SOUTHERN SANDOVAL COUNTY ARROYO FLOOD CONTROL AUTHORITY

IFB# 2022-03 – Lower Arroyo Venada Bank Stabilization Project

ADDENDUM #2

December 22, 2022

This Addendum consists of two (2) pages and three (3) attachments. The information contained in this addendum shall be incorporated into the project bid and contract documents the same as if originally contained therein.

Bidders shall acknowledge receipt of this addendum on the Bid Proposal form in the space provided. Failure to acknowledge this addendum by any prospective bidder will render the bid non-responsive.

1. QUESTIONS RECEIVED FROM PROSPECTIVE BIDDERS

Q1: Can 3,000 psi Class "A" concrete be substituted for the 3,000 psi shotcrete?

A1: Yes. The 3,000 psi shotcrete may be substituted for 3,000 psi Class "A" concrete with a tined finish.

Q2: Are weep holes required for the channel side slopes?

A2: No.

Q3: Are concrete blocks (dobies) satisfactory in lieu of sand chairs?

A3: Yes.

Q4: What is the thickness of the headwall extension wall at Sta 43+00? How will it be paid?

A4: The Headwall Extension thickness shall match the thickness of the existing wingwall.

A new Bid Item 21 has been added to the Unit Price Bid Proposal, see Attached.

---

2. BID AND CONTRACT DOCUMENTS

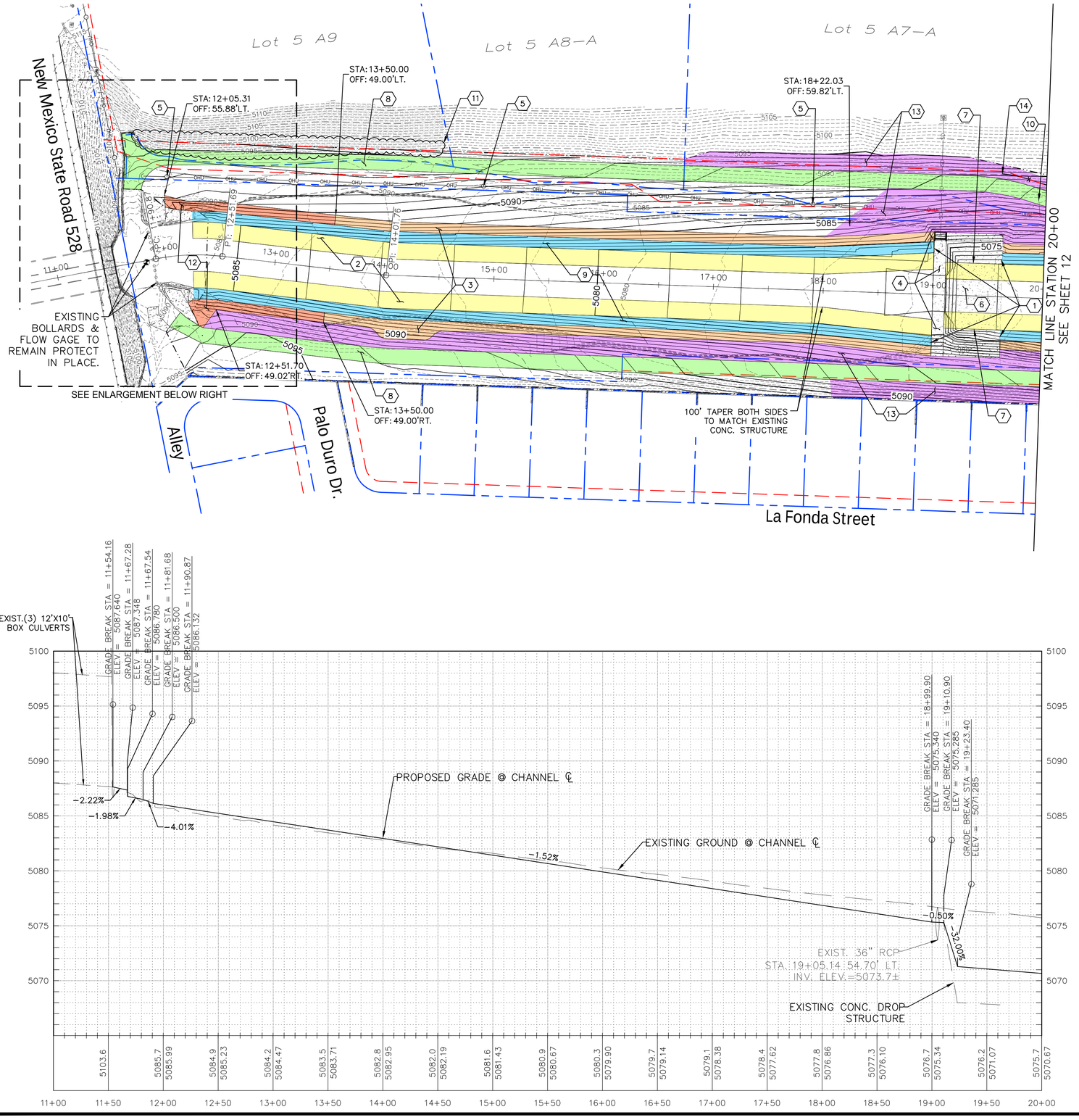
- Replace Pages 11-15, 18, 20, 23-27 of the Construction Plan set with the attached revised sheets.
- Replace Pages 23-25 of Volume 1 of the Bid and Contract Documents with the attached revised Unit Price Bid Proposal.
- Append the attached Supplemental Technical Specification 1516 – Gabion Mat to Volume 2 of the Bid and Contract Documents.

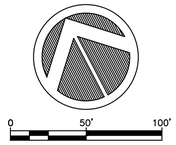
All other provisions of the Bid and Contract Documents shall remain unchanged. This Addendum is hereby made a part of the Bid and Contract Documents to the same extent as those provisions contained in the originals.

Andrés Sanchez, PE
SSCAFCA Design Services Director

Attachments:

1. Revised Construction Plan sheets (12 sheets)
2. Revised Unit Price Bid Proposal (3 pages)
3. Supplemental Technical Specification 1516 (8 pages)





LEGEND:

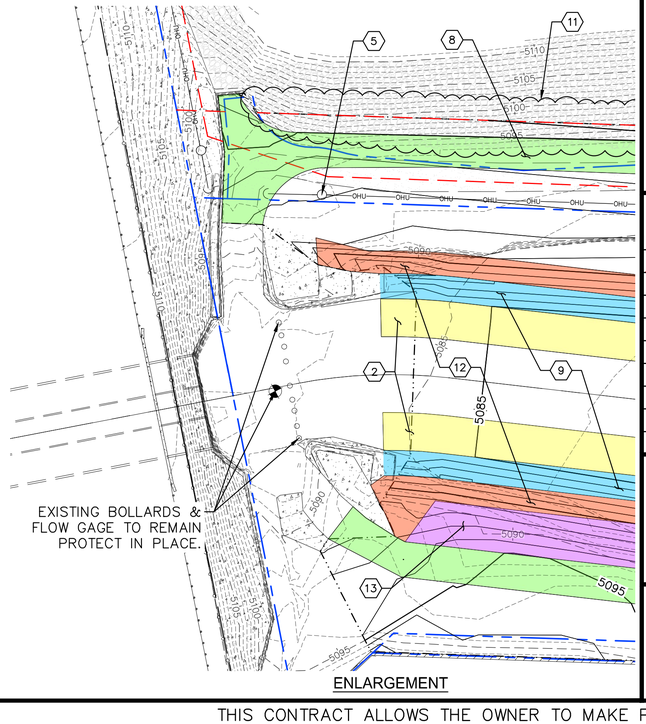
- CONCRETE RAMP
- SHOTCRETE CHANNEL SIDES
- GABION MATTRESS 1
- DUMPED RIPRAP TYPE "M"
- DUMPED RIPRAP TYPE "L"
- MAINTENANCE ACCESS ROAD
- GRAVEL MULCH
- GABION BASKETS
- PROPERTY LINE
- EASEMENT LINE
- LIMITS OF GRADING

GENERAL NOTES:

A. EXISTING CONDITIONS ARE APPROXIMATE DUE TO STORM WATER FLOW AFTER TOPOGRAPHIC SURVEY COMPLETION.

KEYED NOTES:

1. EXPANSION JOINT WITH NP1 SEALANT OR APPROVED EQUAL. SEE EXPANSION JOINT DETAIL ON SHEET 20.
2. INSTALL 1' THICK GABION MATTRESS PER SUPPLEMENTAL TECHNICAL SPECIFICATION 1516. PIN TO SHOTCRETE SIDE SLOPE. SEE DETAIL 5 SHEET 20. 1
3. INSTALL DUMPED RIPRAP TYPE "L" PER APWA SPEC. 109, WITH FILTER CLOTH PER APWA 603.
4. CONTRACTOR TO TRANSITION SIDE SLOPES TO EXISTING BAFFLE OUTLET STRUCTURE. EXPOSE TOP 11' OF EXISTING CONCRETE GRADE CONTROL STRUCTURE.
5. PROTECT OVERHEAD UTILITY LINES AND DOWN GUYS WITHIN CONSTRUCTION AREA.
6. EXISTING CONCRETE DROP STRUCTURE TO BE PARTIALLY BURIED/REMAIN IN PLACE. SEE ENLARGMENT SHEET 19.
7. STA.19+11± TO 19+62± PIN WIRE ENCLOSED RIPRAP TO EXISTING CONC. DROP STRUCTURE. SEE DETAIL 1 SHEET 20.
8. CONSTRUCT MAINTENANCE ACCESS ROAD SEE DETAIL 4 SHEET 20.
9. CONSTRUCT SHOTCRETE CHANNEL SLOPES PER DETAIL 5 SHEET 20.
10. STA.19+93.35, 88.98' LT TO STA.20+00, 74.54' LT REMOVE 19.5'± WIRE FENCE.
11. REMOVE EXISTING ROCK SLOPE ARMORING AS NEEDED PER SSCAFCA 1515. COORDINATE WITH SSCAFCA FOR ON-SITE STOCKPILE LOCATION.
12. INSTALL DUMPED RIPRAP TYPE "M" PER APWA SPEC. 109, WITH FILTER CLOTH PER APWA SPEC. 603.
13. GRAVEL MULCH, ¾" CRUSHED GRAVEL, 3" THICK, NO FILTER CLOTH. NO SEEDING BENEATH GRAVEL MULCH.
14. STA. 19+59.35, 112.05' LT TO STA 20+00, 103.24' LT, 5' NORTH OF MAINTENANCE ACCESS ROAD EDGE, INSTALL 41.7 LF 5 STRAND WIRE FENCE PER SSCAFCA STD. DWG. M100 SHEET 21.



ENLARGEMENT

SSCAFCA
Southern Sandoval County Arroyo Flood Control Authority
1041 Commercial Dr. S.E.
Rio Rancho, New Mexico 87124
505-892-RAIN (7246)
505-892-7241 (Fax)
www.sscafca.com

ANDRES SANCHEZ NEW MEXICO 20763 PROFESSIONAL ENGINEER 11/22

LOWER ARROYO VENADA BANK STABILIZATION PROJECT

BASE BID
PLAN & PROFILE STA. 10+00 TO 20+00

REVISIONS & CHANGE NOTICES

MARK	DESCRIPTION	DATE
1	ADDENDUM 01	12/22/22

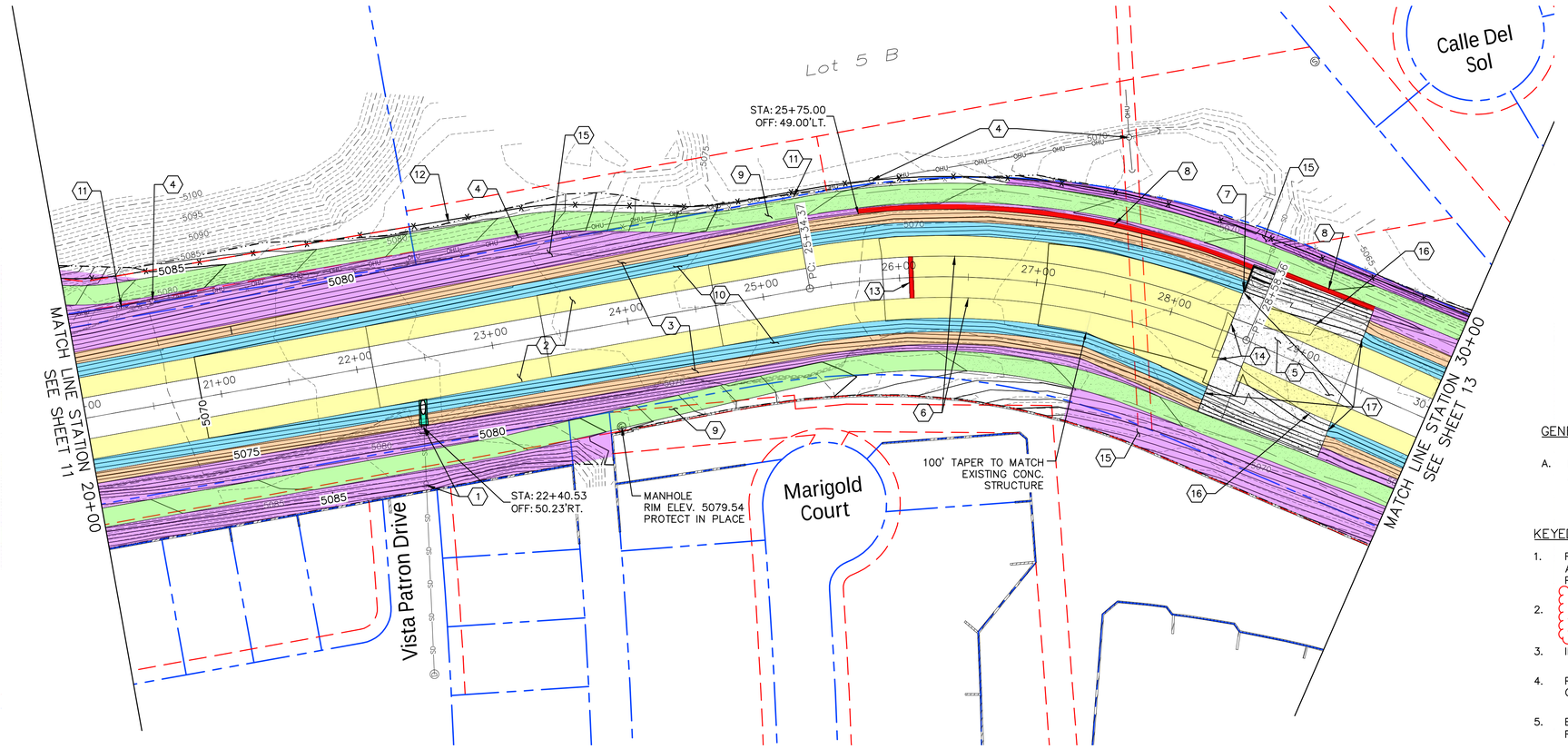
PROJECT NO: VE_P0012-01
DESIGNED BY: JN
DRAWN BY: KLF
CHECKED BY: AES
DATE: 11/9/2022

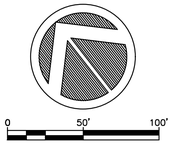
11

SHEET 11 OF 27

THIS CONTRACT ALLOWS THE OWNER TO MAKE PAYMENT WITHIN 45 DAYS AFTER SUBMISSION OF AN UNDISPUTED REQUEST FOR PAYMENT.

