

BENCHMARK

FOUND 3" MARICOPA COUNTY HIGHWAY DEPARTMENT BRASS CAP AT THE INTERSECTION OF PECOS ROAD AND MERRILL ROAD.

ELEVATION = 1410.80 (NAVD88)

BASIS OF BEARING

THE SOUTH LINE OF THE SOUTHEAST QUARTER OF SECTION 35. SAID LINE BEARS SOUTH 89 DEGREES 27 MINUTES 41 SECONDS EAST.

LEGAL DESCRIPTION

BEING SITUATED IN THE SOUTHEAST QUARTER OF SECTION 35, TOWNSHIP 1 SOUTH, RANGE 7 EAST OF THE GILA AND SALT RIVER MERIDIAN, MARICOPA COUNTY, ARIZONA, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE SOUTH QUARTER CORNER OF SAID SECTION 35;

THENCE NORTH 00 DEGREES 34 MINUTES 07 SECONDS WEST, ALONG THE WEST LINE OF SAID SOUTHEAST QUARTER OF SECTION 35, A DISTANCE OF 50.00 FEET TO THE POINT OF BEGINNING;

THENCE CONTINUING NORTH 00 DEGREES 34 MINUTES 07 SECONDS WEST, ALONG SAID WEST LINE OF SAID SOUTHEAST QUARTER OF SECTION 35, A DISTANCE OF 2481.00 FEET TO A POINT ON THE SOUTHERLY RIGHT OF WAY LINE OF STATE ROUTE 24 (GATEWAY FREEWAY) AS DESCRIBED IN DOCUMENT NO. 2019-0632030;

THENCE SOUTH 81 DEGREES 41 MINUTES 39 SECONDS EAST, ALONG SAID SOUTHERLY RIGHT OF WAY LINE OF STATE ROUTE 24 (GATEWAY FREEWAY) AS DESCRIBED IN DOCUMENT NO. 2019-0632030, A DISTANCE OF 403.05 FEET;

THENCE SOUTH 83 DEGREES 31 MINUTES 57 SECONDS EAST, ALONG SAID SOUTHERLY RIGHT OF WAY LINE OF STATE ROUTE 24 (GATEWAY FREEWAY) AS DESCRIBED IN DOCUMENT NO. 2019-0632030, A DISTANCE OF 229.07 FEET;

THENCE SOUTH 00 DEGREES 24 MINUTES 03 SECONDS EAST, ALONG SAID SOUTHERLY RIGHT OF WAY LINE OF STATE ROUTE 24 (GATEWAY FREEWAY) AS DESCRIBED IN DOCUMENT NO. 2019-0632030, A DISTANCE OF 124.60 FEET;

THENCE NORTH 89 DEGREES 35 MINUTES 57 SECONDS EAST, ALONG SAID SOUTHERLY RIGHT OF WAY LINE OF STATE ROUTE 24 (GATEWAY FREEWAY) AS DESCRIBED IN DOCUMENT NO. 2019-0632030, A DISTANCE OF 25.01 FEET;

THENCE SOUTH 00 DEGREES 24 MINUTES 03 SECONDS EAST, A DISTANCE OF 2209.69 FEET;

THENCE NORTH 89 DEGREES 27 MINUTES 41 SECONDS WEST, A DISTANCE OF 1291.79 FEET TO THE POINT OF BEGINNING.

SUBJECT PARCEL CONTAINS 3,107,347 SQUARE FEET OR 71.335 ACRES MORE OR LESS.

RETENTION REQUIRED CALCS

VOLUME REQUIRED

$V = C * (P/12) * A$

WHERE

$V = 100\text{-YR 2-HOUR VOLUME REQUIRED (FT}^3\text{)}$
 $C = \text{RUNOFF COEFFICIENT (SET AT 0.95)}$
 $P = 100 \text{ YEAR 2-HOUR PRECIPITATION VALUE IN INCHES (SET AT 2.2)}$
 $A = \text{AREA OF LOT (3,239,557 FT}^2\text{)}$

$V = 0.95 * (2.2/12) * 3,239,557$

$V = 564,223 \text{ FT}^3$

RETENTION BASIN VOLUME PROVIDED

TOTAL VOLUME PROVIDED
 = 918,888 FT³

ONSITE DRAINAGE SUMMARY

ONSITE STORAGE IS PROVIDED FOR THE 100-2HR STORM EVENT VIA SURFACE RETENTION BASINS.

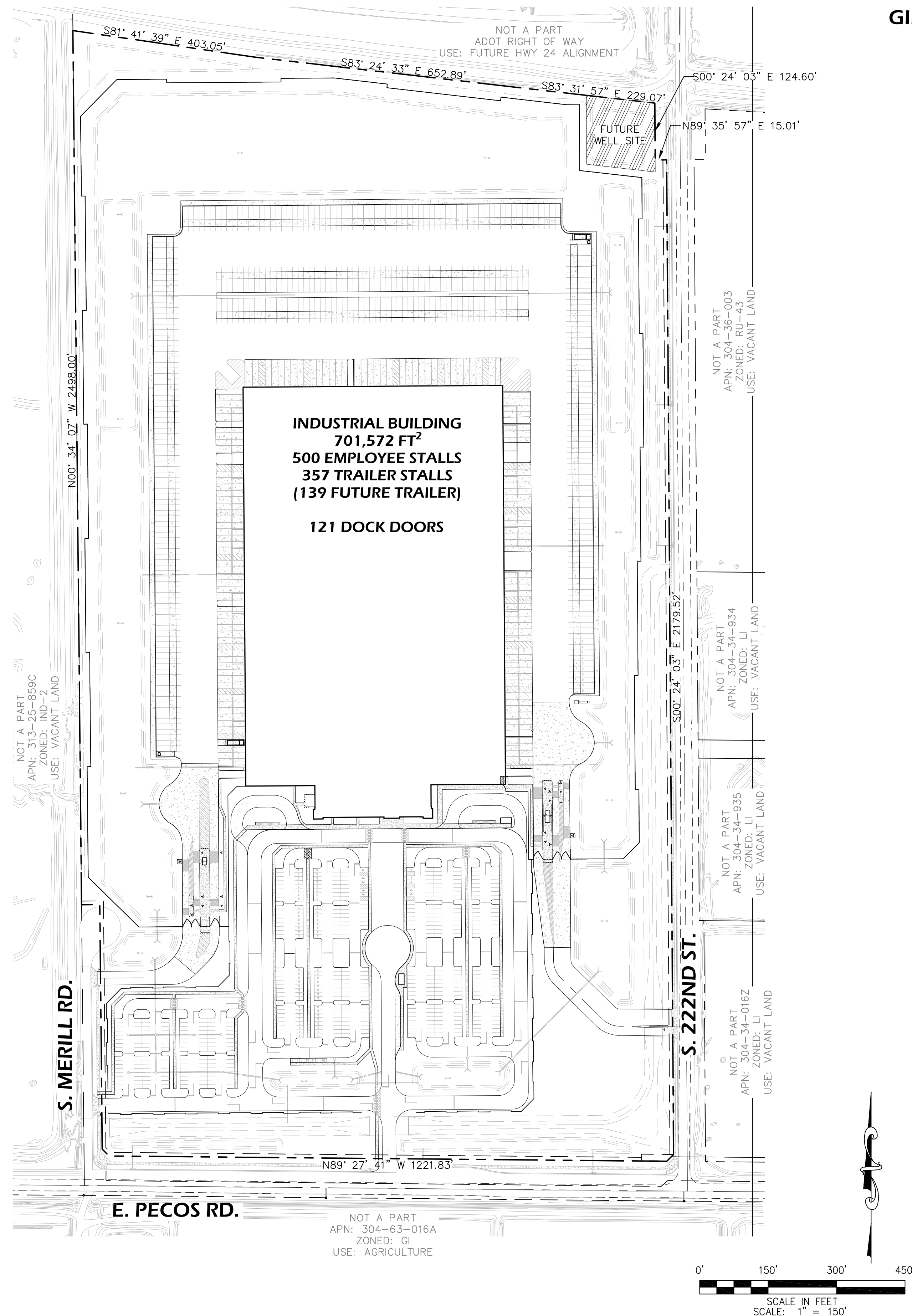
OFFSITE REGIONAL DRAINAGE FLOWS

IT IS UNDERSTOOD THAT THIS SITE WILL RECEIVE SIGNIFICANT OFFSITE REGIONAL STORMWATER. OFFSITE FLOWS APPROACH THE SITE AT THE EASTERN PROPERTY LINE AND ARE DIRECTED SOUTH TO PECOS ROAD.

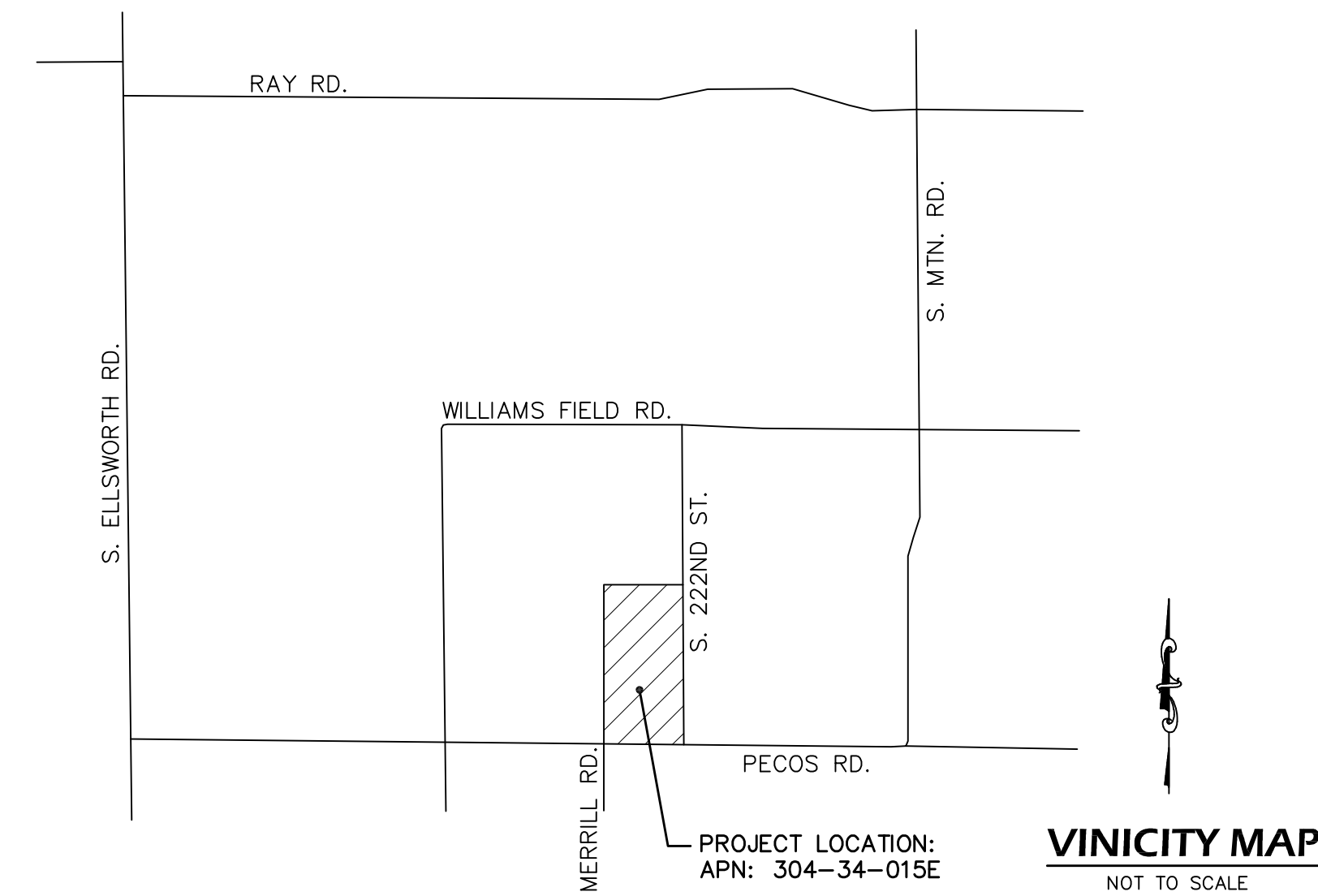
THE STRATEGY FOR THIS SITE IS TO CONVEY THE HISTORIC OFFSITE FLOWS ACROSS THE PECOS FRONTAGE VIA CHANNELIZED GRADING. BETWEEN 60' AND 80' OF SOUTHERN FRONTAGE HAS BEEN RESERVED FOR OFFSITE FLOW CONVEYANCE.

OFFSITE STORMWATER FLOWS WILL NOT CO-MINGLE WITH ANY ONSITE STORMWATER MANAGEMENT OR RETENTION.

OFFSITE FLOWS WILL BE MANAGED ACROSS THE SOUTHERN FRONTAGE AND WILL OUTLET AT THE SOUTH WEST PROPERTY CORNER. THIS IS THE HISTORIC OUTLET POINT FOR THIS SITE.



**PRELIMINARY CIVIL IMPROVEMENT PLANS FOR
 PROJECT CORK - PECOS SITE**
 A PORTION OF SECTION 35, TOWNSHIP 1 SOUTH, RANGE 7 EAST,
 GILA AND SALT RIVER MERIDIAN, MARICOPA COUNTY, ARIZONA



OWNER/DEVELOPER

RYAN COMPANIES
 3900 E. CAMELBACK ROAD, SUITE 100
 COLUMBUS, OHIO 43212
 CONTACT PERSON: JOSH TRACY
 E-MAIL: josh.tracy@ryancompanies.com

ENGINEER

PREFLING ENGINEERING
 4435 E. CHANDLER BLVD, SUITE 200
 PHOENIX, AZ 85048
 CONTACT PERSON: MIKE PREFLING
 TEL. NO. 480-625-9795
 E-MAIL: mike@preflingeng.com

EXISTING SITE DATA

A.P. NO.
 304-34-015E
 304-34-015d

ADDRESS
 NONE FOUND

ZONING
 RU-43

NET LOT AREA
 71.34 AC

GROSS LOT AREA
 74.37 AC

ARCHITECT

FORD & ASSOCIATES, INC
 1500 WEST FIRST AVENUE
 COLUMBUS, OHIO 43212
 CONTACT PERSON: MARK FORD
 TEL. NO. 614-488-6252
 E-MAIL: MFORD@FORDARCHITECTS.COM

LANDSCAPE

G.K. FLANAGAN ASSOCIATES
 4626 N. 44TH STREET
 PHOENIX AZ 85018
 CONTACT PERSON: GREG FLANAGAN
 TEL. NO. 602-912-9691
 E-MAIL: GREG@GKFASSOCIATES.COM

FIRM INFORMATION:

FIRM MAP ID# - 04013C2790L
 FIRM ZONE - X
 DATE - 10/16/2013

INDEX OF CIVIL SHEETS	
SHEET NO.	DESCRIPTION
C1.0	OVERALL PLAN AND COVER SHEET
C2.0	NOTES AND DETAILS
C3.0	OVERALL GRADING PLAN
C3.1	GRADING SECTIONS
C3.2 THRU C3.10	DETAIL GRADING SHEETS
C4.0	OVERALL UTILITY PLAN
C5.0	OFFSITE SUMMARY PLAN



RYAN A+E, INC.
 3900 E. Camelback Road, Ste 100
 Phoenix, AZ 85018
 602-322-6100 tel
 602-322-6300 fax

WWW.RYANCOMPANIES.COM

OWNER

CONSULTANTS

PREFLING Engineering
 4435 E. Chandler Blvd,
 Suite 200
 Phoenix, AZ 85048
 480-625-9795



PROJECT INFORMATION

PROJECT CORK

ELLIOT ROAD
 MESA, ARIZONA

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Architect under the laws of the State of Arizona

MICHAEL PREFLING

REGISTRATION NO.	DATE
46785	09-30-2022

© 2019 RYAN A+E, INC.

