

MOHAVE COUNTY FLOOD CONTROL DISTRICT

Grace Neal Channel – Phase Two Improvements

A PORTION OF SECTIONS 20 and 21, TOWNSHIP 22 NORTH, RANGE 16 WEST
GILA AND SALT RIVER BASE AND MERIDIAN, MOHAVE COUNTY, ARIZONA

PREPARED FOR

MOHAVE COUNTY FLOOD CONTROL DISTRICT
3250 E KINO AVE
PO BOX 7000
KINGMAN, AZ 86402
(928) 757-0925
CONTACT: PAUL BAUGHMAN, P.E.

PREPARED BY

HOLISTIC ENGINEERING AND LAND MANAGEMENT, INC
14040 N CAVE CREEK RD, SUITE 104
PHOENIX, AZ 85022
(602) 769-9034
CONTACT: BRIAN SCHALK, P.E.

BENCHMARK

THE VERTICAL DATUM FOR THIS PROJECT IS BASED ON THE CITY OF KINGMAN ESTABLISHED BENCHMARK, 95-2-85A, A CITY OF KINGMAN 2" BRASS DISK IN CONCRETE LOCATED AT THE SOUTHWEST RETURN OF JAGERSON AVE. AND BANKS ST.
PUBLISHED ELEVATION 3367.01' NAVD88.

CONVERSION FROM NAVD88 TO NGVD29 (COK VERTICAL DATUM):
NAVD88 ELEVATION - 2.68' = NGVD29 ELEVATION (COK)

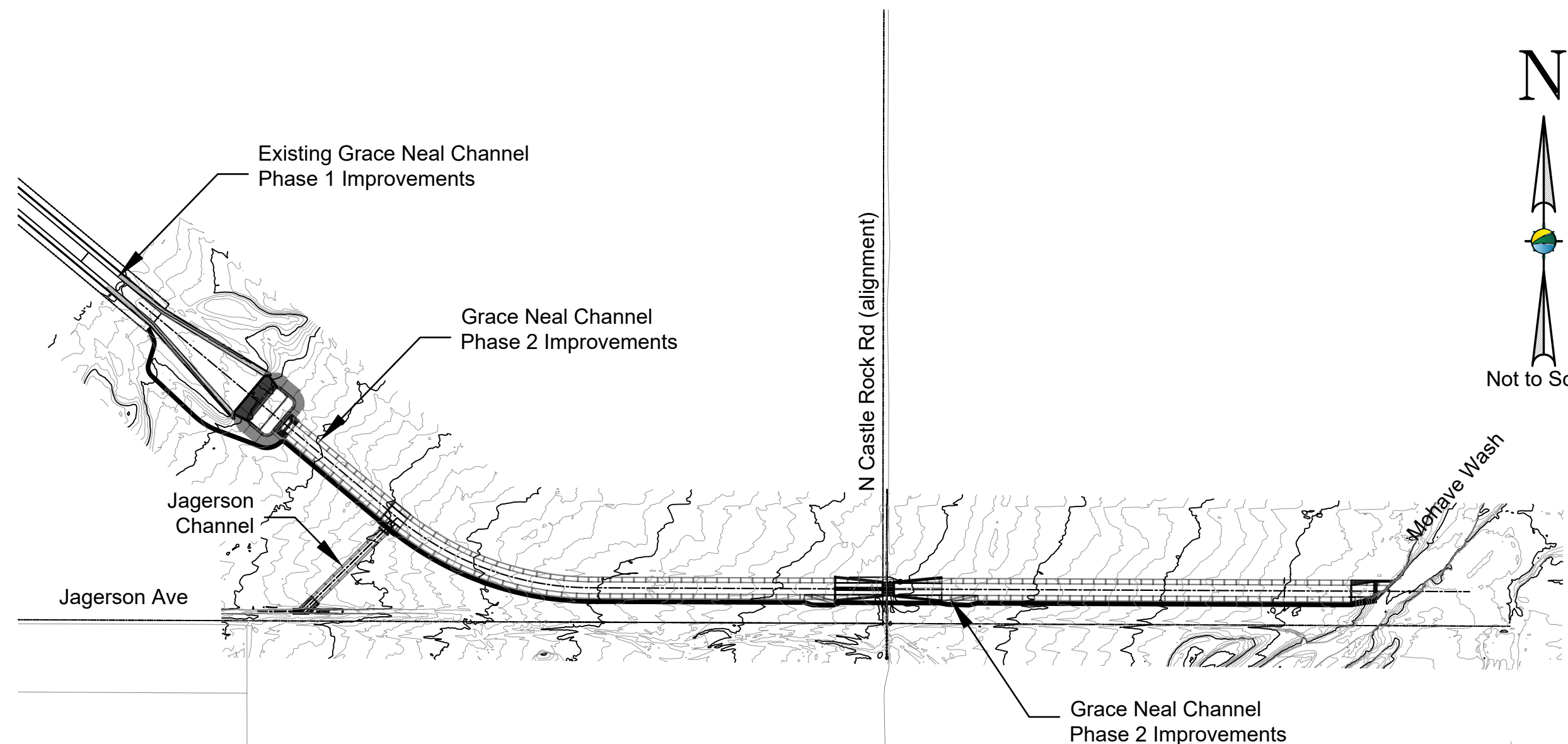
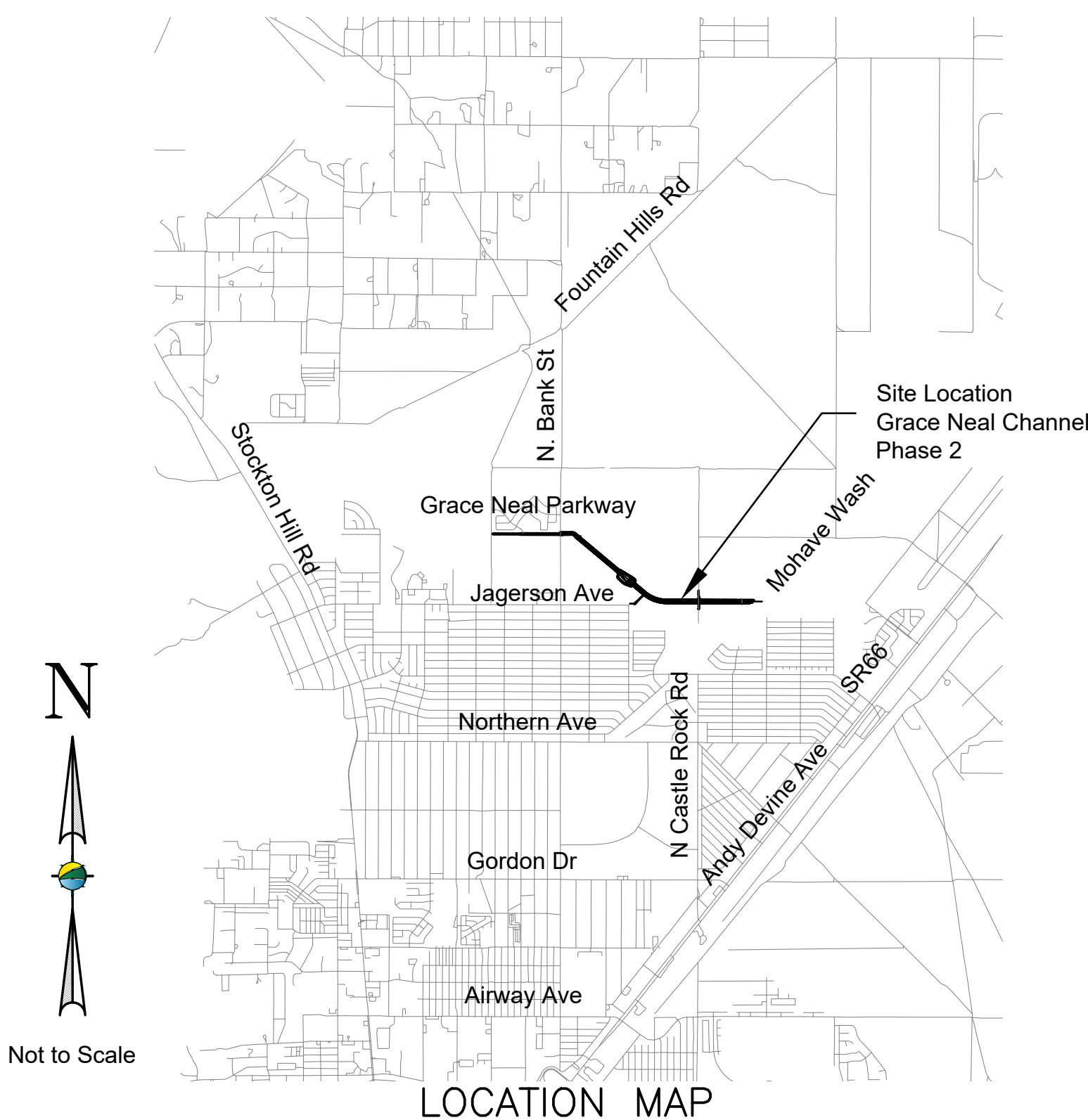
HORIZONTAL DATUM

OPUS STATIC SOLUTION - 99 TR7590850202305, APRIL 28, 2022
PROJECTION: ARIZONA STATE PLANE WEST ZONE,
NAD83 2011 (EPOCH 2010)

UNITS: INTERNATIONAL FEET
GEIOD MODEL: GEIOD18

MODIFIED TO GROUND AT (GRID) NORTHING:1555326.820, EASTING:623216.451,
UTILIZING A COMBINED SCALE FACTOR OF 1.0002166436.

FINAL DESIGN PLANS



SITE MAP

UTILITY CONTACTS:

ELECTRIC:
UNISOURCE ENERGY SERVICES
2498 AIRWAY AVE
KINGMAN, AZ 86409
(928) 681-8924
(800) 891-6810 (EMERGENCY)

WATER & SEWER:
CITY OF KINGMAN
PUBLIC WORKS DEPT
3700 E ANDY DEVINE AVE
KINGMAN, AZ 86401
(928) 716-5545
(928) 753-5561 (EMERGENCY)

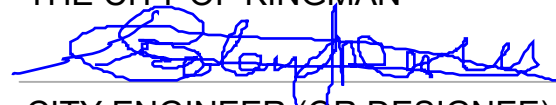
SHEET INDEX

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4	G4	CONTROL LAYOUT
5	TS1	TYPICAL SECTIONS
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19	C14	ENERGY DISSIPATOR PLAN
20-21	C15 - C16	JAGERSON CHANNEL PLAN & PROFILE
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25	D2	DETAIL SHEET - CUT SECTIONS AND DETAILS
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PROJECT QUANTITIES

ITEM NO.	ITEM DESCRIPTION	UNIT	ESTIMATED QUANTITY
1	MOBILIZATION/DEMOBILIZATION	LS	1
2	CLEAR & GRUB	AC	16
3	CHANNEL EXCAVATION/EARTHWORK	CY	102,400
4	CHANNEL LINING (FLEXAMAT)	SY	48,603
5	CHANNEL LINING (GABION MATTRESS)	SY	11,151
6	GABION WALL	CY	2,253
7	GROUT (OR EQUIVALENT FLOWABLE FILL)	CY	60
8	STRUCTURAL CONCRETE (BOX CULVERT)	CY	214
9	36" RCP SD STUB OUT W/PLUG	LS	1
10	NON-STRUCTURAL CONCRETE (GABION CAP)	SY	900
11	AGGREGATE BASE	CY	350
12	FENCE (ADOT STD DETAIL C12.10)	LF	10,500
13	WATER LINE REALIGNMENT W/CONCRETE ENCASEMENT	LS	1
14	SEWER STUB OUT W/PLUG	LS	1

**CITY OF KINGMAN
SEWER MAIN APPROVAL BLOCK**

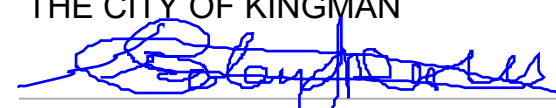
APPROVED FOR
THE CITY OF KINGMAN

CITY ENGINEER (OR DESIGNEE) DATE 3/1/23

AS-BUILT CERTIFICATION

I HEREBY CERTIFY THAT THE "RECORD DRAWING" MEASUREMENTS AS SHOWN HEREON WERE MADE UNDER MY SUPERVISION OR AS NOTED AND ARE CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

REGISTERED ENGINEER DATE
REGISTRATION NUMBER

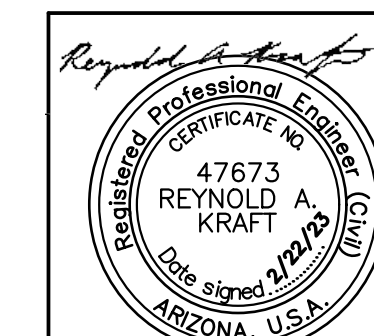
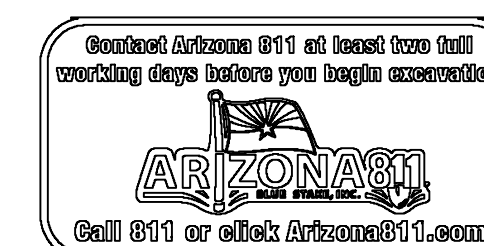
**CITY OF KINGMAN
WATER MAIN APPROVAL BLOCK**

APPROVED FOR
THE CITY OF KINGMAN

CITY ENGINEER (OR DESIGNEE) DATE 3/1/23

AS-BUILT CERTIFICATION

I HEREBY CERTIFY THAT THE "RECORD DRAWING" MEASUREMENTS AS SHOWN HEREON WERE MADE UNDER MY SUPERVISION OR AS NOTED AND ARE CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

REGISTERED ENGINEER DATE
REGISTRATION NUMBER



MCFCD CONTRACT #:		21-PS-07-02	
COK PROJECT #:		ENG22-0112	
HELM PROJECT #:		22007	
DRAWN	CLJ	DATE	2/22/23
DESIGN	RAK	DATE	2/22/23
CHECK	BNS	DATE	2/22/23
SHEET G1		SHEET NO. 1 OF 26	

GENERAL CONSTRUCTION NOTES:

- 1. ALL CONSTRUCTION SHALL BE PERFORMED ACCORDING TO APPLICABLE MOHAVE COUNTY STANDARDS AND BY REFERENCE THE MARICOPA ASSOCIATION OF GOVERNMENTS (MAG) SPECIFICATION AND DETAILS... 2. THE OWNER DOES NOT ACCEPT ANY RESPONSIBILITY FOR THE ACCURACY OF THE LOCATION OF EXISTING UTILITIES SHOWN ON PLANS...

CITY OF KINGMAN - NOTES FOR SEWER PLANS

- 1. ENGINEERING DEPARTMENT'S CIVIL/SITE INSPECTION STAFF SHALL BE NOTIFIED 48 HOURS BEFORE ANY CONSTRUCTION BEGINS TELEPHONE (928) 753-8195. 2. ANY SEWER MAIN 15" IN SIZE OR 12" IN DEPTH, OR GREATER, REQUIRES 5' MANHOLES.

CITY OF KINGMAN - NOTES FOR WATER PLANS

- 1. ENGINEERING DEPARTMENT'S CIVIL/SITE INSPECTION STAFF SHALL BE NOTIFIED 48 HOURS BEFORE ANY CONSTRUCTION BEGINS TELEPHONE (928) 753-8195. 2. ALL WATER VALVE BOXES SHALL BE PER CITY OF KINGMAN DETAIL 391-1 & 391-2.

ABBREVIATIONS

Table listing abbreviations and their corresponding full names, such as ABC AGGREGATE BASE COURSE, AC ASPHALT CONCRETE, ACP ASBESTOS CEMENT PIPE, etc.

SYMBOLS

Table listing symbols and their corresponding descriptions, such as a circle with a dot for CONTROL POINT, a square with a dot for BENCHMARK, etc.

GENERAL GRADING NOTES

- 1. EXCAVATED MATERIAL SHALL BE BORROW MATERIAL SHOULD BE FREE OF DEBRIS, ORGANIC MATERIALS, AND THREE INCH (3-INCH) SIZE PARTICLES OR LARGER. WE RECOMMEND FILL MATERIAL CONFORM TO THE FOLLOWING GENERAL SPECIFICATION OR APPROVED EQUAL:

Table showing sieve size vs. percent passing: 6-INCH 100, 4-INCH 85-100, 3/4-INCH 70-100, NO. 4 SIEVE 40-100, NO. 200 SIEVE 40 (MAX)

- 2. THE PLASTICITY INDEX SHOULD BE BETWEEN 2 AND 15 UNLESS OTHERWISE SPECIFIED IN THE PROJECT SOILS REPORT. 3. ALL SUBGRADE MATERIALS SHALL BE SCARIFIED TO A DEPTH OF EIGHT INCHES (8"), THE MOISTURE CONTENT ADJUSTED TO NEAR OPTIMUM...

ENGINEER'S NOTES

- 1. NOTHING CONTAINED IN THE CONTRACT DOCUMENTS SHALL CREATE NOR SHALL BE CONSTRUED TO CREATE ANY CONTRACTUAL RELATIONSHIP BETWEEN THE ENGINEER AND THE CONTRACTOR OR ANY SUBCONTRACTOR. 2. THE ENGINEER AND/OR OWNER ARE NOT RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES FOR SAFETY PRECAUTIONS OR PROGRAMS UTILIZED IN CONNECTION WITH THE WORK.

EROSION & WATER QUALITY CONTROL NOTES:

- 1. INSTALL ALL TEMPORARY EROSION CONTROL MEASURES IN ACCORDANCE WITH MAG STANDARDS PRIOR TO SITE DISTURBANCE. 2. INSTALL BASIN OUTLET PROTECTION TO PREVENT CLOGGING OF THE STORM SEWER AND SEDIMENT LOADS TO DOWNSTREAM STORM WATER FACILITIES OF WATER BODIES.

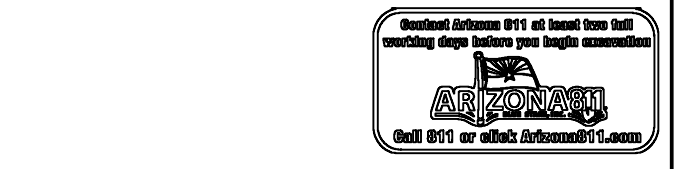
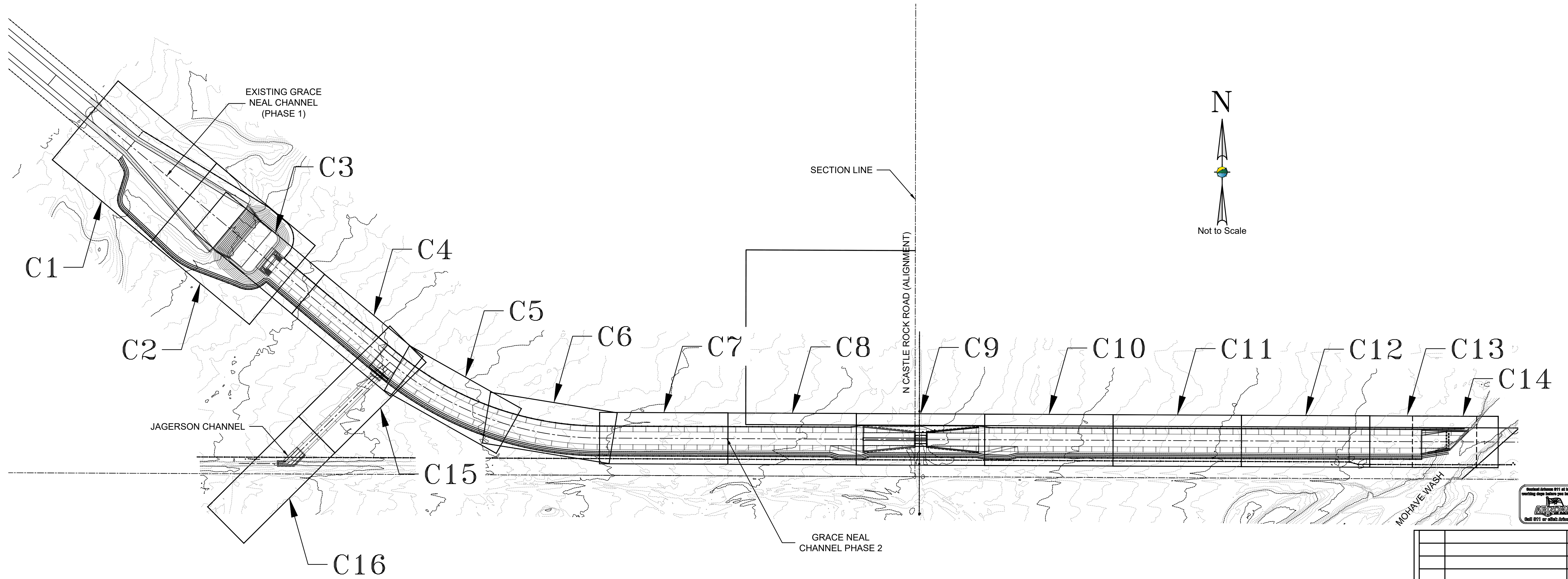


Table for design plans with columns for NO., REVISION DESCRIPTION, and DATE. Includes a 'FINAL DESIGN PLANS' stamp.

HELM logo and contact information: 14040 N Cave Creek Rd #104, Phoenix, AZ 85022, (602) 769-9034

Grace Neal Channel Phase 2
Mohave County Flood Control District
3250 E Kino Ave
Kingman, AZ 86402

Table with title 'GENERAL CONSTRUCTION NOTES AND LEGEND' and fields for CAD, DSN, CHK, DATE, SCALE, PROJECT NO., SHEET, SHEET NO.



NO.	REVISION DESCRIPTION	DATE

FINAL DESIGN PLANS

14040 N Cave Creek Rd #104
Phoenix, AZ 85022
(602) 769-9034

Grace Neal Channel Phase 2
Mohave County Flood Control District
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Kingman, AZ 86402

KEY MAP

CAD: CLJ	DSN: RAK	CHK: BNS
DATE 2/22/23	DATE 2/22/23	DATE 2/22/23
SCALE	PROJECT NO.	SHEET
N/A	22007	G3
		SHEET NO.
		3 OF 26

HORIZONTAL DATUM:

OPUS STATIC SOLUTION - 99 TR7590850202305, APRIL 28, 2022
 PROJECTION: ARIZONA STATE PLANE WEST ZONE, NAD83 2011 (EPOCH 2010)
 UNITS: INTERNATIONAL FEET
 GEOID MODEL: GEOID18

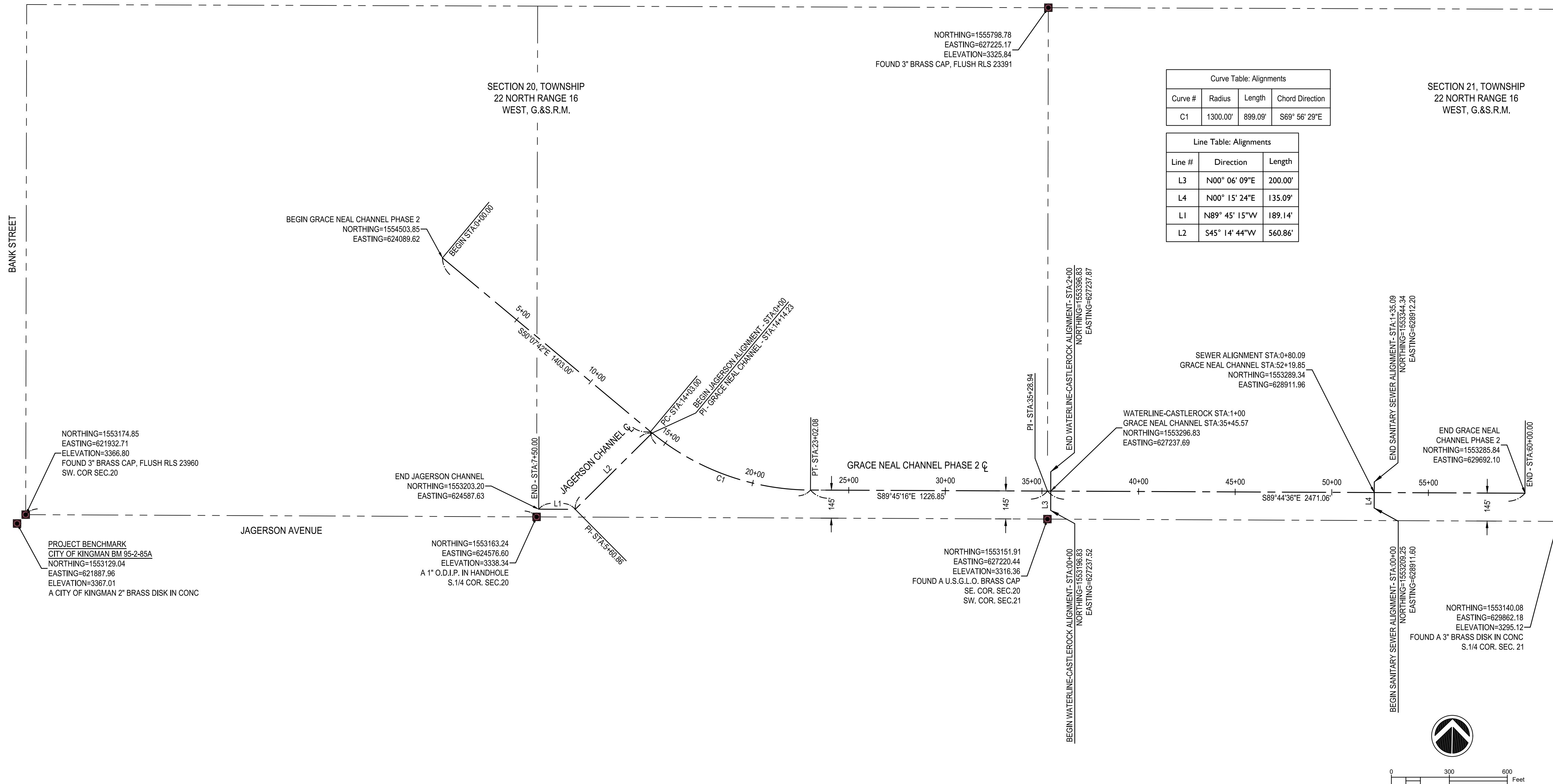
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 ESTABLISHED BENCHMARK, 95-2-85A, A CITY OF KINGMAN 2" BRASS DISK IN
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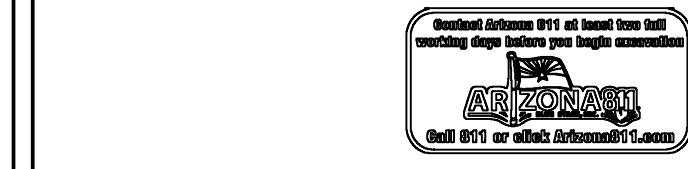
HELD PUBLISHED ELEVATION 3367.01' NAVD88.

