FINAL DRAINAGE LETTER for CROSSROADS MIXED USE FILING NO. 1 UNDERGROUND DETENTION

EL PASO COUNTY, COLORADO

DECEMBER 2022

Prepared for:

Crossroads Metropolitan District No. 1
Mr. Danny Mientka
90 South Cascade Avenue, Suite 1500
Colorado Springs, Colorado Springs 80903

Prepared by:

CIVIL CONSULTANTS, INC.

212 N. Wahsatch Avenue, Suite 305
Colorado Springs, CO 80903
(719) 955-5485

Project #18-003
D File No.

Please add "PCD File No. CDR-23-002"

actually revise to "CDR232" (with no dashes or extras zeros or extra spaces in the file number)

FINAL DRAINAGE LETTER FOR CROSSROADS MIXED USE FILING NO.1 UNDERGROUND DETENTION EL PASO COUNTY COLORADO

DRAINAGE PLAN STATEMENTS

ENGINEERS STATEMENT

The attached drainage plan and report was prepared under my direction and supervision and are correct to the best of my knowledge and belief. Said drainage report has been prepared according to the criteria established by the County for drainage reports and said report is in conformity with the master plan of the drainage basin. I accept responsibility for any liability caused by any negligent acts, errors or omissions on my part in preparing this report.

_____
Virgil A. Sanchez, P.E. #37160
For and on Behalf of M&S Civil Consultants, Inc

DEVELOPER'S STATEMENT

I, the developer have read and will comply with all the requirements specified in this drainage report and plan.

BY:_____
Danny Mientka –Owner

DATE:_____

ADDRESS: Crossroads Metropolitan District No. 1
90 South Cascade Avenue, Suite 1500
Colorado Springs, Colorado Springs 80903

EL PASO COUNTY'S STATEMENT

Filed in accordance with the requirements of El Paso County Land Development Code, Drainage Criteria Manual Volumes 1 and 2, and the Engineering Manual, as amended.

BY:_____ DATE:_____
Joshua Palmer, P.E.
County Engineer / ECM Administrator

CONDITIONS:

CIVIL CONSULTANTS, INC.

December 22, 2022

Expand this paragraph to include analysis of suitability of soils specific to the underground detention system. Examples:
1) what soils type and infiltration rate does ADS recommend vs what is onsite.
2) structural stability of subgrade for ADS system
3) is any subgrade prep necessary?
4) is there any need for fill to be imported?
5) any concerns with groundwater?

If any of this is already stated in the I&M Manual (Appendix C of O&M Manual), reference that here so it is known where that info can be found.

El Paso County Planning & Community Development
2880 International Circle Suite 110
Colorado Springs, Colorado 80910
Attn: Joshua Palmer, P.E./County Engineer

RE: Drainage Letter for Crossroads Mixed Use Filing No.1 Underground Detention

Dear Mr. Palmer,

The following is the Drainage Letter for Crossroads Mixed Use Filing No.1 Underground Detention. The purpose of this letter is to show general conformance with the drainage patterns established by the **Final Drainage Report for Crossroads Mixed Use Filing No.1 (**herein referenced as **FDR-CMU**) and to revise drainage patterns within the pond site to accommodate the underground detention (**Tract A). Tract A** contains 3.257 acres and is located at 0 Meadowbrook Parkway in the southwestern quarter of Section 8, Township 14 South, Range 65 West of the 6th P.M. in El Paso County, Colorado.

Soils in the project area have been determined to be Blakeland Loamy Sand (8) and Blendon Sandy Loam (10), which are characterized to be part of Hydrologic Soil Types "A" & "B" as determined from the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) “Web Soils Survey”. A soils map illustrating the site location and soil types is provided in the appendix of this report.

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) Nos. 08041C0754 G & 08041C0752 G, effective date December 7th, 2018, none of the site lies within a designated floodplain. A copy of these annotated maps can be found in the appendix. The Sand Creek East Fork Channel is located to the northwest of the adjacent Meadowbrook Crossing subdivision.

The **Final Drainage Report for Crossroads Mixed Use Filing No.1 (FDR-CMU),** prepared by M&S Civil Consultants, Inc. and approved 06/09/2022. **Tract A** is identified as **Basin J** and consists of the proposed EDB pond. The majority of the surface flow (**Basin J**) was routed into the pond and will now be routed as surface flow, over the underground detention facility, to a proposed 5’ sump inlet and 2-2’ x 2’area inlets. The commercial and multi-family development surrounding the site will still route flows to the underground detention at the locations specified by the **FDR-CMU** and the **Final Drainage Report for Aura at Crossroads** (herein referenced as **FDR-AC**), prepared by Harris Kocher Smith, approved 06/23/2022.

Design Point 1 (Q5=1.1 cfs, Q100=4.7cfs) total runoff generated by **Basin A** and adjacent planned **Lot 11** runoff. **Basin A** (Q5=0.6 cfs, Q100=3.3cfs) contains 1.62 acres of park/playground area and access road and adjacent planned landscaped area of **Lot 11 DP16** (**FDR-AC**, Q5=0.57 cfs, Q100=1.43cfs). The combined surface runoff sheet flows to **Design Point 1** (Q5=1.1 cfs, Q100=4.7 cfs) and will captured by a proposed 2’x2’ ADS area inlet. The captured flow shall be routed via a

There should also be a statement that says that there is no change in the amount of flow from basins as discussed in the previous FDR (ie: all areas tributary to the pond and excluded areas remain the same). Also state that the UGD system will essentially function the same as the originally designed above ground in terms of capture and release rates

Provide an engineering cost estimate for the underground detention.

proposed 18" RCP storm p a proposed Type 1 manhole. See proposed drainage map in the appendix.

Design Point 2 (Q5=0.8 cfs, Q100=3.2cfs) total runoff generated by **Basin B** and adjacent planned **Lot 11** runoff. **Basin B** (Q5=0.4 cfs, Q100=2.3cfs) contains 1.13 acres of park/playground area and access road and adjacent planned landscaped area of **Lot 11 DP15** (**FDR-AC**, Q5=0.47 cfs, Q100=1.27cfs). The combined surface runoff sheet flows to **Design Point 2** (Q5=0.8 cfs, Q100=3.2 cfs) and will captured by a proposed 2'x2' ADS area inlet. The captured flow shall be routed via a proposed 18" RCP storm pipe **PR26** (Q5=0.8 cfs, Q100=3.2 cfs). These flows are routed to a proposed Type 1 manhole. The cumulative flows from **PR26**, **PR25** and **PR19** (48" RCP **FDR-AC**, Q5=35.4 cfs, Q100=65.5 cfs) are routed via a proposed 54" RCP **PR27** (Q5=37.5 cfs, Q100=74.6 cfs) to an XK Baysaver vault which is part of the underground detention infrastructure. See proposed drainage map and underground detention details in the appendix.

Design Point 3 (Q5=1.3 cfs, Q100=3.0 cfs) total runoff generated by **Basin C**. **Basin C** (Q5=1.3 cfs, Q100=3.0 cfs) contains 0.55 acres of park/playground area, access road and future parking lot. The surface runoff sheet flows to **Design Point 3** (Q5=1. l captured by a proposed 5' CDOT Type R sump inlet. The captured flo sed 15" RCP storm pipe **PR23** (Q5=1.3 cfs, Q100=3.0 cfs). These flo ype 1 manhole. The cumulative flows from **PR15** (48" RCP **FI** 0=93.7 cfs) and **PR16** (24" RCP **FDR-CMU**, Q5=10.8 cfs, Q100=1 osed 54" RCP **PR17** (Q5=57.0 cfs, Q100=110.1 cfs) to a Type 1 manhc m **Lot 11 DP14 PR21** (30" RCP **FDR-AC**, Q5=2.1 cfs, Q100=4.2 a proposed 54" RCP **PR22** (Q5=56.5 cfs, Q100=109.4 cfs) to a Typ flows from **PR23** and **PR22** are routed via a proposed 54" RCP **PR22** (Q5=56.5 cfs, Q100=109.4 cfs) to an XK Baysaver vault which is part of the underground detention infrastructure. See proposed drainage map and underground detention details in the appendix.

Clarify. This project is replacing the EDB with underground detention w/ underground water quality. This does not seem to apply.

Add a paragraph discussing the capabilities of the Baysaver (what it's designed to do, how it works, its capacity, etc)

All storm and WQ pond improvements shall be installed per the Crossroads Mixed Use Filing No.1 Storm Underground Detention construction plans. No additional storm sewer improvements are proposed for this site. This drainage letter includes the previously approved Proposed Drainage Map for **Drainage Report for Crossroads Mixed Use Filing No.1 (FDR-CMU)** and **Final Drainage Report for Aura at Crossroads** (**FDR-AC**).

This final drainage letter for Tract A and underground detention is in compliance with the design as proposed within the **Final Drainage Report for Crossroads Mixed Use Filing No.1 (FDR-CMU)**; therefore no negative impacts are anticipated to the downstream improvements or facilities with the approval of this drainage letter.

This site is in the Sand Creek Drainage Basin. Drainage fees were paid at the time of platting as Tract A of Crossroads Mixed Use Filing No. 1 (Reception No. 222714975), therefore no additional Drainage Bridge and/or Pond fees are not required. See June22, 2022, by MS Civil Consultants

Respectfully,

Discuss how much extra capacity above the 100-yr storm has been provided in the UGD system.

Virgil A. Sanchez, P.E.
M&S Civil Consultants, Inc.

Include the four step process based on proposed design. What was described in the Fil 1 FDR is no longer applicable.

Reminder:
a. For step 3 provide clarification regarding water quality implementation. Pg 29 identifies the WQCV storage while the deviation also identifies TSS removal. Section I.7.1.C allows for both. Clarify if both WQCV and TSS is being implemented. For TSS identify the provided rate vs criteria.

b. Per step 4 description it seems the appropriate narrative is to describe the specialized bmp you are proposing. Also provide a summary regarding the approved deviation for the underground detention/WQ. [Include the reference PCD File No. DEV221]

Discuss sizing of ADS system. ADS told us that they count the stone as part of the volume at 40%. Discuss design parameters and output of ADS sizing spreadsheet (pg 29 of 44 below). About 8 inches of capacity is provided above the 100-yr storm. State the sediment depth that will cause the 100-yr event to cause the system to be at 100% capacity. That will give us knowledge of the absolute highest level of sediment (without allowing for any freeboard or factor of safety). Discuss factor of safety.

REFERENCES

1.) "El Paso County and City of Colorado Springs Drainage Criteria Manual".

2.) "Mile High Flood District Storm Drainage Criteria Manual"

3.) SCS Soils Map for El Paso County.

4.) Flood Insurance Rate Map (FIRM), Federal Emergency Management Agency, Revised date December 7th, 2018.

5.) " Final Drainage Report for Crossroads Mixed Use Filing No.1", prepared by M&S Civil Consultants, Inc. and approved 06/09/2022Final Drainage Report for Claremont Business Park 2 Filing No.1", dated December, 2020, by M&S Civil Consultants, Inc.

6.) " Final Drainage Report for Aura at Crossroads", prepared by Harris Kocher Smith, approved 06/23/2022

We want to include an outline of some inspection requirements during construction:
- Set-up a pre-con with manufacturer/vendor and EPC staff.
- EPC – DPW – Stormwater staff need to be onsite to perform QC/testing for the following milestones. Contractor to alert EPC prior to commencing any of these items.
  - Installation of fabric
  - Placement of underground structures (like ADS arch pipe, BaySeparator, outlet structure, etc)
  - Placement of stone
- Provide EPC staff with lab results, spec sheets, and delivery receipts for:
  - Subgrade compaction per ADS req's
  - Stone (size, washed type, etc)
  - Fabric

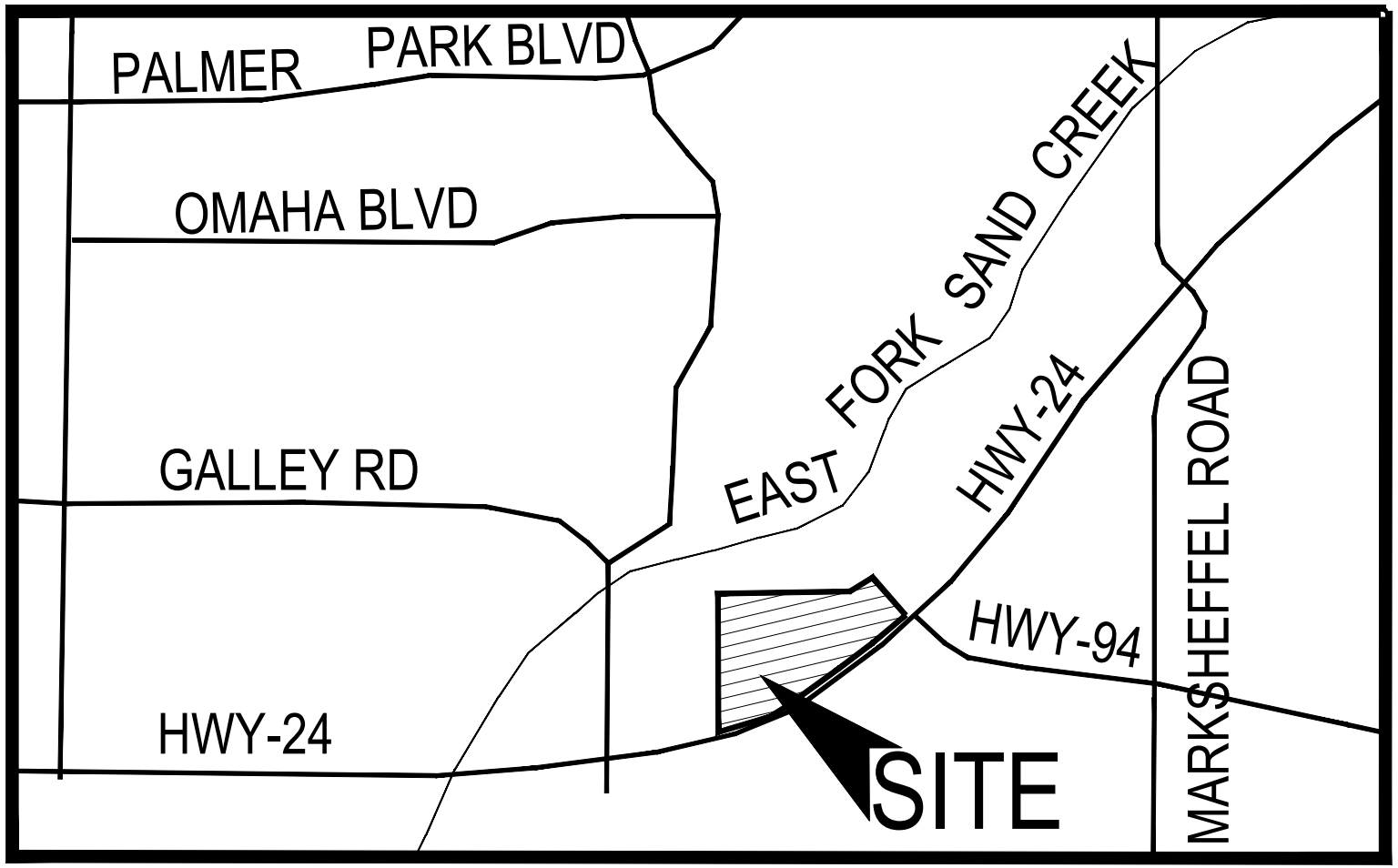
Also state as a condition of deviation request DEV221, this system will follow the post-construction requirements of the Pilot Program outlined by EPC on a separate document.

ATTACHMENTS:

Vicinity map
Crossroads Mixed Use Filing No. 1 - Final Plat
Final Drainage Report for Crossroads Mixed Use Filing No.1- Proposed Drainage Map
Final Drainage Report for Aura at Crossroads - Proposed Drainage Map
Hydrologic and Hydraulic Calculations
Underground Detention Details
Final Drainage Letter Crossroads Mixed Use Filing No.1 Underground Detention – Proposed Drainage Map

ATTACHMENTS

VICINITY MAP



VICINITY MAP

N.T.S.

Remove Plat document.

CROSSROADS MIXED USE FILING NO. 1
-PLAT

CROSSROADS MIXED USE FILING NO. 1

14975

A REPLAT OF TRACT B "24/94 BUSINESS PARK FILING NO. 1", BEING A TRACT OF LAND IN THE SOUTH HALF (S 1/2) OF SECTION 8, T14S, R65W, OF THE 6TH P.M., EL PASO COUNTY , COLORADO

BE IT KNOWN BY THESE PRESENTS:

THAT COLORADO SPRINGS EQUITIES, LLC, A COLORADO LIMITED LIABILITY COMPANY, BEING THE OWNERS OF THE FOLLOWING DESCRIBED TRACT OF LAND:

LEGAL DESCRIPTION:

A PARCEL OF LAND IN THE SOUTH HALF OF SECTION 8, T14S, R65W OF THE 6th P.M., EL PASO COUNTY, COLORADO BEING TRACT B "24/94 BUSINESS PARK FILING NO. 1" AS RECORDED UNDER RECEPTION NO. 217713939 OF THE RECORDS OF EL PASO COUNTY, COLORADO, MORE PARTICULARLY DESCRIBED AS FOLLOWS;

BEGINNING AT THE SOUTHEAST CORNER OF "SOFTBALL WEST SUBDIVISION NO 2";
THENCE N03°58'20"E ALONG THE EASTERLY LINE THEREOF, 1,170.16 FEET;
THENCE N03°56'37"E ALONG THE EASTERLY LINE THEREOF, 57.75 FEET TO THE SOUTHWEST CORNER OF MEADOWBROOK PARKWAY RIGHT-OF-WAY;
THENCE ALONG THE THE SOUTHERLY LINE THEREOF THE FOLLOWING FIVE (5) COURSES:

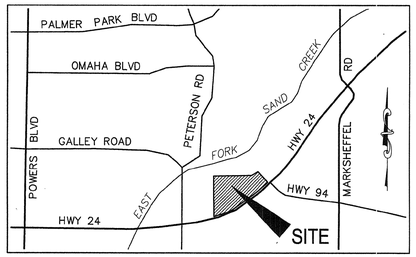
1. THENCE N89°43'00"E A DISTANCE OF 940.70 FEET TO A POINT OF CURVE;
2. THENCE 221.10 FEET ALONG THE ARC OF A CURVE TO THE LEFT, SAID CURVE HAVING A RADIUS OF 605.00 FEET, A CENTRAL ANGLE OF 20°56'21", THE CHORD OF 219.87 FEET WHICH BEARS N79°14'49"E;
3. THENCE N89°43'06"E, NON-TANGENT TO THE PREVIOUS COURSE, 44.80 FEET;
4. THENCE N51°19'02"E A DISTANCE OF 198.81 FEET;
5. THENCE S41°14'31"E A DISTANCE OF 397.89 FEET TO THE NORTHERLY RIGHT-OF-WAY LINE OF U.S. HIGHWAY 24;

THENCE ALONG THE THE NORTHERLY LINE THEREOF THE FOLLOWING FOUR (4) COURSES:

1. THENCE 682.61 FEET ALONG THE ARC OF A CURVE TO THE RIGHT, SAID CURVE HAVING A RADIUS OF 7,514.00 FEET, A CENTRAL ANGLE OF 5°12'18", THE CHORD OF 682.38 FEET WHICH BEARS S51°24'05"W TO A POINT OF TANGENT;
2. THENCE S54°01'07"W A DISTANCE OF 497.15 FEET;
3. THENCE S57°40'23"W A DISTANCE OF 163.43 FEET;
4. THENCE 598.63 FEET ALONG THE ARC OF A CURVE TO THE RIGHT, SAID CURVE HAVING A RADIUS OF 1,780.00 FEET, A CENTRAL ANGLE OF 22°29'17", THE CHORD OF 694.16 FEET WHICH BEARS S65°14'17"W TO THE POINT OF BEGINNING.

SAID PARCEL CONTAINS A CALCULATED AREA OF 1,265,357 SQUARE FEET (29.049 ACRES MORE OR LESS).

SEE GENERAL PLAT NOTE 1 FOR BASIS OF BEARING.



VICINITY MAP
N.T.S.

SURVEYORS CERTIFICATE

I VERNON P. TAYLOR, A DULY REGISTERED PROFESSIONAL LAND SURVEYOR IN THE STATE OF COLORADO, DO HEREBY CERTIFY THAT THIS PLAT TRULY AND CORRECTLY REPRESENTS THE RESULTS OF A SURVEY MADE APRIL 2021, BY ME OR UNDER MY DIRECT SUPERVISION AND THAT ALL MONUMENTS EXIST AS SHOWN HEREON; THAT MATHEMATICAL CLOSURE ERRORS ARE LESS THAN 1:10,000 ; AND THAT SAID PLAT HAS BEEN PREPARED IN FULL COMPLIANCE WITH ALL APPLICABLE LAWS OF THE STATE OF COLORADO DEALING WITH MONUMENTS, SUBDIVISION, OR SURVEYING OF LAND AND ALL APPLICABLE PROVISIONS OF THE EL PASO COUNTY LAND DEVELOPMENT CODE.

I ATTEST THE ABOVE ON THIS 20th DAY OF JUNE, 2022.

VERNON P. TAYLOR DATE
COLORADO PLS NO. 25966,
FOR AND ON BEHALF OF
M&S CIVIL CONSULTANTS, INC

COLORADO REGISTERED VERNON P. TAYLOR 25966 PROFESSIONAL LAND SURVEYOR

NOTICE:

ACCORDING TO COLORADO LAW, YOU **MUST** COMMENCE ANY LEGAL ACTION BASED UPON ANY DEFECT IN THIS SURVEY WITHIN **THREE** YEARS AFTER YOU FIRST DISCOVER SUCH DEFECT. IN NO EVENT, MAY ANY ACTION BASED UPON ANY DEFECT IN THIS SURVEY BE COMMENCED MORE THAN **TEN** YEARS FROM THE DATE OF THE CERTIFICATION SHOWN HEREON.

PLANNING AND COMMUNITY DEVELOPMENT DEPARTMENT EXECUTIVE DIRECTOR CERTIFICATE:

THIS PLAT FOR "CROSSROADS MIXED USE FILING NO. 1" WAS APPROVED FOR FILING BY THE EL PASO COUNTY, COLORADO PLANNING AND COMMUNITY DEVELOPMENT DIRECTOR ON THE ____ DAY OF _____, 2022, SUBJECT TO ANY NOTES SPECIFIED HEREON AND ANY CONDITIONS INCLUDED IN THE RESOLUTION OF APPROVAL. THE DEDICATIONS OF LAND TO THE PUBLIC (STREETS, TRACTS, AND EASEMENTS) ARE ACCEPTED, BUT PUBLIC IMPROVEMENTS THEREON WILL NOT BECOME THE MAINTENANCE RESPONSIBILITY OF EL PASO COUNTY UNTIL PRELIMINARY ACCEPTANCE OF THE PUBLIC IMPROVEMENTS IN ACCORDANCE WITH THE REQUIREMENTS OF THE LAND DEVELOPMENT CODE AND ENGINEERING CRITERIA MANUAL, AND THE SUBDIVISION IMPROVEMENTS AGREEMENT.

INTERIM EXECUTIVE DIRECTOR, PLANNING AND COMMUNITY DEVELOPMENT DEPARTMENT

6/22/22
DATE

CLERK AND RECORDER:

STATE OF COLORADO)
) SS
COUNTY OF EL PASO)

I HEREBY CERTIFY THAT THIS INSTRUMENT WAS FILED FOR RECORD IN MY OFFICE AT 4:09 O'CLOCK PM THIS 22nd DAY OF June 2022, A.D., AND DULY RECORDED UNDER RECEPTION NO. 222714975 OF THE RECORDS OF EL PASO COUNTY, COLORADO.

FEES: $ 50.00 CHUCK BROERMAN, RECORDER

SURCHARGE: $ 3.00 BY: _____ DEPUTY

FEES:

DRAINAGE FEE:	292,304.57 ~~$ 297,307.57~~
BRIDGE FEE:	$ 119,566.96
SCHOOL FEE:	$ 31,212.00
URBAN PARK FEE:	88,740.00 ~~$ 104,100.00~~
REGIONAL PARK FEE:	112,760.00 ~~$ 165,600.00~~

SUMMARY:

1 LOT	12.703 ACRES	43.73%
4 TRACTS	16.292 ACRES	56.08%
RIGHTS-OF-WAY	0.054 ACRES	0.19%
TOTAL	29.049 ACRES	100.00%

DEDICATION:

THE UNDERSIGNED, BEING ALL THE OWNERS, MORTGAGEES, BENEFICIARIES OF DEEDS OF TRUST AND HOLDERS OF OTHER INTERESTS IN THE LAND DESCRIBED HEREIN, HAVE LAID OUT, SUBDIVIDED, AND PLATTED SAID LANDS INTO LOTS, TRACTS, STREETS, AND EASEMENTS (USE WHICH ARE APPLICABLE) AS SHOWN HEREON UNDER THE NAME AND SUBDIVISION OF "CROSSROADS MIXED USE FILING NO. 1". ALL PUBLIC IMPROVEMENTS SO PLATTED ARE HEREBY DEDICATED TO PUBLIC USE AND SAID OWNER DOES HEREBY COVENANT AND AGREE THAT THE PUBLIC IMPROVEMENTS WILL BE CONSTRUCTED TO EL PASO COUNTY STANDARDS AND THAT PROPER DRAINAGE AND EROSION CONTROL FOR SAME WILL BE PROVIDED AT SAID OWNER'S EXPENSE, ALL TO THE SATISFACTION OF THE BOARD OF COUNTY COMMISSIONERS OF EL PASO COUNTY, COLORADO. UPON ACCEPTANCE BY RESOLUTION, ALL PUBLIC IMPROVEMENTS SO DEDICATED WILL BECOME MATTERS OF MAINTENANCE BY EL PASO COUNTY, COLORADO. THE UTILITY EASEMENTS SHOWN HEREON ARE HEREBY DEDICATED FOR PUBLIC UTILITIES AND COMMUNICATION SYSTEMS AND OTHER PURPOSES AS SHOWN HEREON. THE ENTITIES RESPONSIBLE FOR PROVIDING THE SERVICES FOR WHICH THE EASEMENTS ARE ESTABLISHED ARE HEREBY GRANTED THE PERPETUAL RIGHT OF INGRESS AND EGRESS FROM AND TO ADJACENT PROPERTIES FOR INSTALLATION, MAINTENANCE, AND REPLACEMENT OF UTILITY LINES AND RELATED FACILITIES.

BY: DANNY MIENTKA
MANAGER, COLORADO SPRINGS EQUITIES, LLC, A COLORADO LIMITED LIABILITY COMPANY

NOTARIAL:

STATE OF COLORADO)
) SS
COUNTY OF EL PASO)

ACKNOWLEDGED BEFORE ME THIS 21st DAY OF June, 2022 BY DANNY MIENTKA, AS MANAGER, COLORADO SPRINGS EQUITIES, LLC, A COLORADO LIMITED LIABILITY COMPANY

WITNESS MY HAND AND OFFICIAL SEAL:
MY COMMISSION EXPIRES: December 3, 2025

NOTARY PUBLIC: Skylar Shull

SKYLAR SHULL
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID 20214047126
MY COMMISSION EXPIRES DECEMBER 03, 2025

LIEN HOLDER STATEMENT:

FRANK W. HOWARD #2 LIMITED PARTNERSHIP, LLLP, A COLORADO LIMITED LIABILITY LIMITED PARTNERSHIP, OWNER AND HOLDER OF A LIEN AGAINST THE PROPERTY DESCRIBED IN THE PLAT KNOW AS "CROSSROADS MIXED USE FILING NO. 1", SAID LIEN BEING EVIDENCED BY A DEED OF TRUST OF RECORD UNDER RECEPTION NO. 221116423 OF THE REAL PROPERTY RECORDS OF EL PASO COUNTY, COLORADO, DO HEREBY RATIFY AND CONFIRM SAID SUBDIVISION AND DEDICATION, AND DO HEREBY IN ALL THINGS SUBJECT TO SAID PLAT SAID LIENS. I HEREBY CONFIRM THAT I AM THE PRESENT OWNER OF SAID LIENS AND HAVE NOT ASSIGNED THE SAME NOR ANY PART THEREOF.

BY: Kevin Howard, AS Co-Partner, FRANK W. HOWARD #2 LIMITED PARTNERSHIP, LLLP, A COLORADO LIMITED LIABILITY LIMITED PARTNERSHIP

NOTARIAL:

STATE OF COLORADO)
) SS
COUNTY OF EL PASO)

THE ABOVE AND AFOREMENTIONED INSTRUMENT WAS ACKNOWLEDGED BEFORE ME THIS THIS 22nd DAY OF June 2022, A.D. BY Kevin Howard, AS Co-Partner OF FRANK W. HOWARD #2 LIMITED PARTNERSHIP, LLLP, A COLORADO LIMITED LIABILITY LIMITED PARTNERSHIP

WITNESS MY HAND AND OFFICIAL SEAL:
MY COMMISSION EXPIRES: December 3, 2025
NOTARY PUBLIC: Skylar Shull

SKYLAR SHULL
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID 20214047126
MY COMMISSION EXPIRES DECEMBER 03, 2025

LIEN HOLDER STATEMENT:

LEGACY BANK, ORGANIZED AND EXISTING UNDER THE LAWS OF COLORADO, OWNER AND HOLDER OF A LIEN AGAINST THE PROPERTY DESCRIBED IN THE PLAT KNOW AS "CROSSROADS MIXED USE FILING NO. 1", SAID LIEN BEING EVIDENCED BY A DEED OF TRUST OF RECORD UNDER RECEPTION NO. 219089189, PARTIAL RELEASE OF DEED OF TRUST OF RECORD UNDER RECEPTION NUMBER 221158823, AND MODIFICATION OF DEED OF TRUST OF RECORD UNDER RECEPTION NUMBER 222015688 OF THE REAL PROPERTY RECORDS OF EL PASO COUNTY, COLORADO, DO HEREBY RATIFY AND CONFIRM SAID SUBDIVISION AND DEDICATION, AND DO HEREBY IN ALL THINGS SUBJECT TO SAID PLAT SAID LIENS. I HEREBY CONFIRM THAT I AM THE PRESENT OWNER OF SAID LIENS AND HAVE NOT ASSIGNED THE SAME NOR ANY PART THEREOF.

