ALBUQUEQUE METROPOLITAN ARROYO FLOOD CONTROL AUTHORITY

CONSTRUCTION PLANS FOR

BARR SPUR IMPROVEMENTS

ALBUQUERQUE, NM 87105

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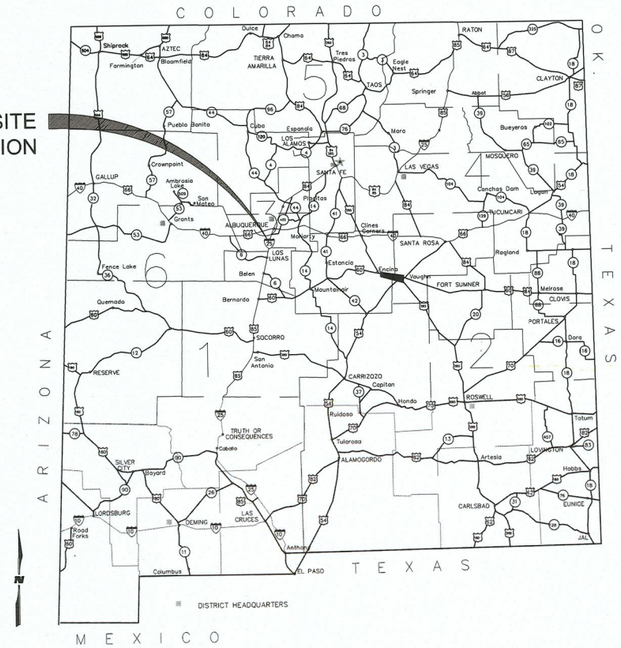
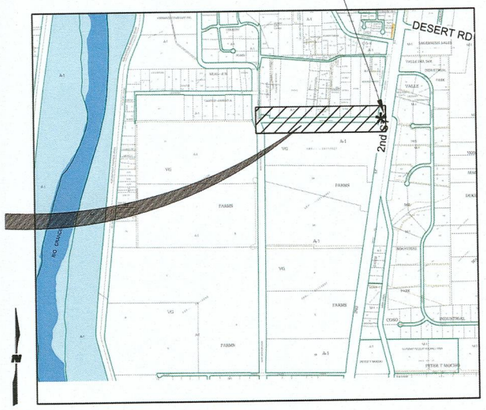
SITE LOCATION



VICINITY MAP
NTS

PREBID SITE LOCATION

PROJECT LOCATION



LOCATION MAP:
ZONE MAP R-12, R-13, S-12 & S-13
NTS

JERRY LOVATO, PE, EXECUTIVE ENGINEER
APPROVAL FOR BIDDING & CONSTRUCTION
ALBUQUERQUE METROPOLITAN ARROYO
FLOOD CONTROL AUTHORITY

DATE

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CONSULTANTS

SEAL

60% SUBMITTAL
NOT FOR
CONSTRUCTION

PROJECT NAME

BARR SPUR IMPROVEMENTS

REV.	DATE	DESCRIPTION	BY

PROJECT NO:	1660060700
DESIGNED BY:	TJA
DRAWN BY:	JEM
CHECKED BY:	TJA
DATE:	JAN 2022

SHEET TITLE

COVER SHEET

SHEET NO:

G-001

1/5/2022 M:\MSD\16-600-607-0002_Disciplines_SHEETS\2_Sheets - civil\BARR SPUR\166607-CV01.dwg

GENERAL NOTES:

1. ALL WORK DETAILED ON THESE PLANS TO BE PERFORMED UNDER CONTRACT SHALL, EXCEPT AS OTHERWISE STATED OR PROVIDED FOR HEREON, BE CONSTRUCTED IN ACCORDANCE WITH THE NEW MEXICO STATE HIGHWAY AND TRANSPORTATION DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION, 2019 EDITION

2. ALL STATIONING FOR THE ROADWAYS, EMBANKMENTS AND CHANNELS REFER TO THE MEASURED HORIZONTAL DISTANCE. LEFT AND RIGHT OF CENTERLINE ARE LOOKING IN THE DIRECTION OF INCREASING STATION.

3. WHEN COORDINATES ARE SHOWN, HEREIN (N,E) THEY REFER TO GROUND COORDINATES. PROJECT GROUND COORDINATES ARE CALCULATED FROM ADJUSTED GRID COORDINATES USING A PROJECT COMBINED GRID-TO-GROUND FACTOR (CGGF) TO OBTAIN ADJUSTED GRID COORDINATES DIVIDE THE PROJECT GROUND COORDINATES BY THE CGGF. TO OBTAIN PROJECT GROUND COORDINATES MULTIPLY THE ADJUSTED GRID COORDINATES BY THE CGGF.

4. LIMITS OF WORK ARE SHOWN ON THE PLANS. THE CONTRACTOR SHALL CONFINE HIS OPERATIONS WITHIN THE PROJECT LIMITS UNLESS OTHERWISE NOTED OR PERMITED. THE CONTRACTOR WILL BE HELD RESPONSIBLE FOR ANY AGREEMENTS NECESSARY OR DAMAGE BY HIS OPERATION TO PUBLIC OR PRIVATE PROPERTY INCLUDING UTILITIES.

5. FILL MATERIALS FROM EXCAVATION OR BORROW WHICH REQUIRE MORE THAN ONE HANDLING PRIOR TO FINAL PLACEMENT, INCLUDING STOCKPILING AND BLENDING TO MEET GRADATION REQUIREMENTS OR STOCKPILING FOR LATER DISPOSAL, WILL BE CONSIDERED INCIDENTAL TO THE CONTRACT UNIT PRICE FOR UNCLASSIFIED EXCAVATION. NO SEPARATE PAYMENT SHALL BE MADE FOR BLENDING OR MULTIPLE HANDLING AND FINAL PAYMENT SHALL BE MADE ON THE BASIS OF QUANTITIES REMOVED FROM ORIGINAL LOCATION.

6. ANY AREAS DISTURBED BY THE CONTRACTOR THAT ARE AREAS NOT INCLUDED ON THE PLANS SHALL BE TREATED AND STABILIZED WITH USFWS INTERIOR MIX, USFWS EXTERIOR MIX OR MRGCD MIX, AND NO MEASUREMENT OR PAYMENT WILL BE MADE THEREFORE.

7. WATERING, AS REQUIRED FOR CONSTRUCTION AND DUST CONTROL, SHALL BE CONSIDERED INCIDENTAL TO CONSTRUCTION AND NO MEASUREMENT OR PAYMENT SHALL BE MADE. CONSTRUCTION AREAS SHALL BE WATERED FOR DUST POLLUTION ABATEMENT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND SUPPLYING WATER AS REQUIRED. THE COST FOR REQUIRED CONSTRUCTION OF AIR QUALITY MITIGATION SHALL BE INCIDENTAL TO THE PROJECT COST.

8. THE CONTRACTOR IS RESPONSIBLE FOR EXECUTING A "SPECIAL USE PERMIT" WITH THE U.S.FISH & WILDLIFE SERVICE. THE CONTRACTOR SHALL COMPLY WITH ALL PROVISIONS OF THE "SPECIAL USE PERMIT".

9. MINOR CHANGES IN ELEVATIONS AND SLOPES FOR EXCAVATION AND FILL MAY BE MADE TO SUIT FIELD CONDITIONS, AS APPROVED BY THE ENGINEER.

10. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE AND VERIFY THE HORIZONTAL AND VERTICAL LOCATIONS OF ALL OBSTRUCTIONS. SHOULD A CONFLICT EXIST, THE CONTRACTOR SHALL NOTIFY THE ENGINEER SO THAT THE CONFLICT CAN BE RESOLVED WITH A MINIMUM AMOUNT OF DELAY. ALL UTILITY LOCATIONS SHOWN ARE APPROXIMATE.

11. TWO (2) WORKING DAYS PRIOR TO ANY EXCAVATION, CONTRACTOR MUST CONTACT N.M. ONE-CALL SYSTEM, (505) 260-1990, FOR LOCATION OF EXISTING UTILITIES.

12. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT BUILDING STRUCTURES ADJACENT TO THE PROJECT NOT BE DAMAGED DUE TO ANY CONSTRUCTION ACTIVITIES. DAMAGE CAUSED TO ANY BUILDING STRUCTURE WILL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR, INCLUDING ALL COSTS INCURRED IN RESTORING/REPAIRING SAID DAMAGE PER NMDOT SPEC. SECTION 617.

13. THE CONTRACTOR SHALL MAINTAIN AN UP TO DATE SET OF AS-BUILT PLANS FOR THE PROJECT. THESE PLANS SHALL BE KEPT CURRENT, WITHIN TWO WEEKS, AT ALL TIMES AND SHALL BE SUBJECT TO REVIEW BY THE PROJECT MANAGER. THE FINAL AS-BUILT PLANS SHALL BE SUBMITTED TO THE PROJECT MANAGER.

14. THE CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR ANY DAMAGE TO EXISTING PAVEMENTS, PAVEMENT MARKINGS, CURB AND GUTTER, DRIVEPADS, HANDICAP RAMPS, AND SIDEWALK DURING CONSTRUCTION APART FROM THOSE SECTIONS INDICATED FOR REMOVAL ON THE PLANS, AND SHALL REMOVE AND REPLACE AS PER BERNALILLO COUNTY STANDARDS, AS APPLICABLE, AT THEIR OWN EXPENSE.

15. WHEN REMOVAL OF EXISTING CURB AND GUTTER OR SIDEWALK IS REQUIRED, REMOVE TO NEAREST JOINT.

16. STRUCTURES SHALL BE CLEAN AT THE TIME OF FINAL PROJECT ACCEPTANCE. THIS WORK WILL BE CONSIDERED AS INCIDENTAL TO THE COMPLETION OF THE PROJECT AND NO SEPARATE MEASUREMENT OR PAYMENT WILL BE MADE THEREFORE.

17. THE CONTRACTOR SHALL INCLUDE IN HIS CONSTRUCTION SEQUENCE PROVISIONS WHICH WILL ALLOW FOR THE SAFE PASSAGE OF WATER FROM ARROYOS AND DITCHES THROUGH THE PROJECT SITE WITHOUT DAMAGE TO FACILITIES BEING CONSTRUCTED, COMPLETED FACILITIES, OR ADJACENT PRIVATE PROPERTY.

18. ALL STORM WATER DISCHARGES FROM THE PROJECT SITE SHALL MEET THE REQUIREMENTS OF THE REGULATIONS OF THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) AS WELL AS APPLICABLE STATE AND LOCAL REGULATIONS.

19. SEVEN (7) WORKING DAYS PRIOR TO BEGINNING CONSTRUCTION, THE CONTRACTOR SHALL SUBMIT TO PROJECT MANAGER A DETAILED CONSTRUCTION SCHEDULE. SEVEN (7) WORKING DAYS PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL OBTAIN A BARRICADING PERMIT FROM BERNALILLO COUNTY, IF NEEDED.

20. CONTRACTOR SHALL MAINTAIN A GRAFFITI-FREE WORK SITE. CONTRACTOR SHALL PROMPTLY REMOVE ANY GRAFFITI FROM ALL EQUIPMENT, WHETHER PERMANENT OR TEMPORARY. THIS WORK IS INCIDENTAL TO TRAFFIC CONTROL BID ITEM.

21. ALL EXCAVATION, TRENCHING AND SHORING ACTIVITIES MUST BE CARRIED OUT IN ACCORDANCE WITH OSHA 29CFR 1926.650 SUBPART P.

22. THE CONTRACTOR WILL BE RESPONSIBLE FOR DISPOSING OF ALL DEBRIS, INCLUDING, NOT LIMITED TO HAZARDOUS WASTE AT DISPOSAL SITES APPROVED BY GOVERNMENTAL AGENCIES REGULATING THE DISPOSAL OF SUCH MATERIALS.

23. THE CONTRACTOR SHALL PROVIDE AND MAINTAIN ALL CONSTRUCTION SIGNING UNTIL PROJECT HAS BEEN ACCEPTED BY AMAFCA.

24. SOME OF THE CONSTRUCTION WILL TAKE PLACE ON PROPERTY OWNED BY THE U.S. FISH & WILDLIFE SERVICE THAT ALLOWS PUBLIC ACCESS. CONTRACTOR SHALL PROVIDE APPROPRIATE BARRICADES & WARNING SIGNS AROUND THE WORK ZONE.

MRGCD GENERAL NOTES:

1. THE CONTRACTOR IS RESPONSIBLE FOR EXECUTING A "SPECIAL USE LICENSE AGREEMENT" WITH THE M.R.G.C.D. PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL COMPLY WITH ALL PROVISIONS OF THE "SPECIAL USE LICENSE" INCLUDING BUT NOT LIMITED TO: CONSTRUCTION DEADLINES, COORDINATION WITH M.R.G.C.D OPERATIONS AND DEWATERING REQUIREMENTS.

2. THE CONTRACTOR SHALL NOT STORE EQUIPMENT, NEW MATERIALS OR DEBRIS WITHIN DISTRICT RIGHT-OF-WAY, OUTSIDE OF THE ESTABLISHED CONSTRUCTION LIMITS, WHICH MAY INTERFERE WITH OPERATIONS AND MAINTENANCE OF M.R.G.C.D. FACILITIES.

3. THE CONTRACTOR SHALL NOT SERVICE VEHICLES OR EQUIPMENT WITHIN M.R.G.C.D. RIGHT-OF-WAY, OUTSIDE OF THE ESTABLISHED CONSTRUCTION LIMITS.

4. SEEDING OF DISTURBED AREAS WITHIN M.R.G.C.D. RIGHT-OF-WAYS IS REQUIRED PER THE M.R.G.C.D SEEDING SPECIFICATIONS WITHIN THE ESTABLISHED CONSTRUCTION LIMITS.

5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING PERMISSION FROM INDIVIDUAL LANDOWNERS TO ACCESS THE PROJECT SITE BY WAY OF PRIVATE CROSSINGS AND PROPERTY.

6. THE CONTRACTOR IS RESPONSIBLE FOR REPAIRING AND OR REPLACEMENT OF ANY STRUCTURES REMOVED AND OR DAMAGED DUE TO THE CONTRACTOR'S ACTIVITIES WITHIN THE DISTRICT'S RIGHT-OF-WAY. ANY STRUCTURES SUCH AS TURNOUTS, CULVERT PIPES, EMBANKMENTS, DRIVEWAYS, FENCING, AND OTHERS WHICH ARE DAMAGED DURING CONSTRUCTION ACTIVIES, SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE. REPAIRS AND OR REPLACEMENTS WITHIN M.R.G.C.D RIGHT-OF-WAY MUST COMPLY WITH THE PROJECT AND DISTRICT SPECIFICATIONS.

7. ALL SALVAGEABLE CULVERTS, IRRIGATION GATES, ETC. MUST BE RETURNED TO THE M.R.G.C.D.

8. TEMPORARY INSTALLATIONS SHALL BE REMOVED BEFORE PROJECT COMPLETION SUCH THAT THE FINISHED WORK WILL NOT INTERFERE WITH OPERATIONS OF THE M.R.G.C.D FACILITIES.

THE FOLLOWING NOTES ALSO APPLY WHEN CHECKED:

- [x] ALL UTILITIES AND UTILITY SERVICE LINES SHALL BE INSTALLED PRIOR TO PAVING.
- [ ] BACKFILL COMPACTION SHALL BE ACCORDING TO SPECIFIED STREET USE.
- [ ] TACK COAT REQUIREMENTS SHALL BE DETERMINED BY THE ENGINEER.
- [ ] SIDEWALKS AND WHEELCHAIR RAMPS WITHIN THE CURB RETURNS SHALL BE CONSTRUCTED WHEREVER A NEW CURB RETURN IS CONSTRUCTED.
- [ ] IF CURB IS DEPRESSED FOR A DRIVEPAD, THE DRIVEPAD SHALL BE CONSTRUCTED PRIOR TO ACCEPTANCE OF CURB AND GUTTER.
- [x] ALL STORM DRAINAGE FACILITIES SHALL BE COMPLETED PRIOR TO FINAL ACCEPTANCE.

UTILITY CONTACTS	PHONE	UTILITY COMPANY CONTACTS
LUNA, DAMIAN	OFFICE PHONE: (505) 289-3031 OFFICE FAX; (505) 289-3060 CELL PHONE: (505) 414-5695 DLUNA@ABCWUA.ORG	ALBUQUERQUE BERNALILLO COUNTY WATER UTILITY AUTHORITY P.O. BOX 568 ALBUQUERQUE, NM 87103
MOYER, MIKE	OFFICE PHONE: (505) 241-3697 OFFICE FAX; (505) 241-3415 CELL PHONE: (505) 249-5712 MIKEMOYER@PNM.COM	PNM ELECTRIC 4625 EDITH BLVD. NE ALBUQUERQUE, NM 87107
HERRERA, JOE	OFFICE PHONE: (505) 697-6802 OFFICE FAX; (505) 344-0091 CELL PHONE: (505) 401-7642 JJHERRERA@TECOENERGY.COM	NM GAS COMPANY 4625 EDITH BLVD. NE ALBUQUERQUE, NM 87107
KELLY, SEAN	OFFICE PHONE: (505) 842-2838 OFFICE FAX; (505) 842-2890 CELL PHONE: (505) 200-1994 SK1561@ATT.COM	AT&T 111 3RD STREET NW ALBUQUERQUE, NM 87102
BENNETT, NOLAN	OFFICE PHONE: (505) 884-2215 OFFICE FAX; (505) 884-0214 CELL PHONE: (505) 301-6941 NBENNETT@AMAFCA.ORG	AMAFCA 2600 PROSPECT ALBUQUERQUE, NM 87107
HERNANDEZ, SAL	OFFICE PHONE: (505) 884-2215 OFFICE FAX; (505) 884-0214 CELL PHONE: (505) 366-8209 SHERNANDEZ@AMAFCA.ORG	AMAFCA 2600 PROSPECT ALBUQUERQUE, NM 87107
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MARTINEZ, ROBERT	OFFICE PHONE: (505) 217-0038 OFFICE FAX: (505) 217-0048 CELL PHONE: (505) 228-3329 ROBERT.MARTINEZ@WINDSTREAM.COM	WINDSTREAM 505 MARQUETTE NW SUITE 1600 ALBUQUERQUE, NM 87102
PAPPAS, DENNIS	OFFICE PHONE: (505) 245-6165 OFFICE FAX: (505) 889-6542 CELL PHONE: (970) 980-3730 DENNIS.PAPPAS@CENTURYLINK.COM	CENTURY LINK DIRECTOR-NETWORK OPS 4301 BOGAN NE ALBUQUERQUE, NM 87109
MELENDREZ, JOHN	OFFICE PHONE: (505) 245-6124 JOHN.MELENDREZ@CENTURYLINK.COM	CENTURY LINK 400 TIJERAS AVE NW ALBUQUERQUE, NM 87102
LOPEZ, ALICIA	OFFICE PHONE: (505) 247-0234 ext. 1356 ALICIA@MRGCD.US	M.R.G.C.D 1931 SECOND ST. SW ALBUQUERQUE, NM 87102

LEGEND:

W	UTILITY, WATER VALVE		FENCE, CHAINLINK
W	UTILITY, WATER MANHOLE	X X	FENCE, PIG WIRE
	UTILITY, WATER FAUCET	OHE	UTILITY, OVERHEAD ELECTRIC LINE
P	UTILITY, POWER POLE	UGE	UTILITY, UNDERGROUND ELECTRIC LINE
ST	DRAINAGE, MANHOLE	UGT	UTILITY, TELEPHONE LINE
CB	DRAINAGE, AREA INLET	FO	UTILITY, FIBER OPTIC LINE
SS	SANITARY, MANHOLE	G G	UTILITY, GAS LINE
M	SITE, MONITORING WELL	SAS	UTILITY, SANITARY SEWER LINE
	SITE, BOLLARD	W W	UTILITY, WATER LINE
IR	SITE, IRRIGATION VALVE		SITE, TREE LINE
	BORE HOLE LOCATION		SITE, MAJOR CONTOUR
			SITE, MINOR CONTOUR
			SITE, BASE COURSE ROAD
			SITE, CONCRETE/SHOTCRETE

WILSON & COMPANY
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CONSULTANTS

SEAL

60% SUBMITTAL NOT FOR CONSTRUCTION

PROJECT NAME

BARR SPUR IMPROVEMENTS

REV.	DATE	DESCRIPTION	BY

PROJECT NO:	1660060700
DESIGNED BY:	TJA
DRAWN BY:	JEM
CHECKED BY:	TJA
DATE:	JAN 2022

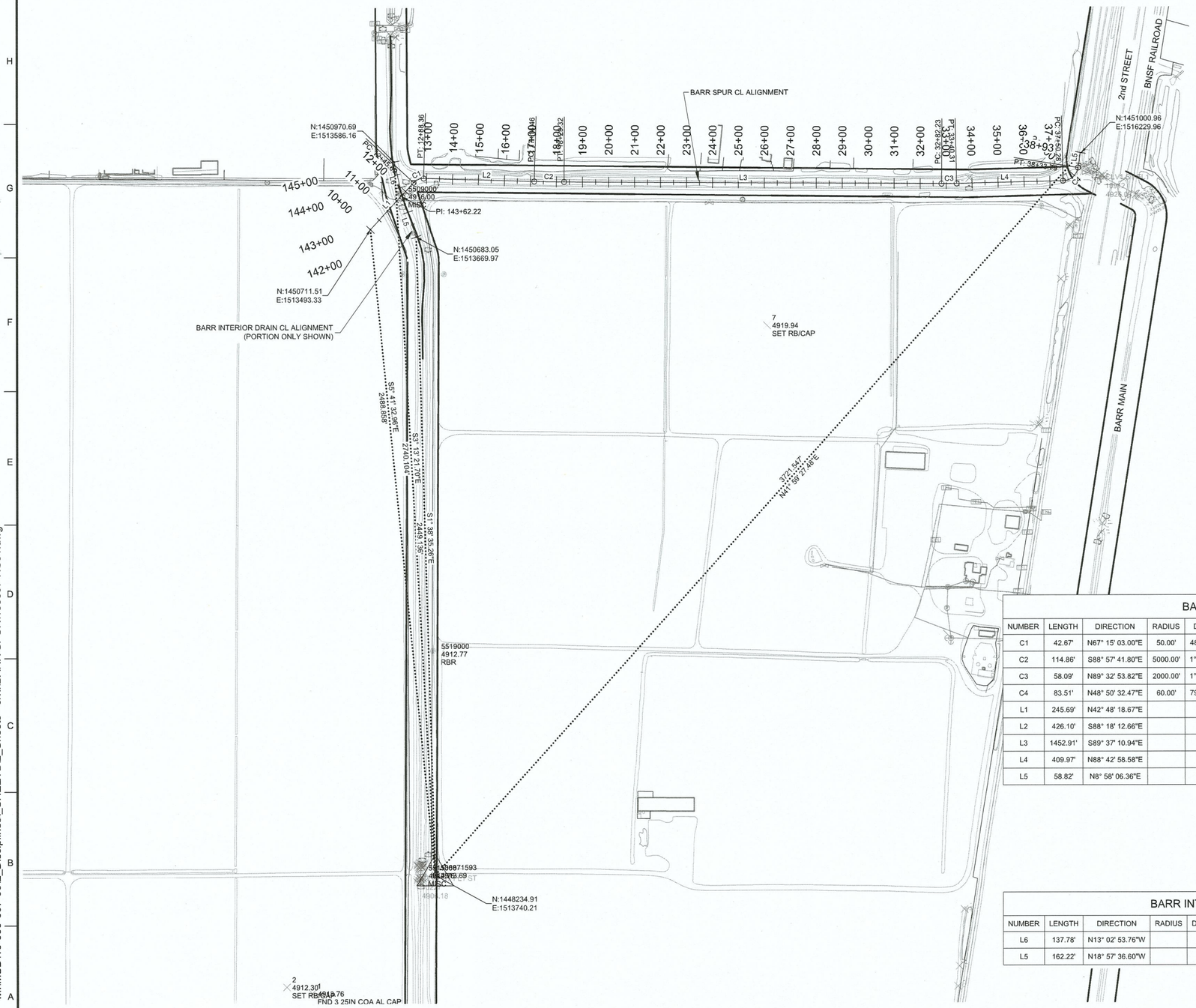
SHEET TITLE

GENERAL NOTES

SHEET NO:

G-002

1/5/2022 M:\MSD\16-600-607-00\2_Discipline\A_SHEETS\2_Sheets - civil\BARR SPUR\166607-GN01.dwg



DTM AND PLANIMETRY COMPILED BY A COMBINATION OF AERIAL PHOTOGRAMMETRIC MAPPING AND SUPPLEMENTAL FIELD SURVEY. AERIAL PHOTOGRAPHY WAS ACQUIRED WITH A ULTRACAM Lp DIGITAL MAPPING CAMERA ON 02/20/2016 AT 1900 FT ABOVE MEAN TERRAIN AND REFERENCED TO SURVEYED GROUND CONTROL BY ANALYTICAL AEROTRIANGULATION.
SUPPLEMENTAL FIELD SURVEY WAS PERFORMED FROM 08/21/2015 TO 09/17/2015.

HORIZONTAL DATUM: NAD 83
VERTICAL DATUM: NAVD 88
COORDINATE SYSTEM: BASED ON NEW MEXICO STATE PLANE CENTRAL ZONE 3002 SCALED TO GROUND
COMBINED GRID TO GROUND SCALE FACTOR: 1.0003127088
GEOID: 12A
UNITS: US SURVEY FEET

DTM DATA WILL MEET 1990 ASPRS TOPOGRAPHIC ELEVATION ACCURACY FOR CONTOUR INTERVAL 1, CLASS 1. PLANIMETRIC AND ORTHOPHOTO DATA WILL MEET 1990 ASPRS PLANIMETRIC FEATURE COORDINATE ACCURACY FOR TARGET MAP SCALE 1" = 50' CLASS 1; FOR WELL-DEFINED POINTS WHEN COMPARED TO THE GROUND CONTROL USED FOR THE PHOTOGRAMMETRIC MAPPING

BARR SPUR CL

NUMBER	LENGTH	DIRECTION	RADIUS	DELTA	START	END
C1	42.67'	N67° 15' 03.00"E	50.00'	48°53'29"	N: 1450891.77, E: 1513660.28	N: 1450907.77, E: 1513698.44
C2	114.86'	S88° 57' 41.80"E	5000.00'	1°18'58"	N: 1450895.15, E: 1514124.35	N: 1450893.07, E: 1514239.19
C3	58.09'	N89° 32' 53.82"E	2000.00'	1°39'50"	N: 1450883.43, E: 1515692.07	N: 1450883.89, E: 1515750.15
C4	83.51'	N48° 50' 32.47"E	60.00'	79°44'52"	N: 1450893.07, E: 1516160.02	N: 1450943.70, E: 1516217.94
L1	245.69'	N42° 48' 18.67"E			N: 1450711.51, E: 1513493.33	N: 1450891.77, E: 1513660.28
L2	426.10'	S88° 18' 12.66"E			N: 1450907.77, E: 1513698.44	N: 1450895.15, E: 1514124.35
L3	1452.91'	S89° 37' 10.94"E			N: 1450893.07, E: 1514239.19	N: 1450883.43, E: 1515692.07
L4	409.97'	N88° 42' 58.58"E			N: 1450883.89, E: 1515750.15	N: 1450893.07, E: 1516160.02
L5	58.82'	N8° 58' 06.36"E			N: 1450943.70, E: 1516217.94	N: 1451001.81, E: 1516227.11

BARR INTERIOR DRAIN CL

NUMBER	LENGTH	DIRECTION	RADIUS	DELTA	START	END
L6	137.78'	N13° 02' 53.76"W			N: 1450836.47, E: 1513617.27	N: 1450970.69, E: 1513586.16
L5	162.22'	N18° 57' 36.60"W			N: 1450683.05, E: 1513669.97	N: 1450836.47, E: 1513617.27

A1 HORIZONTAL & VERTICAL DATUM CONTROL
SCALE: 1" = 200'

0 100' 200'

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PROJECT NAME: BARR SPUR IMPROVEMENTS

REV.	DATE	DESCRIPTION	BY

PROJECT NO:	1660060700
DESIGNED BY:	TJA
DRAWN BY:	JEM
CHECKED BY:	TJA
DATE:	JAN 2022

SHEET TITLE: HORIZONTAL & VERTICAL DATUM CONTROL

SHEET NO: C-101

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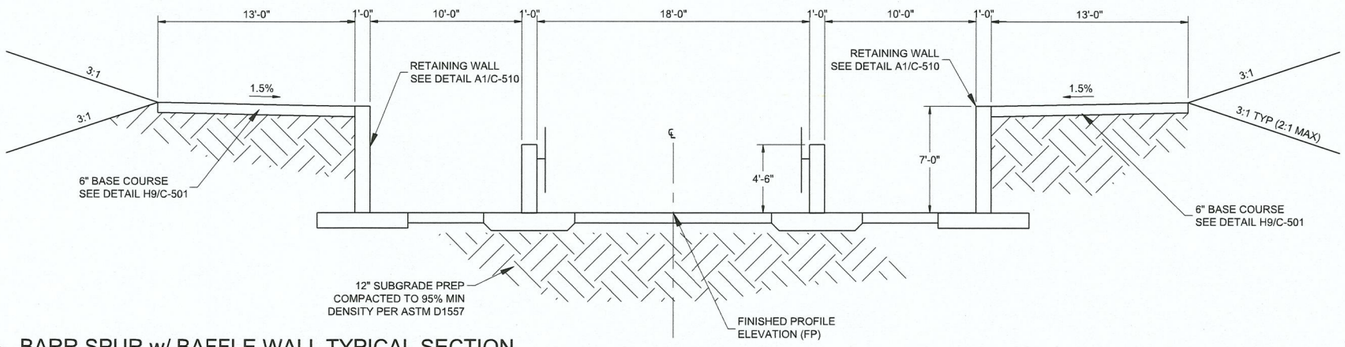
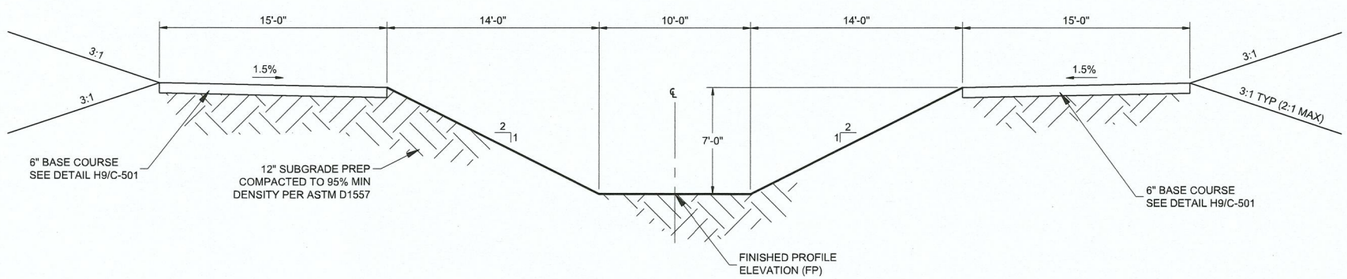
1/5/2022



D2 BARR SPUR w/ BAFFLE WALL TYPICAL SECTION

SCALE: 1" = 5'

STATION 33+93.91 TO 35+55.91



A2 BARR SPUR TYPICAL SECTION

SCALE: 1" = 5'

STATION 12+45.69 TO 33+93.91
STATION 35+55.91 TO 37+52.53

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CHECKED BY:	TJA
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SHEET TITLE

TYPICAL SECTIONS

SHEET NO:

C-102

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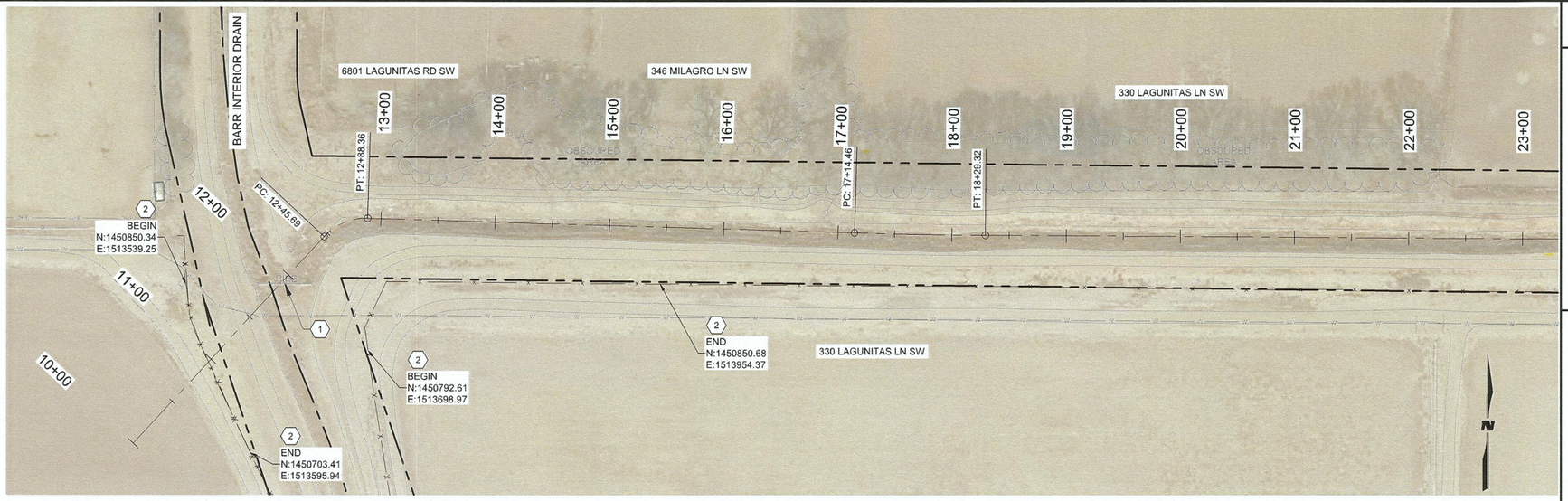
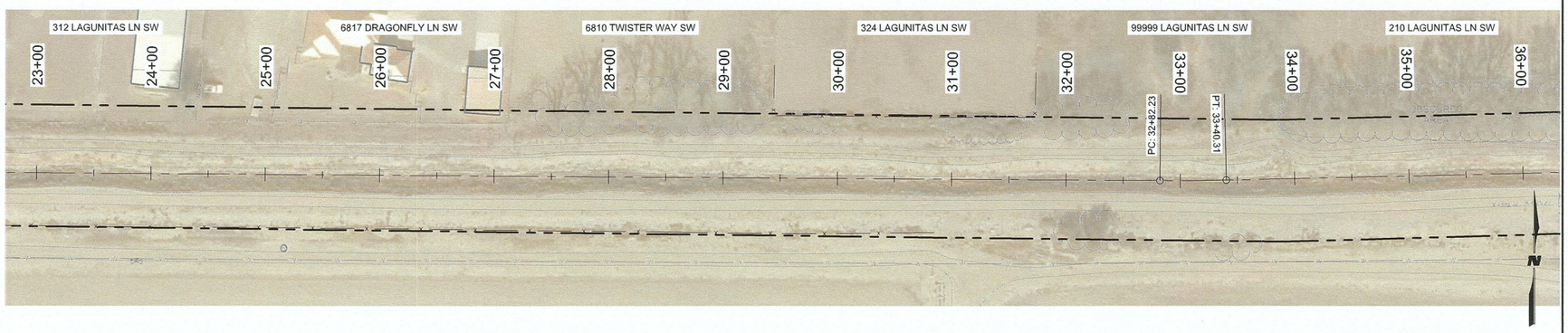


F1 DEMOLITION PLAN

SCALE: 1" = 60'

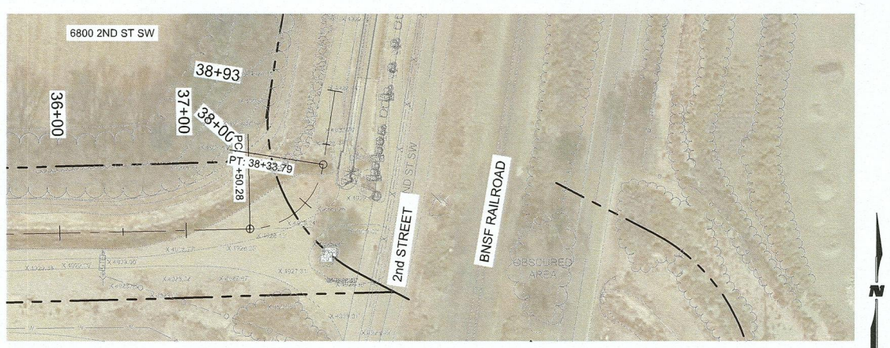
0 30' 60'



C1 DEMOLITION PLAN

SCALE: 1" = 60'

0 30' 60'



A3 DEMOLITION PLAN

SCALE: 1" = 60'

0 30' 60'

GENERAL SHEET NOTES

1. DEMOLITION AND REMOVAL OF IRRIGATION PIPE, STRUCTURES, AND DITCHES SHALL BE COORDINATED WITH MRGCD PROJECT MANAGER.
2. REMOVAL OF CLAY TILE UNDER DRAIN STRUCTURES SHALL BE COODINATED WITH AMAFCA PROJECT MANAGER.

