Planning and Referral Agency Comment Letters – presented in reverse chronological order

Summary

1. Planning comments
    a. Fees applied to property to date
    b. Revisions to documents
    c. For more information see pages 1-5
2. Public Works comments
    a. Revisions to documents and survey information
    b. For more information see pages 6-438
3. Mile High Flood District
    a. No comments.
    b. For more information see page 439
4. South Adams Fire District
    a. Fees applied to property
    b. Fire hydrant comments
    c. For more information see pages 440-442
5. South Adams County Water and Sanitation District
    a. General comments responses
    b. No special conditions
    c. For more information see page 443
6. Tri-County Health Department
    a. Informational comments
    b. For more information see page 444
7. GIS
    a. Changes to street names and document revisions
    b. For more information see pages 445-452
8. School District 27J
    a. Fees and general comments
    b. For more information see pages 453-455
9. Parks, Recreation, and Golf Department
    a. Fees applied to property – revised as more information provided
    b. For more information see page 456
10. United Power
    a. Revisions to documents
    b. Addition of easements
    c. For more information see page 457
11. Xcel
    a. Requested application process for any new natural gas service.
    b. For more information see page 458
12. E470 Public Highway Authority
    a. No comments.
    b. For more information see page 459

April 30, 2021

Atwell, LLC
Attn: Daniel Madruga
143 Union Blvd, Suite 700
Lakewood, CO 80228

Re: S-771-20-20: Legato Residential Filing 2, and PUD Development Permit- Filing 2

Dear Mr. Madruga,

The submitted subdivision plat and PUD permit applications have been reviewed. As a result, the following issues were brought up:

DRT General Comments:

- ❒ Once the items identified in this comment letter have been addressed, staff is generally supportive of your request.
- ❒ Staff has referenced certain sections of our Land Development Code (LDC) in this comment letter and our enclosed redlines. A copy of this document is available at http://www.c3gov.com/LDC.
- ❒ Staff would encourage you to review Article IX of the LDC in order to get a sense of some of the fees that are associated with development. **Please note:** there may be additional fees associated with your development that are not identified in Article IX.
- ❒ It is important to note that while staff has made every effort to make this comment letter all-inclusive, there may be additional comments on future submittals that have not been identified here based on the changes to your plans.
- ❒ Any comments received from South Adams County Water and Sanitation District and South Adams County Fire District have been included or will be forwarded but you should also contact those agencies directly for their processes.

S-771-20 Legato Filing 2

Planning Division – Julia Friedman

Plat Comments

1. Please remove the City Council Certificate from the cover sheet; this is not needed for an administrative plat.
2. Please correct note 6 on the cover sheet to include the correct PUD name.
3. Please review and show all total block lengths. Note: No block length shall exceed 600 feet.
4. Adjust the scale to fit whole blocks or tracts onto sheets as much as possible. This will greatly simplify and help expedite the review of subsequent submittals.

5. Please note GIS comments regarding addressing and street names. Please include the correct street names and lot addresses on the plat so that they to match the address plat redlines.
6. Please note comments from DIA regarding noise and wildlife.
7. Please note comments from Parks and Recreation regarding park fees.
8. Please note SACFD comments regarding access and fire impact fees.
9. Please note Xcel and United Power comments regarding easements.

Z-953-D-472-20 (PUD permit)

Planning Division- Julia Friedman

General Comments

1. Please ensure title block includes correct reference to the Legato West infrastructure plat and tract when that plat is complete.
2. In the table on the cover sheet, please round street tree calculations for "trees required".
3. Please include any additional landscaping (i.e. landscaping provided in the tracts) in the calculations of landscaping provided. If the buffer yard calculations are not needed, please remove that portion of the calculations table.
4. Is the proposed native seed in the tracts to be irrigated or mowed? The LDC has specific notes on native seed in primary landscape areas; in particular, the areas that front ROW should be addressed. Native seed may not be appropriate in these areas.
5. Note: Per LDC Sec. 21-6620(2l), residential lots are not permitted to back to park space. Solid fencing is not permitted to face park or open space.
6. Please reference LDC Article 7, Division 4 for open space, private park, and trail standards. The Design Guidelines should also reflect any specific standards for parks or open space.
7. Are all fences to meet the typical detail designs on page 8?
   a. Where is the semi-screen fence proposed to be utilized, as that does not appear in the key on most sheets?
   b. What type of masonry/color is proposed for the privacy fence columns? Will the stain/color of the fence be consistent throughout?
   c. What type of color/material is the proposed wire mesh in the open rail style fence? Wire mesh is not a typical material for residential fence types. Is there additional detail on this fence in the Design Guidelines?
   d. Please note height of fences on the key sheet. Per LDC Sec. 21-7732 and the Design Guidelines, the type of fence indicates whether the max height is 5 feet or 6 feet. The privacy fence shows a typical height of 6 feet tall, but would be limited to 5 feet when fronting ROW. If the Design Guidelines contain additional fencing information, that should be cross-referenced on the PUD permit.

Please see additional enclosed redlines and comments from other referral agencies

- Public Works

Please address all of these comments in your next submittal; the resubmittal can be made electronically at this time. Paper copies will be required at a future submittal for the file documentation, but are not required for this resubmittal under current procedures. Please contact staff with any questions about submittal requirements at the time of resubmittal. In addition, please include a response letter to the issues listed in this letter. Any subsequent resubmittal requires a typical five (5) week review period. If you have any additional questions, feel free to contact me at 303.227.8861 or JFriedman@c3gov.com.

Sincerely,

Julia Friedman
Planner, Commerce City

July 2, 2021

Atwell, LLC
Attn: Daniel Madruga
143 Union Blvd, Suite 700
Lakewood, CO 80228

Re: S-771-20-21 Legato Filing 2, Final Plat Submittal, Review 2

Dear Mr. Madruga,

The submitted subdivision plat and PUD permit applications have been reviewed. As a result, the following issues were brought up:

S-771-20-21 Legato Filing 2, 2nd Submittal Review Comments

Planning Division – Julia Friedman

Plat Comments

1. No new planning comments.
2. Please note GIS comments.
3. Please note Public Works comments
4. Please note SACWSD comments.
5. Please note South Adams County Fire Department Comments.
6. Please note Xcel comments
7. Please note Mile High Flood District
8. Please note United Power comments

Please see additional enclosed redlines and comments from other referral agencies

Please address all of these comments in your next submittal; the resubmittal can be made electronically at this time. Paper copies will be required at a future submittal for the file documentation, but are not required for this resubmittal under current procedures. Please contact staff with any questions about submittal requirements at the time of resubmittal. In addition, please include a response letter to the issues listed in this letter. Any subsequent resubmittal requires a

typical five () week review period. If you have any additional questions, feel free to contact me at 303.227.8861 or JFriedman@c3gov.com.

Sincerely,

Julia Friedman
Planner, Commerce City

INTEROFFICE MEMORANDUM

TO: Jennifer Jones, Planner
FROM: Elna Smith, Development Review Engineer
DATE: February 8, 2021
SUBJECT: S-771-20-20; Z-953-D-475-20 - Legato Filing No. 2 - 1st Review

The following items were reviewed by Public Works:
- Final Plat
- Title Commitment
- PUD Development Permit
- Address Plat
- Trip Generation Memo

Public Works has the following comments:

Final Plat:
1. See the attached redlines.

Title Commitment:
1. The legal will need to be updated to the change in boundary.

PUD Development Permit:
1. See the attached redlines.

Address Plat:
1. See the attached redlines.

Trip Generation Memo:
1. Review of the trip generation memo will come from Michael Renk.

For Information:
1. A Drainage Impact Fee will be due for these areas, per Section 21-9240 of the City's *Land Development Code* (LDC). Payment will be due at the time of the Building Permit.

2. A Road Impact Fee will be due for these areas, per Section 21-9220 of the City's *Land Development Code* (LDC). Payment will be due at the time of the Building Permit.

Additional Plans/Reports:

1. The review comments of the Civil Construction Plans, Drainage Study, and Erosion and Sediment Control (ESC) Plans will be sent directly to the applicant.

Public Improvements Agreement:

1. A Public Improvements Agreement (PIA) will be required for the proposed development including all Public Roadways and Landscaping within the development. Please submit a detailed quantity/cost estimate for these improvements with the next submittal.

If you have any questions, please feel free to contact me via email at esmith@corecivil.com or by phone at 303-730-5901 to discuss any of these comments.

Sincerely,

Elna Smith
Consulting Development Review Engineer

ec: Brent Soderlin, City Engineer
Lee Alverson, Development Review
Kevin Rohrbough, Development Review Consultant

LEGATO FILING NO. 2

A REPLAT OF TRACTS C1 & D1, LEGATO WEST
LOCATED IN SECTION 22, TOWNSHIP 2 SOUTH, RANGE 66 WEST,
OF THE 6TH PRINCIPAL MERIDIAN, CITY OF COMMERCE CITY, COUNTY OF ADAMS, STATE OF COLORADO

LEGAL DESCRIPTION AND DEDICATION:

KNOW ALL MEN BY THESE PRESENTS THAT COHEN DENVER AIRPORT LLC, A NEVADA LIMITED LIABILITY COMPANY, BEING THE OWNER OF THAT PART OF SECTION 22, TOWNSHIP 2 SOUTH, RANGE 66 WEST, CITY OF COMMERCE CITY, COUNTY OF ADAMS, STATE OF COLORADO, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS: TO WIT:

TRACTS C1 AND D1, LEGATO WEST, RECORDED UNDER RECEPTION NO. _____, ADAMS COUNTY, COLORADO RECORDS, BEING A PART OT SECTION 22, TOWNSHIP 2 SOUTH, RANGE 66 WEST OF THE SIXTH PRINCIPAL MERIDIAN, COUNTY OF ADAMS, STATE OF COLORADO;

CONTAINING 1,439,947 SQUARE FEET, OR 33.06 ACRES, MORE OR LESS.

HAVE BY THESE PRESENTS LAID OUT, PLATTED AND SUBDIVIDED THE SAME INTO LOTS AND TRACTS AS SHOWN ON THIS PLAT UNDER THE NAME AND STYLE OF LEGATO FILING NO. 2 AND DO HEREBY GRANT TO THE CITY OF COMMERCE CITY , COUNTY OF ADAMS, STATE OF COLORADO, FOR THE USE OF THE PUBLIC, THE STREETS AND OTHER PUBLIC WAYS AND EASEMENTS HEREON SHOWN, FOR PUBLIC UTILITY, TELECOM, AND DRAINAGE AND OTHER PUBLIC PURPOSES AS DETERMINED BY COMMERCE CITY.

EXECUTED THIS _____ DAY OF _____, A.D. 20____

COHEN DENVER AIRPORT LLC, A NEVADA LIMITED LIABILITY COMPANY

BY: _____

AS: _____

STATE OF COLORADO)
COUNTY OF ADAMS)SS
STATE OF COLORADO)

THE FOREGOING DEDICATION WAS ACKNOWLEDGED BEFORE ME

THIS _____ DAY OF _____ A.D. 20____

BY: _____

MY COMMISSION EXPIRES: _____

NOTARY PUBLIC: _____

NOTES:

1. 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.

2. ANY PERSON WHO KNOWINGLY REMOVES, ALTERS OR DEFACES ANY PUBLIC LAND SURVEY MONUMENT OR ACCESSORY COMMITS A CLASS TWO (2) MISDEMEANOR PURSUANT TO STATE STATUTE 18–4–508, C.R.S.

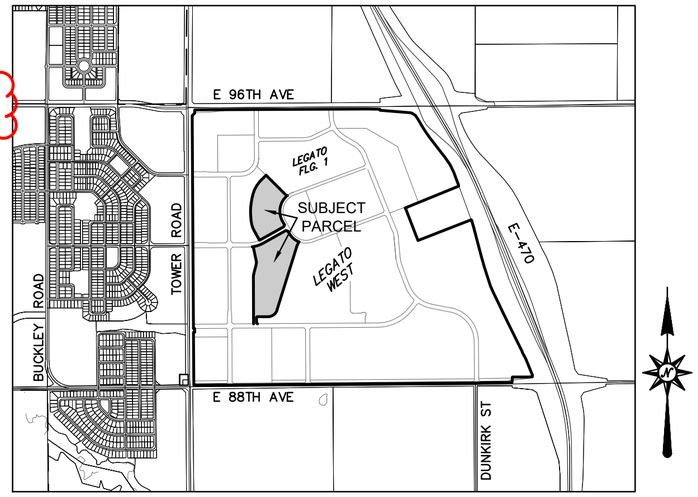
3. BASIS OF BEARINGS: BEARINGS ARE BASED ON THE NORTH LINE OF THE NORTHWEST QUARTER OF SECTION 22, TOWNSHIP 2 SOUTH, RANGE 66 WEST OF THE SIXTH PRINCIPAL MERIDIAN, BEING MONUMENTED AT THE WEST END BY A FOUND 2–1/2" ALUMINUM CAP IN RANGE BOX STAMPED "ISI 2018 PLS 29425" AND AT THE EAST END BY A FOUND 2" ALUMINUM CAP STAMPED "WESTERN STATES SURVEYING INC. 1994 PLS 24960". SAID NORTH LINE BEARS N89°35'58" EAST, WITH ALL BEARINGS CONTAINED HEREIN RELATIVE THERETO.

38 on graphic

3. THE SUBJECT PROPERTY LIES WITHIN ZONE X, AREAS DETERMINED TO BE OUTSIDE OF THE ANNUAL 0.2% CHANCE FLOODPLAIN, PER FEMA FLOOD INSURANCE RATE MAP FOR ADAMS COUNTY, COLORADO, MAP NO. 08001C0635H, REVISED DATE MARCH 05, 2007.

4. THE SUBJECT PROPERTY IS THE SAME AS THE PROPERTY DESCRIBED IN THAT CERTAIN TITLE COMMITMENT NO. NCS–911124–CO ISSUED BY FIRST AMERICAN TITLE INSURANCE COMPANY, WITH AN EFFECTIVE DATE OF JUNE 13, 2018 AND THAT ALL EASEMENTS, COVENANTS AND RESTRICTIONS REFERENCED IN SAID TITLE COMMITMENT OR APPARENT FROM A PHYSICAL INSPECTION OF THE SUBJECT PROPERTY OR OTHERWISE KNOWN TO ATWELL, LLC HAVE BEEN PLOTTED HEREON OR OTHERWISE NOTED AS TO THEIR EFFECT OF THE SUBJECT PROPERTY.

Update to TC submitted for review
Heritage Title Company, Inc.
597-H0621384-023-CN4
Dated October 9, 2020



VICINITY MAP
SCALE: 1"=2000'

NOTES:

5. DISTANCES SHOWN HEREON ARE EXPRESSED IN U.S. SURVEY FEET AND DECIMALS THEREOF. ONE U.S. SURVEY FOOT EQUALS EXACTLY 1200/3937 METER.

6. THIS PLAT IS THE SAME AS THAT PROPERTY SHOWN ON THE HIGHTOWER RANCH PUD ZONE DOCUMENT RECORDED AT RECEPTION NO. _____, ADAMS COUNTY RECORDS.

7. REFER TO THE CITY OF COMMERCE CITY DESIGN GUIDELINES FOR ADDITIONAL INFORMATION.

8. NOTICE IS HEREBY GIVEN:
   a. ANY CONSTRUCTION ACROSS ANY EXISTING SUBDIVISION LOT LINE IS IN VIOLATION OF THE SUBDIVISION REGULATION OF THE CITY, EXCEPT AS HEREIN AUTHORIZED.
   b. ANY DIVISION OF AN EXISTING LOT, OR CONVEYANCE OF PART OF AN EXISTING SUBDIVISION LOT, IS IN VIOLATION OF THIS ARTICLE UNLESS (1) APPROVED BY THE CITY OF COMMERCE CITY; OR (2) IS EXCEPTED FROM THE DEFINITION OF "SUBDIVISION" AS PROVIDED BY THE SUBDIVISION REGULATIONS.
   c. THIS PLAT DOES NOT ESTABLISH WATER AVAILABILITY FOR THE SUBJECT PROPERTY. WATER AND WASTEWATER SERVICE IS PROVIDED BY THE SOUTH ADAMS COUNTY WATER AND SANITATION DISTRICT. INVESTIGATION OF THE CURRENT WATER AVAILABILITY FOR THE PROPERTY AND ACQUISITION OF ANY ADDITIONAL WATER REQUIRED FOR DEVELOPMENT OF THE PROPERTY SHALL BE THE SOLE RESPONSIBILITY OF THE DEVELOPER, ITS SUCCESSORS AND ASSIGNS. DEVELOPMENT APPROVALS WILL NOT BE GRANTED WITHOUT PROOF OF WATER AVAILABILITY.

SURVEYOR'S CERTIFICATE:

I, MICHAEL LLOYD POOL, A REGISTERED LAND SURVEYOR, REGISTERED IN THE STATE OF COLORADO, DO HEREBY CERTIFY THAT THERE ARE NO ROADS, PIPELINES, IRRIGATION DITCHES, OR OTHER EASEMENTS IN EVIDENCE OR KNOWN BY ME TO EXIST ON OR ACROSS THE HEREIN BEFORE DESCRIBED PROPERTY EXCEPT AS SHOWN ON THIS PLAT. I FURTHER CERTIFY THAT I HAVE PERFORMED THE SURVEY SHOWN HEREON, OR SUCH SURVEY WAS PREPARED UNDER MY DIRECT RESPONSIBILITY AND SUPERVISION, THAT THIS PLAT ACCURATELY REPRESENTS SAID SURVEY, AND THAT ALL MONUMENTS EXIST AS SHOWN HEREON.

COLORADO LICENSED
MICHAEL LLOYD POOL
38304
PROFESSIONAL LAND SURVEYOR

_____
MICHAEL LLOYD POOL, PLS
COLORADO REG. NO. 38304
FOR AND ON BEHALF OF ATWELL, LLC

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 CERTIFICATE SHOWN HEREON.

Not needed in two locations, pick one

CITY STAFF CERTIFICATE:

APPROVED BY THE CITY ENGINEER OF THE CITY OF COMMERCE CITY

THIS _____ DAY OF _____, A.D. 20_____

_____
CITY ENGINEER

APPROVED BY THE DIRECTOR, DEPARTMENT OF COMMUNITY DEVELOPMENT OF THE CITY OF COMMERCE CITY

THIS _____ DAY OF _____, A.D. 20_____

_____
DIRECTOR, COMMUNITY DEVELOPMENT

CITY COUNCIL CERTIFICATE:

APPROVED BY CITY OF COMMERCE CITY, CITY COUNCIL

THIS _____ DAY OF _____, A.D. 20_____

ATTEST: _____ _____
CITY CLERK MAYOR

ADAMS COUNTY CLERK AND RECORDER'S CERTIFICATE:

THIS PLAT WAS FILED FOR RECORD IN THE OFFICE OF ADAMS COUNTY CLERK AND RECORDER, IN THE STATE OF COLORADO, AT _____ __M., ON THE

_____ DAY OF _____, A.D. 20____

_____
COUNTY CLERK AND RECORDER

BY: _____
DEPUTY

RECEPTION NO. _____

ATWELL
866.850.4200 www.atwell-group.com
143 UNION BOULEVARD, SUITE 700
LAKEWOOD, CO 80228
303.462.1100

REVISIONS

SHEET 1 OF 10

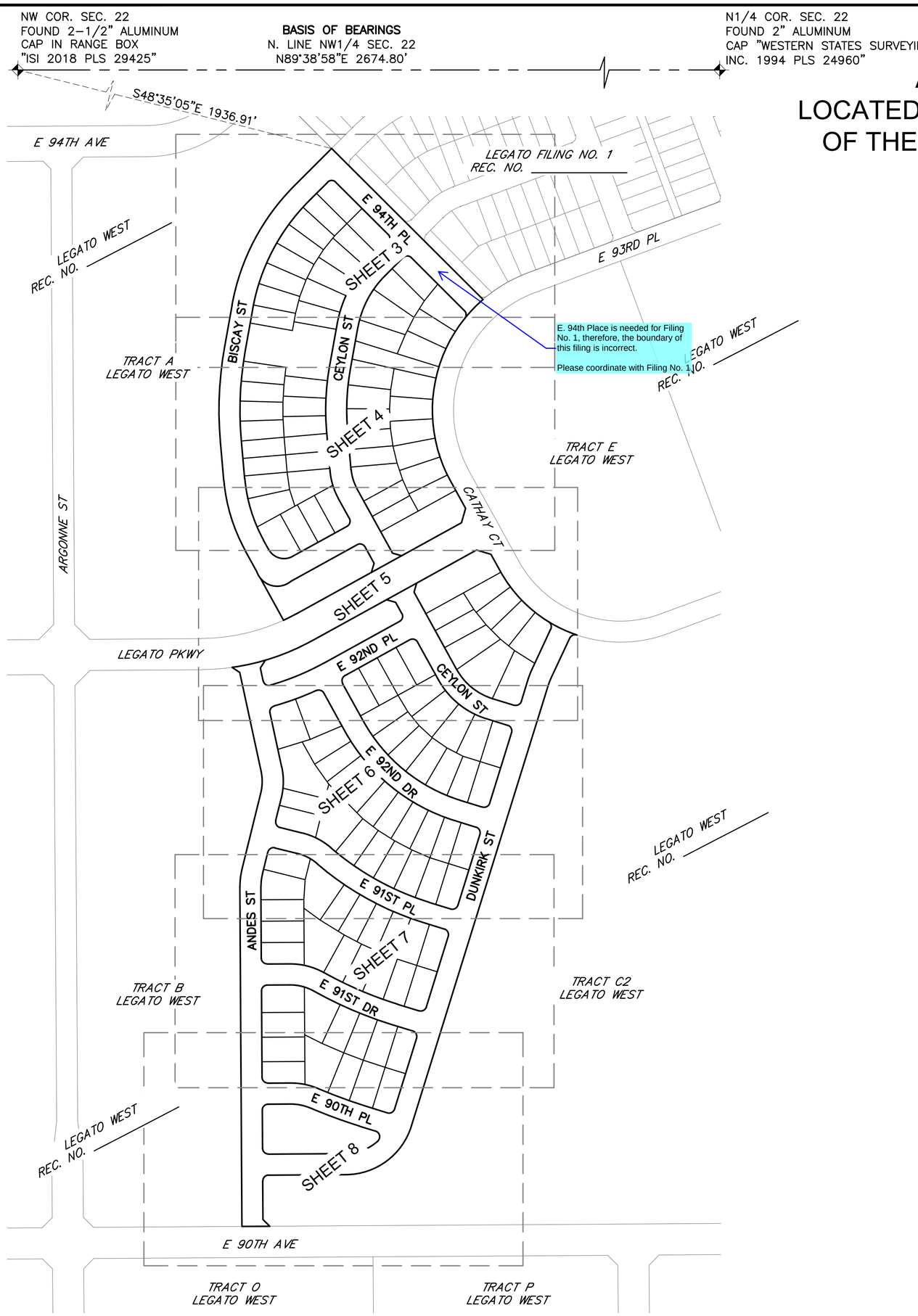
FILE NO.	19002561_FINAL PLAT
DATE	08/14/2020
DRAWN BY	TWK
CHECK BY	MLP
JOB NO.	19002561

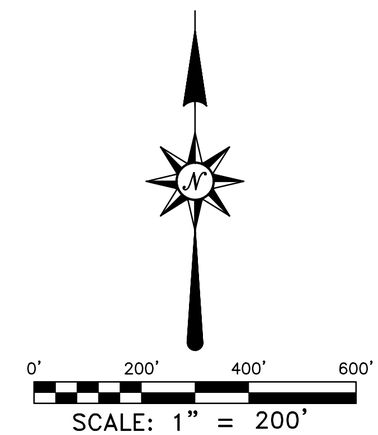
K:\19002561\DWG\Survey\19002561_FLG 2 FINAL PLAT.dwg PLAT COVER, 8/17/2020 7:03:05 AM

LEGATO FILING NO. 2

A REPLAT OF TRACTS C1 & D1, LEGATO WEST
LOCATED IN SECTION 22, TOWNSHIP 2 SOUTH, RANGE 66 WEST, OF THE 6TH PRINCIPAL MERIDIAN, CITY OF COMMERCE CITY, COUNTY OF ADAMS, STATE OF COLORADO

SHEET 2 OF 10





LAND USE	NO. OF PARCELS	AREA IN ACRES	% OF PROJECT
LOTS	131	19.62	59.3
TRACTS	7	3.34	10.1
RIGHT OF WAY		10.10	30.6
TOTAL		33.06	100.0

TRACT	AREA (S.F.)	AREA (AC.)	USE	OWNER/ MAINTENANCE
A	25,831	0.59	OPEN SPACE	HOA
B	8,636	0.20	OPEN SPACE	HOA
C	22,246	0.51	OPEN SPACE	HOA
D	17,076	0.39	OPEN SPACE	HOA
E	17,076	0.39	OPEN SPACE	HOA
F	25,113	0.58	OPEN SPACE	HOA
G	29,406	0.68	OPEN SPACE	HOA
TOTAL	145,384	3.34		

ATWELL
866.850.4200 www.atwell-group.com
143 UNION BOULEVARD, SUITE 700
LAKEWOOD, CO 80228
303.462.1100

REVISIONS

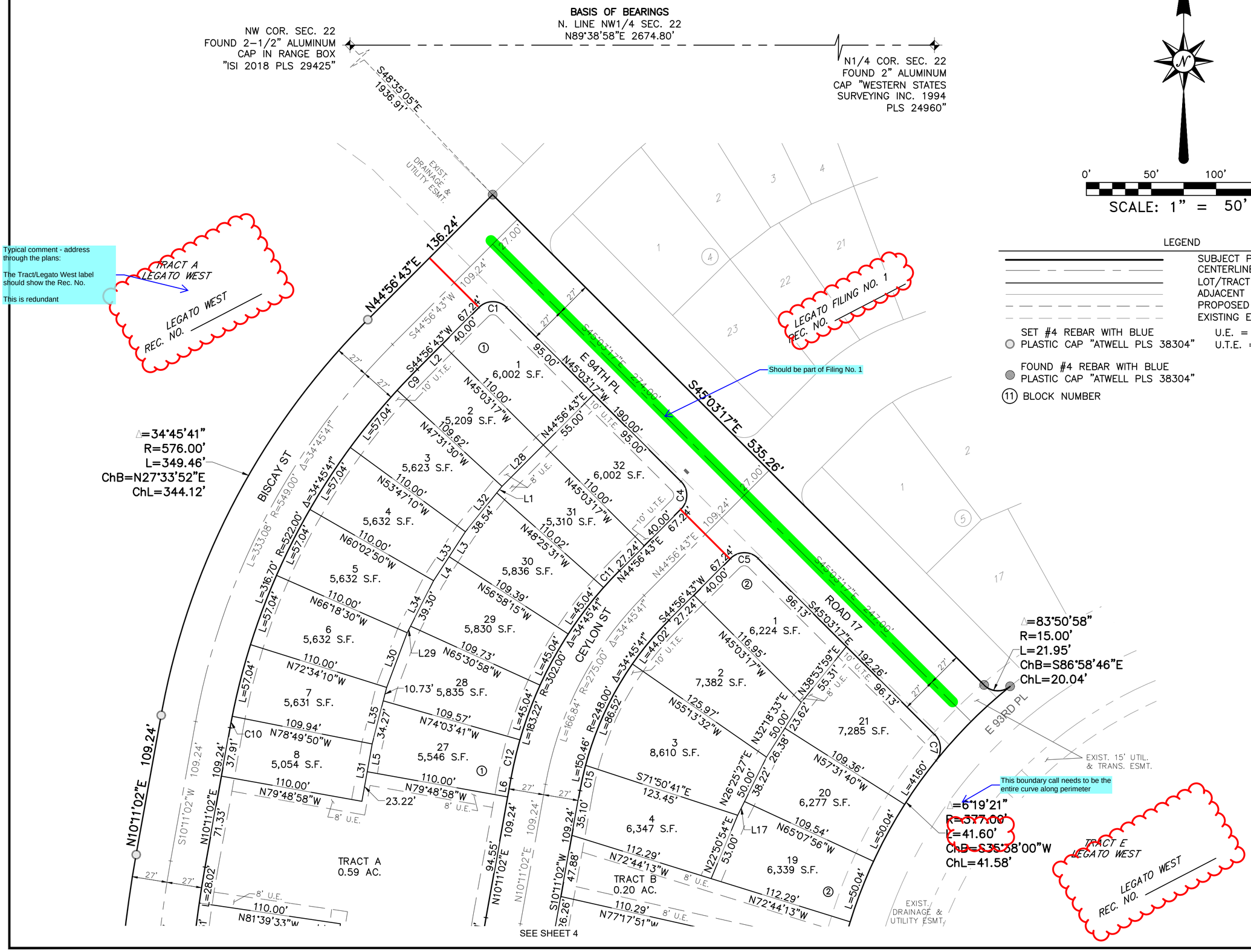
SHEET 2 OF 10

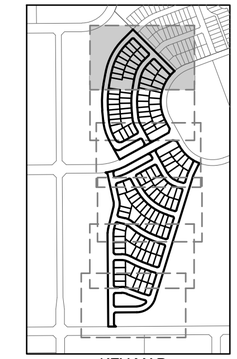
FILE NO.	19002561_FINAL PLAT
DATE	08/14/2020
DRAWN BY	TWK
CHECK BY	MLP
JOB NO.	19002561

k:\19002561\dwg\survey\19002561_flg 2 final plat.dwg Savedate:8/10/2020 1:18 PM Plotdate:8/11/2020 7:05 AM
K:\19002561\DWG\Survey\19002561_FLG 2 FINAL PLAT.dwg, PLAT SHT 2, 8/11/2020 7:05:57 AM

LEGATO FILING NO. 2

A REPLAT OF TRACTS C1 & D1, LEGATO WEST
LOCATED IN SECTION 22, TOWNSHIP 2 SOUTH, RANGE 66 WEST, OF THE 6TH PRINCIPAL MERIDIAN,
CITY OF COMMERCE CITY, COUNTY OF ADAMS, STATE OF COLORADO
SHEET 3 OF 10





0' 50' 100' 150'
SCALE: 1" = 50'

LEGEND

- SUBJECT PARCEL BOUNDARY LINE
- CENTERLINE
- LOT/TRACT LINE
- ADJACENT PROPERTY LINE
- PROPOSED EASEMENT LINE
- EXISTING EASEMENT LINE
- SET #4 REBAR WITH BLUE PLASTIC CAP "ATWELL PLS 38304"
- FOUND #4 REBAR WITH BLUE PLASTIC CAP "ATWELL PLS 38304"
- (11) BLOCK NUMBER
- U.E. = UTILITY EASEMENT
- U.T.E. = UTILITY & TRANSPORTATION EASEMENT

SHEET 3 OF 10

FILE NO. 19002561 FINAL PLAT
DATE 08/14/2020
DRAWN BY TWK
CHECK BY MLP
JOB NO. 19002561

REVISIONS

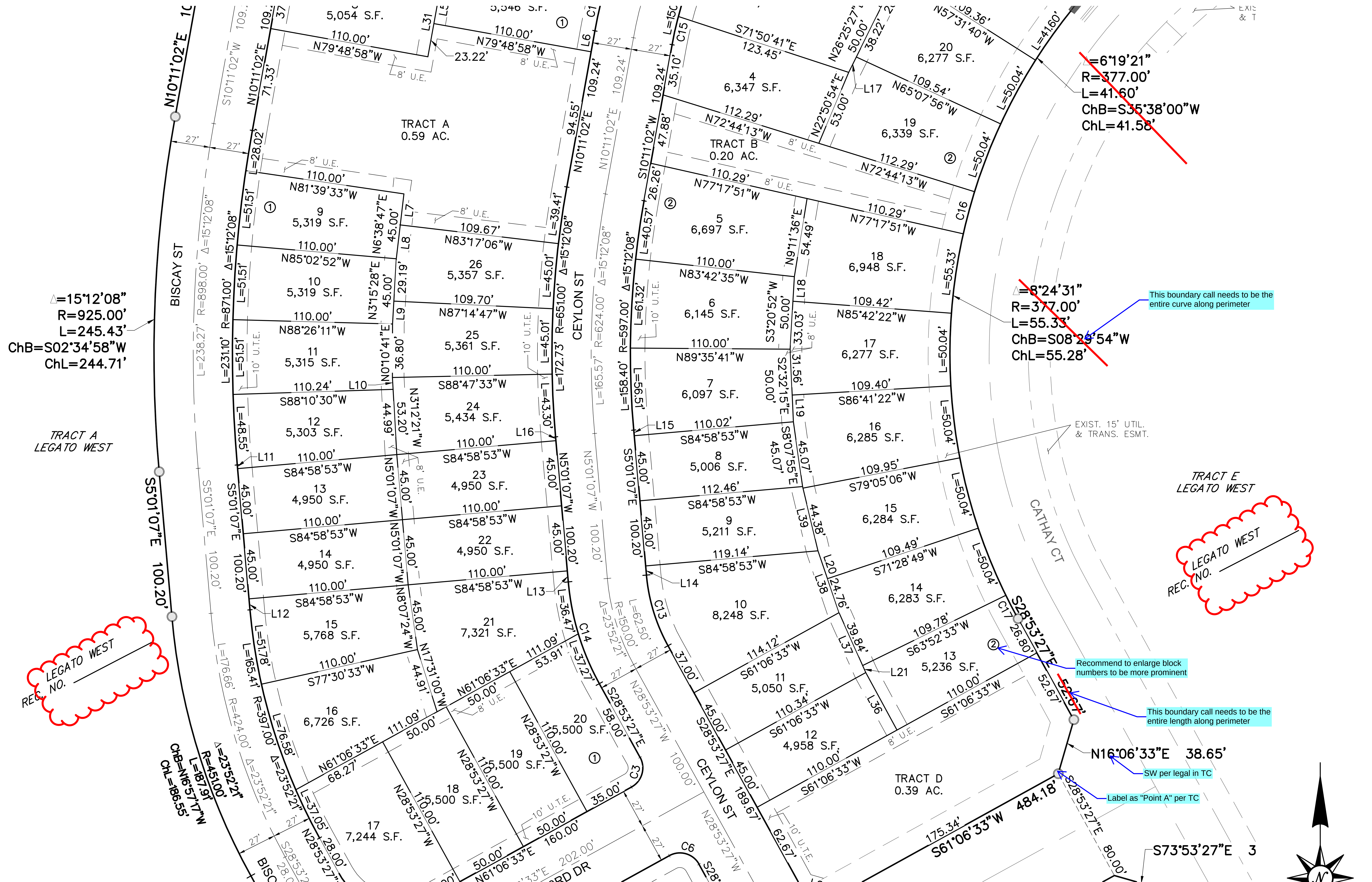
ATWELL
866.850.4200 www.atwell-group.com
143 UNION BOULEVARD, SUITE 700
LAKEWOOD, CO 80228
303.462.1100

K:\19002561\DWG\Survey\19002561_FLG 2 FINAL PLAT.dwg PLAT SHT 3, 8/11/2020 7:11:41 AM

LEGATO FILING NO. 2

A REPLAT OF TRACTS C1 & D1, LEGATO WEST
LOCATED IN SECTION 22, TOWNSHIP 2 SOUTH, RANGE 66 WEST, OF THE 6TH PRINCIPAL MERIDIAN,
CITY OF COMMERCE CITY, COUNTY OF ADAMS, STATE OF COLORADO

SEE SHEET 3



SEE SHEET 5

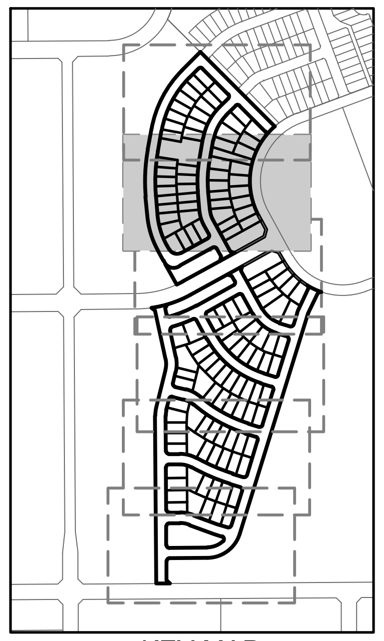
LEGEND

SUBJECT PARCEL BOUNDARY LINE
CENTERLINE
LOT/TRACT LINE
ADJACENT PROPERTY LINE
PROPOSED EASEMENT LINE
EXISTING EASEMENT LINE

SET #4 REBAR WITH BLUE PLASTIC CAP "ATWELL PLS 38304"
FOUND #4 REBAR WITH BLUE PLASTIC CAP "ATWELL PLS 38304"

U.E. = UTILITY EASEMENT
U.T.E. = UTILITY & TRANSPORTATION EASEMENT
(11) BLOCK NUMBER

0' 50' 100' 150'
SCALE: 1" = 50'



SHEET 4 OF 10

FILE NO.	19002561_FINAL PLAT
DATE	08/14/2020
DRAWN BY	TWK
CHECK BY	MLP
JOB NO.	19002561

REVISIONS

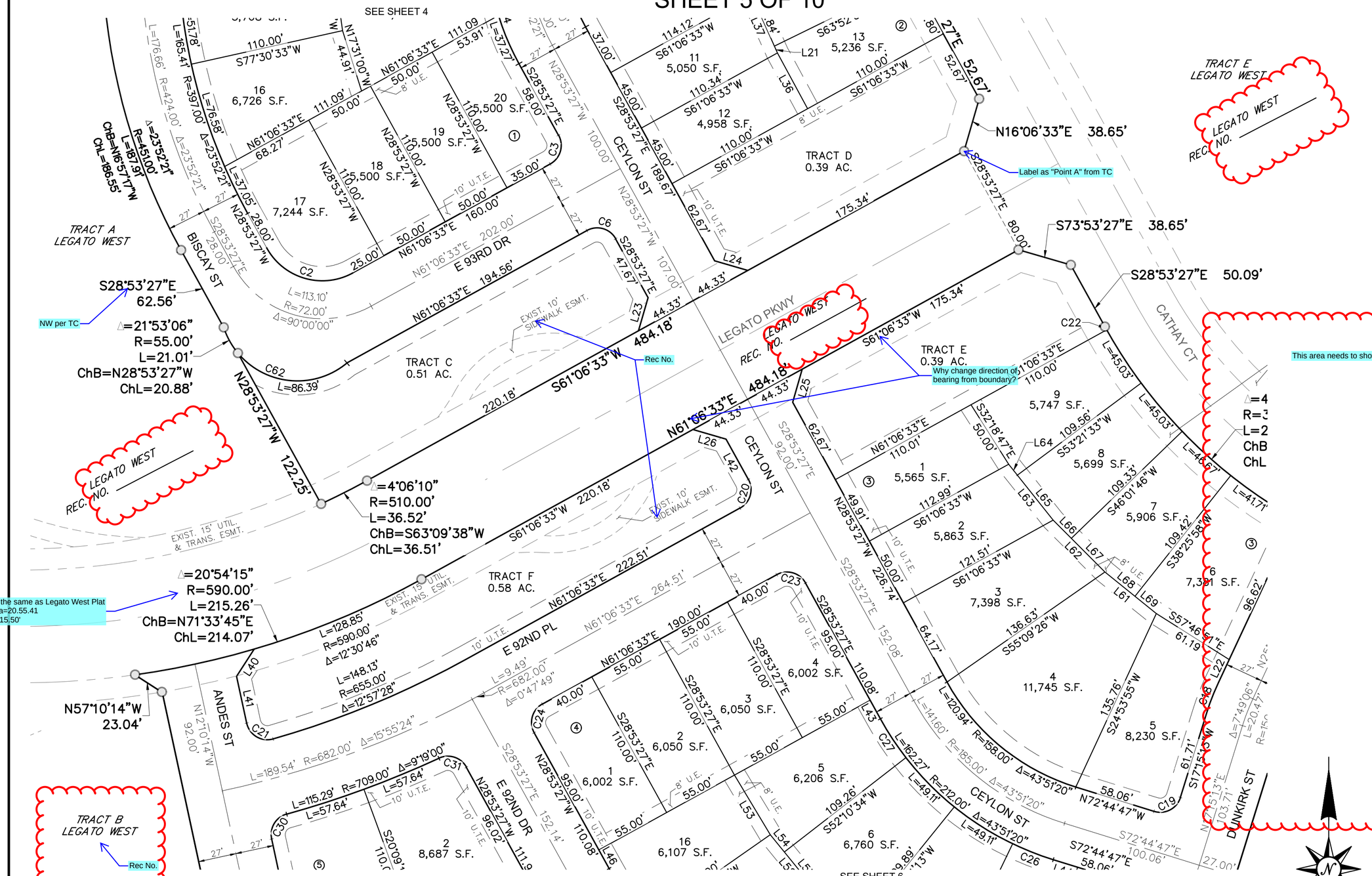
ATWELL
866.850.4200 www.atwell-group.com
143 UNION BOULEVARD, SUITE 700
LAKEWOOD, CO 80228
303.462.1100

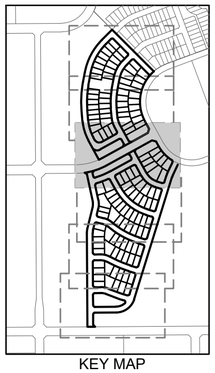
K:\19002561\DWG\Survey\19002561_FLG 2 FINAL PLAT.dwg, PLAT SHT 4, 8/11/2020 7:13:38 AM

LEGATO FILING NO. 2

A REPLAT OF TRACTS C1 & D1, LEGATO WEST
LOCATED IN SECTION 22, TOWNSHIP 2 SOUTH, RANGE 66 WEST, OF THE 6TH PRINCIPAL MERIDIAN, CITY OF COMMERCE CITY, COUNTY OF ADAMS, STATE OF COLORADO

SHEET 5 OF 10





LEGEND

- SUBJECT PARCEL BOUNDARY LINE
- CENTERLINE
- LOT/TRACT LINE
- ADJACENT PROPERTY LINE
- PROPOSED EASEMENT LINE
- EXISTING EASEMENT LINE
- SET #4 REBAR WITH BLUE PLASTIC CAP "ATWELL PLS 38304"
- FOUND #4 REBAR WITH BLUE PLASTIC CAP "ATWELL PLS 38304"
- U.E. = UTILITY EASEMENT
- U.T.E. = UTILITY & TRANSPORTATION EASEMENT
- (11) BLOCK NUMBER

0' 50' 100' 150'
SCALE: 1" = 50'

SHEET 5 OF 10

REVISIONS

FILE NO. 19002561_FINAL PLAT
DATE 08/14/2020
DRAWN BY TWK
CHECK BY MLB
JOB NO. 19002561

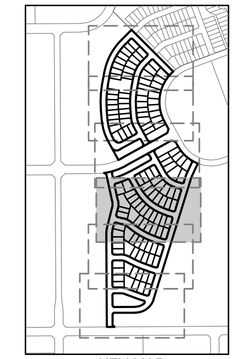
ATWELL
866.850.4200 www.atwell-group.com
143 UNION BOULEVARD, SUITE 700
LAKEWOOD, CO 80228
303.462.1100

K:\19002561\DWG\Survey\19002561_FLG 2 FINAL PLAT.dwg PLAT SHT 5, 8/11/2020 7:14:30 AM

LEGATO FILING NO. 2

A REPLAT OF TRACTS C1 & D1, LEGATO WEST
LOCATED IN SECTION 22, TOWNSHIP 2 SOUTH, RANGE 66 WEST, OF THE 6TH PRINCIPAL MERIDIAN, CITY OF COMMERCE CITY, COUNTY OF ADAMS, STATE OF COLORADO

SHEET 6 OF 10



LEGEND

- SUBJECT PARCEL BOUNDARY LINE
- CENTERLINE
- LOT/TRACT LINE
- ADJACENT PROPERTY LINE
- PROPOSED EASEMENT LINE
- EXISTING EASEMENT LINE
- SET #4 REBAR WITH BLUE PLASTIC CAP "ATWELL PLS 38304"
- FOUND #4 REBAR WITH BLUE PLASTIC CAP "ATWELL PLS 38304"
- U.E. = UTILITY EASEMENT
- U.T.E. = UTILITY & TRANSPORTATION EASEMENT
- (11) BLOCK NUMBER

0' 50' 100' 150'

SCALE: 1" = 50'

REVISIONS

SHEET 6 OF 10

FILE NO.	19002561_FINAL PLAT
DATE	08/14/2020
DRAWN BY	TWK
CHECK BY	MLP
JOB NO.	19002561

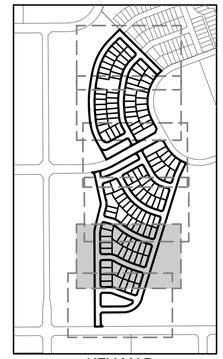
ATWELL
866.850.4200 www.atwell-group.com
143 UNION BOULEVARD, SUITE 700
LAKEWOOD, CO 80228
303.462.1100

K:\19002561\DWG\Survey\19002561_FLG 2 FINAL PLAT.dwg PLAT SHT 6, 8/11/2020 7:15:34 AM

LEGATO FILING NO. 2

A REPLAT OF TRACTS C1 & D1, LEGATO WEST
LOCATED IN SECTION 22, TOWNSHIP 2 SOUTH, RANGE 66 WEST, OF THE 6TH PRINCIPAL MERIDIAN, CITY OF COMMERCE CITY, COUNTY OF ADAMS, STATE OF COLORADO

SHEET 7 OF 10



LEGEND

SUBJECT PARCEL BOUNDARY LINE
CENTERLINE
LOT/TRACT LINE
ADJACENT PROPERTY LINE
PROPOSED EASEMENT LINE
EXISTING EASEMENT LINE

SET #4 REBAR WITH BLUE PLASTIC CAP "ATWELL PLS 38304"
FOUND #4 REBAR WITH BLUE PLASTIC CAP "ATWELL PLS 38304"

U.E. = UTILITY EASEMENT
U.T.E. = UTILITY & TRANSPORTATION EASEMENT
(11) BLOCK NUMBER

0' 50' 100' 150'
SCALE: 1" = 50'

SHEET 7 OF 10

FILE NO. 19002561_FINAL PLAT
DATE 08/14/2020
DRAWN BY TWK
CHECK BY MLP
JOB NO. 19002561

REVISIONS

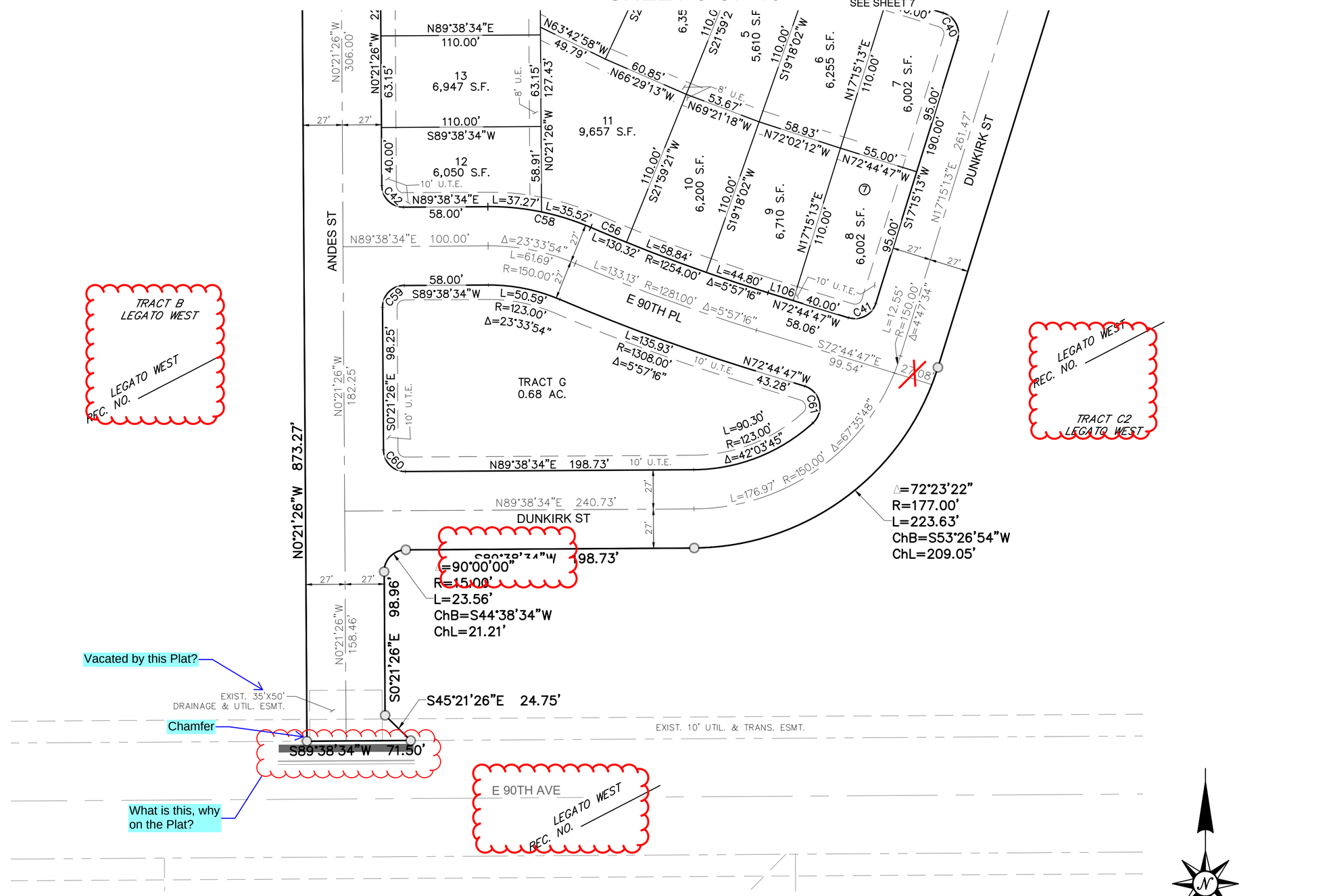
ATWELL
866.850.4200 www.atwell-group.com
143 UNION BOULEVARD, SUITE 700
LAKEWOOD, CO 80228
303.462.1100

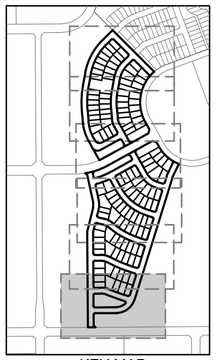
K:\19002561\DWG\Survey\19002561_FLG 2 FINAL PLAT.dwg PLAT SHT 7, 8/11/2020 7:16:28 AM

LEGATO FILING NO. 2

A REPLAT OF TRACTS C1 & D1, LEGATO WEST
LOCATED IN SECTION 22, TOWNSHIP 2 SOUTH, RANGE 66 WEST, OF THE 6TH PRINCIPAL MERIDIAN,
CITY OF COMMERCE CITY, COUNTY OF ADAMS, STATE OF COLORADO

SHEET 8 OF 10





LEGEND

- SUBJECT PARCEL BOUNDARY LINE
- CENTERLINE
- LOT/TRACT LINE
- ADJACENT PROPERTY LINE
- PROPOSED EASEMENT LINE
- EXISTING EASEMENT LINE
- SET #4 REBAR WITH BLUE PLASTIC CAP "ATWELL PLS 38304"
- FOUND #4 REBAR WITH BLUE PLASTIC CAP "ATWELL PLS 38304"
- U.E. = UTILITY EASEMENT
- U.T.E. = UTILITY & TRANSPORTATION EASEMENT
- (11) BLOCK NUMBER

0' 50' 100' 150'

SCALE: 1" = 50'

SHEET 8 OF 10

FILE NO. 1900561_FINAL PLAT
DATE 08/14/2020
DRAWN BY TWK
CHECK BY MLP
JOB NO. 190025.61

REVISIONS

ATWELL
866.850.4200 www.atwell-group.com
143 UNION BOULEVARD, SUITE 700
LAKEWOOD, CO 80228
303.462.1100

K:\190025.61\DWG\Survey\190025.61_FLG 2 FINAL PLAT.dwg, PLAT SHT 8, 8/11/2020 7:17:13 AM

LEGATO FILING NO. 2

A REPLAT OF TRACTS C1 & D1, LEGATO WEST
LOCATED IN SECTION 22, TOWNSHIP 2 SOUTH, RANGE 66 WEST, OF THE 6TH PRINCIPAL MERIDIAN,
CITY OF COMMERCE CITY, COUNTY OF ADAMS, STATE OF COLORADO
SHEET 9 OF 10

LINE TABLE		
LINE	LENGTH	BEARING
L1	6.49'	N38°51'27"E
L2	27.24'	N44°56'43"E
L3	22.89'	N33°05'00"E
L4	22.11'	N33°05'00"E
L5	21.78'	N10°11'02"E
L6	14.69'	S10°11'02"W
L7	21.59'	N06°38'47"E
L8	23.41'	N06°38'47"E
L9	15.81'	N03°15'28"E
L10	8.20'	N03°12'21"W
L11	2.59'	N05°01'07"W
L12	7.61'	N05°01'07"W
L13	7.61'	S05°01'07"E
L14	6.28'	N05°01'07"W
L15	3.92'	N05°01'07"W
L16	2.59'	S05°01'07"E
L17	11.78'	N26°25'27"E
L18	16.97'	S03°20'52"W
L19	18.44'	S02°32'15"E
L20	20.24'	S18°47'10"E
L21	5.32'	S24°05'30"E
L22	18.13'	S25°04'19"W
L23	24.51'	S16°06'33"W
L24	24.51'	S73°53'27"E
L25	24.51'	N16°06'33"E

LINE TABLE		
LINE	LENGTH	BEARING
L26	24.51'	N73°53'27"W
L28	45.01'	N44°56'43"E
L29	5.70'	N26°49'20"E
L30	45.00'	N20°33'40"E
L31	21.78'	N10°11'02"E
L32	45.02'	N38°51'27"E
L33	45.00'	N33°05'00"E
L34	45.00'	S26°49'20"W
L35	45.00'	S14°22'38"W
L36	45.00'	N28°27'28"W
L37	45.16'	S24°05'30"E
L38	45.00'	S18°47'10"E
L39	45.49'	S13°27'40"E
L40	23.04'	S32°49'46"W
L41	33.92'	S12°10'14"E
L42	32.67'	N28°53'27"W
L43	15.08'	S28°53'27"E
L44	18.06'	S72°44'47"E
L45	18.06'	N72°44'47"W
L46	15.08'	N28°53'27"W
L47	55.00'	N72°44'47"W
L48	46.09'	N72°44'47"W
L49	46.10'	N62°09'58"W
L50	46.00'	N55°29'00"W
L51	46.00'	N47°17'29"W

LINE TABLE		
LINE	LENGTH	BEARING
L52	46.00'	N39°05'57"W
L53	49.40'	N31°00'53"W
L54	15.85'	N39°05'57"W
L55	30.15'	N39°05'57"W
L56	44.36'	N47°17'29"W
L58	1.64'	N47°17'29"W
L59	26.91'	N62°09'58"W
L60	19.20'	N62°09'58"W
L61	46.91'	N51°04'26"W
L62	52.03'	N44°56'10"W
L63	50.72'	N38°33'42"W
L64	9.89'	N38°33'42"W
L65	40.83'	N38°33'42"W
L66	18.24'	N44°56'10"W
L67	33.79'	N44°56'10"W
L68	27.43'	N51°04'26"W
L69	19.48'	N51°04'26"W
L70	18.06'	N72°44'47"W
L71	15.89'	N28°53'27"W
L72	19.04'	S13°54'18"W
L73	18.06'	S72°44'47"E
L74	50.00'	N52°50'49"W
L75	50.00'	N57°39'18"W
L76	50.00'	N62°27'47"W
L77	50.04'	N66°17'26"W

LINE TABLE		
LINE	LENGTH	BEARING
L78	50.04'	N72°44'47"W
L79	55.00'	N72°44'47"W
L80	62.69'	N35°26'05"W
L81	6.29'	N62°27'47"W
L82	11.48'	N57°39'18"W
L83	16.67'	N52°50'49"W
L84	33.33'	N52°50'49"W
L85	21.91'	N44°26'46"W
L86	7.52'	N35°26'05"W
L87	21.89'	N72°53'34"E
L88	18.06'	N72°44'47"W
L89	18.06'	S72°44'47"E
L90	13.72'	S13°54'18"W
L91	51.51'	N54°05'51"W
L92	46.95'	N68°49'30"W
L93	42.00'	N65°31'54"W
L94	37.05'	N62°14'18"W
L95	54.93'	N58°11'35"W
L96	54.93'	N58°11'35"W
L97	17.90'	N58°11'35"W
L98	37.05'	N62°14'18"W
L99	12.95'	N62°14'18"W
L100	42.00'	N65°31'54"W
L101	8.00'	N65°31'54"W
L102	46.95'	N68°49'30"W

LINE TABLE		
LINE	LENGTH	BEARING
L103	3.05'	N68°49'30"W
L104	22.32'	N00°21'26"W
L105	18.06'	N72°44'47"W
L106	18.06'	S72°44'47"E

REVISIONS

SHEET 9 OF 10

FILE NO. 19002561_FINAL PLAT
DATE 08/14/2020
DRAWN BY TWK
CHECK BY MLP
JOB NO. 19002561

ATWELL
866.850.4200 www.atwell-group.com
143 UNION BOULEVARD, SUITE 700
LAKEWOOD, CO 80228
303.462.1100

K:\19002561\DWG\Survey\19002561_FLG 2 FINAL PLAT.dwg PLAT SHT 9, 8/11/2020 7:20:15 AM

LEGATO FILING NO. 2

A REPLAT OF TRACTS C1 & D1, LEGATO WEST
LOCATED IN SECTION 22, TOWNSHIP 2 SOUTH, RANGE 66 WEST, OF THE 6TH PRINCIPAL MERIDIAN,
CITY OF COMMERCE CITY, COUNTY OF ADAMS, STATE OF COLORADO
SHEET 10 OF 10

Curve Table

CURVE #	LENGTH	RADIUS	DELTA	CHORD BEARING	CHORD LENGTH
C1	23.56'	15.00'	90°00'00"	N89°56'43"E	21.21'
C2	70.69'	45.00'	90°00'00"	N73°53'27"W	63.64'
C3	23.56'	15.00'	90°00'00"	S16°06'33"W	21.21'
C4	23.56'	15.00'	90°00'00"	S0°03'17"E	21.21'
C5	23.56'	15.00'	90°00'00"	N89°56'43"E	21.21'
C6	23.56'	15.00'	90°00'00"	S73°53'27"E	21.21'
C7	21.95'	15.00'	83°50'54"	S3°07'50"E	20.04'
C8	21.84'	15.00'	83°25'43"	S16°38'33"E	19.96'
C9	22.51'	522.00'	2°28'13"	N43°42'37"E	22.50'
C10	8.98'	522.00'	0°59'08"	N10°40'36"E	8.98'
C11	17.77'	302.00'	3°22'14"	S43°15'36"W	17.76'
C12	30.33'	302.00'	5°45'17"	S13°03'40"W	30.32'
C13	51.25'	123.00'	23°52'21"	N16°57'17"W	50.88'
C14	73.75'	177.00'	23°52'21"	S16°57'17"E	73.22'
C15	19.92'	248.00'	4°36'04"	N12°29'04"E	19.91'
C16	30.01'	377.00'	4°33'38"	S14°58'58"W	30.00'
C17	18.21'	377.00'	2°46'00"	S27°30'27"E	18.20'
C18	24.15'	177.00'	7°49'06"	S21°09'46"W	24.13'
C19	23.56'	15.00'	90°00'00"	S62°15'13"W	21.21'
C20	23.56'	15.00'	90°00'00"	N16°06'33"E	21.21'
C21	24.55'	15.00'	93°45'46"	S59°03'07"E	21.90'
C22	2.58'	352.00'	0°25'13"	S29°06'04"E	2.58'
C23	23.56'	15.00'	90°00'00"	S73°53'27"E	21.21'
C24	23.56'	15.00'	90°00'00"	N16°06'33"E	21.21'
C25	23.56'	15.00'	90°00'00"	S27°44'47"E	21.21'

Curve Table

CURVE #	LENGTH	RADIUS	DELTA	CHORD BEARING	CHORD LENGTH
C26	31.00'	212.00'	8°22'39"	S68°33'28"E	30.97'
C27	33.05'	212.00'	8°55'59"	S33°21'27"E	33.02'
C28	37.51'	432.00'	4°58'30"	N70°15'32"W	37.50'
C29	23.56'	15.00'	90°00'00"	S62°15'13"W	21.21'
C30	22.69'	15.00'	86°40'28"	S31°10'00"W	20.59'
C31	22.49'	15.00'	85°55'19"	N71°51'07"W	20.45'
C32	23.56'	15.00'	90°00'00"	N27°44'47"W	21.21'
C33	23.56'	15.00'	90°00'00"	N62°15'13"E	21.21'
C34	23.56'	15.00'	90°00'00"	S31°05'42"E	21.21'
C35	23.56'	15.00'	90°00'00"	S58°54'18"W	21.21'
C36	23.56'	15.00'	90°00'00"	N27°44'47"W	21.21'
C37	23.56'	15.00'	90°00'00"	N62°15'13"E	21.21'
C38	23.56'	15.00'	90°00'00"	S45°21'26"E	21.21'
C39	23.56'	15.00'	90°00'00"	S44°38'34"W	21.21'
C40	23.56'	15.00'	90°00'00"	N27°44'47"W	21.21'
C41	23.56'	15.00'	90°00'00"	N62°15'13"E	21.21'
C42	23.56'	15.00'	90°00'00"	S45°21'26"E	21.21'
C43	26.95'	486.00'	3°10'37"	N71°09'29"W	26.94'
C44	29.94'	486.00'	3°31'45"	N30°39'20"W	29.93'
C45	26.05'	177.00'	8°25'59"	S9°41'18"W	26.03'
C46	15.66'	706.00'	1°16'15"	S49°48'27"E	15.66'
C47	83.17'	177.00'	26°55'23"	N62°38'01"W	82.41'
C48	80.55'	177.00'	26°04'32"	N0°52'02"E	79.86'
C49	21.48'	123.00'	10°00'18"	N54°10'28"W	21.45'
C50	36.32'	123.00'	16°55'05"	N67°38'10"W	36.19'

Curve Table

CURVE #	LENGTH	RADIUS	DELTA	CHORD BEARING	CHORD LENGTH
C51	1.22'	177.00'	0°23'45"	S60°55'13"E	1.22'
C52	30.62'	123.00'	14°15'43"	S6°46'26"W	30.54'
C53	91.55'	177.00'	29°38'05"	N75°32'23"W	90.53'
C54	57.80'	123.00'	26°55'23"	N62°38'01"W	57.27'
C55	26.04'	123.00'	12°07'42"	N66°47'12"W	25.99'
C56	26.68'	1254.00'	1°13'08"	S67°24'05"E	26.67'
C57	63.62'	123.00'	29°38'05"	N75°32'23"W	62.91'
C58	72.80'	177.00'	23°33'54"	N78°34'28"W	72.29'
C59	23.56'	15.00'	90°00'00"	S44°38'34"W	21.21'
C60	23.56'	15.00'	90°00'00"	S45°21'26"E	21.21'
C61	31.50'	15.00'	120°19'37"	N12°34'59"W	26.02'
C62	107.40'	55.00'	111°53'06"	S73°53'27"E	91.13'

SHEET 10 OF 10

FILE NO. 19002561_FINAL PLAT
DATE 08/14/2020
DRAWN BY TWK
CHECK BY MLP
JOB NO. 19002561

REVISIONS

ATWELL
866.850.4200 www.atwell-group.com
143 UNION BOULEVARD, SUITE 700
LAKEWOOD, CO 80228
303.462.1100

K:\19002561\DWG\Survey\19002561_FLG 2 FINAL PLAT.dwg PLAT SHT 10, 8/11/2020 7:21:16 AM

May 21, 2021

Daniel Madruga
Atwell
6200 South Syracuse Way
Greenwood Village, CO 80111

Subject: Public Works Engineering Plan Review
Legato Filing No. 2
Case # S-771-20-21, Z-953-D-475-20
Public Works Review #2

Dear Mr. Madruga:

The City of Commerce City Public Works has reviewed the submitted Civil Construction Plans, Final Drainage Report, and Erosion Control Plans/Report for the above reference project and has the following comments:

General:

- A ROW permit will be required for any work within the public ROW.
- A grading permit will be required. Please see attached Grading Permit Information Sheet and Grading Permit Application.

Construction Plans:

1. Please refer to the attached redlined pdf document.

Drainage Report:

1. Please refer to the attached redlined pdf document.

Erosion and Sediment Control Plans:

1. Please refer to the attached redlined pdf document.

Erosion and Sediment Control Report:

1. Please refer to the attached redlined pdf document.

Public Improvement Agreement (PIA):

1. A Public Improvement Agreement (PIA) will need to be submitted with this project. Please include an itemized quantity/cost estimate for review.
2. The PIA will need to be executed before the Civil Construction Plans can be approved and a building permit issued.

Impact Fees:

1. A Road Impact Fee, per Section 21-9220 of the City of Commerce City's Land Development Code (LDC) will apply to this development. Payment will be due at the time of the first Building Permit issuance.
2. A Drainage Impact Fee, per Section 21-9240 of the City of Commerce City's Land Development Code (LDC) will apply to this development. Payment will be due at the time of the first Building Permit issuance.

Next Steps:

Please include the following information in your next submittal:

- Address all comments on the redlined pdf documents, include a descriptive statement of how the comments have been addressed, or a descriptive reason for not addressing the comment.
- Electronic files with PDF copies of all submittal documents. Please send electronic submittals via email to pwsubmittals@c3gov.com. Please copy me in the email.
- If the resubmittal does not address the comments or give compelling reason why the comment was not completed, the plans will be returned without review.

If you have any questions, please feel free to contact me via email at esmith@corecivil.com or by phone at 720-333-3050 to discuss any of these comments.

Sincerely,

Elna Smith
CORE Consultants, Development Review Consultant

ES/ca

Enclosures: Redlined pdf's

ec: Joe Wilson, Director of Public Works
Chris Hodyl, City Development Review Manager
Brent Soderlin, City Engineer
Lee Alverson, City Development Review
Stacy Wasinger, City Planning Review
Julia Friedman, City Planning Review
Kevin Rohrbough, CORE Consultants, Development Review Consultant

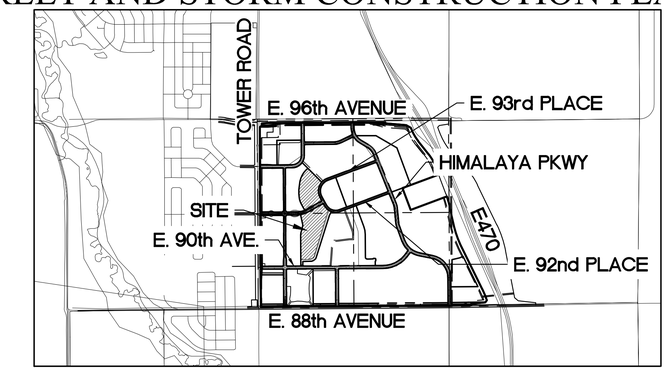
LEGATO FILING NO. 2

LOCATED IN SECTION 22, TOWNSHIP 2 SOUTH, RANGE 66 WEST OF THE SIXTH PRINCIPAL MERIDIAN, CITY OF COMMERCE CITY, COUNTY OF ADAMS, STATE OF COLORADO

STREET AND STORM CONSTRUCTION PLANS

LEGEND

- PROPERTY LINE
- PROPOSED FIRE HYDRANT
- PROPOSED INLET
- PROPOSED PEDESTRIAN RAMP
- PROPOSED SIDEWALK
- PROPOSED CURB & GUTTER
- PROPOSED RIGHT OF WAY
- PROPOSED LOT LINE
- PROPOSED STREET LIGHT
- PROPOSED GATE VALVE
- EXISTING GATE VALVE
- PROPOSED SANITARY SEWER MANHOLE
- CURB RETURN DESIGNATION
- PROPOSED 8' CROSSPAN
- PROPOSED CONTOURS
- EXISTING CONTOURS



VICINITY MAP
SCALE 1"=2000'

OWNER:
COHEN DENVER AIRPORT, LLC.
2600 PASEO VERDE PARKWAY.
SUITE 250.
HENDERSON, NV 89074
(720) 355-1400
CONTACT: BRAD BURNS

CIVIL ENGINEER:
ATWELL, LLC.
6200 SOUTH SYRACUSE WAY.
SUITE 470.
GREENWOOD VILLAGE, CO 80111.
(303) 928-6757
CONTACT: DANIEL MADRUGA

SURVEYOR:
ATWELL, LLC.
143 UNION BLVD.
SUITE 700.
LAKEWOOD, CO 80228.
(303) 928-6724
CONTACT: MICHAEL POOL

LANDSCAPE ARCHITECT/PLANNER:
HENRY DESIGN GROUP
1501 WAZEE STREET.
SUITE 1-C.
DENVER, CO 80202
(303) 446-2368
CONTACT: KAREN HENRY

CITY OF COMMERCE CITY:
8602 ROSEMARY ST
COMMERCE CITY, CO 80228
(303) 227-8782
CONTACT: STACY WASINGER

SOUTH ADAMS COUNTY WATER & SANITATION DISTRICT (SACWSD):
6595 E. 70TH AVE.
COMMERCE CITY, CO 80022
(720) 206-0593
CONTACT: JEFF NELSON

UNITED POWER (ELEC):
500 COOPERATIVE WAY.
BRIGHTON, CO 80603
(303) 637-1300

XCEL ENERGY (GAS):
1800 LARIMER ST.
DENVER, CO 80202
(303) 571-7511

If comments are not address upon the next submittal the plans will be returned without review

Please ensure all comments are addressed and a detailed description is included.

Ramps will need to be moved

The City is no longer allowing the PCR placement of the ramps

Sheet List Table	
Sheet Number	Sheet Title
1	COVER
2	NOTES
3	OVERALL UTILITY PLAN
4	AREA GRADING PLAN
5	AREA GRADING PLAN
6	E 92ND DR – STA 1+00–7+54
7	E 91ST PL – STA 1+00–STA 7+23
8	E 91ST DR – STA. 1+00–5+89
9	E 90TH PL – STA. 1+00–5+50
10	ANDES COURT – STA 1+00–STA 6+00
11	ANDES COURT – STA 6+00–17+00
12	ANDES COURT – STA 17+00–19+00
13	E 93RD AVE – STA 0+50–STA 9+00
14	E 93RD AVE – STA 9+00–STA 16+36
15	ANDES ST – STA. 1+00–9+50
16	ANDES ST – STA. 9+50–17+00
17	E 92ND CT – STA 1+00–5+63
18	E 94TH AVE – STA 1+00–STA 6+00
19	E 94TH AVE – STA 6+00–STA 15+60
20	STREET INTERSECTIONS
21	STREET INTERSECTIONS
22	CURB RETURN PROFILES – 01
23	CURB RETURN PROFILES – 02
24	TRAFFIC CALMING
25	STORM RUN 1
26	STORM RUN 1A 1B 1C
27	STORM RUN 1D
28	STORM RUN 2
29	STORM RUN 3
30	STORM RUN 3A 3B
31	STORM RUN 4 4A
32	STORM RUN 6
33	STORM RUN 6A 6B
34	STORM RUN 6D
35	SIGNAGE & STRIPING – SOUTH
36	SIGNAGE & STRIPING – NORTH

STANDARD STREET NOTES:

1. A CONSTRUCTION (STREET CUT) PERMIT FROM THE CITY OF COMMERCE CITY DEPARTMENT OF PUBLIC WORKS IS REQUIRED PRIOR TO COMMENCING WORK WITHIN THE CITY RIGHT-OF WAY.
2. ANY WORK WITHIN STATE HIGHWAY RIGHT-OF-WAY WILL REQUIRE A CDOT CONSTRUCTION PERMIT IN ADDITION TO A CITY PERMIT.
3. THE CONTRACTOR SHALL NOTIFY THE CITY OF COMMERCE CITY DEPARTMENT OF PUBLIC WORKS AT LEAST 24 HOURS PRIOR TO STARTING CONSTRUCTION WITHIN THE RIGHT-OF-WAY AT TELEPHONE NUMBER (303) 289-8150.
4. THE CONTRACTOR SHALL PROVIDE ALL SIGNS, BARRICADES, FLAG MEN, LIGHTS OR OTHER DEVICES NECESSARY FOR SAFE TRAFFIC CONTROL IN ACCORDANCE WITH THE CURRENT EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES AND AS MODIFIED BY THE COLORADO SUPPLEMENT TO THE MUTCD. A TRAFFIC CONTROL PLAN SHALL BE SUBMITTED TO AND APPROVED BY THE CITY OF COMMERCE CITY DEPARTMENT OF PUBLIC WORKS PRIOR TO THE ISSUANCE OF ANY CONSTRUCTION PERMIT FOR WORK WITHIN CITY RIGHT-OF-WAY.
5. THE CONTRACTOR SHALL CONTACT THE UTILITY NOTIFICATION CENTER OF COLORADO AT LEAST 48 HOURS PRIOR TO CONSTRUCTION. CALL 1-(800) 922-1987 OR 811.
6. CONSTRUCTION SPECIFICATIONS: CURRENT EDITION OF THE COLORADO DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION HEREAFTER REFERRED TO AS STANDARD SPECIFICATIONS. SPECIAL PROVISIONS AND REVISIONS THERETO AND THE CITY OF COMMERCE CITY DEPARTMENT OF PUBLIC WORKS ENGINEERING CONSTRUCTION STANDARDS AND SPECIFICATIONS.
7. THE SUBGRADE MATERIAL SHALL BE SCARIFIED OR REMOVED TO A DEPTH REQUIRED BY THE CITY OF COMMERCE CITY ACCORDING TO INFORMATION OBTAINED FROM LABORATORY TESTS AND/OR AS REQUIRED IN THE PAVEMENT DESIGN REPORT. ADDITIVES OR APPROVED MATERIAL MAY BE REQUIRED IF THE NATIVE MATERIAL IS UNSATISFACTORY. THE SUBGRADE SHALL BE COMPACTED TO A MINIMUM DENSITY DETERMINED IN ACCORDANCE WITH AASHTO DESIGNATION T180 OR T99 AND IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS SECTION 203.07 (1991 EDITION OR NEWER).
8. SERVICE TRENCHES AND UTILITY MAIN TRENCHES SHALL BE COMPACTED THROUGHOUT THE DEPTH OF TRENCH AS SPECIFIED IN ABOVE NOTE. EXACT EXTENT OF NEW PAVEMENT TO BE INSTALLED FOR A STREET CUT PATCH SHALL BE DETERMINED BY THE CITY CONSTRUCTION INSPECTOR UPON COMPLETION OF ROADWAY EXCAVATION. NEW PAVEMENT SHALL CONFORM TO EXISTING SOUND STRUCTURAL SECTION.
9. CLASS 6 AGGREGATE BASE COURSE FOR SHOULDERS SHALL BE PLACED AND COMPACTED TO 100% STANDARD PROCTOR AFTER PLACEMENT OF ASPHALT.
10. EXISTING ASPHALT PAVEMENT SHALL BE STRAIGHT SAW CUT WHEN ADJOINING WITH NEW ASPHALT PAVEMENT. CSS-1H TACK COAT SHALL BE APPLIED TO ALL EXPOSED SURFACES, INCLUDING SAW CUTS, POTHOLES, TRENCHES AND ASPHALT OVERLAY.
11. STRUCTURAL SECTIONS SHALL BE AS APPROVED BY THE CITY OF COMMERCE CITY DEPARTMENT OF PUBLIC WORKS, WITH PAVEMENT DESIGN IN ACCORDANCE WITH THE CITY OF COMMERCE CITY DEPARTMENT OF PUBLIC WORKS ENGINEERING CONSTRUCTION STANDARDS AND SPECIFICATIONS.
12. CONCRETE MAY BE PLACED BY MACHINE METHODS PROVIDED THAT ALL FINISH LINES ARE WITHIN 1/8"± TOLERANCE OF THE LINES SHOWN ON THE PLANS. THE FLOWLINE MUST BE FREE DRAINING.
13. ONE HALF (1/2) INCH EXPANSION JOINT MATERIAL SHALL BE INSTALLED WHEN ABUTTING ANY EXISTING CONCRETE OR A FIXED STRUCTURE.
14. SIDEWALKS AND DRIVEWAYS SHALL HAVE THE NAME OF THE CONTRACTOR AND THE YEAR OF CONSTRUCTION IMPRESSED THEREIN USING BLOCK LETTERS NOT LESS THAN (1) INCH HIGH AND THREE-EIGHTHS (3/8) INCH DEEP IN EACH DRIVEWAY AND EACH END OF CONSTRUCTION, OR A MINIMUM OF EVERY 150 LINEAL FEET OF SIDEWALK.
15. A REFLECTIVE CITY OF COMMERCE CITY LOGO SHALL BE ADDED TO EACH STREET SIGN. STREET NAME SIGN PLATES SHALL BE PROVIDED AND INSTALLED BY THE DEVELOPER PRIOR TO ISSUANCE OF A CERTIFICATE OF OCCUPANCY. COORDINATE WITH CITY OF COMMERCE CITY TRAFFIC ENGINEERING AT (303) 289-8150.
16. THE CONTRACTOR SHALL GUARANTEE ALL WORK FOR A PERIOD OF ONE YEAR AFTER THE DATE OF ACCEPTANCE OF THE WORK BY THE CITY AND SHALL REPAIR OR REPLACE ANY OR ALL SUCH WORK, TOGETHER WITH ANY OTHER WORK WHICH MAY BE DISPLACED IN SO DOING, THAT MAY PROVE DEFECTIVE IN WORKMANSHIP AND/OR MATERIALS WITHIN THE ONE YEAR PERIOD FROM DATE OF ACCEPTANCE WITHOUT EXPENSE WHATSOEVER TO THE CITY, ORDINARY WEAR AND TEAR, UNUSUAL ABUSE OR NEGLECT EXCEPTED. PRIOR TO INITIAL ACCEPTANCE OF PUBLIC IMPROVEMENTS, THE CITY MAY REQUIRE THE APPLICANT OR HIS CONTRACTOR TO FILE A MAINTENANCE BOND WITH THE CITY IN THE AMOUNT OF FIFTEEN (15) PERCENT OF THE ESTIMATED COST OF CONSTRUCTION OR AN AMOUNT ADEQUATE TO ENSURE THE SATISFACTORY MAINTENANCE AND CONDITION OF THE REQUIRED PUBLIC IMPROVEMENTS FOR A PERIOD OF ONE (1) YEAR AFTER THE DATE OF THEIR FINAL ACCEPTANCE AND DEDICATION TO THE CITY.
17. NO PORTION OF ANY STREET SHALL BE PAVED WITH THE FINAL LIFT OF ASPHALT UNTIL ALL UTILITIES HAVE BEEN RELOCATED, INSTALLED OR STUBBED TO THE BACK OF SIDEWALK AND ALL STREET LIGHTS RELOCATED AS NECESSARY.
18. ANGLE POINTS IN THE CURB AND GUTTER AND ALL POINTS OF GRADE CHANGE NOT WITHIN A VERTICAL CURVE SHALL BE ROUNDED IN THE FIELD TO PRODUCE A SMOOTH GRADUAL CURVE FOR PROPER APPEARANCE.

STANDARD STREET NOTES (CONTINUED):

19. SURVEY MONUMENTS. THE STANDARD SURVEY MONUMENT AS SHOWN IN DESIGN STANDARD DETAIL NO. 300-24 OR 300-25 WILL BE INSTALLED AT ALL SECTION AND QUARTER SECTION CORNERS. SURVEY MONUMENTS SHALL BE SET IN ACCORDANCE WITH THE COLORADO REVISED STATUES, AND AS REQUIRED BY THE BYLAWS AND RULES OF PROCEDURE OF THE COLORADO STATE BOARD OF REGISTRATION FOR PROFESSIONAL ENGINEERS AND PROFESSIONAL LAND SURVEYORS. ALL MONUMENTS SHALL BE SET WITHIN 60 DAYS OF COMPLETION OF STREETS. IF THE MONUMENTS ARE NOT INSTALLED, THE CITY SHALL HAVE THE WORK PERFORMED BY A REGISTERED LAND SURVEYOR AND MAKE A CLAIM AGAINST THE COLLATERAL FOR ALL COSTS INCLUDING ADMINISTRATION AND LEGAL FEES.
20. MYLAR COPIES OF "AS BUILT" PLANS SHALL BE SUBMITTED TO THE ENGINEERING DIVISION PRIOR TO INITIAL ACCEPTANCE OF IMPROVEMENTS.
21. NO REVISIONS TO THESE PLANS SHALL BE MADE WITHOUT THE APPROVAL OF BOTH THE CITY ENGINEER AND THE DESIGN ENGINEER. ANY REVISIONS OR CHANGES THERETO SHALL BE APPROVED BY THE CITY ENGINEER PRIOR TO ANY REQUESTS FOR INSPECTION.
22. BENCHMARK. ALL ELEVATIONS SHOWN ON THESE PLANS FOR IMPROVEMENTS OR NOTED ELSEWHERE ARE REFERENCED TO THE BENCHMARK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY MONUMENT OR BENCHMARK WHICH IS DESTROYED OR DISTURBED. DAMAGED MONUMENT SHALL BE RE-ESTABLISHED AND REPLACED BY A LICENSED LAND SURVEYOR AND A MONUMENT RECORD FILED AS REQUIRED.
23. THE CONTRACTOR AGREES THAT HE SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY; THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS; AND THAT THE CONTRACTOR SHALL DEFEND, INDEMNIFY AND HOLD THE OWNER, THE ENGINEER, AND THE CITY OF COMMERCE CITY HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE OWNER, THE ENGINEER, OR THE CITY OF COMMERCE CITY.
24. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE ALL NECESSARY UTILITY RELOCATIONS WITH THE APPROPRIATE UTILITY COMPANY.
25. ADJUST RIM OF ALL CLEAN-OUTS, MANHOLES, VALVE COVERS AND SURVEY MONUMENT COVERS TO FINISH GRADE.
26. THE CONTRACTOR SHALL PROVIDE FOR INGRESS AND EGRESS FOR PRIVATE PROPERTY ADJACENT TO THE WORK THROUGHOUT PERIOD OF CONSTRUCTION.
27. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE DESIGN ENGINEER OF ANY PROBLEM IN CONFORMING TO THE APPROVED LINE AND GRADE FOR ANY ELEMENT OF THE PROPOSED IMPROVEMENTS PRIOR TO ITS CONSTRUCTION.
28. IT SHALL BE THE DESIGN ENGINEER'S RESPONSIBILITY TO RESOLVE CONSTRUCTION PROBLEMS DUE TO CHANGED CONDITIONS OR DESIGN ERRORS ENCOUNTERED BY THE CONTRACTOR DURING THE PROGRESS OF ANY PORTION OF THE PROPOSED WORK. IF, IN THE OPINION OF THE CONSTRUCTION INSPECTOR, PROPOSED ALTERATIONS TO THE APPROVED PLANS INVOLVE SIGNIFICANT CHANGES TO THE CHARACTER OF THE WORK OR TO FUTURE CONTIGUOUS PUBLIC OR PRIVATE IMPROVEMENTS, THE DESIGN ENGINEER SHALL BE RESPONSIBLE FOR SUBMITTING REVISED PLANS TO THE CITY OF COMMERCE CITY FOR APPROVAL PRIOR TO ANY FURTHER CONSTRUCTION RELATED TO THAT PORTION OF THE WORK.
29. LOCATION OF UNDERGROUND UTILITIES WAS TAKEN FROM THE RECORDS OF THE CONTROLLING AGENCIES. NO RESPONSIBILITY FOR THEIR ACCURACY IS ASSUMED BY THE ENGINEER. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE EXISTENCE AND/OR LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.
30. THE CONTRACTOR IS RESPONSIBLE FOR THE PREVENTION OF DAMAGE TO ADJACENT PROPERTY. NO PERSON SHALL EXCAVATE ON LAND SO CLOSE TO THE PROPERTY LINE AS TO ENDANGER ANY ADJOINING IMPROVEMENTS, SIDEWALK, ALLEY OR UTILITY WITHOUT SUPPORTING AND PROTECTING SUCH PROPERTY FROM SETTLING, OR OTHER DAMAGE THAT MIGHT RESULT FROM THE WORK PRESCRIBED ON THIS PLAN. THE LOCAL AGENCY WILL HOLD THE CONTRACTOR RESPONSIBLE FOR CORRECTION OF DAMAGE TO ADJACENT PROPERTY, PUBLIC OR PRIVATE.

STORM SEWER NOTES:

1. ALL STORM SEWER CONSTRUCTION, INCLUDING MANHOLES, INLETS AND PIPE TRENCHES, SHALL BE GOVERNED BY THE COMMERCE CITY STORM DRAINAGE DESIGN AND TECHNICAL CRITERIA MANUAL AND STANDARDS SPECIFICATIONS, AND THE COLORADO DEPARTMENT OF HIGHWAYS STANDARDS SPECIFICATIONS, LATEST EDITION. IN THE EVENT OF CONFLICT THE COMMERCE CITY STANDARDS WILL GOVERN.
2. ALL STORM SEWER PIPE SHALL BE ASTM C76 CLASS III REINFORCED CONCRETE PIPE (RCP) UNLESS OTHERWISE SPECIFIED IN THESE PLANS.
3. ALL STORM SEWER INLETS SHALL HAVE ONE FOOT OF CLEARANCE BELOW INVERT OUT OF PIPE, TO TOP OF BOTTOM SLAB.

STORM SEWER NOTES (CONTINUED):

4. FOR CONSTRUCTION IN THE CITY OF COMMERCE CITY, THE FOLLOWING MODIFICATIONS HAVE BEEN MADE TO THE CDOT STANDARD TYPE R INLET:
   a. THE 5-FOOT TYPE R INLET SHALL HAVE ONE MANHOLE RING AND LID.
   b. THE 10-FOOT TYPE R INLET SHALL HAVE TWO MANHOLE RINGS AND LIDS.
   c. THE 15-FOOT TYPE R INLET SHALL HAVE THREE MANHOLE RINGS AND LIDS, WITH ON MANHOLE RING AND LID BEING LOCATED AT THE CENTER OF THE INLET.
   d. THE 20-FOOT TYPE R INLET SHALL HAVE FOUR MANHOLE RINGS AND LIDS. A HANGING CENTER WALL SHALL BE BUILT WITH A BOTTOM OPENING DEPTH SUFFICIENT TO HANDLE DESIGN WATER FLOWS. THE CENTER TWO MANHOLES SHALL BE LOCATED ONE EACH, ON BOTH SIDES OF THE CENTER WALL.
5. ALL STORM SEWER MANHOLES SHALL BE 1/4 INCH LOW TO FLUSH WITH FINAL PAVED SURFACE.
6. PRIOR TO INITIAL ACCEPTANCE OF PUBLIC IMPROVEMENTS, THE CITY MAY REQUIRE THE APPLICANT OR HIS CONTRACTOR TO FILE A MAINTENANCE BOND WITH THE CITY IN THE AMOUNT OF FIFTEEN (15) PERCENT OF THE ESTIMATED COST OF CONSTRUCTION OR AN AMOUNT ADEQUATE TO ENSURE THE SATISFACTORY MAINTENANCE AND CONDITION OF THE REQUIRED PUBLIC IMPROVEMENTS FOR A PERIOD OF ONE (1) YEAR AFTER THE DATE OF THEIR FINAL ACCEPTANCE AND DEDICATION TO THE CITY.
7. THE CONTRACTOR SHALL FURNISH AND INSTALL, PER SPECIFICATIONS, THE APPROPRIATE BURIED UTILITY WARNING AND IDENTIFICATION TAPE ABOVE ALL PUBLIC SEWER LINES, INCLUDING SEWER LATERALS LOCATED IN PUBLIC RIGHTS-OF-WAY.
8. AFTER COMPLETION OF PIPE LAYING, ALL MAIN LINE SEWERS, SERVICE LATERALS AND STRUCTURES SHALL BE TESTED IN THE PRESENCE OF THE INSPECTOR. IT WILL BE THE PERMITTEE'S RESPONSIBILITY TO PAY FOR THE COST OF THIS WORK.
9. COMPACTION TESTS SHALL BE SUPPLIED BY CONTRACTOR FOR ALL TRENCHES.
10. BEDDING FOR THE RCP PIPE SHALL BE AG7122 NO. 57/67 CRUSHED ROCK. SQUEEGEE OR MIXTURES CONTAINING SQUEEGEE SHALL NOT BE USED. BEDDING SHALL BE SIX TO EIGHT INCHES DEEP UNDER THE PIPE AND BACKFILLED TO THE SPRING LINE.
11. REQUEST FOR AN INSPECTION OF REINFORCEMENT AND SUBGRADE MUST BE CALLED 24 HOURS PRIOR TO PLACEMENT OF CONCRETE AT MANHOLES AND INLETS. STORM SEWER INSTALLATION SHALL BE SUBJECTED TO ADDITIONAL PERIODIC INSPECTION BY THE ENGINEER. FOR STORM SEWER IN THE ROADWAY AREA, TRENCH COMPACTION SHALL BE IN ACCORDANCE WITH AASHTO T99 OR T180 AS REQUIRED IN SECTION 203.11 OF THE CDOT STANDARD SPECIFICATIONS. COMPACTION TESTS MUST BE PERFORMED BY A GEOTECHNICAL ENGINEER AND SHALL BE A MINIMUM OF EVERY 250 FEET ALONG THE TRENCH. TESTING INTERVALS MAY BE INCREASED AT THE DISCRETION OF THE CITY INSPECTOR.

RECEIVING WATER NOTE:

1. ULTIMATE RECEIVING WATER OF SITE STORMWATER RUNOFF IS SECOND CREEK.

The City will require the applicant to follow the checklists
Please complete and include with your submittal

BENCHMARK:
#5 REBAR WITH 2" ALUMINUM CAP.
N=1,194,345.18 E=3,208,552.02 ELEV=5295.09 (NAVD 88)

BASIS OF BEARINGS:
BEARINGS ARE BASED ON THE NORTH LINE OF THE NORTHWEST QUARTER OF SECTION 22, TOWNSHIP 2 SOUTH, RANGE 66 WEST OF THE SIXTH PRINCIPAL MERIDIAN, BEING MONUMENTED AT THE WEST END BY A FOUND 2-1/2" ALUMINUM CAP IN RANGE BOX STAMPED "ISI 2018 LS 29425" AND AT THE EAST END BY A FOUND 2" ALUMINUM CAP STAMPED "WESTERN STATES SURVEYING INC. 1994 PLS 24960". SAID NORTH LINE BEARS N89°35'58" EAST, WITH ALL BEARINGS CONTAINED HEREIN RELATIVE THERETO.

ENGINEER'S STATEMENT

THE EROSION AND SEDIMENT CONTROL PLAN INCLUDED HEREIN HAS BEEN PREPARED UNDER MY DIRECT SUPERVISION IN ACCORDANCE WITH THE REQUIREMENTS OF CHAPTER 8 OF THE CITY OF COMMERCE CITY ENGINEERING CONSTRUCTION STANDARDS AND SPECIFICATIONS MANUAL.

PLANS UNDER REVIEW NOT FOR CONSTRUCTION

DANIEL J. MADRUGA, P.E. DATE
COLORADO NO. 36834
FOR AND ON BEHALF OF ATWELL, LLC.

Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 SOUTH SYRACUSE WAY, SUITE 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

CLIENT:
COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
CONSTRUCTION PLANS
COVER

DATE 3/22/2021

A	1st SUBMITTAL TO COMMERCE CITY	08/17/2020 – DJM
B	2nd SUBMITTAL TO COMMERCE CITY	03/15/2021 – DJM

REVISIONS

DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 1

CAD FILE: 19002561-COVER.DWG

SWMP PERMIT COVERAGE NOTES:

1. THE OWNER/CONTRACTOR IS RESPONSIBLE FOR OBTAINING A PERMIT FROM CDPHE AT LEAST 10 CALENDAR DAYS PRIOR TO THE COMMENCEMENT OF CONSTRUCTION ACTIVITIES FOR ANY EARTH DISTURBANCE OF ONE (1) OR GREATER THAN ONE (1) ACRE. THE OWNER/CONTRACTOR SHALL PROVIDE THE CITY WITH A COPY OF PERMIT PRIOR TO RECEIVING A GRADING/CONSTRUCTION PERMIT. THE OWNER/CONTRACTOR IS RESPONSIBLE FOR ALL FEES ASSOCIATED WITH THE PERMIT.

2. IF THE OWNER/CONTRACTOR TRANSFERS RESPONSIBILITY FOR STORMWATER DISCHARGES TO ANOTHER ENTITY, A NOTICE OF TRANSFER AND ACCEPTANCE OF TERMS FORM SHALL BE SUBMITTED TO CDPHE AND A COPY TO THE CITY.

3. IF THE OWNER/CONTRACTOR NO LONGER HAS CONTROL OF A SPECIFIC PORTION OF A PERMITTED SITE AND WISHES TO TRANSFER COVERAGE OF THAT PORTION OF SITE TO ANOTHER, THE OWNER/CONTRACTOR SHALL SUBMIT A NOTICE OF REASSIGNMENT OF PERMIT COVERAGE FORM TO THE CDPHE AND A COPY TO THE CITY.

4. THE OWNER/CONTRACTOR IS RESPONSIBLE FOR SUBMITTING AN INACTIVATION NOTICE FORM TO CDPHE WHEN THE SITE HAS BEEN FINALLY STABILIZED IN ACCORDANCE WITH THE A COPY OF THE INACTIVATION NOTICE SHALL ALSO BE SUBMITTED TO THE CITY.

SWMP GENERAL NOTES:

1. BMP'S SHALL BE INSTALLED BEFORE ANY EARTH DISTURBING ACTIVITIES COMMENCE.

2. STORMWATER DISCHARGES FROM CONSTRUCTION ACTIVITIES SHALL NOT CAUSE, HAVE THE REASONABLE POTENTIAL TO CAUSE, OR MEASURABLY CONTRIBUTE TO AN EXCEEDANCE OF ANY WATER QUALITY STANDARD.

3. CONSTRUCTION SHALL BE PHASED IN A MANNER TO LIMIT EARTH DISTURBING ACTIVITIES (I.E. THE ENTIRE PROJECT SITE SHOULD NOT BE DISTURBED IF CONSTRUCTION WILL ONLY BE OCCURRING IN ONE PARTICULAR SECTION).

4. SEDIMENT CAUSED BY ACCELERATED SOIL EROSION SHALL BE REMOVED FROM RUNOFF WATER BEFORE IT LEAVES THE CONSTRUCTION SITE.

5. BULK STORAGE STRUCTURES FOR PETROLEUM PRODUCTS AND ANY OTHER CHEMICALS SHALL HAVE SECONDARY CONTAINMENT OR EQUIVALENT PROTECTION TO CONTAIN ALL SPILLS AND PREVENT ANY SPILLED MATERIAL FROM ENTERING STATE WATERS.

6. A COPY OF THE SWMP AND SITE MAPS MUST BE AVAILABLE AT ALL TIMES ON THE CONSTRUCTION SITE UNLESS OTHERWISE APPROVED BY CDPHE OR THE CITY.

7. THE SWMP AND SITE MAPS SHALL BE CONTINUOUSLY UPDATED TO REFLECT NEW OR REVISED BEST MANAGEMENT PRACTICES (BMP'S) DUE TO CHANGES IN DESIGN, CONSTRUCTION, OPERATION, OR MAINTENANCE OF THE CONSTRUCTION SITE. UPDATES MUST BE MADE WITHIN 72 HOURS FOLLOWING THE CHANGE IN BMP'S.

8. THE OWNER/CONTRACTOR SHALL INSPECT THE CONSTRUCTION SITE (INCLUDING ALL BMP'S, STORAGE CONTAINERS, AND CONSTRUCTION EQUIPMENT) A MINIMUM OF EVERY 14 CALENDAR DAYS AND WITHIN 24 HOURS AFTER A PRECIPITATION EVENT OR SNOW MELT THAT CAUSE SURFACE EROSION. INSPECTIONS SHALL CONTINUE UNTIL AN INACTIVATION NOTICE IS FILED WITH CDPHE.

9. THE OWNER/CONTRACTOR SHALL KEEP A RECORD OF ALL INSPECTIONS ON SITE AND AVAILABLE FOR REVIEW BY CDPHE OR CITY STAFF. INSPECTION REPORTS MUST IDENTIFY ANY INCIDENTS OF NON-COMPLIANCE WITH THE TERMS AND CONDITIONS OF THE PERMIT. BMP'S REQUIRING MAINTENANCE OR ADJUSTMENT SHALL BE REPAIRED IMMEDIATELY AFTER OBSERVATION OF THE FAILING BMP.

10. FOR ALL INSTANCES OF NONCOMPLIANCE BASED ON ENVIRONMENTAL HAZARDS AND CHEMICAL SPILLS AND RELEASES, ALL NEEDED INFORMATION MUST BE PROVIDED ORALLY TO CDPHE SPILL REPORTING LINE (24-HOUR NUMBER FOR ENVIRONMENTAL HAZARDS AND CHEMICAL SPILLS AND RELEASES: 1-877-518-5608) WITHIN 24 HOURS FROM THE TIME THE OWNER/CONTRACTOR COMES AWARE OF THE CIRCUMSTANCES.

11. STRAW BALES SHALL NOT BE USED FOR PRIMARY EROSION OR SEDIMENT CONTROL (I.E. STRAW BALES MAY BE USED FOR REINFORCEMENT BEHIND ANOTHER BMP SUCH AS SILT FENCE).

12. BMP'S INTENDED FOR SHEET FLOW SEDIMENT RUNOFF SHALL BE PLACED PARALLEL TO THE SLOPE.

13. ALL BMP'S SHALL BE CLEANED WHEN SEDIMENT LEVELS ACCUMULATE TO HALF THE DESIGN OF THE BMP UNLESS OTHERWISE SPECIFIED.

14. A VEHICLE TRACKING PAD (VTP) SHALL BE PLACED AT ALL EXITS FROM THE SITE TO PREVENT TRACK-OUT ONTO CITY STREETS. IF TRACK-OUT DOES OCCUR, THE OWNER/CONTRACTOR SHALL IMMEDIATELY SWEEP THE STREET OF DEBRIS. RECYCLED CRUSHED CONCRETE OR ASPHALT SHALL NOT BE USED FOR VEHICLE TRACKING PADS.

16. ALL SEDIMENT COLLECTED IN BMP'S SHALL BE REMOVED UPON INITIAL ACCEPTANCE.

15. PERMANENT EROSION CONTROL MEASURES FOR SLOPES, CHANNELS, DITCHES, OR ANY DISTURBED LAND AREA SHALL BE COMPLETED WITHIN 14 CALENDAR DAYS AFTER FINAL GRADING OR THE FINAL EARTH DISTURBANCE HAS BEEN COMPLETED. WHEN IT IS NOT POSSIBLE TO PERMANENTLY STABILIZE A DISTURBED AREA AFTER AN EARTH DISTURBANCE HAS BEEN COMPLETED OR WHERE SIGNIFICANT EARTH DISTURBANCE ACTIVITY CEASES, TEMPORARY SOIL EROSION CONTROL MEASURES SHALL BE IMPLEMENTED WITHIN 14 CALENDAR DAYS. TEMPORARY EROSION CONTROL MEASURES SHALL BE MAINTAINED UNTIL PERMANENT SOIL EROSION MEASURES ARE IMPLEMENTED.

16. FINAL STABILIZATION HAS BEEN ACHIEVED WHEN ALL EARTH DISTURBING ACTIVITIES AT THE SITE HAVE BEEN COMPLETED, AND UNIFORM VEGETATIVE COVER HAS BEEN ESTABLISHED WITH AN INDIVIDUAL PLANT DENSITY OF AT LEAST 70 PERCENT OF PRE-DISTURBANCE LEVELS, OR EQUIVALENT PERMANENT, PHYSICAL EROSION REDUCTION METHODS HAVE BEEN EMPLOYED.

17. ALL TEMPORARY BMP'S SHALL BE REMOVED FROM THE SITE UPON SUBMITTING THE INACTIVATION NOTICE.

18. ALL SITE WASTES (INCLUDING TRASH AND BUILDING MATERIALS) MUST BE PROPERLY MANAGED TO PREVENT POTENTIAL POLLUTION OF STATE WATERS.

19. STREET REPAIR OPERATIONS SUCH AS ROTOR MILLING, SLURRY SEAL AND CHIP SEAL. THE MINIMUM BMPS REQUIRED ARE; INLET PROTECTION, CURB SOCKS AND STREET SWEEPING.

GENERAL NOTES:

1. ALL MATERIALS AND WORKMANSHIP SHALL BE IN CONFORMANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF THE APPROPRIATE GOVERNING AGENCY. THE CONTRACTOR SHALL HAVE IN HIS POSSESSION AT THE JOB SITE AT ALL TIMES ONE (1) SIGNED COPY OF THE PLANS. STANDARDS, AND SPECIFICATIONS AS APPROVED BY THE APPROPRIATE GOVERNING AGENCY. THE CONTRACTOR SHALL OBTAIN WRITTEN APPROVAL FOR ANY VARIANCE TO THE ABOVE DOCUMENTS.

2. CONTRACTOR SHALL OBTAIN, AT HIS OWN EXPENSE, ALL APPLICABLE CODES, LICENSES. STANDARDS, SPECIFICATIONS. PERMITS, BONDS, ETC., WHICH ARE NECESSARY TO PERFORM THE PROPOSED WORK.

3. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE OWNER/DEVELOPER AND ENGINEER OF ANY PROBLEM IN CONFORMING TO THE APPROVED PLANS FOR ANY ELEMENT OF THE PROPOSED IMPROVEMENTS PRIOR TO ITS CONSTRUCTION.

4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING THE APPROPRIATE GOVERNING AGENCIES AT LEAST 48 HOURS PRIOR TO START OF ANY CONSTRUCTION. IF WORK IS SUSPENDED FOR ANY PERIOD OF TIME AFTER INITIAL START-UP. THE CONTRACTOR SHALL NOTIFY THE APPROPRIATE GOVERNMENT AGENCIES 48 HOURS PRIOR TO RESTART.

5. ALL KNOWN EXISTING UTILITIES ARE SHOWN IN APPROXIMATE LOCATIONS ON THE PLANS. THE ACTUAL LOCATION MAY VARY FROM THE PLANS, ESPECIALLY IN THE CASE OF UNDERGROUND UTILITIES. WHENEVER THE CONTRACTOR DISCOVERS A DISCREPANCY IN LOCATIONS, HE SHALL CONTACT THE ENGINEER IMMEDIATELY.

6. THE CONTRACTOR SHALL REPAIR ANY EXCAVATIONS OR PAVEMENT FAILURES CAUSED BY HIS CONSTRUCTION.

7. PRIOR TO BEGINNING THE WORK, THE CONTRACTOR SHALL OBTAIN ANY WRITTEN AGREEMENTS FOR INGRESS AND EGRESS TO THE WORK FROM ADJACENT PRIVATE PROPERTY OWNERS. ACCESS TO ANY ADJACENT PRIVATE PROPERTY SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD.

8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL AND REPLACEMENT OF ALL MATERIALS WITHIN DEDICATED RIGHT-OF-WAYS AND ALL MATERIALS AND WORKMANSHIP SHALL MEET THE ROADWAY DESIGN AND CONSTRUCTION STANDARDS OF THE APPROPRIATE GOVERNING AGENCY.

GRADING GENERAL NOTES:

1. GRADING PLAN IS FOR ROUGH GRADING ONLY. CHANGES MAY BE NECESSARY TO BRING PLANS INTO CONFORMANCE WITH APPROVED DRAINAGE AND SITE PLAN.

2. A WATER TRUCK SHALL BE KEPT ON-SITE TO CONTROL WIND EROSION AND DUST.

3. ANY SETTLEMENT OR SOIL ACCUMULATIONS BEYOND THE PROPERTY LIMITS DUE TO GRADING OR EROSION SHALL BE REPARIED IMMEDIATELY BY THE CONTRACTOR.

4. NO GRADING SHALL TAKE PLACE IN ANY DELINEATED FLOOD HAZARD AREA UNTIL THE FINAL DRAINAGE PLAN HAS BEEN APPROVED AND ALL APPROPRIATE PERMITS HAVE BEEN OBTAINED.

