR

DESIGNATION (DA) - LABEL	CATCHMENT INLET	DRAINAGE AREA (UNIFIED) A (ACRES)	RUNOFF COEFFICIENT (RATIONAL) C	CONTRIBUTING AREA (CATCHMENT) CA (ACRES)	TIME OF CONCENTRATION (MIN)	INTENSITY (25-YR) CATCHMENT) (IN/H)	FLOW (TOTAL OUT) (CFS)
E-DA-11	EXIST_INLET_S_CULEBRA	3.21	0.72	2.31	8	9.57	22.31
E-DA-10	EX_CHANNEL_INLET	6.58	0.50	3.29	6	10.35	34.31
P-DA-10	C-10-CI	2.83	0.83	2.35	17	7.23	17.11
P-DA-08	C-08-CI	3.47	0.83	2.88	11	8.67	25.19
P-DA-09	C-09-CI	0.22	0.89	0.19	6	10.25	1.98
P-DA-07	C-07-CI	1.38	0.84	1.16	11	8.53	9.95
P-DA-06	C-06-CI	0.88	0.81	0.72	10	8.78	6.33
P-DA-05	C-05-CI	1.08	0.81	0.88	13	8.08	7.15
P-DA-04	C-04-CI	1.70	0.82	1.39	11	8.58	12.03
P-DA-03	C-03-CI	2.91	0.81	2.36	10	8.95	21.26
P-DA-01	C-01-CI	3.05	0.83	2.53	10	8.85	22.58
P-DA-02	C-02-CI	0.42	0.97	0.40	5	10.61	4.32
P-DA-12	C-12-CI	0.32	0.87	0.28	6	10.25	2.88
P-DA-11	C-11-CI	0.75	0.91	0.69	9	9.22	6.38
P-DA-17	C-17-CI	1.28	0.87	1.11	10	8.83	9.88
P-DA-16	C-16-PAZD	0.14	0.91	0.12	4	10.81	1.34
P-DA-14	C-14-CI	0.67	0.81	0.54	8	9.48	5.17
P-DA-15	C-15-PAZD	0.80	0.72	0.58	11	8.68	5.05
P-DA-13	C-13-CI	1.12	0.82	0.92	10	9.05	8.39
P-DA-20	EX_INLET_N_CULEBRA	5.02	0.90	4.52	15	7.55	34.40

HYDRAULIC DATA JUNCTION BOX TABLE: 25-YR

LABEL	FLOW IN (CFS)	FLOW OUT (CFS)	DEPTH OUT (FT)	HEADLOSS (FT)
E-01-JB	102.42	102.09	6.56	2.62
E-02-JB	149.97	141.32	7.96	1.34
E-03-JB	183.43	175.3	7.24	1.11
JB-01	120.63	115.59	5.33	0.29
JB-02	102.77	102.10	5.34	-0.42
JB-03	108.54	102.77	5.51	0.19
JB-04	39.95	39.88	2.69	0.11
JB-05	41.41	39.95	2.06	0.07
JB-06	28.97	28.28	1.95	0.00
JB-07	20.33	19.67	1.42	0.27
JB-08	13.68	13.42	1.17	0.00
JB-09	7.18	7.17	1.21	0.11
JB-10	10.78	10.76	1.79	0.01
JB-11	25.08	22.69	3.91	0.19
JB-12	27.73	26.51	3.95	0.07
JB-13	5.04	5.04	3.17	0.00
JB-14	37.32	34.04	3.87	0.00
JB-15	50.98	47.34	4.58	0.51
JB-16	56.66	54.22	4.67	0.33
JB-17	68.84	68.82	4.78	-0.13
JB-18	68.82	68.66	4.39	-0.73
CULEBRA_JB	135.21	132.75	4.56	0.22
EXIST_JB_1_CULEBRA	21.29	19.62	4.06	0.06

NOTES:

1. ANALYSIS PERFORMED USING OPENROADS DRAINAGE 10.12 EDITION WHICH PERFORMS HYDRAULIC COMPUTATIONS IN ACCORDANCE WITH FHWA (HEC-22 GUIDELINES)

2. REPORTED CALCULATED PONDED WIDTH FOR SAG INLETS IS THE GREATEST VALUE OF LEFT, RIGHT, AND TOTAL PONDED WIDTH.

3. ELEVATION DATA FOR EXISTING LINKS WAS OBTAINED FROM SURVEY DATA. IF SURVEY WAS NOT AVAILABLE AS- BUILT DATA WAS USED

4. CHANNEL DATA EXTRAPOLATED FROM SURVEY.

5. PROPOSED SYSTEM TO DISCHARGE INTO EXISTING CHANNEL (CAPACITY = 897.70 CFS).

STATE OF TEXAS
MARTIN M. GONZALES
121996
LICENSED
PROFESSIONAL ENGINEER

5.28.25

NO.	REVISION	BY	DATE
3			
2			
1			

AG3 Group, LLC
ENGINEERING • SURVEY • CONSTRUCTION
4800 FREDERICKSBURG RD SUITE 200SL
SAN ANTONIO, TX 78229
P:210-208-9400 F:210-208-9401
TBPE #F-21809
TBPLS #10194622

CITY OF SAN ANTONIO
PUBLIC WORKS DEPARTMENT

CULEBRA AREA STREETS
PROPOSED SYSTEM 1 HYDRAULIC DATA

100% SUBMITTAL	PROJECT NO: 23-03873		DATE: 05/28/2025
DRWN. BY: SS	DSGN. BY: SS	CHKD. BY:	SHEET NO: 140

HYDRAULIC DATA INLET TABLE: 25-YR

NODE ID (LABEL)	INLET TYPE (INLET)	INLET PROFILE TYPE (INLET LOCATION)	DRAINAGE AREA	TOTAL INLET DISCHARGE (TOTAL RATIONAL FLOW TO INLET) (CFS)	INLET CAPACITY (FLOW CAPTURED) (CFS)	CAPACITY (INLET) (CFS)	FLOW (TOTAL OUT) (CFS)	INLET BYPASS FLOW (BYPASSED RATIONAL FLOW) (CFS)	BYPASS TO NODE (BYPASS TARGET)	CURB OPENING LENGTH (FT)	INLET LONGITUDINAL SLOPE (%)	GUTTER CROSS SLOPE (%)	ROAD CROSS SLOPE (%)	INLET ALLOWABLE PONDED WIDTH (MAXIMUM SPREAD) (FT)	INLET COMPUTED PONDED WIDTH (SPREAD/TOP WIDTH) (FT)	INLET ALLOWABLE PONDED DEPTH (MAX. GUTTER DEPTH - DESIGN) (FT)	INLET COMPUTED PONDED DEPTH (DEPTH GUTTER) (IN)	ENTRANCE LOSS (FT)	TOTAL STRUCTURE ENERGY LOSSES (FT)
E-12-CI	Catalog Inlet	On Grade	E-DA-12	69.01	31.09	3.40	31.09	37.92	E-13-CI	25.00	4.00	10.42	2.00	6.00	24.59	0.50	7.922	0.30	0.30
E-13-CI	Catalog Inlet	On Grade	E-DA-13	50.90	23.62	2.85	23.62	27.28	E-16-CI	20.00	2.81	10.42	2.00	6.00	23.38	0.50	7.632	0.18	0.18
E-14-CI	Catalog Inlet	On Grade	E-DA-14	1.56	1.56	2.85	1.56	0.00	E-16-CI	20.00	2.81	10.42	2.00	6.00	3.57	0.50	2.878	0.00	0.00
E-15-CI	Catalog Inlet	On Grade	E-DA-15	3.84	3.84	3.40	3.84	0.00	E-14-CI	25.00	4.00	10.42	2.00	6.00	6.50	0.50	3.581	0.00	0.00
E-16-CI	Catalog Inlet	In Sag	E-DA-16	47.74	47.74	1.30	47.74	0.00	-	10.00	-	10.42	2.00	6.00	145.71	0.50	39.991	0.00	0.00
E-17-CI	Catalog Inlet	In Sag	E-DA-17	9.85	9.85	0.05	69.70	0.00	-	-	-	-	1.00	6.00	116.72	0.50	9.338	0.00	0.00
E-18-DI	Catalog Inlet	In Sag	E-DA-18	33.15	33.15	0.11	62.74	0.00	-	-	-	-	1.00	6.00	540.20	0.50	59.837	0.14	0.14
E-19-CI	Catalog Inlet	On Grade	E-DA-19	2.19	2.19	1.45	37.33	0.00	E-28-CI	10.00	0.73	10.42	2.00	6.00	7.74	0.50	3.879	0.13	0.13
E-20-CI	Catalog Inlet	On Grade	E-DA-20	31.09	13.05	1.45	35.65	18.03	E-28-CI	10.00	0.73	10.42	2.00	6.00	25.11	0.50	8.047	0.36	0.39
E-21-CI	Catalog Inlet	On Grade	E-DA-21	127.53	25.69	1.37	25.69	101.83	E-28-CI	10.00	0.65	10.42	2.00	6.00	44.21	0.50	12.632	0.28	0.28
E-22-CI	Catalog Inlet	On Grade	E-DA-22	170.02	31.16	1.20	31.16	138.86	-	10.00	0.50	10.42	2.00	6.00	51.83	0.50	14.459	0.41	0.52
E-23-CI	Catalog Inlet	On Grade	E-DA-23	4.53	4.49	1.20	4.49	0.04	-	10.00	0.50	10.42	2.00	6.00	12.23	0.50	4.955	0.01	0.01
E-24-CI	Catalog Inlet	On Grade	E-DA-24	165.04	37.82	1.80	37.82	127.22	E-22-CI	15.00	1.12	10.42	2.00	6.00	43.98	0.50	12.575	0.00	0.00
E-25-CI	Catalog Inlet	On Grade	E-DA-25	8.40	7.97	1.80	7.97	0.43	E-23-CI	15.00	1.12	10.42	2.00	6.00	13.45	0.50	5.248	0.00	0.00
E-26-CI	Catalog Inlet	On Grade	E-DA-26	181.79	64.35	2.61	64.35	117.45	E-24-CI	30.00	2.35	10.42	2.00	6.00	39.62	0.50	11.530	0.00	0.00
E-27-CI	Catalog Inlet	On Grade	E-DA-27	30.04	25.01	2.61	25.01	5.04	E-25-CI	30.00	2.35	10.42	2.00	6.00	19.63	0.50	6.732	0.00	0.00
E-28-CI	Catalog Inlet	On Grade	E-DA-28	208.92	53.26	1.34	58.78	155.67	E-26-CI	30.00	3.17	-	2.00	6.00	39.82	0.50	9.556	0.00	0.00
E-29-CI	Catalog Inlet	On Grade	E-DA-29	5.52	5.52	1.34	5.52	0.00	E-27-CI	30.00	3.17	-	2.00	6.00	10.19	0.50	2.446	0.00	0.00

HYDRAULIC CONDUIT TALE : 25-YR

PIPE ID (LABEL)	UPSTEAM NODE (START)	DOWNSTREAM NODE (STOP)	DIAMETER (IN)	MANNING'S N	CAPACITY (FULL FLOW) (CFS)	LENGTH (FT)	SLOPE (%)	VELOCITY (FT/S)	ACTUAL DEPTH DOWNSTREAM (OUT) (FT)	HEADLOSS (FT)	EXIT LOSS (FT)	HGL UPSTREAM (IN) (FT)	HGL DOWNSTREAM (OUT) (FT)	UPSTREAM INVERT (START) (FT)	DOWNSTREAM INVERT (STOP) (FT)
001	E-12-CI	001	24.0	0.024	18.58	18.24	2.30	9.90	4.81	1.40	0.61	771.31	769.91	765.60	765.10
002	E-15-CI	001	24.0	0.024	22.87	10.87	3.48	1.22	5.71	0.01	0.01	770.82	770.81	765.60	765.10
003	001	002	42.0	0.024	77.08	254.89	2.00	3.61	9.42	1.03	0.08	770.45	769.42	765.10	760.00
004	E-13-CI	002	24.0	0.013	53.80	12.90	5.66	7.52	9.01	0.18	0.35	769.19	769.01	760.93	760.00
005	E-14-CI	002	24.0	0.013	17.09	16.14	0.57	0.50	6.65	0.00	0.00	769.54	769.54	763.00	762.89
006	002	003	42.0	0.024	126.69	59.21	5.40	5.83	11.32	0.63	0.21	768.75	768.12	760.00	756.80
007	003	13	42.0	0.013	49.10	481.02	0.24	5.79	10.35	-0.60	0.21	767.48	766.00	756.80	755.65
009	E-18-DI	E-17-DI	42.0	0.024	101.22	315.06	3.45	11.08	10.04	3.55	0.26	771.14	767.00	767.83	756.96
10	E-17-DI	13	42.0	0.024	74.14	70.73	1.85	7.24	10.40	-0.70	0.33	767.21	766.00	756.96	755.60
011	E-16-CI	13	24.0	0.013	128.38	12.74	32.21	15.20	10.40	0.53	1.44	766.77	766.00	761.20	755.60
012	13	17	54.0	0.013	72.92	430.29	0.14	9.99	9.00	-0.90	0.62	766.85	764.00	755.60	755.00
013	E-29-CI	E-28-CI	24.0	0.013	47.49	43.60	-4.41	1.76	4.52	-10.36	0.02	769.03	769.00	762.25	764.48
014	E-28-CI	23	24.0	0.013	47.44	34.98	4.40	18.71	8.20	2.58	2.18	773.98	771.40	764.88	763.20
015	23	22	36.0	0.013	85.89	367.78	1.66	8.30	12.90	-8.28	0.43	772.85	770.00	763.20	757.10
016	E-26-CI	22	24.0	0.013	48.19	40.82	-4.54	20.48	18.77	-4.33	2.61	773.53	770.00	749.25	751.23
017	E-27-CI	22	36.0	0.013	93.66	11.09	-1.97	3.54	12.90	-11.63	0.08	770.02	770.00	756.81	757.10
18	22	17	36.0	0.013	72.53	262.28	1.18	19.88	10.00	10.64	2.46	775.63	764.00	757.10	754.00
19	17	24	54.0	0.013	312.26	445.12	2.52	16.95	13.09	8.42	1.79	764.21	755.79	754.00	742.70
19A	E-25-CI	24	21.0	0.013	23.46	18.81	2.19	3.31	6.69	-2.31	0.07	756.06	756.00	749.80	749.31
19B	E-24-CI	24	21.0	0.013	14.01	24.03	0.78	15.72	6.97	1.40	1.54	757.57	756.00	749.25	749.03
20	24	25	64.0	0.013	174.96	294.08	0.32	13.60	10.10	2.89	1.15	754.73	751.84	742.70	741.74
20A	E-23-CI	25	21.0	0.013	48.49	18.81	9.37	1.87	7.02	0.02	0.02	753.55	753.53	748.60	746.51
20B	E-22-CI	25	21.0	0.013	44.69	24.03	7.95	12.95	5.49	1.06	1.04	753.06	752.00	748.70	746.51
21	25	BENRUS_OUT	64.0	0.013	216.43	334.39	0.49	14.79	5.33	3.81	0.00	749.25	745.43	741.74	740.10
CONCRETE FLUME	10	11	54.0	0.013	389.29	301.24	3.92	15.46	2.81	11.09	0.07	781.26	770.64	779.50	767.83
NORTH_NEIGHBORHOOD	08	09	30.0	0.013	73.22	320.74	3.19	13.61	3.24	8.84	0.17	793.23	784.74	791.50	781.50
NEIGHBOORHOODNORTH02	09	10	30.0	0.013	95.10	30.20	5.38	17.99	2.05	2.24	0.33	783.53	781.55	781.50	779.50

HYDRAULIC DATA DRAINAGE AREA TABLE : 25-YR

DESIGNATION (DA) - LABEL	CATCHMENT INLET (CATCHMENT OUTFALL)	DRRAINAGE AREA (UNIFIED)A (ACRES	RUNOFF COEFFICIENT (RATIONAL) C	CONTRIBUTING AREA (CATCHMENT) CA (ACRES)	TIME OF CONCENTRATION (MIN)	INTENSITY (XX-YR) (CATCHMENT) (IN/H)	RUN-OFF (XX-YR)(CATCHMENT RATIONAL FLOW) (CFS)	FLOW (TOTAL OUT) (CFS)
E-DA-12	E-12-CI	7.779	0.85000	6.612	6	10.353	69.01	69.01
E-DA-13	E-13-CI	1.223	0.85000	1.039	3	10.806	11.32	11.32
E-DA-14	E-14-CI	0.168	0.85000	0.143	3	10.806	1.56	1.56
E-DA-15	E-15-CI	0.414	0.85000	0.352	4	10.806	3.84	3.84
E-DA-16	E-16-CI	3.096	0.85000	2.631	9	9.222	24.46	24.46
E-DA-17	E-17-DI	1.110	0.85000	0.943	6	10.353	9.85	9.85
E-DA-18	E-18-DI	3.580	0.85000	3.043	3	10.806	33.15	33.15
E-DA-19	E-19-CI	0.237	0.85000	0.201	5	10.806	2.19	2.19
E-DA-20	E-20-CI	3.357	0.85000	2.854	5	10.806	31.09	31.09
E-DA-21	E-21-CI	17.283	0.85000	14.691	11	8.612	127.53	127.53
E-DA-22	E-22-CI	5.996	0.85000	5.097	9	9.222	47.38	47.38
E-DA-23	E-23-CI	0.440	0.85000	0.374	5	10.806	4.08	4.08
E-DA-24	E-24-CI	6.896	0.85000	5.861	8	9.566	56.52	56.52
E-DA-25	E-25-CI	0.368	0.85000	0.312	6	10.226	3.22	3.22
E-DA-26	E-26-CI	3.681	0.85000	3.129	6	10.353	32.65	32.65
E-DA-27	E-27-CI	3.527	0.85000	2.998	7	9.942	30.04	30.04
E-DA-28	E-28-CI	7.065	0.82000	5.793	5	10.806	63.10	63.10
E-DA-29	E-29-CI	0.596	0.85000	0.507	4	10.806	5.52	5.52

NOTES:

1. ANALYSIS PERFORMED USING GEOPAK DRAINAGE (SS10) EDITION WHICH PERFORMS HYDRAULIC COMPUTATIONS IN ACCORDANCE WITH FHWA (HEC-22 GUIDELINES)

2. REPORTED CALCULATED PONDED WIDTH FOR SAG INLETS IS THE GREATEST VALUE OF LEFT, RIGHT, AND TOTAL PONDED WIDTH.

3. ELEVATION DATA FOR EXISTING LINKS WAS OBTAINED FROM SURVEY DATA. IF SURVEY WAS NOT AVAILABLE AS- BUILT DATA WAS USED

STATE OF TEXAS
MARTIN M. GONZALES
121996
LICENSED
PROFESSIONAL ENGINEER

5.28.25

NO.	REVISION	BY	DATE
3			
2			
1			

AG3 Group, LLC
ENGINEERING • SURVEY • CONSTRUCTION
4800 FREDERICKSBURG RD SUITE 200SL
SAN ANTONIO, TX 78229
P:210-208-9400 F:210-208-9401
TBPE #F-21809
TBPLS #10194622

CITY OF SAN ANTONIO
PUBLIC WORKS DEPARTMENT

CULEBRA AREA STREETS

EXISTING SYSTEM 2
HYDRAULIC DATA

100% SUBMITTAL	PROJECT NO: 23-03873		DATE: 05/28/2025
DRWN. BY: SS	DSGN. BY: SS	CHKD. BY:	SHEET NO: 141

HYDRAULIC DATA INLET TABLE: 25-YR

NODE ID (LABEL)	INLET TYPE (INLET)	INLET PROFILE TYPE (INLET LOCATION)	DRAINAGE AREA	TOTAL INLET DISCHARGE (TOTAL RATIONAL FLOW TO INLET) (CFS)	INLET CAPACITY (FLOW CAPTURED) (CFS)	CAPACITY (INLET) (CFS)	FLOW (TOTAL OUT) (CFS)	INLET BYPASS FLOW (BYPASSED RATIONAL FLOW) (CFS)	BYPASS TO NODE (BYPASS TARGET)	CURB OPENING LENGTH (FT)	INLET LONGITUDINAL SLOPE (%)	GUTTER CROSS SLOPE (%)	ROAD CROSS SLOPE (%)	INLET ALLOWABLE PONDED WIDTH (MAXIMUM SPREAD) (FT)	INLET COMPUTED PONDED WIDTH (SPREAD/TOP WIDTH) (FT)	INLET ALLOWABLE PONDED DEPTH (MAX. GUTTER DEPTH - DESIGN) (FT)	INLET COMPUTED PONDED DEPTH (DEPTH GUTTER) (IN)	ENTRANCE LOSS (FT)	TOTAL STRUCTURE ENERGY LOSSES (FT)
E-12-CI	Catalog Inlet	On Grade	E-DA-12	69.01	31.09	3.40	31.09	37.92	E-13-CI	25.00	4.00	10.42	2.00	30	24.59	0.50	7.922	0.30	0.30
E-13-CI	Catalog Inlet	On Grade	E-DA-13	50.90	23.62	2.85	23.62	27.28	E-16-CI	20.00	2.81	10.42	2.00	30	23.38	0.50	7.632	0.18	0.18
E-14-CI	Catalog Inlet	On Grade	E-DA-14	1.56	1.56	2.85	1.56	0.00	E-16-CI	20.00	2.81	10.42	2.00	30	3.57	0.50	2.878	0.00	0.00
E-15-CI	Catalog Inlet	On Grade	E-DA-15	3.84	3.84	3.40	3.84	0.00	E-14-CI	25.00	4.00	10.42	2.00	30	6.50	0.50	3.581	0.00	0.00
E-16-CI	Catalog Inlet	In Sag	E-DA-16	47.74	47.74	1.30	47.74	0.00	-	10.00	-	10.42	2.00	30	145.71	0.50	39.991	0.00	0.00
E-17-CI	Catalog Inlet	In Sag	E-DA-17	9.85	9.85	0.05	69.69	0.00	-	-	-	-	1.00	30	116.72	0.50	9.338	0.00	0.00
E-18-DI	Catalog Inlet	In Sag	E-DA-18	33.15	33.15	0.11	62.74	0.00	-	-	-	-	1.00	30	540.14	0.50	59.831	0.14	0.14
E-19-CI	Catalog Inlet	On Grade	E-DA-19	2.19	2.19	1.45	37.33	0.00	E-28-CI	10.00	0.73	10.42	2.00	30	7.74	0.50	3.879	0.13	0.13
E-20-CI	Catalog Inlet	On Grade	E-DA-20	31.09	13.05	1.45	35.65	18.03	E-28-CI	10.00	0.73	10.42	2.00	30	25.11	0.50	8.047	0.36	0.39
E-21-CI	Catalog Inlet	On Grade	E-DA-21	127.53	25.69	1.37	25.69	101.83	E-28-CI	10.00	0.65	10.42	2.00	30	44.21	0.50	12.632	0.28	0.28
E-22-CI	Catalog Inlet	On Grade	E-DA-22	170.14	31.23	1.20	31.23	139.05	<None>	10.00	0.50	10.42	2.00	30	51.93	0.50	14.484	0.40	0.52
E-23-CI	Catalog Inlet	On Grade	E-DA-23	4.53	4.49	1.20	4.49	0.04	<None>	10.00	0.50	10.42	2.00	30	12.23	0.50	4.955	0.01	0.01
E-24-CI	Catalog Inlet	On Grade	E-DA-24	165.04	37.92	1.80	37.92	127.34	E-22-CI	15.00	1.12	10.42	2.00	30	44.08	0.50	12.599	0.00	0.00
E-25-CI	Catalog Inlet	On Grade	E-DA-25	8.40	7.97	1.80	7.97	0.43	E-23-CI	15.00	1.12	10.42	2.00	30	13.45	0.50	5.248	0.00	0.00
E-26-CI	Catalog Inlet	On Grade	E-DA-26	181.79	64.35	2.61	64.35	117.45	E-24-CI	30.00	2.35	10.42	2.00	30	39.62	0.50	11.530	0.00	0.00
E-27-CI	Catalog Inlet	On Grade	E-DA-27	30.04	25.01	2.61	25.01	5.04	E-25-CI	30.00	2.35	10.42	2.00	30	19.63	0.50	6.732	0.00	0.00
E-28-CI	Catalog Inlet	On Grade	E-DA-28	208.92	53.26	1.34	58.78	155.67	E-26-CI	30.00	3.17	-	2.00	30	39.82	0.50	9.556	0.00	0.00
E-29-CI	Catalog Inlet	On Grade	E-DA-29	5.52	5.52	1.34	5.52	0.00	E-27-CI	30.00	3.17	-	2.00	30	10.19	0.50	2.446	0.00	0.00

HYDRAULIC CONDUIT TALE : 25-YR

PIPE ID (LABEL)	UPSTEAM NODE (START)	DOWNSTREAM NODE (STOP)	DIAMETER (IN)	MANNING'S N	CAPACITY (FULL FLOW) (CFS)	LENGTH (FT)	SLOPE (%)	VELOCITY (FT/S)	ACTUAL DEPTH DOWNSTREAM (OUT) (FT)	HEADLOSS (FT)	EXIT LOSS (FT)	HGL UPSTREAM (IN) (FT)	HGL DOWNSTREAM (OUT) (FT)	UPSTREAM INVERT (START) (FT)	DOWNSTREAM INVERT (STOP) (FT)
001	E-12-CI	001	24.0	0.024	18.58	18.24	2.30	9.90	4.81	1.40	0.61	771.31	769.91	765.60	765.10
002	E-15-CI	001	24.0	0.024	22.87	10.87	3.48	1.22	5.71	0.01	0.01	770.82	770.81	765.60	765.10
003	001	002	42.0	0.024	77.08	254.89	2.00	3.61	9.42	1.03	0.08	770.45	769.42	765.10	760.00
004	E-13-CI	002	24.0	0.013	53.80	12.90	5.66	7.52	9.01	0.18	0.35	769.19	769.01	760.93	760.00
005	E-14-CI	002	24.0	0.013	17.09	16.14	0.57	0.50	6.65	0.00	0.00	769.54	769.54	763.00	762.89
006	002	003	42.0	0.024	126.69	59.21	5.40	5.83	11.32	0.63	0.21	768.75	768.12	760.00	756.80
007	003	13	42.0	0.013	49.10	481.02	0.24	5.79	10.35	-0.60	0.21	767.48	766.00	756.80	755.65
009	E-18-DI	E-17-DI	42.0	0.024	101.22	315.06	3.45	11.08	10.04	3.55	0.26	771.14	767.00	767.83	756.96
10	E-17-DI	13	42.0	0.024	74.14	70.73	1.85	7.24	10.40	-0.70	0.33	767.21	766.00	756.96	755.60
011	E-16-CI	13	24.0	0.013	128.38	12.74	32.21	15.20	10.40	0.53	1.44	766.77	766.00	761.20	755.60
012	13	17	54.0	0.013	72.92	430.29	0.14	9.99	9.00	-0.92	0.62	766.85	764.00	755.60	755.00
013	E-29-CI	E-28-CI	24.0	0.013	47.49	43.60	-4.41	1.76	4.52	-10.36	0.02	769.03	769.00	762.25	764.48
014	E-28-CI	23	24.0	0.013	47.44	34.98	4.40	18.71	8.20	2.58	2.18	773.98	771.40	764.88	763.20
015	23	22	36.0	0.013	85.89	367.78	1.66	8.30	12.90	-8.28	0.43	772.85	770.00	763.20	757.10
016	E-26-CI	22	24.0	0.013	48.19	40.82	-4.54	20.48	18.77	-4.33	2.61	773.53	770.00	749.25	751.23
017	E-27-CI	22	36.0	0.013	93.66	11.09	-1.97	3.54	12.90	-11.63	0.08	770.02	770.00	756.81	757.10
18	22	17	36.0	0.013	72.53	262.28	1.18	19.88	10.00	10.62	2.46	775.63	764.00	757.10	754.00
19	17	24	54.0	0.013	312.26	445.12	2.52	16.95	13.11	8.42	1.79	764.23	755.81	754.00	742.70
19A	E-25-CI	24	21.0	0.013	23.46	18.81	2.19	3.31	6.69	-2.33	0.07	756.06	756.00	749.80	749.31
19B	E-24-CI	24	21.0	0.013	14.01	24.03	0.78	15.77	6.97	1.41	1.55	757.58	756.00	749.25	749.03
20	24	25	64.0	0.013	174.96	294.08	0.32	13.60	10.11	2.90	1.15	754.75	751.85	742.70	741.74
20A	E-23-CI	25	21.0	0.013	48.49	18.81	9.37	1.87	7.03	0.02	0.02	753.56	753.54	748.60	746.51
20B	E-22-CI	25	21.0	0.013	44.69	24.03	7.95	12.99	5.49	1.07	1.05	753.07	752.00	748.70	746.51
21	25	BENRUS_OUT	64.0	0.013	216.43	334.39	0.49	14.80	5.33	3.82	0.00	749.25	745.43	741.74	740.10
CONCRETE FLUME	E-19-CI	E-18-DI	54.0	0.013	389.29	301.24	3.92	15.46	4.08	9.91	0.04	781.26	771.91	779.50	767.83
NORTH_NEIGHBORHOOD	E-21-CI	E-20-CI	30.0	0.013	73.22	320.74	3.19	13.61	3.24	8.84	0.17	793.23	784.74	791.50	781.50
NEIGHBOORHOODNORTH02	E-20-CI	E-19-CI	30.0	0.013	95.10	30.20	5.38	17.99	2.05	2.24	0.33	783.53	781.55	781.50	779.50

HYDRAULIC DATA DRAINAGE AREA TABLE : 25-YR

DESIGNATION (DA) - LABEL	CATCHMENT INLET (CATCHMENT OUTFALL)	DRRAINAGE AREA (UNIFIED)A (ACRES	RUNOFF COEFFICIENT (RATIONAL) C	CONTRIBUTING AREA (CATCHMENT) CA (ACRES)	TIME OF CONCENTRATION (MIN)	INTENSITY (XX-YR) (CATCHMENT) (IN/H)	RUN-OFF (XX-YR)(CATCHMENT RATIONAL FLOW) (CFS)	FLOW (TOTAL OUT) (CFS)
E-DA-12	E-12-CI	7.779	0.85000	6.612	6	10.353	69.01	69.01
E-DA-13	E-13-CI	1.223	0.85000	1.039	3	10.806	11.32	11.32
E-DA-14	E-14-CI	0.168	0.85000	0.143	3	10.806	1.56	1.56
E-DA-15	E-15-CI	0.414	0.85000	0.352	4	10.806	3.84	3.84
E-DA-16	E-16-CI	3.096	0.85000	2.631	9	9.222	24.46	24.46
E-DA-17	E-17-DI	1.110	0.85000	0.943	6	10.353	9.85	9.85
E-DA-18	E-18-DI	3.580	0.85000	3.043	3	10.806	33.15	33.15
E-DA-19	E-19-CI	0.237	0.85000	0.201	5	10.806	2.19	2.19
E-DA-20	E-20-CI	3.357	0.85000	2.854	5	10.806	31.09	31.09
E-DA-21	E-21-CI	17.283	0.85000	14.691	11	8.612	127.53	127.53
E-DA-22	E-22-CI	5.996	0.85000	5.097	9	9.222	47.38	47.38
E-DA-23	E-23-CI	0.440	0.85000	0.374	5	10.806	4.08	4.08
E-DA-24	E-24-CI	6.896	0.85000	5.861	8	9.566	56.52	56.52
E-DA-25	E-25-CI	0.368	0.85000	0.312	6	10.226	3.22	3.22
E-DA-26	E-26-CI	3.681	0.85000	3.129	6	10.353	32.65	32.65
E-DA-27	E-27-CI	3.527	0.85000	2.998	7	9.942	30.04	30.04
E-DA-28	E-28-CI	7.065	0.82000	5.793	5	10.806	63.10	63.10
E-DA-29	E-29-CI	0.596	0.85000	0.507	4	10.806	5.52	5.52

NOTES:

1. ANALYSIS PERFORMED USING GEOPAK DRAINAGE (SS10) EDITION WHICH PERFORMS HYDRAULIC COMPUTATIONS IN ACCORDANCE WITH FHWA (HEC-22 GUIDELINES)

2. REPORTED CALCULATED PONDED WIDTH FOR SAG INLETS IS THE GREATEST VALUE OF LEFT, RIGHT, AND TOTAL PONDED WIDTH.

3. ELEVATION DATA FOR EXISTING LINKS WAS OBTAINED FROM SURVEY DATA. IF SURVEY WAS NOT AVAILABLE AS- BUILT DATA WAS USED

STATE OF TEXAS
MARTIN M. GONZALES
121996
LICENSED
PROFESSIONAL ENGINEER

5.28.25

NO.	REVISION	BY	DATE
3			
2			
1			

AG3 Group, LLC
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TBPE #F-21809
TBPLS #10194622

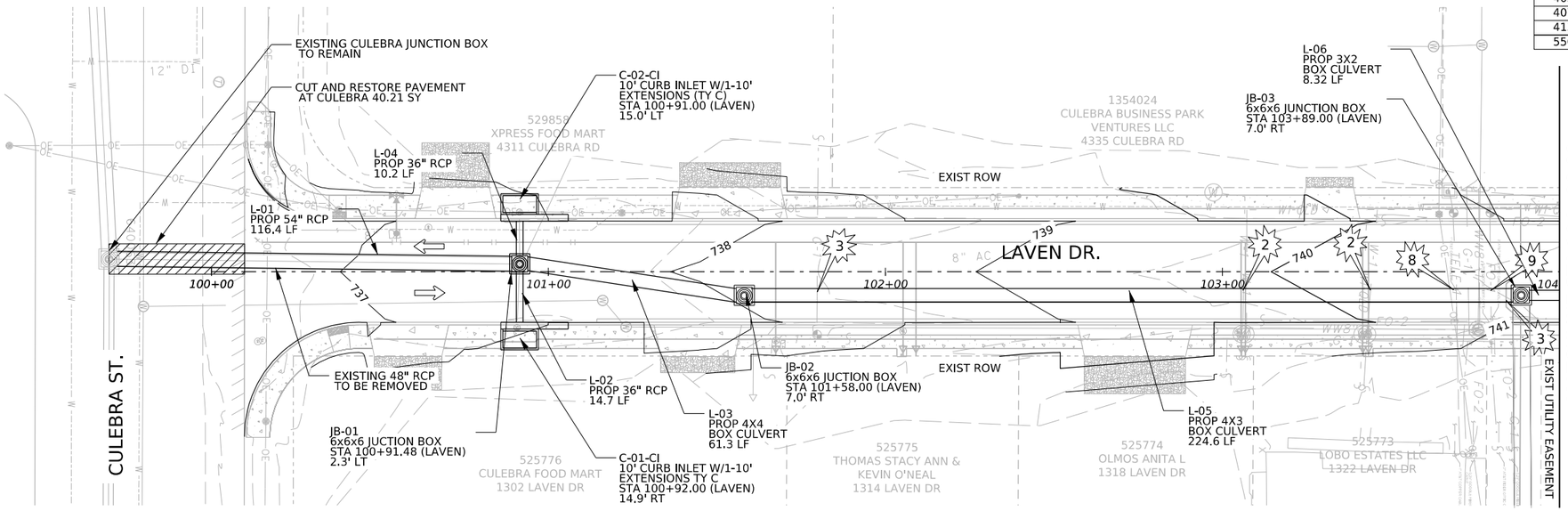
CITY OF SAN ANTONIO
PUBLIC WORKS DEPARTMENT

CULEBRA AREA STREETS

PROPOSED SYSTEM 2
HYDRAULIC DATA

100% SUBMITTAL	PROJECT NO: 23-03873		DATE: 05/28/2025
DRWN. BY: SS	DSGN. BY: SS	CHKD. BY:	SHEET NO: 142

ITEM NO.	DESCRIPTION	UNIT	QTY
309.1	PRECAST REINFORCED CONCRETE BOX CULVERTS (4' X 3')	LF	224.6
309.1	PRECAST REINFORCED CONCRETE BOX CULVERTS (4' X 4')	LF	61.3
309.1	PRECAST REINFORCED CONCRETE BOX CULVERTS (3' X 2')	LF	8.32
401.1	REINFORCED CONCRETE PIPE (CLASS IV)(54"DIA)	LF	116.4
403.3	JUNCTION BOX (COMPLETE) 6'X6'X6'	EA	3
403.7	INLET TYPE I(COMPLETE)(10 FT)	EA	2
403.14	INLET EXTENSIONS (10 FT)	EA	2
407.4	CONCRETE COLLARS	CY	.9
413.2	FLOWABLE FILL (HIGH STRENGTH)	CY	174
550.1	TRENCH EXCAVATION SAFETY PROTECTION	LF	433



LEGEND

PROPERTY LINE
EXIST ROW
TRAFFIC FLOW

CI = CURB INLET
GI = GRATE INLET
JB = JUNCTION BOX
L = LINK

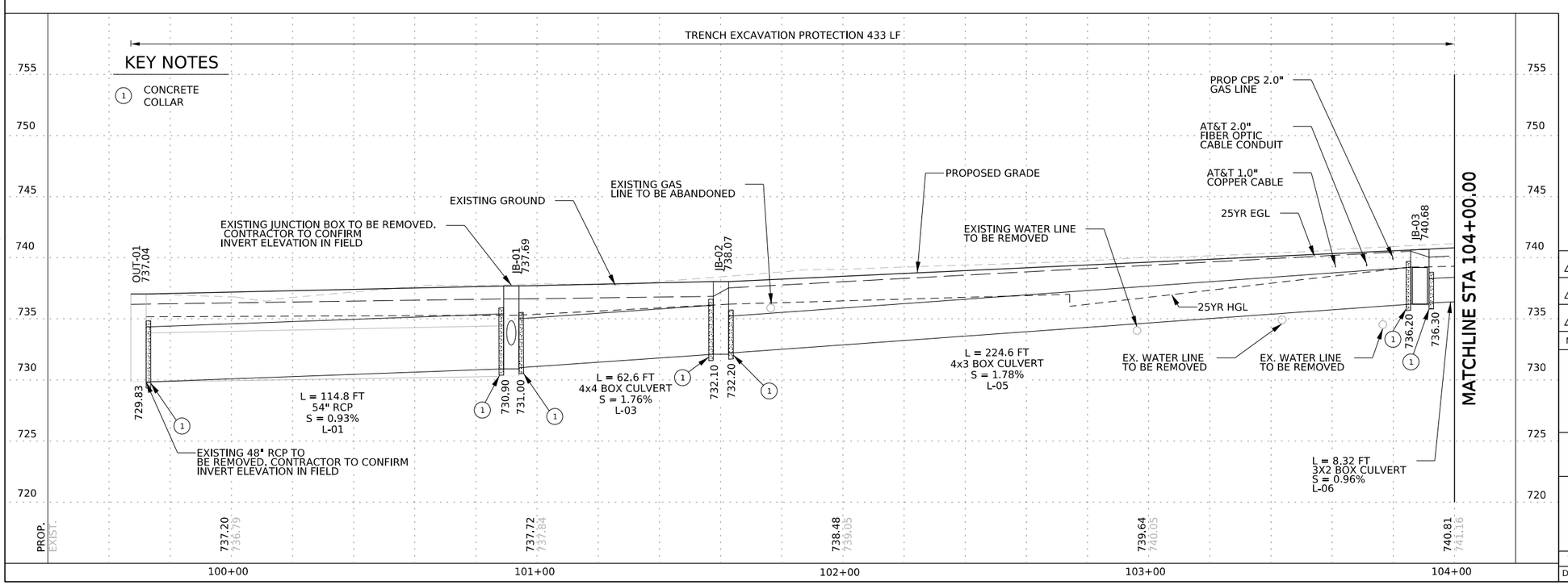
CAUTION!!!

1. SANITARY SEWER CROSSING
2. WATER LINE CROSSING
3. GAS CROSSING
4. OVERHEAD ELECTRIC CABLE CROSSING
5. OVERHEAD ELECTRIC TELEPHPNE/CABLE CROSSING
6. OVERHEAD TELEPHONE/ CABLE CROSSING
7. UNDERGROUND CABLE CROSSING
8. UNDERGROUND TELEPHONE CROSSING
9. UNDERGROUND FIBER OPTIC CABLE CROSSING

NOTES

1. SEE PROPOSED SYSTEM HYDRAULIC DATA SHEETS FOR ADDITIONAL INFORMATION.
2. THE LOCATION AND ELEVATION OF ALL UTILITIES ARE APPROXIMATE. CONTRACTOR TO VERIFY AND LOCATE ALL UTILITIES PRIOR TO CONSTRUCTION.

GRAPHIC SCALE
0 10 20 40 60
1" = 40'
HORIZONTAL SCALE
0 2.5 5 10 15
1" = 10'
VERTICAL SCALE



NO.	REVISION	BY	DATE
3			
2			
1			

5.28.25

STATE OF TEXAS
MARTIN M. GONZALES
121996
LICENSED
PROFESSIONAL ENGINEER

AG3 Group, LLC
ENGINEERING • SURVEY • CONSTRUCTION

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SAN ANTONIO, TX 78229
P:210-208-9400 F:210-208-9401
TBPE #F-21809
TBPLS #10194622

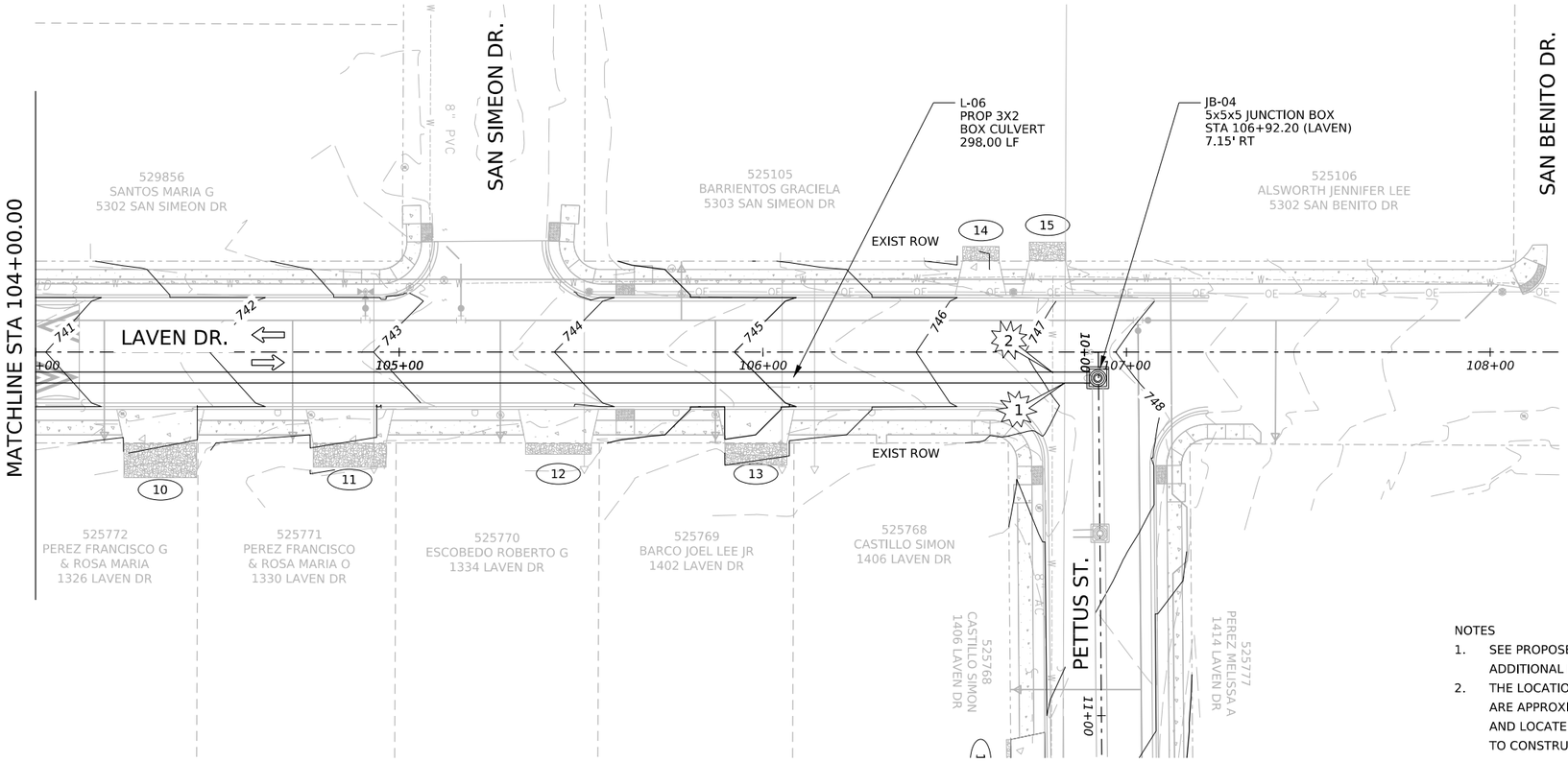
CITY OF SAN ANTONIO
PUBLIC WORKS DEPARTMENT

CULEBRA AREA STREETS
DRAINAGE PLAN & PROFILE
SYSTEM (C) LAVEN

100% SUBMITTAL	PROJECT NO: 23-03873		DATE: 05/28/2025
DRWN. BY: SS	DSGN. BY: SS	CHKD. BY: MG	SHEET NO: 143

5/28/2025 3:49:15 AM
R:\ESC 23004 Culebra Port Area Street (CoSA)\07_Sheets\06_Drainage\DRAINAGE PNPs\COSA_CULEBRA_LAVEN DR_P&P_DRN_01.dgn

ITEM NO.	DESCRIPTION	UNIT	QTY
401.1	PRECAST REINFORCED CONCRETE BOX CULVERTS (3' X 2')	LF	298
407.4	CONCRETE COLLARS	CY	.11
413.2	FLOWABLE FILL (HIGH STRENGTH)	CY	234
550.1	TRENCH EXCAVATION SAFETY PROTECTION	LF	295



LEGEND

PROPERTY LINE
EXIST ROW
TRAFFIC FLOW

CI = CURB INLET
GI = GRATE INLET
JB = JUNCTION BOX
L = LINK

CAUTION!!!

1. SANITARY SEWER CROSSING
2. WATER LINE CROSSING
3. GAS CROSSING
4. OVERHEAD ELECTRIC CABLE CROSSING
5. OVERHEAD ELECTRIC TELEPHPNE/CABLE CROSSING
6. OVERHEAD TELEPHONE/ CABLE CROSSING
7. UNDERGROUND CABLE CROSSING
8. UNDERGROUND TELEPHONE CROSSING
9. UNDERGROUND FIBER OPTIC CABLE CROSSING

NOTES

1. SEE PROPOSED SYSTEM HYDRAULIC DATA SHEETS FOR ADDITIONAL INFORMATION.
2. THE LOCATION AND ELEVATION OF ALL UTILITIES ARE APPROXIMATE. CONTRACTOR TO VERIFY AND LOCATE ALL UTILITIES PRIOR TO CONSTRUCTION.

GRAPHIC SCALE

0 10 20 40 60

1" = 40'

HORIZONTAL SCALE

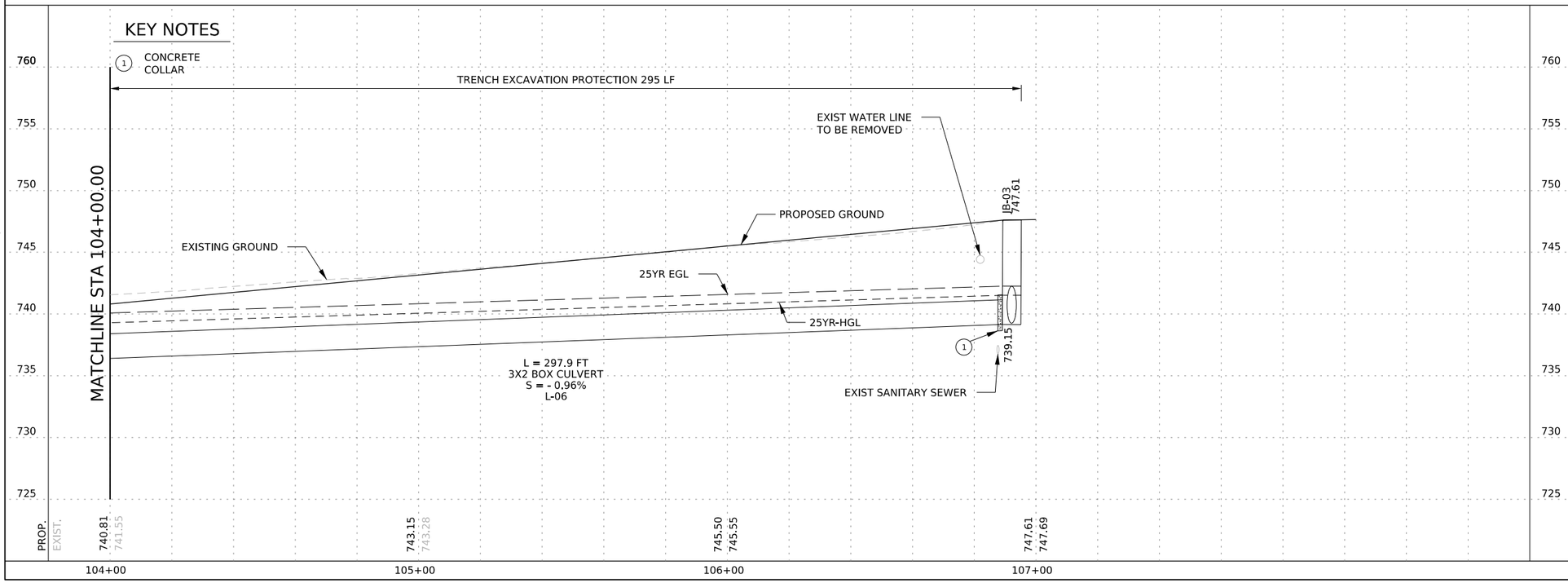
0 2.5 5 10 15

1" = 10'

VERTICAL SCALE

KEY NOTES

1. CONCRETE COLLAR



5.28.25

NO.	REVISION	BY	DATE
3			
2			
1			

AG3 Group, LLC
ENGINEERING • SURVEY • CONSTRUCTION

4800 FREDERICKSBURG RD SUITE 200SL
SAN ANTONIO, TX 78229
P:210-208-9400 F:210-208-9401
TBPE #F-21809
TBPLS #10194622

CITY OF SAN ANTONIO

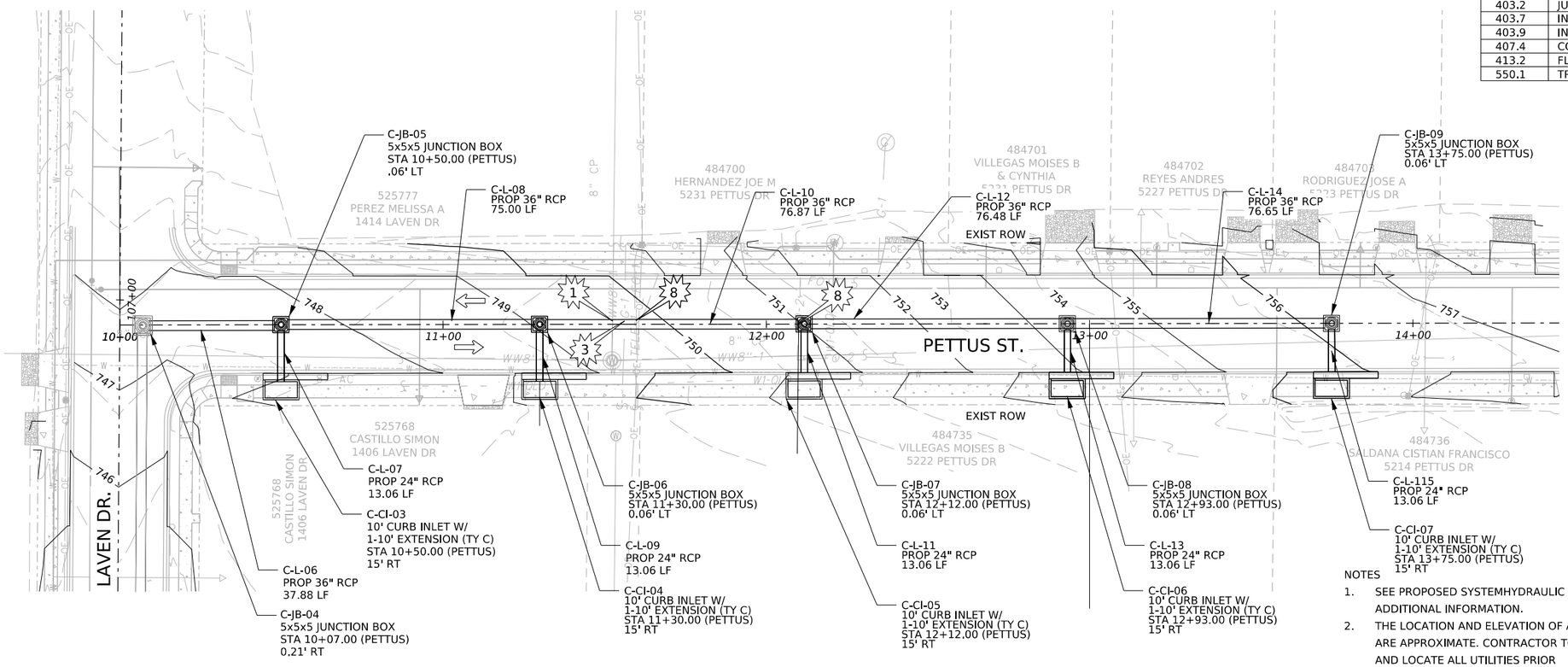
PUBLIC WORKS DEPARTMENT

CULEBRA AREA STREETS

DRAINAGE PLAN & PROFILE SYSTEM (C) LAVEN

100% SUBMITTAL	PROJECT NO: 23-03873		DATE: 05/28/2025
DRWN. BY: SS	DSGN. BY: SS	CHKD. BY: MG	SHEET NO: 144

ITEM NO.	DESCRIPTION	UNIT	QTY
401.1	REINFORCED CONCRETE PIPE (CLASS IV)(36"DIA)	LF	342.9
401.1	REINFORCED CONCRETE PIPE (CLASS IV)(24"DIA)	LF	65.3
403.2	JUNCTION BOX 5'X5'X5'	EA	5
403.7	INLET TYPE I(COMPLETE)(10 FT)	EA	5
403.9	INLET EXTENSIONS (10 FT)	EA	5
407.4	CONCRETE COLLARS	CY	.7
413.2	FLOWABLE FILL (HIGH STRENGTH)	CY	240
550.1	TRENCH EXCAVATION SAFETY PROTECTION	LF	405



LEGEND

PROPERTY LINE
EXIST ROW
TRAFFIC FLOW

CI = CURB INLET
GI = GRATE INLET
JB = JUNCTION BOX
L = LINK

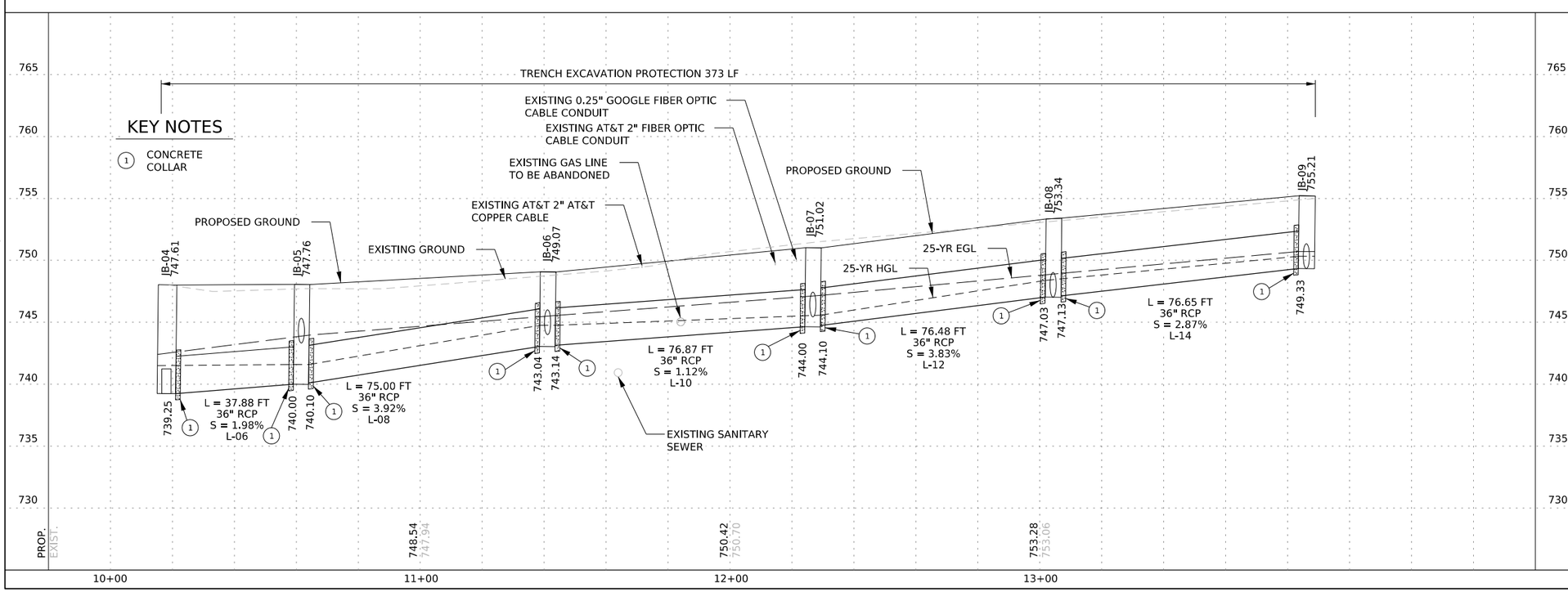
CAUTION!!!

1. SANITARY SEWER CROSSING
2. WATER LINE CROSSING
3. GAS CROSSING
4. OVERHEAD ELECTRIC CABLE CROSSING
5. OVERHEAD ELECTRIC TELEPHPNE/CABLE CROSSING
6. OVERHEAD TELEPHONE/ CABLE CROSSING
7. UNDERGROUND CABLE CROSSING
8. UNDERGROUND TELEPHONE CROSSING
9. UNDERGROUND FIBER OPTIC CABLE CROSSING

NOTES

1. SEE PROPOSED SYSTEMHYDRAULIC DATA SHEET FOR ADDITIONAL INFORMATION.
2. THE LOCATION AND ELEVATION OF ALL UTILITIES ARE APPROXIMATE. CONTRACTOR TO VERIFY AND LOCATE ALL UTILITIES PRIOR TO CONSTRUCTION.

GRAPHIC SCALE
0 10 20 40 60
1" = 40'
HORIZONTAL SCALE
0 1 2 4 6
1" = 4'
VERTICAL SCALE



KEY NOTES

1. CONCRETE COLLAR

STATE OF TEXAS
MARTIN M. GONZALES
121996
LICENSED
PROFESSIONAL ENGINEER

5.28.25

NO.	REVISION	BY	DATE
3			
2			
1			

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ENGINEERING • SURVEY • CONSTRUCTION
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SAN ANTONIO, TX 78229
P:210-208-9400 F:210-208-9401
TBPE #F-21809
TBPLS #10194622

CITY OF SAN ANTONIO
PUBLIC WORKS DEPARTMENT

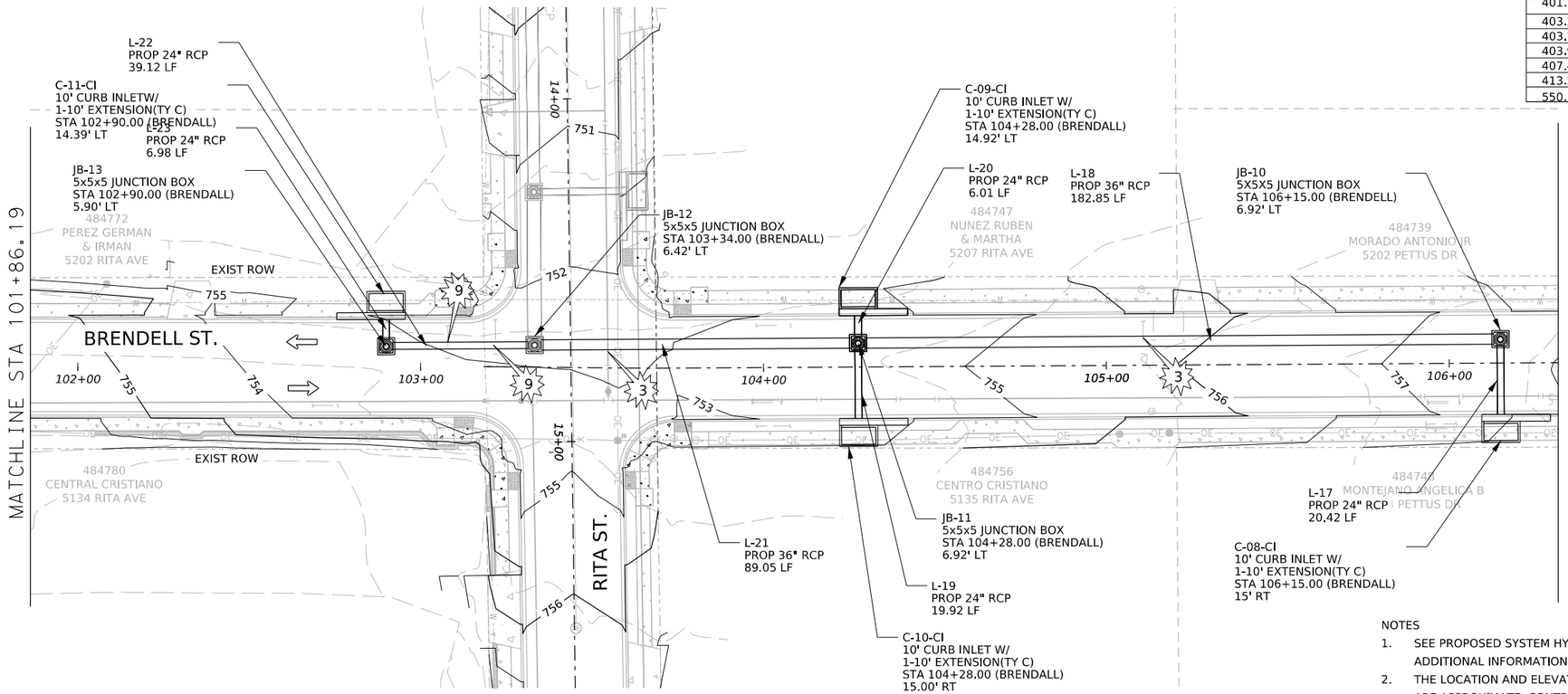
CULEBRA AREA STREETS

DRAINAGE PLAN & PROFILE SYSTEM (C) PETTUS

100% SUBMITTAL	PROJECT NO: 23-03873		DATE: 05/28/2025
DRWN. BY: SS	DSGN. BY: SS	CHKD. BY: MG	SHEET NO: 145

5/28/2025 3:54:11 AM
R:\ESC 23004 Culebra Part Area Street (CoSA)\07_Sheets\06_Drainage\DRAINAGE PNPs\COSA_CULEBRA_PETTUS ST_P&P_DRN_01.dgn

ITEM NO.	DESCRIPTION	UNIT	QTY
401.1	REINFORCED CONCRETE PIPE (CLASS IV)(24"DIA)	LF	92.5
401.1	REINFORCED CONCRETE PIPE (CLASS IV)(36"DIA)	LF	272
403.2	JUNCTION BOX 5'X5'X5'	EA	4
403.7	INLET TYPE I(COMPLETE)(10 FT)	EA	4
403.9	INLET EXTENSIONS (10 FT)	EA	4
407.4	CONCRETE COLLARS	CY	.4
413.2	FLOWABLE FILL (HIGH STRENGTH)	CY	201
550.1	TRENCH EXCAVATION SAFETY PROTECTION	LF	322



LEGEND

PROPERTY LINE
EXIST ROW
TRAFFIC FLOW

CI = CURB INLET
GI = GRATE INLET
JB = JUNCTION BOX
L = LINK

CAUTION!!!

1. SANITARY SEWER CROSSING
2. WATER LINE CROSSING
3. GAS CROSSING
4. OVERHEAD ELECTRIC CABLE CROSSING
5. OVERHEAD ELECTRIC TELEPHPNE/CABLE CROSSING
6. OVERHEAD TELEPHONE/ CABLE CROSSING
7. UNDERGROUND CABLE CROSSING
8. UNDERGROUND TELEPHONE CROSSING
9. UNDERGROUND FIBER OPTIC CABLE CROSSING

NOTES

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2. THE LOCATION AND ELEVATION OF ALL UTILITIES ARE APPROXIMATE. CONTRACTOR TO VERIFY AND LOCATE ALL UTILITIES PRIOR TO CONSTRUCTION.

GRAPHIC SCALE

0 10 20 40 60

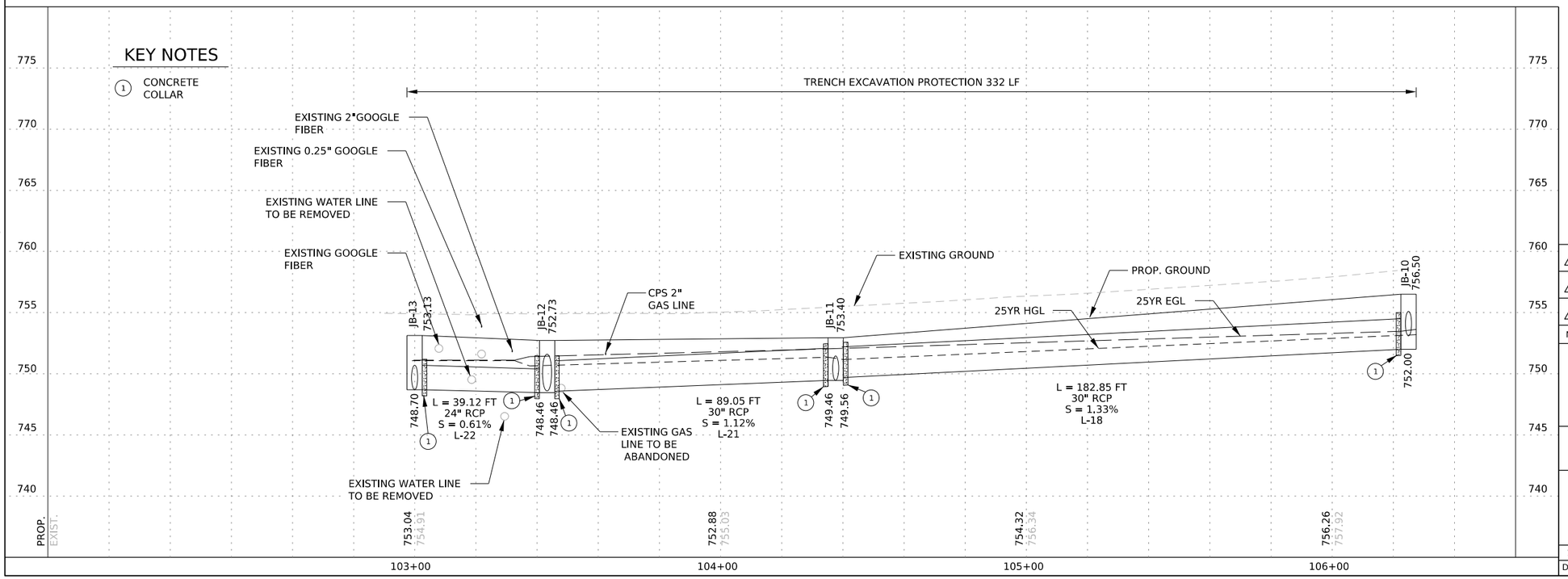
1" = 40'
HORIZONTAL SCALE

0 1 2 4 6

1" = 4'
VERTICAL SCALE

KEY NOTES

1. CONCRETE COLLAR



STATE OF TEXAS
MARTIN M. GONZALES
121996
LICENSED
PROFESSIONAL ENGINEER

5.28.25

NO.	REVISION	BY	DATE
3			
2			
1			

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TBPLS #10194622

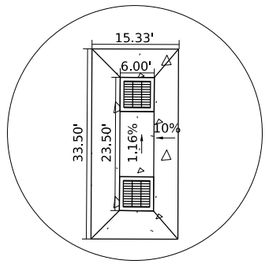
CITY OF SAN ANTONIO
PUBLIC WORKS DEPARTMENT

CULEBRA AREA STREETS

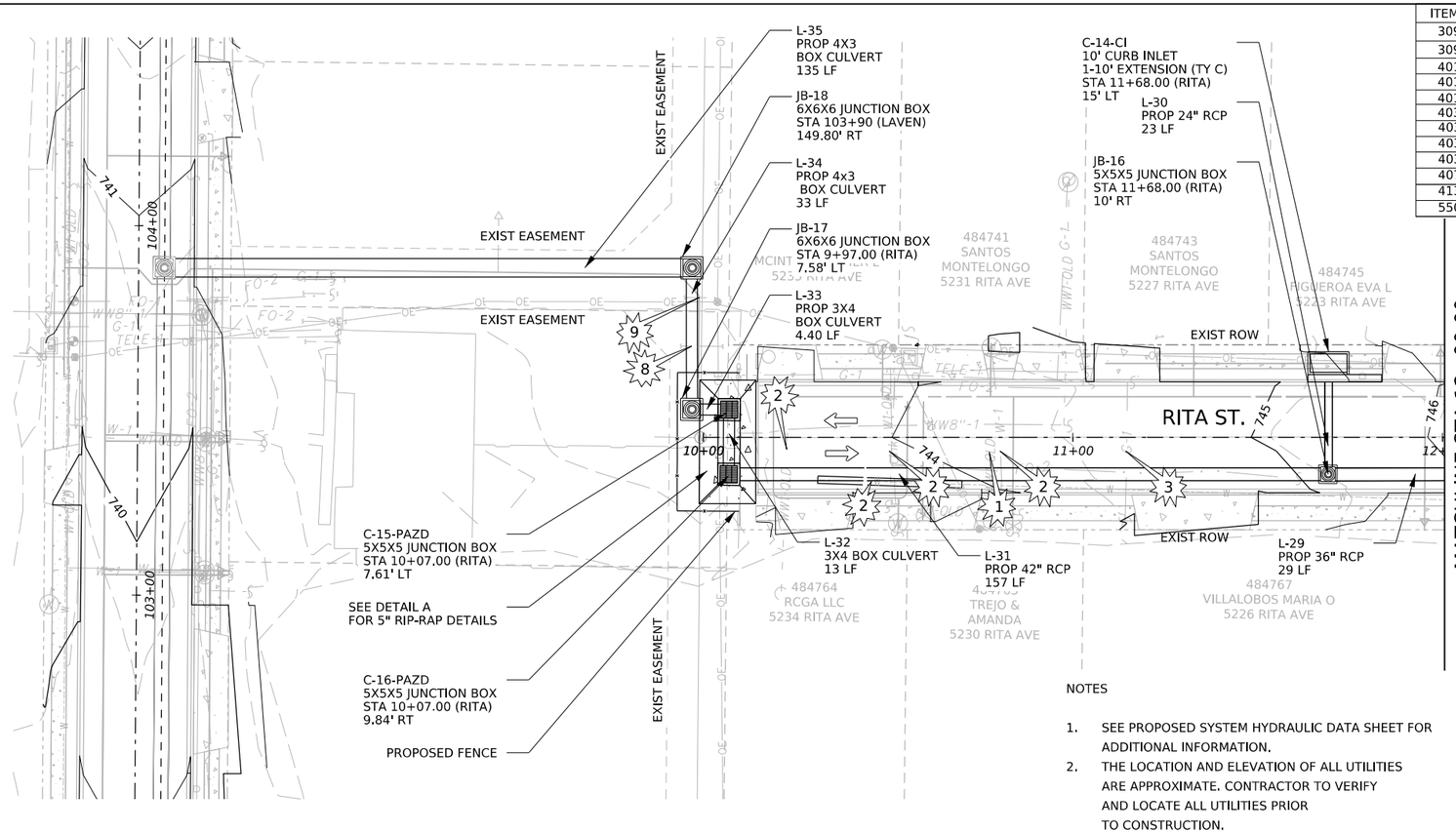
DRAINAGE PLAN & PROFILE SYSTEM (C) BRENDELL

100% SUBMITTAL	PROJECT NO: 23-03873		DATE: 05/28/2025
DRWN. BY: SS	DSGN. BY: SS	CHKD. BY: MG	SHEET NO: 146

ITEM NO.	DESCRIPTION	UNIT	QTY
309.1	PRECAST REINFORCED CONCRETE BOX CULVERTS (4'X3')	LF	168
309.1	PRECAST REINFORCED CONCRETE BOX CULVERTS (3'X4')	LF	17.5
401.1	REINFORCED CONCRETE PIPE (CLASS IV)(24"DIA)	LF	23
401.1	REINFORCED CONCRETE PIPE (CLASS IV)(36"DIA)	LF	29
401.1	REINFORCED CONCRETE PIPE (CLASS IV)(42"DIA)	LF	157
403.12	SPECIAL INLET (COMPLETE) PAZD	EA	2
403.3	JUNCTION BOX 6'X6'X6'	EA	2
403.7	INLET TYPE I(COMPLETE)(10 FT)	EA	1
403.9	INLET EXTENSIONS (10 FT)	EA	1
407.4	CONCRETE COLLARS	CY	1.5
413.2	FLOWABLE FILL (HIGH STRENGTH)	CY	270
550.1	TRENCH EXCAVATION SAFETY PROTECTION	LF	379



DETAIL A



NOTES

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LEGEND

PROPERTY LINE
EXIST ROW
TRAFFIC FLOW
PROPOSED FENCE

CI = CURB INLET
GI = GRATE INLET
JB = JUNCTION BOX
L = LINK

CAUTION!!!

