

# GRISSOM LANE AND Mc AFFEE PLACE - STORM SEWER, SANITARY SEWER AND WATER IMPROVEMENTS

VOLUME 2 OF 2

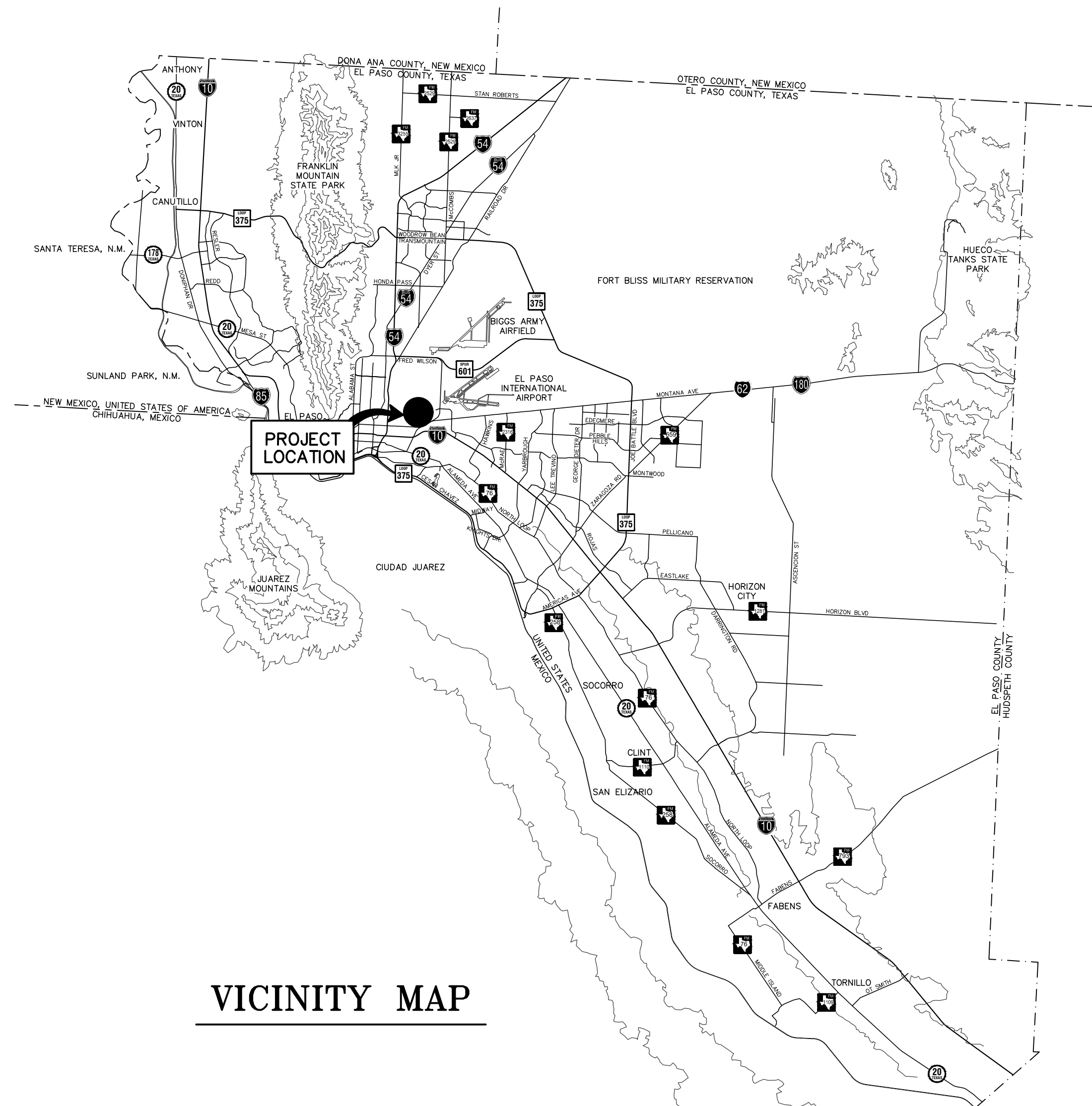
BID No. SW15-23

FEBRUARY, 2023

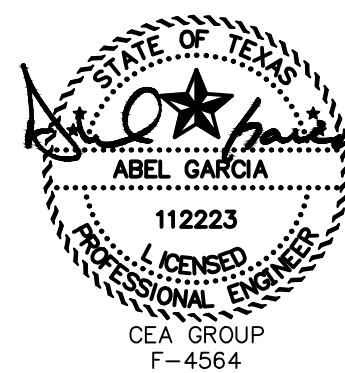
## PUBLIC SERVICE BOARD MEMBERS

IVONNE SANTIAGO, P.E.	CHAIR
BRYAN R. MORRIS, P.E.	VICE CHAIR
CHARLIE INTEBI	SECRETARY-TREASURER
KRISTINA D. MENA	MEMBER
LISA SAENZ	MEMBER
STEPHANIE BLOCK URIBARRI	MEMBER
MAYOR OSCAR LEESER	EX-OFFICIO MEMBER

JOHN E. BALLIEW, P.E.	PRESIDENT/CEO
MARCELA NAVARRETE, C.P.A.	VICE PRESIDENT
GILBERT TREJO, P.E.	VICE PRESIDENT
IRAZEMA S. ROJAS, P.E.	CHIEF TECHNICAL OFFICER
FELIPE LOPEZ, P.E.	CHIEF OPERATIONS OFFICER - DISTRIBUTION AND COLLECTION
MARTIN NORIEGA, P.E.	CHIEF OPERATIONS OFFICER - SUPPORT
GISELA DAGNINO, P.E.	CHIEF OPERATIONS OFFICER - STORMWATER



VICINITY MAP

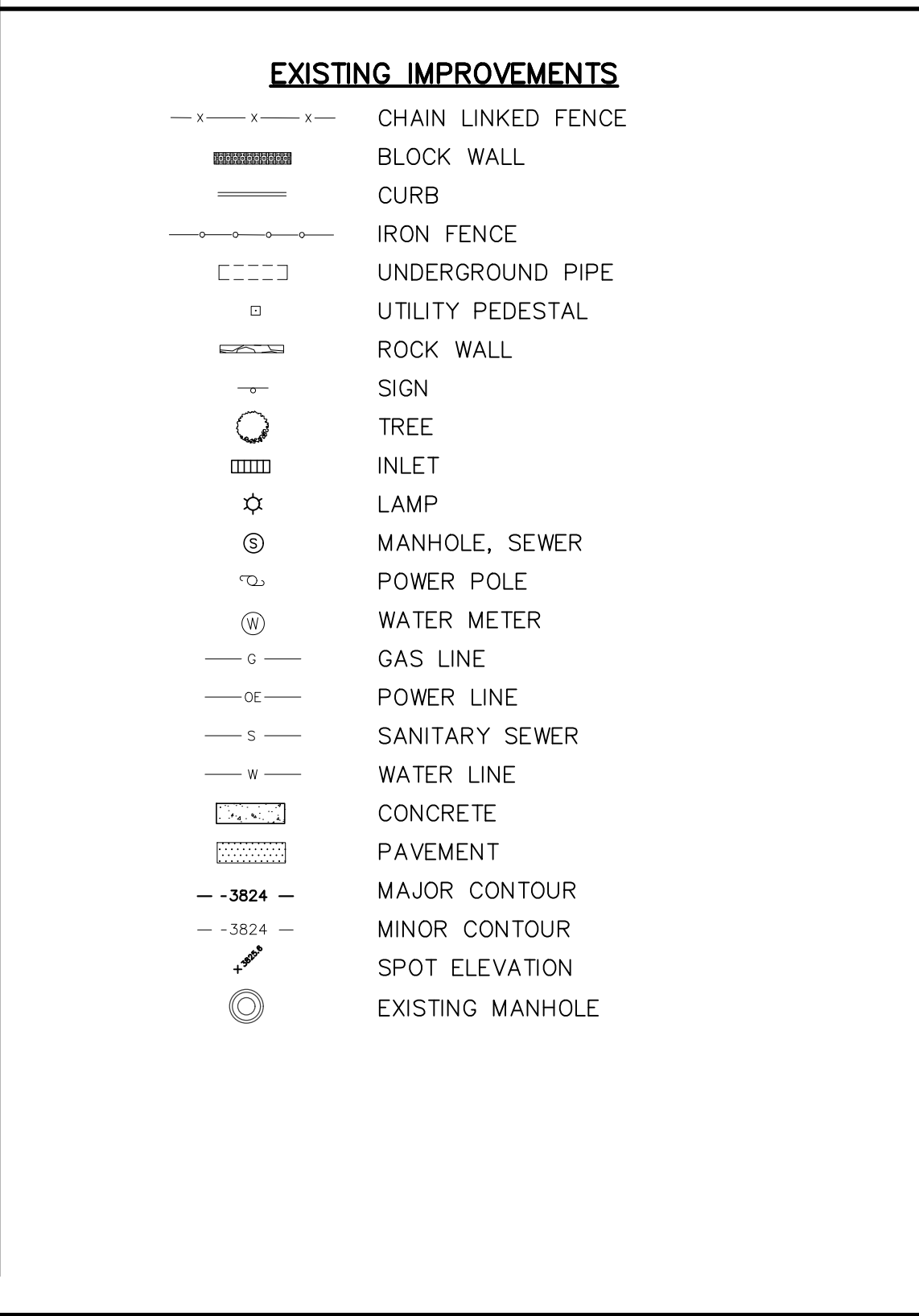
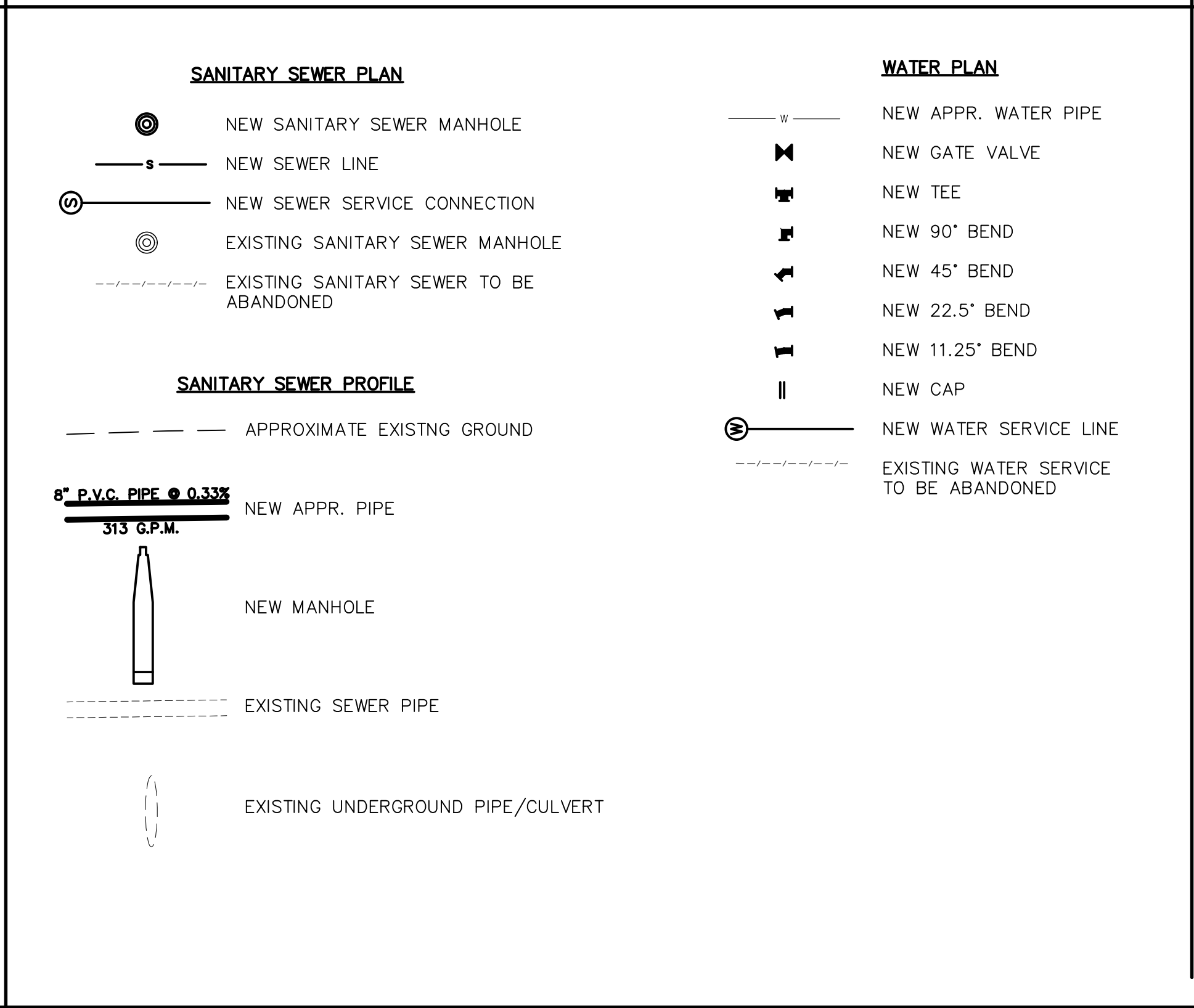
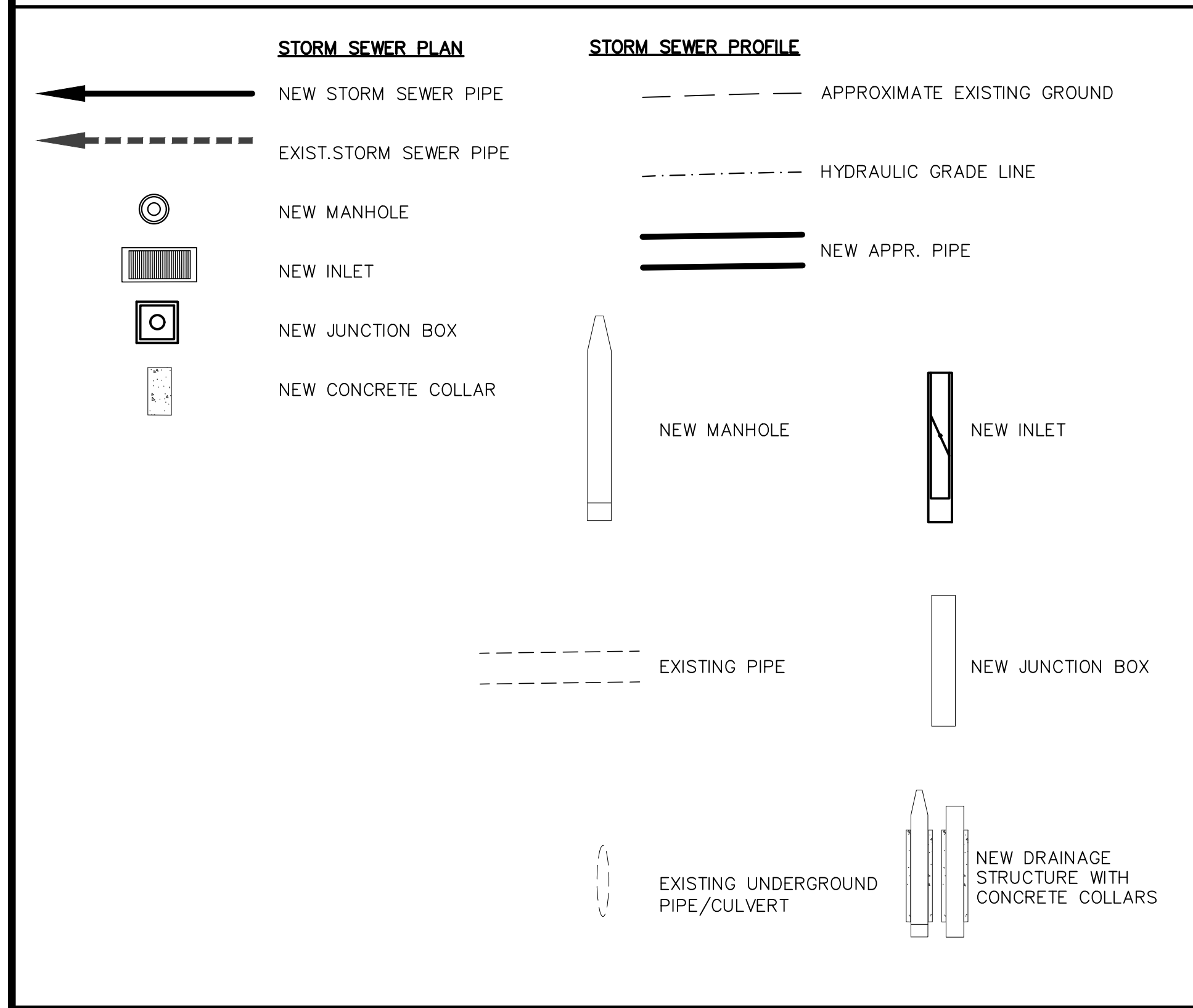


NEW STORM SEWER LINE DESIGNATION

NEW SANITARY SEWER & WATER LINE DESIGNATION

CIVIL / SURVEY SYMBOLS

INDEX OF DRAWINGS

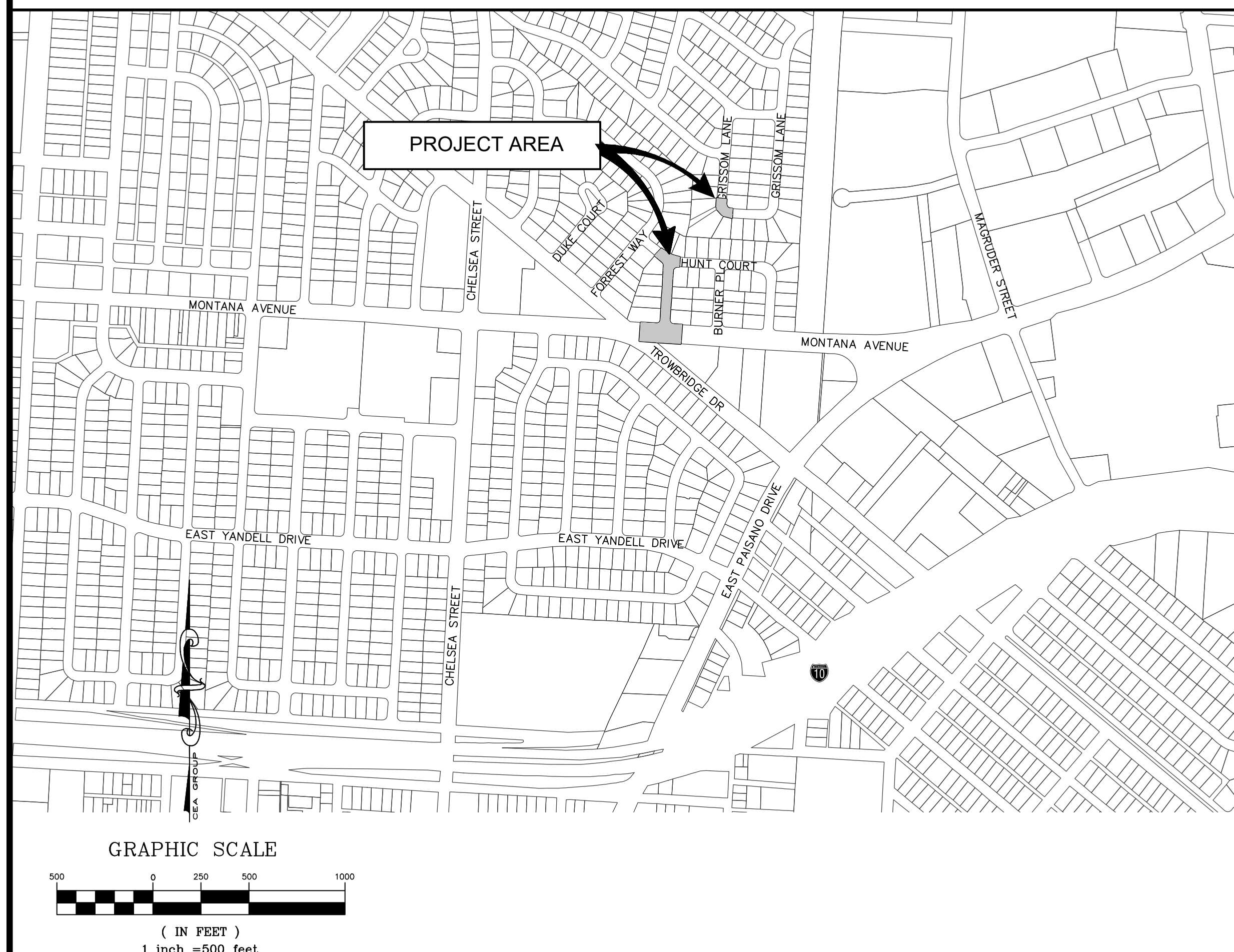


NO.	SHEET	DRAWING NAME
<b>GENERAL</b>		
-		COVER
1	C1.1	LEGEND, INDEX OF DRAWINGS, & LOCATION MAP
2	C1.2	GENERAL NOTES
3		TOPOGRAPHIC AND IMPROVEMENT SURVEY (GRISSOM LANE, MATHIAS DR, HUNT COURT, AND McAFFEE PLACE)
4		TOPOGRAPHIC AND IMPROVEMENT SURVEY (OUT OF McAFFEE PLACE)
<b>SANITARY SEWER &amp; WATER LINE IMPROVEMENTS</b>		
5	1 OF 2	GRISSOM LN. TO MATHIAS DR. STORM SEWER, SANITARY SEWER & WATER MAIN IMPROVEMENTS
6	2 OF 2	GRISSOM LN. TO MATHIAS DR. STORM SEWER, SANITARY SEWER & WATER MAIN IMPROVEMENTS
7	1 OF 4	McAFFEE PL. FROM MONTANA AVE. TO HUNT CT. WATER IMPROVEMENTS
8	2 OF 4	McAFFEE PL. FROM MONTANA AVE. TO HUNT CT. SEWER IMPROVEMENTS
9	3 OF 4	McAFFEE PL. FROM MONTANA AVE. TO HUNT CT. WATER IMPROVEMENTS
10	4 OF 4	McAFFEE PL. FROM MONTANA AVE. TO HUNT CT. WATER IMPROVEMENTS
<b>STORM WATER</b>		
11	C5.1	STORM SEWER GENERAL MAP
12	C5.2	DRAINAGE PLAN
13	C5.3	STORM SEWER PLAN & PROFILE - LINE "A" FROM STA. 0+00 TO STA. 0+64.95
14	C5.4	STORM SEWER PLAN & PROFILE - LINE "B" FROM STA. 0+00 TO STA. 3+82.36
15	C5.5	STORM SEWER PLAN & PROFILE - LINE "C" FROM STA. 0+00 TO 1+29.96
<b>DETAILS</b>		
16	C6.1	STANDARD DETAILS
17	C6.2	STORM SEWER DETAILS
18	C6.3	STORM SEWER DETAILS - CONT.
19	C6.4	STORM SEWER DETAILS - CONT.
20	C6.5	STORM SEWER DETAILS - CONT.
<b>PAVEMENT</b>		
21	C7.1	PAVEMENT REPAIR PLAN
22	C7.2	PAVEMENT REPAIR DETAILS

LOCATION MAP

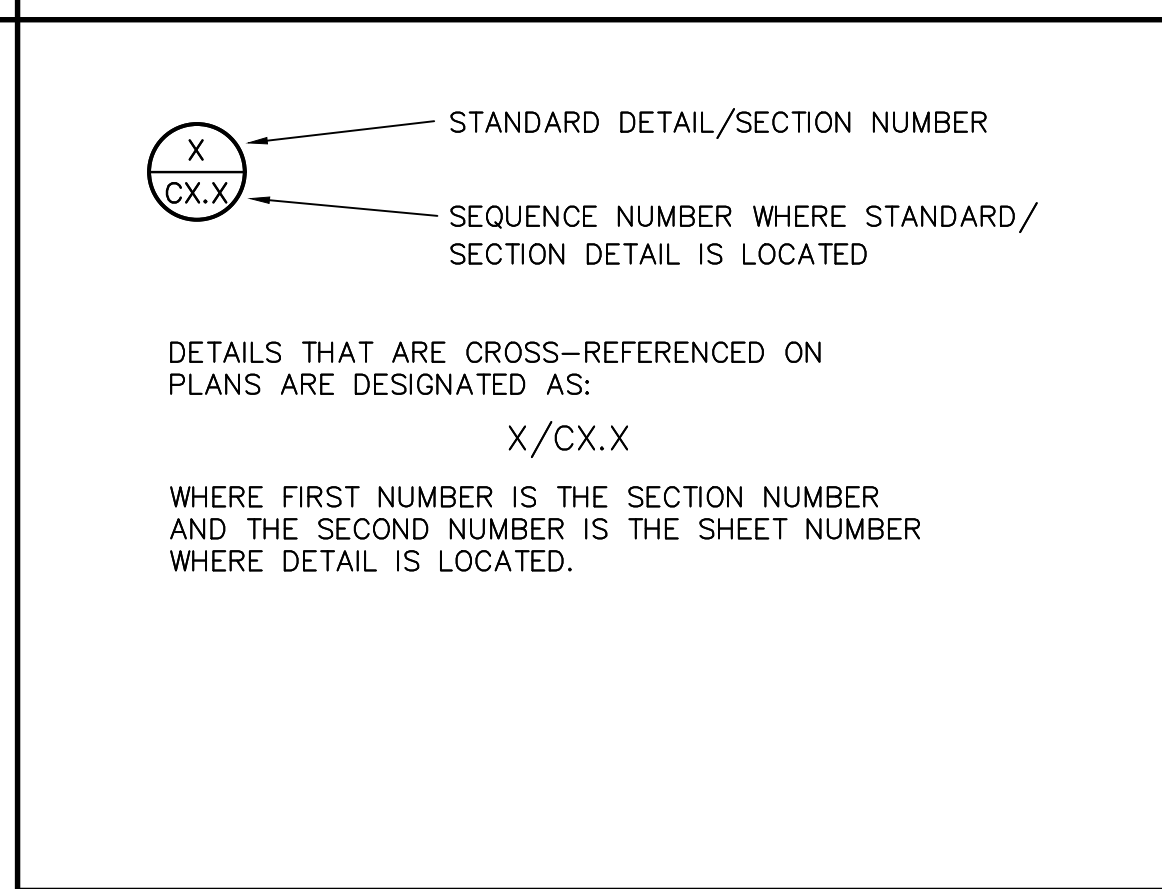
ABBREVIATIONS

SECTION AND DETAIL SYMBOLS



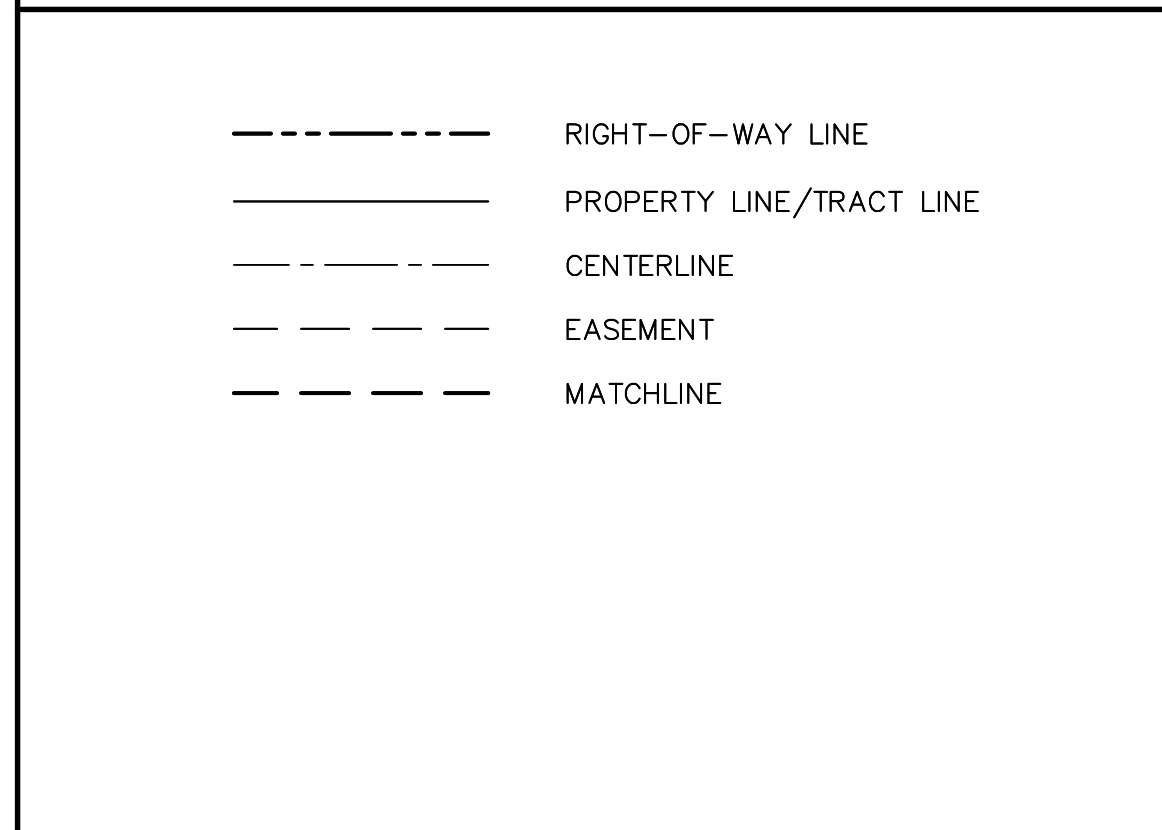
**ABBREVIATIONS**

ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIAL STANDARDS
OSHA	OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION
TXDOT	TEXAS DEPARTMENT OF TRANSPORTATION
EPWU	EL PASO WATER UTILITIES
K.M.	KINDER MORGAN
H.E.P.	HOLLY ENERGY PARTNERS
T.G.S.	TEXAS GAS SERVICE
BM	BENCHMARK
PVMT	PAVEMENT
CONC.	CONCRETE
CL	CENTERLINE
PL	PROPERTY LINE
R.O.W.	RIGHT-OF-WAY LINE
MIN.	MINIMUM
MAX.	MAXIMUM
STD.	STANDARD
TYP.	TYPICAL
TEMP.	TEMPORARY
COMB.	COMBINATION
W/	WITH
FT	FEET
L.F.	LINEAR FEET
L	LENGTH
S	SLOPE
STA.	STATION
INV.	INVERT ELEVATION
APPR.	APPROVED
@	AT
WTR	WATER
SWR	SEWER
MH	MANHOLE
RCP	REINFORCED CONCRETE PIPE (STORM)
P.V.C.	POLYVINYL CHLORIDE PIPE
DIA.	DIAMETER
Ø	DIAMETER
I.D.	INSIDE DIAMETER
O.D.	OUTSIDE DIAMETER
P.S.I.	POUNDS PER SQUARE INCH
H.M.A.C.	HOT MIX ASPHALTIC CONCRETE
EXIST.	EXISTING
PROP.	PROPOSED (BY OTHERS)
±	PLUS OR MINUS
PVI	POINT OF VERTICAL INTERSECTION
PC	POINT OF CURVATURE
PT	POINT OF TANGENCY
PI	POINT OF INTERSECTION



GENERAL SYMBOLS

BENCHMARK



**BENCHMARK**

- FOUND CITY MONUMENT AT THE INTERSECTION OF CHELSEA STREET AND TROWBRIDGE DRIVE. ELEVATION 3828.40 (NAVD 88).
- I.B.M.**  
A SET 1/2" REBAR WITH CAP STAMPED "B&A INC." NEAR THE WESTERLY RIGHT-OF-WAY LINE OF Mc AFFEE PLACE AND ALSO BEING NEAR THE SOUTHERLY RIGHT-OF-WAY LINE OF HUNT COURT AT  
N: 10667059.92 E: 405591.68  
ELEVATION=3838.50 (NAVD 88) BY RTK OBSERVATIONS TO THE TEXAS CO-OP NETWORK, GEOID 2012A (ACCURACY ± 0.16')

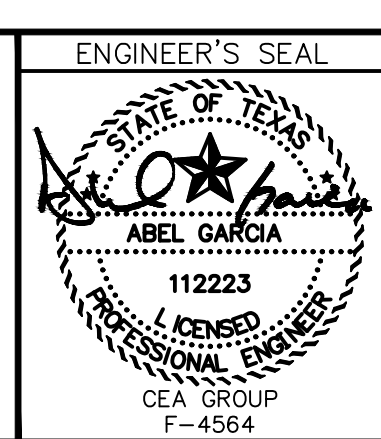
REV.	DATE	BY	DESCRIPTION

**UTILITY LOCATOR SERVICES**

TIME WARNER COMMUNICATIONS	(915) 775-7415
EL PASO ELECTRIC COMPANY	(915) 877-3400
EL PASO WATER UTILITIES	(915) 594-5500
VERIZON COMMUNICATIONS	(800) 624-9675
HOLLY ENERGY PARTNERS	(915) 494-0549
TEXAS GAS SERVICE	(800) 959-5325
KINDER MORGAN	(915) 843-2441
AT&T GENERAL	(915) 595-5151
EL PASO STREETS & MAINTENANCE	(915) 212-0118

**WARNING!**  
**BEFORE YOU DIG**  
**CALL 811**

FOR FIELD LOCATING EXISTING UTILITIES



DESIGNED LG  
DRAWN LG  
CHECKED LG  
APPROVED AG  
DATE 02/14/2023

**cea group**  
813 N. Kansas St. Suite 300  
El Paso, TX 79902  
915.544.5232  
www.ceagroup.net  
TEXAS REGISTERED ENGINEERING FIRM F-4564



PROJECT: **GRISSOM LANE AND Mc AFFEE PLACE - STORM SEWER, SANITARY SEWER AND WATER MAIN IMPROVEMENTS**

SHEET TITLE: **LEGEND, INDEX OF DRAWINGS & LOCATION MAP**

JOB NO. 1040-046  
SEQUENCE NO. **C1.1**  
SHEET NO. 1 OF 22

**GENERAL NOTES**

- PRIOR TO BEGINNING CONSTRUCTION, CONTRACTOR SHALL COORDINATE WITH UTILITY COMPANIES TO VERIFY LOCATION OF EXISTING UTILITIES AND CONTRACTOR SHALL CALL THE RESPECTIVE "ONE-CALL" NUMBER FOR SUCH UTILITIES. ALL EXISTING UTILITY DEPTHS ARE UNKNOWN. THE CONTRACTOR IS ULTIMATELY RESPONSIBLE FOR ACQUIRING FIELD DEPTHS OF ALL UTILITIES WITHIN THE PROJECT AREAS. CITY OF EL PASO IS NOT PART OF THE "ONE-CALL" SYSTEM. CONTRACTOR SHALL REQUEST INFORMATION AT LINESPOTS@ELPASOTEXAS.GOV.
- ALTHOUGH ALL EFFORTS HAVE BEEN MADE TO INDICATE ALL MAJOR EXISTING UTILITIES ON PLANS, IT SHALL BE THE CONTRACTOR'S SOLE RESPONSIBILITY TO LOCATE AND PROTECT ALL SAID UTILITIES AS WELL AS SERVICE CONNECTIONS (WHETHER OR NOT INDICATED ON PLANS) PRIOR TO AND DURING CONSTRUCTION. EXISTING SERVICE CONNECTIONS ARE NOT SHOWN ON THE PLANS. CONTRACTOR TO SUPPORT AND MAINTAIN ALL EXISTING EXPOSED UTILITIES IN SERVICE. ALL EXISTING UTILITIES CURRENTLY IN SERVICE MUST REMAIN IN SERVICE THROUGHOUT CONSTRUCTION OF THE PROJECT EXCEPT AS NOTED IN THE DRAWINGS.
- CONTRACTOR IS RESPONSIBLE FOR COORDINATING WITH GAS, OIL, PROPANE, ELECTRIC, TELEPHONE, FIBER OPTIC, CABLE TV OWNERS ETC. FOR ANY RELOCATION AND/OR PROTECTION OF EXISTING LINES, POLES OR CABLES AS REQUIRED, DUE TO CONSTRUCTION ACTIVITIES. CONTRACTOR TO MAINTAIN A MINIMUM COVER OF TWO (2') FEET UNDER TELEPHONE/CABLE/FIBER OPTIC AND GAS LINES. CONTRACTOR TO EXERCISE CAUTION WHEN PERFORMING WORK IN VICINITY OF OVERHEAD POWER LINES THROUGHOUT THE DURATION OF THE PROJECT.
- EXISTING STRUCTURE AND UTILITY LOCATIONS WERE OBTAINED FROM SURVEYS AND/OR OWNER'S AS-BUILT INFORMATION. UNDERGROUND LOCATIONS, SIZE, AND ELEVATIONS MAY VARY FROM INFORMATION SHOWN. THE EXISTING UTILITIES DESIGNATED AS "FO" ON THE PLANS COULD REPRESENT ONE (1), OR UP TO EIGHT (8) FIBER OPTIC LINES. IN THAT GENERAL AREA, CONTRACTOR SHALL VERIFY LOCATION OF EXISTING UTILITY LINES BY POT-HOLING AND/OR OTHER METHODS. AT LEAST 14 DAYS AHEAD OF PIPE LAYING CREWS, TO ALLOW THE ENGINEER A REASONABLE AMOUNT OF TIME TO INITIATE ANY NECESSARY CHANGES IN ALIGNMENT AND/OR GRADE OF PIPELINE. THE CONTRACTOR SHALL OBTAIN JURISDICTIONAL APPROVALS AND PERMITS FROM THE CITY OF EL PASO. ALL POT-HOLES SHALL BE RESTORED FOLLOWING THE CITY OF EL PASO DESIGN STANDARDS FOR CONSTRUCTION, CITY ORDINANCE AND CODE. ALL POT-HOLES MADE WITHIN PAVED OR CONCRETE FINISHED SURFACES SHALL BE BACKFILLED WITH 2-SAC CEMENT STABILIZED BACKFILL. THE BACKFILL SHALL BE PLACED ALL THE WAY TO THE SURFACE OF THE POT-HOLE, FULL DEPTH. THE SURFACE OF THE POT-HOLES SHALL BE NEATLY CORED OR SAW CUT. CUTS MADE BY HAND TOOLS OR JACK HAMMER WILL NOT BE ALLOWED.
- THE CONTRACTOR SHALL FIELD VERIFY ELEVATIONS, MEASUREMENTS, EXISTING CONDITIONS AND STAKE THE RIGHT-OF-WAY TO ENSURE PROPER OFFSET TO NEW IMPROVEMENTS PRIOR TO COMMENCING CONSTRUCTION ACTIVITIES. NOTIFY THE ENGINEER AT LEAST 14 DAYS PRIOR TO CONSTRUCTION OF ANY OMISSIONS, ERRORS, OR DISCREPANCIES FOUND SO THAT NECESSARY CORRECTIONS AND INTERPRETATIONS BE MADE PRIOR TO CONSTRUCTION.
- ALL CONSTRUCTION PRACTICES AND PROCEDURES WILL COMPLY WITH THE PERTINENT PROVISIONS OF THE OCCUPATIONAL SAFETY AND HEALTH STANDARD (TITLE 29, CODE OF FEDERAL REGULATIONS) PUBLISHED BY THE O.S.H.A., DEPARTMENT OF LABOR.
- CONTRACTOR SHALL INSTALL A TRENCH SAFETY SYSTEM TO PROVIDE FOR THE SAFE EXCAVATION OF ALL TRENCHES EXCEEDING A DEPTH OF FIVE FEET (5') AS REQUIRED BY O.S.H.A. EXISTING SOIL CONDITIONS MAY DICTATE THE NEED FOR A TRENCH SAFETY SYSTEM WHEN TRENCH IS LESS THAN 5' IN DEPTH.
- PAVEMENT REPLACEMENT LIMITS WILL ONLY BE PAID TO CONTRACTOR AS SHOWN IN TYPICAL DETAILS OR AS SPECIFIED AND VERIFIED IN THE FIELD BY STREETS AND MAINTENANCE INSPECTOR, FOLLOWING THE CITY OF EL PASO DESIGN STANDARDS FOR CONSTRUCTION, CITY ORDINANCE AND CODE, WHICH EVER IS MORE STRINGENT.
- THE CONTRACTOR SHALL SUBMIT A PROJECT SCHEDULE, COMMENCEMENT AND COMPLETION OF THE CONSTRUCTION, FOR REVIEW BY THE ENGINEER, PRIOR TO CONSTRUCTION. ADDITIONALLY, CONTRACTOR SHALL PROVIDE A TWO-WEEK CONSTRUCTION SCHEDULE TO THE ENGINEER AT EACH CONSTRUCTION PROGRESS MEETING.
- THE CONTRACTOR SHALL NOTIFY THE CITY OF EL PASO IN WRITING, OF ANY PROPOSED DUMP SITE(S) FOR OVERBURDEN AND ANY CONSTRUCTION DEBRIS FOR REVIEW AND APPROVAL. THE CONTRACTOR SHALL OBTAIN APPROVAL OF ITS HAUL ROUTE TO THE DUMP SITE, AS WELL AS FOR THE MATERIALS IT SHALL BE HAULING BEFORE REMOVAL OF OVERBURDEN FROM PROJECT SITE.
- THE CONTRACTOR SHALL NOTIFY ALL RESIDENTS AND BUSINESS OWNERS THAT MAY BE AFFECTED BY THE CONSTRUCTION FOURTEEN (14) DAYS PRIOR TO CONSTRUCTION.
- PEDESTRIAN AND VEHICULAR ACCESS TO ALL RESIDENTS AND COMMERCIAL SITES SHALL BE PROVIDED AT ALL TIMES. COORDINATION FOR THIS ACTIVITY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ASCERTAINING THE NATURE AND EXTENT OF ANY COLLATERAL WORK DONE BY OTHER TRADES. CONTRACTOR SHALL BE AWARE OF ANY AND ALL CONCURRENT WORK IN THE AREA THAT WILL REQUIRE COORDINATION FOR TIE-INS OF THIS WORK. IF NECESSARY TO AVOID OR MINIMIZE DAMAGE OR DELAY, THE CONTRACTOR SHALL REDEPLOY HIS WORK FORCE TO OTHER AREAS OF THE WORK AT NO COST TO THE OWNER.
- THE CONTRACTOR SHALL COORDINATE, AS NEEDED, WITH CONTRACTOR RESPONSIBLE FOR ANY SURROUNDING IMPROVEMENT PROJECTS IF PROJECTS ARE UNDER CONSTRUCTION SIMULTANEOUSLY.
- INSTALLATION OF THE STORM SEWER, WATER AND SANITARY SEWER MAINS SHALL BE COORDINATED WITH, AND ALL RESTORATION INSPECTIONS WILL BE BY EL PASO WATER.
- CONTRACTOR SHALL VIDEOTAPE THE PROJECT AREA BEFORE AND AFTER CONSTRUCTION AND PROVIDE 2 COPIES IN DVD FORMAT, PRE AND POST CONSTRUCTION VIDEOS SHALL BE NARRATED AND WITH HIGH-DEFINITION PICTURE QUALITY. THE PRE-CONSTRUCTION VIDEO SHALL BE SUBMITTED TO EPWATER AT LEAST FIVE(5) WORKING DAYS PRIOR CONSTRUCTION. THE POST-CONSTRUCTION VIDEO SHALL BE SUBMITTED NO LATER THAN TEN(10) WORKING DAYS AFTER SUBSTANTIAL COMPLETION.
- THE PROPERTY OWNERS, EPWATER, AND THE CITY OF EL PASO MUST BE NOTIFIED 48 HOURS PRIOR TO COMMENCING ANY WORK IN AREAS WITHIN THEIR JURISDICTION.

- TRAFFIC CONTROL PLAN & PHASING FOR THE ENTIRE STORM SEWER, WATER MAIN AND SANITARY SEWER ROUTES AND PROPOSED STAGING AREA SHALL BE SUBMITTED FOR REVIEW AND APPROVAL BY CITY OF EL PASO – STREETS AND MAINTENANCE TRAFFIC ENGINEERING SECTION.
- VERTICAL CONTROL AND BENCHMARK FOR THIS PROJECT IS BASED UPON NAVD88 DATUM. REFER TO SHEET C1.1 FOR BENCHMARK.
- UPON COMPLETING THE INSTALLATION OF THE PIPELINE, RESTORE DISTURBED GROUND AND EASEMENTS TO ORIGINAL OR BETTER CONDITIONS. REFER TO DETAILS.
- ALL EXISTING ROADWAYS, CURB & GUTTER, SIDEWALKS, SIGNS, LANDSCAPING, DRAINAGE AND IRRIGATION STRUCTURES AND DRIVEWAYS AFFECTED BY CONSTRUCTION ACTIVITIES SHALL BE RESTORED TO ORIGINAL CONDITION OR BETTER BY CONTRACTOR AT NO COST TO THE OWNER. ALL BUSINESSES, RESIDENCES, SCHOOLS, ETC. SHALL BE PROVIDED WITH FULL ACCESS AT ALL TIMES, INCLUDING ALL DRIVEWAYS.
- CONTRACTOR SHALL KEEP ALL DEBRIS AND SPOIL OUT OF DRAINS, CULVERTS, AND DROP INLETS AND ENSURE THAT THEY DO NOT BECOME CLOGGED AS A RESULT OF CONSTRUCTION ACTIVITIES.
- CONTRACTOR SHALL KEEP WORK SITE FREE OF DUST, WATERING THE SITE 2-3 TIMES PER DAY EVERY DAY INCLUDING WEEKENDS SHALL BE REQUIRED DURING THE CONSTRUCTION PERIOD.
- CONTRACTOR SHALL KEEP ALL DRAINAGE AND IRRIGATION STRUCTURES, FACILITIES AND CONVEYANCE SYSTEMS ALONG THE PIPE ROUTE UNDISTURBED AND IN OPERATION TO THE MAXIMUM EXTENT POSSIBLE. IF AREAS ARE DISTURBED, CONTRACTOR SHALL RESTORE THEM TO THEIR ORIGINAL OR BETTER CONDITION.
- THE CONTRACTOR SHALL PRESERVE, DURING CONSTRUCTION, ALL STOP SIGNS, SPEED LIMIT SIGNS, UNDERGROUND SIGNAL CONDUITS AND ALL OTHER TRAFFIC REGULATORY SIGNS, COORDINATION SHALL BE WITH THE CITY OF EL PASO. CONTRACTOR SHALL COORDINATE WITH THE ABOVE ENTITY FOR THE LOCATION AND SPOTTING OF TRAFFIC SIGNAL CONDUITS.
- AS PER THE CITY OF EL PASO DESIGN STANDARDS FOR CONSTRUCTION, ANY EXISTING CONCRETE CURB AND GUTTER DAMAGED AT THE STREET INTERSECTIONS SHALL BE REPLACED WITH A WHEELCHAIR RAMP AND SIDEWALK IN ACCORDANCE WITH A.D.A. GUIDELINES AND STANDARDS. ALL CONCRETE CURB, GUTTER AND SIDEWALK REMOVAL AND REPLACEMENT SHALL BE IN SECTIONS NO LESS THAN 10' OR TO THE NEAREST CONSTRUCTION JOINT. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER A SHOP DRAWING/DETAIL OF THE RAMP TO BE INSTALLED. THE DRAWING SHALL ILLUSTRATE, AT MINIMUM, DIMENSIONS, PROPOSED SPOT ELEVATIONS AND EVIDENCE THAT DETAIL MEETS ALL CITY AND A.D.A. REQUIREMENTS. ALL WORK SHALL BE DONE AT NO ADDITIONAL COST TO THE OWNER.
- THE CONTRACTOR SHALL NOTIFY THE CITY'S ENGINEERING AND MUNICIPAL SERVICES (ENVIRONMENTAL DIVISION) DEPARTMENTS IMMEDIATELY, IF SUBSURFACE CONTAMINATION IS ENCOUNTERED OR SUSPECTED DURING POT HOLING, EXCAVATION OR BORING. ALL EXCAVATION AND CONSTRUCTION OPERATIONS SHALL BE CEASED UNTIL FURTHER NOTICE FROM THE MUNICIPAL SERVICES DEPARTMENT.
- ALL INSTANCES WHERE THE TERM "PROPOSED" APPEARS ON THESE DOCUMENTS SHALL BE CONSIDERED AS WORK NECESSARY TO COMPLETE THE REQUIRED IMPROVEMENTS AS SHOWN ON THE PLANS. THE CONTRACTOR SHALL INCLUDE ALL "PROPOSED" ITEMS AS PART OF HIS BID. THE TERMS "PROPOSED" AND "NEW" SHALL BE CONSIDERED EQUAL WHEN BIDDING THIS PROJECT.
- CONTRACTOR SHALL SUPPORT AND MAINTAIN ALL EXISTING EXPOSED UTILITIES IN SERVICE. IF CONTRACTOR DAMAGE EXISTING UTILITIES, CONTRACTOR SHALL BE RESPONSIBLE OF ALL REPAIRS.
- CONTRACTOR SHALL ASSIST RESIDENTS AND COORDINATE A PICK-UP POINT FOR ENVIRONMENTAL/TRASH SERVICES.
- DUE TO COVID-19 CIRCUMSTANCES CONTRACTOR IS RESPONSIBLE FOR ANY COORDINATION WITH EPWATER OFFICIALS WHEN REQUESTING WATER SYSTEM SHUT-OFFS FOR WATER MAIN TIE-INS TO BE PERFORMED AT 10 P.M. WITH A 4 HOUR LIMIT TO ENSURE A PROPER SHUT-OFF PLAN IS DEVELOPED WHICH SHALL INCLUDE AND PROVIDE THE FOLLOWING: SCHEDULE SITE MEETINGS 72 HOURS PRIOR TO SHUT-OFF DATE TO DISCUSS PROPOSED SHUT-OFF PLAN, APPROVED AND INSTALLED TRAFFIC CONTROL PLAN, MATERIALS TO BE ON-SITE, TIE-IN LOCATIONS TO BE POT-HOLED OR EXPOSED BEFORE PERFORMING THE TIE-IN TO VERIFY SIZE & TYPE OF EXISTING PIPE, AND PROVIDE A 48-HOUR ADVANCE NOTICE ALONG WITH 3 GALLONS OF WATER PER EACH SERVICE BEING IMPACT BY THE SHUT-OFF.
- CONTRACTOR SHALL BE IN CONSTANT COMMUNICATION WITH MUNICIPALITY (OR RIGHT-OF-WAY OWNER) AND THEIR CORRESPONDING DEPARTMENTS FOR THE RESTORATION OF THE IMPROVEMENTS WITHIN THEIR RIGHT-OF-WAY. REPRESENTATIVES FROM THE MUNICIPALITY AND/OR RIGHT-OF-WAY OWNERS WILL PARTICIPATE IN THE SUBSTANTIAL AND FINAL WALK-THROUGH INSPECTIONS. IT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN A WRITTEN LETTER OR MEMO STATING THAT ALL IMPROVEMENTS HAVE BEEN RESTORED AS PER CITY OF EL PASO DESIGN STANDARDS FOR CONSTRUCTION, CITY ORDINANCE AND CODE. THE PROJECT WILL BE CONSIDERED COMPLETE WHEN THE CITY OF EL PASO ACCEPTS THE CONSTRUCTED IMPROVEMENTS. A FINAL COMPLETION CERTIFICATE WILL NOT BE GRANTED UNTIL SUCH LETTER/MEMO IS PROVIDED TO THE CONSULTANT, ALONG WITH ALL OTHER CLOSE-OUT DOCUMENTS.
- CONTRACTOR TO POTHOLE ALL SANITARY SEWER, WATER, GAS RESIDENTIAL SERVICES PRIOR TO ANY CONSTRUCTION ACTIVITIES.
- CONTRACTOR TO IMMEDIATELY INFORM THE OWNER AS ENGINEER OF ANY DISCREPANCIES BETWEEN PLAN AND FIELD DIMENSIONS.

**STORM WATER NOTES**

- STATIONING IS BASED ON NEW STORM SEWER LINE ALIGNMENT, UNLESS OTHERWISE NOTED. PIPE LENGTHS AND BEARINGS GIVEN. ALL DIMENSIONS ARE TO RIGHT-OF-WAY, EASEMENT, OR PROPERTY LINES. DIMENSIONS TO EDGE OF PAVEMENT AND/OR FACE OF CURB ARE APPROXIMATE.
- THE CONTRACTOR SHALL VERIFY THE LOCATION AND DEPTH OF ALL EXISTING UTILITIES PRIOR TO INSTALLING THE STORM SEWER LINE SO THAT AN ACCEPTABLE PROFILE CAN BE ESTABLISHED PRIOR TO INSTALLATION OF THE PIPELINE. THE OWNER SHALL BE NOTIFIED AT LEAST TWO (2) WEEKS IN ADVANCE FOR ANY NECESSARY EXISTING SEWER LINE RELOCATION.
- ALL APPROVED PIPE ON THIS PLAN SHALL BE ENCASED WITH SELECT BEDDING MATERIAL. CONTRACTOR SHALL COMPACT SOIL NOT LESS THAN 95% OF MAXIMUM DENSITY, IN ACCORDANCE WITH ASTM D1557 UNLESS OTHERWISE SHOWN ON PLANS.
- ALL NEW STORM SEWER LINE SHALL BE APPROVED PIPE UNLESS OTHERWISE REQUIRED BY EL PASO WATER.
- CONTRACTOR TO PROTECT PROPOSED STORM SEWER LINE AT ALL TIMES. CONTRACTOR TO CONSIDER THE COVER OF THE PIPELINES AT ALL TIMES.
- ALL NEW STORM SEWER LINES ARE TO BE COMPLETED, ACCEPTED FOR USE AND OPERATIONAL BEFORE THE EXISTING SEWER LINES, WATER LINES, AND MANHOLES ARE ABANDONED.
- CONTRACTOR SHALL COORDINATE INSTALLATION OF NEW MANHOLES WITH FINISHED GROUND ELEVATIONS AND SHALL ADJUST NEW MANHOLES TO TEMPORARY AND FINISHED GRADE AS REQUIRED FOR CONSTRUCTION. PER SPECIFICATION, ALL ADJUSTMENT COSTS FOR NEW MANHOLES SHALL BE CONSIDERED SUBSIDIARY TO THE MANHOLE PAY ITEM.
- CONTRACTOR TO CONFIRM INVERT ELEVATIONS OF ALL NEW MANHOLES CONNECTING TO EXISTING STORM SEWER LINES PRIOR TO INSTALLATION.
- INSTALLATION OF NEW STORM SEWER LINES, MANHOLES AND INLET CONNECTIONS SHALL ALSO INCLUDE REMOVAL OF EXISTING STORM SEWER FACILITIES SCHEDULED FOR ABANDONMENT, INCLUDING BUT NOT LIMITED TO MANHOLES, PIPES AND INLETS AS NECESSARY FOR PROPER INSTALLATION OF NEW STORM WATER IMPROVEMENTS.
- AS-BUILT STATIONING, OFFSET FROM R.O.W. AND INVERT ELEVATIONS SHALL BE ACCURATELY RECORDED BY THE CONTRACTOR ON A CLEAN SET OF PLANS FOR EACH VALVE, ELBOW, STUB-OUT, WITH RESPECT TO THE APPROPRIATE PROJECT CONTROL POINT. CONTRACTOR SHALL SUBMIT A COPY OF THE FINAL AS-BUILT PLANS TO THE CAPITAL IMPROVEMENT DEPARTMENT PROJECT MANAGER PRIOR TO FINAL INSPECTION/WALKTHROUGHS; ADDITIONAL COMMENTS MAY BE GENERATED UPON REVIEW AND FOLLOW UP INSPECTION(S) FROM AS-BUILT DRAWINGS.
- EXISTING STREETS, CURB & GUTTER, SIDEWALKS, PAVEMENT, HARDSCAPES, DRIVEWAYS AND ALL OTHER MISCELLANEOUS STRUCTURES DAMAGED OR REMOVED BY CONSTRUCTION ACTIVITIES, NOT SHOWN IN PLANS, SHALL BE RESTORED TO ORIGINAL OR BETTER THAN ORIGINAL CONDITION AT THE EXPENSE OF THE CONTRACTOR, I.E., WHEN INSTALLING SEWER MAINS, SEWER LATERALS, YARD LINES, SERVICE CONNECTIONS AND MANHOLES WITH IN PROJECT LIMITS.
- THE CONTRACTOR SHALL SUBMIT A TRAFFIC CONTROL PLAN TO THE ENGINEER AND THE CITY OF EL PASO FOR APPROVAL 2 WEEKS PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL PREPARE HANDOUTS ILLUSTRATING THE TRAFFIC CONTROL AND PEDESTRIAN RE-ROUTING FOR USE BY THE CITY OF EL PASO. CONTRACTOR TO COORDINATE WITH CITY OF EL PASO-TRAFFIC DEPARTMENT, CONSTRUCTION DEPARTMENT,
- WHENEVER STREETS ARE CLOSED TO TRAFFIC, DETOUR ROUTES SHALL BE PROVIDED WITH PROPER GUIDE SIGNAGE, FIRE, POLICE, AND OTHER EMERGENCY AGENCIES SHALL BE NOTIFIED OF TRAFFIC DETOUR PRIOR TO IMPLEMENTATION.
- CONTRACTOR'S ATTENTION IS DIRECTED TO THE FACT THAT PEDESTRIANS, AUTOMOBILES, AND CHILDREN MAY BE ANTICIPATED IN SOME OF WORK AREAS AND PROVISIONS FOR THEIR SAFETY SHALL BE PROVIDED.
- MEASUREMENT AND PAYMENT SHALL BE AS INDICATED ON THE PLANS AND SPECIFICATION. FOR COMPLETE, IN-PLACE SYSTEM, WITH ALL REQUIRED MATERIALS AND LABOR. QUANTITIES FOR EXCAVATION SHALL BE LIMITED WITHIN THE SITE LIMITS, ADDITIONAL EXCAVATION OUTSIDE OF THE SITE LIMITS SHALL BE AT CONTRACTORS EXPENSE.
- IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO SCHEDULE AND PERFORM HIS/HER WORK SO AS TO PROVIDE PROPER PASSAGE OF ANY WATER (POTABLE, SANITARY, STORM) DURING THE COURSE OF HIS/HER OPERATIONS. ALL LABOR, TOOLS, EQUIPMENT AND SUPERVISION REQUIRED TO ASSURE SUCH PROPER PASSAGE OF RUNOFF WATER AND ANY REMOVAL OR HANDLING OF WATER IN ORDER TO MAINTAIN DRY CONDITIONS SHALL BE CONSIDERED AS INCIDENTAL TO THE REMAINDER OF THE WORK AND SHALL BE AT THE EXPENSE OF THE CONTRACTOR. CONTRACTOR SHALL PERFORM HIS WORK IN STAGES BUT IS ULTIMATELY RESPONSIBLE FOR THE ENTIRE PROJECT AREA.
- CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING AND MAINTAINING A SWPPP SYSTEM.

**LIST OF UTILITIES AND AGENCIES**

**GENERAL UTILITIES**  
TEXAS EXCAVATION SAFETY SERVICE  
11880 GREENVILLE AVENUE.  
DALLAS, TX. 75243  
(800) 344-8377

**EPW STORM WATER**  
EL PASO WATER UTILITIES  
1154 HAWKINS BLVD.  
EL PASO, TX. 79925  
(915) 594-5498  
MR. JORGE CHAVEZ, E.I.T

**EPW WATER AND WASTEWATER**  
EL PASO WATER UTILITIES  
1154 HAWKINS BLVD.  
EL PASO, TX. 79925  
(915) 594-5647  
MR. ALEX SOTO, JR.

**PRIME ENGINEER**  
CEA GROUP  
813 N.KANSAS ST, STE. 300  
EL PASO, TX. 79902  
(915) 544-5232  
MR. ABEL GARCIA, P.E.

**CABLE TELEVISION**  
TIME WARNER COMMUNICATIONS  
20 CONCORD STREET, SUITE A  
EL PASO, TX. 79906  
(915) 775-7415  
MR. RAYMOND MENDOZA

**ELECTRIC**  
EL PASO ELECTRIC CO.  
100 N. STANTON STREET  
EL PASO, TX. 79901  
(915) 543-2075  
MR. FRANK VEJIL (DISTRIBUTION)

**TELEPHONE**  
AT & T  
11200 PELLICANO, STE. 216  
EL PASO, TX. 79935  
(915) 342-3172  
MS. SHAWN L. SATHER

**GAS LINES**  
TEXAS GAS CO.  
4700 POLLARD ST.  
EL PASO, TX 79930  
(915) 680-7329  
MR. FRANCISCO CAMPA-PEREZ, P.E.

**CITY OF EL PASO**  
STREETS & MAINTENANCE DEPT.  
7969 SAN PAULO LN.  
EL PASO, TX 79907  
(915) 212-0118  
MR. HAROLD KUTZ

**SCHOOL DISTRICT**  
EL PASO INDEPENDENT SCHOOL DISTRICT  
1014 N. STANTON  
EL PASO, TX. 79902  
(915) 230-2000

**FIBER OPTICS**  
VERIZON COMMUNICATIONS, INC.  
(800) 624-9675

**SURVEYOR**  
BARRAGAN AND ASSOCIATES  
10950 PELLICANO DR., BUILDING "F"  
EL PASO, TX 79935  
(915) 591-5709  
MR. BENITO BARRAGAN, R.P.L.S.

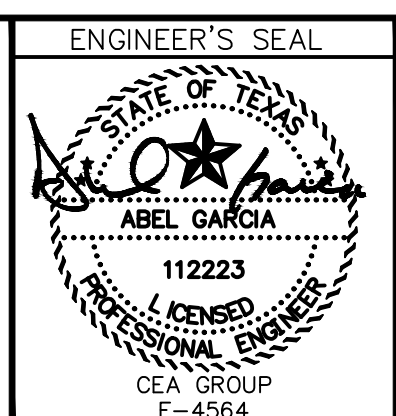
**PUBLIC TRANSPORTATION**  
SUN METRO  
10151 MONTANA AVE.  
EL PASO, TX 79925  
(915)212-3333  
MR. JAY BANASIAK

REV.	DATE	BY	DESCRIPTION

UTILITY LOCATOR SERVICES	
TIME WARNER COMMUNICATIONS	(915) 775-7415
EL PASO ELECTRIC COMPANY	(915) 877-3400
EL PASO WATER UTILITIES	(915) 594-5500
VERIZON COMMUNICATIONS	(800) 624-9675
HOLLY ENERGY PARTNERS	(915) 494-0549
TEXAS GAS SERVICE	(800) 959-5325
KINDER MORGAN	(915) 843-2441
AT&T GENERAL	(915) 595-5151
EL PASO STREETS & MAINTENANCE	(915) 212-0118

**WARNING!**  
**BEFORE YOU DIG**  
**CALL 811**

FOR FIELD LOCATING EXISTING UTILITIES



DESIGNED
LG
DRAWN
NC
CHECKED
LG
APPROVED
AG
DATE
02/14/2023

813 N. Kansas St.  
Suite 300  
El Paso, TX 79902  
915.544.5232  
www.ceagroup.net  
TEXAS REGISTERED ENGINEERING FIRM F-4564

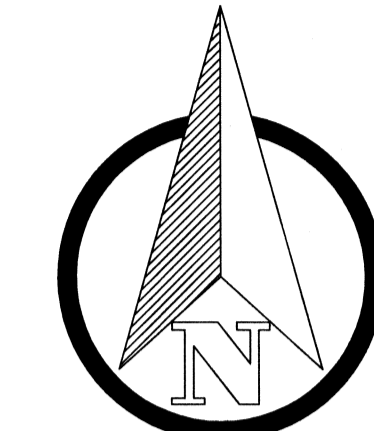


PROJECT:	GRISSOM LANE AND Mc AFFEE PLACE – STORM SEWER, SANITARY SEWER AND WATER MAIN IMPROVEMENTS
SHEET TITLE:	GENERAL NOTES AND UTILITY INFORMATION

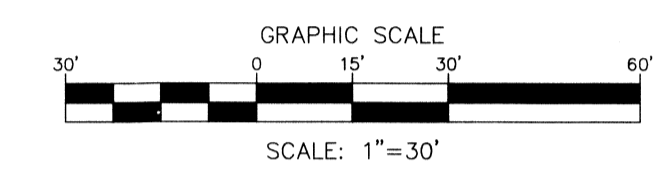
JOB NO.	1040-046
SEQUENCE NO.	C1.2
SHEET NO.	2 OF 22

# TOPOGRAPHIC SURVEY

**GRISSOM LANE, MATHIAS DRIVE,  
HUNT COURT, AND McAFFEE PLACE,  
CITY OF EL PASO,  
EL PASO COUNTY, TEXAS.**



GRID



### BENCHMARK

U.S.G.S. MONUMENT F 1072 PID # CE 0045  
ELEVATION= 3703.87 (NAVD 88).