5. ANY CONSTRUCTION DEBRIS OR MUD TRACKING IN THE PUBLIC RIGHT-OF-WAY RESULTING FROM THIS DEVELOPMENT WILL BE REMOVED IMMEDIATELY BY THE CONTRACTOR. UPON WRITTEN NOTICE BY THE CITY, FAILURE TO REMOVE THE MUD OR DEBRIS BY THE CONTRACTOR WITHIN 24 HOURS SHALL CAUSE THE CITY TO STOP ALL WORK UNTIL THE SITUATION IS RESOLVED.

6. WHEN REQUIRED, A COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT (CDPHE), WATER QUALITY DIVISION, STORMWATER DISCHARGE PERMIT SHALL BE OBTAINED AND A COPY SHALL BE SUBMITTED TO THE CITY OF COMMERCE CITY DEPARTMENT OF PUBLIC WORKS.

7. AREAS DISTURBED BY GRADING SHALL BE MULCHED AND RESEEDED WITH NATIVE VEGETATION OR AS APPROVED ON THE PLAN.

8. THE CONTRACTOR SHALL BE SOLELY AND COMPLETELY RESPONSIBLE FOR SAFETY CONDITIONS ON AND ADJACENT TO THE SITE 24 HOURS A DAY, SEVEN DAYS A WEEK.

9. CONTRACTOR SHALL CONTACT UTILITY NOTIFICATION CENTER FOR THE LOCATION OF UNDERGROUND UTILITIES AT LEAST 48 HOURS PRIOR TO COMMENCEMENT OF CONSTRUCTION. (811 or 1-800-922-1987)

10. THE CITY ENGINEER'S SIGNATURE AFFIXED TO THIS DOCUMENT INDICATES THE CITY OF COMMERCE CITY PUBLIC WORKS DEPARTMENT, ENGINEERING DIVISION, HAS REVIEWED THE DOCUMENT AND FOUND IT IN GENERAL COMPLIANCE WITH THE CITY'S STORMWATER QUALITY CONTROL CRITERIA. THE CITY ENGINEER, THROUGH ACCEPTANCE OF THIS DOCUMENT, ASSUMES NO RESPONSIBILITY (OTHER THAN AS STATED ABOVE) FOR THE COMPLETENESS AND/OR ACCURACY OF THESE DOCUMENTS.

11. THE ADEQUACY OF THIS ESC PLAN LIES WITH THE ORIGINAL DESIGN ENGINEER.

12. ALL MATERIALS AND WORKMANSHIP SHALL BE SUBJECT TO INSPECTION BY THE COMMERCE CITY RESERVES THE RIGHT TO ACCEPT OR REJECT ANY SUCH MATERIALS AND WORKMANSHIP THAT DOES NOT CONFORM TO THE APPROVED PLANS.

13. THE PLACEMENT OF EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICES (BMP'S) SHALL BE IN ACCORDANCE WITH THE CITY APPROVED PLANS.

14. ANY VARIATION IN MATERIAL, TYPE OR LOCATION OF EROSION AND SEDIMENT CONTROL BMP's FROM THE CITY APPROVED PLANS WILL REQUIRE APPROVAL FROM AN ACCOUNTABLE REPRESENTATIVE OF THE CITY OF COMMERCE CITY ENGINEERING DIVISION.

15. AFTER THE ESC PLAN HAS BEEN APPROVED, THE CONTRACTOR MAY INSTALL THE INITIAL-STAGE EROSION AND SEDIMENT CONTROL BMPS INDICATED ON THE ACCEPTED ESC PLAN.

16. THE FIRST BMP TO BE INSTALLED ON THE SITE SHALL BE CONSTRUCTION FENCE, MARKERS, OR OTHER APPROVED MEANS OF DEFINING THE LIMITS OF CONSTRUCTION, INCLUDING CONSTRUCTION LIMITS ADJACENT TO STREAM CORRIDORS AND OTHER AREAS TO BE PRESERVED.

17. AFTER INSTALLATION OF THE INITIAL-STAGE EROSION AND SEDIMENT CONTROL BMP'S, THE PERMITTEE SHALL CALL THE PUBLIC WORKS AT 303-289-8150 TO SCHEDULE A PRECONSTRUCTION MEETING AT THE PROJECT SITE. THE REQUEST SHALL BE MADE A MINIMUM OF THREE BUSINESS DAYS PRIOR TO THE REQUESTED MEETING TIME. NO CONSTRUCTION ACTIVITIES SHALL BE PLANNED WITHIN 24 HOURS AFTER THE PRECONSTRUCTION MEETING.

18. THE ESC MANAGER SHALL BE CERTIFIED IN STORMWATER MANAGEMENT AND EROSION CONTROL AND DOCUMENTATION SHALL BE PROVIDED TO THE CITY.

19. THE OWNER OR OWNER'S REPRESENTATIVE, THE ESC MANAGER, THE GENERAL CONTRACTOR, AND THE GRADING SUBCONTRACTOR, IF DIFFERENT FROM THE GENERAL CONTRACTOR, MUST ATTEND THE PRECONSTRUCTION MEETING. IF ANY OF THE REQUIRED PARTICIPANTS FAIL TO ATTEND THE PRECONSTRUCTION MEETING, OR IF THE INSTALLATION OF THE INITIAL BMP's ARE NOT APPROVED BY THE CITY ESC INSPECTOR, THE APPLICANT WILL HAVE TO PAY A REINSPECTION FEE, ADDRESS ANY PROBLEMS WITH BMP INSTALLATION, AND CALL TO RESCHEDULE THE MEETING, WITH A CORRESPONDING DELAY IN THE START OF CONSTRUCTION. THE CITY STRONGLY ENCOURAGES THE APPLICANT TO HAVE THE ENGINEER OF RECORD AT THE PRECONSTRUCTION MEETING.

GRADING GENERAL NOTES:

20. CONSTRUCTION SHALL NOT BEGIN UNTIL THE CITY ESC INSPECTOR APPROVES THE INSTALLATION OF THE INITIAL BMP'S AND THE GRADING PERMIT IS OBTAINED FROM PUBLIC WORKS.

21. THE ESC MANAGER SHALL STRICTLY ADHERE TO THE APPROVED LIMITS OF CONSTRUCTION AT ALL TIMES. THE CITY OF COMMERCE CITY ENGINEERING DIVISION MUST APPROVE ANY CHANGES TO THE LIMITS OF CONSTRUCTION AND, AT THE DISCRETION OF THE ENGINEERING DIVISION, ADDITIONAL EROSION/SEDIMENT CONTROLS MAY BE REQUIRED IN ANY ADDITIONAL AREAS OF CONSTRUCTION.

22. NATURAL VEGETATION SHALL BE RETAINED AND PROTECTED WHEREVER POSSIBLE. EXPOSURE OF SOIL TO EROSION BY REMOVAL OR DISTURBANCE OF VEGETATION SHALL BE LIMITED TO THE AREA REQUIRED FOR IMMEDIATE CONSTRUCTION OPERATIONS.

23. A COPY OF THE GRADING PERMIT AND APPROVED PLANS SHALL BE ON SITE AT ALL TIMES.

24. THE ESC MANAGER SHALL BE RESPONSIBLE FOR ENSURING THAT THE SITE REMAINS IN COMPLIANCE AND SHALL BE THE PERMITTEE'S CONTACT PERSON WITH THE CITY FOR ALL MATTERS PERTAINING TO THE GRADING PERMIT. THE ESC MANAGER SHALL BE PRESENT AT THE SITE THE MAJORITY OF THE TIME AND SHALL BE AVAILABLE THROUGH A 24-HOUR CONTACT NUMBER.

25. THE ESC MANAGER IS RESPONSIBLE FOR CLEANUP OF SEDIMENT OR CONSTRUCTION DEBRIS TRACKED ONTO ADJACENT PAVED AREAS. PAVED AREAS, INCLUDING STREETS, ARE TO BE KEPT CLEAN THROUGHOUT BUILD-OUT AND SHALL BE CLEANED WITH A STREET SWEEPER OR SIMILAR DEVICE AT FIRST NOTICE OF ACCIDENTAL TRACKING OR AT THE DISCRETION OF THE CITY'S ESC INSPECTOR. STREET WASHING IS NOT ALLOWED. THE CITY RESERVES THE RIGHT TO REQUIRE ADDITIONAL MEASURES TO ENSURE AREA STREETS ARE KEPT FREE OF SEDIMENT AND/OR CONSTRUCTION DEBRIS.

26. THE APPROVED PLANS MAY REQUIRE CHANGES OR ALTERATIONS AFTER APPROVAL TO MEET CHANGING SITE OR PROJECT CONDITIONS OR TO ADDRESS INEFFICIENCIES IN DESIGN OR INSTALLATION. ALL CONSTRUCTION TRAFFIC MUST ENTER/EXIT THE SITE THROUGH THE CITY APPROVED ACCESS POINTS. A VEHICLE TRACKING CONTROL PAD IS REQUIRED AT ALL ACCESS POINTS ON THE ADDITIONAL STABILIZED CONSTRUCTION ENTRANCES MAY BE ADDED WITH AUTHORIZATION FROM THE COMMERCE CITY ENGINEERING DIVISION.

27. THE ESC MANAGER SHALL OBTAIN PRIOR APPROVAL FROM THE DESIGN ENGINEER AND COMMERCE CITY ENGINEERING DIVISION FOR ANY PROPOSED CHANGES.

28. NO PERMANENT EARTH SLOPES GREATER THAN 3:1 SHALL BE ALLOWED.

29. ANY SETTLEMENT OR SOIL ACCUMULATIONS BEYOND THE LIMITS OF CONSTRUCTION DUE TO GRADING OR EROSION SHALL BE REPAIRED IMMEDIATELY BY THE ESC MANAGER. THE ESC MANAGER SHALL BE HELD RESPONSIBLE FOR OBTAINING ACCESS RIGHTS TO ADJACENT PROPERTY, IF NEEDED, AND REMEDIATING ANY ADVERSE IMPACTS TO ADJACENT WATERWAYS, WETLANDS, PROPERTIES, ETC. RESULTING FROM WORK DONE AS PART OF THIS PROJECT.

30. SOILS THAT WILL BE STOCKPILED FOR MORE THAN THIRTY (30) DAYS SHALL BE SEEDED AND MULCHED WITHIN FOURTEEN (14) DAYS OF STOCKPILE CONSTRUCTION. NO STOCKPILES SHALL BE PLACED WITHIN ONE HUNDRED (100) FEET OF A DRAINAGE WAY UNLESS APPROVED BY THE COMMERCE CITY ENGINEERING DIVISION.

31. ALL CHEMICAL OR HAZARDOUS MATERIAL SPILLS WHICH MAY ENTER WATERS OF THE STATE OF COLORADO, WHICH INCLUDE BUT ARE NOT LIMITED TO, SURFACE WATER, GROUND WATER AND DRY GULLIES OR STORM SEWER LEADING TO SURFACE WATER, SHALL BE IMMEDIATELY REPORTED TO THE CDPHE PER CRS 25-8-601, AND COMMERCE CITY. RELEASES OF PETROLEUM PRODUCTS AND CERTAIN HAZARDOUS SUBSTANCES LISTED UNDER THE FEDERAL CLEAN WATER ACT (40 CFR PART 116) MUST BE REPORTED TO THE NATIONAL RESPONSE CENTER, SOUTH ADAMS COUNTY WATER AND SANITATION DISTRICT AS WELL AS THE CDPHE. SPILLS THAT POSE AN IMMEDIATE RISK TO HUMAN LIFE SHALL BE REPORTED TO 911. FAILURE TO REPORT AND CLEAN UP ANY SPILL SHALL RESULT IN ISSUANCE OF A STOP WORK ORDER.

32. THE CLEANING OF CONCRETE DELIVERY TRUCK CHUTES IS RESTRICTED TO APPROVED CONCRETE WASH OUT LOCATIONS ON THE JOB SITE. THE DISCHARGE OF WATER CONTAINING WASTE CONCRETE TO THE STORM SEWER SYSTEM IS PROHIBITED. ALL CONCRETE WASTE SHALL BE PROPERLY CLEANED UP AND DISPOSED AT AN APPROPRIATE LOCATION.

33. COMMERCE CITY DOES NOT ALLOW HAY BALES AS A FORM OF EROSION AND SEDIMENT CONTROL.

34. ONCE THE SITE HAS REACHED FINAL STABILIZATION, A FINAL INSPECTION SHALL BE SCHEDULED WITH THE CITY'S ESC INSPECTOR. A CERTIFICATE OF OCCUPANCY WILL NOT BE ISSUED AND/OR THE GRADING BOND WILL NOT BE RELEASED UNTIL THE CITY'S ESC INSPECTOR APPROVES FINAL STABILIZATION

35. AREA OF DISTURBANCE: 29 ACRES

811 Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 SOUTH SYRACUSE WAY, STE. 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

CLIENT
COHEN DENVER AIRPORT, LLC
LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
CONSTRUCTION PLANS
NOTES

DATE 3/22/2021

A	1st SUBMITTAL TO COMMERCE CITY 08/17/2020 - DJM
B	2nd SUBMITTAL TO COMMERCE CITY 03/15/2021 - DJM

REVISIONS

PLANS UNDER REVIEW NOT FOR CONSTRUCTION

DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 2

CAD FILE: 19002561-COVER.DWG

REPEAT COMMENT:
Show underdrain system. Show the outfall connection point to the storm.

REPEAT COMMENT:
Label storm system and connection points.

This would include labeling all inlets and manholes.

Typical REPEAT COMMENT: label all storm - this includes the manholes and inlets

Existing storm was stubbed for this project, connect to that location

Running the storm pipe through the inlet is acceptable IF:
1 the inlet has a detailed design for the increase in the box width
2 the pipe alignment is in its actual location based on the distance from the box wall

Existing Storm and new storm do not align

This alignment creates problems with the location of the manholes in relation to the curb

manhole in pan is problematic

Conflict with storm, possibly take off the water in E 91st Dr

Please label the utility

Sanitary to storm 10' minimum

vertical conflict

why the change from 18" to 24" at this location?

label size

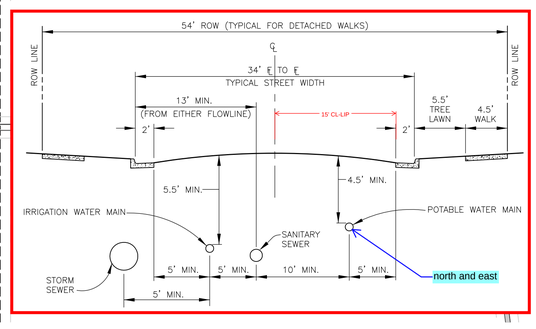
REPEAT COMMENT
label all existing storm

typical REPEAT COMMENT
label all storm, size

why are pipes not parallel?

move valve so there isn't a clearance issue with the curb

This overall utility plan should show the storm as an important utility (this is the street and storm plans)



The City is requesting that the storm alignment be inside the roadway section
Per the above referenced typical utility layout the sanitary could be on centerline, the irrigation 5' from that and the storm 5' from the irrigation
Aligning the storm into the roadway alleviates the problems with manholes in cross-pans and curb, special detailing of inlet boxes, conflicts with fire hydrants etc.

Per Table 2-2 Street Construction Plan Checklist, A1 use 1"=50' or larger

Increasing the scale on this plan will help to clarify what is happening

(IN FEET)
1 inch = 100 ft

Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 S. QUEBEC STREET, SUITE 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

CLIENT
COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
CONSTRUCTION PLANS
OVERALL UTILITY PLAN

DATE 3/22/2021

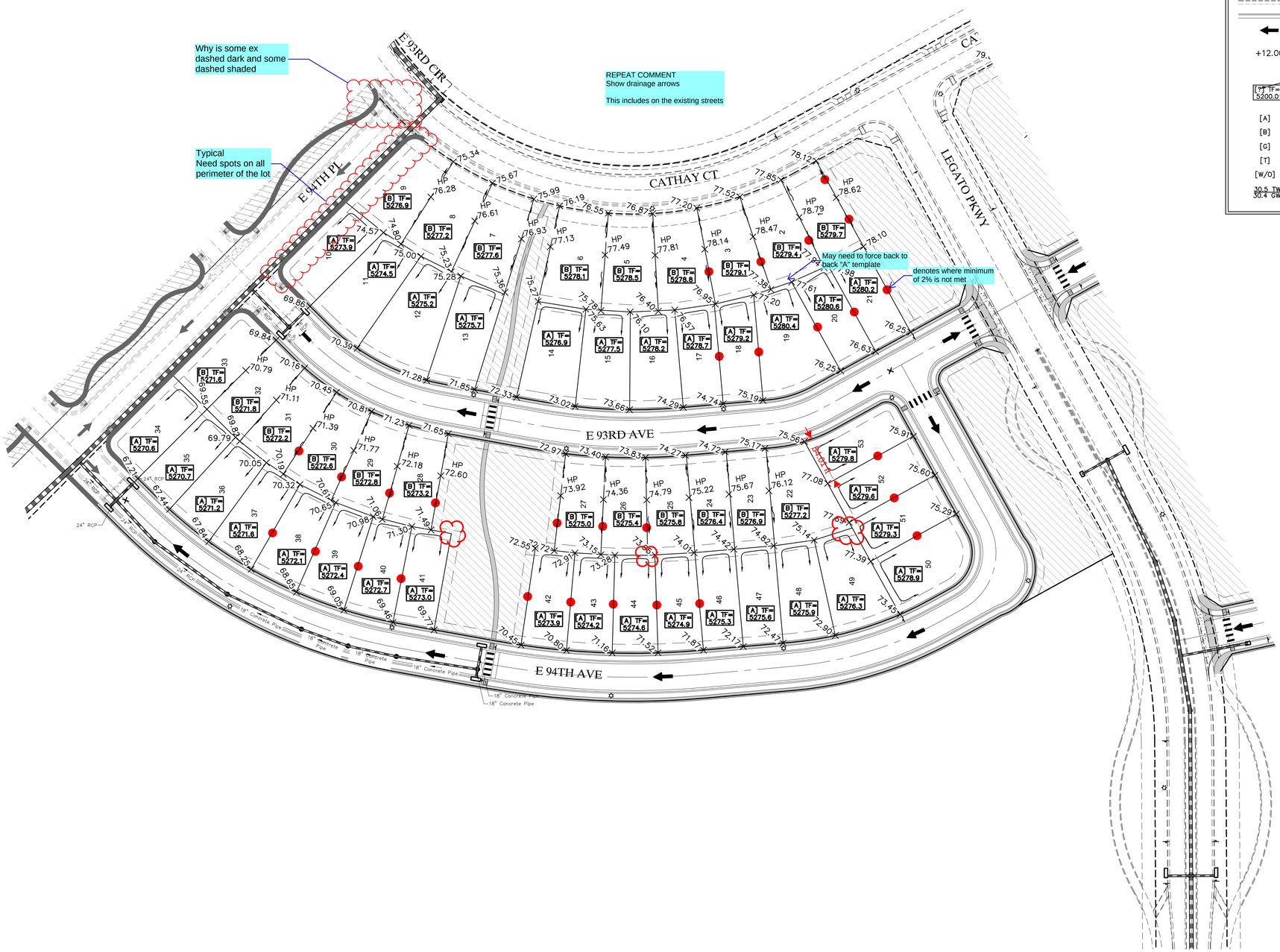
A	1st SUBMITTAL TO COMMERCE CITY	08/17/2020 – DJM
B	2nd SUBMITTAL TO COMMERCE CITY	03/15/2021 – DJM

REVISIONS

PLANS UNDER REVIEW NOT FOR CONSTRUCTION
DJM, PE

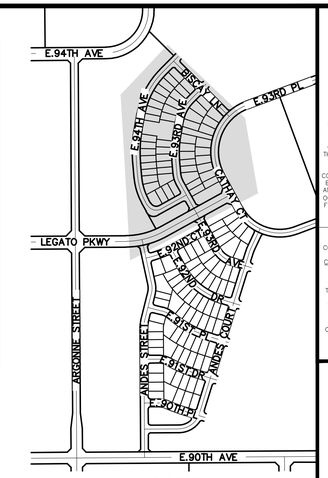
DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 3

CAD FILE: 19002561-OVERALL UTILITY PLAN.DWG

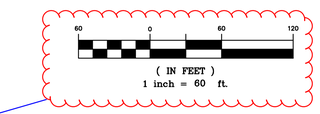


LEGEND

	PROPERTY BOUNDARY LINE
	EXISTING CURB & GUTTER
	PROPOSED CURB & GUTTER
	FLOW DIRECTION
+12.00	PROP. FINISHED GRADE SPOT ELEV.
[9] TF= 5200.0	LOT TYPE (SEE KEY BELOW) / TOP OF FOUNDATION ELEVATION
[A]	"A" DRAINAGE LOT
[B]	"B" DRAINAGE LOT
[G]	GARDEN LOT
[T]	TRANSITION LOT
[W/O]	WALKOUT LOT
30.5 TW 30.4 GW	TW=TOP OF WALL ELEVATION GW=BOTTOM OF WALL ELEVATION

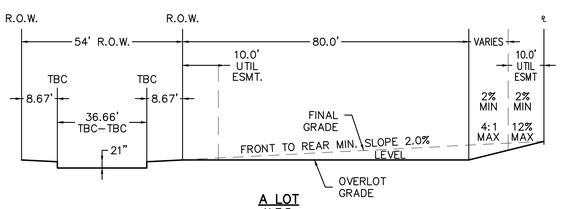


KEY MAP
SCALE: 1"=500'

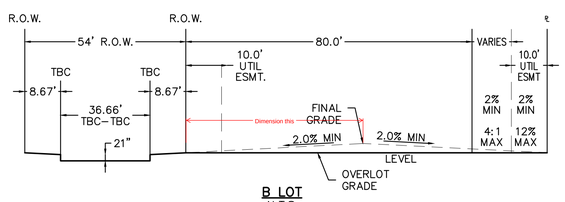


Follow criteria

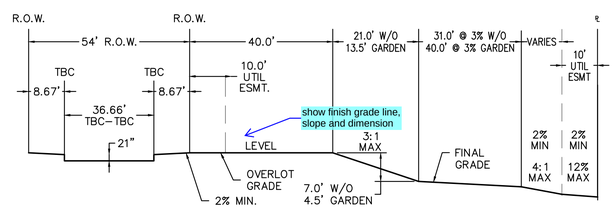
Due to the number of lots that do not meet the minimum 2% slope on this sheet we will not be reviewing the rest of the area grading sheets.
Please check that all lots meet the criteria



A LOT
N.T.S.



B LOT
N.T.S.



GARDEN & W/O LOT
N.T.S.

811 Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 COUNTRY CROSSING PKWY, SUITE 470
GREELEY, CO 80634
303.825.7100

CLIENT
COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

COHEN DENVER AIRPORT, LLC
LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
CONSTRUCTION PLANS
AREA GRADING PLAN

DATE 3/22/2021

A	1st SUBMITTAL TO COMMERCE CITY 08/17/2020 – DJM
B	2nd SUBMITTAL TO COMMERCE CITY 03/15/2021 – DJM

REVISIONS

PLANS UNDER REVIEW NOT FOR CONSTRUCTION
DJM 3/22/21

DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 4

CAD FILE: 19002561-AREA-GRADE.DWG

REPEAT COMMENT
Add inlets on both sides of Andes Court, the intersection details show that the future filing will be sloping toward Andes Court

If Filing 2 is constructing the east side returns please include the cross-pans

Cross pans have been added.

If the intent in the future is to have a LP generally in this location we will require that the inlet and storm be constructed with this plan to capture the Andes Cr. runoff,

If the intent in the future is to have a LP generally in this location we will require that the inlet and storm be constructed with this plan to capture the Andes Cr. runoff,

If the intent in the future is to have a LP generally in this location we will require that the inlet and storm be constructed with this plan to capture the Andes Cr. runoff,

If the intent in the future is to have a LP generally in this location we will require that the inlet and storm be constructed with this plan to capture the Andes Cr. runoff,

Show drainage arrows

Added.

where????
This needs to be done on the existing roadways surrounding the project to evaluate the drainage design

Label HPs & LPs in roadway

Labels have been added.
Where???

Street name

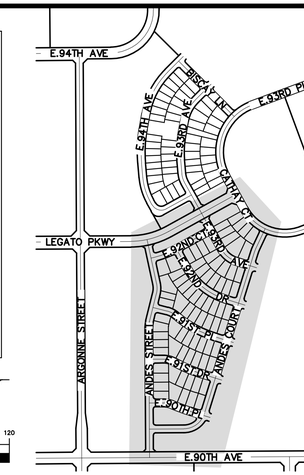
REPEAT COMMENT
Add crosspan

How does the flow in this gutter get to the LP and inlet?

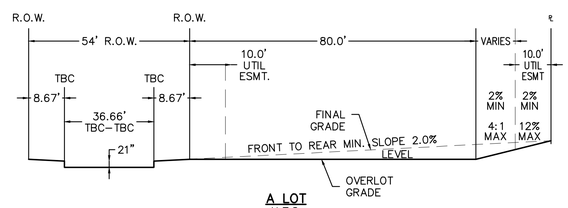
LEGEND

	PROPERTY BOUNDARY LINE
	EXISTING CURB & GUTTER
	PROPOSED CURB & GUTTER
	FLOW DIRECTION
+12.00	PROP. FINISHED GRADE SPOT ELEV.
[?] TF= 5200.0	LOT TYPE (SEE KEY BELOW) / TOP OF FOUNDATION ELEVATION
[A]	"A" DRAINAGE LOT
[B]	"B" DRAINAGE LOT
[G]	GARDEN LOT
[T]	TRANSITION LOT
[W/O]	WALKOUT LOT
30.5 TW / 30.4 GW	TW=TOP OF WALL ELEVATION / GW=BOTTOM OF WALL ELEVATION

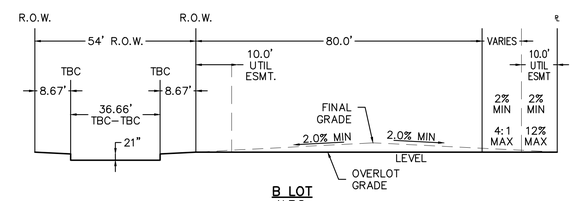
60 0 60 120
(IN FEET)
1 inch = 60 ft.



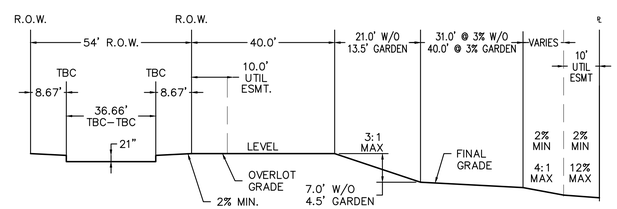
KEY MAP
SCALE: 1"=500'



A LOT
N.T.S.



B LOT
N.T.S.



GARDEN & W/O LOT
N.T.S.

811 Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 COLLINS DRIVE, SUITE 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

CLIENT
COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
CONSTRUCTION PLANS
AREA GRADING PLAN

DATE 3/22/2021

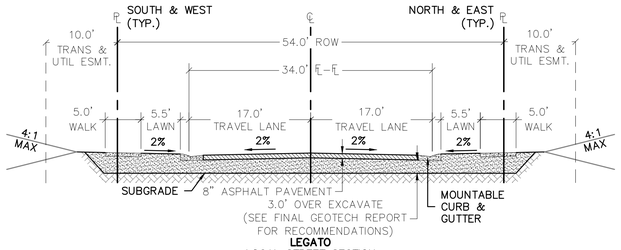
A	1st SUBMITTAL TO COMMERCE CITY	08/17/2020 – DJM
B	2nd SUBMITTAL TO COMMERCE CITY	03/15/2021 – DJM

REVISIONS

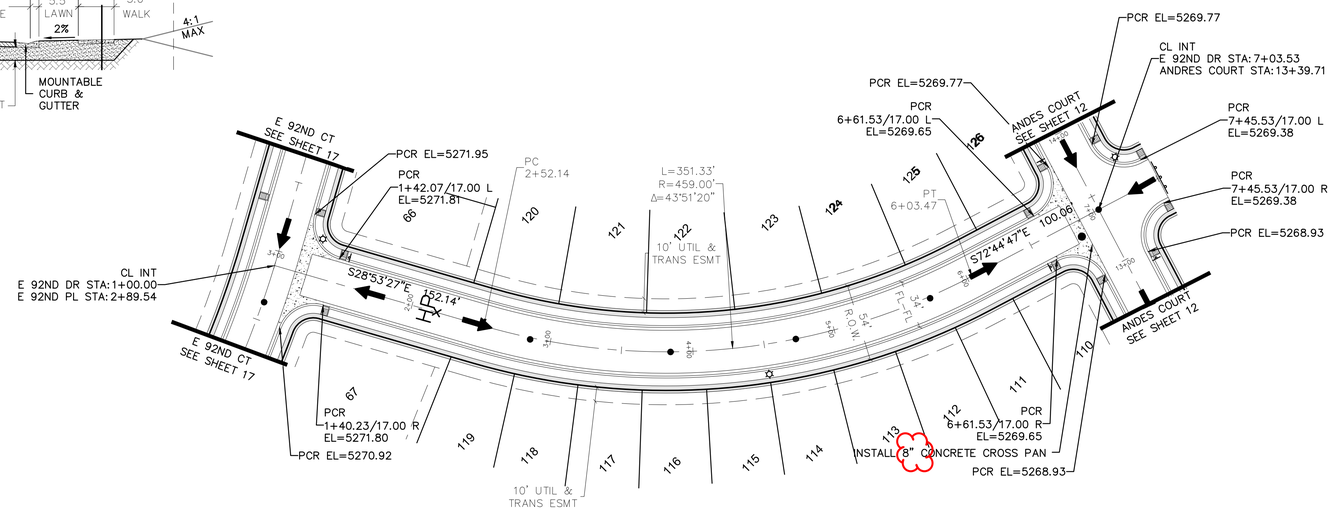
PLANS UNDER REVIEW NOT FOR CONSTRUCTION

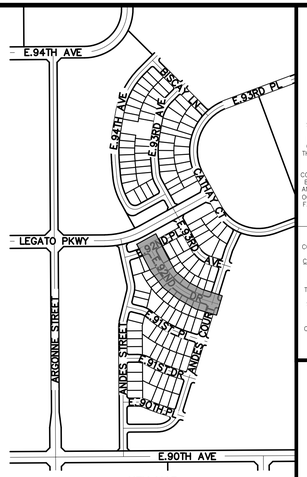
DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 5

CAD FILE: 19002561-AREA-GRADE.DWG



LEGATO
LOCAL STREET SECTION
1:10 HOR.





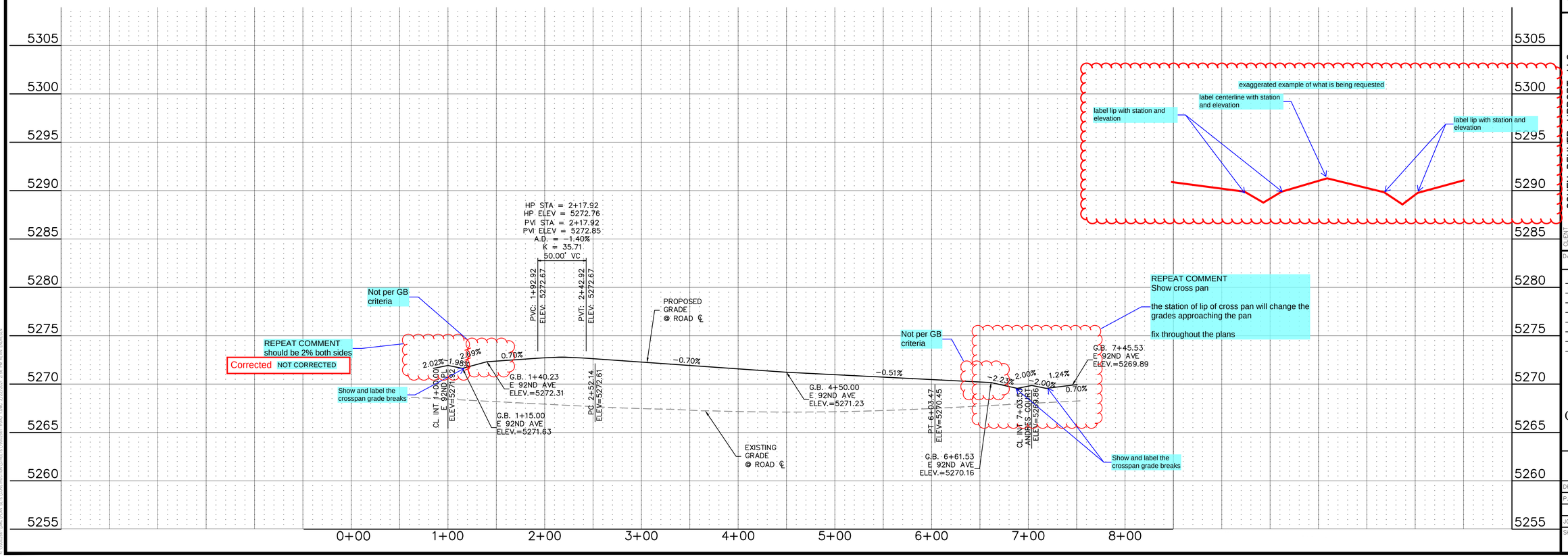
KEY MAP
SCALE: 1"=500'

Comments on this sheet should be done on all sheets.

Demo should add labels to saw cut 2' from lip, apply tack coat prior to pavement patch.
A demo sheet may be added or show on the plan and profile sheets.

(IN FEET)
1 inch = 50 ft. (Horz)
1 inch = 5 ft. (Vert)

E 92ND DR - STA 1+00-7+54



811 Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 SOUTH QUEBEC STREET, SUITE 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

CLIENT
COHEN DENVER AIRPORT, LLC

LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
CONSTRUCTION PLANS
STREET PLAN & PROFILES
E 92ND DR – STA 1+00-7+54

DATE 3/22/2021

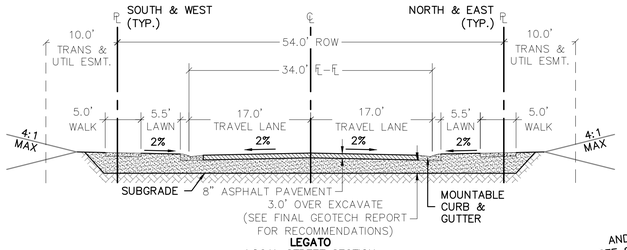
A	1st SUBMITTAL TO COMMERCE CITY	08/17/2020 – DJM
B	2nd SUBMITTAL TO COMMERCE CITY	03/15/2021 – DJM

REVISIONS

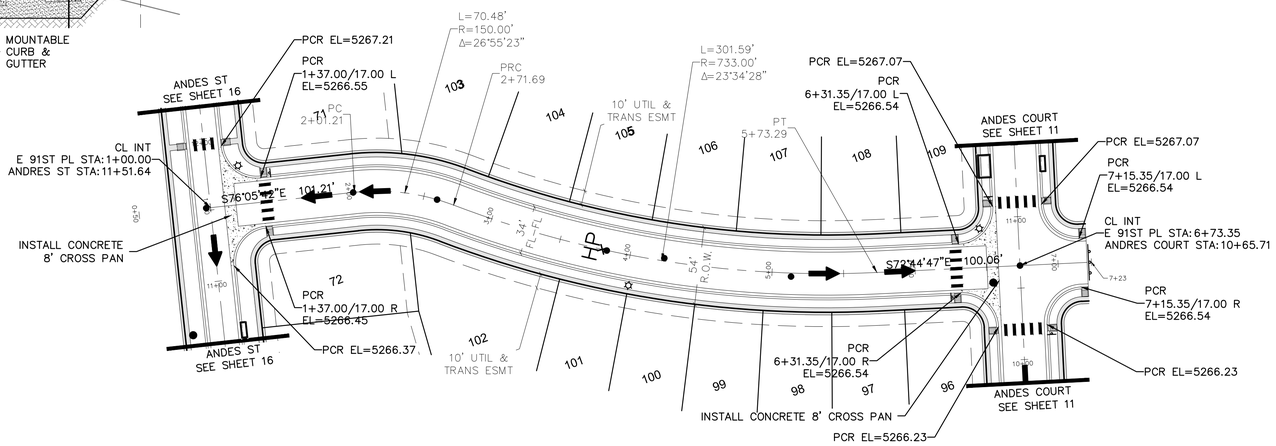
PLANS UNDER REVIEW NOT FOR CONSTRUCTION

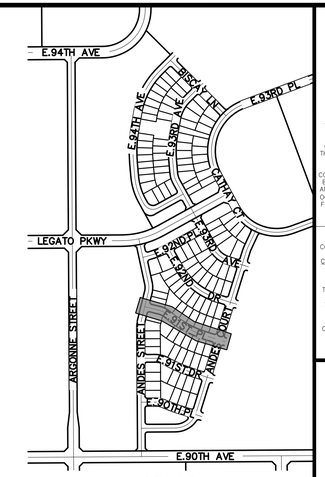
DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 6

CAD FILE: 19002561-ROAD 1.DWG

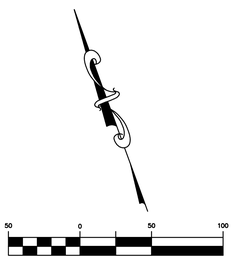


LEGATO
LOCAL STREET SECTION
1:10 HOR.

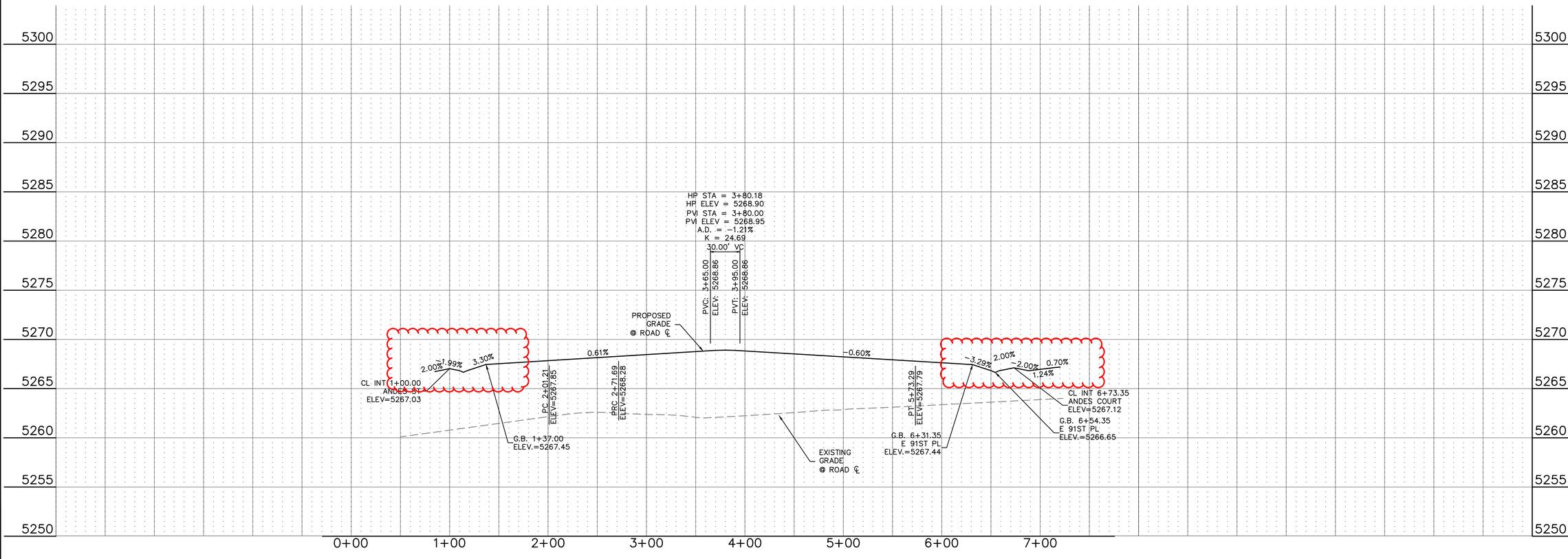




KEY MAP
SCALE: 1"=500'



E 91ST PL - STA 1+00-STA 7+23



Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 S. QUEBEC STREET, SUITE 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

CLIENT
COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

COHEN DENVER AIRPORT, LLC
LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
CONSTRUCTION PLANS
STREET PLAN & PROFILES
E 91ST PL – STA 1+00–STA 7+23

DATE 3/22/2021

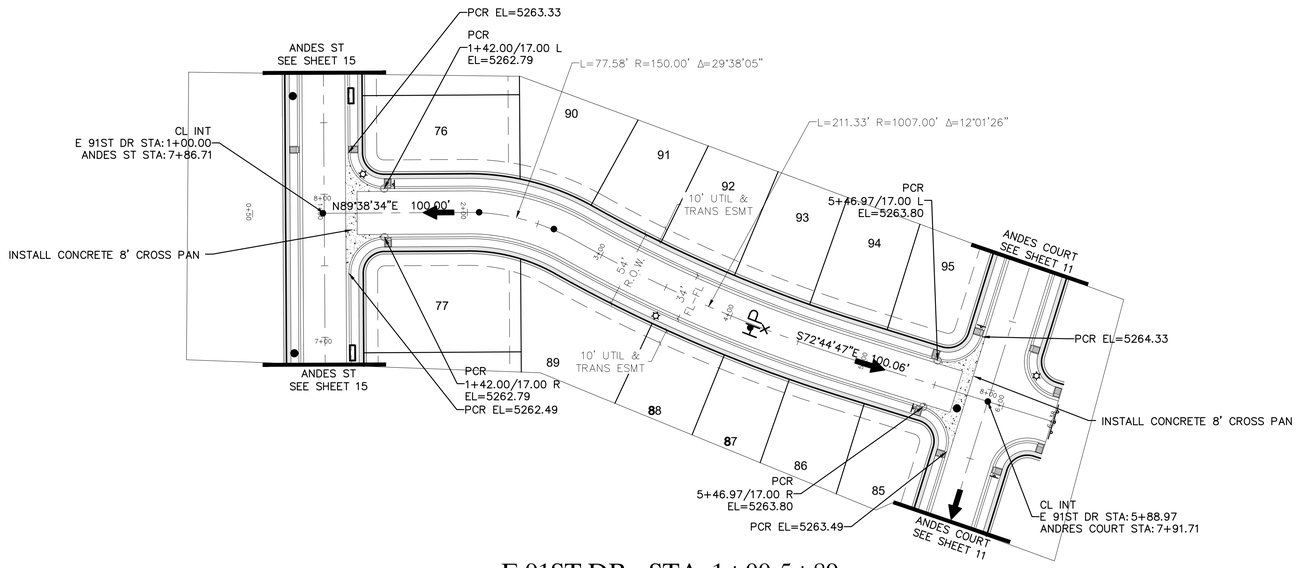
A	1st SUBMITTAL TO COMMERCE CITY	08/17/2020 – DJM
B	2nd SUBMITTAL TO COMMERCE CITY	03/15/2021 – DJM

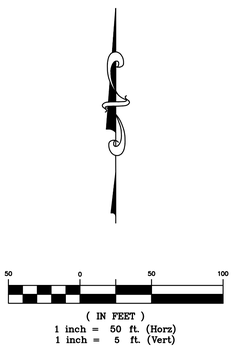
REVISIONS

PLANS UNDER REVIEW NOT FOR CONSTRUCTION

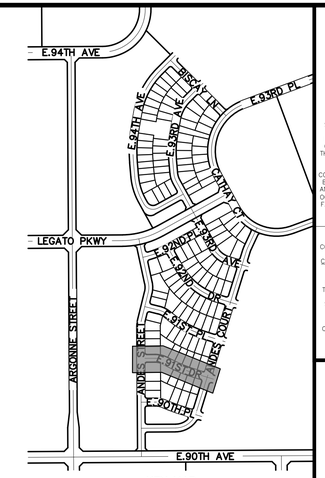
DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 7

CAD FILE: 19002561-ROAD 3.DWG

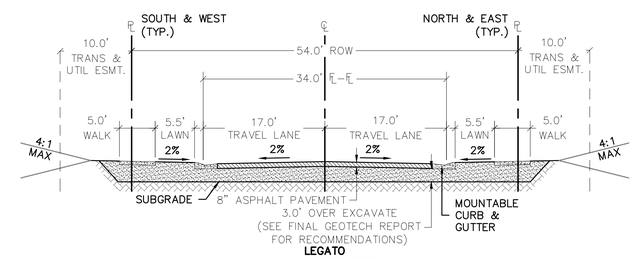




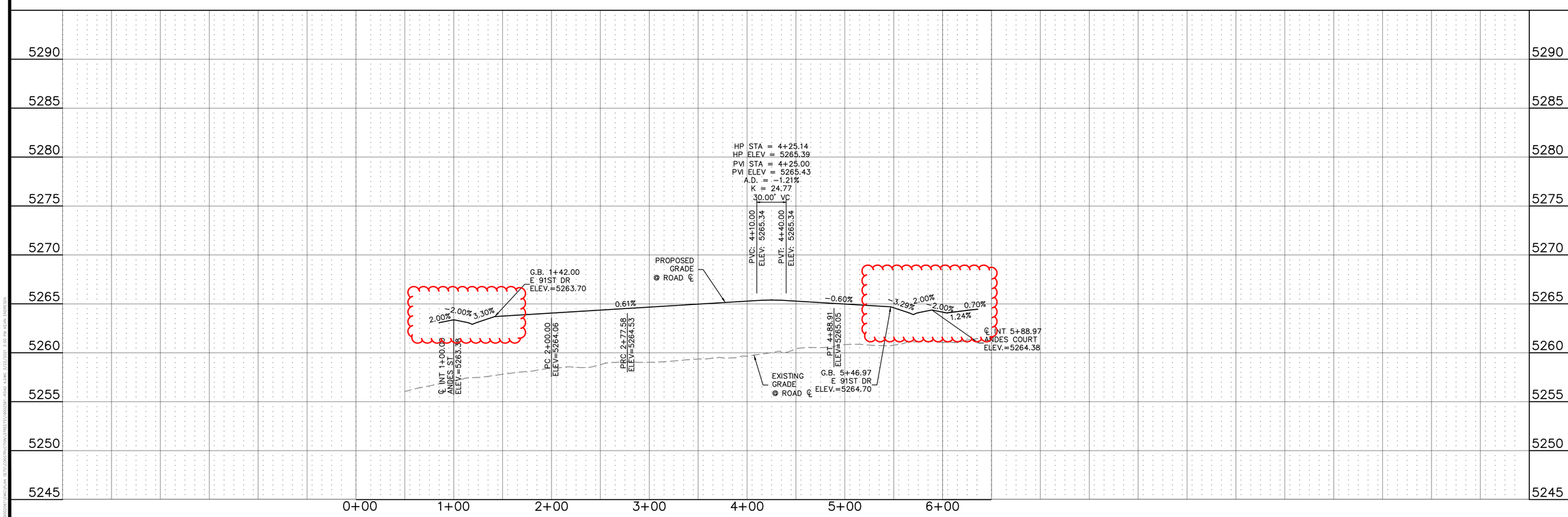
E 91ST DR - STA. 1+00-5+89



KEY MAP
SCALE: 1"=500'



LEGATO
LOCAL STREET SECTION
1:10 HOR.



Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-grp.com
6200 SOUTH QUEBEC STREET, SUITE 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

CLIENT
COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

COHEN DENVER AIRPORT, LLC
LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
CONSTRUCTION PLANS
STREET PLAN & PROFILES
E 91ST DR – STA. 1+00-5+89

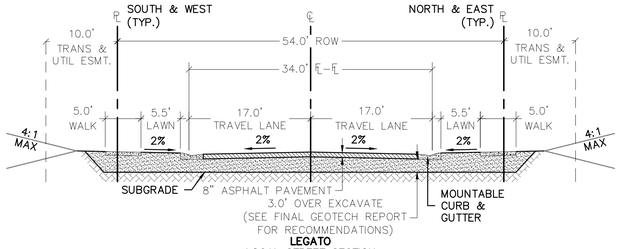
DATE 3/22/2021

REVISIONS		
A	1ST SUBMITTAL TO COMMERCE CITY	08/17/2020 – DJM
B	2ND SUBMITTAL TO COMMERCE CITY	03/15/2021 – DJM

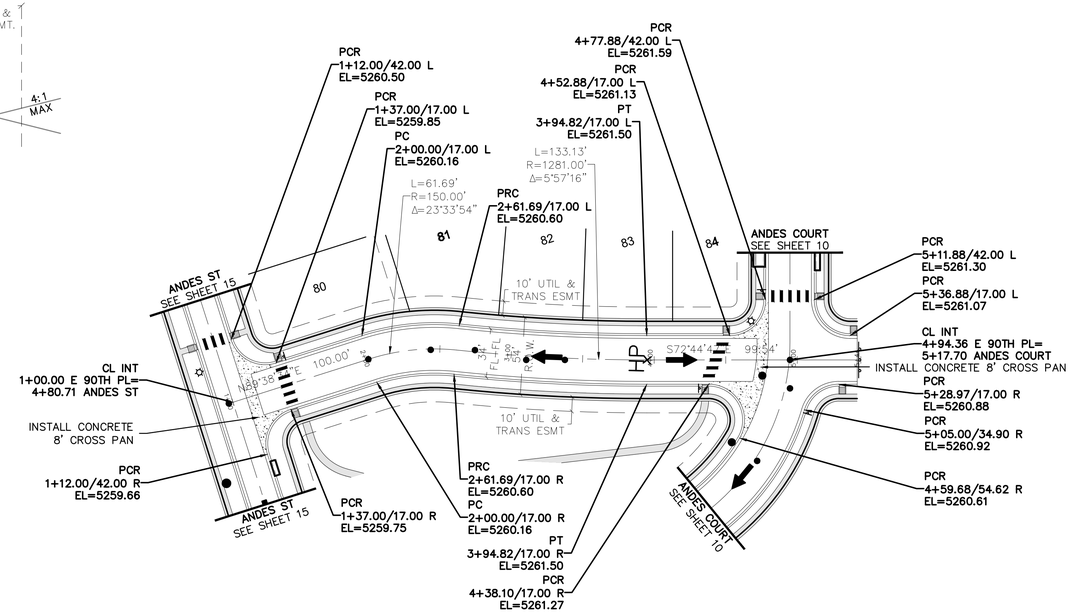
PLANS UNDER REVIEW NOT FOR CONSTRUCTION

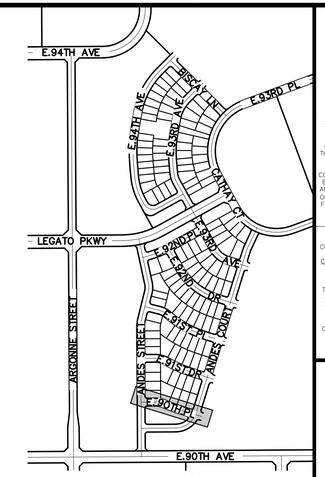
DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 8

CAD FILE: 19002561-ROAD 4.DWG



LEGATO
LOCAL STREET SECTION
1:10 HOR.

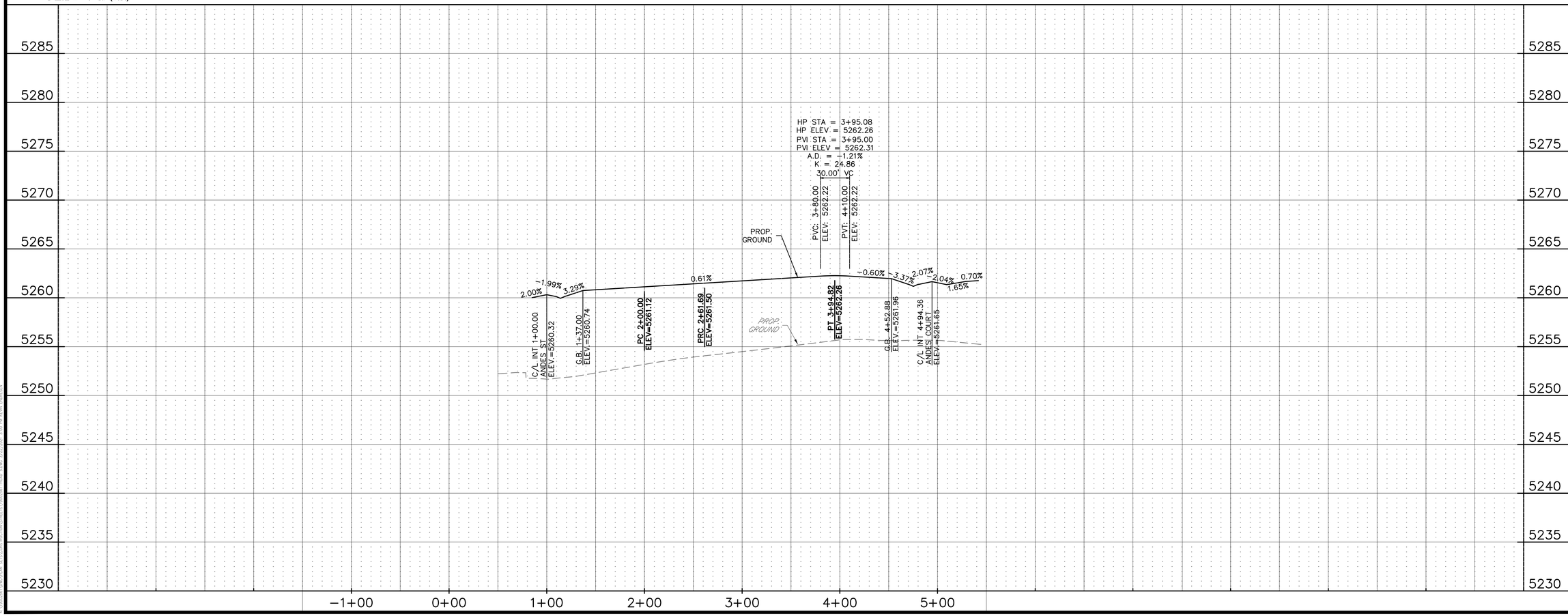




KEY MAP
SCALE: 1"=500'

50 0 50 100
(IN FEET)
1 inch = 50 ft. (Horz)
1 inch = 5 ft. (Vert)

E 90TH PL - STA. 1+00-5+50



Know what's below.
Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-grp.com
6200 S. QUEBEC STREET, ATLAS, 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

CLIENT
COHEN DENVER AIRPORT, LLC

LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
CONSTRUCTION PLANS
STREET PLAN & PROFILES
E 90TH PL – STA. 1+00-5+50

DATE 3/22/2021

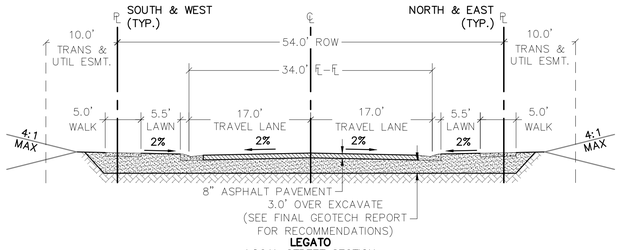
A	1st SUBMITTAL TO COMMERCE CITY	08/17/2020 – DJM
B	2nd SUBMITTAL TO COMMERCE CITY	03/15/2021 – DJM

REVISIONS

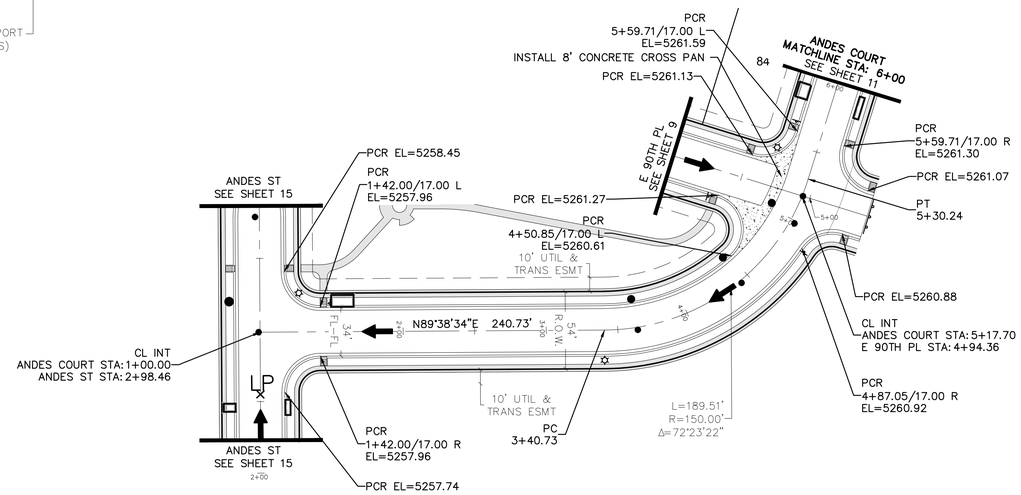
PLANS UNDER REVIEW
NOT FOR CONSTRUCTION

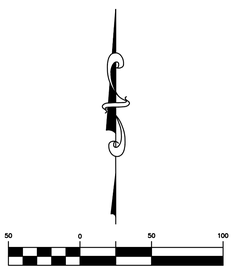
DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 9

CAD FILE: 19002561-ROAD 5.DWG



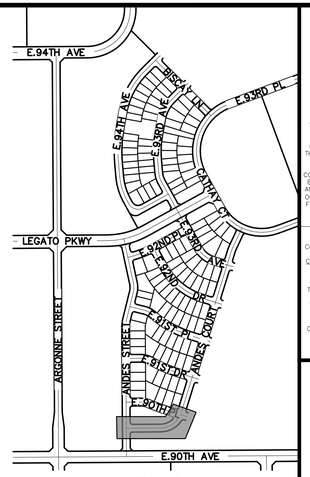
LEGATO
LOCAL STREET SECTION
1:10 HOR.



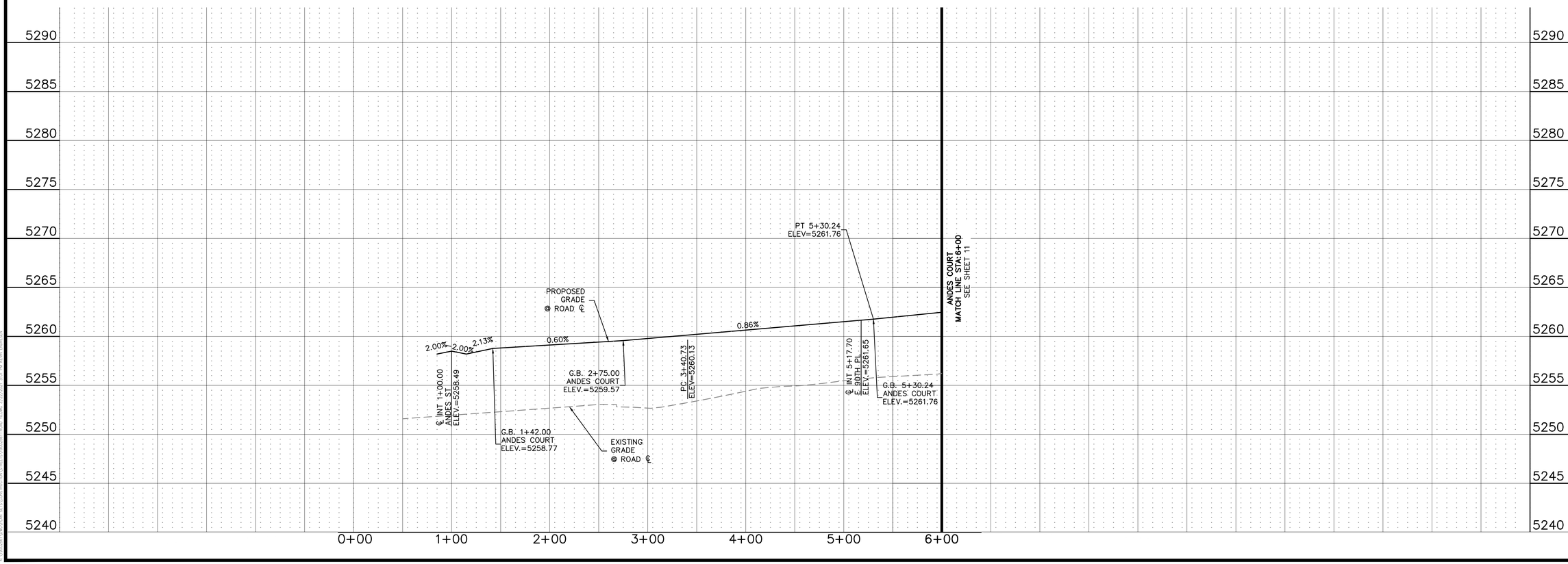


(IN FEET)
1 inch = 50 ft. (Horz)
1 inch = 5 ft. (Vert)

ANDES COURT - STA 1+00-STA 6+00



KEY MAP
SCALE: 1"=500'



811
Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 S. QUEBEC STREET, SUITE 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

CLIENT
COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

COHEN DENVER AIRPORT, LLC
LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
CONSTRUCTION PLANS
STREET PLAN & PROFILES
ANDES COURT – STA 1+00–STA 6+00

DATE 3/22/2021

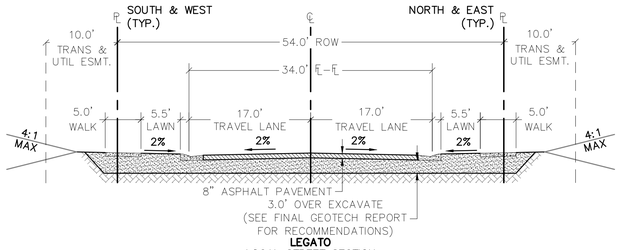
A	1st SUBMITTAL TO COMMERCE CITY	08/17/2020 – DJM
B	2nd SUBMITTAL TO COMMERCE CITY	03/15/2021 – DJM

REVISIONS

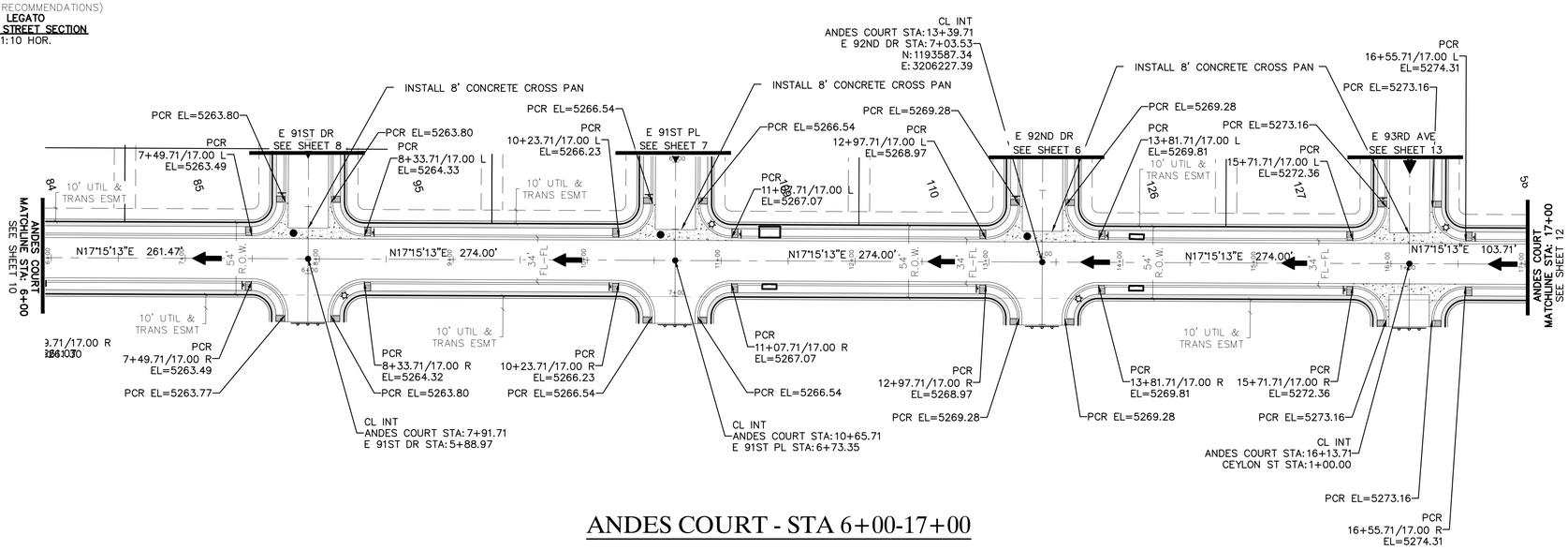
PLANS UNDER REVIEW NOT FOR CONSTRUCTION

DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 10

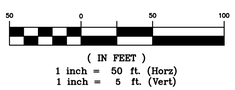
CAD FILE: 19002561-ROAD 10.DWG

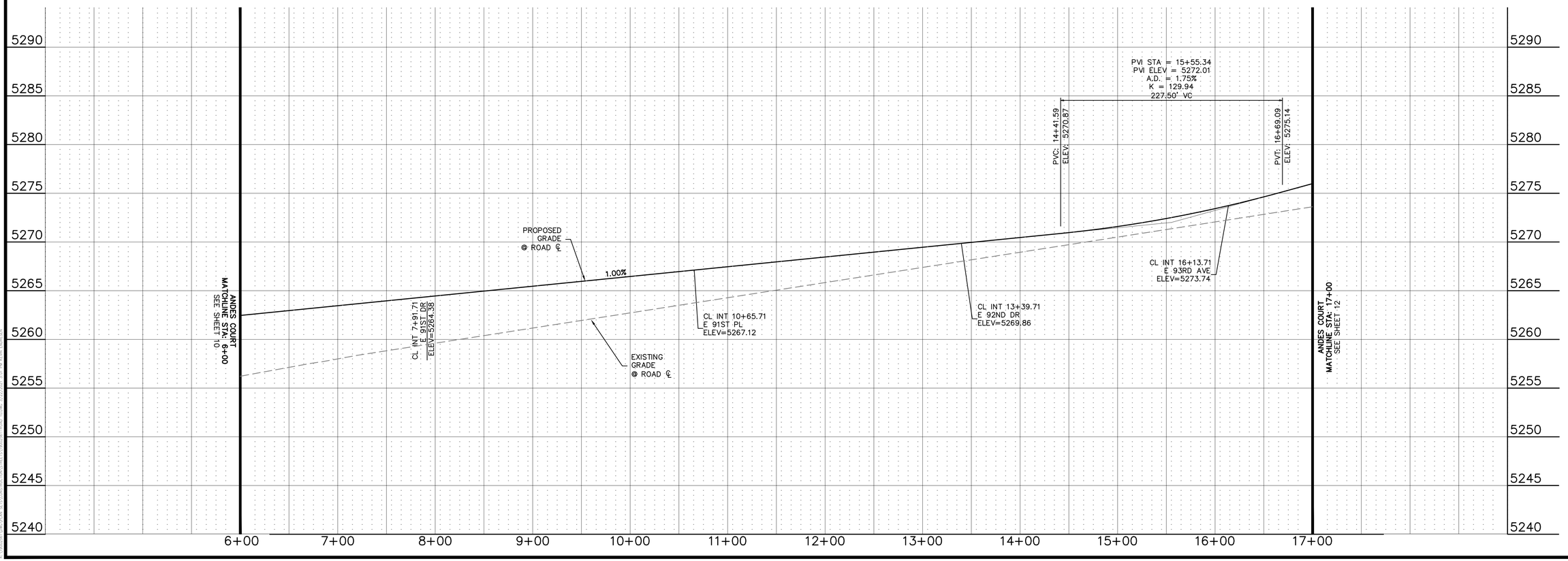


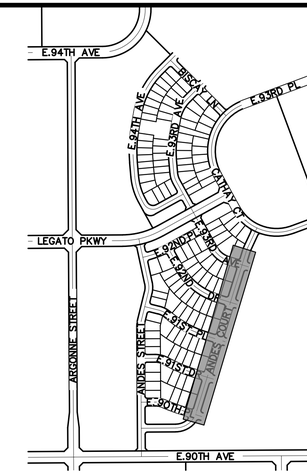
LEGATO
LOCAL STREET SECTION
1:10 HOR.



ANDES COURT - STA 6+00-17+00







KEY MAP
SCALE: 1"=500'

811 Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-grp.com
6200 S. QUEBEC STREET, SUITE 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

CLIENT
COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

COHEN DENVER AIRPORT, LLC
LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
CONSTRUCTION PLANS
STREET PLAN & PROFILES
ANDES COURT – STA 6+00–17+00

DATE 3/22/2021

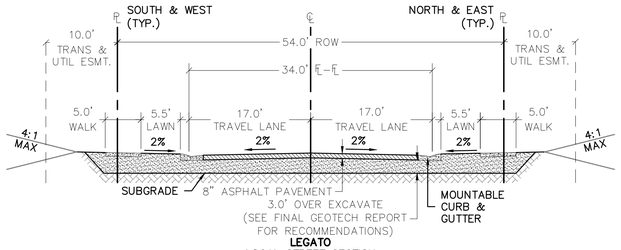
A	1st SUBMITTAL TO COMMERCE CITY	08/17/2020 – DJM
B	2nd SUBMITTAL TO COMMERCE CITY	03/15/2021 – DJM

REVISIONS

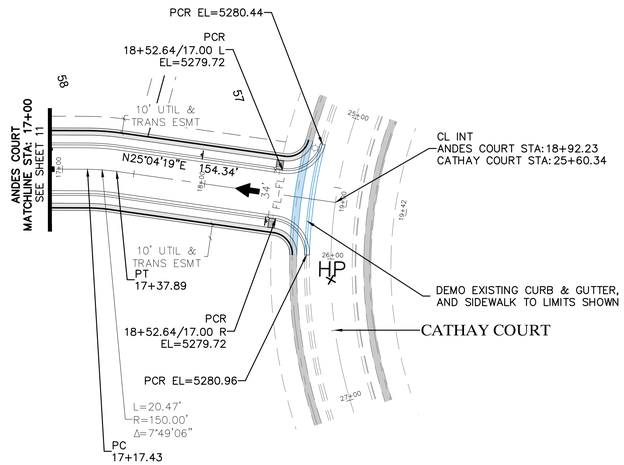
PLANS UNDER REVIEW NOT FOR CONSTRUCTION

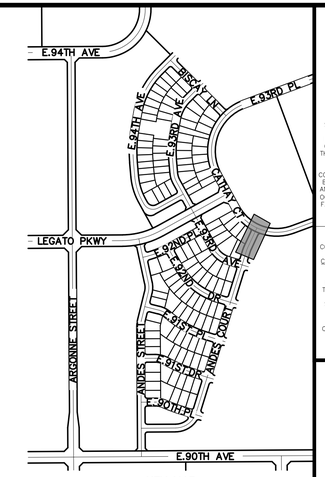
DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 11

CAD FILE: 19002561-ROAD 10.DWG



LEGATO
LOCAL STREET SECTION
1:10 HOR.

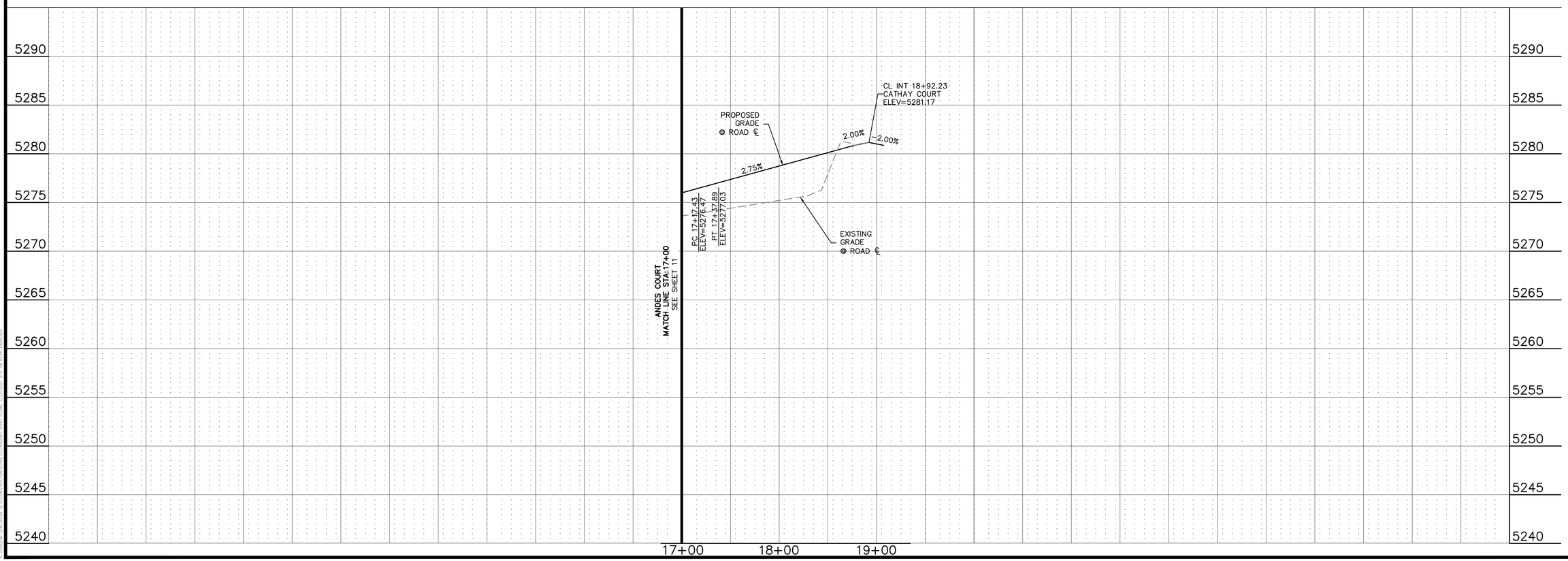




KEY MAP
SCALE: 1"=500'

(IN FEET)
1 inch = 50 ft. (Horz)
1 inch = 5 ft. (Vert)

ANDES COURT - STA 17+00-19+00



811
Know what's below.
Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 S. QUEBEC STREET, SUITE 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

CLIENT
COHEN DENVER AIRPORT, LLC
LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
CONSTRUCTION PLANS
STREET PLAN & PROFILES
ANDES COURT – STA 17+00–19+00

DATE 3/22/2021

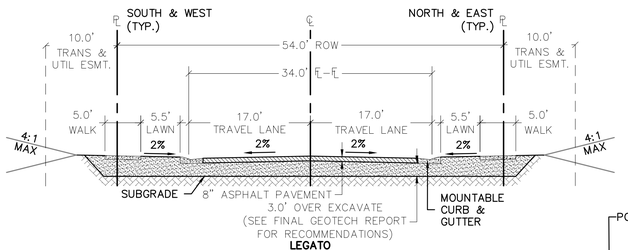
A	1st SUBMITTAL TO COMMERCE CITY	08/17/2020 – DJM
B	2nd SUBMITTAL TO COMMERCE CITY	03/15/2021 – DJM

REVISIONS

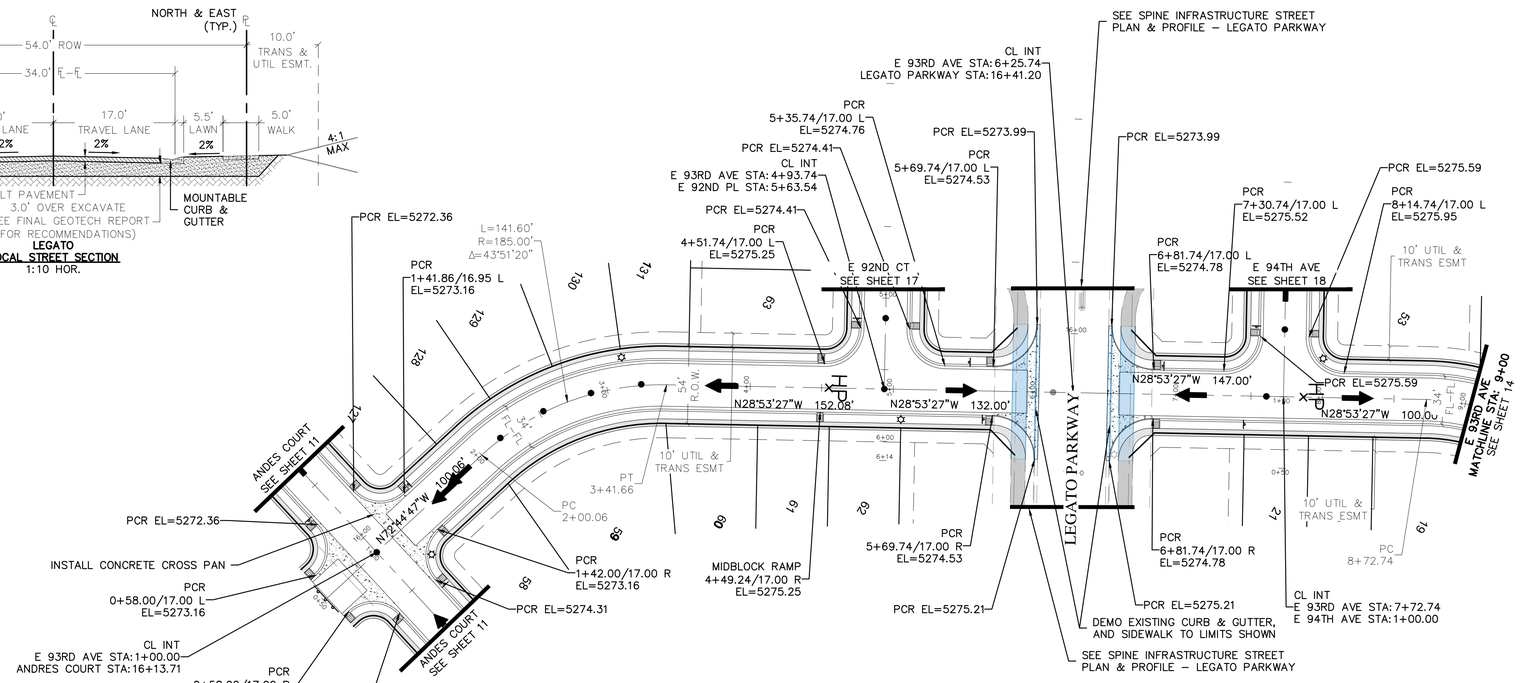
PLANS UNDER REVIEW NOT FOR CONSTRUCTION
JULIE MCCLAIN

DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 12

CAD FILE: 19002561-ROAD 10.DWG

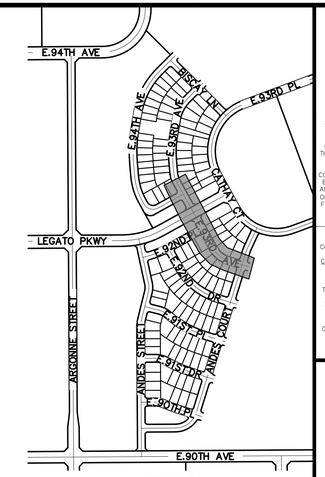


LEGATO
LOCAL STREET SECTION
1:10 HOR.

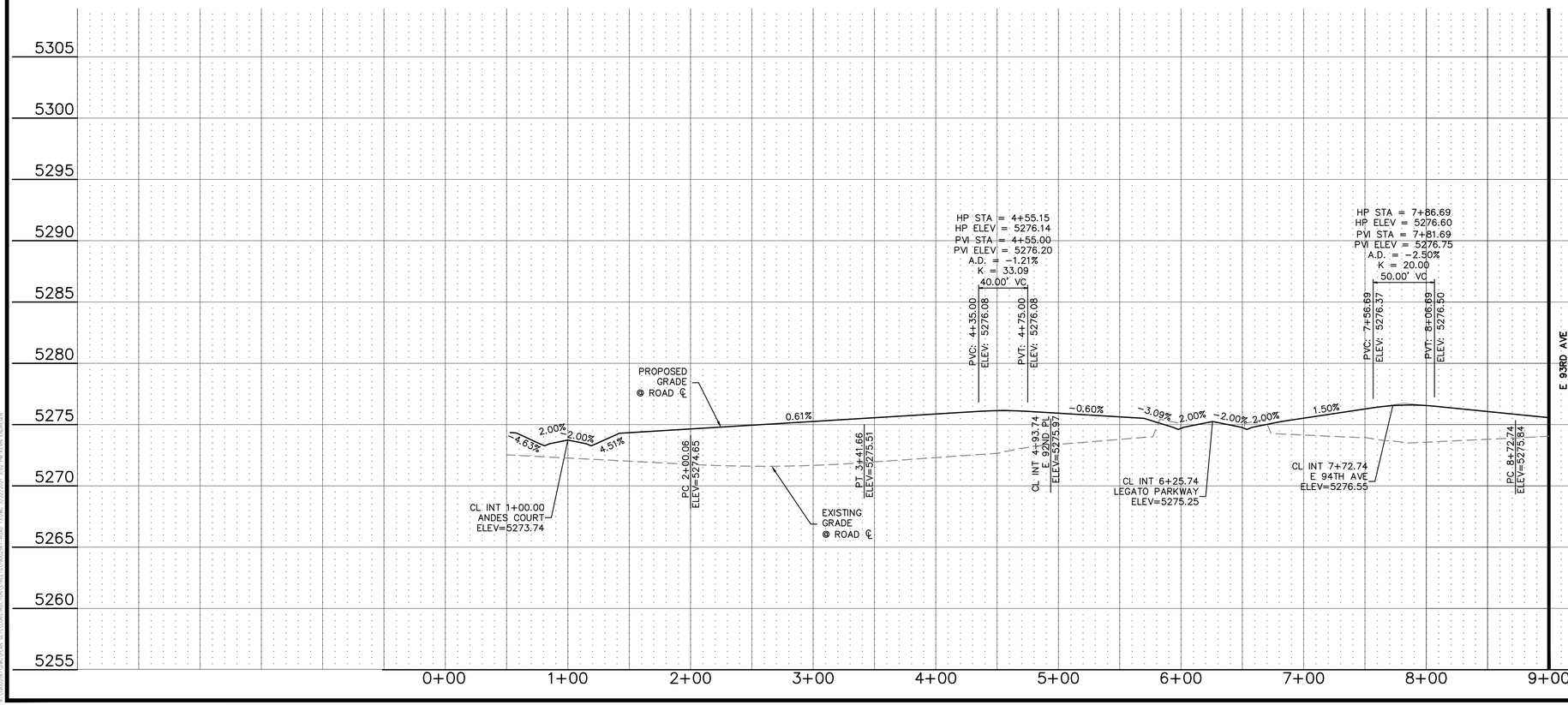


(IN FEET)
1 inch = 50 ft. (Horz)
1 inch = 5 ft. (Vert)

E 93RD AVE - STA 0+50-STA 9+00



KEY MAP
SCALE: 1"=500'



811 Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 S. QUEBEC STREET, SUITE 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

CLIENT
COHEN DENVER AIRPORT, LLC

LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
CONSTRUCTION PLANS
STREET PLAN & PROFILES
E 93RD AVE – STA 0+50–STA 9+00

DATE 3/22/2021

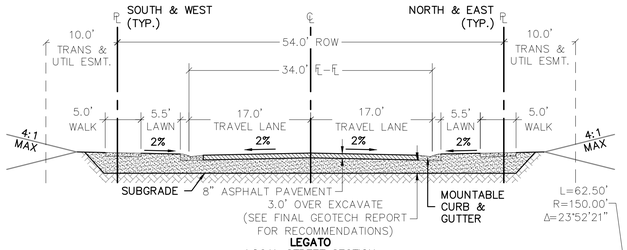
A	1st SUBMITTAL TO COMMERCE CITY	08/17/2020 – DJM
B	2nd SUBMITTAL TO COMMERCE CITY	03/15/2021 – DJM

REVISIONS

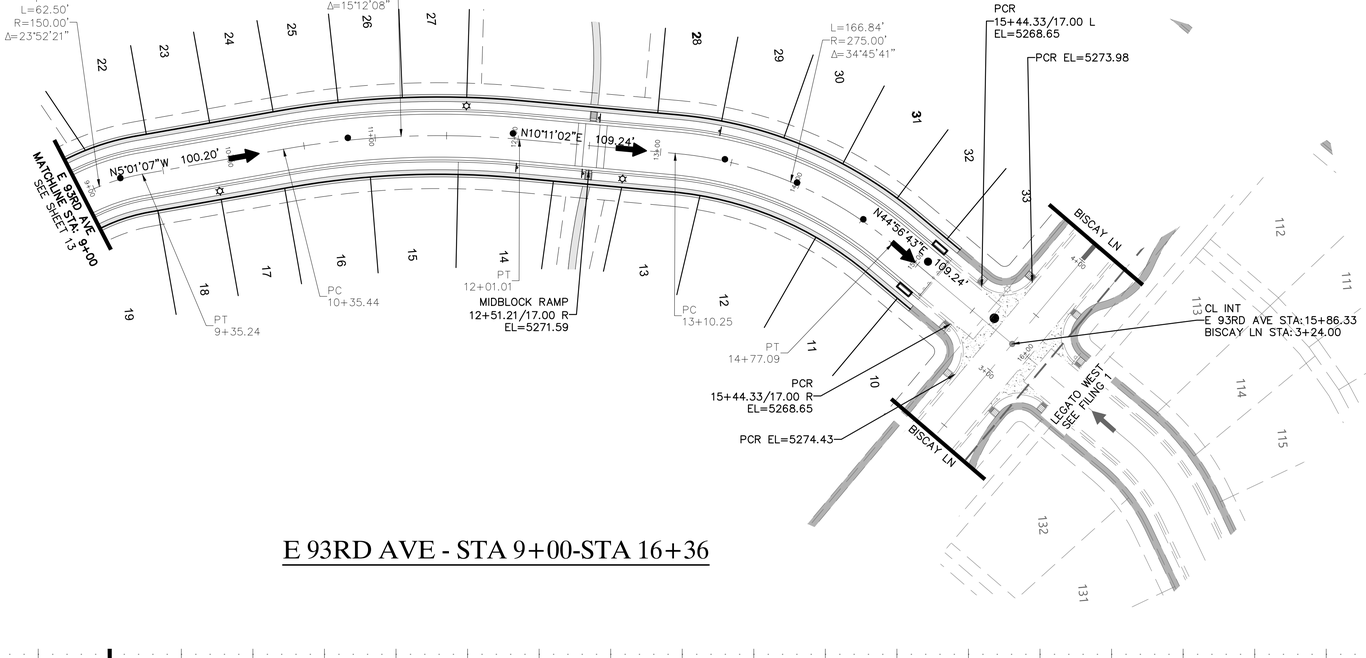
PLANS UNDER REVIEW NOT FOR CONSTRUCTION
JOHN MICHAEL MEYER
PE-0037978

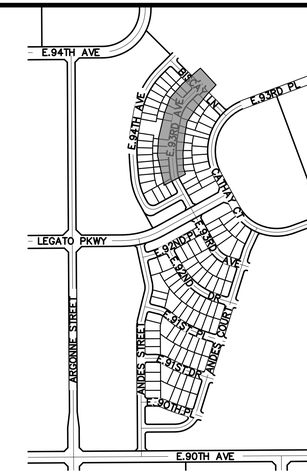
DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 13

CAD FILE: 19002561-ROAD 13.DWG



LEGATO
LOCAL STREET SECTION
1:10 HOR.

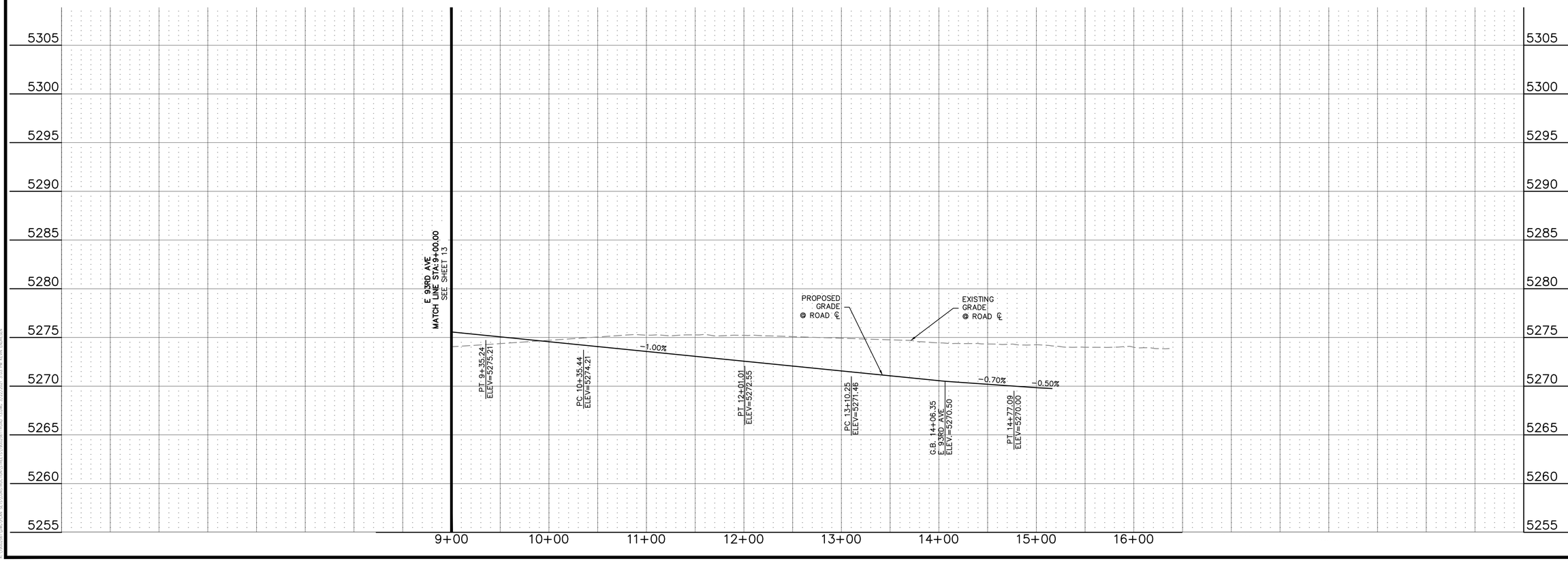




KEY MAP
SCALE: 1"=500'

50 0 50 100
(IN FEET)
1 inch = 50 ft. (Horz)
1 inch = 5 ft. (Vert)

E 93RD AVE - STA 9+00-STA 16+36



811 Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 S. QUEBEC STREET, SUITE 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

CLIENT
COHEN DENVER AIRPORT, LLC

LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
CONSTRUCTION PLANS
STREET PLAN & PROFILES
E 93RD AVE – STA 9+00–STA 16+36

DATE 3/22/2021

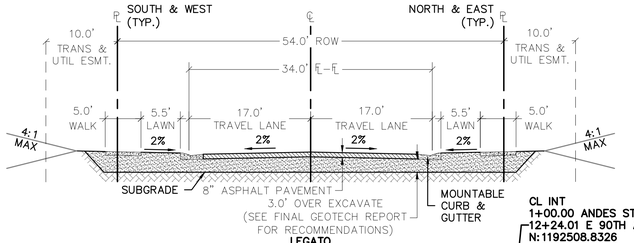
A	1st SUBMITTAL TO COMMERCE CITY	08/17/2020 – DJM
B	2nd SUBMITTAL TO COMMERCE CITY	03/15/2021 – DJM

REVISIONS

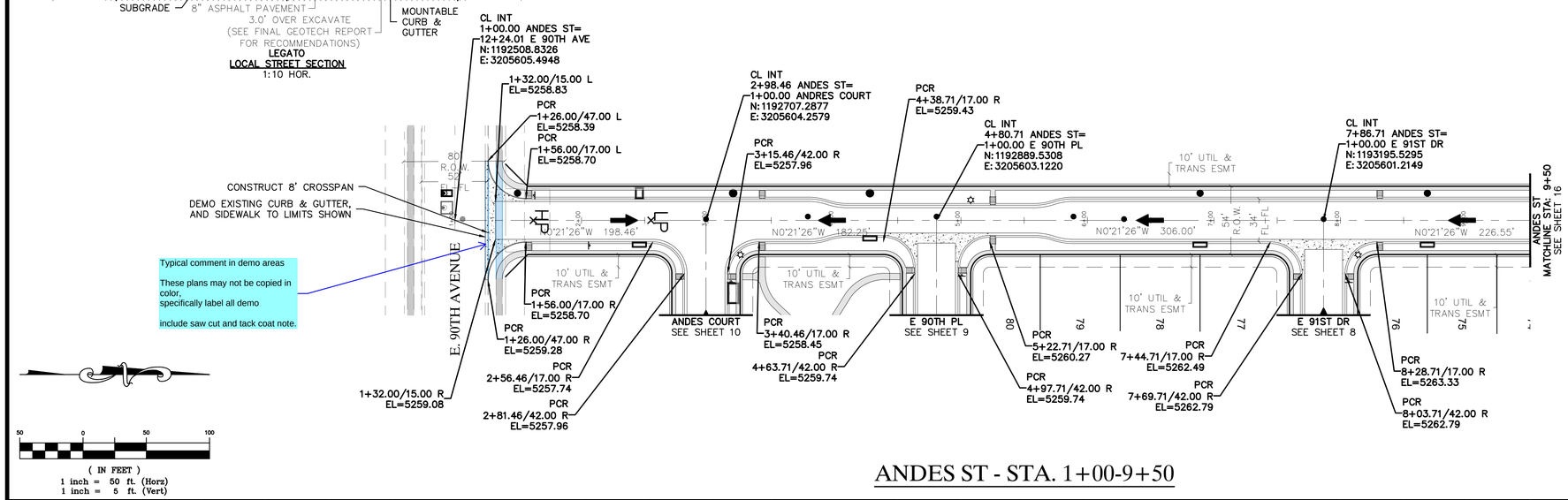
PLANS UNDER REVIEW NOT FOR CONSTRUCTION

DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 14

CAD FILE: 19002561-ROAD 13.DWG



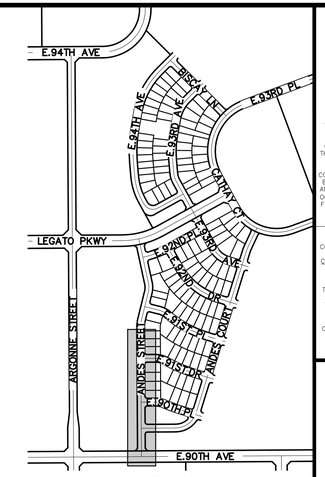
LEGATO
LOCAL STREET SECTION
1:10 HOR.



Typical comment in demo areas

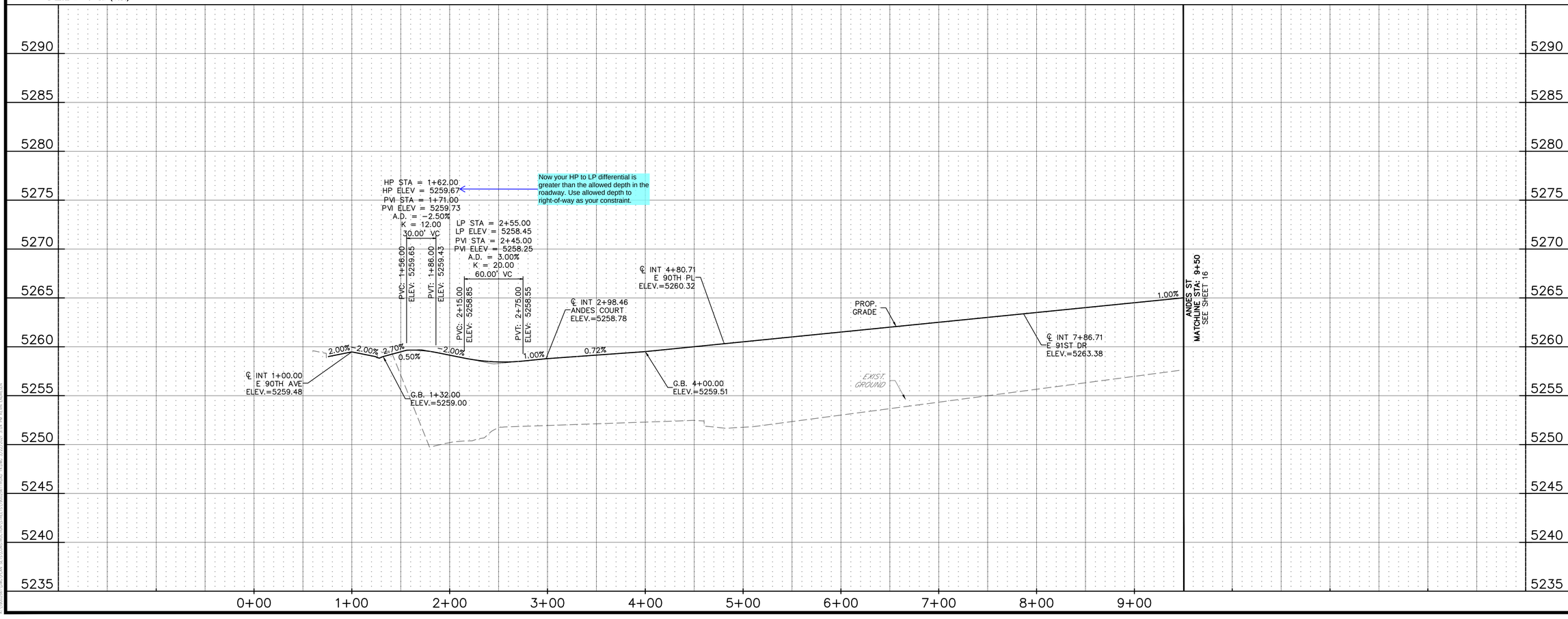
These plans may not be copied in color, specifically label all demo

include saw cut and tack coat note.



KEY MAP
SCALE: 1"=500'

ANDES ST - STA. 1+00-9+50



811 Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 S. QUEBEC STREET, ATLAS A, 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

CLIENT
COHEN DENVER AIRPORT, LLC

LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
CONSTRUCTION PLANS
STREET PLAN & PROFILES
ANDES ST – STA. 1+00-9+50

DATE 3/22/2021

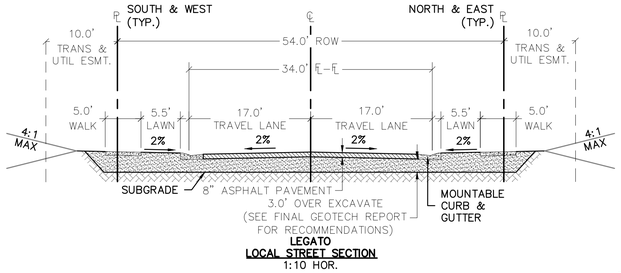
A	1st SUBMITTAL TO COMMERCE CITY	08/17/2020 – DJM
B	2nd SUBMITTAL TO COMMERCE CITY	03/15/2021 – DJM

REVISIONS

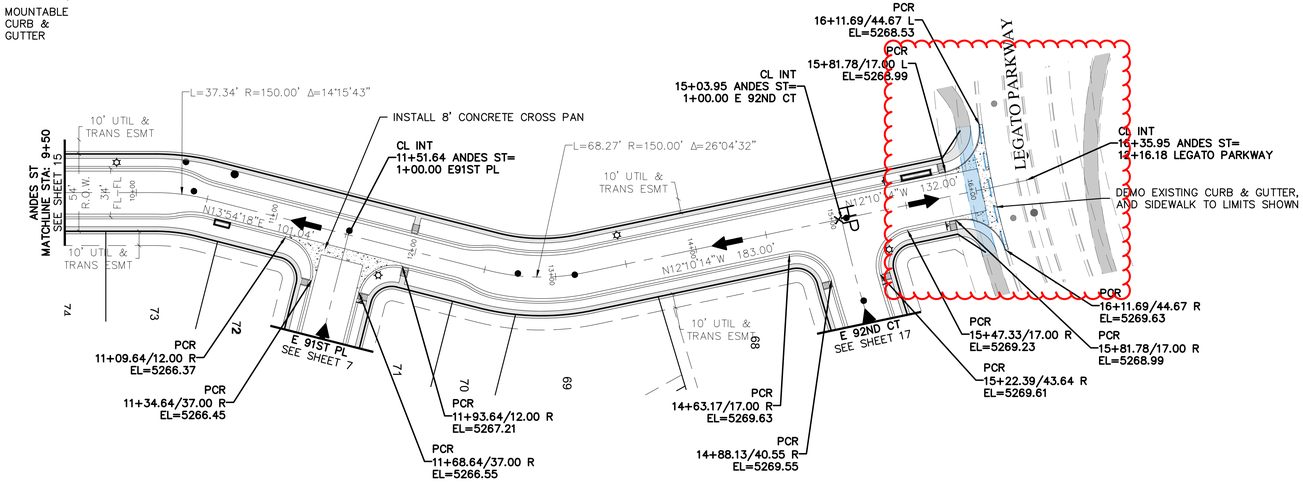
PLANS UNDER REVIEW
NOT FOR CONSTRUCTION

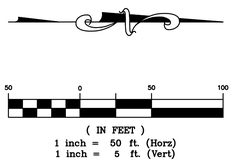
DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 15

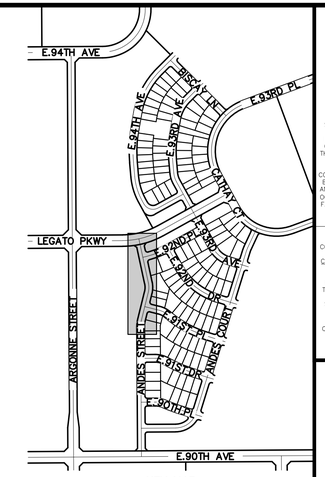
CAD FILE: 19002561-ROAD 14.DWG



LEGATO
LOCAL STREET SECTION
1:10 HOR.

