CITY OF BRYAN
WATER PRODUCTION CONTRACT 3 - 611-D6-0211
54" WATER TRANSMISSION LINE
FEBRUARY 2006

MAYOR:
ERNIE WENTRCEK

MAYOR PRO-TEM:
RUSSELL BRADLEY

CITY COUNCIL:
JOE MARIN
PAUL MADISON
JASON BIENSKI
MARK CONLEE
BEN HARDEMAN

CITY MANAGER:
MARY KAYE MOORE

DEPUTY CITY MANAGER:
HUGH R. WALKER

CITY ENGINEER:
LINDA G. HUFF, P.E.

SHEET INDEX

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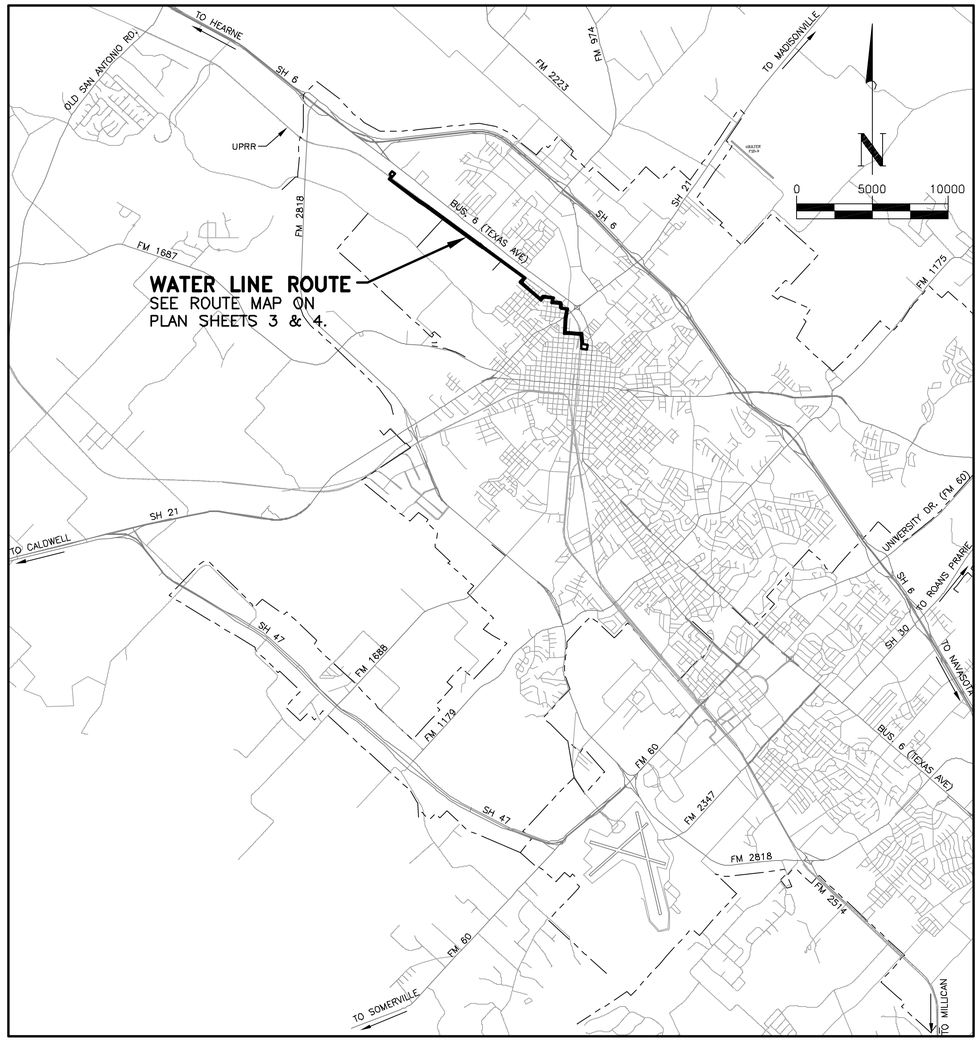
CITY OF BRYAN
The Good Life, Texas Style.

O'MALLEY ENGINEERS
BRENHAM, TEXAS
OE JOB NO. 200.14 WG/WH



VICINITY MAP

SCALE: SEE BAR SCALE

GENERAL NOTES:

1. UNLESS SPECIFICALLY STATED OTHERWISE AND PROVIDED FOR ON THE BID PROPOSAL FORM, ALL WORK DESCRIBED IN THESE GENERAL NOTES SHALL BE CONSIDERED INCIDENTAL TO THE ITEMS OF WORK LISTED ON THE BID PROPOSAL FORM AND NO SEPARATE OR ADDITIONAL PAYMENT WILL BE MADE TO THE CONTRACTOR FOR SUCH WORK.

2. ALL CONSTRUCTION STAKING FOR THE IMPROVEMENTS REQUIRED ON THIS PROJECT WILL BE PROVIDED BY CONTRACTOR. CONTRACTOR SHALL USE A TEXAS REGISTERED PROFESSIONAL LAND SURVEYOR TO PERFORM THE CONSTRUCTION STAKING. CONSTRUCTION STAKING SHALL BE CONSIDERED INCIDENTAL AND CONTRACTOR SHALL INCLUDE COSTS IN RELATED ITEMS OF WORK

3. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TRAFFIC CONTROL PLANNING AND IMPLEMENTATION IN CITY AND COUNTY RIGHT-OF-WAYS, EASEMENTS, AND ROADWAYS. TRAFFIC CONTROL PLANNING AND IMPLEMENTATION SHALL CONFORM TO THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES. REFER TO SPECIAL PROVISIONS (SP 24) FOR A MORE DETAILED DESCRIPTION OF REQUIREMENTS.

4. ALL WORK WITHIN TEXAS DEPARTMENT OF TRANSPORTATION (TXDOT) RIGHT-OF-WAY SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS SET FORTH IN THE APPROVED PERMIT AND AS DETAILED ON APPLICABLE TRAFFIC CONTROL PLAN SHEETS. REFER TO SPECIAL PROVISIONS (SP 25) FOR A MORE DETAILED DESCRIPTION OF REQUIREMENTS.

5. CONTRACTOR SHALL COMPLY WITH APPLICABLE TECHNICAL SPECIFICATIONS AND SPECIAL PROVISIONS (SP 13) REGARDING STORM WATER POLLUTION PREVENTION. ALL STORM WATER POLLUTION PREVENTION PLANNING AND IMPLEMENTATION IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR. CONFORMANCE TO REGULATORY REQUIREMENTS IS MANDATORY.

6. THE CONTRACTOR SHALL INSURE THAT CONSTRUCTION ACTIVITIES DO NOT PERMANENTLY CHANGE, DIVERT, RESTRICT, IMPEDE OR INHIBIT EXISTING SURFACE DRAINAGE IN ANY WAY. ANY DAMAGE CAUSED BY A TEMPORARY CHANGE, DIVERSION, RESTRICTION, IMPEDIMENT OR RESTRICTION TO EXISTING SURFACE DRAINAGE SHALL BE REPAIRED AT THE EXPENSE OF THE CONTRACTOR.

7. APPROVED EROSION CONTROL MEASURES MUST BE INSTALLED DURING THE ENTIRE TIME THAT THE EARTH IS BARED BY CONSTRUCTION ACTIVITIES AND REMAIN IN PLACE UNTIL PROVISIONAL ACCEPTANCE BY THE CITY'S PROJECT MANAGER. ALL AREAS WHERE EXISTING VEGETATION AND GRASS HAS BEEN REMOVED OR SIGNIFICANTLY REDUCED BY CONSTRUCTION ACTIVITIES, THE CONTRACTOR SHALL ADEQUATELY BLOCK SOD OR HYDROMULCH THE AREA WITHIN 14 CALENDAR DAYS AFTER LAST DISTURBANCE AND THEN WATER THE AREAS UNTIL GROWTH IS WELL ESTABLISHED AND THE SITE IS PROVISIONALLY ACCEPTED BY THE CITY'S PROJECT MANAGER. IN DEVELOPED AREAS WHERE GRASS OR LAWN IS PRESENT AND IS REMOVED DUE TO CONSTRUCTION ACTIVITIES, BLOCK SOD WILL BE REQUIRED.

8. ALL EXISTING UNDERGROUND UTILITY LINES SHOWN ON THE PLANS ARE SHOWN FOR THE SOLE PURPOSE OF MAKING THE CONTRACTOR AWARE THAT THEY MAY EXIST. NEITHER THE CITY OF BRYAN NOR O'MALLEY ENGINEERS GUARANTEES THE COMPLETENESS OR ACCURACY OF THE EXISTING UNDERGROUND UTILITIES SHOWN ON THE PLANS. CONTRACTOR SHALL BE RESPONSIBLE FOR ESTABLISHING THE EXACT LOCATION OF ALL EXISTING UNDERGROUND UTILITIES DURING CONSTRUCTION AND SHALL ALSO BE RESPONSIBLE FOR MAKING NOTIFICATIONS TO THE APPROPRIATE UTILITY LOCATING SERVICE(S) A MINIMUM OF TWO WORKING DAYS (48 HOURS) PRIOR TO COMMENCING WORK IN AN AREA. ALL UNDERGROUND UTILITIES THAT POTENTIALLY CONFLICT WITH THE PROPOSED 54" WATER LINE ALIGNMENT SHALL BE LOCATED BOTH VERTICALLY AND HORIZONTALLY. INFORMATION REGARDING LOCATION OF ANY DISCOVERED CONFLICTS SHOULD BE SUBMITTED TO THE ENGINEER. ENGINEER WILL REVISE ALIGNMENT AND/OR STIPULATE ADDITIONAL FITTINGS OR PIPE AS NECESSARY TO ELIMINATE CONFLICT.

9. REPAIR AND/OR RELOCATION (TEMPORARY OR PERMANENT) OF EXISTING WATER AND GAS SERVICE LINES SHALL BE CONSIDERED INCIDENTAL TO THE VARIOUS ITEMS OF WORK.

10. ALL EXISTING UTILITIES DAMAGED BY THE CONTRACTOR SHALL BE REPAIRED AT THE EXPENSE OF THE CONTRACTOR. ADDITIONALLY, THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR PAYING FOR LOST REVENUE, IF ANY, THAT RESULTS FROM A UTILITY BEING OUT OF SERVICE DUE TO DAMAGE BY THE CONTRACTOR.

11. THE WORK SHALL BE CONDUCTED AS TO CAUSE NO GREATER OBSTRUCTION TO THE PUBLIC OR PROPERTY OWNERS THAN IS CONSIDERED NECESSARY BY THE CITY'S PROJECT MANAGER. CONTRACTOR SHALL PROPERLY NOTIFY ALL EMERGENCY SERVICE PROVIDERS, AND ALL OTHER ENTITIES DEEMED NECESSARY BY THE CITY'S PROJECT MANAGER, IN THE EVENT OF A PUBLIC ROADWAY CLOSURE AND SHALL MAINTAIN THOROUGH RECORDS OF ALL CLOSURES AND NOTIFICATIONS THROUGHOUT THE DURATION OF THE PROJECT. ALL NOTIFICATIONS TO EMERGENCY SERVICE PROVIDERS SHALL BE CLOSELY COORDINATED WITH THE CITY'S PROJECT MANAGER. REFER TO SPECIAL PROVISIONS (SP 8) FOR ADDITIONAL INFORMATION.

12. THE CONTRACTOR SHALL STRICTLY ADHERE TO ALL APPLICABLE SAFETY REGULATIONS AND CODES INCLUDING, BUT NOT LIMITED TO, THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) STANDARDS. EXCAVATION SAFETY SHALL CONFORM TO THE REQUIREMENTS SET FORTH IN SPECIFICATION SECTION 02229.

13. THE CONTRACTOR SHALL BE AWARE THAT OVERHEAD POWER AND TELEPHONE LINES EXIST WITHIN THE PROJECT AREA. THE CONTRACTOR SHALL INSURE THAT ALL EQUIPMENT MAINTAINS THE REQUIRED MINIMUM CLEARANCE FROM THE OVERHEAD LINES AS STIPULATED BY THE OWNER OF THE LINES AND CLOSELY COORDINATE WITH THE OWNERS OF THESE FACILITIES. REFER TO SPECIAL PROVISIONS (SP 12) FOR ADDITIONAL INFORMATION.

14. THE CONTRACTOR SHALL PROTECT EXISTING YARDS, DRIVES, CURBS, MAILBOXES, SIGNS, CULVERTS, AND OTHER SIMILAR FEATURES FROM DAMAGE DURING CONSTRUCTION. ALL DAMAGE TO THESE FEATURES BY THE CONTRACTOR SHALL BE REPAIRED AT THE EXPENSE OF THE CONTRACTOR AND SHALL BE REPAIRED TO AN "AS FOUND OR BETTER" CONDITION. THE CONTRACTOR SHALL MOVE AND REPLACE MOVABLE FEATURES, SUCH AS MAILBOXES, TRAFFIC CONTROL SIGNS, AND STREET SIGNS, AS NECESSARY FOR THE CONSTRUCTION OF THE IMPROVEMENTS.

15. SPECIFIC LOCATIONS ALONG THE ROUTE OF THE 54" WATER TRANSMISSION LINE REQUIRE THE COMPLETE RECONSTRUCTION OF THE ENTIRE ROADWAY WHERE THE 54" LINE IS PROPOSED TO BE INSTALLED. IN THESE AREAS, CONTRACTOR WILL NOT BE PROVIDED SEPARATE OR ADDITIONAL COMPENSATION FOR ANY PAVEMENT REPAIR RELATED TO THE ADJUSTMENT/REPLACEMENT OF OTHER EXISTING UTILITIES THAT ARE WITHIN THE LIMITS OF THE ROADWAY THAT IS BEING RECONSTRUCTED.

16. WHERE A NEW UTILITY LINE IS SHOWN ON THE PLANS TO BE INSTALLED BY OPEN CUT, CONTRACTOR MAY ELECT TO INSTALL THE NEW LINE BY A TRENCHLESS METHOD INSTEAD OF BY OPEN CUT. IN THESE LOCATIONS, CONTRACTOR WILL BE COMPENSATED FOR INSTALLING THE NEW LINE AS AN OPEN CUT INSTALLATION AS SHOWN ON THE PLANS AND ALSO COMPENSATED FOR THE PAVEMENT REPAIR (AT THE UNIT PRICE BID) THAT IS AVOIDED AS A RESULT OF INSTALLING THE LINE BY THE TRENCHLESS METHOD.

17. ALL WORK REQUIRING INTERRUPTION OF SERVICE TO CONNECT THE NEW 54" WATER TRANSMISSION LINE TO EXISTING FACILITIES SHALL BE ACCOMPLISHED BETWEEN NOVEMBER 1 AND MARCH 31 DURING NON-PEAK PORTIONS OF THE DAY. REFER TO TECHNICAL SPECIFICATION SECTION 01046, "CONNECTION TO EXISTING FACILITIES" FOR REQUIREMENTS.

EXISTING FEATURES LEGEND

SYMBOLS:	DESCRIPTION:	SYMBOLS:	DESCRIPTION:	SYMBOLS:	DESCRIPTION:	SYMBOLS:	DESCRIPTION:	SYMBOLS:	DESCRIPTION:
— X — X — X — X —	– BARBED WIRE FENCE	— P — P — P —	– PIPELINE		– IRON PIPE OR ROD		– CLEANOUT		– TELEPHONE PEDESTAL
— ▫ — ▫ — ▫ — ▫ —	– BOARD FENCE	— G — G — G — G —	– GAS LINE		– CONCRETE MONUMENT		– SEWER MANHOLE		– TELEPHONE MANHOLE
— o — o — o — o —	– CHAIN LINK FENCE	— S — S — S — S —	– SEWER LINE		– FIRE HYDRANT		– METER POLE OR LIGHT POLE		– WATER METER
— · · · — · · · —	– ℄ DITCH	— W — W — W — W —	– WATER LINE		– GAS METER		– UTILITY POLE		– WATER VALVE
	– RAILROAD TRACKS		– TOP/TOE OF SLOPE		– GAS RISER		– GUY WIRE		– SPRINKLER HEAD
— T — T — T — T —	– TELEPHONE LINE	— FO — FO — FO — FO —	– FIBER OPTIC LINE		– GAS VALVE		– SHRUB/BUSH/HEDGES		– SURVEY CONTROL
— OE — OE — OE — OE —	– OVERHEAD ELECTRICAL LINE		– APRROX. R.O.W.		– MAILBOX		– TREE		– BENCHMARK
— UE — UE — UE — UE —	– UNDERGROUND ELECTRICAL LINE		– BRUSH		– STREET SIGN		– STORM SEWER MANHOLE		– GEOTECHNICAL CORE LOCATION (NUMBER AS LABELED)

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(979) 836-7937
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CITY OF BRYAN
54" WATER TRANSMISSION LINE

NO.	REVISION	BY	DATE

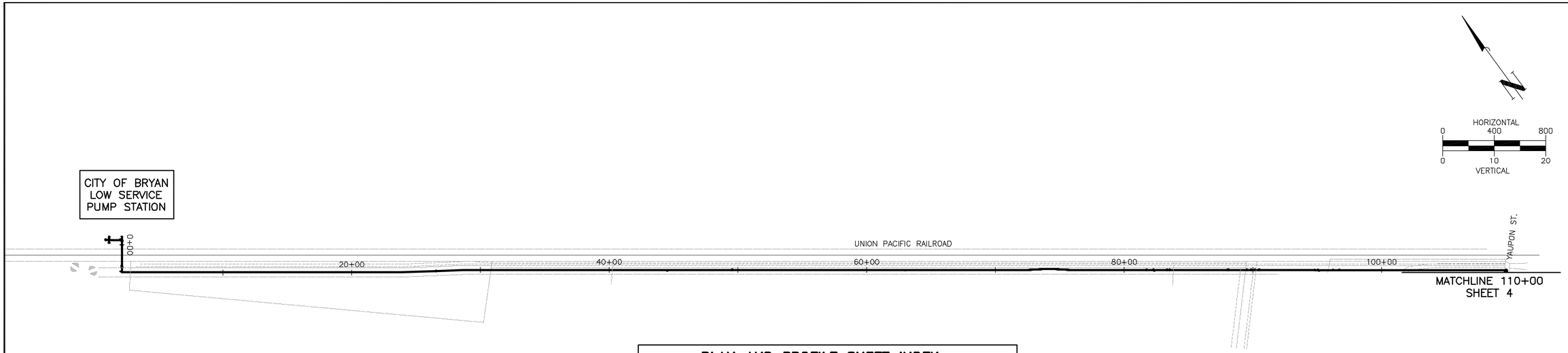
Drawing Name: P:\00200\200.14wg\design\Dflp.dwg

0 VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE.

Field Book: BRYAN "S"
Date: 07/05
Project Number: 200.14 WG
Design By: WRK
Drawn By: BAG

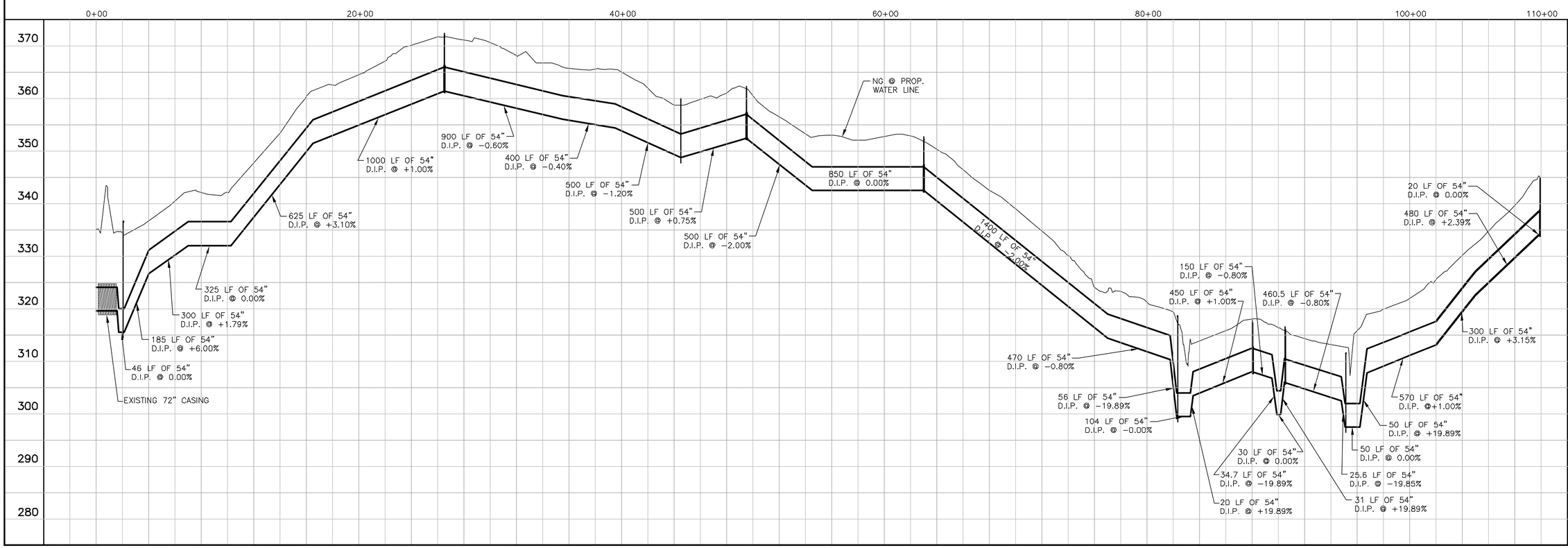
Sheet Title: VICINITY MAP, GENERAL NOTES & LEGEND

Sheet Number: 2 ....Of.... 48



PLAN AND PROFILE SHEET INDEX

SHEET NO.	DESCRIPTION	SHEET NO.	DESCRIPTION
6	STA. 0+00 TO STA. 5+50	16	STA. 55+00 TO STA. 60+50
7	STA. 5+50 TO STA. 11+00	17	STA. 60+50 TO STA. 66+00
8	STA. 11+00 TO STA. 16+50	18	STA. 66+00 TO STA. 71+50
9	STA. 16+50 TO STA. 22+00	19	STA. 71+50 TO STA. 77+00
10	STA. 22+00 TO STA. 27+50	20	STA. 77+00 TO STA. 82+50
11	STA. 27+50 TO STA. 33+00	21	STA. 82+50 TO STA. 88+00
12	STA. 33+00 TO STA. 38+50	22	STA. 88+00 TO STA. 93+50
13	STA. 38+50 TO STA. 44+00	23	STA. 93+50 TO STA. 99+00
14	STA. 44+00 TO STA. 49+50	24	STA. 99+00 TO STA. 104+50
15	STA. 49+50 TO STA. 55+00	25	STA. 104+00 TO STA. 110+00



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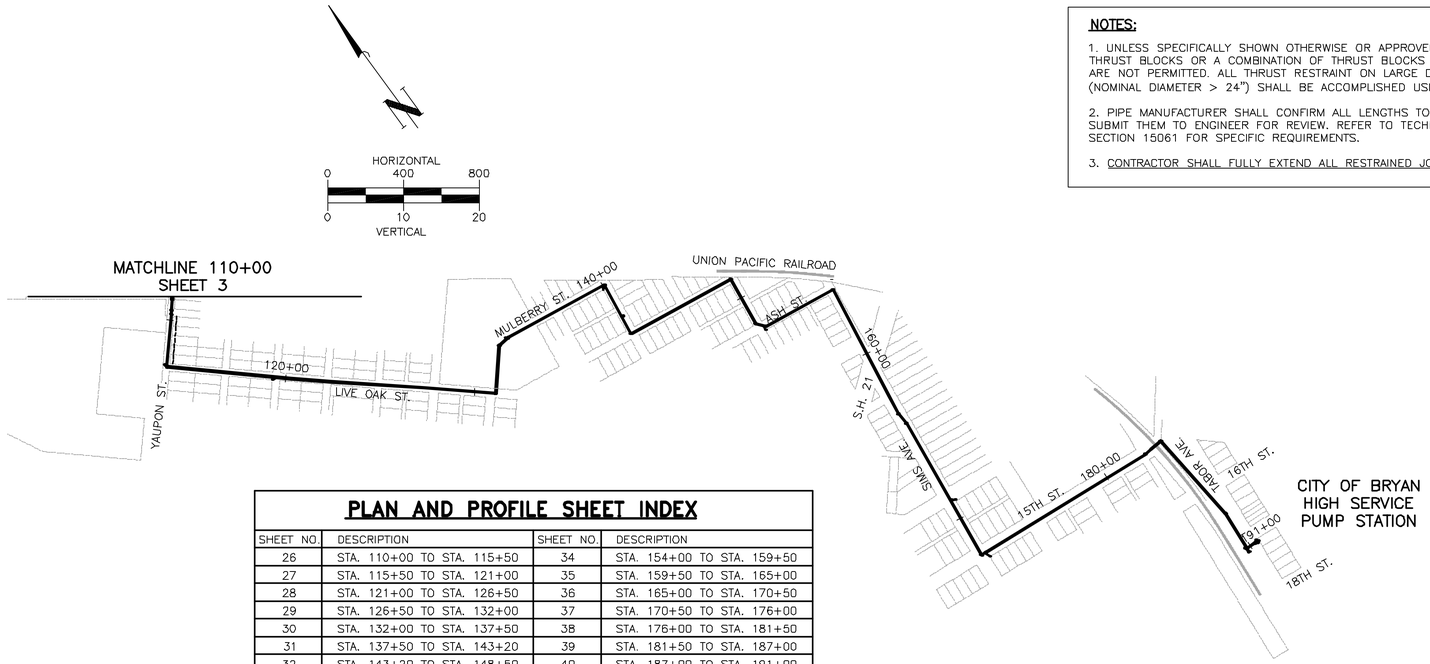
Field Book: BRYAN "S"
Date: 07/05
Project Number: 200.14 WG
Design By: WRK
Drawn By: BAG

Sheet Title: ROUTE MAP & PLAN AND PROFILE SHEET INDEX

Sheet Number: 3 ....Of.... 48



NOTES:

1. UNLESS SPECIFICALLY SHOWN OTHERWISE OR APPROVED BY THE ENGINEER, THRUST BLOCKS OR A COMBINATION OF THRUST BLOCKS AND RESTRAINED JOINTS ARE NOT PERMITTED. ALL THRUST RESTRAINT ON LARGE DIAMETER WATER LINE (NOMINAL DIAMETER > 24") SHALL BE ACCOMPLISHED USING RESTRAINED JOINTS.

2. PIPE MANUFACTURER SHALL CONFIRM ALL LENGTHS TO BE RESTRAINED AND SUBMIT THEM TO ENGINEER FOR REVIEW. REFER TO TECHNICAL SPECIFICATION SECTION 15061 FOR SPECIFIC REQUIREMENTS.

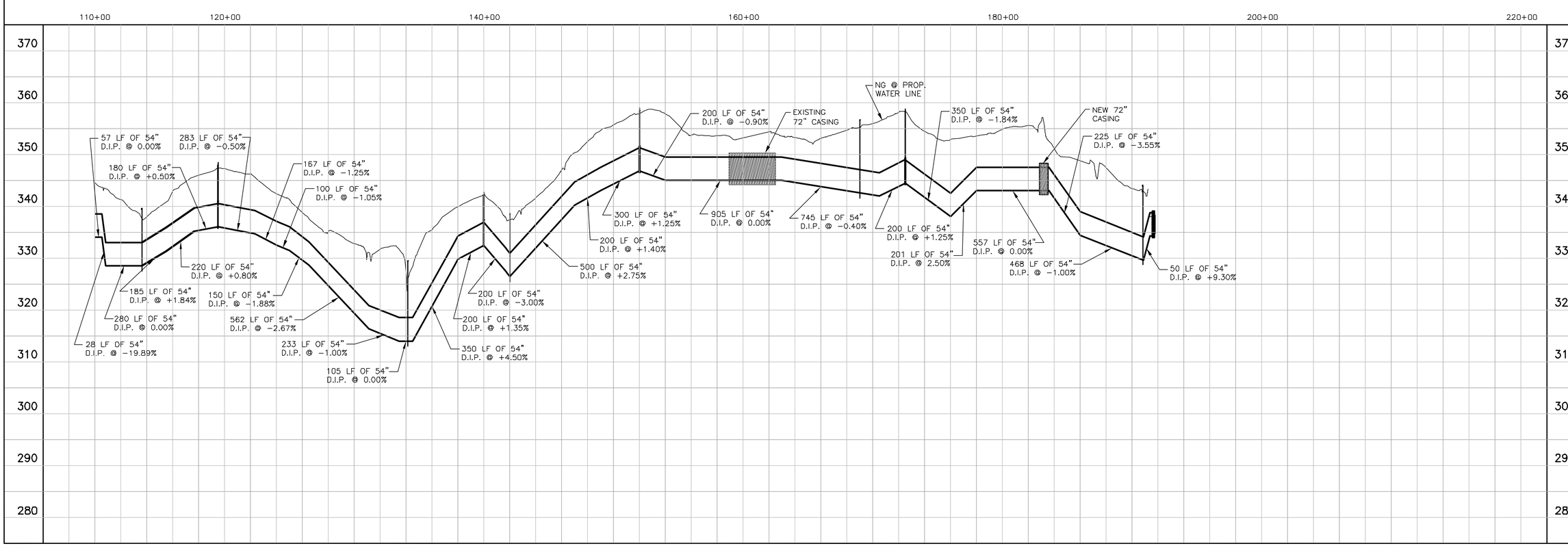
3. CONTRACTOR SHALL FULLY EXTEND ALL RESTRAINED JOINTS DURING INSTALLATION.

JOINT RESTRAINT TABLE FOR 54", CLASS 150, D.I. PIPE WATER TRANSMISSION LINE

NO.	LENGTH TO BE RESTRAINED	NOTES
1	ALL YARD PIPING IN LOW SERVICE PUMP STATION	SEE PLAN SHEET 5
2	FROM STA. 0+00 TO STA. 4+55	90° HORZ. BEND AT STA. 2+15
3	FROM STA. 80+71.4 TO STA. 84+50	4 EACH – 11¼° VERT. BENDS BETWEEN STA. 81+71.4 & STA. 83+50
4	FROM STA. 88+50 TO STA. 91+44.8	4 EACH – 11¼° VERT. BENDS BETWEEN STA. 89+50 & STA. 90+44.8
5	FROM STA. 93+79.4 TO STA. 97+72	4 EACH – 11¼° VERT. BENDS BETWEEN STA. 94+79.4 & STA. 96+72
6	FROM STA. 106+19.4 TO STA. 116+34	2 EACH – 90° HORZ. BENDS, 1 EACH – 5⅝° HORZ. BEND, & 2 EACH – 11¼° VERT. BENDS BETWEEN STA. 109+79.4 & STA. 113+64
7	FROM STA. 128+07 TO STA. 145+97	3 EACH – 90° HORZ. BENDS, 1 EACH – 45° HORZ. BEND, & 1 EACH – 11¼° HORZ. BEND BETWEEN STA. 131+07 & STA. 142+97
8	FROM STA. 147+56 TO STA. 150+36	1 EACH – 90° HORZ. BEND AT STA. 148+96
9	FROM STA. 150+85 TO STA. 153+03	2 EACH – 45° HORZ. BENDS AT STA. 151+65 & STA. 152+23
10	FROM STA. 154+88 TO STA. 157+68	1 EACH – 90° HORZ. BEND AT STA. 156+28
11	FROM STA. 163+28 TO STA. 164+74	2 EACH – 11¼° HORZ. BENDS
12	FROM STA. 170+89 TO STA. 173+69	2 EACH – 90° HORZ. BEND AT STA. 172+29
13	FROM STA. 179+72 TO STA. 191+00	1 EACH – 90° HORZ. BENDS, 1 EACH – TEE, & 2 EACH – 11¼° BENDS BETWEEN STA. 182+72 & STA. 190+82
14	ALL YARD PIPING IN HIGH SERVICE PUMP STATION	SEE PLAN SHEET 40

PLAN AND PROFILE SHEET INDEX

SHEET NO.	DESCRIPTION	SHEET NO.	DESCRIPTION
26	STA. 110+00 TO STA. 115+50	34	STA. 154+00 TO STA. 159+50
27	STA. 115+50 TO STA. 121+00	35	STA. 159+50 TO STA. 165+00
28	STA. 121+00 TO STA. 126+50	36	STA. 165+00 TO STA. 170+50
29	STA. 126+50 TO STA. 132+00	37	STA. 170+50 TO STA. 176+00
30	STA. 132+00 TO STA. 137+50	38	STA. 176+00 TO STA. 181+50
31	STA. 137+50 TO STA. 143+20	39	STA. 181+50 TO STA. 187+00
32	STA. 143+20 TO STA. 148+50	40	STA. 187+00 TO STA. 191+00
33	STA. 148+50 TO STA. 154+00		



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CITY OF BRYAN 54" WATER TRANSMISSION LINE

NO.	REVISION	BY	DATE

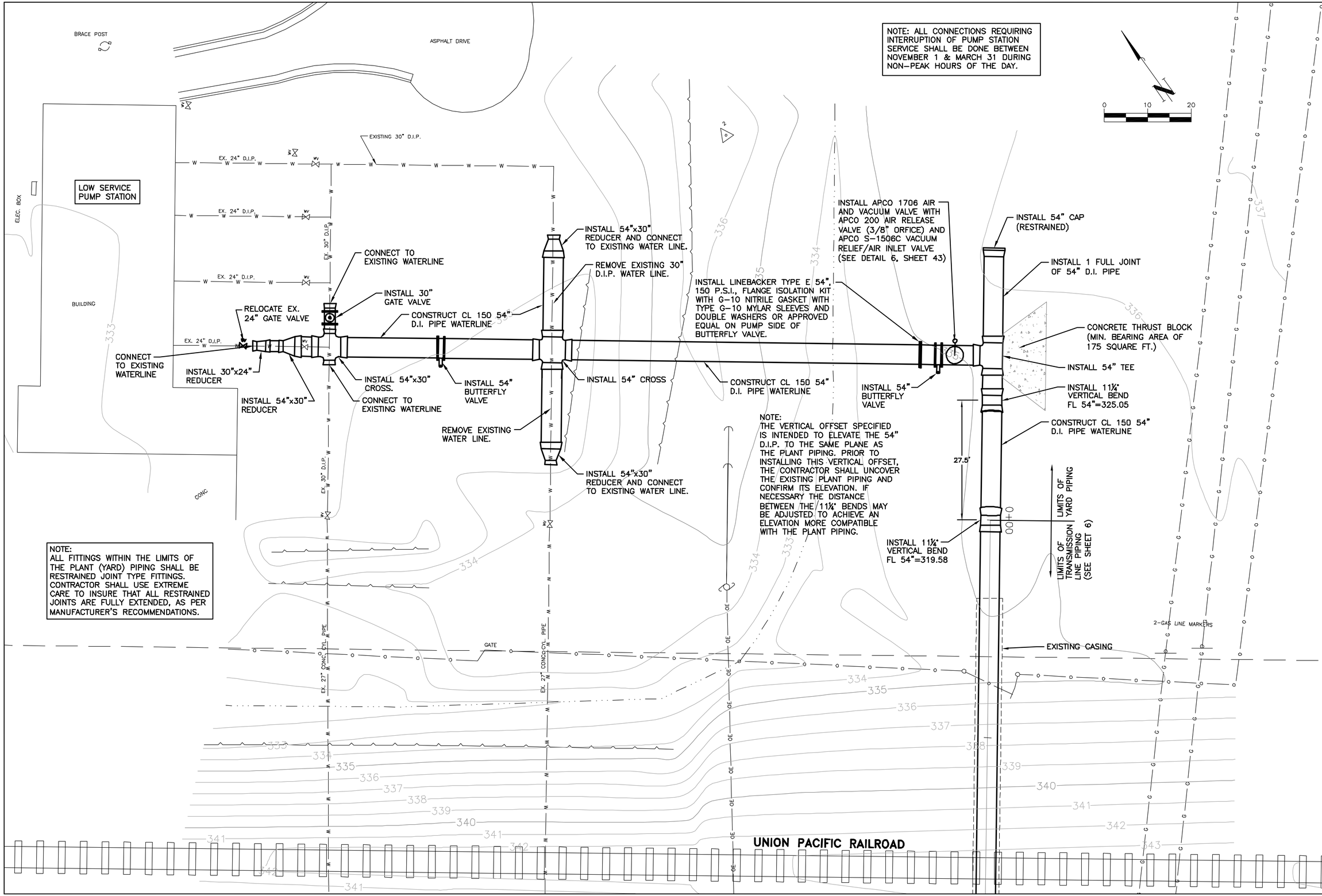
Drawing Name: P:\00200\200.14wg\design\Overall Profile.dwg

VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE.