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2. WATER LINE CROSSING
3. GAS CROSSING
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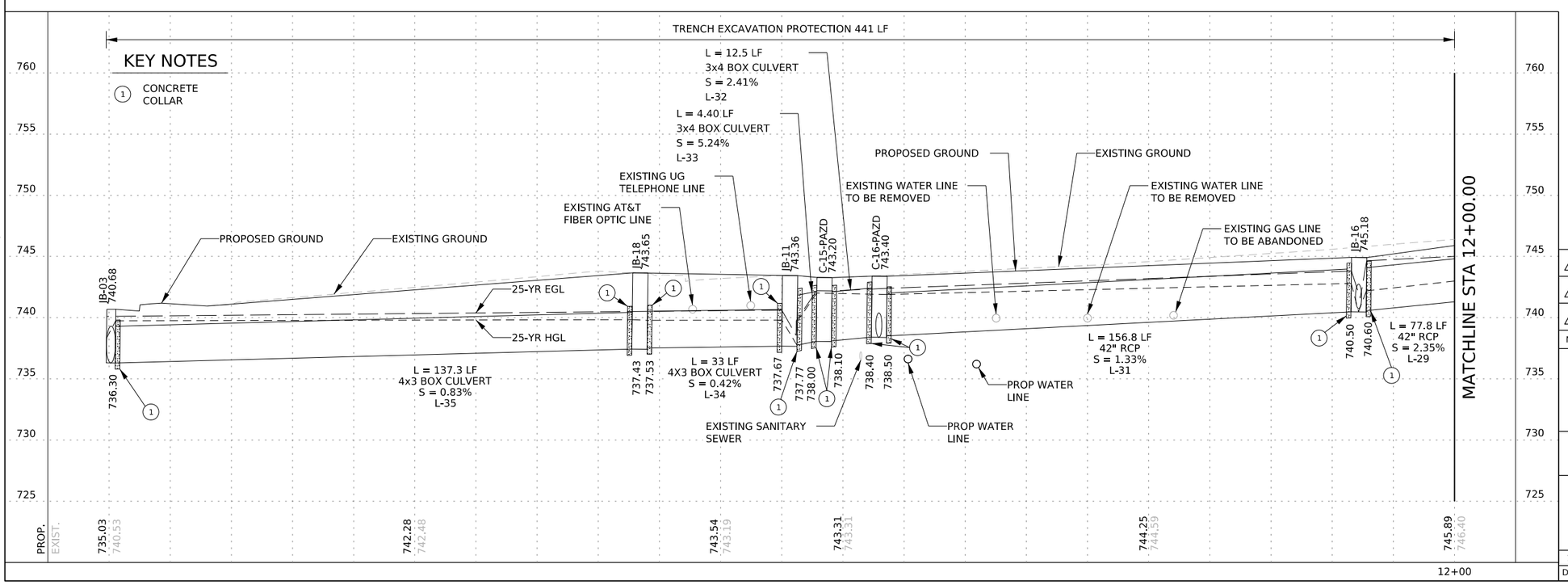
6. OVERHEAD TELEPHONE/ CABLE CROSSING
7. UNDERGROUND CABLE CROSSING
8. UNDERGROUND TELEPHONE CROSSING
9. UNDERGROUND FIBER OPTIC CABLE CROSSING

GRAPHIC SCALE
0 10 20 40 60
1" = 40'
HORIZONTAL SCALE
0 1 2 4 12
1" = 4'
VERTICAL SCALE



STATE OF TEXAS
MARTIN M. GONZALES
121996
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NO.	REVISION	BY	DATE
3			
2			
1			

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TBPLS #10194622

CITY OF SAN ANTONIO
PUBLIC WORKS DEPARTMENT

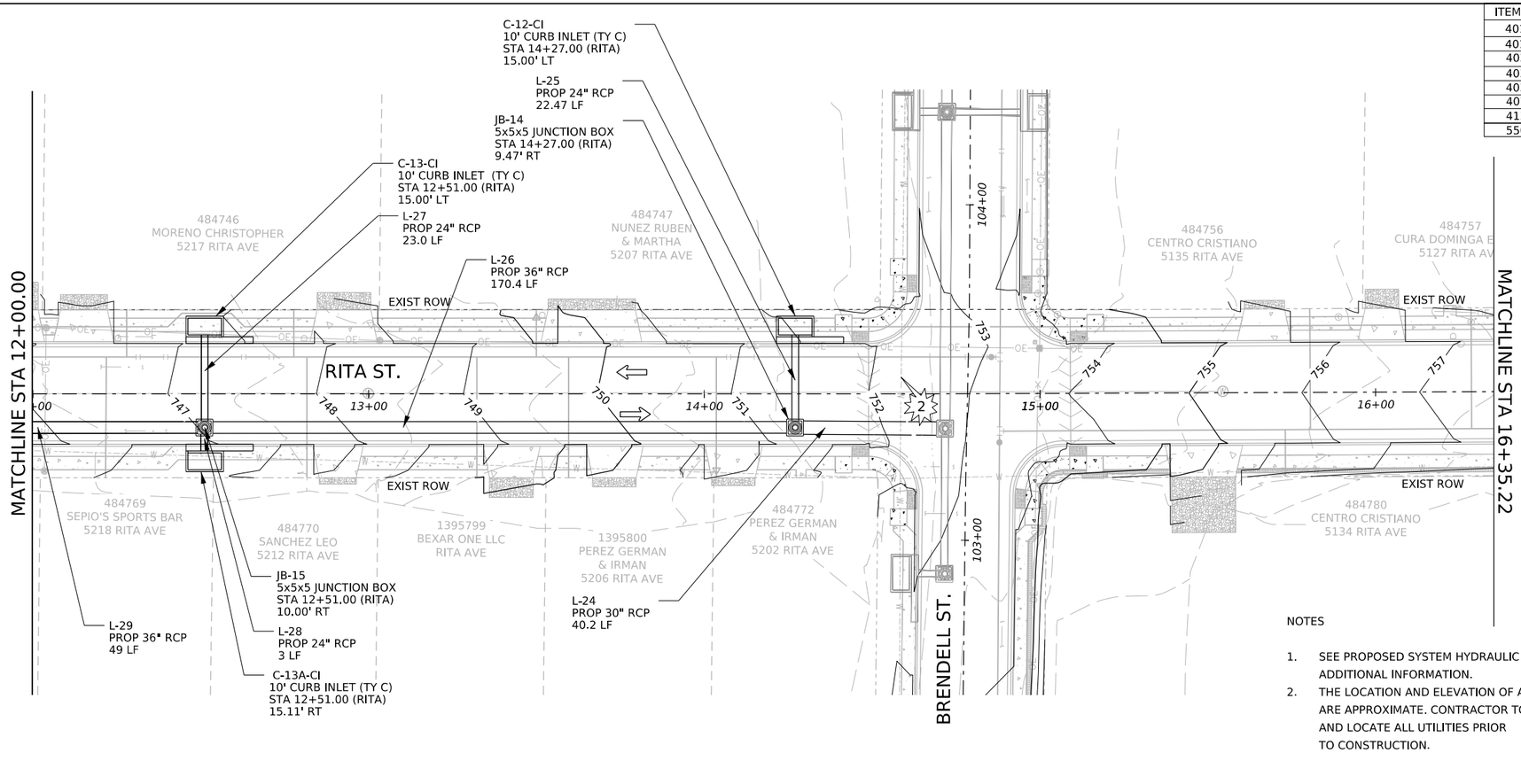
CULEBRA AREA STREETS

DRAINAGE PLAN & PROFILE SYSTEM (C) RITA

100% SUBMITTAL	PROJECT NO: 23-03873		DATE: 05/28/2025
DRWN. BY: SS	DSGN. BY: SS	CHKD. BY: MG	SHEET NO: 147

5/28/2025 12:29:09 PM
R:\ESC 23004 Culebra Port Area Street (CoSA)\07_Sheets\06_Drainage\DRAINAGE PNPs\COSA_CULEBRA_RITA ST_P&P_DRN_01.dgn

ITEM NO.	DESCRIPTION	UNIT	QTY
401.1	REINFORCED CONCRETE PIPE (CLASS IV)(24"DIA)	LF	18
401.1	REINFORCED CONCRETE PIPE (CLASS IV)(36"DIA)	LF	266
403.2	JUNCTION BOX 5'X5'X5'	EA	2
403.7	INLET TYPE I (COMPLETE)(10 FT)	EA	3
403.9	INLET EXTENSIONS (10 FT)	EA	3
407.4	CONCRETE COLLARS	CY	.67
413.2	FLOWABLE FILL (HIGH STRENGTH)	CY	164
550.1	TRENCH EXCAVATION SAFETY PROTECTION	LF	292



LEGEND

PROPERTY LINE
EXIST ROW
TRAFFIC FLOW

CI = CURB INLET
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CAUTION!!!

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5. OVERHEAD ELECTRIC TELEPHPNE/CABLE CROSSING
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8. UNDERGROUND TELEPHONE CROSSING
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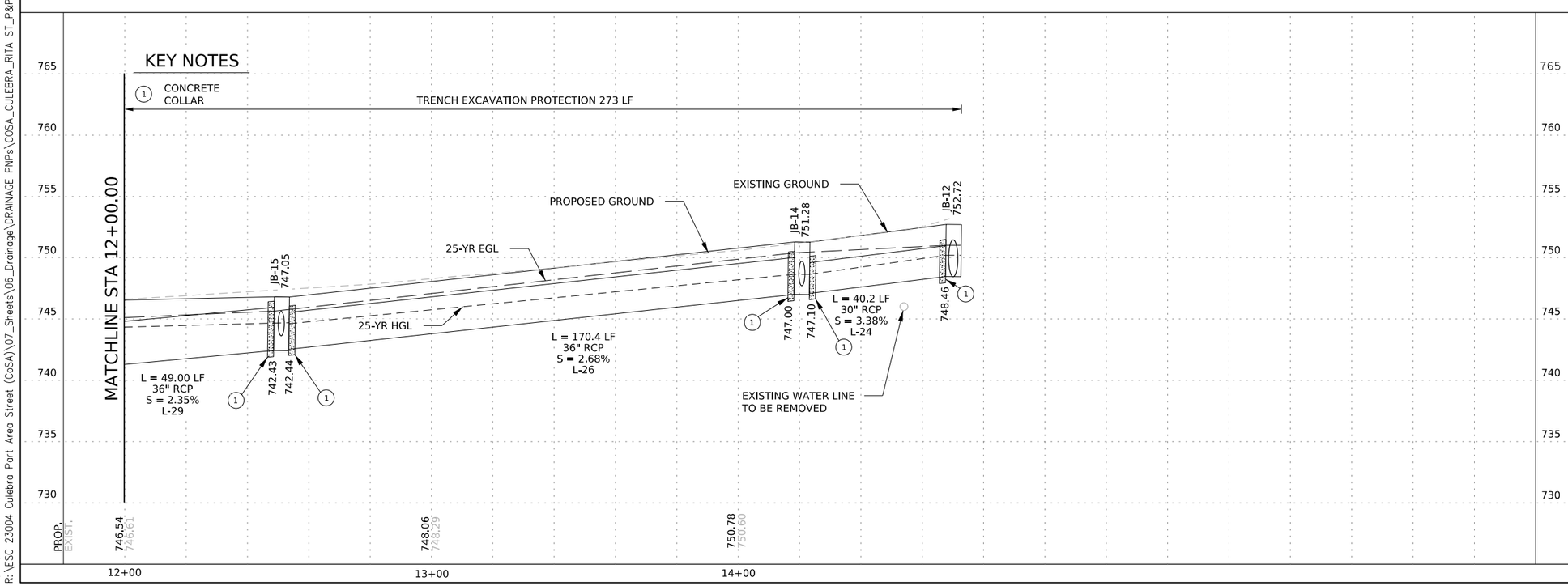
GRAPHIC SCALE
0 10 20 40 80
1" = 40'
HORIZONTAL SCALE
0 2.5 5 10 15
1" = 10'
VERTICAL SCALE



STATE OF TEXAS
MARTIN M. GONZALES
121996
LICENSED
PROFESSIONAL ENGINEER

5.28.25

NO.	REVISION	BY	DATE
3			
2			
1			

AG3 Group, LLC
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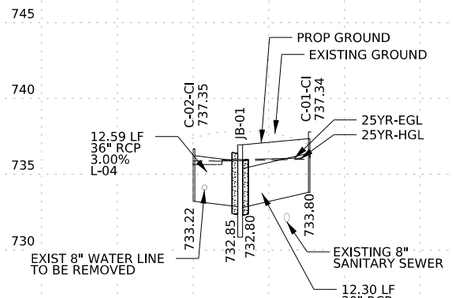
CITY OF SAN ANTONIO
PUBLIC WORKS DEPARTMENT

CULEBRA AREA STREETS

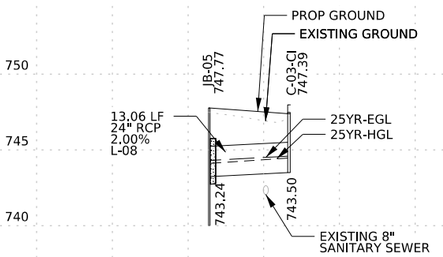
DRAINAGE PLAN & PROFILE SYSTEM (C) RITA

100% SUBMITTAL	PROJECT NO: 23-03873		DATE: 05/28/2025
DRWN. BY: SS	DSGN. BY: SS	CHKD. BY: MG	SHEET NO: 148



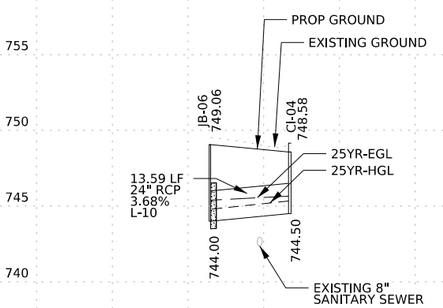
CI-02 TO CI-01

100+91 (LAVEN)



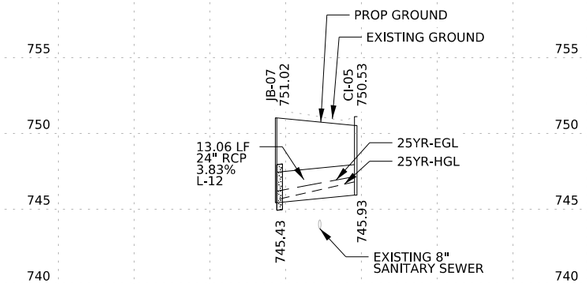
JB-05 TO CI-03

10+50 (PETTUS)



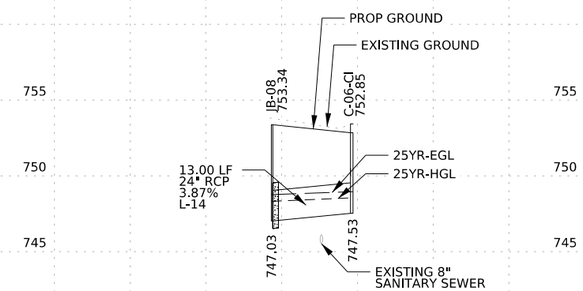
JB-06 TO CI-04

11+30 (PETTUS)



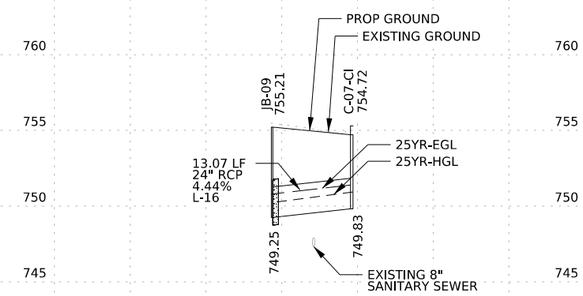
JB-07 TO CI-05

12+12 (PETTUS)



JB-08 TO CI-06

12+93 (PETTUS)



JB-09 TO CI-07

13+75 (PETTUS)

GRAPHIC SCALE

0 10 20 40 80

1" = 40'

HORIZONTAL SCALE

0 2.5 5 10 15

1" = 10'

VERTICAL SCALE

STATE OF TEXAS
MARTIN M. GONZALES
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TBPLS #10194622

CITY OF SAN ANTONIO

PUBLIC WORKS DEPARTMENT

CULEBRA AREA STREETS

DRAINAGE PROFILES SYSTEM (C)

100% SUBMITTAL	PROJECT NO: 23-03873			DATE: 05/28/2025
DRWN. BY: JE	DSGN. BY: JE	CHKD. BY: MG		SHEET NO: 149

5/28/2025 2:12:14 PM
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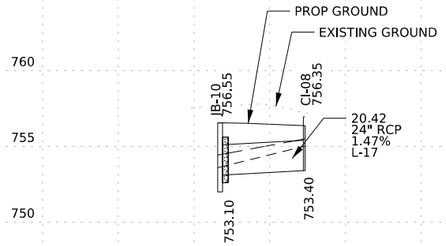
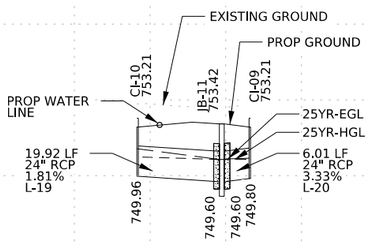


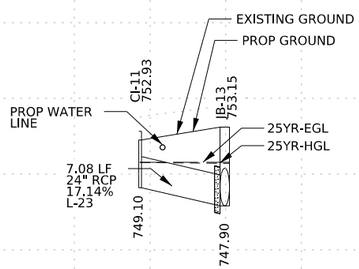
JB-10 TO CI-08

106+15 (BRENDELL)



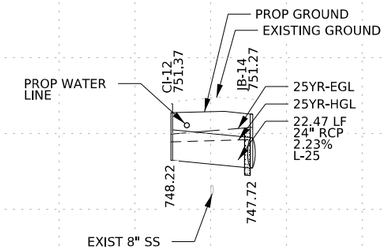
CI-09 TO CI-10

104+27 (BRENDELL)



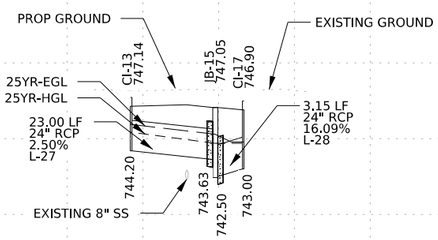
CI-11 TO JB-13

102+89 (BRENDELL)



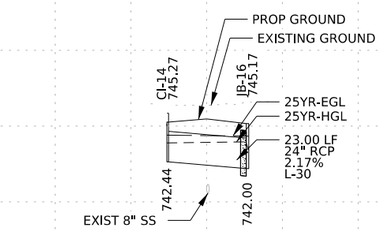
CI-12 TO JB-14

14+26 (RITA)



CI-13 TO CI-17

12+51 (RITA)



CI-14 TO JB-16

11+68 (RITA)

GRAPHIC SCALE

0 10 20 40 80

1" = 40'

HORIZONTAL SCALE

0 2.5 5 10 15

1" = 10'

VERTICAL SCALE

STATE OF TEXAS
MARTIN M. GONZALES
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LICENSED
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5.28.25

AG3 Group, LLC
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CITY OF SAN ANTONIO

PUBLIC WORKS DEPARTMENT

CULEBRA AREA STREETS

DRAINAGE PROFILES SYSTEM (C)

100% SUBMITTAL	PROJECT NO: 23-03873		DATE: 05/28/2025
DRWN. BY: JE	DSGN. BY: JE	CHKD. BY: MG	SHEET NO: 150

5/28/2025 2:13:49 PM
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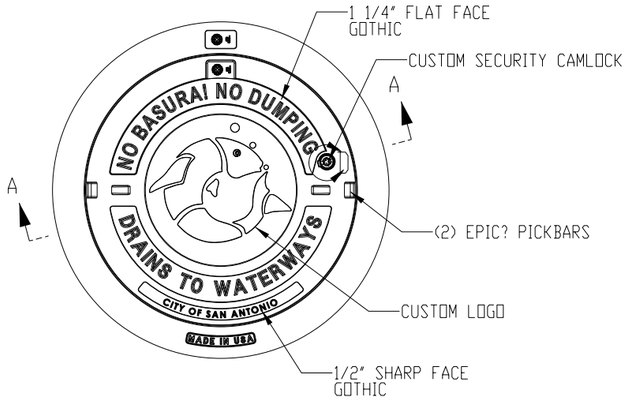
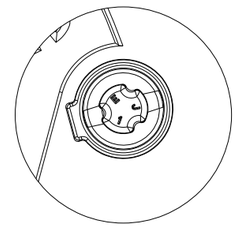
1854Z 1854A4 Assembly

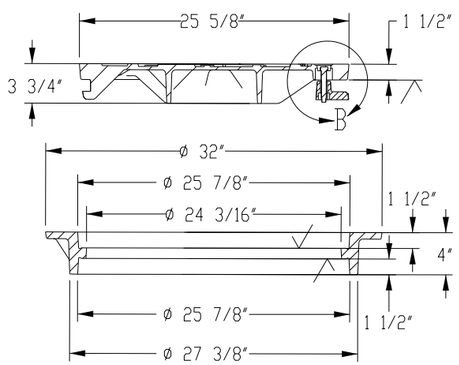




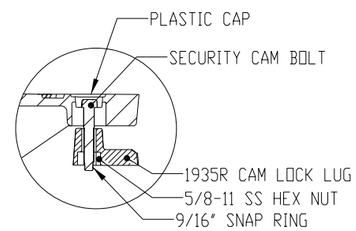
DETAIL D
SCALE 1 : 2

Product Number
00185480A02

Design Features
-Materials
Frame
Gray Iron (CL35B)
Cover
Ductile Iron (70-50-05)
-Design Load
Heavy Duty
-Open Area
n/a
-Coating
Undipped
-✓ Designates Machined Surface



SECTION A-A



DETAIL B
SCALE 1 : 6

Certification
-
-ASTM A48
-ASTM A536
-Country of Origin: USA

Major Components
00185411
00185480

Drawing Revision
5/14/2014 Designer: MAH
9/11/2014 Revised By: MAH

Disclaimer
Weights (lbs/kg), dimensions (inches/mm) and drawings provided for your guidance. We reserve the right to modify specifications without prior notice.

Contact
800 626 4653
ejca.com

STATE OF TEXAS
MARTIN M. GONZALES
121996
LICENSED
PROFESSIONAL ENGINEER

5.28.25

NO.	REVISION	BY	DATE
3			
2			
1			

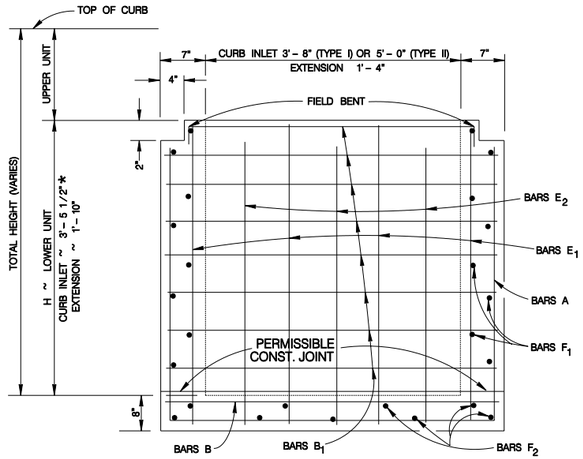
AG3 Group, LLC
ENGINEERING • SURVEY • CONSTRUCTION
4800 FREDERICKSBURG RD SUITE 200SL
SAN ANTONIO, TX 78229
P:210-208-9400 F:210-208-9401
TBPE #F-21809
TBPLS #10194622

CITY OF SAN ANTONIO
PUBLIC WORKS DEPARTMENT

CULEBRA AREA STREETS

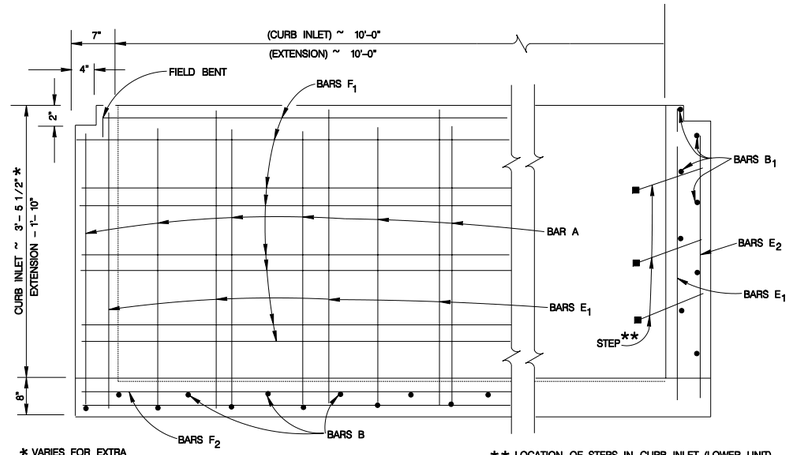
STORM WATER MANHOLE
LOCKING DETAIL

100% SUBMITTAL	PROJECT NO: 23-03873		DATE: 05/28/2025
DRWN. BY: SS	DSGN. BY: SS	CHKD. BY: MG	SHEET NO: 151



* VARIES FOR EXTRA DEPTH INLETS

SECTION A–A



* VARIES FOR EXTRA DEPTH INLETS

** LOCATION OF STEPS IN CURB INLET (LOWER UNIT) ONLY, WILL BE DETERMINED BY THE LOCATION OF RING COVER PLACEMENT. STEPS @ 15" O.C.

SECTION B–B

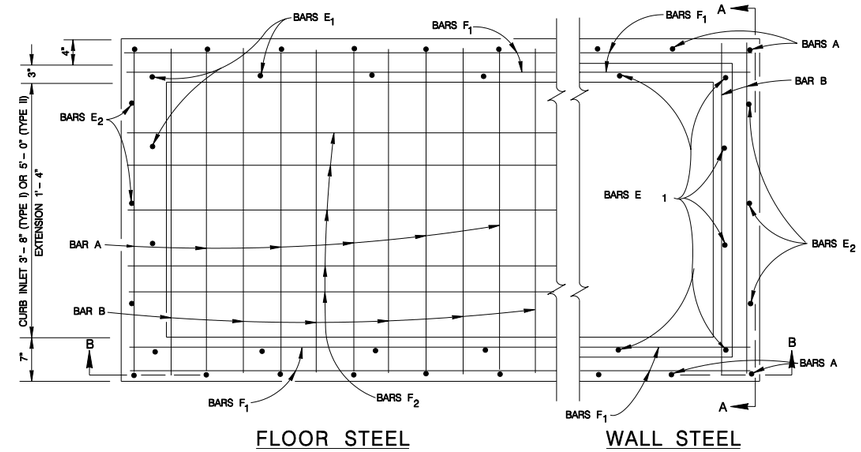
REINFORCING STEEL

LOWER UNIT 10' X 3' – 8" (TYPE I)				
BAR	NO.	SIZE	SPAC.	LENGTH
A	12	#4	12"	VARIES
B	11	#4	12"	4'–6"
B_1	VARIES	#4	12"	4'–6"
E_1	20	#4	18"±	VARIES
E_2	6	#4	18"±	VARIES
F_1	VARIES	#4	12"±	10'–10"
F_2	9	#4	—	10'–10"

LOWER UNIT 10' X 5' – 0" (TYPE II)				
BAR	NO.	SIZE	SPAC.	LENGTH
A	12	#4	12"	VARIES
B	11	#4	12"	5'–10"
B_1	VARIES	#4	12"	5'–10"
E_1	22	#4	18" ±	VARIES
E_2	8	#4	18"±	VARIES
F_1	VARIES	#4	12"±	10'–10"
F_2	11	#4	—	10'–10"

GENERAL NOTES

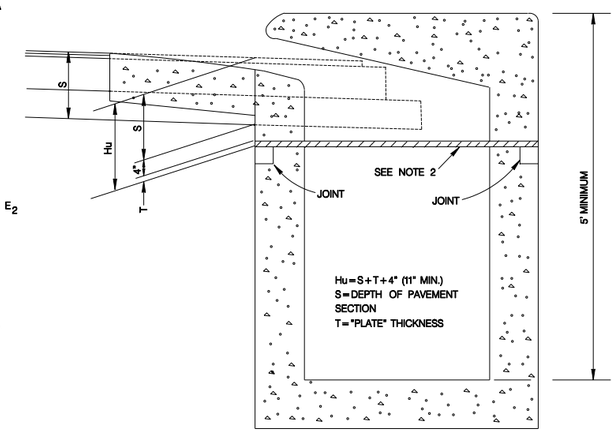
1. 5' INLETS AND 5' EXTENSIONS MUST BE IN ACCORDANCE WITH THE LATEST TXDOT CURB INLET TYPE "C" AND EXTENSION TYPE E (IL–C).
2. TYPE C–II INLET TO BE USED ONLY WHEN STORM DRAIN PIPE IS IN–LINE WITH CURB INLET AND APPROVED BY THE ENGINEER.
3. QUANTITIES SHOWN ARE FOR CONTRACTORS INFORMATION ONLY.
4. CONCRETE FOR STRUCTURES SHALL BE CLASS "A", 3000 PSI IN 28 DAYS.
5. ALL DIMENSIONS RELATING TO REINFORCING STEEL ARE TO CENTER OF BARS.
6. ALL REINFORCING STEEL SHALL HAVE A MINIMUM COVER OF 1 1/2".
7. ALL REINFORCING STEEL SHALL CONFORM TO A.S.T.M. A–615, GRADE 60 REQUIREMENTS.
8. ALL EXPOSED CORNERS SHALL BE CHAMFERED 3/4".
9. DEPRESSION SLAB SHALL RECEIVE A WOOD FLOAT FINISH.
10. FACE OF INLET TO CONFORM TO FACE OF CURB LINE.
11. ALL BARS INTERCEPTING MANHOLE RING & COVER SHALL BE CUT OR BENT.
12. PAYMENT FOR ALL EXCAVATION, BACK–FILLING, CONCRETE, REINFORCING STEEL, RING AND COVER, CURB ARMOR AND STEPS SHALL BE INCLUDED IN THE UNIT COST OF ITEM 403 "STORM SEWER JUNCTION BOXES AND INLETS".
13. CAST IRON MANHOLE RING AND COVER TO BE PLACED NEXT TO OUTLET PIPE, EXCEPT FOR VERTICAL OUTLET PIPE IN WHICH CASE MANHOLE RING AND COVER WILL BE OFFSET.
14. GALVANIZED BOLTS, NUTS, WASHERS, PLATES AND GASKETS ARE SUBSIDIARY TO INLETS.
15. THE CONTRACTOR SHALL PROVIDE AN ADEQUATE MEANS TO LIFT AND PLACE THE INLETS, WHEN USING PRECAST UNITS.
16. ALL BARS AT PIPE BLOCKOUT LOCATIONS SHALL BE CUT OR BEND.
17. ALL LOWER UNITS SHALL RECEIVE INVERT MORTAR SHAPING.
18. PIPE BLOCKOUTS IN INLET WALLS SHOULD NOT EXCEED 3" BEYOND THE OUTER SHELL OF THE PIPE, TAKING INTO ACCOUNT THE SKEW OF THE PIPE AS NECESSARY. CONSTRUCTION JOINT MAY BE RAISED A MAXIMUM OF 6".



FLOOR STEEL

WALL STEEL

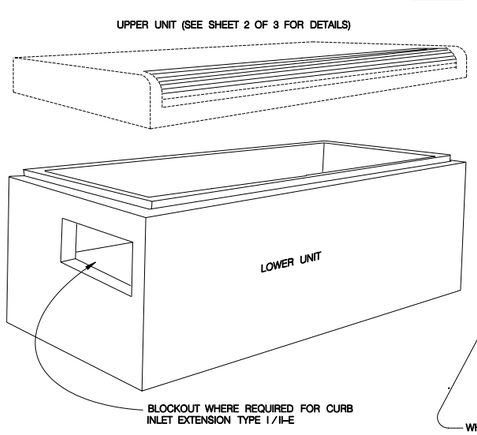
PLAN

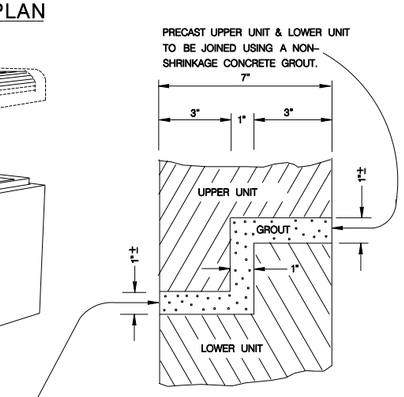


PHASE CONSTRUCTION

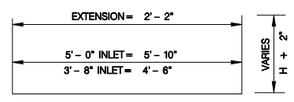
NOTES FOR PHASE CONSTRUCTION (WHEN DIRECTED BY THE ENGINEER):

1. THE CURB INLET AND EXTENSION SHALL BE CONSTRUCTED TO A DEPTH "Hu" BELOW THE INLET AND EXTENSION GUTTER LINE ELEVATION.
2. CAP THE CURB INLET AND EXTENSION WITH A STEEL PLATE APPROVED BY THE ENGINEER AND CONSTRUCT THE ROADWAY OVER THE PLATE.
3. AFTER THE ROADWAY IS COMPLETED, BUT PRIOR TO THE FINAL HMAC OVERLAY, SAW CUT THE PAVEMENT, REMOVE THE PLATE AND COMPLETE THE UPPER PORTION OF THE CURB INLET AND /OR EXTENSION.



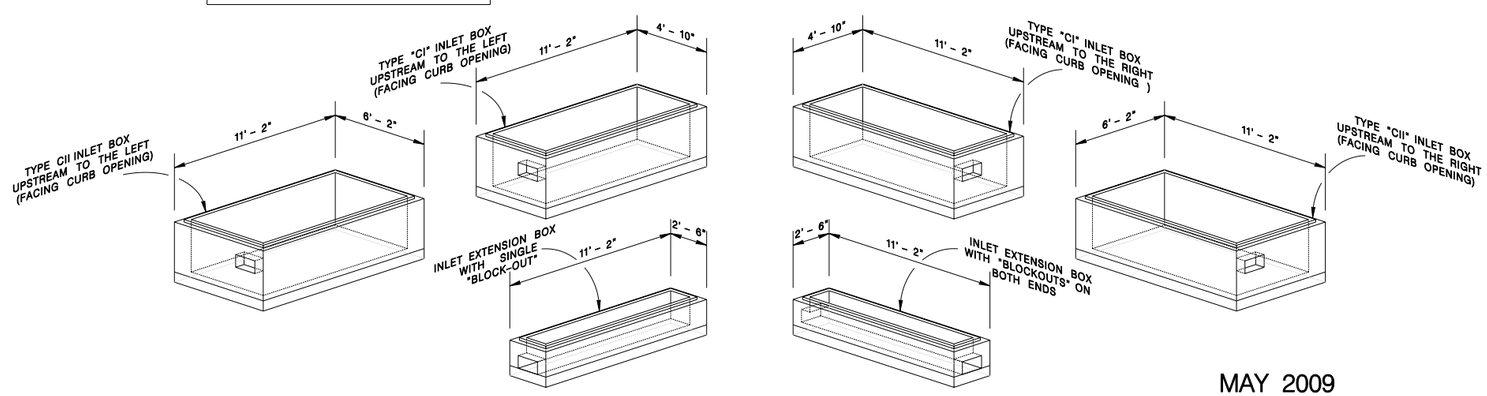


JOINT DETAIL



BARS A

(LOWER UNIT)



CONCRETE INLET BOX CONFIGURATIONS (LOWER UNITS)

MAY 2009

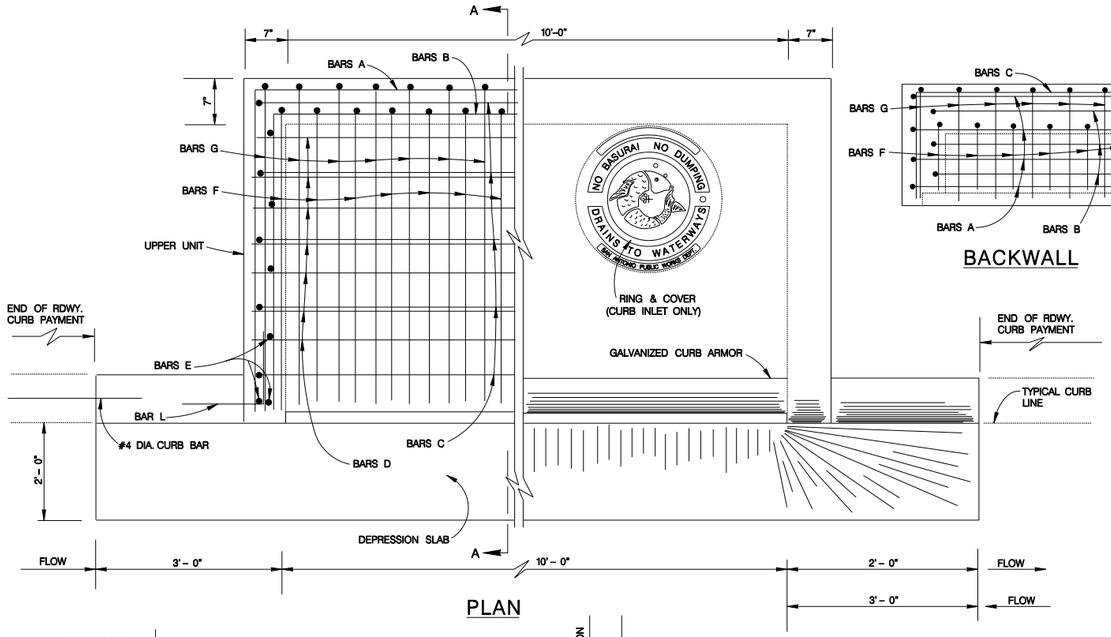
CITY OF SAN ANTONIO

CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT

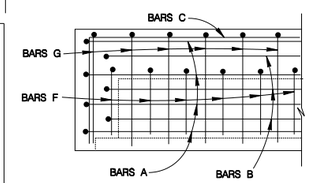
TYPE "C" INLET (TYPE I & II) & INLET EXTENSION STANDARDS

SHEET 1 OF 3

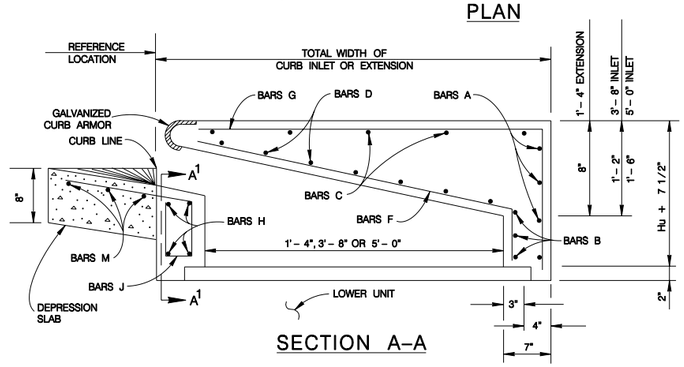
____% SUBMITTAL	PROJECT NO.:_____	DATE:_____
DRWN. BY: V. VASQUEZ	DSGN. BY: L.E. MALTOS, P.E.	CHKD. BY: R.S. HOSSEINI, P.E.	SHEET NO.: 152



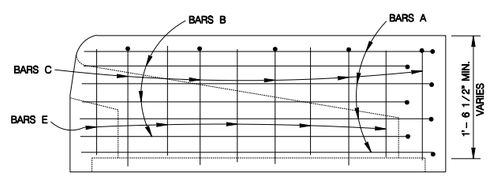
PLAN



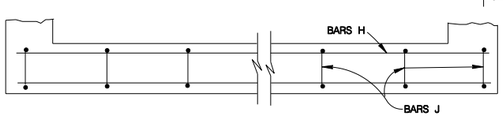
BACKWALL



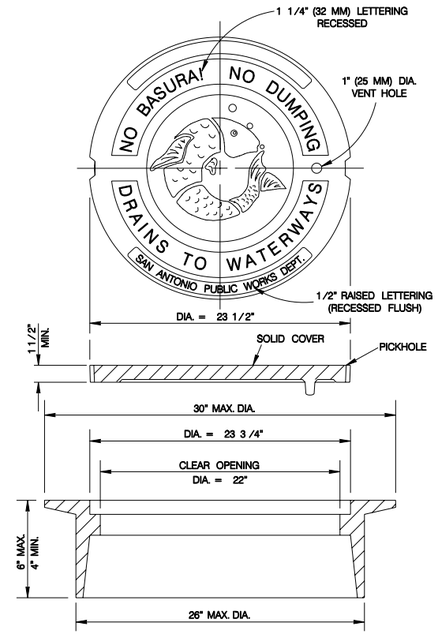
SECTION A–A



END WALL



SECTION A^1 – A^1



MANHOLE LID & RING DETAIL (ITEM 409)

NOTES FOR MANHOLE LID AND RING

1. FOR LID DESIGN OUTSIDE OF CITY OF SAN ANTONIO, DELETE "SAN ANTONIO PUBLIC WORKS DEPT.".
2. CASTING NUMBER AND MANUFACTURER'S I.D. ON LID AND RING.
3. LOAD BEARING CAPABILITY OF HS-20 MINIMUM.
4. THE LOAD BEARING SURFACES SHALL BE MACHINE GROUND.
5. THE COMBINED WEIGHT OF THE MANHOLE RING AND COVER MUST BE AT LEAST 260 LBS.

SEE SHEET 1 OF 3 FOR GENERAL NOTES.

REINFORCING STEEL (FOR Hu=11")

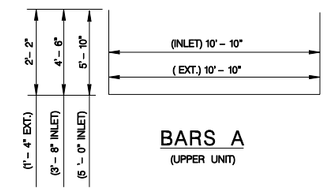
UPPER UNIT 10' X 3'-8" (TYPE I)					
BAR	NO.	SIZE	SPAC.	LENGTH	WEIGHT
A	4	#4	—	19'-10"	53
B	3	#4	—	18'-10"	38
C	5	#4	11"	13'-2"	44
D	7	#4	6"	10'-10"	51
E	12	#4	11"	1'-2"	9
F	21	#6	6"	4'-8"	147
G	22	#6	6"	5'-8"	187
H	4	#4	—	10'-10"	29
J	12	#4	12"	3'-6"	28
L	4	#4	—	2'-0"	5
M	3	#4	—	14'-8"	29
TOTAL WEIGHT					620 LBS.

UPPER UNIT 10' X 5' (TYPE II)					
BAR	NO.	SIZE	SPAC.	LENGTH	WEIGHT
A	4	#4	—	22'-6"	60
B	3	#4	—	21'-6"	43
C	7	#4	11"	13'-2"	62
D	11	#4	6"	10'-10"	80
E	16	#4	11"	1'-2"	13
F	21	#6	6"	5'-8"	179
G	22	#6	6"	7'-0"	231
H	4	#4	—	10'-10"	29
J	12	#4	12"	3'-6"	28
L	4	#4	—	2'-0"	5
M	3	#4	—	14'-8"	29
TOTAL WEIGHT					759 LBS.

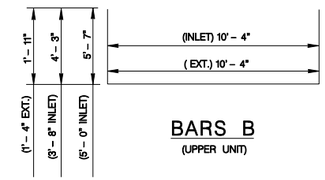
CLASS "A" CONCRETE QUANTITIES (FOR Hu = 11")

DEPRESSION SLAB	C.Y.
10' INLET	0.7
10' EXTENSION	0.7

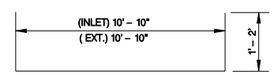
UPPER UNIT (ONLY)		C.Y.
10' X 3'-8"	CURB INLET	1.9
10' X 5'-0"	CURB INLET	2.7
10'	EXTENSION	1.0



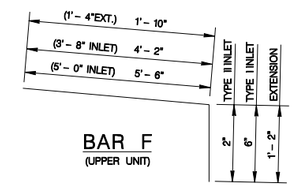
BARS A
(UPPER UNIT)



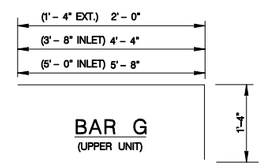
BARS B
(UPPER UNIT)



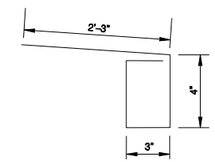
BAR C
(UPPER UNIT)



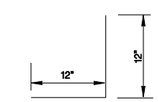
BAR F
(UPPER UNIT)



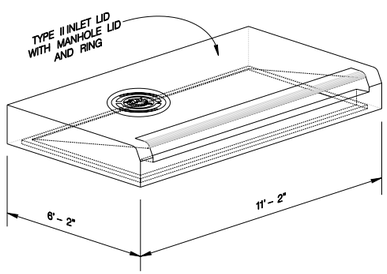
BAR G
(UPPER UNIT)

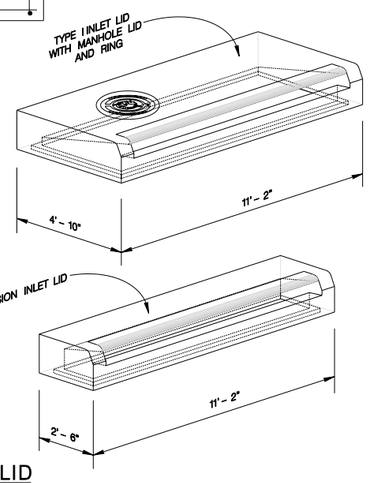


BAR J
(UPPER UNIT)

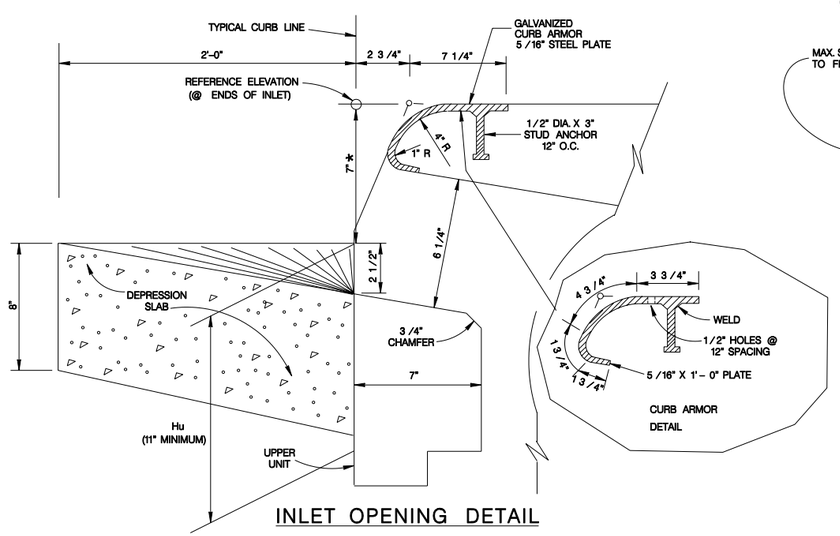


BAR L
(UPPER UNIT)

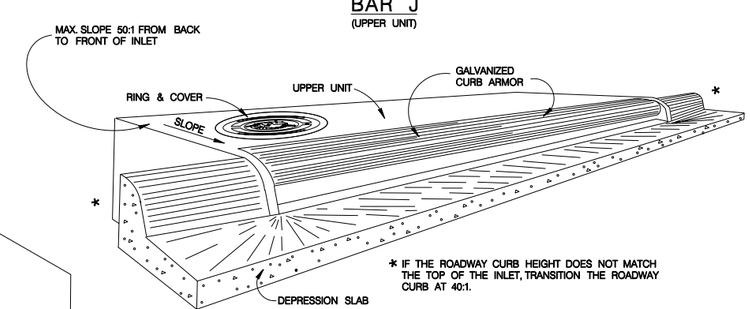




CONCRETE INLET LID CONFIGURATIONS (UPPER UNITS)



INLET OPENING DETAIL



* IF THE ROADWAY CURB HEIGHT DOES NOT MATCH THE TOP OF THE INLET, TRANSITION THE ROADWAY CURB AT 40:1.

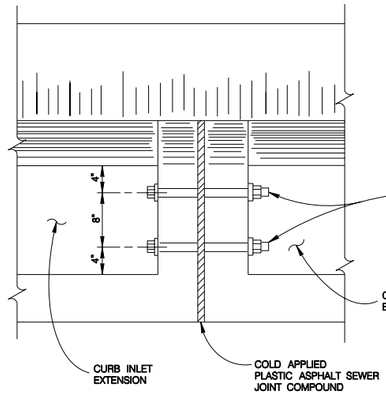
MAY 2009

CITY OF SAN ANTONIO
CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT

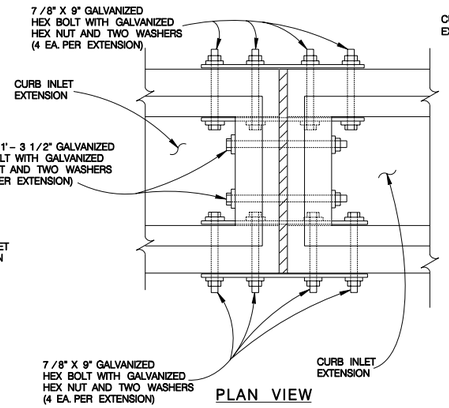
TYPE "C" INLET (TYPE I & II) & INLET EXTENSION STANDARDS

SHEET 2 OF 3

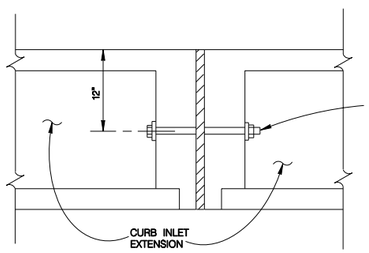
____% SUBMITTAL	PROJECT NO.:_____	DATE:_____
DRWN. BY: V. VASQUEZ	DSGN. BY: L.E. MALTOS, P.E.	CHKD. BY: R.S. HOSSEINI, P.E.	SHEET NO.: 153



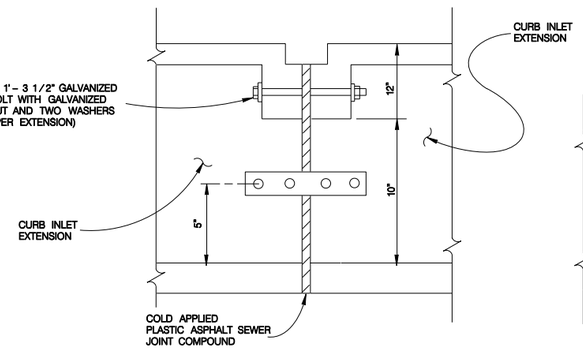
PLAN VIEW



PLAN VIEW



ELEVATION



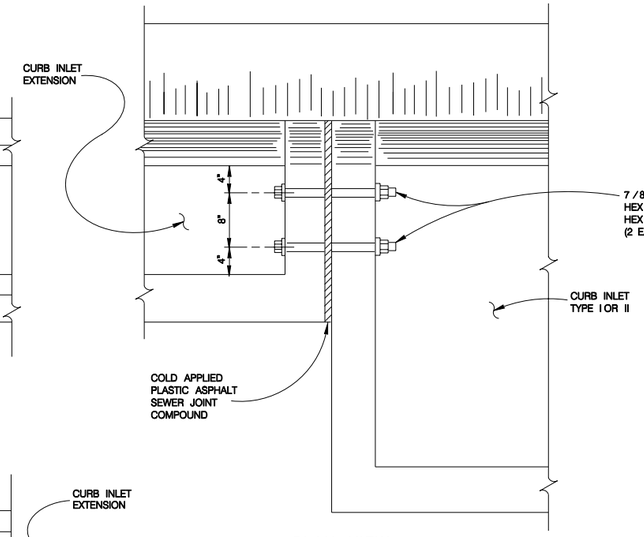
ELEVATION

UPPER UNIT

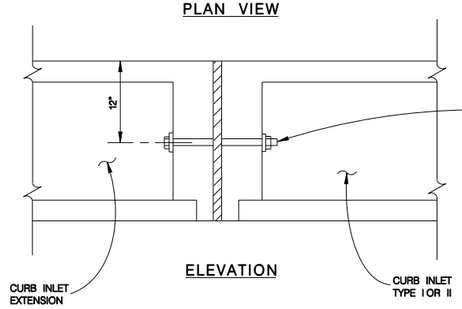
LOWER UNIT

INLET BOLTING DETAILS

SHOWING EXTENSION TO EXTENSION

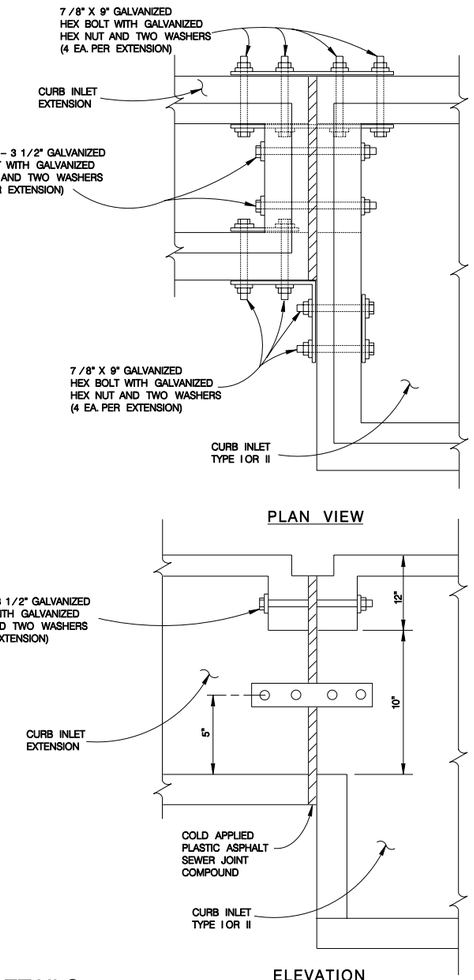


PLAN VIEW



ELEVATION

UPPER UNIT



PLAN VIEW

ELEVATION

LOWER UNIT

INLET BOLTING DETAILS

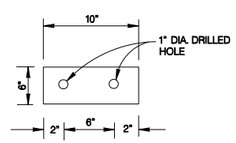
SHOWING CURB INLET TO EXTENSION

UPPER UNIT EXTENSION (FOR Hu = 11")					
BAR	NO.	SIZE	SPAC.	LENGTH	WEIGHT
A	4	#4	—	15'-2"	41
B	3	#4	—	14'-2"	28
C	3	#4	11"	13'-2"	26
D	3	#4	6"	10'-10"	22
E	8	#4	11"	1'-2"	6
F	21	#6	6"	2'-0"	63
G	22	#6	6"	3'-4"	110
H	4	#4	—	10'-10"	29
J	12	#4	12"	3'-6"	28
L	4	#4	—	2'-0"	5
M	3	#4	—	14'-8"	29
REINFORCING STEEL				LBS.	387
CLASS "A" CONCRETE				C.Y.	1.0

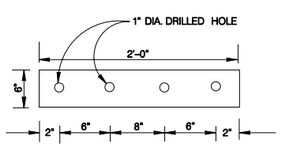
LOWER UNIT EXTENSION					
BAR	NO.	SIZE	SPAC.	LENGTH	WEIGHT
A	12	#4	12"	6'-2"	49
B	11	#4	12"	2'-2"	16
B_1	3	#4	12"	2'-2"	4
E_1	18	#4	18" ±	2'-3"	27
E_2	4	#4	18" ±	2'-1"	6
F_1	16	#4	12" ±	10'-10"	116
F_2	5	#4	—	10'-10"	36
REINFORCING STEEL				LBS.	254
CLASS. "A" CONCRETE				C.Y.	1.4

GENERAL NOTES

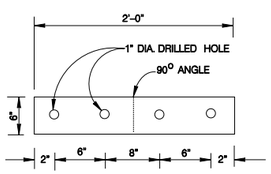
1. WHEN INLET EXTENSIONS ARE REQUIRED FOR ON GRADE INLETS THE EXTENSION(S) SHALL BE PLACED ON THE UPSTREAM END OF THE INLET.
2. FOR CURB INLET EXTENSION REINFORCING STEEL, NOTES & VARIOUS OTHER APPLICABLE DETAILS NOT FOUND ON THIS SHEET, REFER TO SHEETS 1 & 2.



3/8" X 6" X 10" GALVANIZED STEEL BOLTING EXTENSION TO CURB INLET
2 EACH REQUIRED

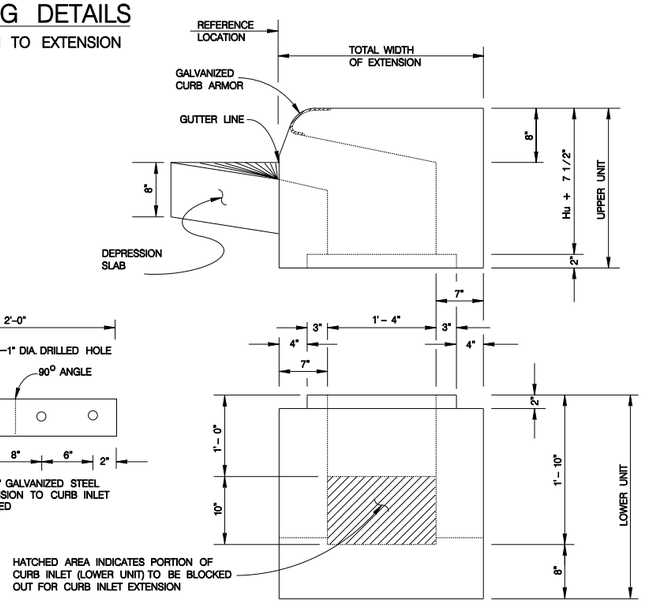


3/8" X 6" X 24" GALVANIZED STEEL BOLTING EXTENSION TO CURB INLET
2 EACH REQUIRED
BOLTING EXTENSION TO EXTENSION
4 EACH REQUIRED

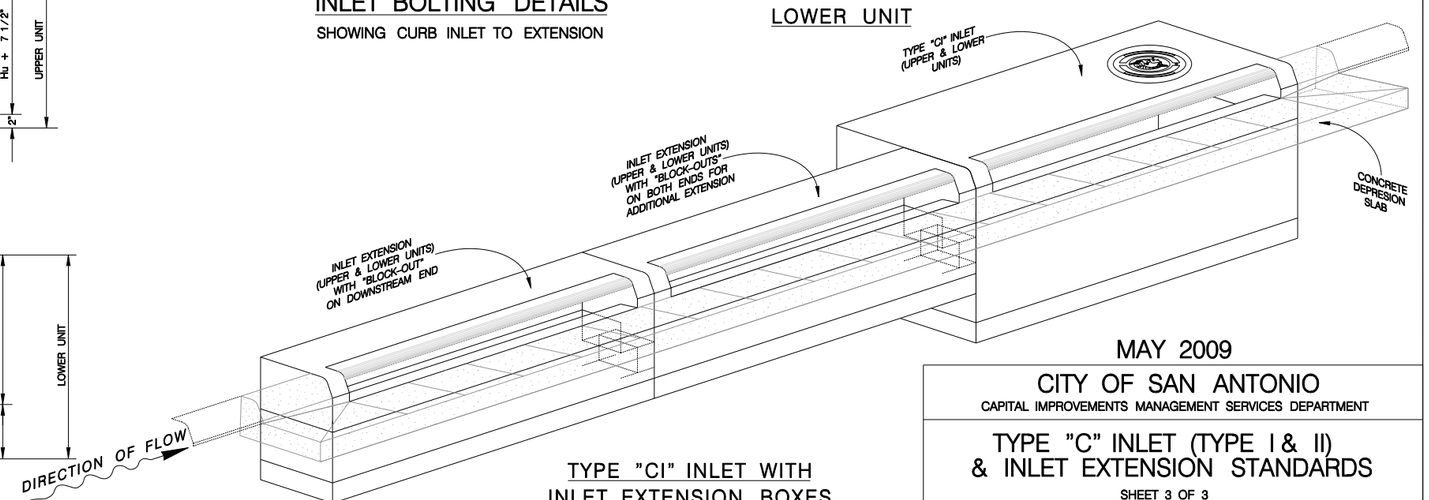


3/8" X 6" X 24" GALVANIZED STEEL BOLTING EXTENSION TO CURB INLET
1 EACH REQUIRED

PLATES



SECTION A-A CURB INLET EXTENSION TYPE E



TYPE "CI" INLET WITH INLET EXTENSION BOXES

MAY 2009

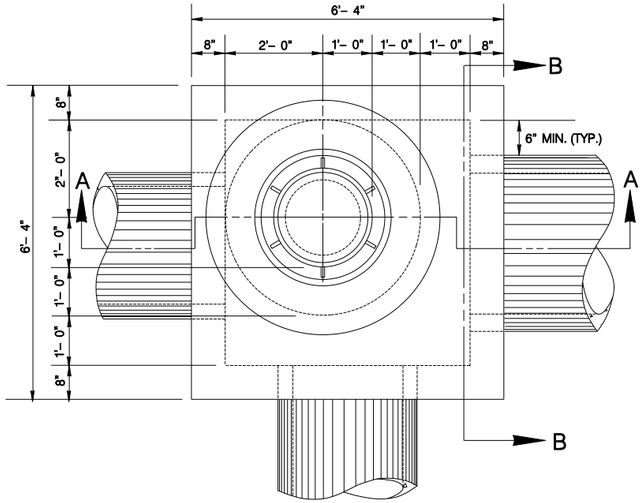
CITY OF SAN ANTONIO

CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT

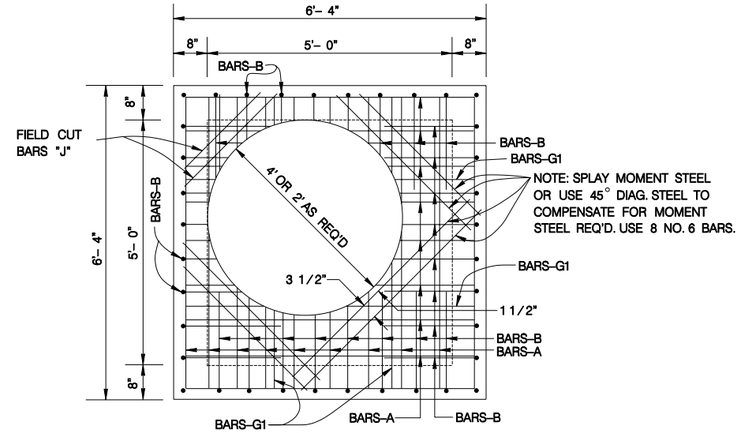
TYPE "C" INLET (TYPE I & II) & INLET EXTENSION STANDARDS

SHEET 3 OF 3

____% SUBMITTAL	PROJECT NO.:_____	DATE:_____
DRWN. BY: V. VASQUEZ	DSGN. BY: L.E. MALTOS, P.E.	CHKD. BY: R.S. HOSSEINI, P.E.	SHEET NO.: 154

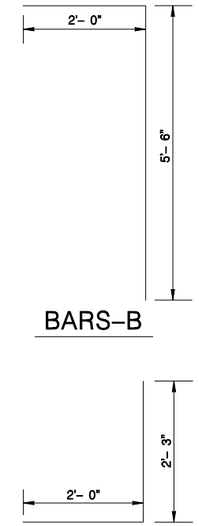


PLAN



PLAN

OF JUNCTION BOX TOP SLAB SHOWING STEEL



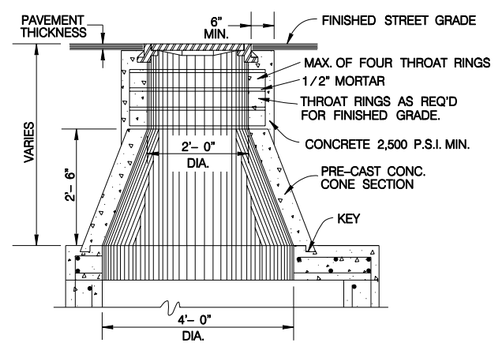
SCHEDULE FOR REINFORCING STEEL

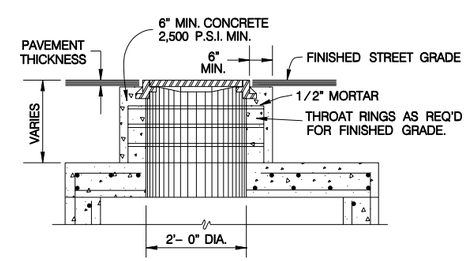
SHAPE	BAR	NO.	SIZE	SPACING	LENGTH	WEIGHT
STRAIGHT	A	18	4	9" O.C.	6'– 1"	73
┌	B	36	5	8" O.C.	7'– 6"	282
└	C	36	5	8" O.C.	4'– 3"	160
STRAIGHT	D	18	4	9" O.C.	6'– 1"	73
STRAIGHT	E	20	3	12" O.C.	4'– 11"	37
STRAIGHT	G	20	4	12" O.C.	6'– 1"	81
STRAIGHT	G_1	8	4	AS SHOWN	6'– 1"	33
STRAIGHT	H	24	3	12" O.C.	5'– 5"	49
STRAIGHT	J	8	6	3 1/2" O.C.	4'– 11"	59
					TOTAL	847 lbs.

CLASS "A" CONCRETE – 5.03 CU. YDS.
(DOES NOT EXCLUDE MANHOLE OPENINGS OR PIPE OPENING)

* NOTE: BAR SIZE AND SPACING BASED ON SPANS AS SHOWN – ANY REVISIONS TO THESE SPANS SHALL INCLUDE A RE–DESIGN ON STEEL REQD.

