

BU-09
SANITARY SEWER

THE STANDARD SPECIFICATIONS OF THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, INCLUDING CHANGES AND SUPPLEMENTAL SPECIFICATIONS LISTED IN THE PROPOSAL SHALL GOVERN THIS IMPROVEMENT.



SIGNED: _____
DATE: _____

1111 SUPERIOR AVENUE EAST, SUITE 2300
CLEVELAND, OHIO 44114

[illegible]

0	2019-07-07	RFC
NO.	DATE	DESCRIPTION
ISSUE RECORD		

**CUY-IR490/ SR010-
2.09 / 19.28**

RECORD PLANS

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CLEVELAND WATER POLLUTION CONTROL

THE CONTRACTOR SHOULD NOTIFY THE DIVISION OF WATER POLLUTION CONTROL (WPC) PRIOR TO START OF CONSTRUCTION OF ANY CITY OF CLEVELAND SEWERS. CALL THE ENGINEERING OFFICE AT (216) 664-2756 OR (216) 664-3638 TO COORDINATE THE SEWER WORK.

THE CONTRACTOR IS REQUIRED TO SUBMIT SEWER SHOP DRAWINGS TO WPC PRIOR TO ANY CITY SEWER INSTALLATION. THE DRAWINGS SHOUD INCLUDE THE SEWER PIPES, MANHOLES, CATCH BASINS AND OTHER SEWER APPURTENANCES.

ANY PROPOSED CITY OF CLEVELAND SEWERS SHOULD BE CONSTRUCTED IN ACCORDANCE TO THE PLANS AND SPECIFICATIONS APPROVED BY WPC. ANY DEVIATIONS FROM THE APPROVED PLANS OR SPECIFICATIONS REQUIRE A NEW PLAN SUBMITTAL REFLECTING THE CHANGES. UPON REVIEW OF THE REVISED ITEMS, WPC WILL RE-ISSUE A NEW APPROVAL. IT IS STRICTLY PROHIBITED TO CONSTRUCT ANY CITY OF CLEVELAND SEWERS UNLESS THEY ARE APPROVED BY WPC.

UPON COMPLETION OF ANY CITY OF CLEVELAND SEWER INSTALLATION, THE CONTRACTOR IS REQUIRED TO SUBMIT A HARD COPY AND AN ELECTRONIC COPY OF AS-BUILT PLANS, AND A CCTV COPY OF THE NEW CITY SEWERS. WPC RESERVES THE RIGHT NOT TO APPROVE ANY SEWER THAT DOES NOT MEET THE CITY REQUIREMENTS.

ITEM 611 – CATCH BASIN, NO. 2-2A, AS PER PLAN

CATCH BASINS, NO. 2-2A, SHALL BE CONSTRUCTED IN ACCORDANCE WITH O.D.O.T. STANDARD DETAIL CB-1.1 WITH THE ADDITION OF A 6” TRAP AND 2’ SUMP.

ITEM 611 – CATCH BASIN, NO. 2-2B, AS PER PLAN

CATCH BASINS, NO. 2-2B, SHALL BE CONSTRUCTED IN ACCORDANCE WITH O.D.O.T. STANDARD DETAIL CB-1.1 WITH THE ADDITION OF A 6” TRAP AND 2’ SUMP.

ITEM 611 – CATCH BASIN, NO. 3A, AS PER PLAN

CATCH BASINS, NO. 3A SHALL BE CONSTRUCTED IN ACCORDANCE WITH O.D.O.T. STANDARD DETAIL CB-2.2 WITH THE ADDITION OF A 6” TRAP AND 2’ SUMP.

ITEM 611 – CATCH BASIN, NO. 6, AS PER PLAN

CATCH BASINS, NO. 6, SHALL BE CONSTRUCTED IN ACCORDANCE WITH O.D.O.T. STANDARD DETAIL CB-2.3 WITH THE ADDITION OF A 6” TRAP AND 2’ SUMP.

ITEM 611 – MANHOLE, NO. 3, AS PER PLAN

MANHOLE NO. 3, SHALL BE CONSTRUCTED IN ACCORDANCE WITH O.D.O.T. STANDARD DETAIL MH-1.2 WITH THE CITY OF CLEVELAND MH-1 FRAME AND LID.

CITY OF CLEVELAND STANDARD DRAWINGS

THE APPLICABLE STANDARD DRAWINGS AND DETAILS OF THE CITY OF CLEVELAND HAVE BEEN INCORPORATED AS MISCELLANEOUS DETAILS, WATERWORK DETAILS AND POWER DISTRIBUTION DETAILS WITHIN THE PLAN SET. THESE DRAWINGS AND DETAILS REPRESENT THE MOST CURRENT VERSIONS APPROVED BY THE CITY OF CLEVELAND AND HAVE BEEN INCLUDED TO DEPICT THE INTENT OF THE PARTICULAR CONSTRUCTION FEATURES, HOWEVER THEY HAVE NOT BEEN UPDATED FOR CONFORMANCE WITH THE 2016 ODOT CMS. WHEN REFERENCES TO NON-CURRENT CMS ITEMS ARE ENCOUNTERED WITHIN THE DETAILS (I.E. “ITEM 604” OR “CLASS C CONCRETE”) THE CURRENT SECTION OF THE CMS (I.E. “ITEM 611 OR “CLASS QC-1 CONCRETE”) SHALL APPLY. INTERPRETATIONS REGARDING THE APPLICABLE SECTIONS OF THE 2016 CMS SHALL BE AT THE DIRECTION OF THE ENGINEER.

GENERAL DRAINAGE REQUIREMENTS

THE DBT SHALL REMOVE SEDIMENT AND DEBRIS FROM EXISTING DRAINAGE CONDUITS (MAINLINE AND LATERAL STORM AND COMBINED SEWERS) AND DRAINAGE STRUCTURES AS FOLLOWS:

1. ANY DRAINAGE STRUCTURE TO WHICH THE DBT CONNECTS
2. ANY DRAINAGE STRUCTURE RECEIVING RUNOFF DURING CONSTRUCTION FROM AREAS DISTURBED BY THE WORK.
3. THE ADJACENT DRAINAGE CONDUIT EXTENDING FROM THESTRUCTURE IDENTIFIED IN CONDITIONS (1) OR (2) TO THE NEXT DOWNSTREAM DRAINAGE STRUCTURE.
4. ALL MATERIALS REMOVED SHALL BE DISPOSED OF AS PER C&MS 105.16 AND 105.17.

THE CONTRACTOR IS RESPONSIBLE FOR ALL DAMAGE RESULTING FROM CONSTRUCTION ACTIVITIES, PRIOR TO ACCEPTANCE OF WORK.

CONTRACTOR SHALL PREVENT ANY DEBRIS FROM ENTERING THE SEWERS OR THE DIVERSION STRUCTURE. ANY DEBRIS ENTERING THE SEWER OR DIVERSION STRUCTURE SHALL BE REMOVED BY THE CONTRACTOR.

NEW CONNECTIONS TO REINFORCED CONCRETE OR VITRIFIED CLAY PIPE SHALL HAVE A MANUFACTURED BOOT THAT MAKES A WATERTIGHT CONNECTION.

ITEM SPECIAL – FILL AND PLUG EXISTING CONDUIT

THIS ITEM SHALL CONSIST OF THE CONSTRUCTION OF BULKHEADS IN EXISTING CONDUITS AND FILLING THE INSIDE AREA TO SEAL THE CONDUITS OFF WITH ITEM 613, SAND OR OTHER MATERIAL APPROVED BY THE ENGINEER.

PIPES 10 INCHES THROUGH 24 INCHES IN DIAMETER OR RISE WITH LESS THAN 3 FEET OF FINAL COVER SHALL BE REMOVED; WITH MORE THAN 3 FEET OF FINAL COVER THEY MAY BE ABANDONED IN PLACE BY FILLING AND PLUGGING. PRIOR TO FILLING AND PLUGGING, CONDUIT SHALL BE VIDEOTAPED TO ENSURE THAT UNKNOWN CONNECTIONS ARE NOT IMPACTED.

BULKHEADS SHALL BE LOCATED AT THE LIMITS OF THE AREA TO BE FILLED AS INDICATED ON THE PLANS. THE BULKHEADS SHALL CONSIST OF BRICK OR CONCRETE MASONRY WITH A MINIMUM THICKNESS OF 12 INCHES.

THE FILL MATERIAL SHALL BE PUMPED INTO PLACE, OR PLACED BY OTHER MEANS APPROVED BY THE ENGINEER, SO THAT, AFTER SETTLEMENT, AT LEAST 90 PERCENT OF THE CROSS SECTIONAL AREA OF THE CONDUIT, FOR ITS ENTIRE LENGTH, SHALL BE FILLED. THE LENGTH OF FILLED AND PLUGGED CONDUIT TO BE PAID FOR SHALL BE THE ACTUAL NUMBER OF FEET (MEASURED ALONG THE CENTERLINE OF EACH CONDUIT FROM OUTER FACE TO OUTER FACE OF BULKHEADS) FILLED AND PLUGGED AS DESCRIBED ABOVE.

THE LENGTH, MEASURED AS PROVIDED ABOVE, SHALL BE PAID FOR AT THE CONTRACT PRICE PER FOOT FOR, ITEM SPECIAL, FILL AND PLUG EXISTING CONDUIT.

UNRECORDED STORM WATER DRAINAGE

FURNISH A CONTINUANCE FOR ALL UNRECORDED STORM WATER DRAINAGE, SUCH AS ROOF DRAINS, FOOTER DRAINS, OR YARD DRAINS, DISTURBED BY THE WORK. FURNISH EITHER AN OPEN CONTINUANCE OR AN UNOBSTRUCTED CONTINUANCE BY CONNECTING A CONDUIT THROUGH THE CURB OR INTO A DRAINAGE STRUCTURE. THE LOCATION, TYPE, SIZE AND GRADE OF THE NEEDED CONDUIT TO REPLACE OR EXTEND AN EXISTING DRAIN WILL BE DETERMINED BY THE ENGINEER.

UNRECORDED ACTIVE SANITARY SEWER CONNECTIONS

FURNISH A CONTINUANCE FOR ALL UNRECORDED ACTIVE SANITARY SEWER CONNECTIONS SUCH AS SANITARY, WASTEWATER, CURTAIN/GRADIENT DRAINS, AND FOUNDATION FLOOR DRAINS DISTURBED BY THE WORK. FURNISH AN UNOBSTRUCTED CONTINUANCE OF THE UNRECORDED ACTIVE SANITARY SEWER CONNECTIONS TO THE SATISFACTION OF THE ENGINEER. ALL SANITARY AND SANITARY WASTEWATER CONTINUANCE MAY REQUIRE A NPDES PERMIT FROM THE OHIO ENVIRONMENTAL PROTECTION AGENCY. REPORT ALL CONTINUANCE TO THE LOCAL HEALTH DEPARTMENT.

MISCELLANEOUS METALS

FOR ADJUSTMENT OR REPLACEMENT OF EXISTING DRAINAGE STRUCTURE CASTINGS TO BE RETAINED IN THE ROADWAYS, A CONTINGENCY QUANTITY OF 25,000 POUNDS OF MISCELLANEOUS METAL PER CMS 611 HAS BEEN INCLUDED WITHIN THE LUMP SUM BID FOR DRAINAGE WORK. THIS WORK SHALL BE AS DIRECTED BY THE DEPARTMENT. IF THE QUANTITY EXCEEDS 25,000 POUNDS, THE DEPARTMENT WILL PAY THE ADDITIONAL QUANTITIES IN ACCORDANCE WITH THE CONTRACT.

EXISTING CASTINGS

CASTINGS TO REMAIN AFTER EXISTING ROADWAY AND PAVEMENT REMOVALS SHALL BE RAISED TO 1.0’ ABOVE THE FINISHED GRADE UNLESS ADJACENT TO PAVED AREAS.

UNLESS OTHERWISE SPECIFIED IN THESE PLANS, IN AREAS OF PAYMENT REMOVAL, THE PAVEMENT AND BASE COURSE REMOVAL WILL BE FILLED AS NECESSARY TO REESTABLISH EXISTING GRADE. THIS WILL INCLUDE 4” OF TOPSOIL AND SEEDING TO MEET EXISTING GRADE.

TRENCH BACKFILLING

UNLESS OTHERWISE SPECIFIED, ALL BACKFILLING OF TRENCHES WITHIN PAVEMENT LIMITS, WITH THE EXCEPTION OF UNDERDRAINS, SHALL BE BACKFILLED TO THE TOP OF THE TRENCH OR BOTTOM OF SUBGRADE, WHICHEVER IS LOWER, WITH LOW STRENGTH MORTAR (LSM) PER CITY OF CLEVELAND SPECIFICATIONS. LSM SHALL CONSIST OF THE FOLLOWING:

CEMENT (ASTM C-150, TYPE 1): 50 LBS

SAND (PER C&MS 703.03, SSD): 2475 LBS

WATER: 25 GALLONS

ADMIXTURE (AIR): 3 OZ.

APPROVED ADMIXTURES: MASTER BUILDERS-RHEOFILL, AXIM-FLOW AIR, W.R. GRACE-DARAFILL (AN EQUAL MAY BE USED ONLY WITH DEPARTMENT APPROVAL)

USE OF FLY ASH, SPENT FOUNDRY SAND OR CORE SAND IS STRICTLY PROHIBITED.

ITEM SPECIAL – PRE AND POST CONSTRUCTION VIDEOTAPING

EXISTING TRUNK SEWERS IMPACTED BY THE ZONE OF INFLUENCE OF CONSTRUCTION ACTIVITY SHALL BE VIDEO INSPECTED PER C&MS 611 TWICE IN THE COURSE OF THIS PROJECT: FIRST, BEFORE CONSTRUCTION BEGINS; AND SECOND, AFTER CONSTRUCTION IS COMPLETED AND PRIOR TO FINAL ACCEPTANCE OF THE WORK. CONSTRUCTION ACTIVITY AS IT RELATES TO STORM SEWER INSPECTION SHALL BE DEFINED AS RETAINING WALL, BRIDGE, OR ROADWAY CONSTRUCTION ACTIVITY CROSSING OR ADJACENT TO AN EXISTING STORM OR COMBINED SEWER. THE ZONE OF INFLUENCE AREAS SHALL BE DETERMINED BY THE DBT AND APPROVED BY THE GOVERNING AGENCY. THE VIDEO INSPECTION REQUIREMENT SHALL APPLY TO ALL IMPACTED TRUNK SEWERS REGARDLESS OF SIZE, DEPTH, OR TYPE.

UNLESS OTHERWISE SPECIFIED IN THIS SCOPE DOCUMENT, VIDEO INSPECTION LIMITS SHALL INCLUDE THE LENGTH OF SEWER WITHIN THE INFLUENCE AREA AND EXTEND 50 FEET UPSTREAM AND DOWNSTREAM BEYOND THE INFLUENCE AREA LIMITS. VIDEO INSPECTION LIMITS SHALL BE APPROVED BY THE DEPARTMENT AND THE MAINTAINING AGENCY OF THE SEWER PRIOR TO COMMENCEMENT OF WORK. THE DBT SHALL PROVIDE DVD COPIES OF ALL VIDEO/INSPECTION REPORTS TO THE DEPARTMENT OF ALL INSPECTIONS PERFORMED.

SEWERS TO BE VIDEO INSPECTED SHALL BE CLEANED TO FACILITATE THE VIDEO INSPECTION.

SANITARY

ROOF DRAINS, FOUNDATION DRAINS, AND OTHER CLEAN WATER CONNECTIONS TO THE SANITARY SEWER SYSTEM ARE PROHIBITED.

ALL SANITARY SEWERS 18” DIAMETER AND SMALLER SHALL BE CLAY PIPE PER ASTM C-700, JOINTS PER ASTM C-425 AND INSTALLED PER ASTM C-12. ALL SANITARY SEWERS SHALL PASS THE AIR-ACCEPTANCE PRIOR TO ACCEPTANCE BY THE CITY OF CLEVELAND. THIS APPLIES TO ALL PROPOSED SANITARY SEWERS OF 18” DIAMETER AND SMALLER. TESTING OF THE SANITARY SEWER SHALL MEET ASTM C-828 REQUIREMENTS.

ALL PROPOSED CONDUIT 21” AND LARGER SHALL BE REINFORCED CONCRETE PIPE WITH PREMIUM JOINTS (CMS 706.02 & 706.11).

WHERE INLET AND OUTLET PIPES CONNECT TO MANHOLES, A FLEXIBLE WATERTIGHT JOINT IS REQUIRED. FLEXIBLE MANHOLE CONNECTIONS SHALL MEET ASTM C-923. PRECAST MANHOLE CONSTRUCTION SHALL MEET ASTM C-478 WITH JOINTS PER ASTM C-443. ALL NEW SEWER MANHOLES SHALL BE VACUUM TESTED IN ACCORDANCE WITH THE PROCEDURES OF ASTM C-1244.

ALL SANITARY SEWERS AND APPURTENANCES SHALL BE CONSTRUCTED IN STRICT ACCORDANCE WITH THESE PLANS, THE CURRENT STANDARDS AND SPECIFICATIONS OF THE NORTHEAST OHIO REGIONAL SEWER DISTRICT AND CITY OF CLEVELAND, AND IN ACCORDANCE WITH THE CURRENT UNIFORM STANDARDS FOR SEWERAGE IMPROVEMENTS.

UNDERDRAINS, TYPE F CONDUIT

WHEN A PIPE UNDERDRAIN SPANS THE TRENCH OF A LOWER CONDUIT (UTILITY, STORM SEWER, ETC.) AND THE VERTICAL DISTANCE BETWEEN THE LOWER CONDUIT AND THE UNDERDRAIN IS LESS THAN OR EQUAL TO 12 INCHES, TYPE F CONDUIT SHALL BE USED TO SPAN THE LOWER TRENCH. USE A MINIMUM OF 10 FEET OF THE TYPE F CONDUIT, CENTERED OVER THE LOWER TRENCH.

OWNERSHIP AND MAINTENANCE RESPONSIBILITY

ONCE CONSTRUCTION IS COMPLETE, ALL STORM, SANITARY, AND COMBINED SEWERS DEPICTED IN THESE PLANS SHALL BE OWNED AND MAINTAINED BY THE CITY OF CLEVELAND, DEPARTMENT OF WATER POLLUTION CONTROL, UNLESS NOTED OTHERWISE IN THE PLANS.

NORTH EAST OHIO REGIONAL SEWER DISTRICT (NEORSD)

THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ANY AND ALL PERMITS REQUIRED FOR THE WORK.

A 72-HOUR NOTICE SHALL BE PROVIDED TO MAINTENACE SERVICES – TECHNICAL SUPPORT AT PERMITS@NEORSD.ORG TO SCHEDULE AN NEORSD INSPECTOR FOR THE CONNECTION TO NEORSD OWNED SEWERS.

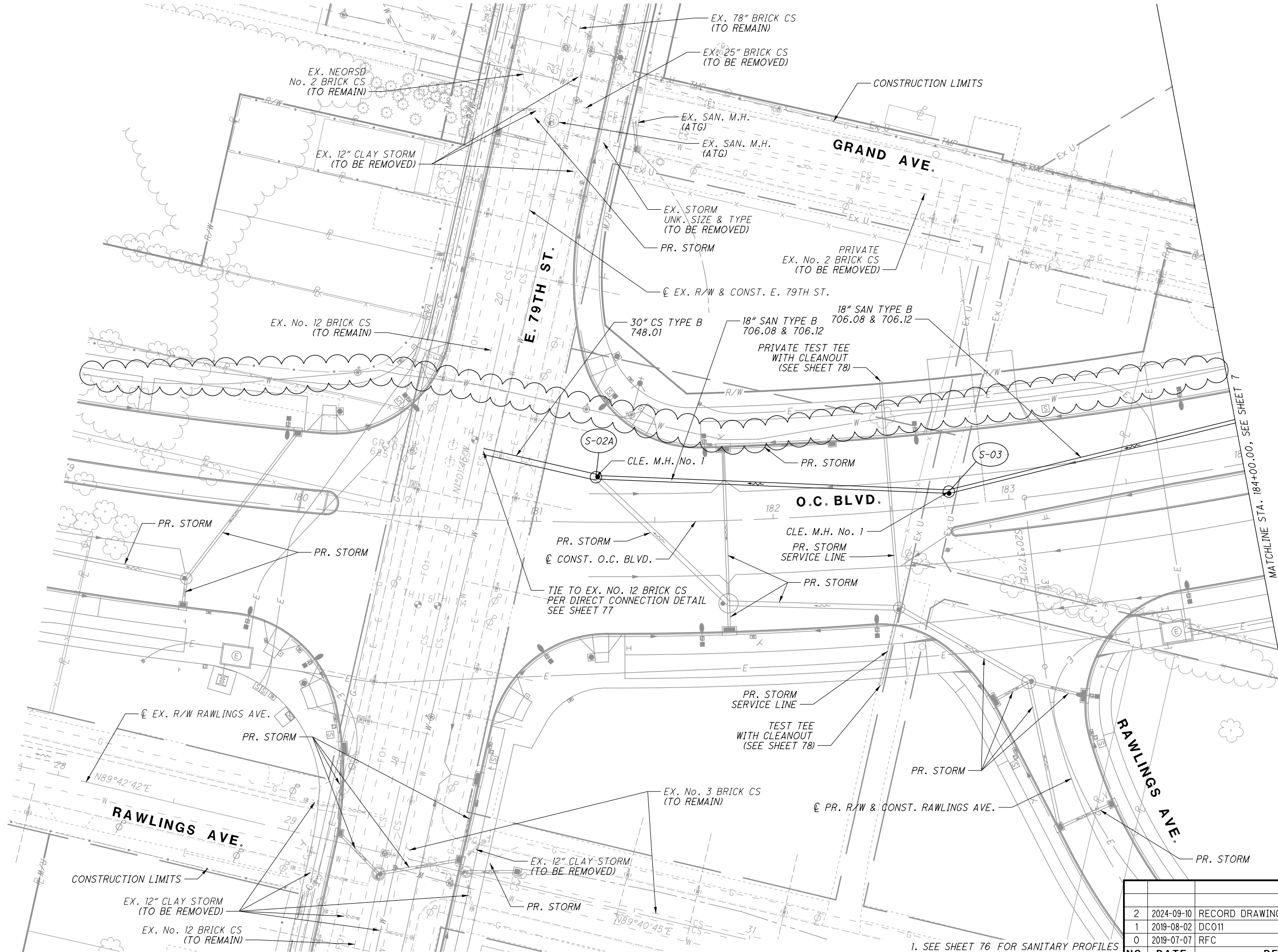
REFERENCE:

BU-09 FOR SANITARY SEWER
BU-10 FOR WATER LINES
BU-11 FOR CPP DUCT BANKS
BU-15 FOR ROADWAY & PAVEMENT
BU-27 FOR STREET LEVEL LIGHTING

0	2019-07-07	RFC
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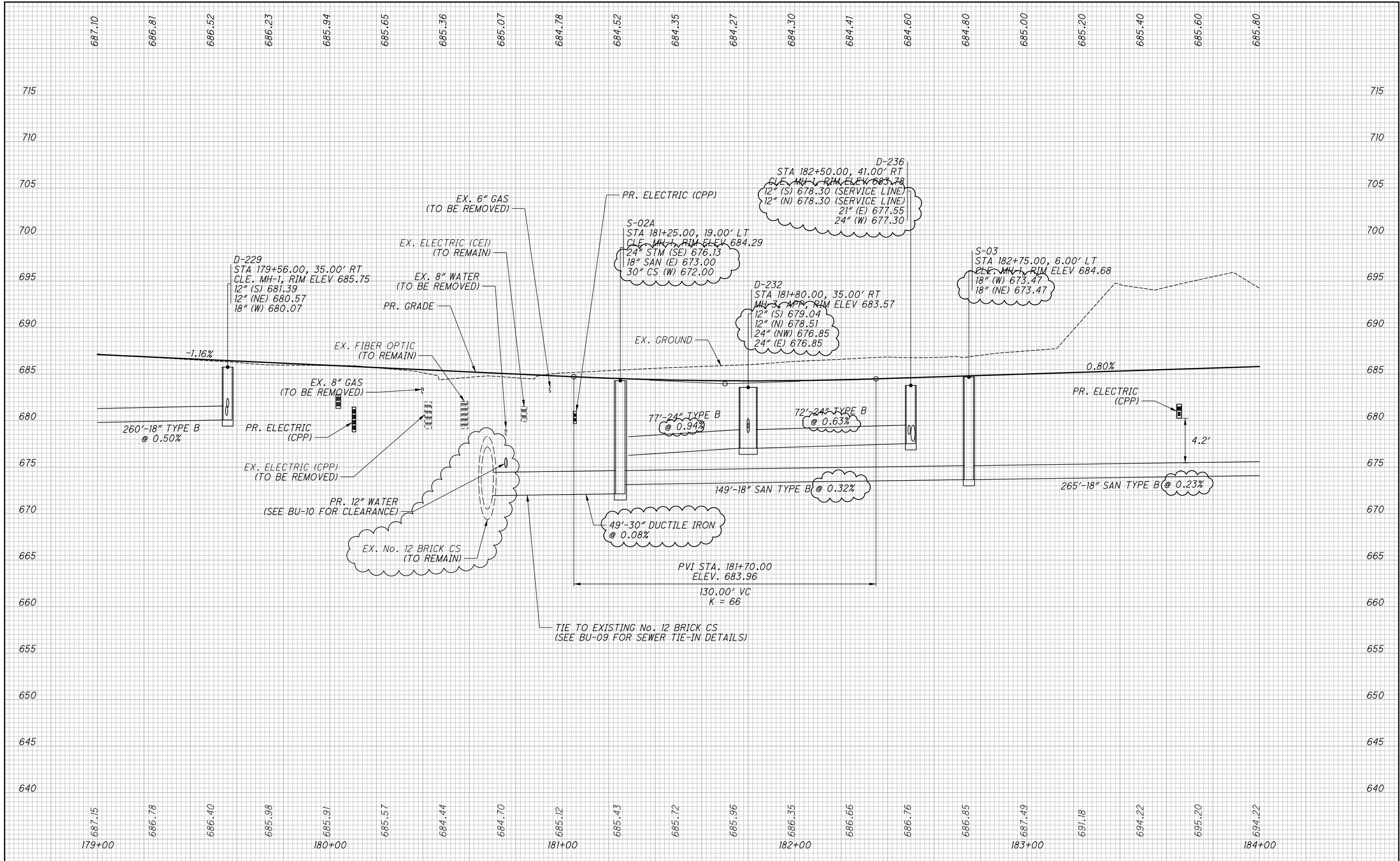
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							Size (in)	Type	Length (ft)	Ref. No.	Invert	Ref. No.	Invert
S-02A	181+25.00	19.00	LT	OC	SAN MH	684.29	30	DUCTILE IRON	49.0	S-02A	672.00	EXIST.	671.96
S-03	182+75.00	6.00	LT	OC	SAN MH	684.68	18	B	149.0	S-03	673.47	S-02A	673.00
S-04	185+42.21	19.00	LT	OC	SAN MH	686.55	18	B	265.0	S-04	674.08	S-03	673.47
S-04A	187+03.80	73.40	RT	OC	SAN MH	685.87	18	B	186.0	S-04A	675.12	S-04	674.08
S-04B	187+42.80	94.90	RT	OC	ATG EX SAN MH	686.17	18	C	44.0	S-04B	675.42	S-04A	675.12
S-05	185+42.21	73.24	RT	OC	TEST TEE	686.00	12	B	92.0	S-05	676.00	S-04	674.58
S-06	185+42.21	50.00	LT	OC	TEST TEE	686.72	12	B	31.0	S-06	675.39	S-04	674.58
S-07	197+25.00	77.00	RT	OC	TEST TEE	689.95	12	B	47.0	S-07	678.32	S-09	677.21
S-08	197+25.00	60.00	LT	OC	TEST TEE	688.00	12	B	90.0	S-08	678.75	S-09	677.21
S-09	197+25.00	29.68	RT	OC	SAN MH	687.81	15	B	203.0	S-09	677.02	S-10	676.19
S-10	199+25.00	8.00	RT	OC	SAN MH	690.04	15	B	226.0	S-10	676.19	S-13	675.22
S-11	201+50.00	62.00	LT	OC	TEST TEE	690.00	12	B	70.0	S-11	676.40	S-13	675.47
S-12	201+50.00	75.00	RT	OC	TEST TEE	691.25	12	B	67.0	S-12	676.37	S-13	675.47
S-13	201+50.00	8.00	RT	OC	SAN MH	690.98	15	B	226.0	S-13	675.22	S-15	674.25
S-15	203+75.00	8.00	RT	OC	SAN MH	690.47	15	B	114.0	S-15	674.25	S-16	673.75
S-16	203+89.51	105.02	LT	OC	ATG EX SAN MH	688.99	-	B	-	S-16	660.80	EXIST.	-
D-380	210+76.31	43.01	LT	OC	RTG EX SAN MH	696.43	-	B	-	D-380	674.54	EXIST.	
S-18	213+50.00	26.00	LT	OC	SAN MH	695.89	15	B	282.0	S-18	682.17	D-380	676.50
S-19	215+00.00	26.00	LT	OC	SAN MH	695.14	15	B	155.0	S-19	682.95	S-18	682.17
S-20	216+63.82	26.00	LT	OC	SAN MH	695.11	15	B	170.0	S-20	683.80	S-19	682.95
S-21	216+63.82	69.00	RT	OC	TEST TEE	695.70	12	B	95.0	S-21	685.00	S-20	684.05
S-22	216+63.82	55.00	LT	OC	TEST TEE	697.5	12	B	29.0	S-22	684.34	S-20	684.05