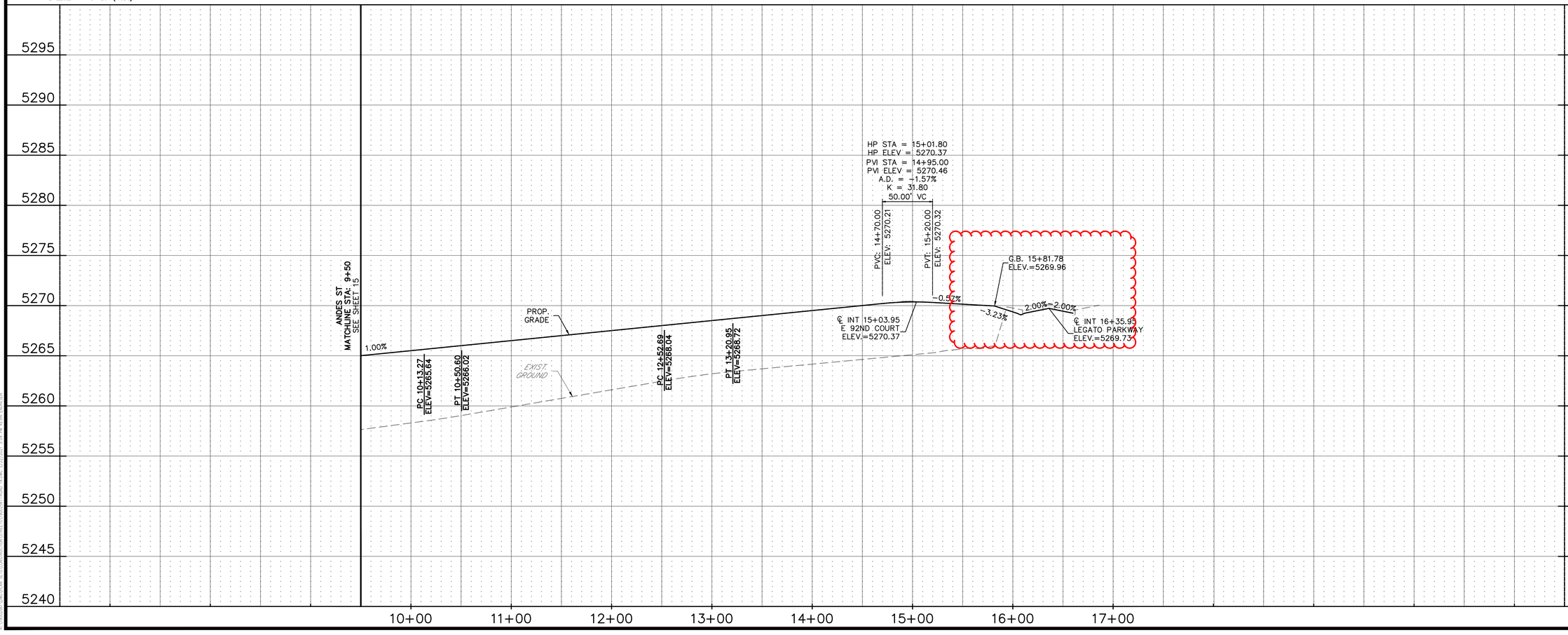






KEY MAP
SCALE: 1"=500'

ANDES ST - STA. 9+50-17+00



811
Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-grp.com
6200 S. QUEBEC STREET, SUITE 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

CLIENT
COHEN DENVER AIRPORT, LLC

LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
CONSTRUCTION PLANS
STREET PLAN & PROFILES
ANDES ST – STA. 9+50–17+00

DATE 3/22/2021

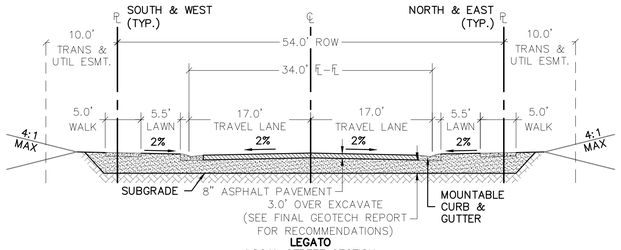
A	1st SUBMITTAL TO COMMERCE CITY	08/17/2020 – DJM
B	2nd SUBMITTAL TO COMMERCE CITY	03/15/2021 – DJM

REVISIONS

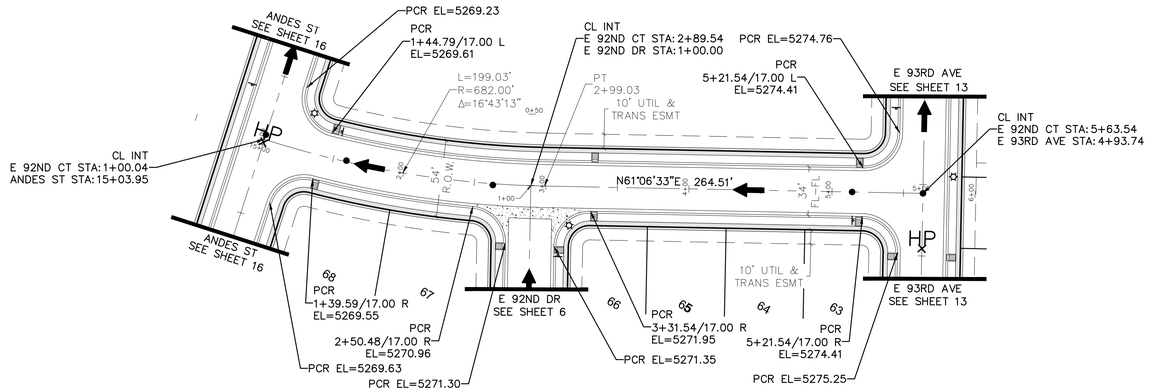
PLANS UNDER REVIEW
NOT FOR CONSTRUCTION

DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 16

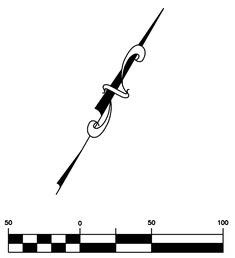
CAD FILE: 19002561-ROAD 14.DWG

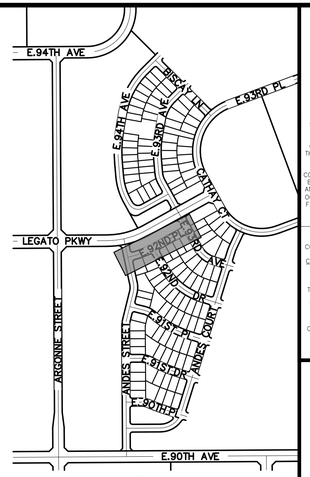


LEGATO
LOCAL STREET SECTION
1:10 HOR.

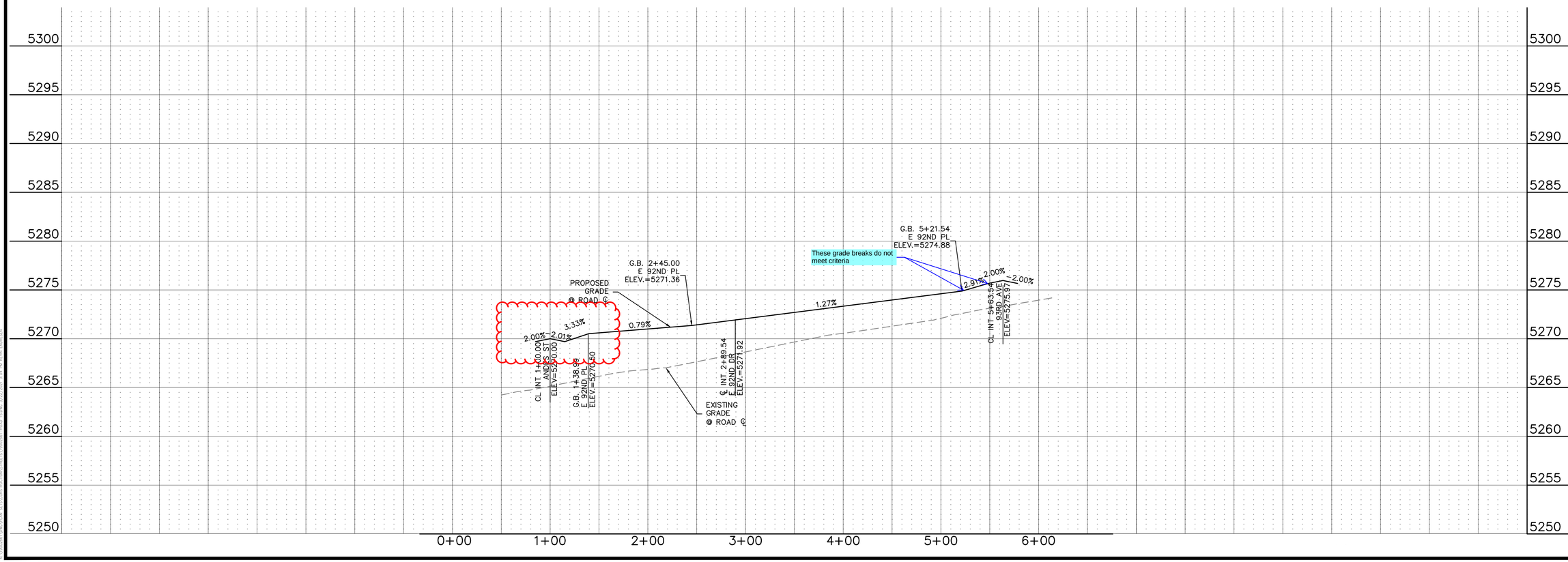


E 92ND CT - STA 1+00-5+63





KEY MAP
SCALE: 1"=500'



811 Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 S. SYRACUSE WAY, SUITE 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

CLIENT
COHEN DENVER AIRPORT, LLC

LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
CONSTRUCTION PLANS
STREET PLAN & PROFILES
E 92ND CT – STA 1+00-5+63

DATE 3/22/2021

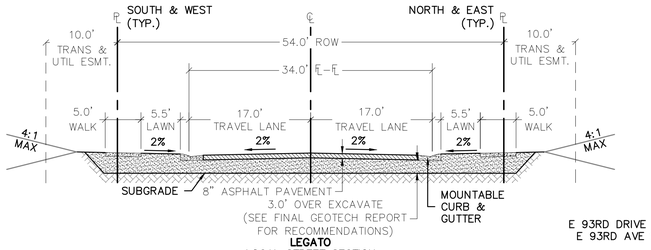
A	1st SUBMITTAL TO COMMERCE CITY	08/17/2020 – DJM
B	2nd SUBMITTAL TO COMMERCE CITY	03/15/2021 – DJM

REVISIONS

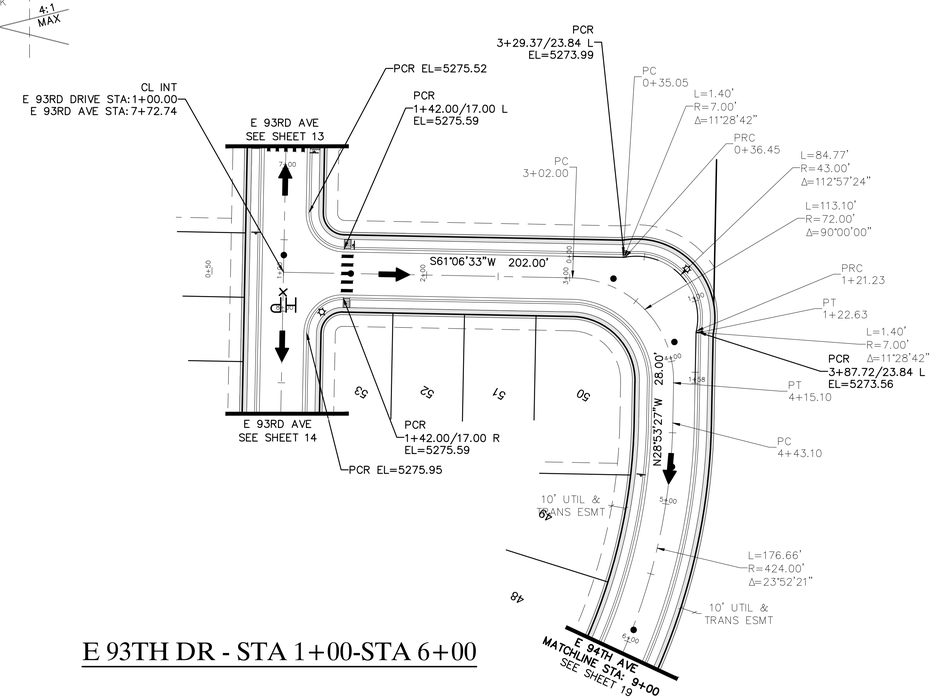
PLANS UNDER REVIEW NOT FOR CONSTRUCTION
JUN 15, 2021

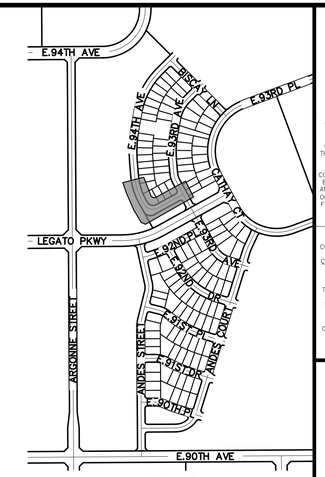
DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 17

CAD FILE: 19002561-ROAD 15.DWG



LEGATO
LOCAL STREET SECTION
1:10 HOR.

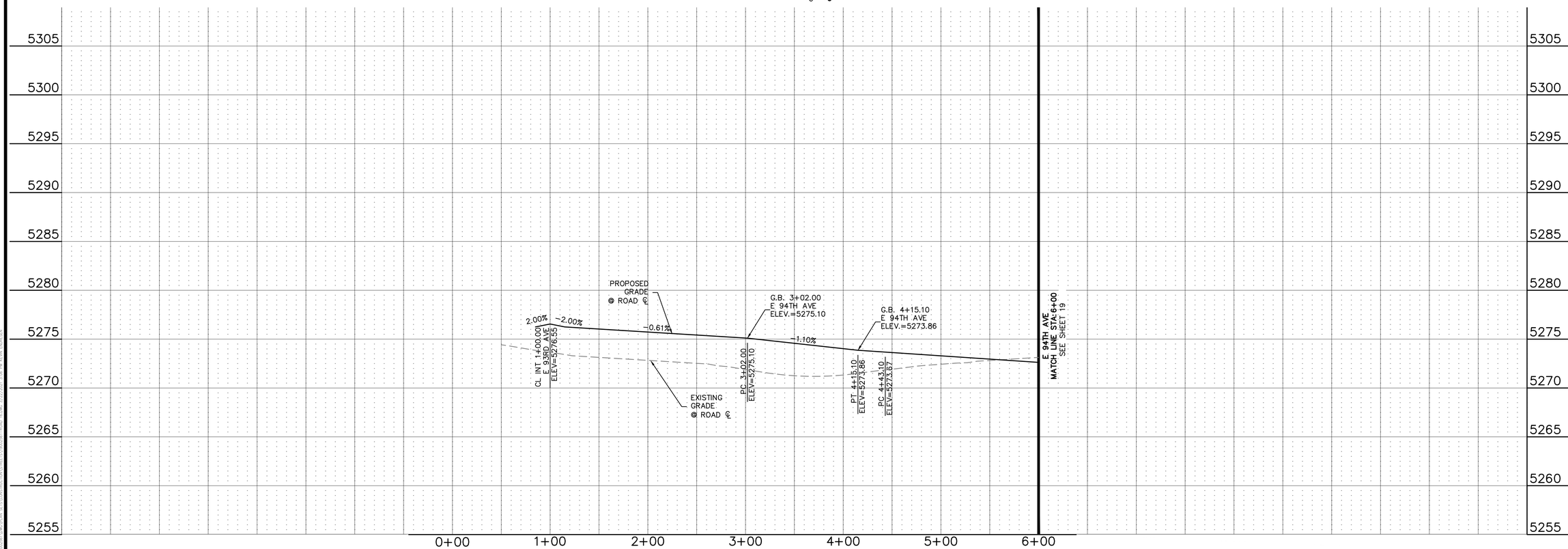




KEY MAP
SCALE: 1"=500'

(IN FEET)
1 inch = 50 ft. (Horz)
1 inch = 5 ft. (Vert)

E 93TH DR - STA 1+00-STA 6+00



811 Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 S. QUEBEC STREET, SUITE 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

CLIENT
COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

COHEN DENVER AIRPORT, LLC
LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
CONSTRUCTION PLANS
STREET PLAN & PROFILES
E 93TH DR – STA 1+00–STA 6+00

DATE 3/22/2021

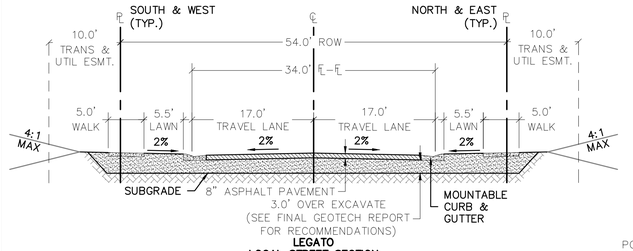
A	1st SUBMITTAL TO COMMERCE CITY	08/17/2020 – DJM
B	2nd SUBMITTAL TO COMMERCE CITY	03/15/2021 – DJM

REVISIONS

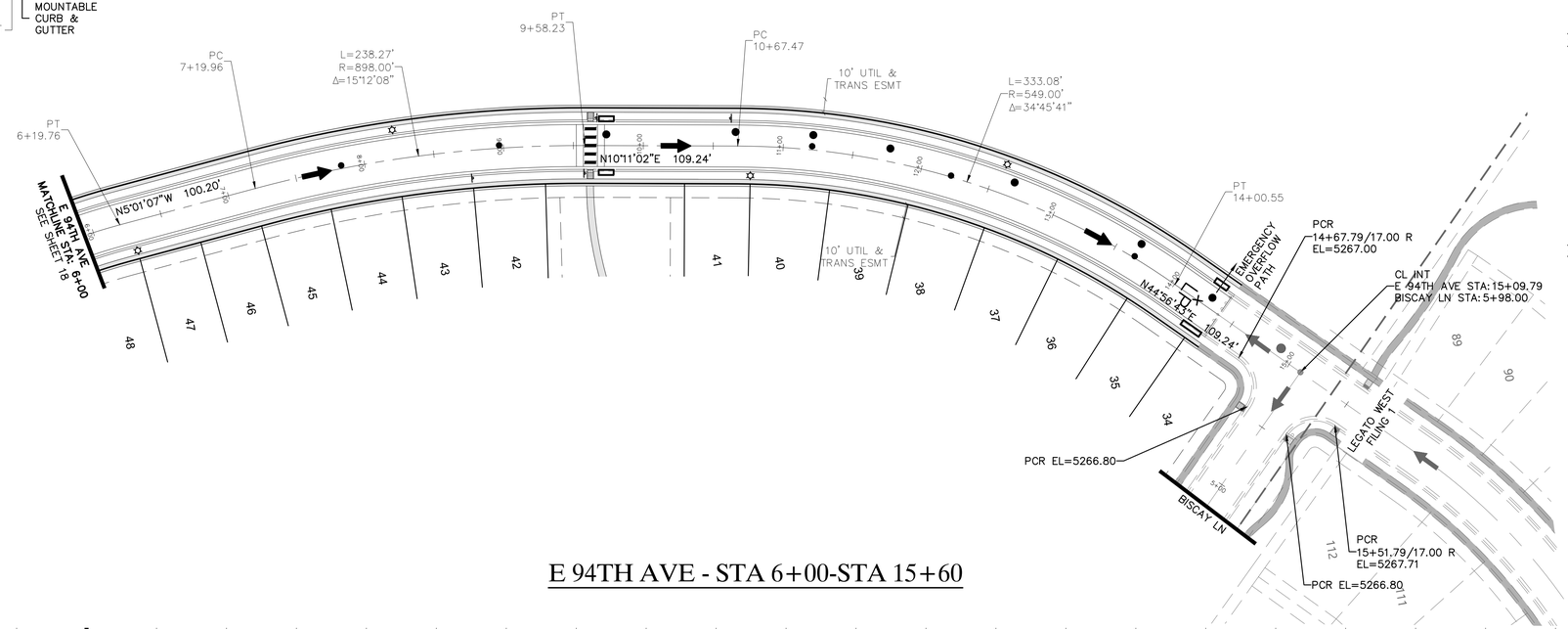
PLANS UNDER REVIEW NOT FOR CONSTRUCTION

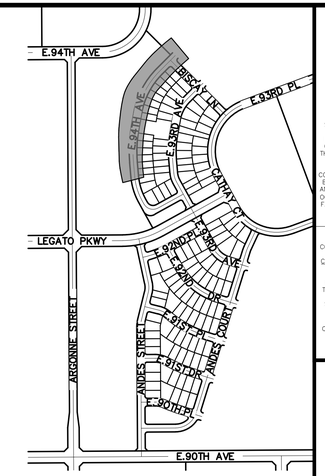
DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 18

CAD FILE: 19002561-ROAD 16.DWG



LEGATO
LOCAL STREET SECTION
1:10 HOR.

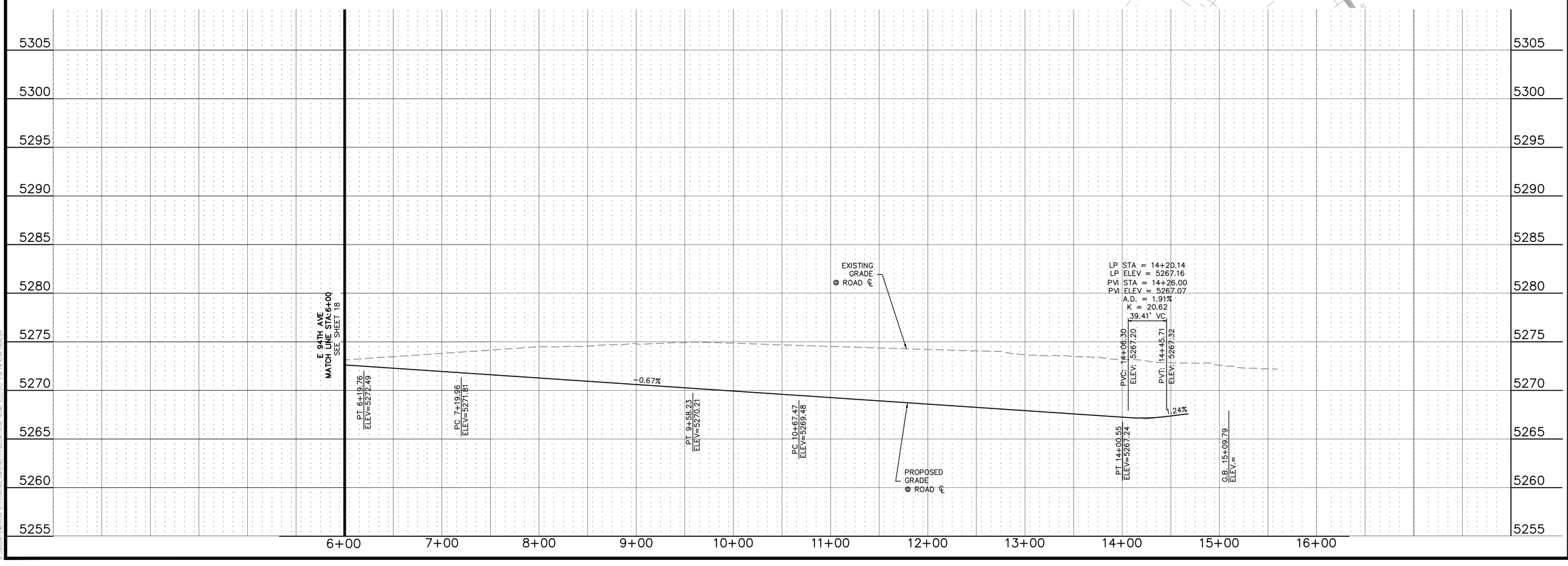




KEY MAP
SCALE: 1"=500'

(IN FEET)
1 inch = 50 ft. (Horz)
1 inch = 5 ft. (Vert)

E 94TH AVE - STA 6+00-STA 15+60



Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 SOUTH SYRACUSE WAY, SUITE 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

CLIENT
COHEN DENVER AIRPORT, LLC

LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
CONSTRUCTION PLANS
STREET PLAN & PROFILES
E 94TH AVE – STA 6+00–STA 15+60

DATE 3/22/2021

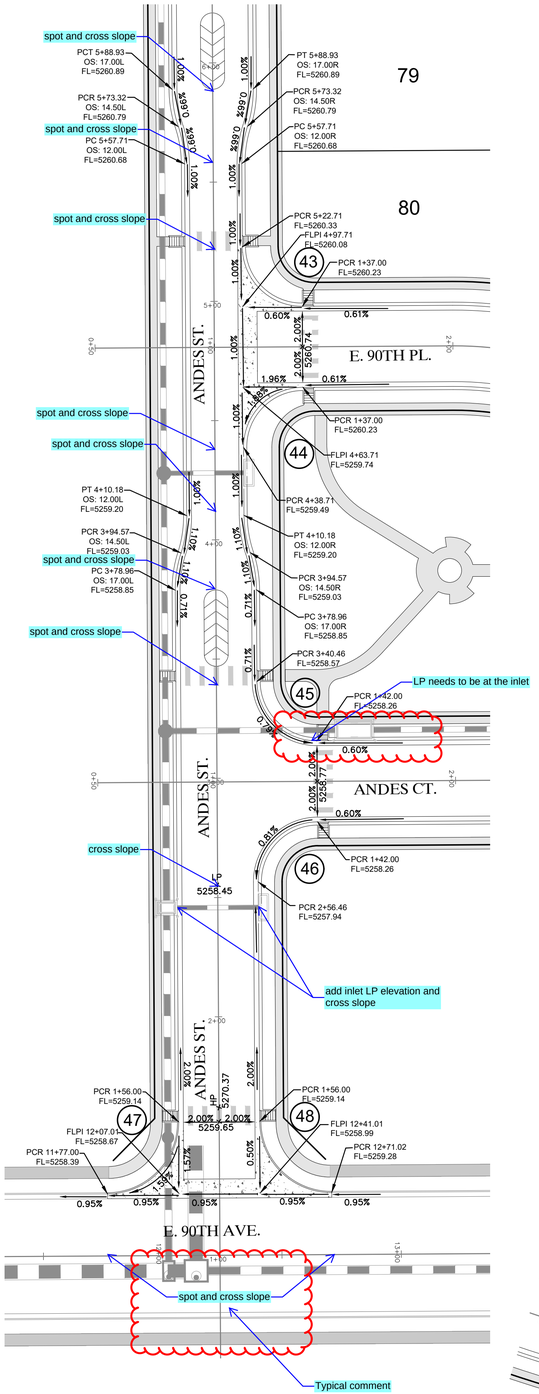
A	CITY	1st SUBMITTAL TO COMMERCE CITY 08/17/2020 – DJM
B	CITY	2nd SUBMITTAL TO COMMERCE CITY 03/15/2021 – DJM

REVISIONS

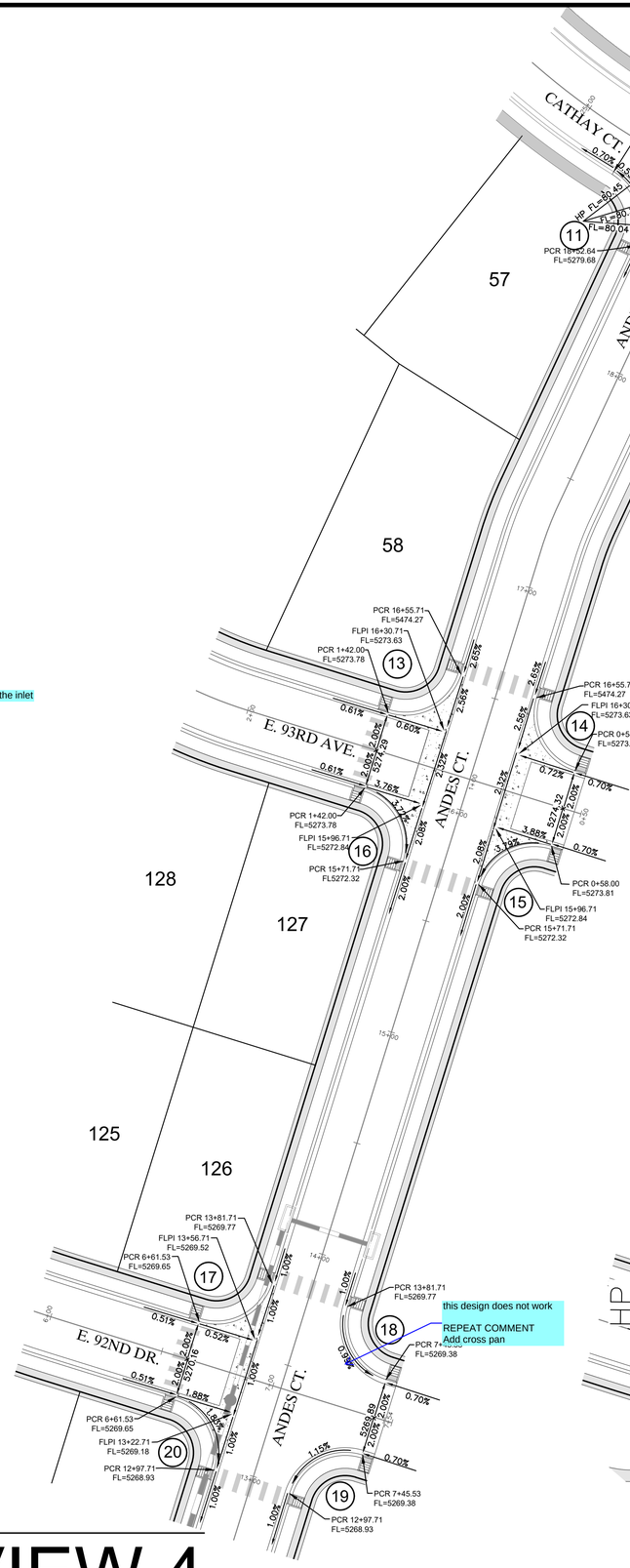
PLANS UNDER REVIEW NOT FOR CONSTRUCTION

DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 19

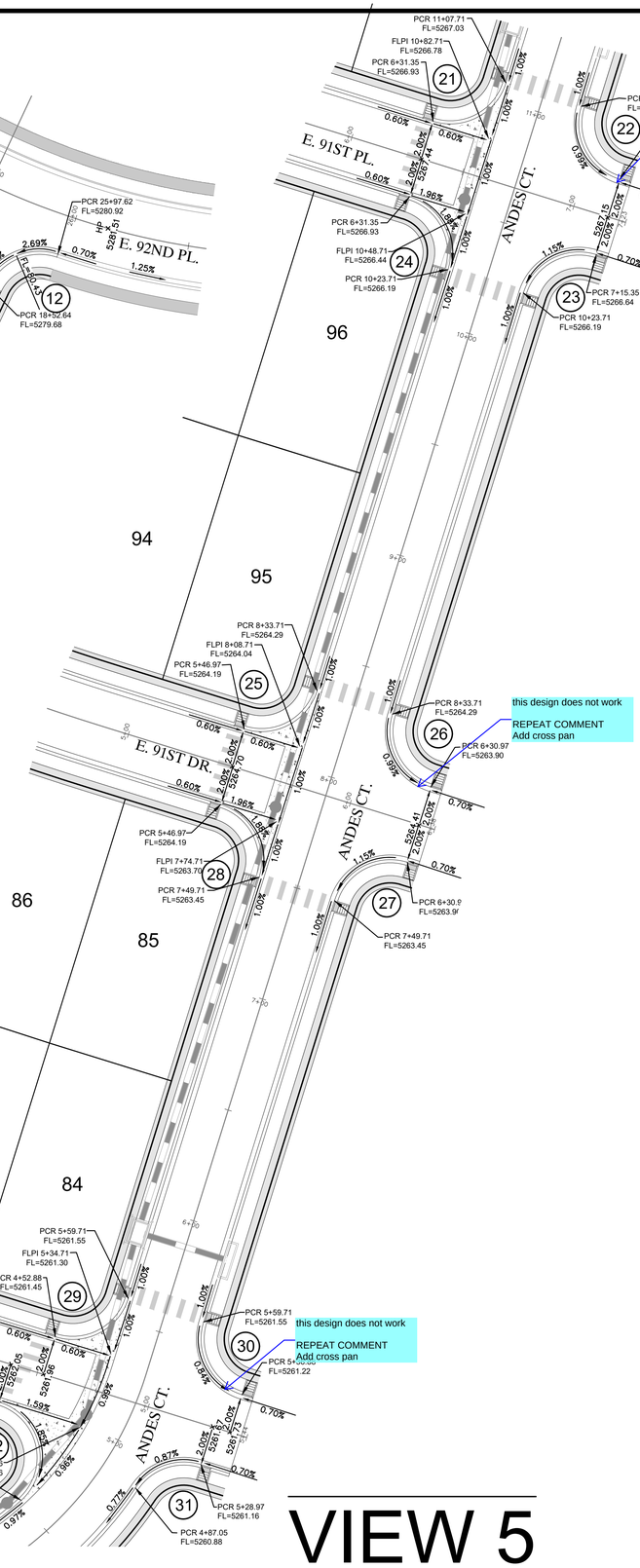
CAD FILE: 19002561-ROAD 16.DWG



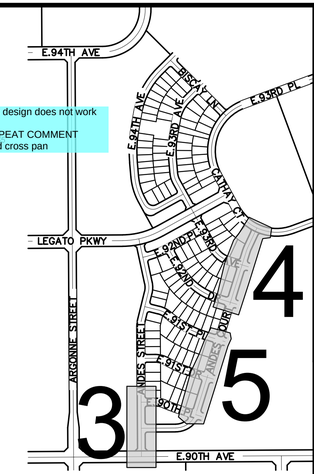
VIEW 3



VIEW 4



VIEW 5



KEY MAP
SCALE: 1"=500'

NOTES:

1. ③ REFERS TO INTERSECTION PROFILE NUMBER.
2. ALL STATIONS TO FLOWLINE UNLESS OTHERWISE NOTED.
3. ALL OFFSETS TO FLOWLINE. IF NO OFFSET IS DISCRETELY LISTED, THEN OFFSET IS TO FLOWLINE OFFSET AS DEFINED PER STANDARD STREET SECTION DETAIL.
4. ALL ELEVATIONS LABELED 'CL=' ARE TO CENTERLINE OF ROAD.
5. ALL ELEVATIONS LABELED 'FL=' ARE TO FLOWLINE OF CURB & GUTTER.
6. 'FPLI' REFERS TO 'FLOWLINE POINT OF INTERSECTION'.

(IN FEET)
1 inch = 30 ft.

811 Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 S. QUEBEC STREET, SUITE 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

CLIENT
COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

COHEN DENVER AIRPORT, LLC
LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
CONSTRUCTION PLANS
STREET INTERSECTIONS

DATE 3/22/2021

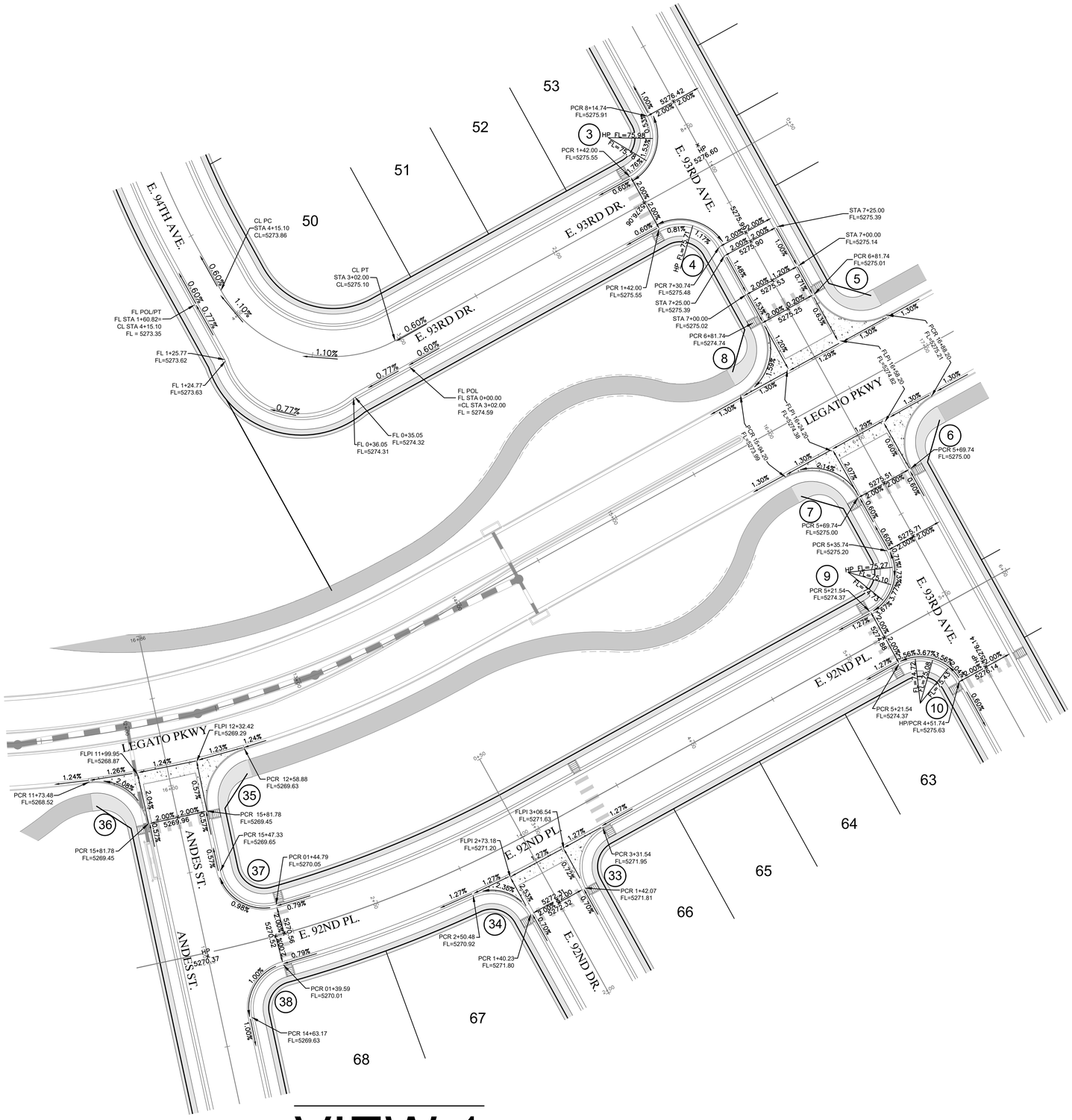
A	1st SUBMITTAL TO COMMERCE CITY	08/17/2020 – DJM
B	2nd SUBMITTAL TO COMMERCE CITY	03/15/2021 – DJM

REVISIONS

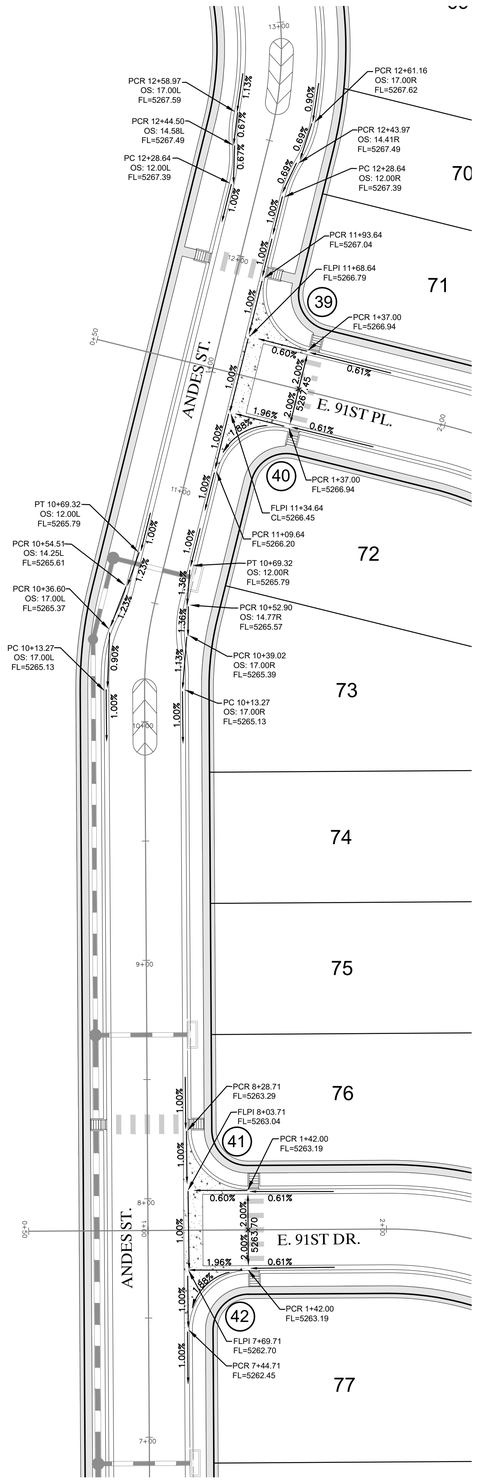
PLANS UNDER REVIEW NOT FOR CONSTRUCTION

DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 20

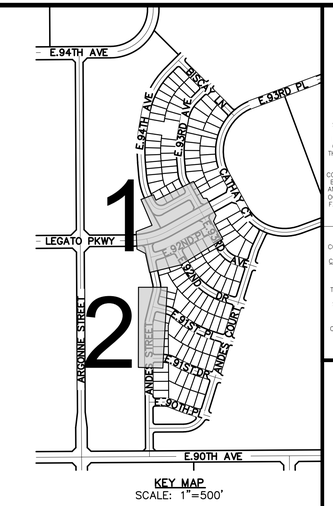
CAD FILE: 19002561-INTERSECTIONS.DWG



VIEW 1



VIEW 2



KEY MAP
SCALE: 1"=500'

NOTES:

1. (3) REFERS TO INTERSECTION PROFILE NUMBER.
2. ALL STATIONS TO FLOWLINE UNLESS OTHERWISE NOTED.
3. ALL OFFSETS TO FLOWLINE. IF NO OFFSET IS DISCRETELY LISTED, THEN OFFSET IS TO FLOWLINE OFFSET AS DEFINED PER STANDARD STREET SECTION DETAIL.
4. ALL ELEVATIONS LABELED 'CL=' ARE TO CENTERLINE OF ROAD.
5. ALL ELEVATIONS LABELED 'FL=' ARE TO FLOWLINE OF CURB & GUTTER.
6. 'FPLI' REFERS TO 'FLOWLINE POINT OF INTERSECTION'.

(IN FEET)
1 inch = 30 ft.

811 Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 S. QUEBEC STREET, ATLANTIC PLACE, SUITE 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

CLIENT
COHEN DENVER AIRPORT, LLC

LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
CONSTRUCTION PLANS
STREET INTERSECTIONS

DATE 3/22/2021

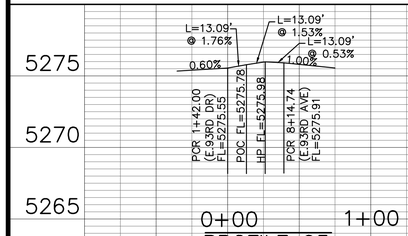
A	1st SUBMITTAL TO COMMERCE CITY	08/17/2020 – DJM
B	2nd SUBMITTAL TO COMMERCE CITY	03/15/2021 – DJM

REVISIONS

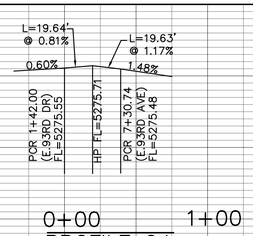
PLANS UNDER REVIEW NOT FOR CONSTRUCTION

DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 21

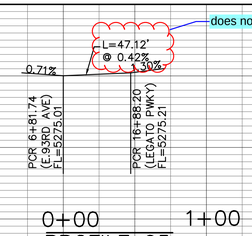
CAD FILE: 19002561-INTERSECTIONS.DWG



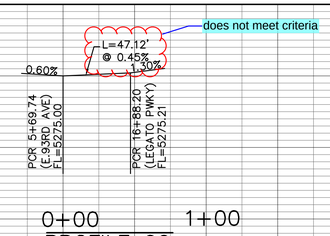
PROFILE 03
H: 1"=50'
V: 1"=5'



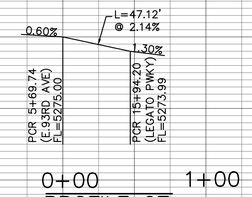
PROFILE 04
H: 1"=50'
V: 1"=5'



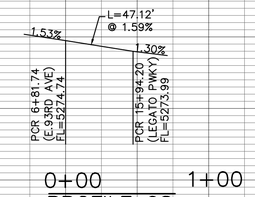
PROFILE 05
H: 1"=50'
V: 1"=5'



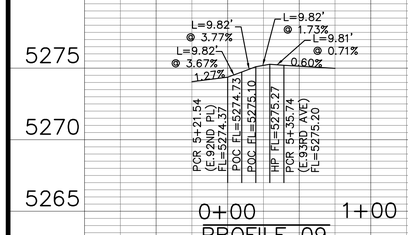
PROFILE 06
H: 1"=50'
V: 1"=5'



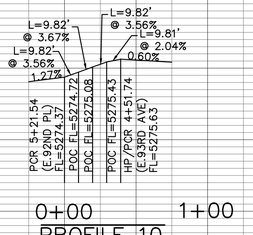
PROFILE 07
H: 1"=50'
V: 1"=5'



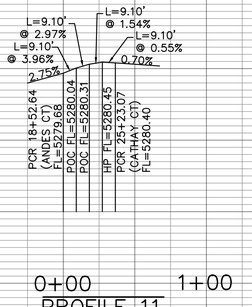
PROFILE 08
H: 1"=50'
V: 1"=5'



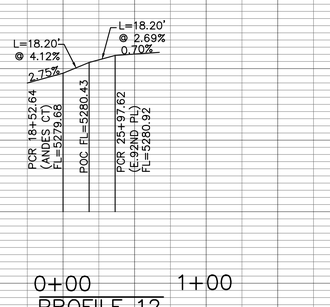
PROFILE 09
H: 1"=50'
V: 1"=5'



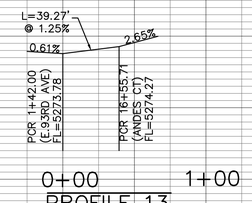
PROFILE 10
H: 1"=50'
V: 1"=5'



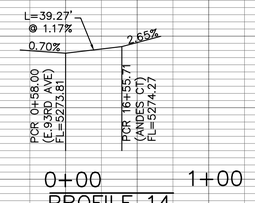
PROFILE 11
H: 1"=50'
V: 1"=5'



PROFILE 12
H: 1"=50'
V: 1"=5'



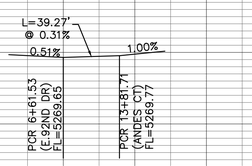
PROFILE 13
H: 1"=50'
V: 1"=5'



PROFILE 14
H: 1"=50'
V: 1"=5'

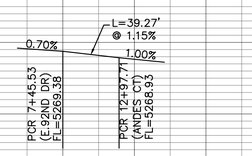
PROFILE 15
H: 1"=50'
V: 1"=5'

PROFILE 16
H: 1"=50'
V: 1"=5'

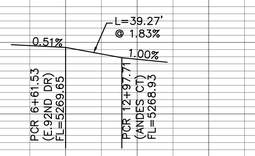


PROFILE 17
H: 1"=50'
V: 1"=5'

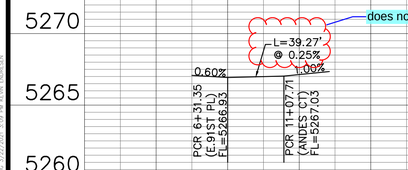
PROFILE 18
H: 1"=50'
V: 1"=5'



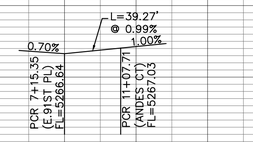
PROFILE 19
H: 1"=50'
V: 1"=5'



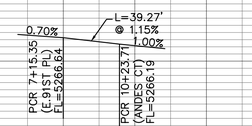
PROFILE 20
H: 1"=50'
V: 1"=5'



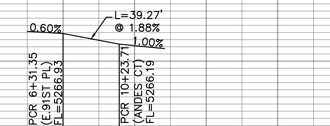
PROFILE 21
H: 1"=50'
V: 1"=5'



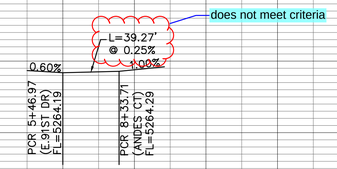
PROFILE 22
H: 1"=50'
V: 1"=5'



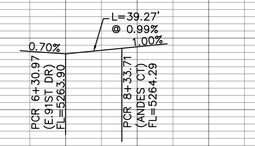
PROFILE 23
H: 1"=50'
V: 1"=5'



PROFILE 24
H: 1"=50'
V: 1"=5'



PROFILE 25
H: 1"=50'
V: 1"=5'



PROFILE 26
H: 1"=50'
V: 1"=5'

Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 S. QUEBEC STREET, SUITE 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

CLIENT

COHEN DENVER AIRPORT, LLC
LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
CONSTRUCTION PLANS
CURB RETURN PROFILES – 01

DATE 3/22/2021

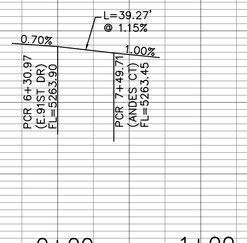
A	1st SUBMITTAL TO COMMERCE CITY	08/17/2020 – DJM
B	2nd SUBMITTAL TO COMMERCE CITY	03/15/2021 – DJM

REVISIONS

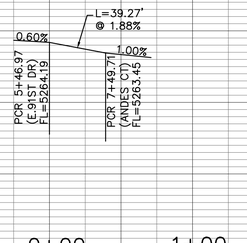
PLANS UNDER REVIEW
NOT FOR CONSTRUCTION

DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 22

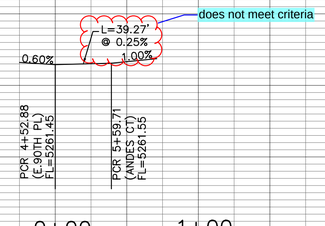
CAD FILE: 19002561-CURB-RETURN PROFILES.DWG



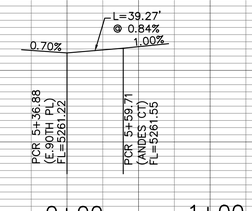
PROFILE 27
H: 1"=50'
V: 1"=5'



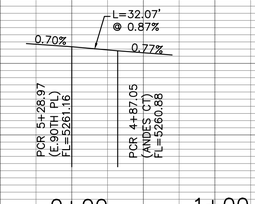
PROFILE 28
H: 1"=50'
V: 1"=5'



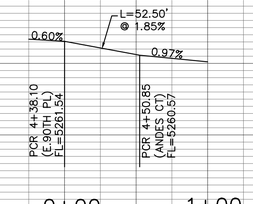
PROFILE 29
H: 1"=50'
V: 1"=5'



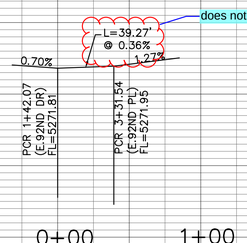
PROFILE 30
H: 1"=50'
V: 1"=5'



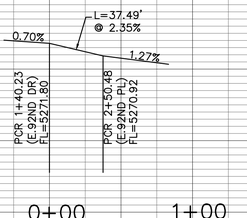
PROFILE 31
H: 1"=50'
V: 1"=5'



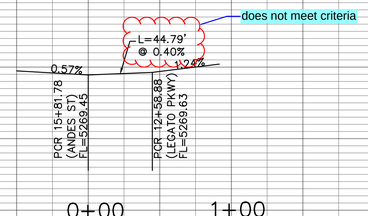
PROFILE 32
H: 1"=50'
V: 1"=5'



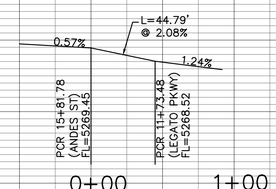
PROFILE 33
H: 1"=50'
V: 1"=5'



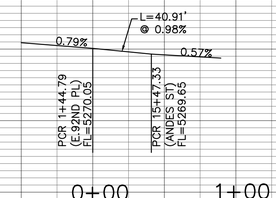
PROFILE 34
H: 1"=50'
V: 1"=5'



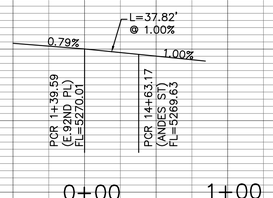
PROFILE 35
H: 1"=50'
V: 1"=5'



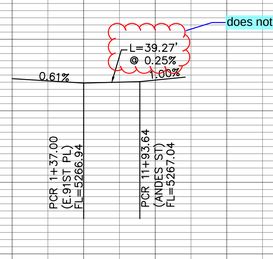
PROFILE 36
H: 1"=50'
V: 1"=5'



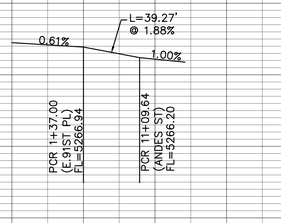
PROFILE 37
H: 1"=50'
V: 1"=5'



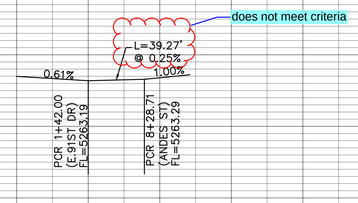
PROFILE 38
H: 1"=50'
V: 1"=5'



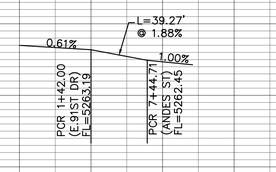
PROFILE 39
H: 1"=50'
V: 1"=5'



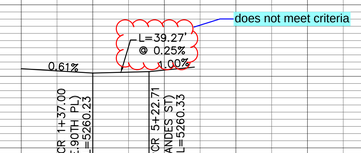
PROFILE 40
H: 1"=50'
V: 1"=5'



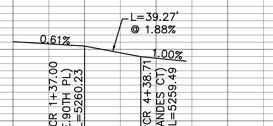
PROFILE 41
H: 1"=50'
V: 1"=5'



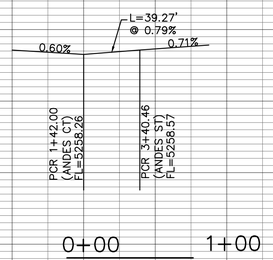
PROFILE 42
H: 1"=50'
V: 1"=5'



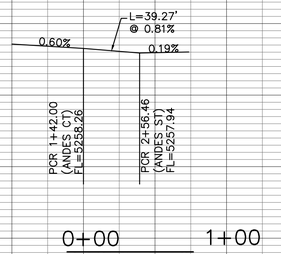
PROFILE 43
H: 1"=50'
V: 1"=5'



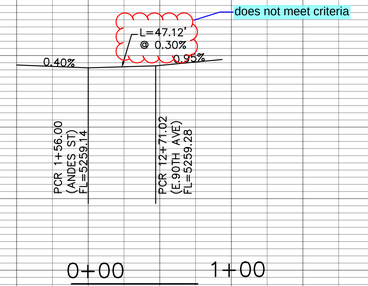
PROFILE 44
H: 1"=50'
V: 1"=5'



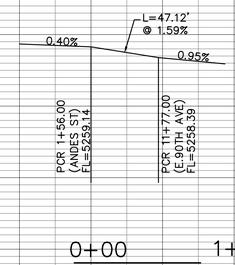
PROFILE 45
H: 1"=50'
V: 1"=5'



PROFILE 46
H: 1"=50'
V: 1"=5'



PROFILE 47
H: 1"=50'
V: 1"=5'



PROFILE 48
H: 1"=50'
V: 1"=5'

811 Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 S. QUEBEC STREET CIRCLE, SUITE 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

CLIENT
COHEN DENVER AIRPORT, LLC

LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
CONSTRUCTION PLANS
CURB RETURN PROFILES – 02

DATE 3/22/2021

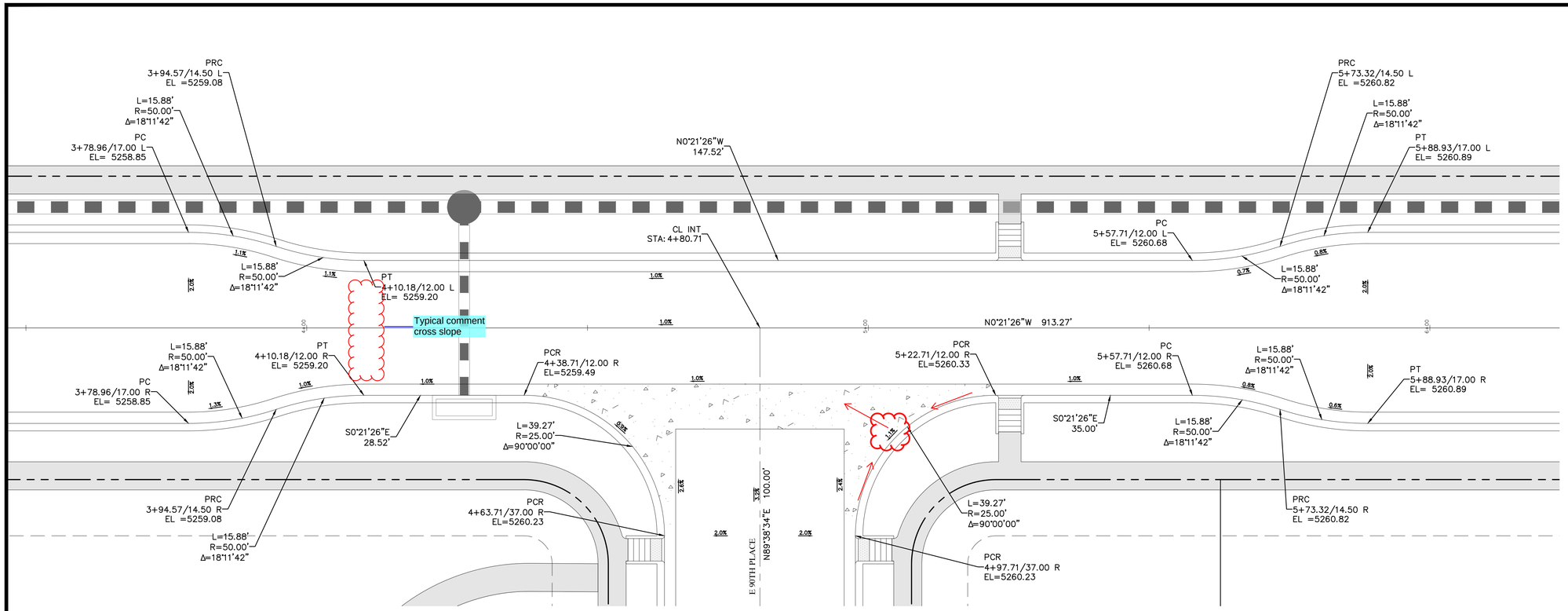
A	1st SUBMITTAL TO COMMERCE CITY	08/17/2020 – DJM
B	2nd SUBMITTAL TO COMMERCE CITY	03/15/2021 – DJM

REVISIONS

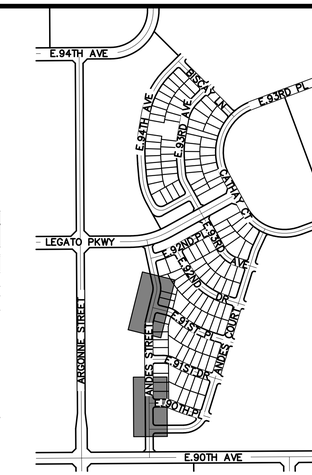
PLANS UNDER REVIEW NOT FOR CONSTRUCTION

DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 23

CAD FILE: 19002561-CURB-RETURN PROFILES.DWG

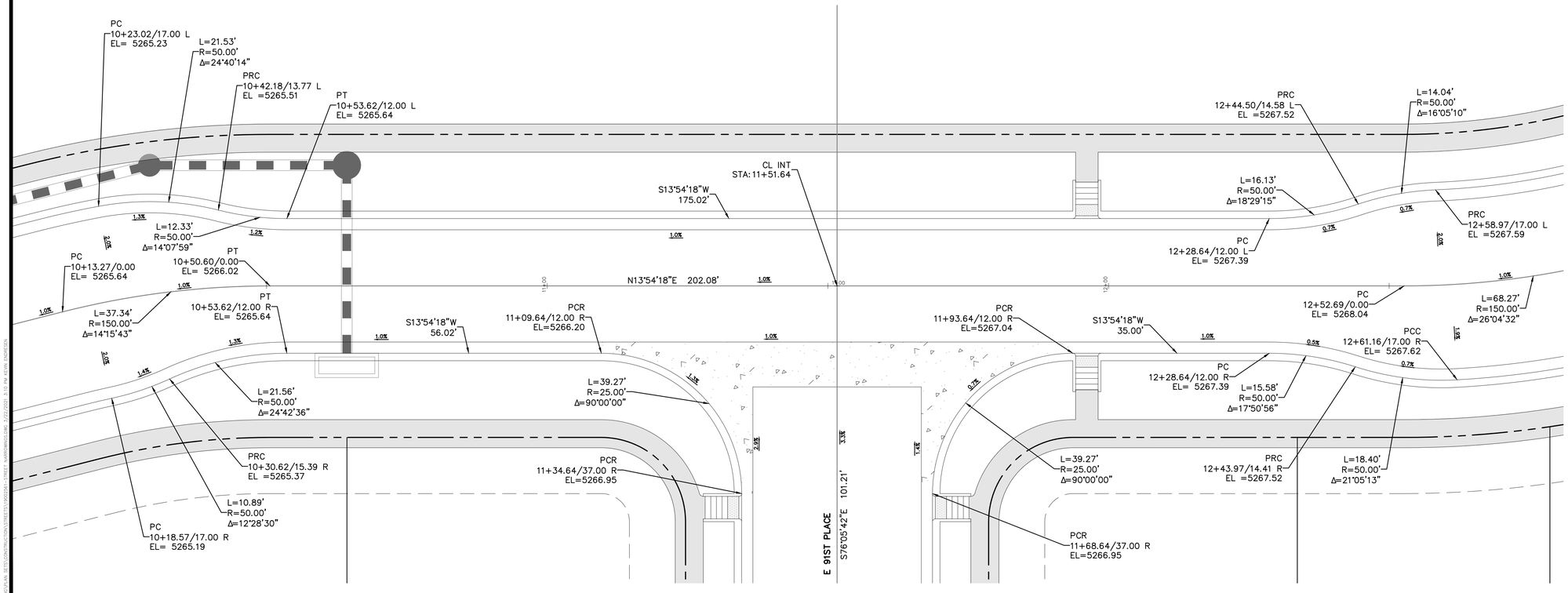


ANDES STREET



KEY MAP
SCALE: 1"=500'

(IN FEET)
1 inch = 10 ft.



ANDES STREET

(IN FEET)
1 inch = 10 ft.

Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 S. QUEBEC STREET, SUITE 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

CLIENT
COHEN DENVER AIRPORT, LLC

LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
CONSTRUCTION PLANS
CURB RETURNS
TRAFFIC CALMING

DATE 3/22/2021

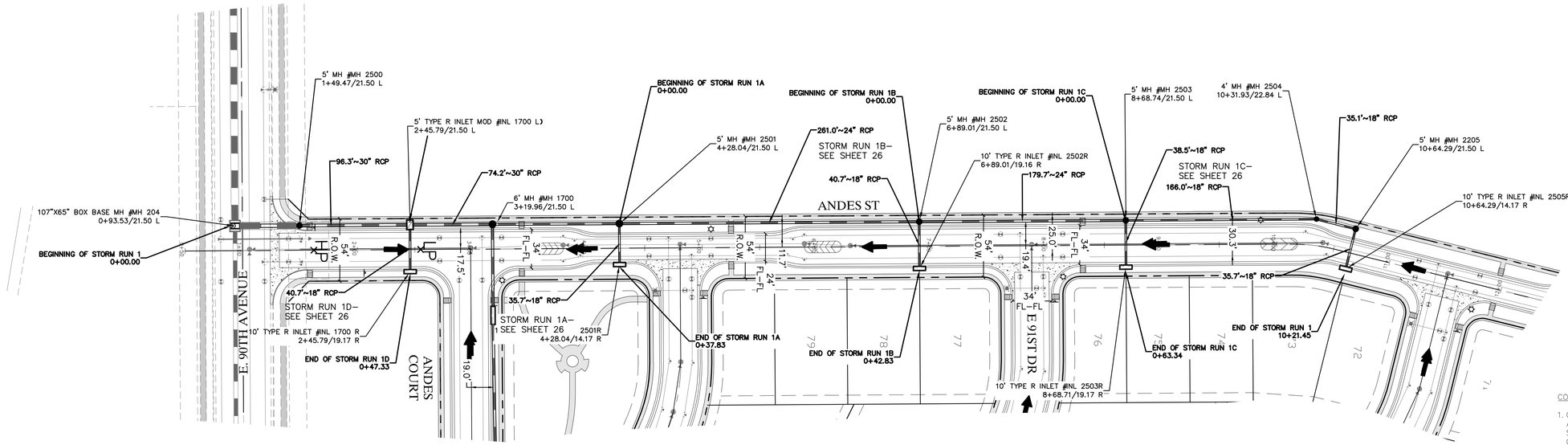
A	1st SUBMITTAL TO COMMERCE CITY 08/17/2020 – DJM
B	2ND SUBMITTAL TO COMMERCE CITY 03/15/2021 – DJM

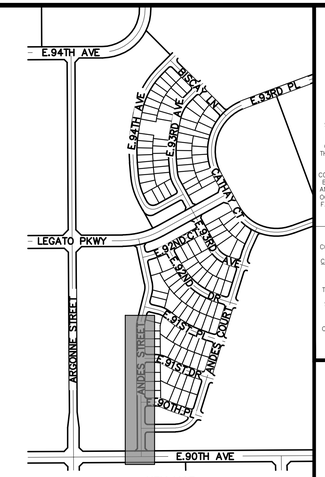
REVISIONS

PLANS UNDER REVIEW NOT FOR CONSTRUCTION

DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 24

CAD FILE: 19002561-STREET NARROWINGS.DWG





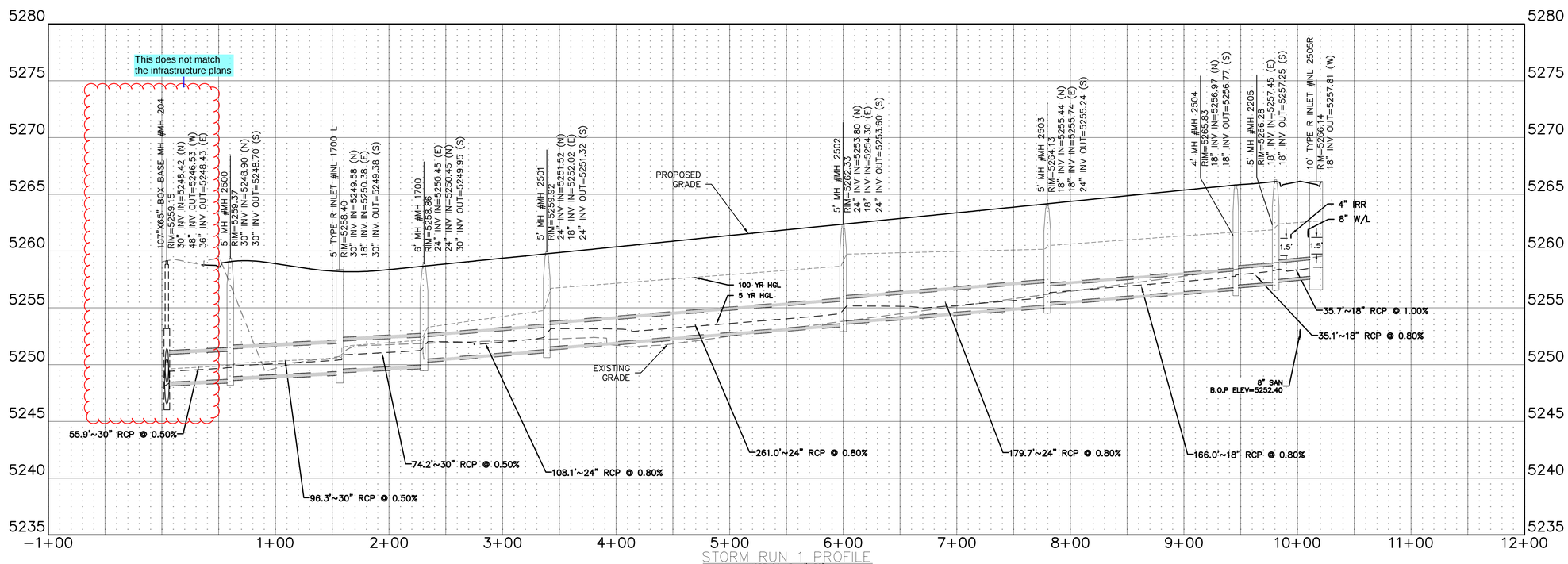
KEY MAP
SCALE: 1"=500'

CONSTRUCTION NOTES

1. CONTRACTOR SHALL VERIFY THE LOCATION AND ELEVATION OF ALL STORM SEWER STUBS FROM THE LEGATO WEST STREET & STORM CONSTRUCTION DRAWINGS AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES FROM THE INFORMATION SHOW ON THESE PLANS.
2. CONTRACTOR TO MAINTAIN A MINIMUM LONGITUNDINAL GRADE OF 0.5%, AT FLOWLINE, FOR ALL SUMP INLETS.
3. CONTRACTOR MUST SUBMIT SHOP DRAWINGS TO ENGINEER OF RECORD FOR APPROVAL PRIOR TO CONSTRUCTION OF ALL STORM SEWER BOX BASED MANHOLES.
4. RIM ELEVATIONS ON INLETS ARE TOP BACK OF CURB, UNLESS OTHERWISE NOTED.
5. STATIONING FOR THE STORM SEWER MAINS ARE BASED ON THE CENTERLINE OF THE ROAD. REFERENCE THE ROADWAY PLAN & PROFILE SHEETS FOR CENTERLINE LAYOUT.
6. THE STATION AND OFFSET FOR THE STORM SEWER STRUCTURES IS TO CENTER OF THE MANHOLE AND THE MIDPOINT OF INLETS AT THE FLOWLINE.

STORM RUN 1

50 0 50 100
(IN FEET)
1 inch = 50 ft. (Horz)
1 inch = 5 ft. (Vert)



STORM RUN 1 PROFILE
HORZ SCALE: 1"=50'
VERT SCALE: 1"=5'

811 Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 SOUTH SYRACUSE WAY, STE. 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

CLIENT: COHEN DENVER AIRPORT, LLC

LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
CONSTRUCTION PLANS
STORM PLAN & PROFILES
STORM RUN 1

DATE 3/22/2021

A	1ST SUBMITTAL TO COMMERCE CITY	08/17/2020 – DJM
B	2ND SUBMITTAL TO COMMERCE CITY	03/15/2021 – DJM

REVISIONS

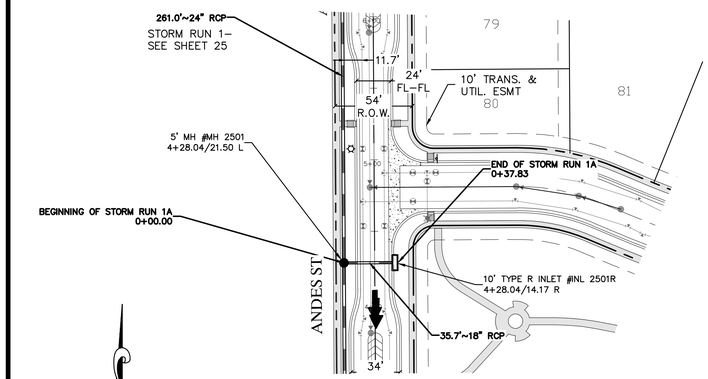
PLANS UNDER REVIEW NOT FOR CONSTRUCTION

DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 25

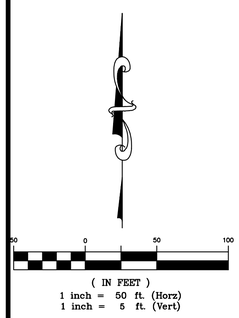
CAD FILE: 19002561-STORM RUN 1.DWG

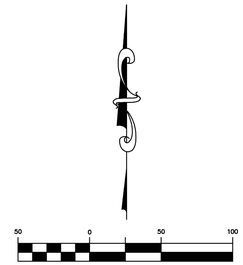
CONSTRUCTION NOTES

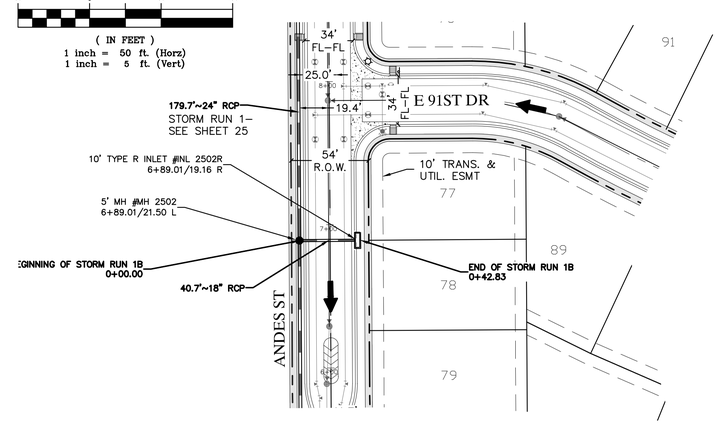
1. CONTRACTOR SHALL VERIFY THE LOCATION AND ELEVATION OF ALL STORM SEWER STUBS FROM THE LEGATO WEST STREET & STORM CONSTRUCTION DRAWINGS AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES FROM THE INFORMATION SHOW ON THESE PLANS.
2. CONTRACTOR TO MAINTAIN A MINIMUM LONGITUNDINAL GRADE OF 0.5%, AT FLOWLINE, FOR ALL SUMP INLETS.
3. CONTRACTOR MUST SUBMIT SHOP DRAWINGS TO ENGINEER OF RECORD FOR APPROVAL PRIOR TO CONSTRUCTION OF ALL STORM SEWER BOX BASED MANHOLES.
4. RIM ELEVATIONS ON INLETS ARE TOP BACK OF CURB, UNLESS OTHERWISE NOTED.
5. STATIONING FOR THE STORM SEWER MAINS ARE BASED ON THE CENTERLINE OF THE ROAD. REFERENCE THE ROADWAY PLAN & PROFILE SHEETS FOR CENTERLINE LAYOUT.
6. THE STATION AND OFFSET FOR THE STORM SEWER STRUCTURES IS TO CENTER OF THE MANHOLE AND THE MIDPOINT OF INLETS AT THE FLOWLINE.



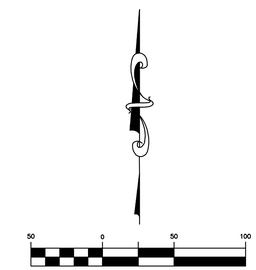
STORM RUN 1A

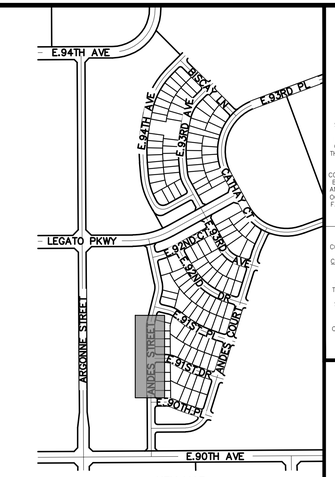




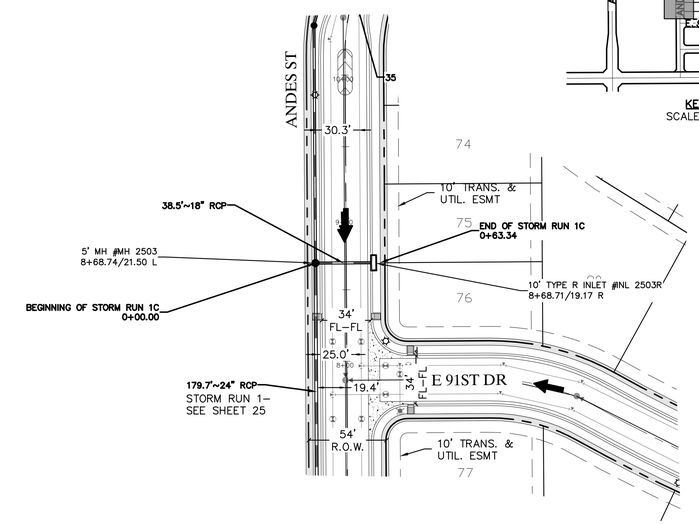


STORM RUN 1B

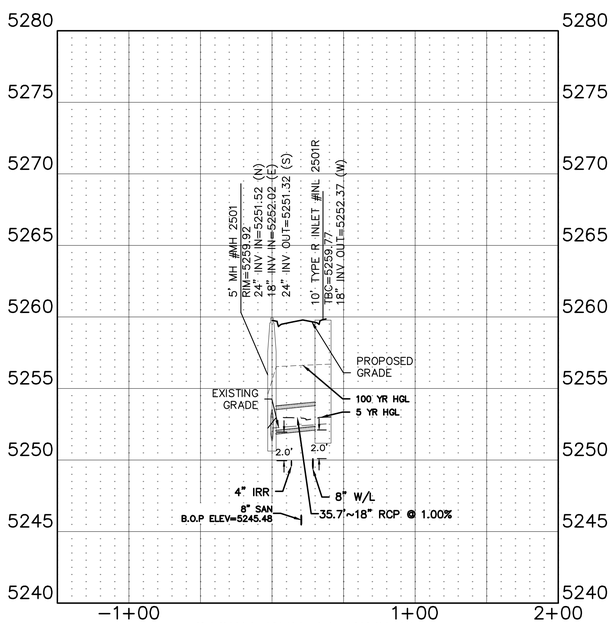




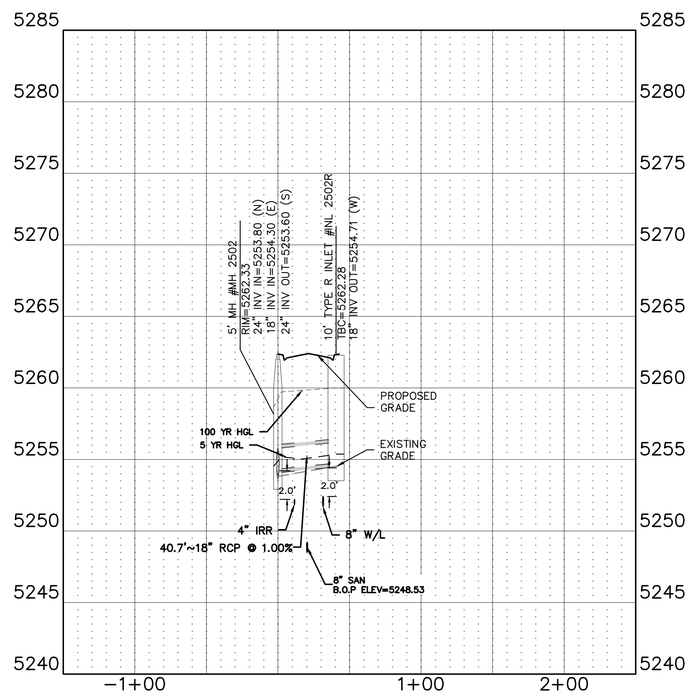
KEY MAP
SCALE: 1"=500'



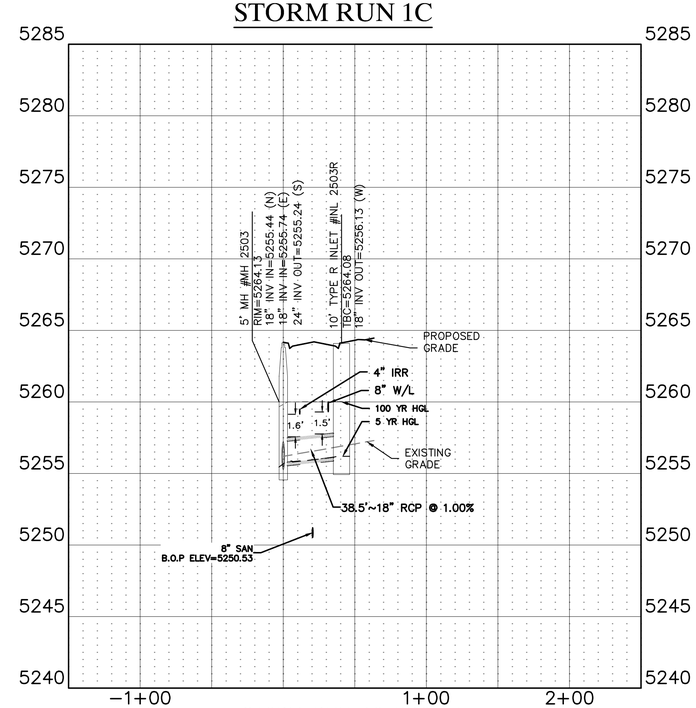
STORM RUN 1C



STORM RUN 1A PROFILE
HORZ SCALE: 1"=50'
VERT SCALE: 1"=5'



STORM RUN 1B PROFILE
HORZ SCALE: 1"=50'
VERT SCALE: 1"=5'



STORM RUN 1C PROFILE
HORZ SCALE: 1"=50'
VERT SCALE: 1"=5'

811 Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 SOUTH SYRACUSE WAY, SUITE 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

CLIENT
COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355–1400
BRAD BURNS

COHEN DENVER AIRPORT, LLC
LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
CONSTRUCTION PLANS
STORM PLAN & PROFILES
STORM RUN 1A 1B 1C

DATE 3/22/2021

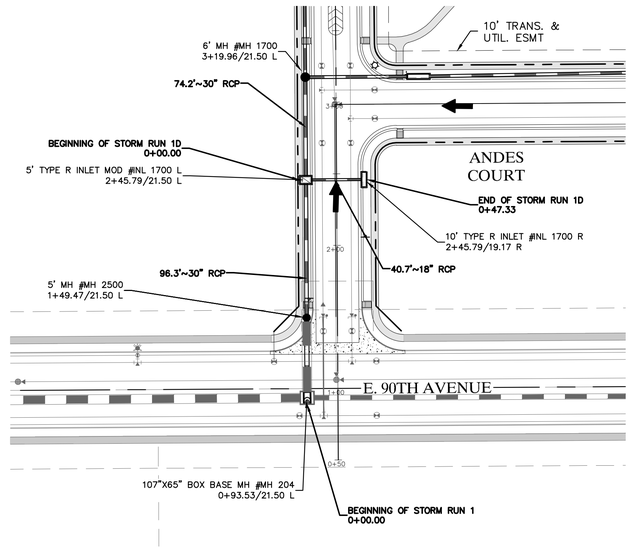
A	1st SUBMITTAL TO COMMERCE CITY	08/17/2020 – DJM
B	2nd SUBMITTAL TO COMMERCE CITY	03/15/2021 – DJM

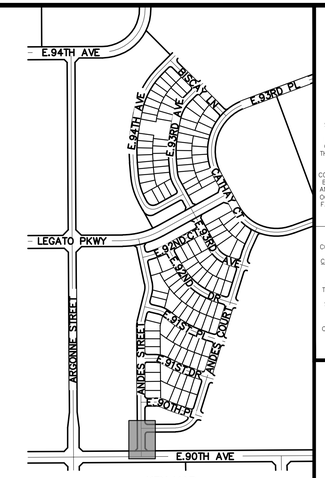
REVISIONS

PLANS UNDER REVIEW NOT FOR CONSTRUCTION

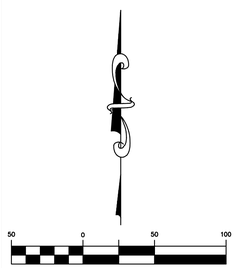
DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 26

CAD FILE: 19002561-STORM RUN 1.DWG



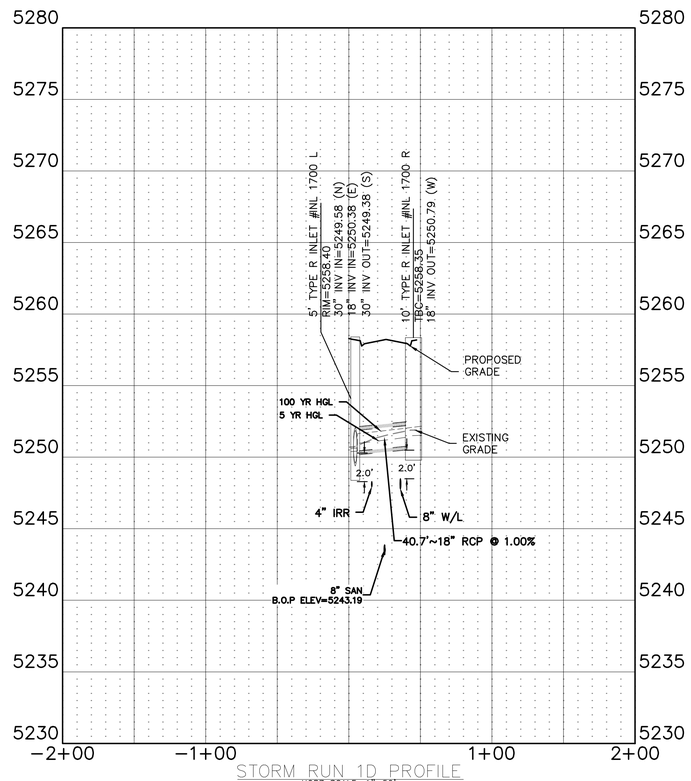


KEY MAP
SCALE: 1"=500'



(IN FEET)
1 inch = 50 ft. (Horz)
1 inch = 5 ft. (Vert)

STORM RUN 1D



STORM RUN 1D PROFILE
HORZ SCALE: 1"=50'
VERT SCALE: 1"=5'

CONSTRUCTION NOTES

1. CONTRACTOR SHALL VERIFY THE LOCATION AND ELEVATION OF ALL STORM SEWER STUBS FROM THE LEGATO WEST STREET & STORM CONSTRUCTION DRAWINGS AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES FROM THE INFORMATION SHOW ON THESE PLANS.
2. CONTRACTOR TO MAINTAIN A MINIMUM LONGITUNDINAL GRADE OF 0.5%, AT FLOWLINE, FOR ALL SUMP INLETS.
3. CONTRACTOR MUST SUBMIT SHOP DRAWINGS TO ENGINEER OF RECORD FOR APPROVAL PRIOR TO CONSTRUCTION OF ALL STORM SEWER BOX BASED MANHOLES.
4. RIM ELEVATIONS ON INLETS ARE TOP BACK OF CURB, UNLESS OTHERWISE NOTED.
5. STATIONING FOR THE STORM SEWER MAINS ARE BASED ON THE CENTERLINE OF THE ROAD. REFERENCE THE ROADWAY PLAN & PROFILE SHEETS FOR CENTERLINE LAYOUT.
6. THE STATION AND OFFSET FOR THE STORM SEWER STRUCTURES IS TO CENTER OF THE MANHOLE AND THE MIDPOINT OF INLETS AT THE FLOWLINE.

811 Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 SOUTH SYRACUSE WAY, SUITE 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

CLIENT: COHEN DENVER AIRPORT, LLC

LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
CONSTRUCTION PLANS
STORM PLAN & PROFILES
STORM RUN 1D

DATE 3/22/2021

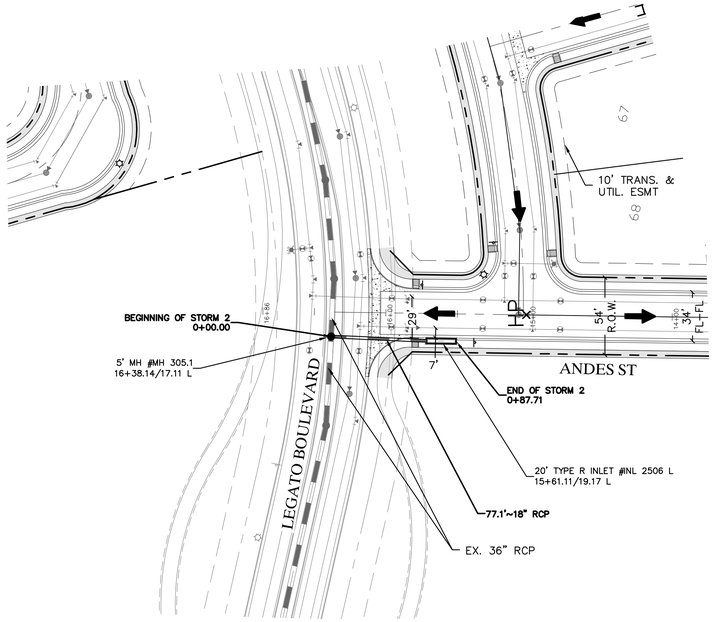
A	1st SUBMITTAL TO COMMERCE CITY	08/17/2020 – DJM
B	2nd SUBMITTAL TO COMMERCE CITY	03/15/2021 – DJM

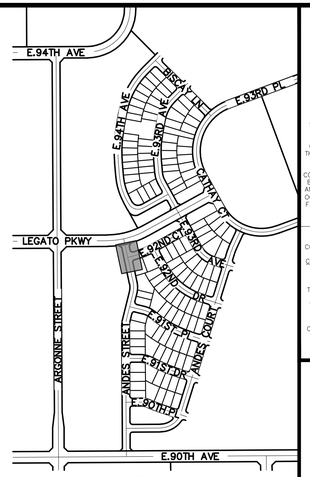
REVISIONS

PLANS UNDER REVIEW NOT FOR CONSTRUCTION

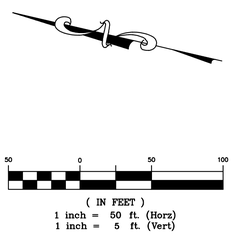
DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 27

CAD FILE: 19002561-STORM RUN 1.DWG

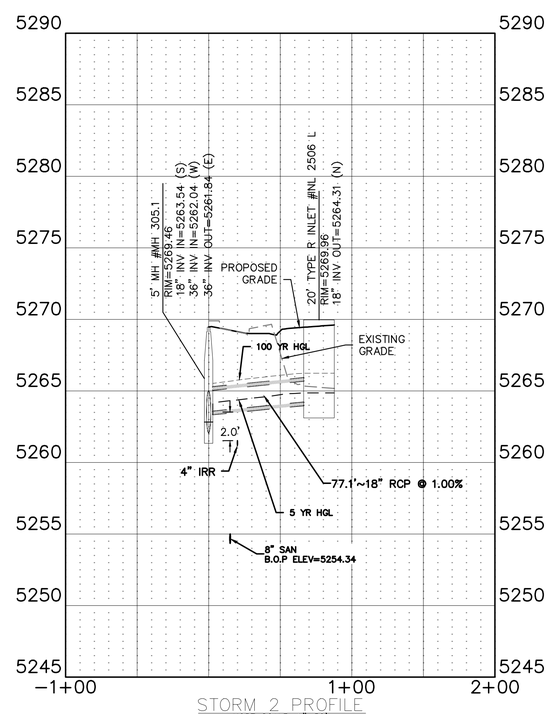




KEY MAP
SCALE: 1"=500'



STORM RUN 2



STORM 2 PROFILE
HORZ SCALE: 1"=50'
VERT SCALE: 1"=5'

CONSTRUCTION NOTES

1. CONTRACTOR SHALL VERIFY THE LOCATION AND ELEVATION OF ALL STORM SEWER STUBS FROM THE LEGATO WEST STREET & STORM CONSTRUCTION DRAWINGS AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES FROM THE INFORMATION SHOW ON THESE PLANS.
2. CONTRACTOR TO MAINTAIN A MINIMUM LONGITUNDINAL GRADE OF 0.5%, AT FLOWLINE, FOR ALL SUMP INLETS.
3. CONTRACTOR MUST SUBMIT SHOP DRAWINGS TO ENGINEER OF RECORD FOR APPROVAL PRIOR TO CONSTRUCTION OF ALL STORM SEWER BOX BASED MANHOLES.
4. RIM ELEVATIONS ON INLETS ARE TOP BACK OF CURB, UNLESS OTHERWISE NOTED.
5. STATIONING FOR THE STORM SEWER MAINS ARE BASED ON THE CENTERLINE OF THE ROAD. REFERENCE THE ROADWAY PLAN & PROFILE SHEETS FOR CENTERLINE LAYOUT.
6. THE STATION AND OFFSET FOR THE STORM SEWER STRUCTURES IS TO CENTER OF THE MANHOLE AND THE MIDPOINT OF INLETS AT THE FLOWLINE.

811 Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 SOUTH SYRACUSE WAY, STE. 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

CLIENT: COHEN DENVER AIRPORT, LLC
LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
CONSTRUCTION PLANS
STORM PLAN & PROFILES
STORM RUN 2

DATE 3/22/2021

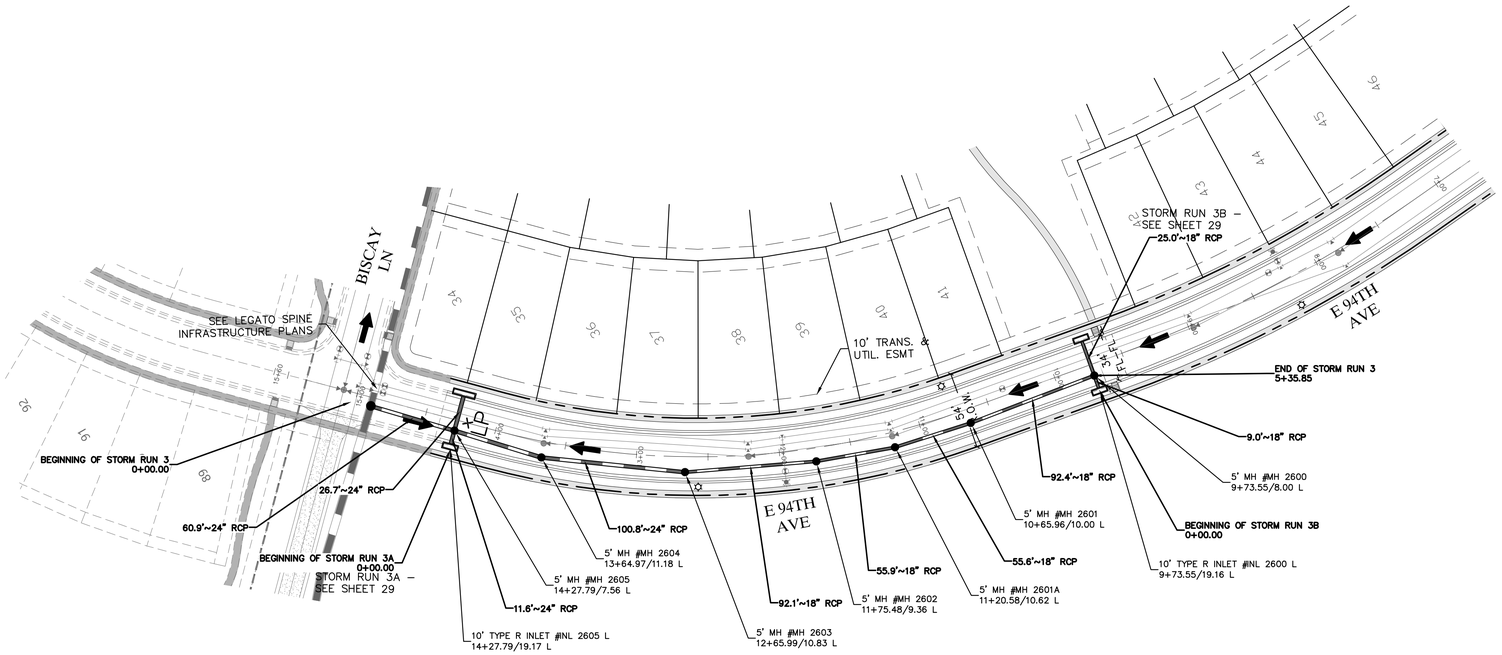
A	1st SUBMITTAL TO COMMERCE CITY	08/17/2020 — DJM
B	2ND SUBMITTAL TO COMMERCE CITY	03/15/2021 — DJM

REVISIONS

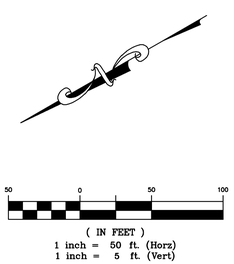
PLANS UNDER REVIEW NOT FOR CONSTRUCTION

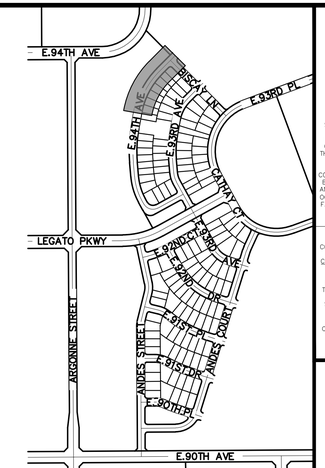
DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 28

CAD FILE: 19002561-STORM RUN 2.DWG



STORM RUN 3

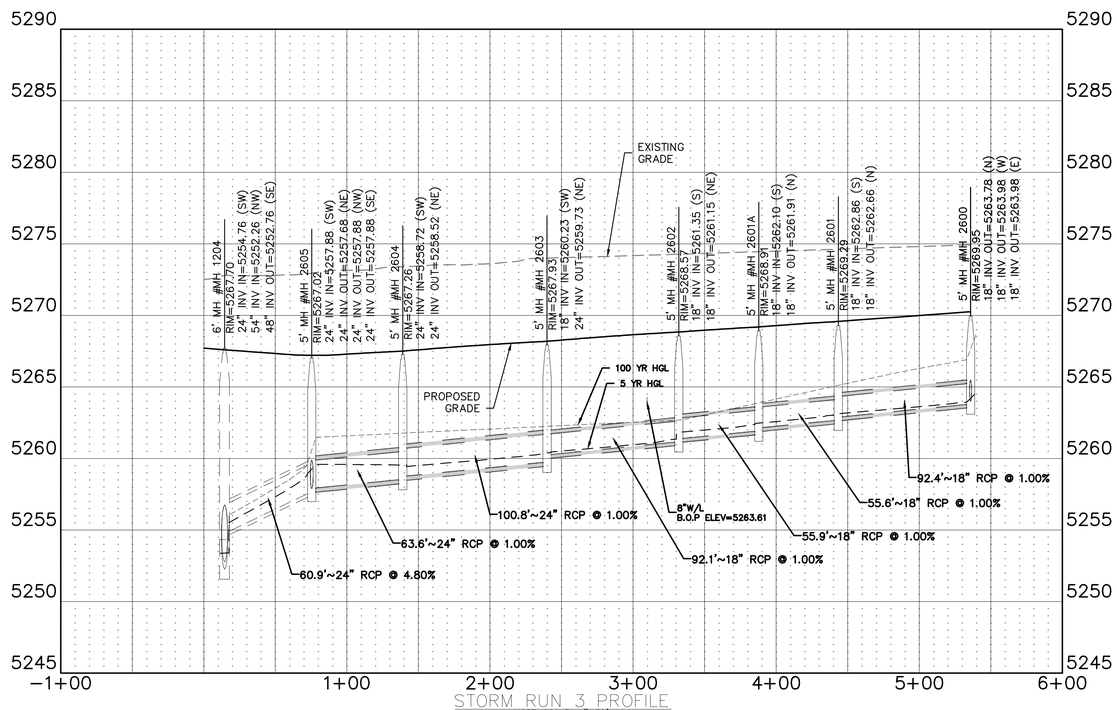




KEY MAP
SCALE: 1"=500'

CONSTRUCTION NOTES

1. CONTRACTOR SHALL VERIFY THE LOCATION AND ELEVATION OF ALL STORM SEWER STUBS FROM THE LEGATO WEST STREET & STORM CONSTRUCTION DRAWINGS AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES FROM THE INFORMATION SHOW ON THESE PLANS.
2. CONTRACTOR TO MAINTAIN A MINIMUM LONGITUNDINAL GRADE OF 0.5% AT FLOWLINE, FOR ALL SUMP INLETS.
3. CONTRACTOR MUST SUBMIT SHOP DRAWINGS TO ENGINEER OF RECORD FOR APPROVAL PRIOR TO CONSTRUCTION OF ALL STORM SEWER BOX BASED MANHOLES.
4. RIM ELEVATIONS ON INLETS ARE TOP BACK OF CURB, UNLESS OTHERWISE NOTED.
5. STATIONING FOR THE STORM SEWER MAINS ARE BASED ON THE CENTERLINE OF THE ROAD. REFERENCE THE ROADWAY PLAN & PROFILE SHEETS FOR CENTERLINE LAYOUT.
6. THE STATION AND OFFSET FOR THE STORM SEWER STRUCTURES IS TO CENTER OF THE MANHOLE AND THE MIDPOINT OF INLETS AT THE FLOWLINE.



STORM RUN 3 PROFILE
HORZ SCALE: 1"=50'
VERT SCALE: 1"=5'

811 Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 SOUTH SYRACUSE WAY, SUITE 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

CLIENT: COHEN DENVER AIRPORT, LLC

LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
CONSTRUCTION PLANS
STORM PLAN & PROFILES
STORM RUN 3

DATE 3/22/2021

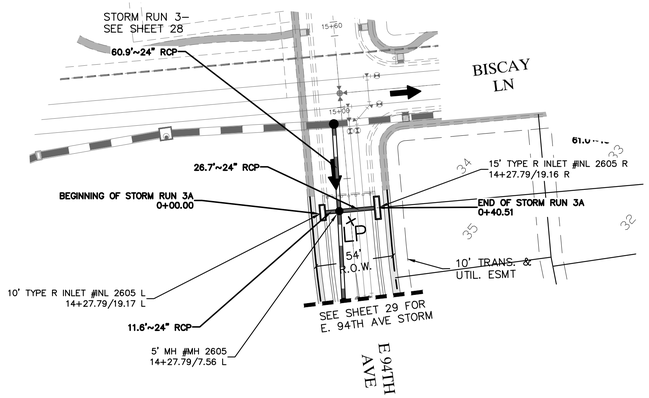
A	1ST SUBMITTAL TO COMMERCE CITY	08/17/2020 – DJM
B	2ND SUBMITTAL TO COMMERCE CITY	03/15/2021 – DJM

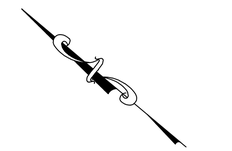
REVISIONS

PLANS UNDER REVIEW NOT FOR CONSTRUCTION

DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 29

CAD FILE: 19002561-STORM RUN 3.DWG

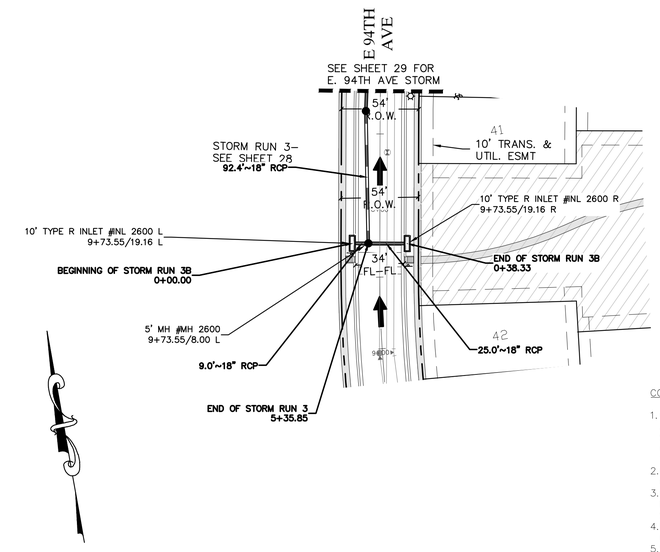




50 0 50 100

(IN FEET)
1 inch = 50 ft. (Horz)
1 inch = 5 ft. (Vert)

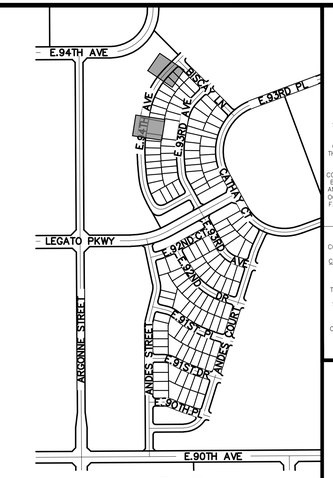
STORM RUN 3A



50 0 50 100

(IN FEET)
1 inch = 50 ft. (Horz)
1 inch = 5 ft. (Vert)

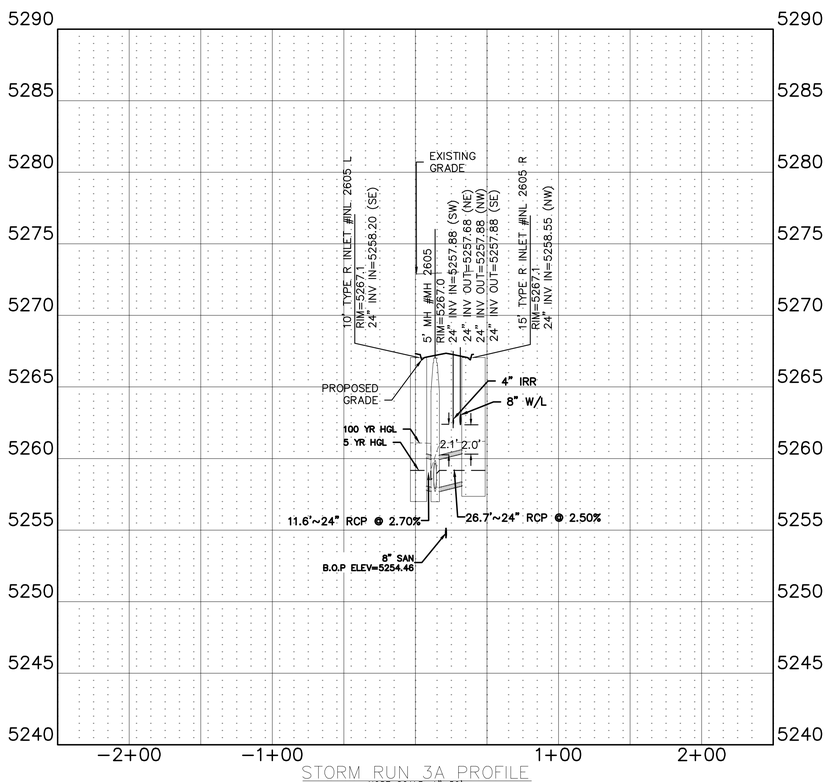
STORM RUN 3B



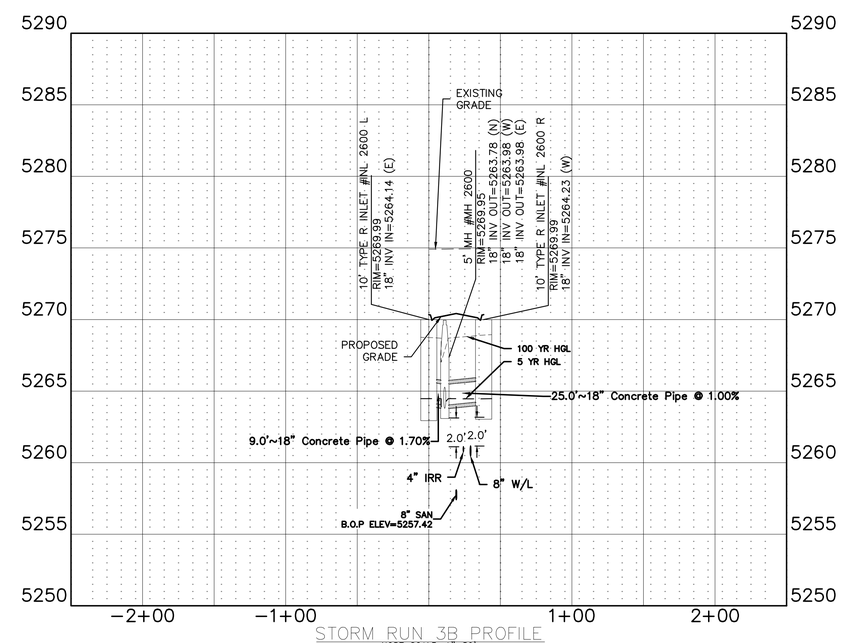
KEY MAP
SCALE: 1"=500'

CONSTRUCTION NOTES

1. CONTRACTOR SHALL VERIFY THE LOCATION AND ELEVATION OF ALL STORM SEWER STUBS FROM THE LEGATO WEST STREET & STORM CONSTRUCTION DRAWINGS AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES FROM THE INFORMATION SHOW ON THESE PLANS.
2. CONTRACTOR TO MAINTAIN A MINIMUM LONGITUNDINAL GRADE OF 0.5%, AT FLOWLINE, FOR ALL SUMP INLETS.
3. CONTRACTOR MUST SUBMIT SHOP DRAWINGS TO ENGINEER OF RECORD FOR APPROVAL PRIOR TO CONSTRUCTION OF ALL STORM SEWER BOX BASED MANHOLES.
4. RIM ELEVATIONS ON INLETS ARE TOP BACK OF CURB, UNLESS OTHERWISE NOTED.
5. STATIONING FOR THE STORM SEWER MAINS ARE BASED ON THE CENTERLINE OF THE ROAD. REFERENCE THE ROADWAY PLAN & PROFILE SHEETS FOR CENTERLINE LAYOUT.
6. THE STATION AND OFFSET FOR THE STORM SEWER STRUCTURES IS TO CENTER OF THE MANHOLE AND THE MIDPOINT OF INLETS AT THE FLOWLINE.