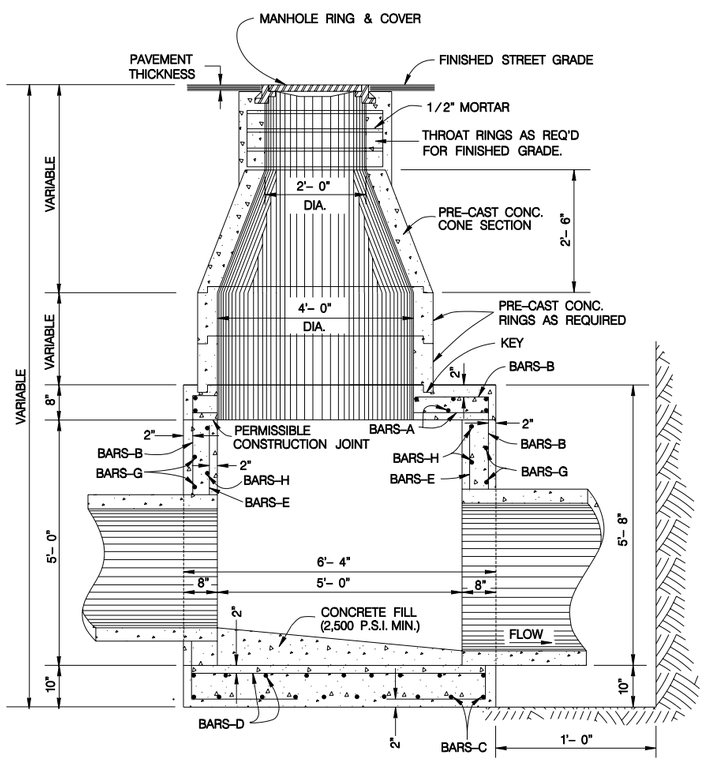
1. CONCRETE FOR STRUCTURE SHALL BE CLASS "A" 3,000 P.S.I. AT 28 DAYS.
2. ALL EXPOSED EDGES SHALL BE CHAMFERED 3/4".
3. REINFORCING STEEL SHALL BE NEW BILLET STEEL, INTERMEDIATE GRADE, ASTM A–15. THE DEFORMATION SHALL CONFORM TO ASTM A–305.
4. ALL DIMENSIONS RELATING TO REINFORCING STEEL ARE TO CENTER OF BARS.
5. ALL BARS INTERCEPTING MANHOLE OPENING AND REINFORCED CONCRETE PIPE SHALL BE FIELD–CUT.
6. WHERE LAPPING OF BARS IS REQUIRED, A MINIMUM LAP OF 33 DIAMETERS SHALL BE USED.
7. INVERT OF JUNCTION BOX TO BE SHAPED WITH CONCRETE FILL (2,500 P.S.I. MIN.) TO EFFECT DRAINAGE TO OUTLET PIPE. COST SUBSIDIARY TO CLASS "A" CONCRETE (JUNCTION BOXES).
8. PAYMENT FOR ALL EXCAVATION, BACKFILLING, CONCRETE, REINFORCING STEEL, VERTICAL STACK, RING AND COVER SHALL BE INCLUDED IN THE UNIT COST OF ITEM 403 – "STORM SEWER JUNCTION BOXES AND INLETS".



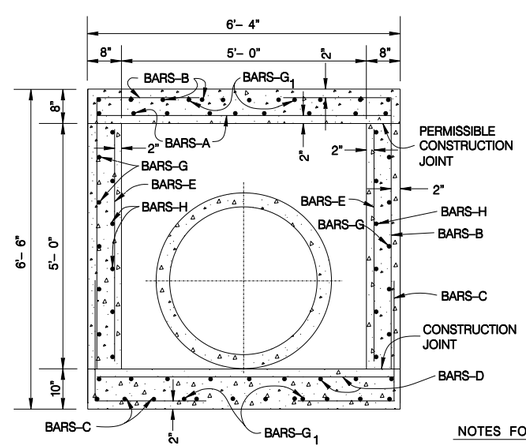


VARIATION OF VERTICAL STACK

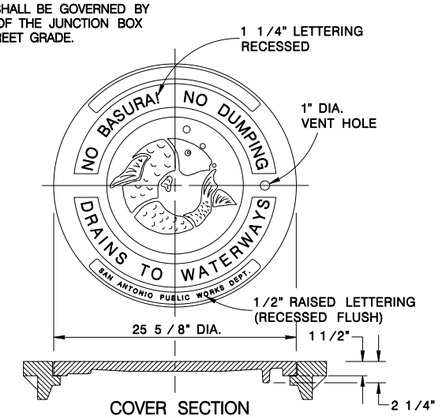
VERTICAL STACK DESIGN SHALL BE GOVERNED BY THE DEPTH OF THE TOP OF THE JUNCTION BOX BELOW THE FINISHED STREET GRADE.



SECTION A–A



SECTION B–B



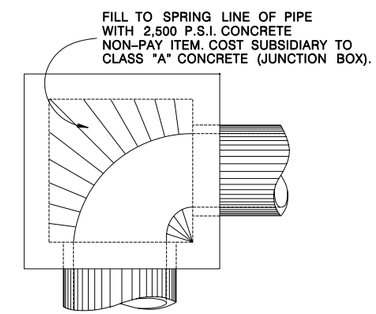
COVER SECTION

MANHOLE LID & RING DETAIL

SCALE: 1 : 16

NOTES FOR MANHOLE LID AND RING

1. FOR LID DESIGN OUTSIDE OF CITY OF SAN ANTONIO, DELETE "SAN ANTONIO PUBLIC WORKS DEPT.".
2. CASTING NUMBER AND MANUFACTURER'S I.D. ON LID AND RING.
3. LOAD BEARING CAPABILITY OF HS–20 MINIMUM.
4. THE LOAD BEARING SURFACES SHALL BE MACHINE GROUND.
5. THE COMBINED WEIGHT OF THE MANHOLE RING AND COVER MUST BE AT LEAST 260 LBS.



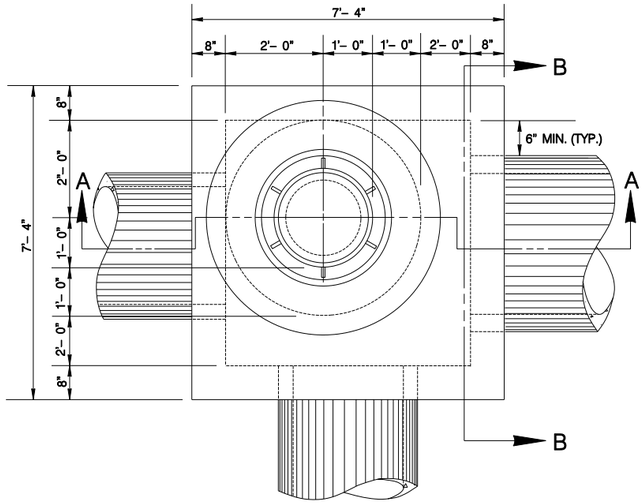
CURVED DEFLECTOR DETAIL

JANUARY 2005

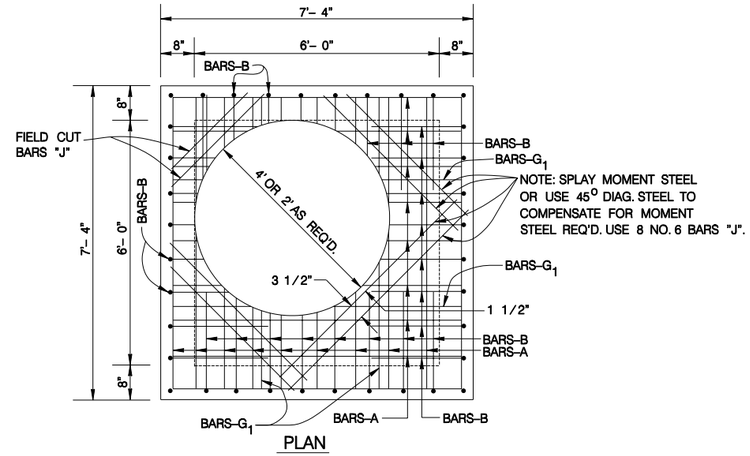
CITY OF SAN ANTONIO
CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT

5'x5'x5' JUNCTION BOX STANDARDS

____% SUBMITTAL	PROJECT NO.:_____	DATE:_____
DRWN. BY:_____	DSGN. BY:_____ CHKD. BY:_____	SHEET NO.: 155

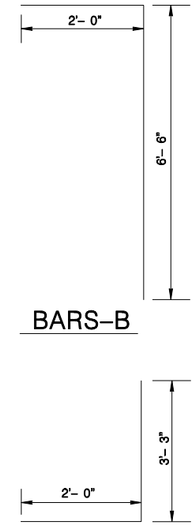


PLAN



PLAN

JUNCTION BOX TOP SLAB SHOWING STEEL



BARS–B

BARS–C

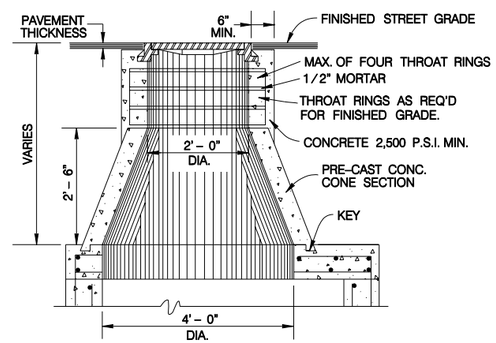
SCHEDULE FOR REINFORCING STEEL

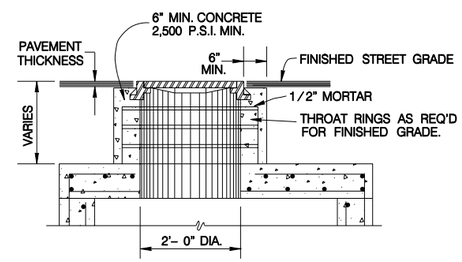
SHAPE	BAR	NO.	SIZE	SPACING	LENGTH	WEIGHT
STRAIGHT	A	21	4	9" O.C.	7'– 1"	99
⌐	B	46	5	8" O.C.	8'– 6"	408
L	C	46	5	8" O.C.	5'– 3"	252
STRAIGHT	D	21	4	9" O.C.	7'– 1"	99
STRAIGHT	E	28	3	12" O.C.	5'– 11"	62
STRAIGHT	G	20	4	12" O.C.	7'– 1"	95
STRAIGHT	G_1	8	4	AS SHOWN	6'– 1"	33
STRAIGHT	H	27	3	12" O.C.	7'– 1"	72
STRAIGHT	J	8	6	3 1/2" O.C.	4'– 11"	59
					TOTAL	1,179 LBS.

CLASS "A" CONCRETE – 6.94 CU. YDS.
(DOES NOT EXCLUDE MANHOLE OPENINGS OR PIPE OPENING)

* NOTE: BAR SIZE AND SPACING BASED ON SPANS AS SHOWN – ANY REVISIONS TO THESE SPANS SHALL INCLUDE A RE–DESIGN ON STEEL REQ'D.

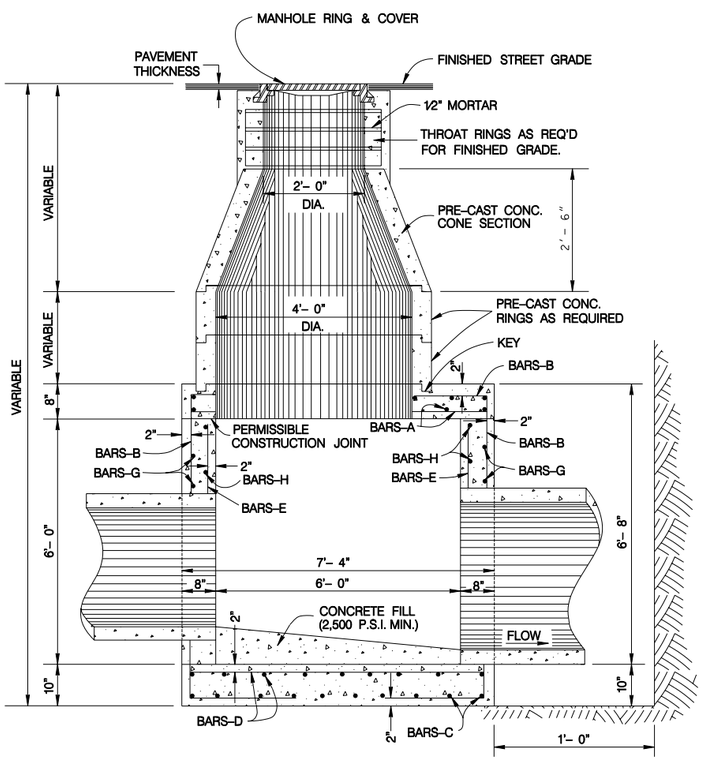
1. CONCRETE FOR STRUCTURE SHALL BE CLASS "A" 3,000 P.S.I. AT 28 DAYS.
2. ALL EXPOSED EDGES SHALL BE CHAMFERED 3/4".
3. REINFORCING STEEL SHALL BE NEW BILLET STEEL, INTERMEDIATE GRADE, ASTM A–15. THE DEFORMATION SHALL CONFORM TO ASTM A–305.
4. ALL DIMENSIONS RELATING TO REINFORCING STEEL ARE TO CENTER OF BARS.
5. ALL BARS INTERCEPTING MANHOLE OPENING AND REINFORCED CONCRETE PIPE SHALL BE FIELD–CUT.
6. WHERE LAPPING OF BARS IS REQUIRED, A MINIMUM LAP OF 33 DIAMETERS SHALL BE USED.
7. INVERT OF JUNCTION BOX TO BE SHAPED WITH CONCRETE FILL (2,500 P.S.I. MIN.) TO EFFECT DRAINAGE TO OUTLET PIPE. COST SUBSIDIARY TO CLASS "A" CONCRETE (JUNCTION BOXES).
8. PAYMENT FOR ALL EXCAVATION, BACKFILLING, CONCRETE, REINFORCING STEEL, VERTICAL STACK, RING AND COVER SHALL BE INCLUDED IN THE UNIT COST OF ITEM 403 – "STORM SEWER JUNCTION BOXES AND INLETS".



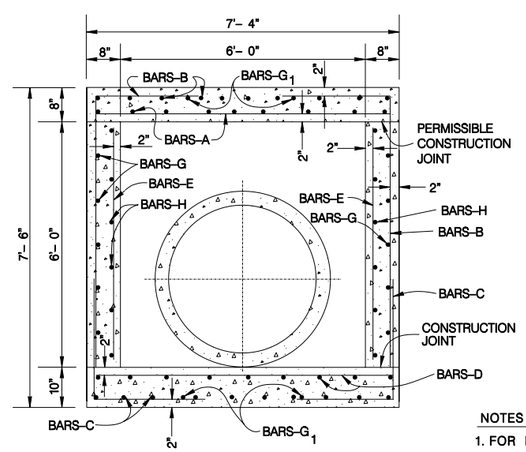


VARIATION OF VERTICAL STACK

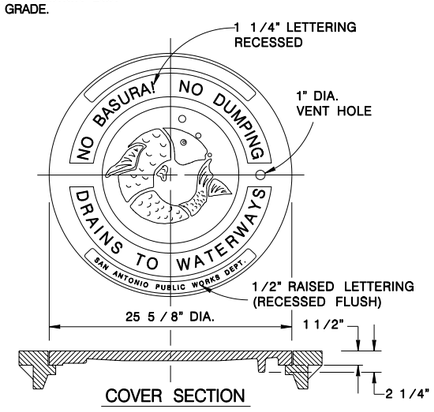
VERTICAL STACK DESIGN SHALL BE GOVERNED BY THE DEPTH OF THE TOP OF THE JUNCTION BOX BELOW THE FINISHED STREET GRADE.



SECTION A–A



SECTION B–B



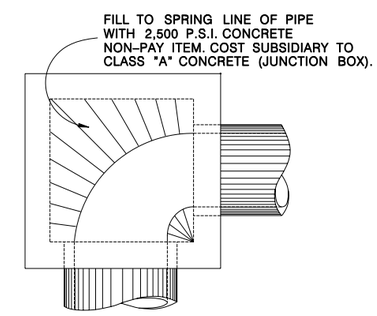
COVER SECTION

MANHOLE LID & RING DETAIL

SCALE: 1 : 16

NOTES FOR MANHOLE LID AND RING

1. FOR LID DESIGN OUTSIDE OF CITY OF SAN ANTONIO, DELETE "SAN ANTONIO PUBLIC WORKS DEPT.".
2. CASTING NUMBER AND MANUFACTURER'S I.D. ON LID AND RING.
3. LOAD BEARING CAPABILITY OF HS–20 MINIMUM.
4. THE LOAD BEARING SURFACES SHALL BE MACHINE GROUND.
5. THE COMBINED WEIGHT OF THE MANHOLE RING AND COVER MUST BE AT LEAST 260 LBS.



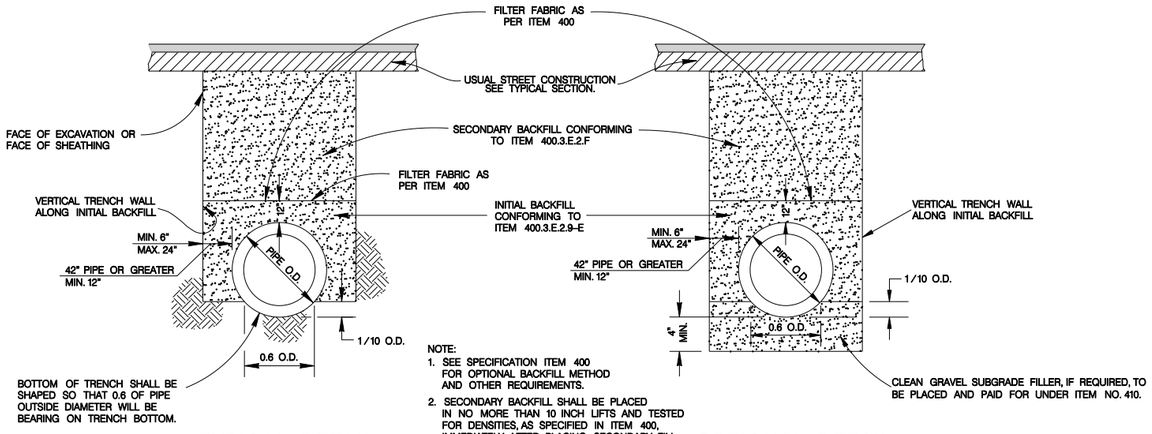
CURVED DEFLECTOR DETAIL

JANUARY 2005

CITY OF SAN ANTONIO
CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT

6'x6'x6' JUNCTION BOX STANDARDS

% SUBMITTAL	PROJECT NO.:		DATE:
DRWN. BY:	DSGN. BY:	CHKD. BY:	SHEET NO.: 156

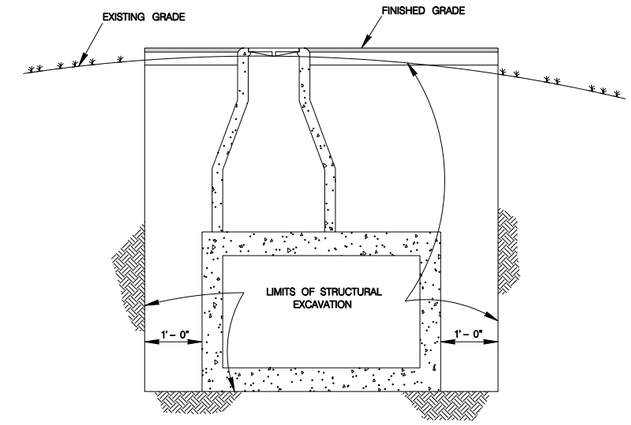


NOTE:
1. SEE SPECIFICATION ITEM 400 FOR OPTIONAL BACKFILL METHOD AND OTHER REQUIREMENTS.
2. SECONDARY BACKFILL SHALL BE PLACED IN NO MORE THAN 10 INCH LIFTS AND TESTED FOR DENSITIES, AS SPECIFIED IN ITEM 400, IMMEDIATELY AFTER PLACING SECONDARY FILL.

TYPICAL DETAIL

OPTIONAL DETAIL

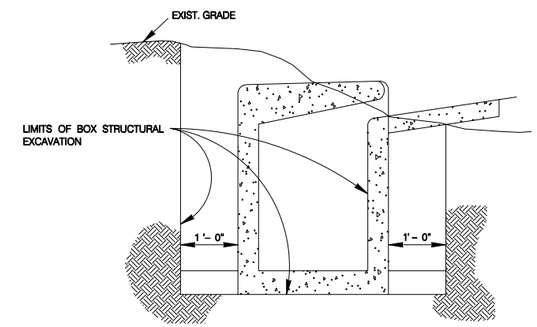
PIPE BEDDING & BACKFILL DETAILS



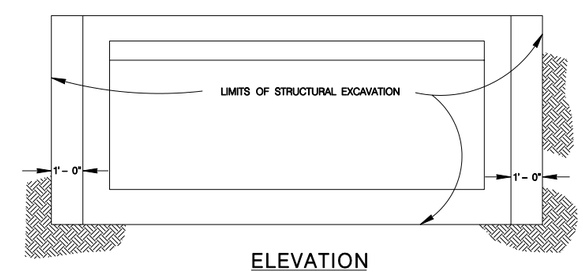
COST OF STRUCTURAL EXCAVATION TO BE INCLUDED WITH UNIT BID PRICE FOR JUNCTION BOX - ITEM 403.

STRUCTURAL EXCAVATION AT JUNCTION BOXES

NO SCALE



SIDE VIEW

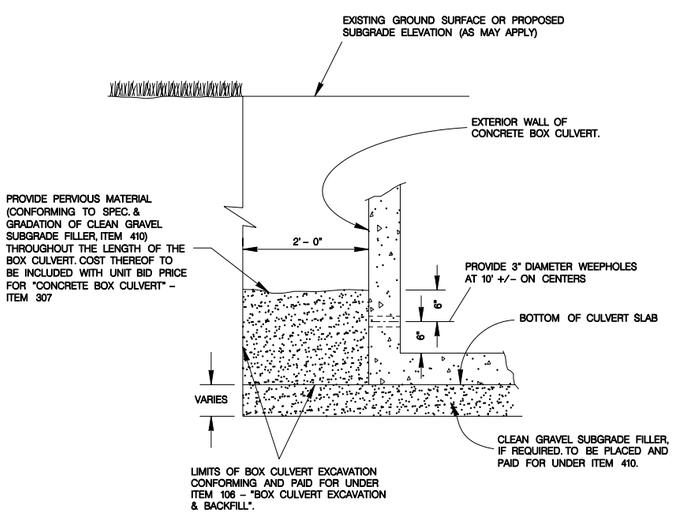


ELEVATION

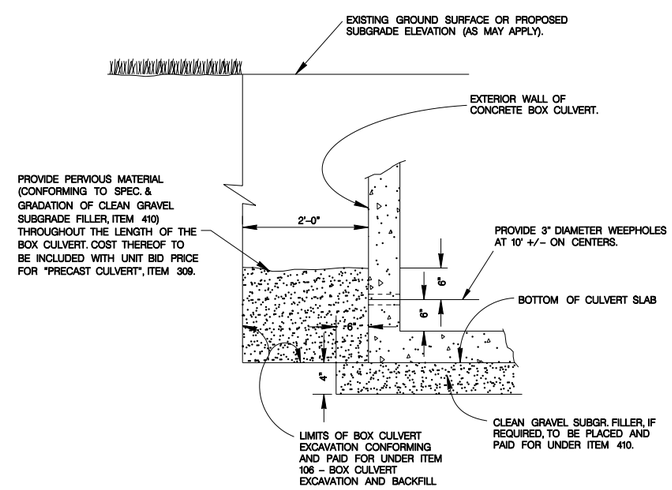
COST OF STRUCTURAL EXCAVATION TO BE INCLUDED WITH UNIT BID PRICE FOR INLETS - ITEM 403.

STRUCTURAL EXCAVATIONS AT DRAINAGE INLETS

NO SCALE



CAST-IN-PLACE BOX CULVERT



PRECAST BOX CULVERT

CONCRETE BOX CULVERT

MAY 2009

CITY OF SAN ANTONIO
CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT

PIPE BEDDING & MISCELLANEOUS DRAINAGE DETAILS

% SUBMITTAL	PROJECT NO.:		DATE:
DRWN. BY:	DSGN. BY:	CHKD. BY:	SHEET NO.: 157

1. CONCRETE FOR STRUCTURE SHALL BE CLASS "A," 3,000 P.S.I. AT 28 DAYS.

2. ALL EXPOSED EDGES SHALL BE CHAMFERED 3/4".

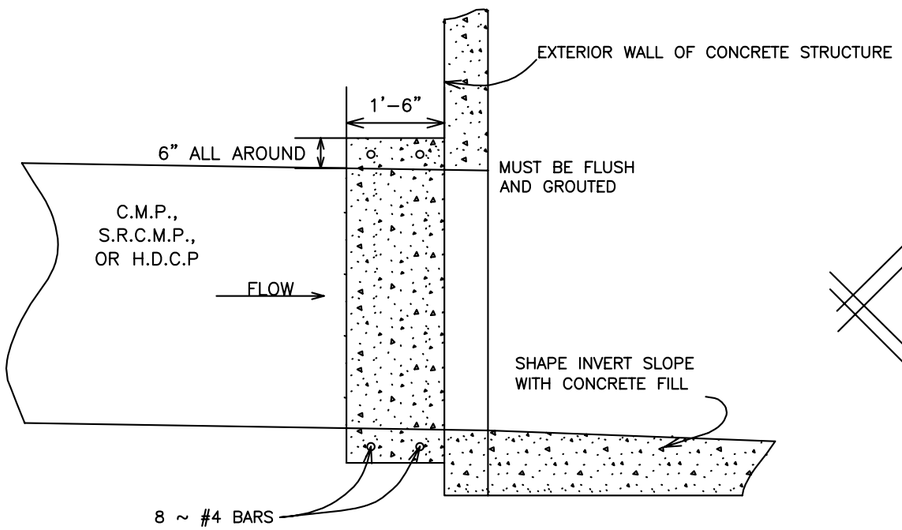
3. REINFORCING STEEL SHALL BE NEW BILLET STEEL, INTERMEDIATE GRADE, ASTM. A–15. THE DEFORMATION SHALL CONFORM TO ASTM. A–305.

4. ALL DIMENSIONS RELATING TO REINFORCING STEEL ARE TO CENTER OF BARS.

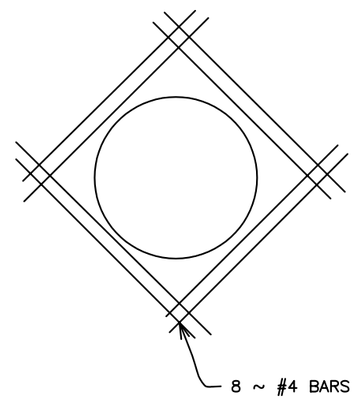
5. ALL BARS INTERCEPTING MANHOLE OPENING AND REINFORCED CONCRETE PIPE SHALL BE FIELD–CUT.

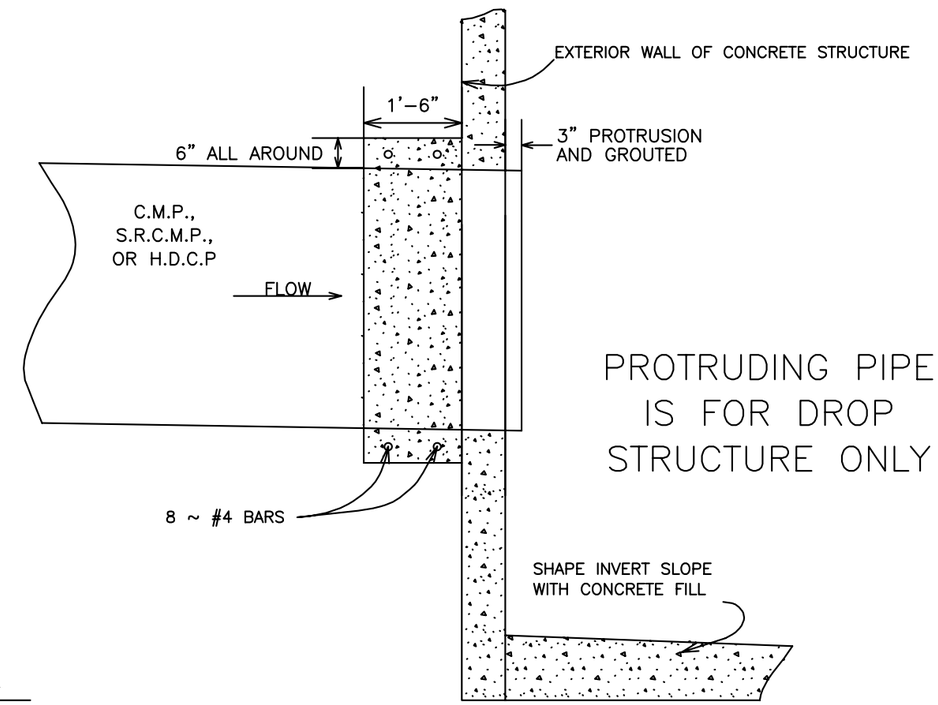
6. WHERE LAPPING OF BARS IS REQUIRED, A MINIMUM LAP OF 33 DIAMETERS SHALL BE USED.

7. INVERT OF JUNCTION BOX TO BE SHAPED WITH CONCRETE FILL (3,000 P.S.I. MIN.) TO EFFECT DRAINAGE TO OUTLET PIPE. COST SUBSIDIARY TO CLASS "A" CONCRETE (JUNCTION BOXES).



PIPE FLUSH WITH INVERT





PROTRUDING PIPE IS FOR DROP STRUCTURE ONLY

CONCRETE COLLAR DETAIL

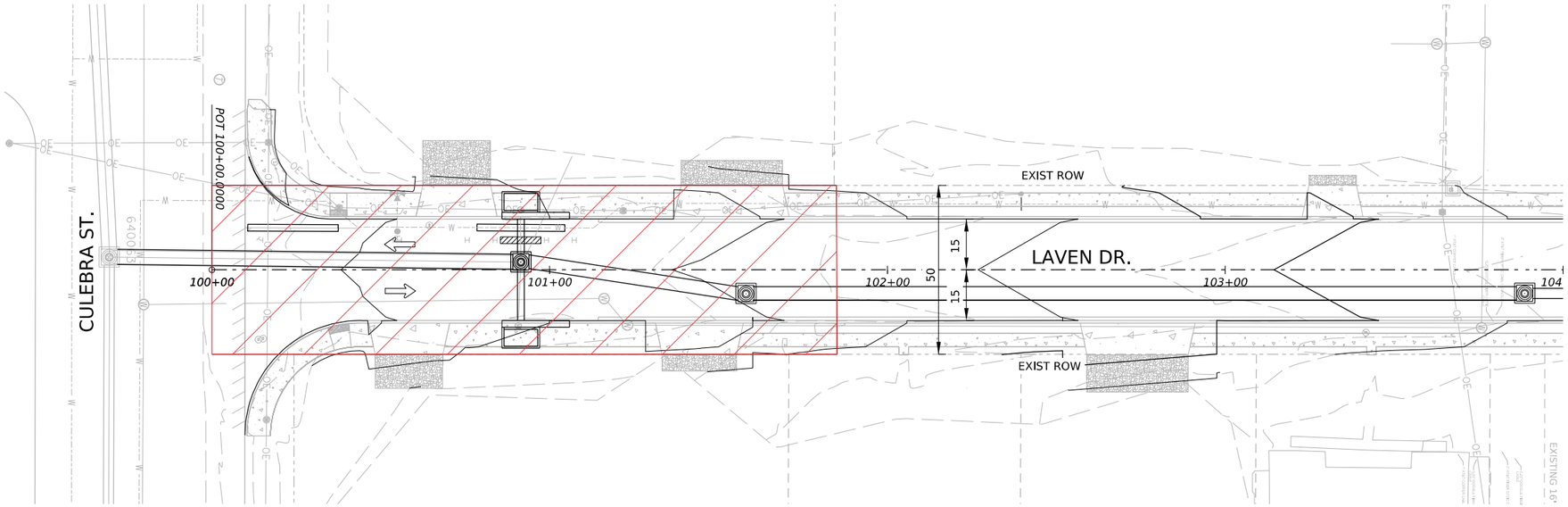
(NOT TO SCALE)

JANUARY 2006

STANDARD PLANS
CITY OF SAN ANTONIO, TEXAS
DEVELOPMENT SERVICES

CONCRETE COLLAR DETAIL

DRAWN BY: ANDREW WINTER, P.E.	DATE	REVISIONS	SCALE: SEE ABOVE
CHECKED BY: SAM DENT, P.E.			DATE: 19 JANUARY 2006
			SHEET:



NOTES

1. ALL EXCAVATION, DRILLING, REMOVAL, OR PLANTING OF TREES, AND/OR UTILITY INSTALLATION ACTIVITIES FROM STA 100+00 TO 101+85 (ALONG PROPOSED STORM SEWER AND GAS IMPROVEMENTS; ALONG LAVEN DR.) MUST BE MONITORED DURING CONSTRUCTION
2. THE CONTRACTOR MUST PROVIDE PWD EMD AND INSPECTOR 48 HOURS' NOTICE WHEN EXCAVATION, DRILLING, OR DISTURBANCE OF SOILS ACTIVITIES WIL BE OCCURING. PWD WILL PROVIDE ENVIRONMENTAL CONSULTANT AND CONTAINERS IF CONTAMINATION IS FOUND
3. EXCAVATION, DRILLING, OR DISTURBANCE ACTIVITIES CANNOT OCCUR WITHOUT AN ENVIRONMENTAL CONSULTANT PRESENT. PWD EMD POINT OF CONTACT IS KRISTI SILVERIO AT (210)-232-2613
4. ALTHOUGH EXTENSIVE ASSESSMENT HAS BEEN PERFORMED BY THE CITY, IF THE CONTRACTOR DETECTS ANY NUISANCE ODORS (FUEL), OR STAINING OF SOILS IN OTHER AREAS NOT DEPICTED IN THIS PLAN SHEET, PLEASE STOP IMMEDIATELY AND NOTIFY THE CITY'S INSPECTOR AND EMD. OUR ENVIRONMENTAL CONSULTANT WILL BE MOBILIZED TO ASSESS THE SITUATION AND PROVIDE ASSISTNANCE.

LEGEND

ENVIRONMENTAL CONCERN AREA

GRAPHIC SCALE

0 10 20 40 60

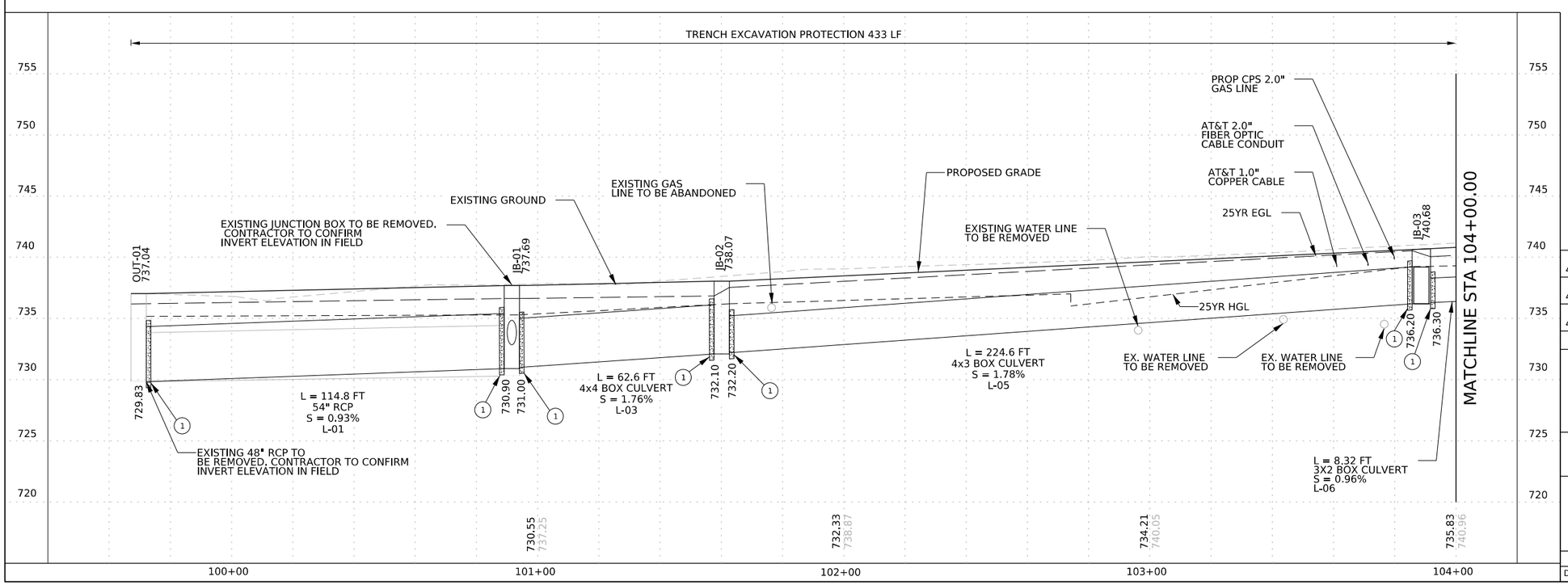
1" = 40'

HORIZONTAL SCALE

0 2.5 5 10 15

1" = 10'

VERTICAL SCALE



STATE OF TEXAS
MARTIN M. GONZALES
121996
LICENSED
PROFESSIONAL ENGINEER

5.28.25

NO.	REVISION	BY	DATE
3			
2			
1			

AG3 Group, LLC
ENGINEERING • SURVEY • CONSTRUCTION

4800 FREDERICKSBURG RD SUITE 200SL
SAN ANTONIO, TX 78229
P:210-208-9400 F:210-208-9401
TBPE #F-21809
TBPLS #10194622

CITY OF SAN ANTONIO

PUBLIC WORKS DEPARTMENT

CULEBRA AREA STREETS

ENVIRONMENTAL LAYOUT

100% SUBMITTAL	PROJECT NO: 23-03873		DATE: 05/28/2025
DRWN. BY: SS	DSGN. BY: SS	CHKD. BY: MG	SHEET NO: 159

5/28/2025 3:27:56 AM
R:\ESC 23004 Culebra Part Area Street (CoSA)\07_Sheets\12_Environmental\ENVIRONMENTAL REQUESTED SHEET\COSA_CULEBRA_LAVEN DR_ENVIRONMENTAL_01.dgn

EPA & TCEQ Construction General Permit - Checklist of Record Keeping Responsibilities
City of San Antonio (COSA) - January-2015

ENGINEER

Pre Construction

- Design of structural controls
- Development of SWP3
- Development of SWP3 site diagram(s) including grading plans/contours anticipated at initial, interim and final grade
- Development of project phasing schedule
- Water Pollution Abatement Plan (WPAP) (Edwards Aquifer)
- AST Plan (Edwards Aquifer)
- Environmental Preconstruction Meeting

During Construction

- Evaluation of BMP effectiveness
- Review of SWP3 Modifications

Post Construction

- Close Out Inspection
  - o Ensure removal of temporary BMPs,
  - o Verify correct installation of permanent BMPs,
  - o Assess final stabilization achieved to allow Notice of Termination

COSA CONSTRUCTION PROJECT MANAGER

Pre Construction

- Review SWP3 Plans
- Environmental Preconstruction Meeting
- Conduct SWP3 Training (EPA only)

Construction

- Ensure inspections are performed and document every 7 days
- Ensure maintenance of up to date copies of SWP3 and associated records
  - o Corrective Action Documentation- within 7 days of time of discovery (EPA)
  - o Maintenance- document if unable to fix/install item within 7 days. (EPA)
- Ensure records of rainfall events are being maintained
  - o Rainfall during normal business hours that measures 0.25 inches or greater (EPA)
    - o Rainfall- record of total rainfall measured and the approximate beginning and ending dates of winter or drought conditions resulting in monthly frequency of inspections (TCEQ)
- Follow up on incidents and spill reports to ensure proper corrective actions
  - o Construction Manager would be responsible for notifying COSA Environmental of a Reportable Quantity Release (e.g., sheen on water, 25 gallons of "oil" to land, etc.)
  - o Provide a description of spills and incidents & information obtained regarding quality and quantity of stormwater discharges to COSA Environmental.
- Ensure completion of the Grading Log (dates when activities start and end) and Construction Activities Log (daily)
  - o Ensure Construction Activities Log includes dates when construction activities temporarily or permanently cease on site (TCEQ) and dates when stabilization measures are initiated
- Ensure upkeep of the on-site Material Inventory
- Coordinate between Contractor, COSA, and Engineer when the SWP3 requires modification and/or when BMPs are not effective, are missing, or need maintenance/repair
- Ensure contractor is noting SWP3 accordingly (Dates of installment of BMPs, removal of BMPs, maintenance of BMPS, concrete washout pits date of install and removal, etc.)

Post Construction

- Close Out Inspection
  - o Ensure removal of temporary BMPs,
  - o Verify correct installation of permanent BMPs,
  - o Assess final stabilization achieved to allow Notice of Termination

COSA ENVIRONMENTAL GROUP

Pre Construction

Review SWP3 Plans
- File Construction Site Notice with SAWS
- Environmental Preconstruction Meeting
- Conduct SWP3 Training (EPA only)
- Post Construction Site Notice

Construction

- Ensure inspections are performed and document every 7 days
- Ensure a designated SW3P inspector certifies all inspection reports.
- Ensure maintenance of up to date copies of SWP3 and associated records
  - o Corrective Action Documentation- within 7 days of time of discovery
  - o Maintenance- document if unable to fix/install item within 7 days.
- Ensure records of rainfall events are being maintained
  - o Rainfall during normal business hours that measures 0.25 inches or greater (EPA)
  - o Rainfall- record of total rainfall measured and the approximate beginning and ending dates of winter or drought conditions resulting in monthly frequency of inspections (TCEQ)
- Follow up on incidents and spill reports to ensure proper corrective actions
  - o Conduct TCEQ notification as required for spills above a reportable quantity (e.g., sheen on water, 25 gallons of "oil" to land, etc.)
- Ensure completion of the Grading Log (dates when activities start and end) and Construction Activities Log (daily)
  - o Ensure Construction Activities Log includes dates when construction activities temporarily or permanently cease on site (TCEQ) and dates when stabilization measures are initiated
- Ensure upkeep of the on-site Material Inventory
- Coordinate between Construction Project Manager, Contractor, and Engineer when the SWP3 requires modification and/or when BMPs are not effective, are missing, or need maintenance/repair
- Ensure Contractor is noting SWP3 accordingly (Dates of installment of BMPs, removal of BMPs, maintenance of BMPS, concrete washout pits date of install and removal, etc.)

Post Construction

- Close Out Inspection
  - o Ensure removal of temporary BMPs,
  - o Verify correct installation of permanent BMPs
  - o Ensure removal of posted SW3P documents
  - o Assess final stabilization achieved to allow Notice of Termination
- Obtain and file all records associated with the TPDES/NPDES permit activities at the project for 3 years
- Terminate Construction Site Notice with SAWS
- File Notice of Termination, when appropriate

CONTRACTOR

Pre Construction

- **Review SWP3 Plans**
- **File Construction Site Notice with SAWS**
- **Provide the name, company, and certification of the stormwater Inspector [see COSA Ordinance Sec. 34-805 (q)]**
- **Environmental Preconstruction Meeting**
- **Conduct SWP3 Training (EPA only)**
- **Post Construction Site Notice**

Construction

- **Conduct inspections every 7 days and maintain records of inspections and corrective actions**
- **Ensure a designated SW3P Inspector certifies all Inspection reports**
- **Maintain up to date copies of SWP3 and associated records**
  - **o Corrective Action Documentation- within 7 days of time of discovery (EPA)**
  - **o Maintenance- document if unable to fix/install item within 7 days. (EPA)**
- **Record rainfall events and maintain documentation with the SWP3**
  - **o Rainfall during normal business hours that measures 0.25 inches or greater (EPA)**
  - **o Rainfall- record of total rainfall measured and the approximate beginning and ending dates of winter or drought conditions resulting in monthly frequency of inspections (TCEQ)**
- **Conduct and record environmental monitoring-**
  - **o Retain all related records including: TSS (Once per week), Turbidity (Twice per day upstream and downstream) (EPA)**
  - **o Sampling-(onsite batch plant) document if sampling is not completed within the first 30 minutes of discharge (TCEQ).**
- **Follow up on incidents and spill reports to ensure proper corrective actions**
  - **o Notify Construction Site Project Manager immediately of spills above a reportable quantity (e.g., sheen on water, 25 gallons of "oil" to land, etc.)**
  - **o Provide a description of spills and incidents & information obtained regarding quality and quantity of stormwater discharges to the Project Manager, as necessary.**
- **Complete the Grading Log (dates when activities start and end) and Construction Activities Log (daily)**
  - **o Ensure Construction Activities Log includes dates when construction activities temporarily or permanently cease on site (TCEQ) and dates when stabilization measures are initiated**

CONTRACTOR (Cont'd)

- **Follow up on incidents and spill reports to ensure proper corrective actions**
  - **o Notify Construction Site Project Manager immediately of spills above a reportable quantity (e.g., sheen on water, 25 gallons of "oil" to land, etc.)**
  - **o Provide a description of spills and incidents & information obtained regarding quality and quantity of stormwater discharges to the Project Manager, as necessary.**
- **Complete the Grading Log (dates when activities start and end) and Construction Activities Log (daily)**
  - **o Ensure Construction Activities Log includes dates when construction activities temporarily or permanently cease on site (TCEQ) and dates when stabilization measures are initiated**
- **Maintain an on-site Material Inventory**
- **Update SWP3 to depict actual locations and types of BMPs, potential pollutant sources, etc., as the project proceeds.**
- **Coordinate between Construction Project Manager, COSA Environmental, and Engineer when the SWP3 requires modification and/or when BMPs are not effective, are missing, or need maintenance/repair**
- **Ensure SWP3 is being noted accordingly (Dates of installment of BMPs, removal of BMPs, maintenance of BMPS, concrete washout pits date of install and removal, etc.)**

Post Construction

- **Close Out Inspection**
  - **o Ensure removal of temporary BMPs,**
  - **o Verify correct installation of permanent BMPs,**
  - **o Assess final stabilization achieved to allow Notice of Termination**
- **Provide COSA Environmental with copies of all records associated with the TPDES/NPDES Permit**
- **Maintain a copy of these records for Contractor Permit compliance for 3 years following submittal of the Notice of Termination**
- **File Notice of Termination, when appropriate**

Close Out Inspection

- **o Ensure removal of temporary BMPs,**
- **o Verify correct installation of permanent BMPs,**
- **o Assess final stabilization achieved to allow Notice of Termination**
- **o Ensure removal of posted SW3P documents**
- **o Obtain and file all records associated with the TPDES/NPDES Permit activities at the project for 3 years**
- **o Termnate Construction Site Notice with SAWS**

JANUARY 2015

CITY OF SAN ANTONIO

STORM WATER POLLUTION GENERAL NOTES

____% SUBMITTAL	PROJECT NO.:_____		DATE:_____
DRWN. BY:_____	DSGN. BY:_____	CHKD. BY:_____	SHEET NO.: 160

I. STORMWATER POLLUTION PREVENTION-CLEAN WATER ACT SECTION 402

TPDES TXR 150000: Stormwater Discharge Permit or Construction General Permit required for projects with 1 or more acres disturbed soil. Projects with any disturbed soil must protect for erosion and sedimentation in accordance with Item 540.

List MS4 Operator(s) that may receive discharges from this project. They may need to be notified prior to construction activities.

1. San Antonio Water System

2.

☐ No Action Required ☒ Required Action

Action No.

1. Prevent stormwater pollution by controlling erosion and sedimentation in accordance with TPDES Permit TXR 150000
2. Comply with the SW3P and revise when necessary to control pollution or required by the Engineer.
3. Post Construction Site Notice (CSN) with SW3P information on or near the site, accessible to the public and TCEQ, EPA or other inspectors.
4. SW3P inspections shall be conducted by a P.E., or a certified inspector in accordance with COSA Ordinance Sec. 34-805(q).

II. WORK IN OR NEAR STREAMS, WATERBODIES AND WETLANDS CLEAN WATER ACT SECTIONS 401 AND 404

USACE Permit required for filling, dredging, excavating or other work in any water bodies, rivers, creeks, streams, wetlands or wet areas.

The Contractor must adhere to all of the terms and conditions associated with the following permit(s):

☒ No Permit Required

☐ Nationwide Permit 14 - PCN not Required (less than 1/10th acre waters or wetlands affected)

☐ Nationwide Permit 14 - PCN Required (1/10 to <1/2 acre, 1/3 in tidal waters)

☐ Individual 404 Permit Required

☐ Other Nationwide Permit Required: NWP# _____

Required Actions: List waters of the US permit applies to, location in project and check Best Management Practices planned to control erosion, sedimentation and post-project TSS.

1.

2.

3.

4.

The elevation of the ordinary high water marks of any areas requiring work to be performed in the waters of the US requiring the use of a nationwide permit can be found on the Bridge Layouts.

Best Management Practices:

Erosion	Sedimentation	Post-Construction TSS
☐ Temporary Vegetation	☐ Silt Fence	☐ Vegetative Filter Strips
☐ Blankets/Matting	☐ Rock Berm	☐ Retention/Irrigation Systems
☐ Mulch	☐ Triangular Filter Dike	☐ Extended Detention Basin
☐ Sodding	☐ Sand Bag Berm	☐ Constructed Wetlands
☐ Interceptor Swale	☐ Straw Bale Dike	☐ Wet Basin
☐ Diversion Dike	☐ Brush Berms	☐ Erosion Control Compost
☐ Erosion Control Compost	☐ Erosion Control Compost	☐ Mulch Filter Berm and Socks
☐ Mulch Filter Berm and Socks	☐ Mulch Filter Berm and Socks	☐ Compost Filter Berm and Socks
☐ Compost Filter Berm and Socks	☐ Compost Filter Berm and Socks	☐ Vegetation Lined Ditches
	☐ Stone Outlet Sediment Traps	☐ Sand Filter Systems
	☐ Sediment Basins	☐ Grassy Swales

III. CULTURAL RESOURCES

Cultural resources fall under the Antiguities Code of Texas and/or the National Historic Preservation Act, as amended in 1966. If a previously unidentified archeological site is encountered during construction work, activities in the vicinity shall be stopped immediately and the City Archeologist (210-207-5421) and/or the SHPO notified.

☐ No Action Required ☒ Required Action

Action No.

1. If a historic resource (concrete stamp, carriage block, metal fixture, tile, masonry, etc.) is found that is not in the plans or has not been previously assessed, contact the Office of Historic Preservation immediately at (210) 207-0035.
2.
3.
4.

IV. VEGETATION RESOURCES

Preserve native vegetation to the extent practical.
Contractor must adhere to Construction Specification Requirements Specs 162, 164, 192, 193, 506, 730, 751, 752 in order to comply with requirements for invasive species, beneficial landscaping, and tree/brush removal commitments.

☐ No Action Required ☒ Required Action

Action No.

1. Ensure that a tree permit is in place for this project, if required.
2. Follow the tree preservation/mitigation plan provided in the design plan set. If there are any questions or concerns, please contact the City Arborist at (210) 207-0278, before any work begins.
3.
4.

V. FEDERAL LISTED, PROPOSED THREATENED, ENDANGERED SPECIES, CRITICAL HABITAT, STATE LISTED SPECIES, CANDIDATE SPECIES AND MIGRATORY BIRDS.

☐ No Action Required ☒ Required Action

Action No.

1. MIGRATORY BIRD NESTS: Schedule construction activities as needed to meet the following requirements:
   A. Do not remove or destroy any active migratory bird nests (nests containing eggs and/or flightless birds) at any time of year. If there are any active nests, they shall not be removed until the nests become inactive.
   B. On/in structures, if there are any active nests, they shall not be removed until all nests become inactive. After inactive nests are removed and/or before nest activity begins, deterrent materials may be applied to the structures to prevent future nest building.
2. Detterent material should be placed (and maintained) after October 1 or before February 15.
3. The preferred nesting season for migratory birds is from February 15 through October 1. When practicable, schedule construction operations outside of the preferred nesting season.
4. If any of the listed species are observed, cease work in the immediate area, do not disturb species or habitat and contact the COSA Inspector immediately. The work may not remove active nests from bridges and other structures during nesting season of the birds associated with the nests. If caves or sinkholes are discovered, cease work in the immediate area, and contact the COSA Inspector immediately.
5. If any sensitive feature (caves, subsurface voids, etc) is discovered during construction, all construction activities near the sensitive feature must be suspended immediately. The Construction Inspector shall be immediately notified of any sensitive features encountered during construction. The construction activities near the sensitive feature may not proceed until a US Fish and Wildlife Service (USFWS) permitted biologist has assessed the site for evidence of habitat or listed endangered species. If it is determined that endangered species or their habitat is present within the void space, consultations with USFWS will commence and work within the immediate vicinity of the sensitive feature will not be allowed to proceed until USFWS approval has been received.

LIST OF ABBREVIATIONS

BMP:	Best Management Practice	SPCC:	Spill Prevention Control and Countermeasure
CGP:	Construction General Permit	SW3P:	Storm Water Pollution Prevention Plan
DSHS:	Texas Department of State Health Services	PCN:	Pre-Construction Notification
FHWA:	Federal Highway Administration	PSL:	Project Specific Location
MOA:	Memorandum of Agreement	TCEQ:	Texas Commission on Environmental Quality
MOU:	Memorandum of Understanding	TPDES:	Texas Pollutant Discharge Elimination System
MS4:	Municipal Separate Stormwater Sewer System	TPWD:	Texas Parks and Wildlife Department
MBTA:	Migratory Bird Treaty Act	TxDOT:	Texas Department of Transportation
NOT:	Notice of Termination	T&E:	Threatened and Endangered Species
NWP:	Nationwide Permit	USACE:	U.S. Army Corps of Engineers
NOI:	Notice of Intent	USFWS:	U.S. Fish and Wildlife Service

VI. HAZARDOUS MATERIALS OR CONTAMINATION ISSUES

General (applies to all projects):

Comply with the Hazard Communication Act (the Act) for personnel who will be working with hazardous materials by conducting safety meetings prior to beginning construction and making workers aware of potential hazards in the workplace. Ensure that all workers are provided with personal protective equipment appropriate for any hazardous materials used.

Obtain and keep on-site Safety Data Sheets (SDS) for all hazardous products used on the project, which may include, but are not limited to the following categories: Paints, acids, solvents, asphalt products, chemical additives, fuels and concrete curing compounds or additives. Provide protected storage, off bare ground and covered, for products which may be hazardous. Maintain product labelling as required by the Act.

Maintain an adequate supply of on-site spill response materials, as indicated in the SDS. In the event of a spill, take actions to mitigate the spill as indicated in the SDS, in accordance with safe work practices, and contact the District Spill Coordinator immediately. The Contractor shall be responsible for the proper containment and cleanup of all product spills.

Contact the Engineer if any of the following are detected:

* Dead or distressed vegetation (not identified as normal)
* Trash piles, drums, canister, barrels, etc.
* Undesirable smells or odors
* Evidence of leaching or seepage of substances

Does the project involve any bridge class structure rehabilitation or replacements (bridge class structures not including box culverts)?

☐ Yes ☒ No

If "No", then no further action is required.
If "Yes", then COSA is responsible for completing asbestos assessment/inspection.

Are the results of the asbestos inspection positive (is asbestos present)?

☐ Yes ☒ No

If "Yes", then COSA must retain a DSHS licensed asbestos consultant to assist with the notification, develop abatement/mitigation procedures, and perform management activities as necessary. The notification form to DSHS must be postmarked at least 15 working days prior to scheduled demolition.

If "No", then COSA is still required to notify DSHS 15 working days prior to any scheduled demolition.

In either case, the Contractor is responsible for providing the date(s) for abatement activities and/or demolition with careful coordination between the Engineer and asbestos consultant in order to minimize construction delays and subsequent claims.

Any other evidence indicating possible hazardous materials or contamination discovered on site. Hazardous Materials or Contamination Issues Specific to this Project:

☐ No Action Required ☒ Required Action

Action No.

1. If any odors or impacted soils are observed between STA 100+10 and 101+85, stop work and immediately report to on-site EMD.
2.
3.

VII. OTHER ENVIRONMENTAL ISSUES

(includes regional issues such as Edwards Aquifer District, etc.)

☐ No Action Required ☒ Required Action

Action No.

1. If AC Pipe needs to be removed due to conflcits with the City's infrastructure, the Contractor is responsibiie for following the City Asbestos Removal Specifications. If the removal is due to conflicts with SAW's infrastructure, the constractor must follow SAWS 3000 specifications.
2.
3.

Culebra Park (Area Streets)

ENVIRONMENTAL PERMITS, ISSUES AND COMMITMENTS

EPIC

FILE: epic.dgn	DN: TxDOT	CK: RG	DW: VP	CK: AR
© TxDOT: February 2015	CONT	SECT	JOB	HIGHWAY
REVISIONS 12-12-2011 (DS) 05-07-14 ADDED NOTE SECTION IV. 01-23-2015 SECTION I (CHANGED ITEM 1122 TO ITEM 506, ADDED GRASSY SWALES.	DIST	COUNTY		SHEET NO. 161

DATE:
FILE:

STORMWATER POLLUTION PREVENTION PLAN (SWP3):

This SWP3 has been developed in accordance with the TPDES

Construction General Permit TXR150000 (CGP). The City of Antonio Water ensures that project specifications include adequate best management practices (BMPs) for this project.

For all projects with any soil disturbing activities, the Contractor will maintain a SW3P with all pertinent records, correspondence, environmental documents, etc. at the project field office. If no field office is available, then this SWP3 shall be kept in the contractor's local office.

This SWP3 is consistent with requirements specified in applicable stormwater plans and the projects environmental permits, issues, and commitments (EPICs). A copy of the CGP is included in the SWP3 binder.

1.0 SITE/PROJECT DESCRIPTION

1.1 PROJECT CONTROL SECTION JOB (CSJ):

1.2 PROJECT LIMITS:

From: LAVEN ST., PETTUS ST., RITA ST., BRENDELL ST.

To: LAVEN ST., PETTUS ST., RITA ST., BRENDELL ST.

1.3 PROJECT COORDINATES:

BEGIN: (Lat) 29°26'54.79" N ,(Long) 98°35'24.10" W

END: (Lat) 29°27'01.81" N ,(Long) 98°35'06.90" W

1.4 TOTAL PROJECT AREA (Acres):

1.5 TOTAL AREA TO BE DISTURBED (Acres): 4.97

1.6 NATURE OF CONSTRUCTION ACTIVITY:

REBUILD EXISTING ROAD, ADD CURB AND GUTTER ADD SIDEWALK, INSTALL UNDERGROUND STORM SYSTEM, UPGRADE UTILITIES.

1.7 MAJOR SOIL TYPES:

Soil Type	Description
AUSTIN SILTY CLAY	89.1%
HOUSTON BLACK CLAY	9.4%
HOUSTON BLACK GRAVELLY CLAY	1.5%

1.8 PROJECT SPECIFIC LOCATIONS (PSLs):

PSLs must be depicted on the Environmental Layout Sheets in this SWP3. PSLs may be identified during preconstruction meetings or during the construction process. Please choose from the options below:

- ☐ PSLs determined during preconstruction meeting
- ■ PSLs determined during construction
- ☐ No PSLs planned for construction

Type	Sheet #s
STORAGE/STAGING AREA(S)	TBD

All off-ROW PSLs required by the Contractor are the Contractor's responsibility. The Contractor shall secure all permits required by local, state, federal laws for off-ROW PSLs. The contractor shall provide diagrams, areas of disturbance, acreage, and BMPs for all off-ROW PSLs within one mile of the project.

1.9 CONSTRUCTION ACTIVITIES:

(Use the following list as a starting point when developing the Construction Activity Schedule and Ceasing Record in Attachment 2.5.)

- ☐ Mobilization
- ■ Install sediment and erosion controls
- ■ Blade existing topsoil into windrows, prep ROW, clear and grub
- ■ Remove existing pavement
- ■ Grading operations, excavation, and embankment
- ■ Excavate and prepare subgrade for proposed pavement widening
- ☐ Remove existing culverts, safety end treatments (SETs)
- ☐ Remove existing metal beam guard fence (MBGF), bridge rail
- ■ Install proposed pavement per plans
- ☐ Install culverts, culvert extensions, SETs
- ☐ Install mow strip, MBGF, bridge rail
- ☐ Place flex base
- ☐ Rework slopes, grade ditches
- ☐ Blade windrowed material back across slopes
- ■ Revegetation of unpaved areas
- ■ Achieve site stabilization and remove sediment and erosion control measures
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

1.10 POTENTIAL POLLUTANTS AND SOURCES:

- ■ Sediment laden stormwater from stormwater conveyance over disturbed area
- ■ Fuels, oils, and lubricants from construction vehicles, equipment, and storage
- ■ Solvents, paints, adhesives, etc. from various construction activities
- ■ Transported soils from offsite vehicle tracking
- ■ Construction debris and waste from various construction activities
- ■ Contaminated water from excavation or dewatering pump-out water
- ■ Sanitary waste from onsite restroom facilities
- ■ Trash from various construction activities/receptacles
- ☐ Long-term stockpiles of material and waste
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

1.11 RECEIVING WATERS:

Receiving waters must be depicted on the Environmental Layout Sheets in Attachment 1.2 of this SWP3. Include Segment # for receiving waters.

Tributaries	Classified Waterbody
ZARZAMORA CREEK	SAN ANTONIO RIVER 1911-(BACTERIA, IMPAIRED MACROBENTHIC AND FISH COMMUNITIES)
APACHE CREEK 1911B* (BACTERIA)	
SAN PEDRO CREEK 1911D* (BACTERIA)	

* Add (*) for impaired waterbodies with pollutant in ().

1.12 ROLES AND RESPONSIBILITIES: COSA

- X Development of plans and specifications
- ☐ Submit Notice of Intent (NOI) to TCEQ (≥5 acres)
- ☐ Post Construction Site Notice
- X Submit NOI/CSN to local MS4
- ☐ Perform SWP3 inspections
- ☐ Maintain SWP3 records and update to reflect daily operations
- ☐ Complete and submit Notice of Termination to TCEQ
- X Maintain SWP3 records for 3 years
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

1.13 ROLES AND RESPONSIBILITIES: CONTRACTOR

- X Day To Day Operational Control
- X Submit Notice of Intent (NOI) to TCEQ (≥5 acres)
- X Post Construction Site Notice
- X Submit NOI/CSN to local MS4
- X Maintain schedule of major construction activities
- X Install, maintain and modify BMPs
- X Complete and submit Notice of Termination to TCEQ
- X Maintain SWP3 records for 3 years
- X Other: Perform SWP3 inspections
- ☐ Other: _____
- ☐ Other: _____

1.14 LOCAL MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4) OPERATOR COORDINATION:

MS4 Entity
SAN ANTONIO WATER SERVICE (SAWS)

STORMWATER POLLUTION PREVENTION PLAN (SWP3)

Sheet 1 of 2

CITY OF SAN ANTONIO

PUBLIC WORKS DEPARTMENT

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
STATE	STATE DIST.	COUNTY	
TEXAS			
CONT.	SECT.	JOB	HIGHWAY NO.

STORMWATER POLLUTION PREVENTION PLAN (SWP3):

2.0 BEST MANAGEMENT PRACTICES (BMPs) AND CONTROLS, INSPECTION, AND MAINTENANCE

The Contractor shall be the responsible party for implementing the BMPs described herein and for complying with the SWP3 for control of erosion and sedimentation during day-to-day operations. The Contractor shall implement changes to this SWP3 approved by COSA within the times specified in this SWP3 or the CGP.

2.1 EROSION CONTROL AND SOIL STABILIZATION BMPs:

T / P

- ■ ☐ Protection of Existing Vegetation
- ☐ ☐ Vegetated Buffer Zones
- ☐ ☐ Soil Retention Blankets
- ☐ ☐ Geotextiles
- ■ ☐ Mulching/ Hydromulching
- ☐ ☐ Soil Surface Treatments
- ☐ ☐ Temporary Seeding
- ■ ☐ Permanent Planting, Sodding or Seeding
- ■ ☐ Biodegradable Erosion Control Logs
- ☐ ☐ Rock Filter Dams/ Rock Check Dams
- ☐ ☐ Vertical Tracking
- ☐ ☐ Interceptor Swale
- ☐ ☐ Riprap
- ☐ ☐ Diversion Dike
- ☐ ☐ Temporary Pipe Slope Drain
- ☐ ☐ Embankment for Erosion Control
- ☐ ☐ Paved Flumes
- ☐ ☐ Other: _____
- ☐ ☐ Other: _____
- ☐ ☐ Other: _____
- ☐ ☐ Other: _____

2.2 SEDIMENT CONTROL BMPs:

T / P

- ■ ☐ Biodegradable Erosion Control Logs
- ☐ ☐ Dewatering Controls
- ■ ☐ Inlet Protection
- ☐ ☐ Rock Filter Dams/ Rock Check Dams
- ☐ ☐ Sandbag Berms
- ☐ ☐ Sediment Control Fence
- ☐ ☐ Stabilized Construction Exit
- ☐ ☐ Floating Turbidity Barrier
- ☐ ☐ Vegetated Buffer Zones
- ☐ ☐ Vegetated Filter Strips
- ■ ☐ Other: Disturbed areas shall be stablized within 14 days unless construction activities will resume within 21 days
- ☐ ☐ Other: _____
- ☐ ☐ Other: _____
- ☐ ☐ Other: _____

Refer to the Environmental Layout Sheets/ SWP3 Layout Sheets.

Sediment control BMPs requiring design capacity calculations (See SWP3 Attachment 1.3.):

T / P

- ☐ ☐ Sediment Trap
  - ☐ Calculated volume runoff from 2-year, 24-hour storm for each acre of disturbed area
  - ☐ 3,600 cubic feet of storage per acre drained
- ■ ☐ Sedimentation Basin
  - ■ Not required (<10 acres disturbed)
  - ☐ Required (>10 acres) and implemented.
    - ☐ Calculated volume runoff from 2-year, 24-hour storm for each acre of disturbed area
    - ☐ 3,600 cubic feet of storage per acre drained
  - ☐ Required (>10 acres), but not feasible due to:
    - ☐ Available area/Site geometry
    - ☐ Site slope/Drainage patterns
    - ☐ Site soils/Geotechnical factors
    - ☐ Public safety
    - ☐ Other: _____

2.3 PERMANENT CONTROLS:

(Coordinate post-construction BMPs with appropriate COSA maintenance sections.)

BMPs To Be Left In Place Post Construction:

Type	Stationing	
	From	To
SODDING (LAVEN DR)	STA 100+10	STA 107+18
SODDING (PETTUS ST)	STA 10+00	STA 25+27
SODDING (RITA ST)	STA 10+14	STA 23+67
SODDING (BRENDELL ST)	STA 100+05	STA 107+40

Refer to the Environmental Layout Sheets/ SWP3 Layout Sheets located in this SWP3

2.4 OFFSITE VEHICLE TRACKING CONTROLS:

- ■ Excess dirt/mud on road removed daily
- ■ Haul roads dampened for dust control
- ■ Loaded haul trucks to be covered with tarpaulin
- ■ Stabilized construction exit
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

2.5 POLLUTION PREVENTION MEASURES:

- ■ Chemical Management
- ■ Concrete and Materials Waste Management
- ■ Debris and Trash Management
- ■ Dust Control
- ■ Sanitary Facilities
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

2.6 VEGETATED BUFFER ZONES:

Natural vegetated buffers shall be maintained as feasible to protect adjacent surface waters. If vegetated natural buffer zones are not feasible due to site geometry, the appropriate additional sediment control measures have been incorporated into this SWP3.

Type	Stationing	
	From	To

Refer to the Environmental Layout Sheets/ SWP3 Layout Sheets located in this SWP3

2.7 ALLOWABLE NON-STORMWATER DISCHARGES:

- ■ Fire hydrant flushings
- ■ Irrigation drainage
- ■ Pavement washwater (where spills or leaks have not occurred, and detergents are not used)
- ■ Potable water sources
- ■ Springs
- ■ Uncontaminated groundwater
- ■ Water used to wash vehicles or control dust
- ■ Other allowable non-stormwater discharges as allowed by TPDES GP TXR150000.

2.8 INSPECTIONS:

Dewatering discharges of accumulated stormwater, groudwater, and surface water including discharges from dewatering of trenches, excavations, foundations, vaults, and other points of accumulation are prohibited unless managed by appropriate controls to prevent and minimize the offsite discharge of sediment and other pollutants.

2.9 INSPECTIONS:

All disturbed areas and erosion and sediment control devices shall be inspected at least once every seven (7) days. Inspections shall be performed by the Contractor, documented on the field inspection report form, and retained in this SWP3.

2.10 MAINTENANCE:

Control measures shall be properly installed according to specifications. If it is determined that a BMP or control measure is not operating effectively, maintenance must be accomplished as soon as possible and before the next anticipated rain event, but in no case later than 7 calendar days after being able to access the site. Maintenance shall be performed by the Contractor, documented on the field inspection report form, and retained on this SWP3.

STORMWATER POLLUTION PREVENTION PLAN (SWP3)

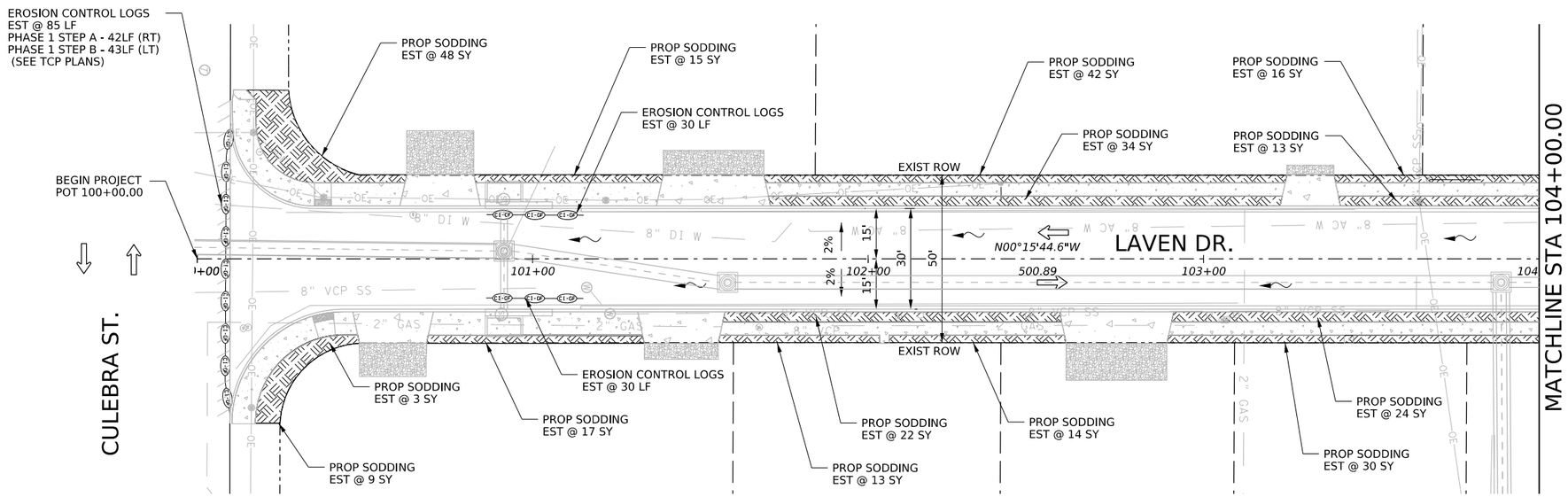
Sheet 2 of 2

CITY OF SAN ANTONIO

PUBLIC WORKS DEPARTMENT

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
STATE	STATE DIST.	COUNTY	
TEXAS			
CONT.	SECT.	JOB	HIGHWAY NO.