2	2024-09-10	RECORD DRAWINGS
1	2019-08-02	DC011
0	2019-07-07	RFC
NO.	DATE	DESCRIPTION
ISSUE RECORD		



1. SEE SHEET 76 FOR SANITARY PROFILES
2. SEE SHEETS 21 TO 75 FOR CROSS-SECTIONS
3. FOR STORM SEWER, SEE BU-21

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1. SEE SHEET 78 FOR TEST TEE DETAILS
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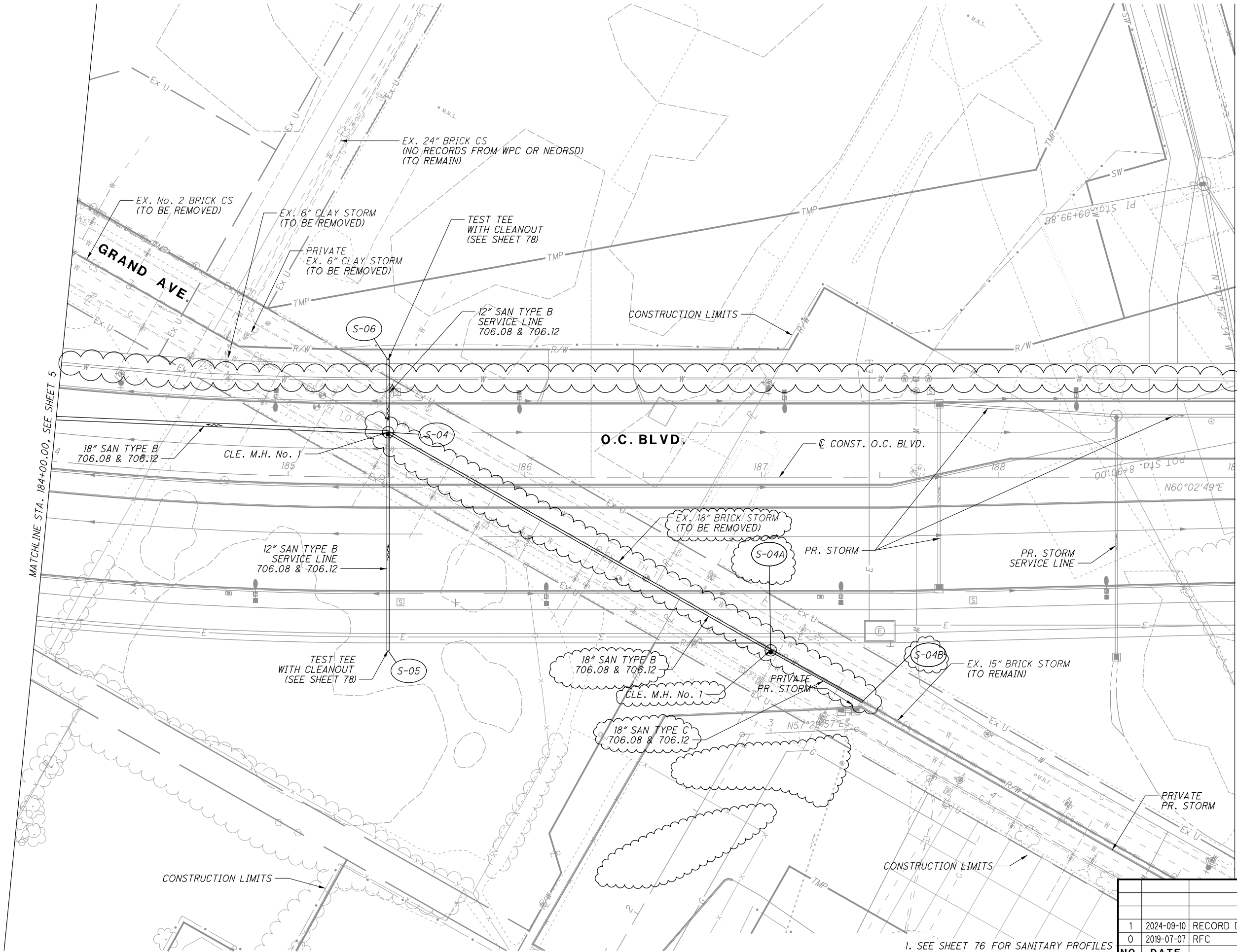
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PROFILE - OPPORTUNITY CORRIDOR BLVD.
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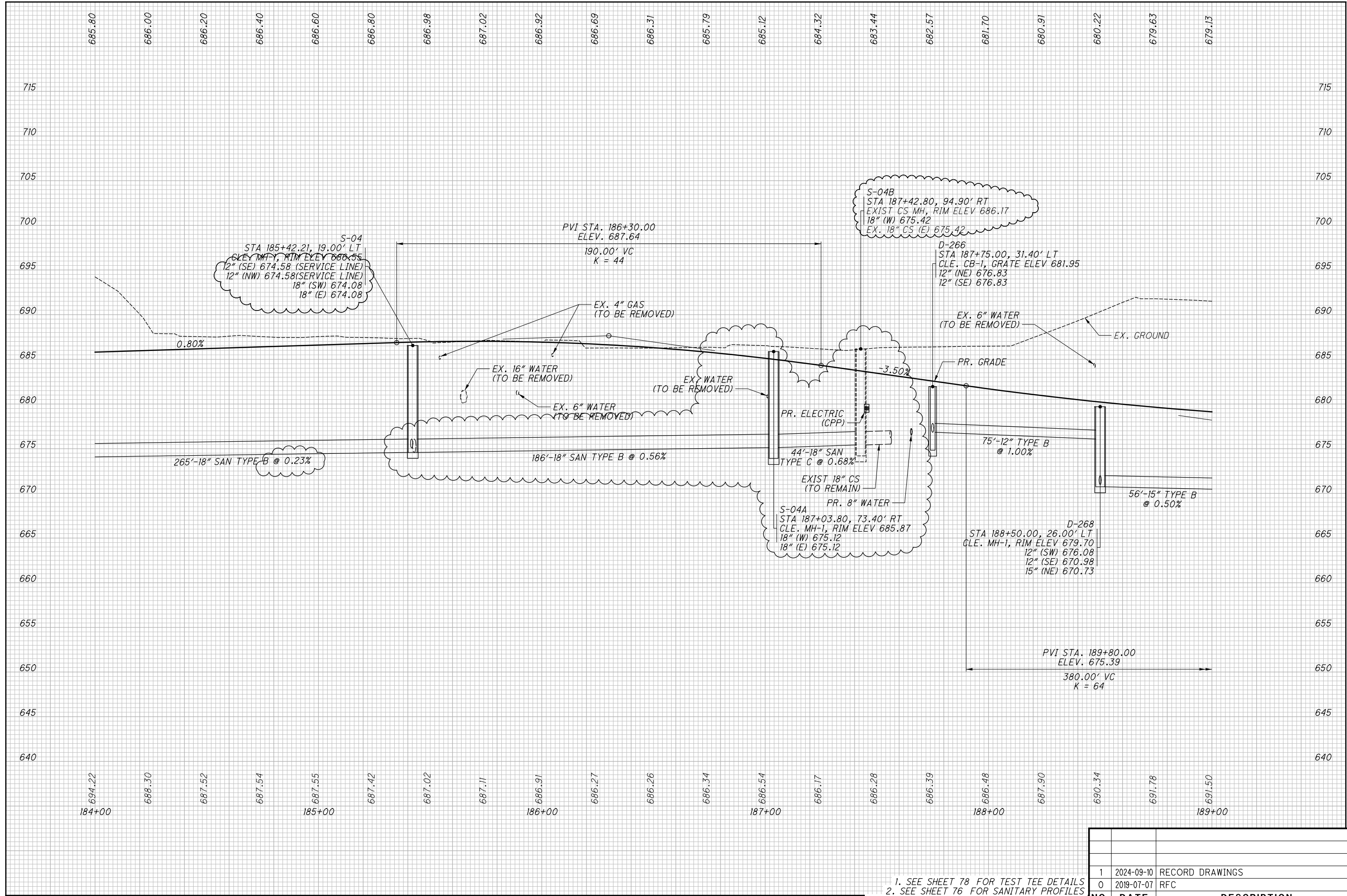
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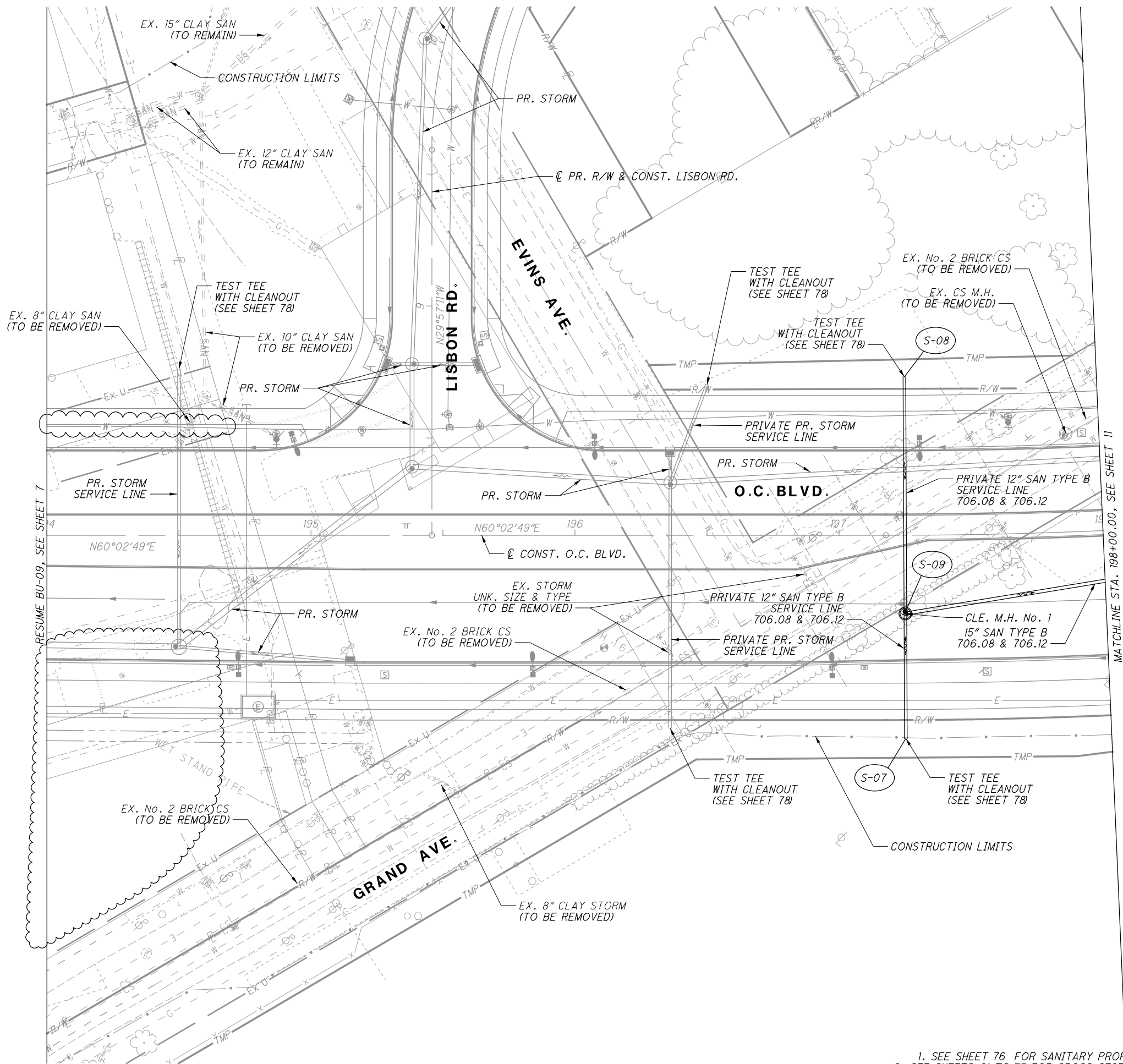
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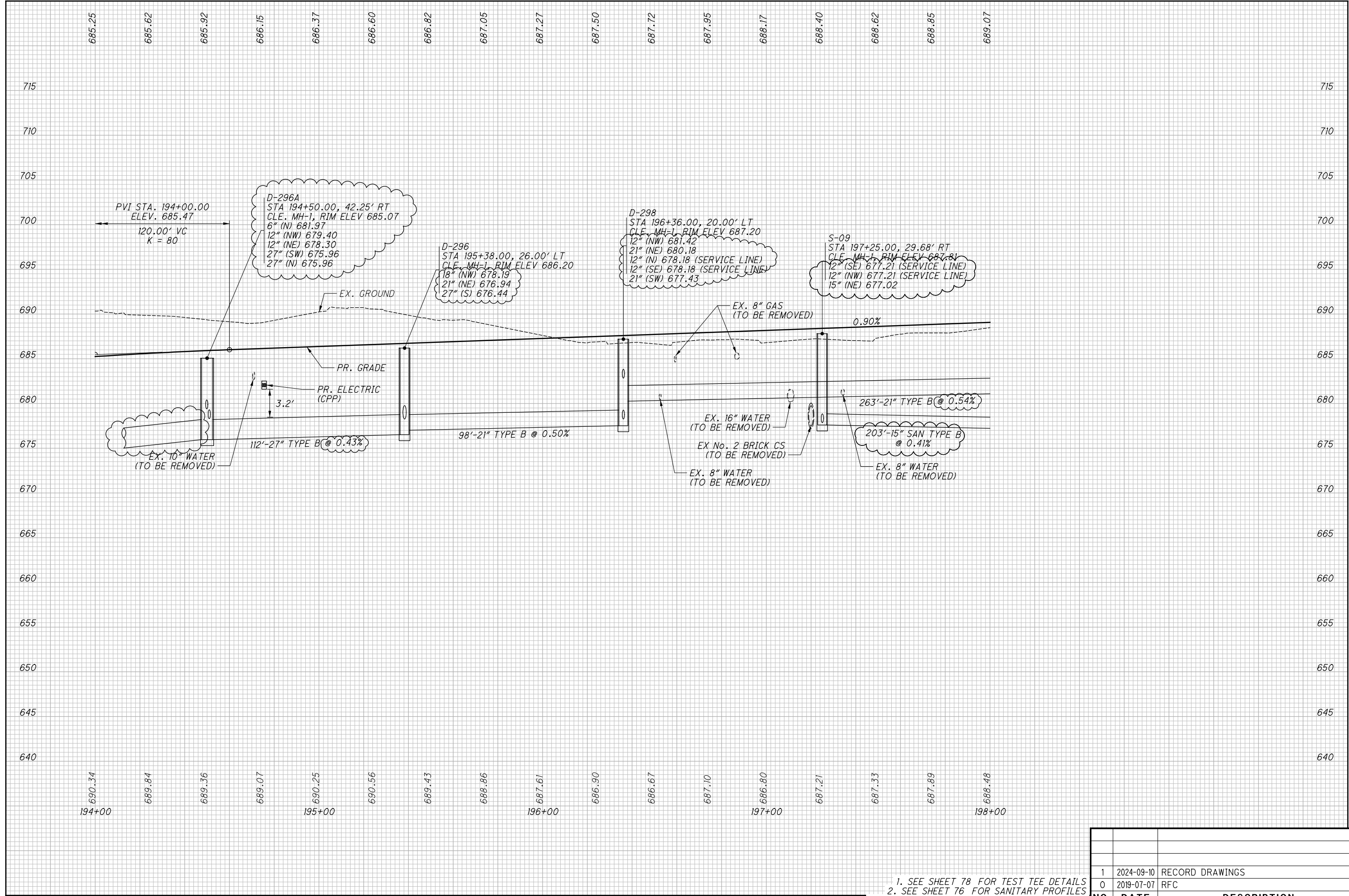


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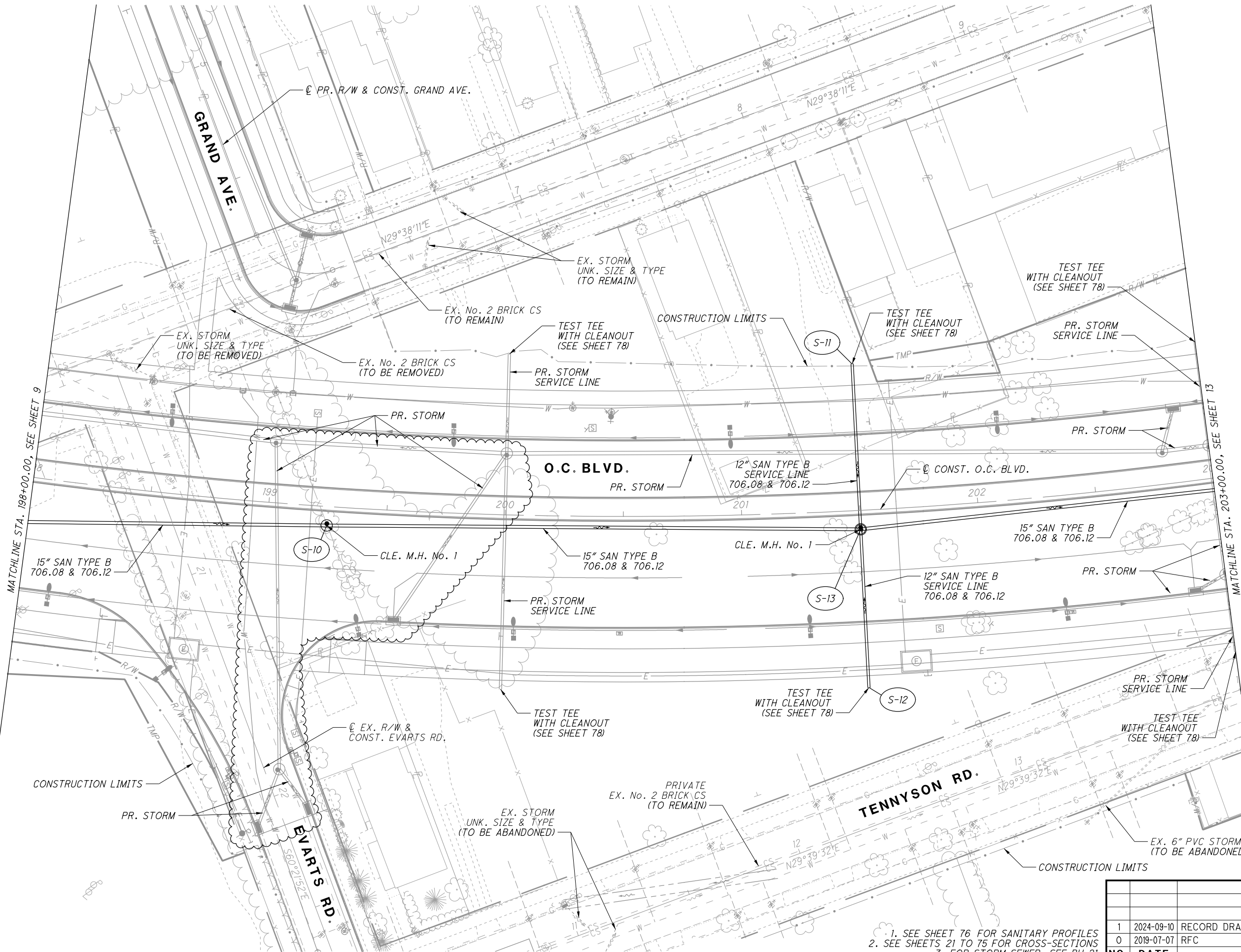
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PROFILE - OPPORTUNITY CORRIDOR BLVD.
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4. SEE BU-15 DEMOLITION PLANS FOR EXISTING STORM AND SANITARY DISPOSITION

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SANITARY SEWER PLAN - O.C. BLVD.
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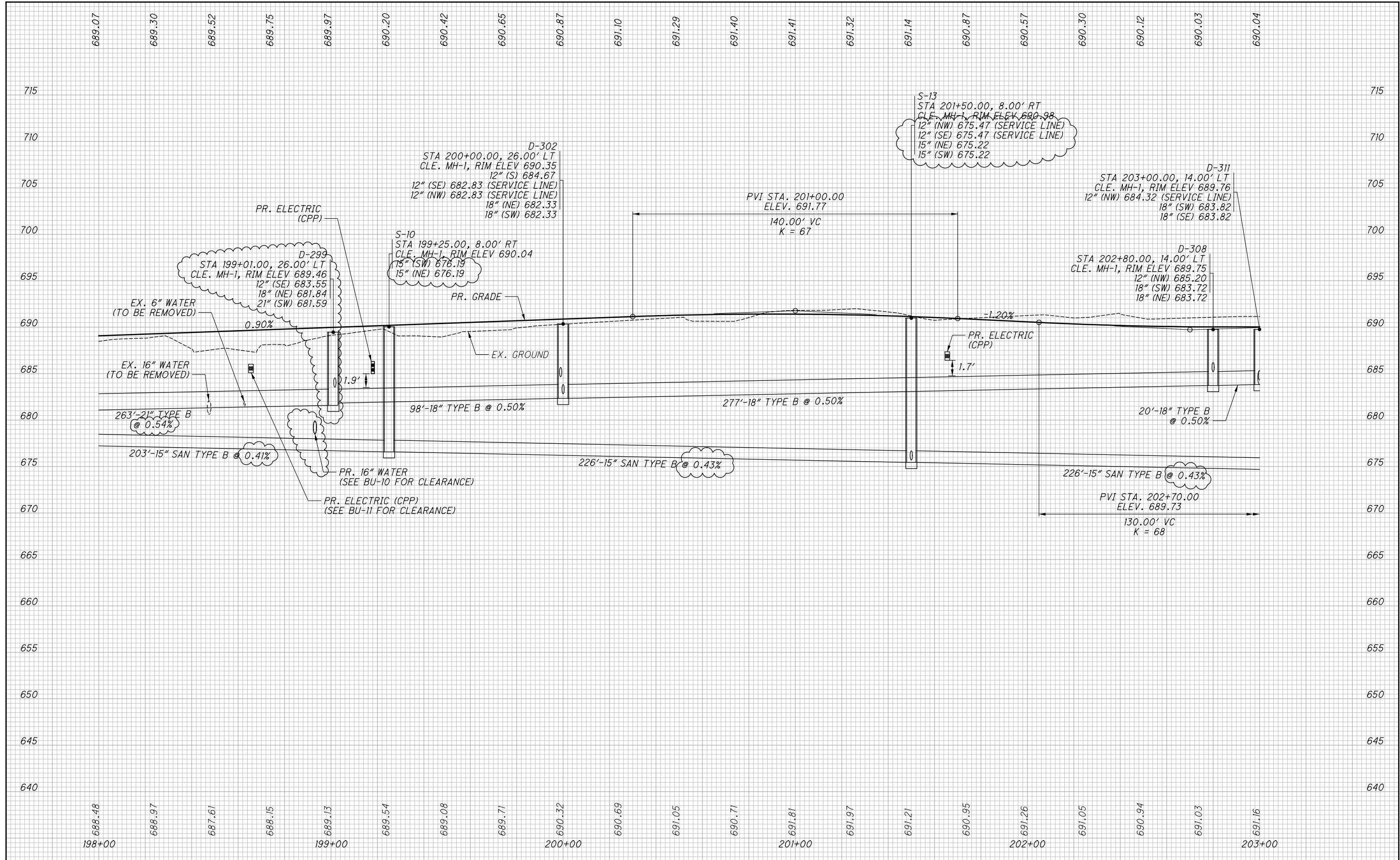
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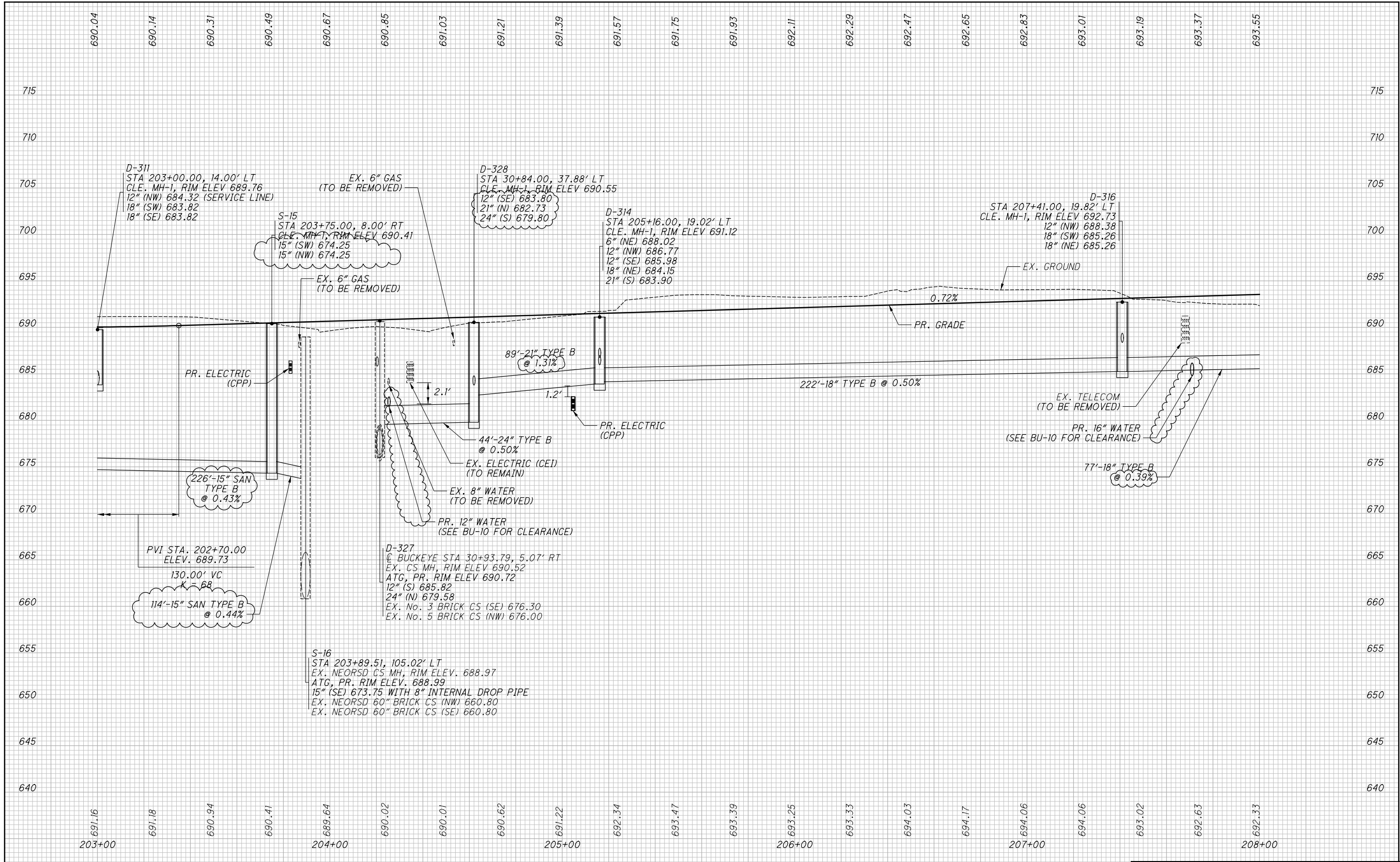
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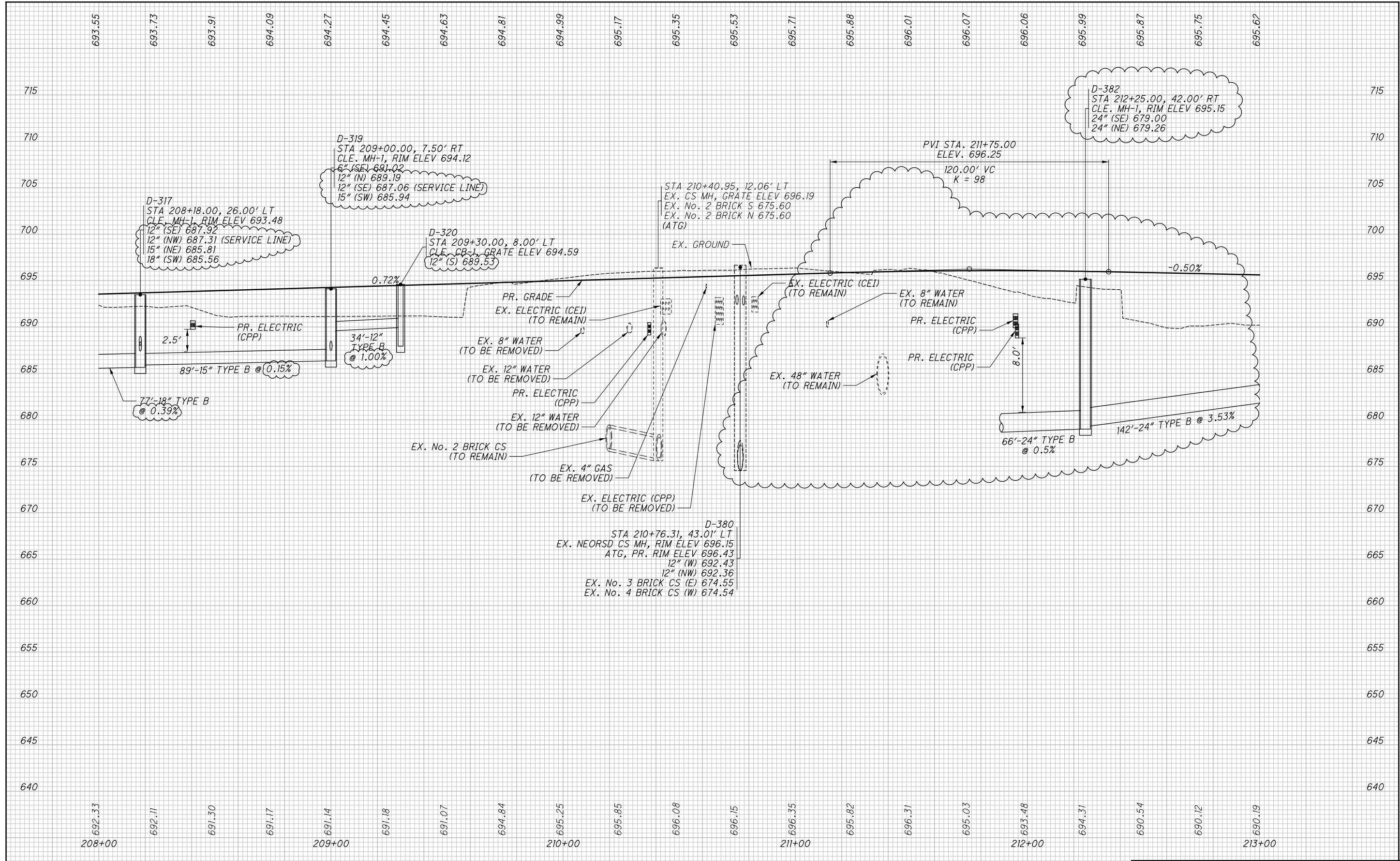
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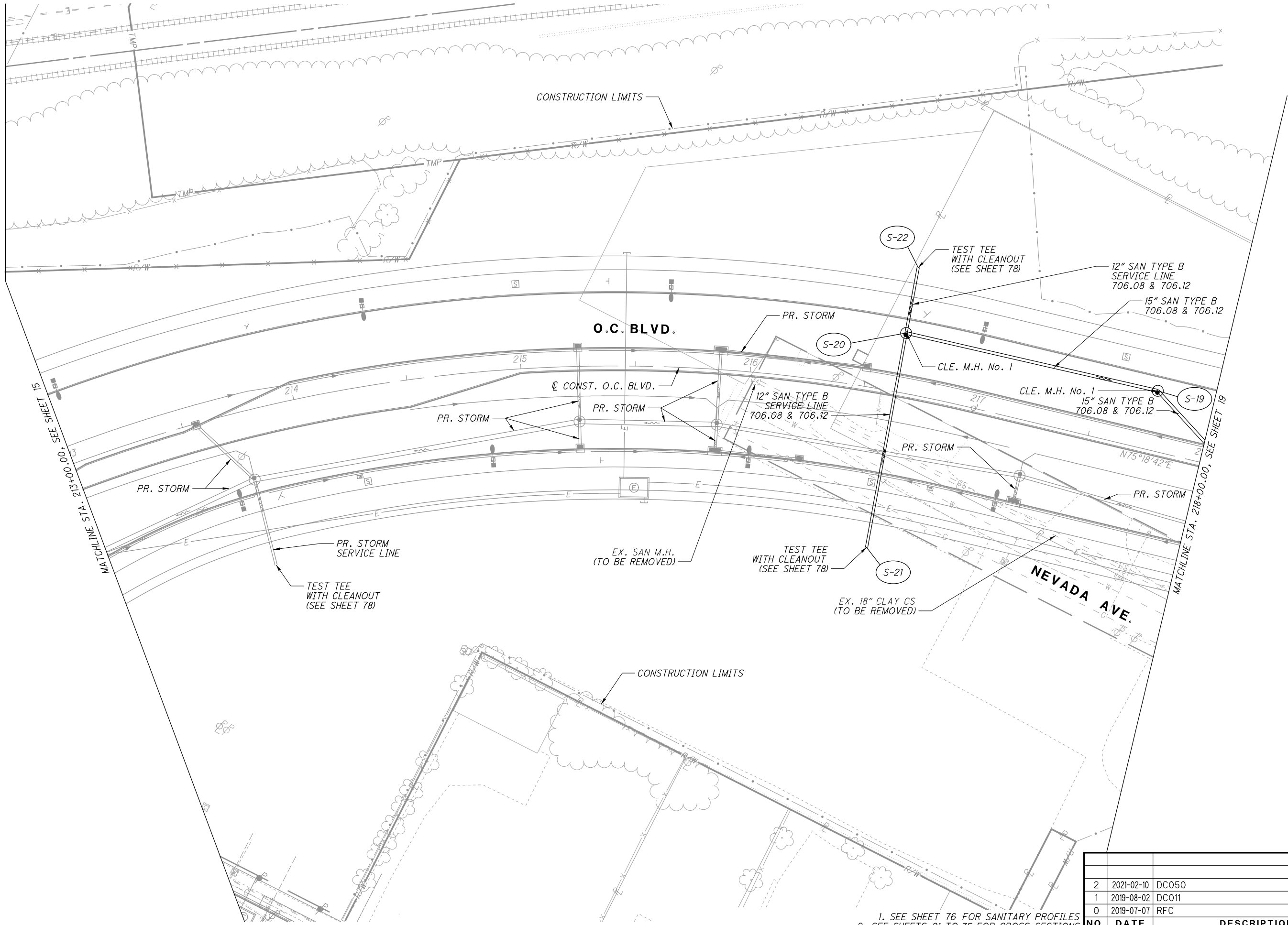
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SANITARY SEWER PLAN - O.C. BLVD.
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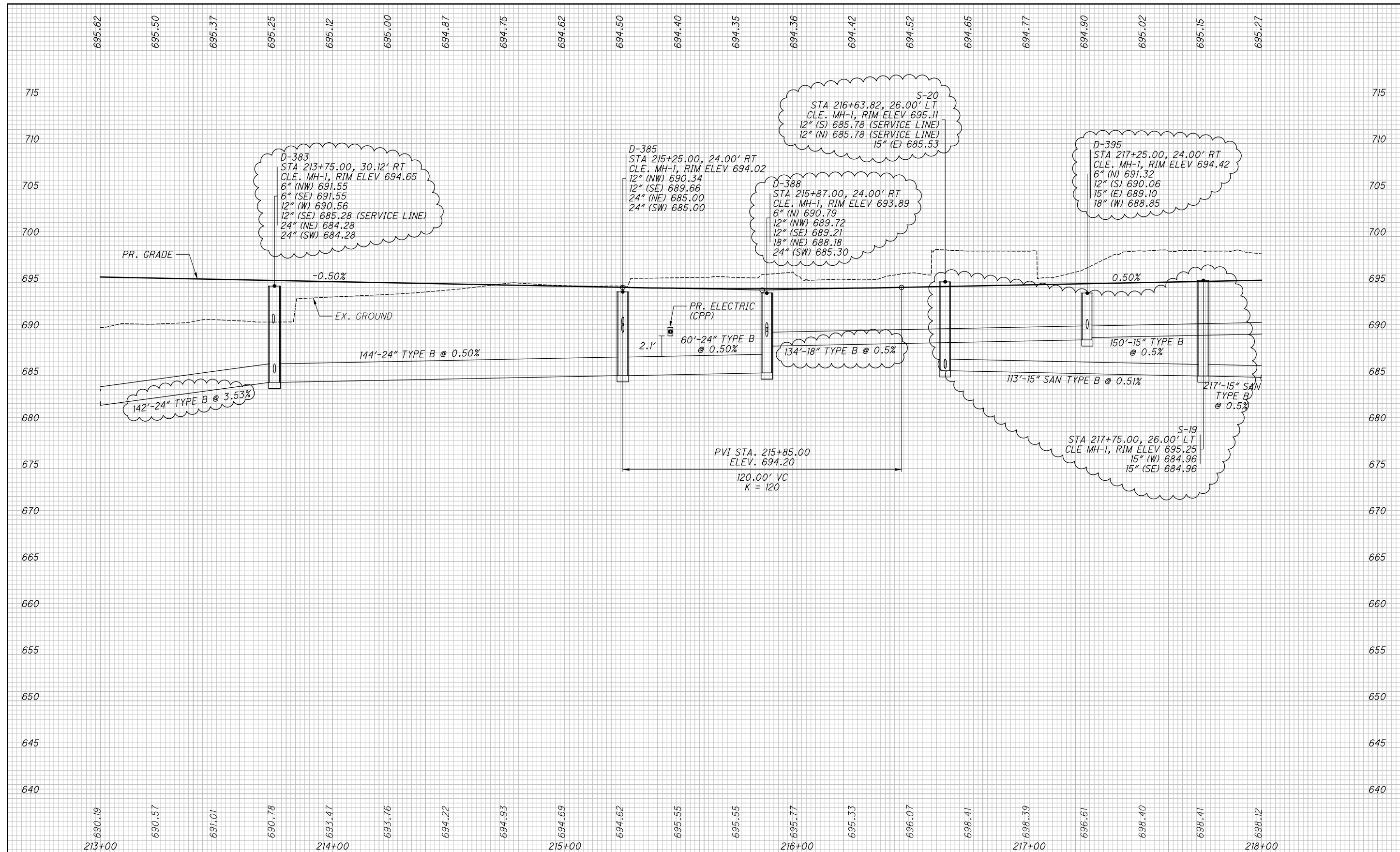
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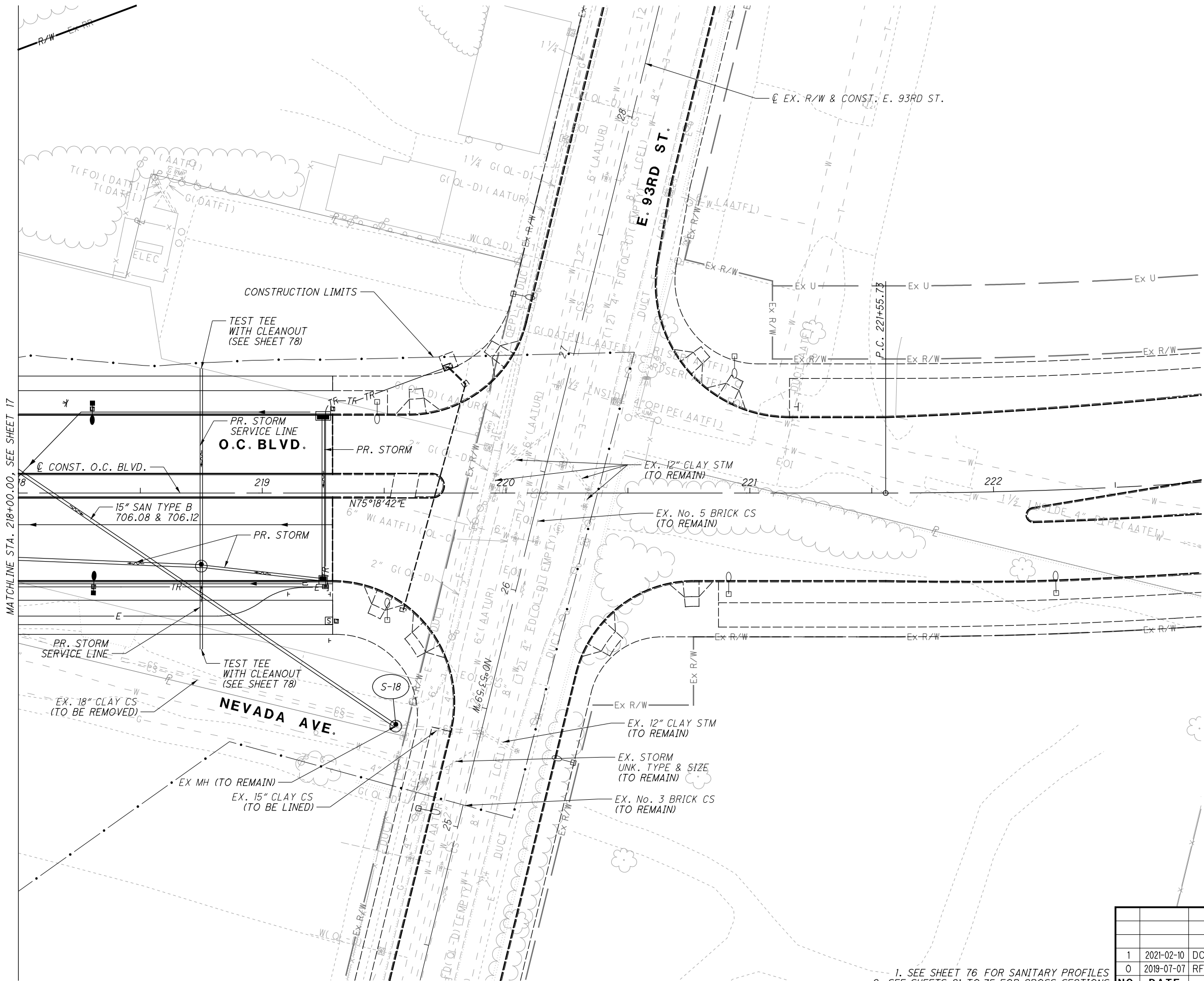
RECORD PLANS