STORM RUN 3A PROFILE
HORZ SCALE: 1"=50'
VERT SCALE: 1"=5'



STORM RUN 3B PROFILE
HORZ SCALE: 1"=50'
VERT SCALE: 1"=5'

811
Know what's below.
Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 SOUTH SYRACUSE WAY, SUITE 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355–1400
BRAD BURNS

CLIENT: COHEN DENVER AIRPORT, LLC

LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
CONSTRUCTION PLANS
STORM PLAN & PROFILES
STORM RUN 3A 3B

DATE 3/22/2021

A	1st SUBMITTAL TO COMMERCE CITY	08/17/2020 – DJM
B	2nd SUBMITTAL TO COMMERCE CITY	03/15/2021 – DJM

REVISIONS

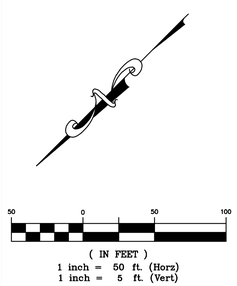
PLANS UNDER REVIEW NOT FOR CONSTRUCTION
DJM, P.E.

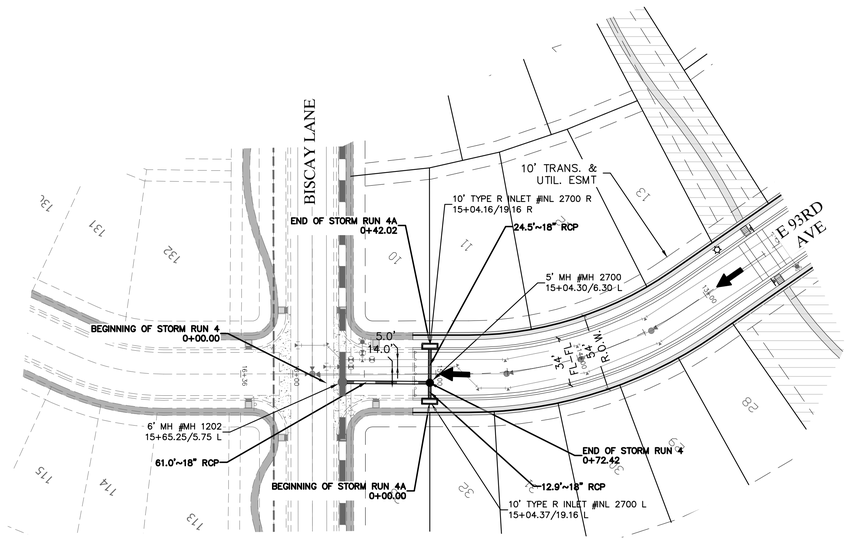
DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 30

CAD FILE: 19002561-STORM RUN 3.DWG

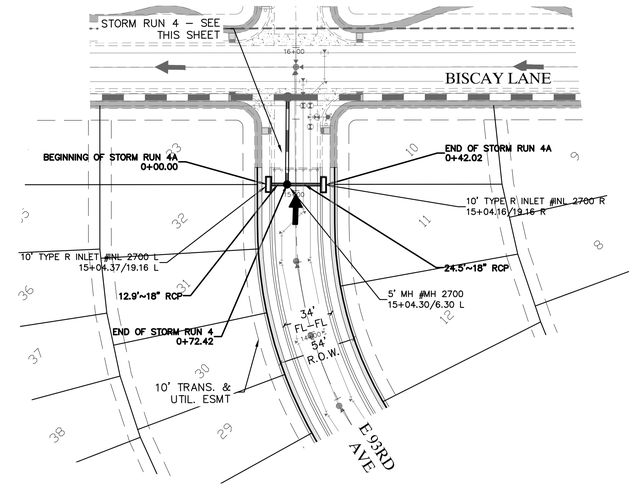
CONSTRUCTION NOTES

1. CONTRACTOR SHALL VERIFY THE LOCATION AND ELEVATION OF ALL STORM SEWER STUBS FROM THE LEGATO WEST STREET & STORM CONSTRUCTION DRAWINGS AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES FROM THE INFORMATION SHOW ON THESE PLANS.
2. CONTRACTOR TO MAINTAIN A MINIMUM LONGITUNDINAL GRADE OF 0.5%, AT FLOWLINE, FOR ALL SUMP INLETS.
3. CONTRACTOR MUST SUBMIT SHOP DRAWINGS TO ENGINEER OF RECORD FOR APPROVAL PRIOR TO CONSTRUCTION OF ALL STORM SEWER BOX BASED MANHOLES.
4. RIM ELEVATIONS ON INLETS ARE TOP BACK OF CURB, UNLESS OTHERWISE NOTED.
5. STATIONING FOR THE STORM SEWER MAINS ARE BASED ON THE CENTERLINE OF THE ROAD. REFERENCE THE ROADWAY PLAN & PROFILE SHEETS FOR CENTERLINE LAYOUT.
6. THE STATION AND OFFSET FOR THE STORM SEWER STRUCTURES IS TO CENTER OF THE MANHOLE AND THE MIDPOINT OF INLETS AT THE FLOWLINE.

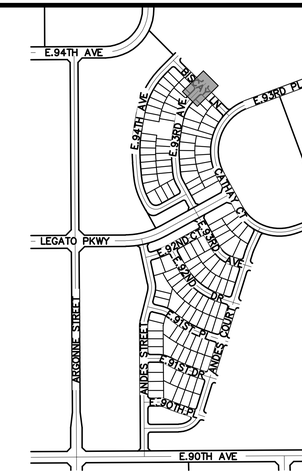




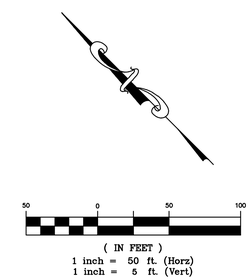
STORM RUN 4

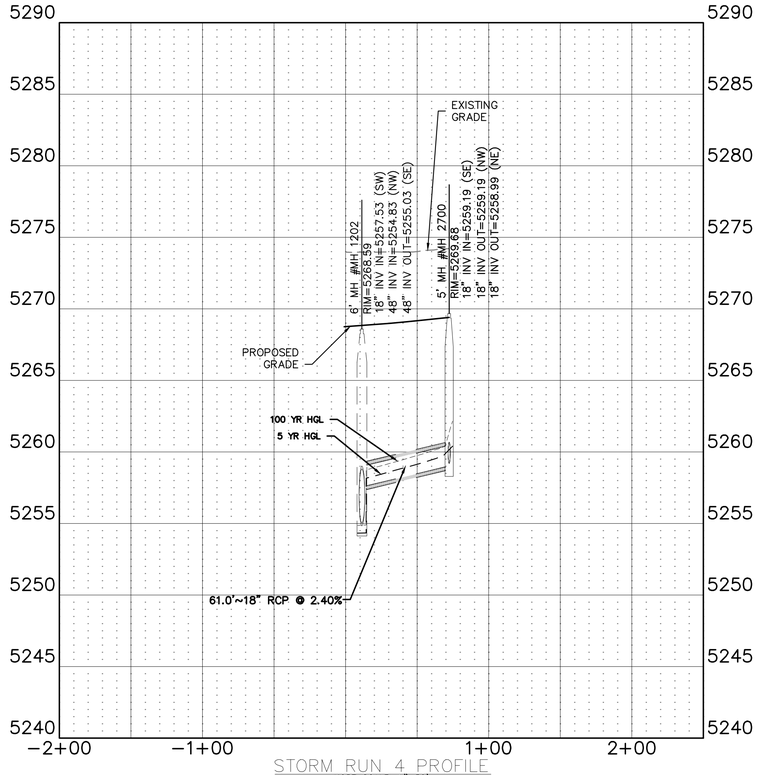


STORM RUN 4A

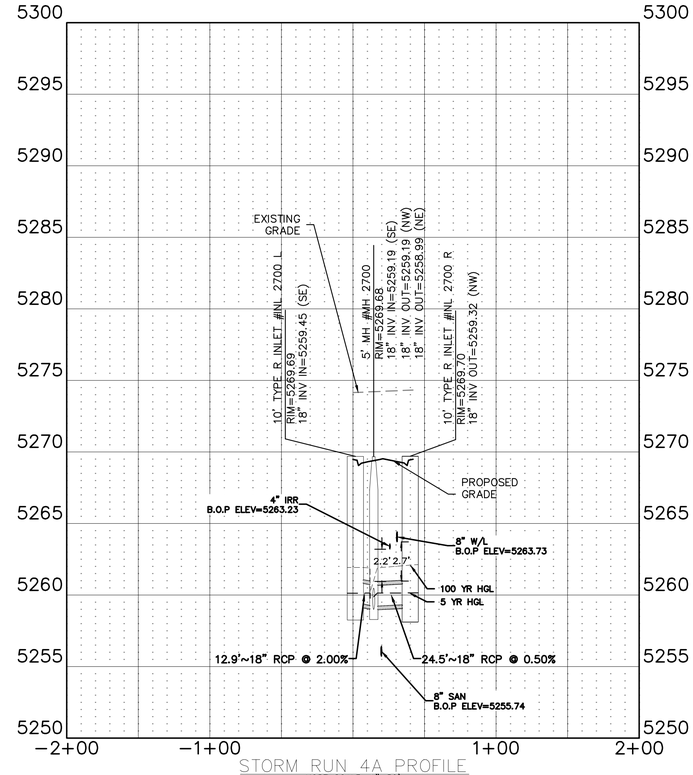


KEY MAP
SCALE: 1"=500'





STORM RUN 4 PROFILE
HORZ SCALE: 1"=50'
VERT SCALE: 1"=5'



STORM RUN 4A PROFILE
HORZ SCALE: 1"=50'
VERT SCALE: 1"=5'

811 Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 SOUTH SYRACUSE WAY, STE. 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

CLIENT: COHEN DENVER AIRPORT, LLC

LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
CONSTRUCTION PLANS
STORM PLAN & PROFILES
STORM RUN 4 4A

DATE 3/22/2021

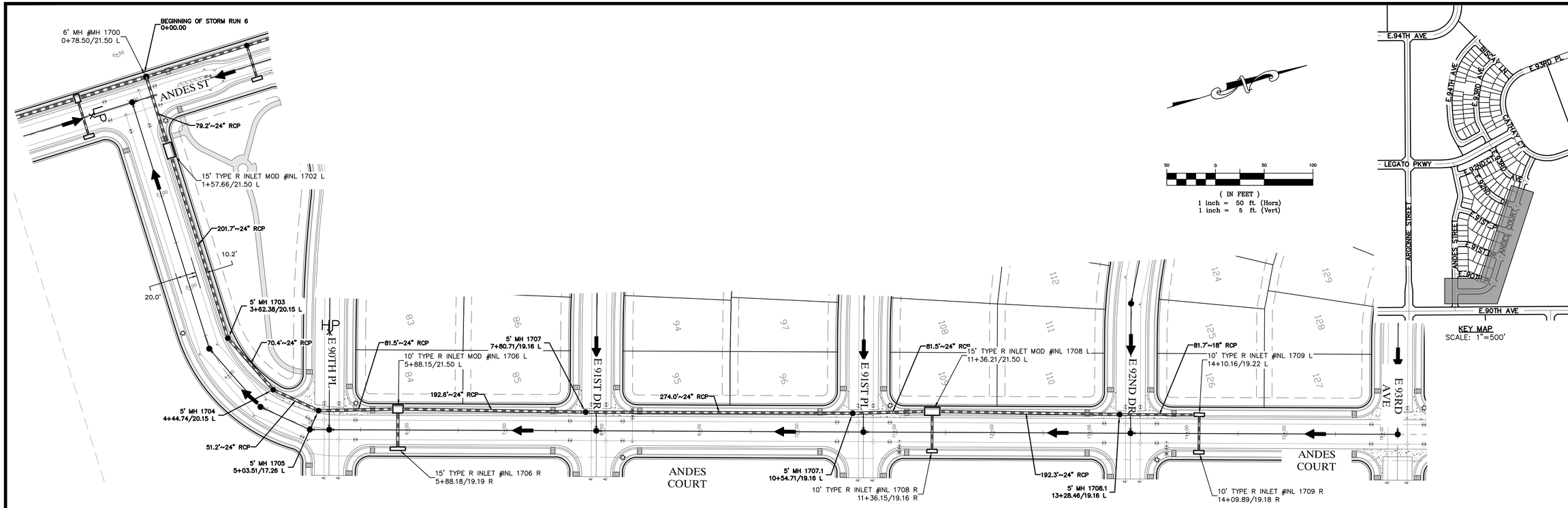
A	1st SUBMITTAL TO COMMERCE CITY 08/17/2020 – DJM
B	2ND SUBMITTAL TO COMMERCE CITY 03/15/2021 – DJM

REVISIONS

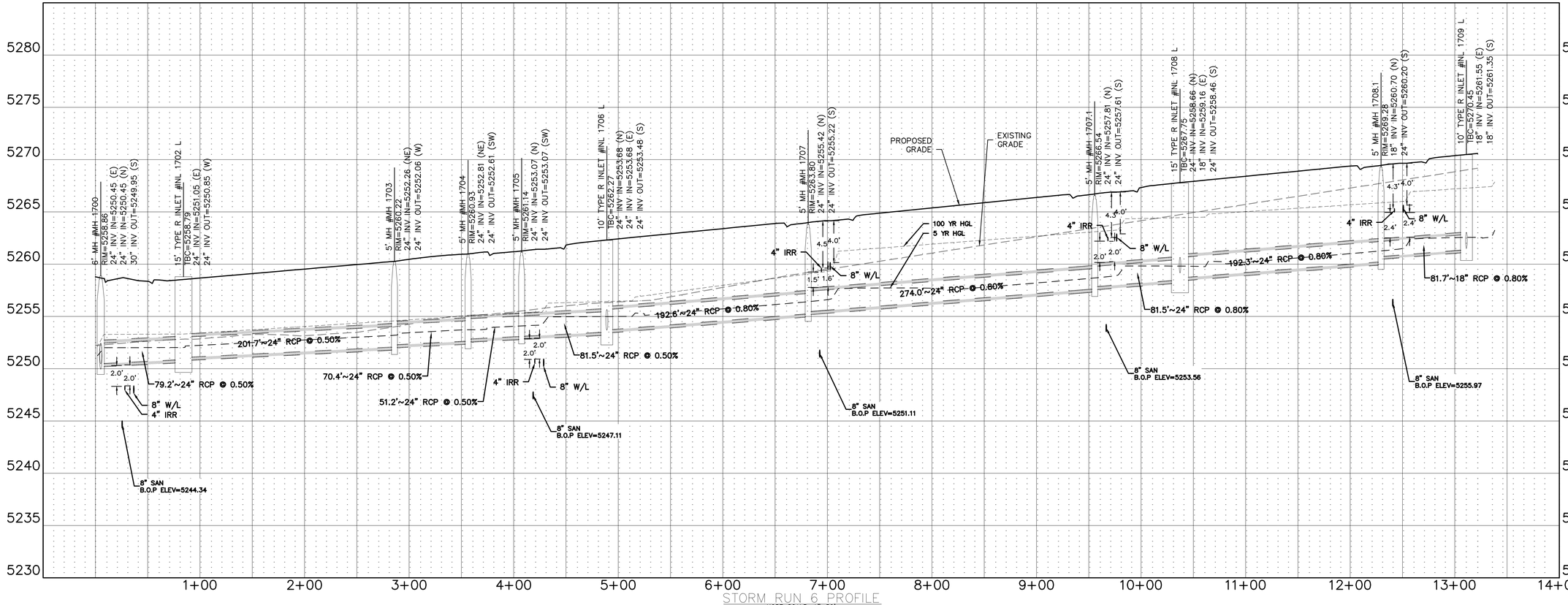
PLANS UNDER REVIEW NOT FOR CONSTRUCTION

DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 31

CAD FILE: 19002561-STORM RUN 4.DWG



STORM RUN 6



STORM RUN 6 PROFILE

HORZ SCALE: 1"=50'
VERT SCALE: 1"=5'

811 Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 SOUTH SYRACUSE WAY, STE. 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

CLIENT: COHEN DENVER AIRPORT, LLC

LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
CONSTRUCTION PLANS
STORM PLAN & PROFILES
STORM RUN 6

DATE 3/22/2021

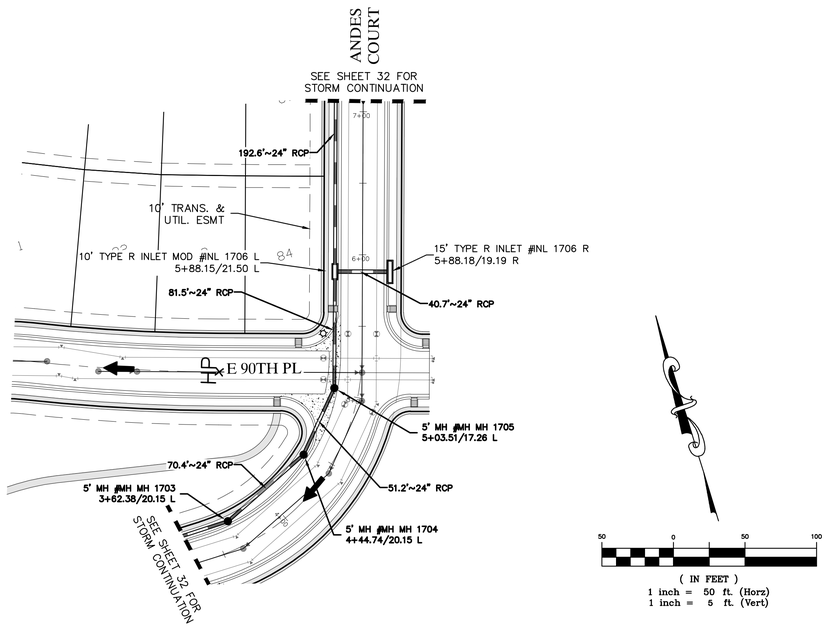
A	1st SUBMITTAL TO COMMERCE CITY	08/17/2020 — DJM
B	2nd SUBMITTAL TO COMMERCE CITY	03/15/2021 — DJM

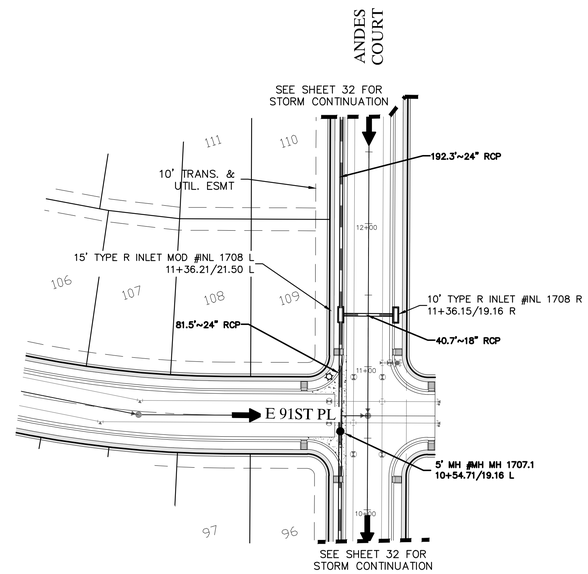
REVISIONS

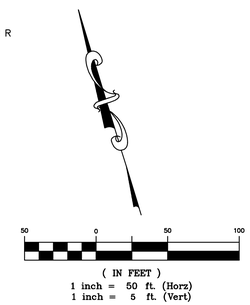
PLANS UNDER REVIEW NOT FOR CONSTRUCTION

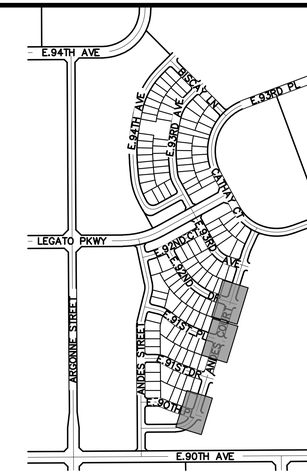
DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 32

CAD FILE: 19002561-STORM RUN 6.DWG



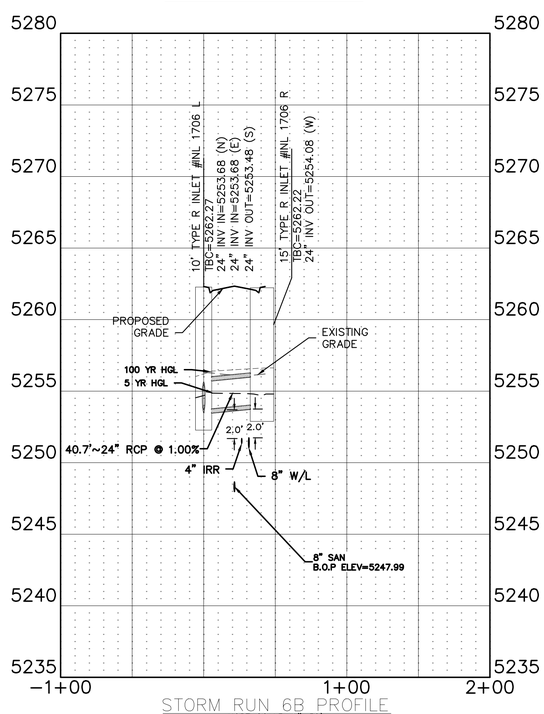






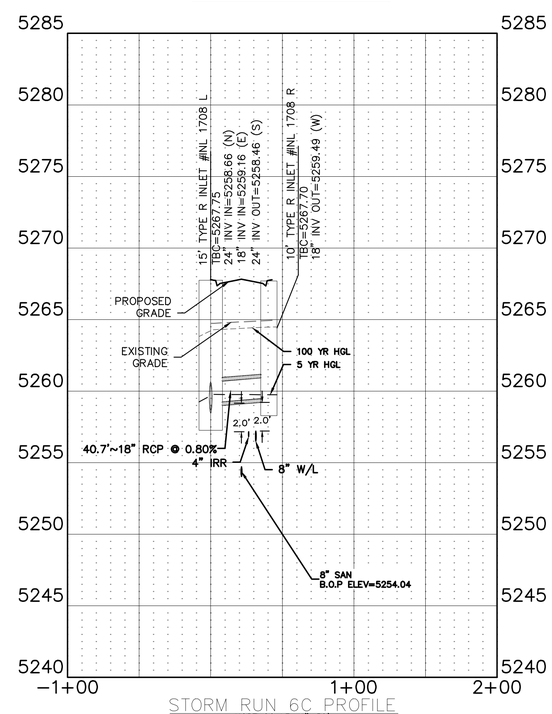
KEY MAP
SCALE: 1"=500'

STORM RUN 6B



STORM RUN 6B PROFILE
HORZ SCALE: 1"=50'
VERT SCALE: 1"=5'

STORM RUN 6C



STORM RUN 6C PROFILE
HORZ SCALE: 1"=50'
VERT SCALE: 1"=5'

811 Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 SOUTH SYRACUSE WAY, STE. 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

CLIENT: COHEN DENVER AIRPORT, LLC

LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
CONSTRUCTION PLANS
STORM PLAN & PROFILES
STORM RUN 6A 6B

DATE 3/22/2021

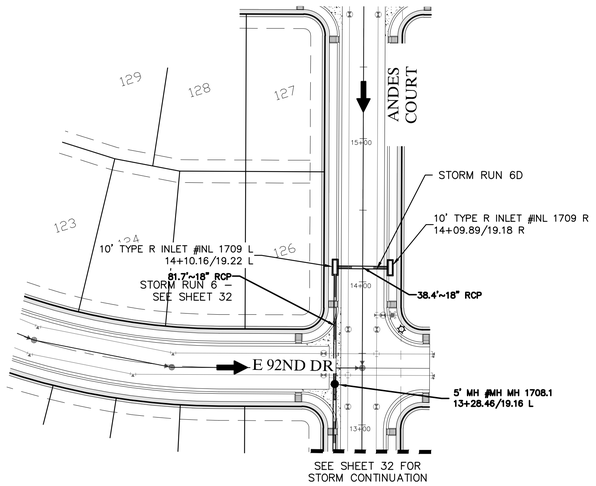
A	1st SUBMITTAL TO COMMERCE CITY	08/17/2020 – DJM
B	2ND SUBMITTAL TO COMMERCE CITY	03/15/2021 – DJM

REVISIONS

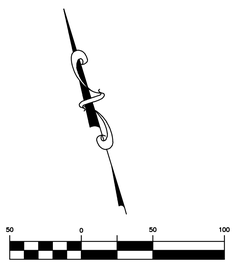
PLANS UNDER REVIEW NOT FOR CONSTRUCTION

DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 33

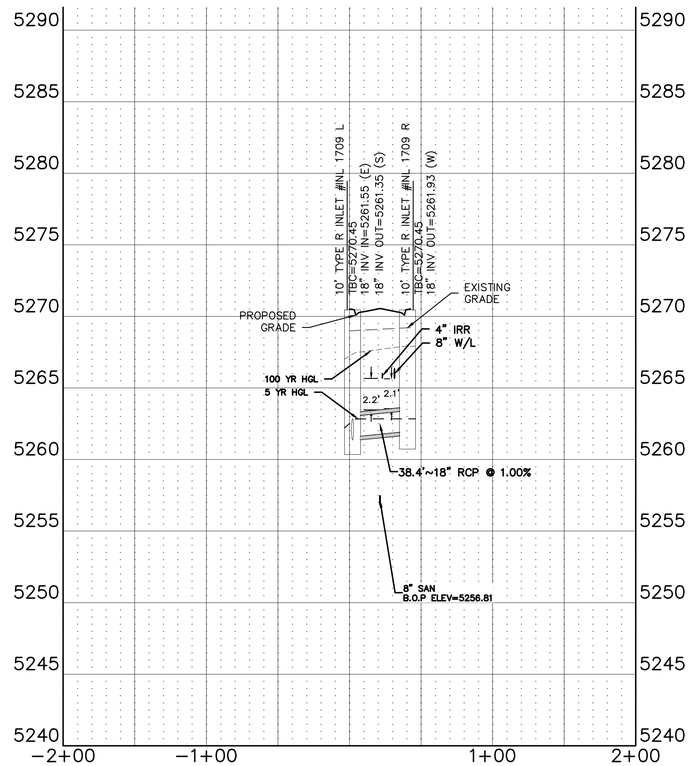
CAD FILE: 19002561-STORM RUN 6.DWG



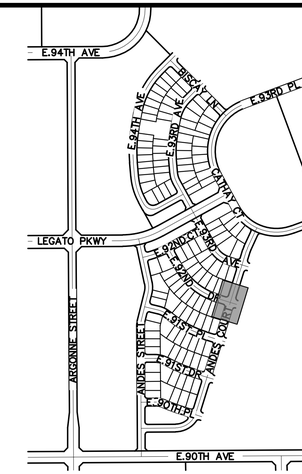
STORM RUN 6D



(IN FEET)
1 inch = 50 ft. (Horz)
1 inch = 5 ft. (Vert)



STORM RUN 6D PROFILE
HORZ SCALE: 1"=50'
VERT SCALE: 1"=5'



KEY MAP
SCALE: 1"=500'

811
Know what's below.
Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 SOUTH SYRACUSE WAY, SUITE 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

CLIENT
COHEN DENVER AIRPORT, LLC

LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
CONSTRUCTION PLANS
STORM PLAN & PROFILES
STORM RUN 6D

DATE 3/22/2021

A	1st SUBMITTAL TO COMMERCE CITY	08/17/2020 – DJM
B	2nd SUBMITTAL TO COMMERCE CITY	03/15/2021 – DJM

REVISIONS

PLANS UNDER REVIEW NOT FOR CONSTRUCTION
DJM, PE

DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 34

CAD FILE: 19002561-STORM RUN 6.DWG

Typical comment
all mid-street crossings
need approach
pedestrian signing

ANDES ST
DUNKIRK ST
E 90th AVE
E 90th PL
E 91st DR
E 91st PL
E 92nd DR
E 92nd PL
E 93rd AVE
LEGATO PKWY
TYPE III BARICADE
STREET LIGHT (TYP)
10' UTIL & TRANS ESMT
SEE SHEET 36

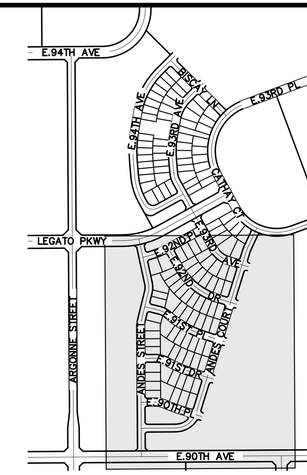
CONSTRUCTION NOTES:

1. INSTALL TYPICAL STREET SIGN AS PER COMMERCE CITY STD. DETAIL 503–01
2. INSTALL SIGN POST AS PER COMMERCE CITY STD. DETAIL 503–02
8. CHANNELIZING LINE (8" WIDE SOLID WHITE)
9. CROSS WALK (2' WIDE X 10' LONG @ 6' O.C., WHITE)
17. CHEVRON 8" WIDE, SOLID WHITE LINE
18. STREET LIGHT POLE

R1–1	R2–1	D3	W11A–2	W16–7	W5–1	R8–3A–L	R8–3A–R	W17–1	W13–1
30"x30"	24"x30"	VARIABLE SIZE	30"x30"	24"x18"	30"x30"	NTS	NTS	36"X36"	18"x18"
NTS	NTS	NTS	NTS	NTS	NTS			NTS	NTS

SIGN LEGEND

(IN FEET)
1 inch = 60 ft.



KEY MAP
SCALE: 1"=500'

811
Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 S. QUEBEC STREET, ATLAS, 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

CLIENT
COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355–1400
BRAD BURNS

COHEN DENVER AIRPORT, LLC
LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
CONSTRUCTION PLANS
SIGNAGE & STRIPING – SOUTH

DATE 3/22/2021

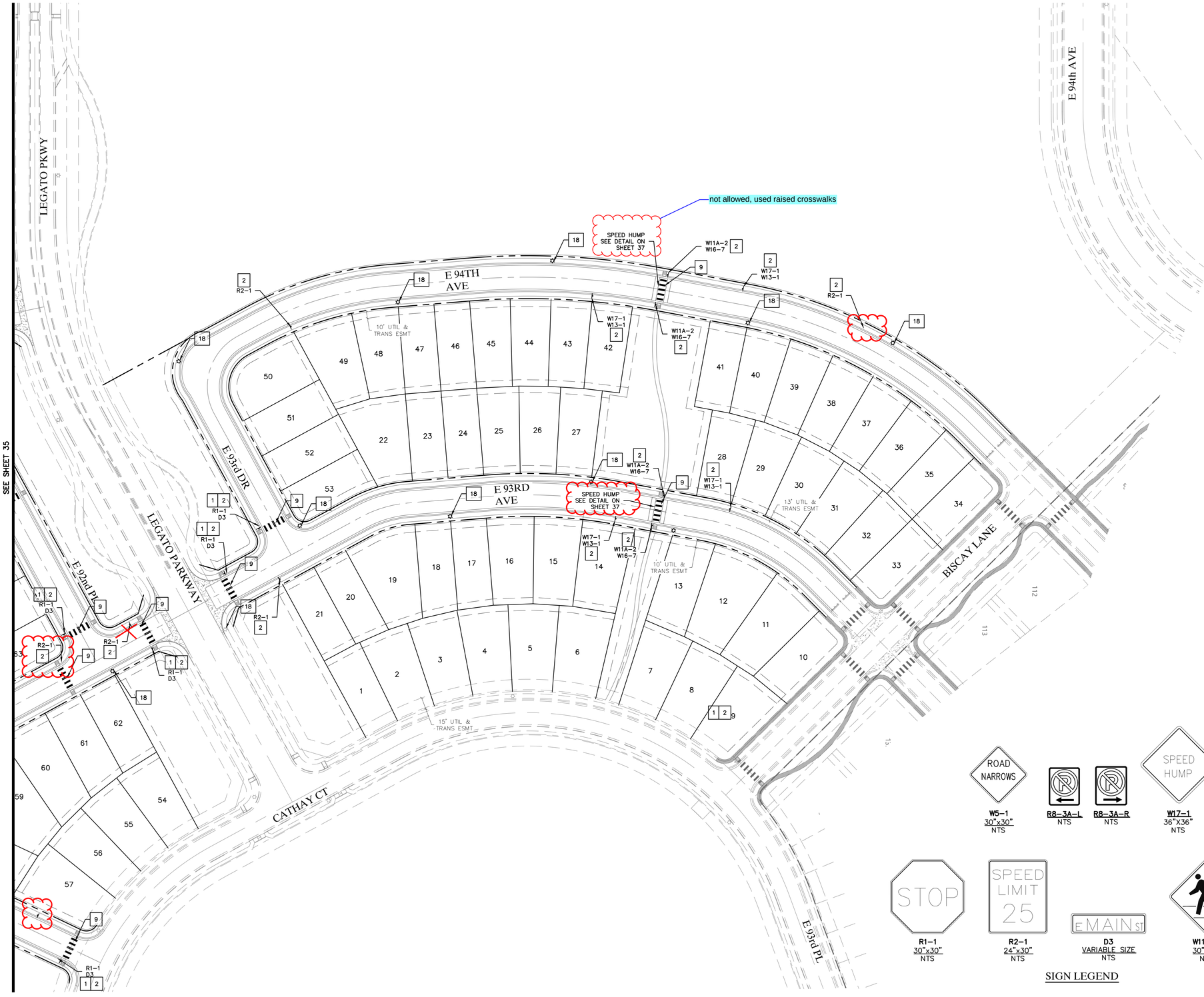
A	1st SUBMITTAL TO COMMERCE CITY	08/17/2020 – DJM
B	2nd SUBMITTAL TO COMMERCE CITY	03/15/2021 – DJM

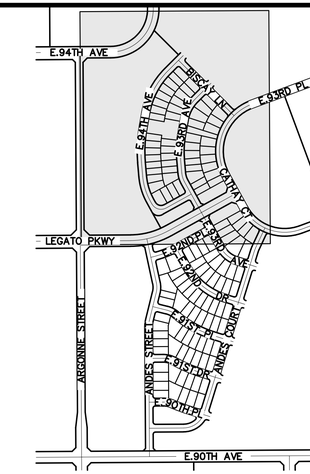
REVISIONS

PLANS UNDER REVIEW NOT FOR CONSTRUCTION
DJM, 3/22/2021

DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 35

CAD FILE: 19002561–SIGNAGE & STRIPING.DWG

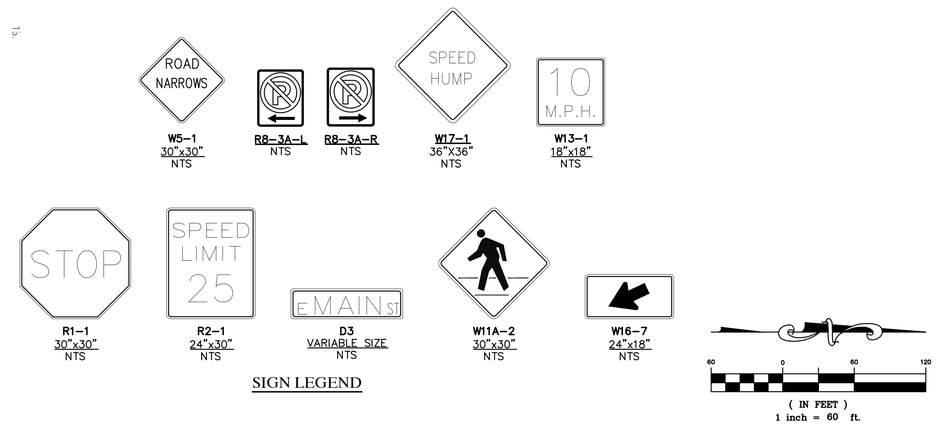




KEY MAP
SCALE: 1"=500'

CONSTRUCTION NOTES:

1. INSTALL TYPICAL STREET SIGN AS PER COMMERCE CITY STD. DETAIL 503-01
2. INSTALL SIGN POST AS PER COMMERCE CITY STD. DETAIL 503-02
8. CHANNELIZING LINE (8" WIDE SOLID WHITE)
9. CROSS WALK (2' WIDE X 10' LONG @ 6' O.C., WHITE)
17. CHEVRON 8" WIDE, SOLID WHITE LINE
18. STREET LIGHT POLE



SIGN LEGEND

811 Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-grp.com
6200 S. QUEBEC STREET, SUITE 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

CLIENT
COHEN DENVER AIRPORT, LLC
LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
CONSTRUCTION PLANS
SIGNAGE & STRIPING – NORTH

DATE 3/22/2021

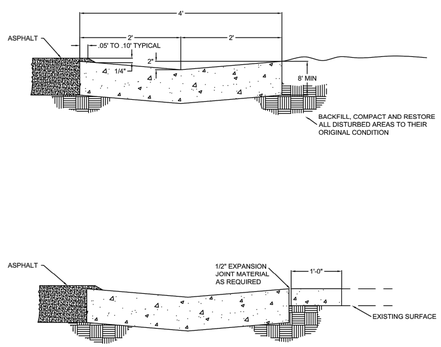
A	1st SUBMITTAL TO COMMERCE CITY	08/17/2020 – DJM
B	2nd SUBMITTAL TO COMMERCE CITY	03/15/2021 – DJM

REVISIONS

PLANS UNDER REVIEW NOT FOR CONSTRUCTION
03/22/2021 DJM

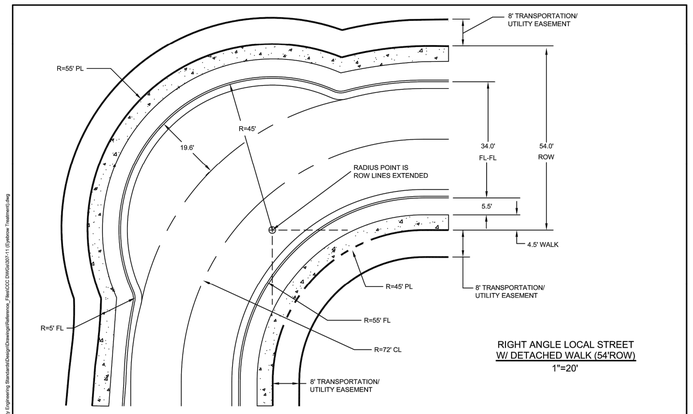
DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 36

CAD FILE: 19002561-SIGNAGE & STRIPING.DWG



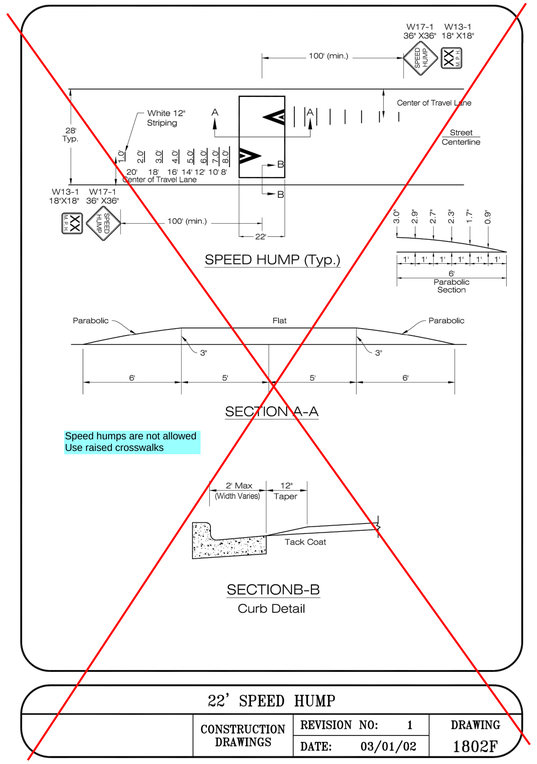
If this is not use please remove

COMMERCE CITY DEPARTMENT OF PUBLIC WORKS ENGINEERING CONSTRUCTION STANDARDS	APPROVAL: 05-27-16 CITY ENGINEER DATE DETAIL NO. 308-02
VALLEY PAN	

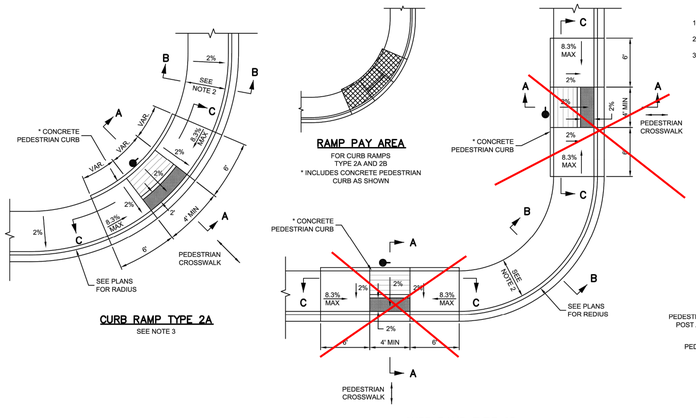


RIGHT ANGLE LOCAL STREET
W/ DETACHED WALK (54'ROW)
1"=20'

COMMERCE CITY DEPARTMENT OF PUBLIC WORKS ENGINEERING CONSTRUCTION STANDARDS	APPROVAL: 05-27-16 CITY ENGINEER DATE DETAIL NO. 307-11
EYEBROW TREATMENT	



22' SPEED HUMP			
	CONSTRUCTION DRAWINGS	REVISION NO: 1 DATE: 03/01/02	DRAWING 1802F



CURB RAMP TYPE 2A
SEE NOTE 3

CURB RAMP TYPE 2B
SEE NOTE 3

GENERAL NOTES

1. CURB RAMP TYPE 2B MAY BE USED IN MID-BLOCK.
2. MINIMUM SIDEWALK WIDTH IS 4 FT.
3. CURB RAMP TYPE 2A DIAGONAL (ON THE APEX) IS UNACCEPTABLE IN NEW CONSTRUCTION. TYPICALLY, TWO CURB RAMPS AS IN TYPE 2B, MUST BE PROVIDED AT EACH STREET CORNER.
   ADA TITLE II 28 C.F.R. SECTION 35.151(B) STATES: ALTERATIONS HAVE TO BE MADE READILY ACCESSIBLE, WITHIN THE IMPACTING PROJECT, TO THE MAXIMUM EXTENT FEASIBLE (MEF).

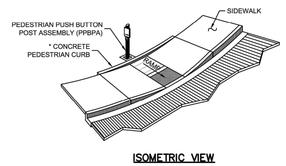
THEREFORE, A SINGLE, DIAGONAL CURB RAMP TYPE 2A WILL ONLY BE PERMITTED ON ALTERATION PROJECTS WITH MEF JUSTIFICATION DOCUMENTATION.

RAMP SURFACE SHALL BE TEXTURED WITH A COARSE BROOMED FINISH AND SCORED WITH GROOVES (" BY .") SPACED 6" INCHES ON CENTER

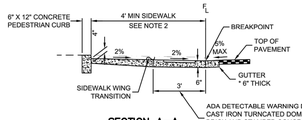
ADA DETECTABLE WARNING DEVICE CAST IRON TRUNCATED DOMES. BRICK AND STAMPED CONCRETE ARE NOT ALLOWED

PEDESTRIAN PUSH BUTTON PUSH ASSEMBLY (PPBPA). SEE NOTE 8. SEE STANDARD PLAN S-614-9 FOR PPBPA DETAILS. SEE PLANS FOR LOCATIONS THE SIGN FACE SHALL BE PARALLEL TO THE CROSSWALK.

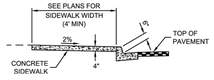
MFG'S:
EAST JORDAN IRON WORKS, INC. 1-800-874-4100
NEENAH FOUNDRY CO. 1-800-694-4660



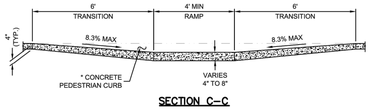
ISOMETRIC VIEW
SHOWN WITH PEDESTRIAN PUSH BUTTON POST ASSEMBLY (PPBPA)



SECTION A-A
* INCREASE TO 8" FOR BRICK PAVERS.

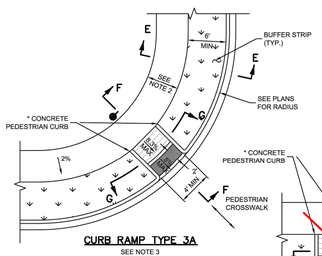


SECTION B-B

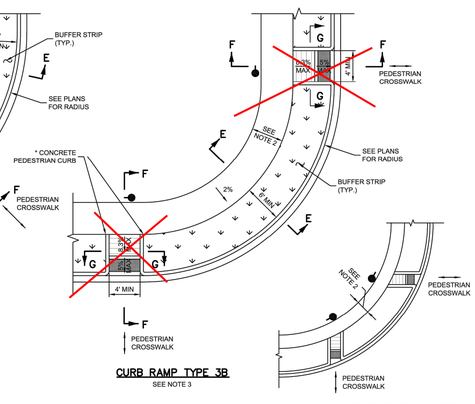


SECTION C-C

COMPUTER FILE INFORMATION		APPROVAL	CITY OF COMMERCE CITY	CURB RAMPS	DETAIL NO.
Creation Date: 03/10/2016	Initials: CJC	12-15-17 CITY ENGINEER DATE	Department of Public Works 8602 Rosemary St. Commerce City, CO 80022 Ph: 303-289-8150	ENGINEERING CONSTRUCTION STANDARDS	308-03b
Last Modification Date: 5/26/2016	Initials: CJC				Sheet No. 2 of 4
Full Path: WWW.C3GOV.COM					
Drawing Name: $FILES$					
Scale: $SCALESHORT$	Units: ENGLISH				



CURB RAMP TYPE 3A
SEE NOTE 3



CURB RAMP TYPE 3B
SEE NOTE 3

CURB RAMP TYPE 3B MODIFIED
USE ONLY IF EXISTING ROW DICTATES.
GRADE BREAKS SHALL NOT BE PERMITTED ON THE SURFACE OF THE RAMP RUNS AND TURNING SPACES.
SURFACE SLOPES THAT MEET AT GRADE BREAKS SHALL BE FLUSH. SEE NOTE 3.

GENERAL NOTES

1. CURB RAMP TYPE 3B MAY BE USED IN MID-BLOCK.
2. MINIMUM SIDEWALK WIDTH IS 4 FT.
3. CURB RAMP TYPE 3A DIAGONAL (ON THE APEX) IS UNACCEPTABLE IN NEW CONSTRUCTION. TYPICALLY, TWO CURB RAMPS AS IN TYPE 3B, MUST BE PROVIDED AT EACH STREET CORNER.
   ADA TITLE II 28 C.F.R. SECTION 35.151(B) STATES: ALTERATIONS HAVE TO BE MADE READILY ACCESSIBLE, WITHIN THE IMPACTING PROJECT, TO THE MAXIMUM EXTENT FEASIBLE (MEF).

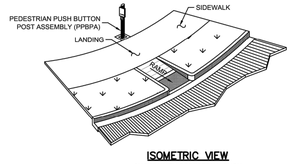
THEREFORE, A SINGLE, DIAGONAL CURB RAMP TYPE 3A WILL ONLY BE PERMITTED ON ALTERATION PROJECTS WITH MEF JUSTIFICATION DOCUMENTATION.

RAMP SURFACE SHALL BE TEXTURED WITH A COARSE BROOMED FINISH AND SCORED WITH GROOVES (" BY .") SPACED 6" INCHES ON CENTER

ADA DETECTABLE WARNING DEVICE CAST IRON TRUNCATED DOMES. BRICK AND STAMPED CONCRETE ARE NOT ALLOWED

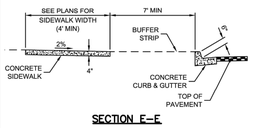
PEDESTRIAN PUSH BUTTON PUSH ASSEMBLY (PPBPA). SEE NOTE 8. SEE STANDARD PLAN S-614-9 FOR PPBPA DETAILS. SEE PLANS FOR LOCATIONS THE SIGN FACE SHALL BE PARALLEL TO THE CROSSWALK.

MFG'S:
EAST JORDAN IRON WORKS, INC. 1-800-874-4100
NEENAH FOUNDRY CO. 1-800-694-4660

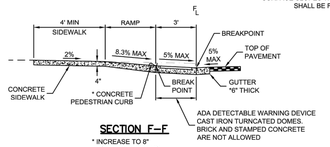


ISOMETRIC VIEW
SHOWN WITH PEDESTRIAN PUSH BUTTON POST ASSEMBLY (PPBPA)

RAMP PAY AREA
FOR CURB RAMPS
TYPE 3A AND 3B
* INCLUDES CONCRETE PEDESTRIAN CURB AS SHOWN



SECTION E-E



SECTION F-F
* INCREASE TO 8" FOR BRICK PAVERS.

COMPUTER FILE INFORMATION		APPROVAL	CITY OF COMMERCE CITY	CURB RAMPS	DETAIL NO.
Creation Date: 03/10/2016	Initials: CJC	12-15-17 CITY ENGINEER DATE	Department of Public Works 8602 Rosemary St. Commerce City, CO 80022 Ph: 303-289-8150	ENGINEERING CONSTRUCTION STANDARDS	308-03c
Last Modification Date: 5/26/2016	Initials: CJC				Sheet No. 3 of 4
Full Path: WWW.C3GOV.COM					
Drawing Name: $FILES$					
Scale: $SCALESHORT$	Units: ENGLISH				

811 Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 S. QUEBEC STREET, SUITE 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

CLIENT: COHEN DENVER AIRPORT, LLC
LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
CONSTRUCTION PLANS
STREET DETAILS 01

DATE 3/22/2021

A	1st SUBMITTAL TO COMMERCE CITY	08/17/2020 – DJM
B	2nd SUBMITTAL TO COMMERCE CITY	03/15/2021 – DJM

REVISIONS

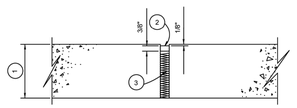
PLANS UNDER REVIEW NOT FOR CONSTRUCTION

DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 37

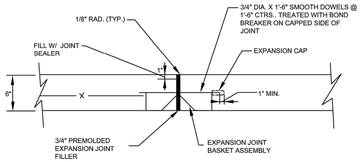
CAD FILE: 19002561-STREET DETAILS.DWG

EXPANSION JOINT

N.T.S.



NOTES:
1. (T) THICKNESS OF PAVEMENT, SEE TYPICAL PAVEMENT SECTION.
2. POURED JOINT MATERIAL.
3. 1/2" PREFORMED JOINT MATERIAL. INSTALL EXPANSION JOINT MATERIAL BETWEEN NEW SIDEWALK AND EXISTING CONCRETE SLABS, POLES, FIRE HYDRANTS, BUILDINGS, ETC. SET EXPANSION JOINT MATERIAL VERTICAL AND WITH THE TOP EDGE BELOW FINISHED SURFACE OF CONCRETE. PROVIDE EXPANSION JOINTS EVERY 100' TO 120'.



SECTION

NOTE:
THIS DETAIL DOES NOT APPLY TO EXPANSION JOINT WHERE PAVEMENT ABUTS A STRUCTURE. USE ONLY JOINT FILLER AGAINST STRUCTURE.

COMMERCE CITY DEPARTMENT OF PUBLIC WORKS ENGINEERING CONSTRUCTION STANDARDS	APPROVAL: CITY ENGINEER — DATE 05-27-16
EXPANSION JOINT DETAILS	DETAIL NO. 308-08

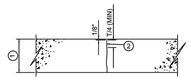
CONTRACTION JOINT

N.T.S.

CONTRACTION JOINTS SHALL BE PLACED EVERY 10 FEET OR AS DIRECTED BY THE ENGINEER.

ALTERNATE TRANSVERSE CONTRACTION JOINT

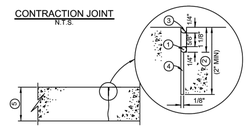
N.T.S.



NOTES:
1. (T) THICKNESS OF PAVEMENT, SEE TYPICAL PAVEMENT SECTION.
2. 20 MILL POLYURETHANE PLASTIC PARTING STRIP. SPLICE WITH ENDS BUTTED.

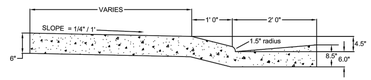
CONTRACTION JOINT

N.T.S.



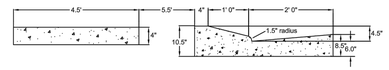
NOTES:
1. BACKER ROD OF OPEN OR CLOSED CELL POLYURETHANE STRAND AS APPROVED.
2. T/4+1/2" LONGITUDINAL, T/4 TRANSVERSE.
   MAY BE 1/4" SAWCUT FOR ITS FULL DEPTH WITH JOINT MATERIAL AND BACKER ROD AT SAME DEPTH.
3. POURED JOINT MATERIAL.
4. AIR.
5. (T) THICKNESS OF PAVEMENT, SEE TYPICAL PAVEMENT SECTION.

COMMERCE CITY DEPARTMENT OF PUBLIC WORKS ENGINEERING CONSTRUCTION STANDARDS	APPROVAL: CITY ENGINEER — DATE 05-27-16
CONTRACTION JOINT DETAILS	DETAIL NO. 308-09



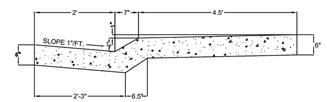
COMBINATION CURB, GUTTER AND SIDEWALK

NOT TO SCALE



DETACHED CURB, GUTTER AND SIDEWALK

NOT TO SCALE



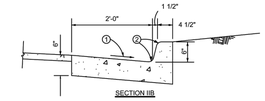
COMBINATION CURB, GUTTER AND SIDEWALK

NOT TO SCALE

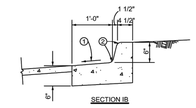
COMMERCE CITY DEPARTMENT OF PUBLIC WORKS ENGINEERING CONSTRUCTION STANDARDS	APPROVAL: CITY ENGINEER — DATE 05-27-16
MOUNTABLE CURB SECTIONS	DETAIL NO. 308-06

6" VERTICAL CURB AND GUTTER (TYPE 2)

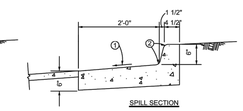
DRAWING NOT TO SCALE



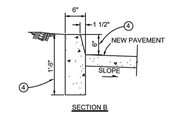
SECTION IIB



SECTION IIB



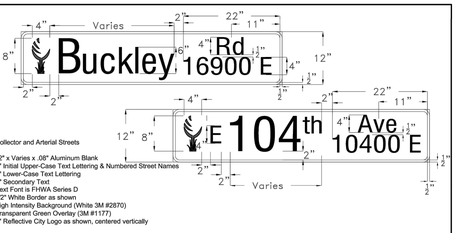
SPILL SECTION



SECTION B

NOTES:
1. GUTTER CROSS SLOPES SHALL BE 1/2" / FT WHEN DRAINING AWAY FROM CURB AND 1" / FT WHEN DRAINING TOWARD CURB
2. 1 1/2" RADIUS TYPICAL
3. 3/4" Ø x 12" DEFORMED REINFORCING BARS AT 6 FT. SPACING. BARS TO BE GROUTED IN 1-1/2" Ø HOLES IN EXISTING CONCRETE. GROUT TO CONSIST OF 2 PARTS CLEAN SAND AND 1 PART CEMENT.
4. 9" CURB HEIGHT, 1'-0" OVERALL HEIGHT FOR MEDIAN.

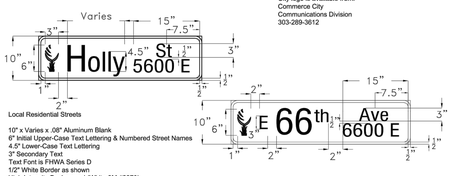
COMMERCE CITY DEPARTMENT OF PUBLIC WORKS ENGINEERING CONSTRUCTION STANDARDS	APPROVAL: CITY ENGINEER — DATE 05-27-16
VERTICAL CURB SECTIONS	DETAIL NO. 308-07



Collector and Arterial Streets

12" x Varies x .08" Aluminum Blank
8" Initial Upper-Case Text Lettering & Numbered Street Names
6" Lower-Case Text Lettering
4" Secondary Text
Text Font is FHWA Series D
1/2" White Border as shown
High Intensity Background (White 3M #2870)
Transparent Green Overlay (3M #1177)
8" Reflective City Logo as shown, centered vertically

City logo is available from:
Commerce City
Communications Division
303-289-3612



Local Residential Streets

10" x Varies x .08" Aluminum Blank
6" Initial Upper-Case Text Lettering & Numbered Street Names
4.5" Lower-Case Text Lettering
3" Secondary Text
Text Font is FHWA Series D
1/2" White Border as shown
High Intensity Background (White 3M #2870)
Transparent Green (3M #1177)
6" Reflective City Logo as shown, centered vertically

LOCAL RESIDENTIAL STREETS REQUIRE 10" SIGNS
COLLECTOR AND ARTERIAL STREETS REQUIRE 12" SIGNS

ALL NUMBERED STREETS MUST HAVE "E" IN FRONT OF THE STREET NAME, CENTERED VERTICALLY

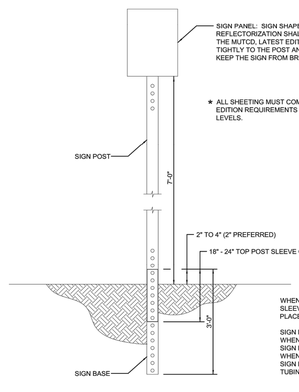
STREET SUFFIXES ARE TO BE CENTERED ABOVE STREET NUMBER AS SHOWN

LOCAL RESIDENTIAL STREETS REQUIRE A CITY LOGO
COLLECTOR AND ARTERIAL STREETS REQUIRE A CITY LOGO

PRIVATE STREETS REQUIRE A BLUE SIGN BACKGROUND WITHOUT A LOGO

SIGNS AT SIGNALS MUST BE ILLUMINATED STREETS NAME SIGNS
SEE DETAIL 900-01

COMMERCE CITY DEPARTMENT OF PUBLIC WORKS ENGINEERING CONSTRUCTION STANDARDS	APPROVAL: CITY ENGINEER — DATE 07-14-17
TYPICAL STREET SIGNS	DETAIL NO. 503-01



WHEN A SIGN BASE FALLS WITHIN A HARDSCAPE AREA, A 3" PVC SLEEVE SHALL BE INSTALLED AT THE SIGN LOCATION PRIOR TO PLACEMENT OF THE CONCRETE.

SIGN POSTS SHALL 1.75" X 1.75". SIGN BASES SHALL BE 2" X 2"
WHEN SIGNS ARE SMALLER THAN 36" X 36".
SIGN POSTS SHALL BE 2" X 2", SIGN BASES SHALL BE 2.25" X 2.25"
WHEN SIGNS ARE 36" X 36" OR BIGGER.
SIGN POSTS AND BASES SHALL BE STEEL PERFORATED SQUARE TUBING AS SUPPLIED BY UNISTRUT, OR APPROVED EQUAL.

COMMERCE CITY DEPARTMENT OF PUBLIC WORKS ENGINEERING CONSTRUCTION STANDARDS	APPROVAL: CITY ENGINEER — DATE 05-27-16
SIGN POST & BASE	DETAIL NO. 503-02

811 Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 SOUTH QUEBEC STREET, SUITE 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

CLIENT
COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

COHEN DENVER AIRPORT, LLC
LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
CONSTRUCTION PLANS
STREET DETAILS 02

DATE 3/22/2021

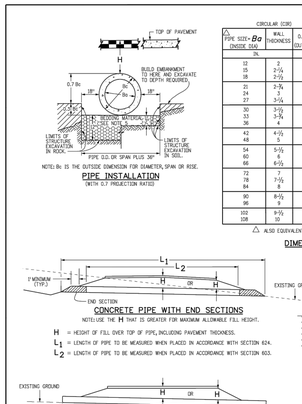
A	1st SUBMITTAL TO COMMERCE CITY	08/17/2020 — DJM
B	2nd SUBMITTAL TO COMMERCE CITY	03/15/2021 — DJM

REVISIONS

PLANS UNDER REVIEW NOT FOR CONSTRUCTION

DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 38

CAD FILE: 19002561-STREET DETAILS.DWG



NOTE: BE IS THE OUTSIDE DIMENSION FOR DIAMETER, SPAN OR RISE.

PIPE INSTALLATION
(WITH 0.7 PROJECTION RATIO)

CIRCULAR (CIR) PIPE SIZE+ Bd (INSIDE DIA)	WALL THICKNESS	0.3 Bc OUTSIDE DIAM	VERTICAL ELLIPTICAL (VE) SPAN	RISE	WALL THICKNESS	0.3 OUTSIDE RISE	HORIZONTAL ELLIPTICAL (HE) SPAN	RISE	WALL THICKNESS	0.3 OUTSIDE RISE
IN.		FT.	IN.			FT.	IN.			FT.
12	2	0.40								
15	2-1/2	0.49								
18	2-1/2	0.58					23	14	2-3/4	0.49
21	2-3/4	0.66								
24	3	0.75					30	19	3-1/4	0.66
27	3-1/4	0.84					34	22	3-1/2	0.73
30	3-1/2	0.92								
33	3-3/4	1.01					38	24	3-3/4	0.79
36	4	1.10	29	45	4-1/2	1.35	45	29	4-1/2	0.95
42	4-1/2	1.28	34	53	5	1.58	53	34	5	1.10
48	5	1.45	38	60	5-1/2	1.78	60	38	5-1/2	1.23
54	5-1/2	1.62	43	68	6	2.00	68	43	6	1.38
60	6	1.80	48	76	6-1/2	2.23	76	48	6-1/2	1.53
66	6-1/2	1.97	53	83	7	2.43	83	53	7	1.68
72	7	2.15	58	91	7-1/2	2.65	91	58	7-1/2	1.83
78	7-1/2	2.32	63	98	8	2.85	98	63	8	1.98
84	8	2.50	68	106	8-1/2	3.08	106	68	8-1/2	2.13
90	8-1/2	2.68	73	113	9	3.28	113	73	9	2.25
96	9	2.85	77	121	9-1/2	3.50	121	77	9-1/2	2.40
102	9-1/2	3.02	82	128	9-3/4	3.69	128	82	9-3/4	2.54
108	10	3.20	87	136	10	3.88	136	87	10	2.68

△ ALSO EQUIVALENT ROUND DIMENSION FOR ELLIPTICAL PIPE.

DIMENSIONS FOR REINFORCED CONCRETE PIPE
(FOR INFORMATION ONLY)

CONCRETE PIPE WITH END SECTIONS
NOTE:USE THE H THAT IS GREATER FOR MAXIMUM ALLOWABLE FILL HEIGHT.

CONSTRUCTION MINIMUM COVER FOR RIGID PIPE

H = HEIGHT OF FILL OVER TOP OF PIPE, INCLUDING PAVEMENT THICKNESS.

L_1 = LENGTH OF PIPE TO BE MEASURED WHEN PLACED IN ACCORDANCE WITH SECTION 624.

L_2 = LENGTH OF PIPE TO BE MEASURED WHEN PLACED IN ACCORDANCE WITH SECTION 603.

CONCRETE PIPE WITHOUT END SECTIONS
NOTE:USE THE H THAT IS GREATER FOR MAXIMUM ALLOWABLE FILL HEIGHT.

GENERAL NOTES
REINFORCED CONCRETE PIPE

1. FILL HEIGHTS GREATER THAN MAXIMUM ALLOWED IN THE HEIGHTS OF FILL TABLE ON THIS SHEET REQUIRE SPECIAL DESIGN OF STRUCTURE.
2. PIPE DESIGN IS BASED ON SAFETY FACTOR OF 1.33 ON ULTIMATE STRENGTH.
3. THE HEIGHTS OF FILL OVER TOP OF PIPE ARE BASED ON UNIT WEIGHT OF SOIL AT 135 LBS PER CUBIC FT.
4. PIPE CLASS IS DETERMINED FROM 0.01 IN CRACK D-LOAD.
5. BEDDING IS CLASS B (MODIFIED) FROM CONCRETE PIPE DESIGN MANUAL-AMERICAN CONCRETE PIPE ASSOCIATION WITH SETTLEMENT RATIO R = 0.5 or (YIELDING BED). BEDDING MATERIAL FOR RIGID PIPE IN SOIL SHALL BE 3 IN LOOSE THICKNESS. STRUCTURE BACKFILL CLASS 2; BEDDING MATERIAL FOR RIGID PIPE IN ROCK SHALL BE 12 IN LOOSE THICKNESS STRUCTURE BACKFILL CLASS 1.
6. CHANGES IN DESIGN FACTORS REQUIRE COMPONENTIAL CHANGES IN PIPE DESIGN.
7. MINIMUM WALL THICKNESS DIMENSIONS ARE BASED ON AASHTO M 170 (WALL) ED FOR CIRCULAR PIPE, AND AASHTO M 207 FOR ELLIPTICAL PIPE.
8. SPACING FOR MULTIPLE PIPE INSTALLATIONS SHALL CONFORM TO THE DETAILS SHOWN ON STANDARD PLAN M-206-1.
9. WHEN A PIPE IS TO BE EXTENDED, THE SAME PIPE MATERIAL AND SIZE AS IN THE ORIGINAL PIPE INSTALLATION SHALL BE USED.

NONREINFORCED CONCRETE PIPE

1. AT THE OPTION OF THE CONTRACTOR, NONREINFORCED CONCRETE PIPE CONFORMING TO AASHTO M 86 MAY BE USED IN LIEU OF REINFORCED CONCRETE PIPE FOR ALL SIZES 36 INCHES IN DIAMETER AND SMALLER.THE NONREINFORCED CONCRETE PIPE SHALL MEET THE SAME D-LOAD TO PRODUCE THE ULTIMATE LOAD UNDER THE THREE-EDGE BEARING METHOD AS SPECIFIED FOR REINFORCED CONCRETE PIPE. IN CONFORMANCE WITH SECTION 601.3.2 OF THE STANDARD SPECIFICATIONS, THE MANUFACTURER'S CERTIFICATE OF CONFORMANCE, THE WALL THICKNESS OF THE NONREINFORCED PIPE MAY BE INCREASED AS REQUIRED TO MEET D-LOAD REQUIREMENT.
2. ALL REQUIREMENTS FOR REINFORCED CONCRETE PIPE,EXCEPT THOSE REFERRING TO REINFORCEMENT, SHALL APPLY TO NONREINFORCED CONCRETE PIPE.

TYPE OF PIPE	HEIGHT OF FILL OVER TOP OF PIPE, H (FEET) CLASS OF PIPE				
	CLASS CIR II CLASS VE II CLASS HE II 1000 D	CLASS CIR III CLASS VE III CLASS HE III 1350 D	CLASS CIR IV CLASS VE IV CLASS HE IV 2000 D	CLASS CIR V CLASS VE V 3000 D	CLASS VE VI 4000 D
CIRCULAR (CIR)	1 TO 18	1 TO 25	± 25 TO 37	± 37 TO 45	
VERTICAL ELLIPTICAL (VE)	1 TO 18	1 TO 25	± 25 TO 37	± 37 TO 45	± 45 TO 62
HORIZONTAL ELLIPTICAL (HE)	1 TO 18	1 TO 25	± 25 TO 37		

ALLOWABLE RANGE OF HEIGHTS FOR FILL OVER REINFORCED CONCRETE PIPE
(ALL SIZES)

Computer File Information	
Creation Date: 07/04/12	Initials: DLM
Last Modification Date: 10/03/14	Initials: LTA
Full Path: www.coloradodot.info/business/designsupport	
Drawing File Name: 603030101.dgn	
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	

Sheet Revisions		
Date:	Comments	
3/25/14	Bolt No. Lower Right Bend Bar Length. Revised Dimension "H"	
4/11/14	Dowel "Min. A" is 1.5 heights less.	

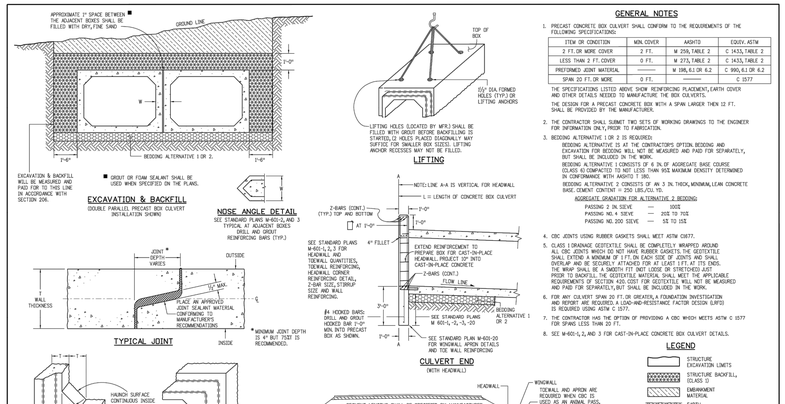
Colorado Department of Transportation
4201 East Arkansas Avenue
CDOT HQ, 4th Floor
Denver, CO 80222
Phone:303-757-9021 FAX:303-757-9868
Division of Project Support DLM/LTA

REINFORCED CONCRETE PIPE

Issued By: Project Development Branch on July 4, 2012

STANDARD PLAN NO. M-603-2

Sheet No. 1 of 1



EXCAVATION & BACKFILL

NOSE ANGLE DETAIL
SEE STANDARD PLANS M-603-2, AND 3
TYPICAL AT ADJACENT BOXES
DRILL AND GROUT REINFORCING BARS (TYP.)

TYPICAL JOINT

CORNERS

LIFTING

CULVERT END
(WITH HEADWALL)

TYPICAL CULVERT INSTALLATION

GENERAL NOTES

1. PRECAST CONCRETE BOX CULVERT SHALL CONFORM TO THE REQUIREMENTS OF THE FOLLOWING SPECIFICATIONS:

ITEM OR CONDITION	MIN. COVER	AASHTO	EQUIV. ASTM
2 FT. OR MORE COVER	2 FT.	M 206, TABLE 2	C 1433, TABLE 2
LESS THAN 2 FT. COVER	0 FT.	M 273, TABLE 2	C 1433, TABLE 2
PRESTRESSED JOINT MATERIAL	———	M 198, 6.1 OR 6.2	C 990, 6.1 OR 6.2
SPAN 20 FT. OR MORE	0 FT.	———	C 1577

THE SPECIFICATIONS LISTED ABOVE SHOW REINFORCING PLACEMENT,EARTH COVER AND OTHER DETAILS NEEDED TO MANUFACTURE THE BOX CULVERTS.

THE DESIGN FOR A PRECAST CONCRETE BOX WITH A SPAN LARGER THEN 12 FT. SHALL BE PROVIDED BY THE MANUFACTURER.

2. THE CONTRACTOR SHALL SUBMIT TWO SETS OF WORKING DRAWINGS TO THE ENGINEER FOR INFORMATION ONLY,PRIOR TO FABRICATION.
3. BEDDING ALTERNATIVE 1 (FIG 2 IS REQUIRED).
   BEDDING ALTERNATIVE IS AT THE CONTRACTOR'S OPTION.BEDDING AND EXCAVATION FOR BEDDING WILL NOT BE MEASURED AND PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE WORK.
   BEDDING ALTERNATIVE 1 CONSISTS OF 6 IN OF AGGREGATE BASE COURSE (CLASS 6) COMPACTED TO NOT LESS THAN 95% MAXIMUM DENSITY DETERMINED IN CONFORMANCE WITH AASHTO T 180.
   BEDDING ALTERNATIVE 2 CONSISTS OF AN 3 IN THICK,MINIMUM,LEAN CONCRETE BASE.CEMENT CONTENT = 250 LBS./CU. YD.

   AGGREGATE GRADATION FOR ALTERNATIVE 2 BEDDING

PASSING 2 IN SIEVE	—	100%
PASSING NO. 4 SIEVE	—	20% TO 70%
PASSING NO. 200 SIEVE	—	10 TO 15%

4. CBC JOINTS USING RUBBER GASKETS SHALL MEET ASTM C877.
5. CLASS I DRAINAGE GEOTEXTILE SHALL BE COMPLETELY WRAPPED AROUND ALL CBC JOINTS WHICH DO NOT HAVE RUBBER GASKETS. THE GEOTEXTILE SHALL EXTEND A MINIMUM OF 1 FT. ON EACH SIDE OF JOINTS AND SHALL OVERLAP AND BE SECURELY ATTACHED FOR AT LEAST 1 FT. AT ITS ENDS. THE WRAP SHALL BE A SMOOTH FIT (NOT LOOSE OR STRETCHED) JUST PRIOR TO BACKFILL. THE GEOTEXTILE MATERIAL SHALL MEET THE APPLICABLE REQUIREMENTS OF SECTION 420. COST FOR GEOTEXTILE WILL NOT BE MEASURED AND PAID FOR SEPARATELY,BUT SHALL BE INCLUDED IN THE WORK.
6. FOR ANY CULVERT SPAN 20 FT.OR GREATER,A FOUNDATION INVESTIGATION AND REPORT MAY BE REQUIRED. A LOAD-AND-RESISTANCE FACTOR DESIGN (LRFD) IS REQUIRED USING ASTM C 1577.
7. THE CONTRACTOR HAS THE OPTION OF PROVIDING A CBC WHICH MEETS ASTM C 1577 FOR SPANS LESS THAN 20 FT.
8. SEE M-603-1, 2, AND 3 FOR CAST-IN-PLACE CONCRETE BOX CULVERT DETAILS.

LEGEND
STRUCTURE EXCAVATION LIMITS
STRUCTURE BACKFILL, CLASS 2
EMBANKMENT MATERIAL
EARTH
BEDDING
CONCRETE

Computer File Information	
Creation Date: 07/04/12	Initials: DD
Last Modification Date: 04/05/19	Initials: LTA
Full Path: www.codot.gov/business/designsupport	
Drawing File Name: 603030202.dgn	
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	

Sheet Revisions		
Date:	Comments	
04/05/19	Change the top of hinge from 2" up to 1" for 12' or less. CBC. Added Geotextile.	

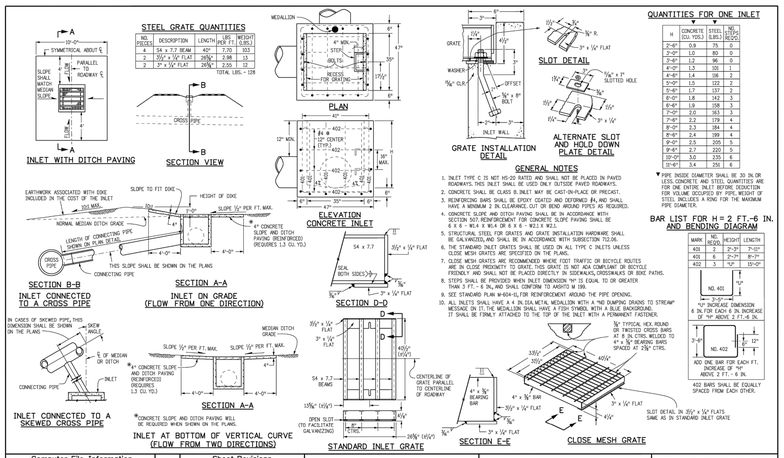
Colorado Department of Transportation
4201 East Arkansas Avenue
CDOT HQ, 3rd Floor
Denver, CO 80204
Phone:303-757-9021 FAX:303-757-9868
Division of Project Support DD/LTA

PRECAST CONCRETE BOX CULVERT

Issued By: Project Development Branch July 4, 2012

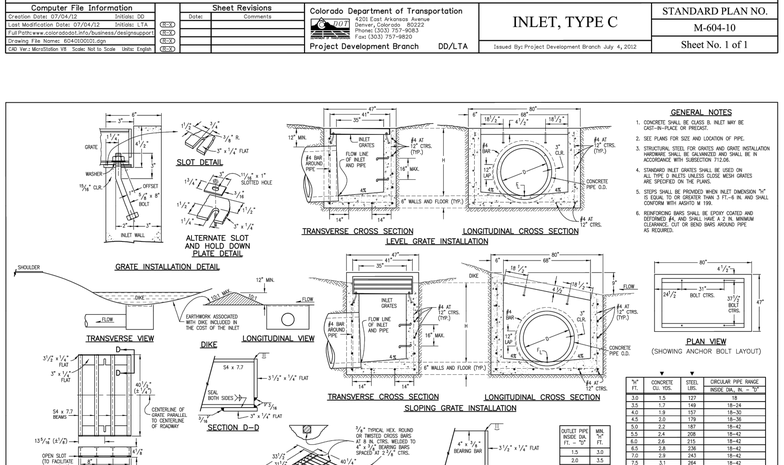
STANDARD PLAN NO. M-603-3

Sheet No. 1 of 1



STEEL GRATE QUANTITIES

NO. PIECES	DESCRIPTION	LENGTH	NO. REQ'D. PER PC.	WEIGHT (LBS.)
4	54 x 7.7 BEAM	40"	2.70	103
2	3½" x ¼" FLAT	26⅝"	2.98	16
2	3" x ¼" FLAT	26⅝"	2.00	12
			TOTAL LBS.	128



TWO STEEL GRATE PER INLET QUANTITIES

NO. PIECES	DESCRIPTION	LENGTH	NO. REQ'D. PER PC.	WEIGHT (LBS.)
8	54 x 7.7 BEAM	40"	2.70	206
4	3½" x ¼" FLAT	26⅝"	2.98	26
4	3" x ¼" FLAT	26⅝"	2.55	24
			TOTAL LBS.	256

GENERAL NOTES

1. INLET TYPE C IS NOT HS-20 RATED AND SHALL NOT BE PLACED IN PAVED ROADWAYS. THIS INLET SHALL BE USED ONLY OUTSIDE PAVED ROADWAYS.
2. CONCRETE SHALL BE CLASS B. INLET MAY BE CAST-IN-PLACE OR PRECAST.
3. REINFORCING BARS SHALL BE EPOXY COATED AND DEFORMED #4, AND SHALL HAVE A MINIMUM 2 IN CLEARANCE. CUT OR BEND AROUND PIPES AS REQUIRED.
4. CONCRETE SLOPE AND DITCH PAVING SHALL BE IN ACCORDANCE WITH SECTION 507.REINFORCEMENT FOR CONCRETE SLOPE PAVING SHALL BE 6 X 6 - W1.4 X W1.4 OR 6 X 6 - W2.1 X W2.1.
5. STRUCTURAL STEEL FOR GRATES AND GRATE INSTALLATION HARDWARE SHALL BE GALVANIZED,AND SHALL BE IN ACCORDANCE WITH SUBSECTION 712.06.
6. THE STANDARD INLET GRATES SHALL BE USED ON ALL TYPE C INLETS UNLESS CLOSE MESH GRATES ARE SPECIFIED ON THE PLANS.
7. CLOSE MESH GRATES ARE RECOMMENDED WHERE FOOT TRAFFIC OR BICYCLE ROUTES ARE IN CLOSE PROXIMITY TO GRATE.THIS GRATE IS NOT ADA COMPLIANT OR BICYCLE FRIENDLY AND SHALL NOT BE PLACED DIRECTLY IN SIDEWALKS,CROSSWALKS OR BIKE PATHS.
8. STEPS SHALL BE PROVIDED WHEN INLET DIMENSION "H" IS EQUAL TO OR GREATER THAN 3 FT.- 6 IN, AND SHALL CONFORM TO AASHTO M 199.
9. SEE STANDARD PLAN M-604-01,FOR REINFORCEMENT AROUND THE PIPE OPENING.
10. ALL INLETS SHALL HAVE A 4 IN DIA.METAL MEDALLION WITH A "NO DUMPING DRAINS TO STREAM" MESSAGE ON IT.THE MEDALLION SHALL HAVE A FISH SYMBOL WITH A BLUE BACKGROUND. IT SHALL BE FIRMLY ATTACHED TO THE TOP OF THE INLET WITH A PERMANENT FASTENER.

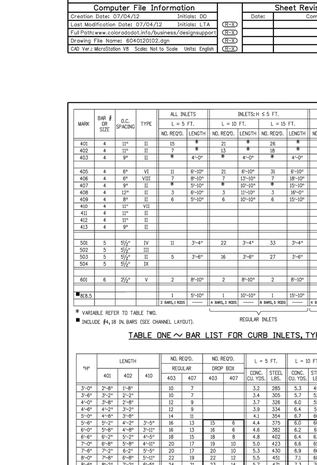
QUANTITIES FOR ONE INLET

H	CONCRETE CU. YDS.	STEEL LBS.	NO. REQ'D. BOXES
2'-6"	0.9	75	6
2'-9"	1.0	80	6
2'-6"	1.2	96	5
4'-9"	1.3	101	5
4'-6"	1.4	106	5
5'-9"	1.5	122	2
5'-6"	1.7	137	2
6'-9"	1.8	142	3
6'-6"	1.9	158	3
7'-9"	2.0	163	3
7'-6"	2.2	179	4
8'-9"	2.3	184	4
8'-6"	2.4	199	4
9'-9"	2.5	205	5
9'-6"	2.7	220	5
10'-9"	3.0	235	6
10'-6"	3.4	256	6

▼ PIPE INSIDE DIAMETER SHALL BE 30 IN.OR LESS.CONCRETE AND STEEL QUANTITIES ARE FOR ONE ENTIRE INLET BEFORE DEDUCTION FOR VOLUME OCCUPIED BY PIPE, WEIGHT OF STEEL INCLUDES A RING FOR THE MAXIMUM PIPE DIAMETER.

BAR LIST FOR H = 2 FT.-6 IN. AND BENDING DIAGRAM

MARK	NO. REQ'D.	HEIGHT	LENGTH
401	3	2'-3"	7'-0"
403	6	2'-7"	8'-7"
402	3	5"	15'-0"



Computer File Information	
Creation Date: 07/04/06	Initials: SJR
Last Modification Date: 07/04/06	Initials: LTA
Full Path: www.dot.state.co.us/DesignSupport/	
Drawing File Name: 604010101.dwg	
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	

Sheet Revisions		
Date:	Comments	

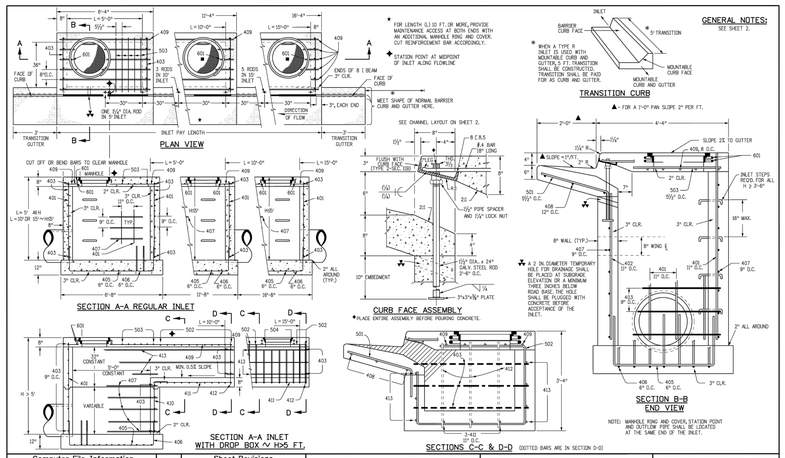
Colorado Department of Transportation
4201 East Arkansas Avenue
Denver, Colorado 80222
Phone: (303) 757-9083
Fax: (303) 757-9820
Project Development Branch SRJ/LTA

INLET, TYPE C

Issued By: Project Development Branch on July 04, 2006

STANDARD PLAN NO. M-604-10

Sheet No. 1 of 1



GENERAL NOTES:
SEE SHEET 2.

TRANSITION CURB

Computer File Information	
Creation Date: 07/04/12	Initials: DD
Last Modification Date: 07/04/12	Initials: LTA
Full Path: www.coloradodot.info/business/designsupport	
Drawing File Name: 604020202.dgn	
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	

Sheet Revisions		
Date:	Comments	

Colorado Department of Transportation
4201 East Arkansas Avenue
Denver, Colorado 80222
Phone: (303) 757-9083
Fax: (303) 757-9820
Project Development Branch DD/LTA

CURB INLET TYPE R

Issued By: Project Development Branch July 4, 2012

STANDARD PLAN NO. M-604-12

Sheet No. 2 of 2

GENERAL NOTES

1. CONCRETE SHALL BE CLASS B. INLET MAY BE CAST-IN-PLACE OR PRECAST.
2. SEE PLANS FOR SIZE AND LOCATION OF PIPE.
3. STRUCTURAL STEEL FOR GRATES AND GRATE INSTALLATION HARDWARE SHALL BE GALVANIZED AND SHALL BE IN ACCORDANCE WITH SUBSECTION 712.06.
4. STANDARD INLET GRATES SHALL BE USED ON ALL TYPE D INLETS UNLESS CLOSE MESH GRATES ARE SPECIFIED ON THE PLANS.
5. STEPS SHALL BE PROVIDED WHEN INLET DIMENSION "H" IS EQUAL TO OR GREATER THAN 3 FT.-6 IN, AND SHALL CONFORM WITH AASHTO M 199.
6. REINFORCING BARS SHALL BE EPOXY COATED AND DEFORMED #4, AND SHALL HAVE A 2 IN MINIMUM CLEARANCE. CUT OR BEND BARS AROUND PIPE AS REQUIRED.

QUANTITIES FOR ONE INLET

"H"	CONCRETE CU. YDS.	STEEL LBS.	CIRCULAR PIPE RANGE INSIDE DIA., IN. "D"
3.0	1.5	127	18
3.5	1.7	149	18-24
4.0	1.9	157	18-30
4.5	2.0	179	18-36
5.0	2.2	187	18-42
5.5	2.4	208	18-42
6.0	2.6	215	18-42
6.5	2.8	236	18-42
7.0	2.9	243	18-42
7.5	3.1	264	18-42
8.0	3.3	271	18-42
8.5	3.5	292	18-42
9.0	3.6	299	18-42
9.5	3.8	320	18-42
10.0	4.0	327	18-42

▼ CONCRETE AND STEEL QUANTITIES ARE FOR ONE ENTIRE INLET BEFORE DEDUCTION FOR VOLUME OCCUPIED BY PIPE. WEIGHT OF STEEL INCLUDES A RING FOR THE MAXIMUM PIPE DIAMETER.

Computer File Information	
Creation Date: 07/04/12	Initials: SJR
Last Modification Date: 07/04/06	Initials: LTA
Full Path: www.dot.state.co.us/DesignSupport/	
Drawing File Name: 604010101.dwg	
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	

Sheet Revisions		
Date:	Comments	

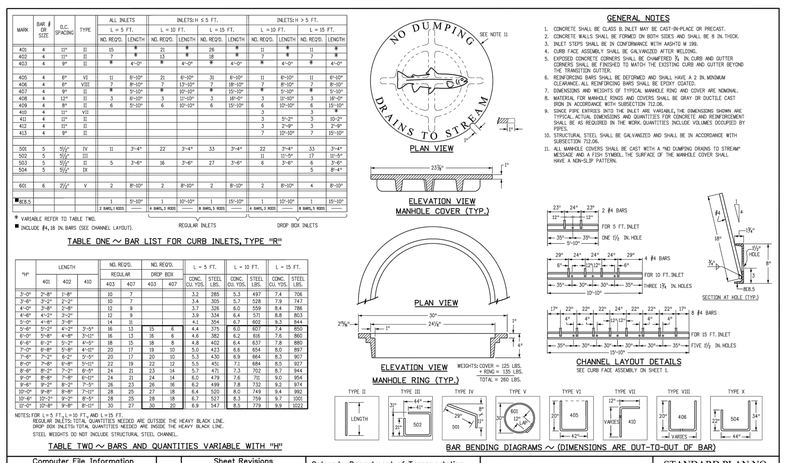
Colorado Department of Transportation
4201 East Arkansas Avenue
Denver, Colorado 80222
Phone: (303) 757-9083
Fax: (303) 757-9820
Project Development Branch SRJ/LTA

INLET, TYPE D

Issued By: Project Development Branch on July 04, 2006

STANDARD PLAN NO. M-604-11

Sheet No. 1 of 1



GENERAL NOTES

1. CONCRETE SHALL BE CLASS B.INLET MAY BE CAST-IN-PLACE OR PRECAST.
2. CONCRETE WALLS SHALL BE FORMED ON BOTH SIDES AND SHALL BE 8 IN THICK.
3. INLET STEPS SHALL BE IN CONFORMANCE WITH AASHTO M 199.
4. CURB FACE ASSEMBLY SHALL BE GALVANIZED AFTER WELDING.
5. EXPOSED CONCRETE CORNERS SHALL BE CHAMFERED ¾ IN.CURB AND GUTTER CORNERS SHALL BE FINISHED TO MATCH THE EXISTING CURB AND GUTTER BEYOND THE TRANSITION GUTTER.
6. REINFORCING BARS SHALL BE DEFORMED AND SHALL HAVE A 2 IN WINDOWN CLEARANCE.ALL REINFORCING BARS SHALL BE EPOXY COATED.
7. DIMENSIONS AND WEIGHTS OF TYPICAL MANHOLE RING AND COVER ARE NOMINAL.
8. MATERIAL FOR MANHOLE RINGS AND COVERS SHALL BE GRAY OR DUCTILE CAST IRON IN ACCORDANCE WITH SUBSECTION 712.14.
9. THE DIMENSIONS SHOWN ARE TYPICAL OR AVAILABLE,THE DIMENSIONS SHOWN ARE TYPICAL.ACTUAL DIMENSIONS AND QUANTITIES FOR CONCRETE AND REINFORCEMENT SHALL BE AS REQUIRED IN THE WORK.QUANTITIES INCLUDE VOLUMES OCCUPIED BY PIPES.
10. STRUCTURAL STEEL SHALL BE GALVANIZED AND SHALL BE IN ACCORDANCE WITH SUBSECTION 712.06.
11. ALL MANHOLE COVERS SHALL BE CAST WITH A "NO DUMPING DRAINS TO STREAM" MESSAGE AND A FISH SYMBOL.THE SURFACE OF THE MANHOLE COVER SHALL HAVE A NON-SLIP PATTERN.

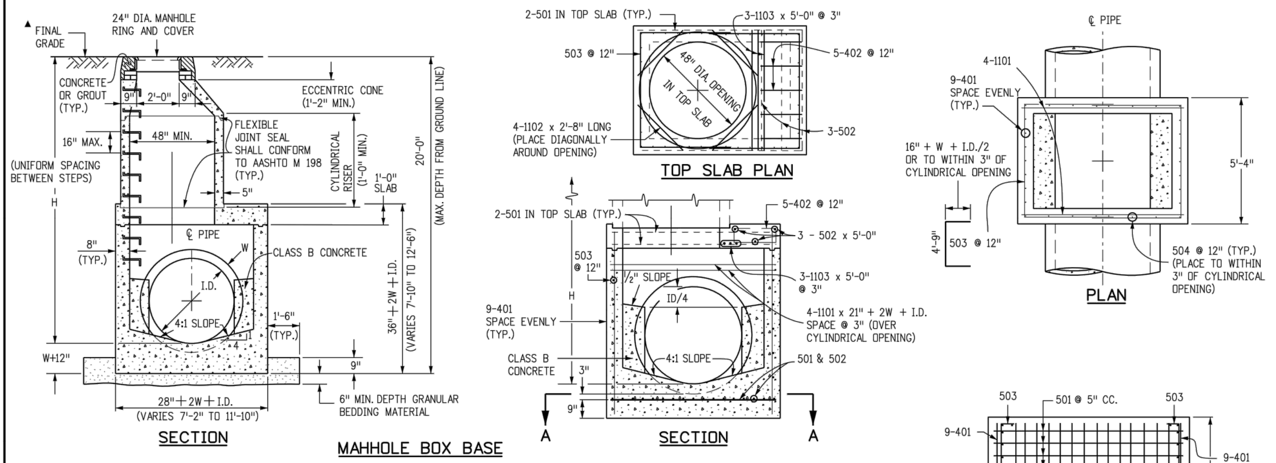
TABLE ONE ~ BAR LIST FOR CURB INLETS, TYPE "R"

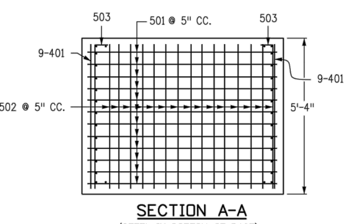
"H"	LENGTH 401	402	410	NO. REQ'D. REGULAR 403	407	NO. REQ'D. DROP BOX 403	407	L = 5 FT. CONC. CU. YDS.	STEEL LBS.	L = 10 FT. CONC. CU. YDS.	STEEL LBS.	L = 15 FT. CONC. CU. YDS.	STEEL LBS.
3'-0"	2'-8"	1'-8"		10	7			3.2	285	5.3	497	7.4	708
3'-6"	2'-2"	2'-2"		10	7			3.4	305	5.7	528	7.9	747
4'-0"	2'-8"	2'-8"		12	9			3.7	326	6.0	559	8.4	786
4'-6"	4'-2"	2'-2"		12	9			3.9	334	6.4	571	8.8	853
5'-0"	4'-8"	2'-8"		14	11			4.1	354	6.7	602	9.2	944
5'-6"	5'-2"	4'-2"	2'-9"	16	13	15	6	4.4	375	6.0	607	7.4	850
6'-0"	5'-8"	4'-8"	3'-0"	18	13	18	6	4.6	382	6.2	618	7.6	860
6'-6"	6'-2"	5'-2"	4'-9"	18	15	18	8	4.8	402	6.4	637	7.8	880
7'-0"	6'-8"	5'-8"	4'-10"	20	17	19	10	5.0	423	6.6	654	8.0	897
7'-6"	7'-2"	6'-2"	5'-9"	22	17	20	10	5.3	430	6.9	664	8.3	907
8'-0"	7'-8"	6'-8"	5'-10"	22	19	22	12	5.5	451	7.1	684	8.5	927
8'-6"	8'-2"	7'-2"	6'-9"	24	21	23	14	5.7	471	7.3	702	8.7	944
9'-0"	8'-8"	7'-8"	6'-10"	24	21	24	14	6.0	479	7.6	715	9.0	954
9'-6"	9'-2"	8'-2"	7'-9"	26	23	26	16	6.2	499	7.8	732	9.2	974
10'-0"	9'-8"	8'-8"	7'-10"	28	25	27	18	6.4	520	8.0	749	9.4	992
10'-6"	10'-2"	9'-2"	8'-9"	28	25	28	18	6.7	527	8.3	759	9.7	1001
11'-0"	10'-8"	9'-8"	8'-10"	30	27	29	20	6.9	547	8.5	779	9.9	1022

NOTES:FOR L = 5 FT.,L = 10 FT.,AND L = 15 FT.
REGULAR INLETS:TOTAL QUANTITIES NEEDED ARE OUTSIDE THE HEAVY BLACK LINE.
DROP BOX INLETS:TOTAL QUANTITIES NEEDED ARE INSIDE THE HEAVY BLACK LINE.
STEEL WEIGHTS DO NOT INCLUDE STRUCTURAL STEEL CHANNEL.

TABLE TWO ~ BARS AND QUANTITIES VARIABLE WITH "H"

Computer File Information	
Creation Date: 07/04/12	Initials: DD
Last Modification Date: 07/04/12	Initials: LTA
Full Path: www.coloradodot.info/business/designsupport	
Drawing File Name: 604020202.dgn	
CAD Ver.: MicroStation V8 Scale:





SECTION A-A
(STEEL IN BOTTOM OF BASE)

GENERAL NOTES

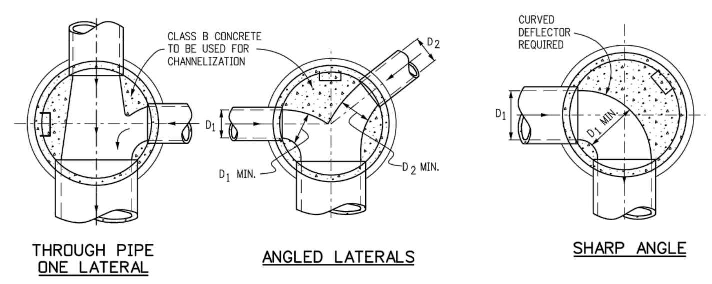
1. SINCE ALL PIPE ENTRIES INTO THE BASE ARE VARIABLE, THE DIMENSIONS SHOWN ARE TYPICAL. ACTUAL DIMENSIONS AND QUANTITIES FOR CONCRETE AND REINFORCEMENT SHALL BE AS REQUIRED IN THE WORK.
2. THE PRECAST FLAT TOP MAY BE USED ON ANY MANHOLE. THE ECCENTRIC CONE MAY BE USED WHEN THE MANHOLE "H" HEIGHT IS AT LEAST 8 FT.
3. THE MANHOLE RING FRAME SHALL BE SET IN A BED OF GROUT. THE FRAME SHALL BE SURROUNDED WITH A CEMENT GROUT IN UNPAVED AREA, OR A CONCRETE COLLAR IN PAVED AREA. SEE DETAILS ON SHEETS 2 AND 3.
4. DESIGN OF BOX BASE IS BASED ON STRAIGHT RUNS OF PIPE OR CHANGE IN DIRECTION OF LESS THAN 45°. SPECIAL DESIGN IS REQUIRED FOR 45° OR GREATER.
5. PRECAST MANHOLES AND REINFORCEMENT SHALL CONFORM TO AASHTO M 199 (ASTM C 478).
6. CAST-IN-PLACE MANHOLES SHALL BE CLASS B CONCRETE.
7. STEPS SHALL BE REQUIRED WHEN THE MANHOLE DEPTH EXCEEDS 3 FT.-6 IN. AND SHALL CONFORM TO AASHTO M 199.
8. ALL REINFORCING STEEL SHALL BE GRADE 60 AND EPOXY COATED. VERTICAL STEEL SHALL BE PLACED AT CENTERLINE OF WALL. ALL BARS SHALL HAVE A 2 IN. MINIMUM CLEARANCE.
9. ALL PIPE ENTRIES INTO THE BASE OF MANHOLE SHALL BE CONNECTED BY OPEN CHANNELIZATION ADJUSTED FOR PIPE SIZE, SHAPE, SLOPE, AND DIRECTION OF FLOW. DETAILS SHOWN ARE TYPICAL FOR INSTALLATIONS WITH ALL INVERTS OF SAME RELATIVE ELEVATION. FOR EXCESSIVE ELEVATION DIFFERENCE BETWEEN INVERTS, SPECIAL BASE/CHANNEL DETAILS WILL BE SHOWN ON THE PLANS.
10. FLOW CHANNELS AND INVERTS SHALL BE FORMED BY SHAPING WITH CLASS B CONCRETE OR APPROVED GROUT.
11. STUB-OUTS SHALL EXTEND 2 FT. MINIMUM BEYOND OUTSIDE WALL SURFACE OF MANHOLE AND BE SATISFACTORILY PLUGGED.
12. THE SLOPE OF THE MANHOLE COVER SHALL MATCH THE ROADWAY PROFILE AND CROSS SLOPE.

▲ WHEN FINAL GRADE IS PAVEMENT SURFACE, RECESS MANHOLE RING AND COVER 1/4" MIN. TO 1/2" MAX.

MARK	SIZE	TYPE	WT. #/FT.	BARS	I.D. 54"	60"	66"	72"	84"	96"	FORMULAS
401	4	I	0.668	NO. REQ'D. LENGTH WEIGHT *	18 8'-1" 97.2	18 8'-8" 104.2	18 9'-3" 111.2	18 9'-10" 118.2	18 11'-0" 132.3	18 12'-2" 146.3	401 BAR LENGTH = 32" + 2W + I.D.
402	4	III	0.668	NO. REQ'D. LENGTH WEIGHT *	5 5'-5" 18.1	5 6'-0" 20.0	5 6'-7" 22.0	5 7'-2" 23.9	5 8'-4" 27.8	5 9'-6" 31.7	402 BAR LENGTH = I.D. + 2W
501	5	I	1.043	NO. REQ'D. LENGTH WEIGHT *	17 7'-5" 131.5	17 8'-0" 141.8	17 8'-7" 152.2	17 9'-2" 162.5	17 10'-4" 183.2	17 11'-6" 203.9	501 BAR LENGTH = 24" + I.D. + 2W
502	5	I	1.043	NO. REQ'D. LENGTH WEIGHT *	22 5'-0" 114.7	23 5'-0" 119.9	25 5'-0" 130.4	26 5'-0" 135.6	29 5'-0" 151.2	32 5'-0" 166.9	502 NUMBER BARS REQ'D. = $3 + \left(\frac{24+I.D.+2W}{@\ 5"}+1\right)$
503	5	II	1.043	NO. REQ'D. LENGTH WEIGHT *	16 12'-10" 214.2	16 13'-5" 223.9	18 14'-0" 262.8	18 14'-7" 273.8	20 15'-9" 328.5	24 16'-11" 423.5	503 NUMBER BARS REQ'D. = $2\left(\frac{13+I.D.+2W}{@\ 12"}+1\right)$ BAR LENGTH = 4'-9"+2(16+W+I.D./2)
504	5	I	1.043	NO. REQ'D. LENGTH WEIGHT *	12 8'-1" 101.2	14 8'-8" 126.6	14 9'-3" 135.1	16 9'-10" 164.1	18 11'-0" 206.5	20 12'-2" 253.8	504 NUMBER BARS REQ'D. = $2\left(\frac{2W+I.D.-4}{@\ 12"}+1\right)$ BAR LENGTH = 32"+2W+I.D.
1101	11	I	5.313	NO. REQ'D. LENGTH WEIGHT *	4 7'-2" 152.3	4 7'-9" 164.7	4 8'-4" 177.1	4 8'-11" 189.5	4 10'-1" 214.3	4 11'-3" 239.1	1101 BAR LENGTH = 21" + I.D. + 2W
1102	11	I	5.313	NO. REQ'D. LENGTH WEIGHT *	4 2'-8" 56.7	4 2'-8" 56.7	4 2'-8" 56.7	4 2'-8" 56.7	4 2'-8" 56.7	4 56.7 2'-8"	BENDING TYPE I STRAIGHT
1103	11	I	5.313	NO. REQ'D. LENGTH WEIGHT *	3 5'-0" 79.7	3 5'-0" 79.7	3 5'-0" 79.7	3 5'-0" 79.7	3 5'-0" 79.7	3 5'-0" 79.7	TYPE II 4'-9" 16"+W+I.D./2
* REINFORCING STEEL TOTAL					965.6	1,037.5	1,127.2	1,204.0	1,380.2	1,601.6	TYPE III 12" 12" 7" I.D.+2W-38"
CONCRETE - CUBIC YARDS - TOTAL					6.0	6.6	7.3	8.0	9.5	11.1	

NOTE: QUANTITIES ARE BASED ON SAME SIZE PIPE ENTRANCE TO AND EXIT FROM, BASE AND A 4 FT. MANHOLE ENTRANCE INTO TOP SLAB OF BASE.

