DRAINAGE LETTER FOR
THE SANDS INDUSTRIAL PARK
FILING NO.1, LOT 6

FEBRUARY 2021

Prepared for:

K.R. Swerdfeger Const., Inc.
Ray Swerdfeger
421 E. Industrial Blvd.
Pueblo West, CO 81007
(719) 547-0242

Prepared by:

CIVIL CONSULTANTS, INC.
212 Wahsatch Ave, STE 305
Colorado Springs, CO 80903
(719) 955-5485
Project #43-128

DRAINAGE LETTER FOR THE SANDS INDUSTRIAL PARK FILING NO.1, LOT 6

SIGNATURE & DRAINAGE PLAN STATEMENTS

Engineer's Statement
This report and plan for the drainage design of The Sands Industrail Park Filing No.1, Lot 6, was prepared under my supervision and is correct to the best of my knowledge and belief. Said drainage report and plan has been prepared in accordance with the City of Colorado Springs Drainage Criteria Manual and is in conformity with the master plan of the drainage basin. I understand that the City of Colorado Springs does not and will not assume liability for drainage facilities designed by others. 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
K.R.Swerdfeger Const., Inc., hereby certifies that the drainage facilities for The Sands Industrial Park Filing No.1, Lot 6 shall be constructed according to the design presented in this report. I understand that the City of Colorado Springs does not and will not assume liability for the drainage facilities designed and/or certified by my engineer and that are submitted to the City of Colorado Springs pursuant to section 7.7.906 of the City Code; and cannot, on behalf of The Sands Industrial Park Filing No.1, Lot 6, guarantee that final drainage design review will absolve K.R.Swerdfeger Const., Inc., and/or their successors and/or assigns future liability for improper design. I further understand that approval of the final plat does not imply approval of my engineer's drainage design.

BY: _____ DATE: _____

PRINTED NAME: __Ray Swerdfeger_____

TITLE: Owner
ADDRESS: 421 E. Industrial Blvd.
Pueblo West, CO 81007

City of Colorado Springs Statement:

Filed in accordance with Section 7.7.906 of the Code of the City of Colorado Springs, 2001, as amended.

BY: _____ DATE: _____
For The City Engineer

CONDITIONS:

CIVIL CONSULTANTS, INC.

February 8, 2021

City of Colorado Springs
Subdivision Engineering Review Team
30 South Nevada Avenue, Suite 401
Colorado Springs, Colorado 80903
Attn: Jonathan Scherer

RE: Drainage Letter for the Sands Industrial Park Filing No.1, Lot 6

Dear Jonathan,

The following is the Drainage Letter for the Sands Industrial Park Filing No. 1, Lot 6. The purpose of this letter is to show general conformance with the drainage patterns established by the **Master Development Drainage Plan for the Sands Industrial Park Filing No.1 and the Preliminary/Final Drainage Report for the Sand Industrial Park Filing No.1, Lot 6** (here on known as **MDDP**) and provide rational drainage calculations to accompany minor design changes associated with final engineering, see approved rational drainage calculations and drainage map in attachments.

Lot 6 contains 4.085 acres and is located within the **Sands Industrial Park Filing No.1** subdivision within the City of Colorado Springs, El Paso County, Colorado. Lot 6 is bound to the east by Weatherford Artificial, to the north by Lots 2, 3 and 4 of the Sand Industrial Park Filing No.1, to the west by the East Fork Sand Creek Sub-tributary and to the south by the Rocky Mountain Industrial Park Filing No.1. Lot 6 is located within a portion of the northwest quarter of Section 33, Township 13 South, Range 65 West of the Sixth Principal Meridian, El Paso County, Colorado. A vicinity map is provided in the attachments.

The **MDDP** was prepared by M&S Civil Consultants, Inc. and approved in August 2020. This drainage letter will amend the Preliminary/Final Drainage Report for the Sands Industrial Park Filing No.1, Lot 6. The revision to the site is to include a proposed 10,800 square foot material and equipment storage warehouse located at the northeast corner of Lot 6, within **Basin I** of the **MDDP**. **Basin I** has been divided into two sub-basins, one to include the storage warehouse and the other to remain as crushed asphalt.

Basin I1 contains 1.04 acres of landscaping, storage warehouse and crushed asphalt. **Basin I1** has proposed flows of 2.3 cfs for the minor storm event (5-year) and 4.7 cfs for the major storm event (100-year). Crushed asphalt runoff will travel as sheet flow while roof runoff will be routed via roof drains to a swale located to the north of the building, along the north property line. These flows will be routed through **Basin I2**.

Basin I2 contains 0.81 acres of landscaping and crushed asphalt. **Basin I2** has proposed flows of 1.9 cfs for the minor storm event (5-year) and 3.8 cfs for the major storm event (100-year). The cumulative runoff within **Basin I1** and **Basin I2** is to be conveyed along the north and west property lines in side lot swales to **Design Point 11** (Q5 = 4.0 cfs, Q100 = 8.1 cfs), where flows will be intercepted by a private CDOT Type C inlet and a private 18" polypropylene storm sewer (**Pipe 10**) (Q5 = 4.0 cfs, Q100 = 8.1 cfs). These flow are less than the calculated flows in the approved **MDDP** at DP11,(Q5 = 4.3 cfs, Q100 = 8.6 cfs), therefore no negative impacts are anticipated to the downstream improvements or facilities. Should the pipe system become clogged runoff reaching **DP11** would overtop the adjacent embankment and continue downstream toward the proposed pond within the rear lot drainage easement. See amended rational drainage calculations and amended drainage map in attachments.

This final drainage letter for Lot 6 is in compliance with the design as proposed within the approved **MDDP**; 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. The site is proposed to be subdivided into 6 commercial lots. Drainage fees were paid at the time of the previous platting as The Sands Industrial Park Filing No.1 (Reception No. 220714571), therefore no additional Drainage Bridge and/or Pond fees are not required. See attachments for the Sands Industrial Park Filing No.1 Plat, approved August 27, 2020, by M&S Civil Consultants, Inc., for previously paid drainage and bridge fees.

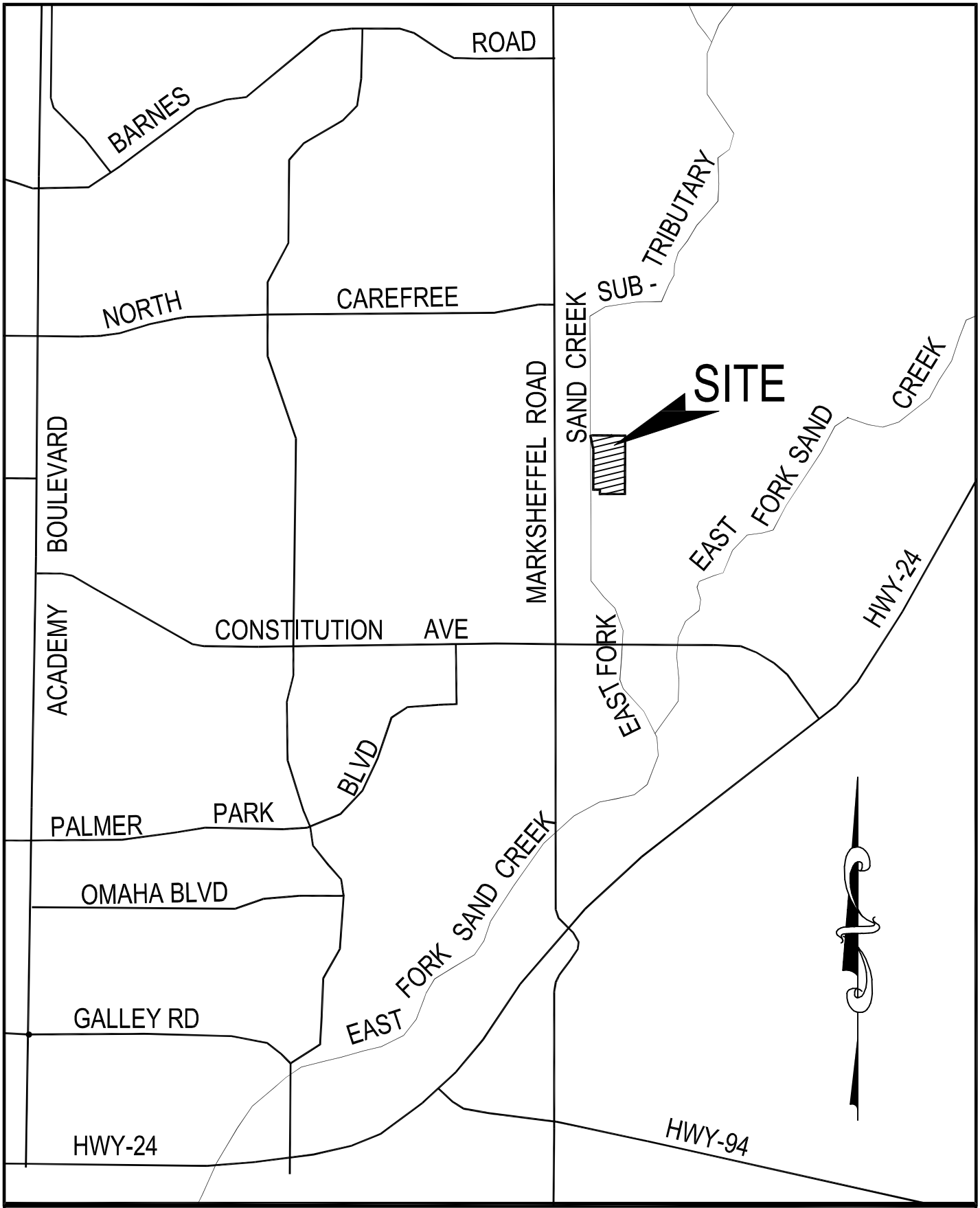
Respectfully,

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

ATTACHMENTS:
Vicinity Map
Attachment 1- Approved Plat
Attachment 2- Approved MDDP Rational Drainage Calculations and Drainage Map
Attachment 3- Proposed Rational Drainage Calculations and Drainage Map

ATTACHMENTS

Vicinity Map



VICINITY MAP

N.T.S.