RECORD PLANS

RECORD PLANS

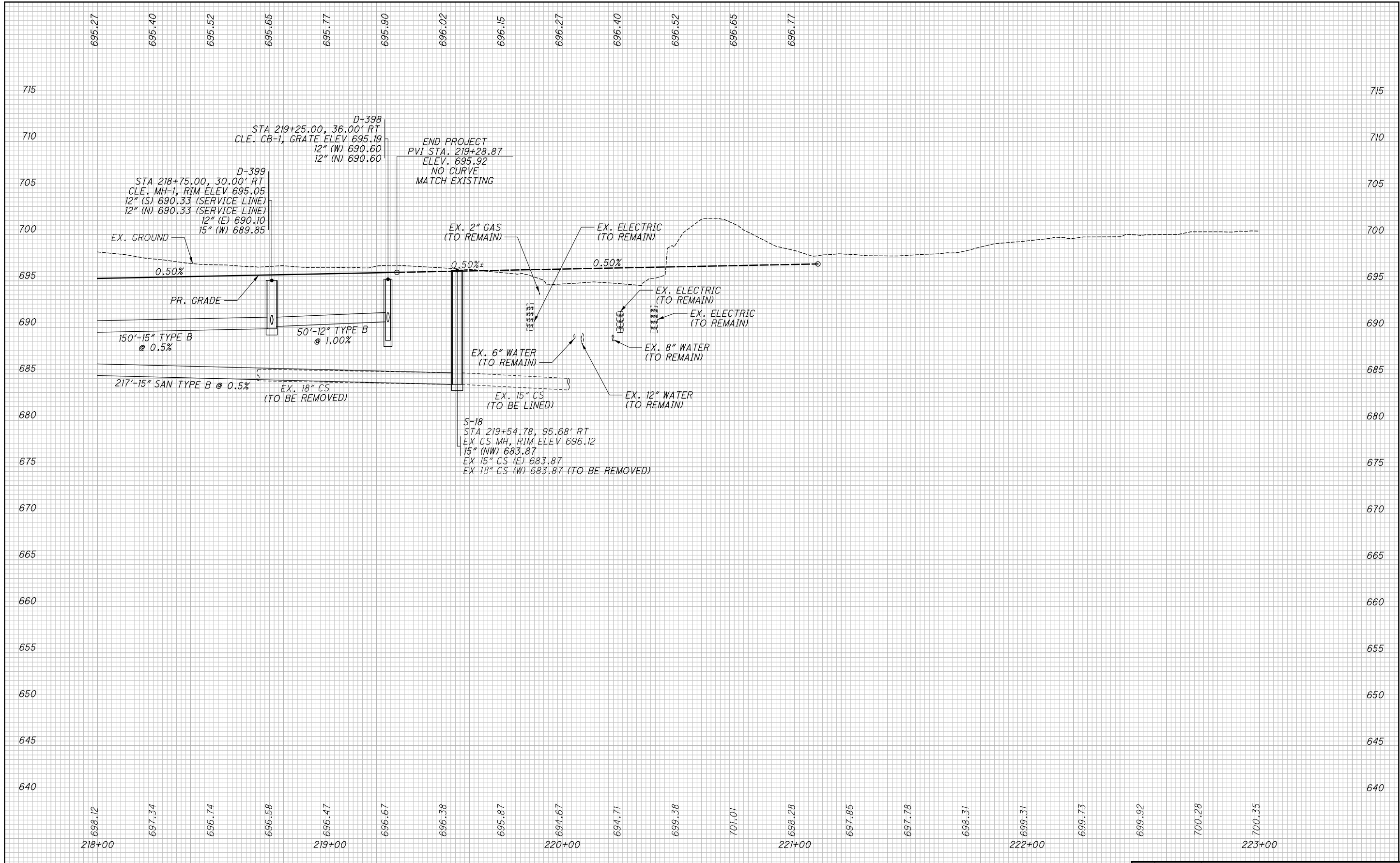


2	2024-09-10	RECORD DRAWINGS
1	2021-02-10	DC050
0	2019-07-07	RFC
NO.	DATE	DESCRIPTION
ISSUE RECORD		



1. SEE SHEET 76 FOR SANITARY PROFILES
2. SEE SHEETS 21 TO 75 FOR CROSS-SECTIONS
3. FOR STORM SEWER, SEE BU-13

NO.	DATE	DESCRIPTION
1	2021-02-10	DC050
0	2019-07-07	RFC
ISSUE RECORD		

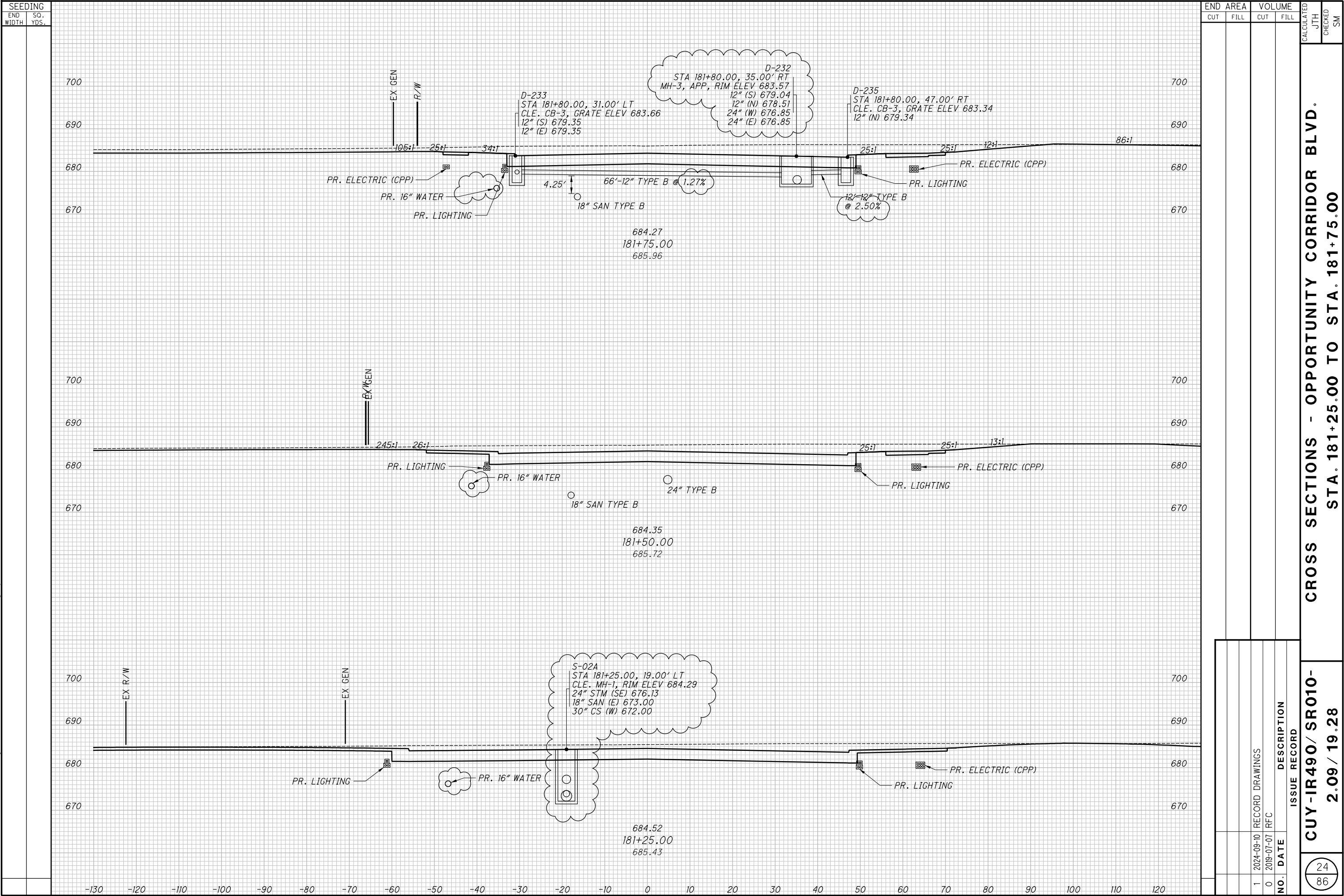


ISSUE RECORD		
NO.	DATE	DESCRIPTION
1	2021-02-10	DC050
0	2019-07-07	RFC

CROSS SECTIONS - OPPORTUNITY CORRIDOR BLVD.
STA. 179+00.00 TO STA. 179+50.00

CROSS SECTIONS - OPPORTUNITY CORRIDOR BLVD.
STA. 179+75.00 TO STA. 180+25.00

[illegible]



CROSS SECTIONS - OPPORTUNITY CORRIDOR BLVD.
STA. 181+25.00 TO STA. 181+75.00

CUY-IR490/ SR010-
2.09 / 19.28

CROSS SECTIONS - OPPORTUNITY CORRIDOR BLVD.
STA. 182+75.00 TO STA. 183+25.00

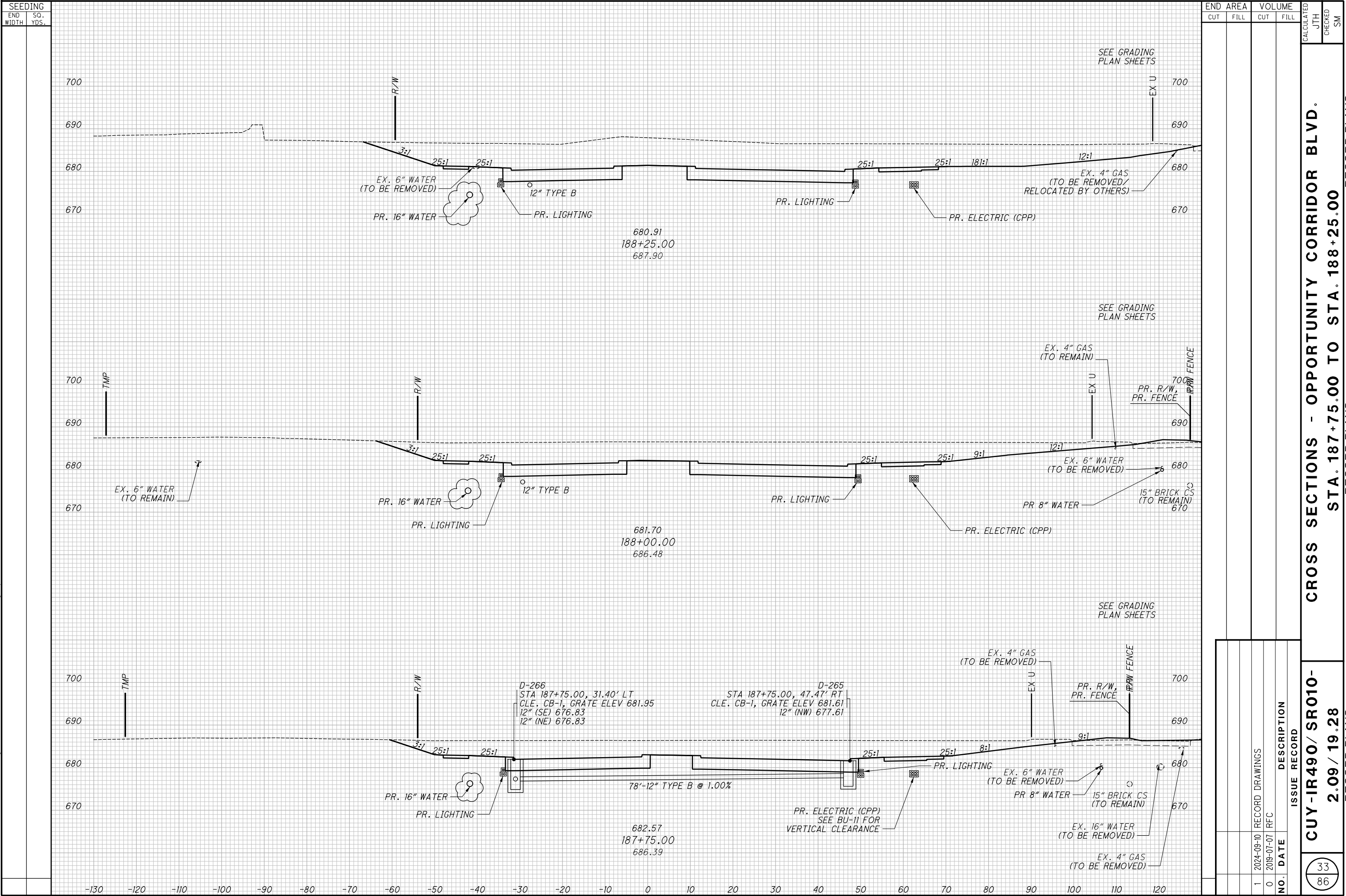
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CROSS SECTIONS - OPPORTUNITY CORRIDOR BLVD.
STA. 184+00.00 TO STA. 184+50.00

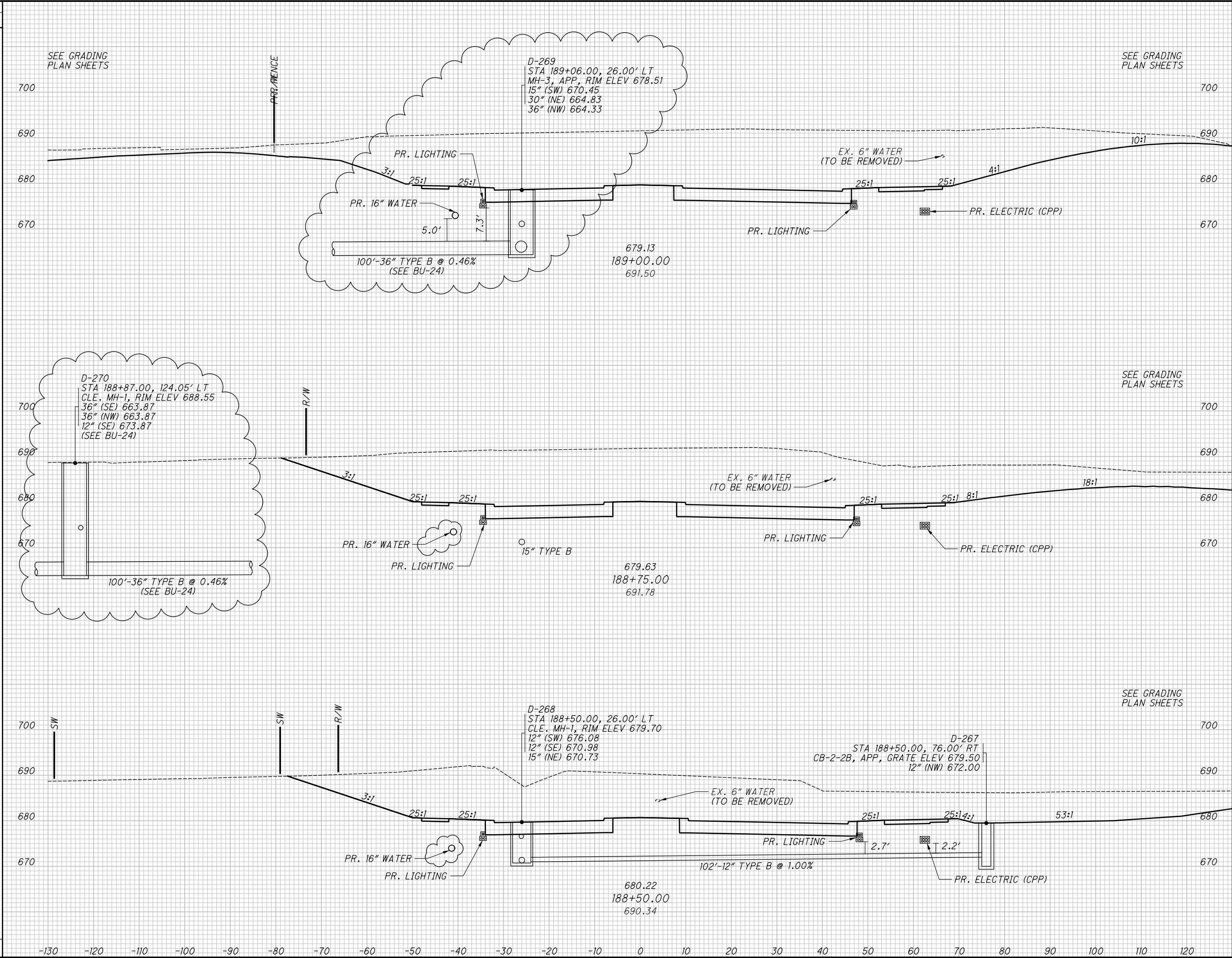
[illegible]

CROSS SECTIONS - OPPORTUNITY CORRIDOR BLVD.
STA. 185+50.00 TO STA. 186+00.00

CROSS SECTIONS - OPPORTUNITY CORRIDOR BLVD.
STA. 186+25.00 TO STA. 186+75.00

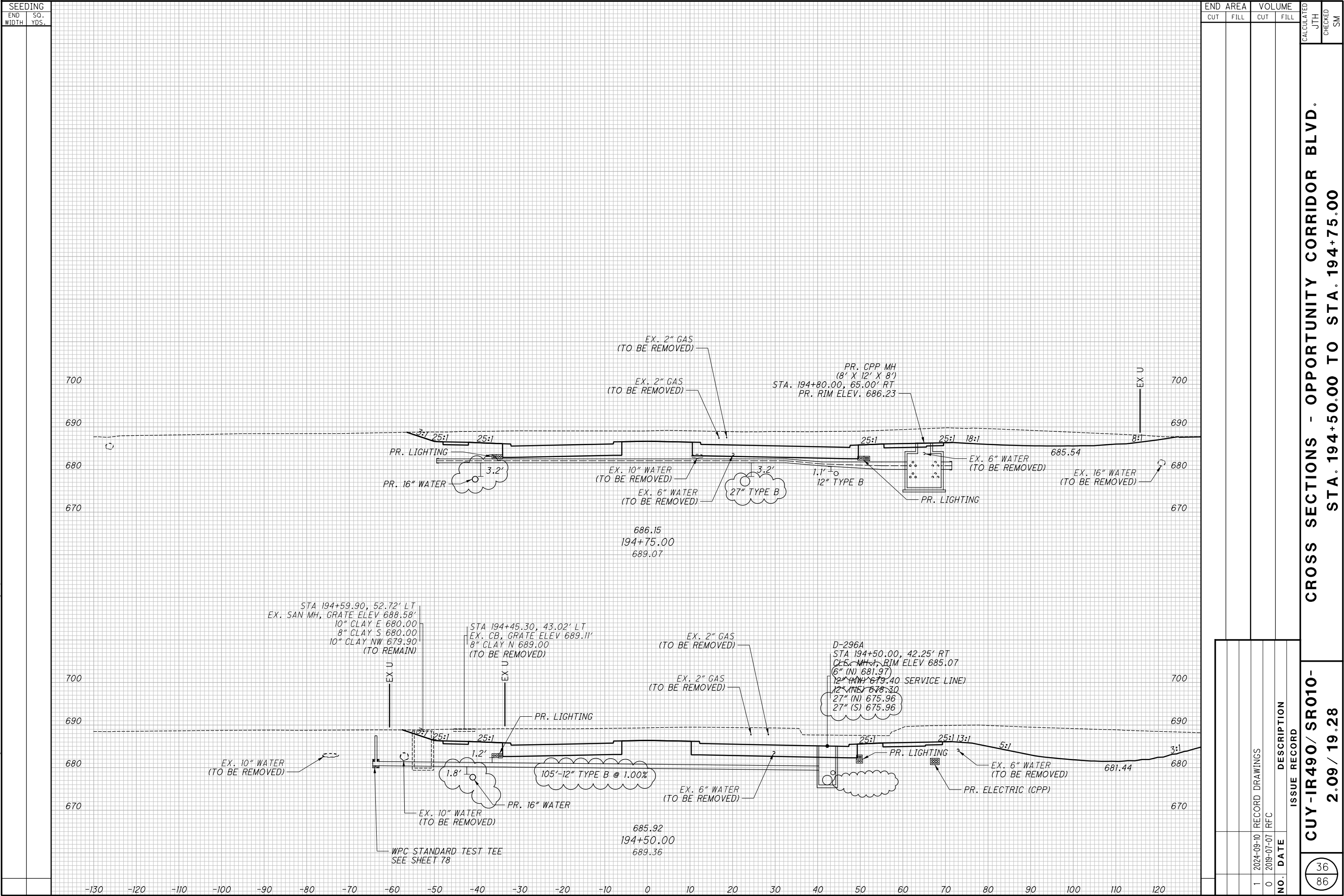


SEEDING	
END WIDTH	SO. YDS.