QUANTITIES FOR CONCRETE MANHOLE BOX BASE



TYPICAL CHANNELIZATION DETAILS

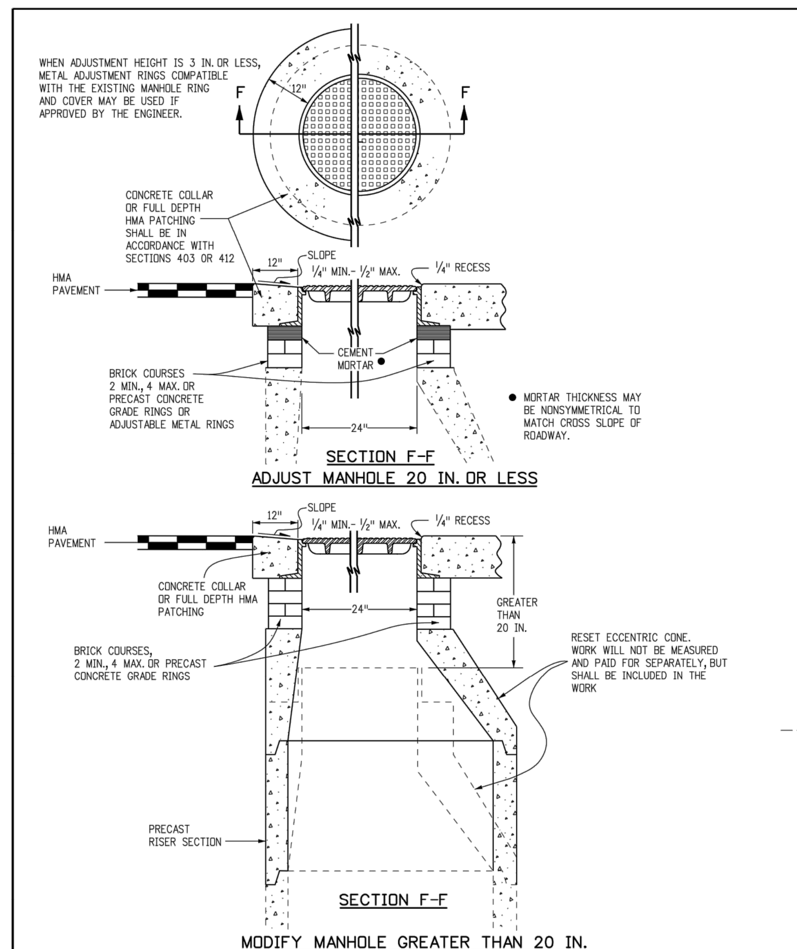
Computer File Information		Sheet Revisions	
Creation Date: 07/04/12 Initials: DD		Date:	Comments
Last Modification Date: 07/04/12 Initials: LTA	(R-X)		
Full Path: www.coloradodot.info/business/designsupport	(R-X)		
Drawing File Name: M06040200103.dgn	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

Colorado Department of Transportation
4201 East Arkansas Avenue
Denver, Colorado 80222
Phone: (303) 757-9083
Fax: (303) 757-9820
Project Development Branch DD/LTA

MANHOLES

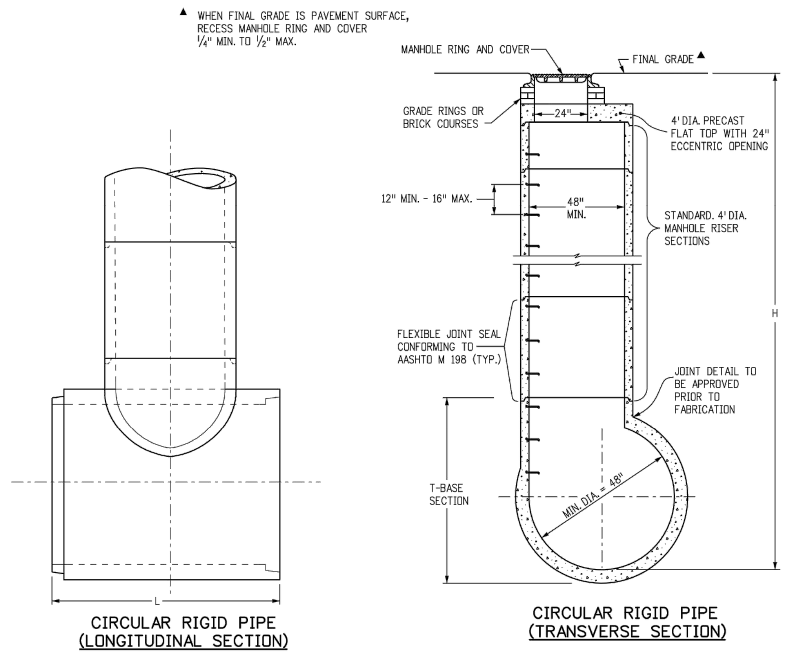
Issued By: Project Development Branch July 4, 2012

STANDARD PLAN NO. M-604-20
Sheet No. 1 of 3



T-BASE MANHOLES NOTES

1. THE T-BASE SECTION SHALL BE SHOP-FABRICATED FOR DELIVERY TO THE CONSTRUCTION SITE AS A COMPLETE UNIT.
2. THESE DETAILS SHOW ONLY THE CONCEPTUAL AND STANDARD DIMENSIONAL REQUIREMENTS FOR TYPE T-BASE MANHOLES. THE CONTRACTOR SHALL FURNISH DETAILED SHOP DRAWINGS FOR APPROVAL PRIOR TO FABRICATION. THE DETAILS SHOWN HEREIN APPLY ONLY TO 48 IN. AND GREATER DIAMETER PIPES.
3. EXCEPT FOR CLASS OF PIPE, SPECIFICATIONS FOR THE MANHOLE SHALL BE THE SAME AS THOSE REQUIRED FOR THE ADJOINING PIPE.
4. THE T-BASE SECTION SHALL MAINTAIN ITS INTERNAL SHAPE AND FLOW AREA. GROUTING OR FILLING SHALL BE APPLIED SO AS TO NOT DISTURB THE NORMAL FLOW OR REDUCE THE AREA.



MANHOLE T-BASE

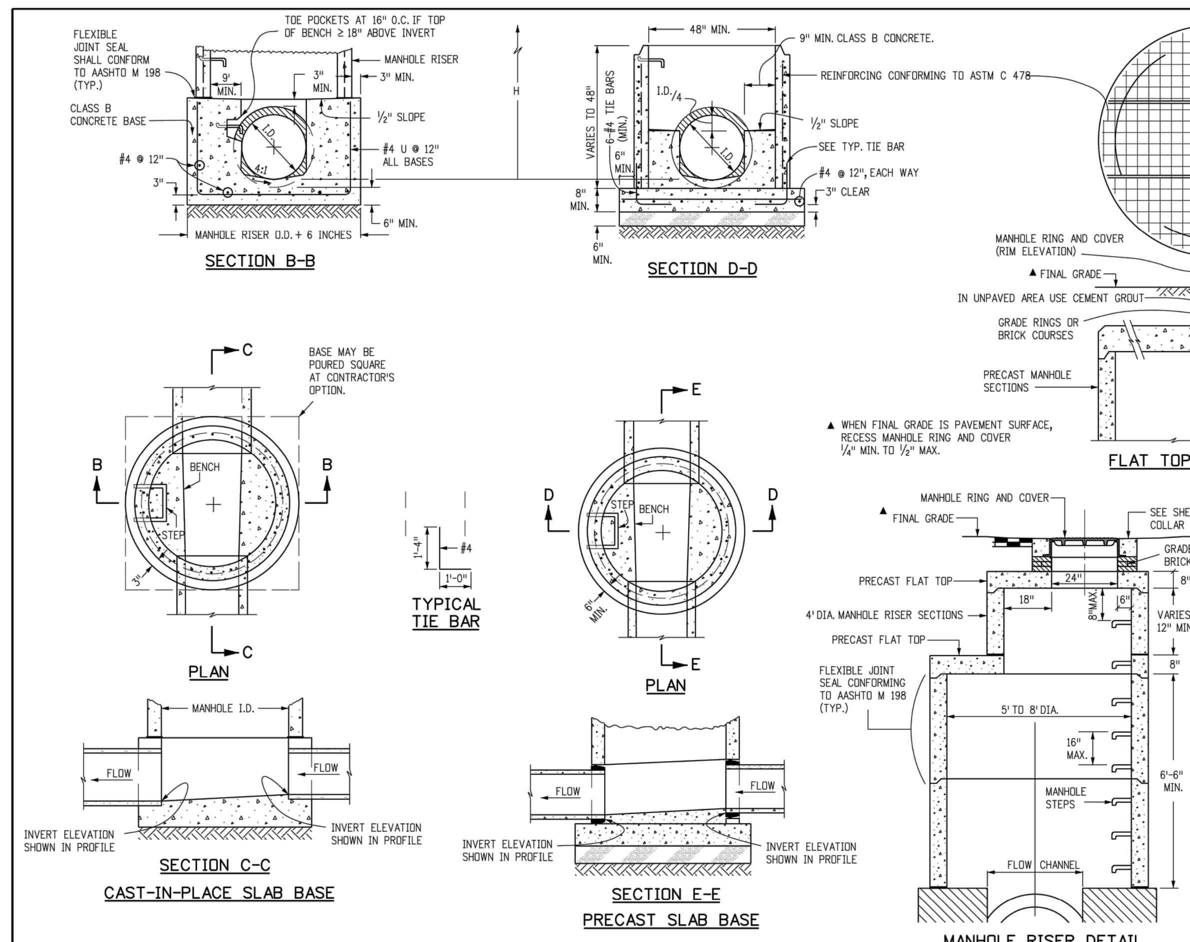
Computer File Information		Sheet Revisions	
Creation Date: 07/04/12 Initials: DD		Date:	Comments
Last Modification Date: 07/04/12 Initials: LTA	(R-X)		
Full Path: www.coloradodot.info/business/designsupport	(R-X)		
Drawing File Name: 6040200303.dgn	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

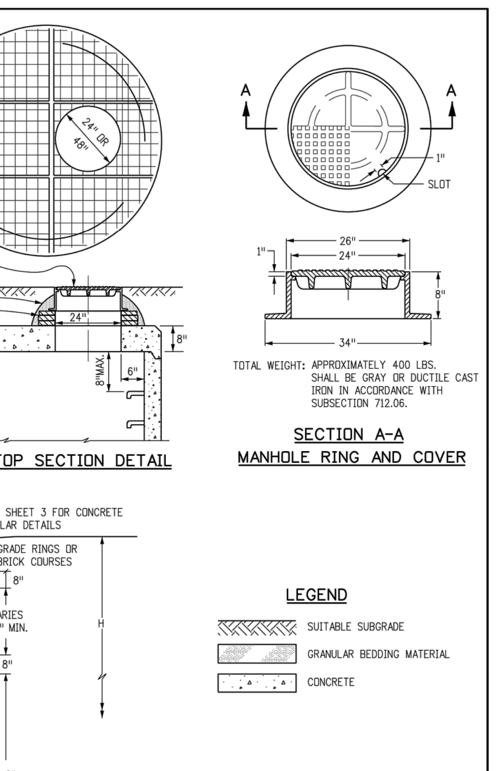
Colorado Department of Transportation
4201 East Arkansas Avenue
Denver, Colorado 80222
Phone: (303) 757-9083
Fax: (303) 757-9820
Project Development Branch DD/LTA

MANHOLES

Issued By: Project Development Branch July 4, 2012

STANDARD PLAN NO. M-604-20
Sheet No. 3 of 3





LEGEND

PRECAST MANHOLE BASES NOTES:

1. THE BASE SLAB SHALL BE POURED MONOLITHICALLY WITH BOTTOM RISER SECTION.
2. PRECAST MANHOLE BASES SHALL FIT THE CONDITIONS AND LOCATIONS FOR WHICH THEY ARE INTENDED WITHOUT ANY FIELD MODIFICATIONS. ANY MANHOLE BASE WHICH REQUIRES FIELD CUTTING OR MODIFICATION IN ORDER TO FIT THE LOCATIONS INTENDED WILL BE REJECTED BY THE ENGINEER AND REMOVED AND REPLACED BY THE CONTRACTOR AT NO COST TO THE DEPARTMENT.
3. PRECAST MANHOLE BASES SHALL BE BEDDED ON AN APPROVED GRANULAR BEDDING MATERIAL AS SHOWN ABOVE.

Computer File Information		Sheet Revisions	
Creation Date: 07/04/12 Initials: DD		Date:	Comments
Last Modification Date: 07/04/12 Initials: LTA	(R-X)		
Full Path: www.coloradodot.info/business/designsupport	(R-X)		
Drawing File Name: M06040200203.dgn	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

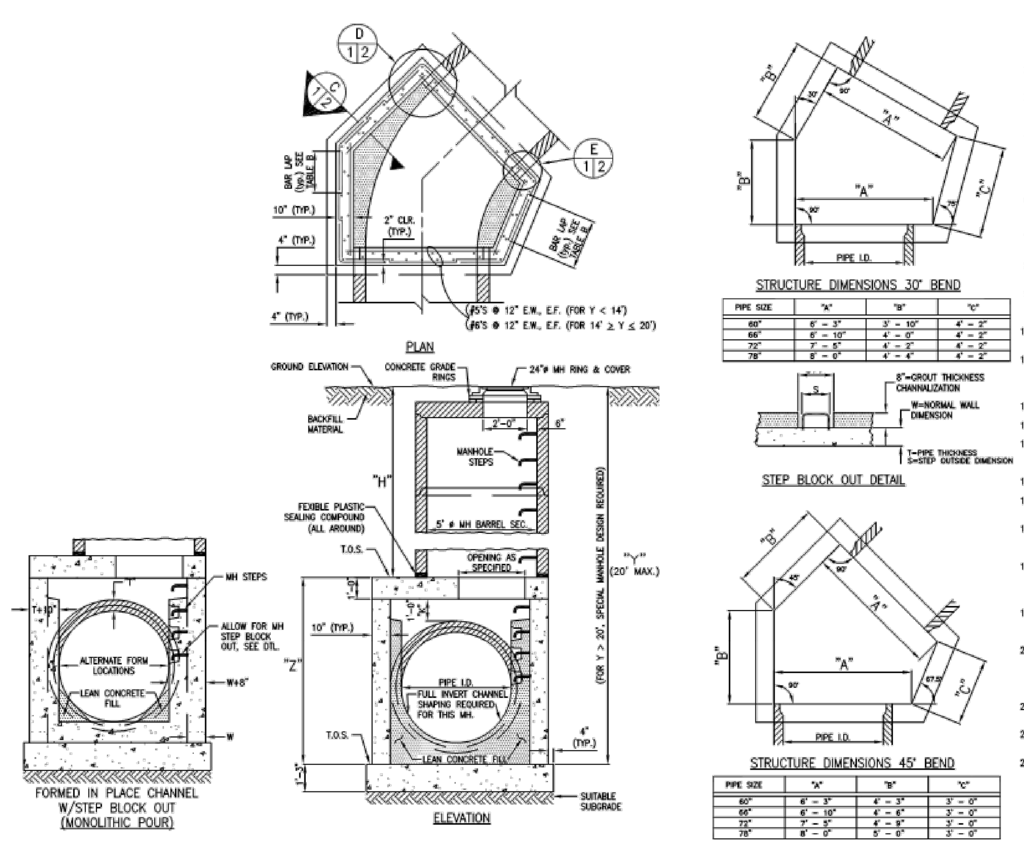
Colorado Department of Transportation
4201 East Arkansas Avenue
Denver, Colorado 80222
Phone: (303) 757-9083
Fax: (303) 757-9820
Project Development Branch DD/LTA

MANHOLES

Issued By: Project Development Branch July 4, 2012

STANDARD PLAN NO. M-604-20
Sheet No. 2 of 3

Type P Manhole Detail



STRUCTURE DIMENSIONS 30° BEND

PIPE SIZE	"A"	"B"	"C"
60"	6' - 3"	3' - 10"	4' - 2"
66"	6' - 10"	4' - 0"	4' - 2"
72"	7' - 5"	4' - 2"	4' - 2"
78"	8' - 0"	4' - 4"	4' - 2"

STEP BLOCK OUT DETAIL

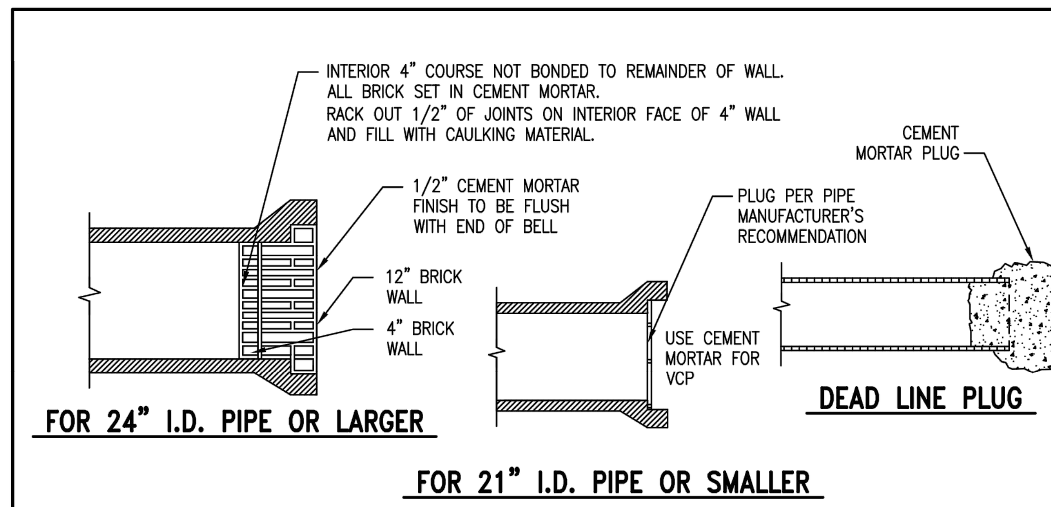
STRUCTURE DIMENSIONS 45° BEND

PIPE SIZE	"A"	"B"	"C"
60"	6' - 3"	4' - 3"	3' - 0"
66"	6' - 10"	4' - 6"	3' - 0"
72"	7' - 5"	4' - 9"	3' - 0"
78"	8' - 0"	5' - 0"	3' - 0"

GENERAL NOTES

1. THIS MANHOLE IS APPLICABLE ONLY WHERE SPECIFIED ON THE DRAWINGS.
2. TOTAL "Y" DEPTH IS LIMITED TO 20' MAXIMUM. FOR Y > 20' A SPECIAL DESIGN IS REQUIRED.
3. PRECAST MH BARRELS AND SECTIONS SHALL CONFORM TO ASTM C-478. IN ADDITION, MANHOLE STEPS, BARRELS, SHIPLAP JOINTS, RING & COVER SHALL CONFORM TO ALL APPLICABLE DOUGLAS COUNTY STANDARDS.
4. WALLS SHALL BE FORMED ON BOTH SIDES.
5. CAST-IN-PLACE MANHOLE SHALL BE CLASS D CONCRETE AND SHALL CONFORM TO DOUGLAS COUNTY STANDARD SPECIFICATIONS FOR REINFORCED CONCRETE STRUCTURES AND THE STANDARD CONSTRUCTION SPECIFICATIONS EXCEPT AS AMENDED BELOW.
6. ALL REINFORCING STEEL SHALL HAVE A MINIMUM YIELD STRENGTH OF 60,000 PSI. VERTICAL STEEL SHALL BE PLACED AT ℄ OF WALL. ALL BARS SHALL HAVE A 2" MINIMUM CLEARANCE. ALL REINFORCING BARS SHALL BE EPOXY COATED.
7. CLEAR COVER REQUIREMENT (UNLESS OTHERWISE NOTED) TO BE 2" (3" FROM BOTTOM OF FOUNDATION SLAB.)
8. LATERAL SUPPORT SHALL BE PROVIDED AND MAINTAINED FOR WALLS DURING BACKFILLING OPERATIONS.
9. BEFORE CONCRETE IS PLACED, DESIGN DRAWINGS & PLACING DRAWINGS WILL BE CHECKED TO INSURE THE PROPER PLACEMENT OF EMBEDDED ITEMS, PIPE, REINFORCING STEEL, MANHOLE RINGS, KEYWAYS, ETC.
10. ALL REINFORCING BARS WILL BE PLACED ONLY AS SHOWN ON DOUGLAS COUNTY APPROVED DETAILS (PLACING) DRAWINGS.
11. REINFORCING BARS WILL BE SPLICED ONLY AT LOCATIONS SHOWN AND DETAILED ON THE DRAWINGS. BARS WILL BE WIRE-TIED, NO TACK WELDING WILL BE PERMITTED. MINIMUM BAR BENDING DIAMETER IS SIX TIMES THE DIAMETER OF THE REBAR BEING BENT.
12. SHOP DRAWINGS (PLACEMENT DRAWINGS) WILL BE REQUIRED.
13. REINFORCEMENT IN WALLS & BASE SLAB IS VARIED BY DESIGN HEIGHT "Y".
14. WHEN DIMENSION H < 2' SET TOP SLAB ELEVATION NO MORE THAN 12" ± BELOW FINAL GRADE TO ALLOW COVER FOR MH RING & COVER, CONCRETE GRADE RINGS. DIMENSION K MAY BE GREATER THAN 12".
15. EXPOSED CONCRETE CORNERS SHALL BE CHAMFERED ¾".
16. STEPS SHALL BE PROVIDED WHEN MANHOLE DEPTH EXCEEDS 3'-6" AND SHALL BE IN ACCORDANCE WITH AASHTO M 199.
17. ALL GRATES AND FRAMES SHALL BE GRAY OR DUCTILE CAST IRON CONFORMING TO CDOT STANDARD SPECIFICATION, SUBSECTION 712.06. GRATES AND FRAMES SHALL BE DESIGNED TO WITHSTAND HS 20 LOADING.
18. THE MH RING (FRAME) SHALL BE SET ON CONCRETE GRADE RINGS. THE FRAME SHALL BE SURROUNDED WITH A CONCRETE COLLAR IN UNPAVED AREA AND CONCRETE PAVEMENT, OR FULL DEPTH ASPHALT IN ASPHALT PAVEMENT. SEE DETAILS ON STANDARD DETAIL SD-6, SHEETS 2 AND 3.
19. IF ANY REBAR HAS TO BE CUT ON THE JOB SITE, THE EXPOSED BARE STEEL SHALL BE IMMEDIATELY COVERED WITH A MANUFACTURE APPROVED EPOXY PAINT PRIOR TO POUR.
20. ALL PIPE ENTRIES INTO THE BASE OF MANHOLE SHALL BE CONNECTED BY OPEN CHANNELIZATION ADJUSTED FOR PIPE SIZE, SHAPE, SLOPE, AND DIRECTION OF FLOW. DETAILS SHOWN ARE TYPICAL FOR INSTALLATIONS WITH ALL INVERTS OF SAME RELATIVE ELEVATION. FOR EXCESSIVE ELEVATION DIFFERENCE BETWEEN INVERTS, SPECIAL BASE/CHANNEL DETAILS WILL BE SHOWN ON THE PLANS.
21. FLOW CHANNELS AND INVERTS SHALL BE FORMED BY SHAPING WITH CLASS B CONCRETE.
22. STUB-OUTS SHALL EXTEND A MINIMUM OF 1 PIPE SECTION BEYOND OUTSIDE WALL SURFACE OF MANHOLE AND BE SATISFACTORILY PLUGGED.
23. THE SLOPE OF THE MANHOLE COVER SHALL MATCH THE ROADWAY PROFILE AND CROSS SLOPE.

You must include all sheets of the Type P Manhole Detail

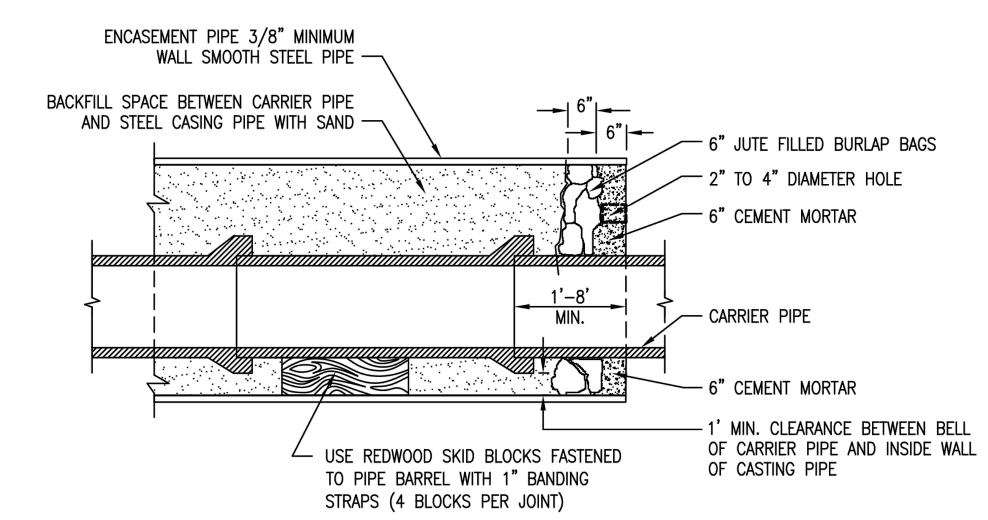


FOR 24" I.D. PIPE OR LARGER

FOR 21" I.D. PIPE OR SMALLER

DEAD LINE PLUG

STANDARD PLUGS FOR UNCONNECTED PIPES
NOT TO SCALE



TYPICAL PIPE ENCASEMENT
NOT TO SCALE

APPROVED: /S/
DIRECTOR OF PUBLIC WORKS
Aug 28,2006
DATE

CITY OF SIMI VALLEY
DEPARTMENT OF PUBLIC WORKS

STANDARD PLUGS AND PIPE ENCASEMENTS

STANDARD PLAN NO. SV 40-90
SHEET 1 OF 1

include special detail for inlets with pipes greater than 18" entering/exiting the sides

Know what's **below.** **Call** before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 SOUTH SYRACUSE WAY, SUITE 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

CLIENT
COHEN DENVER AIRPORT, LLC
LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
CONSTRUCTION PLANS
CONSTRUCTION DETAILS
STORM DETAILS 02

DATE 3/22/2021

A	1ST SUBMITTAL TO COMMERCE CITY 08/17/2020 – DJM
B	2ND SUBMITTAL TO COMMERCE CITY 03/15/2021 – DJM

REVISIONS

PLANS UNDER REVIEW NOT FOR CONSTRUCTION

DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 29

CAD FILE: 19002561-STORM DETAILS.DWG

K:\19002561\DWG\PLAN SETS\CONSTRUCTION\STORM\19002561-STORM DETAILS.DWG 3/22/2021 3:13 PM KEVIN ENDRESEN

A complete review cannot be performed until all comments are properly addressed.

FINAL DRAINAGE STUDY

For:

LEGATO – Filing No. 2

COMMERCE CITY, COLORADO

Prepared for

COHEN DENVER AIRPORT, LLC
9875 W. LA MANCHA AVENUE
LAS VEGAS, NV 89149
ATTN: BRAD BURNS

Submitted by: Atwell, LLC

DANIEL MADRUGA, P.E.
6200 SOUTH SYRACUSE WAY
GREENWOOD VILLAGE, CO 80111
303.825.7100

PROJECT NO. 19002561

SUBMITTAL DATE: 3/19/2021

Was not able to perform a complete review of the storm sewer system. Include the following in the next submittal:

Calculations for all inlets that receive flows from the site, including inlets in spine infrastructure. All bypass flows must be accounted for including bypass flows to spine infrastructure inlets.

Maps that clearly show all pipe and structure labels that are part of the analysis, including spine infrastructure and the other filings that will connect to the proposed system.

Stormcad output tables for all pipes and structures that are part of the analysis described above.

Stormcad profiles showing EGL and HGL for both minor and major storm events (with labels for EGL, HGL, and storm event on all profiles)

Check your inlet depths, max. depth is what the right-of-way dictates.

Show emergency overflow paths, label LP/HP elevations so that depth can be determined and translated to the inlet calculations

Table of Contents

GENERAL LOCATION AND DESCRIPTION 1
Soil Conditions 1
DRAINAGE BASINS AND SUB-BASINS 1
Major Drainage Basins 2
Historical Drainage Basins 2
PROPOSED DRAINAGE 3
Onsite Major Drainage Basins 3
DRAINAGE DESIGN CRITERIA 10
Regulations 10
Drainage Studies, Outfall Systems Plans, Site Constraints 10
Hydrologic Criteria 10
Hydraulic Criteria 10
DRAINAGE FACILITY DESIGN 11
General Concept 11
Specific Details 11
Stormwater Conveyance Facilities 11
Stormwater Storage Facilities 12
CONCLUSIONS 13
Compliance with Standards 13
Drainage Concept 13
REFERENCES 14

APPENDICES

A. VICINITY MAP
B. SOILS SURVEY
C. FIRMETTE AND WETLANDS MAP
D. HYDROLOGICAL CALCULATIONS
E. HYDRAULIC CALCULATIONS
F. REFERENCE MATERIALS
G. DRAINAGE MAPS AND PROPOSED OFFSITE STORM SEWER ALIGNMENT

Include Commerce City standard engineer's statement on following sheet.

Updated parcel number from recored plat required prior to final approval.

GENERAL LOCATION AND DESCRIPTION

The Legato West Filing No. 2 property (herein after referred to as "Site") is located within the City of Commerce City in Section 22, Township 2 South, Range 66 West of the 6th Meridian. The Site is a proposed single-family development on approximately 32.4 acres located in the west center portion of the Legato West Planned Unit Development (PUD), just east of Argonne Street and north of E. 90th Avenue. The Adams County Parcel Number for the Property is 0172323100002.

This Site is at located near the intersection of Legato West Parkway and Cathay Court and consists of Tracts C1 and D1 identified in the Legato West Final Plat. Filing 2 is split by Legato Parkway. Tract D1 is on the north and is bordered by Legato Parkway on the south, Cathay Court/E. 93rd Place on the east, Tract A on the west and Filing 1 (Tract D2) on the north. Tract C1 is bordered by Legato Parkway on the north, Tract B on the west, Tract C2 on the east and E. 90th Avenue on the south. Tracts A, B and C2 will be future residential filings, of varying densities, as the project develops. Phase 1 of the Legato West Construction Documents will construct Legato Parkway, E. 90th Avenue (up to the entrance of Filing 2), Cathay Court and E. 93rd Place. This construction will provide access and the necessary utility infrastructure for this phase of residential development.

The proposed residential development is designated as Medium-density Residential with 131 single-family detached residential units. The site is located in the west central portion of the Legato West final plat and is surrounded by other planned residential filings. Immediately east of the site (at the end of Legato Parkway) is a 10-acre neighborhood park, with many houses fronting the park in this filing. See Vicinity Map provided in Appendix A.

It is unclear from looking at the vicinity map where the neighborhood park is.

Soil Conditions

NRCS Soils Survey results indicate that the existing soils are primarily (99%) Platner loam with 0 to 5% slopes with some (1%) Wiley-Adena-Renohill complex. These soils are identified as a Group C having a slow infiltration rate when thoroughly wet. They consist of soils that have a layer that impedes downward movement of water or moderately fine texture. The Site is not within any mapped floodplains. The NRCS Soils Survey for the site has been included as Appendix B.

Include a map showing what is discussed here and reference it.

DRAINAGE BASINS AND SUB-BASINS

The Site falls within the T88 and Second Creek drainage basins and is directly tributary to Gramma Gulch located southwest of the site. The overall Legato property boundary has been included within a number of drainage studies, the most recent of which is the Hightower Ranch Master Drainage Study, prepared by Atwell, LLC, December 2019 and the Legato West Final Drainage Study, prepared by Atwell, LLC, January 2021.

The property does not include any mapped floodplains. The National Wetland Inventory maps do not indicate any wetlands on site. A FEMA FIRM Map and the National Wetland Inventory map have been included in Appendix C.

Include a map showing what is discussed here and reference it. This can be an excerpt from the Legato West drainage report the information discussed overlain.

Major Drainage Basins

The existing topography of the overall Legato West Development is such that a ridge divides the property from southeast to northwest, creating two major drainage basins. The northern portion, Basin A, lies within the T88 Drainage Basin while the southern portion, Basin B, lies within the Second Creek Basin.

The property does not include any mapped floodplain. The National Wetland Inventory maps do not indicate any wetlands on site. A FEMA FIRM Map and the National Wetland Inventory map have been included in Appendix C.

Include a map showing what is discussed here and reference it. This can be an excerpt from the Legato West drainage report the information discussed overlain.

Historical Drainage Basins

The northern portion of this project site is located within Basin A, as outlined in the Final Drainage Study for Legato West. Legato West, Basin A generally represents the northern half of the Legato West Property, bisected from the northwest corner to the southeast corner and includes commercial and residential areas. Drainage from the tracts developed with the Legato West plat will be collected in a proposed storm sewer system and routed to Pond A. All storm sewer that is shown in Himalaya Parkway, E 95th Avenue, E. 94th Avenue, Biscay Street and E 93rd Place will be built as part of the Legato West project and is shown as existing in this drainage report. Flows from Drainage Basin A are conveyed to Pond A, north of E. 94th Avenue and west of Biscay Street. Pond A outfalls to the Tower Road storm infrastructure, ultimately discharging to Gramma Gulch at the existing box culvert beneath Tower Road, just south of E. 90th Avenue.

Include Legato Parkway, Argonne Street, and E. 90th Avenue.

The Legato West Final Drainage Report has the north half of Filing 2 identified primarily in Basin A-26. The very southern edge of Tract D1 is in Basin B-10 and will be conveyed to the Legato Parkway storm sewer system. Basin A-26 has been designed to be 45% impervious, per MHFD criteria for residential development.

Run-off from this filing will be conveyed overland, in curb & gutter and through a proposed storm sewer system to the existing storm sewer in Biscay Lane (to be constructed as part of Phase 1 of the Legato West Construction Drawings). Once it enters the Legato West storm sewer system, drainage will be conveyed north to Pond A.

This is incorrect. Only the north half of Legato Parkway is identified as Basin B-10 in the Legato West report.

The southern portion of this project site is located within Basin B, as outlined in the Final Drainage Study for Legato West. Legato West, Basin B generally represents the southern half of the Legato West Property. Drainage from the tracts developed with the Legato West Final Plat will be collected in a storm sewer system and conveyed to detention pond B, at the southeast corner of E. 90th Avenue and Argonne Street. Pond B will outfall directly to Gramma Gulch and conveyed to the existing box culvert beneath Tower Road.

The south half of Filing 2 falls within two drainage basins, B-16 and B-24, in the Legato West Final Drainage Report. These basins have a designed imperviousness of 45%. Basin B-24 is 30.7 acres and includes Filing 2 and part of future residential filings.

Run-off from this filing will be conveyed overland, in curb & gutter and through a proposed storm sewer system to the existing storm sewer in either Legato Parkway or E. 90th Avenue. Once it enters the Legato West storm sewer system, drainage will be conveyed west and south to Pond B.

Include a map showing what is discussed here and reference it. This can be an excerpt from the Legato West drainage report the information discussed overlain.

PROPOSED DRAINAGE

Identify total acreage of drainage basins associated with the site.

Onsite Major Drainage Basins

Legato Filing No. 2 lies within both Major Basins A and B, as identified in the Legato West Final Drainage Study. As such, two major basins have been identified and delineated for this project proposal. Additionally, flow from portions of future, adjacent developments (Legato Filing No. 1 and Tract C2) are also expected to be collected and conveyed by the proposed infrastructure within shared roadways (E. 94th Place & E. 93rd Place) and are accounted for in the storm sewers proposed for this phase.

See the Proposed Drainage Map for basin boundaries associated with this filing. (Appendix G)

Major Basin A

Include an overall map showing what is discussed here and reference it. This can be an excerpt from the Legato West drainage report the information discussed overlain.

Major Basin A consists of approximately 12.5 acres of single-family residential area in the central western portion of the site. Runoff is expected to be collected in on-site inlets and conveyed through storm sewer infrastructure and routed to the regional water quality and detention pond (Pond A), via the storm sewer within Biscay Lane.

Only 7 sub-basins are discussed.

Eight sub-basins have been delineated within Major Basin A.

Sub-Basin A-1 (0.86 acres) is located along northwest side of E. 94th Avenue. The basin is made up of a small portion of the future, multi-family filing within Legato West Tract A and a portion of E. 94th Avenue. This basin has a composite imperviousness of 85%. Runoff will flow east to the street curb and gutter and be conveyed northeast to a 10-foot, Type-R, sump inlet (Inlet 2605L, Design Point A1) within E. 94th Avenue. There, it will enter the storm sewer and be routed north to detention Pond A via the storm sewer that will be constructed with Phase 1 of the Legato West Construction Drawings. The emergency overflow path for sump inlet 2605L is to the north, overtopping the curb and flowing directly north across the utility easement towards E. 94th Avenue. (Q5=1.97 CFS, Q100=4.77 CFS)

Sub-Basin A-2 (1.95 acres) is located along the east side of E. 94th Avenue. The basin is made up of a portion of the Biscay Street right-of-way and the adjacent single-family lots. This basin has a composite imperviousness of 49%. Runoff will generally sheet flow across lots to the west, where it will be collected in the street curb and gutter and be conveyed northeast to a 10-foot, Type-R, sump inlet (Inlet 2605R, Design Point A2) within E. 94th Avenue. There, it will enter the storm sewer and be routed north to detention Pond A via the storm sewer that will be constructed with Phase 1 of the Legato West Construction Drawings. The emergency overflow path for sump inlet 2605R is to the north, overtopping the curb and flowing through the utility easement towards E. 94th Avenue. (Q5=1.97 CFS, Q100=6.58 CFS)

Sub-Basin A-3 (1.31 acres) is along the west side of E. 93rd Avenue. This basin is made up of the west half of E. 93rd Avenue, a portion of the neighborhood park and the adjacent, single-family residential lots. The basin has a composite imperviousness of 59%. Runoff will flow east across the lots to the street section curb and gutter and be conveyed north to an on-grade, 10-foot Type-R inlet (Inlet 2700L, Design Point A3) within E. 93rd Avenue and routed to the proposed detention Pond A within the existing storm sewer that will be constructed in Biscay Lane. Inlet 2700L will capture 100% of the minor storm run-off and 94% of the major storm run-off.

Overflow from this inlet will continue down E. 93rd Avenue, turn north on Biscay Lane and be captured in the 15' Type R inlet that will be constructed with Legato Filing 1. (Q5=1.86 CFS, Q100=5.54 CFS)

Sub-Basin A-4 (2.76 acres) is along the west side of E. 94th Avenue. This basin is made up of the west half of E. 94th Avenue and the adjacent single-family residential lots and open space tract. The basin has a composite imperviousness of 51%. Runoff will flow west across the proposed lots to the street section curb and gutter and be conveyed north to an on-grade, 10-foot Type-R inlet (Inlet 2700R, Design Point A4) within e. 93rd Avenue and routed to the proposed detention Pond A within the existing storm sewer that will be constructed in Biscay Lane. Inlet 2700R will capture 100% of the minor storm run-off and 78% of the major storm run-off. Flows that bypass this inlet will be continue north in E. 93rd Avenue, turn north at the cross pan of Biscay Lane and will be captured in the 15' Type R inlet, on the west side of Biscay Lane. (Q5=2.78 CFS, Q100=9.07 CFS)

Sub-Basin A-5 (1.77 acres) is located along northwest side of E. 93rd Place and Biscay Lane. The basin is made up of the west half of E. 93rd Place and the south half of Biscay Lane, as well as the adjacent single-family lots and open space tract. This basin has a composite imperviousness of 68%. Runoff will flow across lots, east, to the street curb and gutter of E. 93rd Place and be conveyed north towards Biscay Lane. It will then turn west on Biscay Lane and be collected in an existing 15-foot, Type-R, sump inlet (Inlet 600, Design Point A5) at the west end of E 94th Place. This inlet is proposed to be constructed as part of Legato Filing 1. Drainage run-off from this basin will be conveyed to Pond A via the storm sewer within Biscay Lane. (Q5=2.71 CFS, Q100=7.44 CFS)

Discuss emergency overflow path.

Sub-Basin A-6 (1.21 acres) is located along west and south side of E. 94th Avenue. The basin is made up of a small portion of the future, multi-family filing within Legato West Tract A and a portion of E. 94th Avenue. This basin has a composite imperviousness of 87%. Runoff will flow north and east to the street curb and gutter and be conveyed west and north to a 10-foot Type-R, on grade inlet (Inlet 2600L, Design Point A6) within E. 94th Avenue. From there, it will enter the storm sewer within E. 94th Avenue and be routed north towards the existing storm sewer in Biscay Lane and, ultimately, to detention Pond A. Inlet 2600L will capture 100% of the minor storm run-off and 92% of the major storm run-off. Flows that bypass this inlet will be continue north in E. 94th Avenue to the sump inlet discussed in Basin A-1. (Q5=2.47 CFS, Q100=5.90 CFS)

Sub-Basin A-7 (2.68 acres) is located along east side of E. 94th Avenue. The basin is made up of a portion of the E. 94th Avenue right-of-way, the neighborhood park and the adjacent single-family lots. This basin has a composite imperviousness of 52%. Runoff will sheet flow south and west across the lots to the street curb and gutter and be conveyed west and north to a 10-foot, Type-R, on-grade inlet (Inlet 2600R, Design Point A7) within E. 94th Avenue. From there, it will enter the storm sewer within E. 94th Avenue and be routed north to the existing storm sewer in Biscay Lane and, ultimately, to detention Pond A. Inlet 2600R will capture 100% of the minor storm run-off and 78% of the major storm run-off. Flows that bypass this inlet will be continue north in E. 94th Avenue to the sump inlet discussed in Basin A-2. (Q5=2.80 CFS, Q100=9.01 CFS)

<u>Major Basin B</u>

Major Basin B consists of approximately 21.3 acres of single-family residential area that is south of Legato Parkway. Runoff is expected to be collected in on-site inlets and conveyed through storm sewer infrastructure and routed to the regional water quality and detention pond (Pond B).

Twelve sub-basins have been delineated within the southern half of the Site within onsite Major Basin B.

Sub-Basin B-1 (0.98 acres) is located adjacent to the south side of Legato Parkway at the intersection with Cathay Court. This basin is primarily made of single-family residential lots along with a portion of E. 93rd Avenue. This basin has a composite imperviousness of 53%. Runoff will sheet flow across the lots to the street curb and gutter where it will be combined with Basin B-11 of the Legato West Final Drainage Study. From there it will be conveyed to the 10-foot, Type-R, on-grade, inlet within Legato Parkway (Inlet 308R). It will enter the storm sewer within Legato Parkway and be routed south to proposed detention Pond B. (Q5=1.24 CFS, Q100=3.95 CFS)

Sub-Basin B-2 (2.79 acres) is located adjacent to the south side of Legato Parkway. This basin is consists of single-family residential lots, a portion of E. 92nd Drive and E. 92nd Place. This basin has a composite imperviousness of 58%. Runoff will flow to the street curb and gutter and be conveyed to a 15-foot, Type-R, on-grade inlet (Inlet 2506L, Design Point B2) within Andes Street. Run off will be conveyed to the storm sewer system in Legato Parkway, that will be constructed with the Legato West Construction Drawings and be routed south to proposed detention Pond B. Inlet 2506L captures 100% of storm water run-off in both the minor and major storm events. (Q5=3.70 CFS, Q100=11.14 CFS).

Sub-Basin B-3 (2.05 acres) is located in the central portion of the Site, adjacent to Andes Court and E. 93rd Avenue. This basin is made up primarily of single-family residential lots and the portions of Andes Court and E. 93rd Place. The basin has a composite imperviousness of 63%. Runoffs is conveyed via street section curb and gutter to a 10–foot, on-grade, Type-R inlet (Inlet 1709L, Design Point B3) within Andes Court, collected in a storm sewer system and routed south to the to an existing storm sewer stub from E. 90th Avenue and, ultimately, to detention Pond B. Inlet 1709L will capture 100% of the minor storm run-off and 82% of the major storm run-off. Flows that bypass this inlet will be continue down Andes Court to the next on-grade inlet (further discussed in the Basin B-4 description). (Q5=2.86 CFS, Q100=8.21 CFS)

Sub-Basin B-4 (2.20 acres) is located in the central portion of the Site, north of E. 92nd Drive and west of Andes Court. This basin is made up primarily of single-family residential lots and the portions of E. 92nd Drive and Andes Court. The basin has a composite imperviousness of 59%. Runoff will sheet flow across lots to the curb and gutter and is conveyed via street section curb and gutter to a 15-foot, on-grade, Type-R inlet (Inlet 1708L, Design Point B4) within Andes Court. Runoff collected in the inlet will be conveyed via storm sewer to the existing stub at the intersection of Andes Street and E. 90th Avenue and routed south to detention Pond B. Inlet 1708L will capture 100% of the minor storm run-off and 96% of the major storm run-off. Flows that bypass this inlet will be continue down Andes Court to the next on-grade inlet (further discussed in the Basin B-7 description). (Q5=2.73 CFS, Q100=8.13 CFS)

Sub-Basin B-5 (1.90 acres) is located along the western portion of the Site, adjacent to Andes Street. This basin is made up of a small portion of the future, multi-family filing within Legato West Tract B and a portion of Andes Street. This basin has a composite imperviousness of 86%. Runoff flows overland to the east and is conveyed south, via street section curb and gutter to sump, 5-foot, Type-R, (Inlet 1701, Design Point B5). There it will enter the proposed storm sewer and be routed south to the existing storm sewer within E. 90th Avenue and, ultimately, to detention Pond B. The emergency overflow path for this sump inlet is south, overtopping

the high point near the intersection of Andes Street and E. 90th Avenue and then west within E. 90th Avenue. (Q5=3.61 CFS, Q100=8.69 CFS)

Sub-Basin B-6 (2.25 acres) is located in southwest-central portion of this filing at the intersection of E 91st Place and Andes Street. The basin is made up of portions of E 91st Place and Andes Street and the adjacent, single-family residential lots. This basin has a composite imperviousness of 59%. Runoff will sheet flow across lot, to the street section curb and gutter and to an on-grade, 10-foot, Type-R, (Inlet 2505R, Design Point B6). There it will enter the proposed storm sewer and be routed south to the existing storm sewer in E. 90th Avenue, then on to detention Pond B. Inlet 2505R will capture 100% of the minor storm run-off and 80% of the major storm run-off. Flows that bypass this inlet will be continue south in Andes Street to the next on-grade inlet (further discussed in the Basin B-10 description). (Q5=2.88 CFS, Q100=8.59 CFS)

Sub-Basin B-7 (2.90 acres) is located along the western portion of this filing and consists of the potions of the E. 91st Place, E. 91st Drive and Andes Court right-of-way and the adjacent single-family lots. This basin has a composite imperviousness of 63%. Runoff will sheet flow across lots to the street curb and gutter and be conveyed to a 10-foot, Type-R, on-grade inlet (Inlet 1706L, Design Point B7) within Andes Court. There it will enter the proposed storm sewer and be routed south to the existing storm sewer in E. 90th Avenue, then on to detention Pond B. Inlet 1706L will capture 100% of the minor storm run-off and 68% of the major storm run-off. Flows that bypass this inlet will be continue south in Andes Street to the sump inlet near the intersection of Andes Court and Andes Street (further discussed in the Basin B-11 description). (Q5=4.04 CFS, Q100=11.59 CFS)

Sub-Basin B-8 (1.93 acres) is located along the southern portion of this filing near the intersection of E. 91st Drive and Andes Street. This basin consists of the portions of the E. 91st Drive and Andes Street rights-of-way along with the adjacent, single family lots. This basin has a composite imperviousness of 59%. Runoff will flow to the street curb and gutter and be conveyed west and south to a 10-foot, Type-R, on-grade inlet (Inlet 2502R, Design Point B8) within Andes Street. Flows will be conveyed to the storm sewer within Andes Street, south to the existing storm sewer in E. 90th Avenue and, ultimately to detention Pond B. Inlet 2502R will capture 100% of the minor storm run-off and 83% of the major storm run-off. Flows that bypass this inlet will be continue south in Andes Street to the next on-grade inlet (further discussed in the Basin B-9 description). (Q5=2.65 CFS, Q100=7.91 CFS)

Sub-Basin B-9 (1.78 acres) is located at the south end of this filing and consists of the E. 90th Place and Andes Street right-of-way and the adjacent, single family lots. This basin has a composite imperviousness of 60%. Runoff will sheet flow across lots to the street curb and gutter and be conveyed west to a 10-foot, Type-R, on-grade inlet (Inlet 2501R, Design Point B9) within Andes Street. Flows from this inlet will be conveyed to the storm sewer within Andes Street, south to the existing stub at the intersection of Andes Street and E. 90th Avenue and then to detention Pond B. Inlet 2501R will capture 100% of the minor storm run-off and 82% of the major storm run-off. Flows that bypass this inlet will be continue south in Andes Street, turn east at Andes Court and be collected in the sump inlet at Design Point B11. (Q5=2.33 CFS, Q100=6.88 CFS)

Sub-Basin B-10 (0.56 acres) is located in the southwest portion of this filing and consists of a small portion of the Andes Street R.O.W. between E 91st Place and E 91st Drive along with the adjacent, single family lots. This

basin was assumed to have a composite imperviousness of 57%. Runoff will flow west to the street curb and gutter and be conveyed south to a 10-foot, Type-R, on-grade inlet (Inlet 2503R, Design Point B10) within Andes Street. There it will enter the proposed storm sewer and be routed south to the existing storm sewer in E. 90th Avenue, then on to detention Pond B. Inlet 2503R will capture 100% of the minor storm run-off and 100% of the major storm run-off. (Q5=0.79 CFS, Q100=2.39 CFS)

Sub-Basin B-11 (1.18 acres) is located along the south end of this filing and consists of portions of Andes Court, E. 90th Place and Andes Street along with an area of green space (neighborhood park). This basin has a composite imperviousness of 36%. Runoff will flow south to the street curb and gutter where it will be collected within a 15-foot, Type-R, sump inlet (Inlet 1702L, Design Point B11) at the south end of Andes Court. From there it will enter the proposed storm sewer and be routed south to the existing storm sewer in E. 90th Avenue, then on to detention Pond B. The emergency overflow path for sump Inlet 2505R be to the west, where it will overtop the high point at the intersection of Andes Court and Andes Street and then be collected in Inlet 1700R, just to the south of the intersection. (Q5=1.23 CFS, Q100=5.00 CFS)

Sub-Basin B-12 (0.79 acres) is located adjacent to the intersection of Legato Parkway and Cathay Court, on the north side of Legato Parkway. This basin has a composite imperviousness of 23%. Runoff will flow to the street curb and gutter where it will be combined with flows from Basin B-10 of the Legato West Final Drainage Study. From there it will be conveyed to the 10-foot, Type-R, on-grade inlet within Legato Parkway (Inlet 308L). There, it will enter the existing storm sewer (constructed as part of the Legato West Construction Drawings) and be routed south to proposed detention Pond B. (Q5=0.44 CFS, Q100=2.44 CFS)

Off-Site Basins

Eleven sub-basins have been delineated with impacts to inlets and storm sewer proposed for this filing. These include areas of Legato Filing No. 1 and the future single-family development on Legato West Tract C2. While these areas are not to be constructed at the same time (i.e. Filing 1 should be constructed earlier than Filing 2), the analysis has been executed for these areas to ensure proper sizing of the storm sewer pipes and inlets within Filing 2.

Off-Site Basin OS-1 (0.43 acres) is located within Legato Filing No. 1 (designated as Basin B2 in the Legato Filing 1 Final Drainage Study) along the north side of E. 94th Avenue. The basin is made up of the north half of the Biscay Lane right-of-way and the single-family lots adjacent to the road. This basin has a composite imperviousness is 63%. Runoff flows across the lots to the south and then is conveyed to the west via street curb and gutter. A Type C inlet was proposed with Filing 1 at the low point. This Type C inlet will be removed and replaced with the sump inlets outlined in the sub-basin A-1 and A-2 description. Flows from OS-1 will be combined with flows from Basin A-1 and enter the storm sewer system via a 10-foot, Type-R, sump inlet (Inlet 2605R, Design Point A1) within E. 94th Avenue. (Q5=0.69 CFS, Q100=1.97 CFS)

Off-Site Basin OS-2 (2.06 acres) is located within Legato Filing No. 1 (designated as Basin B3 in the Legato Filing 1 Final Drainage Study) along the north side of Biscay Lane. This basin primarily consists of the north half of the Biscay Lane right-of-way, as well as portions of E. 94th Avenue, E 93rd Avenue and the adjacent single-family lots. The basin has a composite imperviousness of 61%. Runoff will flow to the street curb and gutter and be

conveyed north to a 10-foot, Type-R, sump inlet (Inlet 598) within Biscay Lane, at Design Point 02. All of this infrastructure will be constructed with either the Legato West Construction Drawings or Filing 1. The basin has been included in this report to provide background flows within the pipes that Filing 2 will directly connect into. (Q5=2.74 CFS, Q100=8.01 CFS)

Discuss emergency overflow path.

Sub-Basin O-3 (2.32 acres) is located within Legato West Tract C2 along the east side of Andes Court. This basin is made up primarily of future single-family residential lots and portions of the right-of-way for Andes Court. The basin has an estimated composite imperviousness of 70%. Runoff will be conveyed across the lots to the street curb and gutter where it will combine with flows from Andes Court and will be conveyed to an on-grade inlet (Inlet 1709R, Design Point 03) that will be constructed as part of Filing 2. There it will enter the proposed storm sewer and be routed south to the existing storm sewer in E. 90th Avenue, then on to detention Pond B. Inlet 1709R will capture 100% of the minor storm run-off and 70% of the major storm run-off. Flows that bypass this inlet will continue south in Andes Street and turn east on E. 92nd Drive. It will be collected in the future sump inlet that will be constructed with that future residential filing. Despite the calculations for this basin showing bypass flows in the 100-year and traveling to an inlet that is not yet constructed, it is anticipated that the 10' inlet will capture 100% of flows until the future residential filing is constructed. The reduced impervious area (in the existing condition) will generate much smaller flows until that filing develops. (Q5=4.28 CFS, Q100=11.54 CFS)

Sub-Basin O-4 (2.53 acres) is located within Legato West Tract C2, adjacent to Andes Court along the north side of E. 92nd Drive. This basin is made up primarily of single-family residential lots and a portion of the right-of-way for E. 92nd Drive. The basin has a composite imperviousness of 53%. Runoff is conveyed south across the lots to the street curb and gutter where it will be picked up in a future sump inlet to cut off run-off prior to it leaving the future development. The inlet will convey flows into the storm sewer within Andes Court and will be routed to detention Pond B. (Q5=3.09 CFS, Q100=9.84 CFS)

Sub-Basin O-5 (1.75 acres) is located within Legato West Tract C2, adjacent to Andes Court along the south side of E. 92nd Drive. This basin is made up primarily of single-family residential lots and portions of right-of-way for E. 92nd Drive and Andes Court. The basin has a composite imperviousness of 62%. Runoff will be conveyed via street section curb and gutter to a 10-foot Type-R inlet (Inlet 1708R, Design Point 05) within Andes Court. There it will enter the proposed storm sewer and be routed south to the existing storm sewer in E. 90th Avenue, then on to detention Pond B. Inlet 1708R will capture 100% of the minor storm run-off and 72% of the major storm run-off. Flows that bypass this inlet will continue south in Andes Street and turn east on E. 91st Place. It will be collected in the future sump inlet that will be constructed with that future residential filing. Despite the calculations for this basin showing bypass flows in the 100-year and traveling to an inlet that is not yet constructed, it is anticipated that the 10' inlet will capture 100% of flows until the future residential filing is constructed. The reduced impervious area (in the existing condition) will generate much smaller flows until that filing develops. (Q5=2.46 CFS, Q100=7.13 CFS)

Sub-Basin O-6 (2.43 acres) is located within Legato West Tract C2, adjacent to Andes Court along the north side of E. 91st Place. This basin is made up primarily of single-family residential lots and the northern portion of local E. 91st Place right-of-way. The basin has a composite imperviousness of 51%. Runoff will sheet flow across future lots to curb and gutter and to the future sump inlet (Design Point 06). The future inlet will convey

flows to the storm sewer within Andes Court and will be routed to the storm sewer system in Andes Court, ultimately to detention Pond B. (Q5=2.86 CFS, Q100=9.31 CFS)

Sub-Basin O-7 (1.49 acres) is located within Legato West Tract C2, adjacent to Andes Court along the south side of E. 91st Place and Andes Court. This basin is primarily made up of single-family residential lots along with portions of local E. 91st Place and Andes Court. This basin has a composite imperviousness of 72%. Runoff will be collected via curb and gutter and conveyed to an on-grade 15-foot, Type R inlet (Inlet 1706R, Design Point 07) within Andes Court. There it will enter the proposed storm sewer and be routed south to the existing storm sewer in E. 90th Avenue, then on to detention Pond B. Inlet 1706R will capture 100% of the minor storm run-off and 92% of the major storm run-off. Flows that bypass this inlet will continue south in Andes Street and turn east on E. 91st Drive. It will be collected in the future sump inlet that will be constructed with that future residential filing. Despite the calculations for this basin showing bypass flows in the 100-year and traveling to an inlet that is not yet constructed, it is anticipated that the 15' inlet will capture 100% of flows until the future residential filing is constructed. The reduced impervious area (in the existing condition) will generate much smaller flows until that filing develops. (Q5=2.98 CFS, Q100=7.90 CFS)

Sub-Basin O-8 (1.58 acres) is located within Legato West Tract C2, adjacent to Andes Court along the north side of E. 91st Drive and is made of single-family residential lots along with a portion of E. 91st Drive. This basin has a composite imperviousness of 57%. Runoff will sheet flow across future lots to the street curb and gutter and be conveyed to a future inlet (Design Point 08) within E. 91st Drive. There, it will enter the storm sewer within Andes Court and be routed detention Pond B. (Q5=2.08 CFS, Q100=6.32 CFS)

Sub-Basin O-9 (1.87 acres) is located within Legato West Tract C2, adjacent to Andes Court along the north side of E 90th Place and is primarily made of single-family residential lots along with a portion of right-of-way for local E 90th Place. This basin has a composite imperviousness of 57%. Runoff will flow to the street curb and gutter and be conveyed to a future sump inlet (Design Point 09) within E. 90th Place to cut off flows prior to releasing to Andes Court. From there, flows will enter the storm sewer within Andes Court and be routed south to detention Pond B. (Q5=2.88 CFS, Q100=8.76 CFS)

Sub-Basin O-10 (1.60 acres) is located within Legato West Tract C2, adjacent to Andes Court along the south side of E. 90th Place and is primarily made of single-family residential lots along with a portion of south half of E. 90th Place right-of-way. This basin has a composite imperviousness of 54%. Runoff will sheet flow across future lots to the street curb and gutter and be conveyed to a future sump inlet (Design Point 10) within E. 90th Place where it will cut off flows prior to releasing to Andes Court. Flows captured in this inlet will be conveyed to the storm sewer within Andes Court and be routed south to detention Pond B. (Q5=1.93 CFS, Q100=6.07 CFS)

Sub-Basin O-11 (1.85 acres) is located within Legato West Tract C2 along the south side of Andes Court and is primarily made of single-family residential lots along with a portion of Andes Court. This basin has a composite imperviousness of 56%. Runoff will flow north to the street curb and gutter and be conveyed to a 10-foot, Type-R, sump inlet (Inlet 1700R, Design Point 11) within Andes Street. It will enter the proposed storm sewer and be routed south to the existing storm sewer within E. 90th Avenue and, ultimately, to detention Pond B.

The emergency overflow path for this sump inlet is south, overtopping the high point near the intersection of Andes Street and E. 90th Avenue and then west within E. 90th Avenue. (Q5=2.08 CFS, Q100=6.40 CFS)

DRAINAGE DESIGN CRITERIA

Regulations

This drainage report was prepared in accordance with the Commerce City Storm Drainage Design Manual as well as the Mile High Flood District Urban Storm Drainage Criteria Manual.

Drainage Studies, Outfall Systems Plans, Site Constraints

The following studies/reports have been prepared for areas that include the subject property.

- Master Drainage Study for Hightower Ranch, prepared by Atwell, December 2019
- Final Drainage Study for Legato West, prepared by Atwell, January 2021

The reports were referenced for historic drainage flows and conveyance structure characteristics/sizing. Relevant portions of these reports have been included in Appendix F.

Design and Technical

Reference MHFD workbook and location.

Hydrologic Criteria

The rational method was used to determine peak runoff rates from the site. The return periods analyzed are the 5-year and 100-year for storm sewer, inlets, and street capacity as prescribed by Section 2.4.2. of the Commerce City Storm Drainage Criteria Manual (CCSDCM).

Rainfall data was obtained from NOAA Atlas 14, Volume 8, Version 2. One-hour point rainfalls for the 5-year and 100-year return periods are 1.37 and 2.58 inches respectively. Imperviousness percentages for the various land uses were taken from Table 501 of the CCSDCM. Where a basin was composed of multiple land uses, a composite imperviousness was calculated.

Runoff coefficients were based on soil type and calculated using Table 6-4 of the Urban Storm Drainage Criteria Manual (USDCM) Volume 1. Soil types were derived using the National Resources Conservation Service (NRCS) Web Soil Survey and found to include type C soils.

MHFD criteria is referenced elsewhere in this report. Please clarify.

Hydraulic Criteria

All hydraulic criteria set forth by the CCSDCM will be observed for street, curb and gutter, open channel, storm sewer, and storm inlet capacities. Allowable capacities for the minor and major storms in street sections and curb and gutter are defined section 2.4.4. in the CCSDCM.

From the information calculated on the MHFD rational method spreadsheets (UD Rational 2.00), the street capacities and inlet sizes and locations were determined. Where street capacities would be exceeded, or a sump location occurs, inlets have been proposed. Inlets have been sized using MHFD spreadsheets (UD-Inlet v4.06) to collect and convey the surface flows to the storm sewer system. A computer simulation, utilizing Bentley StormCAD V8i, was then developed for the storm sewer routing and conduit sizing. The software allows the user to set coefficients and choose calculation methods that are consistent with Commerce City

requirements. Loss coefficients, derived from Tables 704 and 705 of the CCSDCM were utilized. From the simulation, flow properties such as velocities and hydraulic grade lines are estimated.

DRAINAGE FACILITY DESIGN

General Concept

The proposed drainage plan for this project was developed to maintain flow patterns similar to historic flows. Flows from the developed portion of the site will be collected and conveyed through proposed storm sewer infrastructure and routed to regional detention facilities for water quality and flood attenuation. The proposed storm sewer network for this filing will tie into the storm sewer proposed for the Legato West Spine Infrastructure construction drawings. Downstream infrastructure design capacities have been accounted for and will not be exceeded by design flows from the proposed development of this phase. Details included in the following section.

Specific Details

The land will be developed with urban infrastructure typical for Colorado including streets with curb and gutter, grass-lined swales, inlets and storm sewers and detention ponds. Both detention ponds that will be utilized by this filing (Detention Pond A and B) are designed as part of the Legato West Spine Infrastructure and provides full-spectrum extended detention to provide water quality and flood attenuation for the development goal of zero impact.

Stormwater Conveyance Facilities

Within the road network, stormwater runoff from the developed site will be conveyed overland via surface flow of streets until street capacities have been exceeded or where storm sewer inlets have been designed. At sump locations, inlets will be sized to collect 100-year flows. All sump inlets have an emergency overflow path (in case the inlet is clogged), as described in the basin description section of this report. For on-grade inlets, the 5-year runoff is collected while a portion of the 100-year runoff will bypass the inlet and be conveyed in the street to the next downstream inlet. Street capacity and inlet calculations have been run for the entire storm network to verify that storm water conveyance in roads does not exceed capacity, as dictated by the CCSDCM.

Reference Appendix E and what is included in it.

Runoff entering the inlets will be conveyed through a proposed storm sewer system to either detention Pond A (the northern portion of Filing 2) or detention Pond B (the southern half of Filing 2). The proposed storm network connects to three existing runs: one in Biscay Lane, the second in Legato Parkway and the third in E. 90th Avenue. These pipe runs were designed as part of the Legato West Construction Drawings. The Legato West Final Drainage Report accounted for drainage from Filing 2 in the StormCAD analysis that was completed along with the design. The StormCAD analysis has been included in this report (see Appendix F) showing the three existing storm runs are not affected by the proposed development.

In addition to the surface storm water run-off, an underdrain system will be designed to remove groundwater from the foundations of the buildings. These foundation drains will be connected to an underdrain system that runs parallel (and slightly below) the proposed sanitary sewer system. The underdrain system will be

connected to the existing underdrain that was constructed as part of Legato West Construction Drawings and, ultimately, outfall to Pond A or B.

Stormwater Storage Facilities

capture

Extended detention basins will be constructed as part of Legato West Spine Infrastructure. These detention basins will feature full spectrum ponds consisting of three stages, designed in accordance with *Commerce City Storm Drainage Criteria Manual and the* MHFD *Urban Storm Drainage Criteria Manual Volumes 1, 2, & 3.* The water quality control volume (WQCV) is contained within Stage 1, the excess urban runoff volume (EURV) is contained within Stage 2, and the 100-year storage volume is contained within Stage 3. The WQCV and EURV release rates are controlled by orifices in a plate and the 100-yr release rates are controlled by a combination of an overflow grate and restrictor plates that restrict discharge to allowable rates. Outlet structures will be designed to release the WQCV over a period of no less than 40 hours while the EURV will be released over a period of 72 hours. The ponds outlet pipe systems convey the controlled releases to Gramma Gulch or the existing box culvert beneath Tower Road. Filing 2 does not add any connections to either Pond A or B, therefore, will not impact how either pond will function.

Discuss compliance with CRS 37-92-602(8)

Clarify that these values are proposed with Filing 2.

Detention/Water Quality Pond A

The northern half of Legato Filing No. 2 is tributary to Detention Pond A, which will provide full spectrum detention and water quality treatment and is located in Tract J of the Legato West Final Plat, at the north end of Argonne Street, northwest of this filing. Pond A will provide water quality control and flood attenuation for the northern portion of Filing 2. It is difficult to quantify an exact quantity of discharge from Filing 2 that was accounted for in the Legato West Final Drainage Report because the basin that includes the northern portion of Filing 2 also includes a portion of Filing 1. Based on calculations prepared as part of this report, projected flows from Filing 2 are 19.6 CFS in the minor event and 48.30 CFS in the 100-year event, versus 14.1 CFS and 50.85 CFS, respectively. The projected minor storm volume for Filing 2 is increased, likely due to shorter T_c times within the sub-basins for Filing 2 and the increased imperviousness due to the density of the development.

These flow discussions for each pond should be moved to the Stormwater Conveyance Facilities section above. Show that the forebays are designed to handle the flows from the site, Filing 1, and the future residential filing.

While the flows from Filing 2 for the minor storm are slightly higher than what was projected in the Legato West Final Drainage Report, the additional flows only account for 0.6% of the total minor storm run-off into Pond A. Given that this is one of the first developments in this master planned community, it is likely that the difference will be made up as the project progresses. The projected flows for the major storm are slightly lower than projected, so impacts to the total volume of the pond will not be impacted.

For both ponds: Include tributary areas, imperviousness, and volumes from the site and include a detailed discussion on how they are in compliance with the design found in the Legato West report.

Detention/Water Quality Pond B

The southern half of Legato Filing No. 2 will be conveyed to Detention Pond B that will be constructed in Tract O of the Legato West Final Plat at the southeast corner of Argonne Street and E. 90th Avenue. Pond B will provide water quality control and flood attenuation for the southern portion of Filing 2. Similar to the northern half of Filing 2, an exact projection of flows that were accounted for in the Legato West Final Drainage Report is difficult to determine because one of the basins (B24) includes portions of future residential filings. However, the two basins that cover Filing 2 in the Legato West Final Drainage Report project flows of 24.7 CFS

in the minor storm and 89.0 CFS in the major storm. Calculations from this report anticipate that the proposed development will have 28.5 CFS in the minor storm and 84.9 in a major event. The projected minor storm volume is increased, likely due to shorter T_c times and increased imperviousness associated with a dense development.

Similar to the northern basin of Filing 2, the minor storm slightly exceeds projections and the major storm is smaller than projections. The increase in runoff during the minor storm accounts for 0.8% of the total flows that are contributing to Pond B. The 100-year runoff calculations are lower than what was anticipated in the Legato West Final Drainage Report, so no impact to the total pond volume are expected.

Water Quality Enhancement Best Management Practices

Discuss WQCV

The ponds discussed in the previous section have been designed in accordance with the Commerce City Drainage Design and Technical Criteria Manual and the Mile High Flood District's UDFCD Urban Storm Drainage Criteria Manual Volumes 1, 2 and 3. The ponds are designed to detain the Excess Urban Runoff Volume (EURV) and the 100-year Detention Volume. Excess runoff from the upstream tributary area is conveyed to the ponds via storm sewer sized to convey the 100-year storm event. The storm sewer terminates in concrete forebays. The forebays are sized per Table EDB-4, EDB Component Criteria, of the Urban Storm Drainage Criteria Manual Volume 3. Detailed sizing calculations are located in the Forebay Design Worksheet within Appendix C of the Legato West Final Drainage Study. Pre-treated runoff is released at a controlled rate from a notch in the forebay wall into a concrete trickle channel sized to convey at a minimum the maximum release from the notch and terminates at the outlet structure.

Discuss how forebays impact water quality.

CONCLUSIONS

Compliance with Standards

Discuss compliance with CRS 37-92-602(8)

This Final Drainage Report presents the concepts for the drainage analysis and proposed improvement for the Legato Filing No. 2 development. This report has been prepared in accordance with the Commerce City Storm Drainage Design Manual criteria and the Mile High Flood District's Urban Storm Drainage Criteria Manual.

Drainage Concept

This drainage concept was developed to address the proposed development without adversely affecting the existing, downstream infrastructure. The drainage report has analyzed the storm runoff patterns for the Legato Filing No. 2 development and the proposed mitigation measures for the runoff associated with this development. Based on the analysis completed, runoff from Filing 2 and the connections to existing storm sewer systems will not be impacted, as designed in the Legato West Final Drainage Report. Drainage patterns have been maintained and, while some increase in runoff has been calculated as part of this analysis, the storm sewers were not impacted and the overall volume of the regional detention facilities has not been impacted.

Include discussion of conformance to Legato West report regarding area, imperviousness, and pond volumes.

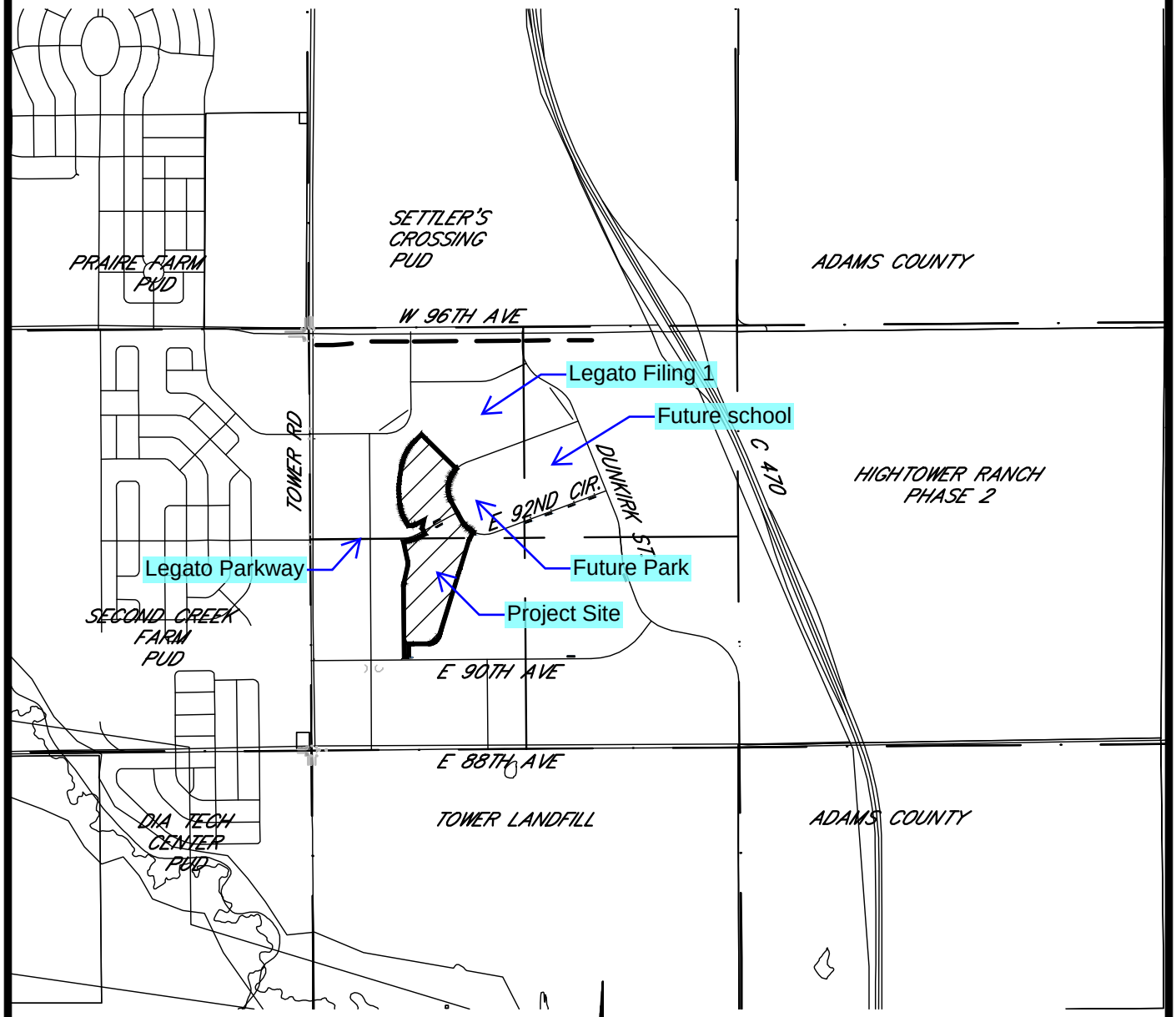
REFERENCES

1. *Urban Storm Drainage Criteria Manual*; Mile High Flood District; latest edition.
2. *Commerce City Storm Drainage Criteria Manual,* 1989 Edition
3. Flood Insurance Rate Map; Federal Emergency Management Agency: December 2006.
4. Final Drainage Study for Hightower Ranch PUD, prepared by Atwell, December 2019
5. Final Drainage Study for Legato West, prepared by Atwell, January 2021
6. The Final Drainage Report for Tower Road Widening, prepared by Huitt-Zollars, March 2016

APPENDIX A
VICINITY MAP

Legato - Filing No. 2

A PART OF SECTION 22, TOWNSHIP 2 SOUTH, RANGE 66 WEST
OF THE SIXTH PRINCIPAL MERIDIAN,
COUNTY OF ADAMS, CITY OF COMMERCE CITY,
STATE OF COLORADO



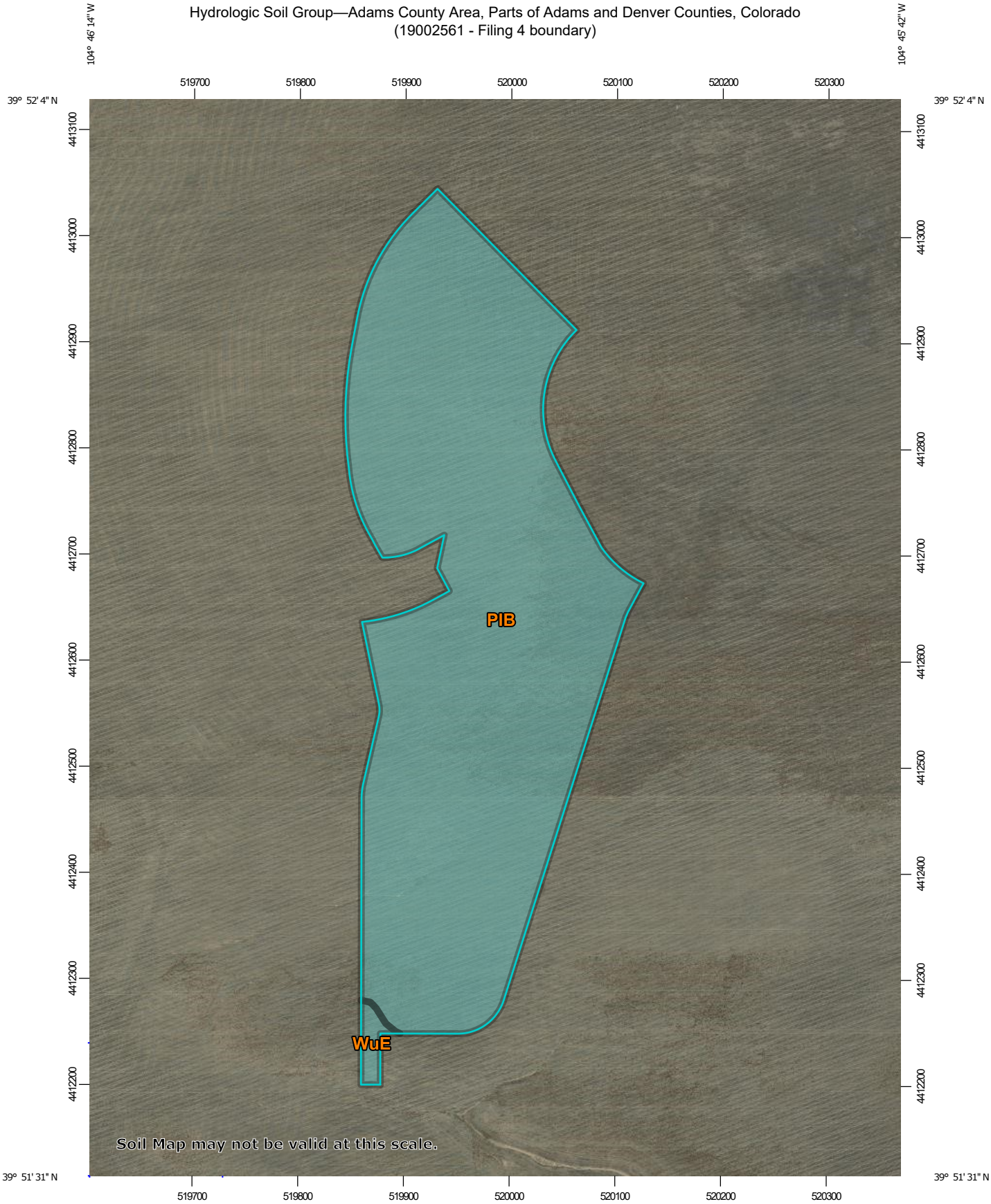
PROJECT NO.: 19002561
DATE: 6/26/2020

SCALE: 1" = 2,000'

ATWELL
866.850.4200 www.atwell-group.com
6200 S. SYRACUSE WAY, SUITE470
GREENWOOD VILLAGE, CO 80111
303.825.7100
CONTACT: DANIEL MADRUGA
DMADRUGA@ATWELL-GROUP.COM

APPENDIX B
SOILS SURVEY

Hydrologic Soil Group—Adams County Area, Parts of Adams and Denver Counties, Colorado
(19002561 - Filing 4 boundary)



Map Scale: 1:4,950 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 50 100 200 300

Feet: 0 200 400 800 1200

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 13N WGS84

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features

Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Adams County Area, Parts of Adams and Denver Counties, Colorado
Survey Area Data: Version 16, Sep 12, 2019

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Oct 3, 2018—Dec 4, 2018

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
PlB	Platner loam, 0 to 3 percent slopes	C	34.6	98.9%
WuE	Wiley-Adena-Renohill complex, 3 to 20 percent slopes	C	0.4	1.1%
Totals for Area of Interest			**35.0**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

APPENDIX C
FIRMette AND WETLANDS MAP

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures.** Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was Universal Transverse Mercator (UTM) zone 13. The **horizontal datum** was NAD83, GRS1980 spheroid. Differences in datum, spheroid, projection or UTM zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum.** For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at http://www.ngs.noaa.gov/ or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, N/NGS12
National Geodetic Survey
SSMC- 3, #9202
1315 East- West Highway
Silver Spring, MD 20910- 3282

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at **(301) 713- 3242,** or visit its website at http://www.ngs.noaa.gov/.

Base map information shown on this FIRM was provided by the Adams County and Commerce City GIS departments. The coordinate system used for the production of the digital FIRM is Universe Transverse Mercator, Zone 13N, referenced to North American Datum of 1983 and the GRS 80 spheroid, Western Hemisphere.

This map reflects more detailed and up- to- date **stream channel configurations** than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables *in the Flood Insurance Study report (which contains authoritative hydraulic data)* may reflect stream channel distances that differ from what is shown on this map.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de- annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

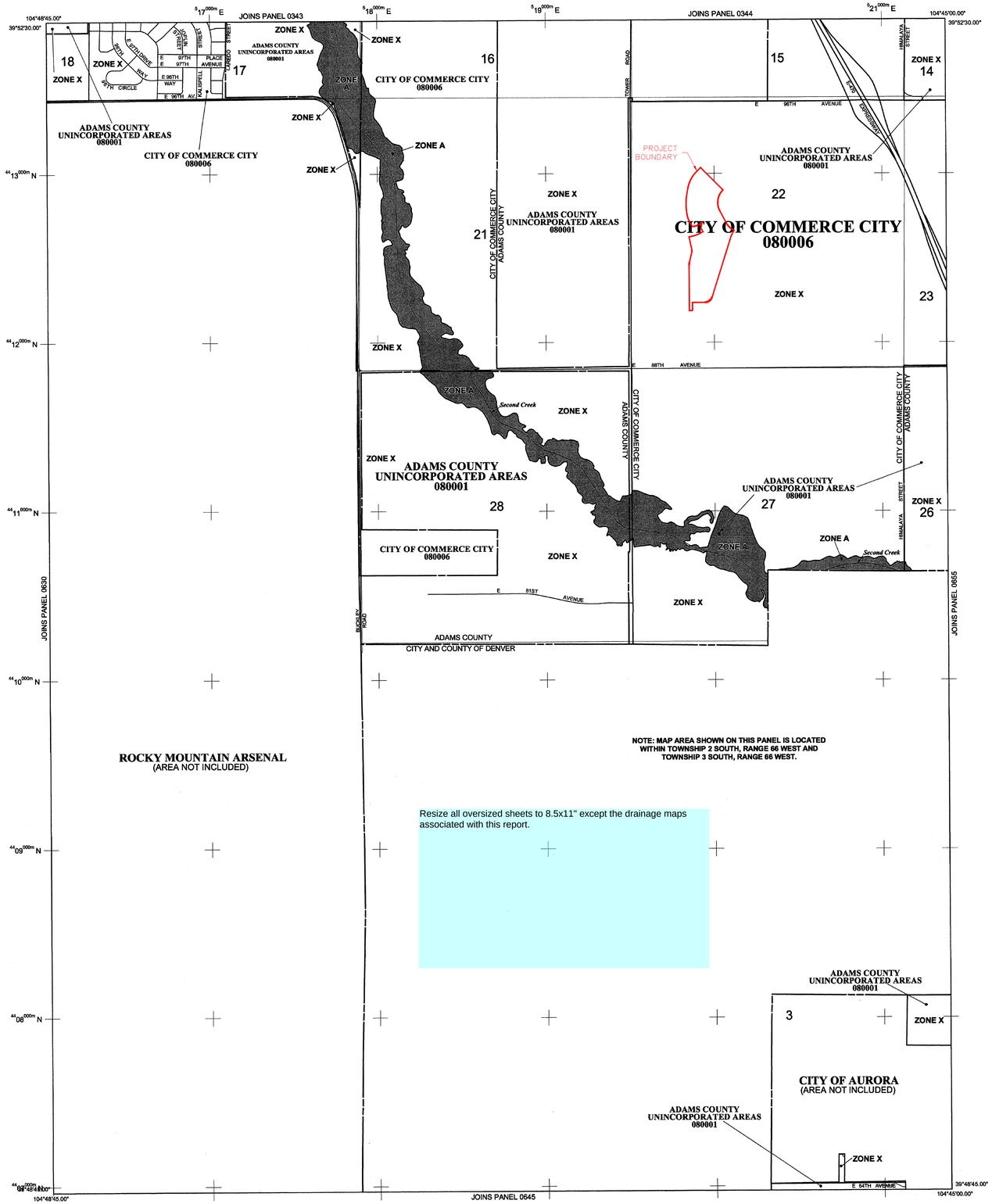
Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

Contact the **FEMA Map Service Center** at 1- 800- 358- 9616 for information on available products associated with this FIRM. Available products may include previously issued Letters of Map Change, *a Flood Insurance Study report,* and/or digital versions of this map. The FEMA Map Service Center may also be reached by Fax at 1- 800- 358- 9620 and its website at http://www.msc.fema.gov/.

If you have **questions about this map** or questions concerning the National Flood Insurance Program in general, please call **1- 877- FEMA MAP** (1- 877- 336- 2627) or visit the FEMA website at http://www.fema.gov/.

This digital Flood Insurance Rate Map (FIRM) was produced through a cooperative partnership between the State of Colorado Water Conservation Board, the Urban Drainage and Flood Control District, and the Federal Emergency Management Agency (FEMA). The State of Colorado Water Conservation Board and the Urban Drainage and Flood Control District have implemented a long-term approach of floodplain management to reduce the costs associated with flooding. As part of this effort, both the State of Colorado and the Urban Drainage and Flood Control District have joined in Cooperating Technical Partner agreements with FEMA to produce this digital FIRM.

Additional flood hazard information and resources are available from local communities, the Colorado Water Conservation Board, and the Urban Drainage and Flood Control District.



Resize all oversized sheets to 8.5x11" except the drainage maps associated with this report.

LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A	No Base Flood Elevations determined.
ZONE AE	Base Flood Elevations determined.
ZONE AH	Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
ZONE AO	Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
ZONE AR	Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
ZONE A99	Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
ZONE V	Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
ZONE VE	Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X	Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X	Areas determined to be outside the 0.2% annual chance floodplain.
ZONE D	Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

	Floodplain boundary
	Floodway boundary
	Zone D boundary
	CBRS and OPA boundary
	Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
513	Base Flood Elevation line and value; elevation in feet*
(EL 987)	Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the North American Vertical Datum of 1988 (NAVD 88)

A — A	Cross section line
23 - - - - - 23	Transect line
97°07'30", 32°22'30"	Geographic coordinates referenced to the North American Datum of 1983 (NAD 83)
$^{42}75^{000m}$N	1000-meter Universal Transverse Mercator grid ticks, zone 13
6000000 M	5000-foot grid ticks: Alabama State Plane coordinate system, east zone (FIPSZONE 0101), Transverse Mercator
DX5510 ×	Bench mark (see explanation in Notes to Users section of this FIRM panel)
• M1.5	River Mile

MAP REPOSITORIES
Refer to Map Repositories list on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
August 16, 1995
EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL
March 5, 2007 - to update map format.

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1- 800- 638- 6620.