KEYNOTES

1. REMOVE AND DISPOSE CULVERT PIPE.
2. REMOVE AND SALVAGE BARBED WIRE FENCE.

LEGEND

AREA OF DEMOLITION

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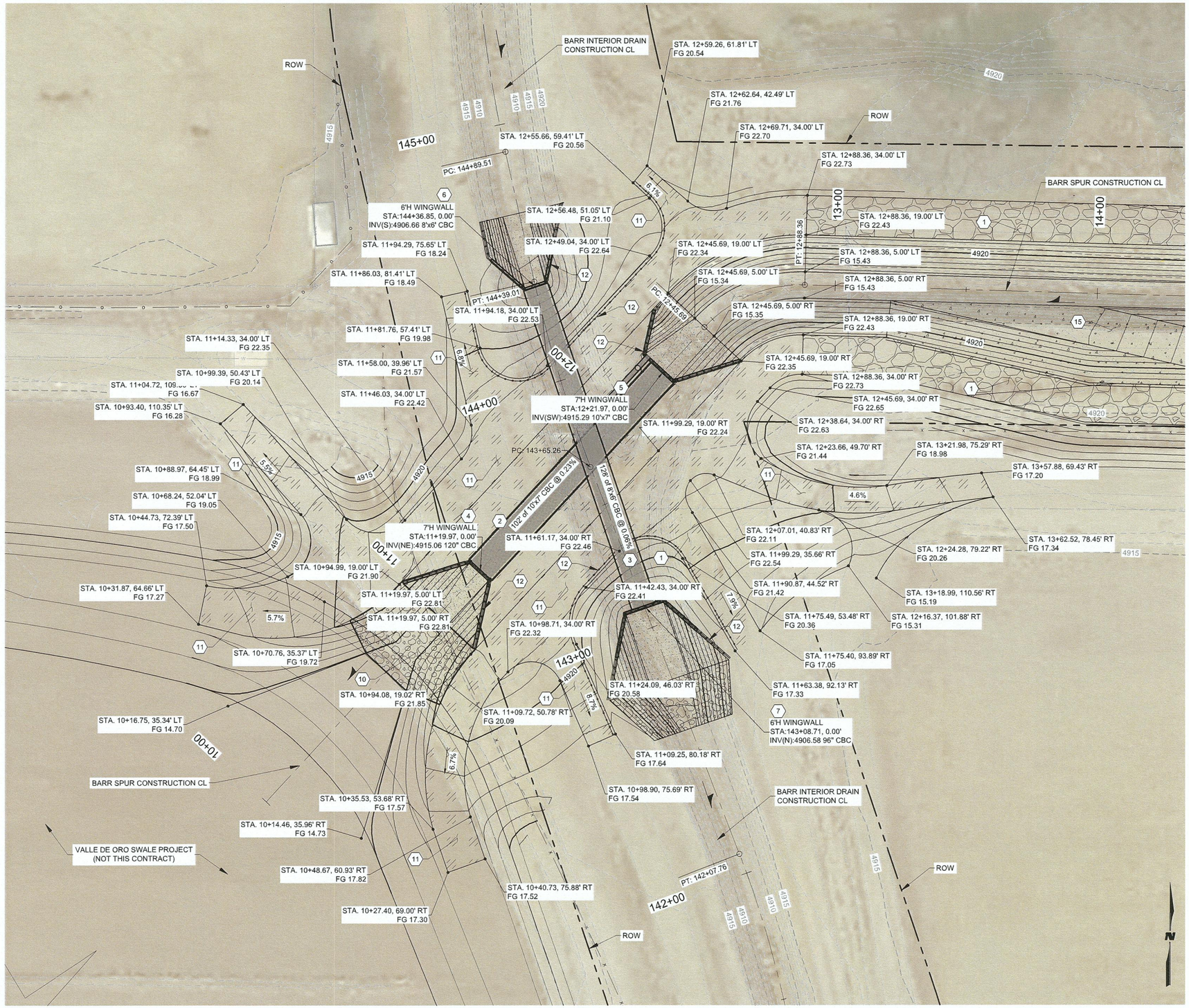
SHEET TITLE

DEMOLITION PLAN

SHEET NO:

C-103

1/5/2022 M:\MSD\16-600-607-00\2_Disciplines_SHEETS\2_Sheets - civil\BARR SPUR\166607-DP01.dwg



A1 GRADING & DRAINAGE PLAN @ BOP

SCALE: 1" = 20'

0 10' 20'

GENERAL SHEET NOTES

1. SEE SHEET C-106 FOR ADDITIONAL GRADING AT BARR SPUR CBC CROSSING.
2. SEE SHEET C-107 FOR ADDITIONAL GRADING AT BARR INTERIOR DRAIN CBC CROSSING.

KEYNOTES (AS APPLICABLE)

1. CONSTRUCT 6" THICK CONCRETE BASE COURSE MAINTENANCE ROAD. SEE DETAIL H9/C-501.
2. CONSTRUCT 10'W x7'H x102'L CBC. SEE SHEETS C-511 THRU C-514.
3. CONSTRUCT 8'W x 6'H x128'L CBC. SEE SHEETS C-511 THRU C-514.
4. CONSTRUCT WINGWALL 'A' FOR 10'W x7'H CBC. SEE DETAIL A6/C-506.
5. CONSTRUCT WINGWALL 'B' FOR 10'W x7'H CBC. SEE SHEETS A1/C-506.
6. CONSTRUCT WINGWALL 'C' FOR 8'W x6'H CBC. SEE SHEETS A1/C-507.
7. CONSTRUCT WINGWALL 'D' FOR 8'W x6'H CBC. SEE SHEETS A6/C-507.
8. INSTALL 24" CMP w/ PIPE PENETRATION. SEE SHEET C-502.
9. INSTALL PIPE TO PIPE CONNECTION. SEE DETAIL D8/C-501.
10. INSTALL 18" THICK RIPRAP. SEE DETAIL F8/C-501.
11. CONSTRUCT NATIVE MATERIAL BASE COURSE. SEE SHEET A5/C-501.
12. INSTALL PIPE RAILING. SEE SHEET C-503.
13. CONSTRUCT WATER QUALITY STRUCTURE. SEE SHEETS C-508 THRU C-510.
14. INSTALL 18" RCP w/ PIPE PENETRATION INTO 8'x6' CBC. SEE "OUTER WALL PENETRATION DETAIL" ON SHEET C-517.
15. CONSTRUCT CONCRETE ACCESS RAMP. SEE SHEET C-504.
16. CONSTRUCT SHOTCRETE PAVING. SEE DETAIL XX.

LEGEND

- BASE COURSE MAINTENANCE ROAD
- 18" THICK RIPRAP
- REINFORCED CONCRETE
- 6" NATIVE MATERIAL w/ RECYCLED BASE COURSE
- SHOTCRETE
- FLOW ARROW

WILSON & COMPANY
4401 MASTHEAD ST. NE, SUITE 150
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FAX: 505-348-4072
www.wilsonco.com

CONSULTANTS

SEAL

60% SUBMITTAL NOT FOR CONSTRUCTION

PROJECT NAME

BARR SPUR IMPROVEMENTS

REV.	DATE	DESCRIPTION	BY

PROJECT NO:	1660060700
DESIGNED BY:	TJA
DRAWN BY:	JEM
CHECKED BY:	TJA
DATE:	JAN 2022

SHEET TITLE

GRADING & DRAINAGE PLAN @ BOP

SHEET NO:

C-104

M:\MSD\16-600-607-0012_Disciplines_SHEETS\2_Sheets - civil\BARR SPUR\166607-GD01.dwg

1/5/2022

GENERAL SHEET NOTES

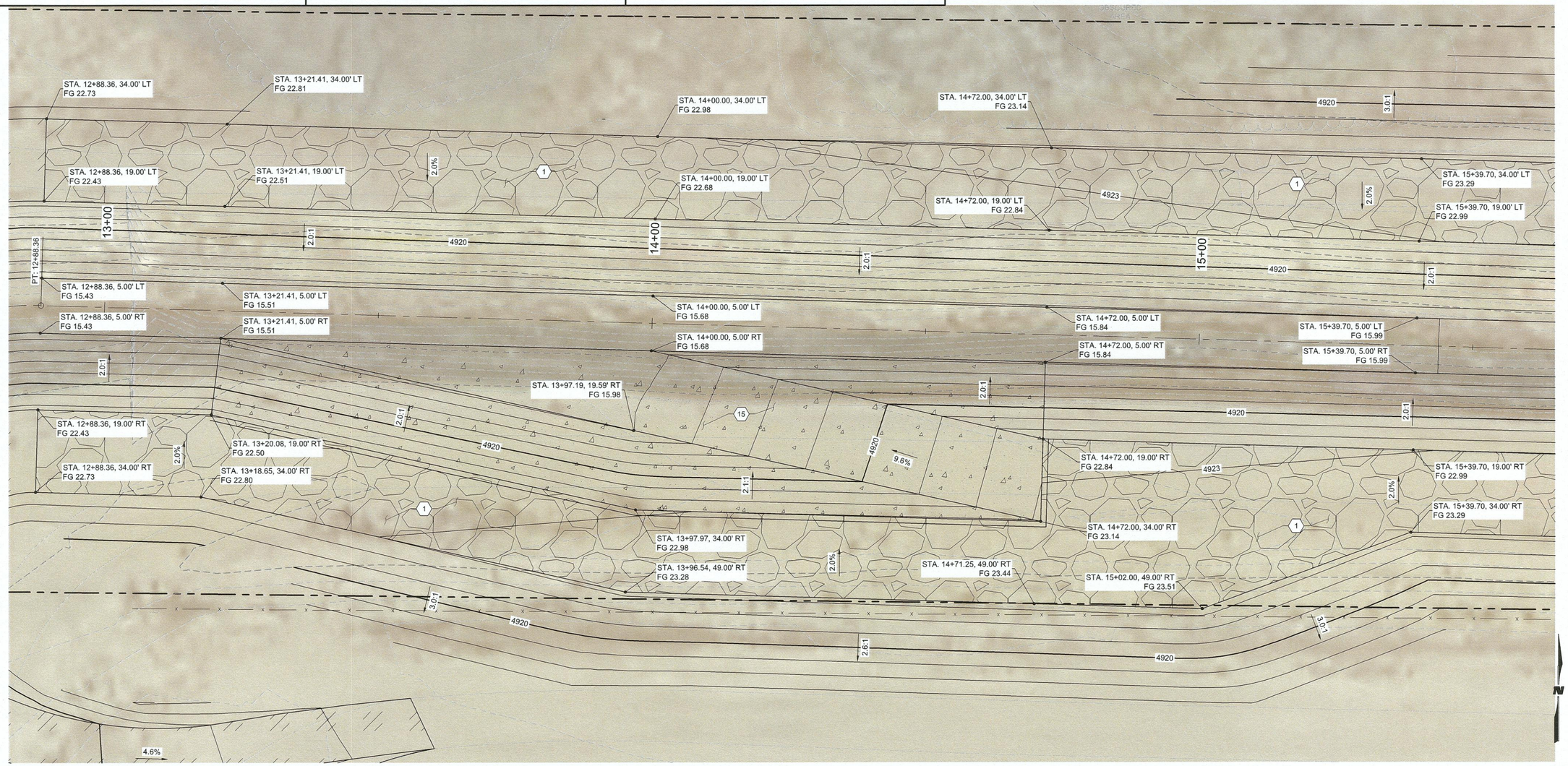
1. SEE SHEET C-106 FOR ADDITIONAL GRADING AT BARR SPUR CBC CROSSING.
2. SEE SHEET C-107 FOR ADDITIONAL GRADING AT BARR INTERIOR DRAIN CBC CROSSING.

KEYNOTES (AS APPLICABLE)

1. CONSTRUCT 6" THICK CONCRETE BASE COURSE MAINTENANCE ROAD. SEE DETAIL H9/C-501.
2. CONSTRUCT 10'W x7'H x102'L CBC. SEE SHEETS C-511 THRU C-514.
3. CONSTRUCT 8'W x 6'H x128'L CBC. SEE SHEETS C-511 THRU C-514.
4. CONSTRUCT WINGWALL 'A' FOR 10'W x7'H CBC. SEE DETAIL A6/C-506.
5. CONSTRUCT WINGWALL 'B' FOR 10'W x7'H CBC. SEE SHEETS A1/C-506.
6. CONSTRUCT WINGWALL 'C' FOR 8'W x6'H CBC. SEE SHEETS A1/C-507.
7. CONSTRUCT WINGWALL 'D' FOR 8'W x6'H CBC. SEE SHEETS A6/C-507.
8. INSTALL 24" CMP w/ PIPE PENETRATION. SEE SHEET C-502.
9. INSTALL PIPE TO PIPE CONNECTION. SEE DETAIL D8/C-501.
10. INSTALL 18" THICK RIPRAP. SEE DETAIL F8/C-501.
11. CONSTRUCT NATIVE MATERIAL BASE COURSE. SEE SHEET A5/C-501.
12. INSTALL PIPE RAILING. SEE SHEET C-503.
13. CONSTRUCT WATER QUALITY STRUCTURE. SEE SHEETS C-508 THRU C-510.
14. INSTALL 18" RCP w/ PIPE PENETRATION INTO 8'x6' CBC. SEE "OUTER WALL PENETRATION DETAIL" ON SHEET C-517.
15. CONSTRUCT CONCRETE ACCESS RAMP. SEE SHEET C-504.
16. CONSTRUCT SHOTCRETE PAVING. SEE DETAIL XX.

LEGEND

- BASE COURSE MAINTENANCE ROAD
- 18" THICK RIPRAP
- REINFORCED CONCRETE
- 6" NATIVE MATERIAL w/ RECYCLED BASE COURSE
- SHOTCRETE
- FLOW ARROW



A1 GRADING & DRAINAGE PLAN @ ACCESS RD

SCALE: 1" = 10'

0 5' 10'

WILSON & COMPANY
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CONSULTANTS

SEAL

60% SUBMITTAL NOT FOR CONSTRUCTION

PROJECT NAME

BARR SPUR IMPROVEMENTS

REV.	DATE	DESCRIPTION	BY

PROJECT NO:	1660060700
DESIGNED BY:	TJA
DRAWN BY:	JEM
CHECKED BY:	TJA
DATE:	JAN 2022

SHEET TITLE

GRADING & DRAINAGE PLAN @ ACCESS RD

SHEET NO:

C-105

M:\MSD\16-600-607-00\2_Disciplines_SHEETS\2_Sheets - civil\BARR SPUR\166607-GD04.dwg

1/5/2022

F1 GRADING & DRAINAGE PLAN @ BARR SPUR CROSSING

SCALE: 1" = 10'

0 10' 20'

GENERAL SHEET NOTES

1. GENERAL SHEET NOTES.

KEYNOTES (AS APPLICABLE)

1. CONSTRUCT 6" THICK CONCRETE BASE COURSE MAINTENANCE ROAD. SEE DETAIL H9/C-501.
2. CONSTRUCT 10'W x7'H x102'L CBC. SEE SHEETS C-511 THRU C-514.
3. CONSTRUCT 8'W x 6'H x128'L CBC. SEE SHEETS C-511 THRU C-514.
4. CONSTRUCT WINGWALL 'A' FOR 10'W x7'H CBC. SEE DETAIL A6/C-506.
5. CONSTRUCT WINGWALL 'B' FOR 10'W x7'H CBC. SEE SHEETS A1/C-506.
6. CONSTRUCT WINGWALL 'C' FOR 8'W x6'H CBC. SEE SHEETS A1/C-507.
7. CONSTRUCT WINGWALL 'D' FOR 8'W x6'H CBC. SEE SHEETS A6/C-507.
8. INSTALL 24" CMP w/ PIPE PENETRATION. SEE SHEET C-502.
9. INSTALL PIPE TO PIPE CONNECTION. SEE DETAIL D8/C-501.
10. INSTALL 18" THICK RIPRAP. SEE DETAIL F8/C-501.
11. CONSTRUCT NATIVE MATERIAL BASE COURSE. SEE SHEET A5/C-501.
12. INSTALL PIPE RAILING. SEE SHEET C-503.
13. CONSTRUCT WATER QUALITY STRUCTURE. SEE SHEETS C-508 THRU C-510.
14. INSTALL 18" RCP w/ PIPE PENETRATION INTO 8'x6' CBC. SEE "OUTER WALL PENETRATION DETAIL" ON SHEET C-517.
15. CONSTRUCT CONCRETE ACCESS RAMP. SEE SHEET C-504.
16. CONSTRUCT SHOTCRETE PAVING. SEE DETAIL XX.

LEGEND

- BASE COURSE MAINTENANCE ROAD
- 18" THICK RIPRAP
- REINFORCED CONCRETE
- 6" NATIVE MATERIAL w/ RECYCLED BASE COURSE
- SHOTCRETE
- FLOW ARROW

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PROJECT NAME

BARR SPUR IMPROVEMENTS

REV.	DATE	DESCRIPTION	BY

PROJECT NO:	1660060700
DESIGNED BY:	TJA
DRAWN BY:	JEM
CHECKED BY:	TJA
DATE:	JAN 2022

SHEET TITLE

GRADING & DRAINAGE PLAN @ BARR SPUR CROSSING

SHEET NO:

C-106

M:\MSD\16-600-607-00\2_Disciplines_SHEETS\2_Sheets - civil\BARR SPUR\166607-GD02.dwg

1/5/2022

F1 GRADING & DRAINAGE PLAN @ BARR INTERIOR CROSSING

SCALE: 1" = 10'

0 10' 20'

GENERAL SHEET NOTES

1. GENERAL SHEET NOTES.

KEYNOTES (AS APPLICABLE)

1. CONSTRUCT 6" THICK CONCRETE BASE COURSE MAINTENANCE ROAD. SEE DETAIL H9/C-501.
2. CONSTRUCT 10'W x7'H x102'L CBC. SEE SHEETS C-511 THRU C-514.
3. CONSTRUCT 8'W x 6'H x128'L CBC. SEE SHEETS C-511 THRU C-514.
4. CONSTRUCT WINGWALL 'A' FOR 10'W x7'H CBC. SEE DETAIL A6/C-506.
5. CONSTRUCT WINGWALL 'B' FOR 10'W x7'H CBC. SEE SHEETS A1/C-506.
6. CONSTRUCT WINGWALL 'C' FOR 8'W x6'H CBC. SEE SHEETS A1/C-507.
7. CONSTRUCT WINGWALL 'D' FOR 8'W x6'H CBC. SEE SHEETS A6/C-507.
8. INSTALL 24" CMP w/ PIPE PENETRATION. SEE SHEET C-502.
9. INSTALL PIPE TO PIPE CONNECTION. SEE DETAIL D8/C-501.
10. INSTALL 18" THICK RIPRAP. SEE DETAIL F8/C-501.
11. CONSTRUCT NATIVE MATERIAL BASE COURSE. SEE SHEET A5/C-501.
12. INSTALL PIPE RAILING. SEE SHEET C-503.
13. CONSTRUCT WATER QUALITY STRUCTURE. SEE SHEETS C-508 THRU C-510.
14. INSTALL 18" RCP w/ PIPE PENETRATION INTO 8'x6' CBC. SEE "OUTER WALL PENETRATION DETAIL" ON SHEET C-517.
15. CONSTRUCT CONCRETE ACCESS RAMP. SEE SHEET C-504.
16. CONSTRUCT SHOTCRETE PAVING. SEE DETAIL XX.

LEGEND

- BASE COURSE MAINTENANCE ROAD
- 18" THICK RIPRAP
- REINFORCED CONCRETE
- 6" NATIVE MATERIAL w/ RECYCLED BASE COURSE
- SHOTCRETE
- FLOW ARROW

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NOT FOR
CONSTRUCTION

PROJECT NAME

BARR SPUR IMPROVEMENTS

REV.	DATE	DESCRIPTION	BY

PROJECT NO:	1660060700
DESIGNED BY:	TJA
DRAWN BY:	JEM
CHECKED BY:	TJA
DATE:	JAN 2022

SHEET TITLE

GRADING & DRAINAGE PLAN @ BARR INTERIOR CROSSING

SHEET NO:

C-107

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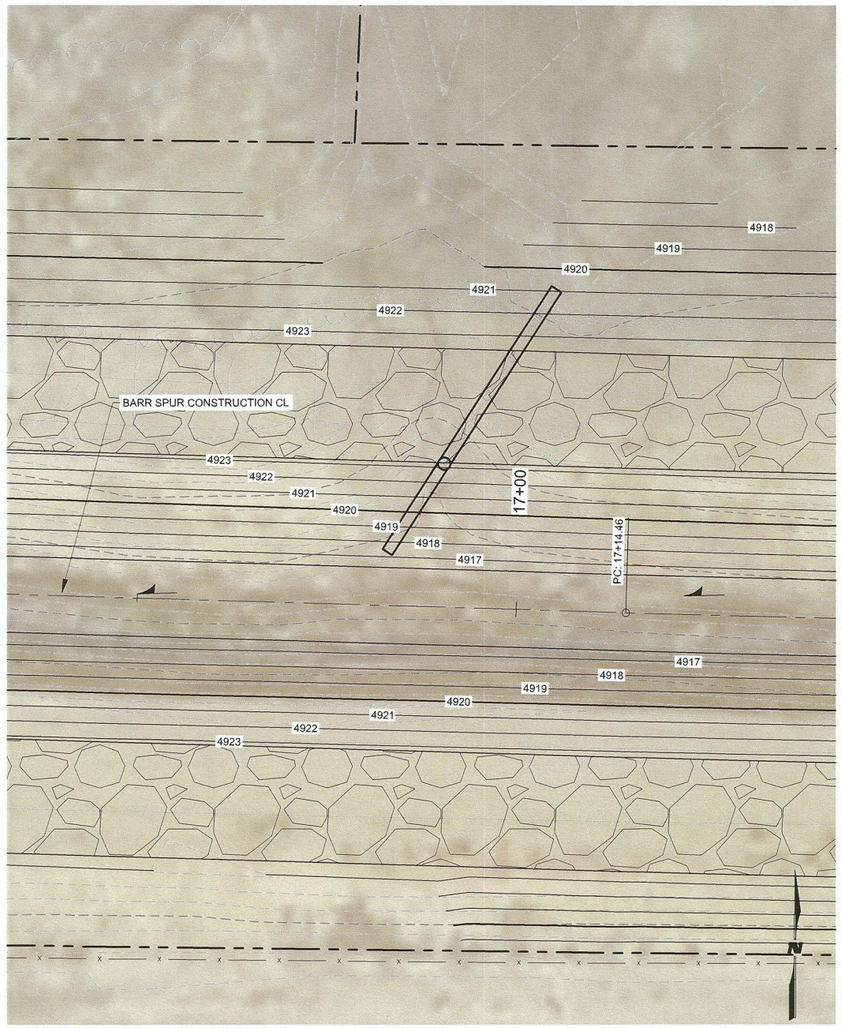
1/5/2022



A1 GRADING & DRAINAGE PLAN @ CULVERT

SCALE: 1" = 10'

0 5' 10'

GENERAL SHEET NOTES

1. SEE SHEET C-106 FOR ADDITIONAL GRADING AT BARR SPUR CBC CROSSING.
2. SEE SHEET C-107 FOR ADDITIONAL GRADING AT BARR INTERIOR DRAIN CBC CROSSING.

KEYNOTES (AS APPLICABLE)

1. CONSTRUCT 6" THICK CONCRETE BASE COURSE MAINTENANCE ROAD. SEE DETAIL H9/C-501.
2. CONSTRUCT 10'W x7'H x102'L CBC. SEE SHEETS C-511 THRU C-514.
3. CONSTRUCT 8'W x 6'H x128'L CBC. SEE SHEETS C-511 THRU C-514.
4. CONSTRUCT WINGWALL 'A' FOR 10'W x7'H CBC. SEE DETAIL A6/C-506.
5. CONSTRUCT WINGWALL 'B' FOR 10'W x7'H CBC. SEE SHEETS A1/C-506.
6. CONSTRUCT WINGWALL 'C' FOR 8'W x6'H CBC. SEE SHEETS A1/C-507.
7. CONSTRUCT WINGWALL 'D' FOR 8'W x6'H CBC. SEE SHEETS A6/C-507.
8. INSTALL 24" CMP w/ PIPE PENETRATION. SEE SHEET C-502.
9. INSTALL PIPE TO PIPE CONNECTION. SEE DETAIL D8/C-501.
10. INSTALL 18" THICK RIPRAP. SEE DETAIL F8/C-501.
11. CONSTRUCT NATIVE MATERIAL BASE COURSE. SEE SHEET A5/C-501.
12. INSTALL PIPE RAILING. SEE SHEET C-503.
13. CONSTRUCT WATER QUALITY STRUCTURE. SEE SHEETS C-508 THRU C-510.
14. INSTALL 18" RCP w/ PIPE PENETRATION INTO 8'x6' CBC. SEE "OUTER WALL PENETRATION DETAIL" ON SHEET C-517.
15. CONSTRUCT CONCRETE ACCESS RAMP. SEE SHEET C-504.
16. CONSTRUCT SHOTCRETE PAVING. SEE DETAIL XX.

LEGEND

- BASE COURSE MAINTENANCE ROAD
- 18" THICK RIPRAP
- REINFORCED CONCRETE
- 6" NATIVE MATERIAL w/ RECYCLED BASE COURSE
- SHOTCRETE
- FLOW ARROW

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CONSULTANTS

SEAL

60% SUBMITTAL NOT FOR CONSTRUCTION

PROJECT NAME

BARR SPUR IMPROVEMENTS

REV.	DATE	DESCRIPTION	BY

PROJECT NO:	1660060700
DESIGNED BY:	TJA
DRAWN BY:	JEM
CHECKED BY:	TJA
DATE:	JAN 2022

SHEET TITLE

GRADING & DRAINAGE PLAN @ CULVERTS

SHEET NO:

C-108

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1/5/2022

GENERAL SHEET NOTES

1. SEE SHEET C-106 FOR ADDITIONAL GRADING AT BARR SPUR CBC CROSSING.
2. SEE SHEET C-107 FOR ADDITIONAL GRADING AT BARR INTERIOR DRAIN CBC CROSSING.

KEYNOTES (AS APPLICABLE)

1. CONSTRUCT 6" THICK CONCRETE BASE COURSE MAINTENANCE ROAD. SEE DETAIL H9/C-501.
2. CONSTRUCT 10'W x7'H x102'L CBC. SEE SHEETS C-511 THRU C-514.
3. CONSTRUCT 8'W x 6'H x128'L CBC. SEE SHEETS C-511 THRU C-514.
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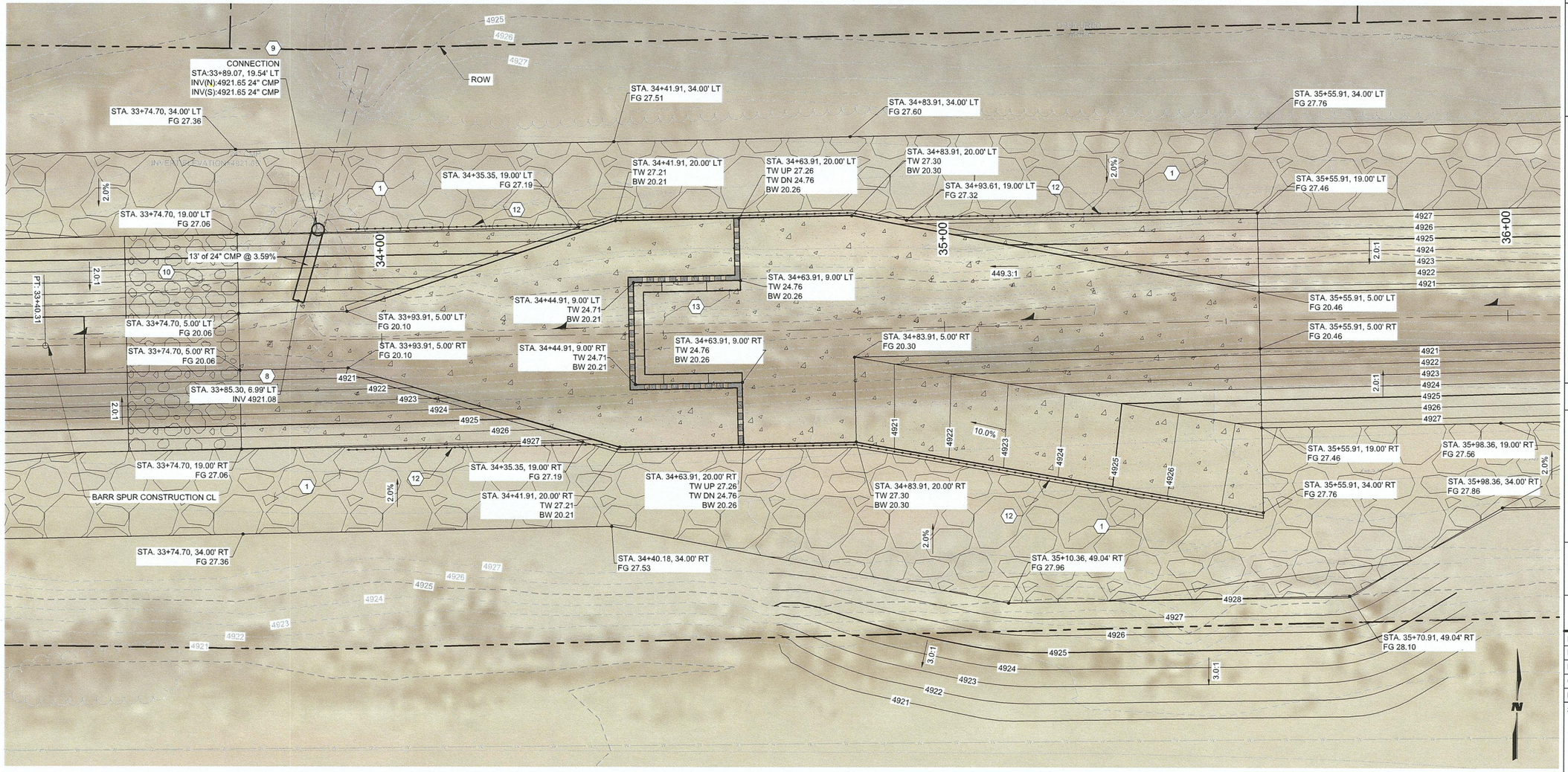
5. CONSTRUCT WINGWALL 'B' FOR 10'W x7'H CBC. SEE SHEETS A1/C-506.
6. CONSTRUCT WINGWALL 'C' FOR 8'W x6'H CBC. SEE SHEETS A1/C-507.
7. CONSTRUCT WINGWALL 'D' FOR 8'W x6'H CBC. SEE SHEETS A6/C-507.
8. INSTALL 24" CMP w/ PIPE PENETRATION. SEE SHEET C-502.
9. INSTALL PIPE TO PIPE CONNECTION. SEE DETAIL D8/C-501.
10. INSTALL 18" THICK RIPRAP. SEE DETAIL F8/C-501.
11. CONSTRUCT NATIVE MATERIAL BASE COURSE. SEE SHEET A5/C-501.
12. INSTALL PIPE RAILING. SEE SHEET C-503.
13. CONSTRUCT WATER QUALITY STRUCTURE. SEE SHEETS C-508 THRU C-510.
14. INSTALL 18" RCP w/ PIPE PENETRATION INTO 8'x6' CBC. SEE "OUTER WALL PENETRATION DETAIL" ON SHEET C-517.
15. CONSTRUCT CONCRETE ACCESS RAMP. SEE SHEET C-504.
16. CONSTRUCT SHOTCRETE PAVING. SEE DETAIL XX.

LEGEND

- BASE COURSE MAINTENANCE ROAD
- 18" THICK RIPRAP
- REINFORCED CONCRETE
- 6" NATIVE MATERIAL w/ RECYCLED BASE COURSE
- SHOTCRETE
- FLOW ARROW



A1 GRADING & DRAINAGE PLAN @ WATER QUALITY STRUCTURE

SCALE: 1" = 10'

0 5' 10'

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www.wilsonco.com

CONSULTANTS

SEAL

60% SUBMITTAL
NOT FOR
CONSTRUCTION

PROJECT NAME

BARR SPUR IMPROVEMENTS

REV.	DATE	DESCRIPTION	BY

PROJECT NO:	1660060700
DESIGNED BY:	TJA
DRAWN BY:	JEM
CHECKED BY:	TJA
DATE:	JAN 2022

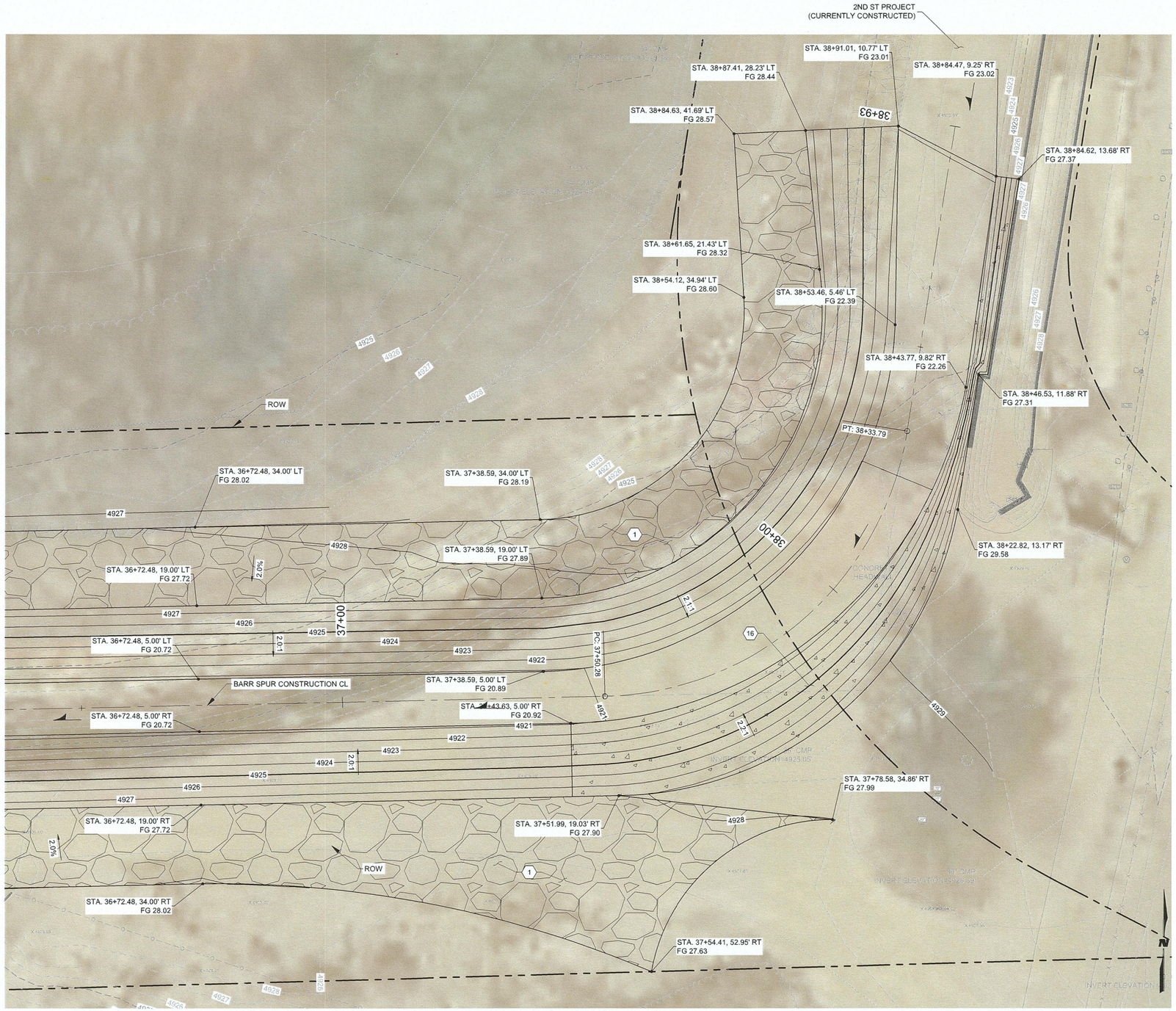
SHEET TITLE

GRADING & DRAINAGE PLAN @ WATER QUALITY STRUCTURE

SHEET NO:

C-109

1/5/2022 M:\MSD\16-600-607-00\2_Disciplines_SHEETS\2_Sheets - civil\BARR SPUR\166607-GD01.dwg



A1 GRADING & DRAINAGE PLAN @ EOP

SCALE: 1" = 10'

0 5' 10'

GENERAL SHEET NOTES

1. SEE SHEET C-106 FOR ADDITIONAL GRADING AT BARR SPUR CBC CROSSING.
2. SEE SHEET C-107 FOR ADDITIONAL GRADING AT BARR INTERIOR DRAIN CBC CROSSING.

KEYNOTES (AS APPLICABLE)

1. CONSTRUCT 6" THICK CONCRETE BASE COURSE MAINTENANCE ROAD. SEE DETAIL H9/C-501.
2. CONSTRUCT 10'W x7'H x102'L CBC. SEE SHEETS C-511 THRU C-514.
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6. CONSTRUCT WINGWALL 'C' FOR 8'W x6'H CBC. SEE SHEETS A1/C-507.
7. CONSTRUCT WINGWALL 'D' FOR 8'W x6'H CBC. SEE SHEETS A6/C-507.
8. INSTALL 24" CMP w/ PIPE PENETRATION. SEE SHEET C-502.
9. INSTALL PIPE TO PIPE CONNECTION. SEE DETAIL D8/C-501.
10. INSTALL 18" THICK RIPRAP. SEE DETAIL F8/C-501.
11. CONSTRUCT NATIVE MATERIAL BASE COURSE. SEE SHEET A5/C-501.
12. INSTALL PIPE RAILING. SEE SHEET C-503.
13. CONSTRUCT WATER QUALITY STRUCTURE. SEE SHEETS C-508 THRU C-510.
14. INSTALL 18" RCP w/ PIPE PENETRATION INTO 8'x6' CBC. SEE "OUTER WALL PENETRATION DETAIL" ON SHEET C-517.
15. CONSTRUCT CONCRETE ACCESS RAMP. SEE SHEET C-504.
16. CONSTRUCT SHOTCRETE PAVING. SEE DETAIL XX.