END AREA		VOLUME		CALCULATED JTH	CHECKED SM
CUT	FILL	CUT	FILL		
				CROSS SECTIONS - OPPORTUNITY CORRIDOR BLVD. STA. 188+50.00 TO STA. 189+00.00	
				CUY-IR490/ SR010-	
				2.09 / 19.28	
				ISSUE RECORD	
				DESCRIPTION	
				NO. DATE	
1	2024-09-10	RECORD DRAWINGS			
0	2019-07-07	RFC			
		34 86			

**CROSS SECTIONS - OPPORTUNITY CORRIDOR BLVD.
STA. 193+75.00 TO STA. 194+25.00**



SEEDING		END AREA		VOLUME	
END WIDTH	SO. YDS.	CUT	FILL	CUT	FILL

D-293
STA 8+78.00, 18.22' LT
CLE. CB-3, GRATE ELEV 685.18
12" (NE) 681.14

D-289
STA 195+15.00, 48.00' RT
CLE. CB-1, GRATE ELEV 685.55
12" (SW) 678.99

PR. LIGHTING
PR. 16" WATER
27" TYPE B

EX. 8" WATER (TO BE REMOVED)
R/W
EX. No. 2 BRICK CS (TO BE REMOVED)

PR. ELECTRIC (CPP)
PR. LIGHTING
EX. 16" WATER (TO BE REMOVED)
EX. ELECTRIC (CEI) (TO REMAIN)

EX. 2" GAS (TO BE REMOVED)
EX. 2" GAS (TO BE REMOVED)

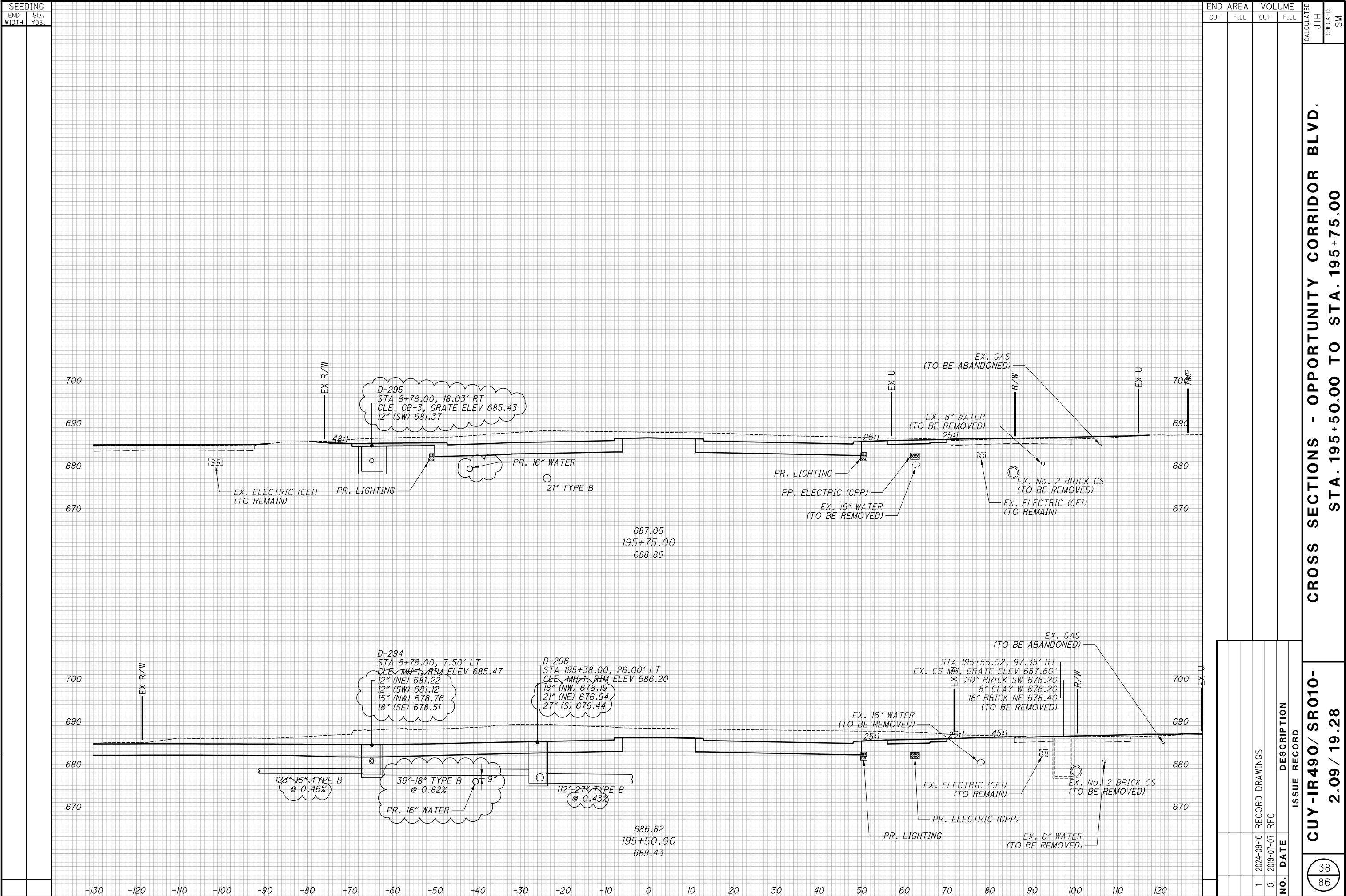
PR. LIGHTING
PR. 16" WATER
27" TYPE B
EX. 6" WATER (TO BE REMOVED)
12" TYPE B
PR. ELECTRIC (CPP)
EX. 16" WATER (TO BE REMOVED)
EX. 16" WATER (TO BE REMOVED)

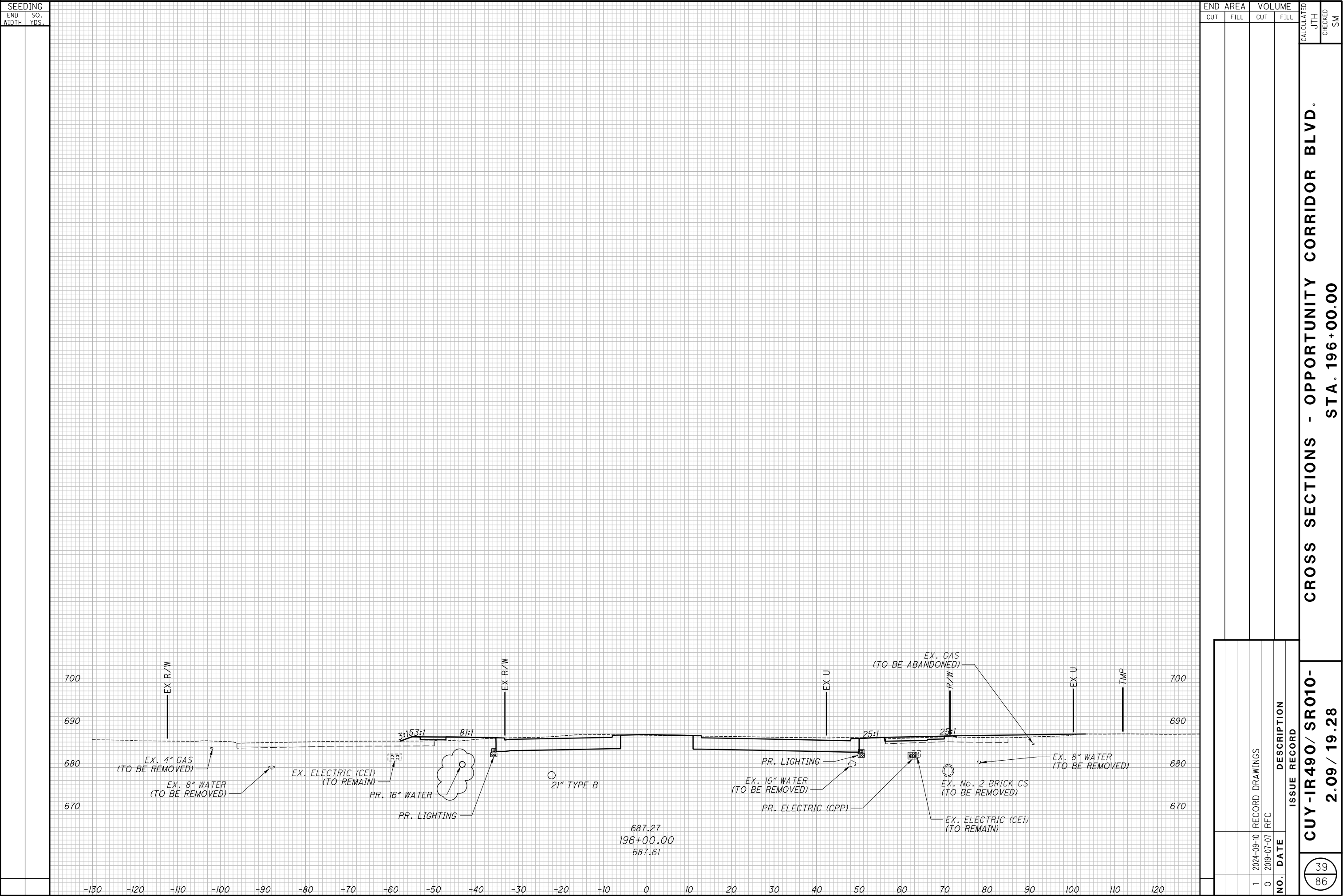
686.60
195+25.00
690.56

686.37
195+00.00
690.25

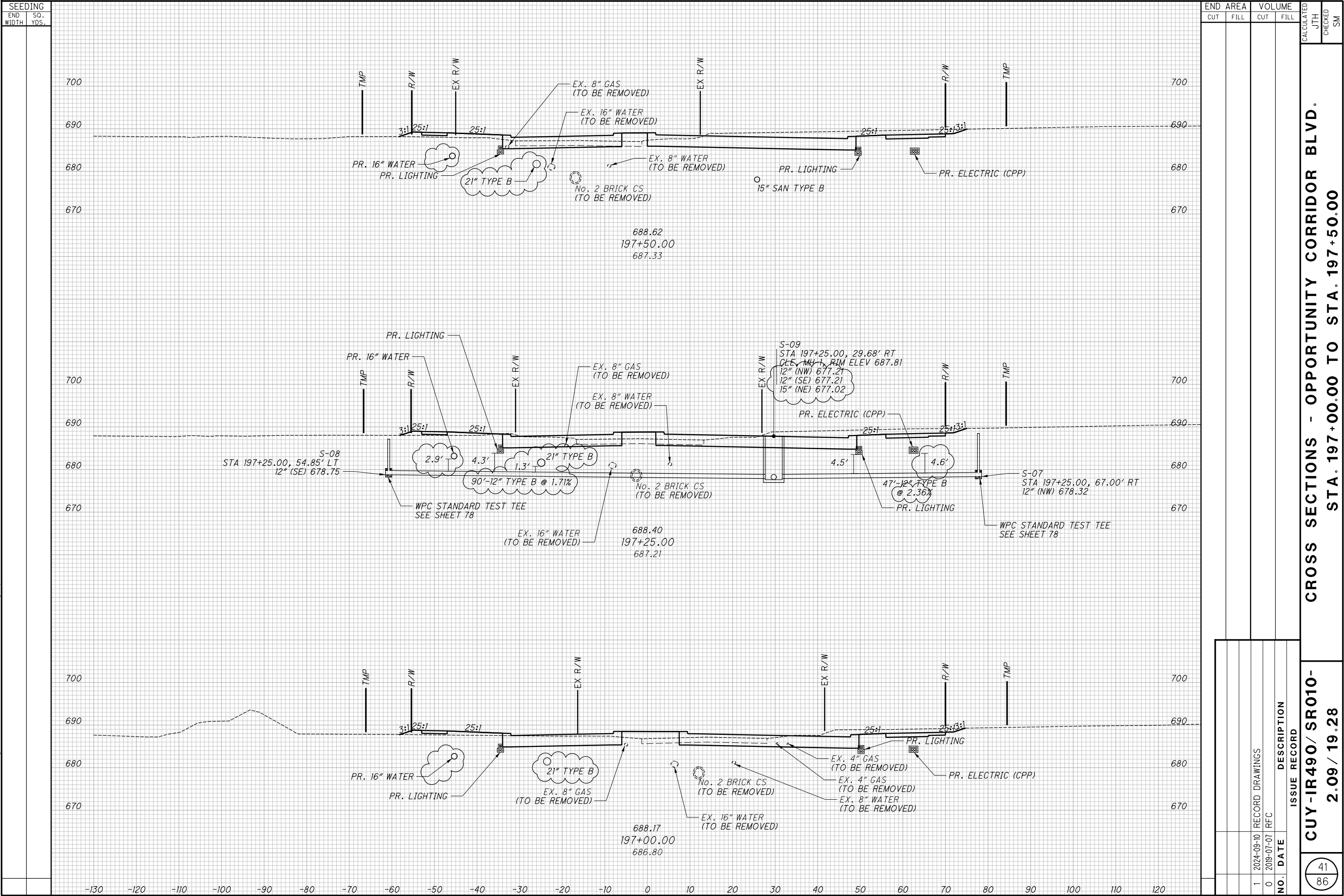
CROSS SECTIONS - OPPORTUNITY CORRIDOR BLVD. STA. 195+00.00 TO STA. 195+25.00	
CUY-IR490/SR010- 2.09 / 19.28	
ISSUE RECORD	
NO.	DATE
1	2024-09-10
0	2009-07-07
DESCRIPTION	
RECORD DRAWINGS	
RFC	

37	86
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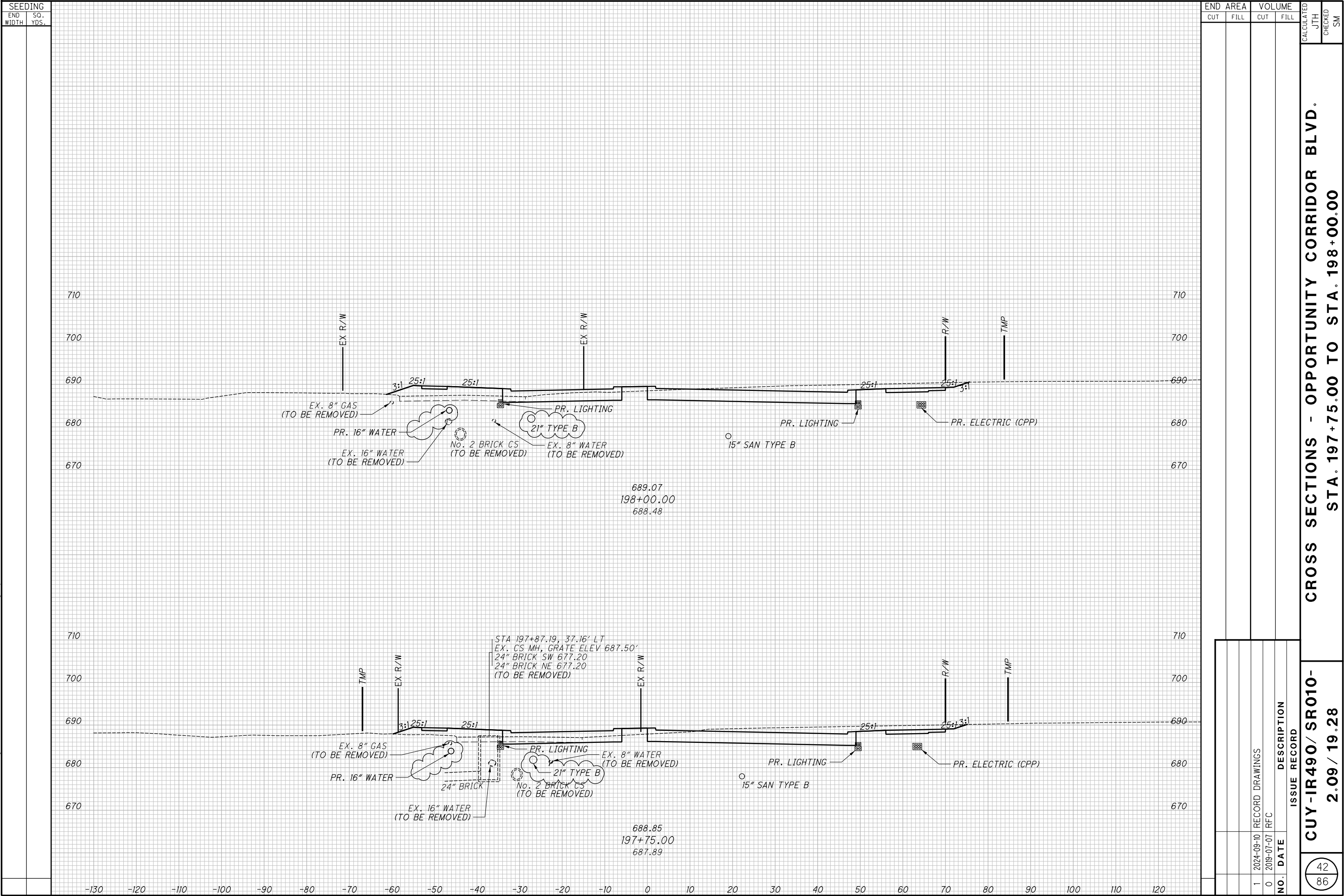
CROSS SECTIONS - OPPORTUNITY CORRIDOR BLVD.
STA. 196+25.00 TO STA. 196+75.00

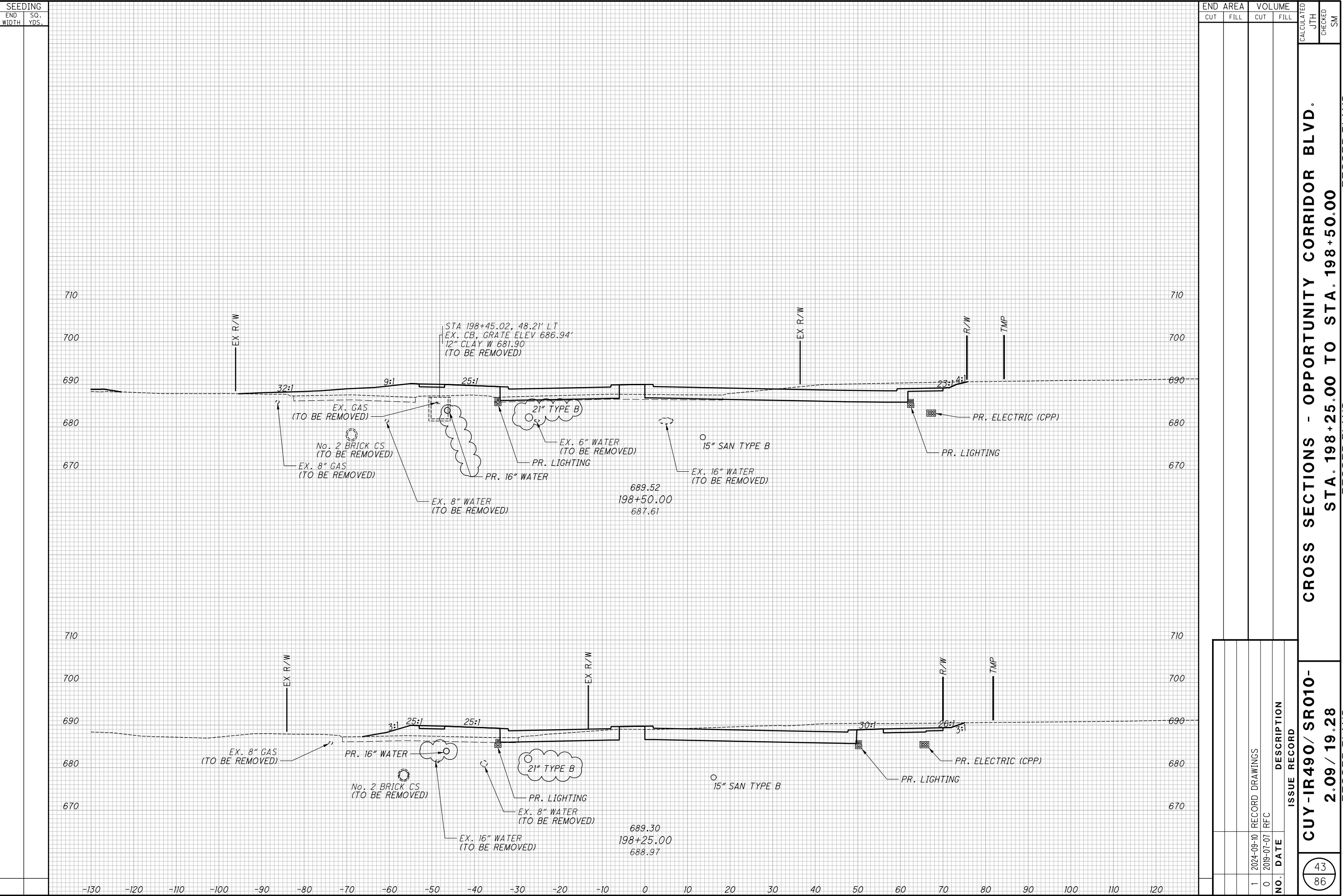


CROSS SECTIONS - OPPORTUNITY CORRIDOR BLVD.
STA. 197+00.00 TO STA. 197+50.00

CUY-IR490/ SR010-
2.09 / 19.28

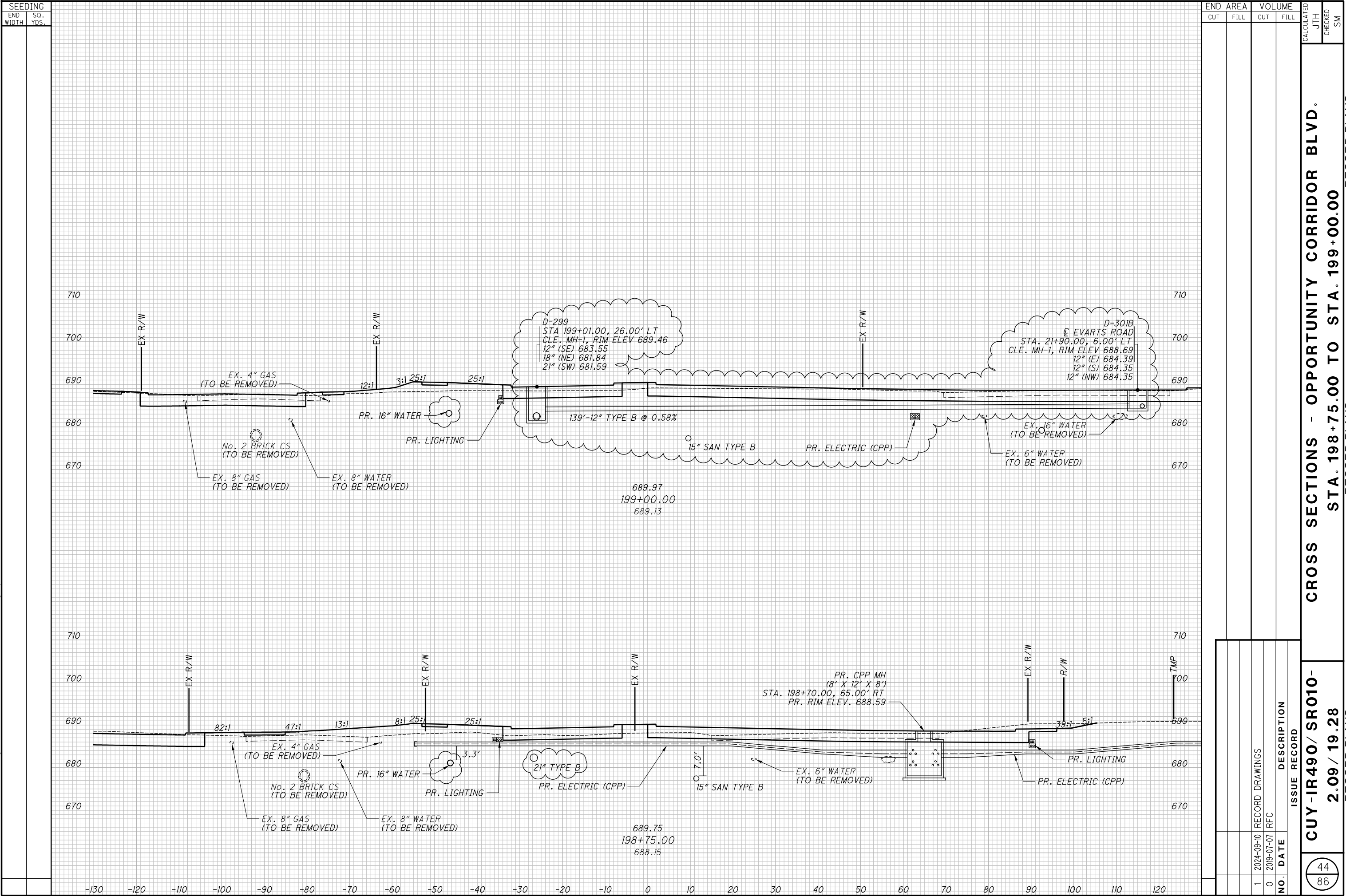
ISSUE RECORD
NO. DATE DESCRIPTION

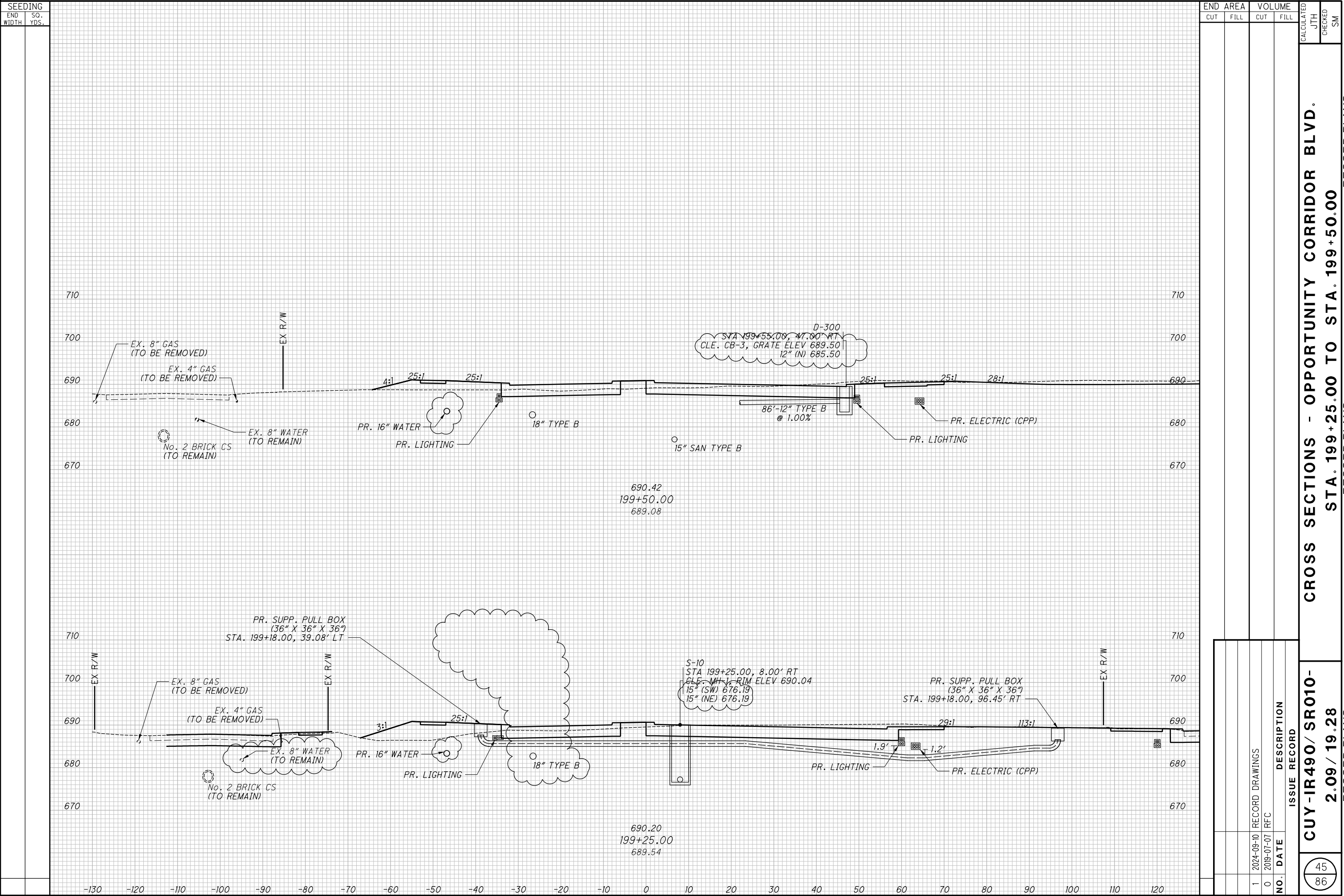




CROSS SECTIONS - OPPORTUNITY CORRIDOR BLVD.
STA. 198+25.00 TO STA. 198+50.00

CUY-IR490/ SR010-
2.09 / 19.28





SEEDING	
END WIDTH	SO. YDS.