Monday, November 14, 2022 12:15:22 PM – Kathy Fournier
Q:\SSCAFCA_Project_Files\Vendor\VE_P0012-01\Civil3D\Production Drawings\Plan_Sets\VE_P0012-01_C-PP01.dwg





LEGEND:

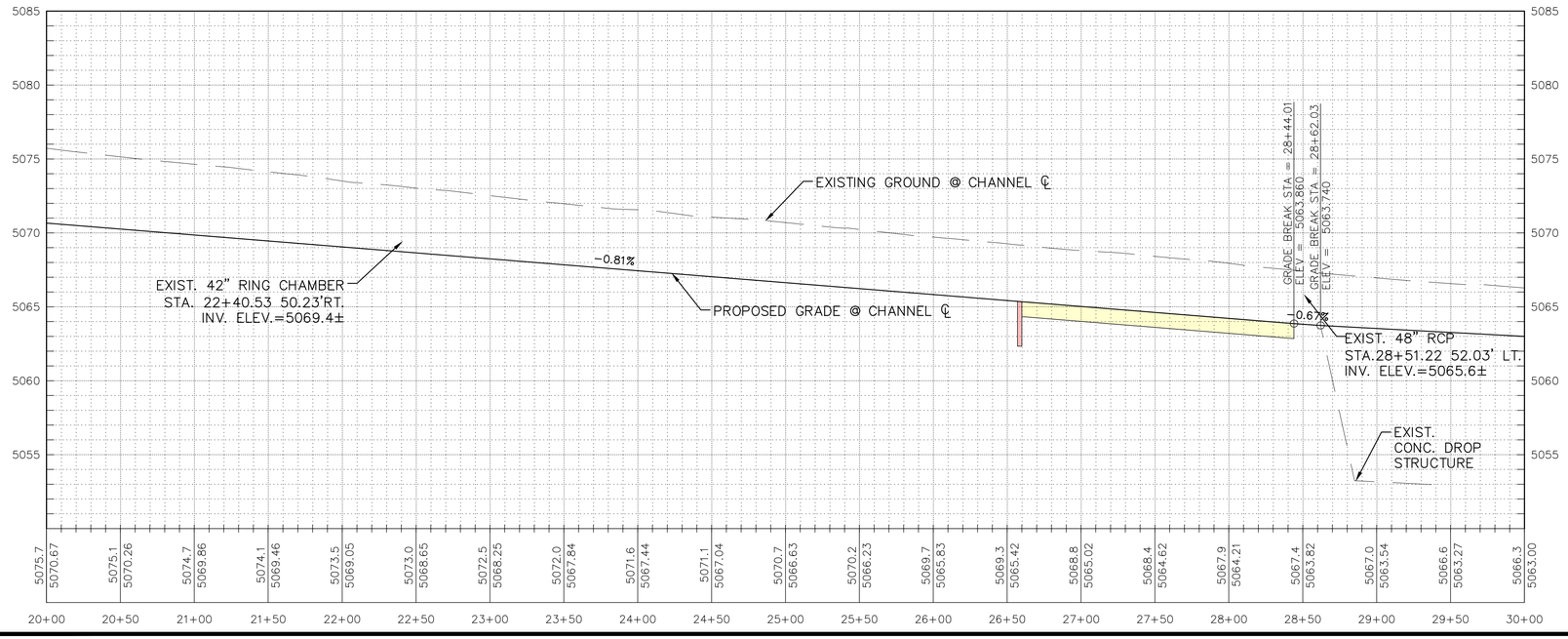
- CONCRETE RAMP
- SHOTCRETE CHANNEL SIDES
- GABION MATTRESS 1
- DUMPED RIPRAP TYPE "M"
- DUMPED RIPRAP TYPE "L"
- MAINTENANCE ACCESS ROAD
- GRAVEL MULCH
- GABION BASKETS
- PROPERTY LINE
- EASEMENT LINE
- LIMITS OF GRADING

GENERAL NOTES:

A. EXISTING CONDITIONS ARE APPROXIMATE DUE TO STORM WATER FLOW AFTER TOPOGRAPHIC SURVEY COMPLETION.

KEYED NOTES:

1. REMOVE EXISTING 42" RING CHAMBER & 36" RCP UP TO PROPERTY LINE AND REINSTALL AS SHOWN ON SHEET 16.CONSTRUCT PIPE PENETRATION PER AMAFCA STD. DWG. 103. SEE SHEET 22.
2. INSTALL 1' THICK GABION MATTRESS PER SUPPLEMENTAL TECHNICAL SPECIFICATION 1516. PIN TO SHOTCRETE SIDE SLOPE, SEE DETAIL 5 SHEET 20. 1
3. INSTALL DUMPED RIPRAP TYPE "L" PER APWA SPEC. 109.
4. PROTECT OVERHEAD UTILITY LINES AND DOWN GUYS WITHIN CONSTRUCTION AREA.
5. EXISTING CONCRETE DROP STRUCTURE TO BE PARTIALLY BURIED/ REMAIN IN PLACE. SEE ENLARGMENT SHEET 19.
6. 30' CENTER SECTION OF WIRE ENCLOSED RIPRAP SHALL NOT BE TIED TO WIRE ENCLOSED RIPRAP SIDES.
7. 30' CENTER SECTION OF GABION MATTRESS, 1' THICK, PER SUPPLEMENTAL TECHNICAL SPECIFICATION 1516. 1
8. INSTALL GABION BASKETS PER NMDOT STD. DWG. 602-05-1/2, FROM STA. 25+75.00 TO 28+42.90, 49' LT. AND STA. 28+58.36 TO 29+34.75, 49' LT. SEE TYPICAL SECTIONS SHEET 18.
9. CONSTRUCT MAINTENANCE ACCESS ROAD SEE DETAIL 4 SHEET 20.
10. CONSTRUCT SHOTCRETE CHANNEL SIDES PER DETAIL 5 SHEET 20.
11. STA.20+00, 74.54'± LT TO STA.30+00, 82.94'± LT REMOVE 1045'± WIRE FENCE AND DISPOSE.
12. STA. 20+00, 103.24' LT TO STA 30+00, 80.82' LT, 5' NORTH OF MAINTENANCE ACCESS ROAD EDGE, INSTALL 1045.94 LF 5 STRAND WIRE FENCE PER SSCAFCA STD. DWG. M100 SHEET 21.
13. STA. 26+07.00 CUTOFF WALL, ROW OF 3X3X3 GABION BASKETS PER NMDOT STD. DWG. 602-05-1/2.
14. CONNECT GABION BASKETS TO TOP OF EXISTING DROP STRUCTURE W/J-HOOKS DOWELS EPOXIED IN TO A DEPTH OF 12" SEE DETAIL 1 SHEET 20.
15. GRAVEL MULCH, ¾" CRUSHED GRAVEL, 3" THICK, NO FILTER CLOTH. NO SEEDING BENEATH GRAVEL MULCH.
16. STA. 28+62± TO 29+37± PIN WIRE ENCLOSED RIPRAP TO EXISTING CONC. DROP STRUCTURE. SEE DETAIL 1 SHEET 20.
17. EXPANSION JOINT WITH NP1 SEALANT OR APPROVED EQUAL. SEE EXPANSION JOINT DETAIL ON SHEET 20.



SSCAFCA
Southern Sandoval County Arroyo Flood Control Authority
1041 Commercial Dr. S.E.
Rio Rancho, New Mexico 87124
505-892-RAIN (7246)
505-892-7241 (Fax)
www.sscafca.com

ANDRÉS SANCHEZ NEW MEXICO 22763 PROFESSIONAL ENGINEER 11/22

LOWER ARROYO VENADA BANK STABILIZATION PROJECT

BASE BID
PLAN & PROFILE STA. 20+00 TO 30+00

REVISIONS & CHANGE NOTICES

MARK	DESCRIPTION	DATE
1	ADDENDUM 01	12/22/22

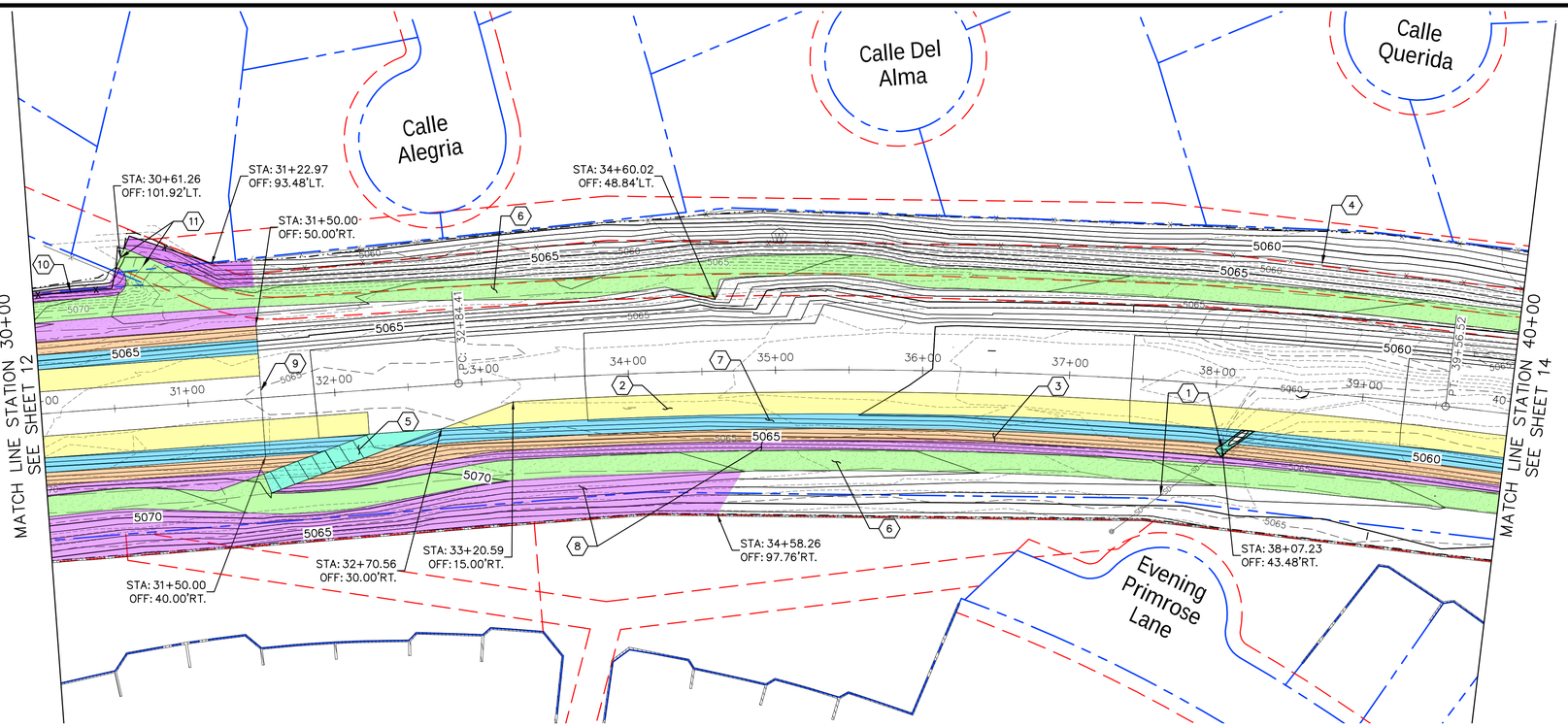
PROJECT NO: VE_P0012-01
DESIGNED BY: JN
DRAWN BY: KLF
CHECKED BY: AES
DATE: 11/14/2022

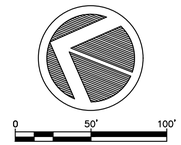
12

SHEET 12 OF 27

THIS CONTRACT ALLOWS THE OWNER TO MAKE PAYMENT WITHIN 45 DAYS AFTER SUBMISSION OF AN UNDISPUTED REQUEST FOR PAYMENT.

Monday, November 14, 2022 12:23:42 PM – Kathy Fournier
O:\SSCAFCA_Project_Files\Vendor\VE_P0012-01\AutoCAD\Production Drawings\Plan_Sets\VE_P0012-01_C-PP01.dwg





LEGEND:

- CONCRETE RAMP
- SHOTCRETE CHANNEL SIDES
- GABION MATTRESS 1
- DUMPED RIPRAP TYPE "M"
- DUMPED RIPRAP TYPE "L"
- MAINTENANCE ACCESS ROAD
- GRAVEL MULCH
- GABION BASKETS
- PROPERTY LINE
- EASEMENT LINE
- LIMITS OF GRADING

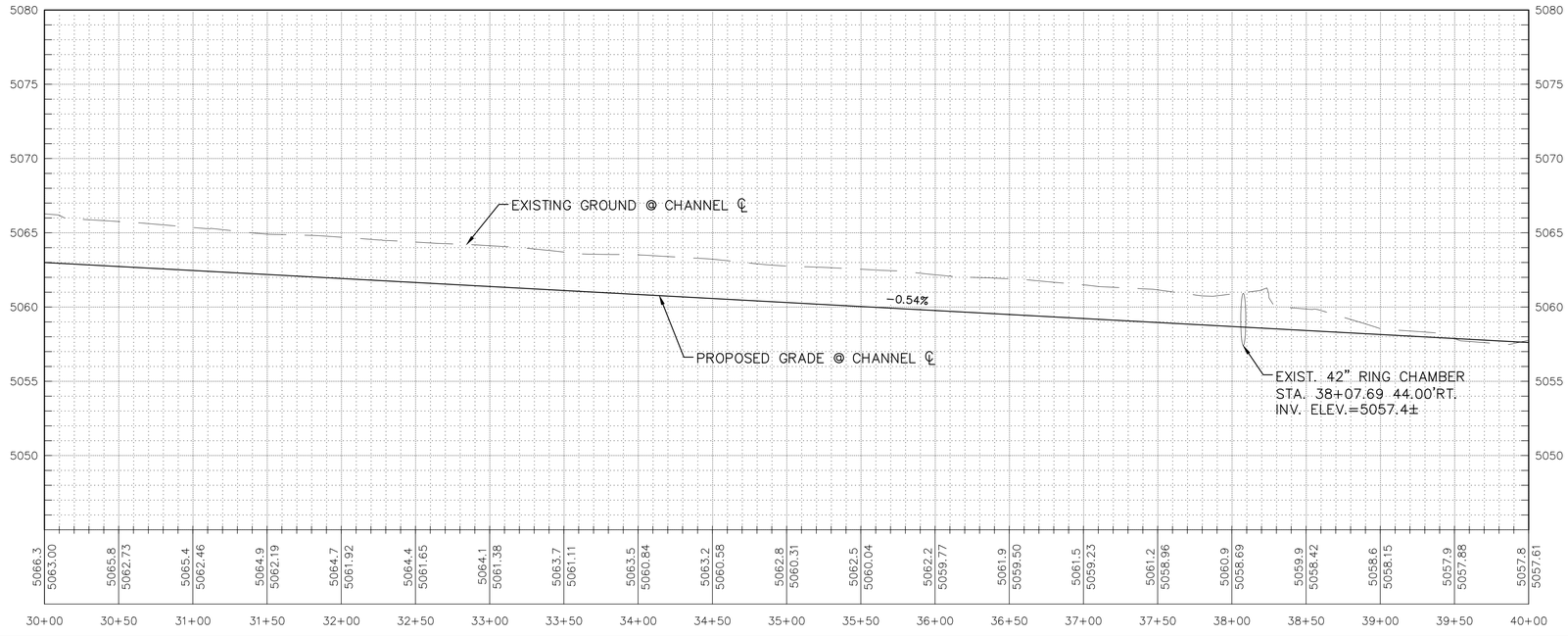
GENERAL NOTES:

A. EXISTING CONDITIONS ARE APPROXIMATE DUE TO STORM WATER FLOW AFTER TOPOGRAPHIC SURVEY COMPLETION.

B. SEE SHEETS 23–27 FOR ADDITIVE ALTERNATIVE #1.

KEYED NOTES:

1. REMOVE EXISTING 42" RING CHAMBER & 36" RCP UP TO PROPERTY LINE (APPROX. 74 LF) AND REINSTALL AS SHOWN ON SHEET 17. CONSTRUCT PIPE PENETRATION PER AMAFCA STD. DWG. 103. SEE SHEET 22.
2. INSTALL 1' THICK GABION MATTRESS PER SUPPLEMENTAL TECHNICAL SPECIFICATION 1516. PIN TO SHOTCRETE SIDE SLOPE. SEE DETAIL 5 SHEET 20. 1
3. INSTALL DUMPED RIPRAP TYPE "L" PER APWA SPEC. 109.
4. STA 31+15.73, 85.6'LT. TO STA 40+00, 85.4'LT. REMOVE 884.3'± WIRE FENCE AND DISPOSE.
5. CONSTRUCT CONCRETE ACCESS RAMP WITH CUTOFF WALLS PER DETAIL 2 SHEET 20.
6. CONSTRUCT MAINTENANCE ACCESS ROAD SEE DETAIL 4 SHEET 20.
7. CONSTRUCT SHOTCRETE CHANNEL SIDES PER DETAIL 5 SHEET 20.
8. GRAVEL MULCH, ¾" CRUSHED GRAVEL, 3" THICK, NO FILTER CLOTH. NO SEEDING BENEATH GRAVEL MULCH.
9. STA.31+50.00, 50.00' LT. TO 49.00' RT. CONSTRUCT 1' WIDE BY 4' DEEP CUT–OFF WALL. TOP OF WALL SHALL MATCH FINISH GRADES SHOWN. PER NMDOT SPEC. 515 – REINFORCED CONCRETE FOR MINOR STRUCTURES, #4 REBAR @ 12" O.C.
10. STA. 30+00, 80.82' LT, 5' NE OF MAINTENANCE ACCESS ROAD EDGE, INSTALL 67.78 LF 5 STRAND WIRE FENCE PER SSCAFCA STD. DWG. M100 SHEET 21.
11. REMOVE EXISTING GATE AND REPLACE WITH MAINTENANCE ACCESS GATE PER SSCAFCA STD. DWG. M101 SHEET 21.