LEGEND

- BASE COURSE MAINTENANCE ROAD
- 18" THICK RIPRAP
- REINFORCED CONCRETE
- 6" NATIVE MATERIAL w/ RECYCLED BASE COURSE
- SHOTCRETE
- FLOW ARROW

WILSON & COMPANY
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CONSULTANTS

SEAL: 60% SUBMITTAL NOT FOR CONSTRUCTION

PROJECT NAME: BARR SPUR IMPROVEMENTS

REV.	DATE	DESCRIPTION	BY

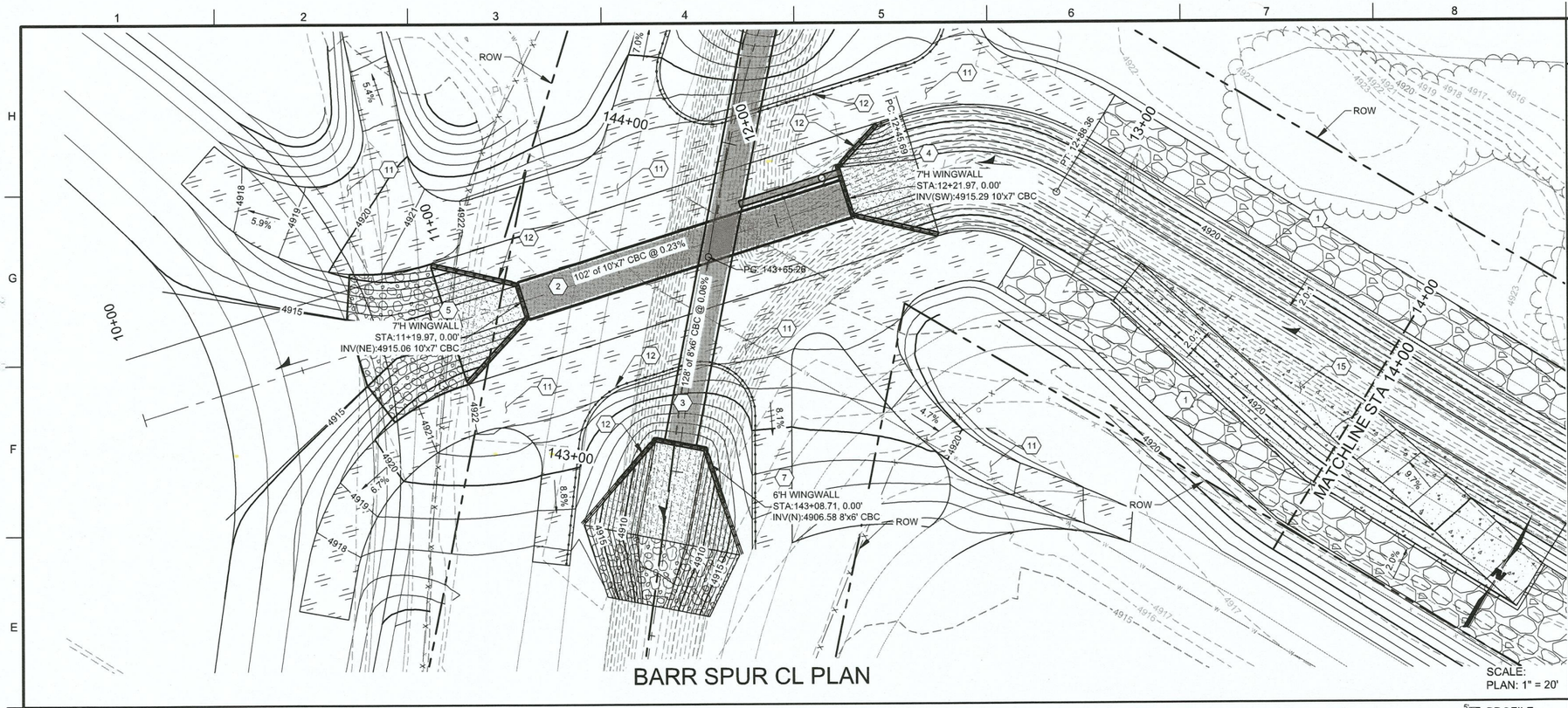
PROJECT NO:	1660060700
DESIGNED BY:	TJA
DRAWN BY:	JEM
CHECKED BY:	TJA
DATE:	JAN 2022

SHEET TITLE: GRADING & DRAINAGE PLAN @ EOP

SHEET NO: C-110

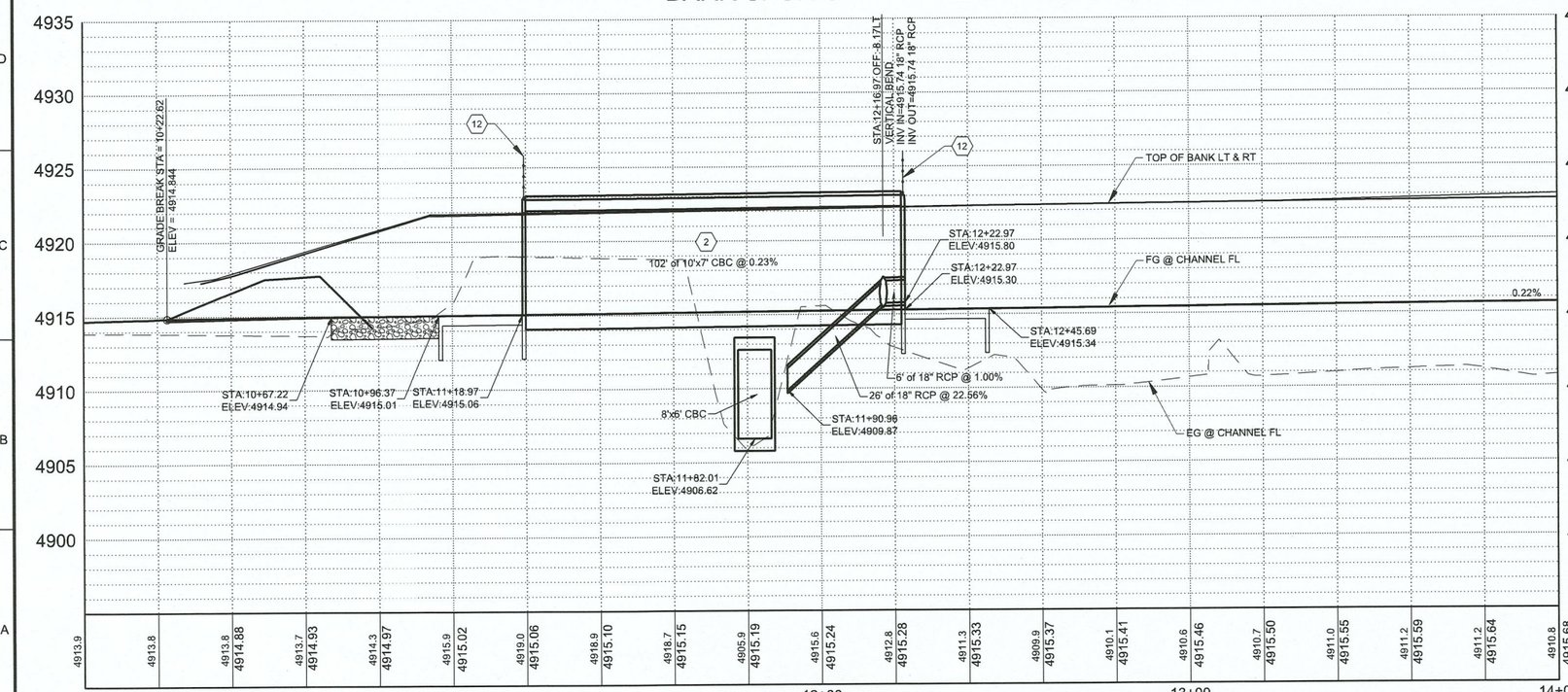
M:\MSD\16-600-607-00\2_Disciplines_SHEETS\2_Sheets - civil\BARR SPUR\166607-GD01.dwg

1/5/2022



BARR SPUR CL PLAN

SCALE:
PLAN: 1" = 20'



BARR SPUR CL PROFILE

PROFILE:
HORIZ: 1" = 20'
VERT: 1" = 5'

GENERAL SHEET NOTES

1. GENERAL SHEET NOTES.

KEYNOTES (AS APPLICABLE)

1. CONSTRUCT 6" THICK CONCRETE BASE COURSE MAINTENANCE ROAD. SEE DETAIL H9/C-501.
2. CONSTRUCT 10'W x7'H x102'L CBC. SEE SHEETS C-511 THRU C-514.
3. CONSTRUCT 8'W x 6'H x128'L CBC. SEE SHEETS C-511 THRU C-514.
4. CONSTRUCT WINGWALL 'A' FOR 10'W x7'H CBC. SEE DETAIL A6/C-506.
5. CONSTRUCT WINGWALL 'B' FOR 10'W x7'H CBC. SEE SHEETS A1/C-506.
6. CONSTRUCT WINGWALL 'C' FOR 8'W x6'H CBC. SEE SHEETS A1/C-507.
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8. INSTALL 24" CMP w/ PIPE PENETRATION. SEE SHEET C-502.
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11. CONSTRUCT NATIVE MATERIAL BASE COURSE. SEE SHEET A5/C-501.
12. INSTALL PIPE RAILING. SEE SHEET C-503.
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15. CONSTRUCT CONCRETE ACCESS RAMP. SEE SHEET C-504.
16. CONSTRUCT SHOTCRETE PAVING. SEE DETAIL XX.

LEGEND

- BASE COURSE MAINTENANCE ROAD
- 18" THICK RIPRAP
- REINFORCED CONCRETE
- 6" NATIVE MATERIAL w/ RECYCLED BASE COURSE
- SHOTCRETE
- FLOW ARROW

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NOT FOR
CONSTRUCTION

PROJECT NAME

BARR SPUR
IMPROVEMENTS

REV.	DATE	DESCRIPTION	BY

PROJECT NO:	1660060700
DESIGNED BY:	TJA
DRAWN BY:	JEM
CHECKED BY:	TJA
DATE:	JAN 2022

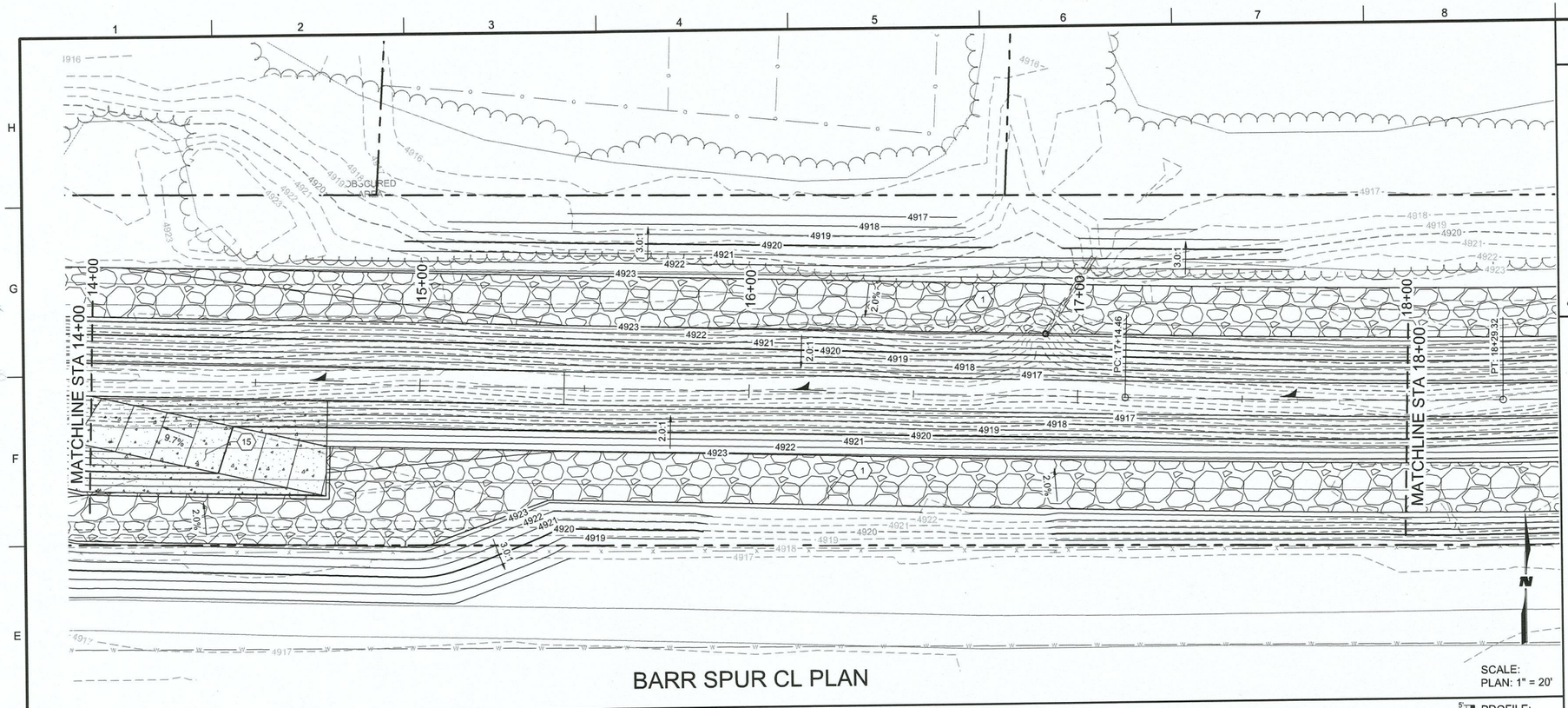
SHEET TITLE

BARR SPUR
PLAN & PROFILE

SHEET NO:

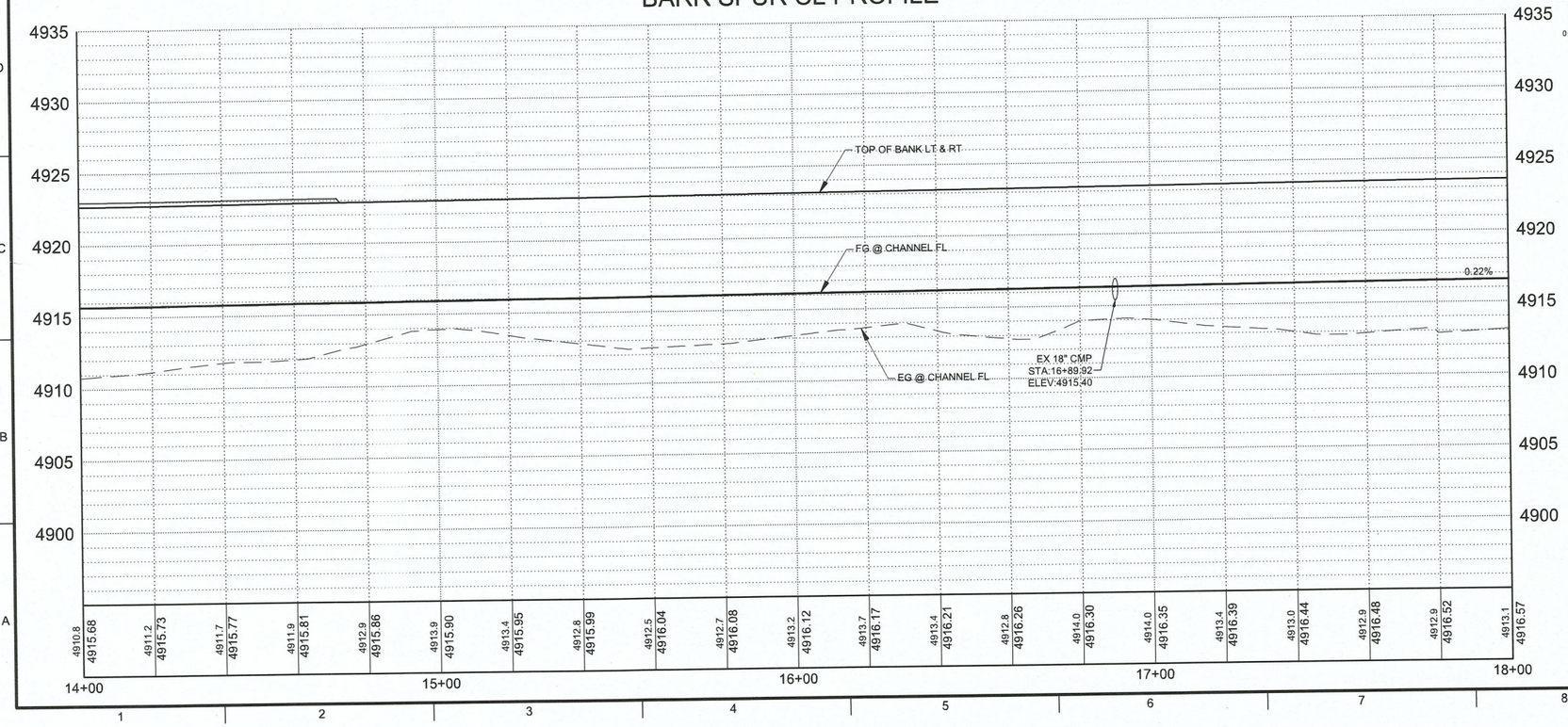
C-401

1/5/2022 M:\MSD\16-600-607-00\2_Disciplines_SHEETS\2_Sheets - civil\BARR SPUR\166607-PP01.dwg



BARR SPUR CL PLAN

SCALE:
PLAN: 1" = 20'



GENERAL SHEET NOTES

1. GENERAL SHEET NOTES.

KEYNOTES (AS APPLICABLE)

1. CONSTRUCT 6" THICK CONCRETE BASE COURSE MAINTENANCE ROAD. SEE DETAIL H9/C-501.
2. CONSTRUCT 10'W x7'H x102'L CBC. SEE SHEETS C-511 THRU C-514.
3. CONSTRUCT 8'W x 6'H x128'L CBC. SEE SHEETS C-511 THRU C-514.
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8. INSTALL 24" CMP w/ PIPE PENETRATION. SEE SHEET C-502.
9. INSTALL PIPE TO PIPE CONNECTION. SEE DETAIL D8/C-501.
10. INSTALL 18" THICK RIPRAP. SEE DETAIL F8/C-501.
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12. INSTALL PIPE RAILING. SEE SHEET C-503.
13. CONSTRUCT WATER QUALITY STRUCTURE. SEE SHEETS C-508 THRU C-510.
14. INSTALL 18" RCP w/ PIPE PENETRATION INTO 8'x6' CBC. SEE "OUTER WALL PENETRATION DETAIL" ON SHEET C-517.
15. CONSTRUCT CONCRETE ACCESS RAMP. SEE SHEET C-504.
16. CONSTRUCT SHOTCRETE PAVING. SEE DETAIL XX.

LEGEND

- BASE COURSE MAINTENANCE ROAD
- 18" THICK RIPRAP
- REINFORCED CONCRETE
- 6" NATIVE MATERIAL w/ RECYCLED BASE COURSE
- SHOTCRETE
- FLOW ARROW

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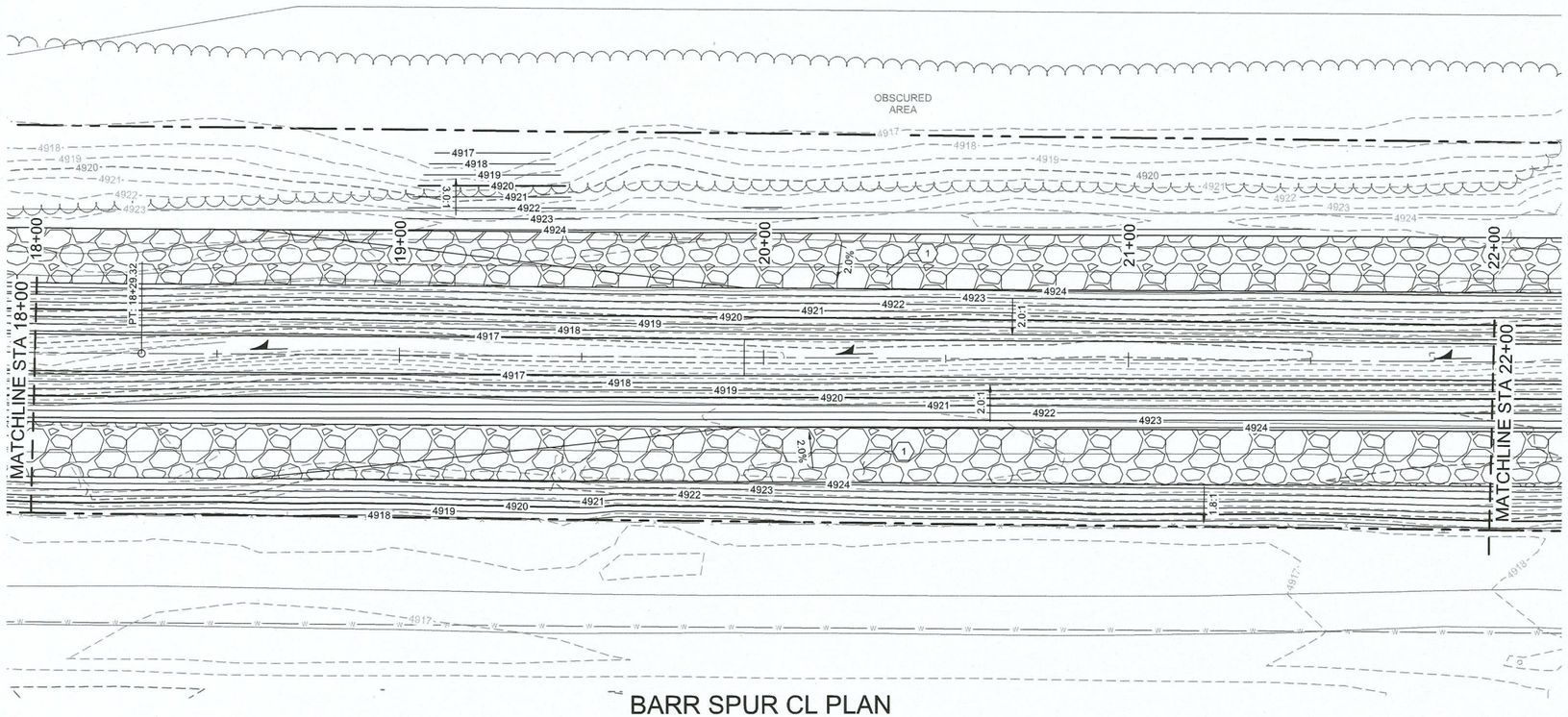
SHEET TITLE

BARR SPUR
PLAN & PROFILE

SHEET NO:

C-402

1/5/2022 M:\MSD\16-600-607-00\2_Disciplines_SHEETS\2_Sheets - civil\BARR SPUR\166607-PP01.dwg



BARR SPUR CL PLAN

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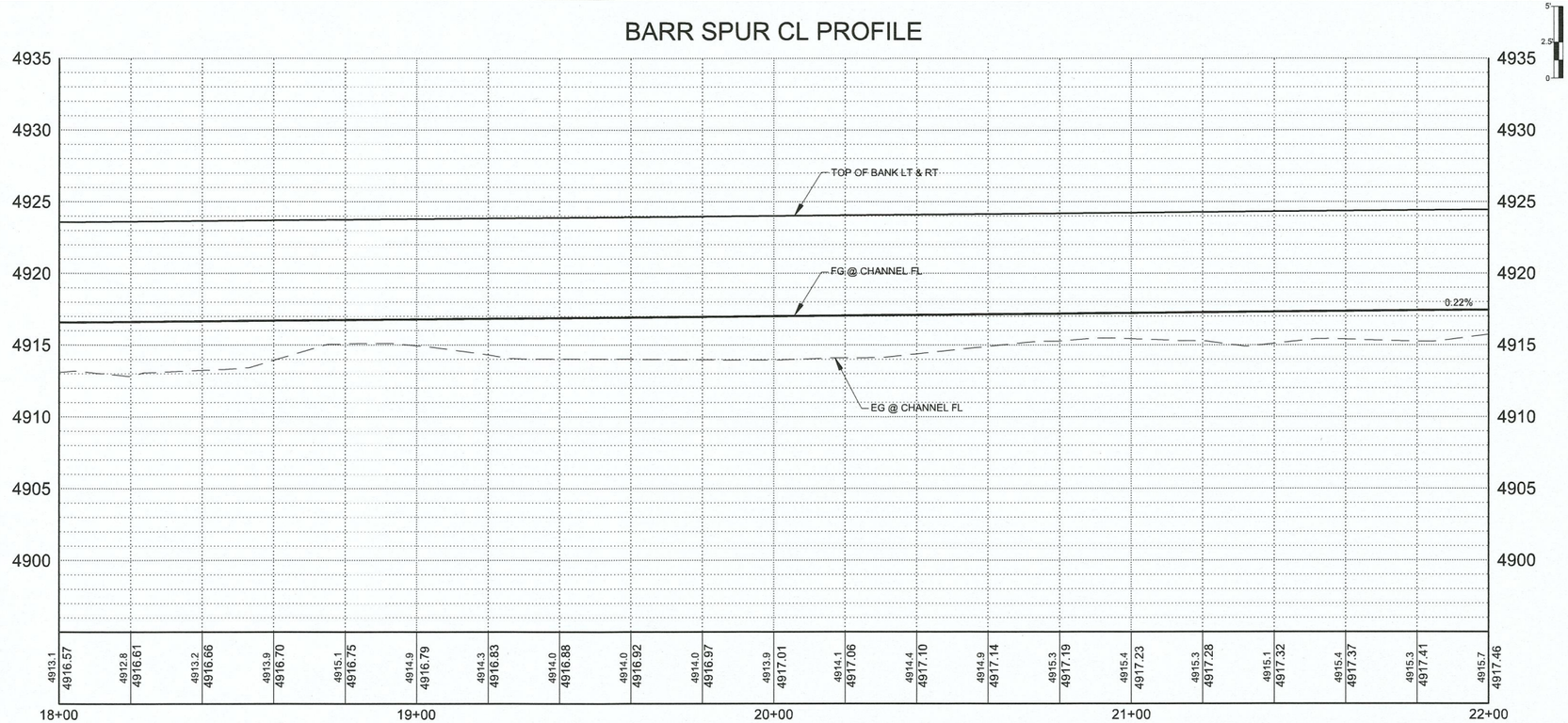

PROFILE:
HORIZ: 1" = 20'
VERT: 1" = 5'

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DATE:	JAN 2022

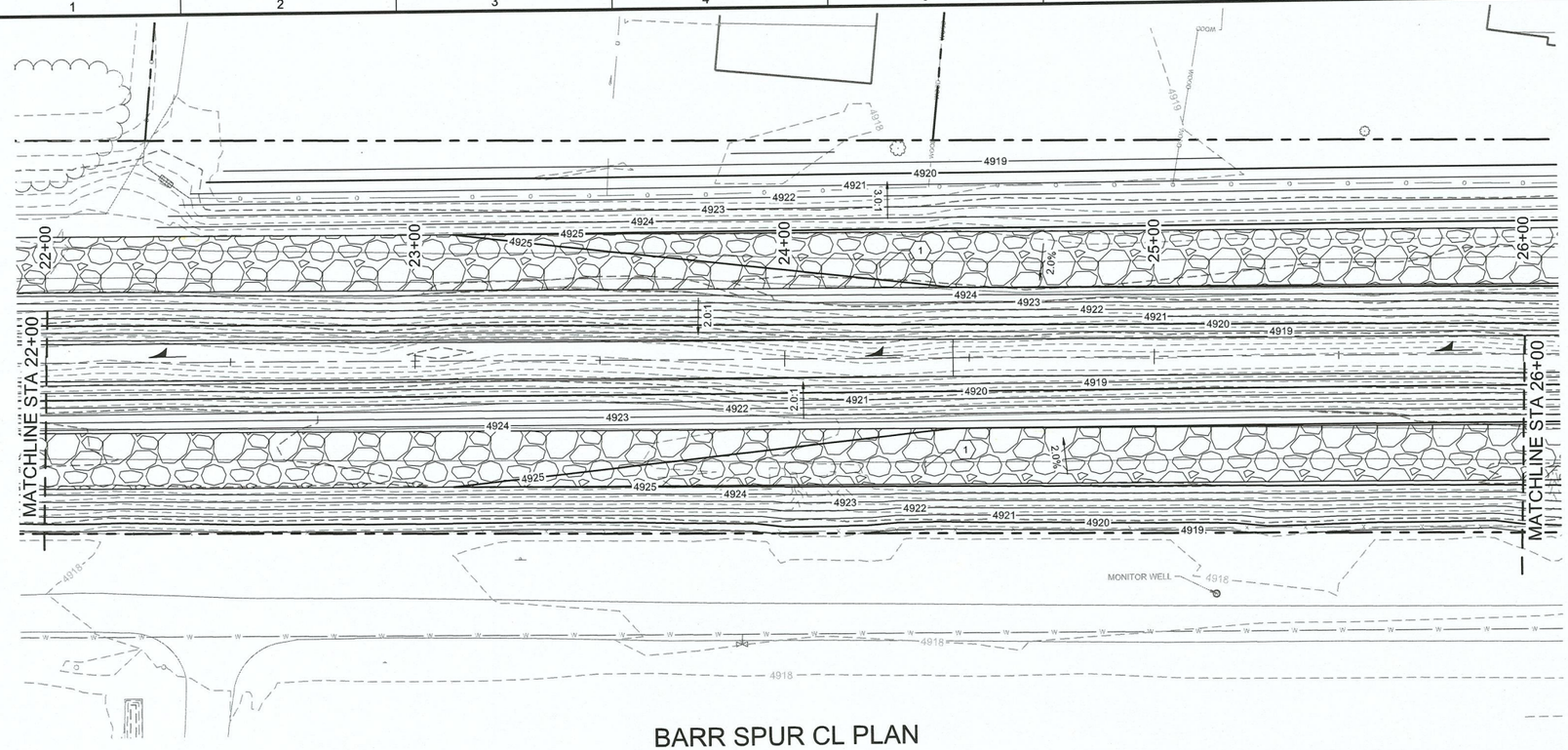
SHEET TITLE

BARR SPUR PLAN & PROFILE

SHEET NO:

C-403

1/5/2022 M:\MSD\16-600-607-00\2_Disciplines_SHEETS\2_Sheets - civil\BARR SPUR\166607-PP01.dwg



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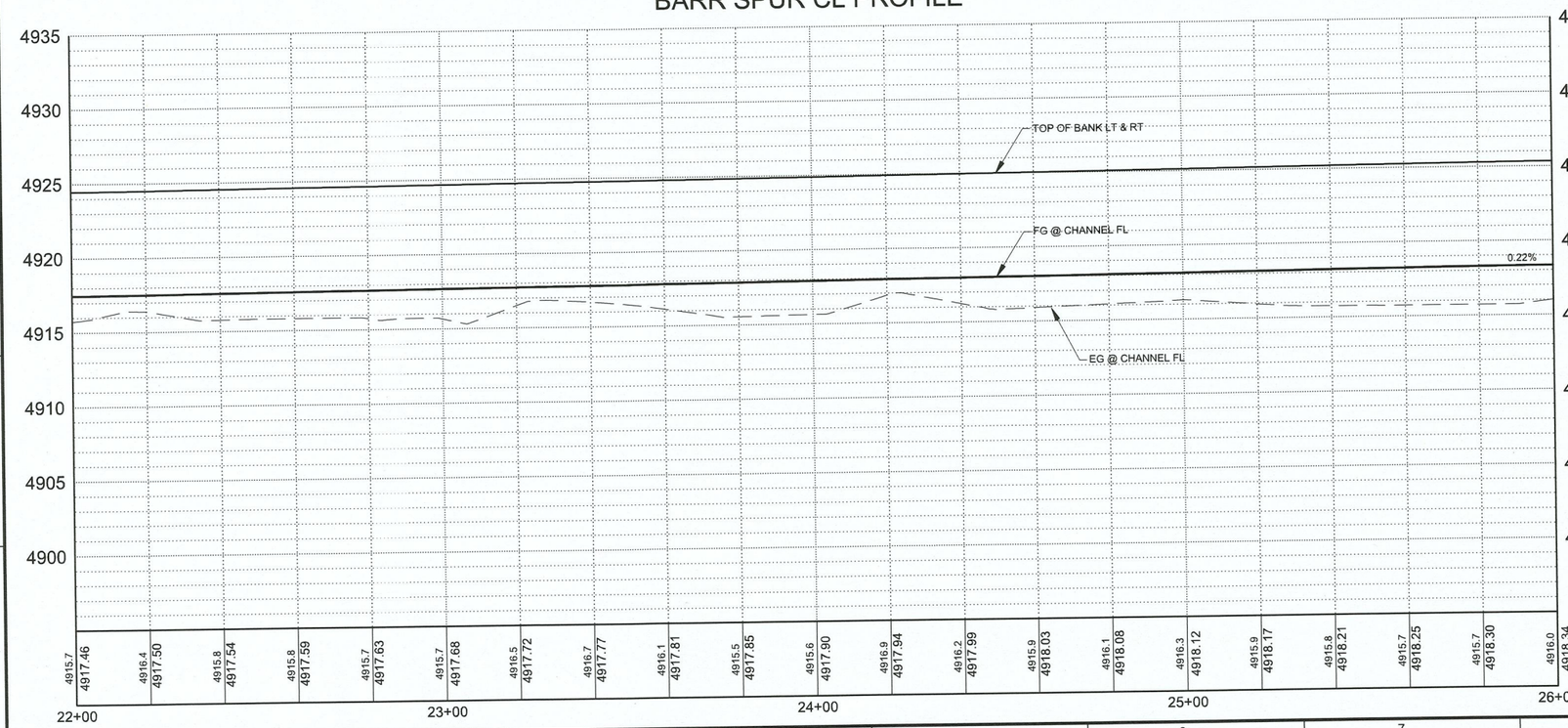
BARR SPUR CL PROFILE



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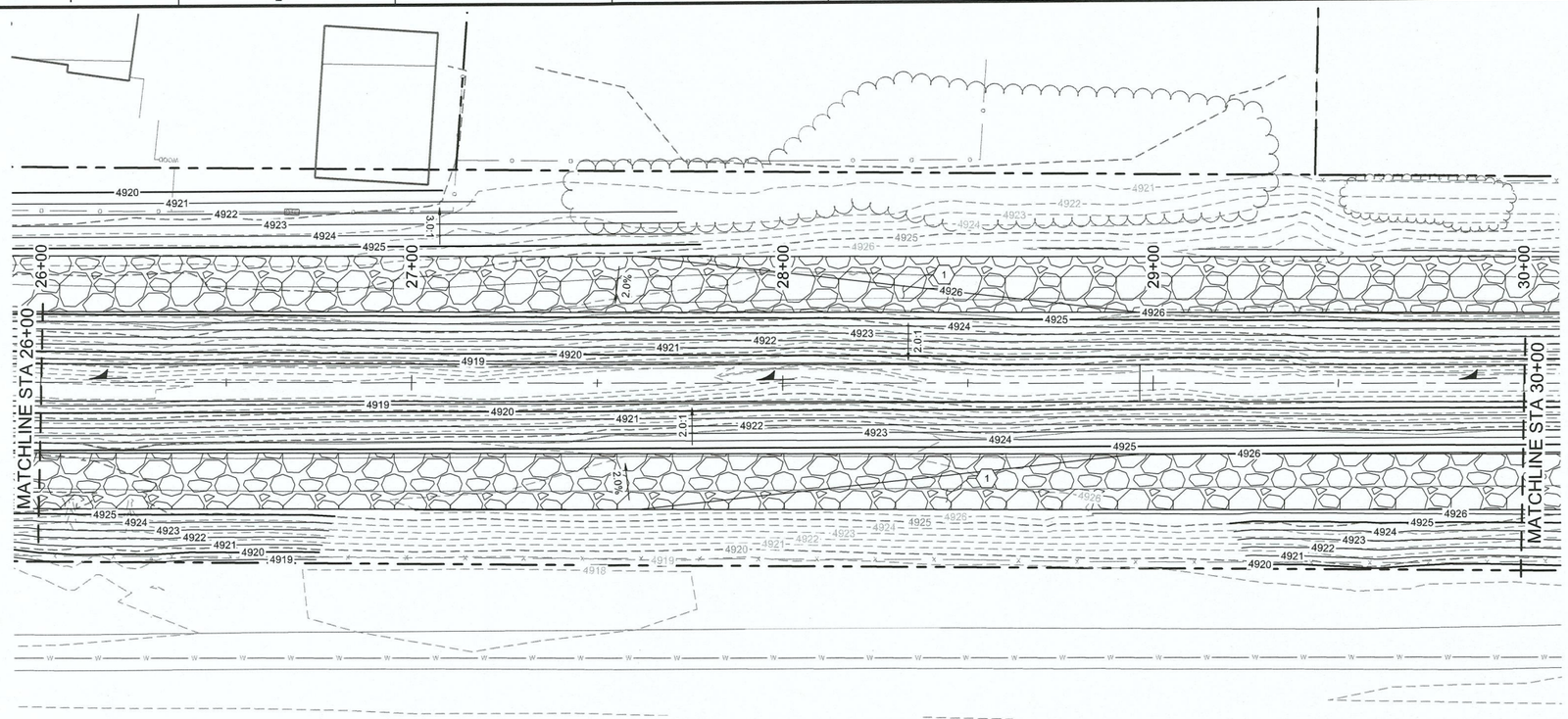
SHEET TITLE

BARR SPUR
PLAN & PROFILE

SHEET NO:
C-404

1/5/2022 M:\MSD\16-600-607-00\2_Disciplines_SHEETS\2_Sheets - civil\BARR SPUR\166607-PP01.dwg



