TERAVALIS PHASE 1 SOILS CEMENT & RIPRAP INFRASTRUCTURE CFD

ADDENDUM NUMBER: 02

FOR

SOIL CEMENT AND RIPRAP

The following changes shall become part of the bid documents for the above referenced project:

1. Included in this addendum is a revised bid schedule. This Addendum No.2 bid schedule must be submitted with your bid.
2. Included in this addendum is the soil cement mix design for this bid.
3. Included in this addendum is the typical detail for the construction of the access roads.
4. Included in this addendum is a revised mass grading sheets DC01 through DC21. These plans show limits of soil cement and riprap areas to be included in this bid.
    a. Sheet DC01 - Added station and offset at the start and end of the soil cement. for construction of the access road see Floreo at Teravalis.
    b. Sheet DC10 – Added to show stations to show start and end of soil cement for access road.
    c. .On sheet DC11 - Fixed rip-rap, stops at the top of the slope. rip-rap at station 0+00 is d50=9”, 24” thickness loose rip-rap.
5. All riprap shall be angular
6. Riprap spec is Rock Pro’s – Color shall be Carmel 3” – 8” size material.

Trillium Community Facilities District
BUCKEYE, ARIZONA

TERAVALIS PHASE 1 SOIL CEMENT & RIPRAP INFRASTRUCTURE CFD
ADDENDUM NO. 2
Bid Schedule

ITEM #	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL PRICE
TERAVALIS PHASE 1 SOIL CEMENT & RIPRAP INFRASTRUCTURE CFD					
	TERAVALIS PHASE 1 SOIL CEMENT & RIPRAP INFRASTRUCTURE CFD - SWPP				
1	Install and maintain SWPP per plans	LS	1	Lump Sum	$
	TERAVALIS PHASE 1 SOIL CEMENT & RIPRAP				
2	Install soil cement per MAG Specification 311 per detail Sheet DC21	SY	70,750	$	$
3	Install loose riprap D50=9" thickness 18" with filter fabric - Mirafi erosion geo-textile	SY	990	$	$
4	Install loose riprap D50=9" thickness 24" with filter fabric - Mirafi erosion geo-textile	SY	2,009	$	$
5	Install loose riprap D50=6" thickness 12" with filter fabric - Mirafi erosion geo-textile	SY	6,876	$	$
6	Install grouted riprap D50=15" thickness 30" with filter fabric - Mirafi erosion geo-textile	SY	2,988	$	$
7	Install launchable riprap D50=12", 24" Thick with 6'" ABC Cover	SY	9,210	$	$
8	Install 20' wide all-weather access road - 6" thick stablized DG 1/4" minus slope to be 10:1 max	SY	1,528	$	$
9	Install 20' wide , 9" thick Class A concrete access ramp. Slope to be 10:1 Max	SY	589	$	$
	TERAVALIS PHASE 1 SOIL CEMENT & RIPRAP : General Items				
9	Mobilization	LS	1	LUMP SUM	$
10	AZPDES Permit Compliance/Dust Control	LS	1	LUMP SUM	$
11	Construction Survey and Staking	LS	1	LUMP SUM	$
12	Off-Duty Police Officer (Contingency Item)	HRS	40		$ -
13	Buckeye Police Department Patrol Car (Contingency Item)	HRS	40		$ -
	TOTAL TERAVALIS PHASE 1 SOIL CEMENT & RIPRAP INFRASTRUCTURE CFD: BASE BID (Sum of Items 1 to 13)				**$**

Memorandum Letter

geotechnical
survey
environmental
special inspections
material testing
civil

Project No.: 220748-G

Date: September 21, 2023

Client: Howard Hughes Corporation
4150 North Drinkwater Boulevard, Suite 101
Scottsdale, Arizona 85251

Project: Trillium Village 3 – Drainage Channel
Buckeye, AZ

Regarding: Soil Cement Recommendations

At the request of our client, Alta Arizona presents the following design recommendations regarding mixing cement into the existing site soil at the above referenced project. The recommendations are based on the specification provided in the Soil Cement Mix Design provided by Hilgart Wilson dated September 7, 2023 (mix design). This letter is intended to summarize our efforts, present laboratory test results, and provide recommendations.

Alta created a composite sample of six samples along the channel alignment. The samples were relatively similar in soil classification. These samples consisted primarily of medium plasticity Clayey Sand (SC) with an AASHTO classification of A-2-6(0). Base on the mix design, a cement content range of 7-11% is recommended for this spoil type. The sample was mixed with 7, 9 and 11 percent of Type 2 Portland cement (by weight) in accordance with test method ARIZ-241.

Phoenix
Tucson
Benson
Flagstaff

Tabulated below is a summary of the compressive strength of each mixture after 7 days of being cured. For additional information refer to the attached laboratory test results. The specified minimum compressive strength according to the mix design is 750 psi, exceeded by each specimen.

Test Results		
Cement Content (by weight)	**Age (Days)**	**Compressive Strength (psi)**
7%	7	1,432
9%	7	1,542
11%	7	1,853

Based on the results of the laboratory analysis, we recommend treating the exposed subgrade soils with 7% Portland cement.

We appreciate the opportunity of providing our services for this project. If you have questions regarding this report or if we may be of further assistance, please contact the undersigned.

Cordially,
Alta Arizona

Sean P Fabor, P.E.
Principal

1800 W Broadway Rd, Suite 5
Tempe, AZ 85282

2025 W Ruthrauff Rd
Suite 125
Tucson, AZ 85710

480.656.1517
520.398.6651

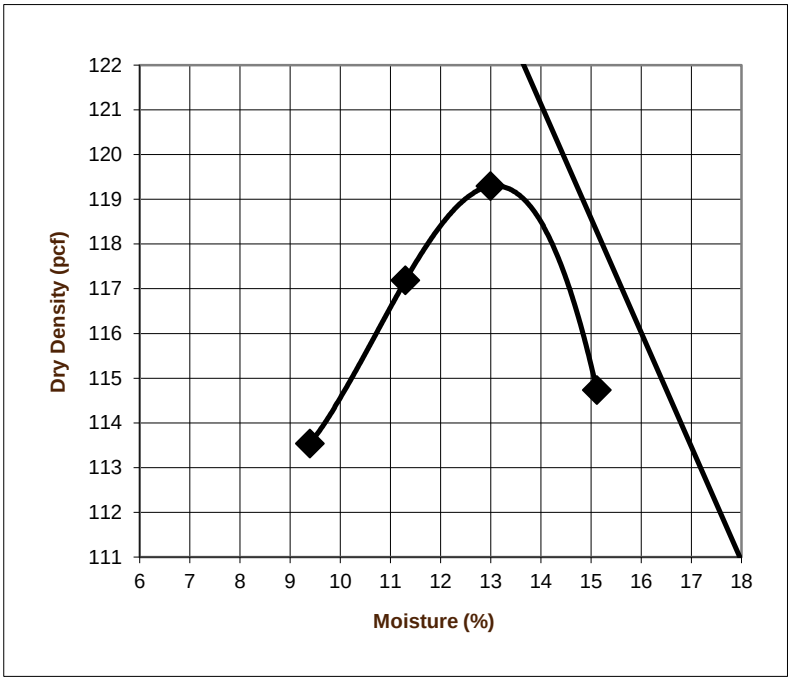
SUMMARY OF RESULTS

Alta Arizona
1800 W Brodaway Rd, Suite 5
Tempe, Arizona 85282

PROJECT:	Trillium at Douglas Ranch	**PROJECT NO:**	220748
CLIENT:	Howard Hughes Corporation	**LABORATORY NO:**	23-39921
MATERIAL:	Un Treated Native	**SAMPLE DATE:**	9/11/2023
SAMPLE SOURCE:	Untreated Composite sample of 6 locations	**SAMPLED BY:**	OA
PROPOSED USE:	Soil Cement Design		

LABORATORY COMPACTION CHARACTERISTICS OF SOILS USING STANDARD PROCTOR (12,400ft-lb-ft/cu.ft) (ASTMD698A)
SIEVE ANALYSIS OF FINE AND COARSE AGGREGATES (ASTM C136/C117)
LIQUID LIMIT, PLASTIC LIMIT, AND PLASTICITY INDEX OF SOILS (ASTM D4318) (DRY PREP)

	English (pcf)	Metric (kg / cu.m.)	Rock Correction for +#4 material
CURVE: 23-39921			
Maximum dry density:	119.3	1911	125.8
Optimum moisture (%):	13.1	13.1	10.4



SIEVE SIZE	PERCENT PASSING
6 in / 152mm	100
4 in / 100mm	100
3 in / 75mm	100
2 in / 50mm	100
1 1/2 in / 37.5mm	100
1 1/4 in / 32 mm	100
1 in / 25 mm	98
3/4 in / 19 mm	97
1/2 in / 12.5 mm	92
3/8 in / 9.5 mm	89
1/4 in / 6.4 mm	83
#4, 4.75mm	78
#8, 2.36mm	71
#10, 2.00mm	68
#16, 1.18mm	56
#30, 0.60mm	45
#40, .425mm	40
#50, .300mm	35
#100, .150mm	28
#200, .075mm	22

LL:	34
PI:	12
USCS:	SC
AASHTO:	A-2-6(0)
Description:	Clayey gravel and sand

NOTES:

- The zero air void curve represents a specific gravity of: 2.65 assumed for the -#4 material.
- This is a summarized report of the referenced procedures. Additional data can be provided at clients request.

Signature: _____

Name: J Baer

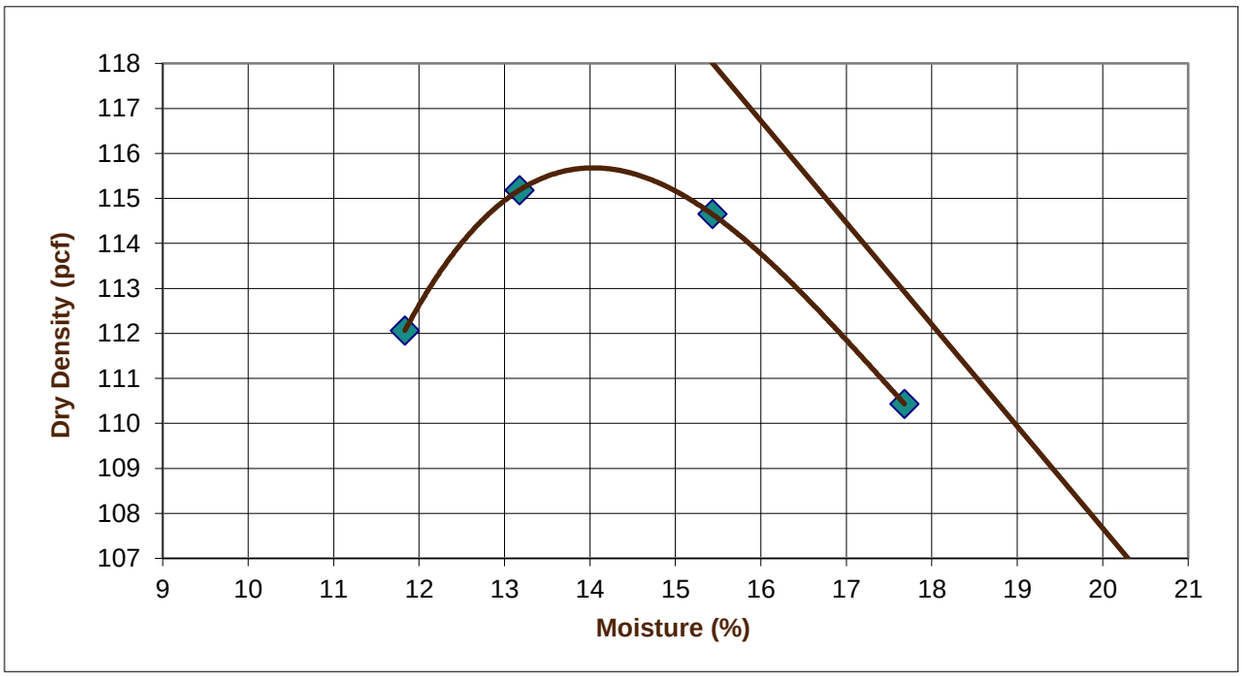
PROCTOR TEST

Alta Arizona
1800 W Broadway Rd, Suite 5
Tempe, Arizona 85282

PROJECT:	Trillium at Douglas Ranch	**PROJECT NO:**	220748
CLIENT:	Howard Hughes Corporation	**LABORATORY NO:**	23-39921
MATERIAL:	**Cement Treated Native with 9% Cement Added**	**SAMPLE DATE:**	9/11/2023
SAMPLE SOURCE:	Cement Treated Native Composite sample of 6 locations	**SAMPLED BY:**	OA
PROPOSED USE:	Soil Cement Design		

LABORATORY COMPACTION CHARACTERISTICS OF SOILS USING STANDARD PROCTOR (12,400ft-lb-ft/cu.ft) (ASTMD698A)

	English (pcf)	Metric (kg/ cu.m.)	Lab Rock Correction for +#4	SIEVE SIZE	PERCENT PASSING
CURVE: 23-39921					
Maximum dry density:	115.7	1853	123.0	#4, 4.75mm	78.0
Optimum moisture (%):	14.0	14.0	11.2		



NOTES:
- The zero air void curve represents a specific gravity of: 2.65 (assumed).
- This is a summarized report of the referenced procedures. Additional data can be provided at clients request.

Signature: _____

Name: J Baer

Compression Results

Alta Arizona
1800 W. Broadway Rd, Suite 5
Tempe, Arizona 85282

PROJECT:	Trillium at Douglas Ranch	**PROJECT NO:**	220748
CLIENT:	Howard Hughes Corporation	**LABORATORY NO:**	39921
SAMPLE DATE:	9/13/2023	**REPORT DATE:**	09/20/23

SPECIMEN TYPE

SPECIMEN TYPE: Soil Cement (ASTM 5102) Method A

MIX & FIELD DATA

Placement Area: 7% Cement Added to Native Compositite Sample
Sample Storage Location: Cured in sealed container until break date

Design Strength (psi): 750 @ 7 days
Specified Strength (psi): 750 @ 7 days

Mix ID #:
Supplier:
Load #:
Truck #:
Ticket #:
Batch Size
Water added:
Admixtures:
Batch time:
Sample time:

	Specified	Measured
Slump (inches) ASTM C-143:		
Air Content (%) ASTM C-231:		
Unit Wt. (pcf) ASTM C-138:		

Weather:
Ambient Temp (°F):
Concrete Temp (°F) ASTM C1064:
Date Received:
LAB Technician: J Baer

TEST RESULTS

Lab No	Spec No.	Date Tested	Age (Days)	Spec Size	Area (sq. in)	Comp Strength (lbs.)	Comp Strength (psi)	Break Type	% of Design	% of Specified
39921	A	09/18/23	5	3.99	12.50	12680	1014	2	135%	135%
39921	B	09/20/23	7	3.99	12.50	18250	1460	2	195%	195%
39921	C	09/20/23	7	3.99	12.50	17900	1432	2	191%	191%

Notes/Remarks: **Samples remolded based on ASTM D698 Proctor Value and Moisture %**

Type of Fracture: (1) Brittle (2) Cylindrical (3) Barrel

Lab Signature: _____

Average 7 DAY BREAK (psi)

1432

Compression Results

Alta Arizona
1800 W. Broadway Rd, Suite 5
Tempe, Arizona 85282

PROJECT:	Trillium at Douglas Ranch	**PROJECT NO:**	220748
CLIENT:	Howard Hughes Corporation	**LABORATORY NO:**	39921
SAMPLE DATE:	9/13/2023	**REPORT DATE:**	09/20/23

SPECIMEN TYPE

SPECIMEN TYPE: Soil Cement (ASTM 5102) Method A

MIX & FIELD DATA

Placement Area: 9% Cement Added to Native Compositite Sample
Sample Storage Location: Cured in sealed container until break date

Design Strength (psi): 750 @ 7 days
Specified Strength (psi): 750 @ 7 days

Mix ID #:
Supplier:
Load #:
Truck #:
Ticket #:
Batch Size
Water added:
Admixtures:
Batch time:
Sample time:

	Specified	Measured
Slump (inches) ASTM C-143:		
Air Content (%) ASTM C-231:		
Unit Wt. (pcf) ASTM C-138:		

Weather:
Ambient Temp (°F):
Concrete Temp (°F) ASTM C1064:
Date Received:
LAB Technician: J Baer

TEST RESULTS

Lab No	Spec No.	Date Tested	Age (Days)	Spec Size	Area (sq. in)	Comp Strength (lbs.)	Comp Strength (psi)	Break Type	% of Design	% of Specified
39921	A	09/18/23	5	3.99	12.50	14200	1136	2	151%	151%
39921	B	09/20/23	7	3.99	12.50	19140	1531	2	204%	204%
39921	C	09/20/23	7	3.99	12.50	19280	1542	2	206%	206%

Notes/Remarks: **Samples remolded based on ASTM D698 Proctor Value and Moisture %**

Type of Fracture: (1) Brittle (2) Cylindrical (3) Barrel

Lab Signature: _____

Average 7 DAY BREAK (psi)

1542

Compression Results

Alta Arizona
1800 W. Broadway Rd, Suite 5
Tempe, Arizona 85282

PROJECT:	Trillium at Douglas Ranch	**PROJECT NO:**	220748
CLIENT:	Howard Hughes Corporation	**LABORATORY NO:**	39921
SAMPLE DATE:	9/13/2023	**REPORT DATE:**	09/20/23

SPECIMEN TYPE

SPECIMEN TYPE: Soil Cement (ASTM 5102) Method A

MIX & FIELD DATA

Placement Area: 11% Cement Added to Native Compositite Sample
Sample Storage Location: Cured in sealed container until break date

Design Strength (psi): 750 @ 7 days
Specified Strength (psi): 750 @ 7 days

Mix ID #:
Supplier:
Load #:
Truck #:
Ticket #:
Batch Size
Water added:
Admixtures:
Batch time:
Sample time:

	Specified	Measured
Slump (inches) ASTM C-143:		
Air Content (%) ASTM C-231:		
Unit Wt. (pcf) ASTM C-138:		

Weather:
Ambient Temp (°F):
Concrete Temp (°F) ASTM C1064:
Date Received:
LAB Technician: J Baer

TEST RESULTS

Lab No	Spec No.	Date Tested	Age (Days)	Spec Size	Area (sq. in)	Comp Strength (lbs.)	Comp Strength (psi)	Break Type	% of Design	% of Specified
39921	A	09/18/23	5	3.99	12.50	16930	1354	2	181%	181%
39921	B	09/20/23	7	3.99	12.50	21060	1685	2	225%	225%
39921	C	09/20/23	7	3.99	12.50	23160	1853	2	247%	247%

Notes/Remarks: **Samples remolded based on ASTM D698 Proctor Value and Moisture %**

Type of Fracture: (1) Brittle (2) Cylindrical (3) Barrel

Lab Signature: _____

Average 7 DAY BREAK (psi)

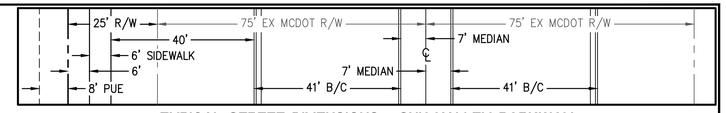
1853

LINE TABLE			LINE TABLE			CURVE TABLE				CURVE TABLE			
NO.	DIRECTION	LENGTH	NO.	DIRECTION	LENGTH	NO.	RADIUS	DELTA	LENGTH	NO.	RADIUS	DELTA	LENGTH
L1	S00°31'18"W	1894.96'	L6	N00°31'18"E	5.00'	C1	1.50'	180°00'00"	4.71'	C5	300.58'	14°08'50"	74.22'
L2	N00°31'18"E	674.89'	L7	N00°31'18"E	5.00'	C2	35.00'	89°59'55"	54.98'	C6	299.42'	14°15'25"	74.50'
L3	N89°28'36"W	1127.96'	L9	S00°31'18"W	259.00'	C3	35.00'	90°00'05"	54.98'				
L4	N00°31'18"E	157.92'				C4	1.24'	180°37'56"	3.92'				
L5	N00°27'24"W	390.06'											

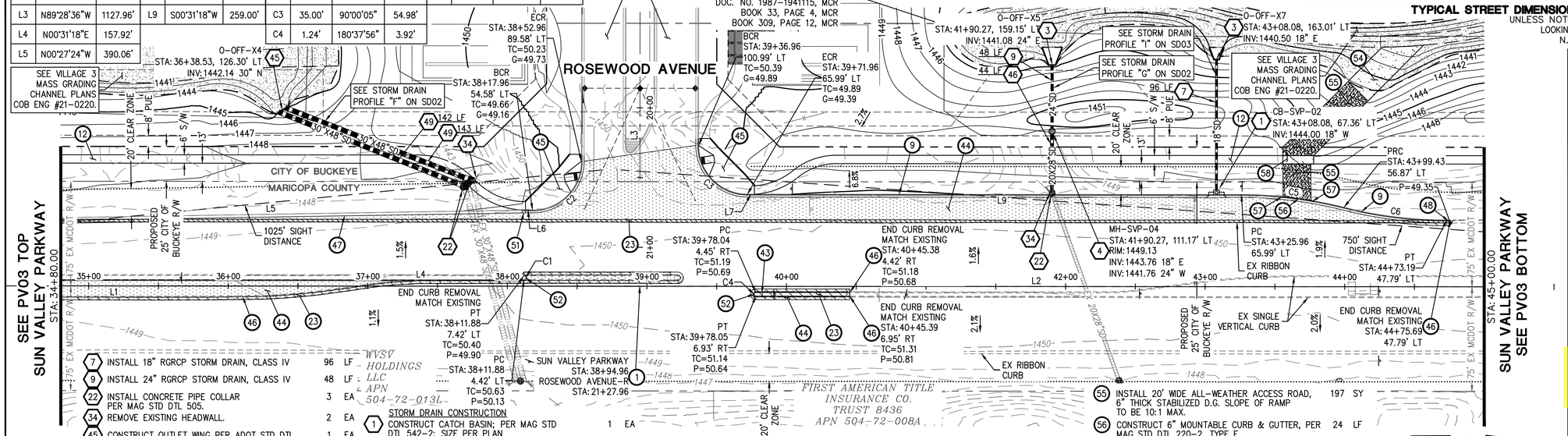
SEE FLOREO AT TERAVALIS TERAVALIS CIRCLE OFFSITE PAVING PLAN COB ENG #22-0038

TC202200170

PONDING, SLOPE AND DRAINAGE EASEMENT PER DOC. NO. 1987-0194103, MCR DOC. NO. 1987-0194102, MCR DOC. NO. 1987-1941115, MCR BOOK 33, PAGE 4, MCR BOOK 309, PAGE 12, MCR



TYPICAL STREET DIMENSIONS - SUN VALLEY PARKWAY
UNLESS NOTED OTHERWISE
LOOKING NORTH
N.T.S.



7	INSTALL 18" RGRCP STORM DRAIN, CLASS IV	96	LF
9	INSTALL 24" RGRCP STORM DRAIN, CLASS IV	48	LF
22	INSTALL CONCRETE PIPE COLLAR PER MAG STD DTL 505.	3	EA
34	REMOVE EXISTING HEADWALL.	2	EA
45	CONSTRUCT OUTLET WING PER ADOT STD DTL SD 6.30, (6:1 SLOPE ON WING WALLS) SEE DETAIL ON SHEET DT05, SAFETY RAIL PER MAG STD DTL 145.	1	EA
46	INSTALL 20" X 28" ELLIPTICAL RGRCP STORM DRAIN, CLASS V.	44	LF
49	INSTALL 30" X 48" ELLIPTICAL RGRCP STORM DRAIN, CLASS IV.	285	LF

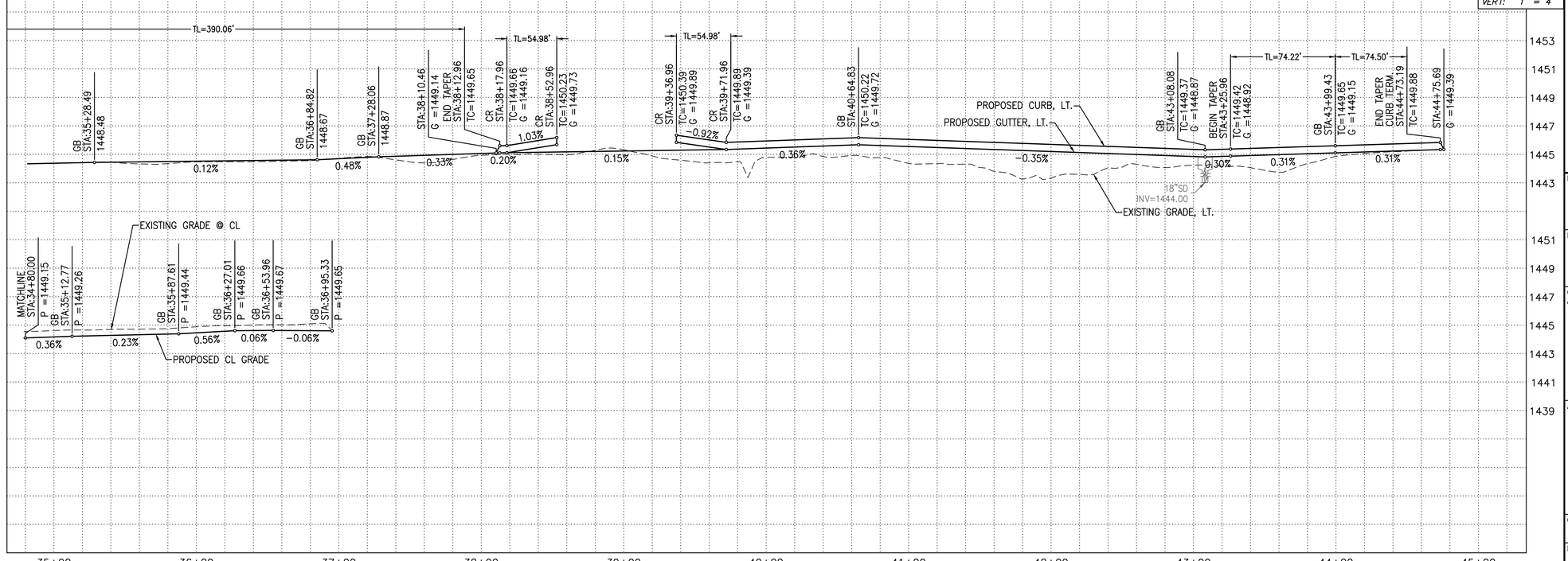
STORM DRAIN CONSTRUCTION

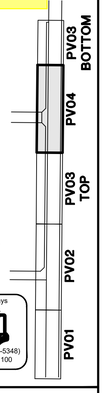
1	CONSTRUCT CATCH BASIN; PER MAG STD DTL 542-2; SIZE PER PLAN	1	EA
3	CONSTRUCT CONCRETE OUTLET HEADWALL PER COB STD DTLS 51200 WITH TRASH RACK PER COB STD DTL B-508 AND HANDRAIL PER COB STD B-110. SEE DETAIL ON DT04.	2	EA
4	CONSTRUCT STORM DRAIN MANHOLE PER MAG STD DTLS 424-2, 520 & 522. ADJUST RIM TO GRADE PER MAG DTL 422, COB DTL 41260.	1	EA

55	INSTALL 20' WIDE ALL-WEATHER ACCESS ROAD, 6" THICK STABILIZED D.G. SLOPE OF RAMP TO BE 10:1 MAX.	197	SY
56	CONSTRUCT 6" MOUNTABLE CURB & GUTTER, PER MAG STD DTL 220-2, TYPE E.	24	LF
57	CONSTRUCT 2' CURB TRANSITION TYPE 'E' TO TO TYPE 'A' PER MAG STD TL 220-2.	2	EA
58	CONSTRUCT 9" THICK CLASS 'A' CONCRETE ON MAINTENANCE ACCESS RAMP.	133	SF

PAVING CONSTRUCTION

1	INSTALL SURVEY MONUMENT PER MAG STD DTL 120 TYPE 'A'.	1	EA
9	CONSTRUCT 6" VERTICAL CURB & GUTTER PER MAG STD DTL 220-1, TYPE A.	476	LF
12	CONSTRUCT 6' SIDEWALK PER MAG STD DTL 230.	4357	SF
23	SAWCUT & REMOVE EXISTING PAVEMENT TO A NEAT, CLEAN EDGE; MATCH WITH NEW PAVEMENT 2' MINIMUM.	382	SY
43	CONSTRUCT 6" SINGLE VERTICAL CURB PER MAG STD DTL 222 – TYPE "A".	139	LF
44	INSTALL PAVEMENT; 4" AC ON 10" ABC. SEE SECTION ON SHEET DT01.	2085	SY
45	CONSTRUCT DIRECTIONAL SIDEWALK RAMPS PER MAG STD DET 237-1, MODIFIED WITH A SINGLE RAMP AS SHOWN IN PLAN VIEW.	2	EA
46	SAWCUT & REMOVE EXISTING CURB.	564	LF
47	CONSTRUCT RIBBON CURB PER MAG STD DTL 220-1 TYPE "B".	331	LF
48	CONSTRUCT 2.5' CURB TERMINATION PER MAG STD DTL 222, MODIFIED TO A TRANSITION FROM 6" VERTICAL CURB & GUTTER TO MATCH EXISTING RIBBON CURB.	1	EA
51	CONSTRUCT 2.5' CURB TRANSTION PER MAG STD DTL 221, MODIFIED FOR A TRANSITION FROM 6" VERTICAL CURB & GUTTER TO RIBBON CURB.	1	EA
52	CONSTRUCT MEDIAN NOSE PER MAG STD DTL 223 USING SINGLE CURB PER MAG STD DTL 222 – TYPE 'A'.	2	EA
54	CONSTRUCT 20' WIDE, 9" THICK CLASS 'A' CONCRETE ACCESS RAMP. SLOPE OF RAMP TO BE 10:1 MAX.	101	SY





KEYMAP
N.T.S.