### T.B.M.

A SET 1/2" REBAR WITH CAP STAMPED "B&A INC." NEAR THE WESTERLY RIGHT-OF-WAY LINE OF MC AFFEE PLACE AND ALSO BEING NEAR THE SOUTHERLY RIGHT-OF-WAY LINE OF HUNT COURT AT  
N: 10667059.92 E: 405591.68  
ELEVATION=3838.39 (NAVD 88) BY RTK OBSERVATIONS TO THE TEXAS CO-OP NETWORK, GEOD 2012A (ACCURACY ± 0.16")

### DUST AND EROSION CONTROL NOTE

CONTRACTOR SHALL MAKE PROVISIONS FOR TEMPORARY DUST AND EROSION CONTROL WHERE EXTENSIVE DIRT OR DUST OPERATIONS ARE PERFORMED. USE WATER SPRINKLING AND OTHER METHODS TO LIMIT DUST AND DIRT MIGRATION. COMPLY WITH GOVERNING REGULATIONS PERTAINING TO ENVIRONMENTAL PROTECTION.

### BEFORE YOU DIG - CALL

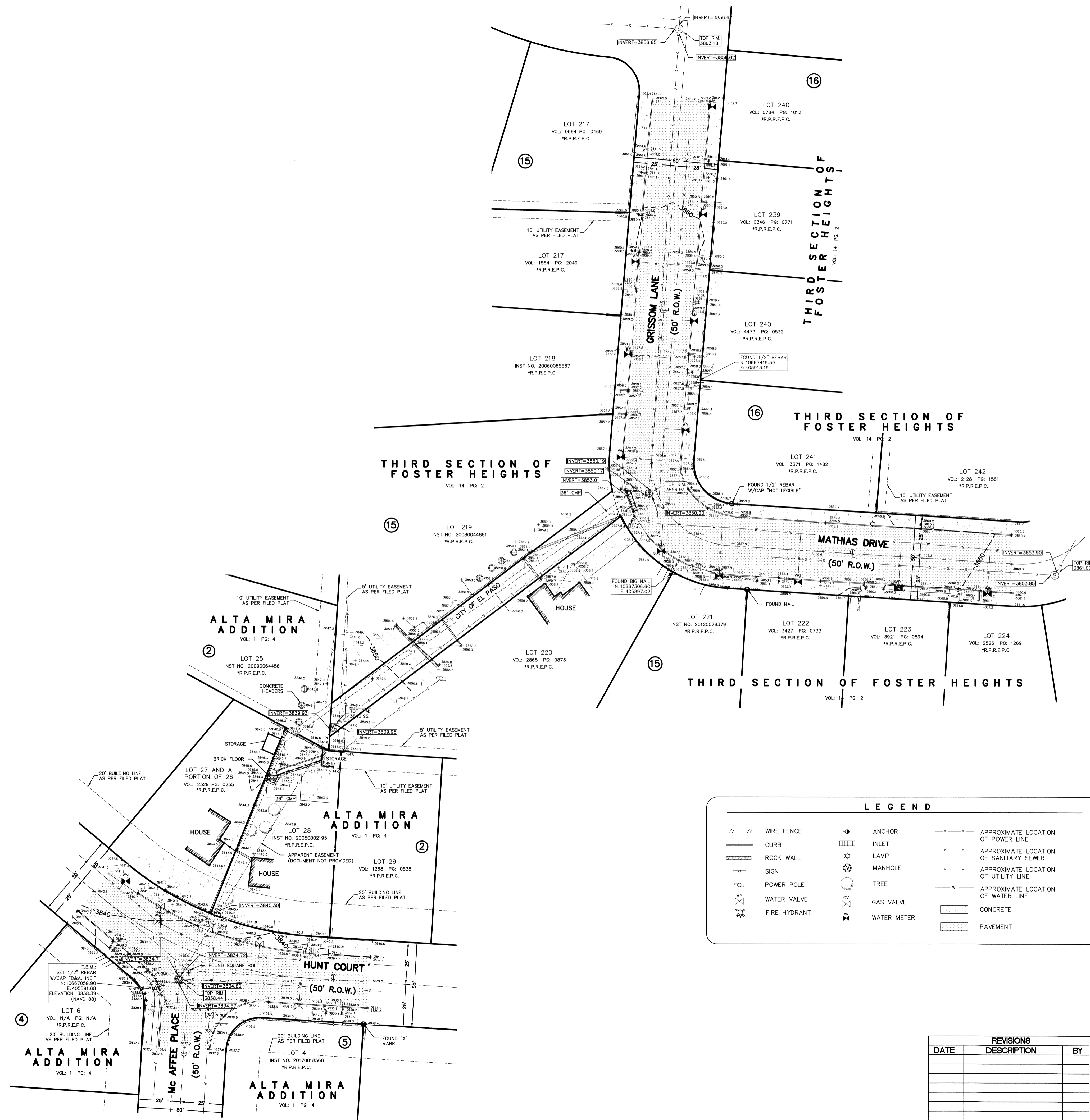
EL PASO ELECTRIC COMPANY	1-800-592-1634
AT & T	1-877-213-1053
SOUTHERN UNION GAS COMPANY	(915) 544-6300
EMERGENCY HOT LINE	562-841/562-2003
THE WARNER CABLE	1-800-222-5305
EL PASO NATURAL GAS COMPANY	1-800-334-8047
NEW MEXICO EXCAVATION SAFETY SYSTEM	811

### SURVEY NOTES

- NAVD 88 ELEVATIONS WERE DERIVED FROM APPLICATION OF THE GEOD 2012A MODEL TO RTK CO-OP ELLIPSOID HEIGHTS (ACCURACY ± 0.16").
- COORDINATES SHOWN ARE TEXAS STATE GROUND COORDINATES DERIVED FROM RTK OBSERVATIONS TO THE TEXAS CO-OP NETWORK. REFERRED TO THE TEXAS COORDINATE SYSTEM (NAD 83) CENTRAL ZONE. (TO CONVERT TO GRID, YOU MAY DIVIDE BY 1.000231)
- THIS PROPERTY MAY BE SUBJECT TO EASEMENTS WHETHER OF RECORD OR NOT (NOT SHOWN). NO ADDITIONAL RESEARCH WAS PERFORMED BY B&A INC. FOR ANY RESERVATION, BUILDING LINE, AND OR EASEMENTS WHICH MAY OR MAY NOT AFFECT SUBJECT PARCEL.
- THE SURVEYOR MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES ARE IN THE EXACT LOCATION INDICATED. THEY ARE LOCATED AS ACCURATE AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.
- THIS SURVEY WAS PERFORMED IN THE FIELD FROM 08-21-17 TO 09-05-17.
- THIS SURVEY WAS DONE WITHOUT THE BENEFIT OF A TITLE COMMITMENT.

### GENERAL NOTES

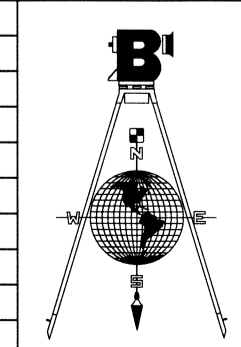
- LOCATION OF ALL UTILITIES SHOWN ON THIS PLAN ARE APPROXIMATE. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO CONTACT ALL UTILITY COMPANIES FOR THE EXACT LOCATION OF UNDERGROUND AND OVERHEAD UTILITIES INCLUDING UTILITIES NOT SHOWN ON PLANS. THE CONTRACTOR SHALL PROTECT ALL EXISTING UNDERGROUND AND OVERHEAD UTILITIES AND ANY UTILITIES NOT SHOWN THIS PLAN DURING CONSTRUCTION. THE CONTRACTOR WILL PERFORM ALL UTILITY INSTALLATION, REMOVAL AND RELOCATION'S AS PER LOCAL UTILITY CONSTRUCTION SPECIFICATIONS.
- CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL DIMENSIONS, CONDITIONS, AND ELEVATIONS ON SITE AND SHALL CONTACT THE DESIGN ENGINEER AND REPORT ANY DISCREPANCIES, OMISSIONS AND/OR ERRORS ON PLANS PRIOR TO COMMENCING WORK.
- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CITY OF EL PASO STANDARD SPECIFICATIONS AND DETAILS.
- CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITTING NECESSARY FOR EARTHWORK OPERATIONS.
- CONTRACTOR SHALL COORDINATE RELOCATION OF ALL EXISTING UTILITIES AND MANHOLE WITH RESPECTIVE UTILITY COMPANIES.
- CONTRACTOR SHALL PERFORM ALL EARTHWORK REQUIREMENTS AS PER GEOTECHNICAL STUDY REPORT.
- A CALL WAS PLACED TO TEXAS DIG SAFE NUMBER (811) TO ACQUIRE LINE-SPOTS. CONFIRMATION NUMBERS ARE 1777037157 AND 1777037218.
- ONLY UTILITY LINES MARKED AND OBSERVED AS OF 10-26-17 ARE SHOWN.



LEGEND					
	WIRE FENCE		ANCHOR		APPROXIMATE LOCATION OF POWER LINE
	CURB		INLET		APPROXIMATE LOCATION OF SANITARY SEWER
	ROCK WALL		LAMP		APPROXIMATE LOCATION OF UTILITY LINE
	SIGN		MANHOLE		APPROXIMATE LOCATION OF WATER LINE
	POWER POLE		TREE		CONCRETE
	WATER VALVE		GAS VALVE		PAVEMENT
	FIRE HYDRANT		WATER METER		

REVISIONS		
DATE	DESCRIPTION	BY

Date: 11-01-17 Drawn by: DJ Job No: 170814-28



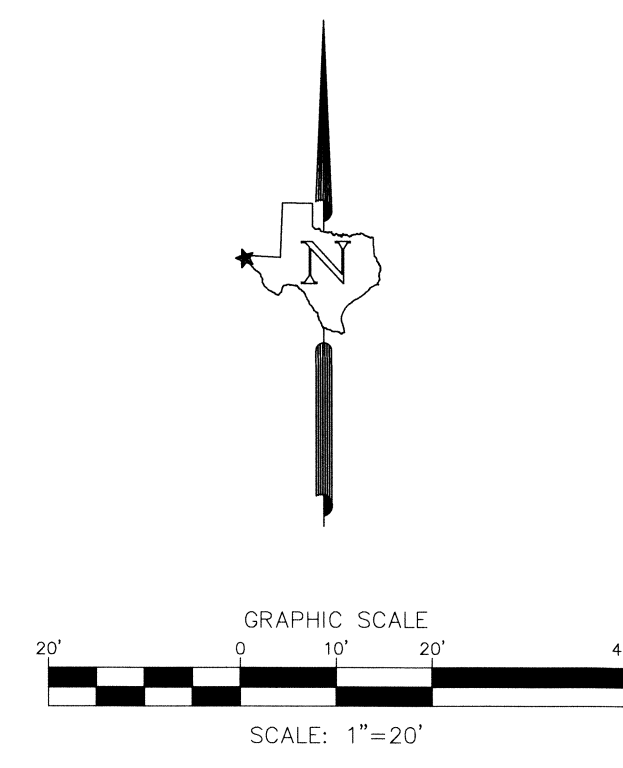
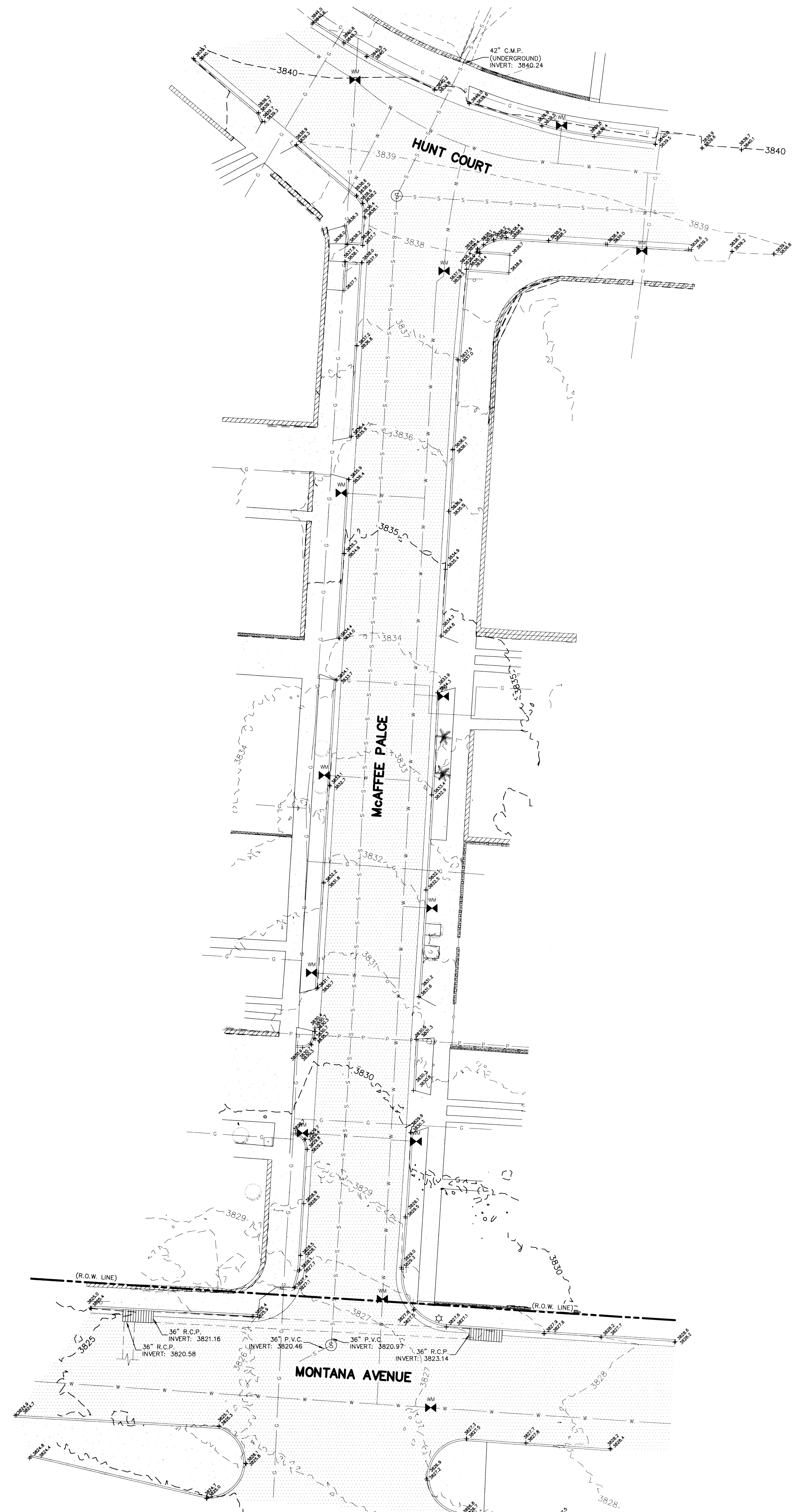
**Barragan & Associates Inc.**  
LAND PLANNING & LAND SURVEYING  
TBPLS FIRM # 10151200  
10950 Pellicano Dr. Bldg. F - El Paso, TX 79935  
Phone (915) 591-5709 Fax (915) 591-5706

**PROJECT NAME**  
GRISSOM LANE  
AND HUNT COURT

PREPARED BY: AND UNDER THE SUPERVISION OF:  
  
BENITO BARRAGAN  
TX, R.P.L.S. NO. 5615

# TOPOGRAPHIC SURVEY

**OUT OF McAFFEE PLACE,  
EL PASO COUNTY, TEXAS**



LEGEND	
	CHAIN LINK FENCE
	BLOCK WALL
	CURB
	IRON FENCE
	PALM TREE
	UNDERGROUND PIPE
	UTILITY PEDESTAL
	ROCK WALL
	SIGN
	TREE
	INLET
	LAMP
	MANHOLE, SEWER
	POWER POLE
	WATER METER
	GAS LINE
	POWER LINE
	SANITARY SEWER
	WATER LINE
	CONCRETE
	PAVEMENT
	MAJOR CONTOUR
	MINOR CONTOUR
	SPOT ELEVATION

## GENERAL NOTES

1. LOCATION OF ALL UTILITIES SHOWN ON THIS PLAN ARE APPROXIMATE. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO CONTACT ALL UTILITY COMPANIES FOR THE EXACT LOCATION OF UNDERGROUND AND OVERHEAD UTILITIES INCLUDING UTILITIES NOT SHOWN ON PLANS. THE CONTRACTOR SHALL PROTECT ALL EXISTING UNDERGROUND AND OVERHEAD UTILITIES AND ANY UTILITIES NOT SHOWN THIS PLAN DURING CONSTRUCTION. THE CONTRACTOR WILL PERFORM ALL UTILITY INSTALLATION, REMOVAL AND RELOCATION'S AS PER LOCAL UTILITY CONSTRUCTION SPECIFICATIONS.
2. CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL DIMENSIONS, CONDITIONS, AND ELEVATIONS ON SITE AND SHALL CONTACT THE DESIGN ENGINEER AND REPORT ANY DISCREPANCIES, OMISSIONS AND/OR ERRORS ON PLANS PRIOR TO COMMENCING WORK.
3. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CITY OF EL PASO STANDARD SPECIFICATIONS AND DETAILS.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITTING NECESSARY FOR EARTHWORK OPERATIONS.
5. CONTRACTOR SHALL COORDINATE RELOCATION OF ALL EXISTING UTILITIES AND MANHOLE WITH RESPECTIVE UTILITY COMPANIES.
6. CONTRACTOR SHALL PERFORM ALL EARTHWORK REQUIREMENTS AS PER GEOTECHNICAL STUDY REPORT.
7. A CALL WAS PLACED TO TEXAS DIG SAFE NUMBER (811) TO ACQUIRE LINE-SPOTS. CONFIRMATION NUMBER IS 2068805898.

## SURVEY NOTES

1. BEARINGS SHOWN ARE GRID BEARINGS DERIVED FROM RTK OBSERVATIONS TO THE TEXAS CO-OP NETWORK, REFERRED TO THE TEXAS COORDINATE SYSTEM (NAD 83) CENTRAL ZONE.
2. DISTANCES ARE GROUND DISTANCES AND MAY BE CONVERTED TO GRID DIVIDING BY 1.000231.
3. THESE NAVD 88 ELEVATIONS WERE DERIVED FROM THE TEXAS RTK CO-OP NETWORK, GEOD 2012A MODEL. (ACCURACY ± 0.16')
4. THIS PROPERTY MAY BE SUBJECT TO EASEMENTS WHETHER OF RECORD OR NOT, (ONLY EASEMENT LISTED ON THE TITLE COMMITMENT SHOWN). NO ADDITIONAL RESEARCH WAS PERFORMED BY B&A INC. FOR ANY RESERVATION, BUILDING LINE, AND OR EASEMENTS WHICH MAY OR MAY NOT AFFECT SUBJECT PARCEL.
5. THE SURVEYOR MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES ARE IN THE EXACT LOCATION INDICATED. THEY ARE LOCATED AS ACCURATE AS POSSIBLE FROM INFORMATION PROVIDED BY OTHERS. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.
6. THIS SURVEY IS NOT A BOUNDARY SURVEY AND SHALL NOT BE USED AS A BOUNDARY SURVEY.

## BENCHMARK

FOUND CITY MONUMENT AT THE INTERSECTION OF CHELSEA STREET AND TROWBRIDGE DRIVE.  
ELEVATION: 3828.40 (NAVD 88)

## DUST AND EROSION CONTROL NOTE

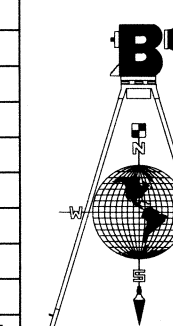
CONTRACTOR SHALL MAKE PROVISIONS FOR TEMPORARY DUST AND EROSION CONTROL WHERE EXTENSIVE DIRT OR DUST OPERATIONS ARE PERFORMED. USE WATER SPRINKLING AND OTHER METHODS TO LIMIT DUST AND DIRT MIGRATION. COMPLY WITH GOVERNING REGULATIONS PERTAINING TO ENVIRONMENTAL PROTECTION.

## BEFORE YOU DIG - CALL

EL PASO ELECTRIC COMPANY	1-800-592-1634
AT & T	1-877-213-1053
SOUTHERN UNION GAS COMPANY	(915) 544-6300
EMERGENCY HOT LINE	562-8411/562-2003
PUBLIC SERVICE BOARD (WATER&SEWER)	(915) 594-5500
SPECTRUM	1-833-267-6094
TEXAS GAS SERVICE	1-800-959-5325
TEXAS EXCAVATION SAFETY SYSTEM	811

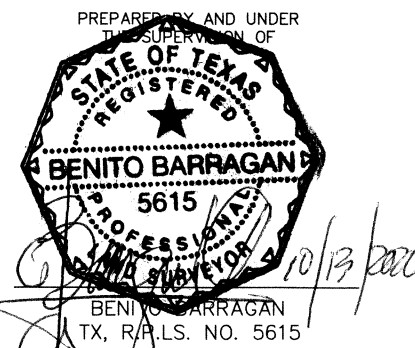
REVISIONS		
DATE	DESCRIPTION	BY
10-13-2020	ADDITION OF INLET INVERTS	BT

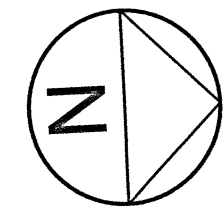
Date: 08-03-2020 Drawn by: BT Job No: 200706-15



**Barragan & Associates Inc.**  
LAND PLANNING & LAND SURVEYING  
TEXAS SURVEYING FIRM# 10151200  
10950 Pellicano Dr. Bldg. F - El Paso TX 79935  
Phone (915) 591-5709 Fax (915) 591-5706

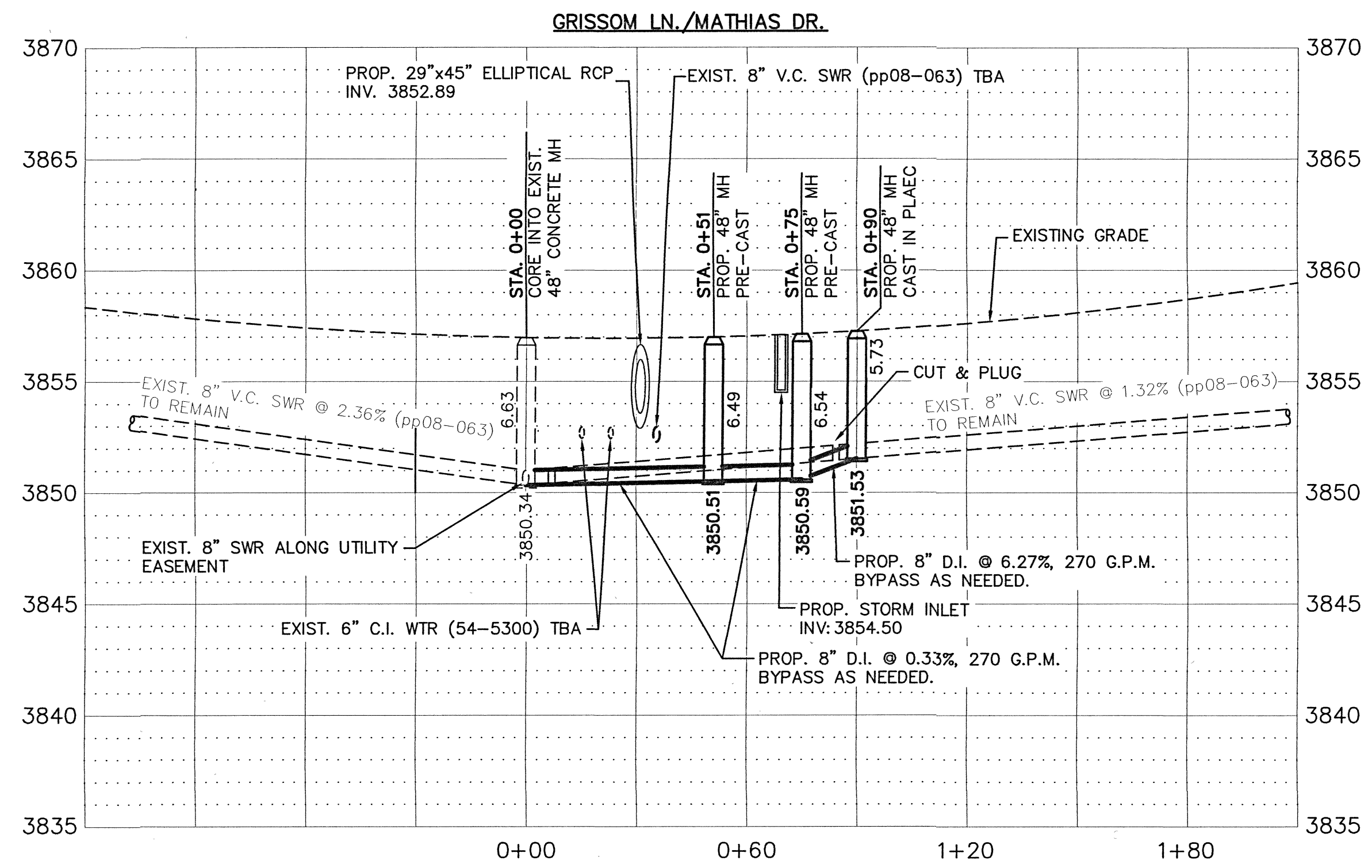
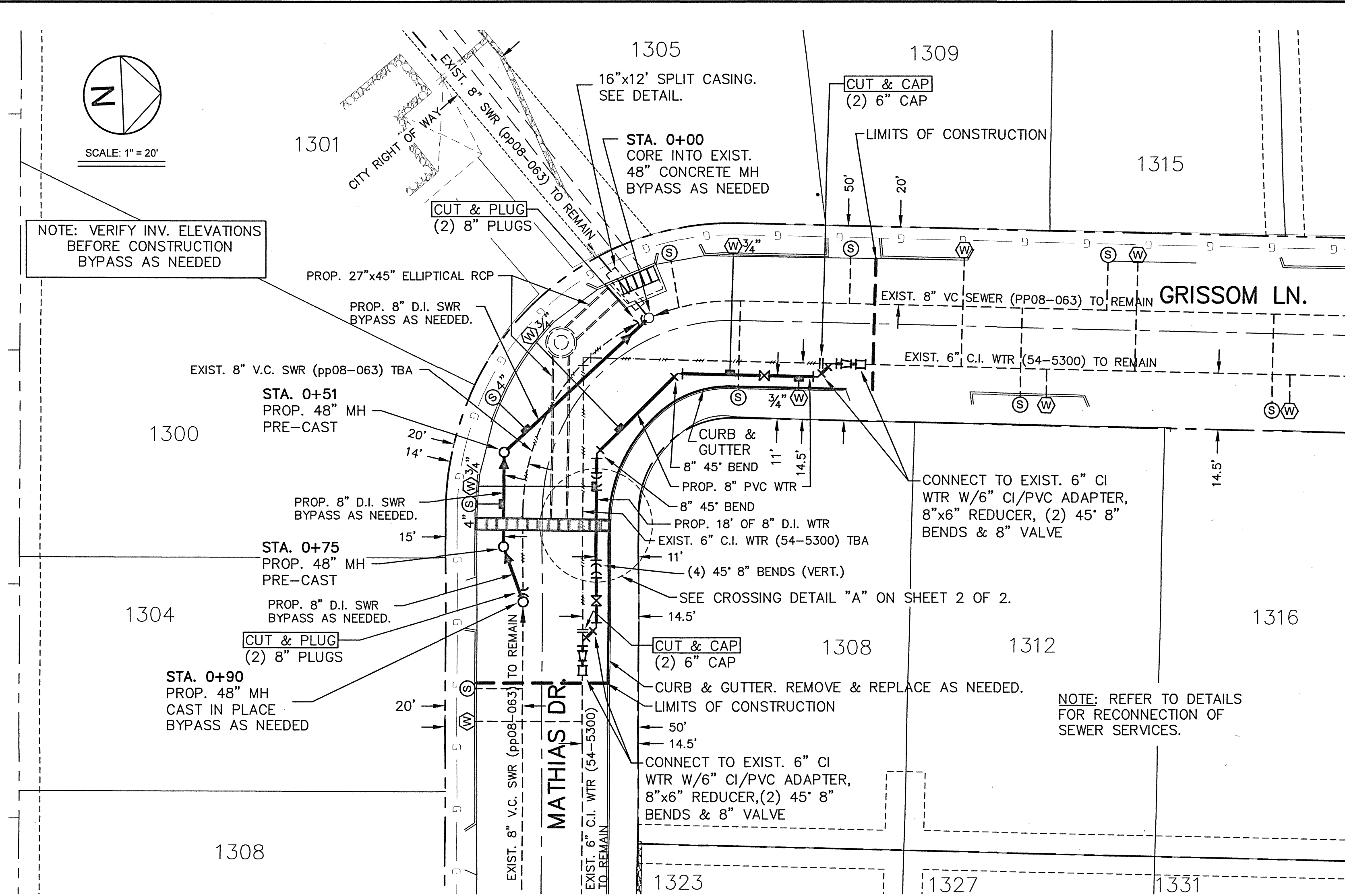
PROJECT NAME  
GRISSOM LANE  
McAFFEE PLACE





SCALE: 1" = 20'

NOTE: VERIFY INV. ELEVATIONS BEFORE CONSTRUCTION BYPASS AS NEEDED

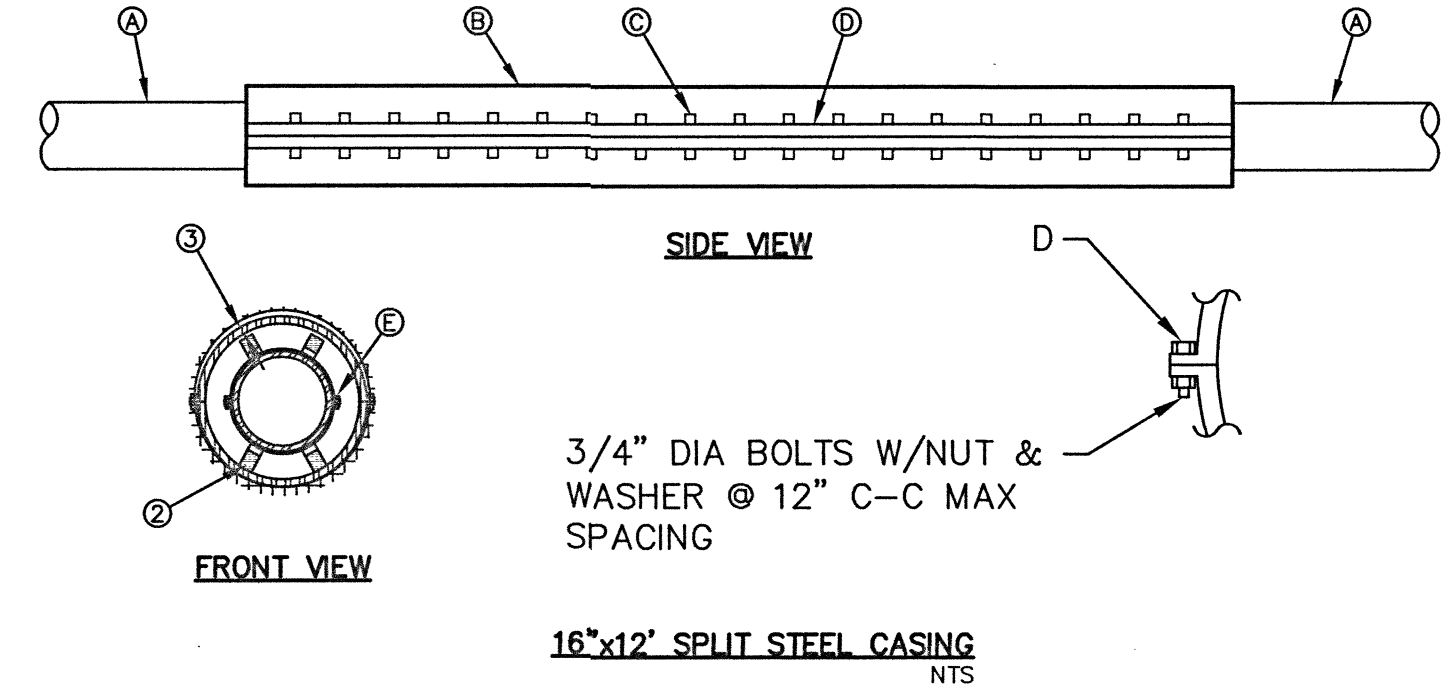


**GENERAL NOTES:**

- 1. SPLIT CASING SHALL BE IN ACCORDANCE WITH ASTM A-36, ASTM A-570, ASTM A-135, ASTM A-139 OR EQUAL, CARBON STEEL PIPE WALL THICKNESS OF 0.375".
- 2. CASING INSULATORS, SPACING, AND LOCATION PER MANUFACTURER'S RECOMMENDATIONS. INSULATORS SHALL FIT SNUG OVER THE CARRIER PIPE.
- 3. POSITION CARRIER PIPE APPROXIMATELY IN CENTER OF CASING. MINIMUM SPACING BETWEEN INSULATOR AND CASING SHALL BE 1"; MAXIMUM SPACING SHALL BE 2".

**CONSTRUCTION KEY NOTES:**

- A. CARRIER PIPE CONTRACTOR TO PROVIDE METHODOLOGY FOR INSTALLATION, METHODOLOGY TO BE REVIEWED AND SUBJECT TO APPROVAL BY EPWU. NO MORE THAN 2 JOINTS OF PIPE SHALL BE EXPOSED AT ANY TIME.
- B. 16" SPLIT CASING.
- C. 3/4" ASTM A-325 BOLTS @ 12" SPACED C-C MAX SPACING.
- D. 2X2" ANGLE BARS WELDED BOTH SIDES.
- E. ANNULAR SPACE BETWEEN PIPE AND CASING SHALL BE LEFT OPEN.



TOTAL AMOUNT OF CURB & GUTTER 123 FT.

STREET NAME	LENGTH, SIZE & TYPE OF PIPE
GRISSOM LN./MATHIAS DR.	140 L.F. OF 8" P.V.C. C-900 (CLASS 305)
GRISSOM LN./MATHIAS DR.	18 L.F. OF 8" D.I. C-151/A21.51 (CLASS 350)

**LEGEND**

DESCRIPTION	SYMBOL
EXISTING MANHOLE WITH FLOW ARROW	
EXIST. SEWER TO BE ABANDONED IN PLACE	
PROPOSED MANHOLE WITH FLOW ARROW	
EXIST. WATER TO REMAIN	
EXIST. WATER (TBA) IN PLACE	
EXIST. SEWER TO BE ABANDONED IN PLACE	
PROP. WATER	
SEWER SERVICE TO BE RECONNECTED	
EXIST. SEWER SERVICE CONNECTION	
WATER SERVICE TO BE RECONNECTED	
EXIST. WATER SERVICE CONNECTION	
EXIST. GAS LINE	

**PROJECT OVERVIEW AND SEQUENCE OF WORK (AT NO ADDITIONAL COST TO THE OWNER):**

1) CONTRACTOR SHALL COORDINATE WATER AND SANITARY SEWER SYSTEMS CONSTRUCTION AND SEQUENCE OF WORK WITH GRISSOM LANE AND McAFFEE PLACE - STORM SEWER, SANITARY SEWER & WATER MAIN IMPROVEMENTS.

2) THE CONTRACTOR MAY NEED TO WORK DURING OFF-HOURS, NIGHTS AND/OR WEEKENDS TO INSTALL THE WATER AND SANITARY SEWER MAINS AND TO EXTEND SERVICES ACROSS THE STREET TO ASSURE ADEQUATE CONSTRUCTABILITY AND OPERATION OF THIS SYSTEM.

**GENERAL NOTES:**

- 3) CONTACT UTILITY COMPANIES FOR EXACT LOCATION OF UNDERGROUND UTILITIES IN THIS AREA BEFORE EXCAVATION.
- 4) CONTRACTOR SHALL PAY CLOSE ATTENTION TO THE UTILITY SHEETS; COORDINATE SEQUENCE OF WORK, AND SHALL COORDINATE FIELD LOCATIONS OF ALL UTILITIES WITH THE APPROPRIATE UTILITY COMPANIES IN ORDER TO MINIMIZE CONFLICTS DURING WATER AND SANITARY SEWER CONSTRUCTION AND TO PREVENT DAMAGE TO ANY UTILITIES.
- 5) WHEN EXISTING PAVEMENT AND BASE ARE TO BE CUT & RESTORED, CONTRACTOR SHALL PLACE 12-INCHES OF CEMENT STABILIZED BACKFILL (2-SACK) AND 2-INCHES OF ASPHALT. TYPE OF REPLACEMENT MATERIALS MUST BE APPROVED BY ENGINEER.
- 6) CONTRACTOR IS RESPONSIBLE FOR ACQUIRING AND PAYING ALL PERMITS ASSOCIATED WITH WATER AND SANITARY SEWER CONSTRUCTION.
- 7) ALL EXISTING FACILITIES CURRENTLY IN SERVICE MUST REMAIN IN SERVICE THROUGHOUT CONSTRUCTION. CONTRACTOR IS RESPONSIBLE FOR PROTECTING EXISTING WATER AND SANITARY SEWER LINES (INCLUDING SERVICES) FROM DAMAGE AS A RESULT OF CONSTRUCTION ACTIVITIES.
- 8) RECONNECTION OF EXISTING FACILITIES SHOWN ON THIS PLAN MUST BE MADE SUCH THAT MINIMAL INTERRUPTION OF WATER AND SANITARY SEWER TO CUSTOMER IS MADE.
- 9) CONTRACTOR SHALL PROVIDE TEMPORARY SERVICE TO CUSTOMERS IF SERVICE WILL BE INTERRUPTED FOR MORE THAN 4 HOURS IN A 24-HOUR PERIOD AND SHALL ISSUE A 48-HOUR ADVANCE NOTICE TO THE CUSTOMERS WHOSE SERVICES WILL BE INTERRUPTED.
- 10) USE CAUTION WHEN DIGGING IN THE AREA OF EXISTING ELECTRIC & GAS MAINS.
- 11) THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO PRIVATE PROPERTY CAUSED BY THE CONSTRUCTION PROJECT. THE CONTRACTOR UPON RECEIPT OF A COMPLAINT OF DAMAGE, SHALL WITHIN 10 DAYS, RESPOND IN WRITING WITH A PROPOSAL TO REPAIR SAID DAMAGE.
- 12) EMERGENCY RESPONSE NOTE: THE CONTRACTOR SHALL IMMEDIATELY CALL AND NOTIFY THE EL PASO WATER UTILITIES DISPATCHER AT 594-5775 OR 594-5778 WHEN A WATER OR SANITARY SEWER MAIN IS BROKEN DURING CONSTRUCTION EXCAVATION AND THE EXTEND OF THE BREAK FOR IMPLEMENTATION OF UTILITIES EMERGENCY RESPONSE ACTION PLAN. THE CONTRACTOR SHALL ALSO IMMEDIATELY NOTIFY THE EL PASO WATER FIELD INSPECTOR AND PROJECT ENGINEER ASSIGNED TO THE PROJECT.

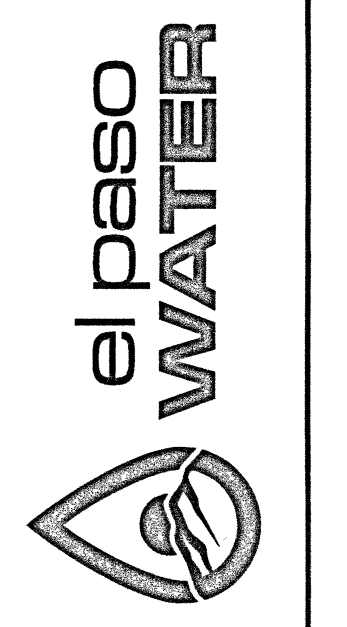
**SEWER NOTES:**

- 13) THE CONTRACTOR SHALL VERIFY THE ACTUAL LOCATION, INVERT ELEVATION AND DEPTH OF ALL EXISTING MANHOLES, SEWER LINE AND SEWER SERVICES AT LEAST (14) DAYS AHEAD OF PIPE LAYING TO ALLOW A REASONABLE AMOUNT OF TIME FOR THE ENGINEER TO INITIATE ANY NECESSARY CHANGES IN ALIGNMENT OR GRADE OF THE PROPOSED PIPELINE.
- 14) PROVIDE MANHOLE ADAPTER WHERE PVC/DI PIPE CONNECTS TO MANHOLE.
- 15) ALL DI PIPE ON THIS PLAN SHALL BE ENCASED WITH SELECT BEDDING MATERIAL.
- 16) LOCATIONS OF EXISTING SANITARY SEWER SERVICES AT THE EXISTING MAINS WERE OBTAINED BY TELEVISIONING THE SANITARY SEWER MAINS, WHERE POSSIBLE. HOWEVER, THE SERVICE LOCATION AND DEPTH AT THE EXISTING OR NEW RIGHTS-OF-WAY ARE NOT AVAILABLE. CONTRACTOR SHALL VERIFY EXACT LOCATION OF SERVICES, AT AND WITH RESPECT TO THE NEW RIGHT-OF-WAY, PRIOR TO CONSTRUCTION.
- 17) CONTRACTOR TO FIELD VERIFY/POT HOLE EXISTING SERVICES PRIOR TO INSTALLATION OF NEW SERVICES AND MAKE PROPER CONNECTION AS PER DETAIL "A" ON SHEET 2 OF 2, IF NEEDED.
- 18) CONTRACTOR TO RECONNECT ALL EXISTING SEWER SERVICES TO NEW MAIN AND ADJUST LOCATION AND ELEVATION OF SERVICE AS NEEDED TO MAKE PROPER CONNECTION. SANITARY SEWER SERVICE INSTALLATION SHALL BE AS PER CITY'S PLUMBING CODES.
- 19) CONTRACTOR SHALL SET NEW TOP OF MANHOLE RIMS TO MATCH TEMPORARY TRAFFIC LANES AND FINISHED STREET GRADES.
- 20) ALL NEW SANITARY SEWER LINES ARE TO BE COMPLETED, ACCEPTED FOR USE AND OPERATIONAL BEFORE THE EXISTING SANITARY SEWER LINES AND MANHOLES ARE ABANDONED.
- 21) EXISTING SEWER LINES TO BE ABANDONED IN PLACE WILL BE CHECKED FOR FLOW BY INSERTING A PLUG IN THE DOWNSTREAM MANHOLE AND CHECKING DAILY FOR ACCUMULATION OF SEWAGE FOR A PERIOD OF ONE WEEK.
- 22) SEWER LINES TO BE ABANDONED IN PLACE SHALL BE COMPLETELY DEWATERED BEFORE THEY ARE PLUGGED. THE LINES TO BE ABANDONED IN PLACE SHALL BE CUT AND PLUGGED AT ALL OPENINGS.
- 23) AFTER IT HAS BEEN DETERMINED THAT THE LINE TO THE MANHOLE IS DEAD, THE ABANDONMENT OF THE MANHOLE WILL BE COMPLETED.
- 24) ABANDONMENT OF EXISTING MANHOLES WILL CONSIST OF CUTTING AND PLUGGING AT THE OUTSIDE OF THE MANHOLE ALL CONNECTING MAINS; REMOVAL OF CONE SECTION OR SUFFICIENT AMOUNT TO BE BELOW SUBGRADE; AND FILL WITH CEMENT STABILIZED BACKFILL (2 SACKS OF CEMENT PER CUBIC YARD OF SOIL) TO BOTTOM OF PROPOSED SUBGRADE. WHERE INDICATED ON THE PLANS, IN CONFLICT WITH PROPOSED LINES, OR DIRECTED BY THE ENGINEER, MANHOLE IS TO BE REMOVED AT NO ADDITIONAL COST TO THE OWNER. CSB UTILIZED FOR ABANDONMENT OF MANHOLES WILL NOT BE MEASURED SEPARATELY FOR PAYMENT, BUT SHALL BE CONSIDERED SUBSIDIARY TO THIS ITEM.
- 25) BY-PASSING TO MAINTAIN SEWER MAINS AND SERVICES SHALL BE PROVIDED BY THE CONTRACTOR. ALL REQUIRED PLUGGING AND BYPASSING SHALL BE CONSIDERED SUBSIDIARY TO THE PARTICULAR SEWER WORK BEING DONE. AN EXISTING SEWER SYSTEM MAP OF THE PROJECT AREA CAN BE OBTAINED FROM EL PASO WATER UTILITIES AND IS AVAILABLE FOR REVIEW AT THEIR OFFICE, 1154 HAWKINS BLVD., EL PASO TX. 79925, DURING REGULAR BUSINESS HOURS.
- 26) CONTRACTOR SHALL COORDINATE INSTALLATION OF NEW MANHOLES WITH FINISHED ROAD ELEVATIONS AND SHALL ADJUST NEW MANHOLES TO TEMPORARY AND FINISHED GRADES AS REQUIRED FOR CONSTRUCTION. PER SPECIFICATION, ALL ADJUSTMENT COSTS FOR NEW MANHOLES SHALL BE CONSIDERED SUBSIDIARY TO THE MANHOLE UNIT.
- 27) CONTRACTOR TO INSTALL TEMPORARY SIPHON ON EXIST. SEWER MAINS AT CROSSINGS WITH PROP. SEWER MAIN IF NECESSARY TO RESOLVE ELEVATION CONFLICTS BETWEEN BOTH MAINS. NO ADDITIONAL COMPENSATION WILL BE PROVIDED FOR THIS WORK.
- 28) CONTRACTOR TO CONFIRM INVERT ELEVATIONS OF ALL PROP. MANHOLES CONNECTING TO EXISTING SANITARY SEWER MAINS PRIOR TO INSTALLATION.
- 29) INSTALLATION OF PROP. SANITARY SEWER MAINS, MANHOLES AND SERVICE RECONNECTION SHALL ALSO INCLUDE REMOVAL OF EXISTING SEWER FACILITIES SCHEDULED FOR ABANDONMENT, INCLUDING BUT NOT LIMITED TO MANHOLES, MAINS AND SERVICES AS NECESSARY FOR PROPER INSTALLATION OF PROP. SANITARY SEWER IMPROVEMENTS.
- 30) CITY PERMIT REQUIRED BEFORE EXCAVATION.
- 31) NEW MANHOLE WILL REQUIRE THAT THE FLOWS IN THE EXISTING LINES NOT BE INTERRUPTED OR BACKED UP AT ANY TIME. THE CONTRACTOR WILL BE RESPONSIBLE FOR THE MAINTENANCE OF FLOW IN THE SYSTEM AT ALL TIMES DURING THE CONSTRUCTION.
- 32) THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO ASSURE NO DIRT, STORM WATER OR DEBRIS ENTERS THE SEWER SYSTEM.
- 33) MANHOLE EXCAVATIONS SHALL BE BACKFILLED WITH FLOWABLE FILL AS SOON AS POSSIBLE AFTER THE WORK HAS BEEN COMPLETED. CONTRACTOR SHALL MAKE PROVISIONS TO PREVENT FLOATING OR MOVEMENT OF MANHOLES AND PIPING DURING BACKFILL.
- 34) CONTRACTOR MAY, AT HIS OPTION, INSTALL PLUGS AND TEMPORARY BYPASS PIPING TO FACILITATE THE INSTALLATION OF MANHOLE ABANDONMENT. NO ADDITIONAL COMPENSATION SHALL BE PAID TO THE CONTRACTOR FOR THE USE OF BY-PASSES.
- 35) BENCHMARK: "X" MARK ON CURB LOCATED ON S.W. CORNER OF INTERSECTION McAFFEE PL. AND HUNT CT. N:10667059.90 E: 405591.68 ELEV. 3838.50

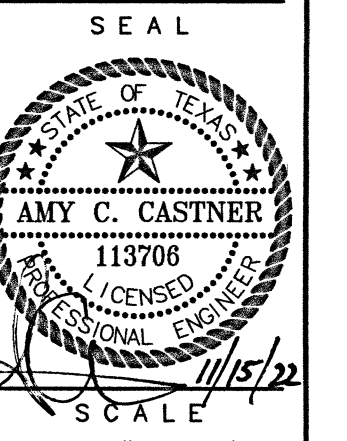
**WATER NOTES:**

- 36) CONTRACTOR IS RESPONSIBLE FOR ANY COORDINATION WITH EPWATER OFFICIALS WHEN REQUESTING WATER SYSTEM SHUT-OFFS FOR WATER MAIN TIE-INS TO BE PERFORMED WITHIN A 4 HOUR LIMIT AND ENSURE THAT A PROPER WATER SHUT-OFF PLAN IS DEVELOPED WHICH SHALL INCLUDE AND PROVIDE THE FOLLOWING: SCHEDULE SITE MEETING 72 HOURS PRIOR TO SHUT-OFF DATE TO DISCUSS PROPOSED WATER SHUT-OFF PLAN, APPROVED AND INSTALLED TRAFFIC CONTROL PLAN, MATERIALS TO BE ON SITE, TIE-IN LOCATIONS TO BE POT-HOLED OR EXPOSED BEFORE PERFORMING THE TIE-IN TO VERIFY SIZE & TYPE OF EXISTING PIPE, AND PROVIDE 48-HOUR ADVANCE NOTICE WITH 3 GALLONS OF WATER PER EACH SERVICE BEING IMPACT BY THE SHUT-OFF.
- 37) INSTALL A TRENCH SAFETY SYSTEM TO PROVIDE FOR THE SAFE EXCAVATION OF ALL TRENCHES EXCEEDING A DEPTH OF 5-FEET AS PER O.S.H.A. STANDARDS.
- 38) PROVIDE ADEQUATE CONCRETE THRUST BLOCKING AND MECHANICAL RESTRAINT DEVICES AS NECESSARY AT THE FOLLOWING: TAPPING SLEEVES, TEES, BENDS, PLUGS AND ALL FITTINGS.
- 39) ALL VALVES ON PVC WATER MAINS SHALL BE ANCHORED IN CONCRETE, AS PER DETAILS AND SPECIFICATIONS.
- 40) ALL PVC/DI PIPE ON THIS PLAN SHALL BE ENCASED WITH SELECT BEDDING MATERIAL.
- 41) CITY PAVING CUT PERMIT REQUIRED BEFORE EXCAVATING WITHIN CITY STREETS.
- 42) INSTALL NEW WATER LINE WITH MIN. OF 4 FEET OF COVER UNDER PROP. FINISHED GRADE.
- 43) WATER LINES DESIGNATED TO BE ABANDONED IN PLACE SHALL BE COMPLETELY DEWATERED BEFORE THEY ARE PLUGGED. LINES TO BE ABANDONED SHALL BE CUT AND PLUGGED AT ALL OPENINGS. REMOVAL AND DISPOSAL OF ANY PIPE MATERIAL SCHEDULED TO BE ABANDONED WILL BE THE CONTRACTOR'S RESPONSIBILITY AND AT HIS EXPENSE.
- 44) LOCATION OF EXISTING WATER SERVICES IS APPROXIMATE. CONTRACTOR SHALL VERIFY EXACT LOCATION OF SERVICES, AT AND WITH RESPECT TO THE NEW RIGHT-OF-WAY, PRIOR TO CONSTRUCTION.
- 45) CONTRACTOR SHALL REMOVE AND RECONNECT ALL WATER SERVICES (UNLESS OTHERWISE INDICATED ON THE PLANS) AS PER RECONNECTION DETAILS, INCLUDING BUT NOT LIMITED TO METER BOXES.
- 46) EXACT LOCATION OF FIRE HYDRANTS TO BE DETERMINED IN THE FIELD.
- 47) CONTRACTOR SHALL REMOVE ANY MATERIALS SCHEDULED TO BE SALVAGED OR DEEMED SALVAGEABLE BY THE ENGINEER AND DELIVER TO THE OWNER.
- 48) CONTRACTOR RESPONSIBLE FOR ABANDONMENT OF ALL VALVES CONNECTED TO WATER LINES SCHEDULED FOR ABANDONMENT. THIS CONSISTS OF REMOVAL OF BONNET BOX OR SUFFICIENT AMOUNT TO BE BELOW SUBGRADE AND FILL WITH CEMENT STABILIZED BACKFILL (2 SACKS OF CEMENT PER CUBIC YARD OF SOIL) TO BOTTOM OF PROPOSED SUBGRADE. WHERE IN CONFLICT WITH PROPOSED LINES OR INDICATED BY THE ENGINEER, VALVE IS TO BE REMOVED. ABANDONMENT OF VALVES, INCLUDING CSB UTILIZED FOR THEIR ABANDONMENT, WILL NOT BE MEASURED SEPARATELY FOR PAYMENT BUT SHALL BE CONSIDERED SUBSIDIARY TO THE VARIOUS WATER SYSTEM BID PAY ITEMS.
- 49) CUTTING, REMOVAL, AND RECONNECTION OF EXISTING WATER MAINS AND/OR SERVICES SHALL BE SUBSIDIARY TO THE WATER SYSTEM CONSTRUCTION.
- 50) BYPASS OF EXISTING WATER MAINS AND/OR SERVICES TO ASSIST IN CONSTRUCTION ACTIVITIES SHALL BE SUBSIDIARY TO THE WATER SYSTEM CONSTRUCTION.
- 51) ALL ASBESTOS CEMENT PIPE THAT REQUIRES REMOVAL SHALL BE HANDLED AND DISPOSED IN ACCORDANCE WITH STATE REQUIREMENTS & SPECIFICATIONS.
- 52) ALL PRESSURIZED PIPE SHALL BE MARKED WITH DUAL INDICATOR LINES AT THE SPIGOT END INDICATING PROPER PENETRATION WHEN THE JOINT IS ASSEMBLED OR BELL PROTECTION SYSTEM AT EACH JOINT FOR OVER INSERTION.

REVISIONS	DATE	REVISIONS



GRISSOM LN. TO MATHIAS DR.  
STORM SEWER, SANITARY SEWER & WATER  
MAIN IMPROVEMENTS



SCALE  
HOR. 1" = 20'  
VERT. 1" = 5'

DESIGNED BY  
A.S.

CHECKED BY  
A.C.

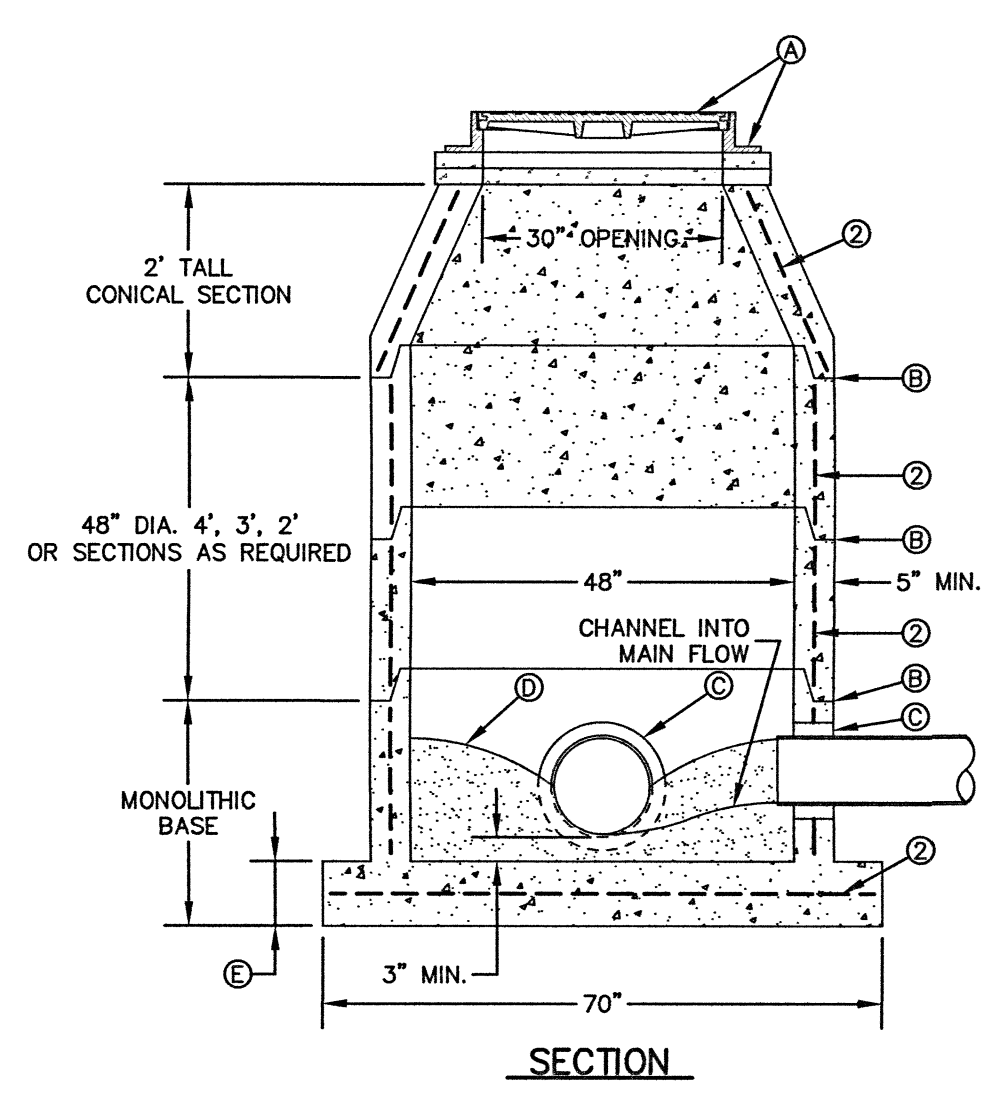
DRAWN BY  
AHV

DATE  
11/14/2022

JOB NO.  
22-5009/22-9006

SHT 1 OF 2

Nov 14, 2022 - 4:14pm  
H:\22-5009\22-9006\GRISSOM & MATHIAS\22-5006\Grissom & Mathias.dwg

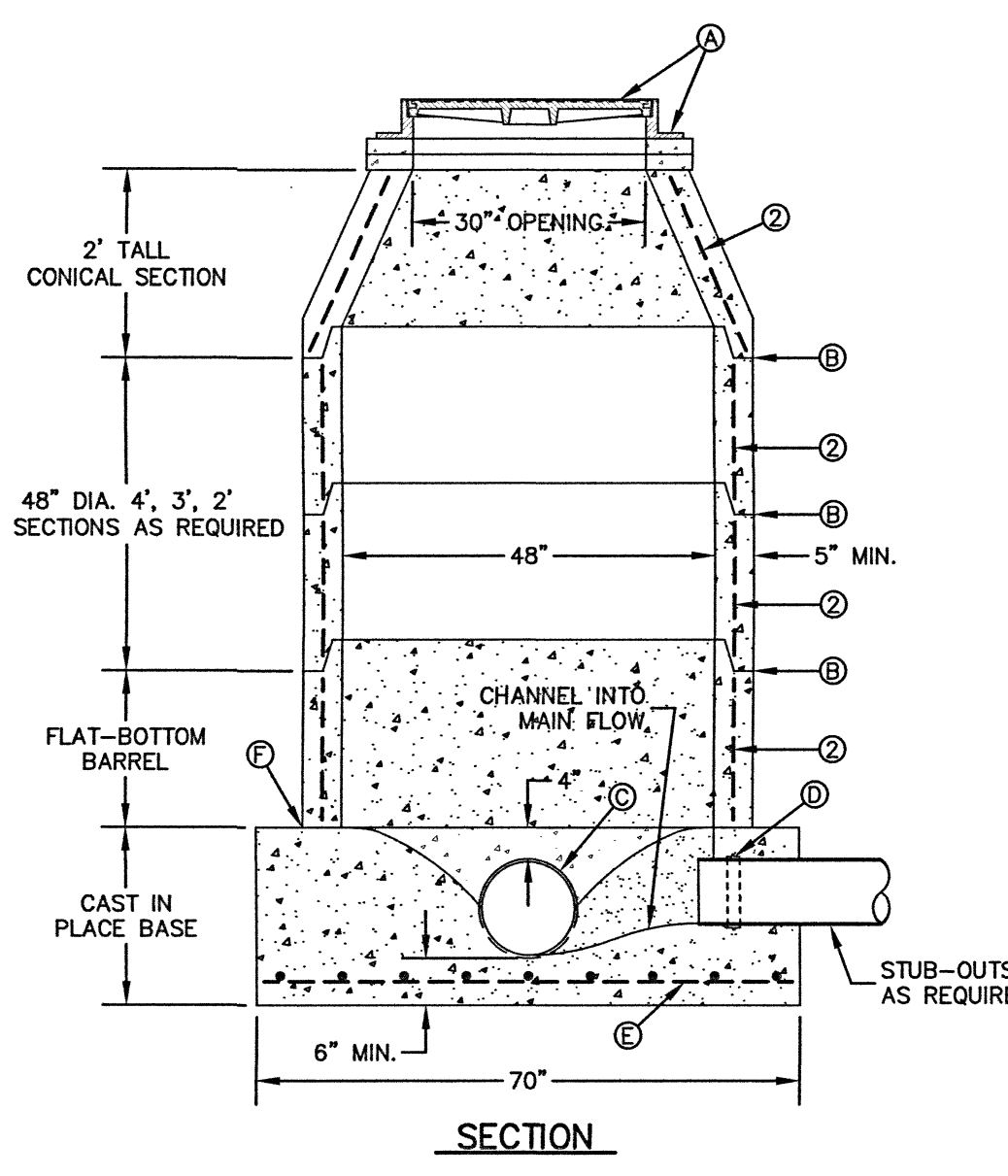


MANHOLE TYPE "A"

DETAIL No. 370-1

- GENERAL NOTES:**
1. MANHOLE TYPE "A" SHALL BE USED FOR LINES 21" AND SMALLER.
  2. PRE-CAST MANHOLE SECTIONS SHALL BE OF REINFORCED CONCRETE CONFORMING TO ASTM C-478 AND SHALL MEET HS-20 LOADING. PROVIDE REINFORCEMENT WITHIN 3"  $\phi$  OPENINGS OR KNOCKOUTS. OPENINGS (UP TO 8") MADE IN FIELD SHALL BE CORE DRILLED.
  3. CEMENT SHALL BE TYPE I-II, PER ASTM C-150, AND MUST CONTAIN A MINIMUM OF 4% FLY ASH OF THE TOTAL MANHOLE WEIGHT.
  4. THE BASE & RISER SHALL BE INTEGRALLY CAST. CONCRETE SHALL BE MIN. 28 DAY COMPRESSIVE STRENGTH 4000psi.
  5. MANUFACTURER TO PROVIDE LIFTERS OF ADEQUATE SIZE AS NEEDED.
  6. THE SUBGRADE UNDER THE BASE SHALL BE COMPACTED TO 95% DENSITY IN ACCORDANCE WITH ASTM D-1557.
  7. MANHOLES BELOW GROUNDWATER TO BE EXTERNALLY AND INTERNALLY COATED WITH BITUMINOUS COATING.

- CONSTRUCTION KEY NOTES:**
- A. MANHOLE RING AND COVER (SEE DETAILS 377 & 378). SET FRAME AND COVER FLUSH WITH ROADWAY SURFACE OR FINISHED GRADE (SEE DETAIL 185).
  - B. ALL JOINTS TO BE TONGUE, GROOVE AND SEALED WITH RAM-NEK OR APPROVED EQUAL.
  - C. PIPE OPENINGS/KNOCKOUTS AS REQUIRED TO FIT PIPE SIZE AND SHALL HAVE FLEXIBLE PIPE TO MANHOLE CONNECTORS (COMPRESSION TYPE ASTM-923). "KOR-N-SEAL" OR APPROVED EQUAL. GROUT AS REQUIRED.
  - D. GROUT AS REQUIRED.
  - E. CONCRETE BASE SHALL BE 8" FOR MH'S UP TO 12' DEEP AND 12" FOR DEPTHS GREATER THAN 12'.