END AREA		VOLUME	
CUT	FILL	CUT	FILL

CALCULATED JTH	CHECKED SM
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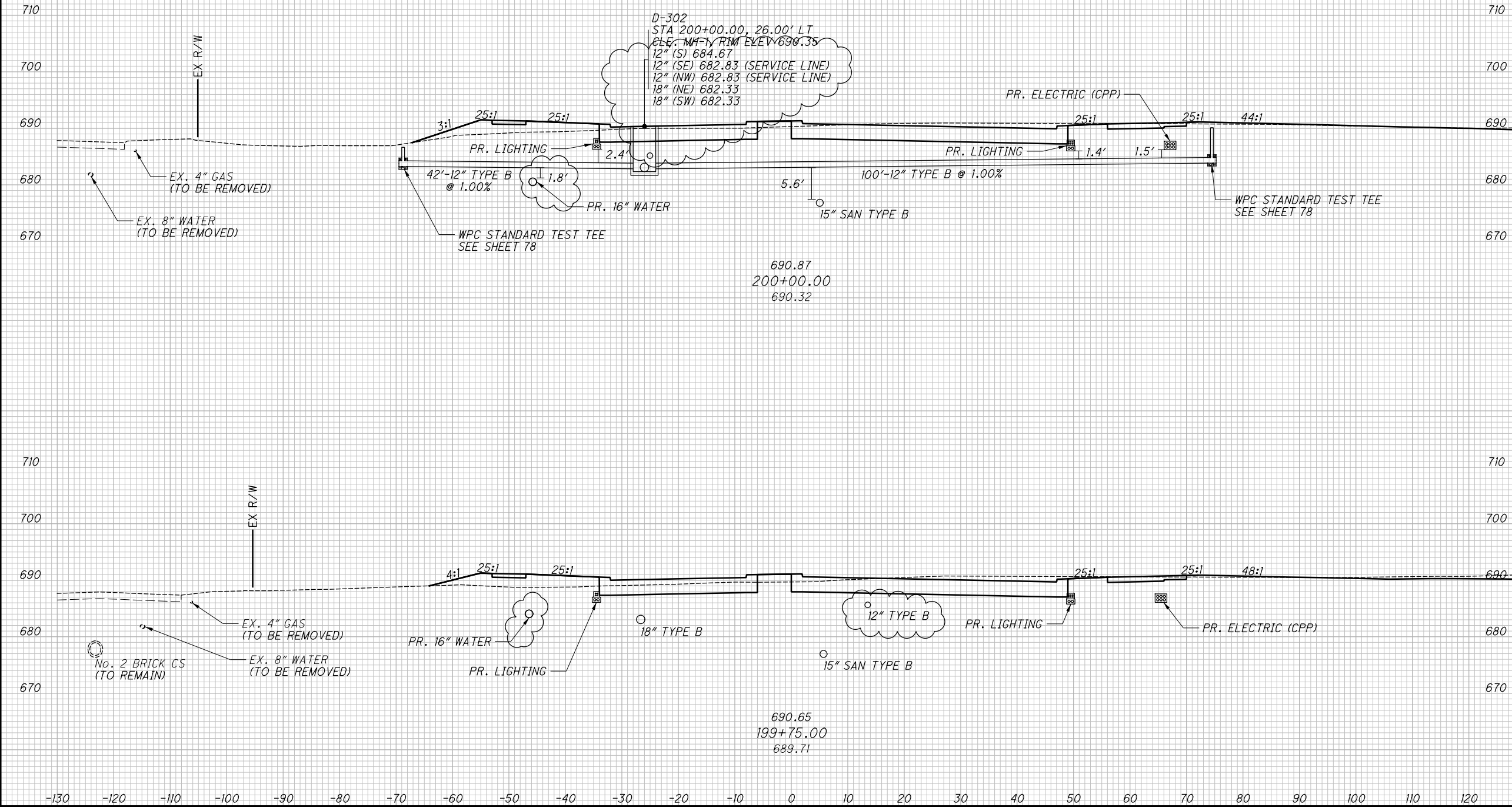
CROSS SECTIONS - OPPORTUNITY CORRIDOR BLVD.
STA. 199+75.00 TO STA. 200+00.00

CUY-IR490/ SR010-
2.09 / 19.28

46
86

RECORD PLANS

RECORD PLANS



[illegible]

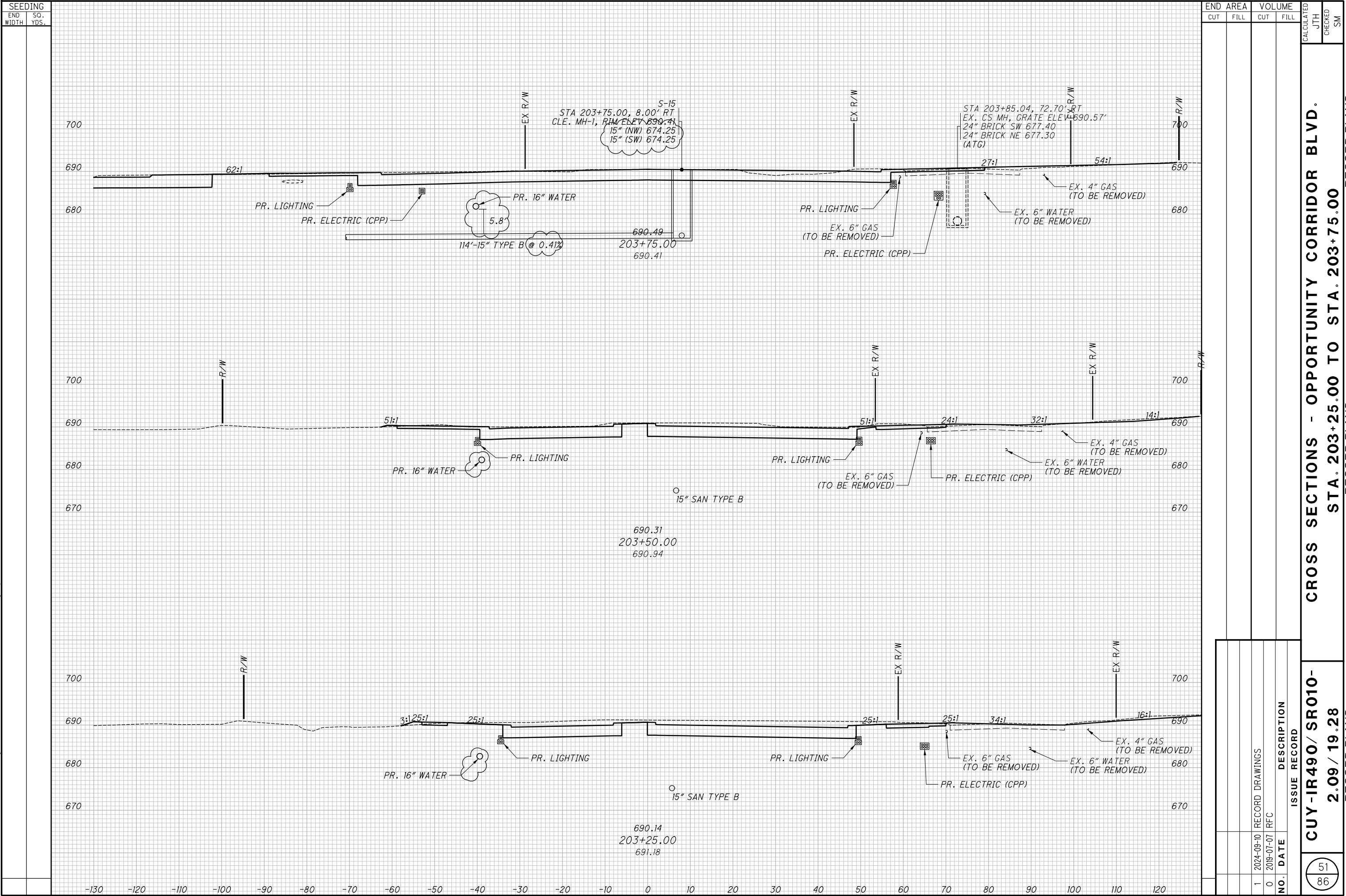
CROSS SECTIONS - OPPORTUNITY CORRIDOR BLVD.
STA. 201+75.00 TO STA. 202+25.00

SEEDING		END		AREA		VOLUME		CROSS SECTIONS - OPPORTUNITY CORRIDOR BLVD.	
END	SO.	CUT	FILL	CUT	FILL	CUT	FILL	STA. 202+50.00 TO STA. 203+00.00	
WIDTH	YDS.							CALCULATED	CHECKED
								JTH	SM

ISSUE RECORD	
NO.	DATE
1	2024-09-10
0	2019-07-07
DESCRIPTION	
RECORD DRAWINGS	
RFC	

50

86

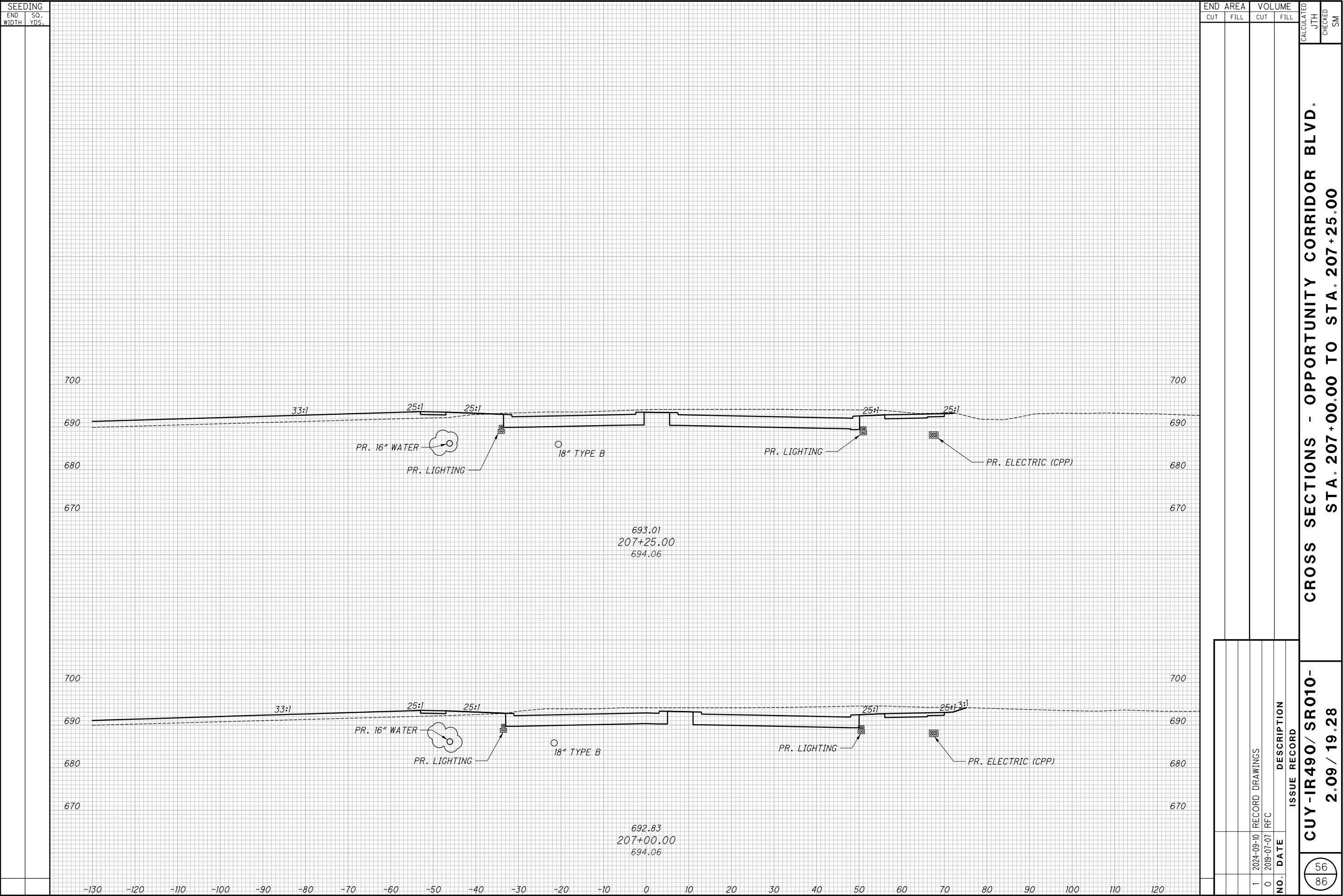


**CROSS SECTIONS - OPPORTUNITY CORRIDOR BLVD.
STA. 204+00.00 TO STA. 204+50.00**

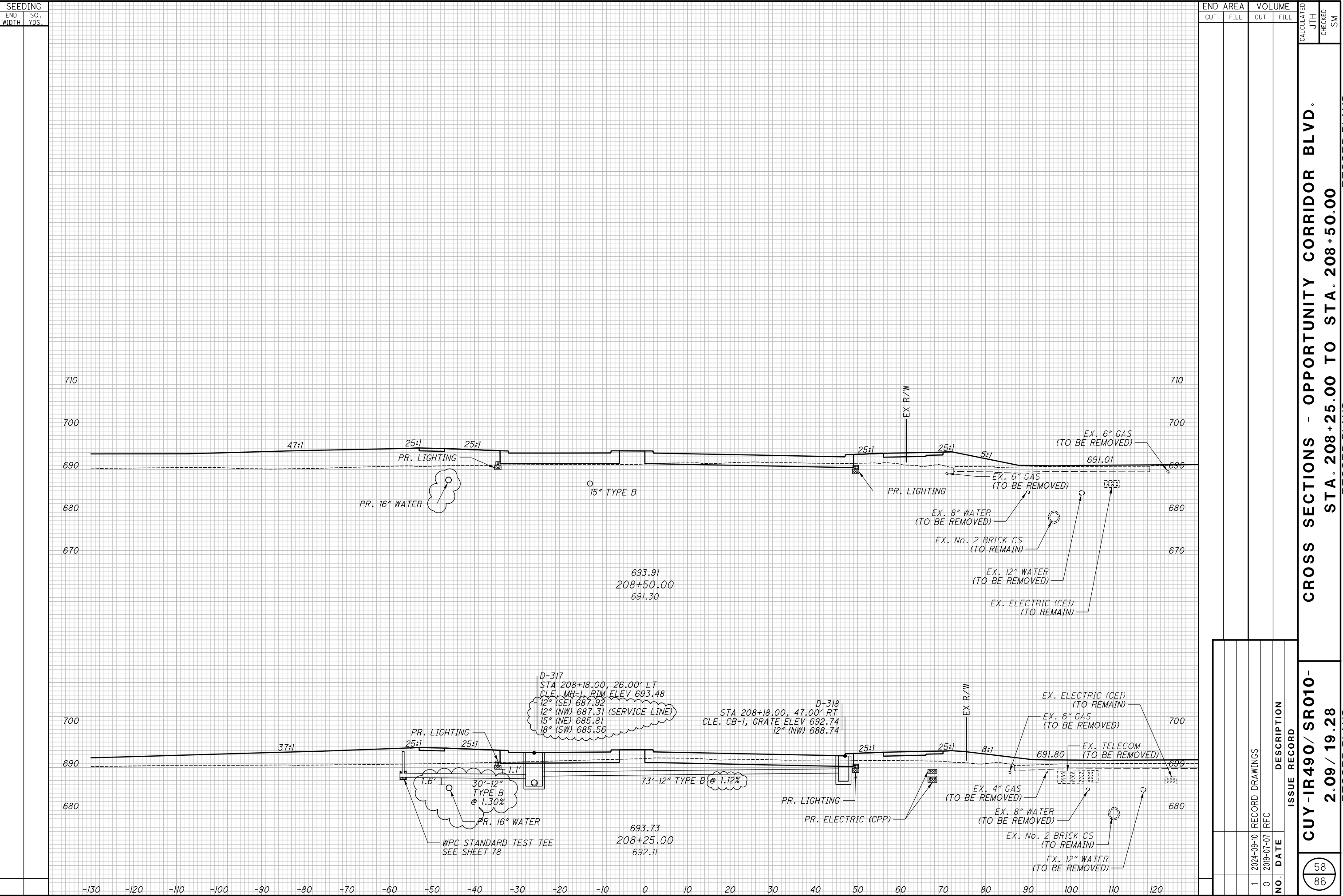
CROSS SECTIONS - OPPORTUNITY CORRIDOR BLVD.
STA. 204+75.00 TO STA. 205+25.00

SEEDING		END		AREA		VOLUME		CROSS SECTIONS - OPPORTUNITY CORRIDOR BLVD.		CROSS SECTIONS - OPPORTUNITY CORRIDOR BLVD.	
END		CUT		CUT		CUT		STA. 205+50.00 TO STA. 206+00.00		STA. 205+50.00 TO STA. 206+00.00	
SO.		FILL		FILL		FILL		54		86	
WIDTH		CUT		CUT		CUT		2.09 / 19.28		2.09 / 19.28	
YDS.		FILL		FILL		FILL		NO.		DATE	
		CUT		CUT		CUT		1		2024-09-10	
		FILL		FILL		FILL		0		2024-09-10	
		CUT		CUT		CUT		NO.		DATE	
		FILL		FILL		FILL		1		2024-09-10	
		CUT		CUT		CUT		0		2024-09-10	
		FILL		FILL		FILL		NO.		DATE	
		CUT		CUT		CUT		1		2024-09-10	
		FILL		FILL		FILL		0		2024-09-10	
		CUT		CUT		CUT		NO.		DATE	
		FILL		FILL		FILL		1		2024-09-10	
		CUT		CUT		CUT		0		2024-09-10	
		FILL		FILL		FILL		NO.		DATE	
		CUT		CUT		CUT		1		2024-09-10	
		FILL		FILL		FILL		0		2024-09-10	
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		FILL		FILL		FILL		1		2024-09-10	
		CUT		CUT		CUT		0		2024-09-10	
		FILL		FILL		FILL		NO.		DATE	
		CUT		CUT		CUT		1		2024-09-10	
		FILL		FILL		FILL		0		2024-09-10	
		CUT		CUT		CUT		NO.		DATE	
		FILL		FILL		FILL		1		2024-09-10	
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		FILL		FILL		FILL		1		2024-09-10	
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		FILL		FILL		FILL		NO.		DATE	
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		CUT		CUT		CUT		NO.		DATE	
		FILL		FILL		FILL		1		2024-09-10	
		CUT		CUT		CUT		0		2024-09-10	
		FILL		FILL		FILL		NO.		DATE	
		CUT		CUT		CUT		1		2024-09-10	
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		FILL		FILL		FILL		NO.		DATE	
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		CUT		CUT		CUT		NO.		DATE	
		FILL		FILL		FILL		1		2024-09-10	
		CUT		CUT		CUT		0		2024-09-10	
		FILL		FILL		FILL		NO.		DATE	
		CUT		CUT		CUT		1		2024-09-10	
		FILL		FILL		FILL		0		2024-09-10	
		CUT		CUT		CUT		NO.		DATE	
		FILL		FILL		FILL		1		2024-09-10	
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		FILL		FILL		FILL		NO.		DATE	
		CUT		CUT		CUT		1		2024-09-10	
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		CUT		CUT		CUT		NO.			

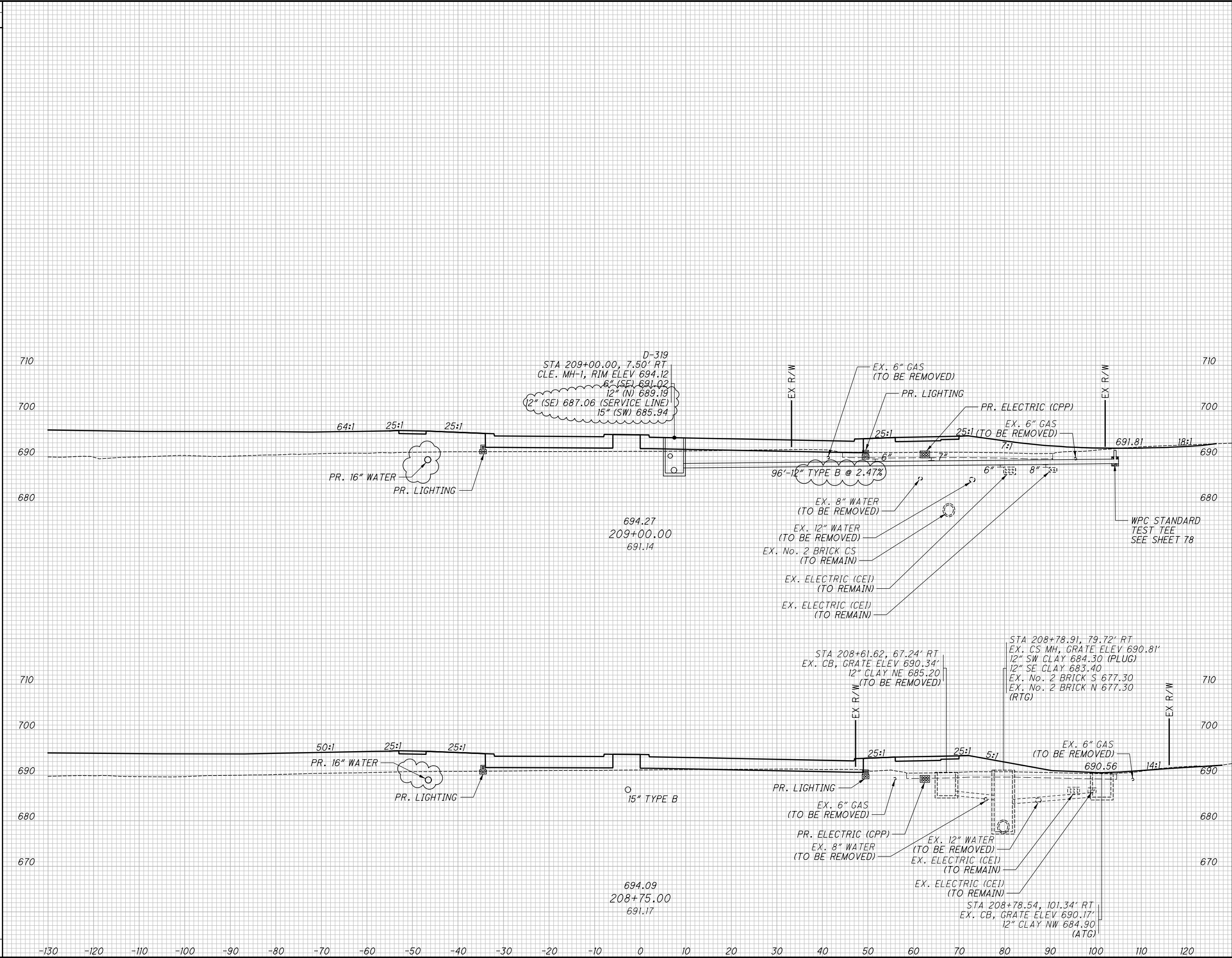
[illegible]



CROSS SECTIONS - OPPORTUNITY CORRIDOR BLVD.
STA. 207+50.00 TO STA. 208+00.00



SEEDING	
END WIDTH	SO. YDS.

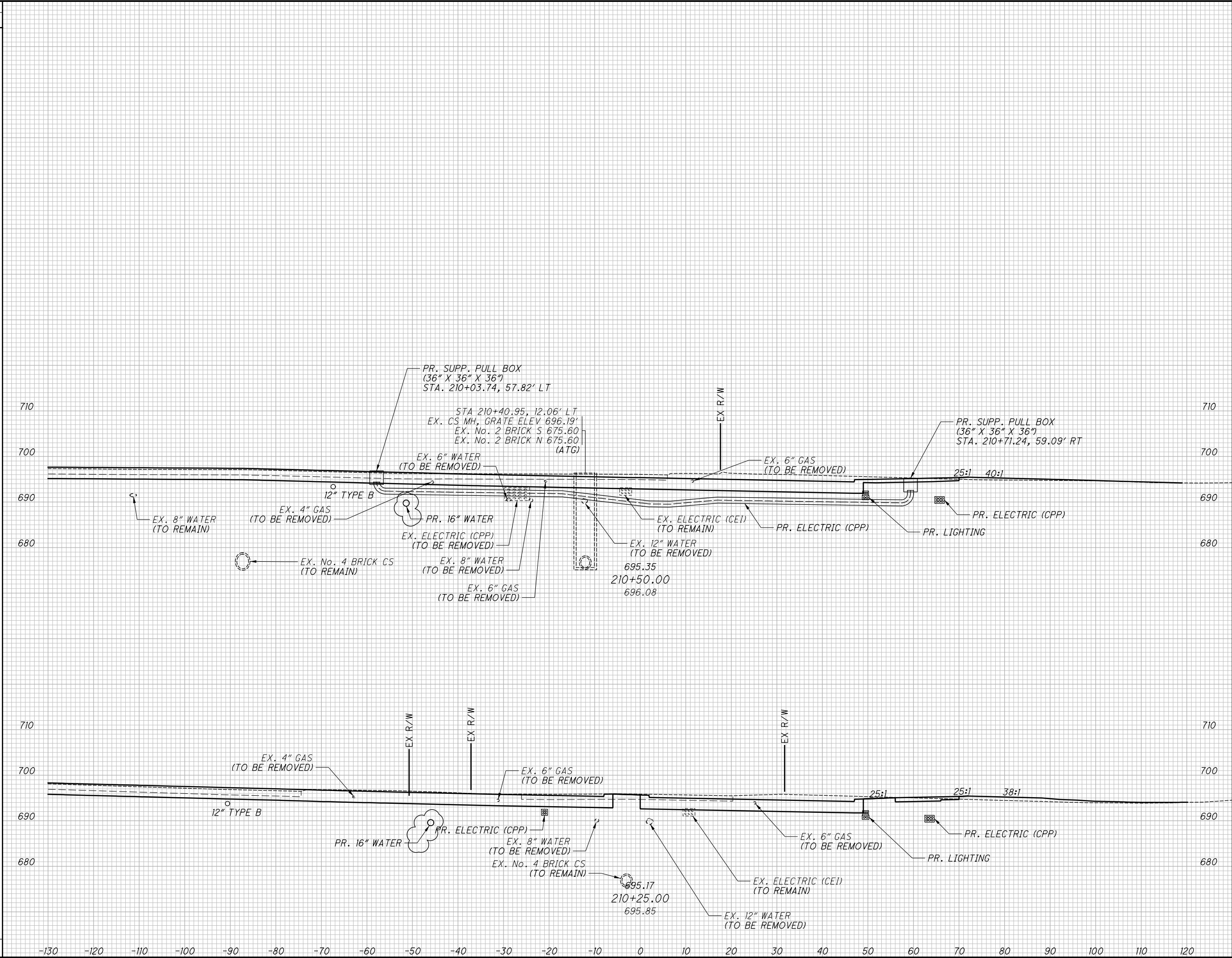


END AREA		VOLUME		CALCULATED JTH	CHECKED SM
CUT	FILL	CUT	FILL		
CROSS SECTIONS - OPPORTUNITY CORRIDOR BLVD.					
STA. 208+75.00 TO STA. 209+00.00					
RECORD PLANS					
1		2024-09-10		RECORD DRAWINGS	
0		2019-07-07		RFC	
NO.		DATE		DESCRIPTION	
				ISSUE RECORD	
				2.09 / 19.28	
				59	
				86	

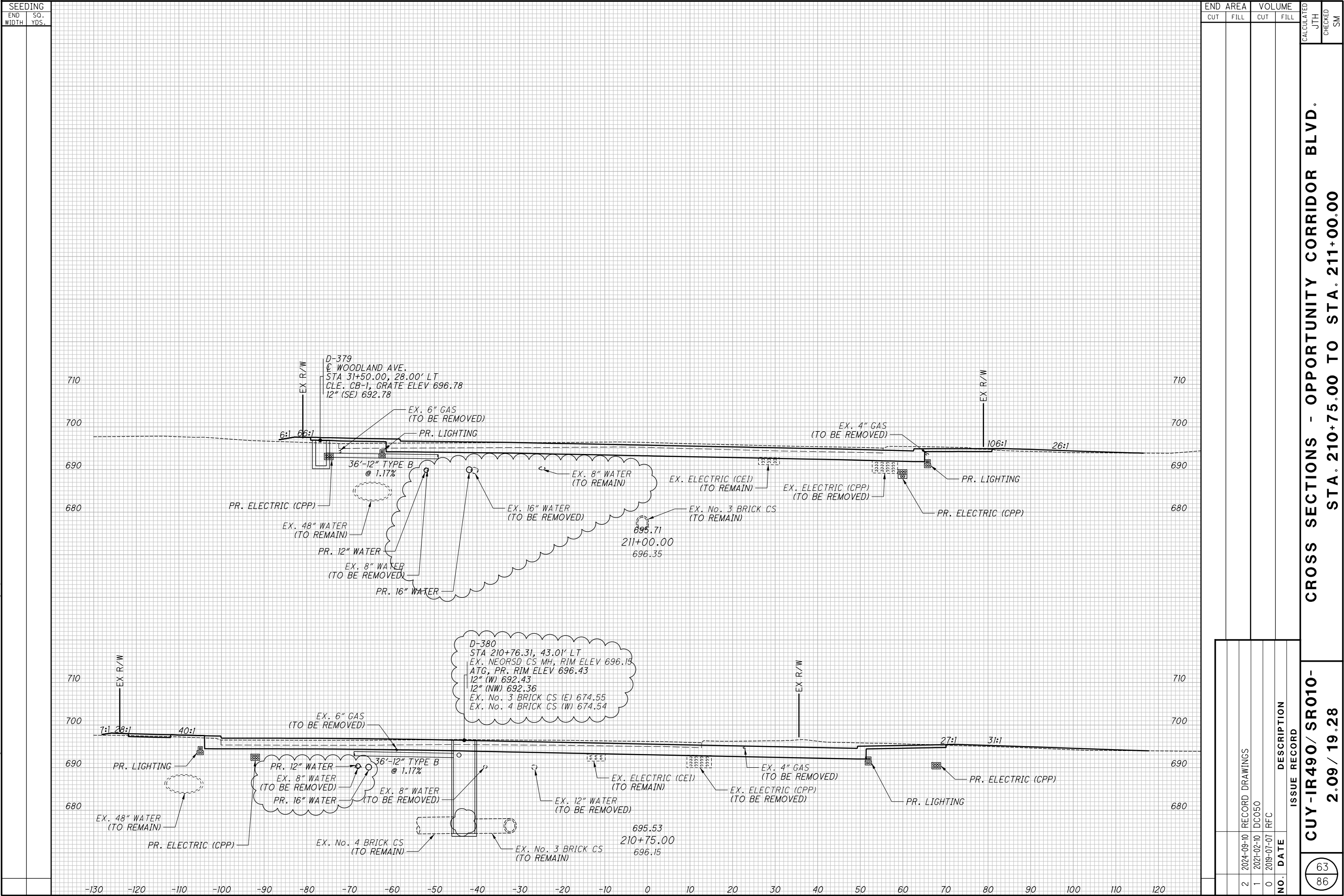
[illegible]

CROSS SECTIONS - OPPORTUNITY CORRIDOR BLVD.
STA. 209+75.00 TO STA. 210+00.00

SEEDING	
END WIDTH	SO. YDS.