Call at least two full working days before you begin excavation.
ARIZONA 811
Arizona Blue Stake, Inc.
Dial 8-1-1 or 1-800-STAKE-IT (782-5348)
In Maricopa County: (602) 263-1100

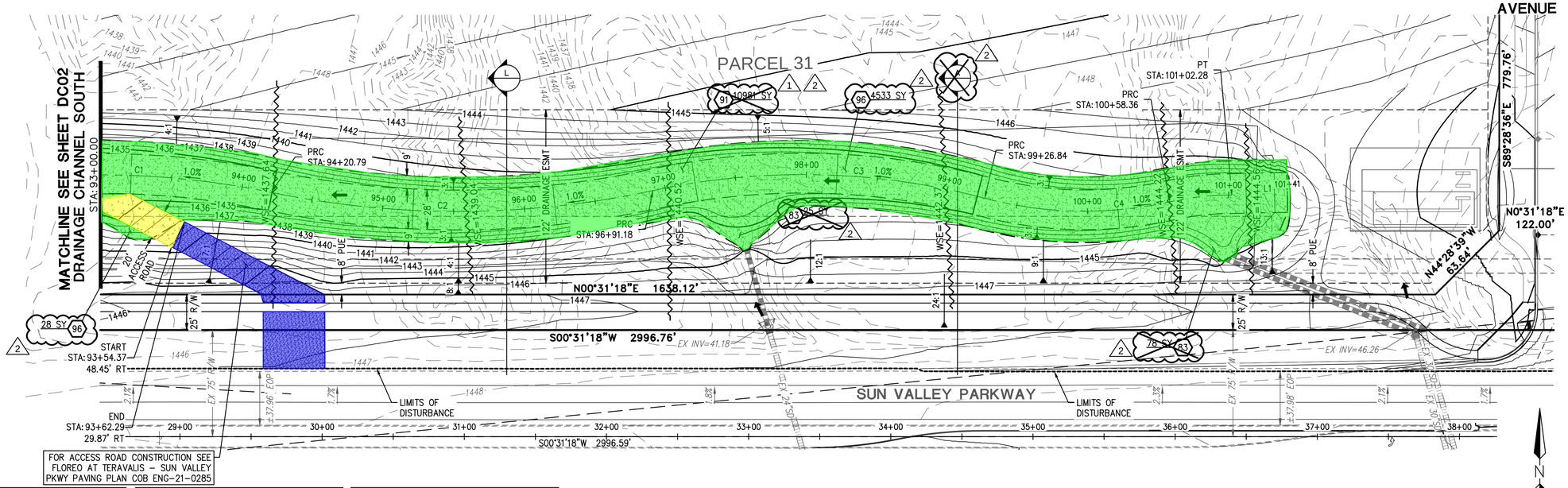
PLAN NAME
FLOREO AT TERAVALIS
SUN VALLEY PKWY PAVING PLAN

ENGINEER INFORMATION
HILGARTWILSON

COB PERMITTING APPROVED SEAL	COB ENGINEERING APPROVED SEAL
AS-BUILT SEAL	DESIGN SEAL
ORIGINAL PLAN DATE: July 21	LATEST REVISION DATE: JUL-23
PROJECT NUMBER: 1175	SHEET NUMBER: PV04 SHT 10 OF 13

SUBMITTAL: 6th SUBMITTAL
COB PLAN TRACKING #: ENG-21-0285
COB PERMIT #: ENG-21-0285

Addendum No. 2



FOR ACCESS ROAD CONSTRUCTION SEE FLOREO AT TERAVALIS – SUN VALLEY PKWY PAVING PLAN COB ENG–21–0285

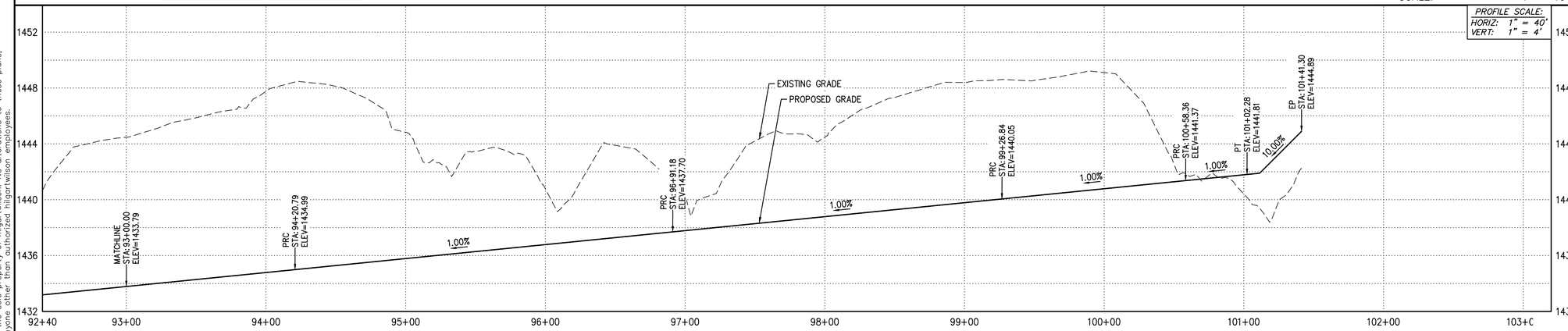
LINE TABLE		
NO.	DIRECTION	LENGTH
L1	N00°37'54"W	39.02'

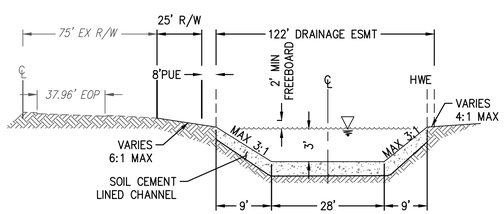
CURVE TABLE				
NO.	RADIUS	DELTA	LENGTH	TANGENT
C1	600.00'	023°20'31"	244.44'	123.94
C2	650.00'	023°50'03"	270.39'	137.18

CURVE TABLE				
NO.	RADIUS	DELTA	LENGTH	TANGENT
C3	500.00'	027°00'20"	235.67'	120.07
C4	275.00'	027°24'05"	131.52'	67.04

DRAINAGE CHANNEL SOUTH

SCALE: 1" = 40'





TYPICAL DRAINAGE SECTION - SUN VALLEY PARKWAY

(L) NTS

2 CHANNEL ALIGNMENT AND CHANNEL SECTION WIDTH CHANGED. SECTION A HAS BEEN DELETED. GRADING AND WSE WERE REVISED. SOIL CEMENT AND GROUTED RIPRAP ADDED. DROP STRUCTURES WERE REMOVED.

Soil Cement Areas

Riprap Areas

Access Road Areas 9" MAG A concrete ramp

Access Road Areas Stablized Granite

Areas not included in bid

LEGEND

- VILLAGE 3 BOUNDARY
- EROSION HAZARD SETBACK
- RIGHT OF WAY
- LOT LINE
- CENTER LINE
- EASEMENT LINE
- FLOW DIRECTIONAL INDICATOR
- FP — FINISH PAD ELEVATION (FINISH FLOOR IS 1' ABOVE FP)
- EMERGENCY OUTFALL ARROW
- (HP) HIGH POINT
- (LP) LOW POINT
- DUAL CHAMBER DRYWELL

Contact Arizona 811 at least two full working days before you begin excavation
ARIZONA811 CALL 811 or click Arizona811.COM

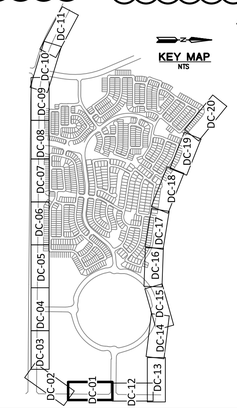
STORM DRAIN CONSTRUCTION

83 INSTALL LOOSE ANGULAR RIP-RAP PER MAG SPEC SEC. 220; D50=6", 12" THICK ON MIRAFI EROSION PROTECTION GEO-TEXTILE OR APPROVED EQUIVALENT. FABRIC TO HAVE APPARENT OPENING SIZE OF 0.425MM, PERMITTIVITY OF 50 GAL/MIN/FT AND WOVEN. SEE SHEETS DC21 FOR DETAIL AND PLAN SHEET FOR QUANTITY. COLOR PER DEVELOPER. — 103 SY

91 INSTALL ANGULAR LOOSE RIP-RAP PER MAG SPEC SECTION 220 D50=6" 6" THICK ON MIRAFI EROSION PROTECTION GEO-TEXTILE OR APPROVED EQUIVALENT. FABRIC TO HAVE APPARENT OPENING SIZE OF 0.425MM, PERMITTIVITY OF 50 gal/min/ft AND WOVEN. SPECIFIC WEIGHT = 165 lb/ft3. GRADATION PER TABLE 6.4 OF 2013 DRAINAGE DESIGN MANUAL FOR MARICOPA COUNTY, ARIZONA (HYDRAULICS). — 10981 SY

96 INSTALL SOIL CEMENT PER MAG SPEC 311; SEE DETAIL 1 ON SHEET DC21. — 4561 SY

REGISTERED PROFESSIONAL ENGINEER CERTIFICATE NO. 23227 DAVID W. GEORGE ARIZONA U.S.A. EXPIRES: 12/31/23



REVISIONS:

1 12/27/2022 – ROSEWOOD AVENUE WAS EXTENDED AND GRADING REVISED. CHANNEL WAS REVISED ALONG SUN VALLEY PARKWAY TO ACCOMMODATE AN ADDED SIDEWALK. GRADING FOR APS SUBSTATION ADDED & FIRE STATION. THE EROSION HAZARD SETBACK ALONG WAGNER WASH WAS REVISED.

2 8/23/2023 – REVISION TO CHANNEL ALIGNMENT AND REPLACE RIPRAP WITH SOIL CEMENT.

PLAN NAME

TRILLIUM VILLAGE 3 - UNITS 1 & 2 DRAINAGE CHANNEL PLAN

ENGINEER INFORMATION

HILGARTWILSON

COB PERMITTING APPROVED SEAL

COB ENGINEERING APPROVED SEAL

APPROVED
6/22/2022
CITY OF BUCKEYE ENGINEERING

SUBMITTAL: 3R Submittal

AS-BUILT SEAL

DESIGN SEAL

REGISTERED PROFESSIONAL ENGINEER CERTIFICATE NO. 23227 DAVID W. GEORGE ARIZONA U.S.A. EXPIRES: 12/31/23

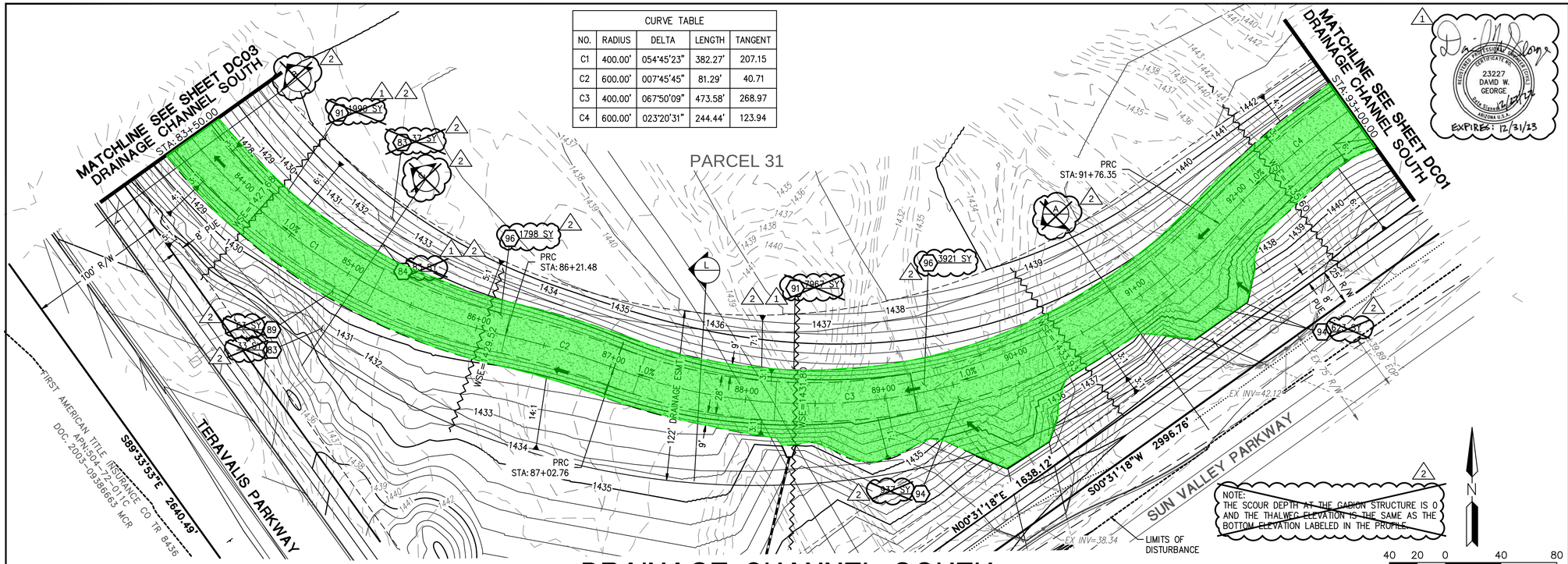
ORIGINAL PLAN DATE	LATEST REVISION DATE
MAY 2022	AUG 2023
PROJECT NUMBER	SHEET NUMBER
1175	DC01 70 OF 90

COB PLAN TRACKING # ENG–21–0220

COB PERMIT #

U:\1100\1175\ENGR\VILLAGE 3\MASS GRADING\CHANNEL\1175_DC01.dwg 9/7/2023 8:56 AM

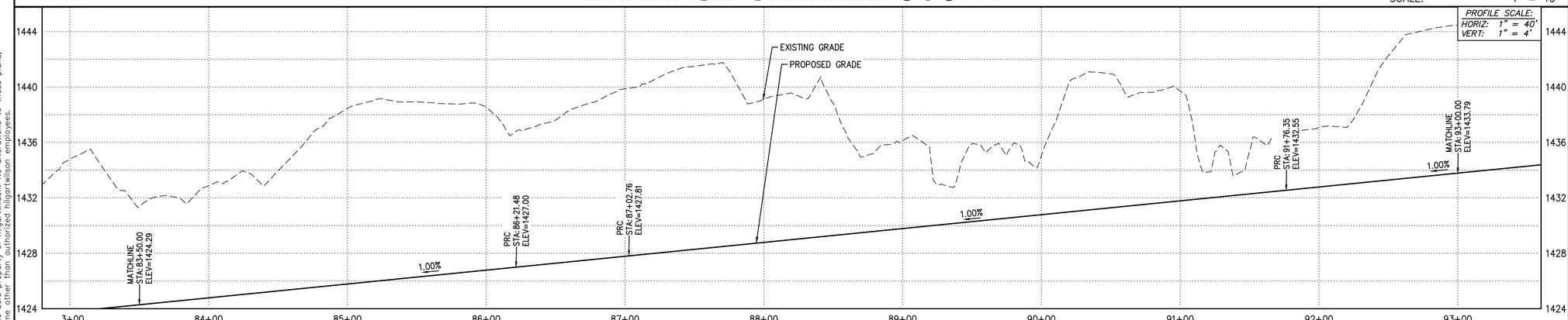
DRAINAGE CHANNEL SOUTH

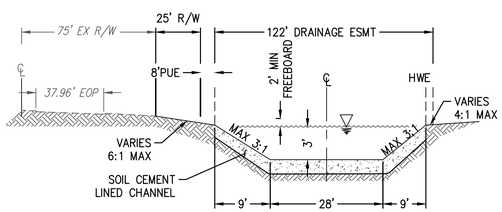


CURVE TABLE				
NO.	RADIUS	DELTA	LENGTH	TANGENT
C1	400.00'	054°45'23"	382.27'	207.15
C2	600.00'	007°45'45"	81.29'	40.71
C3	400.00'	067°50'09"	473.58'	268.97
C4	600.00'	023°20'31"	244.44'	123.94

NOTE:
THE SCOUR DEPTH AT THE GABION STRUCTURE IS 0 AND THE THALWEG ELEVATION IS THE SAME AS THE BOTTOM ELEVATION LABELED IN THE PROFILE.

SCALE: 1" = 40'





TYPICAL DRAINAGE SECTION - SUN VALLEY PARKWAY

L

NTS

2 CHANNEL ALIGNMENT AND CHANNEL SECTION WIDTH CHANGED. SECTION A, B & C HAVE BEEN DELETED. GRADING AND WSE WERE REVISED. SOIL CEMENT AND GROUTED RIPRAP ADDED. DROP STRUCTURES WERE REMOVED.

LEGEND

- VILLAGE 3 BOUNDARY
- EROSION HAZARD SETBACK
- RIGHT OF WAY
- LOT LINE
- CENTER LINE
- EASEMENT LINE
- FLOW DIRECTIONAL INDICATOR
- FP — FINISH PAD ELEVATION (FINISH FLOOR IS 1' ABOVE FP)
- EMERGENCY OUTFALL ARROW
- (HP) — HIGH POINT
- (LP) — LOW POINT
- DUAL CHAMBER DRYWELL

Contact Arizona 811 at least two full working days before you begin excavation
ARIZONA811
CALL 811 or click Arizona811.COM

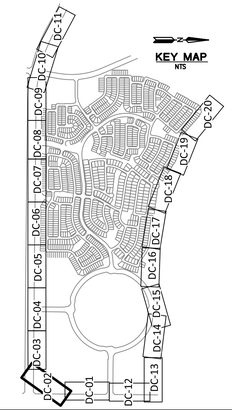
1 — REGISTERED PROFESSIONAL ENGINEER (CIVIL) — CERTIFICATE NO. 23227 — DAVID W. GEORGE — STATE OF ARIZONA U.S.A. — 12/27/22 — EXPIRES: 12/31/23

2 — REGISTERED PROFESSIONAL ENGINEER (CIVIL) — CERTIFICATE NO. 23227 — DAVID W. GEORGE — STATE OF ARIZONA U.S.A. — 8/23/23 — EXPIRES: 12/31/23

STORM DRAIN CONSTRUCTION

83	INSTALL LOOSE ANGULAR RIP-RAP PER MAG SPEC SEC. 220; D50=6", 12" THICK ON MIRAFI EROSION PROTECTION GEO-TEXTILE OR APPROVED EQUIVALENT. FABRIC TO HAVE APPARENT OPENING SIZE OF 0.425MM, PERMITTIVITY OF 50 GAL/MIN/FT AND WOVEN. SEE SHEET# DC21 FOR DETAIL AND PLAN SHEET FOR QUANTITY. COLOR PER DEVELOPER.	70	SY
84	INSTALL GABIONS ON MACCAFERRI GEOTEXTILE MACTEX N47.1. PER DETAILS SEE SHEET# DC21.	83	SY
89	INSTALL 2" OF SHOTCRETE ON TOP OF GABION BASKET WITH D50=6" EMBEDDED IN SHOTCRETE.	63	SY
91	INSTALL ANGULAR LOOSE RIP-RAP PER MAG SPEC SECTION 220 D50=4" 6" THICK ON MIRAFI EROSION PROTECTION GEO-TEXTILE OR APPROVED EQUIVALENT. FABRIC TO HAVE APPARENT OPENING SIZE OF 0.425MM, PERMITTIVITY OF 50 gal/min/ft AND WOVEN. SPECIFIC WEIGHT = 165 lb/ft3. GRADATION PER TABLE 6.4 OF 2013 DRAINAGE DESIGN MANUAL FOR MARICOPA COUNTY, ARIZONA (HYDRAULICS)	9957	SY
94	INSTALL LOOSE ANGULAR RIP-RAP PER MAG SPEC SEC. 220; D50=9", 13.5" THICK ON MIRAFI EROSION PROTECTION GEO-TEXTILE OR APPROVED EQUIVALENT. FABRIC TO HAVE APPARENT OPENING SIZE OF 0.425MM, PERMITTIVITY OF 50 GAL/MIN/FT AND WOVEN. SEE SHEET# DC21 FOR DETAIL AND PLAN SHEET FOR QUANTITY. COLOR PER DEVELOPER.	1560	SY
96	INSTALL SOIL CEMENT PER MAG SPEC 311; SEE DETAIL 1 ON SHEET DC21.	5719	SY

KEY MAP
NTS



REVISIONS:

1 — 12/27/2022 – ROSEWOOD AVENUE WAS EXTENDED AND GRADING REVISED. CHANNEL WAS REVISED ALONG SUN VALLEY PARKWAY TO ACCOMMODATE AN ADDED SIDEWALK. GRADING FOR APS SUBSTATION ADDED & FIRE STATION. THE EROSION HAZARD SETBACK ALONG WAGNER WASH WAS REVISED.

2 — 8/23/2023 – REVISION TO CHANNEL ALIGNMENT AND REPLACE RIPRAP WITH SOIL CEMENT.

PLAN NAME

TRILLIUM
VILLAGE 3 - UNITS 1 & 2
DRAINAGE CHANNEL PLAN

ENGINEER INFORMATION

HILGARTWILSON

COB PERMITTING APPROVED SEAL

COB ENGINEERING APPROVED SEAL

APPROVED
6/22/2022
CITY OF BUCKEYE ENGINEERING

SUBMITTAL: 3R Submittal

AS-BUILT SEAL

DESIGN SEAL

ORIGINAL PLAN DATE: MAY 2022

LATEST REVISION DATE: AUG 2023

PROJECT NUMBER: 1175

SHEET NUMBER: DC02 71 OF 90

COB PLAN TRACKING #: ENG-21-0220

COB PERMIT #:

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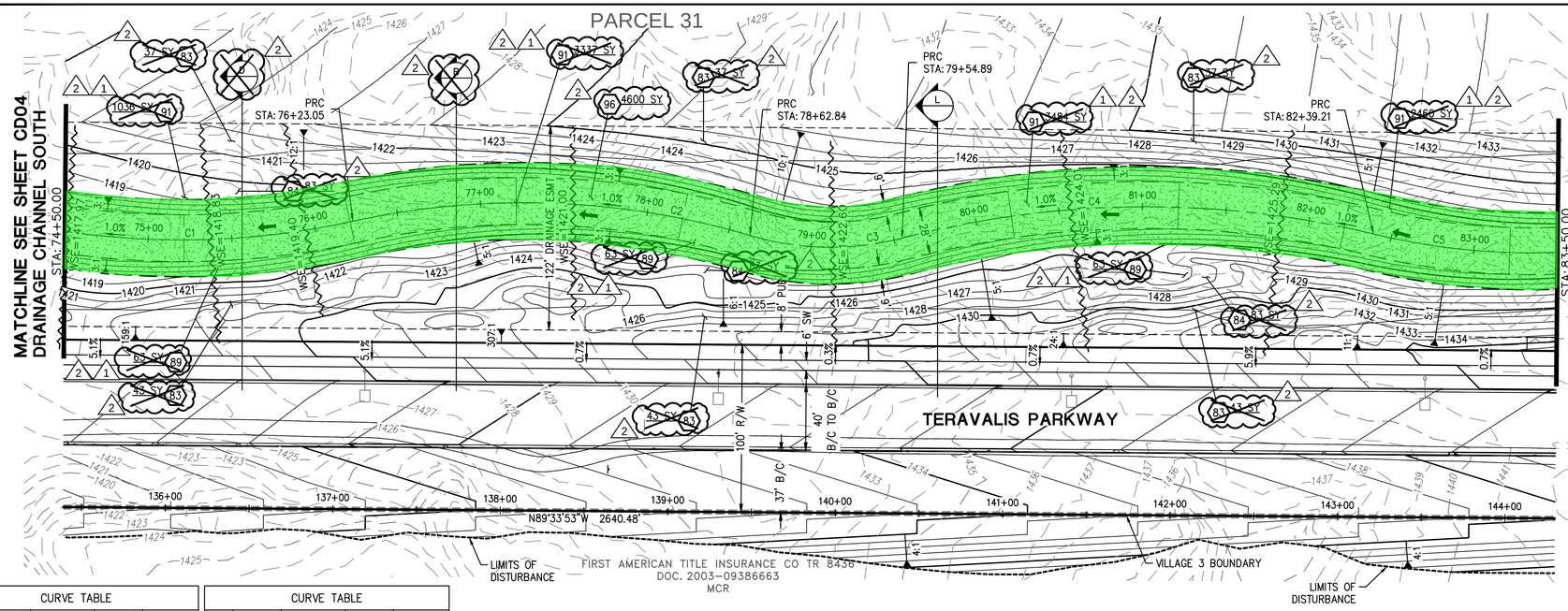
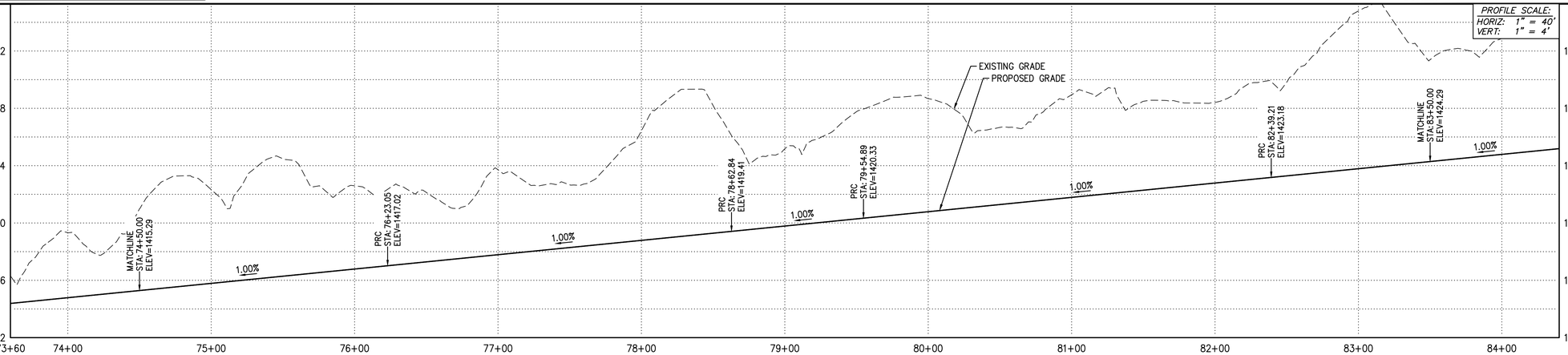


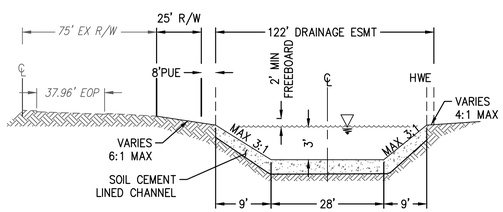
CURVE TABLE				
NO.	RADIUS	DELTA	LENGTH	TANGENT
C1	475.00'	027°32'18"	228.30'	116.40
C2	475.00'	028°55'25"	239.79'	122.51
C3	170.01'	031°01'21"	92.05'	47.18

CURVE TABLE				
NO.	RADIUS	DELTA	LENGTH	TANGENT
C4	575.00'	028°19'51"	284.32'	145.13
C5	400.00'	054°45'23"	382.27'	207.15

DRAINAGE CHANNEL SOUTH

SCALE: 1" = 40'





TYPICAL DRAINAGE SECTION - SUN VALLEY PARKWAY

(L) NTS

2 CHANNEL ALIGNMENT AND CHANNEL SECTION WIDTH CHANGED. SECTION B & C HAVE BEEN DELETED. GRADING AND WSE WERE REVISED. SOIL CEMENT AND GROUTED RIPRAP ADDED. DROP STRUCTURES WERE REMOVED.

LEGEND

- VILLAGE 3 BOUNDARY
- EROSION HAZARD SETBACK
- RIGHT OF WAY
- LOT LINE
- CENTER LINE
- EASEMENT LINE
- FLOW DIRECTIONAL INDICATOR
- FP — FINISH PAD ELEVATION (FINISH FLOOR IS 1' ABOVE FP)
- EMERGENCY OUTFALL ARROW
- (HP) HIGH POINT
- (LP) LOW POINT
- DUAL CHAMBER DRYWELL

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ARIZONA811
CALL 811 or click Arizona811.COM

1

REGISTERED PROFESSIONAL ENGINEER CERTIFICATE NO. 23227 DAVID W. GEORGE State Standard ARIZONA U.S.A.
EXPIRES: 12/31/23

2

REGISTERED PROFESSIONAL ENGINEER CERTIFICATE NO. 23227 DAVID W. GEORGE State Standard ARIZONA U.S.A.
EXPIRES: 12/31/23

STORM DRAIN CONSTRUCTION

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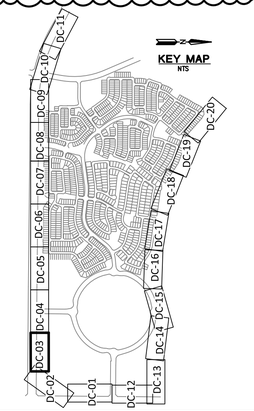
84	INSTALL GABIONS ON MACCAFERRI GEOTEXTILE MACTEX N47.1. PER DETAILS SEE SHEET# DC21.	249	SY
89	INSTALL 2" OF SHOTCRETE ON TOP OF GABION BASKET WITH D50=6" EMBEDDED IN SHOTCRETE.	189	SY
91	INSTALL ANGULAR LOOSE RIP-RAP PER MAG SPEC SECTION 220 D50=4" 6" THICK ON MIRAFI EROSION PROTECTION GEO-TEXTILE OR APPROVED EQUIVALENT. FABRIC TO HAVE APPARENT OPENING SIZE OF 0.425MM, PERMITTIVITY OF 50 gal/min/ft AND WOVEN. SPECIFIC WEIGHT = 165 lb/ft3. GRADATION PER TABLE 6.4 OF 2013 DRAINAGE DESIGN MANUAL FOR MARICOPA COUNTY, ARIZONA (HYDRAULICS)	10317	SY
96	INSTALL SOIL CEMENT PER MAG SPEC 311; SEE DETAIL 1 ON SHEET DC21.	4600	SY

2

NOTE:
THE SCOUR DEPTH AT THE GABION STRUCTURE IS 0 AND THE THALWEG ELEVATION IS THE SAME AS THE BOTTOM ELEVATION LABELED IN THE PROFILE.