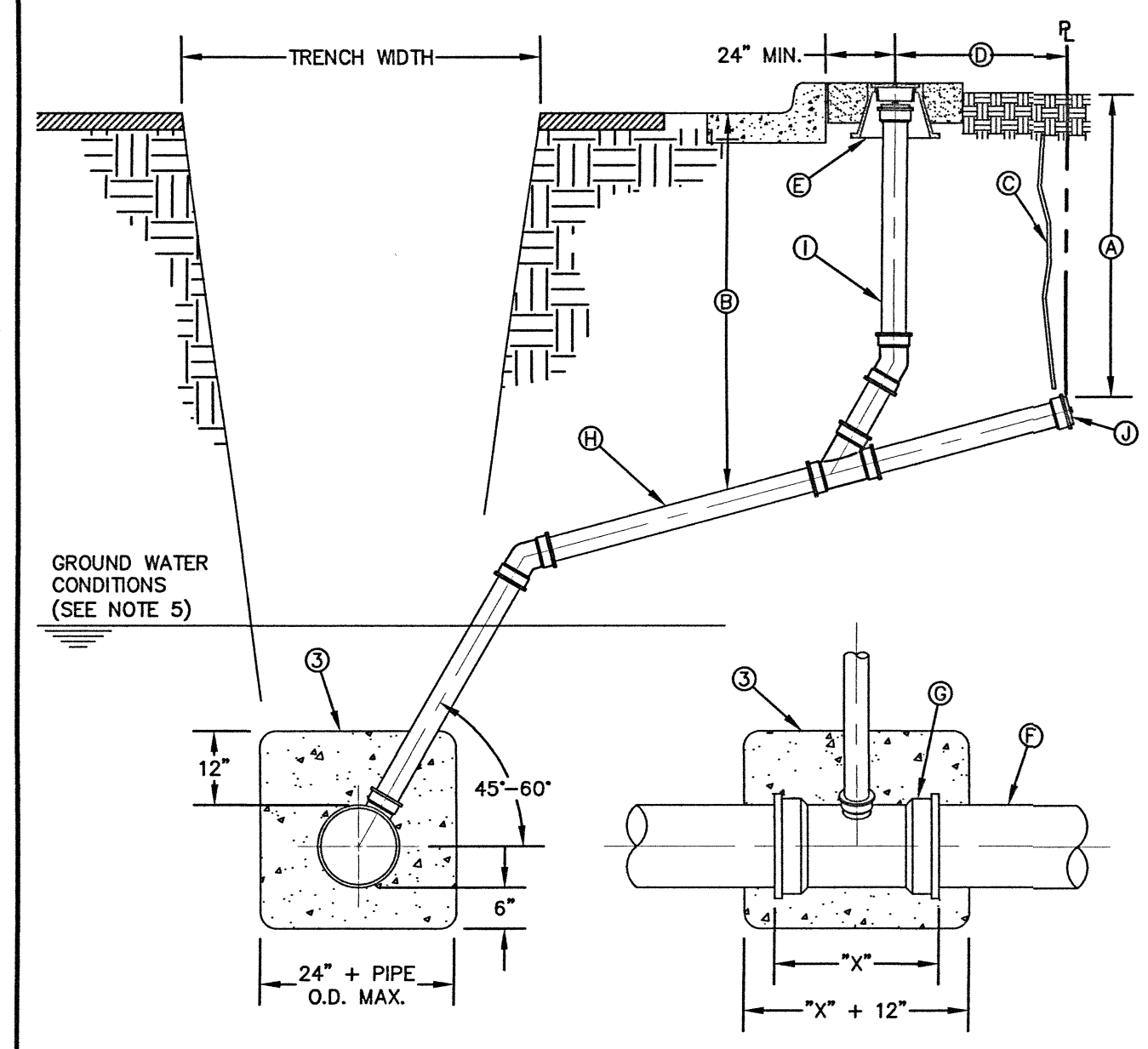


MANHOLE TYPE "A1"

DETAIL No. 370-2

- GENERAL NOTES:**
1. MANHOLE TYPE "A1" SHALL BE USED FOR LINES 21" AND SMALLER. NOT TO BE USED IN GROUNDWATER CONDITIONS.
  2. PRE-CAST MANHOLE SECTIONS SHALL BE OF REINFORCED CONCRETE CONFORMING TO ASTM C-478 AND SHALL MEET HS-20 LOADING.
  3. CEMENT SHALL BE TYPE I-II, PER ASTM C-150, AND MUST CONTAIN A MINIMUM OF 4% FLY ASH OF THE TOTAL MANHOLE WEIGHT.
  4. THE BASE SHALL BE CAST IN PLACE CONCRETE (MINIMUM 28 DAY COMPRESSIVE STRENGTH 4000 PSI) POURED ON UNDISTURBED OR THOROUGHLY COMPACTED SUB-BASE.
  5. MANUFACTURER TO PROVIDE LIFTERS OF ADEQUATE SIZE AS NEEDED.
  6. THE SUBGRADE UNDER THE BASE SHALL BE COMPACTED TO 95% DENSITY IN ACCORDANCE WITH ASTM D-1557.

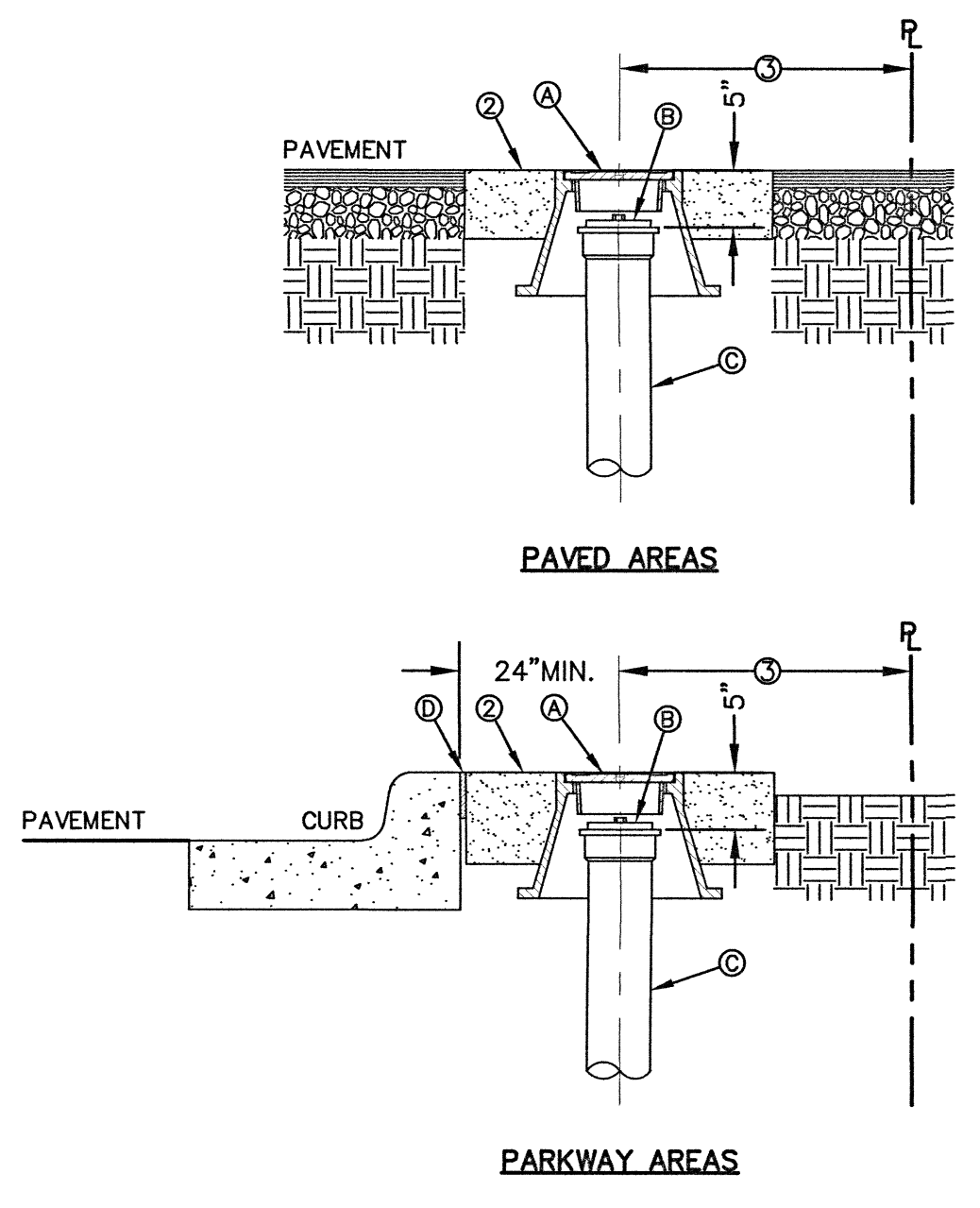
- CONSTRUCTION KEY NOTES:**
- A. MANHOLE RING AND COVER (SEE DETAILS 377 & 378). SET FRAME AND COVER FLUSH WITH ROADWAY SURFACE OR FINISHED GRADE (SEE DETAIL 185).
  - B. ALL JOINTS TO BE TONGUE, GROOVE AND SEALED WITH RAM-NEK OR APPROVED EQUAL.
  - C. ON MAINLINE, PIPE IS TO BE LAID THRU AND UPPER HALF CUT OUT.
  - D. PIPE GASKET.
  - E. No. 4 REBARS 8" ON CENTER, BOTH WAYS.
  - F. SEAL ALL AROUND WITH RAM-NEK OR APPROVED EQUAL.



SEWER SERVICE RISER AND SERVICE LINE CONNECTION

- GENERAL NOTES:**
1. CLEANOUT TO BE USED AT LATERALS.
  2. SPOOL LENGTHS AND DEPTHS WILL VARY UNLESS SPECIFIED.
  3. IN GROUNDWATER CONDITIONS ONLY, P.V.C. SADDLES OR TEES ARE TO BE ENCASED WITH CLASS B CONCRETE.
  4. UNDER CERTAIN CONDITIONS FIELD INVESTIGATIONS WILL BE REQUIRED TO DETERMINE THE ADEQUACY OF THE DEPTH ON THE LATERAL.
  5. WHEN GROUND WATER IS ENCOUNTERED SERVICE RISER SHALL BE EXTENDED ABOVE ANTICIPATED WATER TABLE LEVEL.
  6. USE CAUTION WHILE COMPACTING AROUND RISER.
  7. A MINIMUM DEPTH OF 3" OF COVER TO SUBGRADE IS NECESSARY, OTHERWISE CONCRETE ENCASEMENT IS REQUIRED.

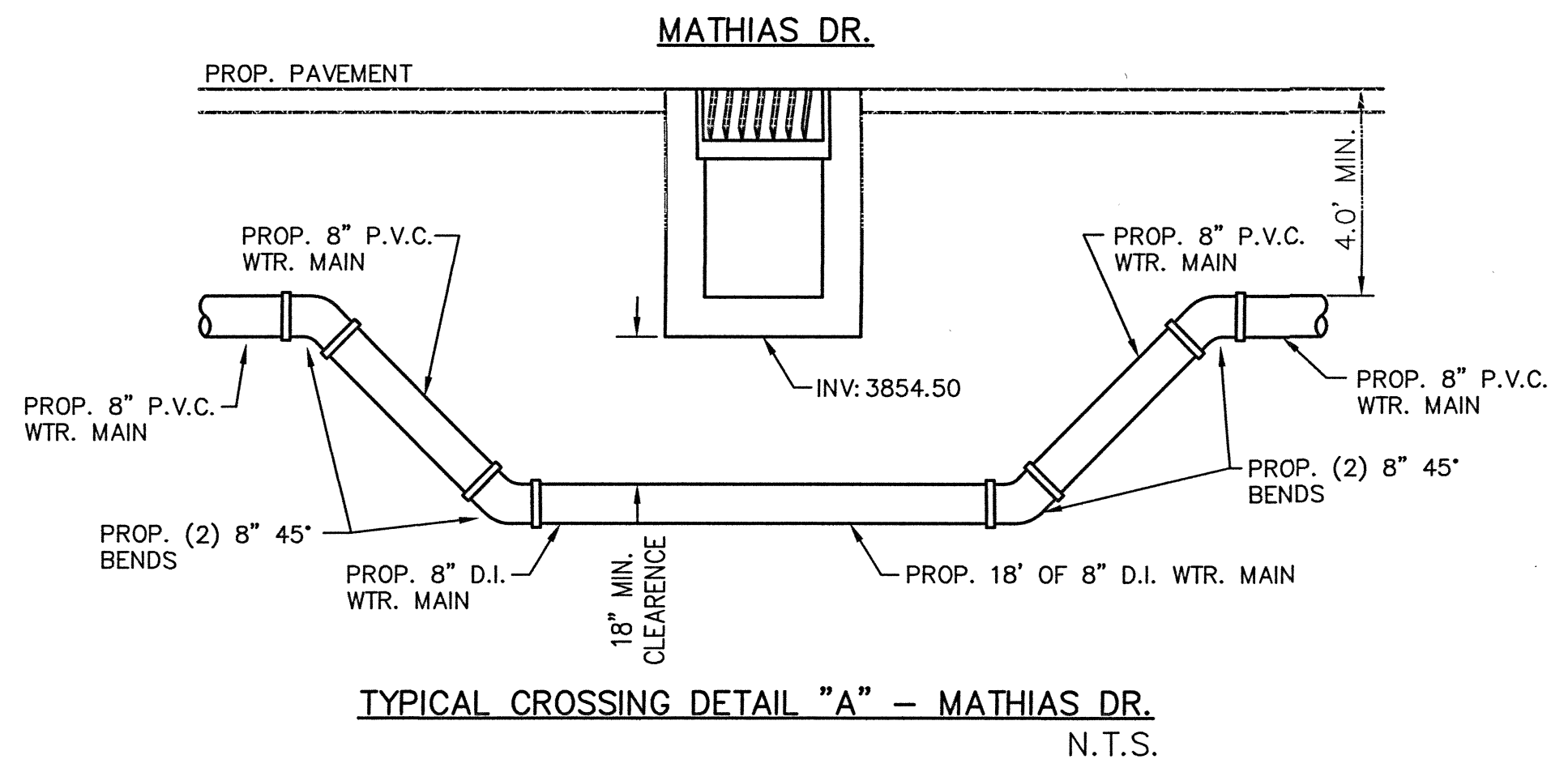
- CONSTRUCTION KEY NOTES:**
- A. 18" DEPTH FOR STANDARD SUBDIVISION, 3.5' FOR SUBDIVISIONS WITH ON-SITE PONDING OR FLAT TERRAIN.
  - B. RISERS OR LATERALS EXTENDING BEYOND EXISTING PAVING SHALL BE INSTALLED TO 3.5' MINIMUM TOP OF GROUND OR PAVEMENT, UNLESS CONDITIONS REQUIRE OTHERWISE.
  - C. PLASTIC METALLIC MARKING TAPE (OR METALLIC DISC) RISING TO WITHIN 6" OF GROUND SURFACE.
  - D. CLEANOUT SHALL NOT GO BEYOND (ENCROACH) PROPERTY/EASEMENT LINE.
  - E. SEE DETAIL 392 FOR SEWER LATERAL CLEANOUT FRAME AND COVER INSTALLATION.
  - F. P.V.C. PIPE SEWER MAIN.
  - G. TEE INSTALLED IN SEWER MAIN.
  - H. PROPOSED P.V.C. SDR 35 (4" MIN. DIA.) SERVICE LINE (LATERAL) CONNECTION @ 2% MINIMUM SLOPE.
  - I. 4" P.V.C. SDR 35 PIPE FOR SEWER CLEANOUT.
  - J. WATERTIGHT PLUG SEALED WITH GASKET OR RAM-NEK.



SEWER LATERAL CLEANOUT FRAME AND COVER INSTALLATION

- GENERAL NOTES:**
1. CLEANOUT TO BE USED AT LATERALS. SEE DET 391 FOR SEWER LATERAL CLEANOUT LOCATION.
  2. BONNET BOX, COVER AND CONCRETE COLLAR TO BE INSTALLED AS PER GATE VALVE INSTALLATION (SEE DETAIL 260).
  3. CLEANOUT SHALL NOT GO BEYOND (ENCROACH) PROPERTY/EASEMENT LINE.

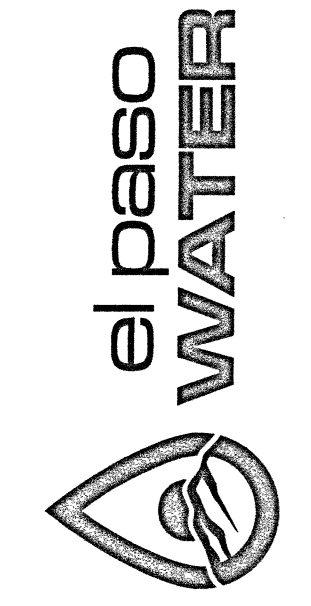
- CONSTRUCTION KEY NOTES:**
- A. BONNET BOX AND COVER (SEE DETAILS 268 & 269-2).
  - B. 4" CLEANOUT CAP.
  - C. 4" P.V.C. SDR 35 PIPE.
  - D. EXPANSION JOINT WHEN ADJACENT TO CONCRETE SUCH AS CURBS AND SIDEWALKS.



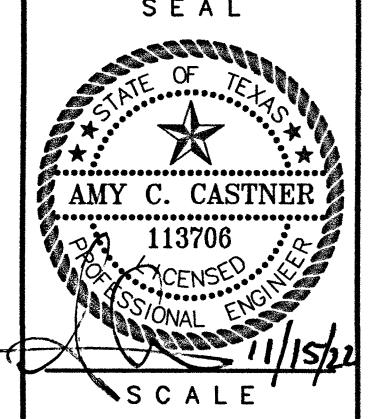
TYPICAL CROSSING DETAIL "A" - MATHIAS DR. N.T.S.

Nov 14, 2022 - 4:15pm avigil H:\22-5009, 22-9006\GRISCOM & MATHIAS\22-5009, 22-9006\Griscom & Mathias.dwg

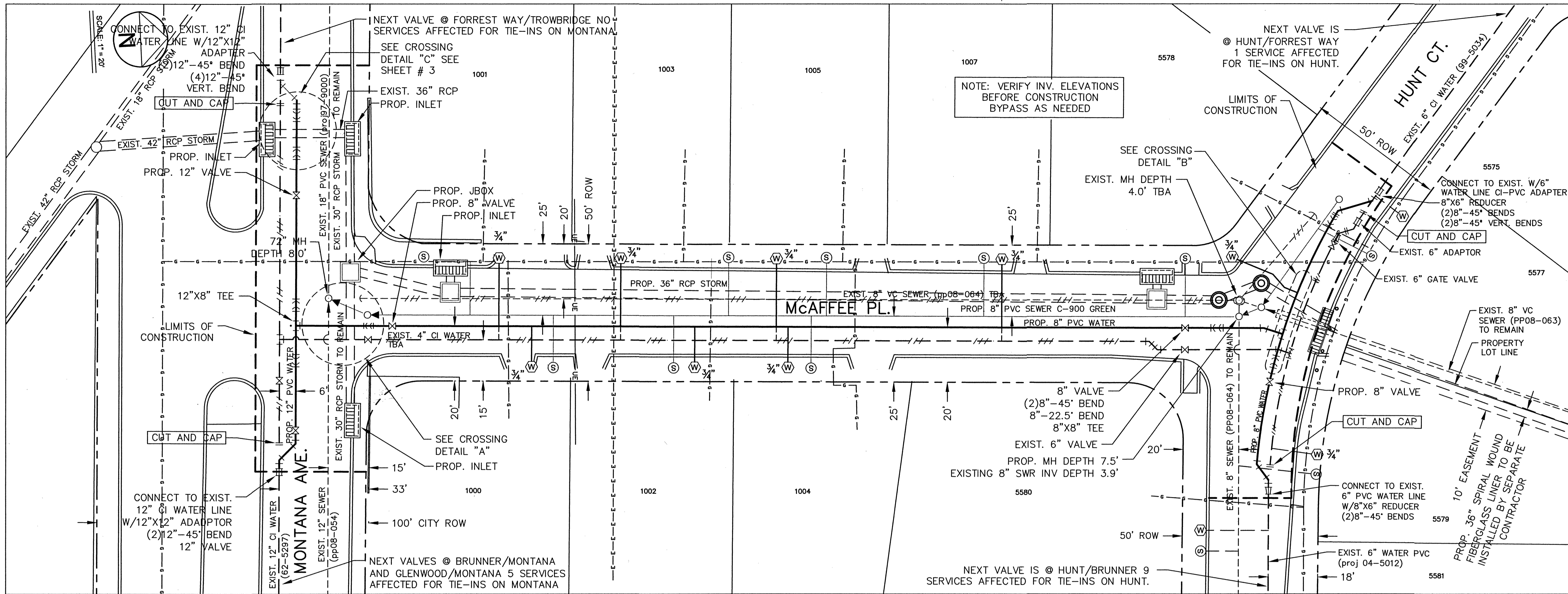
REVISIONS	DATE	REVISION BY



GRISCOM LN. TO MATHIAS DR. STORM SEWER, SANITARY SEWER & WATER MAIN IMPROVEMENTS



SCALE  
NOT TO SCALE  
DESIGNED BY  
A.S.  
CHECKED BY  
A.C.  
DRAWN BY  
AHV  
DATE  
11/14/2022  
JOB NO.  
22-5009/22-9006  
SHT 2 OF 2



**PROJECT OVERVIEW AND SEQUENCE OF WORK (AT NO ADDITIONAL COST TO THE OWNER):**

1. CONTRACTOR SHALL COORDINATE WATER AND SANITARY SEWER SYSTEMS CONSTRUCTION AND SEQUENCE OF WORK WITH GRISSOM LAKE AND Mc AFEE PLACE STORM SEWER, SANITARY SEWER AND WATER MAIN IMPROVEMENTS.
2. THE CONTRACTOR MAY NEED TO WORK DURING OFF-HOURS, NIGHTS AND/OR WEEKENDS TO INSTALL THE WATER AND SANITARY SEWER MAINS AND TO EXTEND SERVICES ACROSS THE STREET TO ASSURE ADEQUATE CONSTRUCTABILITY AND OPERATION OF THIS SYSTEM.

**GENERAL NOTES:**

3. CONTACT UTILITY COMPANIES FOR EXACT LOCATION OF UNDERGROUND UTILITIES IN THIS AREA BEFORE EXCAVATION.
4. CONTRACTOR SHALL PAY CLOSE ATTENTION TO THE UTILITY SHEETS, COORDINATE SEQUENCE OF WORK, AND SHALL COORDINATE FIELD LOCATIONS OF ALL UTILITIES WITH THE APPROPRIATE UTILITY COMPANIES IN ORDER TO MINIMIZE CONFLICTS DURING WATER AND SANITARY SEWER CONSTRUCTION AND TO PREVENT DAMAGE TO ANY UTILITIES.
5. WHEN EXISTING PAVEMENT AND BASE ARE TO BE CUT & RESTORED, CONTRACTOR SHALL PLACE 12-INCHES OF CEMENT STABILIZED BACKFILL (2-SACK) AND 2-INCHES OF ASPHALT. TYPE OF REPLACEMENT MATERIALS MUST BE APPROVED BY ENGINEER.
6. CONTRACTOR IS RESPONSIBLE FOR ACQUIRING AND PAYING ALL PERMITS ASSOCIATED WITH WATER AND SANITARY SEWER CONSTRUCTION.
7. ALL EXISTING FACILITIES CURRENTLY IN SERVICE MUST REMAIN IN SERVICE THROUGHOUT CONSTRUCTION. CONTRACTOR IS RESPONSIBLE FOR PROTECTING EXISTING WATER AND SANITARY SEWER LINES (INCLUDING SERVICES) FROM DAMAGE AS A RESULT OF CONSTRUCTION ACTIVITIES.
8. RECONNECTION OF EXISTING FACILITIES SHOWN ON THIS PLAN MUST BE MADE SUCH THAT MINIMAL INTERRUPTION OF WATER AND SANITARY SEWER TO CUSTOMER IS MADE.
9. CONTRACTOR SHALL PROVIDE TEMPORARY SERVICE TO CUSTOMERS IF SERVICE WILL BE INTERRUPTED FOR MORE THAN 4 HOURS IN A 24-HOUR PERIOD AND SHALL ISSUE A 48-HOUR ADVANCE NOTICE TO THE CUSTOMERS WHOSE SERVICES WILL BE INTERRUPTED.
10. USE CAUTION WHEN DIGGING IN THE AREA OF EXISTING ELECTRIC & GAS MAINS.
11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO PRIVATE PROPERTY CAUSED BY THE CONSTRUCTION PROJECT. THE CONTRACTOR UPON RECEIPT OF A COMPLAINT OF DAMAGE, SHALL WITHIN 10 DAYS, RESPOND IN WRITING WITH A PROPOSAL TO REPAIR SAID DAMAGE.
12. EMERGENCY RESPONSE NOTE: THE CONTRACTOR SHALL IMMEDIATELY CALL AND NOTIFY THE EL PASO WATER UTILITIES DISPATCHER AT 594-5775 OR 594-5778 WHEN A WATER OR SANITARY SEWER MAIN IS BROKEN DURING CONSTRUCTION EXCAVATION AND THE EXTEND OF THE BREAK FOR IMPLEMENTATION OF UTILITIES EMERGENCY RESPONSE ACTION PLAN. THE CONTRACTOR SHALL ALSO IMMEDIATELY NOTIFY THE EL PASO WATER FIELD INSPECTOR AND PROJECT ENGINEER ASSIGNED TO THE PROJECT.

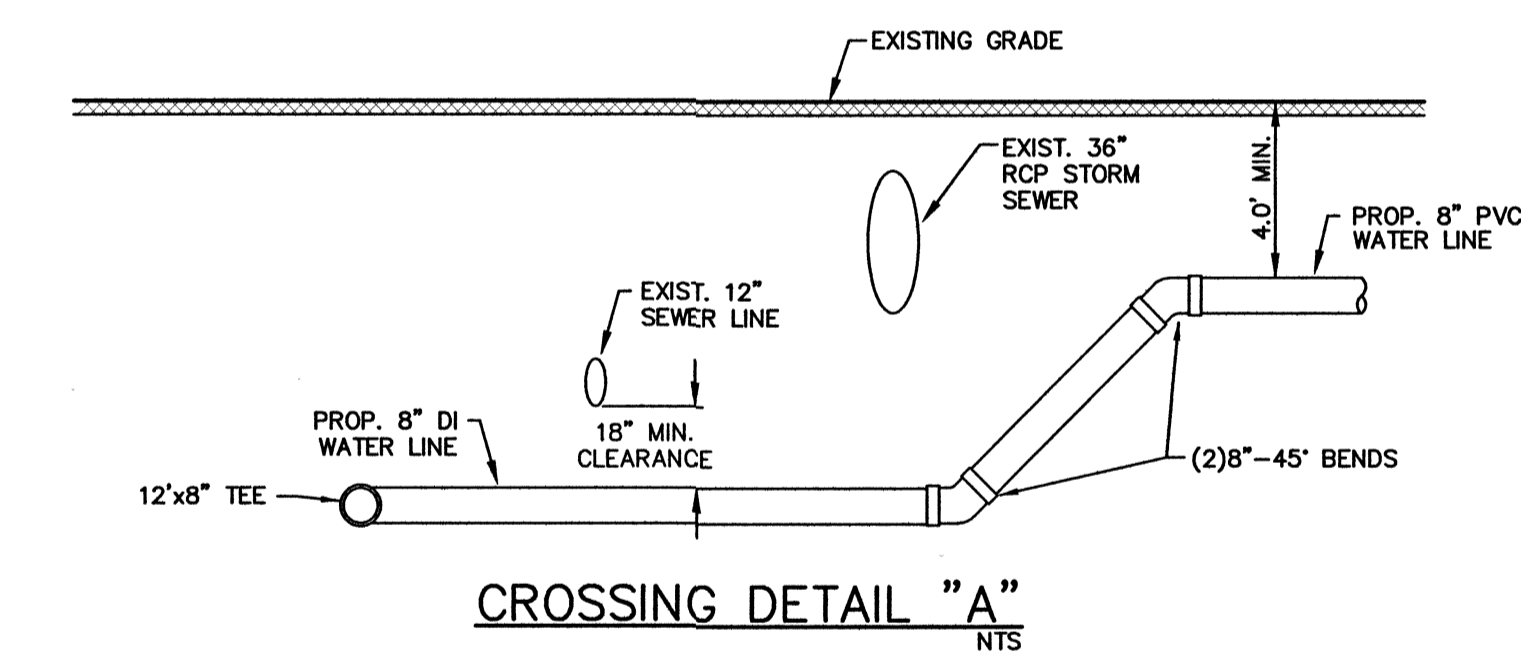
**SEWER NOTES:**

13. THE CONTRACTOR SHALL VERIFY THE ACTUAL LOCATION, INVERT ELEVATION AND DEPTH OF ALL EXISTING MANHOLES AND SEWER LINE AT LEAST (14) DAYS AHEAD OF PIPE LAYING TO ALLOW A REASONABLE AMOUNT OF TIME FOR THE ENGINEER TO INITIATE ANY NECESSARY CHANGES IN ALIGNMENT OR GRADE OF THE PROPOSED PIPELINE.
14. PROVIDE MANHOLE ADAPTER WHERE PVC/DI PIPE CONNECTS TO MANHOLE.
15. ALL PVC/DI PIPE ON THIS PLAN SHALL BE ENCASED WITH SELECT BEDDING MATERIAL.
16. LOCATIONS OF EXISTING SANITARY SEWER SERVICES AT THE EXISTING MAINS WERE OBTAINED BY TELEVISIONING THE SANITARY SEWER MAINS, WHERE POSSIBLE. HOWEVER, THE SERVICE LOCATION AND DEPTH AT THE EXISTING OR NEW RIGHTS-OF-WAY ARE NOT AVAILABLE. CONTRACTOR SHALL VERIFY EXACT LOCATION OF SERVICES, AT AND WITH RESPECT TO THE NEW RIGHT-OF-WAY, PRIOR TO CONSTRUCTION.
17. CONTRACTOR TO FIELD VERIFY/POT HOLE EXISTING SERVICES PRIOR TO INSTALLATION OF NEW SERVICES AND MAKE PROPER CONNECTION AS PER DETAIL "B", IF NEEDED.
18. CONTRACTOR TO RECONNECT ALL EXISTING SEWER SERVICES TO NEW MAIN AND ADJUST LOCATION AND ELEVATION OF SERVICE AS NEEDED TO MAKE PROPER CONNECTION. SANITARY SEWER SERVICE INSTALLATION SHALL BE AS PER CITY'S PLUMBING CODES.
19. CONTRACTOR SHALL SET NEW TOP OF MANHOLE RIMS TO MATCH TEMPORARY TRAFFIC LANES AND FINISHED STREET GRADES.
20. ALL NEW SANITARY SEWER LINES ARE TO BE COMPLETED, ACCEPTED FOR USE AND OPERATIONAL BEFORE THE EXISTING SANITARY SEWER LINES AND MANHOLES ARE ABANDONED.
21. EXISTING SEWER LINES TO BE ABANDONED IN PLACE WILL BE CHECKED FOR FLOW BY INSERTING A PLUG IN THE DOWNSTREAM MANHOLE AND CHECKING DAILY FOR ACCUMULATION OF SEWAGE FOR A PERIOD OF ONE WEEK.
22. SEWER LINES TO BE ABANDONED IN PLACE SHALL BE COMPLETELY DEWATERED BEFORE THEY ARE PLUGGED. THE LINES TO BE ABANDONED IN PLACE SHALL BE CUT AND PLUGGED AT ALL OPENINGS.
23. AFTER IT HAS BEEN DETERMINED THAT THE LINE TO THE MANHOLE IS DEAD, THE ABANDONMENT OF THE MANHOLE WILL PROCEED.
24. ABANDONMENT OF EXISTING MANHOLES WILL CONSIST OF CUTTING AND PLUGGING AT THE OUTSIDE OF THE MANHOLE ALL CONNECTING MAINS; REMOVAL OF CONE SECTION OR SUFFICIENT AMOUNT TO BE BELOW SUBGRADE; AND FILL WITH CEMENT STABILIZED BACKFILL (2 SACKS OF CEMENT PER CUBIC YARD OF SOIL) TO BOTTOM OF PROPOSED SUBGRADE. WHERE INDICATED ON THE PLANS, IN CONFLICT WITH PROPOSED LINES, OR DIRECTED BY THE ENGINEER, MANHOLE IS TO BE REMOVED AT NO ADDITIONAL COST TO THE OWNER. CSB UTILIZED FOR ABANDONMENT OF MANHOLES WILL NOT BE MEASURED SEPARATELY FOR PAYMENT, BUT SHALL BE CONSIDERED SUBSIDIARY TO THIS ITEM.
25. BY-PASSING TO MAINTAIN SEWER MAINS AND SERVICES SHALL BE PROVIDED BY THE CONTRACTOR. ALL REQUIRED PLUGGING AND BYPASSING SHALL BE CONSIDERED SUBSIDIARY TO THE PARTICULAR SEWER WORK BEING DONE. AN EXISTING SEWER SYSTEM MAP OF THE PROJECT AREA CAN BE OBTAINED FROM EL PASO WATER UTILITIES AND IS AVAILABLE FOR REVIEW AT THEIR OFFICE, 1154 HAWKINS BLVD., EL PASO TX. 79925, DURING REGULAR BUSINESS HOURS.
26. CONTRACTOR SHALL COORDINATE INSTALLATION OF NEW MANHOLES WITH FINISHED ROAD ELEVATIONS AND SHALL ADJUST NEW MANHOLES TO TEMPORARY AND FINISHED GRADES AS REQUIRED FOR CONSTRUCTION. PER SPECIFICATION, ALL ADJUSTMENT COSTS FOR NEW MANHOLES SHALL BE CONSIDERED SUBSIDIARY TO THE MANHOLE UNIT.
27. CONTRACTOR TO INSTALL TEMPORARY SIPHON ON EXIST. SEWER MAINS AT CROSSINGS WITH PROP. SEWER MAIN IF NECESSARY TO RESOLVE ELEVATION CONFLICTS BETWEEN BOTH MAINS. NO ADDITIONAL COMPENSATION WILL BE PROVIDED FOR THIS WORK.
28. CONTRACTOR TO CONFIRM INVERT ELEVATIONS OF ALL PROP. MANHOLES CONNECTING TO EXISTING SANITARY SEWER MAINS PRIOR TO INSTALLATION.
29. INSTALLATION OF PROP. SANITARY SEWER MAINS, MANHOLES AND SERVICE RECONNECTION SHALL ALSO INCLUDE REMOVAL OF EXISTING SEWER FACILITIES SCHEDULED FOR ABANDONMENT, INCLUDING BUT NOT LIMITED TO MANHOLES, MAINS AND SERVICES AS NECESSARY FOR PROPER INSTALLATION OF PROP. SANITARY SEWER IMPROVEMENTS.
30. CITY PERMIT REQUIRED BEFORE EXCAVATION.
31. NEW MANHOLE WILL REQUIRE THAT THE FLOWS IN THE EXISTING LINES NOT BE INTERRUPTED OR BACKED UP AT ANY TIME. THE CONTRACTOR WILL BE RESPONSIBLE FOR THE MAINTENANCE OF FLOW IN THE SYSTEM AT ALL TIMES DURING THE CONSTRUCTION.
32. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO ASSURE NO DIRT, STORM WATER OR DEBRIS ENTERS THE SEWER SYSTEM.
33. MANHOLE EXCAVATIONS SHALL BE BACKFILLED WITH FLOWABLE FILL AS SOON AS POSSIBLE AFTER THE WORK HAS BEEN COMPLETED. CONTRACTOR SHALL MAKE PROVISIONS TO PREVENT FLOATING OR MOVEMENT OF MANHOLES AND PIPING UNDER BACKFILL.
34. CONTRACTOR MAY, AT HIS OPTION, INSTALL PLUGS AND TEMPORARY BYPASS PIPING TO FACILITATE THE INSTALLATION OF MANHOLE ABANDONMENT. NO ADDITIONAL COMPENSATION SHALL BE PAID TO THE CONTRACTOR FOR THE USE OF BY PASSES.
35. BENCHMARK: "X" MARK ON CURB LOCATED ON S.W. CORNER OF INTERSECTION MCAFFEE PL. AND HUNT CT. N:10667059.90 E: 405591.68 ELEV. 3838.50

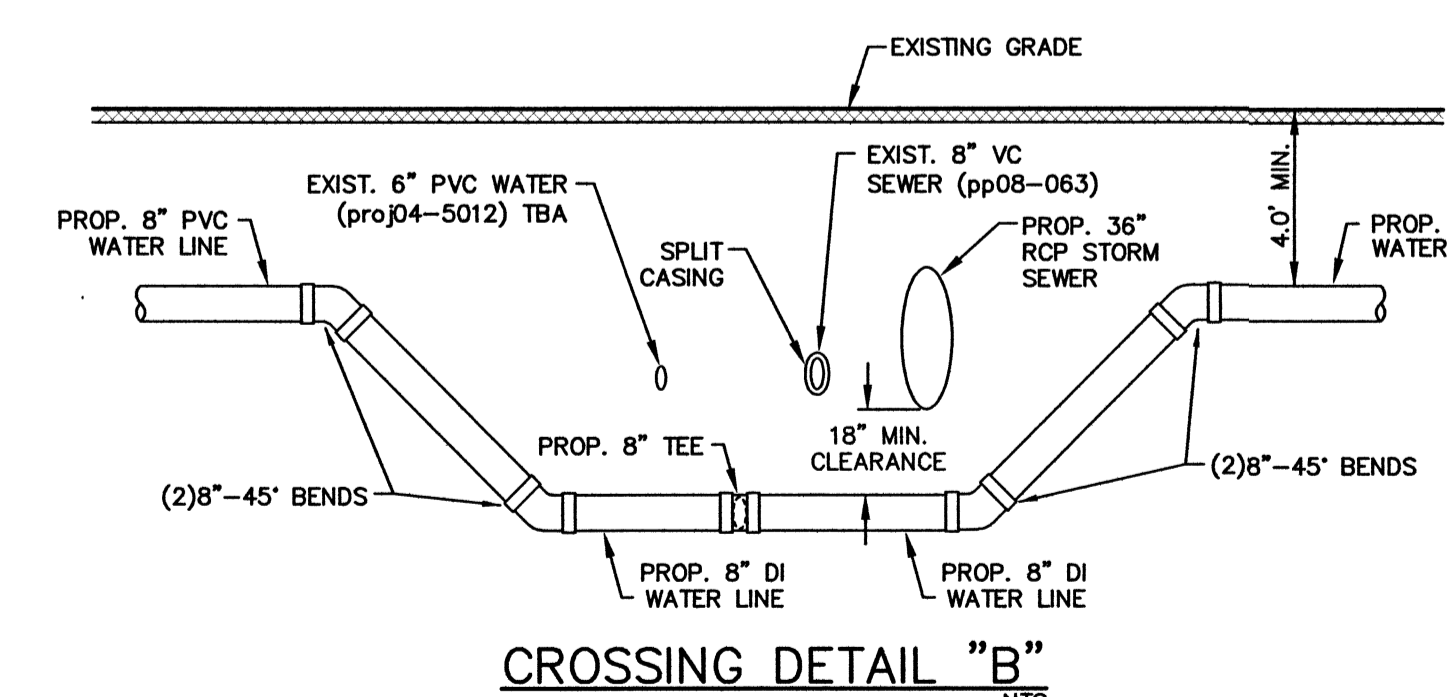
**WATER NOTES:**

36. CONTRACTOR IS RESPONSIBLE FOR ANY COORDINATION WITH EPWATER OFFICIALS WHEN REQUESTING WATER SYSTEM SHUT-OFFS FOR WATER MAIN TIE-INS TO BE PERFORMED WITHIN A 4 HOUR LIMIT AND ENSURE THAT A PROPER WATER SHUT-OFF PLAN IS DEVELOPED WHICH SHALL INCLUDE AND PROVIDE THE FOLLOWING: SCHEDULING MEETING 72 HOURS PRIOR TO SHUT-OFF DATE TO DISCUSS PROPOSED WATER SHUT-OFF PLAN, APPROVED AND INSTALLED TRAFFIC CONTROL PLAN, MATERIALS TO BE ON SITE, TIE-IN LOCATIONS TO BE POT-HOLED OR EXPOSED BEFORE PERFORMING THE TIE-IN TO VERIFY SIZE & TYPE OF EXISTING PIPE, AND PROVIDE 48-HOUR ADVANCE NOTICE WITH 3 GALLONS OF WATER PER EACH SERVICE BEING IMPACT BY THE SHUT-OFF.
37. INSTALL A TRENCH SAFETY SYSTEM TO PROVIDE FOR THE SAFE EXCAVATION OF ALL TRENCHES EXCEEDING A DEPTH OF 5- FEET AS PER O.S.H.A. STANDARDS.
38. PROVIDE ADEQUATE CONCRETE THRUST BLOCKING AND MECHANICAL RESTRAINT DEVICES AS NECESSARY AT THE FOLLOWING: TAPPING SLEEVES, TEES, BENDS, PLUGS AND ALL FITTINGS.
39. ALL VALVES ON PVC WATER MAINS SHALL BE ANCHORED IN CONCRETE, AS PER DETAILS AND SPECIFICATIONS.
40. ALL PVC/DI PIPE ON THIS PLAN SHALL BE ENCASED WITH SELECT BEDDING MATERIAL.
41. CITY PAVING CUT PERMIT REQUIRED BEFORE EXCAVATING WITHIN CITY STREETS.
42. INSTALL NEW WATER LINE WITH MIN. OF 4 FEET OF COVER UNDER PROP. FINISHED GRADE.
43. WATER LINES DESIGNATED TO BE ABANDONED IN PLACE SHALL BE COMPLETELY DEWATERED BEFORE THEY ARE PLUGGED. LINES TO BE ABANDONED SHALL BE CUT AND PLUGGED AT ALL OPENINGS. REMOVAL AND DISPOSAL OF ANY PIPE MATERIAL SCHEDULED TO BE ABANDONED WILL BE THE CONTRACTOR'S RESPONSIBILITY AND AT HIS EXPENSE.
44. LOCATION OF EXISTING WATER SERVICES IS APPROXIMATE. CONTRACTOR SHALL VERIFY EXACT LOCATION OF SERVICES, AT AND WITH RESPECT TO THE NEW RIGHT-OF-WAY, PRIOR TO CONSTRUCTION.
45. CONTRACTOR SHALL REPLACE AND RECONNECT ALL WATER SERVICES (UNLESS OTHERWISE INDICATED ON THE PLANS) AS PER RECONNECTION DETAILS, INCLUDING BUT NOT LIMITED TO METER BOXES.
46. EXACT LOCATION OF FIRE HYDRANTS TO BE DETERMINED IN THE FIELD.
47. CONTRACTOR SHALL REMOVE ANY MATERIALS SCHEDULED TO BE SALVAGED OR DEEMED SALVAGEABLE BY THE ENGINEER AND DELIVER TO THE OWNER.
48. CONTRACTOR RESPONSIBLE FOR ABANDONMENT OF ALL VALVES CONNECTED TO WATER LINES SCHEDULED FOR ABANDONMENT. THIS CONSISTS OF REMOVAL OF BONNET BOX OR SUFFICIENT AMOUNT TO BE BELOW SUBGRADE AND FILL WITH CEMENT STABILIZED BACKFILL (2 SACKS OF CEMENT PER CUBIC YARD OF SOIL) TO BOTTOM OF PROPOSED SUBGRADE. WHERE IN CONFLICT WITH PROPOSED LINES OR INDICATED BY THE ENGINEER, VALVE IS TO BE REMOVED. ABANDONMENT OF VALVES, INCLUDING CSB UTILIZED FOR THEIR ABANDONMENT, WILL NOT BE MEASURED SEPARATELY FOR PAYMENT BUT SHALL BE CONSIDERED SUBSIDIARY TO THE VARIOUS WATER SYSTEM BID PAY ITEMS.
49. CUTTING, REMOVAL AND RECONNECTION OF EXISTING WATER MAINS AND /OR SERVICES SHALL BE SUBSIDIARY TO THE WATER SYSTEM CONSTRUCTION.
50. BYPASS OF EXISTING WATER MAINS AND/OR SERVICES TO ASSIST IN CONSTRUCTION ACTIVITIES SHALL BE SUBSIDIARY TO THE WATER SYSTEM CONSTRUCTION.
51. ALL ASBESTOS CEMENT PIPE THAT REQUIRES REMOVAL SHALL BE HANDLED AND DISPOSED IN ACCORDANCE WITH STATE REQUIREMENTS & SPECIFICATIONS.
52. ALL PRESSURIZED PIPE SHALL BE MARKED WITH DUAL INDICATOR LINES AT THE SPIGOT END INDICATING PROPER PENETRATION WHEN THE JOINT IS ASSEMBLED OR BELL PROTECTION SYSTEM AT EACH JOINT FOR OVER INSERTION.

NOTE: VERIFY INV. ELEVATIONS BEFORE CONSTRUCTION BYPASS AS NEEDED



CROSSING DETAIL "A"  
NTS



CROSSING DETAIL "B"  
NTS

**LEGEND**

- W — EXIST. 3/4" WATER SERVICE TO BE RECONNECTED
- S — EXIST. SEWER SERVICE TO BE RECONNECTED
- W — EXIST. 3/4" WATER SERVICE TO REMAIN
- W — EXIST. SEWER SERVICE TO REMAIN
- — — — — PROPOSED WATER MAIN
- — — — — EXISTING WATER MAIN TBA IN PLACE
- — — — — EXISTING WATER MAIN TO REMAIN
- — — — — EXISTING SEWER MAIN TBA IN PLACE
- — — — — EXISTING SEWER MAIN TO REMAIN
- — — — — GAS LINE
- — — — — ELECTRIC LINE

PROPOSED MANHOLE W/FLOW DIRECTION

EXISTING MANHOLE W/FLOW DIRECTION

STREET NAME	TOTAL LENGTH, SIZE & TYPE OF PIPE
MCAFFEE PL.	360' OF 8" P.V.C. DR14 CLASS 305 (WATER)
HUNT CT.	72' OF 8" P.V.C. DR14 CLASS 305 (WATER)
HUNT CT.	32' OF 8" D.I. (WATER)
MCAFFEE PL.	40' OF 8" D.I. (WATER)
MONTANA AVE.	140' OF 12" P.V.C. DR14 CLASS 305 (WATER)
MONTANA AVE.	18' OF 12" D.I. (WATER)

el paso WATER

FROM MONTANA AVE. TO HUNT CT. WATER IMPROVEMENTS

SCALE  
HOR. 1" = 20'  
VERT. 1" = 20'

DESIGNED BY  
A.S.

CHECKED BY  
A.C.

DRAWN BY  
RE

DATE  
11/10/2020

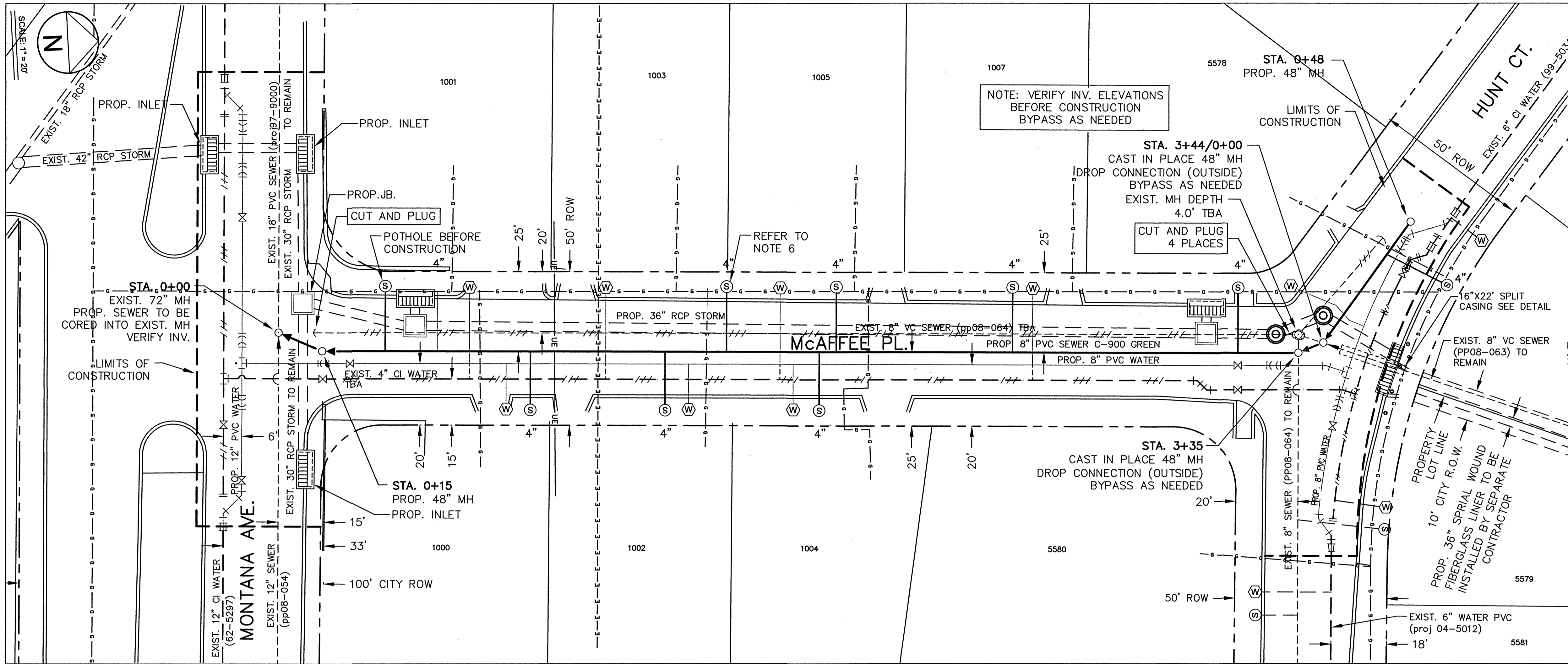
JOB NO.  
21-5033/21-9029

SHT 1 OF 4

SEAL  
AMY C. CASTNER  
11/14/20

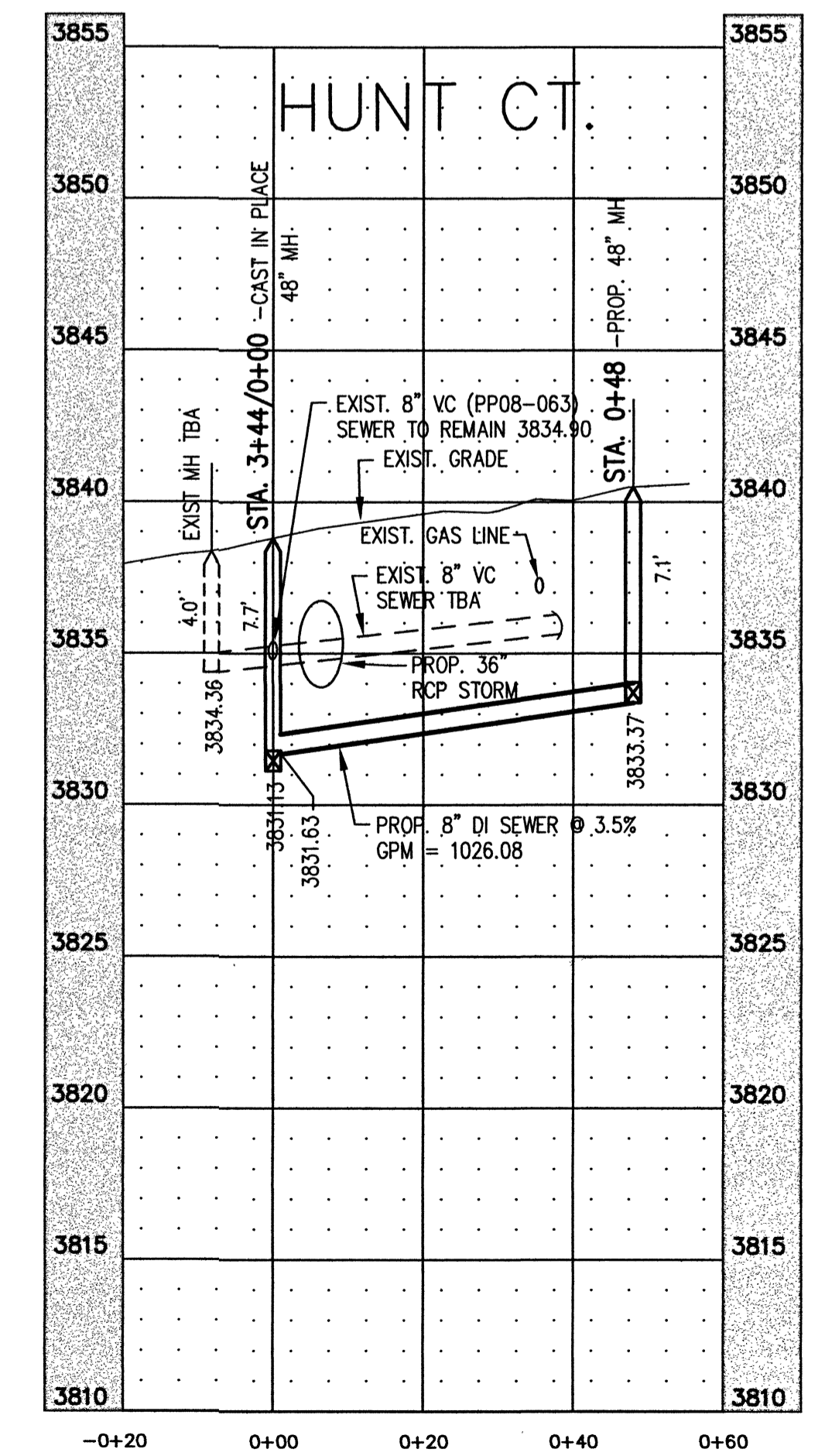
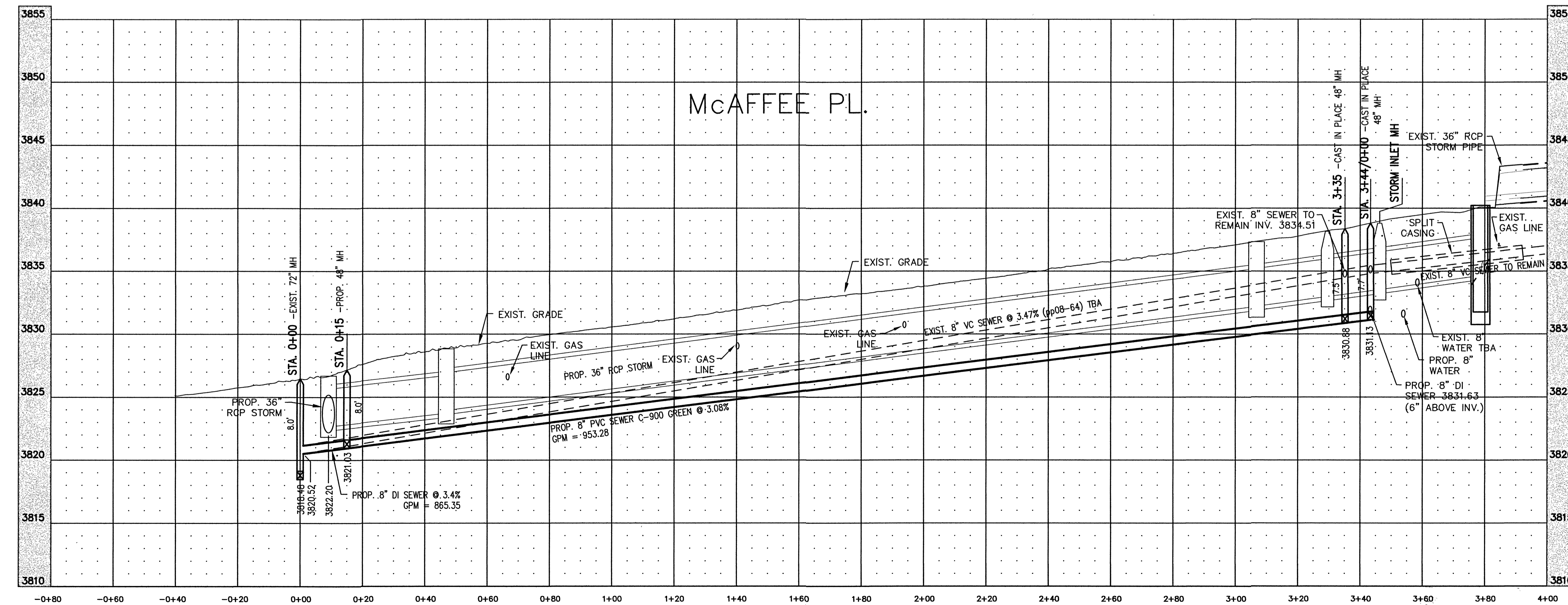
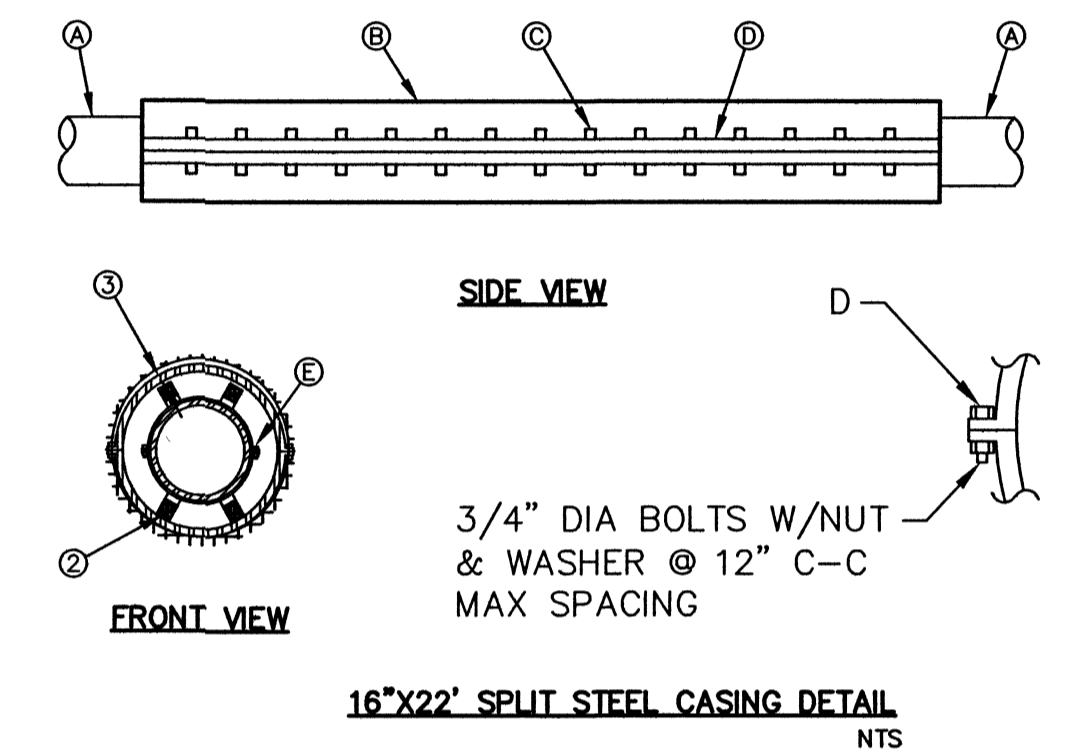
Nov 09, 2022 - 9:32am  
H:\MCAFFEE GGG\MCAFFEE.GGG





- NOTES:**
- 1.) POT-HOLE SEWER SERVICES BEFORE CONSTRUCTION.
  - 2.) VERIFY INV. ELEVATIONS BEFORE CONSTRUCTION.
  - 3.) PROVIDE BYPASS SYSTEM TO MAINTAIN EXISTING SANITARY SEWER MAINS ACTIVE AT ALL TIMES.
  - 4.) EXISTING WATER AND SEWER MAINS SHALL BE PROTECTED DURING CONSTRUCTION.
  - 5.) SEWER SERVICE RECONNECTION SHALL BE PERFORMED PER DETAIL B. SEE SHEET 4 OF 4.
  - 6.) FOR SANITARY SEWER SERVICES REPLACE SIDEWALK AS NEEDED, AND TO BE COVERED UNDER BASE BID !!! ITEM 9.

- GENERAL NOTES:**
1. SPLIT CASING SHALL BE IN ACCORDANCE WITH ASTM A-36, ASTM A-570, ASTM A-135, ASTM A-139 OR EQUAL, CARBON STEEL PIPE WALL THICKNESS OF 0.375".
  2. CASING INSULATORS, SPACING, AND LOCATION PER MANUFACTURERS RECOMMENDATIONS. INSULATORS SHALL FIT SNUG OVER THE CARRIER PIPE.
  3. POSITION CARRIER PIPE APPROXIMATELY IN CENTER OF CASING. MINIMUM SPACING BETWEEN INSULATOR AND CASING SHALL BE 1". MAXIMUM SPACING SHALL BE 2".
- CONSTRUCTION KEY NOTES:**
- A. CARRIER PIPE, CONTRACTOR TO PROVIDE METHODOLOGY FOR INSTALLATION. METHODOLOGY TO BE REVIEWED AND SUBJECT TO APPROVAL BY EPWU. NO MORE THAN 2 JOINTS OF PIPE SHALL BE EXPOSED AT ANY TIME.
  - B. 16" SPLIT CASING.
  - C. 3/4" ASTM A-325 BOLTS @ 12" SPACED C-C MAX SPACING.
  - D. 2x2" ANGLE BARS WELDED BOTH SIDES.
  - E. ANNULAR SPACE BETWEEN PIPE AND CASING SHALL BE LEFT OPEN.

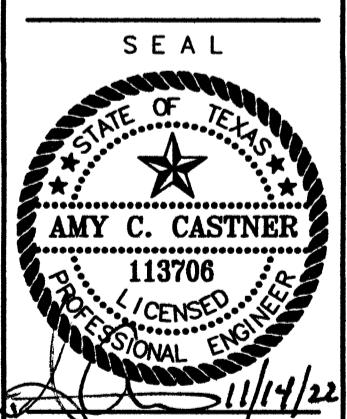


Nov 09, 2022 - 9:32am msrodriguez  
H:\MCAFFEE GGG\MCAFFEE GGG.dwg

REVISIONS	DATE	REVISIONS BY



MCAFFEE PL. TO HUNT CT.  
FROM MONTANA AVE. TO HUNT CT.  
SEWER IMPROVEMENTS



SCALE  
HOR. 1" = 20'  
VERT. 1" = 20'

DESIGNED BY  
A.S.

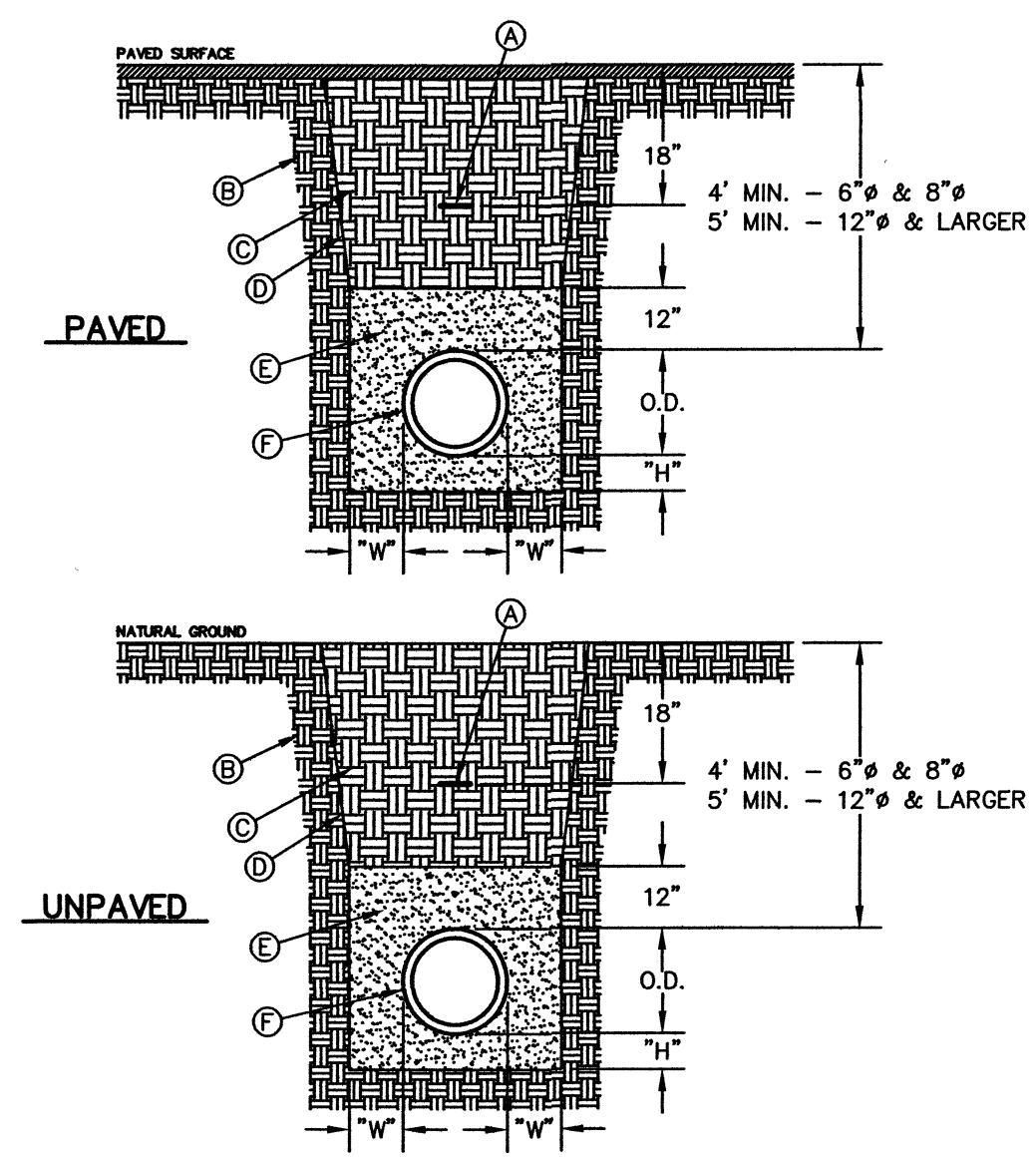
CHECKED BY  
A.C.