DRAWN BY	CHECKED BY

JOB NO.	DATE
	09/07/21

ISSUE RECORD		
ISSUE #	DATE	DESCRIPTION

DESIGN REVIEW

09.07.2021

PRELIMINARY CIVIL
 COVER SHEET

C1.0

CITY OF MESA - GENERAL NOTES

- ALL WORK AND MATERIALS SHALL CONFORM TO CURRENT UNIFORM STANDARD SPECIFICATIONS AND DETAILS FOR PUBLIC WORKS CONSTRUCTION AS PUBLISHED BY THE MARICOPA ASSOCIATION OF GOVERNMENTS AND AS AMENDED BY THE CITY OF MESA. ALL WORK AND MATERIALS NOT IN CONFORMANCE WITH THESE AMENDED SPECIFICATIONS AND DETAILS ARE SUBJECT TO REMOVAL AND REPLACEMENT AT THE CONTRACTOR'S EXPENSE.
- THE INFORMATION SHOWN ON DRAWINGS CONCERNING THE TYPE AND LOCATION OF EXISTING UNDERGROUND UTILITIES IS APPROXIMATE AND HAS NOT BEEN INDEPENDENTLY VERIFIED BY THE ENGINEER OR THE ENGINEER'S AGENT. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MAY OCCUR BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND AND OVERHEAD UTILITIES.
 - CALL 602-263-1100 OR 811 FOR BLUE STAKE SERVICES.
 - CALL SALT RIVER POWER FOR POLE BRACING, ELECTRIC SERVICE OR CONSTRUCTION SCHEDULING AT 602-236-8888.
 - CALL CITY OF MESA ELECTRICAL FOR POLE BRACING, ELECTRICAL SERVICE OR CONSTRUCTION SCHEDULING AT 480-644-2251 WITHIN CITY OF MESA ELECTRICAL SERVICE TERRITORY (DOWNTOWN MESA).
 - WHEN EXCAVATING IN OR ADJACENT TO A CITY PARK OR AQUATIC FACILITY THE CONTRACTOR SHALL CONTACT AQUATICS AND PARKS MAINTENANCE AT 480-644-3097 TO REQUEST ASSISTANCE IN LOCATING UNDERGROUND UTILITY FACILITIES.
 - WHEN EXCAVATING IN OR ADJACENT TO LANDSCAPING WITHIN THE RIGHT-OF-WAY, THE CONTRACTOR SHALL CONTACT TRANSPORTATION FIELD OPERATIONS AT 480-644-3380 TO REQUEST ASSISTANCE IN LOCATING UNDERGROUND IRRIGATION FACILITIES.
- TRAFFIC CONTROL SHALL CONFORM TO THE CITY OF MESA TEMPORARY TRAFFIC CONTROL MANUAL. ELECTRONIC COPIES ARE AVAILABLE AT [HTTP://WWW.MESA.AZ.GOV/BUSINESS/BARRICADING-TEMPORARY-TRAFFIC-CONTROL-PERMITS](http://www.mesaaz.gov/business/barricading-temporary-traffic-control-permits). HARD COPIES CAN BE MADE AVAILABLE AT DEVELOPMENT SERVICES, 55 N. CENTER ST., MESA, ARIZONA
- CONTRACTOR TO NOTIFY TRAFFIC OPERATIONS AT 480-644-3126 PRIOR TO SIGN REMOVAL AND WHEN READY TO PERMANENTLY RELOCATE SIGN.
- CONTRACTOR TO OBTAIN ANY PERMITS REQUIRED UNLESS OTHERWISE INDICATED, AND COORDINATE ALL IRRIGATION DRY-UPS, RELOCATIONS, AND REMOVALS BY OTHERS.
- CONTRACTOR SHALL POTHOLE EXISTING UTILITIES AHEAD OF CONSTRUCTION TO ALLOW FOR ANY NECESSARY ADJUSTMENTS IN GRADE LINE AND TO VERIFY PIPE MATERIALS FOR ORDERING THE APPROPRIATE TRANSITION AND TIE-IN FITTINGS THAT MAY BE REQUIRED.
- THE CONTRACTOR IS RESPONSIBLE TO REMOVE ALL ABANDONED UTILITIES THAT INTERFERE WITH PROPOSED IMPROVEMENTS. THE CITY OF MESA UTILITIES DEPARTMENT LOCATING SECTION WILL ASSIST THE CONTRACTOR AS NEEDED, IN DETERMINING IF THE UTILITY (GAS, WATER, AND WASTEWATER ONLY) IS ABANDONED BY CALLING 480-644-4500.
- PRIOR TO START OF CONSTRUCTION ON PRIVATE PROPERTY (EASEMENTS), THE CONTRACTOR SHALL GIVE THE OWNER SUFFICIENT TIME (MINIMUM 48 HOURS) TO REMOVE ANY ITEMS IN CONFLICT WITH CONSTRUCTION. THE CONTRACTOR SHALL ARRANGE TO REMOVE AND REPLACE ALL OTHER CONFLICTS AS REQUIRED.
- THE CONTRACTOR SHALL COORDINATE WORK SCHEDULES TO PREVENT ANY CONFLICTING WORK CONDITIONS WITH THE CITY OF MESA UTILITY AND TRANSPORTATION CREWS.
- THE CONTRACTOR IS ADVISED THAT A DUST CONTROL PERMIT AND A DUST CONTROL PLAN MAY BE REQUIRED BY THE MARICOPA COUNTY AIR QUALITY DEPARTMENT. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN THIS PERMIT, IF NECESSARY, AND COMPLY WITH ITS REQUIREMENTS. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL PROVIDE A COPY OF THE DUST CONTROL PERMIT AND DUST CONTROL PLAN TO THE CITY FOR REVIEW.
- INSPECTIONS SHALL BE PROVIDED BY THE CITY OF MESA. THE CONTRACTOR SHALL NOTIFY THE CITY INSPECTION DEPARTMENT AT LEAST 48 HOURS IN ADVANCE OF ANY CONSTRUCTION.
- THE JOB SITE SHALL BE CLEANED OF ANY DEBRIS OR SPOIL RESULTING FROM THIS PROJECT AT THE COMPLETION OF CONSTRUCTION.
- ALL EQUIPMENT AND MATERIALS NOT SHOWN OR SPECIFIED ON THE PLANS OR SPECIFICATIONS, BUT REQUIRED TO COMPLETE THIS PROJECT, SHALL BE SUPPLIED BY THE CONTRACTOR AS PART OF THIS CONTRACT WORK (NO ADDITIONAL COST TO THE CITY).
- WHEREVER PAVEMENT REPLACEMENT PER MESA STD DETAIL M-19.04.1 OR MAG STD DETAIL 200 IS REFERRED TO WITHIN THESE PLANS, BACKFILLING SHALL BE PER THE CITY OF MESA STREET TRENCH BACKFILLING AND PAVEMENT REPLACEMENT POLICY STATEMENT, REVISED SEPTEMBER 29, 1999.
- FOR PURPOSES OF PAVEMENT PER MAG STD DETAIL 200 OR MESA STD DETAIL M-19.04.1, INTERSECTIONS ARE DEFINED BY THE CURB RETURNS IN ALL DIRECTIONS.
- ANY SURVEY MARKERS DISTURBED OR DAMAGED BY THE CONTRACTOR SHALL BE REPLACED IN KIND BY A REGISTERED LAND SURVEYOR AT NO ADDITIONAL COST TO THE CITY.
- ALL EXISTING PAVEMENT MARKINGS, SIGNS, AND SIGNAL EQUIPMENT THAT ARE NOT PART OF THIS PROJECT BUT NEED TO BE REMOVED, REPLACED, RELOCATED, OR REPAIRED BECAUSE OF CONTRACTOR'S WORK WILL BE DONE AT THE CONTRACTOR'S EXPENSE.
- THE CONTRACTOR IS ADVISED THAT DAMAGE TO ANY PUBLIC SERVICES OR SYSTEMS AS A RESULT OF THIS PROJECT SHALL BE REPAIRED BY THE CONTRACTOR AND INSPECTED BY THE CITY INSPECTOR. DEPENDING ON DAMAGES, ALL REPAIRS SHALL BE DONE WITHIN 24 HOURS. THE CONTRACTOR IS ADVISED THAT ANY COSTS RELATED TO REPAIR OR REPLACEMENT OF DAMAGED PUBLIC SERVICES OR SYSTEMS AS A RESULT OF CONTRACTOR'S NEGLIGENCE SHALL BE BORNE BY THE CONTRACTOR.

CITY OF MESA - PAVING GENERAL NOTES

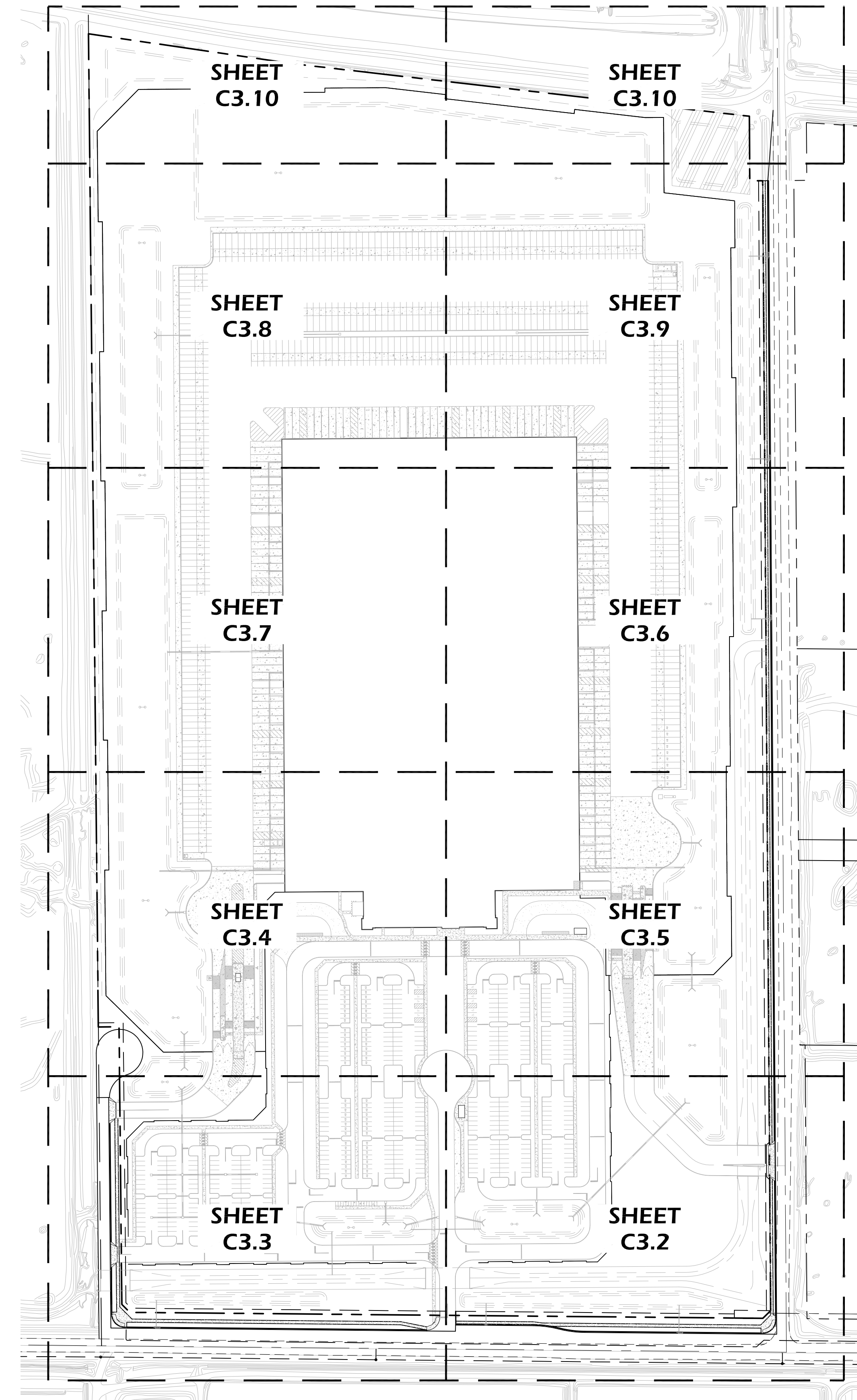
- CONTRACTOR SHALL COORDINATE ALL DRIVEWAY LOCATIONS WITH PRIVATE PROPERTY OWNERS AND THE CITY INSPECTOR.
- FOR THE APPROVED LIST OF PAVING PRODUCTS SEE: [HTTP://WWW.MESA.AZ.GOV/BUSINESS/ENGINEERING/APPROVE-PRODUCTS-EQUIPMENT-NATURAL-GAS-LINE-CONTRACTORS](http://www.mesaaz.gov/business/engineering/approve-products-equipment-natural-gas-line-contractors).
- ALL GUTTER GRADES LESS THAN 0.0020 FT/FT SHALL BE STAKED ALONG THE ACTUAL GUTTER ALIGNMENT (NOT OFFSET) AND CHECKED BY CITY OF MESA INSPECTOR IMMEDIATELY PRIOR TO PLACEMENT OF CONCRETE.
- ALL FRAMES, COVERS, VALVE BOXES, ETC. SHALL BE ADJUSTED BY THE CONTRACTOR TO FINISHED GRADE AFTER PLACEMENT OF ASPHALT CONCRETE SURFACE COURSE PER MAG STD DETAILS 270, 422, OR 391-1-C.

CITY OF MESA - WATER, WASTEWATER, AND STORM DRAIN NOTES

- MATERIALS AND INSTALLATION OF WATER AND SEWER MAINS, WATER METERS AND SERVICE LINE CONNECTIONS SHALL CONFORM TO CURRENT CITY DETAILS, MESA AMENDMENTS TO MAG SPECIFICATIONS, AND THE APPROVED PRODUCTS LIST. SEE BELOW FOR APPROVED PRODUCT LISTS FOR WATER AND WASTEWATER.

[HTTPS://WWW.MESA.AZ.GOV/HOME/SHOWDOCUMENT?ID=33740](https://www.mesaaz.gov/home/showdocument?id=33740)

[HTTPS://WWW.MESA.AZ.GOV/HOME/SHOWDOCUMENT?ID=24019](https://www.mesaaz.gov/home/showdocument?id=24019)
- IN ACCORDANCE WITH ARIZONA ADMINISTRATIVE CODE (A.A.C.) R18-4-213, ALL MATERIALS WHICH MAY COME INTO CONTACT WITH DRINKING WATER SHALL CONFORM TO NATIONAL SANITATION FOUNDATION (NSF) STANDARDS 60, 61, AND 372 AND SHALL BE LEAD-FREE AS DEFINED IN A.A.C. R18-5-504 AND R18-4-101.
- THE CONTRACTOR IS RESPONSIBLE TO PROVIDE ALL NECESSARY FITTINGS AND ADAPTERS REQUIRED TO CONNECT DIFFERENT TYPES OF WATER MAIN MATERIALS.
- PER MESA AMENDMENTS 610.4.2 ALL MINOR VERTICAL OR HORIZONTAL DEFLECTIONS SHALL BE BY PIPE JOINT DEFLECTION UNLESS OTHERWISE NOTED. PIPE JOINT DEFLECTION SHALL NOT EXCEED 3 DEGREES OR 2/3 OF PIPE MANUFACTURER'S RECOMMENDATIONS WHICHEVER IS LESS.
- PER MAG AND MESA AMENDMENTS 610.11 ALL WATER LINE TESTS SHALL BE COMPLETED SO THAT NO EXISTING LINES, EXISTING VALVES, OR NEWLY INSTALLED VALVES WHICH ARE CONNECTED TO THE OPERATING WATER SYSTEM ARE INCLUDED IN THE TESTS. ALLOWABLE TIMEFRAMES SHOULD FOLLOW MESA AMENDMENTS TO MAG AND MUST BE COORDINATED WITH THE CITY INSPECTOR. FOR A DAYTIME TIE-IN, THE CONTRACTOR SHALL COMPLETE ALL WORK NECESSARY TO RESTORE UTILITY SERVICE AND FULLY OPEN THE TIE-IN AREA TO TRAFFIC WITHIN THE TIME ALLOWED.
- WATER LINE FLUSHING, PRESSURE TESTING, AND DISINFECTION SHALL BE COMPLETED PER MAG SPECIFICATION SECTION 611, MESA AMENDMENTS TO MAG SPECIFICATION SECTION 611, AND AWWA C651 (CURRENT VERSION).
- SOURCE WATER UTILIZED FOR FILLING, FLUSHING AND TESTING SHALL BE OBTAINED FROM A HYDRANT METER ORDERED THROUGH PERMIT SERVICES AND SET BY CITY OF MESA WATER RESOURCES STAFF. IT IS PROHIBITED TO OPEN A VALVE TO THE EXISTING WATER SYSTEM TO FILL A NEWLY CONSTRUCTED OR REPAIRED PIPELINE AS OUTLINED IN THE MESA AMENDMENTS TO MAG SECTION 610.11 AND 611.
- WATER METERS, METER BOXES, LIDS, ETC. IN CONFLICT WITH NEW CONSTRUCTION SHALL BE RELOCATED PER CITY OF MESA STANDARD DETAIL M-49 BY THE CONTRACTOR. THE RELOCATION SHALL INCLUDE ALL MATERIALS NECESSARY TO RECONNECT THE METER TO THE CITY DISTRIBUTION SYSTEM. SERVICE LINE EXTENSIONS, IF APPROVED IN WRITING BY MESA WATER RESOURCES DEPARTMENT, SHALL CONFORM TO MESA STANDARD DETAIL M-49. WHEN SERVICE LINE EXTENSIONS ARE APPROVED PER MESA STANDARD DETAIL M-49, SERVICE LINE COUPLINGS SHALL NOT BE PLACED UNDER ROADWAY SURFACES, CONCRETE GUTTERS, CURB AND GUTTER, OR CONCRETE DRIVEWAYS.
- VALVES SHALL BE INSTALLED WITH VALVE BOX AND COVER PER MAG STD DETAILS 391-1, TYPE C WITH A DEEP-SKIRTED LID (4-INCHES MINIMUM) AS NOTED IN THE APPROVED PRODUCTS LIST.
- ALL WATER LINE ABANDONMENT CUT AND PLUGS FOR ACTIVE LINES SHALL CONFORM TO THE FOLLOWING:
 - 12" AND SMALLER DIAMETER PER MESA STANDARD DETAIL M-50.
 - 16" DIAMETER PER M.A.G. STANDARD DETAIL 390, TYPE B.
 - GREATER THAN 16" DIAMETER, AS DESIGNED PER PLAN.
- LIME-TREATED AGGREGATE BASE COURSE (ABC) MATERIAL, RECLAIMED CONCRETE MATERIAL (RCM), AND RECLAIMED ASPHALT PAVEMENT (RAP) MATERIALS ARE PROHIBITED FOR USE IN THE PIPE EMBEDMENT ZONE (BEDDING, HAUNCHING, INITIAL BACKFILL) FOR WATERLINE CONSTRUCTION PER MESA AMENDMENTS 601.4.2.
- PER MESA AMENDMENTS 610.11, APPLICATIONS TO THE CITY OF MESA ENGINEERING INSPECTOR AND REVIEWED AND APPROVED BY THE WATER RESOURCES DEPARTMENT FOR WATER SYSTEM SHUTDOWN FOR THE PURPOSES OF CONSTRUCTION-RELATED ACTIVITIES SHALL BE MADE A MINIMUM OF FIVE (5) BUSINESS DAYS PRIOR TO THE SCHEDULED SHUTDOWN DATE. THE REQUEST SHALL INCLUDE PRIMARY AND SECONDARY VALVE NUMBERS, WHETHER A TEST SHUTDOWN IS REQUESTED, AND THE DATE AND DURATION OF THE REQUESTED SHUTDOWN. PER MAG 610.11, THE CITY OF MESA DOES NOT GUARANTEE A COMPLETE SHUTDOWN.
- REQUIRED BACKFLOW PREVENTION ASSEMBLIES SHALL INCLUDE MANUFACTURERS AND MODELS DESIGNATED IN THE CURRENT "LIST OF APPROVED BACKFLOW PREVENTION ASSEMBLIES" AS PUBLISHED BY THE FOUNDATION FOR CROSS-CONNECTION CONTROL AND HYDRAULIC RESEARCH, UNIVERSITY OF SOUTHERN CALIFORNIA.
- BACKFLOW PREVENTION ASSEMBLIES SHALL BE TESTED AND APPROVED BY A CERTIFIED TECHNICIAN DESIGNATED IN THE CURRENT CITY OF MESA "LIST OF APPROVED INSPECTORS" PRIOR TO THE REQUEST FOR FINAL INSPECTION.
- ALL WATER METERS ARE TO BE SUPPLIED BY THE CITY OF MESA. CHARGES FOR INSTALLING NEW SERVICES AND METERS WILL BE IN ACCORDANCE WITH THE CURRENT UTILITY SERVICE FEE SCHEDULE. METERS TWO INCHES OR LESS WILL BE DELIVERED AND INSTALLED BY CITY FORCES. METERS LARGER THAN TWO INCHES WILL BE DELIVERED BY THE CITY AND INSTALLED BY THE CONTRACTOR AND REQUIRE SCHEDULING AND INSPECTIONS WITH CITY FORCES. CONTACT THE DEVELOPMENT SERVICES DEPARTMENT AT 480-644-4273 FOR THE SPECIFIC PROCEDURE. SEE M-27.01 FOR MORE INFORMATION.
- WHEN GROUTING OR CASTING CONCRETE AROUND PVC SEWER PIPE, SUCH AS AT MANHOLE OR VAULT PENETRATIONS, THE CONTRACTOR SHALL INSTALL WATER STOPS PER MESA AMENDMENTS TO MAG SPECIFICATION 625 AND MANUFACTURER'S RECOMMENDATIONS.
- SEWER BUILDING CONNECTION LATERALS SHALL BE INSTALLED PER MAG STANDARD DETAIL 440. LATERAL WYES SHALL BE INSTALLED AT NO GREATER THAN A 45 DEGREE ANGLE FROM HORIZONTAL. SEWER LATERAL SLOPES SHALL BE AS INDICATED ON MAG STANDARD DETAIL 440 AND IN NO CIRCUMSTANCE SHALL SEWER LATERAL SLOPES EXCEED 7/8" PER FOOT FOR 6" LATERALS AND 1-1/2" PER FOOT FOR 4" LATERALS. FITTINGS SHALL BE INSTALLED WITH NO ANGULAR JOINT DEFLECTION AND ALL CONNECTIONS SHALL BE GASKETED OR SEALED PER MAG SPECIFICATIONS.
- SEWER MANHOLE BASES, BENCHES, SHELVES, AND CHANNELS SHALL BE CONSTRUCTED PER MAG STANDARD DETAIL 420. EACH INLET PIPE SHALL HAVE A DESIGNATED, FORMED CHANNEL AND BENCHING. THE DIMENSIONS OF CHANNELS, SHELF SLOPE, AND MINIMUM INLET PIPE ANGLES SHALL BE CONSTRUCTED PER MAG STANDARD DETAIL 420-3.
- PER MESA DESIGN STANDARDS, SEWER MANHOLES SHALL BE CONSTRUCTED PER MAG STANDARD DETAILS 420-1, TYPE 'A' TOP; AND 423-2 EXCEPT THAT:
 - MANHOLE SHAFT DIAMETERS SHALL BE 5 FEET.
 - MANHOLE RINGS AND COVERS SHALL HAVE 30-INCH DIAMETERS.
 - STEPS SHALL NOT BE INCLUDED.