REVISIONS:

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PLAN NAME

TRILLIUM
VILLAGE 3 - UNITS 1 & 2
DRAINAGE CHANNEL PLAN

ENGINEER INFORMATION
HILGARTWILSON

COB PERMITTING APPROVED SEAL

COB ENGINEERING APPROVED SEAL
APPROVED
6/22/2022
CITY OF BUCKEYE ENGINEERING

SUBMITTAL: 3R Submittal

AS-BUILT SEAL

DESIGN SEAL
REGISTERED PROFESSIONAL ENGINEER CERTIFICATE NO. 23227 DAVID W. GEORGE State Standard ARIZONA U.S.A.
EXPIRES: 12/31/23

ORIGINAL PLAN DATE	LATEST REVISION DATE
MAY 2022	AUG 2023

PROJECT NUMBER	SHEET NUMBER
1175	SHT. DC03 72 OF 90

COB PLAN TRACKING # ENG-21-0220

COB PERMIT #

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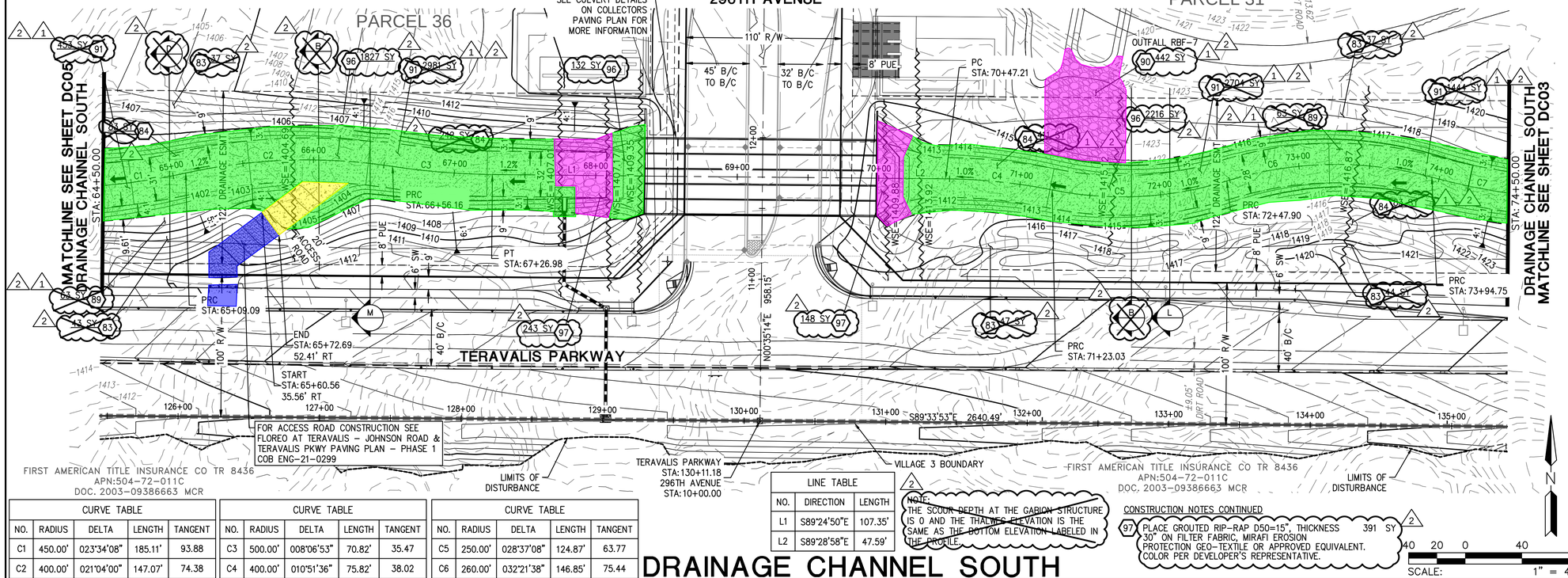


CURVE TABLE				
NO.	RADIUS	DELTA	LENGTH	TANGENT
C1	450.00'	023°34'08"	185.11'	93.88
C2	400.00'	021°04'00"	147.07'	74.38

CURVE TABLE				
NO.	RADIUS	DELTA	LENGTH	TANGENT
C3	500.00'	008°06'53"	70.82'	35.47
C4	400.00'	010°51'36"	75.82'	38.02

CURVE TABLE				
NO.	RADIUS	DELTA	LENGTH	TANGENT
C5	250.00'	028°37'08"	124.87'	63.77
C6	260.00'	032°21'38"	146.85'	75.44

LINE TABLE		
NO.	DIRECTION	LENGTH
L1	S89°24'50"E	107.35'
L2	S89°28'58"E	47.59'

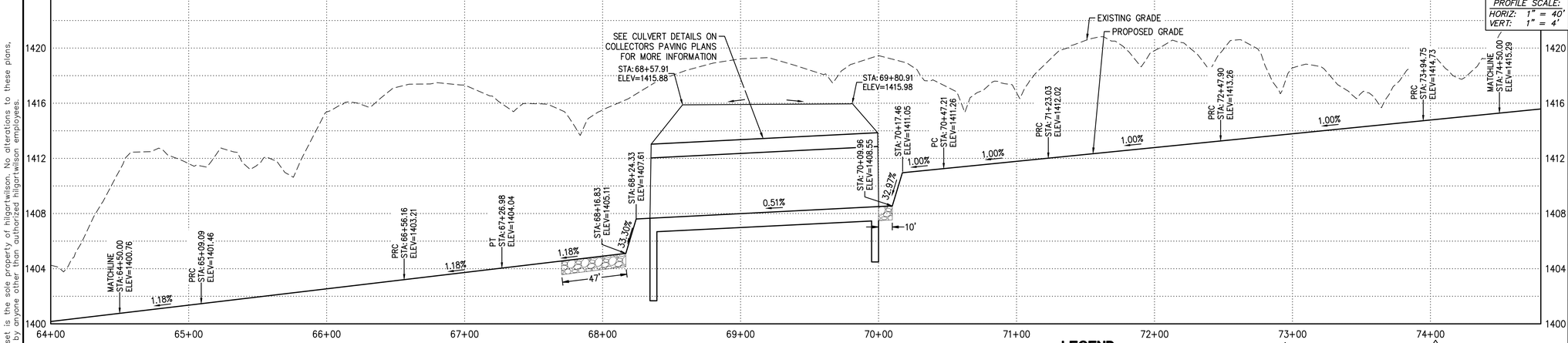
2 NOTE: THE SCOUR DEPTH AT THE GABION STRUCTURE IS 0 AND THE THALWEG ELEVATION IS THE SAME AS THE BOTTOM ELEVATION LABELED IN THE PROFILE.

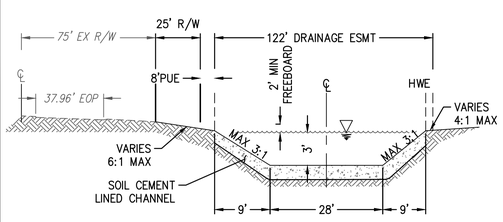
CONSTRUCTION NOTES CONTINUED

97 PLACE GROUTED RIP–RAP D50=15", THICKNESS 391 SY
30" ON FILTER FABRIC, MIRAFI EROSION PROTECTION GEO–TEXTILE OR APPROVED EQUIVALENT. COLOR PER DEVELOPER'S REPRESENTATIVE.

SCALE: 1" = 40'

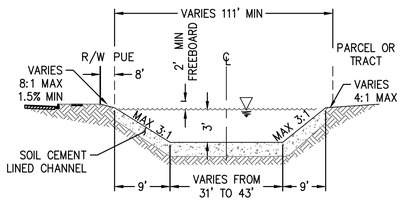
DRAINAGE CHANNEL SOUTH





TYPICAL DRAINAGE SECTION - SUN VALLEY PARKWAY

(L) NTS



TYPICAL DRAINAGE SECTION SOUTH

(M) NTS

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LEGEND

- VILLAGE 3 BOUNDARY
- EROSION HAZARD SETBACK
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- CENTER LINE
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- EMERGENCY OUTFALL ARROW
- (HP) HIGH POINT
- (LP) LOW POINT
- DUAL CHAMBER DRYWELL

STORM DRAIN CONSTRUCTION

83 INSTALL LOOSE ANGULAR RIP–RAP PER MAG SPEC SEC. 220; D50=6", 12" THICK ON MIRAFI EROSION PROTECTION GEO–TEXTILE OR APPROVED EQUIVALENT. FABRIC TO HAVE APPARENT OPENING SIZE OF 0.425MM, PERMITTIVITY OF 50 GAL/MIN/FT AND WOVEN. SEE SHEET# DC21 FOR DETAIL AND PLAN SHEET FOR QUANTITY. COLOR PER DEVELOPER. — 208 SY

84 INSTALL GABIONS ON MACCAFERRI GEOTEXTILE MACTEX M47.1. PER DETAILS SEE SHEET# DC21. — 819 SY

89 INSTALL 2" OF SHOTCRETE ON TOP OF GABION BASKET WITH D50=6" EMBEDDED IN SHOTCRETE. — 126 SY

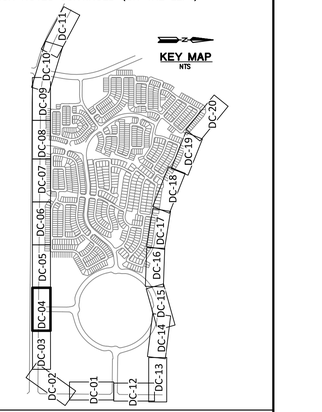
90 INSTALL LOOSE ANGULAR RIP–RAP PER MAG SPEC SEC. 220; D50=9", 18" THICK ON MIRAFI EROSION PROTECTION GEO–TEXTILE OR APPROVED EQUIVALENT. FABRIC TO HAVE APPARENT OPENING SIZE OF 0.425MM, PERMITTIVITY OF 50 GAL/MIN/FT AND WOVEN. SEE SHEET# DC21 FOR DETAIL AND PLAN SHEET FOR QUANTITY. COLOR PER DEVELOPER. — 442 SY

91 INSTALL ANGULAR LOOSE RIP–RAP PER MAG SPEC SECTION 220 D50=4" 6" THICK ON MIRAFI EROSION PROTECTION GEO–TEXTILE OR APPROVED EQUIVALENT. FABRIC TO HAVE APPARENT OPENING SIZE OF 0.425MM, PERMITTIVITY OF 50 gal/min/ft AND WOVEN. SPECIFIC WEIGHT = 165 lb/ft3. GRADUATION PER TABLE 6.4 OF 2013 DRAINAGE DESIGN MANUAL FOR MARICOPA COUNTY, ARIZONA (HYDRAULICS). — 7582 SY

96 INSTALL SOIL CEMENT PER MAG SPEC 311; SEE DETAIL 1 ON SHEET DC21. — 4175 SY

* CONSTRUCTION NOTES CONTINUED (ON THE LEFT)

KEY MAP NTS



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PLAN NAME

TRILLIUM
VILLAGE 3 - UNITS 1 & 2
DRAINAGE CHANNEL PLAN

ENGINEER INFORMATION

HILGARTWILSON

COB PERMITTING APPROVED SEAL

COB ENGINEERING APPROVED SEAL

APPROVED

6/22/2022

CITY OF BUCKEYE ENGINEERING

SUBMITTAL: 3R Submittal

AS-BUILT SEAL

DESIGN SEAL

DAVID W. GEORGE — 23227 — REGISTERED PROFESSIONAL ENGINEER — STATE OF ARIZONA U.S.A. — EXPIRES: 12/31/23

COB PLAN TRACKING # ENG–21–0220

COB PERMIT #

ORIGINAL PLAN DATE MAY 2022

LATEST REVISION DATE AUG 2023

PROJECT NUMBER 1175

SHEET NUMBER SHT. DC04 73 OF 90

Contact Arizona 811 at least two full working days before you begin excavation. ARIZONA811 CALL 811 or click Arizona811.COM

U:\1100\1175\ENGR\VILLAGE 3\MASS GRADING\CHANNEL\1175_DC04.dwg 9/7/2023 9:03 AM

By Others

PARCEL 40 | PARCEL 37 | PARCEL 36

WEIR RIPRAP AT BASIN RB-8 INSTALL PER PARCEL 37 GRADING PLAN

TRACT 37C

OUTFALL RBF-8-1396

MATCHLINE SEE SHEET DC06 DRAINAGE CHANNEL SOUTH STA:54+50.00

MATCHLINE SEE SHEET DC04 DRAINAGE CHANNEL SOUTH STA:64+50.00

LIMITS OF DISTURBANCE

PRC STA:63+23.98

PRC STA:58+42.11

PRC STA:55+69.94

PRC STA:60+72.95

TERAVALIS PARKWAY

100' R/W

40' B/C

DRAINAGE ESMT

8' PUE

6' SW

9'

FIRST AMERICAN TITLE INSURANCE CO TR 8436
APN:504-72-011C
DOC. 2003-09386663 MCR

VILLAGE 3 BOUNDARY

LIMITS OF DISTURBANCE

SOUTHEAST CORNER OF SECTION 18, TOWNSHIP 3 NORTH, RANGE 4 WEST FOUND 2.5" GLO BRASS CAP, UP 16"

N

SCALE: 1" = 40'

CURVE TABLE				
NO.	RADIUS	DELTA	LENGTH	TANGENT
C1	900.00'	018°36'03"	292.18'	147.39
C2	900.00'	017°19'37"	272.17'	137.13
C3	700.00'	018°53'39"	230.84'	116.48

CURVE TABLE				
NO.	RADIUS	DELTA	LENGTH	TANGENT
C4	700.00'	020°32'51"	251.03'	126.88
C5	450.00'	023°34'08"	185.11'	93.88

NOTE:
2 THE SCOUR DEPTH AT THE GABION STRUCTURE IS 0 AND THE THALWEG ELEVATION IS THE SAME AS THE BOTTOM ELEVATION LABELED IN THE PROFILE.

CONSTRUCTION NOTES CONTINUED

97 PLACE GROUTED RIP-RAP D50=15", THICKNESS 630 SY
30" ON FILTER FABRIC, MIRAFI EROSION PROTECTION GEO-TEXTILE OR APPROVED EQUIVALENT. COLOR PER DEVELOPER'S REPRESENTATIVE.

DRAINAGE CHANNEL SOUTH

PROFILE SCALE:
HORIZ: 1" = 40'
VERT: 1" = 4'

MATCHLINE STA:54+50.00 ELEV=1385.65

PRC STA:55+69.94 ELEV=1386.85

PRC STA:58+42.11 ELEV=1389.58

PRC STA:60+72.95 ELEV=1391.88

STA:61+00.00 ELEV=1392.15

STA:61+07.50 ELEV=1394.65

EXISTING GRADE

PROPOSED GRADE

PRC STA:63+23.98 ELEV=1399.27

MATCHLINE STA:64+50.00 ELEV=1400.76

1.00% 1.00% 1.00% 33.30% 1.00% 33.30% 1.18%

57' 59'

54+00 55+00 56+00 57+00 58+00 59+00 60+00 61+00 62+00 63+00 64+00 64+80

1384 1388 1392 1396 1400 1404 1408

TYPICAL DRAINAGE SECTION SOUTH
M
NTS

VARIES 111' MIN
R/W PUE 8'
2' MIN FREEBOARD
PARCEL OR TRACT
VARIES 8:1 MAX 1.5% MIN
VARIES 4:1 MAX
MAX 3:1
3'
SOIL CEMENT LINED CHANNEL
VARIES FROM 31' TO 43'
9'

TYPICAL DRAINAGE SECTION SOUTH
N
NTS

VARIES 111' MIN.
R/W 8'PUE
2' MIN FREEBOARD
PARCEL OR TRACT
VARIES 4:1 MAX
MAX 3:1
3'
VARIES 8:1 MAX 1.5% MIN
SEE SHT DC21 FOR TABLE 6.4 RIRAP GRADATION TABLE
VARIES FROM 31' TO 43'
9'
GROUTED RIPRAP D50=15", 30" THICKNESS SEE PLAN FOR QUANTITY AND PROPOSED FILTER FABRIC

2 CHANNEL ALIGNMENT AND CHANNEL SECTION WIDTH CHANGED. SECTION B, D & E HAVE BEEN DELETED. GRADING AND WSE WERE REVISED. SOIL CEMENT AND GROUTED RIPRAP ADDED. DROP STRUCTURES WERE REMOVED.

LEGEND

- VILLAGE 3 BOUNDARY
- EROSION HAZARD SETBACK
- RIGHT OF WAY
- LOT LINE
- CENTER LINE
- EASEMENT LINE
- FLOW DIRECTIONAL INDICATOR
- FP — FINISH PAD ELEVATION (FINISH FLOOR IS 1' ABOVE FP)
- EMERGENCY OUTFALL ARROW
- (HP) — HIGH POINT
- (LP) — LOW POINT
- DUAL CHAMBER DRYWELL

STORM DRAIN CONSTRUCTION

83 INSTALL LOOSE ANGULAR RIP-RAP PER MAG SPEC SEC. 220; D50=6", 12" THICK ON MIRAFI EROSION PROTECTION GEO-TEXTILE OR APPROVED EQUIVALENT. FABRIC TO HAVE APPARENT OPENING SIZE OF 0.425MM, PERMITTIVITY OF 50 GAL/MIN/FT AND WOVEN. SEE SHEET# DC21 FOR DETAIL AND PLAN SHEET FOR QUANTITY. COLOR PER DEVELOPER. — 329 SY

84 INSTALL GABIONS ON MACCAFERRI GEOTEXTILE MACTEX N47.1. PER DETAILS SEE SHEET# DC21. — 332 SY

89 INSTALL 2" OF SHOTCRETE ON TOP OF GABION BASKET WITH D50=6" EMBEDDED IN SHOTCRETE. — 252 SY

90 INSTALL LOOSE ANGULAR RIP-RAP PER MAG SPEC SEC. 220; D50=9", 18" THICK ON MIRAFI EROSION PROTECTION GEO-TEXTILE OR APPROVED EQUIVALENT. FABRIC TO HAVE APPARENT OPENING SIZE OF 0.425MM, PERMITTIVITY OF 50 GAL/MIN/FT AND WOVEN. SEE SHEET# DC21 FOR DETAIL AND PLAN SHEET FOR QUANTITY. COLOR PER DEVELOPER. — 548 SY

91 INSTALL ANGULAR LOOSE RIP-RAP PER MAG SPEC SECTION 220 D50=4" 6" THICK ON MIRAFI EROSION PROTECTION GEO-TEXTILE OR APPROVED EQUIVALENT. FABRIC TO HAVE APPARENT OPENING SIZE OF 0.425MM, PERMITTIVITY OF 50 gal/min/ft AND WOVEN. SPECIFIC WEIGHT = 165 lb/ft3. GRADATION PER TABLE 6.4 OF 2013 DRAINAGE DESIGN MANUAL FOR MARICOPA COUNTY, ARIZONA (HYDRAULICS). — 11249 SY

96 INSTALL SOIL CEMENT PER MAG SPEC 311; SEE DETAIL 1 ON SHEET DC21. — 4845 SY

* CONSTRUCTION NOTES CONTINUED (ON THE LEFT)

KEY MAP NTS

DC-01 DC-02 DC-03 DC-04 DC-05 DC-06 DC-07 DC-08 DC-09 DC-10 DC-11 DC-12 DC-13 DC-14 DC-15 DC-16 DC-17 DC-18 DC-19 DC-20

REVISIONS:

1 12/27/2022 – ROSEWOOD AVENUE WAS EXTENDED AND GRADING REVISED. CHANNEL WAS REVISED ALONG SUN VALLEY PARKWAY TO ACCOMMODATE AN ADDED SIDEWALK. GRADING FOR APS SUBSTATION ADDED & FIRE STATION. THE EROSION HAZARD SETBACK ALONG WAGNER WASH WAS REVISED.

2 8/23/2023 – REVISION TO CHANNEL ALIGNMENT AND REPLACE RIPRAP WITH SOIL CEMENT.

PLAN NAME

TRILLIUM
VILLAGE 3 - UNITS 1 & 2
DRAINAGE CHANNEL PLAN

ENGINEER INFORMATION

HILGARTWILSON

COB PERMITTING APPROVED SEAL

COB ENGINEERING APPROVED SEAL
APPROVED
6/22/2022
CITY OF BUCKEYE ENGINEERING

SUBMITTAL: 3R Submittal

AS-BUILT SEAL

DESIGN SEAL
DAVID W. GEORGE 23227 — REGISTERED PROFESSIONAL ENGINEER — CERTIFICATE NO. — STATE OF ARIZONA U.S.A. — EXPIRES: 12/31/23

COB PLAN TRACKING # ENG-21-0220

COB PERMIT #

ORIGINAL PLAN DATE: MAY 2022

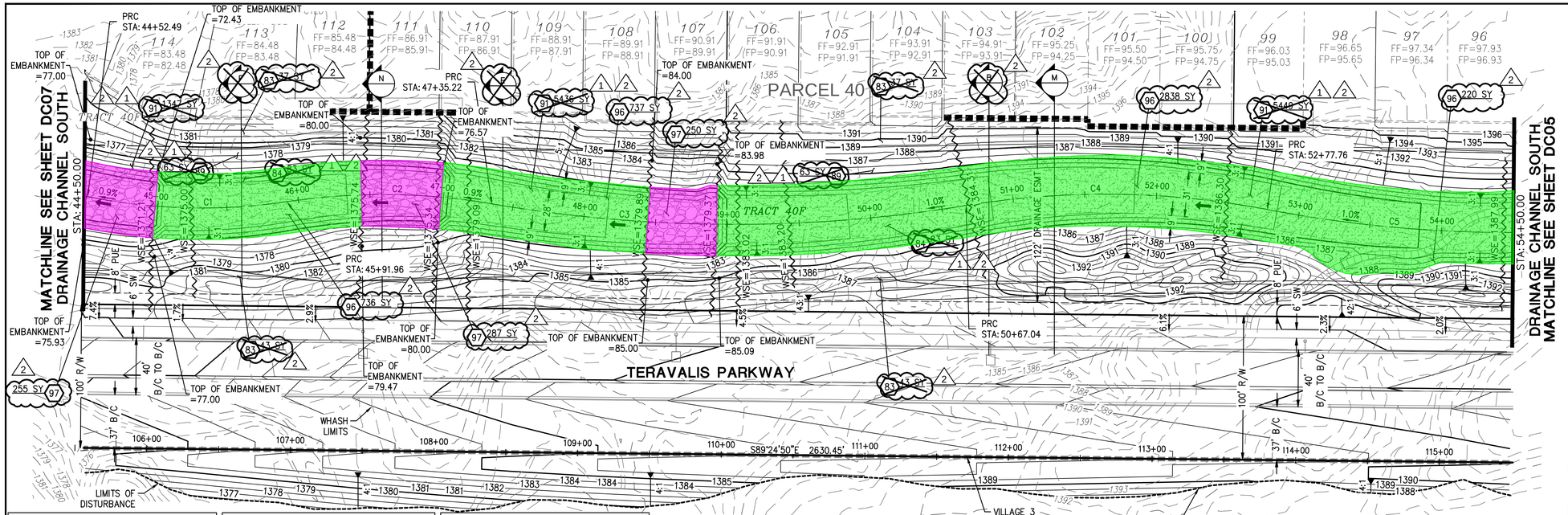
LATEST REVISION DATE: AUG 2023

PROJECT NUMBER: 1175

SHEET NUMBER SHT. DC05 74 OF 90

Contact Arizona 811 at least two full working days before you begin excavation
ARIZONA811 CALL 811 or click Arizona811.COM

U:\1100\1175\ENGR\VILLAGE 3\MASS GRADING\CHANNEL\1175_DC05.dwg 9/7/2023 9:06 AM



CURVE TABLE				
NO.	RADIUS	DELTA	LENGTH	TANGENT
C1	400.00'	019°58'35"	139.46'	70.45
C2	450.00'	018°14'27"	143.26'	72.24

CURVE TABLE				
NO.	RADIUS	DELTA	LENGTH	TANGENT
C3	1000.00'	019°00'42"	331.81'	167.45
C4	600.00'	020°07'21"	210.72'	106.46

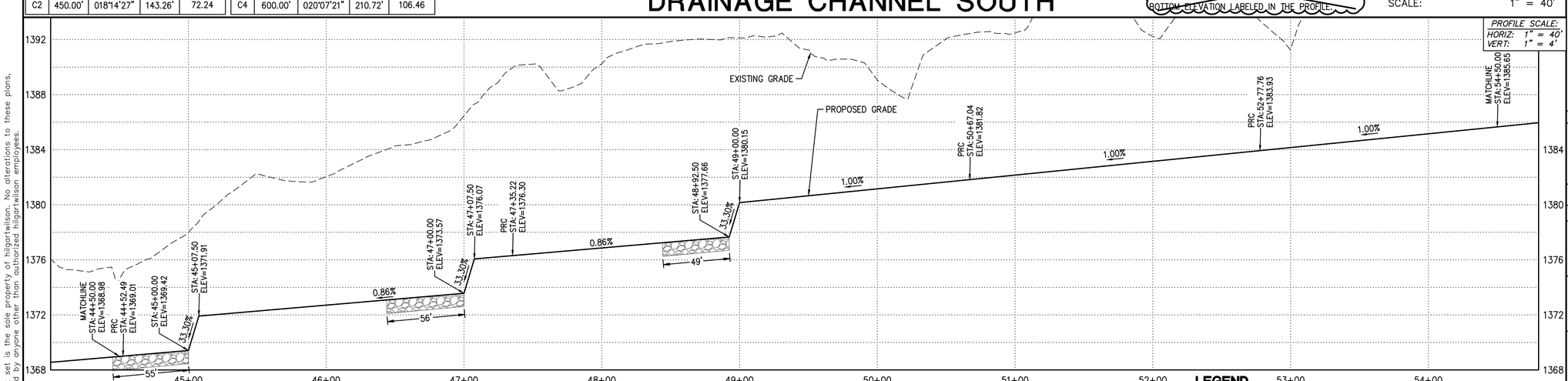
CURVE TABLE				
NO.	RADIUS	DELTA	LENGTH	TANGENT
C5	900.00'	018°36'03"	292.18'	147.39

FIRST AMERICAN TITLE INSURANCE CO TR 8436
APN:504-72-011C
DOC. 2003-09386663 MCR

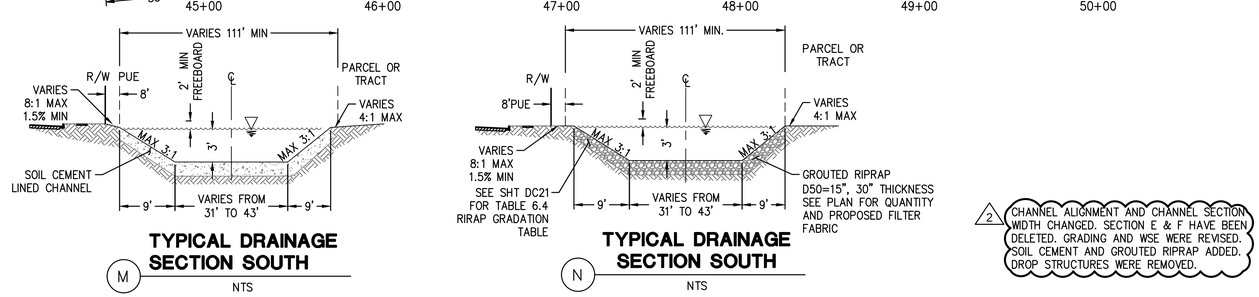
DRAINAGE CHANNEL SOUTH

NOTE:
THE SCOUR DEPTH AT THE GABION STRUCTURE IS 0 AND THE THALWEG ELEVATION IS THE SAME AS THE BOTTOM ELEVATION LABELED IN THE PROFILE.

SCALE: 1" = 40'



PROFILE SCALE:
HORIZ: 1" = 40'
VERT: 1" = 4'



TYPICAL DRAINAGE SECTION SOUTH
(M) NTS

TYPICAL DRAINAGE SECTION SOUTH
(N) NTS

2 CHANNEL ALIGNMENT AND CHANNEL SECTION WIDTH CHANGED. SECTION E & F HAVE BEEN DELETED. GRADING AND WSE WERE REVISED. SOIL CEMENT AND GROUTED RIPRAP ADDED. DROP STRUCTURES WERE REMOVED.

LEGEND
- VILLAGE 3 BOUNDARY
- EROSION HAZARD SETBACK
- RIGHT OF WAY
- LOT LINE
- CENTER LINE
- EASEMENT LINE
- FLOW DIRECTIONAL INDICATOR
- FP — FINISH PAD ELEVATION (FINISH FLOOR IS 1' ABOVE FP)
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- (HP) HIGH POINT
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- DUAL CHAMBER DRYWELL

Contact Arizona 811 at least two full working days before you begin excavation
ARIZONA811
CALL 811 or click Arizona811.COM

STORM DRAIN CONSTRUCTION

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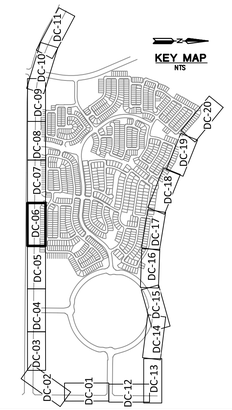
84	INSTALL GABIONS ON MACCAFERRI GEOTEXTILE MACTEX N47.1. PER DETAILS SEE SHEET# DC21.	166	SY
89	INSTALL 2" OF SHOTCRETE ON TOP OF GABION BASKET WITH D50=6" EMBEDDED IN SHOTCRETE.	126	SY
91	INSTALL ANGULAR LOOSE RIP-RAP PER MAG SPEC SECTION 220; D50=4" 6" THICK ON MIRAFI EROSION PROTECTION GEO TEXTILE OR APPROVED EQUIVALENT. FABRIC TO HAVE APPARENT OPENING SIZE OF 0.425MM, PERMITTIVITY OF 50 gal/min/ft AND WOVEN. SPECIFIC WEIGHT = 165 lb/ft3. GRADATION PER TABLE 6.4 OF 2013 DRAINAGE DESIGN MANUAL FOR MARICOPA COUNTY, ARIZONA (HYDRAULICS).	12232	SY
96	INSTALL SOIL CEMENT PER MAG SPEC 311; SEE DETAIL 1 ON SHEET DC21.	4531	SY
97	PLACE GROUTED RIP-RAP D50=15", THICKNESS 30" ON FILTER FABRIC, MIRAFI EROSION PROTECTION GEO-TEXTILE OR APPROVED EQUIVALENT. COLOR PER DEVELOPER'S REPRESENTATIVE.	792	SY



REVISIONS:

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2 8/23/2023 – REVISION TO CHANNEL ALIGNMENT AND REPLACE RIPRAP WITH SOIL CEMENT.