Attachment 1-
Approved Plat/Drainage Fee's

THE SANDS INDUSTRIAL PARK FILING NO. 1

A PARCEL OF LAND IN THE NORTHWEST QUARTER (NW 1/4) OF SECTION 33, TOWNSHIP 13 SOUTH, RANGE 65 WEST OF THE SIXTH PRINCIPAL MERIDIAN, CITY OF COLORADO SPRINGS, EL PASO COUNTY, STATE OF COLORADO

KNOW ALL MEN BY THESE PRESENTS:

THAT EAGLE DEVELOPMENT COMPANY, A COLORADO CORPORATION, BEING THE OWNER OF THE FOLLOWING DESCRIBED TRACT OF LAND:

LEGAL DESCRIPTION:

A PARCEL OF LAND LYING WITHIN THE NORTHWEST QUARTER OF SECTION 33, TOWNSHIP 13 SOUTH, RANGE 65 WEST OF THE SIXTH PRINCIPAL MERIDIAN, EL PASO COUNTY, COLORADO, AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT THE NORTHEAST CORNER OF "THE SANDS FILING NO. 1" UNDER RECEPTION NO. 219714414 IN THE RECORDS OF EL PASO COUNTY, COLORADO, SAID POINT ALSO BEING A POINT ON THE SOUTHERLY LINE OF "MARKSHEFFEL INDUSTRIAL PARK", RECORDED IN PLAT BOOK Z-3 AT PAGE 125 OF SAID COUNTY RECORDS;

THENCE ALONG SAID SOUTHERLY LINE THE FOLLOWING FOUR (4) COURSES:
1. N66°36'44"E, A DISTANCE OF 37.03 FEET;
2. S89°55'19"E, A DISTANCE OF 349.88 FEET;
3. S00°12'12"E, A DISTANCE OF 4.51 FEET;
4. S89°55'54"E, A DISTANCE OF 270.12 FEET TO THE WEST LINE OF THAT PARCEL DESCRIBED IN WARRANTY DEED UNDER RECEPTION NO. 20112950;

THENCE S00°04'42"W, ALONG THE WEST LINE THEREOF, 1099.90 FEET TO THE CENTERLINE OF AN 80 FOOT EASEMENT FOR ROAD AND UTILITY PURPOSES (RECORDED IN BOOK 3863 AT PAGE 1414 AND BOOK 2988 AT PAGE 476 OF SAID COUNTY RECORDS);
THENCE S89°59'11"W ALONG SAID CENTERLINE, A DISTANCE OF 473.30 FEET TO THE EAST LINE OF "THE SANDS FILING NO. 1";
THENCE ALONG THE EAST LINE THEREOF THE FOLLOWING FOUR (4) COURSES:
1. N00°00'49"W, A DISTANCE OF 80.00;
2. S89°59'11"W, A DISTANCE OF 123.99 FEET;
3. N00°03'07"W, A DISTANCE OF 763.00 FEET (BASIS OF BEARING, SEE NOTE 1);
4. N12°24'43"W, A DISTANCE OF 253.58 FEET TO THE POINT OF BEGINNING;

SAID PARCEL CONTAINS A CALCULATED AREA OF 657,383 SQUARE FEET (15.091 ACRES) OF LAND, MORE OR LESS.

DEDICATION:

THE UNDERSIGNED OWNER HAS CAUSED SAID TRACT OF LAND TO BE PLATTED INTO LOTS, TRACTS, PUBLIC AND PRIVATE STREETS, AND EASEMENTS, AS SHOWN ON THE PLAT. THE UNDERSIGNED DOES HEREBY DEDICATE, GRANT AND CONVEY TO THE CITY OF COLORADO SPRINGS THOSE PUBLIC STREETS AND PUBLIC EASEMENTS AS SHOWN ON THE PLAT; AND FURTHER RESTRICTS THE USE OF ALL PUBLIC EASEMENTS TO THE CITY OF COLORADO SPRINGS AND/OR ITS ASSIGNS, PROVIDED HOWEVER, THAT THE SOLE RIGHT AND AUTHORITY TO VACATE, RELEASE, OR QUITCLAIM ALL OR ANY SUCH PUBLIC STREETS AND PUBLIC EASEMENTS SHALL REMAIN EXCLUSIVELY VESTED IN THE CITY OF COLORADO SPRINGS. THIS TRACT OF LAND AS PLATTED HEREIN SHALL BE KNOWN AS "THE SANDS INDUSTRIAL PARK FILING NO. 1", IN THE CITY OF COLORADO SPRINGS, EL PASO COUNTY, COLORADO. ALL PUBLIC STREETS ARE HEREBY DEDICATED TO THE CITY OF COLORADO SPRINGS FOR PUBLIC USE.

OWNER:

THE AFOREMENTIONED, EAGLE DEVELOPMENT COMPANY, A COLORADO CORPORATION, BY JEFF MARK, AS VICE PRESIDENT, HAS EXECUTED THIS INSTRUMENT THIS 19th DAY OF AUGUST, 2020, A.D.

JEFF MARK, VICE PRESIDENT,
EAGLE DEVELOPMENT COMPANY, A COLORADO CORPORATION
212 N. WAHSATCH AVE., SUITE 301 COLORADO SPRINGS, CO 80903
(719) 635-3200

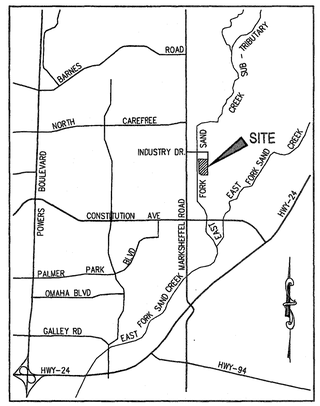
NOTARIAL:

STATE OF COLORADO)
) SS
COUNTY OF EL PASO)

THE ABOVE AND AFOREMENTIONED INSTRUMENT WAS ACKNOWLEDGED BEFORE ME THIS THIS 19th DAY OF August, 2020, A.D. BY JEFF MARK AS VICE PRESIDENT OF EAGLE DEVELOPMENT COMPANY, A COLORADO CORPORATION.

WITNESS MY HAND AND OFFICIAL SEAL:
MY COMMISSION EXPIRES: 3.22.21
NOTARY PUBLIC

SUSAN L GONZALES
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID 20044004607
MY COMMISSION EXPIRES MARCH 22, 2021



VICINITY MAP
N.T.S.

PLAT NOTES:

1. BASIS OF BEARINGS:
BEARINGS ARE BASED ON THE PLAT OF "THE SANDS FILING NO 1" UNDER RECEPTION NO. 219714414 OF THE RECORDS OF THE EL PASO COUNTY, COLORADO. A PORTION OF THE EAST LINE BEING MONUMENTED WITH ORANGE PLASTIC SURVEYOR'S CAPS STAMPED "PLS 25966" ON NUMBER 5 REBAR AS SHOWN ON THE PLAT, SAID LINE BEARS N00°03'07"W A DISTANCE OF 763.00 FEET. THE UNITS OF MEASUREMENT IS U.S. SURVEY FEET.

2. FLOODPLAIN STATEMENT:
PORTIONS OF THIS PROPERTY ARE LOCATED WITHIN ZONE AE SPECIAL FLOOD HAZARD AREAS INUNDATED BY THE 100 YEAR FLOODPLAIN AND ZONE X AREAS DETERMINED TO BE OUTSIDE THE 500 YEAR FLOODPLAIN AS DETERMINED BY FLOOD INSURANCE RATE MAP, COMMUNITY MAP NUMBER 08041C0543G, HAVING AN EFFECTIVE DATE OF DECEMBER 7, 2018. A CONDITIONAL LETTER OF MAP REVISION (CLOMR) HAS BEEN APPROVED FOR THE SITE PER FEMA CASE NO. 18-08-0610R, DATED OCTOBER 19, 2018. PIKES PEAK REGIONAL BUILDING DEPARTMENT WILL REQUIRE AN EFFECTIVE LETTER OF MAP REVISION REMOVING THE LOTS FROM THE FLOODPLAIN PRIOR TO THE ISSUANCE OF ANY BUILDING PERMITS FOR THE INDIVIDUAL LOTS. LOMR CASE NO. 20-08-0548P (PENDING)

3. TITLE COMMITMENT:
THIS SURVEY DOES NOT CONSTITUTE A TITLE SEARCH BY M&S CIVIL CONSULTANTS. INC., TO DETERMINE THE COMPATIBILITY OF THIS DESCRIPTION WITH THAT OF ADJACENT TRACTS OF LAND, OWNERSHIP OR EASEMENTS OF RECORD. FOR ALL INFORMATION REGARDING EASEMENTS, RIGHT-OF-WAY OR TITLE OF RECORD, M&S CIVIL CONSULTANTS, INC., RELIED UPON TITLE COMMITMENT FILE NO. 69616UTC, PREPARED BY UNIFIED TITLE COMPANY, LLC, DATED NOVEMBER 06, 2019.

4. ALL CORNERS OF THIS SURVEY ARE FOUND OR SET AS NOTED HEREON.

5. EXISTING ACCESS POINTS TO THE PROPERTY ARE ALONG CAPITAL DRIVE. ALL ACCESS POINTS TO LOTS 1 THROUGH 6 SHALL BE FROM CAPITAL DRIVE.

6. THIS PROPERTY IS SUBJECT TO THE FINDINGS, SUMMARY AND CONCLUSIONS OF A GEOLOGICAL HAZARD STUDY PROVIDED BY RMG ENGINEERS DATED OCTOBER 26, 2017. COPIES OF SAID STUDY HAVE BEEN PLACED WITHIN FILE OPC CP 17-00084 OF THE CITY OF COLORADO SPRINGS CITY PLANNING OFFICE. THIS REPORT IDENTIFIED NO SIGNIFICANT GEOLOGIC HAZARDS THAT ARE ANTICIPATED TO PRECLUDE THE PROPOSED DEVELOPMENT. HOWEVER, THE POTENTIAL DOES EXIST FOR GEOLOGIC HAZARDS OR CONDITIONS RELATED TO THE FOLLOWING:
A: EXPANSIVE SOILS AND EXPANSIVE BEDROCK
B: COLLAPSIBLE SOIL
C: RADON
D: SHALLOW WATER TABLES
E: FLOOD PRONE AREAS
F: HISTORY OF LANDFALL ACTIVITY OR UNDOCUMENTED/UNCONTROLLED FILL ACTIVITY
G: EROSION
CONTACT THE PLANNING DEPARTMENT, 30 SOUTH NEVADA AVE. SUITE 700, COLORADO SPRINGS, CO IF YOU WOULD LIKE TO REVIEW SAID REPORT.

7. THE AVIGATION EASEMENT DEDICATED HEREIN FOR PUBLIC AVIGATION PURPOSES, SHALL BE CONSIDERED A PUBLIC EASEMENT SUBJECT TO THOSE TERMS AND CONDITIONS AS SPECIFIED ON THE INSTRUMENT RECORDED AT RECEPTION NO. 217069667 OF THE RECORDS OF EL PASO COUNTY, COLORADO. ALL OTHER EASEMENTS OR INTERESTS OF RECORD AFFECTING ANY OF THE PROPERTY DEPICTED HEREON SHALL NOT BE AFFECTED AND SHALL REMAIN IN FULL FORCE AND EFFECT.