RYAN A+E, INC.
3900 E. Camelback Road, Ste 100
Phoenix, AZ 85018
602-322-6100 tel
602-322-6300 fax

WWW.RYANCOMPANIES.COM

OWNER

CONSULTANTS



4435 E. Chandler Blvd,
Suite 200
Phoenix, AZ 85048
480-625-9795



PROJECT INFORMATION

**PROJECT
CORK**

ELLIOT ROAD
MESA, ARIZONA

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Architect under the laws of the State of Arizona

MICHAEL PREFLING

REGISTRATION NO.	DATE
46785	09-30-2022

© 2019 RYAN A+E, INC.

DRAWN BY	CHECKED BY

JOB NO.	DATE
	09/07/21

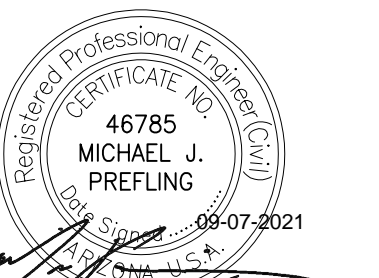
ISSUE RECORD		
ISSUE #	DATE	DESCRIPTION

DESIGN REVIEW

09.07.2021

NOTES AND
DETAILS

C2.0



EXPIRES: 9/30/22

PROJECT CORK

ELLIOT ROAD MESA, ARIZONA

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Architect under the laws of the State of Arizona

MICHAEL PREFLING

REGISTRATION NO.	DATE
46785	09-30-2022

© 2019 RYAN A+E, INC.

DRAWN BY	CHECKED BY

JOB NO.	DATE
	09/07/21

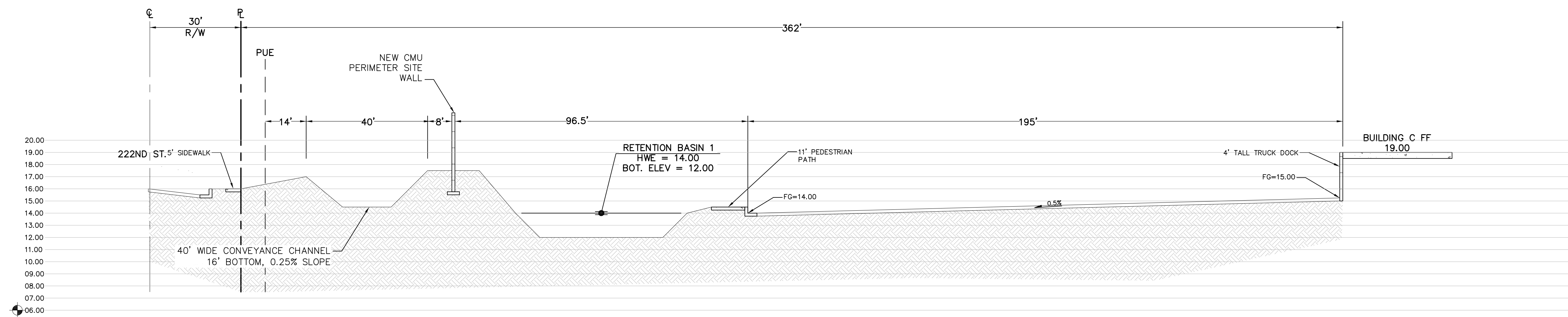
ISSUE RECORD		
ISSUE #	DATE	DESCRIPTION

DESIGN REVIEW

09.07.2021

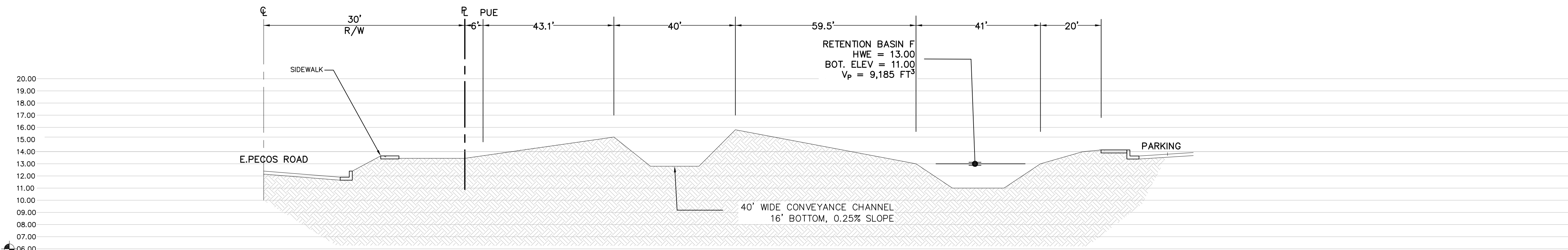
GRADING SECTIONS

C3.1



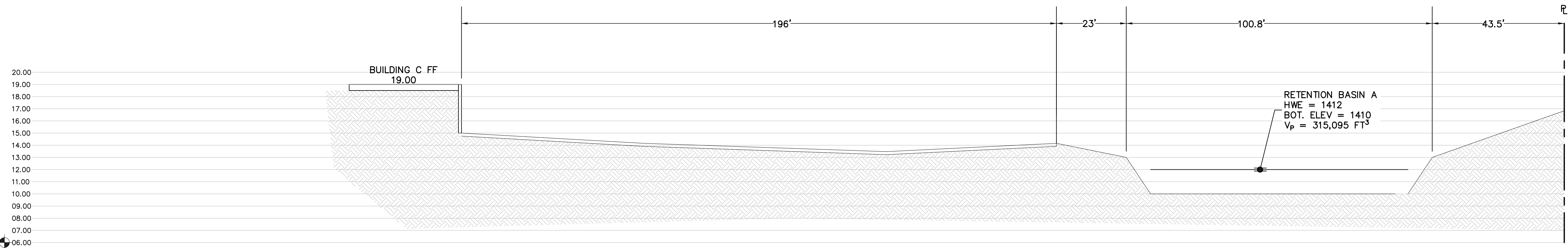
SECTION A-A

SCALE: 1"=20'H, 1"=5'V



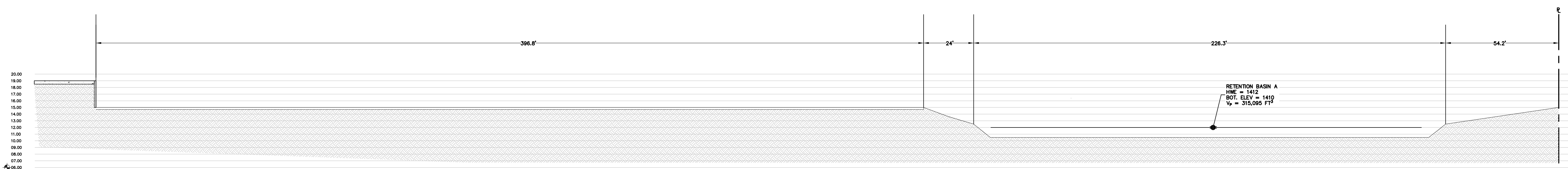
SECTION B-B

SCALE: 1"=20'H, 1"=5'V



SECTION C-C

SCALE: 1"=20'H, 1"=5'V



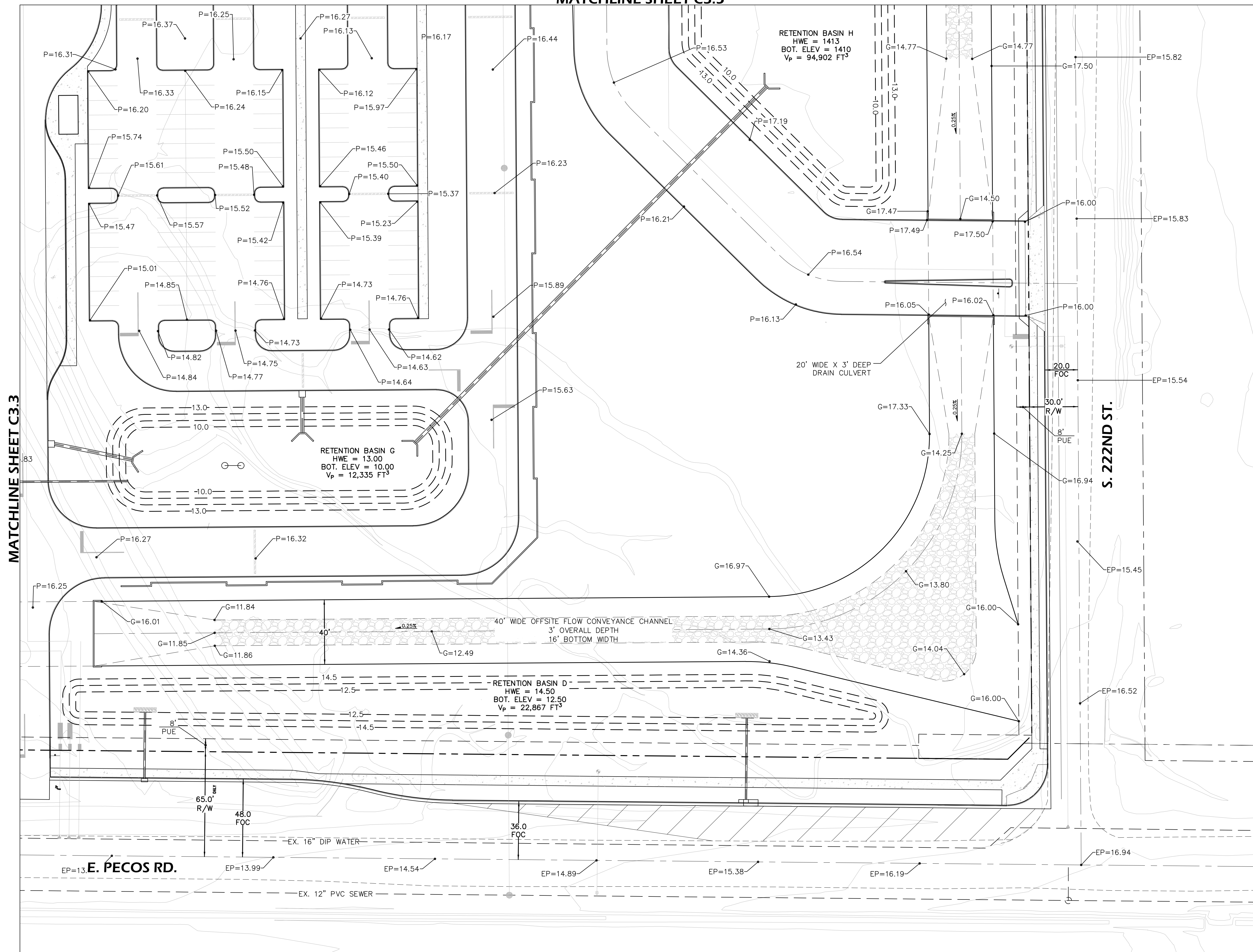
SECTION D-D

SCALE: 1"=25'H, 1"=5'V

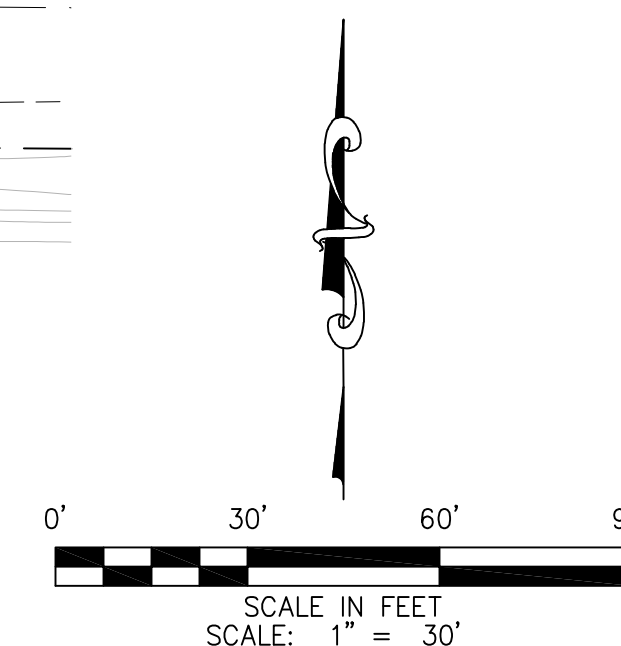


ISSUE RECORD		
ISSUE #	DATE	DESCRIPTION

MATCHLINE SHEET C3.5



MATCHLINE SHEET C3.3



ISSUE RECORD		
ISSUE #	DATE	DESCRIPTION

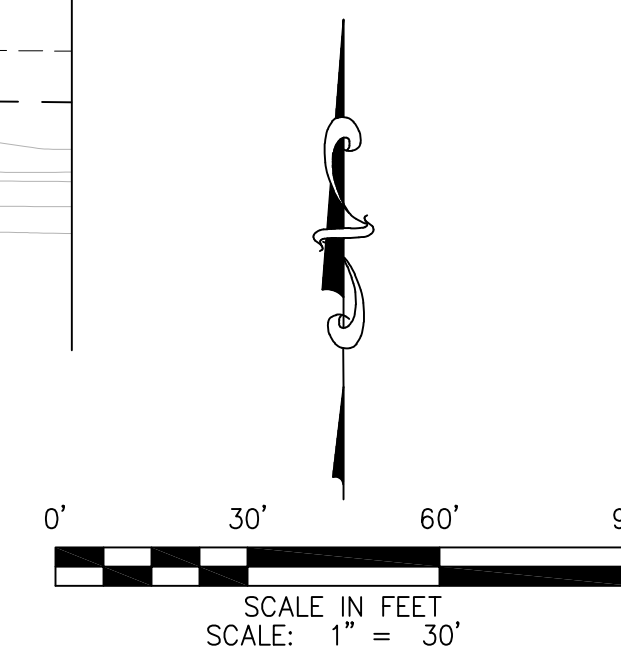
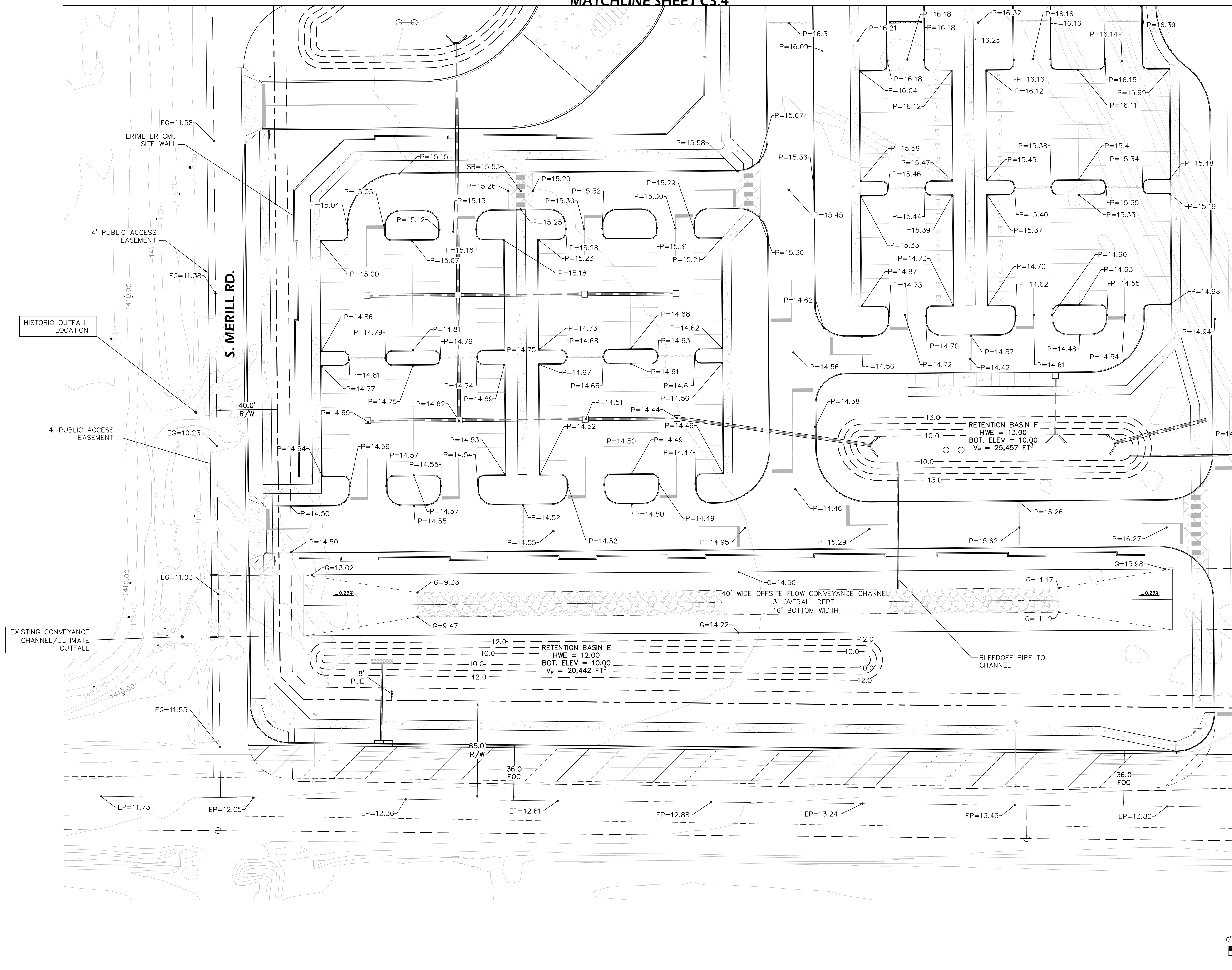
DESIGN REVIEW