BY: Joshua Stensaud, AS Sr. Vice President LEGACY BANK, ORGANIZED AND EXISTING UNDER THE LAWS OF COLORADO

NOTARIAL:

STATE OF COLORADO)
) SS
COUNTY OF EL PASO)

THE ABOVE AND AFOREMENTIONED INSTRUMENT WAS ACKNOWLEDGED BEFORE ME THIS THIS 21st DAY OF June 2022, A.D. BY Josh Stensrud AS SVP OF LEGACY BANK, ORGANIZED AND EXISTING UNDER THE LAWS OF COLORADO

WITNESS MY HAND AND OFFICIAL SEAL:
MY COMMISSION EXPIRES: 8-13-2024
NOTARY PUBLIC: Darlene J. Robinson

DARLENE J ROBINSON
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID 19964013962
MY COMMISSION EXPIRES AUGUST 13, 2024

EASEMENTS:

UNLESS OTHERWISE INDICATED, ALL SIDE, FRONT, AND REAR LOT LINES ARE HEREBY PLATTED ON EITHER SIDE WITH A 10 FOOT PUBLIC UTILITY AND DRAINAGE EASEMENT UNLESS OTHERWISE INDICATED. ALL EXTERIOR SUBDIVISION BOUNDARIES ARE HEREBY PLATTED WITH A 20 FOOT PUBLIC UTILITY AND DRAINAGE EASEMENT.
THE SOLE RESPONSIBILITY FOR MAINTENANCE OF THESE EASEMENTS IS HEREBY VESTED WITH THE INDIVIDUAL PROPERTY OWNERS.

EASEMENTS ARE AS SHOWN ON SHEETS 4 AND 5 OF THIS PLAT.

COLORADO SPRINGS EQUITIES, LLC
90 S. CASCADE AVE., SUITE 1500
COLORADO SPRINGS, CO 80903
PHONE: 719-475-7621

PREPARED BY:
ERIC L. YOKOM
FOR AND ON
BEHALF OF
212 N. WAHSATCH AVE., STE 305
COLORADO SPRINGS, CO 80903
PHONE: 719.955.5485

FINAL PLAT
CROSSROADS MIXED USE
FILING NO. 1
JOB NO. 18-003
DATE PREPARED: 06/23/2021
DATE REVISED: 06/20/2022
ISSUED FOR MYLAR

PCD FIL. NO. SF-21-029

CIVIL CONSULTANTS, INC.

File: O:\18003A-Crossroads Mixed Use\Colorado Springs Equities, LLC\Vwp\Survey\Plat\18-003 Crossroads MU Final Plat.dwg Plotstamp: 6/20/2022 9:01 AM

CROSSROADS MIXED USE FILING NO. 1

14975

A REPLAT OF TRACT B "24/94 BUSINESS PARK FILING NO. 1", BEING A TRACT OF LAND IN THE SOUTH HALF (S 1/2) OF SECTION 8, T14S, R65W, OF THE 6TH P.M., EL PASO COUNTY , COLORADO

GENERAL PLAT NOTES:

1. BASIS OF BEARINGS: A PORTION OF THE EASTERLY LINE OF "SOFTBALL WEST SUBDIVISION NO. 2" RECORDED IN PLAT BOOK T-3 AT PAGE 112 OF THE RECORDS OF EL PASO COUNTY, COLORADO, BEING MONUMENTED ON THE SOUTH WITH A NO. 4 REBAR, FROM WHICH A NO. 5 REBAR WITH BLUE PLASTIC CAP STAMPED: RAMPART PLS 32820" BEARS N03°58'20"E A DISTANCE OF 1,170.16 FEET. THE UNIT OF MEASUREMENT FOR THIS PLAT IS THE U.S. SURVEY FOOT.
2. THE FLOOD INSURANCE RATE MAP (FIRM) PANELS NO. 08041C0752 G AND 08041C0742 G, WITH AN EFFECTIVE DATE OF DECEMBER 7, 2018 HAVE BEEN EXAMINED AS THEY RELATE TO THE PROPERTY BEING PLATTED. SUBJECT PROPERTY LIES WITHIN ZONE X (AREA OF MINIMAL FLOOD HAZARD).
3. A COMMITMENT FOR TITLE INSURANCE ISSUED BY LAND TITLE GUARANTEE COMPANY, AS AGENT FOR OLD REPUBLIC NATIONAL TITLE INSURANCE COMPANY, ORDER NO. SC55090533.2-8, WITH AN EFFECTIVE DATE OF JUNE 4, 2022, HAS BEEN EXAMINED AS IT RELATES TO THE SUBJECT PROPERTY. THE FOLLOWING EXCEPTIONS AS NUMBERED THEREIN ARE HEREBY NOTED.
   i. (TC#9) ALL RIGHTS AND RESERVATIONS AS CONTAINED IN PATENT OF THE UNITED STATES RECORDED JANUARY 10, 1874 IN BOOK K AT PAGE 47 AND AUGUST 2, 1875 IN BOOK K AT PAGE 550.
   ii. (TC#10) RIGHT OF WAY EASEMENT AS GRANTED TO COLORADO TELEPHONE COMPANY IN INSTRUMENT RECORDED MARCH 03, 1905, IN BOOK 358 AT PAGE 565. SAID EASEMENT WAS ASSIGNED TO THE MOUNTAIN STATES TELEPHONE AND TELEGRAPH COMPANY IN WARRANTY DEED RECORDED AUGUST 5, 1911 IN BOOK 482 AT PAGE 190.
   iii. (TC#11) THE EFFECT OF INCLUSION OF SUBJECT PROPERTY IN THE CHEROKEE WATER AND SANITATION DISTRICT, AS EVIDENCED BY INSTRUMENT RECORDED APRIL 25, 1984, IN BOOK 3862 AT PAGE 949 AND JULY 10, 1984, IN BOOK 3892 AT PAGE 529 AND WITHIN THE CIMARRON HILLS STREET IMPROVEMENT DISTRICT AS EVIDENCED BY INSTRUMENT RECORDED OCTOBER 2, 1984 IN BOOK 3923 AT PAGE 890, NOW COLLECTIVELY KNOWN AS CHEROKEE METROPOLITAN DISTRICT AS EVIDENCED BY INSTRUMENT RECORDED MAY 27, 1992 IN BOOK 5983 AT PAGE 83. ANY AND ALL WATER RIGHTS AS SET FORTH IN DECREE OF WATER COURT REGARDING CHEROKEE METROPOLITAN DISTRICT RECORDED DECEMBER 1, 2008 UNDER RECEPTION NO. 208127656.
   iv. (TC#12) THE EFFECT OF RESOLUTION NO. 02-384 REGARDING SKETCH PLAN, RECORDED FEBRUARY 19, 2003, UNDER RECEPTION NO. 203036141.
   v. (TC#13) COAL RESERVATION AS CONTAINED IN WARRANTY DEEDS RECORDED NOVEMBER 27, 1918 IN BOOK 565 AT PAGE 97 AND OCTOBER 18, 1919 IN BOOK 610 AT PAGE 332.
   vi. (TC#14) EACH AND EVERY RIGHT OR RIGHTS OF ACCESS AS CONVEYED BY INSTRUMENT RECORDED FEBRUARY 24, 1967 IN BOOK 2167 AT PAGE 591.
   vii. (TC#15) THE EFFECT OF INCLUSION OF SUBJECT PROPERTY IN THE CIMARRON HILLS FIRE PROTECTION DISTRICT, AS EVIDENCED BY INSTRUMENT RECORDED DECEMBER 13, 1972, UNDER RECEPTION NO. 941974.
   viii. (TC#16) THE EFFECT OF RESOLUTIONS, RECORDED AUGUST 08, 1985, IN BOOK 5045 AT PAGE 248.
   ix. (TC#17) TERMS, CONDITIONS, PROVISIONS, BURDENS AND OBLIGATIONS AS SET FORTH IN POSSESSION AND USE AGREEMENT RECORDED SEPTEMBER 04, 2002 UNDER RECEPTION NO. 202148485.
   x. (TC#18) EACH AND EVERY RIGHT OF ACCESS AS CONTAINED IN RULE AND ORDER RECORDED DECEMBER 3, 2004 UNDER RECEPTION NO. 204198867.
   xi. (TC#19) TERMS, CONDITIONS, PROVISIONS, BURDENS, OBLIGATIONS AND EASEMENTS AS SET FORTH AND GRANTED IN PERMANENT EASEMENT RECORDED FEBRUARY 08, 2008 UNDER RECEPTION NO. 208015362.
   xii. (TC#20) THE EFFECT OF RESOLUTION NO. 14-294, RECORDED AUGUST 13, 2014, UNDER RECEPTION NO. 214072945.
   xiii. (TC#21) TERMS, CONDITIONS, PROVISIONS, BURDENS, OBLIGATIONS AND EASEMENTS AS SET FORTH AND GRANTED IN AVIGATION EASEMENT RECORDED AUGUST 12, 2016 UNDER RECEPTION NO. 216090669.
   xiv. (TC#22) THE EFFECT OF INCLUSION OF THE SUBJECT PROPERTY INTO THE SANDS METROPOLITAN DISTRICT NO. 4, AS EVIDENCED BY INSTRUMENTS RECORDED OCTOBER 5, 2016 UNDER RECEPTION NO. 216114674 AND NOVEMBER 28, 2016, UNDER RECEPTION NO. 216137221 AND DECEMBER 27, 2016 UNDER RECEPTION NO. 216149730 AND DECEMBER 27, 2016 UNDER RECEPTION NO. 216149731 AND JANUARY 27, 2017 UNDER RECEPTION NO. 217011026. ORDER OF EXCLUSION OF PROPERTY RECORDED MARCH 31, 2020 UNDER RECEPTION NO. 220044159.
   xv. (TC#23). THE EFFECT OF RESOLUTION NO. 16-383, RECORDED NOVEMBER 08, 2016, UNDER RECEPTION NO. 216129983.
   xvi. (TC#24) THE EFFECT OF RESOLUTION NO. 16-384, RECORDED NOVEMBER 08, 2016, UNDER RECEPTION NO. 216129984.
   xvii. (TC#25) EASEMENTS, CONDITIONS, COVENANTS, RESTRICTIONS, RESERVATIONS AND NOTES ON THE PLAT OF 24/94 BUSINESS PARK FILING NO. 1 RECORDED APRIL 14, 2017 UNDER RECEPTION NO. 217713939, AS AMENDED BY SURVEYOR'S AFFIDAVIT OF CORRECTION RECORDED JUNE 26, 2017 UNDER RECEPTION NO. 217074318. RATIFICATION OF PLAT RECORDED AUGUST 2, 2019 UNDER RECEPTION NO. 219089187.
   xviii. (TC#26) TERMS, CONDITIONS, PROVISIONS, BURDENS, OBLIGATIONS AND LICENSE AS SET FORTH AND GRANTED IN LICENSE AGREEMENT RECORDED APRIL 14, 2017 UNDER RECEPTION NO. 217042639.

GENERAL PLAT NOTES: (CONT.)

   xix. (TC#27) TERMS, CONDITIONS, PROVISIONS, BURDENS AND OBLIGATIONS AS SET FORTH IN SUBDIVISION IMPROVEMENTS AGREEMENT RECORDED APRIL 14, 2017 UNDER RECEPTION NO. 217042640.
   xx. (TC#28) EASEMENTS AND RESTRICTIVE COVENANTS, WHICH DO NOT CONTAIN A FORFEITURE OR REVERTER CLAUSE, BUT OMITTING ANY COVENANTS OR RESTRICTIONS, IF ANY, BASED UPON RACE, COLOR, RELIGION, SEX, SEXUAL ORIENTATION, FAMILIAL STATUS, MARITAL STATUS, DISABILITY, HANDICAP, NATIONAL ORIGIN, ANCESTRY, OR SOURCE OF INCOME, AS SET FORTH IN APPLICABLE STATE OR FEDERAL LAWS, EXCEPT TO THE EXTENT THAT SAID COVENANT OR RESTRICTION IS PERMITTED BY APPLICABLE LAW, AS CONTAINED IN DECLARATION OF COVENANTS, CONDITIONS, RESTRICTIONS AND EASEMENTS FOR THE 24/92 BUSINESS PARK FILING NO. 1, RECORDED APRIL 26, 2017, UNDER RECEPTION NO. 217047603.
   xxi. (TC#29) THE EFFECT OF RESOLUTION NO. 19-158, RECORDED MAY 09, 2019, UNDER RECEPTION NO. 219049801.
   xxii. (TC#30) TERMS, CONDITIONS, PROVISIONS, BURDENS AND OBLIGATIONS AS SET FORTH IN RESOLUTION NO. 20-386 SERVICE PLAN FOR CROSSROADS METRO DIST. # 1 & 2 RECORDED NOVEMBER 27, 2020 UNDER RECEPTION NO. 220172025.
   xxiii. (TC#31) TERMS, CONDITIONS, PROVISIONS, BURDENS AND OBLIGATIONS AS SET FORTH IN RESOLUTION NO. 20-386 RECORDED DECEMBER 08, 2020 UNDER RECEPTION NO. 220200054.
   xxiv. (TC#32) TERMS, CONDITIONS, PROVISIONS, BURDENS AND OBLIGATIONS AS SET FORTH IN DECREE REGARDING CROSSROADS METROPOLITAN DISTRICT NO. 1 RECORDED MARCH 11, 2021 UNDER RECEPTION NO. 221048427.
   xxv. (TC#33) TERMS, CONDITIONS, PROVISIONS, BURDENS AND OBLIGATIONS AS SET FORTH IN NOTICE REGARDING CROSSROADS METROPOLITAN DISTRICTS 1 & 2 RECORDED MARCH 17, 2021 UNDER RECEPTION NO. 221052090.
   xxvi. (TC#34) TERMS, CONDITIONS, PROVISIONS, BURDENS AND OBLIGATIONS AS SET FORTH IN RESOLUTION RECORDED MAY 11, 2021 UNDER RECEPTION NO. 221093290.
   xxvii. (TC#35) DEED OF TRUST FROM COLORADO SPRINGS EQUITIES LLC, A COLORADO LIMITED LIABILITY COMPANY TO THE PUBLIC TRUSTEE OF EL PASO FOR THE USE OF FRANK W. HOWARD 2 LP TO SECURE THE AGGREGATE SUM OF $500,000.00 RECORDED JUNE 8, 2021 UNDER RECEPTION NO. 221116423.
   xxviii. (TC#36) TERMS, CONDITIONS, PROVISIONS, BURDENS AND OBLIGATIONS AS SET FORTH IN ORDER RECORDED AUGUST 02, 2021 UNDER RECEPTION NO. 221146212.
   xxix. (TC#37) TERMS, CONDITIONS, PROVISIONS, BURDENS AND OBLIGATIONS SET FORTH IN RESOLUTION RECORDED OCTOBER 27, 2021 UNDER RECEPTION NO. 221199436.
   xxx. (TC#38) DEED OF TRUST FROM COLORADO SPRINGS EQUITIES INC. TO THE PUBLIC TRUSTEE OF EL PASO FOR THE USE OF LEGACY BANK TO SECURE THE AGGREGATE SUM OF $6,000,000.00 RECORDED AUGUST 02, 2019 UNDER RECEPTION NO. 219089189.
   MODIFIED BY AGREEMENT RECORDED FEBRUARY 1, 2022 UNDER RECEPTION NO. 222015688.
   PARTIAL RELEASE RECORDED AUGUST 23, 2021 UNDER RECEPTION NO. 221158823.
   xxxi. (TC#39) TERMS, CONDITIONS, PROVISIONS, BURDENS AND OBLIGATIONS AS SET FORTH IN DECLARATION OF COVENANTS IMPOSING AND IMPLEMENTING THE CROSSROADS RETAIL CENTER PUBLIC IMPROVEMENT FEE RECORDED MARCH 22, 2022 UNDER RECEPTION NO. 222040230.
   xxxii. (TC#40) TERMS, CONDITIONS, PROVISIONS, BURDENS AND OBLIGATIONS AS SET FORTH IN NOTICE RECORDED JUNE 01, 2022, UNDER RECEPTION NO. 222075857.
4. WATER AND WASTEWATER SERVICES FOR THIS SUBDIVISION ARE PROVIDED BY THE CHEROKEE METROPOLITAN DISTRICT SUBJECT TO THE DISTRICTS RULES REGULATIONS AND SPECIFICATIONS.
5. ALL STRUCTURAL FOUNDATIONS SHALL BE LOCATED AND DESIGNED BY A PROFESSIONAL ENGINEER, CURRENTLY REGISTERED IN THE STATE OF COLORADO.
6. THE ADDRESSES EXHIBITED ON THIS PLAT ARE FOR INFORMATIONAL PURPOSES ONLY. THEY ARE NOT THE LEGAL DESCRIPTION AND ARE SUBJECT TO CHANGE.
7. THERE SHALL BE NO DIRECT ACCESS TO U.S. HIGHWAY 24, NEWT ROAD, OR MEADOWBROOK PARKWAY ALLOWED. LOT 1 ACCESS TO MEADOWBROOK PARKWAY IS LIMITED TO THE APPROVED LOCATION SHOWN ON THE PLAT.
8. NO DRIVEWAY SHALL BE ESTABLISHED UNLESS AN ACCESS PERMIT HAS BEEN GRANTED BY EL PASO COUNTY.
9. MAILBOXES SHALL BE INSTALLED IN ACCORDANCE WITH ALL EL PASO COUNTY AND UNITED STATES POSTAL SERVICES REGULATIONS.
10. NOTICE OF POTENTIAL AIRCRAFT OVERFLIGHT AND NOISE IMPACT ASSOCIATED WITH AIRPORT: THIS SERVES AS NOTICE OF POTENTIAL AIRCRAFT OVERFLIGHT AND NOISE IMPACTS ON THIS PROPERTY DUE TO ITS CLOSE PROXIMITY TO AN AIRPORT, WHICH IS BEING DISCLOSED TO ALL PROSPECTIVE PURCHASERS CONSIDERING THE USE OF THIS PROPERTY FOR RESIDENTIAL AND OTHER PURPOSES. THIS PROPERTY IS SUBJECT TO THE OVERFLIGHT AND ASSOCIATED NOISE OF ARRIVING AND DEPARTING AIRCRAFT DURING THE COURSE OF NORMAL AIRPORT OPERATIONS.

GENERAL PLAT NOTES: (CONT.)

11. ALL PROPERTY WITHIN THIS SUBDIVISION IS SUBJECT TO AVIGATION EASEMENTS AS RECORDED AT RECEPTION NO. 203019547 AND RECEPTION NO. 206095824 OF THE RECORDS OF THE EL PASO COUNTY CLERK AND RECORDER.AS SUCH, FUTURE OWNERS SHOULD MAKE THEMSELVES FAMILIAR WITH THE FOLLOWING STIPULATIONS AND FACTS.
    - NO MAN-MADE OR NON MAN-MADE OBSTRUCTIONS SHALL BE ALLOWED TO PENETRATE THE 40:1 APPROACH SURFACE.
    - ALL EXTERIOR LIGHTING PLANS SHALL BE APPROVED BY THE DIRECTOR OF AVIATION TO PREVENT A HAZARD TO AIRCRAFT.
    - NO ELECTROMAGNETIC LIGHT, NOR ANY PHYSICAL EMISSIONS WHICH MAY INTERFERE WITH AIRCRAFT, AVIGATION, COMMUNICATIONS OR NAVIGATIONAL AIDS SHALL BE ALLOWED.
    - WHILE NOT A REQUIREMENT, A RECOMMENDATION IS MADE THAT A 25 DB REDUCTION IN INTERIOR NOISE (IN THE OFFICES OR ANY INHABITED WORK AREAS SUSCEPTIBLE TO AIRCRAFT NOISE) BE OBTAINED BY SOUNDPROOFING USING FAA RECOMMENDED CONSTRUCTION TECHNIQUES AND PERFORMED BY A CERTIFIED ACOUSTICAL ENGINEER.
    - IF A CRANE IS USED DURING CONSTRUCTION, AN FAA FORM 7460-1 WILL NEED TO BE FILED THROUGH THE AIRPORT OPERATIONS OFFICE AND APPROVED BY THE FEDERAL AVIATION ADMINISTRATION BEFORE ANY BUILDING PERMIT IS ISSUED BY THE CITY OR COUNTY. NORMAL TIME REQUIRED FOR APPROVAL IS 30 TO 60 WORKING DAYS.
12. ALL PROPERTY OWNERS ARE RESPONSIBLE FOR MAINTAINING PROPER STORM WATER DRAINAGE IN AND THROUGH THEIR PROPERTY. PUBLIC DRAINAGE EASEMENTS AS SPECIFICALLY NOTED ON THE PLAT SHALL BE MAINTAINED BY THE INDIVIDUAL LOT OWNERS UNLESS OTHERWISE INDICTED. STRUCTURES, FENCES, MATERIALS, OR LANDSCAPING THAT COULD IMPEDE THE FLOW OF RUNOFF SHALL NOT BE PLACED IN DRAINAGE EASEMENT. THE RETAINING WALL LOCATED ALONG THE WEST BOUNDARY WITHIN THE DRAINAGE EASEMENT AREA IS NECESSARY FOR MAINTAINING THE GRADE DIFFERENCE BETWEEN LOT 1 AND THE ADJACENT PARCEL (LOT 1, SOFTBALL WEST SUBDIVISION NO. 2) AND IS THUS PLACED IN THE EASEMENT AREA. THIS RETAINING WALL DOES NOT (WILL NOT) IMPEDE THE FLOW OF RUN-OFF IN THE EASEMENT AREA.
13. ~~THE PROPERTY IS SUBJECT TO THE DECLARATION OF COVENANTS, CONDITIONS, AND RESTRICTIONS AND GRANT OF EASEMENTS AS RECORDED AT RECEPTION NO. _____ OF THE RECORDS OF EL PASO COUNTY.~~
14. THE FOLLOWING REPORTS HAVE BEEN SUBMITTED IN ASSOCIATION WITH THE FINAL PLAT FOR THIS SUBDIVISION AND ARE ON FILE AT THE COUNTY PLANNING AND COMMUNITY DEVELOPMENT DEPARTMENT: TRANSPORTATION IMPACT STUDY; DRAINAGE REPORT.
15. PUBLIC AND COMMON SUBDIVISION IMPROVEMENTS: NO LOT OR INTEREST THEREIN, SHALL BE SOLD, CONVEYED, OR TRANSFERRED WHETHER BY DEED OR BY CONTRACT, NOR SHALL BUILDING PERMITS BE ISSUED, UNTIL AND UNLESS EITHER THE REQUIRED PUBLIC AND COMMON DEVELOPMENT IMPROVEMENTS HAVE BEEN CONSTRUCTED AND COMPLETED AND PRELIMINARILY ACCEPTED IN ACCORDANCE WITH THE SUBDIVISION IMPROVEMENTS AGREEMENT BETWEEN THE APPLICANT/OWNER AND EL PASO COUNTY AS RECORDED UNDER RECEPTION NO. 222085404 IN THE OFFICE OF THE CLERK AND RECORDER OF EL PASO COUNTY, COLORADO OR, IN THE ALTERNATIVE, OTHER COLLATERAL IS PROVIDED TO MAKE PROVISION FOR THE COMPLETION OF SAID IMPROVEMENTS IN ACCORDANCE WITH THE EL PASO COUNTY LAND DEVELOPMENT CODE AND ENGINEERING CRITERIA MANUAL. ANY SUCH ALTERNATIVE COLLATERAL MUST BE APPROVED BY THE BOARD OF COUNTY COMMISSIONERS OR, IF PERMITTED BY THE SUBDIVISION IMPROVEMENTS AGREEMENT, BY THE PLANNING AND COMMUNITY DEVELOPMENT DEPARTMENT DIRECTOR AND MEET THE POLICY AND PROCEDURE REQUIREMENTS OF EL PASO COUNTY PRIOR TO THE RELEASE BY THE COUNTY OF ANY LOTS FOR SALE, CONVEYANCE OR TRANSFER.THIS PLAT RESTRICTION MAY BE REMOVED OR RESCINDED BY THE BOARD OF COUNTY COMMISSIONERS OR, IF PERMITTED BY THE SUBDIVISION IMPROVEMENTS AGREEMENT, BY THE PLANNING AND COMMUNITY DEVELOPMENT DEPARTMENT DIRECTOR UPON EITHER APPROVAL OF AN ALTERNATIVE FORM OF COLLATERAL OR COMPLETION AND PRELIMINARY ACCEPTANCE BY THE EL PASO BOARD OF COUNTY COMMISSIONERS OF ALL IMPROVEMENTS REQUIRED TO BE CONSTRUCTED AND COMPLETED IN ACCORDANCE WITH SAID SUBDIVISION IMPROVEMENTS AGREEMENT. THE PARTIAL RELEASE OF LOTS FOR SALE, CONVEYANCE OR TRANSFER MAY ONLY BE GRANTED IN ACCORDANCE WITH ANY PLANNED PARTIAL RELEASE OF LOTS AUTHORIZED BY THE SUBDIVISION IMPROVEMENTS AGREEMENT.
16. TRACT A OF THIS PROPERTY IS SUBJECT TO A PRIVATE DETENTION BASIN/ STORMWATER QUALITY BMP MAINTENANCE AGREEMENT AND EASEMENT AS RECORDED AT RECEPTION NO. 222085403 OF THE RECORDS OF EL PASO COUNTY. CROSSROADS METROPOLITAN DISTRICT NO. 1 IS RESPONSIBLE FOR MAINTENANCE OF THE SUBJECT DRAINAGE FACILITIES. FOR TRACT OWNERSHIP AND MAINTENANCE RESPONSIBILITIES, SEE TRACT TABLE, SHEET 5.
17. DEVELOPER SHALL COMPLY WITH FEDERAL AND STATE LAWS, REGULATIONS, ORDINANCES, REVIEW AND PERMIT REQUIREMENTS, AND OTHER AGENCY REQUIREMENTS, IF ANY, OF APPLICABLE AGENCIES INCLUDING, BUT NOT LIMITED TO, THE COLORADO DIVISION OF WILDLIFE, COLORADO DEPARTMENT OF TRANSPORTATION, U.S. ARMY CORPS OF ENGINEERS AND THE U.S. FISH AND WILDLIFE SERVICE REGARDING THE ENDANGERED SPECIES ACT, PARTICULARLY AS IT RELATES TO THE LISTED SPECIES.
18. THE PRIVATE ROADS AS SHOWN ON THIS PLAT WILL NOT BE MAINTAINED BY EL PASO COUNTY UNTIL AND UNLESS THE STREETS ARE CONSTRUCTED IN CONFORMANCE WITH EL PASO COUNTY STANDARDS IN EFFECT AT THE DATE OF THE REQUEST FOR DEDICATION AND MAINTENANCE.

GENERAL PLAT NOTES: (CONT.)

19. THE SUBDIVIDER(S) AGREES ON BEHALF OF HIM/HERSELF AND ANY DEVELOPER OR BUILDER SUCCESSORS AND ASSIGNS THAT SUBDIVIDER AND/OR SAID SUCCESSORS AND ASSIGNS SHALL BE REQUIRED TO PAY TRAFFIC IMPACT FEES IN ACCORDANCE WITH THE COUNTYWIDE TRANSPORTATION IMPROVEMENT FEE RESOLUTION (RESOLUTION 19-471), AS AMENDED, AT OR PRIOR TO THE TIME OF BUILDING PERMIT SUBMITTALS. THE FULL FEE OBLIGATION FOR LOT 1 SHALL BE PAID UP FRONT. THE METHOD OF PAYMENT FOR THE REMAINING PORTIONS OF THE OBLIGATED FEES SHALL BE DOCUMENTED ON ALL SALES DOCUMENTS AND ON PLAT NOTES TO ENSURE THAT A TITLE SEARCH WOULD FIND THE FEE OBLIGATION BEFORE THE SALE OF THE PROPERTY.
20. ANY PERSON WHO KNOWINGLY REMOVES, ALTERS OR DEFACES ANY PUBLIC LAND SURVEY MONUMENT OR LAND BOUNDARY MONUMENT OR ACCESSORY COMMITS A CLASS TWO (2) MISDEMEANOR PURSUANT TO C.R.S. § 18-4-508.
21. A "SOILS AND GEOLOGY STUDY, CROSSROADS COMMERCIAL, PARCEL NO. 5408007005, EL PASO COUNTY, COLORADO" WAS COMPLETE BY THE ROCKY MOUNTAIN GROUP (RMG) ON AUGUST 18, 2020, JOB NO. 177025, REVISED MARCH 3, 2021. MITIGATION MEASURES AND A MAP OF THE HAZARD AREAS ARE IN SAID REPORT, PCD FILE NO. SP-2011, AVAILABLE AT THE EL PASO COUNTY PLANNING AND COMMUNITY DEVELOPMENT DEPARTMENT.
22. PER THE PRELIMINARY PLAN OF CROSSROADS MIXED USE (FILE NO. SP-20-011), THE STATE HAS DETERMINED WATER SUFFICIENCY FOR THE SITE.