ESTIMATED QUANTITIES			
ITEM NO.	DESCRIPTION	UNTI	QTY
515.1	TOPSOIL (<500 C.Y.)	CY	64
516.1	BERMUDA SODDING (<2,000 S.Y.)	SY	577
0506 6040	BIODEG EROSN CONT LOGS (INSTL) (8")	LF	205

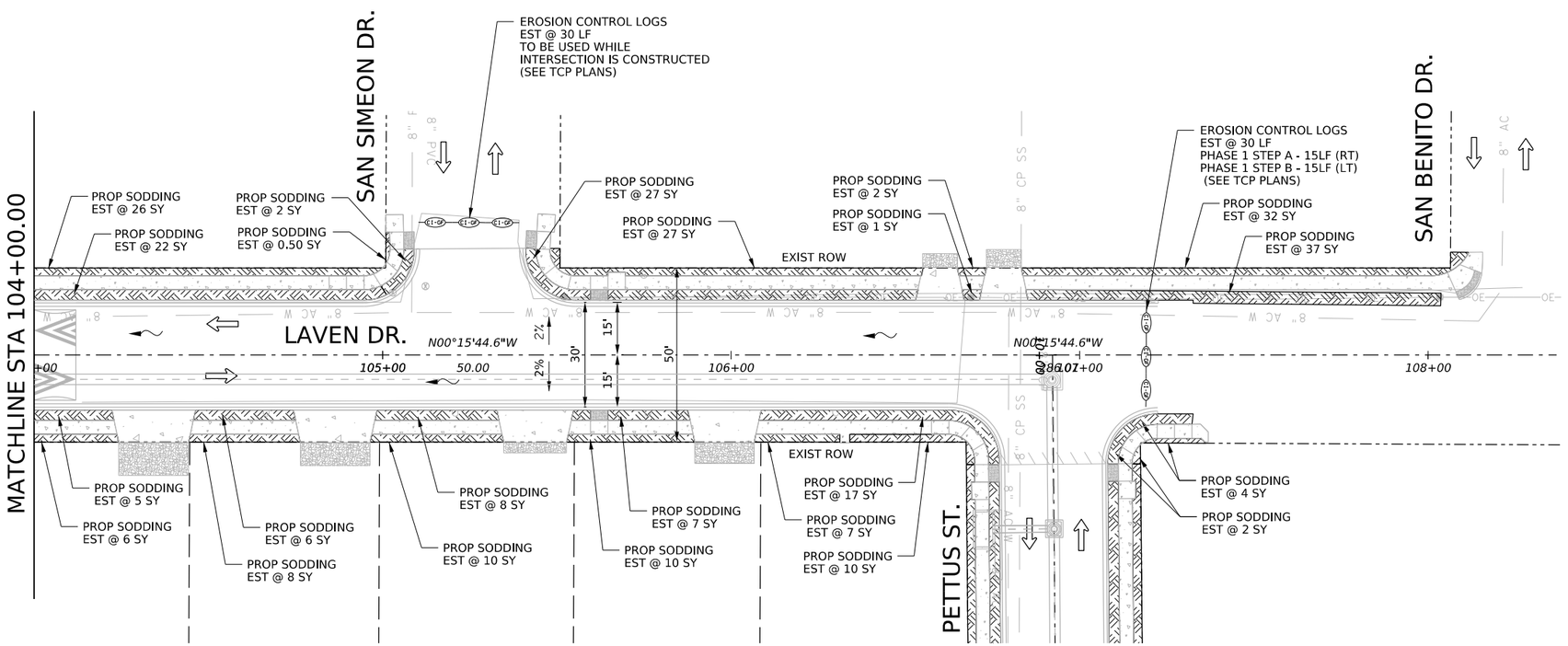


LEGEND

- PROP DRWY PNTR
- PROP CONC SDWK
- PROPERTY LINE
- EXIST ROW
- DRIVEWAY (XXX)
- TRAFFIC FLOW
- WATER FLOW
- PROP SODDING
- CONT LOGS

NOTES

1. SW3P AND SIGN BOARD LOCATIONS, PSL BMP'S LOCATIONS BEING FIELD UPDATED BY THE ON-SITE FIELD STAFF.
2. REMOVAL OF TEMPORARY BMP'S AFTER WORK COMPLETING, STABILIZING COMPLETED WORK AREAS AFTER WORK STOPS.



GRAPHIC SCALE

0 10 20 40 60

1" = 40'
HORIZONTAL SCALE

STATE OF TEXAS
MARTIN M. GONZALES
121996
LICENSED
PROFESSIONAL ENGINEER

5.28.25

NO.	REVISION	BY	DATE
3			
2			
1			

AG3 Group, LLC
ENGINEERING • SURVEY • CONSTRUCTION

4800 FREDERICKSBURG RD SUITE 200SL
SAN ANTONIO, TX 78229
P:210-208-9400 F:210-208-9401
TBPE #F-21809
TBPLS #10194622

CITY OF SAN ANTONIO
PUBLIC WORKS DEPARTMENT

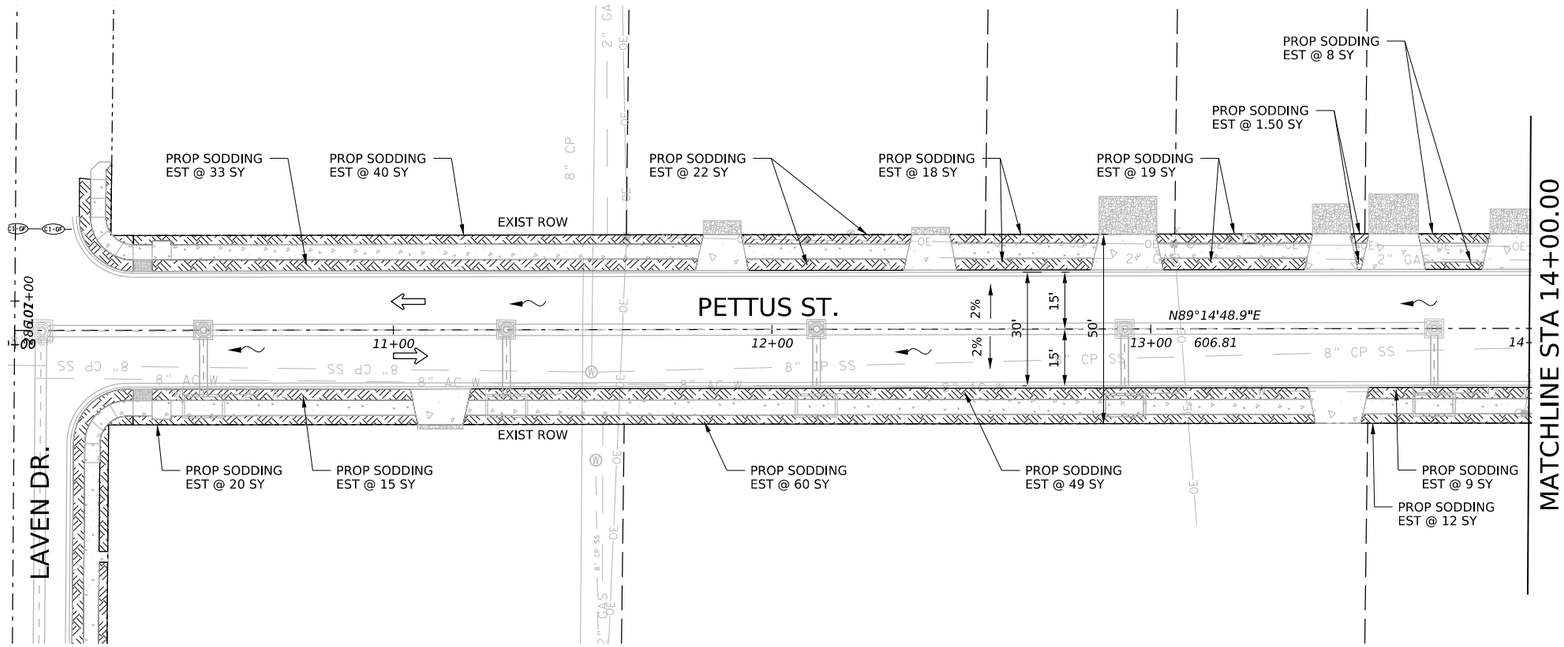
CULEBRA AREA STREETS

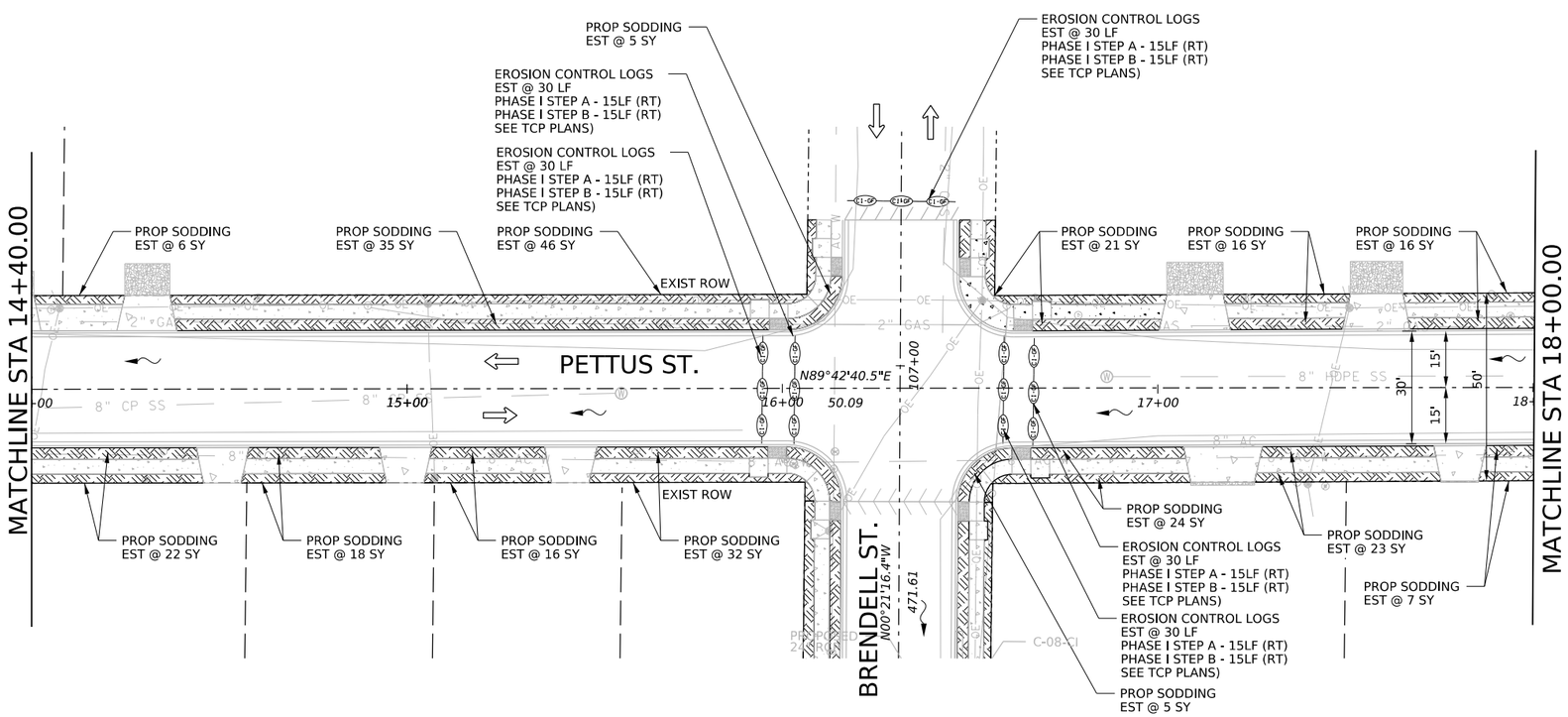
LAVEN DR. SW3P

100% SUBMITTAL	PROJECT NO: 23-03873		DATE: 05/28/2025
DRWN. BY: SS	DSGN. BY: SS	CHKD. BY: MG	SHEET NO: 164

5/21/2025 8:09:41 PM
R:\ESC 23004 Culebra Part Area Street (CoSA)\07_Sheets\12_Environmental\COSA_CULEBRA_LAVEN DR_PLAN_01.dgn

ESTIMATED QUANTITIES			
ITEM NO.	DESCRIPTION	UNTI	QTY
515.1	TOPSOIL (<500 C.Y.)	CY	67
516.1	BERMUDA SODDING (<2,000 S.Y.)	SY	599
0506 6040	BIODEG EROSN CONT LOGS (INSTL) (8")	LF	150





LEGEND

- PROP DRWY PNTR
- PROP CONC SDWK
- PROPERTY LINE
- EXIST ROW
- DRIVEWAY (XXX)
- TRAFFIC FLOW
- WATER FLOW
- PROP SODDING
- CONT LOGS

NOTES

1. SW3P AND SIGN BOARD LOCATIONS, PSL BMP'S LOCATIONS BEING FIELD UPDATED BY THE ON-SITE FIELD STAFF.
2. REMOVAL OF TEMPORARY BMP'S AFTER WORK COMPLETING, STABILIZING COMPLETED WORK AREAS AFTER WORK STOPS.

GRAPHIC SCALE

0 10 20 40 60

1" = 40'
HORIZONTAL SCALE

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TBPLS #10194622

CITY OF SAN ANTONIO
PUBLIC WORKS DEPARTMENT

CULEBRA AREA STREETS

PETTUS ST. SW3P

100% SUBMITTAL	PROJECT NO: 23-03873		DATE: 05/28/2025
DRWN. BY: SS	DSGN. BY: SS	CHKD. BY: MG	SHEET NO: 165

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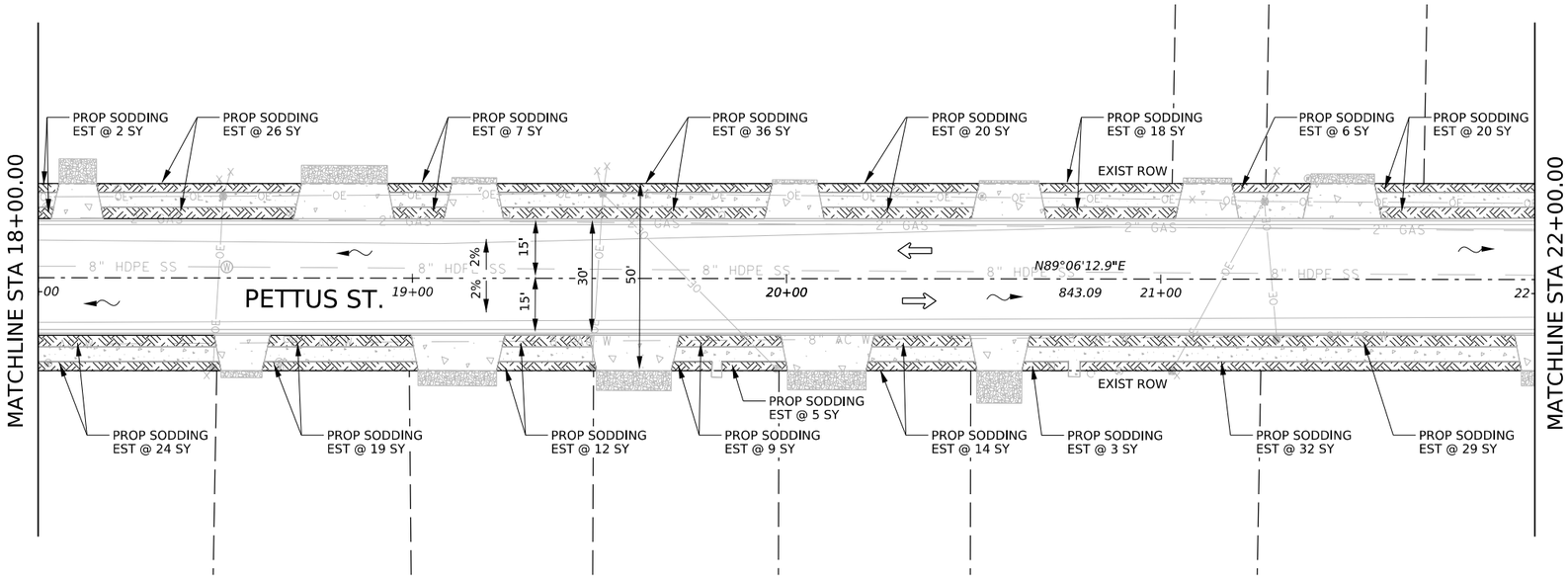
ESTIMATED QUANTITIES			
ITEM NO.	DESCRIPTION	UNTI	QTY
515.1	TOPSOIL (<500 C.Y.)	CY	52
516.1	BERMUDA SODDING (<2,000 S.Y.)	SY	470
0506 6040	BIODEG EROSN CONT LOGS (INSTL) (8")	LF	30

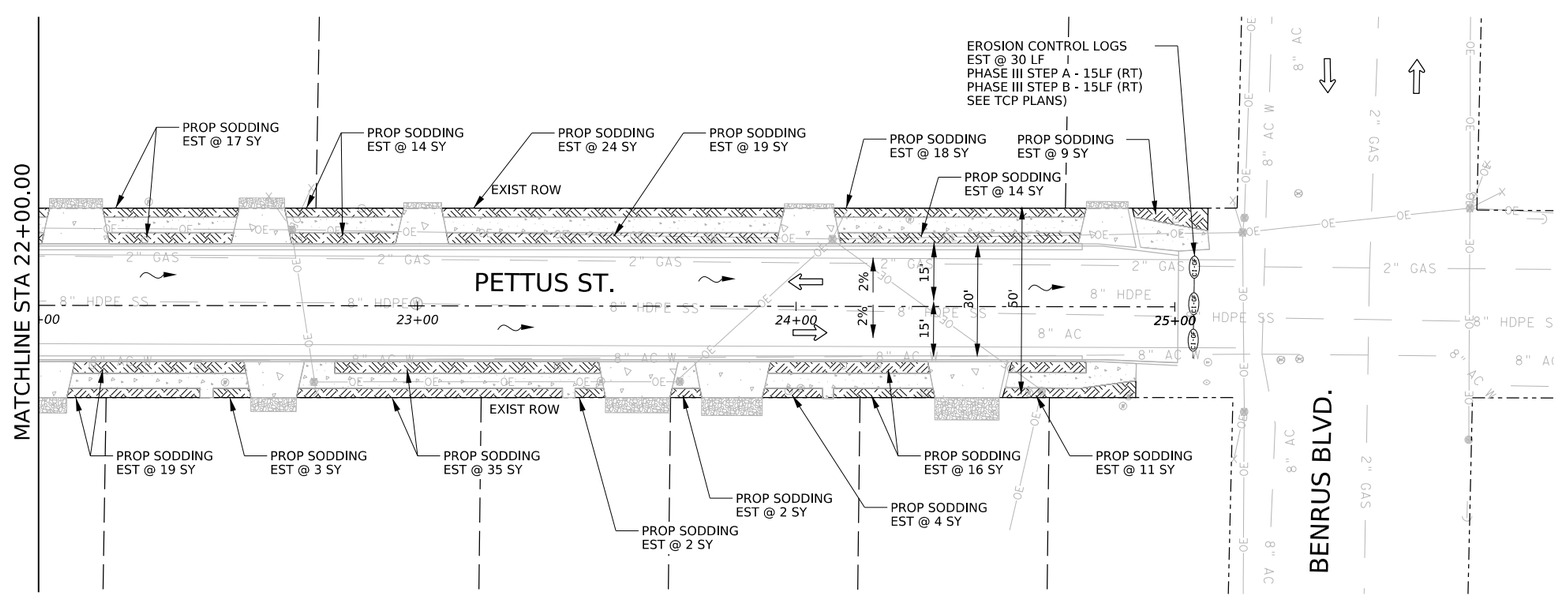


LEGEND

- PROP DRWY PNTR
- PROP CONC SDWK
- PROPERTY LINE
- EXIST ROW
- DRIVEWAY (XXX)
- TRAFFIC FLOW
- WATER FLOW
- PROP SODDING
- CONT LOGS

NOTES

1. SW3P AND SIGN BOARD LOCATIONS, PSL BMP'S LOCATIONS BEING FIELD UPDATED BY THE ON-SITE FIELD STAFF.
2. REMOVAL OF TEMPORARY BMP'S AFTER WORK COMPLETING, STABILIZING COMPLETED WORK AREAS AFTER WORK STOPS.



GRAPHIC SCALE

0 10 20 40 60

1" = 40'
HORIZONTAL SCALE

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TBPLS #10194622

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PUBLIC WORKS DEPARTMENT

CULEBRA AREA STREETS

PETTUS ST. SW3P

100% SUBMITTAL	PROJECT NO: 23-03873		DATE: 05/28/2025
DRWN. BY: SS	DSGN. BY: SS	CHKD. BY: MG	SHEET NO: 166

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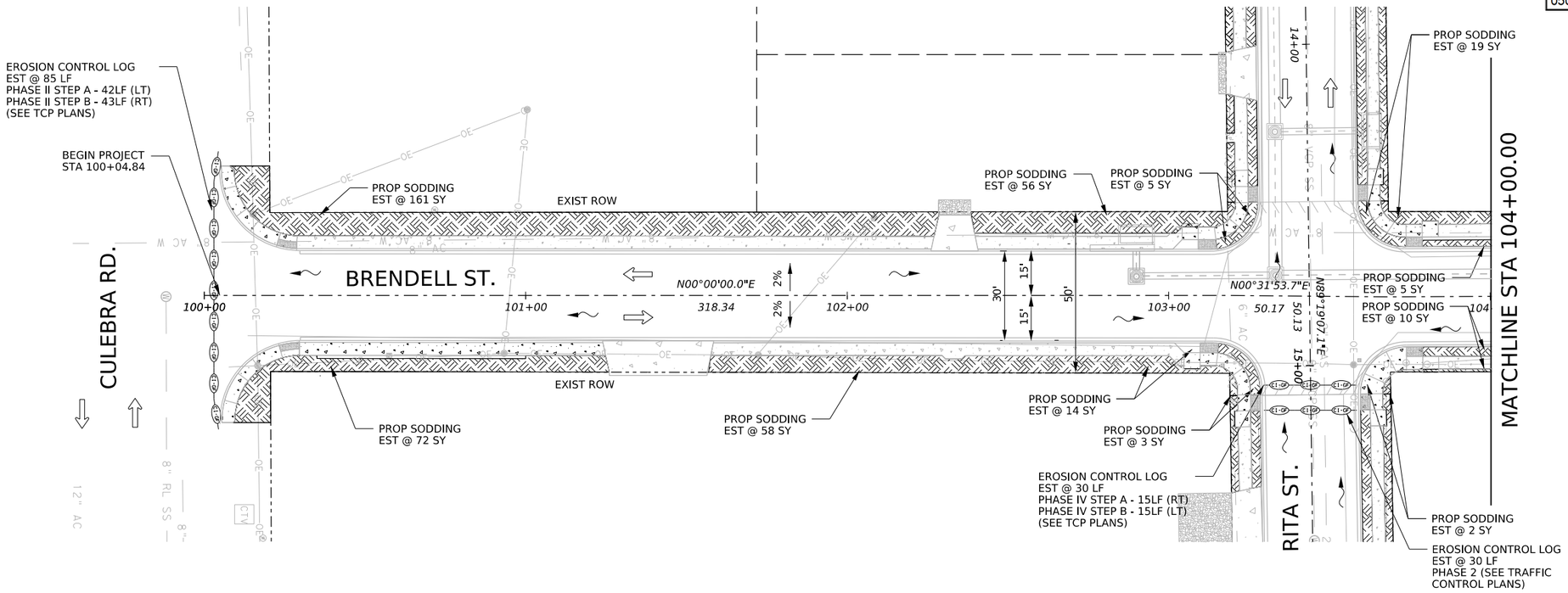
ESTIMATED QUANTITIES			
ITEM NO.	DESCRIPTION	UNTI	QTY
515.1	TOPSOIL (<500 C.Y.)	CY	67
516.1	BERMUDA SODDING (<2,000 S.Y.)	SY	601
0506 6040	BIODEG EROSN CONT LOGS (INSTL) (8")	LF	295



LEGEND

- PROP DRWY PNTR
- PROP CONC SDWK
- PROPERTY LINE
- EXIST ROW
- DRIVEWAY (XXX)
- TRAFFIC FLOW
- WATER FLOW
- PROP SODDING
- CONT LOGS

NOTES

1. SW3P AND SIGN BOARD LOCATIONS, PSL BMP'S LOCATIONS BEING FIELD UPDATED BY THE ON-SITE FIELD STAFF.
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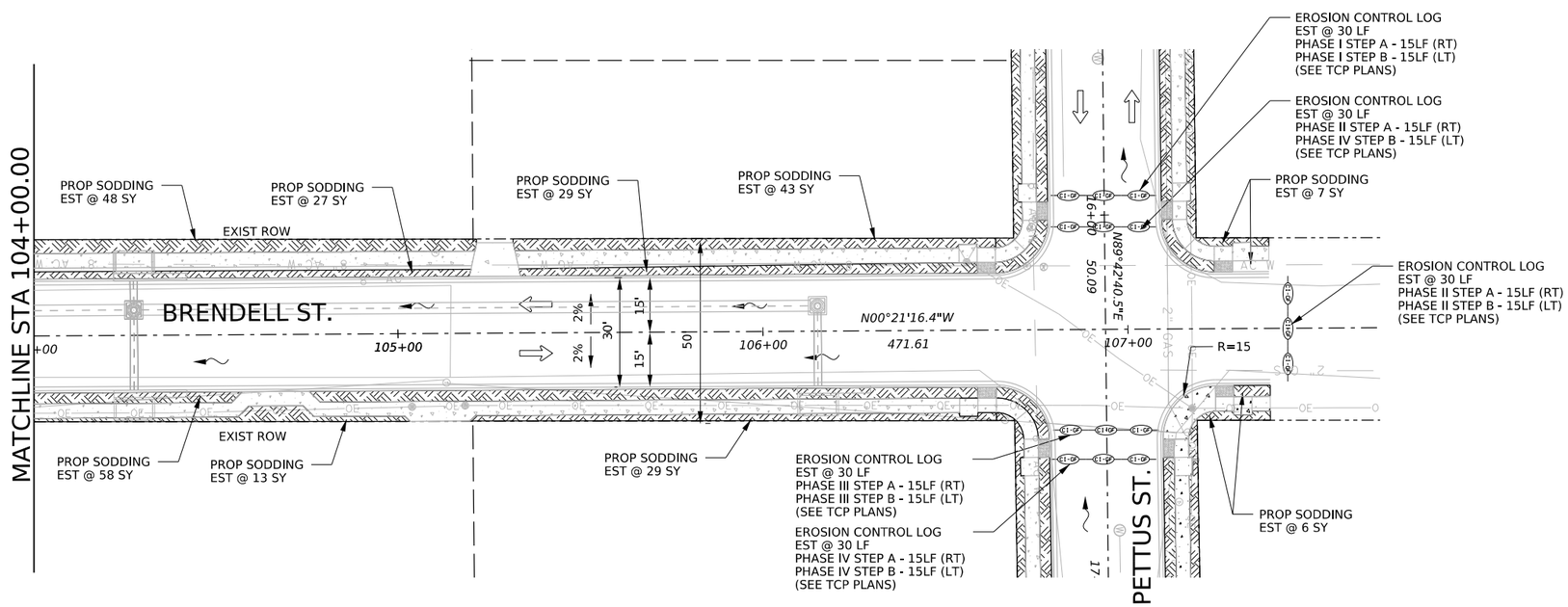

GRAPHIC SCALE

0 10 20 40 60

1" = 40'
HORIZONTAL SCALE

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CITY OF SAN ANTONIO
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CULEBRA AREA STREETS

BRENDELL ST. SW3P

100% SUBMITTAL	PROJECT NO: 23-03873		DATE: 05/28/2025
DRWN. BY: SS	DSGN. BY: SS	CHKD. BY: MG	SHEET NO: 167

5/21/2025 8:15:02 PM
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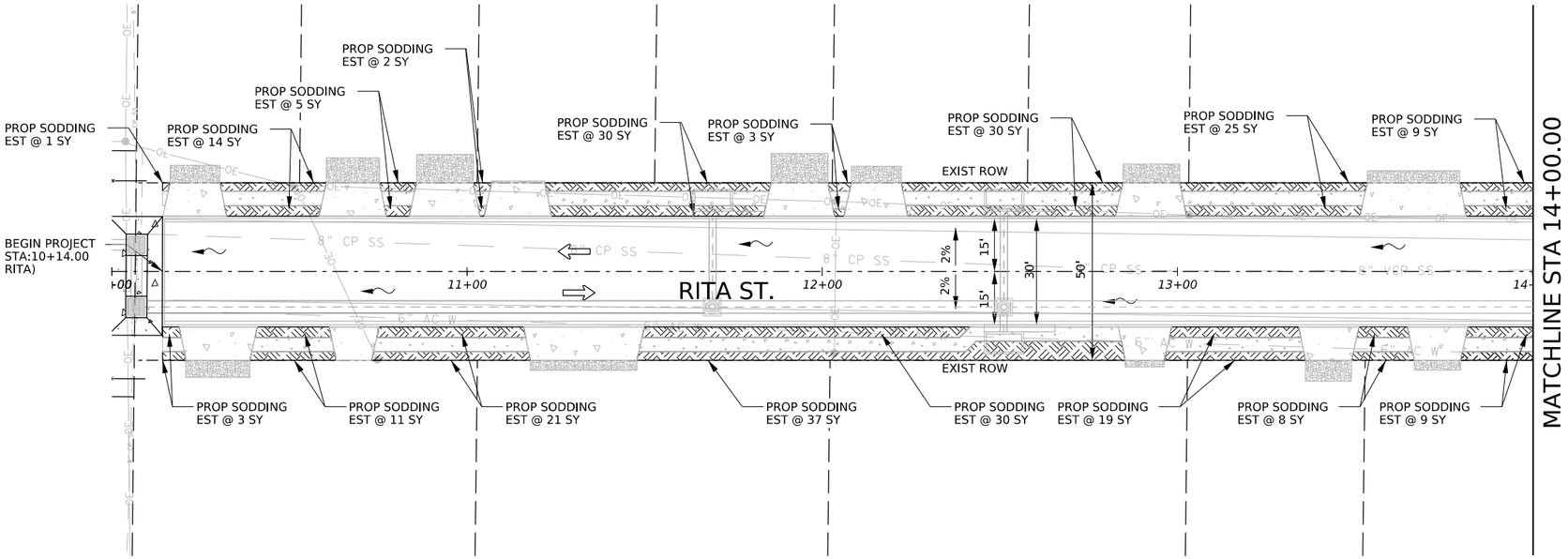
ESTIMATED QUANTITIES			
ITEM NO.	DESCRIPTION	UNTI	QTY
515.1	TOPSOIL (<500 C.Y.)	CY	56
516.1	BERMUDA SODDING (<2,000 S.Y.)	SY	505
0506 6040	BIODEG EROSN CONT LOGS (INSTL) (8")	LF	60

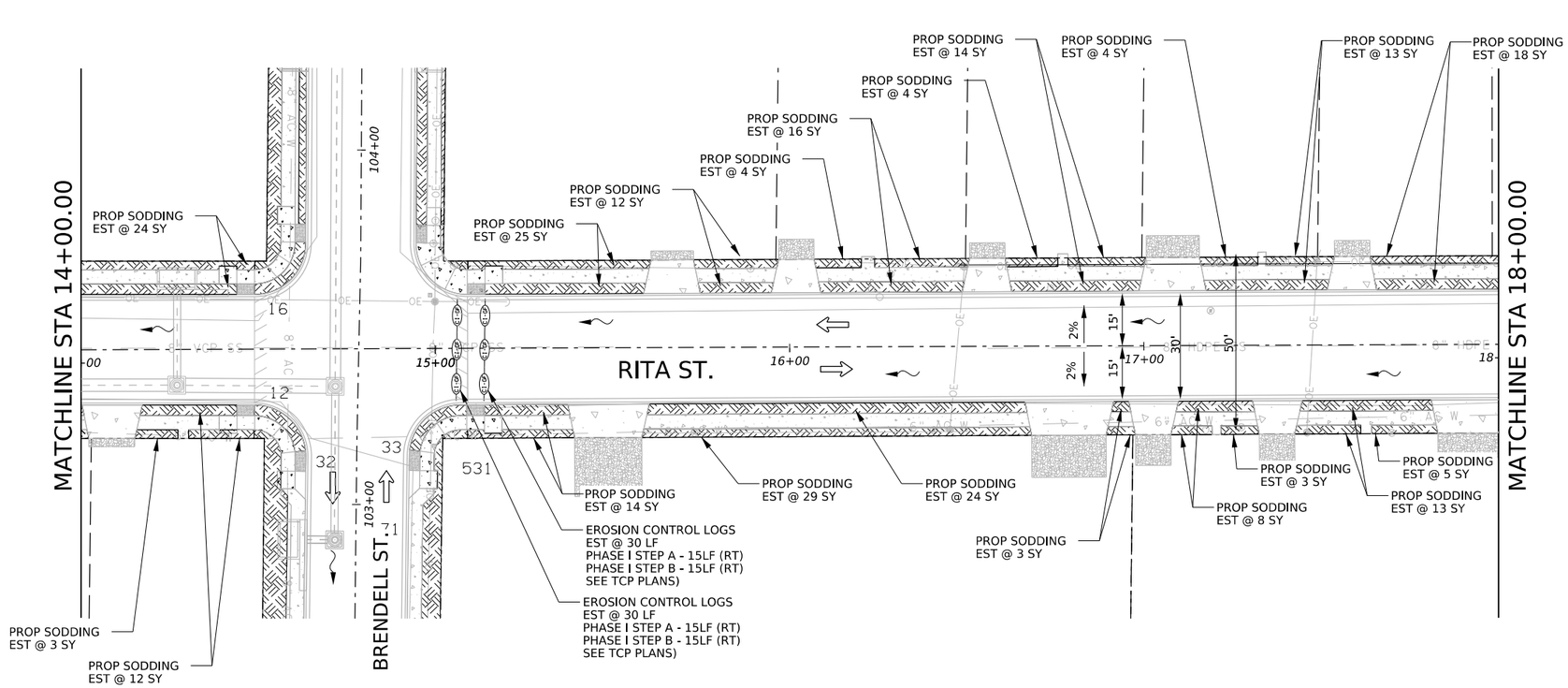


LEGEND

- PROP DRWY PNTR
- PROP CONC SDWK
- PROPERTY LINE
- EXIST ROW
- DRIVEWAY (XXX)
- TRAFFIC FLOW
- WATER FLOW
- PROP SODDING
- CONT LOGS

NOTES

1. SW3P AND SIGN BOARD LOCATIONS, PSL BMP'S LOCATIONS BEING FIELD UPDATED BY THE ON-SITE FIELD STAFF.
2. REMOVAL OF TEMPORARY BMP'S AFTER WORK COMPLETING, STABILIZING COMPLETED WORK AREAS AFTER WORK STOPS.



GRAPHIC SCALE

0 10 20 40 60

1" = 40'
HORIZONTAL SCALE

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TBPE #F-21809
TBPLS #10194622

CITY OF SAN ANTONIO
PUBLIC WORKS DEPARTMENT

CULEBRA AREA STREETS

RITA ST. SW3P

100% SUBMITTAL	PROJECT NO: 23-03873		DATE: 05/28/2025
DRWN. BY: SS	DSGN. BY: SS	CHKD. BY: MG	SHEET NO: 168

5/21/2025 8:16:18 PM
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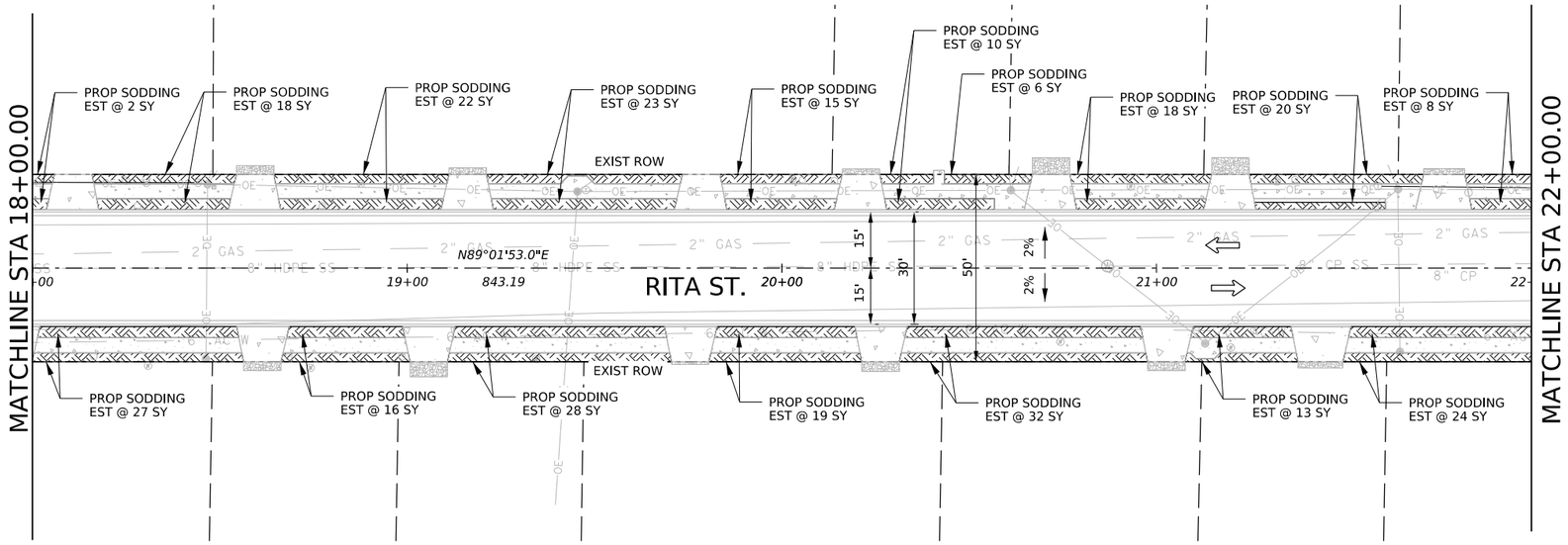
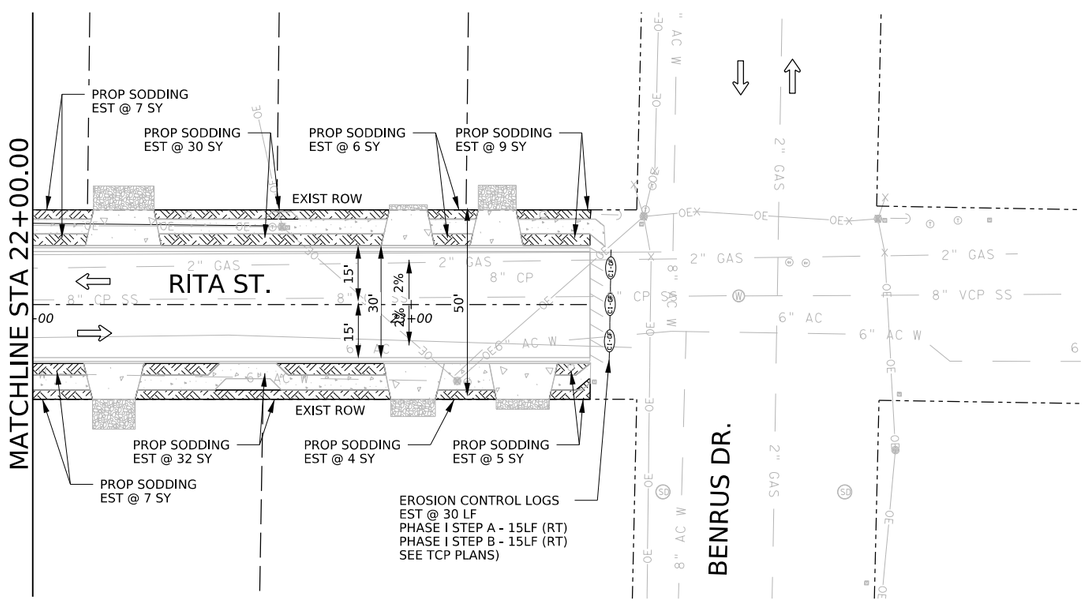
ESTIMATED QUANTITIES			
ITEM NO.	DESCRIPTION	UNTI	QTY
515.1	TOPSOIL (<500 C.Y.)	CY	45
516.1	BERMUDA SODDING (<2,000 S.Y.)	SY	401
0506 6040	BIODEG EROSN CONT LOGS (INSTL) (8")	LF	30





LEGEND

- PROP DRWY PNTR
- PROP CONC SDWK
- PROPERTY LINE
- EXIST ROW
- DRIVEWAY (XXX)
- TRAFFIC FLOW
- WATER FLOW
- PROP SODDING
- CONT LOGS

NOTES

1. SW3P AND SIGN BOARD LOCATIONS, PSL BMP'S LOCATIONS BEING FIELD UPDATED BY THE ON-SITE FIELD STAFF.
2. REMOVAL OF TEMPORARY BMP'S AFTER WORK COMPLETING, STABILIZING COMPLETED WORK AREAS AFTER WORK STOPS.

GRAPHIC SCALE

0 10 20 40 60

1" = 40'
HORIZONTAL SCALE

STATE OF TEXAS
MARTIN M. GONZALES
121996
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PROFESSIONAL ENGINEER

5.28.25

NO.	REVISION	BY	DATE
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TBPE #F-21809
TBPLS #10194622

CITY OF SAN ANTONIO
PUBLIC WORKS DEPARTMENT

CULEBRA AREA STREETS

RITA ST. SW3P

100% SUBMITTAL	PROJECT NO: 23-03873		DATE: 05/28/2025
DRWN. BY: SS	DSGN. BY: SS	CHKD. BY: MG	SHEET NO: 169

5/21/2025 8:17:34 PM
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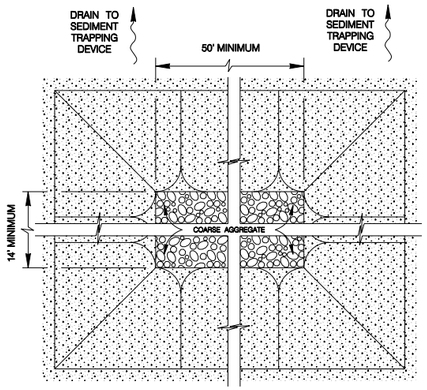
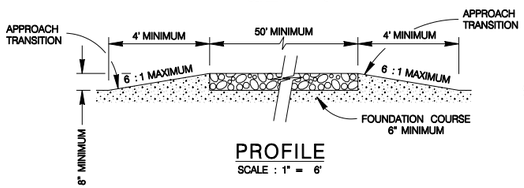


PLAN
SCALE : 1" = 6'

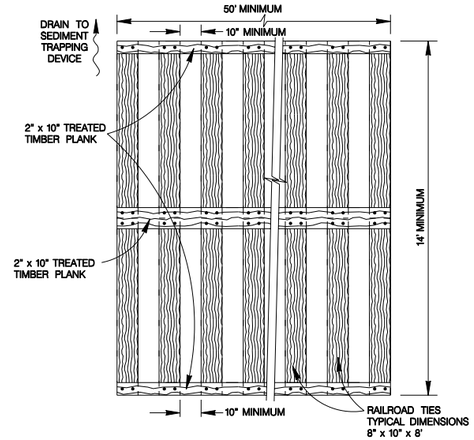


PROFILE
SCALE : 1" = 6'

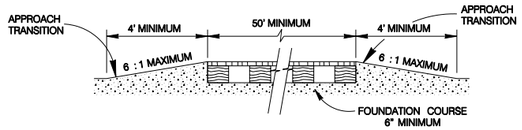
GENERAL NOTES

1. THE LENGTH OF THE TYPE 1 CONSTRUCTION EXIT SHALL BE AS INDICATED ON THE PLANS, BUT NOT LESS THAN 50'.
2. THE COARSE AGGREGATE SHOULD BE OPEN GRADED WITH A SIZE OF 4" TO 8".
3. THE APPROACH TRANSITIONS SHOULD BE NO STEEPER THAN 6 :1 AND CONSTRUCTED AS DIRECTED BY THE ENGINEER.
4. THE CONSTRUCTION EXIT FOUNDATION COURSE SHALL BE FLEXIBLE BASE, BITUMINOUS CONCRETE, PORTLAND CEMENT CONCRETE OR OTHER MATERIAL AS APPROVED BY THE ENGINEER.
5. THE CONSTRUCTION EXIT SHALL BE GRADED TO ALLOW DRAINAGE TO A SEDIMENT TRAPPING DEVICE.
6. THE GUIDELINES SHOWN HEREON ARE SUGGESTIONS ONLY AND MAY BE MODIFIED BY THE ENGINEER.

CONSTRUCTION EXIT – TYPE 1



PLAN
SCALE : 1" = 6'

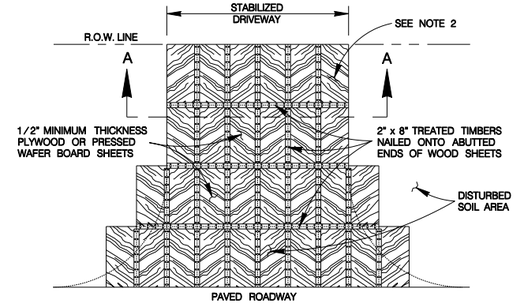


PROFILE
SCALE : 1" = 6'

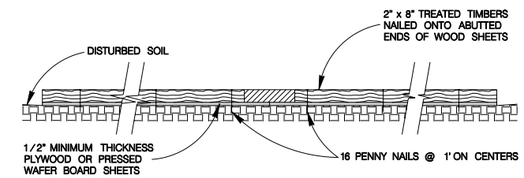
GENERAL NOTES

1. THE LENGTH OF THE TYPE 2 CONSTRUCTION EXIT SHALL BE AS INDICATED ON THE PLANS, BUT NOT LESS THAN 50'.
2. THE TREATED TIMBER PLANKS SHALL BE ATTACHED TO THE RAILROAD TIES WITH 1/2" x 6" MIN. LAG BOLTS. OTHER FASTENERS MAY BE USED AS APPROVED BY THE ENGINEER.
3. THE TREATED TIMBER PLANKS SHALL BE #2 GRADE MIN., AND SHOULD BE FREE FROM LARGE AND LOOSE KNOTS.
4. THE APPROACH TRANSITIONS SHOULD BE NO STEEPER THAN 6 :1 AND CONSTRUCTED AS DIRECTED BY THE ENGINEER.
5. THE CONSTRUCTION EXIT FOUNDATION COURSE SHALL BE FLEXIBLE BASE, BITUMINOUS CONCRETE, PORTLAND CEMENT CONCRETE OR OTHER MATERIAL AS APPROVED BY THE ENGINEER.
6. THE CONSTRUCTION EXIT SHOULD BE GRADED TO ALLOW DRAINAGE TO A SEDIMENT TRAPPING DEVICE.
7. THE GUIDELINES SHOWN HEREON ARE SUGGESTIONS ONLY AND MAY BE MODIFIED BY THE ENGINEER.

CONSTRUCTION EXIT – TYPE 2



PLAN
SCALE : 1" = 20'

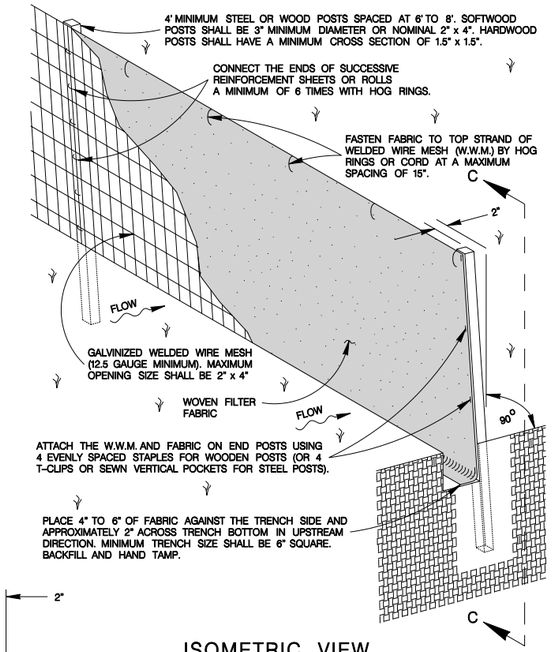


SECTION A–A
SCALE : 1" = 2'

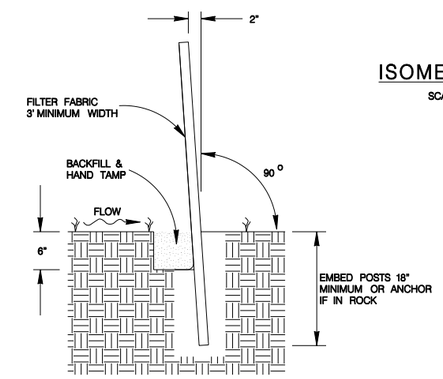
GENERAL NOTES

1. THE LENGTH OF THE TYPE 3 CONSTRUCTION EXIT SHALL BE AS INDICATED ON THE PLANS, OR AS DIRECTED BY THE ENGINEER.
2. THE TYPE 3 CONSTRUCTION EXIT MAY BE CONSTRUCTED FROM OPEN GRADED CRUSHED STONE WITH A SIZE OF 2 TO 4 INCHES SPREAD A MINIMUM OF 4 INCHES THICK TO THE LIMITS SHOWN ON THE PLANS.
3. THE TREATED TIMBER PLANKS SHALL BE #2 GRADE MIN., AND SHOULD BE FREE FROM LARGE AND LOOSE KNOTS.
4. THE GUIDELINES SHOWN HEREON ARE SUGGESTIONS ONLY AND MAY BE MODIFIED BY THE ENGINEER.

CONSTRUCTION EXIT – TYPE 3



ISOMETRIC VIEW
SCALE : 1" = 2'



SECTION C–C
SCALE : 1" = 2'

SEDIMENT CONTROL FENCE USAGE GUIDELINES

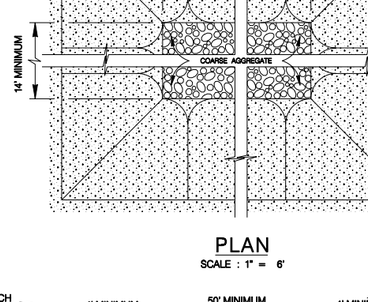
A SEDIMENT CONTROL FENCE MAY BE CONSTRUCTED NEAR THE DOWNSTREAM PERIMETER OF A DISTURBED AREA ALONG A CONTOUR TO INTERCEPT SEDIMENT FROM OVERLAND RUN–OFF. A 2 YEAR STORM FREQUENCY MAY BE USED TO CALCULATE THE FLOW RATE TO BE FILTERED.

SEDIMENT CONTROL FENCE SHOULD BE SIZED TO FILTER A MAXIMUM FLOW THRU RATE OF 100 GPM /FT SQUARED. SEDIMENT CONTROL FENCE IS NOT RECOMMENDED TO CONTROL EROSION FROM A DRAINAGE AREA LARGER THAN 2 ACRES.

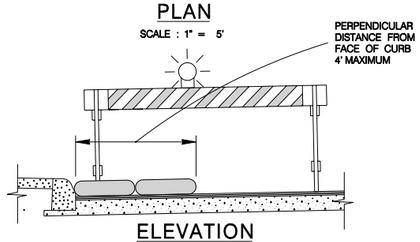
GENERAL NOTES

1. THE GUIDELINES SHOWN HEREON ARE SUGGESTIONS ONLY AND MAY BE MODIFIED BY THE ENGINEER.

TEMPORARY SEDIMENT CONTROL FENCE



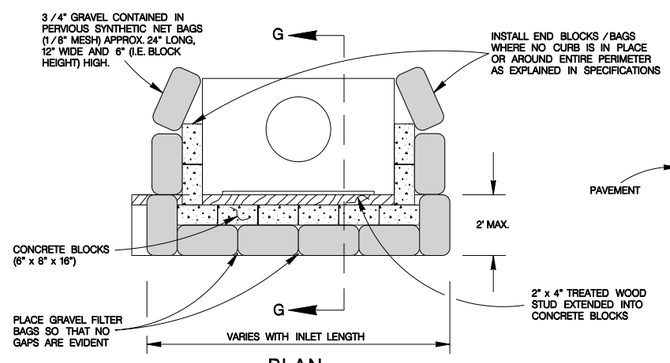
PLAN
SCALE : 1" = 5'



ELEVATION
SCALE : 1" = 5'

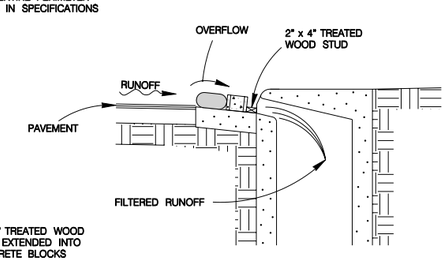
NOTE:
STRADDLE GRAVEL FILTER BAGS WITH TYPE 1 BARRICADES MOUNTED WITH TYPE "A" FLASHING WARNING LIGHT. SEE BARRICADE CONSTRUCTION SIGN DETAILS. PLACE FLASHING LIGHTS AWAY FROM GUTTER, FLUSH WITH OUTSIDE EDGE OF BAG CONFIGURATION.

GRAVEL FILTER BAGS



PLAN
SCALE : 1" = 5'

NOTE:
GRAVEL FILTERS CAN BE USED ON PAVEMENT OR BARE GROUND.



SECTION G–G
SCALE : 1" = 5'

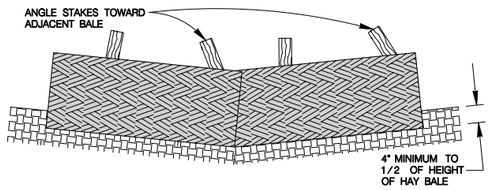
CURB INLET GRAVEL FILTER

JANUARY 2005

CITY OF SAN ANTONIO
CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT

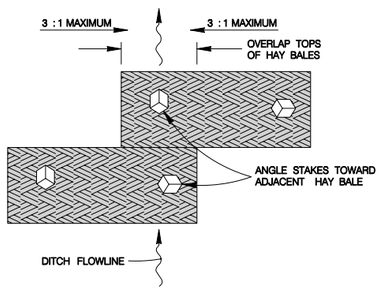
TEMPORARY EROSION, SEDIMENT & WATER POLLUTION CONTROL MEASURES STANDARDS 1

70 % SUBMITTAL	PROJECT NO.:		DATE:
DRWN. BY: V. VASQUEZ	DSGN. BY:	CHKD. BY:	SHEET NO.: 170



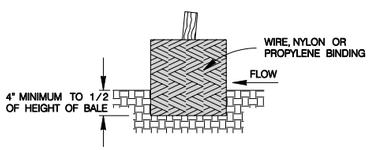
PROFILE VIEW

SCALE : 1" = 2'



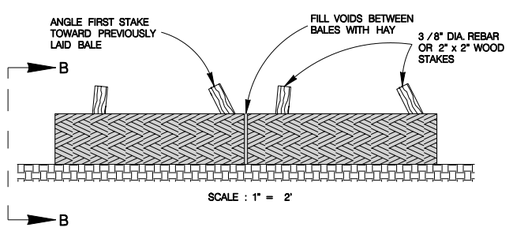
PLAN VIEW

SCALE : 1" = 2'



SECTION B–B

SCALE : 1" = 2'



SCALE : 1" = 2'

BALED HAY USAGE GUIDELINES

A BAILED HAY INSTALLATION MAY BE CONSTRUCTED NEAR THE DOWNSTREAM PERIMETER OF A DISTURBED AREA ALONG A CONTOUR TO INTERCEPT SEDIMENT FROM OVERLAND RUNOFF. A TWO YEAR STORM FREQUENCY MAY BE USED TO CALCULATE THE FLOW RATE TO BE FILTERED. THE INSTALLATION SHOULD BE SIZED TO FILTER A MAXIMUM FLOW THRU RATE OF 5 GPM /FT SQUARED OF CROSS SECTIONAL AREA. BALED HAY MAY BE USED AT THE FOLLOWING LOCATIONS:

1. WHERE THE RUNOFF APPROACHING THE BALED HAY FLOWS OVER DISTURBED SOIL FOR LESS THAN 100'. IF THE SLOPE OF THE DISTURBED SOIL EXCEEDS 10 %, THE LENGTH OF SLOPE UPSTREAM OF THE BAILED HAY SHOULD BE LESS THAN 50'.
2. WHERE THE INSTALLATION WILL BE REQUIRED FOR LESS THAN 3 MONTHS.
3. WHERE THE CONTRIBUTING DRAINAGE AREA IS LESS THAN 1/2 ACRE.

FOR BALED HAY INSTALLATIONS IN SMALL DITCHES, THE FOLLOWING ADDITIONAL CONDI–TIONAL CONSIDERATIONS APPLY:

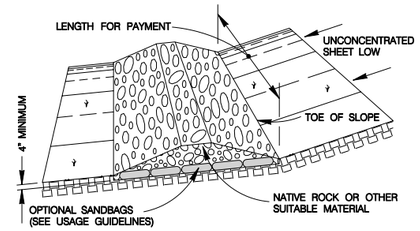
1. THE DITCH SIDESLOPES SHOULD BE GRADED AS FLAT AS POSSIBLE TO MAXIMIZE THE DRAINAGE FLOW RATE THRU THE HAY.
2. THE DITCH SHOULD BE GRADED LARGE ENOUGH TO CONTAIN THE OVERLAPPING DRAINAGE WHEN SEDIMENT HAS FILLED TO THE TOP OF THE BAILED HAY.

BALES SHOULD BE REPLACED USUALLY EVERY 2 MONTHS OR MORE OFTEN DURING WET WEATHER WHEN LOSS OF STRUCTURAL INTERGRITY IS ACCELERATED.

GENERAL NOTES

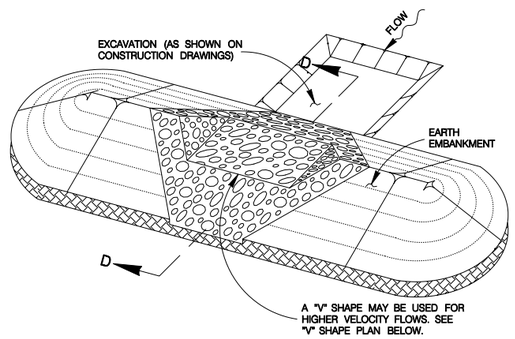
1. HAY BALES SHALL BE A MINIMUM OF 30" IN LENGTH AND WEIGH A MINIMUM OF 50 LBS.
2. HAY BALES SHALL BE BOUND BY EITHER WIRE OR NYLON OR POLYPROPYLENE STRING. THE BALES SHALL BE COMPOSED ENTIRELY OF VEGETABLE MATTER.
3. HAY BALES SHALL BE EMBEDDED IN THE SOIL A MININMUM OF 4" AND, WHERE POSSIBLE, ONE–HALF THE HEIGHT OF THE BALE.
4. HAY BALES SHALL BE PLACED IN A ROW WITH ENDS TIGHTLY ABUTTING THE ADJACENT BALES. THE BALES SHALL BE PLACED WITH BINDINGS PARALLEL TO THE GROUND.
5. HAY BALES SHALL BE SECURELY ANCHORED IN PLACE WITH 3 /8" DIA. REBAR OR 2" x 2" WOOD STAKES DRIVEN THROUGH THE BALES. THE FIRST STAKE SHALL BE ANGLED TO–WARDS THE PREVIOUSLY LAID BALE TO FORCE THE BALES TOGETHER.
6. THE GUIDELINES SHOWN HEREON ARE SUGGESTIONS ONLY AND MAY BE MODIFIED BY THE ENGINEER.

BALED HAY FOR EROSION CONTROL



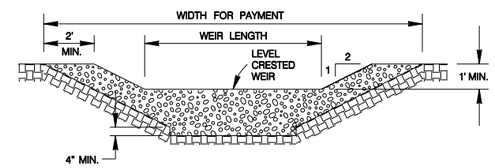
TYPE 1 FILTER DAM AT TOE OF SLOPE

SCALE : 1" = 10'



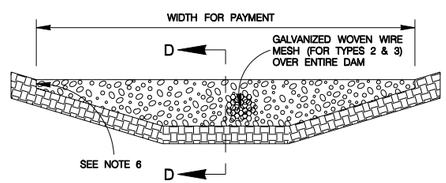
TYPE 1 & 2 FILTER DAM AT SEDIMENT TRAP

SCALE : 1" = 10'



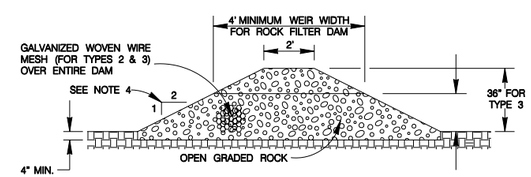
PROFILE OF TYPE 1 & 2 FILTER DAM AT SEDIMENT TRAP

SCALE : 1" = 6'



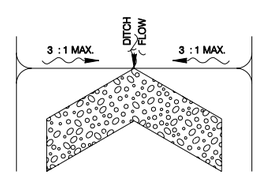
TYPE 1, 2 & 3 FILTER DAM AT CHANNEL SECTIONS

SCALE : 1" = 6'



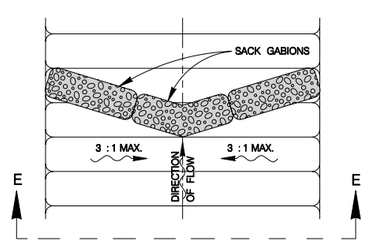
SECTION D–D

SCALE : 1" = 6'



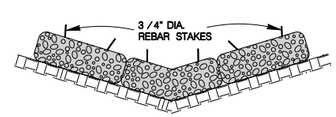
"V" SHAPE PLAN VIEW

NOT TO SCALE



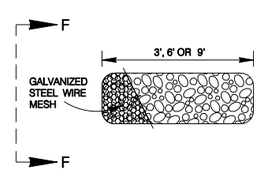
PLAN VIEW

SCALE : 1" = 10'



SECTION E–E

SCALE : 1" = 10'



TYPE 4 SACK GABION DETAIL

SCALE : 1" = 6'

SECTION F–F

SCALE : 1" = 6'

TYPE 4 FILTER DAM AT DITCHES & SMALLER CHANNELS PLAN VIEW

ROCK FILTER DAMS

ROCK FILTER DAM USAGE GUIDELINES

ROCK FILTER DAMS SHOULD BE CONSTRUCTED DOWNSTREAM FROM DISTURBED AREAS TO INTERCEPT SEDIMENT FROM OVERLOAD RUNOFF AND /OR CONCENTRATED FLOW. THE DAMS SHOULD BE SIZED TO FILTER A MAXIMUM FLOW THRU RATE OF 60 GPM /FT SQUARED OF CROSS SECTIONAL AREA.. A 2 YEAR STORM FREQUENCY MAY BE USED TO CALCULATE THE FLOW RATE.

TYPE 1 (18" HIGH WITH NO WIRE MESH) :

TYPE 1 MAY BE USED AT THE TOE OF SLOPES, AROUND INLETS, IN SMALL DITCHES AND AT DIKE OR SWALE OUTLETS. THIS TYPE OF DAM IS RECOMMENDED TO CONTROL EROSION FROM A DRAINAGE AREA OF 5 ACRES OR LESS. TYPE 1 MAY NOT BE USED IN CONCEN–TRATED HIGH VELOCITY FLOWS (APPROXIMATELY 8 FT./SEC. OR MORE) IN WHICH AGGREGATE WASH OUT MAY OCCUR. SANDBAGS MAY BE USED AT THE EMBEDDED FOUNDATION (4" DEEP MIN.) FOR BETTER FILTERING EFFICIENCY OF LOW FLOWS IF CALLED FOR ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

TYPE 2 (18" HIGH WITH WIRE MESH) :

TYPE 2 MAY BE USED IN DITCHES AND AT DIKE OR SWALE OUTLETS.

TYPE 3 (36" HIGH WITH WIRE MESH) :

TYPE 3 MAY BE USED IN STREAM FLOW AND SHOULD BE SECURED TO THE STREAM BED.

TYPE 4 (SACK GABIONS) :

TYPE 4 MAY BE USED IN DITCHES AND SMALLER CHANNELS TO FORM AN EROSION CONTROL DAM.

GENERAL NOTES

1. IF SHOWN ON THE PLANS OR DIRECTED BY THE ENGINEER, FILTER DAMS SHOULD BE PLACED NEAR THE TOE OF SLOPES WHERE EROSION IS ANTICIPATED, UPSTREAM AND / OR DOWNSTREAM AT DRAINAGE STRUCTURES, AND IN ROADWAY DITCHES AND CHANNELS TO COLLECT SEDIMENT.
2. MATERIALS (AGGREGATE, WIRE MESH, SANDBAGS, ETC.) SHALL BE AS INDICATED BY THE SPECIFICATION FOR ROCK FILTER DAMS FOR EROSION AND SEDIMENTATION CONTROL.
3. THE ROCK FILTER DAM DIMENSIONS SHALL BE AS INDICATED ON THE STORM WATER POLLUTION PREVENTION PLANS.
4. SIDE SLOPES SHOULD BE 2 : 1 OR FLATTER. DAMS WITHIN THE SAFETY ZONE SHALL HAVE SIDE SLOPES OF 6 : 1 OR FLATTER.
5. MAINTAIN A MINIMUM OF 1' BETWEEN TOP OF ROCK FILTER DAM WEIR AND TOP OF EMBANKMENT FOR FILTER DAMS AT SEDIMENT TRAPS.
6. FILTER DAMS SHOULD BE EMBEDDED A MINIMUM OF 4" INTO THE EXISTING GROUND.
7. THE SEDIMENT TRAP FOR PONDING OF SEDIMENT LADEN RUNOFF SHALL BE OF THE DIMENSIONS SHOWN ON THE PLANS.
8. ROCK FILTER DAM TYPES 2 & 3 SHALL BE SECURED WITH 20 GAUGE GALVANIZED WOVEN WIRE MESH WITH 1" DIAMETER HEXAGONAL OPENINGS. THE AGGREGATE SHALL BE PLACED ON THE MESH TO THE HEIGHT AND SLOPES SPECIFIED. THE MESH SHALL BE FOLDED AT THE UPSTREAM SIDE OVER THE AGGREGATE AND TIGHTLY SECURED TO ITSELF ON THE DOWNSTREAM SIDE USING WIRE TIES OR HOG RINGS. IN STREAM USE, THE MESH SHOULD BE SECURED OR STAKED TO THE STREAM BED PRIOR TO AGGREGATE PLACEMENT.
9. SACK GABIONS SHOULD BE STAKED DOWN WITH 3 /4" DIA. REBAR STAKES.
10. FLOW OUTLET SHOULD BE ONTO A STABILIZED AREA (VEGETATION, ROCK, ETC.).
11. THE GUIDELINES SHOWN HEREON ARE SUGGESTIONS ONLY AND MAY BE MODIFIED BY THE ENGINEER.

JANUARY 2005

CITY OF SAN ANTONIO

CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT

TEMPORARY EROSION, SEDIMENT & WATER POLLUTION CONTROL MEASURES STANDARDS 2

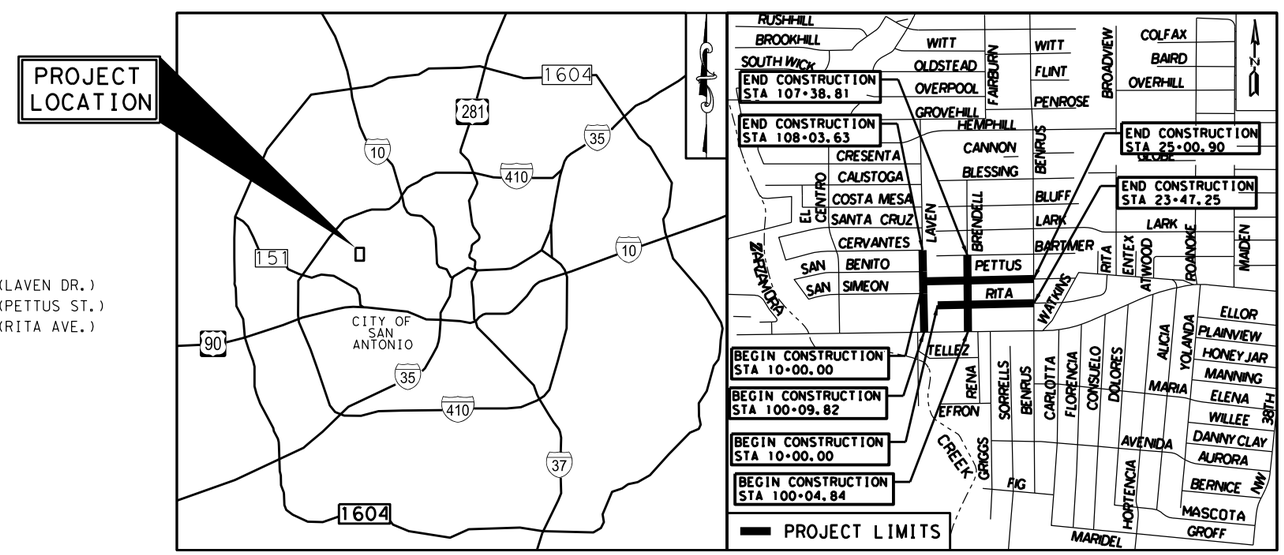
70 % SUBMITTAL	PROJECT NO.:	DATE:
DRWN. BY: V. VASQUEZ	DSGN. BY: CHKD. BY:	SHEET NO.: 171

SAN ANTONIO WATER SYSTEM

JOB NO: 23-5526

CULEBRA PARK AREA STREETS
BRENDELL ST, RITA ST, LAVEN DR, PETTUS ST
SANITARY SEWER PLANS

SHEET INDEX



LOCATION MAP
NOT TO SCALE

100% SUBMITTAL

STATE OF TEXAS
AYDA S. GONZALES, P.E.
96594
LICENSED
PROFESSIONAL ENGINEER

5/24/2025

APRIL 2025

SUBMITTAL PREPARED BY:

AG3 Group, LLC
ENGINEERING • SURVEY • CONSTRUCTION
4800 FREDERICKSBURG RD SUITE 200SL
SAN ANTONIO, TX 78229
P:210-208-9400 F:210-208-9401
TBPE #F-21809
TBPLS #10194622

ESTIMATED QUANTITIES			
ITEM NO.	DESCRIPTION	UNIT	QUANTITY
550.1	TRENCH EXCAVATION SAFETY PROTECTION	LF	270
851	MANHOLE ADJUSTMENT	EA	10
855	RECONSTRUCTION OF EXISTING MANHOLE	EA	3
856	24" STEEL CASING (SPLIT CASING)	LF	270

GENERAL NOTES:

1. ALL MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THE SCOPE OF THIS CONTRACT SHALL BE APPROVED BY THE SAN ANTONIO WATER SYSTEM (SAWS) AND COMPLY WITH THE PLANS, SPECIFICATIONS, GENERAL CONDITIONS AND WITH THE FOLLOWING AS APPLICABLE:

   A. CURRENT TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) "DESIGN CRITERIA FOR DOMESTIC WASTEWATER SYSTEM", TEXAS ADMINISTRATIVE CODE (TAC) TITLE 30 PART 1 CHAPTER 217 AND "PUBLIC DRINKING WATER", TAC TITLE 30 PART 1 CHAPTER 290.