CONVERSION TO CITY OF KINGMAN NGVD29 DATUM:
 COK NAVD88 ELEVATION - 2.68' = COK NGVD29
 3367.01 - 2.68' = 3364.33' (95-2-85A NGVD29)



Curve Table: Alignments			
Curve #	Radius	Length	Chord Direction
C1	1300.00'	899.09'	S89° 56' 29"E

Line Table: Alignments		
Line #	Direction	Length
L3	N00° 06' 09"E	200.00'
L4	N00° 15' 24"E	135.09'
L1	N89° 45' 15"W	189.14'
L2	S45° 14' 44"W	560.86'



NO.	REVISION DESCRIPTION	DATE

FINAL DESIGN PLANS

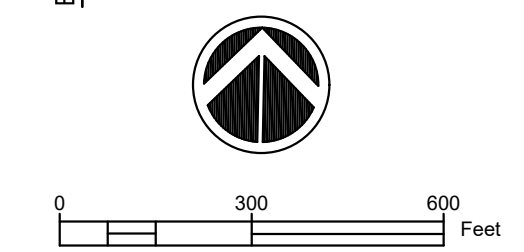
Professional Engineer
 REYMOND A. KRAFT
 License No. 47673
 State of Arizona, U.S.A.

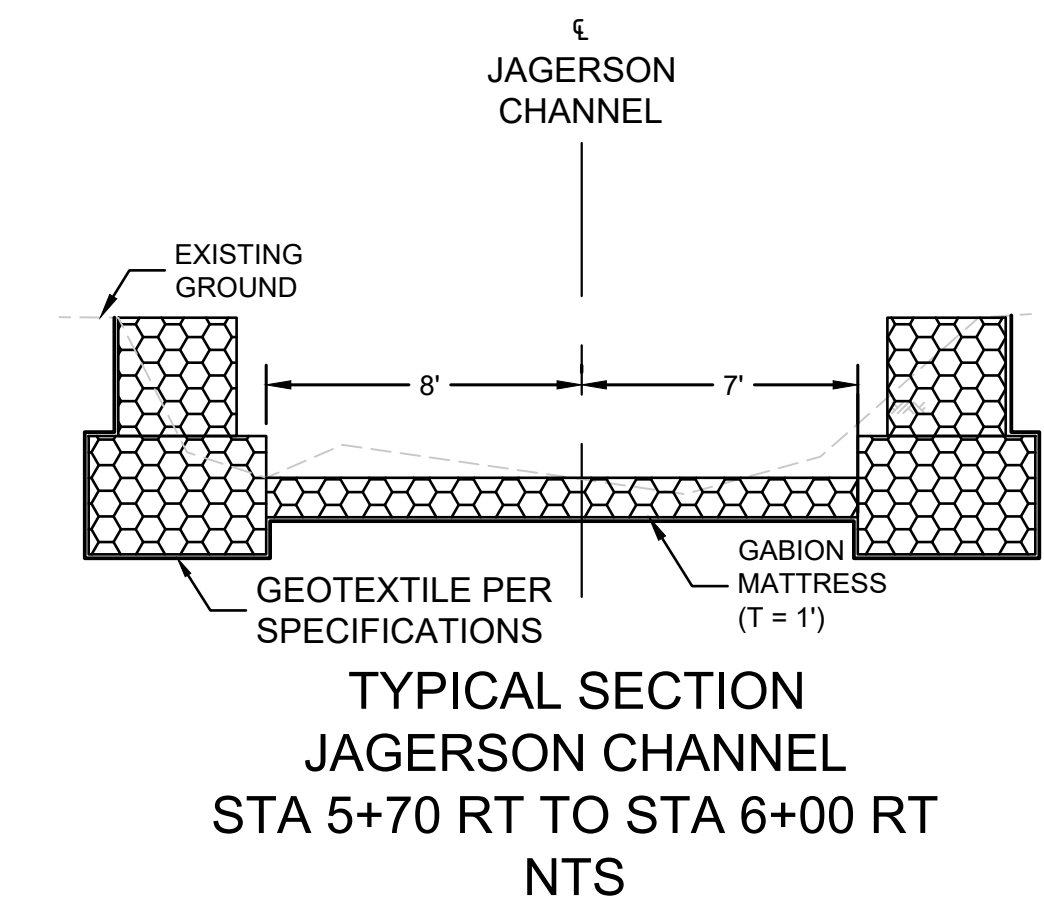
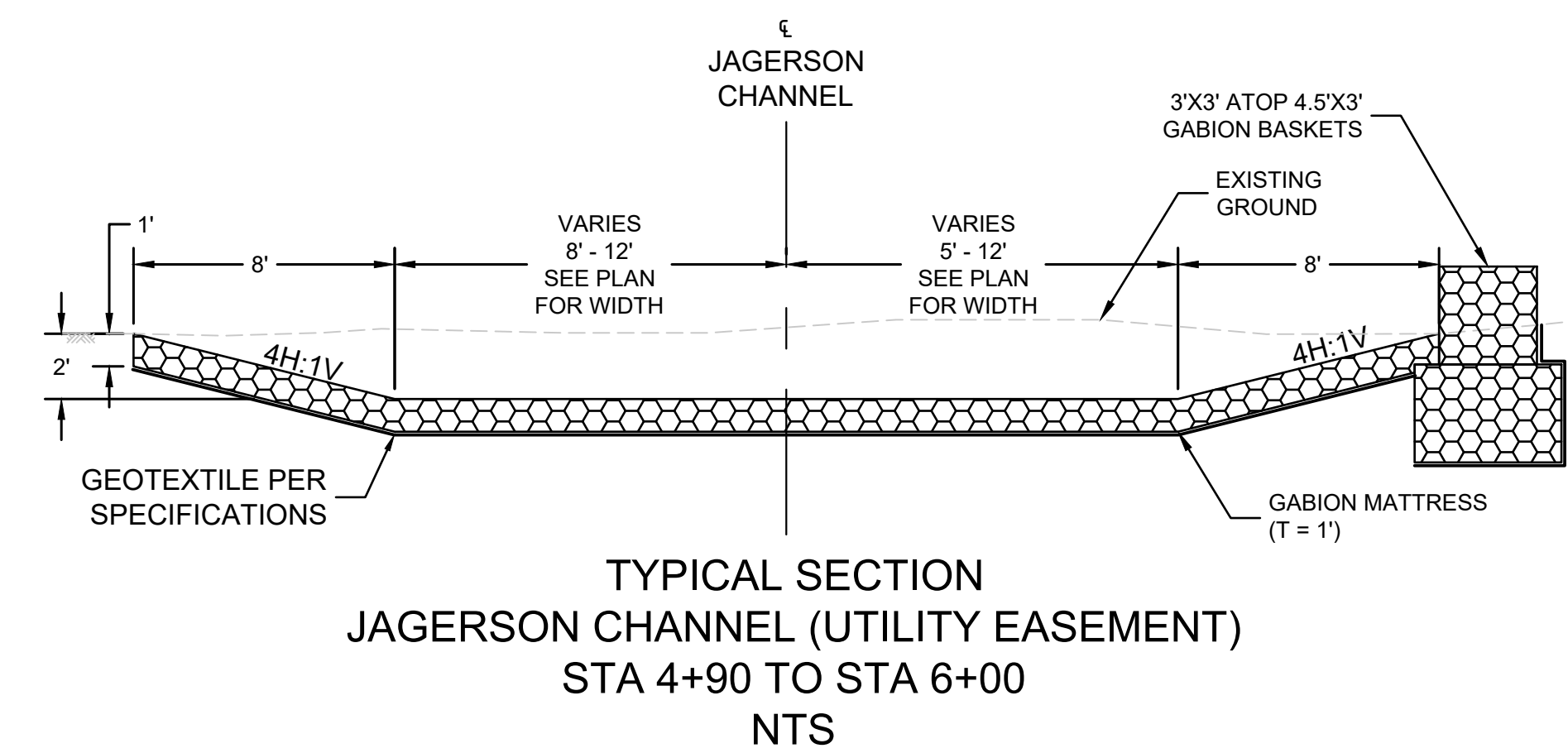
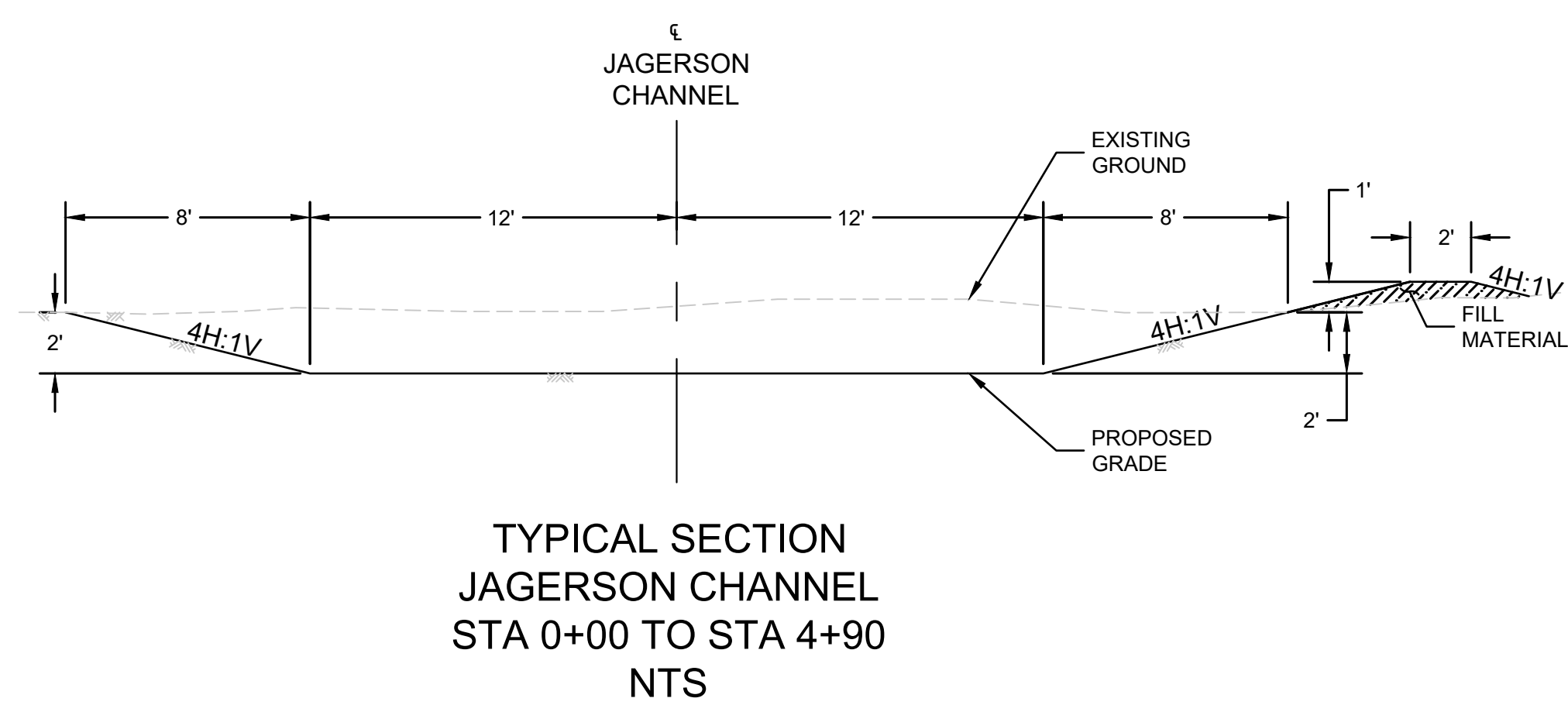
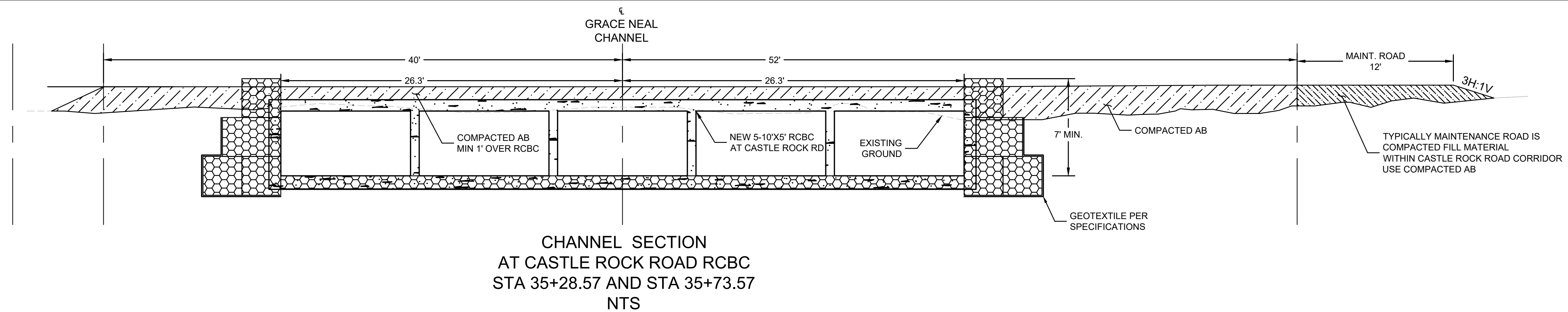
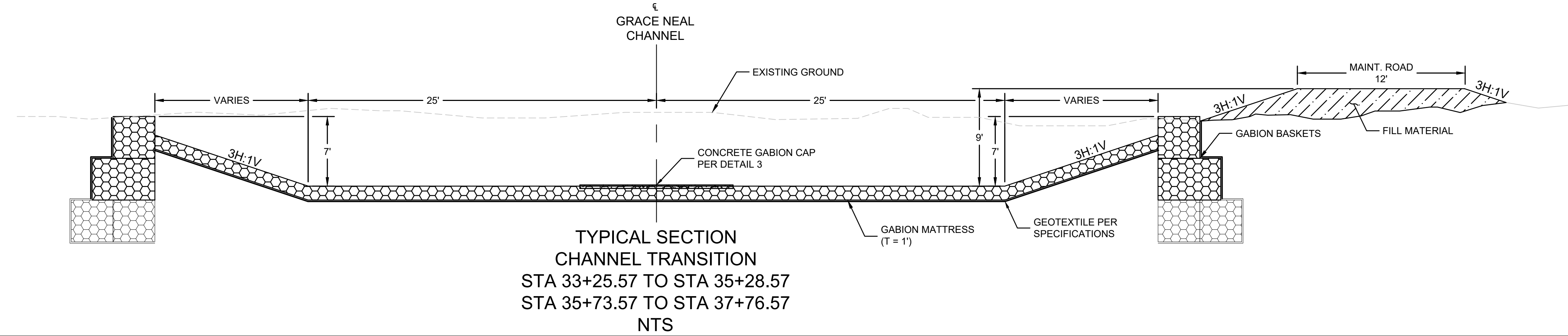
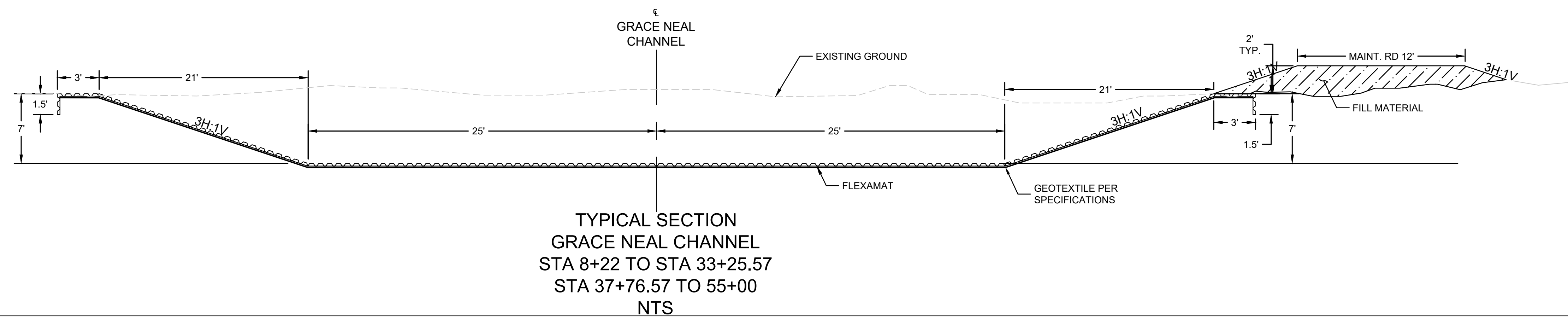
14040 N Cave Creek Rd #104
 Phoenix, AZ 85022
 (602) 769-9034

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 3250 E Kino Ave
 Kingman, AZ 86402

**CONTROL LAYOUT
 GRACE NEAL CHANNEL
 STA 000+00 TO STA 060+00**

CAD:	DLH	DSN:	DLH	CHK:	DLH
DATE	8/5/22	DATE	8/5/22	DATE	8/5/22
SCALE	PROJECT NO.	SHEET	SHEET NO.		
H: 1"=300'	22007	G4	4 OF 25		





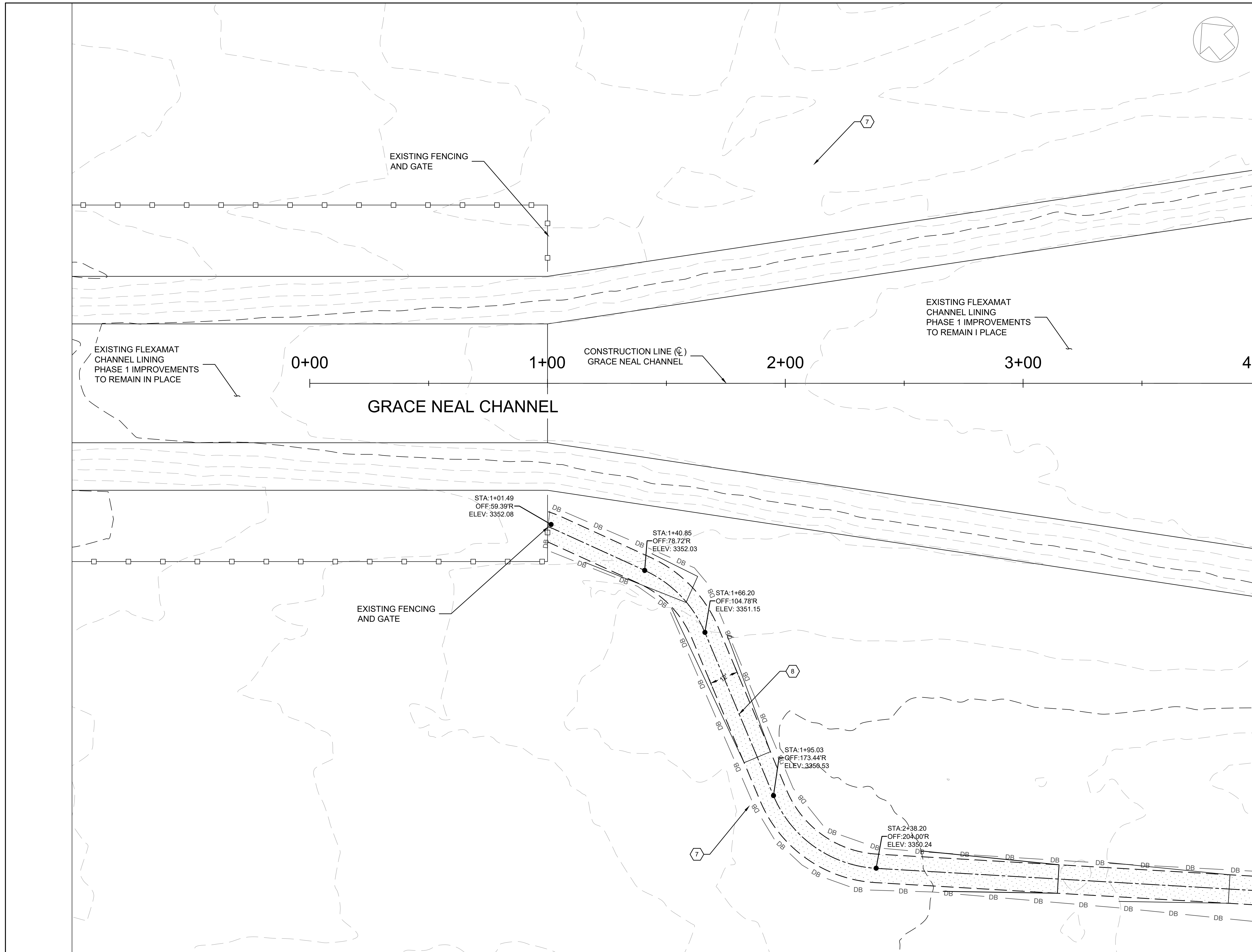
FINAL DESIGN PLANS



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Phoenix, AZ 85022
(602) 769-9034

Grace Neal Channel Phase 2
Mohave County Flood Control District
3250 E Kino Ave
Kingman, AZ 86402

TYPICAL SECTIONS			
CAD:	DSN:	CHK:	BNS
DATE:	DATE:	DATE:	DATE:
SCALE:	PROJECT NO.:	SHEET:	SHEET NO.:
N/A	22007	TS1	5 OF 26



MATCH LINE
STA 4+00

CONSTRUCTION NOTES

- 1 FLEXAMAT CHANNEL LINING PER TYPICAL SECTION SHEET 5
- 2 5-10'x5' RCBC PER ADOT STD DET SD 6.05
- 3 GABION MATTRESS SEDIMENT BASIN INLET PER SECTION A-A SHEET 24
- 4 JAGERSON CHANNEL INLET AND MAINT. ROAD CROSSING PER SECTION C-C SHEET 24
- 5 NEW JAGERSON CHANNEL PER TYPICAL SECTION SHEET 5
- 6 GABION CHANNEL OUTLET AND ENERGY DISSIPATOR PER DETAIL 4 SHEET 25
- 7 BARBED WIRE FENCE (4 WIRE, TYPE 1) ADOT STD DET C-12.10 SEE PLANS FOR LOCATION OF GATES/FLOOD GATES
- 8 12' MAINTENANCE ROAD, COMPACTED FILL
- 9 RAISED CHANNEL BERM, AND COMPACTED FILL
- 10 MAINTENANCE ACCESS RAMP PER SECTION D-D SHEET 24
- 11 SAFETY RAIL TYPE 2 PER MAG STD DETAIL 145
- 12 GABION SEDIMENT BASIN OUTLET WEIR PER SECTION B-B SHEET 24
- 13 GABION WALL CHANNEL TRANSITION PER TYPICAL SECTION SHEET 5
- 14 36" RCP STUB OUT AND PLUG PER DETAIL SHEETS 25 AND 26
- 15 TRANSITION FROM FLEXAMAT TO GABIONS PER DETAIL 1 SHEET 25
- 16 TRANSITION FROM GABIONS TO FLEXAMAT PER DETAIL 2 SHEET 25
- 17 FILL GABION VOID SPACE WITH GROUT OR EQUIVALENT FLOWABLE FILL
- 18 COMPACTED AGGREGATE BASE (AB) MATERIAL



NO.	REVISION DESCRIPTION	DATE

FINAL DESIGN PLANS

Professional Engineer
 REYNOLD A. KRAFT
 License No. 47673
 State of Arizona
 Date signed: 2/22/23

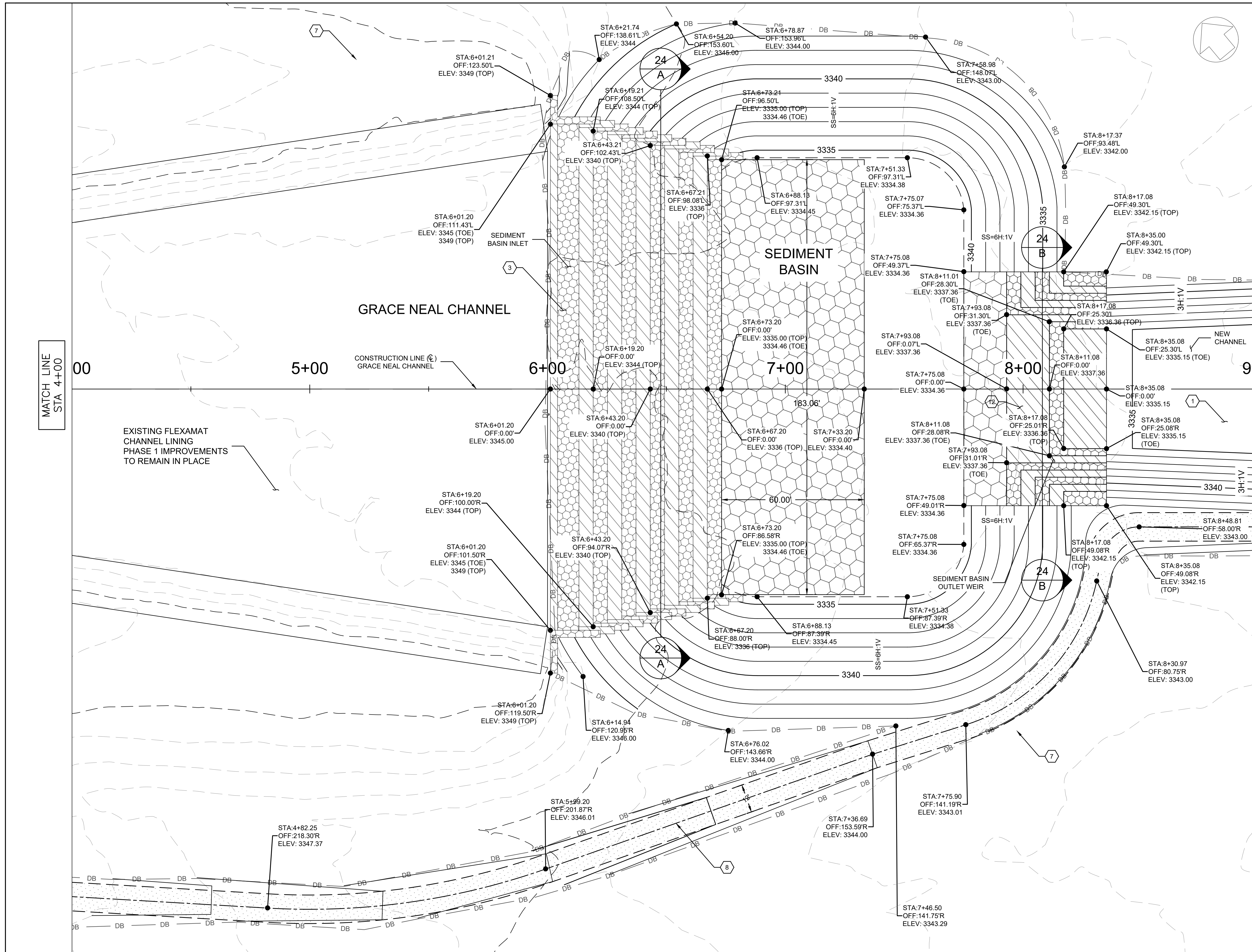
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**SEDIMENT BASIN PLAN
 STA 0+00 TO 4+00**