MAP SCALE 1" = 1000'

500 0 1000 2000 FEET

300 0 300 600 METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0635H

FIRM
FLOOD INSURANCE RATE MAP
ADAMS COUNTY, COLORADO
AND INCORPORATED AREAS

PANEL 635 OF 1150
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
ADAMS COUNTY	080001	0635	H
COMMERCE CITY, CITY OF	080006	0635	H

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
08001C0635H

MAP REVISED
MARCH 5, 2007

Federal Emergency Management Agency

U.S. Fish and Wildlife Service
National Wetlands Inventory

Legato West

March 10, 2021

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

National Wetlands Inventory (NWI)
This page was produced by the NWI mapper

APPENDIX D
HYDROLOGICAL CALCULATION

COMPOSITE C CALCULATION

PROJECT MANE: Legato - Filing No. 2
PROJECT NO: 19002561
LOCATION: Commerce City

ATWELL

*Calculations on this sheet come from UDFCD: Urban Storm Drainage Criteria Manual (Vol.1, 2017) (Ch6, 2018)

NRCS Hydrologic Soil Group: C

0.25 acres or less				45% Impervious			
2 yr =	0.34	5 yr =	0.40	10 yr =	0.47	100 yr =	0.67
Greenbelts, agricultural				2% Impervious			
2 yr =	0.01	5 yr =	0.05	10 yr =	0.15	100 yr =	0.49
Paved				100% Impervious			
2 yr =	0.83	5 yr =	0.86	10 yr =	0.87	100 yr =	0.89
Apartments				75% Impervious			
2 yr =	0.60	5 yr =	0.65	10 yr =	0.69	100 yr =	0.79
Off-site flow analysis				45% Impervious			
2 yr =	0.34	5 yr =	0.40	10 yr =	0.47	100 yr =	0.67

Show Basin A subtotals

EXISTING DRAINAGE AREA

BASIN ID	A_{total} (ft²)	0.25 acres or less (ft²)	Greenbelts, agricultural (ft²)	Paved (ft²)	Apartments (ft²)	Off-site flow analysis (ft²)	A_{total} (Ac)	COMPOSITE C 2 yr	5 yr	10 yr	100 yr	Percent Impervious
A1	37400			14747	22653		0.86	0.69	0.73	0.76	0.83	85%
A2	84829	61443	9546	13840			1.95	0.38	0.44	0.50	0.69	49%
A3	56917	29635	7401	19881			1.31	0.47	0.52	0.57	0.72	59%
A4	120181	93931	6957	19293			2.76	0.40	0.45	0.52	0.69	51%
A5	76993	41937	1696	33360			1.77	0.55	0.59	0.64	0.76	68%
A6	52514			25524	26990		1.21	0.71	0.75	0.78	0.84	87%
A7	116534	85269	8899	22366			2.68	0.41	0.46	0.52	0.70	52%
B1	42584	36633		5951			0.98	0.41	0.46	0.53	0.70	53%
B2	95251	31486	21520	36670	5575		2.19	0.47	0.51	0.56	0.72	58%
B3	89244	59360		29884			2.05	0.50	0.55	0.60	0.74	63%
B4	121962	91893		30069			2.80	0.46	0.51	0.57	0.72	59%
B5	82671			35966	46705		1.90	0.70	0.74	0.77	0.83	86%
B6	98039	72824		25215			2.25	0.47	0.52	0.57	0.73	59%
B7	126350	85068		41282			2.90	0.50	0.55	0.60	0.74	63%
B8	89304	66909		22395			2.05	0.46	0.52	0.57	0.73	59%
B9	77589	55978		21611			1.78	0.48	0.53	0.58	0.73	60%
B10	24444	19314		5130			0.56	0.44	0.50	0.55	0.72	57%
B11	51368		33541	17827			1.18	0.29	0.33	0.40	0.63	36%
B12	34294	4202	24593	5499			0.79	0.18	0.22	0.30	0.58	23%
Subtotals (AC)		19.2	2.6	9.8	2.3	0.0						60%

Drainage Area= 33.97

Show Basin B subtotals

Show on-site totals

COMPOSITE C CALCULATION

PROJECT MANE: Legato - Filing No. 2
PROJECT NO: 19002561
LOCATION: Commerce City

ATWELL

*Calculations on this sheet come from UDFCD: Urban Storm Drainage Criteria Manual (Vol.1, 2017) (Ch6, 2018)

NRCS Hydrologic Soil Group: C

0.25 acres or less				45% Impervious			
2 yr =	0.34	5 yr =	0.40	10 yr =	0.47	100 yr =	0.67
Greenbelts, agricultural				2% Impervious			
2 yr =	0.01	5 yr =	0.05	10 yr =	0.15	100 yr =	0.49
Paved				100% Impervious			
2 yr =	0.83	5 yr =	0.86	10 yr =	0.87	100 yr =	0.89
Apartments				75% Impervious			
2 yr =	0.60	5 yr =	0.65	10 yr =	0.69	100 yr =	0.79
Off-site flow analysis				45% Impervious			
2 yr =	0.34	5 yr =	0.40	10 yr =	0.47	100 yr =	0.67

PROPOSED DRAINAGE AREA

BASIN ID	A_{total} (ft²)	0.25 acres or less (ft²)	Greenbelts, agricultural (ft²)	Paved (ft²)	Apartments (ft²)	Off-site flow analysis (ft²)	A_{total} (Ac)	COMPOSITE C 2 yr	5 yr	10 yr	100 yr	Percent Impervious
O-1	18715	12669		6046			0.43	0.50	0.55	0.60	0.74	63%
O-2	89672	63710		25962			2.06	0.48	0.53	0.59	0.73	61%
O-3	101124	54534		46590			2.32	0.57	0.61	0.65	0.77	70%
O-4	110058	93578		16480			2.53	0.41	0.47	0.53	0.70	53%
O-5	76435	47640	2843	25952			1.75	0.49	0.54	0.59	0.74	62%
O-6	105654	83240	6000	16414			2.43	0.40	0.45	0.51	0.69	51%
O-7	64844	33286		31558			1.49	0.58	0.62	0.66	0.78	72%
O-8	69003	53936		15067			1.58	0.45	0.50	0.56	0.72	57%
O-9	81668	64341		17327			1.87	0.44	0.50	0.55	0.72	57%
O-10	69762	57998		11764			1.60	0.42	0.48	0.54	0.71	54%
O-11	80376	64258		16118			1.85	0.44	0.49	0.55	0.71	56%
Subtotals (AC)		14.4	0.2	5.3	0.0	0.0						59%

Show off-site subtotals

Drainage Area= 19.91

Calculation of Peak Runoff using Rational Method

Designer: DJM
Company: Atwell
Date: 3/18/2021
Project: Legato Filing 2
Location: Commerce City, CO

Version 2.00 released May 2017

Cells of this color are for required user-input
Cells of this color are for optional override values
Cells of this color are for calculated results based on overrides

$$t_i = \frac{0.395(1.1 - C_5)\sqrt{L_i}}{S_i^{0.33}}$$

$$t_t = \frac{L_t}{60K\sqrt{S_t}} = \frac{L_t}{60V_t}$$

$$\text{Computed } t_c = t_i + t_t$$

$$\text{Regional } t_c = (26 - 17i) + \frac{L_t}{60(14i + 9)\sqrt{S_t}}$$

$t_{minimum}$ = 5 (urban)
$t_{minimum}$ = 10 (non-urban)

$$\text{Selected } t_c = \max\{t_{minimum}, \min(\text{Computed } t_c, \text{Regional } t_c)\}$$

Select UDFCD location for NOAA Atlas 14 Rainfall Depths from the pulldown list OR enter your own depths obtained from the NOAA website (click this link)

	2-yr	5-yr	10-yr	25-yr	50-yr	100-yr	500-yr
1-hour rainfall depth, P1 (in) =	0.83	1.09	1.33	1.69	1.99	2.31	3.14
Rainfall Intensity Equation Coefficients =	a	b	c				
	28.50	10.00	0.786				

$$I(in/hr) = \frac{a * P_1}{(b + t_c)^c}$$

$$Q(cfs) = CIA$$

Subcatchment Name	Area (ac)	NRCS Hydrologic Soil Group	Percent Imperviousness	Runoff Coefficient, C							Overland (Initial) Flow Time					Channelized (Travel) Flow Time							Time of Concentration			Rainfall Intensity, I (in/hr)							Peak Flow, Q (cfs)						
				2-yr	5-yr	10-yr	25-yr	50-yr	100-yr	500-yr	Overland Flow Length L_i (ft)	U/S Elevation (ft) (Optional)	D/S Elevation (ft) (Optional)	Overland Flow Slope S_i (ft/ft)	Overland Flow Time t_i (min)	Channelized Flow Length L_t (ft)	U/S Elevation (ft) (Optional)	D/S Elevation (ft) (Optional)	Channelized Flow Slope S_t (ft/ft)	NRCS Conveyance Factor K	Channelized Flow Velocity V_t (ft/sec)	Channelized Flow Time t_t (min)	Computed t_c (min)	Regional t_c (min)	Selected t_c (min)	2-yr	5-yr	10-yr	25-yr	50-yr	100-yr	500-yr	2-yr	5-yr	10-yr	25-yr	50-yr	100-yr	500-yr
A1	0.86	C	85.0	0.69	0.73	0.76	0.80	0.81	0.83	0.86	50.00			0.020	3.78	465.00			0.007	20	1.67	4.63	8.41	15.98	8.41	2.38	3.15	3.84	4.88	5.75	6.67	9.07	1.42	1.97	2.50	3.34	4.02	4.77	6.67
A2	1.95	C	49.0	0.37	0.43	0.49	0.59	0.64	0.68	0.74	175.00			0.020	12.65	442.00			0.007	20	1.67	4.40	17.05	23.22	17.05	1.76	2.33	2.84	3.61	4.25	4.93	6.70	1.29	1.97	2.72	4.17	5.26	6.58	9.70
A3	1.31	C	59.0	0.46	0.52	0.57	0.65	0.68	0.73	0.77	65.00			0.020	6.76	612.00			0.010	20	2.00	5.10	11.86	21.88	11.86	2.08	2.75	3.35	4.26	5.02	5.83	7.92	1.26	1.86	2.49	3.63	4.50	5.54	8.03
A4	2.76	C	51.0	0.39	0.45	0.51	0.60	0.64	0.69	0.75	175.00			0.020	12.34	728.00			0.010	20	2.00	6.07	18.40	24.85	18.40	1.69	2.24	2.73	3.47	4.09	4.74	6.45	1.83	2.78	3.82	5.79	7.27	9.07	13.32
A5	1.77	C	68.0	0.54	0.59	0.63	0.70	0.73	0.76	0.80	65.00			0.020	5.92	989.00			0.012	20	2.19	7.52	13.44	22.56	13.44	1.97	2.60	3.18	4.04	4.75	5.52	7.50	1.89	2.71	3.55	5.00	6.13	7.44	10.65
A6	1.21	C	87.0	0.71	0.74	0.77	0.81	0.82	0.84	0.86	35.00			0.020	3.02	898.00			0.007	20	1.67	8.94	11.97	19.66	11.97	2.07	2.74	3.34	4.25	5.00	5.80	7.89	1.79	2.47	3.12	4.14	4.98	5.90	8.23
A7	2.68	C	52.0	0.40	0.46	0.51	0.61	0.65	0.70	0.75	115.00			0.020	9.88	796.00			0.007	20	1.67	7.93	17.80	26.90	17.80	1.72	2.28	2.78	3.53	4.16	4.82	6.56	1.85	2.80	3.83	5.77	7.24	9.01	13.21
B1	0.98	C	53.0	0.41	0.47	0.52	0.62	0.65	0.70	0.75	65.00			0.020	7.33	587.00			0.010	20	2.00	4.89	12.22	22.95	12.22	2.05	2.71	3.31	4.21	4.96	5.75	7.82	0.82	1.24	1.69	2.54	3.18	3.95	5.79
B2	2.79	C	58.0	0.45	0.51	0.56	0.64	0.68	0.72	0.77	115.00			0.020	9.12	530.00			0.011	20	2.10	4.21	13.33	21.06	13.33	1.98	2.61	3.19	4.05	4.77	5.54	7.53	2.50	3.70	4.97	7.28	9.04	11.14	16.18
B3	2.05	C	63.0	0.50	0.55	0.60	0.67	0.70	0.74	0.79	168.00			0.020	10.27	542.00			0.014	20	2.37	3.82	14.09	19.57	14.09	1.93	2.55	3.11	3.95	4.65	5.40	7.34	1.96	2.86	3.79	5.44	6.72	8.21	11.83
B4	2.20	C	59.0	0.46	0.52	0.57	0.65	0.68	0.73	0.77	178.00			0.020	11.19	567.00			0.010	20	2.00	4.73	15.92	21.45	15.92	1.82	2.41	2.93	3.73	4.39	5.10	6.93	1.85	2.73	3.65	5.33	6.61	8.13	11.80
B5	1.90	C	86.0	0.70	0.74	0.76	0.80	0.82	0.84	0.86	50.00			0.020	3.70	1135.00			0.009	20	1.90	9.97	13.67	20.86	13.67	1.96	2.58	3.15	4.01	4.72	5.47	7.44	2.62	3.61	4.58	6.09	7.33	8.69	12.14
B6	2.25	C	59.0	0.46	0.52	0.57	0.65	0.68	0.73	0.77	175.00			0.020	11.10	432.00			0.009	20	1.90	3.79	14.89	20.37	14.89	1.88	2.48	3.03	3.85	4.53	5.26	7.15	1.95	2.88	3.86	5.62	6.98	8.59	12.45
B7	2.90	C	63.0	0.50	0.55	0.60	0.67	0.70	0.74	0.79	115.00			0.020	8.50	680.00			0.010	20	2.00	5.67	14.16	21.65	14.16	1.92	2.54	3.10	3.94	4.64	5.39	7.32	2.77	4.04	5.35	7.68	9.48	11.59	16.70
B8	1.93	C	59.0	0.46	0.52	0.57	0.65	0.68	0.73	0.77	115.00			0.020	9.00	425.00			0.009	20	1.90	3.73	12.73	20.30	12.73	2.02	2.67	3.25	4.13	4.87	5.65	7.68	1.80	2.65	3.55	5.18	6.43	7.91	11.47
B9	1.78	C	60.0	0.47	0.52	0.57	0.66	0.69	0.73	0.78	185.00			0.020	11.25	390.00			0.009	20	1.90	3.43	14.68	19.74	14.68	1.89	2.50	3.05	3.88	4.56	5.30	7.20	1.58	2.33	3.11	4.52	5.60	6.88	9.96
B10	0.56	C	57.0	0.44	0.50	0.55	0.64	0.67	0.72	0.77	125.00			0.020	9.64	185.00			0.009	20	1.90	1.63	11.27	18.22	11.27	2.13	2.81	3.43	4.36	5.13	5.95	8.09	0.53	0.79	1.06	1.56	1.94	2.39	3.48
B11	1.18	C	36.0	0.27	0.33	0.40	0.52	0.57	0.63	0.70	17.00			0.020	4.57	443.00			0.010	20	2.00	3.69	8.26	25.14	8.26	2.40	3.17	3.86	4.91	5.78	6.71	9.12	0.75	1.23	1.81	3.02	3.90	5.00	7.55
B12	0.79	C	23.0	0.16	0.22	0.30	0.45	0.51	0.58	0.66	115.00			0.020	13.52	102.00			0.010	20	2.00	0.85	14.37	23.48	14.37	1.91	2.52	3.08	3.91	4.61	5.35	7.27	0.24	0.44	0.73	1.38	1.84	2.44	3.80
-																																							
O-1	0.43	C	63.0	0.50	0.55	0.60	0.67	0.70	0.74	0.79	138.00			0.019	9.47	128.00			0.015	20	2.45	0.87	10.34	16.27	10.34	2.20	2.91	3.55	4.51	5.31	6.17	8.38	0.47	0.69	0.91	1.30	1.61	1.97	2.84
O-2	2.06	C	61.0	0.48	0.53	0.58	0.66	0.69	0.73	0.78	199.00			0.012	13.62	169.00			0.019	20	2.76	1.02	14.64	16.80	14.64	1.89	2.50	3.05	3.88	4.57	5.30	7.21	1.87	2.74	3.65	5.28	6.54	8.01	11.59
O-3	2.32	C	70.0	0.56	0.61	0.65	0.71	0.74	0.77	0.81	60.00			0.020	5.50	657.00			0.022	20	2.97	3.69	9.19	18.03	9.19	2.31	3.05	3.72	4.72	5.56	6.46	8.77	2.99	4.28	5.57	7.79	9.53	11.54	16.46
O-4	2.53	C	53.0	0.41	0.47	0.52	0.62	0.65	0.70	0.75	120.00			0.020	9.96	600.00			0.023	20	3.03	3.30	13.26	21.01	13.26	1.98	2.62	3.20	4.06	4.78	5.55	7.54	2.05	3.09	4.22	6.33	7.92	9.84	14.41
O-5	1.75	C	62.0	0.49	0.54	0.59	0.67	0.70	0.74	0.78	120.00			0.020	8.81	837.00			0.023	20	3.03	4.60	13.41	20.66	13.41	1.97	2.61	3.18	4.04	4.76	5.52	7.51	1.68	2.46	3.27	4.71	5.82	7.13	10.29
O-6	2.43	C	51.0	0.39	0.45	0.51	0.60	0.64	0.69	0.75	120.00			0.020	10.22	595.00			0.025	20	3.16	3.14	13.35	21.22	13.35	1.98	2.61	3.19	4.05	4.77	5.53	7.52	1.88	2.86	3.92	5.95	7.47	9.31	13.68
O-7	1.49	C	72.0	0.58	0.62	0.66	0.72	0.75	0.78	0.81	36.00			0.020	4.12	749.00			0.027	20	3.29	3.80	7.92	17.74	7.92	2.43	3.21	3.92	4.98	5.87	6.81	9.26	2.09	2.98	3.86	5.36	6.55	7.90	11.24
O-8	1.58	C	57.0	0.44	0.50	0.55	0.64	0.67	0.72	0.77	182.00			0.020	11.64	295.00			0.027	20	3.29	1.50	13.13	18.07	13.13	1.99	2.63	3.21	4.08	4.80	5.57	7.58	1.40	2.08	2.79	4.11	5.12	6.32	9.19
O-9	1.87	C	57.0	0.44	0.50	0.55	0.64	0.67	0.72	0.77	36.00			0.020	5.17	615.00			0.019	20	2.76	3.72	8.89	20.69	8.89	2.33	3.08	3.76	4.78	5.63	6.54	8.88	1.94	2.88	3.88	5.71	7.10	8.76	12.75
O-10	1.60	C	54.0	0.42	0.48	0.53	0.62	0.66	0.70	0.76	155.00			0.020	11.17	380.00			0.011	20	2.10	3.02	14.19	20.47	14.19	1.92	2.54	3.10	3.94	4.64	5.38	7.31	1.28	1.93	2.62	3.91	4.89	6.07	8.87
O-11	1.85	C	56.0	0.44	0.49	0.54	0.63	0.67	0.71	0.76	245.00			0.020	13.68	446.00			0.009	20	1.90	3.92	17.60	21.13	17.60	1.73	2.29	2.79	3.55	4.18	4.85	6.59	1.39	2.08	2.81	4.15	5.18	6.40	9.33

APPENDIX E
HYDRAULIC CALCULATIONS

Version 4.06 Released August 2018

INLET MANAGEMENT

Worksheet Protected

INLET NAME	2505R - B6	2503R - B10	2502R - B8	2501R - B9	1709L - B3	1709R - O3
Site Type (Urban or Rural)	URBAN	URBAN	URBAN	URBAN	URBAN	URBAN
Inlet Application (Street or Area)	STREET	STREET	STREET	STREET	STREET	STREET
Hydraulic Condition	On Grade	On Grade	On Grade	On Grade	On Grade	On Grade
Inlet Type	CDOT Type R Curb Opening	CDOT Type R Curb Opening	CDOT Type R Curb Opening	CDOT Type R Curb Opening	CDOT Type R Curb Opening	CDOT Type R Curb Opening

USER-DEFINED INPUT

User-Defined Design Flows

Minor Q_{Known} (cfs)	2.9	0.8	2.7	2.3	2.9	4.3
Major Q_{Known} (cfs)	8.6	2.4	7.9	6.9	8.2	11.5

Bypass (Carry-Over) Flow from Upstream

Receive Bypass Flow from:	No Bypass Flow Received	2505R - B6	2503R - B10	2502R - B8	No Bypass Flow Received	No Bypass Flow Received
Minor Bypass Flow Received, Q_b (cfs)	0.0	0.0	0.0	0.0	0.0	0.0
Major Bypass Flow Received, Q_b (cfs)	0.0	1.7	0.0	1.3	0.0	0.0

Watershed Characteristics

Subcatchment Area (acres)	2.63	0.57	2.05	2.13	2.07	2.32
Percent Impervious	59	57	59	60	63	70
NRCS Soil Type	C	C	C	C	C	C

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)	**2.9**	**0.8**	**2.7**	**2.3**	**2.9**	**4.3**
Major Total Design Peak Flow, Q (cfs)	**8.6**	**4.1**	**7.9**	**8.2**	**8.2**	**11.5**
Minor Flow Bypassed Downstream, Q_b (cfs)	0.0	0.0	0.0	0.0	0.0	0.0
Major Flow Bypassed Downstream, Q_b (cfs)	1.7	0.0	1.3	1.5	1.5	3.5

Minor Storm (Calculated) Analysis of Flow Time

C	N/A	N/A	N/A	N/A	N/A	N/A
C_5	N/A	N/A	N/A	N/A	N/A	N/A
Overland Flow Velocity, Vi	N/A	N/A	N/A	N/A	N/A	N/A
Channel Flow Velocity, Vt	N/A	N/A	N/A	N/A	N/A	N/A
Overland Flow Time, Ti	N/A	N/A	N/A	N/A	N/A	N/A
Channel Travel Time, Tt	N/A	N/A	N/A	N/A	N/A	N/A
Calculated Time of Concentration, T_c	N/A	N/A	N/A	N/A	N/A	N/A
Regional T_c	N/A	N/A	N/A	N/A	N/A	N/A
Recommended T_c	N/A	N/A	N/A	N/A	N/A	N/A
T_c selected by User	N/A	N/A	N/A	N/A	N/A	N/A
Design Rainfall Intensity, I	N/A	N/A	N/A	N/A	N/A	N/A
Calculated Local Peak Flow, Q_p	N/A	N/A	N/A	N/A	N/A	N/A

Major Storm (Calculated) Analysis of Flow Time

C	N/A	N/A	N/A	N/A	N/A	N/A
C_5	N/A	N/A	N/A	N/A	N/A	N/A
Overland Flow Velocity, Vi	N/A	N/A	N/A	N/A	N/A	N/A
Channel Flow Velocity, Vt	N/A	N/A	N/A	N/A	N/A	N/A
Overland Flow Time, Ti	N/A	N/A	N/A	N/A	N/A	N/A
Channel Travel Time, Tt	N/A	N/A	N/A	N/A	N/A	N/A
Calculated Time of Concentration, T_c	N/A	N/A	N/A	N/A	N/A	N/A
Regional T_c	N/A	N/A	N/A	N/A	N/A	N/A
Recommended T_c	N/A	N/A	N/A	N/A	N/A	N/A
T_c selected by User	N/A	N/A	N/A	N/A	N/A	N/A
Design Rainfall Intensity, I	N/A	N/A	N/A	N/A	N/A	N/A
Calculated Local Peak Flow, Q_p	N/A	N/A	N/A	N/A	N/A	N/A

Version 4.06 Released August 2018

INLET MANAGEMENT

Worksheet Protected

INLET NAME	1708L - B4	1708R - O5	1706L - B7	1706R - O7	1702L - B11	1701L - B5
Site Type (Urban or Rural)	URBAN	URBAN	URBAN	URBAN	URBAN	URBAN
Inlet Application (Street or Area)	STREET	STREET	STREET	STREET	STREET	STREET
Hydraulic Condition	On Grade	On Grade	On Grade	On Grade	In Sump	In Sump
Inlet Type	CDOT Type R Curb Opening	CDOT Type R Curb Opening	CDOT Type R Curb Opening	CDOT Type R Curb Opening	CDOT Type R Curb Opening	CDOT Type R Curb Opening

USER-DEFINED INPUT

User-Defined Design Flows

Minor Q_{Known} (cfs)	2.7	2.5	4.0	3.0	1.2	3.6
Major Q_{Known} (cfs)	8.1	7.1	11.6	7.9	5.0	8.7

Bypass (Carry-Over) Flow from Upstream

Receive Bypass Flow from:	1709L - B3	1709R - O3	1708L - B4	1708R - O5	User-Defined	No Bypass Flow Received
Minor Bypass Flow Received, Q_b (cfs)	0.0	0.0	0.0	0.0	0.0	0.0
Major Bypass Flow Received, Q_b (cfs)	1.5	3.5	0.4	2.9	5.3	0.0

Watershed Characteristics

Subcatchment Area (acres)	2.58	1.75	2.19	1.49	1.04	0.82
Percent Impervious	59	62	63	72	36	86
NRCS Soil Type	C	C	C	C	C	C

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)	**2.7**	**2.5**	**4.0**	**3.0**	**1.2**	**3.6**
Major Total Design Peak Flow, Q (cfs)	**9.6**	**10.6**	**12.0**	**10.8**	**10.3**	**8.7**
Minor Flow Bypassed Downstream, Q_b (cfs)	0.0	0.0	0.0	0.0	N/A	N/A
Major Flow Bypassed Downstream, Q_b (cfs)	0.4	2.9	3.8	0.8	N/A	N/A

Minor Storm (Calculated) Analysis of Flow T

C	N/A	N/A	N/A	N/A	N/A	N/A
C_5	N/A	N/A	N/A	N/A	N/A	N/A
Overland Flow Velocity, Vi	N/A	N/A	N/A	N/A	N/A	N/A
Channel Flow Velocity, Vt	N/A	N/A	N/A	N/A	N/A	N/A
Overland Flow Time, Ti	N/A	N/A	N/A	N/A	N/A	N/A
Channel Travel Time, Tt	N/A	N/A	N/A	N/A	N/A	N/A
Calculated Time of Concentration, T_c	N/A	N/A	N/A	N/A	N/A	N/A
Regional T_c	N/A	N/A	N/A	N/A	N/A	N/A
Recommended T_c	N/A	N/A	N/A	N/A	N/A	N/A
T_c selected by User	N/A	N/A	N/A	N/A	N/A	N/A
Design Rainfall Intensity, I	N/A	N/A	N/A	N/A	N/A	N/A
Calculated Local Peak Flow, Q_p	N/A	N/A	N/A	N/A	N/A	N/A

Major Storm (Calculated) Analysis of Flow T

C	N/A	N/A	N/A	N/A	N/A	N/A
C_5	N/A	N/A	N/A	N/A	N/A	N/A
Overland Flow Velocity, Vi	N/A	N/A	N/A	N/A	N/A	N/A
Channel Flow Velocity, Vt	N/A	N/A	N/A	N/A	N/A	N/A
Overland Flow Time, Ti	N/A	N/A	N/A	N/A	N/A	N/A
Channel Travel Time, Tt	N/A	N/A	N/A	N/A	N/A	N/A
Calculated Time of Concentration, T_c	N/A	N/A	N/A	N/A	N/A	N/A
Regional T_c	N/A	N/A	N/A	N/A	N/A	N/A
Recommended T_c	N/A	N/A	N/A	N/A	N/A	N/A
T_c selected by User	N/A	N/A	N/A	N/A	N/A	N/A
Design Rainfall Intensity, I	N/A	N/A	N/A	N/A	N/A	N/A
Calculated Local Peak Flow, Q_p	N/A	N/A	N/A	N/A	N/A	N/A

Version 4.06 Released August 2018

INLET MANAGEMENT

Worksheet Protected

INLET NAME	1700R - O11	2600L - A6	2600R - A7	2605L - A1	2605R - A2	2700L - A3
Site Type (Urban or Rural)	URBAN	URBAN	URBAN	URBAN	URBAN	URBAN
Inlet Application (Street or Area)	STREET	STREET	STREET	STREET	STREET	STREET
Hydraulic Condition	In Sump	On Grade	On Grade	In Sump	In Sump	On Grade
Inlet Type	CDOT Type R Curb Opening	CDOT Type R Curb Opening	CDOT Type R Curb Opening	CDOT Type R Curb Opening	CDOT Type R Curb Opening	CDOT Type R Curb Opening

USER-DEFINED INPUT

User-Defined Design Flows

Minor Q_{Known} (cfs)	2.1	2.5	2.8	2.0	2.0	1.9
Major Q_{Known} (cfs)	6.4	5.9	9.0	4.8	6.6	5.5

Bypass (Carry-Over) Flow from Upstream

Receive Bypass Flow from:	1706R - O7	No Bypass Flow Received	No Bypass Flow Received	User-Defined	2600R - A7	No Bypass Flow Received
Minor Bypass Flow Received, Q_b (cfs)	0.0	0.0	0.0	0.7	0.0	0.0
Major Bypass Flow Received, Q_b (cfs)	0.8	0.0	0.0	2.3	2.0	0.0

Watershed Characteristics

Subcatchment Area (acres)	1.85	1.21	2.68	0.86	1.95	1.31
Percent Impervious	56	87	52	85	49	59
NRCS Soil Type	C	C	C	C	C	C

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)	**2.1**	**2.5**	**2.8**	**2.7**	**2.0**	**1.9**
Major Total Design Peak Flow, Q (cfs)	**7.2**	**5.9**	**9.0**	**7.1**	**8.6**	**5.5**
Minor Flow Bypassed Downstream, Q_b (cfs)	N/A	0.0	0.0	N/A	N/A	0.0
Major Flow Bypassed Downstream, Q_b (cfs)	N/A	0.5	2.0	N/A	N/A	0.3

Minor Storm (Calculated) Analysis of Flow T

C	N/A	N/A	N/A	N/A	N/A	N/A
C_5	N/A	N/A	N/A	N/A	N/A	N/A
Overland Flow Velocity, Vi	N/A	N/A	N/A	N/A	N/A	N/A
Channel Flow Velocity, Vt	N/A	N/A	N/A	N/A	N/A	N/A
Overland Flow Time, Ti	N/A	N/A	N/A	N/A	N/A	N/A
Channel Travel Time, Tt	N/A	N/A	N/A	N/A	N/A	N/A
Calculated Time of Concentration, T_c	N/A	N/A	N/A	N/A	N/A	N/A
Regional T_c	N/A	N/A	N/A	N/A	N/A	N/A
Recommended T_c	N/A	N/A	N/A	N/A	N/A	N/A
T_c selected by User	N/A	N/A	N/A	N/A	N/A	N/A
Design Rainfall Intensity, I	N/A	N/A	N/A	N/A	N/A	N/A
Calculated Local Peak Flow, Q_p	N/A	N/A	N/A	N/A	N/A	N/A

Major Storm (Calculated) Analysis of Flow T

C	N/A	N/A	N/A	N/A	N/A	N/A
C_5	N/A	N/A	N/A	N/A	N/A	N/A
Overland Flow Velocity, Vi	N/A	N/A	N/A	N/A	N/A	N/A
Channel Flow Velocity, Vt	N/A	N/A	N/A	N/A	N/A	N/A
Overland Flow Time, Ti	N/A	N/A	N/A	N/A	N/A	N/A
Channel Travel Time, Tt	N/A	N/A	N/A	N/A	N/A	N/A
Calculated Time of Concentration, T_c	N/A	N/A	N/A	N/A	N/A	N/A
Regional T_c	N/A	N/A	N/A	N/A	N/A	N/A
Recommended T_c	N/A	N/A	N/A	N/A	N/A	N/A
T_c selected by User	N/A	N/A	N/A	N/A	N/A	N/A
Design Rainfall Intensity, I	N/A	N/A	N/A	N/A	N/A	N/A
Calculated Local Peak Flow, Q_p	N/A	N/A	N/A	N/A	N/A	N/A

Version 4.06 Released August 2018

INLET MANAGEMENT

Worksheet Protected

INLET NAME	2700R - A4	600 - A5	598 - O2	2506L-B2
Site Type (Urban or Rural)	URBAN	URBAN	URBAN	URBAN
Inlet Application (Street or Area)	STREET	STREET	STREET	STREET
Hydraulic Condition	On Grade	In Sump	In Sump	On Grade
Inlet Type	CDOT Type R Curb Opening	CDOT Type R Curb Opening	CDOT Type R Curb Opening	CDOT Type R Curb Opening

USER-DEFINED INPUT

User-Defined Design Flows

Minor Q_{Known} (cfs)	2.8	2.7	2.7	2.6
Major Q_{Known} (cfs)	9.1	7.4	8.0	5.5

Bypass (Carry-Over) Flow from Upstream

Receive Bypass Flow from:	No Bypass Flow Received	User-Defined	No Bypass Flow Received	No Bypass Flow Received
Minor Bypass Flow Received, Q_b (cfs)	0.0	0.0	0.0	0.0
Major Bypass Flow Received, Q_b (cfs)	0.0	2.3	0.0	0.0

Watershed Characteristics

Subcatchment Area (acres)	2.76	1.77	2.06	2.79
Percent Impervious	51	68	61	58
NRCS Soil Type	C	C	C	C

Watershed Profile

Overland Slope (ft/ft)				0.020
Overland Length (ft)				115
Channel Slope (ft/ft)				0.010
Channel Length (ft)				587

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)	**2.8**	**2.7**	**2.7**	**2.6**
Major Total Design Peak Flow, Q (cfs)	**9.1**	**9.7**	**8.0**	**5.5**
Minor Flow Bypassed Downstream, Q_b (cfs)	0.0	N/A	N/A	0.0
Major Flow Bypassed Downstream, Q_b (cfs)	2.0	N/A	N/A	0.0

Minor Storm (Calculated) Analysis of Flow T

C	N/A	N/A	N/A	N/A
C_5	N/A	N/A	N/A	N/A
Overland Flow Velocity, Vi	N/A	N/A	N/A	N/A
Channel Flow Velocity, Vt	N/A	N/A	N/A	N/A
Overland Flow Time, Ti	N/A	N/A	N/A	N/A
Channel Travel Time, Tt	N/A	N/A	N/A	N/A
Calculated Time of Concentration, T_c	N/A	N/A	N/A	N/A
Regional T_c	N/A	N/A	N/A	N/A
Recommended T_c	N/A	N/A	N/A	N/A
T_c selected by User	N/A	N/A	N/A	N/A
Design Rainfall Intensity, I	N/A	N/A	N/A	N/A
Calculated Local Peak Flow, Q_p	N/A	N/A	N/A	N/A

Major Storm (Calculated) Analysis of Flow T

C	N/A	N/A	N/A	N/A
C_5	N/A	N/A	N/A	N/A
Overland Flow Velocity, Vi	N/A	N/A	N/A	N/A
Channel Flow Velocity, Vt	N/A	N/A	N/A	N/A
Overland Flow Time, Ti	N/A	N/A	N/A	N/A
Channel Travel Time, Tt	N/A	N/A	N/A	N/A
Calculated Time of Concentration, T_c	N/A	N/A	N/A	N/A
Regional T_c	N/A	N/A	N/A	N/A
Recommended T_c	N/A	N/A	N/A	N/A
T_c selected by User	N/A	N/A	N/A	N/A
Design Rainfall Intensity, I	N/A	N/A	N/A	N/A
Calculated Local Peak Flow, Q_p	N/A	N/A	N/A	N/A

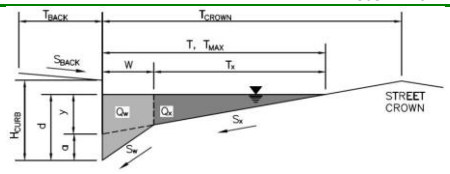
Version 4.06 Released August 2018

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

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

Project: Legato Filing No. 2

Inlet ID: 2505R - B6



Turn on the show all details function for all calcs

Gutter Geometry (Enter data in the blue cells)

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	10.0	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} =	4.50	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	17.0	ft
Gutter Width	W =	2.00	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 =	0.010	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} =	17.0	17.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	4.5	6.9	inches
Allow Flow Depth at Street Crown (leave blank for no)		☐	☑	check = yes

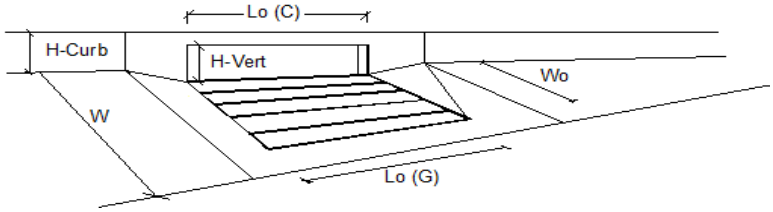
		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is based on Depth Criterion				
MAJOR STORM Allowable Capacity is based on Depth Criterion	**Q_{allow} =**	**5.1**	**23.3**	**cfs**

Minor storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

Major storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

INLET ON A CONTINUOUS GRADE

Version 4.06 Released August 2018



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')		a_{LOCAL} =	4.0	4.0	inches
Total Number of Units in the Inlet (Grate or Curb Opening)		No =	2	2	
Length of a Single Unit Inlet (Grate or Curb Opening)		L_o =	5.00	5.00	ft
Width of a Unit Grate (cannot be greater than W, Gutter Width)		W_o =	N/A	N/A	ft
Clogging Factor for a Single Unit Grate (typical min. value = 0.5)		C_f-G =	N/A	N/A	
Clogging Factor for a Single Unit Curb Opening (typical min. value = 0.1)		C_f-C =	0.10	0.10	
Street Hydraulics: OK - Q < Allowable Street Capacity'			MINOR	MAJOR	
Total Inlet Interception Capacity		**Q =**	**2.9**	**6.9**	**cfs**
Total Inlet Carry-Over Flow (flow bypassing inlet)		**Q_b =**	**0.0**	**1.7**	**cfs**
Capture Percentage = Q_a/Q_o =		**C% =**	**100**	**80**	**%**

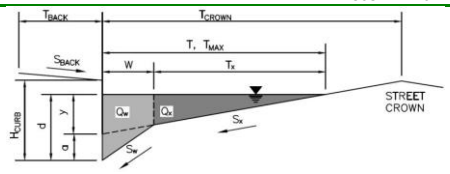
Version 4.06 Released August 2018

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

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

Project: **Legato Filing No. 2**

Inlet ID: **2503R - B10**



Gutter Geometry (Enter data in the blue cells)

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	10.0	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} =	4.50	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	17.0	ft
Gutter Width	W =	2.00	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 =	0.010	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} =	17.0	17.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	4.5	6.9	inches
Allow Flow Depth at Street Crown (leave blank for no)		☐	☑	check = yes

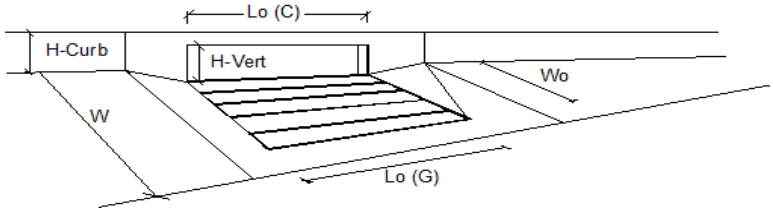
		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is based on Depth Criterion				
MAJOR STORM Allowable Capacity is based on Depth Criterion	**Q_{allow} =**	**5.1**	**23.3**	**cfs**

Minor storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

Major storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

INLET ON A CONTINUOUS GRADE

Version 4.06 Released August 2018



Design Information (Input)		MINOR	MAJOR	
Type of Inlet (CDOT Type R Curb Opening)	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a')	a_{LOCAL} =	4.0	4.0	inches
Total Number of Units in the Inlet (Grate or Curb Opening)	No =	2	2	
Length of a Single Unit Inlet (Grate or Curb Opening)	L_o =	5.00	5.00	ft
Width of a Unit Grate (cannot be greater than W, Gutter Width)	W_o =	N/A	N/A	ft
Clogging Factor for a Single Unit Grate (typical min. value = 0.5)	C_f-G =	N/A	N/A	
Clogging Factor for a Single Unit Curb Opening (typical min. value = 0.1)	C_f-C =	0.10	0.10	

Street Hydraulics: OK - Q < Allowable Street Capacity'		MINOR	MAJOR	
Total Inlet Interception Capacity	**Q =**	**0.8**	**4.1**	**cfs**
Total Inlet Carry-Over Flow (flow bypassing inlet)	**Q_b =**	**0.0**	**0.0**	**cfs**
Capture Percentage = Q_a/Q_o =	**C% =**	**100**	**100**	**%**

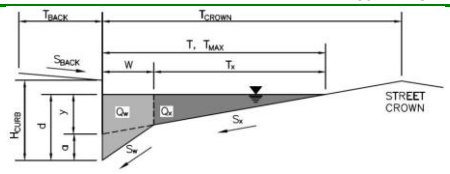
Version 4.06 Released August 2018

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

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

Project: **Legato Filing No. 2**

Inlet ID: **2502R - B8**



Gutter Geometry (Enter data in the blue cells)

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	10.0	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} =	4.50	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	17.0	ft
Gutter Width	W =	2.00	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 =	0.010	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} =	17.0	17.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	4.5	6.9	inches
Allow Flow Depth at Street Crown (leave blank for no)		☐	☑	check = yes

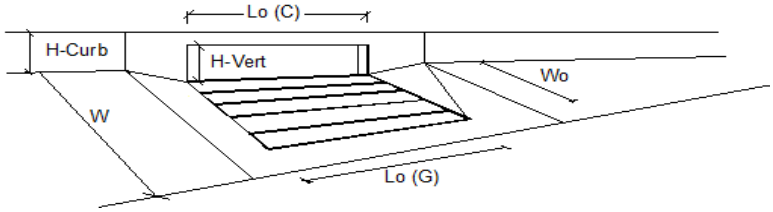
		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is based on Depth Criterion				
MAJOR STORM Allowable Capacity is based on Depth Criterion	**Q_{allow} =**	**5.1**	**23.3**	**cfs**

Minor storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

Major storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

INLET ON A CONTINUOUS GRADE

Version 4.06 Released August 2018



Design Information (Input)		MINOR	MAJOR	
Type of Inlet (CDOT Type R Curb Opening)	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a')	a_{LOCAL} =	4.0	4.0	inches
Total Number of Units in the Inlet (Grate or Curb Opening)	No =	2	2	
Length of a Single Unit Inlet (Grate or Curb Opening)	L_o =	5.00	5.00	ft
Width of a Unit Grate (cannot be greater than W, Gutter Width)	W_o =	N/A	N/A	ft
Clogging Factor for a Single Unit Grate (typical min. value = 0.5)	C_f-G =	N/A	N/A	
Clogging Factor for a Single Unit Curb Opening (typical min. value = 0.1)	C_f-C =	0.10	0.10	
Street Hydraulics: OK - Q < Allowable Street Capacity'		MINOR	MAJOR	
Total Inlet Interception Capacity	**Q =**	**2.6**	**6.6**	**cfs**
Total Inlet Carry-Over Flow (flow bypassing inlet)	**Q_b =**	**0.0**	**1.3**	**cfs**
Capture Percentage = Q_a/Q_o =	**C% =**	**100**	**83**	**%**

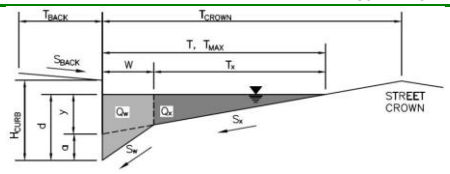
Version 4.06 Released August 2018

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

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

Project: Legato Filing No. 2

Inlet ID: 2501R - B9



Gutter Geometry (Enter data in the blue cells)

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	10.0	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} =	4.50	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	17.0	ft
Gutter Width	W =	2.00	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 =	0.010	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} =	17.0	17.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	4.5	6.9	inches
Allow Flow Depth at Street Crown (leave blank for no)		☐	☑	check = yes

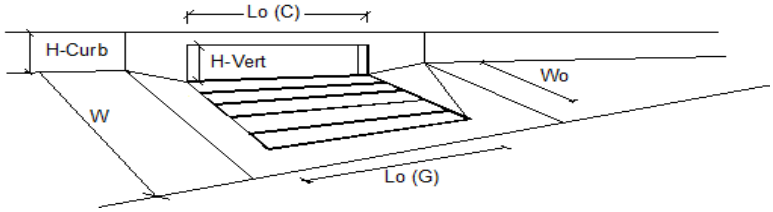
		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is based on Depth Criterion				
MAJOR STORM Allowable Capacity is based on Depth Criterion	Q_{allow} =	**5.1**	**23.3**	**cfs**

Minor storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

Major storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

INLET ON A CONTINUOUS GRADE

Version 4.06 Released August 2018



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')		a_{LOCAL} =	4.0	4.0	inches
Total Number of Units in the Inlet (Grate or Curb Opening)		No =	2	2	
Length of a Single Unit Inlet (Grate or Curb Opening)		L_o =	5.00	5.00	ft
Width of a Unit Grate (cannot be greater than W, Gutter Width)		W_o =	N/A	N/A	ft
Clogging Factor for a Single Unit Grate (typical min. value = 0.5)		C_f-G =	N/A	N/A	
Clogging Factor for a Single Unit Curb Opening (typical min. value = 0.1)		C_f-C =	0.10	0.10	
Street Hydraulics: OK - Q < Allowable Street Capacity'			MINOR	MAJOR	
Total Inlet Interception Capacity		**Q =**	**2.3**	**6.7**	**cfs**
Total Inlet Carry-Over Flow (flow bypassing inlet)		**Q_b =**	**0.0**	**1.5**	**cfs**
Capture Percentage = Q_a/Q_o =		**C% =**	**100**	**82**	**%**

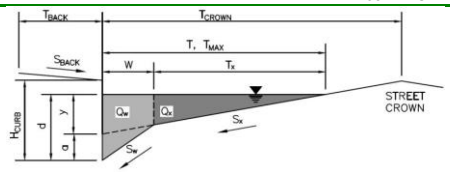
Version 4.06 Released August 2018

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

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

Project: Legato Filing No. 2

Inlet ID: 1709L - B3



Gutter Geometry (Enter data in the blue cells)

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	10.0	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} =	4.50	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	17.0	ft
Gutter Width	W =	2.00	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 =	0.010	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} =	17.0	17.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	4.5	6.9	inches
Allow Flow Depth at Street Crown (leave blank for no)		☐	☑	check = yes

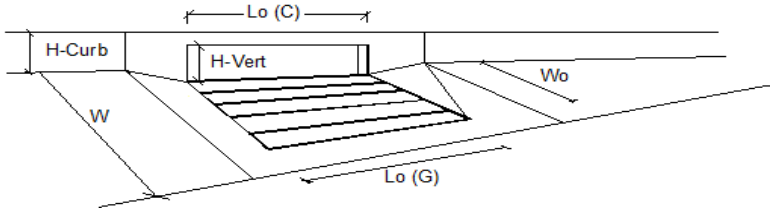
		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is based on Depth Criterion				
MAJOR STORM Allowable Capacity is based on Depth Criterion	Q_{allow} =	**5.1**	**23.3**	**cfs**

Minor storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

Major storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

INLET ON A CONTINUOUS GRADE

Version 4.06 Released August 2018



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')		a_{LOCAL} =	4.0	4.0	inches
Total Number of Units in the Inlet (Grate or Curb Opening)		No =	2	2	
Length of a Single Unit Inlet (Grate or Curb Opening)		L_o =	5.00	5.00	ft
Width of a Unit Grate (cannot be greater than W, Gutter Width)		W_o =	N/A	N/A	ft
Clogging Factor for a Single Unit Grate (typical min. value = 0.5)		C_f-G =	N/A	N/A	
Clogging Factor for a Single Unit Curb Opening (typical min. value = 0.1)		C_f-C =	0.10	0.10	
Street Hydraulics: OK - Q < Allowable Street Capacity'			MINOR	MAJOR	
Total Inlet Interception Capacity		**Q =**	**2.9**	**6.7**	**cfs**
Total Inlet Carry-Over Flow (flow bypassing inlet)		**Q_b =**	**0.0**	**1.5**	**cfs**
Capture Percentage = Q_a/Q_o =		**C% =**	**100**	**82**	**%**

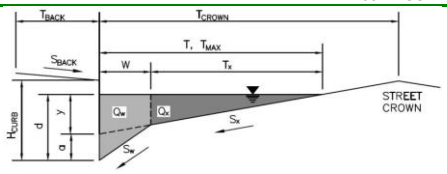
Version 4.06 Released August 2018

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

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

Project: **Legato Filing No. 2**

Inlet ID: **1709R - O3**



Gutter Geometry (Enter data in the blue cells)

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	10.0	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} =	4.50	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	17.0	ft
Gutter Width	W =	2.00	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 =	0.010	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} =	17.0	17.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	4.5	6.9	inches
Allow Flow Depth at Street Crown (leave blank for no)		☐	☑	check = yes

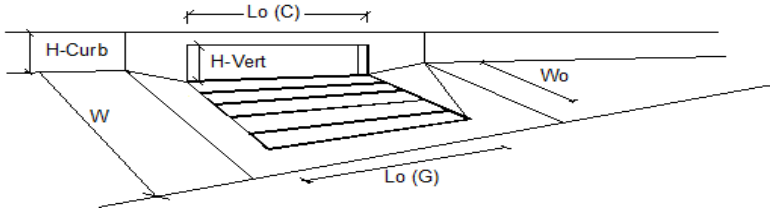
		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is based on Depth Criterion				
MAJOR STORM Allowable Capacity is based on Depth Criterion	Q_{allow} =	**5.1**	**23.3**	**cfs**

Minor storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

Major storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

INLET ON A CONTINUOUS GRADE

Version 4.06 Released August 2018



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')		a_{LOCAL} =	4.0	4.0	inches
Total Number of Units in the Inlet (Grate or Curb Opening)		No =	2	2	
Length of a Single Unit Inlet (Grate or Curb Opening)		L_o =	5.00	5.00	ft
Width of a Unit Grate (cannot be greater than W, Gutter Width)		W_o =	N/A	N/A	ft
Clogging Factor for a Single Unit Grate (typical min. value = 0.5)		C_f-G =	N/A	N/A	
Clogging Factor for a Single Unit Curb Opening (typical min. value = 0.1)		C_f-C =	0.10	0.10	

Street Hydraulics: OK - Q < Allowable Street Capacity'		MINOR	MAJOR	
Total Inlet Interception Capacity	**Q =**	**4.3**	**8.0**	**cfs**
Total Inlet Carry-Over Flow (flow bypassing inlet)	**Q_b =**	**0.0**	**3.5**	**cfs**
Capture Percentage = Q_a/Q_o =	**C% =**	**100**	**70**	**%**

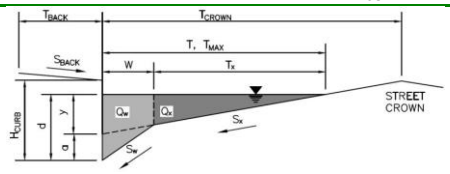
Version 4.06 Released August 2018

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

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

Project: Legato Filing No. 2

Inlet ID: 1708L - B4



Gutter Geometry (Enter data in the blue cells)

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	10.0	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} =	4.50	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	17.0	ft
Gutter Width	W =	2.00	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 =	0.010	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} =	17.0	17.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	4.5	6.9	inches
Allow Flow Depth at Street Crown (leave blank for no)		☐	☑	check = yes

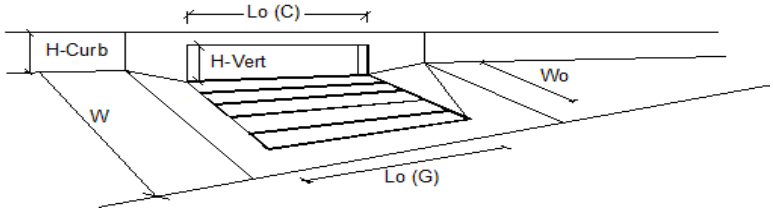
		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is based on Depth Criterion				
MAJOR STORM Allowable Capacity is based on Depth Criterion	Q_{allow} =	**5.1**	**23.3**	**cfs**

Minor storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

Major storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

INLET ON A CONTINUOUS GRADE

Version 4.06 Released August 2018



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')		a_{LOCAL} =	4.0	4.0	inches
Total Number of Units in the Inlet (Grate or Curb Opening)		No =	3	3	
Length of a Single Unit Inlet (Grate or Curb Opening)		L_o =	5.00	5.00	ft
Width of a Unit Grate (cannot be greater than W, Gutter Width)		W_o =	N/A	N/A	ft
Clogging Factor for a Single Unit Grate (typical min. value = 0.5)		C_f-G =	N/A	N/A	
Clogging Factor for a Single Unit Curb Opening (typical min. value = 0.1)		C_f-C =	0.10	0.10	
Street Hydraulics: OK - Q < Allowable Street Capacity'			MINOR	MAJOR	
Total Inlet Interception Capacity		**Q =**	**2.7**	**9.2**	**cfs**
Total Inlet Carry-Over Flow (flow bypassing inlet)		**Q_b =**	**0.0**	**0.4**	**cfs**
Capture Percentage = Q_a/Q_o =		**C% =**	**100**	**96**	**%**

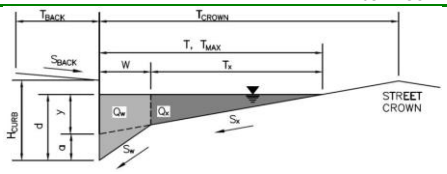
Version 4.06 Released August 2018

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

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

Project: Legato Filing No. 2

Inlet ID: 1708R - O5



Gutter Geometry (Enter data in the blue cells)

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	10.0	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} =	4.50	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	17.0	ft
Gutter Width	W =	2.00	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 =	0.010	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} =	17.0	17.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	4.5	6.9	inches
Allow Flow Depth at Street Crown (leave blank for no)		☐	☑	check = yes

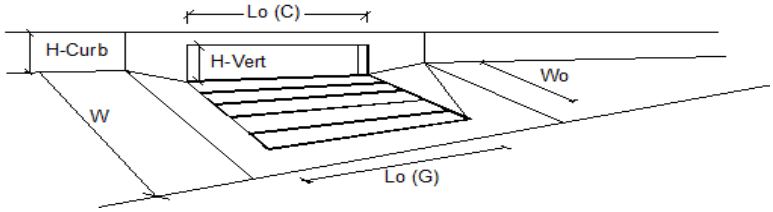
		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is based on Depth Criterion				
MAJOR STORM Allowable Capacity is based on Depth Criterion	Q_{allow} =	**5.1**	**23.3**	**cfs**

Minor storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

Major storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

INLET ON A CONTINUOUS GRADE

Version 4.06 Released August 2018



Design Information (Input)		MINOR	MAJOR	
Type of Inlet (CDOT Type R Curb Opening)	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a')	a_{LOCAL} =	4.0	4.0	inches
Total Number of Units in the Inlet (Grate or Curb Opening)	No =	2	2	
Length of a Single Unit Inlet (Grate or Curb Opening)	L_o =	5.00	5.00	ft
Width of a Unit Grate (cannot be greater than W, Gutter Width)	W_o =	N/A	N/A	ft
Clogging Factor for a Single Unit Grate (typical min. value = 0.5)	C_f-G =	N/A	N/A	
Clogging Factor for a Single Unit Curb Opening (typical min. value = 0.1)	C_f-C =	0.10	0.10	

Street Hydraulics: OK - Q < Allowable Street Capacity'		MINOR	MAJOR	
Total Inlet Interception Capacity	**Q =**	**2.5**	**7.7**	**cfs**
Total Inlet Carry-Over Flow (flow bypassing inlet)	**Q_b =**	**0.0**	**2.9**	**cfs**
Capture Percentage = Q_a/Q_o =	**C% =**	**100**	**72**	**%**

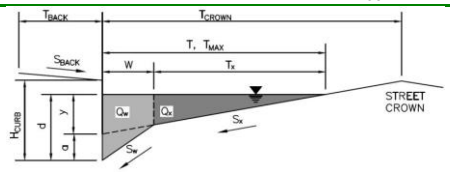
Version 4.06 Released August 2018

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

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

Project: Legato Filing No. 2

Inlet ID: 1706L - B7



Gutter Geometry (Enter data in the blue cells)

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	10.0	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} =	4.50	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	17.0	ft
Gutter Width	W =	2.00	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 =	0.010	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} =	17.0	17.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	4.5	6.9	inches
Allow Flow Depth at Street Crown (leave blank for no)		☐	☑	check = yes

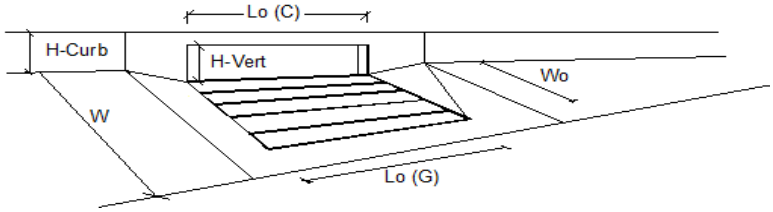
		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is based on Depth Criterion				
MAJOR STORM Allowable Capacity is based on Depth Criterion	Q_{allow} =	**5.1**	**23.3**	**cfs**

Minor storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

Major storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

INLET ON A CONTINUOUS GRADE

Version 4.06 Released August 2018



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')		a_{LOCAL} =	4.0	4.0	inches
Total Number of Units in the Inlet (Grate or Curb Opening)		No =	2	2	
Length of a Single Unit Inlet (Grate or Curb Opening)		L_o =	5.00	5.00	ft
Width of a Unit Grate (cannot be greater than W, Gutter Width)		W_o =	N/A	N/A	ft
Clogging Factor for a Single Unit Grate (typical min. value = 0.5)		C_f-G =	N/A	N/A	
Clogging Factor for a Single Unit Curb Opening (typical min. value = 0.1)		C_f-C =	0.10	0.10	

Street Hydraulics: OK - Q < Allowable Street Capacity'		MINOR	MAJOR	
Total Inlet Interception Capacity	**Q =**	**4.0**	**8.2**	**cfs**
Total Inlet Carry-Over Flow (flow bypassing inlet)	**Q_b =**	**0.0**	**3.8**	**cfs**
Capture Percentage = Q_a/Q_o =	**C% =**	**100**	**68**	**%**

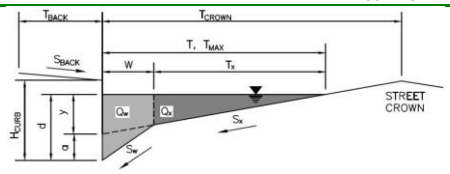
Version 4.06 Released August 2018

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

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

Project: Legato Filing No. 2

Inlet ID: 1706R - O7



Gutter Geometry (Enter data in the blue cells)

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	10.0	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} =	4.50	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	17.0	ft
Gutter Width	W =	2.00	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 =	0.010	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} =	17.0	17.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	4.5	6.9	inches
Allow Flow Depth at Street Crown (leave blank for no)		☐	☑	check = yes

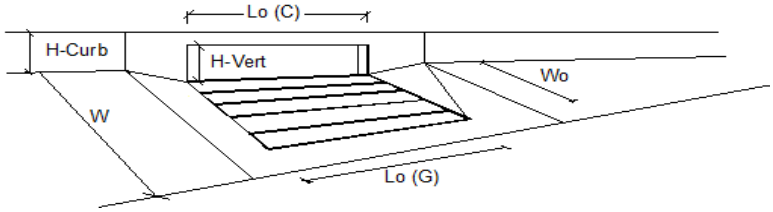
		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is based on Depth Criterion				
MAJOR STORM Allowable Capacity is based on Depth Criterion	Q_{allow} =	**5.1**	**23.3**	**cfs**

Minor storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

Major storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

INLET ON A CONTINUOUS GRADE

Version 4.06 Released August 2018



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')		a_{LOCAL} =	4.0	4.0	inches
Total Number of Units in the Inlet (Grate or Curb Opening)		No =	3	3	
Length of a Single Unit Inlet (Grate or Curb Opening)		L_o =	5.00	5.00	ft
Width of a Unit Grate (cannot be greater than W, Gutter Width)		W_o =	N/A	N/A	ft
Clogging Factor for a Single Unit Grate (typical min. value = 0.5)		C_f-G =	N/A	N/A	
Clogging Factor for a Single Unit Curb Opening (typical min. value = 0.1)		C_f-C =	0.10	0.10	
Street Hydraulics: OK - Q < Allowable Street Capacity'			MINOR	MAJOR	
Total Inlet Interception Capacity		**Q =**	**3.0**	**10.0**	**cfs**
Total Inlet Carry-Over Flow (flow bypassing inlet)		**Q_b =**	**0.0**	**0.8**	**cfs**
Capture Percentage = Q_a/Q_o =		**C% =**	**100**	**92**	**%**

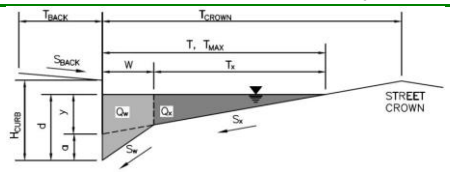
Version 4.06 Released August 2018

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

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

Project: **Legato Filing No. 2**

Inlet ID: **1702L - B11**



Gutter Geometry (Enter data in the blue cells)

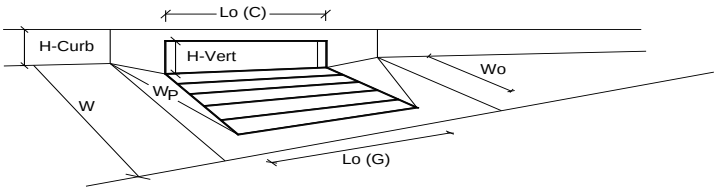
Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	10.0	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.020	
Height of Curb at Gutter Flow Line	H_{CURB} =	4.50	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	17.0	ft
Gutter Width	W =	2.00	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} =	17.0	17.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	4.5	6.9	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

Version 4.06 Released August 2018



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} =	4.50	4.50	inches
Number of Unit Inlets (Grate or Curb Opening)	No =	3	3	
Water Depth at Flowline (outside of local depression)	Ponding Depth =	4.5	5.6	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 =	2.00	2.00	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} =	0.21	0.30	ft
Combination Inlet Performance Reduction Factor for Long Inlets	$RF_{Combination}$ =	0.42	0.53	
Curb Opening Performance Reduction Factor for Long Inlets	RF_{Curb} =	0.68	0.76	
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 =**	**5.8**	**11.1**	**cfs**
Inlet Capacity IS GOOD for Minor and Major Storms(>Q PEAK)	$Q_{PEAK\ REQUIRED}$ =	1.2	10.3	cfs

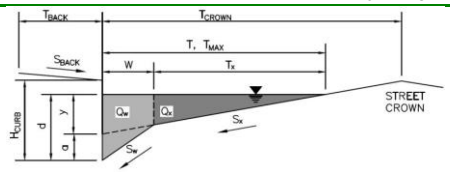
Version 4.06 Released August 2018

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

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

Project: **Legato Filing No. 2**

Inlet ID: **1701L - B5**



Gutter Geometry (Enter data in the blue cells)

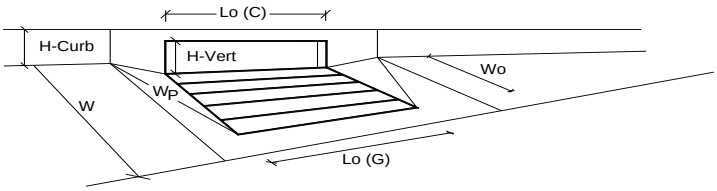
Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	10.0	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.020	
Height of Curb at Gutter Flow Line	H_{CURB} =	4.50	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	17.0	ft
Gutter Width	W =	2.00	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} =	17.0	17.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	4.5	6.9	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

Version 4.06 Released August 2018



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} =	4.50	4.50	inches
Number of Unit Inlets (Grate or Curb Opening)	No =	2	2	
Water Depth at Flowline (outside of local depression)	Ponding Depth =	4.5	5.6	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 =	2.00	2.00	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} =	0.21	0.30	ft
Combination Inlet Performance Reduction Factor for Long Inlets	$RF_{Combination}$ =	0.42	0.53	
Curb Opening Performance Reduction Factor for Long Inlets	RF_{Curb} =	0.83	0.91	
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 =**	**4.6**	**8.7**	**cfs**
WARNING: Inlet Capacity less than Q Peak for Major Storm	$Q_{PEAK\ REQUIRED}$ =	3.6	8.7	cfs

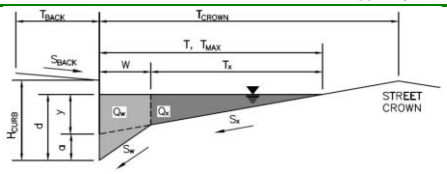
Version 4.06 Released August 2018

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

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

Project: **Legato Filing No. 2**

Inlet ID: **1700R - O11**



Gutter Geometry (Enter data in the blue cells)

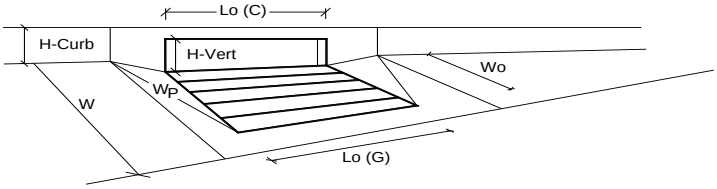
Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	10.0	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.020	
Height of Curb at Gutter Flow Line	H_{CURB} =	4.50	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	17.0	ft
Gutter Width	W =	2.00	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} =	17.0	17.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	4.5	6.9	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

Version 4.06 Released August 2018



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} =	4.50	4.50	inches
Number of Unit Inlets (Grate or Curb Opening)	No =	2	2	
Water Depth at Flowline (outside of local depression)	Ponding Depth =	4.5	5.6	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 =	2.00	2.00	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} =	0.21	0.30	ft
Combination Inlet Performance Reduction Factor for Long Inlets	$RF_{Combination}$ =	0.42	0.53	
Curb Opening Performance Reduction Factor for Long Inlets	RF_{Curb} =	0.83	0.91	
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 =**	**4.6**	**8.7**	**cfs**
Inlet Capacity IS GOOD for Minor and Major Storms(>Q PEAK)	$Q_{PEAK\ REQUIRED}$ =	2.1	7.2	cfs

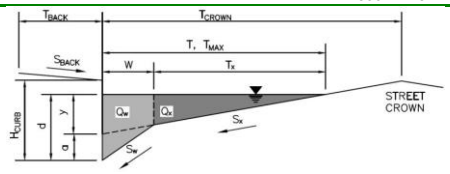
Version 4.06 Released August 2018

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

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

Project: Legato Filing No. 2

Inlet ID: 2600L - A6



Gutter Geometry (Enter data in the blue cells)

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	10.0	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} =	4.50	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	17.0	ft
Gutter Width	W =	2.00	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 =	0.007	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} =	17.0	17.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	4.5	6.9	inches
Allow Flow Depth at Street Crown (leave blank for no)		☐	☑	check = yes

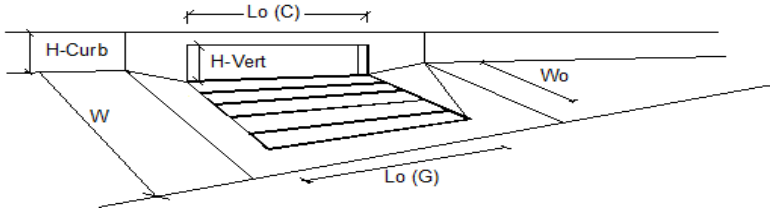
		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is based on Depth Criterion				
MAJOR STORM Allowable Capacity is based on Depth Criterion	**Q_{allow} =**	**4.3**	**19.5**	**cfs**

Minor storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

Major storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

INLET ON A CONTINUOUS GRADE

Version 4.06 Released August 2018



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')		a_{LOCAL} =	4.0	4.0	inches
Total Number of Units in the Inlet (Grate or Curb Opening)		No =	2	2	
Length of a Single Unit Inlet (Grate or Curb Opening)		L_o =	5.00	5.00	ft
Width of a Unit Grate (cannot be greater than W, Gutter Width)		W_o =	N/A	N/A	ft
Clogging Factor for a Single Unit Grate (typical min. value = 0.5)		C_f-G =	N/A	N/A	
Clogging Factor for a Single Unit Curb Opening (typical min. value = 0.1)		C_f-C =	0.10	0.10	
Street Hydraulics: OK - Q < Allowable Street Capacity'			MINOR	MAJOR	
Total Inlet Interception Capacity		**Q =**	**2.5**	**5.4**	**cfs**
Total Inlet Carry-Over Flow (flow bypassing inlet)		**Q_b =**	**0.0**	**0.5**	**cfs**
Capture Percentage = Q_a/Q_o =		**C% =**	**100**	**92**	**%**

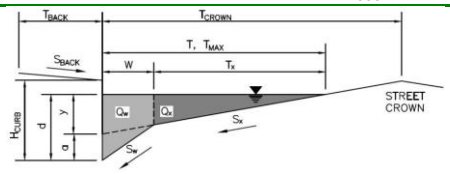
Version 4.06 Released August 2018

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

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

Project: Legato Filing No. 2

Inlet ID: 2600R - A7



Gutter Geometry (Enter data in the blue cells)

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	10.0	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} =	4.50	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	17.0	ft
Gutter Width	W =	2.00	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 =	0.007	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} =	17.0	17.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	4.5	6.9	inches
Allow Flow Depth at Street Crown (leave blank for no)		☐	☑	check = yes

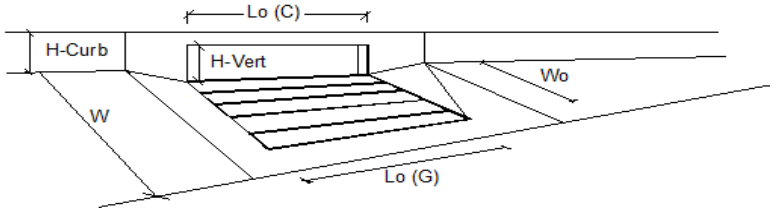
		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is based on Depth Criterion				
MAJOR STORM Allowable Capacity is based on Depth Criterion	**Q_{allow} =**	**4.3**	**19.5**	**cfs**

Minor storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

Major storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

INLET ON A CONTINUOUS GRADE

Version 4.06 Released August 2018



Design Information (Input)		MINOR	MAJOR	
Type of Inlet (CDOT Type R Curb Opening)	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a')	a_{LOCAL} =	4.0	4.0	inches
Total Number of Units in the Inlet (Grate or Curb Opening)	No =	2	2	
Length of a Single Unit Inlet (Grate or Curb Opening)	L_o =	5.00	5.00	ft
Width of a Unit Grate (cannot be greater than W, Gutter Width)	W_o =	N/A	N/A	ft
Clogging Factor for a Single Unit Grate (typical min. value = 0.5)	C_f-G =	N/A	N/A	
Clogging Factor for a Single Unit Curb Opening (typical min. value = 0.1)	C_f-C =	0.10	0.10	
Street Hydraulics: OK - Q < Allowable Street Capacity'		MINOR	MAJOR	
Total Inlet Interception Capacity	**Q =**	**2.8**	**7.0**	**cfs**
Total Inlet Carry-Over Flow (flow bypassing inlet)	**Q_b =**	**0.0**	**2.0**	**cfs**
Capture Percentage = Q_a/Q_o =	**C% =**	**100**	**78**	**%**

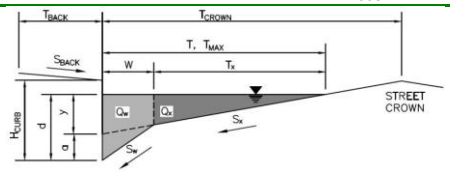
Version 4.06 Released August 2018

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

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

Project: Legato Filing No. 2

Inlet ID: 2605L - A1



Gutter Geometry (Enter data in the blue cells)

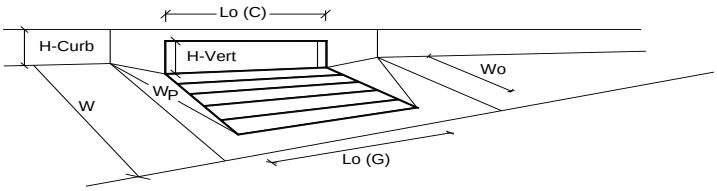
Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	10.0	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.020	
Height of Curb at Gutter Flow Line	H_{CURB} =	4.50	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	17.0	ft
Gutter Width	W =	2.00	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} =	17.0	17.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	4.5	6.9	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

Version 4.06 Released August 2018



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} =	4.50	4.50	inches
Number of Unit Inlets (Grate or Curb Opening)		No =	2	2	
Water Depth at Flowline (outside of local depression)		Ponding Depth =	4.5	5.6	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 =	2.00	2.00	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} =	0.21	0.30	ft
Combination Inlet Performance Reduction Factor for Long Inlets		$RF_{Combination}$ =	0.42	0.53	
Curb Opening Performance Reduction Factor for Long Inlets		RF_{Curb} =	0.83	0.91	
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 =**	**4.6**	**8.7**	**cfs**
Inlet Capacity IS GOOD for Minor and Major Storms(>Q PEAK)		$Q_{PEAK\ REQUIRED}$ =	2.7	7.1	cfs

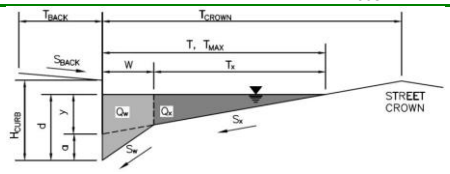
Version 4.06 Released August 2018

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

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

Project: **Legato Filing No. 2**

Inlet ID: **2605R - A2**



Gutter Geometry (Enter data in the blue cells)

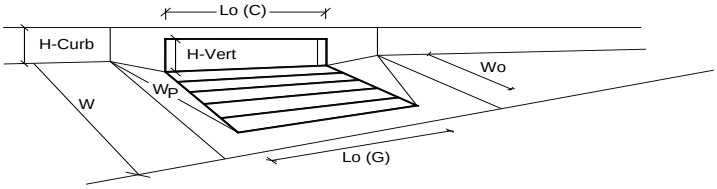
Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	10.0	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.020	
Height of Curb at Gutter Flow Line	H_{CURB} =	4.50	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	17.0	ft
Gutter Width	W =	2.00	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} =	17.0	17.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	4.5	6.9	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

Version 4.06 Released August 2018



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} =	4.50	4.50	inches
Number of Unit Inlets (Grate or Curb Opening)		No =	3	3	
Water Depth at Flowline (outside of local depression)		Ponding Depth =	4.5	5.6	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 =	2.00	2.00	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} =	0.21	0.30	ft
Combination Inlet Performance Reduction Factor for Long Inlets		$RF_{Combination}$ =	0.42	0.53	
Curb Opening Performance Reduction Factor for Long Inlets		RF_{Curb} =	0.68	0.76	
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 =**	**5.8**	**11.1**	**cfs**
Inlet Capacity IS GOOD for Minor and Major Storms(>Q PEAK)		$Q_{PEAK\ REQUIRED}$ =	2.0	8.6	cfs

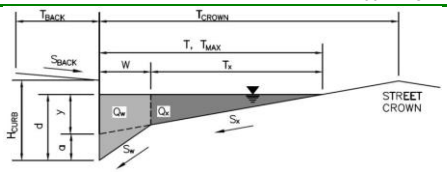
Version 4.06 Released August 2018

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

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

Project: Legato Filing No. 2

Inlet ID: 2700L - A3



Gutter Geometry (Enter data in the blue cells)

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	10.0	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} =	4.50	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	17.0	ft
Gutter Width	W =	2.00	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 =	0.010	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} =	17.0	17.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	4.5	6.9	inches
Allow Flow Depth at Street Crown (leave blank for no)		☐	☑	check = yes

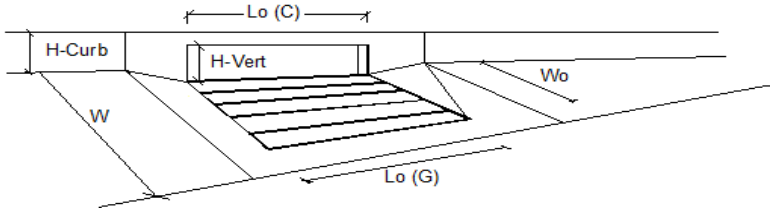
		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is based on Depth Criterion				
MAJOR STORM Allowable Capacity is based on Depth Criterion	Q_{allow} =	**5.1**	**23.3**	**cfs**

Minor storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

Major storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

INLET ON A CONTINUOUS GRADE

Version 4.06 Released August 2018



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')		a_{LOCAL} =	4.0	4.0	inches
Total Number of Units in the Inlet (Grate or Curb Opening)		No =	2	2	
Length of a Single Unit Inlet (Grate or Curb Opening)		L_o =	5.00	5.00	ft
Width of a Unit Grate (cannot be greater than W, Gutter Width)		W_o =	N/A	N/A	ft
Clogging Factor for a Single Unit Grate (typical min. value = 0.5)		C_f-G =	N/A	N/A	
Clogging Factor for a Single Unit Curb Opening (typical min. value = 0.1)		C_f-C =	0.10	0.10	
Street Hydraulics: OK - Q < Allowable Street Capacity'			MINOR	MAJOR	
Total Inlet Interception Capacity		**Q =**	**1.9**	**5.2**	**cfs**
Total Inlet Carry-Over Flow (flow bypassing inlet)		**Q_b =**	**0.0**	**0.3**	**cfs**
Capture Percentage = Q_a/Q_o =		**C% =**	**100**	**94**	**%**

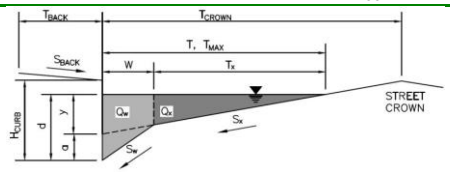
Version 4.06 Released August 2018

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

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

Project: Legato Filing No. 2

Inlet ID: 2700R - A4



Gutter Geometry (Enter data in the blue cells)

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	10.0	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} =	4.50	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	17.0	ft
Gutter Width	W =	2.00	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 =	0.010	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} =	17.0	17.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	4.5	6.9	inches
Allow Flow Depth at Street Crown (leave blank for no)		☐	☑	check = yes

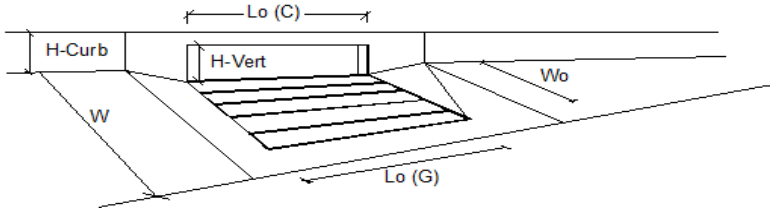
		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is based on Depth Criterion				
MAJOR STORM Allowable Capacity is based on Depth Criterion	Q_{allow} =	**5.1**	**23.3**	**cfs**

Minor storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

Major storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

INLET ON A CONTINUOUS GRADE

Version 4.06 Released August 2018



Design Information (Input)		MINOR	MAJOR	
Type of Inlet (CDOT Type R Curb Opening)	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a')	a_{LOCAL} =	4.0	4.0	inches
Total Number of Units in the Inlet (Grate or Curb Opening)	No =	2	2	
Length of a Single Unit Inlet (Grate or Curb Opening)	L_o =	5.00	5.00	ft
Width of a Unit Grate (cannot be greater than W, Gutter Width)	W_o =	N/A	N/A	ft
Clogging Factor for a Single Unit Grate (typical min. value = 0.5)	C_f-G =	N/A	N/A	
Clogging Factor for a Single Unit Curb Opening (typical min. value = 0.1)	C_f-C =	0.10	0.10	

Street Hydraulics: OK - Q < Allowable Street Capacity'		MINOR	MAJOR	
Total Inlet Interception Capacity	**Q =**	**2.8**	**7.1**	**cfs**
Total Inlet Carry-Over Flow (flow bypassing inlet)	**Q_b =**	**0.0**	**2.0**	**cfs**
Capture Percentage = Q_a/Q_o =	**C% =**	**100**	**78**	**%**

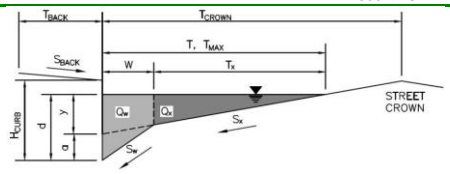
Version 4.06 Released August 2018

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

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

Project: **Legato Filing No. 2**

Inlet ID: **600 - A5**



Gutter Geometry (Enter data in the blue cells)

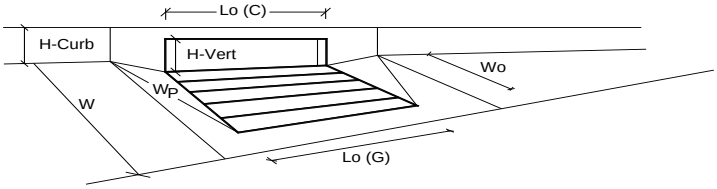
Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	10.0	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.020	
Height of Curb at Gutter Flow Line	H_{CURB} =	4.50	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	17.0	ft
Gutter Width	W =	2.00	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} =	17.0	17.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	4.5	6.9	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

Version 4.06 Released August 2018



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} =	4.50	4.50	inches
Number of Unit Inlets (Grate or Curb Opening)	No =	3	3	
Water Depth at Flowline (outside of local depression)	Ponding Depth =	4.5	5.6	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 =	2.00	2.00	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} =	0.21	0.30	ft
Combination Inlet Performance Reduction Factor for Long Inlets	$RF_{Combination}$ =	0.42	0.53	
Curb Opening Performance Reduction Factor for Long Inlets	RF_{Curb} =	0.68	0.76	
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 =**	**5.8**	**11.1**	**cfs**
Inlet Capacity IS GOOD for Minor and Major Storms(>Q PEAK)	$Q_{PEAK\ REQUIRED}$ =	2.7	9.7	cfs

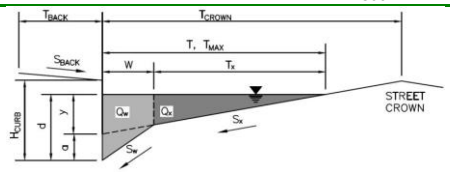
Version 4.06 Released August 2018

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

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

Project: **Legato Filing No. 2**

Inlet ID: **2506L-B2**



Gutter Geometry (Enter data in the blue cells)

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	10.0	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} =	4.50	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	17.0	ft
Gutter Width	W =	2.00	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 =	0.008	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.013	

		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	17.0	17.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	4.5	6.9	inches
Allow Flow Depth at Street Crown (leave blank for no)		☐	☐	check = yes

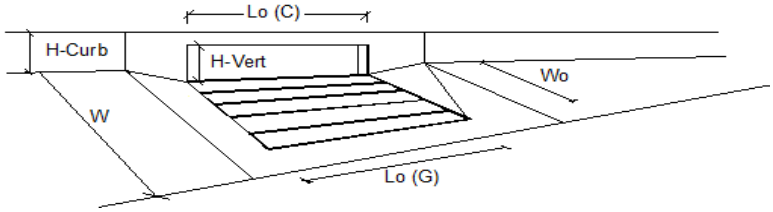
		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is based on Depth Criterion				
MAJOR STORM Allowable Capacity is based on Spread Criterion	**Q_{allow} =**	**5.6**	**12.2**	**cfs**

Minor storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

Major storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

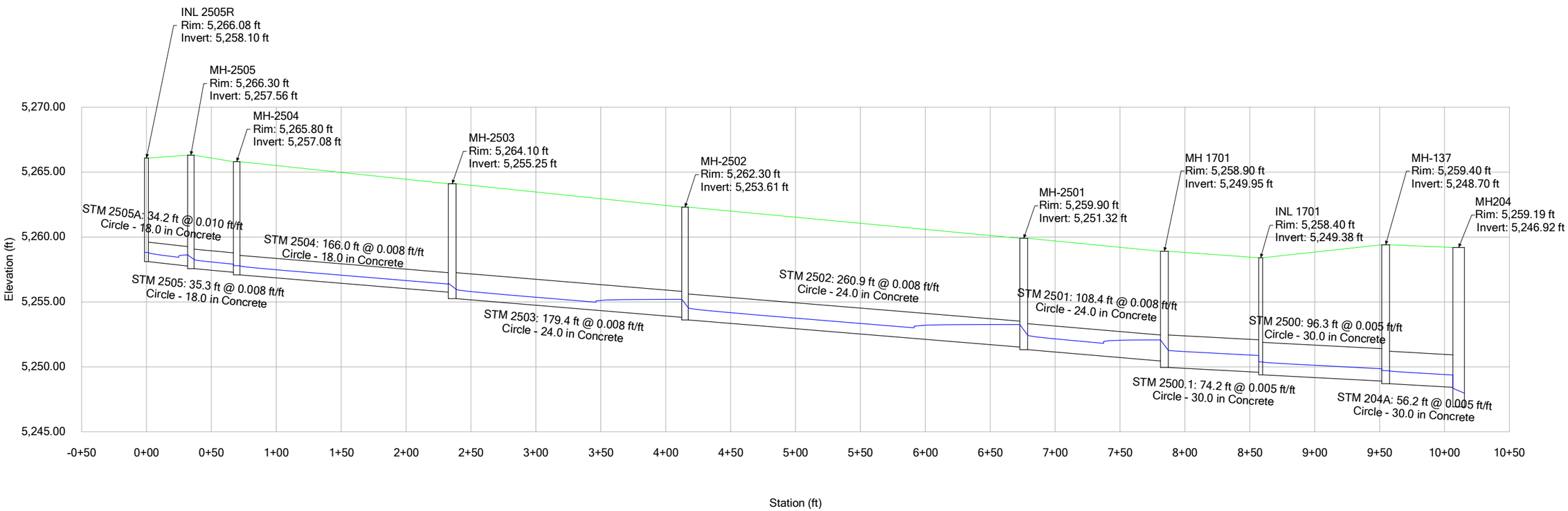
INLET ON A CONTINUOUS GRADE

Version 4.06 Released August 2018

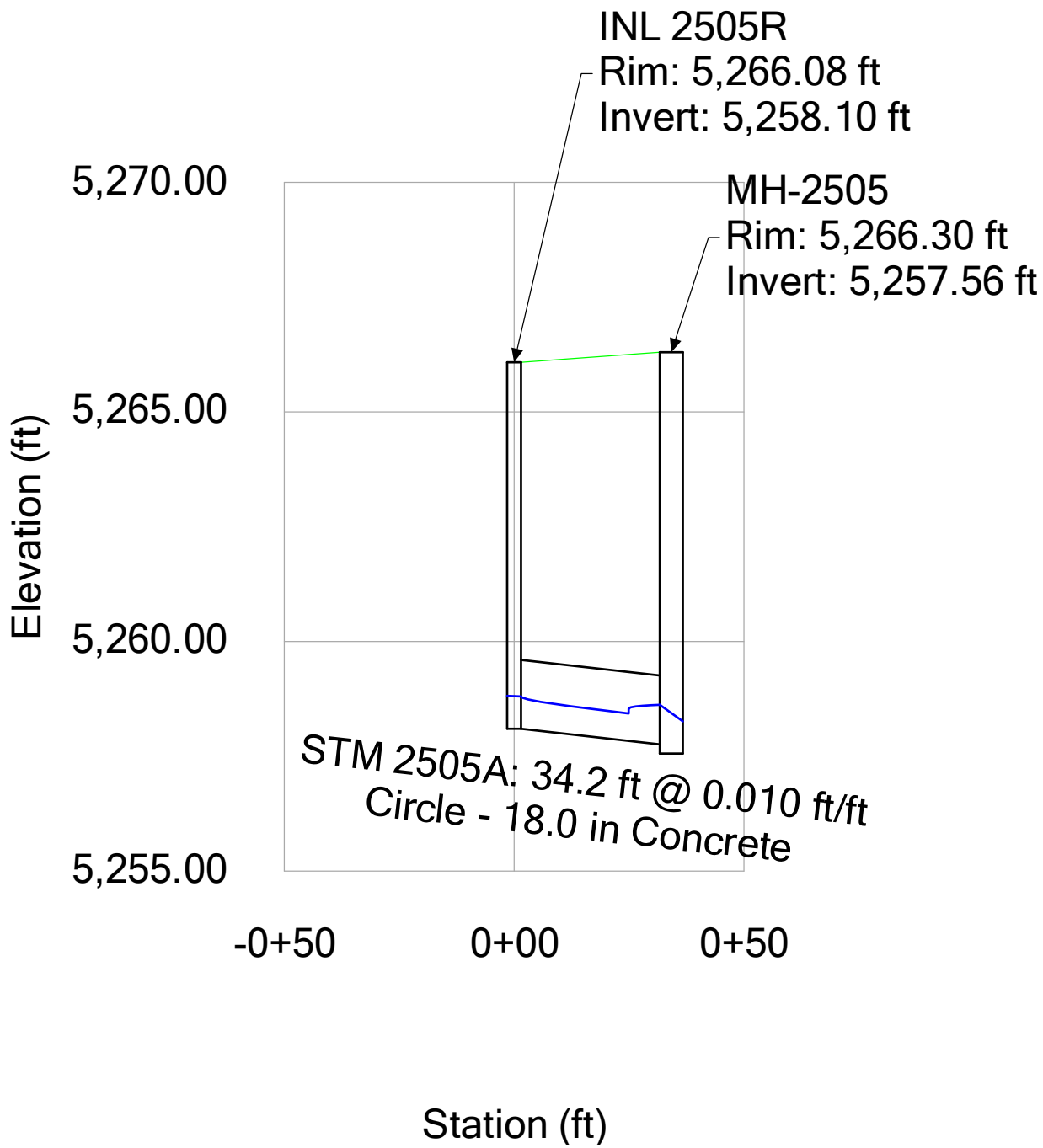


Design Information (Input)		MINOR	MAJOR	
Type of Inlet (CDOT Type R Curb Opening)	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a')	a_{LOCAL} =	4.0	4.0	inches
Total Number of Units in the Inlet (Grate or Curb Opening)	No =	3	3	
Length of a Single Unit Inlet (Grate or Curb Opening)	L_o =	5.00	5.00	ft
Width of a Unit Grate (cannot be greater than W, Gutter Width)	W_o =	N/A	N/A	ft
Clogging Factor for a Single Unit Grate (typical min. value = 0.5)	C_f-G =	N/A	N/A	
Clogging Factor for a Single Unit Curb Opening (typical min. value = 0.1)	C_f-C =	0.10	0.10	
Street Hydraulics: OK - Q < Allowable Street Capacity'		MINOR	MAJOR	
Total Inlet Interception Capacity	**Q =**	**2.6**	**5.5**	**cfs**
Total Inlet Carry-Over Flow (flow bypassing inlet)	**Q_b =**	**0.0**	**0.0**	**cfs**
Capture Percentage = Q_a/Q_o =	**C% =**	**100**	**100**	**%**

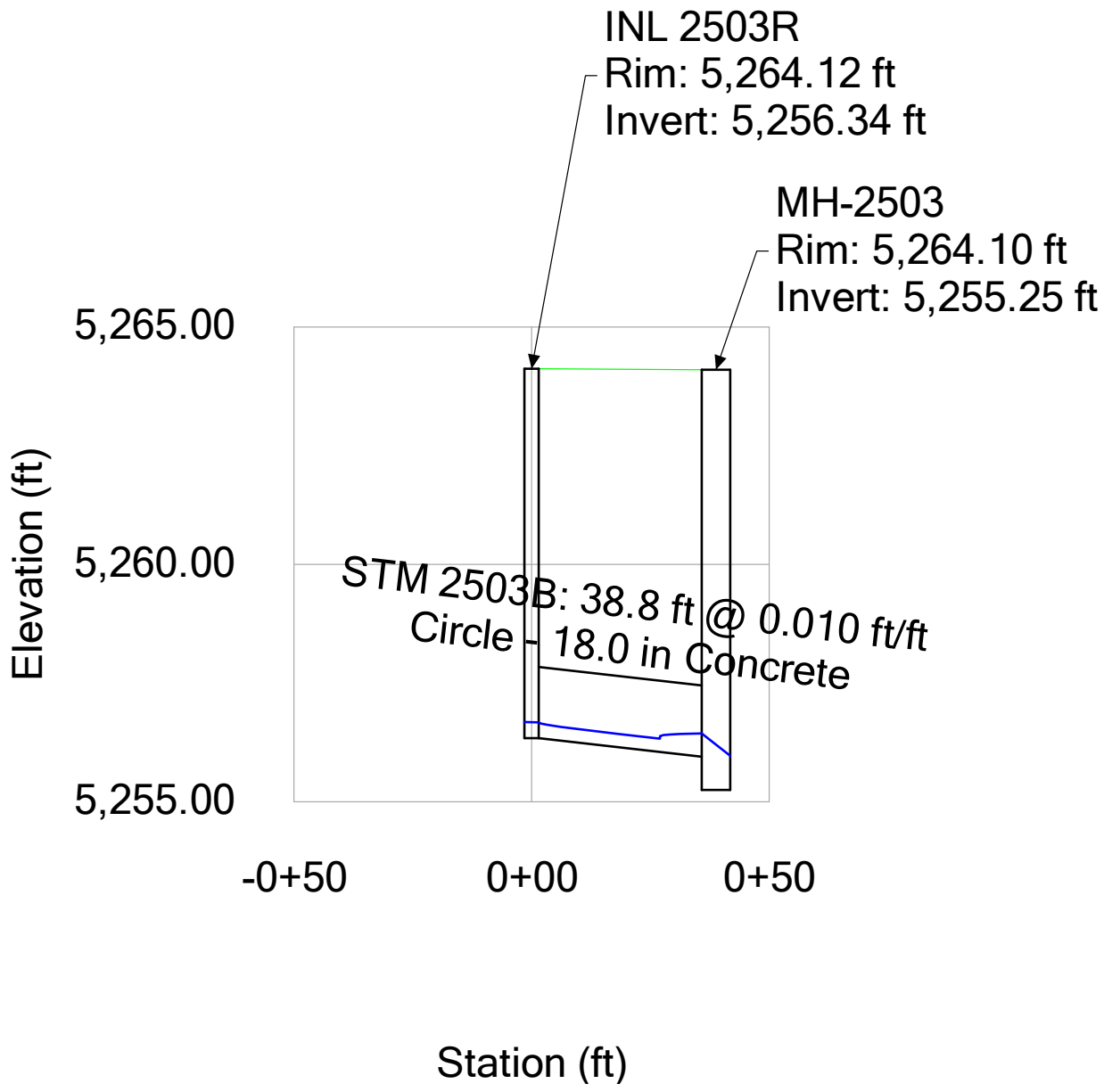
Profile Report
Engineering Profile - F2 - Storm Run 1 (19002220-Legato Restricted Flow.stsw)



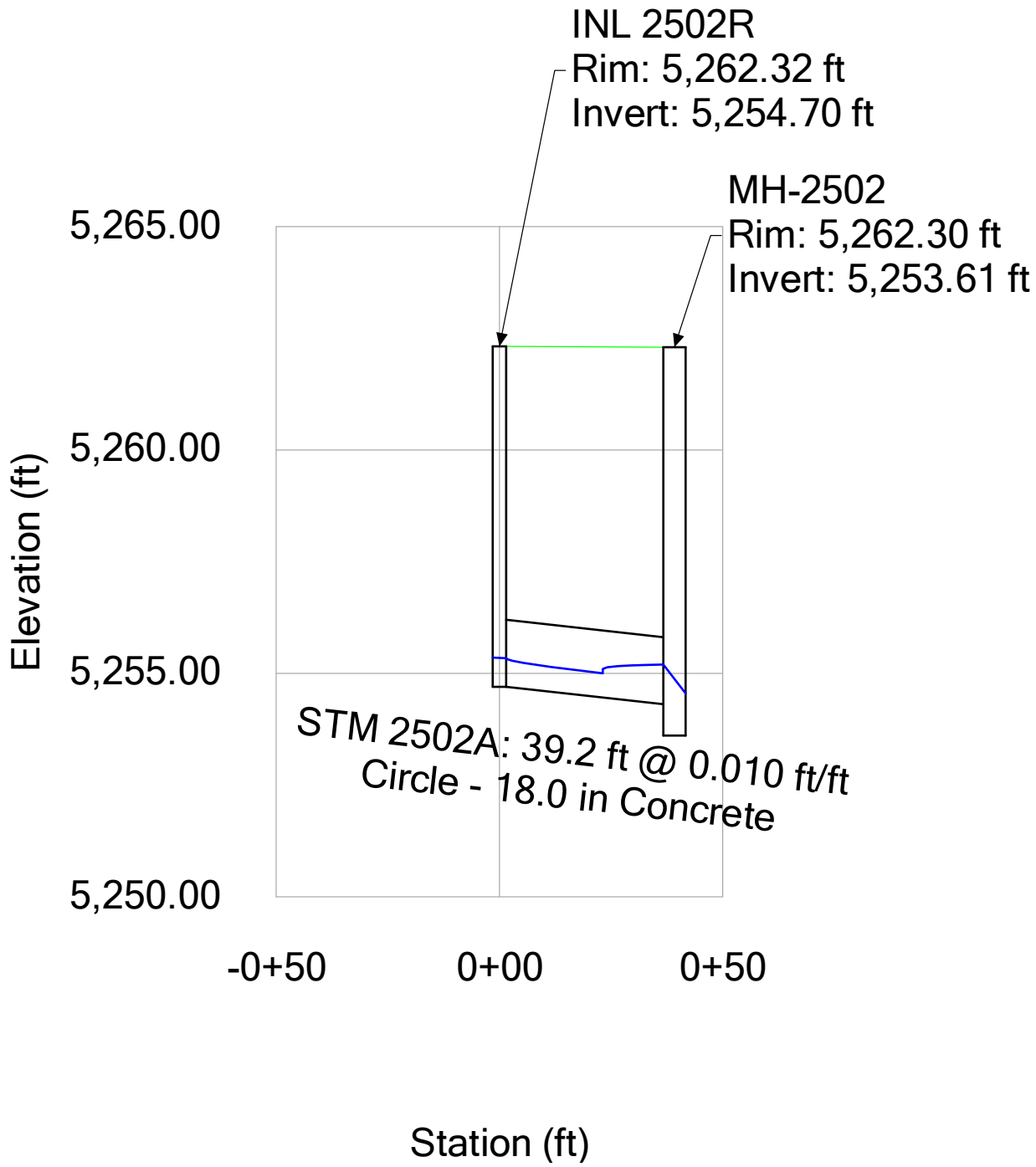
Profile Report
Engineering Profile - F2 - Storm Lateral 1 (19002220-Legato Restricted Flow.stsw)



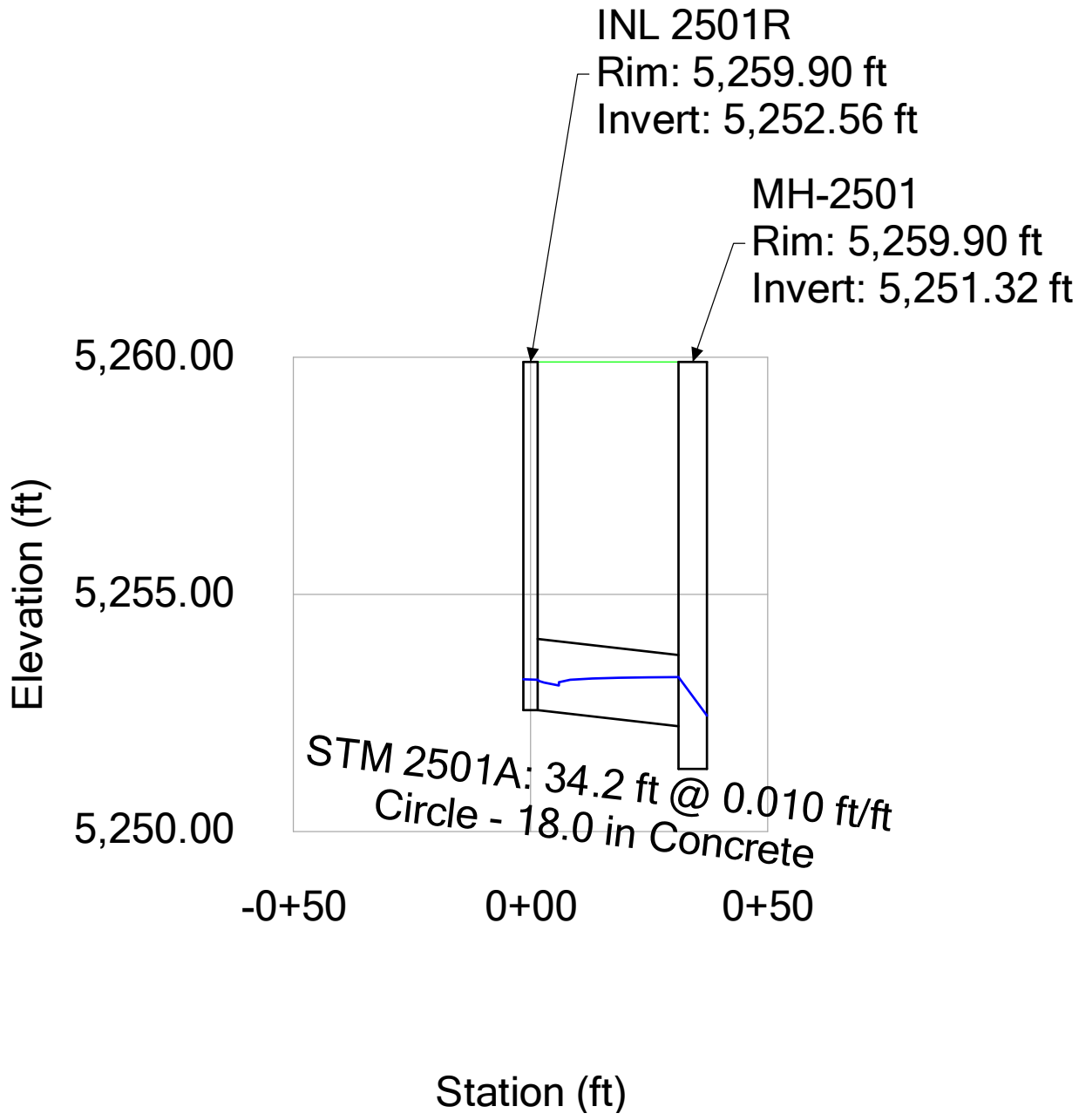
Profile Report
Engineering Profile - F2 - Storm Lateral 1A (19002220-Legato Restricted Flow.stsw)



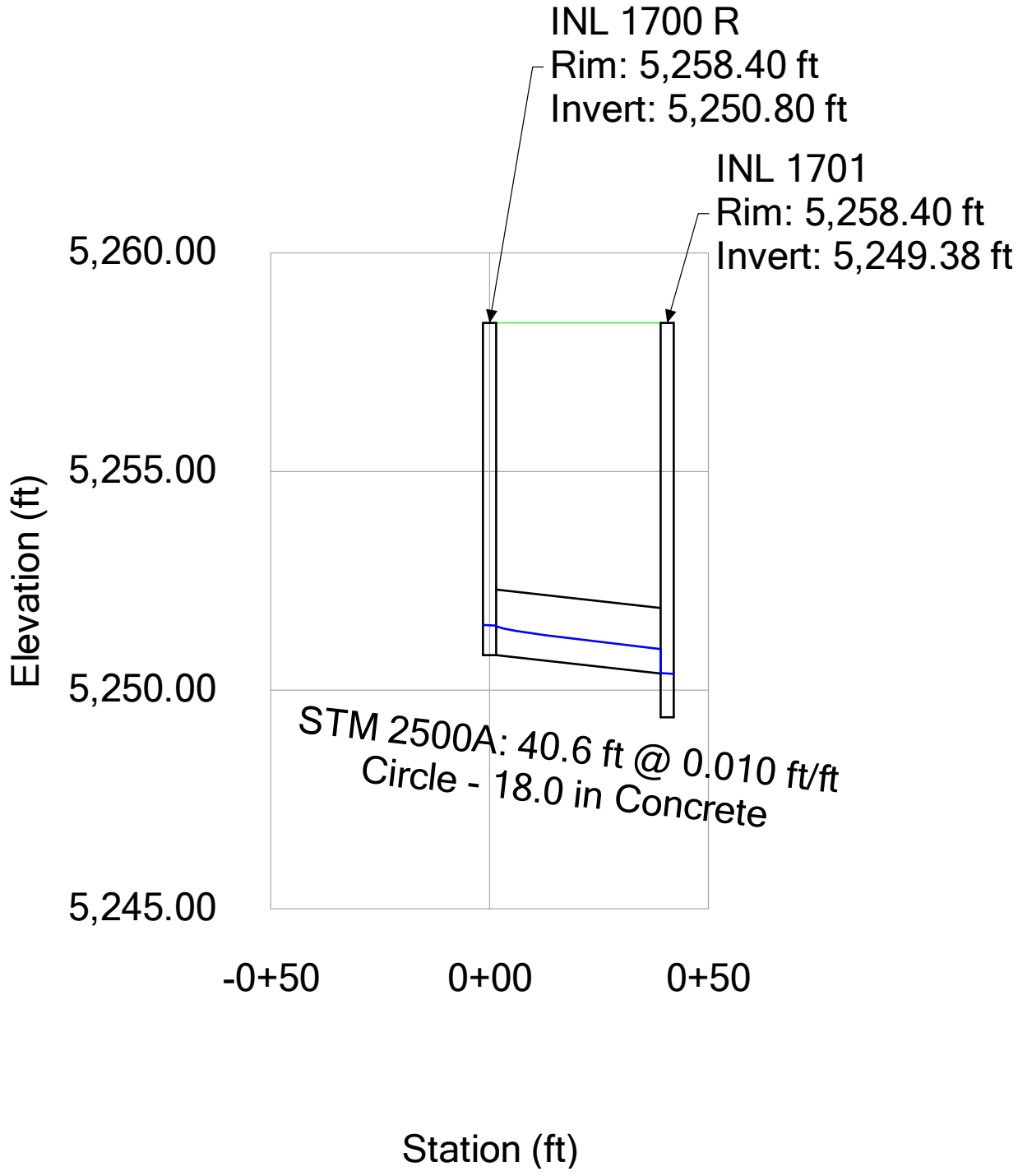
Profile Report
Engineering Profile - F2 - Storm Lateral 1B (19002220-Legato Restricted Flow.stsw)



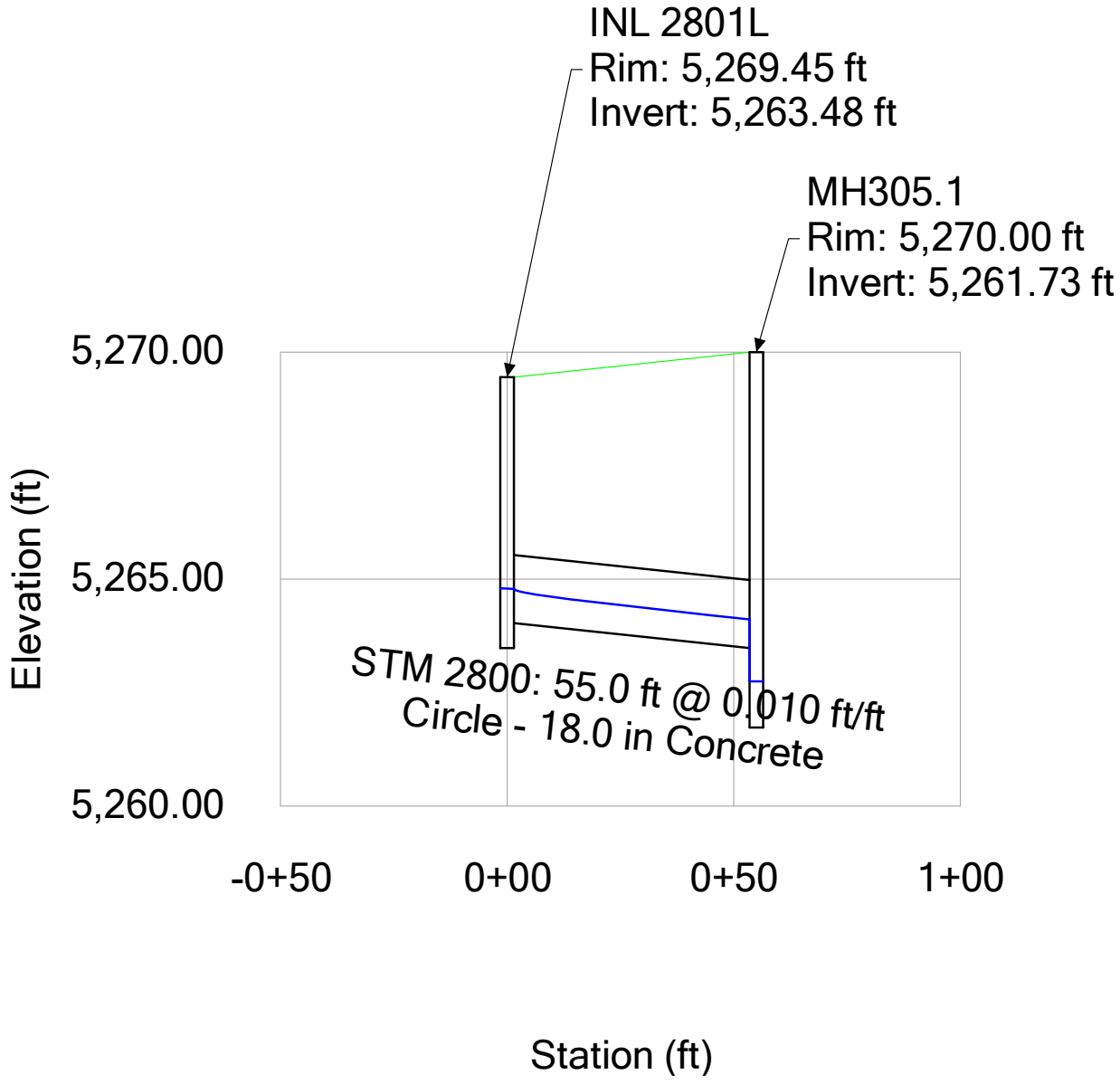
Profile Report
Engineering Profile - F2 - Storm Lateral 1C (19002220-Legato Restricted Flow.stsw)



Profile Report
Engineering Profile - F2 - Storm Lateral 1D (19002220-Legato Restricted Flow.stsw)

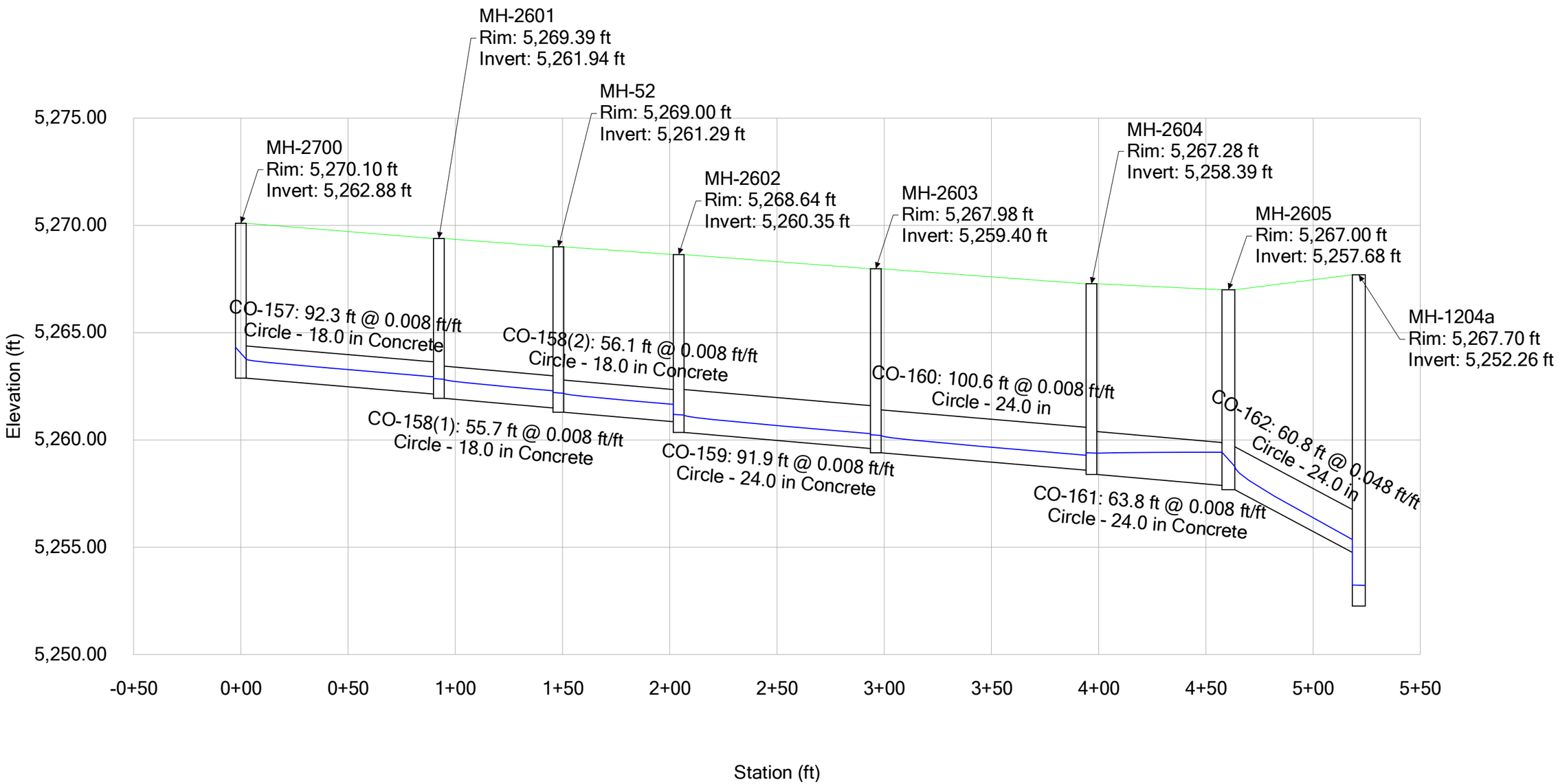


Profile Report
Engineering Profile - F2 - Storm Run 2 (19002220-Legato Restricted Flow.stsw)

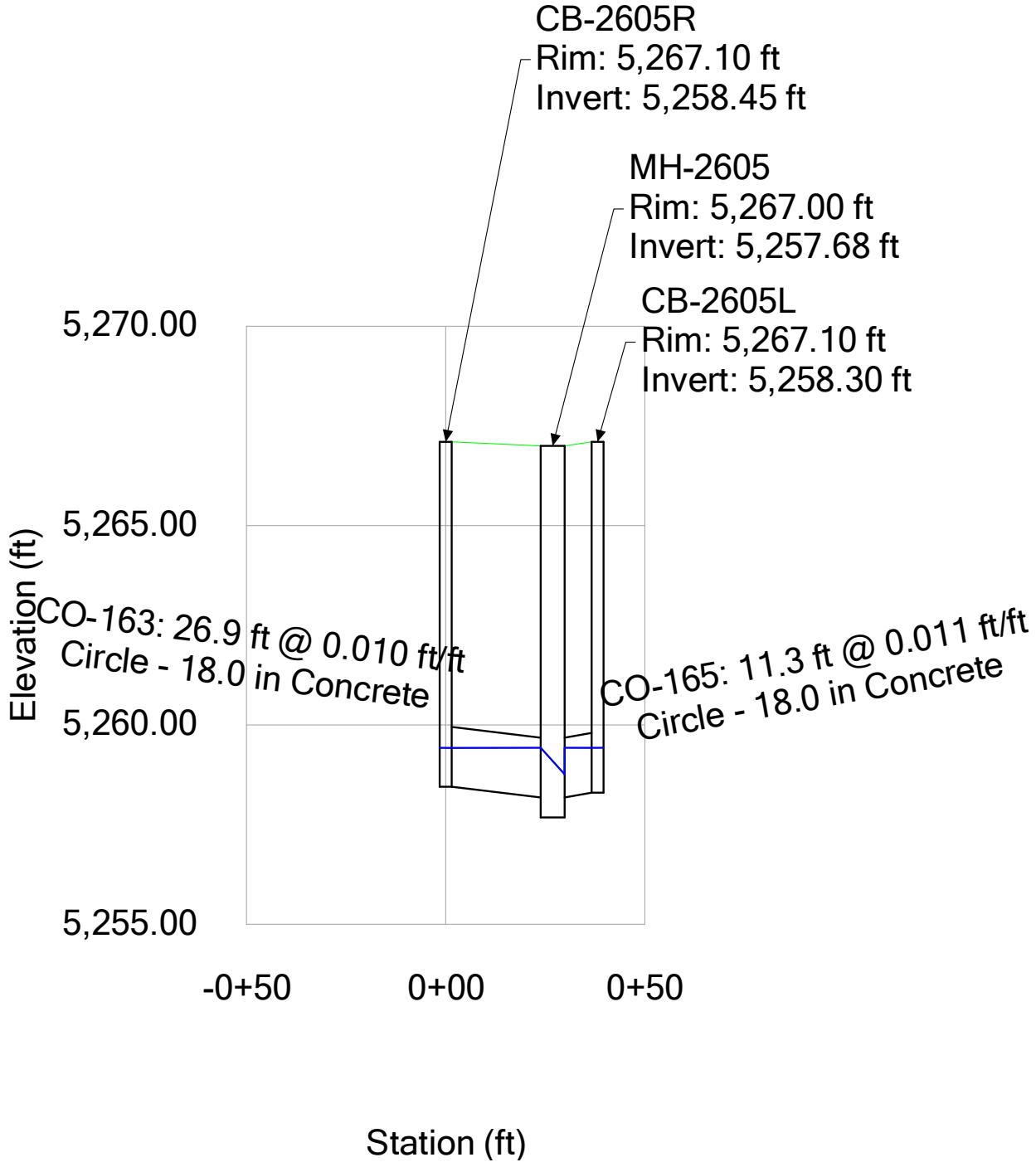


Profile Report

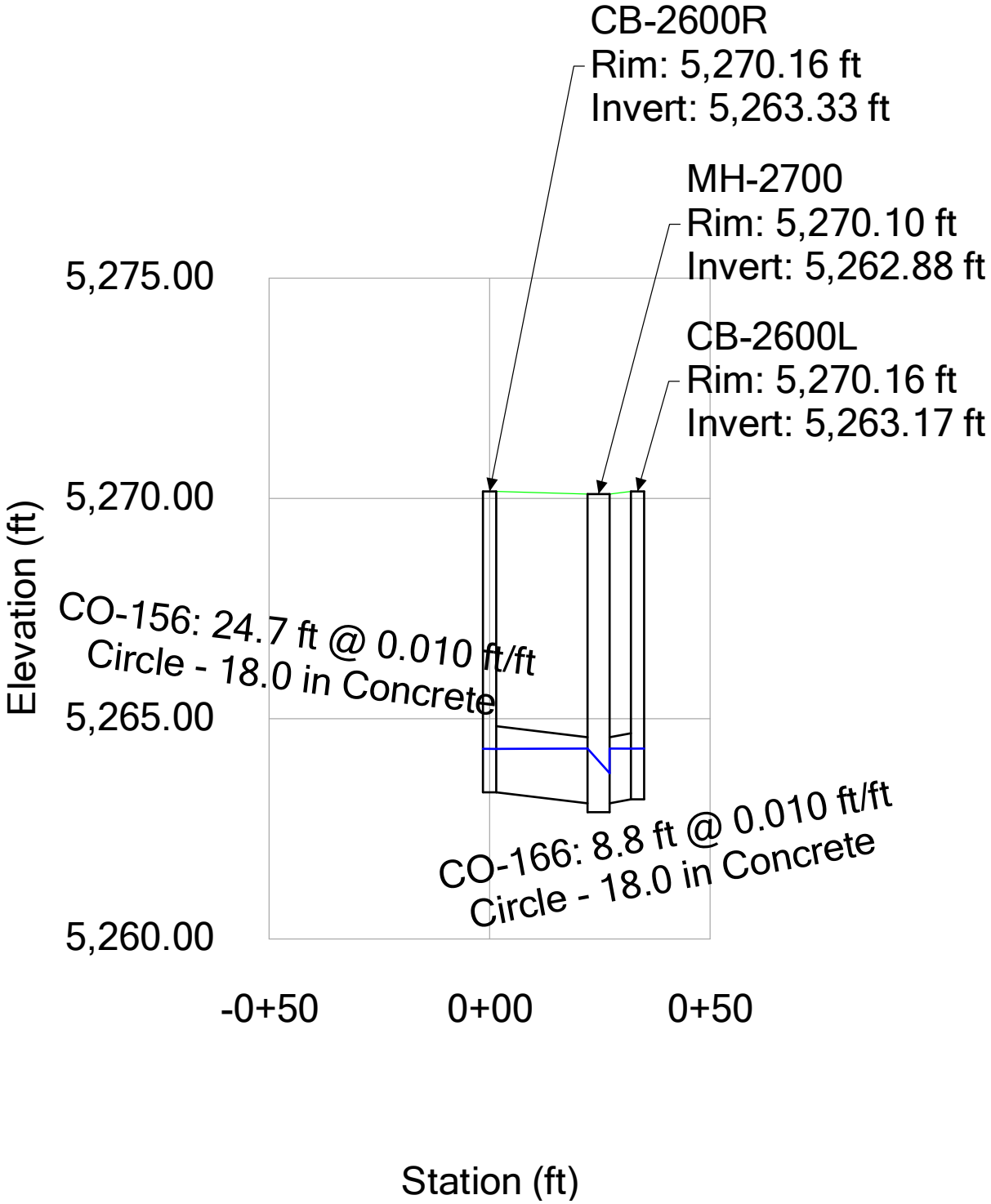
Engineering Profile - F2 - Storm Run 3 (19002220-Legato Restricted Flow.stsw)