Field Book: BRYAN "S"
Date: 07/05
Project Number: 200.14 WG
Design By: WRK
Drawn By: BAG

Sheet Title: ROUTE MAP, PLAN AND PROFILE SHEET INDEX, AND JOINT RESTRAINT TABLE

Sheet Number: 4 ....of.... 48



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Drawing Name: P:\00200\200.14wq\dwg\design\01lp.dwg
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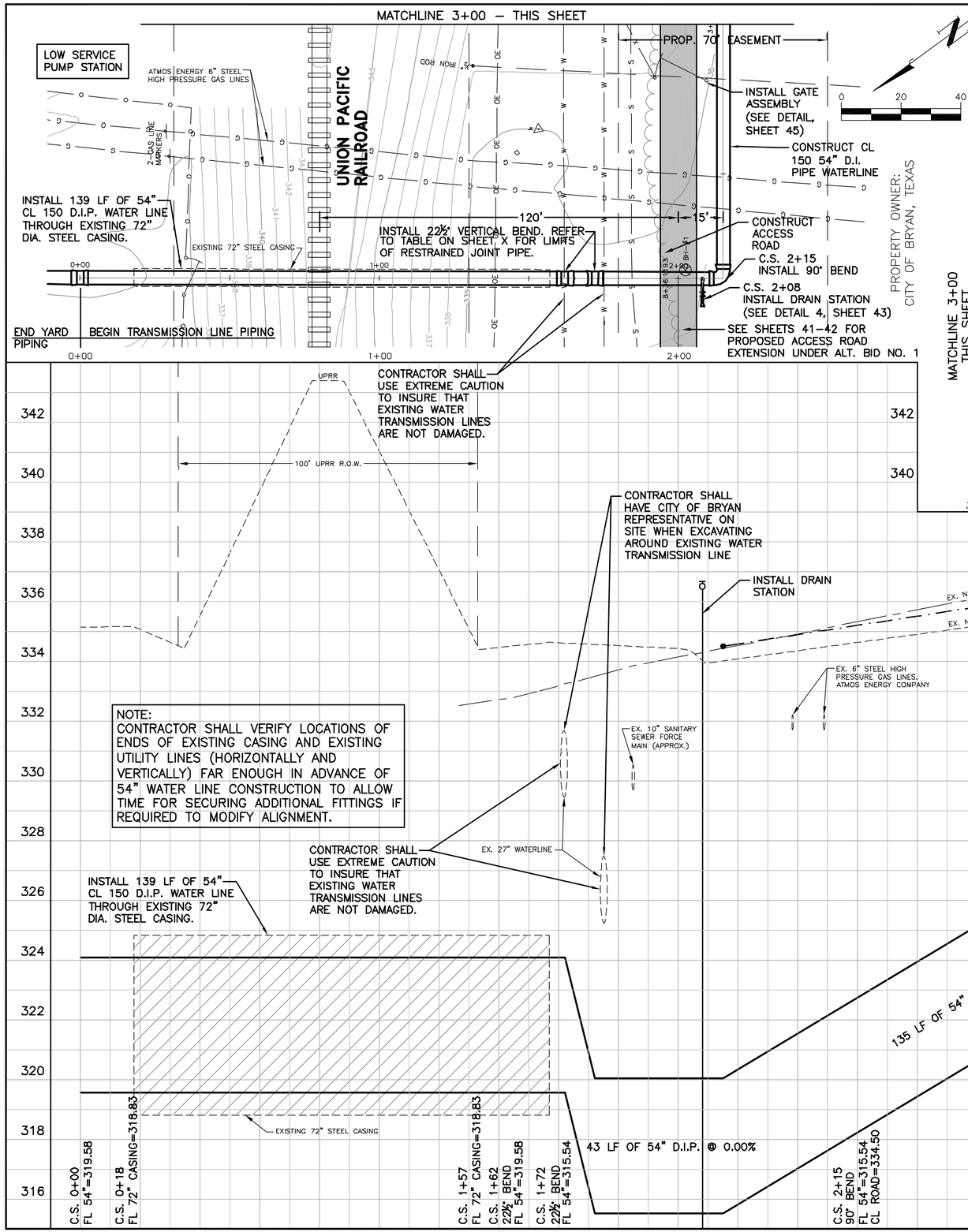
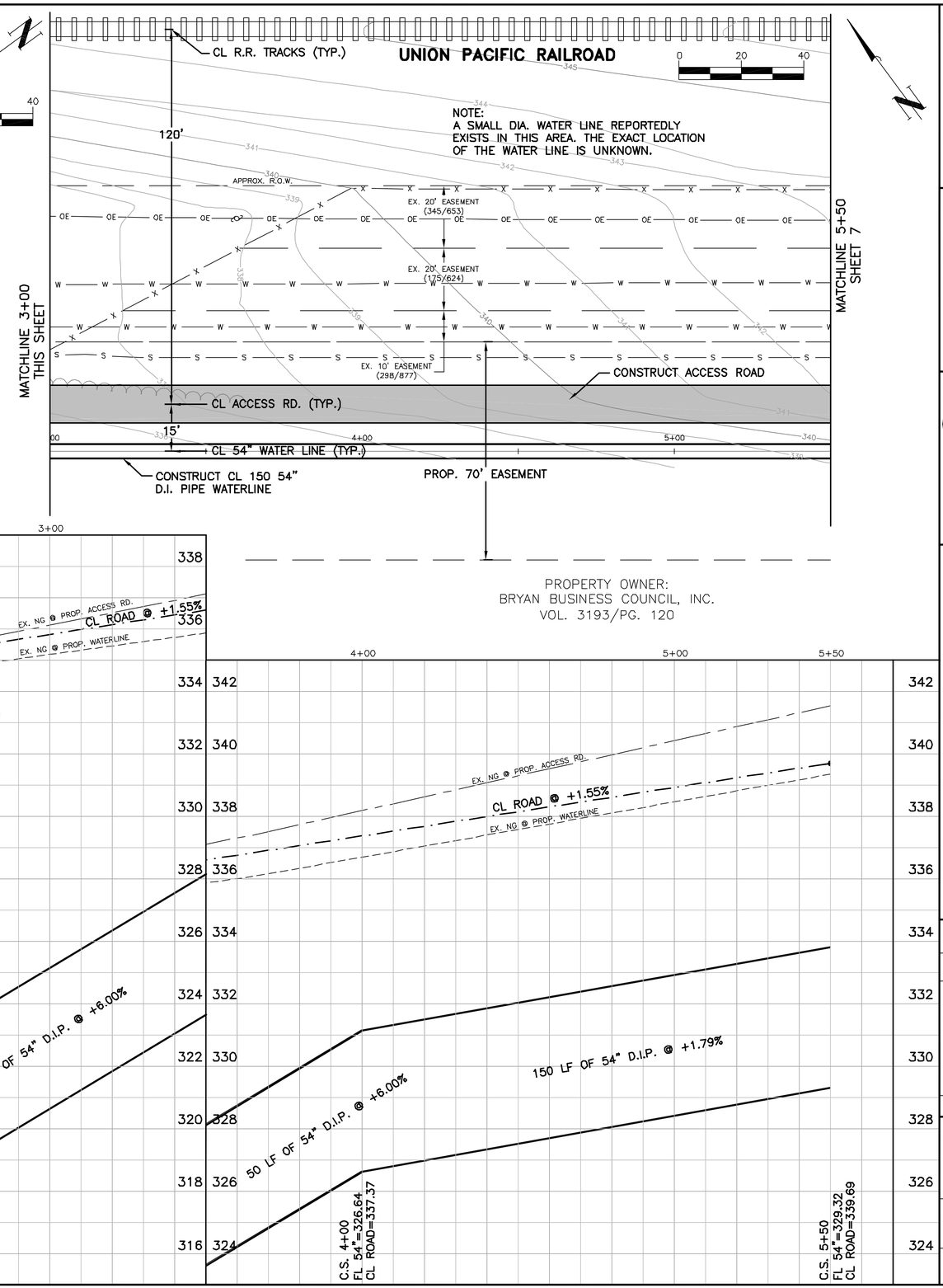
Field Book: BRYAN "S"
Date: 07/05
Project Number: 200.14 WG
Design By: WRK
Drawn By: BAG

Sheet Title: LOW SERVICE PUMP STATION YARD PIPING

Sheet Number: 5 ....Of.... 48





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Field Book: BRYAN "S"
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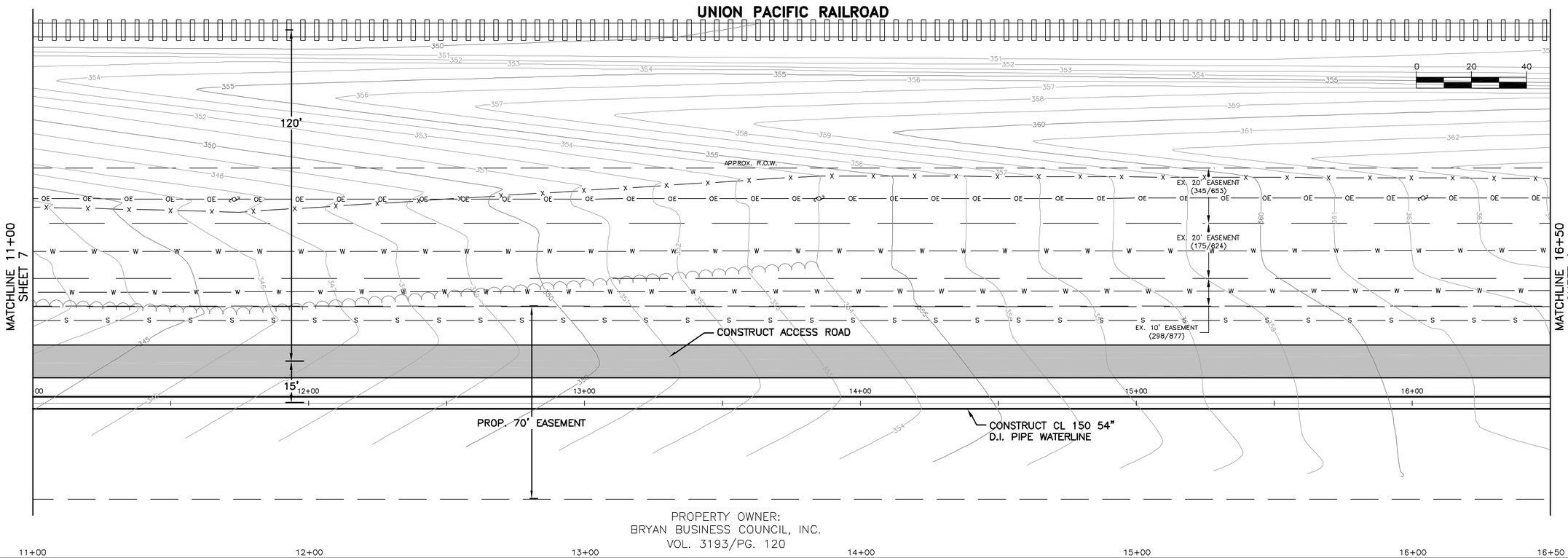
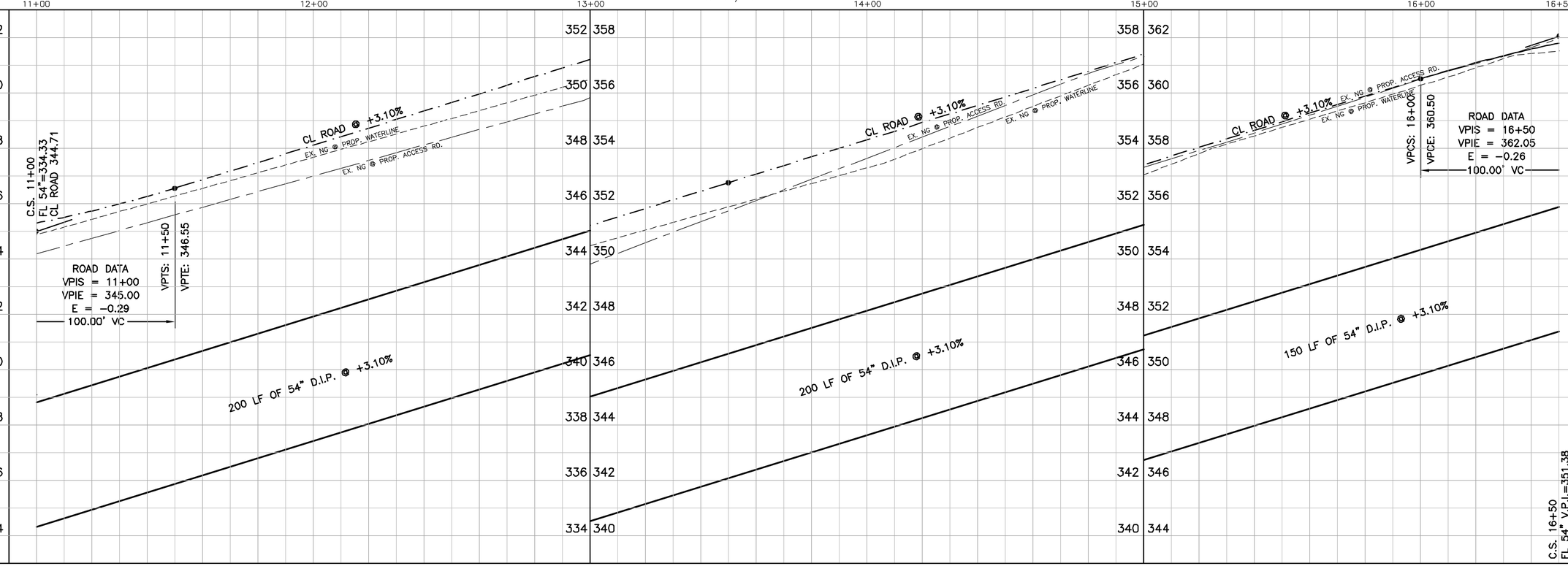
Project Number: 200.14 WG
Design By: WRK
Drawn By: BAG

Sheet Title: PLAN AND PROFILE

Sheet Number: 6 ....Of.... 48



PROPERTY OWNER:
BRYAN BUSINESS COUNCIL, INC.
VOL. 3193/PG. 120



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Field Book: BRYAN "S"
Date: 07/05
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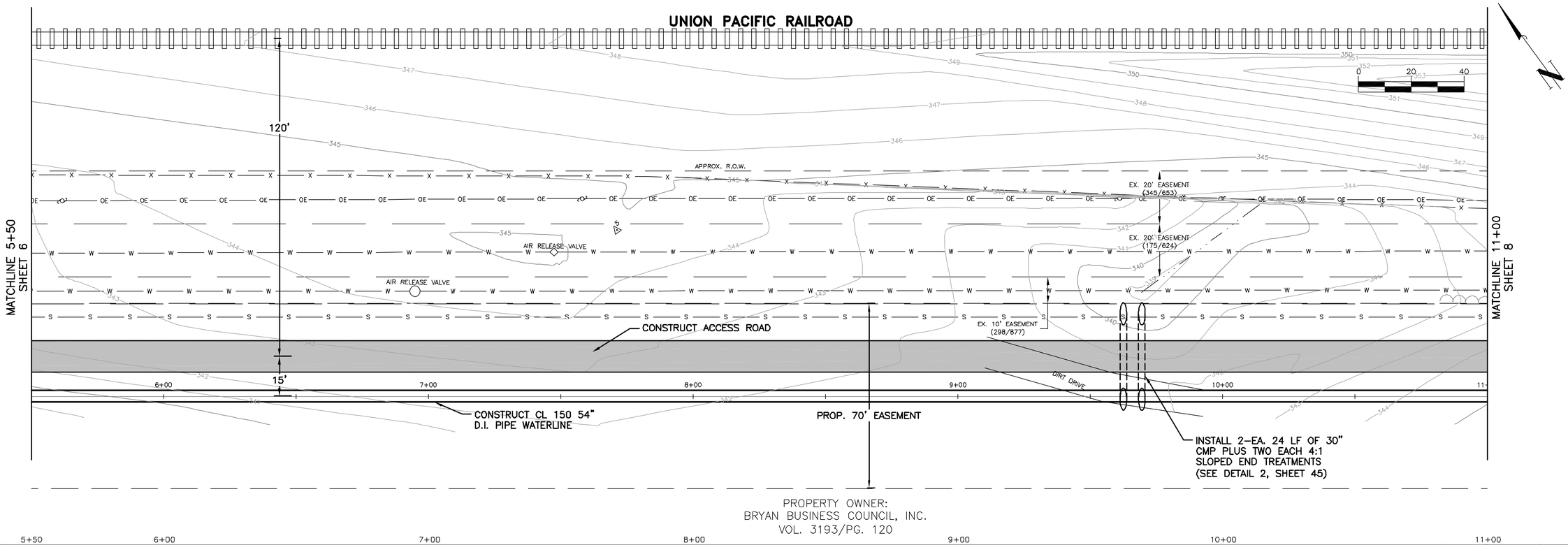
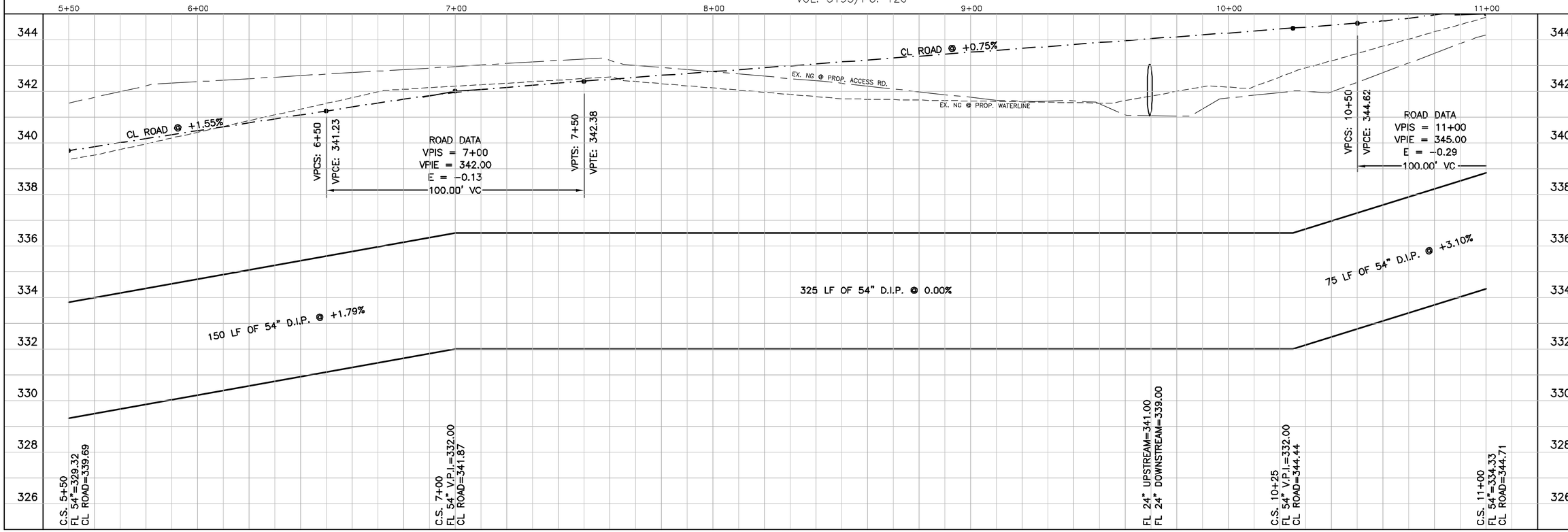
Drawn By: BAG

Sheet Title:
PLAN AND PROFILE

Sheet Number:
8 ....Of.... 48





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Drawing Name: P:\00200\200.14wg\design\P&P 1.dwg
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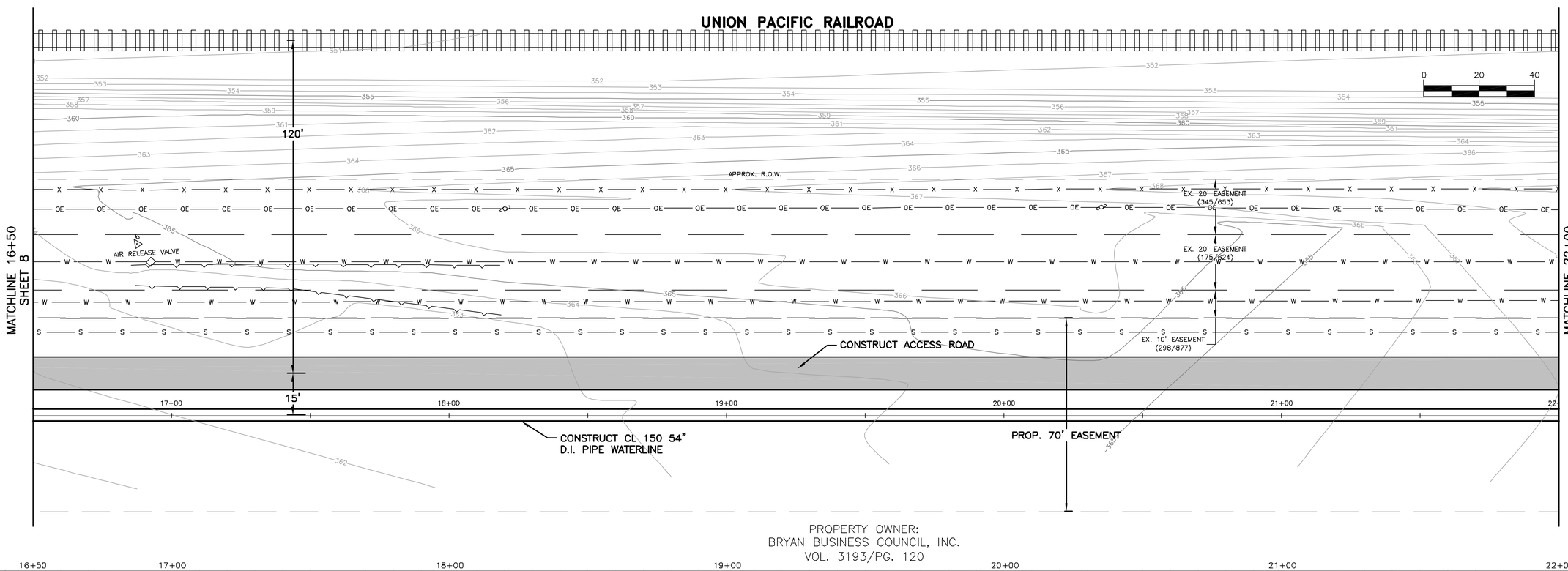
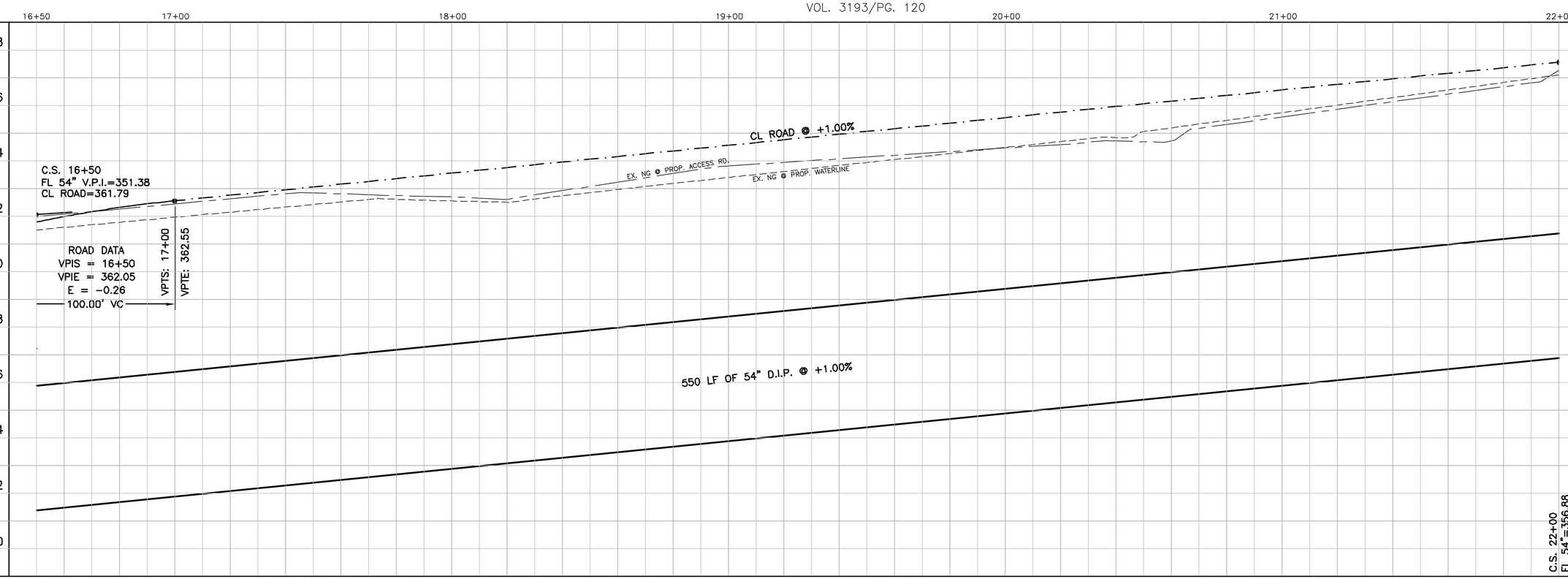
Field Book: BRYAN "S"
Date: 07/05
Project Number: 200.14 WG
Design By: WRK
Drawn By: BAG

Sheet Title:
PLAN AND PROFILE

Sheet Number:
7 ....Of.... 48





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CITY OF BRYAN
54" WATER TRANSMISSION LINE

NO.	REVISION	BY	DATE

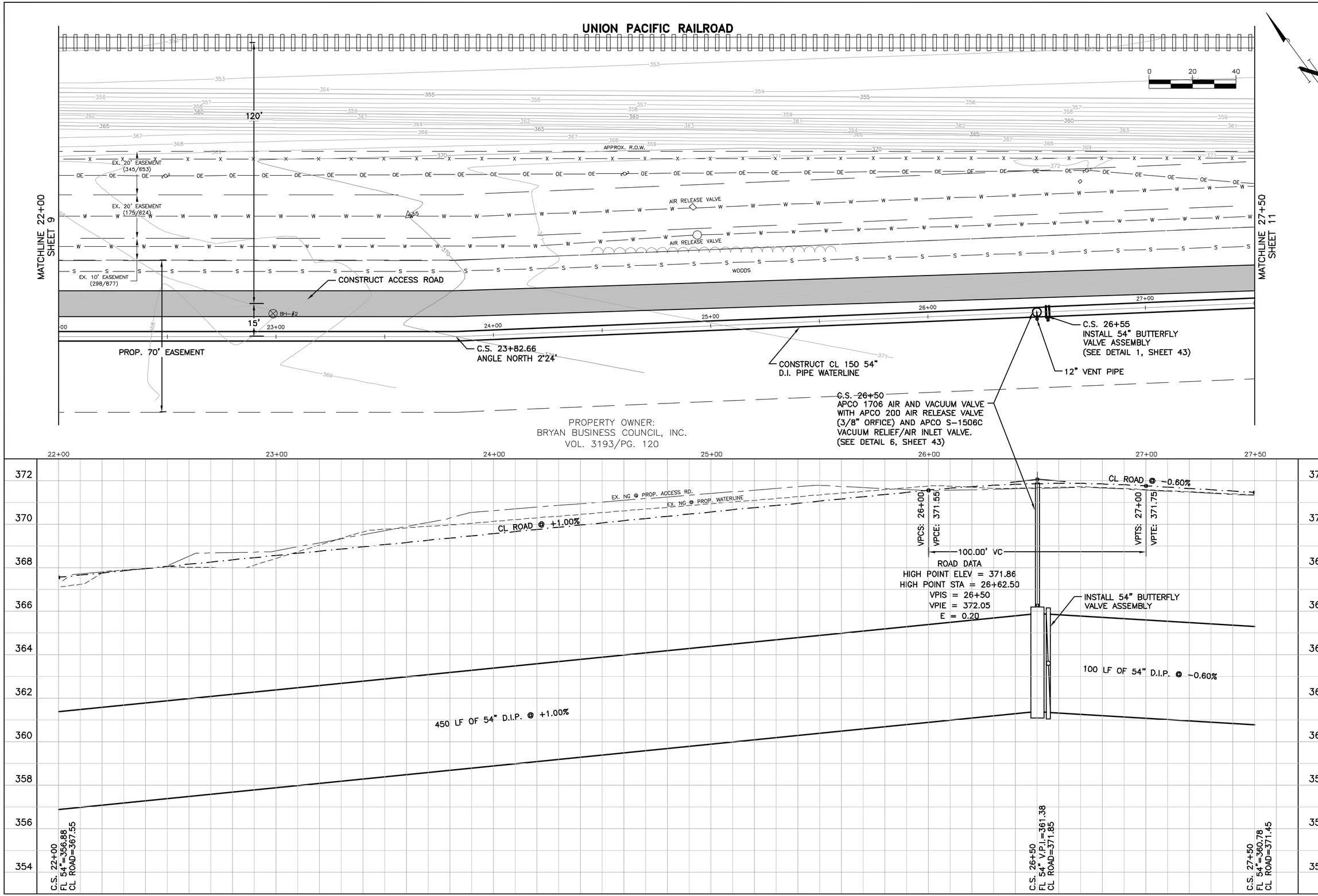
Drawing Name: P:\00200\200.14wg\design\P&P 1.dwg

VERIFY SCALE 0 1 BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE.

Field Book: BRYAN "S"
Date: 07/05
Project Number: 200.14 WG
Design By: WRK
Drawn By: BAG

Sheet Title: PLAN AND PROFILE

Sheet Number: 9 ....Of.... 48



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CITY OF BRYAN
54" WATER TRANSMISSION LINE

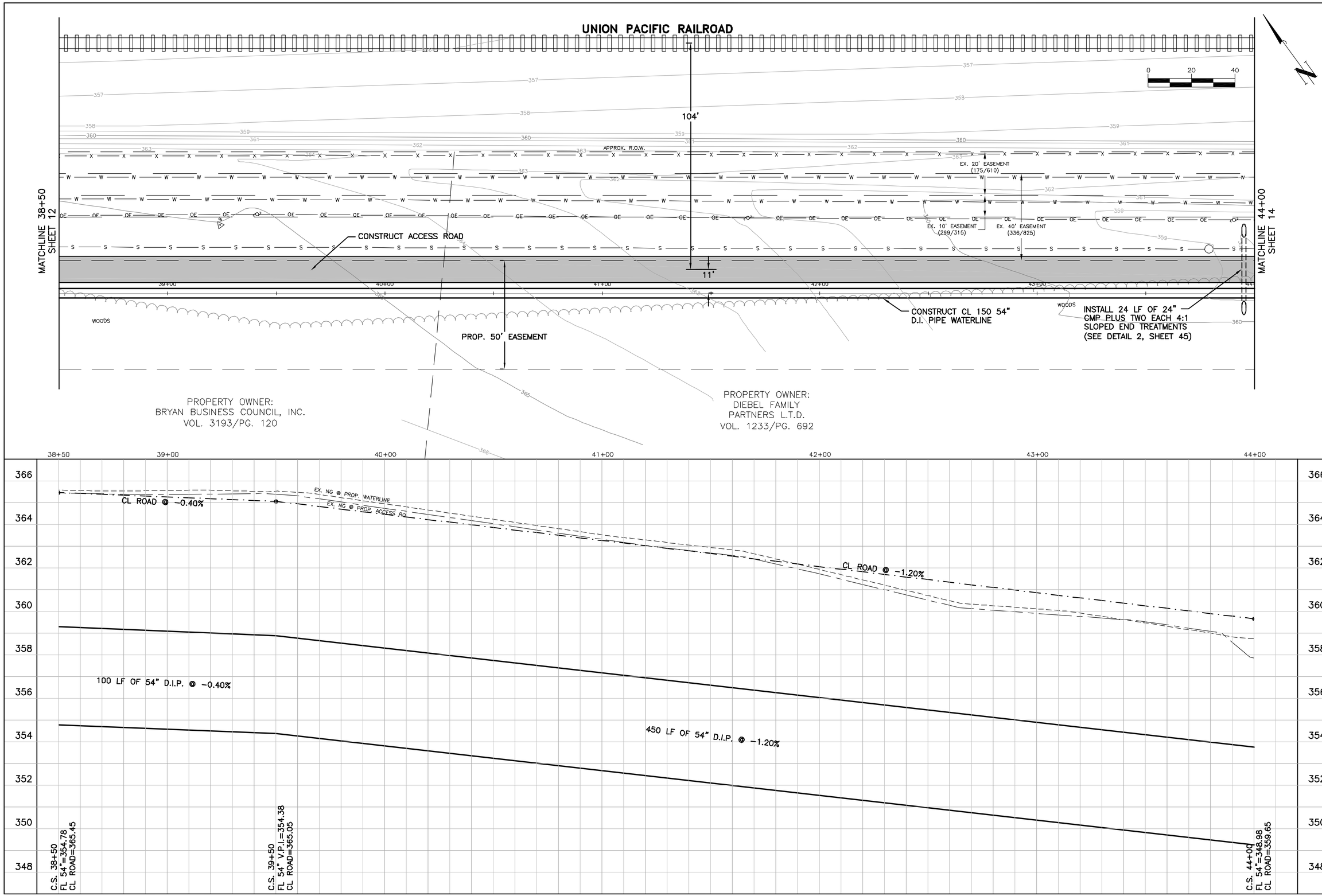
NO.	REVISION	BY	DATE

Drawing Name: P:\00200\200.14wg\dwg\design\P&P 1.dwg
VERIFY SCALE 0 1 BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE.

Field Book: BRYAN "S"
Date: 07/05
Project Number: 200.14 WG
Design By: WRK
Drawn By: BAG

Sheet Title:
PLAN AND PROFILE

Sheet Number:
10 ....Of.... 48



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CITY OF BRYAN 54" WATER TRANSMISSION LINE

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Drawing Name: P:\00200\200.14wg\design\P&P 1.dwg
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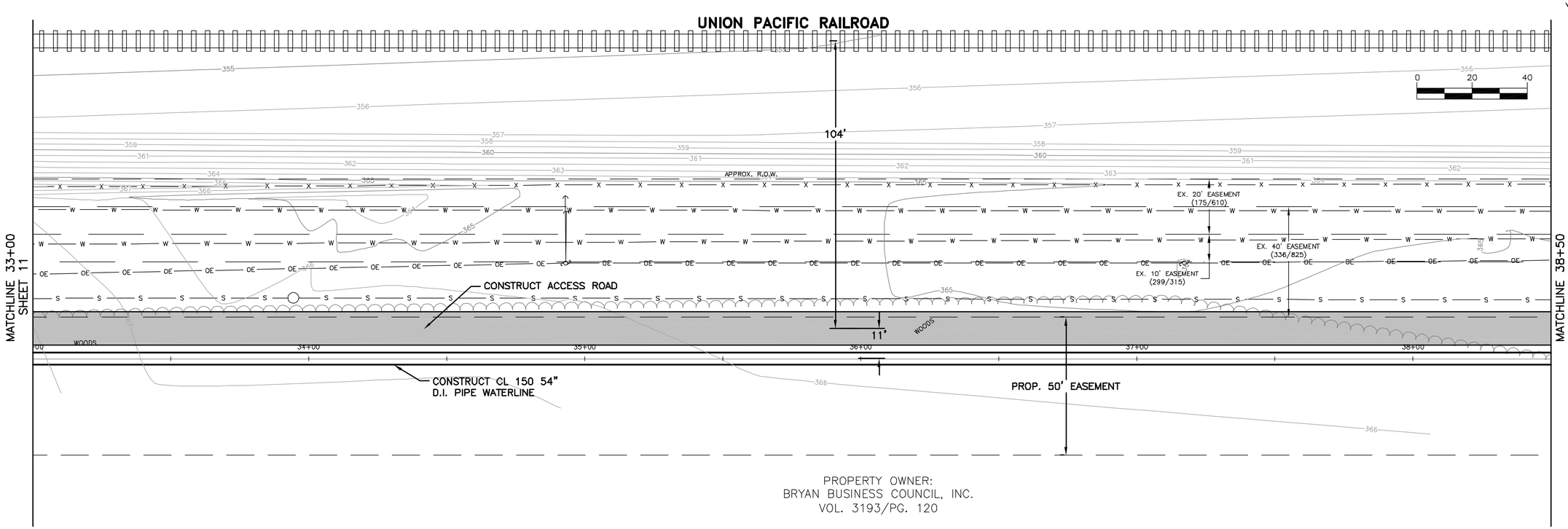
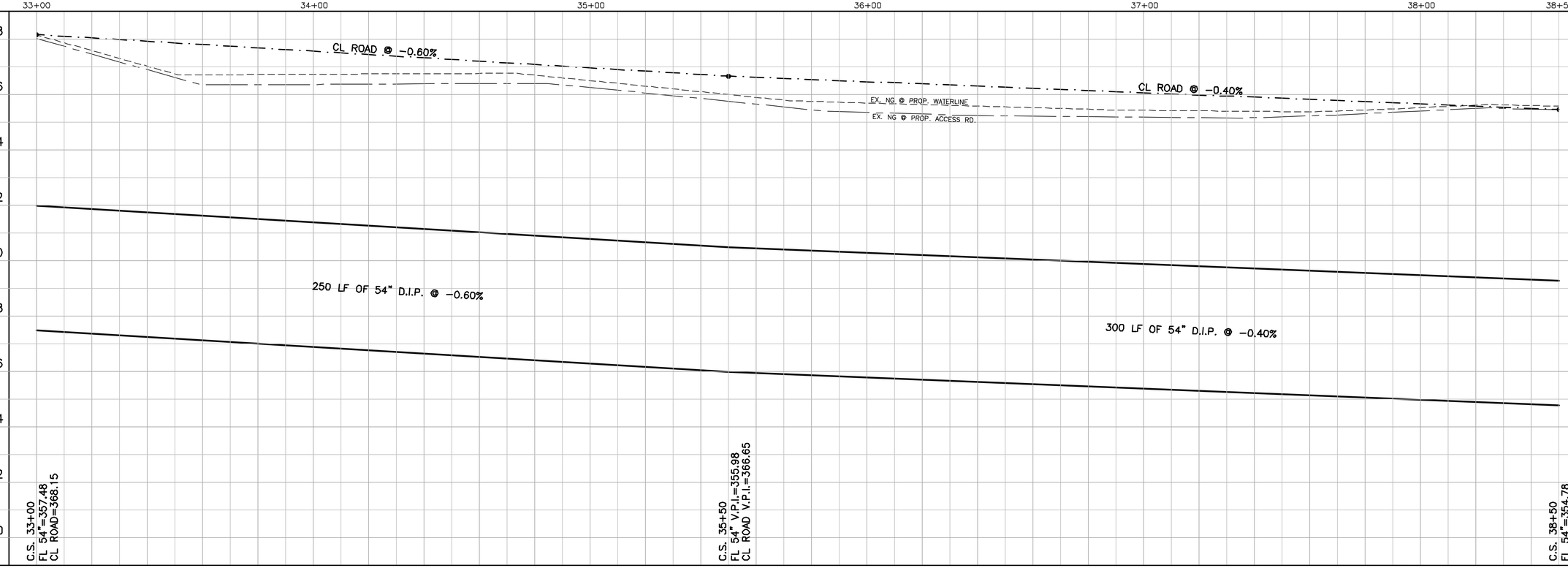
Field Book: BRYAN "S"
Date: 07/05
Project Number: 200.14 WG
Design By: WRK
Drawn By: BAG

Sheet Title: PLAN AND PROFILE

Sheet Number: 13 ....Of.... 48



PROPERTY OWNER:
BRYAN BUSINESS COUNCIL, INC.
VOL. 3193/PG. 120



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CITY OF BRYAN
54" WATER TRANSMISSION LINE

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Drawing Name: P:\00200\200.14wg\design\P&P 1.dwg
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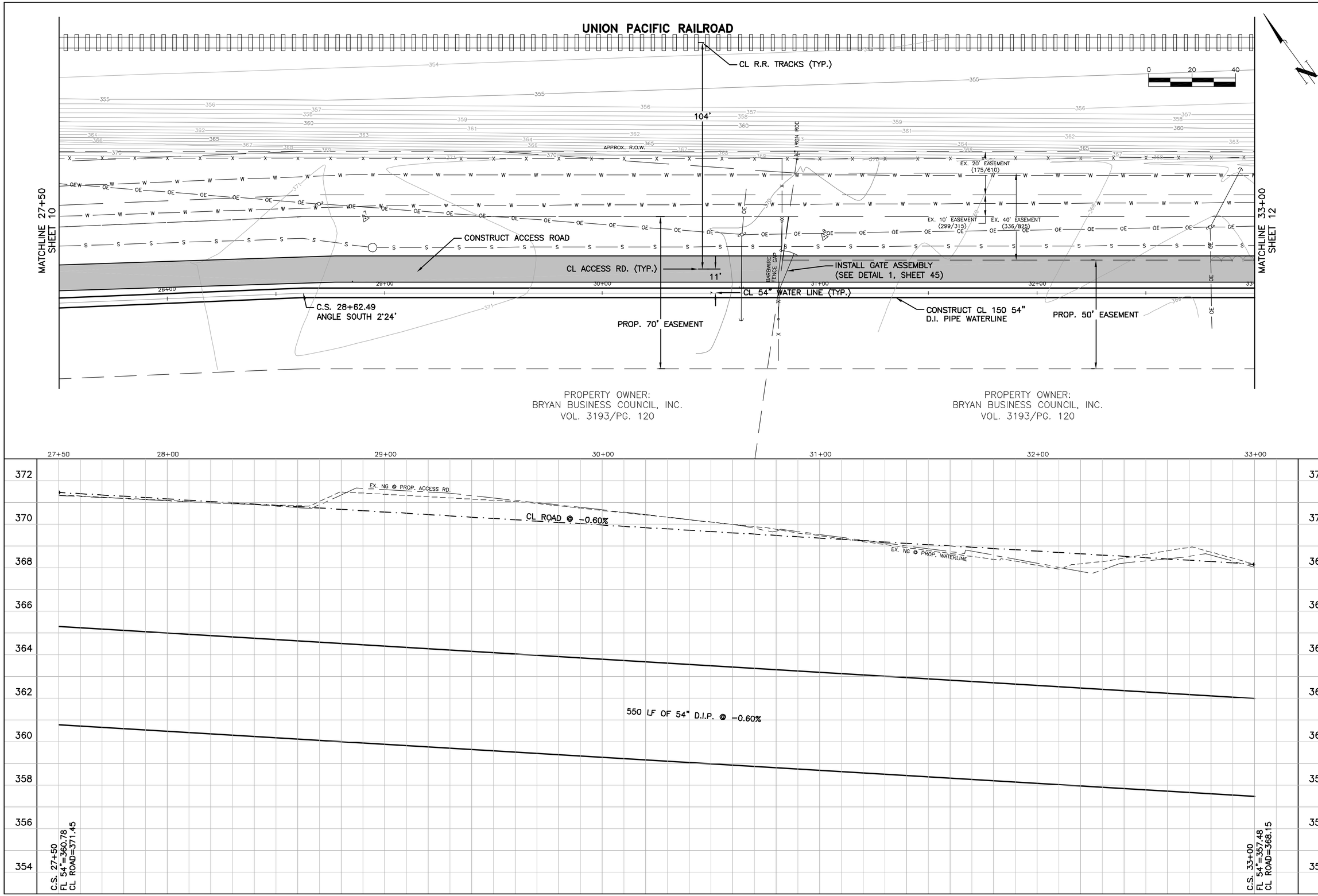
Field Book: BRYAN "S"
Date: 07/05
Project Number: 200.14 WG
Design By: WRK
Drawn By: BAG