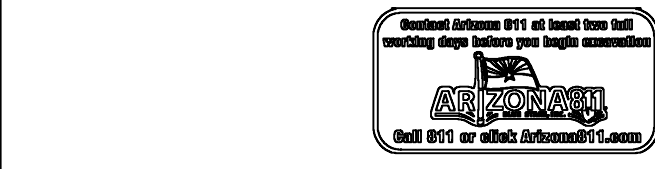
CAD: CLJ	DSN: RAK	CHK: BNS
DATE: 2/22/23	DATE: 2/22/23	DATE: 2/22/23
SCALE: 10:1	PROJECT NO.: 22007	SHEET: C1
		SHEET NO.: 6 OF 26



CONSTRUCTION NOTES

- 1 FLEXAMAT CHANNEL LINING PER TYPICAL SECTION SHEET 5
- 2 5-10"x5" RCBC PER ADOT STD DET SD 6.05
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SEE SHEET C3 FOR CHANNEL PLAN AND PROFILE



NO.	REVISION DESCRIPTION	DATE

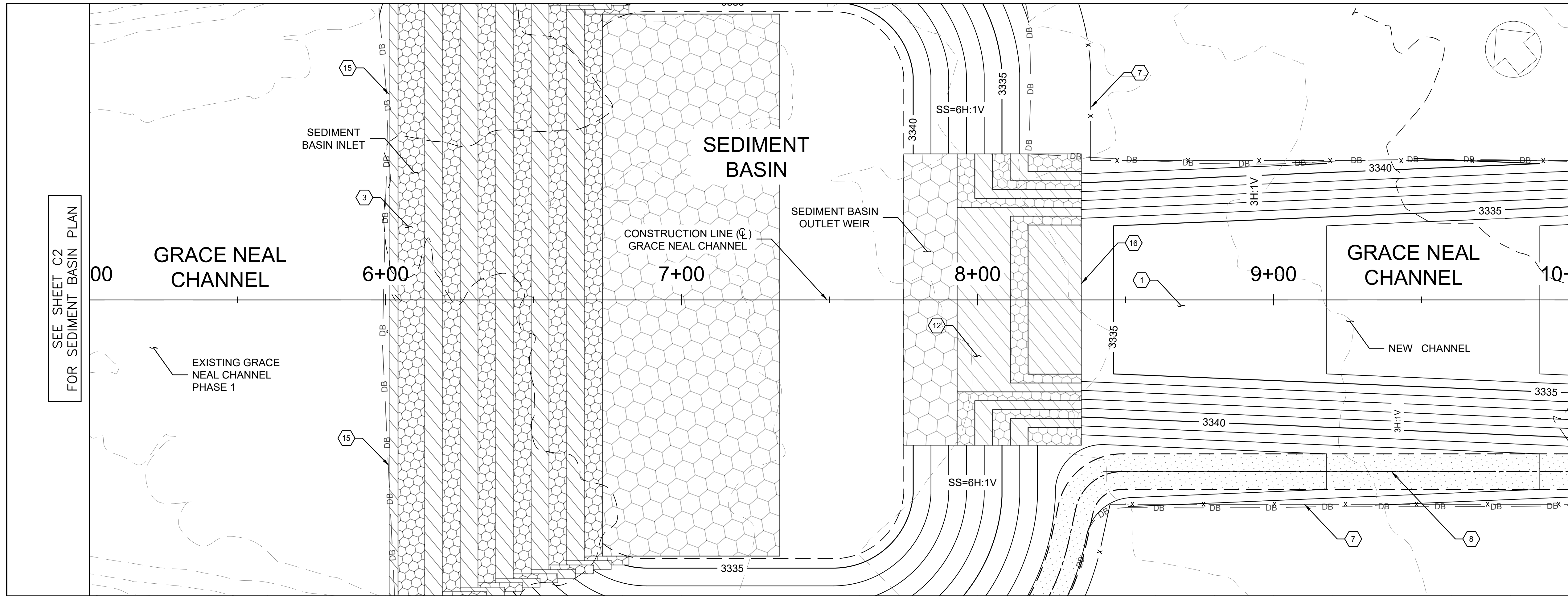
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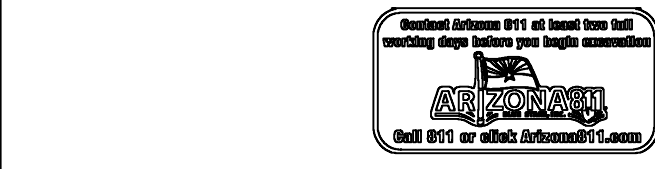
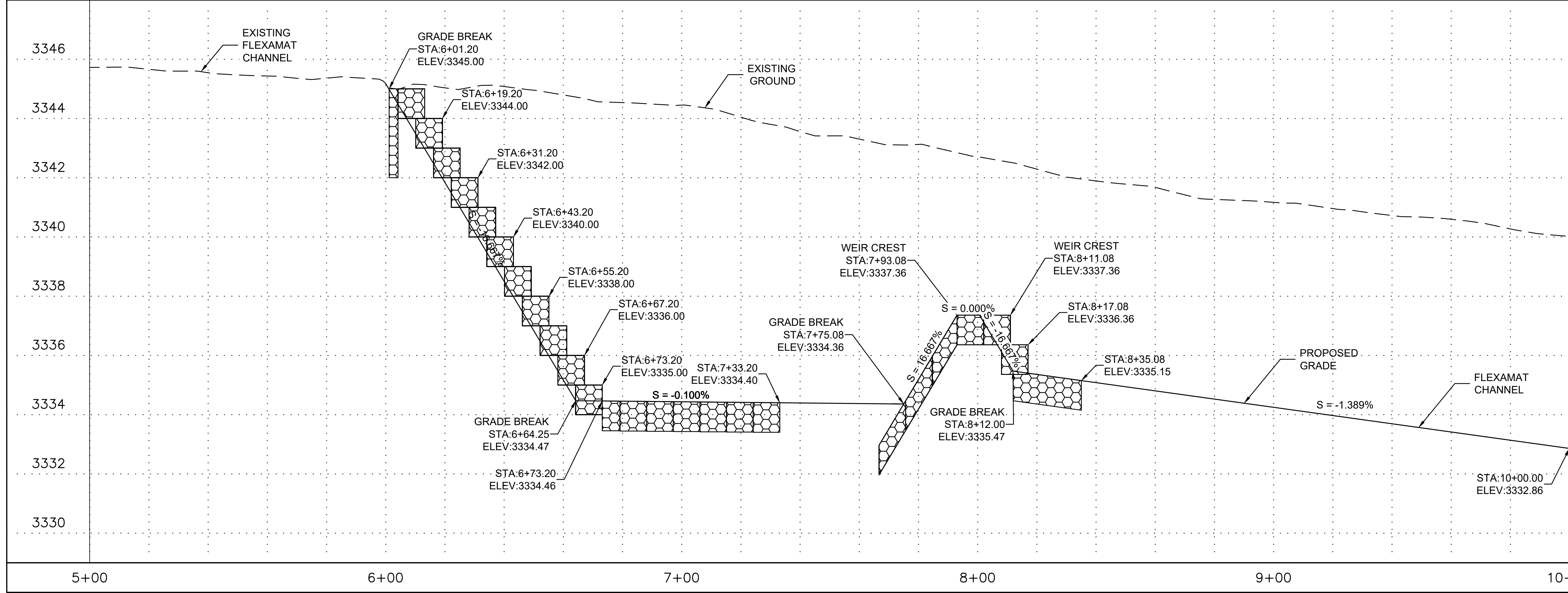
**GRACE NEAL CHANNEL PLAN
 STA 4+00 TO STA 9+00**

CAD: CLJ	DSN: RAK	CHK: BNS
DATE 2/22/23	DATE 2/22/23	DATE 2/22/23
SCALE	PROJECT NO.	SHEET
10 : 1	22007	C2
		SHEET NO.
		7 OF 26



CONSTRUCTION NOTES

- 1 FLEXAMAT CHANNEL LINING PER TYPICAL SECTION SHEET 5
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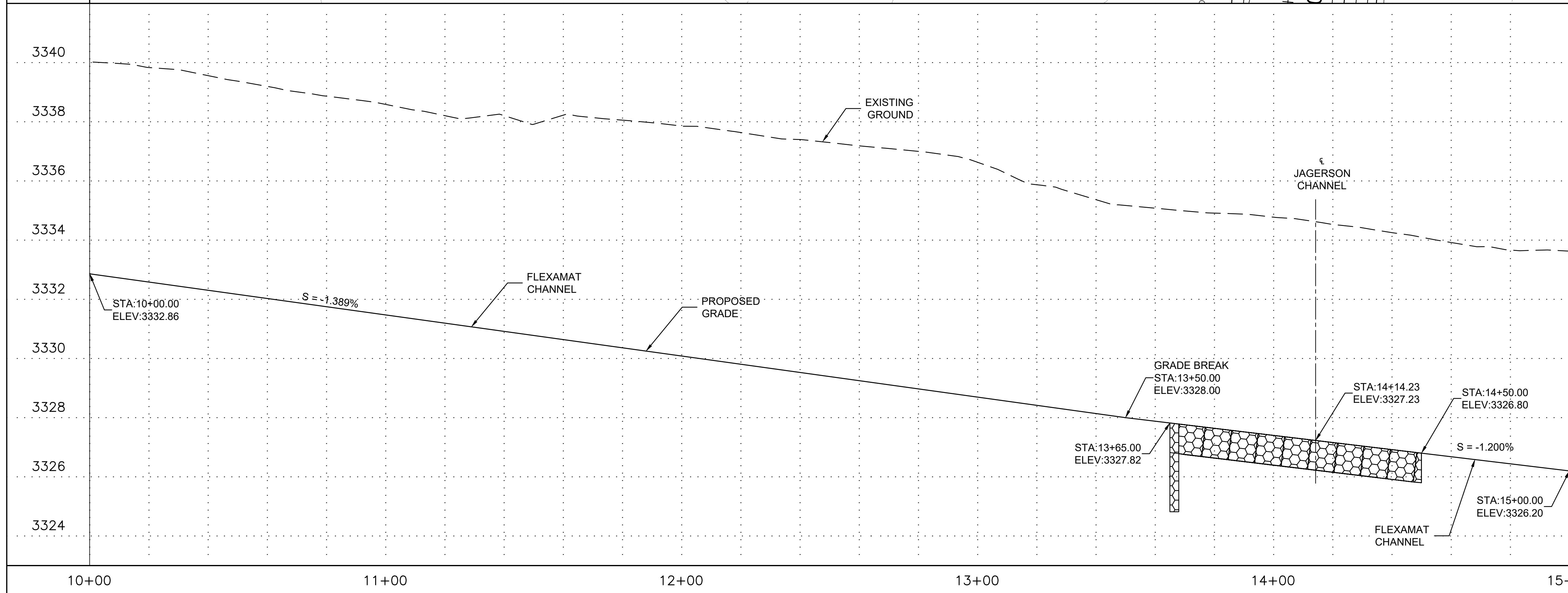
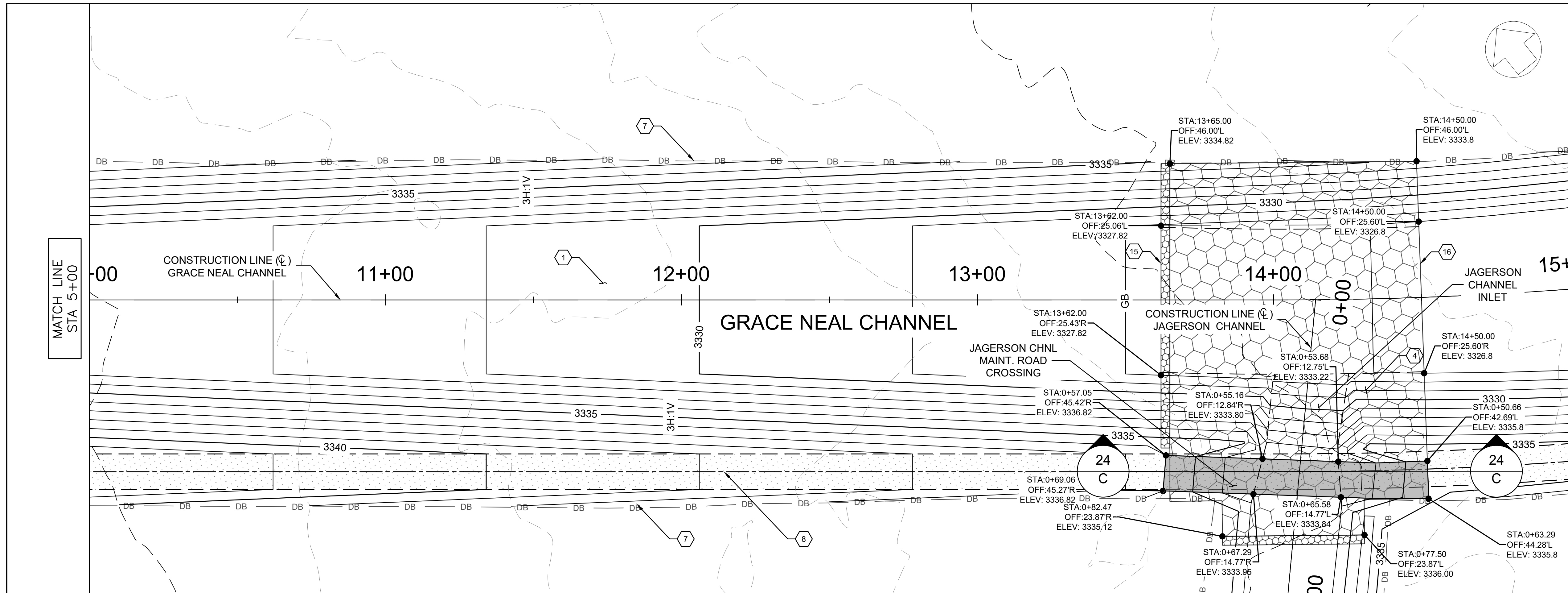
FINAL DESIGN PLANS

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Kingman, AZ 86402

**GRACE NEAL CHANNEL
PLAN AND PROFILE
STA 5+00 TO STA 10+00**

CAD: CLJ	DSN: RAK	CHK: BNS
DATE 2/22/23	DATE 2/22/23	DATE 2/22/23
SCALE	PROJECT NO.	SHEET
H: 10:1 V: 2:1	22007	C3
		SHEET NO.
		8 OF 26

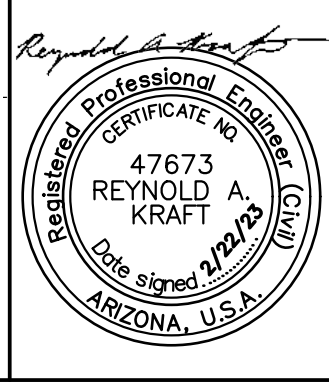


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- 15 TRANSITION FROM FLEXAMAT TO GABIONS PER DETAIL 1 SHEET 25
- 16 TRANSITION FROM GABIONS TO FLEXAMAT PER DETAIL 2 SHEET 25
- 17 FILL GABION VOID SPACE WITH GROUT OR EQUIVALENT FLOWABLE FILL
- 18 COMPACTED AGGREGATE BASE (AB) MATERIAL



FINAL DESIGN PLANS



14040 N Cave Creek Rd #104
Phoenix, AZ 85022
(602) 769-9034

Grace Neal Channel Phase 2
Mohave County Flood Control District
3250 E Kino Ave
Kingman, AZ 86402

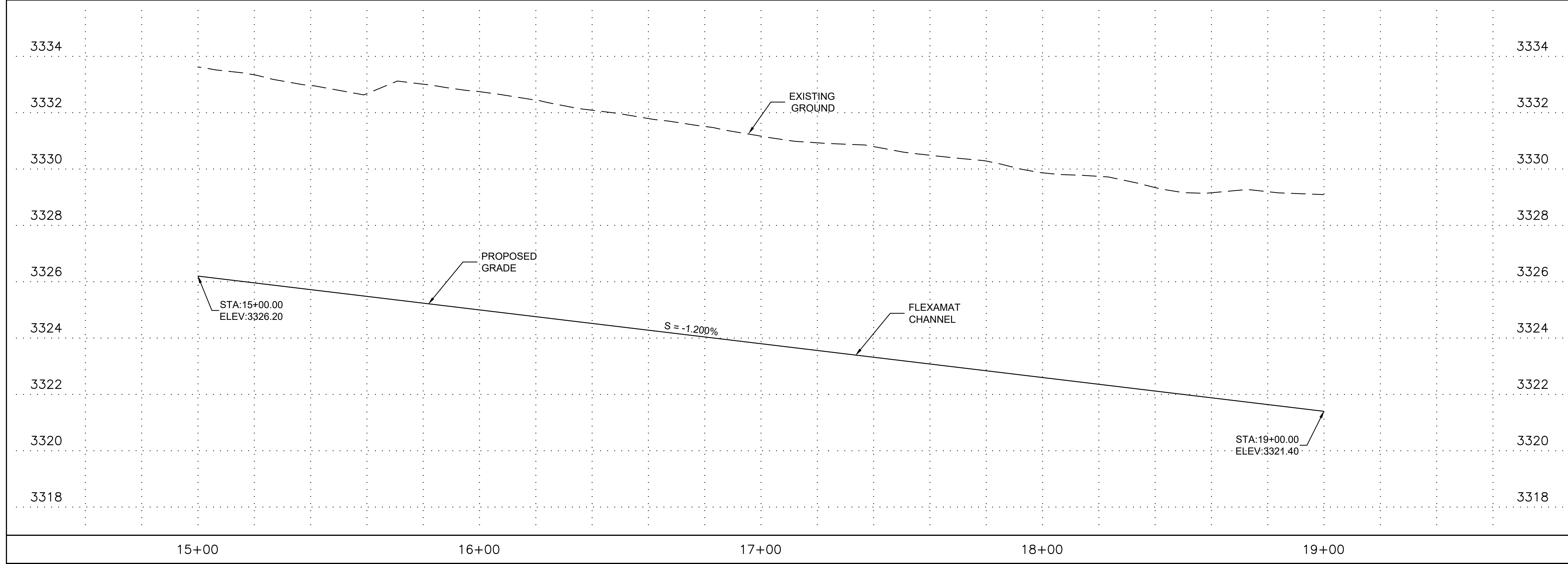
GRACE NEAL CHANNEL
PLAN AND PROFILE
STA 10+00 TO STA 15+00

CAD: CLJ	DSN: RAK	CHK: BNS
DATE 2/22/23	DATE 2/22/23	DATE 2/22/23
SCALE	PROJECT NO.	SHEET
H: 10:1 V: 2:1	22007	C4
		SHEET NO.
		9 OF 26



CONSTRUCTION NOTES

- 1 FLEXAMAT CHANNEL LINING PER TYPICAL SECTION SHEET 5
- 2 5-10'x5' RCBC PER ADOT STD DET SD 6.05
- 3 GABION MATTRESS SEDIMENT BASIN INLET PER SECTION A-A SHEET 24
- 4 JAGERSON CHANNEL INLET AND MAINT. ROAD CROSSING PER SECTION C-C SHEET 24
- 5 NEW JAGERSON CHANNEL PER TYPICAL SECTION SHEET 5
- 6 GABION CHANNEL OUTLET AND ENERGY DISSIPATOR PER DETAIL 4 SHEET 25
- 7 BARBED WIRE FENCE (4 WIRE, TYPE 1) ADOT STD DET C-12.10 SEE PLANS FOR LOCATION OF GATES/FLOOD GATES
- 8 12' MAINTENANCE ROAD, COMPACTED FILL
- 9 RAISED CHANNEL BERM, AND COMPACTED FILL
- 10 MAINTENANCE ACCESS RAMP PER SECTION D-D SHEET 24
- 11 SAFETY RAIL TYPE 2 PER MAG STD DETAIL 145
- 12 GABION SEDIMENT BASIN OUTLET WEIR PER SECTION B-B SHEET 24
- 13 GABION WALL CHANNEL TRANSITION PER TYPICAL SECTION SHEET 5
- 14 36" RCP STUB OUT AND PLUG PER DETAIL SHEETS 25 AND 26
- 15 TRANSITION FROM FLEXAMAT TO GABIONS PER DETAIL 1 SHEET 25
- 16 TRANSITION FROM GABIONS TO FLEXAMAT PER DETAIL 2 SHEET 25
- 17 FILL GABION VOID SPACE WITH GROUT OR EQUIVALENT FLOWABLE FILL
- 18 COMPACTED AGGREGATE BASE (AB) MATERIAL



NO.	REVISION DESCRIPTION	DATE

FINAL DESIGN PLANS

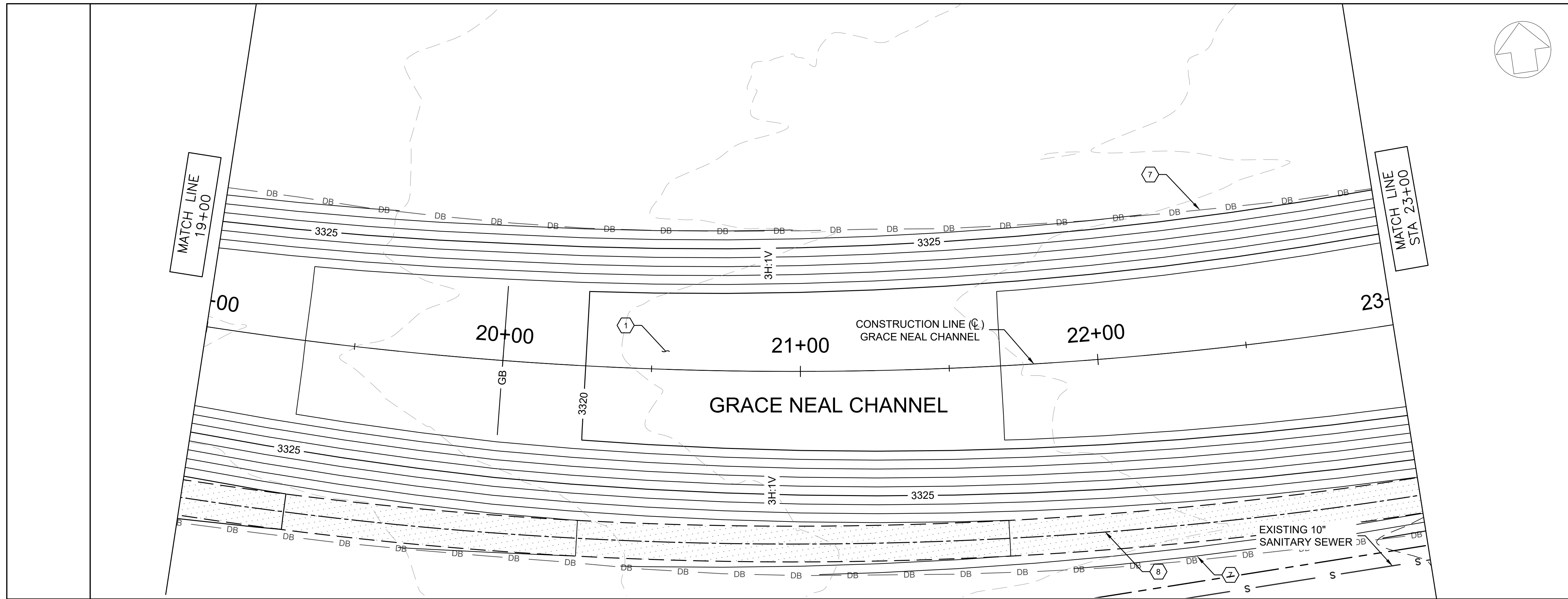
Professional Engineer
 REYNOLD A. KRAFT
 License No. 47673
 State of Arizona, U.S.A.
 Date signed: 2/22/23

14040 N Cave Creek Rd #104
 Phoenix, AZ 85022
 (602) 769-9034

Grace Neal Channel Phase 2
 Mohave County Flood Control District
 3250 E Kino Ave
 Kingman, AZ 86402

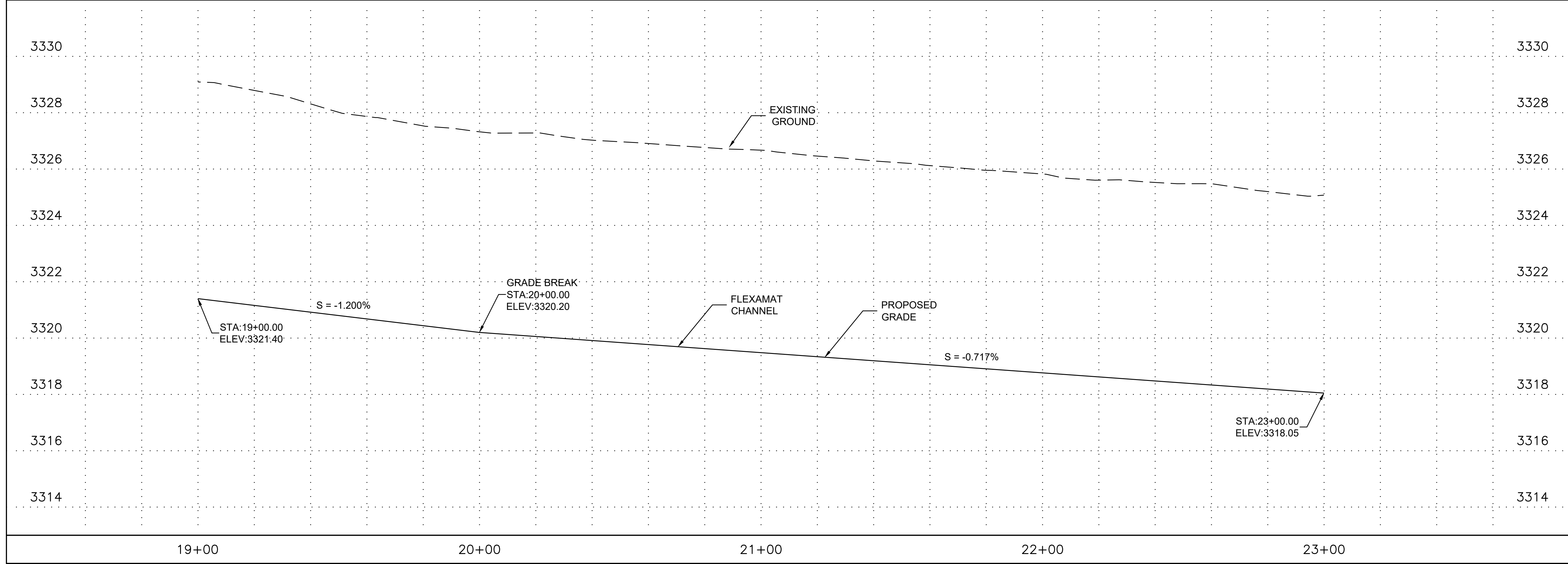
**GRACE NEAL CHANNEL
 PLAN AND PROFILE
 STA 15+00 TO STA 19+00**

CAD: CLJ	DSN: RAK	CHK: BNS	
DATE: 2/22/23	DATE: 2/22/23	DATE: 2/22/23	
SCALE	PROJECT NO.	SHEET	SHEET NO.
H: 10:1 V: 2:1	22007	C5	10 OF 26



CONSTRUCTION NOTES

- 1 FLEXAMAT CHANNEL LINING PER TYPICAL SECTION SHEET 5
- 2 5-10'x5' RCBC PER ADOT STD DET SD 6.05
- 3 GABION MATTRESS SEDIMENT BASIN INLET PER SECTION A-A SHEET 24
- 4 JAGERSON CHANNEL INLET AND MAINT. ROAD CROSSING PER SECTION C-C SHEET 24
- 5 NEW JAGERSON CHANNEL PER TYPICAL SECTION SHEET 5
- 6 GABION CHANNEL OUTLET AND ENERGY DISSIPATOR PER DETAIL 4 SHEET 25
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- 9 RAISED CHANNEL BERM, AND COMPACTED FILL
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- 16 TRANSITION FROM GABIONS TO FLEXAMAT PER DETAIL 2 SHEET 25
- 17 FILL GABION VOID SPACE WITH GROUT OR EQUIVALENT FLOWABLE FILL
- 18 COMPACTED AGGREGATE BASE (AB) MATERIAL



NO.	REVISION DESCRIPTION	DATE

FINAL DESIGN PLANS

Professional Engineer
 REYNOLD A. KRAFT
 License No. 47673
 Date signed 1/22/23
 ARIZONA, U.S.A.