8. NOTICE: THIS PROPERTY MAY BE SUBJECT TO NOISE CAUSED BY AIRCRAFT OPERATING INTO AND OUT OF THE COLORADO SPRINGS MUNICIPAL AIRPORT. THE BUYER SHOULD FAMILIARIZE THEMSELVES WITH THIS POTENTIALITY AND RAMIFICATIONS THEREOF. NO MAN-MADE OR NON MAN-MADE OBSTRUCTIONS ARE ALLOWED TO PENETRATE THE 40:1 APPROACH SURFACE.

9. THE PROPERTY IS LOCATED WITHIN AND SUBJECT TO THE REQUIREMENTS AND PLATTING AND BUILDING FEES OF THE SANDS METROPOLITAN DISTRICT AS RECORDED UNDER RECEPTION NO. 216114674.

10. 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 CRS 18-4-508.

11. THE FULL SPECTRUM DETENTION POND WITHIN TRACT A SHALL BE OWNED AND MAINTAINED AND SHALL BE THE RESPONSIBILITY OF THE SANDS METROPOLITAN DISTRICT.

12. TRACT A IS FOR THE PURPOSES FOR ACCESS, LANDSCAPING, PUBLIC AND PRIVATE IMPROVEMENTS, PUBLIC AND PRIVATE UTILITIES AND DRAINAGE. TRACT A WILL BE OWNED AND MAINTAINED BY THE THE SANDS METROPOLITAN DISTRICT, AND WILL BE CONVEYED BY SEPARATE INSTRUMENT.

13. TRACT A, LOT 1 AND LOT 5 ARE SUBJECT TO THE REQUIREMENTS OF THE STREAMSIDE OVERLAY ORDINANCE. REFER TO THE CONCEPT PLAN FOR THIS AREA (AR CP-19-00752) FOR REQUIREMENTS.

14. PRIOR TO ANY DEVELOPMENT WITHIN TRACT A, LOT 1 AND LOT 5, INCLUDING GRADING. VEGETATION REMOVAL, OR ANY OTHER IMPROVEMENTS ADJACENT TO THE STREAMSIDE OVERLAY ZONE, DEVELOPMENT PLAN APPROVAL SHALL BE OBTAINED, AND THE INNER BUFFER ZONE MUST BE FENCED OR APPROPRIATELY FLAGGED BY THE PROPERTY OWNER OR DEVELOPER TO DENOTE THE STREAM CORRIDOR. NO HEAVY EQUIPMENT OR OTHER POTENTIALLY DAMAGING ACTIVITIES ARE PERMITTED IN THE PROTECTED AREA. THE FLAGS ARE TO REMAIN IN PLACE UNTIL CONSTRUCTION ACTIVITIES ARE COMPLETE.

NOTICE IS HEREBY GIVEN:

THAT THE AREA INCLUDED IN THE PLAT DESCRIBED HEREIN IS SUBJECT TO THE CODE OF THE CITY OF COLORADO SPRINGS, 2001, AS AMENDED.

NO BUILDING PERMITS SHALL BE ISSUED FOR BUILDING SITES WITHIN THIS PLAT UNTIL ALL REQUIRED FEES HAVE BEEN PAID AND ALL REQUIRED PUBLIC AND PRIVATE IMPROVEMENTS HAVE BEEN INSTALLED AS SPECIFIED BY THE CITY OF COLORADO SPRINGS OR, ALTERNATIVELY, UNTIL ACCEPTABLE ASSURANCES, INCLUDING BUT NOT LIMITED TO LETTERS OF CREDIT, CASH, SUBDIVISION BONDS OR COMBINATIONS THEREOF, GUARANTEEING THE COMPLETION OF ALL REQUIRED PUBLIC IMPROVEMENTS, INCLUDING, BUT NOT LIMITED TO, DRAINAGE, STREET AND EROSION CONTROL, HAVE BEEN PLACED ON FILE WITH THE CITY OF COLORADO SPRINGS.

EASEMENTS:

EASEMENT ARE AS SHOWN ON SHEET 2. THE SOLE RESPONSIBILITY FOR SURFACE MAINTENANCE OF THESE EASEMENTS IS HEREBY VESTED WITH THE INDIVIDUAL PROPERTY OWNER.

ALL EASEMENTS THAT ARE DEDICATED HEREON FOR PUBLIC UTILITY PURPOSES SHALL BE SUBJECT TO THOSE TERMS AND CONDITIONS AS SPECIFIED IN THE INSTRUMENT RECORDED AT RECEPTION NO. 212112548 OF THE RECORDS OF EL PASO COUNTY, COLORADO. ALL OTHER EASEMENTS OR INTERESTS OF RECORD AFFECTING ANY OF THE PLATTED PROPERTY DEPICTED HEREON SHALL NOT BE AFFECTED AND SHALL REMAIN IN FULL FORCE AND EFFECT.

SURVEYORS STATEMENT

THE UNDERSIGNED PROFESSIONAL LAND SURVEYOR, LICENSED IN THE STATE OF COLORADO, HEREBY STATES AND DECLARES THAT THE ACCOMPANYING PLAT WAS SURVEYED AND DRAWN UNDER HIS RESPONSIBLE CHARGE AND ACCURATELY SHOWS THE DESCRIBED TRACT OF LAND AND SUBDIVISION THEREOF, AND THAT THE REQUIREMENTS OF TITLE 38 OF THE COLORADO REVISED STATUTES, 1973, AS AMENDED, HAVE BEEN MET TO THE BEST OF HIS KNOWLEDGE AND BELIEF.

8/13/2020
VERNON P. TAYLOR, COLORADO PLS NO. 25966
FOR AND ON BEHALF OF:
M&S CIVIL CONSULTANTS, INC
102 E. PIKES PEAK AVE., 5TH FLOOR,
COLORADO SPRINGS, CO 80903

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.

CITY APPROVALS:

ON BEHALF OF THE CITY OF COLORADO SPRINGS, THE UNDERSIGNED HEREBY APPROVE FOR FILING THE ACCOMPANYING PLAT OF "THE SANDS INDUSTRIAL PARK FILING NO. 1"

For CITY ENGINEER — 8/24/2020 DATE

For CITY PLANNING DIRECTOR — 8/21/2020 DATE

CITY CLERK — 8/26/20 DATE

CLERK AND RECORDER:

STATE OF COLORADO)
) SS
COUNTY OF EL PASO)

I HEREBY CERTIFY THAT THIS INSTRUMENT WAS FILED FOR RECORD AT MY OFFICE AT 11:11 O'CLOCK AM, THIS 27th DAY OF August, 2020, A.D., AND IS DULY RECORDED UNDER RECEPTION NUMBER 220714571 OF THE RECORDS OF EL PASO COUNTY, COLORADO.

FEE: $20.00

CHUCK BROERMAN, RECORDER

SURCHARGE: $3

BY: DEPUTY

FEES:

DRAINAGE FEE: PAID
BRIDGE FEE: PAID
SCHOOL FEE: N/A COMMERCIAL
PARK FEE: N/A COMMERCIAL

SUMMARY:

6 LOTS	12.804 ACRES	84.85%
1 TRACT	1.277 ACRES	8.46%
RIGHT-OF-WAY	1.010 ACRES	6.69%
TOTAL	15.091 ACRES	100.00%

FINAL PLAT
THE SANDS INDUSTRIAL PARK
FILING NO. 1
JOB NO. 43-129
DATE PREPARED: 03/03/2020
DATE REVISED: 08/11/2020

FILE NO. AR FP 19-00754

CIVIL CONSULTANTS, INC.

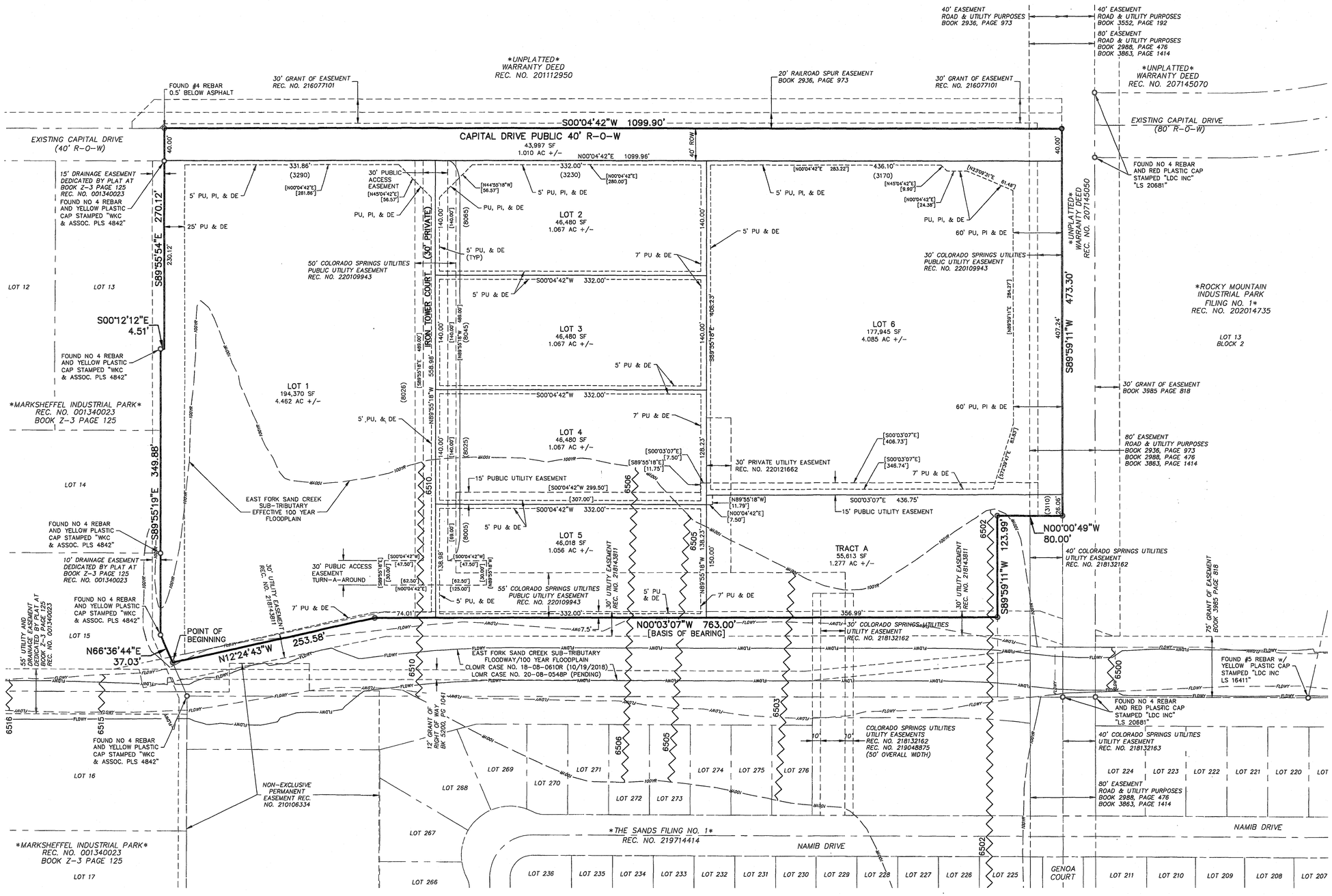
102 E. PIKES PEAK AVE., 5TH FLOOR
COLORADO SPRINGS, CO 80903
PHONE: 719.955.5485