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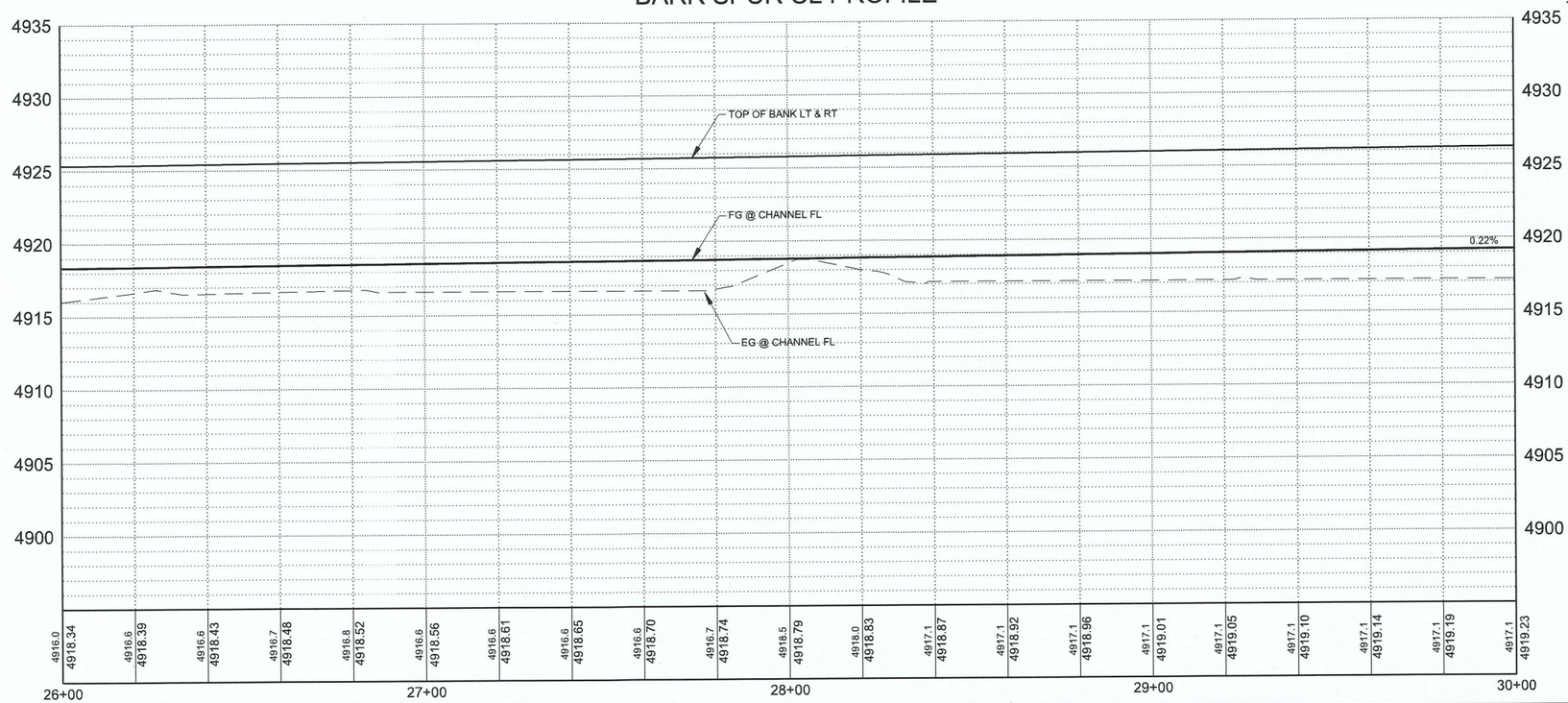

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SHEET TITLE

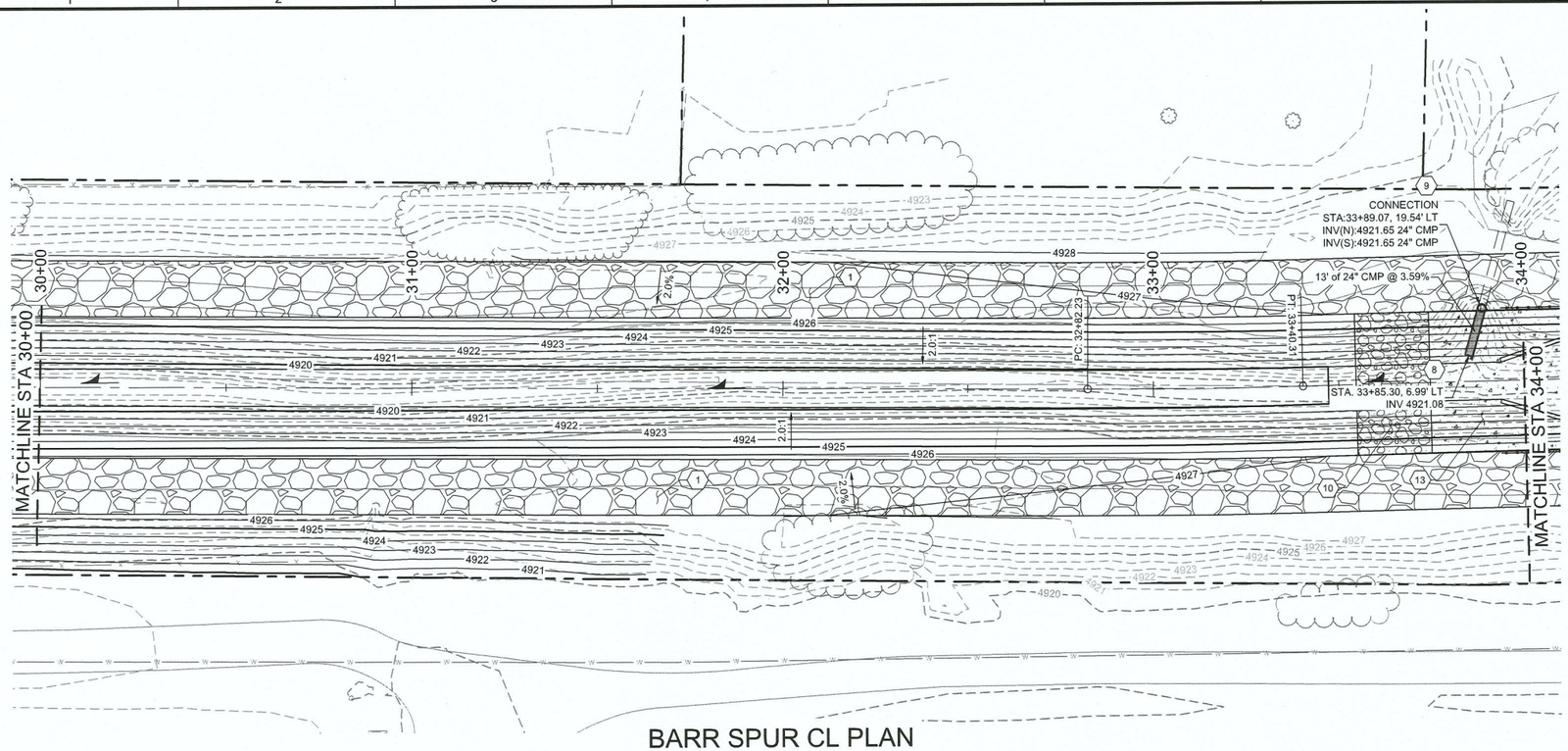
BARR SPUR PLAN & PROFILE

SHEET NO:

C-405

M:\MSD\16-600-607-00\2_Disciplines_SHEETS\2_Sheets - civil\BARR SPUR\166607-PP01.dwg

1/5/2022



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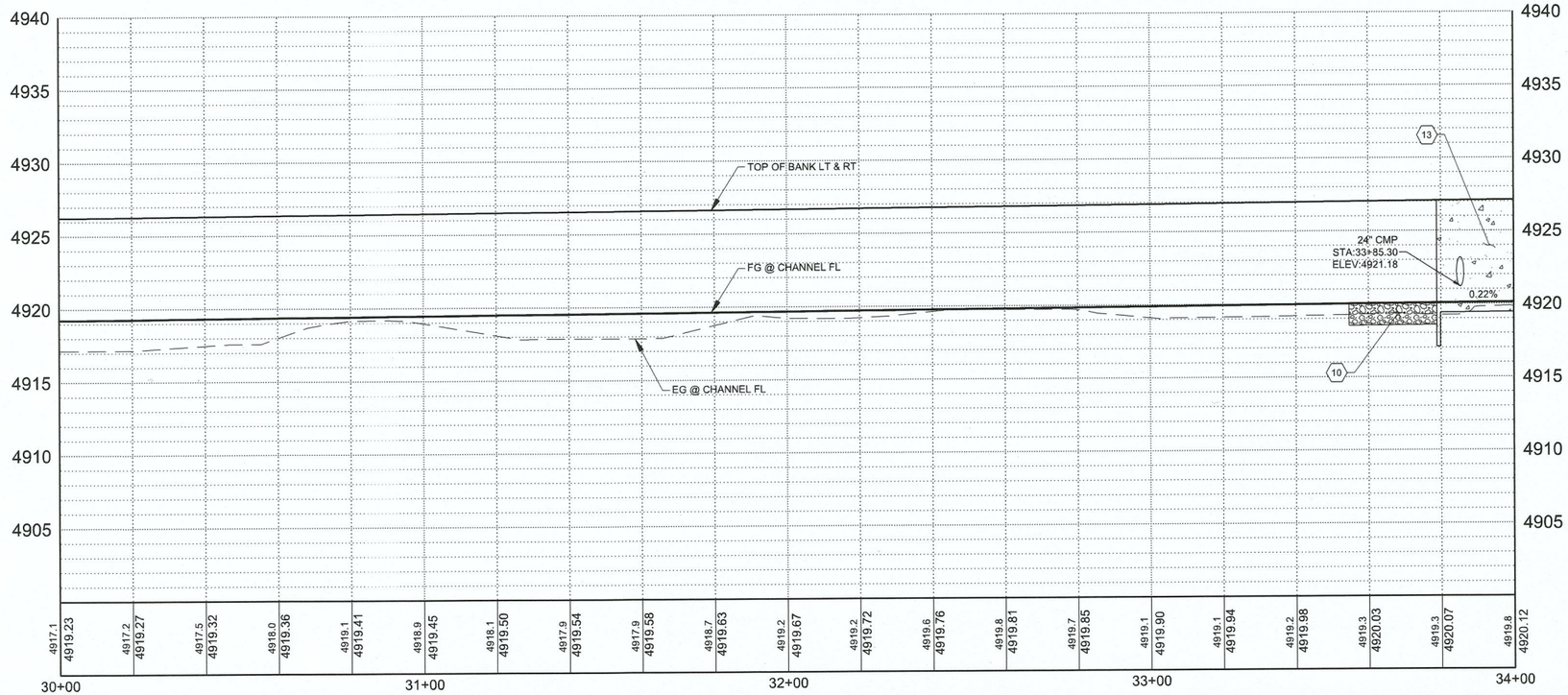

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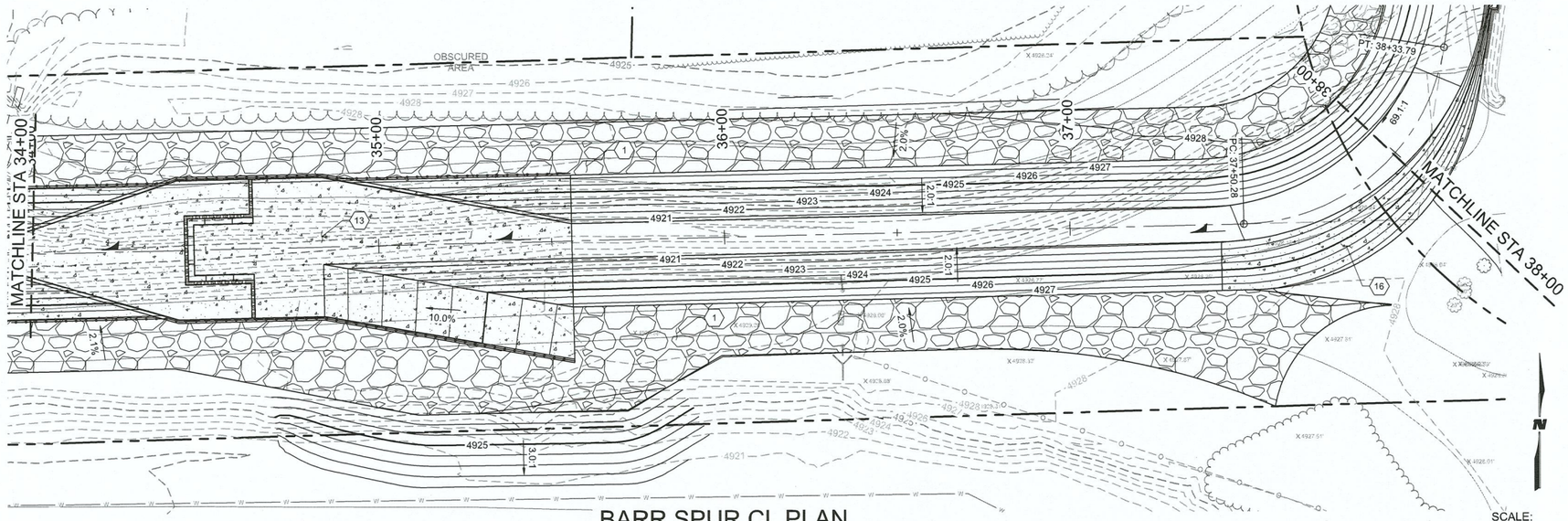
SHEET TITLE

BARR SPUR
PLAN & PROFILE

SHEET NO:

C-406

1/5/2022 M:\MSD\16-600-607-00\2_Disciplines_SHEETS\2_Sheets - civil\BARR SPUR\166607-PP01.dwg



BARR SPUR CL PLAN

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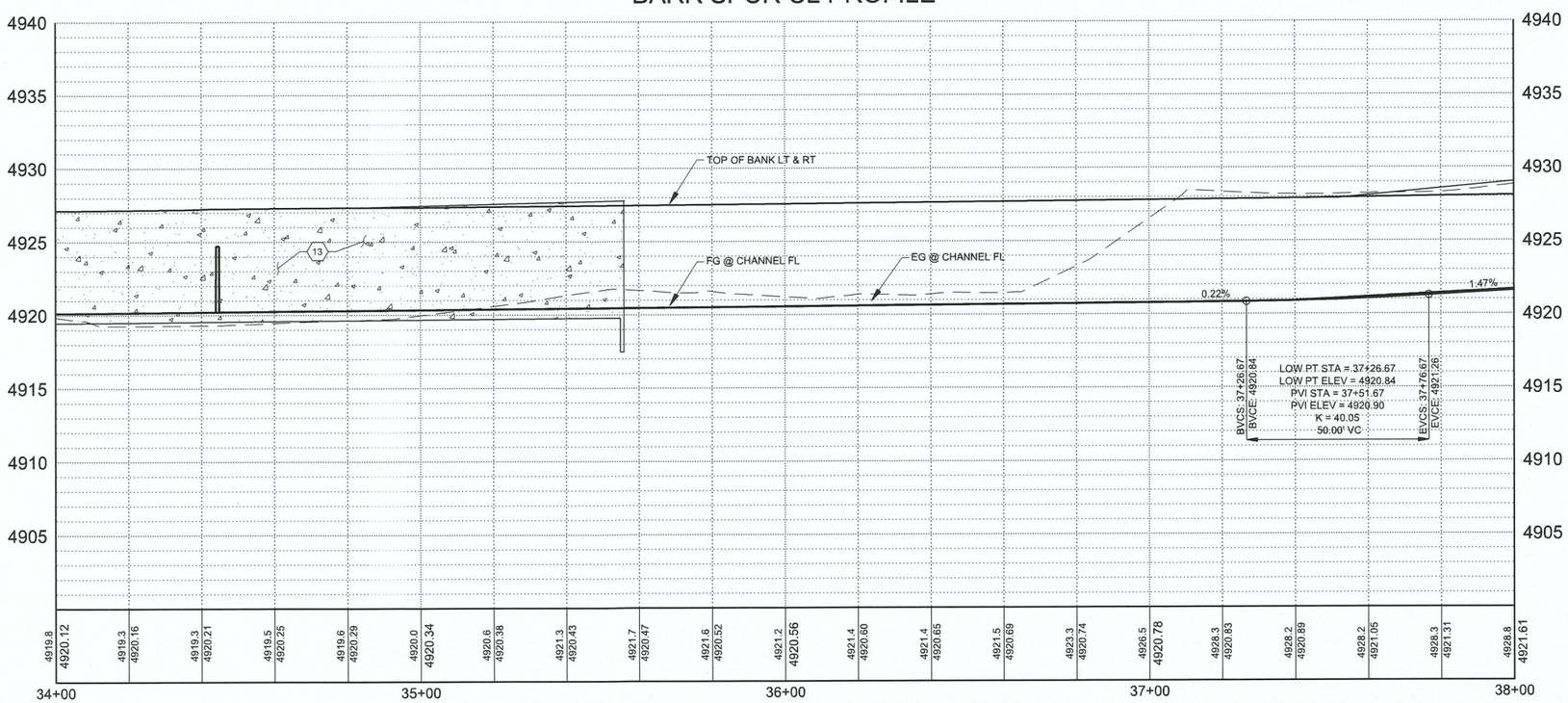

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PLAN & PROFILE

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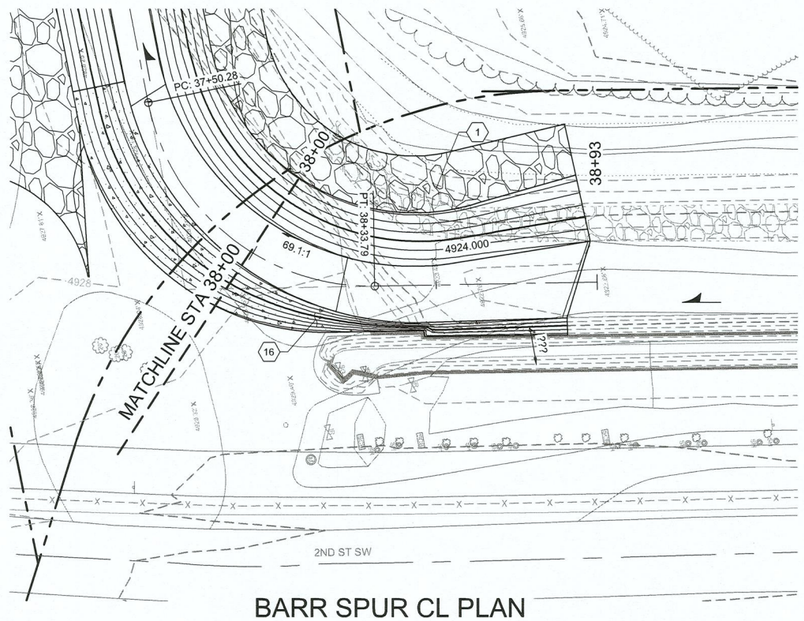

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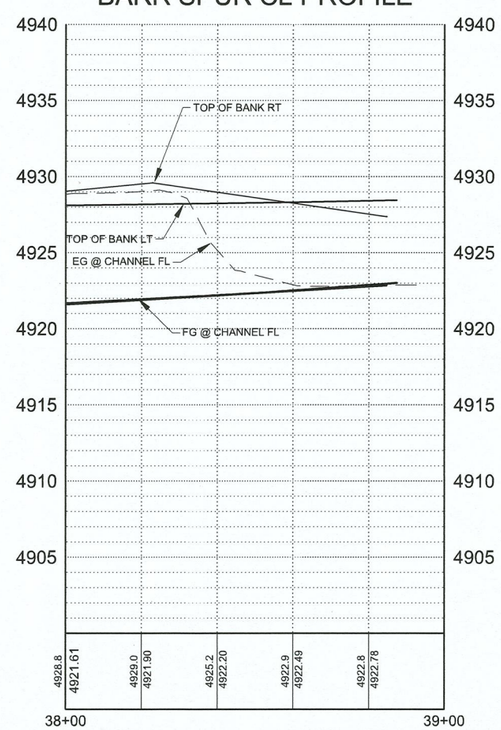

0 10' 20'

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5'
2.5'
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- FLOW ARROW

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PHONE: 505-348-4000
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CONSULTANTS

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PROJECT NAME

BARR SPUR
IMPROVEMENTS

REV.	DATE	DESCRIPTION	BY

PROJECT NO:	1660060700
DESIGNED BY:	TJA
DRAWN BY:	JEM
CHECKED BY:	TJA
DATE:	JAN 2022

SHEET TITLE

BARR SPUR
PLAN & PROFILE

SHEET NO:

C-408

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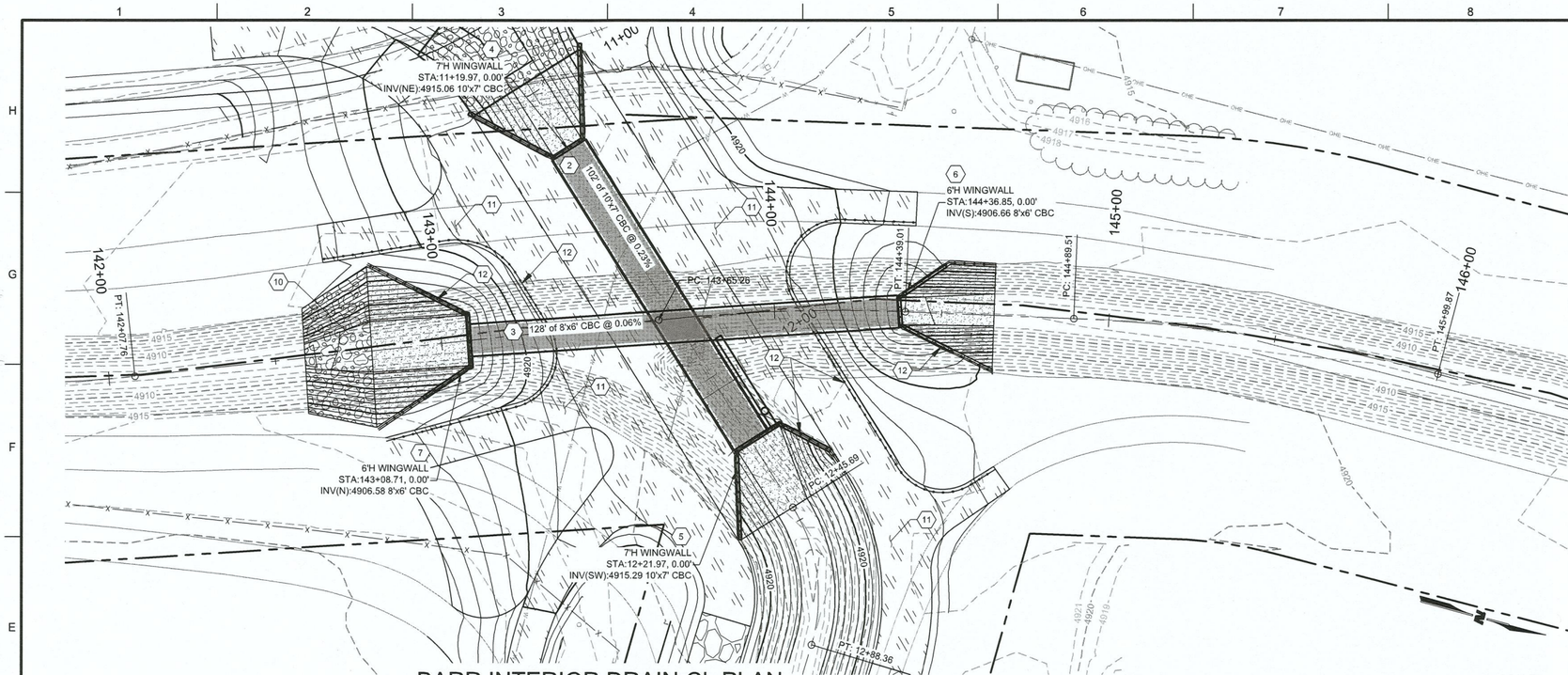
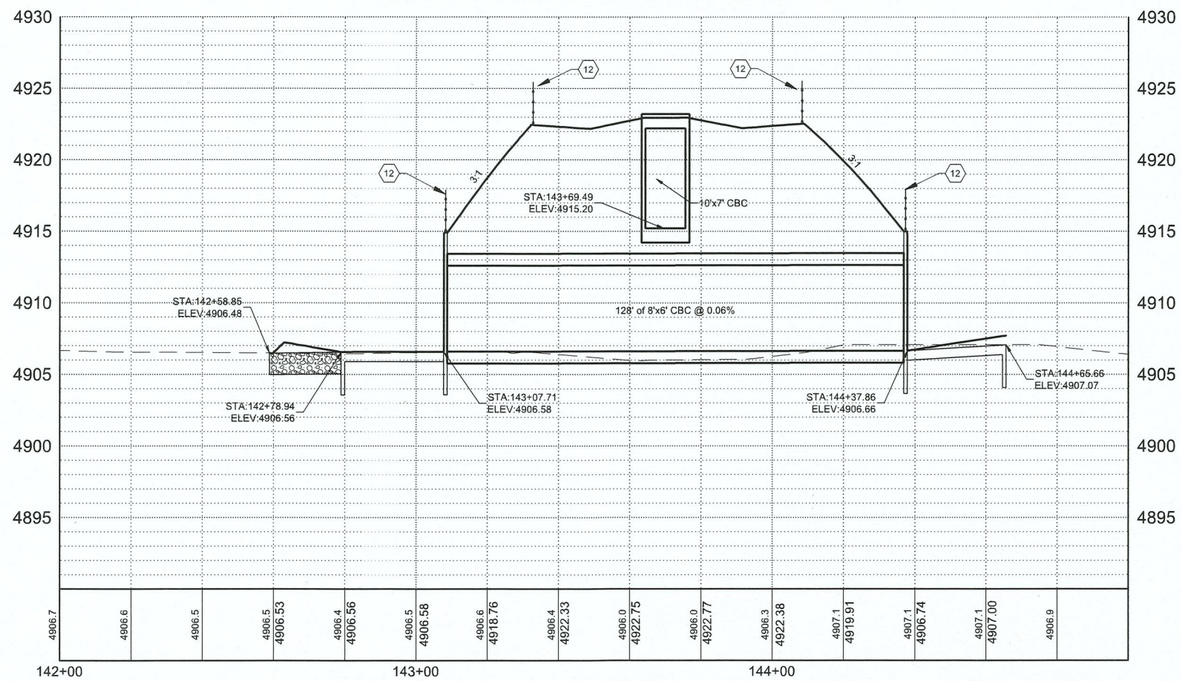
1/5/2022



BARR INTERIOR DRAIN CL PLAN

SCALE:
PLAN: 1" = 20'



BARR INTERIOR DRAIN CL PROFILE

PROFILE:
HORIZ: 1" = 20'
VERT: 1" = 5'

GENERAL SHEET NOTES

1. SEE SHEETS C-106 & C-107 FOR ADDITIONAL GRADING AT CBC CROSSINGS.

KEYNOTES

1. CONSTRUCT 6" THICK CONCRETE BASE COURSE MAINTENANCE ROAD. SEE DETAIL H9/C-501.
2. CONSTRUCT 10'W x7'H x102'L CBC. SEE SHEETS C-511 THRU C-514.
3. CONSTRUCT 8'W x 6'H x128'L CBC. SEE SHEETS C-511 THRU C-514.
4. CONSTRUCT WINGWALL 'A' FOR 10'W x7'H CBC. SEE DETAIL A6/C-506.
5. CONSTRUCT WINGWALL 'B' FOR 10'W x7'H CBC. SEE SHEETS A1/C-506.
6. CONSTRUCT WINGWALL 'C' FOR 8'W x6'H CBC. SEE SHEETS A1/C-507.
7. CONSTRUCT WINGWALL 'D' FOR 8'W x6'H CBC. SEE SHEETS A6/C-507.
8. INSTALL 24" CMP w/ PIPE PENETRATION. SEE SHEET C-502.
9. INSTALL PIPE TO PIPE CONNECTION. SEE DETAIL D8/C-501.
10. INSTALL 18" THICK RIPRAP. SEE DETAIL F8/C-501.
11. CONSTRUCT NATIVE MATERIAL BASE COURSE. SEE SHEET A5/C-501.
12. INSTALL PIPE RAILING. SEE SHEET C-503.
13. CONSTRUCT WATER QUALITY STRUCTURE. SEE SHEETS C-508 THRU C-510.
14. INSTALL 18" RCP w/ PIPE PENETRATION INTO 8'x6' CBC. SEE "OUTER WALL PENETRATION DETAIL" ON SHEET C-517.
15. CONSTRUCT CONCRETE ACCESS RAMP. SEE SHEET C-504.
16. CONSTRUCT SHOTCRETE PAVING. SEE DETAIL XX.

LEGEND

- BASE COURSE MAINTENANCE ROAD
- 18" THICK RIPRAP
- REINFORCED CONCRETE
- 6" NATIVE MATERIAL w/ RECYCLED BASE COURSE
- SHOTCRETE
- FLOW ARROW

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CHECKED BY:	TJA
DATE:	JAN 2022

SHEET TITLE

BARR INTERIOR DRAIN CBC PLAN & PROFILE

SHEET NO:

C-409

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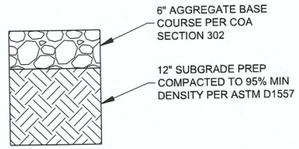
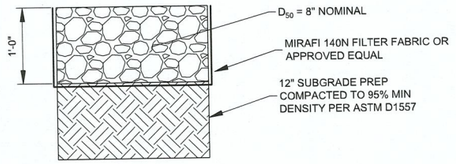
1/5/2022



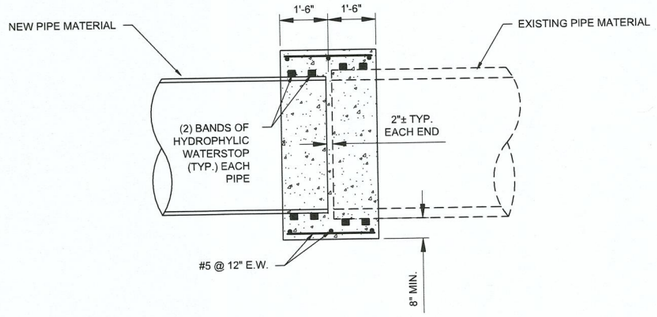
H9 BASE COURSE SECTION

SCALE: 1" = 1'



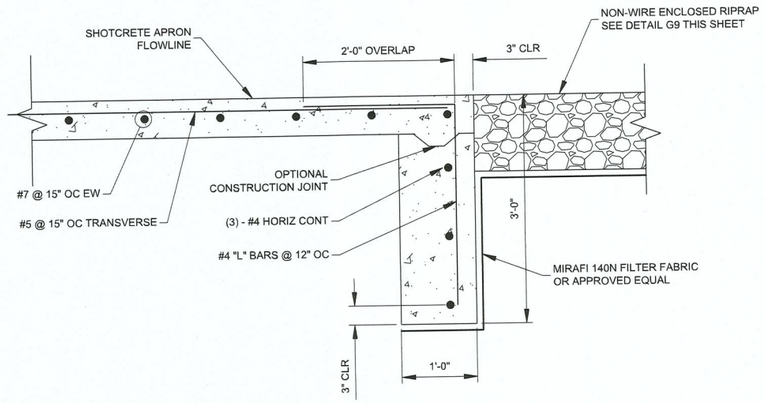
F8 NON-WIRE ENCLOSED RIPRAP DETAIL

SCALE: 1" = 1'



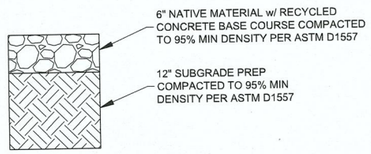
D8 CONCRETE COLLAR DETAIL

SCALE: 1" = 1'



A7 CONCRETE APRON TO RIPRAP CONNECTION DETAIL

SCALE: 1" = 1'



A5 6" NATIVE MATERIAL w/ RECYCLED CONCRETE BASE COURSE ROAD

SCALE: 1" = 1'

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PROJECT NAME

BARR SPUR IMPROVEMENTS

REV.	DATE	DESCRIPTION	BY

PROJECT NO:	1660060700
DESIGNED BY:	TJA
DRAWN BY:	JEM
CHECKED BY:	TJA
DATE:	JAN 2022

SHEET TITLE

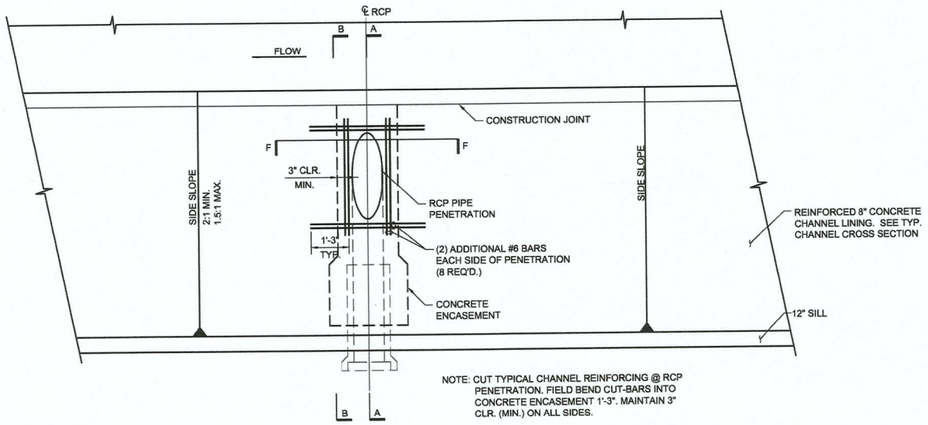
DETAILS

SHEET NO:

C-501

M:\MSD\16-600-607-00\2_Disciplines_SHEETS\2_Sheets - civil\BARR SPUR\166607-DT01.dwg

1/5/2022



NOTE: CUT TYPICAL CHANNEL REINFORCING @ RCP PENETRATION. FIELD BEND CUT-BARS INTO CONCRETE ENCASEMENT 1'-3". MAINTAIN 3" CLR. (MIN.) ON ALL SIDES.

PIPE PENETRATION (PLAN VIEW)

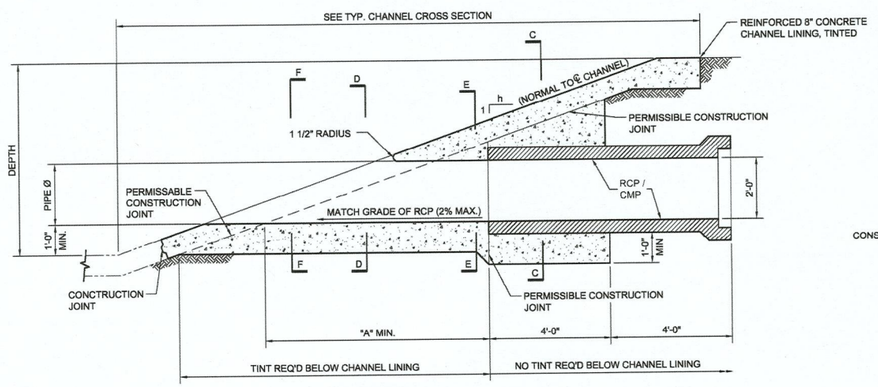
NO SCALE

DIMENSION "A"								
SIDE SLOPE	PIPE DIAMETER (INCHES)							
	24	30	36	42	48	54	60	72
1.5:1	4'-8"	5'-5"	6'-2"	6'-11"	7'-8"	8'-5"	9'-2"	10'-8"
2:1	5'-8"	6'-8"	7'-8"	8'-8"	9'-8"	10'-8"	11'-8"	13'-8"

DIMENSION "B"							
PIPE DIAMETER (INCHES)							
24	30	36	42	48	54	60	72
10"	11"	1'-1"	1'-2"	1'-3"	1'-4"	1'-6"	1'-8"

GENERAL NOTES:

1. THE PIPE PENETRATION DETAILED HEREIN SHALL BE PAID FOR LUMP SUM AND SHALL BE COMPENSATION FOR THE PENETRATION COMPLETE AND IN PLACE. INCLUDED IN THIS WORK (BUT NOT LIMITED TO) IS GRADING, SUBGRADE PREPARATION, REINFORCED CONCRETE, CONSTRUCTION JOINTS, CONCRETE PLACEMENT AND FINISHING. NOTE THE MEASUREMENT FOR 8" CHANNEL LINING IS CONTINUOUS AND UNINTERRUPTED AT THE PENETRATION LOCATION.
2. ALL CULVERT PIPE PLACED UNDER THE CHANNEL LINING OR WITHIN AMAFCA RIGHT-OF-WAY SHALL BE RCP CLASS III MIN.
3. FOR PIPE PENETRATIONS INTO EXISTING CHANNELS, USE CHANNEL REMOVAL DETAILS FROM AMAFCA STANDARD DRAWING 102.



SECTION A-A

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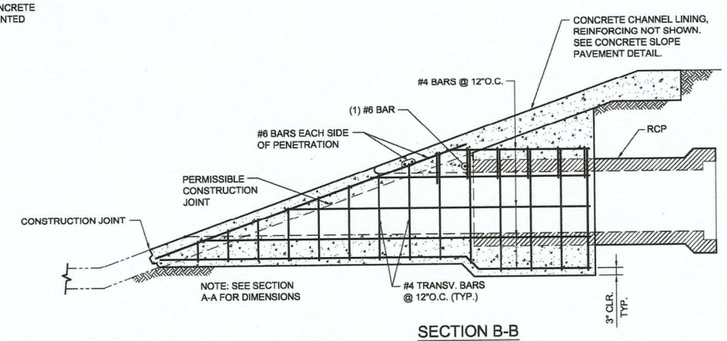

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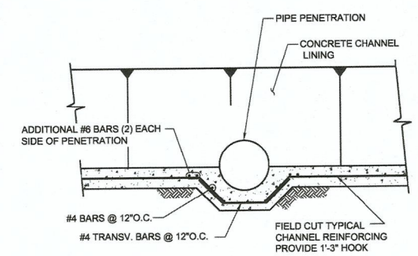

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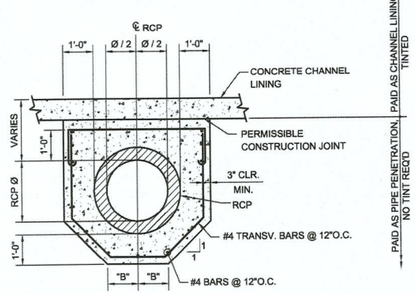

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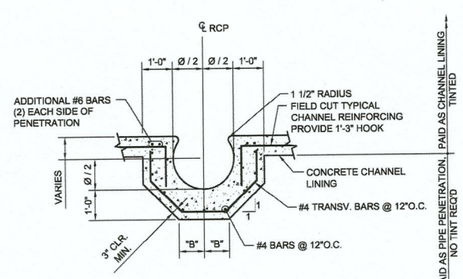

SECTION D-D

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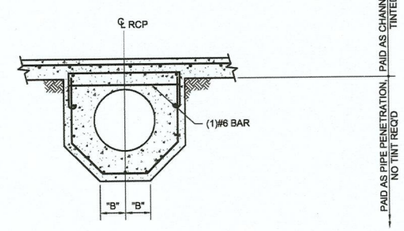

SECTION E-E

NO SCALE

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August 12, 2008 - 9:23am

ISSUE DATE: 8-12-2008

ALBUQUERQUE METROPOLITAN ARROYO FLOOD CONTROL AUTHORITY

AMAFCA
STANDARD DETAILS

RCP CHANNEL PENETRATION
PIPE DIAMETER > 12", 0° SKEW

REV	DATE	DESCRIPTION	CHKD

DRAWING NO.	103	MAP NO.	SHEET	OF

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CONSULTANTS

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PROJECT NAME

BARR SPUR IMPROVEMENTS

REV	DATE	DESCRIPTION	BY

PROJECT NO:	1660060700
DESIGNED BY:	TJA
DRAWN BY:	JEM
CHECKED BY:	TJA
DATE:	JAN 2022

SHEET TITLE

DETAILS

SHEET NO:

C-502

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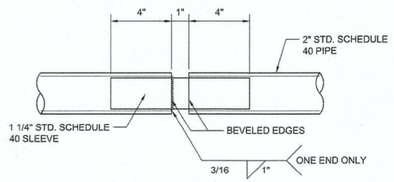
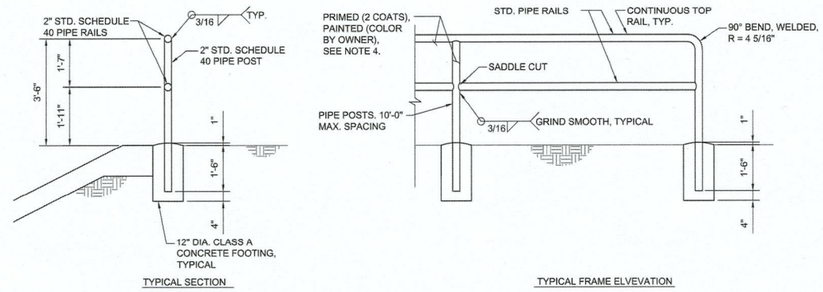
1/5/2022



FOR RAILING LONGER THAN 50'-0", INSTALL EXPANSION JOINTS EQUALLY SPACED BUT NOT MORE THAN 40'-0" O.C. ON ALL HORIZONTAL RAILS.