09.07.2021

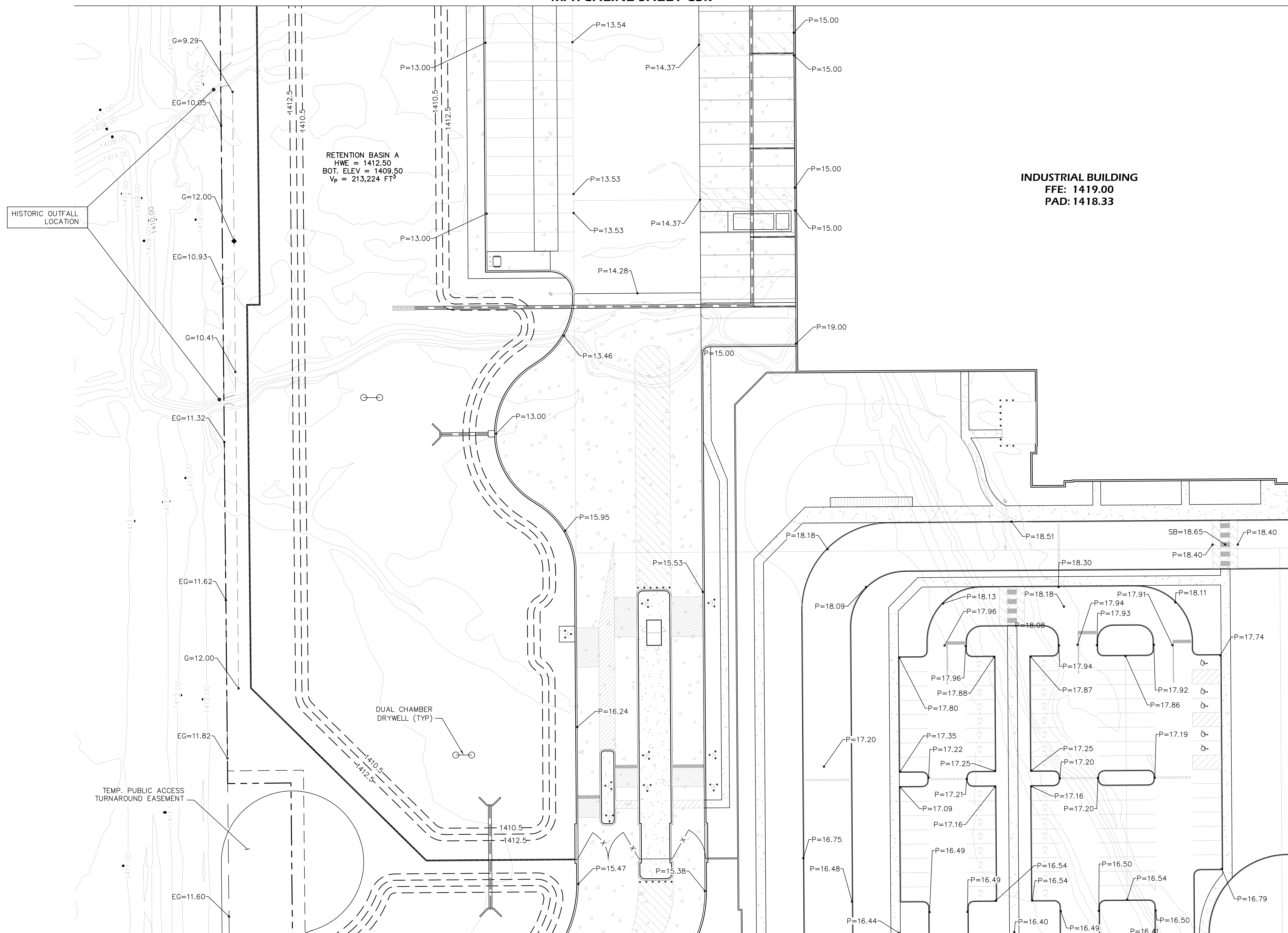
CONCEPT GRADING
& DRAINAGE
PLAN SHEETS

C3.3

MATCHLINE SHEET C3.4

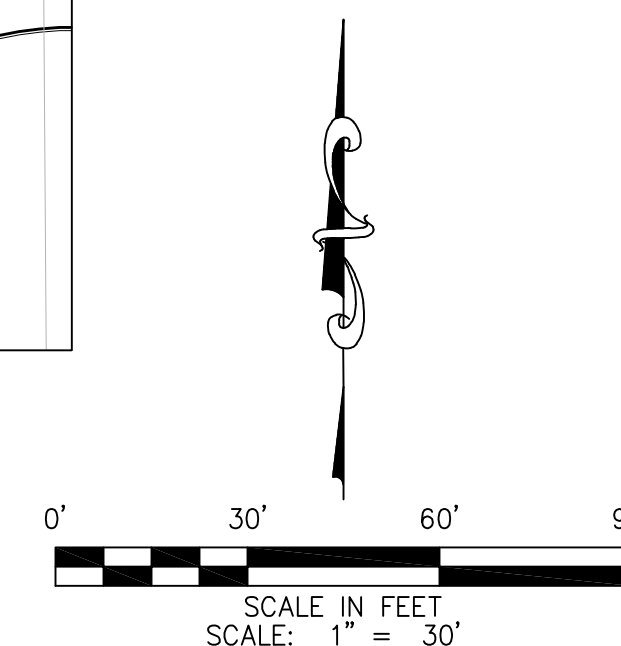


MATCHLINE SHEET C3.7



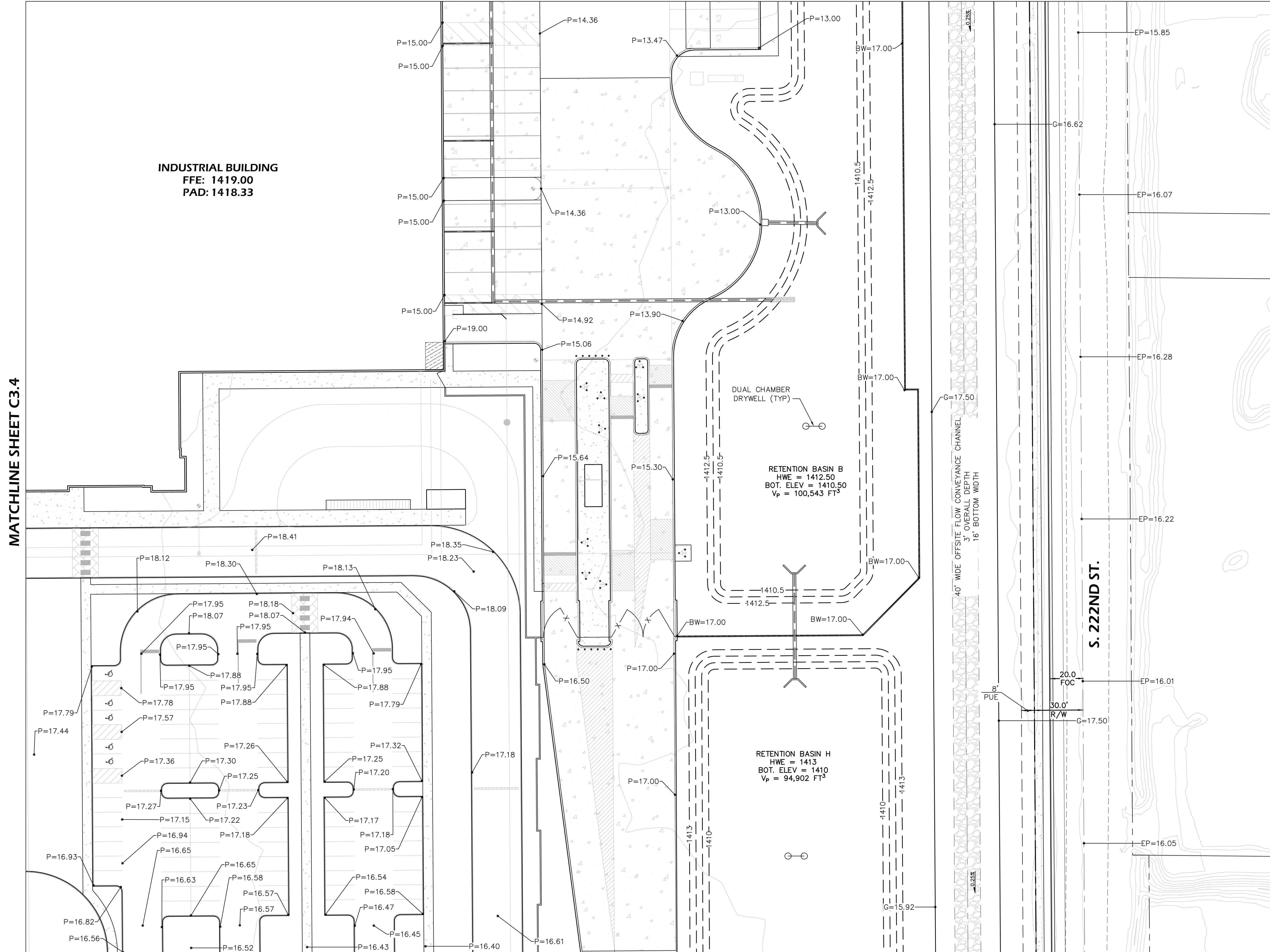
MATCHLINE SHEET C3.3

MATCHLINE SHEET C3.5



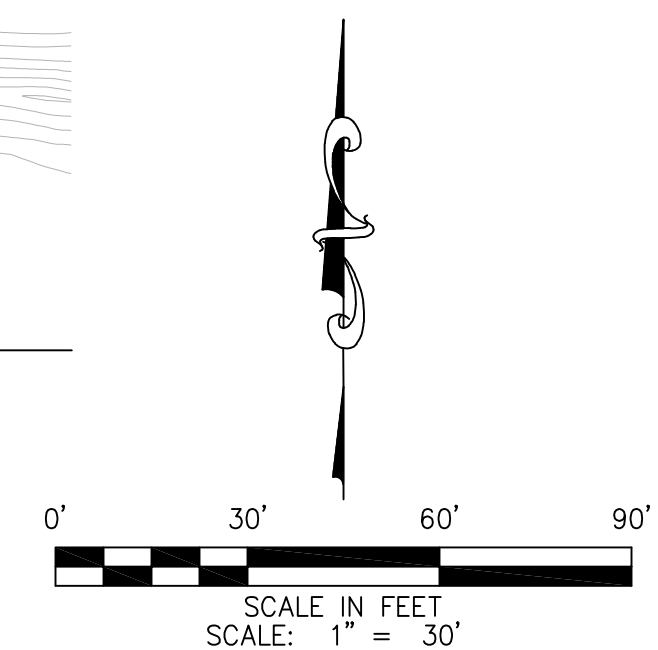
ISSUE RECORD		
ISSUE #	DATE	DESCRIPTION

MATCHLINE SHEET C3.6



MATCHLINE SHEET C3.4

MATCHLINE SHEET C3.2



MATCHLINE SHEET C3.7

INDUSTRIAL BUILDING
FFE: 1419.00
PAD: 1418.33

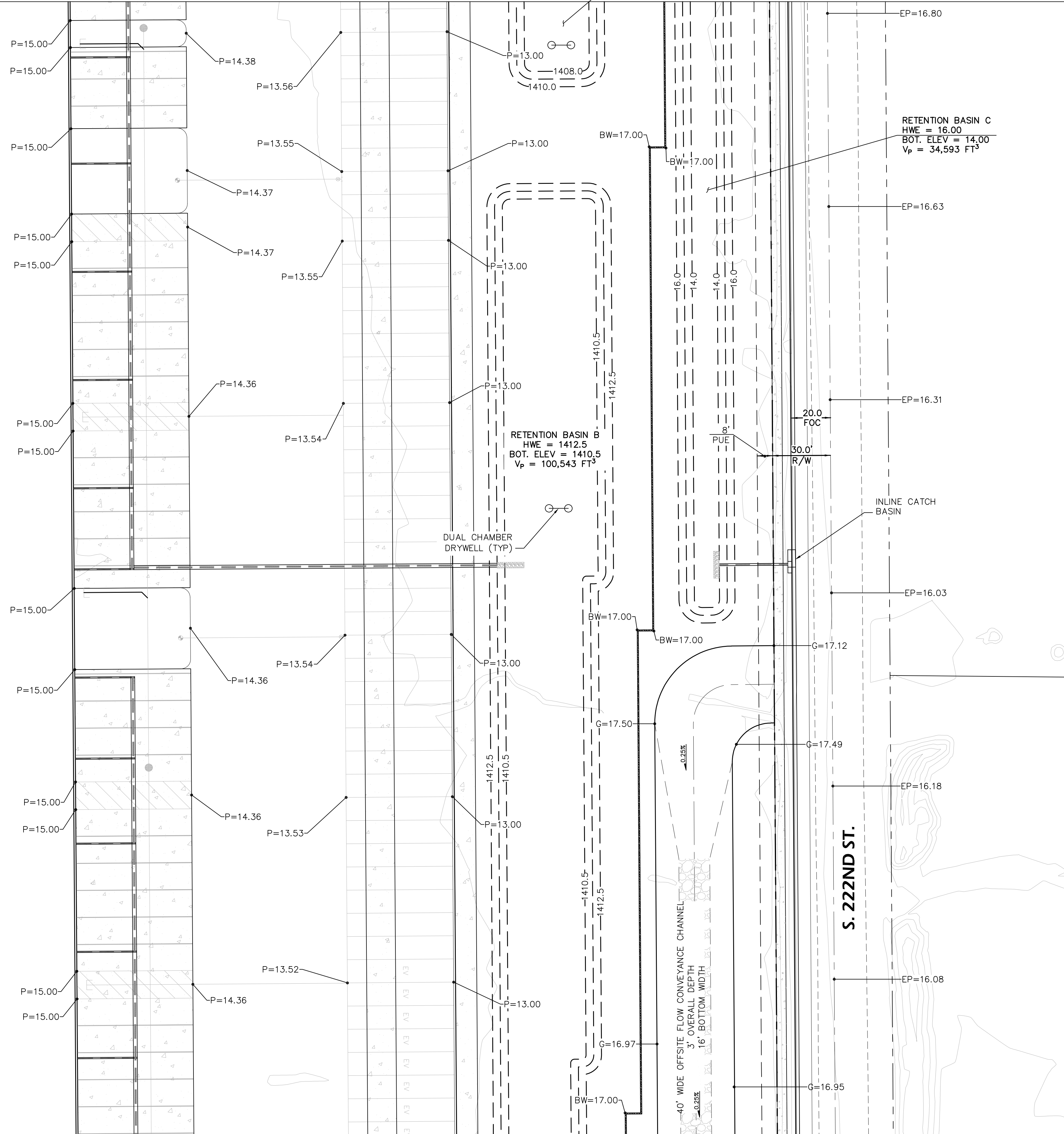
MATCHLINE SHEET C3.9

MATCHLINE SHEET C3.5

RETENTION BASIN M
HWE = 10.00
BOT. ELEV = 08.00
Vp = 35,631 FT³

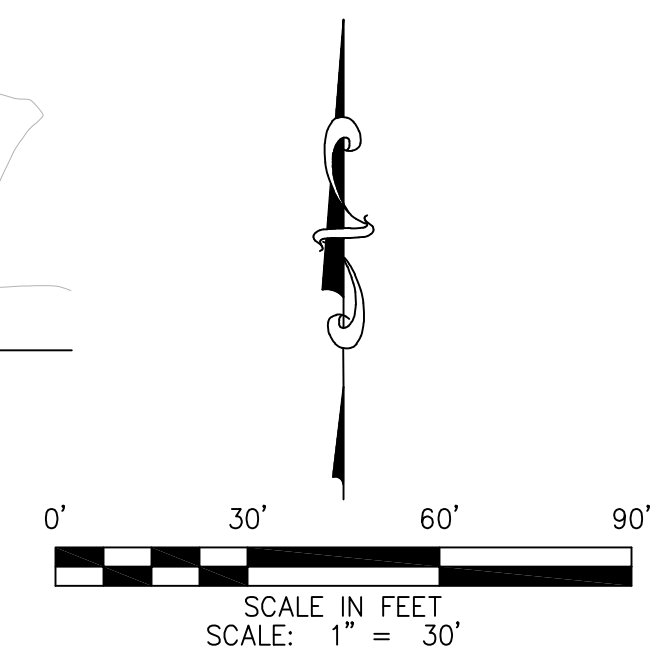
RETENTION BASIN C
HWE = 16.00
BOT. ELEV = 14.00
Vp = 34,593 FT³

RETENTION BASIN B
HWE = 1412.5
BOT. ELEV = 1410.5
Vp = 100,543 FT³



40' WIDE OFFSITE FLOW CONVEYANCE CHANNEL
3' OVERALL DEPTH
16' BOTTOM WIDTH

S. 222ND ST.



RYAN A+E, INC.
3900 E. Camelback Road, Ste 100
Phoenix, AZ 85018
602-322-6100 tel
602-322-6300 fax

WWW.RYANCOMPANIES.COM

OWNER

CONSULTANTS



4435 E. Chandler Blvd,
Suite 200
Phoenix, AZ 85048
480-625-9795



PROJECT INFORMATION

PROJECT
CORK

ELLIOT ROAD
MESA, ARIZONA

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Architect under the laws of the State of Arizona

MICHAEL PREFLING

REGISTRATION NO. DATE
46785 09-30-2022

© 2019 RYAN A+E, INC.