FINAL PLAT
CROSSROADS MIXED USE
FILING NO. 1
JOB NO. 18-003
DATE PREPARED: 06/23/2021
DATE REVISED: 06/20/2022
ISSUED FOR MYLAR

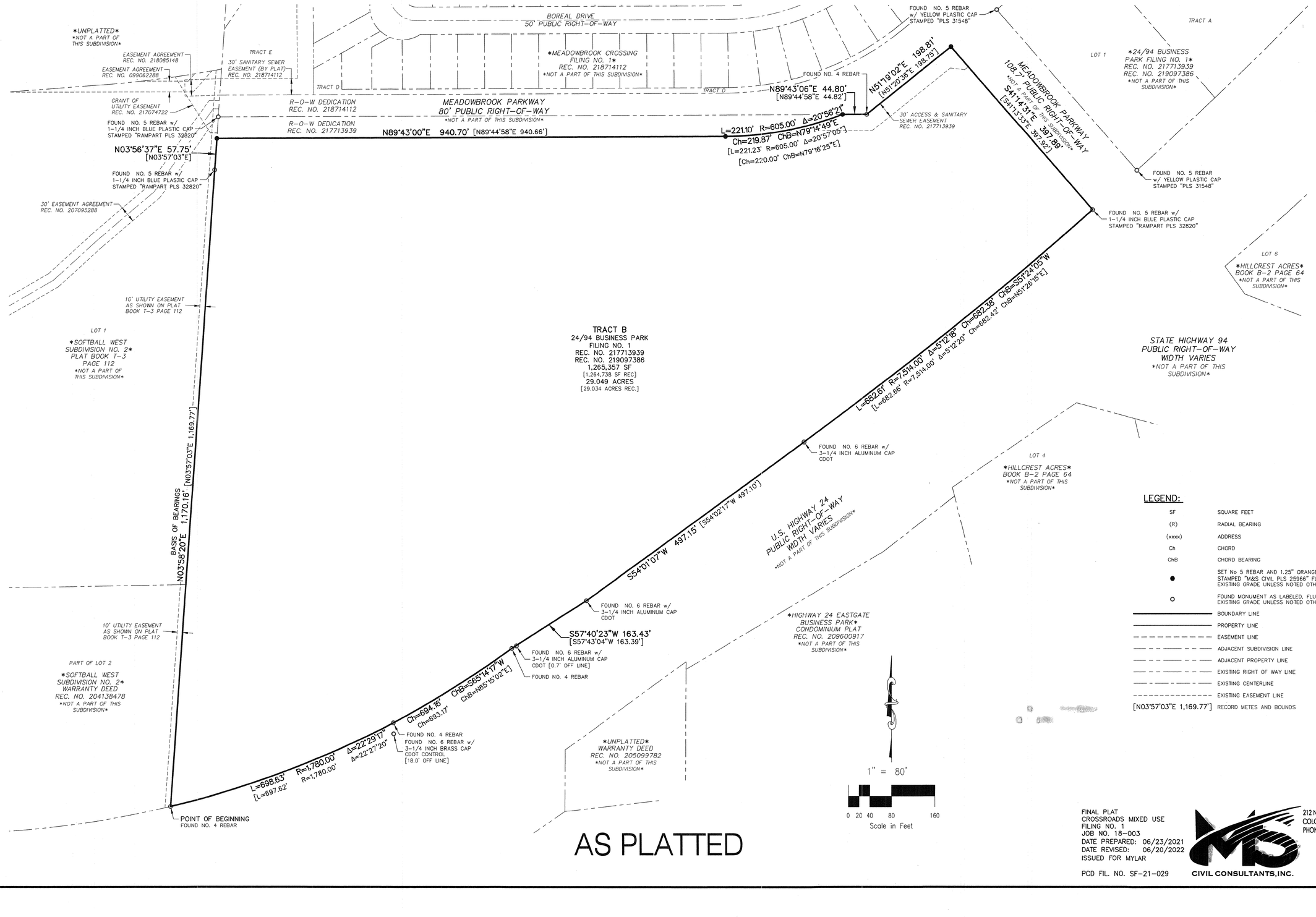
PCD FIL. NO. SF-21-029

212 N. WAHSATCH AVE., STE 305
COLORADO SPRINGS, CO 80903
PHONE: 719.955.5485
CIVIL CONSULTANTS,INC.

CROSSROADS MIXED USE FILING NO. 1

14975

A REPLAT OF TRACT B "24/94 BUSINESS PARK FILING NO. 1", BEING A TRACT OF LAND IN THE SOUTH HALF (S 1/2) OF SECTION 8, T14S, R65W, OF THE 6TH P.M., EL PASO COUNTY , COLORADO



AS PLATTED

LEGEND:

SF	SQUARE FEET
(R)	RADIAL BEARING
(xxxx)	ADDRESS
Ch	CHORD
ChB	CHORD BEARING
●	SET No 5 REBAR AND 1.25" ORANGE CAP STAMPED "M&S CIVIL PLS 25966" FLUSH W/ EXISTING GRADE UNLESS NOTED OTHERWISE
○	FOUND MONUMENT AS LABELED, FLUSH W/ EXISTING GRADE UNLESS NOTED OTHERWISE
———	BOUNDARY LINE
———	PROPERTY LINE
- - - - - -	EASEMENT LINE
— - — — - —	ADJACENT SUBDIVISION LINE
— - — — - —	ADJACENT PROPERTY LINE
— - — — - —	EXISTING RIGHT OF WAY LINE
— - — - — - —	EXISTING CENTERLINE
- - - - - -	EXISTING EASEMENT LINE
[N03°57'03"E 1,169.77']	RECORD METES AND BOUNDS

FINAL PLAT
CROSSROADS MIXED USE
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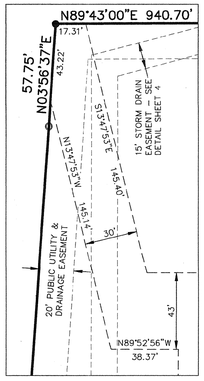
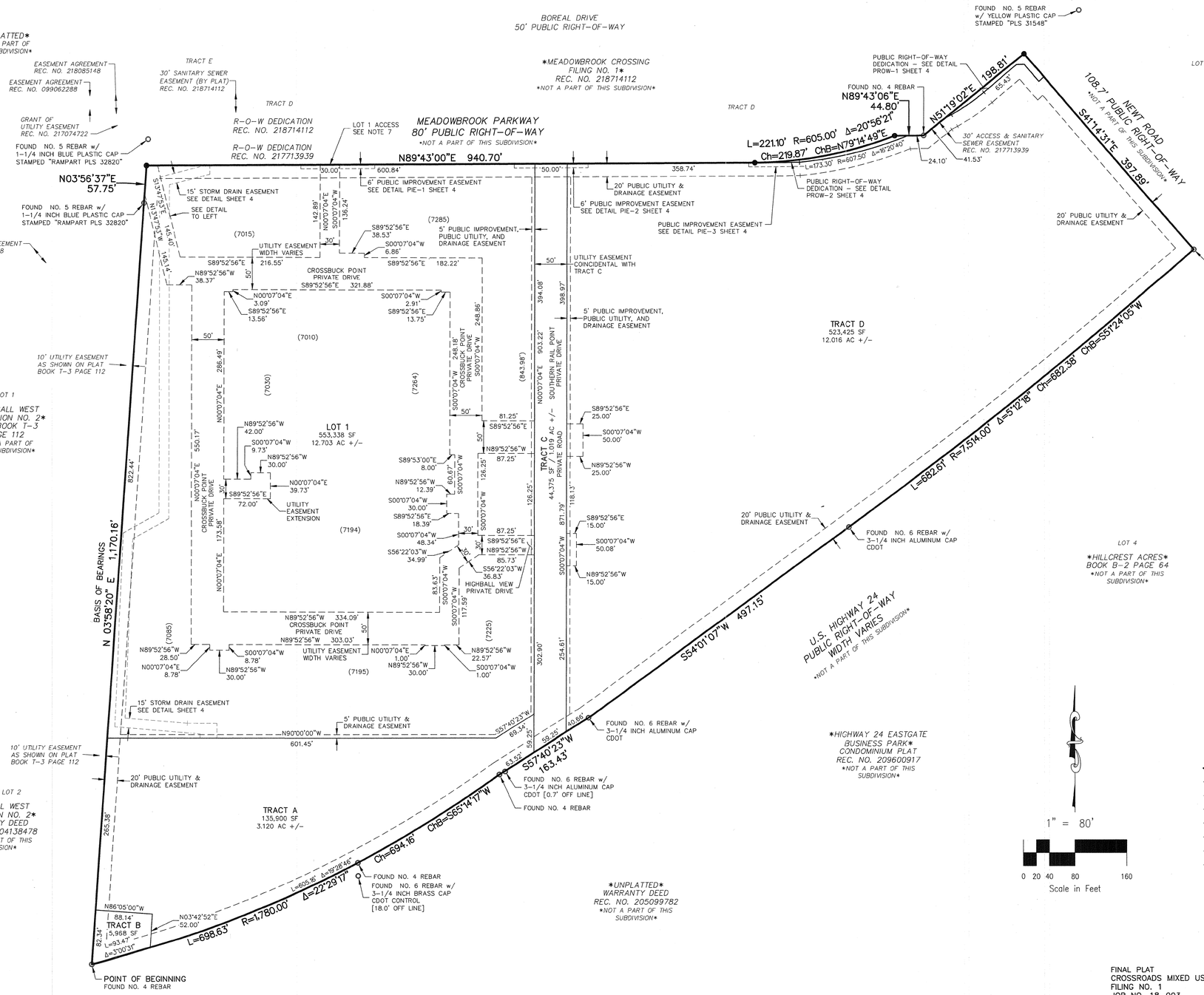


EASEMENT DETAIL

SCALE: 1" = 40'



AS REPLATTED

LEGEND:

SF	SQUARE FEET
(R)	RADIAL BEARING
(xxxx)	ADDRESS
Ch	CHORD
ChB	CHORD BEARING
●	SET No 5 REBAR AND 1.25" ORANGE CAP STAMPED "M&S CIVIL PLS 25966" FLUSH W/ EXISTING GRADE UNLESS NOTED OTHERWISE
○	FOUND MONUMENT AS LABELED, FLUSH W/ EXISTING GRADE UNLESS NOTED OTHERWISE
———	BOUNDARY LINE
———	PROPERTY LINE
- - - - - -	EASEMENT LINE
——— - - ———	ADJACENT SUBDIVISION LINE
——— - - ———	ADJACENT PROPERTY LINE
——— - - ———	EXISTING RIGHT OF WAY LINE
——— · ———	EXISTING CENTERLINE
- - - - - -	EXISTING EASEMENT LINE

1" = 80'

0 20 40 80 160

Scale in Feet

RBD

FINAL PLAT
CROSSROADS MIXED USE
FILING NO. 1
JOB NO. 18-003
DATE PREPARED: 06/23/2021
DATE REVISED: 06/20/2022
ISSUED FOR MYLAR

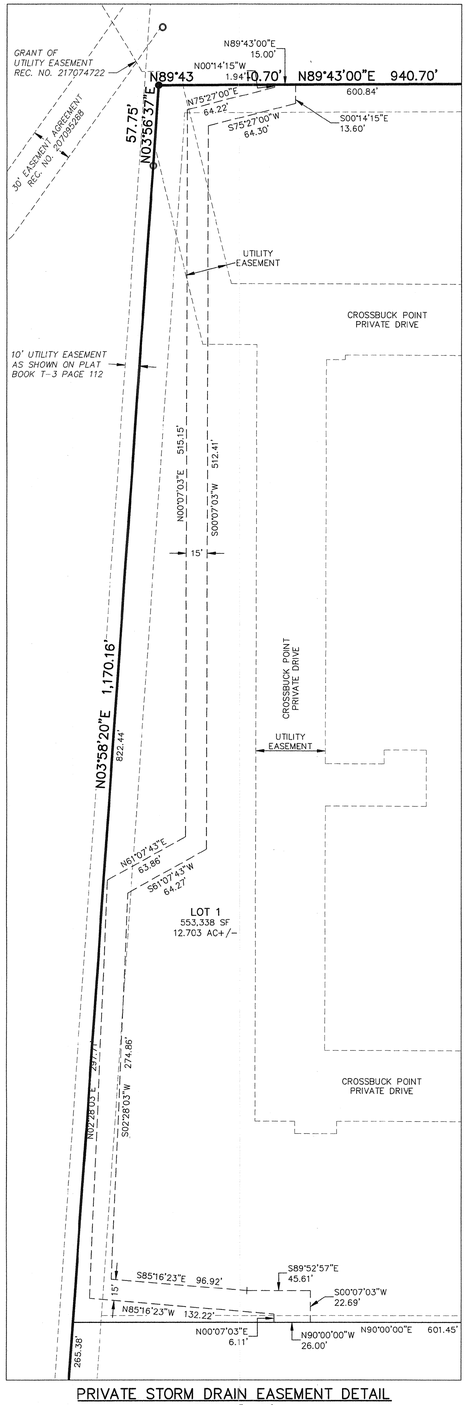
PCD FIL. NO. SF-21-029

212 N. WAHSATCH AVE., STE 305
COLORADO SPRINGS, CO 80903
PHONE: 719.955.5485
CIVIL CONSULTANTS,INC.

CROSSROADS MIXED USE FILING NO. 1

14975

A REPLAT OF TRACT B "24/94 BUSINESS PARK FILING NO. 1", BEING A TRACT OF LAND IN THE SOUTH HALF (S 1/2) OF SECTION 8, T14S, R65W, OF THE 6TH P.M., EL PASO COUNTY , COLORADO



1" = 50

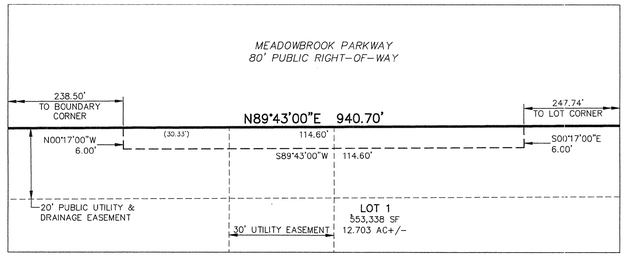
0 25 50 100

Scale in Feet

PRIVATE STORM DRAIN EASEMENT DETAIL

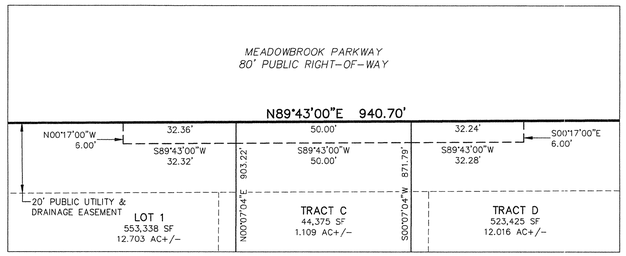
SCALE: 1" = 50'

TO BE MAINTAINED BY
CROSSROADS METROPOLITAN DISTRICT NO. 1



PUBLIC IMPROVEMENT EASEMENT
DETAIL PIE-1

SCALE: 1" = 20'



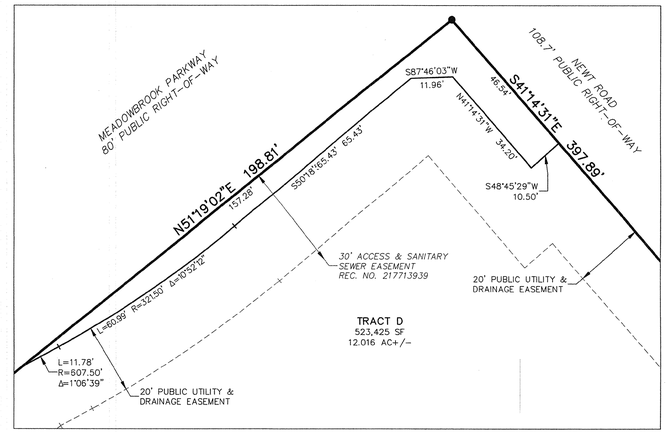
PUBLIC IMPROVEMENT EASEMENT
DETAIL PIE-2

SCALE: 1" = 20'

1" = 20'

0 5 10 20 40

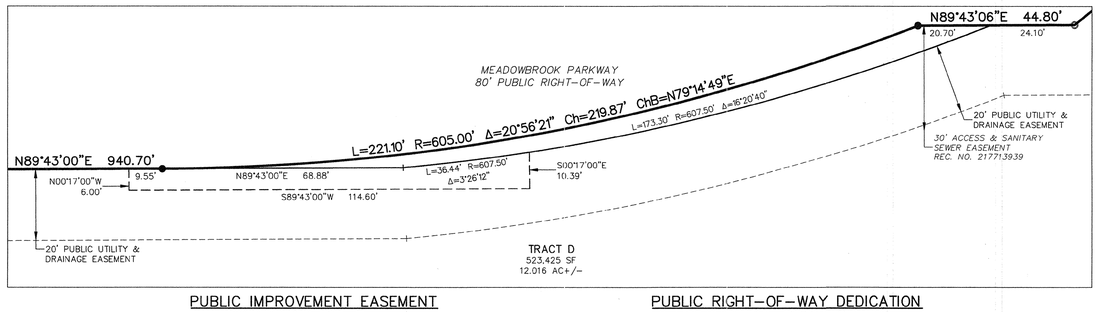
Scale in Feet



PUBLIC RIGHT-OF-WAY DEDICATION
DETAIL PROW-1

1,330 SF - 0.031 AC+/-

SCALE: 1" = 20'



PUBLIC IMPROVEMENT EASEMENT
DETAIL PIE-3

SCALE: 1" = 20'

PUBLIC RIGHT-OF-WAY DEDICATION
DETAIL PROW-2

1,022 SF - 0.023 AC+/-

SCALE: 1" = 20'

TRACT TABLE

TRACT	SIZE (ACRES)	USE	MAINT.	OWNER
A	3.120	PRIVATE DETENTION POND	CMD1	CMD1
B	0.137	SIGNAGE	CMD1	CSE
C	1.019	ACCESS, PUBLIC UTILITIES	CMD1	CMD1
D	12.016	FUTURE DEVELOPMENT	CSE	CSE
TOTAL	16.292			

CMD1 - CROSSROADS METROPOLITAN DISTRICT NO. 1
CSE - COLORADO SPRINGS EQUITIES, LLC

FINAL PLAT
CROSSROADS MIXED USE
FILING NO. 1
JOB NO. 18-003
DATE PREPARED: 06/23/2021
DATE REVISED: 06/20/2022
ISSUED FOR MYLAR

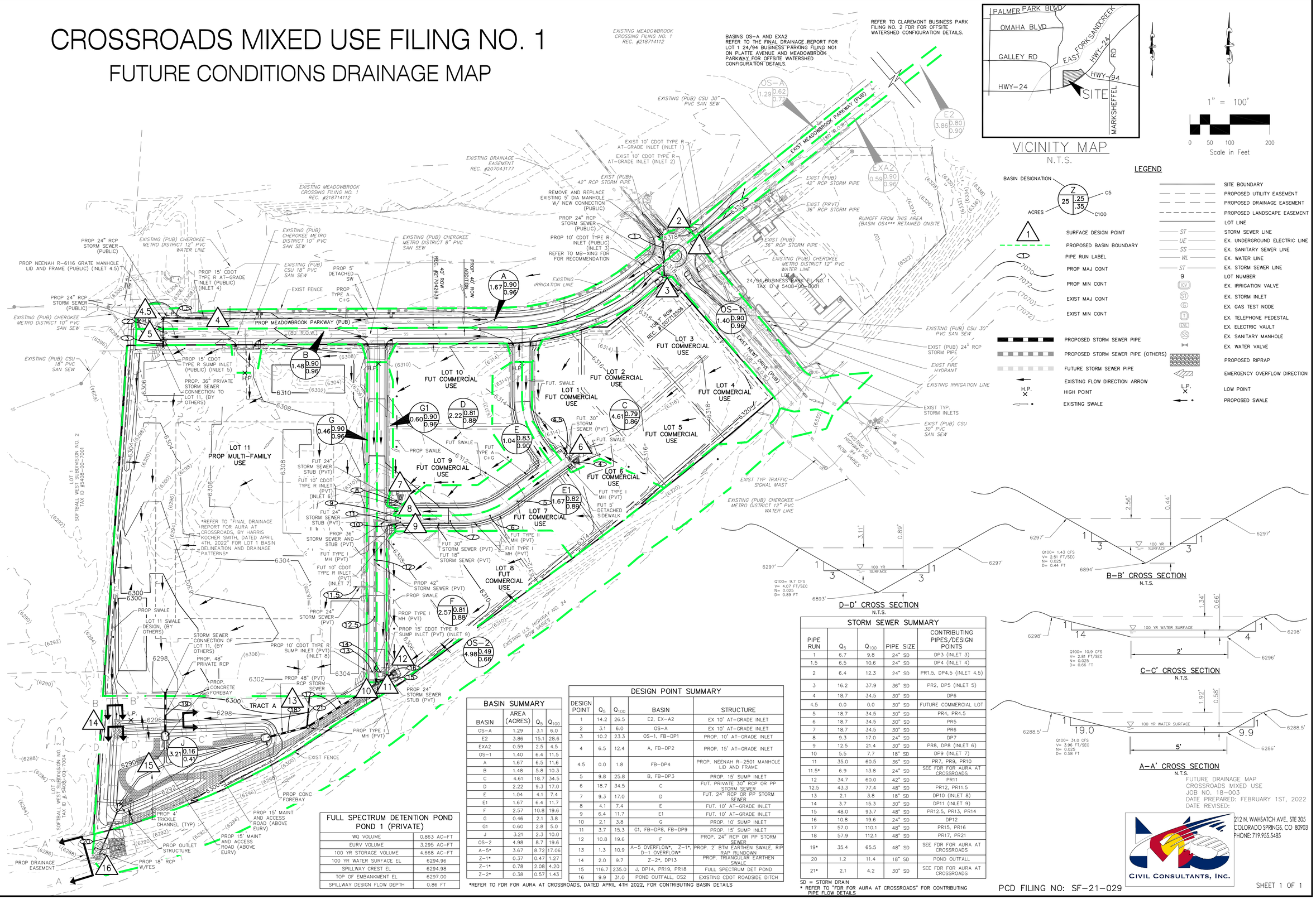
PCD FIL. NO. SF-21-029

CIVIL CONSULTANTS, INC.
212 N. WAHSATCH AVE., STE 305
COLORADO SPRINGS, CO 80903
PHONE: 719.955.5485

FINAL DRAINAGE REPORT
CROSSROAD MIXED USE FILING NO. 1
- PROPOSED DRAINAGE MAP

CROSSROADS MIXED USE FILING NO. 1

FUTURE CONDITIONS DRAINAGE MAP



VICINITY MAP
N.T.S.

1" = 100'
0 50 100 200
Scale in Feet

LEGEND

BASIN DESIGNATION: Z, 25, .25, .35, C5, C100, ACRES
SURFACE DESIGN POINT
PROPOSED BASIN BOUNDARY
PIPE RUN LABEL
PROP MAJ CONT
PROP MIN CONT
EXIST MAJ CONT
EXIST MIN CONT
PROPOSED STORM SEWER PIPE
PROPOSED STORM SEWER PIPE (OTHERS)
FUTURE STORM SEWER PIPE
EXISTING FLOW DIRECTION ARROW
HIGH POINT
EXISTING SWALE
SITE BOUNDARY
PROPOSED UTILITY EASEMENT
PROPOSED DRAINAGE EASEMENT
PROPOSED LANDSCAPE EASEMENT
LOT LINE
ST STORM SEWER LINE
UE EX. UNDERGROUND ELECTRIC LINE
SS EX. SANITARY SEWER LINE
WL EX. WATER LINE
ST EX. STORM SEWER LINE
9 LOT NUMBER
ICV EX. IRRIGATION VALVE
ST EX. STORM INLET
GS EX. GAS TEST NODE
T EX. TELEPHONE PEDESTAL
EVL EX. ELECTRIC VAULT
SS EX. SANITARY MANHOLE
EX. WATER VALVE
PROPOSED RIPRAP
EMERGENCY OVERFLOW DIRECTION
L.P. LOW POINT
PROPOSED SWALE

D-D' CROSS SECTION
N.T.S.

B-B' CROSS SECTION
N.T.S.

C-C' CROSS SECTION
N.T.S.

A-A' CROSS SECTION
N.T.S.

BASIN SUMMARY			
BASIN	AREA (ACRES)	Q_5	Q_{100}
OS-A	1.29	3.1	6.0
E2	3.86	15.1	28.6
EXA2	0.59	2.5	4.5
OS-1	1.40	6.4	11.5
A	1.67	6.5	11.6
B	1.48	5.8	10.3
C	4.61	18.7	34.5
D	2.22	9.3	17.0
E	1.04	4.1	7.4
E1	1.67	6.4	11.7
F	2.57	10.8	19.6
G	0.46	2.1	3.8
G1	0.60	2.8	5.0
J	3.21	2.3	10.0
OS-2	4.98	8.7	19.6
A-5*	3.67	8.72	17.06
Z-1*	0.37	0.47	1.27
Z-1*	0.78	2.08	4.20
Z-2*	0.38	0.57	1.43

*REFER TO FDR FOR AURA AT CROSSROADS, DATED APRIL 4TH 2022, FOR CONTRIBUTING BASIN DETAILS

DESIGN POINT SUMMARY				
DESIGN POINT	Q_5	Q_{100}	BASIN	STRUCTURE
1	14.2	26.5	E2, EX-A2	EX 10' AT-GRADE INLET
2	3.1	6.0	OS-A	EX 10' AT-GRADE INLET
3	10.2	23.3	OS-1, FB-DP1	PROP. 10' AT-GRADE INLET
4	6.5	12.4	A, FB-DP2	PROP. 15' AT-GRADE INLET
4.5	0.0	1.8	FB-DP4	PROP. NEENAH R-2501 MANHOLE LID AND FRAME
5	9.8	25.8	B, FB-DP3	PROP. 15' SUMP INLET
6	18.7	34.5	C	FUT. PRIVATE 30" RCP OR PP STORM SEWER
7	9.3	17.0	D	FUT. 24" RCP OR PP STORM SEWER
8	4.1	7.4	E	FUT. 10' AT-GRADE INLET
9	6.4	11.7	E1	FUT. 10' AT-GRADE INLET
10	2.1	3.8	G	PROP. 10' SUMP INLET
11	3.7	15.3	G1, FB-DP8, FB-DP9	PROP. 15' SUMP INLET
12	10.8	19.6	F	PROP. 24" RCP OR PP STORM SEWER
13	1.3	10.9	A-5 OVERFLOW*, Z-1*, D-1 OVERFLOW*	PROP. 2' BTM EARTHEN SWALE, RIP RAP RUNDOWN
14	2.0	9.7	Z-2*, DP13	PROP. TRIANGULAR EARTHEN SWALE
15	116.7	235.0	J, DP14, PR19, PR18	FULL SPECTRUM DET POND
16	9.9	31.0	POND OUTFALL, OS2	EXISTING CDOT ROADSIDE DITCH

FULL SPECTRUM DETENTION POND POND 1 (PRIVATE)	
WQ VOLUME	0.863 AC-FT
EURV VOLUME	3.295 AC-FT
100 YR STORAGE VOLUME	4.668 AC-FT
100 YR WATER SURFACE EL	6294.96
SPILLWAY CREST EL	6294.98
TOP OF EMBANKMENT EL	6297.00
SPILLWAY DESIGN FLOW DEPTH	0.86 FT

STORM SEWER SUMMARY				
PIPE RUN	Q_5	Q_{100}	PIPE SIZE	CONTRIBUTING PIPES/DESIGN POINTS
1	6.7	9.8	24" SD	DP3 (INLET 3)
1.5	6.5	10.6	24" SD	DP4 (INLET 4)
2	6.4	12.3	24" SD	PR1.5, DP4.5 (INLET 4.5)
3	16.2	37.9	36" SD	PR2, DP5 (INLET 5)
4	18.7	34.5	30" SD	DP6
4.5	0.0	0.0	30" SD	FUTURE COMMERCIAL LOT
5	18.7	34.5	30" SD	PR4, PR4.5
6	18.7	34.5	30" SD	PR5
7	18.7	34.5	30" SD	PR6
8	9.3	17.0	24" SD	DP7
9	12.5	21.4	30" SD	PR8, DP8 (INLET 6)
10	5.5	7.7	18" SD	DP9 (INLET 7)
11	35.0	60.5	36" SD	PR7, PR9, PR10
11.5*	6.9	13.8	24" SD	SEE FDR FOR AURA AT CROSSROADS
12	34.7	60.0	42" SD	PR11
12.5	43.3	77.4	48" SD	PR12, PR11.5
13	2.1	3.8	18" SD	DP10 (INLET 8)
14	3.7	15.3	30" SD	DP11 (INLET 9)
15	48.0	93.7	48" SD	PR12.5, PR13, PR14
16	10.8	19.6	24" SD	DP12
17	57.0	110.1	48" SD	PR15, PR16
18	57.9	112.1	48" SD	PR17, PR21
19*	35.4	65.5	48" SD	SEE FDR FOR AURA AT CROSSROADS
20	1.2	11.4	18" SD	POND OUTFALL
21*	2.1	4.2	30" SD	SEE FDR FOR AURA AT CROSSROADS