Sheet Title:
PLAN AND PROFILE

Sheet Number:
12 ....Of.... 48



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CITY OF BRYAN
54" WATER TRANSMISSION LINE

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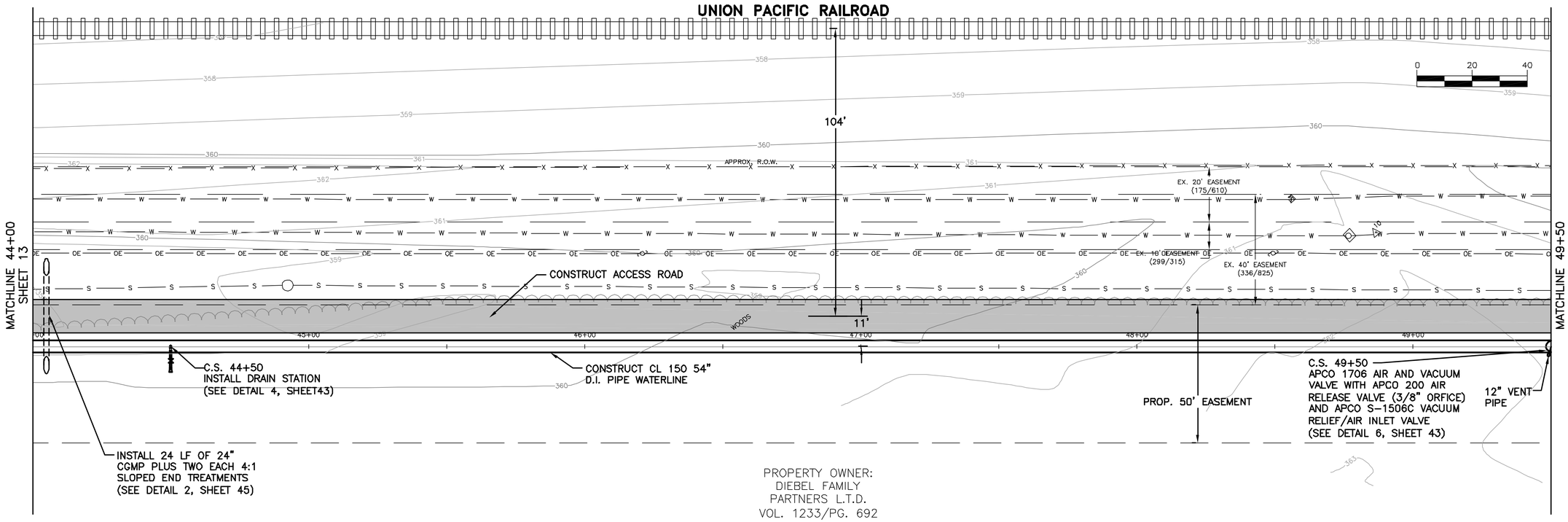
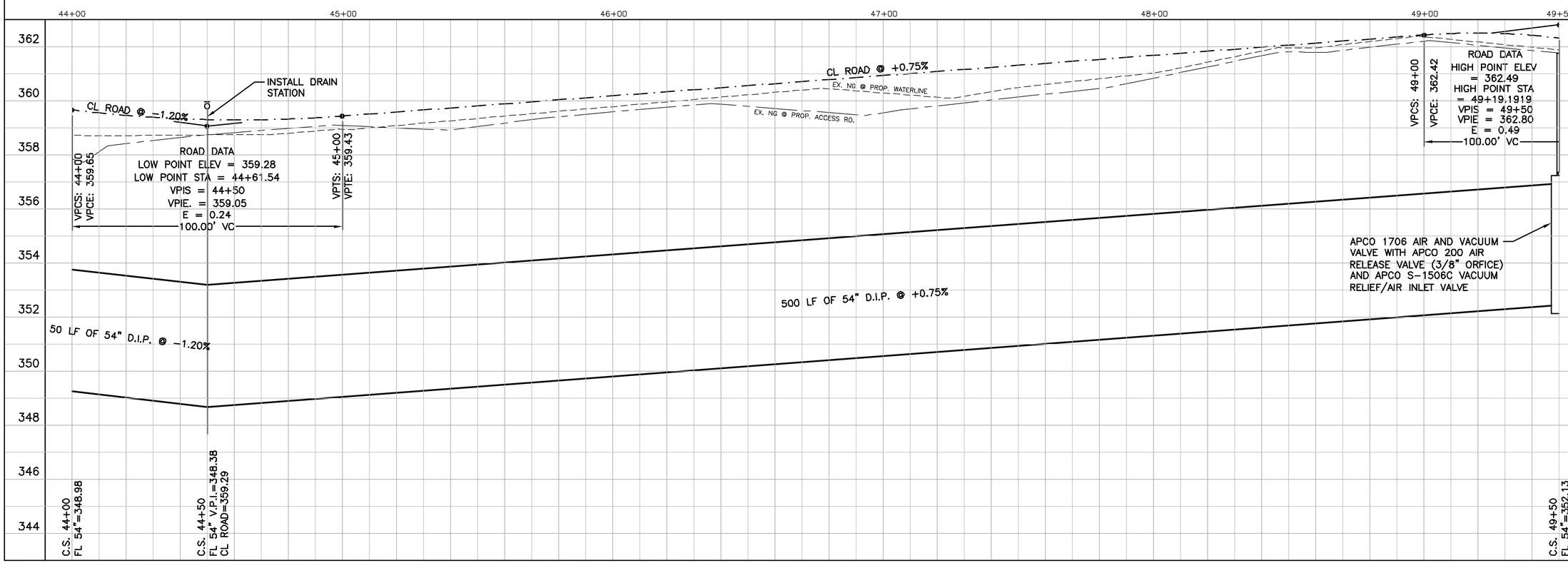
Field Book: BRYAN "S"
Date: 07/05
Project Number: 200.14 WG
Design By: WRK
Drawn By: BAG

Sheet Title: PLAN AND PROFILE

Sheet Number: 11 ....Of.... 48





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CITY OF BRYAN 54" WATER TRANSMISSION LINE

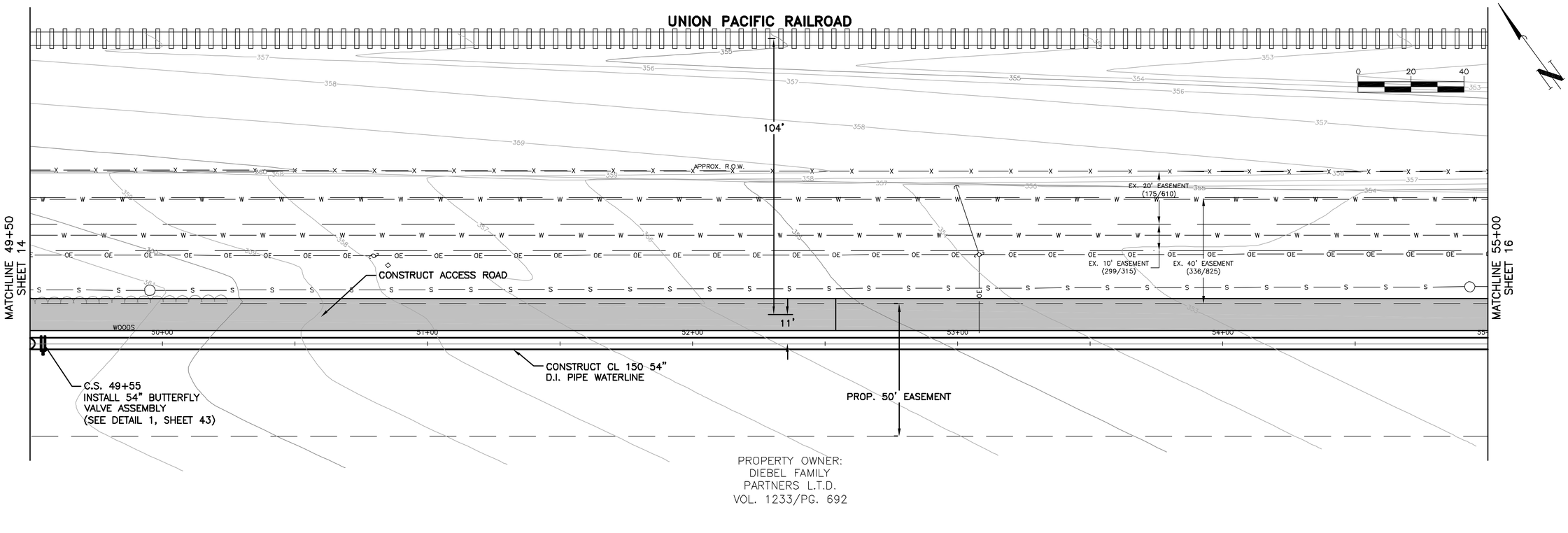
NO.	REVISION	BY	DATE

Drawing Name: P:\00200\200.14wg\dwg\design\P&P 1.dwg
VERIFY SCALE 1 BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE.

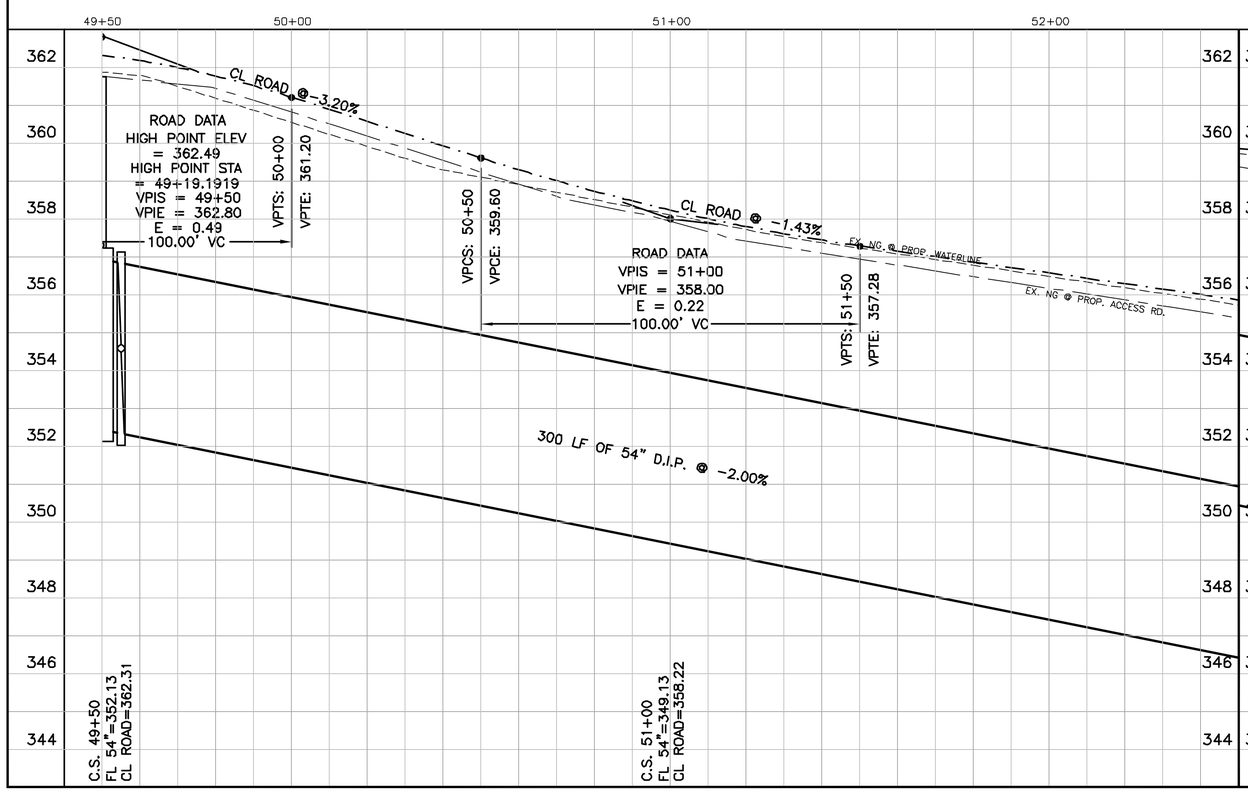
Field Book: BRYAN "S"
Date: 07/05
Project Number: 200.14 WG
Design By: WRK
Drawn By: BAG

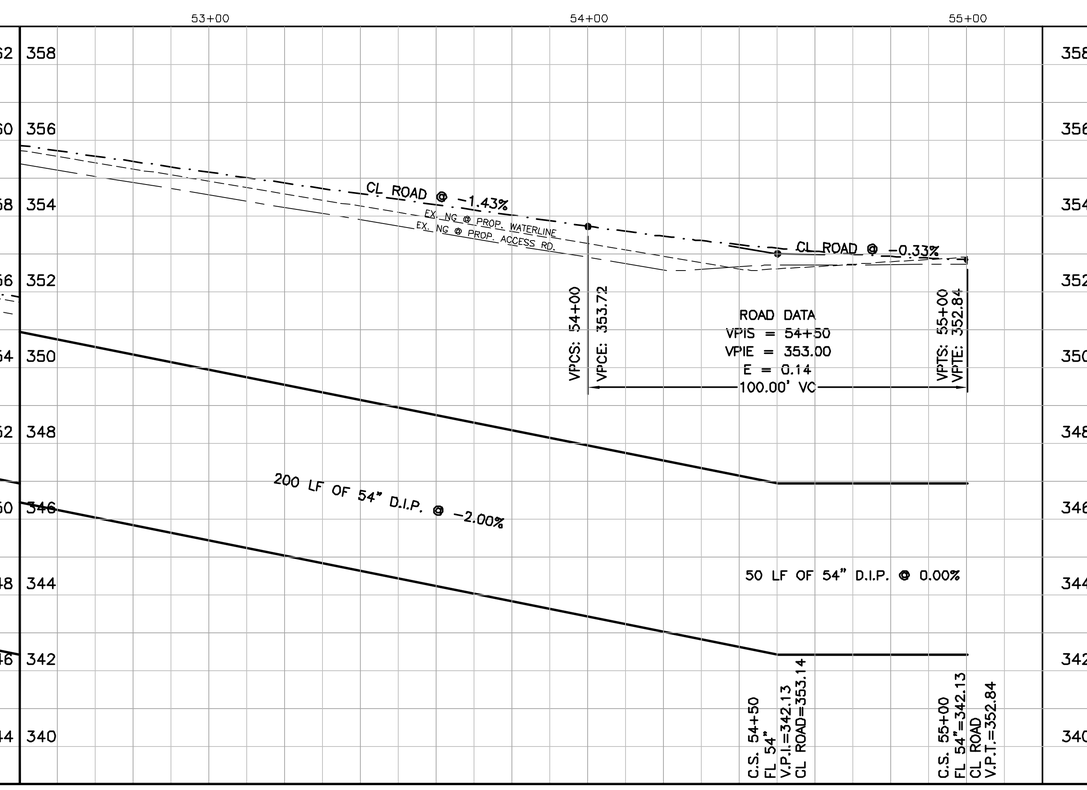
Sheet Title: PLAN AND PROFILE

Sheet Number: 14 ....Of.... 48



PROPERTY OWNER:
DIEBEL FAMILY
PARTNERS L.T.D.
VOL. 1233/PG. 692





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CITY OF BRYAN
54" WATER TRANSMISSION LINE

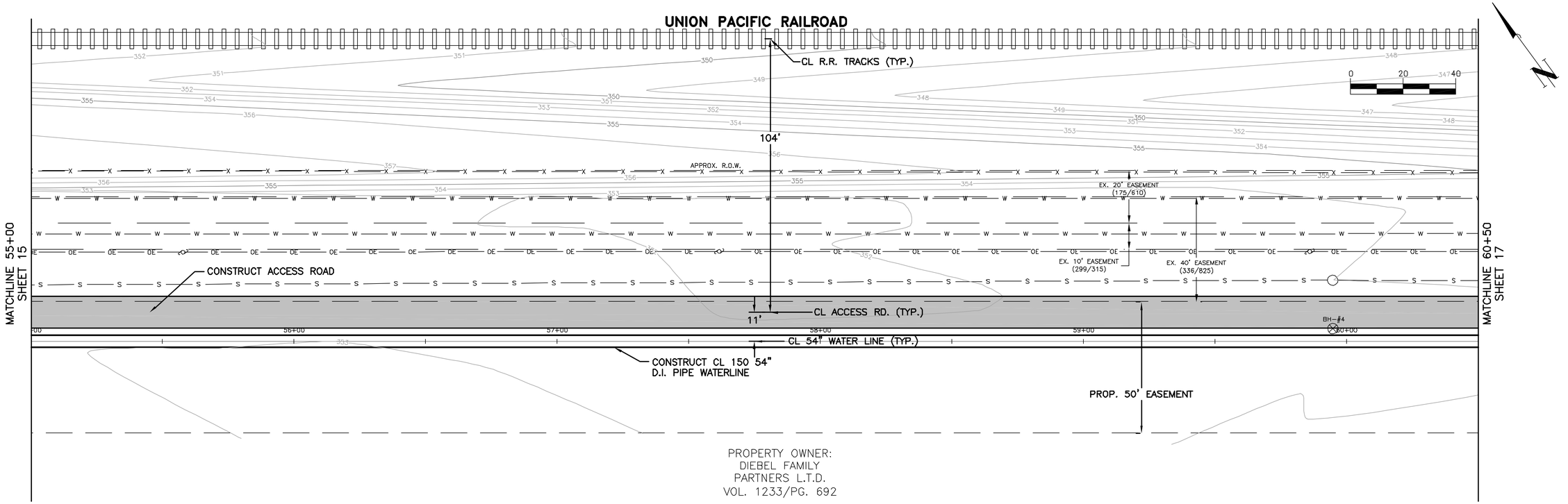
NO.	REVISION	BY	DATE

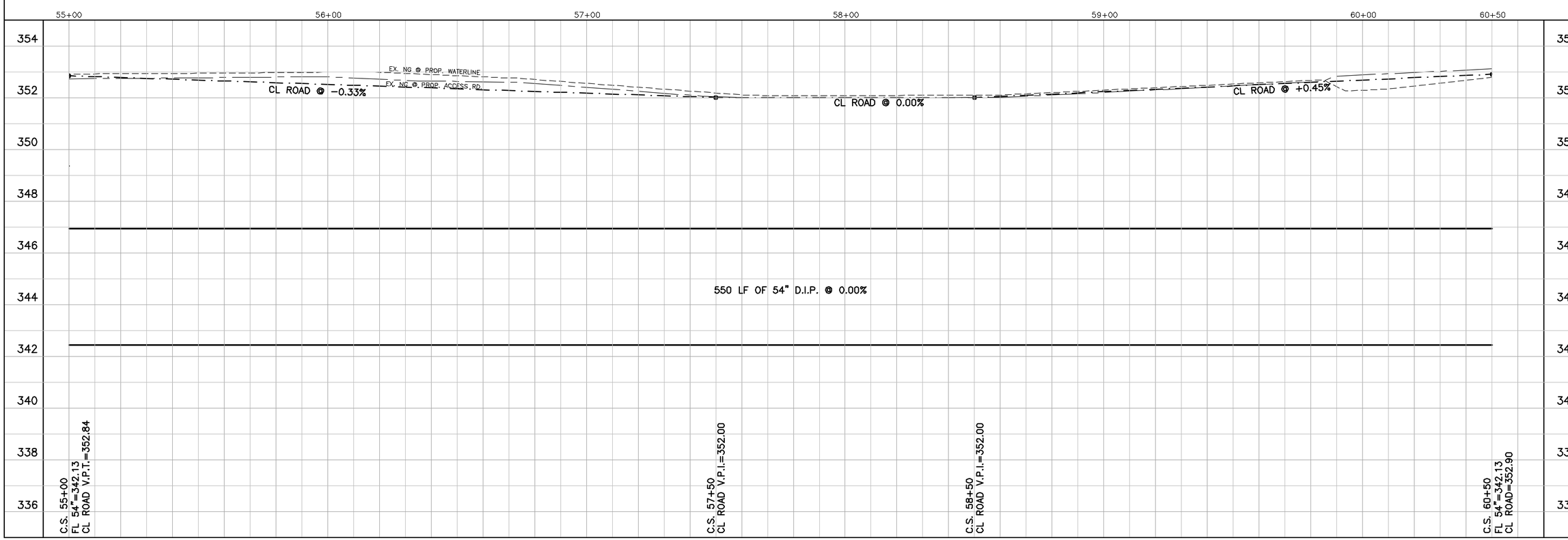
Drawing Name: P:\00200\200.14wg\dwg\design\P&P 1.dwg
0 VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE.

Field Book: BRYAN "S"
Date: 07/05
Project Number: 200.14 WG
Design By: WRK
Drawn By: BKG

Sheet Title: PLAN AND PROFILE

Sheet Number: 15 ....Of.... 48





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CITY OF BRYAN
54" WATER TRANSMISSION LINE

NO.	REVISION	BY	DATE

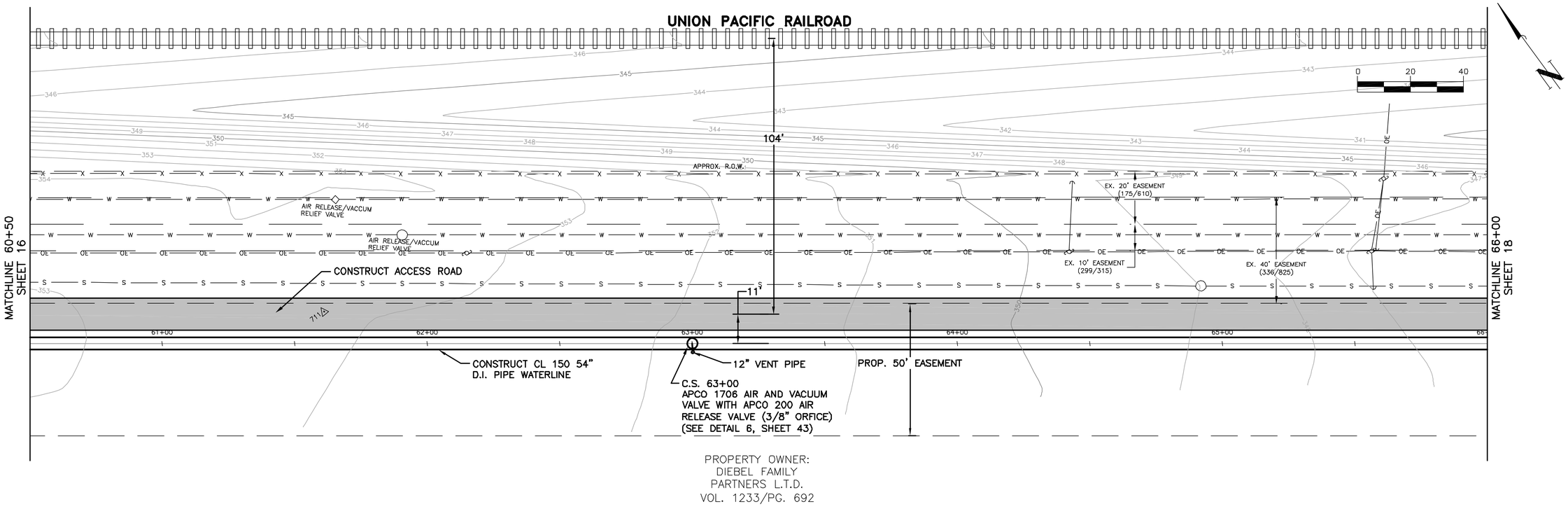
Drawing Name: P:\00200\200.14wg\dwg\design\P&P 2.dwg

VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE.

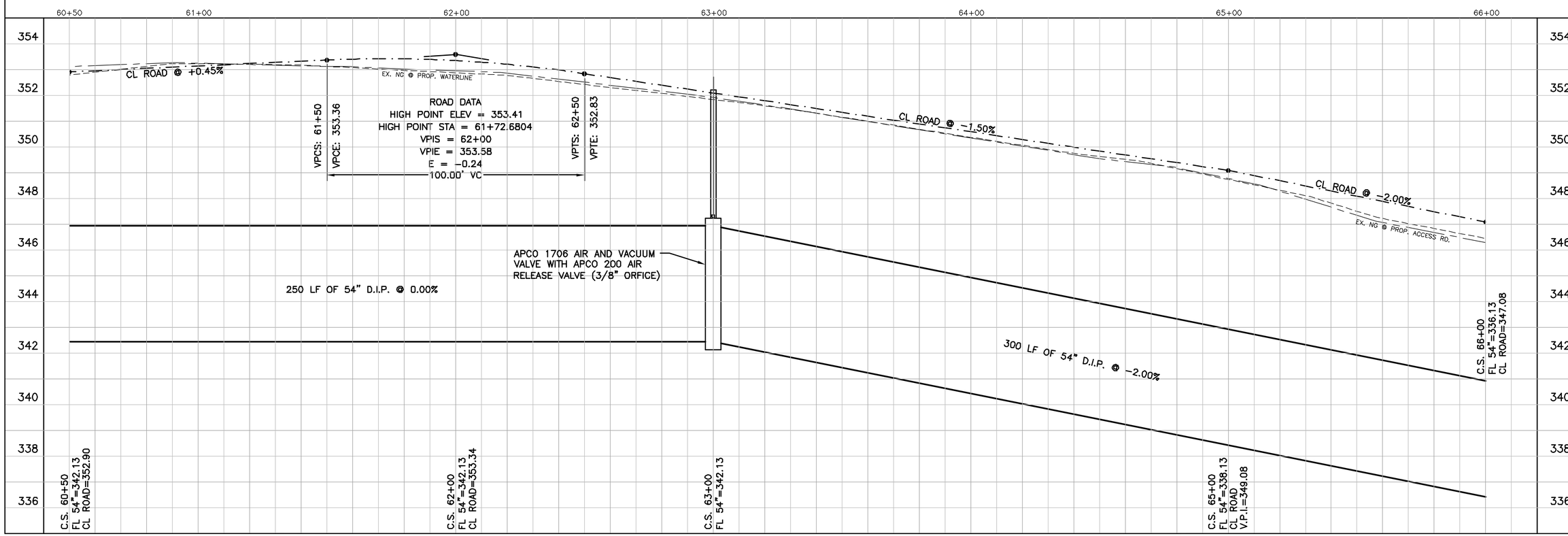
Field Book: BRYAN "S"
Date: 07/05
Project Number: 200.14 WG
Design By: WRK
Drawn By: BAG

Sheet Title: PLAN AND PROFILE

Sheet Number: 16 ....Of.... 48



PROPERTY OWNER:
DIEBEL FAMILY
PARTNERS L.T.D.
VOL. 1233/PG. 692



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CITY OF BRYAN
54" WATER TRANSMISSION LINE

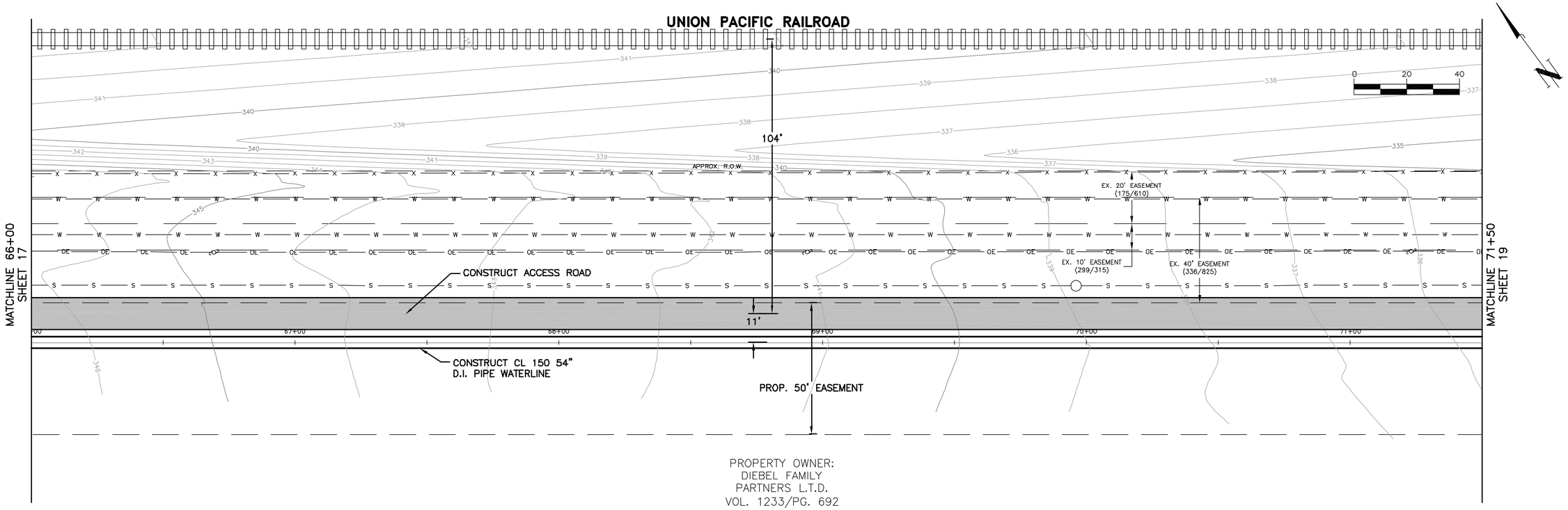
NO.	REVISION	BY	DATE

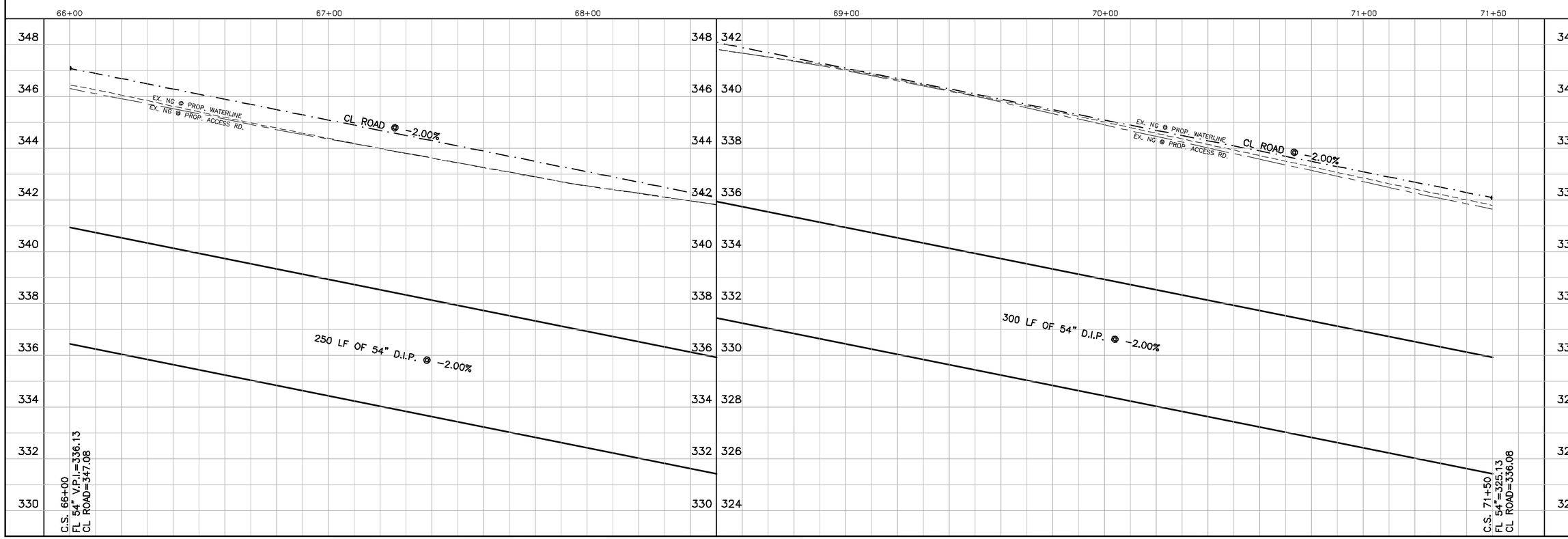
Drawing name: P:\00200\200.14wg\design\P&P 2.dwg
VERIFY SCALE 1 BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE.

Field Book: BRYAN "S"
Date: 07/05
Project Number: 200.14 WG
Design By: WRK
Drawn By: BAG

Sheet Title: PLAN AND PROFILE

Sheet Number: 17 ....Of.... 48





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CITY OF BRYAN 54" WATER TRANSMISSION LINE

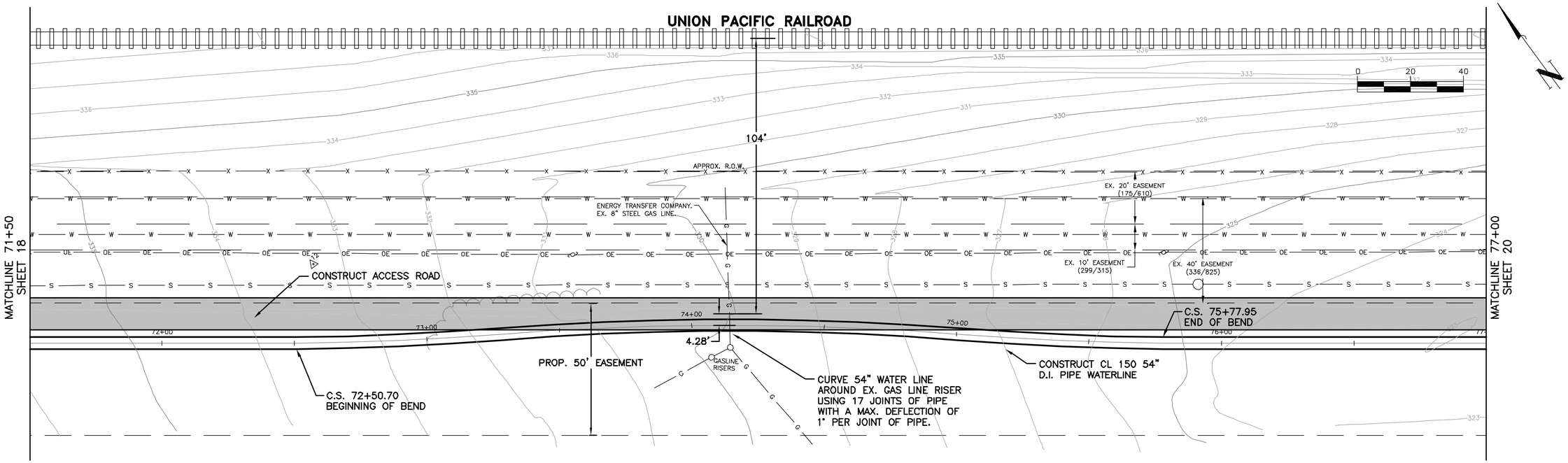
NO.	REVISION	BY	DATE

Drawing Name: P:\00200\200.14wg\design\P&P 2.dwg
VERIFY SCALE 0 1 BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE.