DRAWN BY CHECKED BY
JOB NO. DATE
09/07/21

ISSUE RECORD		
ISSUE #	DATE	DESCRIPTION

DESIGN REVIEW

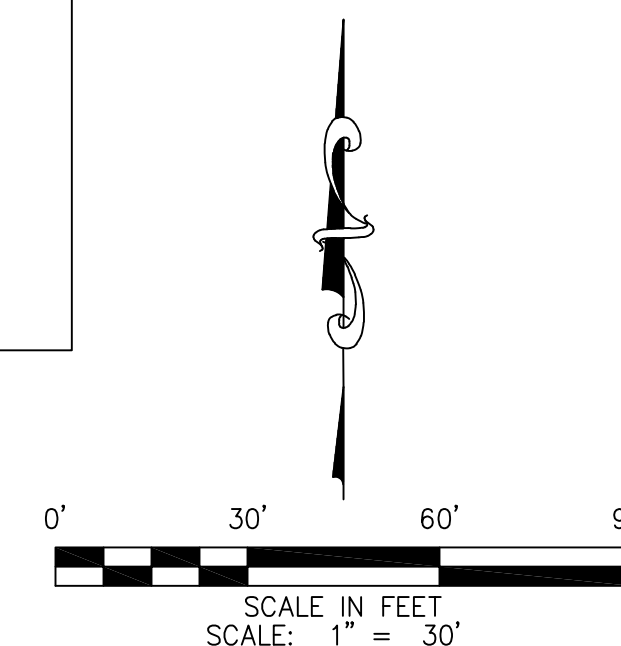
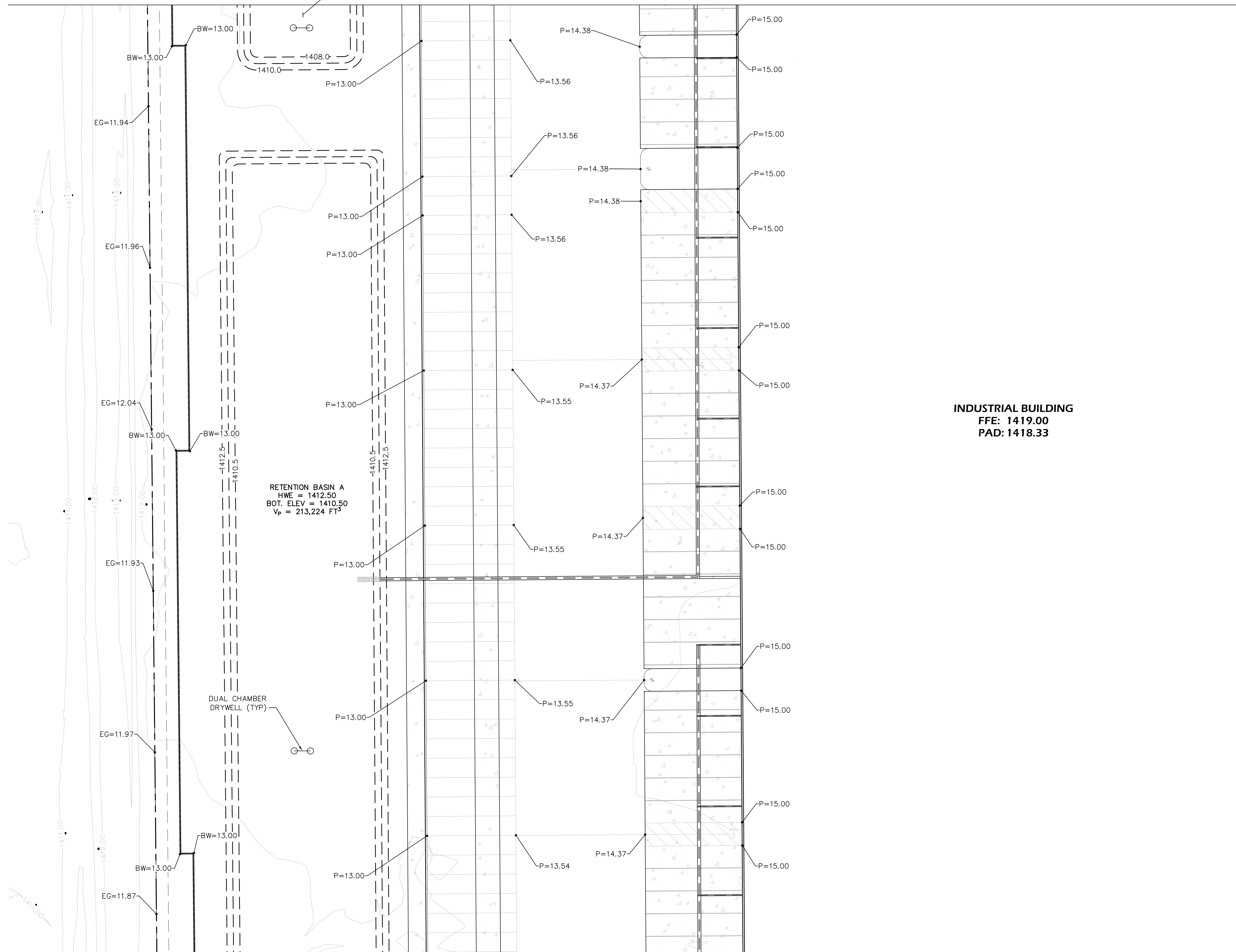
09.07.2021

CONCEPT GRADING
& DRAINAGE
PLAN SHEETS

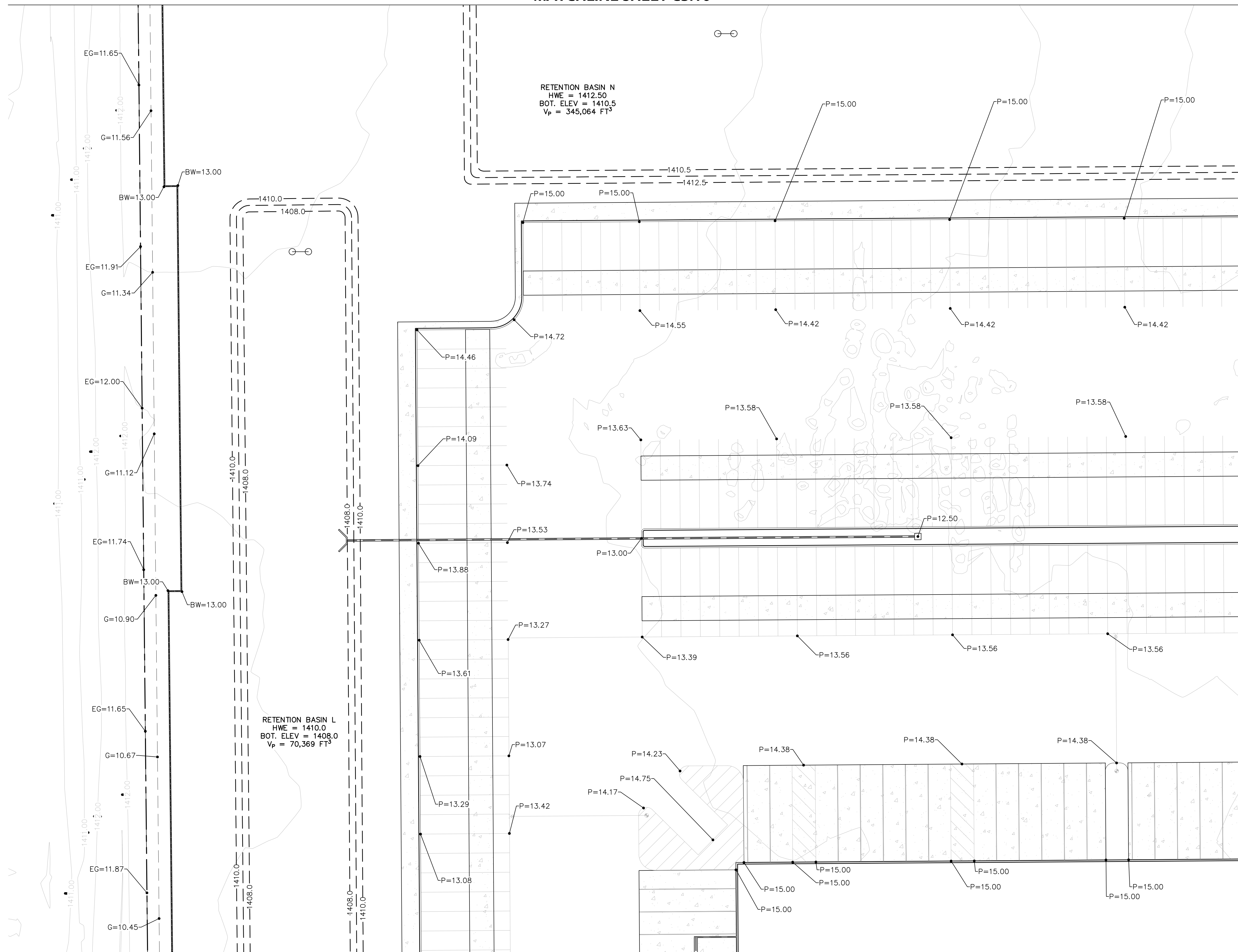
C3.6

MATCHLINE SHEET C3.8

RETENTION BASIN L
HWE = 10.00
BOT. ELEV = 08.00
V_P = 70,369 FT³

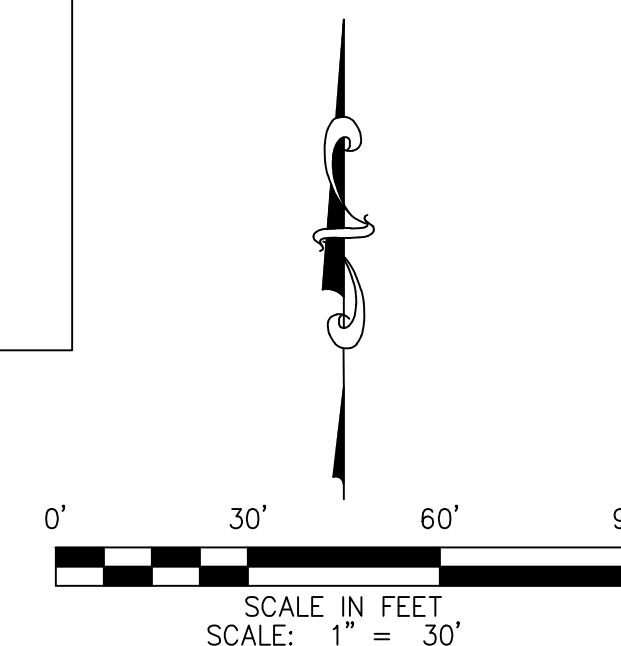


MATCHLINE SHEET C3.10

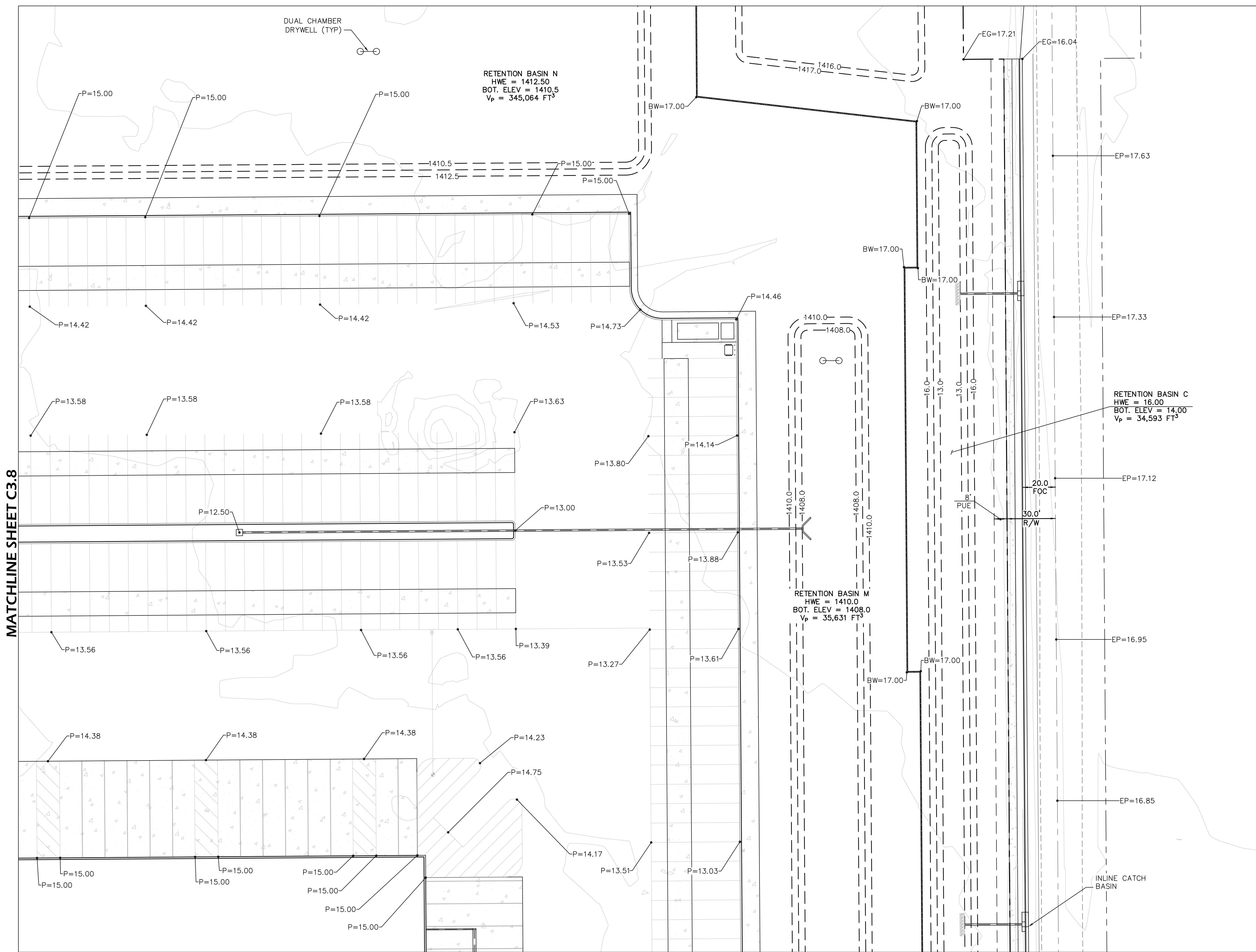


MATCHLINE SHEET C3.7

MATCHLINE SHEET C3.9

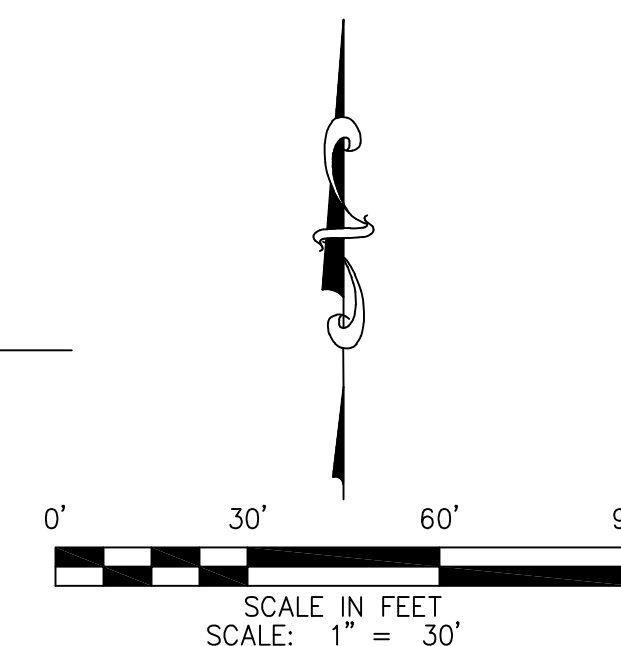


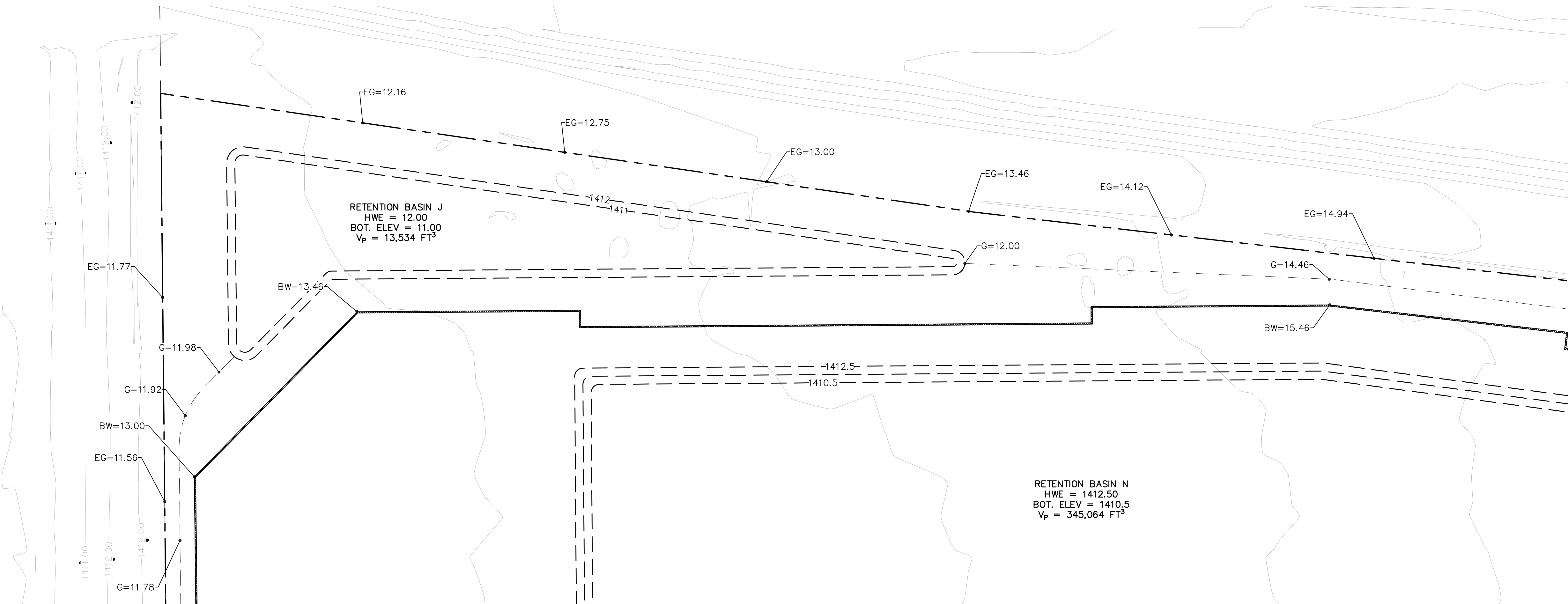
MATCHLINE SHEET C3.10



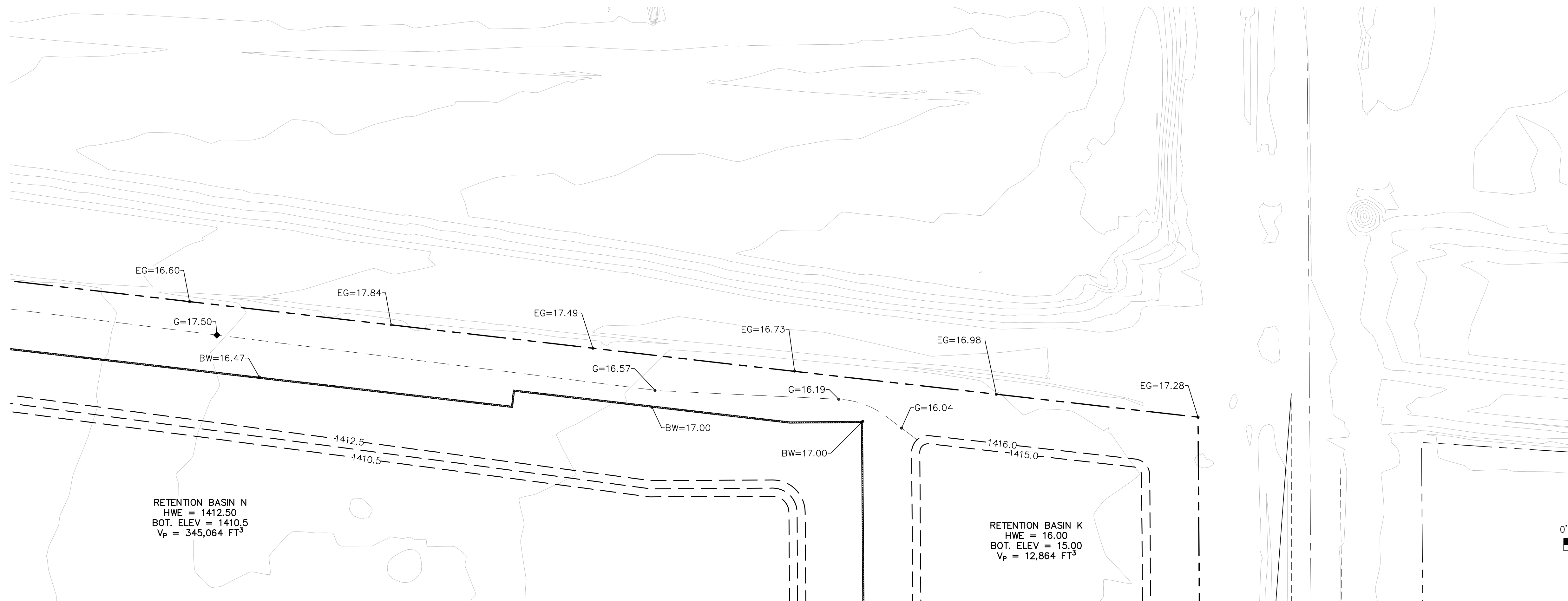
MATCHLINE SHEET C3.8

MATCHLINE SHEET C3.6

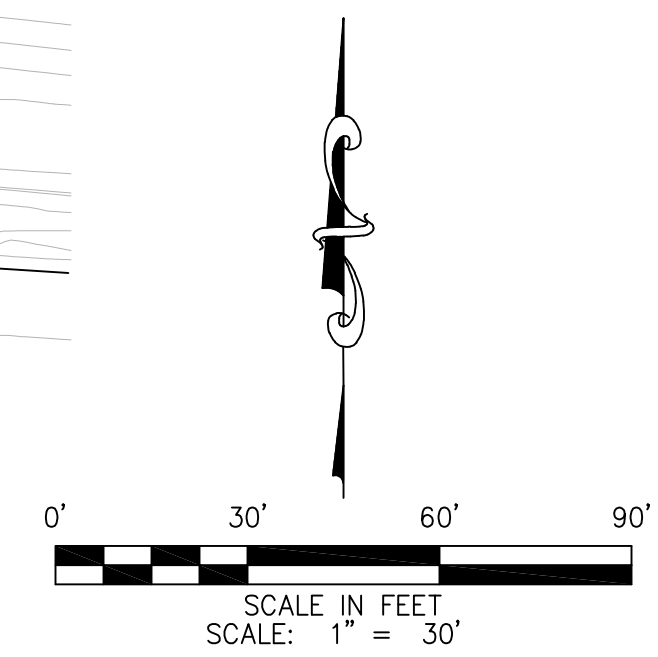




MATCHLINE SHEET C3.8



MATCHLINE SHEET C3.9



I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Architect under the laws of the State of Arizona

MICHAEL PREFLING

REGISTRATION NO.	DATE
46785	09-30-2022

© 2019 RYAN A+E, INC.