SD = STORM DRAIN
* REFER TO "FDR FOR AURA AT CROSSROADS" FOR CONTRIBUTING PIPE FLOW DETAILS

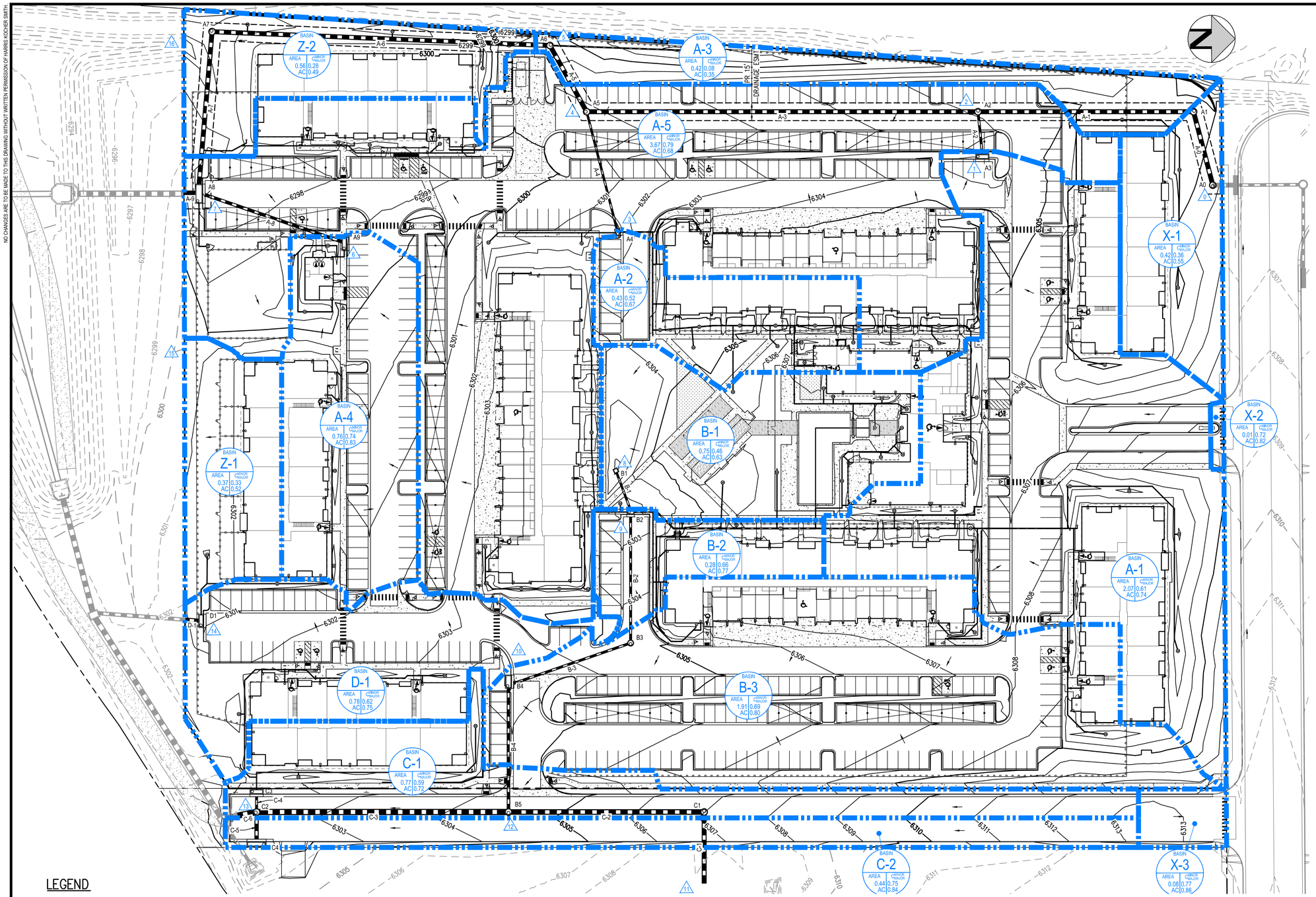
FUTURE DRAINAGE MAP
CROSSROADS MIXED USE
JOB NO. 18-003
DATE PREPARED: FEBRUARY 1ST, 2022
DATE REVISED:

CIVIL CONSULTANTS, INC.
212 N. WAHSATCH AVE., STE 305
COLORADO SPRINGS, CO 80903
PHONE: 719.955.5485

PCD FILING NO: SF-21-029

SHEET 1 OF 1

FINAL DRAINAGE REPORT
FOR AURA AT CROSSROADS
- PROPOSED DRAINAGE MAP



STRUCTURE TABLE	
STRUCTURE ID	DESCRIPTION
A0	TYPE I MANHOLE
A1	TYPE I MANHOLE
A2	TYPE I MANHOLE
A3	INLET TYPE R 10'
A4	INLET TYPE R 5'
A5	TYPE I MANHOLE
A6	TYPE I MANHOLE
A7	TYPE I MANHOLE
A8	INLET TYPE R 15' MOD
A9	INLET TYPE R 10'
B1	INLET TYPE C

STRUCTURE TABLE	
STRUCTURE ID	DESCRIPTION
B2	INLET TYPE R 5'
B3	TYPE II MANHOLE
B4	INLET TYPE R 10'
B5	TYPE I MANHOLE
C1	TYPE I MANHOLE
C2	TYPE I MANHOLE
C3	INLET TYPE R 10'
C4	INLET TYPE R 15'
D1	INLET TYPE R 10'

PIPE TABLE						
NAME	UPSTREAM STRUCTURE	DOWNSTREAM STRUCTURE	SIZE	LENGTH	SLOPE	MATERIAL
A-0	A0	A1	36"	64.26'	0.50%	RCP
A-1	A1	A2	36"	182.49'	0.50%	RCP
A-2	A3	A2	18"	36.82'	4.50%	RCP
A-3	A2	A5	36"	331.29'	0.50%	RCP
A-4	A4	A5	15"	102.94'	1.50%	RCP
A-5	A5	A6	36"	64.06'	2.03%	RCP
A-6	A6	A7	36"	286.28'	0.58%	RCP
A-7	A7	A8	36"	130.14'	0.50%	RCP
A-8	A9	A8	24"	125.80'	1.00%	RCP
A-9	A8		48"	10.05'	0.50%	RCP
B-1	B1		15"	35.69'	0.50%	RCP
B-2	B2	B3	18"	109.40'	0.50%	RCP
B-3	B3	B4	18"	107.86'	0.50%	RCP
B-4	B4	B5	24"	110.33'	0.50%	RCP
C-1		C1	36"	60.28'	2.00%	RCP
C-2	C1	B5	42"	165.64'	1.30%	RCP
C-3	B5	C2	48"	213.24'	0.60%	RCP
C-4	C3	C2	18"	15.67'	5.00%	RCP
C-5	C4	C2	30"	25.67'	5.00%	RCP
C-6	C2		48"	16.52'	0.60%	RCP

DESIGN POINT SUMMARY		
DESIGN POINT	Q5 (CFS)	Q100 (CFS)
0	16.48	38.58
1	4.61	9.36
2	19.17	43.45
3	0.88	1.90
4	19.60	44.42
5	19.55	45.20
6	2.76	5.24
7	30.16	65.43
8	1.38	3.17
9	2.06	4.57
10	6.85	13.80
11	35.00	60.50
12	41.65	73.75
13	44.47	79.25
14	2.08	4.20
15	0.47	1.27
16	0.57	1.43

DIRECT RUNOFF SUMMARY			
SUBBASIN	AREA (AC)	Q5 (CFS)	Q100 (CFS)
X-1	0.42	0.58	1.50
X-2	0.01	0.05	0.10
X-3	0.08	0.26	0.50
A-1	2.07	4.61	9.36
A-2	0.43	0.88	1.90
A-3	0.42	0.13	0.94
A-4	0.76	2.76	5.24
A-5	3.67	8.72	17.06
B-1	0.75	1.38	3.17
B-2	0.28	0.74	1.45
B-3	1.91	4.89	9.52
C-1	0.77	1.86	3.84
C-2	0.44	1.39	2.64
D-1	0.78	2.08	4.20
Z-1	0.37	0.47	1.27
Z-2	0.38	0.57	1.43

LEGEND

PROPERTY LINE

EXISTING CONTOURS 5229 5230

PROPOSED CONTOURS 5229 5230

PROPOSED STORM SEWER

PROPOSED DRAINAGE BASIN

SURFACE FLOW DIRECTION

BASIN DESIGNATION — BASIN OS 1 — 5-YR RATIONAL (POST-PROJECT) C COEFFICIENT

BASIN SIZE IN ACRES — AREA 1.23 0.45 AC 0.67 — 100-YR RATIONAL (POST-PROJECT) C COEFFICIENT

1 BASIN DESIGN POINT

Know what's below. Call before you dig.

40 0 40 80

SCALE: 1" = 40'

DESIGNED BY: EEM
CHECKED BY: JDO
DRAWN BY: EEM

ISSUE DATE: 08-06-2021	
DATE	REVISION COMMENTS
10-29-2021	PER COUNTY COMMENTS
01-13-2022	PER COUNTY COMMENTS

HARRIS KOCHER SMITH
1120 Lincoln Street, Suite 1000
Denver, Colorado 80203
P: 303.623.6300 F: 303.623.6311
HarrisKocherSmith.com

TRINSIC ACQUISITION COMPANY, LLC

AURA AT CROSSROADS
DRAINAGE PLAN

PROJECT #: 200823

SHEET NUMBER 1

1 OF 1

FILEPATH: K:\200823\ENGINEERING\DRAINAGE\DRAINAGE PLAN.DWG LAYOUT: LAYOUT1 (2)
5 XREFs: a-layout, p-base, p-base-hyd, p-legal, p-util-hyd
PLOTTED: TUE 04/05/22 5:38:38P BY: ETHAN MARKS

HYDROLIC AND HYDRALIC CALCULATIONS

CROSSROADS MIXED USE FIL. NO.1 FOR UNDERGROUND DETENTION
PRELIMINARY/FINAL DRAINAGE CALCULATIONS
(Area Runoff Coefficient Summary)

			STREETS / COMMERC.			*MULTI-FAMILY/PARKS*			*OVERLAND / UNDEVELOPED*			*WEIGHTED*	
BASIN	**TOTAL AREA** *(Sq Ft)*	**TOTAL AREA** *(Acres)*	**AREA** *(Acres)*	**C_5**	**C_{100}**	**AREA** *(Acres)*	**C_5**	**C_{100}**	**AREA** *(Acres)*	**C_5**	**C_{100}**	**C_5**	**C_{100}**
PROPOSED BASINS													
A	***70707***	1.62	0.00	0.90	0.96	1.62	0.12	0.39	0.00	0.08	0.35	***0.12***	***0.39***
B	***49122***	1.13	0.00	0.90	0.96	1.13	0.12	0.39	0.00	0.08	0.35	***0.12***	***0.39***
C	***23922***	0.55	0.26	0.90	0.96	0.29	0.12	0.39	0.00	0.08	0.35	***0.49***	***0.66***

Calculated by: GT
Date: 12/10/2022
Checked by: DLM

CROSSROADS MIXED USE FIL. NO.1 FOR UNDERGROUND DETENTION
PRELIMINARY/FINAL DRAINAGE CALCULATIONS
(Area Drainage Summary)

From Area Runoff Coefficient Summary				*OVERLAND*				*STREET / CHANNEL FLOW*				*Time of Travel (T_t)*		*INTENSITY #*		*TOTAL FLOWS*	
BASIN	**AREA TOTAL** *(Acres)*	**C_5** *From DCM Table 5-1*	**C_{100}** *From DCM Table 5-1*	**C_5**	**Length** *(ft)*	**Height** *(ft)*	**T_C** *(min)*	**Length** *(ft)*	**Slope** *(%)*	**Velocity** *(fps)*	**T_t** *(min)*	**TOTAL** *(min)*	**CHECK** *(min)*	**I_5** *(in/hr)*	**I_{100}** *(in/hr)*	**Q_5** *(c.f.s.)*	**Q_{100}** *(c.f.s.)*
Proposed Area Drainage Summary																	
A	1.62	0.12	0.39	0.12	50	0.25	15.7	261	1.9%	1.0	4.5	20.2	11.7	3.1	5.2	***0.6***	***3.3***
B	1.13	0.12	0.39	0.12	50	0.25	15.7	134	0.5%	0.5	4.5	20.2	11.0	3.1	5.2	***0.4***	***2.3***
C	0.55	0.49	0.66	0.49	25	0.5	4.4	273	2.0%	2.8	1.6	6.0	11.7	4.9	8.2	***1.3***	***3.0***

Intensity equations assume a minimum travel time of 5 minutes.

Calculated by: GT
Date: 12/10/2022
Checked by: DLM

CROSSROADS MIXED USE FIL. NO.1 FOR UNDERGROUND DETENTION
PRELIMINARY/FINAL DRAINAGE CALCULATIONS
(Basin Routing Summary)

From Area Runoff Coefficient Summary				*OVERLAND*				*PIPE / CHANNEL FLOW*				*Time of Travel (T_t)*	*INTENSITY **		*TOTAL FLOWS*		
DESIGN POINT	**CONTRIBUTING BASINS**	**CA_5**	**CA_{100}**	**C_5**	**Length** *(ft)*	**Height** *(ft)*	**T_C** *(min)*	**Length** *(ft)*	**Slope** *(%)*	**Velocity** *(fps)*	**T_t** *(min)*	**TOTAL** *(min)*	**I_5** *(in/hr)*	**I_{100}** *(in/hr)*	**Q_5** *(c.f.s.)*	**Q_{100}** *(c.f.s.)*	COMMENTS
PROPOSED DRAINAGE BASIN ROUTING SUMMARY																	
1	**A, OFFSITE DP16***	0.35	0.90									20.2	3.1	5.2	***1.1***	***4.7***	Prop 2' x 2' Area Inlet
				Tc for A Used													
2	**B, OFFSITE DP15***	0.26	0.63									20.2	3.1	5.2	***0.8***	***3.2***	Prop 2' x 2' Area Inlet
				Tc for Basin B used													
3	**C**	0.27	0.36									6.0	4.9	8.2	***1.3***	***3.0***	Proposed 5' CDOT Type R Sump Inlet
				Tc for C Used													

Intensity equations assume a minimum travel time of 5 minutes.

*FDR for AURA at Crossroads, prepared by HKS, dated April 4, 2022

**FDR for Crossroads Mixed Use Filing No.1, prepared by MS Civil Consultants, Inc., dated April 2022

GT
Date: 12/10/2022
Checked by: DLM

CROSSROADS MIXED USE FIL. NO.1 FOR UNDERGROUND DETENTION
PRELIMINARY/FINAL DRAINAGE CALCULATIONS
(Storm Sewer Routing Summary)

					*Intensity**		*Flow*		PIPE SIZE
PIPE RUN	***Contributing Pipes/Design Points***	***Equivalent CA_5***	***Equivalent CA_{100}***	***Maximum T_C***	***I_5***	***I_{100}***	***Q_5***	***Q_{100}***	
15*	**PR12.5, PR13, PR14**	10.52	12.24	7.5	4.6	7.7	***48.0***	***93.7***	48" RCP
16*	**DP12**	2.08	2.26	5.0	5.2	8.7	***10.8***	***19.6***	24" RCP
17	**PR15**, PR16****	12.60	14.50	7.7	4.5	7.6	***57.0***	***110.1***	54" RCP
19*	**SEE FDR FOR AURA AT CROSSROADS**	10.05	11.09	15.0	3.5	5.9	***35.4***	***65.5***	48" RCP
21*	**SEE FDR FOR AURA AT CROSSROADS**	0.48	0.58	8.8	4.3	7.3	***2.1***	***4.2***	30" RCP
22	**PR17, PR21***	13.08	15.08	8.8	4.3	7.3	***56.5***	***109.4***	54" RCP
23	**DP3**	0.27	0.36	6.0	4.9	8.2	***1.3***	***3.0***	15" RCP
24	**PR22, PR23**	13.35	15.45	8.8	4.3	7.3	***57.7***	***112.0***	54" RCP
25	**DP1**	0.35	0.90	20.2	3.1	5.2	***1.1***	***4.7***	18" RCP
26	**DP2**	0.26	0.63	20.2	3.1	5.2	***0.8***	***3.2***	18" RCP
27	**PR19*,PR25,PR26**	10.66	12.62	15.0	3.5	5.9	***37.5***	***74.6***	54" RCP
20	**POND OUTFALL**	PER	MHFD	WKSHT			***1.2***	***11.4***	18" RCP

*FDR for AURA at Crossroads, prepared by HKS, dated April 4, 2022

Calculated by: GT

**FDR for Crossroads Mixed Use Filing No.1, prepared by MS Civil Consultants, Inc., dated April 2022

DP - Design Point

FB- Flow By from Design Point

Checked by: DLM

EX - Existing Design Point

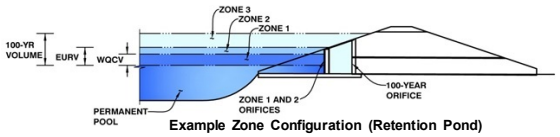
INT- Intercepted Flow from Design Point

DETENTION BASIN STAGE-STORAGE TABLE BUILDER

MHFD-Detention, Version 4.06 (July 2022)

Project: CROSSROADS MIXED USE

Basin ID: POND 1 UNDERGROUND DETENTION



Example Zone Configuration (Retention Pond)

Watershed Information

Selected BMP Type =	SF	
Watershed Area =	32.20	acres
Watershed Length =	1,725	ft
Watershed Length to Centroid =	1,000	ft
Watershed Slope =	0.006	ft/ft
Watershed Imperviousness =	78.67%	percent
Percentage Hydrologic Soil Group A =	95.4%	percent
Percentage Hydrologic Soil Group B =	4.6%	percent
Percentage Hydrologic Soil Groups C/D =	0.0%	percent
Target WQCV Drain Time =	12.0	hours
Location for 1-hr Rainfall Depths =	User Input	

After providing required inputs above including 1-hour rainfall depths, click 'Run CUHP' to generate runoff hydrographs using the embedded Colorado Urban Hydrograph Procedure.

Update the percent imperviousness to account for converting Tract A from open space to a park & for the future overflow parking within basin C.

			Optional User Overrides
Water Quality Capture Volume (WQCV) =	0.687	acre-feet	acre-feet
Excess Urban Runoff Volume (EURV) =	3.293	acre-feet	acre-feet
2-yr Runoff Volume (P1 = 1.19 in.) =	2.407	acre-feet	1.19 inches
5-yr Runoff Volume (P1 = 1.5 in.) =	3.122	acre-feet	1.50 inches
10-yr Runoff Volume (P1 = 1.75 in.) =	3.696	acre-feet	1.75 inches
25-yr Runoff Volume (P1 = 2 in.) =	4.394	acre-feet	2.00 inches
50-yr Runoff Volume (P1 = 2.25 in.) =	5.058	acre-feet	2.25 inches
100-yr Runoff Volume (P1 = 2.52 in.) =	5.833	acre-feet	2.52 inches
500-yr Runoff Volume (P1 = 3.14 in.) =	7.551	acre-feet	inches
Approximate 2-yr Detention Volume =	2.178	acre-feet	
Approximate 5-yr Detention Volume =	2.835	acre-feet	
Approximate 10-yr Detention Volume =	3.393	acre-feet	
Approximate 25-yr Detention Volume =	4.014	acre-feet	
Approximate 50-yr Detention Volume =	4.379	acre-feet	
Approximate 100-yr Detention Volume =	4.723	acre-feet	

Define Zones and Basin Geometry

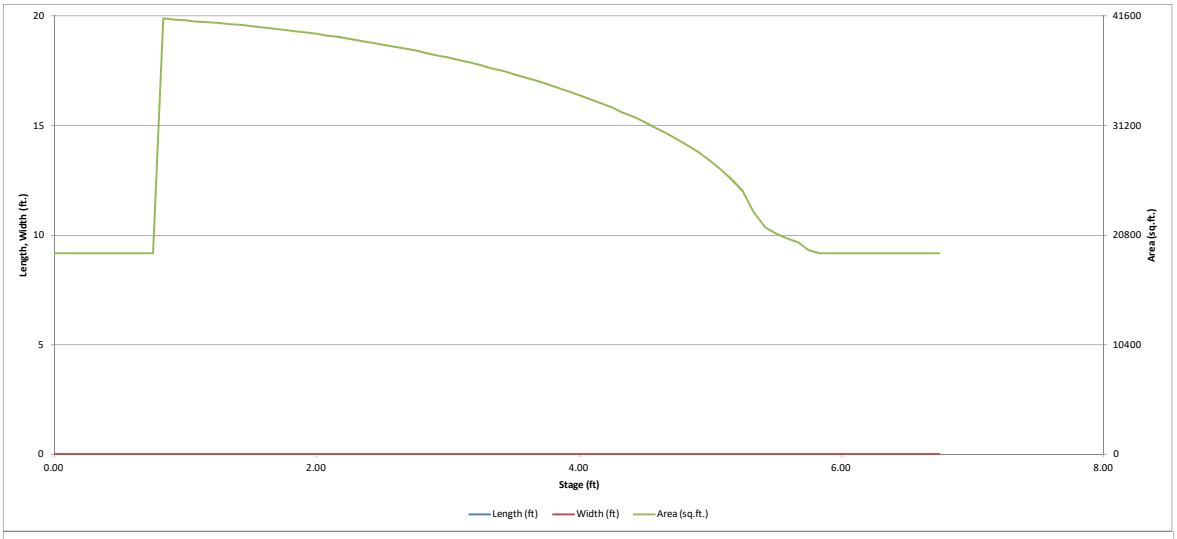
Zone 1 Volume (WQCV) =	0.687	acre-feet
Zone 2 Volume (EURV - Zone 1) =	2.605	acre-feet
Zone 3 Volume (100-year - Zones 1 & 2) =	1.430	acre-feet
Total Detention Basin Volume =	4.723	acre-feet
Initial Surcharge Volume (ISV) =	N/A	ft^3
Initial Surcharge Depth (ISD) =	N/A	ft
Total Available Detention Depth (H_{total}) =	user	ft
Depth of Trickle Channel (H_{TC}) =	N/A	ft
Slope of Trickle Channel (S_{TC}) =	N/A	ft/ft
Slopes of Main Basin Sides (S_{main}) =	user	H:V
Basin Length-to-Width Ratio ($R_{L/W}$) =	user	
Initial Surcharge Area (A_{ISV}) =	user	ft^2
Surcharge Volume Length (L_{ISV}) =	user	ft
Surcharge Volume Width (W_{ISV}) =	user	ft
Depth of Basin Floor (H_{FLOOR}) =	user	ft
Length of Basin Floor (L_{FLOOR}) =	user	ft
Width of Basin Floor (W_{FLOOR}) =	user	ft
Area of Basin Floor (A_{FLOOR}) =	user	ft^2
Volume of Basin Floor (V_{FLOOR}) =	user	ft^3
Depth of Main Basin (H_{MAIN}) =	user	ft
Length of Main Basin (L_{MAIN}) =	user	ft
Width of Main Basin (W_{MAIN}) =	user	ft
Area of Main Basin (A_{MAIN}) =	user	ft^2
Volume of Main Basin (V_{MAIN}) =	user	ft^3
Calculated Total Basin Volume (V_{total}) =	**user**	acre-feet

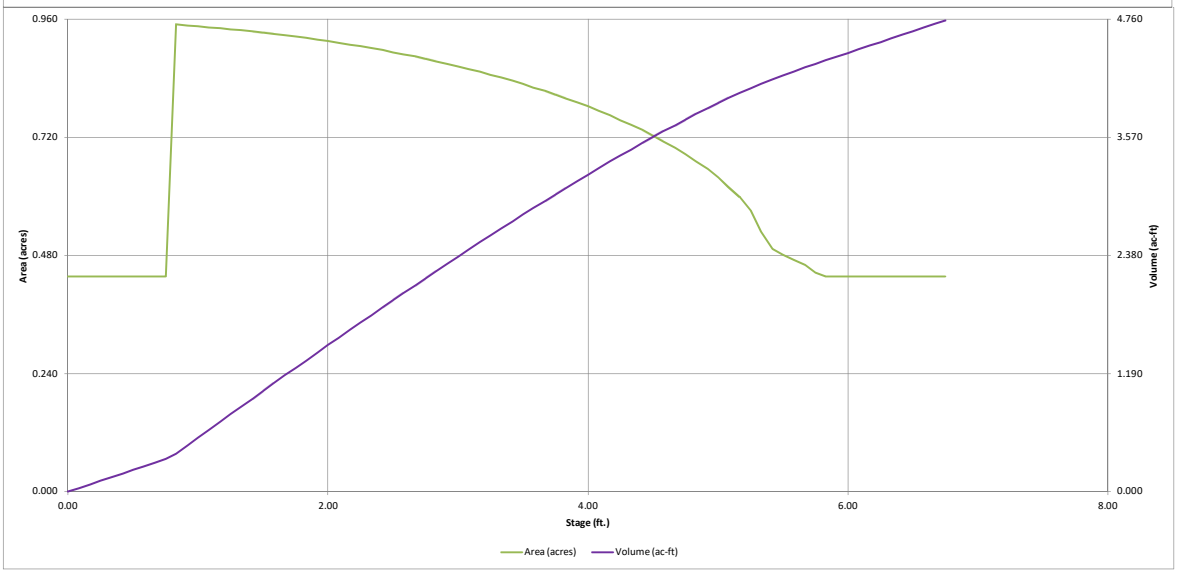
Depth Increment = 0.50 ft

Stage - Storage Description	Stage (ft)	Optional Override Stage (ft)	Length (ft)	Width (ft)	Area (ft^2)	Optional Override Area (ft^2)	Area (acre)	Volume (ft^3)	Volume (ac-ft)
6287.47 **Media Surface**	--	0.00	--	--	--	19,068	0.438		
	--	0.08	--	--	--	19,068	0.438	1,525	0.035
	--	0.17	--	--	--	19,068	0.438	3,242	0.074
	--				--	19,068	0.438	4,767	0.109
	--				--	19,068	0.438	6,292	0.144
	--				--	19,068	0.438	8,009	0.184
	--				--	19,068	0.438	9,534	0.219
	--				--	19,068	0.438	11,059	0.254
	--				--	19,068	0.438	12,776	0.293
	--				--	19,068	0.438	14,301	0.328
	--				--	41,371	0.950	16,718	0.384
	--				--	41,255	0.947	20,436	0.469
	--	1.00	--	--	--	41,182	0.945	23,733	0.545
	--	1.08	--	--	--	41,104	0.944	27,025	0.620
	--	1.17	--	--	--	41,017	0.942	30,720	0.705
	--	1.25	--	--	--	40,930	0.940	33,998	0.780
	--	1.33	--	--	--	40,842	0.938	37,269	0.856
	--	1.42	--	--	--	40,744	0.935	40,940	0.940
	--	1.50	--	--	--	40,640	0.933	44,196	1.015
	--	1.58	--	--	--	40,531	0.930	47,443	1.089
	--	1.67	--	--	--	40,415	0.928	51,085	1.173
	--	1.75	--	--	--	40,293	0.925	54,314	1.247
	--	1.83	--	--	--	40,166	0.922	57,532	1.321
	--	1.92	--	--	--	40,026	0.919	61,141	1.404
	--	2.00	--	--	--	39,892	0.916	64,337	1.477
	--	2.08	--	--	--	39,744	0.912	67,523	1.550
	--	2.17	--	--	--	39,591	0.909	71,093	1.632
	--	2.25	--	--	--	39,430	0.905	74,254	1.705
	--	2.33	--	--	--	39,260	0.901	77,401	1.777
	--	2.42	--	--	--	39,089	0.897	80,927	1.858
	--	2.50	--	--	--	38,907	0.893	84,047	1.929
	--	2.58	--	--	--	38,718	0.889	87,152	2.001
	--	2.67	--	--	--	38,517	0.884	90,627	2.081
	--	2.75	--	--	--	38,315	0.880	93,701	2.151
	--	2.83	--	--	--	38,103	0.875	96,757	2.221
	--	2.92	--	--	--	37,882	0.870	100,177	2.300
	--	3.00	--	--	--	37,653	0.864	103,198	2.369
	--	3.08	--	--	--	37,416	0.859	106,201	2.438
	--	3.17	--	--	--	37,169	0.853	109,557	2.515
	--	3.25	--	--	--	36,912	0.847	112,520	2.583
	--	3.33	--	--	--	36,646	0.841	115,463	2.651
	--	3.42	--	--	--	36,369	0.835	118,748	2.726
	--	3.50	--	--	--	36,081	0.828	121,646	2.793
	--	3.58	--	--	--	35,779	0.821	124,521	2.859
	--	3.67	--	--	--	35,472	0.814	127,727	2.932
	--	3.75	--	--	--	35,150	0.807	130,552	2.997
	--	3.83	--	--	--	34,814	0.799	133,350	3.061
	--	3.92	--	--	--	34,466	0.791	136,468	3.133
	--	4.00	--	--	--	34,101	0.783	139,211	3.196
	--	4.08	--	--	--	33,720	0.774	141,924	3.258
	--	4.17	--	--	--	33,322	0.765	144,940	3.327
	--	4.25	--	--	--	32,904	0.755	147,590	3.388
	--	4.33	--	--	--	32,466	0.745	150,204	3.448
	--	4.42	--	--	--	32,005	0.735	153,106	3.515
	--	4.50	--	--	--	31,522	0.724	155,647	3.573
	--	4.58	--	--	--	31,010	0.712	158,148	3.631
	--	4.67	--	--	--	30,463	0.699	160,914	3.694
	--	4.75	--	--	--	29,887	0.686	163,328	3.749
	--	4.83	--	--	--	29,259	0.672	165,694	3.804
	--	4.92	--	--	--	28,588	0.656	168,297	3.864
	--	5.00	--	--	--	27,845	0.639	170,554	3.915
	--	5.08	--	--	--	27,013	0.620	172,749	3.966
	--	5.17	--	--	--	26,058	0.598	175,137	4.021
	--	5.25	--	--	--	24,880	0.571	177,175	4.067
	--	5.33	--	--	--	23,005	0.528	179,090	4.111
	--	5.42	--	--	--	21,507	0.494	181,093	4.157
	--	5.50	--	--	--	20,969	0.481	182,792	4.196
	--	5.58	--	--	--	20,533	0.471	184,452	4.234
	--	5.67	--	--	--	20,080	0.461	186,280	4.276
	--	5.75	--	--	--	19,385	0.445	187,858	4.313
	--	5.83	--	--	--	19,068	0.438	189,396	4.348
	--	5.92	--	--	--	19,068	0.438	191,113	4.387
	--	6.00	--	--	--	19,068	0.438	192,638	4.422
	--	6.08	--	--	--	19,068	0.438	194,163	4.457
	--	6.17	--	--	--	19,068	0.438	195,880	4.497
	--	6.25	--	--	--	19,068	0.438	197,405	4.532
	--	6.33	--	--	--	19,068	0.438	198,930	4.567
	--	6.42	--	--	--	19,068	0.438	200,647	4.606
	--	6.50	--	--	--	19,068	0.438	202,172	4.641
	--	6.58	--	--	--	19,068	0.438	203,697	4.676
	--	6.67	--	--	--	19,068	0.438	205,414	4.716
	--	6.75	--	--	--	19,068	0.438	206,939	4.751