SSCAFCA
Southern Sandoval County Arroyo Flood Control Authority
1041 Commercial Dr. S.E.
Rio Rancho, New Mexico 87124
505-892-RAIN (7246)
505-892-7241 (Fax)
www.sscafca.com

ANDRÉS SANCHEZ NEW MEXICO 22763 PROFESSIONAL ENGINEER 11/22

LOWER ARROYO VENADA BANK STABILIZATION PROJECT

BASE BID
PLAN & PROFILE STA. 30+00 TO 40+00

REVISIONS & CHANGE NOTICES

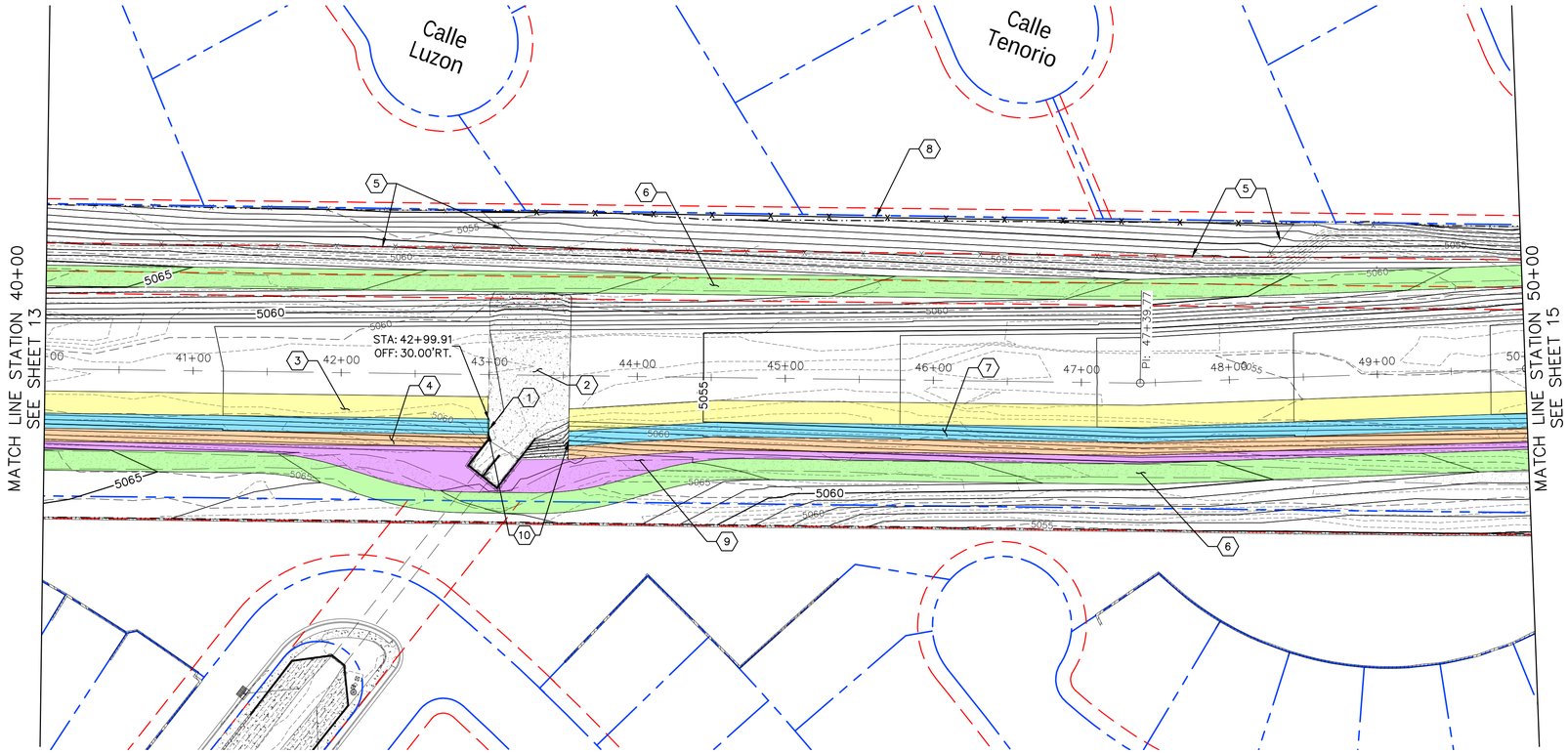
MARK	DESCRIPTION	DATE
1	ADDENDUM 01	12/22/22

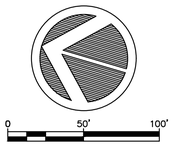
PROJECT NO: VE_P0012-01
DESIGNED BY: JN
DRAWN BY: KLF
CHECKED BY: AES
DATE: 11/9/2022

13

SHEET 13 OF 27

THIS CONTRACT ALLOWS THE OWNER TO MAKE PAYMENT WITHIN 45 DAYS AFTER SUBMISSION OF AN UNDISPUTED REQUEST FOR PAYMENT.





LEGEND:

- CONCRETE RAMP
- SHOTCRETE CHANNEL SIDES
- GABION MATTRESS 1
- DUMPED RIPRAP TYPE "M"
- DUMPED RIPRAP TYPE "L"
- MAINTENANCE ACCESS ROAD
- GRAVEL MULCH
- GABION BASKETS
- PROPERTY LINE
- EASEMENT LINE
- LIMITS OF GRADING

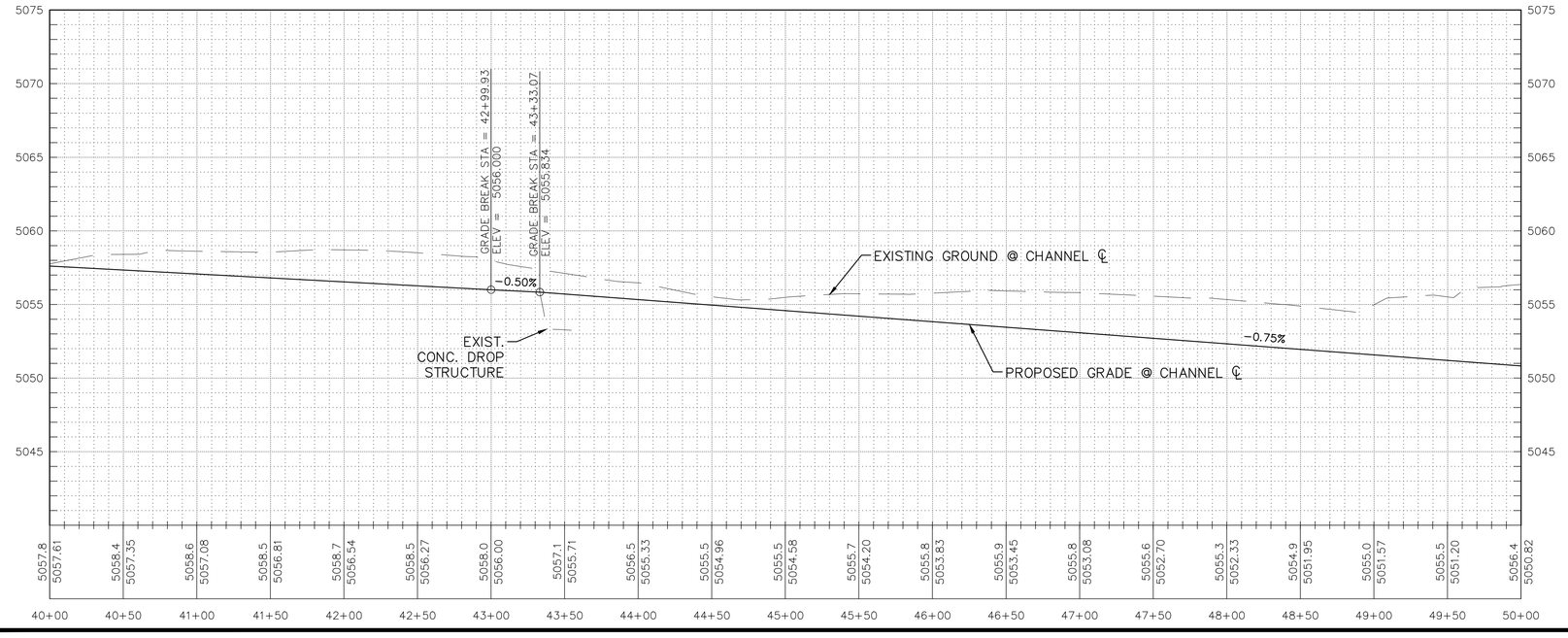
GENERAL NOTES:

A. EXISTING CONDITIONS ARE APPROXIMATE DUE TO STORM WATER FLOW AFTER TOPOGRAPHIC SURVEY COMPLETION.

B. SEE SHEETS 23–27 FOR ADDITIVE ALTERNATIVE #1.

KEYED NOTES:

1. EXTEND VERTICAL CONCRETE HEADWALLS PER NMDOT STD. DWG. 511–80–1,2&3/3, TAPER TOP OF WALL ELEVATION TO MAINTAIN 6" ABOVE FINISHED GRADE. SEE ENLARGEMENT ON SHEET 19.
2. CONCRETE DROP STRUCTURE TO REMAIN,.REMOVE SEDIMENT AND EXPOSE STRUCTURE TOP. SEE ENLARGMENT SHEET 19.
3. INSTALL 1' THICK GABION MATTRESS PER SUPPLEMENTAL TECHNICAL SPECIFICATION 1516. PIN TO SHOTCRETE SIDE SLOPE, SEE DETAIL 5 SHEET 20. (1)
4. INSTALL DUMPED RIPRAP TYPE "L" PER APWA SPEC. 109.
5. REMOVE EXISTING WIRE FENCE STA 40+00, 85.4'LT. TO STA 48+47.4, 103.5' LT. (APPROX 906.7 L.F.).
6. CONSTRUCT MAINTENANCE ACCESS ROAD SEE DETAIL 4 SHEET 20.
7. CONSTRUCT SHOTCRETE CHANNEL SIDES PER DETAIL 5 SHEET 20.
8. CONSTRUCT 5 STRAND BARBLESS WIRE FENCE STA 42+93.3, 110.2' LT. TO STA 48+47.4, 103.5' LT. PER DETAIL SHEET 21.
9. GRAVEL MULCH, ¾" CRUSHED GRAVEL, 3" THICK, NO FILTER CLOTH. NO SEEDING BENEATH GRAVEL MULCH.
10. EXPANSION JOINT WITH NP1 SEALANT OR APPROVED EQUAL. SEE EXPANSION JOINT DETAIL SHEET 20.



Southern Sandoval County Arroyo Flood Control Authority
1041 Commercial Dr. S.E.
Rio Rancho, New Mexico 87124
505-892-RAIN (7246)
505-892-7241 (Fax)
www.sscafca.com

ANDRÉS SANCHEZ NEW MEXICO 23634 PROFESSIONAL ENGINEER 11/22

LOWER ARROYO VENADA BANK STABILIZATION PROJECT

BASE BID
PLAN & PROFILE STA. 40+00 TO 50+00

REVISIONS & CHANGE NOTICES

MARK	DESCRIPTION	DATE
1	ADDENDUM 01	12/22/22

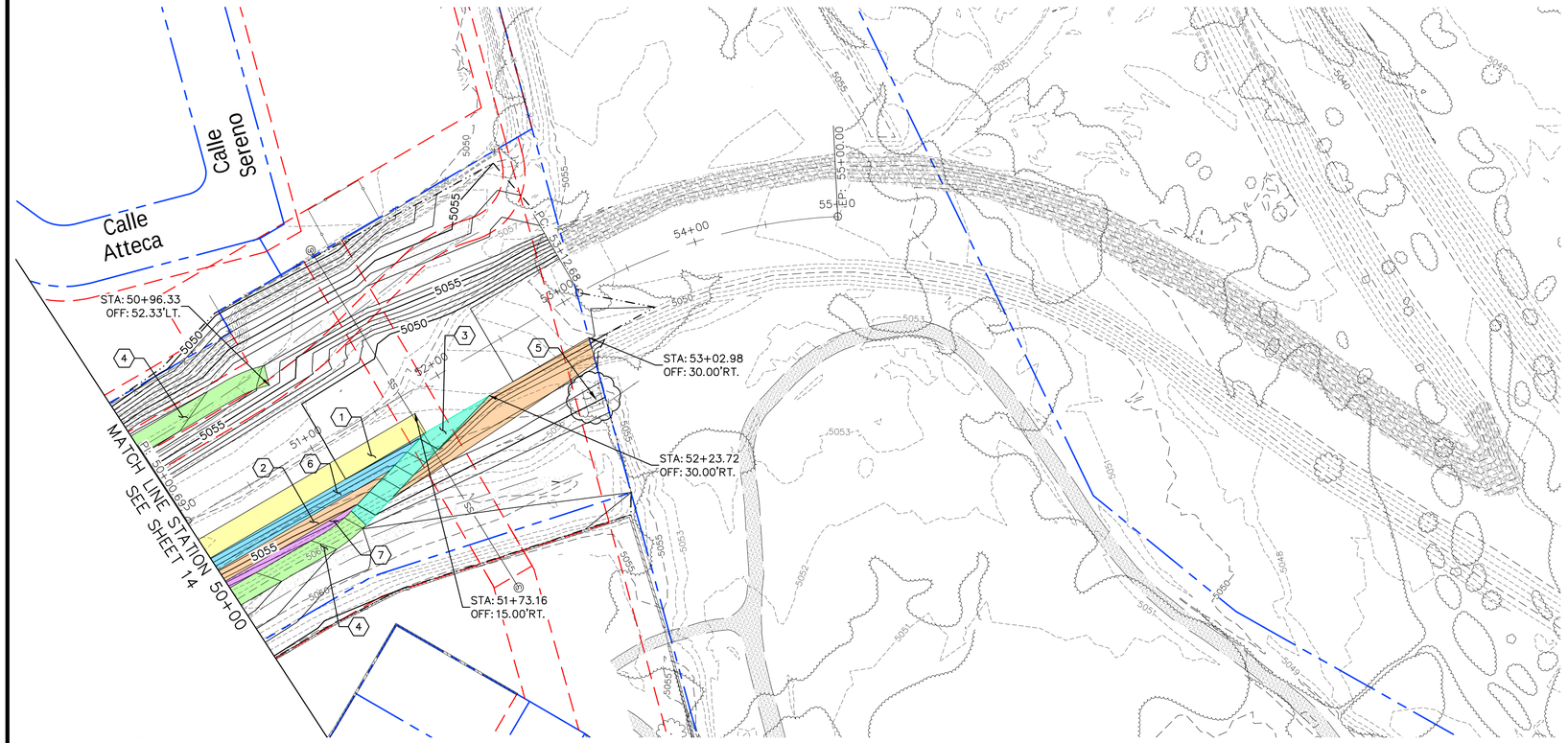
PROJECT NO: VE_P0012-01
DESIGNED BY: JN
DRAWN BY: KLF
CHECKED BY: AES
DATE: 11/14/2022

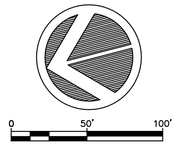
14

SHEET 14 OF 27

THIS CONTRACT ALLOWS THE OWNER TO MAKE PAYMENT WITHIN 45 DAYS AFTER SUBMISSION OF AN UNDISPUTED REQUEST FOR PAYMENT.