DRAWN BY	CHECKED BY

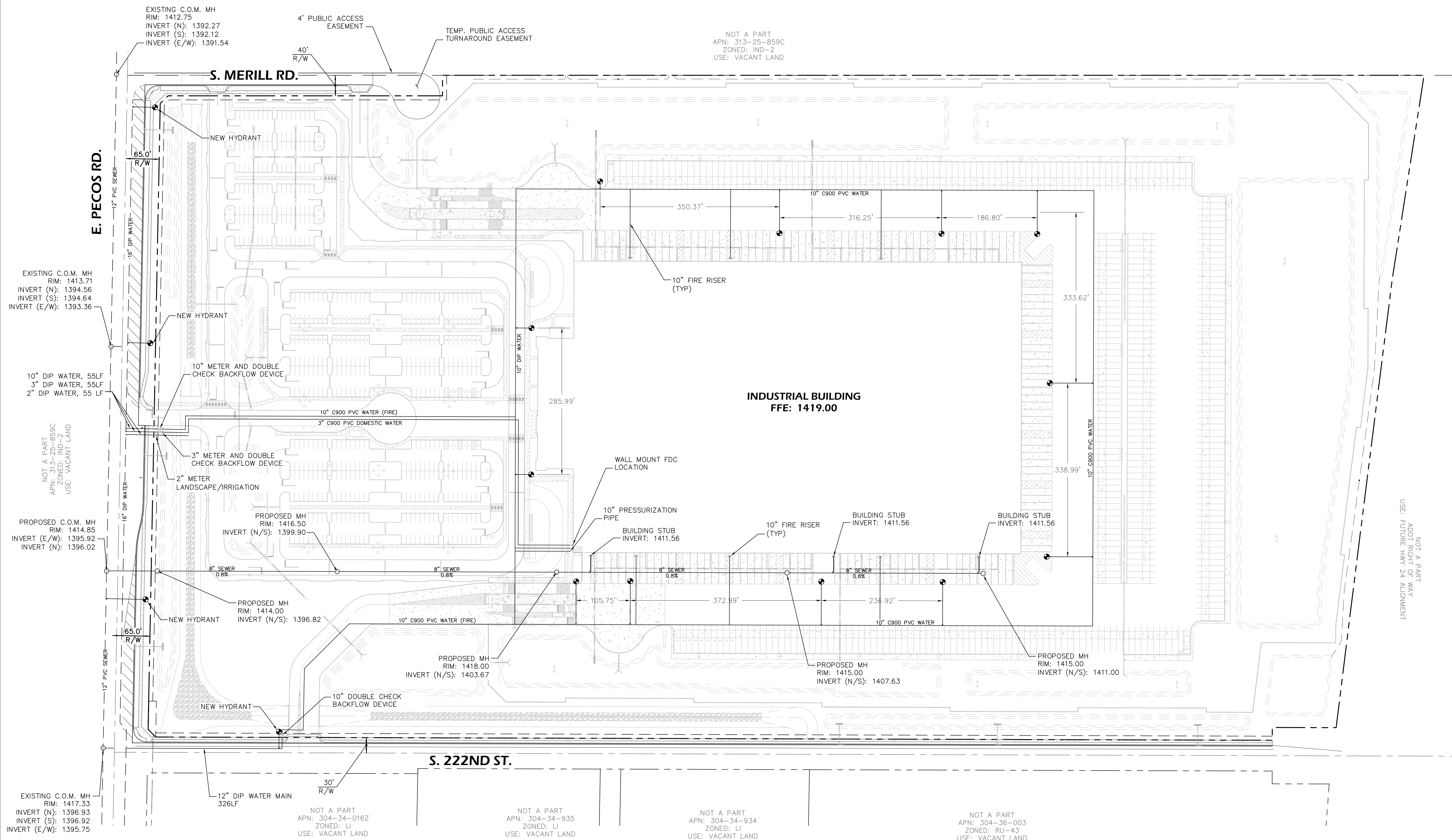
JOB NO.	DATE
	09/07/21

ISSUE RECORD		
ISSUE #	DATE	DESCRIPTION

DESIGN REVIEW

09.07.2021

CONCEPT GRADING
 & DRAINAGE
 PLAN SHEETS

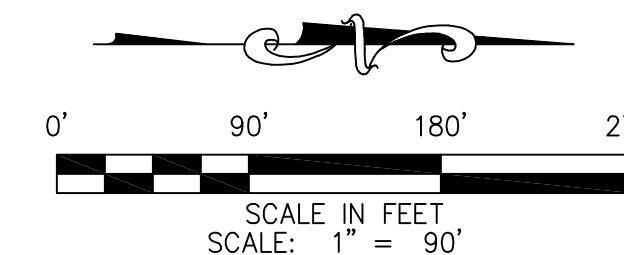


WATER & SEWER BASIS OF DESIGN

PECOS ROAD FRONTAGE — WILL DEDICATE TO BRING E. PECOS ROAD TO MAJOR COLLECTOR STREET STATUS WITH 75' AND 65' RIGHT OF WAY WIDTHS.

222ND ST — DISCUSSIONS WITH MCDOT HAVE INDICATED THAT WATER AND SEWER INFRASTRUCTURE IS NOT REQUIRED WITHIN 222ND, UNLESS THE DEVELOPMENT REQUIRES IT.

MERRILL ROAD EXTENSION — DISCUSSIONS WITH CITY OF MESA HAVE INDICATED THAT WATER AND SEWER INFRASTRUCTURE IS NOT REQUIRED WITHIN THE NORTH MERRILL ROAD EXTENSION AT THIS TIME





PROJECT CORK

ELLIOT ROAD MESA, ARIZONA

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Architect under the laws of the State of Arizona

MICHAEL PREFLING

REGISTRATION NO.	DATE
46785	09-30-2022

© 2019 RYAN A+E, INC.

DRAWN BY	CHECKED BY

JOB NO.	DATE
	09/07/21

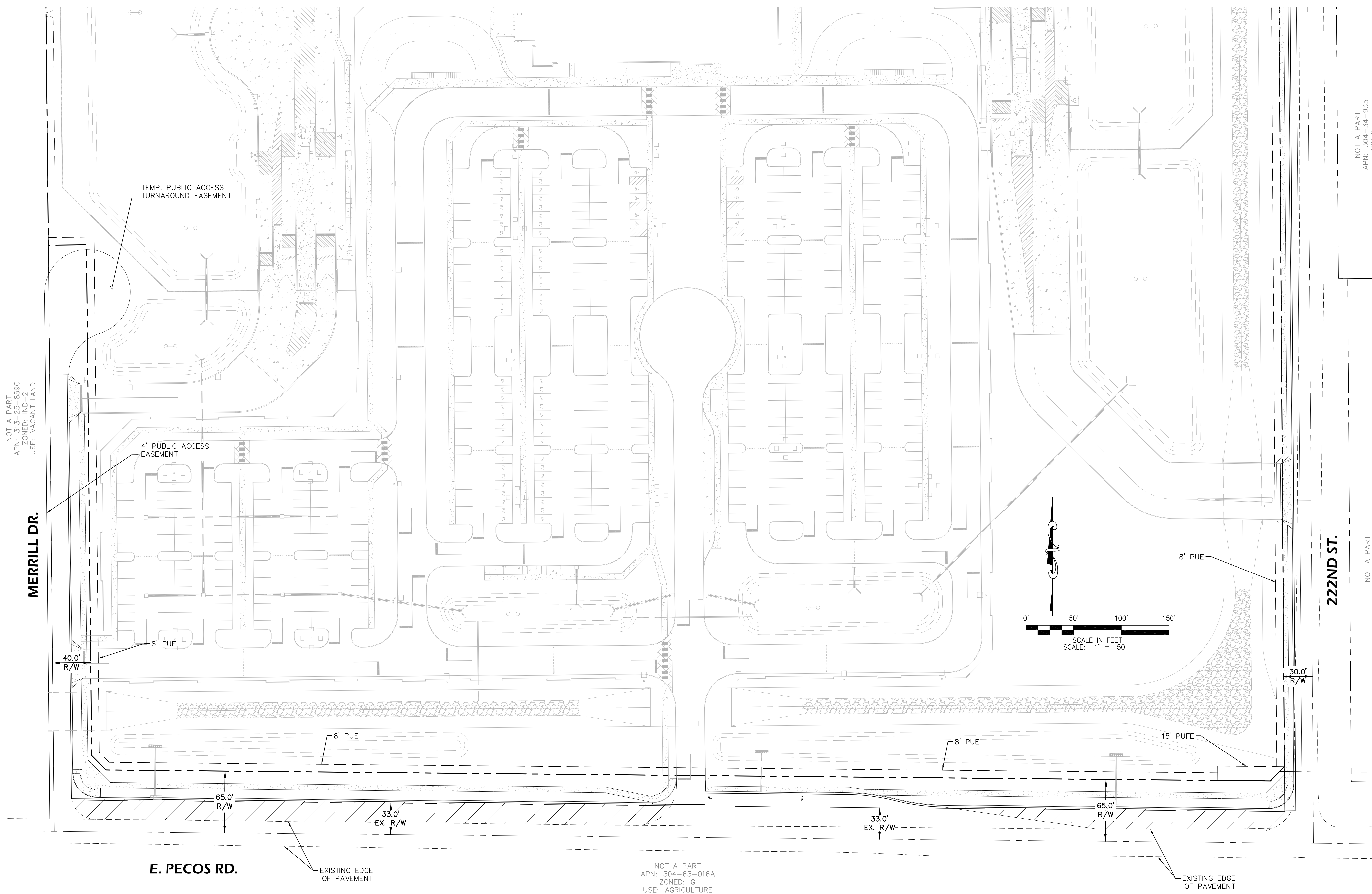
ISSUE RECORD		
ISSUE #	DATE	DESCRIPTION

DESIGN REVIEW

09.07.2021

OVERALL OFFSITE SUMMARY

C5.0



Preliminary Drainage Report

Project Cork – East Mesa Industrial Facility

APN : 304-34-015E

September 07, 2021

ANX21-00728

ZON21-00730

Prepared for

City of Mesa



Prepared by
Prefling Engineering
4435 E. Chandler Blvd, Suite 200
Phoenix, AZ 85048

Table of Contents

Cover Sheet

Table of Contents

- 1 Introduction**
 - 1.1 Location
 - 1.2 Existing Property Description
 - 1.3 Flood Hazard Zone
- 2 Existing Drainage Conditions**
 - 2.1 Onsite-Drainage
 - 2.2 Off-Site Drainage
 - 2.3 Existing Storm Sewer System
- 3 Proposed Storm Water Management**
 - 3.1 Design Intent
 - 3.2 Design Storm Requirements
 - 3.3 Characteristics of Basins
 - 3.4 Stormwater Retention
 - 3.5 Off-Site Flow
- 4 Conclusions**
- 5 References**

Exhibits

Figure 1 – Vicinity Map

Figure 2 – Aerial Image

Figure 3 – FIRM

Appendices

Appendix 1 – NOAA Rainfall Data

Appendix 2 – Existing Conditions and Historical Flows

Appendix 3 – East Mesa ADMS Excerpts



Introduction

The purpose of this report is to indicate the methods used and to provide discussion of the proposed stormwater drainage for a new industrial facility located at the northwest corner of E. Pecos Road and 222nd Street in the City of Mesa. The development is a 71 acre site that will consist of one large industrial building. The proposed improvements include construction of parking lots, open space areas, 1 new building, driveways, pedestrian access ramps, sidewalks, utilities, and stormwater drainage structures and basins. This report will indicate how the storm water generated on the subject property is addressed and how it complies with the City of Mesa drainage requirements.

Location and Project Description

Location:

The Project Cork property is currently an undeveloped desert lot in Mesa, Arizona. The lot is currently zoned "RU-43". The property is located within a Zone X shaded FIRM Zone per map Number 04013C2790L. The lot is 3,195,997 ft² in size (73.4 acres).

Existing Property Description:

The existing property is an undeveloped lot. There are no structures, paving, or hardscape on the site.

The total area of the lot is 71.31 acres and is currently zoned RU-43.

There are regional washes present on the site and the site lies within a significant offsite flow pattern. The flood control district of Maricopa County prepared an Area Drainage Master Plan with various updates last dated 2014 which will be referenced in the offsite flows section later in this report.

Historical offsite flow patterns can be seen in Appendix 2.

Flood Hazard Zone

As defined by the Flood Insurance Rate Map (FIRM) for Maricopa County, Arizona, and Incorporated Areas, as shown on Map Number 04013C2790L dated October 16, 2013, this site is designated as Zone "X". As such, it is determined to be outside the 0.2% annual chance of floodplain. Refer to Figure 3 for the FIRM Map.

Existing Drainage Conditions

On-Site Drainage Patterns

The existing site is an undeveloped desert lot. The site general slopes from north to south and east to west. It appears there has been some man-made grading embankments on the site to create a low point and ponding area near at the southern end of the site near Pecos Road. Offsite flows enter the site along the eastern and southeastern boundary and sheet-flow across the site to historical outlet points at the western and southwestern boundary. These flows are collected in drainage channels that are adjacent to the west and southwest which continue to carry runoff to the west.

Off-Site Drainage Patterns

This site is located within the East Mesa Area Drainage Master Plan. This report was updated in 2014 and is currently undergoing another update. Discussions with the Flood Control district have clarified revised regional drain basin areas that affect this site. These are shown in Appendix 2.

Offsite flows enter the site along the eastern and southeastern boundary and sheet-flow across the site to historical outlet points at the western and southwestern boundary. These flows are collected in drainage channels that are adjacent to the west and southwest which continue to carry runoff to the west.

Existing Storm Sewer Systems

There are no apparent private or public underground storm system within the immediate area of the property.

Proposed Storm Water Management

Design Intent

On-site drainage will be stored in a series of surface retention basins that will all be connected and equalized so as to act as one hydraulic system. The onsite retention volumes will have a metered outlet to a new conveyance channel that is being designed along the east and southern boundary (222nd and Pecos frontages).

Offsite flows will be conveyed through the via several methods. Some flow will be contained within Pecos Road. A 40' wide conveyance channel is being designed into the frontage. The channel will pick up flows at the historical entry points along the east and southeast boundaries of the site. These flows will be outlet to the southwest corner of the site to continue along their historical path along Pecos road.

Design Storm Requirements

In accordance with the City of Mesa Engineering Department, Engineering and Design Manual 2019, and the design standards and methodologies developed by the Flood Control District of Maricopa County. The 100-year 2-hour storm event is required based on providing the necessary storage volume for the property and half-street areas.

Finished Floor Elevation

Building Finished Floor elevations have been established to provide protection from localized flooding. The proposed industrial building will have truck wells that will sit 4' below finished floor elevation. The desire to keep these dry during storm events drove the finished floor elevations. Based upon the current site grading, the finished floors will all have at least 2 feet of freeboard from the high-water elevations of the corresponding retention basins.

Stormwater Retention

Required stormwater retention is calculated based on the increase in impervious area as follows:

Required Storage:

Stormwater storage required is calculated in accordance with the Paradise Valley Storm Drainage Design Manual as follows:

$$V_R = C * (P/12) * A$$

Where: V_R = Retention Volume Required in ft³
C = Impervious runoff coefficient (set at 0.95)
P = 100-year 2-hr precipitation in inches (Appendix II)
A = Area of site + ½ streets (3,239,557 ft²)

$$V_R = 0.95 * (2.2/12) * 3,239,557$$

$$V_R = 564,223 \text{ ft}^3$$

Provided Storage:

The current design provides an excess of retention volume totaling 1,180,685 ft³. This is accomplished by a series of surface basins that are all connected and equalized. The system will ultimately bleed off to the conveyance channel that is being proposed.

Offsite Flows

The East Mesa ADMS report from 2014 identifies this site as being within subbasin ID of E24A which is calculated to have 1003 ft³/sec. However, there has been significant development in the area this offsite flow value is no longer accurate. A review of regional topography in the region along with discussions with the Flood Control district have resulted in an adjusted regional drainage area summary as shown in Appendix 2. It is calculated that 287.3 ft³/sec enters the site at the south and eastern boundaries.

Offsite flows will be managed and conveyed through the site through a series of methods. In addition to conveyance, the site is also set back 85 from the new proposed right-of-way and 4' above the street grades.

Pecos Road Capacity = 35 ft³/sec
Conveyance Channel = 572 ft³/sec
Additional Frontage = 113 ft³/sec

Total Offsite Flow Conveyance Capacity = 720 ft³/sec

These offsite flows are being passed through the southern frontage of the site and outlet to the existing drainage channel at the southwest corner of the site to the adjacent property owner.