PLAN NAME

TRILLIUM
VILLAGE 3 - UNITS 1 & 2
DRAINAGE CHANNEL PLAN

ENGINEER INFORMATION
HILGARTWILSON

COB PERMITTING APPROVED SEAL	COB ENGINEERING APPROVED SEAL: APPROVED 6/22/2022 CITY OF BUCKEYE ENGINEERING
AS-BUILT SEAL	DESIGN SEAL: 23227 DAVID W. GEORGE REGISTERED PROFESSIONAL ENGINEER CERTIFICATE NO. ARIZONA U.S.A. EXPIRES: 12/31/23
ORIGINAL PLAN DATE: MAY 2022	LATEST REVISION DATE: AUG 2023
PROJECT NUMBER: 1175	SHEET NUMBER SHT.: DC06 75 OF 90

SUBMITTAL: 3R Submittal
COB PLAN TRACKING #: ENG-21-0220
COB PERMIT #:

U:\1100\1175\ENGR\VILLAGE 3\MASS GRADING\CHANNEL\1175_DC06.dwg 9/7/2023 9:09 AM

By Others

MATCHLINE SEE SHEET DC08
DRAINAGE CHANNEL SOUTH
STA: 34+50.00

DRAINAGE CHANNEL SOUTH
MATCHLINE SEE SHEET DC06
STA: 44+50.00

PARCEL 41

TRACT 41H

TRACT 40F

TERAVALIS PARKWAY

PRC STA: 34+94.77

PRC STA: 36+48.58

PRC STA: 38+65.33

PRC STA: 40+60.92

PRC STA: 42+27.39

WEIR RIPRAP FOR RBF-9.2 INSTALLATION PER PARCEL 40 GRADING PLAN

TOP OF EMBANKMENT =73.00

TOP OF EMBANKMENT =74.85

TOP OF EMBANKMENT =72.02

TOP OF EMBANKMENT =75.00

DRAINAGE EASEMENT

PUE

SW

100' R/W

40' B/C TO B/C

37' B/C

LIMITS OF DISTURBANCE

VILLAGE 3 BOUNDARY

SOUTH QUARTER CORNER OF SECTION 18 TOWNSHIP 3 NORTH, RANGE 4 WEST FOUND 2.5" GLO BRASS CAP ON A 1" IRON ROAD, UP 10"
P.O.B.

FIRST AMERICAN TITLE INSURANCE CO TR 8436
APN:504-72-011C
DOC 2003-0938663 MCR

NOTE:
THE SCOUR DEPTH AT THE GABION STRUCTURE IS 0 AND THE THALWEG ELEVATION IS THE SAME AS THE BOTTOM ELEVATION LABELED IN THE PROFILE.

CURVE TABLE				
NO.	RADIUS	DELTA	LENGTH	TANGENT
C1	350.00'	031°00'38"	189.43'	97.10
C2	300.00'	029°22'32"	153.81'	78.64
C3	500.00'	024°50'14"	216.75'	110.10

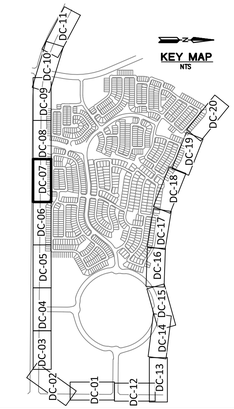
CURVE TABLE				
NO.	RADIUS	DELTA	LENGTH	TANGENT
C4	500.00'	022°24'46"	195.59'	99.06
C5	400.00'	023°50'41"	166.47'	84.46
C6	550.00'	023°27'02"	225.11'	114.15

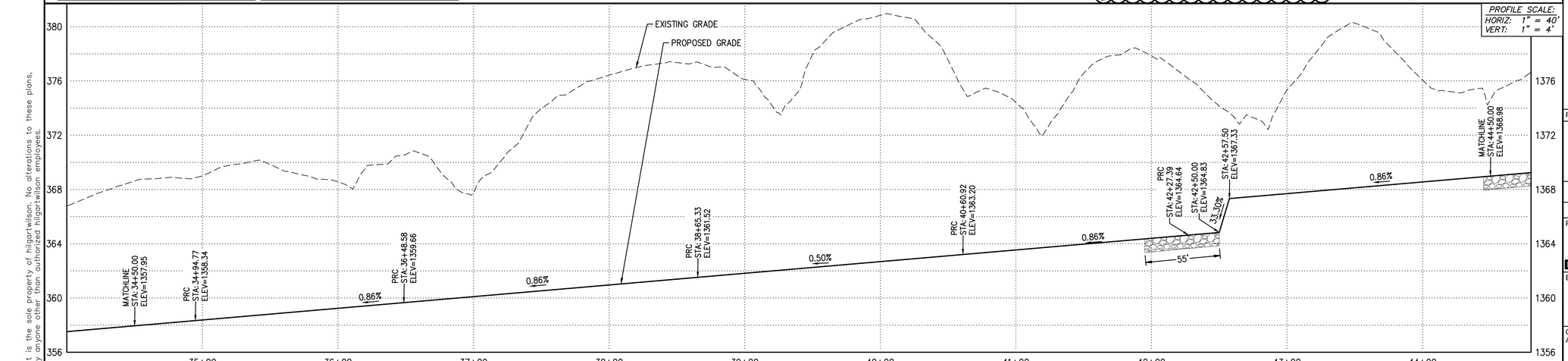
DRAINAGE CHANNEL SOUTH

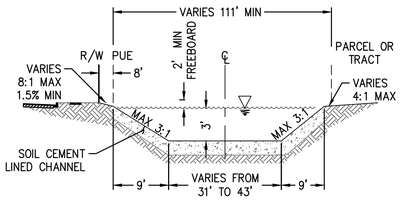
SCALE: 1" = 40'

STORM DRAIN CONSTRUCTION

83	INSTALL LOOSE ANGULAR RIP-RAP PER MAG SPEC SEC. 220; D50=6", 12" THICK ON MIRAFI EROSION PROTECTION GEO-TEXTILE OR APPROVED EQUIVALENT. FABRIC TO HAVE APPARENT OPENING SIZE OF 0.425MM, PERMITTIVITY OF 50 GAL/MIN/FT AND WOVEN. SEE SHEET# DC21 FOR DETAIL AND PLAN SHEET FOR QUANTITY. COLOR PER DEVELOPER.	320	SY
84	INSTALL GABIONS ON MACCAFERRI GEOTEXTILE MACTEX N47.1. PER DETAILS SEE SHEET# DC21.	332	SY
89	INSTALL 2" OF SHOTCRETE ON TOP OF GABION BASKET WITH D50=6" EMBEDDED IN SHOTCRETE.	252	SY
91	INSTALL ANGULAR LOOSE RIP-RAP PER MAG SPEC SECTION 220 D50=4" 6" THICK ON MIRAFI EROSION PROTECTION GEO-TEXTILE OR APPROVED EQUIVALENT. FABRIC TO HAVE APPARENT OPENING SIZE OF 0.425MM, PERMITTIVITY OF 50 gal/min/ft AND WOVEN. SPECIFIC WEIGHT = 165 lb/ft3. GRADATION PER TABLE 6.4 OF 2015 DRAINAGE DESIGN MANUAL FOR MARICOPA COUNTY, ARIZONA (HYDRAULICS).	11768	SY
96	INSTALL SOIL CEMENT PER MAG SPEC 311; SEE DETAIL 1 ON SHEET DC21.	4840	SY
97	PLACE GROUTED RIP-RAP D50=15", THICKNESS 30" ON FILTER FABRIC, MIRAFI EROSION PROTECTION GEO-TEXTILE OR APPROVED EQUIVALENT. COLOR PER DEVELOPER'S REPRESENTATIVE.	268	SY

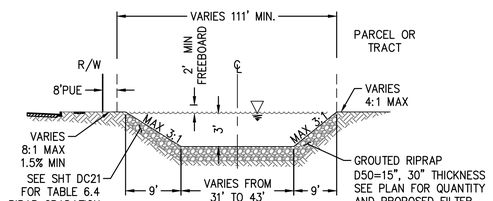






TYPICAL DRAINAGE SECTION SOUTH

(M) NTS



TYPICAL DRAINAGE SECTION SOUTH

(N) NTS

LEGEND

- VILLAGE 3 BOUNDARY
- EROSION HAZARD SETBACK
- RIGHT OF WAY
- LOT LINE
- CENTER LINE
- EASEMENT LINE
- FLOW DIRECTIONAL INDICATOR
- FP — FINISH PAD ELEVATION (FINISH FLOOR IS 1' ABOVE FP)
- EMERGENCY OUTFALL ARROW
- (HP) HIGH POINT
- (LP) LOW POINT
- DUAL CHAMBER DRYWELL

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2 DAVID W. GEORGE, REGISTERED PROFESSIONAL ENGINEER, CERTIFICATE NO. 23227, STATE OF ARIZONA, U.S.A. EXPIRES: 12/31/23

1 DAVID W. GEORGE, REGISTERED PROFESSIONAL ENGINEER, CERTIFICATE NO. 23227, STATE OF ARIZONA, U.S.A. EXPIRES: 12/31/23

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ARIZONA811
CALL 811 or click Arizona811.COM

REVISIONS:

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PLAN NAME

TRILLIUM
VILLAGE 3 - UNITS 1 & 2
DRAINAGE CHANNEL PLAN

ENGINEER INFORMATION
HILGARTWILSON

COB PERMITTING APPROVED SEAL

COB ENGINEERING APPROVED SEAL
APPROVED
6/22/2022
CITY OF BUCKEYE ENGINEERING

SUBMITTAL: 3R Submittal

AS-BUILT SEAL

DESIGN SEAL
DAVID W. GEORGE, REGISTERED PROFESSIONAL ENGINEER, CERTIFICATE NO. 23227, STATE OF ARIZONA, U.S.A. EXPIRES: 12/31/23

COB PLAN TRACKING # ENG-21-0220

COB PERMIT #

ORIGINAL PLAN DATE: MAY 2022

LATEST REVISION DATE: AUG 2023

PROJECT NUMBER: 1175

SHEET NUMBER: DC07 SHT. 76 OF 90

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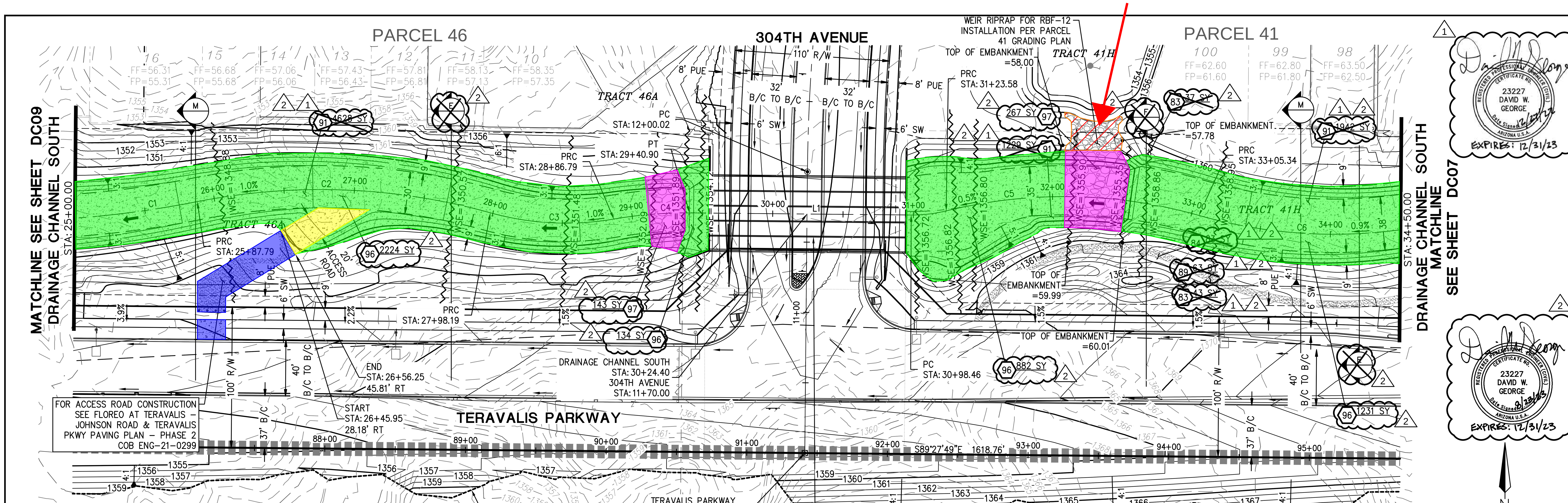
By Others



PARCEL 46
304TH AVENUE
PARCEL 41
MATCHLINE SEE SHEET DC09 DRAINAGE CHANNEL SOUTH
DRAINAGE CHANNEL SOUTH MATCHLINE SEE SHEET DC07
TRACT 46A
TRACT 41H
TERAVALIS PARKWAY
WEIR RIPRAP FOR RBF-12 INSTALLATION PER PARCEL 41 GRADING PLAN
TOP OF EMBANKMENT =58.00
TOP OF EMBANKMENT =57.78
TOP OF EMBANKMENT =59.99
TOP OF EMBANKMENT =60.01
FOR ACCESS ROAD CONSTRUCTION SEE FLOREO AT TERAVALIS – JOHNSON ROAD & TERAVALIS PKWY PAVING PLAN – PHASE 2 COB ENG-21-0299
DRAINAGE CHANNEL SOUTH STA: 30+24.40 304TH AVENUE STA: 11+70.00
TERAVALIS PARKWAY STA: 91+41.26 304TH AVENUE STA: 10+00.00
LIMITS OF DISTURBANCE
SEE CULVERT DETAILS ON COLLECTOR PAVING PLAN FOR MORE INFORMATION
FIRST AMERICAN TITLE INSURANCE CO TR 8436 APN:504-72-011C DOC. 2003-09386663 MCR

NO.	RADIUS	DELTA	LENGTH	TANGENT
C1	725.00'	023°42'59"	300.10'	152.23
C2	450.00'	026°47'19"	210.40'	107.16
C3	200.00'	025°22'58"	88.60'	45.04

CURVE TABLE

NO.	RADIUS	DELTA	LENGTH	TANGENT
C4	300.00'	010°20'02"	54.11'	27.13
C5	350.00'	029°45'18"	181.76'	92.98
C6	350.00'	031°00'38"	189.43'	97.10

DRAINAGE CHANNEL SOUTH

NOTE: THE SCOUR DEPTH AT THE GABION STRUCTURE IS 0 AND THE THALWEG ELEVATION IS THE SAME AS THE BOTTOM ELEVATION LABELED IN THE PROFILE.

SCALE: 1" = 40'

STORM DRAIN CONSTRUCTION

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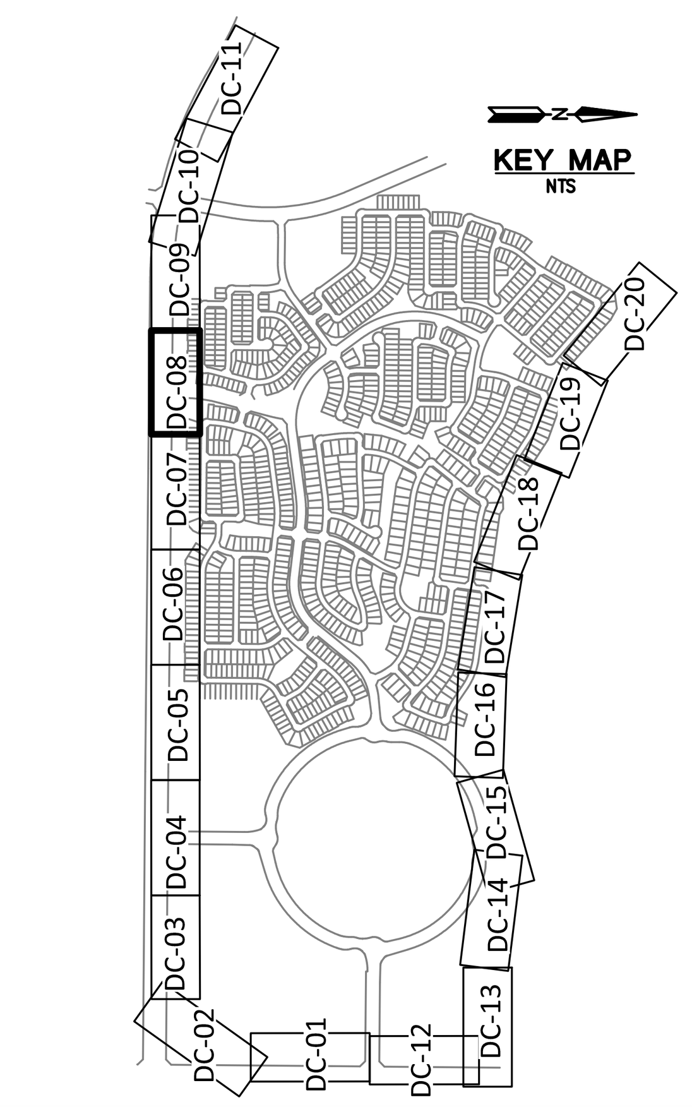
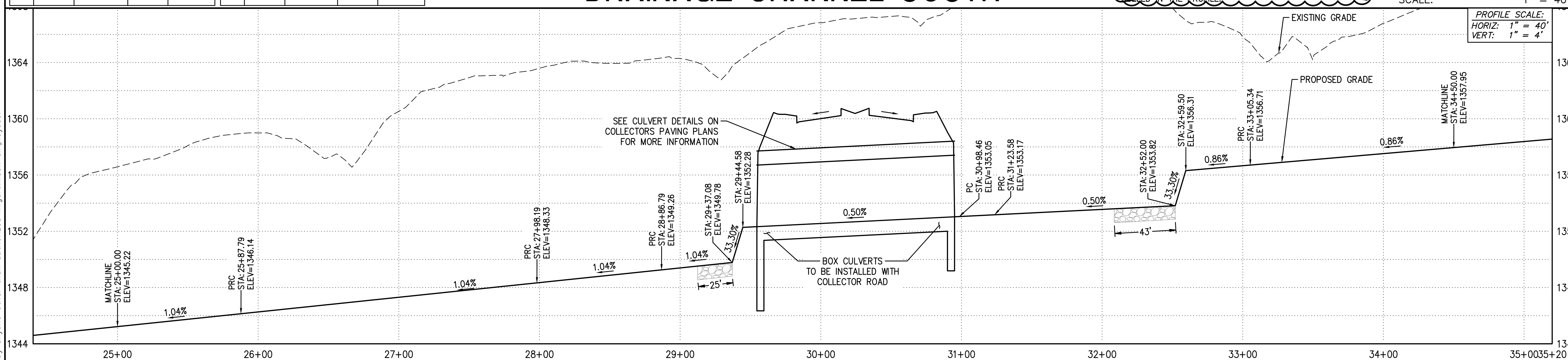
84	INSTALL GABIONS ON MACCAFERRI GEOTEXTILE MACTEX N47.1. PER DETAILS SEE SHEET# DC21.	83	SY
89	INSTALL 2" OF SHOTCRETE ON TOP OF GABION BASKET WITH D50=6" EMBEDDED IN SHOTCRETE.	63	SY
91	INSTALL ANGULAR LOOSE RIP-RAP PER MAG SPEC SECTION 220 D50=4" 6" THICK ON MIRAFI EROSION PROTECTION GEO-TEXTILE OR APPROVED EQUIVALENT. FABRIC TO HAVE APPARENT OPENING SIZE OF 0.425MM, PERMITTIVITY OF 50 gal/min/ft AND WOVEN. SPECIFIC WEIGHT = 165 lb/ft3. GRADATION PER TABLE 6.4 OF 2018 DRAINAGE DESIGN MANUAL FOR MARICOPA COUNTY, ARIZONA (HYDRAULICS).	7799	SY
96	INSTALL SOIL CEMENT PER MAG SPEC 311; SEE DETAIL 1 ON SHEET DC21.	4471	SY
97	PLACE GROUTED RIP-RAP D50=15", THICKNESS 30" ON FILTER FABRIC, MIRAFI EROSION PROTECTION GEO-TEXTILE OR APPROVED EQUIVALENT. COLOR PER DEVELOPER'S REPRESENTATIVE.	410	SY

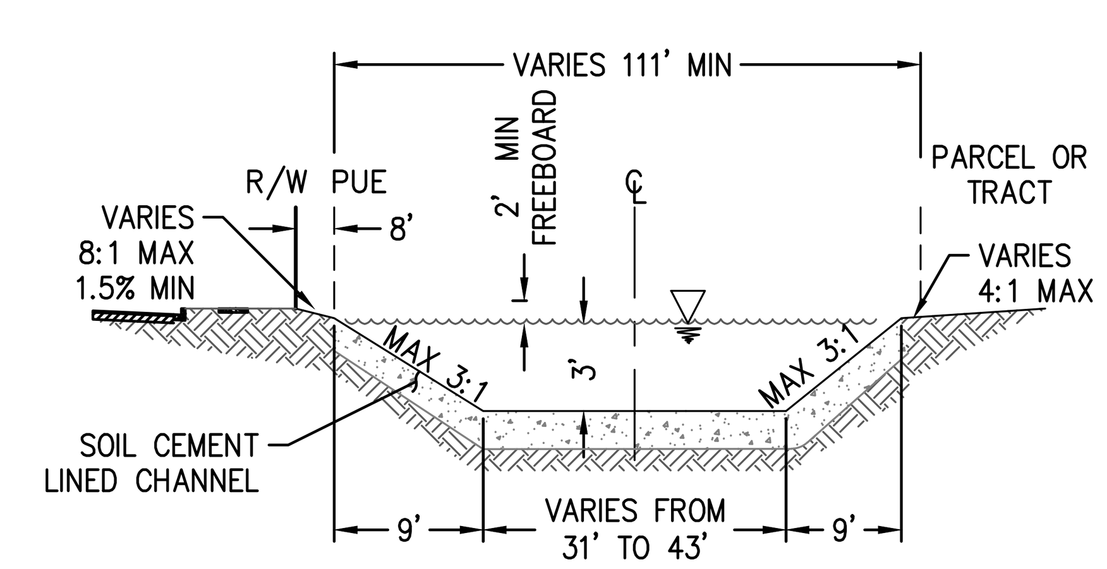




PROFILE SCALE: HORIZ: 1" = 40' VERT: 1" = 4'
EXISTING GRADE
PROPOSED GRADE
SEE CULVERT DETAILS ON COLLECTORS PAVING PLANS FOR MORE INFORMATION
BOX CULVERTS TO BE INSTALLED WITH COLLECTOR ROAD
MATCHLINE STA: 25+00.00 ELEV=1345.22
PRC STA: 25+87.79 ELEV=1346.14
PRC STA: 27+98.19 ELEV=1348.33
PRC STA: 28+86.79 ELEV=1349.26
STA: 29+37.08 ELEV=1349.78
STA: 29+44.58 ELEV=1352.28
PC STA: 30+98.46 ELEV=1353.05
PRC STA: 31+23.58 ELEV=1353.17
STA: 32+52.00 ELEV=1353.82
STA: 32+59.50 ELEV=1356.31
PRC STA: 33+05.34 ELEV=1356.71
MATCHLINE STA: 34+50.00 ELEV=1357.95
1.04%
0.50%
0.86%
33.30%
25'
43'

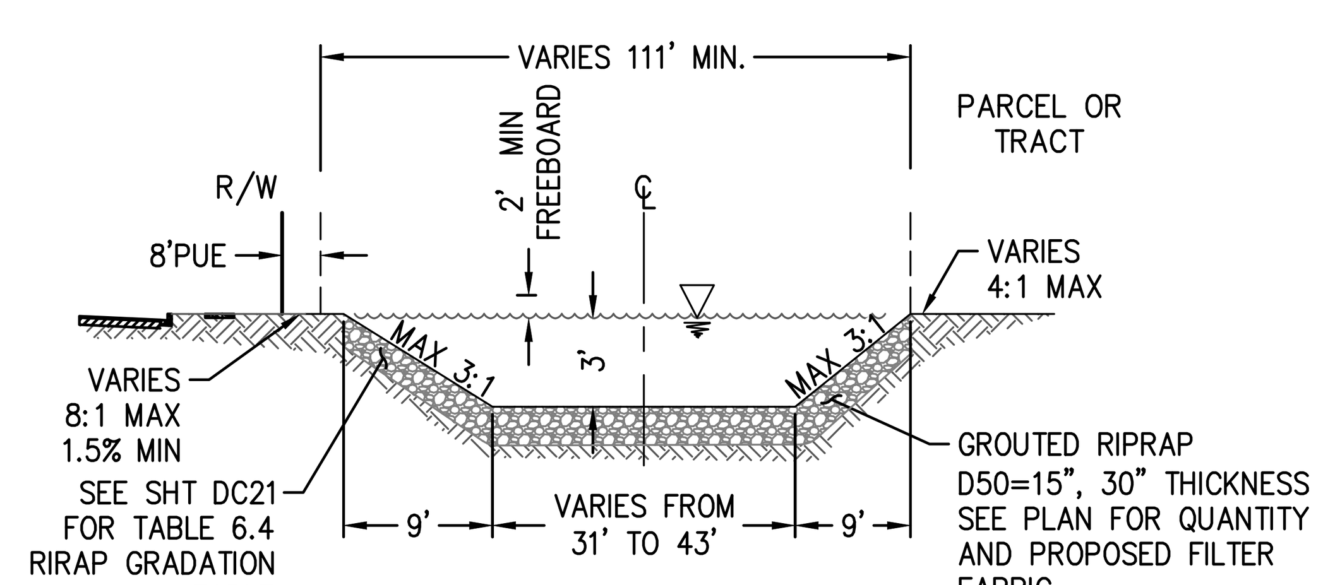
LEGEND

	VILLAGE 3 BOUNDARY
	EROSION HAZARD SETBACK
	RIGHT OF WAY
	LOT LINE
	CENTER LINE
	EASEMENT LINE
	FLOW DIRECTIONAL INDICATOR
FP	FINISH PAD ELEVATION (FINISH FLOOR IS 1' ABOVE FP)
	EMERGENCY OUTFALL ARROW
(HP)	HIGH POINT
(LP)	LOW POINT
	DUAL CHAMBER DRYWELL



TYPICAL DRAINAGE SECTION SOUTH

M NTS



VARIES 111' MIN.
R/W
8'PUE
2' MIN FREEBOARD
PARCEL OR TRACT
VARIES 4:1 MAX
VARIES 8:1 MAX 1.5% MIN
SEE SHT DC21 FOR TABLE 6.4 RIRAP GRADATION TABLE
MAX 3:1
3'
9'
VARIES FROM 31' TO 43'
GROUTED RIPRAP D50=15", 30" THICKNESS SEE PLAN FOR QUANTITY AND PROPOSED FILTER FABRIC

TYPICAL DRAINAGE SECTION SOUTH

N NTS

CHANNEL ALIGNMENT AND CHANNEL SECTION WIDTH CHANGED. SECTION E & F HAVE BEEN DELETED. GRADING AND WSE WERE REVISED. SOIL CEMENT AND GROUTED RIPRAP ADDED. DROP STRUCTURES WERE REMOVED.

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REVISIONS:

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2. 8/23/2023 – REVISION TO CHANNEL ALIGNMENT AND REPLACE RIPRAP WITH SOIL CEMENT.