DRAWN BY  
RE

DATE  
11/10/2020

JOB NO.  
21-5033/21-9029

SHT 2 OF 4

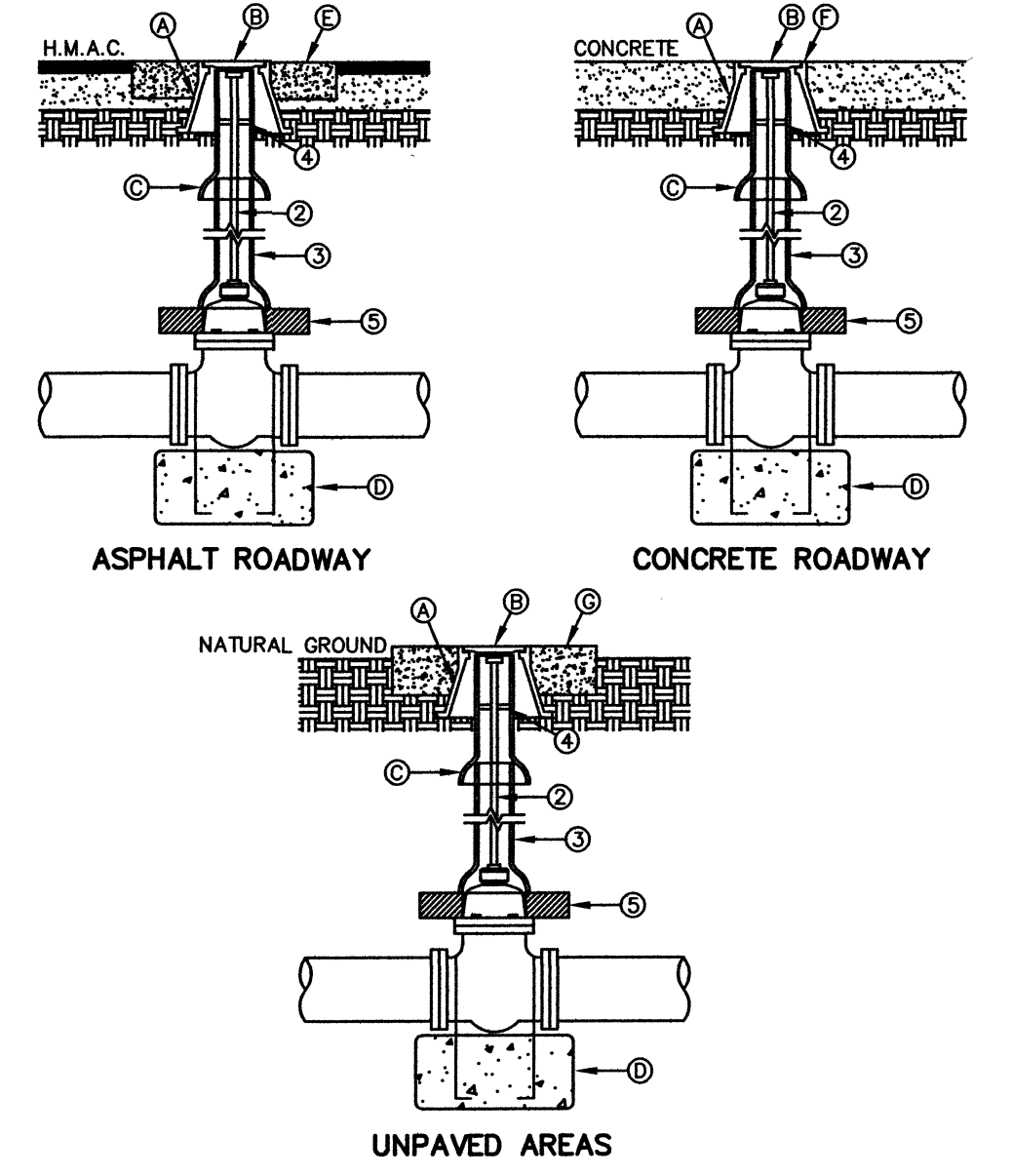


**GENERAL NOTES:**  
 1. BEDDING FOR PRESSURE AND GRAVITY PIPE IN DRY CONDITIONS.  
 2. PROVIDE TRENCH SAFETY SYSTEM FOR TRENCH DEPTHS GREATER THAN 5 FEET.  
 3. IF THE NATIVE MATERIAL EXCAVATED FROM THE TRENCH IS UNSUITABLE AS BACKFILL MATERIAL, OR THE REQUIRED COMPACTION IS UNATTAINABLE, THE CONTRACTOR SHALL, AT HIS EXPENSE, IMPORT SELECT MATERIAL TO BE MIXED WITH OR USED IN PLACE OF THE NATIVE MATERIAL. SELECT MATERIAL MUST BE APPROVED BY EPWU. SUBSTITUTE SOIL CEMENT SLURRY (1-SACK) IF REQUIRED IN SPECS.

**CONSTRUCTION KEY NOTES:**  
 A. APPROVED MARKING TAPE.  
 B. UNDISTURBED STABLE MATERIAL.  
 C. NATIVE MATERIAL BACKFILL.  
 PAVED CONDITION: COMPACT TO 90% DENSITY PER ASTM D-1557 MODIFIED PROCTOR.  
 UNPAVED CONDITION: COMPACT TO 85% DENSITY PER ASTM D-1557 MODIFIED PROCTOR.  
 (\*SEE NOTE #3 IF THESE PREVIOUS CONDITIONS CANNOT BE MET.)  
 D. SLOPE TRENCH IN SANDY SOIL CONDITIONS.  
 E. USE CLASS II OR CLASS III SAND PER ASTM D-2487. NATIVE MATERIAL OR IMPORTED SELECT MATERIAL MEETING OR EXCEEDING THIS REQUIREMENT MAY BE USED. COMPACT TO 85% DENSITY PER ASTM D-1557 MODIFIED PROCTOR (OR 90% D-698 STANDARD PROCTOR).  
 F. APPROVED PIPE.  
 G. TRENCH DIMENSIONS AS FOLLOWS:

PIPE DIAMETER	6" - 30"	3/4"
GREATER THAN 30"		4"
PIPE DIAMETER	6" - 30"	1/2"
GREATER THAN 30"		12"

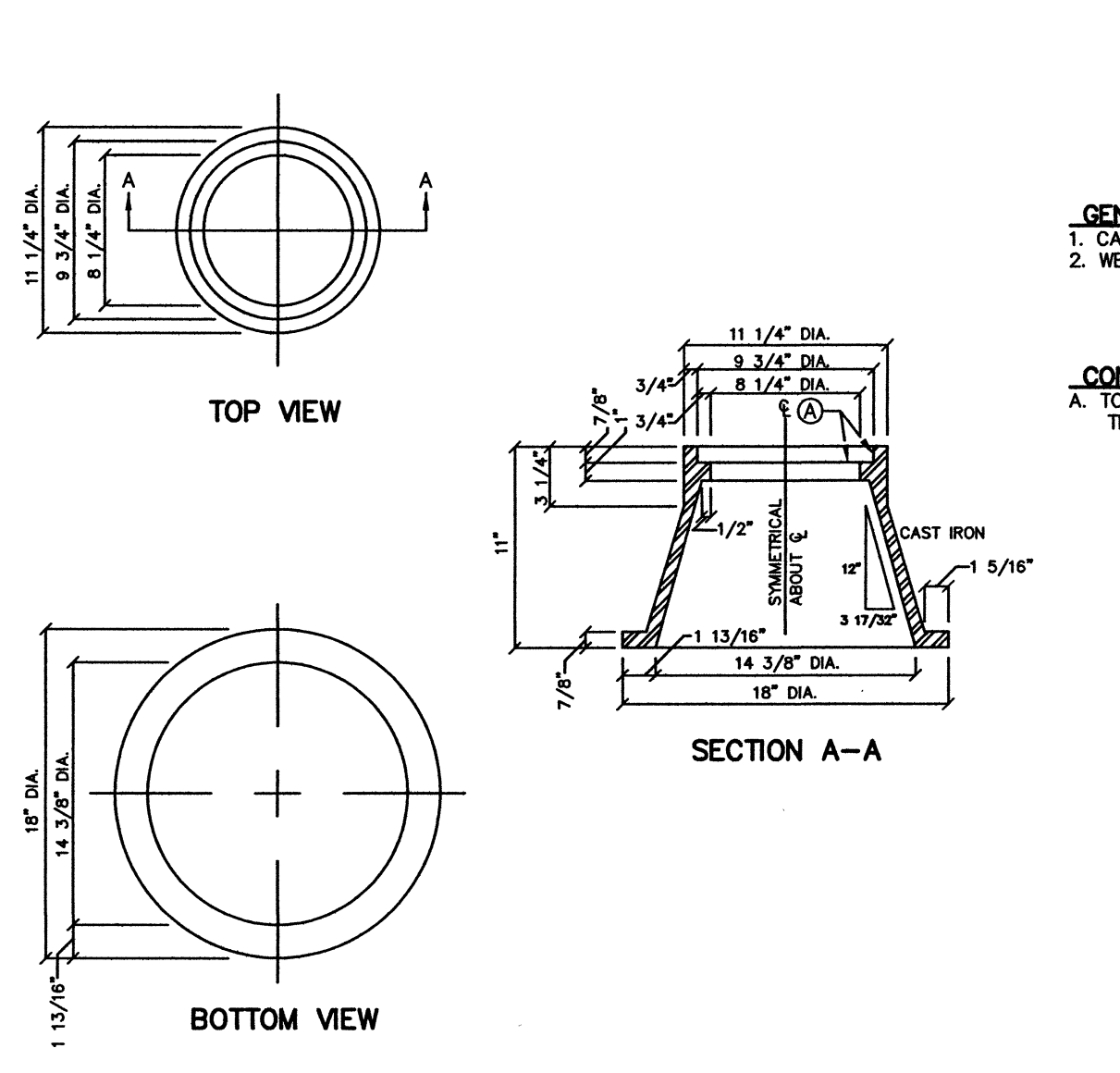
EMBEDMENT CLASS "A" FOR PRESSURE PIPE AND GRAVITY PIPE DRY CONDITIONS  
 DETAIL No. 171



**GENERAL NOTES:**  
 1. VALVE TYPE AND VALVE ENDS SHALL BE AS SHOWN ON THE PLANS.  
 2. ALL BURIED VALVES 5' AND DEEPER SHALL BE PROVIDED WITH SOLID STEEL EXTENSION STEM OPERATOR WITH 2" SQUARE ANNA NUT WITHIN 36" OF VALVE BOX COVER. NUT IS TO INDICATE DIRECTION OF ROTATION TO OPEN VALVE.  
 3. 8" DIA. MINIMUM VITRIFIED CLAY OR SDR 35 P.V.C. PIPE. PIPE SHALL NOT REST ON VALVE BODY.  
 4. 1/2" THICK STEEL TRASH RING VALVE BOX INSIDE DIAMETER MINUS 1/2".  
 5. MINIMUM 2" CONCRETE OR BRICK ALL AROUND.  
 6. CLEAN BONNET BOX OF ALL DEBRIS AND SOIL.  
 7. COAT BURIED PIPE AND BONNET BOX PER SPECIFICATIONS. VALVE SHALL BE WRAPPED IN POLYETHYLENE IN ACCORDANCE WITH SPECIFICATIONS.

**CONSTRUCTION KEY NOTES:**  
 A. BONNET BOX (SEE DETAIL 268).  
 B. BONNET BOX COVER (SEE DETAILS 269-1 & 269-2).  
 C. FINAL EXTENSION TO BONNET BOX SHALL BE WITH BELL AND SPIGOT ENDS (CLAY OR SDR 35 P.V.C. SPOOL).  
 D. CONCRETE VALVE ANCHOR (SEE DETAIL 271).  
 E. CONCRETE COLLAR (SEE DET 184-1) FLUSH WITH TOP OF H.M.A.C.  
 F. BONNET BOX FLUSH WITH TOP OF CONCRETE. CONCRETE COLLAR NOT NEEDED.  
 G. CONCRETE APRON (SEE DETAIL 184-2) FLUSH WITH BONNET BOX AND 2" ABOVE NATURAL GROUND.

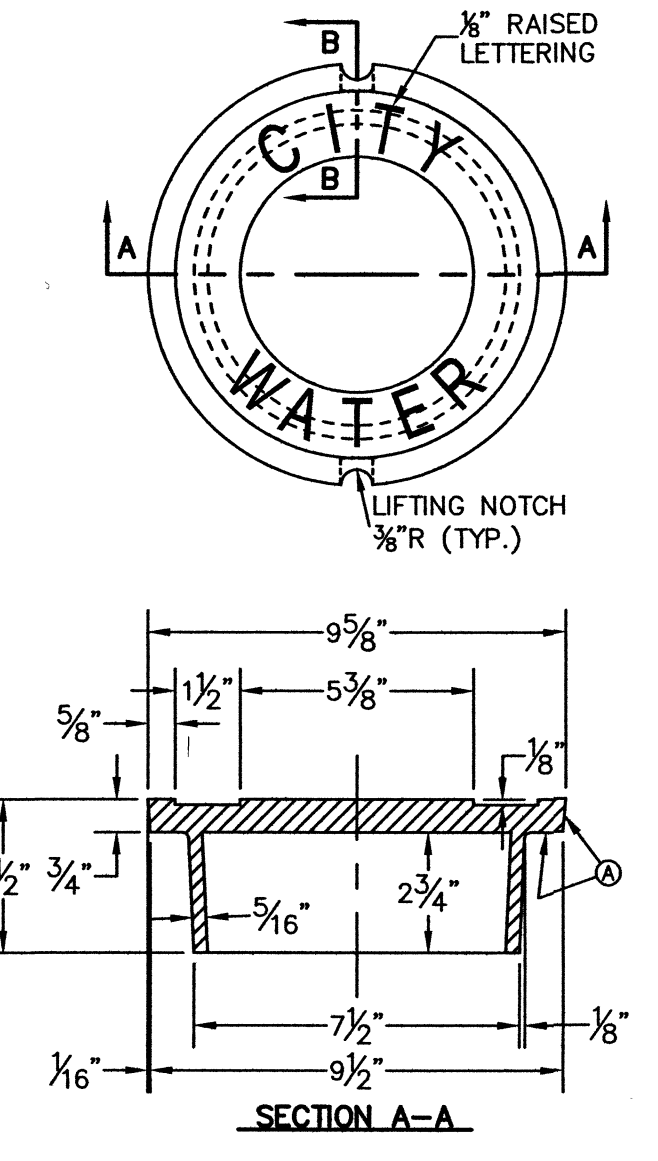
GATE VALVE INSTALLATION  
 DETAIL No. 260



**GENERAL NOTES:**  
 1. CASTING TO BE SMOOTH AND VOID OF AIR HOLES.  
 2. WEIGHT OF BONNET BOX IS 95 POUNDS.

**CONSTRUCTION KEY NOTES:**  
 A. TO BE ROUGH GROUND OF ANY IRREGULARITIES THAT WOULD PREVENT A SNUG FIT.

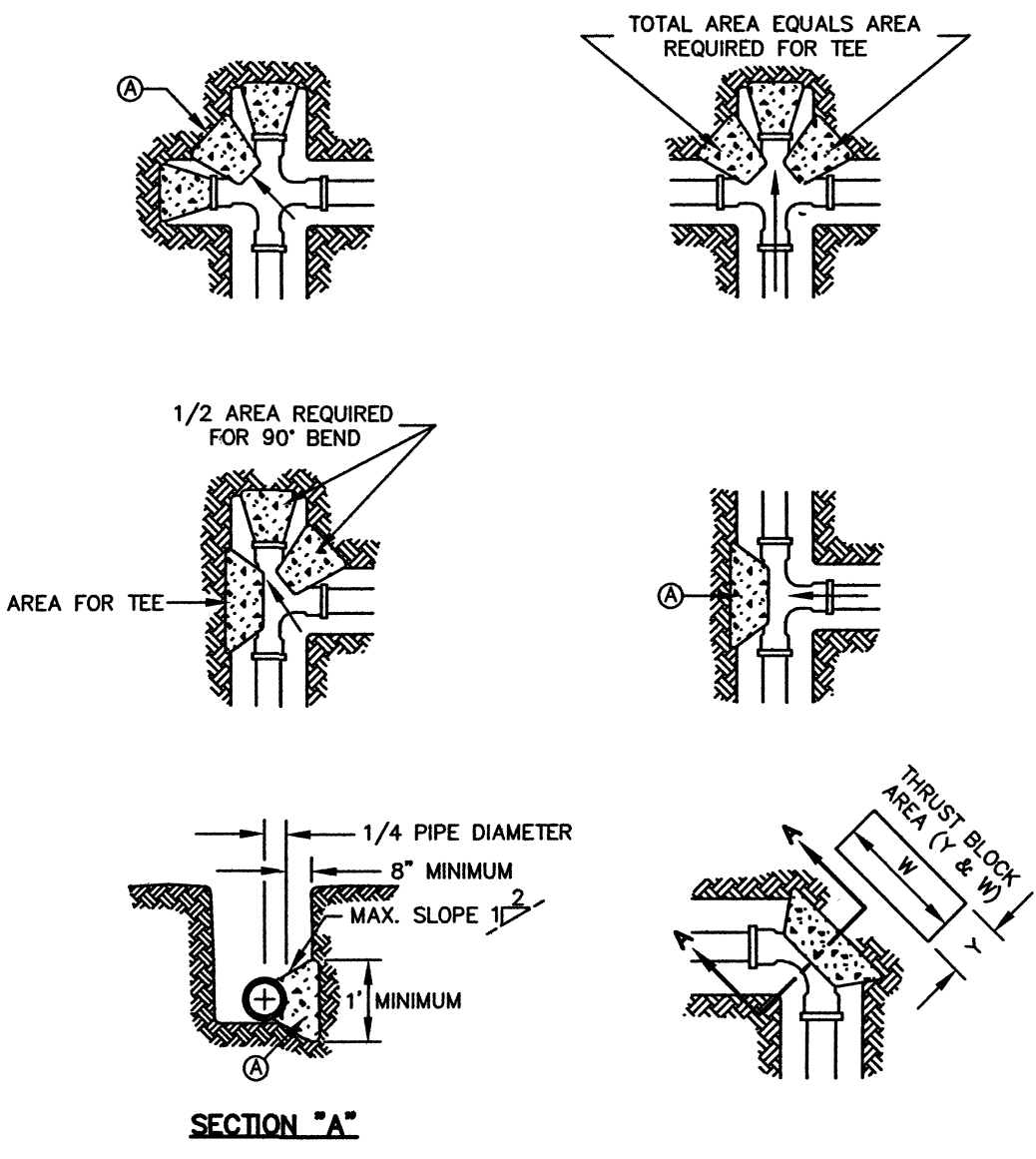
BONNET BOX  
 DETAIL No. 268



**GENERAL NOTES:**  
 1. CASTINGS TO SMOOTH AND VOID OF AIR HOLES.  
 2. WEIGHT OF COVER IS 18 POUNDS.

**CONSTRUCTION KEY NOTES:**  
 A. TO BE ROUGH GROUND OF ANY IRREGULARITIES THAT WOULD PREVENT A SNUG FIT.

BONNET BOX COVER (FLIP RESISTANT)  
 DETAIL No. 269-2

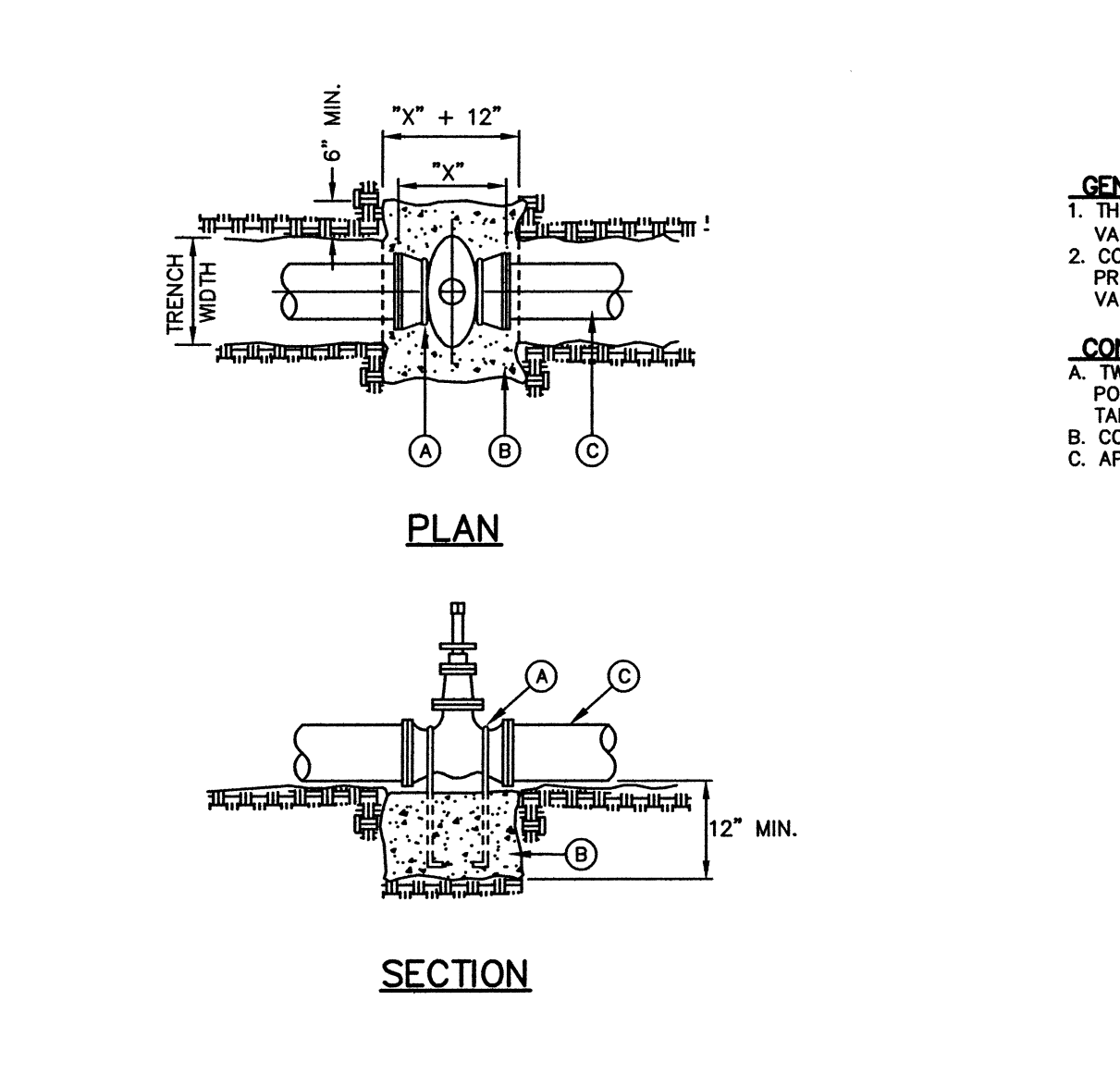


**GENERAL NOTES:**  
 1. TABLE IS BASED ON 2000#/SQ. FT. SOIL. IF CONDITIONS ARE FOUND TO INDICATE SOIL BEARING IS LESS, THE AREAS SHALL BE INCREASED ACCORDINGLY.  
 2. AREAS FOR PIPE LARGER THAN 18" SHALL BE CALCULATED.  
 3. CONCRETE SHALL HAVE A MINIMUM COMPRESSION STRENGTH OF 2500 PSI.  
 4. THRUST BLOCK IS TO EXTEND TO UNDISTURBED SOIL.  
 5. SIZE MAY BE DECREASED FOR LESSER DEGREE BENDS AS DETERMINED BY ENGINEER.  
 6. KEEP CONCRETE CLEAR OF M.J. OR BELL AND SPIGOT JOINTS.  
 7. BLOCK IN A SIMILAR MANNER AT TEES, HYDRANTS, PLUG OR OTHER LOCATIONS AS REQUIRED.  
 8. WHEN NECESSARY ADDITIONAL THRUST RESTRAINT METHODS MAY BE USED, SUCH AS MECHANICAL JOINT RESTRAINTS, TIE-RODS (INSTALLED PER MANUFACTURERS' RECOMMENDATIONS) OR OTHER APPROVED METHODS.

**CONSTRUCTION KEY NOTES:**  
 A. LENGTH "Y" & "W" AS REQUIRED TO OBTAIN BEARING AREA AGAINST UNDISTURBED SOIL.  
 B. ADDITIONAL EXCAVATION IF NECESSARY TO OBTAIN REQUIRED BEARING AREA.  
 C. MINIMUM THRUST BLOCK AREA REQUIREMENTS FOR (Y & W) AS FOLLOWS:

PIPE SIZE	WATER PIPE	
	TEE, DEAD END	45° AND 90° BENDS
4" & LESS	3 SQ. FEET	3 SQ. FEET
6"	4 SQ. FEET	3 SQ. FEET
8"	6 SQ. FEET	3 SQ. FEET
10"	9 SQ. FEET	5 SQ. FEET
12"	13 SQ. FEET	7 SQ. FEET
16"	23 SQ. FEET	12 SQ. FEET
18"	29 SQ. FEET	15 SQ. FEET

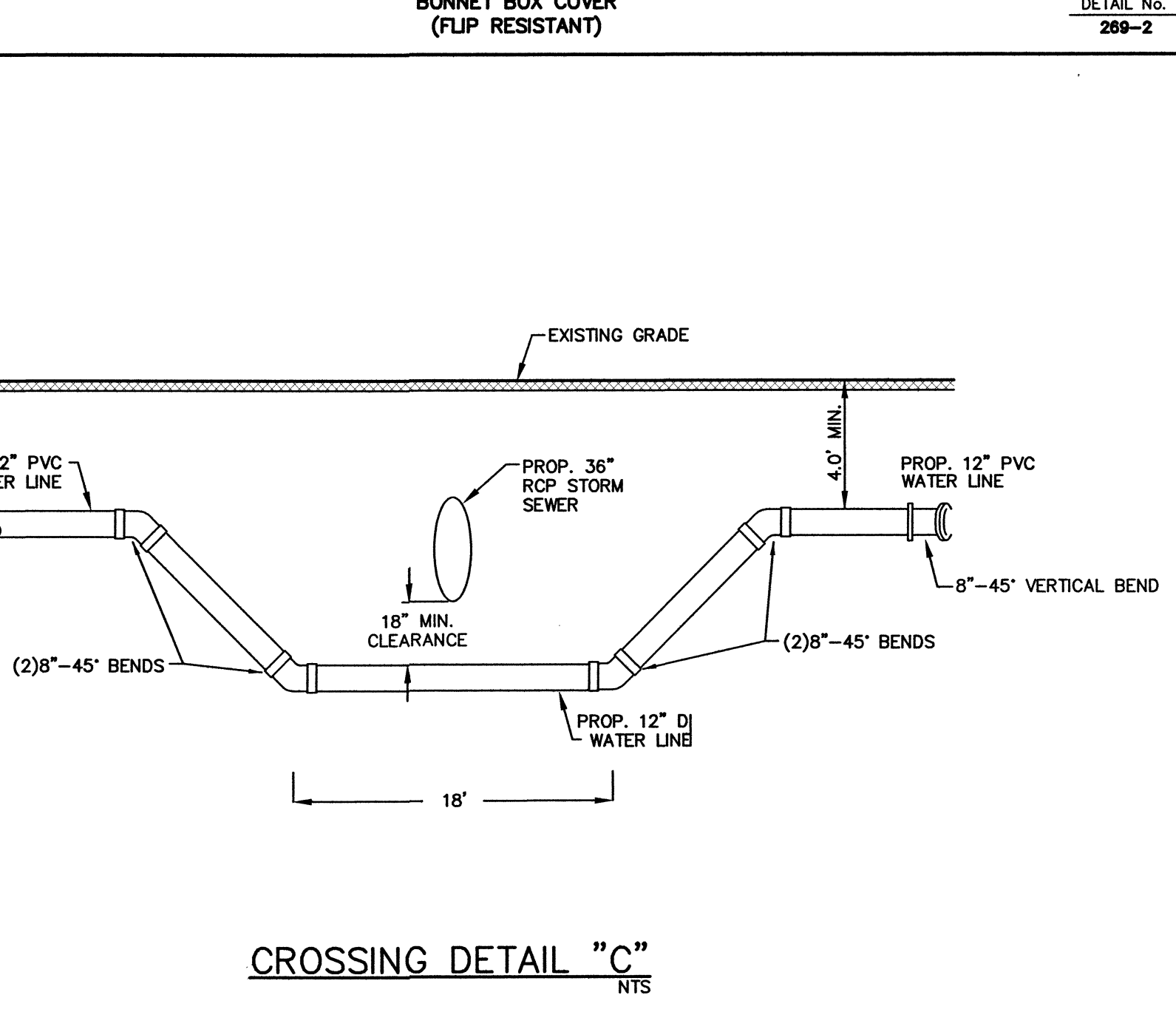
CONCRETE THRUST BLOCKING  
 DETAIL No. 270



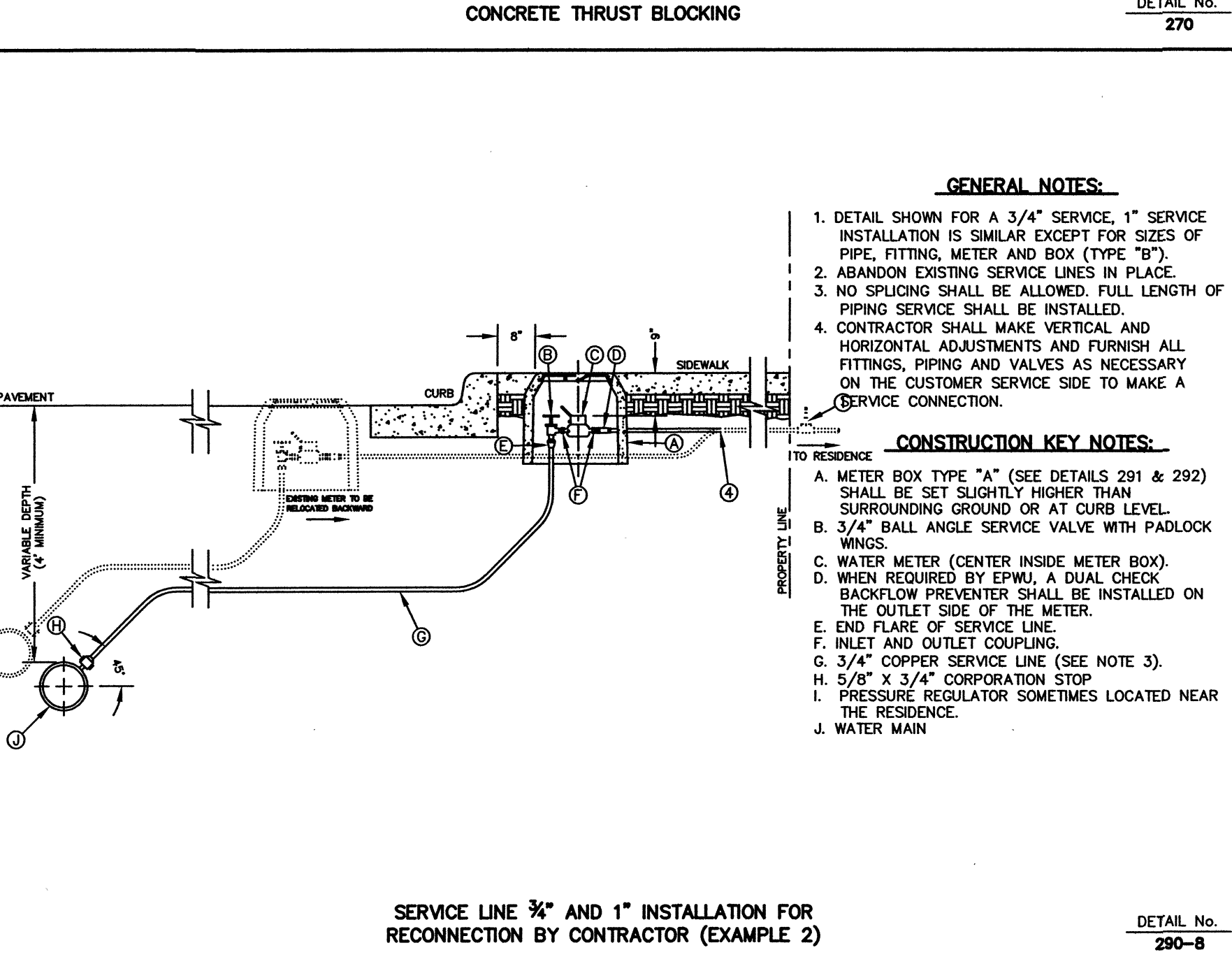
**GENERAL NOTES:**  
 1. THE ENGINEER SHALL PROVIDE DESIGN FOR ALL VALVES GREATER THAN 12".  
 2. COMPLY WITH REQUIREMENTS OF ANMA C-550. PROTECTIVE EPOXY INTERIOR COATINGS FOR VALVES.

**CONSTRUCTION KEY NOTES:**  
 A. TWO No. 5 REBAR HAIR PINS. PAINT UNEMBEDDED PORTION OF REBARS WITH TWO COATS OF COAL TAR EPOXY.  
 B. CONCRETE VALVE SUPPORT, 2500 PSI. CONCRETE.  
 C. APPROVED PIPE.

VALVE ANCHOR  
 DETAIL No. 271



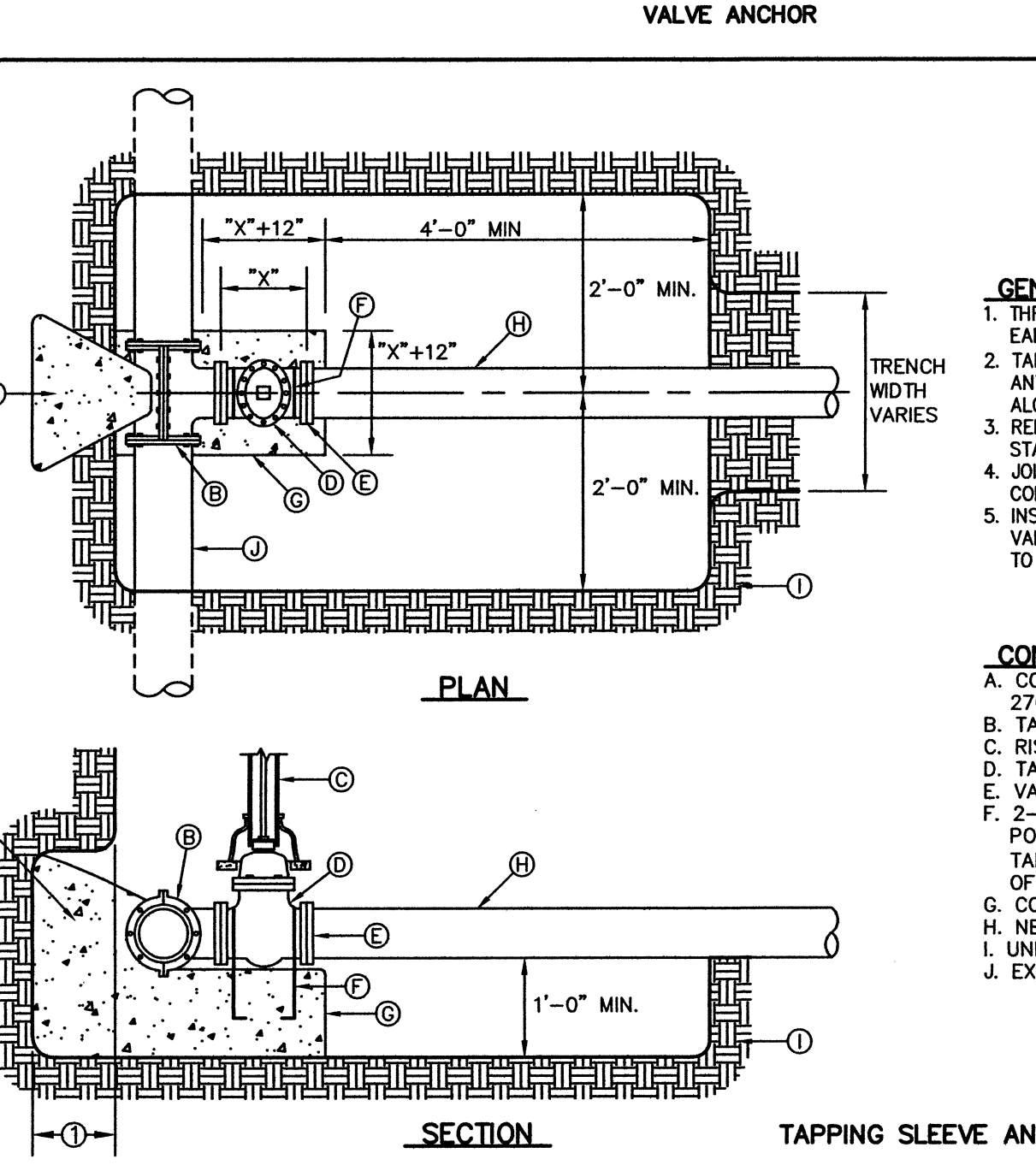
CROSSING DETAIL "C"  
 NTS



**GENERAL NOTES:**  
 1. DETAIL SHOWN FOR A 3/4" SERVICE, 1" SERVICE INSTALLATION IS SIMILAR EXCEPT FOR SIZES OF PIPE, FITTING, METER AND BOX (TYPE "B").  
 2. ABANDON EXISTING SERVICE LINES IN PLACE.  
 3. NO SPLICING SHALL BE ALLOWED. FULL LENGTH OF PIPING SERVICE SHALL BE INSTALLED.  
 4. CONTRACTOR SHALL MAKE VERTICAL AND HORIZONTAL ADJUSTMENTS AND FURNISH ALL FITTINGS, PIPING AND VALVES AS NECESSARY ON THE CUSTOMER SERVICE SIDE TO MAKE A SERVICE CONNECTION.

**CONSTRUCTION KEY NOTES:**  
 A. METER BOX TYPE "A" (SEE DETAILS 291 & 292) SHALL BE SET SLIGHTLY HIGHER THAN SURROUNDING GROUND OR AT CURB LEVEL.  
 B. 3/4" BALL ANGLE SERVICE VALVE WITH PADLOCK WINGS.  
 C. WATER METER (CENTER INSIDE METER BOX).  
 D. WHEN REQUIRED BY EPWU, A DUAL CHECK BACKFLOW PREVENTER SHALL BE INSTALLED ON THE OUTLET SIDE OF THE METER.  
 E. END FLARE OF SERVICE LINE.  
 F. INLET AND OUTLET COUPLING.  
 G. 3/4" COPPER SERVICE LINE (SEE NOTE 3).  
 H. 5/8" X 3/4" CORPORATION STOP.  
 I. PRESSURE REGULATOR LOCATED NEAR THE RESIDENCE.  
 J. WATER MAIN.

SERVICE LINE 3/4" AND 1" INSTALLATION FOR RECONNECTION BY CONTRACTOR (EXAMPLE 2)  
 DETAIL No. 290-8



**GENERAL NOTES:**  
 1. THRUST BLOCKING SHALL EXTEND TO UNDISTURBED EARTH.  
 2. TAPPING SLEEVE SHALL BE 18" MINIMUM FROM ANY BELL, COUPLING, VALVE OR FITTING LOCATED ALONG EXISTING WATER LINE TO BE TAPPED.  
 3. REPLACE EXCAVATED MATERIAL WITH CEMENT STABILIZED BACKFILL PRIOR TO PAVING.  
 4. JOINTS AND BOLTS SHALL BE CLEAR OF CONCRETE.  
 5. INSTALL PERMANENT THRUST BLOCKING UNDER VALVE BEFORE TAP IS MADE. JOINTS AND BOLTS TO BE CLEAR OF CONCRETE.

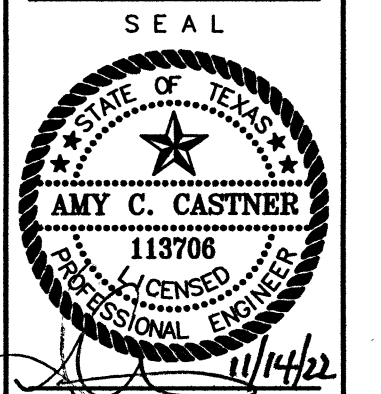
**CONSTRUCTION KEY NOTES:**  
 A. CONCRETE THRUST BLOCKING, PER DETAIL 270.  
 B. TAPPING SLEEVE.  
 C. RISER INSTALLATION, PER DETAIL 260.  
 D. TAPPING VALVE.  
 E. VALVE ENDS FOR TYPE OF PIPE INSTALLED.  
 F. 2-#5 REBAR HAIRPINS, PAINT UNEMBEDDED PORTION OF BARS WITH 2-COATS OF COAL TAR EPOXY, THEN COVER WITH 2" MINIMUM OF CEMENT MORTAR.  
 G. CONCRETE VALVE SUPPORT, PER DETAIL 271.  
 H. NEW WATER LINE TO BE INSTALLED.  
 I. UNDISTURBED EARTH.  
 J. EXISTING WATER MAIN TO BE TAPPED.

TAPPING SLEEVE AND VALVE INSTALLATION  
 DETAIL No. 266

REVISIONS	DATE	REVISION BY



MCAFFEE PL. TO HUNT CT.  
 FROM MONTANA AVE. TO WATER IMPROVEMENTS



SCALE  
 HOR. 1" = 20'  
 VERT. 1" = 20'

DESIGNED BY  
 A.S.

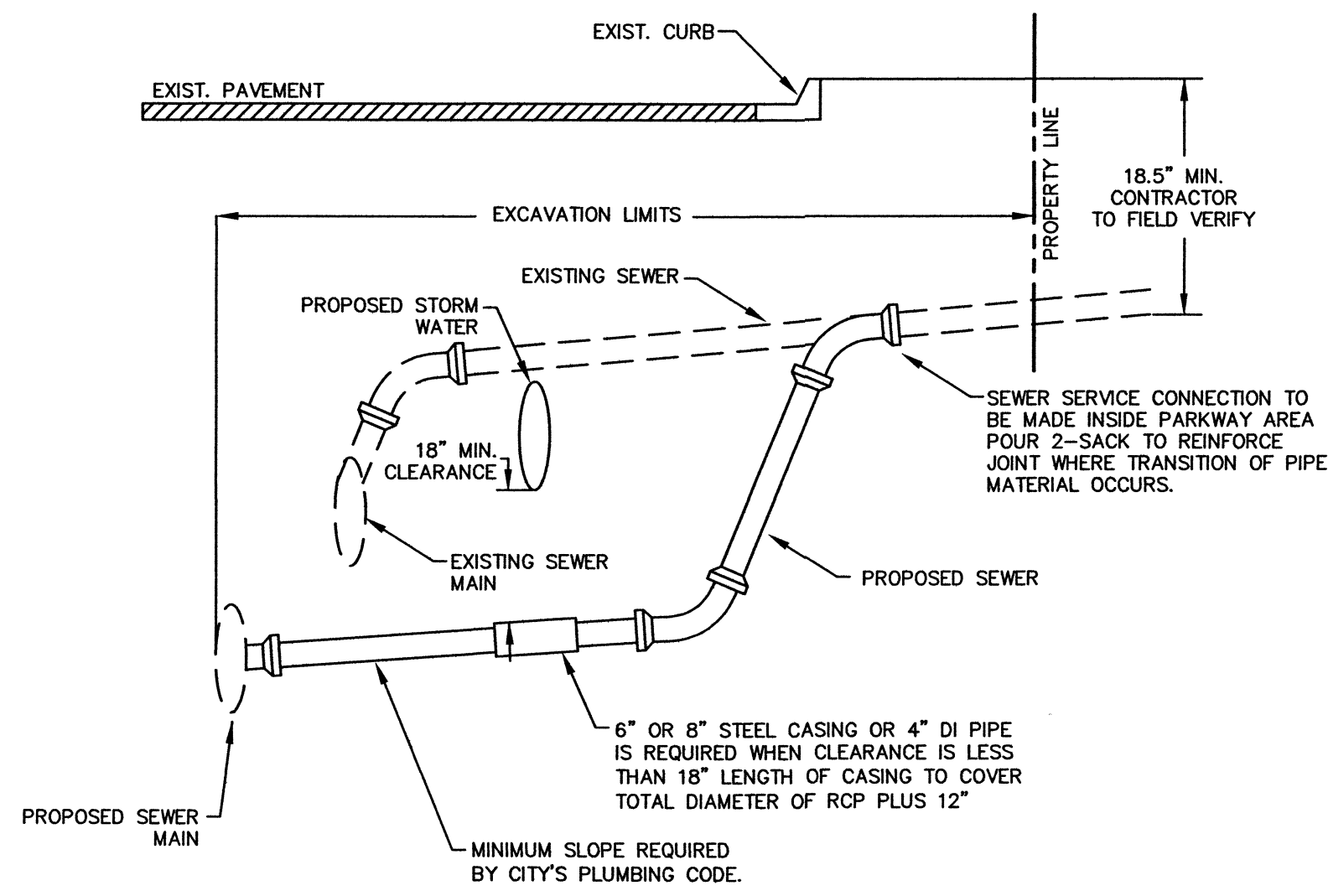
CHECKED BY  
 A.C.

DRAWN BY  
 RE

DATE  
 11/10/2020

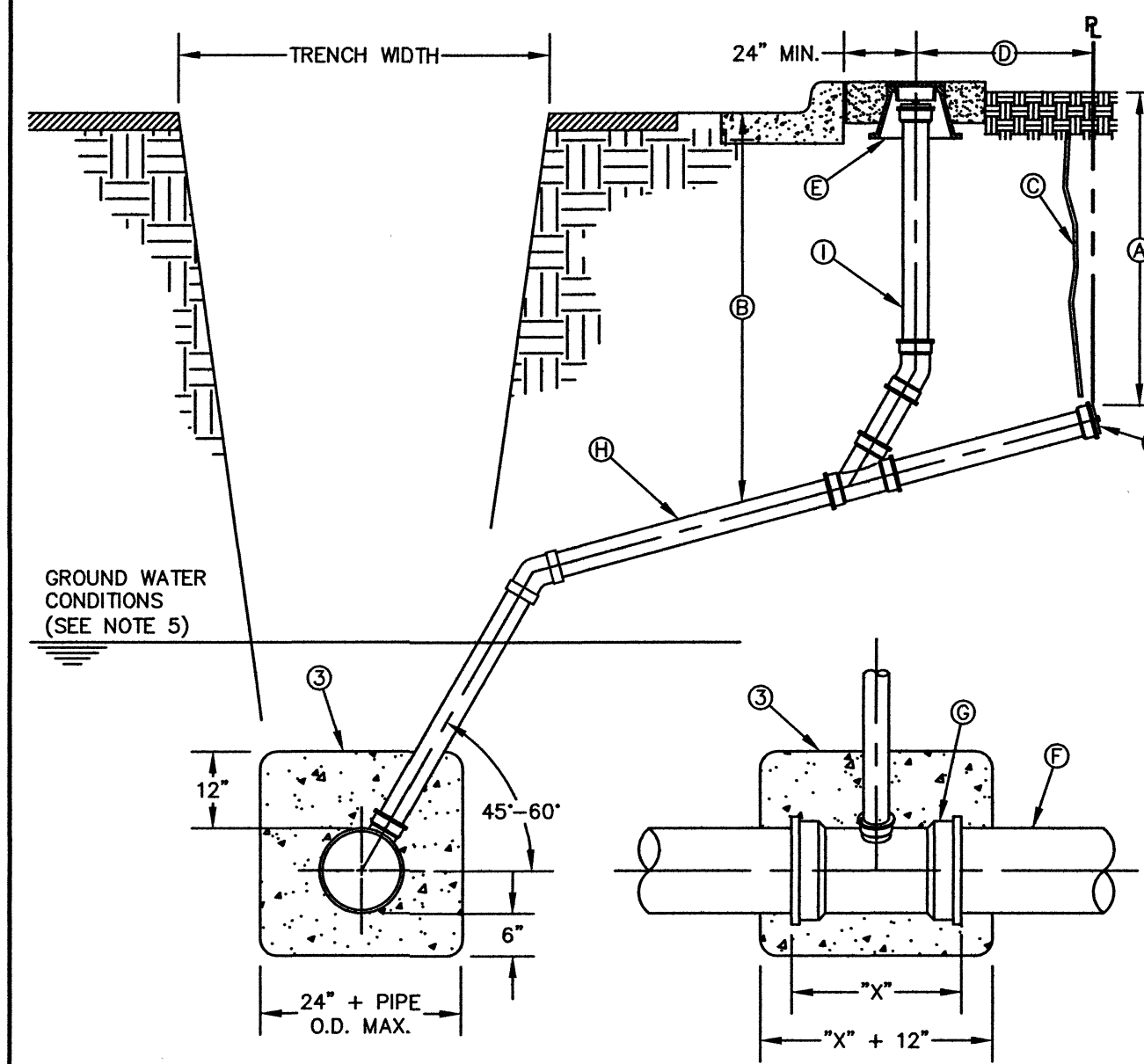
JOB NO.  
 21-5033/21-9029

SHT 3 OF 4



DETAIL "B"

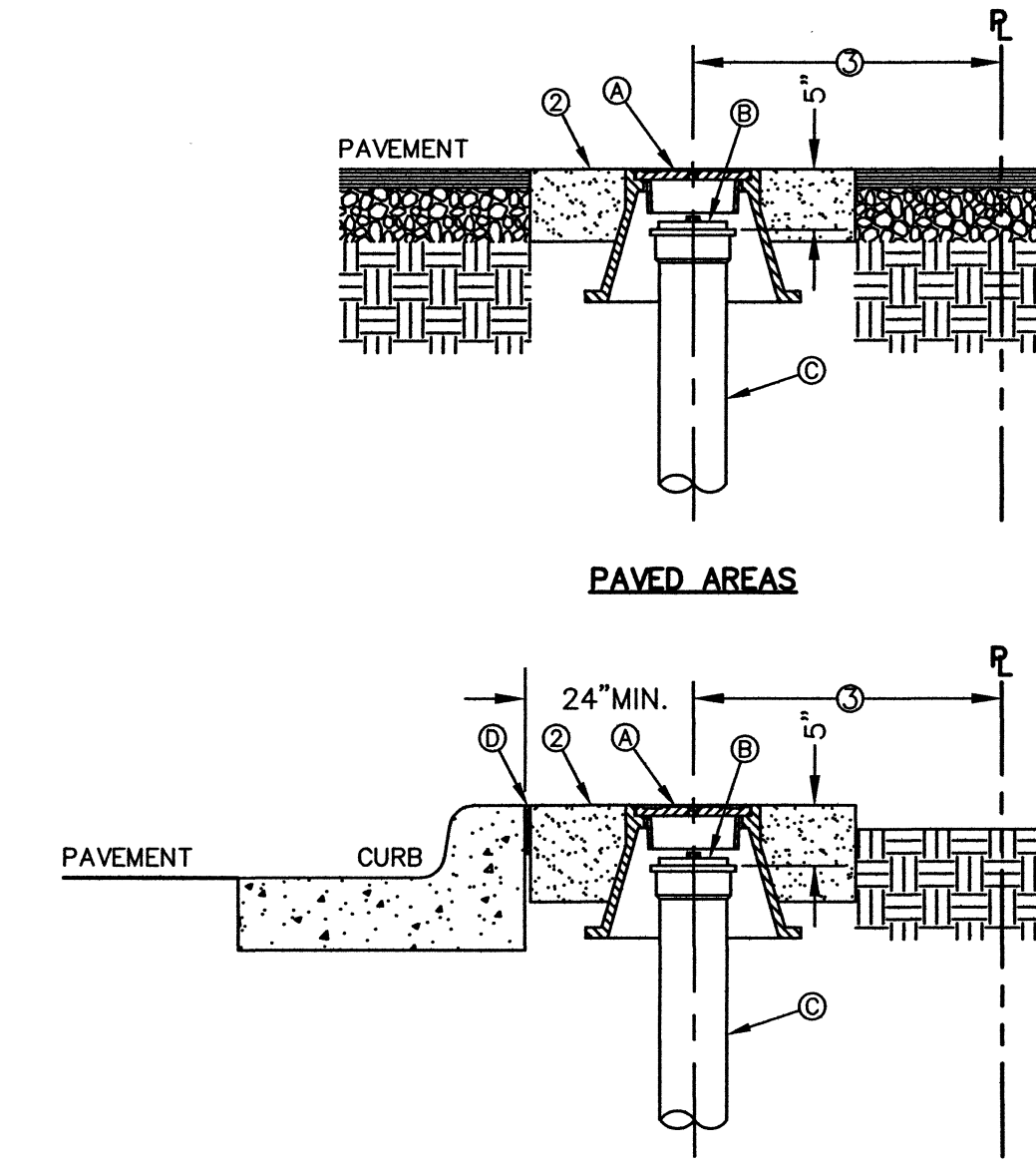
NTS



SEWER SERVICE RISER AND SERVICE LINE CONNECTION

- GENERAL NOTES:**
- CLEANOUT TO BE USED AT LATERALS.
  - SPOOL LENGTHS AND DEPTHS WILL VARY UNLESS SPECIFIED.
  - IN GROUNDWATER CONDITIONS ONLY, P.V.C. SADDLES OR TEES ARE TO BE ENCASED WITH CLASS B CONCRETE.
  - UNDER CERTAIN CONDITIONS FIELD INVESTIGATIONS WILL BE REQUIRED TO DETERMINE THE ADEQUACY OF THE DEPTH ON THE LATERAL.
  - WHEN GROUND WATER IS ENCOUNTERED SERVICE RISER SHALL BE EXTENDED ABOVE ANTICIPATED WATER TABLE LEVEL.
  - USE CAUTION WHILE COMPACTING AROUND RISER.
  - A MINIMUM DEPTH OF 3' OF COVER TO SUBGRADE IS NECESSARY, OTHERWISE CONCRETE ENCASEMENT IS REQUIRED.

- CONSTRUCTION KEY NOTES:**
- 18" DEPTH FOR STANDARD SUBDIVISION, 3.5' FOR SUBDIVISIONS WITH ON-SITE PONDING OR FLAT TERRAIN.
  - RISERS OR LATERALS EXTENDING BEYOND EXISTING PAVING SHALL BE INSTALLED TO 3.5' MINIMUM TOP OF GROUND OR PAVEMENT, UNLESS CONDITIONS REQUIRE OTHERWISE.
  - PLASTIC METALLIC MARKING TAPE (OR METALLIC DISC) RISING TO WITHIN 6" OF GROUND SURFACE.
  - CLEANOUT SHALL NOT GO BEYOND (ENCROACH) PROPERTY/EASEMENT LINE.
  - SEE DETAIL 392 FOR SEWER LATERAL CLEANOUT FRAME AND COVER INSTALLATION.
  - P.V.C. PIPE SEWER MAIN.
  - TEE INSTALLED IN SEWER MAIN.
  - PROPOSED P.V.C. SDR 35 (4" MIN. DIA.) SERVICE LINE (LATERAL) CONNECTION @ 2% MINIMUM SLOPE.
  - 4" P.V.C. SDR 35 PIPE FOR SEWER CLEANOUT.
  - WATERTIGHT PLUG SEALED WITH GASKET OR RAM-NEK.



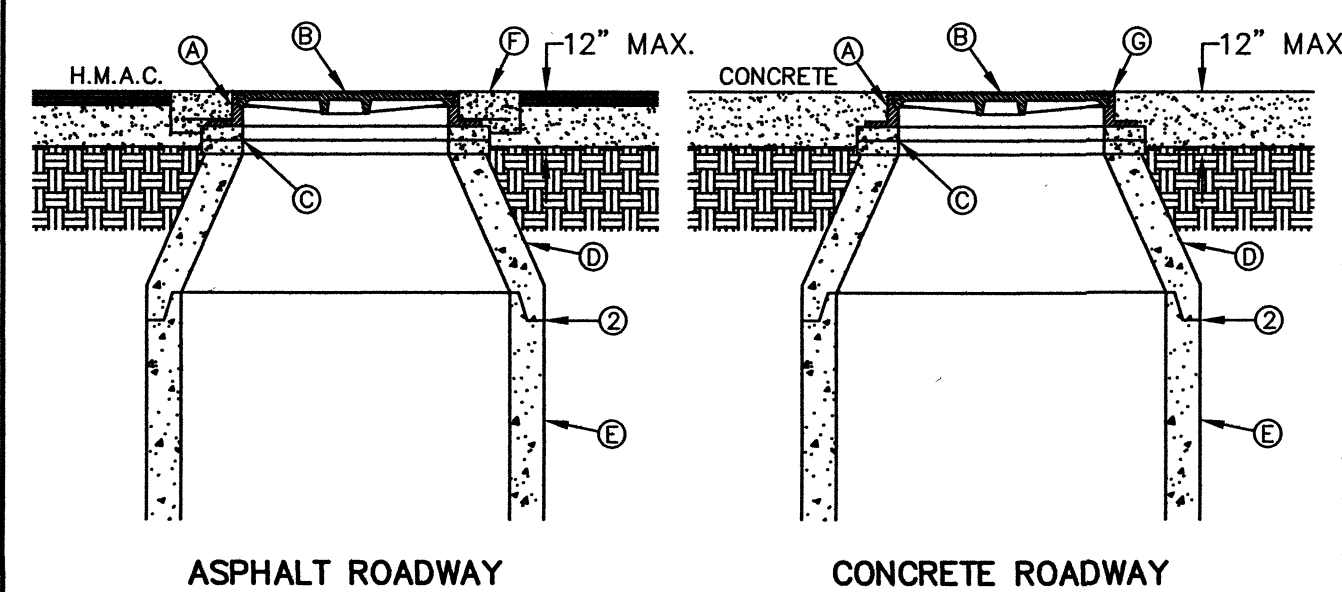
PAVED AREAS

PARKWAY AREAS

SEWER LATERAL CLEANOUT FRAME AND COVER INSTALLATION

- GENERAL NOTES:**
- CLEANOUT TO BE USED AT LATERALS. SEE DET 391 FOR SEWER LATERAL CLEANOUT LOCATION.
  - BONNET BOX, COVER AND CONCRETE COLLAR TO BE INSTALLED AS PER GATE VALVE INSTALLATION (SEE DETAIL 260).
  - CLEANOUT SHALL NOT GO BEYOND (ENCROACH) PROPERTY/EASEMENT LINE.

- CONSTRUCTION KEY NOTES:**
- BONNET BOX AND COVER (SEE DETAILS 268 & 269-2).
  - 4" CLEANOUT CAP.
  - 4" P.V.C. SDR 35 PIPE.
  - EXPANSION JOINT WHEN ADJACENT TO CONCRETE SUCH AS CURBS AND SIDEWALKS.

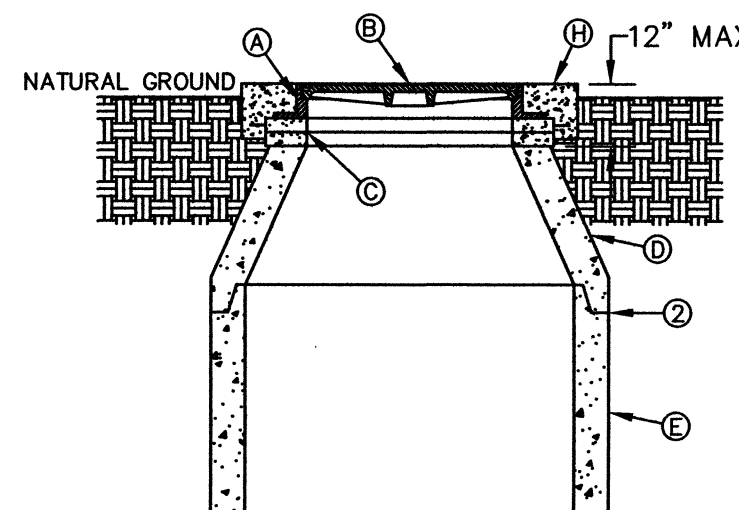


ASPHALT ROADWAY

CONCRETE ROADWAY

- GENERAL NOTES:**
- MANHOLE TYPE SHALL BE AS SHOWN ON THE PLANS.
  - SEAL JOINTS PER SPECIFICATIONS.

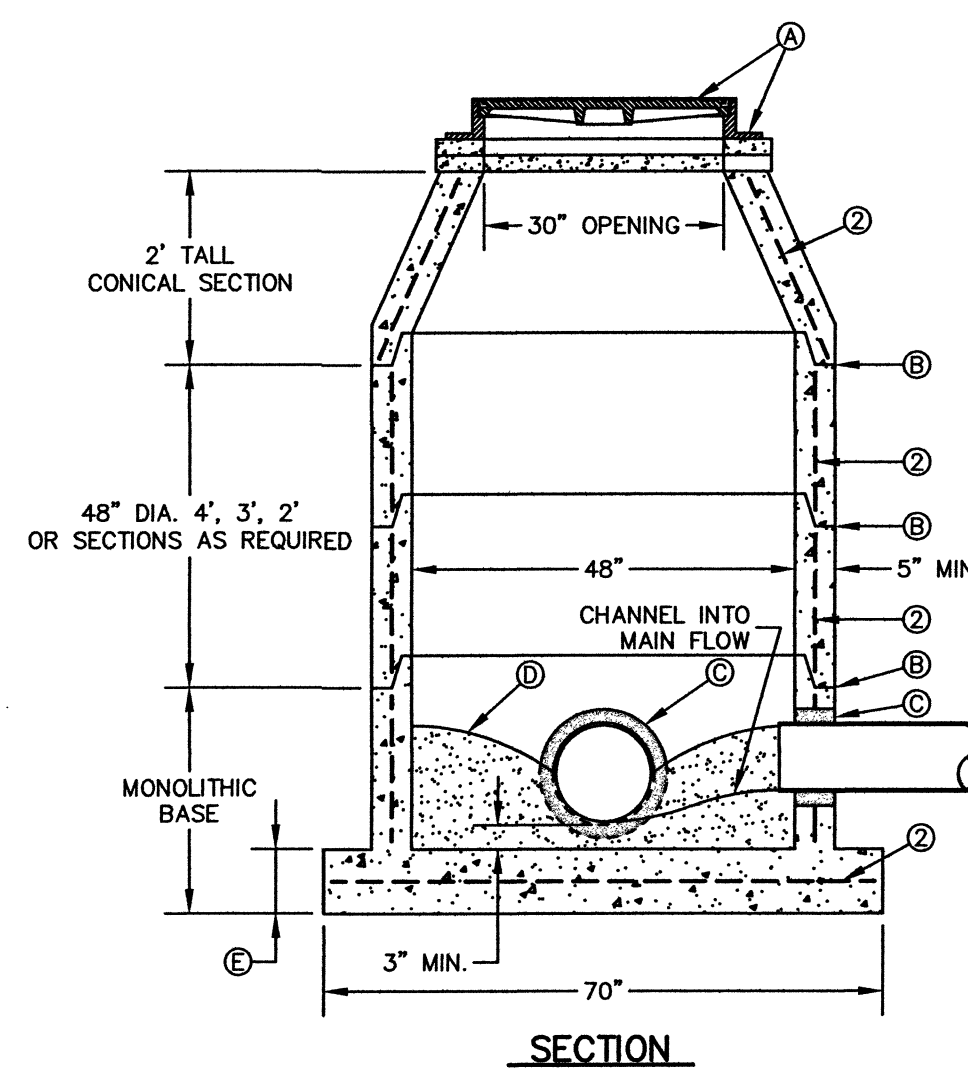
- CONSTRUCTION KEY NOTES:**
- MANHOLE RING (SEE DETAIL 377).
  - MANHOLE COVER (SEE DETAIL 378).
  - CONCRETE ADJUSTMENT RINGS AS REQUIRED.
  - MANHOLE CONE SECTION.
  - MANHOLE BARREL SECTION.
  - CONCRETE COLLAR (SEE DETAIL 184-1) FLUSH WITH TOP OF H.M.A.C.
  - MANHOLE RING FLUSH WITH TOP OF CONCRETE. CONCRETE COLLAR NOT NEEDED.
  - CONCRETE APRON (SEE DETAIL 184-2) FLUSH WITH MANHOLE RING AND 2" ABOVE NATURAL GROUND.