Conclusions

Overall Project:

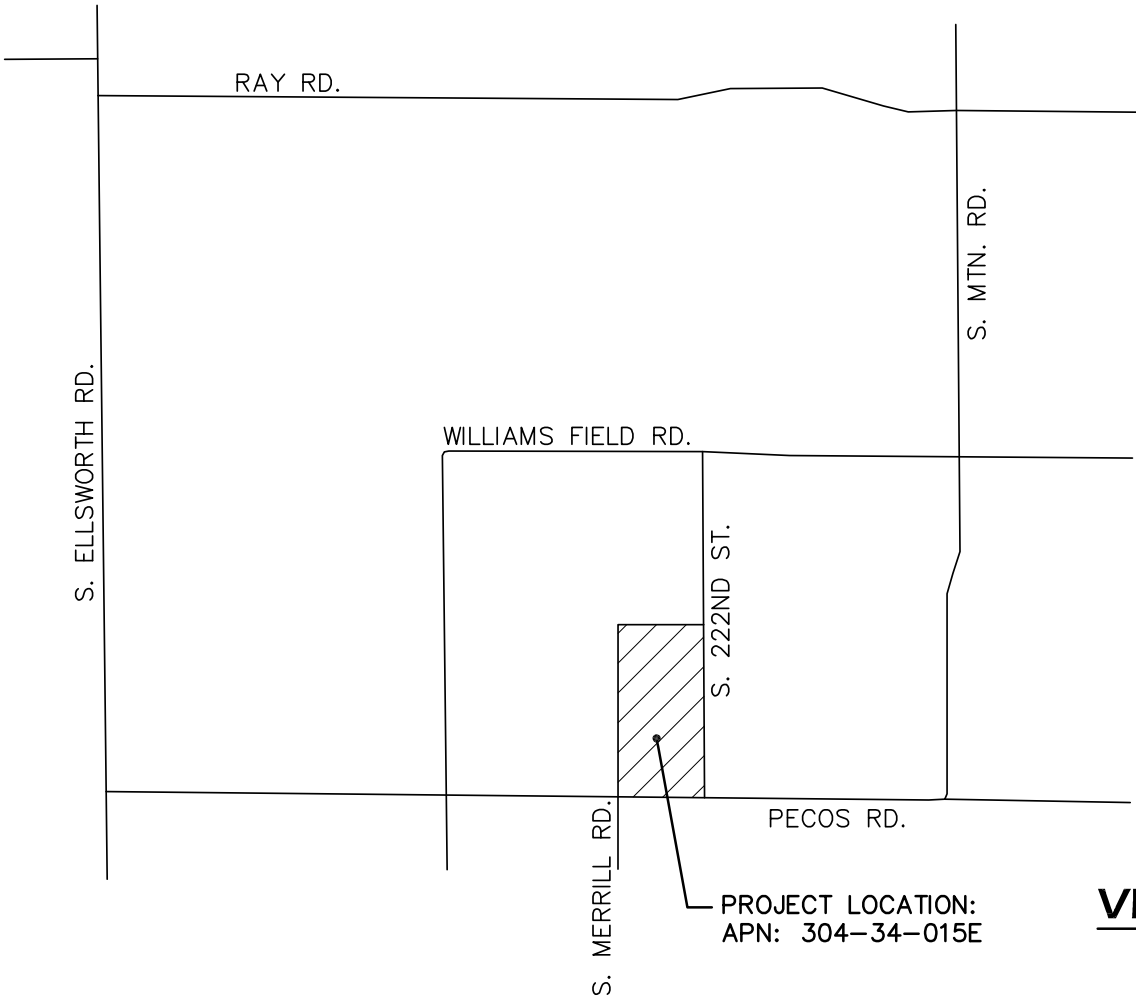
1. This project has been designed to conform to the City of Mesa storm drainage design requirements.
2. Proposed drainage improvements will include above ground retention basins and an underground storm drain network.
3. The system is sized to retain the 100yr, 2hr storm event volume. Proposed storm drain inlets and storm drainpipes will be adequately sized to convey the expected peak flows to the retention basins. The retention basins will be connected and equalized and ultimately bleed out to the new conveyance channel this is being designed at the Pecos frontage.
4. Excess flows generated onsite will overflow to the existing drainage channels and Pecos Road at the southwest, which generally matches the historic overflow pattern. No adverse impacts to the offsite downstream properties are anticipated as a result of the proposed improvements. It is our intention to coordinate and partner with adjacent property owners to find the best solutions for the large offsite flow volumes that are affecting developments along this Pecos corridor.

References

1. *City of Mesa Engineering Department, Engineering and Design Standards 2019*
 2. *Flood Control District of Maricopa County, Maricopa County Drainage Policies and Standards. Revised, August 22, 2018.*
-

Exhibits





PROJECT LOCATION:
APN: 304-34-015E



VINICITY MAP
NOT TO SCALE



Feature Information

(1 of 1)

Clear ?

304-34-015E

Owner Information

Owner Name: TUCKER PROPERTIES LTD
 Property Address:
 Mailing Address: 4010 E GROVE CIRCLE MESA AZ 85206
 Deed Number: 850601255
 Sale Date:
 Sale Price: \$

Property Information

Lat/Long: 33.295439, -111.607103
 S/T/R: 35 15 7E
 Jurisdiction: NO CITY/TOWN
 Zoning: RU-43
 PUC: 4717
 Lot Size (sq ft): 3,106,317
 MCR #:
 Subdivision:
 Lot #:
 Floor: 1
 Construction Year:
 Living Space (sq ft):

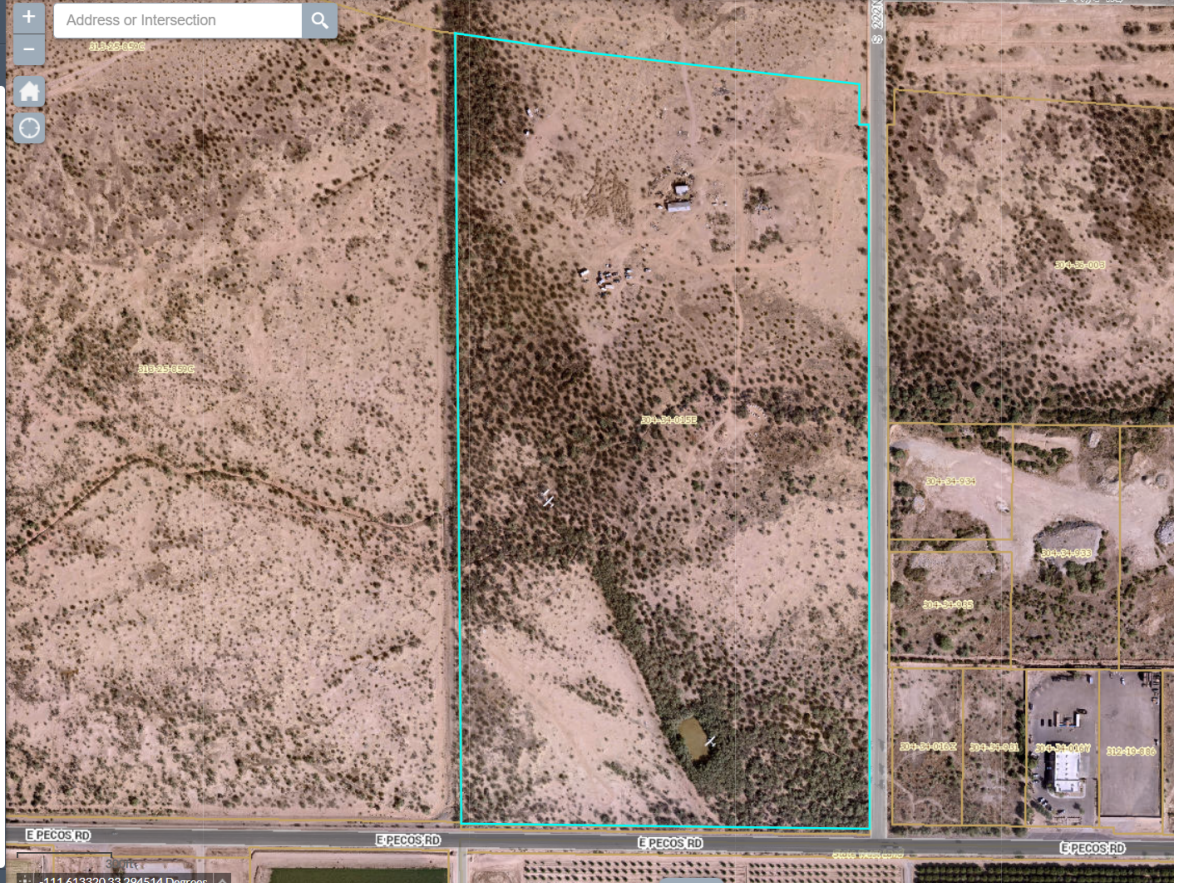
Valuation Information

Tax Year:	2022	2021
FCV:	\$18,652	\$18,152
LPV:	\$12,678	\$12,074
Legal Class:	M	M



Zoom to

...

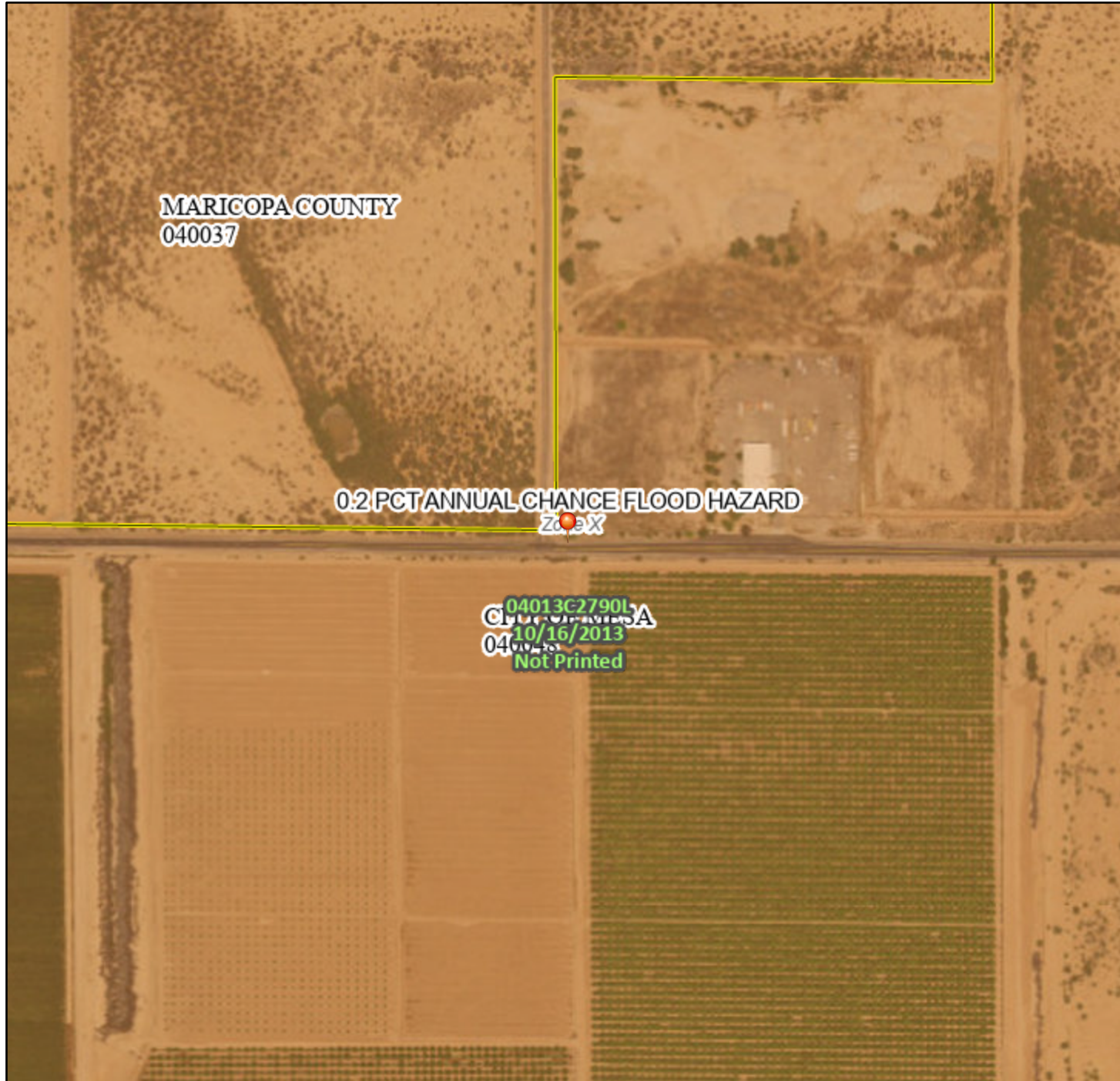


-111.613320 33.294514 Degrees

National Flood Hazard Layer FIRMMette



111°36'35"W 33°17'46"N



111°35'58"W 33°17'16"N

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) <i>Zone A, V, A99</i>
		With BFE or Depth <i>Zone AE, AO, AH, VE, AR</i>
		Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile <i>Zone X</i>
		Future Conditions 1% Annual Chance Flood Hazard <i>Zone X</i>
		Area with Reduced Flood Risk due to Levee. See Notes. <i>Zone X</i>
		Area with Flood Risk due to Levee <i>Zone D</i>
OTHER AREAS		NO SCREEN Area of Minimal Flood Hazard <i>Zone X</i>
		Effective LOMRs
GENERAL STRUCTURES		Area of Undetermined Flood Hazard <i>Zone D</i>
		Channel, Culvert, or Storm Sewer
		Levee, Dike, or Floodwall
OTHER FEATURES		20.2 Cross Sections with 1% Annual Chance Water Surface Elevation
		17.5 Coastal Transect
		Base Flood Elevation Line (BFE)
		Limit of Study
		Jurisdiction Boundary
MAP PANELS		Coastal Transect Baseline
		Profile Baseline
		Hydrographic Feature
		Digital Data Available
		No Digital Data Available
		Unmapped

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.



This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on **9/7/2021 at 1:28 AM** and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

Appendix I
Rainfall Data





NOAA Atlas 14, Volume 1, Version 5
Location name: Mesa, Arizona, USA*
Latitude: 33.292°, Longitude: -111.6046°
Elevation: 1421.46 ft**



* source: ESRI Maps
 ** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sarah Dietz, Sarah Heim, Lillian Hiner, Kazungu Maitaria, Deborah Martin, Sandra Pavlovic, Ishani Roy, Carl Tryppaluk, Dale Unruh, Fenglin Yan, Michael Yekta, Tan Zhao, Geoffrey Bonnin, Daniel Brewer, Li-Chuan Chen, Tye Parzybok, John Yarchoan

NOAA, National Weather Service, Silver Spring, Maryland

[PF_tabular](#) | [PF_graphical](#) | [Maps_&_aerials](#)

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)¹										
Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.192 (0.163-0.234)	0.252 (0.214-0.306)	0.340 (0.286-0.412)	0.407 (0.340-0.492)	0.499 (0.410-0.600)	0.570 (0.463-0.683)	0.642 (0.512-0.769)	0.716 (0.561-0.855)	0.814 (0.621-0.975)	0.888 (0.665-1.07)
10-min	0.293 (0.248-0.356)	0.383 (0.326-0.466)	0.517 (0.435-0.627)	0.620 (0.517-0.748)	0.759 (0.624-0.913)	0.867 (0.705-1.04)	0.977 (0.780-1.17)	1.09 (0.853-1.30)	1.24 (0.946-1.48)	1.35 (1.01-1.62)
15-min	0.363 (0.307-0.441)	0.474 (0.404-0.577)	0.641 (0.539-0.777)	0.768 (0.642-0.927)	0.941 (0.774-1.13)	1.08 (0.874-1.29)	1.21 (0.966-1.45)	1.35 (1.06-1.61)	1.54 (1.17-1.84)	1.68 (1.25-2.01)
30-min	0.488 (0.413-0.593)	0.639 (0.543-0.777)	0.864 (0.726-1.05)	1.03 (0.864-1.25)	1.27 (1.04-1.52)	1.45 (1.18-1.74)	1.63 (1.30-1.95)	1.82 (1.42-2.17)	2.07 (1.58-2.48)	2.26 (1.69-2.71)
60-min	0.604 (0.511-0.734)	0.790 (0.672-0.961)	1.07 (0.899-1.29)	1.28 (1.07-1.55)	1.57 (1.29-1.89)	1.79 (1.46-2.15)	2.02 (1.61-2.42)	2.25 (1.76-2.69)	2.56 (1.95-3.06)	2.79 (2.09-3.36)
2-hr	0.693 (0.586-0.828)	0.900 (0.765-1.08)	1.19 (1.01-1.43)	1.42 (1.19-1.70)	1.73 (1.43-2.06)	1.97 (1.61-2.34)	2.22 (1.78-2.62)	2.47 (1.94-2.91)	2.80 (2.15-3.30)	3.06 (2.30-3.63)
3-hr	0.739 (0.628-0.892)	0.946 (0.807-1.14)	1.24 (1.05-1.50)	1.47 (1.24-1.77)	1.80 (1.49-2.15)	2.06 (1.68-2.45)	2.33 (1.86-2.76)	2.61 (2.05-3.09)	3.00 (2.28-3.55)	3.32 (2.46-3.93)
6-hr	0.895 (0.774-1.05)	1.13 (0.980-1.33)	1.45 (1.25-1.70)	1.70 (1.45-1.98)	2.04 (1.72-2.37)	2.30 (1.92-2.67)	2.58 (2.11-2.99)	2.87 (2.30-3.32)	3.26 (2.55-3.77)	3.57 (2.73-4.14)
12-hr	1.01 (0.893-1.16)	1.28 (1.12-1.46)	1.61 (1.41-1.84)	1.88 (1.63-2.13)	2.23 (1.93-2.53)	2.51 (2.14-2.83)	2.79 (2.34-3.15)	3.07 (2.54-3.47)	3.45 (2.79-3.93)	3.75 (2.97-4.29)
24-hr	1.22 (1.09-1.38)	1.54 (1.38-1.75)	1.97 (1.76-2.23)	2.32 (2.06-2.61)	2.80 (2.45-3.15)	3.17 (2.75-3.56)	3.56 (3.07-4.00)	3.97 (3.37-4.47)	4.53 (3.77-5.11)	4.97 (4.07-5.64)
2-day	1.27 (1.14-1.43)	1.61 (1.45-1.82)	2.09 (1.87-2.35)	2.47 (2.19-2.77)	2.99 (2.63-3.34)	3.39 (2.96-3.79)	3.82 (3.29-4.27)	4.26 (3.63-4.77)	4.86 (4.06-5.47)	5.34 (4.38-6.04)
3-day	1.36 (1.23-1.51)	1.73 (1.57-1.93)	2.26 (2.04-2.50)	2.68 (2.40-2.97)	3.26 (2.92-3.61)	3.73 (3.31-4.12)	4.23 (3.71-4.68)	4.75 (4.12-5.26)	5.47 (4.67-6.08)	6.05 (5.11-6.76)
4-day	1.45 (1.33-1.59)	1.85 (1.69-2.03)	2.42 (2.21-2.66)	2.88 (2.62-3.16)	3.54 (3.20-3.87)	4.07 (3.66-4.46)	4.64 (4.14-5.08)	5.24 (4.62-5.74)	6.08 (5.29-6.69)	6.77 (5.83-7.48)
7-day	1.60 (1.46-1.76)	2.04 (1.86-2.24)	2.67 (2.44-2.93)	3.19 (2.90-3.49)	3.92 (3.55-4.29)	4.51 (4.06-4.93)	5.15 (4.59-5.63)	5.82 (5.13-6.37)	6.77 (5.89-7.44)	7.53 (6.48-8.32)
10-day	1.74 (1.59-1.90)	2.22 (2.03-2.42)	2.90 (2.66-3.17)	3.46 (3.16-3.77)	4.24 (3.85-4.62)	4.86 (4.39-5.30)	5.53 (4.95-6.03)	6.22 (5.53-6.80)	7.21 (6.31-7.90)	7.99 (6.93-8.79)
20-day	2.15 (1.97-2.36)	2.76 (2.52-3.03)	3.63 (3.30-3.97)	4.28 (3.89-4.68)	5.17 (4.68-5.65)	5.85 (5.27-6.40)	6.54 (5.87-7.16)	7.25 (6.46-7.95)	8.20 (7.23-9.03)	8.93 (7.82-9.86)
30-day	2.52 (2.30-2.75)	3.23 (2.95-3.52)	4.22 (3.86-4.60)	4.98 (4.55-5.43)	6.01 (5.46-6.55)	6.80 (6.15-7.41)	7.61 (6.85-8.30)	8.43 (7.54-9.22)	9.53 (8.45-10.5)	10.4 (9.12-11.5)
45-day	2.95 (2.69-3.22)	3.78 (3.46-4.14)	4.95 (4.52-5.41)	5.81 (5.30-6.35)	6.95 (6.32-7.59)	7.81 (7.07-8.53)	8.67 (7.81-9.48)	9.53 (8.53-10.4)	10.7 (9.46-11.7)	11.5 (10.2-12.7)
60-day	3.29 (3.01-3.59)	4.22 (3.86-4.61)	5.51 (5.04-6.01)	6.44 (5.88-7.03)	7.66 (6.98-8.36)	8.57 (7.77-9.35)	9.47 (8.55-10.3)	10.4 (9.30-11.3)	11.5 (10.3-12.6)	12.3 (10.9-13.6)

¹ Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS). Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values. Please refer to NOAA Atlas 14 document for more information.