PLAN NAME

TRILLIUM VILLAGE 3 - UNITS 1 & 2 DRAINAGE CHANNEL PLAN

ENGINEER INFORMATION

HILGARTWILSON

COB PERMITTING APPROVED SEAL

COB ENGINEERING APPROVED SEAL: APPROVED 6/22/2022 CITY OF BUCKEYE ENGINEERING

SUBMITTAL: 3R Submittal

AS-BUILT SEAL

DESIGN SEAL: 23227 DAVID W. GEORGE EXPIRES: 12/31/23

ORIGINAL PLAN DATE: MAY 2022

LATEST REVISION DATE: AUG 2023

COB PLAN TRACKING #: ENG-21-0220

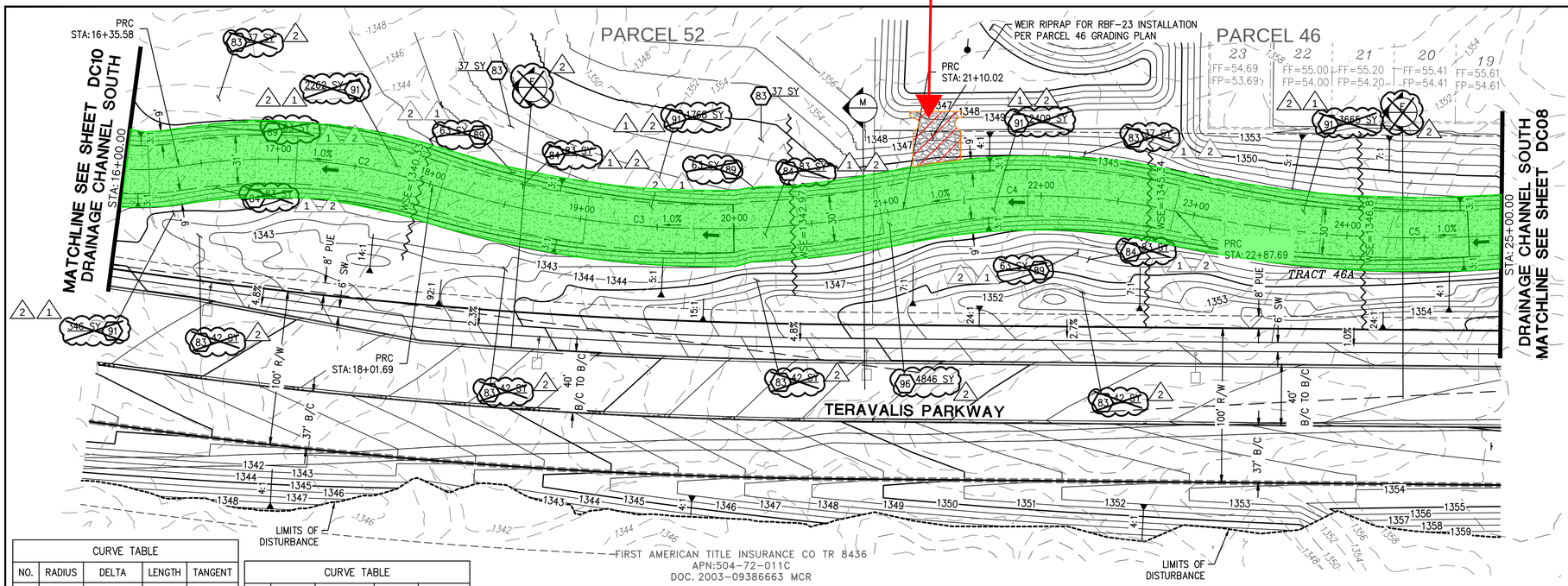
COB PERMIT #

PROJECT NUMBER: 1175

SHEET NUMBER: DC08 SHT. 77 OF 90

U:\1100\1175\ENGR\VILLAGE 3\MASS GRADING\CHANNEL\1175_DC08.dwg 9/7/2023 9:14 AM

By Others

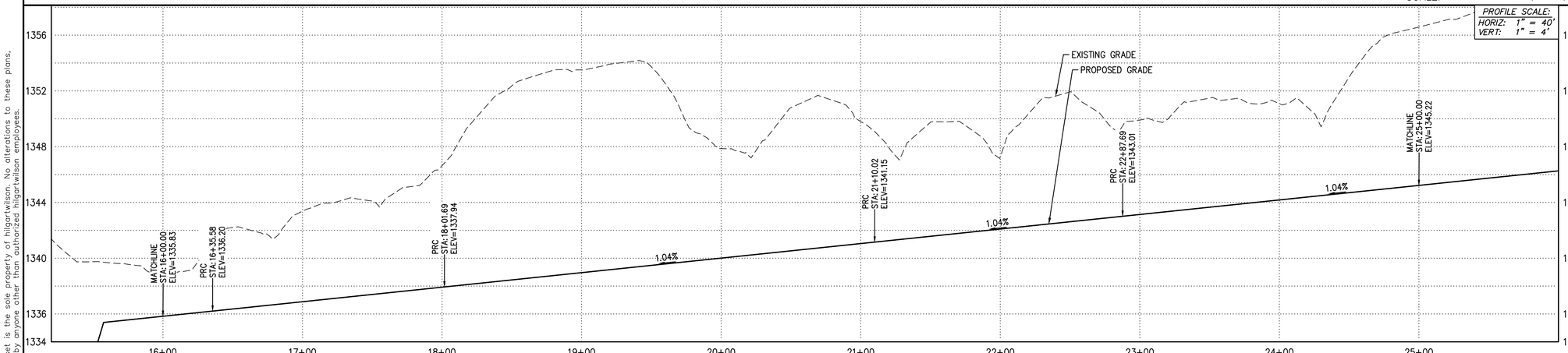


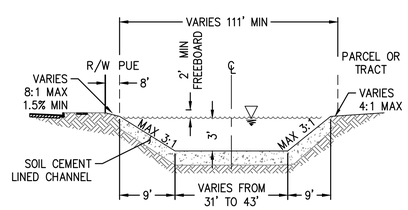
CURVE TABLE				
NO.	RADIUS	DELTA	LENGTH	TANGENT
C2	350.00'	027°11'29"	166.10'	84.65
C3	600.00'	029°26'38"	308.33'	157.65
C4	420.00'	024°14'14"	177.67'	90.18

CURVE TABLE				
NO.	RADIUS	DELTA	LENGTH	TANGENT
C5	725.00'	023°42'59"	300.10'	152.23

DRAINAGE CHANNEL SOUTH

SCALE: 1" = 40'





TYPICAL DRAINAGE SECTION SOUTH

(M) NTS

2 CHANNEL ALIGNMENT AND CHANNEL SECTION WIDTH CHANGED. SECTION E & F HAVE BEEN DELETED. GRADING AND WSE WERE REVISED. SOIL CEMENT AND GROUTED RIPRAP ADDED. DROP STRUCTURES WERE REMOVED.

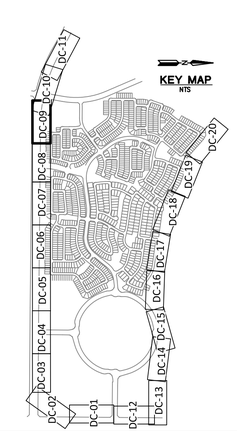
LEGEND

- VILLAGE 3 BOUNDARY
- EROSION HAZARD SETBACK
- RIGHT OF WAY
- LOT LINE
- CENTER LINE
- EASEMENT LINE
- FLOW DIRECTIONAL INDICATOR
- FP — FINISH PAD ELEVATION (FINISH FLOOR IS 1' ABOVE FP)
- EMERGENCY OUTFALL ARROW
- (HP) HIGH POINT
- (LP) LOW POINT
- DUAL CHAMBER DRYWELL

Contact Arizona 811 at least two full working days before you begin excavation
ARIZONA811 CALL 811 or click Arizona811.COM

STORM DRAIN CONSTRUCTION

83	INSTALL LOOSE ANGULAR RIP-RAP PER MAG SPEC SEC. 220; D50=6", 12" THICK ON MIRAFI EROSION PROTECTION GEO-TEXTILE OR APPROVED EQUIVALENT. FABRIC TO HAVE APPARENT OPENING SIZE OF 0.425MM, PERMITTIVITY OF 50 GAL/MIN/FT AND WOVEN. SEE SHEET# DC21 FOR DETAIL AND PLAN SHEET FOR QUANTITY. COLOR PER DEVELOPER.	316 SY
84	INSTALL GABIONS ON MACCAFERRI GEOTEXTILE MACTEX N47.1. PER DETAILS SEE SHEET# DC21.	332 SY
89	INSTALL 2" OF SHOTCRETE ON TOP OF GABION BASKET WITH D50=6" EMBEDDED IN SHOTCRETE.	252 SY
91	INSTALL ANGULAR LOOSE RIP-RAP PER MAG SPEC SECTION 220 D50=4" 6" THICK ON MIRAFI EROSION PROTECTION GEO-TEXTILE OR APPROVED EQUIVALENT. FABRIC TO HAVE APPARENT OPENING SIZE OF 0.425MM, PERMITTIVITY OF 50 gal/min/ft AND WOVEN. SPECIFIC WEIGHT = 165 lb/ft3. GRADATION PER TABLE 6.4 OF 2019 DRAINAGE DESIGN MANUAL FOR MARICOPA COUNTY, ARIZONA (HYDRAULICS).	10450 SY
96	INSTALL SOIL CEMENT PER MAG SPEC 311; SEE DETAIL 1 ON SHEET DC21.	4846 SY



REVISIONS:

1 12/27/2022 – ROSEWOOD AVENUE WAS EXTENDED AND GRADING REVISED. CHANNEL WAS REVISED ALONG SUN VALLEY PARKWAY TO ACCOMMODATE AN ADDED SIDEWALK. GRADING FOR APS SUBSTATION ADDED & FIRE STATION. THE EROSION HAZARD SETBACK ALONG WAGNER WASH WAS REVISED.

2 8/23/2023 – REVISION TO CHANNEL ALIGNMENT AND REPLACE RIPRAP WITH SOIL CEMENT.

PLAN NAME

TRILLIUM VILLAGE 3 - UNITS 1 & 2 DRAINAGE CHANNEL PLAN

ENGINEER INFORMATION

HILGARTWILSON

COB PERMITTING APPROVED SEAL

COB ENGINEERING APPROVED SEAL

APPROVED 6/22/2022 CITY OF BUCKEYE ENGINEERING

SUBMITTAL: 3R Submittal

AS-BUILT SEAL

DESIGN SEAL

23227 DAVID W. GEORGE REGISTERED PROFESSIONAL ENGINEER CERTIFICATE NO. Gila Bend ARIZONA U.S.A. EXPIRES: 12/31/23

COB PLAN TRACKING # ENG-21-0220

COB PERMIT #

ORIGINAL PLAN DATE	LATEST REVISION DATE
MAY 2022	AUG 2023
PROJECT NUMBER	SHEET NUMBER
1175	DC09 78 OF 90

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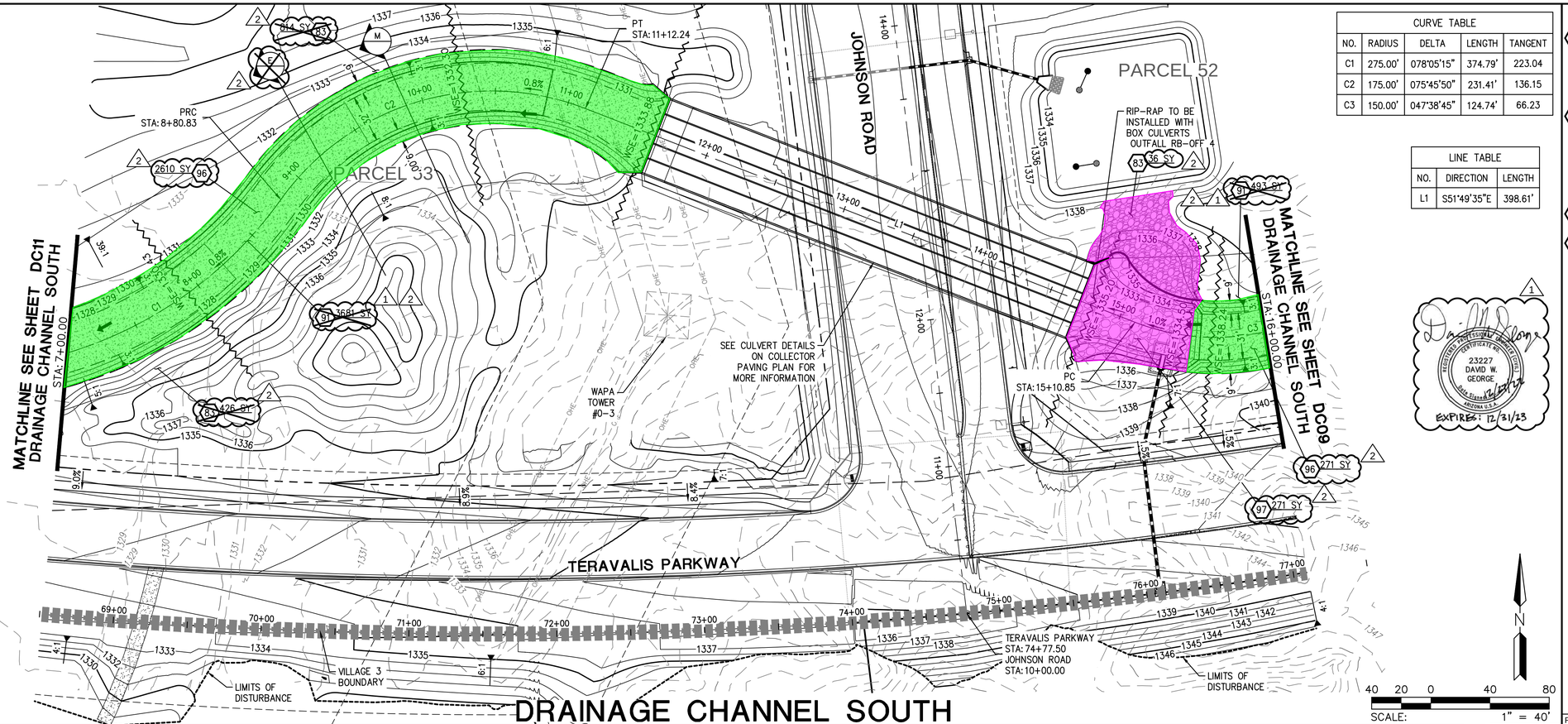
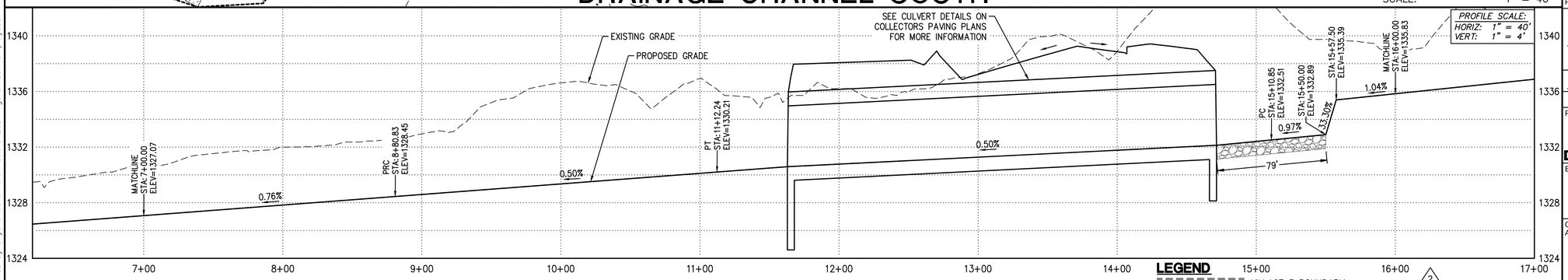
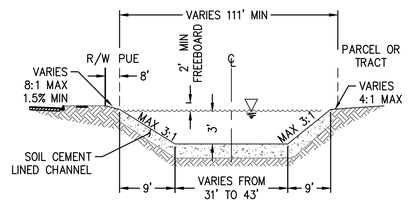
DRAINAGE CHANNEL SOUTH



CURVE TABLE				
NO.	RADIUS	DELTA	LENGTH	TANGENT
C1	275.00'	078°05'15"	374.79'	223.04
C2	175.00'	075°45'50"	231.41'	136.15
C3	150.00'	047°38'45"	124.74'	66.23

LINE TABLE		
NO.	DIRECTION	LENGTH
L1	S51°49'35"E	398.61'





TYPICAL DRAINAGE SECTION SOUTH

M

NTS

LEGEND

- VILLAGE 3 BOUNDARY
- EROSION HAZARD SETBACK
- RIGHT OF WAY
- LOT LINE
- CENTER LINE
- EASEMENT LINE
- FLOW DIRECTIONAL INDICATOR
- FP — FINISH PAD ELEVATION (FINISH FLOOR IS 1' ABOVE FP)
- EMERGENCY OUTFALL ARROW
- (HP) — HIGH POINT
- (LP) — LOW POINT
- DUAL CHAMBER DRYWELL

2 CHANNEL ALIGNMENT AND CHANNEL SECTION WIDTH CHANGED. SECTION E & F HAVE BEEN DELETED. GRADING AND WSE WERE REVISED. SOIL CEMENT AND GROUTED RIPRAP ADDED. DROP STRUCTURES WERE REMOVED.

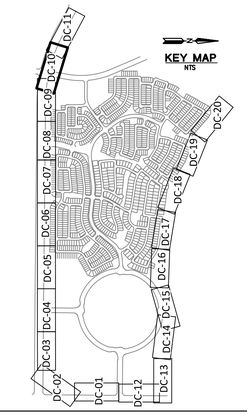
STORM DRAIN CONSTRUCTION

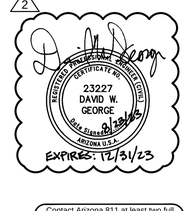
83 INSTALL LOOSE ANGULAR RIP-RAP PER MAG SPEC SEC. 220; D50=6", 12" THICK ON MIRAFI EROSION PROTECTION GEO-TEXTILE OR APPROVED EQUIVALENT. FABRIC TO HAVE APPARENT OPENING SIZE OF 0.425MM, PERMITTIVITY OF 50 GAL/MIN/FT AND WOVEN. SEE SHEET# DC21 FOR DETAIL AND PLAN SHEET FOR QUANTITY. COLOR PER DEVELOPER. — 368 SY (2)

91 ~~INSTALL ANGULAR LOOSE RIP-RAP PER MAG SPEC SECTION 220 D50=4" 6" THICK ON MIRAFI EROSION PROTECTION GEO-TEXTILE OR APPROVED EQUIVALENT. FABRIC TO HAVE APPARENT OPENING SIZE OF 0.425MM PERMITTIVITY OF 50 gal/min/ft AND WOVEN. SPECIFIC WEIGHT = 165 lb/ft3 GRADATION PER TABLE 6.4 OF 2013 DRAINAGE DESIGN MANUAL FOR MARICOPA COUNTY, ARIZONA (HYDRAULICS).~~ — 4174 SY (1) (2)

96 INSTALL SOIL CEMENT PER MAG SPEC 311; SEE DETAIL 1 ON SHEET DC21. — 2881 SY (2)

97 PLACE GROUTED RIP-RAP D50=15", THICKNESS 30" ON FILTER FABRIC, MIRAFI EROSION PROTECTION GEO-TEXTILE OR APPROVED EQUIVALENT. COLOR PER DEVELOPER'S REPRESENTATIVE. — 271 SY





Contact Arizona 811 at least two full working days before you begin excavation
ARIZONA811
CALL 811 or click Arizona811.COM

REVISIONS:

1 12/27/2022 – ROSEWOOD AVENUE WAS EXTENDED AND GRADING REVISED. CHANNEL WAS REVISED ALONG SUN VALLEY PARKWAY TO ACCOMMODATE AN ADDED SIDEWALK. GRADING FOR APS SUBSTATION ADDED & FIRE STATION. THE EROSION HAZARD SETBACK ALONG WAGNER WASH WAS REVISED.

2 8/23/2023 – REVISION TO CHANNEL ALIGNMENT AND REPLACE RIPRAP WITH SOIL CEMENT.

PLAN NAME

TRILLIUM
VILLAGE 3 - UNITS 1 & 2
DRAINAGE CHANNEL PLAN

ENGINEER INFORMATION

HILGARTWILSON

COB PERMITTING APPROVED SEAL	COB ENGINEERING APPROVED SEAL
	APPROVED 6/22/2022 CITY OF BUCKEYE ENGINEERING
AS-BUILT SEAL	DESIGN SEAL
	REGISTERED PROFESSIONAL ENGINEER CERTIFICATE NO. 23227 DAVID W. GEORGE ARIZONA U.S.A. 5/10/23 EXPIRES: 12/31/23

SUBMITTAL: 3R Submittal

ORIGINAL PLAN DATE	LATEST REVISION DATE
MAY 2022	AUG 2023
PROJECT NUMBER 1175	SHEET NUMBER SHT. DC10 79 OF 90

COB PLAN TRACKING # ENG-21-0220

COB PERMIT #

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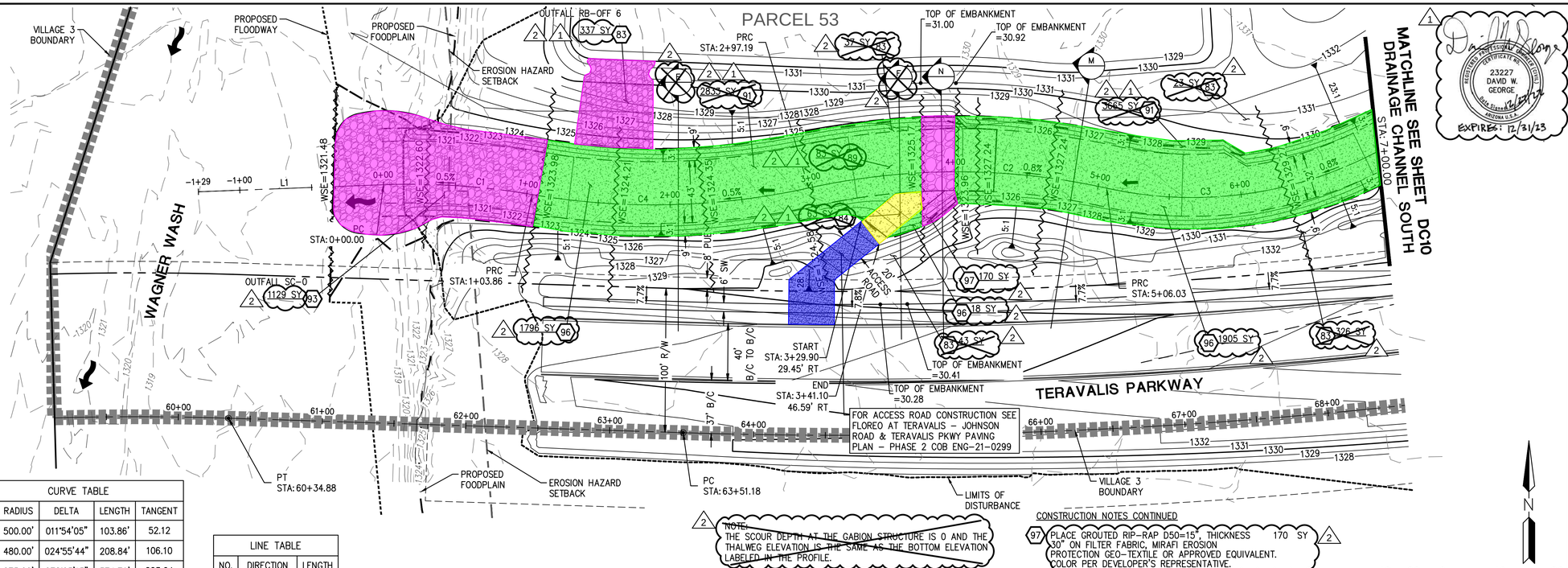
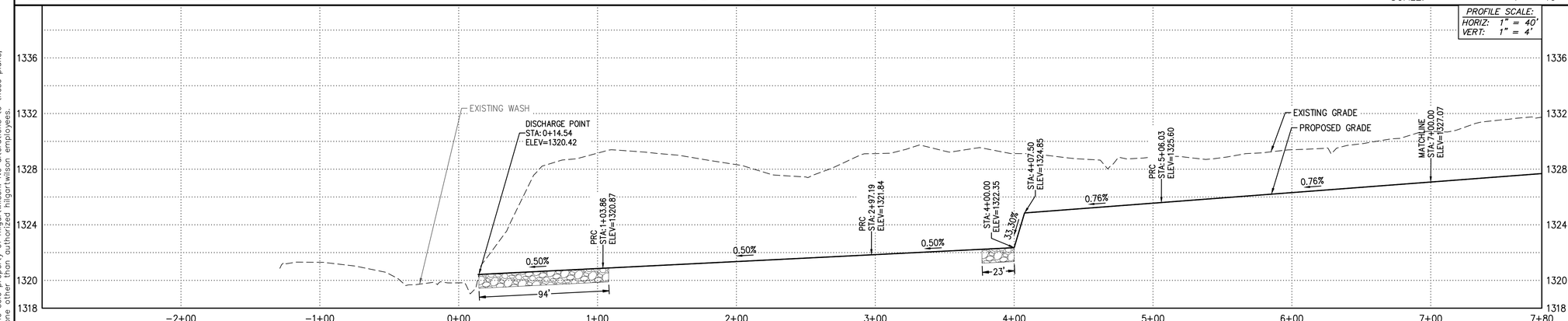
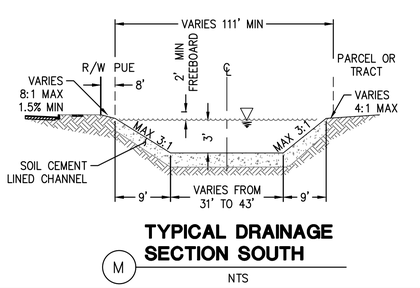


CURVE TABLE				
NO.	RADIUS	DELTA	LENGTH	TANGENT
C1	500.00'	011°54'05"	103.86'	52.12
C2	480.00'	024°55'44"	208.84'	106.10
C3	275.00'	078°05'15"	374.79'	223.04
C4	500.00'	022°09'15"	193.33'	97.89

LINE TABLE		
NO.	DIRECTION	LENGTH
L1	S64°10'42"E	128.82'

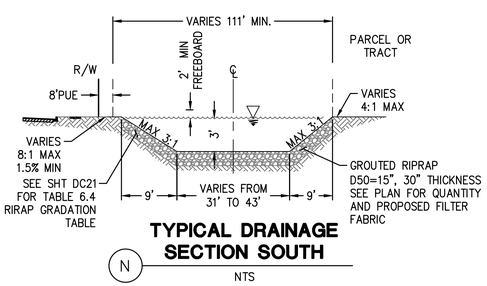




TYPICAL DRAINAGE SECTION SOUTH

M

NTS



TYPICAL DRAINAGE SECTION SOUTH

N

NTS

2 CHANNEL ALIGNMENT AND CHANNEL SECTION WIDTH CHANGED. SECTION E & F HAVE BEEN DELETED. GRADING AND WSE WERE REVISED. SOIL CEMENT AND GROUTED RIPRAP ADDED. DROP STRUCTURES WERE REMOVED.

LEGEND

- VILLAGE 3 BOUNDARY
- EROSION HAZARD SETBACK
- RIGHT OF WAY
- LOT LINE
- CENTER LINE
- EASEMENT LINE
- FLOW DIRECTIONAL INDICATOR
- FP — FINISH PAD ELEVATION (FINISH FLOOR IS 1' ABOVE FP)
- EMERGENCY OUTFALL ARROW
- (HP) — HIGH POINT
- (LP) — LOW POINT
- DUAL CHAMBER DRYWELL

2

REGISTERED PROFESSIONAL ENGINEER CERTIFICATE NO. 23227 DAVID W. GEORGE STATE OF ARIZONA U.S.A.
EXPIRES: 12/31/23

Contact Arizona 811 at least two full working days before you begin excavation
ARIZONA811
CALL 811 or click Arizona811.COM

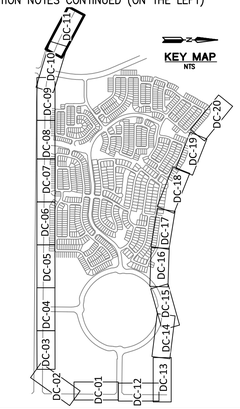
1

REGISTERED PROFESSIONAL ENGINEER CERTIFICATE NO. 23227 DAVID W. GEORGE STATE OF ARIZONA U.S.A.
EXPIRES: 12/31/23

STORM DRAIN CONSTRUCTION

83	INSTALL LOOSE ANGULAR RIP-RAP PER MAG SPEC SEC. 220; D50=6", 12" THICK ON MIRAFI EROSION PROTECTION GEO-TEXTILE OR APPROVED EQUIVALENT. FABRIC TO HAVE APPARENT OPENING SIZE OF 0.425MM, PERMITTIVITY OF 50 GAL/MIN/FT AND WOVEN. SEE SHEET# DC21 FOR DETAIL AND PLAN SHEET FOR QUANTITY. COLOR PER DEVELOPER.	766 SY	1 2
84	INSTALL GABIONS ON MACCAFERRI GEOTEXTILE MACTEX N47.1. PER DETAILS SEE SHEET# DC21.	63 SY	1 2
89	INSTALL 2" OF SHOTCRETE ON TOP OF GABION BASKET WITH D50=6" EMBEDDED IN SHOTCRETE.	83 SY	
91	INSTALL ANGULAR LOOSE RIP-RAP PER MAG SPEC SECTION 220 D50=4" 24" THICK ON MIRAFI EROSION PROTECTION GEO-TEXTILE OR APPROVED EQUIVALENT. FABRIC TO HAVE APPARENT OPENING SIZE OF 0.425MM, PERMITTIVITY OF 50 gal/min/ft AND WOVEN. SPECIFIC WEIGHT = 165 lb/ft3. GRADATION PER TABLE 6.4 OF 2045 DRAINAGE DESIGN MANUAL FOR MARICOPA COUNTY, ARIZONA (HYDRAULICS)	6498 SY	
93	INSTALL LOOSE ANGULAR RIP-RAP PER MAG SPEC SEC. 220; D50=9", 24" THICK ON MIRAFI EROSION PROTECTION GEO-TEXTILE OR APPROVED EQUIVALENT. FABRIC TO HAVE APPARENT OPENING SIZE OF 0.425MM, PERMITTIVITY OF 50 GAL/MIN/FT AND WOVEN. SEE SHEET# DC21 FOR DETAIL AND PLAN SHEET FOR QUANTITY. COLOR PER DEVELOPER.	1129 SY	2
96	INSTALL SOIL CEMENT PER MAG SPEC 311; SEE DETAIL 1 ON SHEET DC21.	3719 SY	2

* CONSTRUCTION NOTES CONTINUED (ON THE LEFT)



REVISIONS:

1	12/27/2022 – ROSEWOOD AVENUE WAS EXTENDED AND GRADING REVISED. CHANNEL WAS REVISED ALONG SUN VALLEY PARKWAY TO ACCOMMODATE AN ADDED SIDEWALK. GRADING FOR APS SUBSTATION ADDED & FIRE STATION. THE EROSION HAZARD SETBACK ALONG WAGNER WASH WAS REVISED.
2	8/23/2023 – REVISION TO CHANNEL ALIGNMENT AND REPLACE RIPRAP WITH SOIL CEMENT.