UNPAVED AREAS

MANHOLE RING AND COVER INSTALLATION

DETAIL No. 185

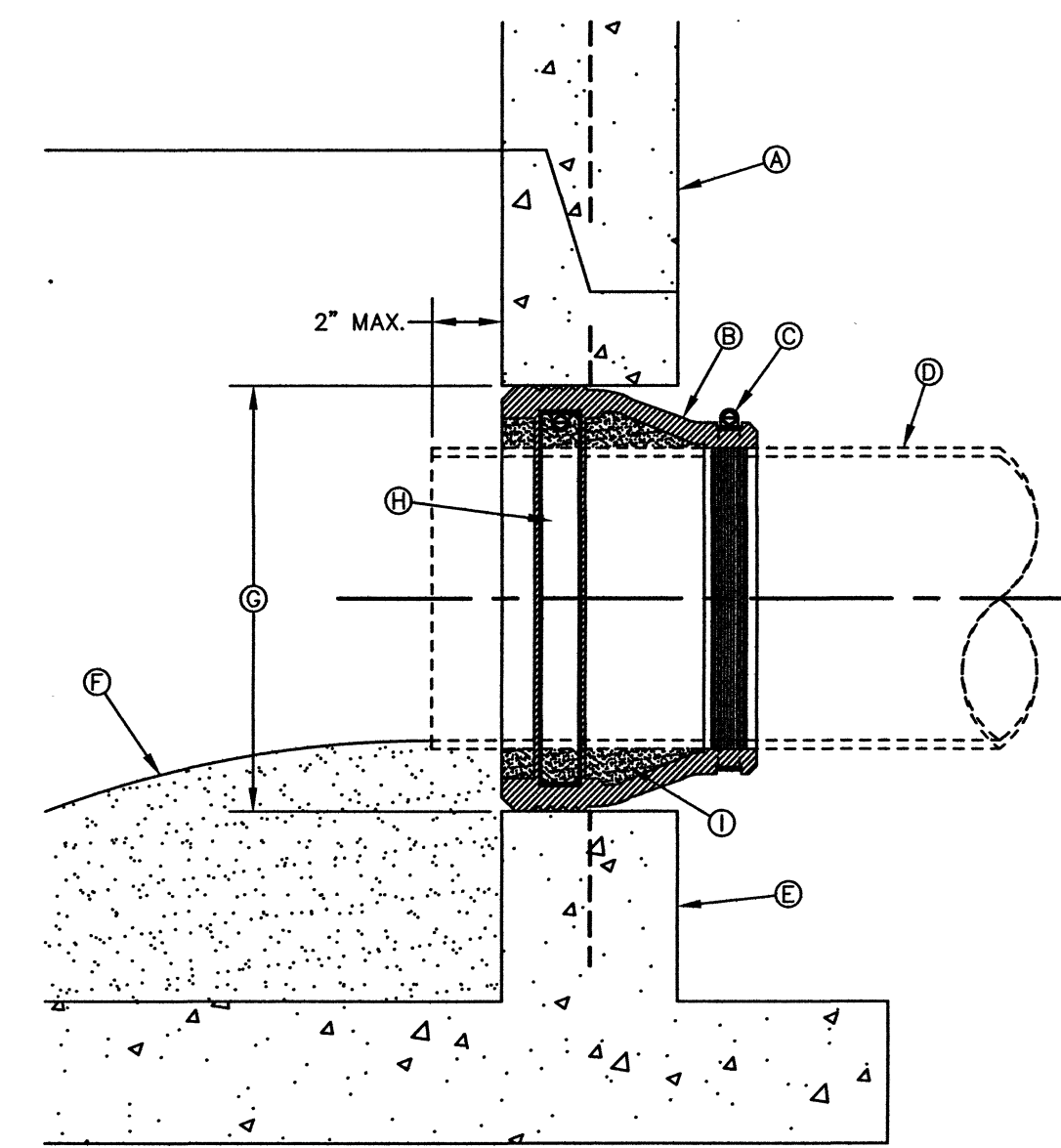


SECTION

MANHOLE TYPE "A"

- GENERAL NOTES:**
- MANHOLE TYPE "A" SHALL BE USED FOR LINES 21" AND SMALLER.
  - PRE-CAST MANHOLE SECTIONS SHALL BE OF REINFORCED CONCRETE CONFORMING TO ASTM C-478 AND SHALL MEET HS-20 LOADING. PROVIDE REINFORCEMENT WITHIN 3" OF OPENINGS OR KNOCKOUTS. OPENINGS (UP TO 8") MADE IN FIELD SHALL BE CORE DRILLED.
  - CEMENT SHALL BE TYPE I-II, PER ASTM C-150, AND MUST CONTAIN A MINIMUM OF 4% FLY ASH OF THE TOTAL MANHOLE WEIGHT.
  - THE BASE & RISER SHALL BE INTEGRALLY CAST. CONCRETE SHALL BE MIN. 28 DAY COMPRESSIVE STRENGTH 4000psi.
  - MANUFACTURER TO PROVIDE LIFTERS OF ADEQUATE SIZE AS NEEDED.
  - THE SUBGRADE UNDER THE BASE SHALL BE COMPACTED TO 95% DENSITY IN ACCORDANCE WITH ASTM D-1557.
  - MANHOLES BELOW GROUNDWATER TO BE EXTERNALLY AND INTERNALLY COATED WITH BITUMINOUS COATING.

- CONSTRUCTION KEY NOTES:**
- MANHOLE RING AND COVER (SEE DETAILS 377 & 378). SET FRAME AND COVER FLUSH WITH ROADWAY SURFACE OR FINISHED GRADE (SEE DETAIL 185).
  - ALL JOINTS TO BE TONGUE, GROOVE AND SEALED WITH RAM-NEK OR APPROVED EQUAL.
  - PIPE OPENINGS/KNOCKOUTS AS REQUIRED TO FIT PIPE SIZE AND SHALL HAVE FLEXIBLE PIPE TO MANHOLE CONNECTORS (COMPRESSION TYPE ASTM-923), "KOR-N-SEAL" OR APPROVED EQUAL. GROUT AS REQUIRED.
  - CONCRETE BASE SHALL BE 8" FOR MH'S UP TO 12" DEEP AND 12" FOR DEPTHS GREATER THAN 12".



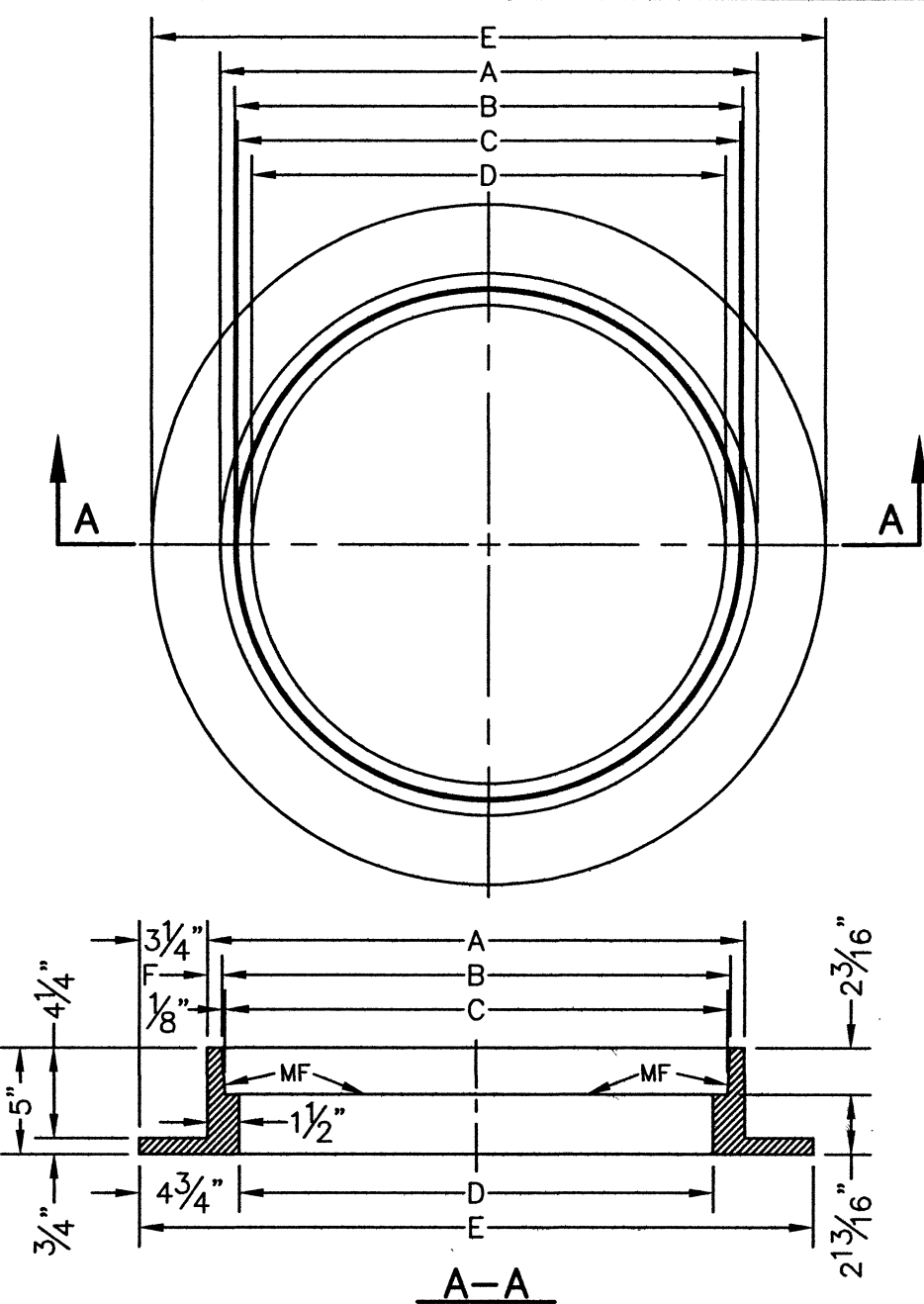
SECTION

PIPE CONNECTION TO MANHOLE

- GENERAL NOTES:**
- MANHOLE CONNECTOR SHALL BE KOR-N-SEAL OR EQUAL MEETING THE REQUIREMENTS OF ASTM C-923. CONNECTOR SHALL BE FURNISHED BY CONTRACTOR.

- CONSTRUCTION KEY NOTES:**
- PRECAST MANHOLE BARREL.
  - FLEXIBLE CONNECTOR.
  - PIPE CLAMP SS 316.
  - APPROVED PIPE.
  - PRECAST MANHOLE BASE.
  - GROUT AS REQUIRED TO FORM SMOOTH CHANNEL TO MANHOLE INVERT.
  - PIPE OPENINGS/KNOCKOUTS AS REQUIRED TO FIT PIPE SIZE.
  - EXPANSION BAND SS 316.
  - FILL SPACE WITH GROUT.

DETAIL No. 376



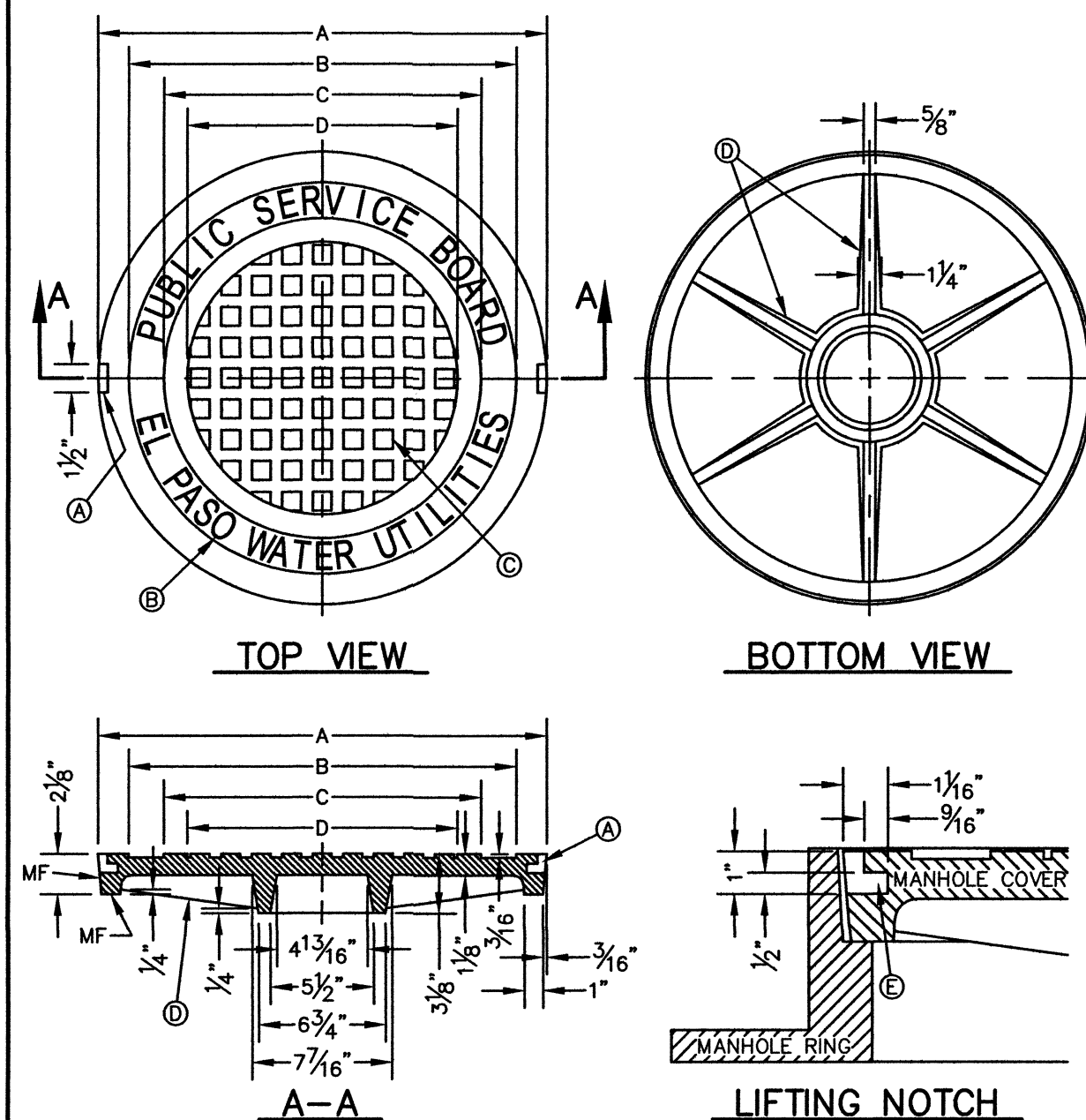
SEWER MANHOLE RING

- GENERAL NOTES:**
- MATCHING SURFACES MARKED "MF" TO BE FINISHED OF ANY IRREGULARITIES THAT WOULD PREVENT A SNUG FIT.
  - CASTING TO BE SMOOTH & VOID OF AIR HOLES.
  - CASTING MUST MEET REQUIREMENTS OF AASHTO M306-07.
  - AS-CAST DIMENSIONS MAY VARY 1/16" ± PER FOOT (AASHTO M306-07).
  - WEIGHT MAY VARY 5% ± (AASHTO M306-07).

MANHOLE RING	MANHOLE - ALL TYPES	*MANHOLE TYPE A, A1, A2 & C
A	33"	25 1/2"
B	31 1/4"	24 1/8"
C	31 1/2"	23 7/8"
D	30"	22 1/2"
E	39 1/2"	32"
F	3"	1 1/8"
WEIGHT	205 lbs.	170 lbs.

\*OBSOLETE - DO NOT USE (FOR REFERENCE ONLY)

DETAIL No. 377



TOP VIEW

BOTTOM VIEW

LIFTING NOTCH

SEWER MANHOLE COVER

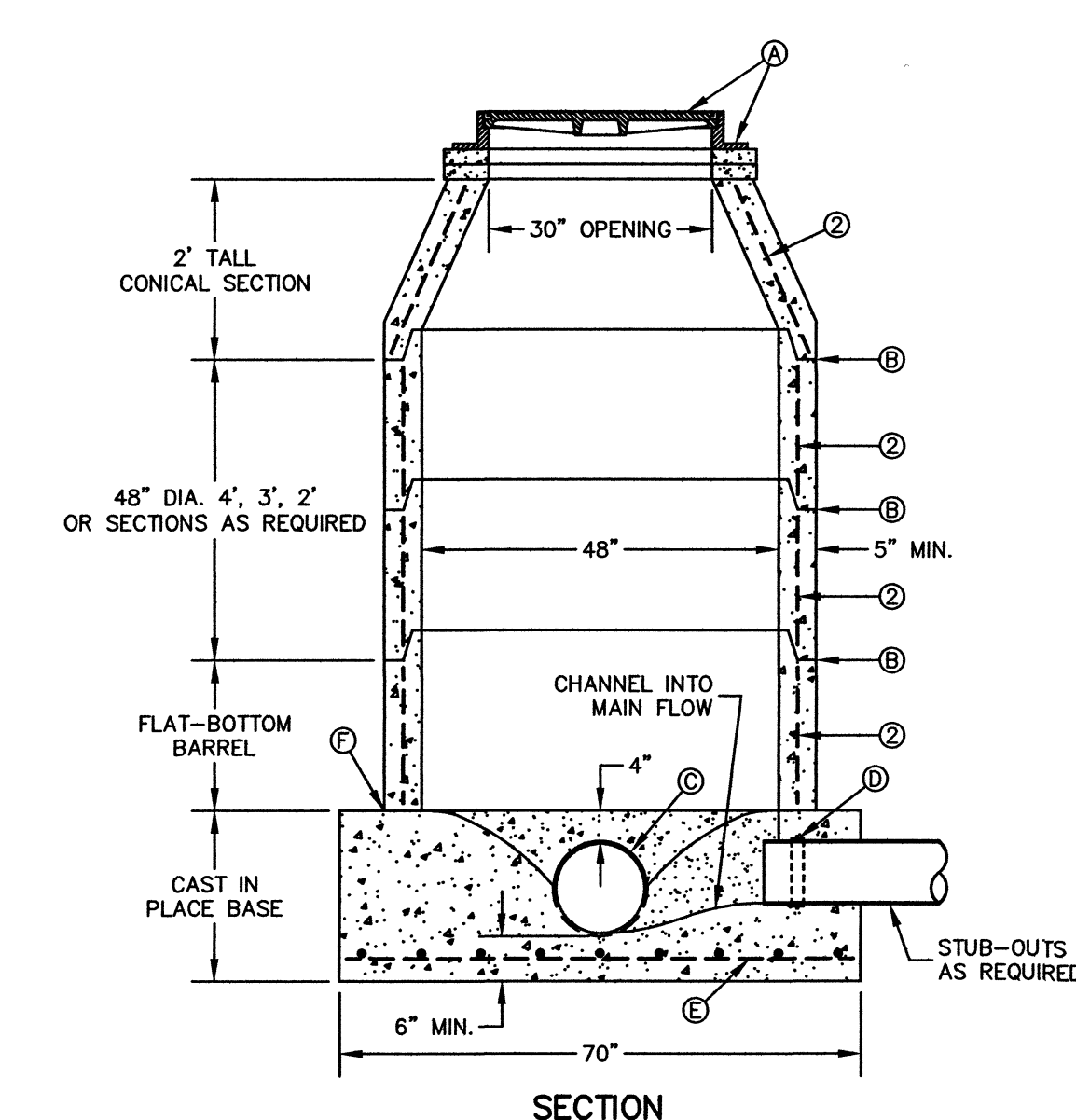
- GENERAL NOTES:**
- MATCHING SURFACES MARKED "MF" TO BE FINISHED OF ANY IRREGULARITIES THAT WOULD PREVENT A SNUG FIT.
  - CASTING TO BE SMOOTH & VOID OF AIR HOLES.
  - CASTING MUST MEET REQUIREMENTS OF AASHTO M306-07.
  - AS-CAST DIMENSIONS MAY VARY 1/16" ± PER FOOT (AASHTO M306-07).
  - WEIGHT MAY VARY 5% ± (AASHTO M306-07).

- CONSTRUCTION KEY NOTES:**
- LIFTING NOTCH.
  - 3/4" RAISED LETTERING.
  - 1" SQUARES (3/8" TALL) WITH 5/8" SPACE BETWEEN.
  - REINFORCING RIBS.
  - SLOT.

MANHOLE COVER	MANHOLE - ALL TYPES	*MANHOLE TYPE A, A1, A2 & C
A	31 3/8"	23 7/8"
B	28 1/8"	20 5/8"
C	24 3/8"	16 7/8"
D	21 7/8"	14 3/8"
WEIGHT	200 lbs.	165 lbs.

\*OBSOLETE - DO NOT USE (FOR REFERENCE ONLY)

DETAIL No. 378



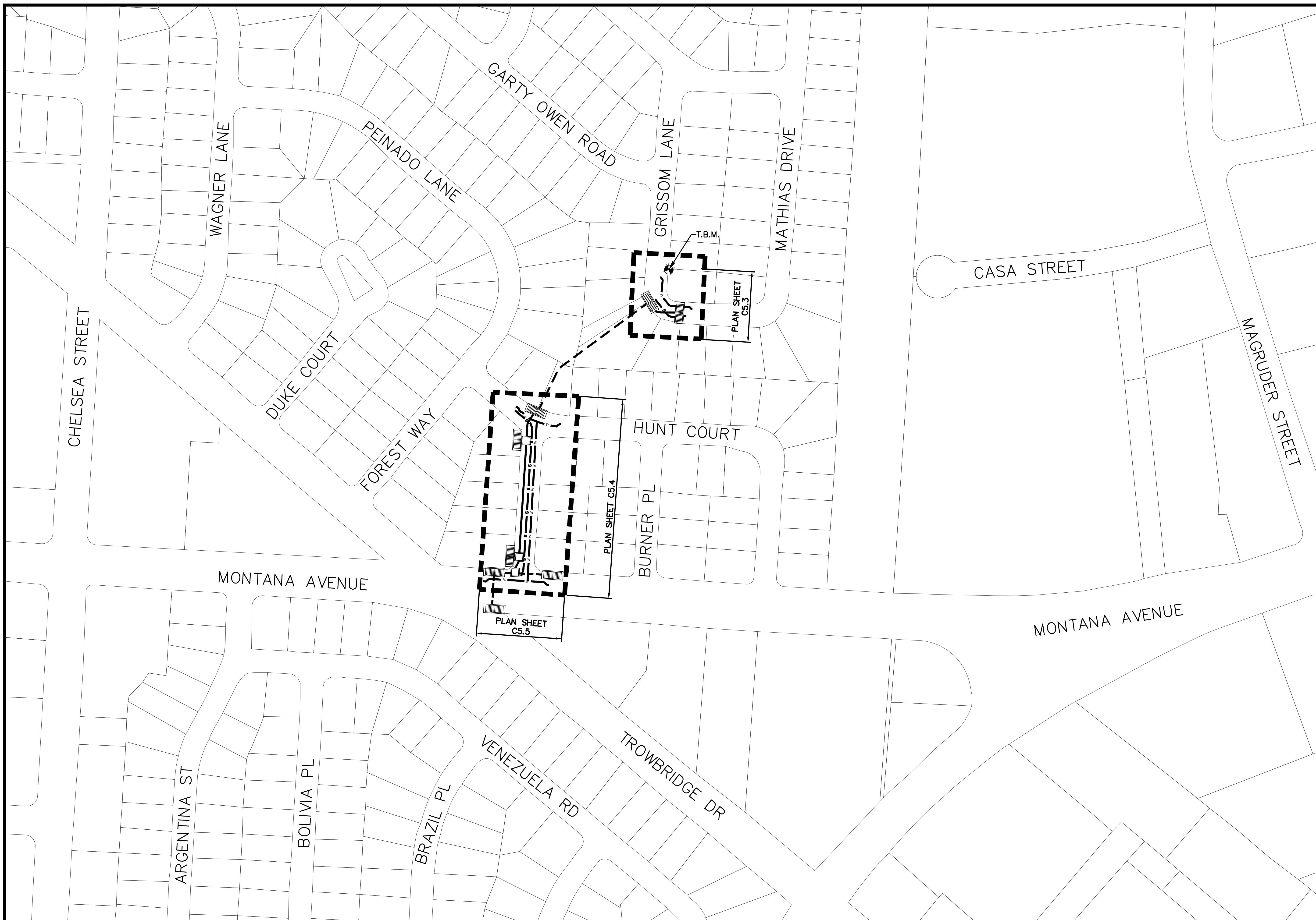
SECTION

MANHOLE TYPE "A1"

- GENERAL NOTES:**
- MANHOLE TYPE "A1" SHALL BE USED FOR LINES 21" AND SMALLER. NOT TO BE USED IN GROUNDWATER CONDITIONS.
  - PRE-CAST MANHOLE SECTIONS SHALL BE OF REINFORCED CONCRETE CONFORMING TO ASTM C-478 AND SHALL MEET HS-20 LOADING.
  - CEMENT SHALL BE TYPE I-II, PER ASTM C-150, AND MUST CONTAIN A MINIMUM OF 4% FLY ASH OF THE TOTAL MANHOLE WEIGHT.
  - THE BASE SHALL BE CAST IN PLACE CONCRETE (MINIMUM 28 DAY COMPRESSIVE STRENGTH 4000 PSI) POURED ON UNDISTURBED OR THOROUGHLY COMPACTED SUB-BASE.
  - MANUFACTURER TO PROVIDE LIFTERS OF ADEQUATE SIZE AS NEEDED.
  - THE SUBGRADE UNDER THE BASE SHALL BE COMPACTED TO 95% DENSITY IN ACCORDANCE WITH ASTM D-1557.

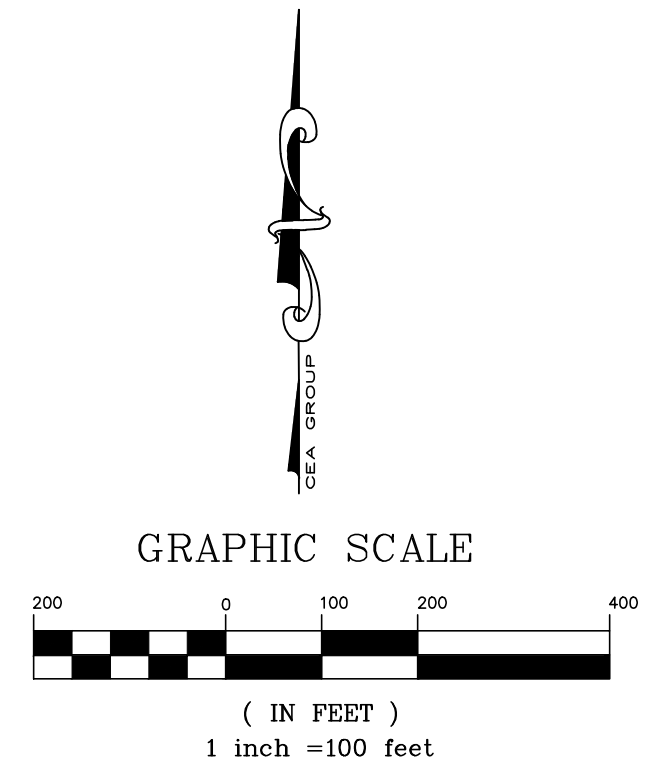
- CONSTRUCTION KEY NOTES:**
- MANHOLE RING AND COVER (SEE DETAILS 377 & 378). SET FRAME AND COVER FLUSH WITH ROADWAY SURFACE OR FINISHED GRADE (SEE DETAIL 185).
  - ALL JOINTS TO BE TONGUE, GROOVE AND SEALED WITH RAM-NEK OR APPROVED EQUAL.
  - ON MANHOLE, PIPE IS TO BE LAID THRU AND UPPER HALF CUT OUT.
  - PIPE GASKET.
  - NO. 4 REBARS 8" ON CENTER, BOTH WAYS.
  - SEAL ALL AROUND WITH RAM-NEK OR APPROVED EQUAL.

DETAIL No. 370-2



- DATUM NOTES:**
1. FOUND CITY MONUMENT AT THE INTERSECTION OF CHELSEA STREET AND TROWBRIDGE DRIVE. ELEVATION: 3828.40 (NAVD 88)
  2. A SET 1/2" REBAR WITH CAP STAMPED "B&A INC." NEAR THE WESTERLY RIGHT-OF-WAY LINE OF MC AFFEE PLACE AND ALSO BEING NEAR THE SOUTHERLY RIGHT-OF-WAY LINE OF HUNT COURT AT N:10667059.92 E: 405591.68. ELEVATION=3838.50 (NAVD 88) BY TRK OBSERVATIONS TO THE TEXAS CO-OP NETWORK, GEIOD 2012A (ACCURACY ±0.16')
  3. ACCORDING TO THE FEDERAL EMERGENCY MANAGEMENT AGENCY FLOOD INSURANCE RATE MAP COMMUNITY PANELS NO 480214 0034B REVISED AUGUST 20, 2019 PROPERTY IS NOT FLOOD HAZARD ZONE.

CONTROL POINT	COORDINATES		ELEVATION	DESCRIPTION
	NORTHING	EASTING		
TBM	10667059.92	405591.68	3838.50	SET 1/2" REBAR

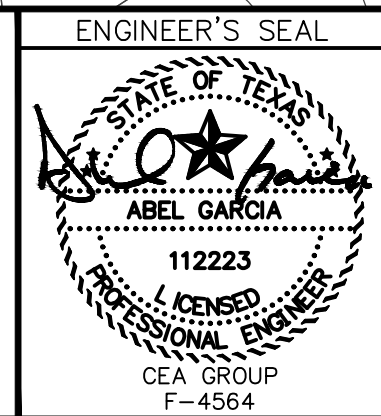


REV.	DATE	BY	DESCRIPTION

**UTILITY LOCATOR SERVICES**

TIME WARNER COMMUNICATIONS	(915) 775-7415
EL PASO ELECTRIC COMPANY	(915) 877-3400
EL PASO WATER UTILITIES	(915) 594-5500
VERIZON COMMUNICATIONS	(800) 624-9675
HOLLY ENERGY PARTNERS	(915) 494-0549
TEXAS GAS SERVICE	(800) 959-5325
KINDER MORGAN	(915) 843-2441
AT&T GENERAL	(915) 595-5151
EL PASO STREETS & MAINTENANCE	(915) 212-0118

**WARNING!**  
**BEFORE YOU DIG**  
**CALL 811**  
 FOR FIELD LOCATING EXISTING UTILITIES



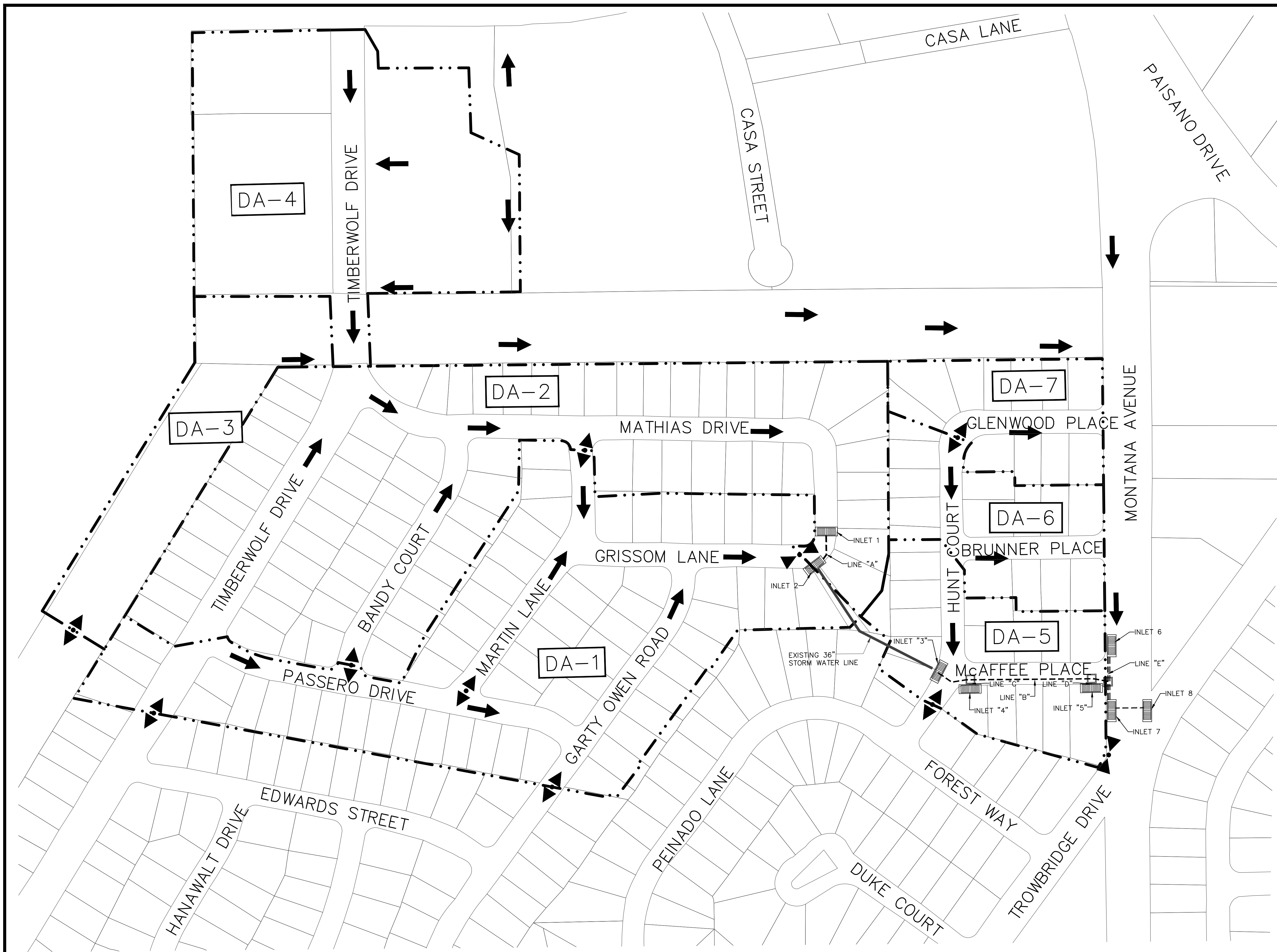
DESIGNED LG  
 DRAWN NC  
 CHECKED LG  
 APPROVED AG  
 DATE 02/14/2023

**cea group**  
 813 N. Kansas St. Suite 300  
 El Paso, TX 79902  
 915.544.5232  
 www.ceagroup.net  
 TEXAS REGISTERED ENGINEERING FIRM F-4564

PROJECT: **GRISSOM LANE AND Mc AFFEE PLACE – STORM SEWER, SANITARY SEWER AND WATER MAIN IMPROVEMENTS**

SHEET TITLE: **STORM SEWER GENERAL MAP**

JOB NO. 1040-046  
 SEQUENCE NO. C5.1  
 SHEET NO. 11 OF 22



**NOTES:**

- REFER TO GENERAL NOTES.
- CONTRACTOR SHALL POTHOLE ALL WATER & SANITARY SEWER, SERVICES PRIOR TO STARTING CONSTRUCTION TO VERIFY ELEVATIONS.

**LEGEND:**

- DRAINAGE AREA BOUNDARY
- DRAINAGE FLOW
- PROPOSED INLET
- PROPOSED STORM SEWER LINE
- EXISTING STORM SEWER LINE
- DA-10 DRAINAGE AREA

**100 YEAR STORM CALCULATIONS FOR DRAINAGE AREAS (EXISTING CONDITIONS)**

DRAINAGE AREA NO. (1)	DRAINAGE AREA (AC) (2)	INTENSITY (1100) (3)	TIME OF CONCENTRATION (4)	RUNOFF COEFF. (C) (5)	Q100 (CFS) (6)
DA-1	12.354	5.362	10.00	0.691	45.745
DA-2	14.538	5.269	10.69	0.681	52.151
DA-3	3.397	4.889	13.80	0.330	5.481
DA-4	8.393	5.362	10.00	0.943	42.435
DA-5	3.487	5.362	10.00	0.675	12.621
DA-6	2.808	5.362	10.00	0.678	10.211
DA-7	2.295	5.362	10.00	0.664	8.140

REFERENCE: CITY OF EL PASO SUBDIVISION STANDARDS (JUNE 2008)

- WATERSHED AREA IDENTIFICATION
- AREA FROM DRAINAGE PLAN
- RAINFALL INTENSITY, 100 YEAR STORM => PLATE NO. 2-14
- TIME OF CONCENTRATION: TC= T (OVERLAND) + T (GUTTER)
- RUNOFF COEFFICIENTS => PLATE NO. 2-10, TABLE A  
RESIDENTIAL AREA = 0.60  
PAVEMENT AND ROOFTOPS = 0.95  
GENERAL OPEN SPACE = 0.50
- $Q_{100} = C \times A \times I_{100}$

**DROP INLETS**

NO.	REQ. FLOW CAPACITY Q (CFS)	AVAIL. FLOW CAPACITY (CFS)	ADDITIONAL FLOW CAPACITY (CFS)	BYPASS GRATES	# OF INLET	TYPE OF INLET	INLET LOCATION
1	100.07	62.44	0	37.63	18	III - NEENAH	GRADE
2	44.05	44.05	37.16	38.85	5	III	SUMP
3	56.18	35.34	0	20.84	8	II	SUMP
4	12.62	47.82	20.84	14.36	6	I	SUMP
5	12.62	47.82	14.36	0	6	I	SUMP
6	N/A	57.48	N/A	N/A	6	I	SUMP
7	N/A	57.48	N/A	N/A	6	I	SUMP

FLOW CAPACITY FOR INLETS No.6, No.7 & No.8 ARE NOT CONSIDERED PART OF THIS FLOW ANALYSIS. RUNOFF COMING FROM PAISANO DRIVE INTO NEW INLETS No.6, No.7 & No.8 ARE NOT CONSIDERED PART OF THE FLOW ANALYSIS.

THESE CAPACITIES CORRESPOND TO A CLOGGING FACTOR OF 0.5 AVAILABLE FLOW CAPACITIES SHOWN AT ON-GRADE INLETS REFLECTS CAPACITIES WITH INLET GRATE EFFICIENCIES.

**MOMENTUM COMPUTATION**

LOCATION INLET (1)	DEPTH (2)	VELOCITY (3)	PRODUCT NUMBER (4)
1	0.825	4.842	4.017
2	0.612	3.966	2.422
3	0.293	2.443	0.709
4	0.413	3.042	1.246
5	0.380	2.880	1.098
6	N/A	N/A	N/A
7	N/A	N/A	N/A
8	N/A	N/A	N/A

- LOCATION
- DEPTH
- VELOCITY
- PRODUCT NUMBER = DEPTH X VELOCITY

**DRAINAGE PLAN**

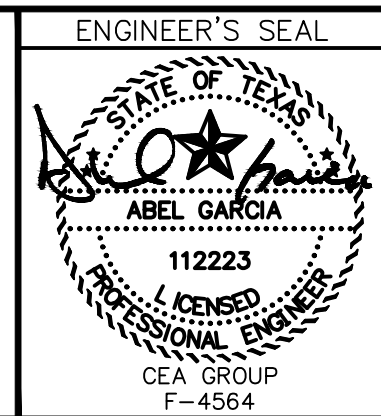
SCALE: 1" = 100'

REV.	DATE	BY	DESCRIPTION

**UTILITY LOCATOR SERVICES**

TIME WARNER COMMUNICATIONS	(915) 775-7415
EL PASO ELECTRIC COMPANY	(915) 877-3400
EL PASO WATER UTILITIES	(915) 594-5500
VERIZON COMMUNICATIONS	(800) 624-9675
HOLLY ENERGY PARTNERS	(915) 494-0549
TEXAS GAS SERVICE	(800) 959-5325
KINDER MORGAN	(915) 843-2441
AT&T GENERAL	(915) 595-5151
EL PASO STREETS & MAINTENANCE	(915) 212-0118

**WARNING!**  
**BEFORE YOU DIG**  
**CALL 811**  
FOR FIELD LOCATING EXISTING UTILITIES



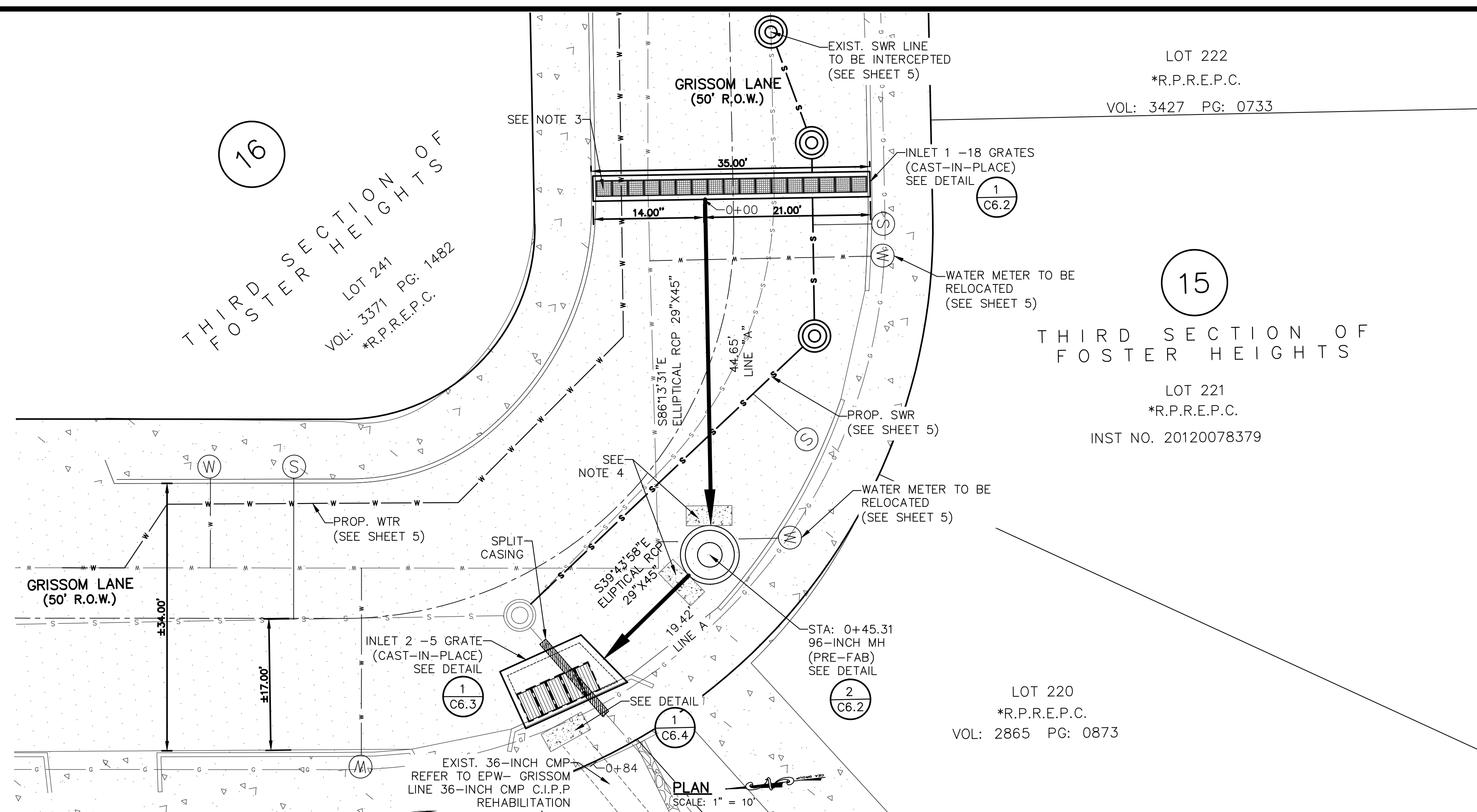
DESIGNED LG  
DRAWN LG  
CHECKED LG  
APPROVED AG  
DATE 02/14/2023



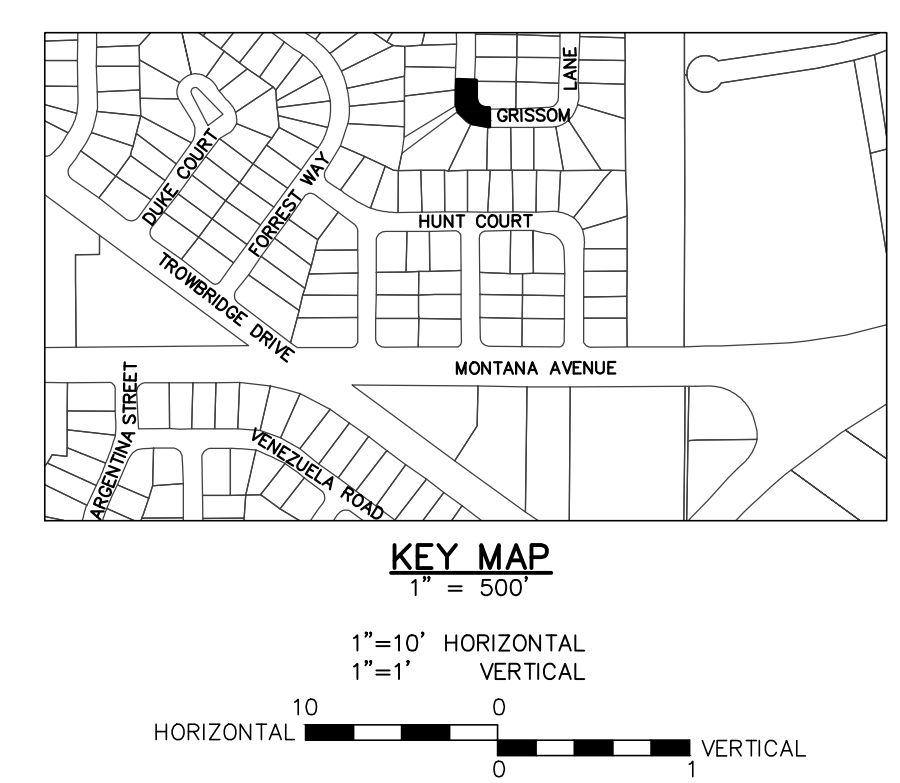
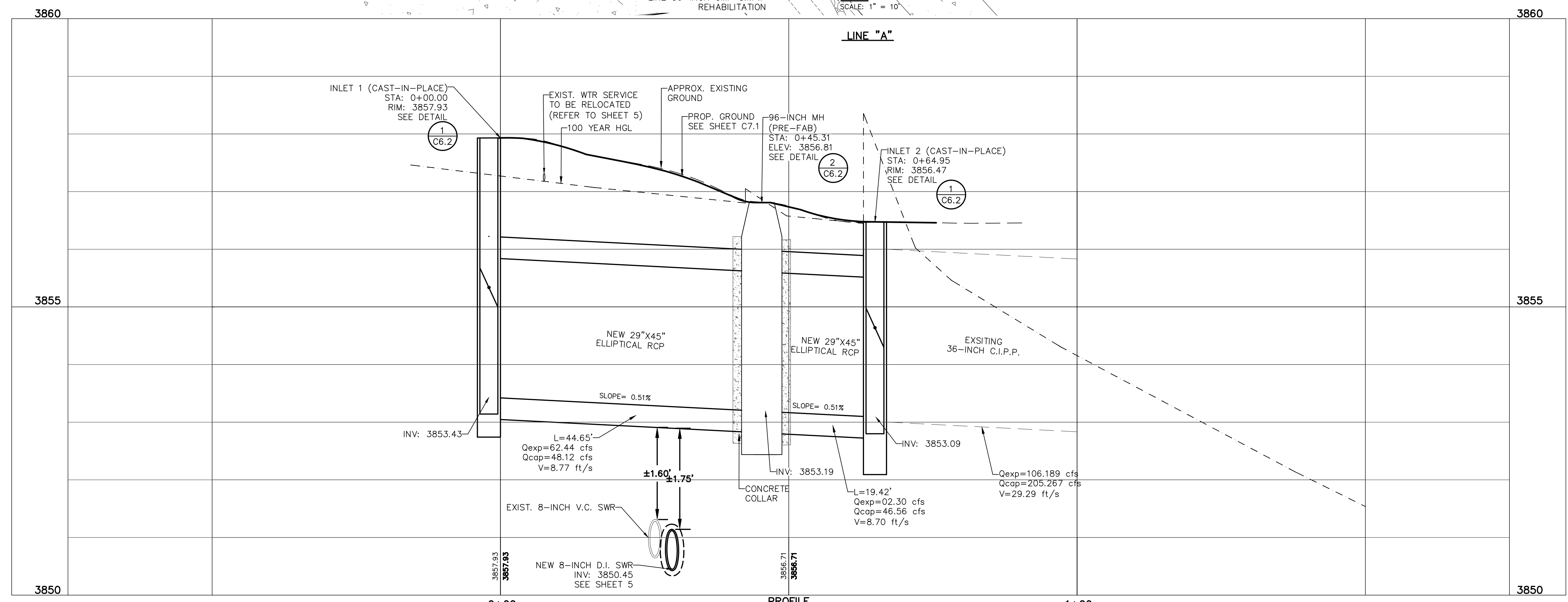
PROJECT: **GRISSOM LANE AND Mc AFFEE PLACE - STORM SEWER, SANITARY SEWER AND WATER MAIN IMPROVEMENTS**

SHEET TITLE: **DRAINAGE PLAN**

JOB NO. 1040-046  
SEQUENCE NO. C5.2  
SHEET NO. 12 OF 22



- NOTES:**
- REFER TO GENERAL NOTES.
  - CONTRACTOR SHALL VERIFY LOCATION AND DEPTH OF EXISTING UTILITIES TO CONFIRM ALIGNMENT AND AVOID CONFLICT WITH PROPOSED STORM WATER IMPROVEMENTS.
  - NEENAH GRATES (MODEL R-4999-L6 TYPE "L" GRATE WITH TYPE "X" FRAME) TO BE INSTALLED AS PER MANUFACTURER RECOMMENDATIONS.
  - CONCRETE COLLARS TO BE INSTALLED ON ALL PRE-FAB STRUCTURES CONNECTIONS AS PER EPW STANDARD DETAIL 926-2. ALL MATERIAL QUALITY AND FINISHED SECTIONS ARE SUBJECT TO INSPECTION AND APPROVAL BY ENGINEER/ EPW OR OWNER REPRESENTATIVE.
  - CONTRACTOR SHALL NOTIFY PROPERTY OWNERS AT LEAST 7 DAYS PRIOR TO CONSTRUCTION. CONTRACTOR SHALL LEAVE PEDESTRIAN AND VEHICULAR ACCESS TO ALL RESIDENTS ALL THE TIME.
  - SALVAGED MATERIAL, AS DETERMINED BY EPW PERSONNEL, SHALL BE DELIVERED TO EPW YARD.
  - EXISTING STREETS, CURB & GUTTER, SIDEWALKS, PAVEMENT, HARDSCAPES, DRIVEWAYS AND ALL OTHER MISCELLANEOUS STRUCTURES/IMPROVEMENTS DAMAGED OR REMOVED BY CONSTRUCTION ACTIVITIES, SHALL BE RESTORED TO ORIGINAL OR BETTER THAN ORIGINAL CONDITION AT THE EXPENSE OF THE CONTRACTOR. REFER TO SHEET C7.1 FOR LIMITS OF DEMOLITION.
  - CONTRACTOR SHALL PROTECT EXISTING SANITARY SEWER LINE WITH SPLIT CASING.
  - CONTRACTOR SHALL POTHOLE ALL WATER & SANITARY SEWER SERVICES PRIOR TO STARTING CONSTRUCTION TO VERIFY ELEVATIONS.

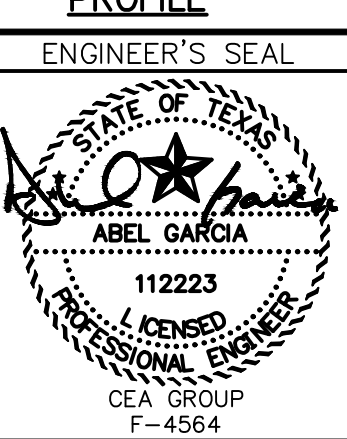


REV.	DATE	BY	DESCRIPTION

**UTILITY LOCATOR SERVICES**

TIME WARNER COMMUNICATIONS	(915) 775-7415
EL PASO ELECTRIC COMPANY	(915) 877-3400
EL PASO WATER UTILITIES	(915) 594-5500
VERIZON COMMUNICATIONS	(800) 624-9675
HOLLY ENERGY PARTNERS	(915) 494-0549
TEXAS GAS SERVICE	(800) 959-5325
KINDER MORGAN	(915) 843-2441
AT&T GENERAL	(915) 595-5151
EL PASO STREETS & MAINTENANCE	(915) 212-0118

**WARNING!**  
**BEFORE YOU DIG**  
**CALL 811**  
 FOR FIELD LOCATING EXISTING UTILITIES



**DESIGNED**

LG
DRAWN
NC
CHECKED
LG
APPROVED
AG
DATE
02/14/2023

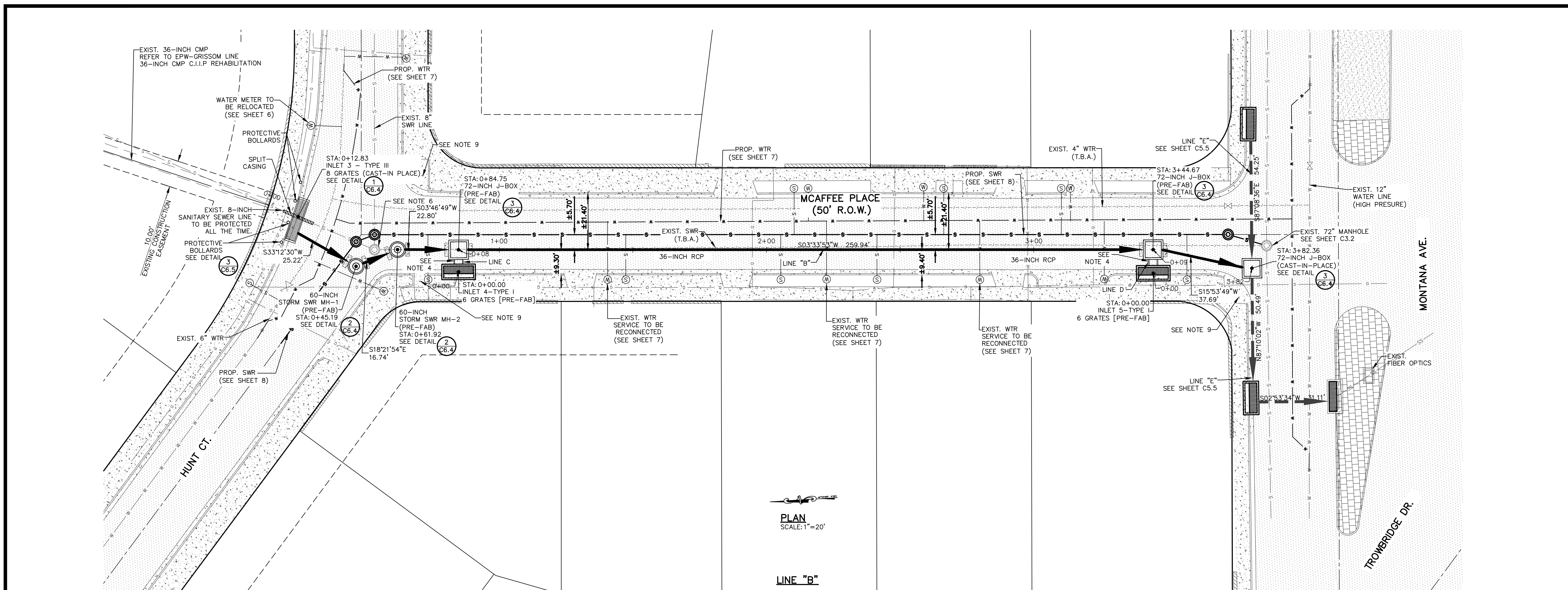
**cea group**  
 TEXAS REGISTERED ENGINEERING FIRM F-4564  
 813 N. Kansas St.  
 Suite 300  
 El Paso, TX 79902  
 915.544.5232  
 www.ceagroup.net



**PROJECT:**  
 GRISSOM LANE AND Mc AFEE PLACE –  
 STORM SEWER, SANITARY SEWER AND  
 WATER MAIN IMPROVEMENTS

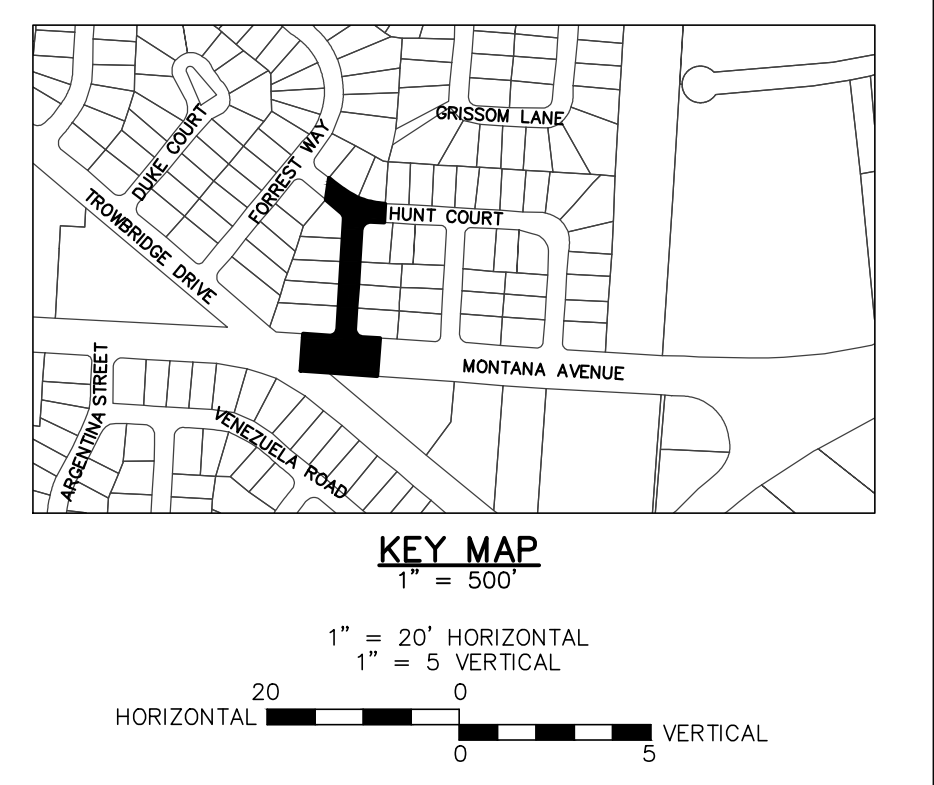
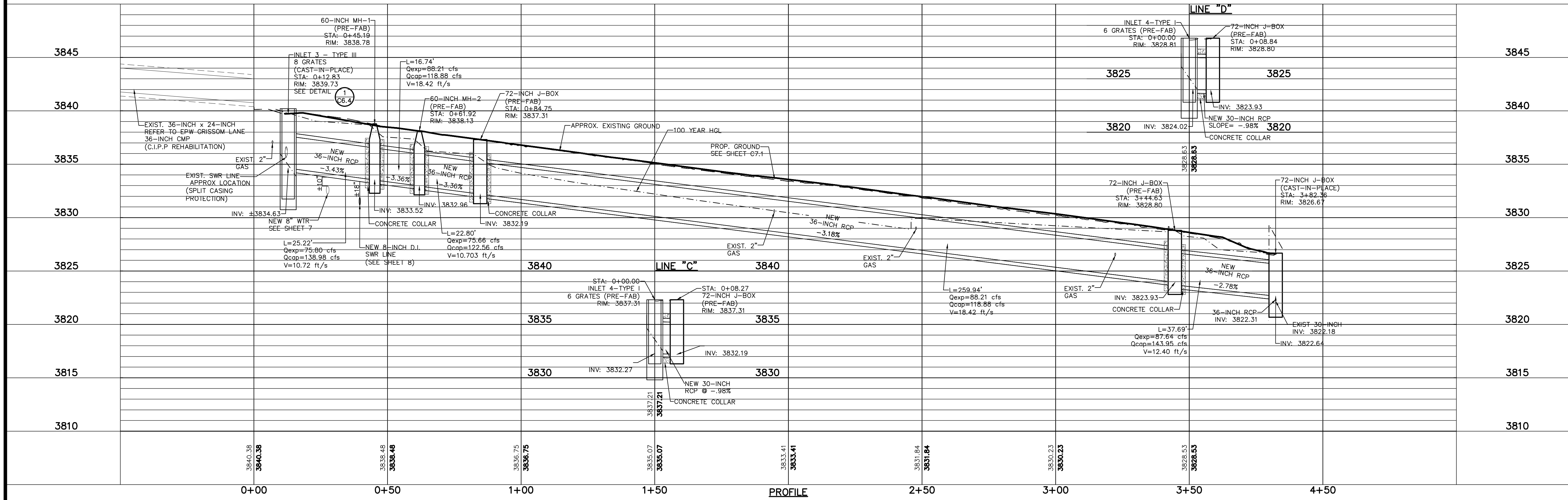
**SHEET TITLE:**  
 STORM SEWER PLAN & PROFILE – LINE "A"  
 FROM STA. 0+00 TO STA. 0+64.95

JOB NO.	1040-046
SEQUENCE NO.	C5.3
SHEET NO.	13 OF 22



- NOTES:**
- REFER TO GENERAL NOTES.
  - CONTRACTOR SHALL VERIFY LOCATION AND DEPTH OF EXISTING UTILITIES TO CONFIRM ALIGNMENT AND AVOID CONFLICT WITH PROPOSED STORM WATER IMPROVEMENTS.
  - CONTRACTOR SHALL NOTIFY PROPERTY OWNERS AT LEAST 7 DAYS PRIOR TO CONSTRUCTION. CONTRACTOR SHALL LEAVE PEDESTRIAN AND VEHICULAR ACCESS TO ALL RESIDENTS ALL THE TIME.
  - CONCRETE COLLARS TO BE INSTALLED ON ALL PRE-FAB STRUCTURES CONNECTIONS AS PER EPW STANDARD DETAIL 926-2. ALL MATERIAL QUALITY AND FINISHED SECTIONS ARE SUBJECT TO INSPECTION AND APPROVAL BY ENGINEER/ EPW OR OWNER REPRESENTATIVE.
  - SALVAGED MATERIAL, AS DETERMINED BY EPW PERSONNEL, SHALL BE DELIVERED TO EPWATER YARD.
  - EXISTING MANHOLES, GRAVITY SANITARY SEWER AND/OR WATER MAINS THAT INTERFERE WITH NEW IMPROVEMENTS SHALL BE REMOVED AND DISPOSE AS NECESSARY. REFER TO GRAVITY SEWER AND WATER MAINS SHEETS FOR ADDITIONAL INFORMATION.
  - EXISTING STREETS, CURB & GUTTER, SIDEWALKS, PAVEMENT, HARDSCAPES, DRIVEWAYS AND ALL OTHER MISCELLANEOUS STRUCTURES/IMPROVEMENTS DAMAGED OR REMOVED BY CONSTRUCTION ACTIVITIES, SHALL BE RESTORED TO ORIGINAL OR BETTER THAN ORIGINAL CONDITION AT THE EXPENSE OF THE CONTRACTOR. REFER TO SHEET C7.1 FOR CONCRETE DEMOLITION LIMITS.
  - CONTRACTOR SHALL POTHOLE ALL WATER & SANITARY SEWER, SERVICES PRIOR TO STARTING CONSTRUCTION TO VERIFY ELEVATIONS.
  - EXISTING ADA RAMP TO BE PROTECTED ALL THE TIME.