[Back to Top](#)

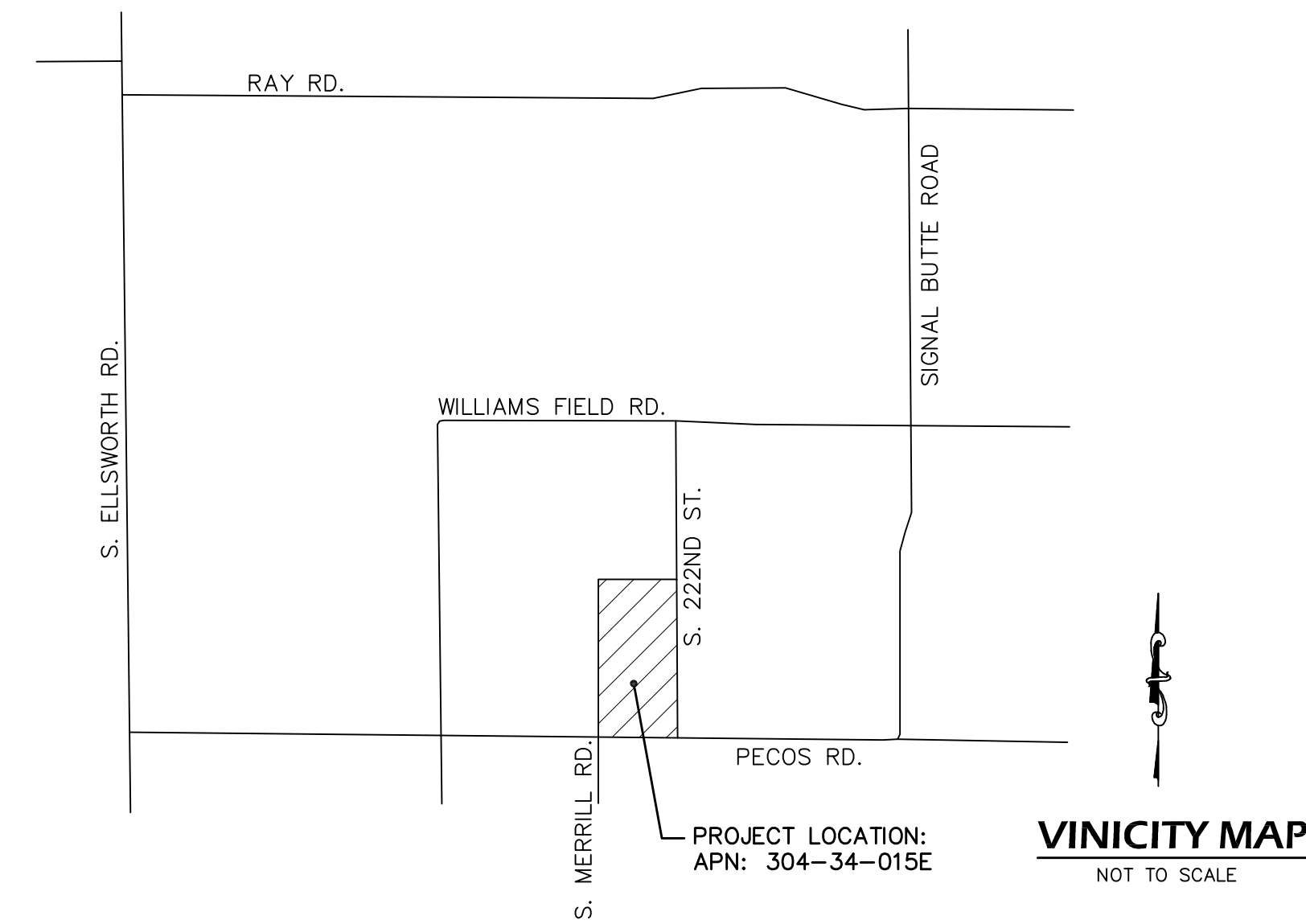
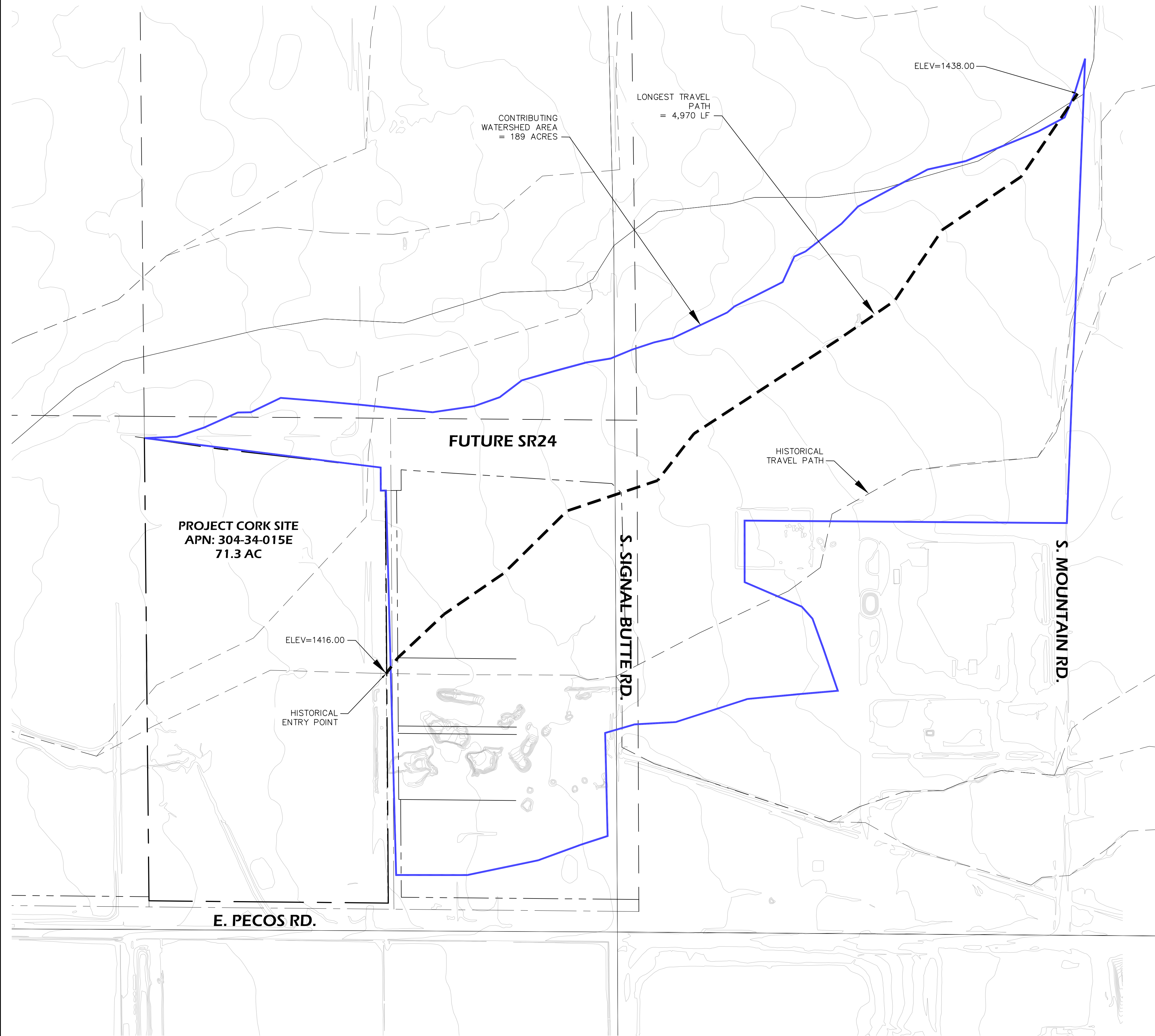
PF graphical

Appendix II
Historical Flow and Offsite Flow Summary

C:\USERS\WIKEP\BOX_SYNC\PREFLING\ENGINEERING\PROJECTS\PROJECT_CORK - PECOS\DRAINAGE_REPORT\OFFSITE_FLOW_SUMMARY.DWG 09/06/21 - 10:09pm

GRADING, PAVING, AND UTILITY PLAN FOR PROJECT CORK - PECOS SITE

A PORTION OF SECTION 35, TOWNSHIP 1 SOUTH, RANGE 7 EAST,
GILA AND SALT RIVER MERIDIAN, MARICOPA COUNTY, ARIZONA



Page 1

Flood Control District of Maricopa County
Drainage Design Management System
SUB BASINS
Project Reference: PROJECT CORK 9/2/2021

ID	Sub Basin Data					Sub Basin Hydrology Summary							
	Area (acres)	Length (ft)	USGE	DSGE	Slope (ft/m)	Kb	2 Year	5 Year	10 Year	25 Year	50 Year	100 Year	
Major Basin ID: 01													
DA1	189.0	4,970	1,438.00	1,416.00	23.4	0.049	Q (cfs)	63.5	98.3	126.3	183.0	236.8	287.3
							C	0.40	0.40	0.40	0.44	0.48	0.50
							CA (ac)	75.60	75.60	75.60	82.16	90.72	94.50
							Volume (ac-ft)	6,4689	8,4776	9,8937	12,9219	15,6322	17,9094
							Tc (min)	55	47	43	38	36	34
							I (in/hr)	0.84	1.30	1.67	2.20	2.61	3.04

* Non default value

**PROJECT CORK
INDUSTRIAL FACILITY**

A PORTION OF SECTION 35,
TOWNSHIP 1 SOUTH, RANGE 7 EAST,
OF THE GILA AND SALT RIVER MERIDIAN,
MARICOPA COUNTY, ARIZONA.

4435 E. Chandler Blvd
Suite 200
Phoenix, AZ 85048
480-625-9795

**OFFSITE FLOW SUMMARY
AND CALCULATIONS**

PREFLING
Engineering

Version
1 1ST SUBMITTAL 09/07/2021

Designed by: MJP
Drawn by: MJP
Checked by: MJP
Date: 09/07/2021



SEAL
Professional Engineer
MICHAEL J. PREFLING
ARIZONA, U.S.A.

EXPIRES: 9/30/22
JOB NUMBER

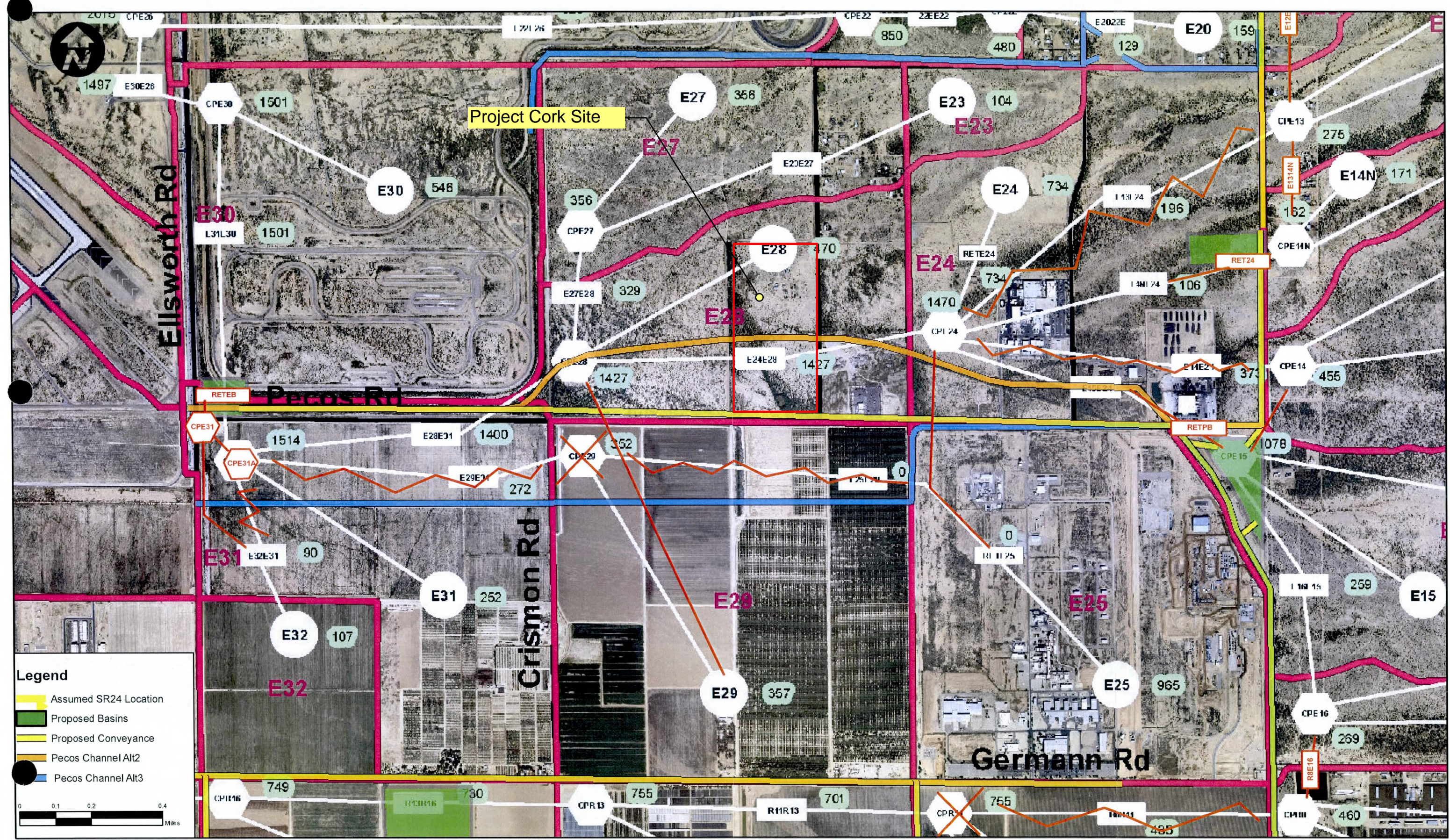
100
SHEET
1 OF 1

Appendix III
East Mesa ADMS Excerpts



East Mesa Area Drainage Master Plan Update

Alternatives 1, 2, & 3: Pecos System, Existing Conditions HEC-1 Modifications



Maricopa County Modified Retention Calculations Alternatives 1 and 2

E24A

Subbasin ID	area (sq-mi)	DDMSW q100 (cfs)	DDMSW vol100 ⁽¹⁾ (ac-ft)	Original 80% Retention vol100 (ac-ft)	New 100% Retention vol100 ⁽⁴⁾ (ac-ft)	New 80% Retention vol100 (ac-ft)	Subbasin Undeveloped (%)	Original Future Volume to be Retained ⁽²⁾ (ac-ft)	New Future Volume to be Retained ⁽²⁾ (ac-ft)	Subbasin Developed (%)	Ex Retention Volume (ac-ft)	80% Ex Retention Volume (ac-ft)	Original Fut Vol to be retained + Ex Retention (80%) ⁽³⁾ (ac-ft)	New Fut Vol to be retained + Ex Retention (80%) ⁽³⁾ (ac-ft)	Notes:
E24A	0.53	1003	49.49	39.59	60.38	48.30	100	39.59	48.3	0			39.6	48.3	
E24B	0.46	979	45.63	36.50	55.67	44.53	72	26.28	32.07	28	15.46	12.37	38.7	44.4	
E26A	0.87	1308	82.48	65.98	100.63	80.50	100	65.98	80.5	0			66.0	80.5	
E26B	0.26	511	25.07	20.06	30.59	24.47	100	20.06	24.47	0			20.1	24.5	
E27A	0.54	765	52.49	41.99	64.04	51.23	100	41.99	51.23	0			42.0	51.2	
E28B	0.54	940	52.51	42.01	64.06	51.25	100	42.01	51.25	0			42.0	51.3	
E29	1	1488	92.4	73.92	112.73	90.18	100	73.92	90.18	0			73.9	90.2	
E30B	0.88	962	83.89	67.11	102.35	81.88	100	67.11	81.88	0			67.1	81.9	
E31	0.81	1144	70.64	56.51	86.18	68.94	100	56.51	68.94	0			56.5	68.9	
E32	0.25	509	21.45	17.16	26.17	20.94	100	17.16	20.94	0			17.2	20.9	
E33B	0.85	1618	83.53	66.82	101.91	81.53	100	66.82	81.53	0			66.8	81.5	
EMF1A	0.94	2217	99.27	79.42	121.11	96.89	100	79.42	96.89	0			79.4	96.9	EMF1A not included in original hydrology update model.
EMF1B	1.04	1777	105.85	84.68	129.14	103.31	100	84.68	103.31	0	0.40	0.32	85.0	103.6	
EMF2	1.85	1914	179.45	143.56	218.93	175.14	9	12.92	15.76	91	121.19	96.95	109.9	112.7	(assumes undeveloped = 20% education, 30% GI, 5% trans = 9%)
EMF3	1.49	1549	125.17	100.14	152.71	122.17	59	59.08	72.08	41			59.1	72.1	(assumes undeveloped = 55% edu, 75% GI, 30% trans, 100% CC = 59%)
R19	1.53	2190	136.06	108.85	165.99	132.79	100	108.85	88.97	0	44.00	35.20	144.1	124.2	New Future Vol exludes 33% of R19 which is located on PMGA property. DIVR19 excludes existing ret.
R20	0.5	742	39.99	31.99	48.79	39.03	75	23.99	29.27	25	13.02	10.42	34.4	39.7	
R23	0.5	866	43.12	34.50	52.61	42.09	90	31.05	37.88	10	5.21	4.17	35.2	42.1	
R24	0.29	486	24.82	19.86	30.28	24.22	99	19.66	23.98	1			19.7	24.0	
R25	0.28	540	22.59	18.07	27.56	22.05	78.8	14.24	17.37	21.2			14.2	17.4	

⁽¹⁾ 100-YR, 2-HR Runoff Volumes from File: FUT EMADMP 20100705P

⁽²⁾ 80% of total retention requirement

⁽³⁾ Values in this column used in HEC-1 for future conditions retention requirements

⁽⁴⁾ Values increased by the ratio of the City of Mesa precipitation depth to the 100-YR, 2-HR precipitation depth = 2.7 / 2.219 = 1.22