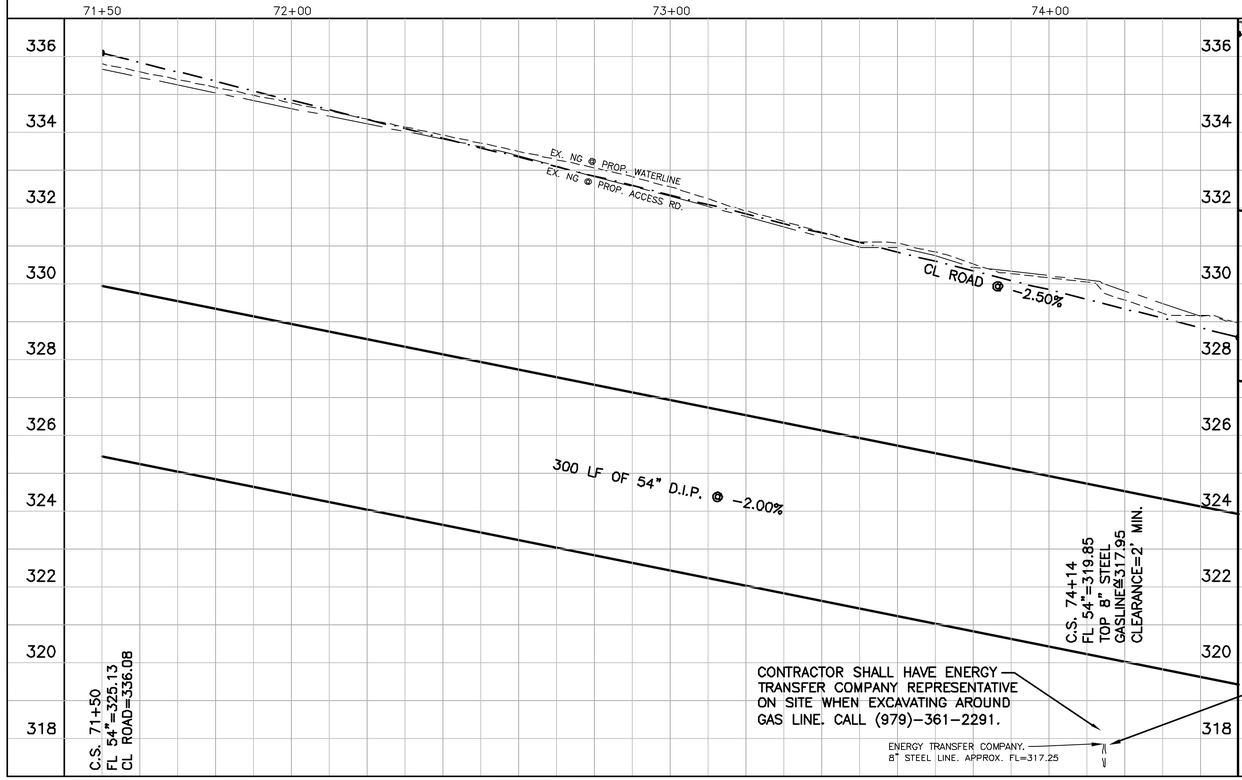
Field Book: BRYAN "S"
Date: 07/05
Project Number: 200.14 WG
Design By: WRK
Drawn By: BAG

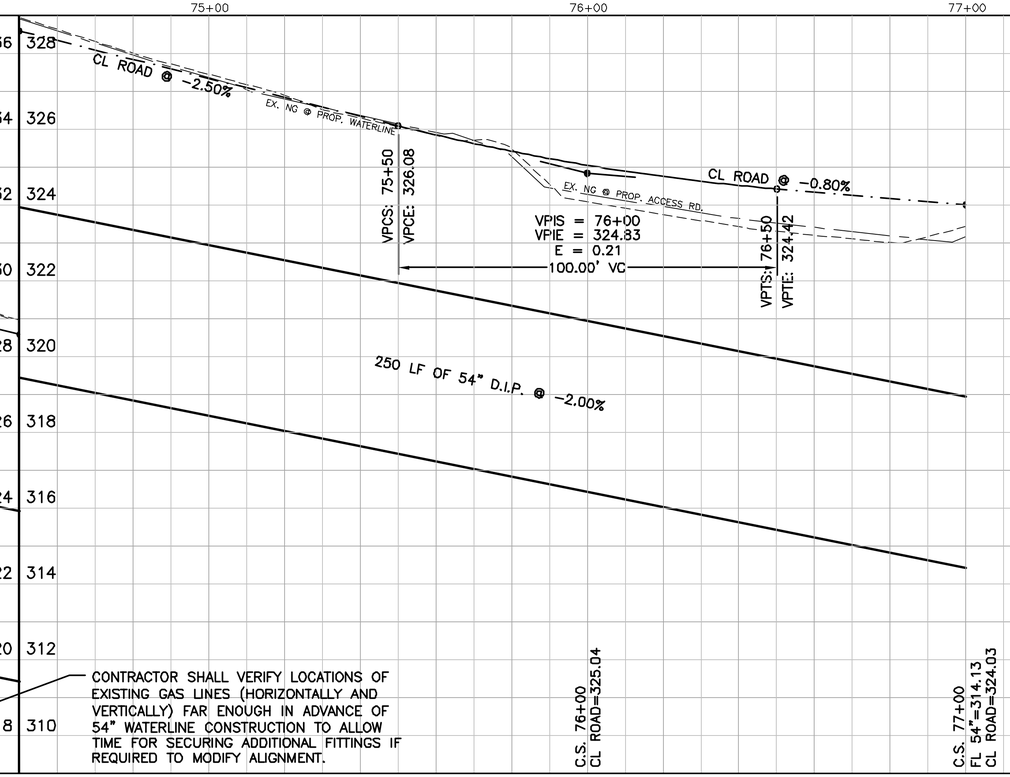
Sheet Title:
PLAN AND PROFILE

Sheet Number:
18 ....Of.... 48



PROPERTY OWNER:
DIEBEL FAMILY
PARTNERS L.T.D.
VOL. 1233/PG. 692





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CITY OF BRYAN
54" WATER TRANSMISSION LINE

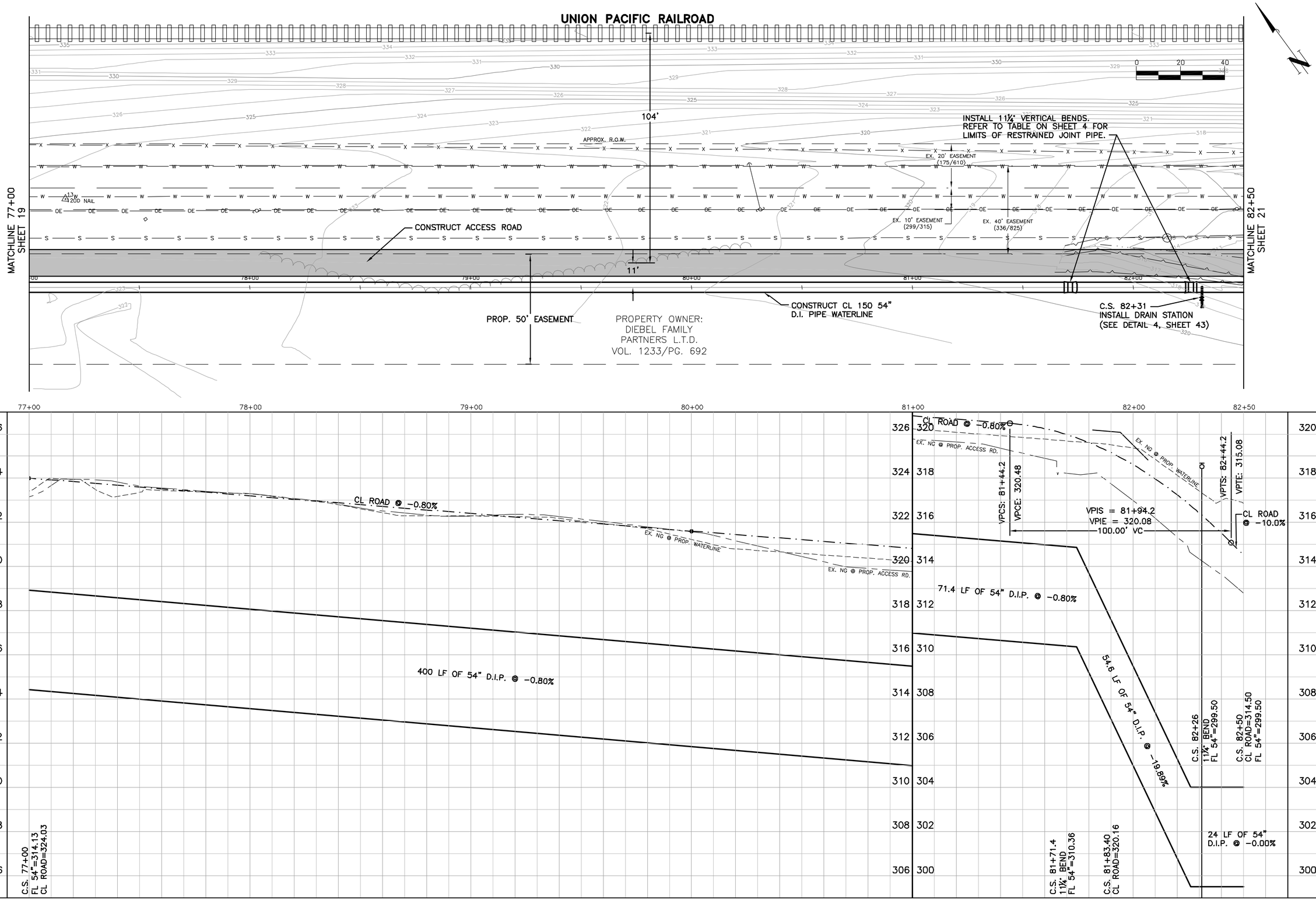
NO.	REVISION	BY	DATE

Drawing Name: P:\0020\200.14wg\design\P&P 2.dwg
VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE.

Field Book: BRYAN "3"
Date: 07/05
Project Number: 200.14 WG
Design By: WRK
Drawn By: BAG

Sheet Title:
PLAN AND PROFILE

Sheet Number:
19 ....Of.... 48



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CITY OF BRYAN
54" WATER TRANSMISSION LINE

NO.	REVISION	BY	DATE

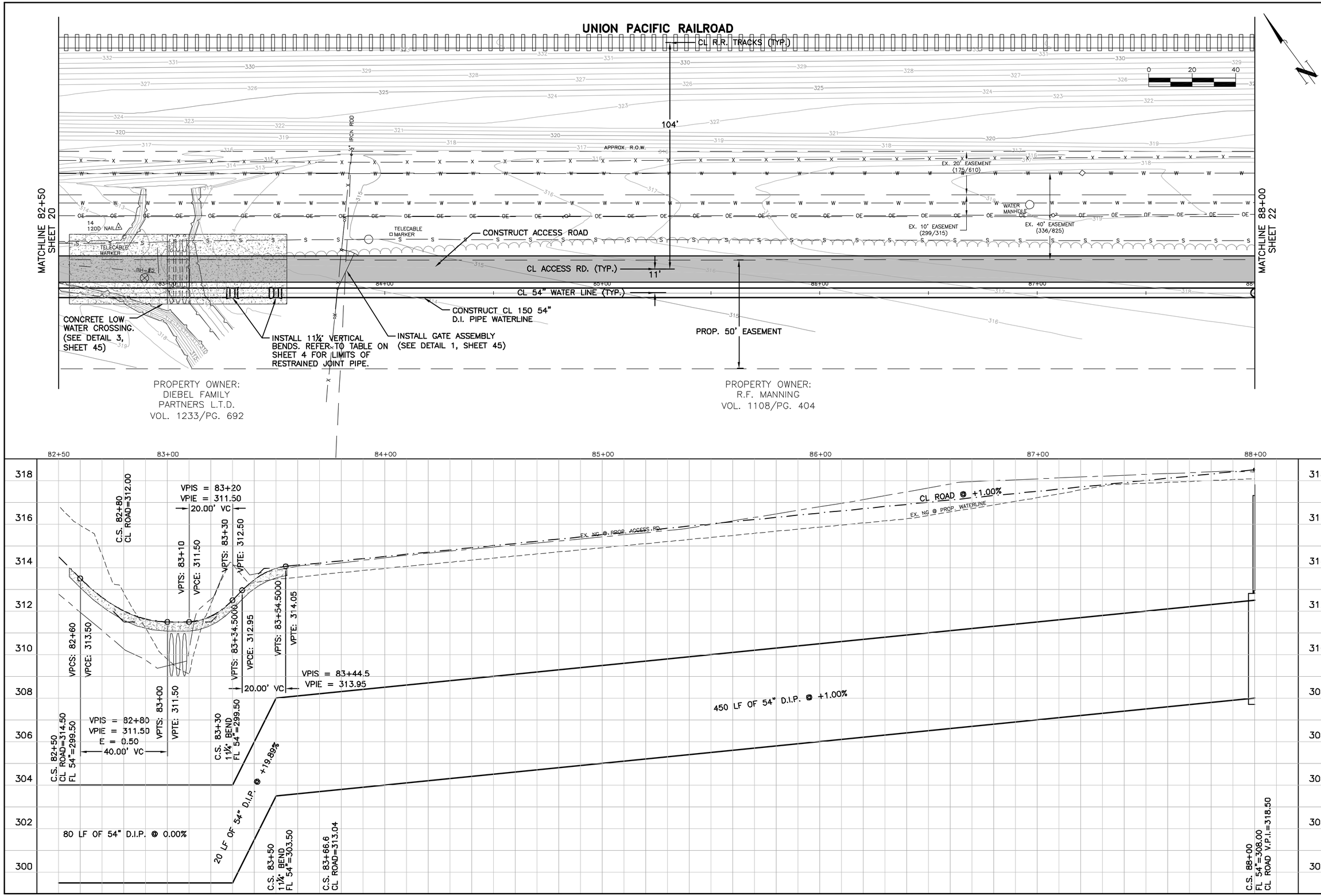
Drawing Name: P:\00200\200.14wg\design\P&P 2.dwg

VERIFY SCALE 1 BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE.

Field Book: BRYAN "S"
Date: 07/05
Project Number: 200.14 WG
Design By: WRK
Drawn By: BAG

Sheet Title: PLAN AND PROFILE

Sheet Number: 20 ....Of.... 48



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CITY OF BRYAN 54" WATER TRANSMISSION LINE

NO.	REVISION	BY	DATE

Drawing Name: P:\00200\200.14wg\design\P&P 2.dwg

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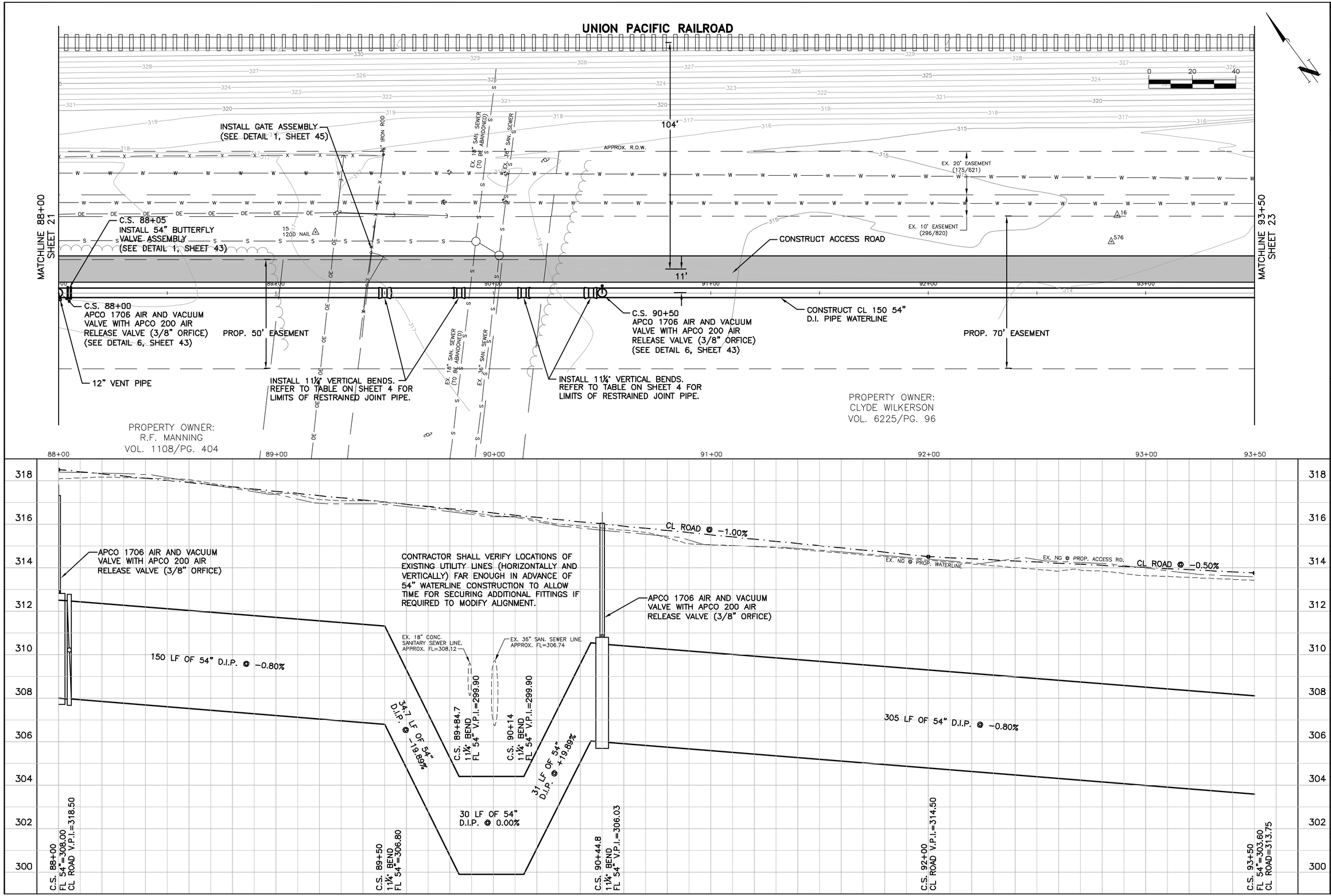
Field Book: BRYAN "S"
Date: 07/05
Project Number: 200.14 WG
Design By: WRK
Drawn By: BAG

Sheet Title: PLAN AND PROFILE

Sheet Number: 21 ....Of.... 48



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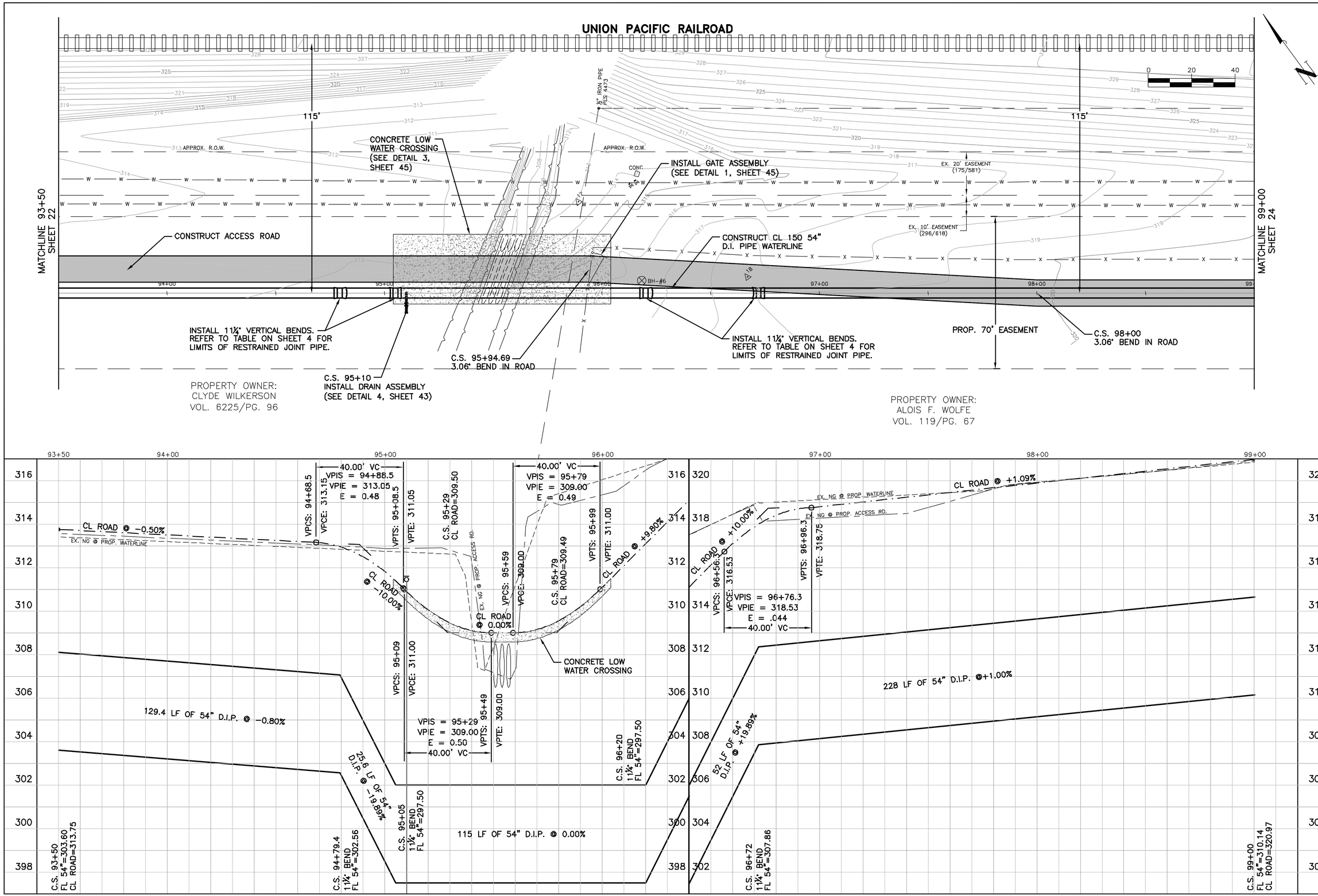
Field Book: BRYAN "S"
Date: 07/05
Project Number: 200.14 WG
Design By: WRK
Drawn By: BAG

Sheet Title: PLAN AND PROFILE

Sheet Number: 22 ....Of.... 48



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CITY OF BRYAN 54" WATER TRANSMISSION LINE

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Drawing Name: P:\00200\200.14\wg\design\P&P 2.dwg

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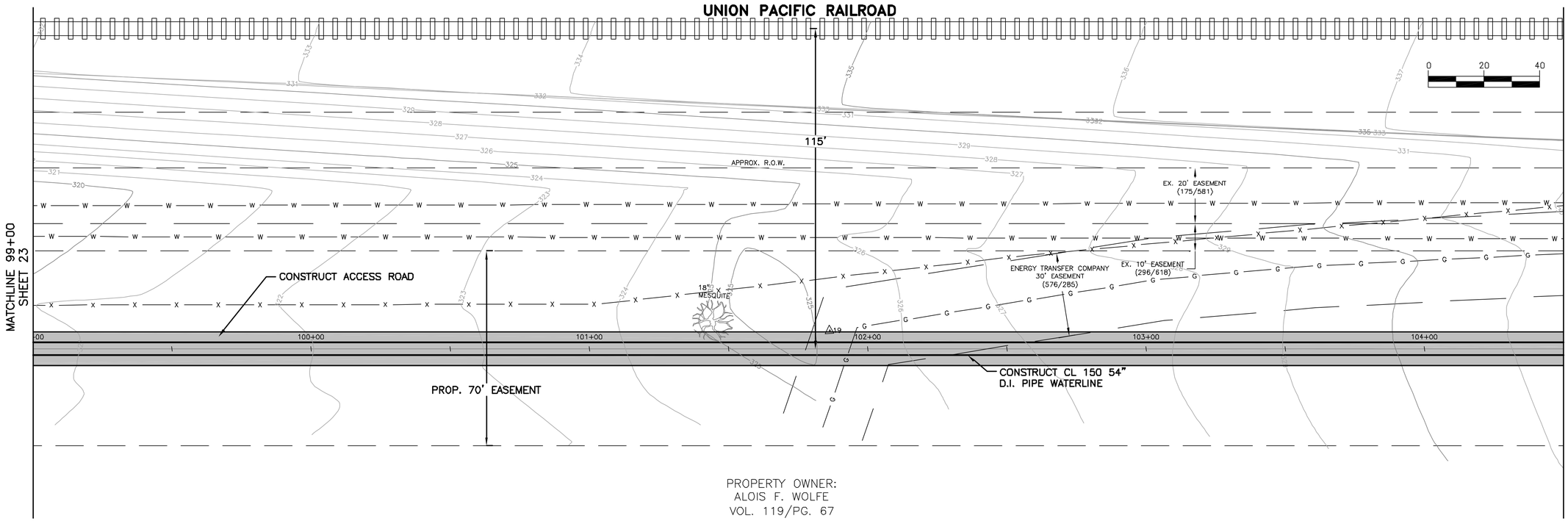
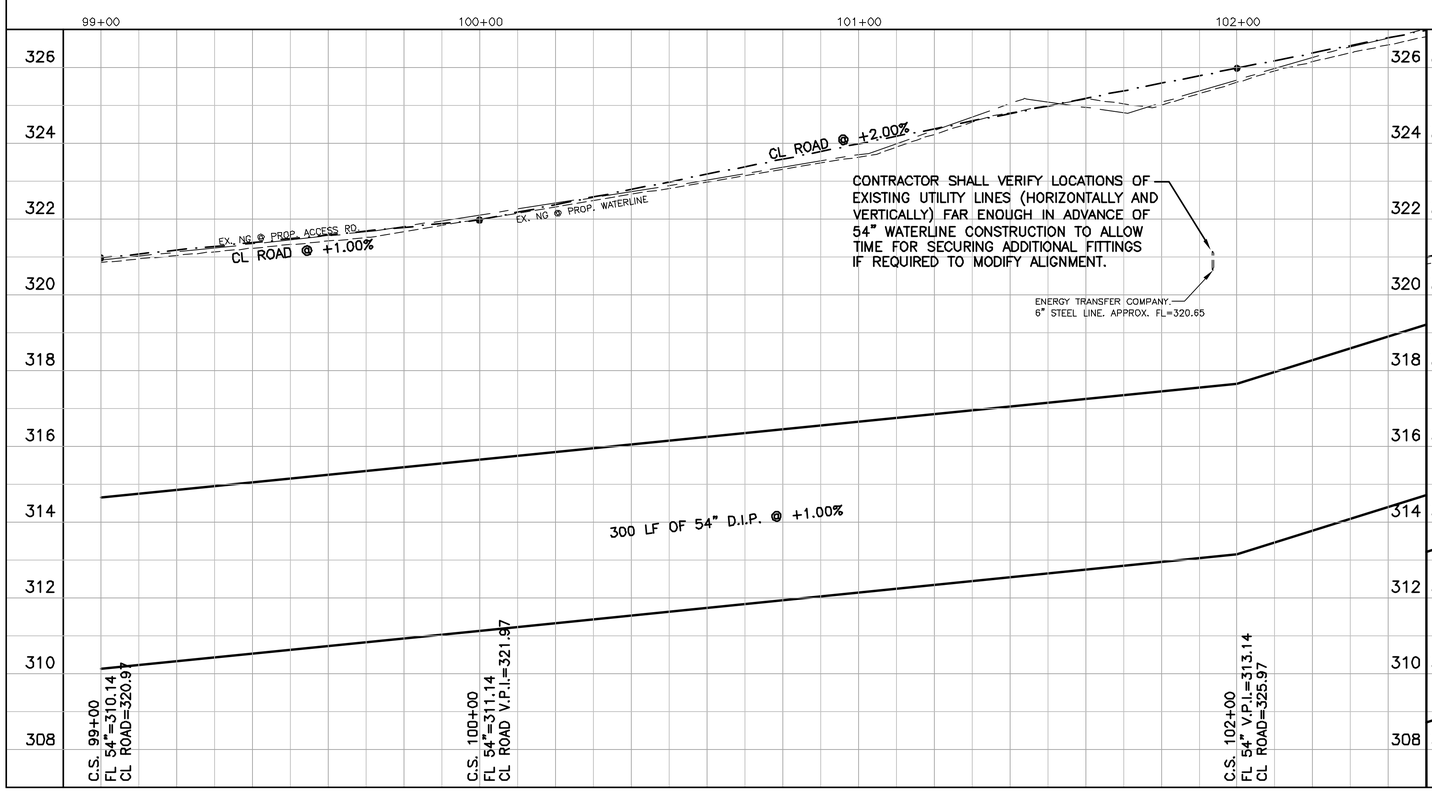
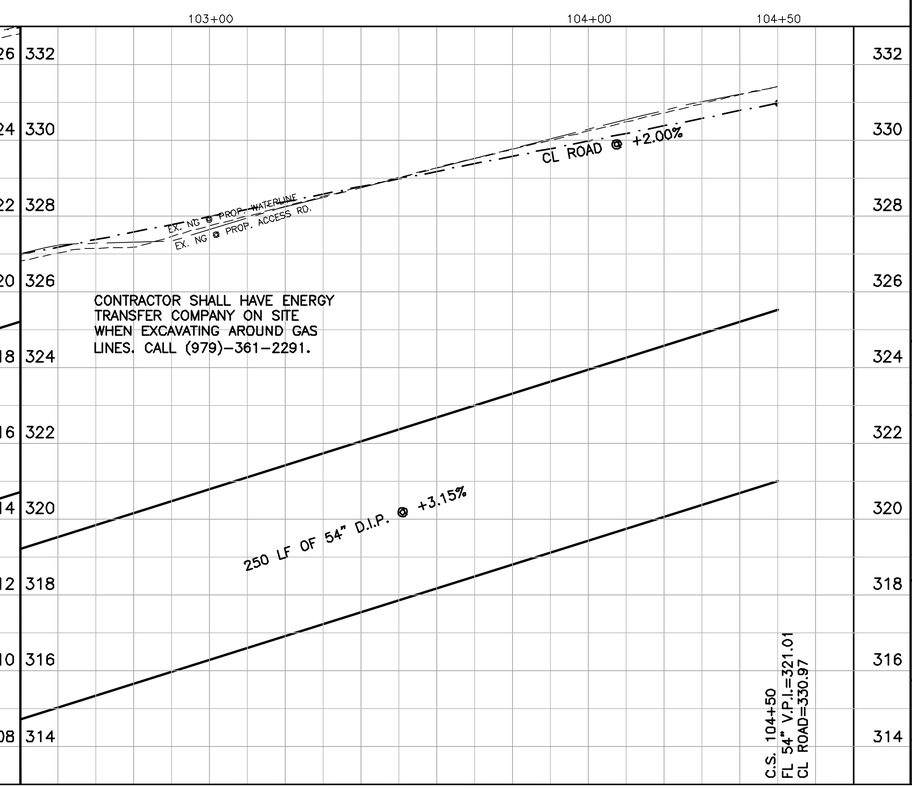
Field Book: BRYAN "S"
Date: 07/05
Project Number: 200.14 WG
Design By: WRK
Drawn By: BAG

Sheet Title: PLAN AND PROFILE

Sheet Number: 23 ....Of.... 48







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Drawing Name: P:\01200\200.14wg\design\P&P 2.dwg
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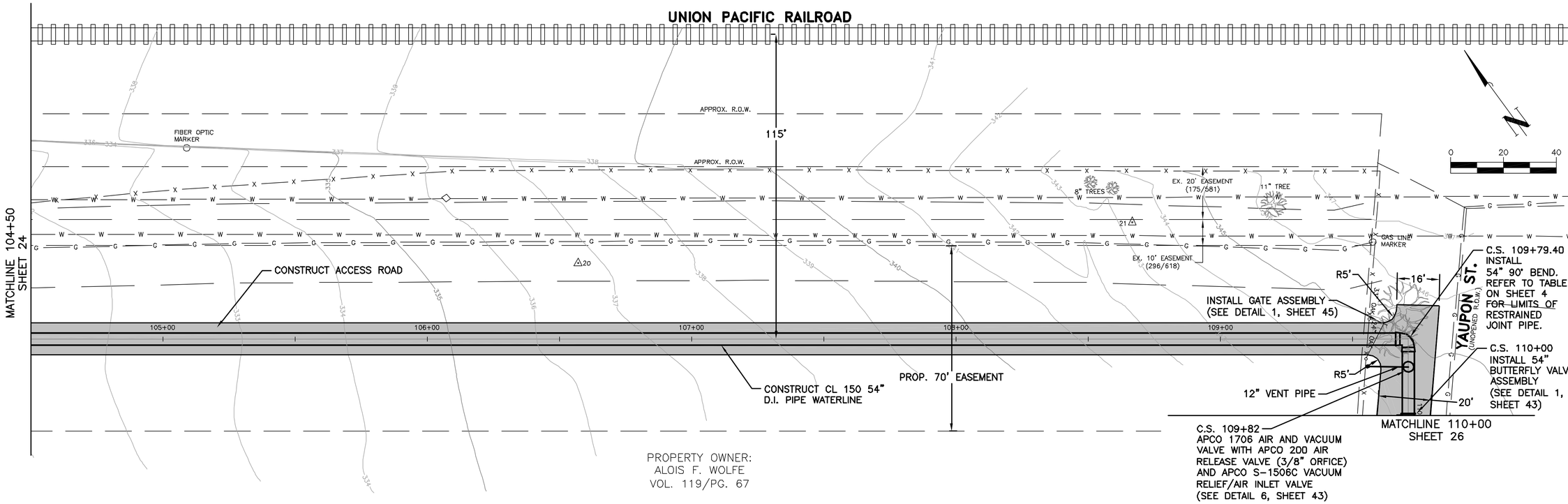
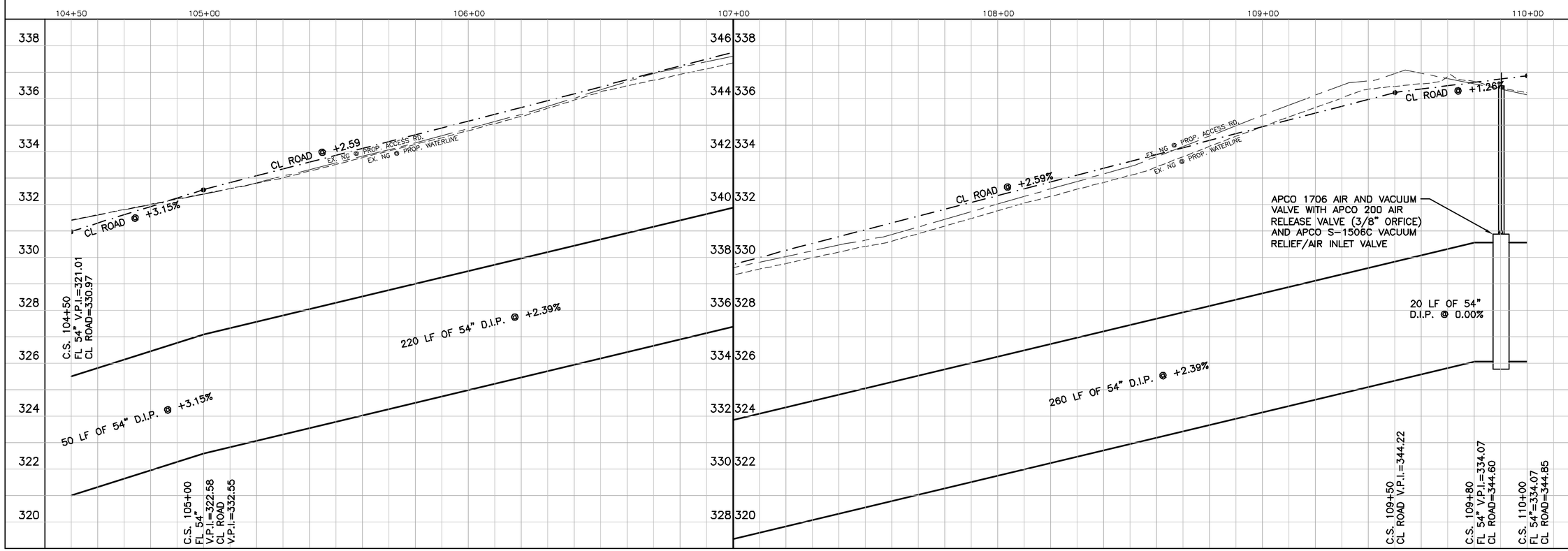
Field Book: BRYAN "S"
Date: 07/05
Project Number: 200.14 WG
Design By: WRK
Drawn By: BAG

Sheet Title: PLAN AND PROFILE

Sheet Number: 24 ....Of.... 48





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CITY OF BRYAN
54" WATER TRANSMISSION LINE

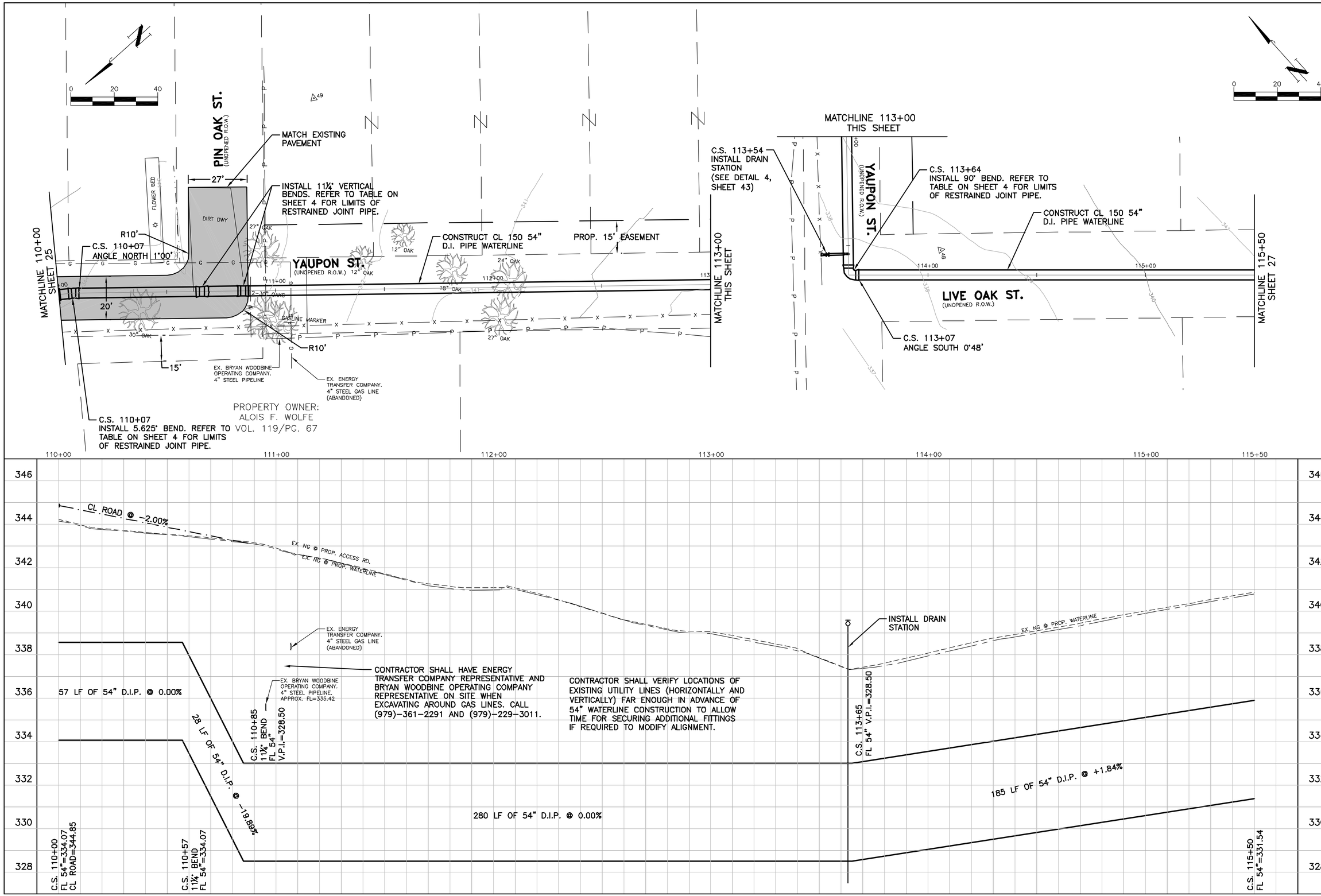
NO.	REVISION	BY	DATE

Drawing Name: P:\00200\200.14wg\design\P&P 2.dwg
VERIFY SCALE 0 1 BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE.

Field Book: BRYAN "S"
Date: 07/05
Project Number: 200.14 WG
Design By: WRK
Drawn By: BAG

Sheet Title: PLAN AND PROFILE

Sheet Number: 25 ....Of.... 48



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CITY OF BRYAN
54" WATER TRANSMISSION LINE

NO.	REVISION	BY	DATE

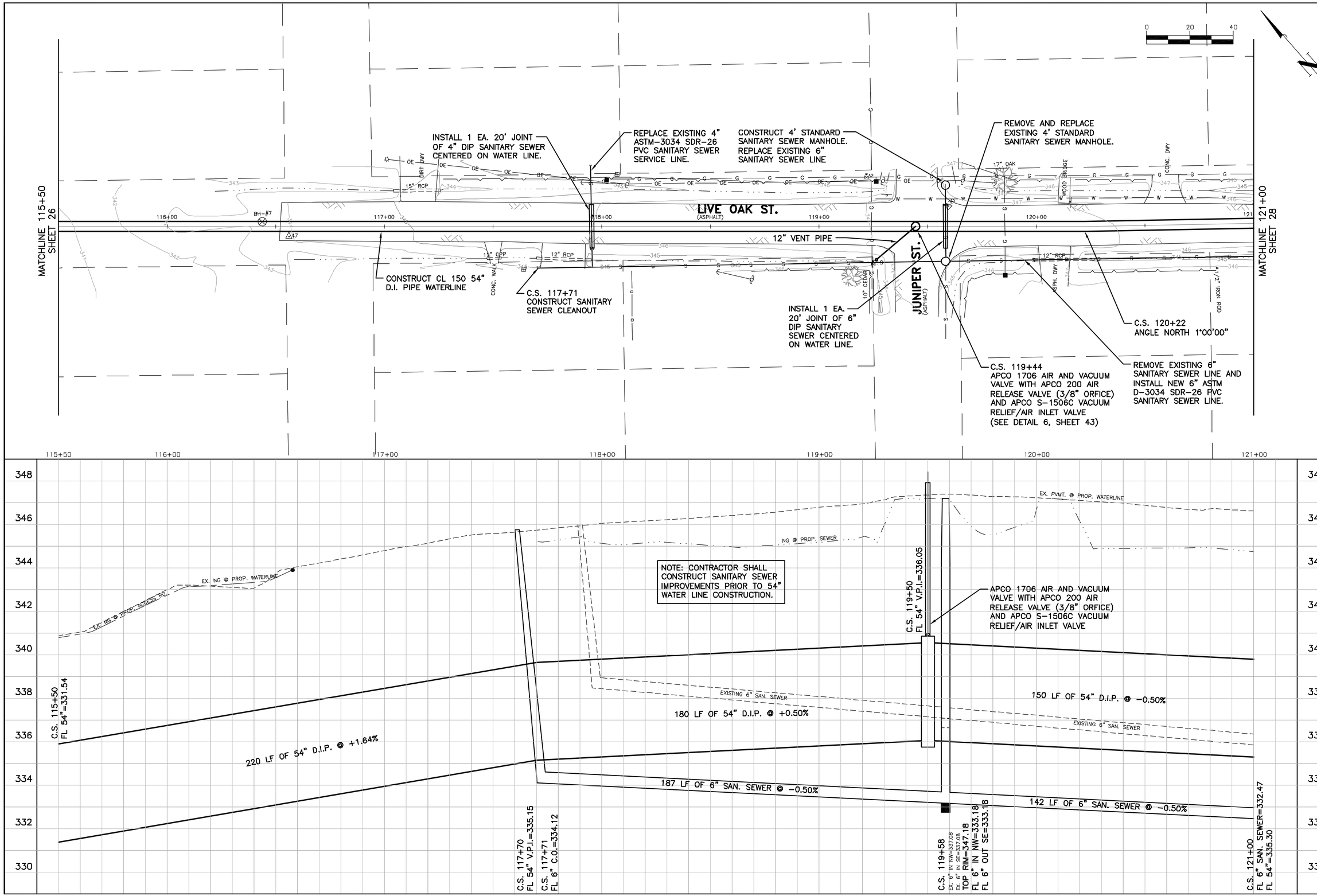
Drawing Name: P:\00220\200.14wg\design\P&P 3.dwg

VERIFY SCALE 1 BAR IS ONE INCH ON ORIGINAL DRAWING; IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE.