Monday, November 14, 2022 12:24:37 PM – Kathy Fournier
O:\SSCAFCA_Project_Files\Venada\VE_P0012-01\AutoCAD\Production Drawings\Plan_Sets\VE_P0012-01_C-PP01.dwg





LEGEND:

- CONCRETE RAMP
- SHOTCRETE CHANNEL SIDES
- GABION MATTRESS 1
- DUMPED RIPRAP TYPE "M"
- DUMPED RIPRAP TYPE "L"
- MAINTENANCE ACCESS ROAD
- GRAVEL MULCH
- GABION BASKETS
- PROPERTY LINE
- EASEMENT LINE
- LIMITS OF GRADING

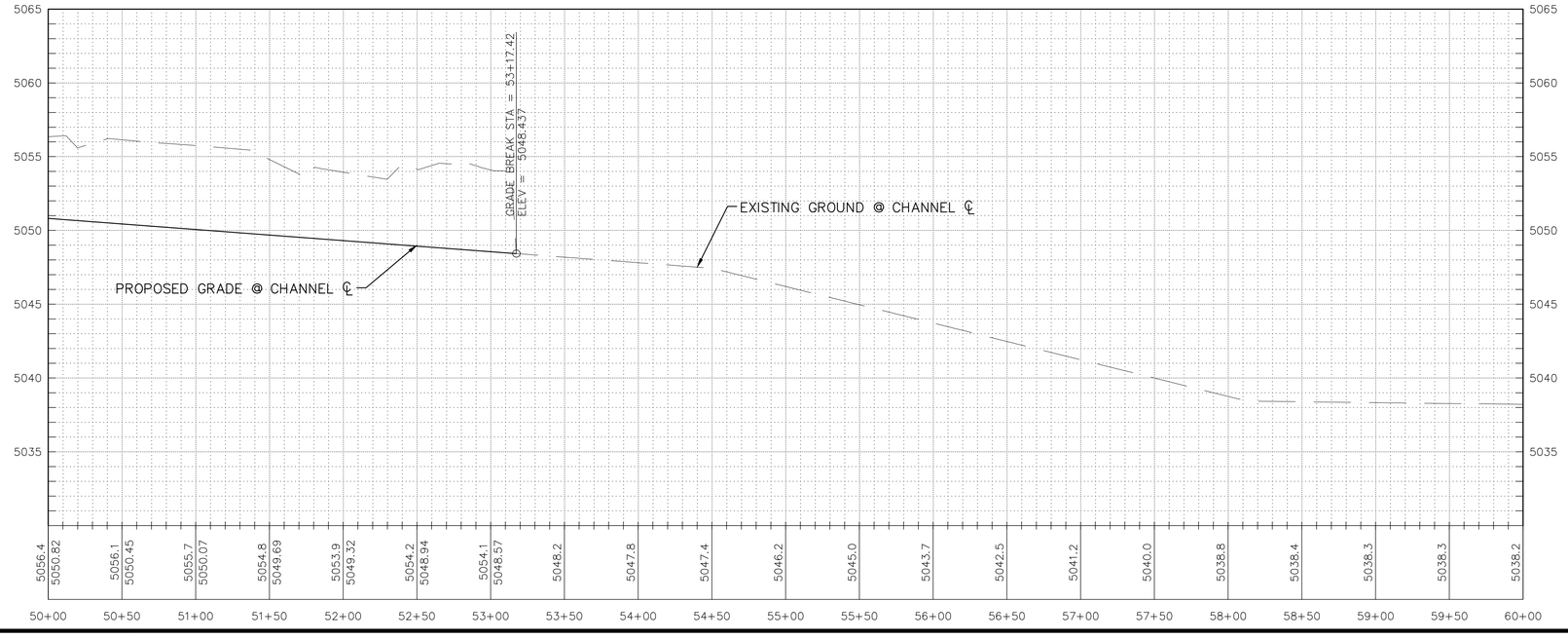
GENERAL NOTES:

A. EXISTING CONDITIONS ARE APPROXIMATE DUE TO STORM WATER FLOW AFTER TOPOGRAPHIC SURVEY COMPLETION.

B. SEE SHEETS 23–27 FOR ADDITIVE ALTERNATIVE #1.

KEYED NOTES: 1

1. INSTALL 1' THICK GABION MATTRESS PER SUPPLEMENTAL TECHNICAL SPECIFICATION 1516. PIN TO SHOTCRETE SIDE SLOPE, SEE DETAIL 5 SHEET 20.
2. INSTALL DUMPED RIPRAP TYPE "L" PER APWA SPEC. 109.
3. CONSTRUCT CONCRETE ACCESS RAMP WITH CUTOFF WALLS PER DETAIL 3 SHEET 20.
4. CONSTRUCT MAINTENANCE ACCESS ROAD SEE DETAIL 4 SHEET 20.
5. REMOVE AND DISPOSE OF EXISTING CONCRETE STRUCTURES.
6. CONSTRUCT SHOTCRETE CHANNEL SIDES PER DETAIL 5 SHEET 20.
7. GRAVEL MULCH, ¾" CRUSHED GRAVEL, 3" THICK, NO FILTER CLOTH. NO SEEDING BENEATH GRAVEL MULCH.



Southern Sandoval County Arroyo Flood Control Authority
1041 Commercial Dr. S.E.
Rio Rancho, New Mexico 87124
505-892-RAIN (7246)
505-892-7241 (Fax)
www.sscafca.com

ANDRÉS SANCHEZ NEW MEXICO 22763 PROFESSIONAL ENGINEER 11/22

LOWER ARROYO VENADA BANK STABILIZATION PROJECT

BASE BID PLAN & PROFILE STA. 50+00 TO 53+17.42

REVISIONS & CHANGE NOTICES

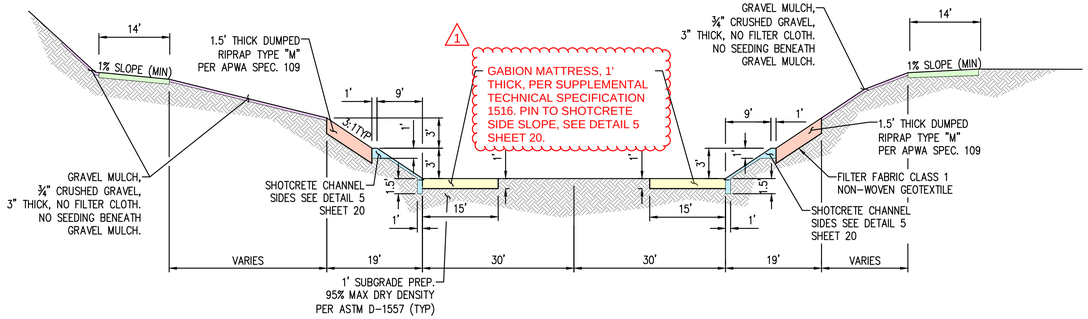
MARK	DESCRIPTION	DATE
1	ADDENDUM 01	12/22/22

PROJECT NO: VE_P0012-01
DESIGNED BY: JN
DRAWN BY: KLF
CHECKED BY: AES
DATE: 11/14/2022

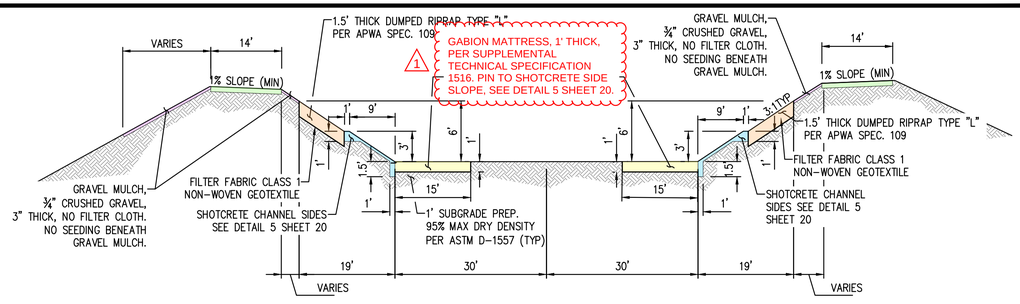
15

SHEET 15 OF 27

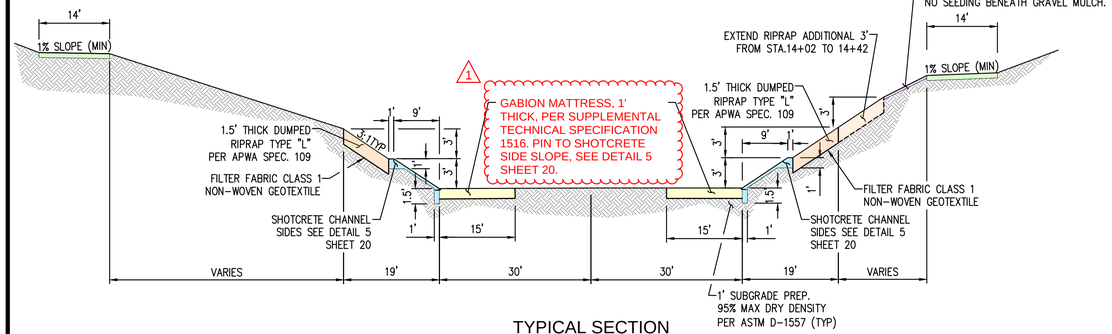
THIS CONTRACT ALLOWS THE OWNER TO MAKE PAYMENT WITHIN 45 DAYS AFTER SUBMISSION OF AN UNDISPUTED REQUEST FOR PAYMENT.



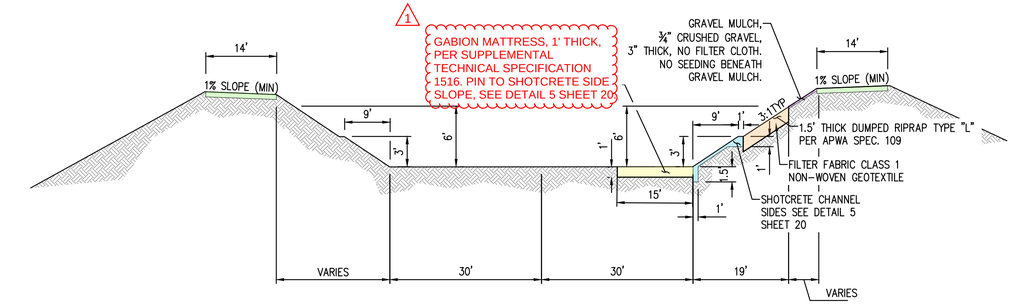
TYPICAL SECTION
STATION 12+25.00 TO 13+50.00



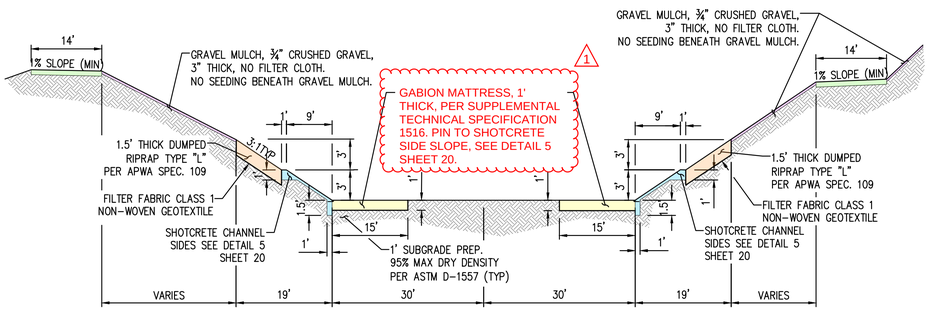
TYPICAL SECTION
STATION 29+37.12 TO 31+50.00
* ACCESS RAMPS AT STA.31+47.88 TO 32+70.56 RT.



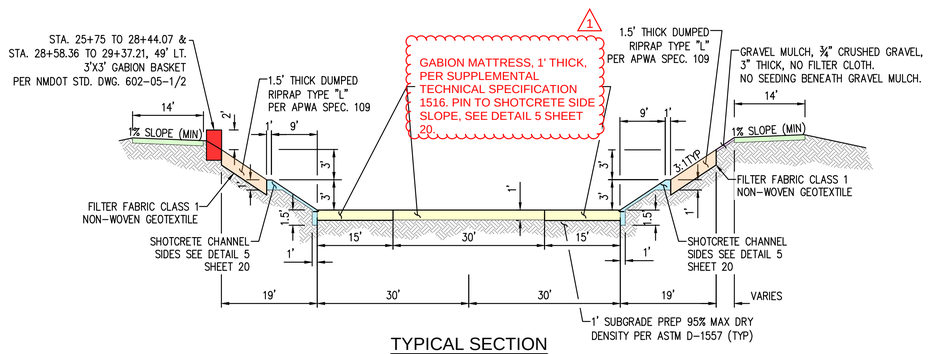
TYPICAL SECTION
STATION 13+50.00 TO 18+00.00



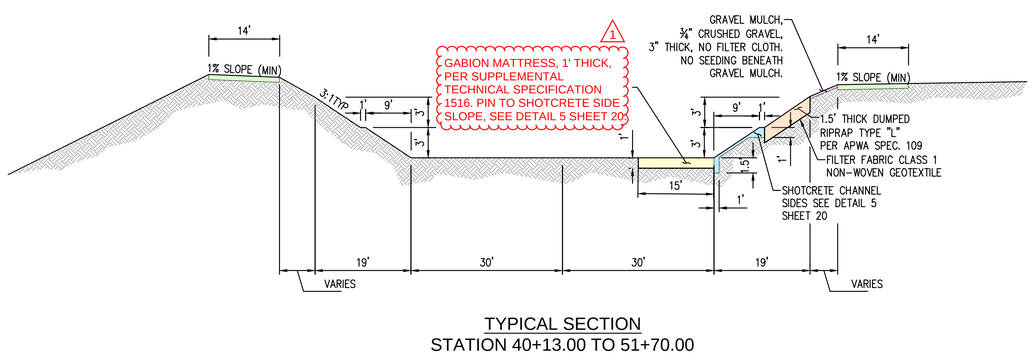
TYPICAL SECTION
STATION 31+50.00 TO 35+33.72
* ACCESS RAMPS AT STA.31+47.88 TO 32+70.56 RT.
& STA.34+60.02 TO 35+94.61 LT.



TYPICAL SECTION
STATION 19+71.00 TO 26+10.00
*42" PIPE PENETRATION STA. 22+43.28 30' RT.



TYPICAL SECTION
STATION 26+10.00 TO 28+48.71



TYPICAL SECTION
STATION 37+10.02 TO 40+13.00

TYPICAL SECTION
STATION 40+13.00 TO 51+70.00
* BOX CULVERT & DROP STRUCTURE
STA. 43+00 TO 43+54.77

Southern Sandoval County Arroyo Flood Control Authority
1041 Commercial Dr. S.E.
Rio Rancho, New Mexico 87124
505-892-RAIN (7246)
505-892-7241 (Fax)
www.sscafca.com

ANDRES SANCHEZ NEW MEXICO 22763 PROFESSIONAL ENGINEER 11/22

LOWER ARROYO VENADA BANK STABILIZATION PROJECT

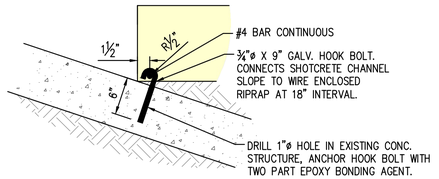
BASE BID
TYPICAL SECTIONS

REVISIONS & CHANGE NOTICES

MARK	DESCRIPTION	DATE
1	ADDENDUM 01	12/22/22

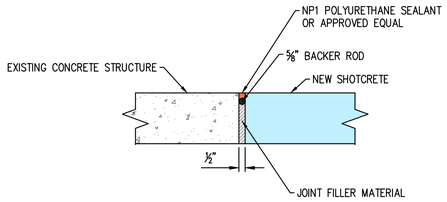
PROJECT NO: VE_P0012-01
DESIGNED BY: JN
DRAWN BY: KLF
CHECKED BY: AES
DATE: 11/14/2022

THIS CONTRACT ALLOWS THE OWNER TO MAKE PAYMENT WITHIN 45 DAYS AFTER SUBMISSION OF AN UNDISPUTED REQUEST FOR PAYMENT.

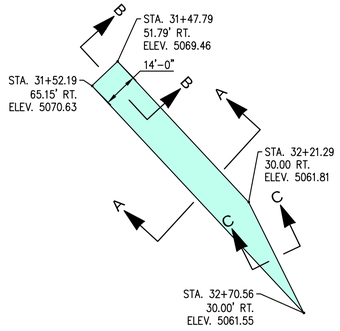


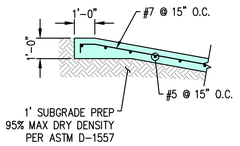
1 PIN DETAIL AT EXISTING CONCRETE STRUCTURES

Scale: NTS

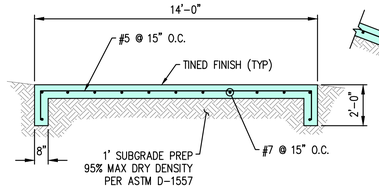


EXPANSION JOINT DETAIL

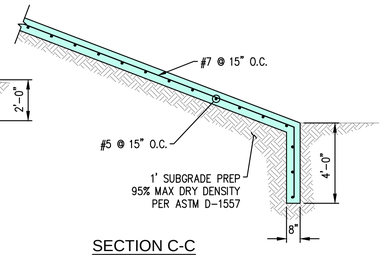




SECTION B-B



SECTION A-A

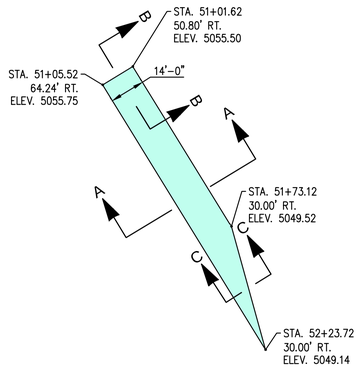


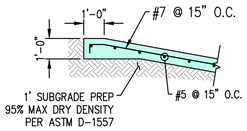
SECTION C-C

2 CONCRETE ACCESS RAMP WITH CUTOFF WALLS DETAIL

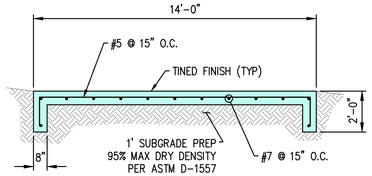
Scale: NTS

ALL ACCESS RAMPS SHALL BE CONSTRUCTED PER NMDOT SPECIFICATION 515 - REINFORCED CONCRETE FOR MINOR STRUCTURES.