END AREA		VOLUME		CALCULATED JTH	CHECKED SM
CUT	FILL	CUT	FILL		
				CROSS SECTIONS - OPPORTUNITY CORRIDOR BLVD. STA. 210+25.00 TO STA. 210+50.00	
				CUY-IR490/ SR010-	
				2.09 / 19.28	
				ISSUE RECORD	

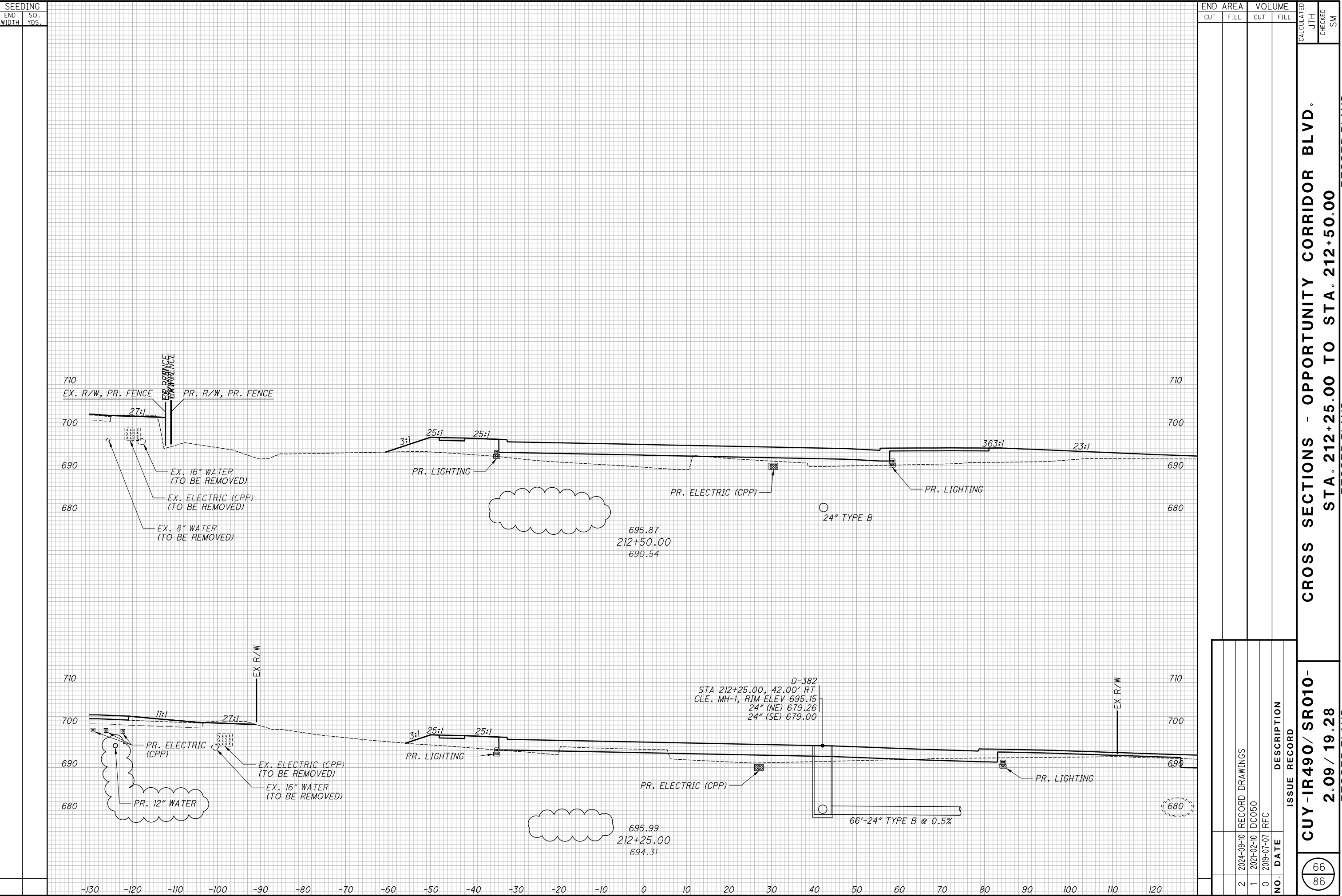


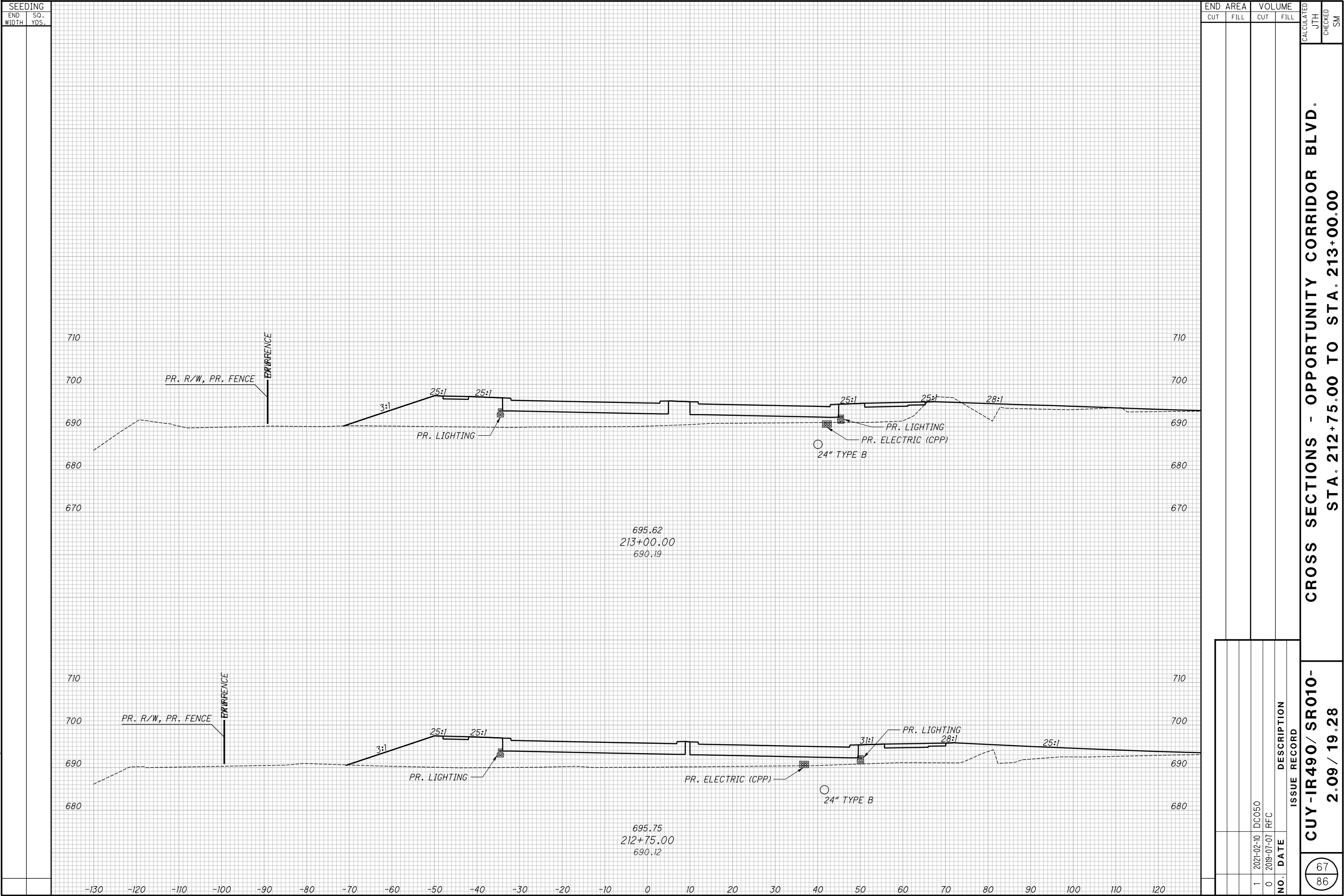
CROSS SECTIONS - OPPORTUNITY CORRIDOR BLVD.
STA. 210+75.00 TO STA. 211+00.00

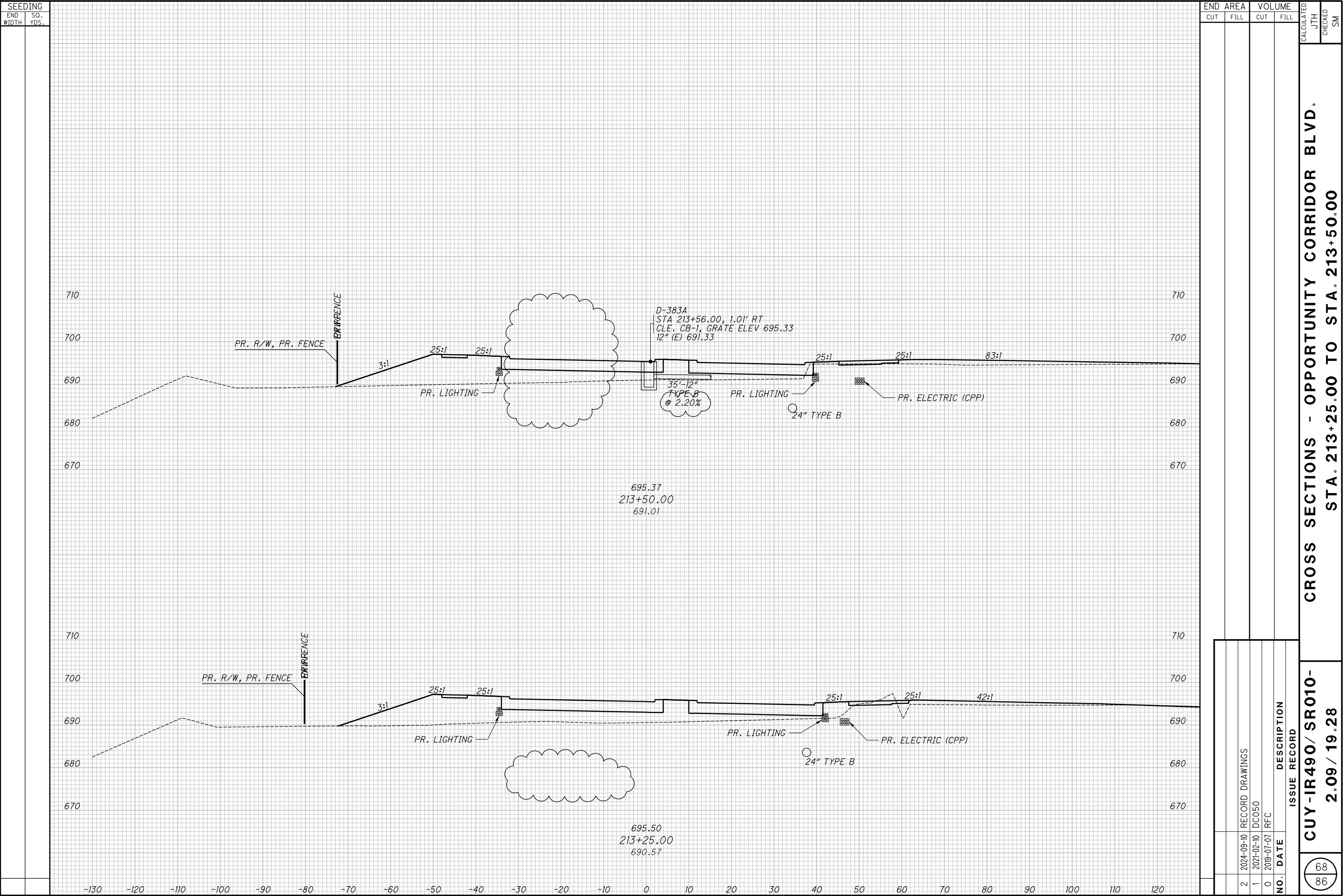
CUY-IR490/ SR010-
2.09 / 19.28

**CROSS SECTIONS - OPPORTUNITY CORRIDOR BLVD.
STA. 211+25.00 TO STA. 211+50.00**

<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="border: 1px solid black; border-radius: 50%; padding: 5px; text-align: center;"> <div style="display: flex; justify-content: space-around;"> 65 86 </div> </div> <div style="text-align: center;"> <p>CUY-IR490/ SR010-</p> <p>2.09 / 19.28</p> </div> </div>	<p>CROSS SECTIONS - OPPORTUNITY CORRIDOR BLVD.</p> <p style="text-align: center;">STA. 211+75.00 TO STA. 212+00.00</p>
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[illegible]

-IR490/ SR010- 2.09 / 19.28	CROSS SECTIONS - OPPORTUNITY CORRIDOR BLVD. STA. 214+25.00 TO STA. 214+50.00
RECORD PLANS	RECORD PLANS

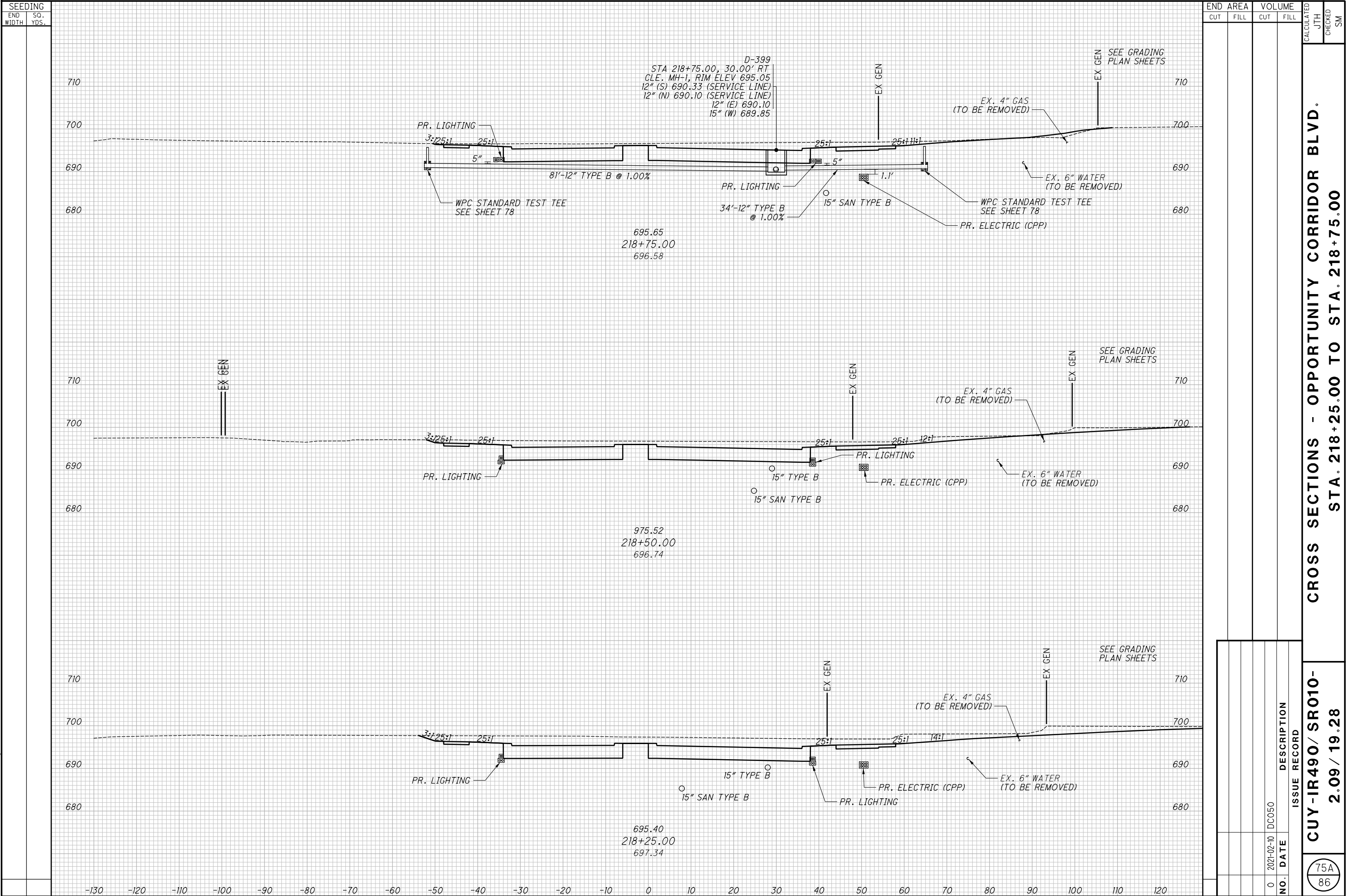
-IR490/ SR010- 2.09 / 19.28	CROSS SECTIONS - OPPORTUNITY CORRIDOR BLVD. STA. 214+75.00 TO STA. 215+00.00	RECORD PLANS	RECORD PLANS
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CROSS SECTIONS - OPPORTUNITY CORRIDOR BLVD.
STA. 215+25.00 TO STA. 215+75.00

CROSS SECTIONS - OPPORTUNITY CORRIDOR BLVD.
STA. 216+00.00 TO STA. 216+50.00

**CROSS SECTIONS - OPPORTUNITY CORRIDOR BLVD.
STA. 216+75.00 TO STA. 217+25.00**

CROSS SECTIONS - OPPORTUNITY CORRIDOR BLVD.
STA. 217+50.00 TO STA. 218+00.00



CROSS SECTIONS - OPPORTUNITY CORRIDOR BLVD.
STA. 218+25.00 TO STA. 218+75.00

CUY-IR490/ SR010-
2.09 / 19.28

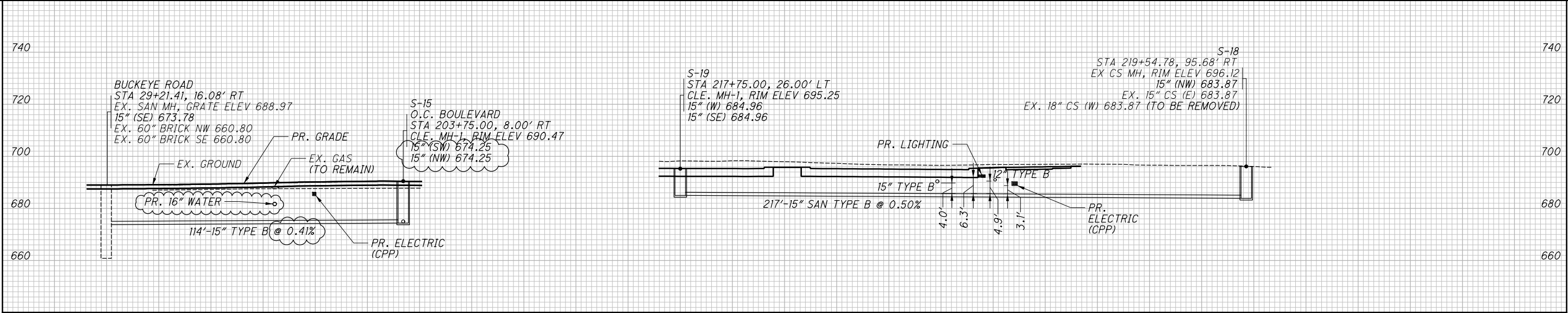
75A

86

RECORD PLANS

RECORD PLANS

[illegible]

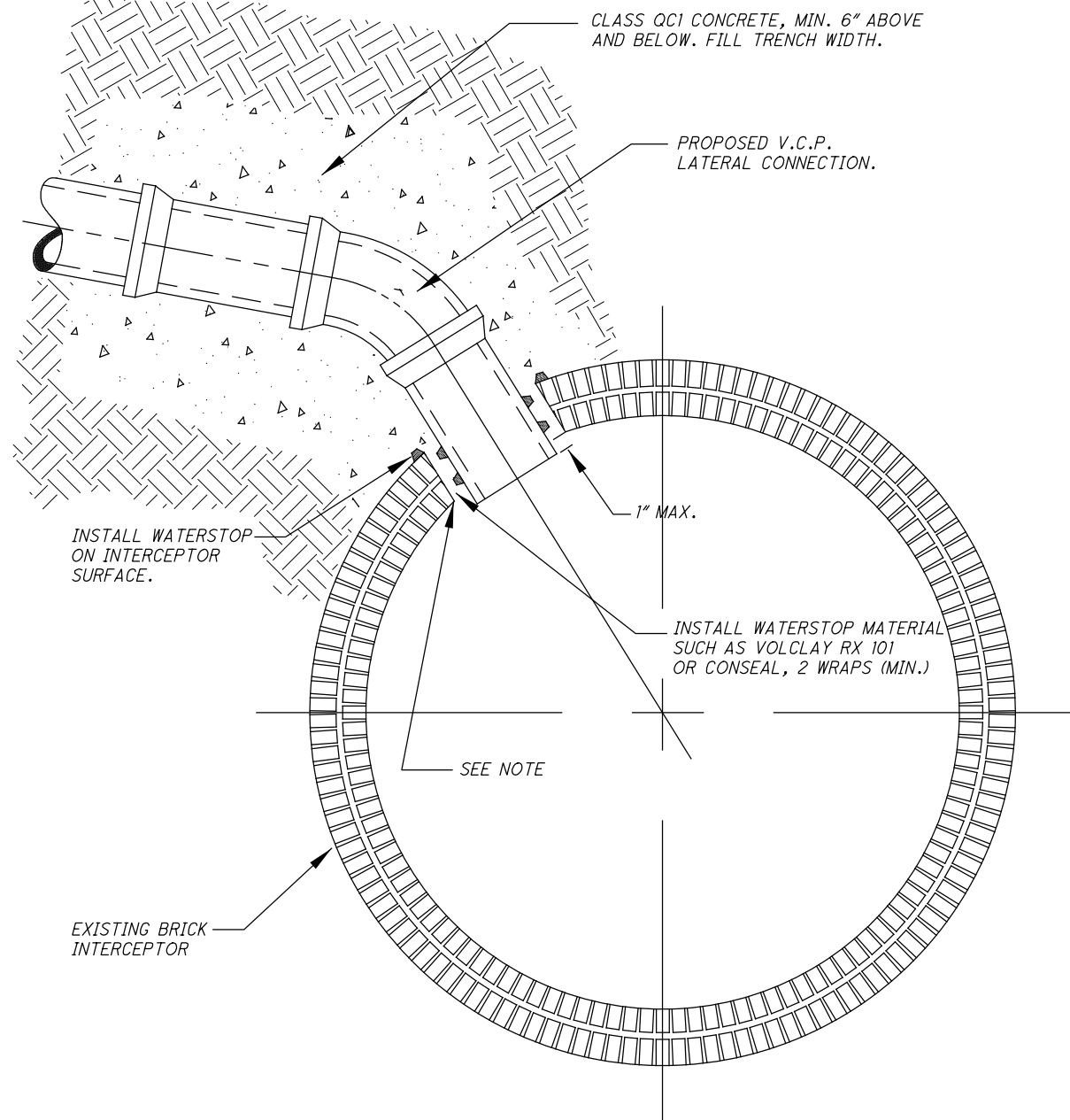


1. SEE SHEET 78 FOR TEST TEE DETAILS
2. SEE SHEET 76 FOR SANITARY PROFILES
3. SEE SHEETS 21 TO 75 FOR CROSS-SECTIONS
4. FOR STORM SEWER, SEE BU-21

NO.		DATE	DESCRIPTION
		2	2024-09-10
		1	2021-02-10
		0	2019-07-07
		ISSUE RECORD	

NOTE:

1. CORE DRILL HOLE WITH SUFFICIENT CLEARANCE FOR LATERAL PIPE. POSITION LATERAL CONNECTION IN WALL OF THE INTERCEPTOR SUCH THAT ALL RINGS OF BRICK REMAIN SUPPORTED. THE LATERAL SHALL NOT PROTRUDE INTO THE INTERCEPTOR MORE THEN ONE (1) INCH AT ANY POINT. THE CONTRACTOR SHALL TRIM THE CONNECTION END AS NEEDED, TO MEET BOTH OF THESE REQUIREMENTS. THE ANNULAR SPACE BETWEEN THE CORED HOLE AND THE LATERAL SHALL BE COMPLETELY FILLED TO THE INSIDE FACE OF THE INTERCEPTOR, WITH NON-SHRINK HYDRAULIC CEMENT.
2. IF THE CONNECTION IS TO A REINFORCED CONCRETE OR VITRIFIED CLAY PIPE THEN THE LATERAL SHALL BE CONNECTED TO THE SEWER USING A MANUFACTURED BOOT THAT MAKE A WATERTIGHT CONNECTION. IF THE CONNECTION IS TO A BRICK SEWER THEN THE LATERAL SHALL BE CONNECTED BY WRAPPING A WATERSTOP MATERIAL SUCH AS A VOLCLAY RX101 OR EQUAL AROUND THE LATERAL, 2 WRAPS MINIMUM IN ACCORDANCE WITH THE DETAIL. IF WATERSTOP MATERIAL IS USED, THE ANNULAR SPACE BETWEEN THE SEWER WALL AND THE LATERAL SHALL BE FILLED WITH HYDRAULIC CEMENT. EITHER TYPE OF CONNECTION SHALL THEN BE ENCASED IN CONCRETE CLASS QC1.
3. CONNECTIONS SHALL BE ABOVE PIPE SPRING LINE. CONNECTIONS SHALL BE ACCOMPLISHED BY MEANS OF DEFLECTION AT THE PIPE JOINT. THIS DEFLECTION SHALL NOT EXCEED 1/2" FOR 12" CONDUIT OR 3/8" FOR 15" CONDUIT OR THE MAXIMUM ALLOWABLE DEFLECTION AS RECOMMENDED BY THE MANUFACTURER. FOR CONNECTIONS NOT ABLE TO BE MADE BY DEFLECTIONS, CONNECTIONS SHALL BE ACHIEVED BY USING RADIUS CURVE FITTINGS OF 22.5, 30, 45, OR OTHER SUITABLE FITTINGS APPROVED BY THE ENGINEER. THE FITTINGS TO BE USED SHALL BE THAT WHICH MINIMIZES THE LENGTH OF CONNECTION REPLACEMENT.
4. ALL NECESSARY BENDS, BRANCHES, COLLARS, CONCRETE ENCASEMENT SHALL BE INCLUDED IN PAYMENT FOR THE APPROPRIATE ITEM 611 - CONDUIT PAY ITEM.
5. SEE GENERAL NOTES FOR ADDITIONAL CONSTRUCTION AND COORDINATION REQUIREMENTS.