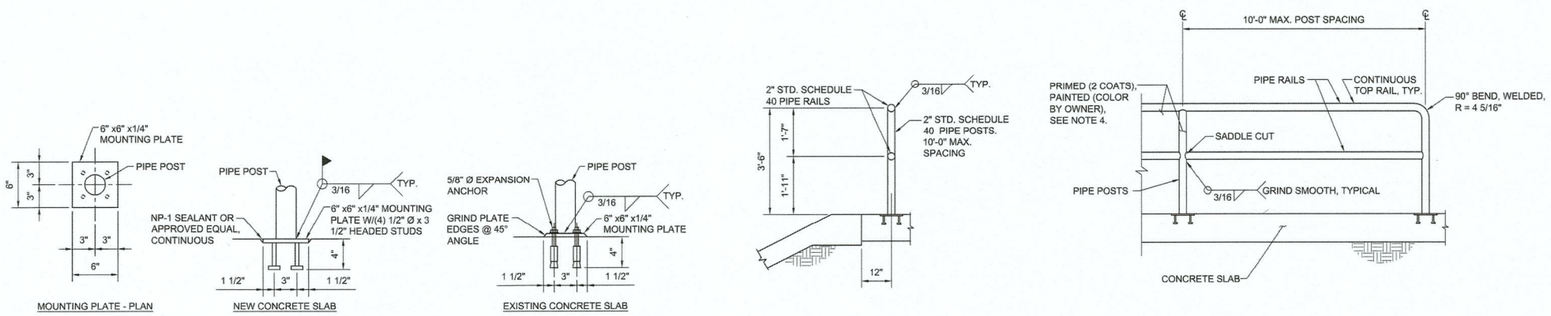
TYPICAL RAILING EXPANSION JOINT

N.T.S.



TYPICAL PIPE RAIL MOUNTED ON GRADE

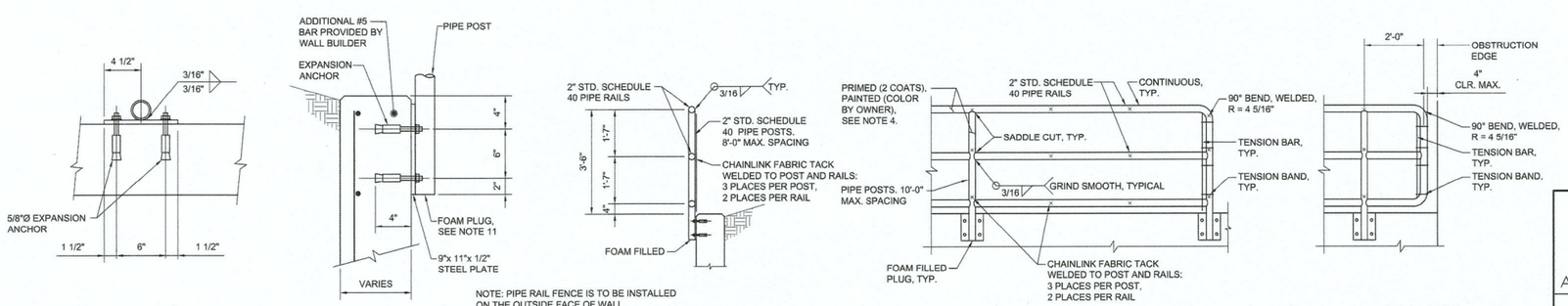
N.T.S.



TYPICAL PIPE RAIL MOUNTED ON SLAB

* OR AS DETERMINED BY THE ENGINEER

N.T.S.



NOTE: PIPE RAIL FENCE IS TO BE INSTALLED ON THE OUTSIDE FACE OF WALL.

TYPICAL PIPE RAIL W/ CHAINLINK FENCE MOUNTED ON CONCRETE WALL

N.T.S.

NOTES FOR PIPE RAILS

1. WORKMANSHIP AND MATERIALS SHALL CONFORM TO THE NEW MEXICO DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION AND SUPPLEMENTAL SPECIFICATIONS, 2007 EDITION.
2. ALL PIPE SHALL BE 2" SCHEDULE 40 STEEL PIPE AND CONFORM WITH ASTM A53 GRADE B. THE TOP RAIL SHALL BE CONTINUOUS, WITH POSTS, MIDDLE RAIL AND BOTTOM RAILS SADDLE CUT, WELDED ALL AROUND AND GRIND BEFORE PAINTING.
3. CHAINLINK SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M181, WITH A CLASS C COATING OR BETTER. THE WIRE SHALL BE GALVANIZED, 9 GAUGE, WITH A 2" MESH. SELVAGE ON TOP AND BOTTOM TO BE KNUCKLE/KNUCKLE. THE CHAINLINK SHALL BE TACK WELDED AT 3 PLACES PER POST AND 2 PLACES PER RAIL.
4. ALL RAILS, PIPES, PLATES AND TUBING TO BE COLOR COATED. COLOR COATING SHALL BE DUNN-EDWARDS SYN-LUSTRO RUST PREVENTION ALKYD SEMI-GLOSS ENAMEL 9V SERIES OR PITTSBURG PAINT AND GLASS PITTHANE ULTRA URETHANE ENAMEL COATINGS OR APPROVED EQUAL. PRIOR TO COLOR COATING, RAIL IS TO BE PRIMED WITH 2 COATS OF PRIMER BY THE RESPECTIVE MANUFACTURER. COLOR OF FINAL COATING TO BE SELECTED BY THE OWNER.
5. GALVANIZED TENSION BARS AND CLAMPS SHALL BE INSTALLED ON ALL ENDS AND AT ALL CORNERS AND ANGLE POINTS WHERE CHAINLINK IS REQUIRED.
6. NEW MATERIAL SHALL BE USED THROUGHOUT.
7. ALL ANCHOR BOLTS SHALL BE 5/8" DIAMETER EXPANSION ANCHOR WITH A MINIMUM OF 4" EMBEDMENT. PROVIDE HILTI KWIK BOLT II EXPANSION ANCHOR (KB II) OR ENGINEER APPROVED EQUAL. PROVIDE FLAT WASHERS BETWEEN ALL NUTS AND BASE PLATES.
8. BOLTS SHALL CONFORM TO ASTM A325, WASHERS SHALL BE INSTALLED UNDER NUTS OF FASTENERS.
9. BASE PLATES SHALL CONFORM TO ASTM A36. TUBE STEEL SHALL CONFORM TO ASTM A500 GRADE B.
10. ALL WELDING OR GAS CUTTING SHALL BE IN ACCORDANCE WITH THE CURRENT STANDARDS OF THE AMERICAN WELDING SOCIETY D1.1-2000. ALL WELDING SHALL USE E70XX ELECTRODES.
11. PROVIDE EXPANDING POLYSTYRENE FOAM PLUG (2" MIN.) AT THE BASE OF ALL POSTS ON THE WALL MOUNTED PIPE RAIL.

ALBUQUERQUE METROPOLITAN ARROYO FLOOD CONTROL AUTHORITY

AMAFCA STANDARD DETAILS

PIPE RAIL DETAILS

REV	DATE	DESCRIPTION	CHKD

DRAWING NO.	MAP NO.	SHEET	OF
201			

ISSUE DATE: 8-12-2008

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PROJECT NAME

BARR SPUR IMPROVEMENTS

REV.	DATE	DESCRIPTION	BY

PROJECT NO:	1660060700
DESIGNED BY:	TJA
DRAWN BY:	JEM
CHECKED BY:	TJA
DATE:	JAN 2022

SHEET TITLE

DETAILS

SHEET NO:

C-503

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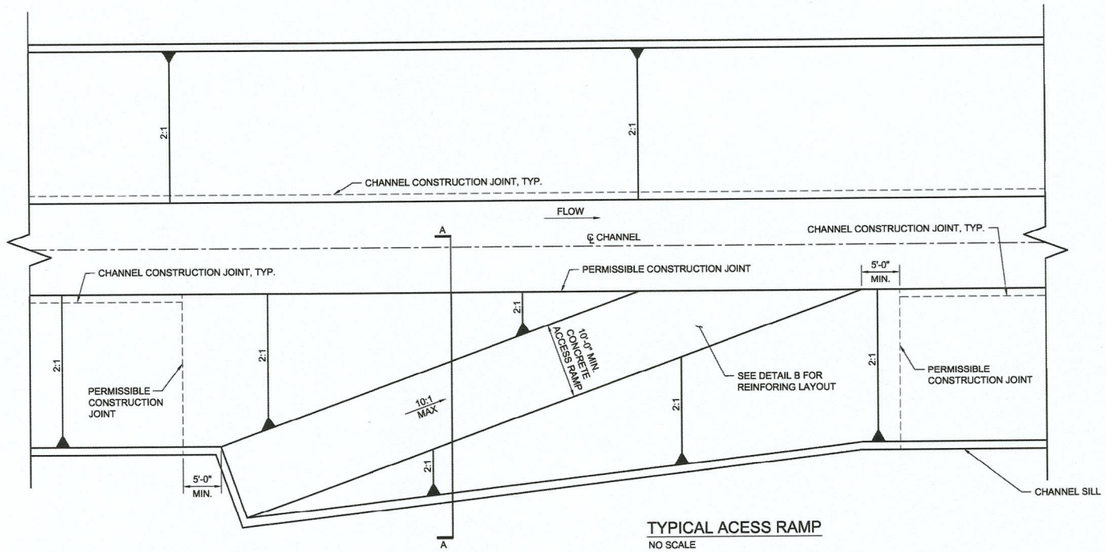
1/5/2022



TYPICAL ACESS RAMP

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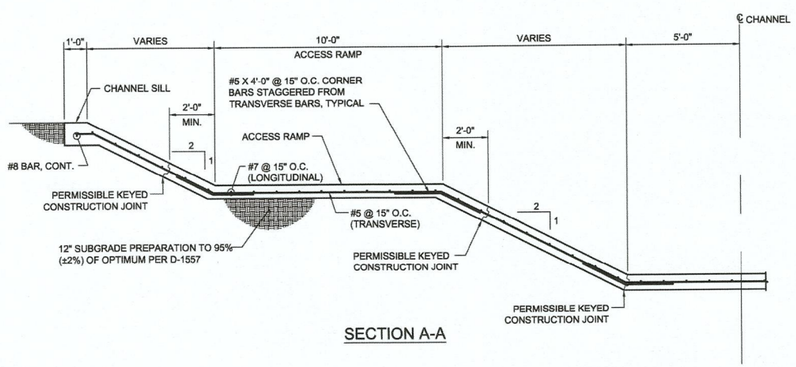
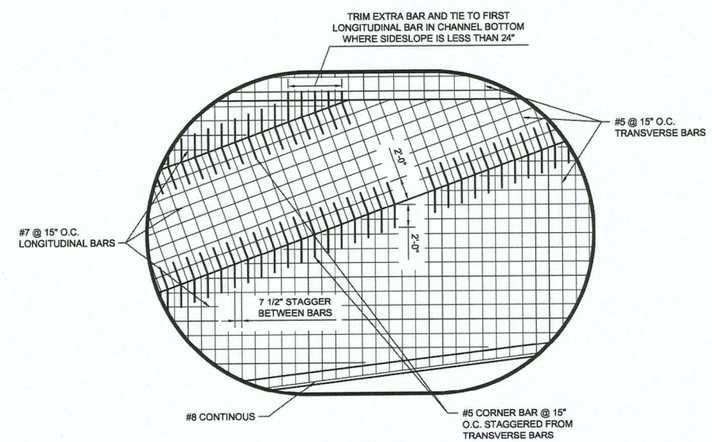


SECTION A-A



DETAIL B-REINFORCING LAYOUT

GENERAL NOTES

1. THE ACCESS RAMP DETAILED HEREIN SHALL BE PAID FOR AS CONCRETE CHANNEL LINING AND SHALL BE COMPENSATION FOR THE RAMP COMPLETE AND IN PLACE.
2. THE RAMP SHALL BE TINTED TO MATCH ADJACENT CHANNEL LINING UNLESS OTHERWISE NOTED.

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August 12, 2008 - 9:24am

ISSUE DATE: 8-12-2008

ALBUQUERQUE METROPOLITAN ARROYO FLOOD CONTROL AUTHORITY

AMAFCA
STANDARD DETAILS

CONCRETE CHANNELS
ACCESS RAMP SECTIONS AND DETAILS

REV	DATE	DESCRIPTION	CHKD

DRAWING NO.	MAP NO.	SHEET	OF
107			

WILSON & COMPANY
4401 MASTHEAD ST. NE, SUITE 150
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SHEET TITLE

DETAILS

SHEET NO:

C-504

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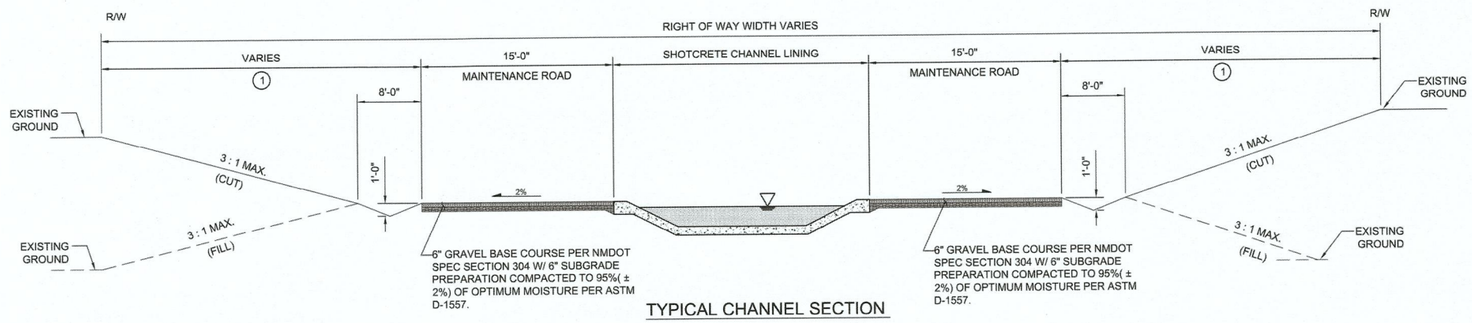
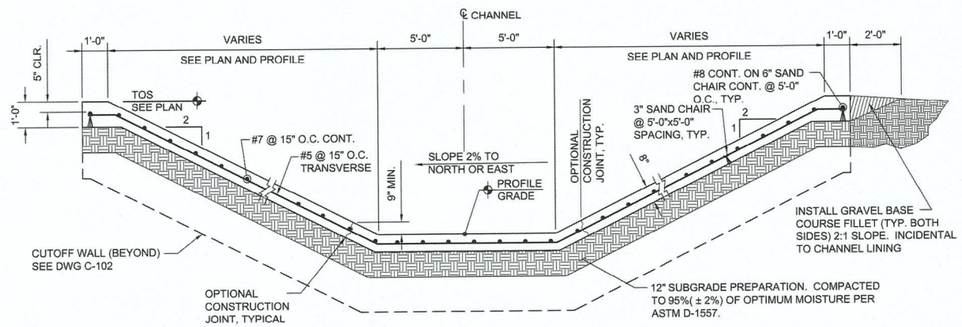


TYPICAL CHANNEL SECTION



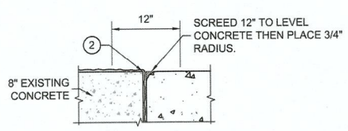
SHOTCRETE CHANNEL LINING

NOTES FOR SHOTCRETE CHANNEL CONSTRUCTION

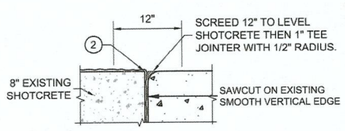
1. SHOTCRETE: CONCRETE SHALL BE IN ACCORDANCE WITH PROJECT SPECIFICATIONS. (f'c = 4000 psi MINIMUM). 3/4" CHAMFER ON ALL EXPOSED FORMED EDGES UNLESS NOTED OTHERWISE.
2. REINFORCING STEEL: STEEL REINFORCEMENT AND PLACEMENT SHALL BE IN ACCORDANCE WITH PROJECT SPECIFICATIONS AND SHALL CONFORM TO ASTM A615,GRADE 60. ALL LAP SPLICES SHALL BE CLASS "B" UNLESS NOTED OTHERWISE. REINFORCING STEEL SHALL BE INCIDENTAL TO CONCRETE BID ITEMS.
3. ALL EXPOSED CONCRETE SHALL BE TINTED WITH SAN DIEGO BUFF (DAVIS COLOR 5237) AT THE REDUCED DOSAGE OF 1 LB PER SACK OF CEMENT, OR APPROVED EQUAL. TINT SHALL BE INCIDENTAL TO THE COST OF THE RESPECTIVE CONCRETE.
4. NEW TO EXISTING CHANNEL CONSTRUCTION: EUCO ARC LITHIUM NITRATE OR APPROVED EQUAL TREATMENT IS REQUIRED FOR ANY EXISTING CONCRETE CHANNELS. SEE DETAILS FOR INSTALLATION REQUIREMENTS, THIS SHEET.
5. MINIMUM REBAR LAP LENGTH (CLASS B LAPS):
   #4 = 24"
   #5 = 26"
   #7 = 43"
   #8 = 54"
6. THE EARTH SIDE OF SILL WALLS SHALL BE WATERPROOFED AT IRRIGATED AREAS AND DAMP PROOFED AT ALL OTHER AREAS. WATERPROOFING SHALL BE CONWRAP BARRIER CS-212 AS MANUFACTURED BY CONCRETE SEALANTS, INC. (MEMBRANE THICKNESS 0.100 INCHES MINIMUM) OR APPROVED EQUAL. DAMP PROOFING SHALL BE HYDROCIDE 700B OR APPROVED EQUAL.
7. FOR SILL WALL AND CUT OFF WALL DETAILS SEE SHEET C-102.

◯ KEYED NOTES

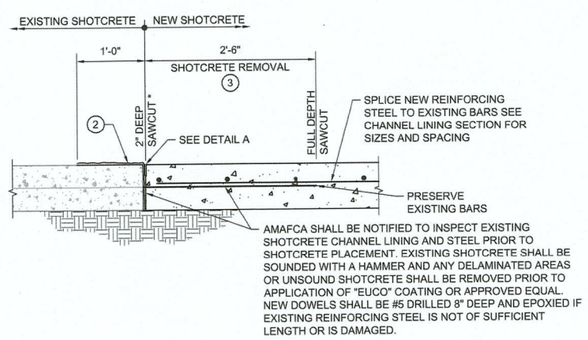
1. NATIVE RE-VEGETATION. SEE CITY OF ALBUQUERQUE SPECIFICATION SECTION 1012. GRAVEL MULCH IS REQUIRED FOR SLOPES GREATER THAN 3H:IV.
2. EUCO ARC LITHIUM NITRATE COATING OR APPROVED EQUAL APPLIED TO VERTICAL SURFACE AND 12" OF TOP SURFACE OF EXISTING CONCRETE TO REMAIN.
3. REMOVAL OF CONCRETE ADJACENT TO THE 2" SAWCUT WILL BE WITH A 30 LB., MAX. PNEUMATIC HAMMER. IN THE EVENT OF DAMAGE TO THE CONCRETE TO REMAIN, THE CONTRACTOR SHALL RE SAW THE 2" JOINT AND REMOVE AND REPLACE THAT CONCRETE AT NO COST.



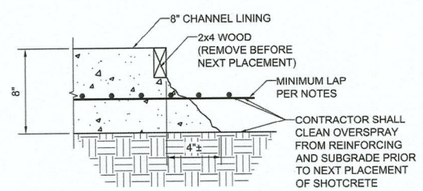
STANDARD PLACE CONCRETE TO NEW SHOTCRETE JOINT DETAIL



EXISTING SHOTCRETE TO NEW SHOTCRETE



NEW TO EXISTING CHANNEL LINING CONSTRUCTION JOINT



8" SHOTCRETE TYPICAL CONSTRUCTION JOINT

ALBUQUERQUE METROPOLITAN ARROYO FLOOD CONTROL AUTHORITY

AMAFCA STANDARD DETAILS

SHOTCRETE CHANNEL STRUCTURE SECTIONS AND DETAILS

REV	DATE	DESCRIPTION	CHKD

DRAWING NO. C-102S | MAP NO. | SHEET | OF

ISSUE DATE: 2-14-2020

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May 04, 2021 - 8:42am

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PHONE: 505-348-4000
FAX: 505-348-4072
www.wilsonco.com

CONSULTANTS

SEAL: 60% SUBMITTAL NOT FOR CONSTRUCTION

PROJECT NAME: BARR SPUR IMPROVEMENTS

REV.	DATE	DESCRIPTION	BY

PROJECT NO:	1660060700
DESIGNED BY:	TJA
DRAWN BY:	JEM
CHECKED BY:	TJA
DATE:	JAN 2022

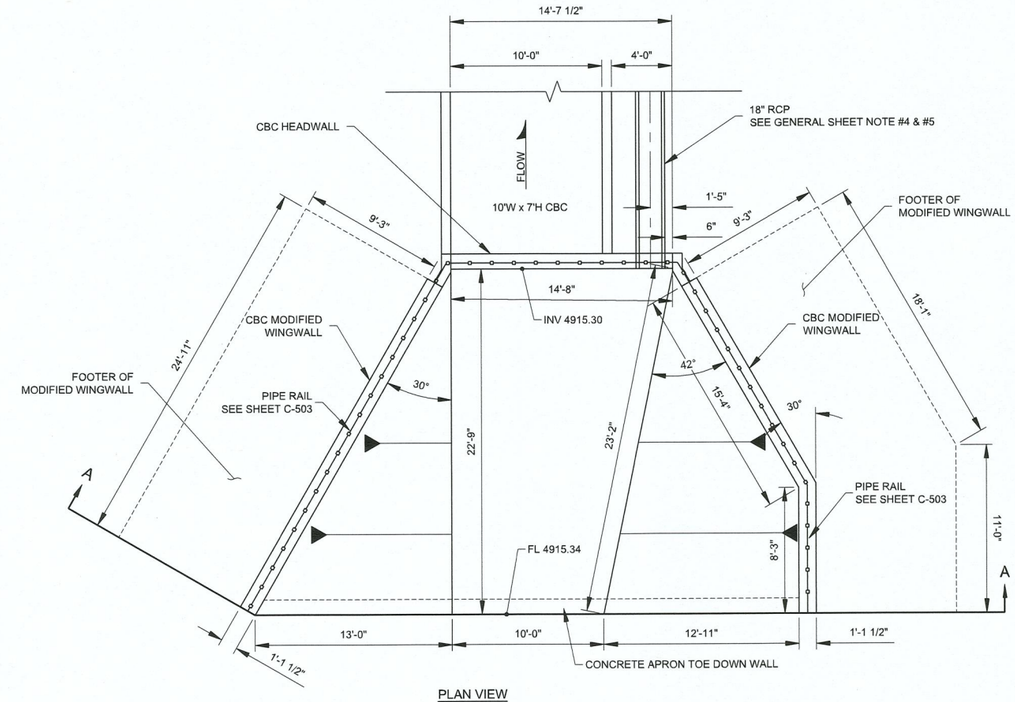
SHEET TITLE: DETAILS

SHEET NO: C-505

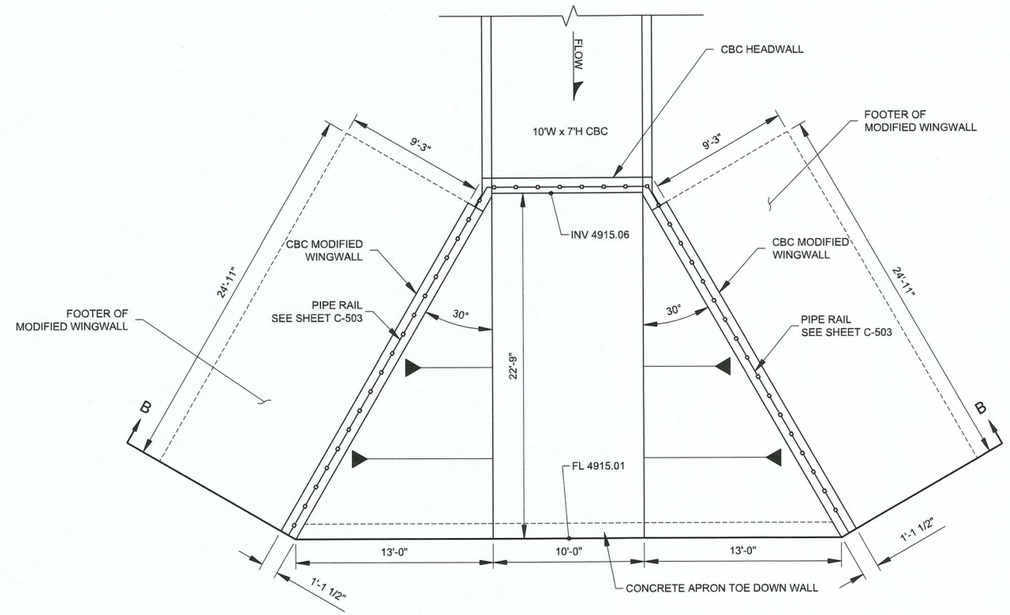
1/5/2022 M:\MSD\16-600-607-00\2_Disciplines_SHEETS\2_Sheets - civil\BARR SPUR\166607-DT01.dwg

GENERAL SHEET NOTES

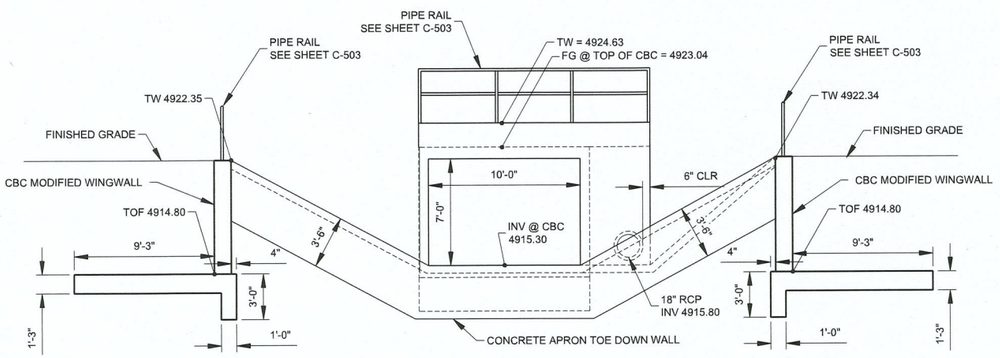
1. FOR CONCRETE BOX CULVERTS, REFER TO SHEETS ##### THRU C-514.
2. FOR HEADWALL/CUT-OFF WALLS, REFER TO SHEET C-515 THRU C-516.
3. FOR WINGWALL DIMENSIONS, REFER TO THIS SHEET. FOR WINGWALL NOTES AND REBAR REINFORCEMENT, REFER TO SHEETS C-518 THRU C-519.
4. FOR 18" RCP PENETRATION ON HEADWALL, SEE "OUTER WALL PENETRATION DETAIL" ON SHEET C-517.
5. 18" RCP SHALL HAVE TURNOUT INSTALLED @ HEADWALL. TURNOUT WILL BE 18" TYPE III WITH 18" FRESNO GATE MODEL 101C



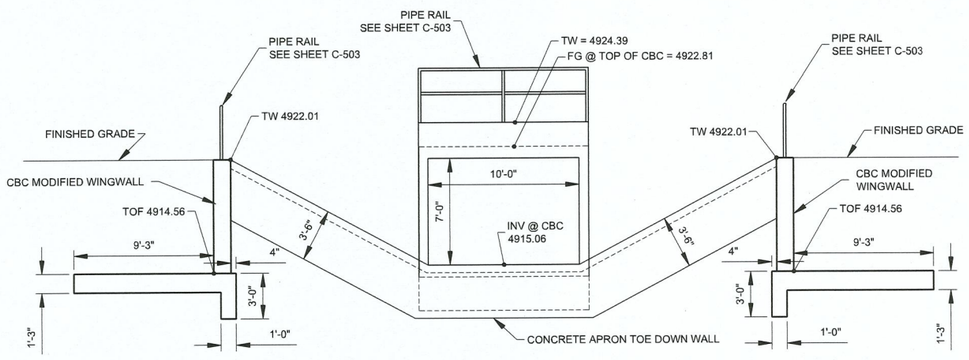
PLAN VIEW
SCALE: 1" = 5'



PLAN VIEW
SCALE: 1" = 5'



SECTION A -A
SCALE: 1" = 5'



SECTION B - B
SCALE: 1" = 5'

A1 BARR SPUR UPSTREAM
CONCRETE WINGWALL 'B' DETAIL
SCALE: 1" = 5'

A6 BARR SPUR DOWNSTREAM
CONCRETE WINGWALL 'A' DETAIL
SCALE: 1" = 5'

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CONSULTANTS

SEAL: 60% SUBMITTAL NOT FOR CONSTRUCTION

PROJECT NAME: BARR SPUR IMPROVEMENTS

REV.	DATE	DESCRIPTION	BY

PROJECT NO:	1660060700
DESIGNED BY:	TJA
DRAWN BY:	JEM
CHECKED BY:	TJA
DATE:	JAN 2022

SHEET TITLE: DETAILS

SHEET NO: C-506

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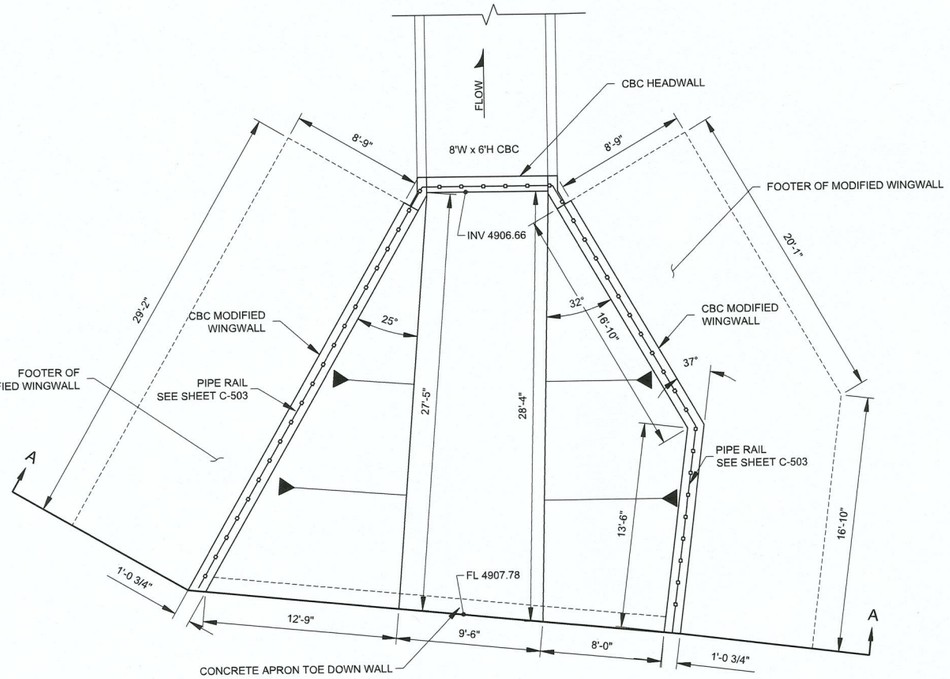
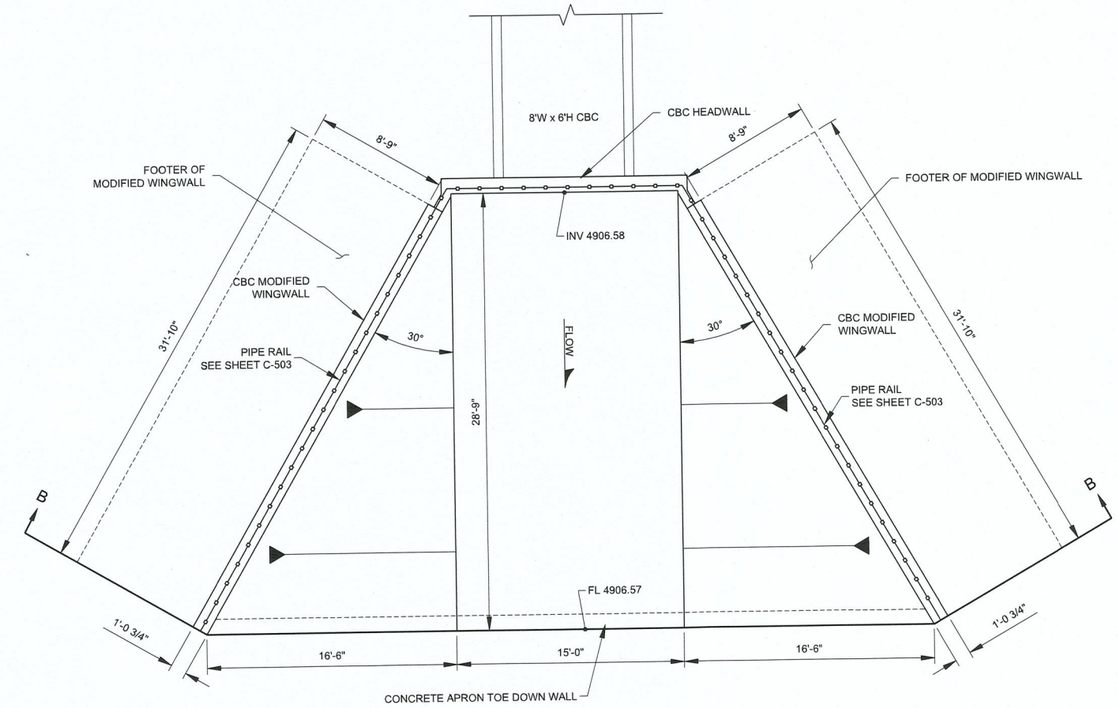
GENERAL SHEET NOTES

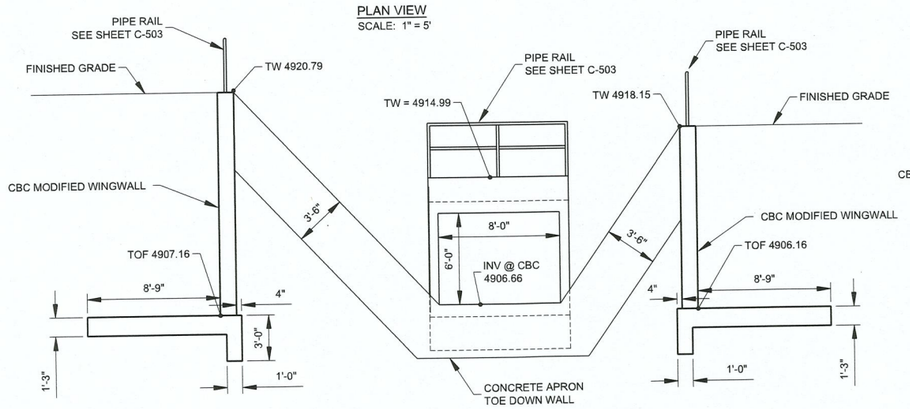
1. FOR CONCRETE BOX CULVERTS, REFER TO SHEETS ##### THRU C-514.
2. FOR HEADWALL/CUT-OFF WALLS, REFER TO SHEET C-515 THRU C-516.
3. FOR WINGWALL DIMENSIONS, REFER TO THIS SHEET. FOR WINGWALL NOTES AND REBAR REINFORCEMENT, REFER TO SHEETS C-518 THRU C-519.