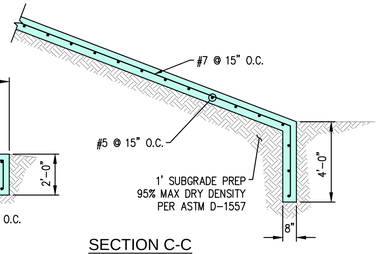




SECTION B-B



SECTION A-A

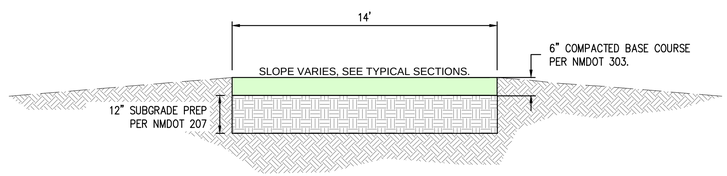


SECTION C-C

3 CONCRETE ACCESS RAMP WITH CUTOFF WALLS DETAIL

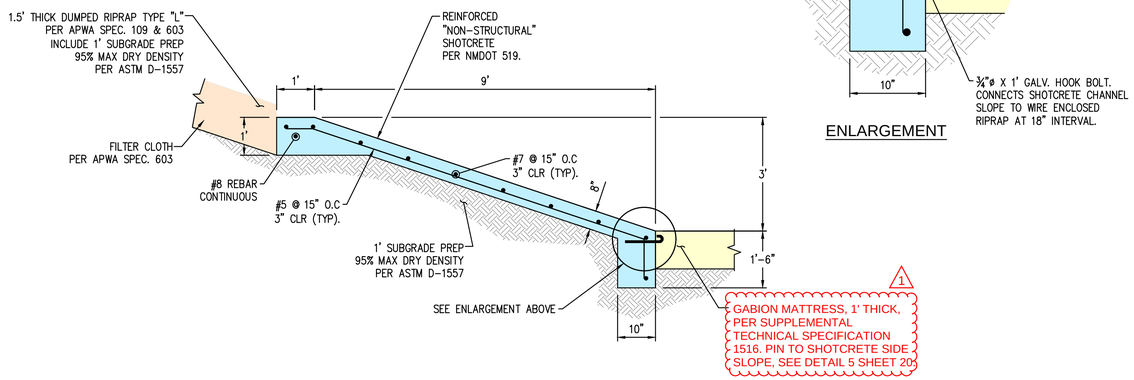
Scale: NTS

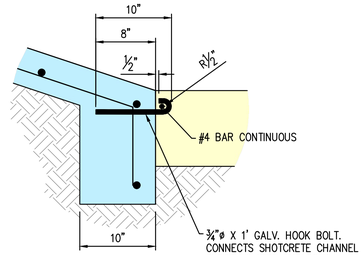
ALL ACCESS RAMPS SHALL BE CONSTRUCTED PER NMDOT SPECIFICATION 515 - REINFORCED CONCRETE FOR MINOR STRUCTURES.



4 MAINTENANCE ACCESS ROAD TYPICAL SECTION

Scale: NTS





ENLARGEMENT

5 SHOTCRETE CHANNEL SLOPE TYPICAL SECTION

Scale: NTS

Southern Sandoval County Arroyo Flood Control Authority
1041 Commercial Dr. S.E.
Rio Rancho, New Mexico 87124
505-892-RAIN (7246)
505-892-7241 (Fax)
www.sscafca.com

ANDRES SANCHEZ NEW MEXICO 22631 PROFESSIONAL ENGINEER 11/22

LOWER ARROYO VENADA BANK STABILIZATION PROJECT

BASE BID
ACCESS & SHOTCRETE CHANNEL SLOPE DETAILS

REVISIONS & CHANGE NOTICES

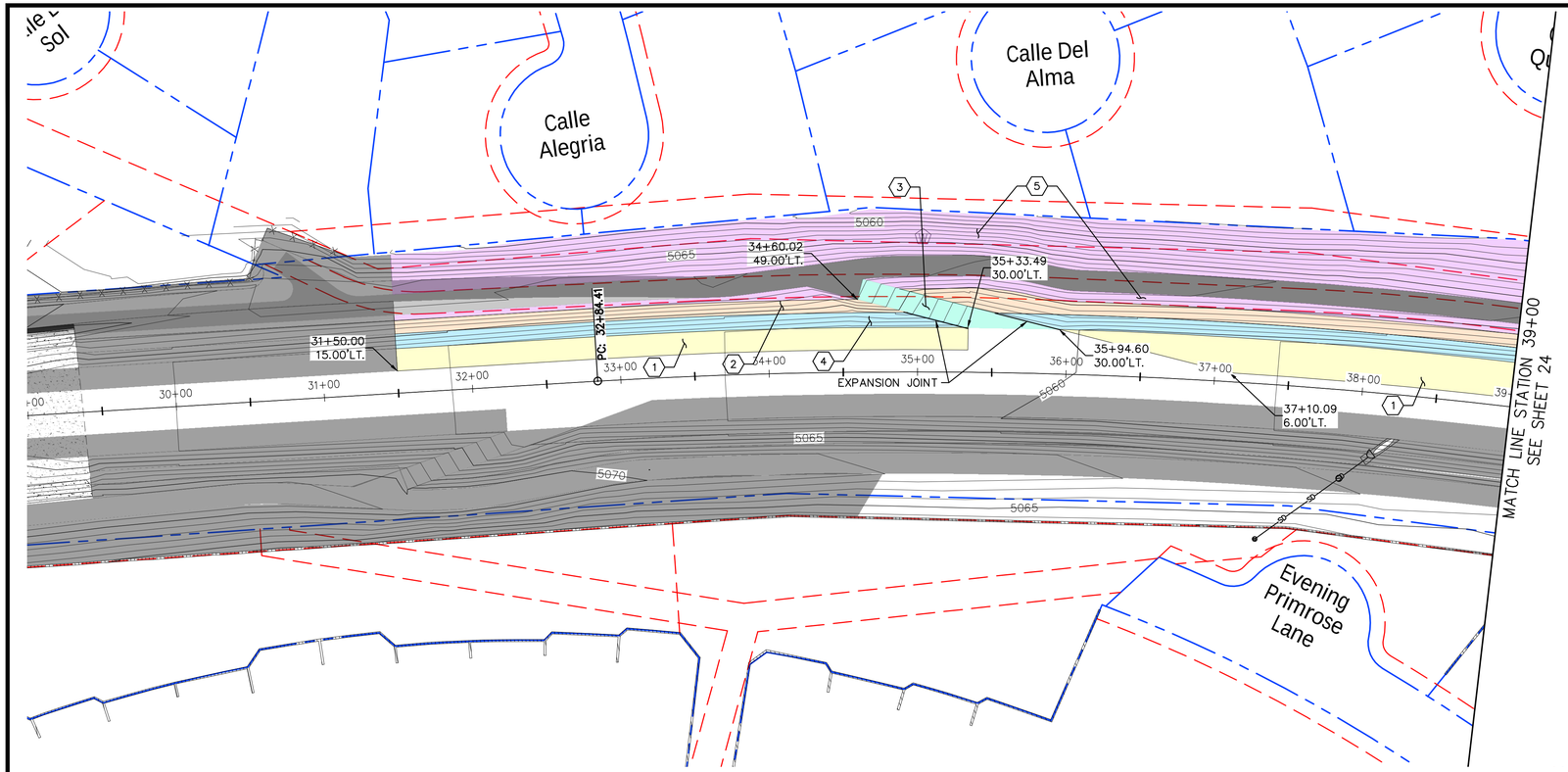
MARK	DESCRIPTION	DATE
1	ADDENDUM 01	12/22/22

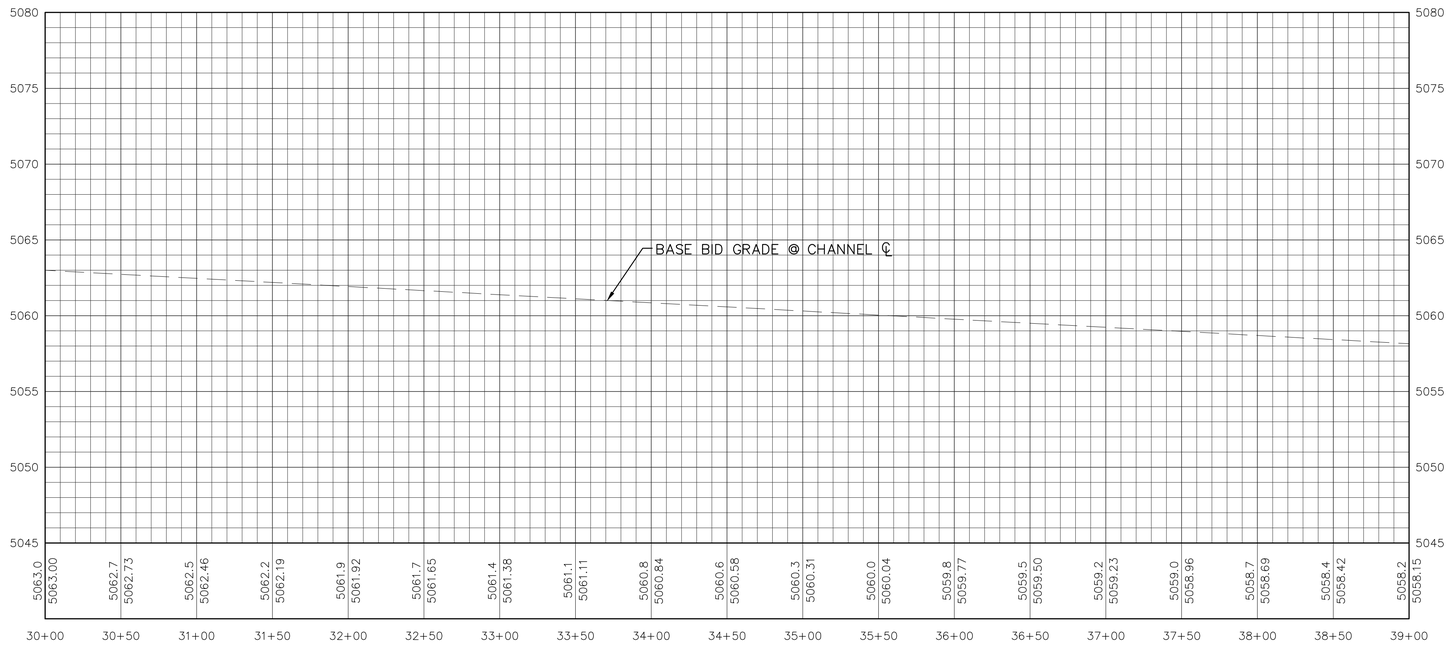
PROJECT NO: VE_P0012-01
DESIGNED BY: JN
DRAWN BY: KLF
CHECKED BY: AES
DATE: 11/14/2022

20

SHEET 20 OF 27

THIS CONTRACT ALLOWS THE OWNER TO MAKE PAYMENT WITHIN 45 DAYS AFTER SUBMISSION OF AN UNDISPUTED REQUEST FOR PAYMENT.





0 50 100 Feet

LEGEND:

- CONCRETE RAMP
- SHOTCRETE CHANNEL SIDES
- GABION MATTRESS 1
- DUMPED RIPRAP TYPE "M"
- DUMPED RIPRAP TYPE "L"
- MAINTENANCE ACCESS ROAD
- GRAVEL MULCH
- GABION BASKETS
- PROPERTY LINE
- EASEMENT LINE
- BASE BID IMPROVEMENTS

GENERAL NOTES:

A. EXISTING CONDITIONS ARE APPROXIMATE DUE TO STORM WATER FLOW AFTER TOPOGRAPHIC SURVEY COMPLETION.

KEYED NOTES:

1. INSTALL 1' THICK GABION MATTRESS PER SUPPLEMENTAL TECHNICAL SPECIFICATION 1516. PIN TO SHOTCRETE SIDE SLOPE, SEE DETAIL 5 SHEET 20.
2. INSTALL DUMPED RIPRAP TYPE "L" PER APWA SPEC. 109.
3. CONSTRUCT CONCRETE ACCESS RAMP WITH CUTOFF WALLS PER DETAIL 6 SHEET 27.
4. CONSTRUCT SHOTCRETE CHANNEL SLOPE PER DETAIL 8 SHEET 27.
5. GRAVEL MULCH, ¾" CRUSHED GRAVEL, 3" THICK, NO FILTER CLOTH. NO SEEDING BENEATH GRAVEL MULCH.

SSCAFCA
Southern Sandoval County Arroyo Flood Control Authority
1041 Commercial Dr. S.E.
Rio Rancho, New Mexico 87124
505-892-RAIN (7246)
505-892-7241 (Fax)
www.sscafca.com

ANDRÉS SANCHEZ NEW MEXICO 22631 PROFESSIONAL ENGINEER 11/22

LOWER ARROYO VENADA BANK STABILIZATION PROJECT

ADDITIVE ALTERNATIVE #1 PLAN & PROFILE STA. 30+00 TO 39+00

REVISIONS & CHANGE NOTICES

MARK	DESCRIPTION	DATE
1	ADDENDUM 01	12/22/22

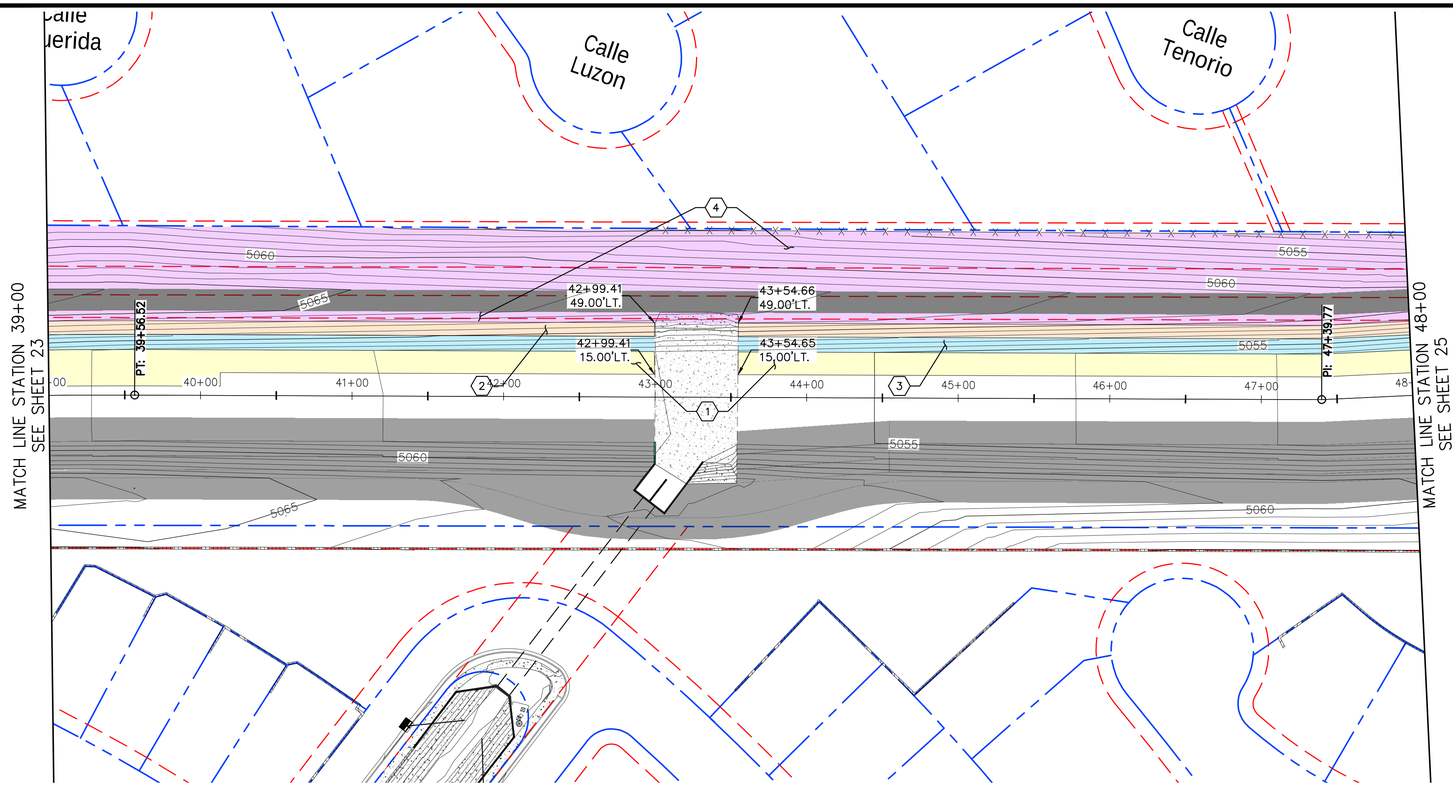
PROJECT NO: VE_P0012-01
DESIGNED BY: JN
DRAWN BY: KLF
CHECKED BY: AES
DATE: 11/14/2022