PLAN  
SCALE: 1" = 20'  
LINE "B"

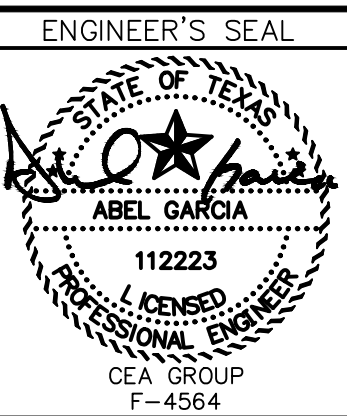


REV.	DATE	BY	DESCRIPTION

UTILITY LOCATOR SERVICES	
TIME WARNER COMMUNICATIONS	(915) 775-7415
EL PASO ELECTRIC COMPANY	(915) 877-3400
EL PASO WATER UTILITIES	(915) 594-5500
VERIZON COMMUNICATIONS	(800) 624-9675
HOLLY ENERGY PARTNERS	(915) 494-0549
TEXAS GAS SERVICE	(800) 959-5325
KINDER MORGAN	(915) 843-2441
AT&T GENERAL	(915) 595-5151
EL PASO STREETS & MAINTENANCE	(915) 212-0118

**WARNING!**  
**BEFORE YOU DIG**  
**CALL 811**

FOR FIELD LOCATING EXISTING UTILITIES



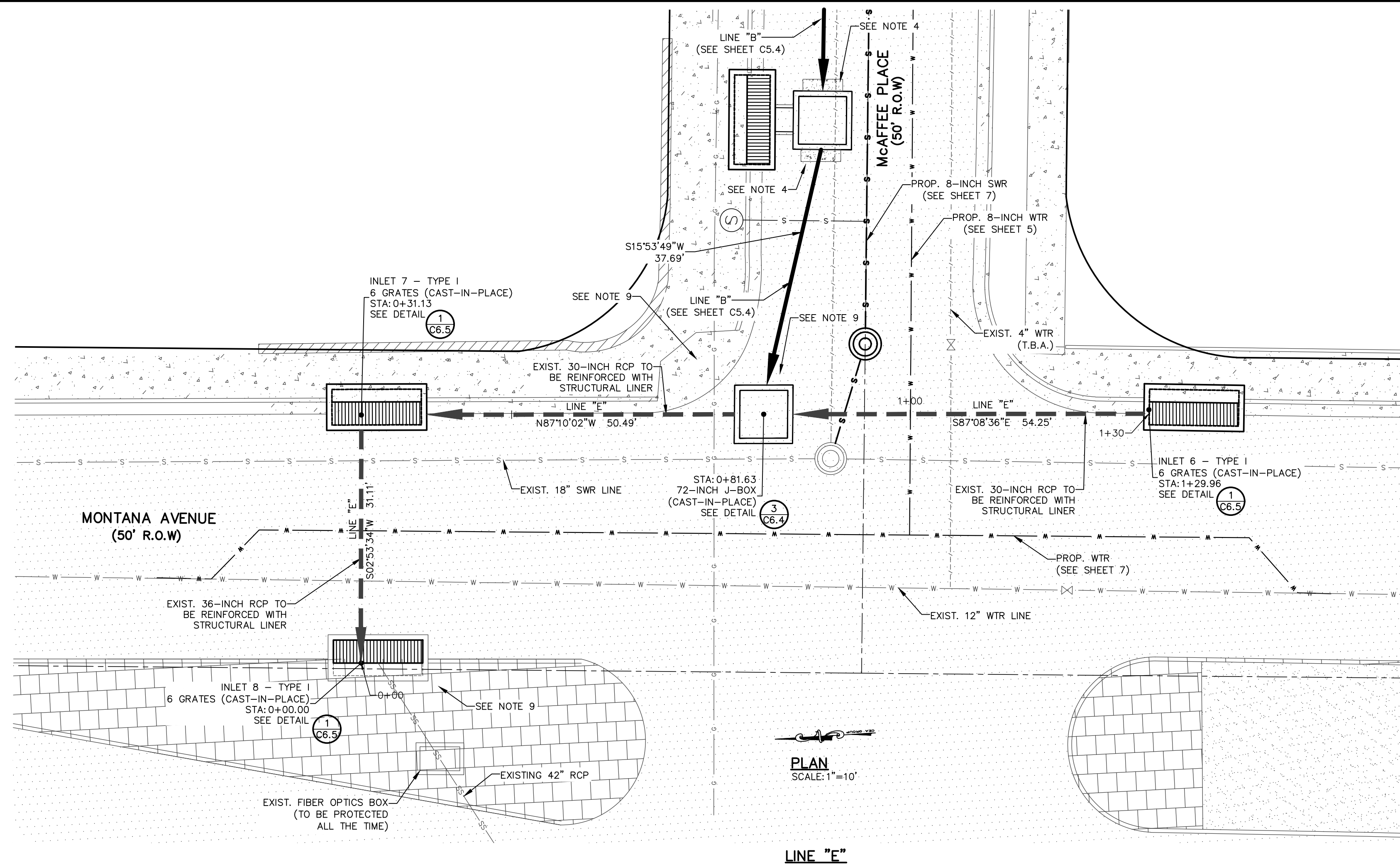
ENGINEER'S SEAL	
DESIGNED	LG
DRAWN	NC
CHECKED	LG
APPROVED	AG
DATE	02/14/2023



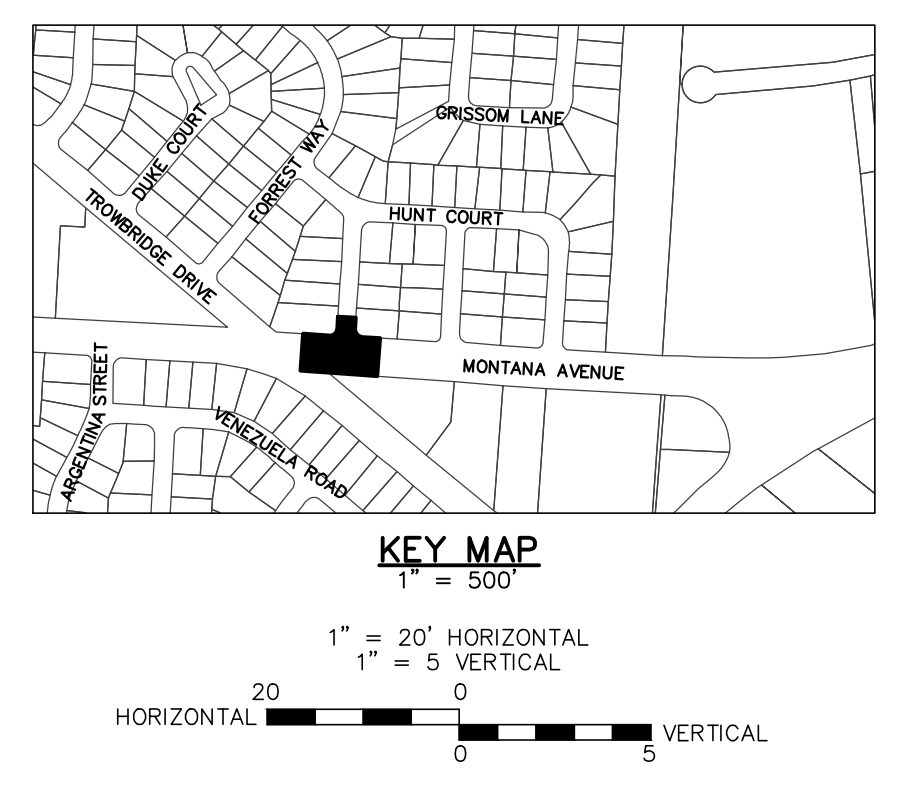
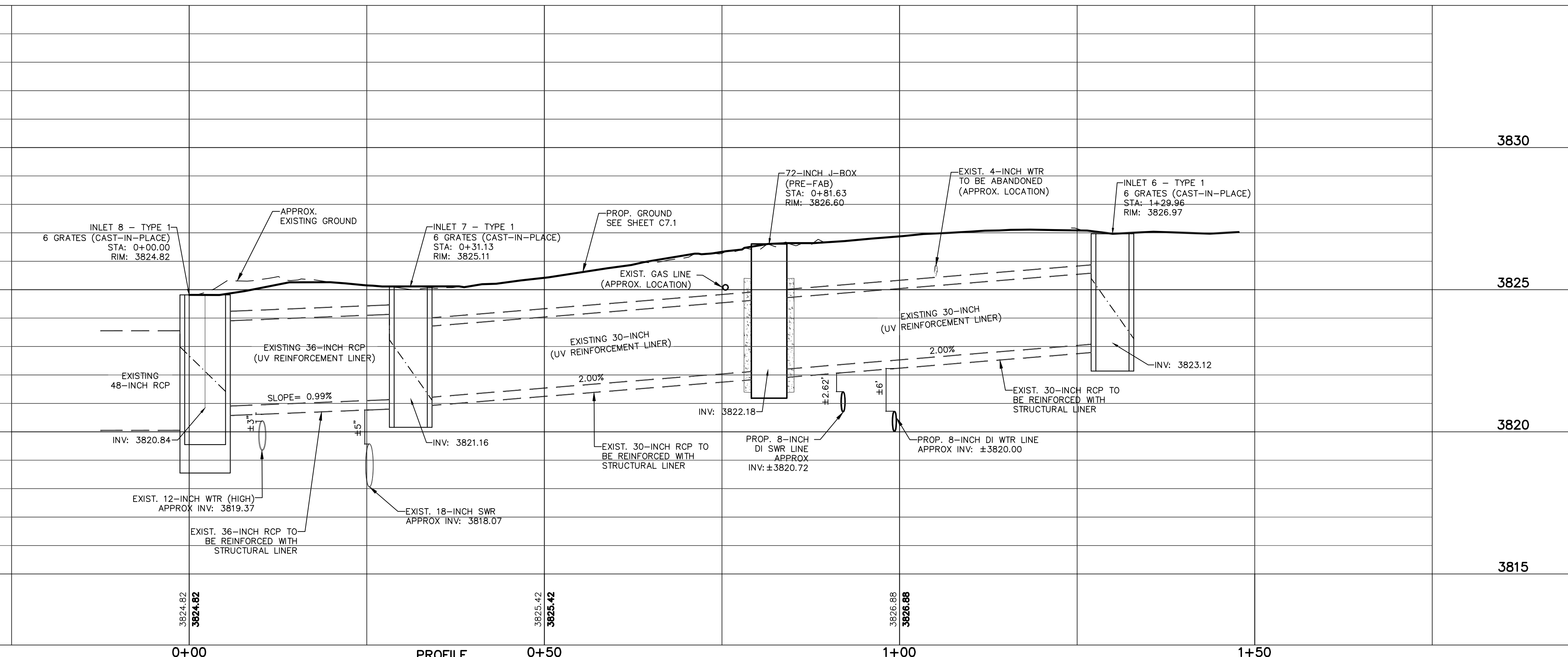
PROJECT: **GRISSOM LANE AND Mc AFEE PLACE – STORM SEWER, SANITARY SEWER AND WATER MAIN IMPROVEMENTS**

SHEET TITLE: **STORM SEWER PLAN & PROFILE – LINE "B" FROM STA. 0+00.00 TO STA. 3+82.36**

JOB NO.	1040-046
SEQUENCE NO.	C5.4
SHEET NO.	14 OF 22



- NOTES:**
- REFER TO GENERAL NOTES.
  - CONTRACTOR SHALL VERIFY LOCATION AND DEPTH OF EXISTING UTILITIES TO CONFIRM ALIGNMENT AND AVOID CONFLICT WITH PROPOSED STORM WATER IMPROVEMENTS.
  - CONTRACTOR SHALL NOTIFY PROPERTY OWNERS AT LEAST 7 DAYS PRIOR TO CONSTRUCTION. CONTRACTOR SHALL LEAVE PEDESTRIAN AND VEHICULAR ACCESS TO ALL RESIDENTS ALL THE TIME.
  - CONCRETE COLLARS TO BE INSTALLED ON ALL PRE-FAB STRUCTURES CONNECTIONS AS PER EPW STANDARD DETAIL 926-2. ALL MATERIAL QUALITY AND FINISHED SECTIONS ARE SUBJECT TO INSPECTION AND APPROVAL BY ENGINEER/ EPW OR OWNER REPRESENTATIVE.
  - SALVAGED MATERIAL, AS DETERMINED BY EPW PERSONNEL, SHALL BE DELIVERED TO EPWATER YARD.
  - EXISTING STREETS, CURB & GUTTER, SIDEWALKS, PAVEMENT, HARDSCAPES, DRIVEWAYS AND ALL OTHER MISCELLANEOUS STRUCTURES/IMPROVEMENTS DAMAGED OR REMOVED BY CONSTRUCTION ACTIVITIES, SHALL BE RESTORED TO ORIGINAL OR BETTER THAN ORIGINAL CONDITION AT THE EXPENSE OF THE CONTRACTOR. REFER TO SHEET C7.1 FOR CONCRETE DEMOLITION LIMITS.
  - CONTRACTOR TO TIE INTO EXISTING 30-INCH RCP.
  - EXISTING ADA RAMP TO BE PROTECTED ALL THE TIME.
  - CONTRACTOR TO REPLACE STAMPED CONCRETE TO ORIGINAL CONDITION.
  - CONTRACTOR SHALL POTHOLE ALL WATER & SANITARY SEWER SERVICES PRIOR TO STARTING CONSTRUCTION TO VERIFY ELEVATIONS.



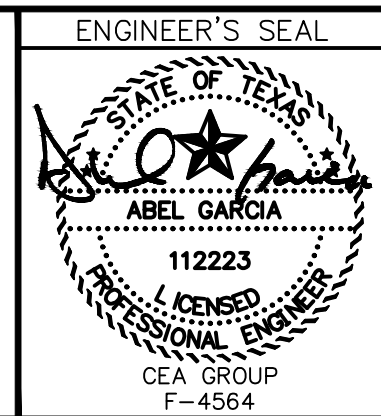
REV.	DATE	BY	DESCRIPTION

**UTILITY LOCATOR SERVICES**

TIME WARNER COMMUNICATIONS	(915) 775-7415
EL PASO ELECTRIC COMPANY	(915) 877-3400
EL PASO WATER UTILITIES	(915) 594-5500
VERIZON COMMUNICATIONS	(800) 624-9675
HOLLY ENERGY PARTNERS	(915) 494-0549
TEXAS GAS SERVICE	(800) 959-5325
KINDER MORGAN	(915) 843-2441
AT&T GENERAL	(915) 595-5151
EL PASO STREETS & MAINTENANCE	(915) 212-0118

**WARNING!**  
**BEFORE YOU DIG**  
**CALL 811**

FOR FIELD LOCATING EXISTING UTILITIES



DESIGNED LG  
DRAWN NC  
CHECKED LG  
APPROVED AG  
DATE 02/14/2023



PROJECT: **GRISSOM LANE AND Mc AFFEE PLACE – STORM SEWER, SANITARY SEWER AND WATER MAIN IMPROVEMENTS**

SHEET TITLE: **STORM SEWER PLAN & PROFILE – LINE "E" FROM STA. 0+00.00 TO STA. 1+29.96**

JOB NO. 1040-046  
SEQUENCE NO. C5.5  
SHEET NO. 15 OF 22



**GENERAL NOTES:**

1. THE CONCRETE COLLAR SHOULD BE CAST IN-PLACE CONCRETE. (MINIMUM 28 DAY COMPRESSIVE STRENGTH 4000 PSI. HIGH EARLY CONCRETE IS REQUIRED)
2. TOPS OF CONCRETE COLLAR SHALL BE FLUSH WITH ROADWAY SURFACE OR FINISHED GRADE UNLESS OTHERWISE SPECIFIED BY THE ENGINEER.
3. ANY DISTURBED SUBGRADE UNDER THE CONCRETE COLLAR SHALL BE COMPACTED TO 95% DENSITY ± 3% OPTIMUM MOISTURE CONTENT IN ACCORDANCE WITH ASTM D-1557.
4. ANY DISTURBED BASE COARSE UNDER THE CONCRETE COLLAR SHALL BE COMPACTED TO 100% DENSITY ± 2% OPTIMUM MOISTURE CONTENT IN ACCORDANCE WITH ASTM D-1557.
5. PROVIDE A MINIMUM OF 1 1/2" OF CONCRETE COVER FOR ALL REINFORCEMENT STEEL.
6. REINFORCING SHALL MEET ASTM C-478 AND TRAFFIC LOADING (HS-20).
7. NO. 3 REINFORCING STEEL HOOPS SHALL BE SPACED EQUALLY.

**CONSTRUCTION KEY NOTES:**

- A. #3 REINFORCING STEEL TYP.
- B. CONCRETE COLLAR.
- C. #3 REINFORCING STEEL EQUALLY SPACED.
- D. COMPACTED BASE COARSE.
- E. PAVEMENT.
- F. COMPACTED SUBGRADE.

"D" DIAMETER OF PENETRATION	NUMBER OF #3 REINFORCING STEEL BARS	"A" MINIMUM CONCRETE HORIZONTAL DIMENSION FROM PENETRATION	"B" MINIMUM CLEARANCE FROM EDGE OF CONCRETE COLLAR TO CENTER OF NEAREST REBAR	"C" MINIMUM CLEARANCE FROM PENETRATION EDGE TO CENTER OF NEAREST REBAR
0" TO 6"	1	6"	1 1/2"	1 1/2"
6.1" TO 18"	2	8"	1 1/2"	1 1/2"
18.1" AND OVER	3	12"	1 1/2"	1 1/2"

STANDARD DETAIL DATE: 8/9/2006 REV: 5/11/2017 CONCRETE COLLAR INSTALLATION IN PAVED AREAS N.T.S. el paso WATER DETAIL No. 184-1

**GENERAL NOTES:**

1. MATCHING SURFACES MARKED "MF" TO BE FINISHED OF ANY IRREGULARITIES THAT WOULD PREVENT A SNUG FIT.
2. CASTING TO BE SMOOTH & VOID OF AIR HOLES.
3. CASTING MUST MEET REQUIREMENTS OF AASHTO M306-07.
4. AS-CAST DIMENSIONS MAY VARY 1/8" ± / PER FOOT (AASHTO M306-07).
5. WEIGHT MAY VARY 5% ± (AASHTO M306-07).
6. SHADED DIMENSIONS IN TABLE FOR REFERENCE ONLY. SOURCE: CITY OF EL PASO DESIGN STANDARDS FOR CONSTRUCTION, DETAIL 2-16.

MANHOLE RING	MANHOLE - ALL TYPES	MANHOLE TYPE 48"	MANHOLE TYPE 72"
A	33"	25 3/4"	32 3/4"
B	31 3/4"	23 7/8"	31 7/8"
C	31 1/2"	23 3/8"	31 1/8"
D	30"	22 1/2"	30"
E	39 1/2"	34 1/2"	42"
F	5/8"	1 1/8"	1 1/8"
G	5"	6"	6"
H	4 1/4"	5 1/4"	5 1/4"
I	3 3/4"	4 1/8"	4 1/8"
J	4 3/4"	6"	6"
K	2 1/8"	3 3/8"	3 3/8"
L	2 1 3/8"	2 1 3/8"	2 1 3/8"
M	1 1/2"	1 3/8"	1 3/8"
WEIGHT	220 lbs.	165 lbs.	225 lbs.

STANDARD DETAIL DATE: 8/19/2009 REV: STORMWATER MANHOLE RING N.T.S. el paso WATER DETAIL No. 916

**GENERAL NOTES:**

1. MATCHING SURFACES MARKED "MF" TO BE FINISHED OF ANY IRREGULARITIES THAT WOULD PREVENT A SNUG FIT.
2. CASTING TO BE SMOOTH & VOID OF AIR HOLES.
3. CASTING MUST MEET REQUIREMENTS OF AASHTO M306-07.
4. AS-CAST DIMENSIONS MAY VARY 1/8" ± / PER FOOT (AASHTO M306-07).
5. WEIGHT MAY VARY 5% ± (AASHTO M306-07).
6. SHADED DIMENSIONS IN TABLE FOR REFERENCE ONLY. SOURCE: CITY OF EL PASO DESIGN STANDARDS FOR CONSTRUCTION, DETAIL 2-17.

**CONSTRUCTION KEY NOTES:**

- A. LIFTING NOTCH.
- B. 3/8" RAISED LETTERING.
- C. 1" SQUARES (3/8" TALL) WITH 3/8" SPACE BETWEEN.
- D. REINFORCING RIBS.
- E. SLOT.

MANHOLE COVER	MANHOLE - ALL TYPES	MANHOLE TYPE 48"	MANHOLE TYPE 72"
A	31 3/8"	23 3/4"	31 1/4"
B	28 3/8"	20 3/8"	28 3/8"
C	24 3/8"	16 3/8"	24 3/8"
D	21 7/8"	14 3/8"	21 7/8"
E	2 1/8"	3"	3"
F	1 1/4"	1 1/4"	1 1/4"
G	3 1/8"	3"	3"
H	1 1/8"	1"	1"
WEIGHT	265 lbs.	175 lbs.	310 lbs.

STANDARD DETAIL DATE: 8/19/2009 REV: STORMWATER MANHOLE COVER N.T.S. el paso WATER DETAIL No. 917

**GENERAL NOTES:**

1. MANHOLE CONNECTOR SHALL BE KOR-N-SEAL OR EQUAL MEETING THE REQUIREMENTS OF ASTM C-923. CONNECTOR SHALL BE FURNISHED BY CONTRACTOR.

**CONSTRUCTION KEY NOTES:**

- A. PRECAST MANHOLE BARREL.
- B. FLEXIBLE CONNECTOR.
- C. PIPE CLAMP SS 316.
- D. APPROVED PIPE.
- E. PRECAST MANHOLE BASE.
- F. GROUT AS REQUIRED TO FORM SMOOTH CHANNEL TO MANHOLE INVERT.
- G. PIPE OPENINGS/KNOCKOUTS AS REQUIRED TO FIT PIPE SIZE.
- H. EXPANSION BAND SS 316.
- I. FILL SPACE WITH GROUT.

STANDARD DETAIL DATE: 11/1992 REV: 8/13/2009 PIPE CONNECTION TO MANHOLE N.T.S. el paso WATER DETAIL No. 376

**GENERAL NOTES:**

1. MANHOLE CONNECTOR SHALL BE KOR-N-SEAL OR EQUAL MEETING THE REQUIREMENTS OF ASTM C-923. CONNECTOR SHALL BE FURNISHED BY CONTRACTOR.

**CONSTRUCTION KEY NOTES:**

- A. PRECAST MANHOLE BARREL.
- B. FLEXIBLE CONNECTOR.
- C. PIPE CLAMP SS 316.
- D. APPROVED PIPE.
- E. PRECAST MANHOLE BASE.
- F. GROUT AS REQUIRED TO FORM SMOOTH CHANNEL TO MANHOLE INVERT.
- G. PIPE OPENINGS/KNOCKOUTS AS REQUIRED TO FIT PIPE SIZE.
- H. EXPANSION BAND SS 316.
- I. FILL SPACE WITH GROUT.
- J. SUPPORT PIPE TO UNDISTURBED GROUND WITH CLASS I GRAVEL PER ASTM D-2321 AND D-2487.

STANDARD DETAIL DATE: 9/24/2009 REV: PIPE CONNECTION TO STORMWATER MANHOLE WATERTIGHT SEAL N.T.S. el paso WATER DETAIL No. 928-1

**GENERAL NOTES:**

1. NOT TO BE USED UNDER GROUND WATER CONDITIONS.

**CONSTRUCTION KEY NOTES:**

- A. PROPOSED R.C.P. PIPE.
- B. CONCRETE COLLAR (3000 PSI CONCRETE).
- C. INSIDE WALL OF EXISTING MANHOLE OR PRECAST STRUCTURE.
- D. #4's @ 12" O.C.
- E. 2-#4 CIRCULAR TIES.
- F. NON-SHRINK GROUT TO BE PLACED BETWEEN EXISTING MANHOLE AND RCP TO COVER ALL GAPS (TYPICAL). THE AREA BETWEEN THE EXISTING MANHOLE/STRUCTURE AND THE RCP SHALL BE 1/2" OF THE WALL THICKNESS OF THE EXISTING STRUCTURE.
- G. MANHOLE BASE.

D	L	T
12"	12"	12"
18"	12"	12"
24"	12"	12"
30"	12"	12"
36"	18"	18"
42"	18"	18"

STANDARD DETAIL DATE: 9/8/2009 REV: PIPE CONNECTION TO STORMWATER MANHOLE CONCRETE COLLAR N.T.S. el paso WATER DETAIL No. 928-2

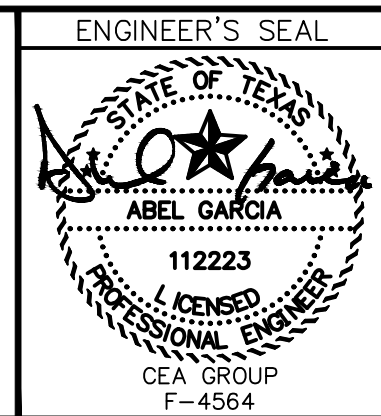
REV.	DATE	BY	DESCRIPTION

**UTILITY LOCATOR SERVICES**

TIME WARNER COMMUNICATIONS	(915) 775-7415
EL PASO ELECTRIC COMPANY	(915) 877-3400
EL PASO WATER UTILITIES	(915) 594-5500
VERIZON COMMUNICATIONS	(800) 624-9675
HOLLY ENERGY PARTNERS	(915) 494-0549
TEXAS GAS SERVICE	(800) 959-5325
KINDER MORGAN	(915) 843-2441
AT&T GENERAL	(915) 595-5151
EL PASO STREETS & MAINTENANCE	(915) 212-0118

**WARNING!**  
**BEFORE YOU DIG**  
**CALL 811**

FOR FIELD LOCATING EXISTING UTILITIES



DESIGNED LG  
DRAWN NC  
CHECKED LG  
APPROVED AG  
DATE 02/14/2023

**cea group**  
TEXAS REGISTERED ENGINEERING FIRM F-4564

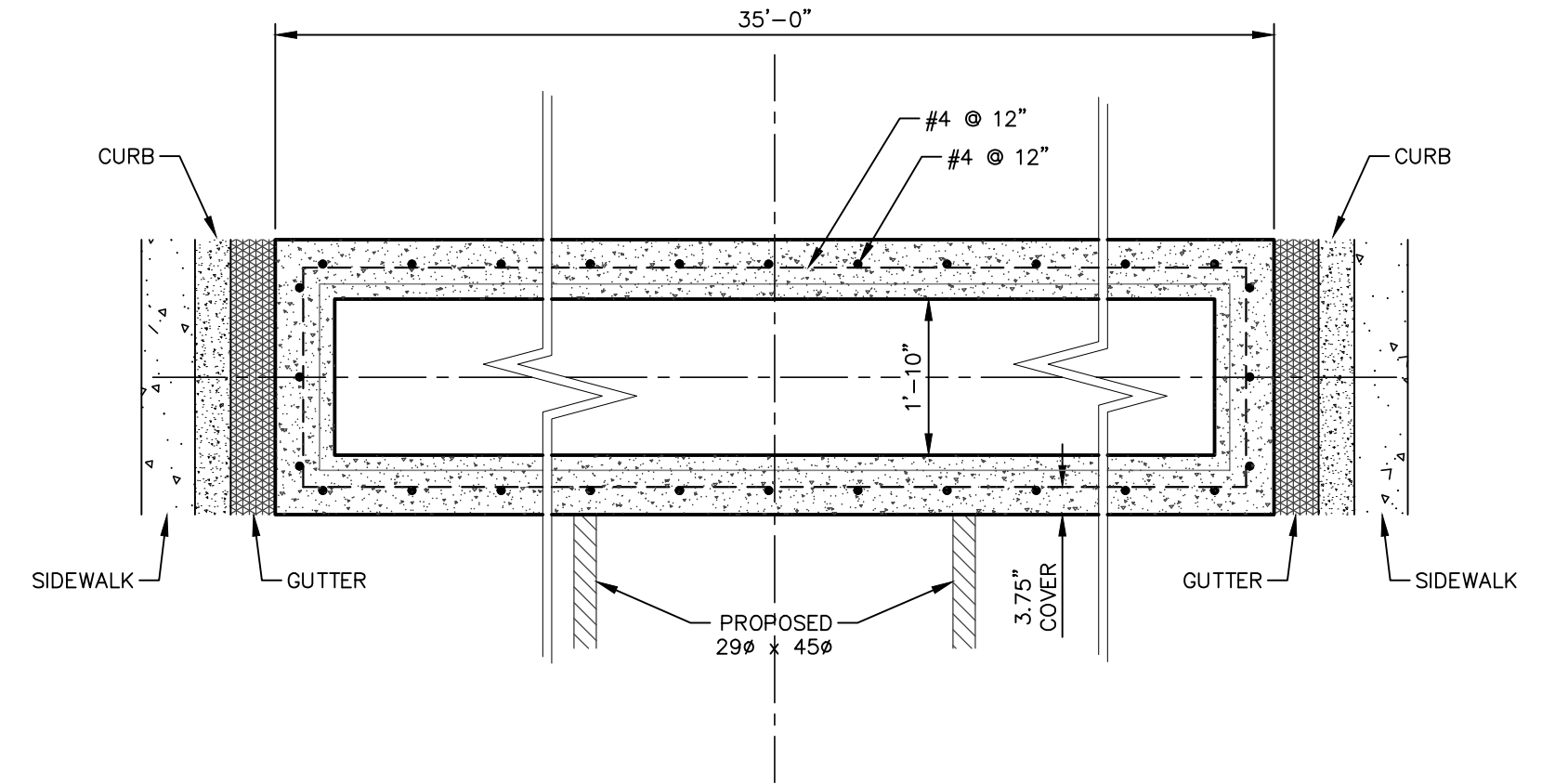
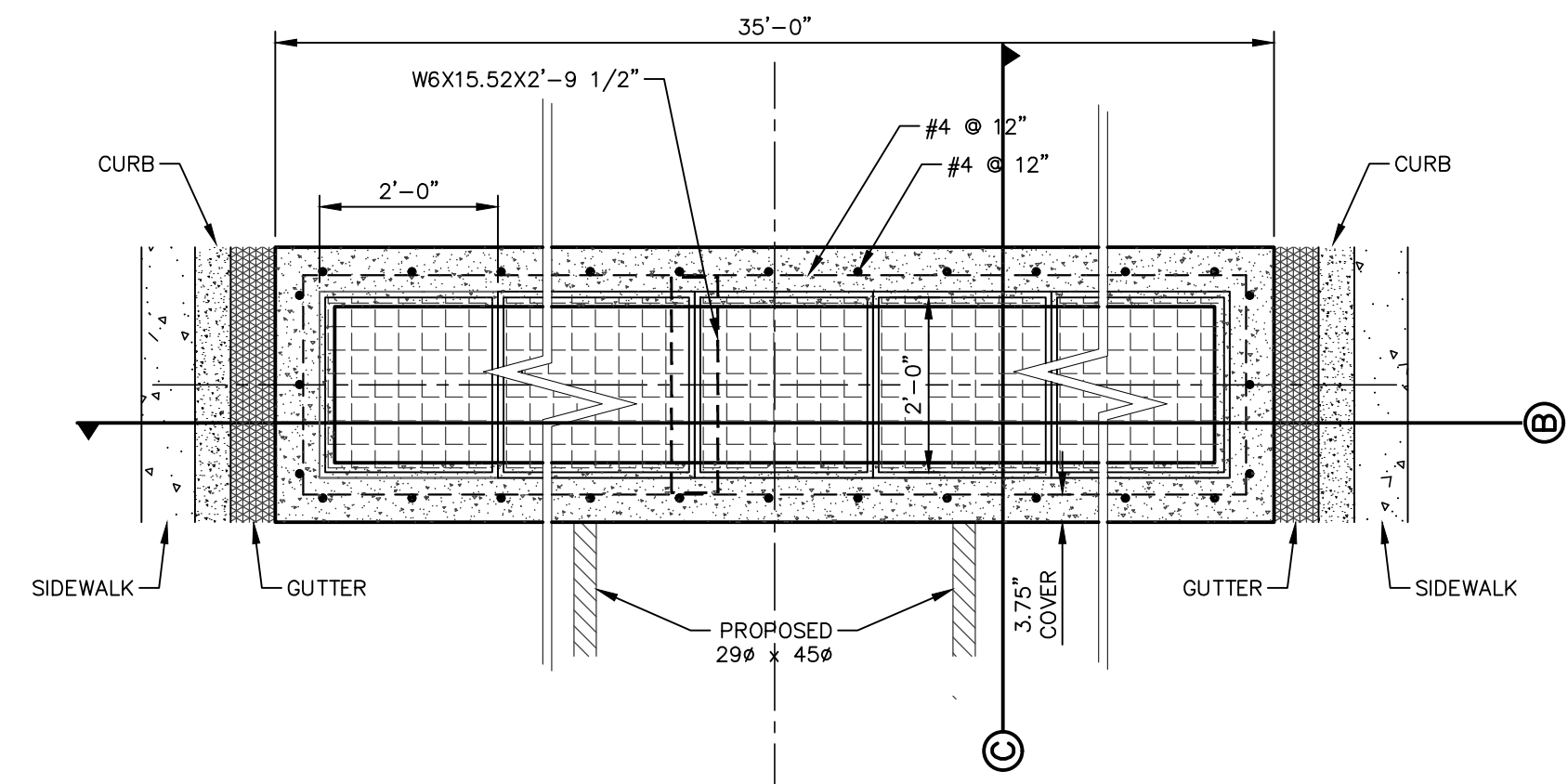
813 N. Kansas St.  
Suite 300  
El Paso, TX 79902  
915.544.5232  
www.ceagroup.net



PROJECT: GRISSOM LANE AND Mc AFEE PLACE - STORM SEWER, SANITARY SEWER AND WATER MAIN IMPROVEMENTS

SHEET TITLE: STANDARD DETAILS

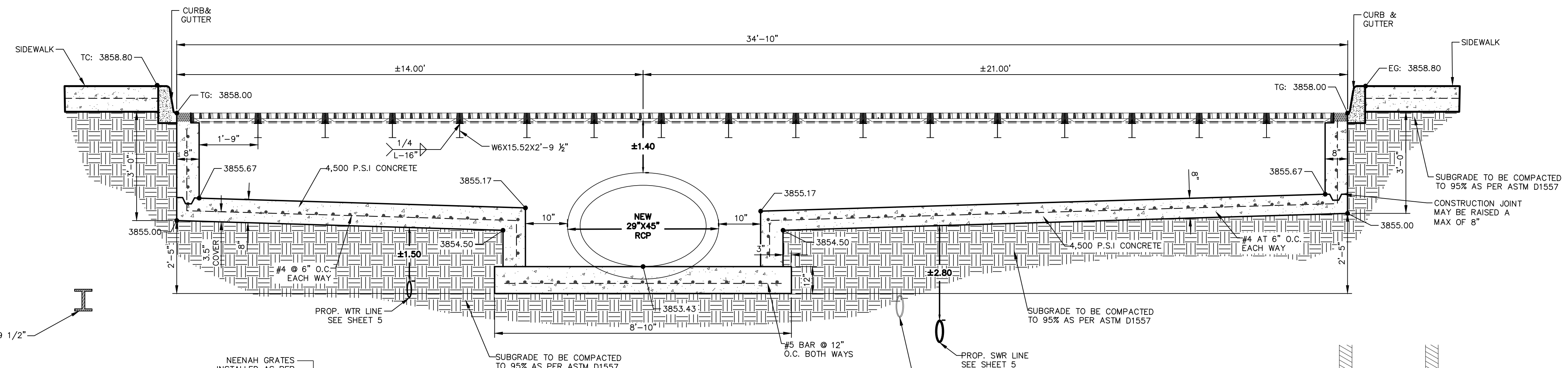
JOB NO. 1040-046  
SEQUENCE NO. C6.1  
SHEET NO. 16 OF 22



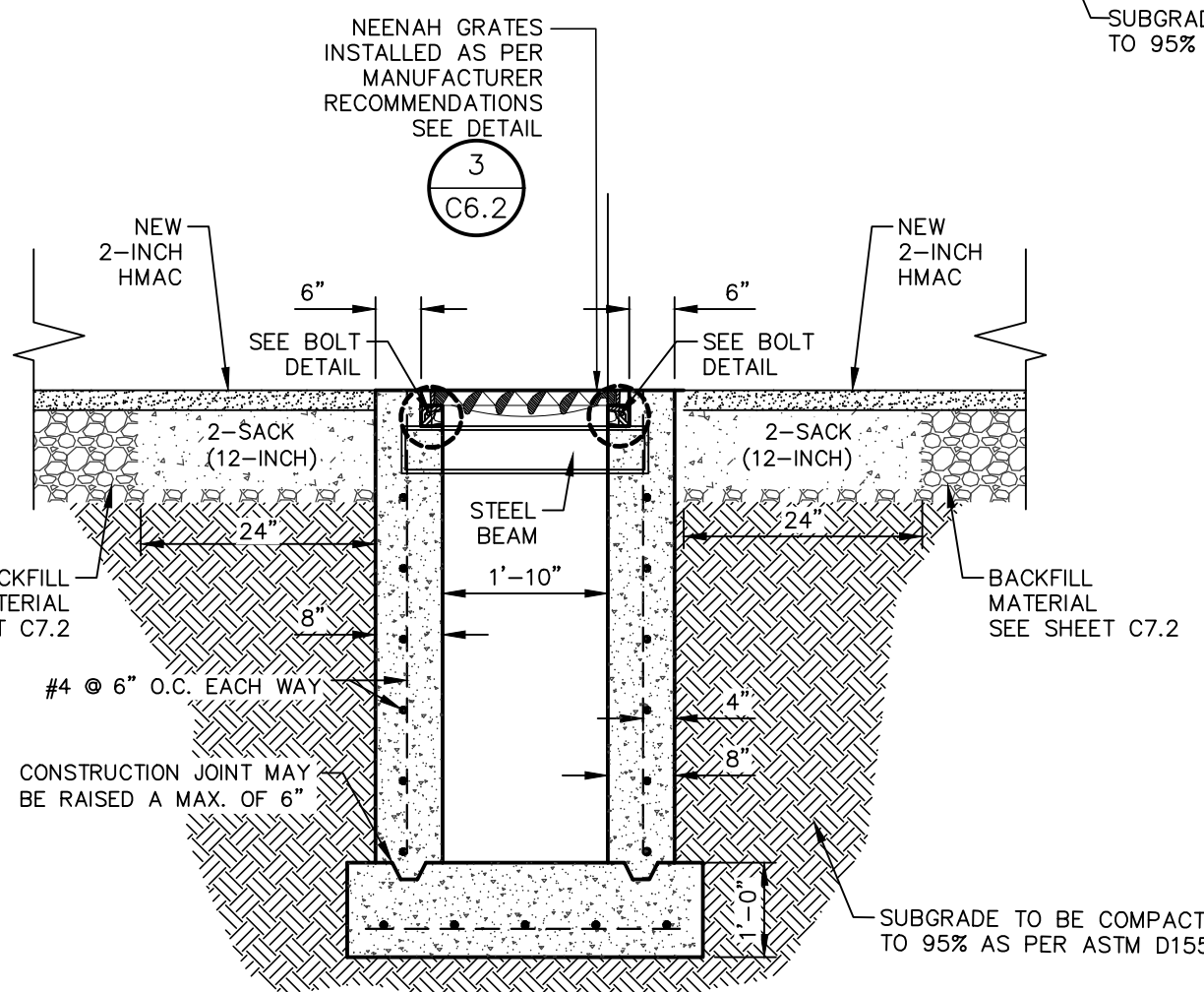
SECTION A

DROP INLET GENERAL NOTES:

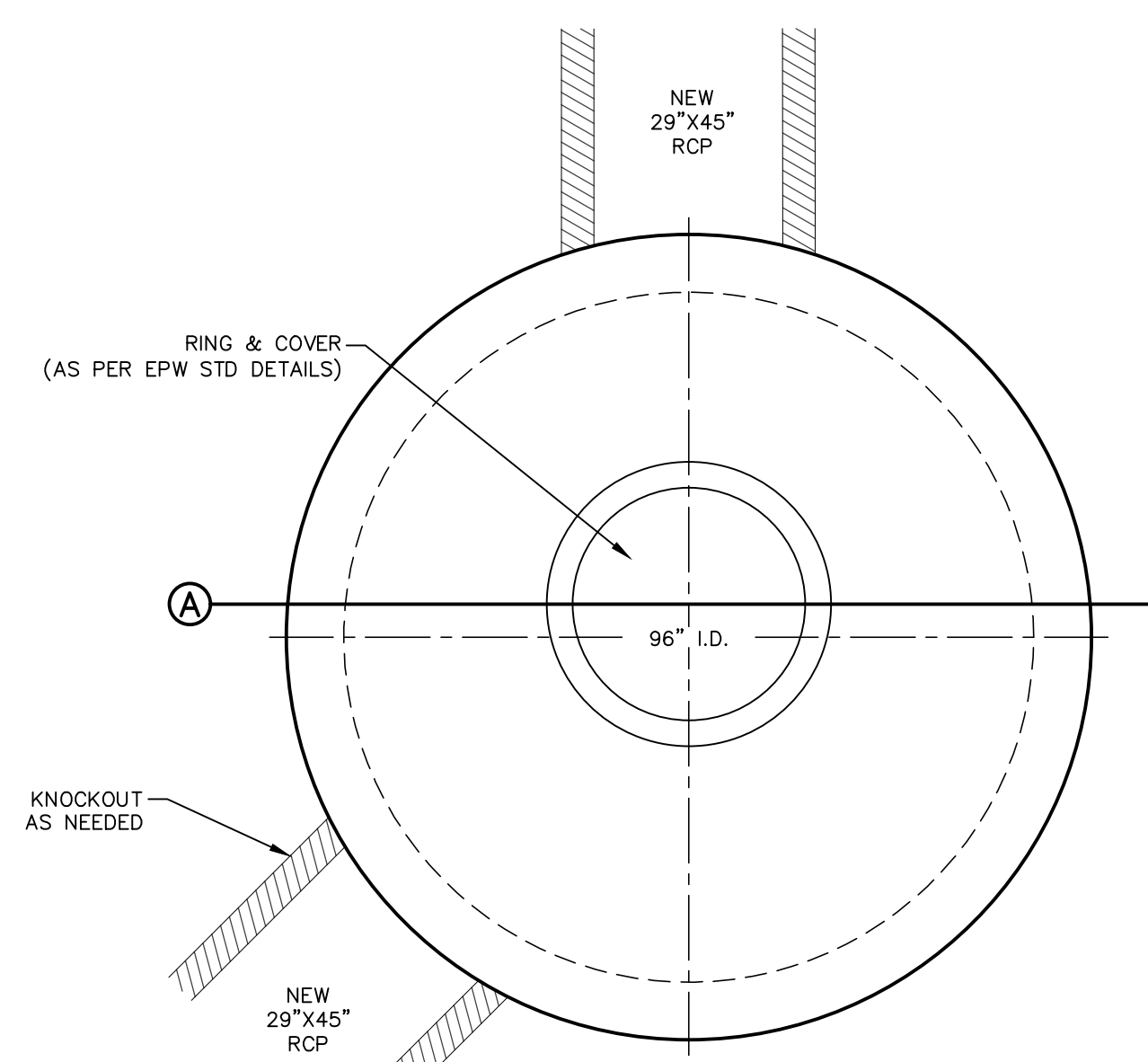
1. NEENAH GRATES (MODEL R-4999-L6 TYPE "L" GRATE WITH TYPE "X" FRAME) TO BE INSTALLED AS PER MANUFACTURER RECOMMENDATIONS. MIXING OR ALTERNATE TYPES OF GRATES ON INLET NO.1 WON'T BE PERMITTED
2. ALL CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH THE CURRENT STANDARD SPECIFICATIONS.
3. SHARP EDGES RESULTING FROM FABRICATION SHALL BE DULLED BY ANY ACCEPTABLE METHOD FOR SAFETY IN HANDLING.
4. ALL JOINTS BETWEEN CAST-IN-PLACE AND PRECAST SECTIONS SHALL BE SEALED WITH MORTAR.
5. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR THEIR REVIEW A MINIMUM OF THREE WEEKS PRIOR TO CONSTRUCTION.
6. CONTRACTOR SHALL COMPACT FILL UNDER ALL INLET STRUCTURES AS DIRECTED BY GEOTECHNICAL ENGINEERING REPORT.
7. ALL FORMS SHALL BE WELL BRACED AND STRAIGHT.
8. ALL STEEL SHALL BE FREE OF GREASE, SCALE AND DIRT.
9. FERROUS CASTINGS SHALL BE OF UNIFORM QUALITY, FREE OF BLOWHOLES, POROSITY, HARD SPOTS, SHRINKAGE DISTORTION OR OTHER DEFECTS. THEY SHALL BE SMOOTH AND WELL CLEANED BY SHOT BLASTING OR OTHER APPROVED CLEANING METHOD. AFTER CLEANING THEY SHALL BE COATED WITH ASPHALT BASE PAINT RESULTING IN A SMOOTH COATING, TOUGH AND TENACIOUS WHEN COLD, NOT TACKY OR BRITTLE.
10. ALL CONCRETE SHALL CONFORM TO ASTM C94 AND SHALL REACH A MINIMUM STRENGTH OF 4,000 P.S.I. AT 28 DAY TEST. CONCRETE SHALL NOT BE PLACED IN EXCESS OF 4" SLUMP WITHOUT PRIOR APPROVAL OF THE ENGINEER.
11. ALL CONCRETE TO BE 4,500 P.S.I. CHAMFER ALL EXPOSED EDGES 3/4". ALL DIMENSIONS RELATING TO REINFORCING STEEL ARE TO CENTER OF BARS.
12. ALL REINFORCING STEEL SHALL CONFORM TO ASTM A-615, ALL #4 OR LARGER BARS SHALL BE GRADE 60. BEND BARS AROUND PIPE OPENINGS.
13. ALL BARS SHALL BE TIED AT EVERY INTERSECTION. ALL STEEL SHALL BE SUPPORTED TO PROHIBIT LATERAL OR VERTICAL MOVEMENT.
14. CONCRETE POUR SHALL BE STARTED UNLESS THE SITE TEMPERATURE IS ABOVE 40 DEGREES FAHRENHEIT AND RISING FOR THE NEXT 12 HOURS.
15. ALL DETAILING, FABRICATION AND ERECTION OF REINFORCING BARS, UNLESS OTHERWISE NOTED MUST FOLLOW THE ACI "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCING STRUCTURES" (ACI 315).
16. THE CONTRACTOR SHALL COMPARE INLET NO.1 DETAILS WITH CIVIL DRAWINGS AS TO LAYOUT, DIMENSIONS, AND ELEVATIONS, ALL DISCREPANCIES, IF ANY, SHALL BE REPORTED TO ENGINEER FOR PROPER ADJUSTMENT BEFORE PROCEEDING WITH THE WORK.
17. CONTRACTOR SHALL COORDINATE WITH ENGINEER AND EL PASO WATER FOR INSPECTION OF INLET NO.1 PRIOR TO BACKFILLING.
18. KNOCKOUT OPENINGS AND SUMP INVERTS ARE APPROXIMATE. CONTRACTOR SHALL MAKE THE NECESSARY ADJUSTMENTS SHOULD OPENING SIZES DIFFER.
19. GROUT BOTTOM OF ALL INLET STRUCTURES A MINIMUM OF SIX (6) INCHES ABOVE EXIT INVERT ELEVATION AS PER EL PASO WATER STANDARD.



SECTION B

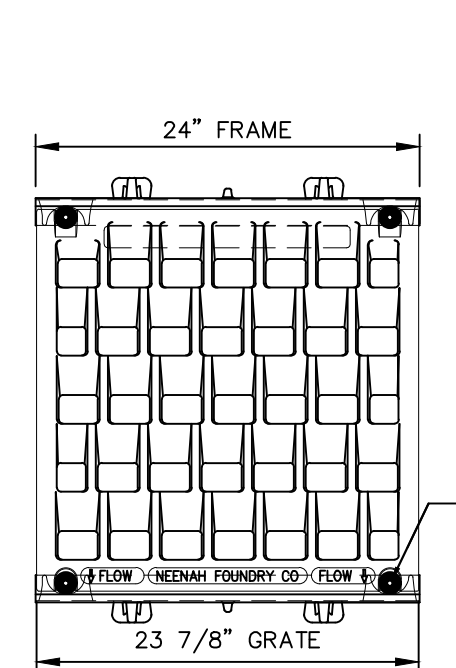


SECTION C

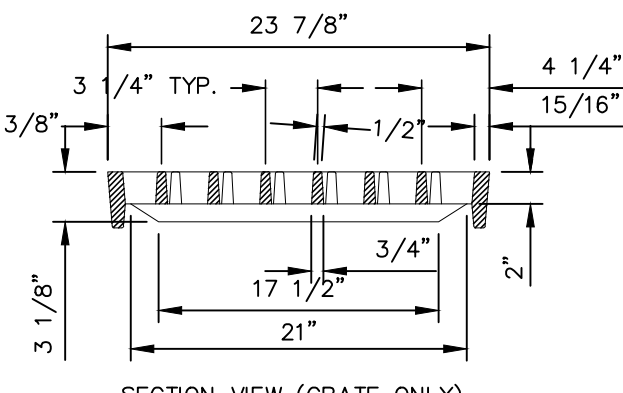
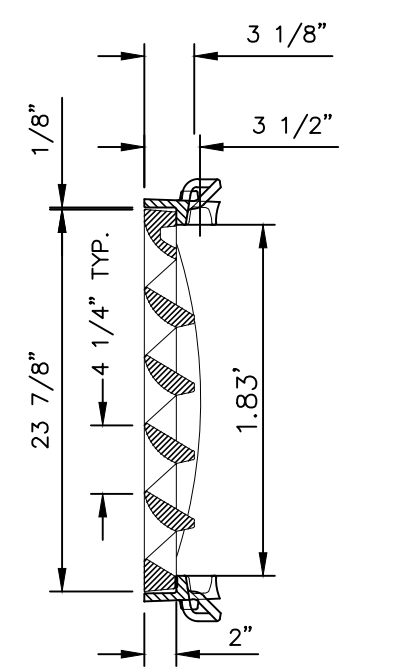


PLAN VIEW SCALE: 1" = 2'-0"

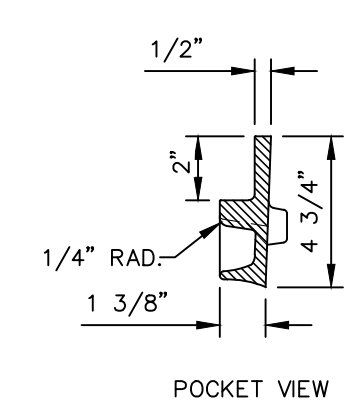
1 INLET #1 SCALE: N.T.S.



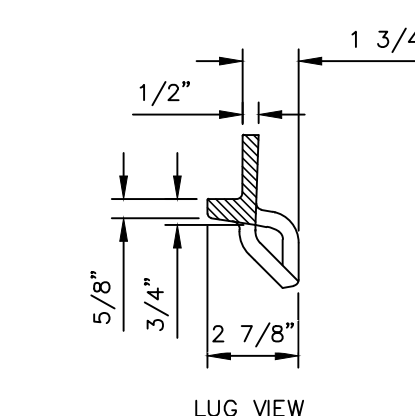
GRATE BOLTED TO FRAMES w/ (4) 3/8 x 16 x 2 3/4 STNLS. STL. HEX. HD. BOLT w/ GALV. FLAT WASHER



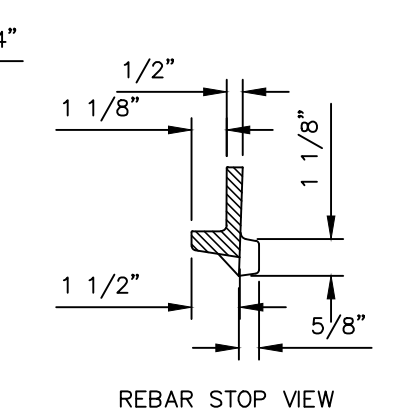
SECTION VIEW (GRATE ONLY)



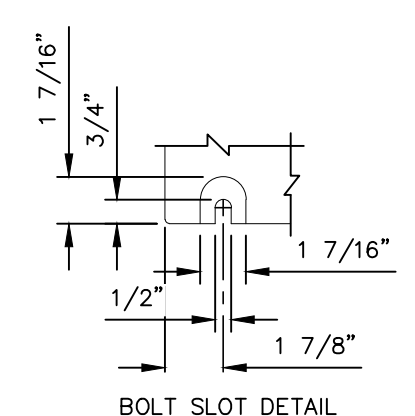
POCKET VIEW



LUG VIEW

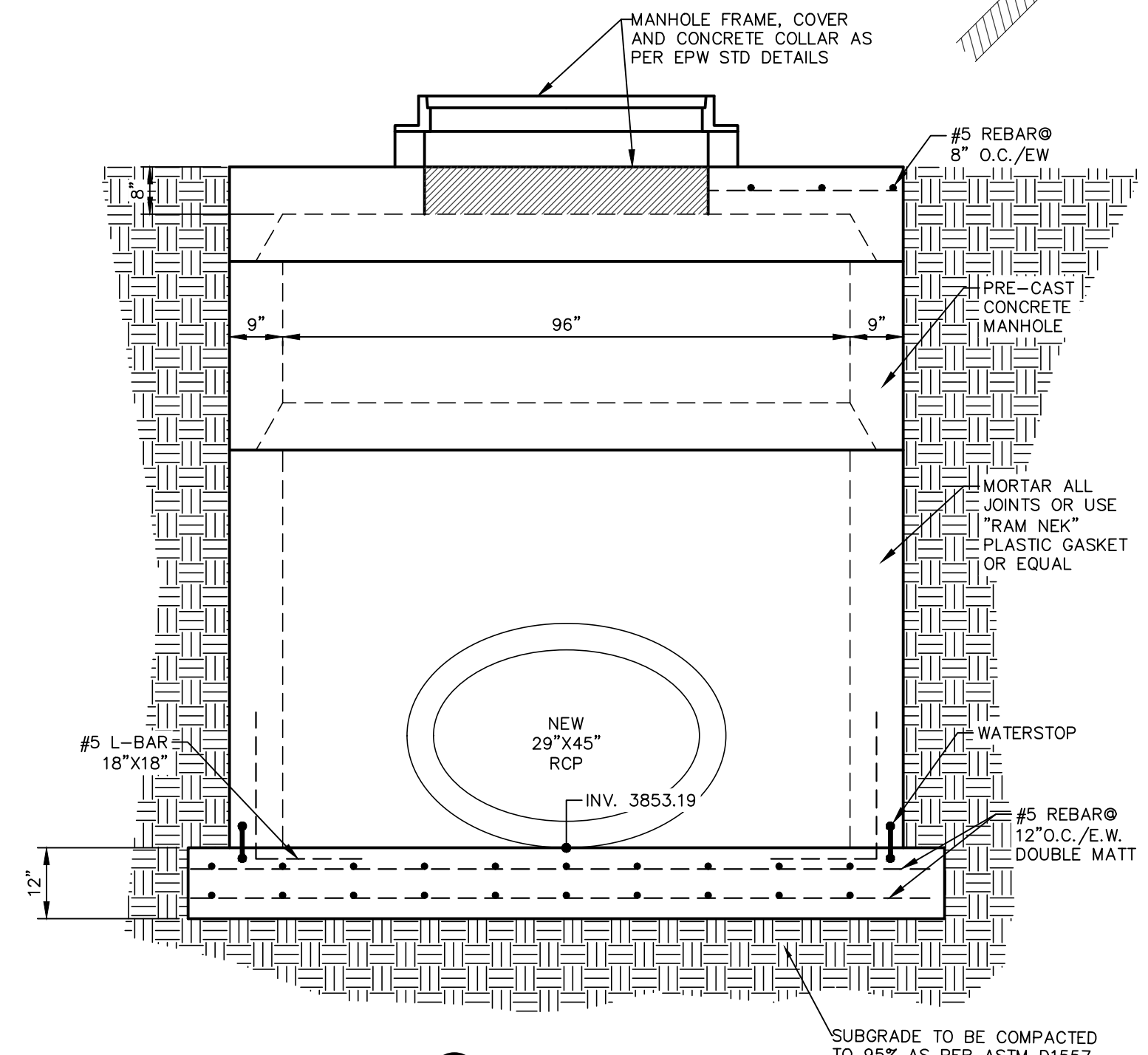


REBAR STOP VIEW



BOLT SLOT DETAIL

3 NEENAH TYPE "L" GRATE SCALE: N.T.S.



SECTION A SCALE: 1" = 2'-0"

2 96" I.D. MANHOLE SCALE: N.T.S.