DETENTION BASIN STAGE-STORAGE TABLE BUILDER

MHFD-Detention, Version 4.06 (July 2022)





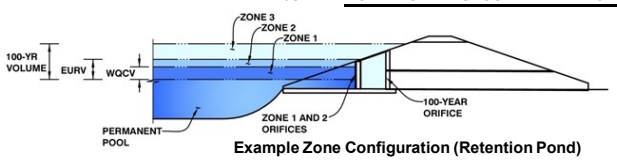
Internal note: review this with next submittal once outlet structure details are included in CDs

DETENTION BASIN OUTLET STRUCTURE DESIGN

MHFD-Detention, Version 4.06 (July 2022)

Project: CROSSROADS MIXED USE

Basin ID: POND 1 UNDERGROUND DETENTION



Example Zone Configuration (Retention Pond)

	Estimated Stage (ft)	Estimated Volume (ac-ft)	Outlet Type
Zone 1 (WQCV)	1.16	0.687	Filtration Media
Zone 2 (EURV)	4.13	2.605	Circular Orifice
Zone 3 (100-year)	6.69	1.430	Weir&Pipe (Restrict)
Total (all zones)		4.723	

User Input: Orifice at Underdrain Outlet (typically used to drain WQCV in a Filtration BMP)

Underdrain Orifice Invert Depth =	0.75	ft (distance below the filtration media surface)	Underdrain Orifice Area =	0.1	ft^2
Underdrain Orifice Diameter =	4.93	inches	Underdrain Orifice Centroid =	0.21	feet

Calculated Parameters for Underdrain

User Input: Orifice Plate with one or more orifices or Elliptical Slot Weir (typically used to drain WQCV and/or EURV in a sedimentation BMP)

Centroid of Lowest Orifice =	N/A	ft (relative to basin bottom at Stage = 0 ft)	WQ Orifice Area per Row =	N/A	ft^2
Depth at top of Zone using Orifice Plate =	N/A	ft (relative to basin bottom at Stage = 0 ft)	Elliptical Half-Width =	N/A	feet
Orifice Plate: Orifice Vertical Spacing =	N/A	inches	Elliptical Slot Centroid =	N/A	feet
Orifice Plate: Orifice Area per Row =	N/A	sq. inches	Elliptical Slot Area =	N/A	ft^2

Calculated Parameters for Plate

User Input: Stage and Total Area of Each Orifice Row (numbered from lowest to highest)

	Row 1 (optional)	Row 2 (optional)	Row 3 (optional)	Row 4 (optional)	Row 5 (optional)	Row 6 (optional)	Row 7 (optional)	Row 8 (optional)
Stage of Orifice Centroid (ft)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Orifice Area (sq. inches)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

	Row 9 (optional)	Row 10 (optional)	Row 11 (optional)	Row 12 (optional)	Row 13 (optional)	Row 14 (optional)	Row 15 (optional)	Row 16 (optional)
Stage of Orifice Centroid (ft)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Orifice Area (sq. inches)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

User Input: Vertical Orifice (Circular or Rectangular)

	Zone 2 Circular	Not Selected			Zone 2 Circular	Not Selected
Invert of Vertical Orifice =	1.17	N/A	ft (relative to basin bottom at Stage = 0 ft)	Vertical Orifice Area =	0.00	N/A
Depth at top of Zone using Vertical Orifice =	4.13	N/A	ft (relative to basin bottom at Stage = 0 ft)	Vertical Orifice Centroid =	0.02	N/A
Vertical Orifice Diameter =	0.38	N/A	inches			

Calculated Parameters for Vertical Orif

User Input: Overflow Weir (Dropbox with Flat or Sloped Grate and Outlet Pipe OR Rectangular/Trapezoidal Weir and No Outlet Pipe)

	Zone 3 Weir	Not Selected			Zone 3 Weir	Not Selected
Overflow Weir Front Edge Height, Ho =	4.14	N/A	ft (relative to basin bottom at Stage = 0 ft)	Height of Grate Upper Edge, H_t =	4.14	N/A
Overflow Weir Front Edge Length =	5.70	N/A	feet	Overflow Weir Slope Length =	2.91	N/A
Overflow Weir Grate Slope =	0.00	N/A	H:V	Grate Open Area / 100-yr Orifice Area =	9.68	N/A
Horiz. Length of Weir Sides =	2.91	N/A	feet	Overflow Grate Open Area w/o Debris =	11.54	N/A
Overflow Grate Type =	Type C Grate	N/A		Overflow Grate Open Area w/ Debris =	5.77	N/A
Debris Clogging % =	50%	N/A	%			

Calculated Parameters for Overflow W

User Input: Outlet Pipe w/ Flow Restriction Plate (Circular Orifice, Restrictor Plate, or Rectangular Orifice)

	Zone 3 Restrictor	Not Selected			Zone 3 Restrictor	Not Selected
Depth to Invert of Outlet Pipe =	1.00	N/A	ft (distance below basin bottom at Stage = 0 ft)	Outlet Orifice Area =	1.19	N/A
Outlet Pipe Diameter =	18.00	N/A	inches	Outlet Orifice Centroid =	0.54	N/A
Restrictor Plate Height Above Pipe Invert =	11.50		inches	Half-Central Angle of Restrictor Plate on Pipe =	1.85	N/A

Calculated Parameters for Outlet Pipe w/ Flow Restriction Pla

User Input: Emergency Spillway (Rectangular or Trapezoidal)

Spillway Invert Stage=	6.16	ft (relative to basin bottom at Stage = 0 ft)	Spillway Design Flow Depth=	0.84	feet
Spillway Crest Length =	33.00	feet	Stage at Top of Freeboard =	8.00	feet
Spillway End Slopes =	4.00	H:V	Basin Area at Top of Freeboard =	0.44	acres
Freeboard above Max Water Surface =	1.00	feet	Basin Volume at Top of Freeboard =	4.75	acre-ft

Calculated Parameters for Spillway

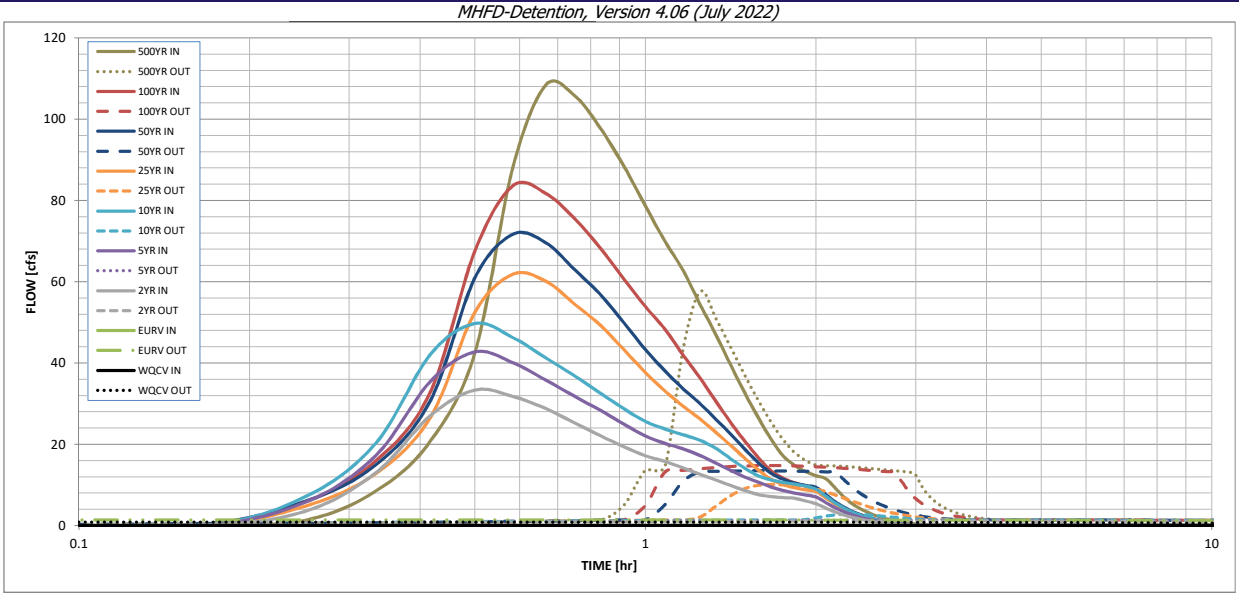
Routed Hydrograph Results

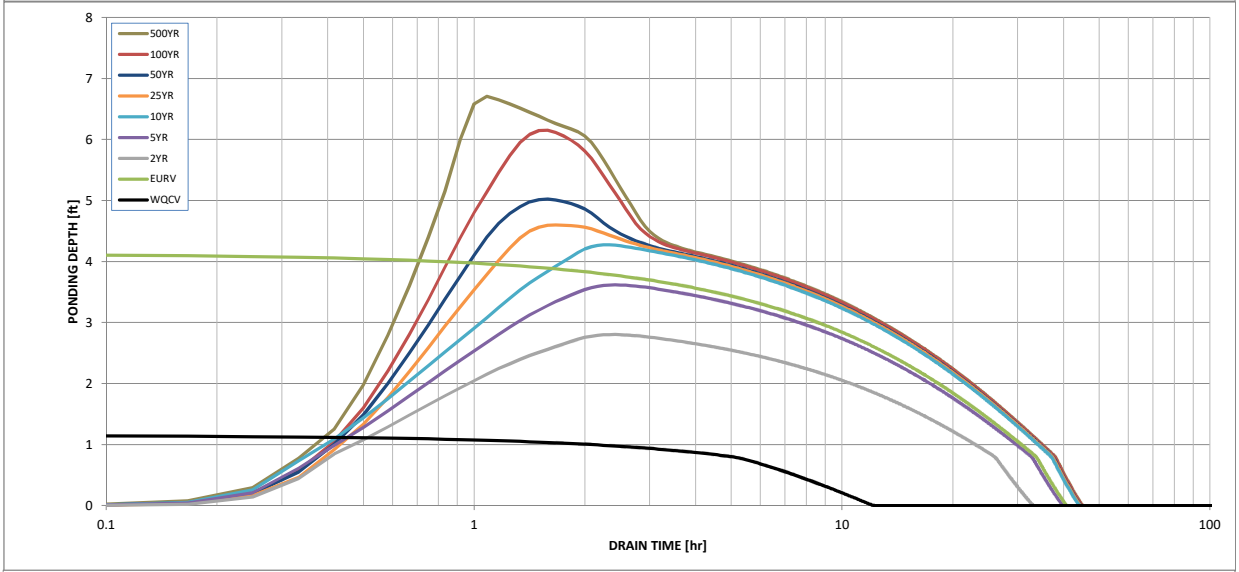
The user can override the default CUHP hydrographs and runoff volumes by entering new values in the Inflow Hydrographs table (Columns W through Al

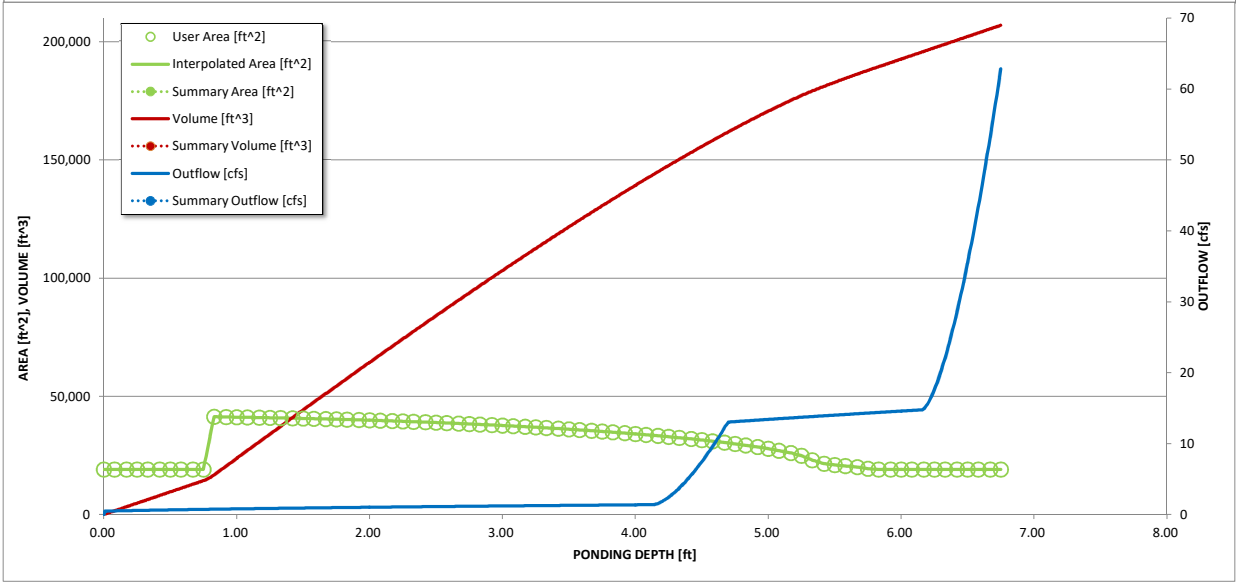
Design Storm Return Period =	WQCV	EURV	2 Year	5 Year	10 Year	25 Year	50 Year	100 Year
One-Hour Rainfall Depth (in) =	N/A	N/A	1.19	1.50	1.75	2.00	2.25	2.52
CUHP Runoff Volume (acre-ft) =	0.687	3.293	2.407	3.122	3.696	4.394	5.058	5.833
Inflow Hydrograph Volume (acre-ft) =	N/A	N/A	2.407	3.122	3.696	4.394	5.058	5.833
CUHP Predevelopment Peak Q (cfs) =	N/A	N/A	0.2	0.3	0.5	5.1	9.2	14.8
OPTIONAL Override Predevelopment Peak Q (cfs) =	N/A	N/A						
Predevelopment Unit Peak Flow, q (cfs/acre) =	N/A	N/A	0.01	0.01	0.01	0.16	0.29	0.46
Peak Inflow Q (cfs) =	N/A	N/A	33.3	42.7	49.7	61.8	71.7	83.5
Peak Outflow Q (cfs) =	0.8	1.4	1.2	1.3	2.8	10.1	13.4	14.8
Ratio Peak Outflow to Predevelopment Q =	N/A	N/A	N/A	3.9	5.9	2.0	1.5	1.0
Structure Controlling Flow =	Filtration Media	Vertical Orifice 1	Vertical Orifice 1	Vertical Orifice 1	Overflow Weir 1	Overflow Weir 1	Outlet Plate 1	Outlet Plate 1
Max Velocity through Grate 1 (fps) =	N/A	N/A	N/A	N/A	0.1	0.7	1.0	1.1
Max Velocity through Grate 2 (fps) =	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Time to Drain 97% of Inflow Volume (hours) =	12	39	31	38	42	41	41	41
Time to Drain 99% of Inflow Volume (hours) =	**12**	40	33	39	43	43	43	44
Maximum Ponding Depth (ft) =	1.16	4.13	2.80	3.62	4.27	4.60	5.02	6.15
Area at Maximum Ponding Depth (acres) =	0.94	0.77	0.88	0.82	0.75	0.71	0.63	0.44
Maximum Volume Stored (acre-ft) =	0.696	3.297	2.195	2.883	3.403	3.638	3.928	4.484

DETENTION BASIN OUTLET STRUCTURE DESIGN

MHFD-Detention, Version 4.06 (July 2022)







S-A-V-D Chart Axis Override	X-axis	Left Y-Axis	Right Y-Axis
minimum bound			
maximum bound			

DETENTION BASIN OUTLET STRUCTURE DESIGN

Outflow Hydrograph Workbook Filename: _____

Inflow Hydrographs

The user can override the calculated inflow hydrographs from this workbook with inflow hydrographs developed in a separate program.

	SOURCE	CUHP	CUHP	CUHP	CUHP	CUHP	CUHP	CUHP	CUHP	CUHP
Time Interval	TIME	WQCV [cfs]	EURV [cfs]	2 Year [cfs]	5 Year [cfs]	10 Year [cfs]	25 Year [cfs]	50 Year [cfs]	100 Year [cfs]	500 Year [cfs]
5.00 min	0:00:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0:05:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0:10:00	0.00	0.00	0.00	0.00	0.00	0.00	0.39	0.04	1.25
	0:15:00	0.00	0.00	3.46	5.62	6.96	4.67	5.89	5.69	8.36
	0:20:00	0.00	0.00	12.83	16.99	20.01	12.66	14.80	15.76	20.62
	0:25:00	0.00	0.00	26.94	35.34	41.95	26.44	30.57	32.65	42.44
	0:30:00	0.00	0.00	33.30	42.69	49.70	52.46	60.93	67.51	88.01
	0:35:00	0.00	0.00	31.75	40.04	46.24	61.83	71.65	83.54	108.32
	0:40:00	0.00	0.00	28.76	35.78	41.26	60.15	69.62	81.73	105.76
	0:45:00	0.00	0.00	25.24	31.76	36.81	54.48	62.96	75.48	97.70
	0:50:00	0.00	0.00	22.08	28.32	32.53	49.25	56.81	68.18	88.41
	0:55:00	0.00	0.00	19.37	24.91	28.73	43.27	49.85	60.62	78.63
	1:00:00	0.00	0.00	17.17	22.01	25.61	37.64	43.31	53.86	69.88
	1:05:00	0.00	0.00	15.76	20.18	23.73	33.08	38.03	48.24	62.68
	1:10:00	0.00	0.00	14.15	18.82	22.31	29.32	33.64	41.85	54.29
	1:15:00	0.00	0.00	12.58	17.18	20.93	26.15	29.93	36.21	46.84
	1:20:00	0.00	0.00	11.18	15.31	18.94	22.83	26.07	30.49	39.31
	1:25:00	0.00	0.00	9.82	13.47	16.35	19.64	22.38	25.23	32.44
	1:30:00	0.00	0.00	8.59	11.88	14.02	16.49	18.74	20.67	26.49
	1:35:00	0.00	0.00	7.63	10.64	12.22	13.63	15.45	16.69	21.29
	1:40:00	0.00	0.00	7.11	9.47	11.22	11.37	12.85	13.51	17.17
	1:45:00	0.00	0.00	6.88	8.60	10.60	10.09	11.39	11.68	14.80
	1:50:00	0.00	0.00	6.73	7.98	10.16	9.28	10.46	10.53	13.28
	1:55:00	0.00	0.00	6.06	7.51	9.68	8.74	9.85	9.74	12.24
	2:00:00	0.00	0.00	5.38	7.00	8.94	8.35	9.41	9.17	11.49
	2:05:00	0.00	0.00	4.29	5.61	7.16	6.74	7.58	7.28	9.11
	2:10:00	0.00	0.00	3.29	4.28	5.47	5.12	5.76	5.45	6.80
	2:15:00	0.00	0.00	2.52	3.28	4.17	3.90	4.38	4.10	5.11
	2:20:00	0.00	0.00	1.92	2.49	3.15	2.95	3.32	3.11	3.88
	2:25:00	0.00	0.00	1.45	1.87	2.35	2.21	2.49	2.35	2.92
	2:30:00	0.00	0.00	1.08	1.37	1.74	1.63	1.84	1.75	2.17
	2:35:00	0.00	0.00	0.79	0.99	1.28	1.20	1.34	1.29	1.60
	2:40:00	0.00	0.00	0.57	0.72	0.95	0.90	1.01	0.96	1.20
	2:45:00	0.00	0.00	0.39	0.50	0.66	0.64	0.72	0.69	0.85
	2:50:00	0.00	0.00	0.24	0.33	0.43	0.43	0.48	0.46	0.57
	2:55:00	0.00	0.00	0.13	0.20	0.25	0.26	0.29	0.27	0.34
	3:00:00	0.00	0.00	0.06	0.10	0.12	0.13	0.14	0.14	0.17
	3:05:00	0.00	0.00	0.02	0.03	0.04	0.04	0.05	0.04	0.05
	3:10:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:15:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:20:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:25:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:30:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:35:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:40:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:45:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:50:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:55:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:00:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:05:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:10:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:15:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:20:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:25:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:30:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:35:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:40:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:45:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:50:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:55:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:00:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:05:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:10:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:15:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:20:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:25:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:30:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:35:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:40:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:45:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:50:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:55:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	6:00:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Project: Crossroads Mixed Use

Chamber Model -	MC-7200	
Units -	Imperial	
Number of Chambers -	731	
Number of End Caps -	44	
Voids in the stone (porosity) -	40	%
Base of Stone Elevation -	6287.47	ft
Amount of Stone Above Chambers -	12	in
Amount of Stone Below Chambers -	9	in
Area of system -	47670	sf Min. Area - 45260 sf min. area

☑ Include Perimeter Stone in Calculations

☑ Click for Stage Area Data

Click Here for Metric

StormTech MC-7200 Cumulative Storage Volumes

	Height of System (inches)	Incremental Single Chamber (cubic feet)	Incremental Single End Cap (cubic feet)	Incremental Chambers (cubic feet)	Incremental End Cap (cubic feet)	Incremental Stone (cubic feet)	Incremental Ch, EC and Stone (cubic feet)	Cumulative System (cubic feet)	Elevation (feet)
	81	0.00	0.00	0.00	0.00	1589.00	1589.00	206903.58	6294.22
	80	0.00	0.00	0.00	0.00	1589.00	1589.00	205314.58	6294.14
	79	0.00	0.00	0.00	0.00	1589.00	1589.00	203725.58	6294.05
	78	0.00	0.00	0.00	0.00	1589.00	1589.00	202136.58	6293.97
	77	0.00	0.00	0.00	0.00	1589.00	1589.00	200547.58	6293.89
	76	0.00	0.00	0.00	0.00	1589.00	1589.00	198958.58	6293.80
	75	0.00	0.00	0.00	0.00	1589.00	1589.00	197369.58	6293.72
100-YR	74	0.00	0.00	0.00	0.00	1589.00	1589.00	195780.58	6293.64
195323 cu ft	73	0.00	0.00	0.00	0.00	1589.00	1589.00	194191.58	6293.55
	72	0.00	0.00	0.00	0.00	1589.00	1589.00	192602.58	6293.47
	71	0.00	0.00	0.00	0.00	1589.00	1589.00	191013.58	6293.39
	70	0.00	0.00	0.00	0.00	1589.00	1589.00	189424.58	6293.30
	69	0.06	0.01	43.40	0.57	1571.41	1615.39	187835.58	6293.22
	68	0.19	0.03	139.02	1.49	1532.79	1673.31	186220.20	6293.14
	67	0.28	0.05	201.16	2.28	1507.63	1711.06	184546.89	6293.05
	66	0.36	0.07	261.15	2.90	1483.38	1747.43	182835.83	6292.97
	65	0.46	0.08	335.09	3.66	1453.50	1792.25	181088.40	6292.89
	64	0.74	0.11	542.14	4.63	1370.29	1917.06	179296.15	6292.80
	63	1.10	0.13	801.45	5.83	1266.09	2073.36	177379.09	6292.72
	62	1.32	0.16	963.81	7.08	1200.64	2171.54	175305.72	6292.64
	61	1.50	0.19	1095.21	8.30	1147.60	2251.11	173134.19	6292.55
	60	1.65	0.22	1209.43	9.62	1101.38	2320.43	170883.08	6292.47
	59	1.79	0.25	1311.39	10.87	1060.10	2382.35	168562.65	6292.39
	58	1.92	0.28	1403.27	12.11	1022.85	2438.23	166180.30	6292.30
	57	2.04	0.30	1489.37	13.28	987.94	2490.59	163742.07	6292.22
	56	2.15	0.33	1568.23	14.41	955.94	2538.59	161251.48	6292.14
	55	2.25	0.35	1643.07	15.60	925.53	2584.20	158712.90	6292.05
	54	2.34	0.38	1712.84	16.88	897.11	2626.83	156128.70	6291.97
	53	2.43	0.41	1778.85	18.00	870.26	2667.11	153501.86	6291.89
	52	2.52	0.44	1841.43	19.40	844.67	2705.50	150834.75	6291.80
	51	2.60	0.47	1901.02	20.63	820.34	2741.99	148129.25	6291.72
EURV	50	2.68	0.50	1957.92	21.79	797.12	2776.83	145387.27	6291.64
143617 cu ft	49	2.75	0.52	2012.13	22.91	774.98	2810.02	142610.44	6291.55
	48	2.82	0.54	2063.93	23.96	753.84	2841.73	139800.42	6291.47
	47	2.89	0.57	2113.62	24.94	733.58	2872.14	136958.68	6291.39
	46	2.96	0.59	2161.10	25.89	714.20	2901.20	134086.55	6291.30
	45	3.02	0.61	2206.72	26.84	695.57	2929.14	131185.35	6291.22
5-YR	44	3.08	0.63	2250.48	27.81	677.68	2955.98	128256.21	6291.14
125583 cu ft	43	3.14	0.64	2292.62	28.30	660.63	2981.55	125300.24	6291.05
	42	3.19	0.68	2333.18	29.80	643.81	3006.79	122318.69	6290.97
	41	3.25	0.70	2372.11	30.79	627.84	3030.74	119311.89	6290.89
	40	3.30	0.72	2409.61	31.79	612.44	3053.84	116281.15	6290.80
	39	3.35	0.74	2445.65	32.72	597.65	3076.02	113227.32	6290.72
	38	3.39	0.76	2480.36	33.64	583.40	3097.40	110151.30	6290.64
	37	3.44	0.79	2513.80	34.56	569.65	3118.02	107053.90	6290.55
	36	3.48	0.80	2545.99	35.32	556.48	3137.78	103935.88	6290.47
	35	3.53	0.82	2577.04	36.08	543.75	3156.87	100798.10	6290.39
	34	3.57	0.84	2606.87	36.89	531.49	3175.26	97641.23	6290.30
	33	3.61	0.85	2635.68	37.46	519.75	3192.88	94465.97	6290.22
	32	3.64	0.86	2663.38	37.82	508.52	3209.72	91273.09	6290.14
	31	3.68	0.89	2690.04	39.14	497.33	3226.50	88063.36	6290.05
	30	3.71	0.90	2715.66	39.79	486.82	3242.27	84836.86	6289.97
	29	3.75	0.92	2740.29	40.36	476.74	3257.39	81594.59	6289.89
	28	3.78	0.92	2763.91	40.47	467.25	3271.63	78337.20	6289.80
	27	3.81	0.94	2786.61	41.51	457.75	3285.87	75065.57	6289.72
	26	3.84	0.96	2808.28	42.08	448.86	3299.21	71779.70	6289.64
	25	3.87	0.97	2829.09	42.62	440.32	3312.03	68480.49	6289.55
	24	3.90	0.98	2849.00	43.18	432.13	3324.31	65168.46	6289.47
	23	3.92	0.97	2868.04	42.73	424.69	3335.46	61844.15	6289.39
	22	3.95	1.00	2886.19	44.14	416.87	3347.20	58508.69	6289.30
	21	3.97	1.01	2903.49	44.49	409.81	3357.79	55161.49	6289.22
	20	3.99	1.02	2920.00	44.90	403.04	3367.94	51803.70	6289.14
	19	4.02	1.03	2935.64	45.33	396.61	3377.59	48435.76	6289.05
	18	4.04	1.04	2950.47	45.70	390.53	3386.70	45058.18	6288.97
	17	4.06	1.05	2964.52	46.04	384.78	3395.33	41671.47	6288.89
	16	4.07	1.05	2977.77	46.38	379.34	3403.49	38276.14	6288.80
WQCV	15	4.09	1.05	2990.16	46.22	374.45	3410.83	34872.65	6288.72
30318 cu ft	14	4.11	1.06	3001.99	46.49	369.61	3418.09	31461.83	6288.64
	13	4.12	1.08	3013.25	47.32	364.77	3425.34	28043.73	6288.55
	12	4.14	1.08	3023.81	47.64	360.42	3431.87	24618.39	6288.47
	11	4.15	1.09	3033.63	47.88	356.40	3437.90	21186.52	6288.39
	10	4.17	1.11	3049.01	48.68	349.92	3447.62	17748.62	6288.30
	9	0.00	0.00	0.00	0.00	1589.00	1589.00	14301.00	6288.22
	8	0.00	0.00	0.00	0.00	1589.00	1589.00	12712.00	6288.14
	7	0.00	0.00	0.00	0.00	1589.00	1589.00	11123.00	6288.05
	6	0.00	0.00	0.00	0.00	1589.00	1589.00	9534.00	6287.97
	5	0.00	0.00	0.00	0.00	1589.00	1589.00	7945.00	6287.89
	4	0.00	0.00	0.00	0.00	1589.00	1589.00	6356.00	6287.80
	3	0.00	0.00	0.00	0.00	1589.00	1589.00	4767.00	6287.72
	2	0.00	0.00	0.00	0.00	1589.00	1589.00	3178.00	6287.64
	1	0.00	0.00	0.00	0.00	1589.00	1589.00	1589.00	6287.55