PLAN NAME

TRILLIUM
VILLAGE 3 - UNITS 1 & 2
DRAINAGE CHANNEL PLAN

ENGINEER INFORMATION

HILGARTWILSON

COB PERMITTING APPROVED SEAL

COB ENGINEERING APPROVED SEAL

APPROVED

6/22/2022

CITY OF BUCKEYE ENGINEERING

SUBMITTAL: 3R Submittal

AS-BUILT SEAL

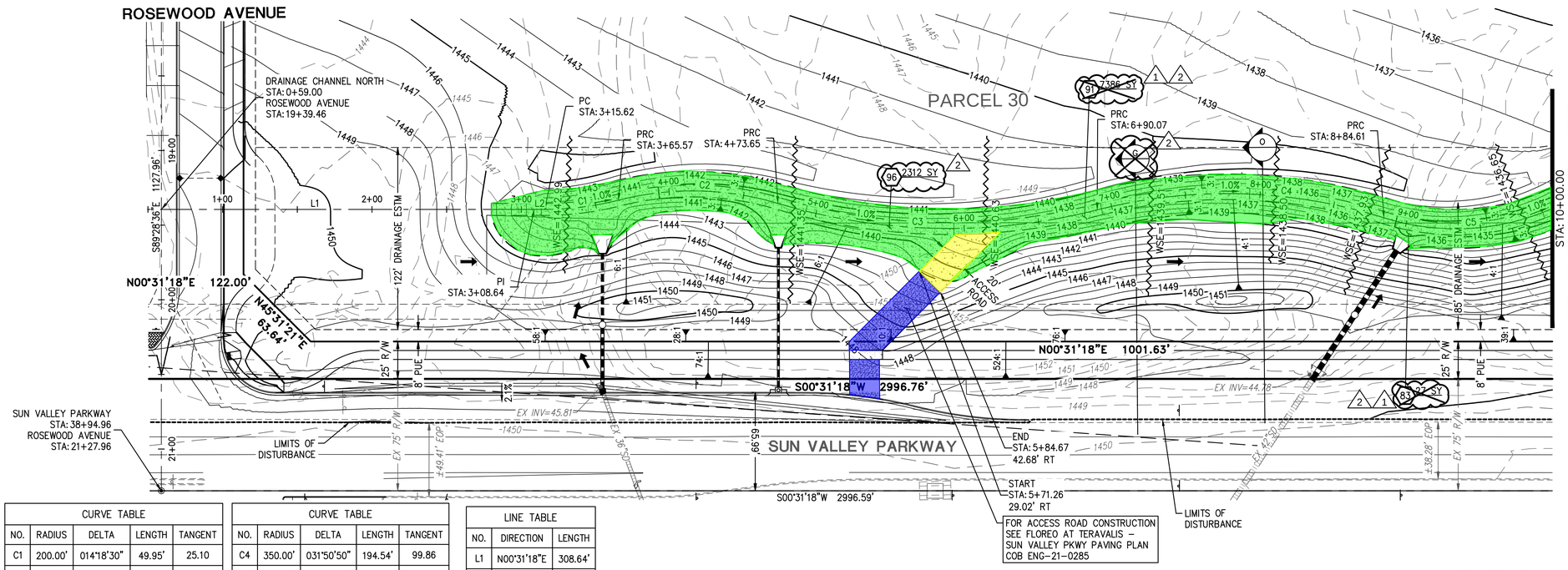
DESIGN SEAL

REGISTERED PROFESSIONAL ENGINEER CERTIFICATE NO. 23227 DAVID W. GEORGE STATE OF ARIZONA U.S.A.
EXPIRES: 12/31/23

ORIGINAL PLAN DATE: MAY 2022	LATEST REVISION DATE: AUG 2023
PROJECT NUMBER: 1175	SHEET NUMBER: DC11 SHT. 80 OF 90

COB PLAN TRACKING #: ENG-21-0220

COB PERMIT #:



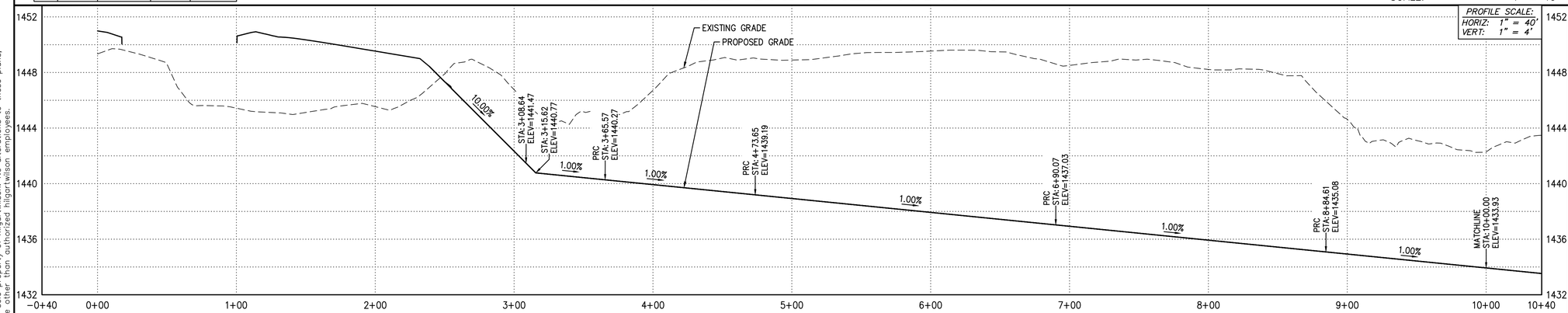
CURVE TABLE				
NO.	RADIUS	DELTA	LENGTH	TANGENT
C1	200.00'	014°18'30"	49.95'	25.10
C2	200.00'	030°57'50"	108.08'	55.40
C3	400.00'	030°59'57"	216.41'	110.93

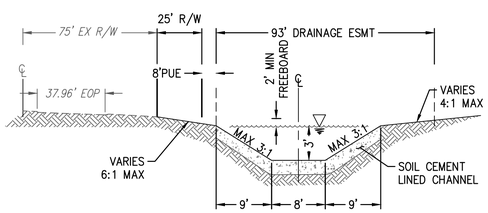
CURVE TABLE				
NO.	RADIUS	DELTA	LENGTH	TANGENT
C4	350.00'	031°50'50"	194.54'	99.86
C5	160.00'	129°31'58"	361.72'	339.50

LINE TABLE		
NO.	DIRECTION	LENGTH
L1	N00°31'18"E	308.64'
L2	N00°31'18"E	6.98'

DRAINAGE CHANNEL NORTH

SCALE: 1" = 40'





TYPICAL DRAINAGE SECTION - SUN VALLEY PARKWAY

(0) NTS

(2) CHANNEL ALIGNMENT AND CHANNEL SECTION WIDTH CHANGED. SECTION G HAS BEEN DELETED. GRADING AND WSE WERE REVISED. SOIL CEMENT AND GROUTED RIPRAP ADDED. DROP STRUCTURES WERE REMOVED.

LEGEND

- VILLAGE 3 BOUNDARY
- EROSION HAZARD SETBACK
- RIGHT OF WAY
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- EASEMENT LINE
- FLOW DIRECTIONAL INDICATOR
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- (HP) HIGH POINT
- (LP) LOW POINT
- DUAL CHAMBER DRYWELL

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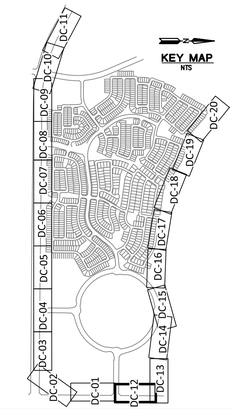
ARIZONA811 CALL 811 or click Arizona811.COM

STORM DRAIN CONSTRUCTION

(83) INSTALL LOOSE ANGULAR RIP-RAP PER MAG SPEC SEC. 220; D50=6", 12" THICK ON MIRAFI EROSION PROTECTION GEO-TEXTILE OR APPROVED EQUIVALENT. FABRIC TO HAVE APPARENT OPENING SIZE OF 0.425MM, PERMITTIVITY OF 50 GAL/MIN/FT AND WOVEN. SEE SHEET# DC21 FOR DETAIL AND PLAN SHEET FOR QUANTITY. COLOR PER DEVELOPER. — 27 SY (1, 2)

(91) INSTALL ANGULAR LOOSE RIP-RAP PER MAG SPEC SECTION 220 D50=6" THICK ON MIRAFI EROSION PROTECTION GEO-TEXTILE OR APPROVED EQUIVALENT. FABRIC TO HAVE APPARENT OPENING SIZE OF 0.425MM, PERMITTIVITY OF 50 gal/min/ft AND WOVEN. SPECIFIC WEIGHT = 165 lb/ft3. GRADATION PER TABLE 6.4 OF 2045 DRAINAGE DESIGN MANUAL FOR MARICOPA COUNTY, ARIZONA (HYDRAULICS). — 7386 SY (1, 2)

(96) INSTALL SOIL CEMENT PER MAG SPEC 311; SEE DETAIL 1 ON SHEET DC21. — 2312 SY (2)



REVISIONS:

1 — 12/27/2022 – ROSEWOOD AVENUE WAS EXTENDED AND GRADING REVISED. CHANNEL WAS REVISED ALONG SUN VALLEY PARKWAY TO ACCOMMODATE AN ADDED SIDEWALK. GRADING FOR APS SUBSTATION ADDED & FIRE STATION. THE EROSION HAZARD SETBACK ALONG WAGNER WASH WAS REVISED.

2 — 8/23/2023 – REVISION TO CHANNEL ALIGNMENT AND REPLACE RIPRAP WITH SOIL CEMENT.

PLAN NAME

TRILLIUM
VILLAGE 3 - UNITS 1 & 2
DRAINAGE CHANNEL PLAN

ENGINEER INFORMATION
HILGARTWILSON

COB PERMITTING APPROVED SEAL

COB ENGINEERING APPROVED SEAL
APPROVED
6/22/2022
CITY OF BUCKEYE ENGINEERING

SUBMITTAL: 3R Submittal

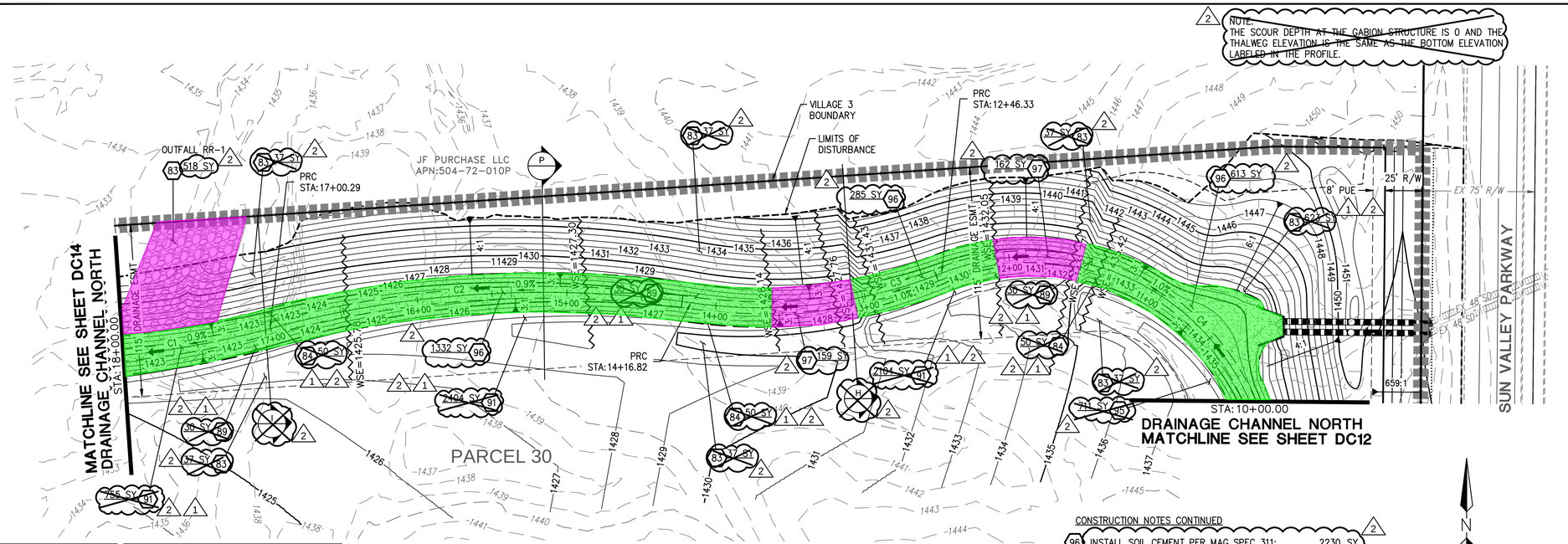
AS-BUILT SEAL

DESIGN SEAL
23227 DAVID W. GEORGE REGISTERED PROFESSIONAL ENGINEER CERTIFICATE NO. ARIZONA U.S.A. EXPIRES: 12/31/23

COB PLAN TRACKING # ENG-21-0220

COB PERMIT #

ORIGINAL PLAN DATE: MAY 2022
LATEST REVISION DATE: AUG 2023
PROJECT NUMBER: 1175
SHEET NUMBER: DC12 SHT. 81 OF 90



CURVE TABLE				
NO.	RADIUS	DELTA	LENGTH	TANGENT
C1	600.00'	023°14'05"	243.31'	123.35
C2	700.00'	023°12'09"	283.47'	143.71

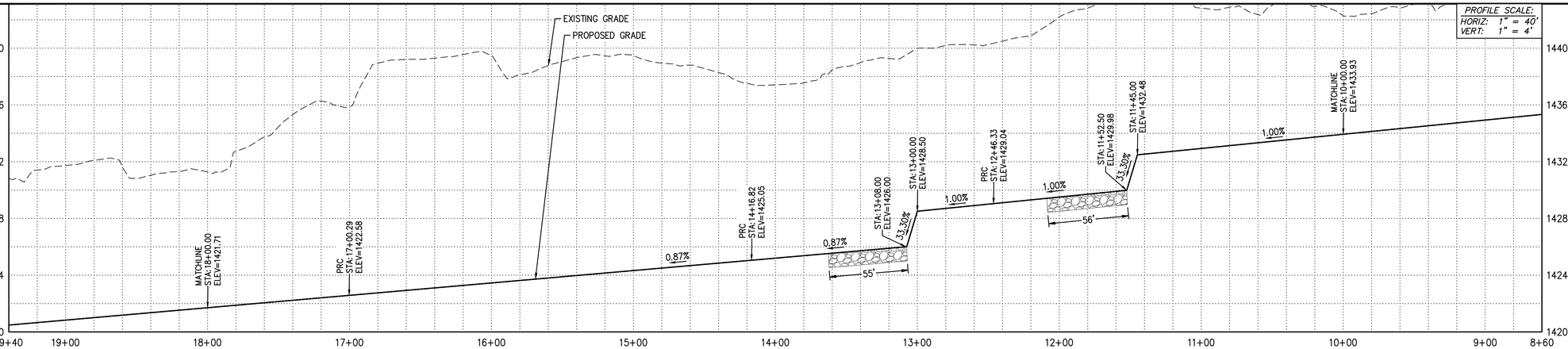
CURVE TABLE				
NO.	RADIUS	DELTA	LENGTH	TANGENT
C3	330.00'	029°35'59"	170.48'	87.19
C4	160.00'	129°31'58"	361.72'	339.50

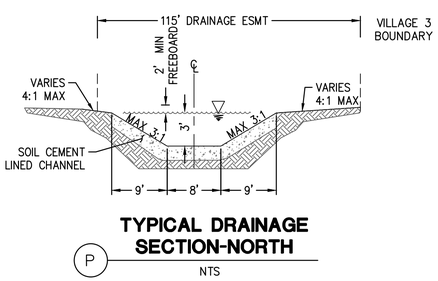
CONSTRUCTION NOTES CONTINUED

96	INSTALL SOIL CEMENT PER MAG SPEC 311; SEE DETAIL 1 ON SHEET DC21.	2230	SY
97	PLACE GROUTED RIP-RAP D50=15", THICKNESS 30" ON FILTER FABRIC, MIRAFI EROSION PROTECTION GEO-TEXTILE OR APPROVED EQUIVALENT. COLOR PER DEVELOPER'S REPRESENTATIVE.	321	SY

SCALE: 1" = 40'

DRAINAGE CHANNEL NORTH





TYPICAL DRAINAGE SECTION-NORTH

P — NTS

2 CHANNEL ALIGNMENT AND CHANNEL SECTION WIDTH CHANGED. SECTION H & I HAVE BEEN DELETED. GRADING AND WSE WERE REVISED. SOIL CEMENT AND GROUTED RIPRAP ADDED. DROP STRUCTURES WERE REMOVED.

LEGEND

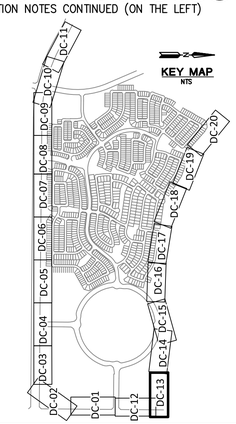
- VILLAGE 3 BOUNDARY
- EROSION HAZARD SETBACK
- RIGHT OF WAY
- LOT LINE
- CENTER LINE
- EASEMENT LINE
- FLOW DIRECTIONAL INDICATOR
- FP — FINISH PAD ELEVATION (FINISH FLOOR IS 1' ABOVE FP)
- EMERGENCY OUTFALL ARROW
- (HP) — HIGH POINT
- (LP) — LOW POINT
- DUAL CHAMBER DRYWELL

Contact Arizona 811 at least two full working days before you begin excavation
ARIZONA811
CALL 811 or click Arizona811.COM

STORM DRAIN CONSTRUCTION

83	INSTALL LOOSE ANGULAR RIP-RAP PER MAG SPEC SEC. 220; D50=6", 12" THICK ON MIRAFI EROSION PROTECTION GEO-TEXTILE OR APPROVED EQUIVALENT. FABRIC TO HAVE APPARENT OPENING SIZE OF 0.425MM, PERMITTIVITY OF 50 GAL/MIN/FT AND WOVEN. SEE SHEET# DC21 FOR DETAIL AND PLAN SHEET FOR QUANTITY. COLOR PER DEVELOPER.	~~1363~~ 518	SY
84	INSTALL GABIONS ON MACCAFERRI GEOTEXTILE MACTEX M47.1. PER DETAILS SEE SHEET# DC21.	150	SY
89	INSTALL 2" OF SHOTCRETE ON TOP OF GABION BASKET WITH D50=6" EMBEDDED IN SHOTCRETE.	90	SY
91	INSTALL ANGULAR LOOSE RIP-RAP PER MAG SPEC SECTION 220 D50=4" 9" THICK ON MIRAFI EROSION PROTECTION GEO-TEXTILE OR APPROVED EQUIVALENT. FABRIC TO HAVE APPARENT OPENING SIZE OF 0.425MM, PERMITTIVITY OF 50 gal/min/ft AND WOVEN. SPECIFIC WEIGHT = 165 lb/ft3. GRADATION PER TABLE 6.4 OF 2013 DRAINAGE DESIGN MANUAL FOR MARICOPA COUNTY, ARIZONA (HYDRAULICS)	5263	SY
95	INSTALL ANGULAR LOOSE RIP-RAP PER MAG SPEC SEC 220; D50=6", 9" THICK ON MIRAFI EROSION PROTECTION GEO-TEXTILE OR APPROVED EQUIVALENT. FABRIC TO HAVE APPARENT OPENING SIZE OF 0.425MM, PERMITTIVITY OF 50 gal/min/ft AND WOVEN. SPECIFIC WEIGHT = 165 lb/ft3. GRADATION PER TABLE 6.4 OF 2013 DRAINAGE DESIGN MANUAL FOR MARICOPA COUNTY, ARIZONA (HYDRAULICS).	711	SY

* CONSTRUCTION NOTES CONTINUED (ON THE LEFT)



REVISIONS:

1	12/27/2022 – ROSEWOOD AVENUE WAS EXTENDED AND GRADING REVISED. CHANNEL WAS REVISED ALONG SUN VALLEY PARKWAY TO ACCOMMODATE AN ADDED SIDEWALK. GRADING FOR APS SUBSTATION ADDED & FIRE STATION. THE EROSION HAZARD SETBACK ALONG WAGNER WASH WAS REVISED.
2	8/23/2023 – REVISION TO CHANNEL ALIGNMENT AND REPLACE RIPRAP WITH SOIL CEMENT.

PLAN NAME

TRILLIUM
VILLAGE 3 - UNITS 1 & 2
DRAINAGE CHANNEL PLAN

ENGINEER INFORMATION
HILGARTWILSON

COB PERMITTING APPROVED SEAL

COB ENGINEERING APPROVED SEAL
APPROVED
6/22/2022
CITY OF BUCKEYE ENGINEERING

SUBMITTAL: 3R Submittal

AS-BUILT SEAL

DESIGN SEAL
REGISTERED PROFESSIONAL ENGINEER
CERTIFICATE NO.
23227
DAVID W.
GEORGE
State of
ARIZONA U.S.A.
12/31/23
EXPIRES: 12/31/23

COB PLAN TRACKING # ENG-21-0220

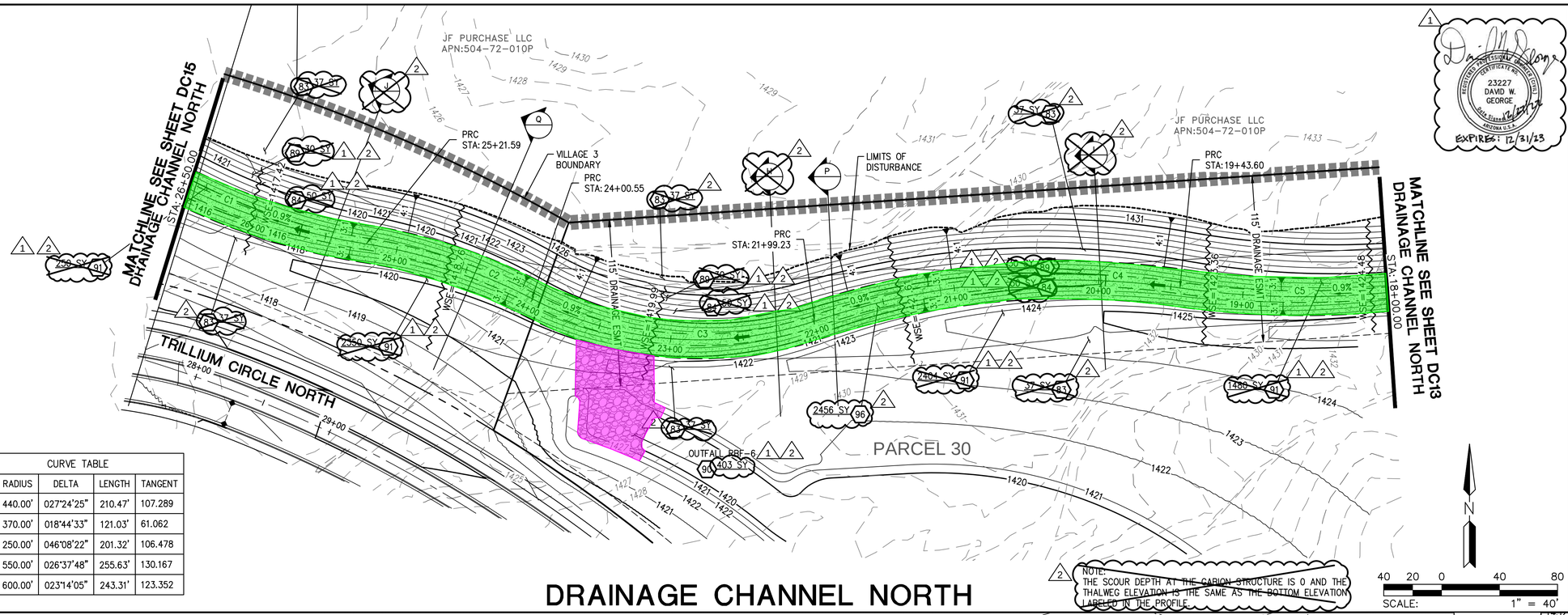
COB PERMIT #

ORIGINAL PLAN DATE: MAY 2022

LATEST REVISION DATE: AUG 2023

PROJECT NUMBER: 1175

SHEET NUMBER SHT. **DC13** 82 OF 90

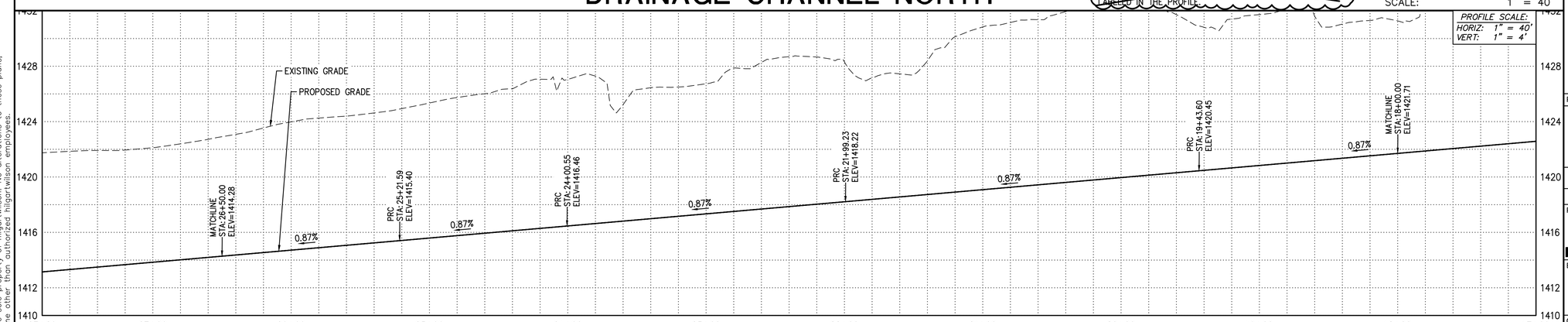


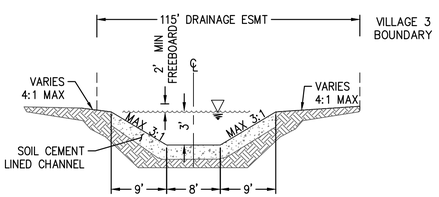
CURVE TABLE				
NO.	RADIUS	DELTA	LENGTH	TANGENT
C1	440.00'	027°24'25"	210.47'	107.289
C2	370.00'	018°44'33"	121.03'	61.062
C3	250.00'	046°08'22"	201.32'	106.478
C4	550.00'	026°37'48"	255.63'	130.167
C5	600.00'	023°14'05"	243.31'	123.352

DRAINAGE CHANNEL NORTH

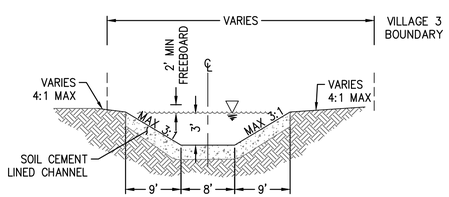
NOTE:
THE SCOUR DEPTH AT THE GABION STRUCTURE IS 0 AND THE THALWEG ELEVATION IS THE SAME AS THE BOTTOM ELEVATION LABELED IN THE PROFILE.

40 20 0 40 80
SCALE: 1" = 40'





TYPICAL DRAINAGE SECTION-NORTH
(P)
NTS



TYPICAL DRAINAGE SECTION-NORTH
(Q)
NTS

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- (HP) HIGH POINT
- (LP) LOW POINT
- DUAL CHAMBER DRYWELL

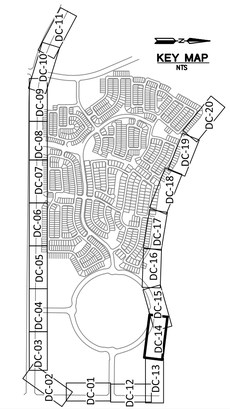
1 EXPIRES: 12/31/23

2 EXPIRES: 12/31/23

Contact Arizona 811 at least two full working days before you begin excavation
ARIZONA811
CALL 811 or click Arizona811.COM

STORM DRAIN CONSTRUCTION

83	INSTALL LOOSE ANGULAR RIP-RAP PER MAG SPEC SEC. 220; D50=6", 12" THICK ON MIRAFI EROSION PROTECTION GEO-TEXTILE OR APPROVED EQUIVALENT. FABRIC TO HAVE APPARENT OPENING SIZE OF 0.425MM, PERMITTIVITY OF 50 GAL/MIN/FT AND WOVEN. SEE SHEET# DC21 FOR DETAIL AND PLAN SHEET FOR QUANTITY. COLOR PER DEVELOPER.	232 SY	1 2
84	INSTALL GABIONS ON MACCAFERRI GEOTEXTILE MACTEX N47A. PER DETAILS SEE SHEET# DC21.	150 SY	
89	INSTALL 2" OF SHOTCRETE ON TOP OF GABION BASKET WITH D50=6" EMBEDDED IN SHOTCRETE.	90 SY	
90	INSTALL LOOSE ANGULAR RIP-RAP PER MAG SPEC SEC. 220; D50=9", 18" THICK ON MIRAFI EROSION PROTECTION GEO-TEXTILE OR APPROVED EQUIVALENT. FABRIC TO HAVE APPARENT OPENING SIZE OF 0.425MM, PERMITTIVITY OF 50 GAL/MIN/FT AND WOVEN. SEE SHEET# DC21 FOR DETAIL AND PLAN SHEET FOR QUANTITY. COLOR PER DEVELOPER.	403 SY	1 2
91	INSTALL ANGULAR LOOSE RIP-RAP PER MAG SPEC SECTION 220 D50=4" 6" THICK ON MIRAFI EROSION PROTECTION GEO-TEXTILE OR APPROVED EQUIVALENT. FABRIC TO HAVE APPARENT OPENING SIZE OF 0.425MM, PERMITTIVITY OF 50 gal/min/ft AND WOVEN. SPECIFIC WEIGHT = 165 lb/ft3. GRADATION PER TABLE 6.4 OF 2013 DRAINAGE DESIGN MANUAL FOR MARICOPA COUNTY, ARIZONA (HYDRAULICS).	6484 SY	1 2
96	INSTALL SOIL CEMENT PER MAG SPEC 311; SEE DETAIL 1 ON SHEET DC21.	2456 SY	2



REVISIONS:

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2 8/23/2023 – REVISION TO CHANNEL ALIGNMENT AND REPLACE RIPRAP WITH SOIL CEMENT.