Field Book: BRYAN "3"
Date: 07/05
Project Number: 200.14 WG
Design By: WRK
Drawn By: BAG

Sheet Title: PLAN AND PROFILE

Sheet Number: 26 ....Of.... 48



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CITY OF BRYAN
54" WATER TRANSMISSION LINE

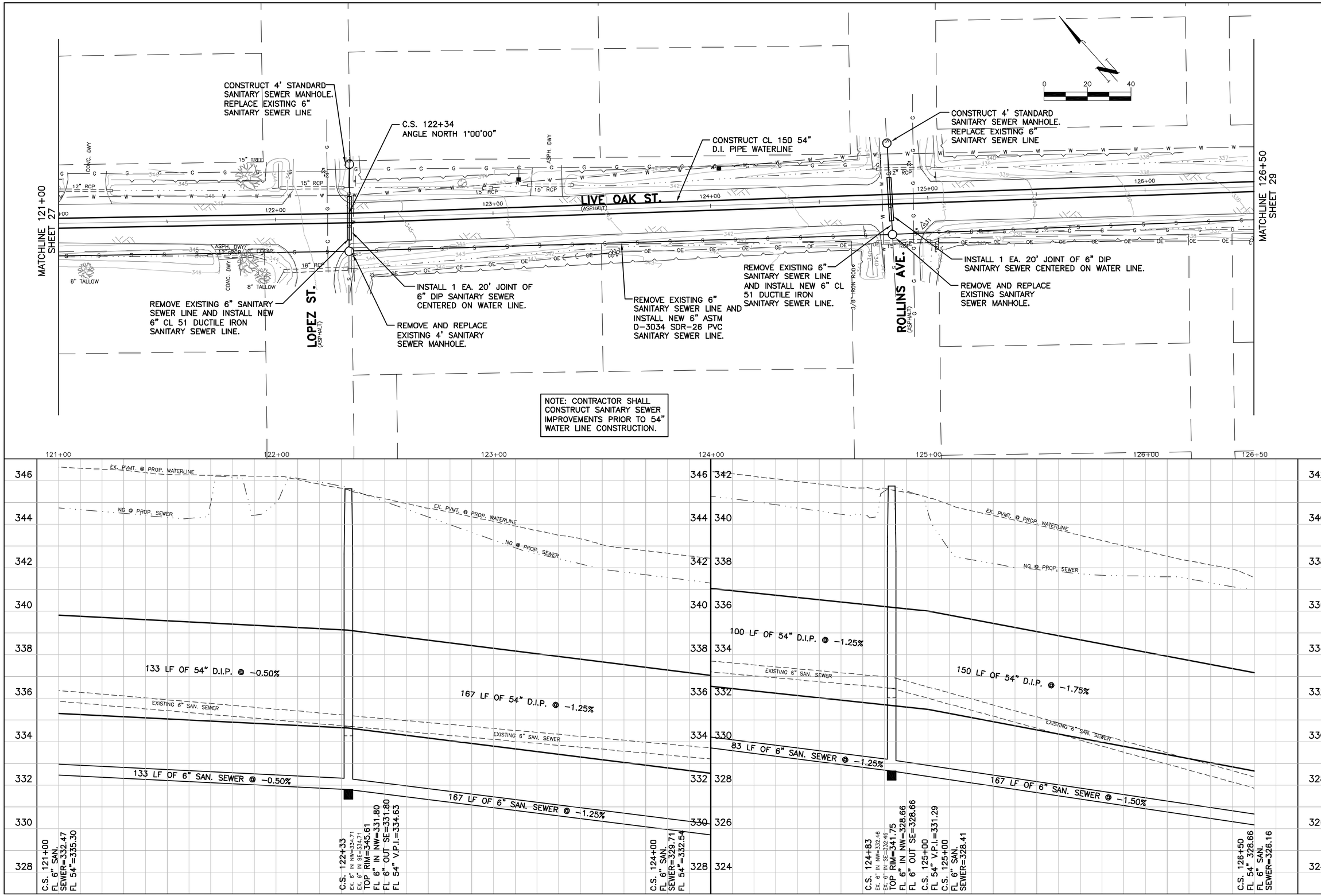
NO.	REVISION	BY	DATE

Drawing Name: P:\00200\200.14wg\dwg\design\P&P 3.dwg
VERIFY SCALE 1 BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE.

Field Book: BRYAN "S"
Date: 07/05
Project Number: 200.14 WG
Design By: WRK
Drawn By: BAG

Sheet Title: PLAN AND PROFILE

Sheet Number: 27 ....Of.... 48



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CITY OF BRYAN
54" WATER TRANSMISSION LINE

NO.	REVISION	BY	DATE

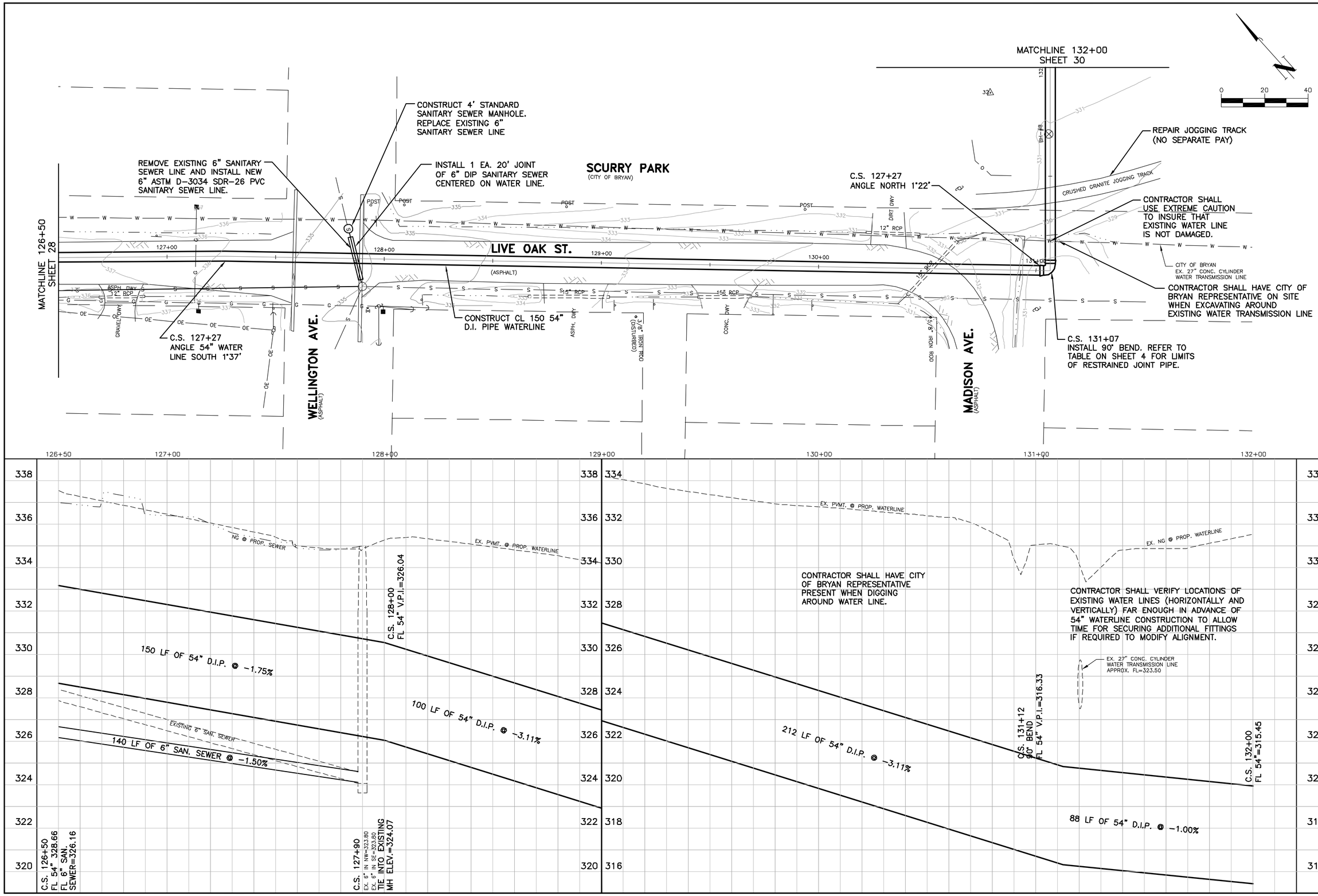
Drawing Name: P:\00200\200.14wg\dwg\design\P&P 3.dwg

VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE.

Field Book: BRYAN "S"
Date: 07/05
Project Number: 200.14 WG
Design By: WRK
Drawn By: BAG

Sheet Title: PLAN AND PROFILE

Sheet Number: 28 ....Of.... 48



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CITY OF BRYAN 54" WATER TRANSMISSION LINE

NO.	REVISION	BY	DATE

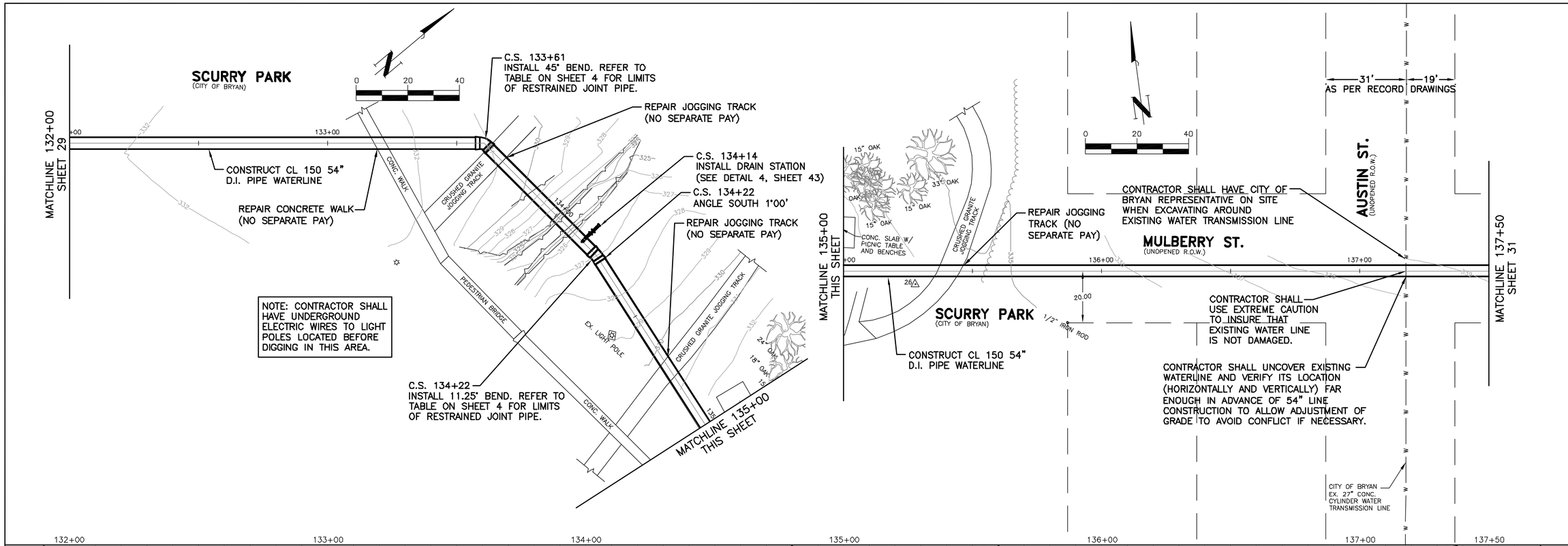
Drawing Name: P:\00200\200.14wg\dwg\design\P&P 3.dwg

VERIFY SCALE 1 BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE.

Field Book: BRYAN "S"
Date: 07/05
Project Number: 200.14 WG
Design By: WRK
Drawn By: BAG

Sheet Title: PLAN AND PROFILE

Sheet Number: 29 ....Of.... 48



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CITY OF BRYAN
54" WATER TRANSMISSION LINE

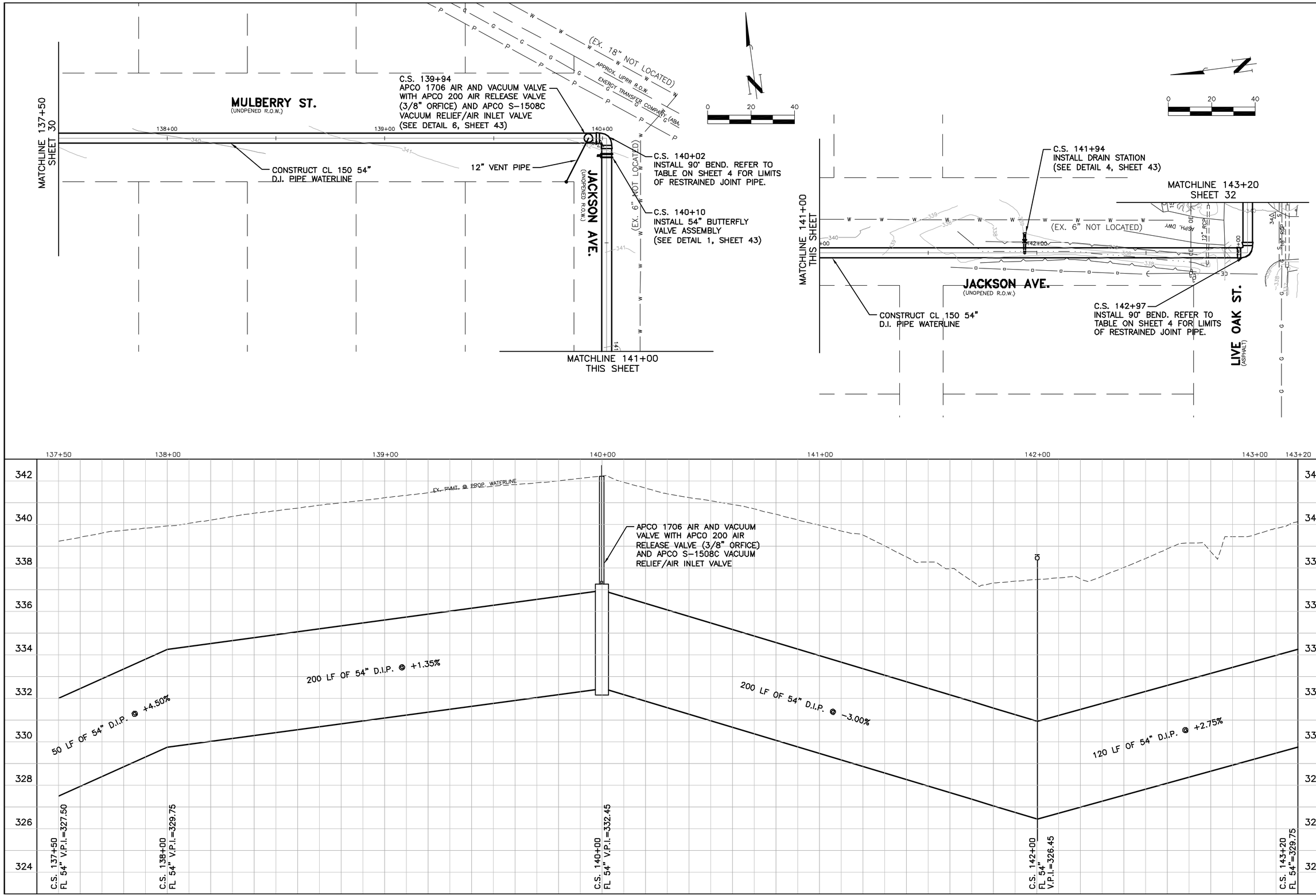
NO.	REVISION	BY	DATE

Drawing Name: P:\00200\200.14wg\design\P&P 3.dwg
VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE.

Field Book: BRYAN "S"
Date: 07/05
Project Number: 200.14 WG
Design By: WRK
Drawn By: BAG

Sheet Title: PLAN AND PROFILE

Sheet Number: 30 ....Of.... 48



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NO.	REVISION	BY	DATE

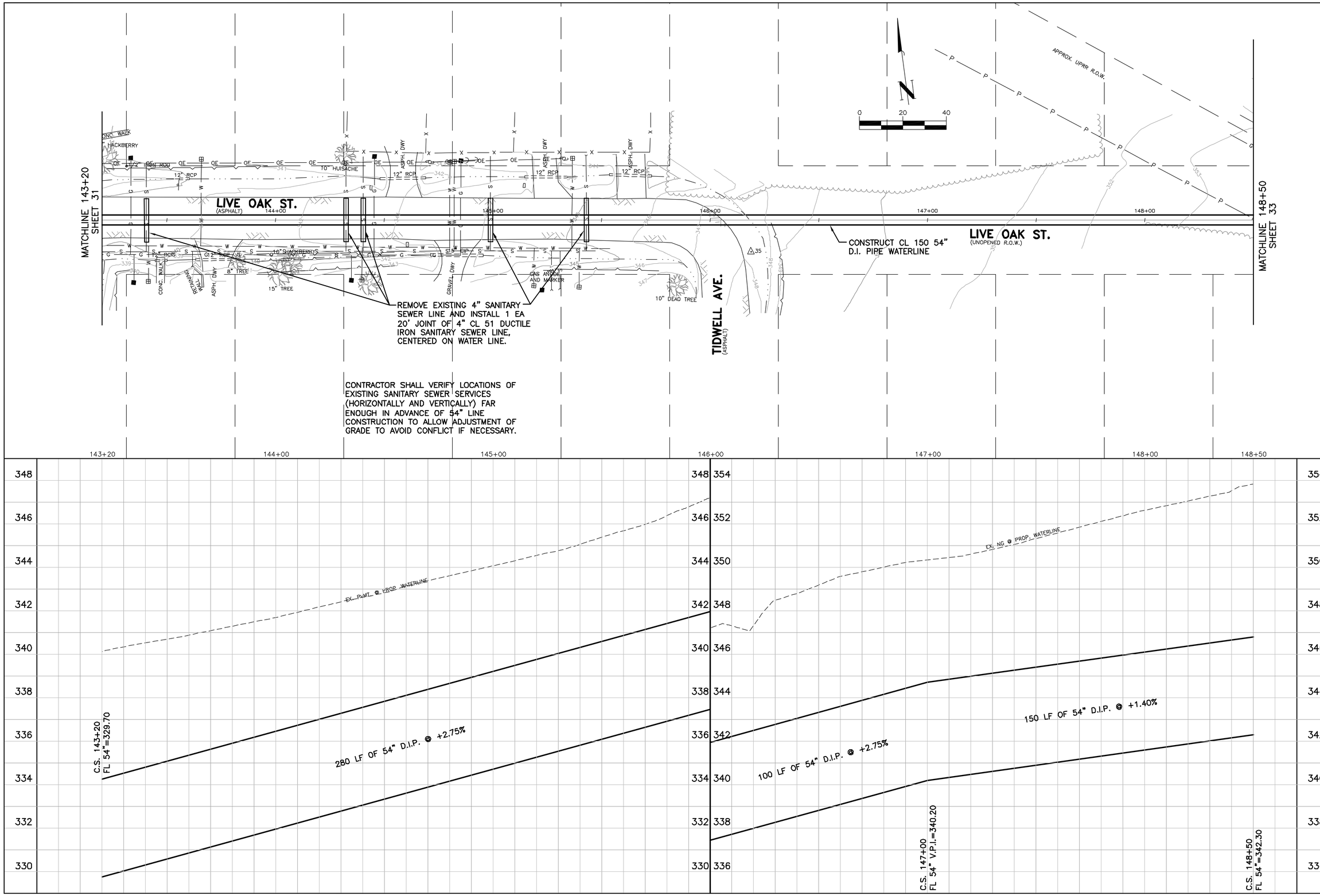
Drawing Name: P:\00200\200.14wg\design\P&P 3.dwg

VERIFY SCALE 1 BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE.

Field Book: BRYAN "S"
Date: 07/05
Project Number: 200.14 WG
Design By: WRK
Drawn By: BAG

Sheet Title: PLAN AND PROFILE

Sheet Number: 31 ....Of.... 48



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CITY OF BRYAN
54" WATER TRANSMISSION LINE

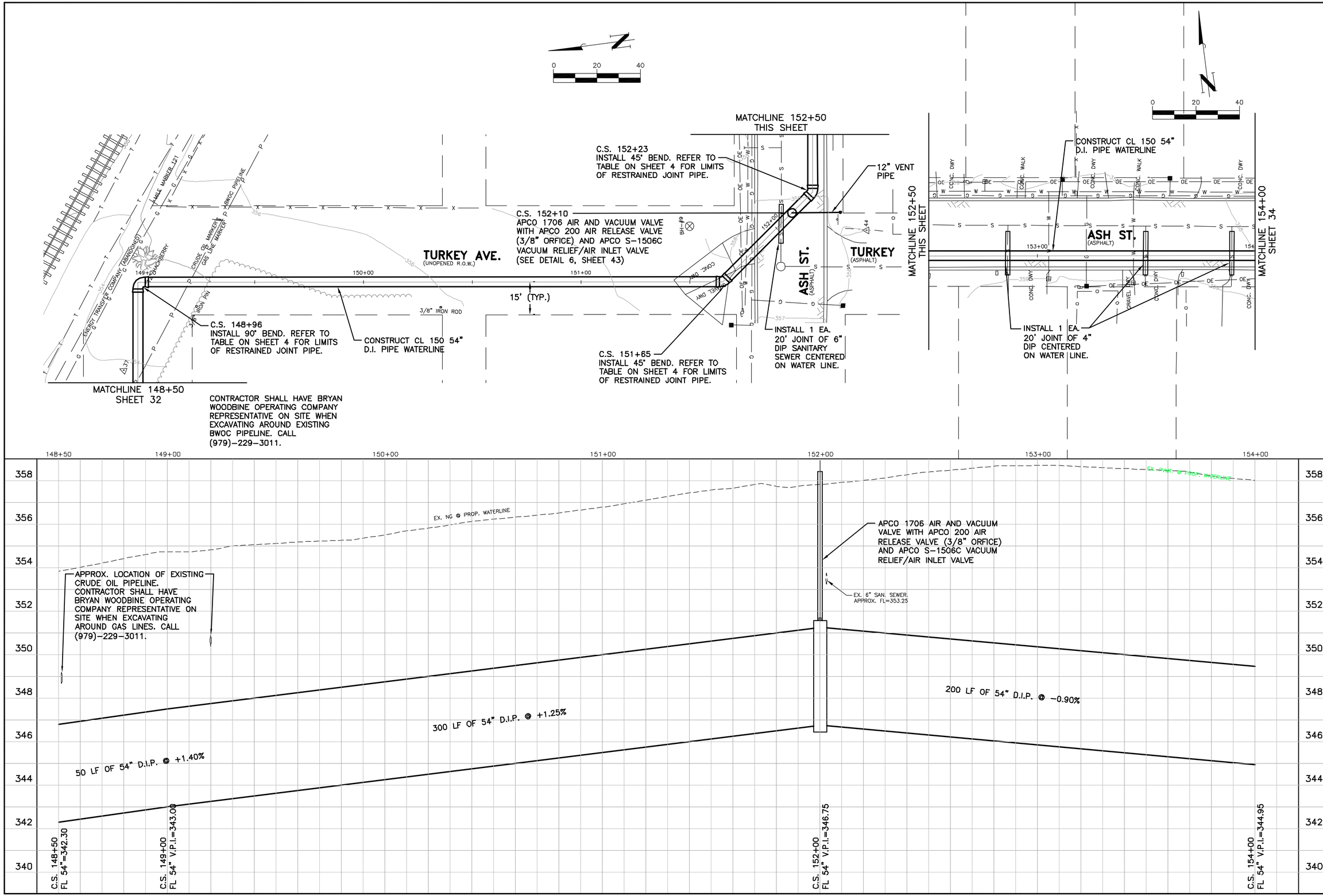
NO.	REVISION	BY	DATE

Drawing Name: P:\00200\200.14wg\design\P&P 3.dwg
VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE.

Field Book: BRYAN "S"
Date: 07/05
Project Number: 200.14 WG
Design By: WRK
Drawn By: BAG

Sheet Title: PLAN AND PROFILE

Sheet Number: 32 ....Of.... 48



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54" WATER TRANSMISSION LINE

NO.	REVISION	BY	DATE

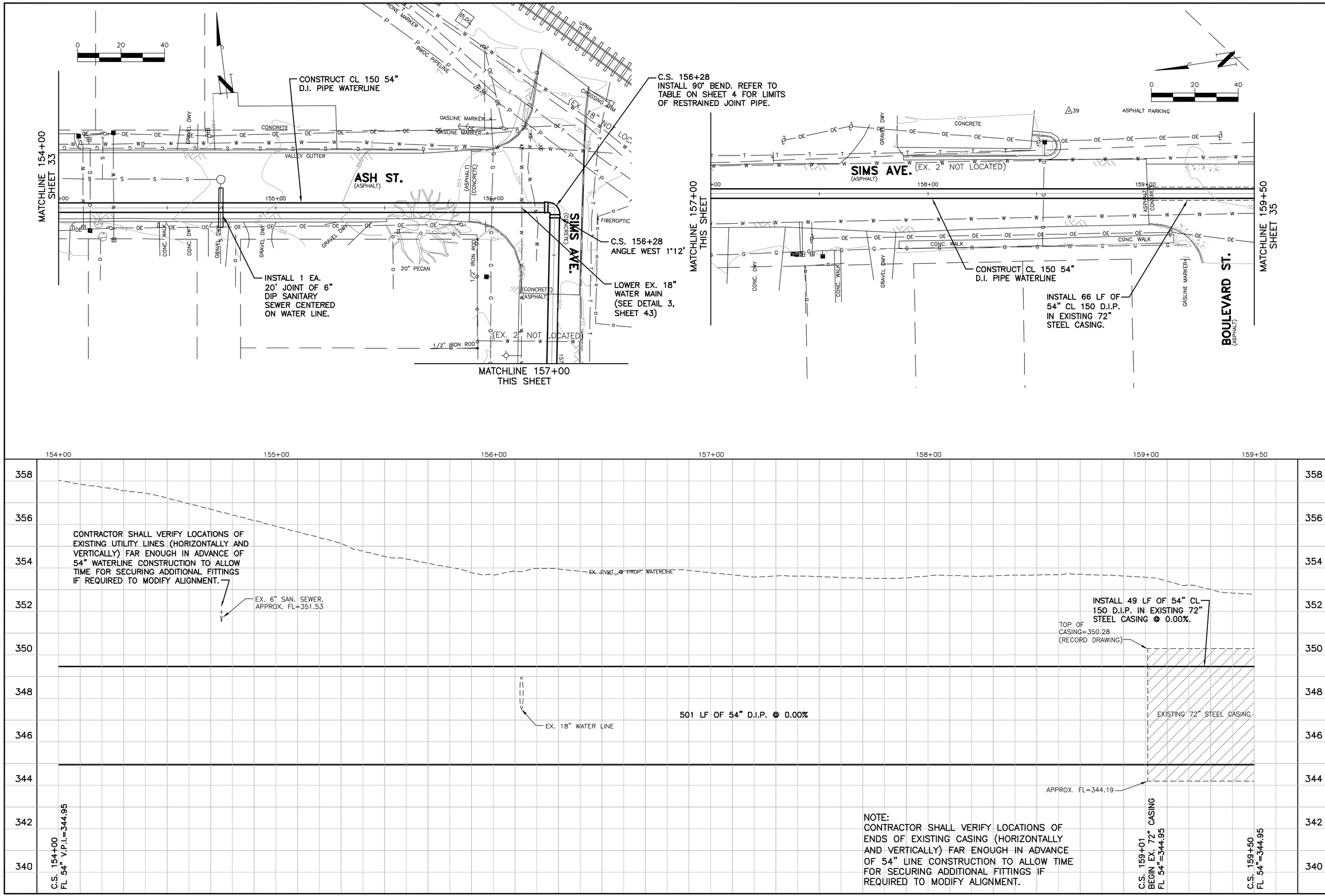
Drawing Name: P:\00200\200.14wg\design\P&P 3.dwg

VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE.

Field Book: BRYAN "S"
Date: 07/05
Project Number: 200.14 WG
Design By: WRK
Drawn By: BAG

Sheet Title: PLAN AND PROFILE

Sheet Number: 33 ....Of.... 48



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CITY OF BRYAN 54" WATER TRANSMISSION LINE

NO.	REVISION	BY	DATE

Drawing Name: P:\00200\200.14wg\design\P&P 3.dwg

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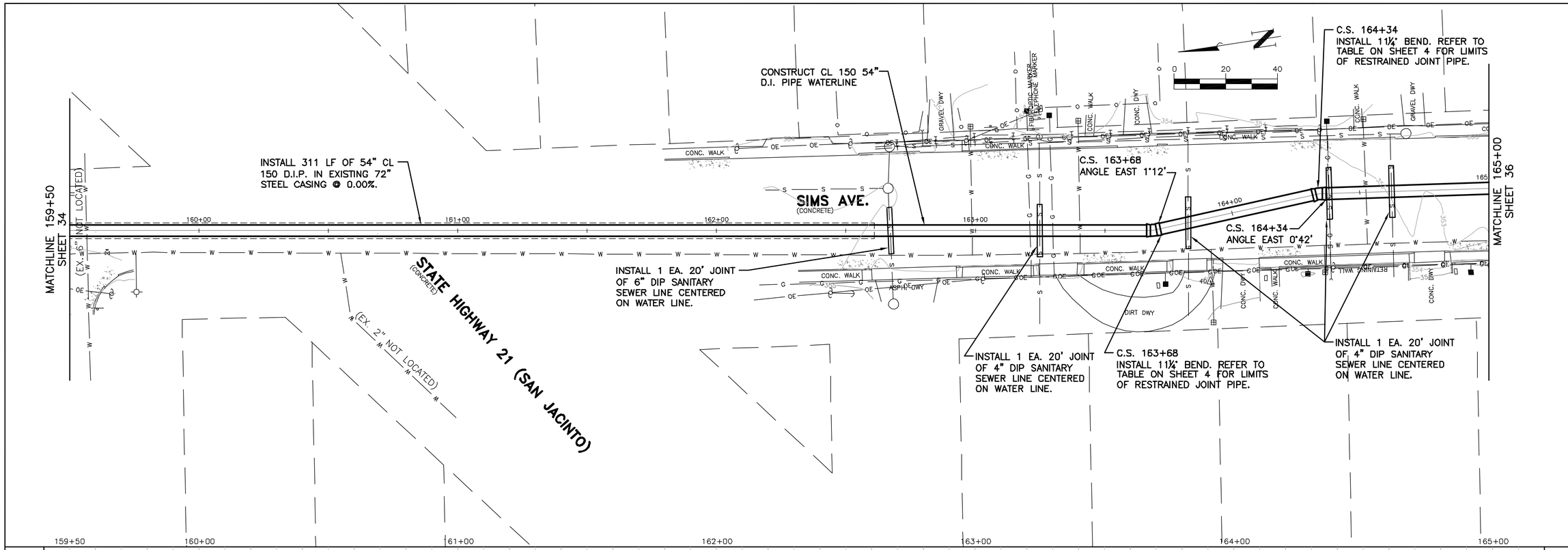
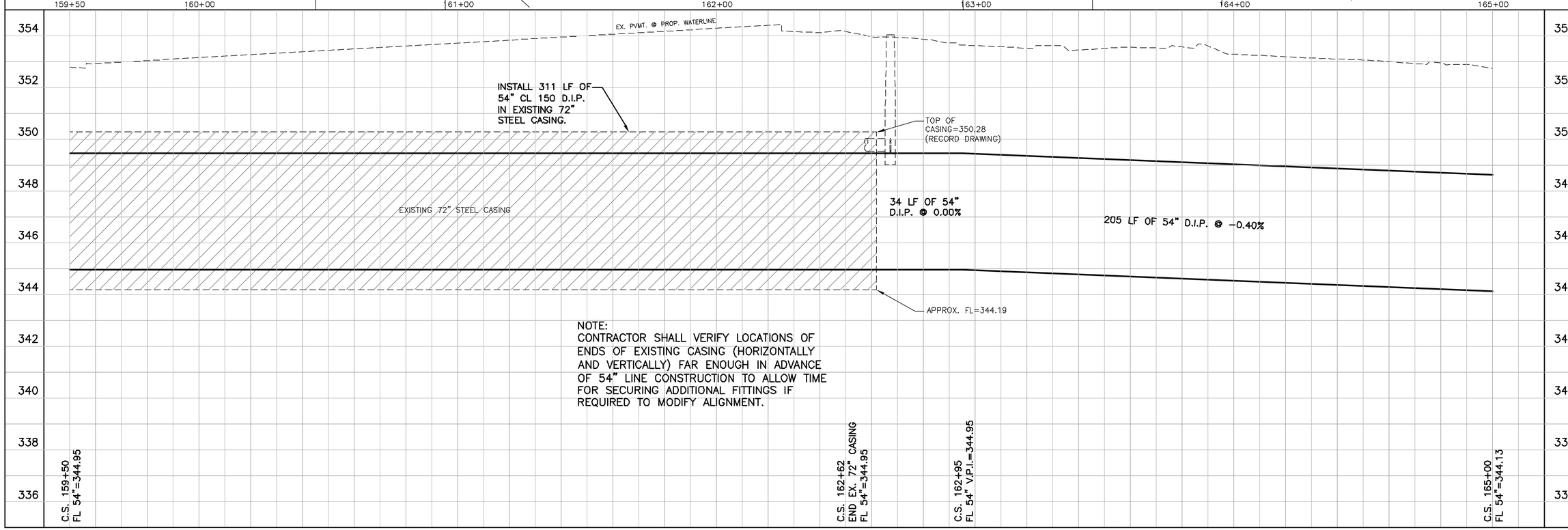
Field Book: BRYAN "S"
Date: 07/05
Project Number: 200.14 WG
Design By: WRK
Drawn By: BAG

Sheet Title: PLAN AND PROFILE

Sheet Number: 34 ....Of.... 48





NOTE:
CONTRACTOR SHALL VERIFY LOCATIONS OF ENDS OF EXISTING CASING (HORIZONTALLY AND VERTICALLY) FAR ENOUGH IN ADVANCE OF 54" LINE CONSTRUCTION TO ALLOW TIME FOR SECURING ADDITIONAL FITTINGS IF REQUIRED TO MODIFY ALIGNMENT.

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CITY OF BRYAN
54" WATER TRANSMISSION LINE

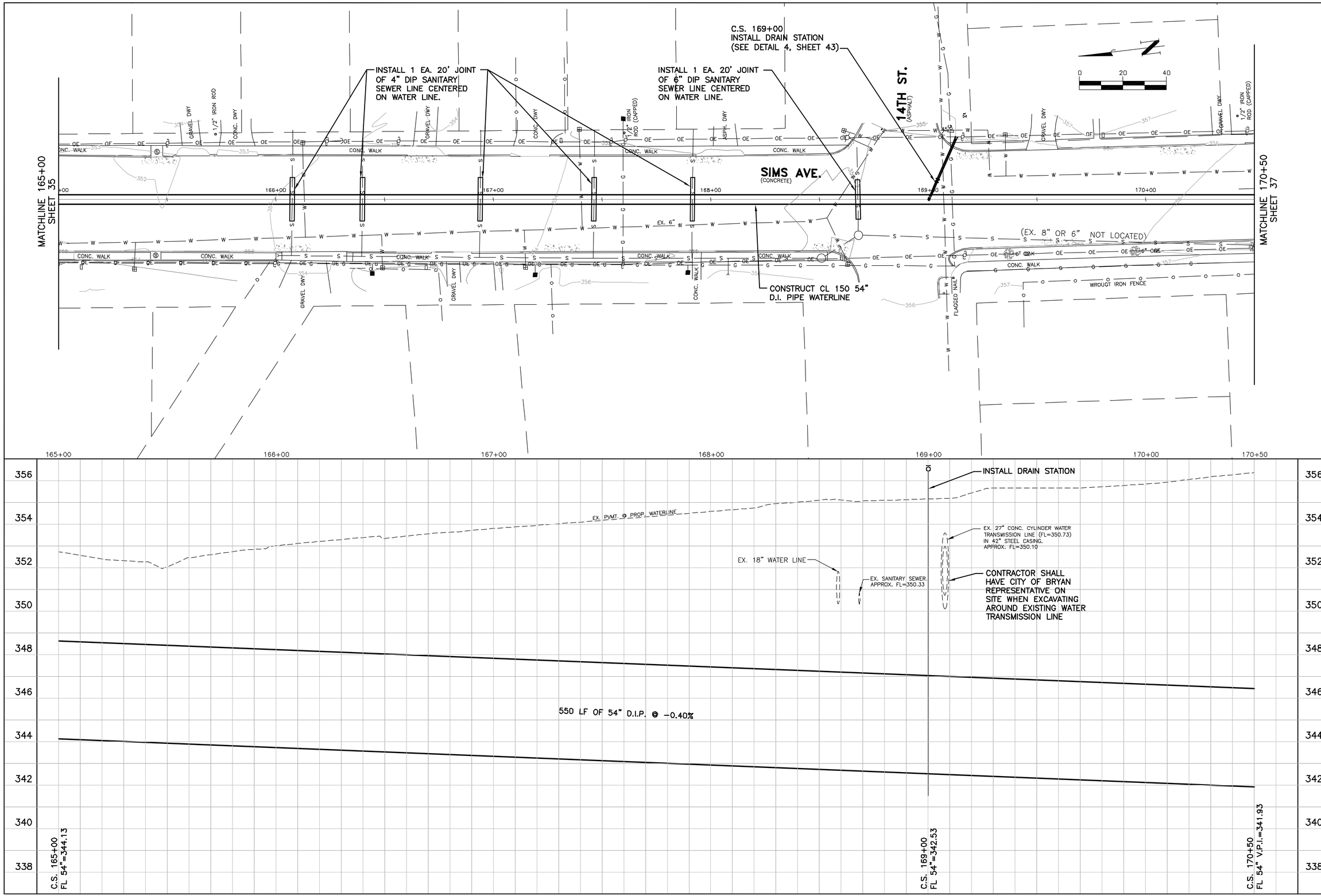
NO.	REVISION	BY	DATE

Drawing Name: P:\00200\200.14wg\dwg\design\P&P 3.dwg
VERIFY SCALE 1 BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE.