Stage Area Data

Depth (feet)	Elevation (feet)	Area (ft2)	Area (acres)
0.00	6287.47000	19068.00	0.4377
0.08	6287.55333	19068.00	0.4377
0.17	6287.63667	19068.00	0.4377
0.25	6287.72000	19068.00	0.4377
0.33	6287.80333	19068.00	0.4377
0.42	6287.88667	19068.00	0.4377
0.50	6287.97000	19068.00	0.4377
0.58	6288.05333	19068.00	0.4377
0.67	6288.13667	19068.00	0.4377
0.75	6288.22000	19068.00	0.4377
0.83	6288.30333	41371.38	0.9498
0.92	6288.38667	41254.86	0.9471
1.00	6288.47000	41182.44	0.9454
1.08	6288.55333	41104.14	0.9436
1.17	6288.63667	41017.10	0.9416
1.25	6288.72000	40929.93	0.9396
1.33	6288.80333	40841.83	0.9376
1.42	6288.88667	40744.01	0.9354
1.50	6288.97000	40640.42	0.9330
1.58	6289.05333	40531.05	0.9305
1.67	6289.13667	40415.23	0.9278
1.75	6289.22000	40293.48	0.9250
1.83	6289.30333	40166.39	0.9221
1.92	6289.38667	40025.56	0.9189
2.00	6289.47000	39891.71	0.9158
2.08	6289.55333	39744.30	0.9124
2.17	6289.63667	39590.57	0.9089
2.25	6289.72000	39430.43	0.9052
2.33	6289.80333	39259.55	0.9013
2.42	6289.88667	39088.69	0.8974
2.50	6289.97000	38907.23	0.8932
2.58	6290.05333	38718.06	0.8888
2.67	6290.13667	38516.65	0.8842
2.75	6290.22000	38314.58	0.8796
2.83	6290.30333	38103.12	0.8747
2.92	6290.38667	37882.42	0.8697
3.00	6290.47000	37653.39	0.8644
3.08	6290.55333	37416.22	0.8590
3.17	6290.63667	37168.80	0.8533
3.25	6290.72000	36912.26	0.8474
3.33	6290.80333	36646.04	0.8413
3.42	6290.88667	36368.88	0.8349
3.50	6290.97000	36081.49	0.8283
3.58	6291.05333	35778.60	0.8214
3.67	6291.13667	35471.74	0.8143
3.75	6291.22000	35149.65	0.8069
3.83	6291.30333	34814.35	0.7992
3.92	6291.38667	34465.62	0.7912
4.00	6291.47000	34100.80	0.7828
4.08	6291.55333	33720.27	0.7741
4.17	6291.63667	33321.92	0.7650
4.25	6291.72000	32903.83	0.7554
4.33	6291.80333	32466.00	0.7453
4.42	6291.88667	32005.36	0.7347
4.50	6291.97000	31521.99	0.7236
4.58	6292.05333	31010.39	0.7119
4.67	6292.13667	30463.04	0.6993
4.75	6292.22000	29887.06	0.6861
4.83	6292.30333	29258.73	0.6717
4.92	6292.38667	28588.23	0.6563
5.00	6292.47000	27845.14	0.6392
5.08	6292.55333	27013.27	0.6201
5.17	6292.63667	26058.45	0.5982
5.25	6292.72000	24880.38	0.5712
5.33	6292.80333	23004.76	0.5281
5.42	6292.88667	21506.96	0.4937
5.50	6292.97000	20969.19	0.4814
5.58	6293.05333	20532.72	0.4714
5.67	6293.13667	20079.69	0.4610
5.75	6293.22000	19384.63	0.4450
5.83	6293.30333	19068.00	0.4377
5.92	6293.38667	19068.00	0.4377
6.00	6293.47000	19068.00	0.4377
6.08	6293.55333	19068.00	0.4377
6.17	6293.63667	19068.00	0.4377
6.25	6293.72000	19068.00	0.4377
6.33	6293.80333	19068.00	0.4377
6.42	6293.88667	19068.00	0.4377
6.50	6293.97000	19068.00	0.4377
6.58	6294.05333	19068.00	0.4377
6.67	6294.13667	19068.00	0.4377
6.75	6294.22000	19068.00	0.4377

Version 4.06 Released August 2018

INLET MANAGEMENT

Worksheet Protected

INLET NAME	DP3
Site Type (Urban or Rural)	URBAN
Inlet Application (Street or Area)	STREET
Hydraulic Condition	In Sump
Inlet Type	CDOT Type R Curb Opening

USER-DEFINED INPUT

User-Defined Design Flows

Minor Q_{Known} (cfs)	1.3
Major Q_{Known} (cfs)	3.0

Bypass (Carry-Over) Flow from Upstream

Receive Bypass Flow from:	No Bypass Flow Received
Minor Bypass Flow Received, Q_b (cfs)	0.0
Major Bypass Flow Received, Q_b (cfs)	0.0

Watershed Characteristics

Subcatchment Area (acres)	
Percent Impervious	
NRCS Soil Type	

Watershed Profile

Overland Slope (ft/ft)	
Overland Length (ft)	
Channel Slope (ft/ft)	
Channel Length (ft)	

Minor Storm Rainfall Input

Design Storm Return Period, T_r (years)	
One-Hour Precipitation, P_1 (inches)	

Major Storm Rainfall Input

Design Storm Return Period, T_r (years)	
One-Hour Precipitation, P_1 (inches)	

CALCULATED OUTPUT

Minor Total Design Peak Flow, Q (cfs)	**1.3**
Major Total Design Peak Flow, Q (cfs)	**3.0**
Minor Flow Bypassed Downstream, Q_b (cfs)	N/A
Major Flow Bypassed Downstream, Q_b (cfs)	N/A

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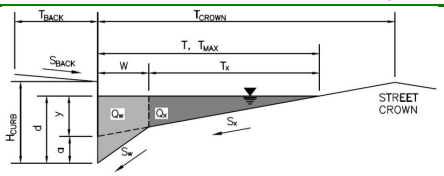
ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: Crossroads Mixed Use

Inlet ID: DP3



Gutter Geometry (Enter data in the blue cells)

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	6.5	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.020	
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	18.0	ft
Gutter Width	W =	1.00	ft
Street Transverse Slope	S_X =	0.020	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.000	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.016	

		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	18.0	18.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	6.0	7.5	inches
Check boxes are not applicable in SUMP conditions		☐	☐	

		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is based on Depth Criterion				
MAJOR STORM Allowable Capacity is based on Depth Criterion	**Q_{allow} =**	**SUMP**	**SUMP**	**cfs**

INLET IN A SUMP OR SAG LOCATION

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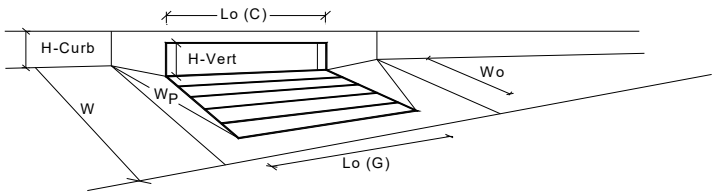
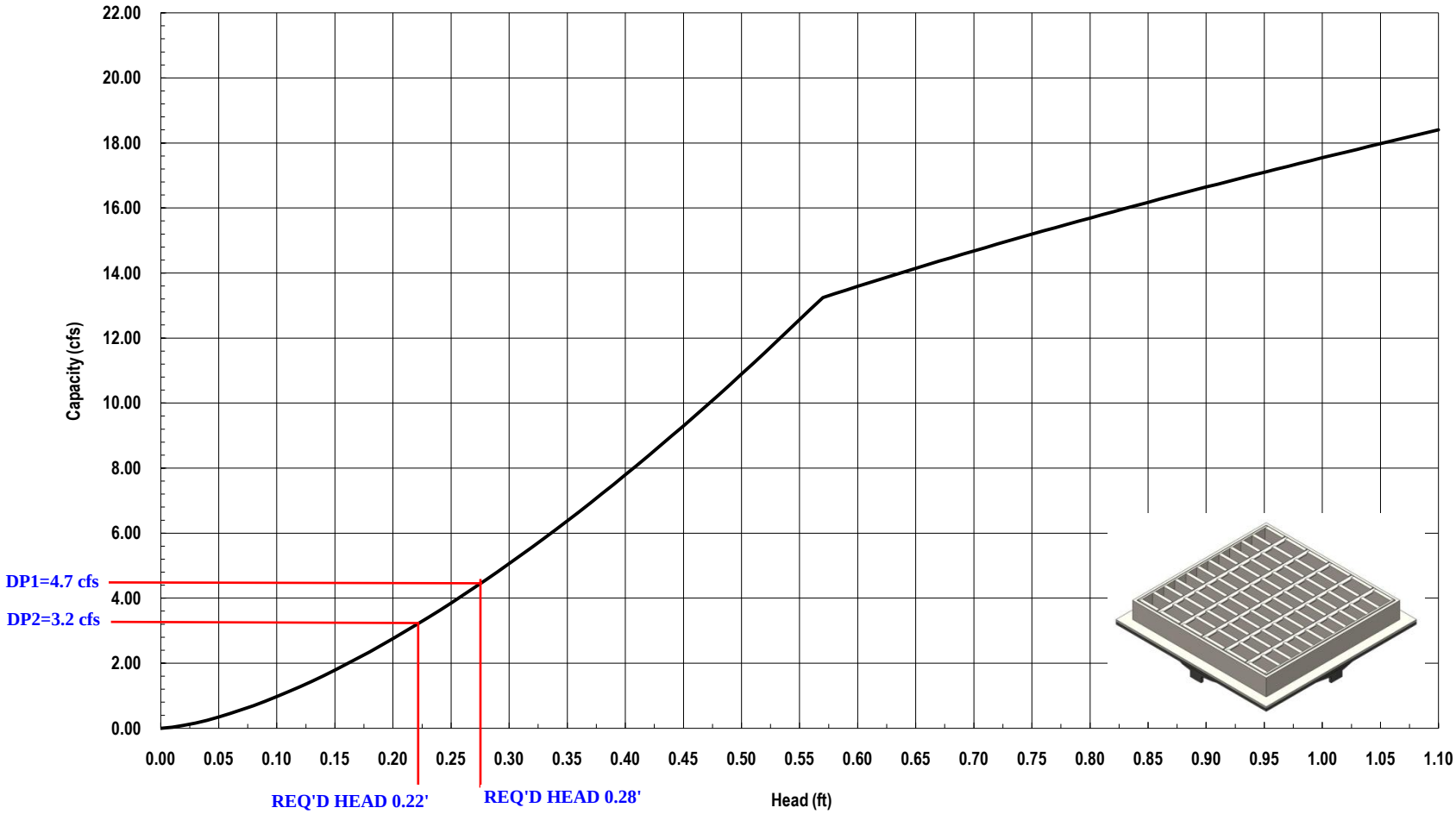


Design Information (Input)	CDOT Type R Curb Opening		MINOR	MAJOR	
Type of Inlet		Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a' from above)		a_{local} =	3.00	3.00	inches
Number of Unit Inlets (Grate or Curb Opening)		No =	1	1	
Water Depth at Flowline (outside of local depression)		Ponding Depth =	5.1	5.1	inches
Grate Information			MINOR	MAJOR	☐ Override Depths
Length of a Unit Grate		L_o (G) =	N/A	N/A	feet
Width of a Unit Grate		W_o =	N/A	N/A	feet
Area Opening Ratio for a Grate (typical values 0.15-0.90)		A_{ratio} =	N/A	N/A	
Clogging Factor for a Single Grate (typical value 0.50 - 0.70)		C_f (G) =	N/A	N/A	
Grate Weir Coefficient (typical value 2.15 - 3.60)		C_w (G) =	N/A	N/A	
Grate Orifice Coefficient (typical value 0.60 - 0.80)		C_o (G) =	N/A	N/A	
Curb Opening Information			MINOR	MAJOR	
Length of a Unit Curb Opening		L_o (C) =	5.00	5.00	feet
Height of Vertical Curb Opening in Inches		H_{vert} =	6.00	6.00	inches
Height of Curb Orifice Throat in Inches		H_{throat} =	6.00	6.00	inches
Angle of Throat (see USDCM Figure ST-5)		Theta =	63.40	63.40	degrees
Side Width for Depression Pan (typically the gutter width of 2 feet)		W_p =	1.00	1.00	feet
Clogging Factor for a Single Curb Opening (typical value 0.10)		C_f (C) =	0.10	0.10	
Curb Opening Weir Coefficient (typical value 2.3-3.7)		C_w (C) =	3.60	3.60	
Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)		C_o (C) =	0.67	0.67	
Low Head Performance Reduction (Calculated)			MINOR	MAJOR	
Depth for Grate Midwidth		d_{Grate} =	N/A	N/A	ft
Depth for Curb Opening Weir Equation		d_{Curb} =	0.34	0.34	ft
Combination Inlet Performance Reduction Factor for Long Inlets		$RF_{Combination}$ =	0.65	0.65	
Curb Opening Performance Reduction Factor for Long Inlets		RF_{Curb} =	1.00	1.00	
Grated Inlet Performance Reduction Factor for Long Inlets		RF_{Grate} =	N/A	N/A	
			MINOR	MAJOR	
Total Inlet Interception Capacity (assumes clogged condition)		**Q_a =**	**4.4**	**4.4**	**cfs**
Inlet Capacity IS GOOD for Minor and Major Storms(>Q PEAK)		$Q_{PEAK\ REQUIRED}$ =	1.3	3.0	cfs

Nyloplast 2' x 2' Steel Bar / MAG Grate Inlet Capacity Chart



Nyloplast®
3130 Verona Avenue • Buford, GA 30518
(866) 888-8479 / (770) 932-2443 • Fax: (770) 932-2490

UNDERGROUND DETENTION DETAILS

PROJECT INFORMATION	
ENGINEERED PRODUCT MANAGER:	JEROME MAGSINO 303-349-7555 JEROME.MAGSINO@ADSPIPE.COM
ADS SALES REP:	AARON ZEE 303-548-3479 AARON.ZEE@ADSPIPE.COM
PROJECT NO:	S295850

Advanced Drainage Systems, Inc.

SiteAssist™
FOR STORMTECH
INSTALLATION INSTRUCTIONS
VISIT OUR APP

CROSSROADS MIXED USE FILING NO. 1

COLORADO SPRINGS, CO

MC-7200 STORMTECH CHAMBER SPECIFICATIONS

1. CHAMBERS SHALL BE STORMTECH MC-7200.
2. CHAMBERS SHALL BE ARCH-SHAPED AND SHALL BE MANUFACTURED FROM VIRGIN, IMPACT-MODIFIED POLYPROPYLENE COPOLYMERS.
3. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS" CHAMBER CLASSIFICATION 60x101.
4. CHAMBER ROWS SHALL PROVIDE CONTINUOUS, UNOBSTRUCTED INTERNAL SPACE WITH NO INTERNAL SUPPORTS THAT WOULD IMPEDE FLOW OR LIMIT ACCESS FOR INSPECTION.
5. THE STRUCTURAL DESIGN OF THE CHAMBERS, THE STRUCTURAL BACKFILL, AND THE INSTALLATION REQUIREMENTS SHALL ENSURE THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET FOR: 1) LONG-DURATION DEAD LOADS AND 2) SHORT-DURATION LIVE LOADS, BASED ON THE AASHTO DESIGN TRUCK WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.
6. CHAMBERS SHALL BE DESIGNED, TESTED AND ALLOWABLE LOAD CONFIGURATIONS DETERMINED IN ACCORDANCE WITH ASTM F2787, "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS". LOAD CONFIGURATIONS SHALL INCLUDE: 1) INSTANTANEOUS (<1 MIN) AASHTO DESIGN TRUCK LIVE LOAD ON MINIMUM COVER 2) MAXIMUM PERMANENT (75-YR) COVER LOAD AND 3) ALLOWABLE COVER WITH PARKED (1-WEEK) AASHTO DESIGN TRUCK.
7. REQUIREMENTS FOR HANDLING AND INSTALLATION:
   - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
   - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 3".
   - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT SHALL BE GREATER THAN OR EQUAL TO 450 LBS/FT/%. THE ASC IS DEFINED IN SECTION 6.2.8 OF ASTM F2418. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.
8. ONLY CHAMBERS THAT ARE APPROVED BY THE SITE DESIGN ENGINEER WILL BE ALLOWED. UPON REQUEST BY THE SITE DESIGN ENGINEER OR OWNER, THE CHAMBER MANUFACTURER SHALL SUBMIT A STRUCTURAL EVALUATION FOR APPROVAL BEFORE DELIVERING CHAMBERS TO THE PROJECT SITE AS FOLLOWS:
   - THE STRUCTURAL EVALUATION SHALL BE SEALED BY A REGISTERED PROFESSIONAL ENGINEER.
   - THE STRUCTURAL EVALUATION SHALL DEMONSTRATE THAT THE SAFETY FACTORS ARE GREATER THAN OR EQUAL TO 1.95 FOR DEAD LOAD AND 1.75 FOR LIVE LOAD, THE MINIMUM REQUIRED BY ASTM F2787 AND BY SECTIONS 3 AND 12.12 OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS FOR THERMOPLASTIC PIPE.
   - THE TEST DERIVED CREEP MODULUS AS SPECIFIED IN ASTM F2418 SHALL BE USED FOR PERMANENT DEAD LOAD DESIGN EXCEPT THAT IT SHALL BE THE 75-YEAR MODULUS USED FOR DESIGN.
9. CHAMBERS AND END CAPS SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.

IMPORTANT - NOTES FOR THE BIDDING AND INSTALLATION OF MC-7200 CHAMBER SYSTEM

1. STORMTECH MC-7200 CHAMBERS SHALL NOT BE INSTALLED UNTIL THE MANUFACTURER'S REPRESENTATIVE HAS COMPLETED A PRE-CONSTRUCTION MEETING WITH THE INSTALLERS.
2. STORMTECH MC-7200 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH MC-7200 CONSTRUCTION GUIDE".
3. CHAMBERS ARE NOT TO BE BACKFILLED WITH A DOZER OR EXCAVATOR SITUATED OVER THE CHAMBERS.
   STORMTECH RECOMMENDS 3 BACKFILL METHODS:
   - STONESHOOTER LOCATED OFF THE CHAMBER BED.
   - BACKFILL AS ROWS ARE BUILT USING AN EXCAVATOR ON THE FOUNDATION STONE OR SUBGRADE.
   - BACKFILL FROM OUTSIDE THE EXCAVATION USING A LONG BOOM HOE OR EXCAVATOR.
4. THE FOUNDATION STONE SHALL BE LEVELED AND COMPACTED PRIOR TO PLACING CHAMBERS.
5. JOINTS BETWEEN CHAMBERS SHALL BE PROPERLY SEATED PRIOR TO PLACING STONE.
6. MAINTAIN MINIMUM - 9" (230 mm) SPACING BETWEEN THE CHAMBER ROWS.
7. INLET AND OUTLET MANIFOLDS MUST BE INSERTED A MINIMUM OF 12" (300 mm) INTO CHAMBER END CAPS.
8. EMBEDMENT STONE SURROUNDING CHAMBERS MUST BE A CLEAN, CRUSHED, ANGULAR STONE MEETING THE AASHTO M43 DESIGNATION OF #3 OR #4.
9. STONE SHALL BE BROUGHT UP EVENLY AROUND CHAMBERS SO AS NOT TO DISTORT THE CHAMBER SHAPE. STONE DEPTHS SHOULD NEVER DIFFER BY MORE THAN 12" (300 mm) BETWEEN ADJACENT CHAMBER ROWS.
10. STONE MUST BE PLACED ON THE TOP CENTER OF THE CHAMBER TO ANCHOR THE CHAMBERS IN PLACE AND PRESERVE ROW SPACING.
11. THE CONTRACTOR MUST REPORT ANY DISCREPANCIES WITH CHAMBER FOUNDATION MATERIAL BEARING CAPACITIES TO THE SITE DESIGN ENGINEER.
12. ADS RECOMMENDS THE USE OF "FLEXSTORM CATCH IT" INSERTS DURING CONSTRUCTION FOR ALL INLETS TO PROTECT THE SUBSURFACE STORMWATER MANAGEMENT SYSTEM FROM CONSTRUCTION SITE RUNOFF.

NOTES FOR CONSTRUCTION EQUIPMENT

1. STORMTECH MC-7200 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH MC-7200 CONSTRUCTION GUIDE".
2. THE USE OF EQUIPMENT OVER MC-7200 CHAMBERS IS LIMITED:
   - NO EQUIPMENT IS ALLOWED ON BARE CHAMBERS.
   - NO RUBBER TIRED LOADER, DUMP TRUCK, OR EXCAVATORS ARE ALLOWED UNTIL PROPER FILL DEPTHS ARE REACHED IN ACCORDANCE WITH THE "STORMTECH MC-7200 CONSTRUCTION GUIDE".
   - WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT CAN BE FOUND IN THE "STORMTECH MC-7200 CONSTRUCTION GUIDE".
3. FULL 36" (900 mm) OF STABILIZED COVER MATERIALS OVER THE CHAMBERS IS REQUIRED FOR DUMP TRUCK TRAVEL OR DUMPING.

USE OF A DOZER TO PUSH EMBEDMENT STONE BETWEEN THE ROWS OF CHAMBERS MAY CAUSE DAMAGE TO CHAMBERS AND IS NOT AN ACCEPTABLE BACKFILL METHOD. ANY CHAMBERS DAMAGED BY USING THE "DUMP AND PUSH" METHOD ARE NOT COVERED UNDER THE STORMTECH STANDARD WARRANTY.

CONTACT STORMTECH AT 1-888-892-2694 WITH ANY QUESTIONS ON INSTALLATION REQUIREMENTS OR WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT.

CONCEPTUAL LAYOUT

731	STORMTECH MC-7200 CHAMBERS
44	STORMTECH MC-7200 END CAPS
12	STONE ABOVE (in)
9	STONE BELOW (in)
40	% STONE VOID
206,903	**INSTALLED SYSTEM VOLUME (CF) (PERIMETER STONE INCLUDED)**
47670	SYSTEM AREA (ft²)
1006	SYSTEM PERIMETER (ft)

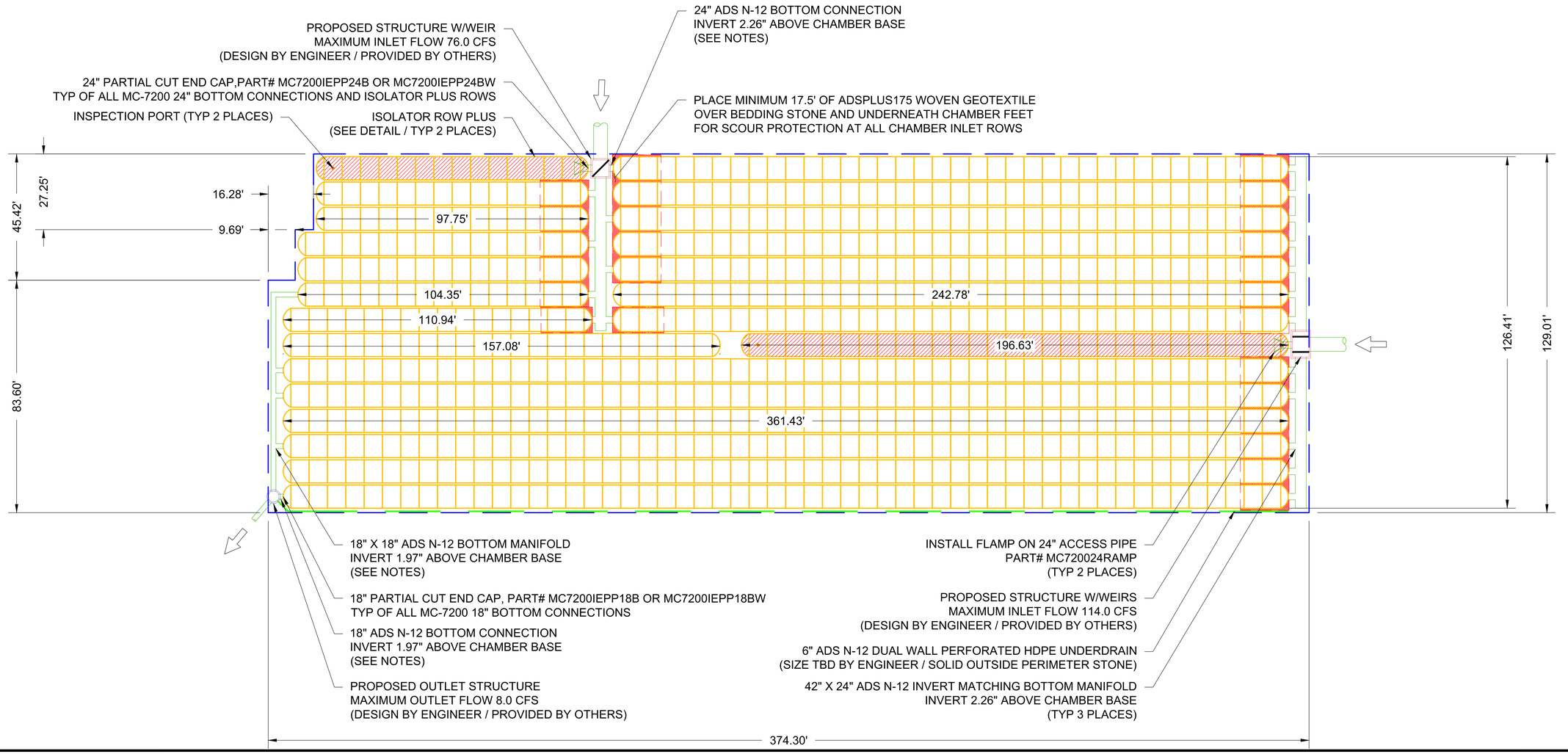
CONCEPTUAL ELEVATIONS

6300.22	MAXIMUM ALLOWABLE GRADE (TOP OF PAVEMENT/UNPAVED)
6295.72	MINIMUM ALLOWABLE GRADE (UNPAVED WITH TRAFFIC)
6295.22	MINIMUM ALLOWABLE GRADE (UNPAVED NO TRAFFIC)
6295.22	MINIMUM ALLOWABLE GRADE (BASE OF FLEXIBLE PAVEMENT)
6295.22	MINIMUM ALLOWABLE GRADE (TOP OF RIGID PAVEMENT)
6294.22	TOP OF STONE
6293.22	TOP OF MC-7200 CHAMBER
6288.41	42" X 24" MANIFOLD INVERT
6288.41	24" ISOLATOR ROW PLUS CONNECTION INVERT
6288.41	24" BOTTOM CONNECTION
6288.38	18" BOTTOM MANIFOLD / CONNECTION INVERT
6288.22	BOTTOM OF MC-7200 CHAMBER
6287.47	UNDERDRAIN INVERT
6287.47	BOTTOM OF STONE

NOTES

- MANIFOLD SIZE TO BE DETERMINED BY SITE DESIGN ENGINEER. SEE TECHNICAL NOTE 6.32 FOR MANIFOLD SIZING GUIDANCE.
- DUE TO THE ADAPTATION OF THIS CHAMBER SYSTEM TO SPECIFIC SITE AND DESIGN CONSTRAINTS, IT MAY BE NECESSARY TO CUT AND COUPLE ADDITIONAL PIPE TO STANDARD MANIFOLD COMPONENTS IN THE FIELD.
- THE SITE DESIGN ENGINEER MUST REVIEW ELEVATIONS AND IF NECESSARY ADJUST GRADING TO ENSURE THE CHAMBER COVER REQUIREMENTS ARE MET.
- THIS CHAMBER SYSTEM WAS DESIGNED WITHOUT SITE-SPECIFIC INFORMATION ON SOIL CONDITIONS OR BEARING CAPACITY. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR DETERMINING THE SUITABILITY OF THE SOIL AND PROVIDING THE BEARING CAPACITY OF THE INSITU SOILS. THE BASE STONE DEPTH MAY BE INCREASED OR DECREASED ONCE THIS INFORMATION IS PROVIDED.