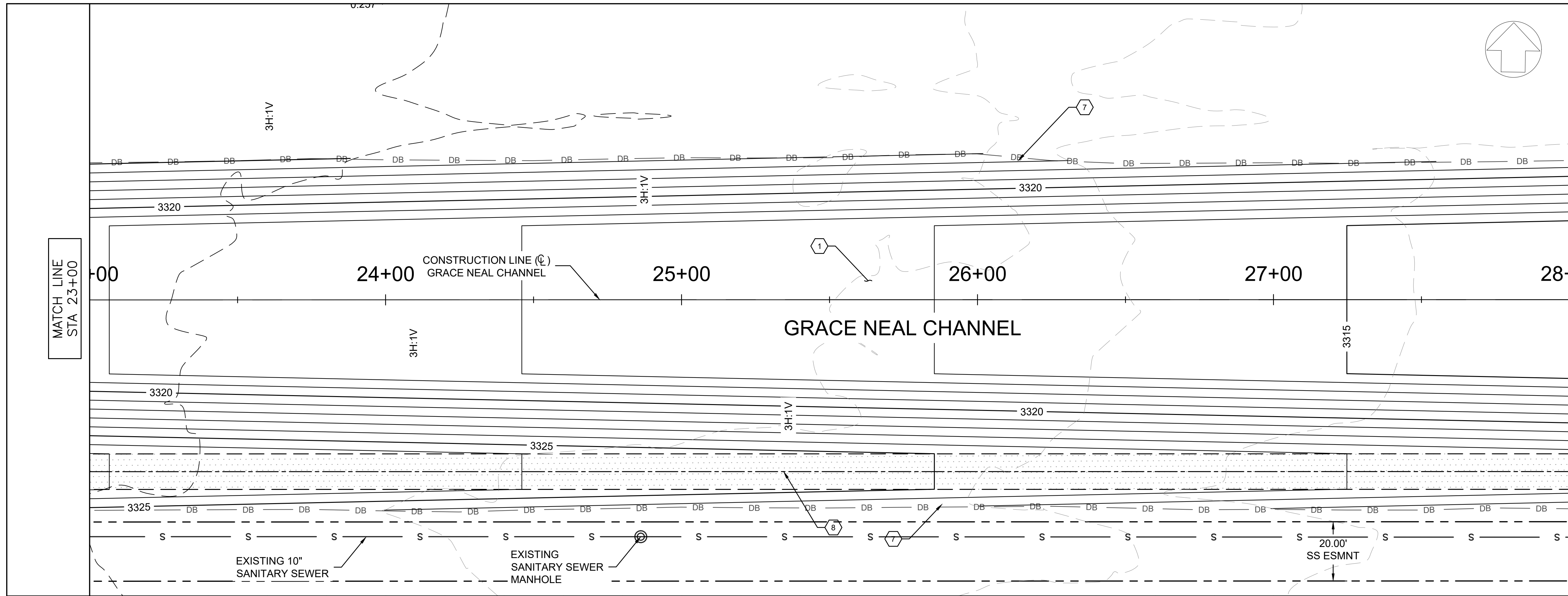
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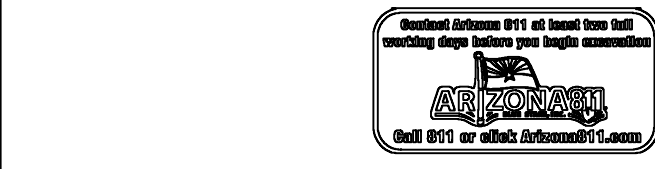
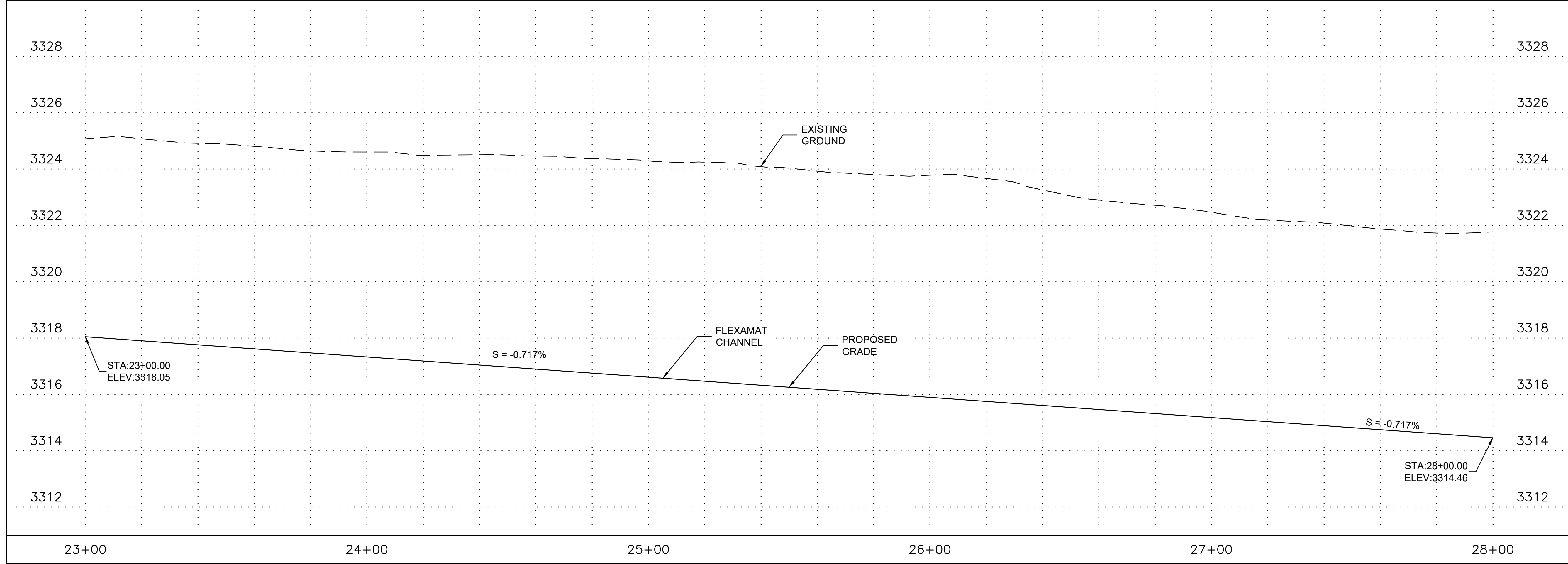
GRACE NEAL CHANNEL PLAN AND PROFILE STA 19+00 TO STA 23+00

CAD: CLJ	DSN: RAK	CHK: BNS
DATE 2/22/23	DATE 2/22/23	DATE 2/22/23
SCALE	PROJECT NO.	SHEET
H: 10:1 V: 2:1	22007	C6
		SHEET NO.
		11 OF 26



CONSTRUCTION NOTES

- 1 FLEXAMAT CHANNEL LINING PER TYPICAL SECTION SHEET 5
- 2 5-10'x5' RCBC PER ADOT STD DET SD 6.05
- 3 GABION MATTRESS SEDIMENT BASIN INLET PER SECTION A-A SHEET 24
- 4 JAGERSON CHANNEL INLET AND MAINT. ROAD CROSSING PER SECTION C-C SHEET 24
- 5 NEW JAGERSON CHANNEL PER TYPICAL SECTION SHEET 5
- 6 GABION CHANNEL OUTLET AND ENERGY DISSIPATOR PER DETAIL 4 SHEET 25
- 7 BARBED WIRE FENCE (4 WIRE, TYPE 1) ADOT STD DET C-12.10 SEE PLANS FOR LOCATION OF GATES/FLOOD GATES
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- 9 RAISED CHANNEL BERM, AND COMPACTED FILL
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- 17 FILL GABION VOID SPACE WITH GROUT OR EQUIVALENT FLOWABLE FILL
- 18 COMPACTED AGGREGATE BASE (AB) MATERIAL



NO.	REVISION DESCRIPTION	DATE

FINAL DESIGN PLANS

Professional Engineer
 REYNOLD A. KRAFT
 License No. 47673
 Date signed 1/22/23
 ARIZONA, U.S.A.

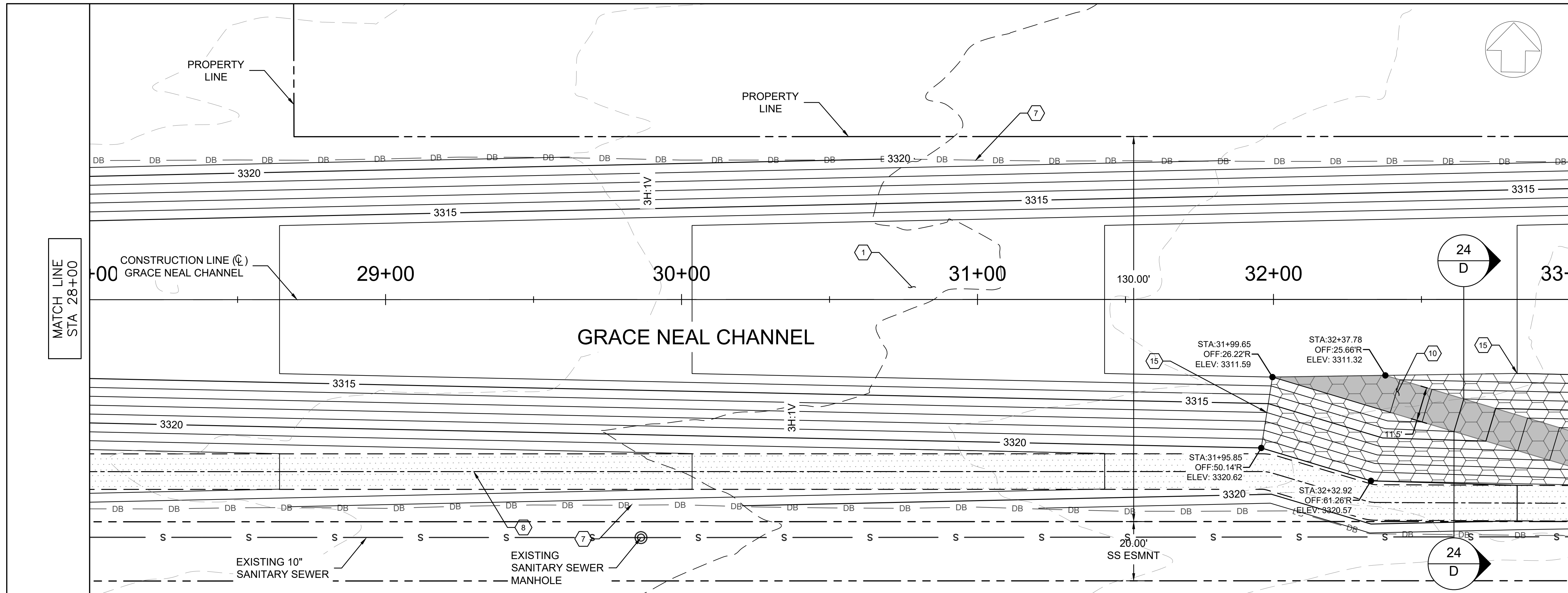


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Grace Neal Channel Phase 2
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 3250 E Kino Ave
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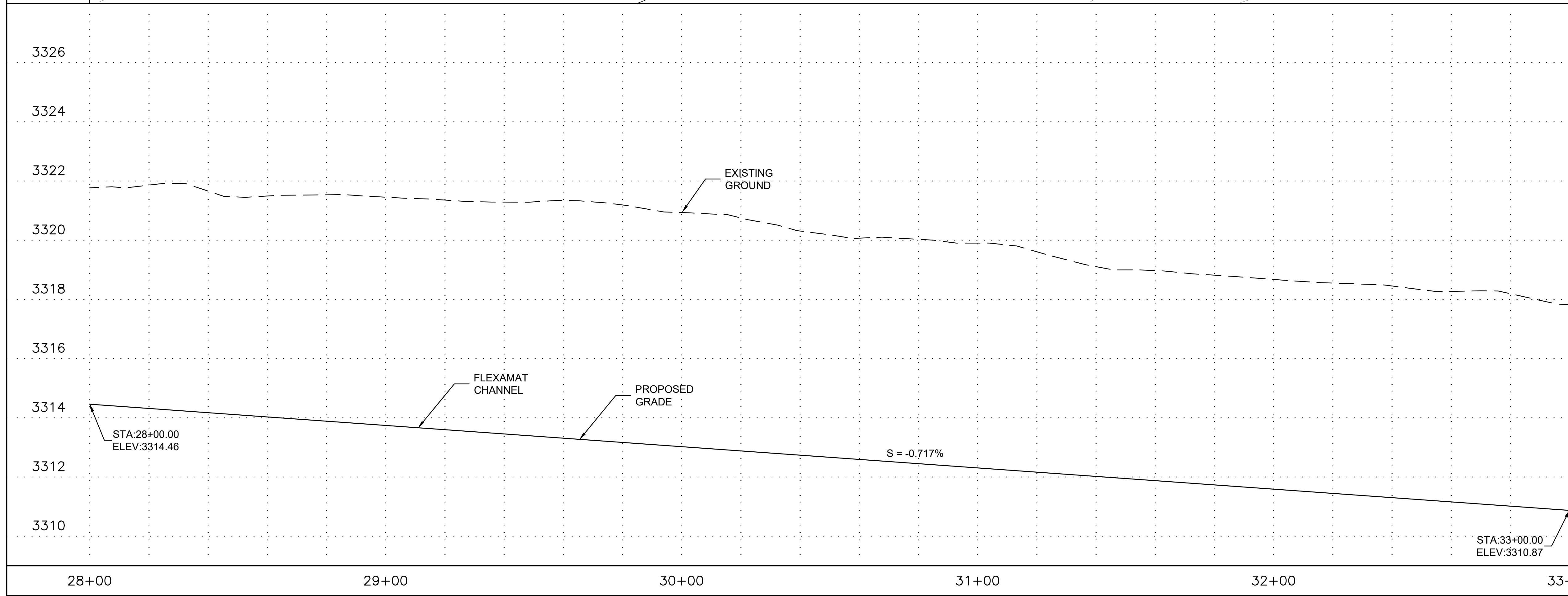
**GRACE NEAL CHANNEL
 PLAN AND PROFILE
 STA 23+00 TO STA 28+00**

CAD: CLJ	DSN: RAK	CHK: BNS
DATE 2/22/23	DATE 2/22/23	DATE 2/22/23
SCALE	PROJECT NO.	SHEET
H: 10:1 V: 2:1	22007	C7
		SHEET NO.
		12 OF 26



CONSTRUCTION NOTES

- 1 FLEXAMAT CHANNEL LINING PER TYPICAL SECTION SHEET 5
- 2 5-10'x5' RCBC PER ADOT STD DET SD 6.05
- 3 GABION MATTRESS SEDIMENT BASIN INLET PER SECTION A-A SHEET 24
- 4 JAGERSON CHANNEL INLET AND MAINT. ROAD CROSSING PER SECTION C-C SHEET 24
- 5 NEW JAGERSON CHANNEL PER TYPICAL SECTION SHEET 5
- 6 GABION CHANNEL OUTLET AND ENERGY DISSIPATOR PER DETAIL 4 SHEET 25
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- 11 SAFETY RAIL TYPE 2 PER MAG STD DETAIL 145
- 12 GABION SEDIMENT BASIN OUTLET WEIR PER SECTION B-B SHEET 24
- 13 GABION WALL CHANNEL TRANSITION PER TYPICAL SECTION SHEET 5
- 14 36\"/>



NO.	REVISION DESCRIPTION	DATE

FINAL DESIGN PLANS

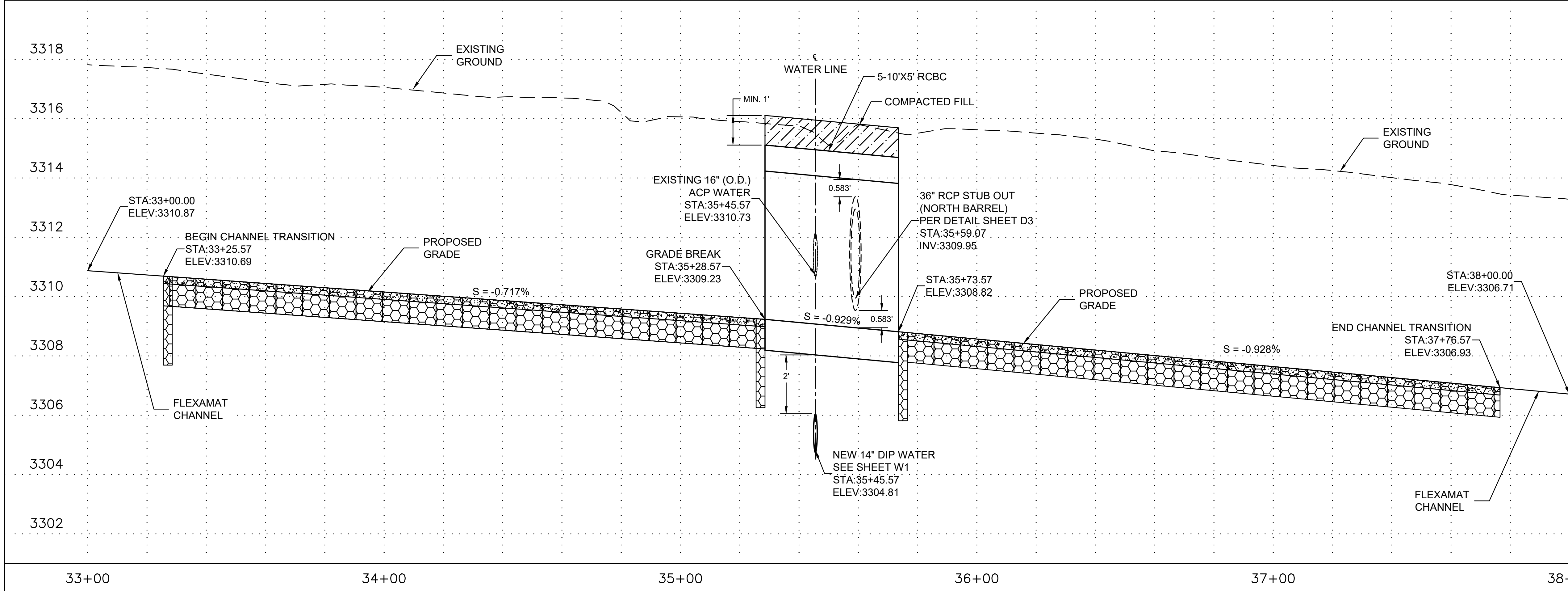
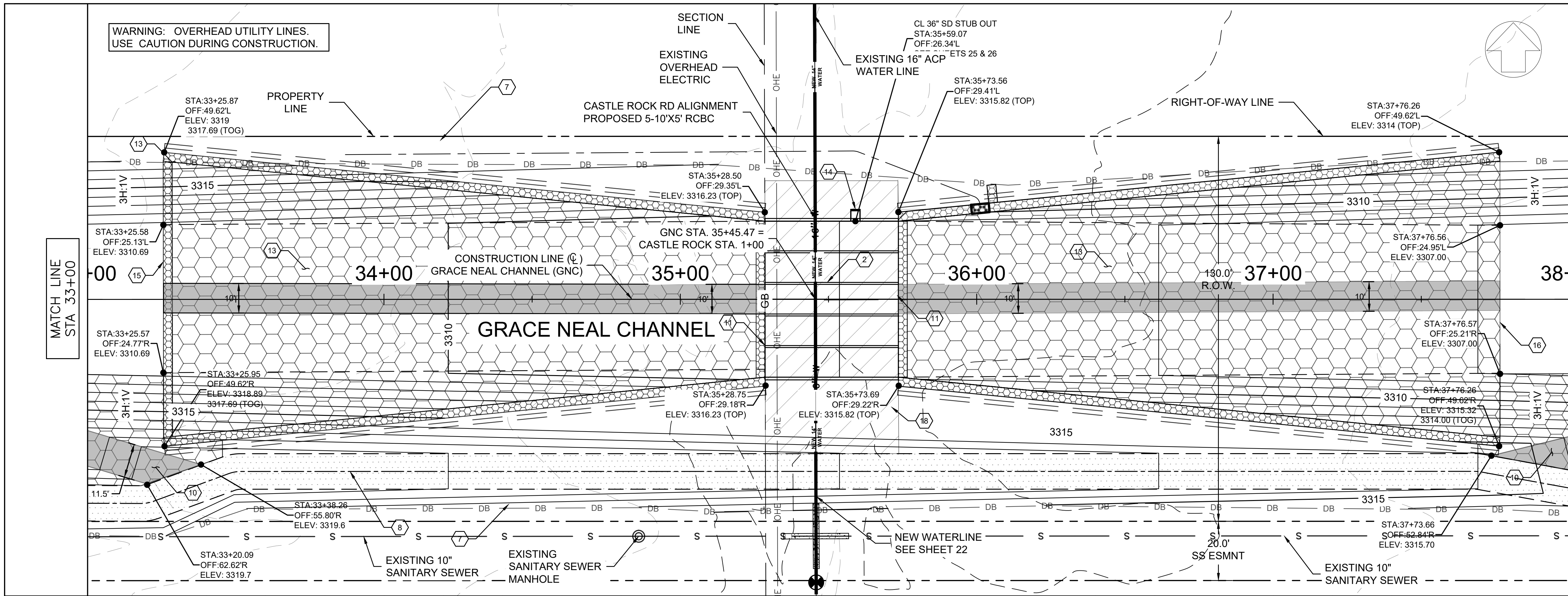
Professional Engineer
 REYNOLD A. KRAFT
 License No. 47673
 State of ARIZONA, U.S.A.
 Date signed: 2/22/23

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 Phoenix, AZ 85022
 (602) 769-9034

Grace Neal Channel Phase 2
 Mohave County Flood Control District
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**GRACE NEAL CHANNEL
 PLAN AND PROFILE
 STA 28+00 TO STA 33+00**

CAD: CLJ	DSN: RAK	CHK: BNS
DATE: 2/22/23	DATE: 2/22/23	DATE: 2/22/23
SCALE: H: 10:1 V: 2:1	PROJECT NO.: 22007	SHEET: C8
		SHEET NO.: 13 OF 26



CONSTRUCTION NOTES

- 1 FLEXAMAT CHANNEL LINING PER TYPICAL SECTION SHEET 5
- 2 5-10'x5' RCBC PER ADOT STD DET SD 6.05
- 3 GABION MATTRESS SEDIMENT BASIN INLET PER SECTION A-A SHEET 24
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- 16 TRANSITION FROM GABIONS TO FLEXAMAT PER DETAIL 2 SHEET 25
- 17 FILL GABION VOID SPACE WITH GROUT OR EQUIVALENT FLOWABLE FILL
- 18 COMPACTED AGGREGATE BASE (AB) MATERIAL