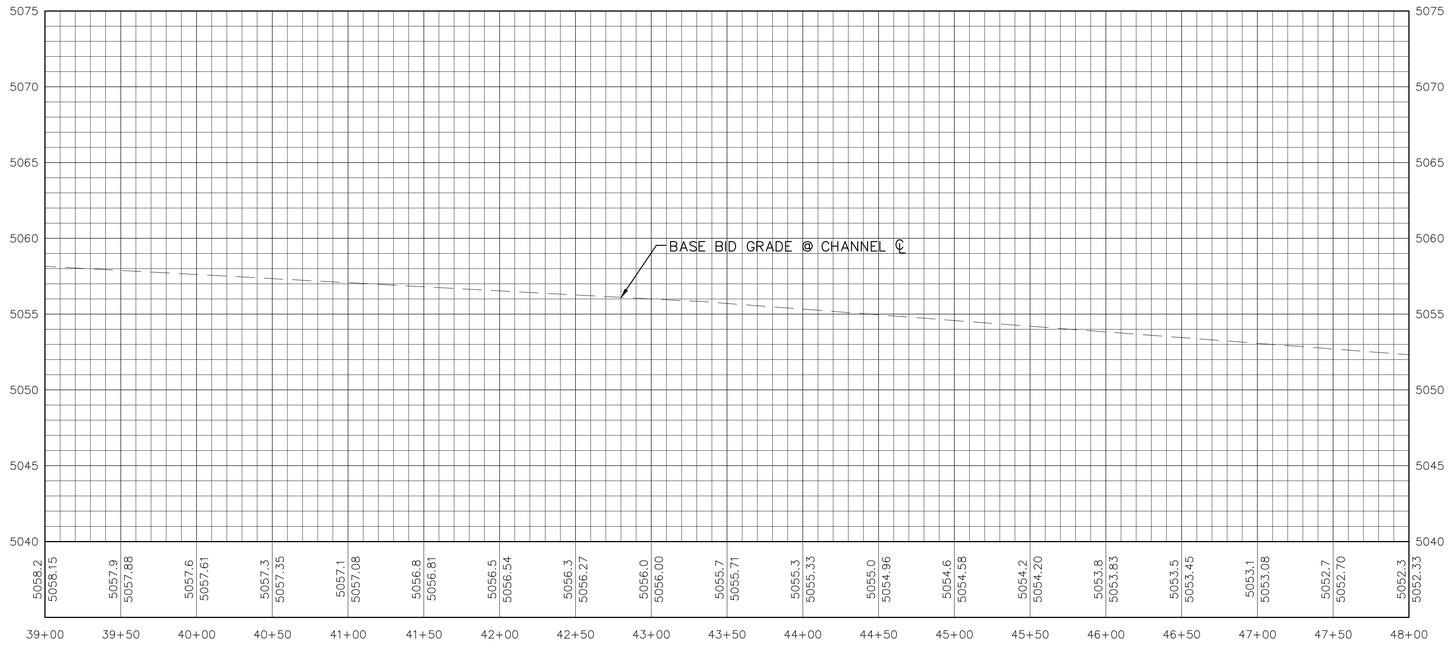
23

SHEET 23 OF 27

THIS CONTRACT ALLOWS THE OWNER TO MAKE PAYMENT WITHIN 45 DAYS AFTER SUBMISSION OF AN UNDISPUTED REQUEST FOR PAYMENT.

Monday, November 14, 2022 11:26:30 AM — Kathy Fournier
O:\SSCAFCA_Project_Files\Venada\VE_P0012-01\AutoCAD\Production Drawings\Plan_Sets\VE_P0012-01_C-PP02.dwg





0 50 100 Feet

LEGEND:

- CONCRETE RAMP
- SHOTCRETE CHANNEL SIDES
- GABION MATTRESS 1
- DUMPED RIPRAP TYPE "M"
- DUMPED RIPRAP TYPE "L"
- MAINTENANCE ACCESS ROAD
- GRAVEL MULCH
- GABION BASKETS
- PROPERTY LINE
- EASEMENT LINE
- BASE BID IMPROVEMENTS

GENERAL NOTES:

A. EXISTING CONDITIONS ARE APPROXIMATE DUE TO STORM WATER FLOW AFTER TOPOGRAPHIC SURVEY COMPLETION.

KEYED NOTES: 1

1. INSTALL 1' THICK GABION MATTRESS PER SUPPLEMENTAL TECHNICAL SPECIFICATION 1516. PIN TO SHOTCRETE SIDE SLOPE, SEE DETAIL 5 SHEET 20.
2. INSTALL DUMPED RIPRAP TYPE "L" PER APWA SPEC. 109.
3. CONSTRUCT SHOTCRETE CHANNEL SIDES PER DETAIL 8 SHEET 27.
4. GRAVEL MULCH, ¾" CRUSHED GRAVEL, 3" THICK, NO FILTER CLOTH. NO SEEDING BENEATH GRAVEL MULCH.

SSCAFCA
Southern Sandoval County Arroyo Flood Control Authority
1041 Commercial Dr. S.E.
Rio Rancho, New Mexico 87124
505-892-RAIN (7246)
505-892-7241 (Fax)
www.sscafca.com

ANDRÉS SANCHEZ NEW MEXICO 22631 PROFESSIONAL ENGINEER 11/22

LOWER ARROYO VENADA BANK STABILIZATION PROJECT

ADDITIVE ALTERNATIVE #1
PLAN & PROFILE STA. 39+00 TO 48+00

REVISIONS & CHANGE NOTICES

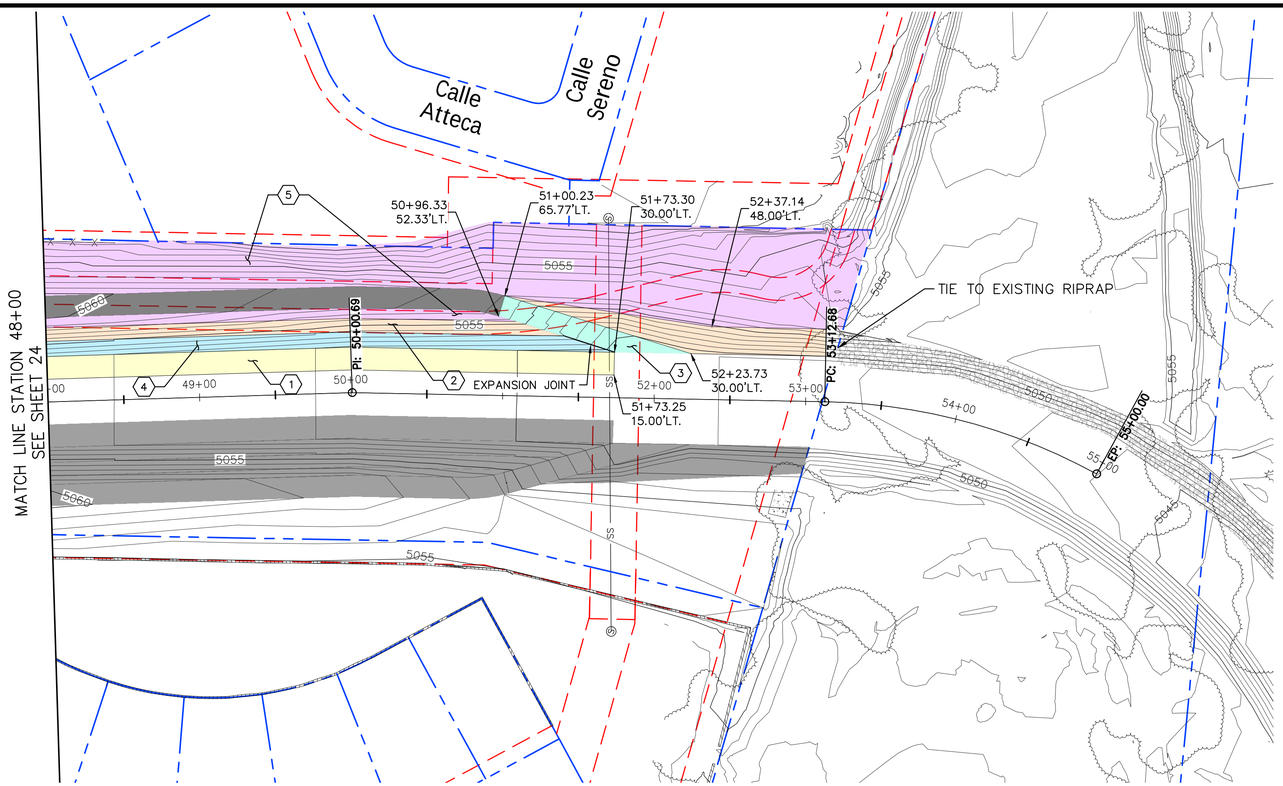
MARK	DESCRIPTION	DATE
1	ADDENDUM 01	12/22/22

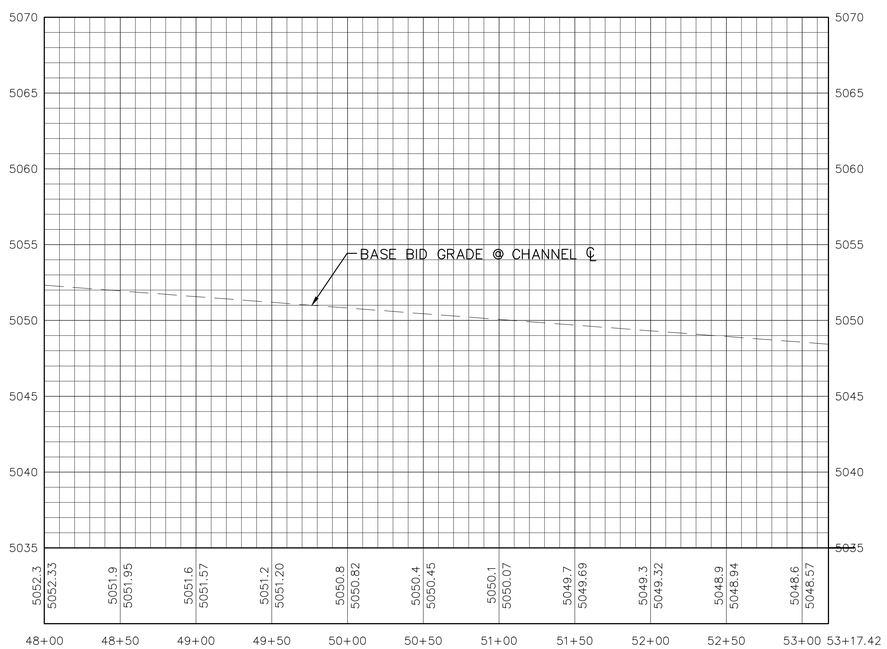
PROJECT NO: VE_P0012-01
DESIGNED BY: JN
DRAWN BY: KLF
CHECKED BY: AES
DATE: 11/14/2022

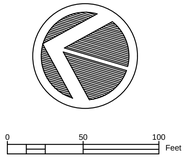
24

SHEET 24 OF 27

THIS CONTRACT ALLOWS THE OWNER TO MAKE PAYMENT WITHIN 45 DAYS AFTER SUBMISSION OF AN UNDISPUTED REQUEST FOR PAYMENT.







LEGEND:

- CONCRETE RAMP
- SHOTCRETE CHANNEL SIDES
- GABION MATTRESS 1
- DUMPED RIPRAP TYPE "M"
- DUMPED RIPRAP TYPE "L"
- MAINTENANCE ACCESS ROAD
- GRAVEL MULCH
- GABION BASKETS
- PROPERTY LINE
- EASEMENT LINE
- BASE BID IMPROVEMENTS

GENERAL NOTES:

A. EXISTING CONDITIONS ARE APPROXIMATE DUE TO STORM WATER FLOW AFTER TOPOGRAPHIC SURVEY COMPLETION.

KEYED NOTES:

1. INSTALL 1' THICK GABION MATTRESS PER SUPPLEMENTAL TECHNICAL SPECIFICATION 1516. PIN TO SHOTCRETE SIDE SLOPE, SEE DETAIL 5 SHEET 20. (1)
2. INSTALL DUMPED RIPRAP TYPE "L" PER APWA SPEC. 109.
3. CONSTRUCT CONCRETE ACCESS RAMP WITH CUTOFF WALLS PER DETAIL 7 SHEET 27.
4. CONSTRUCT SHOTCRETE CHANNEL SIDES PER DETAIL 8 SHEET 27.
5. GRAVEL MULCH, ¾" CRUSHED GRAVEL, 3" THICK, NO FILTER CLOTH. NO SEEDING BENEATH GRAVEL MULCH.

SSCAFCA
Southern Sandoval County Arroyo Flood Control Authority
1041 Commercial Dr. S.E.
Rio Rancho, New Mexico 87124
505-892-RAIN (7246)
505-892-7241 (Fax)
www.sscafca.com

ANDRÉS SANCHEZ NEW MEXICO 22631 PROFESSIONAL ENGINEER 11/22

LOWER ARROYO VENADA BANK STABILIZATION PROJECT

ADDITIVE ALTERNATIVE #1 PLAN & PROFILE STA. 48+00 TO 53+17.42

REVISIONS & CHANGE NOTICES

MARK	DESCRIPTION	DATE
1	ADDENDUM 01	12/22/22

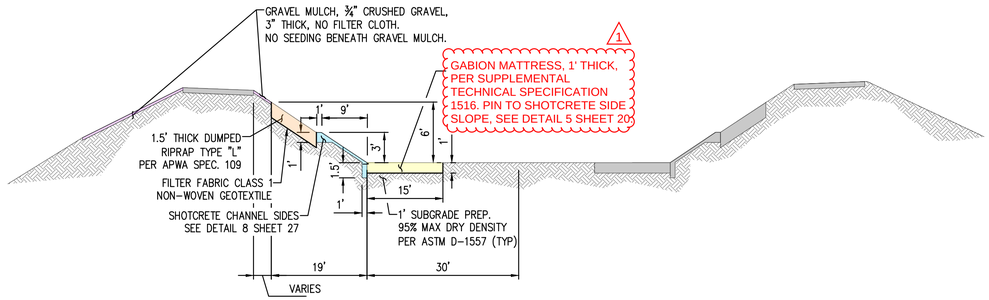
PROJECT NO: VE_P0012-01
DESIGNED BY: JN
DRAWN BY: KLF
CHECKED BY: AES
DATE: 11/14/2022

25

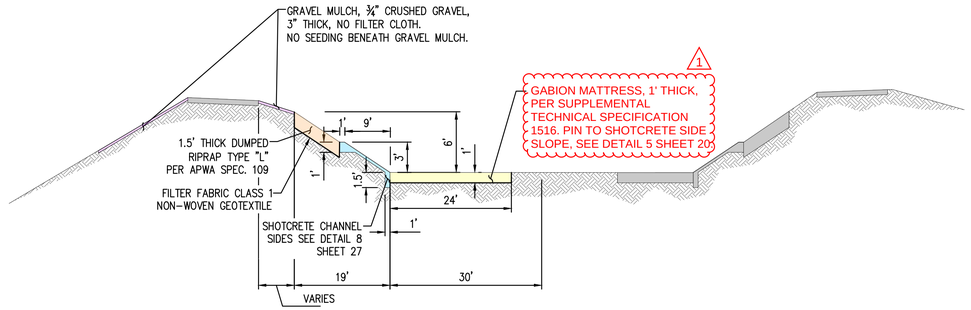
SHEET 25 OF 27

THIS CONTRACT ALLOWS THE OWNER TO MAKE PAYMENT WITHIN 45 DAYS AFTER SUBMISSION OF AN UNDISPUTED REQUEST FOR PAYMENT.

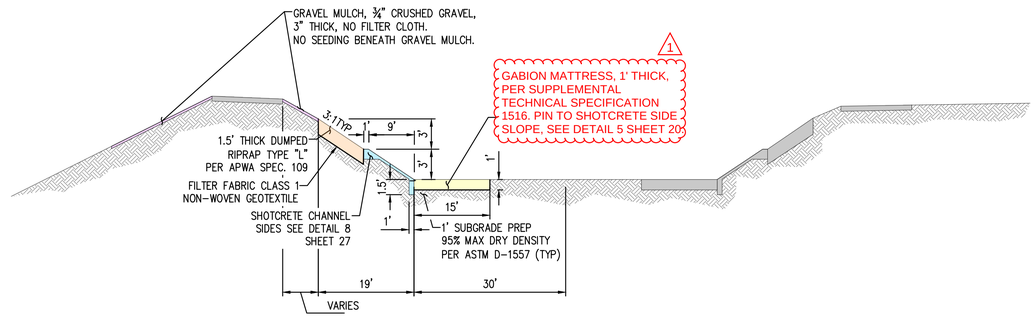
Monday, November 14, 2022 11:28:44 AM – Kathy Fournier
O:\SSCAFCA_Project_Files\Venada\VE_P0012-01\AutoCAD\Production Drawings\Plan_Sets\VE_P0012-01_S-PP02.dwg



TYPICAL SECTION
STATION 31+50.00 TO 35+33.72
* ACCESS RAMPS AT STA.34+60.02 TO 35+94.61 LT.