REV.	DATE	BY	DESCRIPTION

UTILITY LOCATOR SERVICES	
TIME WARNER COMMUNICATIONS	(915) 775-7415
EL PASO ELECTRIC COMPANY	(915) 877-3400
EL PASO WATER UTILITIES	(915) 594-5500
VERIZON COMMUNICATIONS	(800) 624-9675
HOLLY ENERGY PARTNERS	(915) 494-0549
TEXAS GAS SERVICE	(800) 959-5325
KINDER MORGAN	(915) 843-2441
AT&T GENERAL	(915) 595-5151
EL PASO STREETS & MAINTENANCE	(915) 212-0118

**WARNING!**  
**BEFORE YOU DIG**  
**CALL 811**  
FOR FIELD LOCATING EXISTING UTILITIES

ENGINEER'S SEAL  
STATE OF TEXAS  
ABEL GARCIA  
112223  
LICENSED PROFESSIONAL ENGINEER  
CEA GROUP  
F-4564

DESIGNED	LG
DRAWN <td>NC</td>	NC
CHECKED <td>LG</td>	LG
APPROVED <td>AG</td>	AG
DATE <td>02/14/2023</td>	02/14/2023

ceagroup  
813 N. Kansas St.  
Suite 300  
El Paso, TX 79902  
915.544.5232  
www.ceagroup.net  
TEXAS REGISTERED ENGINEERING FIRM F-4564

**el paso WATER**

PROJECT:  
**GRISSOM LANE AND Mc AFFEE PLACE - STORM SEWER, SANITARY SEWER AND WATER MAIN IMPROVEMENTS**

SHEET TITLE:  
**STORM SEWER DETAILS**

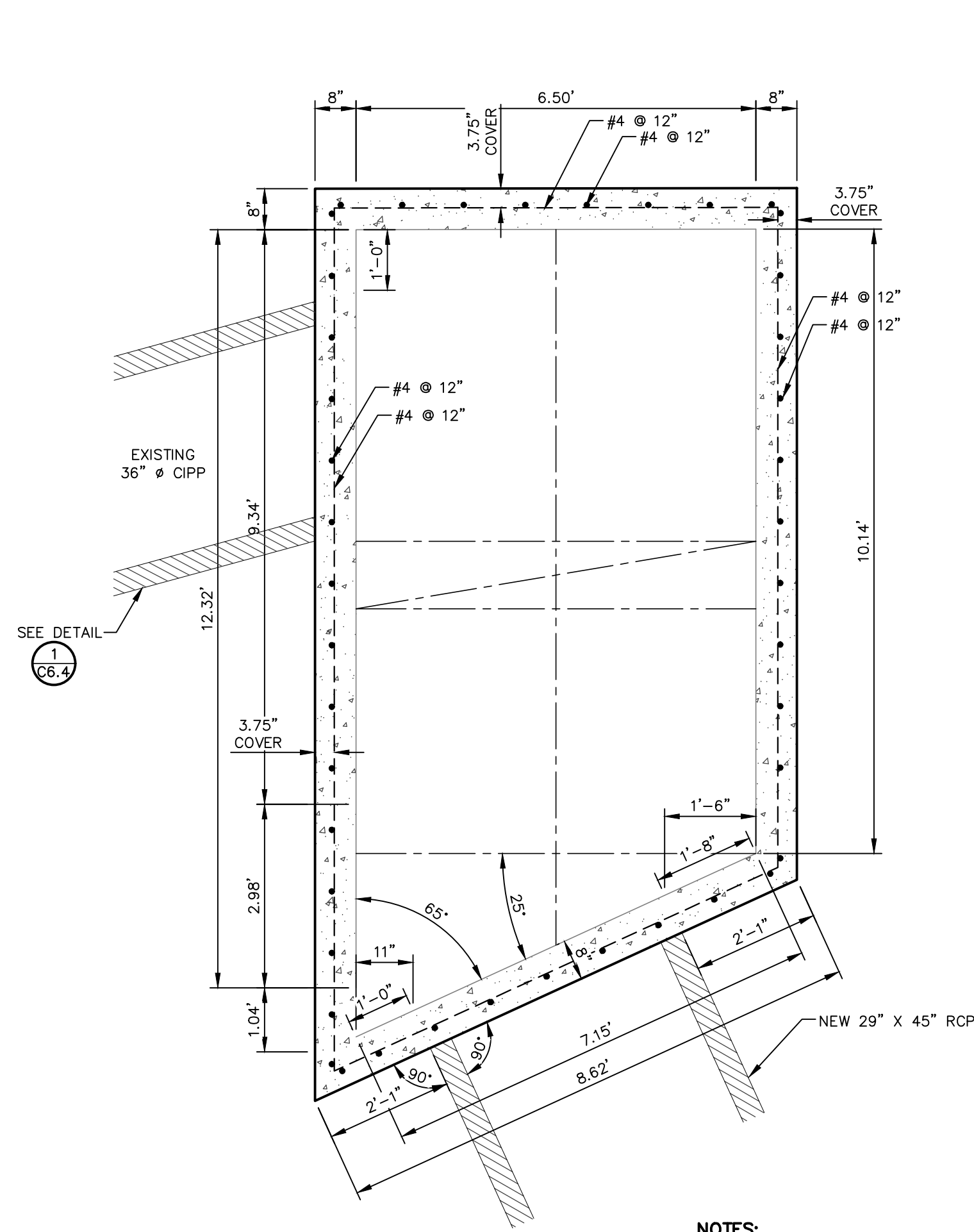
JOB NO.  
1040-046

SEQUENCE NO.  
**C6.2**

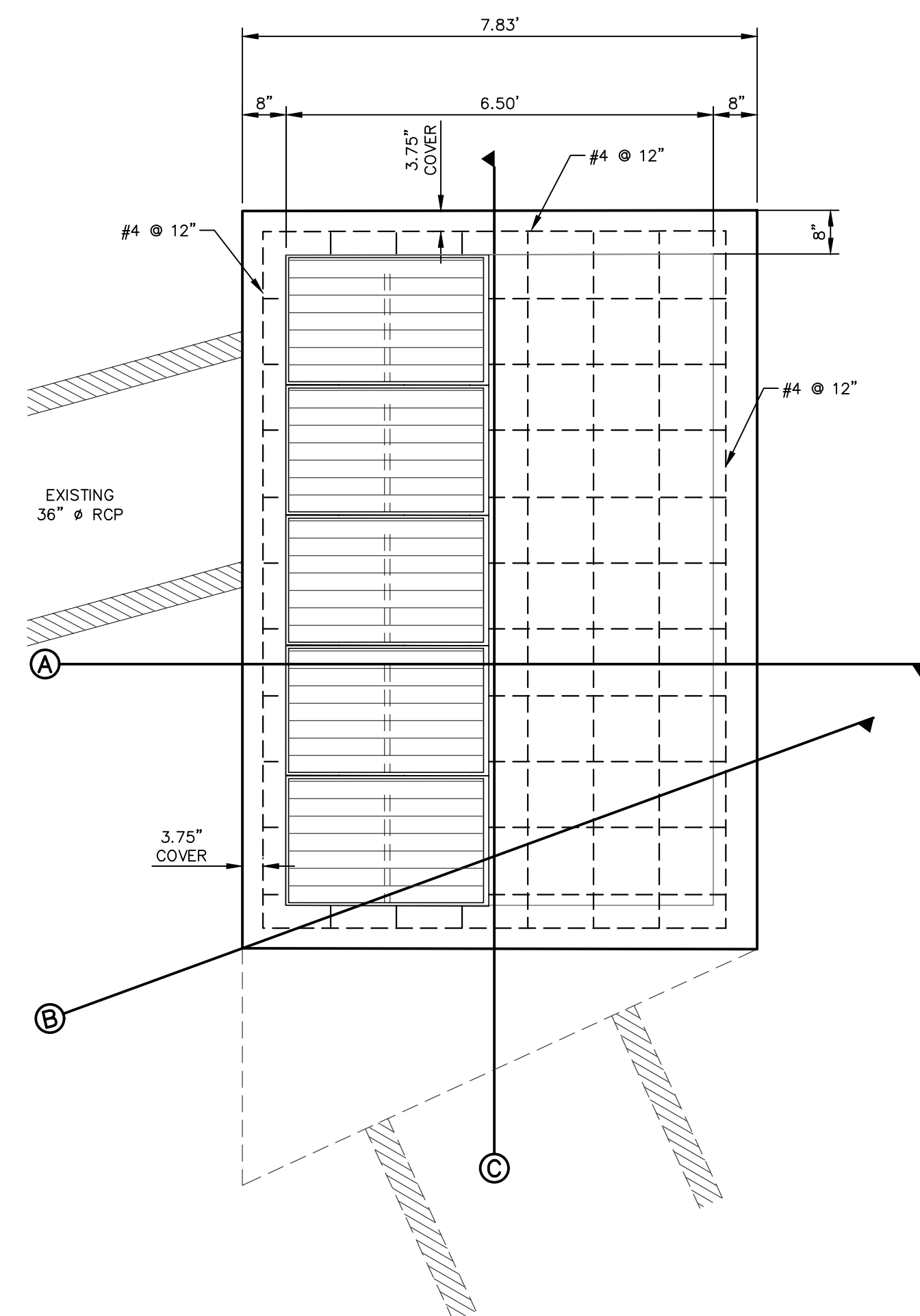
SHEET NO.  
17 OF 22

**DROP INLET GENERAL NOTES:**

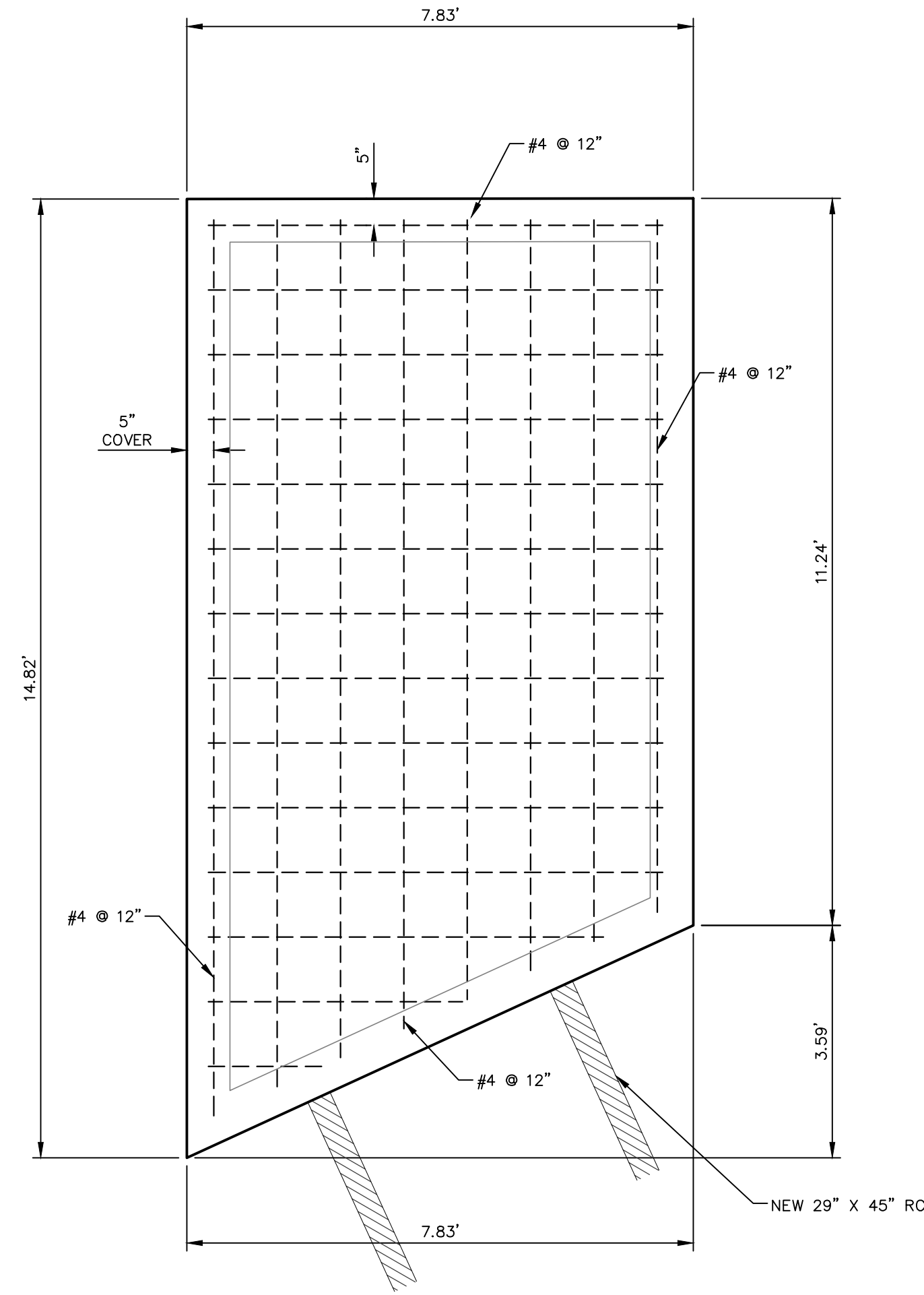
1. WELDED STEEL OR CAST GRATES AS DETAILED ARE ALL ACCEPTABLE GRATES. MIXING OF ALTERNATE TYPES OF GRATES ON THE SAME PROJECT WILL NOT BE PERMITTED.
2. ALL CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH THE CURRENT STANDARD SPECIFICATIONS.
3. SHARP EDGES RESULTING FROM FABRICATION SHALL BE DULLED BY ANY ACCEPTABLE METHOD FOR SAFETY IN HANDLING.
4. GRATES SHALL BE INSTALLED IN FRAME WITH FLOW ARROW POINTING DOWNSTREAM OR TOWARD THE LOW POINT IN A SUMP.
5. WELDED GRATES SHALL BE STRUCTURAL STEEL CONFORMING TO THE REQUIREMENTS OF AASHTO M-183 OR OF CORROSION RESISTANT STRUCTURAL STEEL CONFORMING TO THE REQUIREMENTS OF AASHTO M-161 OR M-222 OR BE MADE OF OTHER APPROVED STEELS OF EQUAL QUALITY. MIXING GRADES OF STEEL ON THE SAME GRATE WILL NOT BE PERMITTED.
6. GRATES MADE OF M-183 STEEL SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M-111 SPECIFICATIONS OR SHALL BE PAINTED WITH INORGANIC ZINC PAINTS, MEETING THE REQUIREMENTS OF CURRENT STANDARD SPECIFICATIONS.
7. ALL WELDS SHALL HAVE A MINIMUM OF 1/4" FILLET AND SHALL CONFORM TO THE SPECIFICATIONS FOR HIGHWAY CONSTRUCTION AND TO THE AWS STRUCTURAL WELDING CODE. ELECTRODES SHALL BE COMPATIBLE TO THE DIFFERENT GRADES OF STEEL THAT COMPRISE THE GRATE MEMBERS.
8. CAST GRATES SHALL BE CAST STEEL CONFORMING TO THE REQUIREMENTS OF AASHTO M-103, GRADE 65-35 OR OF DUCTILE IRON CONFORMING TO THE REQUIREMENTS OF ASTM A-536, SPECIAL GRADE 60-45, OR OF GRAY IRON CONFORMING TO THE REQUIREMENTS OF AASHTO M-105, CLASS 35B OR ASTM A-48 CLASS 35B. THE SPECIFICATIONS OF GENERAL APPLICATION FOR CAST STEEL GRATES SHALL BE AASHTO M-103 SCOPE 1.2.1, GRADE N-1.
9. FERROUS CASTINGS SHALL BE OF UNIFORM QUALITY, FREE OF BLOWHOLES, POROSITY, HARD SPOTS, SHRINKAGE DISTORTION OR OTHER DEFECTS. THEY SHALL BE SMOOTH AND WELL CLEANED BY SHOT BLASTING OR OTHER APPROVED CLEANING METHOD. AFTER CLEANING THEY SHALL BE COATED WITH ASPHALT BASE PAINT RESULTING IN A SMOOTH COATING, TOUGH AND TENACIOUS WHEN COLD, NOT TACKY OR BRITTLE.
10. ALL CASTING SHALL BE MANUFACTURED TRUE TO PATTERN. COMPONENT PARTS SHALL FIT TOGETHER IN A SATISFACTORY MANNER.
11. ALL CONCRETE TO BE 4500 P.S.I. CHAMFER ALL EXPOSED EDGES 3/4". ALL DIMENSIONS RELATING TO REINFORCING STEEL ARE TO CENTER OF BARS.
12. MINIMUM CONCRETE COVER SHALL BE 1 1/2" FOR STEEL REINFORCING.
13. EXPANSION MATERIAL TO BE 1/2" BITUMINOUS FIBER AND PLACED WHERE PROPOSED CONCRETE COMES IN CONTACT WITH ANY EXISTING OR PROPOSED CONCRETE OR MASONRY STRUCTURE.
14. SURFACE OF ALL EXPOSED CONCRETE SHALL CONFORM IN SLOPE AND GRADE TO EXISTING OR PROPOSED CURB AND WALK ADJACENT TO INLETS.
15. ALL REINFORCING STEEL SHALL CONFORM TO ASTM A-645. ALL #4 BARS OR LARGER BARS SHALL BE GRADE 60. BEND BARS AROUND PIPE OPENINGS.
16. GRATES WILL BE DEPRESSED 1" BELOW PROPOSED OR EXISTING GRADE.
17. INLETS TO BE DESIGNATED IN PLANS BY NUMBER OF GRATES REQUIRED.
18. TWO 3/8"x4" LONG CONCRETE ANCHOR STUDS REQUIRED FOR EACH SIDE OF FRAME, WHERE RESTING ON CONCRETE, USE NELSON STUDS OR EQUAL.
19. THE CONTRACTOR SHALL PRESERVE, DURING CONSTRUCTION, ALL STOP SIGNS, SPEED LIMIT SIGNS, UNDERGROUND SIGNAL CONDUITS AND ALL OTHER TRAFFIC REGULATORY SIGNS. COORDINATION SHALL BE WITH THE CITY OF EL PASO. CONTRACTOR SHALL COORDINATE WITH THE ABOVE ENTITY FOR THE LOCATION AND SPOTTING OF TRAFFIC SIGNAL CONDUITS.
20. THE GRATES OF ALL INLETS WITHIN THE STREET PAVEMENT MUST BE CONSTRUCTED WITH THE GRATE BARS PERPENDICULAR TO THE CURB.



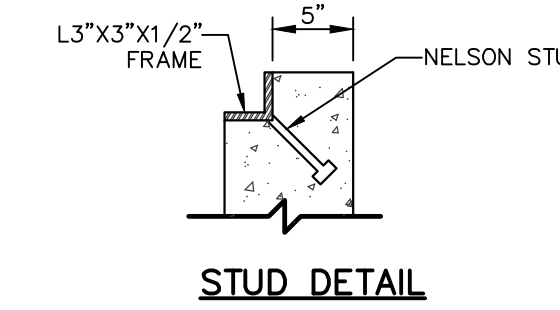
**A PLAN VIEW**



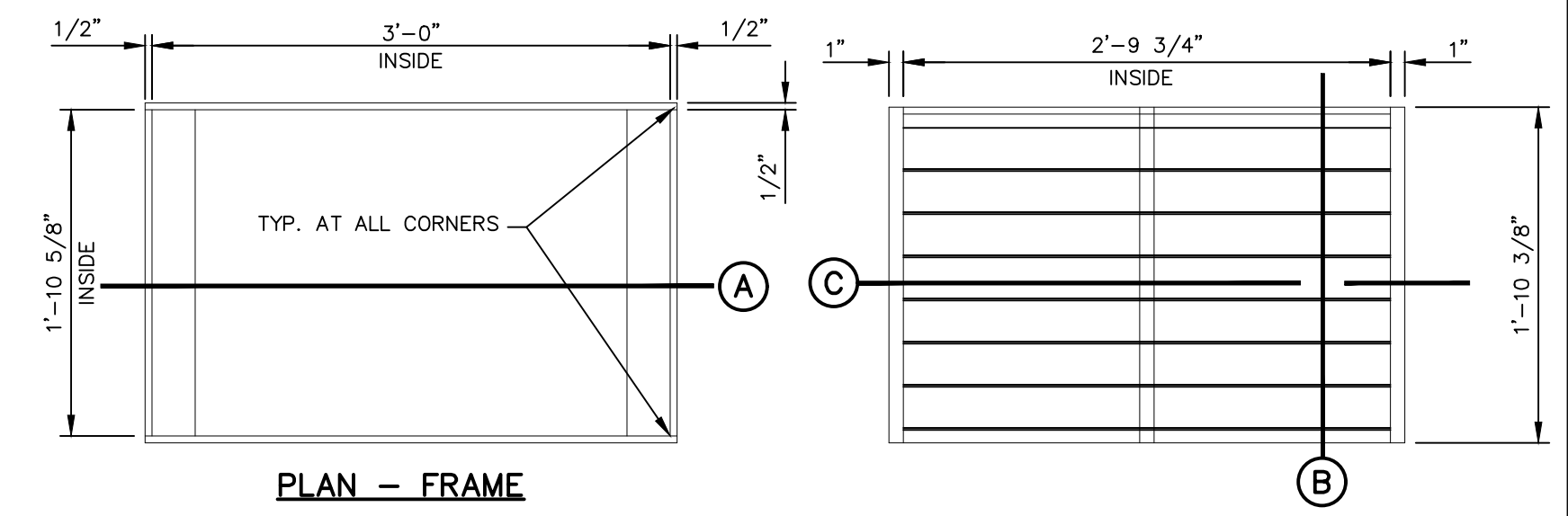
**B TOP SLAB REINFORCEMENT**



**C BOTTOM SLAB REINFORCEMENT**



**STUD DETAIL**

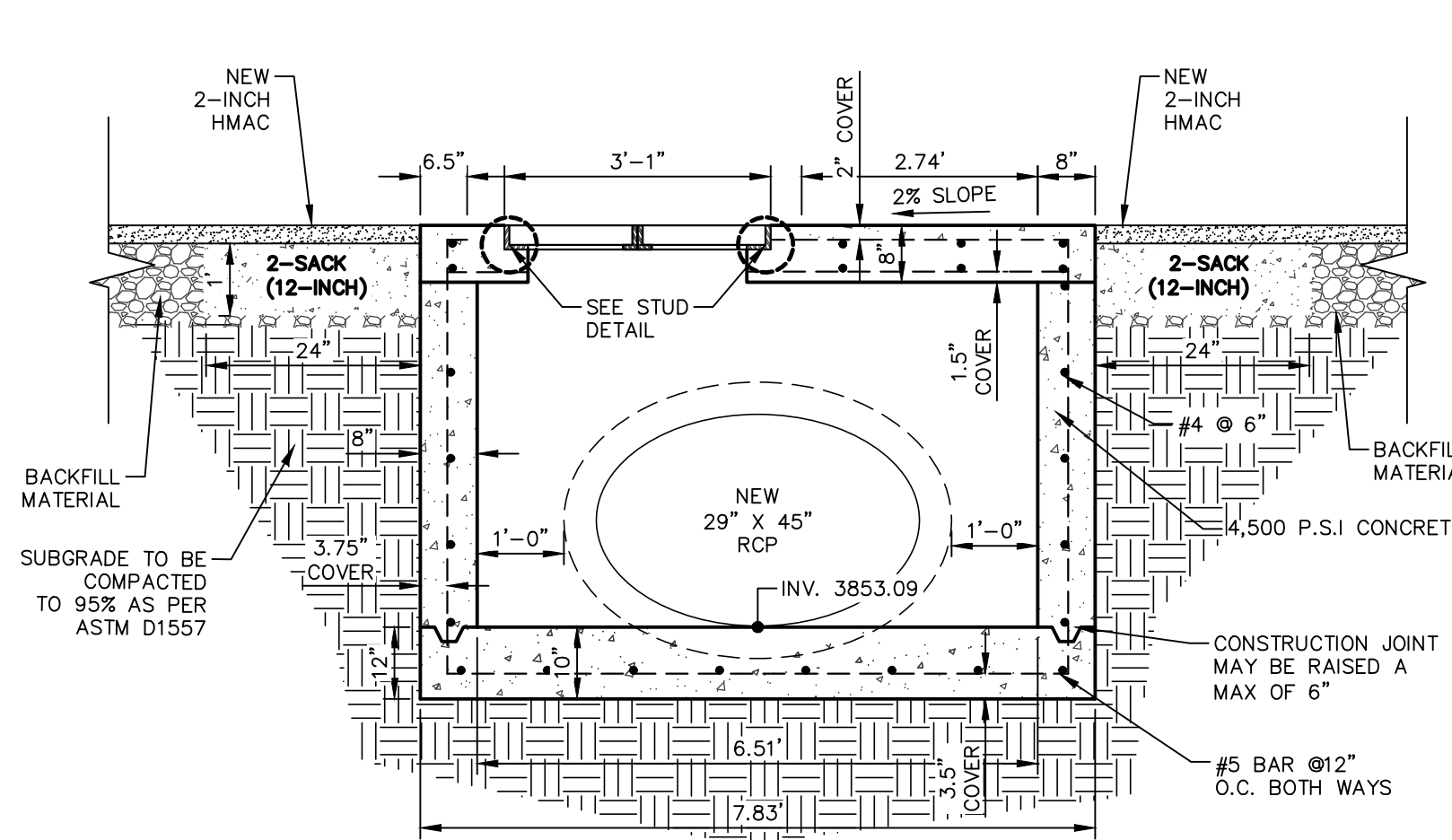


**PLAN - FRAME**

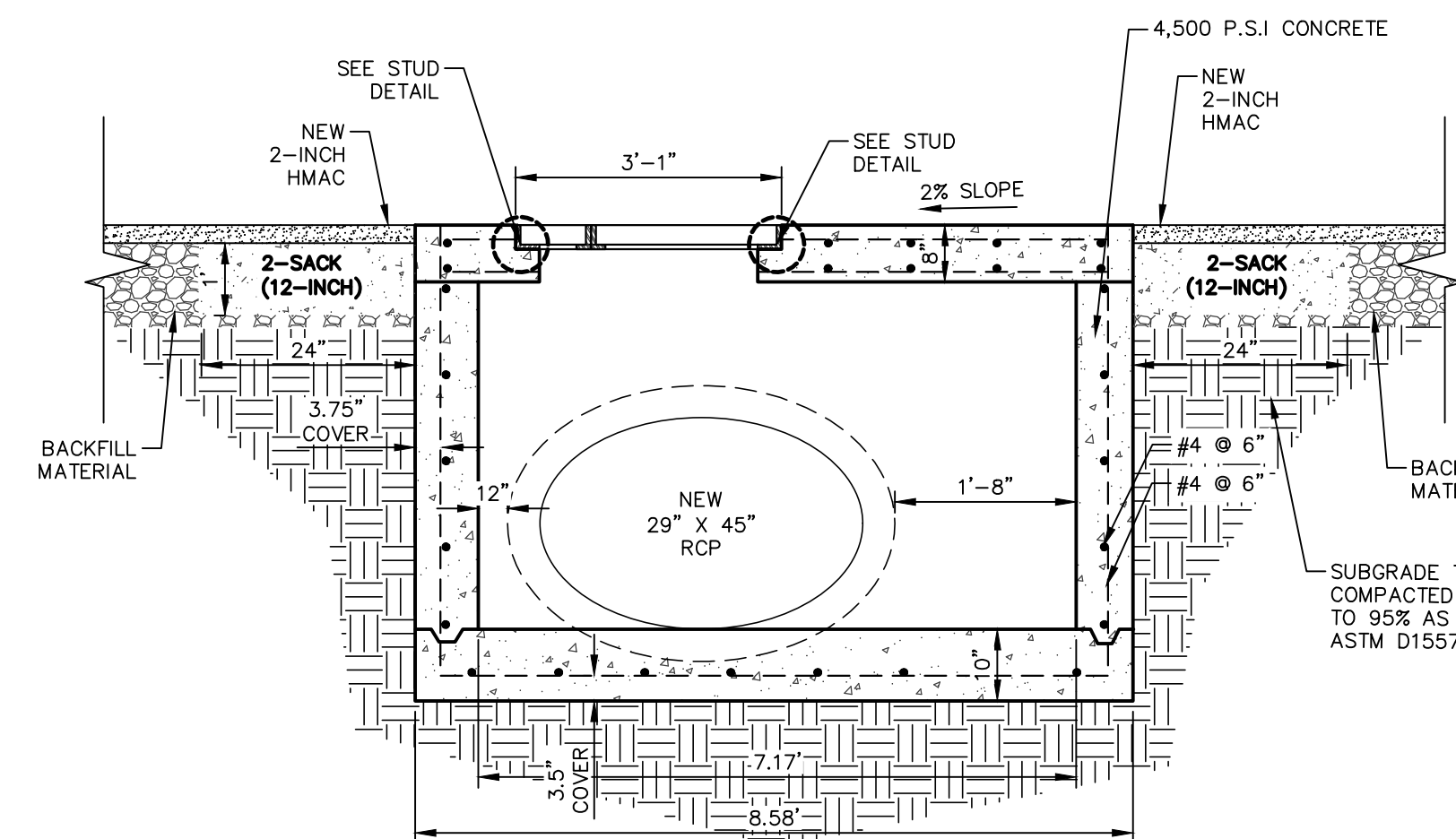
**PLAN - GRATE**

**NOTES:**

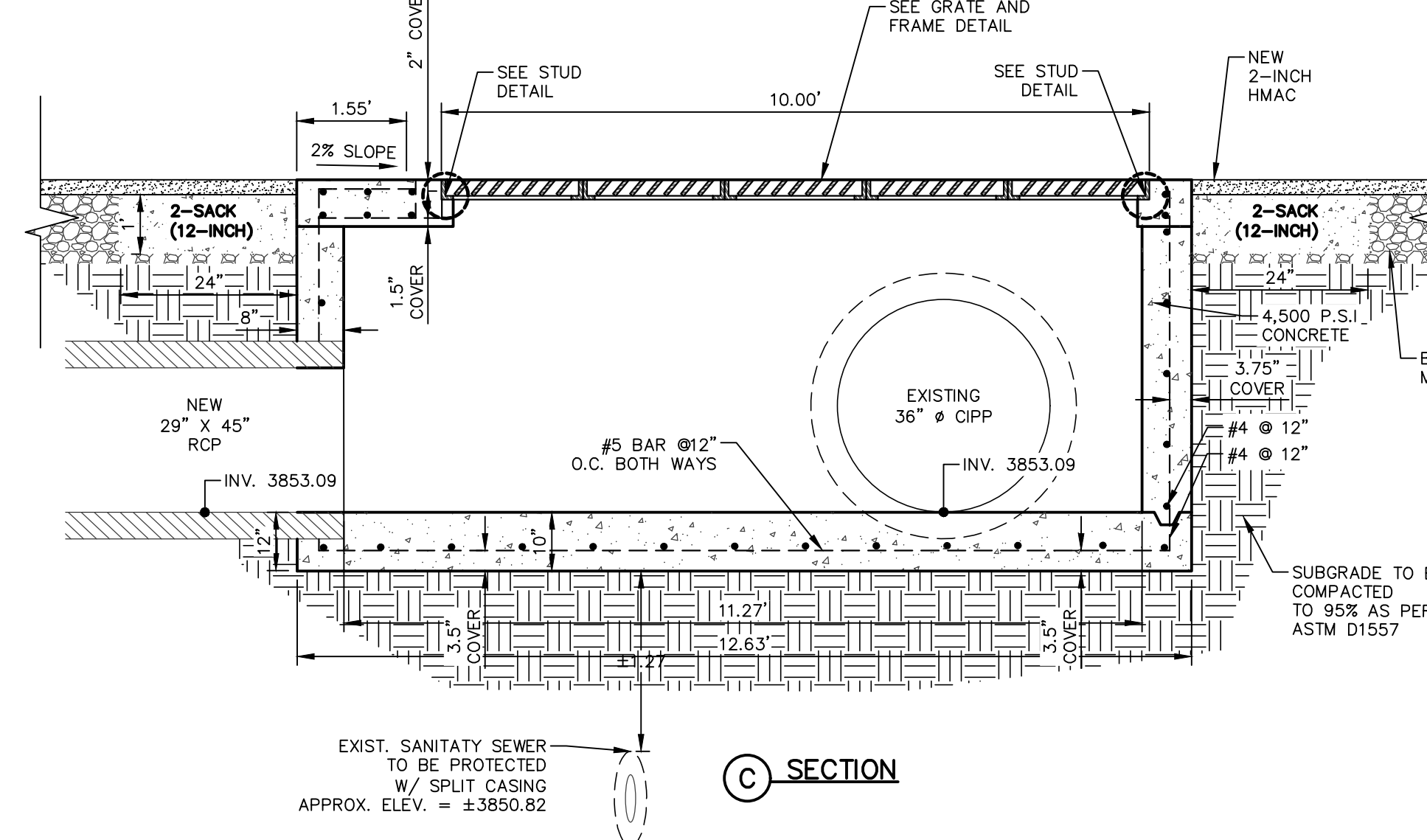
1. EXPANSION JOINT FILLER SHALL BE 1/2" BITUMINOUS TYPE PREFORMED JOINT FILLER (AASHTO M-33).
2. WHEREVER SIDEWALK ABUTS ROCK OR MASONRY STRUCTURES SUCH AS CURBS OR BUILDINGS, EXPANSION JOINTS FILLER SHALL BE PLACED IN ACCORDANCE WITH STANDARD SPECIFICATIONS.
3. FOR CURB, SIDEWALK AND GUTTER REPLACEMENT, REFER TO SHEET C7.1.
4. SUBGRADE TO BE COMPACTED TO 95% AS PER ASTM D1557.
5. 4,500 P.S.I. CONCRETE.



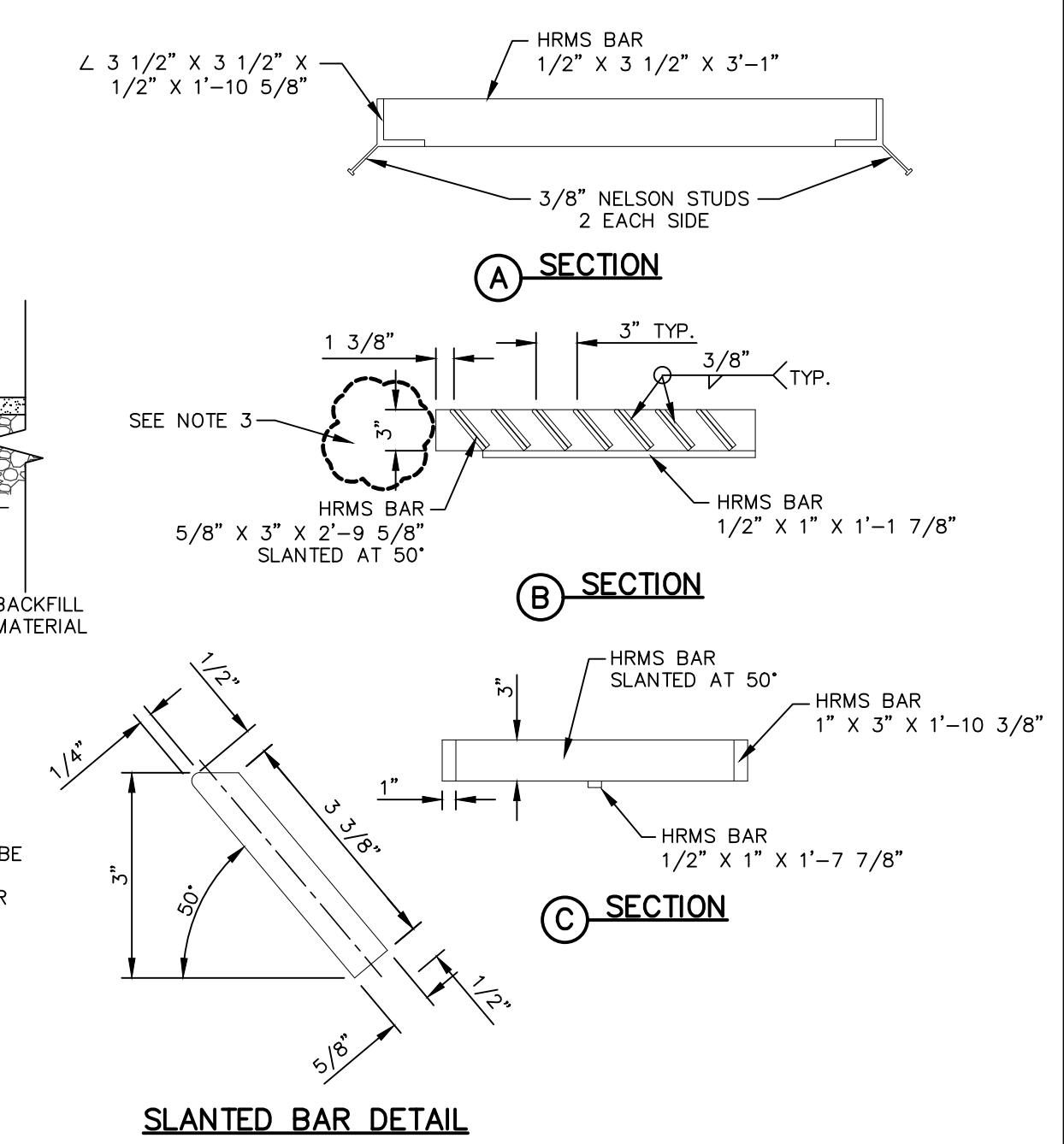
**A SECTION**



**B SECTION**



**C SECTION**



**SLANTED BAR DETAIL**

**2 GRATE AND FRAME DETAILS**  
SCALE: 1" = 1'-0"

**1 INLET 2**  
SCALE: 1" = 2'-0"

REV.	DATE	BY	DESCRIPTION

UTILITY LOCATOR SERVICES	
TIME WARNER COMMUNICATIONS	(915) 775-7415
EL PASO ELECTRIC COMPANY	(915) 877-3400
EL PASO WATER UTILITIES	(915) 594-5500
VERIZON COMMUNICATIONS	(800) 624-9675
HOLLY ENERGY PARTNERS	(915) 494-0549
TEXAS GAS SERVICE	(800) 959-5325
KINDER MORGAN	(915) 843-2441
AT&T GENERAL	(915) 595-5151
EL PASO STREETS & MAINTENANCE	(915) 212-0118

**WARNING!**  
**BEFORE YOU DIG**  
**CALL 811**  
FOR FIELD LOCATING EXISTING UTILITIES

ENGINEER'S SEAL  
ABEL GARCIA  
112223  
LICENSED PROFESSIONAL ENGINEER  
CEA GROUP  
F-4564

DESIGNED	LG
DRAWN	NC
CHECKED	LG
APPROVED	AG
DATE	02/14/2023

**cea** group  
TEXAS REGISTERED ENGINEERING FIRM F-4564  
813 N. Kansas St.  
Suite 300  
El Paso, TX 79902  
915.544.5232  
www.ceagroup.net

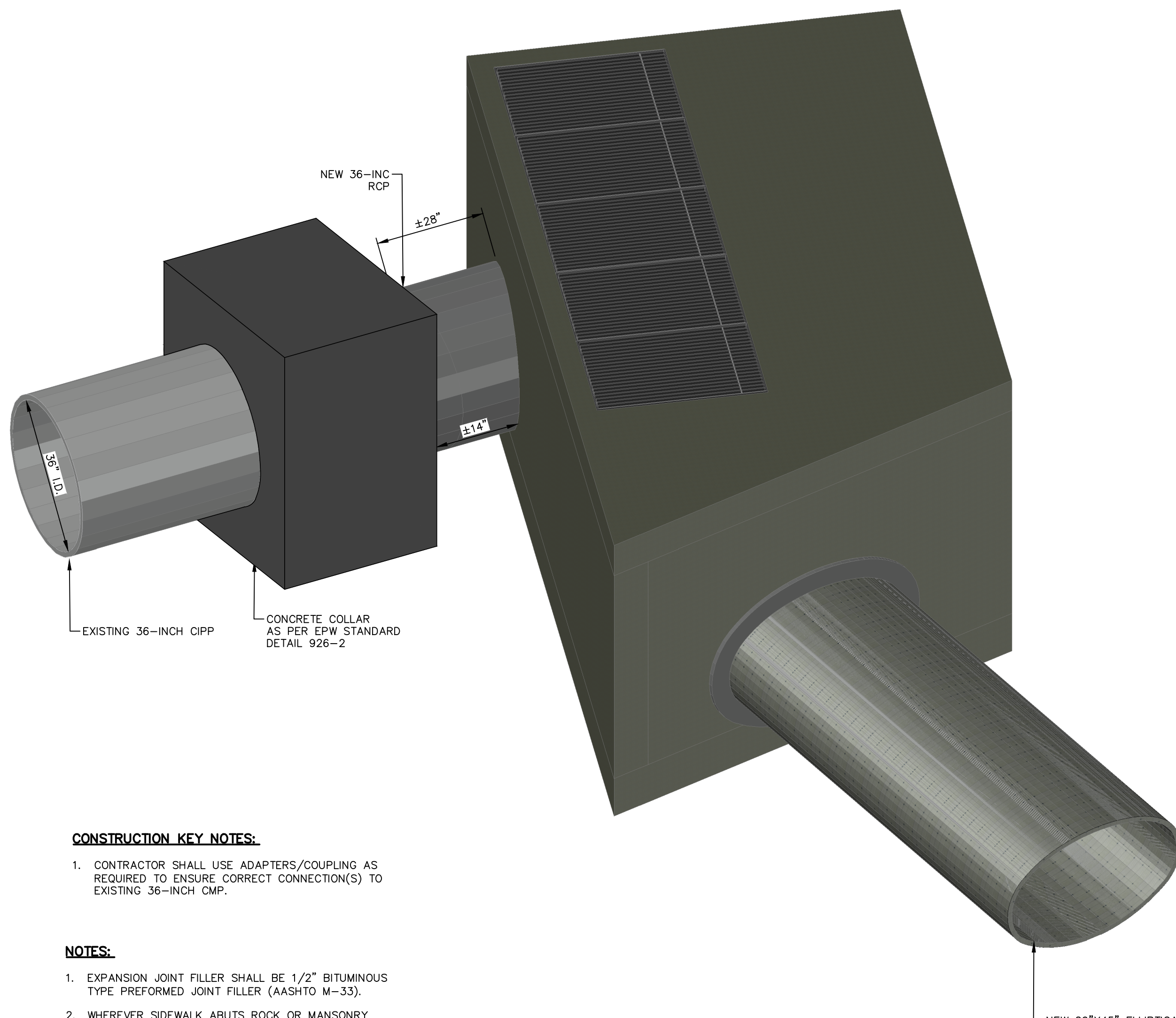
**el paso**  
**WATER**

PROJECT:	GRISSOM LANE AND Mc AFEE PLACE - STORM SEWER, SANITARY SEWER AND WATER MAIN IMPROVEMENTS
SHEET TITLE:	STORM SEWER DETAILS
JOB NO.	1040-046
SEQUENCE NO.	C6.3
SHEET NO.	18 OF 22

**GENERAL NOTES:**

- STEEL LOCATOR AROUND PIPE OPENINGS SHALL BE AS SHOWN IN DETAIL
- GROUT BOTTOM OF ALL INLET STRUCTURES A MINIMUM OF SIX (6) INCHES ABOVE EXIT INVERT ELEVATION AS PER EL PASO WATER STANDARD.
- ALL JOINTS BETWEEN CAST-IN-PLACE AND PRECAST SECTIONS SHALL BE SEALED WITH MORTAR.
- THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR THEIR REVIEW A MINIMUM OF THREE WEEKS PRIOR TO CONSTRUCTION.
- CONTRACTOR SHALL COMPACT FILL UNDER ALL INLET STRUCTURES AS DIRECTED BY GEOTECHNICAL ENGINEERING REPORT.
- ALL FORMS SHALL BE WELL BRACED AND STRAIGHT.
- ALL STEEL SHALL BE FREE OF GREASE, SCALE AND DIRT.
- ALL CONCRETE SHALL CONFORM TO ASTM C94 AND SHALL REACH A MINIMUM STRENGTH OF 4,500 P.S.I. AT 28 DAY TEST. CONCRETE SHALL NOT BE PLACED IN EXCESS OF 4" SLUMP WITHOUT PRIOR APPROVAL OF THE ENGINEER.
- ALL CONCRETE TO BE 4,500 P.S.I. CHAMFER ALL EXPOSED EDGES 3/4". ALL DIMENSIONS RELATING TO REINFORCING STEEL ARE TO CENTER OF BARS.
- ALL REINFORCING STEEL SHALL CONFORM TO ASTM A-615. ALL #4 OR LARGER BARS SHALL BE GRADE 60.

- FERROUS CASTINGS SHALL BE OF UNIFORM QUALITY, FREE OF BLOWHOLES, POROSITY, HARD SPOTS, SHRINKAGE DISTORTION OR OTHER DEFECTS. THEY SHALL BE SMOOTH AND WELL CLEANED BY SHOT-BLASTING OR OTHER APPROVED CLEANING METHOD. AFTER CLEANING THEY SHALL BE COATED WITH ASPHALT BASE PAINT RESULTING IN A SMOOTH COATING, TOUGH AND TENACIOUS WHEN COLD, NOT TACKY OR BRITTLE.
- ALL BARS SHALL BE TIED AT EVERY INTERSECTION. ALL STEEL SHALL BE SUPPORTED TO PROHIBIT LATERAL OR VERTICAL MOVEMENT.
- CONCRETE POUR SHALL BE STARTED UNLESS THE SITE TEMPERATURE IS ABOVE 40 DEGREES FAHRENHEIT AND RISING FOR THE NEXT 12 HOURS.
- ALL DETAILING, FABRICATION AND ERECTION OF REINFORCING BARS, UNLESS OTHERWISE NOTED MUST FOLLOW THE ACI "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCING STRUCTURES" (ACI 315).
- THE CONTRACTOR SHALL COMPARE INLET NO.2 DETAILS WITH CIVIL DRAWINGS AS TO LAYOUT, DIMENSIONS, AND ELEVATIONS. ALL DISCREPANCIES, IF ANY, SHALL BE REPORTED TO ENGINEER FOR PROPER ADJUSTMENT BEFORE PROCEEDING WITH THE WORK.
- CONTRACTOR SHALL COORDINATE WITH ENGINEER AND EL PASO WATER FOR INSPECTION OF INLET NO.2 PRIOR TO BACKFILLING.
- KNOCKOUT OPENINGS AND SUMP INVERTS ARE APPROXIMATE. CONTRACTOR SHALL MAKE THE NECESSARY ADJUSTMENTS SHOULD OPENING SIZES DIFFER.



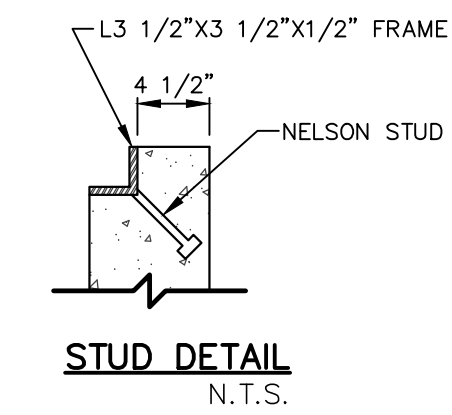
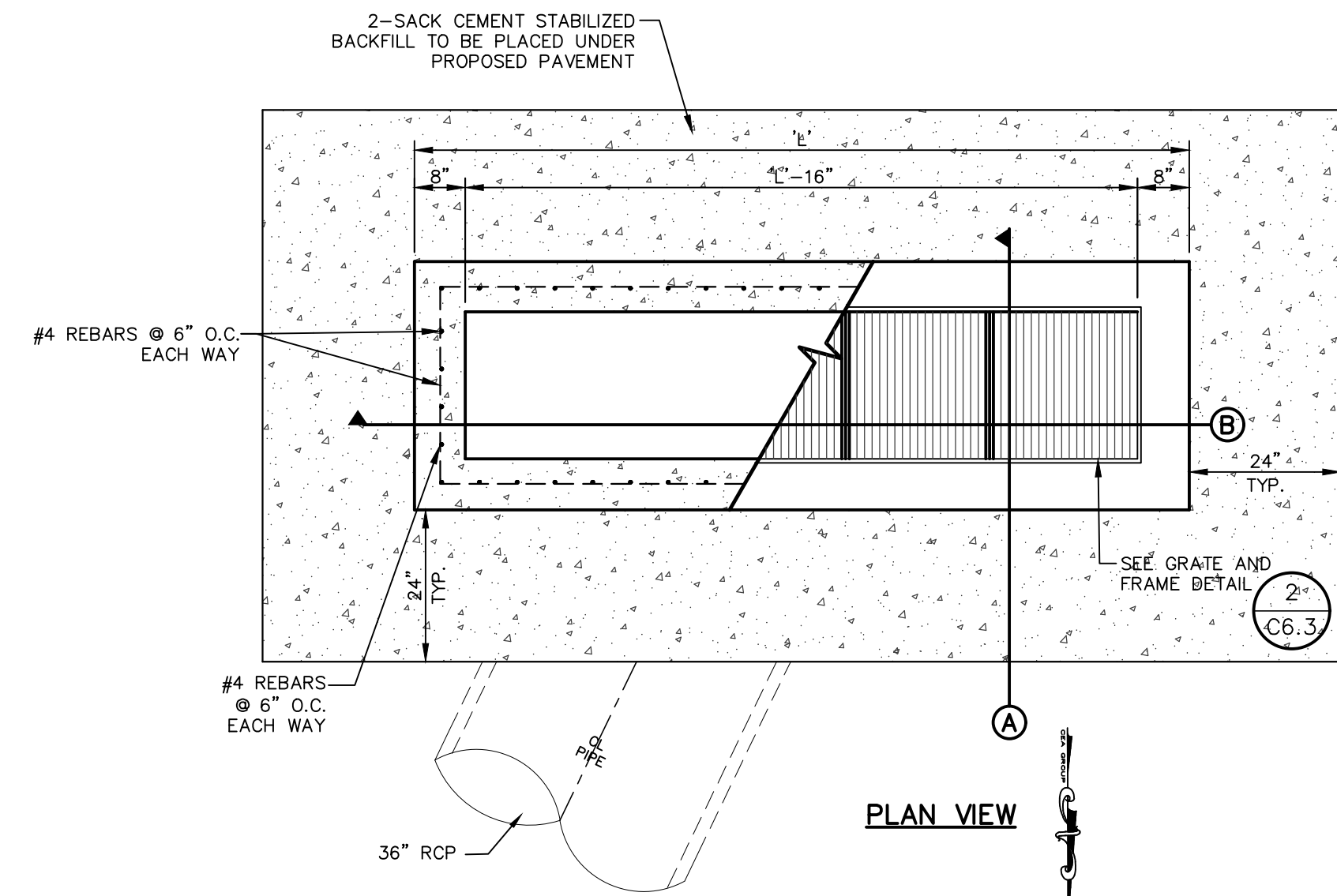
**CONSTRUCTION KEY NOTES:**

- CONTRACTOR SHALL USE ADAPTERS/COUPLING AS REQUIRED TO ENSURE CORRECT CONNECTION(S) TO EXISTING 36-INCH CIP.

**NOTES:**

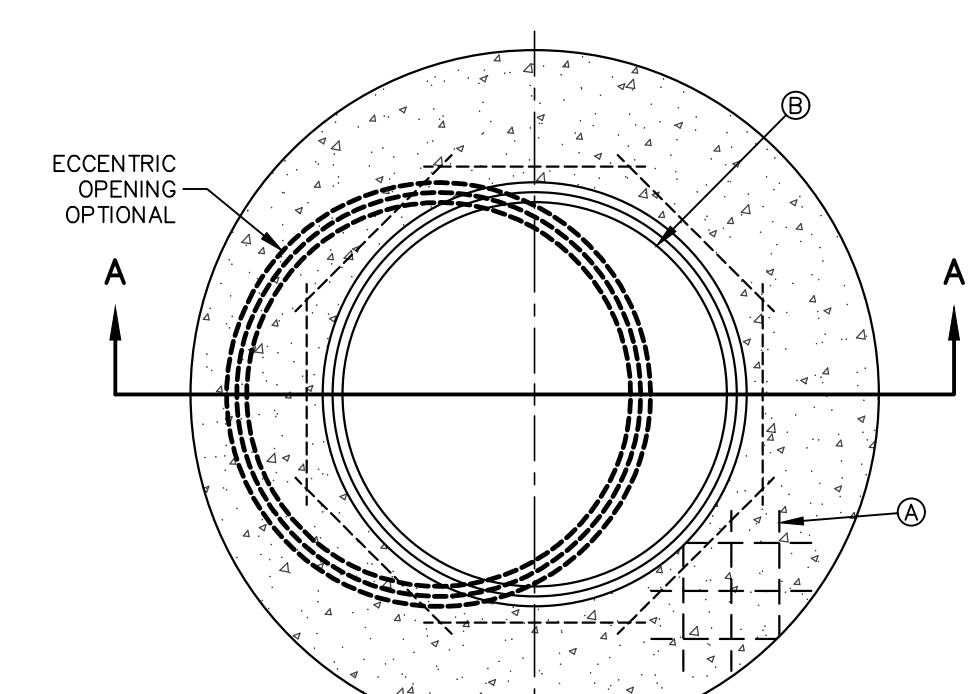
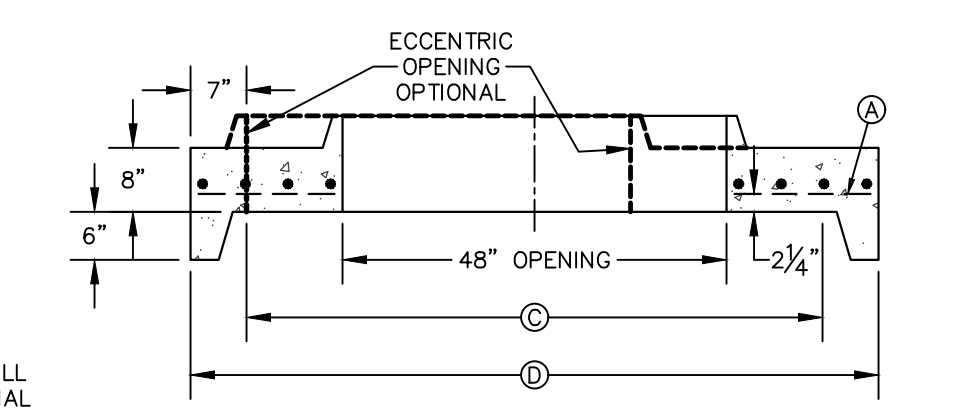
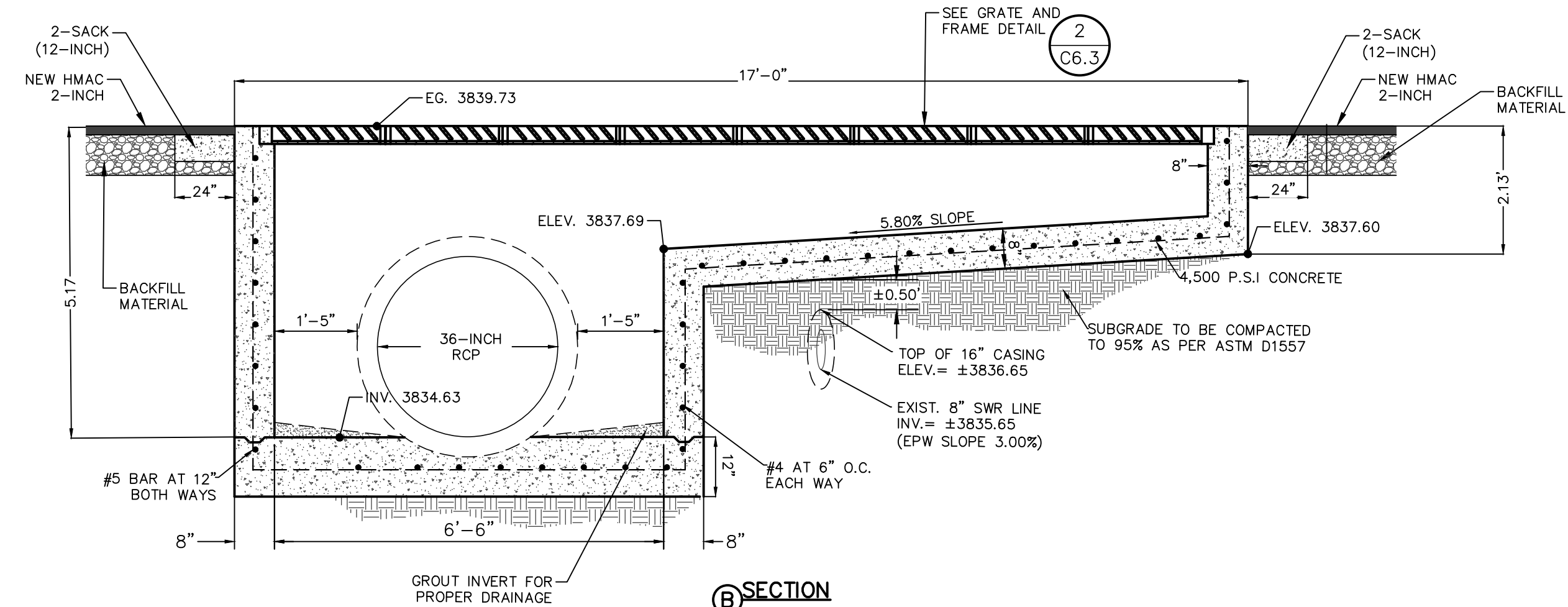
- EXPANSION JOINT FILLER SHALL BE 1/2" BITUMINOUS TYPE PREFORMED JOINT FILLER (AASHTO M-33).
- WHEREVER SIDEWALK ABUTS ROCK OR MASONRY STRUCTURES SUCH AS CURBS OR BUILDINGS, EXPANSION JOINTS FILLER SHALL BE PLACED IN ACCORDANCE WITH STANDARD SPECIFICATIONS.
- SHARP EDGES RESULTING FROM FABRICATION SHALL BE DULLED BY ANY ACCEPTABLE METHOD FOR SAFETY IN HANDLING.
- SUBGRADE TO BE COMPACTED TO 95% AS PER ASTM D1557.
- 4,500 P.S.I. CONCRETE.

1  
C6.4 INLET #2  
SCALE: 1/2" = 1'-0"



**NOTES:**

- GRATES TO BE PERPENDICULAR TO TRAFFIC
- CONCRETE TO BE 4,500 PSI (MIN.) CORE TEST @ 28 DAYS.
- H=20' MAXIMUM
- SEE STORM SEWER PLAN & PROFILES FOR APPROVED PIPE DIAMETER.
- SUBGRADE TO BE COMPACTED TO 95% AS PER ASTM D1557.
- 4,500 P.S.I. CONCRETE.



**MANHOLE ECCENTRIC/CONCENTRIC CONCRETE LID**

**GENERAL NOTES:**

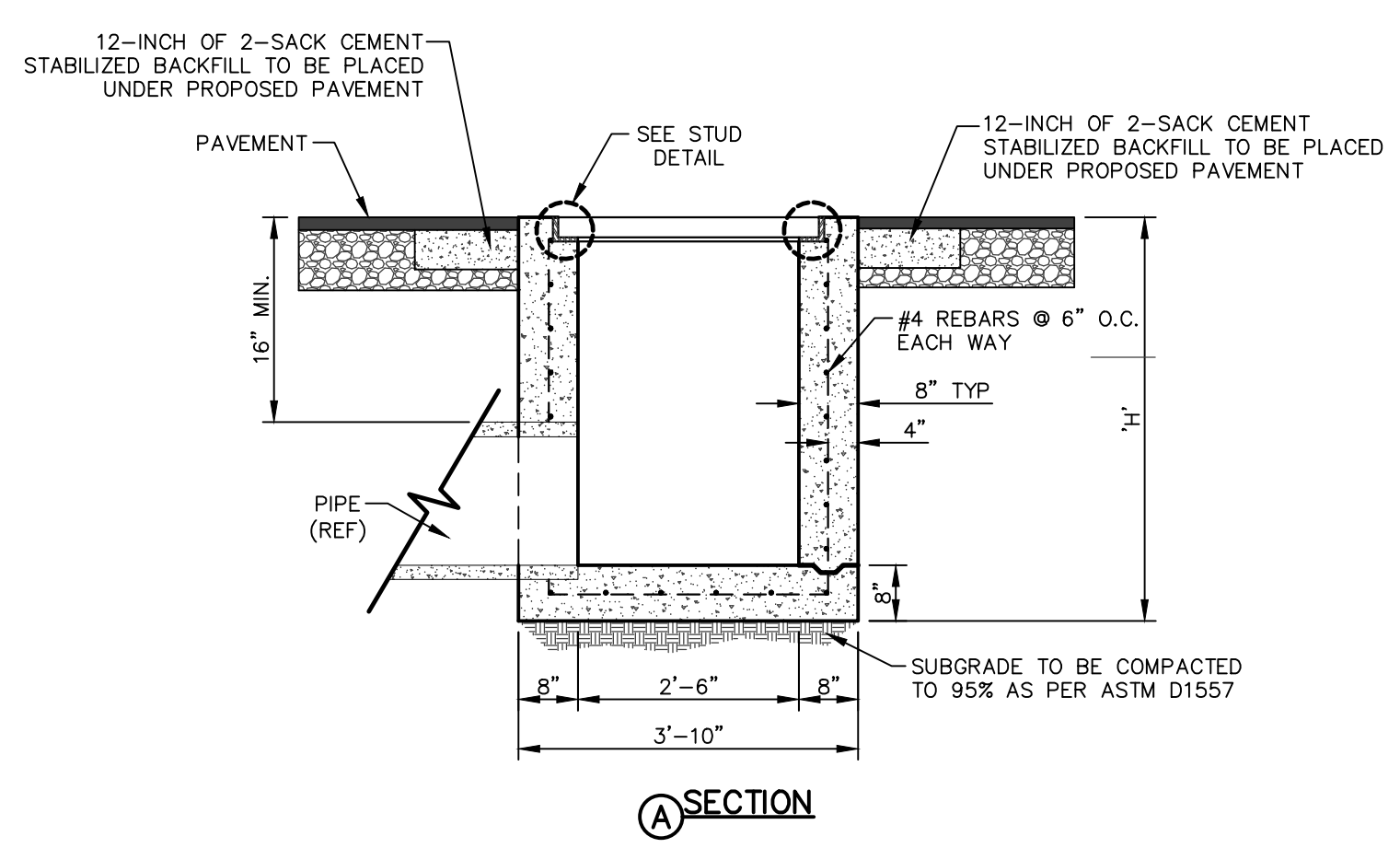
- PRE-CAST MANHOLE SECTIONS SHALL BE OF REINFORCED CONCRETE CONFORMING TO ASTM C-478 AND SHALL MEET HS-20 LOADING. PROVIDE REINFORCEMENT WITHIN 3" @ OPENINGS OR KNOCKOUTS. OPENINGS (UP TO 8") MADE IN FIELD SHALL BE CORE DRILLED.
- CEMENT SHALL BE TYPE I-II, PER ASTM C-150, AND MUST CONTAIN A MINIMUM OF 4% FLY ASH OF THE TOTAL MANHOLE WEIGHT.
- THE BASE & RISER SHALL BE INTEGRALLY CAST. CONCRETE SHALL BE MIN. 28 DAY COMPRESSIVE STRENGTH 4,500 P.S.I.
- MANUFACTURER TO PROVIDE LIFTERS OF ADEQUATE SIZE AS NEEDED.
- THE SUBGRADE UNDER THE BASE SHALL BE COMPACTED TO 95% DENSITY IN ACCORDANCE WITH ASTM D-1557.
- DEPTHS OVER 14' SHALL HAVE STRENGTHENED WALLS (REFER TO CONTRACT DRAWINGS OR SPECIFICATIONS).