SHEET 1 OF 2

File: O:\43129A-Sands Industrial\Sands Industrial\dwg\Survey\Plat\43-129 The Sands Industrial Park Final Plat.dwg Plotstamp: 8/13/2020 11:37 AM

THE SANDS INDUSTRIAL PARK FILING NO. 1

A PARCEL OF LAND IN THE NORTHWEST QUARTER (NW 1/4) OF SECTION 33, TOWNSHIP 13 SOUTH, RANGE 65 WEST, OF THE SIXTH PRINCIPAL MERIDIAN, CITY OF COLORADO SPRINGS, EL PASO COUNTY, STATE OF COLORADO



LEGEND:

SF	SQUARE FEET
(xxxx)	ADDRESS
●	SET No 5 REBAR AND 1.25" ORANGE CAP STAMPED "M&S CIVIL PLS 25966" FLUSH W/ EXISTING GRADE UNLESS NOTED OTHERWISE
○	FOUND No 5 REBAR AND 1.25" ORANGE CAP STAMPED "M&S CIVIL PLS 25966" FLUSH W/ EXISTING GRADE UNLESS NOTED OTHERWISE
	BOUNDARY LINE
	PROPERTY LINE
	RIGHT OF WAY LINE
	CENTERLINE
	EASEMENT LINE
	ADJACENT PROPERTY LINE
	EXISTING RIGHT OF WAY LINE
	EXISTING CENTERLINE
	EXISTING EASEMENT
5688	BASE FLOODPLAIN ELEVATION LABEL / BASE FLOODPLAIN ELEVATION LINE
FLOWY	EXISTING FLOODWAY LIMITS
100YR	EXISTING 100 YEAR FLOODPLAIN LIMITS
FLOWY	PROPOSED FLOODWAY LIMITS
NOT A PART	PARCELS INDICATED WITH ASTERISK "*" ARE NOT A PART OF THIS SUBDIVISION
PU & DE	PUBLIC UTILITY AND DRAINAGE EASEMENT
PU, PI, & DE	PUBLIC UTILITY, PUBLIC IMPROVEMENT, AND DRAINAGE EASEMENT
[50.00]	EASEMENT BEARINGS AND DISTANCES

FINAL PLAT
THE SANDS INDUSTRIAL PARK
FILING NO. 1
JOB NO. 43-129
DATE PREPARED: 03/03/2020
DATE REVISED: 08/11/2020

FILE NO. AR FP 19-00754

CIVIL CONSULTANTS, INC.
102 E. PIKES PEAK AVE., 5TH FLOOR
COLORADO SPRINGS, CO 80903
PHONE: 719.955.5485

File: O:\43129A-Sands Industrial\Survey\Survey\Plat\43-129 The Sands Industrial Park Final Plat.dwg Plotstamp: 8/13/2020 11:39 AM

Attachment 2-
Rational Drainage Calculations and Drainage Map

SANDS INDUSTRIAL FILING NO. 1 MDDP
PROPOSED DRAINAGE CALCULATIONS
(Area Runoff Coefficient Summary)

			ROOFS 0.73-0.81 COMMERCIAL AREAS 0.81-0.88 ASPHALT DRIVES 0.90-0.96			*GRAVEL STORAGE YARD 0.30-0.50 LIGHT INDUST AREAS 0.59-0.70 HVY INDUST AREAS 0.73-0.81*			*LANDSCAPED AREAS 0.16-0.41 PARKS 0.12-0.39 GREENBELTS/AGRI. 0.09-0.36*			*WEIGHTED*	
BASIN	**TOTAL AREA** *(SF)*	**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}**
A	*6912.0*	**0.16**	0.16	0.90	0.96	0.00	0.25	0.30	0.00	0.09	0.36	***0.90***	***0.96***
B	*11887.3*	**0.27**	0.18	0.90	0.96	0.00	0.59	0.70	0.09	0.09	0.36	***0.64***	***0.76***
C	*147067.3*	**3.38**	3.38	0.59	0.70	0.00	0.30	0.50	0.00	0.12	0.39	***0.59***	***0.70***
D	*23033.6*	**0.53**	0.53	0.59	0.70	0.00	0.16	0.41	0.00	0.09	0.36	***0.59***	***0.70***
E	*28273.4*	**0.65**	0.44	0.90	0.96	0.20	0.59	0.70	0.00	0.09	0.36	***0.80***	***0.88***
F	*40068.3*	**0.92**	0.92	0.59	0.70	0.00	0.30	0.50	0.00	0.12	0.39	***0.59***	***0.70***
G	*43236.6*	**0.99**	0.99	0.59	0.70	0.00	0.30	0.50	0.00	0.16	0.41	***0.59***	***0.70***
H	*43085.5*	**0.99**	0.99	0.59	0.70	0.00	0.81	0.88	0.00	0.16	0.41	***0.59***	***0.70***
I	*80471.7*	**1.85**	1.85	0.59	0.70	0.00	0.30	0.50	0.00	0.09	0.36	***0.59***	***0.70***
J	*40154.0*	**0.92**	0.92	0.59	0.70	0.00	0.30	0.50	0.00	0.09	0.36	***0.59***	***0.70***
J1	*35089.2*	**0.81**	0.81	0.90	0.96	0.00	0.30	0.50	0.00	0.09	0.36	***0.90***	***0.96***
K	*32957.7*	**0.76**	0.44	0.90	0.96	0.32	0.59	0.70	0.00	0.09	0.36	***0.77***	***0.85***
L	*43955.2*	**1.01**	1.01	0.59	0.70	0.00	0.30	0.50	0.00	0.09	0.36	***0.59***	***0.70***
M	*54027.0*	**1.24**	0.00	0.90	0.96	0.00	0.30	0.50	1.24	0.12	0.39	***0.12***	***0.39***
N	*20121.4*	**0.46**	0.00	0.90	0.96	0.00	0.30	0.50	0.46	0.09	0.36	***0.09***	***0.36***
O	*6998.7*	**0.16**	0.16	0.90	0.96	0.00	0.30	0.50	0.00	0.09	0.36	***0.90***	***0.96***
OS1*	*4013191.7*	**92.13**	0.00	0.90	0.96	0.00	0.59	0.70	92.13	0.09	0.36	***0.09***	***0.36***
OS2	*28121.0*	**0.65**	0.30	0.90	0.96	0.17	0.90	0.96	0.17	0.09	0.36	***0.68***	***0.80***
OS3	*196892.0*	**4.52**	4.52	0.73	0.81	0.00	0.16	0.41	0.00	0.09	0.36	***0.73***	***0.81***
OS4	*172934.0*	**3.97**	3.97	0.73	0.81	0.00	0.30	0.50	0.00	0.12	0.41	***0.73***	***0.81***
OS5	*1442324.0*	**33.11**	10.90	0.90	0.96	0.00	0.30	0.50	22.21	0.09	0.36	***0.36***	***0.56***
OS6	*43376.8*	**1.00**	0.24	0.90	0.96	0.00	0.30	0.50	0.76	0.09	0.36	***0.29***	***0.51***
OS7	*7962.0*	**0.18**	0.00	0.90	0.96	0.00	0.30	0.50	0.18	0.09	0.36	***0.09***	***0.36***

*from The Sands MDDP

Calculated by: DLM
Date: 4/16/2020
Checked by: VAS

SANDS INDUSTRIAL FILING NO. 1 MDDP
PROPOSED 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**	**C_5**	**C_{100}**	**C_5**	**Length**	**Height**	**T_C**	**Length**	**Slope**	**Velocity**	**T_t**	**TOTAL**	**CHECK**	**I_5**	**I_{100}**	**Q_5**	**Q_{100}**
	(Acres)	*From DCM Table 5-1*			*(ft)*	*(ft)*	*(min)*	*(ft)*	*(%)*	*(fps)*	*(min)*	*(min)*	*(min)*	*(in/hr)*	*(in/hr)*	*(c.f.s.)*	*(c.f.s.)*
A	0.16	0.90	0.96	0.90	40	0.8	1.8	153	1.5%	2.4	1.0	2.9	11.1	5.2	8.7	***0.7***	***1.3***
B	0.27	0.64	0.76	0.64	12	4.0	0.9	460	0.5%	1.4	5.4	6.3	12.6	4.8	8.1	***0.8***	***1.7***
C	3.38	0.59	0.70	0.59	100	2.0	7.3	850	0.6%	1.5	9.2	16.6	15.3	3.5	5.9	***7.0***	***13.9***
D	0.53	0.59	0.70	0.59	66	2.0	5.2	180	2.0%	2.8	1.1	6.2	11.4	4.8	8.1	***1.5***	***3.0***
E	0.65	0.80	0.88	0.80	100	7.5	2.8	275	2.0%	2.8	1.6	4.4	12.1	5.2	8.7	***2.7***	***4.9***
F	0.92	0.59	0.70	0.59	50	1.0	5.2	240	1.3%	2.2	1.8	7.0	11.6	4.7	7.8	***2.5***	***5.0***
G	0.99	0.59	0.70	0.59	50	1.0	5.2	200	1.0%	2.0	1.7	6.8	11.4	4.7	7.9	***2.8***	***5.5***
H	0.99	0.59	0.70	0.59	50	1.0	5.2	250	1.0%	2.0	2.1	7.3	11.7	4.6	7.7	***2.7***	***5.4***
I	1.85	0.59	0.70	0.59	100	1.0	9.2	310	1.5%	2.4	2.1	11.4	12.3	3.9	6.6	***4.3***	***8.6***
J	0.92	0.59	0.70	0.59	50	1.0	5.2	250	1.0%	2.0	2.1	7.3	11.7	4.6	7.7	***2.5***	***5.0***
J1	0.81	0.90	0.96	0.90	40	0.8	1.8	760	1.4%	2.4	5.3	7.1	14.4	4.6	7.8	***3.4***	***6.0***
K	0.76	0.77	0.85	0.77	50	1.0	3.4	100	1.5%	2.4	0.7	4.0	10.8	5.2	8.7	***3.0***	***5.6***
L	1.01	0.59	0.70	0.59	50	1.0	5.2	250	1.6%	2.5	1.6	6.8	11.7	4.7	7.9	***2.8***	***5.6***
M	1.24	0.12	0.39	0.12	50	6.0	5.5	300	0.5%	1.4	3.5	9.0	11.9	4.3	7.2	***0.6***	***3.5***
N	0.46	0.09	0.36	0.09	25	2.0	4.6	400	1.0%	2.0	3.3	7.9	12.4	4.5	7.5	***0.2***	***1.3***
O	0.16	0.90	0.96	0.90	100	2.0	2.9	106	1.0%	2.0	0.9	3.8	11.1	5.2	8.7	***0.7***	***1.3***
OS1*	92.13	0.09	0.36	0.09	200	16.0	13.0	TC TAKEN	FROM	SANDS	MDDP	32.0		2.4	4.0	***19.8***	***132.7***
OS2	0.65	0.68	0.80	0.68	50	1.0	4.2	500	1.0%	0.7	11.9	16.1	13.1	3.7	6.3	***1.6***	***3.2***
OS3	4.52	0.73	0.81	0.73	100	2.0	5.3	680	1.7%	2.6	4.3	9.7	14.3	4.2	7.0	***13.8***	***25.7***
OS4	3.97	0.73	0.81	0.73	100	2.0	5.3	625	2.0%	2.8	3.7	9.0	14.0	4.3	7.2	***12.4***	***23.1***
OS5	33.11	0.36	0.56	0.36	150	3.0	13.1	2450	2.0%	1.4	28.9	41.9	24.4	2.8	4.7	***32.9***	***86.4***
OS6	1.00	0.29	0.51	0.29	50	1.0	8.3	830	1.4%	0.8	16.4	24.7	14.9	2.8	4.7	***0.8***	***2.3***
OS7	0.18	0.09	0.36	0.09	50	1.0	10.3	100	3.3%	3.6	0.5	10.7	10.8	4.0	6.8	***0.1***	***0.4***