   B. CURRENT TXDOT "STANDARD SPECIFICATIONS FOR CONSTRUCTION OF HIGHWAYS, STREETS AND DRAINAGE."

   C. CURRENT "SAN ANTONIO WATER SYSTEM STANDARD SPECIFICATIONS FOR WATER AND SANITARY SEWER CONSTRUCTION."

   D. CURRENT CITY OF SAN ANTONIO "STANDARD SPECIFICATIONS FOR CONSTRUCTION."

   E. CURRENT CITY OF SAN ANTONIO "UTILITY EXCAVATION CRITERIA MANUAL"(UECM).

2. THE CONTRACTOR SHALL OBTAIN SAWS STANDARD DETAILS FROM SAWS WEBSITE, HTTPS://APPS.SAWS.ORG/BUSINESS_CENTER/SPECS/CONSTSPECS/ UNLESS OTHERWISE NOTED WITHIN DESIGN PLANS.

3. THE CONTRACTOR IS TO NOTIFY AND MAKE ARRANGEMENTS WITH THE SAWS CONSTRUCTION INSPECTION DIVISION AT 210-233-3500 (DURING REGULAR SAWS WORKING HOURS) AND PROVIDE NOTIFICATION PROCEDURES THE CONTRACTOR WILL USE TO NOTIFY AFFECTED HOME RESIDENTS AND/OR PROPERTY OWNERS TWO (2) WEEKS PRIOR TO EXCAVATION. OUTSIDE OF REGULAR SAWS WORKING HOURS THE SAWS EOC SHOULD BE CONTACTED AT 210-704-7297.

4. IF NECESSARY, CONTRACTOR WILL COORDINATE USE OF SAWS PREMISES AT NO ADDITIONAL COST TO SAWS. SUCH EFFORTS INCLUDE, BUT ARE NOT LIMITED TO, OBTAINING SECURITY IDENTIFICATION BADGES REQUIRED FOR ACCESS TO SAWS FACILITIES.

5. LOCATIONS AND DEPTHS OF EXISTING UTILITIES AND SERVICE LATERALS SHOWN ON THE PLANS ARE UNDERSTOOD TO BE APPROXIMATE. ACTUAL LOCATIONS AND DEPTHS MUST BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO LOCATE UTILITY SERVICE LINES AS REQUIRED FOR CONSTRUCTION AND TO PROTECT THEM DURING CONSTRUCTION AT NO COST TO SAWS.

6. THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF UNDERGROUND UTILITIES AND DRAINAGE STRUCTURES PRIOR TO CONSTRUCTION WHETHER SHOWN ON PLANS OR NOT. AS-BUILTS FOR SAWS INFRASTRUCTURE CAN BE OBTAINED AT WEBSITE BELOW. CONTRACTOR SHALL COORDINATE PHYSICAL LOCATES FOR SAWS INFRASTRUCTURE THROUGH THE SAWS INSPECTOR. PLEASE ALLOW UP TO 7 BUSINESS DAYS FOR LOCATES REQUESTING PIPE LOCATION MARKERS ON SAWS INFRASTRUCTURE. THE FOLLOWING CONTACT INFORMATION ARE SUPPLIED FOR VERIFICATION PURPOSES:

   SAN ANTONIO WATER SYSTEM:
   REQUEST AS-BUILTS: HTTPS://WWW.SAWS.ORG/SERVICE/LOCATES-SERVICE/
   COSA DRAINAGE 210-206-8433
   COSA TRAFFIC SIGNAL OPERATIONS 210-207-7720
   TEXAS STATEWIDE ONE CALL LOCATOR 1-800-545-6005 OR 811

7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING EXISTING FENCES, CURBS, STREETS, DRIVEWAYS, SIDEWALKS, LANDSCAPING, AND STRUCTURES TO ITS ORIGINAL OR BETTER CONDITION AS A RESULT OF DAMAGES DONE BY THE PROJECT'S CONSTRUCTION.

8. CONTRACTOR SHALL NOT MAKE USE OF DUMPSTERS OR WASTE BINS THAT ARE INTENDED TO SERVE RESIDENTS AND/OR BUSINESSES.

9. ALL WORK IN TEXAS DEPARTMENT OF TRANSPORTATION AND BEXAR COUNTY RIGHT-OF-WAY SHALL BE DONE IN ACCORDANCE WITH RESPECTIVE CONSTRUCTION SPECIFICATIONS AND PERMIT.

10. THE CONTRACTOR SHALL COMPLY WITH CITY OF SAN ANTONIO OR OTHER GOVERNING MUNICIPALITY'S TREE ORDINANCES WHEN EXCAVATING NEAR TREES.

11. ALL WORK WITHIN THE 100-YEAR FLOODPLAIN SHALL BE DONE IN ACCORDANCE WITH FLOODPLAIN DEVELOPMENT PERMIT.

12. ANY WORK COMPLETED WITHOUT PRIOR WRITTEN AUTHORIZATION WHICH IS NOT INCLUDED IN THESE PLANS AND SPECIFICATIONS WILL NOT BE COMPENSATED BY THE SAN ANTONIO WATER SYSTEM.

13. HOLIDAY WORK: CONTRACTORS WILL NOT BE ALLOWED TO PERFORM SAWS WORK ON SAWS RECOGNIZED HOLIDAYS.

    WEEKEND WORK: CONTRACTORS ARE REQUIRED TO SUBMIT REQUEST TO THE SAWS INSPECTION CONSTRUCTION DEPARTMENT BY 12:00PM ON THE WEDNESDAY PRIOR TO THE WEEKEND BEING REQUESTED. REQUEST SHOULD BE SENT TO CONSTWORKREQ@SAWS.ORG. ANY AND ALL SAWS UTILITY WORK INSTALLED WITHOUT WEEKEND APPROVAL WILL BE SUBJECT TO BE UNCOVERED FOR PROPER INSPECTION AT NO COST TO SAWS.

14. PRE-CON SITE VIDEO: BEFORE THE START OF ANY CONSTRUCTION. THE SITE MUST BE VIDEO RECORDED BY THE CONTRACTOR WITH ONE COPY SUBMITTED TO SAWS INSPECTIONS. A PRE-SITE VIDEO WILL PROVIDE ACCURATE DOCUMENTATION OF THE EXISTING CONDITIONS (NSPI).

15. POWER POLE BRACING: CONTRACTORS SHOULD BE ADVISED THAT THERE ARE EXISTING OVERHEAD UTILITY POLES ALONG THE PROJECT CORRIDOR. CONTRACTORS SHOULD FURTHER BE ADVISED THAT IF THE DISTANCE FROM THE OUTSIDE FACE OF A UTILITY TRENCH TO THE FACE OF A UTILITY POLE IS LESS THAN 5 FEET, SAID UTILITY POLE IS SUBJECT TO BRACING, BASED ON A DETERMINATION MADE BY UTILITY POLE OWNER. IT IS ADVISABLE FOR THE CONTRACTOR TO REVIEW THE CONSTRUCTION DOCUMENTS AND VISIT THE CONSTRUCTION SITE TO DETERMINE POTENTIAL IMPACTS.

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

17. CONTRACTOR SHALL COMPLY WITH APPLICABLE REGULATIONS INCLUDING, BUT NOT LIMITED TO, THOSE OVERSEEN BY THE U.S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA). OSHA INFORMATION AND RELATED MATERIALS MAY BE OBTAINED AT HTTPS://WWW.OSHA.GOV/ OR AT THE OSHA SAN ANTONIO OFFICE LOCATED AT FOUNTAINHEAD TOWER, SUITE 605 8200 W. INTERSTATE 10 SAN ANTONIO, TX 78230 WHICH IS ALSO REACHABLE BY PHONE AT (210) 472-5040.

18. TRENCH EXCAVATION SAFETY PROTECTION: CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/ SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITE(S) WITHIN THE PROJECT WORK AREAS IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES. THE CONTRACTOR'S IMPLEMENTATION OF THE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLIES 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.

SEWER SECTION:

19. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT NO SANITARY SEWER OVERFLOW (SSO) OCCURS AS A RESULT OF THEIR WORK. ALL CONTRACTOR PERSONNEL RESPONSIBLE FOR SSO PREVENTION AND CONTROL SHALL BE TRAINED ON PROPER RESPONSE. SHOULD AN SSO OCCUR, THE CONTRACTOR SHALL:

    A. IDENTIFY THE SOURCE OF THE SSO AND NOTIFY SAWS EMERGENCY OPERATIONS CENTER (EOC) IMMEDIATELY AT 210-704-SAWS (210-704-7297). PROVIDE THE ADDRESS OF THE SPILL AND AN ESTIMATED VOLUME OR FLOW.

    B. ATTEMPT TO ELIMINATE THE SOURCE OF THE SSO.

    C. CONTAIN SEWAGE FROM THE SSO TO THE EXTENT OF PREVENTING A POSSIBLE CONTAMINATION OF WATERWAYS.

    D. CLEAN UP SPILL SITE (RETURN CONTAINED SEWAGE TO THE COLLECTION SYSTEM IF POSSIBLE)AND PROPERLY DISPOSE OF CONTAMINATED SOIL/MATERIALS.

    E. CLEAN THE AFFECTED SEWER MAINS AND REMOVE ANY DEBRIS.

    F. MEET ALL POST-SSO REQUIREMENTS AS PER THE EPA CONSENT DECREE, INCLUDING LINE CLEANING AND TELEVISING THE AFFECTED SEWER MAINS (AT SAWS DIRECTION) WITHIN 24 HOURS.

    SHOULD THE CONTRACTOR FAIL TO ADDRESS AN SSO IMMEDIATELY AND TO SAWS SATISFACTION, THEY WILL BE RESPONSIBLE FOR ALL COSTS INCURRED BY SAWS, INCLUDING ANY FINES FROM EPA.NO SEPARATE MEASUREMENT OR PAYMENT SHALL BE MADE FOR THIS WORK. ALL WORK SHALL BE DONE ACCORDING TO GUIDELINES SET BY THE TCEQ AND SAWS.

20. THE CONTRACTOR SHALL PROVIDE BYPASS PUMPING OF SEWAGE AROUND EACH SEGMENT OF PIPE TO BE REPLACED, IN ACCORDANCE WITH SAWS STANDARD SPECIFICATION ITEM NO. 865, "BYPASS PUMPING SMALL DIAMETER SANITARY SEWER MAINS" AND STANDARD SPECIFICATION ITEM NO.864, "BYPASS PUMPING LARGE DIAMETER SANITARY SEWER MAINS" AS APPLICABLE. PAYMENT FOR SUCH WORK WILL BE MADE UNDER THE APPROPRIATE BID ITEM ASSOCIATED WITH SANITARY SEWER BYPASS PUMPING IN ACCORDANCE WITH SAWS STANDARD SPECIFICATIONS 865 AND 864.

21. PRIOR TO TIE-INS, ANY SHUTDOWNS OF EXISTING FORCE MAINS OF ANY SIZE MUST BE COORDINATED WITH THE SAWS CONSTRUCTION INSPECTION DIVISION AT 210-233-3500 AND/OR SAWS PRODUCTION GROUPS AT LEAST TWO WEEKS OR MORE IN ADVANCE OF THE SHUTDOWN. THE CONTRACTOR MUST ALSO PROVIDE A SEQUENCE OF WORK AS RELATED TO THE TIE-INS; THIS IS AT NO ADDITIONAL COST TO SAWS OR THE PROJECT AND IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO SEQUENCE THE WORK ACCORDINGLY.

22. ELEVATIONS POSTED FOR TOP OF MANHOLES ARE FOR REFERENCE ONLY: IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO MAKE ALLOWANCES AND ADJUSTMENTS FOR TOP OF MANHOLES TO MATCH THE FINISHED GRADE OF THE PROJECT'S IMPROVEMENTS (NSPI).

23. MANHOLE REMOVAL: WHERE EXISTING MANHOLES ARE TO BE REPLACED BY THE CONTRACTOR, THE EXISTING MANHOLES SHALL BE REMOVED. (NSPI)

24. MANHOLE REMOVAL: WHERE EXISTING MANHOLES ARE TO BE REPLACED BY THE CONTRACTOR, THE EXISTING MANHOLES SHALL BE REMOVED. (NSPI)

25. SMART MANHOLE COVERS: THE CONTRACTOR SHALL NOTIFY SAWS EOC AT 210-704-SAWS (210-233-7297) AND EITHER AMERICA ESPINOZA AT 210-233-2934 OR JOSE A. MARTINEZ AT 210-233-3071 A MINIMUM OF 72 HOURS, NOT COUNTING WEEKENDS OR SAWS HOLIDAYS, BEFORE WORKING ON THE PIPE OR MANHOLE, IN ORDER TO HAVE SAWS REMOVE THE SMART COVER. ANY DAMAGE DONE TO THE SMART COVER WILL BE CHARGED TO THE CONTRACTOR THROUGH A CHANGE ORDER.

26. FLOW METERS IN MANHOLES: THE CONTRACTOR SHALL NOTIFY BOBBY JOHNSON AT 210-233-3493 OR ABEL BORUNDA AT 210-233-3704 A MINIMUM OF 72 HOURS, NOT COUNTING WEEKENDS OR SAWS HOLIDAYS, BEFORE WORKING ON THE PIPE OR MANHOLE, IN ORDER TO HAVE SAWS REMOVE THE FLOW METER IN THE MANHOLE. ANY DAMAGE DONE TO THE FLOW METER WILL BE CHARGED TO THE CONTRACTOR THROUGH A CHANGE ORDER.

NOTES:

1. NSPI- NOT A SEPARATE PAY ITEM.

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

3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING OPERATION OF ALL EXISTING UTILITIES AFFECTED BY PROPOSED CONSTRUCTION.

4. WHEEL CHAIR RAMPS REPAIR ONLY REQUIRES AFFECTED AREA TO BE REPAIRED.

5. TREE PROTECTION IS NSPI.

6. THE 2021 SAWS STANDARDS SHALL BE FOLLOWED FOR ALL APPLICABLE ITEMS.

7. NOTE FOR THE CITY OF SAN ANTONIO FLATWORK ALL LIMITS FOR CURBS, SIDEWALK, AND TREE PREP BEYOND WHAT IS CONSIDERED INCIDENTAL TO NORMAL UTILITY CONSTRUCTION WILL BE ADDRESSED BY THE SAWS INSPECTOR. SAWS INSPECTOR WILL ALSO DETERMINE IF ADDITIONAL COMPENSATION IS WARRANTED IF LIMITS EXCEED INCIDENTALS.

8. THE EXISTENCE AND LOCATION OF UNDERGROUND UTILITIES INDICATED ON THE PLANS ARE TAKEN FROM THE BEST RECORDS AVAILABLE AND ARE NOT GUARANTEED TO BE ACCURATE.

STATE OF TEXAS
AYDA S. GONZALES, P.E.
96594
LICENSED
PROFESSIONAL ENGINEER

100% SUBMITTAL 5/24/2025

AG3 Group, LLC
ENGINEERING · SURVEY · CONSTRUCTION
4800 FREDERICKSBURG RD. SUITE 200SL
SAN ANTONIO, TX 78229
P:210-208-9400 F:210-208-9401
TBPE No. F-10015
TBPLS No. 10193922

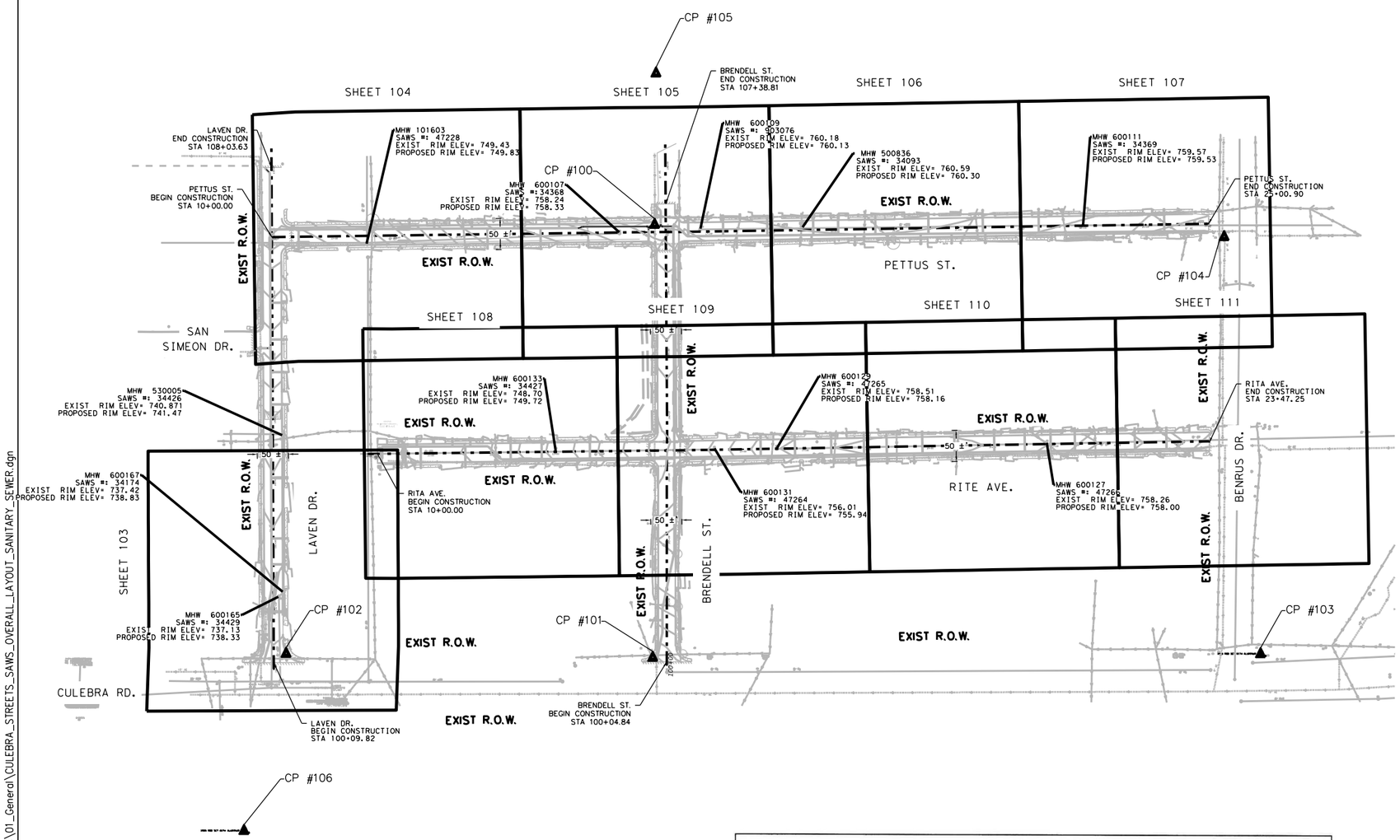
NO.	REVISION	DRAWN	APPROVED	DATE

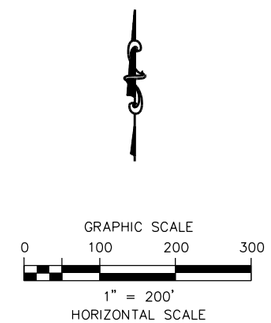
REVISIONS

CULEBRA AREA STREETS
SANITARY SEWER PLAN
GENERAL NOTES AND QUANTITIES

DEVELOPER:
CONT. | BUDGET PROJ.
SUBMITTED
APPROVED

MAP No.
SECT. No.
DR. AMJ | CK. AG | JOB No. 23-5526
SHEET 171





CONTROL POINTS				
POINT NO.	NORTHING	EASTING	EXIST. ELEVATION	DESCRIPTION
CP #100	13711572.4123	2099588.0194	759.76	MAGNETIC NAIL
CP #101	13710878.3343	2099585.1334	751.13	MAGNETIC NAIL
CP #102	13710884.5373	2098997.6864	737.09	MAGNETIC NAIL
CP #103	13710883.9853	2100559.0174	754.40	MAGNETIC NAIL
CP #104	13711552.7353	2100500.6094	756.68	MAGNETIC NAIL
CP #105	13711814.8053	2099590.3614	766.58	MAGNETIC NAIL
CP #106	13710600.5553	2098930.0874	733.47	MAGNETIC NAIL

1. HORIZONTAL ALIGNMENT DATA LOCATED ON ALL ROADWAY PLAN AND PROFILES (PAGES 56–76) OF THE CITY OF SAN ANTONIO PUBLIC WORKS DEPARTMENT "CULEBRA AREA STREETS BRENDELL ST, RITA ST, LAVEN DR, PETTUS ST" PLAN SET.

STATE OF TEXAS
AYDA S. GONZALES, P.E.
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NO.	REVISION	DRAWN	APPROVED	DATE

REVISIONS

CULEBRA AREA STREETS

SANITARY SEWER PLAN

PROJECT LAYOUT

DEVELOPER:

CONT. | BUDGET PROJ.

SUBMITTED

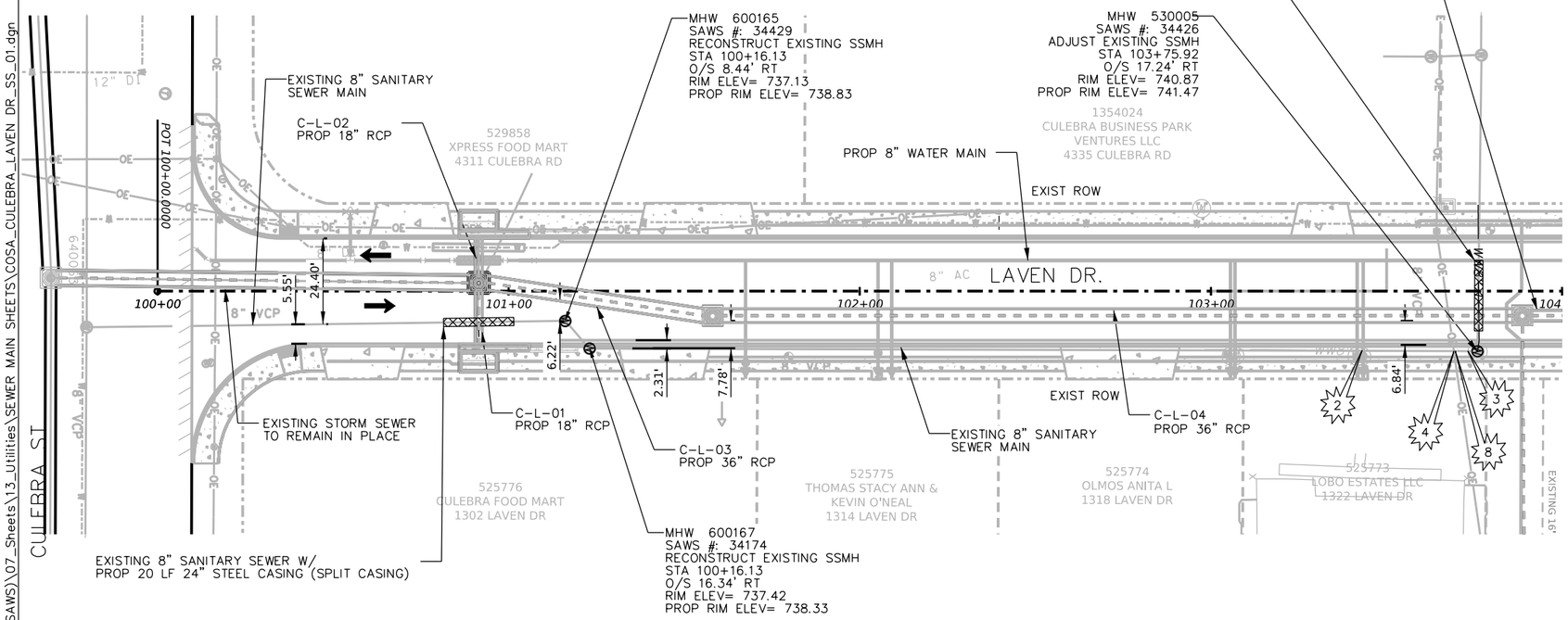
APPROVED

MAP No. | SHEET

SECT. No.

DR. AMJ | CK. AG | JOB No. 23-5526 | 172

ESTIMATED QUANTITIES			
ITEM NO.	DESCRIPTION	UNIT	QUANTITY
550.1	TRENCH EXCAVATION SAFETY PROTECTION	LF	40
851	MANHOLE ADJUSTMENT	EA	1
855	RECONSTRUCTION OF EXISTING MANHOLE	EA	2
856	24" STEEL CASING (SPLIT CASING)	LF	40



CAUTION!!!

1. SANITARY SEWER CROSSING
2. WATER LINE CROSSING
3. GAS CROSSING
4. OVERHEAD ELECTRIC CABLE CROSSING
5. OVERHEAD ELECTRIC TELEPHPNE/CABLE CROSSING
6. OVERHEAD TELEPHONE/ CABLE CROSSING
7. UNDERGROUND CABLE CROSSING
8. UNDERGROUND TELEPHONE CROSSING
9. UNDERGROUND FIBER OPTIC CABLE CROSSING

GRAPHIC SCALE

0 20 40 60

1" = 40'
HORIZONTAL SCALE

LEGEND OF UTILITY TYPES

EXIST COMMS	
EXIST FIBER OPTIC	F-O
EXIST GAS 2"	2" GAS
EXIST OVERHEAD ELECTRIC	OE
EXIST SAN SEWER 8" AC	8" AC SS
EXIST SAN SEWER 8" CP	8" CP SS
EXIST SAN SEWER 8" RL	8" RL SS
EXIST SAN SEWER 8" VCP	8" VCP SS
EXIST WATER 6" AC	6" AC W
EXIST WATER 8" AC	8" AC W
EXIST WATER 8" DI	8" DI W
EXIST WATER 8" PVC	8" PVC W
EXIST WATER 12" AC	12" AC W

LEGEND OF UTILITY SYMBOLS

EXIST TELE JUNCTION BOX	T
EXIST TELE PEDESTAL	T
EXIST TELE MANHOLE	T
EXIST CABLE PEDESTAL	CTV
EXIST ELEC POWER POLE	
EXIST SANITARY SEWER MANHOLE	W
EXIST WATER VALVE	WV
EXIST WATER METER	W
EXIST FIRE HYDRANT	
EXIST GAS VALVE	G

LEGEND OF ROADWAY SYMBOLS

EXIST. R.O.W.	
PROPOSED STORM SEWER	

STATE OF TEXAS
AYDA S. GONZALES, P.E.
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LICENSED
PROFESSIONAL ENGINEER

100% SUBMITTAL 5/24/2025

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4800 FREDERICKSBURG RD. SUITE 200SL
SAN ANTONIO, TX 78229
P: 210-208-9400 F: 210-208-9401
TBPE No. F-10015
TBPLS No. 10193922

NO.	REVISION	DRAWN	APPROVED	DATE

REVISIONS

SANITARY SEWER PLAN
LAVEN DR.

(STA. 10+00-END)

DEVELOPER:

CONT. | BUDGET PROJ.

SUBMITTED

APPROVED

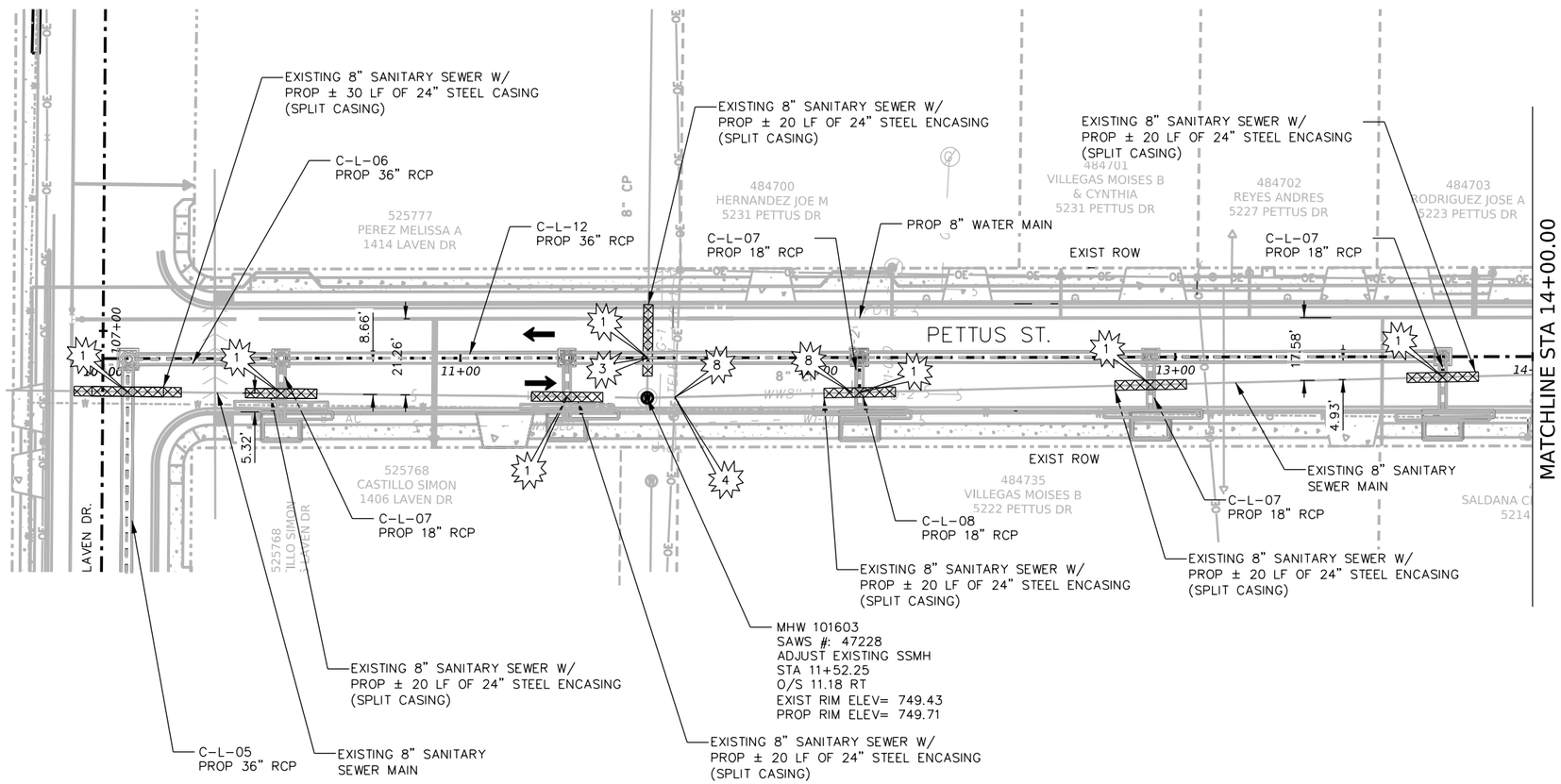
MAP No. | SHEET

SECT. No.

DR. AMGJ | CK. MG | JOB No. 23-5526 | 173

NOTES
1. THE LOCATION AND ELEVATION OF ALL UTILITIES ARE APPROXIMATE. CONTRACTOR TO VERIFY AND LOCATE ALL UTILITIES PRIOR TO CONSTRUCTION.

ESTIMATED QUANTITIES			
ITEM NO.	DESCRIPTION	UNIT	QUANTITY
550.1	TRENCH EXCAVATION SAFETY PROTECTION	LF	150
851	MANHOLE ADJUSTMENT	EA	1
856	24" STEEL CASING (SPLIT CASING)	LF	150



NOTES
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CAUTION!!!

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2. WATER LINE CROSSING
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5. OVERHEAD ELECTRIC TELEPHPNE/CABLE CROSSING
6. OVERHEAD TELEPHONE/ CABLE CROSSING
7. UNDERGROUND CABLE CROSSING
8. UNDERGROUND TELEPHONE CROSSING
9. UNDERGROUND FIBER OPTIC CABLE CROSSING

GRAPHIC SCALE
0 20 40 60
1" = 40'
HORIZONTAL SCALE

STATE OF TEXAS
AYDA S. GONZALES, P.E.
96594
LICENSED PROFESSIONAL ENGINEER

100% SUBMITTAL 5/24/2025

LEGEND OF UTILITY TYPES

EXIST COMMS	
EXIST FIBER OPTIC	F-O
EXIST GAS 2"	2" GAS
EXIST OVERHEAD ELECTRIC	OE
EXIST SAN SEWER 8" AC	8" AC SS
EXIST SAN SEWER 8" CP	8" CP SS
EXIST SAN SEWER 8" RL	8" RL SS
EXIST SAN SEWER 8" VCP	8" VCP SS
EXIST WATER 6" AC	6" AC W
EXIST WATER 8" AC	8" AC W
EXIST WATER 8" DI	8" DI W
EXIST WATER 8" PVC	8" PVC W
EXIST WATER 12" AC	12" AC W

LEGEND OF UTILITY SYMBOLS

EXIST TELE JUNCTION BOX	T
EXIST TELE PEDESTAL	T
EXIST TELE MANHOLE	T
EXIST CABLE PEDESTAL	CTV
EXIST ELEC POWER POLE	
EXIST SANITARY SEWER MANHOLE	W
EXIST WATER VALVE	WV
EXIST WATER METER	W
EXIST FIRE HYDRANT	
EXIST GAS VALVE	GV

LEGEND OF ROADWAY SYMBOLS

EXIST. R.O.W.	
PROPOSED STORM SEWER	

AG3 Group, LLC
ENGINEERING · SURVEY · CONSTRUCTION
4800 FREDERICKSBURG RD. SUITE 200SL
SAN ANTONIO, TX 78229
P:210-208-9400 F:210-208-9401
TBPE No. F-10015
TBPLS No. 10193922

NO.	REVISION	DRAWN	APPROVED	DATE

REVISIONS

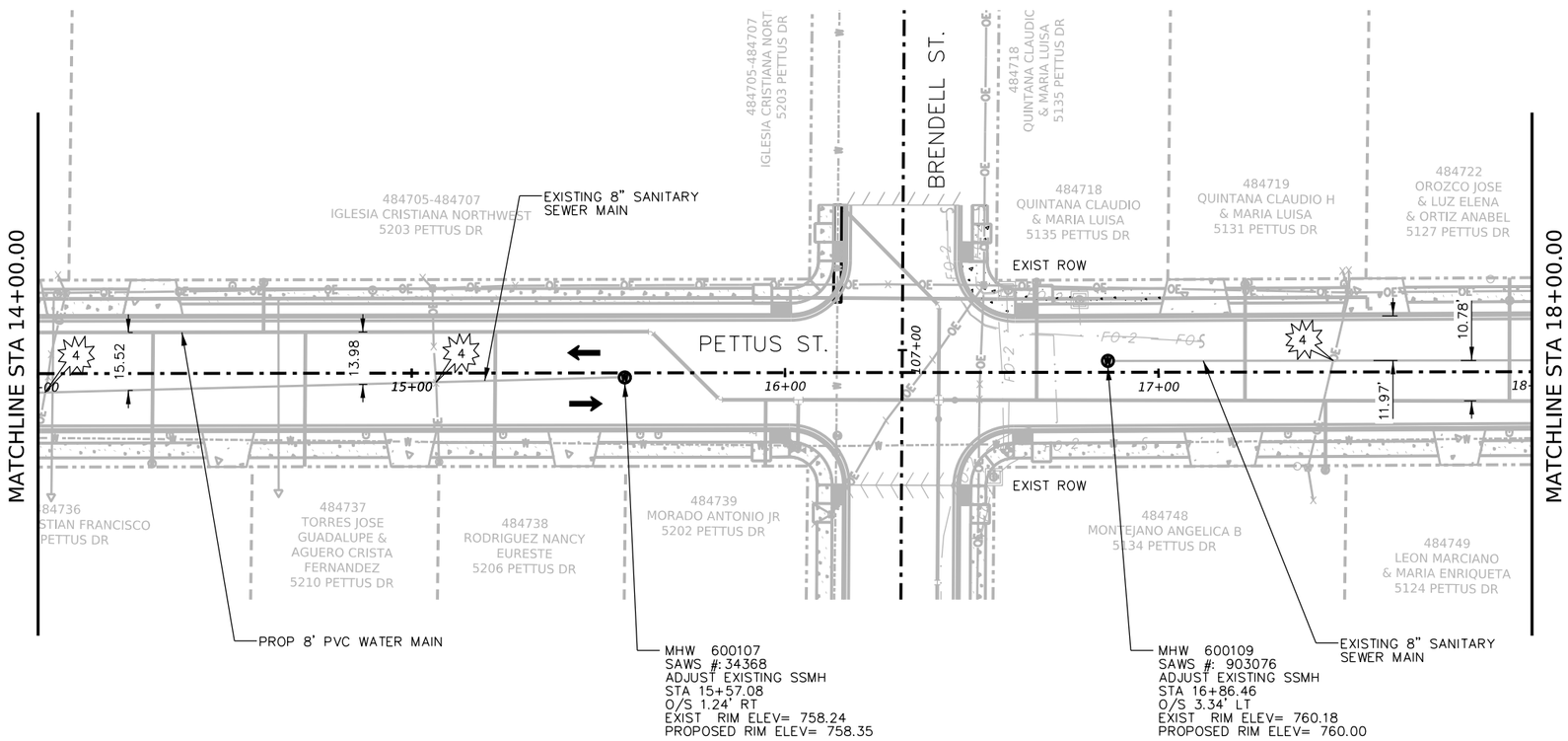
SANITARY SEWER PLAN
PETTUS ST.
(STA. 10+00-14+00)

DEVELOPER:
CONT. BUDGET PROJ.
SUBMITTED
APPROVED

MAP No.
SECT. No.
DR. AMJ CK. AG JOB No. 23-5526
SHEET 174

5/20/2025 4:49:43 PM
Z:\ENGINEERING DEPARTMENT\ESC 24034 Culebra Area Streets (SAWS)\07_Sheets\13_Utilities\SEWER MAIN SHEETS\COSA_CULEBRA_PETTUS ST_SS_01.dgn

ESTIMATED QUANTITIES			
ITEM NO.	DESCRIPTION	UNIT	QUANTITY
851	MANHOLE ADJUSTMENT	EA	2



CAUTION!!!

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8. UNDERGROUND TELEPHONE CROSSING
9. UNDERGROUND FIBER OPTIC CABLE CROSSING

GRAPHIC SCALE
0 20 40 60
1" = 40'
HORIZONTAL SCALE

STATE OF TEXAS
AYDA S. GONZALES, P.E.
96594
LICENSED PROFESSIONAL ENGINEER

100% SUBMITTAL 5/24/2025

LEGEND OF UTILITY TYPES

EXIST COMMS	
EXIST FIBER OPTIC	F-O
EXIST GAS 2"	2" GAS
EXIST OVERHEAD ELECTRIC	OE
EXIST SAN SEWER 8" AC	8" AC SS
EXIST SAN SEWER 8" CP	8" CP SS
EXIST SAN SEWER 8" RL	8" RL SS
EXIST SAN SEWER 8" VCP	8" VCP SS
EXIST WATER 6" AC	6" AC W
EXIST WATER 8" AC	8" AC W
EXIST WATER 8" DI	8" DI W
EXIST WATER 8" PVC	8" PVC W
EXIST WATER 12" AC	12" AC W

LEGEND OF UTILITY SYMBOLS

EXIST TELE JUNCTION BOX	T
EXIST TELE PEDESTAL	T
EXIST TELE MANHOLE	T
EXIST CABLE PEDESTAL	CTV
EXIST ELEC POWER POLE	
EXIST SANITARY SEWER MANHOLE	W
EXIST WATER VALVE	WV
EXIST WATER METER	W
EXIST FIRE HYDRANT	
EXIST GAS VALVE	GV

LEGEND OF ROADWAY SYMBOLS

EXIST. R.O.W.	
PROPOSED STORM SEWER	

AG3 Group, LLC
ENGINEERING • SURVEY • CONSTRUCTION
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SAN ANTONIO, TX 78229
P:210-208-9400 F:210-208-9401
TBPE No. F-10015
TBPLS No. 10193922

NO.	REVISION	DRAWN	APPROVED	DATE

REVISIONS

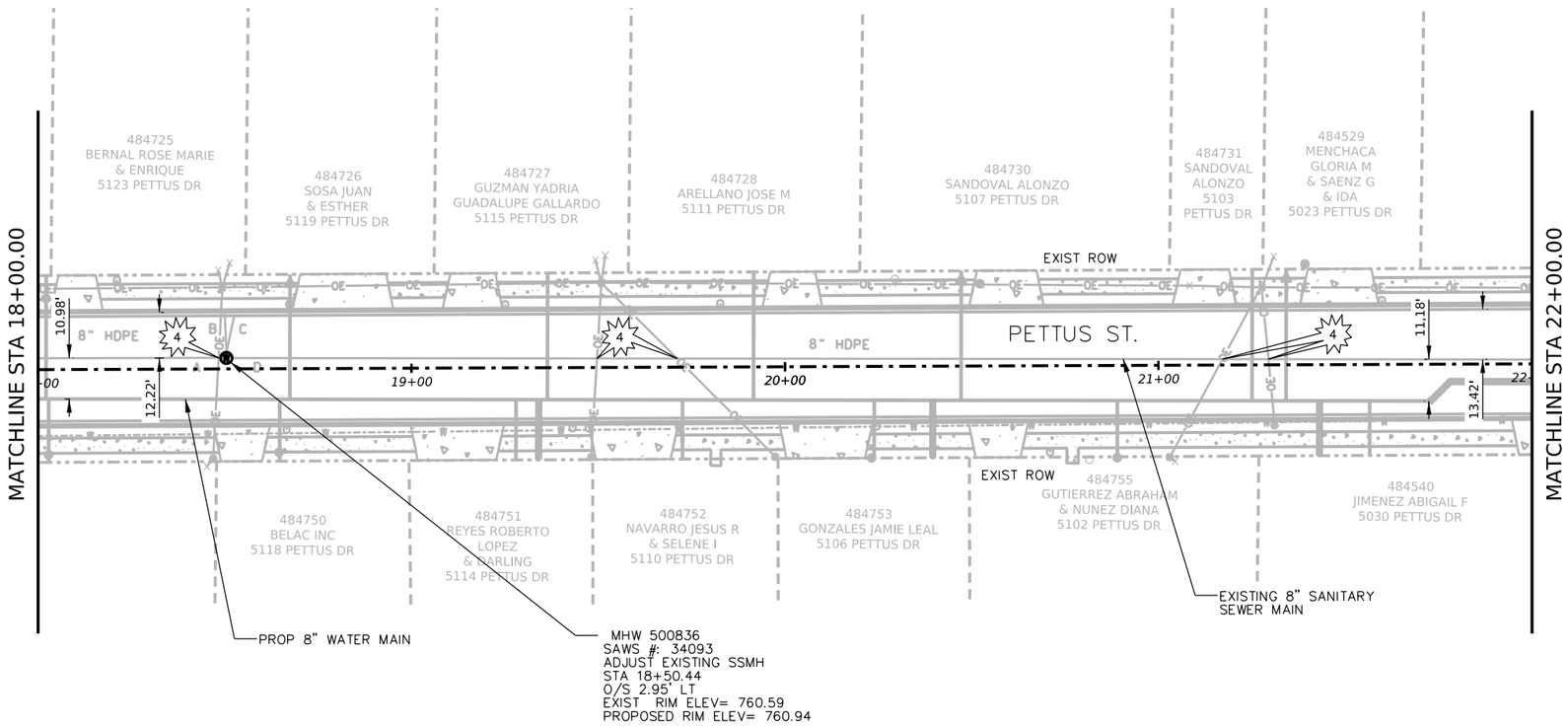
SANITARY SEWER PLAN
PETTUS ST.
(STA. 14+00–18+00)

DEVELOPER:
CONT. BUDGET PROJ.
SUBMITTED
APPROVED

MAP No. SHEET
SECT. No. 175
DR. AMJ CK. AG JOB No. 23-5028

NOTES
1. THE LOCATION AND ELEVATION OF ALL UTILITIES ARE APPROXIMATE. CONTRACTOR TO VERIFY AND LOCATE ALL UTILITIES PRIOR TO CONSTRUCTION.

ESTIMATED QUANTITIES			
ITEM NO.	DESCRIPTION	UNIT	QUANTITY
851	MANHOLE ADJUSTMENT	EA	1



NOTES
1. THE LOCATION AND ELEVATION OF ALL UTILITIES ARE APPROXIMATE. CONTRACTOR TO VERIFY AND LOCATE ALL UTILITIES PRIOR TO CONSTRUCTION.

CAUTION!!!

- 1 SANITARY SEWER CROSSING
- 2 WATER LINE CROSSING
- 3 GAS CROSSING
- 4 OVERHEAD ELECTRIC CABLE CROSSING
- 5 OVERHEAD ELECTRIC TELEPHPNE/CABLE CROSSING
- 6 OVERHEAD TELEPHONE/ CABLE CROSSING
- 7 UNDERGROUND CABLE CROSSING
- 8 UNDERGROUND TELEPHONE CROSSING
- 9 UNDERGROUND FIBER OPTIC CABLE CROSSING

GRAPHIC SCALE
0 20 40 60
1" = 40'
HORIZONTAL SCALE

STATE OF TEXAS
AYDA S. GONZALES, P.E.
96594
LICENSED
PROFESSIONAL ENGINEER

100% SUBMITTAL 5/24/2025

AG3 Group, LLC
ENGINEERING · SURVEY · CONSTRUCTION
4800 FREDERICKSBURG RD. SUITE 200SL
SAN ANTONIO, TX 78229
P: 210-208-9400 F: 210-208-9401
TBPE No. F-10015
TBPLS No. 10193922

LEGEND OF UTILITY TYPES

EXIST COMMS	
EXIST FIBER OPTIC	F-O
EXIST GAS 2"	2" GAS
EXIST OVERHEAD ELECTRIC	OE
EXIST SAN SEWER 8" AC	8" AC SS
EXIST SAN SEWER 8" CP	8" CP SS
EXIST SAN SEWER 8" RL	8" RL SS
EXIST SAN SEWER 8" VCP	8" VCP SS
EXIST WATER 6" AC	6" AC W
EXIST WATER 8" AC	8" AC W
EXIST WATER 8" DI	8" DI W
EXIST WATER 8" PVC	8" PVC W
EXIST WATER 12" AC	12" AC W

LEGEND OF UTILITY SYMBOLS

EXIST TELE JUNCTION BOX	T
EXIST TELE PEDESTAL	T
EXIST TELE MANHOLE	T
EXIST CABLE PEDESTAL	CTV
EXIST ELEC POWER POLE	
EXIST SANITARY SEWER MANHOLE	W
EXIST WATER VALVE	WV
EXIST WATER METER	W
EXIST FIRE HYDRANT	
EXIST GAS VALVE	GV

LEGEND OF ROADWAY SYMBOLS

EXIST. R.O.W.	
PROPOSED STORM SEWER	

NO.	REVISION	DRAWN	APPROVED	DATE

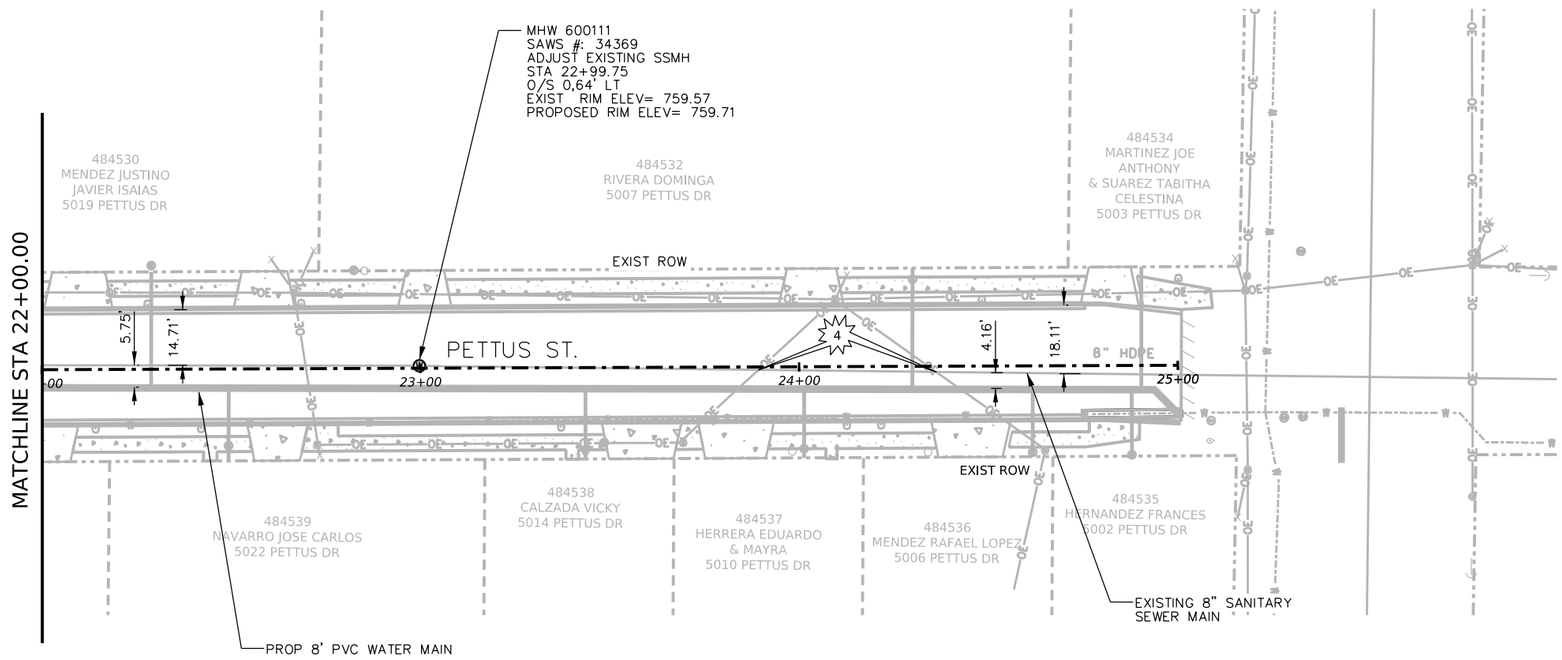
REVISIONS

SANITARY SEWER PLAN
PETTUS ST.
(STA. 18+00-22+00)

DEVELOPER:
CONT. BUDGET PROJ.
SUBMITTED
APPROVED

MAP No. SHEET
SECT. No. 176
DR. AMJ CK. AG JOB No. 23-5526

ESTIMATED QUANTITIES			
ITEM NO.	DESCRIPTION	UNIT	QUANTITY
851	MANHOLE ADJUSTMENT	EA	1



CAUTION!!!

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2. WATER LINE CROSSING
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6. OVERHEAD TELEPHONE/ CABLE CROSSING
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9. UNDERGROUND FIBER OPTIC CABLE CROSSING

GRAPHIC SCALE
0 20 40 60
1" = 40'
HORIZONTAL SCALE

LEGEND OF UTILITY TYPES

EXIST COMMS	
EXIST FIBER OPTIC	F-O
EXIST GAS 2"	2" GAS
EXIST OVERHEAD ELECTRIC	OE
EXIST SAN SEWER 8" AC	8" AC SS
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LEGEND OF UTILITY SYMBOLS

EXIST TELE JUNCTION BOX	T
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EXIST CABLE PEDESTAL	CTV
EXIST ELEC POWER POLE	
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LEGEND OF ROADWAY SYMBOLS

EXIST. R.O.W.	
PROPOSED STORM SEWER	

STATE OF TEXAS
AYDA S. GONZALES, P.E.
96594
LICENSED
PROFESSIONAL ENGINEER

100% SUBMITTAL 5/24/2025

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ENGINEERING · SURVEY · CONSTRUCTION
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SAN ANTONIO, TX 78229
P:210-208-9400 F:210-208-9401
TBPE No. F-10015
TBPLS No. 10193922

NO.	REVISION	DRAWN	APPROVED	DATE

REVISIONS

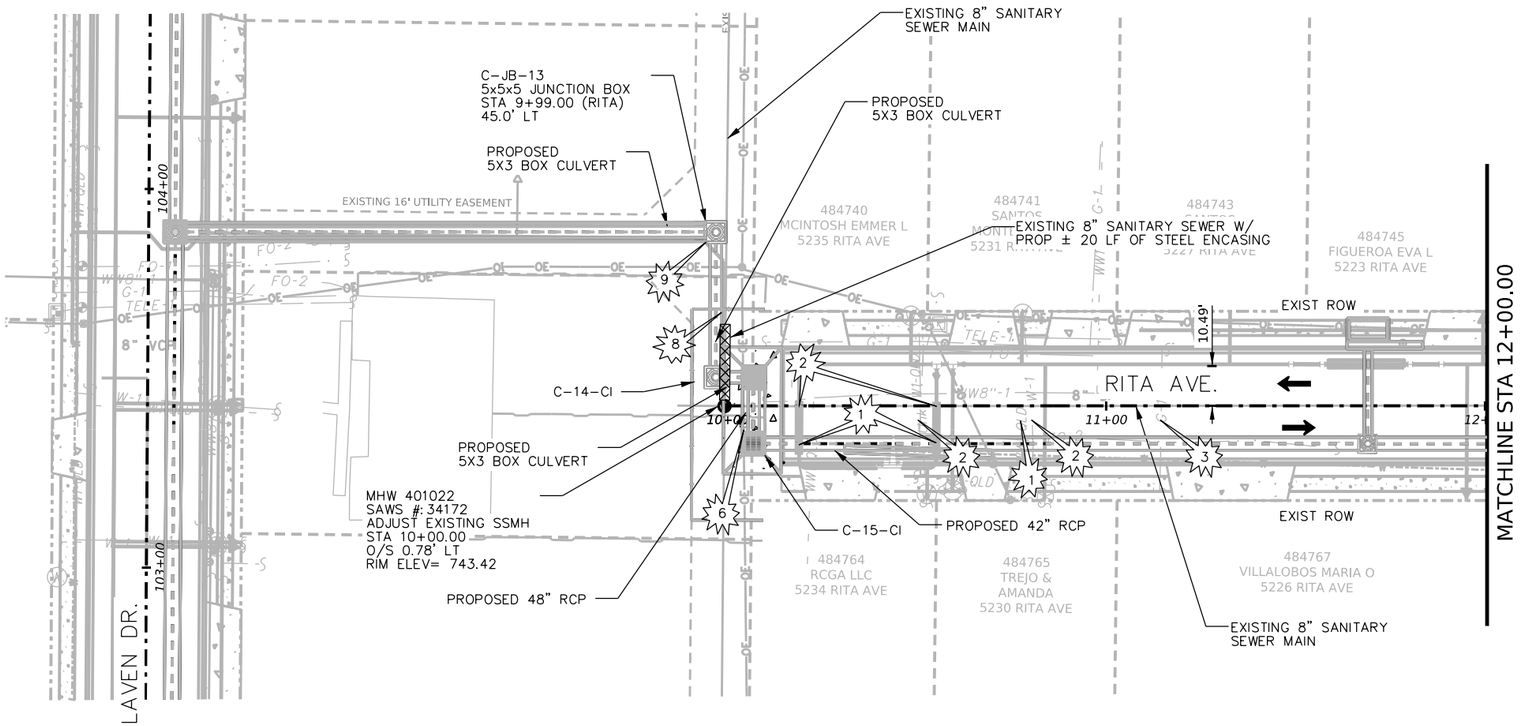
SANITARY SEWER PLAN
PETTUS ST.
(STA. 22+00-END)

DEVELOPER:
CONT. BUDGET PROJ.
SUBMITTED
APPROVED

MAP No. SHEET
SECT. No. 177
DR. AMJ CK. AG JOB No. 23-5526

NOTES
1. THE LOCATION AND ELEVATION OF ALL UTILITIES ARE APPROXIMATE. CONTRACTOR TO VERIFY AND LOCATE ALL UTILITIES PRIOR TO CONSTRUCTION.

ESTIMATED QUANTITIES			
ITEM NO.	DESCRIPTION	UNIT	QUANTITY
550.1	TRENCH EXCAVATION SAFETY PROTECTION	LF	20
851	MANHOLE ADJUSTMENT	EA	1
856	24" STEEL CASING (SPLIT CASING)	LF	20



CAUTION!!!

1. SANITARY SEWER CROSSING
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7. UNDERGROUND CABLE CROSSING
8. UNDERGROUND TELEPHONE CROSSING
9. UNDERGROUND FIBER OPTIC CABLE CROSSING

GRAPHIC SCALE
0 20 40 60
1" = 40'
HORIZONTAL SCALE

LEGEND OF UTILITY TYPES

EXIST COMMS	
EXIST FIBER OPTIC	F-O
EXIST GAS 2"	2" GAS
EXIST OVERHEAD ELECTRIC	OE
EXIST SAN SEWER 8" AC	8" AC SS
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EXIST WATER 8" PVC	8" PVC W
EXIST WATER 12" AC	12" AC W

LEGEND OF UTILITY SYMBOLS

EXIST TELE JUNCTION BOX	T
EXIST TELE PEDESTAL	T
EXIST TELE MANHOLE	T
EXIST CABLE PEDESTAL	CTV
EXIST ELEC POWER POLE	
EXIST SANITARY SEWER MANHOLE	W
EXIST WATER VALVE	WV
EXIST WATER METER	W
EXIST FIRE HYDRANT	
EXIST GAS VALVE	GV

LEGEND OF ROADWAY SYMBOLS

EXIST. R.O.W.	
PROPOSED STORM SEWER	

STATE OF TEXAS
AYDA S. GONZALES, P.E.
96594
LICENSED
PROFESSIONAL ENGINEER

100% SUBMITTAL 5/24/2025

AG3 Group, LLC
ENGINEERING · SURVEY · CONSTRUCTION
4800 FREDERICKSBURG RD. SUITE 200SL
SAN ANTONIO, TX 78229
P: 210-208-9400 F: 210-208-9401
TBPE No. F-10015
TBPLS No. 10193922

NO.	REVISION	DRAWN	APPROVED	DATE

REVISIONS

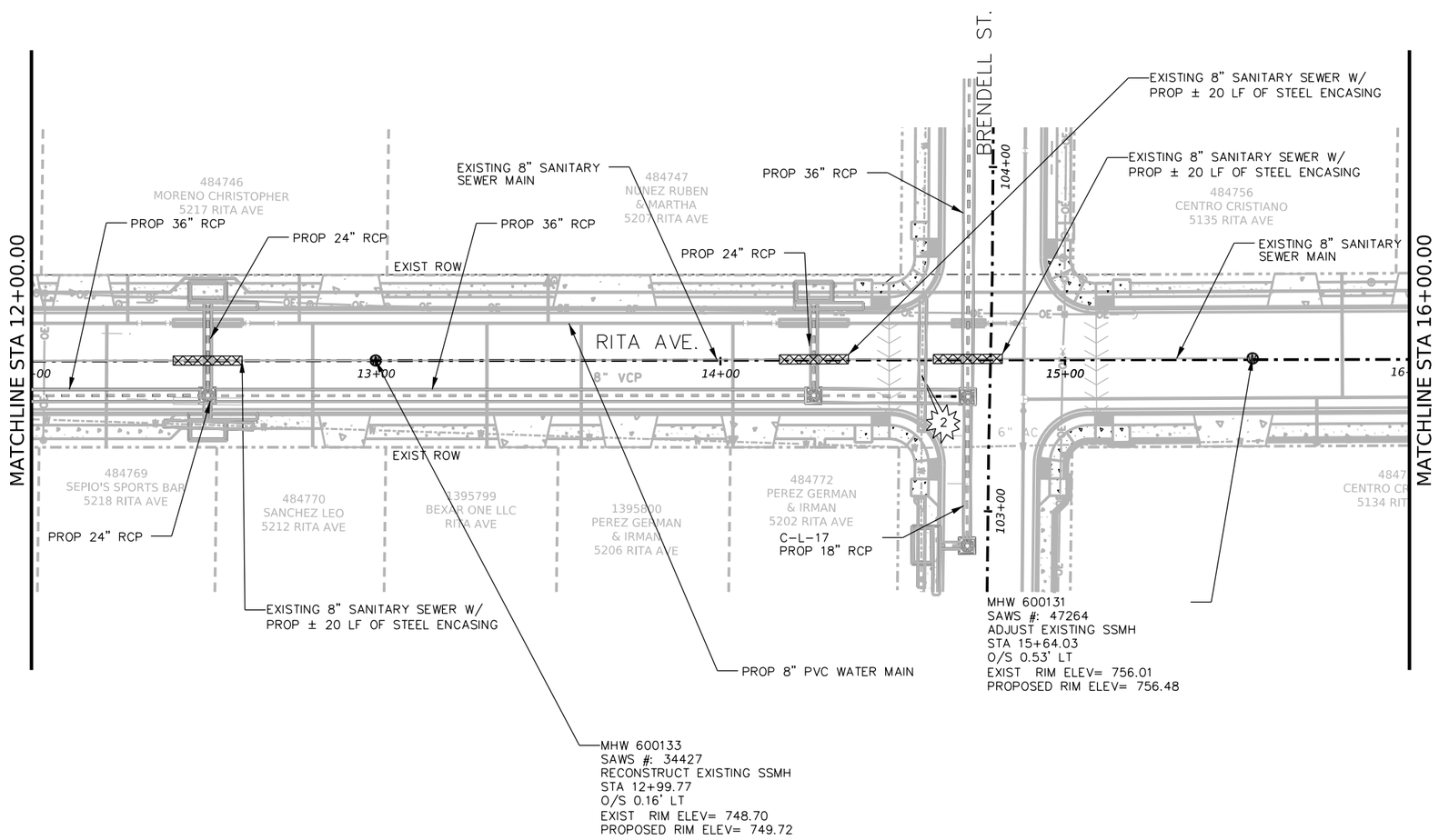
SANITARY SEWER PLAN
RITA ST.
(STA. 10+00-12+00)

DEVELOPER:
CONT. | BUDGET PROJ.
SUBMITTED
APPROVED

MAP No. | SHEET
SECT. No.
DR. AMJ | CK. AG | JOB No. 23-5526 | 178

NOTES
1. THE LOCATION AND ELEVATION OF ALL UTILITIES ARE APPROXIMATE. CONTRACTOR TO VERIFY AND LOCATE ALL UTILITIES PRIOR TO CONSTRUCTION.

ESTIMATED QUANTITIES			
ITEM NO.	DESCRIPTION	UNIT	QUANTITY
550.1	TRENCH EXCAVATION SAFETY PROTECTION	LF	60
851	MANHOLE ADJUSTMENT	EA	1
855	RECONSTRUCTION OF EXISTING MANHOLE	EA	1
856	24" STEEL CASING (SPLIT CASING)	LF	60



NOTES
1. THE LOCATION AND ELEVATION OF ALL UTILITIES ARE APPROXIMATE. CONTRACTOR TO VERIFY AND LOCATE ALL UTILITIES PRIOR TO CONSTRUCTION.

CAUTION!!!

1. SANITARY SEWER CROSSING
2. WATER LINE CROSSING
3. GAS CROSSING
4. OVERHEAD ELECTRIC CABLE CROSSING
5. OVERHEAD ELECTRIC TELEPHPNE/CABLE CROSSING
6. OVERHEAD TELEPHONE/ CABLE CROSSING
7. UNDERGROUND CABLE CROSSING
8. UNDERGROUND TELEPHONE CROSSING
9. UNDERGROUND FIBER OPTIC CABLE CROSSING

GRAPHIC SCALE
0 20 40 60
1" = 40'
HORIZONTAL SCALE

LEGEND OF UTILITY TYPES

EXIST COMMS	
EXIST FIBER OPTIC	F-O
EXIST GAS 2"	2" GAS
EXIST OVERHEAD ELECTRIC	OE
EXIST SAN SEWER 8" AC	8" AC SS
EXIST SAN SEWER 8" CP	8" CP SS
EXIST SAN SEWER 8" RL	8" RL SS
EXIST SAN SEWER 8" VCP	8" VCP SS
EXIST WATER 6" AC	6" AC W
EXIST WATER 8" AC	8" AC W
EXIST WATER 8" DI	8" DI W
EXIST WATER 8" PVC	8" PVC W
EXIST WATER 12" AC	12" AC W

LEGEND OF UTILITY SYMBOLS

EXIST TELE JUNCTION BOX	T
EXIST TELE PEDESTAL	T
EXIST TELE MANHOLE	T
EXIST CABLE PEDESTAL	CTV
EXIST ELEC POWER POLE	
EXIST SANITARY SEWER MANHOLE	W
EXIST WATER VALVE	WV
EXIST WATER METER	W
EXIST FIRE HYDRANT	
EXIST GAS VALVE	GV

LEGEND OF ROADWAY SYMBOLS

EXIST. R.O.W.	
PROPOSED STORM SEWER	

STATE OF TEXAS
AYDA S. GONZALES, P.E.
96594
LICENSED
PROFESSIONAL ENGINEER

100% SUBMITTAL 5/24/2025

AG3 Group, LLC
ENGINEERING · SURVEY · CONSTRUCTION
4800 FREDERICKSBURG RD. SUITE 200SL
SAN ANTONIO, TX 78229
P: 210-208-9400 F: 210-208-9401
TBPE No. F-10015
TBPLS No. 10193922

NO.	REVISION	DRAWN	APPROVED	DATE

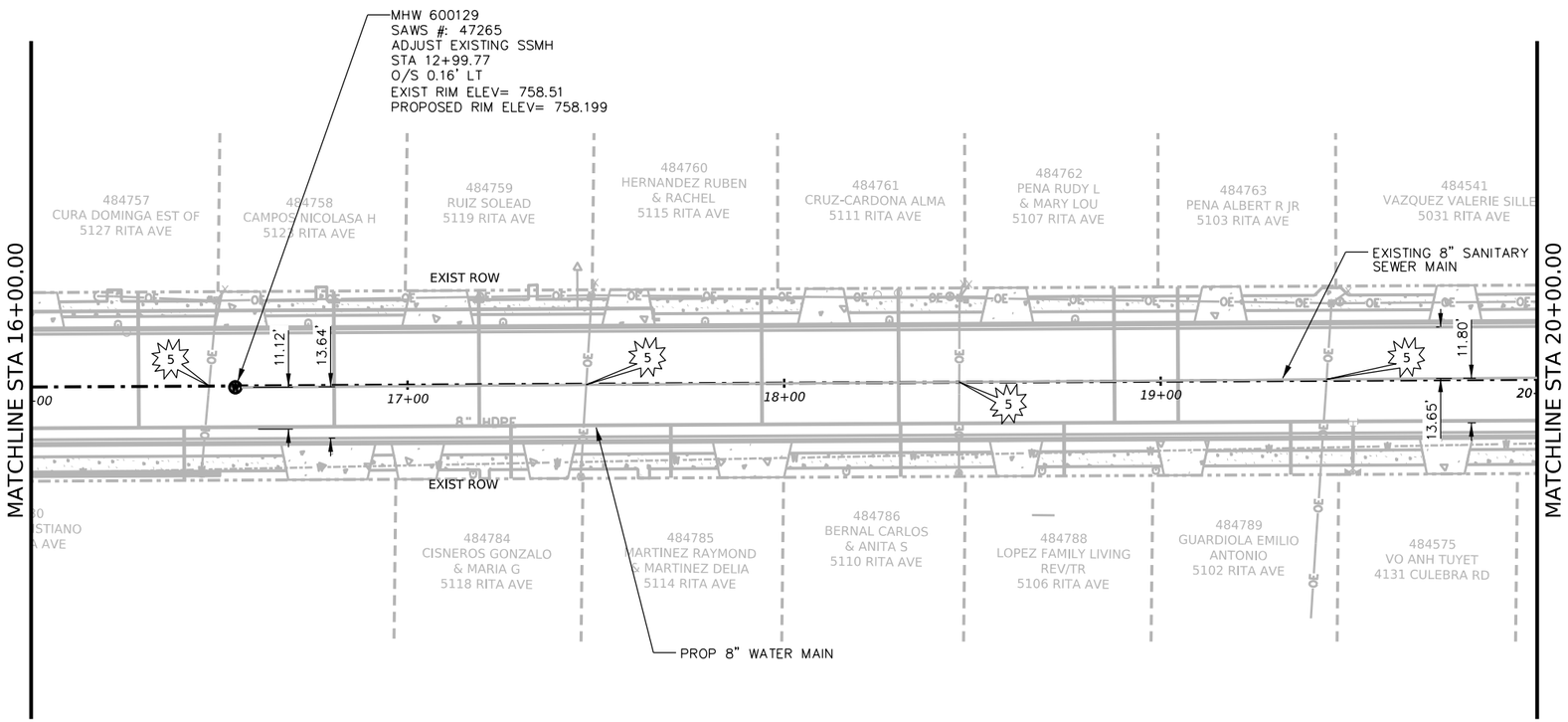
REVISIONS

SANITARY SEWER PLAN
RITA AVE.
(STA. 12+00-16+00)

DEVELOPER:
CONT. BUDGET PROJ.
SUBMITTED
APPROVED

MAP No.
SECT. No.
DR. AMJ CK. AG JOB No. 23-5526
SHEET 179

ESTIMATED QUANTITIES			
ITEM NO.	DESCRIPTION	UNIT	QUANTITY
851	MANHOLE ADJUSTMENT	EA	1



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GRAPHIC SCALE

0 20 40 60

1" = 40'
HORIZONTAL SCALE

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LEGEND OF ROADWAY SYMBOLS

EXIST. R.O.W.	
PROPOSED STORM SEWER	

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NO.	REVISION	DRAWN	APPROVED	DATE

REVISIONS

SANITARY SEWER PLAN
RITA AVE.