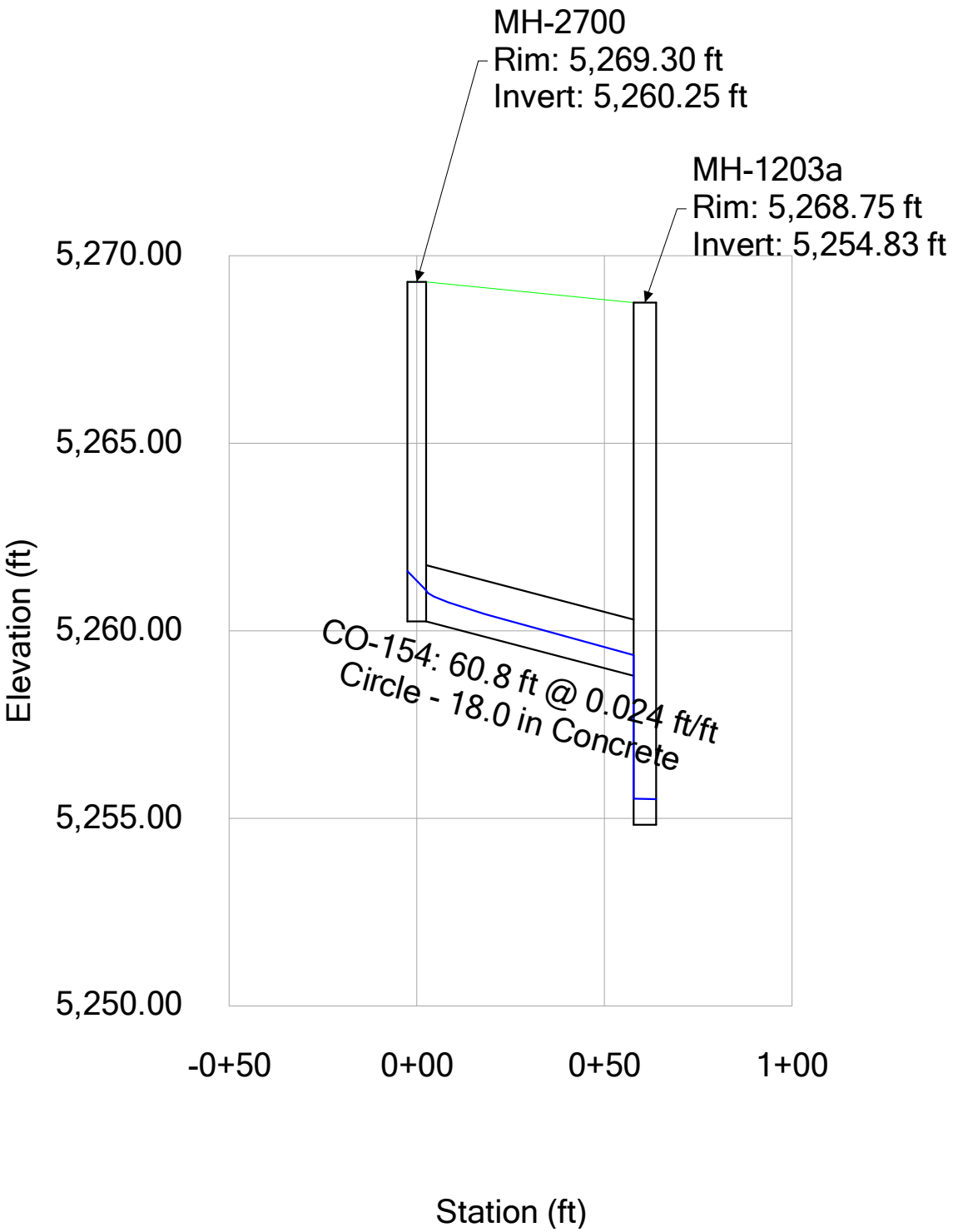
Profile Report
Engineering Profile - F2 - Storm Lateral 3A (19002220-Legato Restricted Flow.stsw)



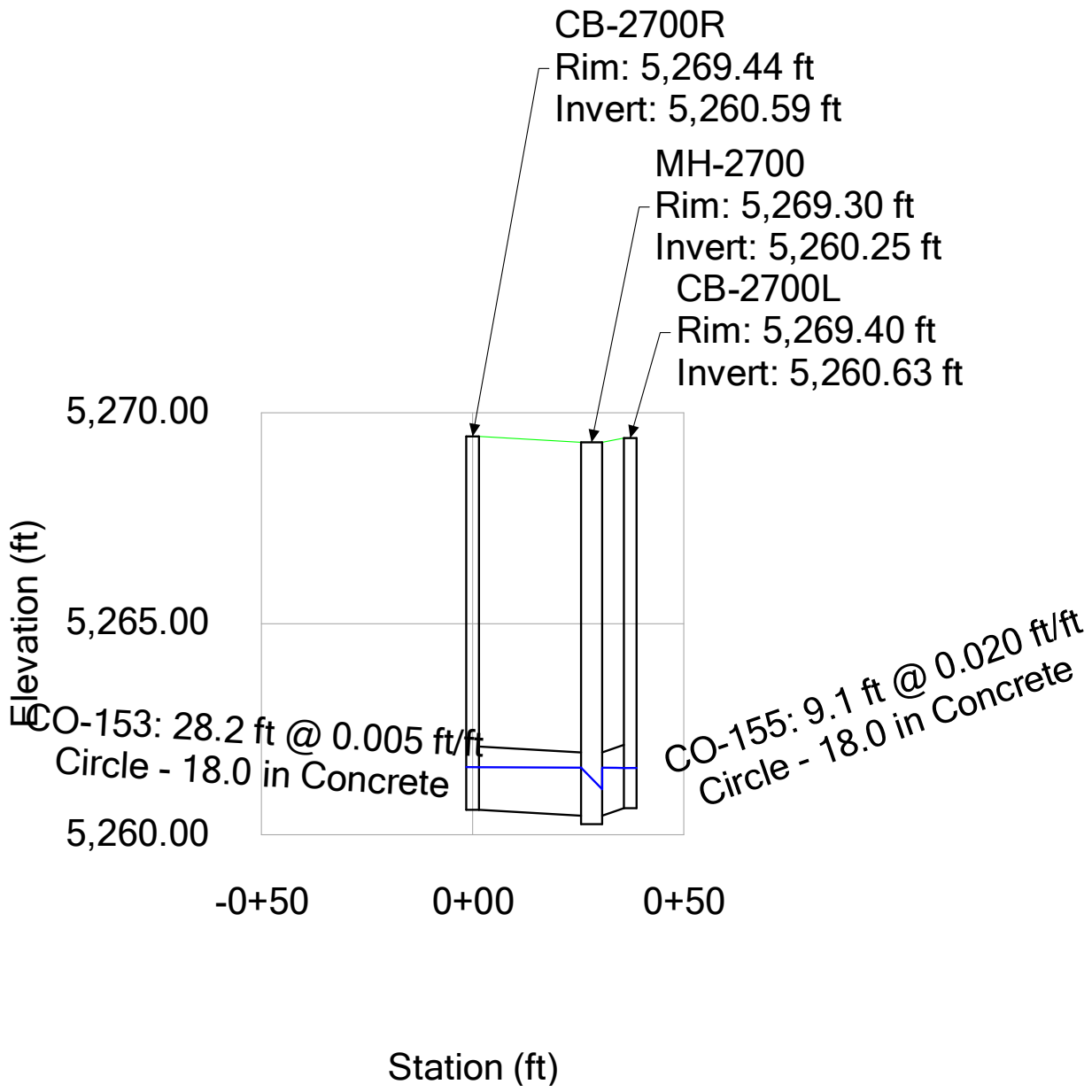
Profile Report
Engineering Profile - F2 - Storm Lateral 3B (19002220-Legato Restricted Flow.stsw)



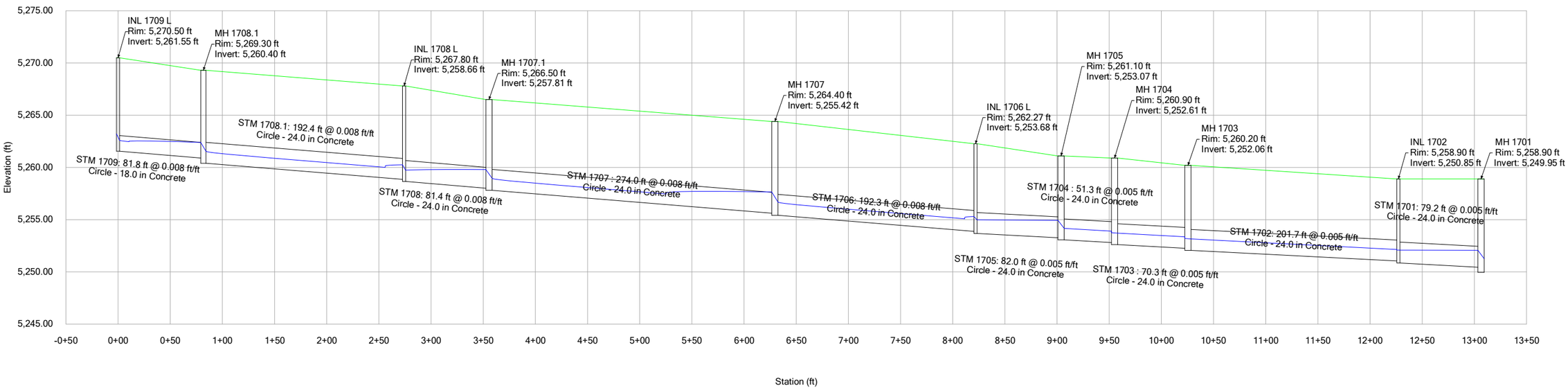
Profile Report
Engineering Profile - F2 - Storm Run 4 (19002220-Legato Restricted Flow.stsw)



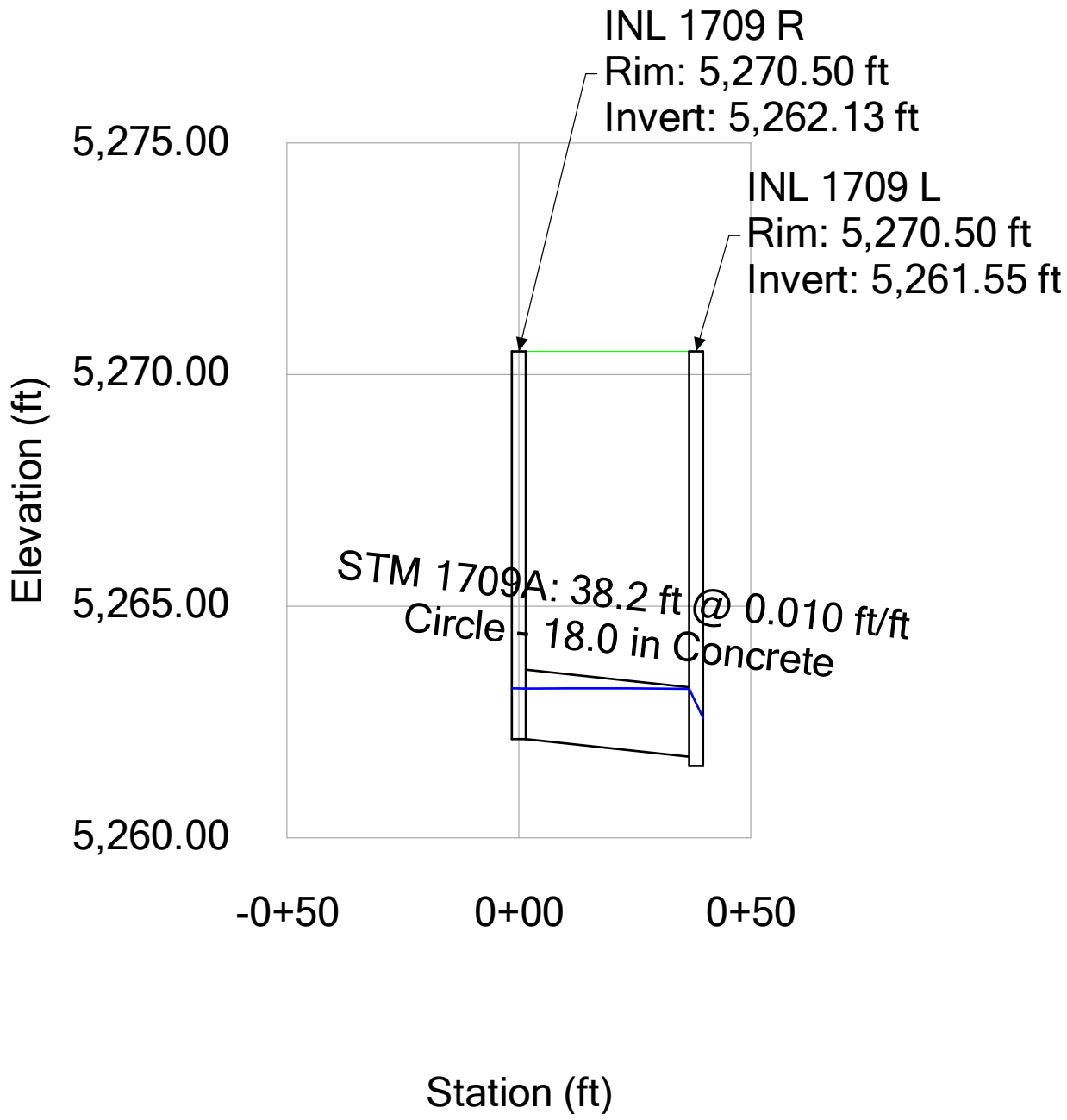
Profile Report
Engineering Profile - F2 - Storm Lateral 4A (19002220-Legato Restricted Flow.stsw)



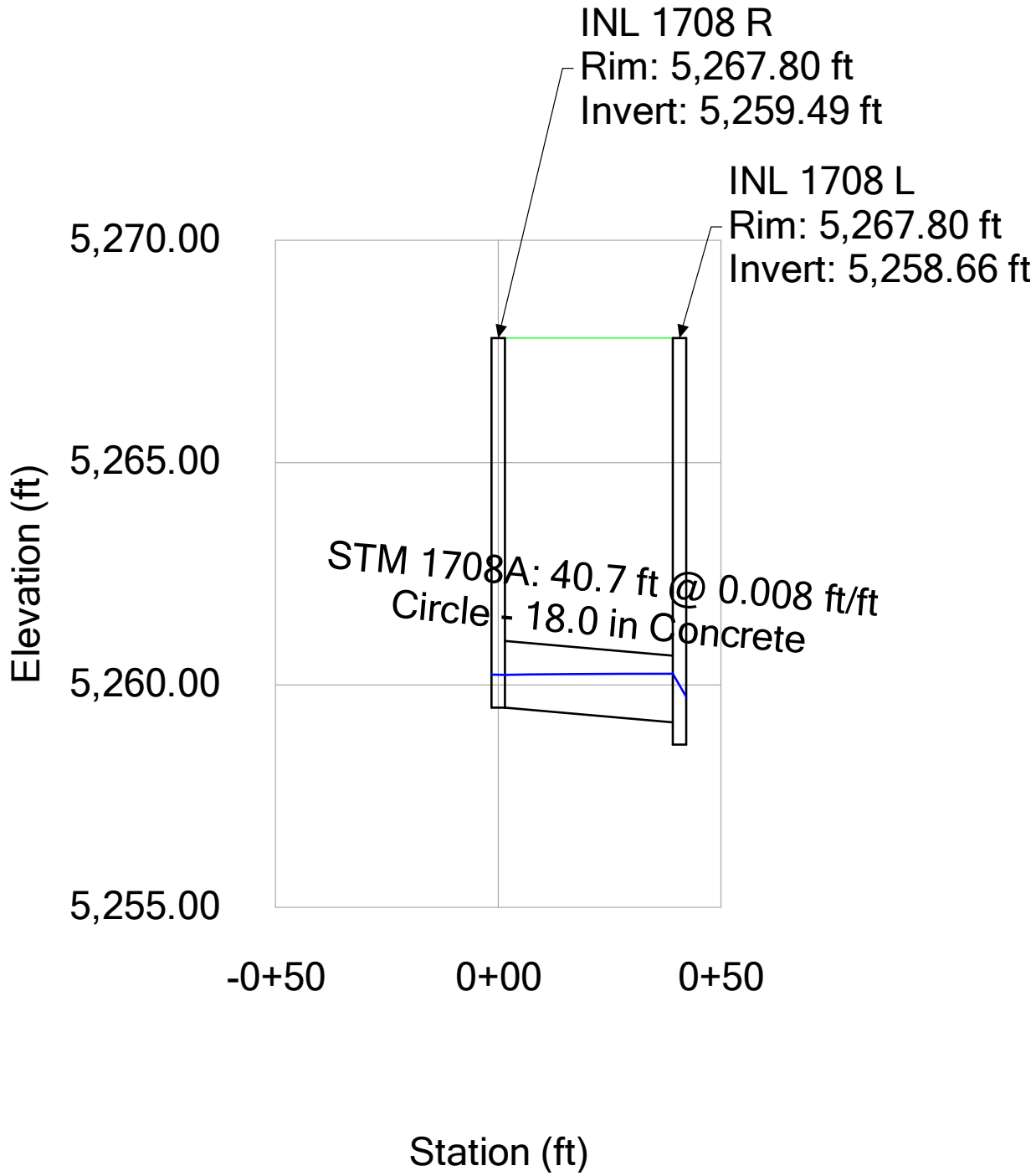
Profile Report
Engineering Profile - F2 - Storm Run 6 (19002220-Legato Restricted Flow.stsw)



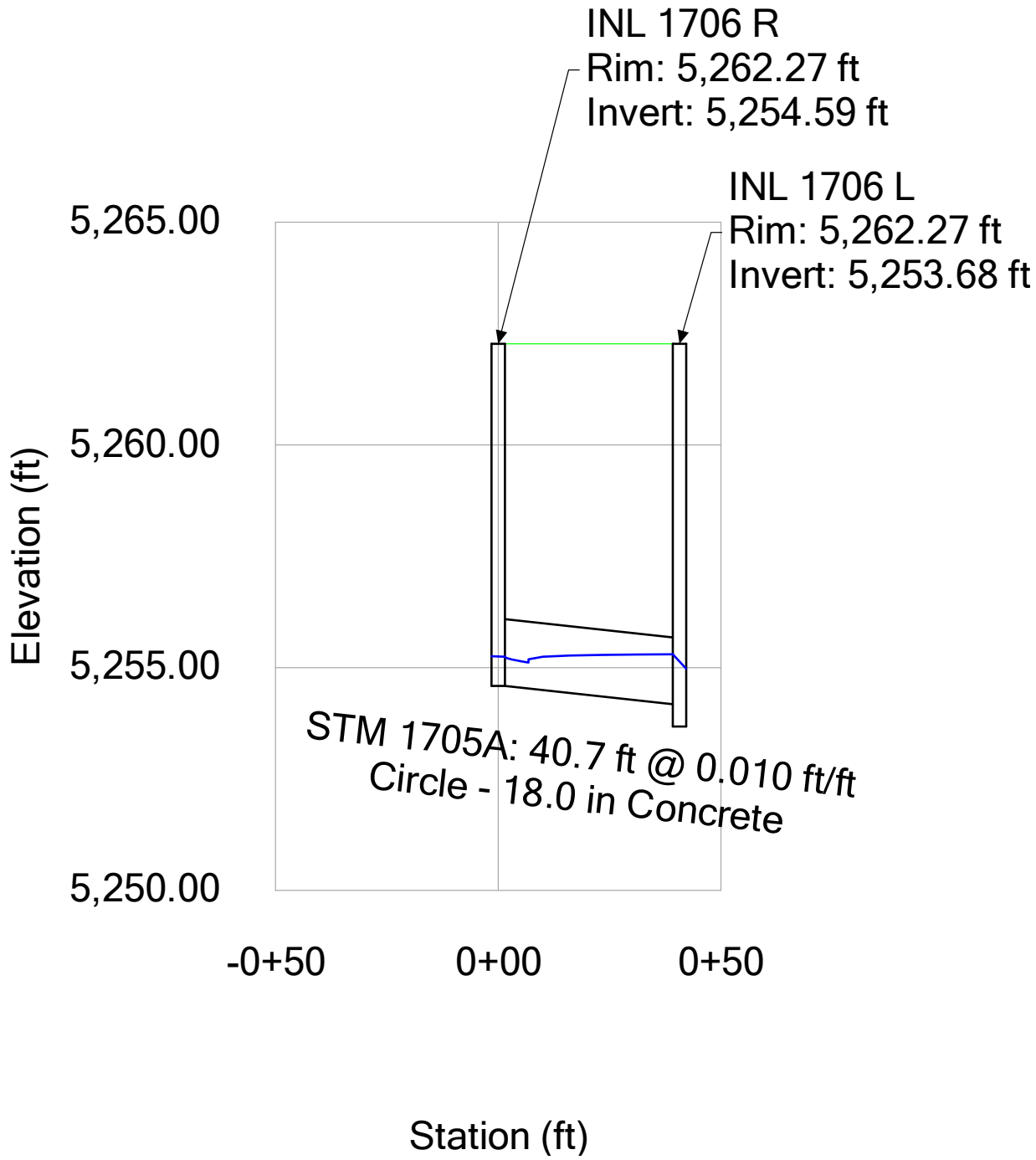
Profile Report
Engineering Profile - F2 - Storm Lateral 6A (19002220-Legato Restricted Flow.stsw)



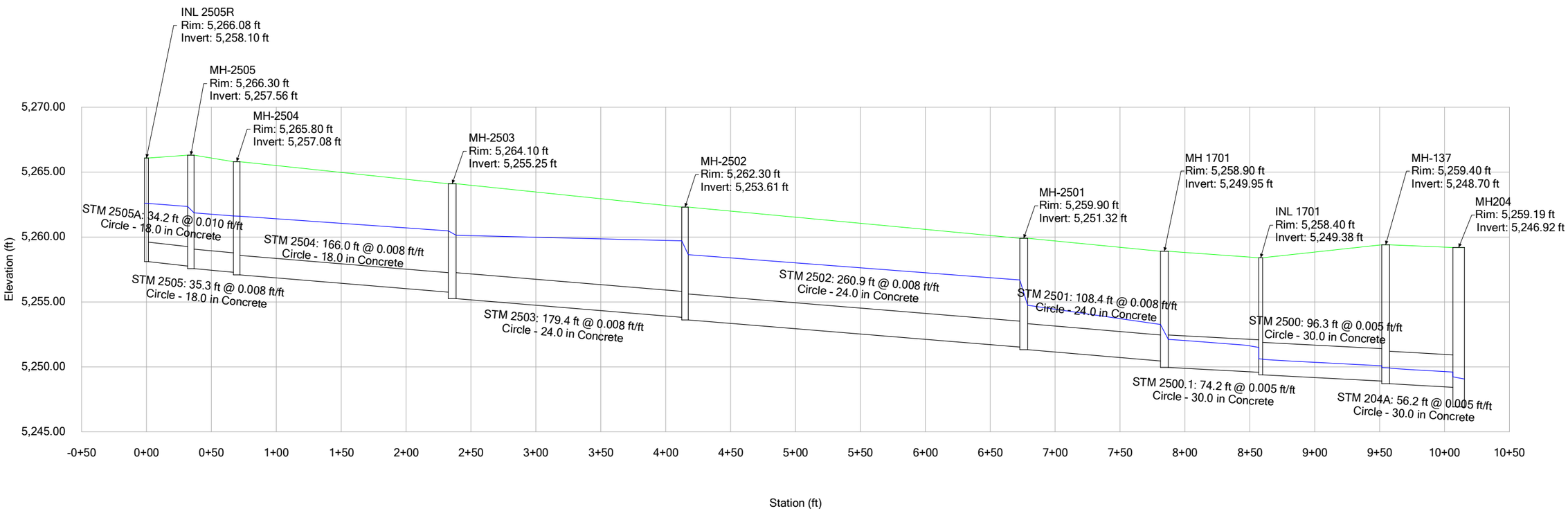
Profile Report
Engineering Profile - F2 - Storm Lateral 6B (19002220-Legato Restricted Flow.stsw)



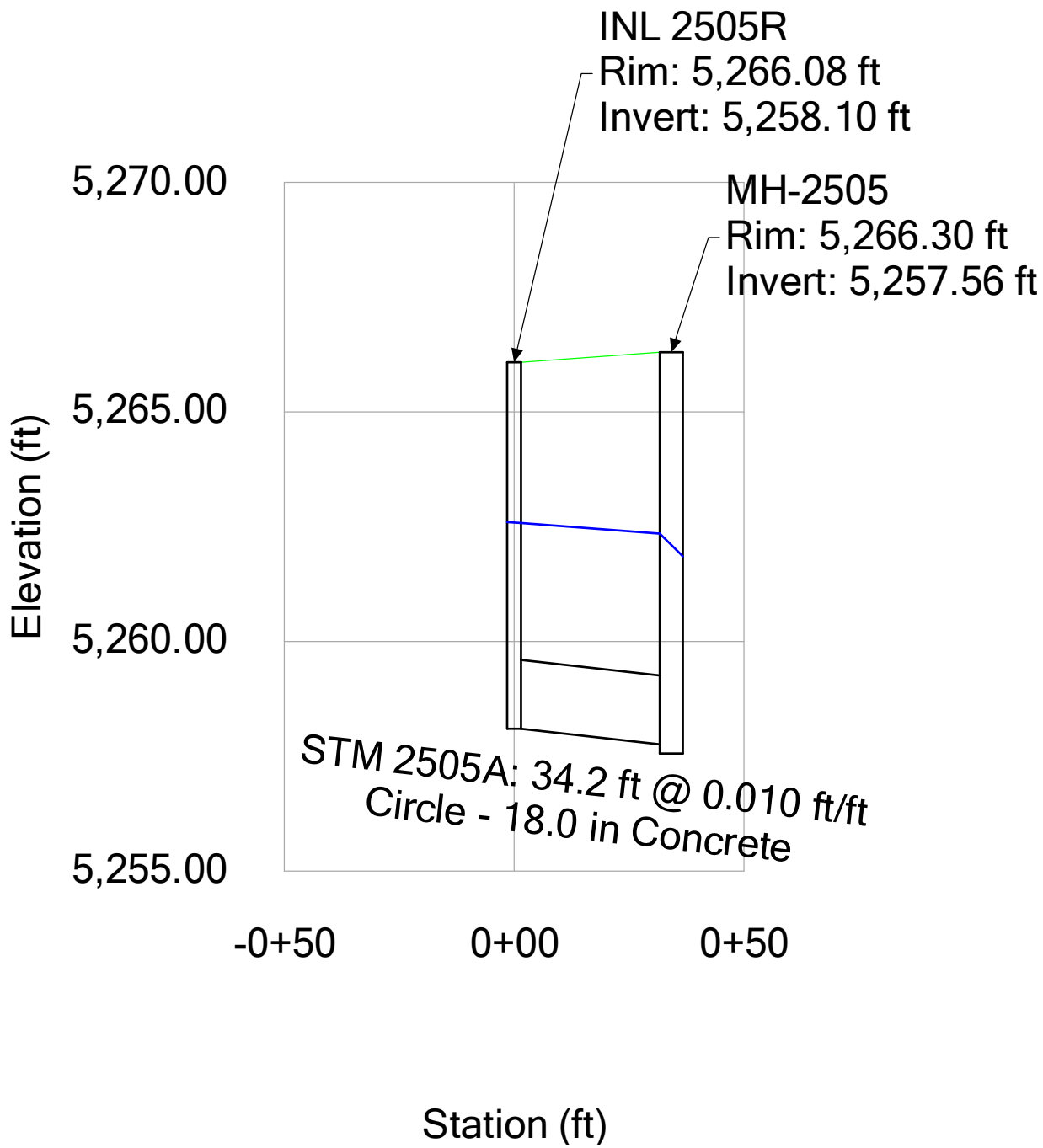
Profile Report
Engineering Profile - F2 - Storm Lateral 6C (19002220-Legato Restricted Flow.stsw)



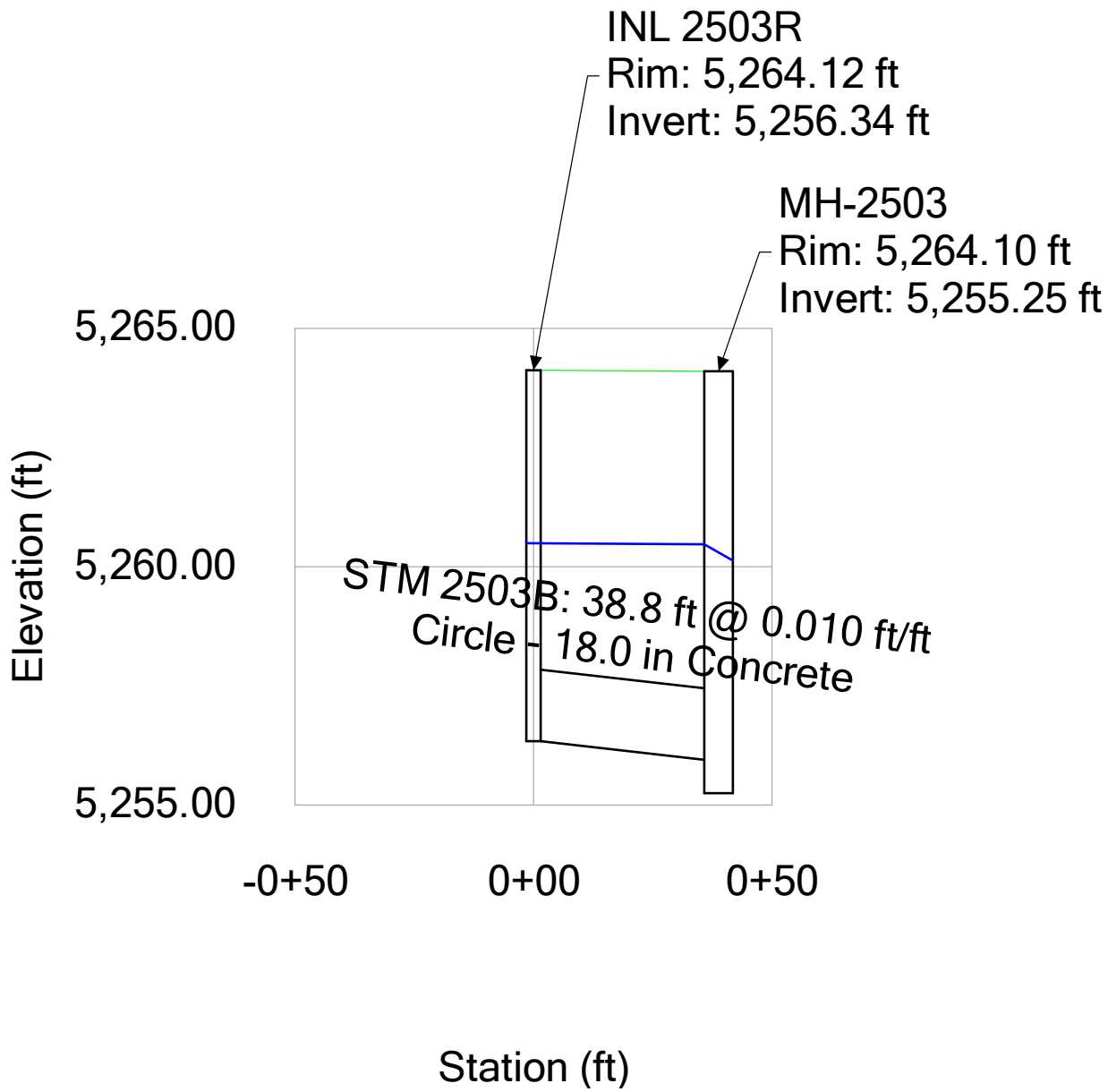
Profile Report
Engineering Profile - F2 - Storm Run 1 (19002220-Legato Restricted Flow.stsw)



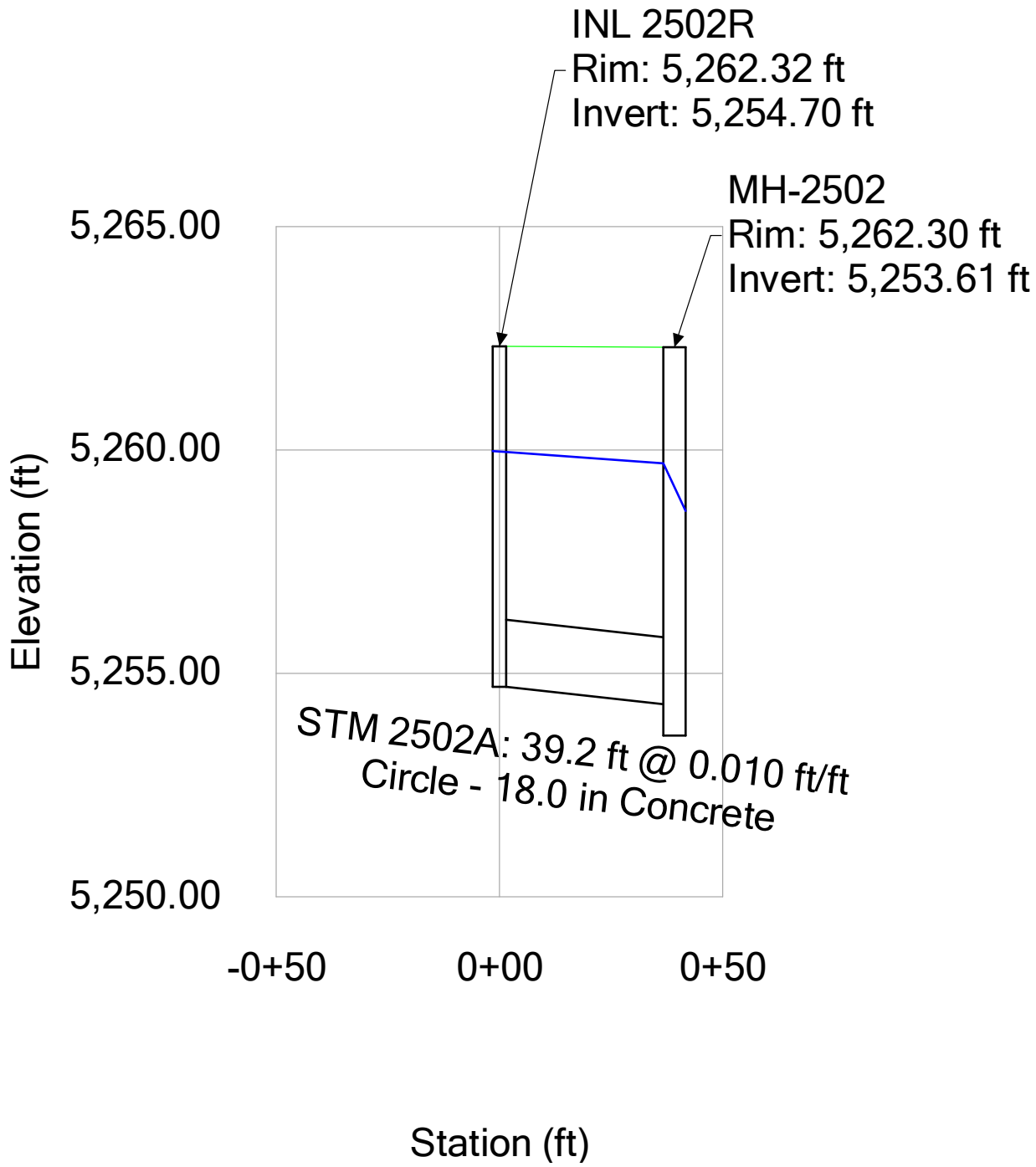
Profile Report
Engineering Profile - F2 - Storm Lateral 1 (19002220-Legato Restricted Flow.stsw)



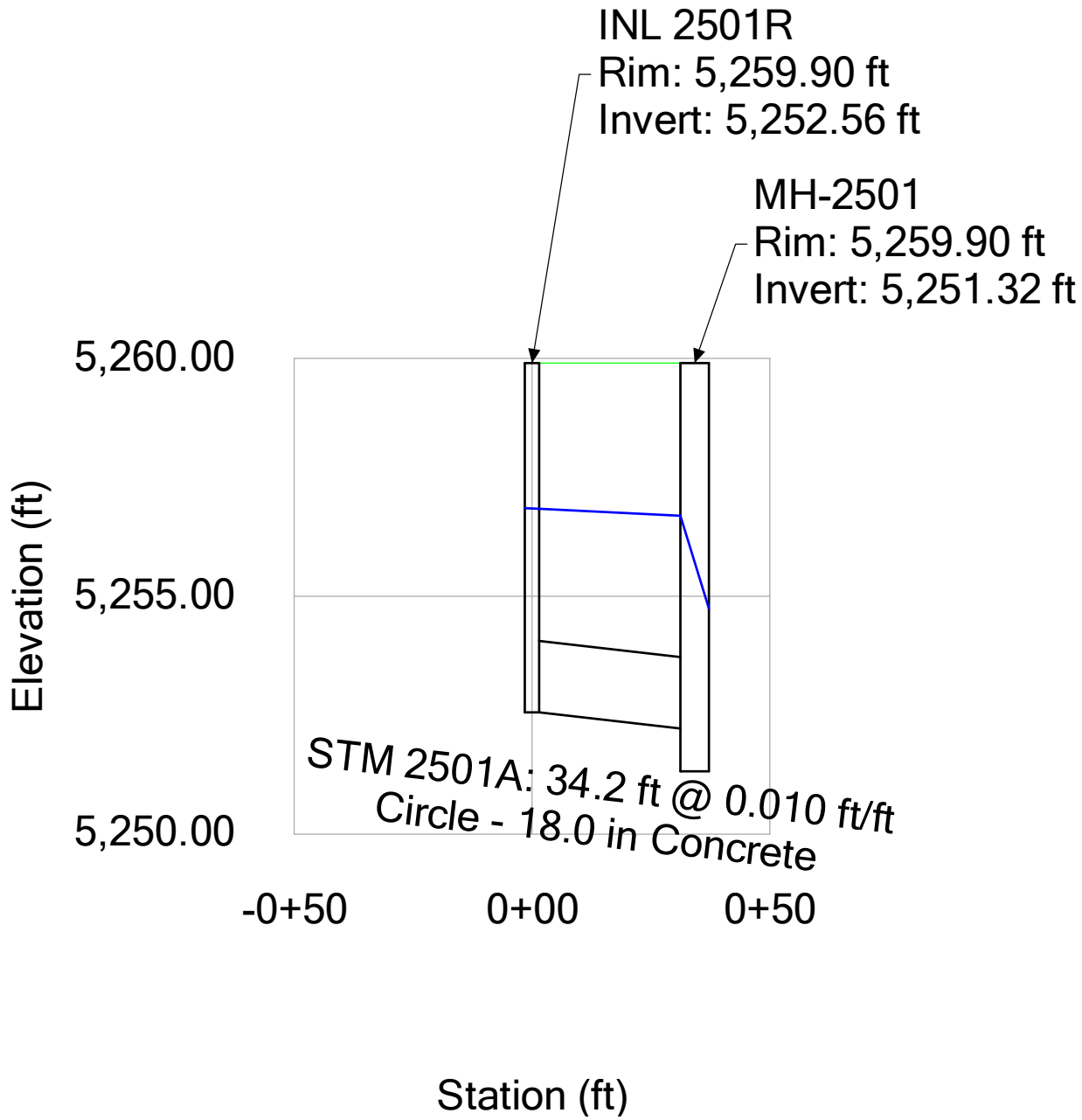
Profile Report
Engineering Profile - F2 - Storm Lateral 1A (19002220-Legato Restricted Flow.stsw)



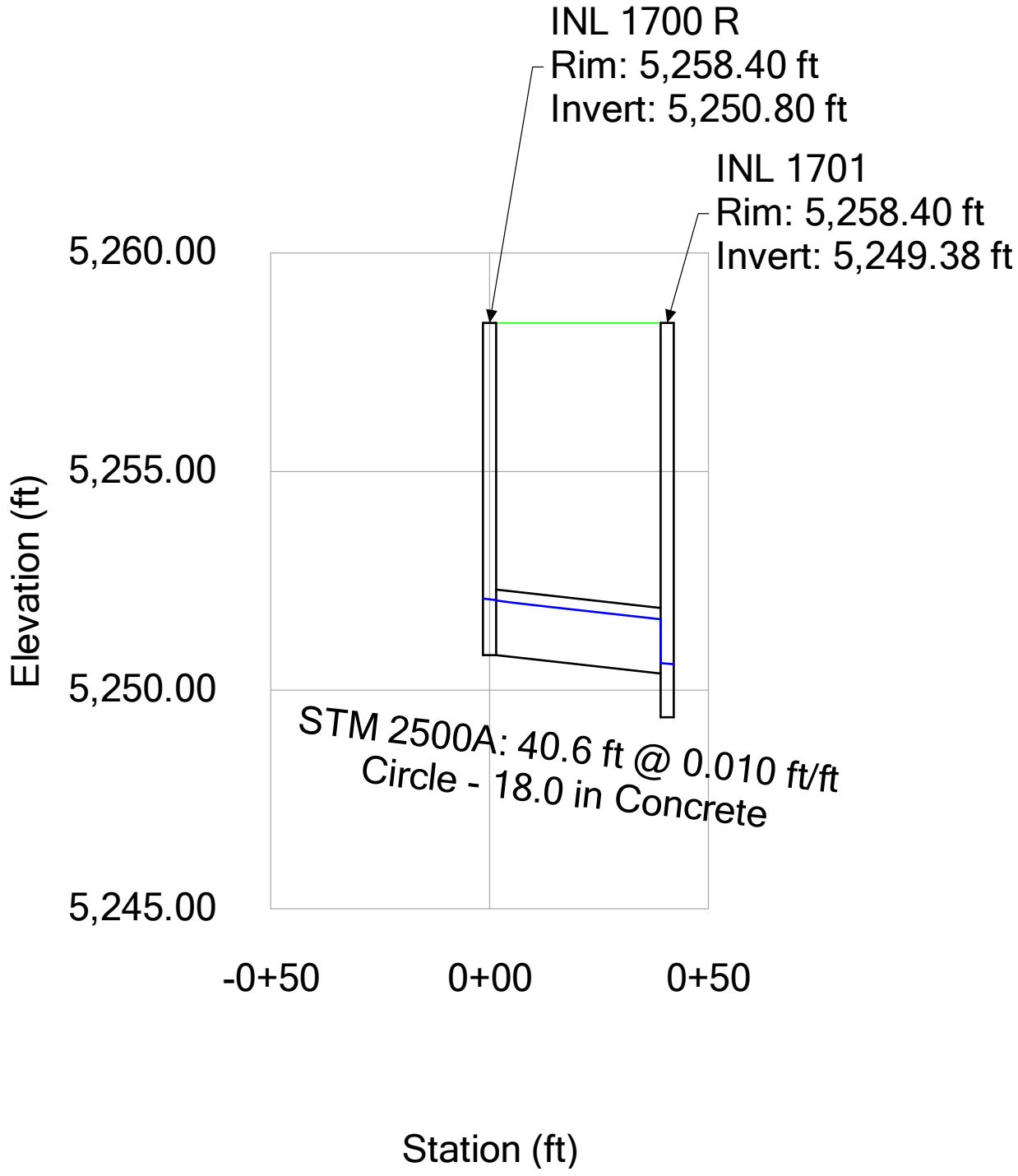
Profile Report
Engineering Profile - F2 - Storm Lateral 1B (19002220-Legato Restricted Flow.stsw)



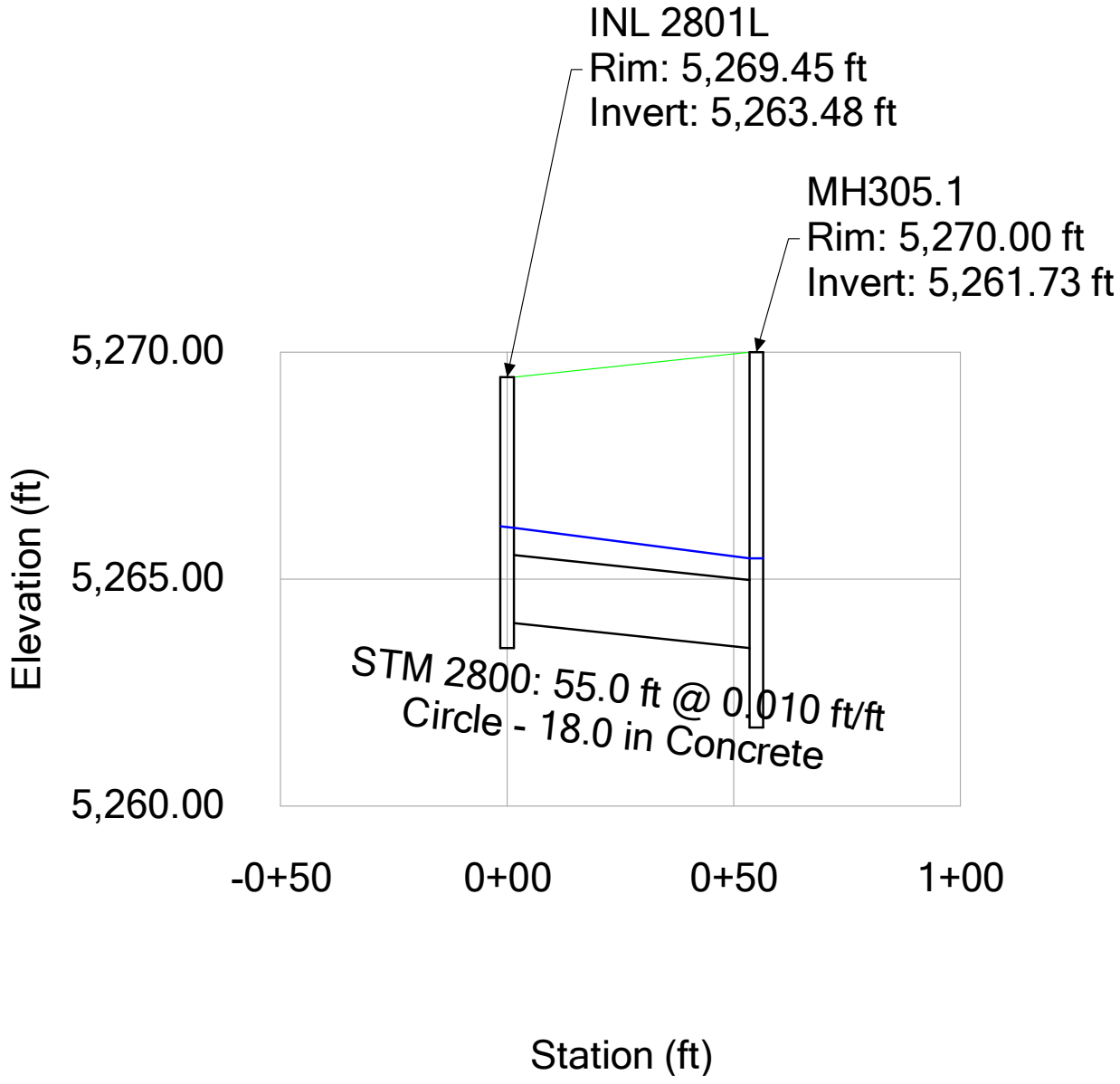
Profile Report
Engineering Profile - F2 - Storm Lateral 1C (19002220-Legato Restricted Flow.stsw)



Profile Report
Engineering Profile - F2 - Storm Lateral 1D (19002220-Legato Restricted Flow.stsw)

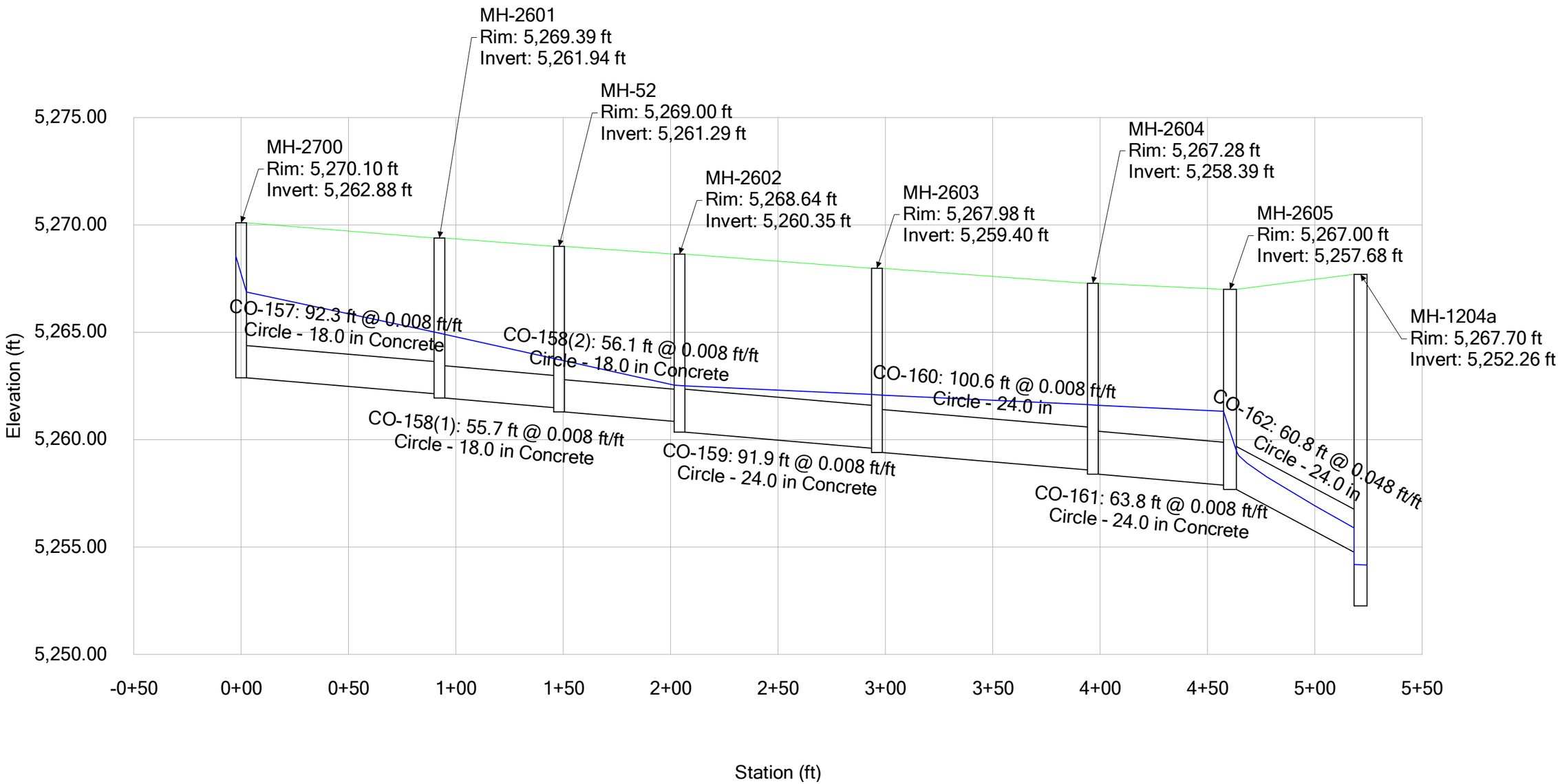


Profile Report
Engineering Profile - F2 - Storm Run 2 (19002220-Legato Restricted Flow.stsw)

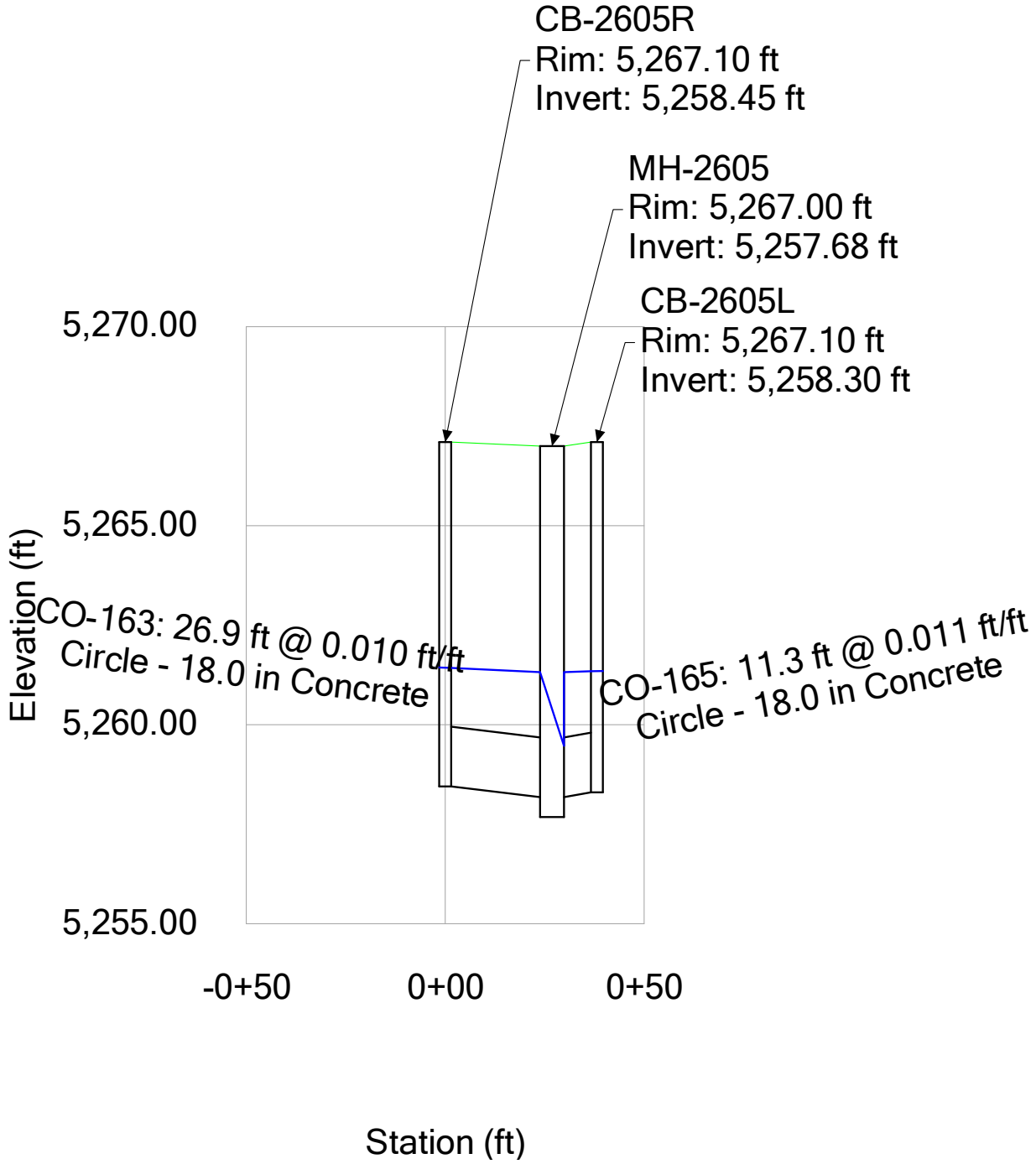


Profile Report

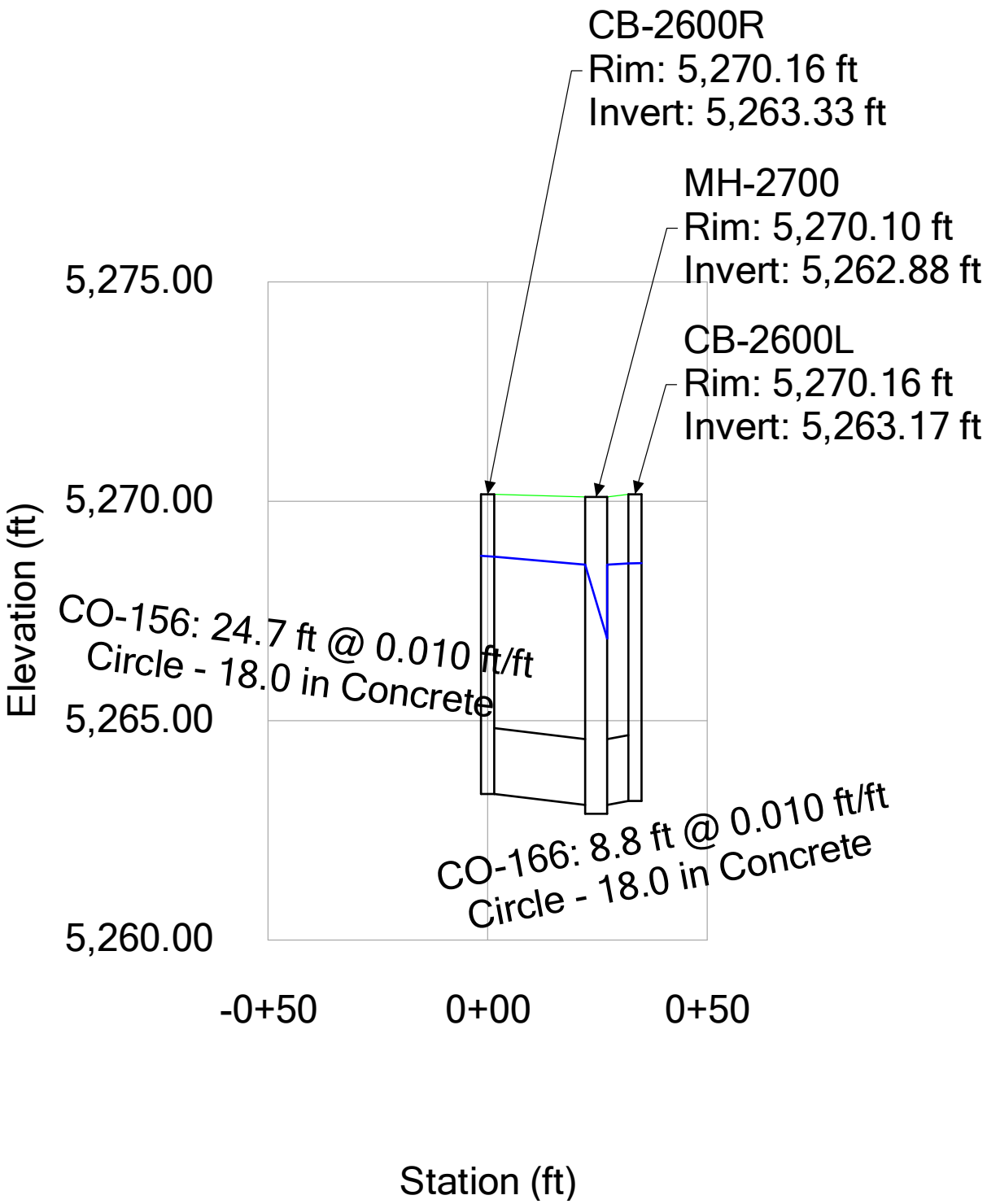
Engineering Profile - F2 - Storm Run 3 (19002220-Legato Restricted Flow.stsw)



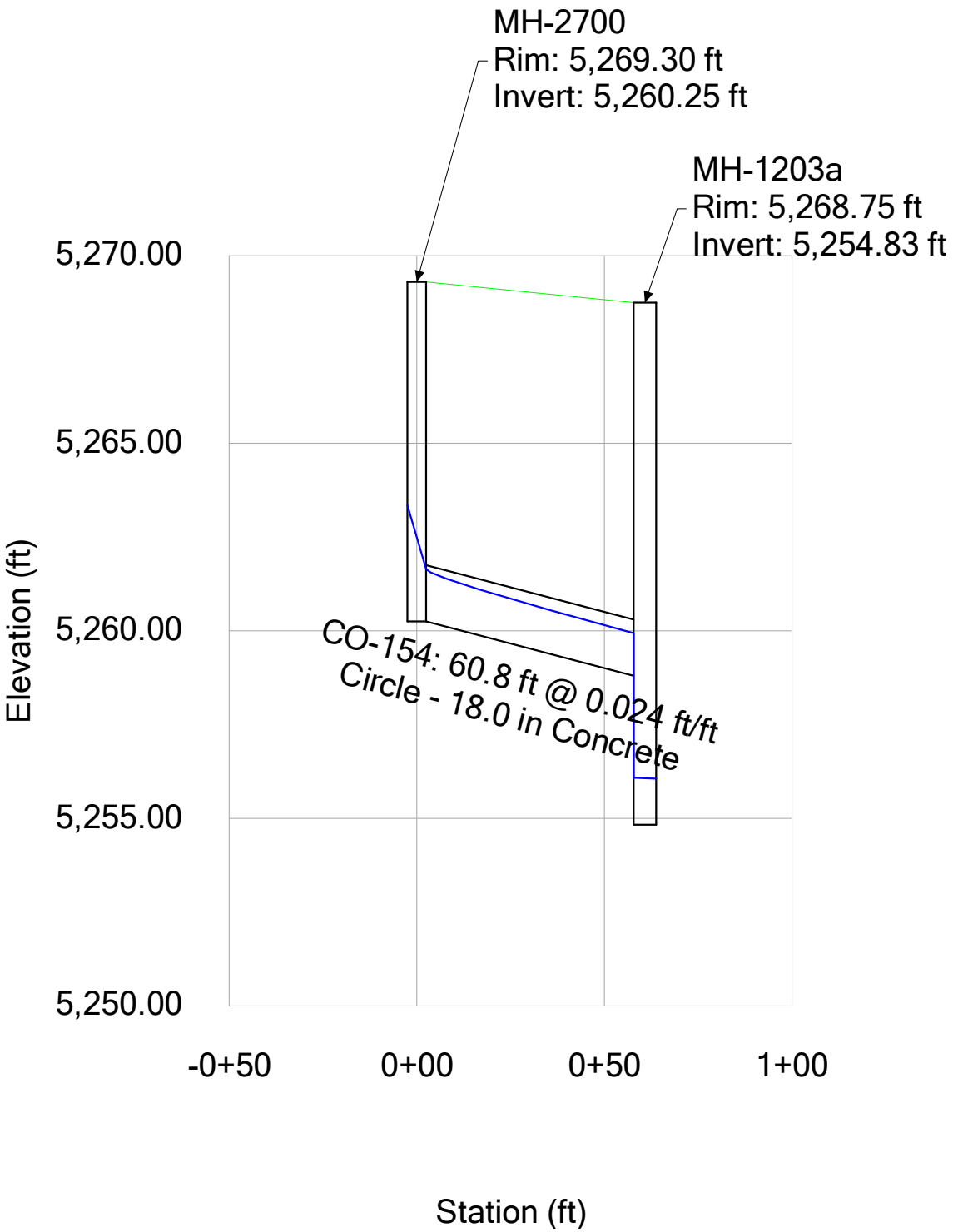
Profile Report
Engineering Profile - F2 - Storm Lateral 3A (19002220-Legato Restricted Flow.stsw)



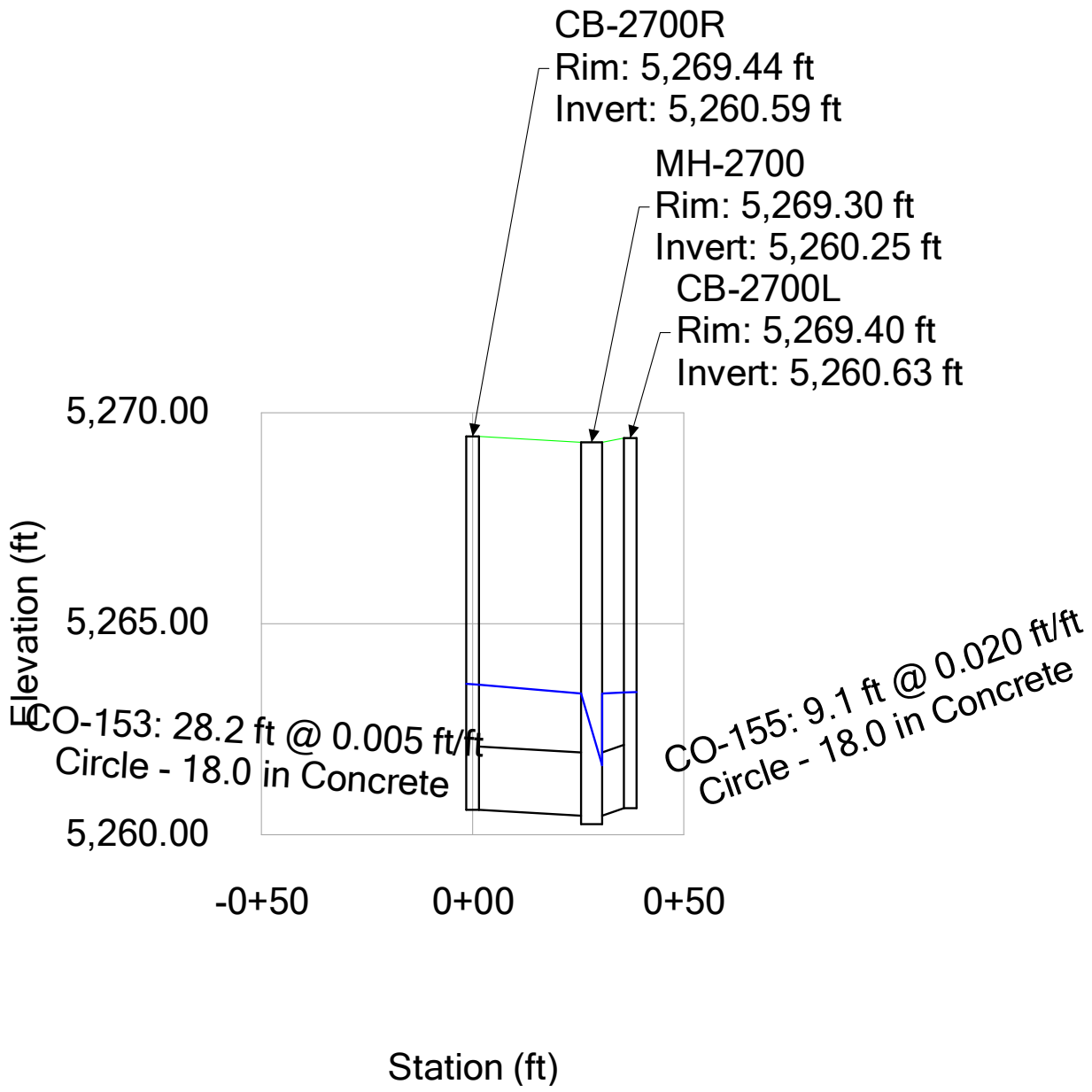
Profile Report
Engineering Profile - F2 - Storm Lateral 3B (19002220-Legato Restricted Flow.stsw)



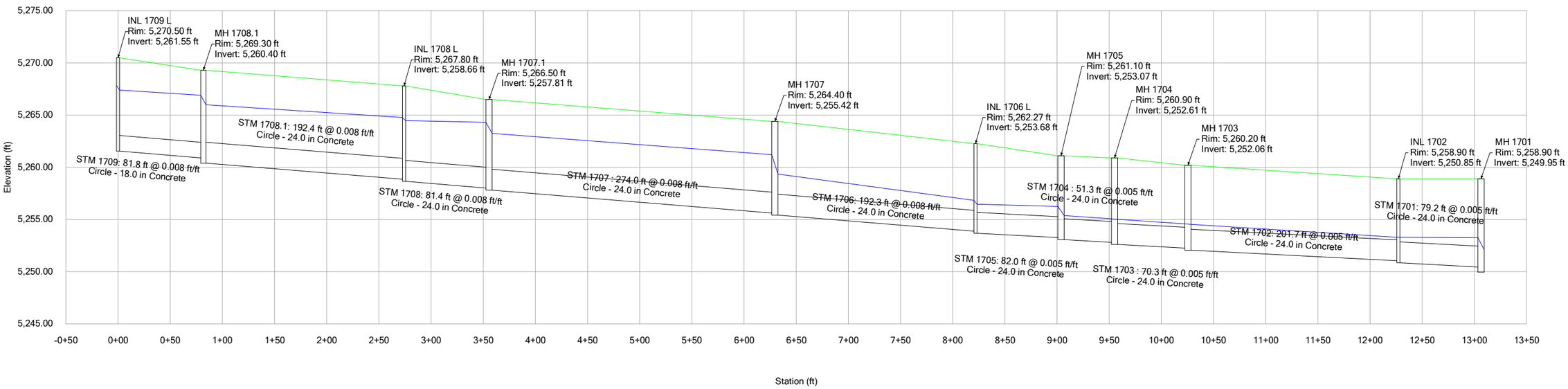
Profile Report
Engineering Profile - F2 - Storm Run 4 (19002220-Legato Restricted Flow.stsw)



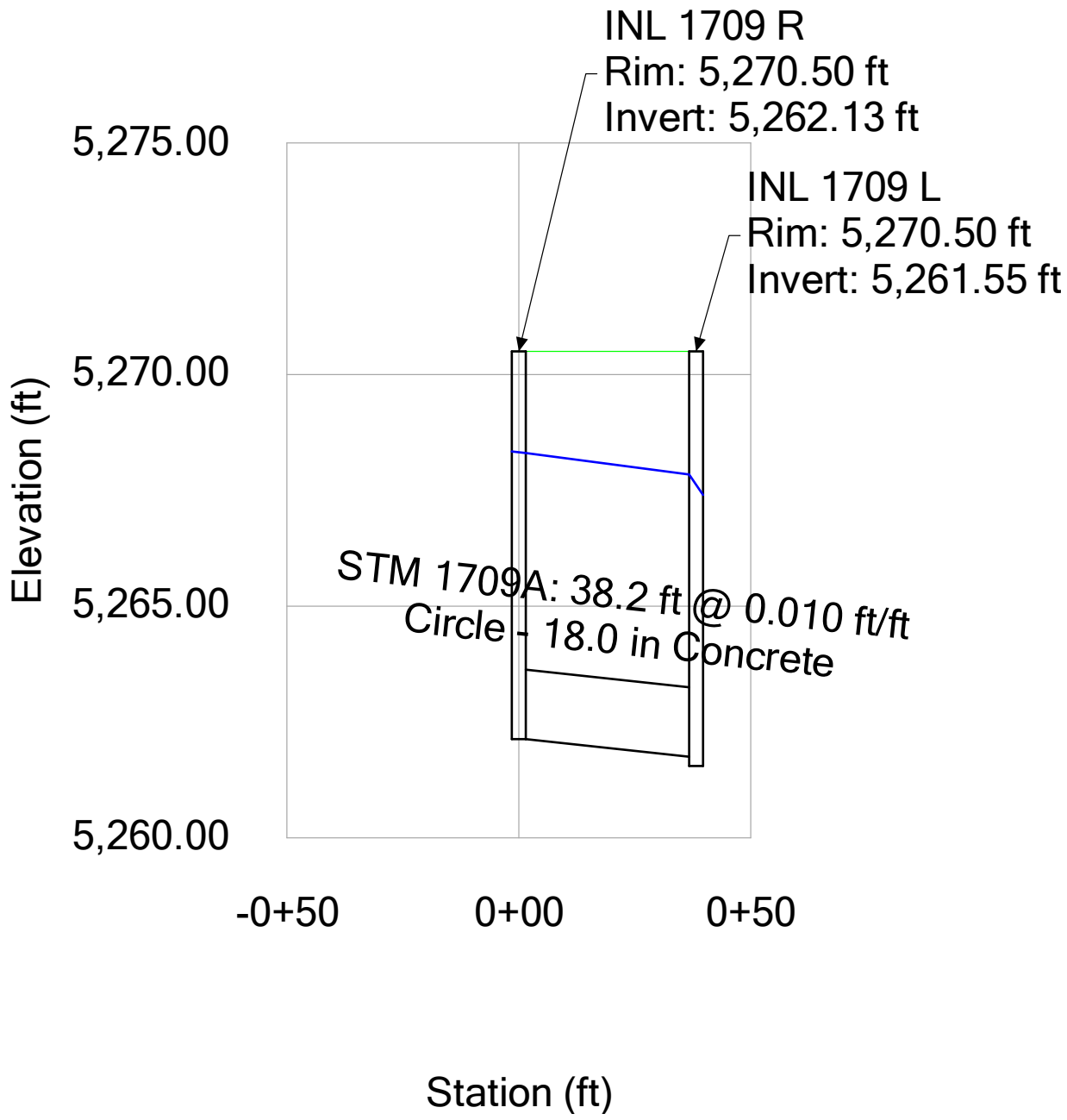
Profile Report
Engineering Profile - F2 - Storm Lateral 4A (19002220-Legato Restricted Flow.stsw)



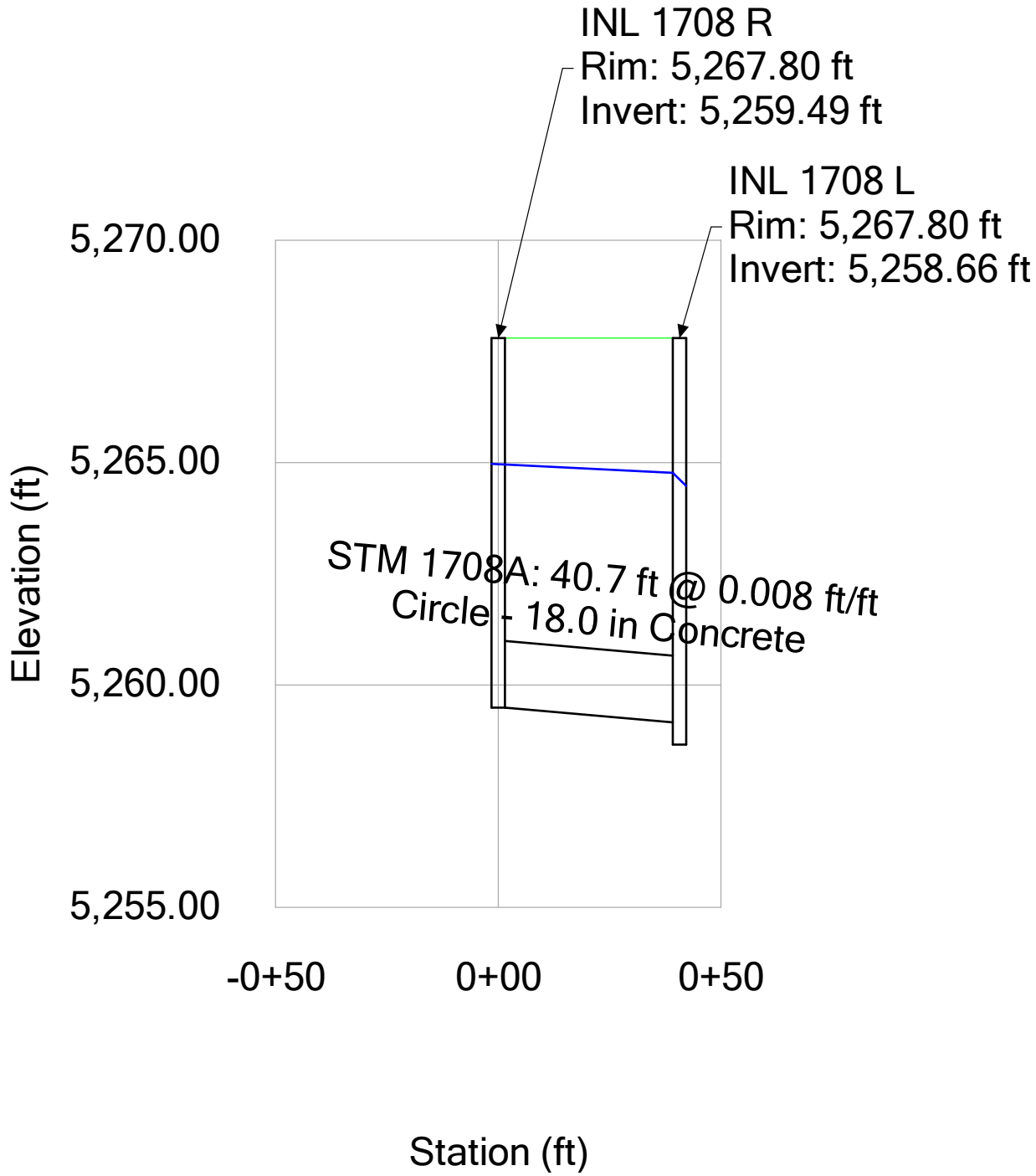
Profile Report
Engineering Profile - F2 - Storm Run 6 (19002220-Legato Restricted Flow.stsw)



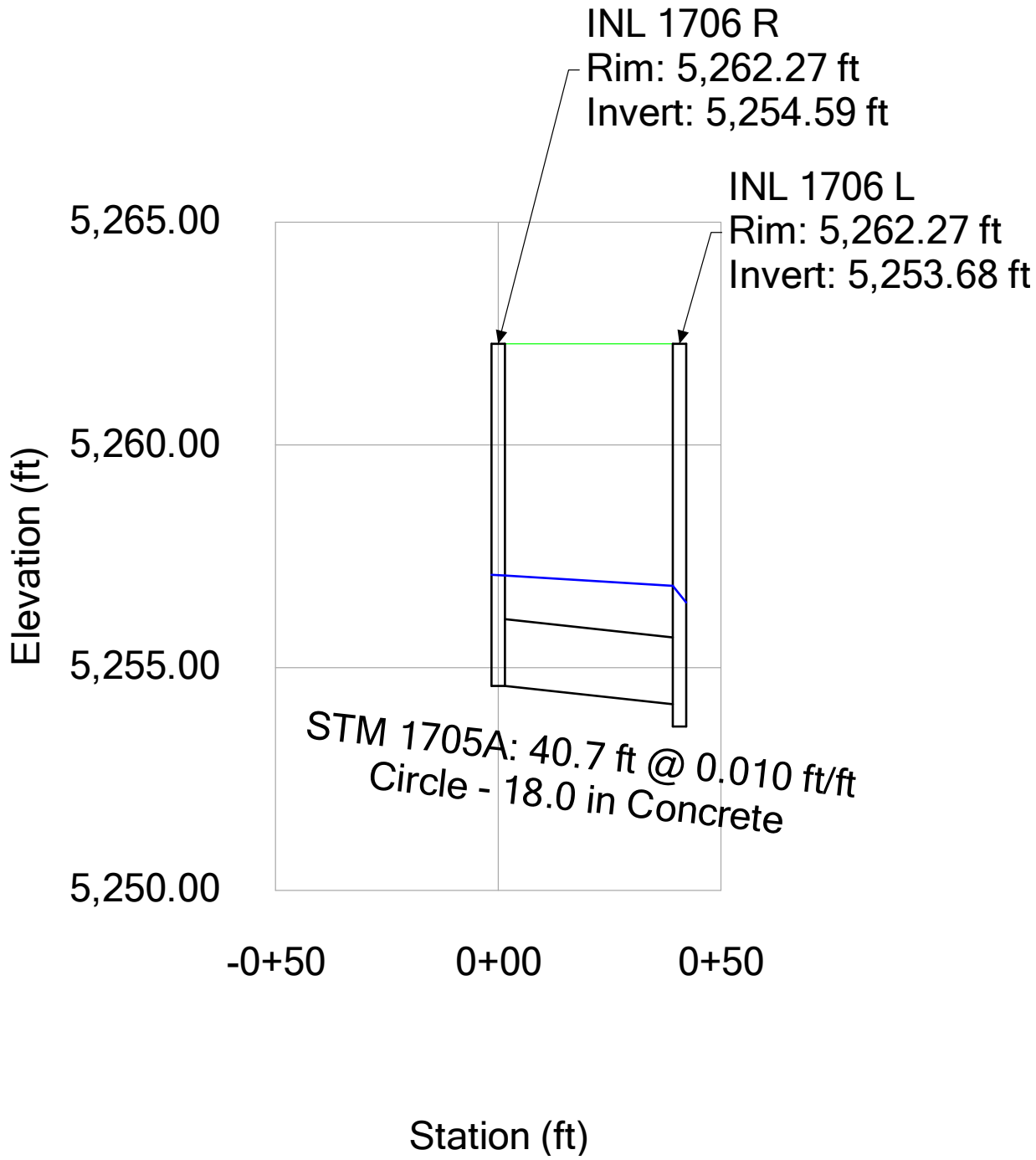
Profile Report
Engineering Profile - F2 - Storm Lateral 6A (19002220-Legato Restricted Flow.stsw)



Profile Report
Engineering Profile - F2 - Storm Lateral 6B (19002220-Legato Restricted Flow.stsw)



Profile Report
Engineering Profile - F2 - Storm Lateral 6C (19002220-Legato Restricted Flow.stsw)

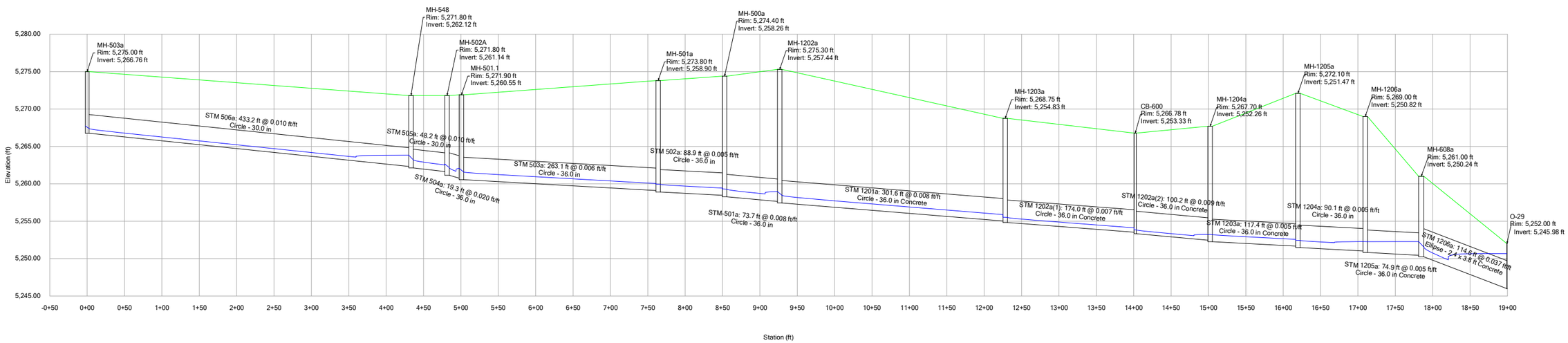


APPENDIX F
REFERENCE MATERIALS

BISCAY LANE - 5YR

Profile Report

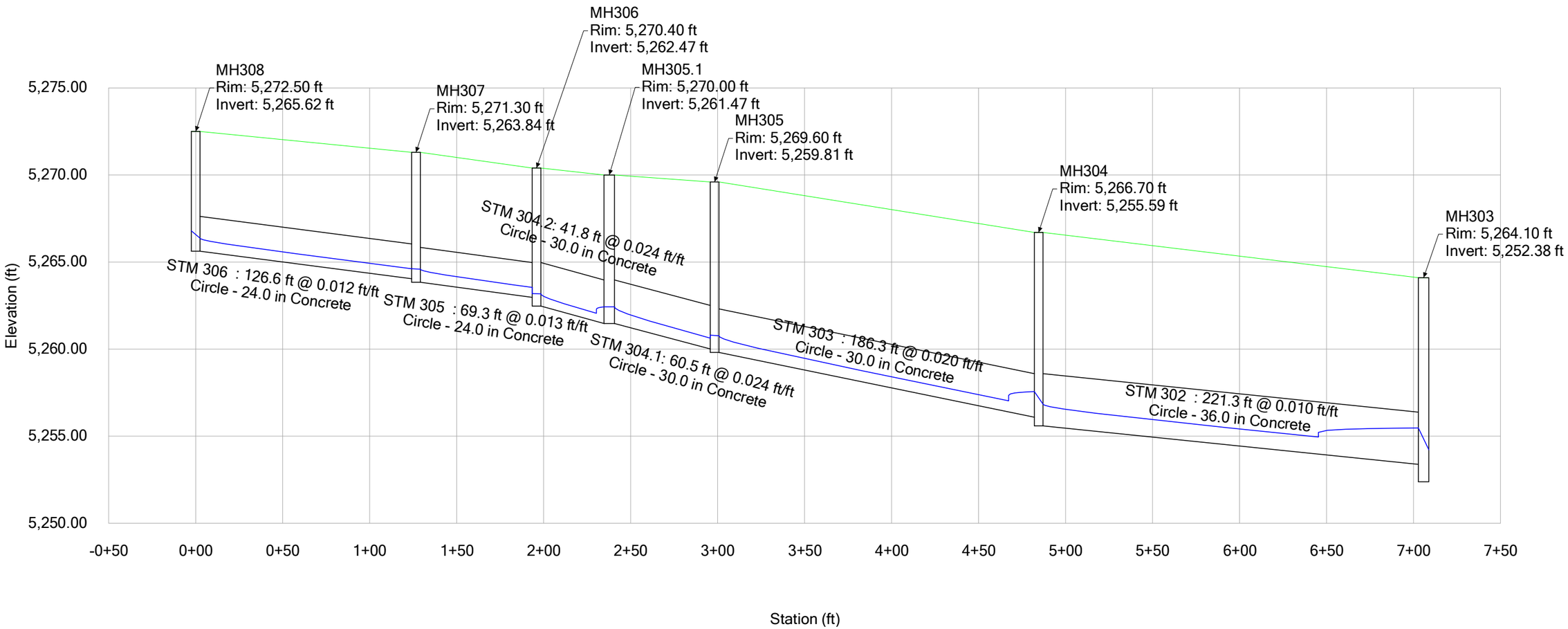
Engineering Profile - LW - Storm Run 5 (19002220-Legato Restricted Flow.stsw)



LEGATO PKWY - 5YR

Profile Report

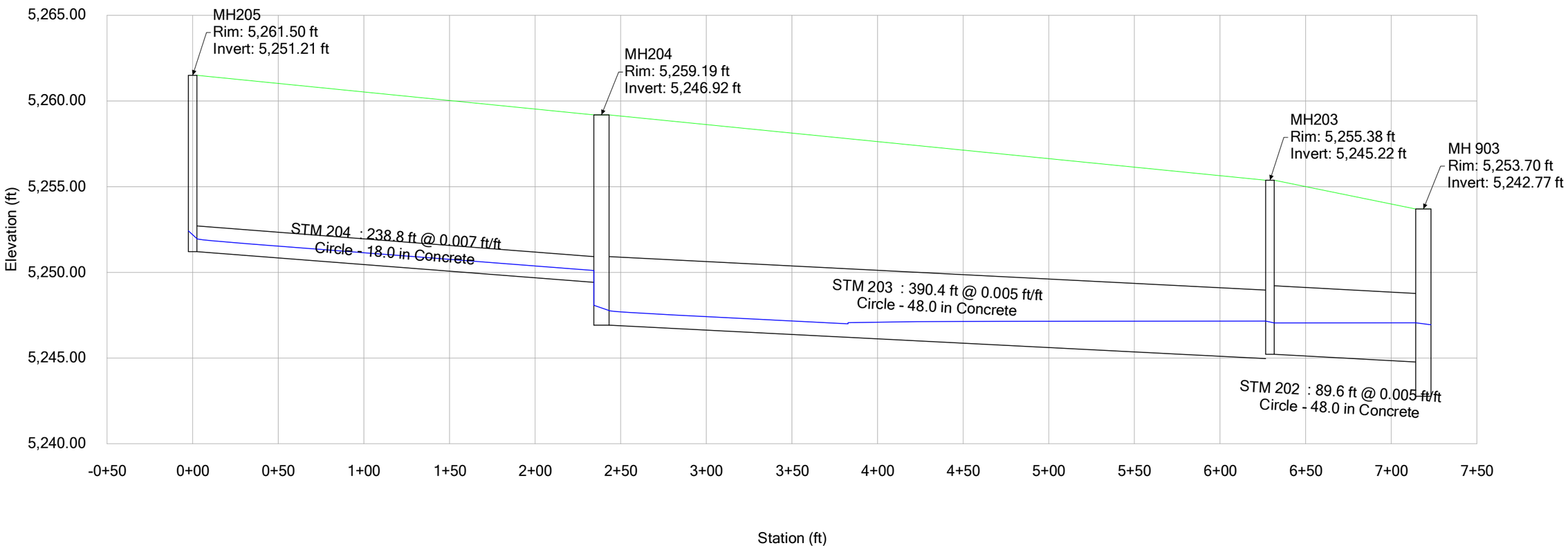
Engineering Profile - LW - Storm Run 3B (19002220-Legato Restricted Flow.stsw)



E. 90TH PLACE - 5YR

Profile Report

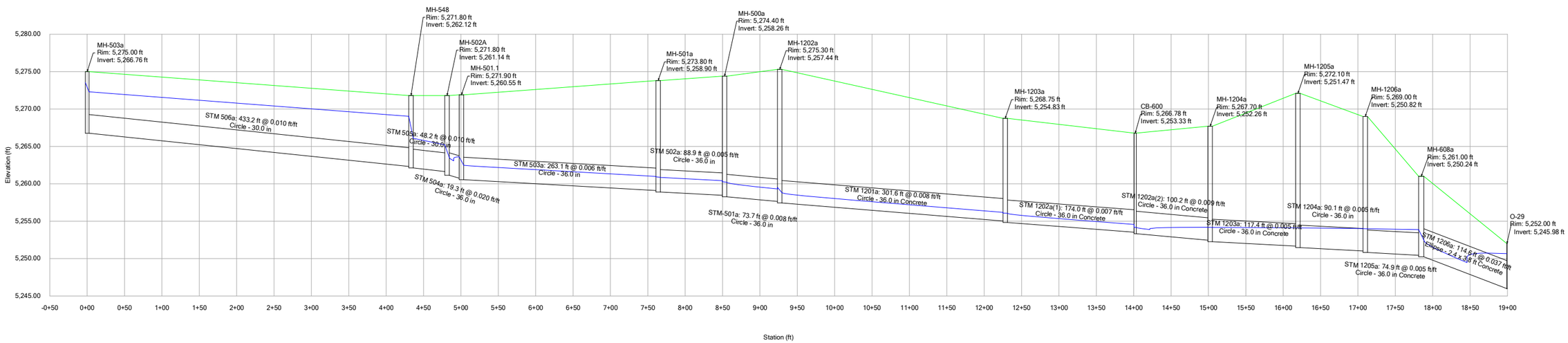
Engineering Profile - LW - Storm Run 2B (19002220-Legato Restricted Flow.stsw)



BISCAY LANE - 100YR

Profile Report

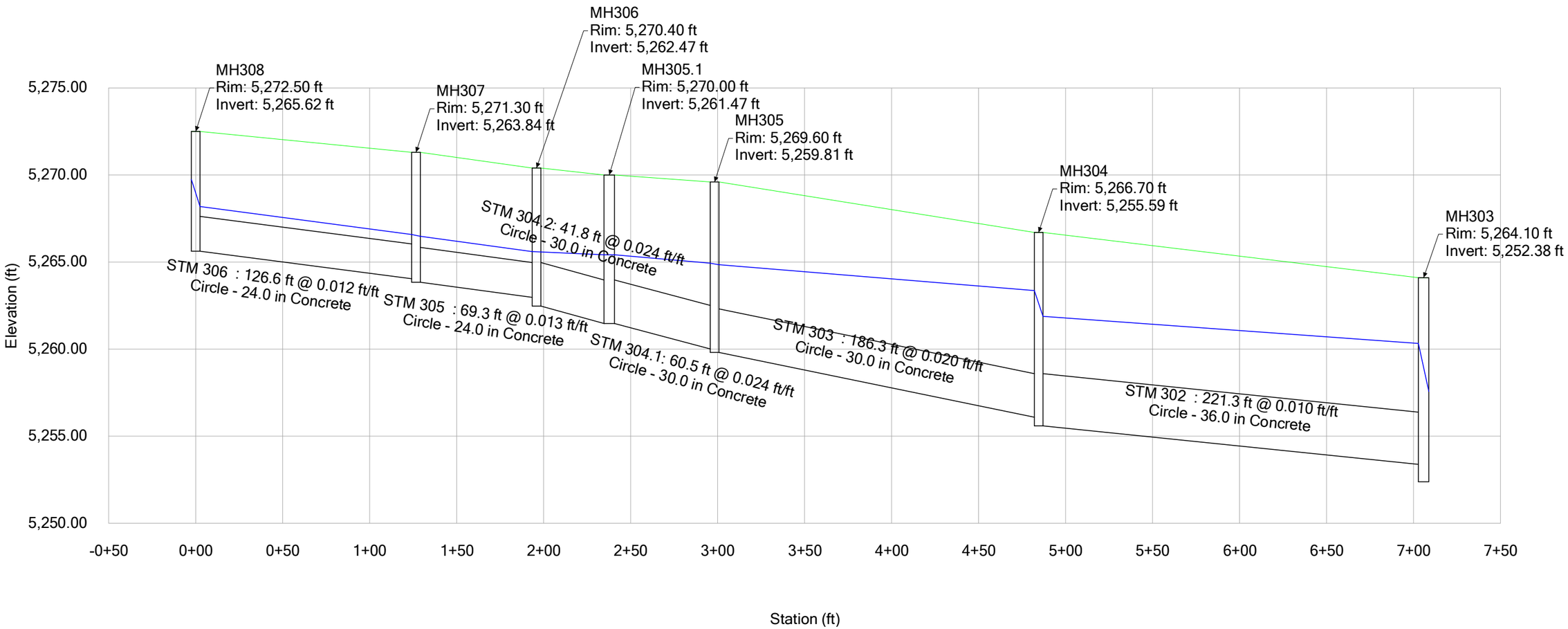
Engineering Profile - LW - Storm Run 5 (19002220-Legato Restricted Flow.stsw)



LEGATO PKWY - 100YR

Profile Report

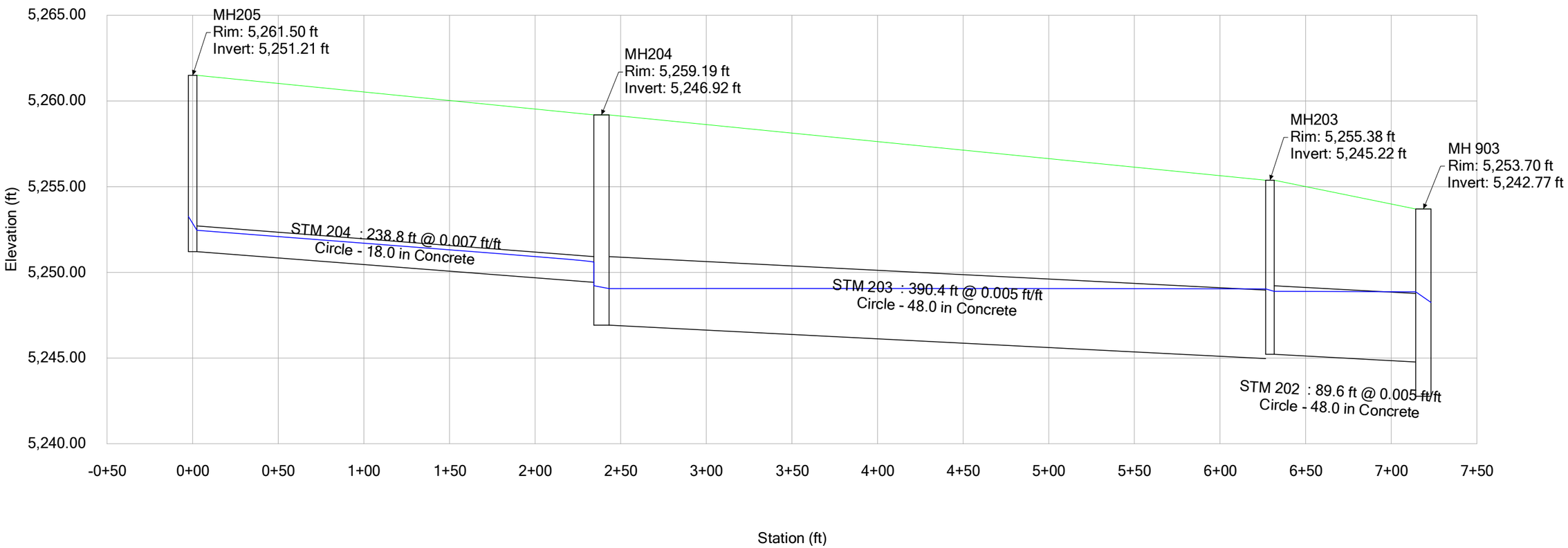
Engineering Profile - LW - Storm Run 3B (19002220-Legato Restricted Flow.stsw)



E. 90TH PLACE - 100YR

Profile Report

Engineering Profile - LW - Storm Run 2B (19002220-Legato Restricted Flow.stsw)



The sediment basin calcs should be in the appendix of the GESC report, not the drainage report.

Atwell, LLC

PROJECT	**LEGATO Fil 2**
Project #	19002561
Date	3/20/2021
Designed By	db

SEDIMENT BASIN CALCULATIONS

3,600	*ft^3/ac = Required Storage Area volume per disturbed acre of catchment area (V_R) - per MHFD SC-7*	
500	*ft^3/ac = Required Storage Area volume per disturbed acre of catchment area (V_R) - per MHFD SC-7*	
4	H:1V = Side slopes (S)	*Design input - typical*
3.0	ft = Depth (H)	*Design input*
2	:1 = Length to width ratio (R)	*Design input - typical*

$L_B = W_B \times R$

$A_B = W_B \times L_B$

$W_T = S \times H \times 2 + W_B$

$L_T = S \times H \times 2 + L_B$

$A_T = W_T \times L_T$

$V = H/3 \times (A_B + A_T + \sqrt{(A_B \times A_T)})$

Basin ID	Catchment Area			Req'd Volume (V_S)	Bottom Width (W_B)	Bottom Length (L_B)	Bottom Area (A_B)	Top width (W_T)	Top length (L_T)	Top area (A_T)	Provided Vol.	
#	Disturbed	Non-Disturbed	Total									
	(Ac.)	(Ac.)	(Ac.)	(Cu. Ft.)	(Ft.)	(Ft.)	(Sq. Ft.)	(Ft.)	(Ft.)	(Sq. Ft.)	(Cu. Ft.)	(Ac-Ft)
Fil 2 SB 1 North	14.0	0.0	14.0	50400	95	150	14250	119	174	20706	52133	1.20
Fil 2 SB 2 South	25.0	0.0	25.0	90000	100	256	25600	124	280	34720	90133	2.07
Fil 2 SB 2 S (remain)	3.0	18.9	21.9	20250	50	100	5000	74	124	9176	20949	0.48

APPENDIX G
DRAINAGE MAPS

BASIN SUMMARY TABLE					
BASIN ID	DESIGN POINT	C5	C100	Q5	Q100
A1	A1	0.73	0.83	1.97	4.77
A2	A2	0.43	0.68	1.97	6.58
A3	A3	0.52	0.73	1.86	5.54
A4	A4	0.45	0.69	2.78	9.07
A5	A5	0.59	0.76	2.71	7.44
A6	A6	0.74	0.84	2.47	5.90
A7	A7	0.46	0.70	2.80	9.01
O-1	O-1	0.55	0.74	0.69	1.97
O-2	O-2	0.53	0.73	2.74	8.01

Show overflow paths for all sump inlets with open arrows.

Include additional map(s) showing storm sewer in Legato Parkway, Argonne Street, E. 90th Avenue, and the outfall at Pond B. Include all associated basin boundaries and info. Label All existing storm sewer and inlets.

This screening causes detail of Filing 1 infrastructure to be masked, either lighten up or omit screening

Repeat comment: Label all easements.