* Intensity equations assume a minimum travel time of 5 minutes.

Calculated by: DLM
Date: 4/16/2020
Checked by: VAS

SANDS INDUSTRIAL FILING NO. 1 MDDP
PROPOSED 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** *DPS AND/OR PIPES*	**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
1	**OS1**	8.29	33.17	See Area Drainage Sheet for Input								32.0	2.4	4.0	***19.8***	***132.7***	EX DUAL 42" CULVERTS
2	**OS2, A**	0.58	0.67	TAKEN FROM BASIN A (MIN Tc)								5.0	5.2	8.7	***3.0***	***5.8***	5'W CURB OPENING W/ RIPRAP RUNDOWN
3	**DP1, DP2**	8.88	33.84	TAKEN FROM BASIN DP1								32.0	2.4	4.0	***21.2***	***135.4***	EXIST EARTHEN SWALE
4	**DP3, B, OS3, OS4**	15.25	40.92	Initial			32.0	650	0.5%	1.4	7.7	39.7	2.1	3.5	***31.4***	***141.6***	PROP 8'W 2:1 SS CONC. SWALE
				Design Point 2 Tc Used													
5	**C**	1.99	2.36	See Area Drainage Sheet for Input								15.3	3.5	5.9	***7.0***	***13.9***	PROP 24" STORM
6	**D**	0.31	0.37	See Area Drainage Sheet for Input								6.2	4.8	8.1	***1.5***	***3.0***	PROP 18" STORM
7	**E**	0.52	0.57	See Area Drainage Sheet for Input (Min Tc)								5.0	5.2	8.7	***2.7***	***4.9***	PROP. 10' TYPE R SUMP INLET
8	**F**	0.54	0.64	See Area Drainage Sheet for Input								7.0	4.7	7.8	***2.5***	***5.0***	PROP CDOT TYPE 'C' INLET
9	**G**	0.59	0.69	See Area Drainage Sheet for Input								6.8	4.7	7.9	***2.8***	***5.5***	PROP 18" STORM
10	**H**	0.58	0.69	See Area Drainage Sheet for Input								7.3	4.6	7.7	***2.7***	***5.4***	PROP 18" STORM

Calculated by: DLM
Date: 4/16/2020
Checked by: VAS

SANDS INDUSTRIAL FILING NO. 1 MDDP
PROPOSED 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** *DPS AND/OR PIPES*	**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
11	**I**	1.09	1.29	See Area Drainage Sheet for Input								11.4	3.9	6.6	***4.3***	***8.6***	PROP TYPE C INLET 18" STORM SEWER
12	**J**	0.54	0.65	See Area Drainage Sheet for Input								7.3	4.6	7.7	***2.5***	***5.0***	PROP 18" STORM
13	**J1**	0.72	0.77	See Area Drainage Sheet for Input								7.1	4.6	7.8	***3.4***	***6.0***	PROP 12' D-10R AT-GRADE INLET
14	**K**	0.58	0.64	See Area Drainage Sheet for Input (Min Tc)								5.0	5.2	8.7	***3.0***	***5.6***	PROP. 5' TYPE R SUMP INLET
15	**L**	0.60	0.71	See Area Drainage Sheet for Input								6.8	4.7	7.9	***2.8***	***5.6***	PROPOSED FSD POND 1 (SE Forebay)
16	**PR6, PR13 PR18, M**	8.22	9.87	TAKEN FROM BASIN PR13								11.4	3.9	6.6	***32.4***	***65.2***	PROPOSED FSD POND A
17	**O**	0.14	0.15	See Area Drainage Sheet for Input								5.0	5.2	8.7	***0.7***	***1.3***	EX SWALE
18	**OS5**	11.81	18.46	See Area Drainage Sheet for Input								24.4	2.8	4.7	***32.9***	***86.4***	EX 24" RCP CULVERT
19	**DP18, OS6**	12.10	18.97	TAKEN FROM BASIN DP18								24.4	2.8	4.7	***33.7***	***88.8***	EX ELLIPT. 48" CMP CULVERT
20	**N, OS7**	0.06	0.23	TAKEN FROM BASIN N								7.9	4.5	7.5	***0.3***	***1.7***	MOD TYPE D INLET BOX
21	**DP4, DP19, PR19**	27.41	61.36	TAKEN FROM BASIN DP4								39.7	2.1	3.5	***56.5***	***212.3***	TOTAL DISCHARGE NO ACCT FOR POND DET AFFECTS ON TC

Calculated by: DLM
Date: 4/16/2020
Checked by: VAS

SANDS INDUSTRIAL FILING NO. 1 MDDP
PROPOSED DRAINAGE CALCULATIONS
(Storm Sewer Routing Summary)

PIPE RUN	*Contributing Pipes/Design Points*	*Equivalent CA_5*	*Equivalent CA_{100}*	*Maximum T_C*	*Intensity**		*Flow*		*Pipe Size*
					I_5	*I_{100}*	*Q_5*	*Q_{100}*	
1	**DP5**	1.99	2.36	15.3	3.5	5.9	***7.0***	***13.9***	**PROP 24" PIPE**
2	**DP6**	0.31	0.37	6.2	4.8	8.1	***1.5***	***3.0***	**PROP 18" PIPE**
3	**PR 1, PR2**	2.30	2.73	15.4	3.5	5.8	***8.0***	***16.0***	**PROP 24" PIPE**
4	**PR3, DP7**	2.82	3.30	15.4	3.5	5.8	***9.8***	***19.3***	**PROP 24" PIPE**
5	**DP8**	0.54	0.64	7.0	4.7	7.8	***2.5***	***5.0***	**PROP 18" PIPE**
6	**PR4, PR5**	3.37	3.95	15.9	3.4	5.8	***11.5***	***22.7***	**PROP 30" PIPE**
7	**DP9**	0.59	0.69	6.8	4.7	7.9	***2.8***	***5.5***	**PROP 18" PIPE**
8	**DP10**	0.58	0.69	7.3	4.6	7.7	***2.7***	***5.4***	**PROP 18" PIPE**
9	**PR7, PR8**	1.17	1.39	7.3	4.6	7.7	***5.4***	***10.7***	**PROP 18" PIPE**
10	**DP11**	1.09	1.29	11.4	3.9	6.6	***4.3***	***8.6***	**PROP 18" PIPE**
11	**DP12**	0.54	0.65	7.3	4.6	7.7	***2.5***	***5.0***	**PROP 18" PIPE**
12	**NOT USED**	0.00	0.00	0.0	0.0	0.0	***0.0***	***0.0***	**PROP 18" PIPE**
13	**PR9, PR10, PR11**	2.80	3.33	11.4	3.9	6.6	***11.0***	***22.0***	**PROP 30" PIPE**
14	**INLET1**	0.72	0.76	7.1	4.6	7.8	***3.4***	***5.9***	**PROP 18" PIPE**
15	**DP14**	0.58	0.64	5.0	5.2	8.7	***3.0***	***5.6***	**PROP 18" PIPE**
16	**PR14, PR15**	1.31	1.40	7.1	4.6	7.8	***6.1***	***10.9***	**PROP 24" PIPE**
17	**DP15**	0.60	0.71	6.8	4.7	7.9	***2.8***	***5.6***	**PROP 18" PIPE**
18	**PR16, PR17**	1.90	2.11	7.1	4.6	7.8	***8.8***	***16.5***	**PROP 24" PIPE**
19	**POND 1 OUTLET (DP6)**		TAKEN FROM UD-DETENTION WORKSHEET				***0.5***	***11.3***	**PROP 18" PIPE**
20	**DP19**	12.10	18.97	24.4	2.8	4.7	***33.7***	***88.8***	**EX 48" CMP**
21	**PR20**	12.10	18.97	24.4	2.8	4.7	***33.7***	***88.8***	**PROP 48" RCP**
22	**PR21, DP20**	12.15	19.20	24.4	2.8	4.7	***33.9***	***89.8***	**EX DUAL 36" RCP**

* Intensity equations assume a minimum travel time of 5 minutes.