- **NOT FOR CONSTRUCTION**: THIS LAYOUT IS FOR DIMENSIONAL PURPOSES ONLY TO PROVE CONCEPT & THE REQUIRED STORAGE VOLUME CAN BE ACHIEVED ON SITE.



CROSSROADS MIXED USE
FILING NO. 1
COLORADO SPRINGS, CO

DATE: 05-05-22 | DRAWN: TSG
PROJECT #: S295850 | CHECKED: CTS

DATE	DRWN	CHKD	DESCRIPTION
12-18-22	RKC		UPDATED ELEVATIONS
12/13/22	BMW	JPR	ELEVATION AND LAYOUT ADJUSTMENTS

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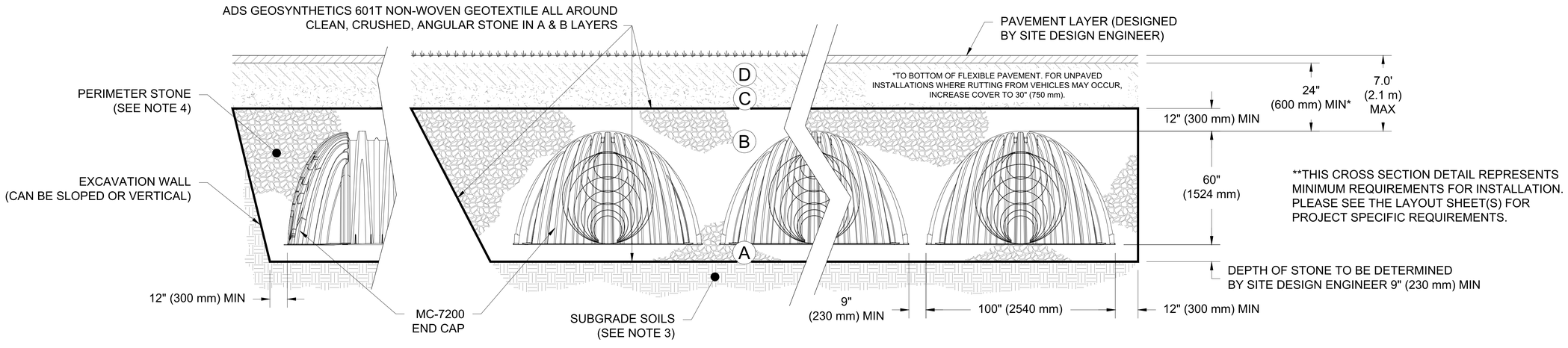
ADS
4640 TRUEMAN BLVD
HILLIARD, OH 43026

0 40' 80'

ACCEPTABLE FILL MATERIALS: STORMTECH MC-7200 CHAMBER SYSTEMS

MATERIAL LOCATION		DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	**FINAL FILL:** FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	**INITIAL FILL:** FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 24" (600 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE. MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	AASHTO M145[1] A-1, A-2-4, A-3 OR AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 24" (600 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 12" (300 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS.
B	**EMBEDMENT STONE:** FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 4	NO COMPACTION REQUIRED.
A	**FOUNDATION STONE:** FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 4	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE.[2,3]

PLEASE NOTE:
1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 9" (230 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.
4. ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.



NOTES:

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2. MC-7200 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
3. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
4. PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
5. REQUIREMENTS FOR HANDLING AND INSTALLATION:
   - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
   - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 3".
   - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT AS DEFINED IN SECTION 6.2.8 OF ASTM F2418 SHALL BE GREATER THAN OR EQUAL TO 500 LBS/FT/%. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.

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COLORADO SPRINGS, CO

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12/13/22	BMW	JPR	ELEVATION AND LAYOUT ADJUSTMENTS

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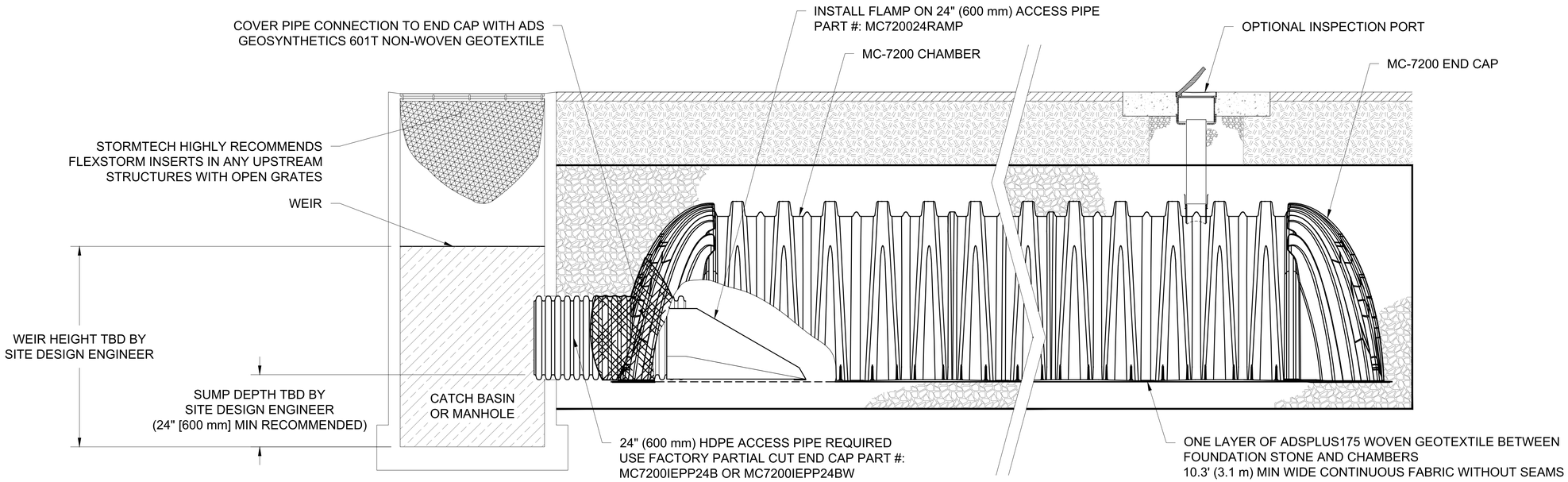


MC-7200 ISOLATOR ROW PLUS DETAIL
NTS

INSPECTION & MAINTENANCE

STEP 1) INSPECT ISOLATOR ROW PLUS FOR SEDIMENT
- A. INSPECTION PORTS (IF PRESENT)
  - A.1. REMOVE/OPEN LID ON NYLOPLAST INLINE DRAIN
  - A.2. REMOVE AND CLEAN FLEXSTORM FILTER IF INSTALLED
  - A.3. USING A FLASHLIGHT AND STADIA ROD, MEASURE DEPTH OF SEDIMENT AND RECORD ON MAINTENANCE LOG
  - A.4. LOWER A CAMERA INTO ISOLATOR ROW PLUS FOR VISUAL INSPECTION OF SEDIMENT LEVELS (OPTIONAL)
  - A.5. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
- B. ALL ISOLATOR PLUS ROWS
  - B.1. REMOVE COVER FROM STRUCTURE AT UPSTREAM END OF ISOLATOR ROW PLUS
  - B.2. USING A FLASHLIGHT, INSPECT DOWN THE ISOLATOR ROW PLUS THROUGH OUTLET PIPE
    - i) MIRRORS ON POLES OR CAMERAS MAY BE USED TO AVOID A CONFINED SPACE ENTRY
    - ii) FOLLOW OSHA REGULATIONS FOR CONFINED SPACE ENTRY IF ENTERING MANHOLE
  - B.3. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.

STEP 2) CLEAN OUT ISOLATOR ROW PLUS USING THE JETVAC PROCESS
- A. A FIXED CULVERT CLEANING NOZZLE WITH REAR FACING SPREAD OF 45" (1.1 m) OR MORE IS PREFERRED
- B. APPLY MULTIPLE PASSES OF JETVAC UNTIL BACKFLUSH WATER IS CLEAN
- C. VACUUM STRUCTURE SUMP AS REQUIRED

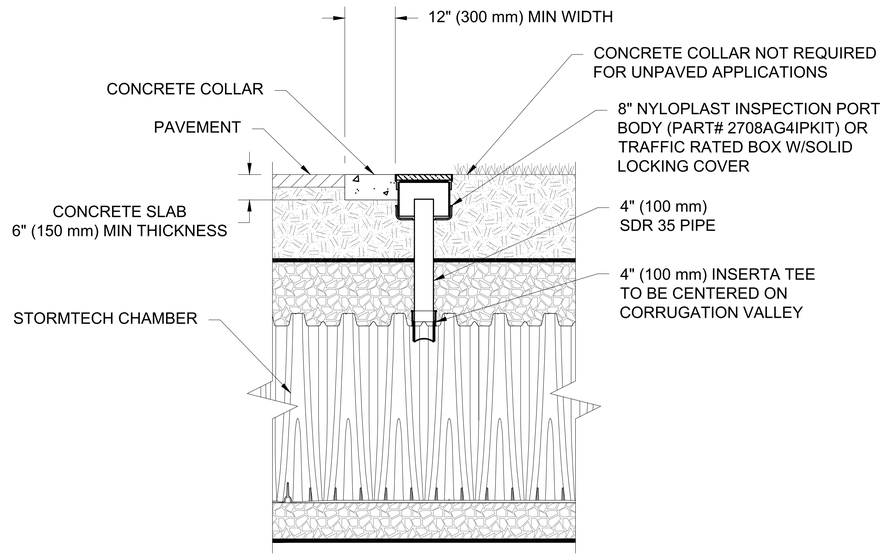
STEP 3) REPLACE ALL COVERS, GRATES, FILTERS, AND LIDS; RECORD OBSERVATIONS AND ACTIONS.

STEP 4) INSPECT AND CLEAN BASINS AND MANHOLES UPSTREAM OF THE STORMTECH SYSTEM.

NOTES

1. INSPECT EVERY 6 MONTHS DURING THE FIRST YEAR OF OPERATION. ADJUST THE INSPECTION INTERVAL BASED ON PREVIOUS OBSERVATIONS OF SEDIMENT ACCUMULATION AND HIGH WATER ELEVATIONS.

2. CONDUCT JETTING AND VACTORING ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.



NOTE:
INSPECTION PORTS MAY BE CONNECTED THROUGH ANY CHAMBER CORRUGATION VALLEY.

4" PVC INSPECTION PORT DETAIL (MC SERIES CHAMBER)
NTS

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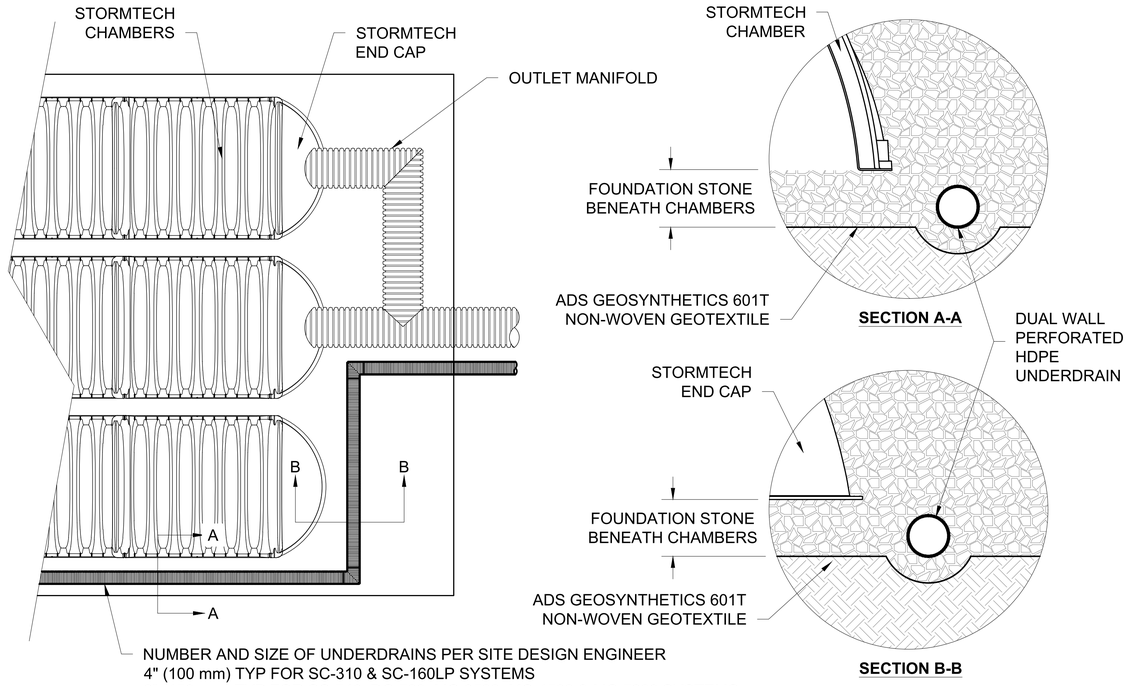
UNDERDRAIN DETAIL

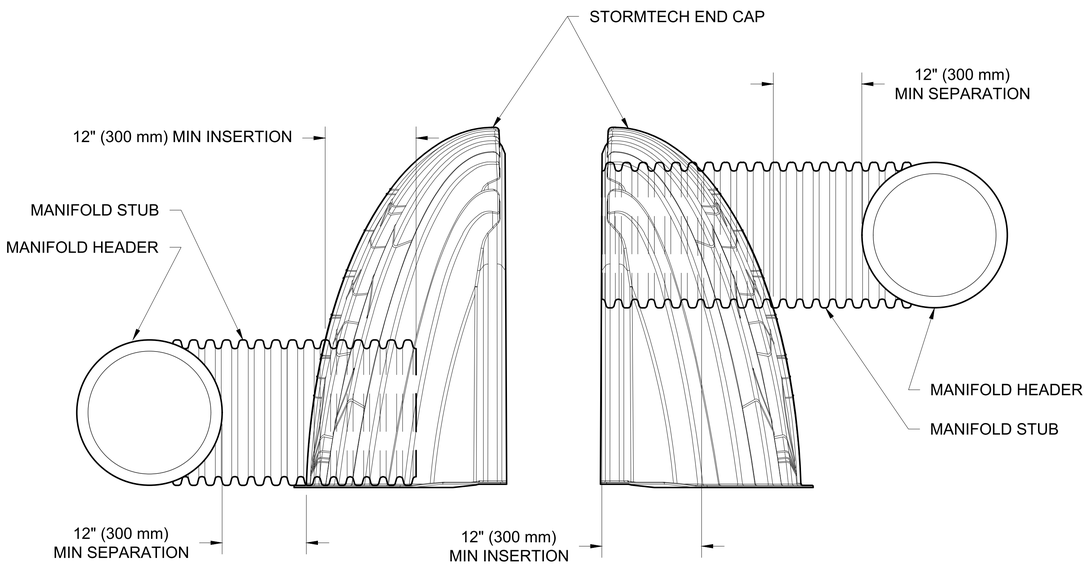
NTS



NUMBER AND SIZE OF UNDERDRAINS PER SITE DESIGN ENGINEER
4" (100 mm) TYP FOR SC-310 & SC-160LP SYSTEMS
6" (150 mm) TYP FOR SC-740, DC-780, MC-3500, MC-4500 & MC-7200 SYSTEMS

MC-SERIES END CAP INSERTION DETAIL

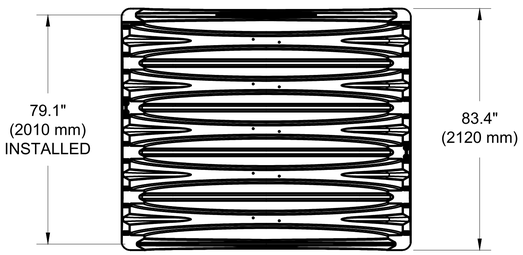
NTS

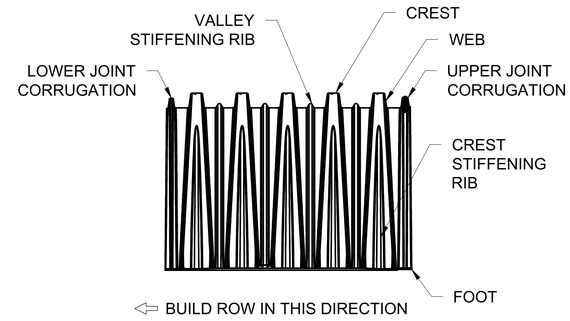


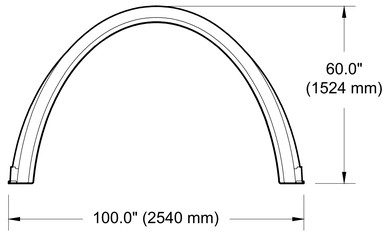
NOTE: MANIFOLD STUB MUST BE LAID HORIZONTAL FOR A PROPER FIT IN END CAP OPENING.

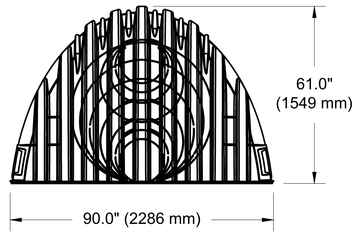
MC-7200 TECHNICAL SPECIFICATION

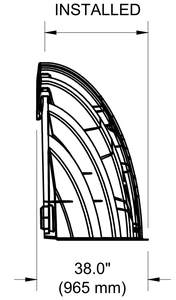
NTS











NOMINAL CHAMBER SPECIFICATIONS

SIZE (W X H X INSTALLED LENGTH)	100.0" X 60.0" X 79.1"	(2540 mm X 1524 mm X 2010 mm)
CHAMBER STORAGE	175.9 CUBIC FEET	(4.98 m³)
MINIMUM INSTALLED STORAGE*	267.3 CUBIC FEET	(7.56 m³)
WEIGHT (NOMINAL)	205 lbs.	(92.9 kg)

NOMINAL END CAP SPECIFICATIONS

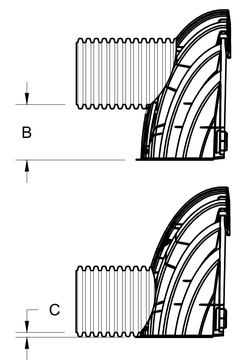
SIZE (W X H X INSTALLED LENGTH)	90.0" X 61.0" X 32.8"	(2286 mm X 1549 mm X 833 mm)
END CAP STORAGE	39.5 CUBIC FEET	(1.12 m³)
MINIMUM INSTALLED STORAGE*	115.3 CUBIC FEET	(3.26 m³)
WEIGHT (NOMINAL)	90 lbs.	(40.8 kg)

*ASSUMES 12" (305 mm) STONE ABOVE, 9" (229 mm) STONE FOUNDATION AND BETWEEN CHAMBERS, 12" (305 mm) STONE PERIMETER IN FRONT OF END CAPS AND 40% STONE POROSITY.

PARTIAL CUT HOLES AT BOTTOM OF END CAP FOR PART NUMBERS ENDING WITH "B"
PARTIAL CUT HOLES AT TOP OF END CAP FOR PART NUMBERS ENDING WITH "T"
END CAPS WITH A PREFABRICATED WELDED STUB END WITH "W"

PART #	STUB	B	C
MC7200IEPP06T	6" (150 mm)	42.54" (1081 mm)	---
MC7200IEPP06B		---	0.86" (22 mm)
MC7200IEPP08T	8" (200 mm)	40.50" (1029 mm)	---
MC7200IEPP08B		---	1.01" (26 mm)
MC7200IEPP10T	10" (250 mm)	38.37" (975 mm)	---
MC7200IEPP10B		---	1.33" (34 mm)
MC7200IEPP12T	12" (300 mm)	35.69" (907 mm)	---
MC7200IEPP12B		---	1.55" (39 mm)
MC7200IEPP15T	15" (375 mm)	32.72" (831 mm)	---
MC7200IEPP15B		---	1.70" (43 mm)
MC7200IEPP18T	18" (450 mm)	29.36" (746 mm)	---
MC7200IEPP18TW			
MC7200IEPP18B		---	1.97" (50 mm)
MC7200IEPP18BW			
MC7200IEPP24T	24" (600 mm)	23.05" (585 mm)	---
MC7200IEPP24TW			
MC7200IEPP24B		---	2.26" (57 mm)
MC7200IEPP24BW			
MC7200IEPP30BW	30" (750 mm)	---	2.95" (75 mm)
MC7200IEPP36BW	36" (900 mm)	---	3.25" (83 mm)
MC7200IEPP42BW	42" (1050 mm)	---	3.55" (90 mm)

NOTE: ALL DIMENSIONS ARE NOMINAL



CUSTOM PREFABRICATED INVERTS ARE AVAILABLE UPON REQUEST. INVENTORIED MANIFOLDS INCLUDE 12-24" (300-600 mm) SIZE ON SIZE AND 15-48" (375-1200 mm) ECCENTRIC MANIFOLDS. CUSTOM INVERT LOCATIONS ON THE MC-7200 END CAP CUT IN THE FIELD ARE NOT RECOMMENDED FOR PIPE SIZES GREATER THAN 10" (250 mm). THE INVERT LOCATION IN COLUMN 'B' ARE THE HIGHEST POSSIBLE FOR THE PIPE SIZE.

CROSSROADS MIXED USE
FILING NO. 1
COLORADO SPRINGS, CO

DATE: 05-05-22 | DRAWN: TSG | CHECKED: CTS
PROJECT #: S295850

DATE	DRWN	CHKD	DESCRIPTION
12-18-22	RKC	JPR	UPDATED ELEVATIONS
12/13/22	BMW		ELEVATION AND LAYOUT ADJUSTMENTS

StormTech®
Chamber System
888-892-2694 | WWW.STORMTECH.COM
4640 TRUEMAN BLVD
HILLIARD, OH 43026
ADS

PROJECT INFORMATION	
ENGINEERED PRODUCT MANAGER:	JEROME MAGSINO 303-349-7555 JEROME.MAGSINO@ADSPIPE.COM
ADS SALES REP:	AARON ZEE ---- AARON.ZEE@ADSPIPE.COM
PROJECT NO:	S295850

Advanced Drainage Systems, Inc.

CROSSROADS MIXED USE FILING NO. 1

COLORADO SPRINGS, CO

BAYSAVER BAYSEPARATOR SPECIFICATIONS

MATERIALS AND DESIGN

A. CONCRETE STRUCTURES SHALL BE DESIGNED FOR H-20 TRAFFIC LOADING AND APPLICABLE SOIL LOADS OR AS OTHERWISE DETERMINED BY A LICENSED PROFESSIONAL ENGINEER. THE MATERIALS AND STRUCTURAL DESIGN OF THE DEVICES SHALL BE PER ASTM C857 AND ASTM C858.
   1. THE MINIMUM COMPRESSIVE STRENGTH OF THE CONCRETE IN THE MANHOLE BASE, RISER, AND TOP SECTIONS SHALL BE 4000 PSI.
   2. THE MINIMUM WALL THICKNESS SHALL BE ONE TWELFTH OF THE INTERNAL DIAMETER OF THE RISER OF LARGEST CONE DIAMETER.
   3. CEMENT SHALL CONFORM TO THE REQUIREMENTS FOR PORTLAND CEMENT OF SPECIFICATION C150.
   4. AGGREGATES SHALL CONFORM TO SPECIFICATION C33, EXCEPT THAT THE REQUIREMENT FOR GRADATION SHALL NOT APPLY.
   5. REINFORCEMENT SHALL CONSIST OF WIRE CONFORMING TO SPECIFICATION A82 OR SPECIFICATION A496, OF WIRE FABRIC CONFORMING TO SPECIFICATION A185 OR SPECIFICATION A497, OR OF BARS OF GRADE 40 STEEL CONFORMING TO SPECIFICATION A615/A615M.
   6. THE ACCESS COVER SHALL BE DESIGNED FOR HS20-44 TRAFFIC LOADING AND SHALL PROVIDE A MINIMUM 30 INCH CLEAR OPENING.
   7. ALL JOINTS SHALL BE WATERPROOF WITH WRAPPED GASKETS OR SEALED WITH A MASTIC TREATMENT.
   8. ANY GROUT USED WITHIN THE SYSTEM SHALL MEET THE ASTM C 1107 "STANDARD SPECIFICATION FOR PACKAGED DRY, HYDRAULIC-CEMENT GROUT (NON-SHRINK)". GRADES A, B AND C AT A POURABLE AND PLASTIC CONSISTENCY AT 70°F. CRD C 621 "CORPS OF ENGINEERS SPECIFICATION FOR NON-SHRINK GROUT."
   9. STORAGE MANHOLE CONNECTOR PIPES SHALL BE EQUIPPED WITH A SEAL GASKET THAT MEETS OR EXCEEDS MATERIAL SPECIFICATIONS OF ASTM C-923 OR OTHER LOCALLY APPROVED METHODS.

B. THE SEPARATOR STRUCTURE SHALL BE SUBSTANTIALLY CONSTRUCTED OF HDPE OR EQUIVALENT CORROSION RESISTANT MATERIAL MEETING ASTM D330, ASTM F412, AND ASTM C-425.

C. PIPES WITHIN THE UNIT, (I.E., TEE PIPES, CONNECTOR PIPES AND DOWN PIPES) SHALL BE CONSTRUCTED OF AT LEAST SDR 32.5 HDPE PIPE OF STANDARD ASTM F412.

D. PIPE AND FITTING MATERIAL SHALL BE HIGH DENSITY POLYETHYLENE MEETING ASTM D330 MINIMUM CELL CLASSIFICATION 335400C FOR 24-INCH THROUGH 60-INCH DIAMETERS. THE 24- THROUGH 60-INCH PIPE MATERIAL SHALL BE SLOW CRACK RESISTANT HDPE MATERIAL, EVALUATED USING THE SINGLE POINT NOTCHED CONSTANT TENSILE LOAD (SP-NCTL) TEST.

PERFORMANCE

A. THE STORMWATER TREATMENT UNIT SHALL BE AN ONLINE UNIT CAPABLE OF CONVEYING 100% OF THE DESIGN PEAK FLOW.

B. THE BAYSEPARATOR UNIT SHALL BE DESIGNED TO REMOVE AT LEAST 80% OF THE SUSPENDED SOLIDS LOAD ON AN ANNUAL AGGREGATE REMOVAL BASIS. SAID REMOVAL SHALL BE BASED ON FULL-SCALE THIRD PARTY TESTING USING F-95 MEDIA GRADATION (MANUFACTURED BY US SILICA) OR EQUIVALENT. SAID FULL SCALE TESTING SHALL HAVE INCLUDED SEDIMENT CAPTURE BASED ON ACTUAL TOTAL MASS COLLECTED BY THE STORMWATER TREATMENT UNIT(S).

C. THE STORMWATER TREATMENT UNIT SHALL CONSIST OF ONE (1) PREFABRICATED SEPARATOR STRUCTURE, ONE (1) ONLINE COARSE SEDIMENT CAPTURE STRUCTURE, AND ONE (1) OFFLINE SEDIMENT AND FLOATABLE CAPTURE STRUCTURE. THE SEPARATOR STRUCTURE SHALL BE SUBSTANTIALLY CONSTRUCTED OF HDPE OR EQUIVALENT CORROSION RESISTANT MATERIAL. THE OFFLINE SEDIMENT STORAGE STRUCTURE MUST PROVIDE FOR OFFLINE SEDIMENT STORAGE OF SEDIMENTS AND FLOATABLES THAT ARE ISOLATED FROM HIGH INTENSITY STORMS.

D. THE STORMWATER TREATMENT UNIT(S) HEAD LOSS AT THE PEAK DESIGN FLOW RATE SHALL NOT EXCEED THE HEAD LOSS SPECIFIED BY THE ENGINEER.

E. THE UNIT SHALL BE DESIGNED TO REMOVE SEDIMENT PARTICLES AS WELL AS FLOATING OILS AND DEBRIS.

MANUFACTURER

A. THE STORMWATER TREATMENT UNIT(S) SHALL BE OF A BASIC DESIGN THAT HAS BEEN INSTALLED AND USED SUCCESSFULLY FOR A MINIMUM OF 5 YEARS.

B. EACH STORMWATER TREATMENT SYSTEM SHALL BE A BAYSEPARATOR SYSTEM AS MANUFACTURED BY BAYSAVER, LLC, 1030 DEER HOLLOW DR., MOUNT AIRY, MD 21771, PHONE (301) 829-6470, FAX (301-829-3747, TOLL FREE 1-800-229-7283 (1-800-BAYSAVER), EMAIL INFO@BAYSAVER.COM PROTECTED UNDER US PATENT NUMBER 5746911

BAYSEPARATOR MAINTENANCE

BAYSEPARATOR SYSTEMS MUST BE INSPECTED AND MAINTAINED PERIODICALLY. INSPECTION IS MADE BY CHECKING THE DEPTH OF SEDIMENT IN EACH MANHOLE WITH A GRADE STICK OR SIMILAR DEVICE. MAINTENANCE IS REQUIRED WHEN THE SEDIMENT DEPTH IN EITHER MANHOLE EXCEEDS 2 FEET. MINIMUM INSPECTION IS RECOMMENDED TWICE A YEAR TO MAINTAIN OPERATION AND FUNCTION OF BAYSAVER.