Field Book: BRYAN "S"
Date: 07/05
Project Number: 200.14 WG
Design By: WRK
Drawn By: BAG

Sheet Title: PLAN AND PROFILE

Sheet Number: 35 ....Of.... 48



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CITY OF BRYAN
54" WATER TRANSMISSION LINE

NO.	REVISION	BY	DATE

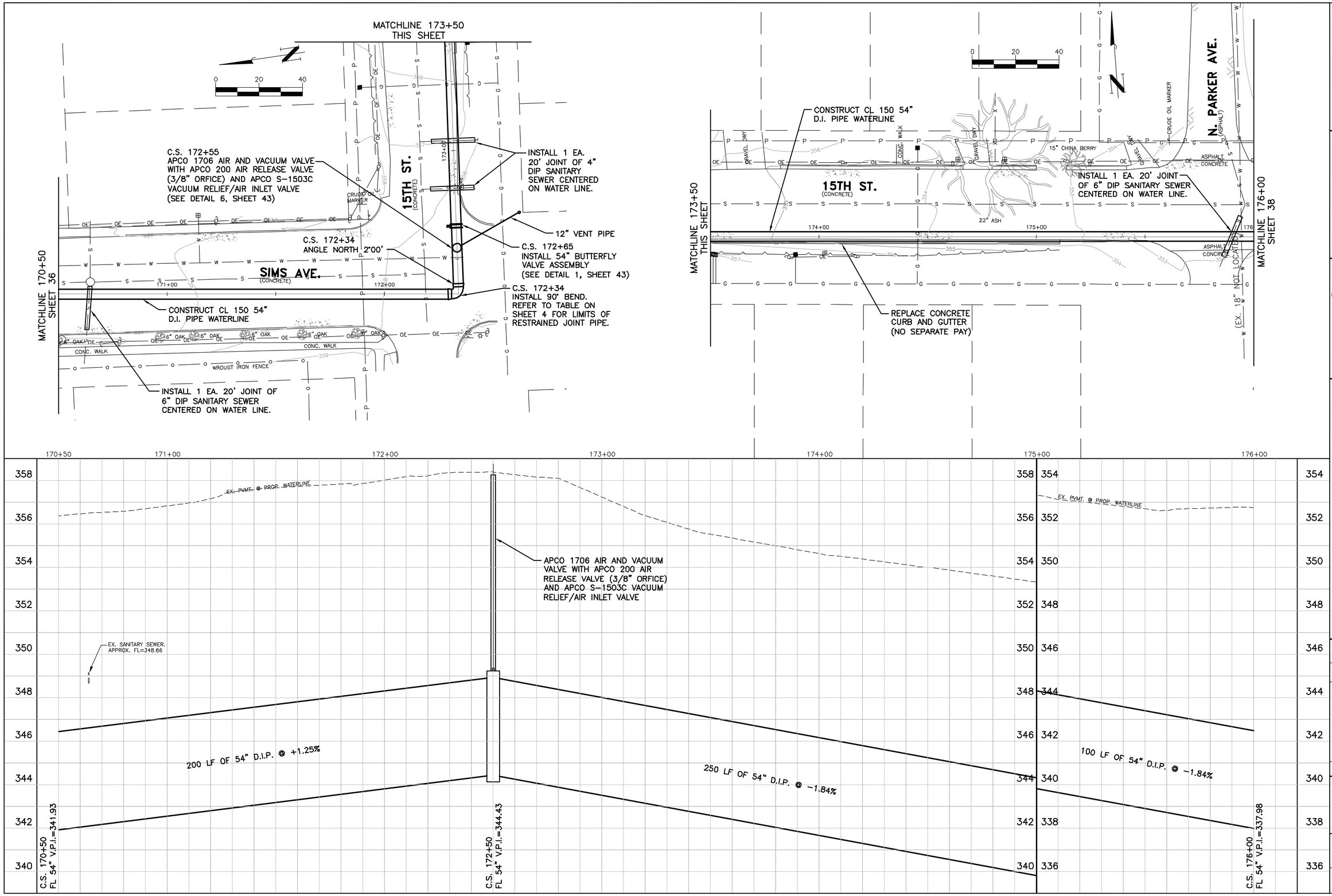
Drawing Name: P:\00200\200.14wg\dwg\design\P&P 3.dwg

VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE.

Field Book: BRYAN "3"
Date: 07/05
Project Number: 200.14 WG
Design By: WRK
Drawn By: BAG

Sheet Title: PLAN AND PROFILE

Sheet Number: 36 ....Of.... 48



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CITY OF BRYAN
54" WATER TRANSMISSION LINE

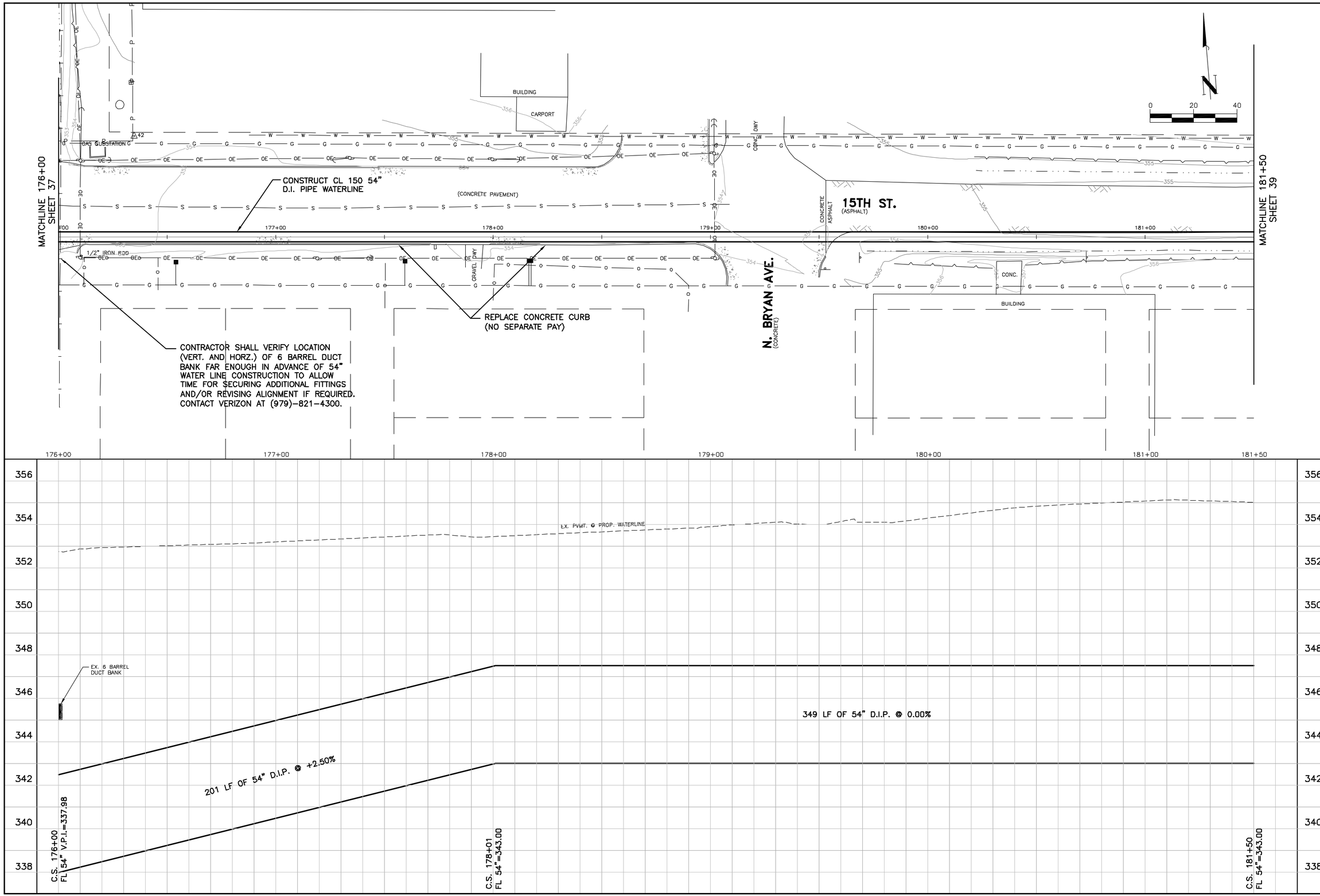
NO.	REVISION	BY	DATE

Drawing Name: P:\00200\200.14wg\design\P&P 3.dwg
VERIFY SCALE 1 BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE.

Field Book: BRYAN "S"
Date: 07/05
Project Number: 200.14 WG
Design By: WRK
Drawn By: BAG

Sheet Title:
PLAN AND PROFILE

Sheet Number:
37 ....Of.... 48



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CITY OF BRYAN
54" WATER TRANSMISSION LINE

NO.	REVISION	BY	DATE

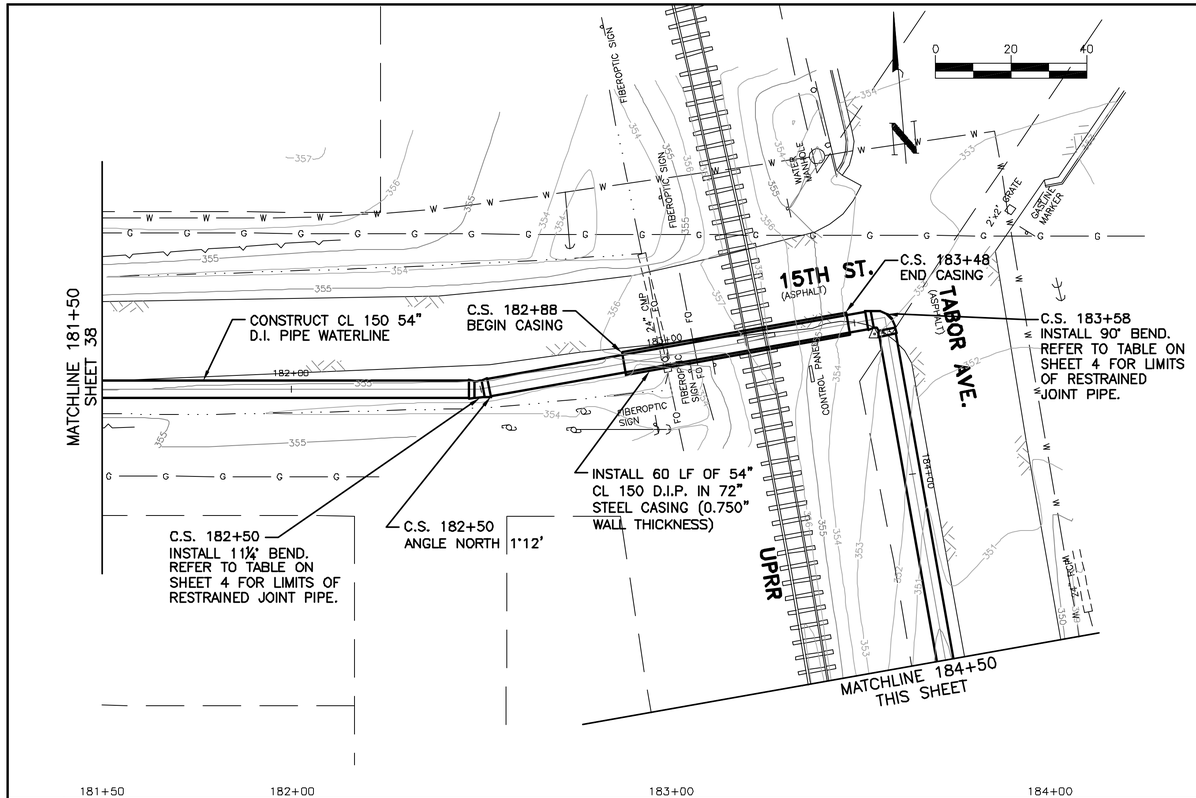
Drawing Name: P:\00200\200.14wq\design\P&P 3.dwg

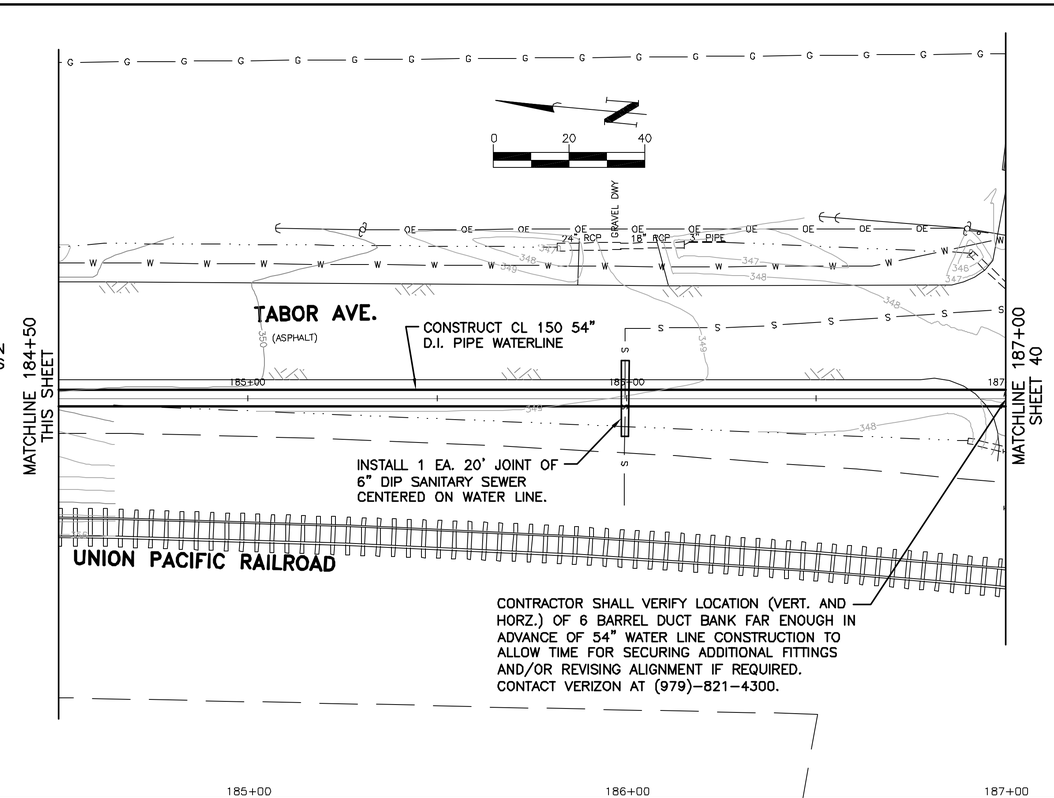
VERIFY SCALE 1 BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE.

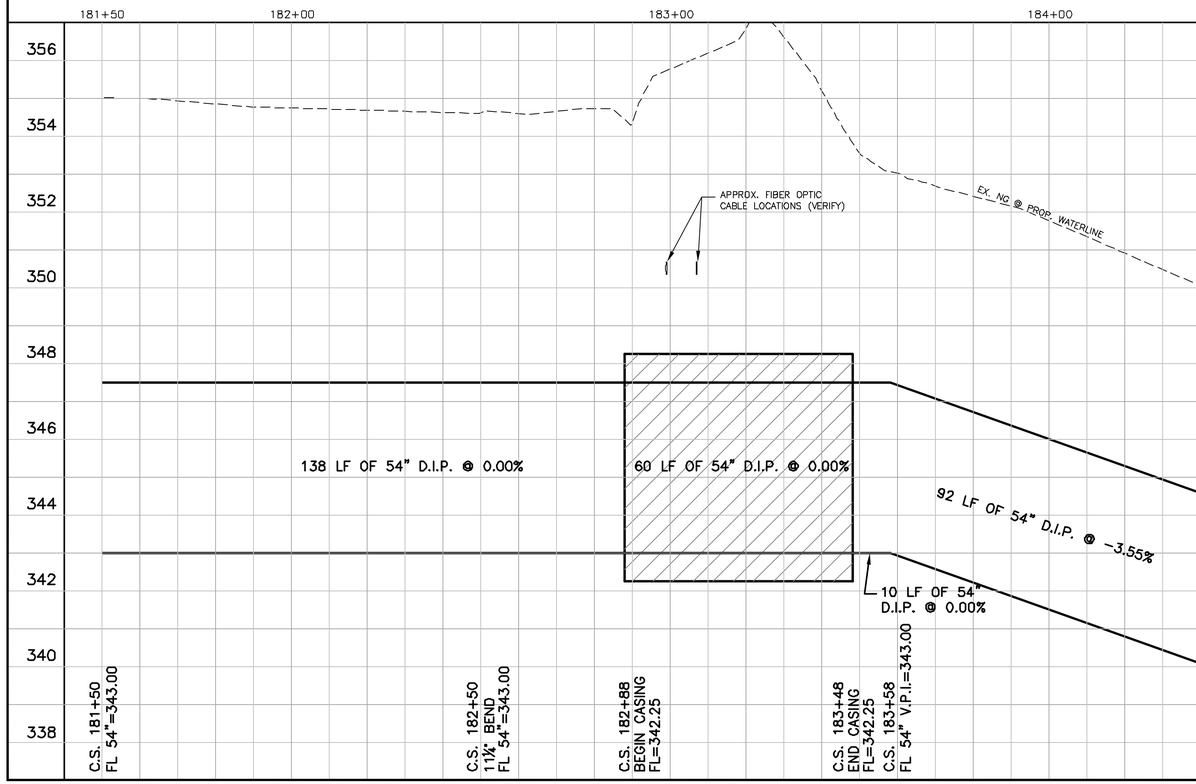
Field Book: BRYAN "S"
Date: 07/05
Project Number: 200.14 WG
Design By: WRK
Drawn By: BAG

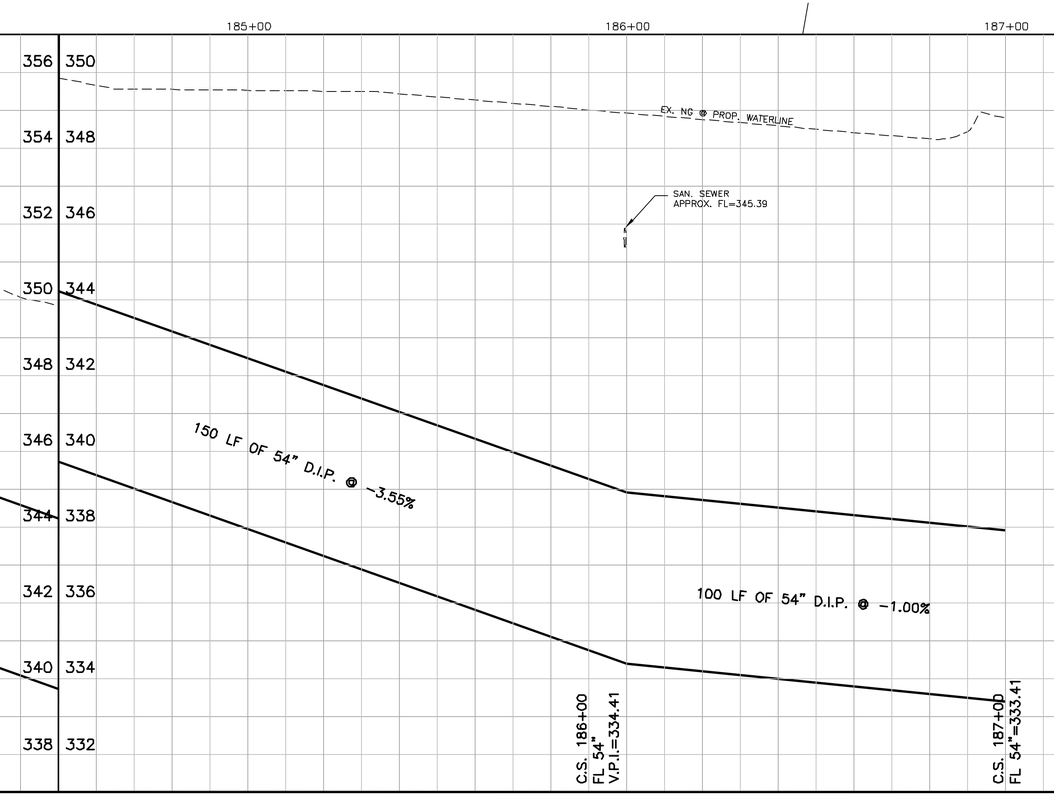
Sheet Title:
PLAN AND PROFILE

Sheet Number:
38 ....Of.... 48









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CITY OF BRYAN 54" WATER TRANSMISSION LINE

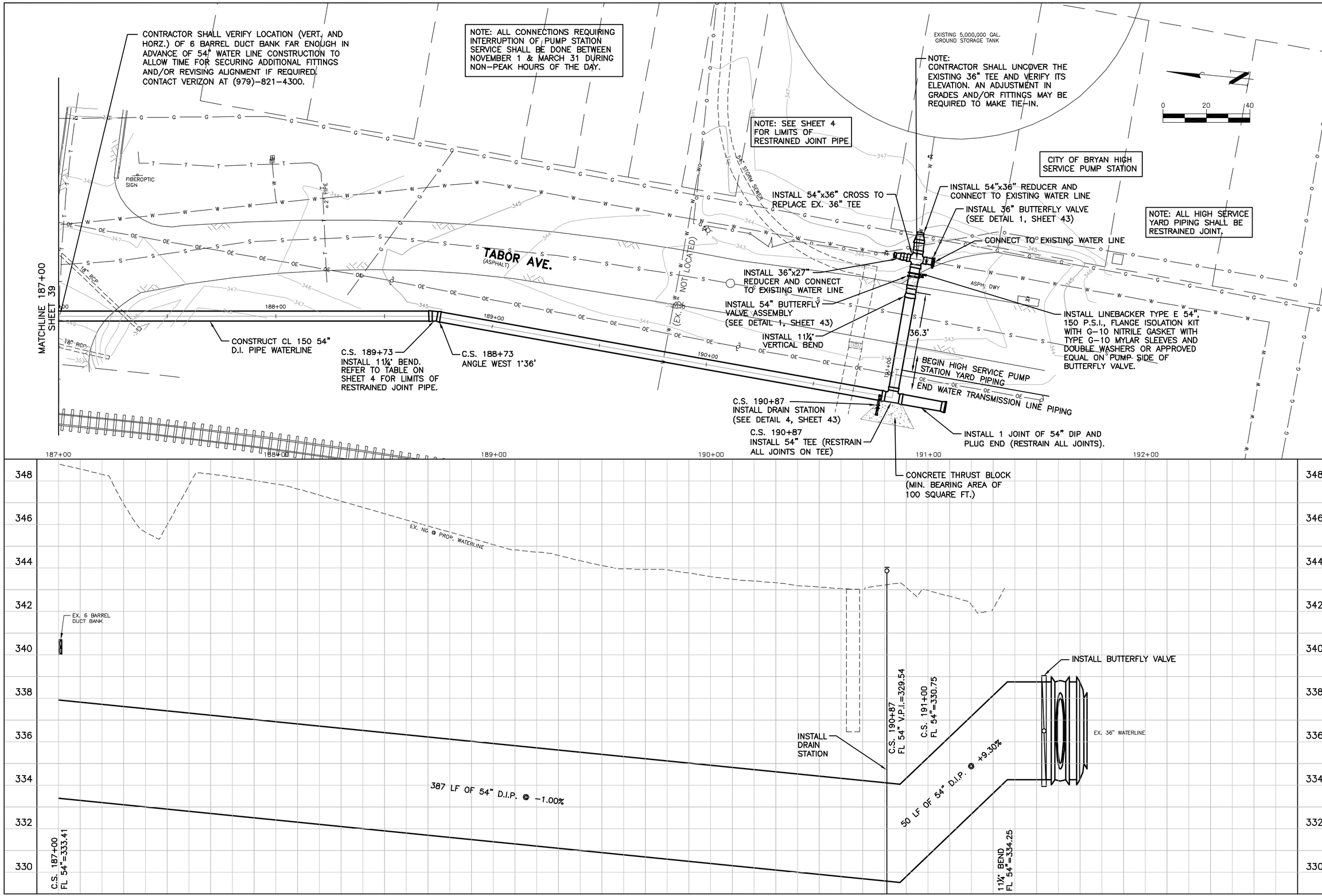
NO.	REVISION	BY	DATE

Drawing Name: P:\00200\200.14wg\design\P&P 3.dwg
VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE.

Field Book: BRYAN "S"
Date: 07/05
Project Number: 200.14 WG
Design By: WRK
Drawn By: BAG

Sheet Title: PLAN AND PROFILE

Sheet Number: 39 ....Of.... 48



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CITY OF BRYAN 54" WATER TRANSMISSION LINE

NO.	REVISION	BY	DATE

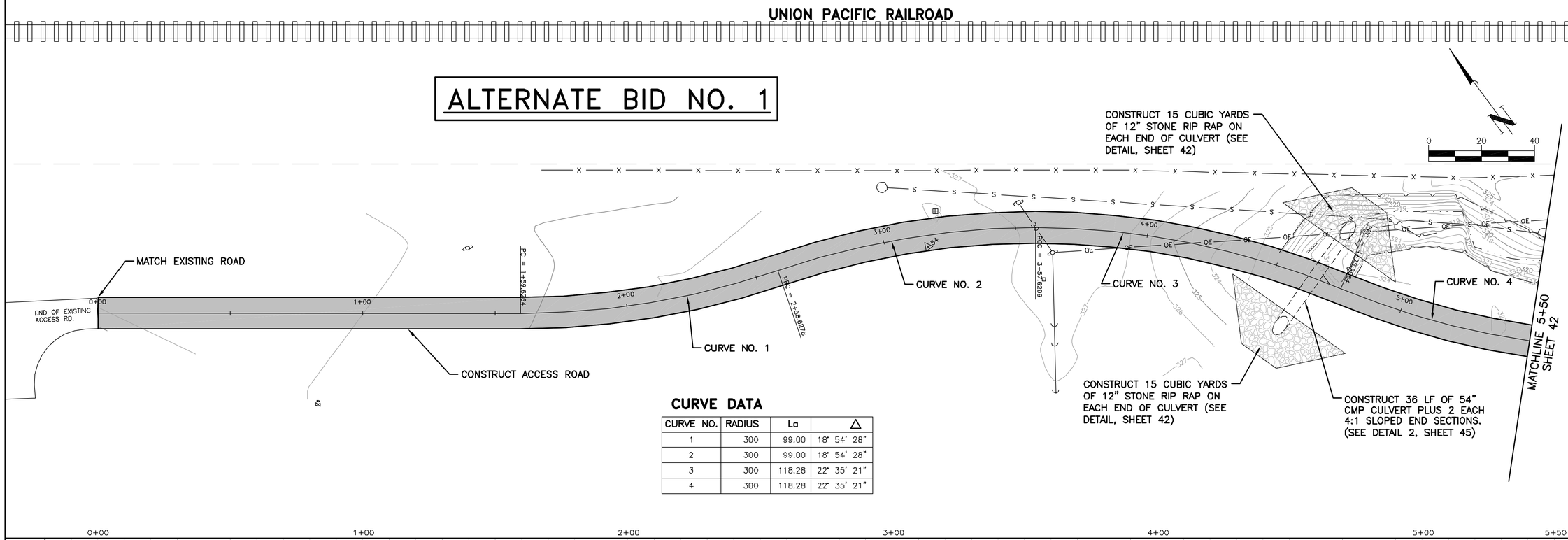
Drawing Name: P:\00200\200.14wg\design\P&P 3.dwg
VERIFY SCALE 1 BAR IS ONE INCH ON ORIGINAL DRAWING; IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE.

Field Book: BRYAN "S"
Date: 07/05
Project Number: 200.14 WG
Design By: WRK
Drawn By: BAG

Sheet Title: PLAN AND PROFILE

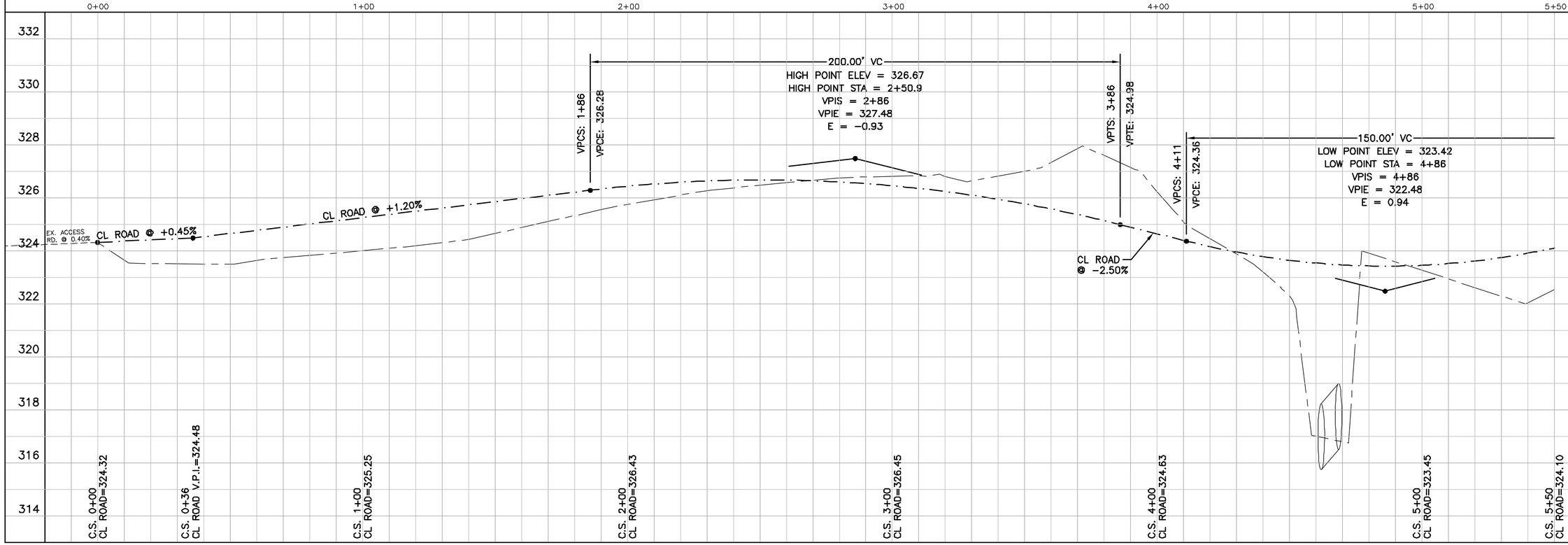
Sheet Number: 40 ....Of.... 48

ALTERNATE BID NO. 1



CURVE DATA

CURVE NO.	RADIUS	La	△
1	300	99.00	18° 54' 28"
2	300	99.00	18° 54' 28"
3	300	118.28	22° 35' 21"
4	300	118.28	22° 35' 21"



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CITY OF BRYAN
54" WATER TRANSMISSION LINE

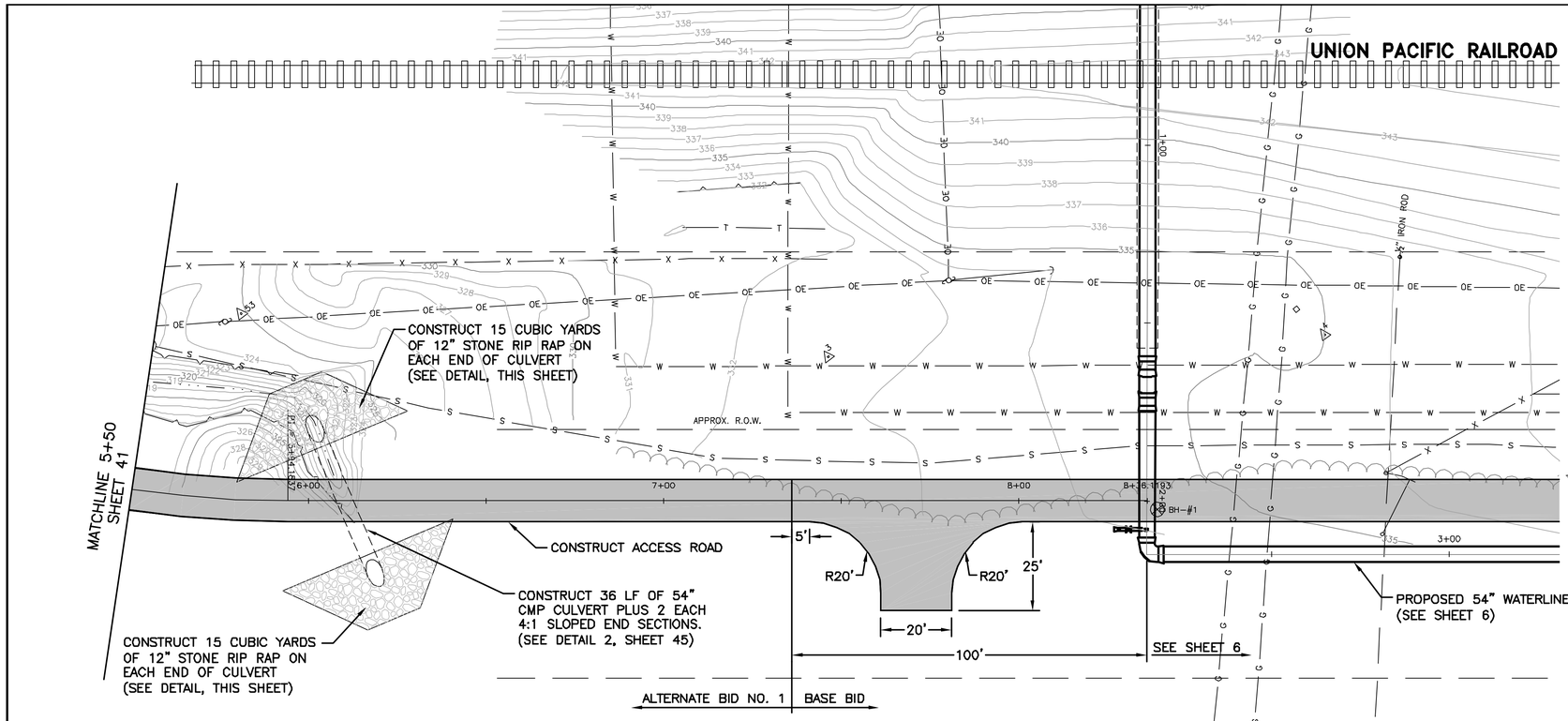
NO.	REVISION	BY	DATE

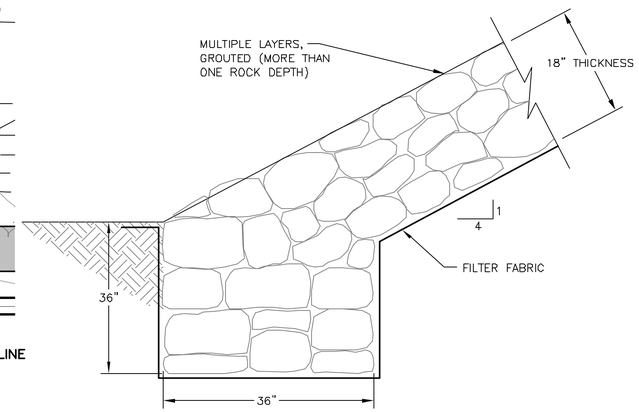
Drawing Name: P:\00200\200.14wg\design\Road P&P.dwg
VERIFY SCALE 1 BAR IS ONE INCH ON ORIGINAL DRAWING; IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE.

Field Book: BRYAN "3"
Date: 07/05
Project Number: 200.14 WG
Design By: WRK
Drawn By: BAG

Sheet Title:
ALT. BID NO. 1 – ACCESS RD. EXTENSION

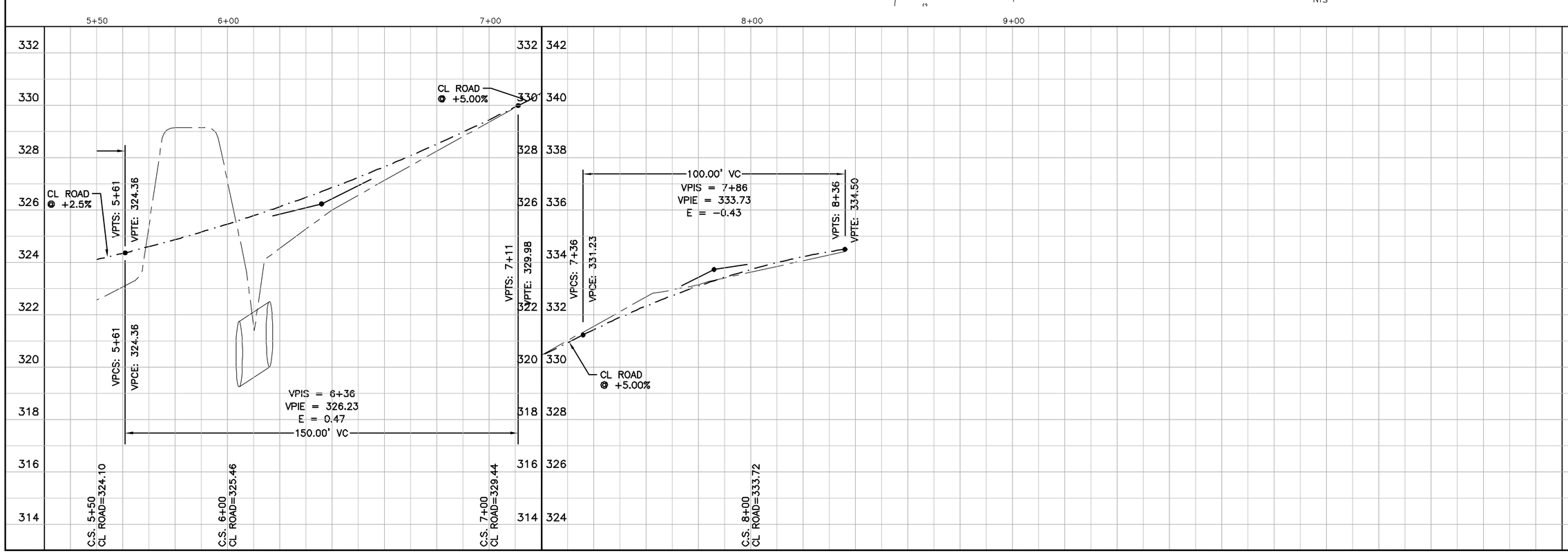
Sheet Number:
41 ....Of.... 48





STONE RIPRAP DETAIL

NTS



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CITY OF BRYAN 54" WATER TRANSMISSION LINE

NO.	REVISION	BY	DATE

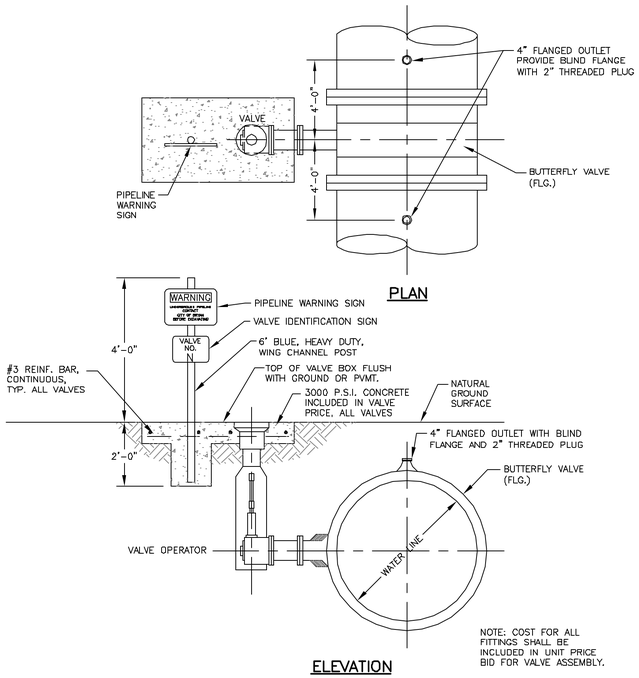
Drawing Name: F:\00200\200.14wg\dwg\design\Road P&P.dwg

VERIFY SCALE 0 1 BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE.