TYPICAL SECTION
STATION 37+10.02 TO 40+13.00



TYPICAL SECTION
STATION 40+13.00 TO 51+70.00
* BOX CULVERT & DROP STRUCTURE
STA. 43+00 TO 43+54.77

Southern Sandoval County
Arroyo Flood Control Authority
1041 Commercial Dr. S.E.
Rio Rancho, New Mexico 87124
505-892-RAIN (7246)
505-892-7241 (Fax)
www.sscafca.com

ANDRÉS SANCHEZ
NEW MEXICO
22631
PROFESSIONAL ENGINEER
11/22

LOWER ARROYO VENADA
BANK STABILIZATION
PROJECT

ADDITIVE ALTERNATIVE #1

TYPICAL SECTIONS

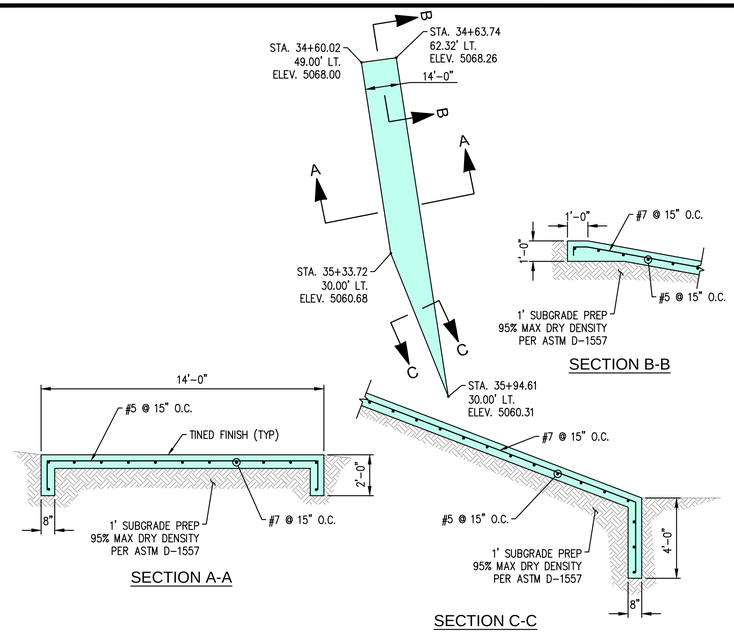
REVISIONS & CHANGE NOTICES

MARK	DESCRIPTION	DATE
1	ADDENDUM 01	12/22/22

PROJECT NO: VE_P0012-01
DESIGNED BY: JN
DRAWN BY: KLF
CHECKED BY: AES
DATE: 11/14/2022

26

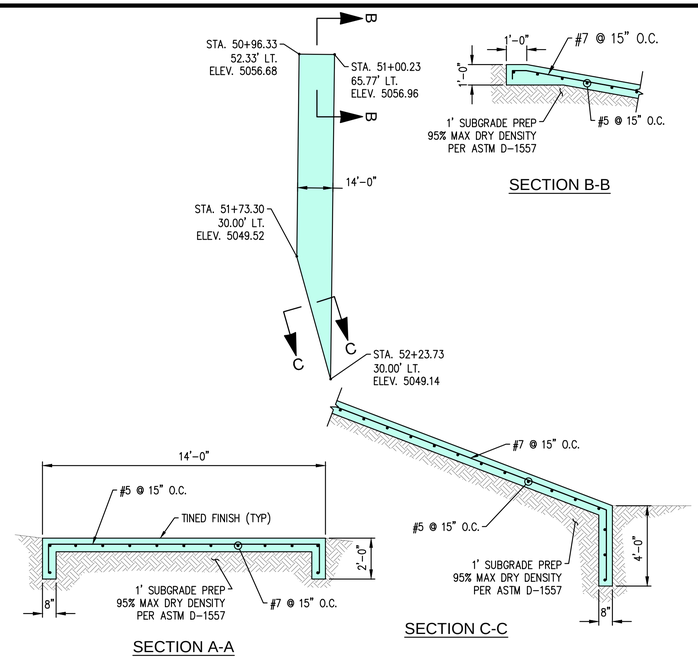
THIS CONTRACT ALLOWS THE OWNER TO MAKE PAYMENT WITHIN 45 DAYS AFTER SUBMISSION OF AN UNDISPUTED REQUEST FOR PAYMENT.



6 CONCRETE ACCESS RAMP WITH CUTOFF WALLS DETAIL

Scale: NTS

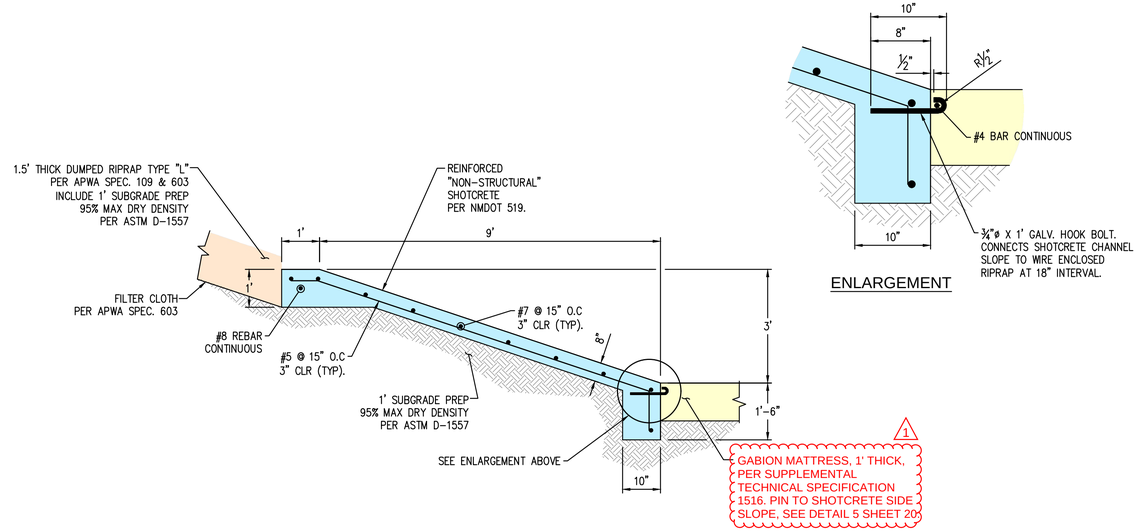
ALL ACCESS RAMPS SHALL BE CONSTRUCTED PER NMDOT SPECIFICATION 515 - REINFORCED CONCRETE FOR MINOR STRUCTURES.



7 CONCRETE ACCESS RAMP WITH CUTOFF WALLS DETAIL

Scale: NTS

ALL ACCESS RAMPS SHALL BE CONSTRUCTED PER NMDOT SPECIFICATION 515 - REINFORCED CONCRETE FOR MINOR STRUCTURES.



8 SHOTCRETE CHANNEL SLOPE TYPICAL SECTION

Scale: NTS

Southern Sandoval County Arroyo Flood Control Authority
1041 Commercial Dr. S.E.
Rio Rancho, New Mexico 87124
505-892-RAIN (7246)
505-892-7241 (Fax)
www.sscafca.com

ANDRÉS SANCHEZ
NEW MEXICO
22631
PROFESSIONAL ENGINEER
11/22

LOWER ARROYO VENADA BANK STABILIZATION PROJECT

ADDITIVE ALTERNATIVE #1 ACCESS RAMP & SHOTCRETE CHANNEL SLOPE DETAILS

REVISIONS & CHANGE NOTICES

MARK	DESCRIPTION	DATE
1	ADDENDUM 01	12/22/22

PROJECT NO: VE_P0012-01
DESIGNED BY: JN
DRAWN BY: KLF
CHECKED BY: AES
DATE: 11/14/2022

27

SHEET 27 OF 27

THIS CONTRACT ALLOWS THE OWNER TO MAKE PAYMENT WITHIN 45 DAYS AFTER SUBMISSION OF AN UNDISPUTED REQUEST FOR PAYMENT.

Unit Price Bid Proposal (Revised with Addendum 1 - 12/22/2022)

BASE BID						
Bid Item Number	Item	Estimated Qty	Units	Cost/Unit	Cost	Spec
1	Project Sign, installed at locations specified by SSCAFCA, Complete	1	EA			Plans
2	Control of Storm Water & Nuisance Flow, CIP	1	LS			SSCAFCA 1512
3	Materials Testing, Complete	1	ALLOW.	$ 30,000.00	$ 30,000.00	STS 1507
4	Construction Survey/Staking, Complete	1	LS			SSCAFCA 1513
5	Clear & Grub, includes haul and disposal, Complete	18	AC			APWA 201, STS 201
6	Excavation: includes excavation, haul and placement/compaction on-site, Complete	44890	CY			SSCAFCA 1510
7	Dumped Riprap (Type L), incl. Subgrade Prep & Filter Cloth, Complete	2850	CY			APWA 109 & 603
8	Dumped Riprap (Type M), incl. Subgrade Prep & Filter Cloth, Complete	220	CY			APWA 109 & 603
9	Gravel Mulch, 3/4" crushed, 3" deep, No Filter Cloth, No seeding underneath; Complete	738	CY			APWA 1012
10	8" Reinforced Concrete Ramps, Tined Finish, incl. Subgrade Prep, Complete	406	SY			NMDOT 515 & 511
11	Removal of Existing Slope Rock Armorning (as needed), salvage on-site per owner, Complete	280	SY			SSCAFCA 1515
12	8" Reinforced Shotcrete Side Slopes, incl. Subgrade Prep, Non-structural, Complete	7311	SY			NMDOT 519, non structural
13	Gabion Mattress, 1' Thick, Complete	3384	CY			STS 1516

14	36" RCP/42" Ring Chamber Remove and Replace, STA 22+40.53, incl. AMAFCA Channel Penetration, Complete	1	LS			AMAFCA 104, SSCAFCA 1515
15	Gabion Baskets, incl. Subgrade Prep, Complete	125	CY			NMDOT 602
16	36" RCP/42" Ring Chamber Remove and Replace, STA 38+07.69, incl. AMAFCA Channel Penetration, Complete	1	LS			AMAFCA 104, SSCAFCA 1515
17	Subgrade Preparation, Maintenance Road, Complete	12436	SY			NMDOT 207
18	Aggregate Base Course, Maint. Rd., 6" at 95% Comp., Complete	12436	SY			NMDOT 303
19	Remove/Dispose of Fencing, STA 19+93 to 25+34 and STA 31+15 to 48+47.40, Complete	1	LS			SSCAFCA 1515
20	Reinforced Concrete Cutoff Wall STA 31+50, Complete	12	CY			NMDOT 515 & 511
21	Reinfrorced Concrete Headwall Extension, STA 42+99.9	2	CY			NMDOT 515 & 511
22	Barbless Wire Fence, Incl. Posts, Complete	1772	LF			SSCAFCA M100
23	Pipe Gate, 16' Wide, Complete	1	EA			SSCAFCA M101
24	Native Grass Seeding, All Disturbed Areas excluding channel bottom, Complete	5.6	AC			APWA 1012, STS 1012
25	NPDES & SWPPP, Complete	1	LS			SSCAFCA 1511
	SUBTOTAL					
26	Mobilization, Complete	1	NTE	Not to Exceed 5% of Subtotal above	$ -	STS 1503

BASE BID SUBTOTAL (Items 1-26), excludes NMGRT		

ADDITIVE ALTERNANTIVE 1						
Bid Item Number	**Item**	**Estimated Qty**	**Units**	**Cost/Unit**	**Cost**	**Spec**
A-1	Excavation: includes excavation, haul and placement/compaction on-site, Complete	2924	CY			SSCAFCA 1510
A-2	Reinforced Concrete Cutoff Wall STA 31+50	-12	CY			NMDOT 511
A-3	8" Reinforced Shotcrete Side Slopes, incl. thickened edge & cutoff wall, incl. Subgrade Prep, Complete	2533	SY			NMDOT 519
A-4	Dumped Riprap (Type L), incl. Subgrade Prep & Filter Fabric, Complete	1114	CY			APWA 109
A-5	8" Reinforced Concrete Ramps, Tined Finish, incl. Subgrade Prep, Complete	431	SY			NMDOT 511
A-6	Gabion Mattress, 1' Thick, Complete	1151	CY			STS 1516
A-7	Gravel Mulch, 3/4" crushed, 3" deep, No Filter Cloth, No seeding underneath; Complete	957	CY			APWA 1012
A-8	Native Grass Seeding, All Disturbed Areas excluding channel bottom, Complete	-3.3	AC			APWA 1012, STS 1012
	SUBTOTAL					
A-9	Mobilization, Complete	1	NTE	Not to Exceed 5% of Subtotal above		STS 1503
	ADDITIVE ALT. 1 SUBTOTAL (Items A-1 - A-9), excludes NMGRT					

SUPPLEMENTAL TECHNICAL SPECIFICATION 1516

GALVANIZED GABION MAT

PART 1 GENERAL

1.1. SUMMARY

The work under this specification includes furnishing, assembling, filling and tying double twist woven wire mesh Gabion mats placed on a prepared surface as specified, and in accordance with the lines, grades, and dimensions shown on plans or otherwise established in the field by project engineer.

1.2. UNIT PRICES

1.2.1 Measurement

Gabion mats meeting the requirements of these specifications and acceptably placed within the limits indicated on the drawings or otherwise established in the field, shall be measured for payment by the cubic yard (cubic meter) of stone filled Gabion mats in place.

1.2.2 Payment

Payment shall be made for costs associated with Gabion mat, including the costs of furnishing, assembling, and placing the wire baskets, the stone fill, and all other materials, labor, equipment, tools, supplies, and incidental costs in connection with completing this item of work.

1.3. REFERENCES

ASTM A90/A90M	Test Method for Weight [Mass] of Coating on Iron and Steel Articles with Zinc or Zinc-Alloy Coatings
ASTM A370	Test Methods and Definitions for Mechanical Testing of Steel Products
A428/A428M	Test Method for Weight [Mass] of Coating on Aluminum-Coated Iron or Steel Articles
ASTM A764	Specification for Metallic Coated Carbon Steel Wire, Coated at Size and Drawn to Size for Mechanical Springs
ASTM A641/A641M	Specification for Zinc–Coated (Galvanized) Carbon Steel Wire
ASTM A902	Terminology Relating to Metallic Coated Steel Products
ASTM A975	Standard Specification for Double–Twisted Hexagonal Mesh Gabions and Revet Mattresses (Metallic-Coated Steel Wire or Metallic-Coated Steel Wire with Poly Vinyl Chloride (PVC) Coating)
ASTM B117	Practice for Operating Salt Spray (Fog) Apparatus
ASTM D412	Test Methods for Vulcanized Rubber and Thermoplastic Elastomers—Tension
ASTM D6711	Standard Practice for Specifying Rock to Fill Gabions, Revet Mattresses, and Gabion mats
AASHTO M288	Standard Specification for Geosynthetic Specification for Highway Applications

1.4. DEFINITIONS

1.4.1 Gabion mat

Gabion mat is a double twisted wire mesh container of variable sizes, uniformly partitioned into internal cells by diaphragms, interconnected with other similar units and filled with stone at the project site to form flexible, permeable, monolithic structures such as channel linings, revetments, scour protections and other erosion control applications.
Definitions of terms specific to this specification and to all materials furnished on the jobsite, except for the rock to fill the baskets and the geotextile, shall refer and be in compliance with ASTM A975.

1.5. FABRICATION

Gabion mats shall be manufactured and shipped with all components mechanically connected at the production facility except the lid which is produced separately from the base. All perimeter edges of the mesh forming the basket and lid shall be selvedged with wire having a larger diameter. The Gabion mat is divided into cells by means of diaphragms. The diaphragms shall be secured in position to the base so that no additional lacing is necessary at the jobsite.

1.6. SUBMITTALS

Preapproved product under these specifications is galvanized Gabion mat manufactured by Maccaferri Inc. info@us.maccaferri.com; Tel: 301-223-6910.
Submit the following list of items for Engineer's review and approval prior to material supply.

i. Manufacturer's product technical specifications, and product installation instructions.
ii. Wire mesh sample with edge and selvedge wires. Minimum sample size shall be 12 in. by 12 in.
iii. Written manufacturer's certificate of compliance. Manufacturer's Certificate of Compliance shall be signed by person authorized to bind the manufacturer's certifications and must have Manufacturer's name and product manufacturing location.