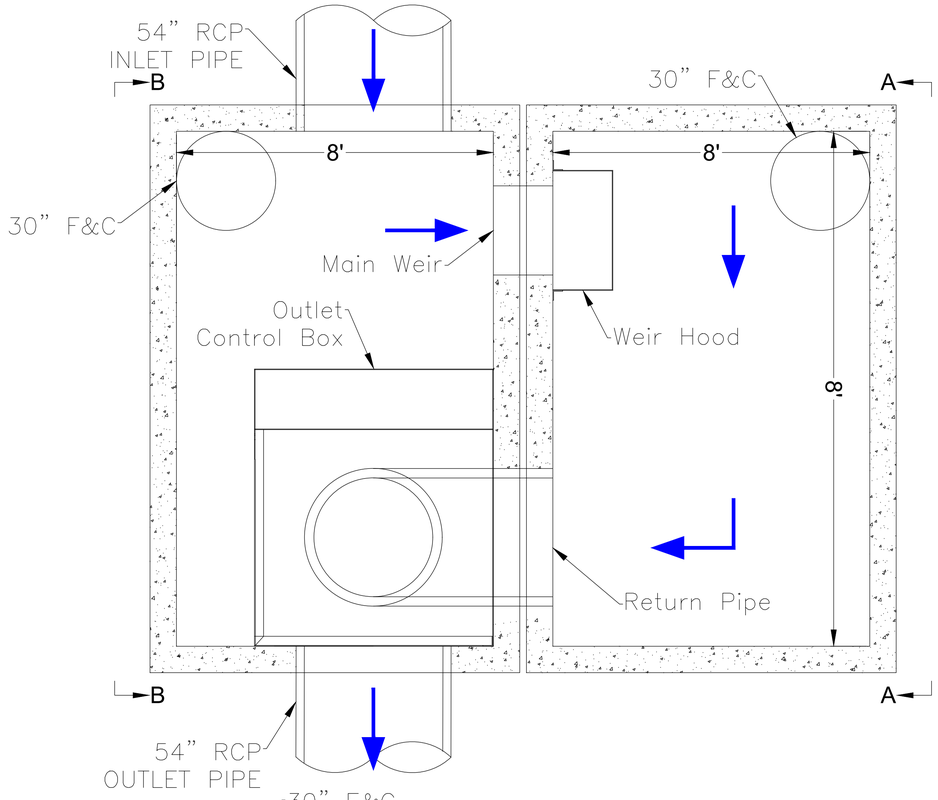
MAINTENANCE CONSISTS OF THE FOLLOWING:

A. STORAGE MANHOLE
1. REMOVE THE ENTIRE VOLUME OF THE CONTAMINATED WATER BY VACUUM TRUCK.
2. CLEAN THE MANHOLE WALLS AND FLUSH OUT THE MANHOLE USING A HIGH PRESSURE HOSE AND REMOVE FLUSHING WATER BY VACUUM TRUCK. MAKE CERTAIN MANHOLE IS CLEAN.

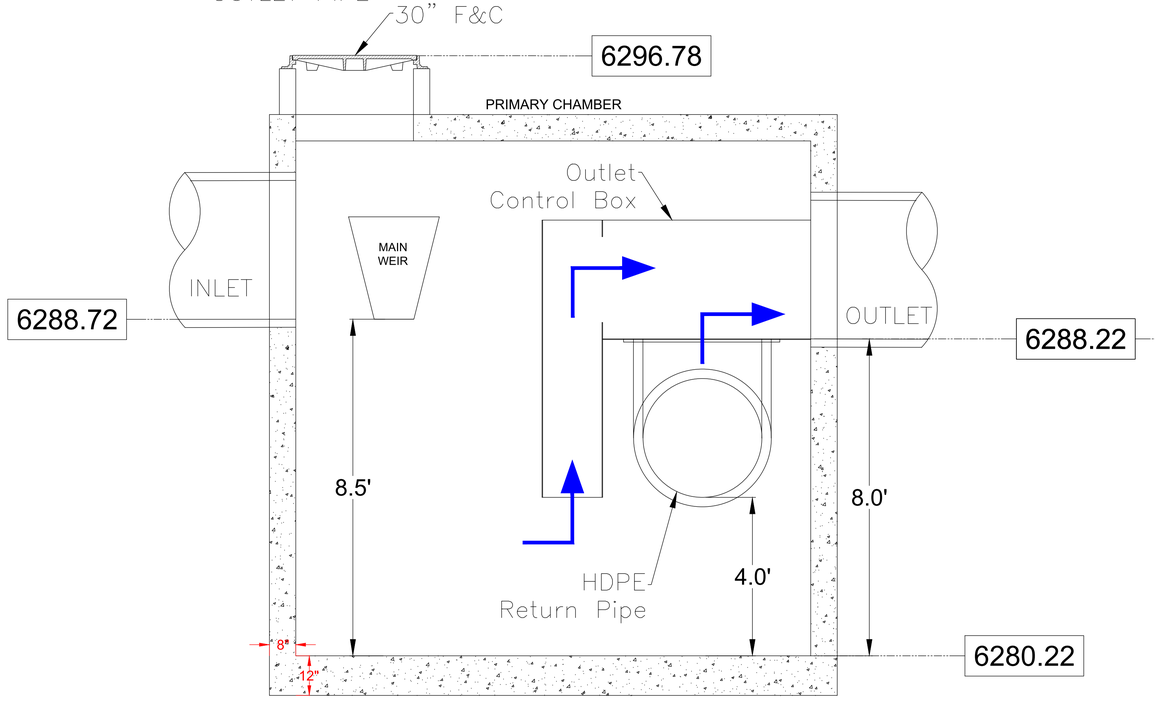
B. PRIMARY MANHOLE
1. USING A SUBMERSIBLE PUMP, PUMP THE CLEAN WATER FROM THE CENTER OF THE MANHOLE DIRECTLY INTO THE EMPTY STORAGE MANHOLE UNTIL THE WATER LEVEL FALLS TO 1 FOOT ABOVE THE SEDIMENT LAYER.
2. REMOVE THE SETTLED SEDIMENT AND REMAINING WATER BY VACUUM TRUCK.
3. CLEAN THE MANHOLE WALLS AND FLUSH OUT THE MANHOLE USING A HIGH PRESSURE HOSE AND REMOVE FLUSHING WATER BY VACUUM TRUCK. MAKE CERTAIN MANHOLE IS CLEAN.
4. CONTAMINATED MATERIAL REMOVED FROM THE MANHOLES MUST BE DISPOSED OF RESPONSIBLY AND LEGALLY BY THE OPERATOR OF THE VACUUM TRUCK.

BAYSEPARATOR INSTALLATION NOTES

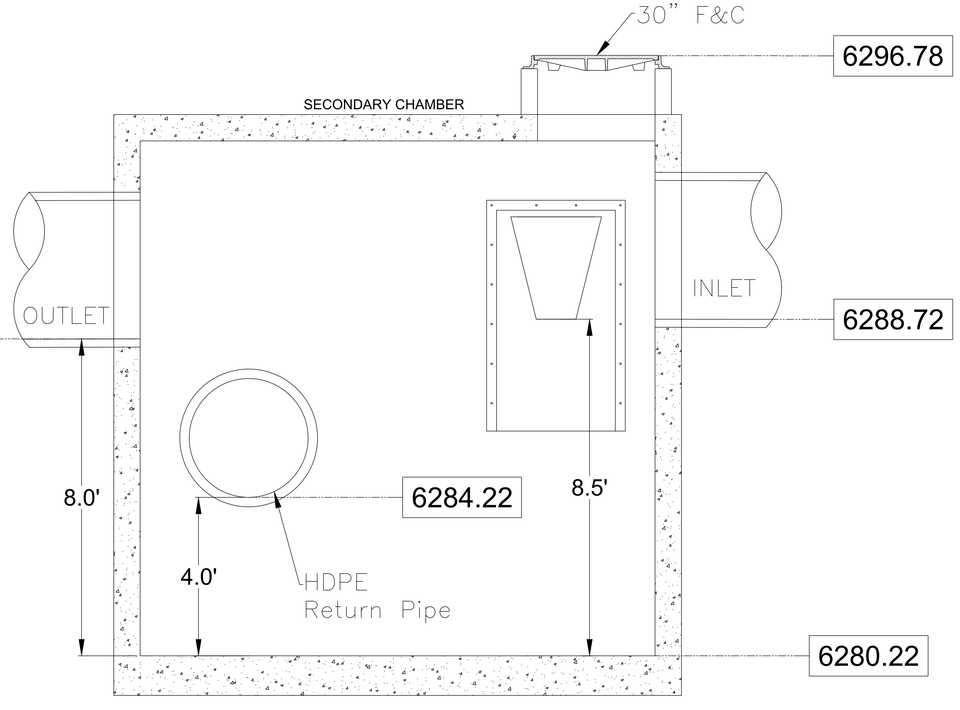
1. EXCAVATION MUST PROVIDE ADEQUATE SPACE TO CONNECT INLET AND OUTLET PIPES TO STORAGE MANHOLE AND BAYSEPARATOR UNIT. INSTALL PRECAST DROP STRUCTURES ON SOLID GROUND AS VERIFIED BY A GEOTECHNICAL ENGINEER.
2. VERIFY THE SUBGRADE ELEVATION AGAINST THE MANHOLE DIMENSIONS AND CONNECTING STORM DRAIN INVERTS.
3. MAKING SURE THE BASES ARE LEVEL AND THE STORAGE MANHOLE OPENINGS ARE ALIGNED WITH THE SEPARATOR UNIT, INSTALL PRIMARY AND STORAGE MANHOLES. INSTALL WATERTIGHT GASKETS ON BASE UNITS AND COAT WITH LUBRICATING GREASE (IF REQUIRED). INSTALL ADDITIONAL MANHOLE SECTIONS AS REQUIRED. SEAL LIFT HOLES WITH NON-SHRINK GROUT.
4. BACKFILL BASE SECTIONS OF MANHOLES TO INVERT OF STORAGE MANHOLE CONNECTING PIPES. USING APPROVED BACKFILL MATERIAL, BACKFILL AND COMPACT IN 8 INCH LIFTS. BACKFILL AND COMPACTION SHOULD BE MONITORED BY A GEOTECHNICAL ENGINEER.
5. INSTALL BAYSEPARATOR UNIT AND CONNECTING PIPES. SEAL ALL CONNECTING JOINTS AND INSTALL SEPARATOR HDPE REDUCER/ADAPTER. CUT EXCESS LENGTH OFF CONNECTING PIPES INSIDE STORAGE MANHOLE.
6. BACKFILL SEPARATOR UNIT AND MANHOLES. AREAS NOT ACCESSIBLE TO COMPACTION EQUIPMENT MUST BE BACKFILLED WITH #57, #7, OR PEA GRAVEL.
7. INSTALL AND SET MANHOLE COVER GRADE ADJUSTMENT RINGS AS NECESSARY.
8. INSTALL AND SET MANHOLE FRAME AND COVER UNITS.



SYSTEM	NORTHSIDE
WQ FLOW RATE (CFS)	24
PEAK FLOW RATE (CFS)	65.5
INLET PIPE	54"
INLET INVERT	6288.72
OUTLET PIPE	54"
OUTLET INVERT	6288.22
RIM ELEVATION	6296.78
WIDTH (FT)	8'
LENGTH (FT)	8'
INSIDE HEIGHT (FT)	16'



SECTION B-B



SECTION A-A

CROSSROADS MIXED USE FILING NO. 1

COLORADO SPRINGS, CO

DATE: 12/21/22 | DRAWN: PR | CHECKED: PR | PROJECT #: S295850

DATE	DRWN	CHKD	DESCRIPTION

THIS DRAWING HAS BEEN PREPARED BASED ON INFORMATION PROVIDED TO ADS UNDER THE DIRECTION OF THE SITE DESIGN ENGINEER SHALL REVIEW THIS DRAWING PRIOR TO CONSTRUCTION. IT IS THE ULTIMATE RESPONSIBILITY OF THE SITE DESIGN ENGINEER TO ENSURE THAT THE PRODUCT(S) DEPICTED AND ALL ASSOCIATED DETAILS MEET ALL APPLICABLE LAWS, REGULATIONS, AND PROJECT REQUIREMENTS.

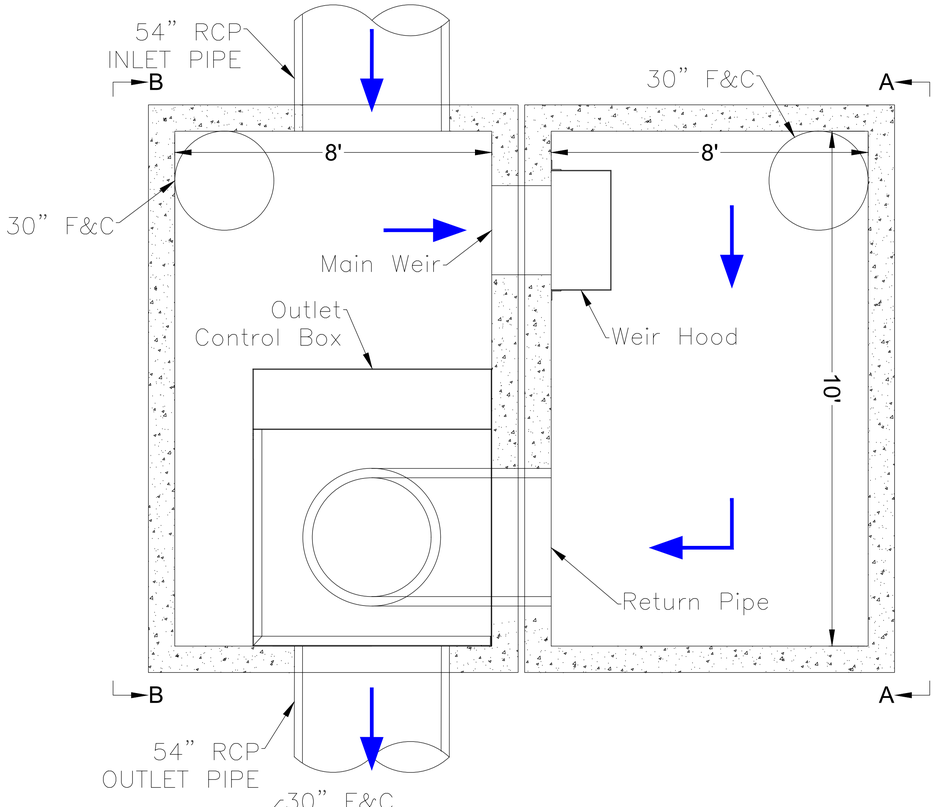
BaySeparator
Stormwater Treatment System

4640 TRUEMAN BLVD
HILLIARD, OH 43026

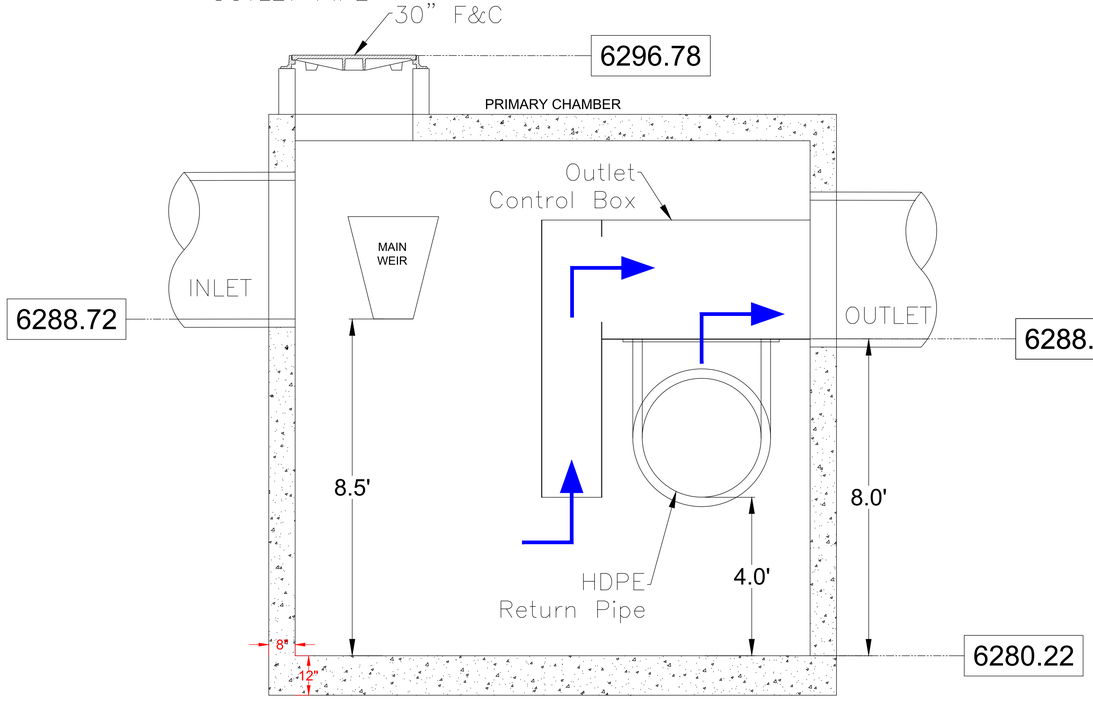
ADS

NOT TO SCALE

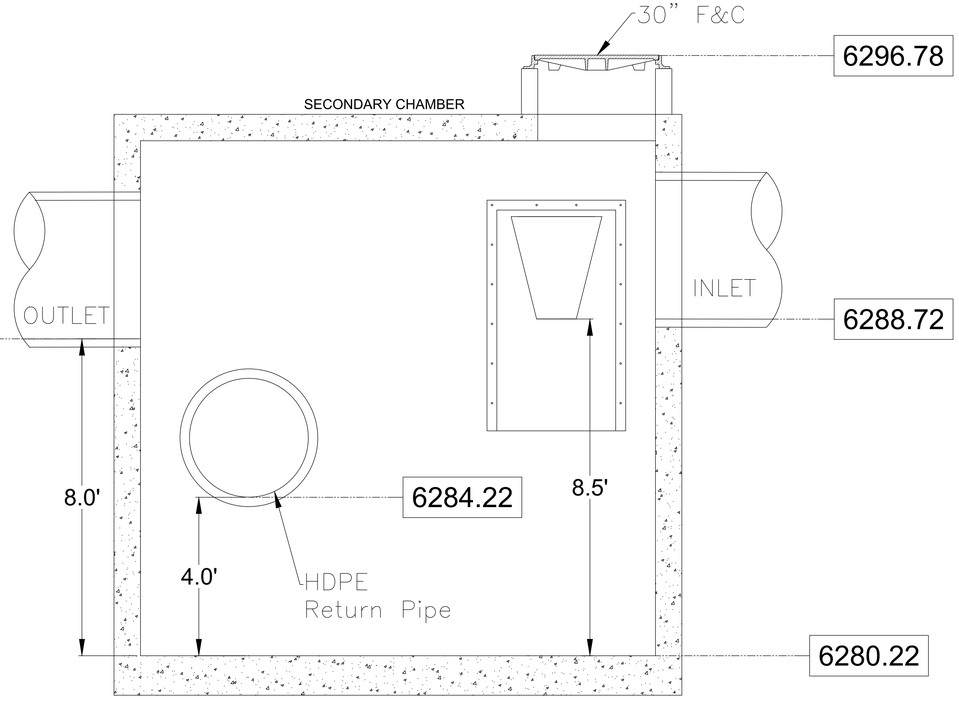
SHEET 2 OF 3



SYSTEM	EASTSIDE
WQ FLOW RATE (CFS)	32
PEAK FLOW RATE (CFS)	112
INLET PIPE	54"
INLET INVERT	6288.72
OUTLET PIPE	54"
OUTLET INVERT	6288.22
RIM ELEVATION	6296.78
WIDTH (FT)	8'
LENGTH (FT)	10'
INSIDE HEIGHT (FT)	16'



SECTION B-B



SECTION A-A

CROSSROADS MIXED USE FILING NO. 1

COLORADO SPRINGS, CO

DATE: 12/21/22 | DRAWN: PR | CHECKED: PR | PROJECT #: S295850

DATE	DRWN	CHKD	DESCRIPTION

BaySeparator
Stormwater Treatment System

ADS
4640 TRUEMAN BLVD
HILLIARD, OH 43026

NOT TO SCALE

THIS DRAWING HAS BEEN PREPARED BASED ON INFORMATION PROVIDED TO ADS UNDER THE DIRECTION OF THE SITE DESIGN ENGINEER OR OTHER PROJECT REPRESENTATIVE. THE SITE DESIGN ENGINEER SHALL REVIEW THIS DRAWING PRIOR TO CONSTRUCTION. IT IS THE ULTIMATE RESPONSIBILITY OF THE SITE DESIGN ENGINEER TO ENSURE THAT THE PRODUCT(S) DEPICTED AND ALL ASSOCIATED DETAILS MEET ALL APPLICABLE LAWS, REGULATIONS, AND PROJECT REQUIREMENTS.

FINAL DRAINAGE REPORT
CROSSROADS MIXED USE FILING NO. 1
UNDERGROUND DETENTION
– PROPOSED DRAINAGE MAP

CROSSROADS MIXED USE FILING NO. 1
FOR UNDERGROUND DETENTION (UGD)
PROPOSED UGD CONDITIONS DRAINAGE MAP

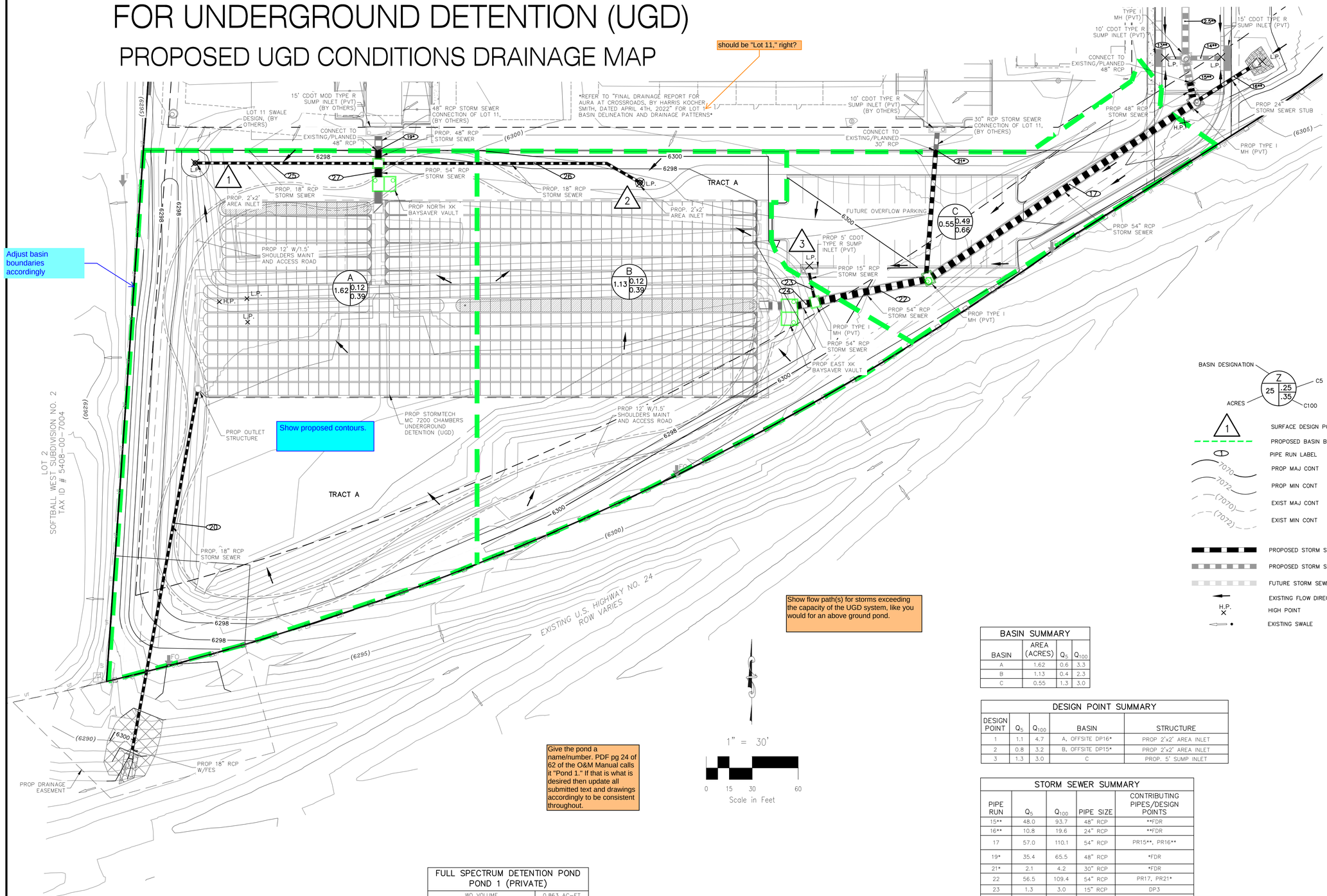
should be "Lot 11," right?

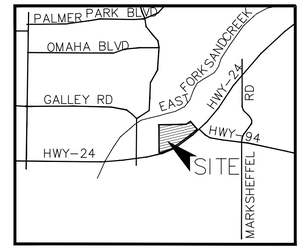
Adjust basin boundaries accordingly

Show proposed contours.

Show flow path(s) for storms exceeding the capacity of the UGD system, like you would for an above ground pond.

Give the pond a name/number. PDF pg 24 of 62 of the O&M Manual calls it "Pond 1." If that is what is desired then update all submitted text and drawings accordingly to be consistent throughout.





VICINITY MAP
N.T.S.

LEGEND

BASIN DESIGNATION, ACRES, C5, C100
SURFACE DESIGN POINT
PROPOSED BASIN BOUNDARY
PIPE RUN LABEL
PROP MAJ CONT
PROP MIN CONT
EXIST MAJ CONT
EXIST MIN CONT
PROPOSED STORM SEWER PIPE
PROPOSED STORM SEWER PIPE (OTHERS)
FUTURE STORM SEWER PIPE
EXISTING FLOW DIRECTION ARROW
HIGH POINT
EXISTING SWALE
SITE BOUNDARY
PROPOSED UTILITY EASEMENT
PROPOSED DRAINAGE EASEMENT
PROPOSED LANDSCAPE EASEMENT
LOT LINE
STORM SEWER LINE
EX. UNDERGROUND ELECTRIC LINE
EX. SANITARY SEWER LINE
EX. WATER LINE
EX. STORM SEWER LINE
LOT NUMBER
EX. IRRIGATION VALVE
EX. STORM INLET
EX. GAS TEST NODE
EX. TELEPHONE PEDESTAL
EX. ELECTRIC VAULT
EX. SANITARY MANHOLE
EX. WATER VALVE
PROPOSED RIPRAP
EMERGENCY OVERFLOW DIRECTION
LOW POINT
PROPOSED SWALE

BASIN SUMMARY			
BASIN	AREA (ACRES)	Q_5	Q_{100}
A	1.62	0.6	3.3
B	1.13	0.4	2.3
C	0.55	1.3	3.0

DESIGN POINT SUMMARY				
DESIGN POINT	Q_5	Q_{100}	BASIN	STRUCTURE
1	1.1	4.7	A, OFFSITE DP16*	PROP 2'x2' AREA INLET
2	0.8	3.2	B, OFFSITE DP15*	PROP 2'x2' AREA INLET
3	1.3	3.0	C	PROP. 5' SUMP INLET

STORM SEWER SUMMARY				
PIPE RUN	Q_5	Q_{100}	PIPE SIZE	CONTRIBUTING PIPES/DESIGN POINTS
15**	48.0	93.7	48" RCP	**FDR
16**	10.8	19.6	24" RCP	**FDR
17	57.0	110.1	54" RCP	PR15**, PR16**
19*	35.4	65.5	48" RCP	*FDR
21*	2.1	4.2	30" RCP	*FDR
22	56.5	109.4	54" RCP	PR17, PR21*
23	1.3	3.0	15" RCP	DP3
24	57.7	112.0	54" RCP	PR22, PR23
25	1.1	4.7	18" RCP	DP1
26	0.8	3.2	18" RCP	DP2
27	37.5	74.6	54" RCP	PR19*, PR25, PR26
20	1.2	11.4	18" RCP	DETENTION POND OUTFALL

FULL SPECTRUM DETENTION POND POND 1 (PRIVATE)	
WQ VOLUME	0.863 AC-FT
EURV VOLUME	3.295 AC-FT
100 YR STORAGE VOLUME	4.668 AC-FT
100 YR WATER SURFACE EL	6294.96

*FDR FOR AURA AT CROSSROADS, PREPARED BY HKS, DATED APRIL 4, 2022
**FDR CROSSROADS MIXED USE FILING NO.1, PREPARED BY MS CIVIL CONSULTANTS INC., DATED APRIL 2022

PCD FILING NO:

PROPOSED DRAINAGE MAP
CROSSROADS MIXED USE FILING NO.1 FOR UGD
JOB NO. 18-003
DATE PREPARED: DECEMBER 20, 2022
DATE REVISED:

212 N. WAHSATCH AVE., STE 305
COLORADO SPRINGS, CO 80903
PHONE: 719.955.5485