NO.	REVISION DESCRIPTION	DATE

FINAL DESIGN PLANS

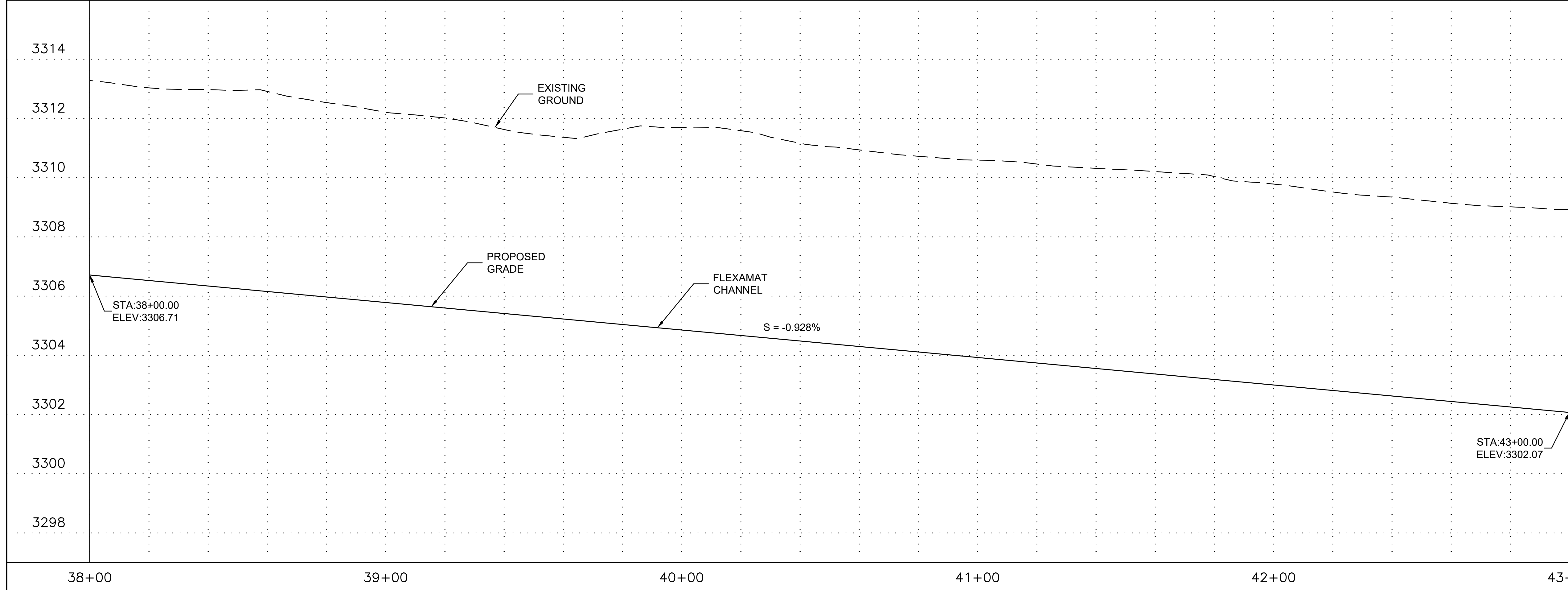
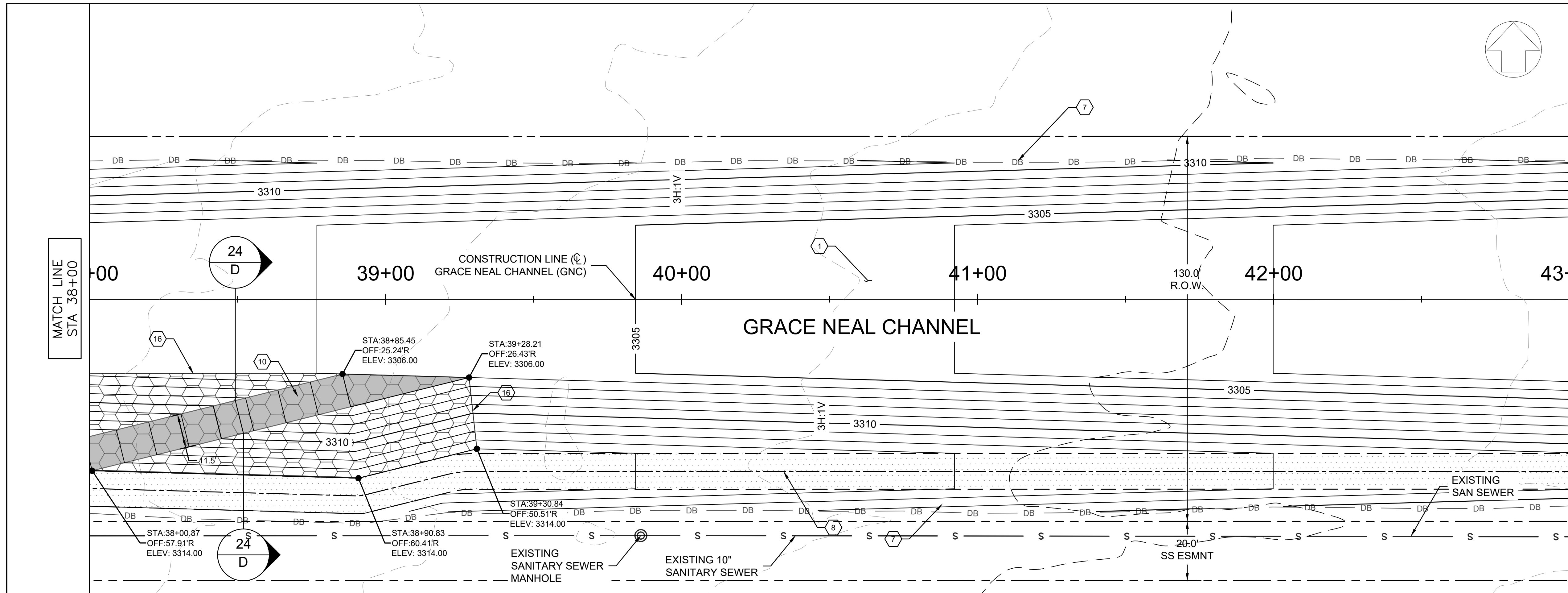


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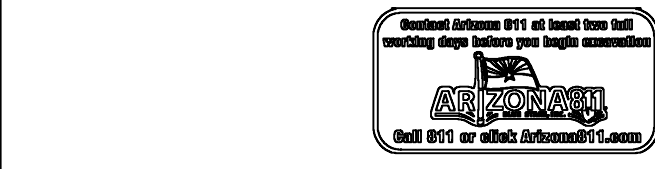
GRACE NEAL CHANNEL PLAN AND PROFILE STA 33+00 TO STA 38+00

CAD: CLJ	DSN: RAK	CHK: BNS
DATE: 2/22/23	DATE: 2/22/23	DATE: 2/22/23
SCALE	PROJECT NO.	SHEET
H: 10:1 V: 2:1	22007	C9
		SHEET NO.
		14 OF 26



CONSTRUCTION NOTES

- 1 FLEXAMAT CHANNEL LINING PER TYPICAL SECTION SHEET 5
- 2 5-10'x5' RCBC PER ADOT STD DET SD 6.05
- 3 GABION MATTRESS SEDIMENT BASIN INLET PER SECTION A-A SHEET 24
- 4 JAGERSON CHANNEL INLET AND MAINT. ROAD CROSSING PER SECTION C-C SHEET 24
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- 9 RAISED CHANNEL BERM, AND COMPACTED FILL
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- 17 FILL GABION VOID SPACE WITH GROUT OR EQUIVALENT FLOWABLE FILL
- 18 COMPACTED AGGREGATE BASE (AB) MATERIAL



NO.	REVISION DESCRIPTION	DATE

FINAL DESIGN PLANS

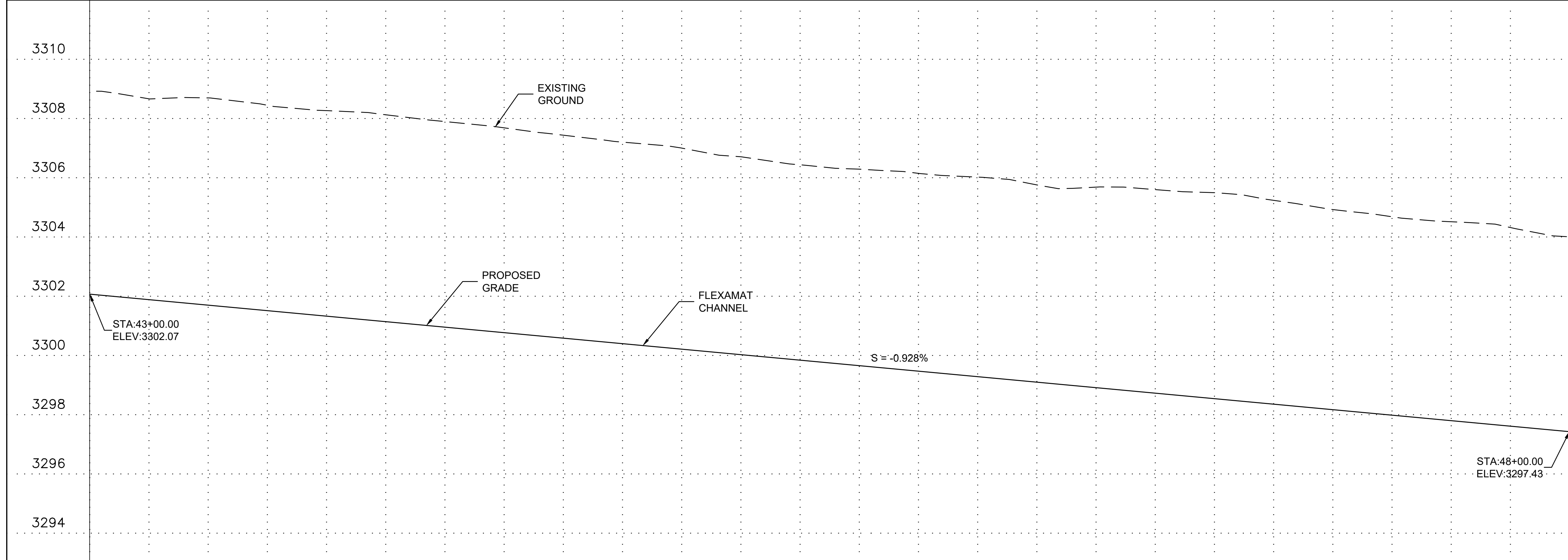
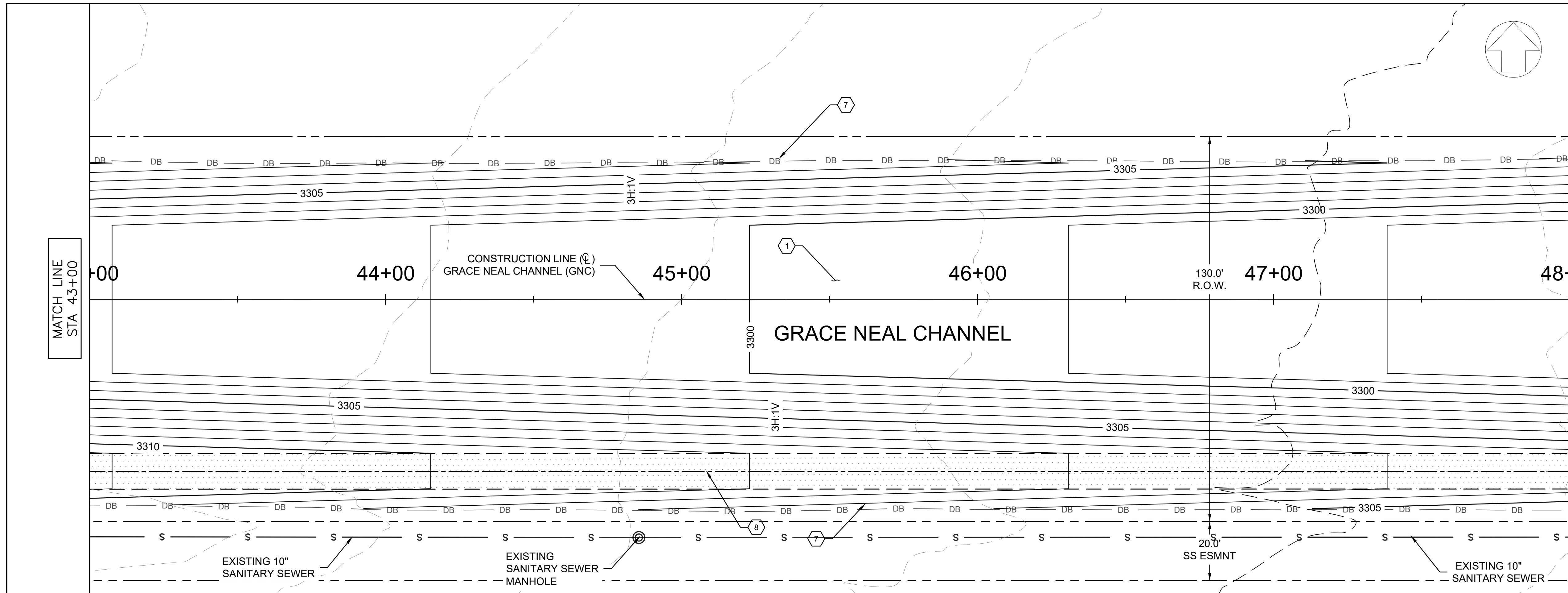
Professional Engineer
 REYNOLD A. KRAFT
 License No. 47673
 State of Arizona, U.S.A.
 Date signed: 2/22/23

14040 N Cave Creek Rd #104
 Phoenix, AZ 85022
 (602) 769-9034

Grace Neal Channel Phase 2
 Mohave County Flood Control District
 3250 E Kino Ave
 Kingman, AZ 86402

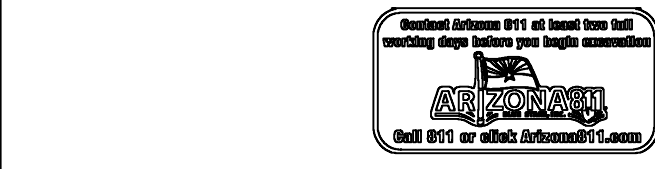
GRACE NEAL CHANNEL PLAN AND PROFILE STA 38+00 TO STA 43+00

CAD: CLJ	DSN: RAK	CHK: BNS
DATE: 2/22/23	DATE: 2/22/23	DATE: 2/22/23
SCALE: H: 10:1 V: 2:1	PROJECT NO: 22007	SHEET: C10
		SHEET NO: 15 OF 26



CONSTRUCTION NOTES

- 1 FLEXAMAT CHANNEL LINING PER TYPICAL SECTION SHEET 5
- 2 5-10'x5' RCBC PER ADOT STD DET SD 6.05
- 3 GABION MATTRESS SEDIMENT BASIN INLET PER SECTION A-A SHEET 24
- 4 JAGERSON CHANNEL INLET AND MAINT. ROAD CROSSING PER SECTION C-C SHEET 24
- 5 NEW JAGERSON CHANNEL PER TYPICAL SECTION SHEET 5
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- 11 SAFETY RAIL TYPE 2 PER MAG STD DETAIL 145
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- 17 FILL GABION VOID SPACE WITH GROUT OR EQUIVALENT FLOWABLE FILL
- 18 COMPACTED AGGREGATE BASE (AB) MATERIAL



NO.	REVISION DESCRIPTION	DATE

FINAL DESIGN PLANS

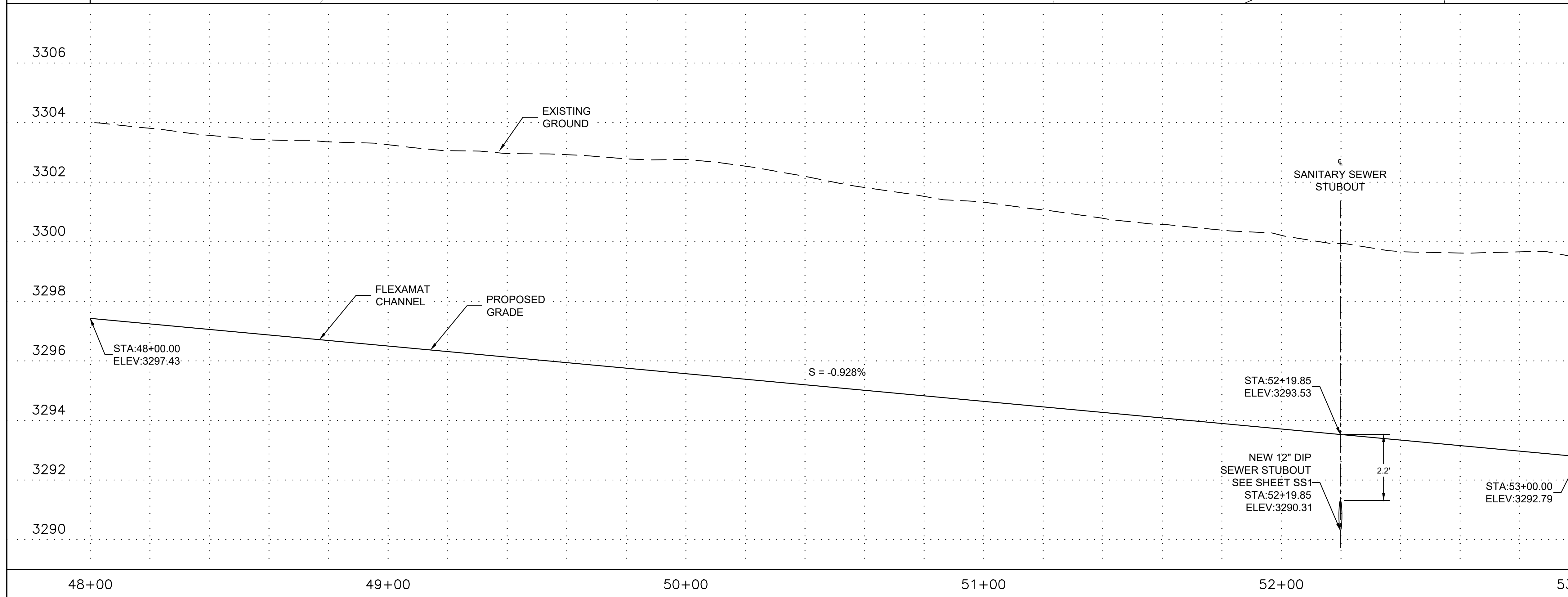
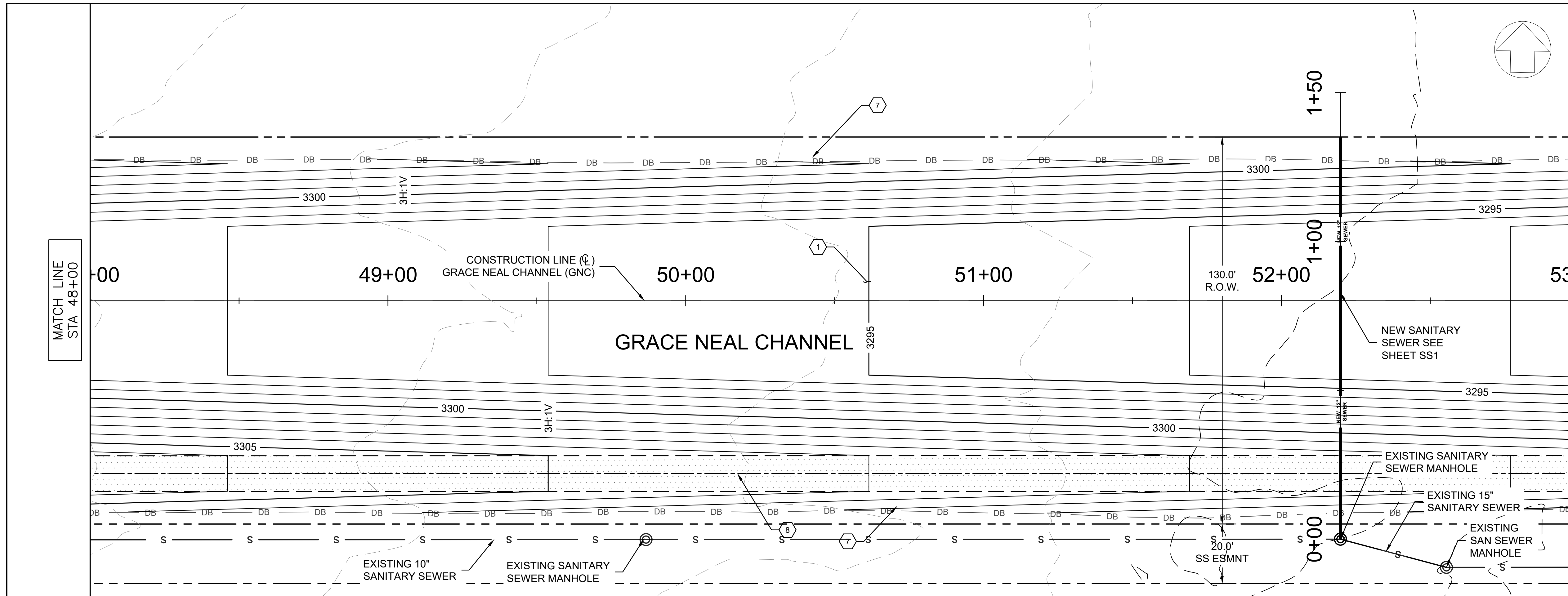
Professional Engineer License No. 47673
 REYNOLD A. KRAFT
 Date signed: 2/22/23
 ARIZONA, U.S.A.

14040 N Cave Creek Rd #104
 Phoenix, AZ 85022
 (602) 769-9034

Grace Neal Channel Phase 2
 Mohave County Flood Control District
 3250 E Kino Ave
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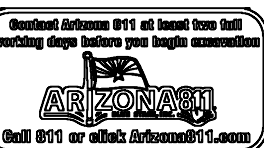
GRACE NEAL CHANNEL PLAN AND PROFILE STA 43+00 TO STA 48+00

CAD: CLJ	DSN: RAK	CHK: BNS
DATE: 2/22/23	DATE: 2/22/23	DATE: 2/22/23
SCALE: H: 10:1 V: 2:1	PROJECT NO: 22007	SHEET: C11
		SHEET NO: 16 OF 26



CONSTRUCTION NOTES

- 1 FLEXAMAT CHANNEL LINING PER TYPICAL SECTION SHEET 5
- 2 5-10'x5' RCBC PER ADOT STD DET SD 6.05
- 3 GABION MATTRESS SEDIMENT BASIN INLET PER SECTION A-A SHEET 24
- 4 JAGERSON CHANNEL INLET AND MAINT. ROAD CROSSING PER SECTION C-C SHEET 24
- 5 NEW JAGERSON CHANNEL PER TYPICAL SECTION SHEET 5
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- 17 FILL GABION VOID SPACE WITH GROUT OR EQUIVALENT FLOWABLE FILL
- 18 COMPACTED AGGREGATE BASE (AB) MATERIAL



NO.	REVISION DESCRIPTION	DATE

FINAL DESIGN PLANS

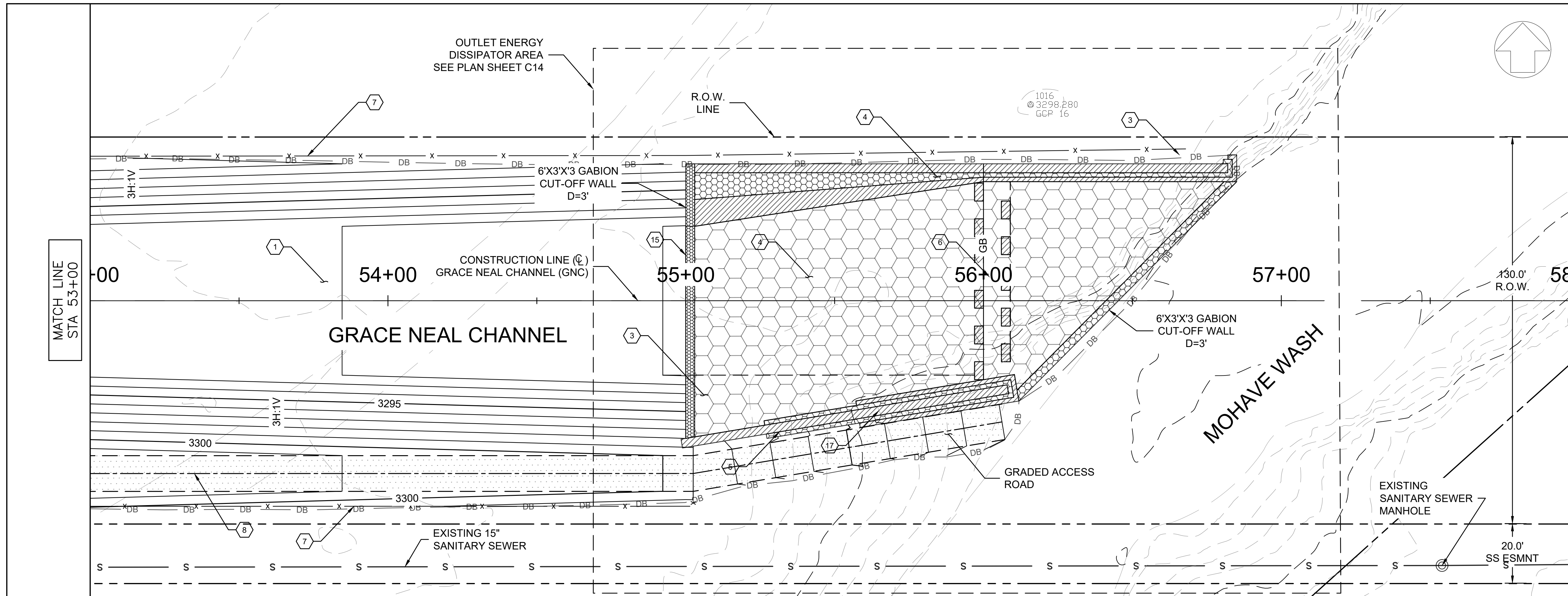
Professional Engineer License No. 47673
 REYNOLD A. KRAFT
 Date signed 2/22/23
 ARIZONA, U.S.A.