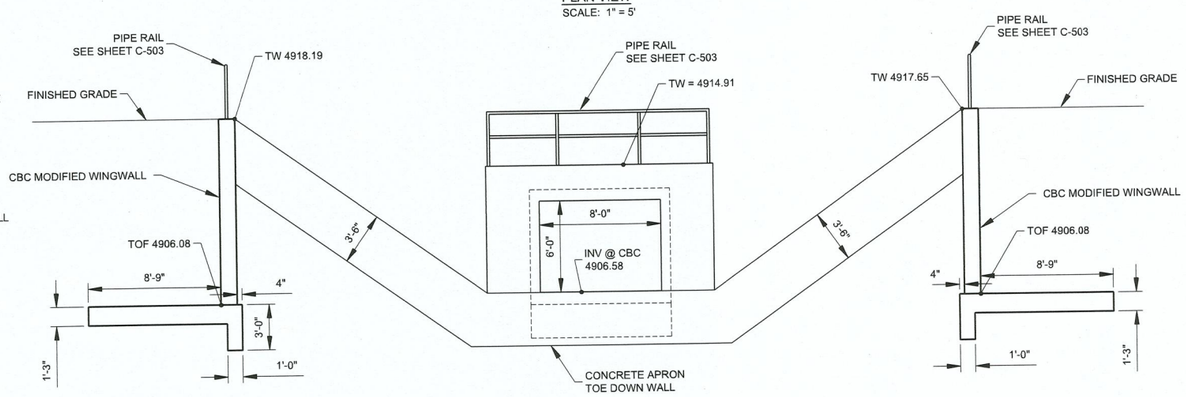
PLAN VIEW
SCALE: 1" = 5'



PLAN VIEW
SCALE: 1" = 5'



SECTION A -A
SCALE: 1" = 5'



SECTION B - B
SCALE: 1" = 5'

A1 BARR INTERIOR DRAIN UPSTREAM CONCRETE WINGWALL 'C' DETAIL
SCALE: 1" = 5'

A6 BARR INTERIOR DRAIN DOWNSTREAM CONCRETE WINGWALL 'D' DETAIL
SCALE: 1" = 5'

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CONSULTANTS

SEAL: 60% SUBMITTAL NOT FOR CONSTRUCTION

PROJECT NAME: BARR SPUR IMPROVEMENTS

REV.	DATE	DESCRIPTION	BY

PROJECT NO:	1660060700
DESIGNED BY:	TJA
DRAWN BY:	JEM
CHECKED BY:	TJA
DATE:	JAN 2022

SHEET TITLE: DETAILS

SHEET NO: C-507

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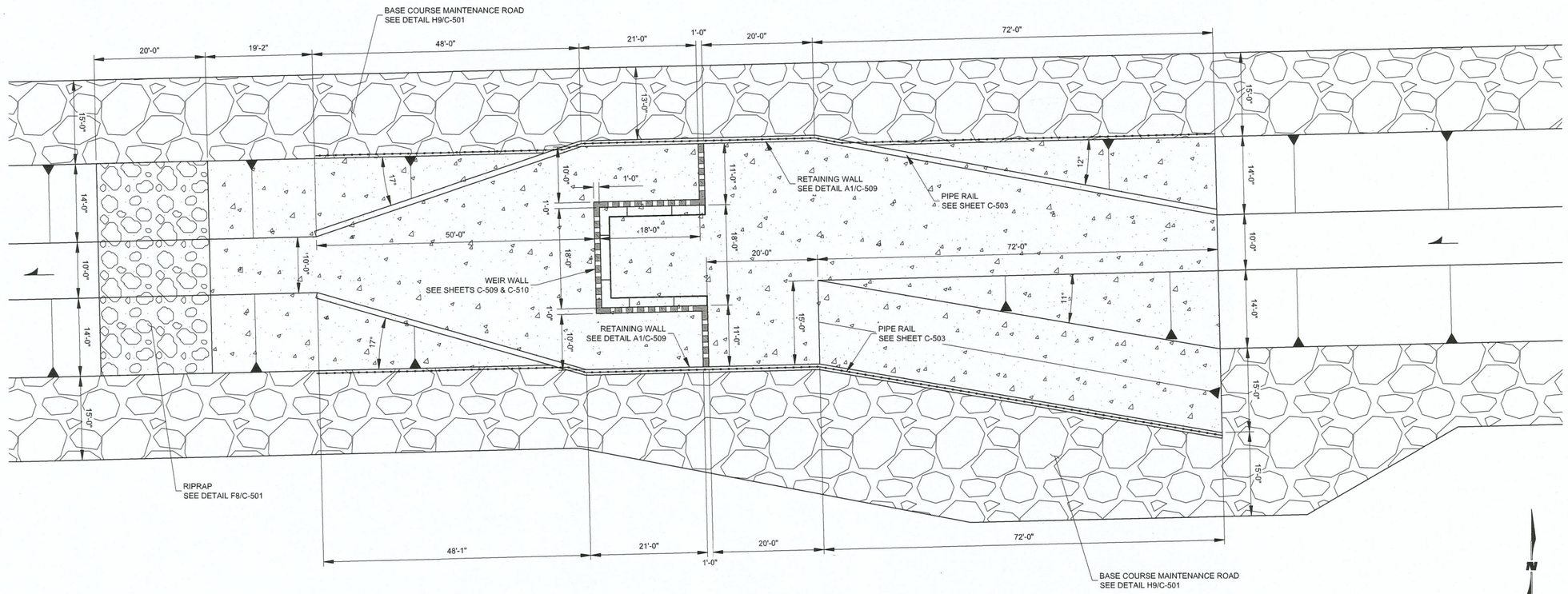

PLAN VIEW
SCALE: 1" = 10'

A1 WATER QUALITY STRUCTURE DETAILS
SCALE: 1" = 10'

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PROJECT NAME
BARR SPUR
IMPROVEMENTS

REV.	DATE	DESCRIPTION	BY

PROJECT NO:	1660060700
DESIGNED BY:	TJA
DRAWN BY:	JEM
CHECKED BY:	TJA
DATE:	JAN 2022

SHEET TITLE
DETAILS

SHEET NO:
C-508

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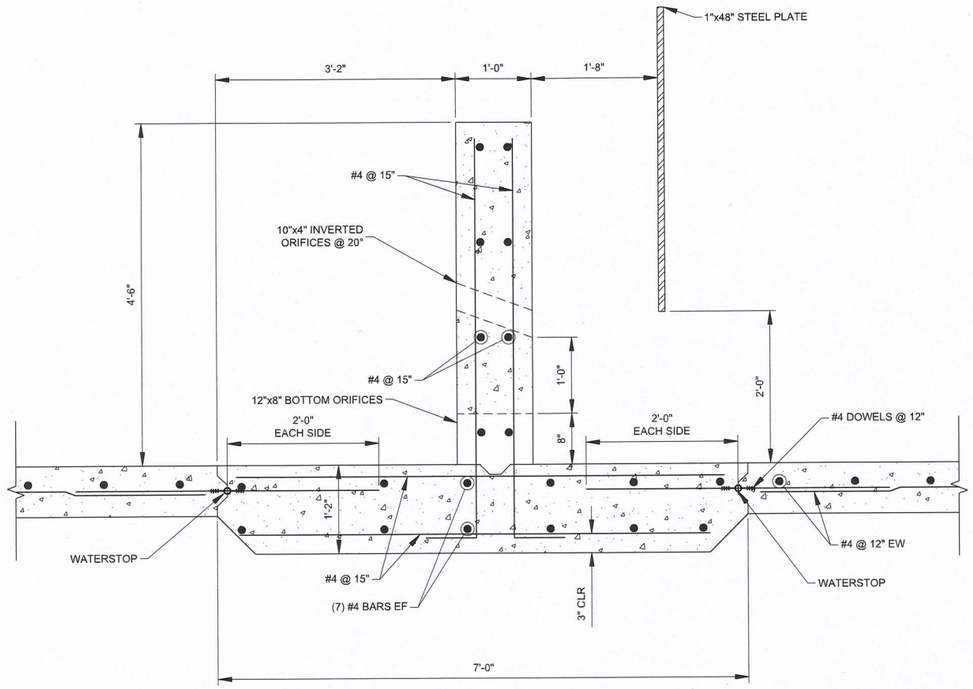
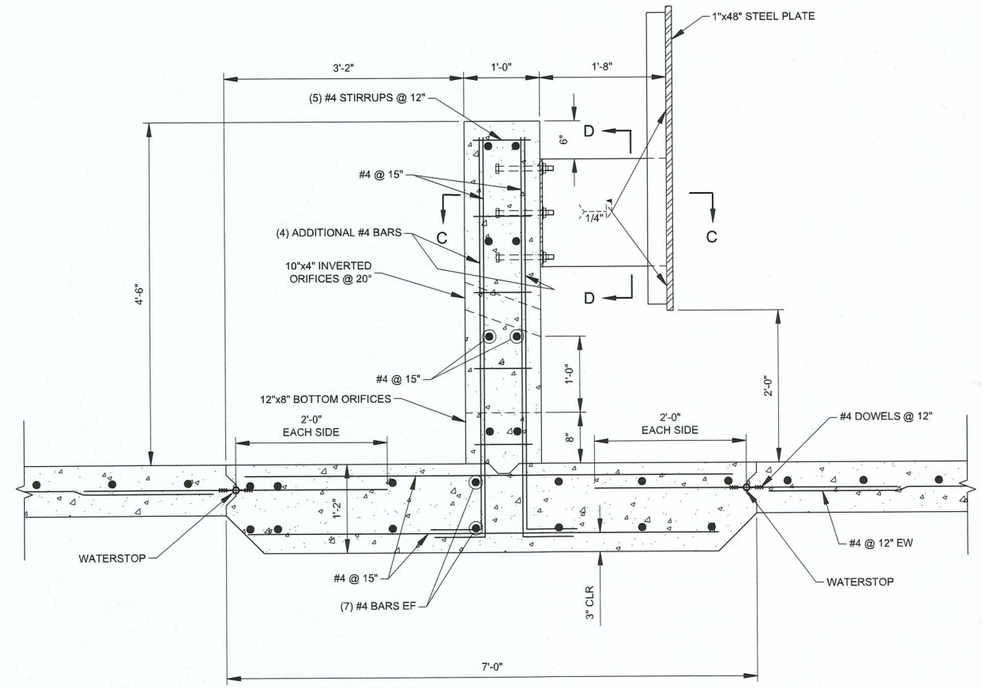


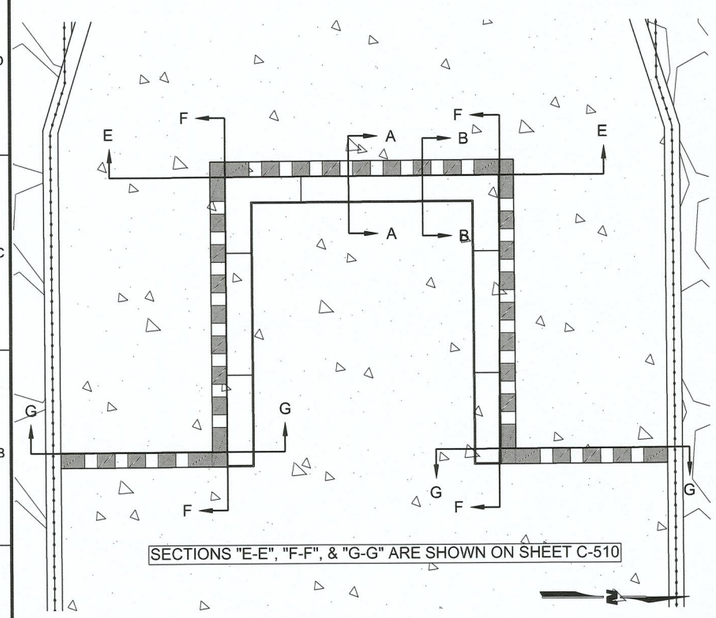
SECTION A - A

SCALE: 1" = 6"



SECTION B - B

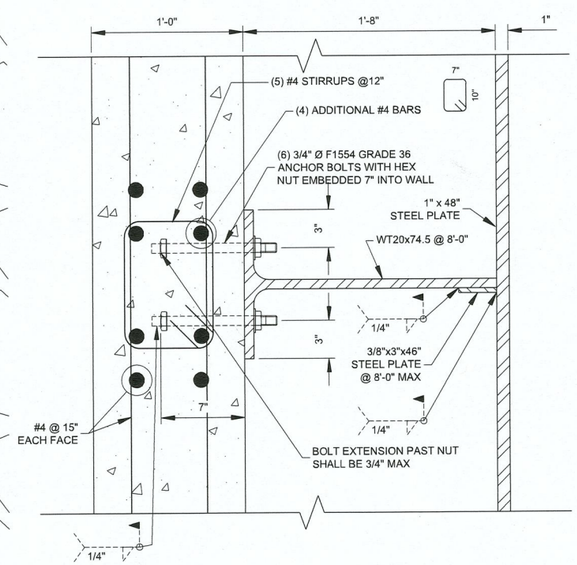
SCALE: 1" = 6"



SECTIONS "E-E", "F-F", & "G-G" ARE SHOWN ON SHEET C-510

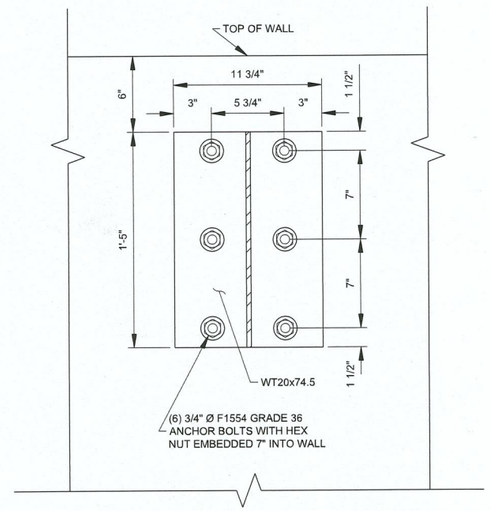
PLAN VIEW

SCALE: 1" = 5'



SECTION C - C

SCALE: 1" = 6"



SECTION D - D

SCALE: 1" = 6"

GENERAL NOTES

1. ALL MATERIALS AND WORKMANSHIP SHALL CONFORM TO NMDOT STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS, CURRENT EDITION.
2. ALL CONCRETE SHALL BE CLASS "A". CHAMFER ALL EXPOSED EDGES 3/4", UNLESS OTHERWISE NOTED.
3. ALL REINFORCING BARS SHALL CONFORM TO AASHTO STANDARD SPECIFICATIONS M 31 GRADE 60 UNLESS OTHERWISE NOTED. DIMENSIONS REFER TO CENTER LINE OF BAR.
4. ALL REINFORCING BARS SHALL HAVE 2" CLEAR COVER UNLESS NOTED OTHERWISE.
5. DIMENSIONS SHALL NOT BE SCALED FROM DRAWINGS.
6. TACK WELD ALL NUTS.

DESIGN NOTES

MATERIAL STRENGTHS:

CONCRETE: f ' C = 3 KSI
REINFORCING STEEL: fy = 60 KSI GRADE 60
STRUCTURAL STEEL: ASTM A36

SOIL PARAMETERS:

ALLOWABLE BEARING PRESSURE = 2500 PSF
(FOR EXTREME CONDITIONS, WATER HEAD = 11 FT

ALLOWABLE BEARING PRESSURE = 1500 PSF
(FOR NORMAL CONDITIONS, WATER HEAD = 6 FT

A1 WATER QUALITY STRUCTURE DETAILS

SCALE: VARIES

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CONSULTANTS

SEAL

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PROJECT NAME

BARR SPUR IMPROVEMENTS

REV.	DATE	DESCRIPTION	BY

PROJECT NO:	1660060700
DESIGNED BY:	TJA
DRAWN BY:	JEM
CHECKED BY:	TJA
DATE:	JAN 2022

SHEET TITLE

DETAILS

SHEET NO:

C-509

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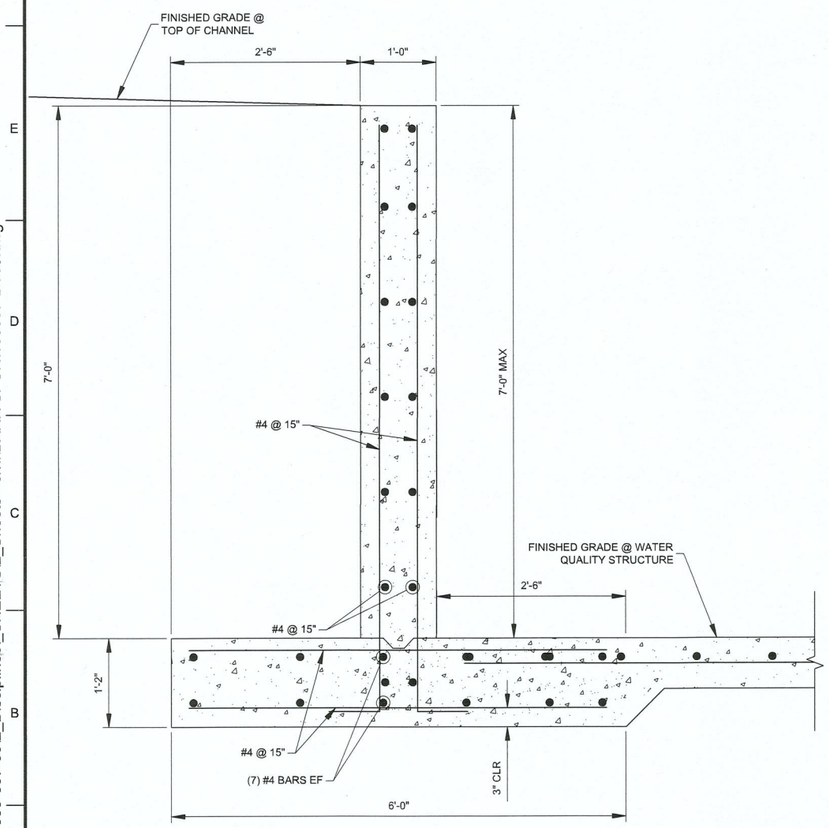
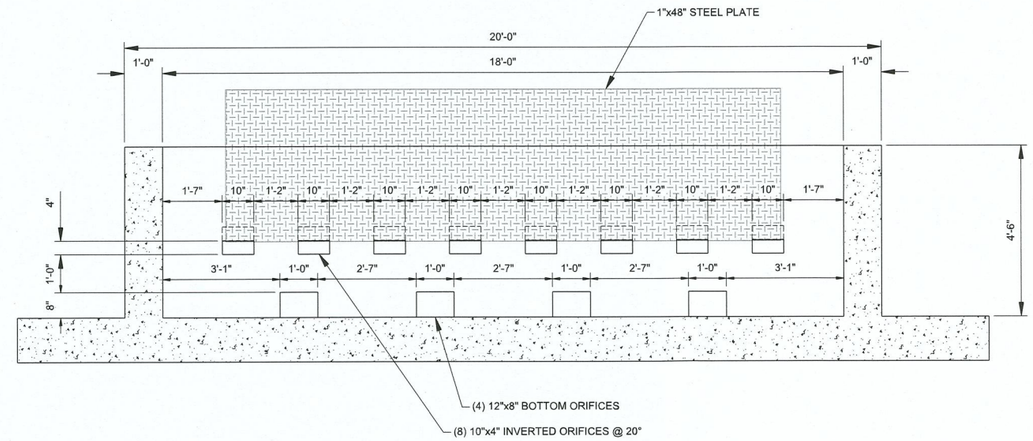


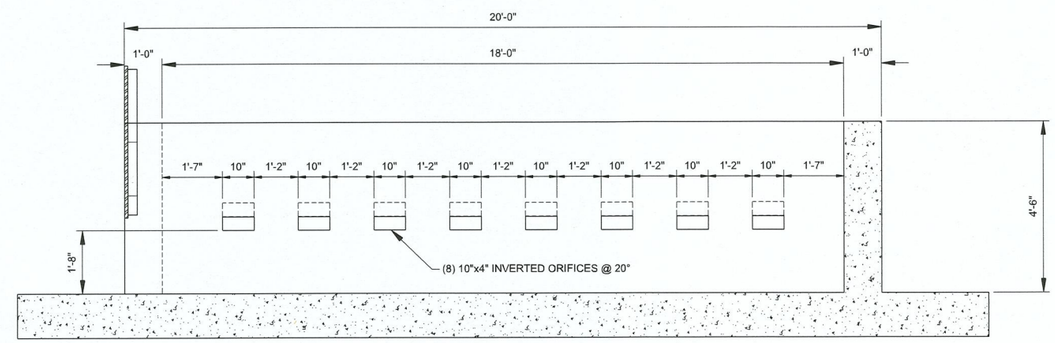
A1 RETAINING WALL DETAIL

SCALE: 1" = 1'



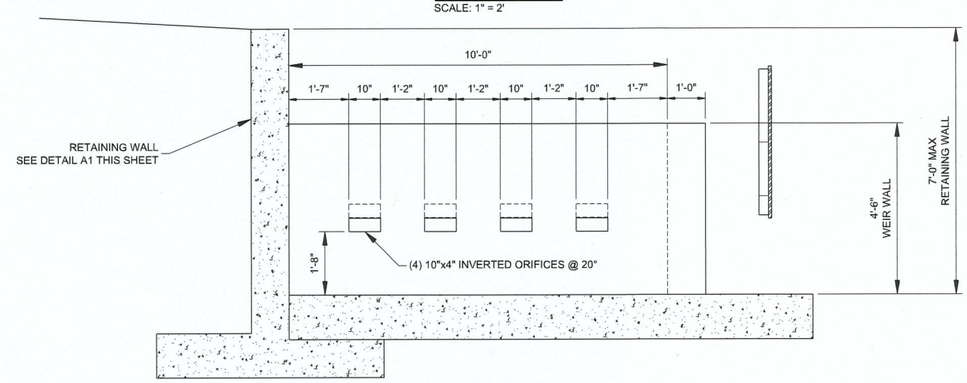
SECTION E - E

SCALE: 1" = 2'



SECTION F - F

SCALE: 1" = 2'



SECTION G - G

SCALE: 1" = 2'

A5 WATER QUALITY STRUCTURE SECTIONS

SCALE: 1" = 2'

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PROJECT NAME

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IMPROVEMENTS

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PROJECT NO:	1660060700
DESIGNED BY:	TJA
DRAWN BY:	JEM
CHECKED BY:	TJA
DATE:	JAN 2022

SHEET TITLE

DETAILS

SHEET NO:

C-510

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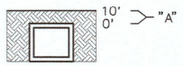
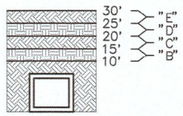
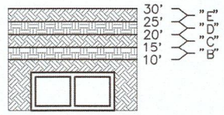
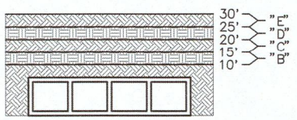
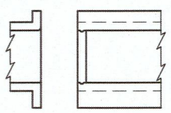
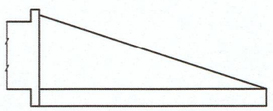
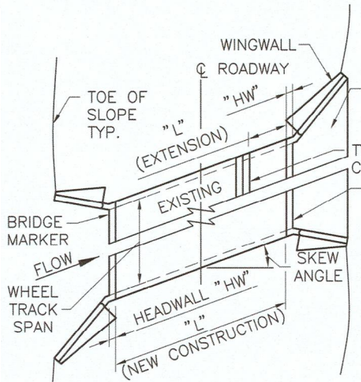
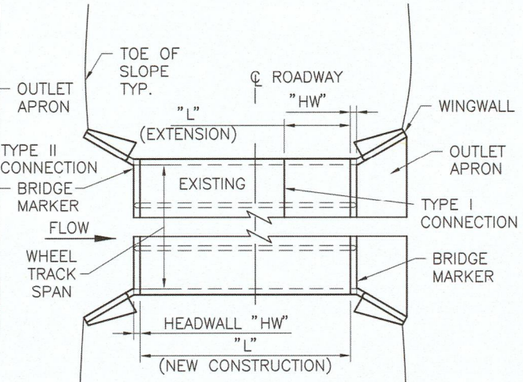
1/5/2022

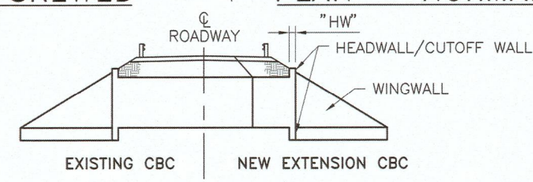
BOX TYPE	CONFIGURATION	DESIGN FILL	DRAWINGS
SINGLE BARREL CBC		"A"	511-60-1/2 511-60-2/2
SINGLE BARREL CBC		"B" "C" "D" "E"	511-61-1/2 511-61-2/2
DOUBLE BARREL CBC		"A"	511-62-1/2 511-62-2/2
DOUBLE BARREL CBC		"B" "C" "D" "E"	511-63-1/2 511-63-2/2
TRIPLE AND QUADRUPLE BARREL CBC		"A"	511-64-1/3 511-64-2/3 511-64-3/3
TRIPLE AND QUADRUPLE BARREL CBC		"B" "C" "D" "E"	511-65-1/3 511-65-2/3 511-65-3/3
CBC HEADWALL/CUTOFF WALL & MISC. DETAILS		"A" "B" "C" "D" "E"	511-66-1/6 511-66-2/6 511-66-3/6 511-66-4/6 511-66-5/6 511-66-6/6
WINGWALL & APRON		"A" "B" "C" "D" "E"	511-67-1/2 511-67-2/2



PLAN – SKEWED

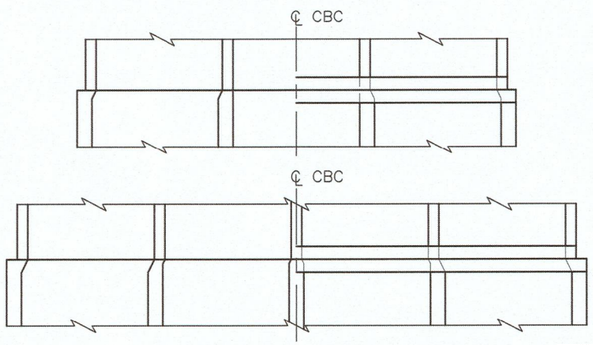


PLAN – NORMAL



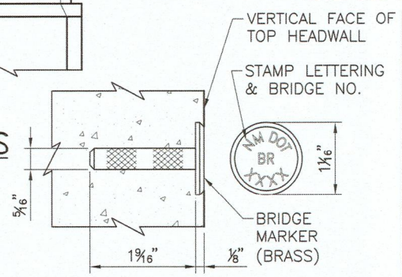
ELEVATION

NOTE: IF THE WHEEL TRACK SPAN DIMENSION (PARALLEL TO ℄ OF ROADWAY AS SHOWN ABOVE) IS GREATER THAN 20' THE CBC IS CONSIDERED A BRIDGE AND A MAJOR STRUCTURE. FOR CBC EXTENSIONS RE-MARK BRIDGE NUMBER. NEW CBC SHALL BE MARKED AS PER DETAIL ON THIS SHEET. BRIDGE NUMBER SHALL BE OBTAINED BY REQUEST AT THE NMDOT BRIDGE MANAGEMENT SECTION. MARK SHALL BE PLACED AT UPPER LEFT SIDE OF VERTICAL FACE OF HEADWALL, BOTH INLET AND OULET.



METHOD OF EXTENDING UNEQUAL BOX DIMENSIONS

FOR DETAILS SEE SHEET 511-66-4/6



BRIDGE MARK DETAIL

PAYMENT

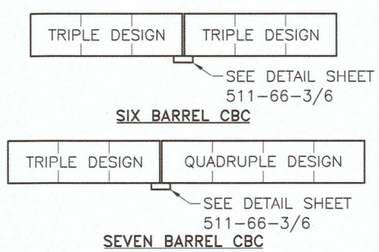
PAYMENT FOR CBC'S IS BASED ON "LIN. FT." UNIT OF MEASUREMENT FOR THE TOTAL LENGTH OF ALL NEW BARRELS CONSTRUCTED AT THE CENTERLINE OF BARREL. LENGTH OF BARREL SHALL NOT INCLUDE "HW" WHICH SHALL BE PAID FOR SEPARATELY.

PAYMENT FOR HEADWALL/CUTOFF WALL IS BASED ON "EACH" UNIT OF MEASUREMENT FOR EACH NEW BARREL CONSTRUCTED. IN CASE OF TYPE II CONNECTION EACH HEAD/CUTOFF WALL UNIT SHALL BE PAID FOR, I.E. TWO PER BARREL PER CULVERT EXTENSION.

PAYMENT FOR WINGWALL IS BASED ON "SQ. FT." UNIT OF MEASUREMENT BASED ON SOIL SIDE VERTICAL FACE AREA FOR EACH INDIVIDUAL HEIGHT OF INTERIOR BARREL DIMENSION. PAYMENT FOR OUTLET APRON IS BASED ON "SQ. FT." UNIT OF MEASUREMENT BASED ON PLAN AREA OF APRON.

ALTERNATIVELY, A COMPLETE CONCRETE BOX CULVERT MAY BE PAID FOR UNDER CLASS "AA" CONCRETE BY "CU. YD." ITEM 511030 AND GRADE 60 REBAR BY "LBS." ITEM 540060.

REBAR, CONCRETE, FORMING, DEMOLITION, AND ALL OTHER WORK AND MATERIAL REQUIRED FOR A COMPLETE CBC, HEADWALL/CUTOFF WALL, WINGWALL, AND APRON CONSTRUCTION SHALL BE INCLUDED IN THE UNIT COST FOR EACH AND NO FURTHER PAYMENT SHALL BE MADE FOR THESE INCIDENTAL ITEMS.



EXAMPLE CONFIGURATIONS OF CBC W/MORE THAN 4 BARRELS

NOTE: USE SAME BARREL CONFIGURATION IF POSSIBLE

NO.	DATE	REV. BY	DESCRIPTION

REVISIONS (OR CHANGE NOTICES)

NEW MEXICO
DEPARTMENT OF TRANSPORTATION
STANDARD DRAWING

CONCRETE BOX CULVERT
INDEX OF SHEETS
EXPLANATION OF USE OF DRAWINGS

APPROVED [signature] DESIGN ENGINEER APR 9, 07 DATE

DESIGNED BY TLB DRAWN BY SGL CHECKED BY HDR

511-59-1/2 1 OF 2

WILSON & COMPANY
4401 MASTHEAD ST. NE, SUITE 150
ALBUQUERQUE, NM 87109
PHONE: 505-348-4000
FAX: 505-348-4072
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CONSULTANTS

SEAL: 60% SUBMITTAL NOT FOR CONSTRUCTION

PROJECT NAME: BARR SPUR IMPROVEMENTS

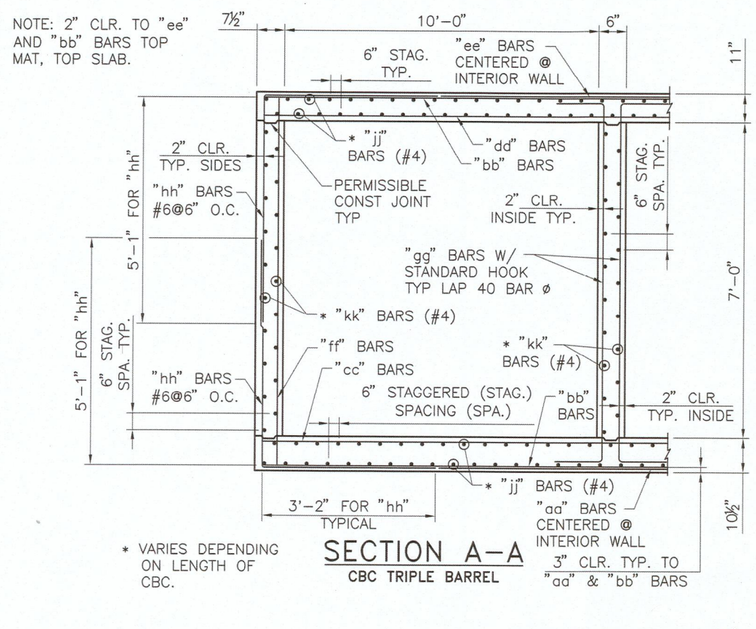
REV.	DATE	DESCRIPTION	BY

PROJECT NO:	1660060700
DESIGNED BY:	TJA
DRAWN BY:	JEM
CHECKED BY:	TJA
DATE:	JAN 2022

SHEET TITLE: NMDOT STD DWG

SHEET NO: C-511

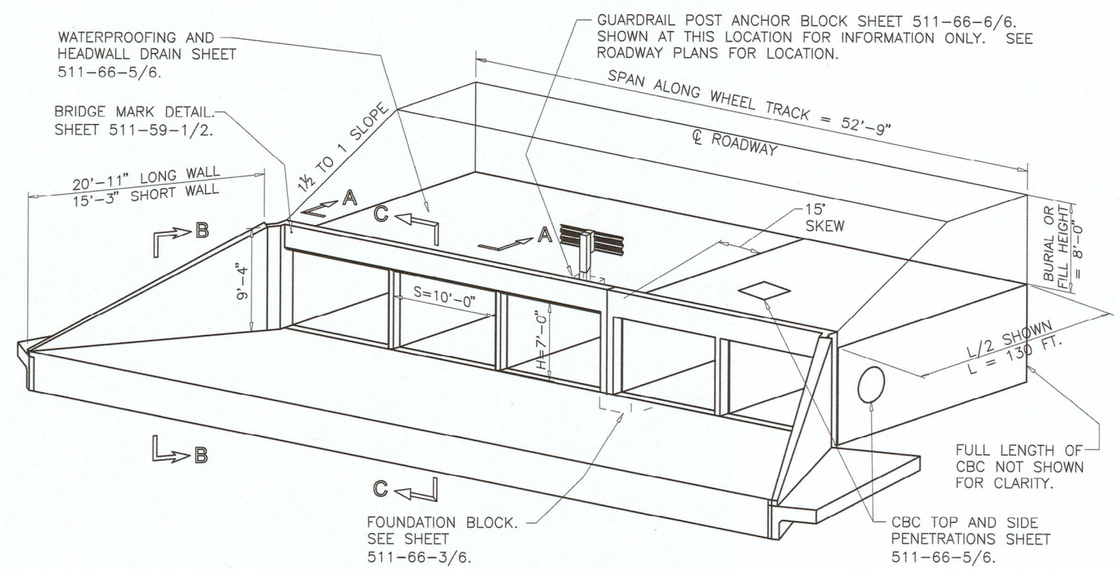
M:\MSD\16-600-607-00\2_Disciplines_SHEETS\2_Sheets - civil\BARR SPUR\166607-DT02.dwg 1/5/2022



* VARIES DEPENDING ON LENGTH OF CBC.

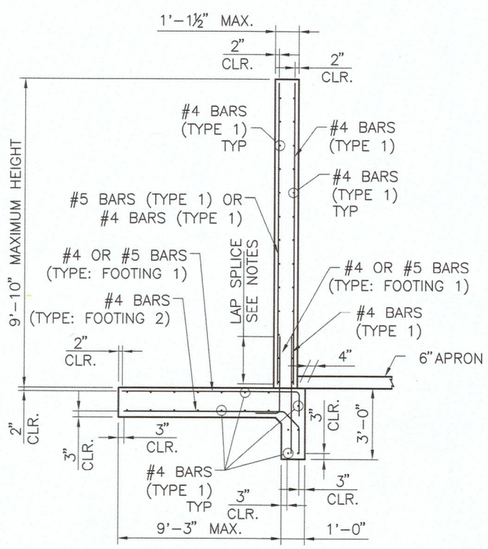
SECTION A-A

CBC TRIPLE BARREL



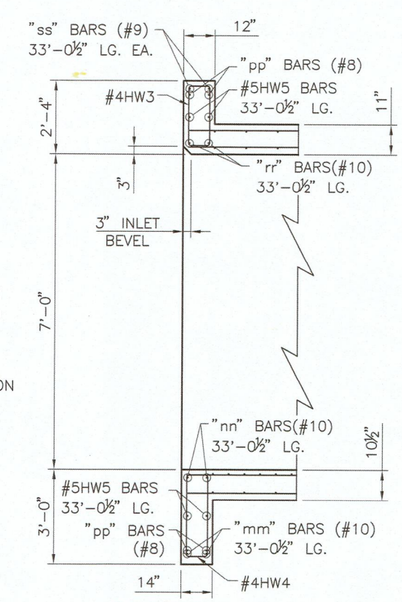
PERSPECTIVE OF 5 BARREL CBC

10' SPAN, 7' HEIGHT, 15° SKEW, 8' FILL HT.



SECTION B-B

WINGWALL & FOOTING



SECTION C-C

HEADWALL/CUTOFF WALL @ TRIPLE BARREL

NOTES

1. THE PURPOSE OF THIS DRAWING IS TO PROVIDE AN EXAMPLE OF USE OF THESE SERIAL CBC DRAWINGS. THIS EXAMPLE IS BASED ON A 5 BARREL, 10'S X 7'H, 15' SKEW, W/ 8' BURIAL DEPTH TO FINISHED ℄ ROADWAY. THIS 8' BURIAL REQUIRES THE DESIGN FILL "A" 0'-10' CATERGORY. INFORMATION PRESENTED ON THIS SHEET IS FROM DRAWINGS 511-62-1/2 & 2/2, 511-64-1/3 & 2/3, 511-66-1/6 THRU 6/6, AND 511-67-1/2 THRU 2/2. PLEASE REFER TO THESE SHEETS TO FOLLOW THE EXAMPLE.
2. PAYMENT FOR THE CBC BARREL CONSTRUCTION IS BY THE LINEAL FOOT OF BARREL. PAYMENT FOR THE FIVE BARREL IS 5*L, UNDER PAY ITEM 511668, CBC DESIGN "A" 10X7, "L" BEING 130FT, FOR A TOTAL LINEAL FOOT PAYMENT UNDER THIS ITEM OF 650 FT. PAYMENT FOR THE WINGWALLS CONSTRUCTION IS BY THE SQUARE FOOT OF SOIL SIDE VERTICAL FACE. UNDER PAY ITEM 511868, CBC WINGWALL BARREL HEIGHT 7FT, QUANTITY EQUALS [(20'-11")X(9'-10")+(15'-3")X(9'-10")]/2, TOTALING 178 SQ. FT. FOR THE OUTLET WINGS. PAYMENT FOR THE HEADWALL/CUTOFF WALL CONSTRUCTION IS UNDER ITEM 511845, CBC HEADWALL/CUTOFF WALL 15 DEG SKEW 10X3 THRU 10X7, UNIT OF EACH PER BARREL, TOTALING 5 EACH FOR THE OUTLET SIDE. OUTLET APRON IS MEASURED BY THE PLAN SQ. FT. UNDER ITEM 511876, CBC OUTLET APRON.
3. NO REBAR DIMENSIONS ARE SHOWN ON SECTION B-B. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETAIL THE LENGTH OF BARS DUE TO THE CONSTANT CHANGE IN LENGTH DUE TO SLOPE AND FOOTING DIMENSION CHANGE.