DP - Design Point
PR - Pipe Run
FB- Flow By from Design Point
INT- Intercepted Flow from Design Point

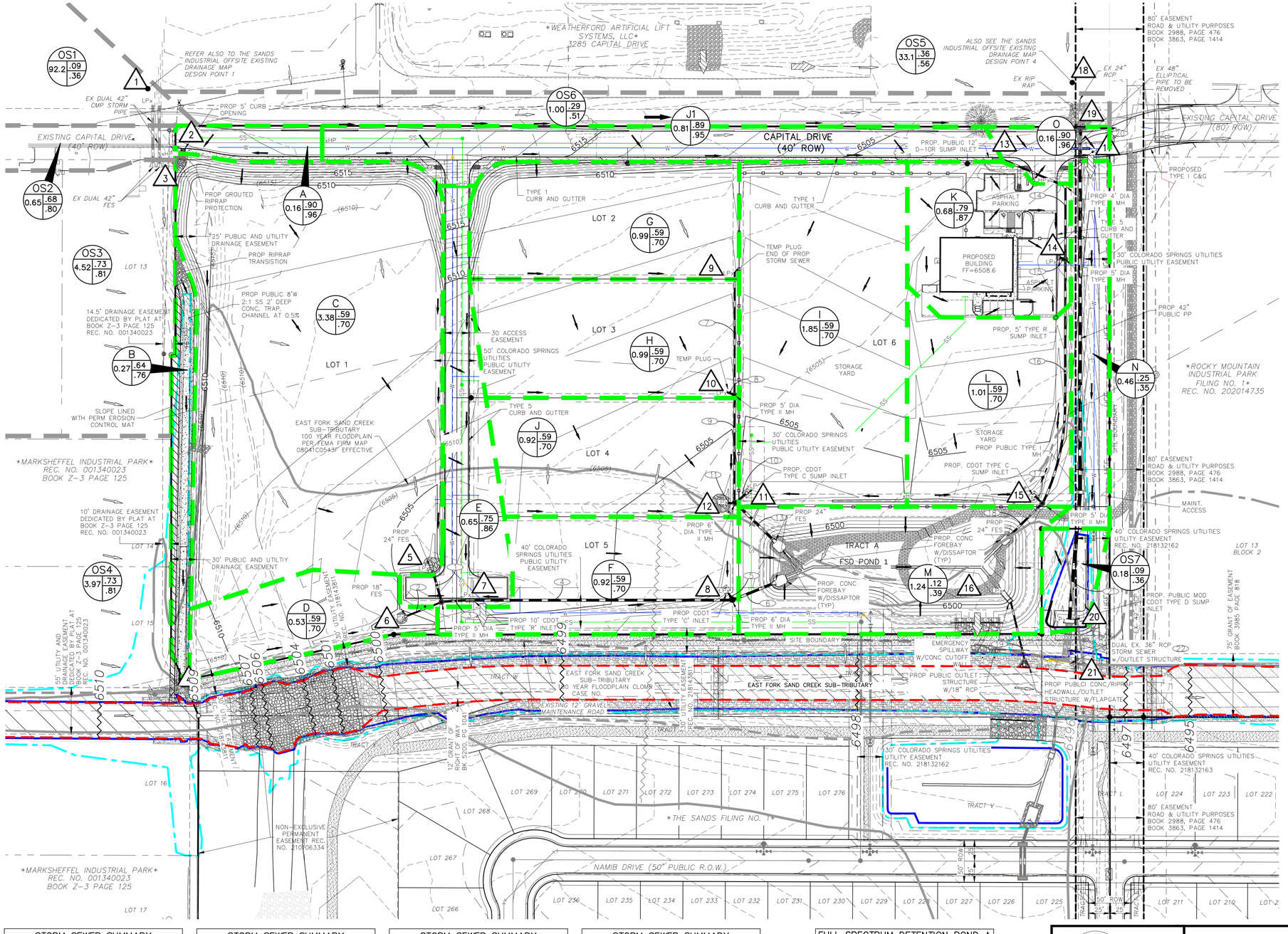
Calculated by: DLM
Date: 4/16/2019
Checked by: VAS

THE SANDS INDUSTRIAL PARK FILING NO.1

COUNTY OF EL PASO, STATE OF COLORADO

PROPOSED DRAINAGE MAP

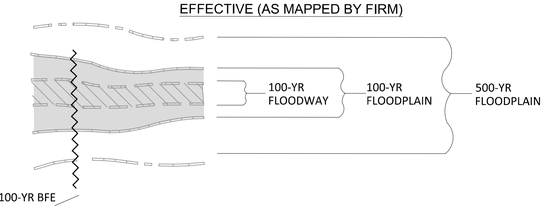
JULY 2020



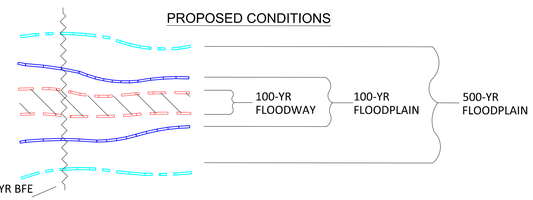
LEGEND

- BASIN DESIGNATION (Z / 25 ACRES / .25 C5 / .35 C100)
- BASIN BOUNDARY
- EXISTING INDEX CONTOUR (5')
- PROP INDEX CONTOUR (5')
- PROPERTY BOUNDARY
- PROPOSED STORM SEWER PIPE
- EXISTING STORM SEWER PIPE
- PROPOSED WATERLINE
- PROPOSED SAN. SEWER
- UNDERGROUND ELECTRICAL
- EXISTING GAS LINE
- PIPE RUN REFERENCE LABEL
- SURFACE DESIGN POINT
- CROSSPAN
- INLET
- EXISTING FLOW DIRECTION ARROW
- EXISTING FLOW DIRECTION ARROW
- PROPOSED FLOW DIRECTION ARROW
- FLARED END SECTION
- HIGH POINT
- LOW POINT

EFFECTIVE (AS MAPPED BY FIRM)



PROPOSED CONDITIONS



BASIN SUMMARY			
BASIN	AREA (ACRES)	Q_5	Q_{100}
ONSITE BASINS			
A	0.16	0.7	1.3
B	0.27	0.8	1.7
C	3.38	7.0	13.9
D	0.53	1.5	3.0
E	0.65	2.7	4.9
F	0.92	2.5	5.0
G	0.99	2.8	5.5
H	0.99	2.7	5.4
I	1.85	4.3	8.6
J	0.92	2.5	5.0

BASIN SUMMARY			
BASIN	AREA (ACRES)	Q_5	Q_{100}
ONSITE BASINS			
J1	0.81	3.4	6.0
K	0.76	3.0	5.6
L	1.01	2.8	5.6
M	1.24	0.6	3.5
N	0.46	0.2	1.3
O	0.16	0.7	1.3
OS1	92.13	19.8	132.7
OS2	0.65	1.6	3.2
OS3	4.52	13.8	25.7
OS4	3.97	12.4	23.1

BASIN SUMMARY			
BASIN	AREA (ACRES)	Q_5	Q_{100}
ONSITE BASINS			
OS5	33.11	32.9	86.4
OS6	1.00	0.8	2.3
OS7	0.18	0.1	0.4

DESIGN POINT SUMMARY				
DESIGN POINT	Q_5	Q_{100}	BASIN(S)/ DESIGN PT(S)	STRUCTURE
1	19.8	132.7	OS1	(2) EX. 42" CULVERTS
2	3.0	5.8	OS2, A	CURB OPENING W/RIPRAP
3	21.2	135.4	DP1, DP2	EX. SWALE
4	33.2	149.4	DP3, B, OS3, OS4	8'W CONC. SWALE
5	7.0	13.9	C	PROP. 24" STORM
6	1.5	3.0	D	PROP. 18" STORM
7	2.7	4.9	E	PROP. 10' TYPE R INLET
8	2.5	5.0	F	PROP. CDOT TYPE C INLET
9	2.8	5.5	G	PROP. 18" STORM
10	2.7	5.4	H	PROP. 18" STORM
11	4.3	8.6	I	PROP. CDOT TYPE C INLET
12	2.5	5.0	J	PROP 18" STORM
13	3.4	6.0	J1	PROP 10' TYPE R INLET
14	3.0	5.6	K	PROP 5' TYPE R INLET
15	2.8	5.6	L	PROP CDOT TYPE C INLET
16	32.4	65.2	PR6, PR13, PR18, M	PROP FSD POND A
17	0.7	1.3	O	EX SWALE
18	32.9	86.4	OS5	EX 24" RCP
19	33.7	88.8	DP18, OS6	PROP. PUBLIC 42" ADS
20	0.3	1.7	N, OS7	MOD TYPE D INLET BOX
21	56.5	212.3	DP4, DP19, PR19	EST OF TOTAL DISCHARGE

1" = 60'

0 30 60 120

Scale in Feet

STORM SEWER SUMMARY				
PIPE RUN	Q_5	Q_{100}	PIPE SIZE	CONTRIBUTING PIPES/DESIGN POINTS
1	7.0	13.9	24" PP	DP5
2	1.5	3.0	18" PP	DP6
3	8.0	16.0	24" PP	PR1, PR2
4	9.8	19.3	30" PP	PR3, DP7
5	2.5	5.0	18" PP	DP8

STORM SEWER SUMMARY				
PIPE RUN	Q_5	Q_{100}	PIPE SIZE	CONTRIBUTING PIPES/DESIGN POINTS
6	11.5	22.7	30" PP	PR4, PR5
7	2.8	5.5	18" PP	DP9
8	2.7	5.4	18" PP	DP10
9	5.4	10.7	24" PP	PR7, PR8
10	4.3	8.6	18" PP	DP11

PP = POLYPROPOLENE (ADS N-12 OR APPROVED EQUAL) *=PUBLIC

STORM SEWER SUMMARY				
PIPE RUN	Q_5	Q_{100}	PIPE SIZE	CONTRIBUTING PIPES/DESIGN POINTS
11	2.5	5.0	18" PP	DP12
12		NOT	USED	
13	11.0	22.0	30" PP	PR9, PR10, PR11
14	3.4	5.9	18" PP	INLET 1
15	3.0	5.6	18" PP	DP14
16	6.1	10.9	24" PP	PR14, PR15

STORM SEWER SUMMARY				
PIPE RUN	Q_5	Q_{100}	PIPE SIZE	CONTRIBUTING PIPES/DESIGN POINTS
17	2.8	5.6	18" PP	DP15
18	8.8	16.5	24" PP	PR16, PR17
19	0.5	10.2	18" RCP*	POND 1
20	33.7	88.8	42" PP*	DP19
21	33.7	88.8	42" PP*	PR20
22	33.9	89.8	36"RCPs	PR21, DP20

FULL SPECTRUM DETENTION POND A (PRIVATE)	
WQ VOLUME	0.435 AC-FT
EURV VOLUME	1.473 AC-FT
100 YR STORAGE VOLUME	2.074 AC-FT
100 YR WATER SURFACE EL	6501.76
SPILLWAY CREST EL	6501.76
TOP OF EMBANKMENT EL	6503.33
SPILLWAY DESIGN FLOW DEPTH	0.57 FT

102 E. PIKE PEAK AVE, SUITE 500
COLORADO SPRINGS, CO 80903
PHONE: 719.955.5485

CIVIL CONSULTANTS, INC.