14040 N Cave Creek Rd #104
 Phoenix, AZ 85022
 (602) 769-9034

Grace Neal Channel Phase 2
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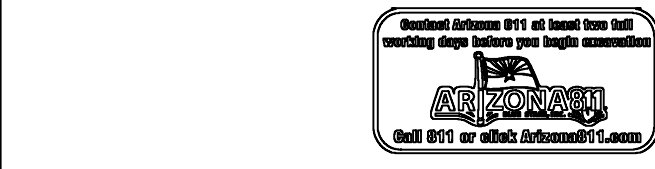
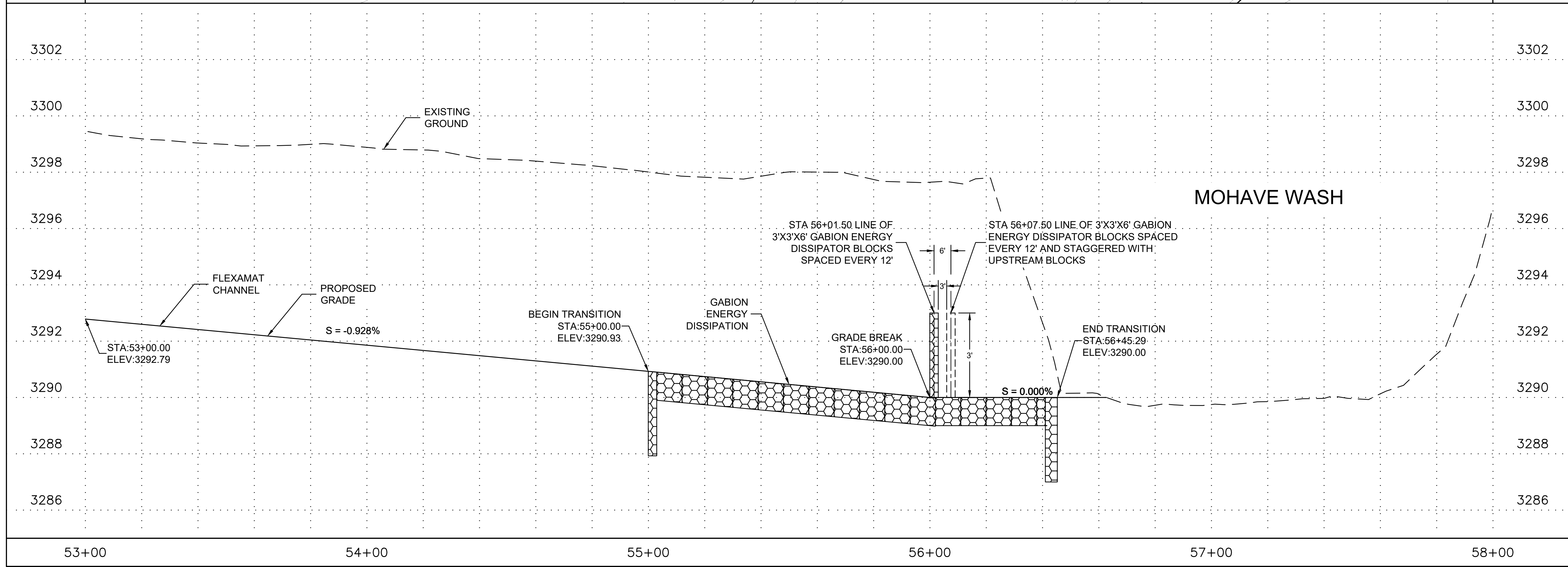
GRACE NEAL CHANNEL PLAN AND PROFILE STA 48+00 TO STA 53+00

CAD: CLJ	DSN: RAK	CHK: BNS
DATE 2/22/23	DATE 2/22/23	DATE 2/22/23
SCALE	PROJECT NO.	SHEET
H: 10:1 V: 2:1	22007	C12
		SHEET NO.
		17 OF 26



CONSTRUCTION NOTES

- 1 FLEXAMAT CHANNEL LINING PER TYPICAL SECTION SHEET 5
- 2 5-10x5' RCBC PER ADOT STD DET SD 6.05
- 3 GABION MATTRESS SEDIMENT BASIN INLET PER SECTION A-A SHEET 24
- 4 JAGERSON CHANNEL INLET AND MAINT. ROAD CROSSING PER SECTION C-C SHEET 24
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- 9 RAISED CHANNEL BERM, AND COMPACTED FILL
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- 17 FILL GABION VOID SPACE WITH GROUT OR EQUIVALENT FLOWABLE FILL
- 18 COMPACTED AGGREGATE BASE (AB) NOTE: SEE SHEET C14 FOR CONSTRUCTION SPOT ELEVATIONS



NO.	REVISION DESCRIPTION	DATE

FINAL DESIGN PLANS

Professional Engineer License No. 47673
 REYNOLD A. KRAFT
 Date signed: 2/22/23
 ARIZONA, U.S.A.

14040 N Cave Creek Rd #104
 Phoenix, AZ 85022
 (602) 769-9034

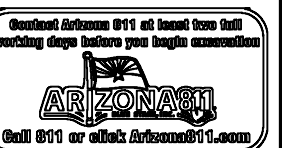
Grace Neal Channel Phase 2
 Mohave County Flood Control District
 3250 E Kino Ave
 Kingman, AZ 86402

**GRACE NEAL CHANNEL
 PLAN AND PROFILE
 STA 53+00 TO STA 58+00**

CAD: CLJ	DSN: RAK	CHK: BNS
DATE: 2/22/23	DATE: 2/22/23	DATE: 2/22/23
SCALE: H: 10:1 V: 2:1	PROJECT NO: 22007	SHEET: C13
		SHEET NO: 18 OF 26

CONSTRUCTION NOTES

- 1 FLEXAMAT CHANNEL LINING PER TYPICAL SECTION SHEET 5
- 2 5-10'x5' RCBC PER ADOT STD DET SD 6.05
- 3 GABION MATRESS SEDIMENT BASIN INLET PER SECTION A-A SHEET 24
- 4 JAGERSON CHANNEL INLET AND MAINT. ROAD CROSSING PER SECTION C-C SHEET 24
- 5 NEW JAGERSON CHANNEL PER TYPICAL SECTION SHEET 5
- 6 GABION CHANNEL OUTLET AND ENERGY DISSIPATOR PER DETAIL 4 SHEET 25
- 7 BARBED WIRE FENCE (4 WIRE, TYPE 1) ADOT STD DET C-12.10 SEE PLANS FOR LOCATION OF GATES/FLOOD GATES
- 8 12' MAINTENANCE ROAD, COMPACTED FILL
- 9 RAISED CHANNEL BERM, AND COMPACTED FILL
- 10 MAINTENANCE ACCESS RAMP PER SECTION D-D SHEET 24
- 11 SAFETY RAIL TYPE 2 PER MAG STD DETAIL 145
- 12 GABION SEDIMENT BASIN OUTLET WEIR PER SECTION B-B SHEET 24
- 13 GABION WALL CHANNEL TRANSITION PER TYPICAL SECTION SHEET 5
- 14 36" RCP STUB OUT AND PLUG PER DETAIL SHEETS 25 AND 26
- 15 TRANSITION FROM FLEXAMAT TO GABIONS PER DETAIL 1 SHEET 25
- 16 TRANSITION FROM GABIONS TO FLEXAMAT PER DETAIL 2 SHEET 25
- 17 FILL GABION VOID SPACE WITH GROUT OR EQUIVALENT FLOWABLE FILL
- 18 COMPACTED AGGREGATE BASE (AB) NOTE: SEE SHEET C13 FOR COMPLETE CONSTRUCTION NOTES.



NO.	REVISION DESCRIPTION	DATE

FINAL DESIGN PLANS

Professional Engineer
 REYNOLD A. KRAFT
 License No. 47673
 State of Arizona, U.S.A.

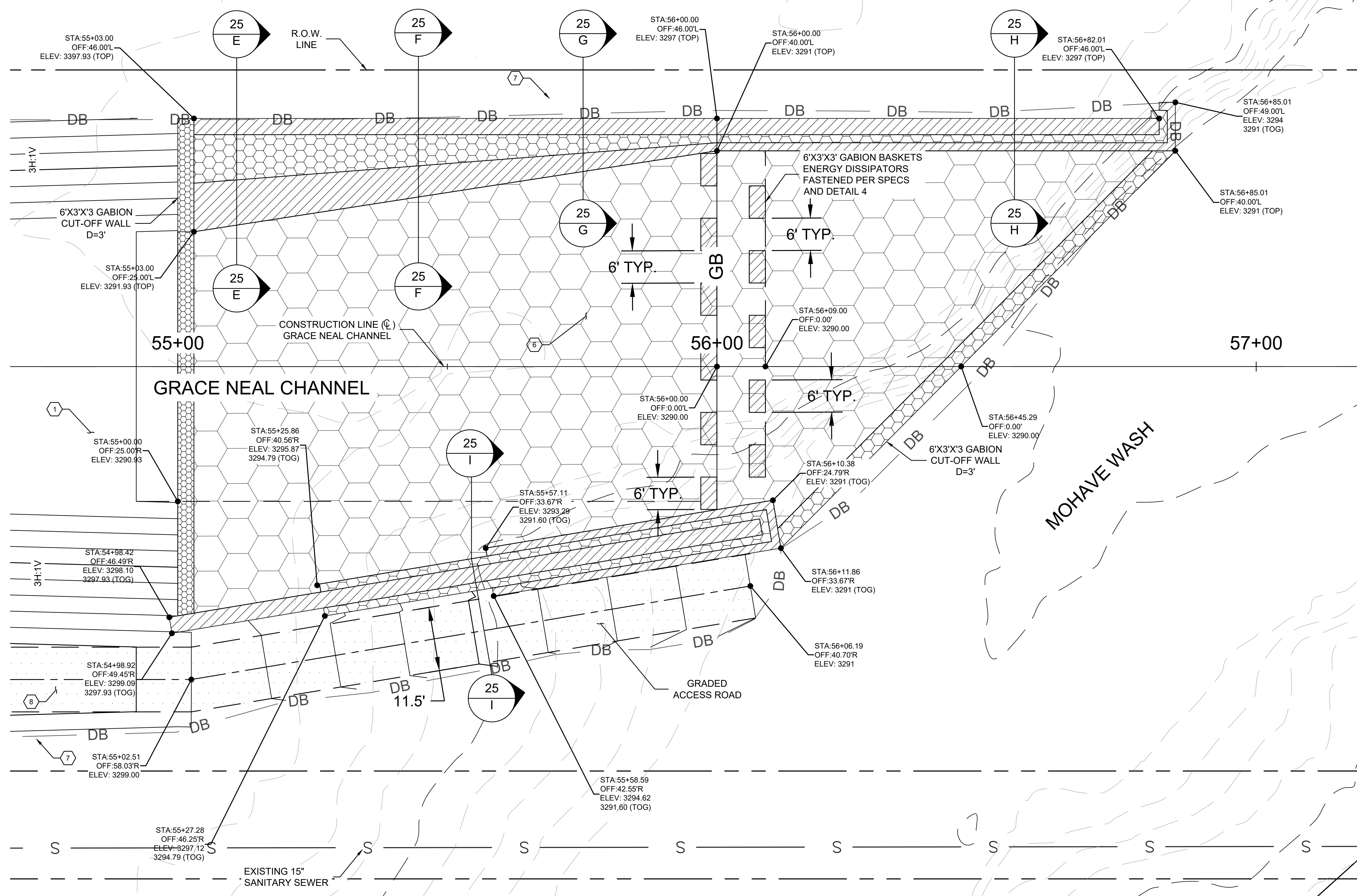
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 Phoenix, AZ 85022
 (602) 769-9034

Grace Neal Channel Phase 2
 Mohave County Flood Control District
 3250 E Kino Ave
 Kingman, AZ 86402

ENERGY DISSIPATOR PLAN
 STA 55+00 TO STA 57+00

CAD: CLJ	DSN: RAK	CHK: BNS
DATE 2/22/23	DATE 2/22/23	DATE 2/22/23
SCALE 10:1	PROJECT NO. 22007	SHEET C14
		SHEET NO. 19 OF 26



STA:55+03.00 OFF:46.00'L ELEV: 3397.93 (TOP)

STA:55+00.00 OFF:25.00'L ELEV: 3291.93 (TOP)

STA:55+25.86 OFF:40.56'R ELEV: 3295.87 3294.79 (TOG)

STA:55+98.42 OFF:46.49'R ELEV: 3298.10 3297.93 (TOG)

STA:54+98.92 OFF:49.45'R ELEV: 3299.09 3297.93 (TOG)

STA:55+02.51 OFF:58.03'R ELEV: 3299.00

STA:55+27.28 OFF:46.25'R ELEV: 3297.12 3294.79 (TOG)

STA:55+58.59 OFF:42.55'R ELEV: 3294.62 3291.60 (TOG)

STA:56+00.00 OFF:46.00'L ELEV: 3297 (TOP)

STA:56+00.00 OFF:40.00'L ELEV: 3291 (TOP)

STA:56+09.00 OFF:0.00' ELEV: 3290.00

STA:56+10.38 OFF:24.79'R ELEV: 3291 (TOG)

STA:56+45.29 OFF:0.00' ELEV: 3290.00

STA:56+11.86 OFF:33.67'R ELEV: 3291 (TOG)

STA:56+06.19 OFF:40.70'R ELEV: 3291

STA:56+85.01 OFF:49.00'L ELEV: 3294 3291 (TOG)

STA:56+85.01 OFF:40.00'L ELEV: 3291 (TOP)

R.O.W. LINE

CONSTRUCTION LINE (CL) GRACE NEAL CHANNEL

GRACE NEAL CHANNEL

MOHAVE WASH

GRADED ACCESS ROAD

EXISTING 15" SANITARY SEWER

6' TYP.

6'x3'x3' GABION BASKETS ENERGY DISSIPATORS FASTENED PER SPECS AND DETAIL 4

6'x3'x3' GABION CUT-OFF WALL D=3'

DB

GB

3H:1V

25 E

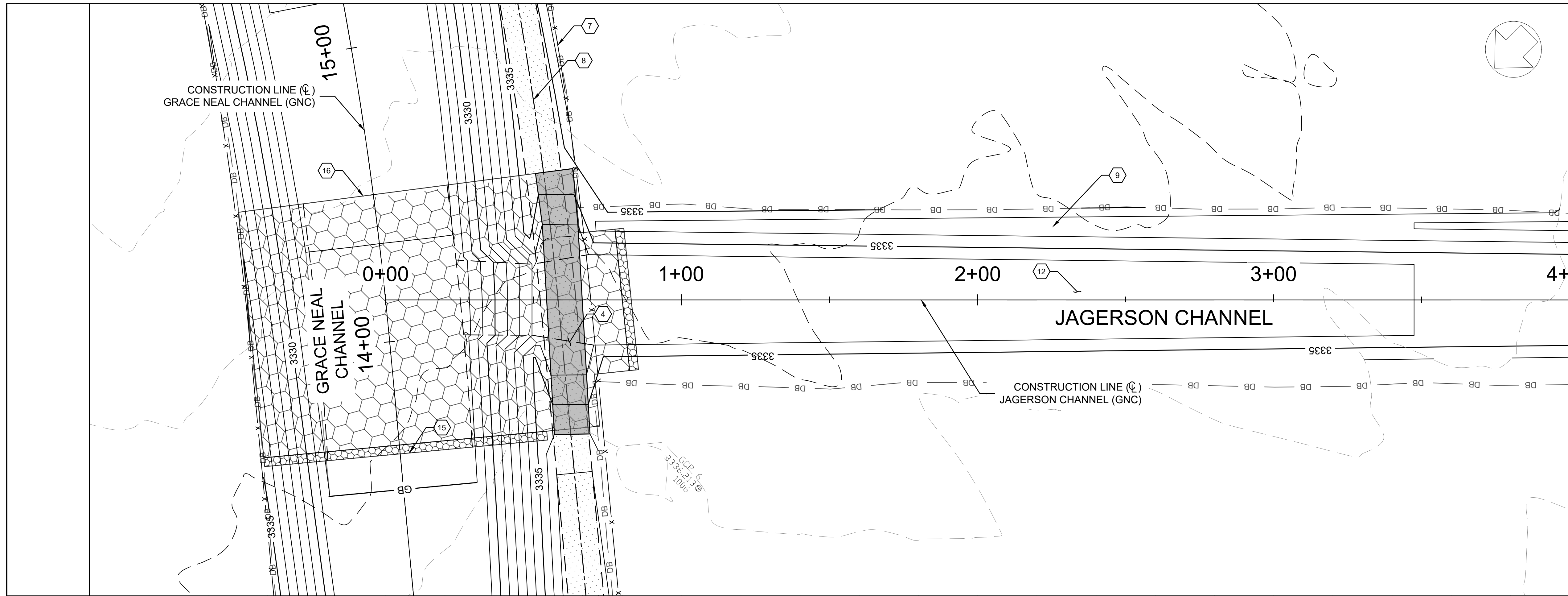
25 F

25 G

25 H

25 I

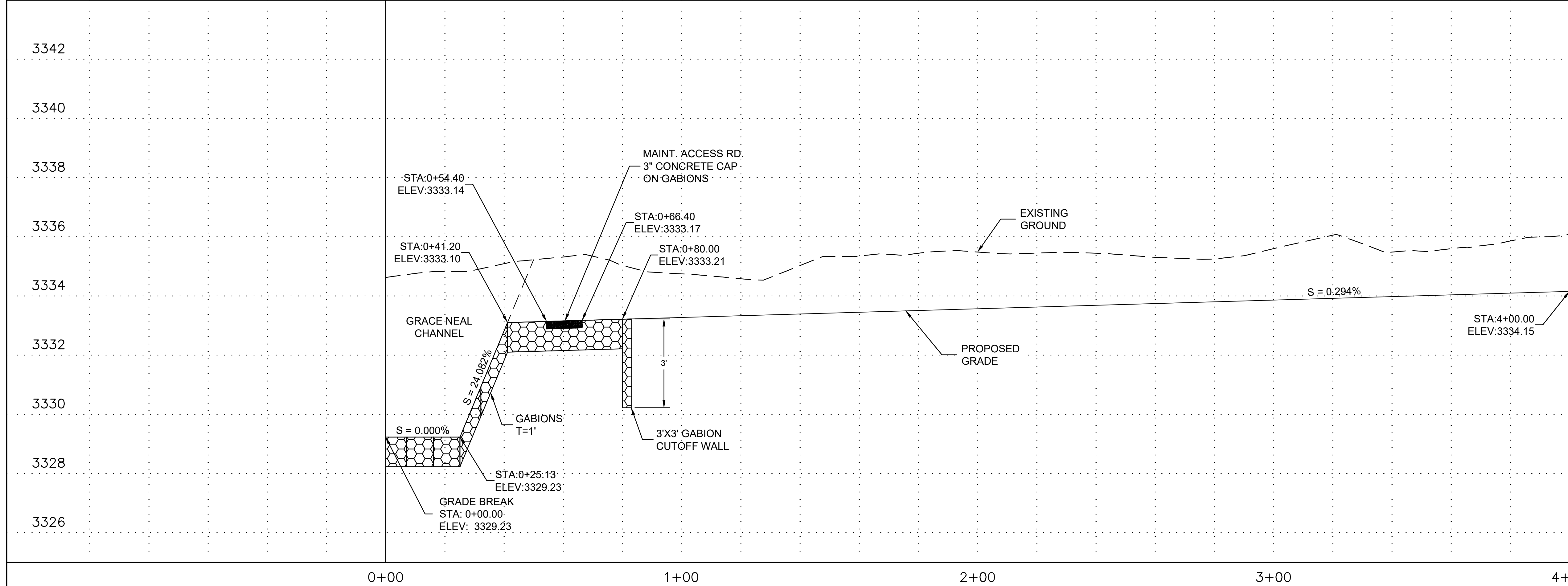
11.5'



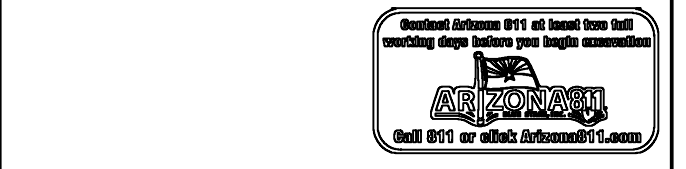
MATCH LINE
STA 4+00

CONSTRUCTION NOTES

- 1 FLEXAMAT CHANNEL LINING PER TYPICAL SECTION SHEET 5
- 2 5-10"x5" RCBC PER ADOT STD DET SD 6.05
- 3 GABION MATTRESS SEDIMENT BASIN INLET PER SECTION A-A SHEET 24
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- 18 COMPACTED AGGREGATE BASE (AB) MATERIAL



MATCH LINE
STA 4+00



NO.	REVISION DESCRIPTION	DATE

FINAL DESIGN PLANS

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Phoenix, AZ 85022
(602) 769-9034

Grace Neal Channel Phase 2
Mohave County Flood Control District
3250 E Kino Ave
Kingman, AZ 86402

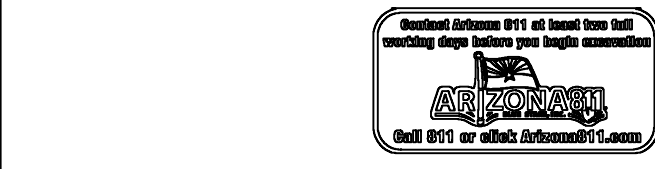
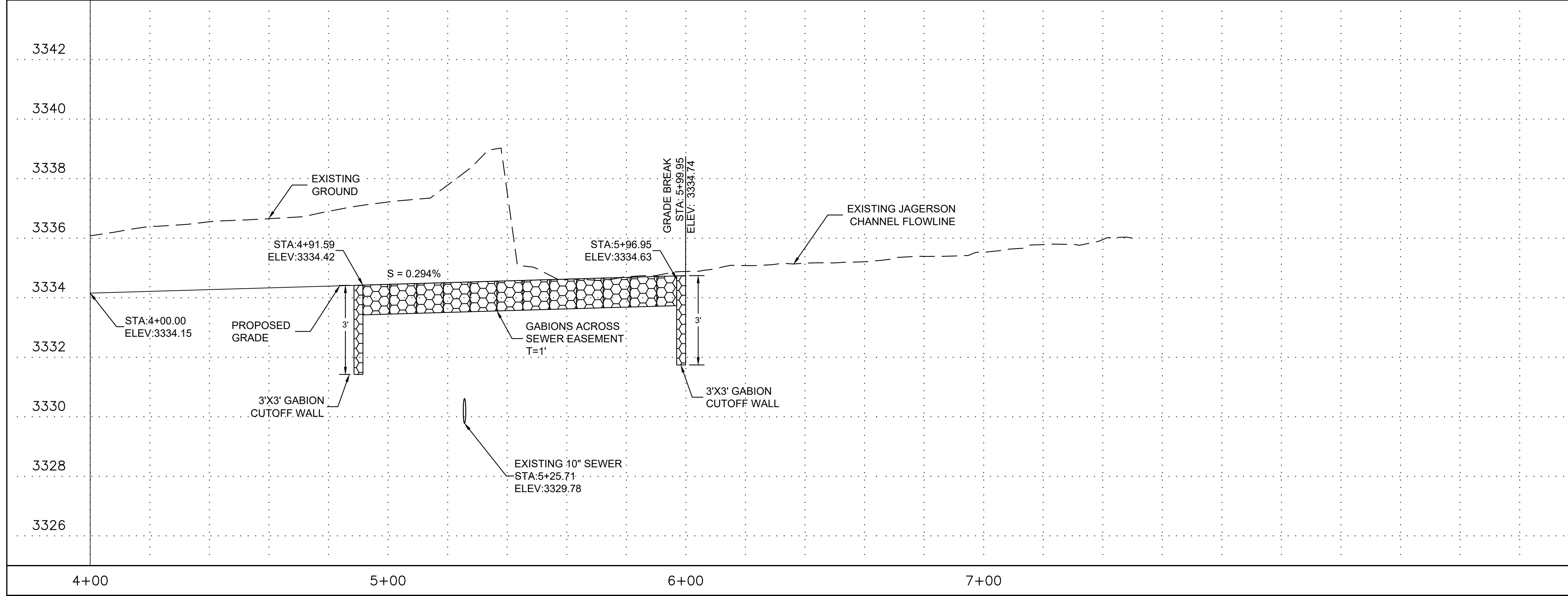
**JAGERSON CHANNEL
PLAN AND PROFILE
STA 0+00 TO STA 4+00**

CAD: CLJ	DSN: RAK	CHK: BNS
DATE 2/22/23	DATE 2/22/23	DATE 2/22/23
SCALE	PROJECT NO.	SHEET
H: 10:1 V: 2:1	22007	C15
		SHEET NO.
		20 OF 26



CONSTRUCTION NOTES

- 1 FLEXAMAT CHANNEL LINING PER TYPICAL SECTION SHEET 5
- 2 5-10"x5" RCBC PER ADOT STD DET SD 6.05
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- 18 COMPACTED AGGREGATE BASE (AB) MATERIAL



NO.	REVISION DESCRIPTION	DATE

FINAL DESIGN PLANS

Professional Engineer License
 REYNOLD A. KRAFT
 License No. 47673
 State of Arizona, U.S.A.
 Date signed 1/22/23

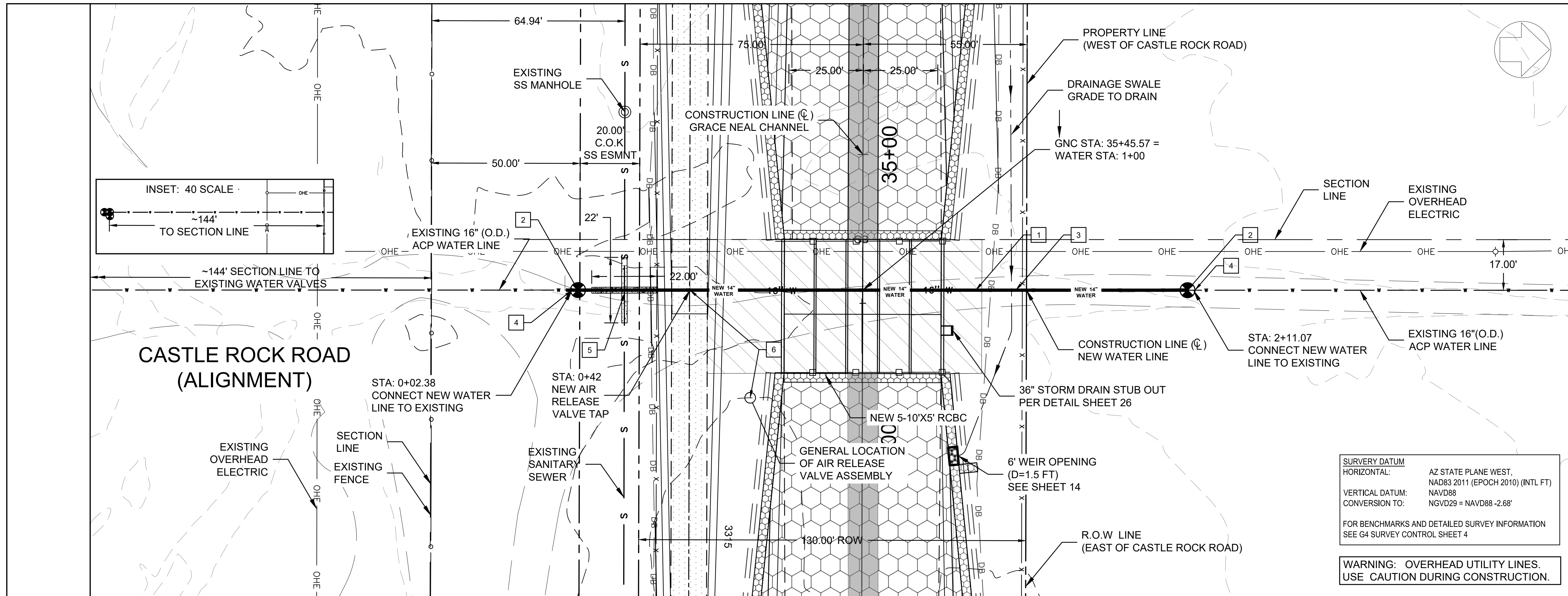
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Grace Neal Channel Phase 2
 Mohave County Flood Control District
 3250 E Kino Ave
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**JAGERSON CHANNEL
 PLAN AND PROFILE
 STA 4+00 TO STA 7+50**

CAD: CLJ	DSN: RAK	CHK: BNS
DATE 2/22/23	DATE 2/22/23	DATE 2/22/23
SCALE	PROJECT NO.	SHEET
H: 10:1 V: 2:1	22007	C16
		SHEET NO.
		21 OF 26



WATER CONSTRUCTION NOTES

- 1 REMOVE EXISTING 16" (O.D.) ACP WATERLINE AND INSTALL CEMENT MORTAR LINED DUCTILE IRON PIPE (PRESSURE CLASS 350 AND POLYETHYLENE ENCASED) PER COK STANDARDS & SPECIFICATIONS AT GRADES SHOWN IN PROFILE. (ALL JOINTS SHALL BE RESTRAINED WITH APPROVED METHODS - DIP JOINT TO BE RESTRAINED PER MAG STD DETAIL 302 & 303.)
- 2 INSTALL NEW 14" IRON BODY, RESILIENT WEDGE GATE VALVE (FLGMJ) AND VALVE BOX PER COK STD DET 391 AND MODIFIED MAG STD DET 301 SHOWN ON SHEET D1.
- 3 CONTRACTOR TO PROVIDE FOR PROVISIONS TO TEST AND CHLORINATE THE NEW WATER LINE PRIOR TO CONNECTION TO THE EXISTING SYSTEM WITH A CHLORINATION AND FLUSHING PORT PER CITY OF KINGMAN STANDARDS.
- 4 JOIN TO EXISTING ACP PIPE WITH A "WIDE RANGE" OR "ALL-RANGE" TYPE REPAIR COUPLING, IF NECESSARY.
- 5 WATER/SEWER SEPARATION/PROTECTION PER COK STD DETAIL 404-1 AND MAG STD DETAIL 404
- 6 AIR RELEASE VALVE PER COK STD DETAIL 388

* IN ACCORDANCE WITH AAC R18-4-213 ALL MATERIALS WHICH MAY COME INTO CONTACT WITH DRINKING WATER SHALL CONFORM TO NATIONAL SANITATION FOUNDATION STANDARDS 60 AND 61, INCLUDING CHEMICALS USED FOR DISINFECTION.