REBAR DETAILS

BAR	2 BARREL			3 BARREL		
	LENGTH	SIZE	SPA.	LENGTH	SIZE	SPA.
"aa" BARS	10'-9"	#8	12"	10'-9"	#8	12"
"bb" BARS	21'-5"	#8	12"	31'-11"	#8	12"
"cc" BARS	21'-5"	#6	6"	31'-11"	#6	6"
"dd" BARS	21'-5"	#6	6"	31'-11"	#6	6"
"ee" BARS	10'-9"	#7	12"	10'-9"	#7	12"
"ff" BARS	8'-4"	#6	6"	8'-4"	#6	6"
"gg" BARS	**	#4	12"	**	#4	12"

** SEE NOTES ON SHEETS 511-62-2/2 & 511-64-2/3

NO.	DATE	REV. BY	DESCRIPTION

REVISIONS (OR CHANGE NOTICES)

NEW MEXICO
DEPARTMENT OF TRANSPORTATION
STANDARD DRAWING

CONCRETE BOX CULVERT
EXAMPLE OF USE OF DRAWINGS

APPROVED J. D. [signature] DESIGN ENGINEER APR 9, 07 DATE

DESIGNED BY TLB DRAWN BY SGL CHECKED BY HDR

511-59-2/2 2 OF 2

Sheet 511-81

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CONSULTANTS

SEAL: 60% SUBMITTAL NOT FOR CONSTRUCTION

PROJECT NAME: BARR SPUR IMPROVEMENTS

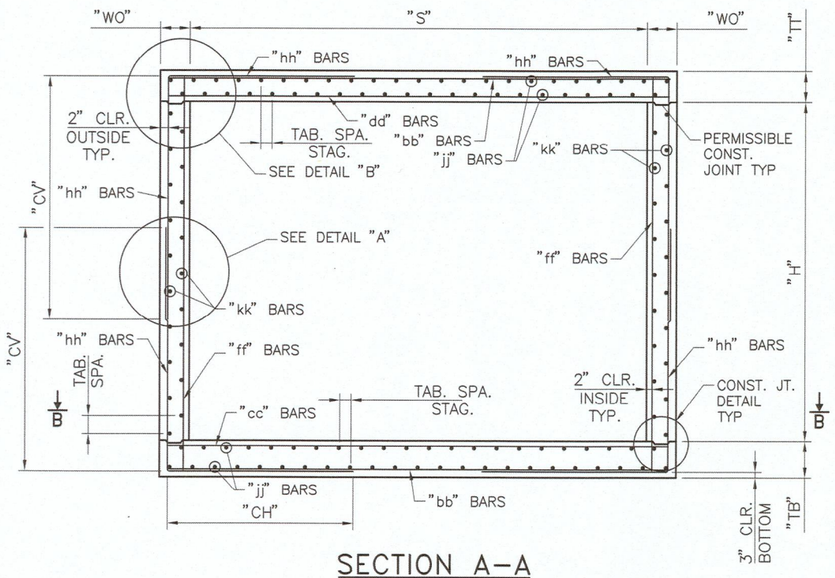
REV.	DATE	DESCRIPTION	BY

PROJECT NO:	1660060700
DESIGNED BY:	TJA
DRAWN BY:	JEM
CHECKED BY:	TJA
DATE:	JAN 2022

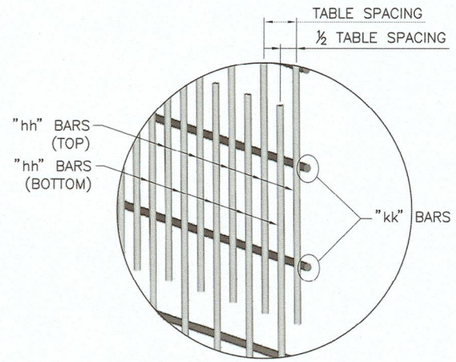
SHEET TITLE: NMDOT STD DWG

SHEET NO: C-512

M:\MSD\16-600-607-0012_Disciplines_SHEETS\2_Sheets - civil\BARR SPUR\166607-DT02.dwg 1/5/2022

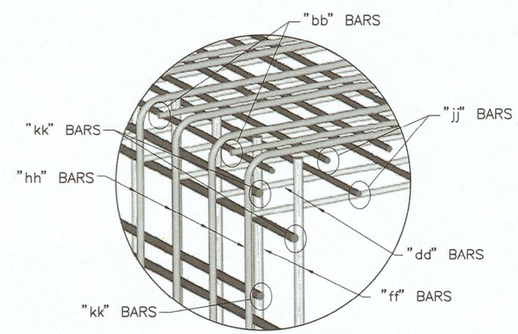


SECTION A–A



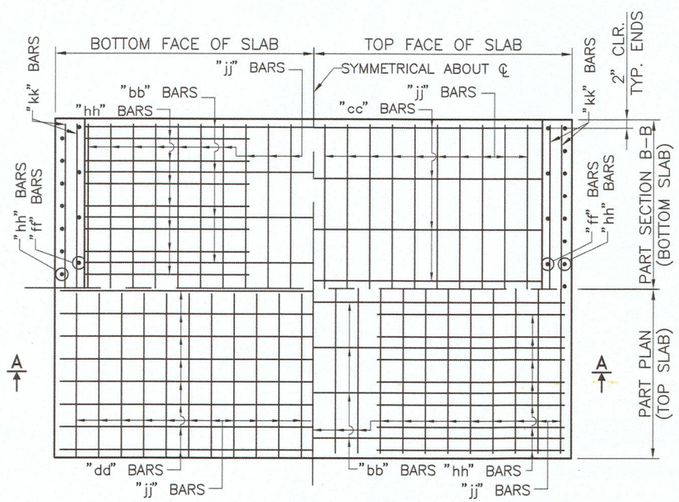
DETAIL "A"

(INSIDE FACE OMITTED FOR CLARITY)

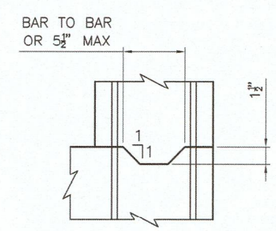


DETAIL "B"

(SIMILAR BOTTOM CORNERS)



REBAR LAYOUT – PLAN VIEW



CONSTRUCTION JOINT DETAIL

GENERAL NOTES

1. ALL MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE NEW MEXICO DEPARTMENT OF TRANSPORTATION SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION (CURRENT EDITION) WITH APPLICABLE SPECIAL PROVISIONS.
2. ALL CONCRETE SHALL BE CLASS "AA" (4000 psi). CHAMFER ALL EXPOSED EDGES ¾".
3. ALL REINFORCING STEEL TO BE DEFORMED BARS, CONFORMING TO AASHTO M–31, GRADE 60. ALL DIMENSIONS REFER TO THE CENTERLINE OF BAR.
4. "COVER" IS HEIGHT OF FILL FROM TOP OF BOX TO THE TOP OF PAVEMENT. ORIGINAL HEIGHT OF COVER MAY NOT BE EXCEEDED IN THE FUTURE OR WILL REQUIRE REMOVAL AND REPLACEMENT WITH PROPER DESIGN FILL CBC. IN CASE OF COVER EQUAL TO 10', 15', 20', OR 25' USE HIGHER DESIGN FILL IN CASE OF FUTURE AC OVERLAY.
5. "jj" AND "kk" BARS MAY BE SPLICED WHEN NECESSARY BY LAPPING AT LEAST 40 BAR DIAMETERS. NO OTHER SPLICING OF BARS WILL BE PERMITTED. LENGTH OF THESE BARS SHALL EQUAL THE LENGTH OF BARREL "L" PLUS (2 X "HW") MINUS 4" FOR TOTAL NEW CONSTRUCTION, NOT INCLUDING LAP LENGTH. FOR CULVERT EXTENSION, LENGTH OF THESE BARS SHALL BE "L" PLUS "HW" MINUS 2".
6. REINFORCING SHOWN IS FOR PLACEMENT LOCATION ONLY. USE APPROPRIATE SHEETS AND CORRESPONDING TABLES TO DETERMINE THE REINFORCING REQUIREMENTS AND SPACINGS.
7. ALL CONSTRUCTION JOINTS SHALL BE AS PER DETAIL THIS SHEET. CONSTRUCTION JOINTS ARE PERMISSIBLE AND SHALL BE BE LOCATED AT WALL/SLAB HORIZONTAL INTERFACE.
8. DO NOT BACKFILL WALLS UNTIL TOP SLAB HAS REACHED 4000 psi DESIGN STRENGTH.
9. CBC'S SHALL BE CONSTRUCTED TO THE SPAN, HEIGHT, NUMBER OF BARRELS, SKEW, ALIGNMENT, AND FLOWLINE GRADE AS SPECIFIED ON THE PLAN AND PROFILE AND STRUCTURE PLACEMENT SECTIONS.
10. EXCAVATION AND BACKFILL OF CBC'S SHALL BE IN ACCORDANCE WITH STANDARD DRAWING 210–01–1/1.

DESIGN

DESIGNED IN ACCORDANCE WITH AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, THIRD EDITION.

PAYMENT

PAYMENT FOR CBC'S IS BASED ON "LIN. FT." UNIT OF MEASUREMENT FOR THE TOTAL LENGTH OF ALL NEW BARRELS CONSTRUCTED AT THE CENTERLINE OF BARREL. I.E. SINGLE BARREL SHALL BE 1 X "L" AND TRIPLE BARREL SHALL BE 3 X "L" FOR PAYMENT. LENGTH OF BARREL SHALL NOT INCLUDE "HW" WHICH SHALL BE PAID FOR SEPARATELY. CONCRETE, REBAR, FORMING, AND OTHER WORK AND MATERIAL SHALL BE INCLUDED IN THE LIN. FT. COST FOR THE CBC AND NO FURTHER PAYMENT SHALL BE MADE FOR THESE INCIDENTAL ITEMS.

ALTERNATIVELY, A COMPLETE CONCRETE BOX CULVERT MAY BE PAID FOR UNDER CLASS "AA" CONCRETE BY "CU. YD." ITEM 511030 AND GRADE 60 REBAR BY "LBS." ITEM 540060.

NO.	DATE	REV. BY	DESCRIPTION

REVISIONS (OR CHANGE NOTICES)

NEW MEXICO DEPARTMENT OF TRANSPORTATION STANDARD DRAWING

CONCRETE BOX CULVERT SINGLE OPENING – DESIGN FILL "A" 0–10 FT STRUCTURAL SECTIONS AND REBAR

APPROVED [signature] DESIGN ENGINEER APR 9, 07 DATE

DESIGNED BY TLB DRAWN BY SGL CHECKED BY HDR

511–60–1/2 1 OF 2

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CONSULTANTS

SEAL

60% SUBMITTAL NOT FOR CONSTRUCTION

PROJECT NAME

BARR SPUR IMPROVEMENTS

REV.	DATE	DESCRIPTION	BY

PROJECT NO:	1660060700
DESIGNED BY:	TJA
DRAWN BY:	JEM
CHECKED BY:	TJA
DATE:	JAN 2022

SHEET TITLE

NMDOT STD DWG

SHEET NO:

C-513

1/5/2022 M:\MSD\16-600-607-002_Disciplines_SHEETS\2_Sheets - civil\BARR SPUR\166607-DT02.dwg

SINGLE OPENING BOX CULVERT STRUCTURE DIMENSIONS					GRADE 60 REINFORCING BAR SCHEDULE (BAR SIZE, SPACING AND LENGTH DIMENSIONS)																		
DIM		0–10 FT BURIAL DESIGN FILL "A"			"bb"		"cc"		"dd"		"bb", "cc" & "dd"	"ff"			"hh"				"jj"		"kk"	
SPAN "S" INSIDE	HEIGHT "H" INSIDE	TOP SLAB "TT"	BOTTOM SLAB "TB"	WALLS OUTER "WO"	SIZE	SPACING	SIZE	SPACING	SIZE	SPACING	LENGTH	SIZE	SPACING	LENGTH	SIZE	SPACING	"CH" LENGTH	"CV" LENGTH	SIZE	STAGGERED SPACING	SIZE	STAGGERED SPACING
4'	2'	7.5"	8.5"	7.5"	#4	12"	#4	6"	#4	6"	4'–11"	#4	12"	2'–11"	#4	6"	25"	25"	#4	6"	#4	6"
4'	3'	7.5"	8.5"	7.5"	#4	12"	#4	6"	#4	6"	4'–11"	#4	12"	3'–11"	#4	6"	25"	31"	#4	6"	#4	6"
4'	4'	7.5"	8.5"	7.5"	#4	12"	#4	6"	#4	6"	4'–11"	#4	12"	4'–11"	#4	6"	25"	37"	#4	6"	#4	6"
6'	2'	7.5"	8.5"	7.5"	#5	12"	#5	6"	#6	6"	6'–11"	#4	12"	2'–11"	#5	6"	30"	26"	#4	6"	#4	6"
6'	3'	7.5"	8.5"	7.5"	#5	12"	#5	6"	#6	6"	6'–11"	#4	12"	3'–11"	#5	6"	30"	32"	#4	6"	#4	6"
6'	4'	7.5"	8.5"	7.5"	#5	12"	#5	6"	#6	6"	6'–11"	#4	12"	4'–11"	#5	6"	30"	38"	#4	6"	#4	6"
6'	5'	7.5"	8.5"	7.5"	#5	12"	#5	6"	#6	6"	6'–11"	#4	12"	5'–11"	#5	6"	30"	44"	#4	6"	#4	6"
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6'	7'	7.5"	8.5"	7.5"	#5	12"	#5	6"	#6	6"	6'–11"	#4	12"	7'–11"	#5	6"	30"	56"	#4	6"	#4	6"
8'	4'	9.0"	9.5"	7.5"	#6	12"	#6	6"	#7	6"	8'–11"	#4	12"	5'–1"	#6	6"	36"	41"	#4	6"	#4	6"
8'	5'	9.0"	9.5"	7.5"	#6	12"	#6	6"	#7	6"	8'–11"	#4	12"	6'–1"	#6	6"	36"	47"	#4	6"	#4	6"
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THIS PROJECT → * 10'	7'	9.0"	9.5"	7.5"	#7	12"	#8	6"	#8	6"	10'–11"	#4	12"	8'–1"	#7	6"	43"	62"	#4	6"	#4	6"
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10'	10'	9.5"	10.0"	9.0"	#8	12"	#8	6"	#8	6"	11'–2"	#5	6"	11'–2"	#8	6"	53"	84"	#4	6"	#4	6"
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14'	10'	11.0"	12.0"	10.5"	#9	12"	#9	6"	#9	6"	15'–5"	#5	6"	11'–6"	#9	6"	101"	91"	#4	6"	#4	6"
14'	11'	11.0"	12.0"	10.5"	#9	12"	#9	6"	#9	6"	15'–5"	#5	6"	12'–6"	#9	6"	101"	97"	#4	6"	#4	6"
14'	12'	11.0"	12.0"	10.5"	#9	12"	#9	6"	#9	6"	15'–5"	#5	6"	13'–6"	#9	6"	101"	103"	#4	6"	#4	6"
14'	13'	11.0"	12.0"	10.5"	#9	12"	#9	6"	#9	6"	15'–5"	#5	6"	14'–6"	#9	6"	101"	109"	#4	6"	#4	6"
14'	14'	11.0"	12.0"	10.5"	#9	12"	#9	6"	#9	6"	15'–5"	#5	6"	15'–6"	#9	6"	101"	115"	#4	6"	#4	6"

FOR EXTENSIONS OF EXISTING CBC'S OF S=5', S=7', AND S=9' SIZE SPANS NOT INCLUDED IN THIS TABLE, USE DIMENSIONS FOR NEXT GREATER SPAN TO BUILD. FOR EXAMPLE: FOR S=5' USE DESIGN DIMENSIONS FROM THE TABLE FOR S=6'. ALSO REDUCE THE S=6' TABLE LENGTH OF BARS "bb", "cc" AND "dd" BY ONE FOOT TO ACCOMMODATE THE SHORTER SPAN. SEE DETAILS ON SHEET 511–66–4/6. ANY OTHER SIZES OF BOX EXTENSIONS NOT COVERED BY THIS MODIFICATION SHALL BE DONE THROUGH SPECIAL DESIGNS INCLUDED IN THE PROJECT PLANS.

* EXAMPLE OF USE OF THIS TABLE:
PROPOSED STRUCTURE – SINGLE BARREL, 10 FT. SPAN/7 FT. HEIGHT, CBC WITH 2 FT. DEPTH OF COVER.
USE THE FOLLOWING BUILD INFORMATION FROM THE TABLE ABOVE:

DIM		0–10 FT BURIAL DESIGN FILL "A"			"bb"		"cc"		"dd"		"bb", "cc" & "dd"	"ff"			"hh"				"jj"		"kk"	
SPAN "S" INSIDE	HEIGHT "H" INSIDE	TOP SLAB "TT"	BOTTOM SLAB "TB"	WALLS OUTER "WO"	SIZE	SPACING	SIZE	SPACING	SIZE	SPACING	LENGTH	SIZE	SPACING	LENGTH	SIZE	SPACING	"CH" LENGTH	"CV" LENGTH	SIZE	STAGGERED SPACING	SIZE	STAGGERED SPACING
10'	7'	9.0"	9.5"	7.5"	#7	12"	#8	6"	#8	6"	10'–11"	#4	12"	8'–1"	#7	6"	43"	62"	#4	6"	#4	6"

NO.	DATE	REV. BY	DESCRIPTION

REVISIONS (OR CHANGE NOTICES)

NEW MEXICO
DEPARTMENT OF TRANSPORTATION
STANDARD DRAWING

CONCRETE BOX CULVERT SINGLE OPENING – DESIGN FILL "A" 0–10 FT DIMENSIONS AND REBAR SCHEDULE

APPROVED [signature] DESIGN ENGINEER APR 9, 07 DATE

DESIGNED BY TLB DRAWN BY SGL CHECKED BY HDR

511–60–2/2 2 OF 2

Sheet 511-83

WILSON & COMPANY
4401 MASTHEAD ST. NE, SUITE 150
ALBUQUERQUE, NM 87109
PHONE: 505-348-4000
FAX: 505-348-4072
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CONSULTANTS

SEAL: 60% SUBMITTAL NOT FOR CONSTRUCTION

PROJECT NAME: BARR SPUR IMPROVEMENTS

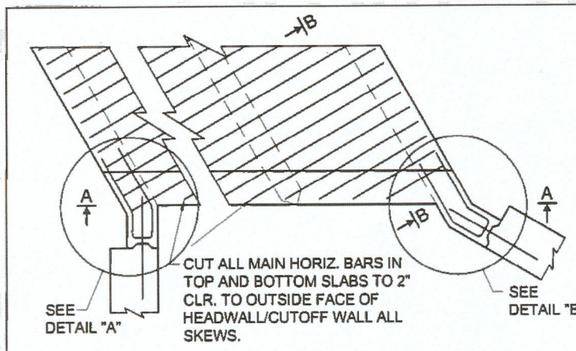
REV.	DATE	DESCRIPTION	BY

PROJECT NO:	1660060700
DESIGNED BY:	TJA
DRAWN BY:	JEM
CHECKED BY:	TJA
DATE:	JAN 2022

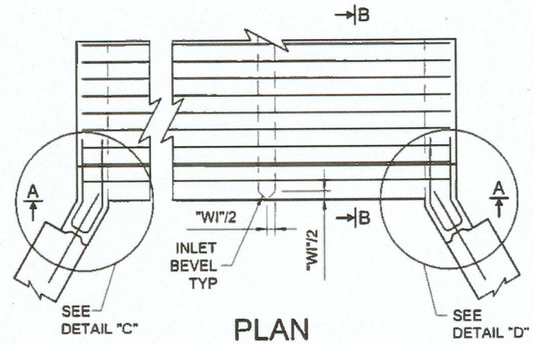
SHEET TITLE: NMDOT STD DWG

SHEET NO: C-514

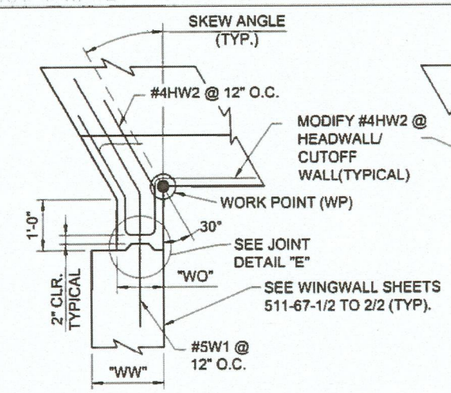
1/5/2022 M:\MSD\16-600-607-00\2_Disciplines_SHEETS\2_Sheets - civil\BARR SPUR\166607-DT02.dwg



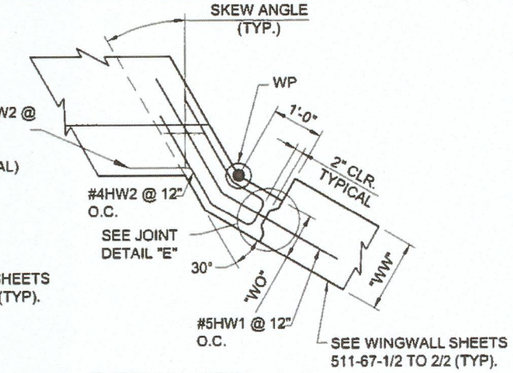
PLAN
(SKEWED)
SIMILAR FOR SINGLE BARREL
(NOT TO BE USED FOR SKEWS OVER 45°)



PLAN
(NORMAL)
SIMILAR FOR SINGLE BARREL

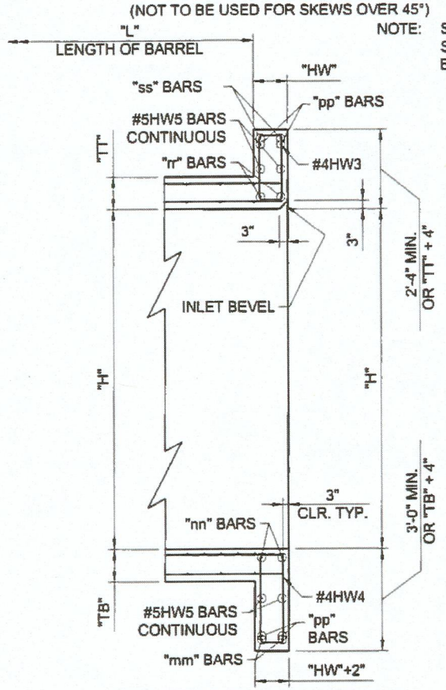


DETAIL "A"
(SKEWED)

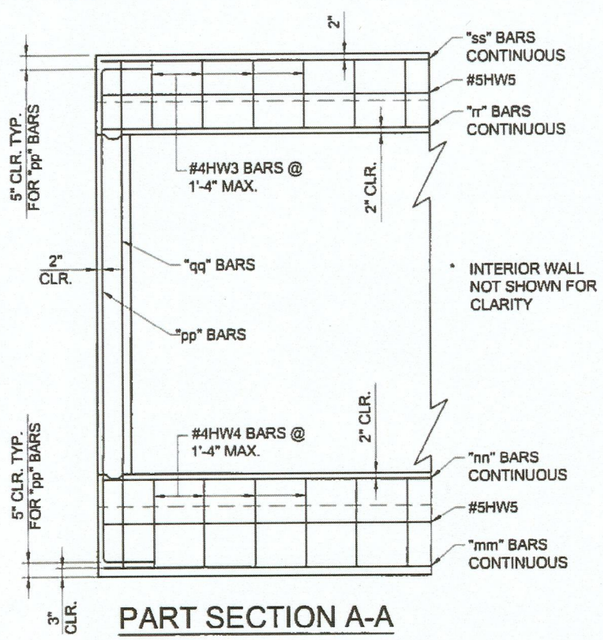


DETAIL "B"
(SKEWED)

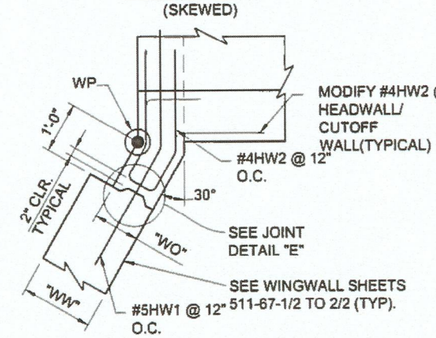
NOTE: SEE SHEET 511-66-2/6 FOR BAR SIZES, NUMBER OF BARS, AND BAR LENGTH FORMULAS.



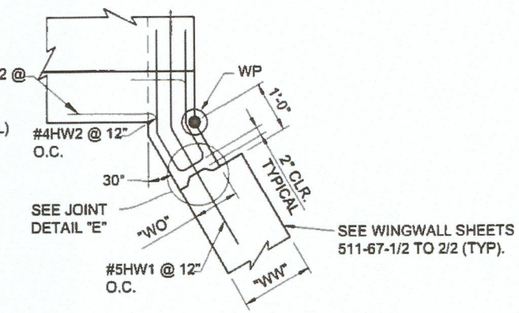
PART SECTION B-B



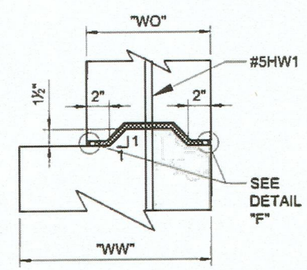
PART SECTION A-A



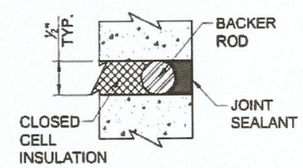
DETAIL "C"
(NORMAL)



DETAIL "D"
(NORMAL)

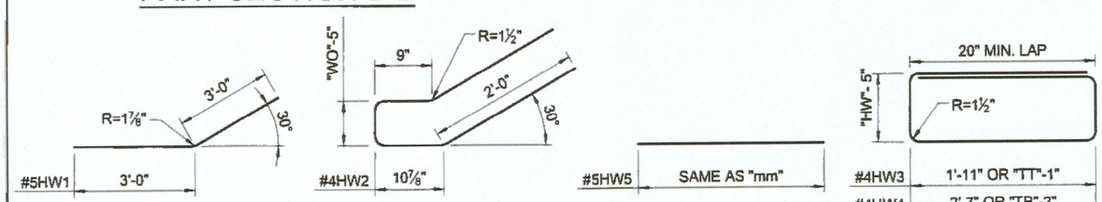


JOINT DETAIL "E"



DETAIL "F"

NOTE: DETAILS "A", "B", "C", & "D" EXTEND FULL HEIGHT FROM TOP OF PARAPET TO BOTTOM OF CUTOFF WALL. THESE EXTENSIONS SHALL BE CAST INTEGRALLY WITH HEADWALL/CUTOFF WALL (NO CONSTRUCTION JOINT). ELEVATION AT EXTENSION SHALL BE EQUAL TO PARAPET.



REINFORCING BARS

PAYMENT

PAYMENT FOR HEADWALL/CUTOFF WALL IS BASED ON "EACH" UNIT OF MEASUREMENT FOR EACH NEW BARREL CONSTRUCTED. IN CASE OF TYPE II CONNECTION EACH HEADWALL/CUTOFF WALL UNIT SHALL BE PAID FOR, I.E. TWO PER CULVERT EXTENSION.

ALTERNATIVELY, A COMPLETE CONCRETE BOX CULVERT MAY BE PAID FOR UNDER CLASS "AA" CONCRETE BY "CU.YD." ITEM 511030 AND GRADE 60 REBAR BY "LBS." ITEM 540060.

NO.	DATE	REV. BY	DESCRIPTION

REVISIONS (OR CHANGE NOTICES)

NEW MEXICO
DEPARTMENT OF TRANSPORTATION
STANDARD DRAWING

CBC HEAD/CUTOFF WALLS - ALL
DESIGN FILLS-0° 15° 30° 45° SKEWS
STRUCTURAL SECTIONS AND REBAR

APPROVED 1/19/18
DESIGN ENGINEER DATE

DESIGNED BY TLB DRAWN BY SGL CHECKED BY HDR

511-66-1/6 1 OF 6

WILSON & COMPANY
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FAX: 505-348-4072
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CONSULTANTS

SEAL: 60% SUBMITTAL NOT FOR CONSTRUCTION

PROJECT NAME: BARR SPUR IMPROVEMENTS

REV.	DATE	DESCRIPTION	BY

PROJECT NO:	1660060700
DESIGNED BY:	TJA
DRAWN BY:	JEM
CHECKED BY:	TJA
DATE:	JAN 2022

SHEET TITLE: NMDOT STD DWG

SHEET NO: C-515

Sheet 511-96

1/5/2022 M:\MSD\16-600-607-00\2_Disciplines_SHEETS\2_Sheets - civil\BARR SPUR\1660607-DT02.dwg

BOX CULVERT NOMINAL DIMENSIONS		HEADWALL AND CUTOFF WALL DIMENSION & GRADE 60 REINFORCING BAR SCHEDULE (BAR SIZE AND NUMBER OF BARS REQUIRED)											
		0 DEGREE SKEW											
			"mm"		"nn"		"pp"		"qq"		"rr"		"ss"
SPAN "S" INSIDE	HEIGHT "H" INSIDE	WIDTH HEAD WALL "HW"	SIZE	NUMBER OF BARS	SIZE	NUMBER OF BARS	SIZE	NUMBER OF BARS	SIZE	NUMBER OF BARS	SIZE	NUMBER OF BARS	SIZE	NUMBER OF BARS
4'	2'	12"	#7	2	#7	2	#7	2	#4	2	#7	2	#7	2
4'	3'	12"	#7	2	#7	2	#7	2	#4	2	#7	2	#7	2
4'	4'	12"	#7	2	#7	2	#7	2	#4	2	#7	2	#7	2
6'	2'	12"	#7	2	#7	2	#7	2	#4	2	#7	2	#7	2
6'	3'	12"	#7	2	#7	2	#7	2	#4	2	#7	2	#7	2
6'	4'	12"	#7	2	#7	2	#7	2	#4	2	#7	2	#7	2
6'	5'	12"	#7	2	#7	2	#7	2	#4	2	#7	2	#7	2
6'	6'	12"	#7	2	#7	2	#7	2	#4	2	#7	2	#7	2
6'	7'	12"	#7	2	#7	2	#7	2	#4	2	#7	2	#7	2
8'	4'	12"	#7	2	#7	2	#7	2	#4	2	#7	2	#7	2
8'	5'	12"	#7	2	#7	2	#7	2	#4	2	#7	2	#7	2
8'	6'	12"	#7	2	#7	2	#7	2	#4	2	#7	2	#7	2
8'	7'	12"	#7	2	#7	2	#7	2	#4	2	#7	2	#7	2
8'	8'	12"	#7	2	#7	2	#7	2	#4	2	#7	2	#7	2
10'	3'	12"	#7	2	#7	2	#7	2	#4	2	#7	2	#7	2
10'	4'	12"	#7	2	#7	2	#7	2	#4	2	#7	2	#7	2
10'	5'	12"	#7	2	#7	2	#7	2	#4	2	#7	2	#7	2
10'	6'	12"	#7	2	#7	2	#7	2	#4	2	#7	2	#7	2
10'	7'	12"	#7	2	#7	2	#7	2	#4	2	#7	2	#7	2
10'	8'	12"	#7	2	#7	2	#7	2	#4	2	#7	2	#7	2
10'	9'	12"	#7	2	#7	2	#7	2	#4	2	#7	2	#7	2
10'	10'	12"	#7	2	#7	2	#7	2	#4	2	#7	2	#7	2
10'	11'	12"	#7	2	#7	2	#7	2	#4	2	#7	2	#7	2
10'	12'	12"	#7	2	#7	2	#7	2	#4	2	#7	2	#7	2
12'	6'	12"	#7	2	#7	2	#7	2	#4	2	#7	2	#7	2
12'	7'	12"	#7	2	#7	2	#7	2	#4	2	#7	2	#7	2
12'	8'	12"	#7	2	#7	2	#7	2	#4	2	#7	2	#7	2
12'	9'	12"	#7	2	#7	2	#7	2	#4	2	#7	2	#7	2
* 12'	10'	12"	#7	2	#7	2	#7	2	#4	2	#7	2	#7	2
12'	12'	12"	#7	2	#7	2	#7	2	#4	2	#7	2	#7	2
14'	8'	12"	#7	2	#7	2	#7	2	#4	2	#7	2	#7	2
14'	9'	12"	#7	2	#7	2	#7	2	#4	2	#7	2	#7	2
14'	10'	12"	#7	2	#7	2	#7	2	#4	2	#7	2	#7	2
14'	11'	12"	#7	2	#7	2	#7	2	#4	2	#7	2	#7	2
14'	12'	12"	#7	2	#7	2	#7	2	#4	2	#7	2	#7	2
14'	13'	12"	#7	2	#7	2	#7	2	#4	2	#7	2	#7	2
14'	14'	12"	#7	2	#7	2	#7	2	#4	2	#7	2	#7	2

BOX CULVERT NOMINAL DIMENSIONS		HEADWALL AND CUTOFF WALL DIMENSION & GRADE 60 REINFORCING BAR SCHEDULE (BAR SIZE AND NUMBER OF BARS REQUIRED)											
		15 DEGREE SKEW											
			"mm"		"nn"		"pp"		"qq"		"rr"		"ss"
SPAN "S" INSIDE	HEIGHT "H" INSIDE	WIDTH HEAD WALL "HW"	SIZE	NUMBER OF BARS	SIZE	NUMBER OF BARS	SIZE	NUMBER OF BARS	SIZE	NUMBER OF BARS	SIZE	NUMBER OF BARS	SIZE	NUMBER OF BARS
4'	2'	12"	#7	2	#7	2	#7	2	#4	2	#7	2	#7	2
4'	3'	12"	#7	2	#7	2	#7	2	#4	2	#7	2	#7	2
4'	4'	12"	#7	2	#7	2	#7	2	#4	2	#7	2	#7	2
6'	2'	12"	#7	2	#7	2	#7	2	#4	2	#7	2	#7	2
6'	3'	12"	#7	2	#7	2	#7	2	#4	2	#7	2	#7	2
6'	4'	12"	#7	2	#7	2	#7	2	#4	2	#7	2	#7	2
6'	5'	12"	#7	2	#7	2	#7	2	#4	2	#7	2	#7	2
6'	6'	12"	#7	2	#7	2	#7	2	#4	2	#7	2	#7	2
6'	7'	12"	#7	2	#7	2	#7	2	#4	2	#7	2	#7	2
8'	4'	12"	#9	2	#9	2	#7	2	#4	2	#8	2	#8	2
8'	5'	12"	#9	2	#9	2	#7	2	#4	2	#8	2	#8	2
8'	6'	12"	#9	2	#9	2	#7	2	#4	2	#8	2	#8	2
8'	7'	12"	#9	2	#9	2	#7	2	#4	2	#8	2	#8	2
8'	8'	12"	#9	2	#9	2	#7	2	#4	2	#8	2	#8	2
10'	3'	12"	#10	2	#10	2	#8	2	#5	2	#10	2	#9	2
10'	4'	12"	#10	2	#10	2	#8	2	#5	2	#10	2	#9	2
10'	5'	12"	#10	2	#10	2	#8	2	#5	2	#10	2	#9	2
10'	6'	12"	#10	2	#10	2	#8	2	#5	2	#10	2	#9	2
10'	7'	12"	#10	2	#10	2	#8	2	#5	2	#10	2	#9	2
10'	8'	12"	#10	2	#10	2	#8	2	#5	2	#10	2	#9	2
10'	9'	12"	#10	2	#10	2	#8	2	#5	2	#10	2	#9	2
10'	10'	12"	#10	2	#10	2	#8	2	#5	2	#10	2	#9	2
10'	11'	12"	#10	2	#10	2	#8	2	#5	2	#10	2	#9	2
10'	12'	12"	#10	2	#10	2	#8	2	#5	2	#10	2	#9	2
12'	6'	14"	#11	3	#10	3	#11	2	#6	2	#11	3	#10	3
12'	7'	14"	#11	3	#10	3	#11	2	#6	2	#11	3	#10	3
12'	8'	14"	#11	3	#10	3	#11	2	#6	2	#11	3	#10	3
12'	9'	14"	#11	3	#10	3	#11	2	#6	2	#11	3	#10	3
* 12'	10'	14"	#11	3	#10	3	#11	2	#6	2	#11	3	#10	3
12'	12'	14"	#11	3	#10	3	#11	2	#6	2	#11	3	#10	3
14'	8'	24"	#11	4	#11	4	#10	3	#8	3	#11	4	#10	4
14'	9'	24"	#11	4	#11	4	#10	3	#8	3	#11	4	#10	4
14'	10'	24"	#11	4	#11	4	#10	3	#8	3	#11	4	#10	4
14'	11'	24"	#11	4	#11	4	#10	3	#8	3	#11	4	#10	4
14'	12'	24"	#11	4	#11	4	#10	3	#8	3	#11	4	#10	4
14'	13'	24"	#11	4	#11	4	#10	3	#8	3	#11	4	#10	4
14'	14'	24"	#11	4	#11	4	#10	3	#8	3	#11	4	#10	4