PLAN NAME

TRILLIUM
VILLAGE 3 - UNITS 1 & 2
DRAINAGE CHANNEL PLAN

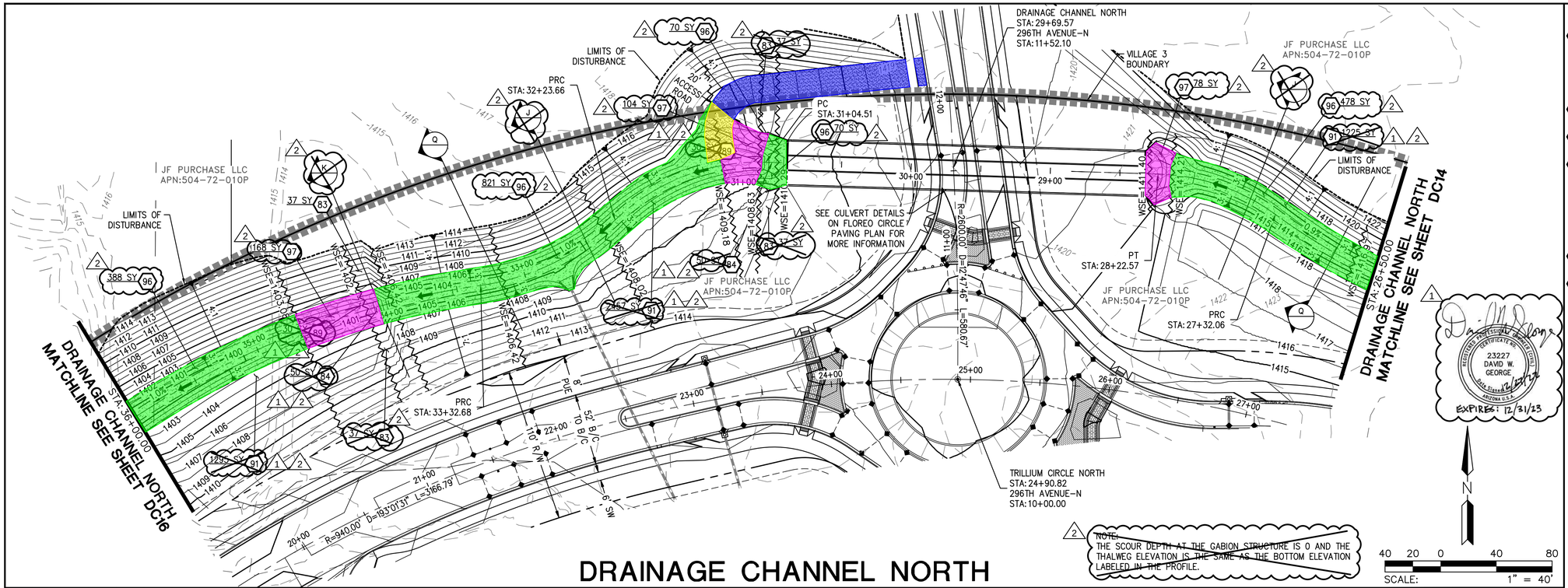
ENGINEER INFORMATION
HILGARTWILSON

COB PERMITTING APPROVED SEAL	COB ENGINEERING APPROVED SEAL: APPROVED 6/22/2022 CITY OF BUCKEYE ENGINEERING
AS-BUILT SEAL	DESIGN SEAL (EXPIRES: 12/31/23)
ORIGINAL PLAN DATE: MAY 2022	LATEST REVISION DATE: AUG 2023
PROJECT NUMBER: 1175	SHEET NUMBER: DC14 SHT. 83 OF 90

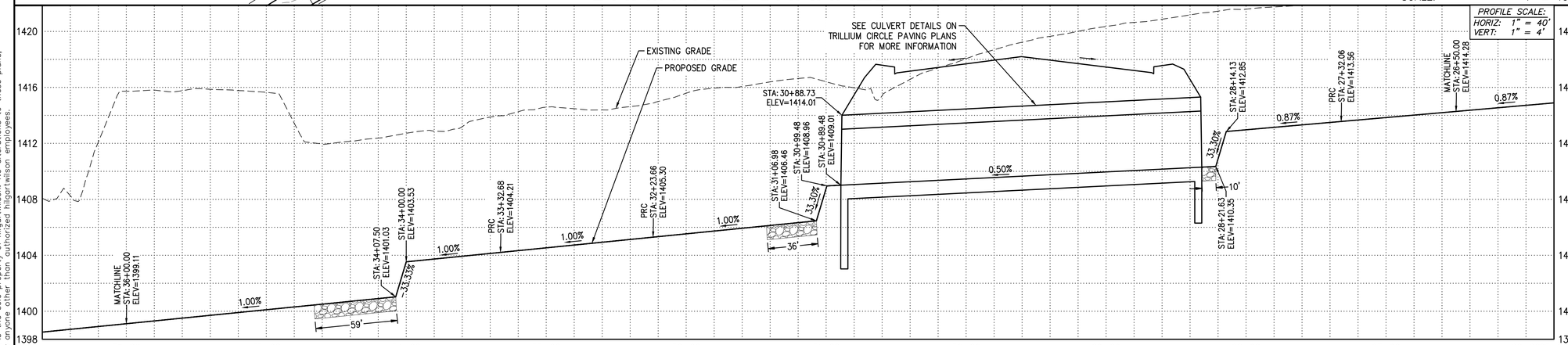
SUBMITTAL: 3R Submittal
COB PLAN TRACKING #: ENG-21-0220
COB PERMIT #:

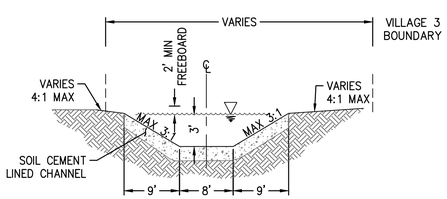
U:\1100\1175\ENGR\VILLAGE 3\MASS GRADING\CHANNEL\1175_DC14.dwg 9/7/2023 9:02 AM

DRAINAGE CHANNEL NORTH



NOTE:
THE SCOUR DEPTH AT THE GABION STRUCTURE IS 0 AND THE THALWEG ELEVATION IS THE SAME AS THE BOTTOM ELEVATION LABELED IN THE PROFILE.





TYPICAL DRAINAGE SECTION-NORTH
(Q) NTS

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LEGEND

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- (LP) LOW POINT
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STORM DRAIN CONSTRUCTION

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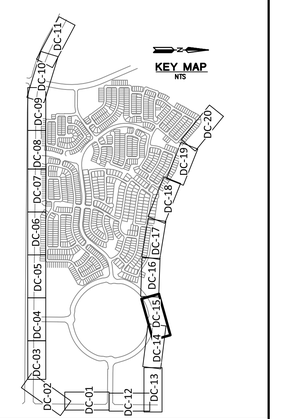
84	INSTALL GABIONS ON MACCAFERRI GEOTEXTILE MACTEX N47.1. PER DETAILS SEE SHEET# DC21.	100	SY
89	INSTALL 2" OF SHOTCRETE ON TOP OF GABION BASKET WITH D50=6" EMBEDDED IN SHOTCRETE.	60	SY
91	INSTALL ANGULAR LOOSE RIP–RAP PER MAG SPEC SECTION 220 D50=4" 6" THICK ON MIRAFI EROSION PROTECTION GEO–TEXTILE OR APPROVED EQUIVALENT. FABRIC TO HAVE APPARENT OPENING SIZE OF 0.425MM, PERMITTIVITY OF 50 gal/min/ft AND WOVEN. SPECIFIC WEIGHT = 165 lb/ft3. GRADATION PER TABLE 6.4 OF 2013 DRAINAGE DESIGN MANUAL FOR MARICOPA COUNTY, ARIZONA (HYDRAFLOW).	4977	SY
96	INSTALL SOIL CEMENT PER MAG SPEC 311; SEE DETAIL 1 ON SHEET DC21.	1827	SY
97	PLACE GROUTED RIP–RAP D50=15", THICKNESS 30" ON FILTER FABRIC, MIRAFI EROSION PROTECTION GEO–TEXTILE OR APPROVED EQUIVALENT. COLOR PER DEVELOPER'S REPRESENTATIVE.	350	SY



REVISIONS:

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2 8/23/2023 – REVISION TO CHANNEL ALIGNMENT AND REPLACE RIPRAP WITH SOIL CEMENT.

PLAN NAME

TRILLIUM
VILLAGE 3 – UNITS 1 & 2
DRAINAGE CHANNEL PLAN

ENGINEER INFORMATION
HILGARTWILSON

COB PERMITTING APPROVED SEAL

COB ENGINEERING APPROVED SEAL
APPROVED
6/22/2022
CITY OF BUCKEYE ENGINEERING

SUBMITTAL: 3R Submittal

AS-BUILT SEAL

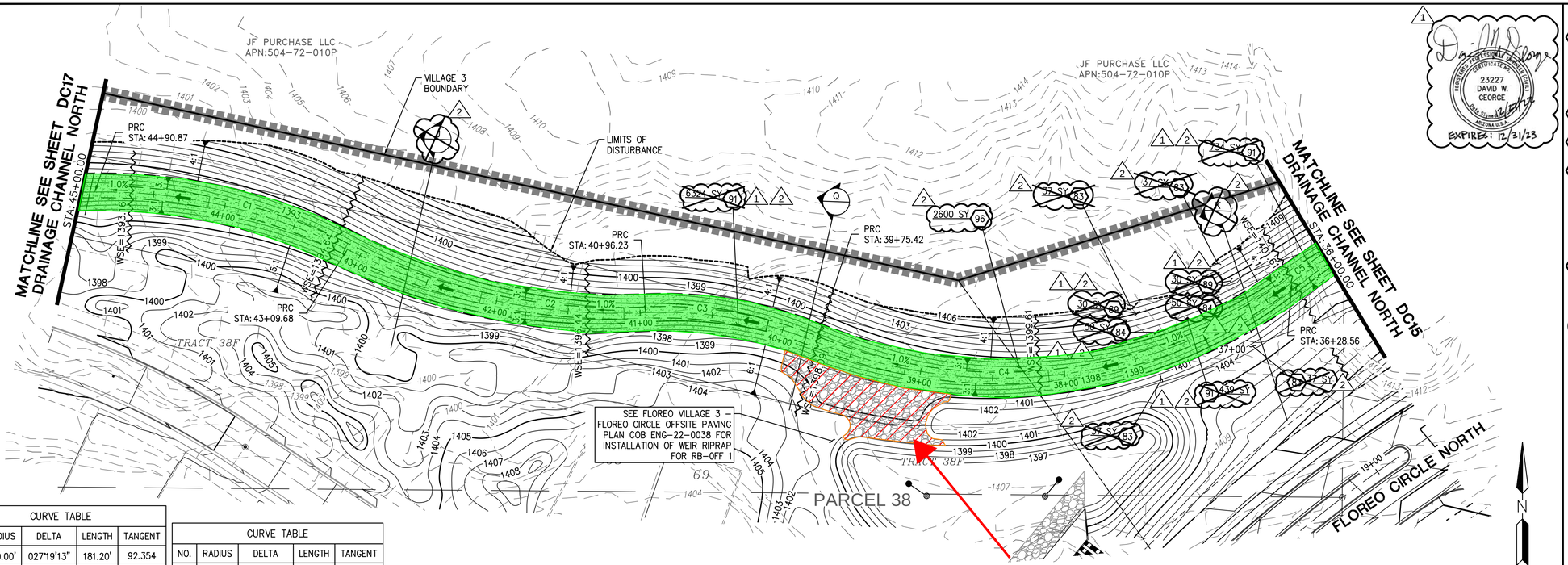
DESIGN SEAL
REGISTERED PROFESSIONAL ENGINEER (CIVIL) CERTIFICATE NO. 23227 DAVID W. GEORGE STATE OF ARIZONA U.S.A.
EXPIRES: 12/31/23

COB PLAN TRACKING # ENG–21–0220
COB PERMIT #

ORIGINAL PLAN DATE: MAY 2022
LATEST REVISION DATE: AUG 2023
PROJECT NUMBER: 1175
SHEET NUMBER SHT. DC15 84 OF 90

Contact Arizona 811 at least two full working days before you begin excavation
ARIZONA811 CALL 811 or click Arizona811.COM

U:\1100\1175\ENGR\VILLAGE 3\MASS GRADING\CHANNEL\1175_DC15.dwg 9/7/2023 9:05 AM

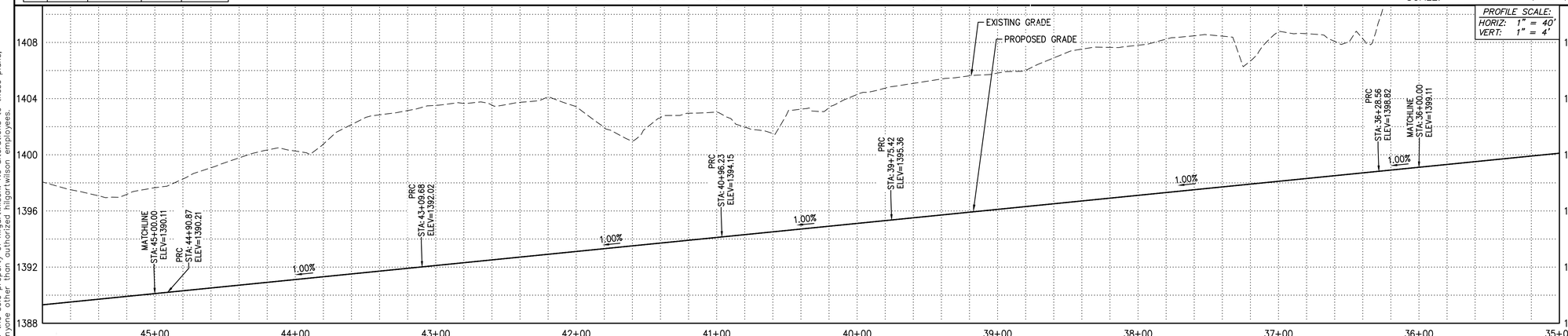


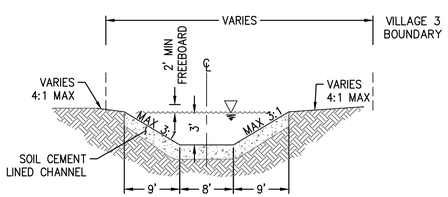
CURVE TABLE				
NO.	RADIUS	DELTA	LENGTH	TANGENT
C1	380.00'	027°19'13"	181.20'	92.354
C2	420.00'	029°07'05"	213.45'	109.081
C3	280.00'	024°43'19"	120.81'	61.362

CURVE TABLE				
NO.	RADIUS	DELTA	LENGTH	TANGENT
C4	340.00'	058°27'06"	346.86'	190.221
C5	600.00'	028°15'17"	295.88'	151.014

DRAINAGE CHANNEL NORTH

SCALE: 1" = 40'





TYPICAL DRAINAGE SECTION-NORTH

Q

NTS

2 CHANNEL ALIGNMENT AND CHANNEL SECTION WIDTH CHANGED. SECTION J & K HAVE BEEN DELETED. GRADING AND WSE WERE REVISED. SOIL CEMENT AND GROUTED RIPRAP ADDED. DROP STRUCTURES WERE REMOVED.

LEGEND

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- DUAL CHAMBER DRYWELL

1

2

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ARIZONA811
CALL 811 or click Arizona811.COM

STORM DRAIN CONSTRUCTION

83	INSTALL LOOSE ANGULAR RIP-RAP PER MAG SPEC SEC. 220; D50=6", 12" THICK ON MIRAFI EROSION PROTECTION GEO-TEXTILE OR APPROVED EQUIVALENT. FABRIC TO HAVE APPARENT OPENING SIZE OF 0.425MM, PERMITTIVITY OF 50 GAL/MIN/FT AND WOVEN. SEE SHEET# DC21 FOR DETAIL AND PLAN SHEET FOR QUANTITY. COLOR PER DEVELOPER.	148	SY
84	INSTALL GABIONS ON MACCAFERRI GEOTEXTILE MACTEX N47.1. PER DETAILS SEE SHEET# DC21.	100	SY
89	INSTALL 2" OF SHOTCRETE ON TOP OF GABION BASKET WITH D50=6" EMBEDDED IN SHOTCRETE.	60	SY
91	INSTALL ANGULAR LOOSE RIP-RAP PER MAG SPEC SECTION 220 D50=4" 6" THICK ON MIRAFI EROSION PROTECTION GEO-TEXTILE OR APPROVED EQUIVALENT. FABRIC TO HAVE APPARENT OPENING SIZE OF 0.425MM, PERMITTIVITY OF 50 gal/min/ft AND WOVEN. SPECIFIC WEIGHT = 155 lb/ft3. GRADATION PER TABLE 6.4 OF 2013 DRAINAGE DESIGN MANUAL FOR MARICOPA COUNTY, ARIZONA (HYDRAULICS)	7497	SY
96	INSTALL SOIL CEMENT PER MAG SPEC 311; SEE DETAIL 1 ON SHEET DC21.	2600	SY

2

NOTE:
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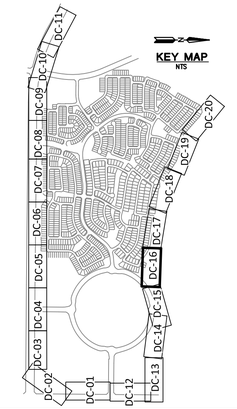

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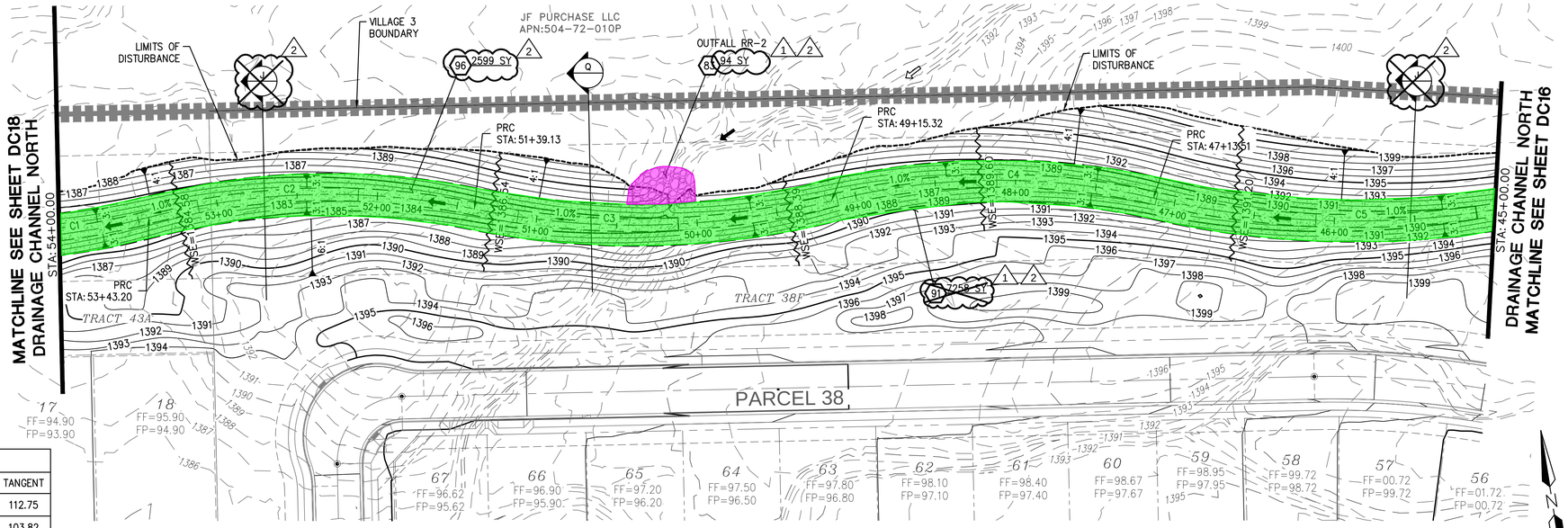
PLAN NAME

TRILLIUM
VILLAGE 3 - UNITS 1 & 2
DRAINAGE CHANNEL PLAN

ENGINEER INFORMATION
HILGARTWILSON

COB PERMITTING APPROVED SEAL	COB ENGINEERING APPROVED SEAL: APPROVED 6/22/2022 CITY OF BUCKEYE ENGINEERING
AS-BUILT SEAL	DESIGN SEAL
ORIGINAL PLAN DATE: MAY 2022	LATEST REVISION DATE: AUG 2023
PROJECT NUMBER: 1175	SHEET NUMBER: DC16 SHT. 85 OF 90

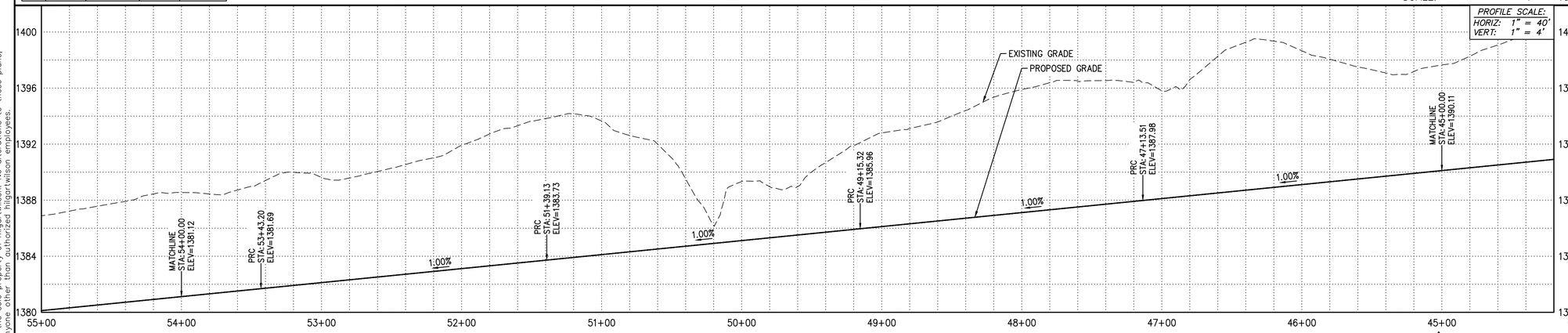
SUBMITTAL: 3R Submittal
COB PLAN TRACKING #: ENG-21-0220
COB PERMIT #:

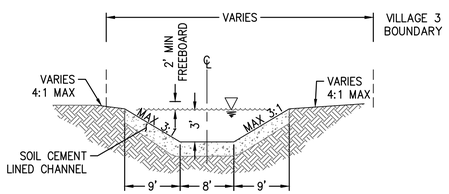


CURVE TABLE				
NO.	RADIUS	DELTA	LENGTH	TANGENT
C1	450.00'	028°07'59"	220.96'	112.75
C2	450.00'	025°59'02"	204.08'	103.82
C3	500.00'	025°38'48"	223.81'	113.81
C4	438.05'	026°23'44"	201.81'	102.73
C5	550.00'	023°11'35"	222.64'	112.86

DRAINAGE CHANNEL NORTH

SCALE: 1" = 40'





TYPICAL DRAINAGE SECTION-NORTH

Q

NTS

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- (HP) HIGH POINT
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- DUAL CHAMBER DRYWELL

2

REGISTERED PROFESSIONAL ENGINEER CERTIFICATE NO. 23227 DAVID W. GEORGE Date Signed 12/19/23 ARIZONA U.S.A.
EXPIRES: 12/31/23

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ARIZONA 811 CALL 811 or click Arizona811.COM

STORM DRAIN CONSTRUCTION

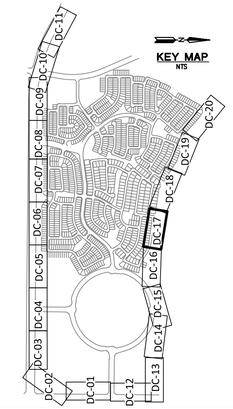
83 INSTALL LOOSE ANGULAR RIP-RAP PER MAG SPEC SEC. 220; D50=6", 12" THICK ON MIRAFI EROSION PROTECTION GEO-TEXTILE OR APPROVED EQUIVALENT. FABRIC TO HAVE APPARENT OPENING SIZE OF 0.425MM, PERMITTIVITY OF 50 GAL/MIN/FT AND WOVEN. SEE SHEET# DC21 FOR DETAIL AND PLAN SHEET FOR QUANTITY. COLOR PER DEVELOPER. — 94 SY — 1 2

91 INSTALL ANGULAR LOOSE RIP-RAP PER MAG SPEC SECTION 220 D50=4" 6" THICK ON MIRAFI EROSION PROTECTION GEO-TEXTILE OR APPROVED EQUIVALENT. FABRIC TO HAVE APPARENT OPENING SIZE OF 0.425MM, PERMITTIVITY OF 50 gal/min/ft AND WOVEN. SPECIFIC WEIGHT = 165 lb/ft3. GRADATION PER TABLE 6.4 OF 2013 DRAINAGE DESIGN MANUAL FOR MARICOPA COUNTY, ARIZONA (HYDRAULICS). — 7258 SY — 2

96 INSTALL SOIL CEMENT PER MAG SPEC 311; SEE DETAIL 1 ON SHEET DC21. — 2599 SY — 2

1

REGISTERED PROFESSIONAL ENGINEER CERTIFICATE NO. 23227 DAVID W. GEORGE Date Signed 12/19/23 ARIZONA U.S.A.
EXPIRES: 12/31/23



REVISIONS:

1 12/27/2022 – ROSEWOOD AVENUE WAS EXTENDED AND GRADING REVISED. CHANNEL WAS REVISED ALONG SUN VALLEY PARKWAY TO ACCOMMODATE AN ADDED SIDEWALK. GRADING FOR APS SUBSTATION ADDED & FIRE STATION. THE EROSION HAZARD SETBACK ALONG WAGNER WASH WAS REVISED.

2 8/23/2023 – REVISION TO CHANNEL ALIGNMENT AND REPLACE RIPRAP WITH SOIL CEMENT.

PLAN NAME

TRILLIUM
VILLAGE 3 - UNITS 1 & 2
DRAINAGE CHANNEL PLAN

ENGINEER INFORMATION
HILGARTWILSON

COB PERMITTING APPROVED SEAL

COB ENGINEERING APPROVED SEAL
APPROVED
6/22/2022
CITY OF BUCKEYE ENGINEERING

SUBMITTAL: 3R Submittal

AS-BUILT SEAL

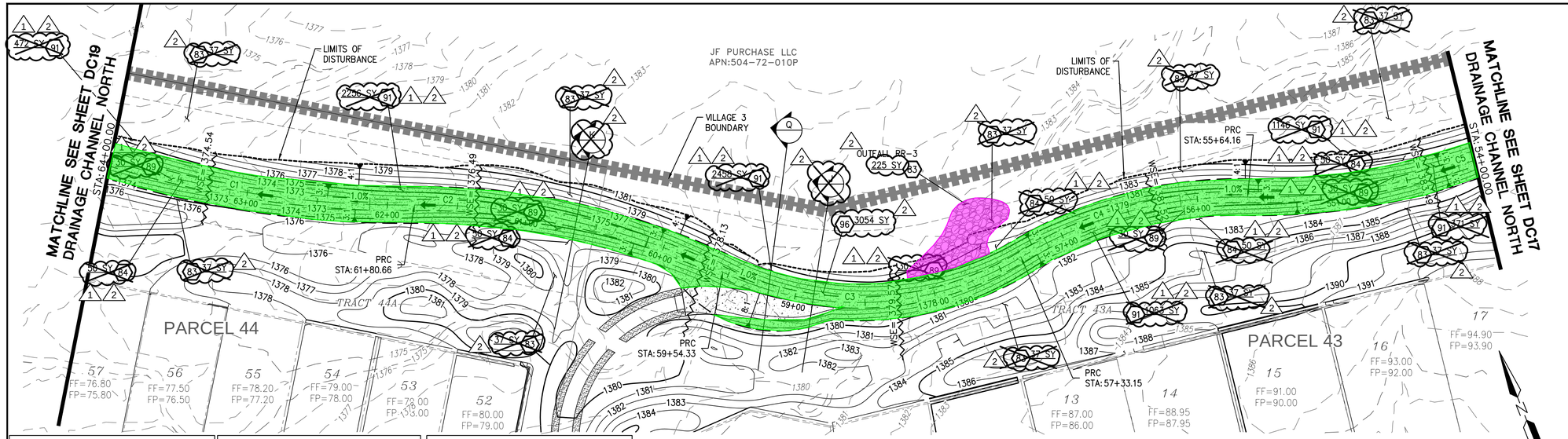
DESIGN SEAL
REGISTERED PROFESSIONAL ENGINEER CERTIFICATE NO. 23227 DAVID W. GEORGE Date Signed 12/19/23 ARIZONA U.S.A.
EXPIRES: 12/31/23

COB PLAN TRACKING # ENG-21-0220

COB PERMIT #

ORIGINAL PLAN DATE	LATEST REVISION DATE
MAY 2022	AUG 2023
PROJECT NUMBER	SHEET NUMBER SHT.
1175	DC17 86 OF 90

U:\1100\1175\ENGR\VILLAGE 3\MASS GRADING\CHANNEL\1175_DC17.dwg 9/7/2023 9:09 AM

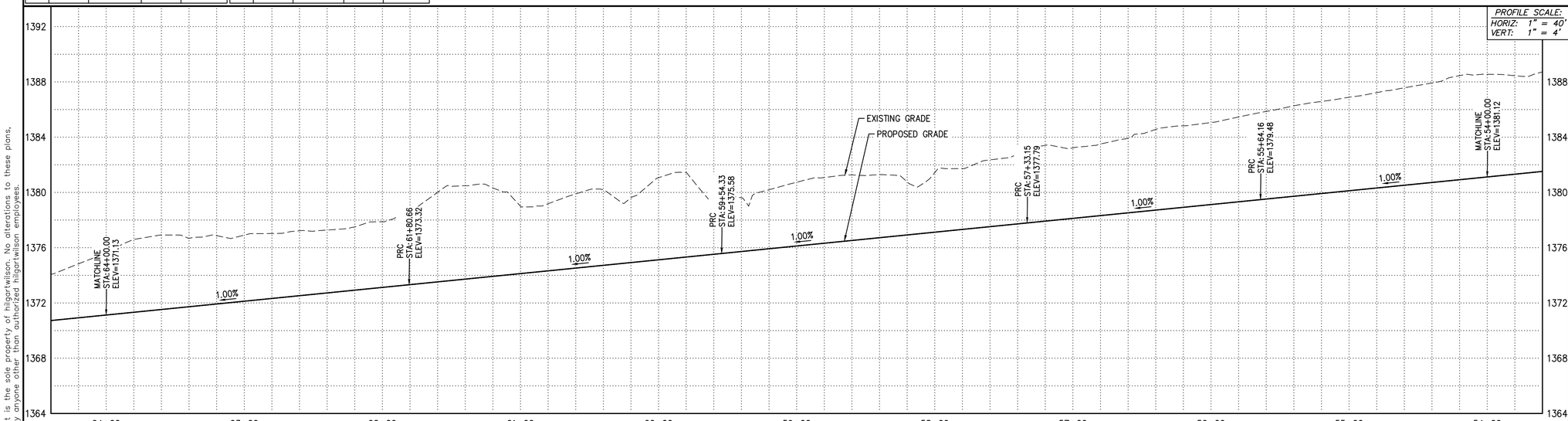


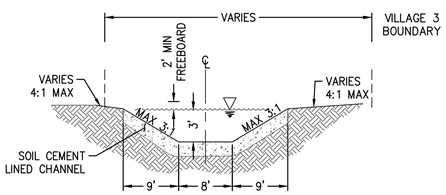
CURVE TABLE				
NO.	RADIUS	DELTA	LENGTH	TANGENT
C1	700.00'	024°26'05"	298.53'	151.57
C2	500.00'	025°56'11"	226.34'	115.14

CURVE TABLE				
NO.	RADIUS	DELTA	LENGTH	TANGENT
C3	225.00'	056°19'16"	221.17'	120.44
C4	300.00'	032°16'31"	168.99'	86.80

CURVE TABLE				
NO.	RADIUS	DELTA	LENGTH	TANGENT
C5	450.00'	028°07'59"	220.96'	112.75

DRAINAGE CHANNEL NORTH





TYPICAL DRAINAGE SECTION-NORTH

Q

NTS

2 CHANNEL ALIGNMENT AND CHANNEL SECTION WIDTH CHANGED. SECTION J & K HAVE BEEN DELETED. GRADING AND WSE WERE REVISED. SOIL CEMENT AND GROUTED RIPRAP ADDED. DROP STRUCTURES WERE REMOVED.