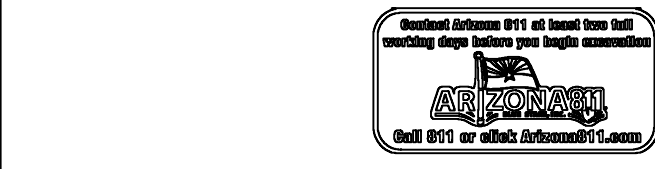
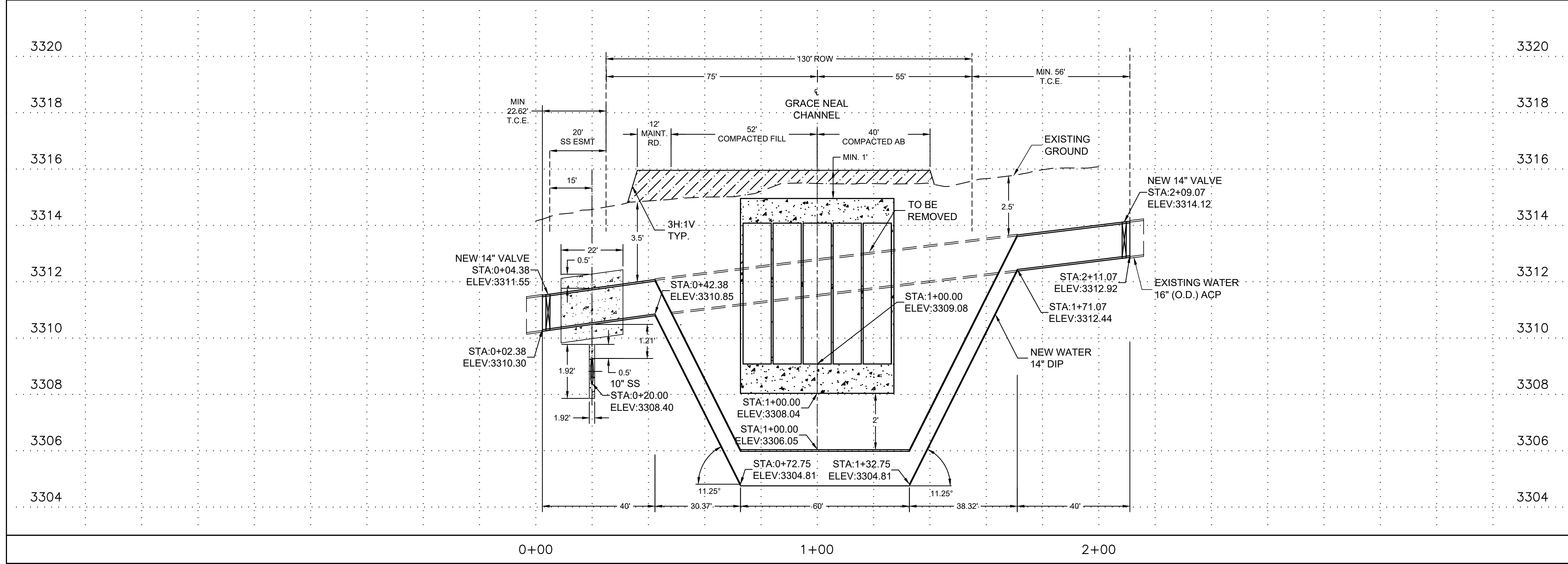
NOTES
UTILITY LOCATIONS ARE APPROXIMATE. CONTRACTOR TO LOCATE ALL UTILITIES PRIOR TO CONSTRUCTION.

EXISTING WATER LINE IS A TRANSMISSION LINE AND WILL REQUIRE CLOSE COORDINATION WITH THE COK WHEN / IF THE LINE IS SHUT DOWN PARTICULARLY DURING PERIODS OF HIGH WATER USE (SUMMER MONTHS)

SURVEY DATUM
HORIZONTAL: AZ STATE PLANE WEST, NAD83 2011 (EPOCH 2010) (INTL FT)
VERTICAL DATUM: NAVD88
CONVERSION TO: NGVD29 = NAVD88 - 2.68'

FOR BENCHMARKS AND DETAILED SURVEY INFORMATION SEE G4 SURVEY CONTROL SHEET 4

WARNING: OVERHEAD UTILITY LINES. USE CAUTION DURING CONSTRUCTION.



NO.	REVISION DESCRIPTION	DATE

FINAL DESIGN PLANS

Professional Engineer
REYNOLD A. KRAFT
Date signed: 2/22/23
ARIZONA, U.S.A.

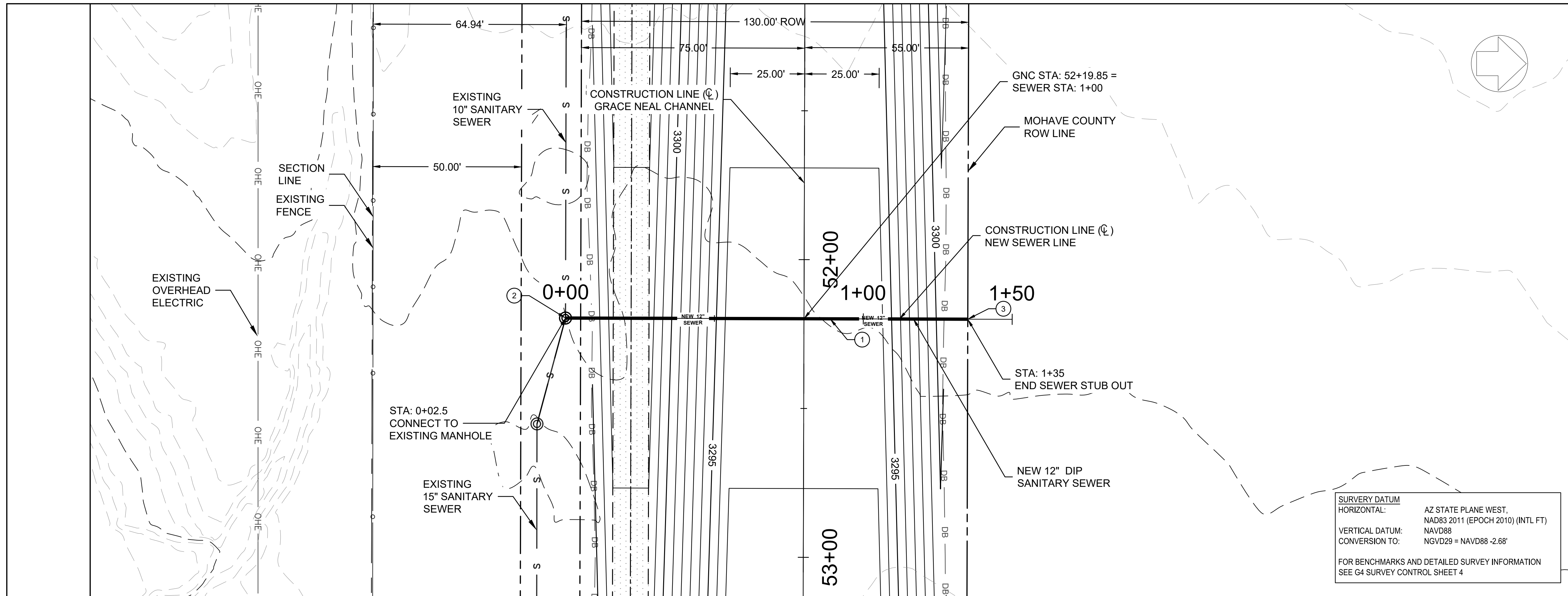


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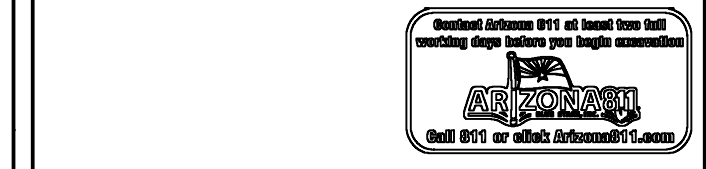
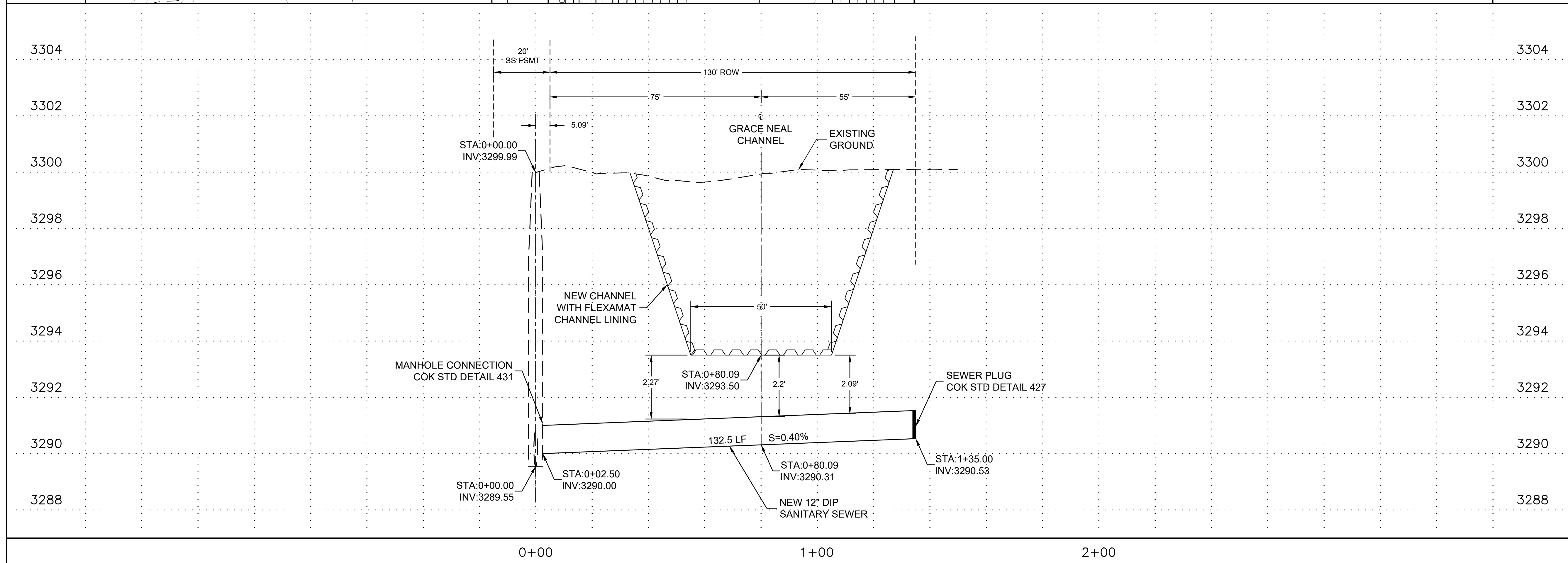
WATER LINE RELOCATION PLAN AND PROFILE STA 0+00 TO STA 2+15

CAD: CLJ	DSN: RAK	CHK: BNS
DATE: 2/22/23	DATE: 2/22/23	DATE: 2/22/23
SCALE: H: 10:1 V: 2:1	PROJECT NO: 22007	SHEET: W1
		SHEET NO: 22 OF 26



SEWER CONSTRUCTION NOTES

- ① 12" DIP EPOXY LINED SANITARY SEWER, TRENCH PER COK STD DETAIL 400.
- ② MANHOLE CONNECTION PER COK STD DET 431
- ③ SEWER PLUG PER COK STD DET 427



NO.	REVISION DESCRIPTION	DATE

FINAL DESIGN PLANS

Professional Engineer License No. 47673
 REYNOLD A. KRAFT
 Date signed: 2/22/23
 ARIZONA, U.S.A.

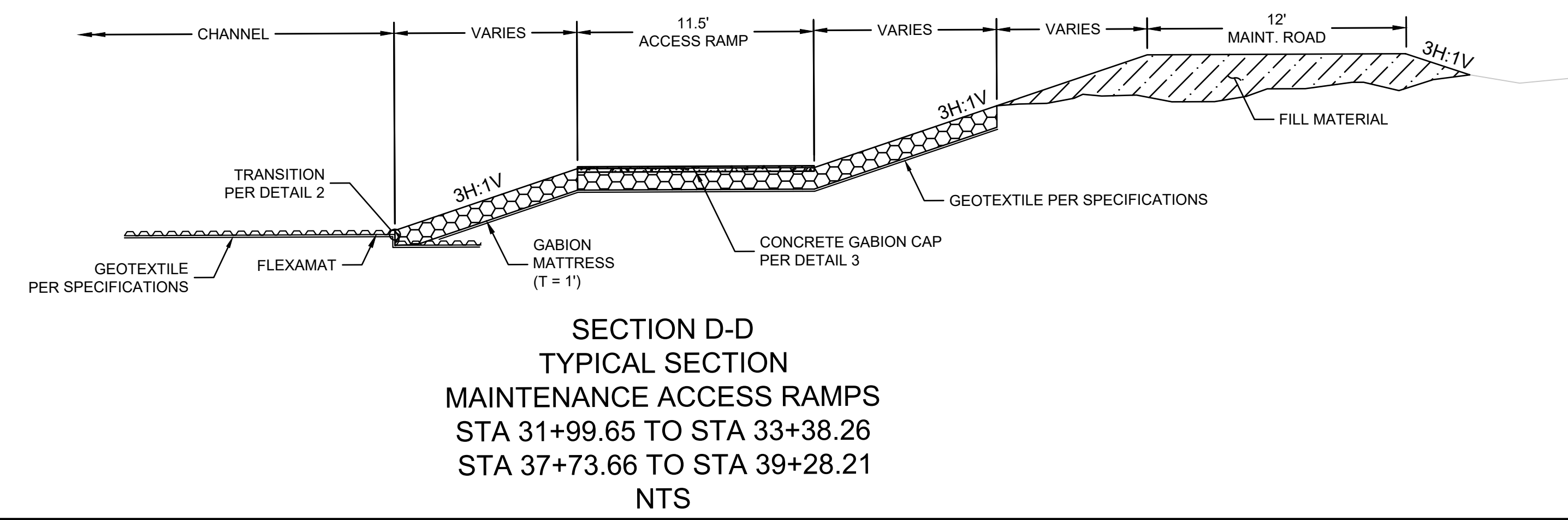
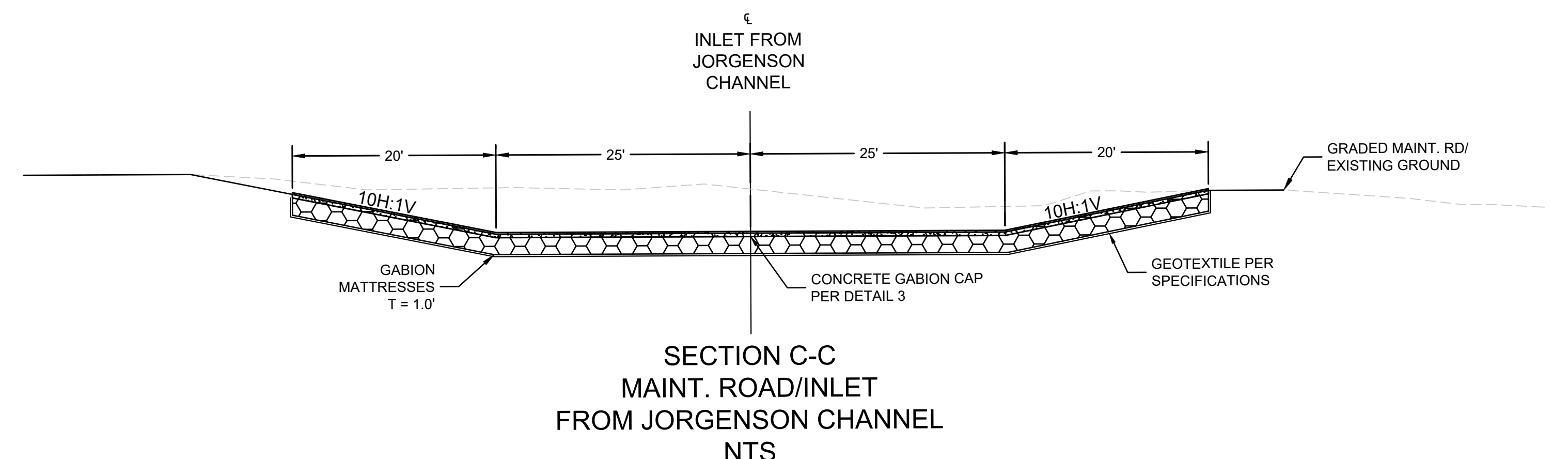
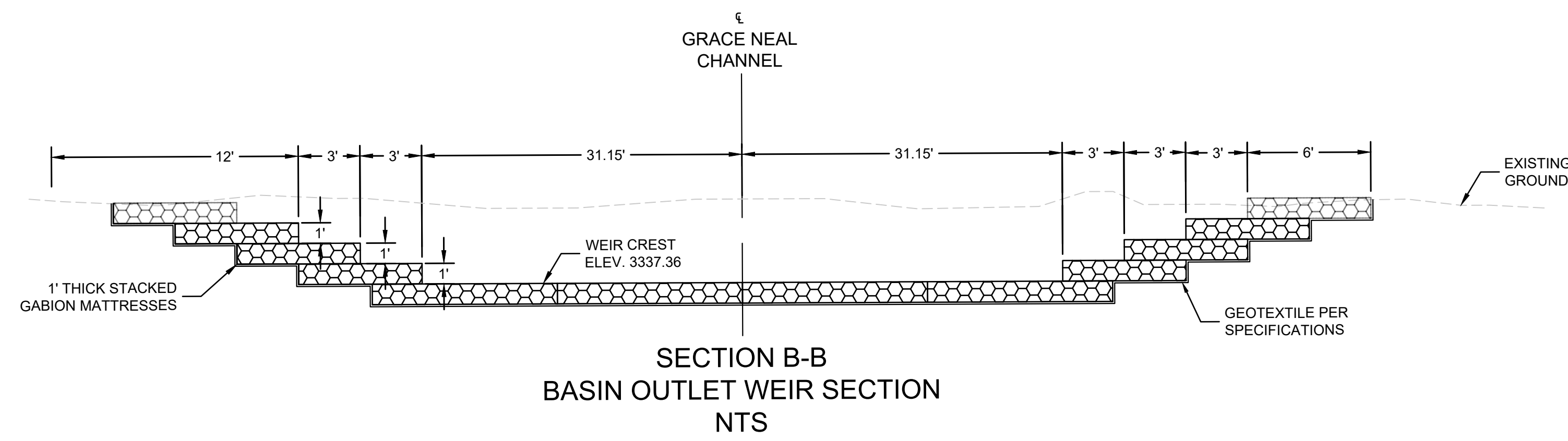
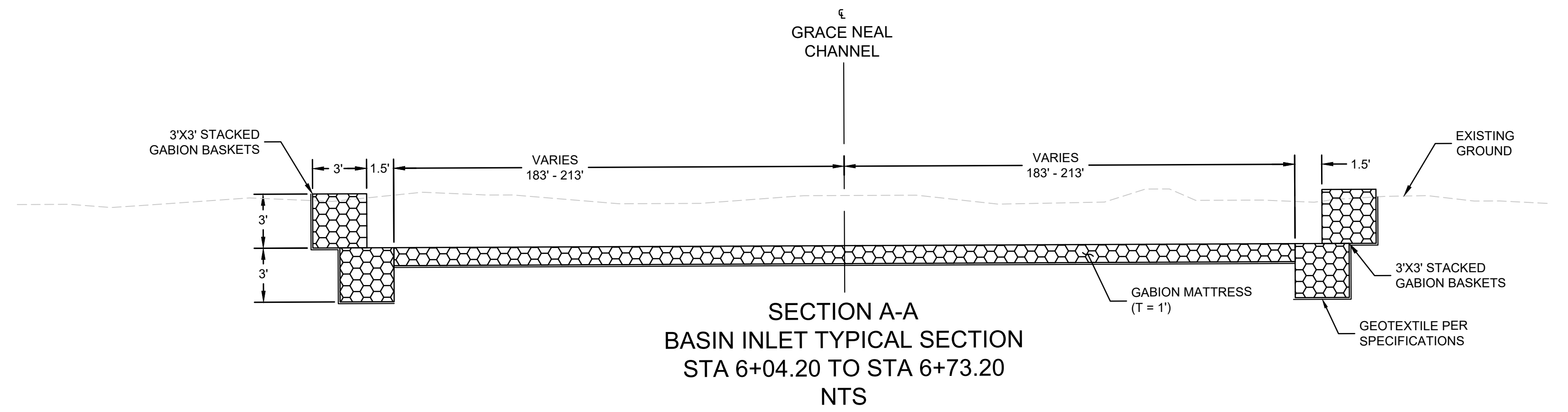
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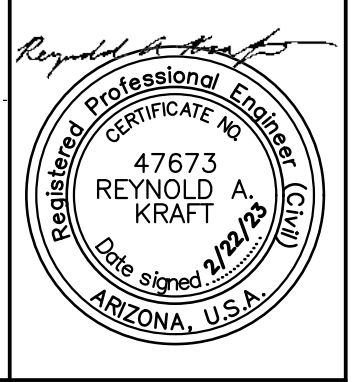
Grace Neal Channel Phase 2
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SANITARY SEWER STUB OUT PLAN AND PROFILE STA 0+00 TO STA 1+35

CAD: CLJ	DSN: RAK	CHK: BNS
DATE: 2/22/23	DATE: 2/22/23	DATE: 2/22/23
SCALE	PROJECT NO.	SHEET
H: 10:1 V: 2:1	22007	SS1
		SHEET NO.
		23 OF 26