0	2019-07-07	RFC
NO.	DATE	DESCRIPTION
ISSUE RECORD		

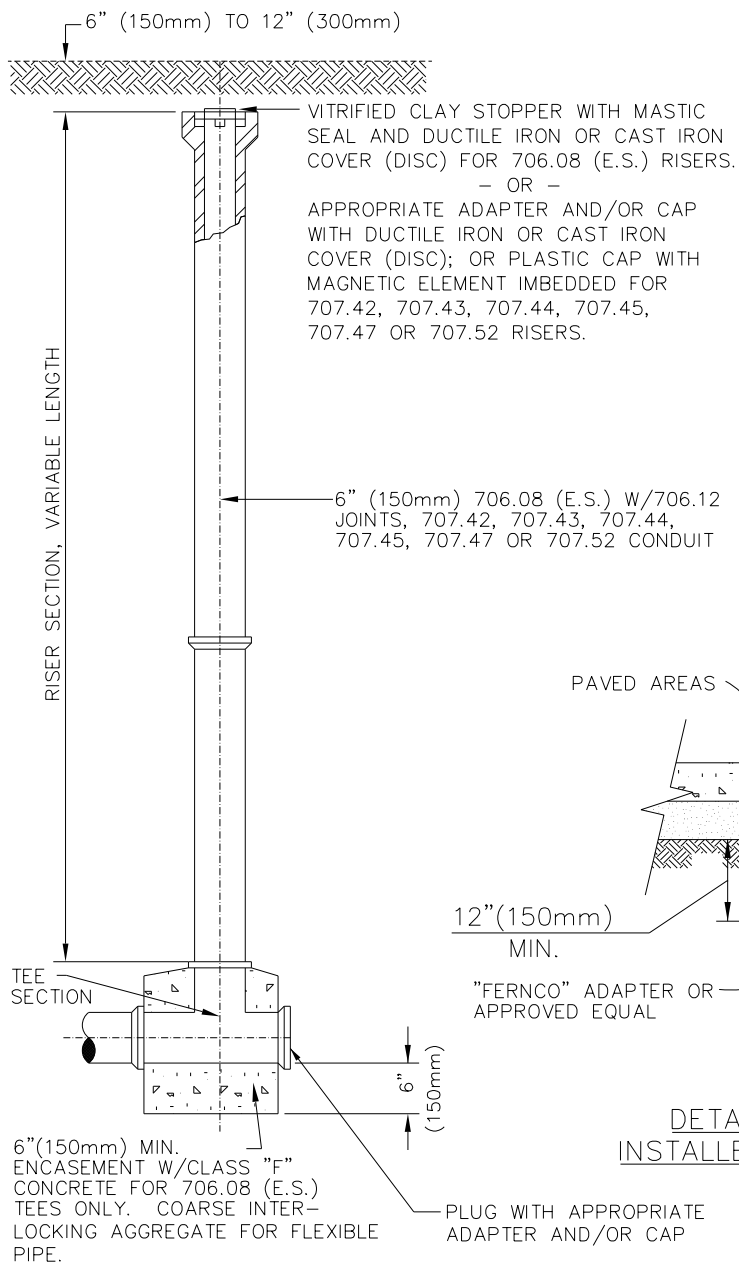
CUY-IR490/ SR010-
2.09 / 19.2877
86

DRAINAGE DETAILS - BLIND CONNECTION

RECORD PLANS

RECORD PLANS

RECORD PLANS



DO NOT ENCASE 707.42, 707.43, 707.44, 707.45, 707.47 OR 707.52

ITEM 604-MISC: TEST TEE

12"(300mm) X 12"(300mm) TEST TEE & 6"(150mm) RISER FOR LATERAL CONNECTIONS TO STORM SEWERS, SANITARY SEWERS AND TREATED SEPTIC FLOW OUTLETED DIRECTLY INTO STORM SEWERS (NO SCALE)

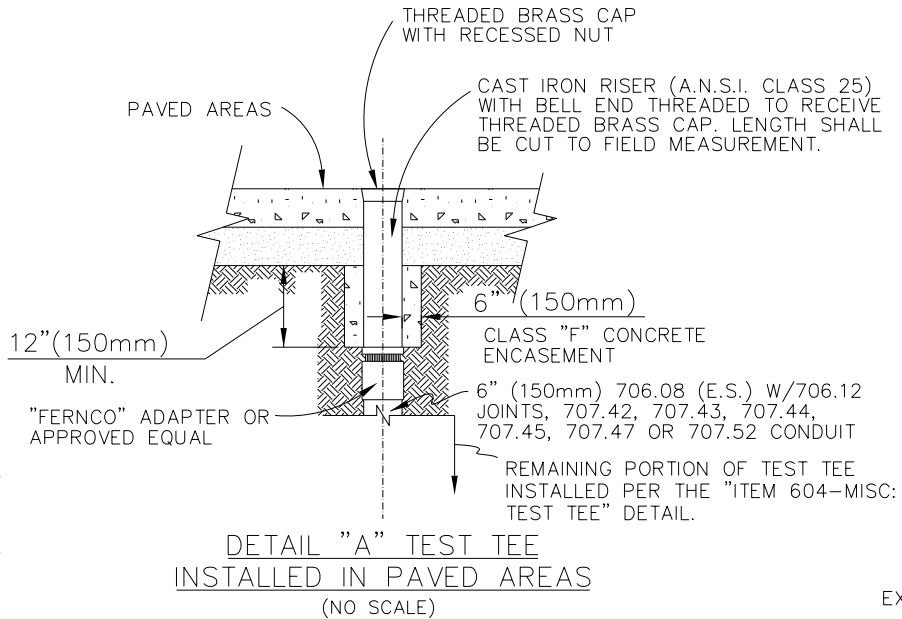
NOTES:

DUCTILE IRON OR CAST IRON COVERS (DISCS) SHALL CONFORM TO ITEM 604 AND BE PAINTED YELLOW ON SANITARY SEWER LATERALS. NEENAH NO. R-4055-6, EAST JORDAN NO. 6306 OR APPROVED EQUAL CASTINGS ARE ACCEPTABLE, PROVIDED THEY COMPLY WITH THE SPECIFICATIONS, DIMENSIONS AND EIGHT (8) POUND(3.6kg) MINIMUM WEIGHT.

THE CONTRACTOR SHALL RECORD THE LOCATION OF RISER (BY STATION AND OFFSET) IN A SUITABLE FIELDBOOK .THE FIELDBOOK SHALL BE GIVEN TO THE PROJECT ENGINEER UPON COMPLETION OF THE WORK.

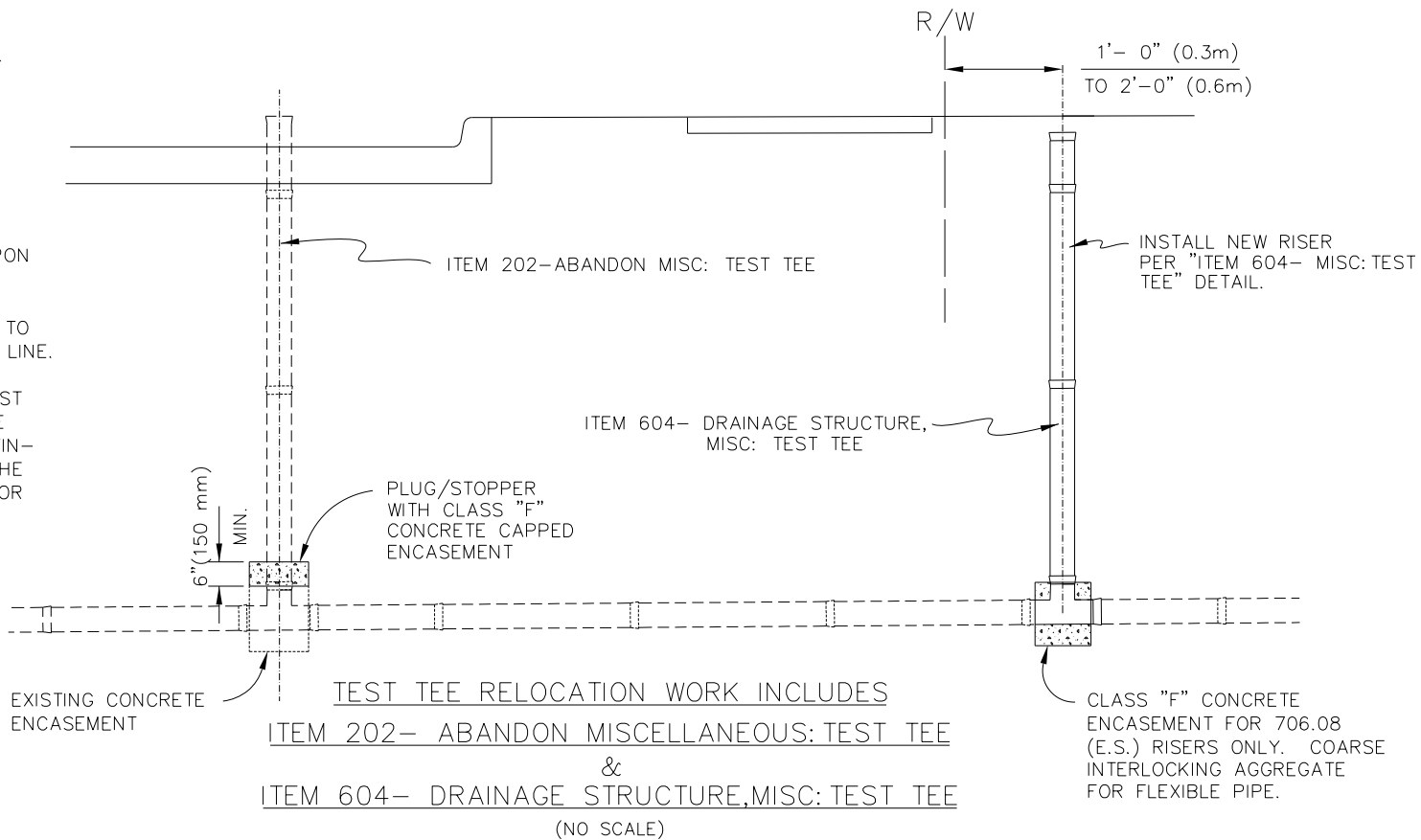
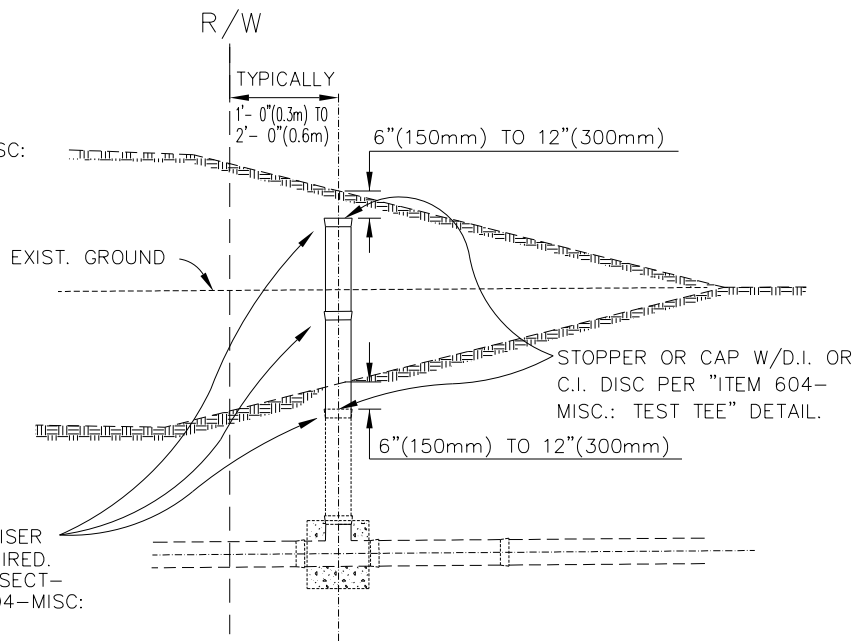
TEST TEES ARE TYPICALLY LOCATED ONE (1) FOOT (0.3m) TO TWO (2) FOOT (0.6m) BEHIND THE STREET RIGHT-OF-WAY LINE.

WHERE IT BECOMES NECESSARY TO PLACE OR REPLACE TEST TEES WITHIN PAVED AREAS (LOCATE OR RELOCATE OUTSIDE PAVED AREAS WHERE POSSIBLE) THEY SHALL BE SET TO FINISHED PAVED SURFACE GRADE PER DETAIL "A" UTILIZING THE SPECIAL FITTINGS, ADAPTERS AND CAPS SHOWN THEREON OR AS OTHERWISE APPROVED BY THE ENGINEER.



ADD OR REMOVE RISER SECTIONS AS REQUIRED. ADDITIONAL RISER SECTIONS PER "ITEM 604-MISC: TEST TEE" DETAIL.

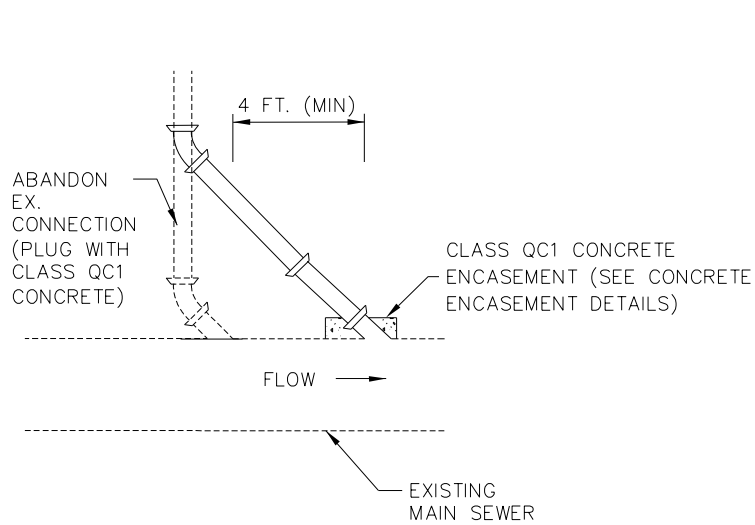
ITEM 604 - DRAINAGE STRUCTURE, MISC.:
TEST TEE ADJUSTED OR RECONSTRUCTED TO GRADE
(NO SCALE)



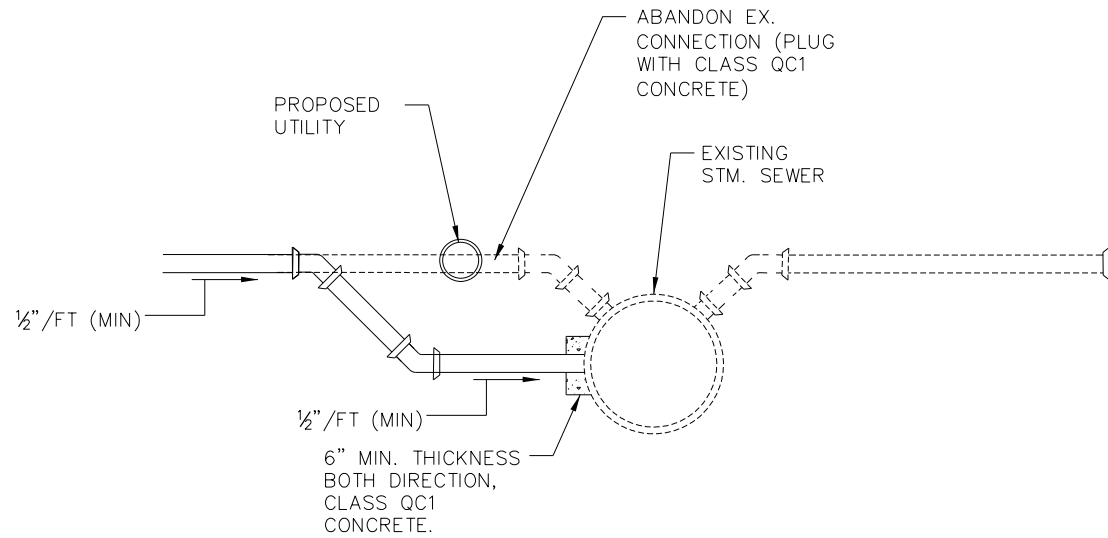
NOTES:

1. "TEST TEE" SHALL BE BE INSTALLED, ADJUSTED OR RECONSTRUCTED TO GRADE AT SUCH LOCATIONS SHOWN ON THE PLAN AND/OR AS DETERMINED BY THE ENGINEER IN THE FIELD.
2. PAYMENT FOR TEST TEE, TEST TEE ADJUSTED TO GRADE, OR TEST TEE RECONSTRUCTED TO GRADE SHALL INCLUDE EXCAVATION, PIPE REMOVED, NEW RISER PIPE, PIPE SPECIALS, CONCRETE ENCASEMENT, STOPPERS, RESTORATION OF EXISTING PIPE DISTURBED OR DAMAGED AND NATURAL AGGREGATE BACKFILL AS REQUIRED TO COMPLETE THE WORK AS SHOWN HEREON OR AS OTHERWISE DIRECTED BY THE ENGINEER.
3. TEST TEE RELOCATION WORK SHALL CONSIST OF "ITEM 202- ABANDON MISCELLANEOUS: TEST TEE" AND "ITEM 604-DRAINAGE STRUCTURE, MISC: TEST TEE" AS DIRECTED BY THE ENGINEER IN THE FIELD. PAYMENT FOR TEST TEE ABANDONED TO INCLUDE EXCAVATION, PIPE REMOVAL, PLUGGING AND ENCASEMENT OF EXISTING TEE, AND BACKFILL AS REQUIRED TO COMPLETE THE WORK AS SHOWN HEREON OR AS OTHERWISE DIRECTED BY THE ENGINEER.

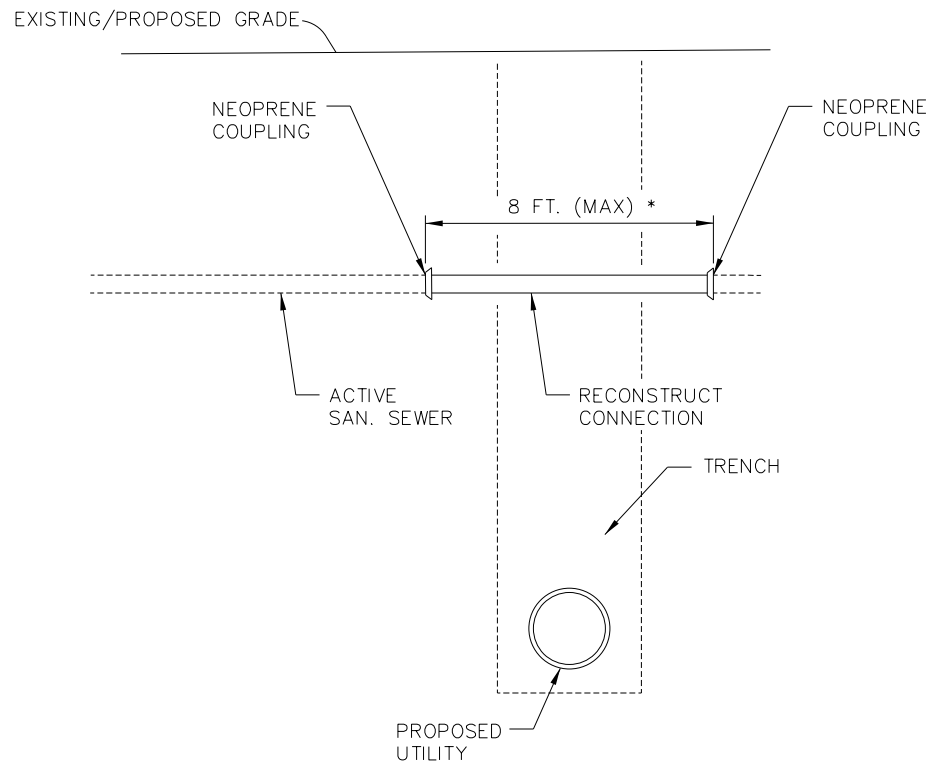
NO.	DATE	DESCRIPTION
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ISSUE RECORD		



SANITARY CONNECTION LOWERING PLAN VIEW
NOT TO SCALE

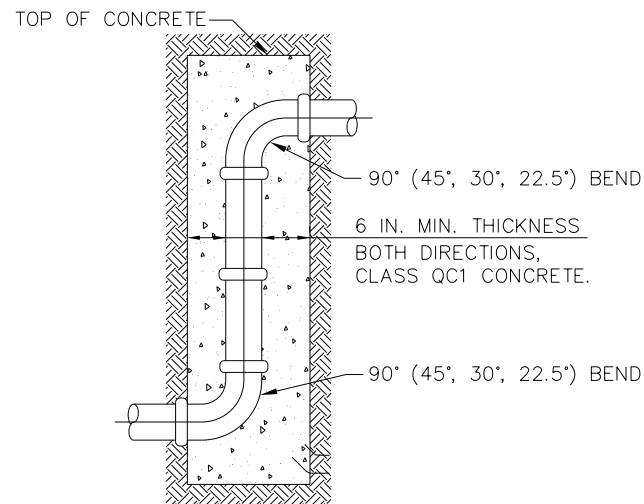


SEWER CONNECTION LOWERING SECTION VIEW
NOT TO SCALE



SANITARY CONNECTION TRENCH DETAIL
NOT TO SCALE

* ESTIMATED LENGTH OVER TRENCH.



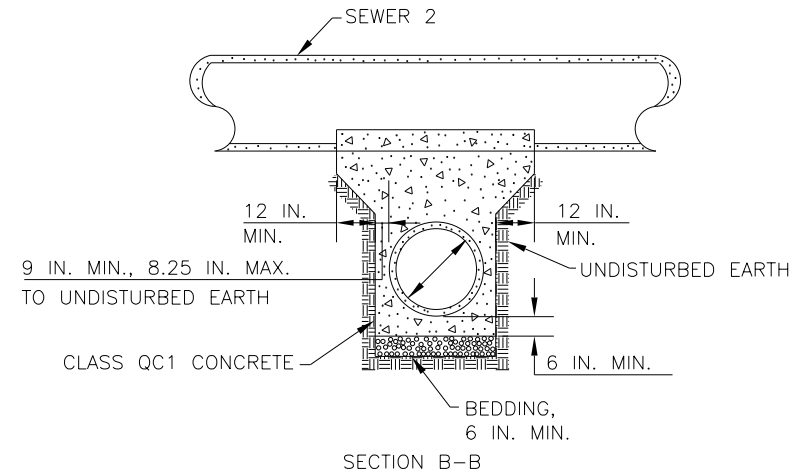
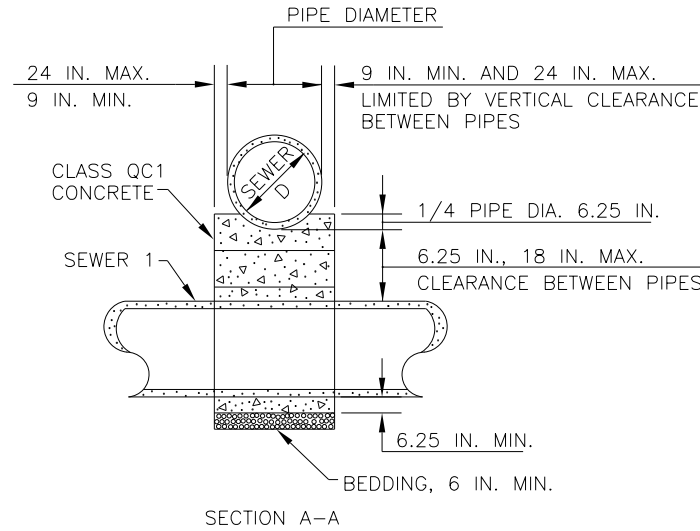
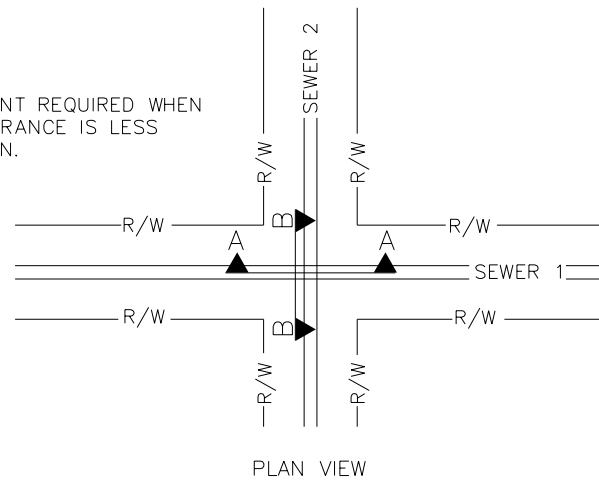
TYPICAL SEWER RISER DETAIL
NOT TO SCALE

NOTES

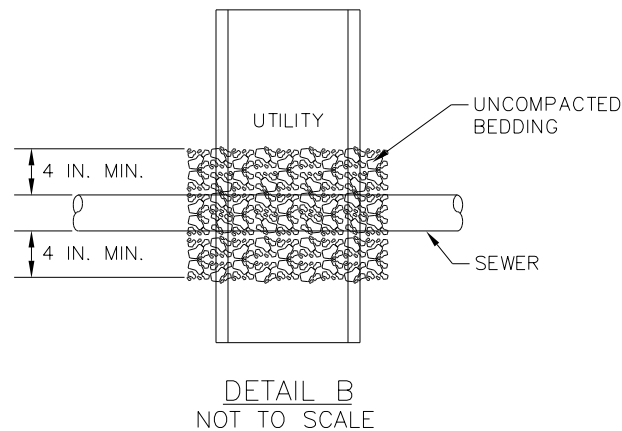
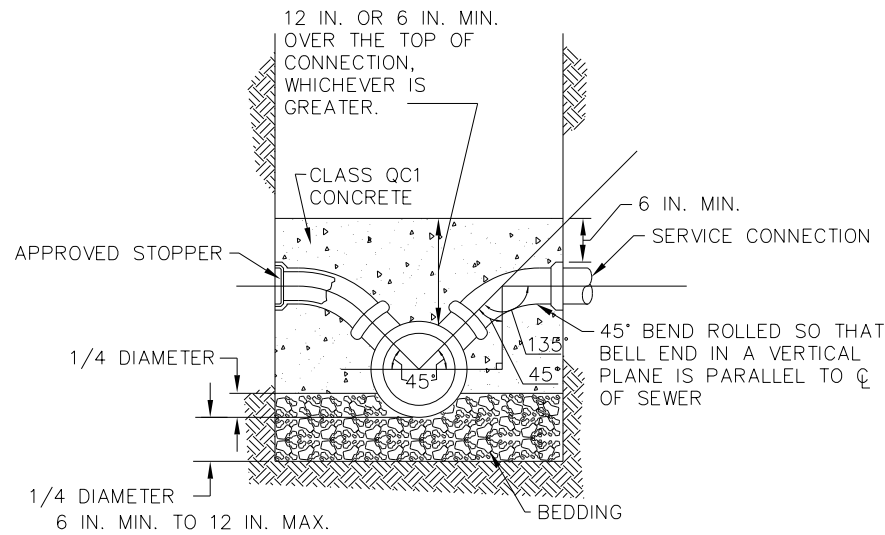
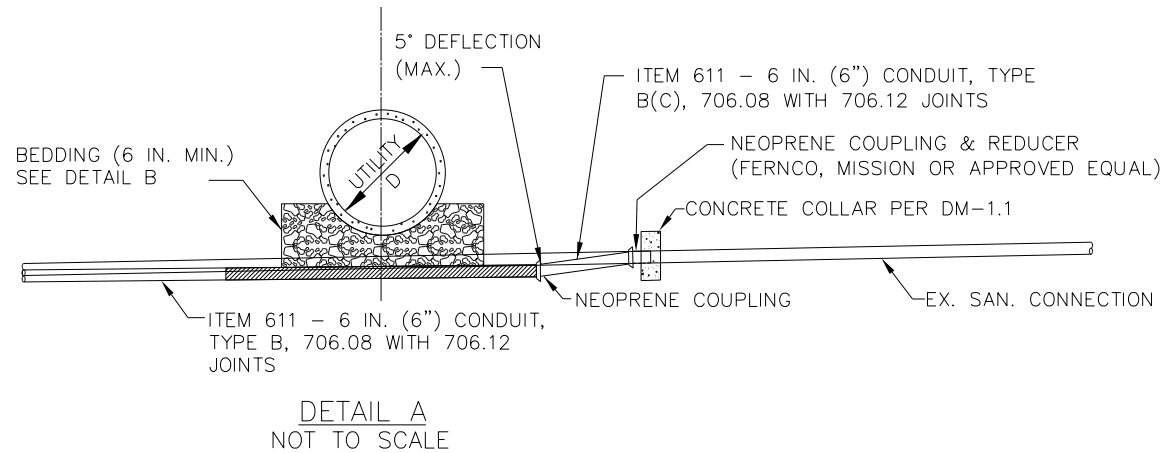
- 1.) ABANDON ALL INACTIVE STORM AND SANITARY CONNECTIONS IMPACTED BY CONSTRUCTION.
- 2.) EXISTING CONNECTIONS ARE ANTICIPATED TO RANGE FROM 5" TO 8". EXISTING 5" & 6" CONNECTIONS SHALL BE REPLACED WITH ITEM 611 - 6" CONDUIT, TYPE B(C), 706.08 WITH 706.12 JOINTS.

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NOTE:
ENCASEMENT REQUIRED WHEN
PIPE CLEARANCE IS LESS
THAN 18 IN.