(STA. 16+00-20+00)

DEVELOPER:

CONT. | BUDGET PROJ.

SUBMITTED

APPROVED

MAP No. | SHEET 180

SECT. No.

DR. AMJ | CK. AG | JOB No. 23-5526

NOTES
1. THE LOCATION AND ELEVATION OF ALL UTILITIES ARE APPROXIMATE. CONTRACTOR TO VERIFY AND LOCATE ALL UTILITIES PRIOR TO CONSTRUCTION.

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ITEM NO.	DESCRIPTION	UNIT	QUANTITY
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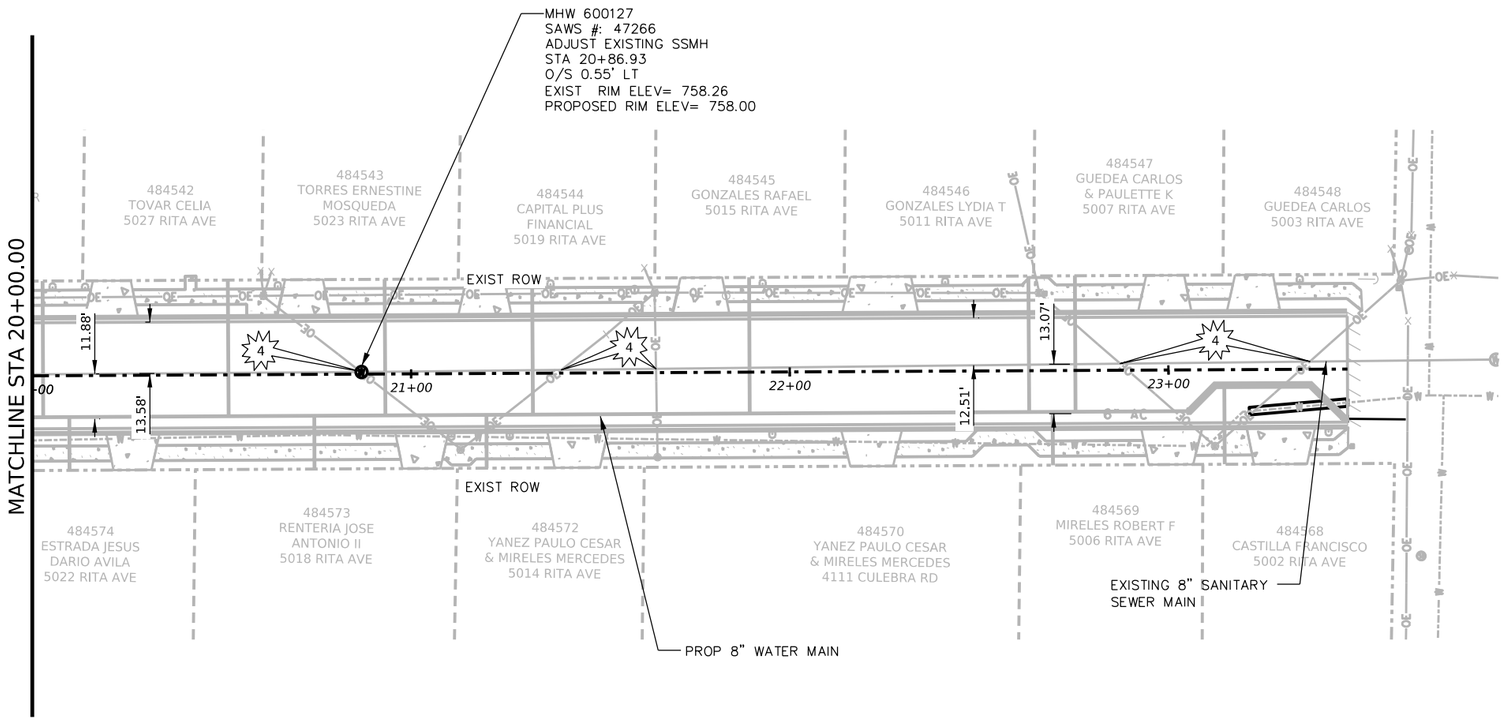

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GRAPHIC SCALE
0 20 40 60
1" = 40'
HORIZONTAL SCALE

STATE OF TEXAS
AYDA S. GONZALES, P.E.
96594
LICENSED PROFESSIONAL ENGINEER

100% SUBMITTAL 5/24/2025

LEGEND OF UTILITY TYPES

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EXIST. R.O.W.	
PROPOSED STORM SEWER	

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P:210-208-9400 F:210-208-9401
TBPE No. F-10015
TBPLS No. 10193922

NO.	REVISION	DRAWN	APPROVED	DATE

REVISIONS

SANITARY SEWER PLAN
RITA AVE.
(STA. 20+00-END)

DEVELOPER:
CONT. BUDGET PROJ.
SUBMITTED
APPROVED

MAP No. SHEET
SECT. No. 181
DR. AMJ CK. AG JOB No. 23-5526

NOTES
1. THE LOCATION AND ELEVATION OF ALL UTILITIES ARE APPROXIMATE. CONTRACTOR TO VERIFY AND LOCATE ALL UTILITIES PRIOR TO CONSTRUCTION.

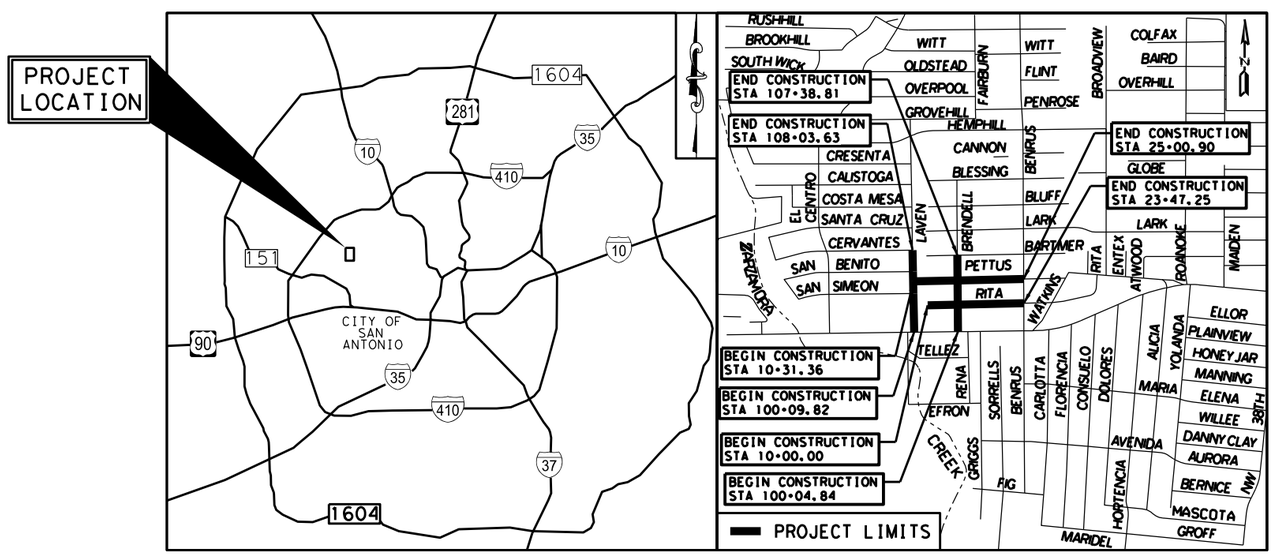
5/20/2025 5:37:07 PM
Z:\ENGINEERING DEPARTMENT\ESC 24034 Culebra Area Streets (SAWS)\07_Sheets\13_Utilities\SEWER MAIN SHEETS\COSA_CULEBRA_RITA ST_SS_04.dgn

SAN ANTONIO WATER SYSTEM

JOB NO: 23-5028

CULEBRA PARK AREA STREETS
BRENDELL ST, RITA ST, LAVEN DR, PETTUS ST
WATER PLANS

SHEET INDEX



LOCATION MAP
NOT TO SCALE

100% SUBMITTAL

STATE OF TEXAS
AYDA S. GONZALES, P.E.
96594
LICENSED
PROFESSIONAL ENGINEER

5/24/2025

APRIL 2025

SUBMITTAL PREPARED BY:

AG3 Group, LLC
ENGINEERING • SURVEY • CONSTRUCTION
4800 FREDERICKSBURG RD SUITE 200SL
SAN ANTONIO, TX 78229
P:210-208-9400 F:210-208-9401
TBPE #F-21809
TBPLS #10194622

GENERAL NOTES:

1. ALL MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THE SCOPE OF HIS CONTRACT SHALL BE APPROVED BY THE SAN ANTONIO WATER SYSTEM (SAWS) AND COMPLY WITH THE PLANS, SPECIFICATIONS, GENERAL CONDITIONS AND WITH THE FOLLOWING AS APPLICABLE:

   A. CURRENT TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) "DESIGN CRITERIA FOR DOMESTIC WASTEWATER SYSTEM", TEXAS ADMINISTRATIVE CODE (TAC) TITLE 30 PART 1 CHAPTER 217 AND "PUBLIC DRINKING WATER", TAC TITLE 30 PART 1 CHAPTER 290.

   B. CURRENT TXDOT "STANDARD SPECIFICATIONS FOR CONSTRUCTION OF HIGHWAYS, STREETS AND DRAINAGE."

   C. CURRENT "SAN ANTONIO WATER SYSTEM STANDARD SPECIFICATIONS FOR WATER AND SANITARY SEWER CONSTRUCTION."

   D. CURRENT CITY OF SAN ANTONIO "STANDARD SPECIFICATIONS FOR CONSTRUCTION."

   E. CURRENT CITY OF SAN ANTONIO "UTILITY EXCAVATION CRITERIA MANUAL"(UECM).

2. THE CONTRACTOR SHALL OBTAIN SAWS STANDARD DETAILS FROM SAWS WEBSITE, HTTPS://APPS.SAWS.ORG/BUSINESS_CENTER/SPECS/CONSTSPECS/ UNLESS OTHERWISE NOTED WITHIN DESIGN PLANS.

3. THE CONTRACTOR IS TO NOTIFY AND MAKE ARRANGEMENTS WITH THE SAWS CONSTRUCTION INSPECTION DIVISION AT 210-233-3500 (DURING REGULAR SAWS WORKING HOURS) AND PROVIDE NOTIFICATION PROCEDURES THE CONTRACTOR WILL USE TO NOTIFY AFFECTED HOME RESIDENTS AND/OR PROPERTY OWNERS TWO (2) WEEKS PRIOR TO EXCAVATION. OUTSIDE OF REGULAR SAWS WORKING HOURS THE SAWS EOC SHOULD BE CONTACTED AT 210-704-7297.

4. IF NECESSARY, CONTRACTOR WILL COORDINATE USE OF SAWS PREMISES AT NO ADDITIONAL COST TO SAWS. SUCH EFFORTS INCLUDE, BUT ARE NOT LIMITED TO, OBTAINING SECURITY IDENTIFICATION BADGES REQUIRED FOR ACCESS TO SAWS FACILITIES.

5. LOCATIONS AND DEPTHS OF EXISTING UTILITIES AND SERVICE LATERALS SHOWN ON THE PLANS ARE UNDERSTOOD TO BE APPROXIMATE. ACTUAL LOCATIONS AND DEPTHS MUST BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO LOCATE UTILITY SERVICE LINES AS REQUIRED FOR CONSTRUCTION AND TO PROTECT THEM DURING CONSTRUCTION AT NO COST TO SAWS.

6. THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF UNDERGROUND UTILITIES AND DRAINAGE STRUCTURES PRIOR TO CONSTRUCTION WHETHER SHOWN ON PLANS OR NOT. AS-BUILTS FOR SAWS INFRASTRUCTURE CAN BE OBTAINED AT WEBSITE BELOW. CONTRACTOR SHALL COORDINATE PHYSICAL LOCATES FOR SAWS INFRASTRUCTURE THROUGH THE SAWS INSPECTOR. PLEASE ALLOW UP TO 7 BUSINESS DAYS FOR LOCATES REQUESTING PIPE LOCATION MARKERS ON SAWS INFRASTRUCTURE. THE FOLLOWING CONTACT INFORMATION ARE SUPPLIED FOR VERIFICATION PURPOSES:

   SAN ANTONIO WATER SYSTEM:
   REQUEST AS-BUILTS: HTTPS://WWW.SAWS.ORG/SERVICE/LOCATES-SERVICE/
   COSA DRAINAGE 210-206-8433
   COSA TRAFFIC SIGNAL OPERATIONS 210-207-7720
   TEXAS STATEWIDE ONE CALL LOCATOR 1-800-545-6005 OR 811

7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING EXISTING FENCES, CURBS, STREETS, DRIVEWAYS, SIDEWALKS, LANDSCAPING, AND STRUCTURES TO ITS ORIGINAL OR BETTER CONDITION AS A RESULT OF DAMAGES DONE BY THE PROJECT½ S CONSTRUCTION.

8. CONTRACTOR SHALL NOT MAKE USE OF DUMPSTERS OR WASTE BINS THAT ARE INTENDED TO SERVE RESIDENTS AND/OR BUSINESSES.

9. ALL WORK IN TEXAS DEPARTMENT OF TRANSPORTATION AND BEXAR COUNTY RIGHT-OF-WAY SHALL BE DONE IN ACCORDANCE WITH RESPECTIVE CONSTRUCTION SPECIFICATIONS AND PERMIT.

10. THE CONTRACTOR SHALL COMPLY WITH CITY OF SAN ANTONIO OR OTHER GOVERNING MUNICIPALITY'S TREE ORDINANCES WHEN EXCAVATING NEAR TREES.

11. ALL WORK WITHIN THE 100-YEAR FLOODPLAIN SHALL BE DONE IN ACCORDANCE WITH FLOODPLAIN DEVELOPMENT PERMIT.

12. ANY WORK COMPLETED WITHOUT PRIOR WRITTEN AUTHORIZATION WHICH IS NOT INCLUDED IN THESE PLANS AND SPECIFICATIONS WILL NOT BE COMPENSATED BY THE SAN ANTONIO WATER SYSTEM.

13. HOLIDAY WORK: CONTRACTORS WILL NOT BE ALLOWED TO PERFORM SAWS WORK ON SAWS RECOGNIZED HOLIDAYS.

    WEEKEND WORK: CONTRACTORS ARE REQUIRED TO SUBMIT REQUEST TO THE SAWS INSPECTION CONSTRUCTION DEPARTMENT BY 12:00PM ON THE WEDNESDAY PRIOR TO THE WEEKEND BEING REQUESTED. REQUEST SHOULD BE SENT TO CONSTWORKREQ@SAWS.ORG. ANY AND ALL SAWS UTILITY WORK INSTALLED WITHOUT WEEKEND APPROVAL WILL BE SUBJECT TO BE UNCOVERED FOR PROPER INSPECTION AT NO COST TO SAWS.

14. PRE-CON SITE VIDEO: BEFORE THE START OF ANY CONSTRUCTION. THE SITE MUST BE VIDEO RECORDED BY THE CONTRACTOR WITH ONE COPY SUBMITTED TO SAWS INSPECTIONS. A PRE-SITE VIDEO WILL PROVIDE ACCURATE DOCUMENTATION OF THE EXISTING CONDITIONS (NSPI).

15. POWER POLE BRACING: CONTRACTORS SHOULD BE ADVISED THAT THERE ARE EXISTING OVERHEAD UTILITY POLES ALONG THE PROJECT CORRIDOR. CONTRACTORS SHOULD FURTHER BE ADVISED THAT IF THE DISTANCE FROM THE OUTSIDE FACE OF A UTILITY TRENCH TO THE FACE OF A UTILITY POLE IS LESS THAN 5 FEET, SAID UTILITY POLE IS SUBJECT TO BRACING, BASED ON A DETERMINATION MADE BY UTILITY POLE OWNER. IT IS ADVISABLE FOR THE CONTRACTOR TO REVIEW THE CONSTRUCTION DOCUMENTS AND VISIT THE CONSTRUCTION SITE TO DETERMINE POTENTIAL IMPACTS.

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

17. CONTRACTOR SHALL COMPLY WITH APPLICABLE REGULATIONS INCLUDING, BUT NOT LIMITED TO, THOSE OVERSEEN BY THE U.S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA). OSHA INFORMATION AND RELATED MATERIALS MAY BE OBTAINED AT HTTPS://WWW.OSHA.GOV/ OR AT THE OSHA SAN ANTONIO OFFICE LOCATED AT FOUNTAINHEAD TOWER, SUITE 605 8200 W. INTERSTATE 10 SAN ANTONIO, TX 78230 WHICH IS ALSO REACHABLE BY PHONE AT (210) 472-5040.

18. TRENCH EXCAVATION SAFETY PROTECTION: CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/ SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITE(S) WITHIN THE PROJECT WORK AREAS IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES. THE CONTRACTO'S IMPLEMENTATION OF THE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLIES 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.

19. NEW METER BOX IS SUBSIDIARY TO ITEM 833.

WATER SECTION:

20. PRIOR TO TIE-INS, ANY SHUTDOWNS OF EXISTING MAINS OF ANY SIZE MUST BE COORDINATED WITH THE SAWS INSPECTION AND/OR SAWS PRODUCTION GROUPS AT LEAST TWENTY-FIVE (25) CALENDAR DAYS IN ADVANCE OF THE SHUTDOWN. THE CONTRACTOR MUST ALSO PROVIDE A SEQUENCE OF WORK AS RELATED TO THE TIE-INS; THIS IS AT NO ADDITIONAL COST TO SAWS OR THE PROJECT AND IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO SEQUENCE THE WORK ACCORDINGLY. SAWS PRODUCTION CONTROL CENTER 210-233-2016

21. ASBESTOS CEMENT (AC) PIPE, ALSO KNOWN AS TRANSITE PIPE WHICH IS KNOWN TO CONTAIN ASBESTOS-CONTAINING MATERIAL (ACM), MAYBE LOCATED WITHIN THE PROJECT LIMITS. SPECIAL WASTE MANAGEMENT PROCEDURES AND HEALTH AND SAFETY REQUIREMENTS WILL BE APPLICABLE WHEN REMOVAL AND/OR DISTURBANCE OF THIS PIPE OCCURS, PAYMENT FOR SUCH WORK IS TO BE MADE UNDER ITEM NO. 3000, "HANDLING ASBESTOS CEMENT PIPE".

    AC PIPE REMOVED ON CONSTRUCTION PROJECTS FOR TIE-IN(S) SHOULD BE IN LENGTH OF 26 LINEAR FEET (LF). LENGTHS OF 13 LF SHOULD BE REMOVED WHERE AC PIPE IS BEING REMOVED AND CROSSING PIPES, CONDUITS, OR BOXES.

22. VALVE REMOVAL: WHERE THE CONTRACTOR IS TO ABANDON A WATER MAIN, THE CONTROL VALVE LOCATED ON THE ABANDONING BRANCH WILL BE REMOVED AND REPLACED WITH A CAP/PLUG. (NSPI)

23. DIVISION VALVES: DIVISION VALVES SHOWN ON PLANS OR NOT SHOWN ON PLANS BUT FOUND IN THE FIELD SHALL ONLY BE OPERATED BY SAWS DISTRIBUTION AND COLLECTION STAFF AND ONLY WITH PRIOR WRITTEN APPROVAL OF THE SAWS DIRECTOR OF PRODUCTION AND OPERATIONS AND PROPER COORDINATION WITH ALL SAWS DEPARTMENTS. CONTRACTOR SHALL PROVIDE WRITTEN NOTIFICATION TO THE INSPECTOR A MINIMUM OF TWENTY-FIVE (25) CALENDAR DAYS IN ADVANCE TO START THE COORDINATION PROCESS AND WILL BE INFORMED BY THE INSPECTOR WHEN THE DIVISION VALVE WILL BE OPERATED BY THE SAWS DISTRIBUTION AND COLLECTION STAFF. THE DIVISION VALVE CAN ONLY BE OPERATED BY SAWS DISTRIBUTION AND COLLECTION STAFF MEMBER NOT THE INSPECTOR OR THE CONTRACTOR. OPERATION OF A DIVISION VALVE WITHOUT THE EXPRESS PRIOR WRITTEN APPROVAL OF THE SAWS DISTRIBUTION AND COLLECTION STAFF WILL CONSTITUTE A MATERIAL BREACH OF ANY WRITTEN SAWS CONTRACT OR PERMIT IN ADDITION TO SUBJECTING THE CONTRACTOR TO LIABILITY FOR ANY AND ALL FINES, FEES, OR OTHER DAMAGES, DIRECT OR CONSEQUENTIAL, THAT MAY ARISE FROM OR BE CAUSED BY THE OPERATION OF THE VALVE WITHOUT PRIOR WRITTEN PERMISSION. PLEASE BE INFORMED THAT THE APPROVAL OF THE OPERATION OR OPENING OR CLOSING OF A DIVISION VALVE CAN TAKE SEVERAL WEEKS FOR APPROVAL. DIVISION VALVES WILL ALSO HAVE A VALVE LID LABELED DIVISION VALVE AND A LOCKING MECHANISM INSTALLED WITH A KEY. THE LOCK AND KEY MECHANISM WILL BE PAID FOR BY THE CONTRACTOR BUT WILL BE INSTALLED BY SAWS DISTRIBUTION AND COLLECTION STAFF.

ESTIMATED QUANTITIES

ITEM NO.	DESCRIPTION	UNIT	QUANTITY
100	MOBILIZATION	LS	5%
101	MOBILIZATION	LS	10%
299	FLOWABLE FILL	CY	21
550.1	TRENCH EXCAVATION SAFETY PROTECTION	LF	4468
822	CUSTOMER WATER YARD PIPE (SHORT)	EA	2
822	CUSTOMER WATER YARD PIPE (LONG)	EA	7
815	2" HDPE WATERLINE	LF	123
818	8" PVC WATERLINE	LF	4224
824	RELAY 3/4" SHORT SERVICE	EA	34
824	RELAY 3/4" LONG SERVICE	EA	38
824	RELAY 3/4" SHORT SERVICE RELOCATION	EA	2
824	RELAY 3/4" LONG SERVICE RELOCATION	EA	8
824	RELAY 3/4" SHORT SERVICE UNMETERED	EA	4
824	RELAY 3/4" LONG SERVICE UNMETERED	EA	7
825	CUSTOMER SHUTOFF	EA	75
828	6" GATE VALVE, M.J. W/BOX, COMPLETE	EA	3
828	8" GATE VALVE, M.J. W/BOX, COMPLETE	EA	5
833	EXISTING METER & NEW METER BOX RELOCATION	EA	75
834	FIRE HYDRANT ASSEMBLY	EA	5
836	PIPE FITTINGS, ALL SIZES AND TYPES	TN	4.96
840	6" WATER TIE-IN	EA	3
840	8" WATER TIE-IN	EA	5
841	HYDROSTATIC TESTING	EA	8
844	2" (TEMPORARY) BLOW-OFF ASSEMBLY	EA	7
844	2" (PERM) BLOW-OFF ASSEMBLY	EA	1
856	8" CARRIER PIPE	LF	121
856	24" STEEL CASING (OPEN-CUT)	LF	121
1015	SERVICE LINE BREAK, LEAK REPAIRS	EA	3
1020	WATER MAIN BREAK	EA	3
3000	REMOVAL, TRANSPORTATION AND DISPOSSAL OF VARIOUS SIZES OF A.C. PIPE	LF	481

NOTES:

1. CONTRACTOR SHALL RESTRAIN ALL PROPOSED PIPES, VALVES AND FITTINGS AT NO ADDITIONAL COST (RL=RESTRAINT LENGTH)

2. CONTRACTOR TO MAINTAIN WATER SERVICE CONNECTIONS AT ALL TIMES DURING CONSTRUCTION. CONTRACTOR SHALL ALSO MAINTAIN ACCESS TO ALL EXISTING AND PROPOSED WATER VALVES AT ALL TIMES (NSPI).

3. NSPI - NOT A SEPARATE PAY ITEM.

4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING OPERATION OF ALL EXISTING UTILITIES AFFECTED BY PROPOSED CONSTRUCTION.

5. TREE PROTECTION IS NSPI.

6. THE EXISTENCE AND LOCATION OF UNDERGROUND UTILITIES INDICATED ON THE PLANS ARE TAKEN FROM THE BEST RECORDS AVAILABLE AND ARE NOT GUARANTEED TO BE ACCURATE.

STATE OF TEXAS
AYDA S. GONZALES, P.E.
96594
LICENSED
PROFESSIONAL ENGINEER

100% SUBMITTAL 5/24/2025

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SAN ANTONIO, TX 78229
P:210-208-9400 F:210-208-9401
TBPE No. F-10015
TBPLS No. 10193922

NO.	REVISION	DRAWN	APPROVED	DATE

REVISIONS

CULEBRA AREA STREETS

WATER PLAN

GENERAL NOTES AND QUANTITIES

DEVELOPER:

CONT. | BUDGET PROJ.

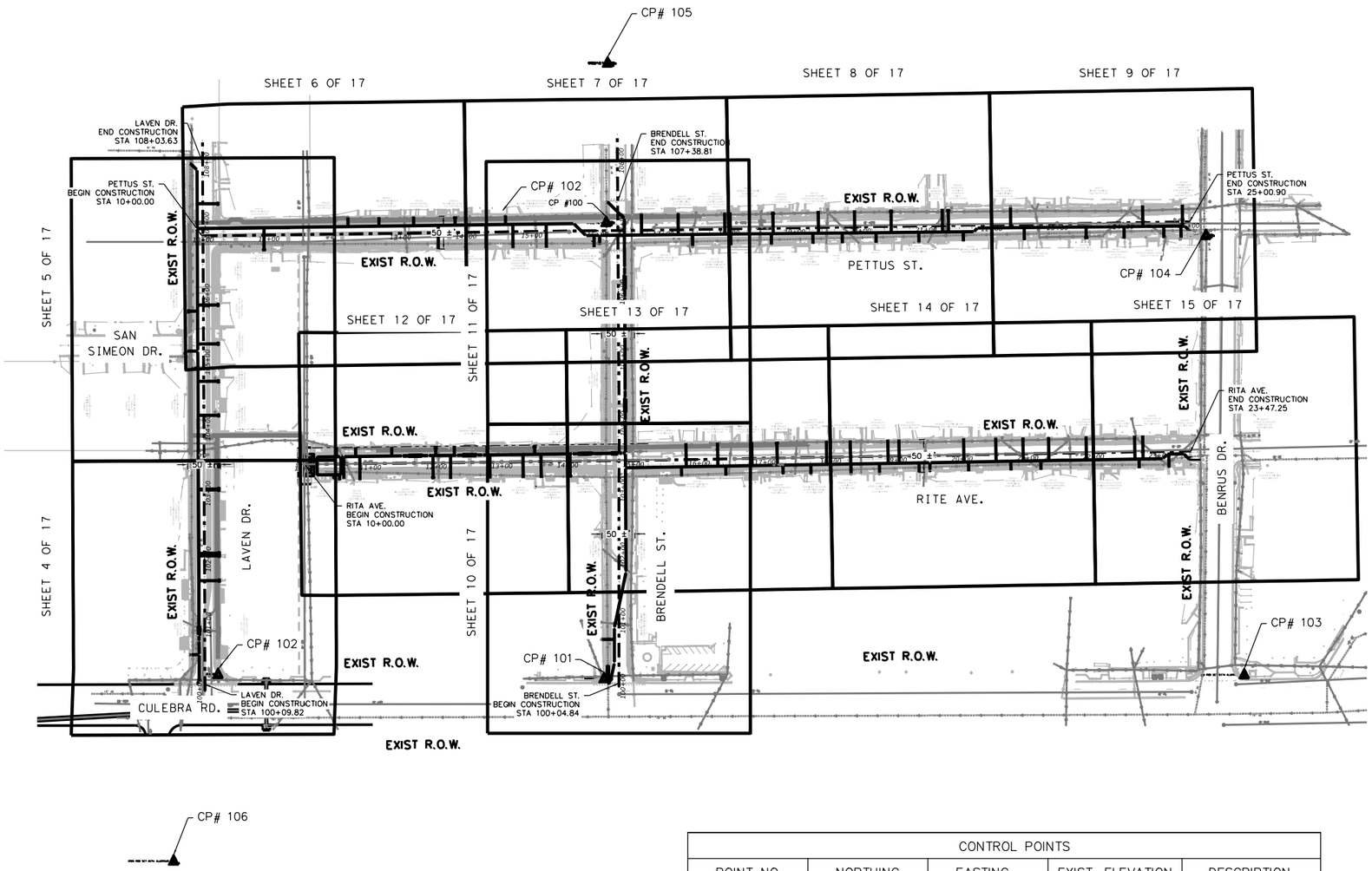
SUBMITTED _____

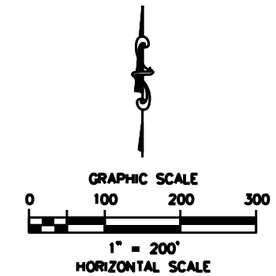
APPROVED _____

MAP No. | SHEET 183

SECT. No.

DR. AMJ | CK. AG | JOB No. 23-5028





CONTROL POINTS				
POINT NO.	NORTHING	EASTING	EXIST. ELEVATION	DESCRIPTION
CP #100	13711572.4123	2099588.0194	759.76	MAGNETIC NAIL
CP #101	13710878.3343	2099585.1334	751.13	MAGNETIC NAIL
CP #102	13710884.5373	2098997.6864	737.09	MAGNETIC NAIL
CP #103	13710883.9853	2100559.0174	754.40	MAGNETIC NAIL
CP #104	13711552.7353	2100500.6094	756.68	MAGNETIC NAIL
CP #105	13711814.8053	2099590.3614	766.58	MAGNETIC NAIL
CP #106	13710600.5553	2098930.0874	733.47	MAGNETIC NAIL

1. HORIZONTAL ALIGNMENT DATA LOCATED ON ALL ROADWAY PLAN AND PROFILES (PAGES 56–76) OF THE CITY OF SAN ANTONIO PUBLIC WORKS DEPARTMENT "CULEBRA AREA STREETS BRENDELL ST, RITA ST, LAVEN DR, PETTUS ST" PLAN SET.

STATE OF TEXAS
AYDA S. GONZALES, P.E.
96594
LICENSED
PROFESSIONAL ENGINEER

100% SUBMITTAL 5/24/2025

AG3 Group, LLC
ENGINEERING • SURVEY • CONSTRUCTION
4800 FREDERICKSBURG RD. SUITE 200SL
SAN ANTONIO, TX 78229
P: 210-208-9400 F: 210-208-9401
TBPE No. F-10015
TBPLS No. 10193922

NO.	REVISION	DRAWN	APPROVED	DATE

REVISIONS

CULEBRA AREA STREETS

WATER PLAN

PROJECT LAYOUT

DEVELOPER:

CONT. | BUDGET PROJ.

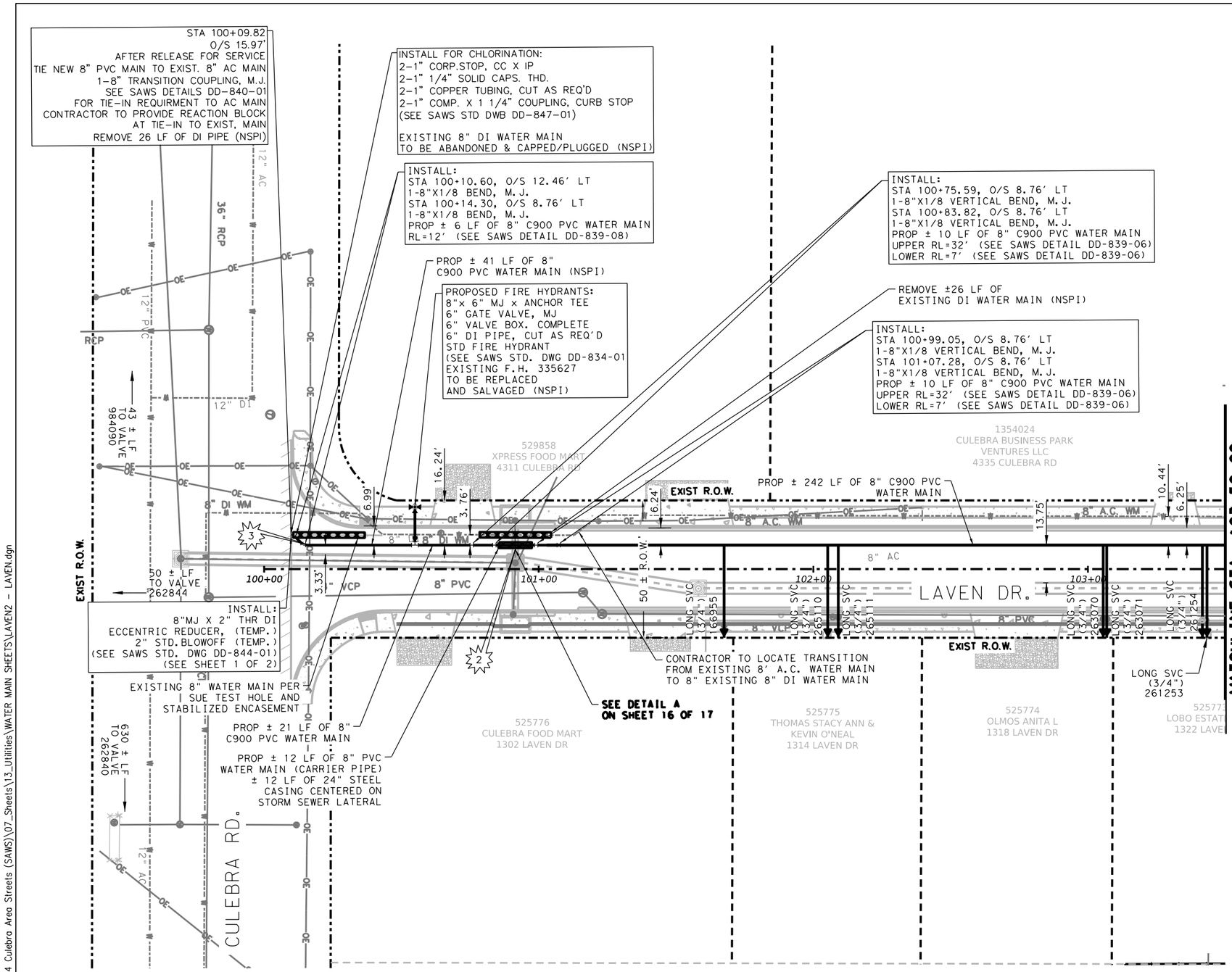
SUBMITTED

APPROVED

MAP No. | SHEET

SECT. No.

DR. AMJ | CK. AG | JOB No. 23-5028 | 184



ESTIMATED QUANTITIES			
ITEM NO.	DESCRIPTION	UNIT	QUANTITY
550	TRENCH EXCAVATION SAFETY PROTECTION	LF	342
818	8" PVC WATERLINE	LF	330
824	RELAY 3/4" LONG SERVICE	EA	7
825	CUSTOMER SHUTOFF	EA	7
833	EXISTING METER & NEW METER BOX RELOCATION	EA	7
834	FIRE HYDRANT ASSEMBLY	EA	1
836	PIPE FITTINGS, ALL SIZES AND TYPES	TN	0.50
840	8" WATER TIE-IN	EA	1
841	HYDROSTATIC TESTING	EA	1
844	2" (TEMPORARY) BLOW-OFF ASSEMBLY	EA	1
856	8" CARRIER PIPE	LF	12
856	24" STEEL CASING (OPEN-CUT)	LF	12
3000	REMOVAL, TRANSPORTATION AND DISPOSSAL OF VARIOUS SIZES OF A.C. PIPE	LF	52

CAUTION!!!

1. SANITARY SEWER CROSSING
2. STORM SEWER CROSSING
3. OVERHEAD ELECTRIC/ TELEPHONE CROSSING
4. FIBER OPTIC CROSSING
5. GAS CROSSING

GRAPHIC SCALE
0 20 40 60
1" = 40'
HORIZONTAL SCALE

LEGEND

- PROP. WATER MAIN
- EXIST. WATER MAIN
- EXIST. SAN. SEWER — SS —
- EXIST. STORM MAIN
- EXIST. GAS — G —
- OVERHEAD ELECTRIC CABLE — OHE —
- OVERHEAD ELECTRIC/ TELECOMMUNICATIONS — OE/TEL —
- UNDERGROUND ELECTRIC CABLE — UGE —
- UNDERGROUND TELEPHONE CABLE — UT —
- UNDERGROUND FIBER CABLE — FOL —
- DUAL BRANCH SERVICE
- NEW UNMETERED SERVICE: 3/4" SINGLE, 1" DUAL
- SERVICE RECONNECT: 3/4", 1" OR LARGER
- SERVICE RELAY: 3/4", 1" OR LARGER
- SERVICE RELOCATE 3/4", 1" OR LARGER
- NEW SERVICE: 3/4", 1" OR LARGER
- RELOCATE METER
- EXISTING WATER METER VALVE
- EXISTING SANITARY SEWER MANHOLE
- EXISITNG STORM DRAIN MANHOLE
- EXISTING GAS VALVE
- EXISITNG WATER VALVE

STATE OF TEXAS
AYDA S. GONZALES, P.E.
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NO.	REVISION	DRAWN	APPROVED	DATE

REVISIONS

CULEBRA AREA STREETS
WATER PLAN
LAVEN DR.
(STA. 100+00 – 103+50)

DEVELOPER:
CONT. | BUDGET PROJ.
SUBMITTED
APPROVED

MAP No. | SHEET 185
SECT. No.
DR. AMJ | CK. AG | JOB No. 23-5028

TRENCH EXCAVATION SAFETY PROTECTION:
CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY /EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITE(S) WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES. THE CONTRACTOR'S IMPLEMENTATION OF THE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLIES 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.

TIE-IN NOTES:
CONTRACTOR TO LOCATE NEAREST AC COLLAR WITHIN PROJECT LIMITS AND COORDINATE WITH SAWS INSPECTOR PRIOR TO TIE-IN. CONTRACTOR TO LOCATE TRANSITION FROM DI TO AC AND TIE-IN AT THAT LOCATION. WHERE APPLICABLE, AT TIE-INS, USE SOLID SLEEVES INSTEAD OF CAST-COUPLINGS. RELAYS CROSSING THE EXISTING SANITARY SEWER MAIN THAT DOES NOT MEET THE 4' VERTICAL BY 2' HORIZONTAL OR 9' HORIZONTAL SEPERATION DISTANCE, TCEQ RULE WILL REQUIRE FLOWABLE FILL, SUBSIDIARY TO ITEM NO.824.

ASBESTOS CEMENT PIPE CONNECTIONS & REMOVAL NOTE:
ASBESTOS CEMENT (A.C.) PIPE, ALSO KNOWN AS TRANSITE PIPE AND WHICH IS KNOWN TO CONTAIN ASBESTOS CONTAINING MATERIAL (ACM), IS LOCATED WITHIN THE PROJECT LIMITS. SPECIAL WASTE MANAGEMENT PROCEDURES AND HEALTH SAFETY REQUIREMENTS WILL BE APPLICABLE WHEN REMOVAL AND/OR DISTURBANCE OF THIS PIPE OCCUR. PAYMENT FOR SUCH WORK IS TO BE MADE UNDER SPECIAL SPECIFICATION ITEM NO. 3000, "SPECIAL SPECIFICATION FOR HANDLING ASBESTOS CEMENT PIPE".

NOTE:
1. CONTRACTOR TO RESTRAIN PER ITEM 839.
2. CONTRACTOR TO REVIEW UTILITY LAYOUT SHEETS AND SUE DATA FOR OTHER POTENTIAL CROSSING EXISTING UTILITIES BEFORE BEGINNING CONSTRUCTION.
3. CONTRACTOR TO REFER TO GAS PLANS FOR PROPOSED GAS LINE LOCATION.

5/24/2025 12:34:21 PM
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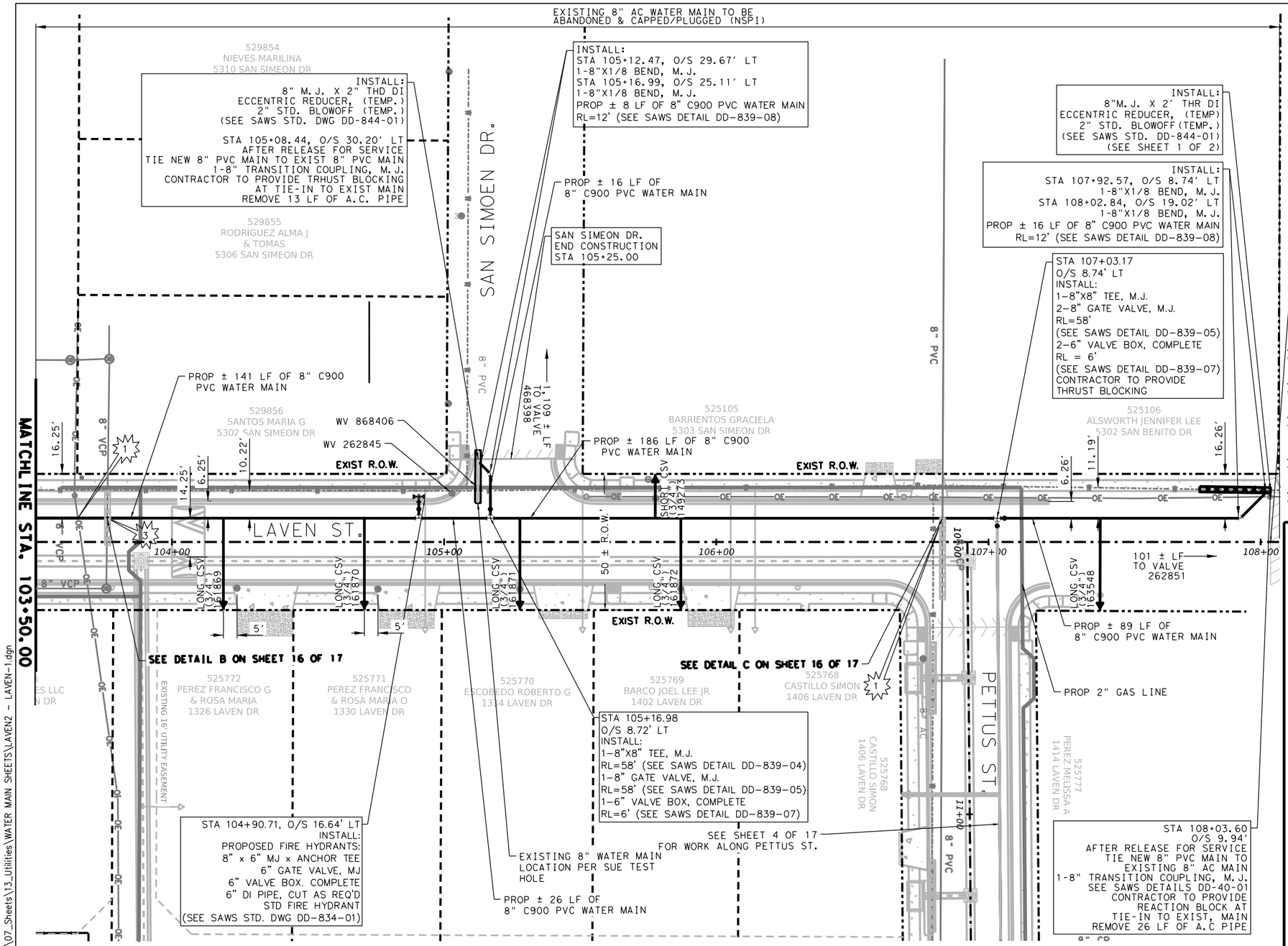

ESTIMATED QUANTITIES			
ITEM NO.	DESCRIPTION	UNIT	QUANTITY
550	TRENCH EXCAVATION SAFETY PROTECTION	LF	456
818	8" PVC WATERLINE	LF	456
822	CUSTOMER WATER YARD PIPE (LONG)	EA	2
824	RELAY 3/4" SHORT SERVICE	EA	1
824	RELAY 3/4" LONG SERVICE	EA	5
825	CUSTOMER SHUTOFF	EA	6
828	6" GATE VALVE, M.J. W/BOX, COMPLETE	EA	3
833	EXISTING METER & NEW METER BOX RELOCATION	EA	6
836	PIPE FITTINGS, ALL SIZES AND TYPES	TN	0.55
834	FIRE HYDRANT ASSEMBLY	EA	1
840	8" WATER TIE-IN	EA	2
841	HYDROSTATIC TESTING	EA	2
844	2" (TEMPORARY) BLOW-OFF ASSEMBLY	EA	2
3000	REMOVAL, TRANSPORTATION AND DISPOSSAL OF VARIOUS SIZES OF A.C. PIPE	LF	39

GRAPHIC SCALE
0 20 40 60
1" = 40'
HORIZONTAL SCALE

CAUTION!!!

1. SANITARY SEWER CROSSING
2. STORM SEWER CROSSING
3. OVERHEAD ELECTRIC/ TELEPHONE CROSSING
4. FIBER OPTIC CROSSING
5. GAS CROSSING

LEGEND

PROP. WATER MAIN
EXIST. WATER MAIN
EXIST. SAN. SEWER — SS —
EXIST. STORM MAIN
EXIST. GAS — G —
OVERHEAD ELECTRIC CABLE — OHE —
OVERHEAD ELECTRIC/ TELECOMMUNICATIONS — OE/TEL —
UNDERGROUND ELECTRIC CABLE — UGE —
UNDERGROUND TELEPHONE CABLE — UT —
UNDERGROUND FIBER CABLE — FOL —
DUAL BRANCH SERVICE
NEW UNMETERED SERVICE:
3/4" SINGLE
1" DUAL
SERVICE RECONNECT:
3/4"
1" OR LARGER
SERVICE RELAY:
3/4"
1" OR LARGER
SERVICE RELOCATE
3/4"
1" OR LARGER
NEW SERVICE:
3/4"
1" OR LARGER
RELOCATE METER
EXISTING WATER METER VALVE (W)
EXISTING SANITARY SEWER MANHOLE (W)
EXISITNG STORM DRAIN MANHOLE (SD)
EXISTING GAS VALVE (GV)
EXISITNG WATER VALVE (WV)

STATE OF TEXAS
AYDA S. GONZALES, P.E.
96594
LICENSED
PROFESSIONAL ENGINEER

100% SUBMITTAL 5/24/2025

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SAN ANTONIO, TX 78229
P: 210-208-9400 F: 210-208-9401
TBPE No. F-10015
TBPLS No. 10193922

NO.	REVISION	DRAWN	APPROVED	DATE

REVISIONS

CULEBRA AREA STREETS

WATER PLAN

LAVEN DR.
(STA. 103+50 – END)

DEVELOPER:
CONT. | BUDGET PROJ.
SUBMITTED
APPROVED

MAP No. | SHEET 186
SECT. No.
DR. AMJ | CK. AG | JOB No. 23-5028

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NOTE:
1. CONTRACTOR TO RESTRAIN PER ITEM 839.
2. CONTRACTOR TO REVIEW UTILITY LAYOUT SHEETS AND SUE DATA FOR OTHER POTENTIAL CROSSING EXISTING UTILITIES BEFORE BEGINNING CONSTRUCTION.
3. CONTRACTOR TO REFER TO GAS PLANS FOR PROPOSED GAS LINE LOCATION.

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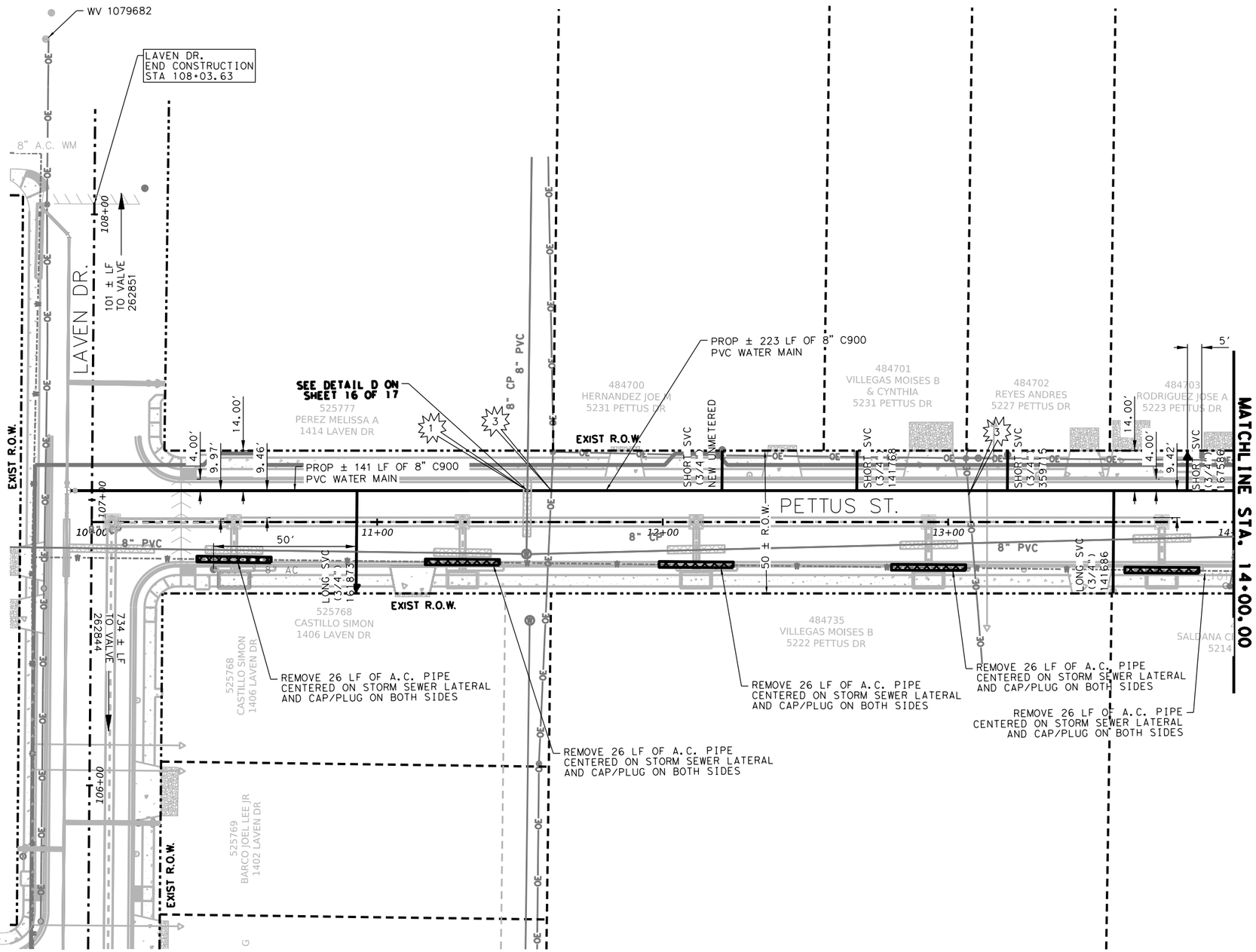
ESTIMATED QUANTITIES			
ITEM NO.	DESCRIPTION	UNIT	QUANTITY
550	TRENCH EXCAVATION SAFETY PROTECTION	LF	409
818	8" PVC WATERLINE	LF	409
822	CUSTOMER WATER YARD PIPE (SHORT)	EA	1
822	CUSTOMER WATER YARD PIPE (LONG)	EA	1
824	RELAY 3/4" SHORT SERVICE	EA	3
824	RELAY 3/4" LONG SERVICE	EA	1
824	RELAY 3/4" LONG SERVICE RELOCATION	EA	1
824	RELAY 3/4" SHORT SERVICE NEW UNMETERED	EA	1
825	CUSTOMER SHUTOFF	EA	5
833	EXISTING METER & NEW METER BOX RELOCATION	EA	5
3000	REMOVAL, TRANSPORTATION AND DISPOSSAL OF VARIOUS SIZES OF A.C. PIPE	LF	130



CAUTION!!!

1. SANITARY SEWER CROSSING
2. STORM SEWER CROSSING
3. OVERHEAD ELECTRIC/ TELEPHONE CROSSING
4. FIBER OPTIC CROSSING
5. GAS CROSSING

GRAPHIC SCALE

0 20 40 60

1" = 40'
HORIZONTAL SCALE

LEGEND

- PROP. WATER MAIN
- EXIST. WATER MAIN
- EXIST. SAN. SEWER — SS —
- EXIST. STORM MAIN
- EXIST. GAS — G —
- OVERHEAD ELECTRIC CABLE — OHE —
- OVERHEAD ELECTRIC/ TELECOMMUNICATIONS — OE/TEL —
- UNDERGROUND ELECTRIC CABLE — UGE —
- UNDERGROUND TELEPHONE CABLE — UT —
- UNDERGROUND FIBER CABLE — FOL —
- DUAL BRANCH SERVICE
- NEW UNMETERED SERVICE: 3/4" SINGLE, 1" DUAL
- SERVICE RECONNECT: 3/4", 1" OR LARGER
- SERVICE RELAY: 3/4", 1" OR LARGER
- SERVICE RELOCATE 3/4", 1" OR LARGER
- NEW SERVICE: 3/4", 1" OR LARGER
- RELOCATE METER
- EXISTING WATER METER VALVE
- EXISTING SANITARY SEWER MANHOLE
- EXISITNG STORM DRAIN MANHOLE
- EXISTING GAS VALVE
- EXISITNG WATER VALVE

STATE OF TEXAS
AYDA S. GONZALES, P.E.
96594
LICENSED
PROFESSIONAL ENGINEER

100% SUBMITTAL 5/24/2025

AG3 Group, LLC
ENGINEERING • SURVEY • CONSTRUCTION
4800 FREDERICKSBURG RD. SUITE 200SL
SAN ANTONIO, TX 78229
P:210-208-9400 F:210-208-9401
TBPE No. F-10015
TBPLS No. 10193922

NO.	REVISION	DRAWN	APPROVED	DATE

REVISIONS

CULEBRA AREA STREETS

WATER PLAN

PETTUS ST.
(STA. 10+00 – 14+00)

DEVELOPER:

CONT. | BUDGET PROJ.

SUBMITTED

APPROVED

MAP No. | SHEET 187

SECT. No.

DR. AMJ | CK. AG | JOB No. 23-5028

TRENCH EXCAVATION SAFETY PROTECTION:
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ASBESTOS CEMENT PIPE CONNECTIONS & REMOVAL NOTE:
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NOTE:
1. CONTRACTOR TO RESTRAIN PER ITEM 839.
2. CONTRACTOR TO REVIEW UTILITY LAYOUT SHEETS AND SUE DATA FOR OTHER POTENTIAL CROSSING EXISTING UTILITIES BEFORE BEGINNING CONSTRUCTION.
3. CONTRACTOR TO REFER TO GAS PLANS FOR PROPOSED GAS LINE LOCATION.

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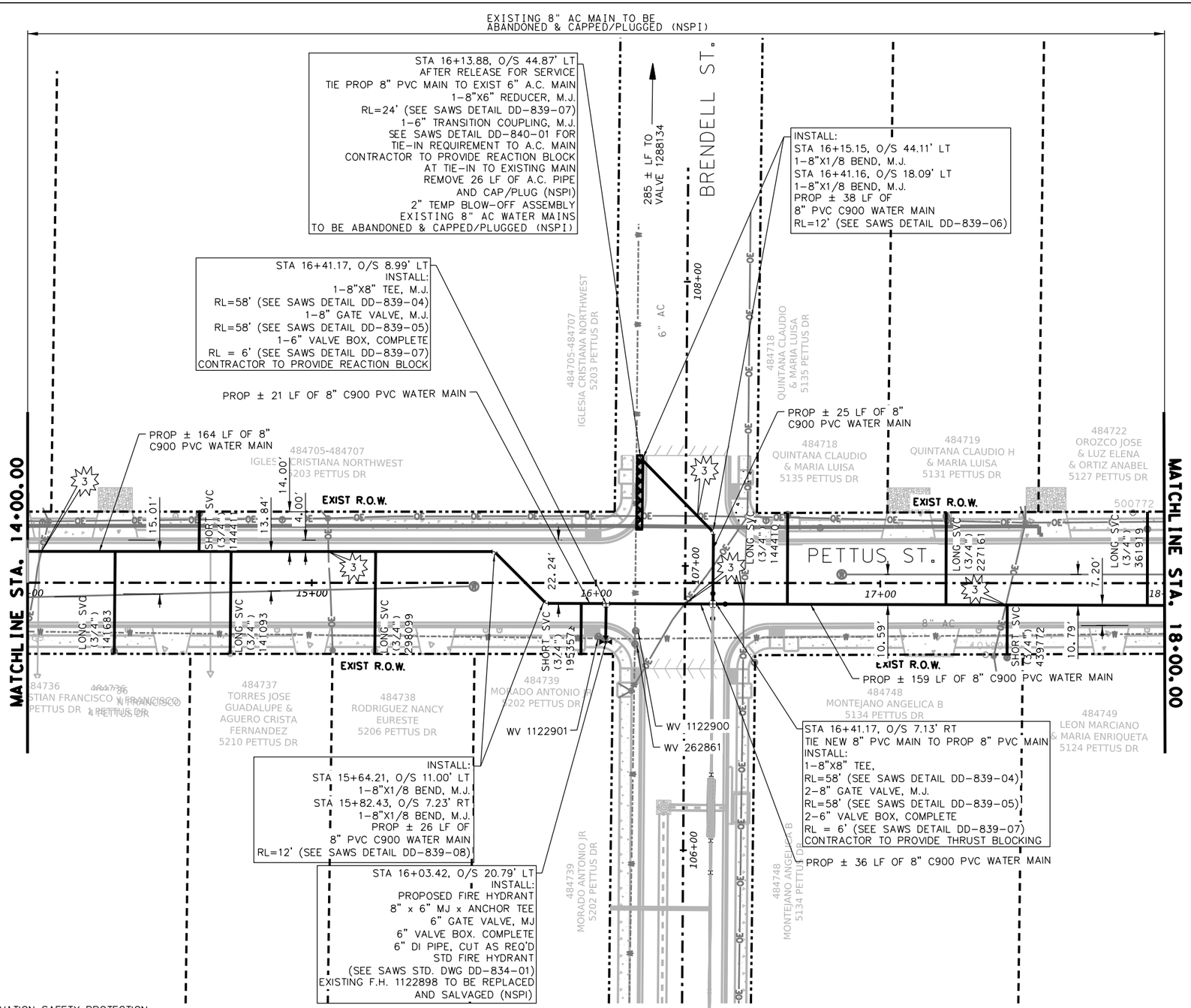
ESTIMATED QUANTITIES			
ITEM NO.	DESCRIPTION	UNIT	QUANTITY
550	TRENCH EXCAVATION SAFETY PROTECTION	LF	469
818	8" PVC WATERLINE	LF	469
824	RELAY 3/4" SHORT SERVICE	EA	3
824	RELAY 3/4" LONG SERVICE	EA	6
825	CUSTOMER SHUTOFF	EA	9
828	8" GATE VALVE, M.J. W/BOX, COMPLETE	EA	3
833	EXISTING METER & NEW METER BOX RELOCATION	EA	9
834	FIRE HYDRANT ASSEMBLY	EA	1
836	PIPE FITTINGS, ALL SIZES AND TYPES	TN	1.08
840	6" WATER TIE-IN	EA	1
841	HYDROSTATIC TESTING	EA	1
844	2" (TEMPORARY) BLOW-OFF ASSEMBLY	EA	1
3000	REMOVAL, TRANSPORTATION AND DISPOSSAL OF VARIOUS SIZES OF A.C. PIPE	LF	26



CAUTION!!!

- SANITARY SEWER CROSSING
- STORM SEWER CROSSING
- OVERHEAD ELECTRIC/ TELEPHONE CROSSING
- FIBER OPTIC CROSSING
- GAS CROSSING

GRAPHIC SCALE

0 20 40 60

1" = 40'
HORIZONTAL SCALE

LEGEND

- PROP. WATER MAIN
- EXIST. WATER MAIN
- EXIST. SAN. SEWER — SS —
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- EXIST. GAS — G —
- OVERHEAD ELECTRIC CABLE — OHE —
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STATE OF TEXAS
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LICENSED PROFESSIONAL ENGINEER

100% SUBMITTAL 5/24/2025

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SAN ANTONIO, TX 78229
P: 210-208-9400 F: 210-208-9401
TBPE No. F-10015
TBPLS No. 10193922

NO.	REVISION	DRAWN	APPROVED	DATE

REVISIONS

CULEBRA AREA STREETS

WATER PLAN

PETTUS ST.
(STA. 14+00 – 18+00)

DEVELOPER:

CONT. | BUDGET PROJ.

SUBMITTED _____

APPROVED _____

MAP No. | SHEET 188

SECT. No.

DR. AMJ | CK. AG | JOB No. 23-5028

TRENCH EXCAVATION SAFETY PROTECTION:
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NOTE:
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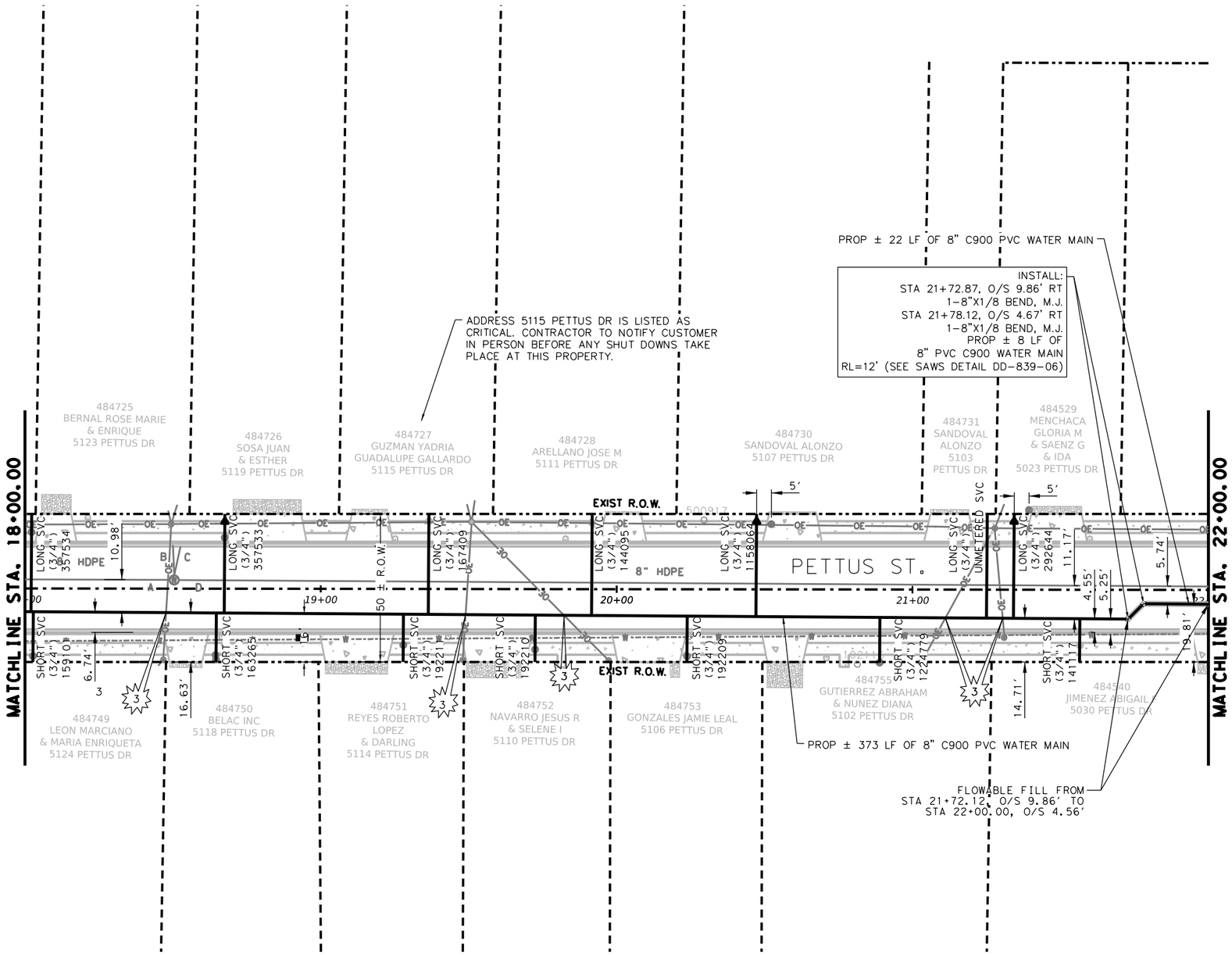
ESTIMATED QUANTITIES			
ITEM NO.	DESCRIPTION	UNIT	QUANTITY
299	FLOWABLE FILL	CY	2
550	TRENCH EXCAVATION SAFETY PROTECTION	LF	402
818	8" PVC WATERLINE	LF	402
822	CUSTOMER WATER YARD PIPE (LONG)	EA	3
824	RELAY 3/4" SHORT SERVICE	EA	7
824	RELAY 3/4" LONG SERVICE	EA	3
824	RELAY 3/4" LONG SERVICE RELOCATION	EA	3
824	RELAY 3/4" LONG SERVICE UNMETERED	EA	1
825	CUSTOMER SHUTOFF	EA	13
833	EXISTING METER & NEW METER BOX RELOCATION	EA	13
836	PIPE FITTINGS, ALL SIZES AND TYPES	TN	0.11



CAUTION!!!

1. SANITARY SEWER CROSSING
2. STORM SEWER CROSSING
3. OVERHEAD ELECTRIC/ TELEPHONE CROSSING
4. FIBER OPTIC CROSSING
5. GAS CROSSING

GRAPHIC SCALE

0 20 40 60

1" = 40'
HORIZONTAL SCALE

LEGEND

- PROP. WATER MAIN
- EXIST. WATER MAIN
- EXIST. SAN. SEWER — SS —
- EXIST. STORM MAIN
- EXIST. GAS — G —
- OVERHEAD ELECTRIC CABLE — OHE —
- OVERHEAD ELECTRIC/ TELECOMMUNICATIONS — OE/TEL —
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- UNDERGROUND TELEPHONE CABLE — UT —
- UNDERGROUND FIBER CABLE — FOL —
- DUAL BRANCH SERVICE
- NEW UNMETERED SERVICE: 3/4" SINGLE, 1" DUAL
- SERVICE RECONNECT: 3/4", 1" OR LARGER
- SERVICE RELAY: 3/4", 1" OR LARGER
- SERVICE RELOCATE: 3/4", 1" OR LARGER
- NEW SERVICE: 3/4", 1" OR LARGER
- RELOCATE METER
- EXISTING WATER METER VALVE (W)
- EXISTING SANITARY SEWER MANHOLE (W)
- EXISITNG STORM DRAIN MANHOLE (SD)
- EXISTING GAS VALVE (GV)
- EXISITNG WATER VALVE (WV)

STATE OF TEXAS
AYDA S. GONZALES, P.E.
96594
LICENSED PROFESSIONAL ENGINEER

100% SUBMITTAL 5/24/2025

AG3 Group, LLC
ENGINEERING • SURVEY • CONSTRUCTION
4800 FREDERICKSBURG RD. SUITE 200SL
SAN ANTONIO, TX 78229
P:210-208-9400 F:210-208-9401
TBPE No. F-10015
TBPLS No. 10193922

NO.	REVISION	DRAWN	APPROVED	DATE

REVISIONS

CULEBRA AREA STREETS

WATER PLAN

PETTUS ST.
(STA. 18+00 – 22+00)

DEVELOPER:

CONT. | BUDGET PROJ.

SUBMITTED

APPROVED

MAP No. | SHEET 189

SECT. No.

DR. AMJ | CK. AG | JOB No. 23-5028

TRENCH EXCAVATION SAFETY PROTECTION:
CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY /EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITE(S) WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES. THE CONTRACTOR'S IMPLEMENTATION OF THE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLIES 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.

TIE-IN NOTES:
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ASBESTOS CEMENT PIPE CONNECTIONS & REMOVAL NOTE:
ASBESTOS CEMENT (A.C.) PIPE, ALSO KNOWN AS TRANSITE PIPE AND WHICH IS KNOWN TO CONTAIN ASBESTOS CONTAINING MATERIAL (ACM), IS LOCATED WITHIN THE PROJECT LIMITS. SPECIAL WASTE MANAGEMENT PROCEDURES AND HEALTH SAFETY REQUIREMENTS WILL BE APPLICABLE WHEN REMOVAL AND/OR DISTURBANCE OF THIS PIPE OCCUR. PAYMENT FOR SUCH WORK IS TO BE MADE UNDER SPECIAL SPECIFICATION ITEM NO. 3000, "SPECIAL SPECIFICATION FOR HANDLING ASBESTOS CEMENT PIPE".

NOTE:
1. CONTRACTOR TO RESTRAIN PER ITEM 839.
2. CONTRACTOR TO REVIEW UTILITY LAYOUT SHEETS AND SUE DATA FOR OTHER POTENTIAL CROSSING EXISTING UTILITIES BEFORE BEGINNING CONSTRUCTION.
3. CONTRACTOR TO REFER TO GAS PLANS FOR PROPOSED GAS LINE LOCATION.