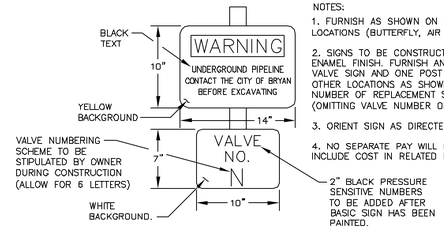
Field Book: BRYAN "S"
Date: 07/05
Project Number: 200.14 WC
Design By: WRK
Drawn By: BAG

Sheet Title: ALT. BID NO. 1 – ACCESS RD. EXTENSION

Sheet Number: 42 ....of.... 48



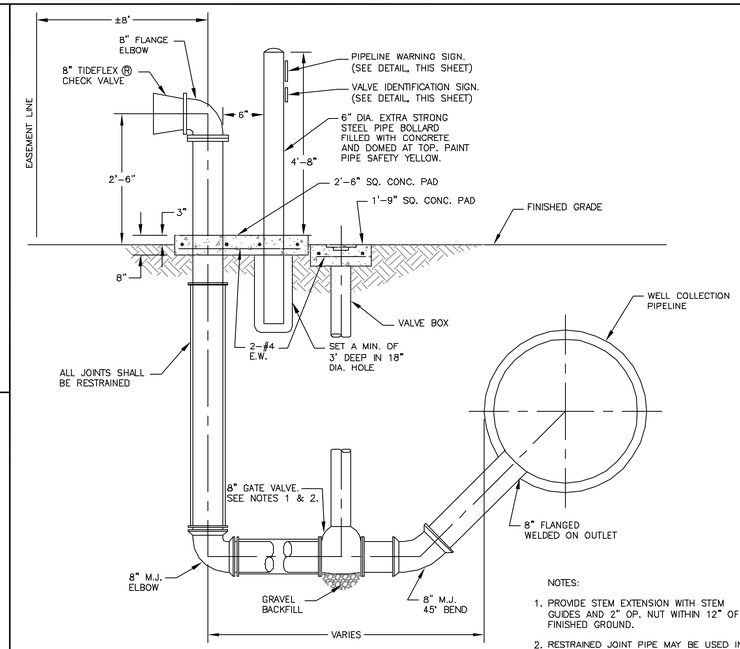
1 BUTTERFLY VALVE ASSEMBLY
NTS



NOTES:

1. FURNISH AS SHOWN ON PLANS AND/OR AT ALL VALVE LOCATIONS (BUTTERFLY, AIR RELEASE, DRAIN STATION, ETC).
2. SIGNS TO BE CONSTRUCTED FROM 20 GA. STEEL BAKED ON ENAMEL FINISH. FURNISH AND INSTALL ONE WARNING AND ONE VALVE SIGN AND ONE POST FOR EACH VALVE INSTALLED AND AT OTHER LOCATIONS AS SHOWN ON PLANS (IF ANY). FURNISH SAME NUMBER OF REPLACEMENT SIGNS AS FOR EACH INSTALLED (OMITTING VALVE NUMBER ON VALVE SIGN).
3. ORIENT SIGN AS DIRECTED BY OWNER DURING CONSTRUCTION.
4. NO SEPARATE PAY WILL BE PROVIDED FOR SIGNS AND POSTS. INCLUDE COST IN RELATED ITEMS OF WORK.

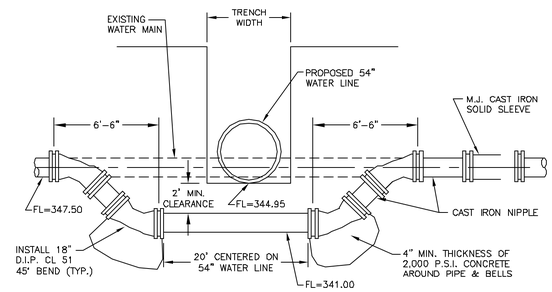
2 PIPELINE WARNING AND VALVE IDENTIFICATION SIGN
NTS



NOTES:

1. PROVIDE STEM EXTENSION WITH STEM GUIDES AND 2" OP. NUT WITHIN 12" OF FINISHED GROUND.
2. RESTRAINED JOINT PIPE MAY BE USED IN LIEU OF TIE-RODS.
3. DOWNSTREAM CHANNEL. ROUTE UNDER ROAD IF ROAD IS DOWNSTREAM OF PIPE.
4. CONTRACTOR SHALL INSTALL FITTINGS AS REQUIRED TO FACILITATE PRESSURE TESTING.
5. COST FOR ALL FITTINGS AND VALVES ON THE DRAIN STATION SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE ASSEMBLY.

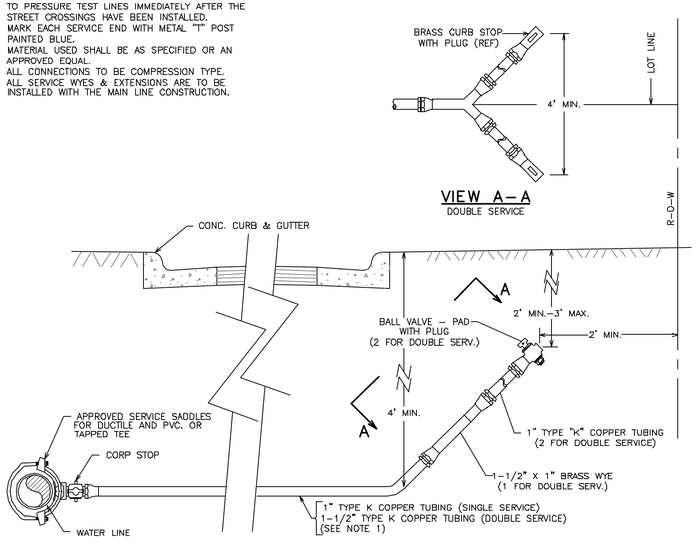
4 DRAIN STATION ASSEMBLY
NTS



3 WATER MAIN LOWERING DETAIL
N.T.S.

NOTES:

1. NO SPLICES IN COPPER TUBING WILL BE ALLOWED BETWEEN THE SERVICE SADDLE AND THE CURB STOP FOR SINGLE SERVICE OR BETWEEN THE SERVICE SADDLE AND THE WYE FOR DOUBLE SERVICE.
2. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PRESSURE TEST LINES IMMEDIATELY AFTER THE STREET CROSSINGS HAVE BEEN INSTALLED.
3. MARK EACH SERVICE END WITH METAL "T" POST PAINTED BLUE.
4. MATERIAL USED SHALL BE AS SPECIFIED OR AN APPROVED EQUAL.
5. ALL CONNECTIONS TO BE COMPRESSION TYPE.
6. ALL SERVICE WYES & EXTENSIONS ARE TO BE INSTALLED WITH THE MAIN LINE CONSTRUCTION.



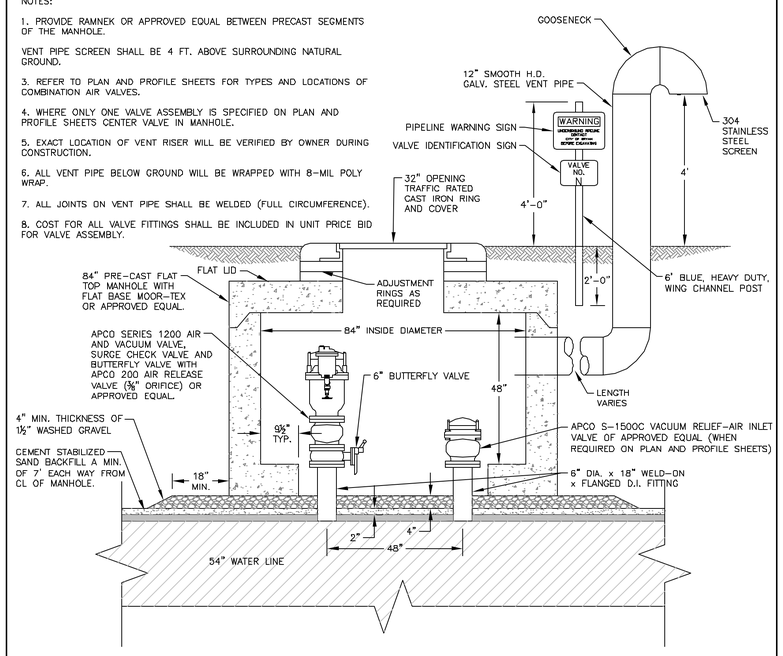
5 WATER CROSSING
NTS

NOTES:

1. PROVIDE RAMNEK OR APPROVED EQUAL BETWEEN PRECAST SEGMENTS OF THE MANHOLE.

VENT PIPE SCREEN SHALL BE 4 FT. ABOVE SURROUNDING NATURAL GROUND.

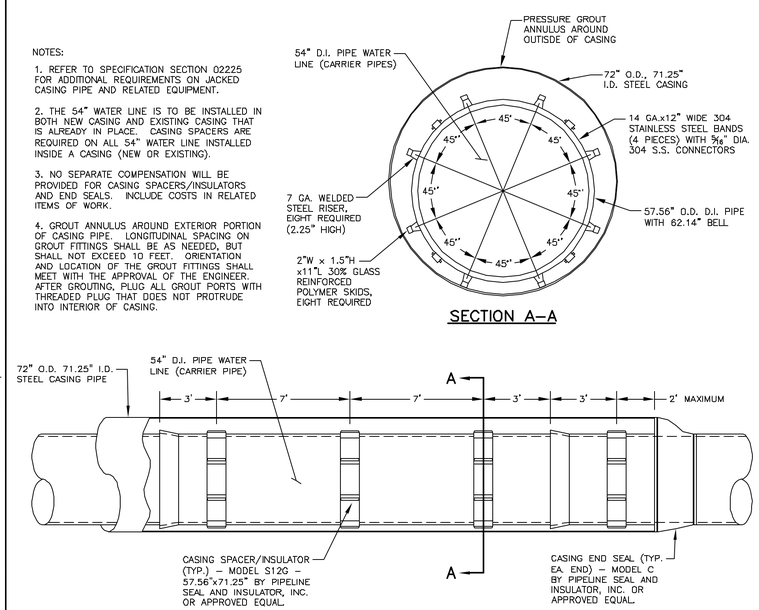
3. REFER TO PLAN AND PROFILE SHEETS FOR TYPES AND LOCATIONS OF COMBINATION AIR VALVES.
4. WHERE ONLY ONE VALVE ASSEMBLY IS SPECIFIED ON PLAN AND PROFILE SHEETS CENTER VALVE IN MANHOLE.
5. EXACT LOCATION OF VENT RISER WILL BE VERIFIED BY OWNER DURING CONSTRUCTION.
6. ALL VENT PIPE BELOW GROUND WILL BE WRAPPED WITH 8-MIL POLY WRAP.
7. ALL JOINTS ON VENT PIPE SHALL BE WELDED (FULL CIRCUMFERENCE).
8. COST FOR ALL VALVE FITTINGS SHALL BE INCLUDED IN UNIT PRICE BID FOR VALVE ASSEMBLY.



6 COMBINATION VACUUM RELIEF/AIR RELEASE VALVE ASSEMBLY
SCALE: 1/2"=1'-0"

NOTES:

1. REFER TO SPECIFICATION SECTION 02225 FOR ADDITIONAL REQUIREMENTS ON JACKED CASING PIPE AND RELATED EQUIPMENT.
2. THE 54" WATER LINE IS TO BE INSTALLED IN BOTH NEW CASING AND EXISTING CASING THAT IS ALREADY IN PLACE. CASING SPACERS ARE REQUIRED ON ALL 54" WATER LINE INSTALLED INSIDE A CASING (NEW OR EXISTING).
3. NO SEPARATE COMPENSATION WILL BE PROVIDED FOR CASING SPACERS/INSULATORS AND END SEALS. INCLUDE COSTS IN RELATED ITEMS OF WORK.
4. GROUT ANNULUS AROUND EXTERIOR PORTION OF CASING PIPE. LONGITUDINAL SPACING ON GROUT FITTINGS SHALL BE AS NEEDED, BUT SHALL NOT EXCEED 10 FEET. ORIENTATION AND LOCATION OF THE GROUT FITTINGS SHALL MEET WITH THE APPROVAL OF THE ENGINEER. AFTER GROUTING, PLUG ALL GROUT PORTS WITH THREADED PLUG THAT DOES NOT PROTRUDE INTO INTERIOR OF CASING.



7 CASING PIPE WITH SPACERS/INSULATORS AND END DETAIL
NTS

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Brenham, Texas 77833
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CITY OF BRYAN
54" WATER TRANSMISSION LINE

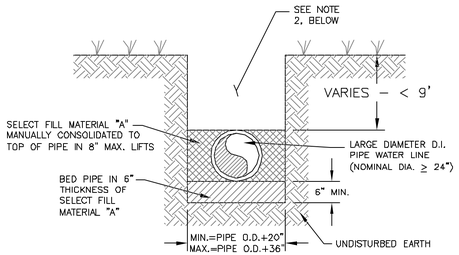
NO.	REVISION	BY	DATE

Drawing Name: P:\00200\200.14wg\dwg\design\Water Details.dwg
0 1 VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE.

Field Book: BRYAN "S"
Date: 07/05
Project Number: 200.14 WG
Design By: WRK
Drawn By: BAG

Sheet Title: WATER DETAILS

Sheet Number: 43 ....Of.... 48



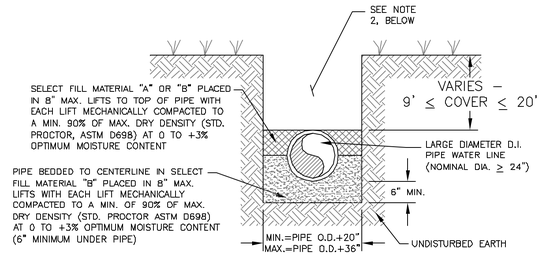
NOTES FOR DETAIL 1:

1. THE ABOVE DETAIL APPLIES ONLY TO LARGE DIAMETER DUCTILE IRON PIPE WATER LINE (NOMINAL DIAMETER ≥ 24") THAT IS INSTALLED IN UNDEVELOPED AREAS AND HAS A COVER OVER THE TOP OF THE PIPE THAT IS LESS THAN 9 FT.

2. ALL BACKFILL ABOVE PIPE EMBEDMENT ZONE SHALL BE IN ACCORDANCE WITH THE APPLICABLE TRENCH BACKFILL DETAIL SHOWN ON THIS PLAN SHEET.

1 – TYPE 3 PIPE EMBEDMENT DETAIL (UNDEVELOPED AREAS – C.S. 0+18 TO C.S. 109+80)

NTS



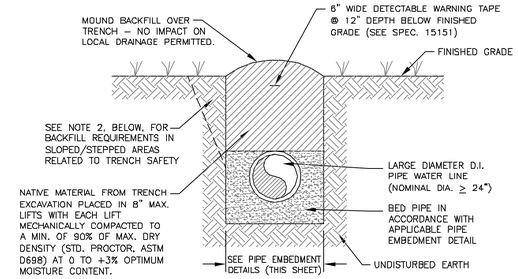
NOTES FOR DETAIL 2:

1. THE ABOVE DETAIL APPLIES ONLY TO LARGE DIAMETER DUCTILE IRON PIPE WATER LINE (NOMINAL DIAMETER ≥ 24") THAT IS INSTALLED IN UNDEVELOPED AREAS AND HAS A COVER OVER THE TOP OF THE PIPE THAT IS 9' OR GREATER BUT LESS THAN 20'.

2. ALL BACKFILL ABOVE PIPE EMBEDMENT ZONE SHALL BE IN ACCORDANCE WITH THE APPLICABLE TRENCH BACKFILL DETAIL SHOWN ON THIS PLAN SHEET.

2 – TYPE 5 PIPE EMBEDMENT DETAIL (UNDEVELOPED AREAS – C.S. 0+18 TO C.S. 109+80)

NTS



NOTES FOR DETAIL 3:

1. THE ABOVE DETAIL APPLIES TO LARGE DIAMETER DUCTILE IRON PIPE WATER LINE (NOMINAL DIAMETER ≥ 24") THAT IS INSTALLED ONLY IN LOCATIONS DEFINED AS UNDEVELOPED AREAS AND IS APPLICABLE FOR ALL DEPTHS OF COVER.

2. WHERE CONTRACTOR ELECTS TO SLOPE BACK OR STAIR STEP TRENCH WALLS FOR TRENCH SAFETY PURPOSES, CONTRACTOR SHALL ALSO PROVIDE, PLACE AND COMPACT THE BACKFILL IN THE SLOPED/STEPPED AREAS IN CONFORMANCE WITH THE SAME PROVISIONS SET FORTH FOR THE AREA THAT IS DIRECTLY ABOVE THE PIPE.

3 – TYPICAL TRENCH BACKFILL DETAIL (UNDEVELOPED AREAS – C.S. 0+18 TO C.S. 109+80)

NTS

CONSTRUCTION NOTES:

1. UNDEVELOPED AREAS FOR THE INSTALLATION OF THE 54" WATER TRANSMISSION LINE ARE HEREBY DEFINED AS FOLLOWS:

   A. ALL DUCTILE IRON PIPE AND APPURTENANCES TO BE INSTALLED FROM CS 0+18 AND CS 109+80. CS 0+18 IS THE LOCATION WHERE THE EXISTING 72" CASING BEGINS AT THE LOW SERVICE PUMP STATION ON THE NORTHERLY MOST END OF THE 54" WATER LINE ROUTE.

2. DEVELOPED AREAS FOR THE INSTALLATION OF THE 54" WATER TRANSMISSION LINE ARE HEREBY DEFINED AS FOLLOWS:

   A. ALL DUCTILE IRON PIPE AND APPURTENANCES TO BE INSTALLED AS "YARD PIPING" AT THE LOW SERVICE PUMP STATION.

   B. ALL DUCTILE IRON PIPE AND APPURTENANCES TO BE INSTALLED FROM CS 0+00 TO CS 0+18 AT THE LOW SERVICE PUMP STATION.

   C. ALL DUCTILE IRON PIPE AND APPURTENANCES TO BE INSTALLED FROM CS 109+80 TO CS 191+29 WHERE THE 54" WATER TRANSMISSION LINE IS TO BE CONNECTED TO EXISTING PIPING AT THE HIGH SERVICE PUMP STATION.

   D. ANY AREA NOT SPECIFICALLY DEFINED AS AN "UNDEVELOPED AREA".

3. SELECT FILL MATERIAL "A" SHALL BE EXCAVATED TRENCH MATERIAL, OR IMPORTED MATERIAL, WHICH IS FREE FROM ROCK FRAGMENTS, LUMPS AND CLODS THAT WILL NOT BREAK DOWN WHEN COMPACTED UNLESS THE ROCKS, LUMPS OR CLODS ARE 2" OR SMALLER (LARGEST DIMENSION) AND ARE WELL SCATTERED IN THE MATERIAL. SELECT FILL MATERIAL "A" SHALL BE FREE OF ORGANIC MATERIALS, DELETERIOUS SUBSTANCES, AND ANY SHARP OR ANGULAR MATERIALS THAT COULD DAMAGE THE UTILITY BEING INSTALLED AND ANY COATING/COVER ON THE UTILITY.

4. SELECT FILL MATERIAL "B" SHALL BE CLEAN SAND THAT IS OBTAINED AND IMPORTED FROM AN APPROVED SOURCE AND SHALL BE FREE OF ORGANIC MATERIAL OR OTHER DELETERIOUS SUBSTANCES THAT MAY CAUSE DAMAGE TO THE UTILITY BEING INSTALLED AND ANY COATING/COVER ON THE UTILITY. THE SAND SHALL BE CLASSIFIED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM (USCS) AS SET FORTH IN ASTM D2487. THE SAND SHALL BE ONE OF THE FOLLOWING USCS DESIGNATIONS:

   A. SW SOIL TYPE: WELL–GRADED SANDS AND GRAVELLY SANDS, LITTLE OR NO FINES. MORE THAN 50% PASSES NO. 4 SIEVE. MORE THAN 95% RETAINED ON NO. 200 SIEVE. CLEAN.

   B. SP SOIL TYPE: POORLY GRADED SANDS AND GRAVELLY SANDS, LITTLE OR NO FINES. MORE THAN 50% PASSES NO. 4 SIEVE. MORE THAN 95% RETAINED ON NO. 200 SIEVE. CLEAN.

CONTRACTOR SHALL PROVIDE AN ANALYSIS FOR ALL SELECT FILL MATERIAL "B" THAT WILL BE PROVIDED AND USED ON THIS PROJECT. THE ANALYSIS WILL BE PERFORMED BY AN INDEPENDENT TESTING LABORATORY AND THE RESULTS SUBMITTED TO THE CITY'S PROJECT MANAGER FOR REVIEW AND APPROVAL. COST FOR TESTING ON THE MATERIAL SHALL BE CONSIDERED INCIDENTAL TO THE PROJECT AND SHALL BE PAID FOR BY CONTRACTOR. INCLUDE COST IN RELATED ITEMS OF WORK.

5. WHERE MECHANICAL COMPACTION IS REQUIRED, IT SHALL BE ACCOMPLISHED WITH VIBRATORY ROLLERS OR HAND OPERATED VIBRATORY COMPACTORS. ALL MECHANICAL COMPACTION EQUIPMENT SHALL MEET WITH THE APPROVAL OF THE CITY'S PROJECT MANAGER.

6. WHERE MANUAL CONSOLIDATION OR COMPACTION IS PERMITTED, IT SHALL, AT A MINIMUM, BE ACCOMPLISHED USING HAND TAMPS OR OTHER MANUAL TOOLS THAT MEET WITH THE APPROVAL OF THE CITY'S PROJECT MANAGER.

7. ALL COMPACTION REQUIREMENTS AND MAXIMUM ALLOWABLE LIFTS IN THE PIPE EMBEDMENT ZONE AND FOR THE BACKFILL ABOVE THE PIPE EMBEDMENT ZONE SHALL CONFORM TO THE APPLICABLE PLAN DETAILS.

8. ALL COMPACTION TESTS REQUIRED FOR THIS PROJECT SHALL BE DONE IN THE PRESENCE OF THE CITY'S PROJECT MANAGER OR A REPRESENTATIVE APPOINTED BY THE CITY'S PROJECT MANAGER.

9. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL EXCAVATION/TRENCH SAFETY IN ACCORDANCE WITH THE PROVISIONS SET FORTH IN TECHNICAL SPECIFICATION SECTION 02229.

10. CONTRACTOR SHALL BE RESPONSIBLE FOR RE–ESTABLISHING ALL VEGETATIVE GROUND COVER THAT IS DISTURBED OR REMOVED DURING THE EXECUTION OF THE WORK ON THIS PROJECT. REFER TO TECHNICAL SPECIFICATION 02940 FOR SPECIFIC REQUIREMENTS.

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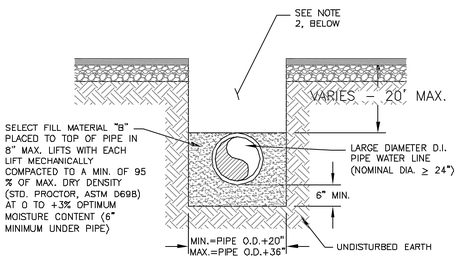


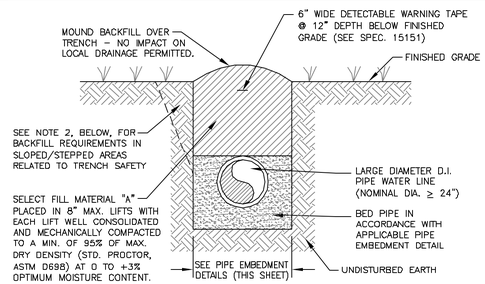
NOTES FOR DETAIL 4:

1. THE ABOVE DETAIL APPLIES ONLY TO LARGE DIAMETER DUCTILE IRON PIPE WATER LINE (NOMINAL DIAMETER ≥ 24") THAT IS INSTALLED IN DEVELOPED AREAS. THE ABOVE DETAIL IS APPLICABLE FOR ALL DEPTHS OF COVER OVER THE TOP OF THE PIPE UP TO 20 FT.

2. ALL BACKFILL ABOVE PIPE EMBEDMENT ZONE SHALL BE IN ACCORDANCE WITH THE APPLICABLE TRENCH BACKFILL DETAIL SHOWN ON THIS PLAN SHEET.

4 – TYPE 5 PIPE EMBEDMENT DETAIL (DEVELOPED AREAS)

NTS



NOTES FOR DETAIL 5:

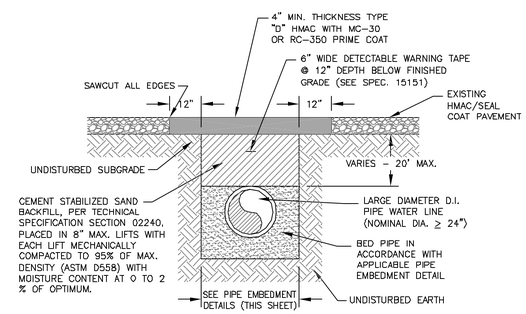
1. THE ABOVE DETAIL APPLIES TO LARGE DIAMETER DUCTILE IRON PIPE WATER LINE (NOMINAL DIAMETER ≥ 24") THAT IS INSTALLED IN ALL UNPAVED LOCATIONS IN DEVELOPED AREAS OF THE PROJECT AND IS APPLICABLE FOR ALL DEPTHS OF COVER. THE ABOVE DETAIL APPLIES TO UNOPENED STREET RIGHT–OF–WAYS, PARKS, DRAINAGE EASEMENTS, AND OTHER SIMILAR UNPAVED LOCATIONS IN DEVELOPED AREAS OF THE PROJECT.

2. WHERE CONTRACTOR ELECTS TO SLOPE BACK OR STAIR STEP TRENCH WALLS FOR TRENCH SAFETY PURPOSES, CONTRACTOR SHALL ALSO PROVIDE, PLACE AND COMPACT THE BACKFILL IN THE SLOPED/STEPPED AREAS IN CONFORMANCE WITH THE SAME PROVISIONS SET FORTH FOR THE AREA THAT IS DIRECTLY ABOVE THE PIPE.

5 – TYPICAL TRENCH BACKFILL DETAIL FOR UNPAVED LOCATIONS (DEVELOPED AREAS)

NTS

THIS DETAIL DOES NOT APPLY FOR ANY TRENCH BACKFILL AND ASPHALT/SEAL COAT PAVEMENT REPAIRS FROM C.S. 116+50 TO C.S. 146+50 – REFER TO DETAIL 8, THIS SHEET, FOR THIS AREA.



6 – TYPICAL TRENCH BACKFILL AND PAVEMENT REPAIR – ASPHALT/SEAL COAT PAVEMENT

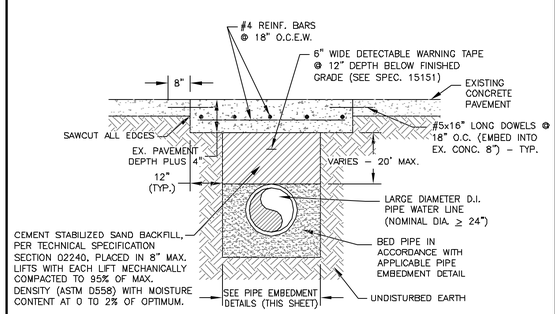
NTS

NOTES FOR DETAIL 8:

1. WHERE THE 54" WATER TRANSMISSION LINE IS INSTALLED IN CERTAIN EXISTING STREETS, CONTRACTOR IS REQUIRED TO COMPLETELY RECONSTRUCT THE EXISTING STREET SECTION IN CONFORMANCE WITH THE BELOW DETAIL AND THESE NOTES. THE ABOVE DETAIL APPLIES TO ALL LOCATIONS WHERE THE 54" WATER TRANSMISSION LINE IS INSTALLED IN A CITY STREET WITH AN EXISTING ASPHALT OR SEAL COAT SURFACE BETWEEN THE FOLLOWING CONSTRUCTION STATIONS:

C.S. 116+50 TO C.S. 146+50

PLEASE NOTE THAT SOME AREAS BETWEEN THE ABOVE CONSTRUCTION STATIONS ARE NOT NECESSARILY PAVED STREETS AND CONTRACTOR SHALL CONFORM TO OTHER APPLICABLE DETAILS ON THIS PLAN SHEET IN THESE AREAS. ALSO, FOR THE AREAS ALONG THE PROJECT ROUTE THAT ARE NOT BETWEEN THE ABOVE CONSTRUCTION STATIONS, CONTRACTOR SHALL CONFORM TO OTHER APPLICABLE BACKFILL AND PAVEMENT REPAIR DETAILS SHOWN ON THIS PLAN SHEET.

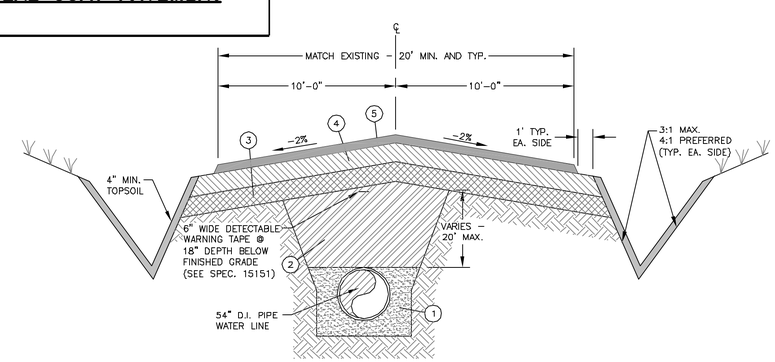


7 – TYPICAL TRENCH BACKFILL AND PAVEMENT REPAIR – CONCRETE PAVEMENT

NTS

SCHEDULE: FOR DETAIL 8:

1. 54" D.I. PIPE WATER LINE BEDDED IN ACCORDANCE WITH "TYPE 5 PIPE EMBEDMENT DETAIL (DEVELOPED AREAS)".
2. CEMENT STABILIZED SAND BACKFILL, PER TECHNICAL SPECIFICATION SECTION 02240, PLACED IN 8" MAX. LIFTS WITH EACH LIFT MECHANICALLY COMPACTED TO 95% OF MAX. DENSITY (ASTM D558) WITH MOISTURE CONTENT AT 0 TO +2% OF OPTIMUM.
3. 6" MIN. COMPACTED THICKNESS STABILIZED SUBGRADE – STABILIZATION TO BE ACCOMPLISHED USING TYPE A HYDRATED LIME (LIME CONTENT TO BE 6% OF THE DRY WEIGHT OF THE SUBGRADE MATERIAL, VERIFY ACTUAL PERCENTAGE OF LIME TO BE USED DURING CONSTRUCTION). COMPACT SUBGRADE TO 95% OF MAX. DENSITY (MODIFIED PROCTOR, ASTM D1557). CONFORMANCE TO APPLICABLE CITY AND TxDOT STANDARD SPECIFICATIONS IS REQUIRED.
4. 6" MIN. COMPACTED THICKNESS FLEXIBLE BASE – FLEXIBLE BASE MATERIAL TO BE TYPE A, GRADE 1 CRUSHED LIMESTONE BASE (TxDOT ITEM 247). BASE MATERIAL TO BE COMPACTED TO 95% OF MAX. DENSITY (MODIFIED PROCTOR, ASTM D1557) WITH MOISTURE CONTENT AT 0 TO +2% OF OPTIMUM. CONFORMANCE TO APPLICABLE CITY AND TxDOT STANDARD SPECIFICATIONS IS REQUIRED.
5. 2" MIN. COMPACTED THICKNESS HOT MIX ASPHALTIC CONCRETE (HMAC) PAVEMENT INCLUDING PRIME COAT – ASPHALT TO BE TYPE "D" HMAC (TxDOT ITEM 340), PRIME COAT TO BE MC–30 (TxDOT ITEM 300). CONFORMANCE TO APPLICABLE CITY AND TxDOT STANDARD SPECIFICATIONS IS REQUIRED.



8 – TYPICAL ASPHALT ROADWAY RECONSTRUCTION AND TRENCH BACKFILL (C.S. 116+50 TO C.S. 146+50)

NTS

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CITY OF BRYAN 54" WATER TRANSMISSION LINE

NO.	REVISION	BY	DATE

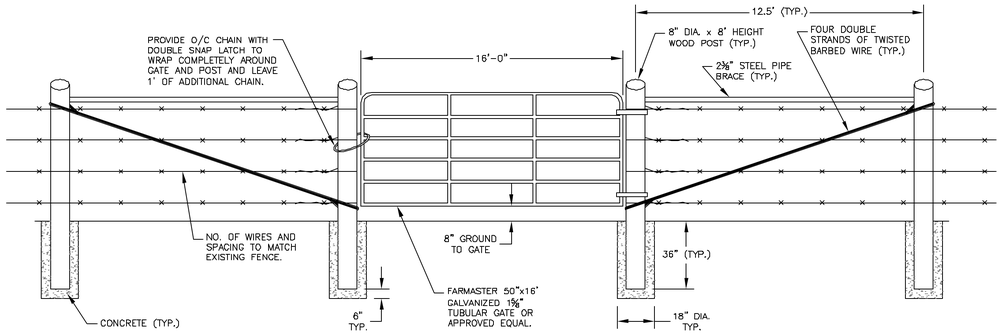
Drawing Name: P:\00200\200.14wg\dwg\design\Water Details.dwg

0 VERIFY SCALE 1 BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE.

Field Book: BRYAN "S"
Date: 07/05
Project Number: 2200.14 WG
Design By: WRK
Drawn By: BAG

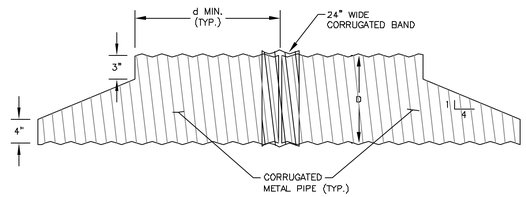
Sheet Title: BACKFILL, TRENCHING, AND PAVEMENT REPAIR DETAILS

Sheet Number: 44 ....Of.... 48

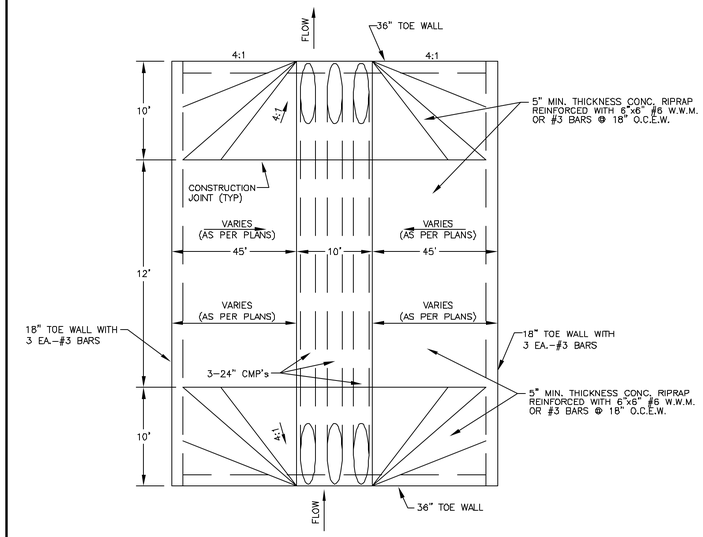


1 TYPICAL GATE ASSEMBLY
NTS

D	d MIN.
24"	9'
30"	7'
54"	9'



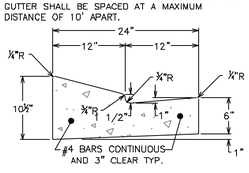
2 SLOPED END TREATMENT DETAIL (CMP)
NTS



PLAN

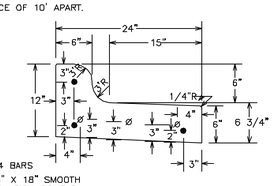
3 CONCRETE LOW WATER CROSSING DETAIL
NTS

NOTE:
TYPE "G" EXPANSION JOINTS IN CURB & GUTTER SHALL BE SPACED AT A MAXIMUM DISTANCE OF 60' APART AND AT ALL RADIUS POINTS, P.T.'S AND P.C.'S. TYPE "B" CONTRACTION JOINTS IN CURB & GUTTER SHALL BE SPACED AT A MAXIMUM DISTANCE OF 10' APART.



24" LAY DOWN GUTTER SECTION

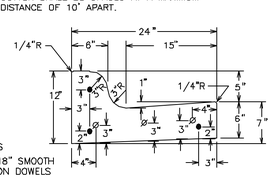
NOTE:
TYPE "G" EXPANSION JOINTS IN CURB & GUTTER SHALL BE SPACED AT A MAXIMUM DISTANCE OF 60' APART AND AT ALL RADIUS POINTS, P.T.'s, AND P.C.'s. TYPE "B" CONTRACTION JOINTS IN CURB & GUTTER SHALL BE SPACED AT A MAXIMUM DISTANCE OF 10' APART.



● = #4 BARS
Ø = 3/4" X 18" SMOOTH EXPANSION DOWELS

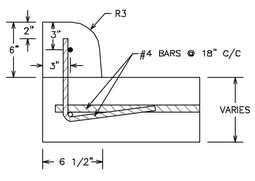
TYPICAL COMBINED SPILL CURB

NOTE:
TYPE "G" EXPANSION JOINTS IN CURB & GUTTER SHALL BE SPACED AT A MAXIMUM DISTANCE OF 60' APART AND AT ALL RADIUS POINTS, P.T.'S AND P.C.'S. TYPE "B" CONTRACTION JOINTS IN CURB & GUTTER SHALL BE SPACED AT A MAXIMUM DISTANCE OF 10' APART.