THE SANDS INDUSTRIAL PARK FIL NO. 1

PROPOSED DRAINAGE MAP

PROJECT NO. 43-129	SCALE: HORIZONTAL: 1"=60' VERTICAL: N/A	DATE: 7/2/20	
DESIGNED BY: DLM		SHEET 1 OF 1	PDM01
DRAWN BY: ELY			
CHECKED BY: VAS			

File: Q:\43129A-Sands Industrial\Sands Industrial\Dwg\Eng Exhibits\43-129 PDM01.dwg Plotstamp: 7/2/2020 11:44 AM

Attachment 3-
Proposed Rational Drainage Calculations and Drainage Map

SANDS INDUSTRIAL FILING NO. 1 LOT 6
PROPOSED DRAINAGE CALCULATIONS
(Area Runoff Coefficient Summary)

			ROOFS 0.73-0.81 COMMERCIAL AREAS 0.81-0.88 ASPHALT DRIVES 0.90-0.96			*GRAVEL STORAGE YARD 0.30-0.50 LIGHT INDUST AREAS 0.59-0.70 ROOFS 0.73-0.81*			*LANDSCAPED AREAS 0.16-0.41 PARKS 0.12-0.39 GREENBELTS/AGRI. 0.09-0.36*			*WEIGHTED*	
BASIN	**TOTAL AREA** *(SF)*	**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}**
F	*40068.3*	**0.92**	0.92	0.59	0.70	0.00	0.30	0.50	0.00	0.12	0.39	***0.59***	***0.70***
G	*43236.6*	**0.99**	0.99	0.59	0.70	0.00	0.30	0.50	0.00	0.16	0.41	***0.59***	***0.70***
H	*43085.5*	**0.99**	0.99	0.59	0.70	0.00	0.81	0.88	0.00	0.16	0.41	***0.59***	***0.70***
*****I1***	*45124.0*	**1.04**	0.25	0.73	0.81	0.62	0.59	0.70	0.17	0.16	0.41	***0.55***	***0.68***
*****I2***	*35248.0*	**0.81**	0.00	0.90	0.96	0.81	0.59	0.70	0.00	0.16	0.41	***0.59***	***0.70***
J	*40154.0*	**0.92**	0.92	0.59	0.70	0.00	0.30	0.50	0.00	0.09	0.36	***0.59***	***0.70***
J1	*35089.2*	**0.81**	0.81	0.90	0.96	0.00	0.30	0.50	0.00	0.09	0.36	***0.90***	***0.96***
K	*32957.7*	**0.76**	0.44	0.90	0.96	0.32	0.59	0.70	0.00	0.09	0.36	***0.77***	***0.85***
L	*43955.2*	**1.01**	1.01	0.59	0.70	0.00	0.30	0.50	0.00	0.09	0.36	***0.59***	***0.70***
M	*54027.0*	**1.24**	0.00	0.90	0.96	0.00	0.30	0.50	1.24	0.12	0.39	***0.12***	***0.39***
N	*20121.4*	**0.46**	0.00	0.90	0.96	0.00	0.30	0.50	0.46	0.09	0.36	***0.09***	***0.36***
O	*6998.7*	**0.16**	0.16	0.90	0.96	0.00	0.30	0.50	0.00	0.09	0.36	***0.90***	***0.96***
OS5	*1442324.0*	**33.11**	10.90	0.90	0.96	0.00	0.30	0.50	22.21	0.09	0.36	***0.36***	***0.56***
OS7	*7962.0*	**0.18**	0.00	0.90	0.96	0.00	0.30	0.50	0.18	0.09	0.36	***0.09***	***0.36***

** Changes to "Master Development Drainage Plan for The Sands Industrial Park Filing No.1 and Preliminary/Fianl Drainage Report for The Sands Industrial Park Filing No.l, Lot 6" (MDDP)
Prepared by M&S Civil Consultants, Inc. dated August 2020

Calculated by: GT
Date: 2/5/2021
Checked by: VAS

SANDS INDUSTRIAL FILING NO. 1 LOT 6
PROPOSED 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**	**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.)*
F	0.92	0.59	0.70	0.59	50	1.0	5.2	240	1.3%	2.2	1.8	7.0	11.6	4.7	7.8	***2.5***	***5.0***
G	0.99	0.59	0.70	0.59	50	1.0	5.2	200	1.0%	2.0	1.7	6.8	11.4	4.7	7.9	***2.8***	***5.5***
H	0.99	0.59	0.70	0.59	50	1.0	5.2	250	1.0%	2.0	2.1	7.3	11.7	4.6	7.7	***2.7***	***5.4***
*****I1***	1.04	0.55	0.68	0.55	100	1.0	9.9	130	1.1%	2.1	1.0	10.9	11.3	4.0	6.7	***2.3***	***4.7***
*****I2***	0.81	0.59	0.70	0.59	100	1.0	9.2	208	1.1%	2.1	1.7	10.9	11.7	4.0	6.7	***1.9***	***3.8***
J	0.92	0.59	0.70	0.59	50	1.0	5.2	250	1.0%	2.0	2.1	7.3	11.7	4.6	7.7	***2.5***	***5.0***
J1	0.81	0.90	0.96	0.90	40	0.8	1.8	760	1.4%	2.4	5.3	7.1	14.4	4.6	7.8	***3.4***	***6.0***
K	0.76	0.77	0.85	0.77	50	1.0	3.4	100	1.5%	2.4	0.7	4.0	10.8	5.2	8.7	***3.0***	***5.6***
L	1.01	0.59	0.70	0.59	50	1.0	5.2	250	1.6%	2.5	1.6	6.8	11.7	4.7	7.9	***2.8***	***5.6***
M	1.24	0.12	0.39	0.12	50	6.0	5.5	300	0.5%	1.4	3.5	9.0	11.9	4.3	7.2	***0.6***	***3.5***
N	0.46	0.09	0.36	0.09	25	2.0	4.6	400	1.0%	2.0	3.3	7.9	12.4	4.5	7.5	***0.2***	***1.3***
O	0.16	0.90	0.96	0.90	100	2.0	2.9	106	1.0%	2.0	0.9	3.8	11.1	5.2	8.7	***0.7***	***1.3***
OS5	33.11	0.36	0.56	0.36	150	3.0	13.1	2450	2.0%	1.4	28.9	41.9	24.4	2.8	4.7	***32.9***	***86.4***
OS7	0.18	0.09	0.36	0.09	50	1.0	10.3	100	3.3%	3.6	0.5	10.7	10.8	4.0	6.8	***0.1***	***0.4***

* Intensity equations assume a minimum travel time of 5 minutes.

** Changes to MDDP

Calculated by: GT
Date: 2/5/2021
Checked by: VAS

SANDS INDUSTRIAL FILING NO. 1 LOT 6
PROPOSED 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** *DPS AND/OR PIPES*	**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
8	**F**	0.54	0.64									7.0	4.7	7.8	***2.5***	***5.0***	PROP CDOT TYPE 'C' INLET
				See Area Drainage Sheet for Input													
9	**G**	0.59	0.69									6.8	4.7	7.9	***2.8***	***5.5***	PROP 18" STORM
				See Area Drainage Sheet for Input													
10	**H**	0.58	0.69									7.3	4.6	7.7	***2.7***	***5.4***	PROP 18" STORM
				See Area Drainage Sheet for Input													
*****11***	****I1,**I2**	1.05	1.27					308	1.1%	2.1	1.7	12.6	3.8	6.4	***4.0***	***8.1***	PROP TYPE C INLET 18" STORM SEWER
				See Area Drainage Sheet for Input													
12	**J**	0.54	0.65									7.3	4.6	7.7	***2.5***	***5.0***	PROP 18" STORM
				See Area Drainage Sheet for Input													
13	**J1**	0.72	0.77									7.1	4.6	7.8	***3.4***	***6.0***	PROP 12' D-10R AT-GRADE INLET
				See Area Drainage Sheet for Input													
14	**K**	0.58	0.64									5.0	5.2	8.7	***3.0***	***5.6***	PROP. 5' TYPE R SUMP INLET
				See Area Drainage Sheet for Input (Min Tc)													
15	**L**	0.60	0.71									6.8	4.7	7.9	***2.8***	***5.6***	PROP. TYPE C INLET (SE Forebay)
				See Area Drainage Sheet for Input													
*****16***	**PR6, PR13 PR18, M**	8.18	9.84	TAKEN FROM BASIN PR13								12.6	3.8	6.4	***31.0***	***62.6***	PROPOSED FSD POND A
17	**O**	0.14	0.15									5.0	5.2	8.7	***0.7***	***1.3***	EX SWALE
				See Area Drainage Sheet for Input													
18	**OS5**	11.81	18.46									24.4	2.8	4.7	***32.9***	***86.4***	EX 24" RCP CULVERT
				See Area Drainage Sheet for Input													
19	**DP18, OS6**	12.10	18.97	TAKEN FROM BASIN DP18								24.4	2.8	4.7	***33.7***	***88.8***	EX 48" CMP CULVERT TO BE REPLACED W/42" PP
20	**N, OS7**	0.06	0.23	TAKEN FROM BASIN N								7.9	4.5	7.5	***0.3***	***1.7***	MOD TYPE D INLET BOX
21	**DP4, DP19, PR19**	27.41	61.36	TAKEN FROM BASIN DP4								39.7	2.1	3.5	***56.5***	***212.3***	TOTAL DISCHARGE NO ACCT FOR POND DET AFFECTS ON TC

** Changes to MDDP

Calculated by: GT
Date: 2/5/2021
Checked by: VAS

SANDS INDUSTRIAL FILING NO. 1 LOT 6
PROPOSED DRAINAGE CALCULATIONS
(Storm Sewer Routing Summary)