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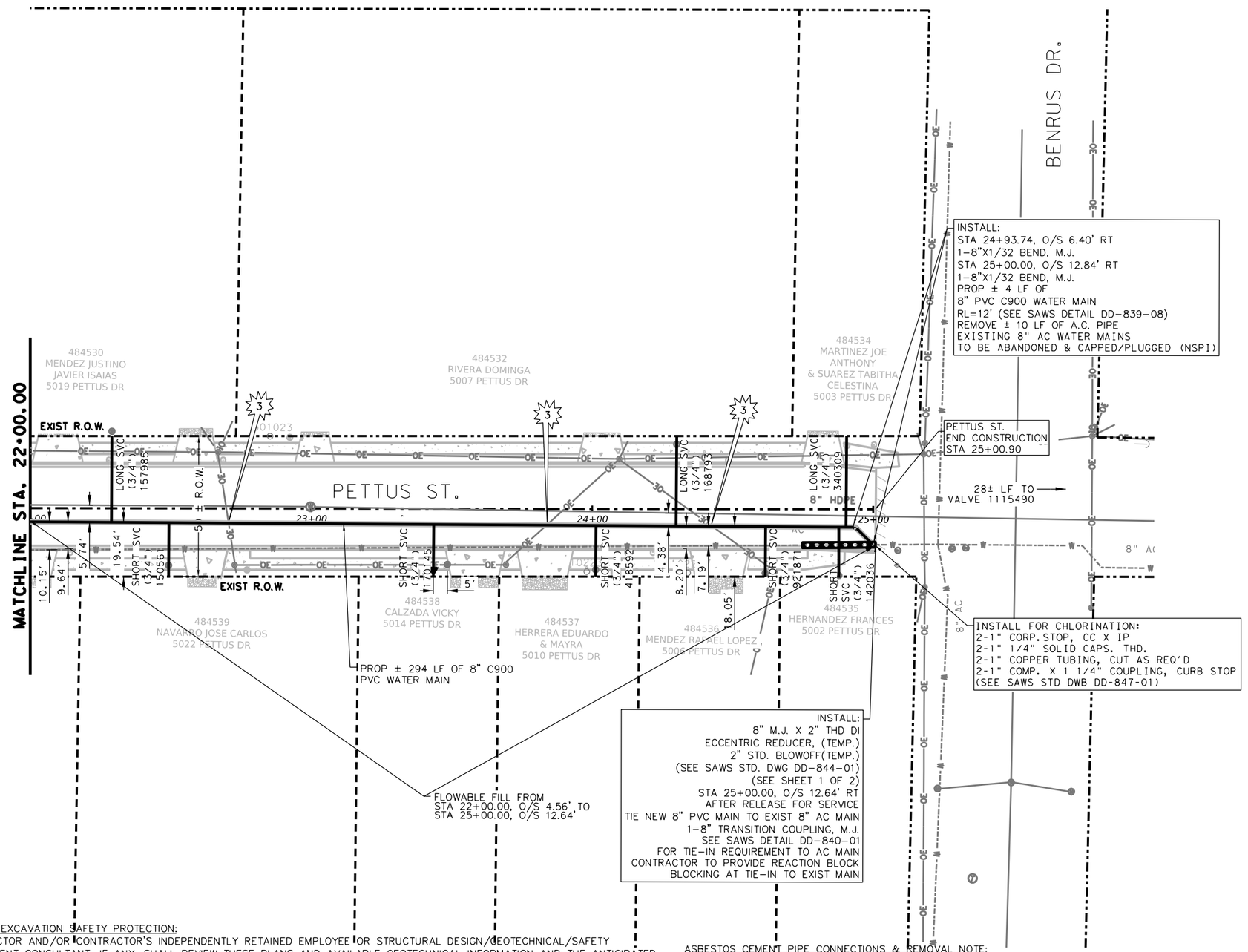
ESTIMATED QUANTITIES			
ITEM NO.	DESCRIPTION	UNIT	QUANTITY
299	FLOWABLE FILL	CY	15
550	TRENCH EXCAVATION SAFETY PROTECTION	LF	304
818	8" PVC WATERLINE	LF	304
822	CUSTOMER WATER YARD PIPE (SHORT)	EA	1
824	RELAY 3/4" SHORT SERVICE	EA	4
824	RELAY 3/4" LONG SERVICE	EA	3
824	RELAY 3/4" LONG SERVICE RELOCATION	EA	1
825	CUSTOMER SHUTOFF	EA	7
833	EXISTING METER & NEW METER BOX RELOCATION	EA	7
836	PIPE FITTINGS, ALL SIZES AND TYPES	TN	0.17
840	8" WATER TIE-IN	EA	1
841	HYDROSTATIC TESTING	EA	1
844	2" (TEMPORARY) BLOW-OFF ASSEMBLY	EA	1
3000	REMOVAL, TRANSPORTATION AND DISPOSSAL OF VARIOUS SIZES OF A.C. PIPE	LF	26



INSTALL:
STA 24+93.74, O/S 6.40' RT
1-8"X1/32 BEND, M.J.
STA 25+00.00, O/S 12.84' RT
1-8"X1/32 BEND, M.J.
PROP ± 4 LF OF
8" PVC C900 WATER MAIN
RL=12' (SEE SAWS DETAIL DD-839-08)
REMOVE ± 10 LF OF A.C. PIPE
EXISTING 8" AC WATER MAINS
TO BE ABANDONED & CAPPED/PLUGGED (NSPI)

PETTUS ST.
END CONSTRUCTION
STA 25+00.90

INSTALL FOR CHLORINATION:
2-1" CORP.STOP, CC X IP
2-1" 1/4" SOLID CAPS. THD.
2-1" COPPER TUBING, CUT AS REQ'D
2-1" COMP. X 1 1/4" COUPLING, CURB STOP
(SEE SAWS STD DWB DD-847-01)

INSTALL:
8" M.J. X 2" THD DI
ECCENTRIC REDUCER, (TEMP.)
2" STD. BLOWOFF(TEMP.)
(SEE SAWS STD. DWG DD-844-01)
(SEE SHEET 1 OF 2)
STA 25+00.00, O/S 12.64' RT
AFTER RELEASE FOR SERVICE
TIE NEW 8" PVC MAIN TO EXIST 8" AC MAIN
1-8" TRANSITION COUPLING, M.J.
SEE SAWS DETAIL DD-840-01
FOR TIE-IN REQUIREMENT TO AC MAIN
CONTRACTOR TO PROVIDE REACTION BLOCK
BLOCKING AT TIE-IN TO EXIST MAIN

CAUTION!!!

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2. STORM SEWER CROSSING
3. OVERHEAD ELECTRIC/ TELEPHONE CROSSING
4. FIBER OPTIC CROSSING
5. GAS CROSSING

GRAPHIC SCALE
0 20 40 60
1" = 40'
HORIZONTAL SCALE

LEGEND

- PROP. WATER MAIN
- EXIST. WATER MAIN
- EXIST. SAN. SEWER — SS —
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- EXIST. GAS — G —
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- EXISTING SANITARY SEWER MANHOLE
- EXISITNG STORM DRAIN MANHOLE
- EXISTING GAS VALVE
- EXISITNG WATER VALVE

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TBPLS No. 10193922

NO.	REVISION	DRAWN	APPROVED	DATE

REVISIONS

CULEBRA AREA STREETS

WATER PLAN

PETTUS ST.
(STA. 22+00 – END)

DEVELOPER:
CONT. | BUDGET PROJ.
SUBMITTED
APPROVED

MAP No. | SHEET 190
SECT. No.
DR. AMJ | CK. AG | JOB No. 23-5028

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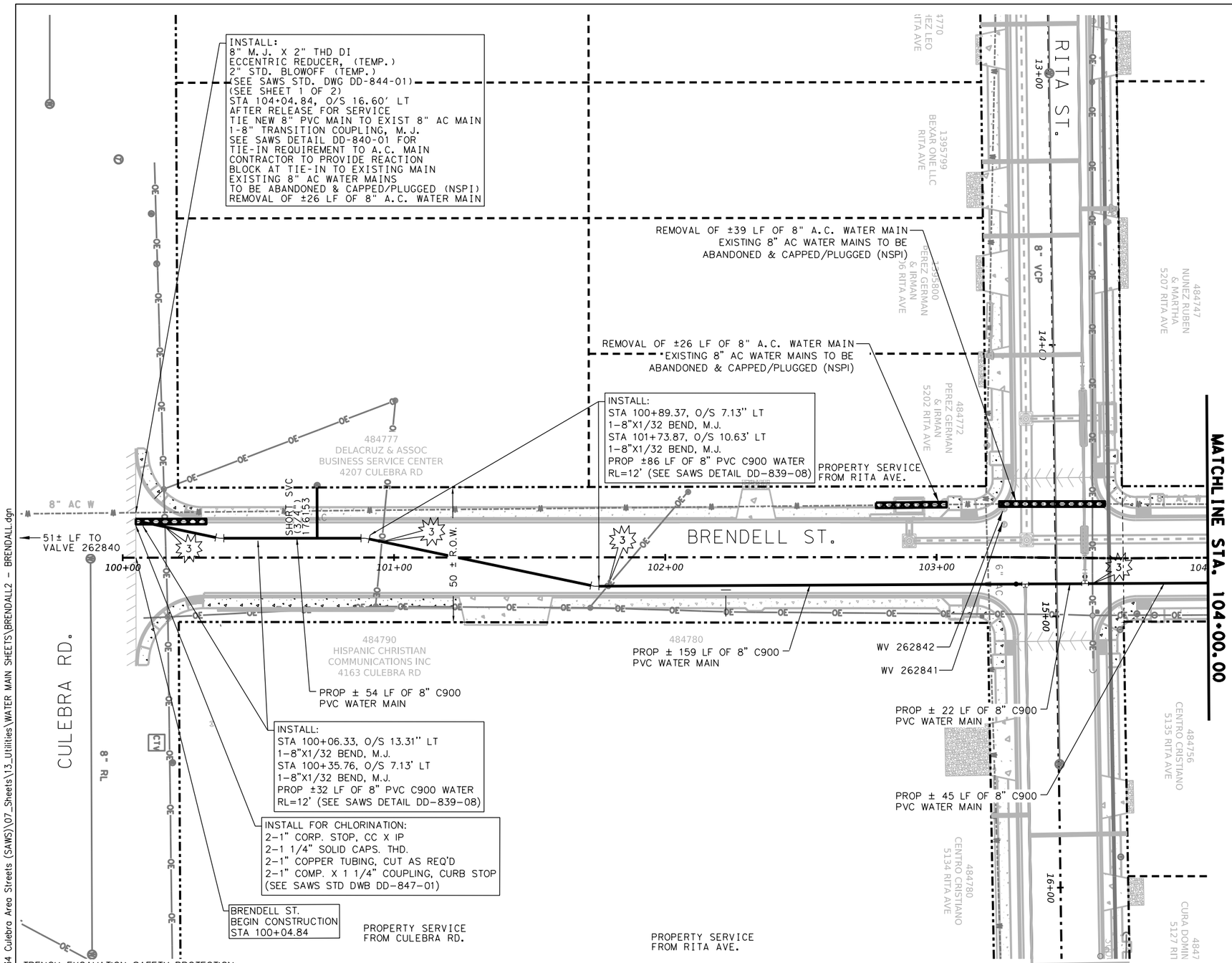
ESTIMATED QUANTITIES			
ITEM NO.	DESCRIPTION	UNIT	QUANTITY
550	TRENCH EXCAVATION SAFETY PROTECTION	LF	398
818	8" PVC WATERLINE	LF	398
824	RELAY 3/4" SHORT SERVICE	EA	1
825	CUSTOMER SHUTOFF	EA	1
833	EXISTING METER & NEW METER BOX RELOCATION	EA	1
836	PIPE FITTINGS, ALL SIZES AND TYPES	TN	0.58
840	8" WATER TIE-IN	EA	1
841	HYDROSTATIC TESTING	EA	1
844	2" (TEMPORARY) BLOW-OFF ASSEMBLY	EA	1
3000	REMOVAL, TRANSPORTATION AND DISPOSAL OF VARIOUS SIZES OF A.C. PIPE	LF	91



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2. STORM SEWER CROSSING
3. OVERHEAD ELECTRIC/ TELEPHONE CROSSING
4. FIBER OPTIC CROSSING
5. GAS CROSSING

GRAPHIC SCALE

0 20 40 60

1" = 40'
HORIZONTAL SCALE

LEGEND

- PROP. WATER MAIN
- EXIST. WATER MAIN
- EXIST. SAN. SEWER — SS —
- EXIST. STORM MAIN
- EXIST. GAS — G —
- OVERHEAD ELECTRIC CABLE — OHE —
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- UNDERGROUND ELECTRIC CABLE — UGE —
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- DUAL BRANCH SERVICE
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- SERVICE RECONNECT: 3/4", 1" OR LARGER
- SERVICE RELAY: 3/4", 1" OR LARGER
- SERVICE RELOCATE 3/4", 1" OR LARGER
- NEW SERVICE: 3/4", 1" OR LARGER
- RELOCATE METER
- EXISTING WATER METER VALVE (W)
- EXISTING SANITARY SEWER MANHOLE (W)
- EXISITNG STORM DRAIN MANHOLE (SD)
- EXISTING GAS VALVE (GV)
- EXISITNG WATER VALVE (WV)

STATE OF TEXAS
AYDA S. GONZALES, P.E.
96594
LICENSED
PROFESSIONAL ENGINEER

100% SUBMITTAL 5/24/2025

AG3 Group, LLC
ENGINEERING · SURVEY · CONSTRUCTION
4800 FREDERICKSBURG RD. SUITE 200SL
SAN ANTONIO, TX 78229
P: 210-208-9400 F: 210-208-9401
TBPE No. F-10015
TBPLS No. 10193922

NO.	REVISION	DRAWN	APPROVED	DATE

REVISIONS

CULEBRA AREA STREETS

WATER PLAN

BRENDELL ST.
(STA. 100+00 – 104+00)

DEVELOPER:

CONT. | BUDGET PROJ.

SUBMITTED _____

APPROVED _____

MAP No. | SHEET 191

SECT. No.

DR. AMJ | CK. AG | JOB No. 23-5028

TRENCH EXCAVATION SAFETY PROTECTION:
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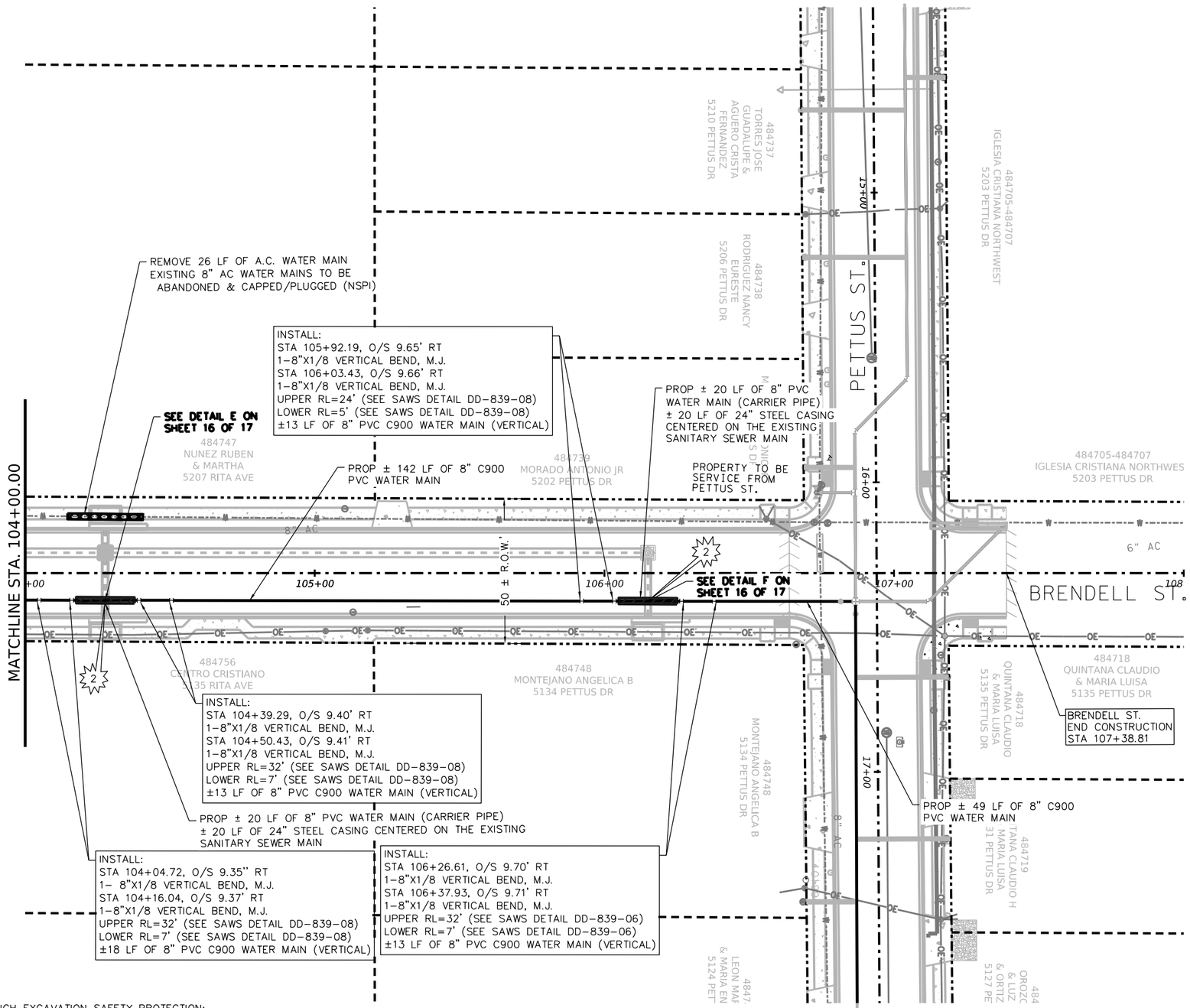
ESTIMATED QUANTITIES			
550	TRENCH EXCAVATION SAFETY PROTECTION	LF	288
818	8" PVC WATERLINE	LF	248
836	PIPE FITTINGS, ALL SIZES AND TYPES	TN	0.53
840	6" WATER TIE-IN	EA	1
856	8" CARRIER PIPE	LF	40
856	24" STEEL CASING (OPEN-CUT)	LF	40
3000	REMOVAL, TRANSPORTATION AND DISPOSAL OF VARIOUS SIZES OF A.C. PIPE	LF	26



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GRAPHIC SCALE

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1" = 40'
HORIZONTAL SCALE

LEGEND

PROP. WATER MAIN	
EXIST. WATER MAIN	
EXIST. SAN. SEWER	SS
EXIST. STORM MAIN	
EXIST. GAS	G
OVERHEAD ELECTRIC CABLE	OHE
OVERHEAD ELECTRIC/ TELECOMMUNICATIONS	OE/TEL
UNDERGROUND ELECTRIC CABLE	UGE
UNDERGROUND TELEPHONE CABLE	UT
UNDERGROUND FIBER CABLE	FOL
DUAL BRANCH SERVICE	
NEW UNMETERED SERVICE: 3/4" SINGLE 1" DUAL	
SERVICE RECONNECT: 3/4" 1" OR LARGER	
SERVICE RELAY: 3/4" 1" OR LARGER	
SERVICE RELOCATE 3/4" 1" OR LARGER	
NEW SERVICE: 3/4" 1" OR LARGER	
RELOCATE METER	
EXISTING WATER METER VALVE	W
EXISTING SANITARY SEWER MANHOLE	W
EXISITNG STORM DRAIN MANHOLE	SD
EXISTING GAS VALVE	GV
EXISITNG WATER VALVE	WV

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NO.	REVISION	DRAWN	APPROVED	DATE

REVISIONS

CULEBRA AREA STREETS

WATER PLAN

BRENDALL ST.
(STA. 104+00 – END)

DEVELOPER:

CONT. | BUDGET PROJ.

SUBMITTED _____

APPROVED _____

MAP No. | SHEET 192

SECT. No.

DR. AMJ | CK. AG | JOB No. 23-5028

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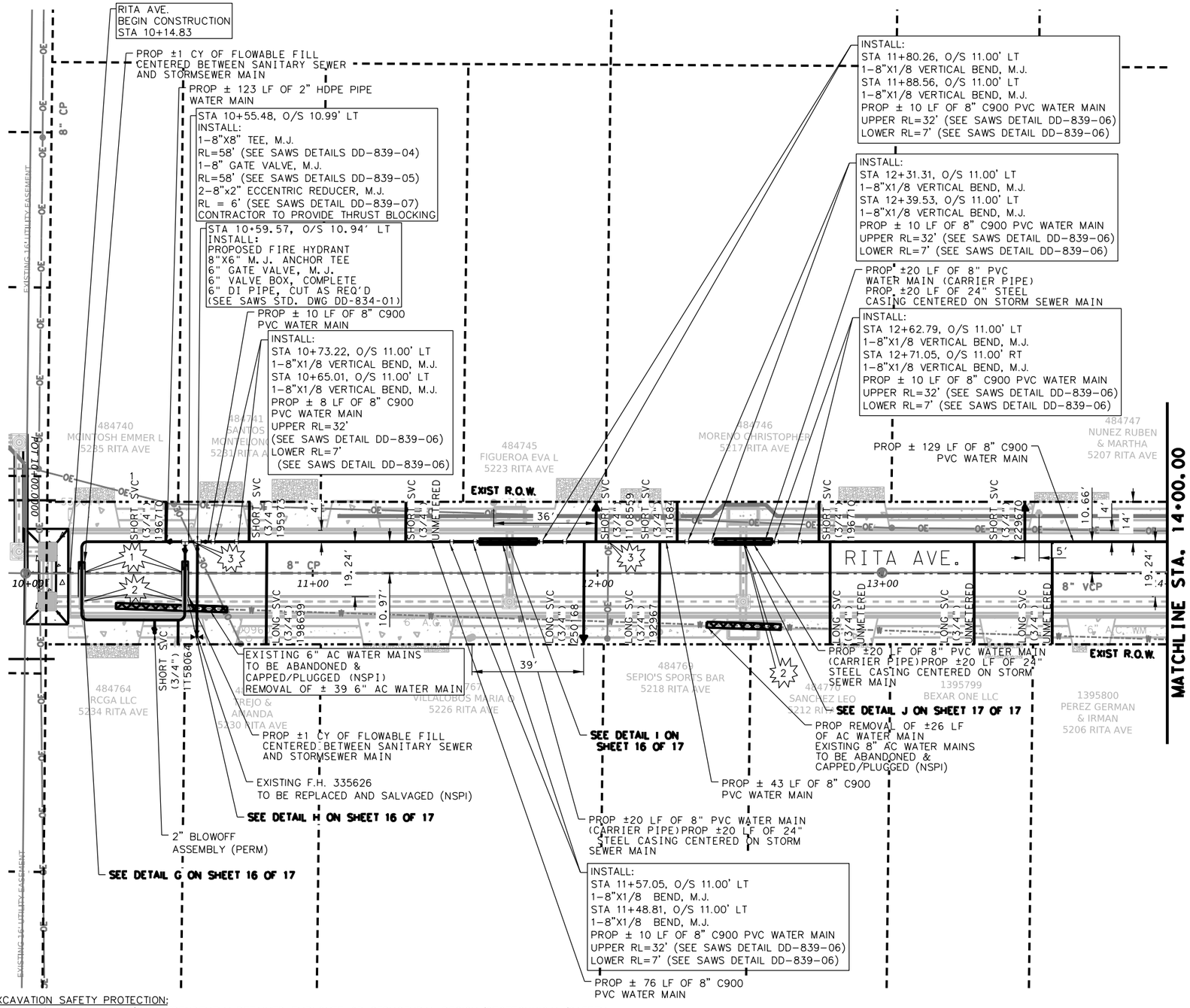

ESTIMATED QUANTITIES			
ITEM NO.	DESCRIPTION	UNIT	QUANTITY
299	FLOWABLE FILL	CY	2
550	TRENCH EXCAVATION SAFETY PROTECTION	LF	449
815	2" HDPE WATERLINE	LF	123
818	8" PVC WATERLINE	LF	286
822	CUSTOMER WATER YARD PIPE (LONG)	EA	1
824	RELAY 3/4" SHORT SERVICE	EA	5
824	RELAY 3/4" LONG SERVICE	EA	2
824	RELAY 3/4" SHORT SERVICE RELOCATION	EA	2
824	RELAY 3/4" LONG SERVICE RELOCATION	EA	1
824	RELAY 3/4" SHORT SERVICE UNMETERED	EA	1
824	RELAY 3/4" LONG SERVICE UNMETERED	EA	3
825	CUSTOMER SHUTOFF	EA	10
828	8" GATE VALVE, M.J. W/BOX, COMPLETE	EA	1
833	EXISTING METER & NEW METER BOX RELOCATION	EA	10
834	FIRE HYDRANT ASSEMBLY	EA	1
836	PIPE FITTINGS, ALL SIZES AND TYPES	TN	0.75
841	HYDROSTATIC TESTING	EA	1
844	2" (PERM) BLOW-OFF ASSEMBLY	EA	1
856	8" CARRIER PIPE	LF	40
856	24" STEEL CASING (OPEN-CUT)	LF	40
3000	REMOVAL, TRANSPORTATION AND DISPOSAL OF VARIOUS SIZES OF A.C. PIPE	LF	65

GRAPHIC SCALE

0 20 40 60

1" = 40'

HORIZONTAL SCALE

CAUTION!!!

1. SANITARY SEWER CROSSING
2. STORM SEWER CROSSING
3. OVERHEAD ELECTRIC/ TELEPHONE CROSSING
4. FIBER OPTIC CROSSING
5. GAS CROSSING

LEGEND

PROP. WATER MAIN
EXIST. WATER MAIN
EXIST. SAN. SEWER — SS —
EXIST. STORM MAIN
EXIST. GAS — G —
OVERHEAD ELECTRIC CABLE — OHE —
OVERHEAD ELECTRIC/ TELECOMMUNICATIONS — OE/TEL —
UNDERGROUND ELECTRIC CABLE — UGE —
UNDERGROUND TELEPHONE CABLE — UT —
UNDERGROUND FIBER CABLE — FOL —
DUAL BRANCH SERVICE
NEW UNMETERED SERVICE:
3/4" SINGLE
1" DUAL
SERVICE RECONNECT:
3/4"
1" OR LARGER
SERVICE RELAY:
3/4"
1" OR LARGER
SERVICE RELOCATE
3/4"
1" OR LARGER
NEW SERVICE:
3/4"
1" OR LARGER
RELOCATE METER
EXISTING WATER METER VALVE
EXISTING SANITARY SEWER MANHOLE
EXISITNG STORM DRAIN MANHOLE
EXISTING GAS VALVE
EXISITNG WATER VALVE

STATE OF TEXAS
AYDA S. GONZALES, P.E.
96594
LICENSED
PROFESSIONAL ENGINEER

100% SUBMITTAL 5/24/2025

AG3 Group, LLC
ENGINEERING · SURVEY · CONSTRUCTION
4800 FREDERICKSBURG RD. SUITE 200SL
SAN ANTONIO, TX 78229
P: 210-208-9400 F: 210-208-9401
TBPE No. F-10015
TBPLS No. 10193922

NO.	REVISION	DRAWN	APPROVED	DATE

REVISIONS

CULEBRA AREA STREETS

WATER PLAN

RITA AVE.
(STA. 10+00 – 14+00)

DEVELOPER:

CONT. | BUDGET PROJ.

SUBMITTED

APPROVED

MAP No. | SHEET 193

SECT. No.

DR. AMJ | CK. AG | JOB No. 23-5028

TRENCH EXCAVATION SAFETY PROTECTION:
CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY /EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITE(S) WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES. THE CONTRACTOR'S IMPLEMENTATION OF THE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLIES 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.

TIE-IN NOTES:
CONTRACTOR TO LOCATE NEAREST AC COLLAR WITHIN PROJECT LIMITS AND COORDINATE WITH SAWS INSPECTOR PRIOR TO TIE-IN. CONTRACTOR TO LOCATE TRANSITION FROM DI TO AC AND TIE-IN AT THAT LOCATION. WHERE APPLICABLE, AT TIE-INS, USE SOLID SLEEVES INSTEAD OF CAST-COUPLINGS. RELAYS CROSSING THE EXISTING SANITARY SEWER MAIN THAT DOES NOT MEET THE 4' VERTICAL BY 2' HORIZONTAL OR 9' HORIZONTAL SEPERATION DISTANCE, TCEQ RULE WILL REQUIRE FLOWABLE FILL, SUBSIDIARY TO ITEM NO.824.

ASBESTOS CEMENT PIPE CONNECTIONS & REMOVAL NOTE:
ASBESTOS CEMENT (A.C.) PIPE, ALSO KNOWN AS TRANSITE PIPE AND WHICH IS KNOWN TO CONTAIN ASBESTOS CONTAINING MATERIAL (ACM), IS LOCATED WITHIN THE PROJECT LIMITS. SPECIAL WASTE MANAGEMENT PROCEDURES AND HEALTH SAFETY REQUIREMENTS WILL BE APPLICABLE WHEN REMOVAL AND/OR DISTURBANCE OF THIS PIPE OCCUR. PAYMENT FOR SUCH WORK IS TO BE MADE UNDER SPECIAL SPECIFICATION ITEM NO. 3000, "SPECIAL SPECIFICATION FOR HANDLING ASBESTOS CEMENT PIPE".

NOTE:
1. CONTRACTOR TO RESTRAIN PER ITEM 839.
2. CONTRACTOR TO REVIEW UTILITY LAYOUT SHEETS AND SUE DATA FOR OTHER POTENTIAL CROSSING EXISTING UTILITIES BEFORE BEGINNING CONSTRUCTION.
3. CONTRACTOR TO REFER TO GAS PLANS FOR PROPOSED GAS LINE LOCATION.

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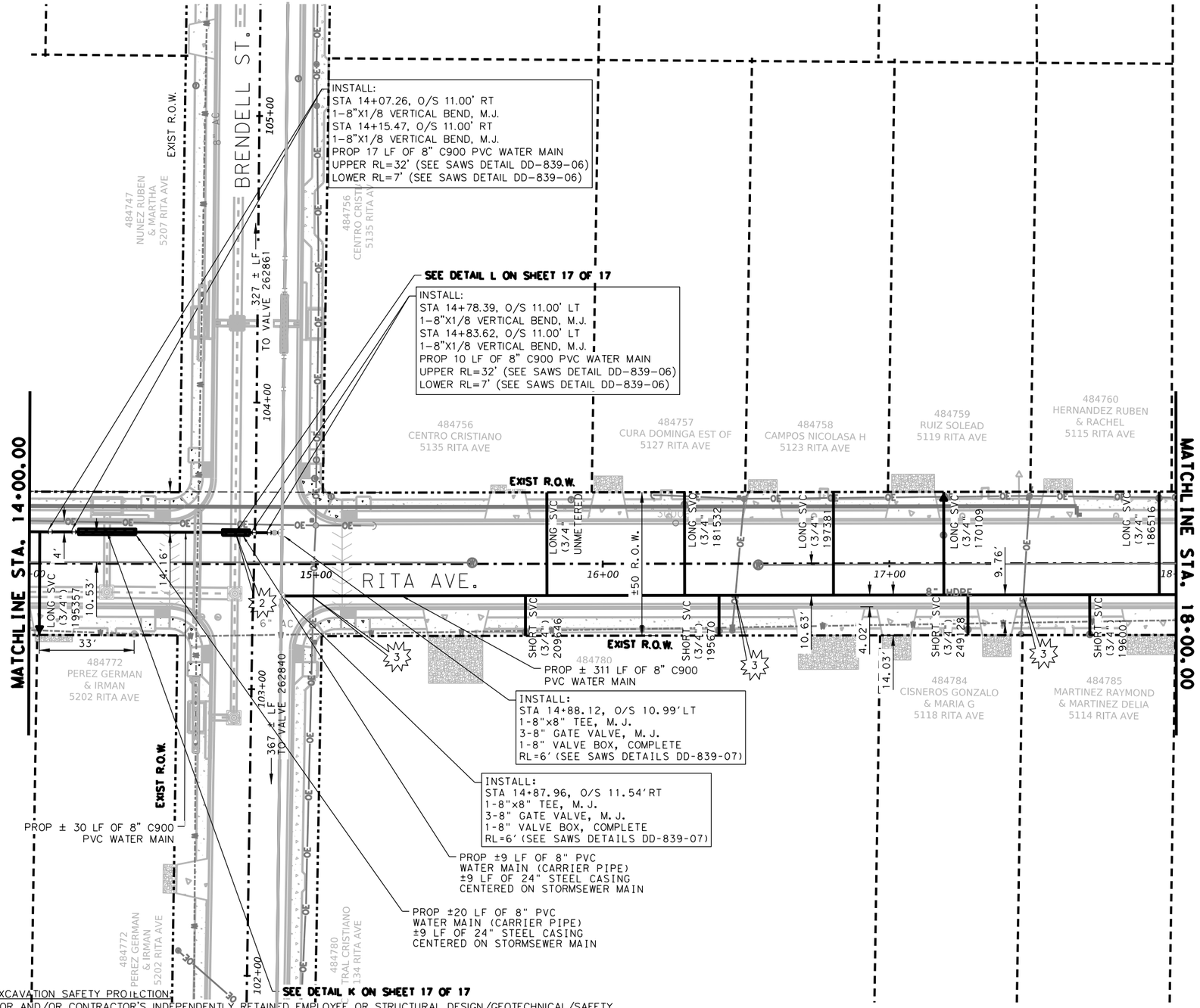
ESTIMATED QUANTITIES			
ITEM NO.	DESCRIPTION	UNIT	QUANTITY
550	TRENCH EXCAVATION SAFETY PROTECTION	LF	397
818	8" PVC WATERLINE	LF	368
824	RELAY 3/4" SHORT SERVICE	EA	4
824	RELAY 3/4" LONG SERVICE	EA	3
824	RELAY 3/4" LONG SERVICE RELOCATION	EA	2
824	RELAY 3/4" LONG SERVICE UNMETERED	EA	1
825	CUSTOMER SHUTOFF	EA	7
833	EXISTING METER & NEW METER BOX RELOCATION	EA	7
836	PIPE FITTINGS, ALL SIZES AND TYPES	TN	0.22
856	8" CARRIER PIPE	LF	29
856	24" STEEL CASING (OPEN-CUT)	LF	29



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3. CONTRACTOR TO REFER TO GAS PLANS FOR PROPOSED GAS LINE LOCATION.

CAUTION!!!

1 SANITARY SEWER CROSSING
2 STORM SEWER CROSSING
3 OVERHEAD ELECTRIC/ TELEPHONE CROSSING
4 FIBER OPTIC CROSSING
5 GAS CROSSING

GRAPHIC SCALE
0 20 40 60
1" = 40'
HORIZONTAL SCALE

LEGEND

PROP. WATER MAIN
EXIST. WATER MAIN
EXIST. SAN. SEWER — SS —
EXIST. STORM MAIN
EXIST. GAS — G —
OVERHEAD ELECTRIC CABLE — OHE —
OVERHEAD ELECTRIC/ TELECOMMUNICATIONS — OE/TEL —
UNDERGROUND ELECTRIC CABLE — UGE —
UNDERGROUND TELEPHONE CABLE — UT —
UNDERGROUND FIBER CABLE — FOL —
DUAL BRANCH SERVICE
NEW UNMETERED SERVICE:
3/4" SINGLE
1" DUAL
SERVICE RECONNECT:
3/4"
1" OR LARGER
SERVICE RELAY:
3/4"
1" OR LARGER
SERVICE RELOCATE
3/4"
1" OR LARGER
NEW SERVICE:
3/4"
1" OR LARGER
RELOCATE METER
EXISTING WATER METER VALVE (W)
EXISTING SANITARY SEWER MANHOLE (W)
EXISITNG STORM DRAIN MANHOLE (SD)
EXISTING GAS VALVE (GV)
EXISITNG WATER VALVE (WV)

STATE OF TEXAS
AYDA S. GONZALES, P.E.
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PROFESSIONAL ENGINEER

100% SUBMITTAL 5/24/2025

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P:210-208-9400 F:210-208-9401
TBPE No. F-10015
TBPLS No. 10193922

NO.	REVISION	DRAWN	APPROVED	DATE

REVISIONS

CULEBRA AREA STREETS

WATER PLAN

RITA AVE.
(STA. 14+00 – 18+00)

DEVELOPER:
CONT. BUDGET PROJ.
SUBMITTED
APPROVED

MAP No. SHEET
SECT. No. 194
DR. AMJ CK. AG JOB No. 23-5028

5/24/2025 3:19:52 PM
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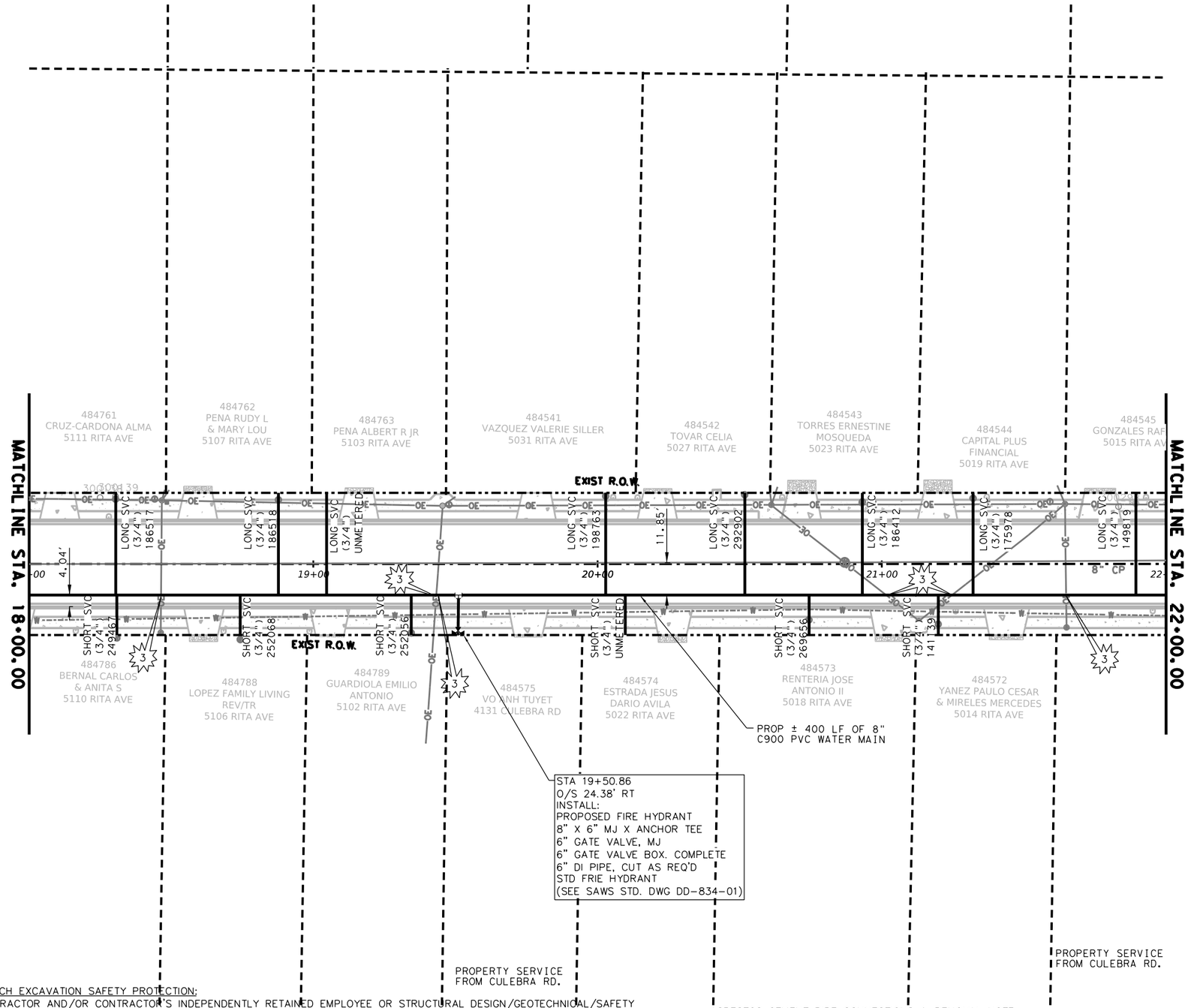
ESTIMATED QUANTITIES			
ITEM NO.	DESCRIPTION	UNIT	QUANTITY
550	TRENCH EXCAVATION SAFETY PROTECTION	LF	400
818	8" PVC WATERLINE	LF	400
824	RELAY 3/4" SHORT SERVICE	EA	5
824	RELAY 3/4" LONG SERVICE	EA	7
824	RELAY 3/4" SHORT SERVICE UNMETERED	EA	1
824	RELAY 3/4" LONG SERVICE UNMETERED	EA	1
825	CUSTOMER SHUTOFF	EA	8
833	EXISTING METER & NEW METER BOX RELOCATION	EA	8
834	FIRE HYDRANT ASSEMBLY	EA	1
836	PIPE FITTINGS, ALL SIZES AND TYPES	TN	0.11



CAUTION!!!

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2. STORM SEWER CROSSING
3. OVERHEAD ELECTRIC/ TELEPHONE CROSSING
4. FIBER OPTIC CROSSING
5. GAS CROSSING

GRAPHIC SCALE

0 20 40 60

1" = 40'
HORIZONTAL SCALE

LEGEND

- PROP. WATER MAIN
- EXIST. WATER MAIN
- EXIST. SAN. SEWER — SS —
- EXIST. STORM MAIN
- EXIST. GAS — G —
- OVERHEAD ELECTRIC CABLE — OHE —
- OVERHEAD ELECTRIC/ TELECOMMUNICATIONS — OE/TEL —
- UNDERGROUND ELECTRIC CABLE — UGE —
- UNDERGROUND TELEPHONE CABLE — UT —
- UNDERGROUND FIBER CABLE — FOL —
- DUAL BRANCH SERVICE
- NEW UNMETERED SERVICE: 3/4" SINGLE, 1" DUAL
- SERVICE RECONNECT: 3/4", 1" OR LARGER
- SERVICE RELAY: 3/4", 1" OR LARGER
- SERVICE RELOCATE 3/4", 1" OR LARGER
- NEW SERVICE: 3/4", 1" OR LARGER
- RELOCATE METER
- EXISTING WATER METER VALVE
- EXISTING SANITARY SEWER MANHOLE
- EXISITNG STORM DRAIN MANHOLE
- EXISTING GAS VALVE
- EXISITNG WATER VALVE

STATE OF TEXAS
AYDA S. GONZALES, P.E.
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PROFESSIONAL ENGINEER

100% SUBMITTAL 5/24/2025

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P: 210-208-9400 F: 210-208-9401
TBPE No. F-10015
TBPLS No. 10193922

NO.	REVISION	DRAWN	APPROVED	DATE

REVISIONS

CULEBRA AREA STREETS

WATER PLAN

RITA AVE.
(STA. 18+00 – 22+00)

DEVELOPER:

CONT. | BUDGET PROJ.

SUBMITTED _____

APPROVED _____

MAP No. | SHEET 195

SECT. No.

DR. AMJ | CK. AG | JOB No. 23-5028

TRENCH EXCAVATION SAFETY PROTECTION:
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NOTE:
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2. CONTRACTOR TO REVIEW UTILITY LAYOUT SHEETS AND SUE DATA FOR OTHER POTENTIAL CROSSING EXISTING UTILITIES BEFORE BEGINNING CONSTRUCTION.
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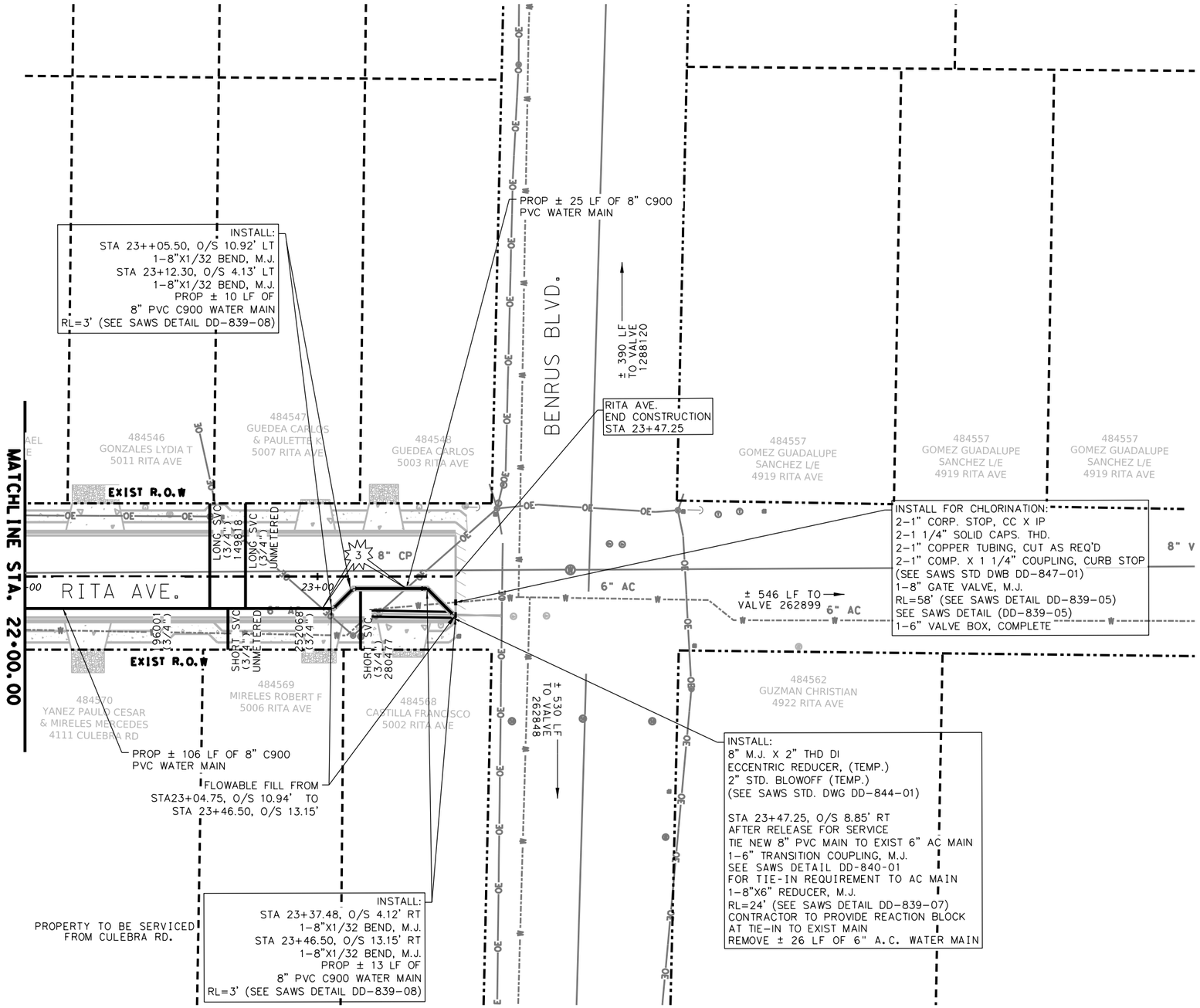

ESTIMATED QUANTITIES			
ITEM NO.	DESCRIPTION	UNIT	QUANTITY
299	FLOWABLE FILL	CY	2
550	TRENCH EXCAVATION SAFETY PROTECTION	LF	154
818	8" PVC WATERLINE	LF	154
824	RELAY 3/4" SHORT SERVICE	EA	1
824	RELAY 3/4" LONG SERVICE	EA	1
824	RELAY 3/4" SHORT SERVICE UNMETERED	EA	1
824	RELAY 3/4" LONG SERVICE UNMETERED	EA	1
825	CUSTOMER SHUTOFF	EA	2
828	8" GATE VALVE, M.J. W/BOX, COMPLETE	EA	1
833	EXISTING METER & NEW METER BOX RELOCATION	EA	2
836	PIPE FITTINGS, ALL SIZES AND TYPES	TN	0.36
840	6" WATER TIE-IN	EA	1
841	HYDROSTATIC TESTING	EA	1
844	2" (TEMPORARY) BLOW-OFF ASSEMBLY	EA	1
3000	REMOVAL, TRANSPORTATION AND DISPOSSAL OF VARIOUS SIZES OF A.C. PIPE	LF	26

GRAPHIC SCALE

0 20 40 60

1" = 40'
HORIZONTAL SCALE

CAUTION!!!

1 SANITARY SEWER CROSSING
2 STORM SEWER CROSSING
3 OVERHEAD ELECTRIC/ TELEPHONE CROSSING
4 FIBER OPTIC CROSSING
5 GAS CROSSING

LEGEND

PROP. WATER MAIN
EXIST. WATER MAIN
EXIST. SAN. SEWER — SS —
EXIST. STORM MAIN
EXIST. GAS — G —
OVERHEAD ELECTRIC CABLE — OHE —
OVERHEAD ELECTRIC/ TELECOMMUNICATIONS — OE/TEL —
UNDERGROUND ELECTRIC CABLE — UGE —
UNDERGROUND TELEPHONE CABLE — UT —
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DUAL BRANCH SERVICE
NEW UNMETERED SERVICE:
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SERVICE RELOCATE
3/4"
1" OR LARGER
NEW SERVICE:
3/4"
1" OR LARGER
RELOCATE METER
EXISTING WATER METER VALVE W
EXISTING SANITARY SEWER MANHOLE W
EXISITNG STORM DRAIN MANHOLE SD
EXISTING GAS VALVE GV
EXISITNG WATER VALVE WV

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NO.	REVISION	DRAWN	APPROVED	DATE

REVISIONS

CULEBRA AREA STREETS

WATER PLAN

RITA AVE.
(STA. 22+00 - END)

DEVELOPER:

CONT. | BUDGET PROJ.

SUBMITTED _____

APPROVED _____

MAP No. | SHEET 196

SECT. No.

DR. AMJ | CK. AG | JOB No. 23-5028

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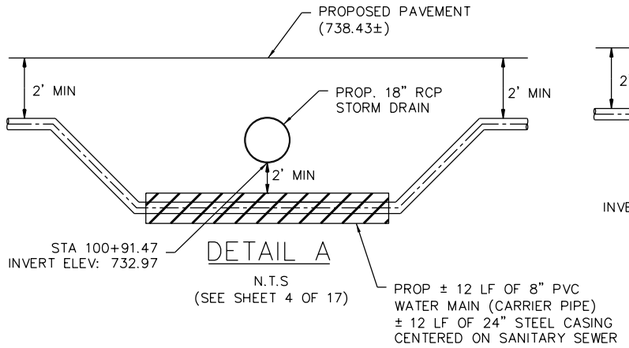
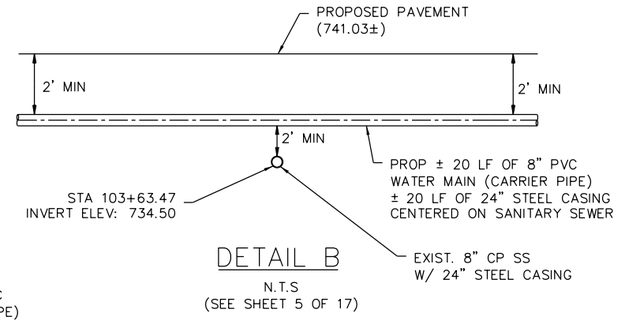


DETAIL A

N.T.S

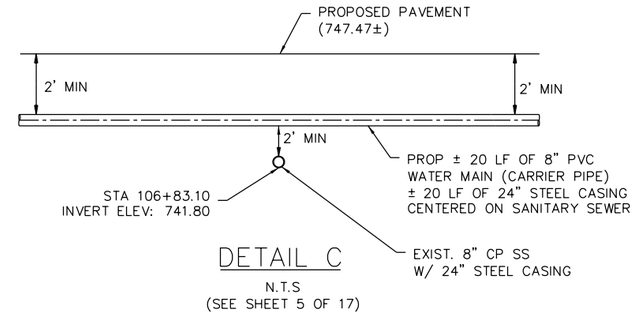
(SEE SHEET 4 OF 17)



DETAIL B

N.T.S

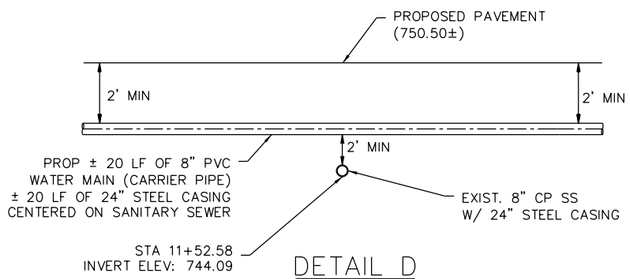
(SEE SHEET 5 OF 17)



DETAIL C

N.T.S

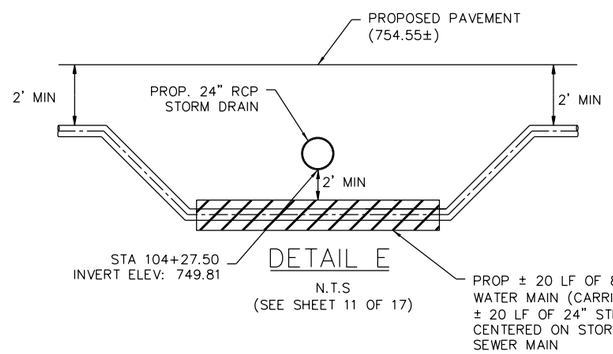
(SEE SHEET 5 OF 17)



DETAIL D

N.T.S

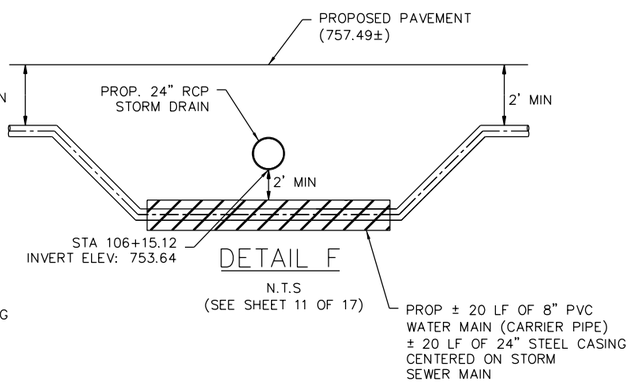
(SEE SHEET 6 OF 17)



DETAIL E

N.T.S

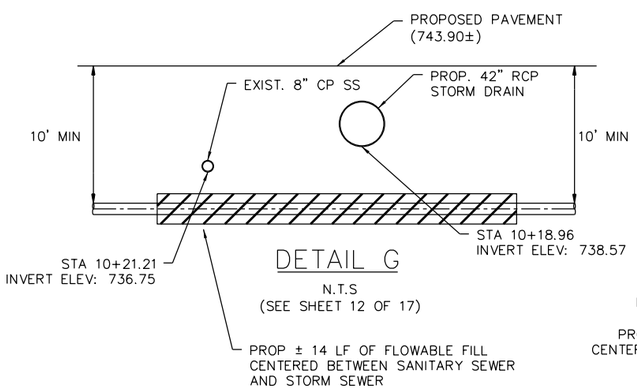
(SEE SHEET 11 OF 17)



DETAIL F

N.T.S

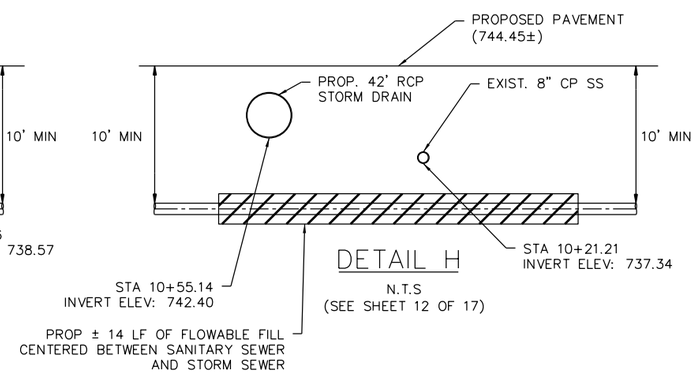
(SEE SHEET 11 OF 17)



DETAIL G

N.T.S

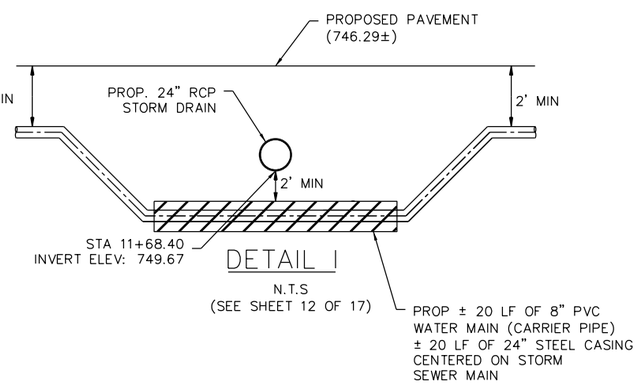
(SEE SHEET 12 OF 17)



DETAIL H

N.T.S

(SEE SHEET 12 OF 17)



DETAIL I

N.T.S

(SEE SHEET 12 OF 17)

NOTE:

1. CONTRACTOR TO REVIEW UTILITY LAYOUT SHEETS SUE DATA FOR OTHER POTENTIAL UTILITY CROSSINGS BEFORE BEGINNING CONSTRUCTION.

2. CONTRACTOR TO VERIFY CROSSING DETAIL ELEVATIONS BEFORE CONSTRUCTION BEGINS.

STATE OF TEXAS
AYDA S. GONZALES, P.E.
96594
LICENSED
PROFESSIONAL ENGINEER

100% SUBMITTAL
5/24/2025

AG3 Group, LLC
ENGINEERING • SURVEY • CONSTRUCTION
4800 FREDERICKSBURG RD. SUITE 200SL
SAN ANTONIO, TX 78229
P: 210-208-9400 F: 210-208-9401
TBPE No. F-10015
TBPLS No. 10193922

NO.	REVISION	DRAWN	APPROVED	DATE

REVISIONS

CULEBRA AREA STREETS

WATER PLAN

CROSSING DETAILS

DEVELOPER:

CONT. | BUDGET PROJ.

SUBMITTED

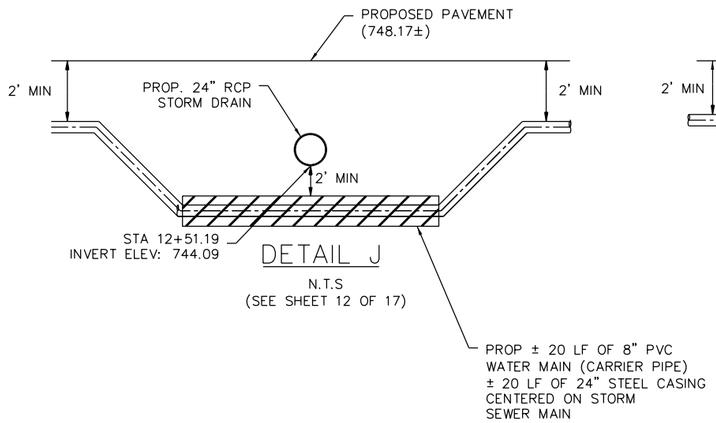
APPROVED

MAP No. | SHEET

SECT. No.

DR. AMJ | CK. AG | JOB No. 23-5028

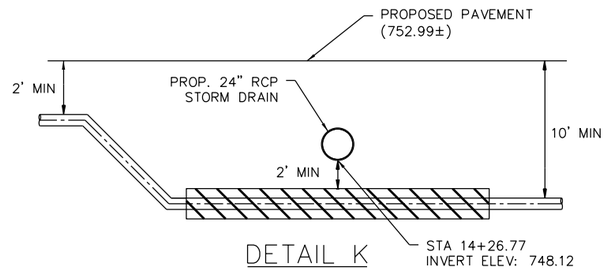
5/21/2025 4:46:30 PM
Z:\ENGINEERING DEPARTMENT\ESC 24034 Culebra Area Streets (SAWS)\07_Sheets\13_Utilities\WATER MAIN SHEETS\CULEBRA_STREETS_SAWS_CROSSING DETAILS.dgn



DETAIL J

N.T.S

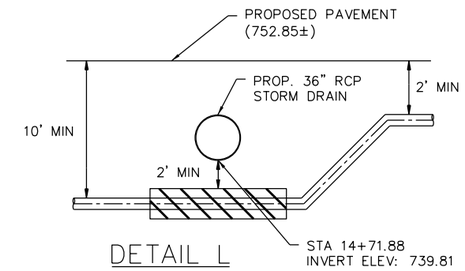
(SEE SHEET 12 OF 17)



DETAIL K

N.T.S

(SEE SHEET 13 OF 17)



DETAIL L

N.T.S

(SEE SHEET 13 OF 17)

NOTE:

1. CONTRACTOR TO REVIEW UTILITY LAYOUT SHEETS SUE DATA FOR OTHER POTENTIAL UTILITY CROSSINGS BEFORE BEGINNING CONSTRUCTION.

2. CONTRACTOR TO VERIFY CROSSING DETAIL ELEVATIONS BEFORE CONSTRUCTION BEGINS.

STATE OF TEXAS
AYDA S. GONZALES, P.E.
96594
LICENSED
PROFESSIONAL ENGINEER

100% SUBMITTAL 5/24/2025

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TBPE No. F-10015
TBPLS No. 10193922

NO.	REVISION	DRAWN	APPROVED	DATE

REVISIONS

CULEBRA AREA STREETS

WATER PLAN

CROSSING DETAILS

DEVELOPER:

CONT. | BUDGET PROJ.

SUBMITTED _____

APPROVED _____

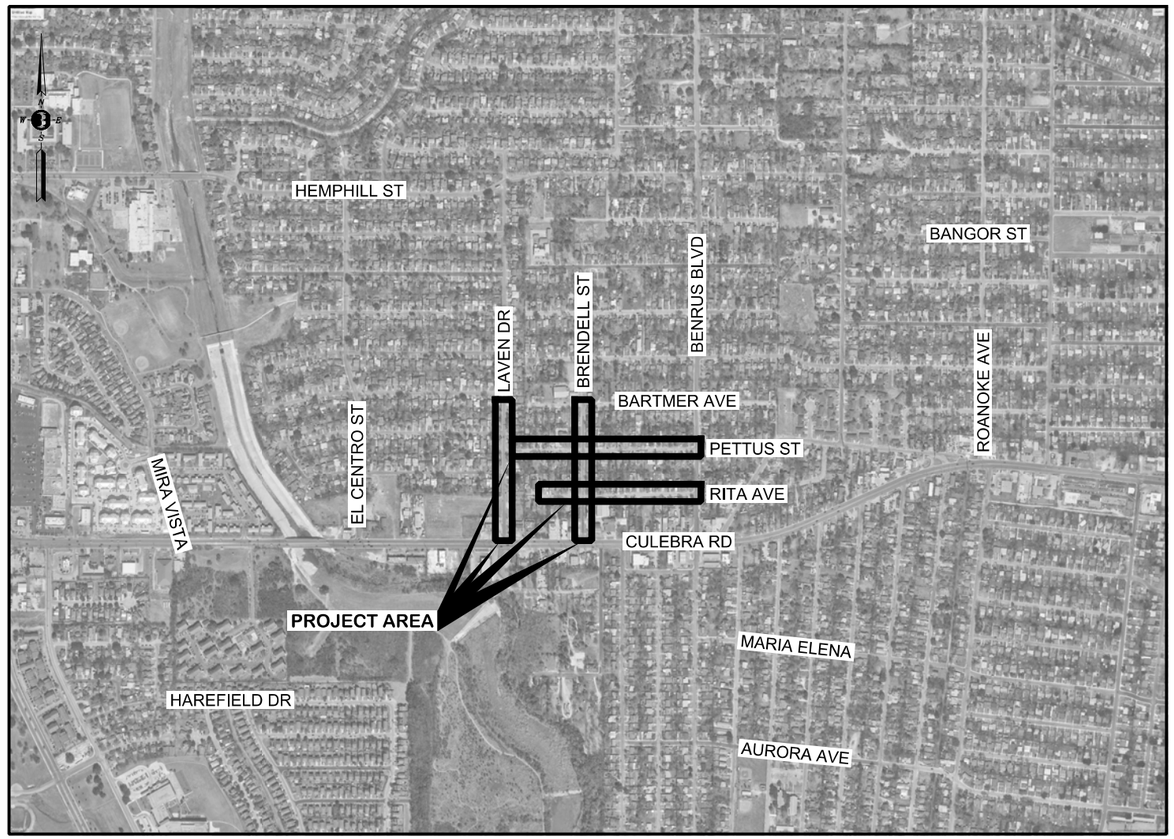
MAP No.			SHEET
SECT. No.			198
DR. AMJ	CK. AG	JOB No. 23-5028	

REV	DESCRIPTION	BY	APVD BY	DATE
–	–	–	–	–
–	–	–	–	–
–	–	–	–	–

CULEBRA PARK AREA STREETS GAS RELOCATION LAVEN DR, PETTUS ST, BRENDELL ST & RITA AVE

CITY OF SAN ANTONIO, BEXAR COUNTY, TEXAS
PROJECT NO: XX-XXXX

INDEX of PAGES



LOCATION MAP

DECEMBER 2024

STATE OF TEXAS
OSCAR V. JURIA
88051
LICENSED PROFESSIONAL ENGINEER
12-06-2024

CPS ENERGY

AG3 Group, LLC
ENGINEERING • SURVEY • CONSTRUCTION
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SAN ANTONIO, TX 78232
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TBPE #F-21809
TBPLS #10194622

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DCCM
Binkley & Barfield, Inc.
TxEng F-257
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Suite 200
San Antonio, TX 78232
210.502.2175
BinkleyBarfield.com

PROJECT NUMBER: XX-XXXX		
DRAWING NUMBER:		
COUNTY: BEXAR, TX		DATE: 12/06/2024
ENGINEER: OVJ	DRAWN BY: XX	PAGE

FILE: J:\AG3\240000231.001_Culebra Park Area - CPS Gas Relocation\6.00_CADD\6.03_Drawings\Culebra_01_Cover.dgn
DATE: 11/21/2024 10:43:39 AM

General Notes

1. All proposed gas mains are to be installed at 5'-0" of cover unless otherwise noted on the sketch, indicated on the Location Data Table, or as directed by the CPS Inspector or Field Representative. All proposed gas services are to be installed at the elevations indicated on the Location Data Table or as directed by the CPS Inspector or Field Representative.

2. All services labeled with an "R" are to be rerun from main to meter and services labeled with a "R1" are to be rerun from main to 1' inside the property line. From main to 1' inside the property line, the services are to be installed at the elevation indicated on the Location Data Table. For services labeled with a "T", the existing service is to be tied over to the new main and services labeled with an "A" are to be abandoned.

3. Gas main is to be abandoned in sections no longer than 300 feet. Each section is to be purged of gas with compressed air, and then the ends are to be sealed with concrete. All abandoned services are to be plugged. All valve boxes on abandoned mains are to be removed.

4. If the general contractor requires temporary tie-ins that are not shown on the CPS Energy sketch due to project phasing or to accommodate this project in any way, this work will be done at the general contractor's expense. General Contractor will also be responsible for all costs associated with power pole bracing whenever bracing is required for the installation of proposed gas facilities.

5. The locations of underground utilities indicated on the job sketch are taken from the best records available and are not guaranteed to be accurate. Foreman/Contractor shall verify location and depth of all existing utilities, whether shown on the plans or not, and shall be responsible for the protection of existing utilities during construction. Foreman/Contractor shall notify 811 for all utility locates and maintain an open ticket for the duration of the gas work.

6. Gas valves and underground gas facility access points should remain accessible at all times. Contractor must notify the CPS Energy project manager at least 48 hours prior to construction in order to adjust existing valve covers or access points within the proposed area of construction.

7. In accordance with the Texas Administrative Code Title 30, Part 1, Ch.305 and in compliance with the Clean Water Act, 33 U.S.C. 1251, for projects that will disturb 5 or more acres of land or will disturb less than 5 acres of land but is part of a common plan of development that will ultimately disturb 5 or more acres, the General Contractor is responsible for submitting the Notice of Intent (NOI) through the Texas Commission on Environmental Quality (TCEQ) Electronic State of Texas Environmental Electronic Reporting System (STEERS) and pay permit fee. The General Contractor will need to ensure Sub-Contractor compliance under TCEQ Construction General Permit requirements. NOI must be certified prior to earth disturbing activities, in accordance with Texas Pollutant Discharge Elimination System (TPDES) TCEQ Construction General Permit. Permit becomes active the same day that the NOI is certified.

8. All gas facilities will require proper connection for cathodic protection and locating purposes as indicated by CPS. Call Corrosion Control at 353-3237 prior to installing, adjusting, or abandoning gas lines and before connecting or disconnecting wires to any CPTLB.

9. All new polyethylene gas services and mains are to be joined by butt fusion. Compression couplings shall not be used on new gas line construction.

10. TRENCH EXCAVATION 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 site(s) in order to develop the Contractor's plans to implement the project described in the Contract Documents. The Contractor's plans shall provide for adequate trench safety systems that comply with, as a minimum, OSHA standards for trench safety consultant shall develop and implement a trench safety program in accordance with OSHA standards governing the presence and activities of individuals working in and around trench excavation.

11. The Contractor is hereby notified that all coal tar pipe coating and asphaltic pipe insulation is assumed to contain non-friable asbestos materials. The Contractor must follow all requirements in OSHA 1926.1101 to protect workers when removing the coating materials. The coal tar/asphaltic pipe insulation coating shall be removed using wet methods. All removed coal tar pipe coating and asphaltic pipe insulation must be gathered, contained in 6-mil polyethylene sheeting, sealed with tape and delivered to the CPS Energy Mission Road Construction Center at 613 Mission Road, 78210. These requirements must be followed unless otherwise noted on the plans.

12. In accordance with 49 CFR 192.383 & 192.385, The operator shall install either a manual service line shut-off valve or, if possible, based on sound engineering analysis and availability, an EFV for any new or replaced service line with installed meter capacity exceeding 1,000 SCFH . An EFV shall also be installed for all services operating at 10 PSIG or greater and having a total meter capacity of 1,000 SCFH or less.