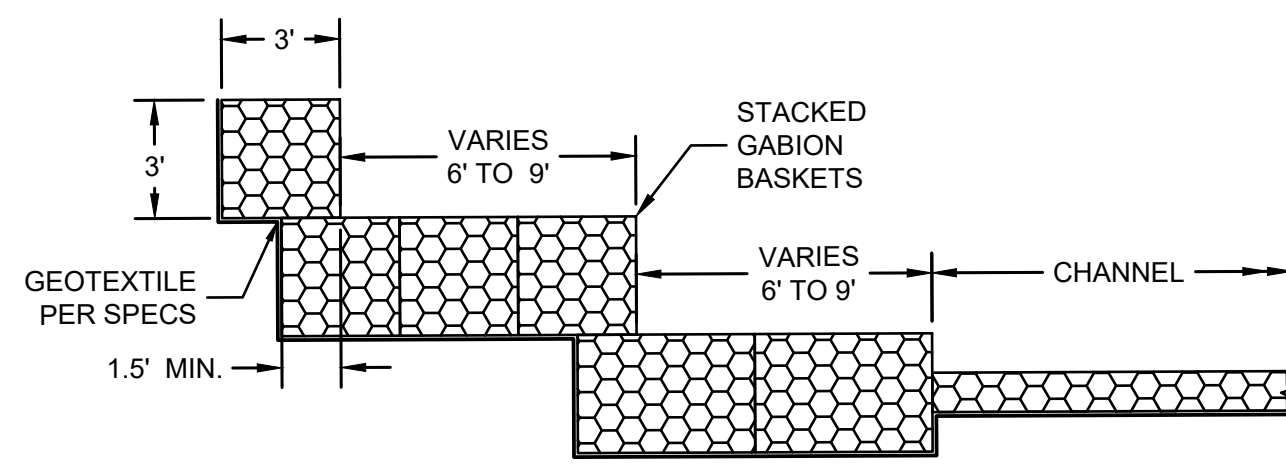
FINAL DESIGN PLANS



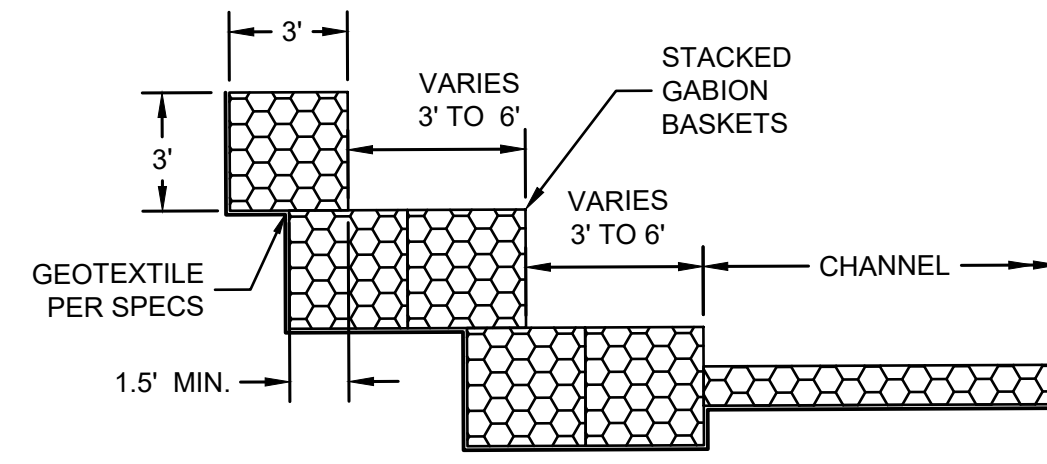
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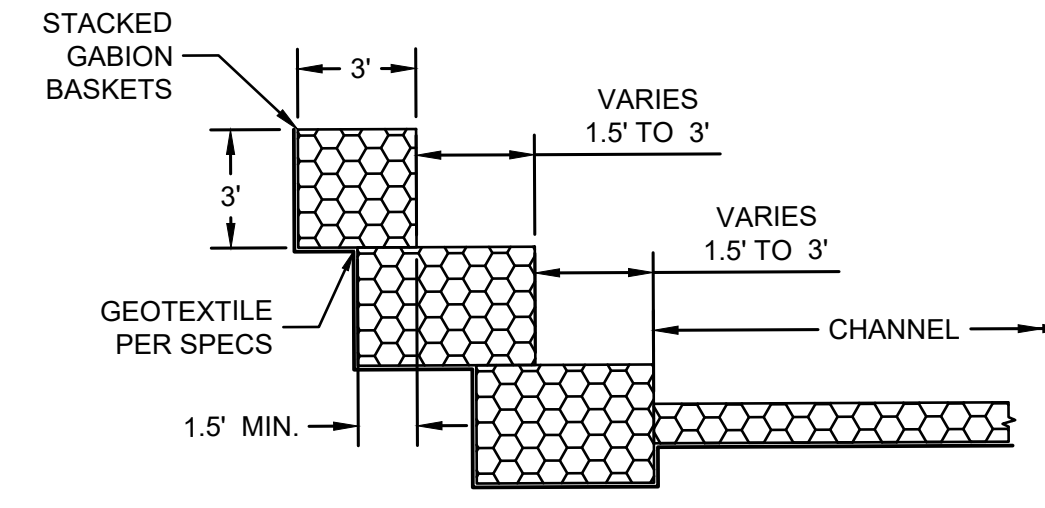
DETAIL SHEET			
CAD: CLJ	DSN: RAK	CHK: BNS	
DATE 2/22/23	DATE 2/22/23	DATE 2/22/23	
SCALE	PROJECT NO.	SHEET	SHEET NO.
N/A	22007	D1	24 OF 26



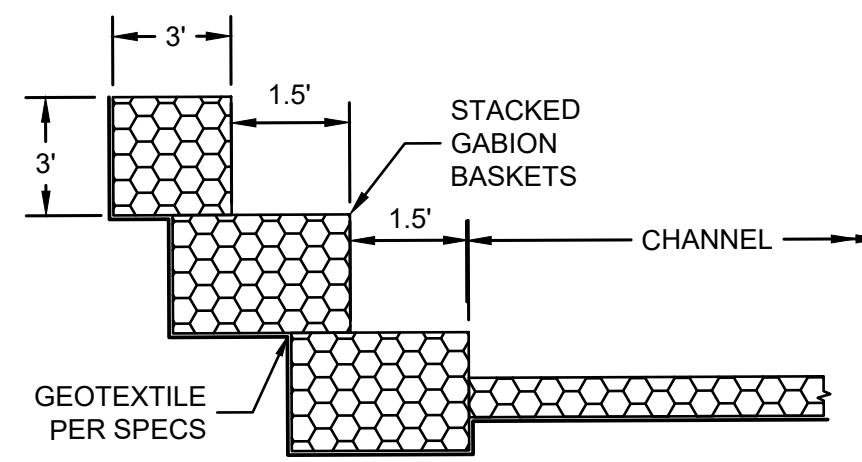
SECTION E-E
CHANNEL TRANSITION
STA 55+03.00 TO STA 55+35.33
NTS



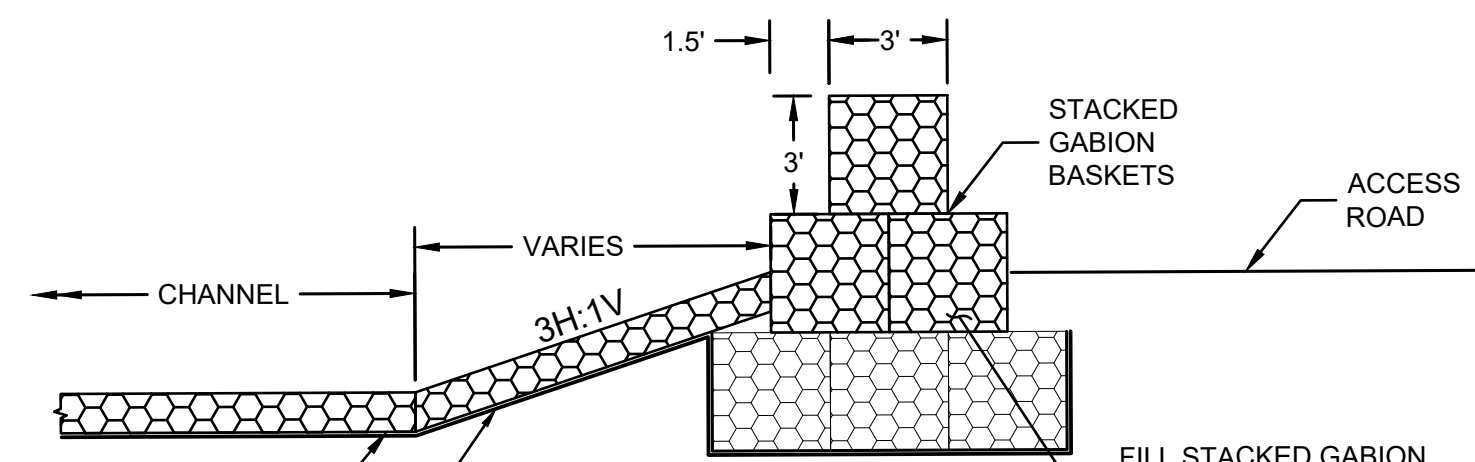
SECTION F-F
CHANNEL TRANSITION
STA 55+35.33 TO STA 55+67.67
NTS



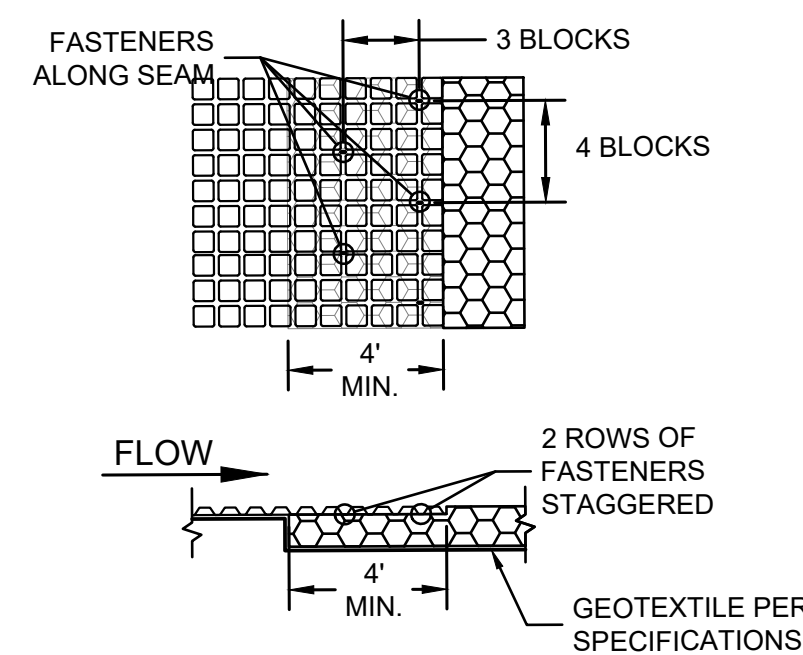
SECTION G-G
CHANNEL TRANSITION
STA 55+67.67 TO STA 56+00.00
STA 56+82
NTS



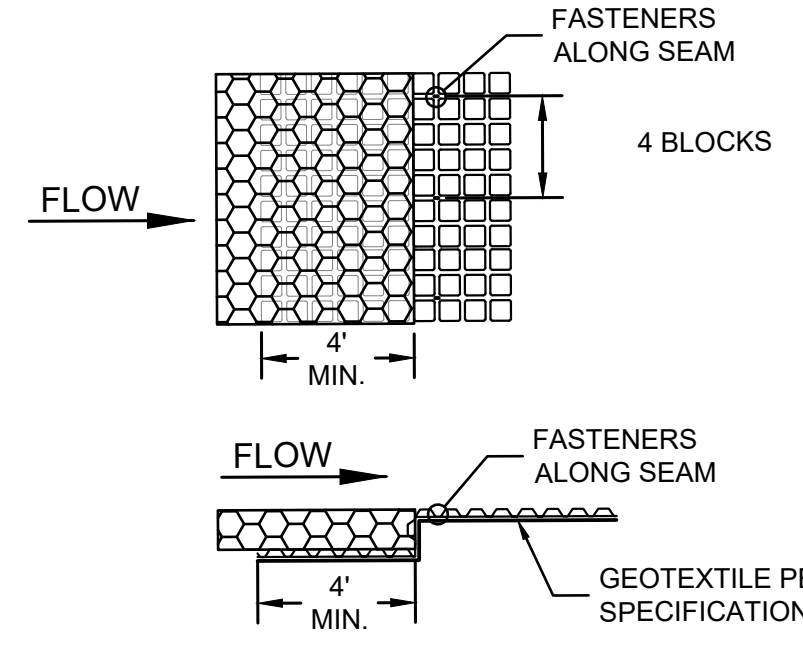
SECTION H-H
CHANNEL TRANSITION
STA 56+00.00 TO STA 56+82.00
NTS



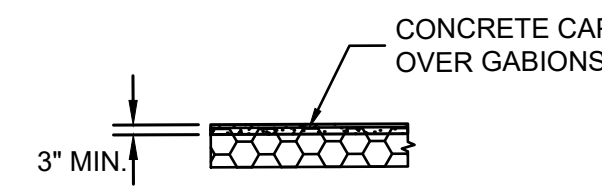
SECTION I-I
CHANNEL TRANSITION
STA 55+00 TO STA 56+10
NTS



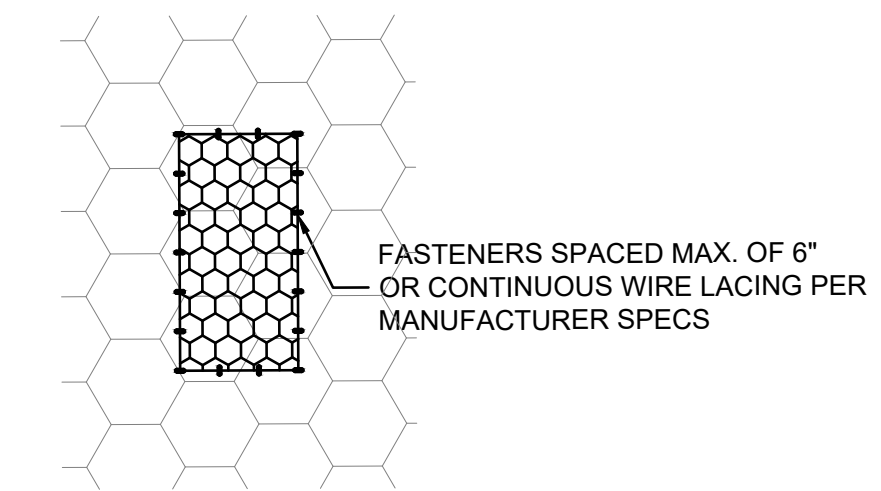
DETAIL 1
TRANSITION SEAM FROM
FLEXAMAT TO GABIONS
NTS



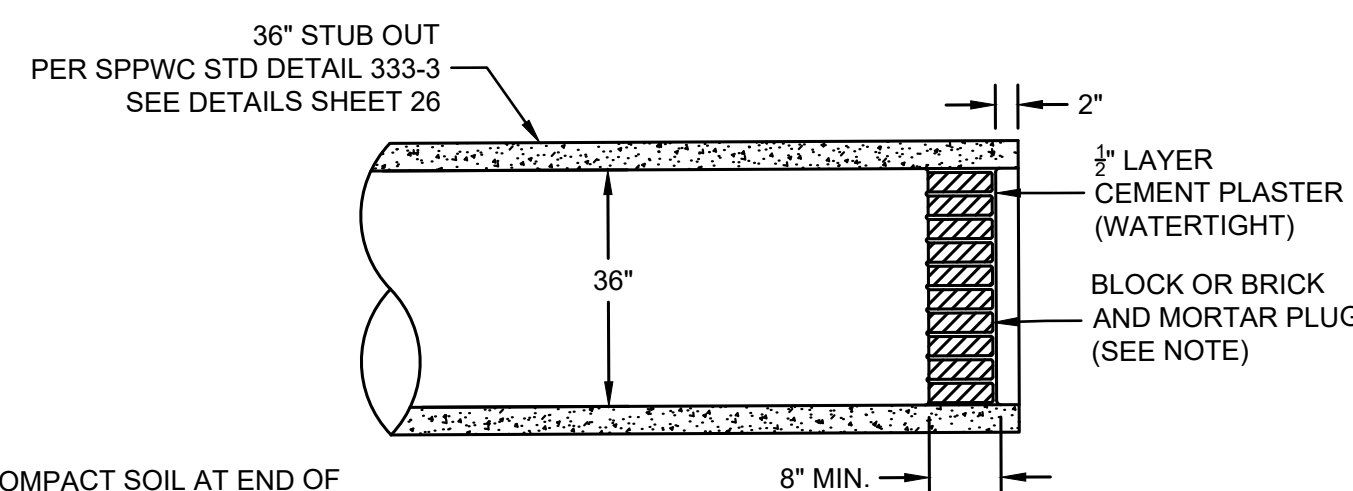
DETAIL 2
TRANSITION SEAM FROM
GABIONS TO FLEXAMAT
NTS



DETAIL 3
MAINTENANCE ACCESS ROAD
CONCRETE CAP OVER GABIONS
NTS



DETAIL 4
FASTENERS FOR ENERGY
DISSIPATOR BLOCKS
NTS



DETAIL 5
STUB OUT PLUG - DRAIN LINE
(MAG STD DET 427)
NTS

- NOTES:
1. COMPACT SOIL AT END OF PIPE TO 95% OF MAXIMUM DENSITY
 2. IF DEPTH OF COVER IS LESS THAN 5' OR GREATER THAN 10' INCREASE PLUG THICKNESS A MIN. OF 4"



NO.	REVISION DESCRIPTION	DATE

FINAL DESIGN PLANS

Professional Engineer
REYNOLD A. KRAFT
47673
Date signed 1/24/23
ARIZONA, U.S.A.

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Grace Neal Channel Phase 2
Mohave County Flood Control District
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DETAIL SHEET

CAD: CLJ	DSN: RAK	CHK: BNS
DATE 2/22/23	DATE 2/22/23	DATE 2/22/23
SCALE	PROJECT NO.	SHEET
N/A	22007	D2
		SHEET NO.
		25 OF 26

DETAIL
CONSTRUCTION NOTES

FOR DETAIL: A = 90° (PERP. TO BOX)
B = 36"
C = 4
ELEVATION R = 3309.95
ELEVATION S = 3310.00

FOR STUB OUT PLUG, SEE DETAIL 5 SHEET 25
(BASED ON MAG STD DETAILS 427)

DETAIL REFERENCE:
STANDARD PLANS FOR PUBLIC WORKS
CONSTRUCTION BY THE PUBLIC WORKS
STANDARDS INC GREENBOOK COMMITTEE



NO.	REVISION DESCRIPTION	DATE

FINAL DESIGN PLANS

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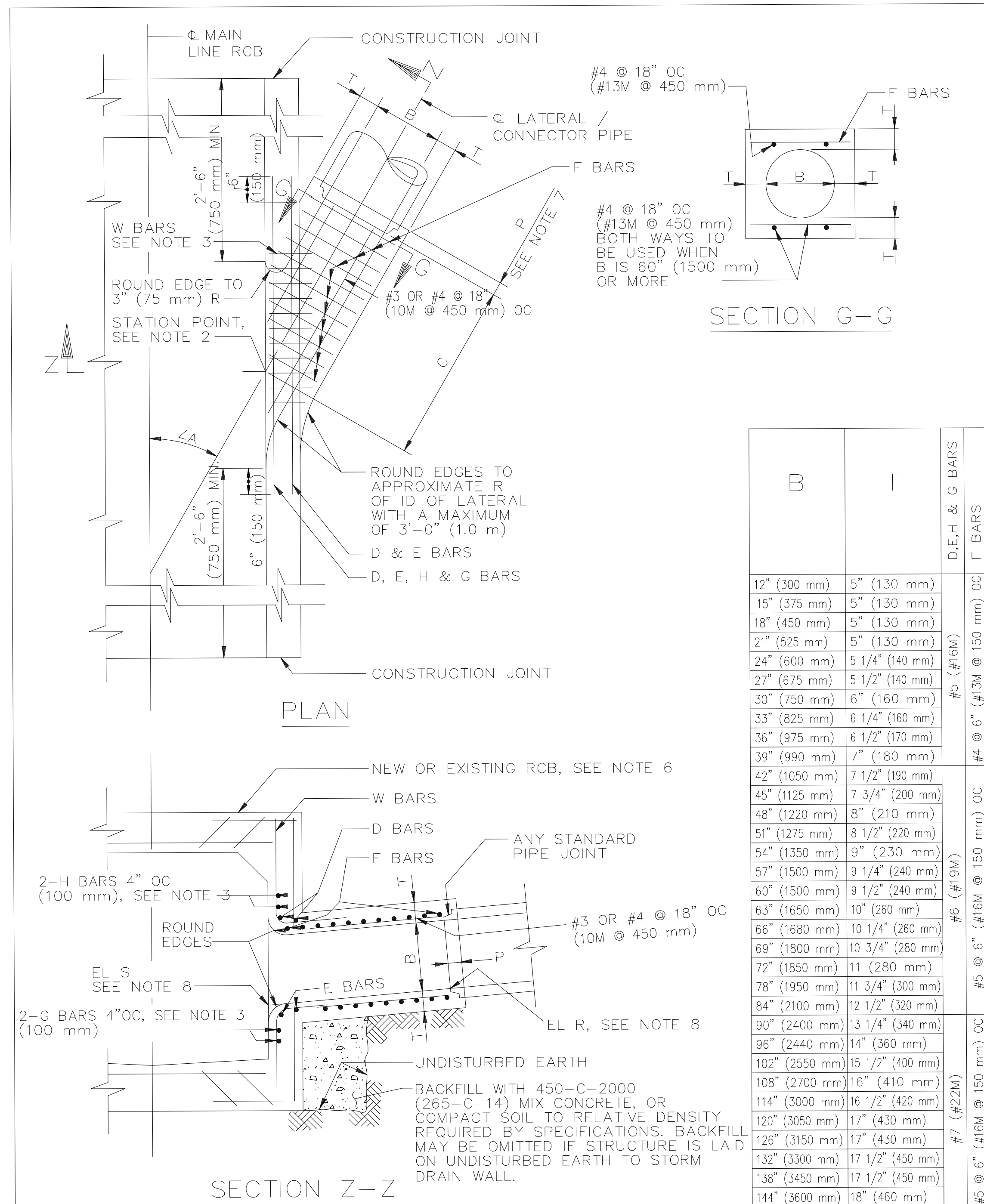
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STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION		STANDARD PLAN
JUNCTION STRUCTURE - PIPE TO RCB		333-2
USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION		SHEET 2 OF 2

CAD: CLJ	DSN: RAK	CHK: BNS
DATE: 2/22/23	DATE: 2/22/23	DATE: 2/22/23
SCALE: N/A	PROJECT NO.: 22007	SHEET: D3
		SHEET NO.: 26 OF 26

NOTES

- VALUES FOR A, B AND C SHALL BE SHOWN ON THE PLANS. ELEVATION R AND ELEVATION S SHALL BE SHOWN WHEN REQUIRED PER NOTE 8.
- STATIONS SPECIFIED ON THE PLANS APPLY AT THE INTERSECTION OF CENTERLINES OF MAIN LINE AND LATERALS, EXCEPT THAT STATIONS FOR CATCH BASIN CONNECTOR PIPES APPLY AT INSIDE WALL OF STRUCTURE.
- REINFORCING STEEL SHALL CONFORM TO ASTM A 615, GRADE 40, (ASTM A 615M, GRADE 300), AND SHALL TERMINATE 1 1/2" (40 mm) CLEAR OF CONCRETE SURFACE UNLESS OTHERWISE SHOWN.
 - W BARS ARE OF SIZE AND SPACING SPECIFIED FOR WALL STEEL ON PLANS, AND SHALL BE CUT IN CENTER OF OPENING AND BENT INTO TOP AND BOTTOM OF JUNCTION STRUCTURE.
 - OMIT H BARS WHEN SOFFIT OF SPUR IS 12" (300 mm) OR LESS BELOW SOFFIT OF MAIN LINE, AND OMIT G BARS WHEN INVERT OF SPUR IS 12" (300 mm) OR LESS ABOVE FLOOR OF MAIN LINE.
- JUNCTION STRUCTURE SHALL BE POURED MONOLITHICALLY WITH MAIN LINE, MANHOLE OR TRANSITION STRUCTURE.
- FLOOR OF STRUCTURE SHALL BE STEEL-TROWELED TO THE SPRING LINE.
- WHEN CONNECTING TO EXISTING RCB, BREAKOUT LIMITS AND DETAILS SHALL BE SHOWN ON THE PLANS.
- EMBEDMENT, P, SHALL BE 5" (130 mm) FOR B = 96" (2400 mm) OR LESS 8" (200 mm) FOR B OVER 96" (2400 mm).
- IF ELEVATION R AND ELEVATION S ARE NOT SHOWN ON THE PLANS THEN THE INLET OPENING SHALL FALL 6" (150 mm) BELOW THE SOFFIT OF THE MAIN LINE WITH THE INLET PIPE LAID ON A STRAIGHT GRADE FROM MAIN LINE TO CATCH BASIN OR TO GRADE BREAK IN INLET LINE. ELEVATION S SHALL BE SHOWN ON THE PLANS IF THE INLET OPENING FALLS MORE THAN 6" (150 mm) BELOW THE SOFFIT OF THE MAIN LINE WITH THE INLET PIPE LAID ON A STRAIGHT GRADE AS STATED ABOVE. ELEVATION R SHALL BE SHOWN ON THE PLANS ONLY WHEN A STUB IS TO BE PROVIDED FOR A FUTURE CONNECTION.
- LATERALS OR CONNECTOR PIPES 24" (600 mm) OR LESS IN DIAMETER SHALL BE NO MORE THAN 5' (1.5 m) ABOVE THE INVERT. LATERALS OR CONNECTOR PIPES 27" (675 mm) OR LARGER IN DIAMETER SHALL BE NO MORE THAN 18" (450 mm) ABOVE THE INVERT, WITH THE EXCEPTION THAT CATCH BASIN CONNECTOR PIPES LESS THAN 50' (15 m) IN LENGTH SHALL NOT BE MORE THAN 5' (1.5 m) ABOVE THE INVERT.
- THE NEED FOR AN EDGE BEAM AND/OR ADDITIONAL REINFORCEMENT SHALL BE INVESTIGATED BY THE ENGINEER FOR ANY ONE OF THE FOLLOWING CONDITIONS:
 - ANGLE A IS LESS THAN 30°
 - TOP OF INLET PIPE IS LESS THAN 6" (150 mm) BELOW THE SOFFIT
 - FLOW LINE OF INLET PIPE IS LESS THAN 7" (180 mm) ABOVE THE FLOOR OF THE RCB AT THE INSIDE FACE



STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION		STANDARD PLAN
JUNCTION STRUCTURE - PIPE TO RCB		333-2
USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION		SHEET 1 OF 2

STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION		STANDARD PLAN
JUNCTION STRUCTURE - PIPE TO RCB		333-2
		SHEET 2 OF 2