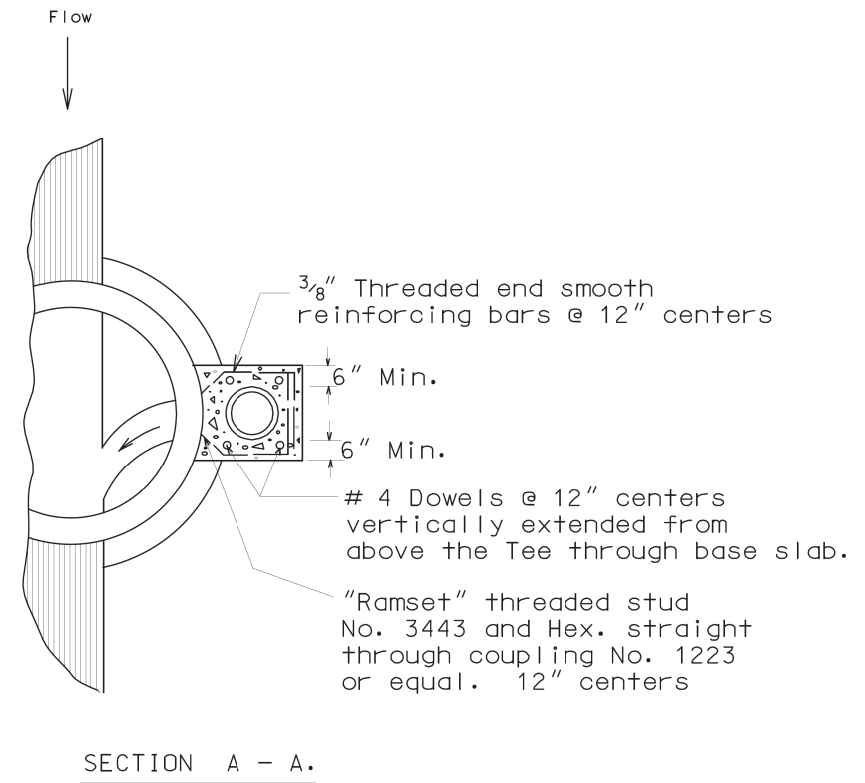
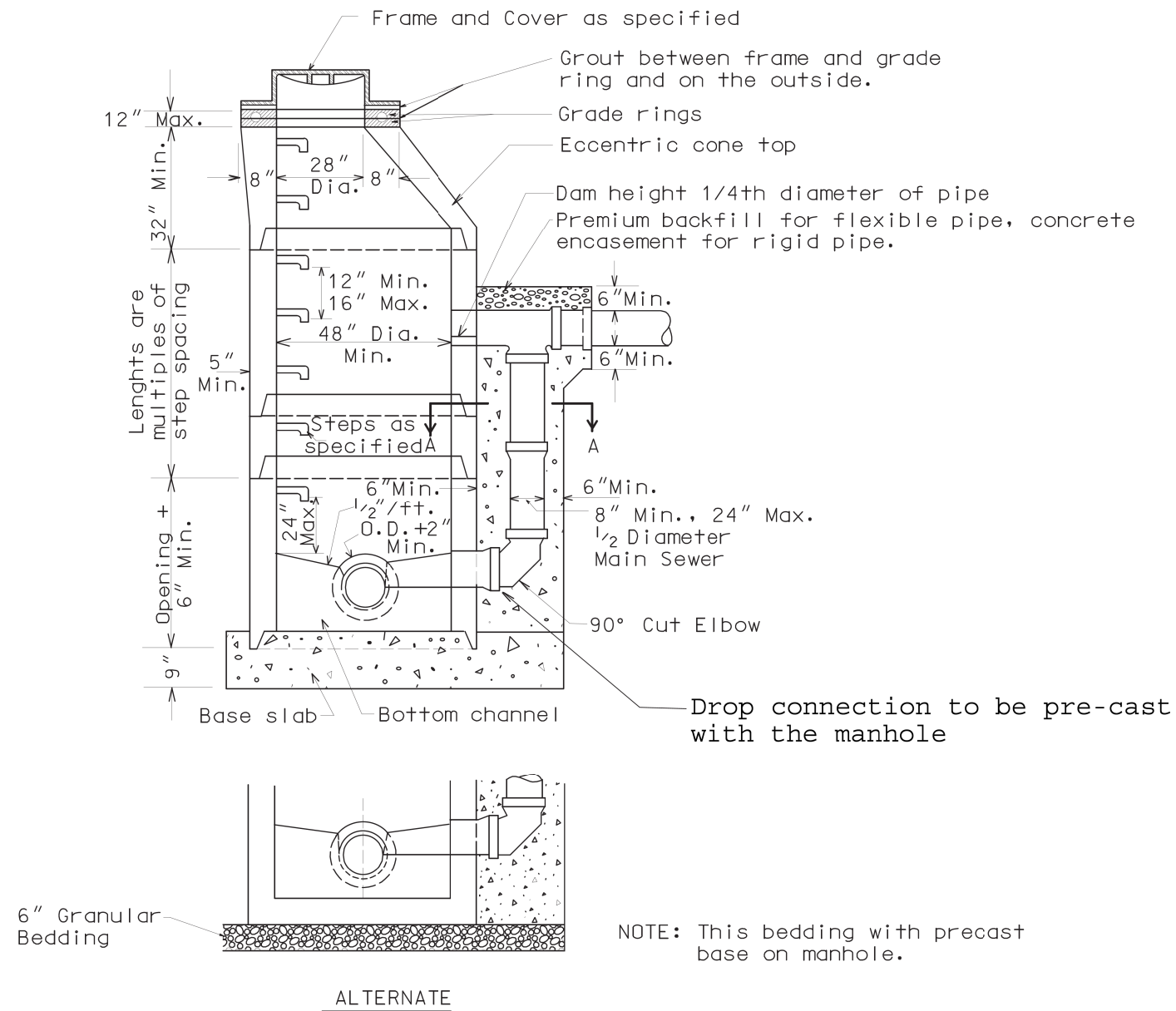
ITEM 611
STANDARD CONCRETE ENCASEMENT
(MONOLITHIC CRADLING OF UPPER PIPE)
NOT TO SCALE



NOTES:

1. EXISTING SEWER CONNECTION SHALL ONLY BE LOWERED IF FOUND TO BE IN CONFLICT WITH THE PROPOSED CONDUIT. SEE SEWER CONNECTION LOWERING DETAILS FOR NECESSARY VERTICAL RELOCATIONS WHICH ARE GREATER IN DEPTH THAN 18.5 IN.
2. FOR VERTICAL RELOCATIONS LESS THAN 4.5 IN., THE LOWERING SHALL BE ACCOMPLISHED BY MEANS OF A DEFLECTION AT THE PIPE JOINT. THIS DEFLECTION SHALL NOT EXCEED 5° OR THE MAXIMUM ALLOWABLE DEFLECTION AS RECOMMENDED BY THE MANUFACTURER. SEE DETAIL A.
3. FOR VERTICAL RELOCATIONS BETWEEN 4.5 IN. AND 18.5 IN. SHALL BE ACHIEVED BY USING SHORT RADIUS CURVE FITTINGS OF 22.5°, 30°, 45°, OR OTHER SUITABLE FITTINGS APPROVED BY THE ENGINEER. THE FITTINGS TO BE USED SHALL BE THAT WHICH MINIMIZES THE LENGTH OF SEWER CONNECTION REPLACEMENT.
4. TEE CONNECTIONS SHALL BE MADE AT AN ELEVATION ABOVE THE SPRING LINE OF THE LONGITUDINAL SEWER, WHERE POSSIBLE.
5. ALL NECESSARY BENDS, BRANCHES, COLLARS, FITTINGS, TEES, CONCRETE ENCASEMENTS, COUPLINGS, AND REDUCERS SHALL BE INCLUDED IN PAYMENT FOR THE APPROPRIATE ITEM 611 - CONDUIT PAY ITEM.

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ISSUE RECORD		



MODIFIED
PRECAST CONCRETE
DROP MANHOLE

REVISIONS:

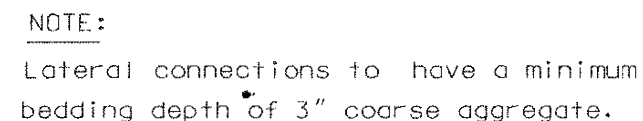
SCALE
NO SCALE

DATE : DEC. 1998

UNIFORM STANDARDS: CLEVELAND --- CUYAHOGA COUNTY --- NORTHEAST OHIO REGIONAL SEWER DISTRICT

Sheet No. 6/27

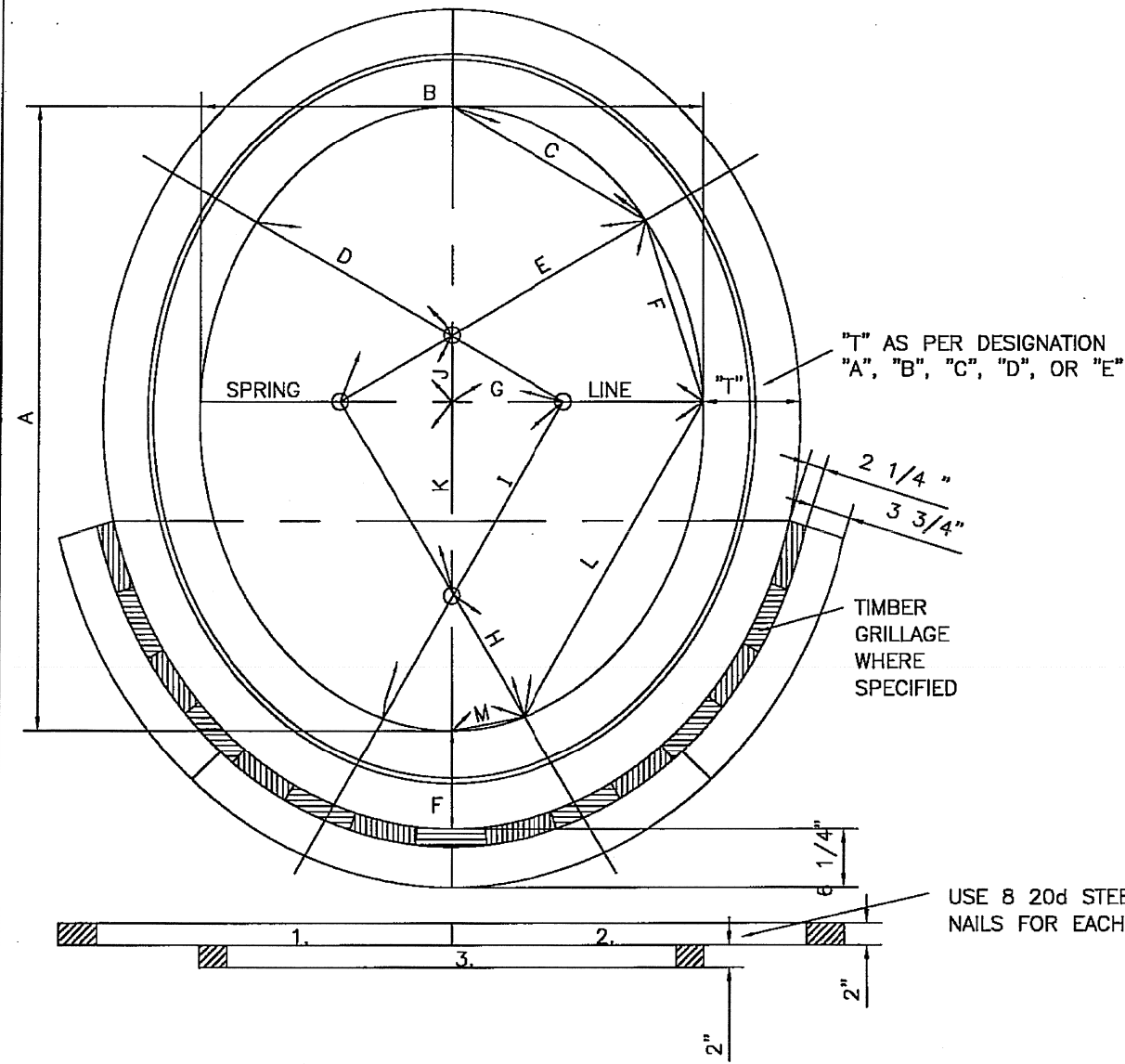
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ISSUE RECORD		



For concrete and ductile iron pipe, pipe cover is to the springline or greater.

Sheet No. 11/27

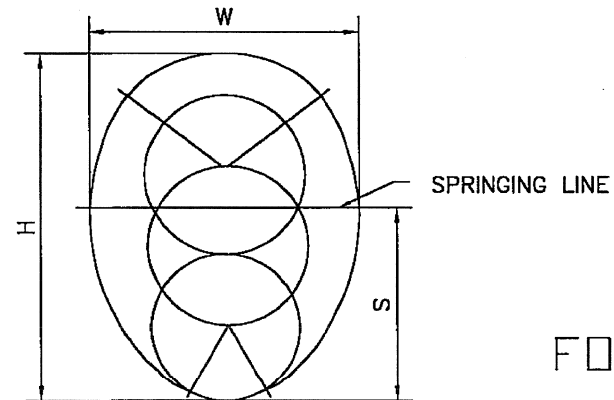
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NO.	DATE	DESCRIPTION
		ISSUE RECORD



EGG SHAPED SEWERS					NO.	H FEET	W FEET	S FEET	AREA SQ. FT.	NO.	H FEET	W FEET	S FEET	AREA SQ. FT.
NO.	H FEET	W FEET	S FEET	AREA SQ. FT.	8	5.12	4.04	2.71	16.00	15	7.79	6.14	4.12	36.99
2	2.25	1.94	1.28	3.41	9	5.54	4.37	2.93	18.72	16	8.13	6.41	4.30	40.32
3	2.75	2.23	1.64	4.75	10	5.94	4.69	3.14	21.54	17	8.47	6.68	4.47	43.71
4	3.23	2.54	1.70	6.35	11	6.33	4.99	3.35	24.46	18	8.79	6.94	4.65	47.17
5	3.74	2.95	1.98	8.55	12	6.71	5.29	3.55	27.47	19	9.12	7.19	4.82	50.70
6	4.23	3.34	2.23	10.90	13	7.08	5.58	3.74	30.57	20	9.43	7.44	4.98	54.29
7	4.69	3.70	2.48	13.39	14	7.44	5.87	3.93	33.74					

TYPES OF EGG SHAPED SEWERS

- "A"—1 RING OF BRICK ALL AROUND.
"B"—1 RING OF BRICK ALL AROUND & 1 RING EXTRA ON ARCH.
"C"—2 RINGS OF BRICK ALL AROUND .
"D"—2 RINGS OF BRICK ALL AROUND & 1 RING EXTRA ON ARCH.
"E"—3 RINGS OF BRICK ALL AROUND.



FOR RECORD ONLY

TABULAR DIMENSIONS FOR EGG SHAPED SEWERS NO.2 TO NO. 8													
NO.	A	B	C	D	E	F	G	H	I	J	K	L	M
2	2'-3"	1'-11 1/4"					6 3/8"	9"	1'-6"		6 3/8"		
3	2'-9"	2'-2 3/4"					10 5/8"	9"	2'-0"		10 5/8"		
4	3'-2 3/4"	2'-6 5/8"	1'-2 1/8"	1'-2 1/8"	1'-10 1/2"	11 1/2"	7 3/16"	8 1/8"	1'-10 1/2"	4 1/16"	12 3/16"	1'-10 1/2"	4 1/4"
5	3'-9"	2'-11 3/8"	1'-4 3/8"	1'-4 3/8"	2'-1 7/8"	1'-1 3/8"	8 3/16"	9 1/2"	2'-1 7/8"	4 3/4"	1'-2 1/4"	2'-1 7/8"	4 7/8"
6	4'-2 3/4"	3'-4"	1'-6 1/2"	1'-6 1/2"	2'-5 1/4"	1'-3 1/8"	9 1/4"	10 3/4"	2'-5 1/4"	5 3/8"	1'-4 1/8"	2'-5 1/4"	5 1/2"
7	4'-8 1/4"	3'-8 3/8"	1'-8 1/2"	1'-8 1/2"	2'-8 1/2"	1'-4 3/4"	10 5/16"	11 7/8"	2'-8 1/2"	5 15/16"	1'-5 13/16"	2'-8 1/2"	6 1/8"
8	5'-1 1/2"	4'-0 1/2"	1'-10 1/2"	1'-10 1/2"	2'-11 1/2"	1'-6 1/4"	11 1/4"	1'-1"	2'-11 1/2"	6 1/2"	1'-7 1/2"	2'-11 1/2"	6 3/4"

CITY OF CLEVELAND

DEPARTMENT OF PUBLIC SERVICE
DIVISION OF ENGINEERING & CONSTRUCTION
JOMARIE WASIK—DIRECTOR OF PUBLIC SERVICE
STANDARD CONSTRUCTION DRAWING
STANDARD PLAN FOR EGG SHAPED SEWERS
DIMENSIONS & AREAS
NOT TO SCALE

DRAWN BY: R. PLIODZINSKAS DATE: 4/8/08

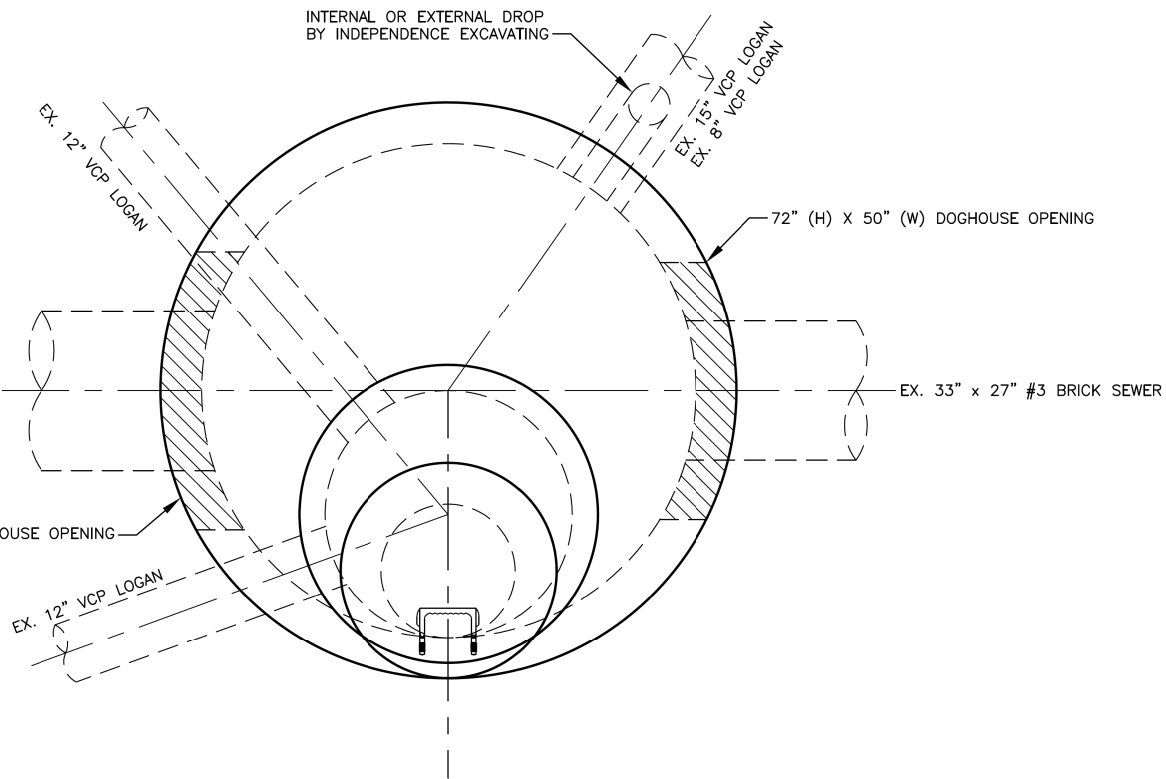
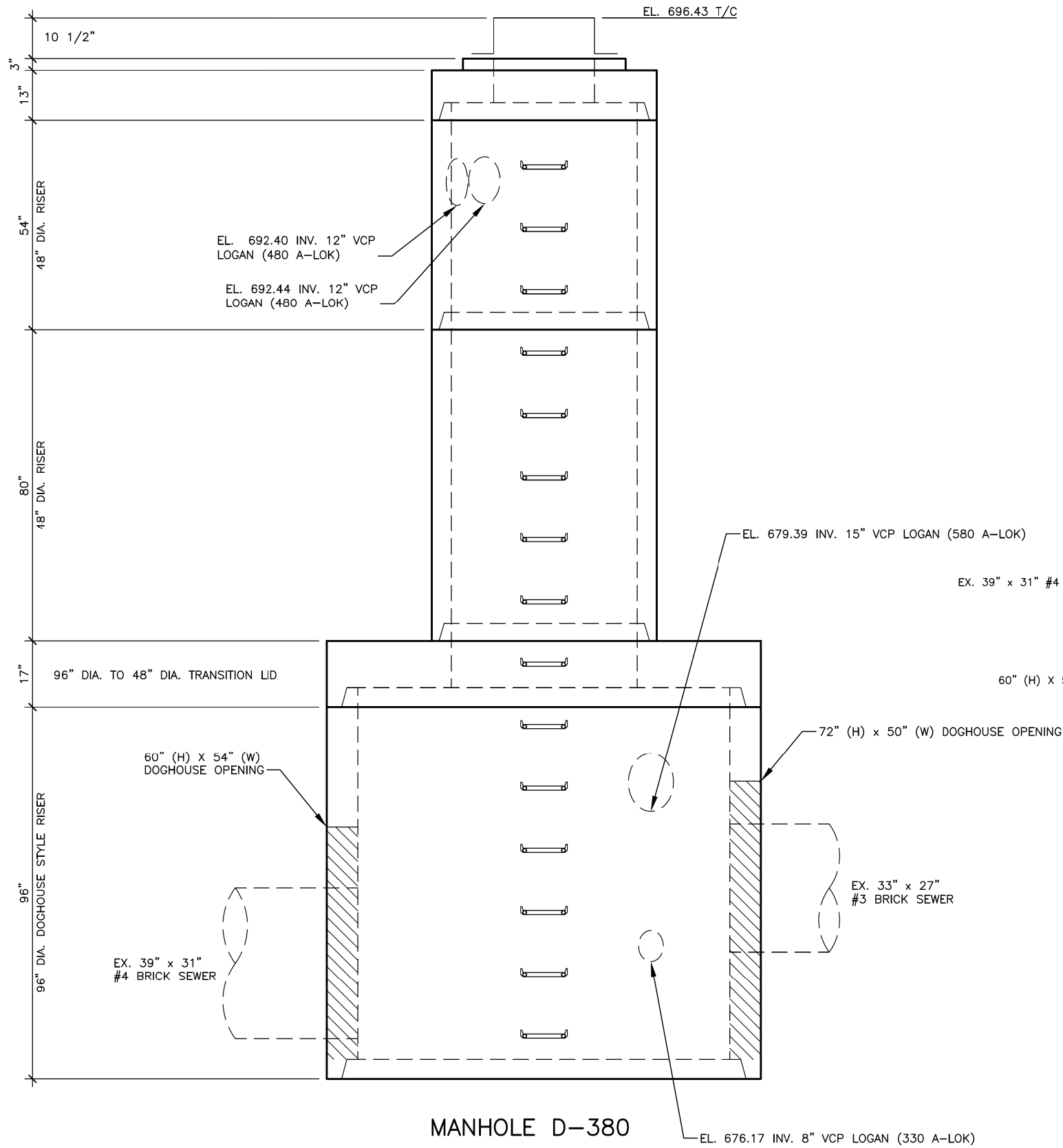
SUBMITTED BY: W. McLAUGHLIN DATE: 4/8/08

APPROVED:  DATE: 7-8-08
COMMISSIONER OF ENGINEERING & CONSTRUCTION

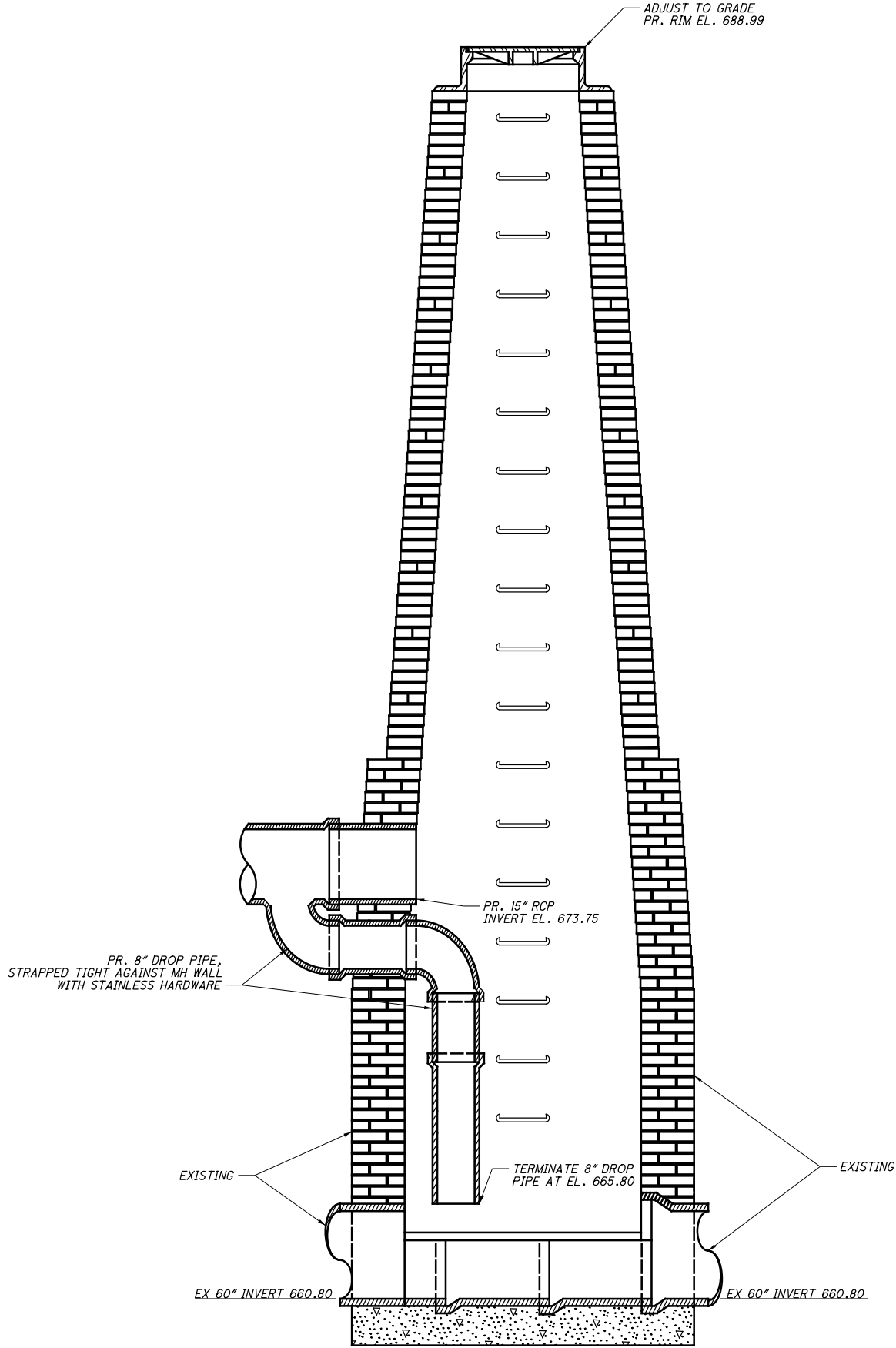
FILE NO. 73M

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NO.	DATE	DESCRIPTION
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NO.	DATE	DESCRIPTION
ISSUE RECORD		



0	2019-07-07	RFC
NO.	DATE	DESCRIPTION
ISSUE RECORD		

ASTM C700 Extra-Strength Clay Pipe Specification Data

Specify Logan Clay Pipe

Over the Long-Term, VCP is the Best Value.

- **Longevity & Sustainability** – A demonstrated service life of over 200-years in the U.S. is the longest proven service life in the industry.
- **Operations & Maintenance** – Aggressive cleaning options reduce annual maintenance costs by reducing SSOs and dig-ups over the service life of the installation.
- **Accept No Substitute** – Specify Vitrified Clay Pipe according to ASTM C700.



120-year-old pipe recently replaced to upsize the service line.

Dimensions of Extra-Strength Logan Clay Pipe (ASTM C700)

Pipe Size (I.D.)		Available Lengths							Average O.D.*		Crushing Strength**		Nominal Length of Ys & Ts
Inches	MM	1'	2'	3'	4'	5'	6'	7'	Bell	Spigot	Lbs. per Linear Ft	KN per Linear M	
4"	100	✓	✓		✓				7.05	4.81	2000	29.2	2'
6"	150	✓	✓	✓	✓				10.51	7.48	2000	29.2	2'
8"	200	✓	✓	✓		✓			12.60	9.69	2200	32.1	2'
10"	250	✓	✓	✓		✓			15.46	12.12	2400	35.0	2'
12"	300	✓	✓	✓			✓		18.15	14.54	2600	37.9	2'
15"	375	✓	✓	✓				✓	22.28	18.14	2900	42.3	3'
18"	450	✓	✓	✓				✓	26.91	21.59	3300	48.2	3'
21"	525	✓	✓	✓				✓	31.20	25.48	3850	56.2	3'
24"	600	✓	✓	✓				✓	35.45	29.05	4400	64.2	3'

✓ = Standard length for each dimension

✓ = Also available in these lengths

* All measurements are +/- 2%

** Minimum crushing strength per ASTM C700

Product Variance Data

Pipe Size	Limit of Minus Variation (per foot)	Max. Difference in Length of Opposite Sides	I.D. Limit of Minus Variation from Nominal Size
4"	1/4"	5/16"	3/16"
6"	1/4"	3/8"	1/4"
8"	1/4"	7/16"	5/16"
10"	1/4"	7/16"	3/8"
12"	1/4"	7/16"	7/16"
15"	1/4"	1/2"	9/16"
18"	1/4"	1/2"	11/16"
21"	1/4"	9/16"	13/16"
24"	3/8"	9/16"	15/16"



Logan Clay Products LLC

loganclay.com • loganclaypipe.com • loganclaymasonry.com • no-digpipe.com

info@loganclay.com • 800-848-2141 • 740-385-2184 • Fax: 740-385-9336

Logan's ASTM C425 O-Ring Joint

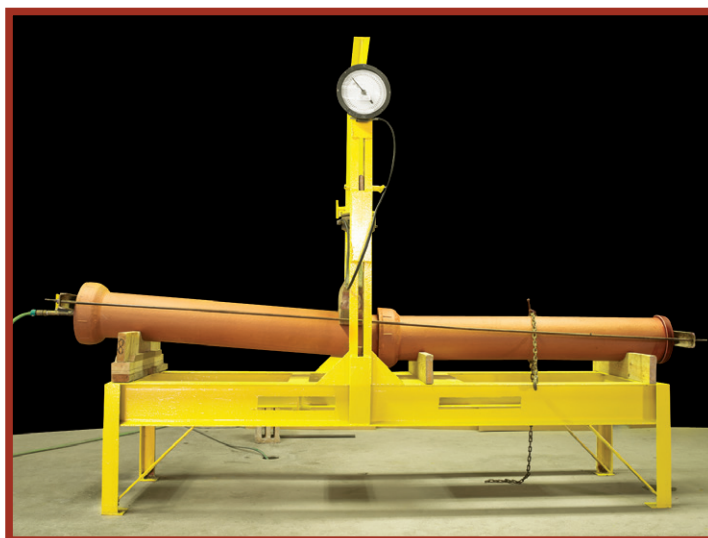
Field Tested – Field Proven

The clay pipe sewers installed early in our nation's history were not supplied with a joint. The installers joined pipe by applying tar or mortar in the trench. These joints allowed significant infiltration which was beneficial as it diluted the effluent and cleaned the lines. These sewers generally discharged into waterways without treatment.

As cities began treating sewage, infiltration became an expense. Logan Clay responded by introducing factory applied joints. Each generation of factory applied joints improved upon the last until the O-Ring joint was developed, achieving the leak-free performance that communities require.

The O-Ring joints on Logan Clay Pipe Products meet or exceed the standards established in ASTM C425 *Standard Specification for Compression Joints Vitrified Clay Pipe and Fittings*. This standard requires that the joint be "leak-free."

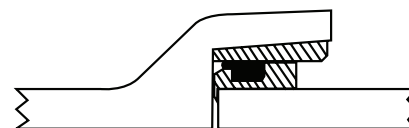
The Logan O-Ring joint has proven to be a reliable, watertight joint for more than 50 years. When installed in accordance with ASTM C12 specifications, our pipe and O-Ring joints eliminate the infiltration that was prevalent in early clay pipe lines.



For this test of 8-inch pipe, the pipe on the right provides the basis of a straight pipeline. The pipe on the left is intentionally misaligned to simulate a deflected joint. The bell end is 2 1/2 inches higher than the spigot end (1/2-inch deflection per foot length). The spigot end is unsupported while a shear load of 1,200 lbs. (150 lbs. per inch diameter or 150 x 8 = 1,200 lbs.) is then applied from above. This combination simulates a field condition of both misalignment of the joint and improper support of the barrel. In this condition, the joint must withstand the 1,200 lbs. shear load while maintaining 4.3 psi of water pressure (10 ft. head) without leaking.

Deflection Allowed by ASTM Specification

Normal Diameter	Deflection of Pipe
4-12" (101-305 mm), inclusive	1/2" (42 mm)
15-24" (381-610 mm), inclusive	3/8" (31 mm)



Vitrified
Clay



Factory-
Applied
Polyester
Joint



Rubber
Compression
Gasket

Logan Clay Products LLC

loganclay.com • loganclaypipe.com • loganclaymasonry.com • no-digpipe.com
info@loganclay.com • 800-848-2141 • 740-385-2184 • Fax: 740-385-9336