LEGEND

- VILLAGE 3 BOUNDARY
- EROSION HAZARD SETBACK
- RIGHT OF WAY
- LOT LINE
- CENTER LINE
- EASEMENT LINE
- FLOW DIRECTIONAL INDICATOR
- FP — FINISH PAD ELEVATION (FINISH FLOOR IS 1' ABOVE FP)
- EMERGENCY OUTFALL ARROW
- (HP) HIGH POINT
- (LP) LOW POINT
- DUAL CHAMBER DRYWELL

2 — 23227 DAVID W. GEORGE — REGISTERED PROFESSIONAL ENGINEER — CERTIFICATE NO. — ARIZONA U.S.A. — EXPIRES: 12/31/23

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Contact Arizona 811 at least two full working days before you begin excavation
ARIZONA811
CALL 811 or click Arizona811.COM

STORM DRAIN CONSTRUCTION

83 INSTALL LOOSE ANGULAR RIP-RAP PER MAG SPEC SEC. 220; D50=6", 12" THICK ON MIRAFI EROSION PROTECTION GEO-TEXTILE OR APPROVED EQUIVALENT. FABRIC TO HAVE APPARENT OPENING SIZE OF 0.425MM, PERMITTIVITY OF 50 GAL/MIN/FT AND WOVEN. SEE SHEET# DC21 FOR DETAIL AND PLAN SHEET FOR QUANTITY. COLOR PER DEVELOPER. — 595 SY — 2

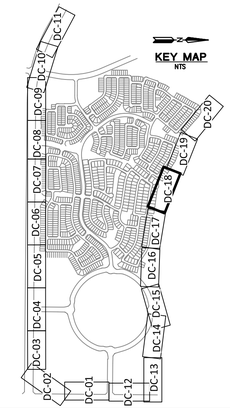
84 INSTALL GABIONS ON MACCAFERRI GEOTEXTILE MACTEX N47.1. PER DETAILS SEE SHEET# DC21. — 250 SY — 1 2

89 INSTALL 2" OF SHOTCRETE ON TOP OF GABION BASKET WITH D50=6" EMBEDDED IN SHOTCRETE. — 150 SY

91 INSTALL ANGULAR LOOSE RIP-RAP PER MAG SPEC SECTION 220 D50=4" 6" THICK ON MIRAFI EROSION PROTECTION GEO-TEXTILE OR APPROVED EQUIVALENT. FABRIC TO HAVE APPARENT OPENING SIZE OF 0.425MM, PERMITTIVITY OF 50 gal/min/ft AND WOVEN. SPECIFIC WEIGHT = 165 lb/ft3. GRADATION PER TABLE 6.4 OF 2013 DRAINAGE DESIGN MANUAL FOR MARICOPA COUNTY, ARIZONA (HYDRAULICS) — 7766 SY

96 INSTALL SOIL CEMENT PER MAG SPEC 311; SEE DETAIL 1 ON SHEET DC21. — 3054 SY — 2

2 NOTE:
THE SCOUR DEPTH AT THE GABION STRUCTURE IS 0 AND THE THALWEG ELEVATION IS THE SAME AS THE BOTTOM ELEVATION LABELED IN THE PROFILE.



REVISIONS:

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PLAN NAME

TRILLIUM
VILLAGE 3 - UNITS 1 & 2
DRAINAGE CHANNEL PLAN

ENGINEER INFORMATION

HILGARTWILSON

COB PERMITTING APPROVED SEAL

COB ENGINEERING APPROVED SEAL

APPROVED

6/22/2022

CITY OF BUCKEYE ENGINEERING

AS-BUILT SEAL

DESIGN SEAL

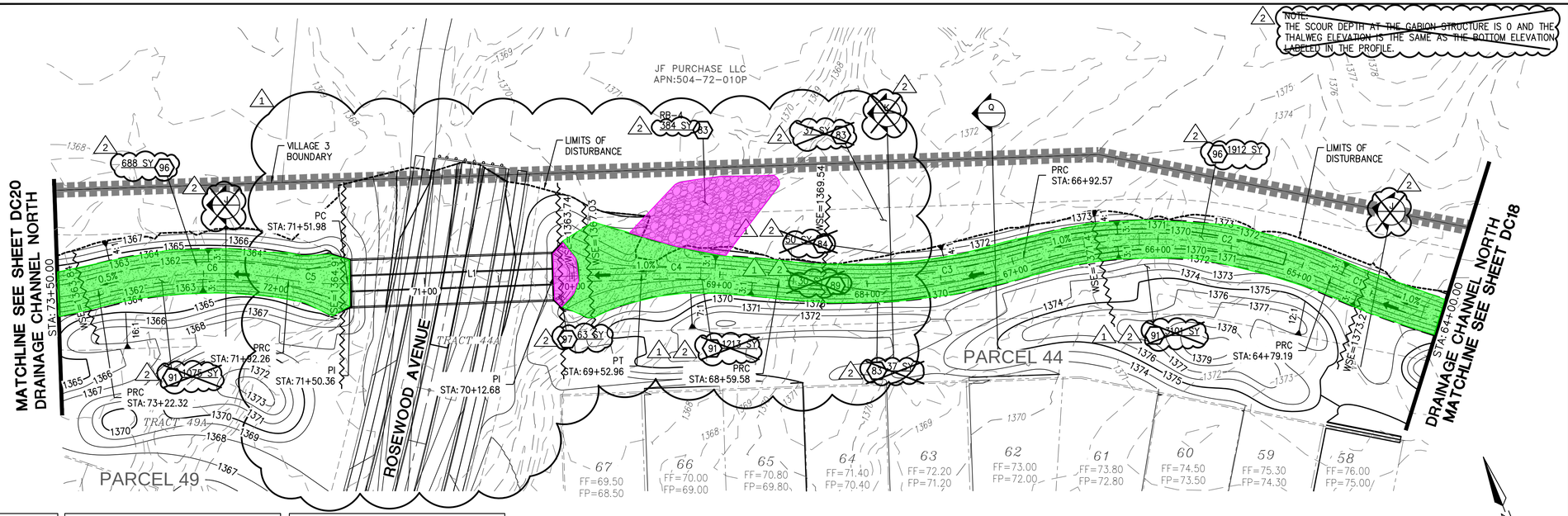
23227 DAVID W. GEORGE — REGISTERED PROFESSIONAL ENGINEER — CERTIFICATE NO. — ARIZONA U.S.A. — EXPIRES: 12/31/23

SUBMITTAL: 3R Submittal

ORIGINAL PLAN DATE: MAY 2022	LATEST REVISION DATE: AUG 2023
PROJECT NUMBER: 1175	SHEET NUMBER: DC18 87 OF 90

COB PLAN TRACKING #: ENG-21-0220

COB PERMIT #



2 NOTE:
THE SCOUR DEPTH AT THE GABION STRUCTURE IS 0 AND THE THALWEG ELEVATION IS THE SAME AS THE BOTTOM ELEVATION LABELED IN THE PROFILE.

LINE TABLE		
NO.	DIRECTION	LENGTH
L1	N70°15'07"W	137.68'

CURVE TABLE				
NO.	RADIUS	DELTA	LENGTH	TANGENT
C1	700.00'	024°26'05"	298.53'	151.57
C2	300.00'	040°45'06"	213.38'	111.43
C3	400.00'	023°55'22"	167.01'	84.74

CURVE TABLE				
NO.	RADIUS	DELTA	LENGTH	TANGENT
C4	600.00'	008°55'01"	93.38'	46.78
C5	200.00'	011°32'20"	40.28'	20.21
C6	300.00'	024°50'25"	130.06'	66.07

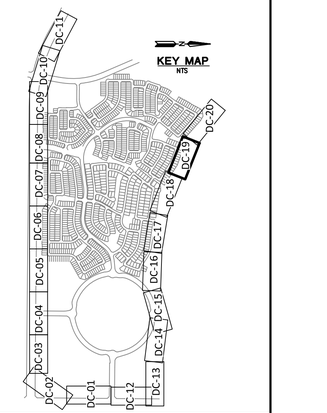
DRAINAGE CHANNEL NORTH

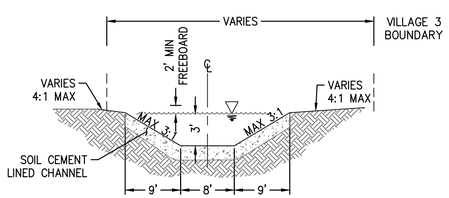
SCALE: 1" = 40'
40 20 0 40 80

PROFILE SCALE:
HORIZ: 1" = 40'
VERT: 1" = 4'

STORM DRAIN CONSTRUCTION

83	INSTALL LOOSE ANGULAR RIP-RAP PER MAG SPEC SEC. 220; D50=6", 12" THICK ON MIRAFI EROSION PROTECTION GEO-TEXTILE OR APPROVED EQUIVALENT. FABRIC TO HAVE APPARENT OPENING SIZE OF 0.425MM, PERMITTIVITY OF 50 GAL/MIN/FT AND WOVEN. SEE SHEET# DC21 FOR DETAIL AND PLAN SHEET FOR QUANTITY. COLOR PER DEVELOPER.	~~458~~ 384	SY
84	INSTALL GABIONS ON MACCAFERRI GEOTEXTILE MASTEX N47.1. PER DETAILS SEE SHEET# DC21.	50	SY
89	INSTALL 2" OF SHOTCRETE ON TOP OF GABION BASKET WITH D50=6" EMBEDDED IN SHOTCRETE.	30	SY
91	INSTALL ANGULAR LOOSE RIP-RAP PER MAG SPEC SECTION 220 D50=12" 1.5' THICK ON MIRAFI EROSION PROTECTION GEO-TEXTILE OR APPROVED EQUIVALENT. FABRIC TO HAVE APPARENT OPENING SIZE OF 0.425MM, PERMITTIVITY OF 50 gal/min/ft AND WOVEN. SPECIFIC WEIGHT = 165 lb/ft3. GRADATION PER TABLE 6.4 OF 2013 DRAINAGE DESIGN MANUAL FOR MARICOPA COUNTY, ARIZONA (HYDRAULICS).	5389	SY
96	INSTALL SOIL CEMENT PER MAG SPEC 311; SEE DETAIL 1 ON SHEET DC21.	2600	SY
97	PLACE GROUTED RIP-RAP D50=15", THICKNESS 30" ON FILTER FABRIC, MIRAFI EROSION PROTECTION GEO-TEXTILE OR APPROVED EQUIVALENT. COLOR PER DEVELOPER'S REPRESENTATIVE.	63	SY





TYPICAL DRAINAGE SECTION-NORTH
Q
NTS

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LEGEND

- VILLAGE 3 BOUNDARY
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- CENTER LINE
- EASEMENT LINE
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- (HP) HIGH POINT
- (LP) LOW POINT
- DUAL CHAMBER DRYWELL

1 2

REGISTERED PROFESSIONAL ENGINEER (CIVIL) CERTIFICATE NO. 23227 DAVID W. GEORGE 5054 Arizona U.S.A. ARIZONA U.S.A.
EXPIRES: 12/31/23

Contact Arizona 811 at least two full working days before you begin excavation
ARIZONA811 CALL 811 or click Arizona811.COM

REVISIONS:

1 12/27/2022 – ROSEWOOD AVENUE WAS EXTENDED AND GRADING REVISED. CHANNEL WAS REVISED ALONG SUN VALLEY PARKWAY TO ACCOMMODATE AN ADDED SIDEWALK. GRADING FOR APS SUBSTATION ADDED & FIRE STATION. THE EROSION HAZARD SETBACK ALONG WAGNER WASH WAS REVISED.

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PLAN NAME

TRILLIUM
VILLAGE 3 - UNITS 1 & 2
DRAINAGE CHANNEL PLAN

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HILGARTWILSON

COB PERMITTING APPROVED SEAL

COB ENGINEERING APPROVED SEAL
APPROVED
6/22/2022
CITY OF BUCKEYE ENGINEERING

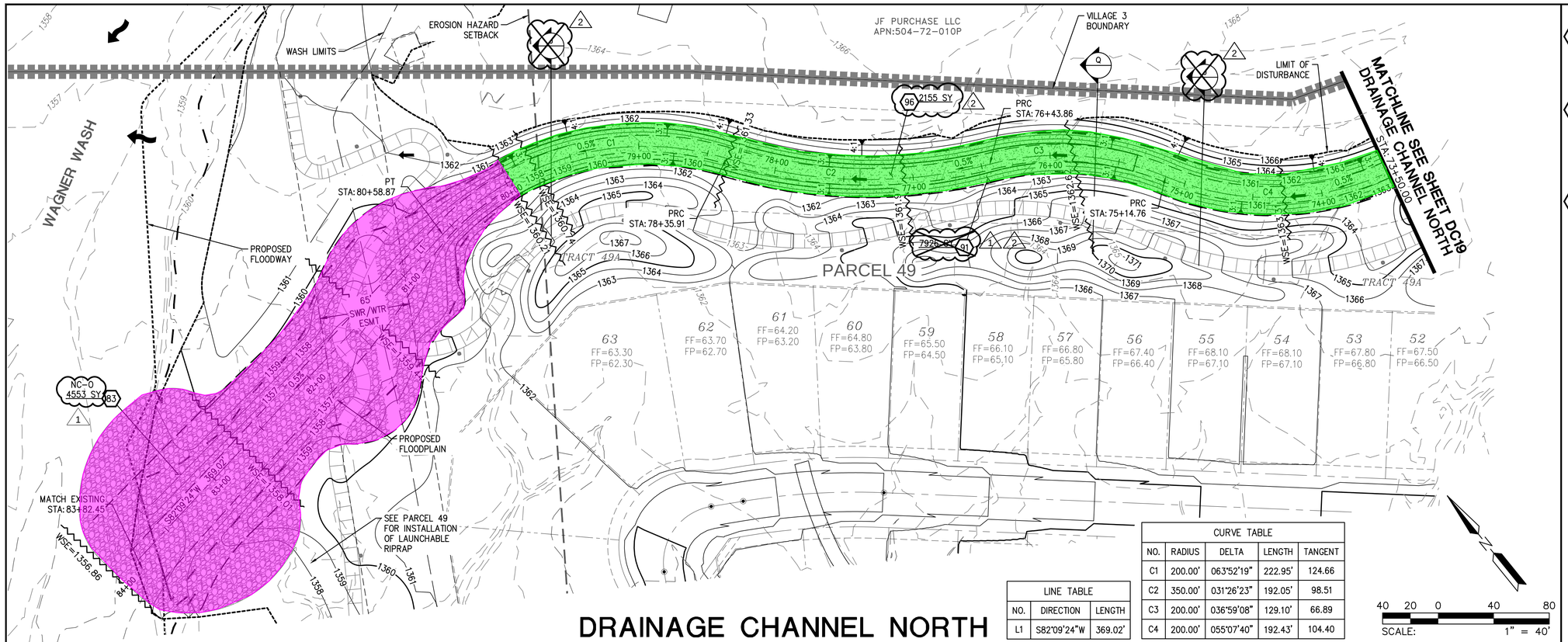
SUBMITTAL: 3R Submittal

AS-BUILT SEAL

DESIGN SEAL
REGISTERED PROFESSIONAL ENGINEER (CIVIL) CERTIFICATE NO. 23227 DAVID W. GEORGE 5054 Arizona U.S.A. ARIZONA U.S.A.
EXPIRES: 12/31/23

COB PLAN TRACKING # ENG-21-0220
COB PERMIT #

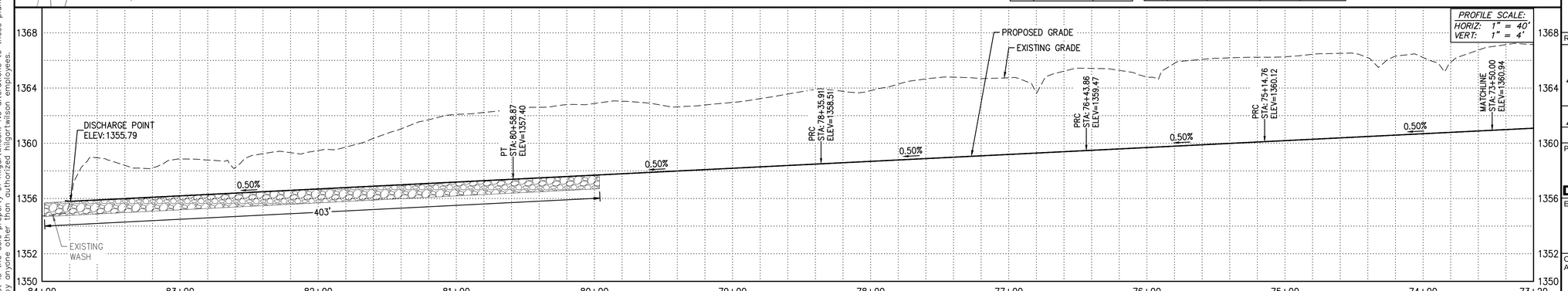
ORIGINAL PLAN DATE: MAY 2022
LATEST REVISION DATE: AUG 2023
PROJECT NUMBER: 1175
SHEET NUMBER SHT.: DC19 88 OF 90

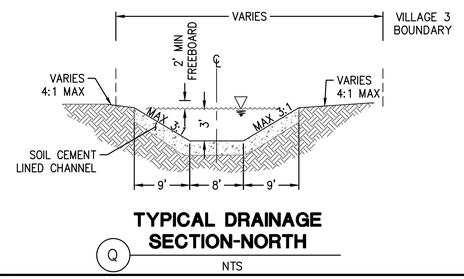


LINE TABLE		
NO.	DIRECTION	LENGTH
L1	S82°09'24"W	369.02'

CURVE TABLE				
NO.	RADIUS	DELTA	LENGTH	TANGENT
C1	200.00'	063°52'19"	222.95'	124.66
C2	350.00'	031°26'23"	192.05'	98.51
C3	200.00'	036°59'08"	129.10'	66.89
C4	200.00'	055°07'40"	192.43'	104.40

DRAINAGE CHANNEL NORTH





TYPICAL DRAINAGE SECTION-NORTH

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- (LP) — LOW POINT
- DUAL CHAMBER DRYWELL

2

REGISTERED PROFESSIONAL ENGINEER — CERTIFICATE NO. 23227 — DAVID W. GEORGE — STATE OF ARIZONA U.S.A. — EXPIRES: 12/31/23

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ARIZONA811
CALL 811 or click Arizona811.COM

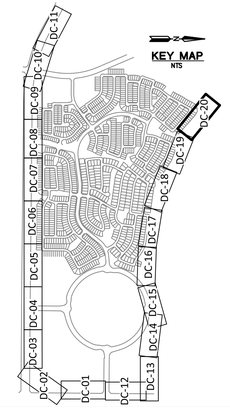
STORM DRAIN CONSTRUCTION

83 INSTALL LOOSE ANGULAR RIP-RAP PER MAG SPEC SEC. 220; D50=6", 12" THICK ON MIRAFI EROSION PROTECTION GEO-TEXTILE OR APPROVED EQUIVALENT. FABRIC TO HAVE APPARENT OPENING SIZE OF 0.425MM, PERMITTIVITY OF 50 GAL/MIN/FT AND WOVEN. SEE SHEET# DC21 FOR DETAIL AND PLAN SHEET FOR QUANTITY. COLOR PER DEVELOPER. — 4553 SY — 1 2

~~91 INSTALL ANGULAR LOOSE RIP-RAP PER MAG SPEC SECTION 220 D50=4" 6" THICK ON MIRAFI EROSION PROTECTION GEO-TEXTILE OR APPROVED EQUIVALENT. FABRIC TO HAVE APPARENT OPENING SIZE OF 0.425MM, PERMITTIVITY OF 50 gal/min/ft AND WOVEN. SPECIFIC WEIGHT = 165 lb/ft3. GRADATION PER TABLE 6.4 OF 2013 DRAINAGE DESIGN MANUAL FOR MARICOPA COUNTY, ARIZONA (HYDRAULICS).~~ — ~~7926 SY~~

96 INSTALL SOIL CEMENT PER MAG SPEC 311; SEE DETAIL 1 ON SHEET DC21. — 2155 SY — 2

REGISTERED PROFESSIONAL ENGINEER — CERTIFICATE NO. 23227 — DAVID W. GEORGE — STATE OF ARIZONA U.S.A. — 12/27/22 — EXPIRES: 12/31/23 — 1



REVISIONS:

1 12/27/2022 – ROSEWOOD AVENUE WAS EXTENDED AND GRADING REVISED. CHANNEL WAS REVISED ALONG SUN VALLEY PARKWAY TO ACCOMMODATE AN ADDED SIDEWALK. GRADING FOR APS SUBSTATION ADDED & FIRE STATION. THE EROSION HAZARD SETBACK ALONG WAGNER WASH WAS REVISED.

2 8/23/2023 – REVISION TO CHANNEL ALIGNMENT AND REPLACE RIPRAP WITH SOIL CEMENT.

PLAN NAME

TRILLIUM
VILLAGE 3 - UNITS 1 & 2
DRAINAGE CHANNEL PLAN

ENGINEER INFORMATION

HILGARTWILSON

COB PERMITTING APPROVED SEAL	COB ENGINEERING APPROVED SEAL
	APPROVED 6/22/2022 CITY OF BUCKEYE ENGINEERING
AS-BUILT SEAL	DESIGN SEAL
	REGISTERED PROFESSIONAL ENGINEER — CERTIFICATE NO. 23227 — DAVID W. GEORGE — STATE OF ARIZONA U.S.A. — 5/10/23 — EXPIRES: 12/31/23

SUBMITTAL: 3R Submittal

COB PLAN TRACKING # ENG-21-0220

COB PERMIT #

ORIGINAL PLAN DATE	LATEST REVISION DATE
MAY 2022	AUG 2023
PROJECT NUMBER 1175	SHEET NUMBER SHT. DC20 89 OF 90

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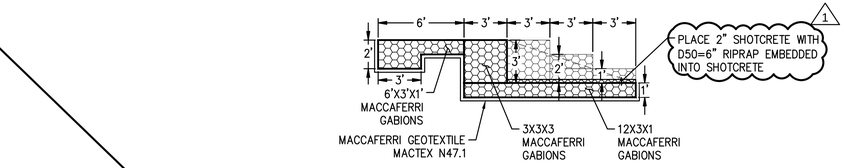
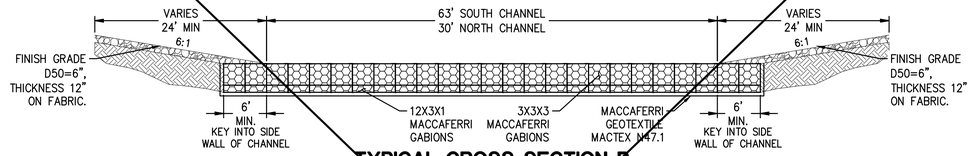


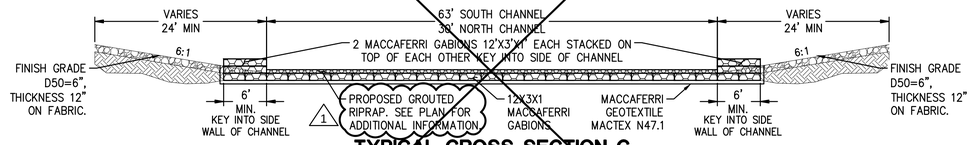
TYPICAL CROSS SECTION A

SCALE: 1"=10'



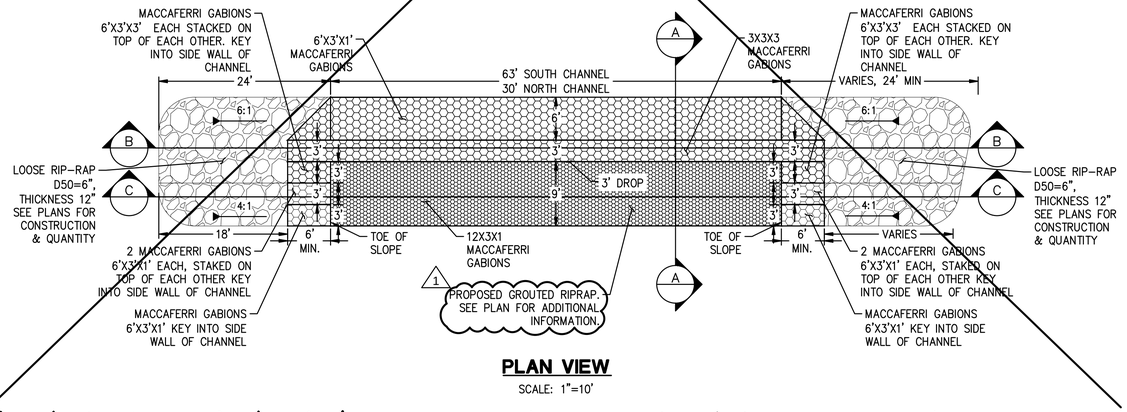
TYPICAL CROSS SECTION B

SCALE: 1"=10'



TYPICAL CROSS SECTION C

SCALE: 1"=10'

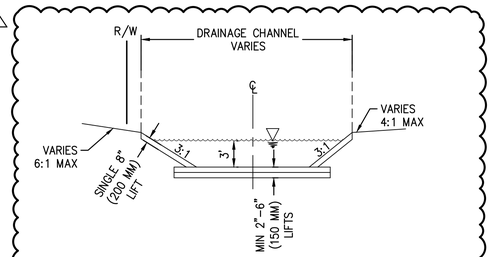


PLAN VIEW

SCALE: 1"=10'

TABLE 6.4
RIPRAP GRADATION LIMITS

STONE SIZE RANGE (FT)	STONE WEIGHT RANGE (LB)	PERCENT OF GRADATION SMALLER THAN
1.5 d50 TO 1.7 d50	3.0 W50 to 5.0 W50	100
1.2 d50 TO 1.4 d50	2.0 W50 TO 2.75 W50	85
1.0 d50 TO 1.15 d50	1.0 W50 TO 1.5 W 50	50
0.4 d50 TO 0.6 d50	0.1 W50 TO 0.2 W50	15



SOIL CEMENT LINED CHANNEL FOR V100 ≤ 15 FPS (≤ 4.5 MPS), FREQUENCY OF FLOW LESS THAN 5 TO 6 TIMES A YEAR.

1 SOIL CEMENT LINED CHANNEL

NTS

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ARIZONA811
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PLAN NAME

TRILLIUM
VILLAGE 3 - UNITS 1 & 2
DRAINAGE CHANNEL PLAN

ENGINEER INFORMATION

HILGARTWILSON

COB PERMITTING APPROVED SEAL

COB ENGINEERING APPROVED SEAL

APPROVED

6/22/2022

CITY OF BUCKEYE ENGINEERING

SUBMITTAL: 3R Submittal

AS-BUILT SEAL

DESIGN SEAL

REGISTERED PROFESSIONAL ENGINEER (CIVIL) CERTIFICATE NO. 23227 DAVID W. GEORGE 8/23/23 STATE OF ARIZONA U.S.A. EXPIRES: 12/31/23

ORIGINAL PLAN DATE: MAY 2022

LATEST REVISION DATE: AUG 2023

PROJECT NUMBER: 1175

SHEET NUMBER: DC21 SHT. 90 OF 90

COB PLAN TRACKING #: ENG-21-0220

COB PERMIT #:

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