**CONSTRUCTION KEY NOTES:**

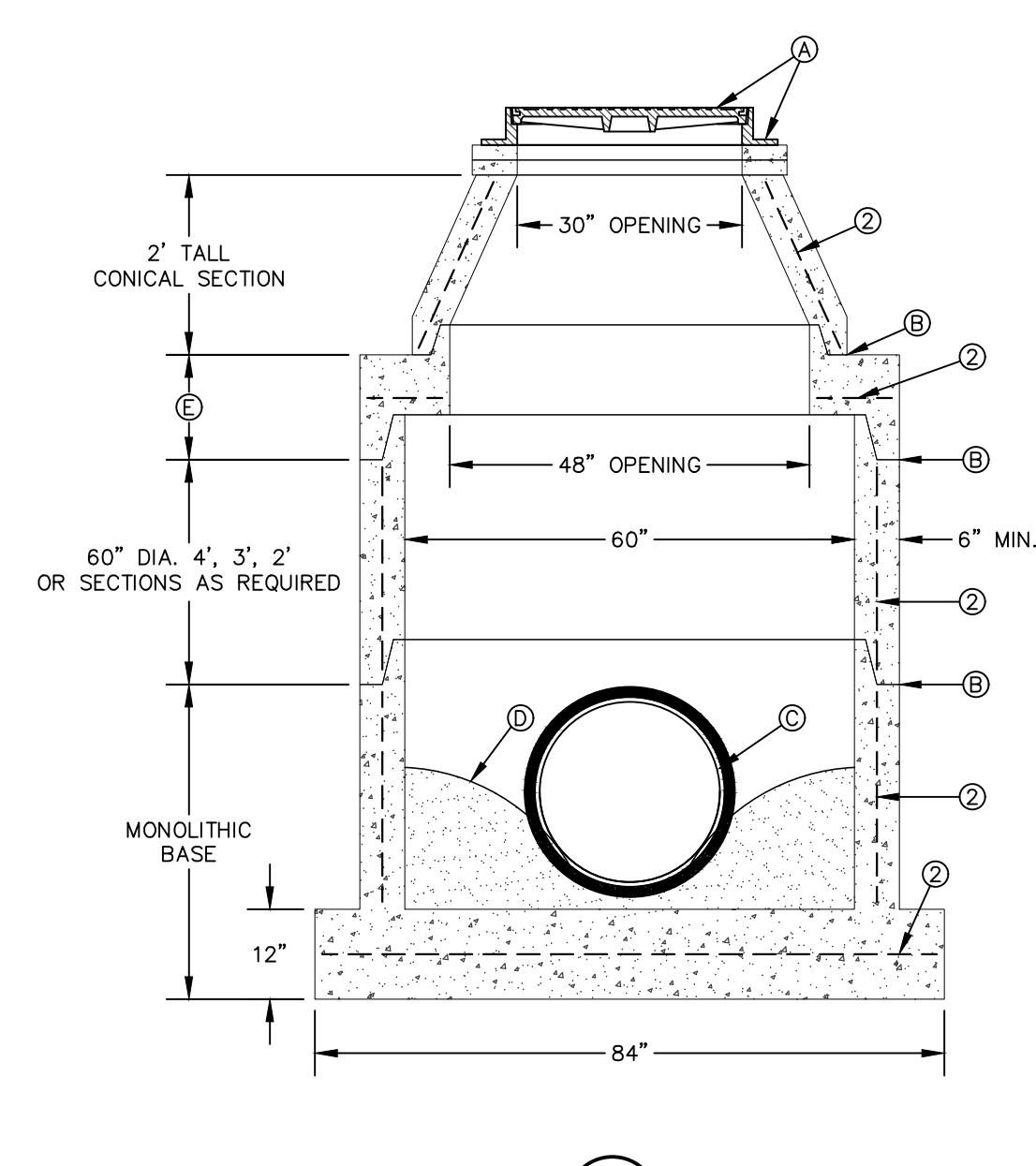
- MANHOLE RING AND COVER (SEE DETAILS 377 & 378). SET FRAME AND COVER FLUSH WITH ROADWAY SURFACE OR FINISHED GRADE (SEE DETAIL 185).
- ALL JOINTS TO BE TONGUE, GROOVE AND SEALED WITH RAM-NEK OR APPROVED EQUAL.
- PIPE OPENINGS/KNOCKOUTS AS REQUIRED TO FIT PIPE SIZE AND SHALL HAVE FLEXIBLE PIPE TO MANHOLE CONNECTORS (COMPRESSION TYPE ASTM-923), "KOR-N-SEAL" OR APPROVED EQUAL.
- GROUT AS REQUIRED.
- ECCENTRIC LID WITH KEYED TOP, 8" THICK (MANHOLE ECCENTRIC/CONCENTRIC CONCRETE LID)

NUMBER OF GRATES	"L"	CAPACITY*
2	5'-1 1/8"	9,436 CFS
3	7'-1/8"	14,155 CFS
4	8'-9 7/8"	18,873 CFS
5	10'-8"	23,592 CFS

\* THESE CAPACITIES CORRESPOND TO A CLOGGING FACTOR OF 0.5



2  
C6.4 INLET #3  
SCALE: 1" = 2'-0"

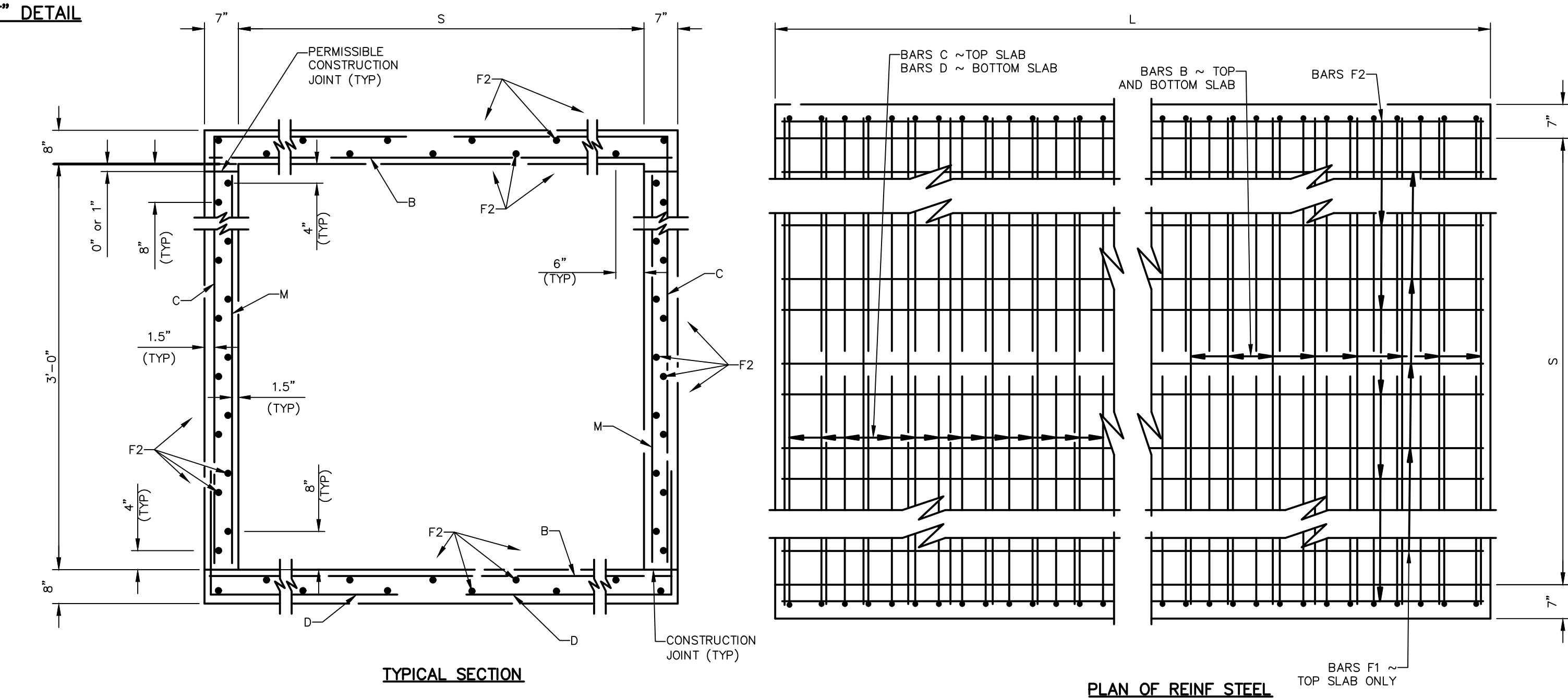
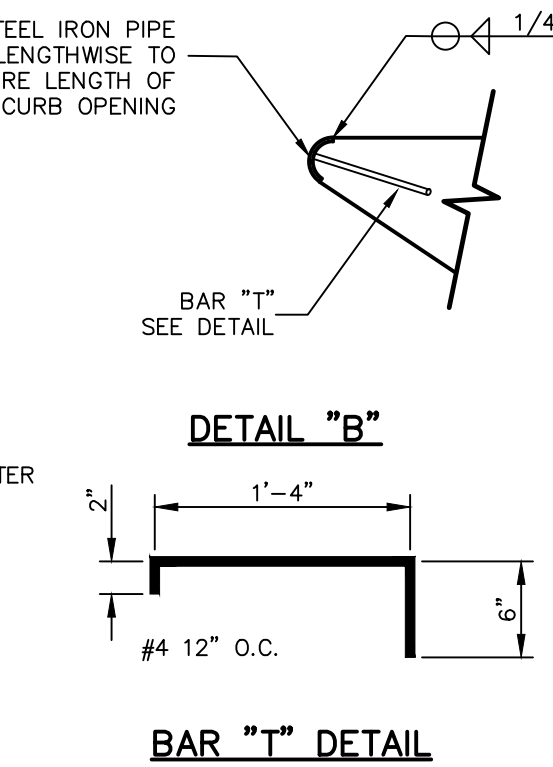
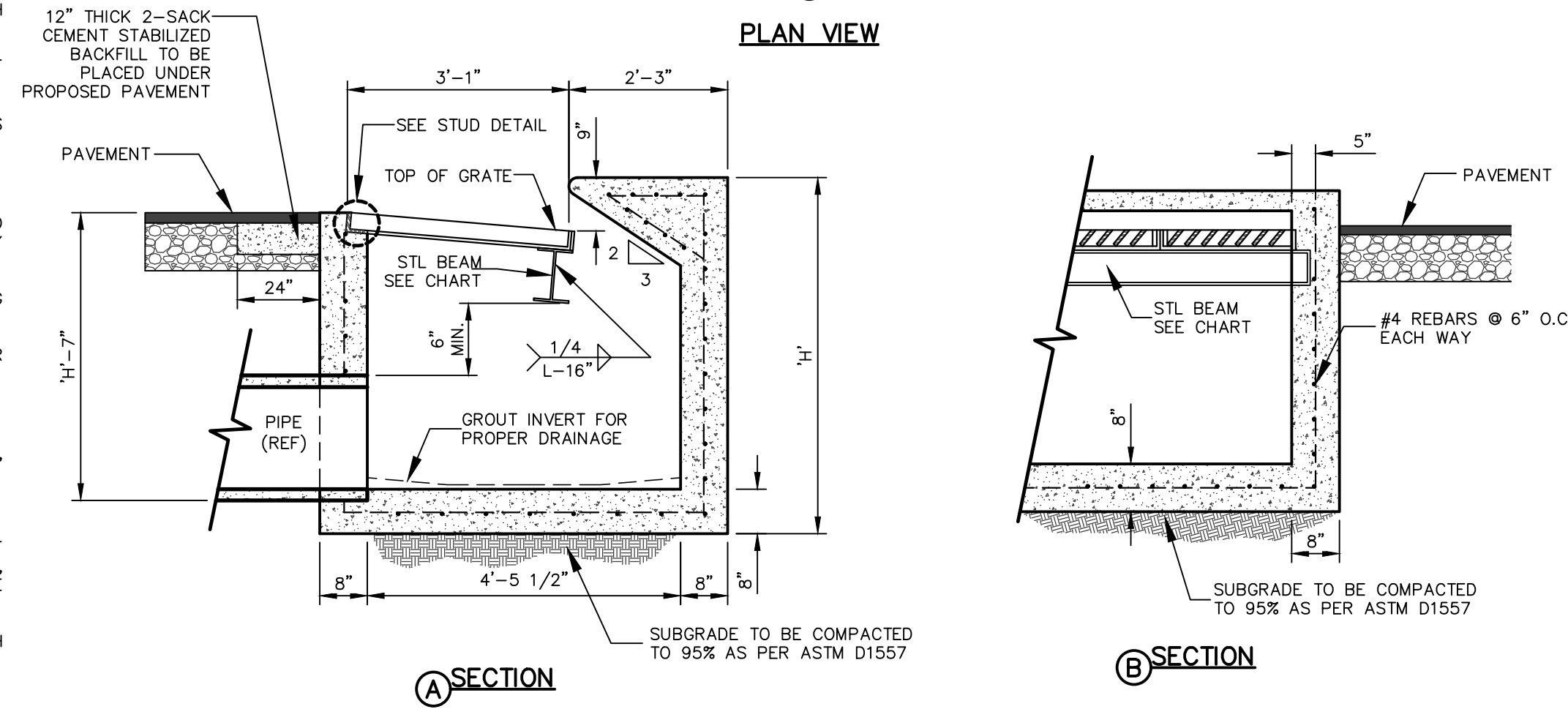
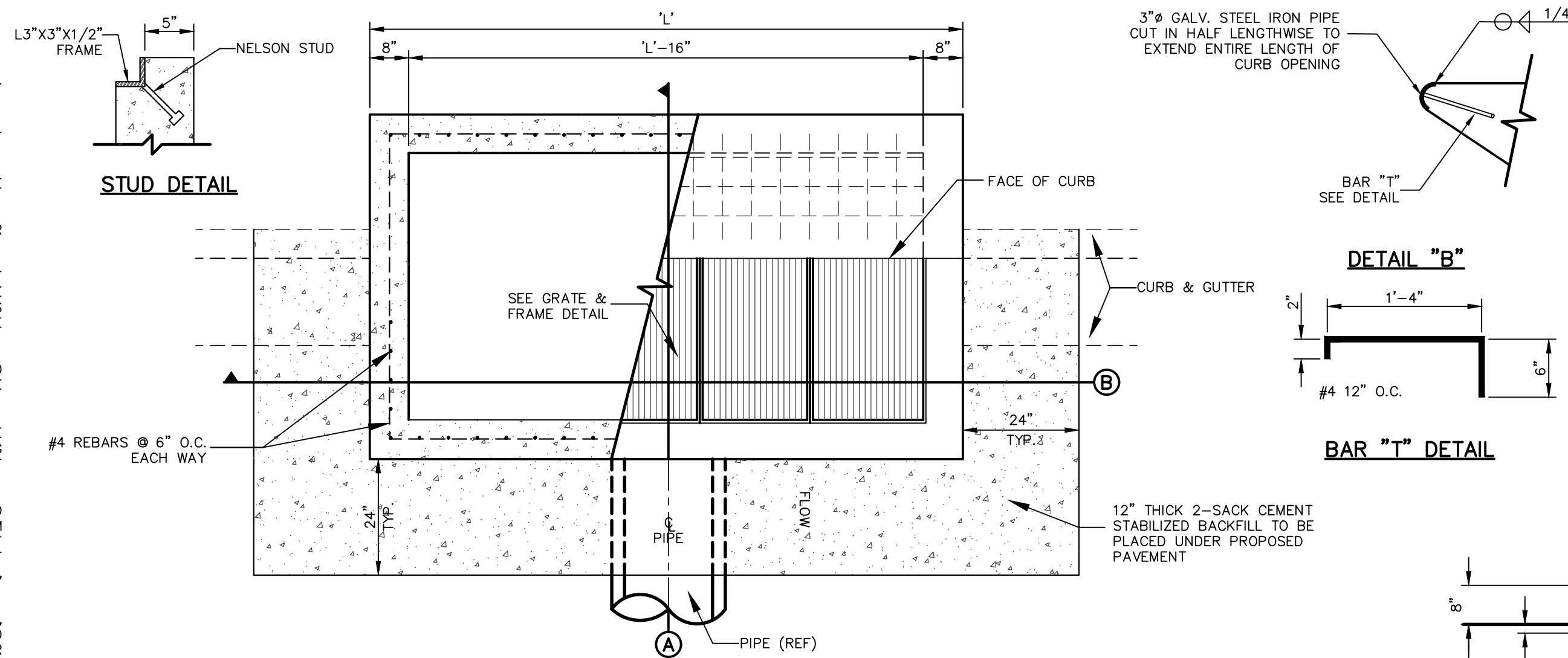


3  
C6.4 60-INCH STORMWATER MANHOLE-PREFAB

<table border="1" style="width:100%; border-collapse: collapse;"> <tr><th>REV.</th><th>DATE</th><th>BY</th><th>DESCRIPTION</th></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> </table>	REV.	DATE	BY	DESCRIPTION																	<p><b>UTILITY LOCATOR SERVICES</b></p> <p>TIME WARNER COMMUNICATIONS (915) 775-7415          EL PASO ELECTRIC COMPANY (915) 877-3400          EL PASO WATER UTILITIES (915) 594-5500          VERIZON COMMUNICATIONS (800) 624-9675          HOLLY ENERGY PARTNERS (915) 494-0549          TEXAS GAS SERVICE (800) 959-5325          KINDER MORGAN (915) 843-2441          AT&amp;T GENERAL (915) 595-5151          EL PASO STREETS &amp; MAINTENANCE (915) 212-0118</p>	<p><b>WARNING!</b> BEFORE YOU DIG <b>CALL 811</b></p> <p>FOR FIELD LOCATING EXISTING UTILITIES</p>		<p>DESIGNED LG DRAWN NC CHECKED LG APPROVED AG DATE 02/14/2023</p>	<p>813 N. Kansas St. Suite 300 El Paso, TX 79902 915.544.5232 www.ceagroup.net TEXAS REGISTERED ENGINEERING FIRM F-4564</p>		<p>PROJECT: <b>GRISSOM LANE AND Mc AFEE PLACE - STORM SEWER, SANITARY SEWER AND WATER MAIN IMPROVEMENTS</b></p> <p>SHEET TITLE: <b>STORM SEWER DETAILS</b></p>	<p>JOB NO. 1040-046 SEQUENCE NO. C6.4 SHEET NO. 19 OF 22</p>
REV.	DATE	BY	DESCRIPTION																									

**DROP INLET GENERAL NOTES:**

- WELDED STEEL OR CAST GRATES AS DETAILED ARE ALL ACCEPTABLE GRATES. MIXING OF ALTERNATE TYPES OF GRATES ON THE SAME PROJECT WON'T BE PERMITTED.
- ALL CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH THE CURRENT STANDARD SPECIFICATIONS.
- SHARP EDGES RESULTING FROM FABRICATION SHALL BE DULLED BY ANY ACCEPTABLE METHOD FOR SAFETY IN HANDLING.
- GRATES SHALL BE INSTALLED IN FRAME WITH FLOW ARROW POINTING DOWNSTREAM OR TOWARD THE LOW POINT IN A SUMP.
- WELDED GRATES SHALL BE STRUCTURAL STEEL CONFORMING TO THE REQUIREMENTS OF AASHTO M-183 OR OF CORROSION RESISTANT STRUCTURAL STEEL CONFORMING TO THE REQUIREMENTS OF AASHTO M-161 OR M-222 OR BE MADE OF OTHER APPROVED STEELS OF EQUAL QUALITY. MIXING GRADES OF STEEL ON THE SAME GRATE WILL NOT BE PERMITTED.
- GRATES MADE OF M-183 STEEL SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M-111 SPECIFICATIONS OR SHALL BE PAINTED WITH INORGANIC ZINC PAINTS, MEETING THE REQUIREMENTS OF CURRENT STANDARD SPECIFICATIONS.
- ALL WELDS SHALL HAVE A MINIMUM OF 1/4" FILLET AND SHALL CONFORM TO THE SPECIFICATIONS FOR HIGHWAY CONSTRUCTION AND TO THE AWS STRUCTURAL WELDING CODE. ELECTRODES SHALL BE COMPATIBLE TO THE DIFFERENT GRADES OF STEEL THAT COMPRISE THE GRATE MEMBERS.
- CAST GRATES SHALL BE CAST STEEL CONFORMING TO THE REQUIREMENTS OF AASHTO M-103, GRADE 65-35 OR OF DUCTILE IRON CONFORMING TO THE REQUIREMENTS OF ASTM A-536, SPECIAL GRADE 60-45, OR OF GRAY IRON CONFORMING TO THE REQUIREMENTS OF AASHTO M-105, CLASS 35B OR ASTM A-48 CLASS 35B. THE SPECIFICATIONS OF GENERAL APPLICATION FOR CAST STEEL GRATES SHALL BE AASHTO M-103 SCOPE 1.2.1, GRADE N-1.
- FERROUS CASTINGS SHALL BE OF UNIFORM QUALITY, FREE OF BLOWHOLES, POROSITY, HARD SPOTS, SHRINKAGE DISTORTION OR OTHER DEFECTS. THEY SHALL BE SMOOTH AND WELL CLEANED BY SHOT BLASTING OR OTHER APPROVED CLEANING METHOD. AFTER CLEANING THEY SHALL BE COATED WITH ASPHALT BASE PAINT RESULTING IN A SMOOTH COATING, TOUGH AND TENACIOUS WHEN COLD, NOT TACKY OR BRITTLE.
- ALL CASTING SHALL BE MANUFACTURED TRUE TO PATTERN. COMPONENT PARTS SHALL FIT TOGETHER IN A SATISFACTORY MANNER.
- ALL CONCRETE TO BE 4500 P.S.I. CHAMFER ALL EXPOSED EDGES 3/4". ALL DIMENSIONS RELATING TO REINFORCING STEEL ARE TO CENTER OF BARS.
- MINIMUM CONCRETE COVER SHALL BE 1 1/2" FOR STEEL REINFORCING.
- EXPANSION MATERIAL TO BE 1/2" BITUMINOUS FIBER AND PLACED WHERE PROPOSED CONCRETE COMES IN CONTACT WITH ANY EXISTING OR PROPOSED CONCRETE OR MASONRY STRUCTURE.
- SURFACE OF ALL EXPOSED CONCRETE SHALL CONFORM IN SLOPE AND GRADE TO EXISTING OR PROPOSED CURB AND WALK ADJACENT TO INLETS.
- ALL REINFORCING STEEL SHALL CONFORM TO ASTM A-645. ALL #4 BARS OR LARGER BARS SHALL BE GRADE 60. BEND BARS AROUND PIPE OPENINGS.
- GRATES WILL BE DEPRESSED 1" BELOW PROPOSED OR EXISTING GRADE.
- TWO 3/8"x4" LONG CONCRETE ANCHOR STUDS REQUIRED FOR EACH SIDE OF FRAME, WHERE RESTING ON CONCRETE, USE NELSON STUDS OR EQUAL.
- INLETS TO BE DESIGNATED IN PLANS BY NUMBER OF GRATES REQUIRED.
- THE CONTRACTOR SHALL PRESERVE, DURING CONSTRUCTION, ALL STOP SIGNS, SPEED LIMIT SIGNS, UNDERGROUND SIGNAL CONDUITS AND ALL OTHER TRAFFIC REGULATORY SIGNS. COORDINATION SHALL BE WITH THE CITY OF EL PASO. CONTRACTOR SHALL COORDINATE WITH THE ABOVE ENTITY FOR THE LOCATION AND SPOTTING OF TRAFFIC SIGNAL CONDUITS.
- THE GRATES OF ALL INLETS WITHIN THE STREET PAVEMENT MUST BE CONSTRUCTED WITH THE GRATE BARS PERPENDICULAR TO THE CURB.

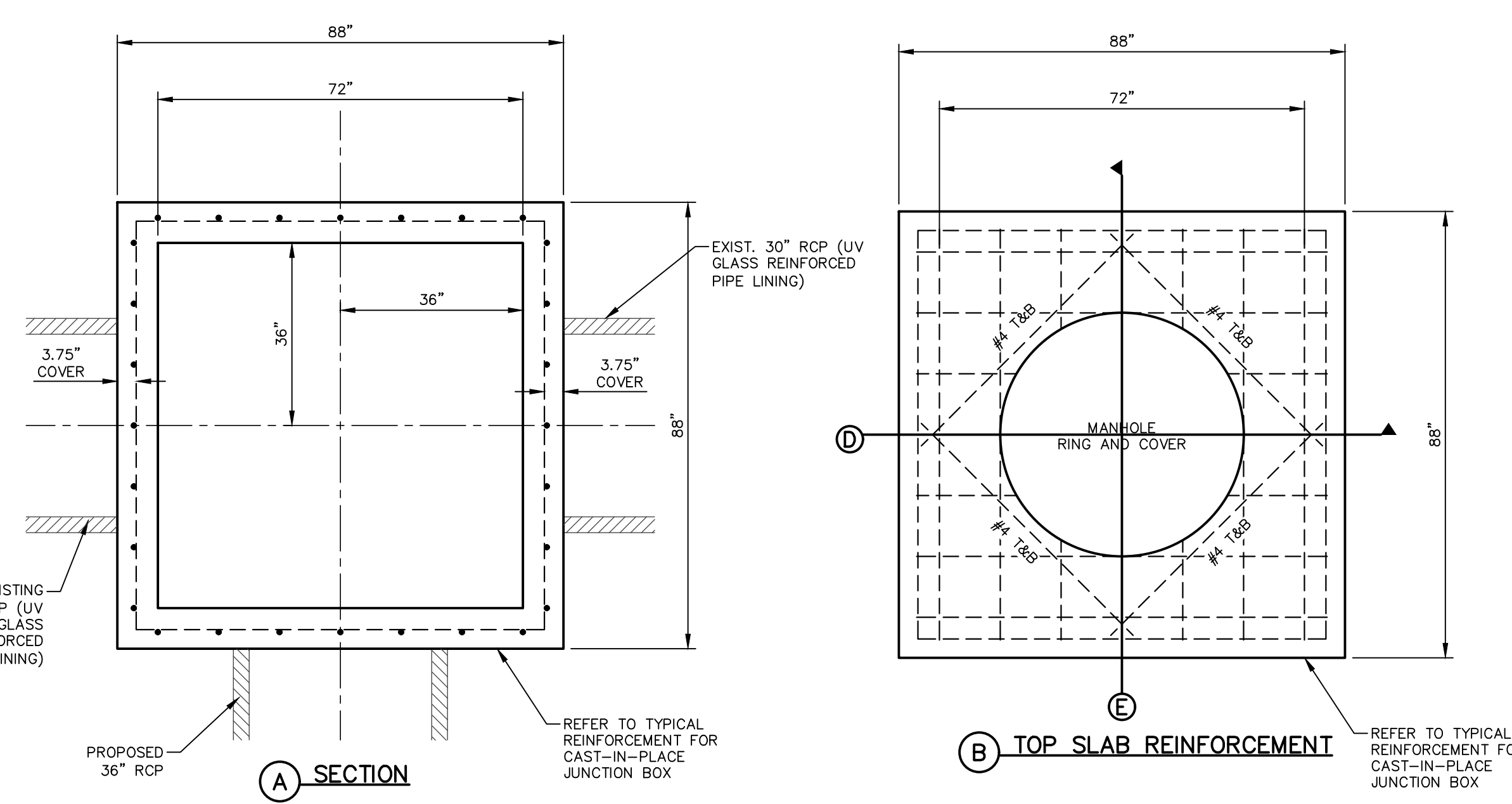


NO. GRATES	CAPACITY	L"	BEAM LENGTH	BEAM (MIN. SIZES)
2	19.63 CFS	5'-1 1/8"	4'-7 1/8"	W6x12, S6x12.5, MC6x15.1
3	29.69 CFS	7'-0 1/4"	6'-5 1/8"	W8x15, S7x15.3, MC7x17.6
4	39.10 CFS	8'-9 7/8"	8'-3 7/8"	W9x18, S8x18.4, MC10x21.9
5	48.72 CFS	10'-8"	10'-2"	W12x18, S8x21, MC10x21.9
6	57.48 CFS	12'-6 5/8"	12'-0 5/8"	W12x19, S8x23, MC10x25

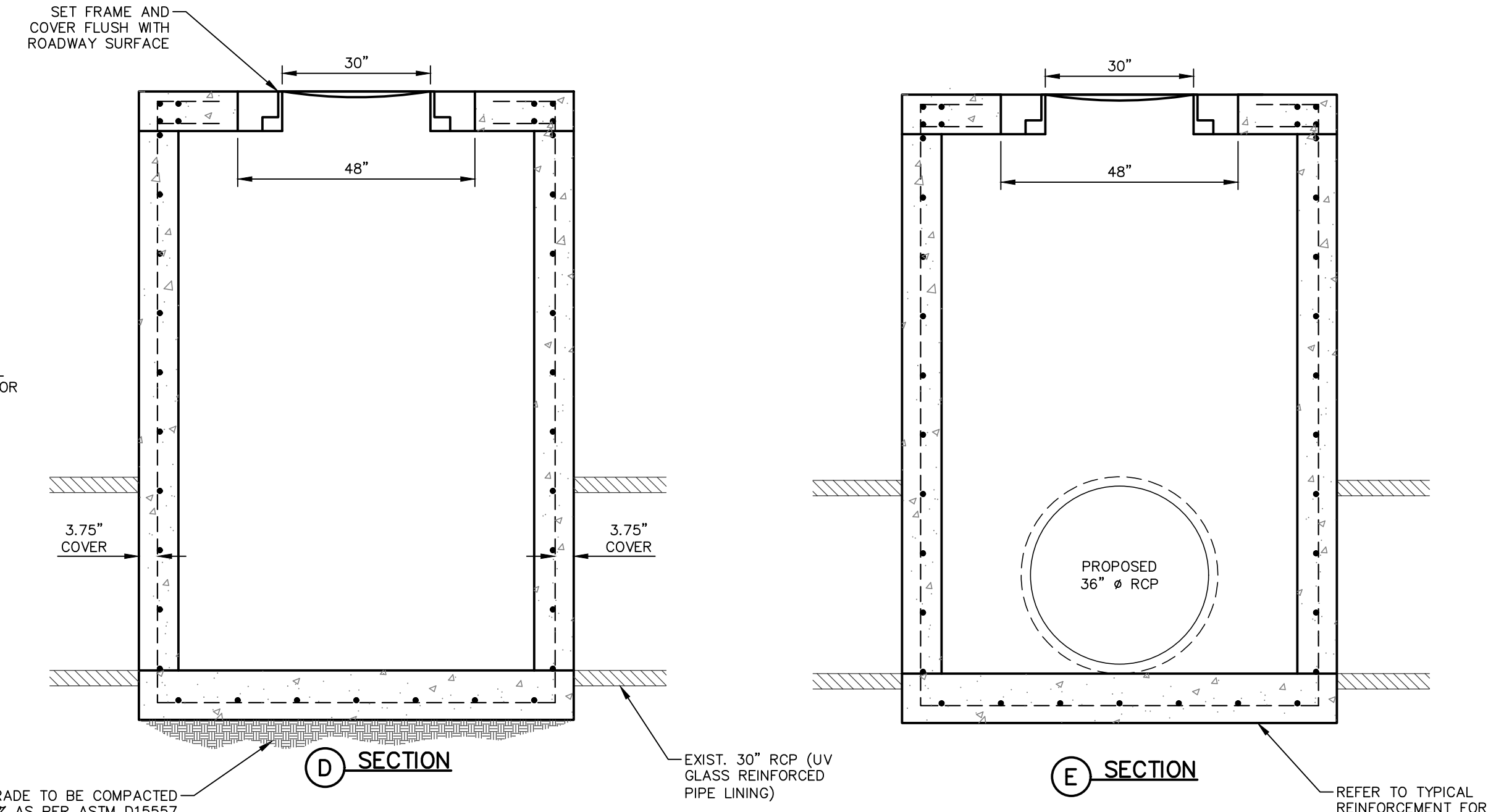
\* THESE CAPACITIES CORRESPOND TO A CLOGGING FACTOR OF 0.5

**1 DROP INLET (TYPE I) DETAILS**  
SCALE: N.T.S.

**2 TYPICAL REINFORCEMENT FOR CAST IN PLACE JUNCTION BOX**  
SCALE: N.T.S.

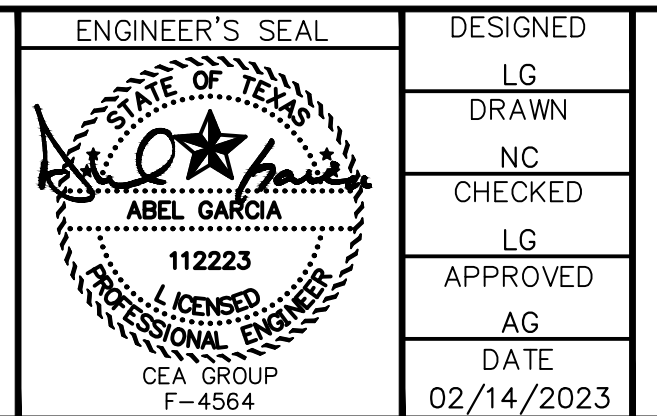


**3 TYPICAL 72" JUNCTION BOX**  
SCALE: 1" = 2'-0"

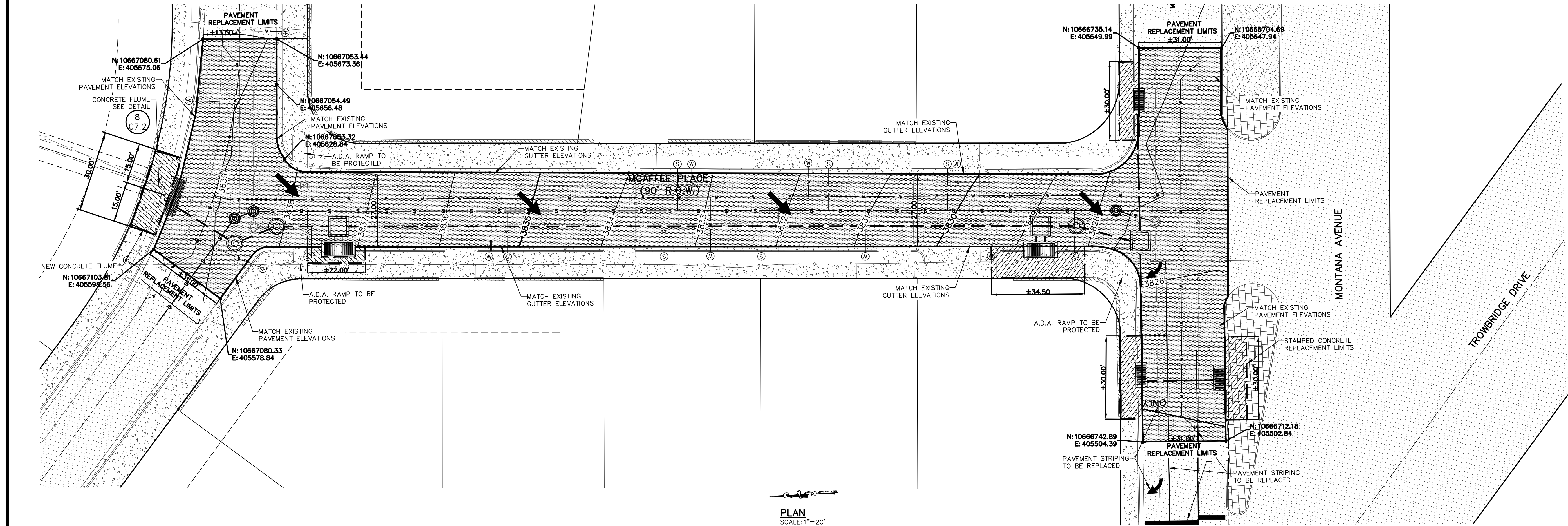
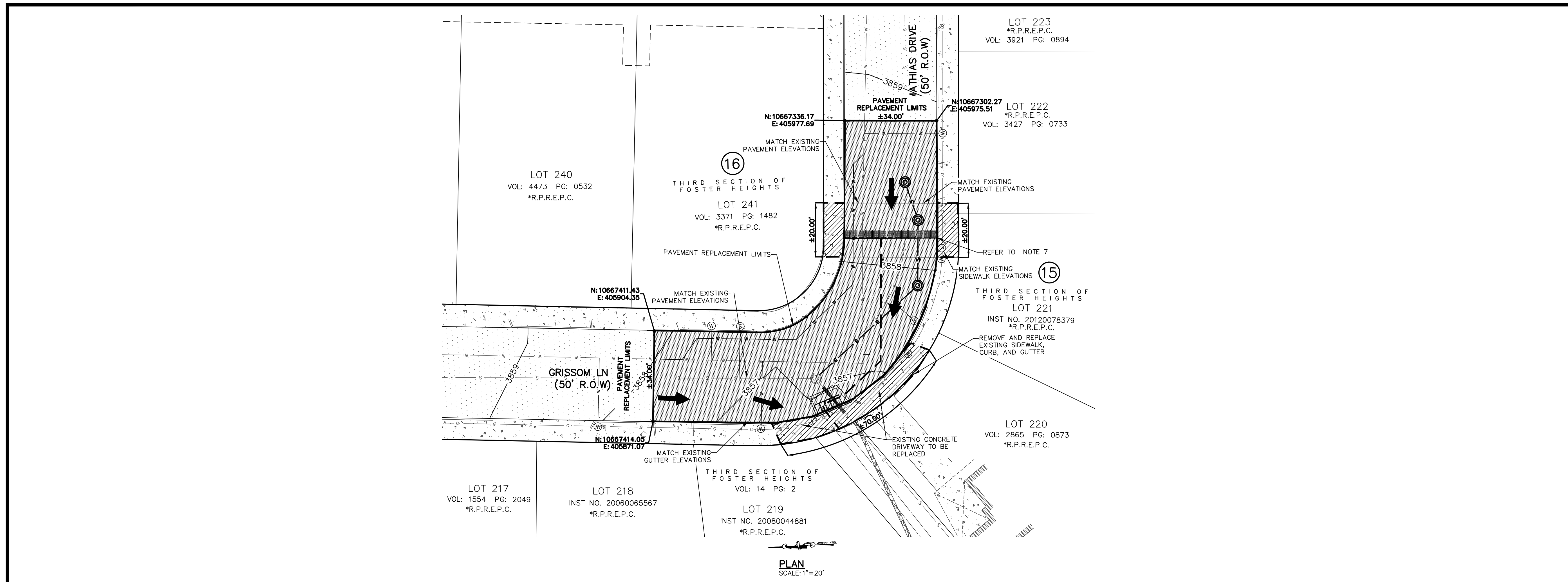


REV.	DATE	BY	DESCRIPTION

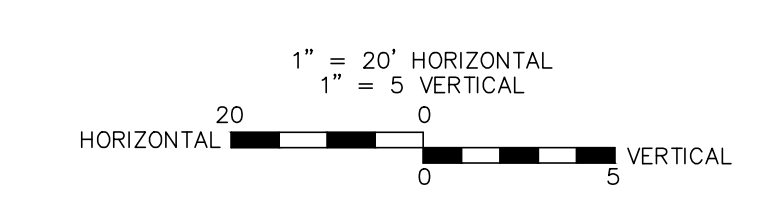
UTILITY LOCATOR SERVICES	
TIME WARNER COMMUNICATIONS (915) 775-7415	
EL PASO ELECTRIC COMPANY (915) 877-3400	
EL PASO WATER UTILITIES (915) 594-5500	
VERIZON COMMUNICATIONS (800) 624-9675	
HOLLY ENERGY PARTNERS (915) 494-0549	
TEXAS GAS SERVICE (800) 959-5325	
KINDER MORGAN (915) 843-2441	
AT&T GENERAL (915) 595-5151	
EL PASO STREETS & MAINTENANCE (915) 212-0118	



PROJECT: <b>GRISSOM LANE AND Mc AFEE PLACE - STORM SEWER, SANITARY SEWER AND WATER MAIN IMPROVEMENTS</b>	JOB NO. <b>1040-046</b>
SHEET TITLE: <b>STANDARD DETAILS</b>	SEQUENCE NO. <b>C6.5</b>
	SHEET NO. <b>20 OF 22</b>



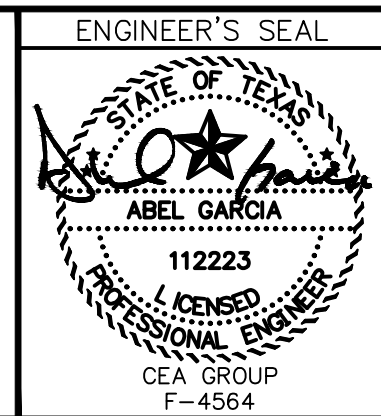
- NOTES:**
- REFER TO GENERAL NOTES.
  - ALL PROPOSED HMA PAVEMENT SHALL TIE-IN TO CURB RETURN OR EXISTING CURB JAM.
  - REFER TO STANDARD DETAILS.
  - ALL STRIPING MARKINGS TO BE REPLACED AS PER PLAN AND SPECIFICATIONS.
  - PARKWAY IMPROVEMENTS SHALL BE REPLACED TO ORIGINAL OR BETTER CONDITIONS IF DAMAGED DURING CONSTRUCTION.
  - CONTRACTOR TO REPLACE ALL DAMAGED CONCRETE AND HARDSCAPE, HEADER & CURB, CURB & GUTTER, ETC. TO ORIGINAL OR BETTER CONDITIONS.
  - CONTRACTOR SHALL REFER TO DETAIL SHEETS FOR ASPHALT REPLACEMENT WITH 2-SACK AROUND INLETS.
- LEGEND:**
- ← DRAINAGE FLOW
  - s- PROPOSED SANITARY SEWER
  - w- PROPOSED WATER LINE
  - d- PROPOSED STORM WATER
  - [Hatched Box] PAVEMENT REPLACEMENT LIMITS
  - [Hatched Box] CONCRETE SIDEWALK, CURB & GUTTER, AND STAMPED CONCRETE REPLACEMENT LIMITS.



REV.	DATE	BY	DESCRIPTION

UTILITY LOCATOR SERVICES	
TIME WARNER COMMUNICATIONS	(915) 775-7415
EL PASO ELECTRIC COMPANY	(915) 877-3400
EL PASO WATER UTILITIES	(915) 594-5500
VERIZON COMMUNICATIONS	(800) 624-9675
HOLLY ENERGY PARTNERS	(915) 494-0549
TEXAS GAS SERVICE	(800) 959-5325
KINDER MORGAN	(915) 843-2441
AT&T GENERAL	(915) 595-5151
EL PASO STREETS & MAINTENANCE	(915) 212-0118

**WARNING!**  
**BEFORE YOU DIG**  
**CALL 811**  
 FOR FIELD LOCATING EXISTING UTILITIES



DESIGNED  
 LG  
 DRAWN  
 NC  
 CHECKED  
 LG  
 APPROVED  
 AG  
 DATE  
 02/14/2023



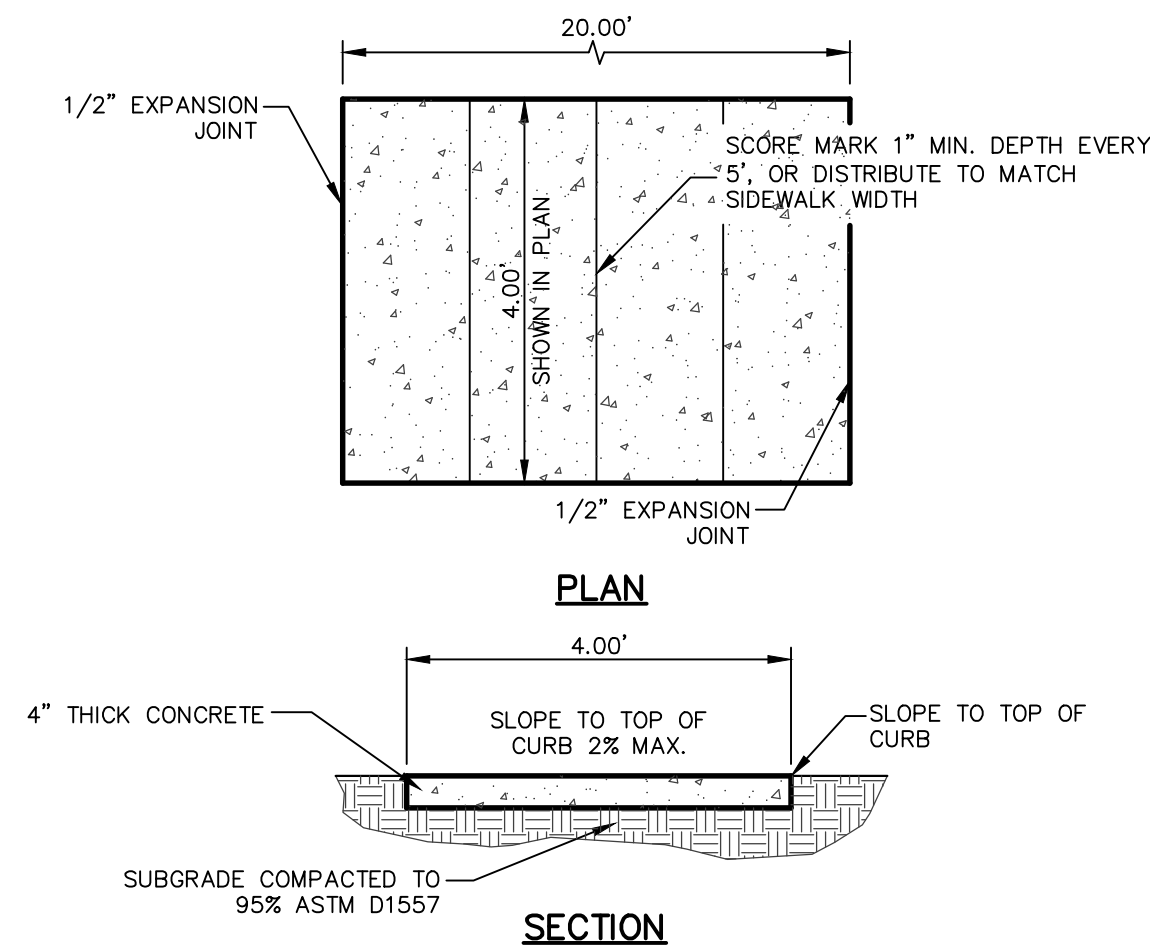
PROJECT: **GRISSOM LANE AND Mc AFFEE PLACE – STORM SEWER, SANITARY SEWER AND WATER MAIN IMPROVEMENTS**

SHEET TITLE: **PAVEMENT REPLACEMENT PLAN**

JOB NO. **1040-046**

SEQUENCE NO. **C7.1**

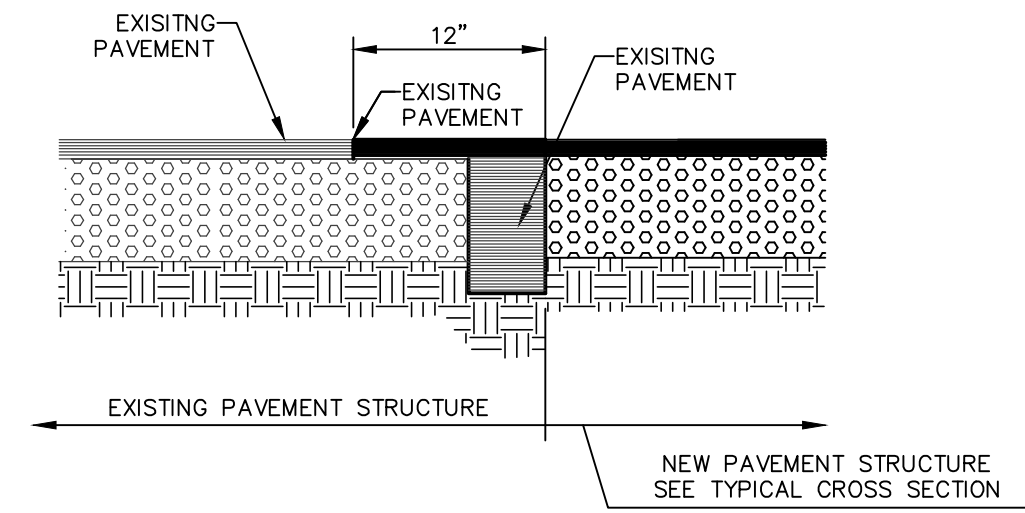
SHEET NO. **21** OF **22**



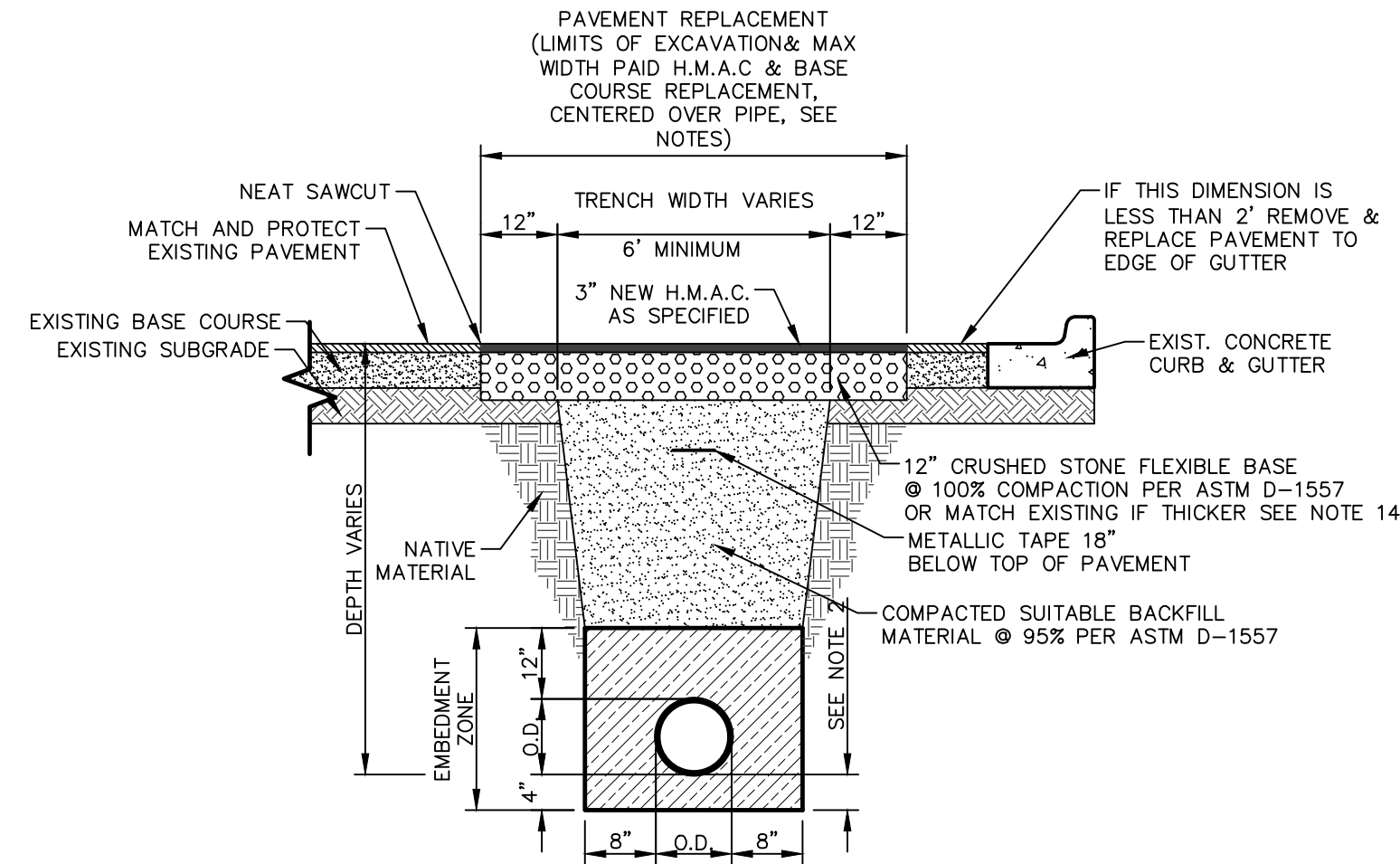
**SIDEWALK NOTES:**

1. CONCRETE SIDEWALK SHALL BE 3,000 P.S.I.
2. DUMMY JOINTS REQUIRED AT 5' O.C.
3. EXPANSION JOINTS SHALL BE AT 20' O.C. MAXIMUM, USE 1/2" PREMOULDED BITUMINOUS EXPANSION JOINTS (AASHTO M-33).
4. EXPANSION JOINT FILLER SHALL BE PLACED WHEREVER SIDEWALK ABUTS ROCK OR MASONRY STRUCTURES SUCH AS CURBS OR BUILDINGS.
5. SUBGRADE TO BE COMPACTED TO 95% ASTM D1557.

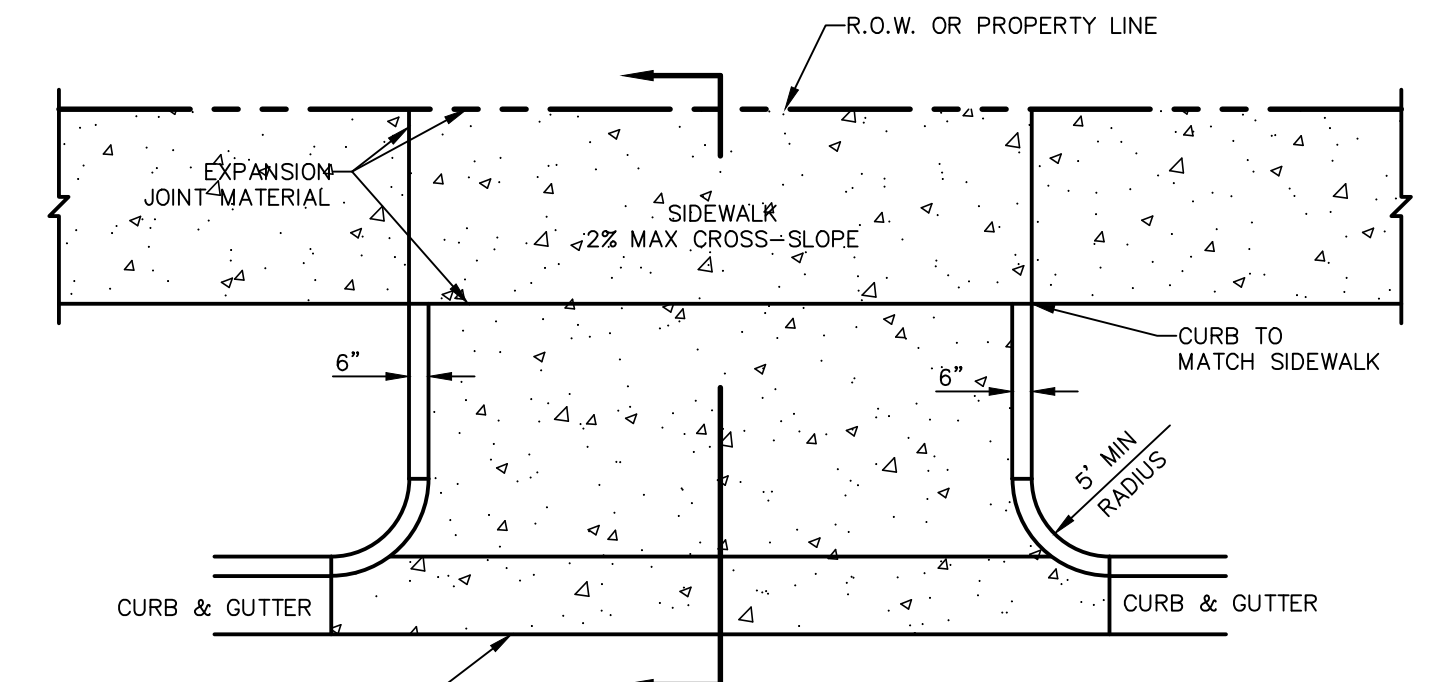
**1 SECTION-SIDEWALK/SLAB**  
SCALE: 1" = 2'-0"



**2 TYPICAL PAVEMENT JOINT SECTION**  
SCALE: N.T.S.



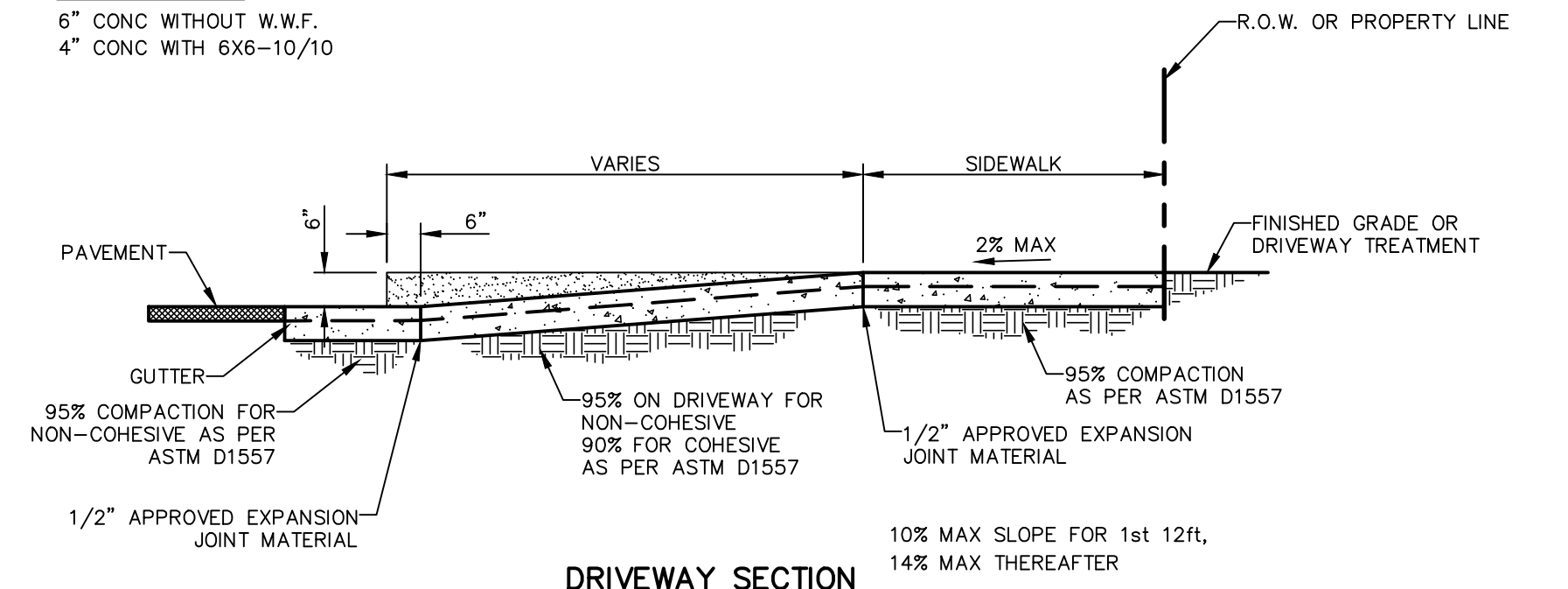
**3 TYPICAL TRENCH & PAVEMENT REPLACEMENT W/ HMA**  
SCALE: N.T.S.



DRIVEWAY WIDTH	MIN	MAX
COMMERCIAL/INDUSTRIAL	24'	35'
RESIDENTIAL (SINGLE FAMILY 60' LOTS)	10'	20'
LESS THAN 60' LOTS, DUPLEX AND TOWN HOMES	15'	25'

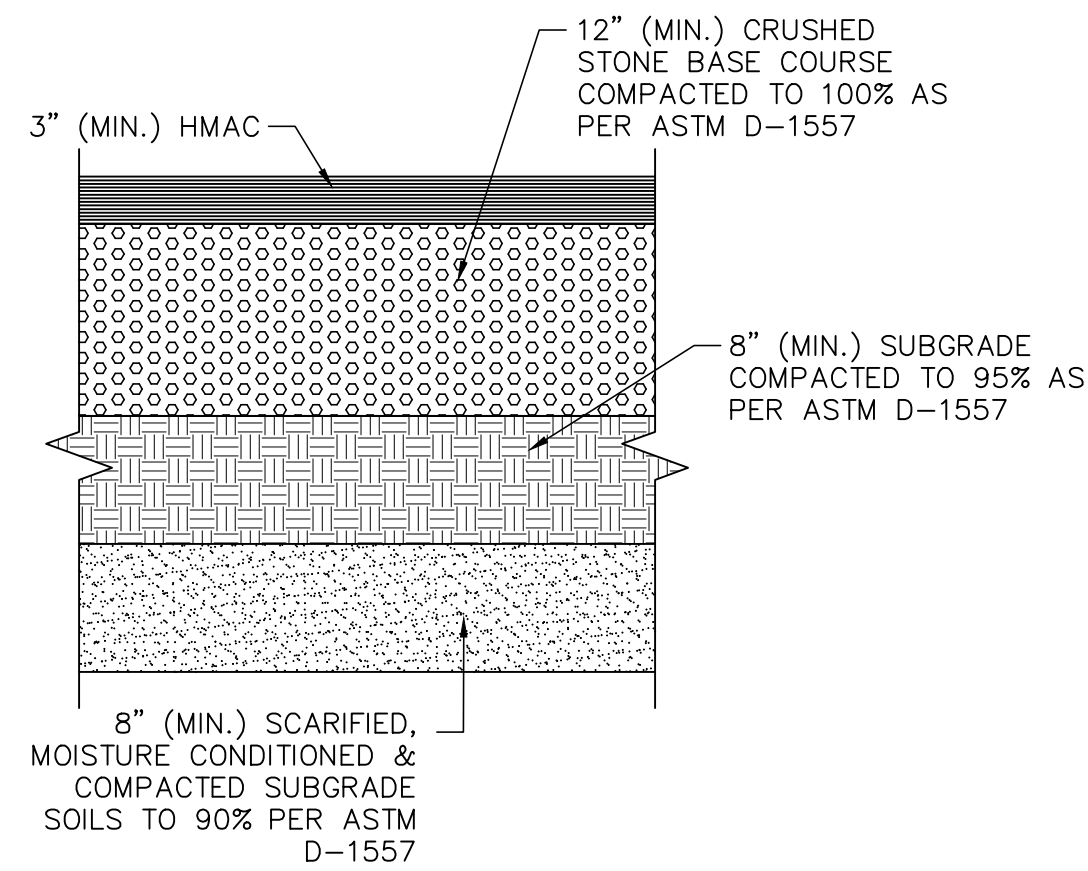
(REFER TO PLATE 6-16)

**RESIDENTIAL**  
6" CONC WITHOUT W.W.F.  
4" CONC WITH 6X6-10/10



**DRIVEWAY SECTION**

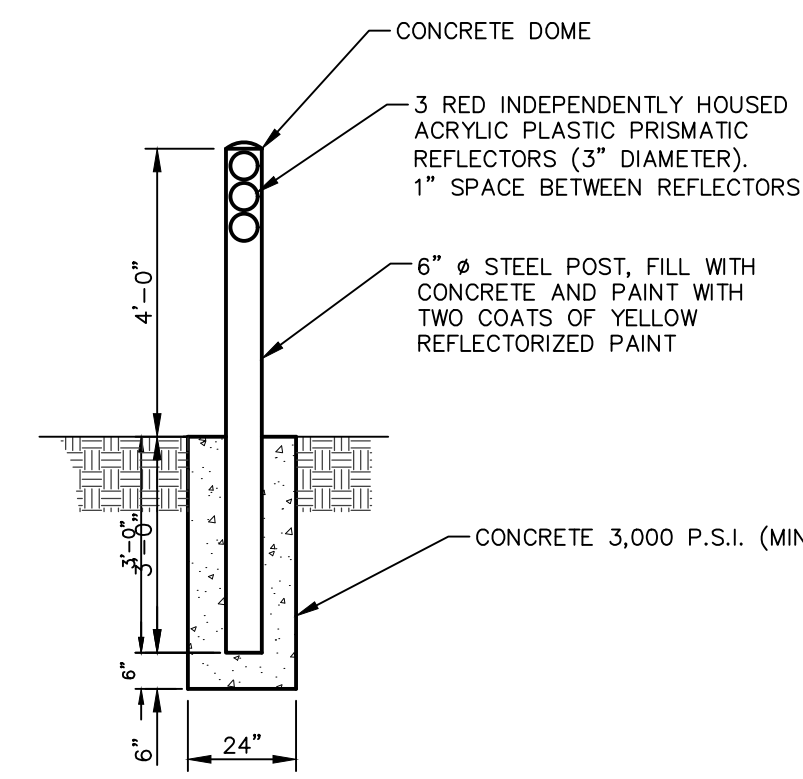
**6 CONCRETE APRON FOR DRIVEWAYS/ALLEYS**  
SCALE: N.T.S.



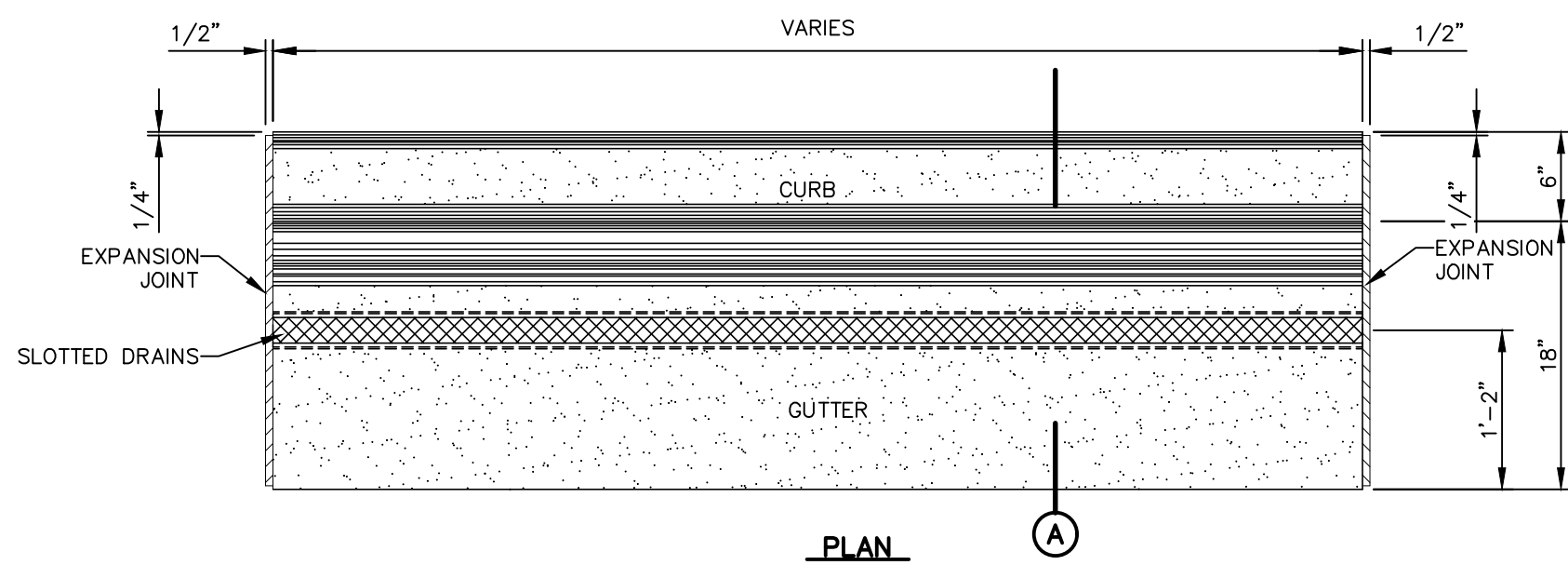
**NOTES:**

1. SUBGRADE TO BE COMPACTED TO 95% OF MAXIMUM DENSITY AS PER ASTM D-1557.
2. TYPE C- (HMAC) MATERIAL SHALL BE USED

**4 TYPICAL PAVEMENT SECTION**  
SCALE: 1" = 1'-0"



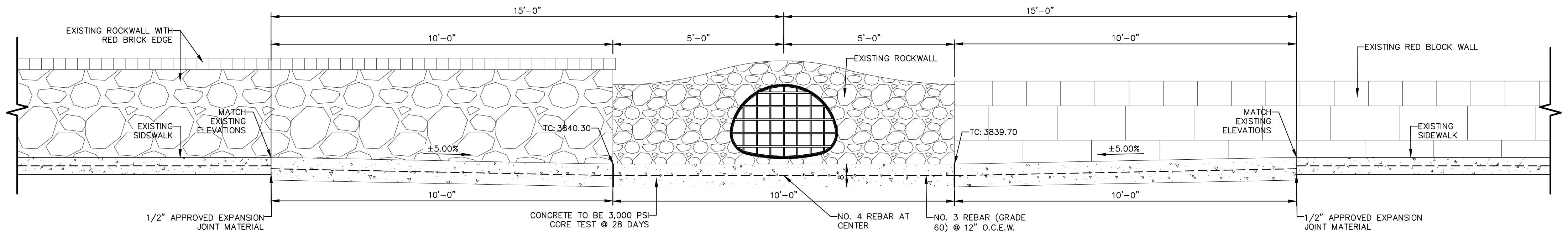
**5 PROTECTIVE BOLLARD**  
SCALE: N.T.S.



**NOTES:**

1. CONCRETE CURB, GUTTER AND RETURNS SHALL BE 3,000 P.S.I. MIN.
2. DUMMY JOINT REQUIRED AT 10' O.C. FOR CURB & GUTTER, AND 5' O.C. FOR SIDEWALK
3. 1/2" PREMOULDED BITUMINOUS EXPANSION JOINT (AASHTO M-33) IS REQUIRED FOR ALL CURB RETURNS. TRIM BITUMINOUS MATERIAL 1/4" LESS THAN NEAT CURB AND GUTTER DIMENSION.
4. SUBGRADE UNDER CURBS MUST BE FORMED AND COMPACTED TO 95% ASTM D1557
5. EXPANSION JOINTS REQUIRED AT 50' O.C. WHEN FORMING FOR CURBS.
6. EXPANSION JOINTS REQUIRED BETWEEN OLD AND NEW CONCRETE.

**7 CURB & GUTTER DETAIL**  
SCALE: 1" = 1'-0"



**NOTES:**

1. FINAL SLOPES MAY BE ADJUSTED DURING CONSTRUCTION. CONTRACTOR SHALL NOTIFY ALL CHANGES TO ENGINEER
2. CONCRETE TO BE 3,000 PSI (MIN.) CORE TEST @ 28 DAYS.

**8 CONCRETE FLUME**  
SCALE: 1/2" = 1'-0"

REV.	DATE	BY	DESCRIPTION

UTILITY LOCATOR SERVICES	
TIME WARNER COMMUNICATIONS	(915) 775-7415
EL PASO ELECTRIC COMPANY	(915) 877-3400
EL PASO WATER UTILITIES	(915) 594-5500
VERIZON COMMUNICATIONS	(800) 624-9675
HOLLY ENERGY PARTNERS	(915) 494-0549
TEXAS GAS SERVICE	(800) 959-5325
KINDER MORGAN	(915) 843-2441
AT&T GENERAL	(915) 595-5151
EL PASO STREETS & MAINTENANCE	(915) 212-0118

**WARNING!**  
**BEFORE YOU DIG**  
**CALL 811**

FOR FIELD LOCATING EXISTING UTILITIES

ENGINEER'S SEAL

ABEL GARCIA  
112223  
LICENSED PROFESSIONAL ENGINEER  
CEA GROUP  
F-4564

DESIGNED
LG
DRAWN
NC
CHECKED
LG
APPROVED
AG
DATE
02/14/2023

**cea**  
group

813 N. Kansas St.  
Suite 300  
El Paso, TX 79902  
915.544.5232  
www.ceagroup.net  
TEXAS REGISTERED ENGINEERING FIRM F-4564

**el paso**  
**WATER**

PROJECT: **GRISSOM LANE AND Mc AFFEE PLACE - STORM SEWER, SANITARY SEWER AND WATER MAIN IMPROVEMENTS**

SHEET TITLE: **PAVEMENT REPAIR DETAILS**

JOB NO. **1040-046**

SEQUENCE NO. **C7.2**

SHEET NO. **22** OF **22**