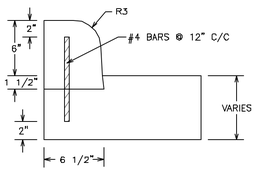


● = #4 BARS
Ø = 3/4" X 18" SMOOTH EXPANSION DOWELS

TYPICAL COMBINED CURB & GUTTER SECTION

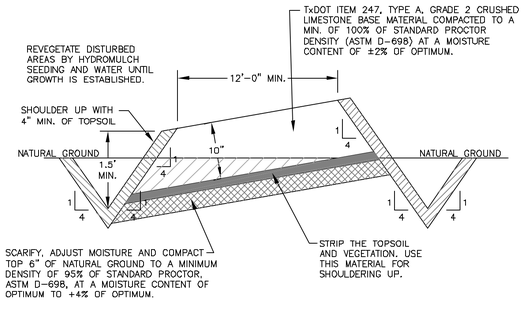


DOWELLED IN CURBS DETAIL

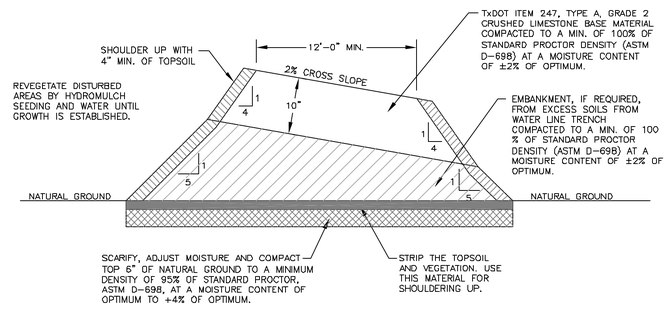


DOWELLED IN CURBS DETAIL

4 CONCRETE CURB AND GUTTER
NTS



5 ACCESS ROAD TYPICAL CUT CROSS SECTION
NTS



6 ACCESS ROAD TYPICAL FILL CROSS SECTION
NTS

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203 S. Jackson
Brenham, Texas 77833
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CITY OF BRYAN
54" WATER TRANSMISSION LINE

NO.	REVISION	BY	DATE

Drawing Name: P:\00200\200.14wg\dwg\design\Water Details.dwg
VERIFY SCALE 1 BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE.

Field Book: BRYAN "S"
Date: 07/05
Project Number: 200.14 WG
Design By: WRK
Drawn By: BAG

Sheet Title: PAVING DETAILS

Sheet Number: 45 ....Of.... 48

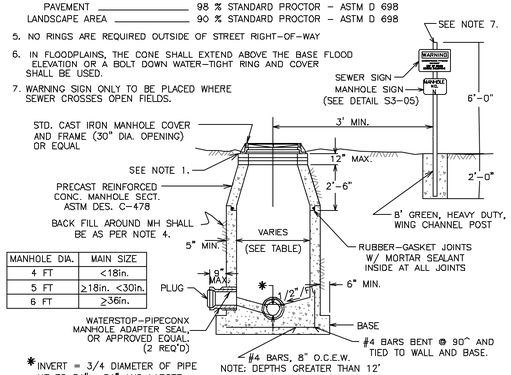
NOTES:
1. A MAX. OF 4 AND A MIN. OF 2 THROAT RINGS SHALL BE USED AT EACH MANHOLE IN NEW OR EXISTING RIGHT-OF-WAY.
2. USE ADEKA SEALANT OR APPROVED EQUAL BETWEEN RING/COVER, ADJUSTMENT RINGS AND CHIMNEY OR CORBEL/CONE SECTION.
3. MANHOLE BASE THICKNESS AND FOUNDATION AS FOLLOWS:

MANHOLE DEPTH (FT.)	BASE THICKNESS
0 – 12	8"
12 AND OVER	12"

4. MANHOLE LOCATION AND COMPACTION AS FOLLOWS:

LOCATION	COMPACTION REQUIREMENT
PAVEMENT	98 % STANDARD PROCTOR – ASTM D 698
LANDSCAPE AREA	90 % STANDARD PROCTOR – ASTM D 698

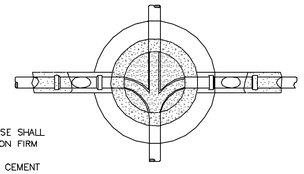
5. NO RINGS ARE REQUIRED OUTSIDE OF STREET RIGHT-OF-WAY
6. IN FLOODPLAINS, THE CONE SHALL EXTEND ABOVE THE BASE FLOOD ELEVATION OR A BOLT DOWN WATER-TIGHT RING AND COVER SHALL BE USED.
7. WARNING SIGN ONLY TO BE PLACED WHERE SEWER CROSSES OPEN FIELDS.



MANHOLE DIA.	MAIN SIZE
4 FT	<18in.
5 FT	≥18in. <30in.
6 FT	≥36in.

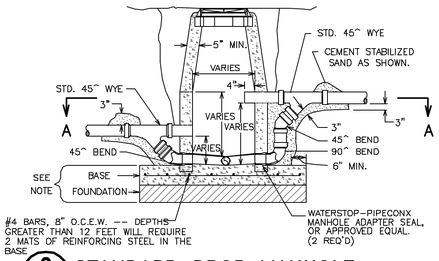
* INVERT = 3/4 DIAMETER OF PIPE UP TO 24". 24" AND LARGER SHALL BE FULL DEPTH INVERTS.

1 STANDARD MANHOLE
NTS



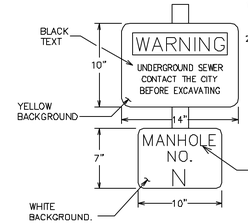
NOTE:
MANHOLE BASE SHALL BE PLACED ON FIRM SUBGRADE. ADDITION OF CEMENT STABILIZED SAND OR GRAVEL MAY BE REQUIRED TO STABILIZE FOUNDATION.

SECTION A-A



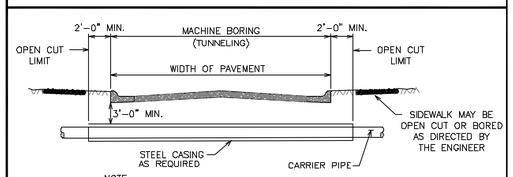
2 STANDARD DROP MANHOLE
NTS

NOTE: CAP CLEAN-OUT AT BLIND FLANGE ON RESTRAINED JOINT FOR FORCE MAINS.



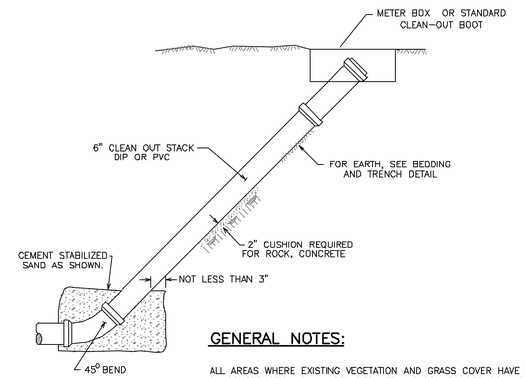
NOTES:
1. FURNISH AS SHOWN ON PLANS AND/OR AT EACH MANHOLE WHERE SEWER LINE CROSSES OPEN FIELDS
2. SIGNS TO BE CONSTRUCTED FROM 20 GA. STEEL BAKED ON ENAMEL FINISH. FURNISH ONE ONE SIGN AND ONE POST FOR EACH MANHOLE INSTALLED ACROSS OPEN FIELD AND AT OTHER LOCATIONS AS SHOWN ON PLANS. FURNISH SAME NUMBER OF REPLACEMENT SIGNS AS FOR EACH INSTALLED (OMITTING MANHOLE NUMBER ON MANHOLE SIGN) (NOT A SEPARATE PAY ITEM)
2" BLACK PRESSURE SENSITIVE NUMBERS TO BE ADDED AFTER BASIC SIGN HAS BEEN PAINTED.

3 SEWER WARNING AND MANHOLE IDENTIFICATION SIGN
NTS



NOTE:
1. FOR MORE INFORMATION ON WATER AND SEWER LINE CROSSING SEE CITY STANDARD SPECIFICATION FOR WATER AND SEWER LINE CONSTRUCTION.
2. STEEL CASING SHALL BE AS SPECIFIED IN THE TECHNICAL SPECIFICATIONS.
3. DRY BORING PREFERRED, WET BORING ALLOWED ONLY WHEN APPROVED BY THE CITY ENGINEER.

TYPICAL CITY STREET CROSSING
NTS



GENERAL NOTES:

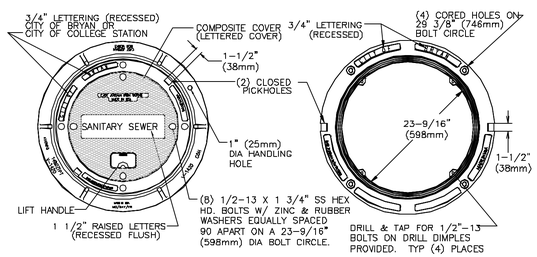
ALL AREAS WHERE EXISTING VEGETATION AND GRASS COVER HAVE BEEN BARED BY CONSTRUCTION SHALL BE ADEQUATELY BLOCK SODDED OR HYDROMULCHED AND WATERED UNTIL GROWTH IS ESTABLISHED. IN DEVELOPED AREAS WHERE GRASS IS PRESENT, BLOCK SOD WILL BE REQUIRED. BARED AREAS SHALL BE SEEDED OR SODDED WITHIN 14 CALENDAR DAYS OF LAST DISTURBANCE.

APPROVED EROSION CONTROL MEASURES MUST BE INSTALLED DURING THE ENTIRE TIME THAT EARTH HAS BEEN BARED BY CONSTRUCTION AND SHALL STAY IN PLACE UNTIL ACCEPTABLE VEGETATIVE GROWTH IS ESTABLISHED AFTER CONSTRUCTION IS COMPLETE AND THEN REMOVED BY CONTRACTOR.

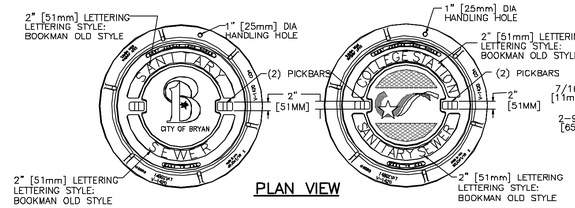
ALL EROSION CONTROL MEASURES SHOULD BE CLEANED OF SILT AFTER EVERY RAIN.

ESTABLISHMENT OF VEGETATION MAY BE A WARRANTY ITEM.

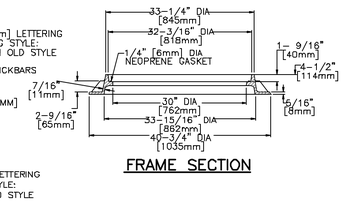
6 STANDARD CLEAN OUT FOR MAIN LINE
NTS



PLAN VIEW



PLAN VIEW



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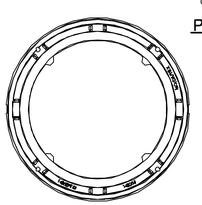
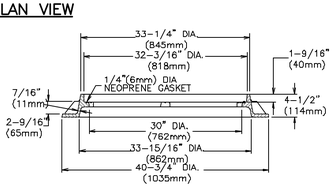


BOTTOM VIEW



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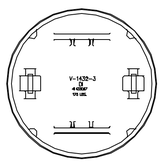
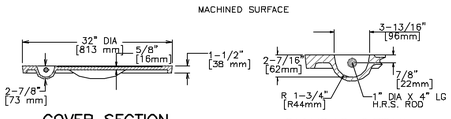


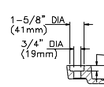
BOTTOM VIEW OF COVER



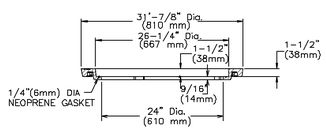
COVER SECTION

PICKBAR DETAIL

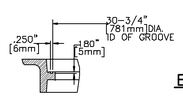
STANDARD MANHOLE RING AND COVER
NTS



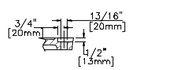
BOLT HOLE DETAIL



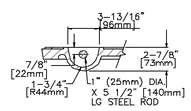
INNER COVER SECTION



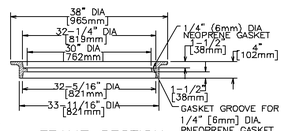
MACHINE GROOVE DETAIL



BOLT HOLE SECTION



PICKBAR DETAIL



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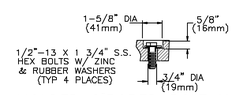
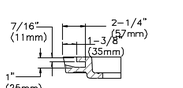
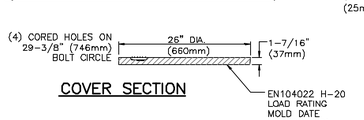


MOLDED C'BORED BOLT HOLE (FRAME IS DRILLED AND TAPPED)



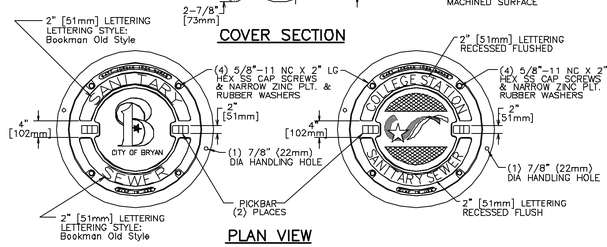
INNER COVER PICKHOLE DETAIL



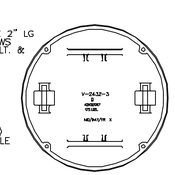
COVER SECTION

4 STANDARD MANHOLE RING AND COVER
NTS

WHEN MANHOLE IS > 3' ABOVE GROUND



PLAN VIEW



BOTTOM VIEW

5 WATER TIGHT MANHOLE RING AND COVER
NTS

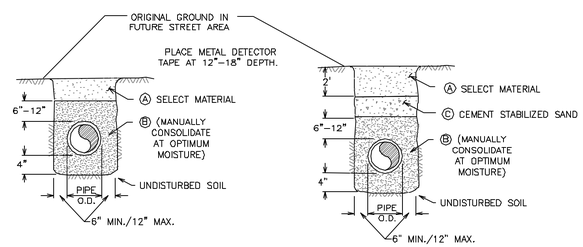
Ⓐ SELECT NATIVE MATERIAL
MATERIAL EXCAVATED FROM THE DITCH, (WHICH IS FREE OF ROCKS, LUMPS, CLODS, OR DEBRIS LARGER THAN TWO (2) INCHES IN THE LARGEST DIMENSION), COMPACTED TO A MINIMUM OF 90% OF MAXIMUM DENSITY AS DETERMINED BY ASTM D698 (STANDARD) AT A MOISTURE CONTENT WITHIN OPTIMUM TO +4% OF OPTIMUM UNDER NON-STRUCTURAL AREAS (ie...YARDS, PASTURES, EASEMENTS) AND TO A MINIMUM OF 98% OF MAXIMUM DENSITY AS DETERMINED BY ASTM D698 (STANDARD) AT A MOISTURE CONTENT WITHIN OPTIMUM TO +4% OF OPTIMUM UNDER FUTURE STREET AREAS.

Ⓑ GRANULAR MATERIAL
MATERIAL SHALL BE BANK RUN RIVER SAND WHICH IS FREE OF DETRIMENTAL QUANTITIES OF CLAY, DEBRIS, OR ORGANIC MATERIAL AND WHICH, WHEN TESTED BY STANDARD LABORATORY METHODS, MEET THE FOLLOWING REQUIREMENTS:

MAXIMUM LIQUID LIMIT	45
MAXIMUM PLASTICITY INDEX	15
MAXIMUM PERCENT PASSING NO. 200 SIEVE	35
MINIMUM PERCENT PASSING 3/4" SIEVE	100

THE MATERIAL SHALL BE FREE FLOWING AND WHEN WET, SHALL NOT ADHERE TO FORM A BALL WHEN PRESSED IN THE HAND. COMPACTED CEMENT STABILIZED SAND, 1-1/2 SACK/CY (PUGMILL ONLY). SPADE BY LIFTS INTO PLACE, TO FILL ALL VOIDS AROUND PIPE. MANUALLYCONSOLIDATE AT OPTIMUM MOISTURE.

Ⓒ CEMENT STABILIZED SAND



NOTES:
1. FOR BEDDING AND TRENCHING WITHIN EXISTING STREETS SEE DETAILS FOR OPEN CUT STREETS.
2. ALL BEDDING & INSTALLATION OF PVC PIPE SHALL BE IN ACCORDANCE TO ANSI/AWWA STANDARDS FOR PVC PIPE.
3. ALL BEDDING & INSTALLATION OF DUCTILE IRON PIPE SHALL BE IN ACCORDANCE TO ANSI/AWWA C150/A21.50.
4. COMPACTION SHALL BE ATTAINED BY MECHANICAL TAMPING.
5. SEDIMENT RESULTING FROM THE CONTRACTOR'S PERFORMANCE OF THE WORK, EITHER INSIDE OR OUTSIDE THE RIGHT OF WAY, SHALL BE CONTROLLED BY THE CONTRACTOR.
6. ALL TRENCHES SHALL BE BACK FILLED AND TEMPORARY PAVING OR PLANKING PLACED AT THE END OF EACH WORKING DAY.
7. TWENTY-FOUR (24) HOUR NOTIFICATION TO ENGINEERING IS REQUIRED PRIOR TO COMMENCEMENT OF WORK.

7 BEDDING AND TRENCH FOR DI PIPE & PVC PIPE
NTS

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Brenham, Texas 77833
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Fax (979) 836-7936

CITY OF BRYAN 54" WATER TRANSMISSION LINE

NO.	REVISION	BY	DATE

Drawing Name: P:\00200\200.14wg\dwg\design\Water Details.dwg
VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE.

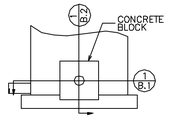
Field Book: BRYAN "S"
Date: 07/05
Project Number: 200.14 WG
Design By: WRK
Drawn By: BAG

Sheet Title: SEWER DETAILS

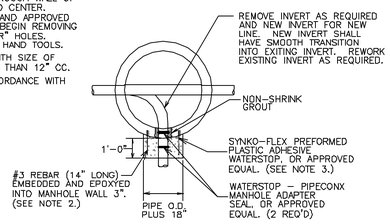
Sheet Number: 46 ....Of.... 48

NOTES:

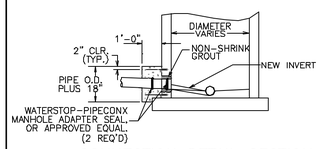
1. 1" DIA. "STARTER" HOLES SHALL BE DRILLED THROUGH WALL OF EXISTING MANHOLE SPACED 3" APART CENTER TO CENTER. AFTER "STARTER" HOLES HAVE BEEN INSTALLED AND APPROVED BY A CITY INSPECTOR, THE CONTRACTOR SHALL BEGIN REMOVING THE CONCRETE INSIDE THE PERIPHERAL "STARTER" HOLES. CONCRETE SHALL BE REMOVED WITH PNEUMATIC HAND TOOLS.
2. THE NUMBER OF REBAR DOWELS SHALL VARY WITH SIZE OF OPENING. REBAR SHALL NOT BE SPACED MORE THAN 12" CC.
3. WATERSTOP SHALL BE INSTALLED IN STRICT ACCORDANCE WITH MANUFACTURERS REQUIREMENTS.
4. CONCRETE SHALL BE 3,000 P.S.I.



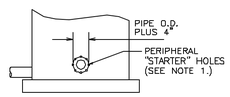
MANHOLE CONNECTION DETAIL



CONNECTION DETAIL SECTION VIEW



CONNECTION DETAIL SECTION VIEW

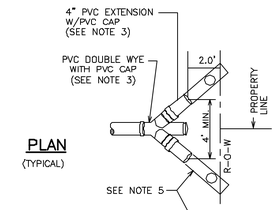


OPENING CREATION DETAIL

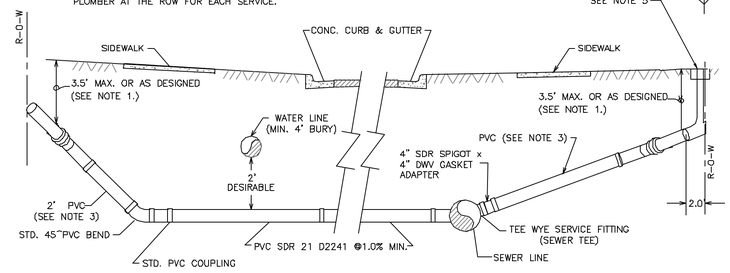
1 STANDARD MANHOLE TIE-IN
NTS

NOTE:

1. WHERE DOUBLE WYE SERVICE ELEVATION IS LESS THAN 2'-7" BELOW PROPOSED BACK OF CURB, MIN. SLAB ELEV. MUST BE SET TO ALLOW SANITARY SEWER SERVICE.
2. MARK EACH SERVICE END WITH METAL "T" POST PAINTED GREEN.
3. ALL SERVICE CONNECTIONS WITHIN THE R-O-W SHALL BE SCH 40 BELL END PIPE W/ GLUED JOINTS.
4. ALL SERVICE CONNECTIONS & EXTENSIONS ARE TO BE INSTALLED WITH THE MAIN LINE CONSTRUCTION.
5. A CLEAN OUT IS REQUIRED AND WILL BE INSTALLED BY THE PLUMBER AT THE ROW FOR EACH SERVICE.

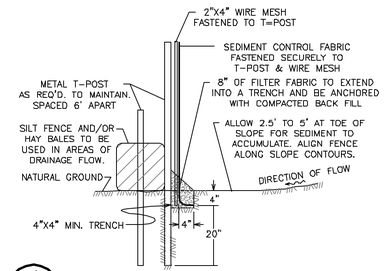


PLAN
(TYPICAL)



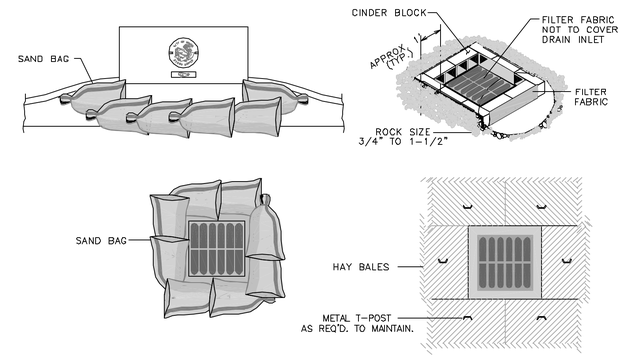
PROFILE
(TYPICAL)

2 SEWER SERVICE LINE CROSSING
NTS



4 SILT FENCE ASSEMBLY
NTS

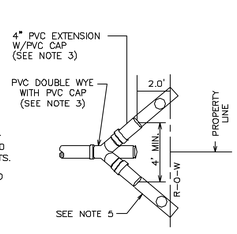
NOTE:
TEMPORARY DEVICES AROUND STORM DRAINS ARE USED TO DETAIN AND/OR FILTER SEDIMENT-LADEN RUNOFF. THE PROTECTION ALLOWS SEDIMENT TO SETTLE PRIOR TO DISCHARGE INTO A STORM DRAIN INLET OR CATCH BASIN. SAND BAGS SHALL BE UV RESISTANT AND MUST NOT DEGRADE DUE TO ATMOSPHERIC CONDITIONS. SAND BAGS SHALL BE REPLACED UPON FIRST SIGN OF DETERIORATION.



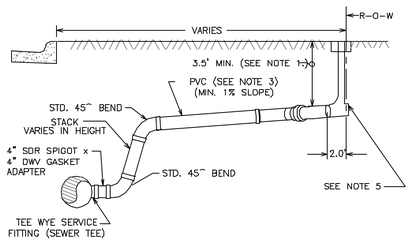
6 STORM DRAIN INLET PROTECTION
NTS

NOTE:

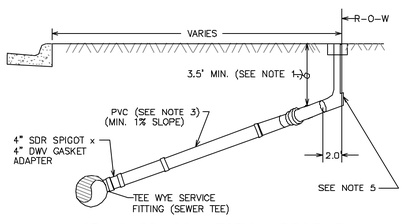
1. WHERE DOUBLE WYE SERVICE ELEVATION IS LESS THAN 2'-7" BELOW PROPOSED BACK OF CURB, MIN. SLAB ELEV. MUST BE SET TO ALLOW SANITARY SEWER SERVICE.
2. MARK EACH SERVICE END WITH METAL "T" POST PAINTED GREEN.
3. ALL MATERIAL SHALL BE SCH. 40 BELL END PIPE W/ GLUED JOINTS.
4. NO COUPLINGS WILL BE ALLOWED UNDER PAVEMENT AREAS.
5. A CLEAN OUT IS REQUIRED AND WILL BE INSTALLED BY THE PLUMBER AT THE ROW FOR EACH SERVICE.



PLAN



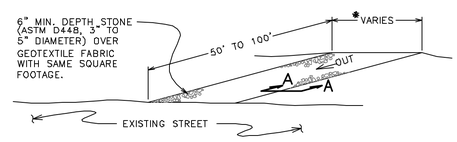
DEEP CONNECTION PROFILE

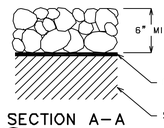


STANDARD CONNECTION PROFILE

3 SANITARY SEWER SERVICE CONNECTION
NTS

* MINIMUM 12' SHALL BE FULL WIDTH OF SITE ENTRANCE



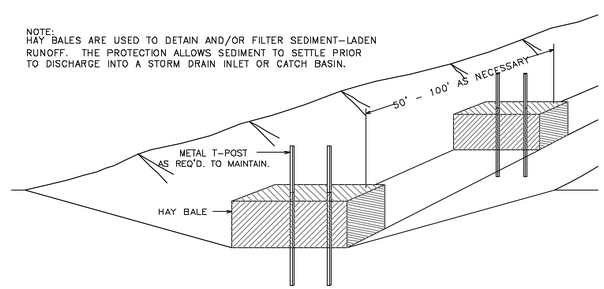


SECTION A-A

NOTE:
DRESS WITH ADDITIONAL STONE AS NEEDED. STONE IS TO BE MAINTAINED SO AS TO PREVENT CONSTRUCTION TRAFFIC FROM TRACKING MUD ONTO ADJACENT PUBLIC STREETS.

5 CONSTRUCTION EXIT SILT CONTROL
NTS

NOTE:
HAY BALES ARE USED TO DETAIN AND/OR FILTER SEDIMENT-LADEN RUNOFF. THE PROTECTION ALLOWS SEDIMENT TO SETTLE PRIOR TO DISCHARGE INTO A STORM DRAIN INLET OR CATCH BASIN.



7 EROSION CONTROL ALONG DITCH
NTS

GENERAL NOTES:

ALL AREAS WHERE EXISTING VEGETATION AND GRASS COVER HAVE BEEN BARED BY CONSTRUCTION SHALL BE ADEQUATELY BLOCK SODDED OR HYDROMULCHED AND WATERED UNTIL GROWTH IS ESTABLISHED. IN DEVELOPED AREAS WHERE GRASS IS PRESENT, BLOCK SOD WILL BE REQUIRED. BARED AREAS SHALL BE SEEDED OR SODDED WITHIN 14 CALENDAR DAYS OF LAST DISTURBANCE.

APPROVED EROSION CONTROL MEASURES MUST BE INSTALLED DURING THE ENTIRE TIME THAT EARTH HAS BEEN BARED BY CONSTRUCTION AND SHALL STAY IN PLACE UNTIL ACCEPTABLE VEGETATIVE GROWTH IS ESTABLISHED AFTER CONSTRUCTION IS COMPLETE AND THEN REMOVED BY CONTRACTOR.

ALL EROSION CONTROL MEASURES SHOULD BE CLEANED OF SILT AFTER EVERY RAIN.

This document is released for the purpose of review under the authority of Timothy W. Robertson, P.E. 85565 on February 3, 2006. It is not to be used for construction, bidding, or permit purposes.

O'Malley Engineers
203 S. Jackson
Brenham, Texas 77833
(979) 836-7937
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CITY OF BRYAN
54" WATER TRANSMISSION LINE

NO.	REVISION	BY	DATE

Drawing Name: P:\00200\200.14wq\dwg\design\Water Details.dwg
0 VERIFY SCALE 1 BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE.

Field Book: BRYAN "S"
Date: 07/05
Project Number: 200.14 WG
Design By: WRK
Drawn By: BAG

Sheet Title: SEWER AND EROSION CONTROL DETAILS

Sheet Number: 47 ....Of.... 48

SURVEY CONTROL DATA

NAD–83	TEXAS STATE PLANE COORDINATES (CENTRAL ZONE)		
POINT #	NORTHING	EASTING	ELEV.
GPS–3	10247519.4520	3528723.3310	316.85
GPS–15	10247634.3830	3530488.1270	326.33
1	10245027.2458	3529259.2614	332.06
2	10244894.7822	3529418.5367	336.79
3	10244712.3169	3529249.4084	332.50
4	10244634.6034	3529365.7482	335.30
5	10244335.7753	3529774.3744	344.56
6	10243792.4757	3530512.4657	364.47
7	10243074.3793	3531477.6253	370.58
8	10242942.7105	3531642.6573	369.09
9	10242460.5288	3532308.6691	365.08
10	10241898.8272	3533090.0785	361.63
12	10240486.4385	3534993.9130	333.06
13	10240222.8982	3535369.9550	324.09
14	10239882.6828	3535816.4994	313.93
15	10239501.7944	3536331.4172	316.72
16	10239289.8642	3536633.0794	314.62
17	10239116.0030	3536880.5134	313.21
18	10239042.1203	3536922.7597	319.00
19	10238733.9668	3537340.7645	325.35
20	10238473.0561	3537733.3071	336.93
21	10238361.5079	3537911.3493	343.50
23	10244536.9484	3529242.8743	0.00
26	10237004.4415	3539360.0203	334.33
30	10237575.9800	3538164.9100	347.45
31	10237210.6740	3538560.5790	341.36
32	10236904.0590	3539062.2990	331.79
33	10236698.0170	3539543.1110	333.65
34	10236641.8880	3539808.1860	340.04
35	10236599.8770	3540110.0480	347.72
36	10236595.3230	3540482.1840	353.62
37	10236590.0130	3540347.8421	353.66
38	10236272.6660	3540761.0440	354.91
39	10235973.8310	3540791.4440	353.64
40	10235462.1971	3540655.8001	354.27
41	10235384.3709	3541002.9394	351.77
42	10234634.9797	3540992.8315	354.66
43	10234544.2577	3541706.6852	352.58
44	10236243.2802	3540367.4194	357.79
45	10234939.1844	3540659.0561	356.14
46	10234614.5688	3540638.0831	357.99
47	10237767.6826	3537929.4130	344.09
48	10237946.4471	3537753.4234	338.40
49	10238093.0104	3537941.2338	343.07
50	10233925.9438	3541772.8974	342.94
51	10233933.1503	3542155.1640	339.90
52	10236945.7087	3539827.6429	342.07
53	10244819.8692	3529123.4161	324.73
54	10244961.4878	3528907.3062	326.83
55	10243389.0166	3531051.5976	370.01
69	10241107.4770	3533732.5850	260.27
99	10241107.3871	3533732.5003	352.82
576	10239281.7325	3536623.7256	314.62
702	10244894.5996	3529418.4138	336.80
708	10242942.7788	3531642.8519	369.02
709	10242460.6539	3532308.7363	365.03
710	10241898.8841	3533090.1194	361.83
711	10241120.7658	3534100.0560	353.10
715	10239501.6869	3536331.2205	316.68
730	10237576.0122	3538164.8981	439.83

PIPE DEFLECTION AND HORIZONTAL FITTINGS CHART

STA.	NORTHING	EASTING	DESCRIPTION
0+00	10244787.5097	3529416.3603	START TRANSMISSION LINE PIPING
2+15	10244614.4481	3529288.8551	90° BEND
23+83	10243331.3220	3531036.0033	2.4° DEFLECTION POINT
28+62	10243063.6652	3531434.2417	2.4° DEFLECTION POINT
109+71	10238264.2222	3537969.3267	90° BEND
110+07	10238235.2500	3537948.0492	1° DEFLECTION @ 5.625° BEND
113+64	10237966.0658	3537714.1549	0.8° DEFLECTION @ 90° BEND
120+22	10237527.2695	3538205.4441	1° DEFLECTION POINT
122+34	10237389.1809	3538365.5924	1° DEFLECTION POINT
127+27	10237073.7888	3538744.5452	1.37° DEFLECTION POINT
131+07	10236823.8796	3539030.6124	1° DEFLECTION @ 90° BEND
133+61	10237017.9915	3539194.3770	45° BEND
134+22	10237023.1899	3539255.6805	1° DEFLECTION @ 11.25° BEND
140+02	10236948.2528	3539830.6627	90° BEND
142+97	10236655.8884	3539792.5713	90° BEND
148+96	10236578.4258	3540387.1227	90° BEND
152+23	10236311.7967	3540352.3929	45° BEND
151+65	10236265.6974	3540387.8669	45° BEND
156+28	10236213.3886	3540789.2992	1.2° DEFLECTION @ 90° BEND
163+68	10235481.4767	3540678.5257	1.2° DEFLECTION @ 11.25° BEND
164+34	10235415.7541	3540682.9689	0.7° DEFLECTION @ 11.25° BEND
172+34	10234621.6095	3540589.3965	2° DEFLECTION @ 90° BEND
182+50	10234538.2691	3541601.5217	1.2° DEFLECTION @ 11.25° BEND
183+58	10234548.4361	3541709.6102	90° BEND
188+73	10234035.7491	3541757.8696	1.1° DEFLECTION @ 11.25° BEND
190+87	10233822.7719	3541740.1919	90° BEND

WHERE THE REQUIRED DEFLECTION EXCEEDS THE MAXIMUM ALLOWED BY PIPE MANUFACTURER, CONTRACTOR SHALL DISTRIBUTE THE DEFLECTION OVER MULTIPLE JOINTS.

STANDARD TRAFFIC CONTROL SHEETS

BC(1)–03 BARRICADE AND CONSTRUCTION STANDARDS
BC(2)–03 BARRICADE AND CONSTRUCTION STANDARDS
BC(3)–03 BARRICADE AND CONSTRUCTION STANDARDS
BC(4)–03 BARRICADE AND CONSTRUCTION STANDARDS
BC(5)–03 BARRICADE AND CONSTRUCTION STANDARDS
BC(6)–03 BARRICADE AND CONSTRUCTION STANDARDS
BC(7)–03 BARRICADE AND CONSTRUCTION STANDARDS
BC(8)–03 BARRICADE AND CONSTRUCTION STANDARDS
BC(9)–03 BARRICADE AND CONSTRUCTION STANDARDS
BC(10)–03 BARRICADE AND CONSTRUCTION STANDARDS
BC(11)–03 BARRICADE AND CONSTRUCTION STANDARDS
BC(12)–03 BARRICADE AND CONSTRUCTION STANDARDS
TCP NOTES–98 TRAFFIC CONTROL PLAN
TCP (1–1)–98 TRAFFIC CONTROL PLAN
TCP (1–4)–98 TRAFFIC CONTROL PLAN

NOTE: THE ABOVE STANDARDS WERE SELECTED BY TIMOTHY W. ROBERTSON, P.E. FOR INCLUSION WITH THE PLANS FOR THIS PROJECT.

TRAFFIC CONTROL PLAN NOTES

1. CONTRACTOR SHALL CONFORM TO TXDOT PERMIT REQUIREMENTS, THE TRAFFIC CONTROL PLAN SHOWN ON THIS SHEET, AND ALL STANDARD TRAFFIC CONTROL SHEETS AS LISTED ON THIS SHEET.

2. IMPLEMENTATION OF TRAFFIC CONTROL PLAN SHALL BE CONSIDERED INCIDENTAL AND NO SEPARATE OR ADDITIONAL COMPENSATION WILL BE PROVIDED TO CONTRACTOR. INCLUDE COSTS IN RELATED ITEMS OF WORK.

3. CROSS STREETS SHALL BE SIGNED IN ACCORDANCE WITH THE APPLICABLE STANDARD TRAFFIC CONTROL SHEET(S).

4. ALL CONSTRUCTION VEHICLES, EQUIPMENT AND MATERIALS SHALL BE LOCATED AWAY FROM THE ROADWAY TRAVEL LANES.

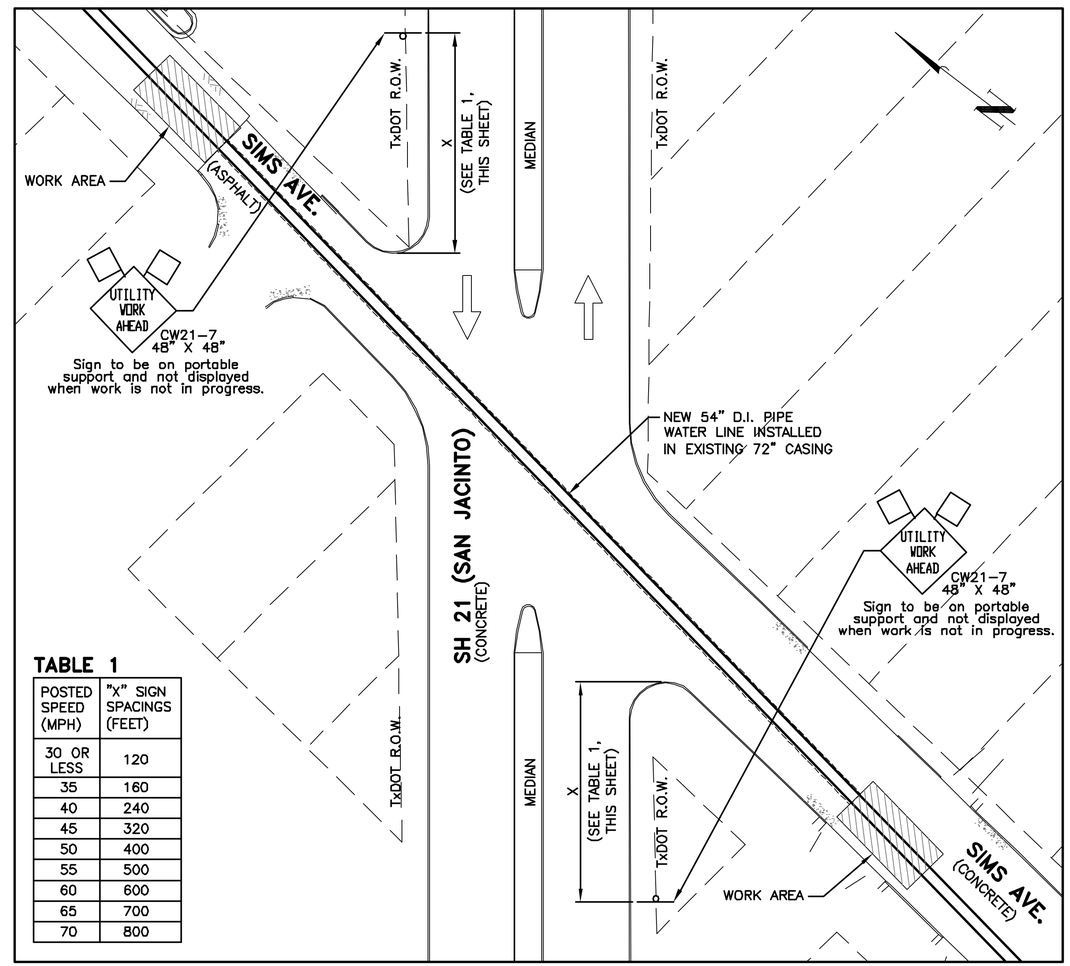

TABLE 1

POSTED SPEED (MPH)	"X" SIGN SPACINGS (FEET)
30 OR LESS	120
35	160
40	240
45	320
50	400
55	500
60	600
65	700
70	800

NOTE: THIS TRAFFIC CONTROL PLAN APPLIES TO THE 54" WATER LINE BEING INSTALLED IN AN EXISTING CASING ACROSS STATE HWY 21 (SAN JACINTO) AS SHOWN ON PLAN SHEETS 34 & 35.

TRAFFIC CONTROL PLAN (SCHEMATIC)

NTS

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CITY OF BRYAN
54" WATER TRANSMISSION LINE

NO.	REVISION	BY	DATE

Drawing Name: P:\00200\200.14wg\dwg\design\Traffic Control.dwg
VERIFY SCALE 1 BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE.

Field Book: BRYAN "S"
Date: 07/05
Project Number: 200.14 WG
Design By: WRK
Drawn By: BAG

Sheet Title: TRAFFIC CONTROL PLAN

Sheet Number: 48 ....Of.... 48