13. When casing is used, the casing pipe ends shall be sealed to protect the gas main or service pipe from damage after insertion. Additionally, the leading end of gas main or service pipe shall be closed before inserting into casing pipe.

14. Pipe supports must be installed to prevent external loading on plastic pipe when anodeless risers are utilized for regulator stations. The risers must also be installed with appropriate measures to resist lateral movement.

15. General contractor's project schedule and associated traffic control plan shall account for the removal of abandoned gas facilities that are in conflict with proposed grading, utilities, drainage structures, or any other planned project activities.

DP Service Insertion Notes

1. Rerunning of services shall be done as designated (see General Note Number 2).
2. Insert 1" & 1 1/4" steel residential services with anodeless polyethylene (PE) as follows:
   a. Run 1" PE pipe from main to one foot inside the property line.
   b. Insert 1/2" PE pipe from one foot inside the property line to the pigtail of an anodeless riser.
   c. The 1/2" PE insertion shall not exceed 100 feet in length.
3. The minimum service size to a commercial property shall be 1.25".
4. Steel risers are to be replaced with anodeless risers of equal size.
5. Insertion shall not be used:
   a. on services 1–1/2" or larger.
   b. On services to a manifold that serves, or has the potential to serve, more than one meter.
   c. On services requiring a 30 Lt. meter or larger.
6. Any variance from the above standards should be approved by Gas Engineering.
7. Installation of EFVs or manual valves shall be performed in accordance with 49 CFR 192.383 & 192.385.

The 90 PSIG pressure test applies to all lines with an MAOP of 59 and below.

Pressure Test

Test Medium: Air / Nitrogen / Gas
Minimum Test Pressure: 90 PSIG
Minimum Test Duration: 1 Hour
Test Pressure:_____PSIG
Test Duration:_____
CPS Inspector:_____
Tested By:_____
Date:_____
Segment Tested:_____

Construction

Contractor
Center
By
Start Date
Comp. Date
CPS Inspector

Project Notes

1. All R.O.W. acquisition/clearing and OHE pole relocations must be completed before gas adjustments. General Contractor will be responsible for all coordination and costs associated with power pole bracing where necessary for the installation of gas facilities.

2. Contact XXXXXXXX of CPS Energy by email at least 48-hours prior to all gas main tie-ins to request pressure control operation plan. A minimum two-week notice must be submitted prior to performing tie-ins on any supply-pressure gas mains.

3. Contractor will be responsible for all costs associated with removing abandoned utilities or structures that conflict with the installation of proposed gas facilities.

4. Contractor must refer to traffic control plan for construction phasing and areas of gas installation that will require night or weekend work. All night or weekend gas work requiring an inspector or other CPS personnel must be scheduled with CPS Energy at least one week in advance.

5. Contact XXXXXXXXX of CPS Energy to locate all non-stock materials listed on the Material Summary Tables.

Control Points

#XXXX Northing: XXXXXX.XX Easting: XXXXXX.XX Elevation: XXX.XX 1/2" iron rod with 3" aluminum disk located along xxxxx, +/-XXX' west of xxx/yyy intersection on south side of ROW.	#XXXX (COSA Control 40-00295) Northing: XXXXXX.XX Easting: XXXXXX.XX Elevation: XXX.XX 1/2" iron rod with 3" aluminum disk located along xxxxxx, +/-XXX' east of xxx/yyy intersection on north side of ROW.

NOTE: Gas contractor must verify control points with general contractor prior to installation of gas facilities.

Construction Points		Install			Abandon	
From	To	Pipe Size	Length	MAOP	Pipe Size	Length
1	2	2PA	115'	33 psig	2-SP	123'
2	2A	1PA	16'	33 psig	1-SP	33'
2	3	2PA	18'	33 psig	2-SP	2'
3	3A	1 1/4PA	4'	33 psig	1 1/4-SP	1'
3	4	2PA	1'	33 psig	2-SP	4'
4	4A	1PA	7'	33 psig	1-PA	7'
4	5	2PA	126'	33 psig	2-SP	126'
5	5A	1PA	8'	33 psig	1-PA	8'
5	6	2PA	70'	33 psig	2-SP	69'
6	6A	1PA	7'	33 psig	1-PA	8'
6	7	2PA	14'	33 psig	2-SP	10'
7	8	2PA	40'	33 psig	2-SP	37'
8	9	2PA	31'	33 psig	2-SP	0
8	10	2PA	105'	33 psig	2-SP	104'
10	10A	1PA	52'	33 psig	1-SP	30'
10	11	2PA	58'	33 psig	2-SP	56'
11	11A	1PA	52'	33 psig	1-SP	30'
11	12	2PA	54'	33 psig	2-SP	55'
12	12A	1PA	52'	33 psig	1-SP	30'
12	13	2PA	9	33 psig	2-SP	10'
13	13A	1PA	52'	33 psig	1-SP	30'
13	14	2PA	271'	33 psig	2-SP	101'
14	15	2PA	83'	33 psig	2-SP	5'
15	15A	1PA	7'	33 psig	1-PA	9'
15	16	2PA	77'	33 psig	2-PA	77'
16	16A	1PA	56'	33 psig	1-SP	64'
16	17	2PA	2'	33 psig	2-SP	2'

Install		Abandon	
Total 1 1/4PA	4'	Total 1 1/4-SP	1'
Total 1PA	309'	Total 1-PA	32'
Total 2PA	1,074'	Total 1-SP	217'
		Total 2-SP	781'

Construction Points		Install			Abandon	
From	To	Pipe Size	Length	MAOP	Pipe Size	Length
17	17A	1PA	14'	33 psig	1-SP	30'
17	18	2PA	83'	33 psig	2-SP	82'
18	18A	1PA	8'	33 psig	1-PA	9'
18	19	2PA	6'	33 psig	2-SP	4'
19	19A	1PA	52'	33 psig	1-SP	64'
19	20	2PA	60'	33 psig	2-SP	61'
20	20A	1PA	51'	33 psig	1-SP	64'
20	21	2PA	11'	33 psig	2-SP	16'
21	21A	1 1/4PA	8'	33 psig	1 1/4-PA	9'
21	22	2PA	87'	33 psig	2-SP	82'
22	22A	1/2PA	9'	33 psig	1/2-PA	3'
22	23	2PA	89'	33 psig	2-SP	89'
23	24	2PA	102'	33 psig	2-SP	101'
24	24A	1PA	9'	33 psig	1-PA	9'
24	25	2PA	7'	33 psig	2-SP	1'
26	27	2PA	333'	33 psig	2-SP	0
27	28	2PA	8'	33 psig	2-SP	10'
28	28A	1PA	6'	33 psig	1-SP	2'
28	29	2PA	201'	33 psig	2-SP	202'
29	29A	1PA	8'	33 psig	1-PA	9'
29	30	2PA	48'	33 psig	2-SP	48'
30	30A	1PA	7'	33 psig	1-PA	9'
30	31	2PA	50'	33 psig	2-SP	50'
31	31A	1PA	10'	33 psig	1-SP	30'
31	32	2PA	25'	33 psig	2-SP	14'
33	34	2PA	83'	33 psig	2-SP	51'
34	34A	1PA	15'	33 psig	1-SP	30'
34	7	2PA	77'	33 psig	2-SP	77'

Install		Abandon	
Total 1 1/4PA	8'	Total 1 1/4-PA	9'
Total 1/2PA	9'	Total 1/2-PA	3'
Total 1PA	180'	Total 1-PA	36'
Total 2PA	1269'	Total 1-SP	220'
		Total 2-SP	889'

Legend

- Center Line
- Existing Property Line
- Proposed Property Line
- Easement Line
- Existing Gas Service
- Existing Gas Main
- Install Gas Service
- Install Gas Main
- Abandon Gas
- Cable TV
- Telephone
- Sanitary Sewer
- Proposed Drainage
- Existing Drainage
- Electric
- Water
- Construction Point #
- Material Item #
- Proposed Shortstop Stopple
- Proposed Shortstop 3-Way Tee
- Proposed End Cap
- Proposed Vertical Offset

STATE OF TEXAS
OSCAR V. JURIA
88051
LICENSED PROFESSIONAL ENGINEER
12-06-2024

NO.	DRAWING REVISION	DATE

Binkley & Barfield
DCCM
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TxEng F-257
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San Antonio, TX 78232
210.502.2175
BinkleyBarfield.com

AG3 Group, LLC
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SAN ANTONIO, TX 78232
P:210-208-9400 F:210-208-9401
TBPE #F-21809
TBPLS #10194622

MANAGER APPROVAL: DATE APPROVED

MAP QUADRANTS

PROJECT NO. XX-XXXX

JOB TITLE
CULEBRA PARK AREA STREETS
GAS RELOCATION
LAVEN DR, PETTUS ST, BRENDELL ST & RITA AVE
GENERAL NOTES, ESTIMATED QUANTITIES
& LEGEND

CPS ENERGY

JOB NO.

FILE: J:\AG3\24000000231.001_Culebra Park Area - CPS Gas Relocation\6.00_CADD\6.03_Drawings\Culebra_02_General Notes.dgn
DATE: 11/22/2024 3:30:49 PM

Contract Exhibit GAS-6

NOTE: Construction personnel shall make any changes necessary to the pre-populated print line data shown. All pipe material specifications shall be field verified prior to entering data on this sheet.

POINT SPAN	PIPE PRINT LINE DATA (EXAMPLE SHOWN)	LENGTH	TEST MEDIUM	TEST DURATION	TEST PRESSURE	CPS INSPECTOR	TESTED BY	DATE
	IPS DR 11 Yellowstripe 8300 GAS PE3408/4710-PE100 CEE ASTM D2513							
	IPS DR 11 Yellowstripe 8300 GAS PE3408/4710-PE100 CEE ASTM D2513							
	IPS DR 11 Yellowstripe 8300 GAS PE3408/4710-PE100 CEE ASTM D2513							
	IPS DR 11 Yellowstripe 8300 GAS PE3408/4710-PE100 CEE ASTM D2513							
	IPS DR 11 Yellowstripe 8300 GAS PE3408/4710-PE100 CEE ASTM D2513							
	IPS DR 11 Yellowstripe 8300 GAS PE3408/4710-PE100 CEE ASTM D2513							
	IPS DR 11 Yellowstripe 8300 GAS PE3408/4710-PE100 CEE ASTM D2513							
	IPS DR 11 Yellowstripe 8300 GAS PE3408/4710-PE100 CEE ASTM D2513							
	IPS DR 11 Yellowstripe 8300 GAS PE3408/4710-PE100 CEE ASTM D2513							
	IPS DR 11 Yellowstripe 8300 GAS PE3408/4710-PE100 CEE ASTM D2513							
	IPS DR 11 Yellowstripe 8300 GAS PE3408/4710-PE100 CEE ASTM D2513							
	IPS DR 11 Yellowstripe 8300 GAS PE3408/4710-PE100 CEE ASTM D2513							
	IPS DR 11 Yellowstripe 8300 GAS PE3408/4710-PE100 CEE ASTM D2513							
	IPS DR 11 Yellowstripe 8300 GAS PE3408/4710-PE100 CEE ASTM D2513							
	IPS DR 11 Yellowstripe 8300 GAS PE3408/4710-PE100 CEE ASTM D2513							
	IPS DR 11 Yellowstripe 8300 GAS PE3408/4710-PE100 CEE ASTM D2513							
1 to 2	2" IPS DR 11 Yellowstripe 8300 GAS PE3408/4710-PE100 CEE ASTM D2513 WT015 Y NR 0356 A1-043 27Jul06 coil#0152	1,200	Air	1 hour	90 psig	Inspector Name	Foreman or Contractor Name	05/31/2017

POINT SPAN	WELD / FUSE INSPECTION VERIFICATION	INSPECTOR COMMENTS
	INSPECTOR NAME: INSPECTOR SIGNATURE: DATE:	
	INSPECTOR NAME: INSPECTOR SIGNATURE: DATE:	
	INSPECTOR NAME: INSPECTOR SIGNATURE: DATE:	
	INSPECTOR NAME: INSPECTOR SIGNATURE: DATE:	
	INSPECTOR NAME: INSPECTOR SIGNATURE: DATE:	
	INSPECTOR NAME: INSPECTOR SIGNATURE: DATE:	

NOTE: Signatures above confirm that all steel welds and plastic fuses were thoroughly inspected by authorized and qualified CPS Energy representative(s) in accordance with CPS Energy and regulatory compliance requirements.

MINIMUM TEST PRESSURE = XX PSIG

MAXIMUM TEST PRESSURE = XX PSIG

MINIMUM TEST DURATION = 1 HOUR

NOTE: The 90 PSIG pressure test applies to all lines with an MAOP of 59 and below.

OSCAR V. JURIA
88051

12-06-2024

NO.	DRAWING REVISION	DATE

Binkley & Barfield
DCCM

Binkley & Barfield, Inc.
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SAN ANTONIO, TX 78232
P:210-208-9400 F:210-208-9401
TBPE #F-21809
TBPLS #10194622

MANAGER APPROVAL:

DATE APPROVED

MAP QUADRANTS

PROJECT NO.
XX-XXXX

JOB TITLE
CULEBRA PARK AREA STREETS
GAS RELOCATION
LAVEN DR, PETTUS ST, BRENDELL ST & RITA AVE
LINE DATA TABLE

cps ENERGY

JOB NO.

FILE: J:\AG3\2400000231.001_Culebra Park Area - CPS Gas Relocation\6.00_CADD\6.03_Drawings\Culebra_03_Line Data Table.dgn

10:51:06 AM

DATE: 11/21/2024

All proposed gas mains and services are to be installed at the planned Gas Top of Pipe Elevation indicated on the Location Data Table.

Contract Exhibit GAS-6

Location Data Table - LAVEN DRIVE - Pages 5 to 7

CS4 Item #	Location		Station Marker	Grade Elevations			Gas Requirements		Planned Depth of Gas			Potential Conflicting Facility			Clearance	
	Address	Location # / Street Name		Existing Grade	Proposed Final Grade	Estimated Subgrade	Gas Pipe Size	Planned Gas T.O.P. Elevation	From Existing Grade	From Final Grade	From Estimated Subgrade	Proposed Faciliy Description	Top Elevation	Bottom Elevation	Above Prop. Facility	Below Prop. Facility

Location Data Table - PETTUS STREET - Pages 8 to 13

CS4 Item #	Location		Station Marker	Grade Elevations			Gas Requirements		Planned Depth of Gas			Potential Conflicting Facility			Clearance	
	Address	Location # / Street Name		Existing Grade	Proposed Final Grade	Estimated Subgrade	Gas Pipe Size	Planned Gas T.O.P. Elevation	From Existing Grade	From Final Grade	From Estimated Subgrade	Proposed Faciliy Description	Top Elevation	Bottom Elevation	Above Prop. Facility	Below Prop. Facility

Location Data Table - BRENDELL STREET - Pages 14 to 16

CS4 Item #	Location		Station Marker	Grade Elevations			Gas Requirements		Planned Depth of Gas			Potential Conflicting Facility			Clearance	
	Address	Location # / Street Name		Existing Grade	Proposed Final Grade	Estimated Subgrade	Gas Pipe Size	Planned Gas T.O.P. Elevation	From Existing Grade	From Final Grade	From Estimated Subgrade	Proposed Faciliy Description	Top Elevation	Bottom Elevation	Above Prop. Facility	Below Prop. Facility

Location Data Table - RITA STREET - Page 17 & 21

CS4 Item #	Location		Station Marker	Grade Elevations			Gas Requirements		Planned Depth of Gas			Potential Conflicting Facility			Clearance	
	Address	Location # / Street Name		Existing Grade	Proposed Final Grade	Estimated Subgrade	Gas Pipe Size	Planned Gas T.O.P. Elevation	From Existing Grade	From Final Grade	From Estimated Subgrade	Proposed Faciliy Description	Top Elevation	Bottom Elevation	Above Prop. Facility	Below Prop. Facility

Pressure Test
Department of Transportation
Section 192.507
Proposed M.A.O.P. xxx P.S.I.G

Pipe Size: xxx
Test Medium: xxx / xxx / xxx
Minimum Test Pressure: xxx P.S.I.G.
Maximum Test Pressure: xxx P.S.I.G.
Minimum Test Duration: 1 Hour
C.P.S. Required Duration: 2 Hours
Tested By: _____
Date Tested: _____
Test Equipment Serial#: _____

	Pressure	Ambient Temperature	Pipe Temperature
Start Test			
15 minutes			
30 minutes			
45 minutes			
60 minutes			
75 minutes			
90 minutes			
105 minutes			
120 minutes			
End Test			

NOTE: All fields on the CPS Energy Pipeline Pressure Test Report Form shall be completed for each pressure test. CPS Energy Engineer shall be present during all pressure tests.

STATE OF TEXAS
OSCAR V. JURIA
88051
LICENSED PROFESSIONAL ENGINEER
12-06-2024

NO.	DRAWING REVISION	DATE

Binkley & Barfield
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P:210-208-9400 F:210-208-9401
TBPE #F-21809
TBPLS #10194622

MANAGER APPROVAL: DATE APPROVED

MAP QUADRANTS

PROJECT NO. XX-XXXX

JOB TITLE
CULEBRA PARK AREA STREETS
GAS RELOCATION
LAVEN DR, PETTUS ST, BRENDELL ST & RITA AVE
LOCATION DATA TABLE

CPS ENERGY

JOB NO.

204

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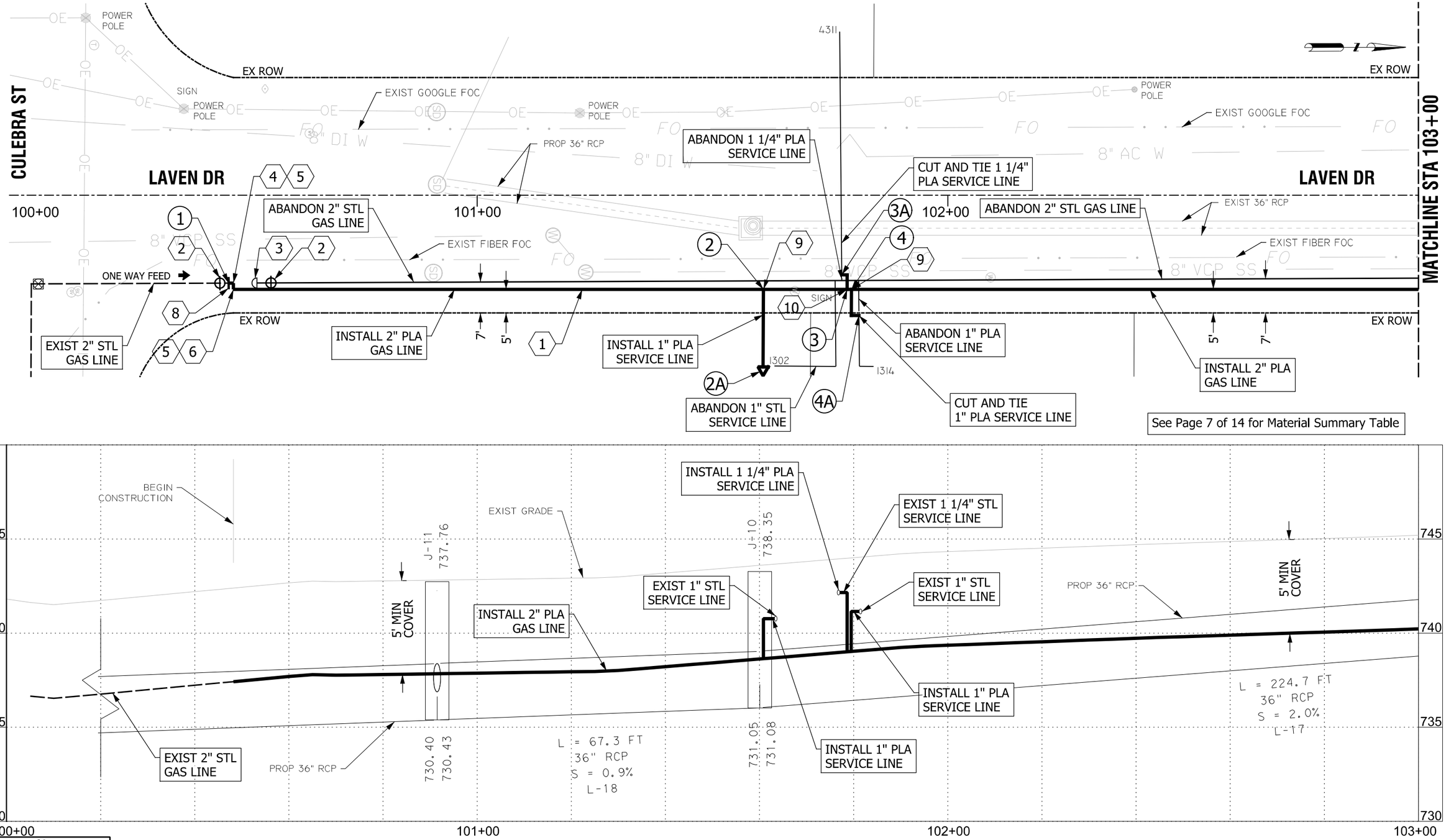

See Page 7 of 14 for Material Summary Table

STATE OF TEXAS
OSCAR V. JURIA
88051
LICENSED PROFESSIONAL ENGINEER
12-06-2024

SCALE
HORIZ: 0' 5' 10' 20'
VERT: 0' 2.5' 5'

NO.	DRAWING REVISION	DATE

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P:210-208-9400 F:210-208-9401
TBPE #F-21809
TBPLS #10194622

MANAGER APPROVAL: DATE APPROVED

MAP QUADRANTS

PROJECT NO. XX-XXXXXX

JOB TITLE
CULEBRA PARK AREA STREETS
GAS RELOCATION
LAVEN DR, PETTUS ST, BRENDELL ST & RITA AVE
PLAN & PROFILE - LAVEN DR
STA 100+00 TO STA 103+00

cps ENERGY

JOB NO.

PAGE 5 OF 14

205

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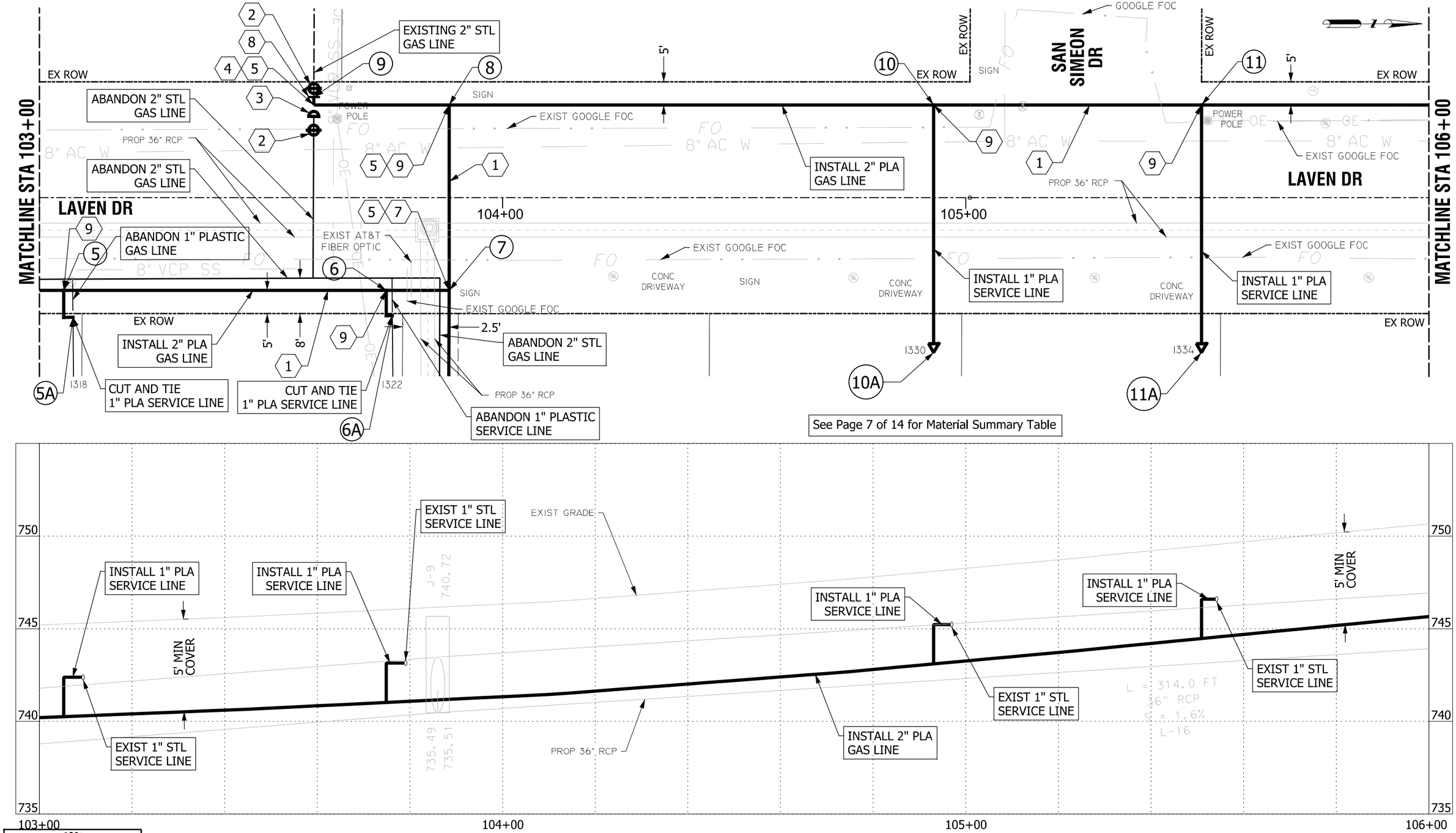

STATE OF TEXAS
OSCAR V. JURIA
88051
LICENSED PROFESSIONAL ENGINEER
12-06-2024

SCALE
HORIZ: 0' 5' 10' 20'
VERT: 0' 2.5' 5'

NO.	DRAWING REVISION	DATE

Binkley & Barfield
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TBPE #F-21809
TBPLS #10194622

MANAGER APPROVAL: DATE APPROVED

MAP QUADRANTS

PROJECT NO. XX-XXXXXX

JOB TITLE
CULEBRA PARK AREA STREETS
GAS RELOCATION
LAVEN DR, PETTUS ST, BRENDELL ST & RITA AVE
PLAN & PROFILE - LAVEN DR
STA 103+00 TO STA 106+00

cps ENERGY

JOB NO.

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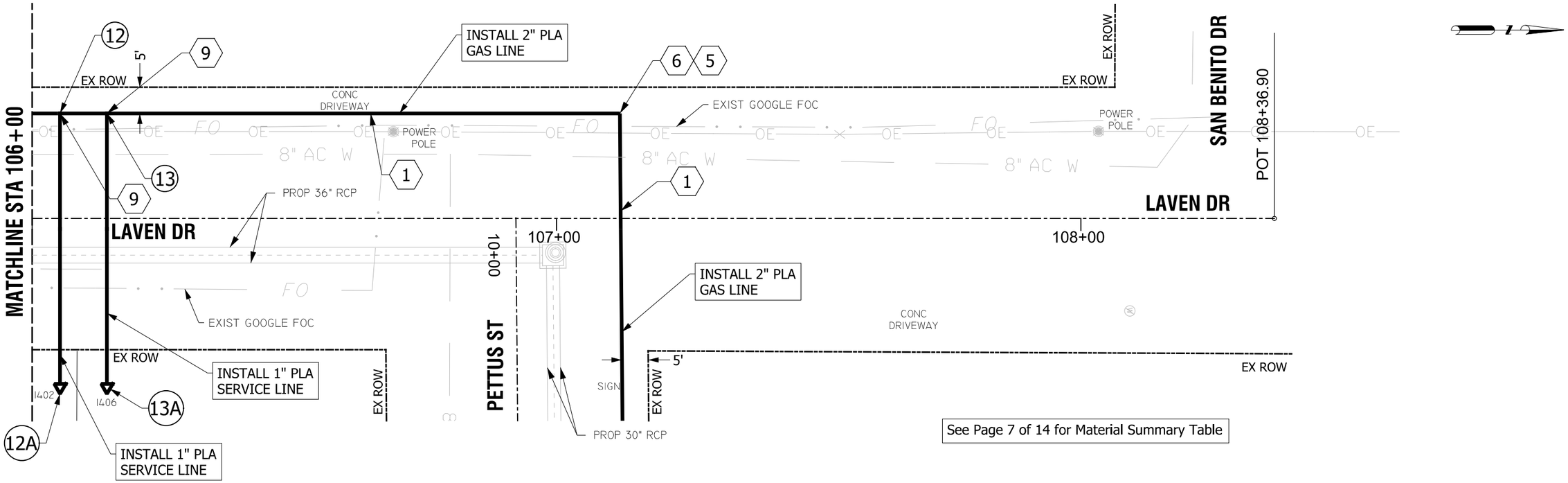
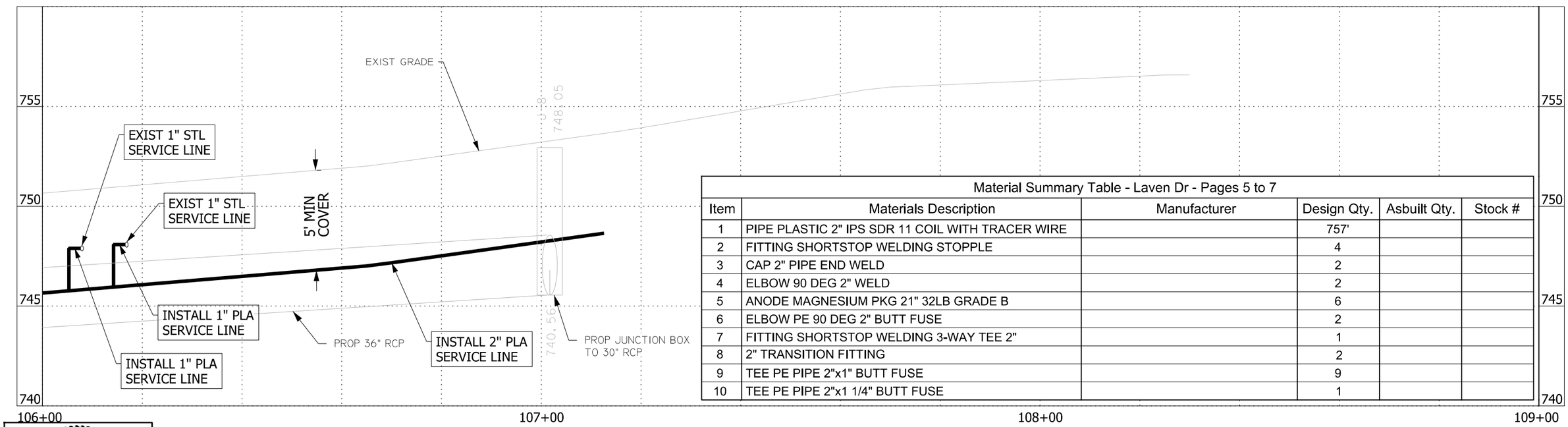


See Page 7 of 14 for Material Summary Table



Material Summary Table - Laven Dr - Pages 5 to 7					
Item	Materials Description	Manufacturer	Design Qty.	Asbuilt Qty.	Stock #
1	PIPE PLASTIC 2" IPS SDR 11 COIL WITH TRACER WIRE		757'		
2	FITTING SHORTSTOP WELDING STOPPLE		4		
3	CAP 2" PIPE END WELD		2		
4	ELBOW 90 DEG 2" WELD		2		
5	ANODE MAGNESIUM PKG 21" 32LB GRADE B		6		
6	ELBOW PE 90 DEG 2" BUTT FUSE		2		
7	FITTING SHORTSTOP WELDING 3-WAY TEE 2"		1		
8	2" TRANSITION FITTING		2		
9	TEE PE PIPE 2"x1" BUTT FUSE		9		
10	TEE PE PIPE 2"x1 1/4" BUTT FUSE		1		

STATE OF TEXAS
OSCAR V. JURIA
88051
LICENSED PROFESSIONAL ENGINEER
12-06-2024

SCALE
HORIZ: 0' 5' 10' 20'
VERT: 0' 2.5' 5'

NO.	DRAWING REVISION	DATE

Binkley & Barfield DCCM
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TBPE #F-21809
TBPLS #10194622

MANAGER APPROVAL: DATE APPROVED
MAP QUADRANTS
PROJECT NO. XX-XXXXXX

JOB TITLE
CULEBRA PARK AREA STREETS
GAS RELOCATION
LAVEN DR, PETTUS ST, BRENDELL ST & RITA AVE
PLAN & PROFILE - LAVEN DR
STA 106+00 TO STA 108+36

CPS ENERGY

JOB NO.

FILE: J:\AG3\2400000231.001_Culebra Park Area - CPS Gas Relocation\6.00_CADD\6.03_Drawings\Culebra_07 P&P STA 106+00 - 108+36 LAVEN DR.dgn
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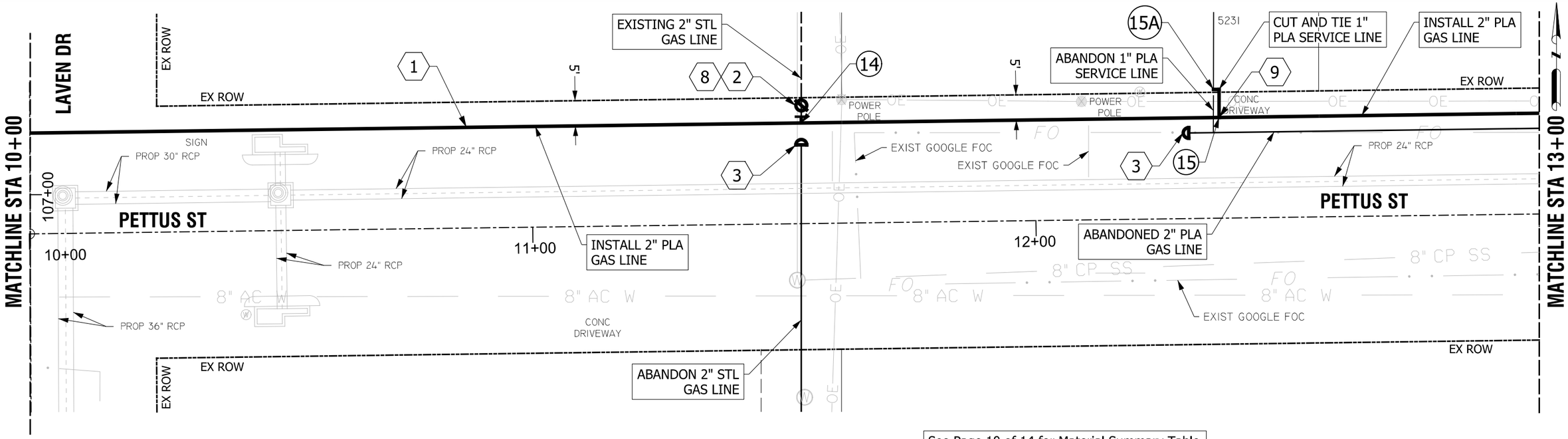
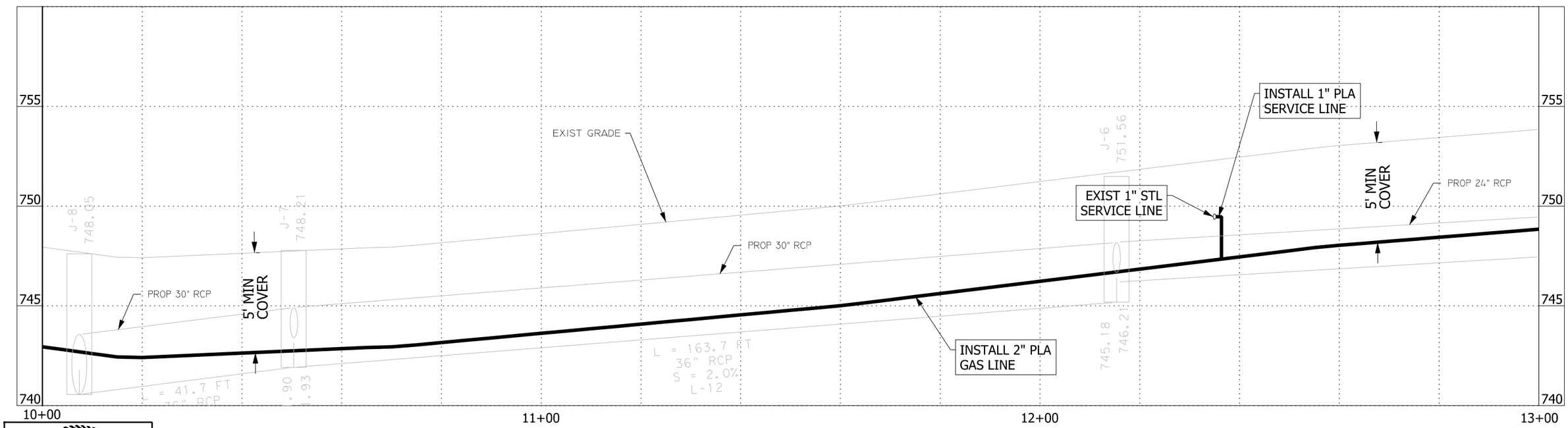


See Page 10 of 14 for Material Summary Table



STATE OF TEXAS
OSCAR V. JURIA
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LICENSED PROFESSIONAL ENGINEER
12-06-2024

SCALE
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TBPE #F-21809
TBPLS #10194622

MANAGER APPROVAL: DATE APPROVED

MAP QUADRANTS

PROJECT NO.
XX-XXXXXX

JOB TITLE
CULEBRA PARK AREA STREETS
GAS RELOCATION
LAVEN DR, PETTUS ST, BRENDELL ST & RITA AVE
PLAN & PROFILE - PETTUS ST
STA 10+00 TO STA 13+00

JOB NO.

cps ENERGY

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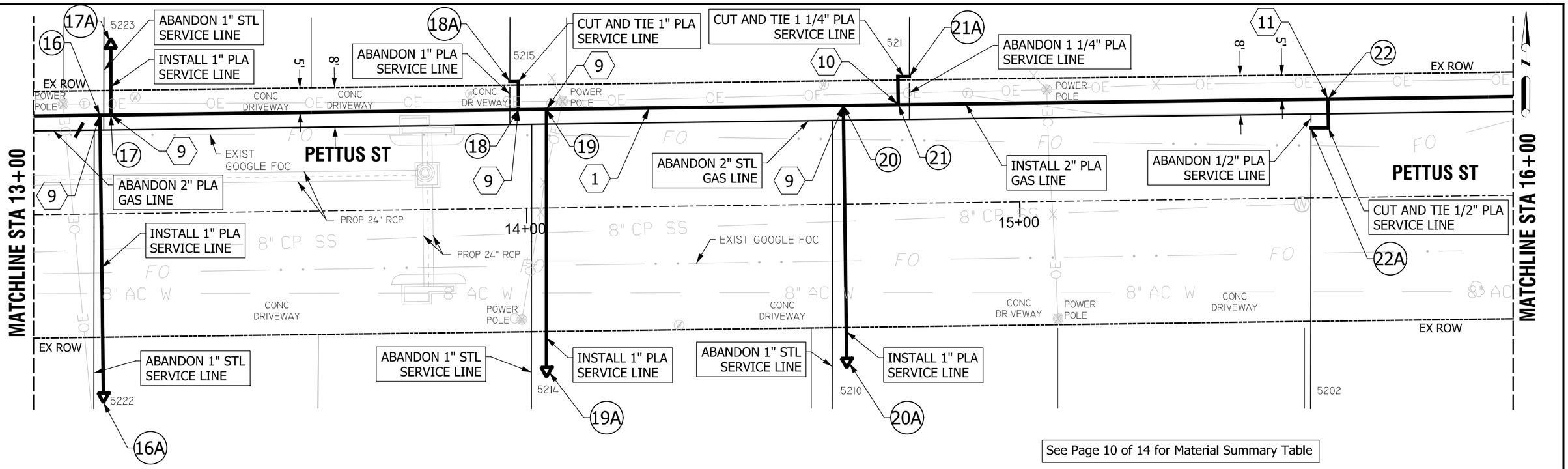
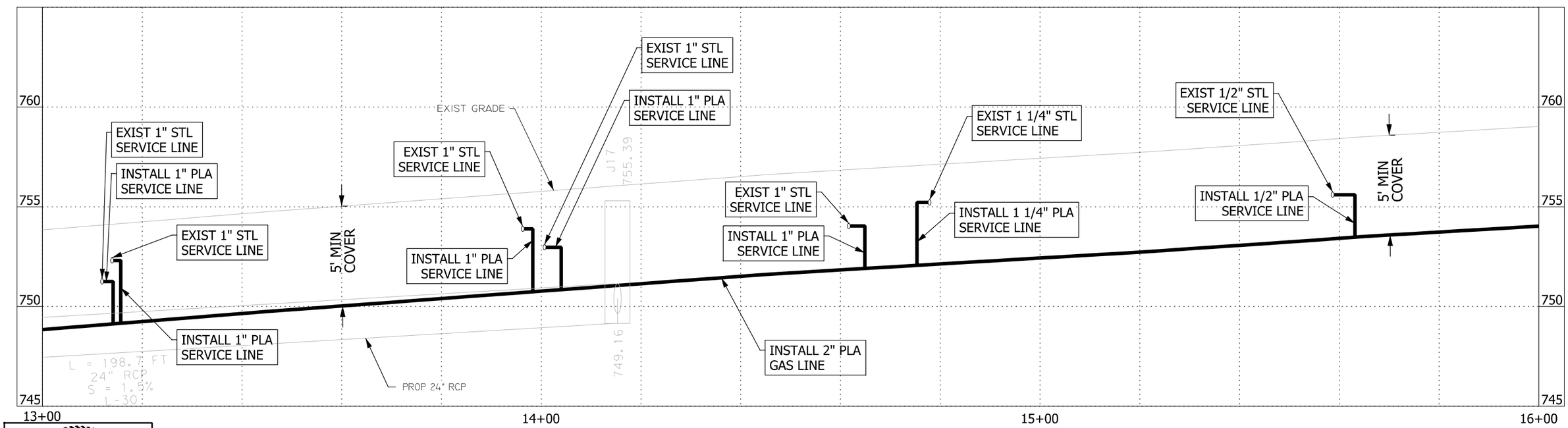


See Page 10 of 14 for Material Summary Table



STATE OF TEXAS
OSCAR V. JURIA
88051
LICENSED PROFESSIONAL ENGINEER
12-06-2024

SCALE
HORIZ: 0' 5' 10' 20'
VERT: 0' 2.5' 5'

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TBPE #F-21809
TBPLS #10194622

MANAGER APPROVAL: DATE APPROVED

MAP QUADRANTS

PROJECT NO.
XX-XXXXXX

JOB TITLE
CULEBRA PARK AREA STREETS
GAS RELOCATION
LAVEN DR, PETTUS ST, BRENDELL ST & RITA AVE
PLAN & PROFILE - PETTUS ST
STA 13+00 TO STA 16+00

cps ENERGY

JOB NO.

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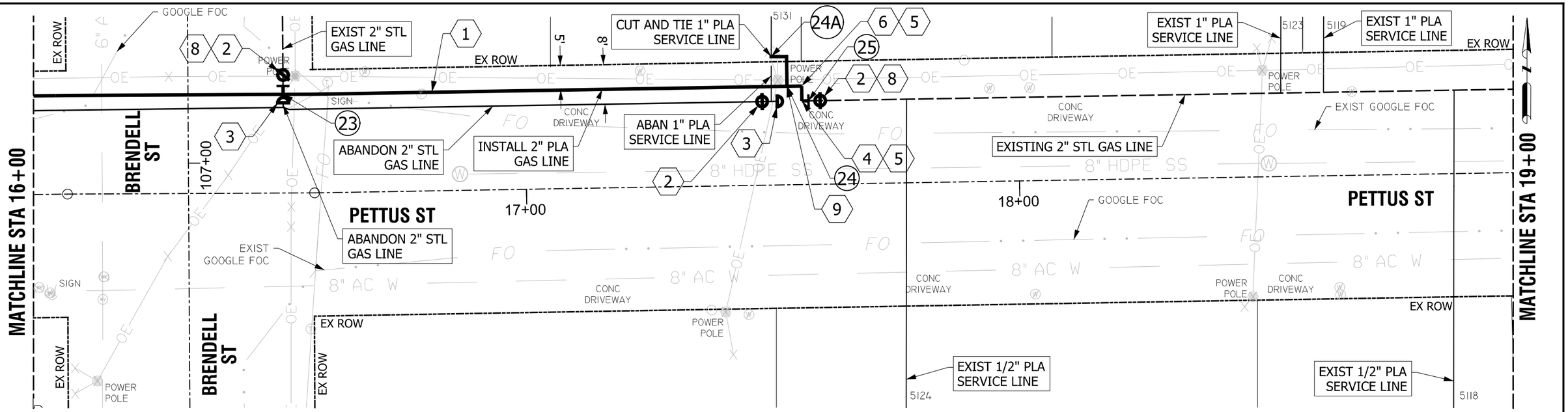
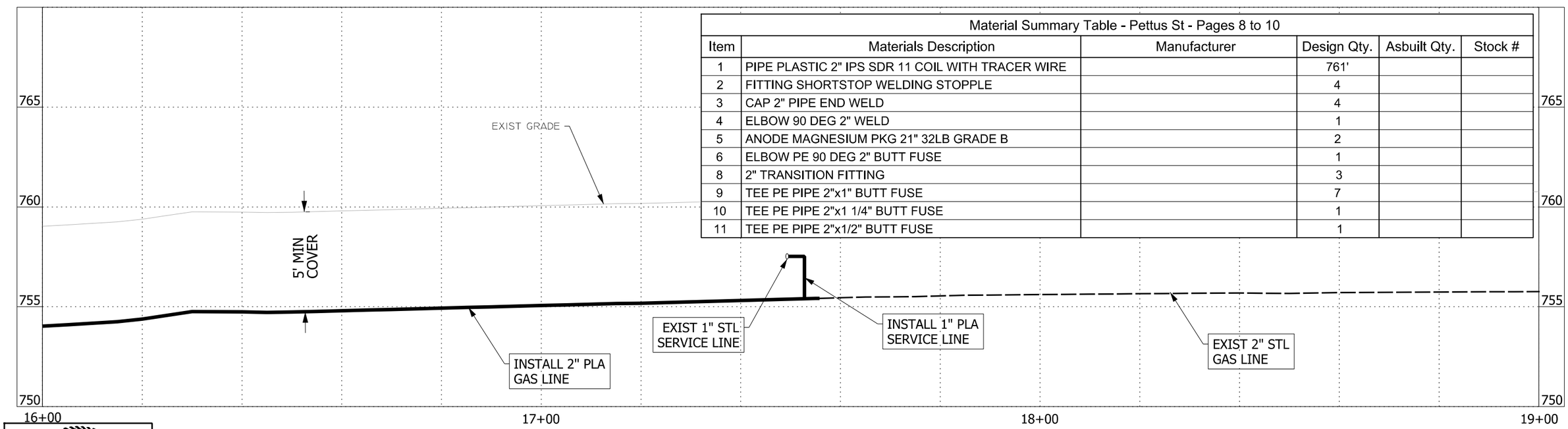


See Page 10 of 14 for Material Summary Table



Material Summary Table - Pettus St - Pages 8 to 10					
Item	Materials Description	Manufacturer	Design Qty.	Asbuilt Qty.	Stock #
1	PIPE PLASTIC 2" IPS SDR 11 COIL WITH TRACER WIRE		761'		
2	FITTING SHORTSTOP WELDING STOPPLE		4		
3	CAP 2" PIPE END WELD		4		
4	ELBOW 90 DEG 2" WELD		1		
5	ANODE MAGNESIUM PKG 21" 32LB GRADE B		2		
6	ELBOW PE 90 DEG 2" BUTT FUSE		1		
8	2" TRANSITION FITTING		3		
9	TEE PE PIPE 2"x1" BUTT FUSE		7		
10	TEE PE PIPE 2"x1 1/4" BUTT FUSE		1		
11	TEE PE PIPE 2"x1/2" BUTT FUSE		1		

STATE OF TEXAS
OSCAR V. JURIA
88051
LICENSED PROFESSIONAL ENGINEER
12-06-2024

SCALE
HORIZ: 0' 5' 10' 20'
VERT: 0' 2.5' 5'

NO.	DRAWING REVISION	DATE

Binkley & Barfield
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P:210-208-8400 F:210-208-8401
TBPE #F-21809
TBPLS #10194622

MANAGER APPROVAL: DATE APPROVED
MAP QUADRANTS
PROJECT NO. XX-XXXXXX

JOB TITLE
CULEBRA PARK AREA STREETS
GAS RELOCATION
LAVEN DR, PETTUS ST, BRENDELL ST & RITA AVE
PLAN & PROFILE - PETTUS ST
STA 16+00 TO STA 19+00

CPS ENERGY

JOB NO. 210

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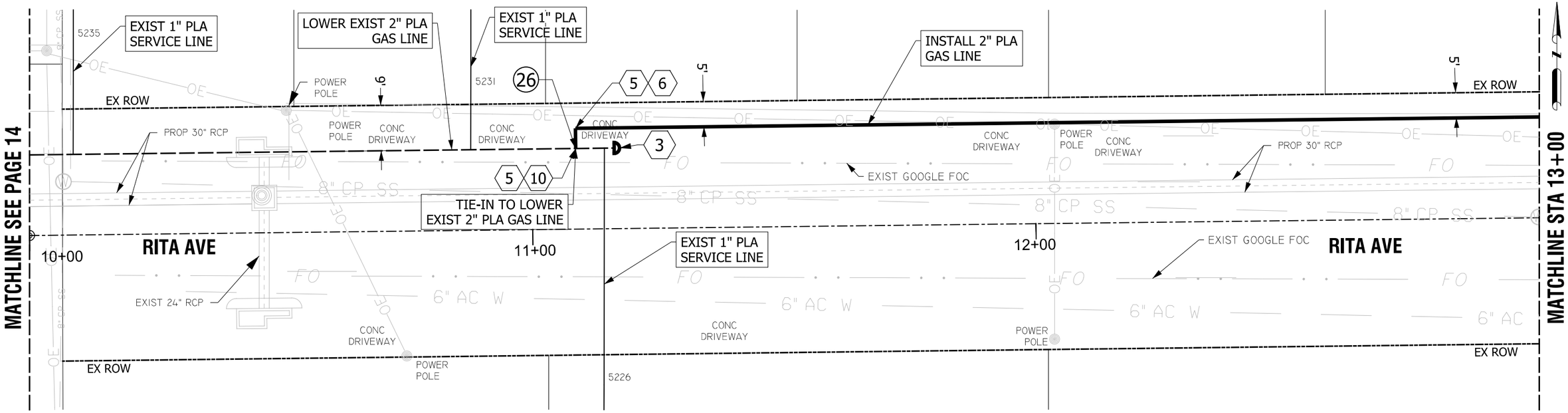
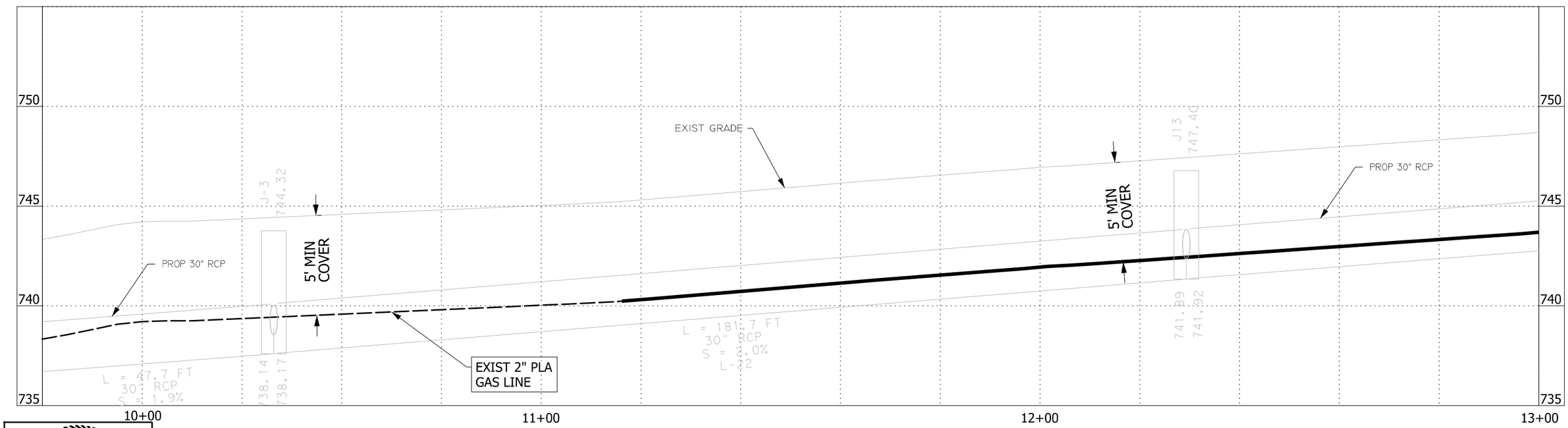


See Page 13 of 14 for Material Summary Table



STATE OF TEXAS
OSCAR V. JURIA
88051
LICENSED PROFESSIONAL ENGINEER
12-06-2024

SCALE
HORIZ: 0' 5' 10' 20'
VERT: 0' 2.5' 5'

NO.	DRAWING REVISION	DATE

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TBPE #F-21809
TBPLS #10194622

MANAGER APPROVAL: DATE APPROVED
MAP QUADRANTS
PROJECT NO. XX-XXXXXX

JOB TITLE
CULEBRA PARK AREA STREETS
GAS RELOCATION
LAVEN DR, PETTUS ST, BRENDELL ST & RITA AVE
PLAN & PROFILE - RITA AVE
STA 10+00 TO STA 13+00

JOB NO.

CPS ENERGY

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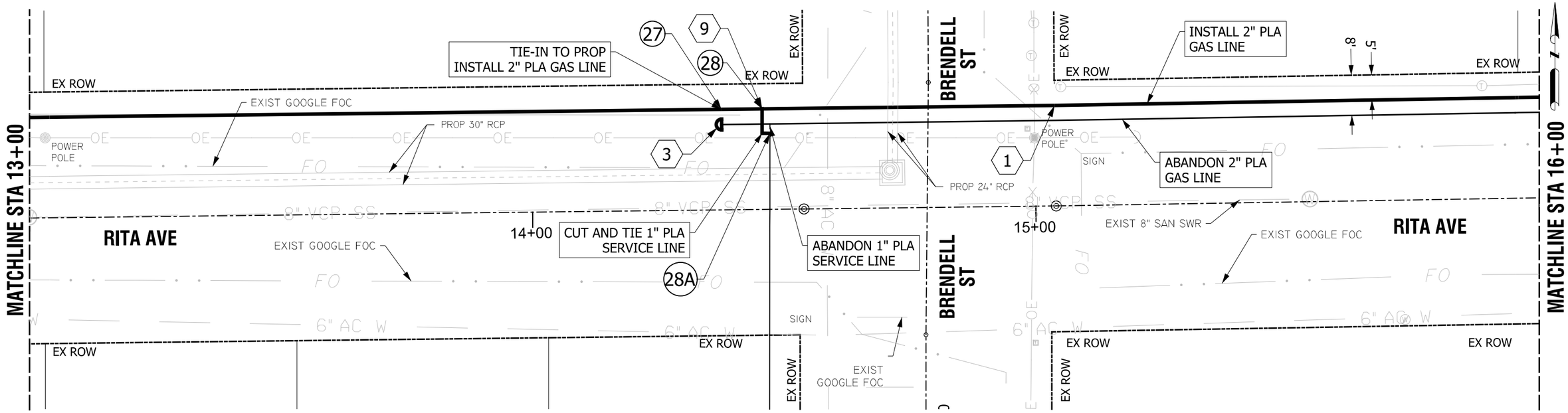
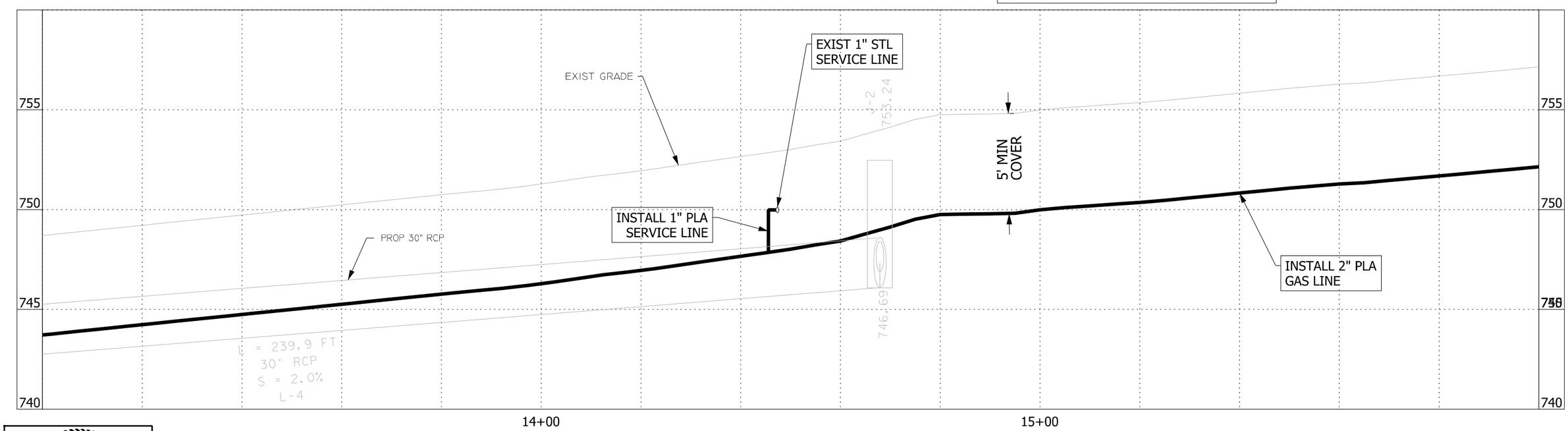


See Page 13 of 14 for Material Summary Table



STATE OF TEXAS
OSCAR V. JURIA
88051
LICENSED PROFESSIONAL ENGINEER
12-06-2024

SCALE
HORIZ: 0' 5' 10' 20'
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TBPLS #10194622

MANAGER APPROVAL: DATE APPROVED

MAP QUADRANTS

PROJECT NO.
XX-XXXXXX

JOB TITLE
CULEBRA PARK AREA STREETS
GAS RELOCATION
LAVEN DR, PETTUS ST, BRENDELL ST & RITA AVE
PLAN & PROFILE - RITA AVE
STA 13+00 TO STA 16+00

JOB NO.

cps ENERGY

212

PAGE 12 OF 14

FILE: J:\AG3\2400000231.001_Culebra Park Area - CPS Gas Relocation\6.00_CADD\6.03_Drawings\Culebra_12 P&P STA 13+00 - 16+00 RITA ST.dgn

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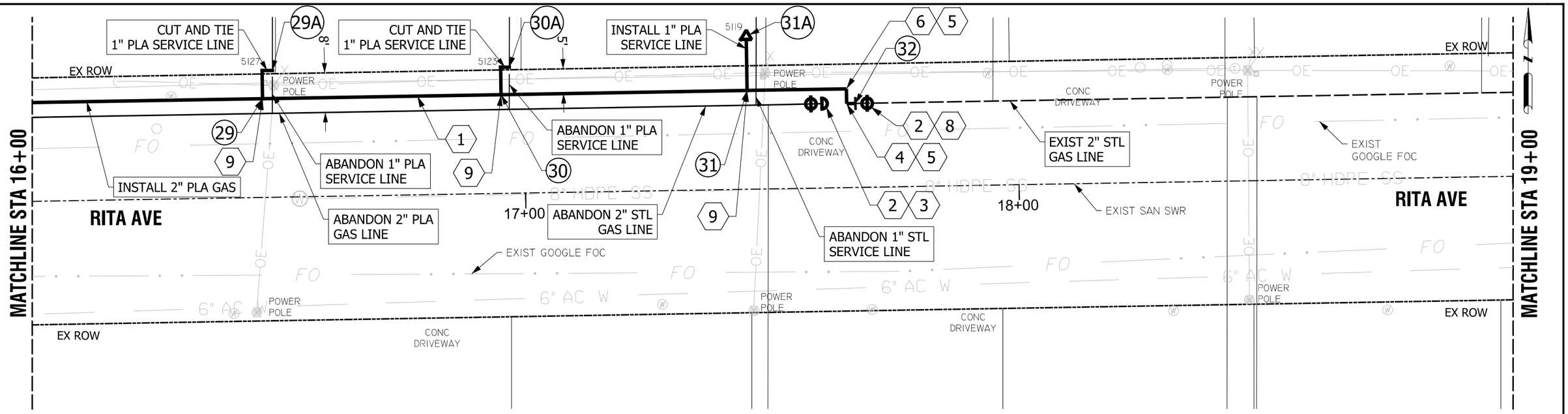
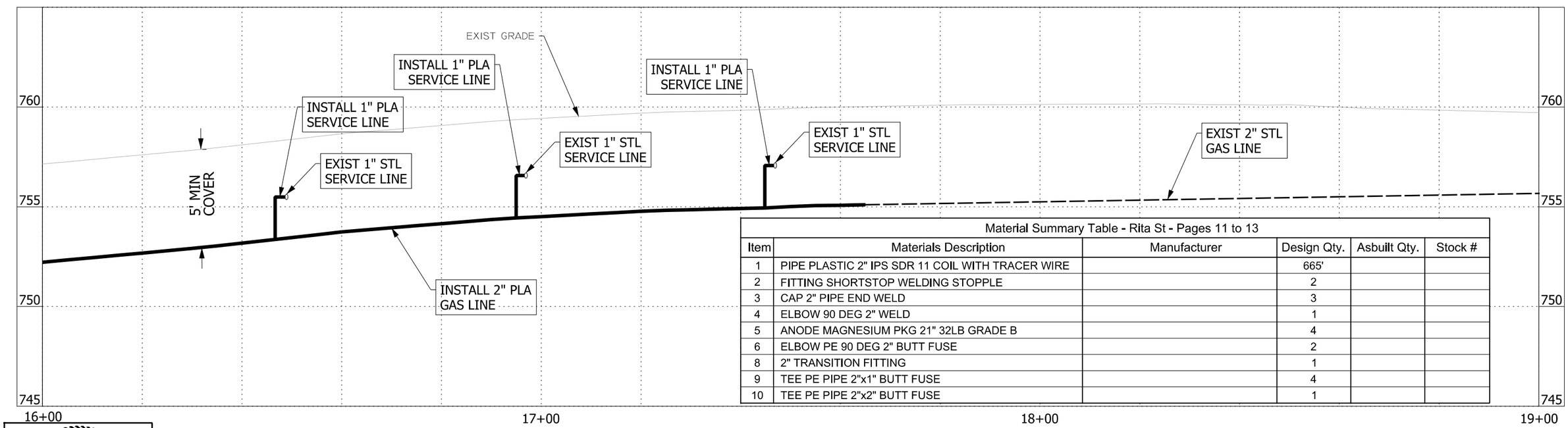


See Page 13 of 14 for Material Summary Table



Material Summary Table - Rita St - Pages 11 to 13					
Item	Materials Description	Manufacturer	Design Qty.	Asbuilt Qty.	Stock #
1	PIPE PLASTIC 2" IPS SDR 11 COIL WITH TRACER WIRE		665'		
2	FITTING SHORTSTOP WELDING STOPPLE		2		
3	CAP 2" PIPE END WELD		3		
4	ELBOW 90 DEG 2" WELD		1		
5	ANODE MAGNESIUM PKG 21" 32LB GRADE B		4		
6	ELBOW PE 90 DEG 2" BUTT FUSE		2		
8	2" TRANSITION FITTING		1		
9	TEE PE PIPE 2"x1" BUTT FUSE		4		
10	TEE PE PIPE 2"x2" BUTT FUSE		1		

STATE OF TEXAS
OSCAR V. JURIA
88051
LICENSED PROFESSIONAL ENGINEER
12-06-2024

SCALE
HORIZ: 0' 5' 10' 20'
VERT: 0' 2.5' 5'

NO.	DRAWING REVISION	DATE

Binkley & Barfield
DCCM

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BinkleyBarfield.com

MANAGER APPROVAL: DATE APPROVED

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SAN ANTONIO, TX 78232
P:210-208-9400 F:210-208-9401
TBPE #F-21809
TBPLS #10194622

MAP QUADRANTS

PROJECT NO. XX-XXXXXX

JOB TITLE
CULEBRA PARK AREA STREETS
GAS RELOCATION
LAVEN DR, PETTUS ST, BRENDELL ST & RITA AVE
PLAN & PROFILE - RITA AVE
STA 16+00 TO STA 19+00

JOB NO. 213

cps ENERGY

FILE: J:\AG3\2400000231.001_Culebra Park Area - CPS Gas Relocation\6.00_CADD\6.03_Drawings\Culebra_13 P&P STA 16+00 - 19+00 RITA ST.dgn
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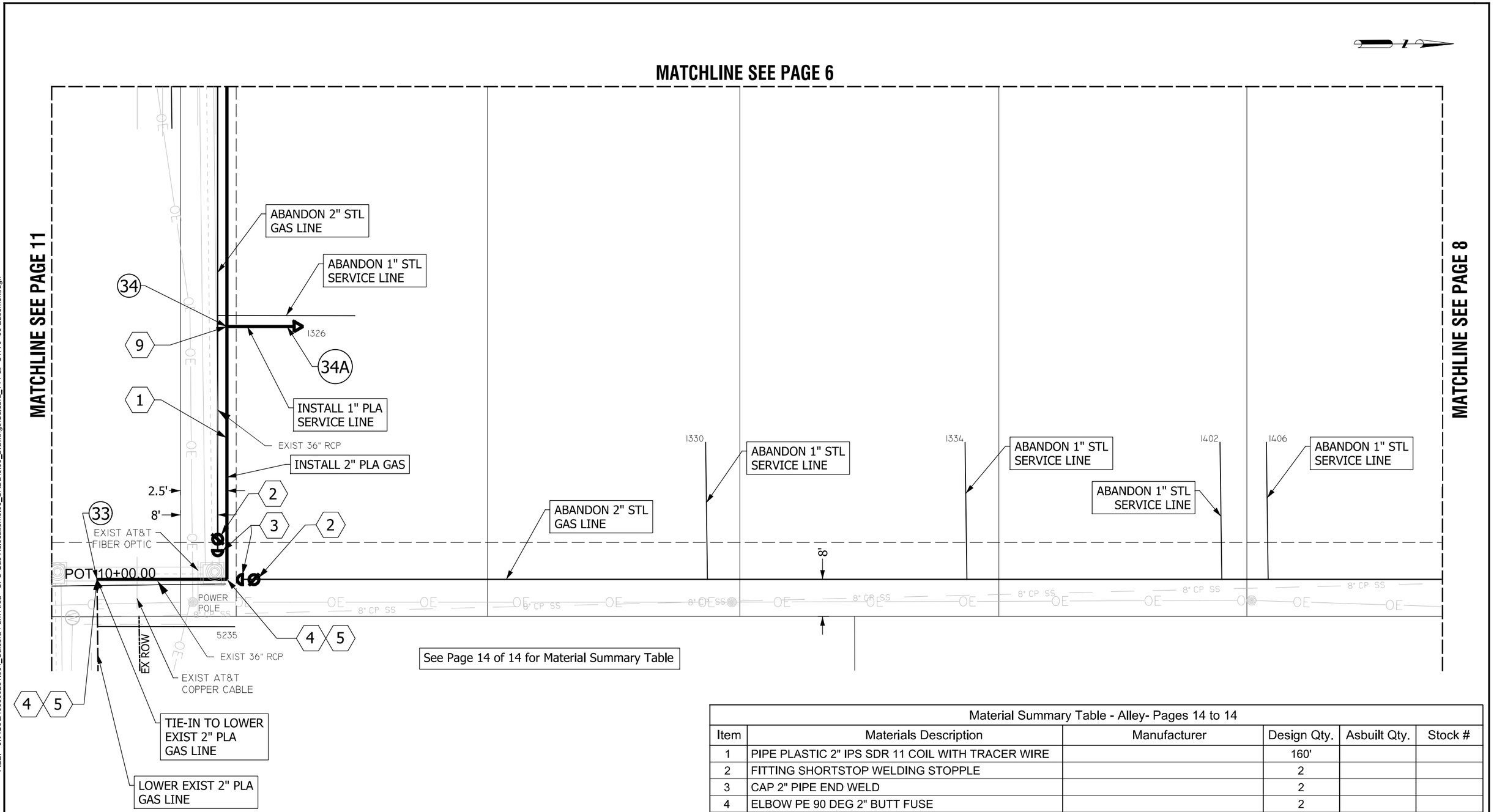

Material Summary Table - Alley- Pages 14 to 14					
Item	Materials Description	Manufacturer	Design Qty.	Asbuilt Qty.	Stock #
1	PIPE PLASTIC 2" IPS SDR 11 COIL WITH TRACER WIRE		160'		
2	FITTING SHORTSTOP WELDING STOPPLE		2		
3	CAP 2" PIPE END WELD		2		
4	ELBOW PE 90 DEG 2" BUTT FUSE		2		
5	ANODE MAGNESIUM PKG 21" 32LB GRADE B		1		
9	TEE PE PIPE 2"x1" BUTT FUSE		1		

STATE OF TEXAS
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12-06-2024

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TBPLS #10194622

MANAGER APPROVAL: DATE APPROVED

MAP QUADRANTS

PROJECT NO.
XX-XXXXXX

JOB TITLE
CULEBRA PARK AREA STREETS
GAS RELOCATION
LAVEN DR, PETTUS ST, BRENDELL ST & RITA AVE
PLAN & PROFILE - EASEMENT
STA 00+00 TO STA 00+00

CPS ENERGY

JOB NO.

FILE: J:\AG3\2400000231.001_Culebra Park Area - CPS Gas Relocation\6.00_CADD\6.03_Drawings\Culebra_14 P&P STA 0+00 Easement.dgn
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