BOX CULVERT NOMINAL DIMENSIONS		HEADWALL AND CUTOFF WALL DIMENSION & GRADE 60 REINFORCING BAR SCHEDULE (BAR SIZE AND NUMBER OF BARS REQUIRED)											
		30 DEGREE SKEW											
			"mm"		"nn"		"pp"		"qq"		"rr"		"ss"
SPAN "S" INSIDE	HEIGHT "H" INSIDE	WIDTH HEAD WALL "HW"	SIZE	NUMBER OF BARS	SIZE	NUMBER OF BARS	SIZE	NUMBER OF BARS	SIZE	NUMBER OF BARS	SIZE	NUMBER OF BARS	SIZE	NUMBER OF BARS
4'	2'	12"	#7	2	#7	2	#7	2	#4	2	#7	2	#7	2
4'	3'	12"	#7	2	#7	2	#7	2	#4	2	#7	2	#7	2
4'	4'	12"	#7	2	#7	2	#7	2	#4	2	#7	2	#7	2
6'	2'	12"	#8	2	#8	2	#7	2	#4	2	#8	2	#7	2
6'	3'	12"	#8	2	#8	2	#7	2	#4	2	#8	2	#7	2
6'	4'	12"	#8	2	#8	2	#7	2	#4	2	#8	2	#7	2
6'	5'	12"	#8	2	#8	2	#7	2	#4	2	#8	2	#7	2
6'	6'	12"	#8	2	#8	2	#7	2	#4	2	#8	2	#7	2
6'	7'	12"	#8	2	#8	2	#7	2	#4	2	#8	2	#7	2
8'	4'	12"	#10	2	#10	2	#7	2	#4	2	#10	2	#9	2
8'	5'	12"	#10	2	#10	2	#7	2	#4	2	#10	2	#9	2
8'	6'	12"	#10	2	#10	2	#7	2	#4	2	#10	2	#9	2
8'	7'	12"	#10	2	#10	2	#7	2	#4	2	#10	2	#9	2
8'	8'	12"	#10	2	#10	2	#7	2	#4	2	#10	2	#9	2
10'	3'	14"	#11	3	#11	3	#9	2	#6	2	#11	3	#11	3
10'	4'	14"	#11	3	#11	3	#9	2	#6	2	#11	3	#11	3
10'	5'	14"	#11	3	#11	3	#9	2	#6	2	#11	3	#11	3
10'	6'	14"	#11	3	#11	3	#9	2	#6	2	#11	3	#11	3
10'	7'	14"	#11	3	#11	3	#9	2	#6	2	#11	3	#11	3
10'	8'	14"	#11	3	#11	3	#9	2	#6	2	#11	3	#11	3
10'	9'	14"	#11	3	#11	3	#9	2	#6	2	#11	3	#11	3
10'	10'	14"	#11	3	#11	3	#9	2	#6	2	#11	3	#11	3
10'	11'	14"	#11	3	#11	3	#9	2	#6	2	#11	3	#11	3
10'	12'	14"	#11	3	#11	3	#9	2	#6	2	#11	3	#11	3
12'	6'	24"	#11	3	#11	3	#11	2	#6	2	#11	3	#9	3
12'	7'	24"	#11	3	#11	3	#11	2	#6	2	#11	3	#9	3
12'	8'	24"	#11	3	#11	3	#11	2	#6	2	#11	3	#9	3
12'	9'	24"	#11	3	#11	3	#11	2	#6	2	#11	3	#9	3
* 12'	10'	24"	#11	3	#11	3	#11	2	#6	2	#11	3	#9	3
12'	12'	24"	#11	3	#11	3	#11	2	#6	2	#11	3	#9	3
14'	8'	36"	#11	9	#11	9	#9	8	#6	8	#11	9	#11	9
14'	9'	36"	#11	9	#11	9	#9	8	#6	8	#11	9	#11	9
14'	10'	36"	#11	9	#11	9	#9	8	#6	8	#11	9	#11	9
14'	11'	36"	#11	9	#11	9	#9	8	#6	8	#11	9	#11	9
14'	12'	36"	#11	9	#11	9	#9	8	#6	8	#11	9	#11	9
14'	13'	36"	#11	9	#11	9	#9	8	#6	8	#11	9	#11	9
14'	14'	36"	#11	9	#11	9	#9	8	#6	8	#11	9	#11	9

BOX CULVERT NOMINAL DIMENSIONS		HEADWALL AND CUTOFF WALL DIMENSION & GRADE 60 REINFORCING BAR SCHEDULE (BAR SIZE AND NUMBER OF BARS REQUIRED)											
		45 DEGREE SKEW											
			"mm"		"nn"		"pp"		"qq"		"rr"		"ss"
SPAN "S" INSIDE	HEIGHT "H" INSIDE	WIDTH HEAD WALL "HW"	SIZE	NUMBER OF BARS	SIZE	NUMBER OF BARS	SIZE	NUMBER OF BARS	SIZE	NUMBER OF BARS	SIZE	NUMBER OF BARS	SIZE	NUMBER OF BARS
4'	2'	12"	#7	2	#7	2	#7	2	#4	2	#7	2	#7	2
4'	3'	12"	#7	2	#7	2	#7	2	#4	2	#7	2	#7	2
4'	4'	12"	#7	2	#7	2	#7	2	#4	2	#7	2	#7	2
6'	2'	12"	#10	2	#10	2	#7	2	#4	2	#9	2	#8	2
6'	3'	12"	#10	2	#10	2	#7	2	#4	2	#9	2	#8	2
6'	4'	12"	#10	2	#10	2	#7	2	#4	2	#9	2	#8	2
6'	5'	12"	#10	2	#10	2	#7	2	#4	2	#9	2	#8	2
6'	6'	12"	#10	2	#10	2	#7	2	#4	2	#9	2	#8	2
6'	7'	12"	#10	2	#10	2	#7	2	#4	2	#9	2	#8	2
8'	4'	14"	#11	3	#11	3	#9	2	#5	2	#11	3	#11	3
8'	5'	14"	#11	3	#11	3	#9	2	#5	2	#11	3	#11	3
8'	6'	14"	#11	3	#11	3	#9	2	#5	2	#11	3	#11	3
8'	7'	14"	#11	3	#11	3	#9	2	#5	2	#11	3	#11	3
8'	8'	14"	#11	3	#11	3	#9	2	#5	2	#11	3	#11	3
10'	3'	24"	#11	3	#11	3	#11	2	#5	2	#11	3	#11	3
10'	4'	24"	#11	3	#11	3	#11	2	#6	2	#11	3	#11	3
10'	5'	24"	#11	3	#11	3	#11	2	#6	2	#11	3	#11	3
10'	6'	24"	#11	3	#11	3	#11	2	#6	2	#11	3	#11	3
10'	7'	24"	#11	3	#11	3	#11	2	#6	2	#11	3	#11	3
10'	8'	24"	#11	3	#11	3	#11	2	#6	2	#11	3	#11	3
10'	9'	24"	#11	3	#11	3	#11	2	#6	2	#11	3	#11	3
10'	10'	24"	#11	3	#11	3	#11	2	#6	2	#11	3	#11	3
10'	11'	24"	#11	3	#11	3	#11	2	#6	2	#11	3	#11	3
10'	12'	24"	#11	3	#11	3	#11	2	#6	2	#11	3	#11	3
12'	6'	48"	#11	12	#11	12	#8	11	#5	11	#11	12	#11	12
12'	7'	48"	#11	12	#11	12	#8	11	#5	11	#11	12	#11	12
12'	8'	48"	#11	12	#11	12	#8	11	#5	11	#11	12	#11	12
12'	9'	48"	#11	12	#11	12	#8	11	#5	11	#11	12	#11	12
* 12'	10'	48"	#11	12	#11	12	#8	11	#5	11	#11	12	#11	12
12'	12'	48"	#11	12	#11	12	#8	11	#5	11	#11	12	#11	12
14'	8'	48"	#11	12	#11	12	#8	11	#5	11	#11	12	#11	12
14'	9'	48"	#11	12	#11	12	#8	11	#5	11	#11	12	#11	12
14'	10'	48"	#11	12	#11	12	#8	11	#5	11	#11	12	#11	12
14'	11'	48"	#11	12	#11	12	#8	11	#5	11	#11	12	#11	12
14'	12'	48"	#11	12	#11	12	#8	11	#5	11	#11	12	#11	12
14'	13'	48"	#11	12	#11	12	#8	11	#5	11	#11	12	#11	12
14'	14'	48"	#11	12	#11	12	#8	11	#5	11	#11	12	#11	12

THIS PROJECT

THIS PROJECT

THIS PROJECT

* EXAMPLE OF USE OF THIS TABLE:
PROPOSED STRUCTURE – DOUBLE BARREL, 12 FT. SPAN/10 FT. HEIGHT, CBC WITH 30° SKEW.
USE THE FOLLOWING BUILD INFORMATION FROM THE TABLE ABOVE:

BOX CULVERT NOMINAL DIMENSIONS		HEADWALL AND CUTOFF WALL DIMENSION GRADE 60 REINFORCING BAR SCHEDULE (BAR SIZE AND NUMBER OF BARS REQUIRED)											
		30 DEGREE SKEW											
			"mm"		"nn"		"pp"		"qq"		"rr"		"ss"
SPAN "S" INSIDE	HEIGHT "H" INSIDE	WIDTH HEAD WALL "HW"	SIZE	NUMBER OF BARS	SIZE	NUMBER OF BARS	SIZE	NUMBER OF BARS	SIZE	NUMBER OF BARS	SIZE	NUMBER OF BARS	SIZE	NUMBER OF BARS
12'	10'	24"	#11	3	#11	3	#11	2	#6	2	#11	3	#9	3

LENGTH OF BARS: THE LENGTH OF "mm", "nn", "rr", "ss", & #5HW5 SHALL BE DETERMINED BY:

LENGTH = [[["WO"*2)+("S"*N)+["WI"*(N−1)]]/COS(SKEW ANGLE)] −4"
(ROUND DOWN TO NEAREST ½")

THESE BARS SHALL BE FURNISHED IN FULL LENGTHS CALCULATED OR BE MECHANICALLY COUPLED BY DEVICES LISTED ON THE NMDOT APPROVED PRODUCTS LIST.

N = NUMBER OF BARRELS (1, 2, 3, OR 4)

"qq" BAR LENGTH = "H" + 59"

"pp" BAR = ["H"+(5'−4" MIN. OR ("TT"+"TB"+8") IF LARGER)]−10"+ 2*STANDARD HOOK LENGTH

FOR EXTENSIONS OF EXISTING CBC'S OF S=5', S=7', AND S=9' SIZE SPANS NOT INCLUDED IN THIS TABLE, USE DIMENSIONS, BAR SIZES, AND NUMBER OF BARS FOR NEXT GREATER SPAN TO BUILD. FOR EXAMPLE, FOR S=5' USE DIMENSIONS AND BAR DETAILS FROM THE TABLE FOR S=6'. USE S=5' IN FORMULAS TO DETERMINE LENGTH OF BARS "mm", "nn", "ss", "rr", AND #5HW5. ANY OTHER SIZE OF BOX EXTENSIONS NOT COVERED BY THIS MODIFICATION SHALL BE DONE THROUGH SPECIAL DESIGNS INCLUDED IN THE PROJECT PLANS.

NOTE:
THIS TABLE IS FOR USE WITH ONE TO FOUR BARRELS. FOR FIVE OR MORE BARRELS USE COMBINATIONS OF ONE TO FOUR BARRELS REPEATING THIS DESIGN.

NO.	DATE	REV. BY	DESCRIPTION

REVISIONS (OR CHANGE NOTICES)

NEW MEXICO
DEPARTMENT OF TRANSPORTATION
STANDARD DRAWING

CONCRETE BOX CULVERT HEADWALL
ALL DESIGN FILLS–0° 15° 30° 45°
SKEWS DIMS AND REBAR SCHEDULE

APPROVED _____ DESIGN ENGINEER — DATE APR 9, 07

DESIGNED BY TLB DRAWN BY SGL CHECKED BY HDR

511-66-2/6 2 OF 6

Sheet 511-97

WILSON & COMPANY
4401 MASTHEAD ST. NE, SUITE 150
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CONSULTANTS

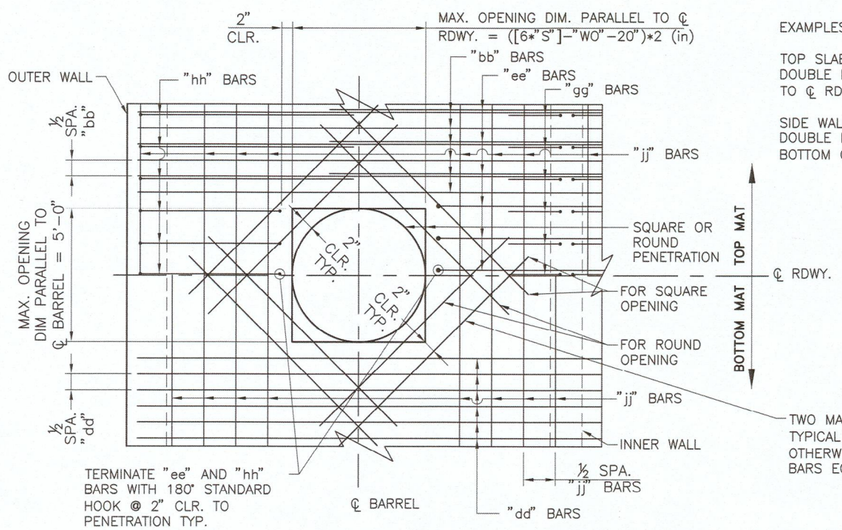
SEAL: 60% SUBMITTAL NOT FOR CONSTRUCTION

PROJECT NAME: BARR SPUR IMPROVEMENTS

REV.	DATE	DESCRIPTION	BY

PROJECT NO:	1660060700
DESIGNED BY:	TJA
DRAWN BY:	JEM
CHECKED BY:	TJA
DATE:	JAN 2022
SHEET TITLE	NMDOT STD DWG
SHEET NO:	C-516

1/5/2022 M:\MSD\16-600-607-00\2_Disciplines_SHEETS\2_Sheets - civil\BARR SPUR\166607-DT02.dwg



TOP SLAB PENETRATION DETAIL

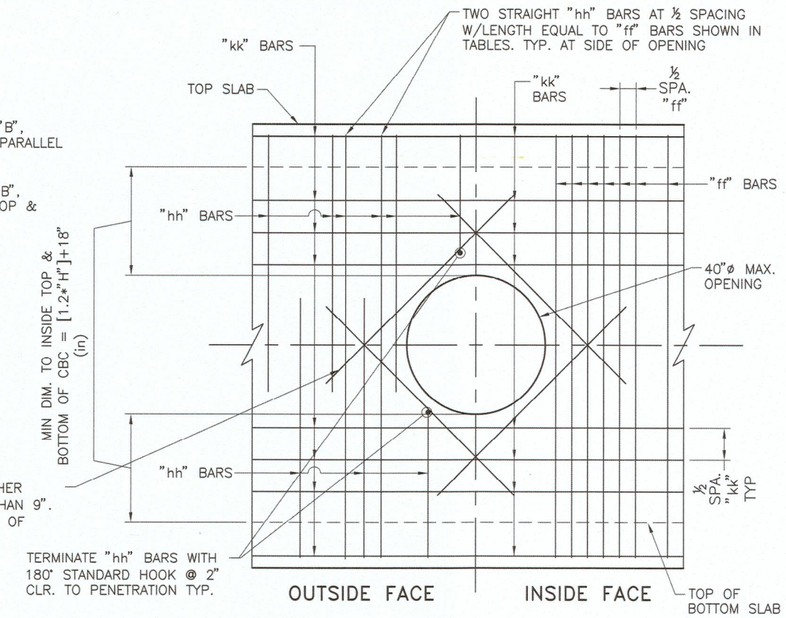
NOTE: MOVE "bb", "dd" AND "jj" BARS FROM LOCATION AT PENETRATION AND PLACE EQUALLY AT ½ SPACING ON EACH SIDE OF OPENING.

EXAMPLES:

TOP SLAB – "S"=10' "H"=7', DESIGN FILL "B", DOUBLE BARREL CBC: MAX. OPENING DIM. PARALLEL TO ℄ RDWY. = ([6*10]−9−20)*2 = 62 (in)

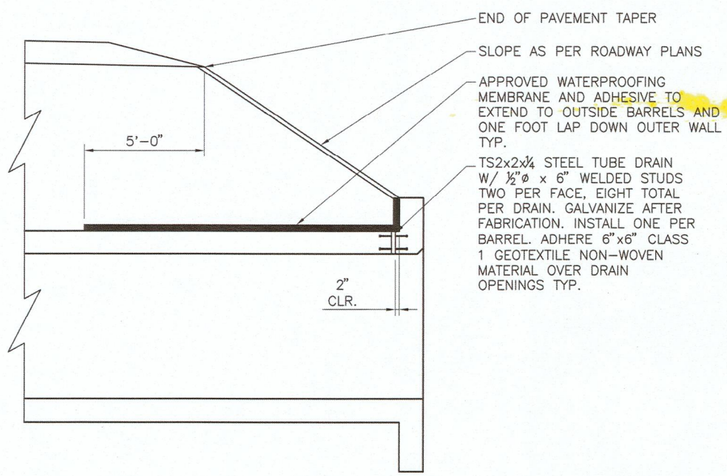
SIDE WALL – S"=10' "H"=7', DESIGN FILL "B", DOUBLE BARREL CBC: MIN DIM. TO INSIDE TOP & BOTTOM OF CBC = [1.2*7]+18 = 26.4 (in)

TWO MATS OF #5 BARS INSIDE OF ALL OTHER TYPICAL REINFORCING FOR "TT" GREATER THAN 9". OTHERWISE ONE MAT OF #5 BARS. LENGTH OF BARS EQUAL TO TWICE DIM. OF OPENING.



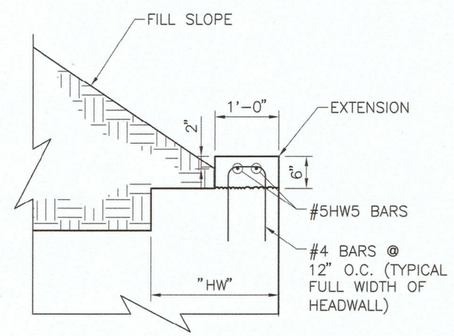
OUTER WALL PENETRATION DETAIL

NOTE: MOVE "ff" AND "kk" BARS FROM LOCATION AT PENETRATION AND PLACE EQUALLY AT ½ SPACING ON EACH SIDE OF OPENING.



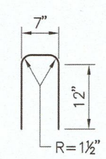
TOP SLAB MEMBRANE AND HEADWALL DRAIN DETAIL

NOTE: THIS DETAIL SHALL BE CONSTRUCTED FOR ANY NEW CBC OR CBC EXTENSION.



HEADWALL EXTENSION DETAIL

NOTE: IF "HW" IS GREATER THAN 12" ADD EXTENSION AND FILL AS SHOWN. 2" DIM. TYP. OF ALL HEADWALL.



BAR DETAIL

PAYMENT NOTE: ALL WORK AND MATERIALS ASSOCIATED WITH HEADWALL EXTENSION, MEMBRANE, DRAINS, AND PENETRATIONS SHALL BE CONSIDERED INCIDENTAL TO CONSTRUCTION OF A FINISHED CBC AND NO FURTHER PAYMENT WILL BE MADE FOR THESE INCLUDED ITEMS.

NO.	DATE	REV. BY	DESCRIPTION

REVISIONS (OR CHANGE NOTICES)

NEW MEXICO
DEPARTMENT OF TRANSPORTATION
STANDARD DRAWING

CONCRETE BOX CULVERT EXTENSION
ALL DESIGN FILLS – ALL SKEWS
MISCELLANEOUS DETAILS & BACKFILL

APPROVED [signature] DESIGN ENGINEER APR 9 07 DATE

DESIGNED BY TLB DRAWN BY SGL CHECKED BY HDR

511-66-5/6 5 OF 6

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CONSULTANTS

SEAL: 60% SUBMITTAL NOT FOR CONSTRUCTION

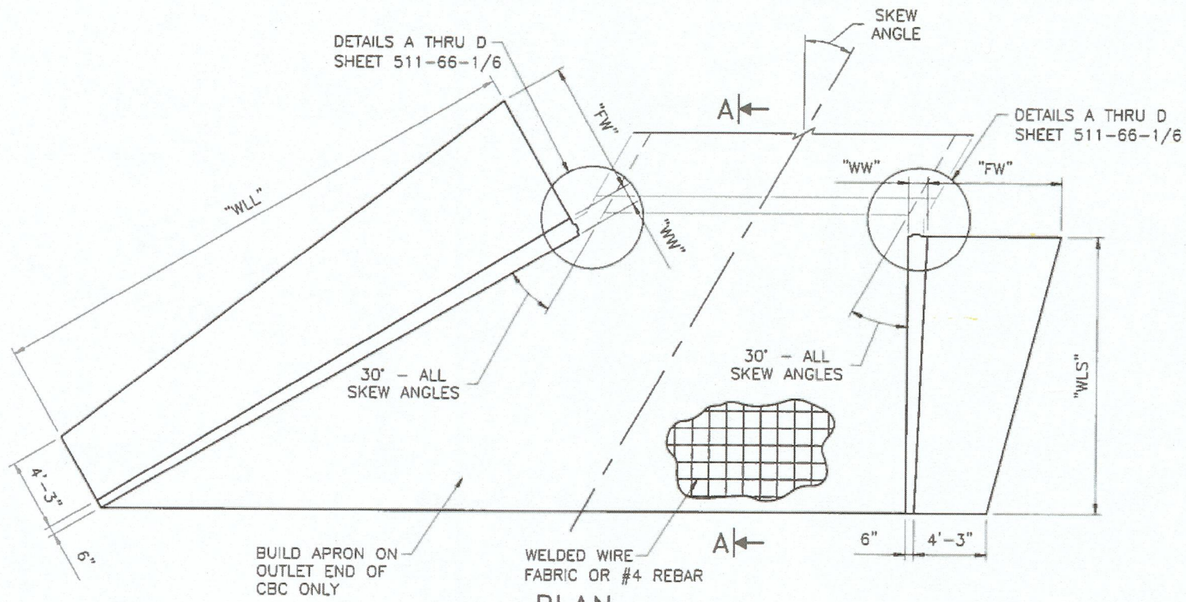
PROJECT NAME: BARR SPUR IMPROVEMENTS

REV.	DATE	DESCRIPTION	BY

PROJECT NO:	1660060700
DESIGNED BY:	TJA
DRAWN BY:	JEM
CHECKED BY:	TJA
DATE:	JAN 2022

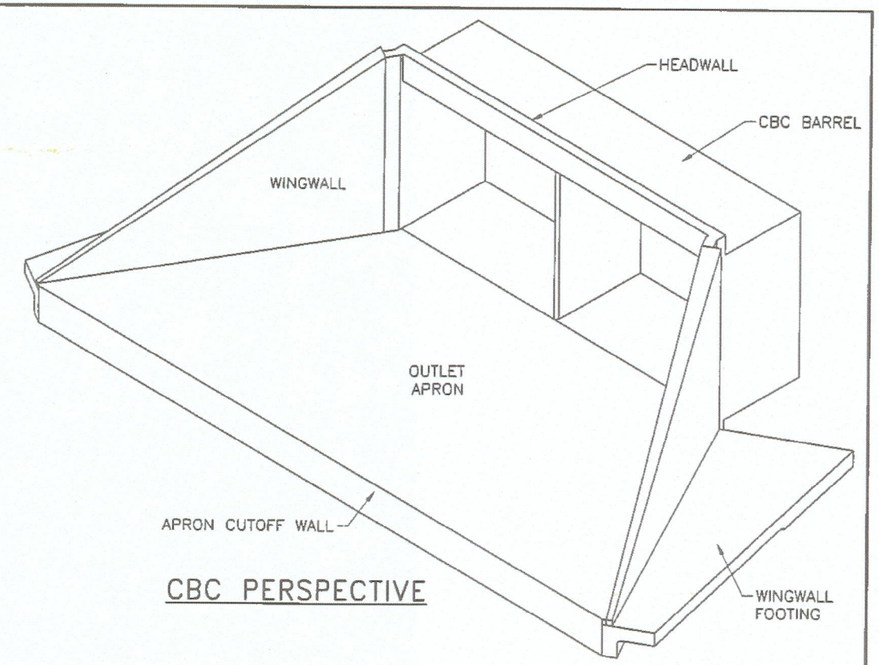
SHEET TITLE: NMDOT STD DWG

SHEET NO: C-517



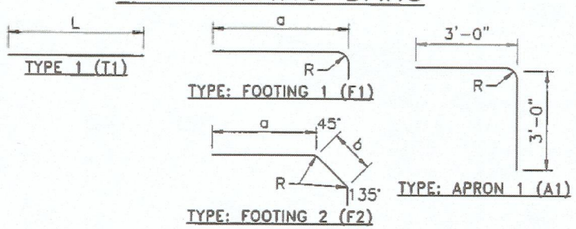
PLAN

SIMILAR ALL SKEWS



CBC PERSPECTIVE

REINFORCING BARS



NOTE:
CONTRACTOR IS RESPONSIBLE FOR DETERMINING ALL BAR LENGTHS DIMENSIONS FOR THE WINGWALL REINFORCEMENT.

R SHALL BE 1¾" FOR #4 BARS AND 2¼" FOR #5 BARS.

WINGWALL DIMENSIONS

WINGS A AND B			0° SKEW		15° SKEW		30° SKEW		45° SKEW	
"H"	"WW"	"FW"	"WLL"	"WLS"	"WLL"	"WLS"	"WLL"	"WLS"	"WLL"	"WLS"
2'-0"	0'-9½"	6'-8½"	8'-5"	8'-5"	10'-3"	7'-6"	14'-6"	7'-3"	28'-0"	7'-6"
3'-0"	0'-10¼"	7'-2½"	10'-1"	10'-1"	12'-5"	9'-1"	17'-6"	8'-9"	33'-10"	9'-1"
4'-0"	0'-11½"	7'-8½"	11'-10"	11'-10"	14'-6"	10'-8"	20'-6"	10'-3"	39'-8"	10'-8"
5'-0"	1'-0"	8'-2½"	13'-7"	13'-7"	16'-8"	12'-2"	23-'6"	11'-9"	45'-5"	12'-2"
6'-0"	1'-0¾"	8'-9"	15'-4"	15'-4"	18'-9"	13'-9"	26'-6"	13'-3"	51'-3"	13'-9"
7'-0"	1'-1½"	9'-3"	17'-1"	17'-1"	20'-11"	15'-3"	29'-6"	14'-9"	57'-0"	15'-3"
8'-0"	1'-2¼"	9'-9"	18'-9"	18'-9"	23'-0"	16'-10"	32'-6"	16'-3"	62'-10"	16'-10"
9'-0"	1'-3¼"	10'-3"	20'-6"	20'-6"	25'-1"	18'-5"	35'-6"	17'-9"	68'-7"	18'-5"
10'-0"	1'-4"	10'-9"	22'-3"	22'-3"	27'-3"	19'-11"	38'-6"	19'-3"	74'-5"	19'-11"
11'-0"	1'-4¾"	11'-3"	24'-0"	24'-0"	29'-4"	21'-6"	41'-6"	20'-9"	80'-2"	21'-6"
12'-0"	1'-5½"	11'-9"	25'-9"	25'-9"	31'-6"	23'-1"	44'-6"	22'-3"	86'-0"	23'-1"
13'-0"	1'-6¼"	12'-3"	27'-5"	27'-5"	33'-7"	24'-7"	47'-6"	23'-9"	91'-9"	24'-7"
14'-0"	1'-7"	12'-9"	29'-2"	29'-2"	35'-9"	26'-2"	50'-6"	25'-3"	97'-7"	26'-2"

← THIS PROJECT
← THIS PROJECT

NOTE: TABLE DIMENSIONS SHOWN ARE FOR SLOPES OF 1.5 TO 1. FOR OTHER SLOPES MULTIPLY TABLE VALUES OF "WLS" AND "WLS" BY (SLOPE/1.5).

DESIGNED BY: TLB DRAWN BY: SLG/BEE CHECKED BY: HDR

NOTES:

1. WORKMANSHIP AND MATERIALS SHALL CONFORM TO NEW MEXICO DEPARTMENT OF TRANSPORTATION'S STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION, CURRENT EDITION, AND APPLICABLE SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS.
2. CONCRETE SHALL BE CLASS AA. CHAMFER ALL EDGES OF CONCRETE ¾".
3. REINFORCING BARS SHALL CONFORM TO REQUIREMENTS OF AASHTO M 31. REINFORCING BARS SHALL BE GRADE 60. DIMENSIONS SHOWN REFER TO CENTER LINES OF BARS UNLESS NOTED OTHERWISE.
4. MINIMUM SPLICE LENGTH SHALL BE 2'-0" ON ALL #4 BARS, AND 2'-6" ON ALL #5 BARS. LONGITUDINAL SPLICES SHOULD BE STAGGERED BY A MINIMUM OF TWO TIMES THE SPLICES LENGTH IN ADJACENT BARS. NO SPLICES SHALL BE ALLOWED IN VERTICAL BARS EXCEPT AS SHOWN ON THE DRAWINGS. SPLICES SHALL NOT BE ALLOWED IN TRANSVERSE DIRECTION.

THIS STANDARD DRAWING IS FOR USE ON NMDOT PROJECTS. OTHERS WHO USE THE NMDOT STANDARD DRAWINGS DO SO AT THEIR OWN RISK. STANDARD DRAWINGS THAT ARE APPLICABLE TO A SPECIFIC PROJECT WILL BE IDENTIFIED ON THE PROJECT PLANS BUT WILL NOT BE PHYSICALLY INCLUDED IN THOSE PLANS. THE DESIGNER WHO SPECIFIES A STANDARD DRAWING ACCEPTS THE RESPONSIBILITY OF DETERMINING THEIR APPLICABILITY.

NO.	DATE	BY	DESCRIPTION

REVISIONS (OR CHANGE NOTICES)

TED BARBER
NEW MEXICO
12009
REGISTERED PROFESSIONAL ENGINEER
6/7/18

NEW MEXICO
DEPARTMENT OF TRANSPORTATION
STANDARD DRAWING

CONCRETE BOX CULVERT
WINGWALL & OUTLET APRON
ALL SKEWS
PLAN, PERSPECTIVE, & DIMENSIONS

511-67-1/2 1 of 2

Sheet 511-101

WILSON & COMPANY
4401 MASTHEAD ST. NE, SUITE 150
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FAX: 505-348-4072
www.wilsonco.com

CONSULTANTS

SEAL: 60% SUBMITTAL NOT FOR CONSTRUCTION

PROJECT NAME: BARR SPUR IMPROVEMENTS

REV.	DATE	DESCRIPTION	BY

PROJECT NO:	1660060700
DESIGNED BY:	TJA
DRAWN BY:	JEM
CHECKED BY:	TJA
DATE:	JAN 2022
SHEET TITLE	NMDOT STD DWG
SHEET NO:	C-518

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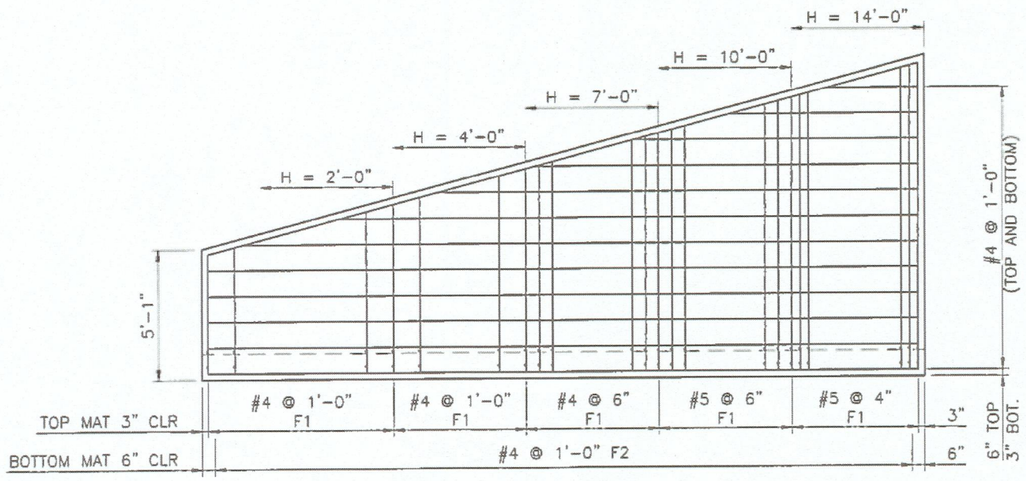
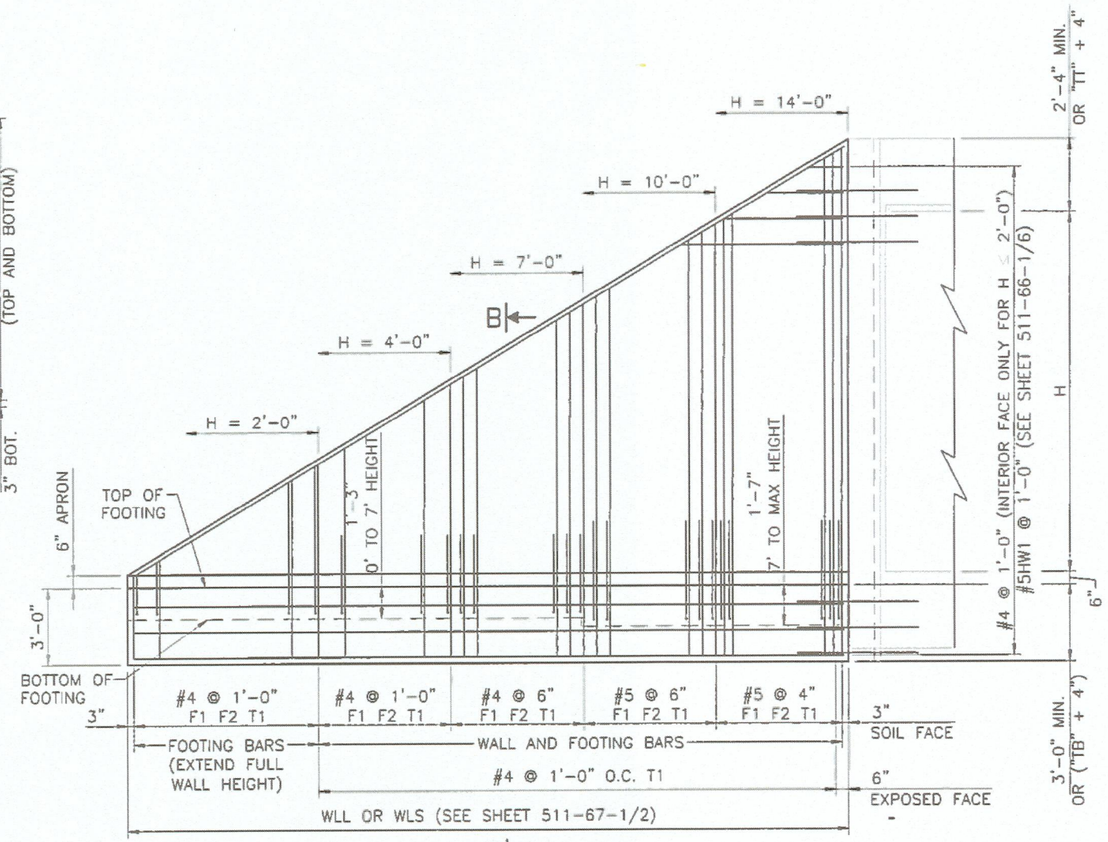
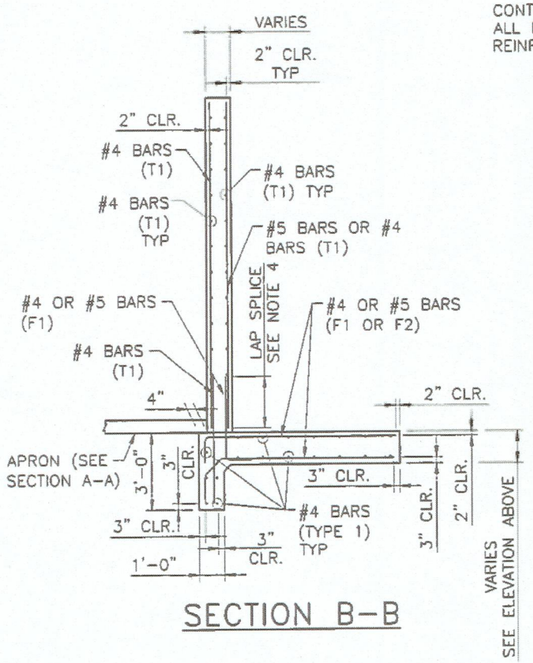


FOOTING PLAN

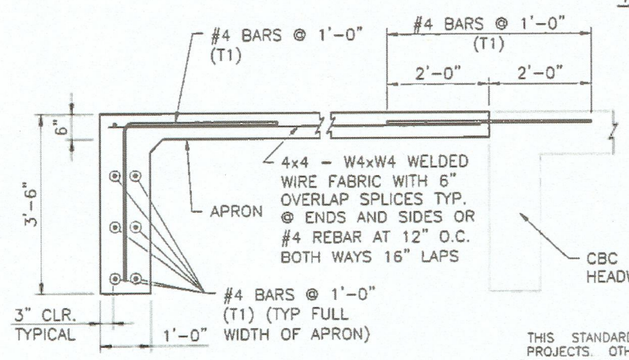
CONTRACTOR IS RESPONSIBLE FOR DETERMINING ALL BAR LENGTH DIMENSIONS FOR THE WINGWALL REINFORCEMENT.



WINGWALL ELEVATION



SECTION B-B



SECTION A-A

THIS STANDARD DRAWING IS FOR USE ON NMDOT PROJECTS. OTHERS WHO USE THE NMDOT STANDARD DRAWINGS DO SO AT THEIR OWN RISK. STANDARD DRAWINGS THAT ARE APPLICABLE TO A SPECIFIC PROJECT WILL BE IDENTIFIED ON THE PROJECT PLANS BUT WILL NOT BE PHYSICALLY INCLUDED IN THOSE PLANS. THE DESIGNER WHO SPECIFIES A STANDARD DRAWING ACCEPTS THE RESPONSIBILITY OF DETERMINING THEIR APPLICABILITY.

TED BARBER NEW MEXICO 12894 REGISTERED PROFESSIONAL ENGINEER 6/7/18

NO.	DATE	BY	DESCRIPTION

REVISIONS (OR CHANGE NOTICES)

NEW MEXICO
DEPARTMENT OF TRANSPORTATION
STANDARD DRAWING

CONCRETE BOX CULVERT
WINGWALL & OUTLET APRON
ALL SKEWS
STRUCTURAL SECTIONS AND REBAR

511-67-2/2 2 of 2

WILSON & COMPANY
4401 MASTHEAD ST. NE, SUITE 150
ALBUQUERQUE, NM 87109
PHONE: 505-348-4000
FAX: 505-348-4072
www.wilsonco.com

CONSULTANTS

SEAL

60% SUBMITTAL NOT FOR CONSTRUCTION

PROJECT NAME

BARR SPUR IMPROVEMENTS

REV.	DATE	DESCRIPTION	BY

PROJECT NO:	1660060700
DESIGNED BY:	TJA
DRAWN BY:	JEM
CHECKED BY:	TJA
DATE:	JAN 2022
SHEET TITLE	NMDOT STD DWG
SHEET NO:	C-519

DESIGNED BY: JB DRAWN BY: SGL/BEE CHECKED BY: HDR

Sheet 511-102

M:\MSD\16-600-607-00\2_Disciplines_SHEETS\2_Sheets - civil\BARR SPUR\166607-DT02.dwg 1/5/2022