Equivalent products or any value engineering proposal using alternate product is acceptable provided the following items in addition to above listed are submitted to the Engineer at least 14 days prior to bid.

i. Test reports from a third-party test laboratory in USA to verify the product compliance with ASTM A975.
ii. Test reports from a third-party test laboratory in USA to verify the performance and design parameters: admissible velocity and shear stress, Shield’s coefficient and Manning’s roughness coefficient.
iii. Mill certifications of the wire used in manufacturing the products.
iv. Manufacturer's Quality Control Manual.
v. List of at least ten government projects where the product has been successfully installed.
vi. Certified document that demonstrates manufacturer has at least 10 years of continuous experience in manufacturing Gabion mats and has manufactured at least 1.0 million cubic yards of Gabion mats.
vii. Shop drawings and design calculations along with test reports, signed and sealed by the Professional Engineer registered in the state of project location.

1.7. QUALITY ASSURANCE

1.7.1 Wire and Ring Fastener

The owner or owner’s representative reserves the right to test additional samples to verify the submitted test records. For equivalent products, furnish minimum three randomly selected field samples of lacing wire and ring fasteners 60 days prior to start of installation. Samples shall be tested to verify following property requirements in accordance with ASTM A975.

i. Wire thickness
ii. Tensile strength

iii. Ring fastener individual pull apart strength

1.7.2 Installation

The General Contractor shall have personals with at least 3 years of experience installing Gabion mats and have installed a minimum of 500 SY of Gabion mats in each of the last three years. In case the General Contractor does not meet the qualifications based on the above requirements, acquire necessary onsite training from manufacturer prior to construction or the services of a qualified gabion /mattress subcontractor must be utilized. A manufacturer's representative shall provide reasonable installation support.

1.8. DELIVERY, STORAGE, AND HANDLING

Gabion mats shall be delivered with all components mechanically connected at the production facility except the lid which is delivered separately from the base. All Gabion mats are supplied in rolls which are banded together at the factory for ease of shipping and handling. Labels in the rolls show the dimensions of the Gabion mats included, the number of pieces and the color code. Lacing wire shall be shipped in coils, and fasteners in boxes.

PART 2 PRODUCTS

2.1 MATERIALS

2.1.1 Galvanized Gabion mats

Double twisted wire mesh Gabion mats shall be manufactured with a non-raveling mesh made by twisting continuous pairs of wires through three half turns (commonly called double twisted) to form a hexagonal-shaped opening. Gabion mat sizes, wire diameters, mesh opening sizes, and tolerances shall comply with the requirements of ASTM A975. Gabion mats are classified according to the wire coating, which is applied prior to manufacturing the mesh. Galvanized Gabion mats are manufactured from a heavily zinc coated soft or medium temper steel as per ASTM A975. Wire and wire mesh used for manufacturing Gabion mats shall meet the following requirements:

2.1.1.1 Wire Tensile Strength

The wire used for the manufacturing Gabion mats and lacing wire, shall have a minimum tensile strength of 60,000 psi (415 MPa) to maximum tensile strength of 80,000 psi (550 MPa), in accordance with ASTM A641/A641M.

2.1.1.2 Elongation

The test shall be carried out on a sample at least 12 in. (300 mm) long, and the elongation shall not be less than 12%, in accordance with ASTM A370.

2.1.1.3 Metallic (Zinc) Coating

The minimum quantities of zinc shall be according to the ASTM A641/A641M, Class III soft or medium temper coating.

2.1.1.4 Adherence of Zinc Coating

The adherence of the zinc coating to the wire shall be such that, when the wire is wrapped six turns around a mandrel having four times the diameter of the wire, it does not flake or crack when rubbing it with the bare fingers, in accordance with A641/A641M.

2.1.1.5 Standard Wire Diameters

All wire diameters shall comply with ASTM A975 as presented in Table 1.

Table 1 Standard Wire Diameters			
	Lacing Wire	Mesh Wire	Selvedge Wire
Wire Diameter Int Ø in (mm)	0.087 (2.20)	0.120 (3.05)	0.153 (3.9)
Wire Tolerance (±) Ø in (mm)	0.004 (0.10)	0.004 (0.10)	0.004 (0.10)
Min. Zinc Qty. oz/ft² (g/m²)	0.70 (214)	0.85 (259)	0.90 (275)

2.1.1.6 Mesh Characteristics and Strength Requirements

The wire mesh characteristics and minimum strength requirements shall be in accordance with ASTM A975 as presented in Table 2. The tolerances on the wire mesh opening, D (see Fig. 1), shall not exceed ± 10%.

Table 2 Mesh Characteristics and Minimum Strength	
Mesh Type	8x10/ Galvanized
Mesh Opening, D	3.25 in. (83 mm)
Mesh Tensile Strength	3500 lb/ft (51.1 kN/m)
Punch Test Resistance	6000 lb (26.7 kN)
Connection Strength	1400 lb/ft (20.4 kN/m)

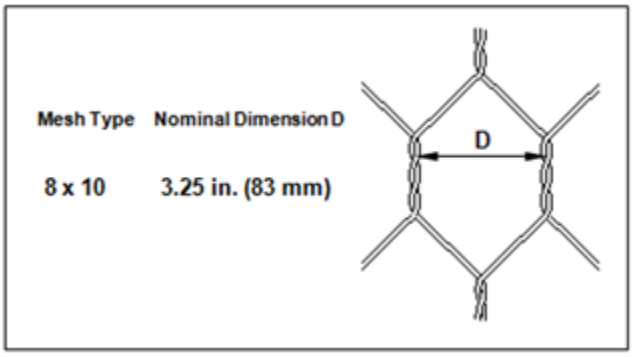


Fig. 1 Mesh type and opening

2.1.1.7 Standard Gabion mat sizes are listed in Table 3. All sizes and dimensions are nominal.

Table 3 Standard Gabion Mat Sizes			
L=Length ft (m)	W=Width ft (m)	H=Height ft (m)	# of cells
60 (19)	6 (1.83)	1 (0.3)	14
60 (19)	9 (2.74)	1 (0.3)	21
60 (19)	6 (1.83)	1.5 (0.45)	14
60 (19)	9 (2.74)	1.5 (0.45)	21
99 (30)	6 (1.83)	1 (0.3)	14
99 (30)	9 (2.74)	1 (0.3)	21
99 (30)	6 (1.83)	1.5 (0.45)	14
99 (30)	9 (2.74)	1.5 (0.45)	21

The tolerances on width, length and height of baskets shall not exceed ± 5%.

2.1.2 Ring Fasteners

Galvanized steel rings for Galvanized Gabion mats shall be in accordance with ASTM A975 section 6.3. The ring fasteners properties shall be as presented in Table 4.

Table 4 Ring fastener property requirements		
Property	Value	Test Method
Wire diameter	0.120 in. (3.05 mm)	ASTM A764, Type B, Class 3
Wire tensile strength	230,000 to 273,000 psi (1586 to 1882 MPa)	ASTM A764, Table 2

2.1.1 Stone Fill

2.1.1.1 Properties

Rocks shall be hard, angular to round, durable and of such quality that they shall not disintegrate on exposure to water or weathering during the life of the structure.

2.1.1.2 Gradation

The rock used to fill Gabion mats shall be large enough to prevent individual pieces from passing through the mesh openings. Gabion mat rocks shall range between 4 in. and 8 in. (100 mm and 200 mm). The range in sizes shall allow for a variation of 5% oversize and/or 5% undersize rock by weight. In all cases, the sizes of any oversize rock shall allow for the placement of three or more layers of rock within each Gabion mat compartment. In all cases, undersize rock shall be placed within the interior of the Gabion mat compartment and shall not be placed on the exposed surface of the structure.

2.1.1.3 Source

Rock may be naturally available or crushed rock produced by any suitable method and using any device that yields the required size limits. Alternatively, clean crushed concrete can be used to fill the Gabion mats.

2.1.2 Geotextile

Separation geotextile used behind or underneath Gabion mats shall meet AASHTO M288 and/or project specification requirements.

PART 3 EXECUTION

3.1 FOUNDATION PREPARATION

The foundation for Gabion mat wall shall be graded level for a width equal as shown in the project plans. Prior to begin the wall construction, the area under the wall footprint should be prepared and compacted. Any soft or loose material that is encountered should be compacted or removed and replaced. Any debris that will obstruct the proper installation shall also be removed, and the voids carefully backfilled and compacted. If frozen ground conditions are encountered, contact project geotechnical engineer for further recommendations.

3.2 GEOTEXTILE PLACEMENT

Geotextile shall be placed uniformly on the surface as indicated on the drawings or as directed by the project engineer. Place the geotextile in close contact with the soil, eliminating folds or excessive wrinkles both longitudinally and transversely. The geotextile shall be installed with adequate overlap. The minimum overlap distance in the transverse or longitudinal direction is 2.0 ft (0.6 m), except in underwater installations where the minimum overlap is 3.0 ft (1.0 m). It is recommended that traffic not run on exposed geotextile.

3.3 ASSEMBLY

Gabion mats are supplied in rolls. The units shall be opened and unrolled one by one on their proper location. The sides, ends, and diaphragms shall be lifted into a vertical position to form an open box shape. The back and the front panels of the Gabion mat shall be connected to the end panels and center diaphragms using either lacing wire or ring fasteners. The end panels and the diaphragms shall be raised to a vertical position and the selvedge wire shall be wrapped around the edge wire of the top and back panels. Fig. 2 shows assembled double twisted wire mesh Gabion mat.

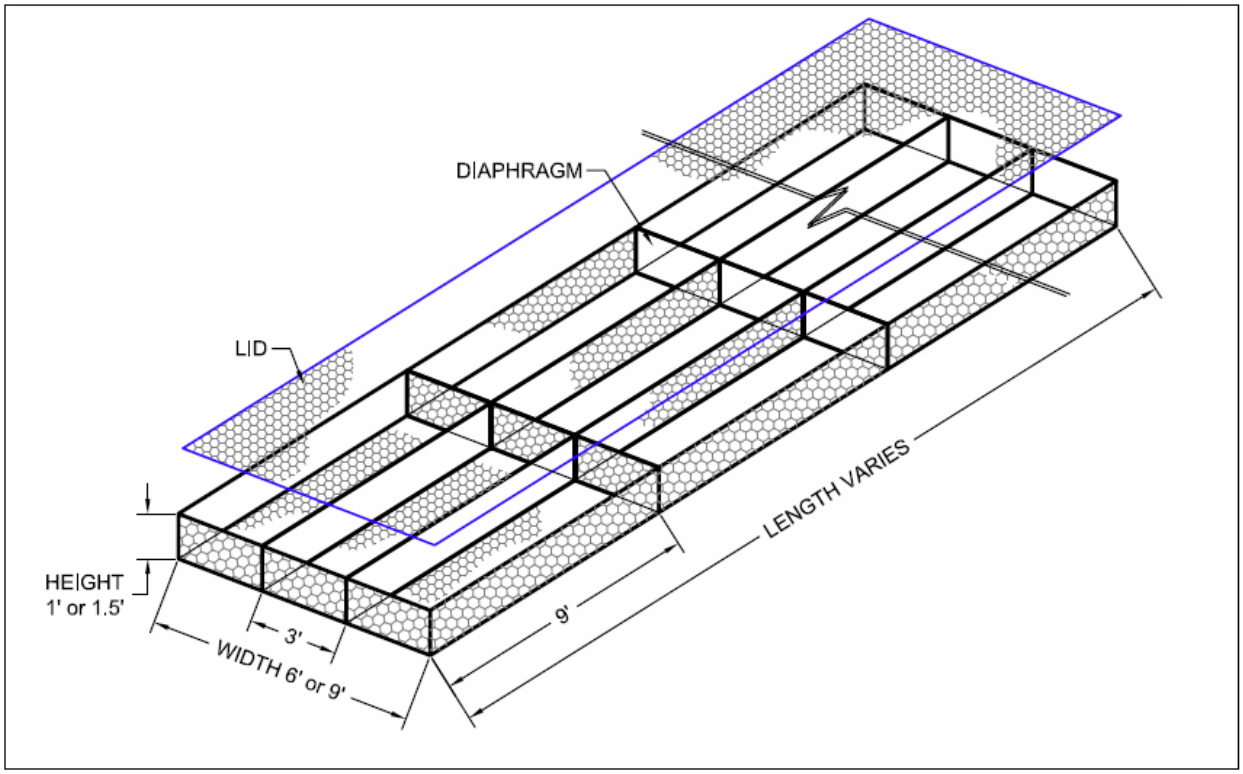


Fig. 2 Assembled double twisted wire mesh Gabion mat

3.4 FASTENING PROCEDURES

3.4.1 Lacing Wire

When using lacing wire, cut a piece of wire approximately 1.5 times the length of the edge to be laced. Longer edges shall be connected by several lengths of lacing wire. The mesh panels shall be pulled tightly together during the tying operation. For vertical joints, starting at the bottom end of the panel, the lacing wire shall be twisted and wrapped two times around the bottom selvedge and then double and single loops shall be alternated through at intervals not exceeding 6 in. (150 mm) as shown in Fig. 3. The operation shall be finished by looping around the top selvedge wire. The use of pliers to assemble the units with lacing wire is recommended to create tighter joints.

3.4.2 Ring Fasteners

When ring fasteners are used to connect Gabion mat panels, spacing of the rings shall be in accordance with ASTM A975, minimum strength requirements of mesh and connections. In any case, the maximum ring spacing along the edges shall not exceed 4 in. (100 mm) as shown in Fig. 3. Ring fasteners shall be installed at the end, diaphragms and along the edges. Each ring fastener shall be closed, and the free ends

of the fastener shall overlap a minimum of 1 in. (25 mm) as shown in Fig 3. The use of either a mechanical or a pneumatic fastening tool is required to install ring fasteners.

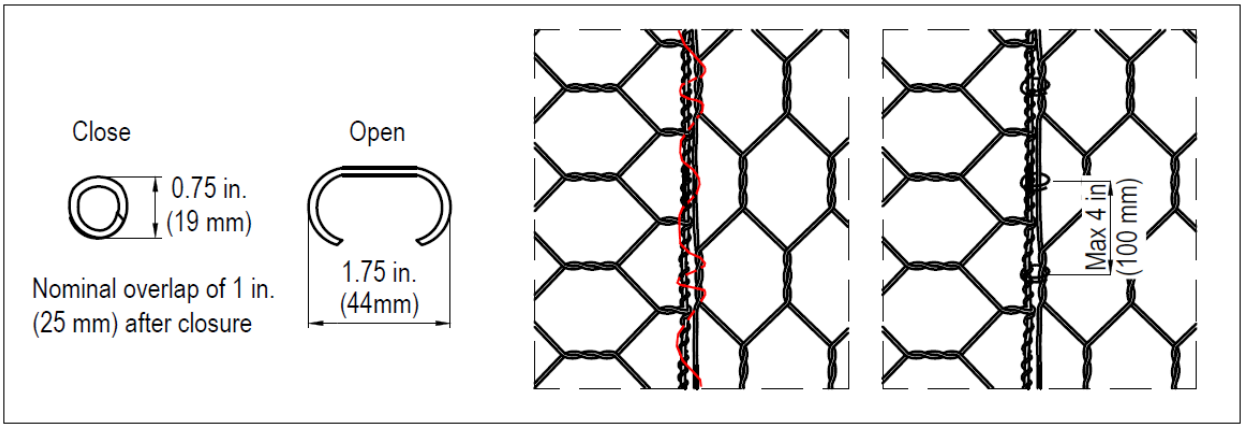


Fig. 3 Fastening procedures

3.5 INSTALLATION AND FILLING

Empty Gabion mat units shall be placed and assembled individually on the approved surface to the lines and grades as shown or as directed by project engineer. Gabion mats shall be connected to each other and aligned before filling the baskets with rock. All connections (panel-to-panel) and basket-to-basket shall be already carried out as described in ASSEMBLY section above. During the filling, some manual stone placement is required to minimize voids. Gabion mats shall be uniformly overfilled by about 1 to 1.5 in. (25 to 40 mm) to compensate for future rock movement.

3.6 CLOSING

After the Gabion mats are filled, lids shall be tightly secured along all edges, ends and diaphragms in the same manner as described for assembling. The panel edges shall be pulled and connected with the lid using the appropriate closing tools such as lid closer, where necessary. Adjacent lids shall be securely attached simultaneously, and all end wires shall then be turned in to avoid protrusions.

3.7 NON-RECTANGULAR SHAPES AND SPECIAL ADAPTATION

Where a complete Gabion mat cannot be installed because of space limitations, the Gabion mat shall be cut, folded or overlapped, and securely connected to suit existing site conditions. All modified Gabion mats shall form a closed cell when completed. Mattresses can be cut to form curves or bevels.

3.8 MAINTENANCE

No routine maintenance is required. Severely damaged Gabion mats shall be completely removed and replaced. If the damage is localized in the fascia, the Gabion mats can be repaired by filling the voids (if any) with rock, and patching it using a new piece of double twisted wire mesh. New piece of wire mesh shall be connected to undamaged mesh with a minimum overlap of 9 to 12 in. (225 to 300 mm) using lacing wire or fasteners.

-- End --