PIPE RUN	*Contributing Pipes/Design Points*	*Equivalent CA_5*	*Equivalent CA_{100}*	*Maximum T_C*	*Intensity**		*Flow*		*Pipe Size*
					I_5	*I_{100}*	*Q_5*	*Q_{100}*	
1	**DP5**	1.99	2.36	15.3	3.5	5.9	*7.0*	*13.9*	**PROP 24" PIPE**
2	**DP6**	0.31	0.37	6.2	4.8	8.1	*1.5*	*3.0*	**PROP 18" PIPE**
3	**PR 1, PR2**	2.30	2.73	15.4	3.5	5.8	*8.0*	*16.0*	**PROP 24" PIPE**
4	**PR3, DP7**	2.82	3.30	15.4	3.5	5.8	*9.8*	*19.3*	**PROP 24" PIPE**
5	**DP8**	0.54	0.64	7.0	4.7	7.8	*2.5*	*5.0*	**PROP 18" PIPE**
6	**PR4, PR5**	3.37	3.95	15.9	3.4	5.8	*11.5*	*22.7*	**PROP 30" PIPE**
7	**DP9**	0.59	0.69	6.8	4.7	7.9	*2.8*	*5.5*	**PROP 18" PIPE**
8	**DP10**	0.58	0.69	7.3	4.6	7.7	*2.7*	*5.4*	**PROP 18" PIPE**
9	**PR7, PR8**	1.17	1.39	7.3	4.6	7.7	*5.4*	*10.7*	**PROP 18" PIPE**
***10*	****DP11**	1.05	1.27	12.6	3.8	6.4	*4.0*	*8.1*	**PROP 18" PIPE**
11	**DP12**	0.54	0.65	7.3	4.6	7.7	*2.5*	*5.0*	**PROP 18" PIPE**
***13*	**PR9, **PR10, PR11**	2.76	3.30	12.6	3.8	6.4	*10.5*	*21.0*	**PROP 30" PIPE**
14	**INLET1**	0.72	0.76	7.1	4.6	7.8	*3.4*	*5.9*	**PROP 18" PIPE**
15	**DP14**	0.58	0.64	5.0	5.2	8.7	*3.0*	*5.6*	**PROP 18" PIPE**
16	**PR14, PR15**	1.31	1.40	7.1	4.6	7.8	*6.1*	*10.9*	**PROP 24" PIPE**
17	**DP15**	0.60	0.71	6.8	4.7	7.9	*2.8*	*5.6*	**PROP 18" PIPE**
18	**PR16, PR17**	1.90	2.11	7.1	4.6	7.8	*8.8*	*16.5*	**PROP 24" PIPE**
19	**POND 1 OUTLET (DP6)**		TAKEN FROM UD-DETENTION WORKSHEET				*0.5*	*11.3*	**PROP 18" PIPE**
20	**DP19**	12.10	18.97	24.4	2.8	4.7	*33.7*	*88.8*	**EX 48" CMP**
21	**PR20**	12.10	18.97	24.4	2.8	4.7	*33.7*	*88.8*	**PROP 42" PP**
22	**PR21, DP20**	12.15	19.20	24.4	2.8	4.7	*33.9*	*89.8*	**EX DUAL 36" RCP**

* Intensity equations assume a minimum travel time of 5 minutes.

** Changes to MDDP

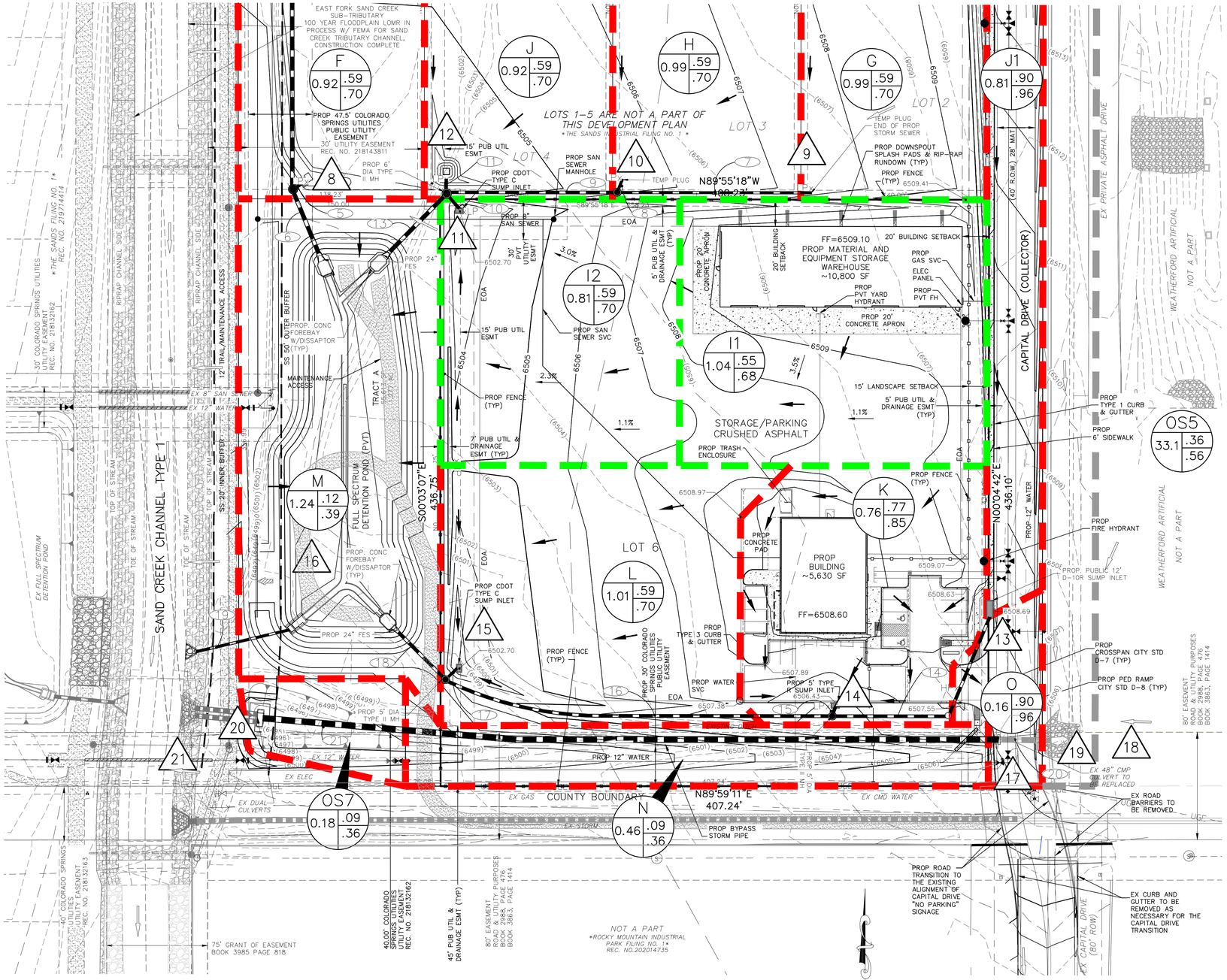
DP - Design Point
PR - Pipe Run
FB- Flow By from Design Point
INT- Intercepted Flow from Design Point

Calculated by: GT
Date: 2/5/2021
Checked by: VAS

THE SANDS INDUSTRIAL PARK FIL. NO. 1 - LOT 6

PROPOSED DRAINAGE MAP

CITY OF COLORADO SPRINGS, COUNTY OF EL PASO, STATE OF COLORADO



LEGEND

- PROP BASIN BOUNDARY
- MDDP BASIN BOUNDARY
- (6920) EXISTING INDEX CONTOUR (5')
- 6920 PROP INDEX CONTOUR (5')
- PROPERTY BOUNDARY
- PROPOSED STORM SEWER PIPE
- EXISTING STORM SEWER PIPE
- PROPOSED WATERLINE
- PROPOSED SAN. SEWER
- UGE UNDERGROUND ELECTRICAL
- EXISTING GAS LINE
- BASIN DESIGNATION (Z / 25 / .25 / .35 / ACRES / C5 / C100)
- PIPE RUN REFERENCE LABEL
- SURFACE DESIGN POINT
- CROSSPAN
- INLET
- EXISTING FLOW DIRECTION ARROW
- EXISTING FLOW DIRECTION ARROW
- PROPOSED FLOW DIRECTION ARROW
- FLARED END SECTION
- HPx HIGH POINT
- LPx LOW POINT

BASIN SUMMARY			
BASIN	AREA (ACRES)	Q_5	Q_{100}
ONSITE BASINS			
F	0.92	2.5	5.0
G	0.99	2.8	5.5
H	0.99	2.7	5.4
**I1	1.04	2.3	4.7
**I2	0.81	1.9	3.8
J	0.92	2.5	5.0
J1	0.81	3.4	6.0
K	0.76	3.0	5.6
L	1.01	2.8	5.6
M	1.24	0.6	3.5
N	0.46	0.2	1.3
O	0.16	0.7	1.3
OS5	33.11	32.9	86.4
OS7	0.18	0.1	0.4

DESIGN POINT SUMMARY				
DESIGN POINT	Q_5	Q_{100}	BASIN(S)/ DESIGN PT(S)	STRUCTURE
8	2.5	5.0	F	PROP. CDOT TYPE C INLET
9	2.8	5.5	G	PROP. 18" STORM
10	2.7	5.4	H	PROP. 18" STORM
**11	4.0	8.1	**I1, **I2	PROP. CDOT TYPE C INLET
12	2.5	5.0	J	PROP 18" STORM
13	3.4	6.0	J1	PROP 12" TYPE R INLET
14	3.0	5.6	K	PROP 5' TYPE R INLET
15	2.8	5.6	L	PROP CDOT TYPE C INLET
**16	31.0	62.6	PR6, PR13, PR18, M	PROP FSD POND A
17	0.7	1.3	O	EX SWALE
18	32.9	86.4	OS5	EX 24" RCP
19	33.7	88.8	DP18, OS6	EX. PUBLIC 42" ADS
20	0.3	1.7	N, OS7	MOD TYPE D INLET BOX
21	56.5	212.3	DP4, DP19, PR19	EST OF TOTAL DISCHARGE

STORM SEWER SUMMARY				
PIPE RUN	Q_5	Q_{100}	PIPE SIZE	CONTRIBUTING PIPES/DESIGN POINTS
5	2.5	5.0	18" PP	DP8
6	11.5	22.7	30" PP	PR4, PR5
7	2.8	5.5	18" PP	DP9
8	2.7	5.4	18" PP	DP10
9	5.4	10.7	18" PP	PR7, PR8
**10	4.0	8.1	18" PP	**DP11
11	2.5	5.0	18" PP	DP12
**13	10.5	21.0	30" PP	PR9, **PR10, PR11
14	3.4	5.9	18" PP	INLET1
15	3.0	5.6	18" PP	DP14
16	6.1	10.9	24" PP	PR14, PR15
17	2.8	5.6	18" PP	DP15
18	8.8	16.5	24" PP	PR16, PR17
19	0.5	11.3	18" RCP*	POND 1 (DP6)
20	33.7	88.8	EX 48" CMP	DP19
21	33.7	88.8	42" PP*	PR20
22	33.9	89.8	EX 2-36" RCPs	PR21, DP20

**CHANGES TO THE SANDS INDUSTRIAL PARK FIL. NO.1-LOT 6 (MDDP)

THE SANDS INDUSTRIAL PARK FIL. NO. 1 – LOT 6
FINAL DRAINAGE PLAN – W/ WAREHOUSE BLDG
JOB NO. 43-128
DATE PREPARED: 02/05/21
DATE REVISED:

CITY FILE NO. AR DP 19-00753

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