Add open arrow for oveflow path

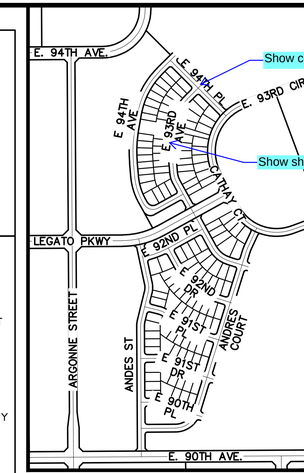
LEGEND

- PROPERTY BOUNDARY
- EXISTING LOT LINE
- PROPOSED CURB & GUTTER
- EXISTING CURB & GUTTER
- PROPOSED SIDEWALK
- PROPOSED CONCRETE PAVEMENT
- SECTION LINE
- PROPOSED EASEMENT
- EXISTING EASEMENT
- PROPOSED 2' CONTOURS
- EXISTING 2' CONTOURS

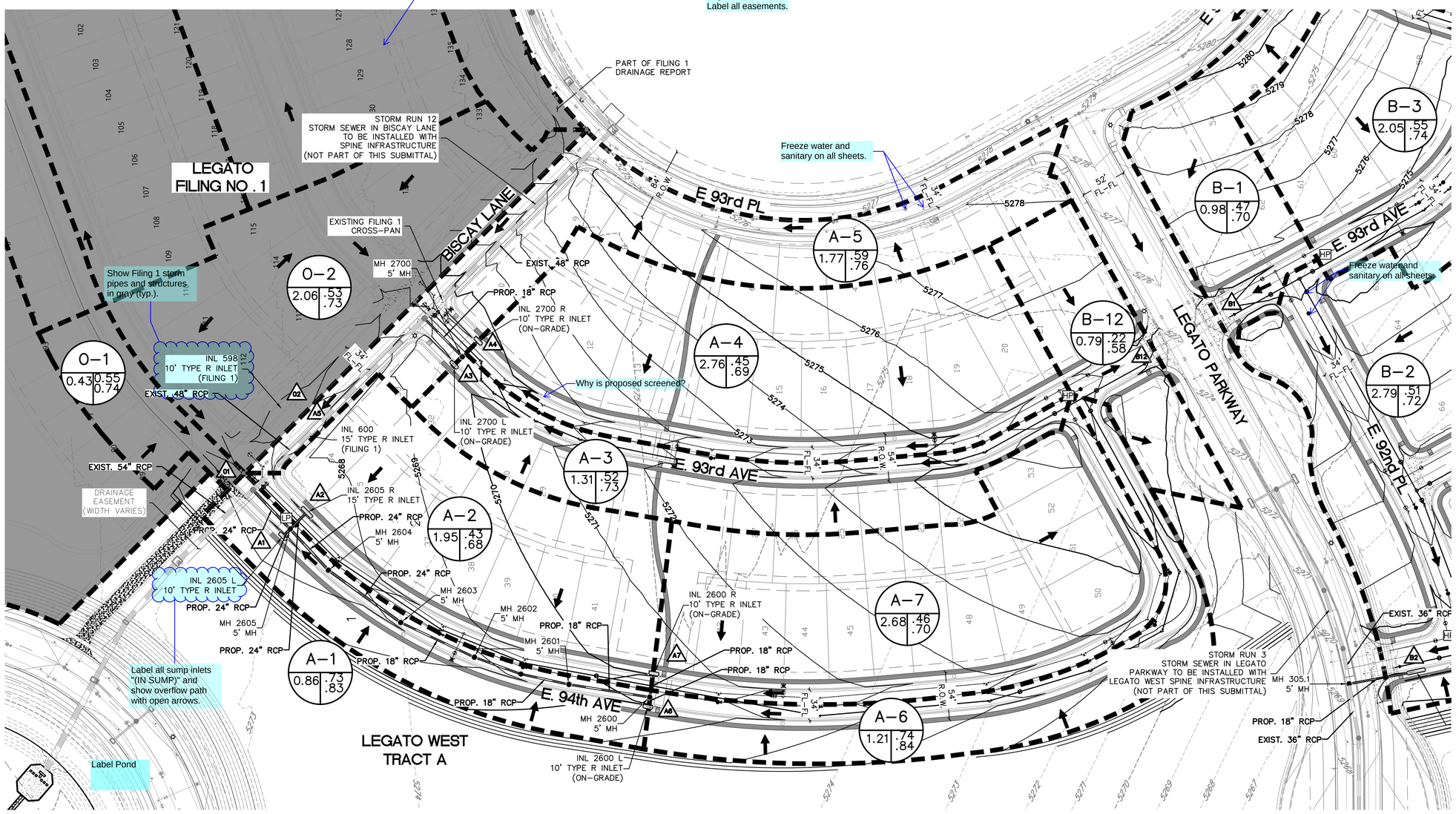
A = BASIN DESIGNATION
B = AREA IN ACRES
C = 5 YR RUNOFF COEFFICIENT
D = 100 YR RUNOFF COEFFICIENT

- DESIGN POINT
- MAJOR DRAINAGE BASIN BOUNDARY
- DRAINAGE FLOW ARROW
- HP / LP — HIGH OR LOW POINT
- PROPOSED CROSSPAN

60 0 60 120
(IN FEET)
1 inch = 60 ft.



KEY MAP
SCALE: 1"=500'



811 Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 SOUTH QUEBEC STREET, SUITE 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

CLIENT
COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
DRAINAGE PLAN
PROPOSED CONDITION

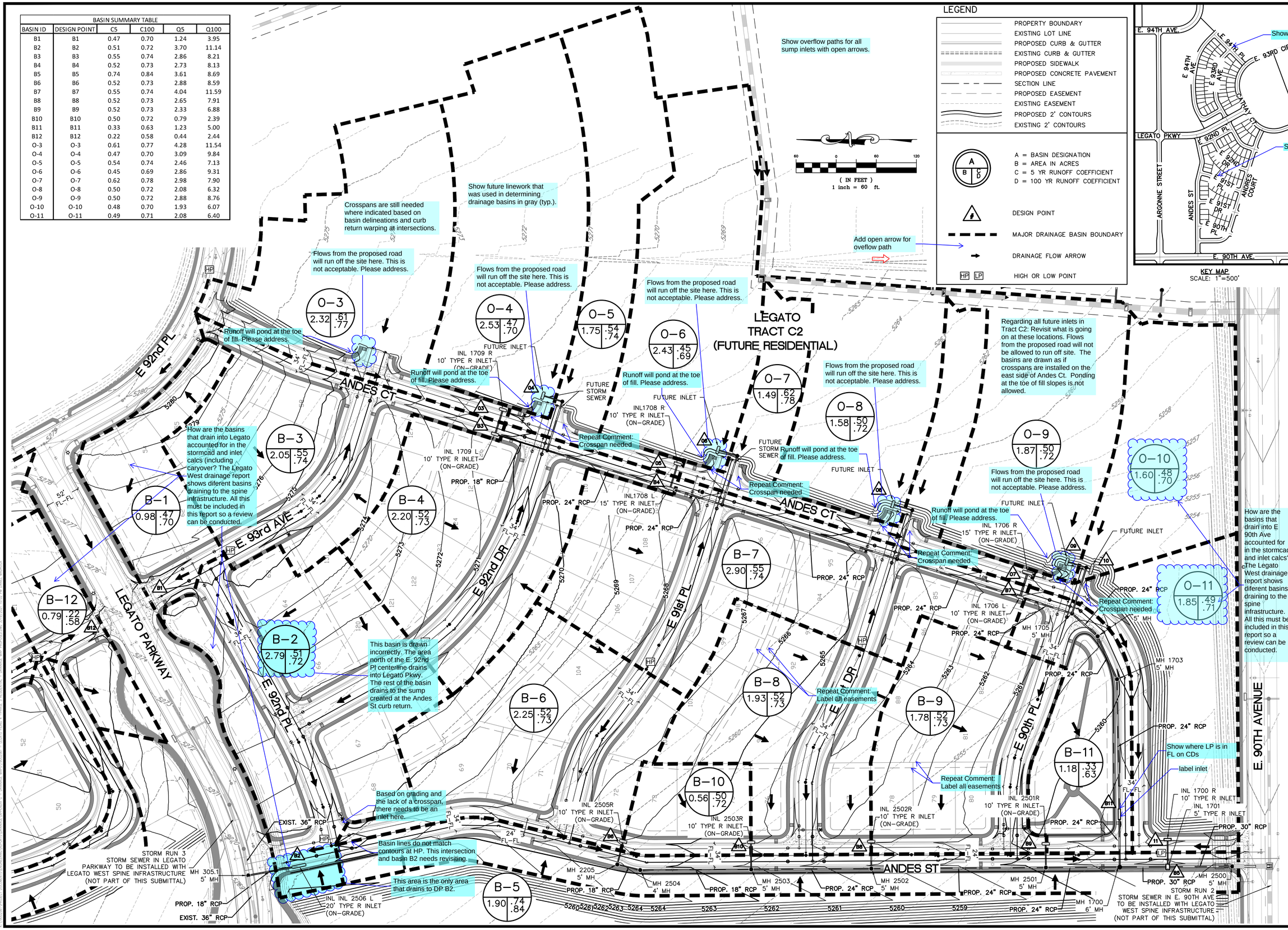
DATE 3/19/2021

REVISIONS

DR. MDC CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 1

CAD FILE: 19002561 – LEGATO FILING 4 – PHASE 3 RESIDENTIAL – DRAINAGE MAP PROPOSED.DWG

BASIN SUMMARY TABLE					
BASIN ID	DESIGN POINT	C5	C100	Q5	Q100
B1	B1	0.47	0.70	1.24	3.95
B2	B2	0.51	0.72	3.70	11.14
B3	B3	0.55	0.74	2.86	8.21
B4	B4	0.52	0.73	2.73	8.13
B5	B5	0.74	0.84	3.61	8.69
B6	B6	0.52	0.73	2.88	8.59
B7	B7	0.55	0.74	4.04	11.59
B8	B8	0.52	0.73	2.65	7.91
B9	B9	0.52	0.73	2.33	6.88
B10	B10	0.50	0.72	0.79	2.39
B11	B11	0.33	0.63	1.23	5.00
B12	B12	0.22	0.58	0.44	2.44
O-3	O-3	0.61	0.77	4.28	11.54
O-4	O-4	0.47	0.70	3.09	9.84
O-5	O-5	0.54	0.74	2.46	7.13
O-6	O-6	0.45	0.69	2.86	9.31
O-7	O-7	0.62	0.78	2.98	7.90
O-8	O-8	0.50	0.72	2.08	6.32
O-9	O-9	0.50	0.72	2.88	8.76
O-10	O-10	0.48	0.70	1.93	6.07
O-11	O-11	0.49	0.71	2.08	6.40



811 Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 SOUTH QUEBEC STREET, SUITE 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

CLIENT
COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

COHEN DENVER AIRPORT, LLC

LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
DRAINAGE PLAN
PROPOSED CONDITION

DATE 3/19/2021

REVISIONS

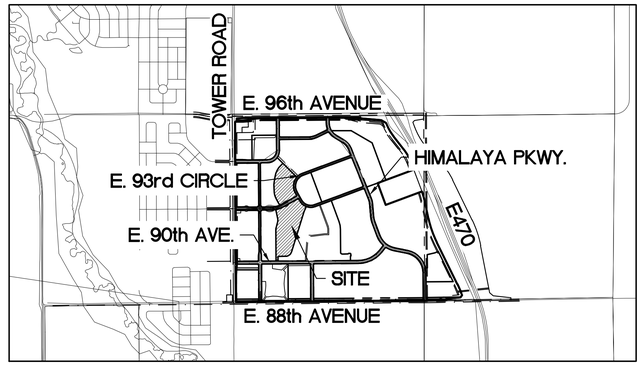
DR. MDC CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 2

CAD FILE: 19002561 – LEGATO FILING 4 –PHASE 3 RESIDENTIAL – DRAINAGE MAP PROPOSED.DWG

LEGATO FILING NO. 2

LOCATED IN SECTION 22, TOWNSHIP 2 SOUTH,
RANGE 66 WEST OF THE SIXTH PRINCIPAL MERIDIAN,
CITY OF COMMERCE CITY, COUNTY OF ADAMS, STATE OF COLORADO

GRADING, EROSION, & SEDIMENT CONTROL PLANS



VICINITY MAP
SCALE 1"=2000'

OWNER:
COHEN DENVER AIRPORT, LLC.
2600 PASEO VERDE PARKWAY.
SUITE 250.
HENDERSON, NV 89074
(720) 355-1400
CONTACT: BRAD BURNS

CIVIL ENGINEER:
ATWELL, LLC.
6200 SOUTH SYRACUSE WAY.
SUITE 470.
GREENWOOD VILLAGE, CO 80111.
(303) 928-6757
CONTACT: DANIEL MADRUGA

SURVEYOR:
ATWELL, LLC.
143 UNION BLVD.
SUITE 700.
LAKEWOOD, CO 80228.
(303) 928-6748
CONTACT: MICHAEL POOL

LANDSCAPE ARCHITECT/PLANNER:
HENRY DESIGN GROUP
1501 WAZEE STREET.
SUITE 1-C.
DENVER, CO 80202
(303) 446-2368
CONTACT: KAREN HENRY

CITY OF COMMERCE CITY:
8602 ROSEMARY ST
COMMERCE CITY, CO 80228
(303) 286-4874
CONTACT: STACY WASINGER

SOUTH ADAMS COUNTY WATER & SANITATION DISTRICT (SACWSD):
6595 E. 70TH AVE.
COMMERCE CITY, CO 80022
(720) 206-0593
CONTACT: JEFF NELSON

UNITED POWER (ELEC):
500 COOPERATIVE WAY.
BRIGHTON, CO 80603
(303) 637-1300

XCEL ENERGY (GAS):
1800 LARIMER ST.
DENVER, CO 80202
(303) 571-7511

There are multiple instances of repeat comments, missing linework, missing labels, and missing checklist items on this 2nd submittal. If these issues are not addressed on the next submittal, the approval of the project will be unnecessarily delayed. Please have the Engineer review these plans for clarity, completion, and fulfillment of requirements prior to next submittal.

PER SECTION 8.03.1.1 ESC SUBMITTAL REQUIREMENTS OF COMMERCE CITY CODE INCLUDE CHECKLIST ITEM # 15:

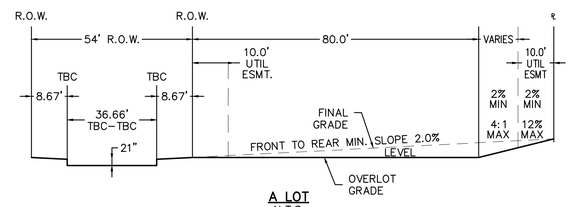
15. Receiving Waters – The name of the receiving water(s) and the size, type and location of any site outfall(s). If the discharge is to an existing storm sewer system, this should be stated, along with the name of the ultimate receiving water(s).

LEGEND

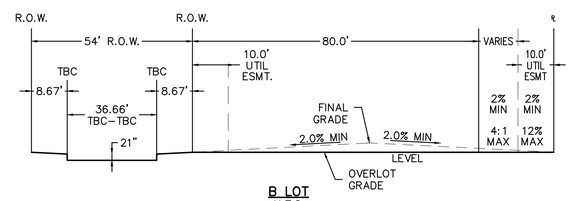
- PROPERTY BOUNDARY LINE
- PROPOSED FIRE HYDRANT
- PROPOSED STORM SEWER AND INLET
- PROPOSED PEDESTRIAN RAMP
- PROPOSED SIDEWALK
- PROPOSED CURB & GUTTER
- PROPOSED RIGHT OF WAY
- PROPOSED 8' CROSSPAN
- EXISTING CONTOURS
- PROPOSED 1' OVERLOT CONTOUR
- PROPOSED 5' OVERLOT CONTOUR
- ×40.15 PROP. FINISH GRADE SPOT ELEV.
- PROPOSED FLOW DIRECTION

GRADING AND EROSION CONTROL LEGEND

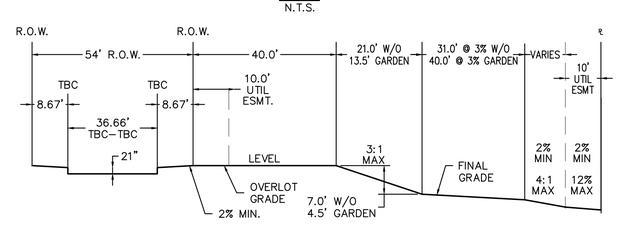
- CWA CONCRETE WASHOUT AREA
- CF CONSTRUCTION FENCE
- DD DIVERSION DITCH
- ECB EROSION CONTROL BLANKET
- IP INLET PROTECTION
- RRB REINFORCED ROCK BERM
- RRC RRB FOR CULVERT PROTECTION
- SB SEDIMENT BASIN
- SM SEEDING AND MULCHING
- SF SILT FENCE
- SSA STABILIZED STAGING AREA
- VTC VEHICLE TRACKING CONTROL
- LOC LIMITS OF CONSTRUCTION



A LOT
N.T.S.



B LOT
N.T.S.



GARDEN & W/O LOT
N.T.S.

The Overall Site Plan from the first submittal has been replaced with the sheet titled "OVERVIEW". It is assumed that this is to meet the Drawing Index Sheet requirement as described in Section 8.03.1.1 of the Commerce City Construction Standards and Specification. Instead of this Overview sheet, bring back the original Overall Site Plan from the first submittal with the following changes:

- Address the 1st review comments. The 1st review sheet has been inserted with these comments shown.

- Add sheet view boxes with sheet numbers as shown on the inserted 1st review sheet shown in red.

-Address additional 2nd review comments on inserted sheet shown in red.

Sheet Index

SHEET NUMBER	SHEET TITLE
1	COVER SHEET
2	NOTES
3	OVERALL SITE PLAN
4	GESC INITIAL PLAN 01
5	GESC INITIAL PLAN 02
6	GESC INTERIM PLAN 01
7	GESC INTERIM PLAN 02
8	GESC FINAL PLAN 01
9	GESC FINAL PLAN 02
10	GESC DETAILS 01
11	GESC DETAILS 02
12	GESC DETAILS 03

BENCHMARK:
#5 REBAR WITH 2" ALUMINUM CAP.
N=1,194,345.18 E=3,208,552.02 ELEV=5295.09 (NAVD 88)

BASIS OF BEARING:
BEARINGS ARE BASED ON THE NORTH LINE OF THE NORTHWEST QUARTER OF SECTION 22, TOWNSHIP 2 SOUTH, RANGE 66 WEST OF THE SIXTH PRINCIPAL MERIDIAN, BEING MONUMENTED AT THE WEST END BY A FOUND 2-1/2" ALUMINUM CAP IN RANGE BOX STAMPED "ISI 2018 PLS 29425" AND AT THE EAST END BY A FOUND 2" ALUMINUM CAP STAMPED "WESTED STATES SURVEYING INC. 1994 PLS 24960". SAID NORTH LINE BEARS N89°35'58" EAST, WITH ALL BEARINGS CONTAINED HEREIN RELATIVE THERETO.

ENGINEER'S STATEMENT

THE EROSION AND SEDIMENT CONTROL PLAN INCLUDED HEREIN HAS BEEN PREPARED UNDER MY DIRECT SUPERVISION IN ACCORDANCE WITH THE REQUIREMENTS OF CHAPTER 8 OF THE CITY OF COMMERCE CITY ENGINEERING CONSTRUCTION STANDARDS AND SPECIFICATIONS MANUAL.

DANIEL J. MADRUGA, P.E.
COLORADO NO. 36834
FOR AND ON BEHALF OF ATWELL, LLC.

DATE

Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 SOUTH SYRACUSE WAY, SUITE 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

CLIENT
COHEN DENVER AIRPORT, LLC
LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
GRADING, EROSION, & SED. CONTROL PLANS
COVER SHEET

DATE 3/22/2021

A	1st SUBMITTAL TO COMMERCE CITY	08/14/2020 – DJM
B	2ND SUBMITTAL TO COMMERCE CITY	03/18/2021 – DJM

REVISIONS

PLANS UNDER REVIEW NOT FOR CONSTRUCTION

DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 1

CAD FILE: 19002561-GESC-COVER.DWG

RECEIVING WATER NOTE:

1. RECEIVING WATERS OF STATE ARE SECOND CREEK.

SWMP PERMIT COVERAGE NOTES:

1. THE OWNER/CONTRACTOR IS RESPONSIBLE FOR OBTAINING A PERMIT FROM CDPHE AT LEAST 10 CALENDAR DAYS PRIOR TO THE COMMENCEMENT OF CONSTRUCTION ACTIVITIES FOR ANY EARTH DISTURBANCE OF ONE (1) OR GREATER THAN ONE (1) ACRE. THE OWNER/CONTRACTOR SHALL PROVIDE THE CITY WITH A COPY OF PERMIT PRIOR TO RECEIVING A GRADING/CONSTRUCTION PERMIT. THE OWNER/CONTRACTOR IS RESPONSIBLE FOR ALL FEES ASSOCIATED WITH THE PERMIT.

2. IF THE OWNER/CONTRACTOR TRANSFERS RESPONSIBILITY FOR STORMWATER DISCHARGES TO ANOTHER ENTITY, A NOTICE OF TRANSFER AND ACCEPTANCE OF TERMS FORM SHALL BE SUBMITTED TO CDPHE AND A COPY TO THE CITY.

3. IF THE OWNER/CONTRACTOR NO LONGER HAS CONTROL OF A SPECIFIC PORTION OF A PERMITTED SITE AND WISHES TO TRANSFER COVERAGE OF THAT PORTION OF SITE TO ANOTHER, THE OWNER/CONTRACTOR SHALL SUBMIT A NOTICE OF REASSIGNMENT OF PERMIT COVERAGE FORM TO THE CDPHE AND A COPY TO THE CITY.

4. THE OWNER/CONTRACTOR IS RESPONSIBLE FOR SUBMITTING AN INACTIVATION NOTICE FORM TO CDPHE WHEN THE SITE HAS BEEN FINALLY STABILIZED IN ACCORDANCE WITH THE A COPY OF THE INACTIVATION NOTICE SHALL ALSO BE SUBMITTED TO THE CITY.

SWMP GENERAL NOTES:

1. BMP'S SHALL BE INSTALLED BEFORE ANY EARTH DISTURBING ACTIVITIES COMMENCE.

2. STORMWATER DISCHARGES FROM CONSTRUCTION ACTIVITIES SHALL NOT CAUSE, HAVE THE REASONABLE POTENTIAL TO CAUSE, OR MEASURABLY CONTRIBUTE TO AN EXCEEDANCE OF ANY WATER QUALITY STANDARD.

3. CONSTRUCTION SHALL BE PHASED IN A MANNER TO LIMIT EARTH DISTURBING ACTIVITIES (I.E. THE ENTIRE PROJECT SITE SHOULD NOT BE DISTURBED IF CONSTRUCTION WILL ONLY BE OCCURRING IN ONE PARTICULAR SECTION).

4. SEDIMENT CAUSED BY ACCELERATED SOIL EROSION SHALL BE REMOVED FROM RUNOFF WATER BEFORE IT LEAVES THE CONSTRUCTION SITE.

5. BULK STORAGE STRUCTURES FOR PETROLEUM PRODUCTS AND ANY OTHER CHEMICALS SHALL HAVE SECONDARY CONTAINMENT OR EQUIVALENT PROTECTION TO CONTAIN ALL SPILLS AND PREVENT ANY SPILLED MATERIAL FROM ENTERING STATE WATERS.

6. A COPY OF THE SWMP AND SITE MAPS MUST BE AVAILABLE AT ALL TIMES ON THE CONSTRUCTION SITE UNLESS OTHERWISE APPROVED BY CDPHE OR THE CITY.

7. THE SWMP AND SITE MAPS SHALL BE CONTINUOUSLY UPDATED TO REFLECT NEW OR REVISED BEST MANAGEMENT PRACTICES (BMP'S) DUE TO CHANGES IN DESIGN, CONSTRUCTION, OPERATION, OR MAINTENANCE OF THE CONSTRUCTION SITE. UPDATES MUST BE MADE WITHIN 72 HOURS FOLLOWING THE CHANGE IN BMP'S.

8. THE OWNER/CONTRACTOR SHALL INSPECT THE CONSTRUCTION SITE (INCLUDING ALL BMP'S, STORAGE CONTAINERS, AND CONSTRUCTION EQUIPMENT) A MINIMUM OF EVERY 14 CALENDAR DAYS AND WITHIN 24 HOURS AFTER A PRECIPITATION EVENT OR SNOW MELT THAT CAUSE SURFACE EROSION. INSPECTIONS SHALL CONTINUE UNTIL AN INACTIVATION NOTICE IS FILED WITH CDPHE.

9. THE OWNER/CONTRACTOR SHALL KEEP A RECORD OF ALL INSPECTIONS ON SITE AND AVAILABLE FOR REVIEW BY CDPHE OR CITY STAFF. INSPECTION REPORTS MUST IDENTIFY ANY INCIDENTS OF NON-COMPLIANCE WITH THE TERMS AND CONDITIONS OF THE PERMIT. BMP'S REQUIRING MAINTENANCE OR ADJUSTMENT SHALL BE REPAIRED IMMEDIATELY AFTER OBSERVATION OF THE FAILING BMP.

10. FOR ALL INSTANCES OF NONCOMPLIANCE BASED ON ENVIRONMENTAL HAZARDS AND CHEMICAL SPILLS AND RELEASES, ALL NEEDED INFORMATION MUST BE PROVIDED ORALLY TO CDPHE SPILL REPORTING LINE (24-HOUR NUMBER FOR ENVIRONMENTAL HAZARDS AND CHEMICAL SPILLS AND RELEASES: 1-877-518-5608) WITHIN 24 HOURS FROM THE TIME THE OWNER/CONTRACTOR COMES AWARE OF THE CIRCUMSTANCES.

11. STRAW BALES SHALL NOT BE USED FOR PRIMARY EROSION OR SEDIMENT CONTROL (I.E. STRAW BALES MAY BE USED FOR REINFORCEMENT BEHIND ANOTHER BMP SUCH AS SILT FENCE).

12. BMP'S INTENDED FOR SHEET FLOW SEDIMENT RUNOFF SHALL BE PLACED PARALLEL TO THE SLOPE.

13. ALL BMP'S SHALL BE CLEANED WHEN SEDIMENT LEVELS ACCUMULATE TO HALF THE DESIGN OF THE BMP UNLESS OTHERWISE SPECIFIED.

14. A VEHICLE TRACKING PAD (VTP) SHALL BE PLACED AT ALL EXITS FROM THE SITE TO PREVENT TRACK-OUT ONTO CITY STREETS. IF TRACK-OUT DOES OCCUR, THE OWNER/CONTRACTOR SHALL IMMEDIATELY SWEEP THE STREET OF DEBRIS. RECYCLED CRUSHED CONCRETE OR ASPHALT SHALL NOT BE USED FOR VEHICLE TRACKING PADS.

16. ALL SEDIMENT COLLECTED IN BMP'S SHALL BE REMOVED UPON INITIAL ACCEPTANCE.

15. PERMANENT EROSION CONTROL MEASURES FOR SLOPES, CHANNELS, DITCHES, OR ANY DISTURBED LAND AREA SHALL BE COMPLETED WITHIN 14 CALENDAR DAYS AFTER FINAL GRADING OR THE FINAL EARTH DISTURBANCE HAS BEEN COMPLETED. WHEN IT IS NOT POSSIBLE TO PERMANENTLY STABILIZE A DISTURBED AREA AFTER AN EARTH DISTURBANCE HAS BEEN COMPLETED OR WHERE SIGNIFICANT EARTH DISTURBANCE ACTIVITY CEASES, TEMPORARY SOIL EROSION CONTROL MEASURES SHALL BE IMPLEMENTED WITHIN 14 CALENDAR DAYS. TEMPORARY EROSION CONTROL MEASURES SHALL BE MAINTAINED UNTIL PERMANENT SOIL EROSION MEASURES ARE IMPLEMENTED.

16. FINAL STABILIZATION HAS BEEN ACHIEVED WHEN ALL EARTH DISTURBING ACTIVITIES AT THE SITE HAVE BEEN COMPLETED, AND UNIFORM VEGETATIVE COVER HAS BEEN ESTABLISHED WITH AN INDIVIDUAL PLANT DENSITY OF AT LEAST 70 PERCENT OF PRE-DISTURBANCE LEVELS, OR EQUIVALENT PERMANENT, PHYSICAL EROSION REDUCTION METHODS HAVE BEEN EMPLOYED.

17. ALL TEMPORARY BMP'S SHALL BE REMOVED FROM THE SITE UPON SUBMITTING THE INACTIVATION NOTICE.

18. ALL SITE WASTES (INCLUDING TRASH AND BUILDING MATERIALS) MUST BE PROPERLY MANAGED TO PREVENT POTENTIAL POLLUTION OF STATE WATERS.

19. STREET REPAIR OPERATIONS SUCH AS ROTOR MILLING, SLURRY SEAL AND CHIP SEAL. THE MINIMUM BMPS REQUIRED ARE; INLET PROTECTION, CURB SOCKS AND STREET SWEEPING.

GENERAL NOTES:

1. ALL MATERIALS AND WORKMANSHIP SHALL BE IN CONFORMANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF THE APPROPRIATE GOVERNING AGENCY. THE CONTRACTOR SHALL HAVE IN HIS POSSESSION AT THE JOB SITE AT ALL TIMES ONE (1) SIGNED COPY OF THE PLANS. STANDARDS, AND SPECIFICATIONS AS APPROVED BY THE APPROPRIATE GOVERNING AGENCY. THE CONTRACTOR SHALL OBTAIN WRITTEN APPROVAL FOR ANY VARIANCE TO THE ABOVE DOCUMENTS.

2. CONTRACTOR SHALL OBTAIN, AT HIS OWN EXPENSE, ALL APPLICABLE CODES, LICENSES. STANDARDS, SPECIFICATIONS. PERMITS, BONDS, ETC., WHICH ARE NECESSARY TO PERFORM THE PROPOSED WORK.

3. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE OWNER/DEVELOPER AND ENGINEER OF ANY PROBLEM IN CONFORMING TO THE APPROVED PLANS FOR ANY ELEMENT OF THE PROPOSED IMPROVEMENTS PRIOR TO ITS CONSTRUCTION.

4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING THE APPROPRIATE GOVERNING AGENCIES AT LEAST 48 HOURS PRIOR TO START OF ANY CONSTRUCTION. IF WORK IS SUSPENDED FOR ANY PERIOD OF TIME AFTER INITIAL START-UP. THE CONTRACTOR SHALL NOTIFY THE APPROPRIATE GOVERNMENT AGENCIES 48 HOURS PRIOR TO RESTART.

5. ALL KNOWN EXISTING UTILITIES ARE SHOWN IN APPROXIMATE LOCATIONS ON THE PLANS. THE ACTUAL LOCATION MAY VARY FROM THE PLANS, ESPECIALLY IN THE CASE OF UNDERGROUND UTILITIES. WHENEVER THE CONTRACTOR DISCOVERS A DISCREPANCY IN LOCATIONS, HE SHALL CONTACT THE ENGINEER IMMEDIATELY.

6. THE CONTRACTOR SHALL REPAIR ANY EXCAVATIONS OR PAVEMENT FAILURES CAUSED BY HIS CONSTRUCTION.

7. PRIOR TO BEGINNING THE WORK, THE CONTRACTOR SHALL OBTAIN ANY WRITTEN AGREEMENTS FOR INGRESS AND EGRESS TO THE WORK FROM ADJACENT PRIVATE PROPERTY OWNERS. ACCESS TO ANY ADJACENT PRIVATE PROPERTY SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD.

8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL AND REPLACEMENT OF ALL MATERIALS WITHIN DEDICATED RIGHT-OF-WAYS AND ALL MATERIALS AND WORKMANSHIP SHALL MEET THE ROADWAY DESIGN AND CONSTRUCTION STANDARDS OF THE APPROPRIATE GOVERNING AGENCY.

GRADING GENERAL NOTES:

1. GRADING PLAN IS FOR ROUGH GRADING ONLY. CHANGES MAY BE NECESSARY TO BRING PLANS INTO CONFORMANCE WITH APPROVED DRAINAGE AND SITE PLAN.

2. A WATER TRUCK SHALL BE KEPT ON-SITE TO CONTROL WIND EROSION AND DUST.

3. ANY SETTLEMENT OR SOIL ACCUMULATIONS BEYOND THE PROPERTY LIMITS DUE TO GRADING OR EROSION SHALL BE REPARIED IMMEDIATELY BY THE CONTRACTOR.

4. NO GRADING SHALL TAKE PLACE IN ANY DELINEATED FLOOD HAZARD AREA UNTIL THE FINAL DRAINAGE PLAN HAS BEEN APPROVED AND ALL APPROPRIATE PERMITS HAVE BEEN OBTAINED.

5. ANY CONSTRUCTION DEBRIS OR MUD TRACKING IN THE PUBLIC RIGHT-OF-WAY RESULTING FROM THIS DEVELOPMENT WILL BE REMOVED IMMEDIATELY BY THE CONTRACTOR. UPON WRITTEN NOTICE BY THE CITY, FAILURE TO REMOVE THE MUD OR DEBRIS BY THE CONTRACTOR WITHIN 24 HOURS SHALL CAUSE THE CITY TO STOP ALL WORK UNTIL THE SITUATION IS RESOLVED.

6. WHEN REQUIRED, A COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT (CDPHE), WATER QUALITY DIVISION, STORMWATER DISCHARGE PERMIT SHALL BE OBTAINED AND A COPY SHALL BE SUBMITTED TO THE CITY OF COMMERCE CITY DEPARTMENT OF PUBLIC WORKS.

7. AREAS DISTURBED BY GRADING SHALL BE MULCHED AND RESEEDED WITH NATIVE VEGETATION OR AS APPROVED ON THE PLAN.

8. THE CONTRACTOR SHALL BE SOLELY AND COMPLETELY RESPONSIBLE FOR SAFETY CONDITIONS ON AND ADJACENT TO THE SITE 24 HOURS A DAY, SEVEN DAYS A WEEK.

9. CONTRACTOR SHALL CONTACT UTILITY NOTIFICATION CENTER FOR THE LOCATION OF UNDERGROUND UTILITIES AT LEAST 48 HOURS PRIOR TO COMMENCEMENT OF CONSTRUCTION. (811 or 1-800-922-1987)

10. THE CITY ENGINEER'S SIGNATURE AFFIXED TO THIS DOCUMENT INDICATES THE CITY OF COMMERCE CITY PUBLIC WORKS DEPARTMENT, ENGINEERING DIVISION, HAS REVIEWED THE DOCUMENT AND FOUND IT IN GENERAL COMPLIANCE WITH THE CITY'S STORMWATER QUALITY CONTROL CRITERIA. THE CITY ENGINEER, THROUGH ACCEPTANCE OF THIS DOCUMENT, ASSUMES NO RESPONSIBILITY (OTHER THAN AS STATED ABOVE) FOR THE COMPLETENESS AND/OR ACCURACY OF THESE DOCUMENTS.

11. THE ADEQUACY OF THIS ESC PLAN LIES WITH THE ORIGINAL DESIGN ENGINEER.

12. ALL MATERIALS AND WORKMANSHIP SHALL BE SUBJECT TO INSPECTION BY THE COMMERCE CITY RESERVES THE RIGHT TO ACCEPT OR REJECT ANY SUCH MATERIALS AND WORKMANSHIP THAT DOES NOT CONFORM TO THE APPROVED PLANS.

13. THE PLACEMENT OF EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICES (BMP'S) SHALL BE IN ACCORDANCE WITH THE CITY APPROVED PLANS.

14. ANY VARIATION IN MATERIAL, TYPE OR LOCATION OF EROSION AND SEDIMENT CONTROL BMP's FROM THE CITY APPROVED PLANS WILL REQUIRE APPROVAL FROM AN ACCOUNTABLE REPRESENTATIVE OF THE CITY OF COMMERCE CITY ENGINEERING DIVISION.

15. AFTER THE ESC PLAN HAS BEEN APPROVED, THE CONTRACTOR MAY INSTALL THE INITIAL-STAGE EROSION AND SEDIMENT CONTROL BMPS INDICATED ON THE ACCEPTED ESC PLAN.

16. THE FIRST BMP TO BE INSTALLED ON THE SITE SHALL BE CONSTRUCTION FENCE, MARKERS, OR OTHER APPROVED MEANS OF DEFINING THE LIMITS OF CONSTRUCTION, INCLUDING CONSTRUCTION LIMITS ADJACENT TO STREAM CORRIDORS AND OTHER AREAS TO BE PRESERVED.

17. AFTER INSTALLATION OF THE INITIAL-STAGE EROSION AND SEDIMENT CONTROL BMP'S, THE PERMITTEE SHALL CALL THE PUBLIC WORKS AT 303-289-8150 TO SCHEDULE A PRECONSTRUCTION MEETING AT THE PROJECT SITE. THE REQUEST SHALL BE MADE A MINIMUM OF THREE BUSINESS DAYS PRIOR TO THE REQUESTED MEETING TIME. NO CONSTRUCTION ACTIVITIES SHALL BE PLANNED WITHIN 24 HOURS AFTER THE PRECONSTRUCTION MEETING.

18. THE ESC MANAGER SHALL BE CERTIFIED IN STORMWATER MANAGEMENT AND EROSION CONTROL AND DOCUMENTATION SHALL BE PROVIDED TO THE CITY.

19. THE OWNER OR OWNER'S REPRESENTATIVE, THE ESC MANAGER, THE GENERAL CONTRACTOR, AND THE GRADING SUBCONTRACTOR, IF DIFFERENT FROM THE GENERAL CONTRACTOR, MUST ATTEND THE PRECONSTRUCTION MEETING. IF ANY OF THE REQUIRED PARTICIPANTS FAIL TO ATTEND THE PRECONSTRUCTION MEETING, OR IF THE INSTALLATION OF THE INITIAL BMP's ARE NOT APPROVED BY THE CITY ESC INSPECTOR, THE APPLICANT WILL HAVE TO PAY A REINSPECTION FEE, ADDRESS ANY PROBLEMS WITH BMP INSTALLATION, AND CALL TO RESCHEDULE THE MEETING, WITH A CORRESPONDING DELAY IN THE START OF CONSTRUCTION. THE CITY STRONGLY ENCOURAGES THE APPLICANT TO HAVE THE ENGINEER OF RECORD AT THE PRECONSTRUCTION MEETING.

GRADING GENERAL NOTES:

20. CONSTRUCTION SHALL NOT BEGIN UNTIL THE CITY ESC INSPECTOR APPROVES THE INSTALLATION OF THE INITIAL BMP'S AND THE GRADING PERMIT IS OBTAINED FROM PUBLIC WORKS.

21. THE ESC MANAGER SHALL STRICTLY ADHERE TO THE APPROVED LIMITS OF CONSTRUCTION AT ALL TIMES. THE CITY OF COMMERCE CITY ENGINEERING DIVISION MUST APPROVE ANY CHANGES TO THE LIMITS OF CONSTRUCTION AND, AT THE DISCRETION OF THE ENGINEERING DIVISION, ADDITIONAL EROSION/SEDIMENT CONTROLS MAY BE REQUIRED IN ANY ADDITIONAL AREAS OF CONSTRUCTION.

22. NATURAL VEGETATION SHALL BE RETAINED AND PROTECTED WHEREVER POSSIBLE. EXPOSURE OF SOIL TO EROSION BY REMOVAL OR DISTURBANCE OF VEGETATION SHALL BE LIMITED TO THE AREA REQUIRED FOR IMMEDIATE CONSTRUCTION OPERATIONS.

23. A COPY OF THE GRADING PERMIT AND APPROVED PLANS SHALL BE ON SITE AT ALL TIMES.

24. THE ESC MANAGER SHALL BE RESPONSIBLE FOR ENSURING THAT THE SITE REMAINS IN COMPLIANCE AND SHALL BE THE PERMITTEE'S CONTACT PERSON WITH THE CITY FOR ALL MATTERS PERTAINING TO THE GRADING PERMIT. THE ESC MANAGER SHALL BE PRESENT AT THE SITE THE MAJORITY OF THE TIME AND SHALL BE AVAILABLE THROUGH A 24-HOUR CONTACT NUMBER.

25. THE ESC MANAGER IS RESPONSIBLE FOR CLEANUP OF SEDIMENT OR CONSTRUCTION DEBRIS TRACKED ONTO ADJACENT PAVED AREAS. PAVED AREAS, INCLUDING STREETS, ARE TO BE KEPT CLEAN THROUGHOUT BUILD-OUT AND SHALL BE CLEANED WITH A STREET SWEEPER OR SIMILAR DEVICE AT FIRST NOTICE OF ACCIDENTAL TRACKING OR AT THE DISCRETION OF THE CITY'S ESC INSPECTOR. STREET WASHING IS NOT ALLOWED. THE CITY RESERVES THE RIGHT TO REQUIRE ADDITIONAL MEASURES TO ENSURE AREA STREETS ARE KEPT FREE OF SEDIMENT AND/OR CONSTRUCTION DEBRIS.

26. THE APPROVED PLANS MAY REQUIRE CHANGES OR ALTERATIONS AFTER APPROVAL TO MEET CHANGING SITE OR PROJECT CONDITIONS OR TO ADDRESS INEFFICIENCIES IN DESIGN OR INSTALLATION. ALL CONSTRUCTION TRAFFIC MUST ENTER/EXIT THE SITE THROUGH THE CITY APPROVED ACCESS POINTS. A VEHICLE TRACKING CONTROL PAD IS REQUIRED AT ALL ACCESS POINTS ON THE ADDITIONAL STABILIZED CONSTRUCTION ENTRANCES MAY BE ADDED WITH AUTHORIZATION FROM THE COMMERCE CITY ENGINEERING DIVISION.

27. THE ESC MANAGER SHALL OBTAIN PRIOR APPROVAL FROM THE DESIGN ENGINEER AND COMMERCE CITY ENGINEERING DIVISION FOR ANY PROPOSED CHANGES.

28. NO PERMANENT EARTH SLOPES GREATER THAN 3:1 SHALL BE ALLOWED.

29. ANY SETTLEMENT OR SOIL ACCUMULATIONS BEYOND THE LIMITS OF CONSTRUCTION DUE TO GRADING OR EROSION SHALL BE REPAIRED IMMEDIATELY BY THE ESC MANAGER. THE ESC MANAGER SHALL BE HELD RESPONSIBLE FOR OBTAINING ACCESS RIGHTS TO ADJACENT PROPERTY, IF NEEDED, AND REMEDIATING ANY ADVERSE IMPACTS TO ADJACENT WATERWAYS, WETLANDS, PROPERTIES, ETC. RESULTING FROM WORK DONE AS PART OF THIS PROJECT.

30. SOILS THAT WILL BE STOCKPILED FOR MORE THAN THIRTY (30) DAYS SHALL BE SEEDED AND MULCHED WITHIN FOURTEEN (14) DAYS OF STOCKPILE CONSTRUCTION. NO STOCKPILES SHALL BE PLACED WITHIN ONE HUNDRED (100) FEET OF A DRAINAGE WAY UNLESS APPROVED BY THE COMMERCE CITY ENGINEERING DIVISION.

31. ALL CHEMICAL OR HAZARDOUS MATERIAL SPILLS WHICH MAY ENTER WATERS OF THE STATE OF COLORADO, WHICH INCLUDE BUT ARE NOT LIMITED TO, SURFACE WATER, GROUND WATER AND DRY GULLIES OR STORM SEWER LEADING TO SURFACE WATER, SHALL BE IMMEDIATELY REPORTED TO THE CDPHE PER CRS 25-8-601, AND COMMERCE CITY. RELEASES OF PETROLEUM PRODUCTS AND CERTAIN HAZARDOUS SUBSTANCES LISTED UNDER THE FEDERAL CLEAN WATER ACT (40 CFR PART 116) MUST BE REPORTED TO THE NATIONAL RESPONSE CENTER, SOUTH ADAMS COUNTY WATER AND SANITATION DISTRICT AS WELL AS THE CDPHE. SPILLS THAT POSE AN IMMEDIATE RISK TO HUMAN LIFE SHALL BE REPORTED TO 911. FAILURE TO REPORT AND CLEAN UP ANY SPILL SHALL RESULT IN ISSUANCE OF A STOP WORK ORDER.

32. THE CLEANING OF CONCRETE DELIVERY TRUCK CHUTES IS RESTRICTED TO APPROVED CONCRETE WASH OUT LOCATIONS ON THE JOB SITE. THE DISCHARGE OF WATER CONTAINING WASTE CONCRETE TO THE STORM SEWER SYSTEM IS PROHIBITED. ALL CONCRETE WASTE SHALL BE PROPERLY CLEANED UP AND DISPOSED AT AN APPROPRIATE LOCATION.

33. COMMERCE CITY DOES NOT ALLOW HAY BALES AS A FORM OF EROSION AND SEDIMENT CONTROL.

34. ONCE THE SITE HAS REACHED FINAL STABILIZATION, A FINAL INSPECTION SHALL BE SCHEDULED WITH THE CITY'S ESC INSPECTOR. A CERTIFICATE OF OCCUPANCY WILL NOT BE ISSUED AND/OR THE GRADING BOND WILL NOT BE RELEASED UNTIL THE CITY'S ESC INSPECTOR APPROVES FINAL STABILIZATION

35. AREA OF DISTURBANCE: 29 ACRES

Review these notes and remove any that are covered by the Commerce City Erosion and Sediment Control notes on sheet 10 and notes included on the ESC details on sheets 10-12.

Add note: "SEE EROSION AND SEDIMENT CONTROL (ESC) GENERAL NOTES ON SHEET 10."

Add note: "SEE ESC DETAILS ON SHEETS 10-12."

811 Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 SOUTH SYRACUSE WAY, STE 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

CLIENT: COHEN DENVER AIRPORT, LLC
LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
GRADING, EROSION, & SED. CONTROL PLANS
GENERAL NOTES

DATE 3/22/2021

A	1st SUBMITTAL TO COMMERCE CITY 08/14/2020 - DJM
B	2ND SUBMITTAL TO COMMERCE CITY 03/18/2021 - DJM

REVISIONS

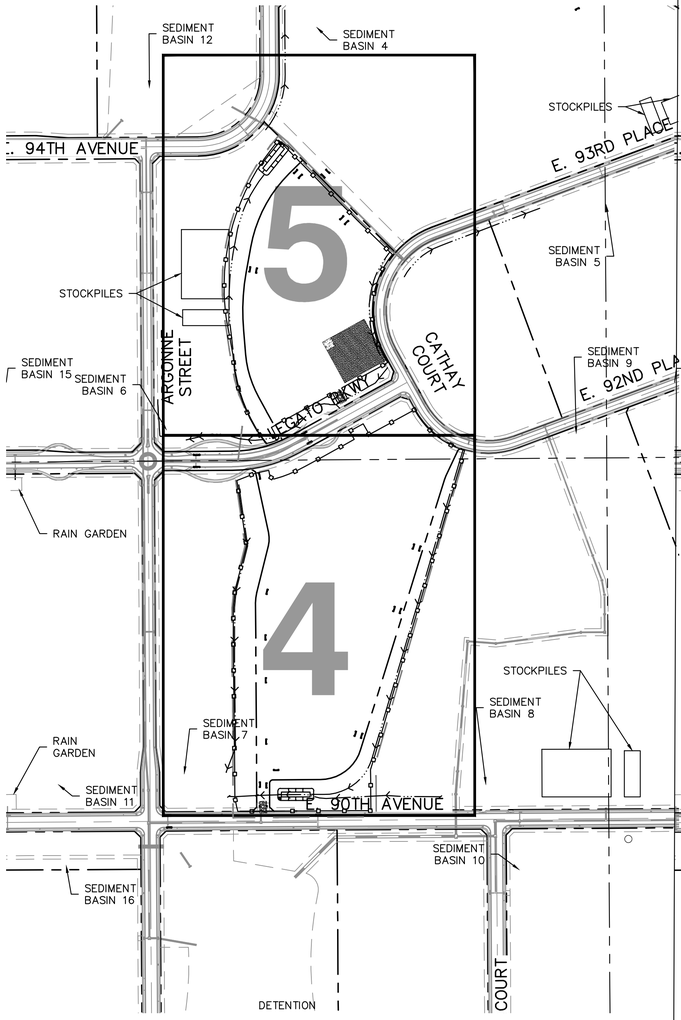
PLANS UNDER REVIEW NOT FOR CONSTRUCTION

DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 2

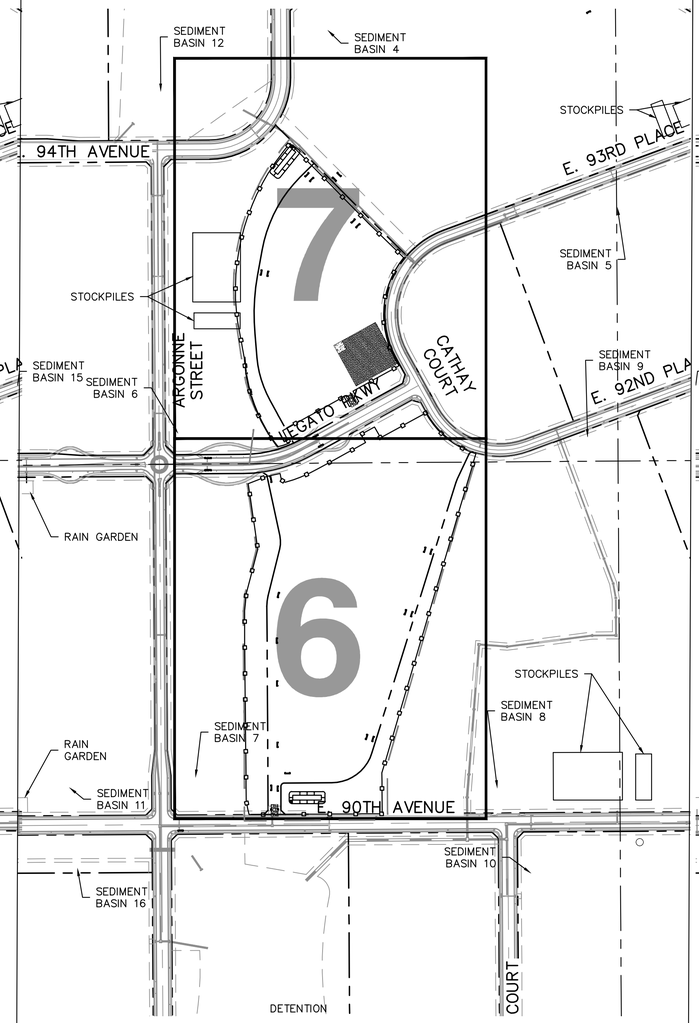
CAD FILE: 19002561-GESC-COVER.DWG

REPLACE THIS OVERVIEW SHEET WITH THE ORIGINAL OVERALL SITE PLAN SHEET. ADDRESS THE 1ST REVIEW COMMENTS AND THE RED 2ND REVIEW COMMENTS ON THE FOLLOWING INSERTED SHEET.

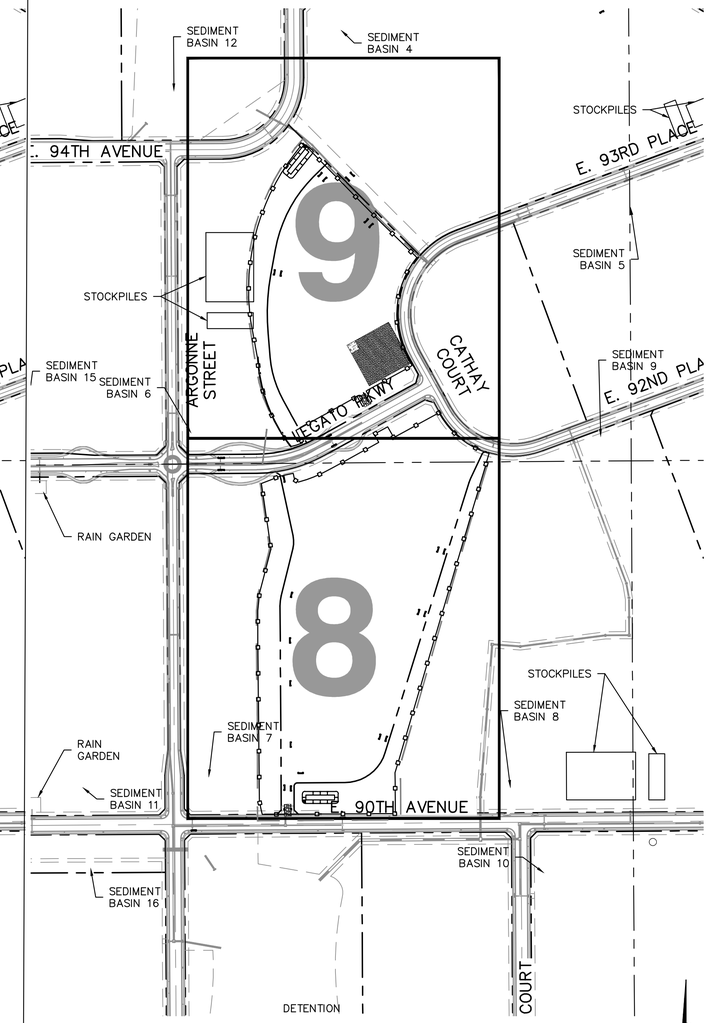
INITIAL



INTERIM



FINAL



300 0 300 600
(IN FEET)
1 inch = 300 ft.

Know what's **below.** **Call** before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 SOUTH SYRACUSE WAY, SUITE 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

CLIENT
COHEN DENVER AIRPORT, LLC
LEGATO FIL 2
COMMERCE CITY, COLORADO
EROSION AND SEDIMENT CONTROL PLANS
OVERVIEW

DR. JRB CH. DJM
P.M. DJM
JOB
SHEET NO.
3

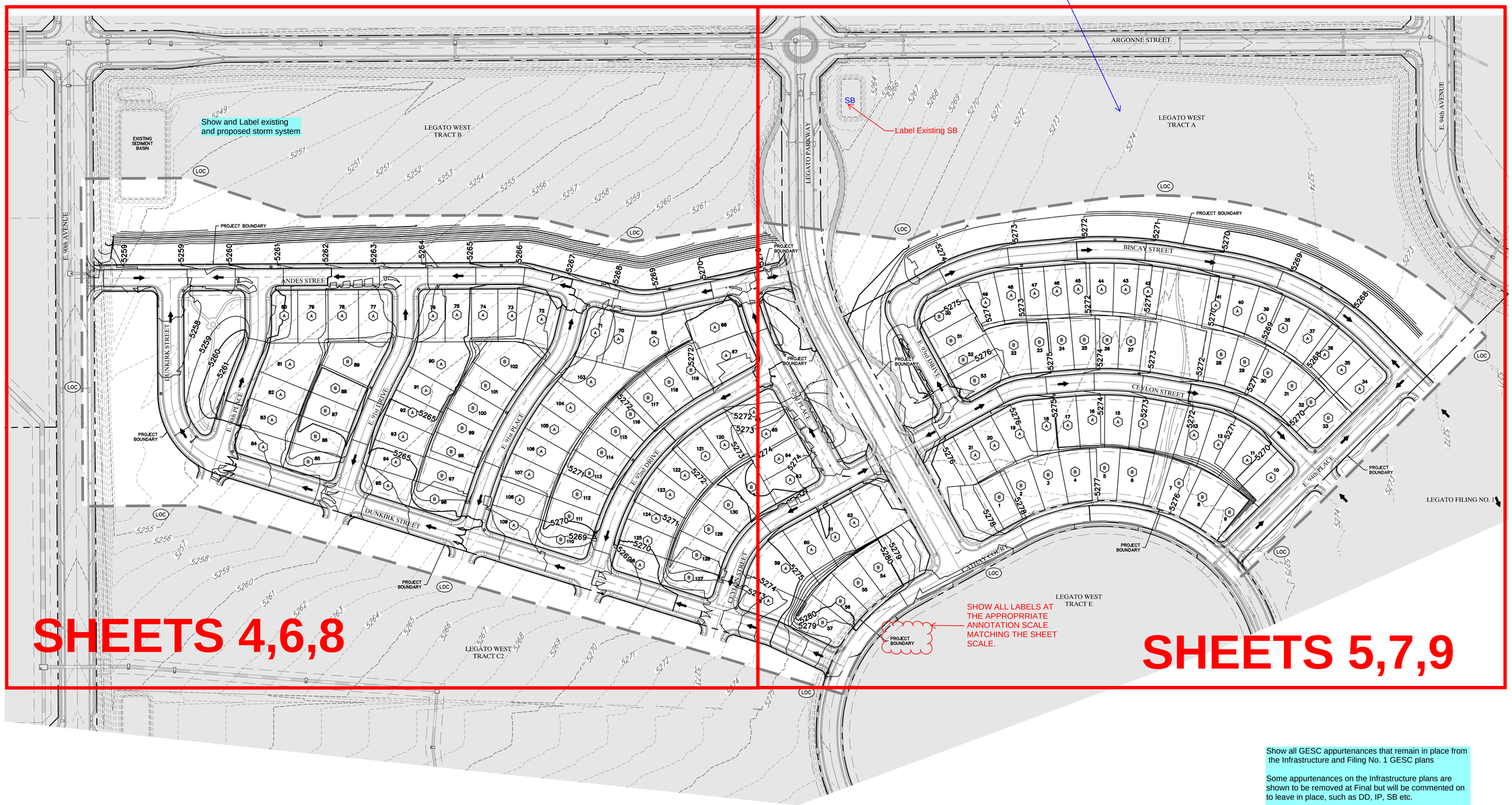
CAD FILE: 19002561-CESC-BASE-OV.DWG

EARTHWORK VOLUMES		
CUT VOLUME	FILL VOLUME	NET VOLUME (UNADJUSTED)
105,000 Cu.Yd.	60,000 Cu.Yd.	45,000 Cu.Yd. CUT

INCLUDE DISTURBED AREA

Infrastructure has stockpile and topsoil pits in this area, it is not labeled as being gone in the Final stage. If it is not gone, please show

Include topsoil in earthworks table.



SHOW AND LABEL ALL EXISTING AND PROPOSED R.O.W. AND EASEMENTS

REPLACE THE OVERVIEW SHEET WITH THIS ORIGINAL OVERALL SITE PLAN SHEET.ADDRESS THESE 1ST REVIEW COMMENTS AND THE RED 2ND REVIEW COMMENTS.

ADD SITE LEGEND FOUND ON INTERIM AND FINAL SHEETS

Show all GESC appurtenances that remain in place from the Infrastructure and Filing No. 1 GESC plans

Some appurtenances on the Infrastructure plans are shown to be removed at Final but will be commented on to leave in place, such as DD, IP, SB etc.

Show and label all existing storm

Show all proposed storm

The LOC is outside the limits of the Platted area. Please provide a letter from the owner/s of the adjacent Tracts that gives permission to Filing 2 owner to have construction/grading activities on their properties.

80 0 80 160

(IN FEET)
1 inch = 80 ft.

811 Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2020 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 S. QUEBEC STREET, SUITE 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

CLIENT
COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

COHEN DENVER AIRPORT, LLC
LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
GRADING, EROSION, & SED. CONTROL PLANS
OVERALL SITE PLAN

DATE 8/14/2020

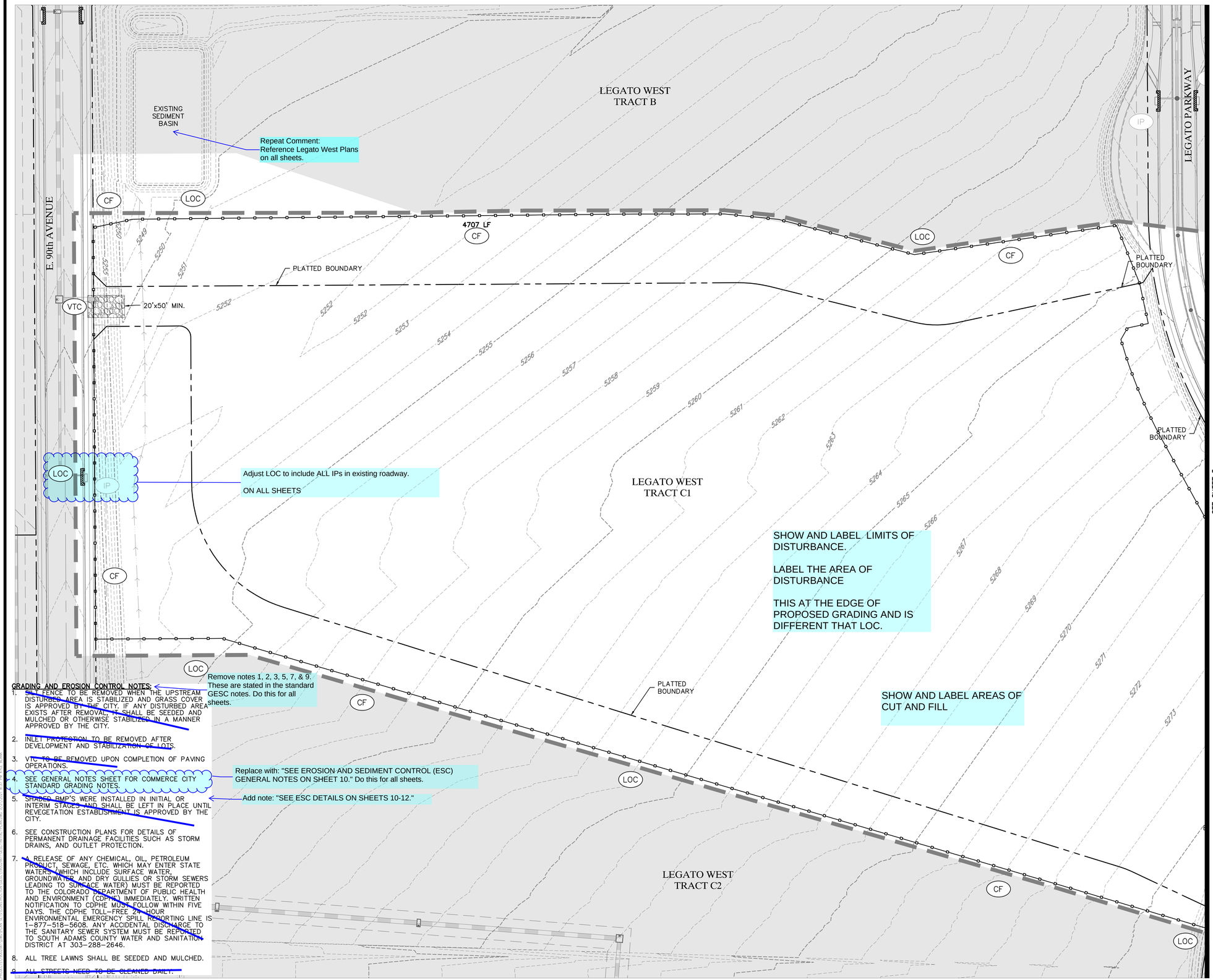
A	1st SUBMITTAL TO COMMERCE CITY	08/14/2020 – DJM

REVISIONS

PLANS UNDER REVIEW NOT FOR CONSTRUCTION

DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 3

CAD FILE: 19002561 - GESC-OVERALL.DWG



GRADING AND EROSION CONTROL NOTES:

1. SILT FENCE TO BE REMOVED WHEN THE UPSTREAM DISTURBED AREA IS STABILIZED AND GRASS COVER IS APPROVED BY THE CITY. IF ANY DISTURBED AREA EXISTS AFTER REMOVAL, IT SHALL BE SEEDED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE CITY.
2. INLET PROTECTION TO BE REMOVED AFTER DEVELOPMENT AND STABILIZATION OF LOTS.
3. VTC TO BE REMOVED UPON COMPLETION OF PAVING OPERATIONS.
4. SEE GENERAL NOTES SHEET FOR COMMERCE CITY STANDARD GRADING NOTES.
5. SHADED BMP'S WERE INSTALLED IN INITIAL OR INTERIM STAGES AND SHALL BE LEFT IN PLACE UNTIL REVEGETATION ESTABLISHMENT IS APPROVED BY THE CITY.
6. SEE CONSTRUCTION PLANS FOR DETAILS OF PERMANENT DRAINAGE FACILITIES SUCH AS STORM DRAINS, AND OUTLET PROTECTION.
7. A RELEASE OF ANY CHEMICAL, OIL, PETROLEUM PRODUCT, SEWAGE, ETC. WHICH MAY ENTER STATE WATERS (WHICH INCLUDE SURFACE WATER, GROUNDWATER AND DRY GULLIES OR STORM SEWERS LEADING TO SURFACE WATER) MUST BE REPORTED TO THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT (CDPHE) IMMEDIATELY. WRITTEN NOTIFICATION TO CDPHE MUST FOLLOW WITHIN FIVE DAYS. THE CDPHE TOLL-FREE 24 HOUR ENVIRONMENTAL EMERGENCY SPILL REPORTING LINE IS 1-877-518-5608. ANY ACCIDENTAL DISCHARGE TO THE SANITARY SEWER SYSTEM MUST BE REPORTED TO SOUTH ADAMS COUNTY WATER AND SANITATION DISTRICT AT 303-288-2646.
8. ALL TREE LAWNS SHALL BE SEEDED AND MULCHED.
9. ALL STREETS NEED TO BE CLEANED DAILY.

CWA	CONCRETE WASHOUT AREA
CF	CONSTRUCTION FENCE
DD	DIVERSION DITCH
ECB	EROSION CONTROL BLANKET
IP	INLET PROTECTION
RRB	REINFORCED ROCK BERM
RRC	RRB FOR CULVERT PROTECTION
SB	SEDIMENT BASIN
SM	SEEDING AND MULCHING
SF	SILT FENCE
SSA	STABILIZED STAGING AREA
VTC	VEHICLE TRACKING CONTROL
LOC	LIMITS OF CONSTRUCTION

SHOW STOCKPILES AND ASSOCIATED EROSION AND SEDIMENT CONTROLS FOR THIS PROJECT ON ALL SHEETS

Repeat Comment:
Label existing storm
sewer infrastructure.

Show and label ROWs

811 Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 SOUTH SYRACUSE WAY, SUITE 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

CLIENT
COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

COHEN DENVER AIRPORT, LLC
LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
GRADING, EROSION, & SED. CONTROL PLANS
GESC INITIAL PLAN 01

DATE 3/21/2021

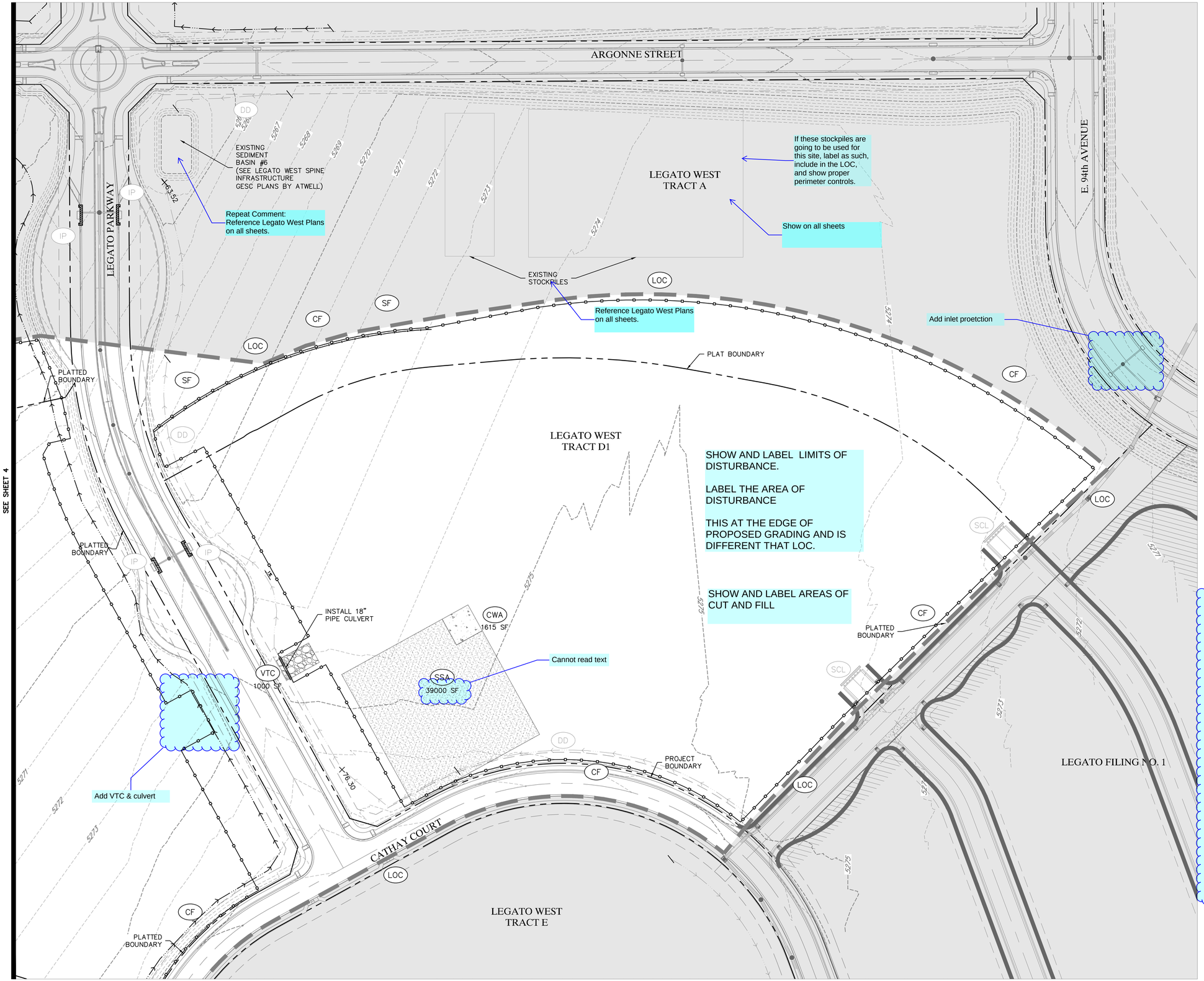
A	1st SUBMITTAL TO COMMERCE CITY	08/14/2020 - DJM
B	2ND SUBMITTAL TO COMMERCE CITY	03/18/2021 - DJM

REVISIONS

PLANS UNDER REVIEW NOT FOR CONSTRUCTION

DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 4

CAD FILE: 19002561-GESC-INITIAL-PLAN.DWG



Repeat Comment: Label existing storm sewer infrastructure.

Show and label ROWs

See comments on sheet 4

GRADING AND EROSION CONTROL NOTES:

1. SILT FENCE TO BE REMOVED WHEN THE UPSTREAM DISTURBED AREA IS STABILIZED AND GRASS COVER IS APPROVED BY THE CITY. IF ANY DISTURBED AREA EXISTS AFTER REMOVAL, IT SHALL BE SEEDED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE CITY.
2. INLET PROTECTION TO BE REMOVED AFTER DEVELOPMENT AND STABILIZATION OF LOTS.
3. VTC TO BE REMOVED UPON COMPLETION OF PAVING OPERATIONS.
4. SEE GENERAL NOTES SHEET FOR COMMERCE CITY STANDARD GRADING NOTES.
5. SHADED BMP'S WERE INSTALLED IN INITIAL OR INTERIM STAGES AND SHALL BE LEFT IN PLACE UNTIL REVEGETATION ESTABLISHMENT IS APPROVED BY THE CITY.
6. SEE CONSTRUCTION PLANS FOR DETAILS OF PERMANENT DRAINAGE FACILITIES SUCH AS STORM DRAINS, AND OUTLET PROTECTION.
7. A RELEASE OF ANY CHEMICAL, OIL, PETROLEUM PRODUCT, SEWAGE, ETC. WHICH MAY ENTER STATE WATERS (WHICH INCLUDE SURFACE WATER, GROUNDWATER AND DRY GULLIES OR STORM SEWERS LEADING TO SURFACE WATER) MUST BE REPORTED TO THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT (CDPHE) IMMEDIATELY. WRITTEN NOTIFICATION TO CDPHE MUST FOLLOW WITHIN FIVE DAYS. THE CDPHE TOLL-FREE 24-HOUR ENVIRONMENTAL EMERGENCY SPILL REPORTING LINE IS 1-877-518-5608. ANY ACCIDENTAL DISCHARGE TO THE SANITARY SEWER SYSTEM MUST BE REPORTED TO SOUTH ADAMS COUNTY WATER AND SANITATION DISTRICT AT 303-288-2646.
8. ALL TREE LAWNS SHALL BE SEEDED AND MULCHED.
9. ALL STREETS NEED TO BE CLEANED DAILY.

(IN FEET)
1 inch = 60 ft.

CWA	CONCRETE WASHOUT AREA
CF	CONSTRUCTION FENCE
DD	DIVERSION DITCH
ECB	EROSION CONTROL BLANKET
IP	INLET PROTECTION
RRB	REINFORCED ROCK BERM
RRC	RRB FOR CULVERT PROTECTION
SB	SEDIMENT BASIN
SM	SEEDING AND MULCHING
SF	SILT FENCE
SSA	STABILIZED STAGING AREA
VTC	VEHICLE TRACKING CONTROL
LOC	LIMITS OF CONSTRUCTION

811 Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 SOUTH SYRACUSE WAY, SUITE 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

CLIENT
COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

COHEN DENVER AIRPORT, LLC
LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
GRADING, EROSION, & SED. CONTROL PLANS
GESC INITIAL PLAN 02

DATE 3/21/2021

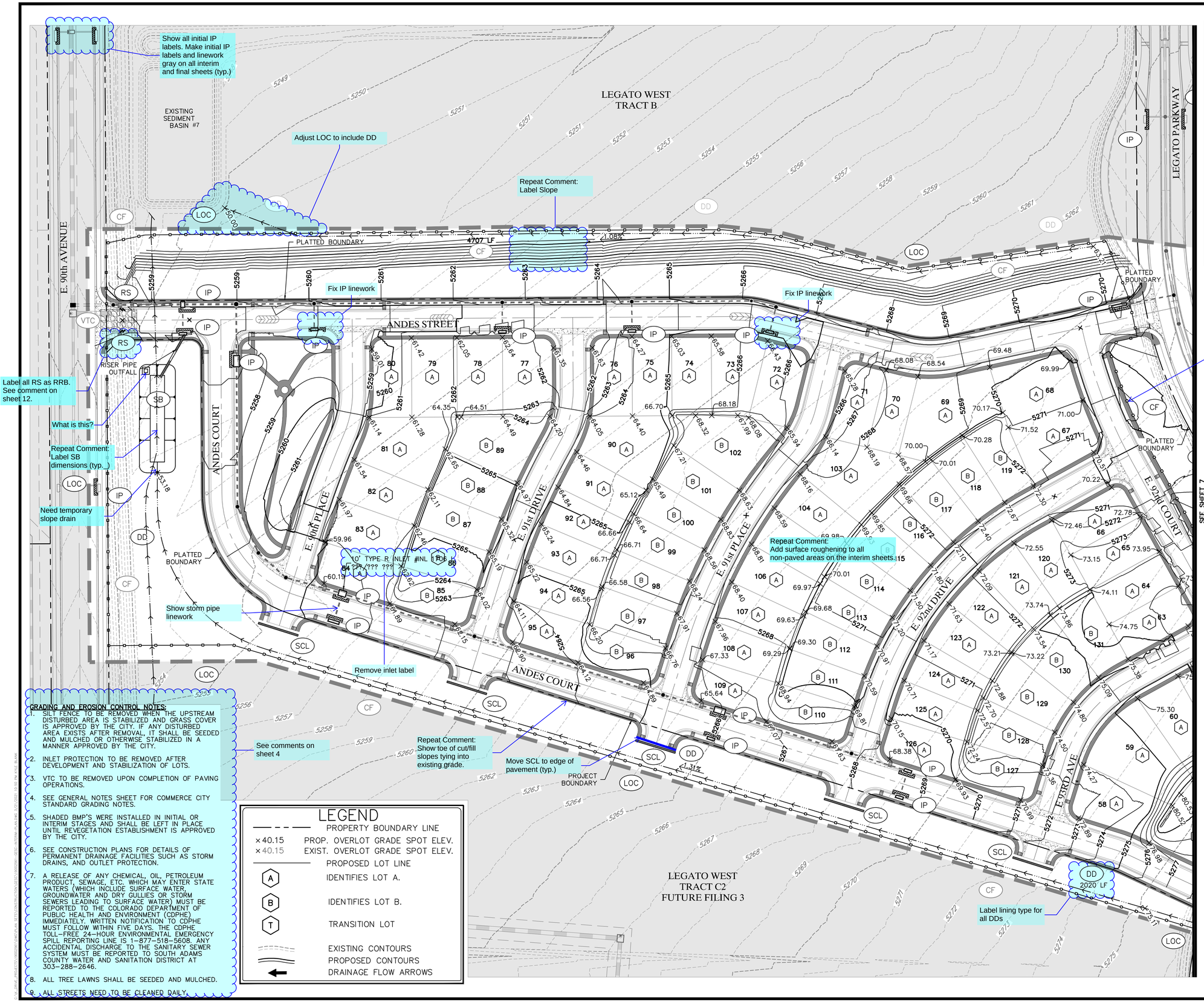
A	1st SUBMITTAL TO COMMERCE CITY	08/14/2020 – DJM
B	2ND SUBMITTAL TO COMMERCE CITY	03/18/2021 – DJM

REVISIONS

PLANS UNDER REVIEW NOT FOR CONSTRUCTION
JAMES M. MCCLURE

DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 5

CAD FILE: 19002561-GESC-INITIAL-PLAN.DWG



GRADING AND EROSION CONTROL NOTES:

1. SILT FENCE TO BE REMOVED WHEN THE UPSTREAM DISTURBED AREA IS STABILIZED AND GRASS COVER IS APPROVED BY THE CITY. IF ANY DISTURBED AREA EXISTS AFTER REMOVAL, IT SHALL BE SEEDED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE CITY.
2. INLET PROTECTION TO BE REMOVED AFTER DEVELOPMENT AND STABILIZATION OF LOTS.
3. VTC TO BE REMOVED UPON COMPLETION OF PAVING OPERATIONS.
4. SEE GENERAL NOTES SHEET FOR COMMERCE CITY STANDARD GRADING NOTES.
5. SHADED BMP'S WERE INSTALLED IN INITIAL OR INTERIM STAGES AND SHALL BE LEFT IN PLACE UNTIL REVEGETATION ESTABLISHMENT IS APPROVED BY THE CITY.
6. SEE CONSTRUCTION PLANS FOR DETAILS OF PERMANENT DRAINAGE FACILITIES SUCH AS STORM DRAINS, AND OUTLET PROTECTION.
7. A RELEASE OF ANY CHEMICAL, OIL, PETROLEUM PRODUCT, SEWAGE, ETC. WHICH MAY ENTER STATE WATERS (WHICH INCLUDE SURFACE WATER, GROUNDWATER AND DRY GULLIES OR STORM SEWERS LEADING TO SURFACE WATER) MUST BE REPORTED TO THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT (CDPHE) IMMEDIATELY. WRITTEN NOTIFICATION TO CDPHE MUST FOLLOW WITHIN FIVE DAYS. THE CDPHE TOLL-FREE 24-HOUR ENVIRONMENTAL EMERGENCY SPILL REPORTING LINE IS 1-877-518-5608. ANY ACCIDENTAL DISCHARGE TO THE SANITARY SEWER SYSTEM MUST BE REPORTED TO SOUTH ADAMS COUNTY WATER AND SANITATION DISTRICT AT 303-288-2646.
8. ALL TREE LAWNS SHALL BE SEEDED AND MULCHED.
9. ALL STREETS NEED TO BE CLEANED DAILY.

LEGEND

— — — —	PROPERTY BOUNDARY LINE
×40.15	PROP. OVERLOT GRADE SPOT ELEV.
×40.15	EXIST. OVERLOT GRADE SPOT ELEV.
———	PROPOSED LOT LINE
(A)	IDENTIFIES LOT A.
(B)	IDENTIFIES LOT B.
(T)	TRANSITION LOT
~~	EXISTING CONTOURS
~~	PROPOSED CONTOURS
←	DRAINAGE FLOW ARROWS

811 Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 S. QUEBEC STREET, SUITE 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

CLIENT: COHEN DENVER AIRPORT, LLC

LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
GRADING, EROSION, & SED. CONTROL PLANS
GESC INTERIM PLAN 01

DATE 3/21/2021

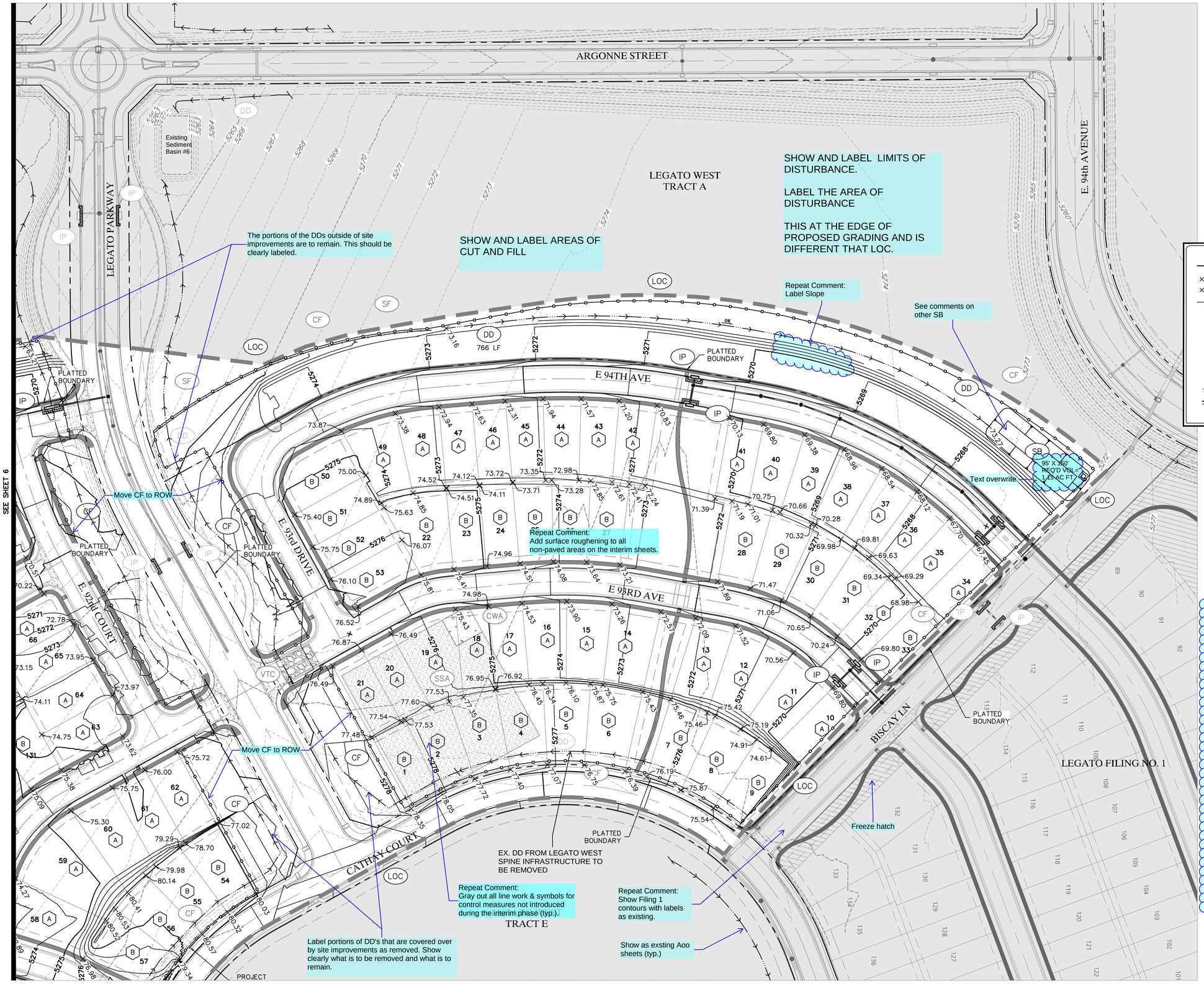
A	1st SUBMITTAL TO COMMERCE CITY 08/14/2020 – DJM
B	2ND SUBMITTAL TO COMMERCE CITY 03/18/2021 – DJM

REVISIONS

PLANS UNDER REVIEW NOT FOR CONSTRUCTION

DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 6

CAD FILE: 19002561-GESC-INTERIM-PLAN.DWG



	CWA	CONCRETE WASHOUT AREA
	CF	CONSTRUCTION FENCE
	DD	DIVERSION DITCH
	ECB	EROSION CONTROL BLANKET
	IP	INLET PROTECTION
	RRB	REINFORCED ROCK BERM
	RRC	RRB FOR CULVERT PROTECTION
	SB	SEDIMENT BASIN
	SM	SEEDING AND MULCHING
	SF	SILT FENCE
	SSA	STABILIZED STAGING AREA
	VTC	VEHICLE TRACKING CONTROL
	LOC	LIMITS OF CONSTRUCTION

LEGEND

	PROPERTY BOUNDARY LINE
×40.15	PROP. OVERLOT GRADE SPOT ELEV.
×40.15	EXIST. OVERLOT GRADE SPOT ELEV.
	PROPOSED LOT LINE
A	IDENTIFIES LOT A.
B	IDENTIFIES LOT B.
T	TRANSITION LOT
	EXISTING CONTOURS
	PROPOSED CONTOURS
	DRAINAGE FLOW ARROWS

Show and label ROWs

Repeat Comment: Label existing and proposed storm sewer infrastructure.

See comments on sheet 4

GRADING AND EROSION CONTROL NOTES:

1. SILT FENCE TO BE REMOVED WHEN THE UPSTREAM DISTURBED AREA IS STABILIZED AND GRASS COVER IS APPROVED BY THE CITY. IF ANY DISTURBED AREA EXISTS AFTER REMOVAL, IT SHALL BE SEEDED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE CITY.
2. INLET PROTECTION TO BE REMOVED AFTER DEVELOPMENT AND STABILIZATION OF LOTS.
3. VTC TO BE REMOVED UPON COMPLETION OF PAVING OPERATIONS.
4. SEE GENERAL NOTES SHEET FOR COMMERCE CITY STANDARD GRADING NOTES.
5. SHADED BMP'S WERE INSTALLED IN INITIAL OR INTERIM STAGES AND SHALL BE LEFT IN PLACE UNTIL REVEGETATION ESTABLISHMENT IS APPROVED BY THE CITY.
6. SEE CONSTRUCTION PLANS FOR DETAILS OF PERMANENT DRAINAGE FACILITIES SUCH AS STORM DRAINS, AND OUTLET PROTECTION.
7. A RELEASE OF ANY CHEMICAL, OIL, PETROLEUM PRODUCT, SEWAGE, ETC. WHICH MAY ENTER STATE WATERS (WHICH INCLUDE SURFACE WATER, GROUNDWATER AND DRY GULLIES OR STORM SEWERS LEADING TO SURFACE WATER) MUST BE REPORTED TO THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT (CDPHE) IMMEDIATELY. WRITTEN NOTIFICATION TO CDPHE MUST FOLLOW WITHIN FIVE DAYS. THE CDPHE TOLL–FREE 24–HOUR ENVIRONMENTAL EMERGENCY SPILL REPORTING LINE IS 1–877–518–5608. ANY ACCIDENTAL DISCHARGE TO THE SANITARY SEWER SYSTEM MUST BE REPORTED TO SOUTH ADAMS COUNTY WATER AND SANITATION DISTRICT AT 303–288–2646.
8. ALL TREE LAWNS SHALL BE SEEDED AND MULCHED.
9. ALL STREETS NEED TO BE CLEANED DAILY.

60 0 60 120
(IN FEET)
1 inch = 60 ft.

811 Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 S. QUEBEC STREET, SUITE 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

CLIENT
COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355–1400
BRAD BURNS

COHEN DENVER AIRPORT, LLC
LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
GRADING, EROSION, & SED. CONTROL PLANS
GESC INTERIM PLAN 02

DATE 3/22/2021

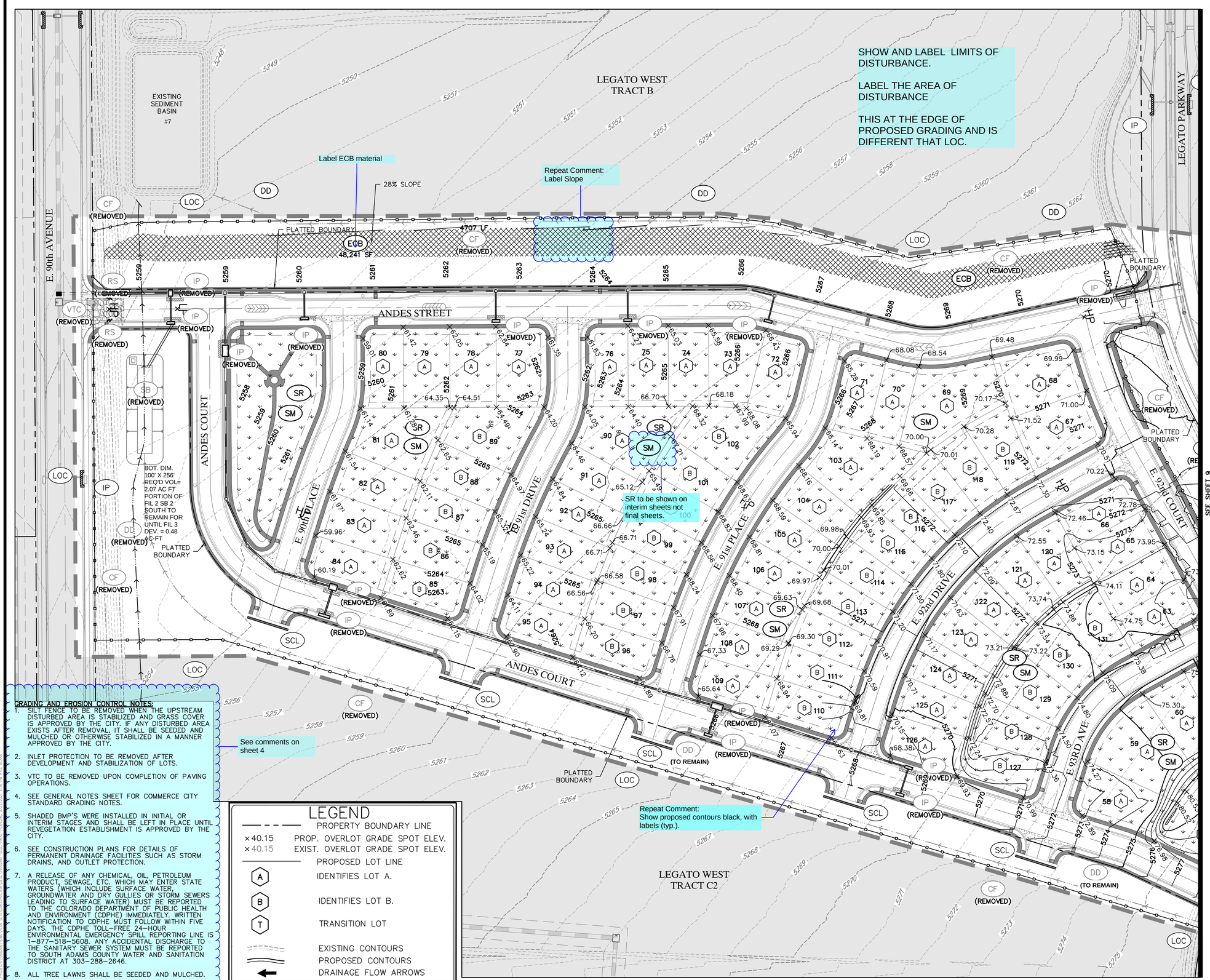
A	1st SUBMITTAL TO COMMERCE CITY	08/14/2020 – DJM
B	2ND SUBMITTAL TO COMMERCE CITY	03/18/2021 – DJM

REVISIONS

PLANS UNDER REVIEW NOT FOR CONSTRUCTION

DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 7

CAD FILE: 19002561-GESC-INTERIM-PLAN.DWG



Repeat Comment: Label existing and proposed storm sewer infrastructure.

Show and label ROWs

SHOW AND LABEL AREAS OF CUT AND FILL

CWA	CONCRETE WASHOUT AREA
CF	CONSTRUCTION FENCE
DD	DIVERSION DITCH
ECB	EROSION CONTROL BLANKET
IP	INLET PROTECTION
RRB	REINFORCED ROCK BERM
RRC	RRB FOR CULVERT PROTECTION
SB	SEDIMENT BASIN
SM	SEEDING AND MULCHING
SF	SILT FENCE
SSA	STABILIZED STAGING AREA
VTC	VEHICLE TRACKING CONTROL
LOC	LIMITS OF CONSTRUCTION

GRADING AND EROSION CONTROL NOTES:

1. SILT FENCE TO BE REMOVED WHEN THE UPSTREAM DISTURBED AREA IS STABILIZED AND GRASS COVER IS APPROVED BY THE CITY. IF ANY DISTURBED AREA EXISTS AFTER REMOVAL, IT SHALL BE SEEDED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE CITY.
2. INLET PROTECTION TO BE REMOVED AFTER DEVELOPMENT AND STABILIZATION OF LOTS.
3. VTC TO BE REMOVED UPON COMPLETION OF PAVING OPERATIONS.
4. SEE GENERAL NOTES SHEET FOR COMMERCE CITY STANDARD GRADING NOTES.
5. SHADED BMP'S WERE INSTALLED IN INITIAL OR INTERIM STAGES AND SHALL BE LEFT IN PLACE UNTIL REVEGETATION ESTABLISHMENT IS APPROVED BY THE CITY.
6. SEE CONSTRUCTION PLANS FOR DETAILS OF PERMANENT DRAINAGE FACILITIES SUCH AS STORM DRAINS, AND OUTLET PROTECTION.
7. A RELEASE OF ANY CHEMICAL, OIL, PETROLEUM PRODUCT, SEWAGE, ETC. WHICH MAY ENTER STATE WATERS (WHICH INCLUDE SURFACE WATER, GROUNDWATER AND DRY GULLIES OR STORM SEWERS LEADING TO SURFACE WATER) MUST BE REPORTED TO THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT (CDPHE) IMMEDIATELY. WRITTEN NOTIFICATION TO CDPHE MUST FOLLOW WITHIN FIVE DAYS. THE CDPHE TOLL-FREE 24-HOUR ENVIRONMENTAL EMERGENCY SPILL REPORTING LINE IS 1-877-518-5608. ANY ACCIDENTAL DISCHARGE TO THE SANITARY SEWER SYSTEM MUST BE REPORTED TO SOUTH ADAMS COUNTY WATER AND SANITATION DISTRICT AT 303-288-2646.
8. ALL TREE LAWNS SHALL BE SEEDED AND MULCHED.
9. ALL STREETS NEED TO BE CLEANED DAILY.

LEGEND

— — —	PROPERTY BOUNDARY LINE
×40.15	PROP. OVERLOT GRADE SPOT ELEV.
×40.15	EXIST. OVERLOT GRADE SPOT ELEV.
———	PROPOSED LOT LINE
A	IDENTIFIES LOT A.
B	IDENTIFIES LOT B.
T	TRANSITION LOT
	EXISTING CONTOURS
	PROPOSED CONTOURS
	DRAINAGE FLOW ARROWS

(IN FEET)
1 inch = 60 ft.

811 Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL, LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL, LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 S. QUEBEC STREET, SUITE 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

CLIENT
COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

COHEN DENVER AIRPORT, LLC
LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
GRADING, EROSION, & SED. CONTROL PLANS
GESC FINAL PLAN 01

DATE 3/22/2021

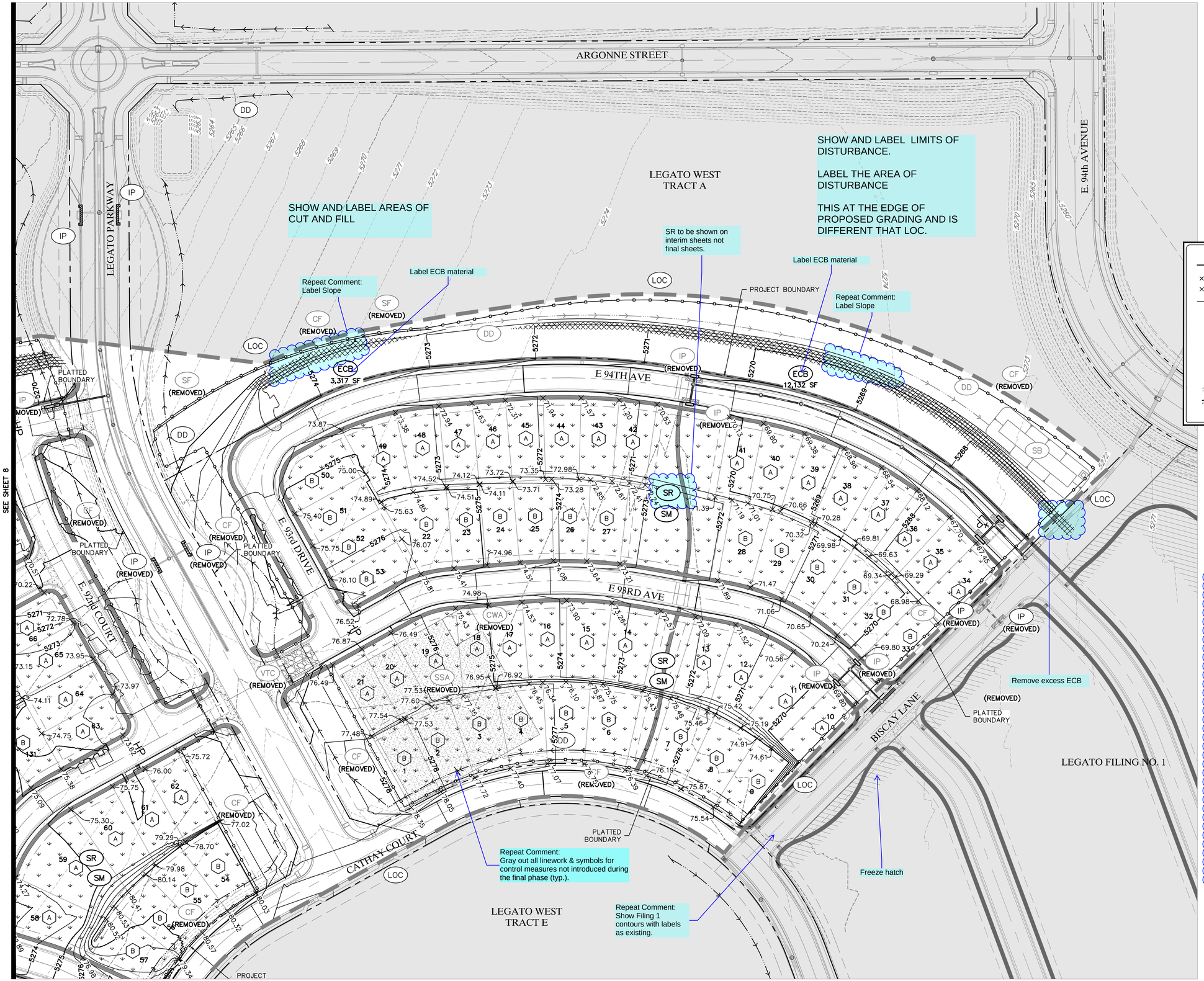
A	1st SUBMITTAL TO COMMERCE CITY	08/14/2020 – DJM
B	2ND SUBMITTAL TO COMMERCE CITY	03/18/2021 – DJM

REVISIONS

PLANS UNDER REVIEW NOT FOR CONSTRUCTION

DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 8

CAD FILE: 19002561-GESC-FINAL-PLAN.DWG



	CWA	CONCRETE WASHOUT AREA
	CF	CONSTRUCTION FENCE
	DD	DIVERSION DITCH
	ECB	EROSION CONTROL BLANKET
	IP	INLET PROTECTION
	RRB	REINFORCED ROCK BERM
	RRC	RRB FOR CULVERT PROTECTION
	SB	SEDIMENT BASIN
	SM	SEEDING AND MULCHING
	SF	SILT FENCE
	SSA	STABILIZED STAGING AREA
	VTC	VEHICLE TRACKING CONTROL
	LOC	LIMITS OF CONSTRUCTION

LEGEND

— — — —	PROPERTY BOUNDARY LINE
×40.15	PROP. OVERLOT GRADE SPOT ELEV.
×40.15	EXIST. OVERLOT GRADE SPOT ELEV.
— — — —	PROPOSED LOT LINE
A	IDENTIFIES LOT A.
B	IDENTIFIES LOT B.
T	TRANSITION LOT
	EXISTING CONTOURS
	PROPOSED CONTOURS
	DRAINAGE FLOW ARROWS

Repeat Comment: Label existing and proposed storm sewer infrastructure.

Show and label ROWs

See comments on sheet 4

GRADING AND EROSION CONTROL NOTES:

1. SILT FENCE TO BE REMOVED WHEN THE UPSTREAM DISTURBED AREA IS STABILIZED AND GRASS COVER IS APPROVED BY THE CITY. IF ANY DISTURBED AREA EXISTS AFTER REMOVAL, IT SHALL BE SEEDED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE CITY.
2. INLET PROTECTION TO BE REMOVED AFTER DEVELOPMENT AND STABILIZATION OF LOTS.
3. VTC TO BE REMOVED UPON COMPLETION OF PAVING OPERATIONS.
4. SEE GENERAL NOTES SHEET FOR COMMERCE CITY STANDARD GRADING NOTES.
5. SHADED BMP'S WERE INSTALLED IN INITIAL OR INTERIM STAGES AND SHALL BE LEFT IN PLACE UNTIL REVEGETATION ESTABLISHMENT IS APPROVED BY THE CITY.
6. SEE CONSTRUCTION PLANS FOR DETAILS OF PERMANENT DRAINAGE FACILITIES SUCH AS STORM DRAINS, AND OUTLET PROTECTION.
7. A RELEASE OF ANY CHEMICAL, OIL, PETROLEUM PRODUCT, SEWAGE, ETC. WHICH MAY ENTER STATE WATERS (WHICH INCLUDE SURFACE WATER, GROUNDWATER AND DRY GULLIES OR STORM SEWERS LEADING TO SURFACE WATER) MUST BE REPORTED TO THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT (CDPHE) IMMEDIATELY. WRITTEN NOTIFICATION TO CDPHE MUST FOLLOW WITHIN FIVE DAYS. THE CDPHE TOLL-FREE 24-HOUR ENVIRONMENTAL EMERGENCY SPILL REPORTING LINE IS 1-877-518-5608. ANY ACCIDENTAL DISCHARGE TO THE SANITARY SEWER SYSTEM MUST BE REPORTED TO SOUTH ADAMS COUNTY WATER AND SANITATION DISTRICT AT 303-288-2646.
8. ALL TREE LAWNS SHALL BE SEEDED AND MULCHED.
9. ALL STREETS NEED TO BE CLEANED DAILY.

(IN FEET)
1 inch = 60 ft.

811 Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 SOUTH SYRACUSE WAY, STE. 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

CLIENT
COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

COHEN DENVER AIRPORT, LLC
LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
GRADING, EROSION, & SED. CONTROL PLANS
GESC FINAL PLAN 02

DATE 3/22/2021

A	1st SUBMITTAL TO COMMERCE CITY	08/14/2020 – DJM
B	2ND SUBMITTAL TO COMMERCE CITY	03/18/2021 – DJM

REVISIONS

PLANS UNDER REVIEW NOT FOR CONSTRUCTION

DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 9

CAD FILE: 19002561-GESC-FINAL-PLAN.DWG

EROSION AND SEDIMENT CONTROL (ESC) GENERAL NOTES

1. GRADING PLAN IS FOR ROUGH GRADING ONLY. CHANGES MAY BE NECESSARY TO BRING PLANS INTO CONFORMANCE WITH APPROVED DRAINAGE AND SITE PLAN.
2. A WATER TRUCK SHALL BE KEPT ON-SITE TO CONTROL WIND EROSION AND DUST.
3. ANY SETTLEMENT OR SOIL ACCUMULATIONS BEYOND THE PROPERTY LIMITS DUE TO GRADING OR EROSION SHALL BE REPARIED IMMEDIATELY BY THE CONTRACTOR.
4. NO GRADING SHALL TAKE PLACE IN ANY DELINEATED FLOOD HAZARD AREA UNTIL THE FINAL DRAINAGE PLAN HAS BEEN APPROVED AND ALL APPROPRIATE PERMITS HAVE BEEN OBTAINED.
5. ANY CONSTRUCTION DEBRIS OR MUD TRACKING IN THE PUBLIC RIGHT-OF-WAY RESULTING FROM THIS DEVELOPMENT WILL BE REMOVED IMMEDIATELY BY THE CONTRACTOR. UPON WRITTEN NOTICE BY THE CITY, FAILURE TO REMOVE THE MUD OR DEBRIS BY THE CONTRACTOR WITHIN 24 HOURS SHALL CAUSE THE CITY TO STOP ALL WORK UNTIL THE SITUATION IS RESOLVED.
6. WHEN REQUIRED, A COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT (CDPHE), WATER QUALITY DIVISION, STORMWATER DISCHARGE PERMIT SHALL BE OBTAINED AND A COPY SHALL BE SUBMITTED TO THE CITY OF COMMERCE CITY DEPARTMENT OF PUBLIC WORKS.
7. AREAS DISTURBED BY GRADING SHALL BE MULCHED AND RESEEDED WITH NATIVE VEGETATION OR AS APPROVED ON THE PLAN.
8. THE CONTRACTOR SHALL BE SOLELY AND COMPLETELY RESPONSIBLE FOR SAFETY CONDITIONS ON AND ADJACENT TO THE SITE 24 HOURS A DAY, SEVEN DAYS A WEEK.
9. CONTRACTOR SHALL CONTACT UTILITY NOTIFICATION CENTER FOR THE LOCATION OF UNDERGROUND UTILITIES AT LEAST 48 HOURS PRIOR TO COMMENCEMENT OF CONSTRUCTION. (811 or 1-800-922-1987)
10. THE CITY ENGINEER'S SIGNATURE AFFIXED TO THIS DOCUMENT INDICATES THE CITY OF COMMERCE CITY PUBLIC WORKS DEPARTMENT, ENGINEERING DIVISION, HAS REVIEWED THE DOCUMENT AND FOUND IT IN GENERAL COMPLIANCE WITH THE CITY'S STORMWATER QUALITY CONTROL CRITERIA. THE CITY ENGINEER, THROUGH ACCEPTANCE OF THIS DOCUMENT, ASSUMES NO RESPONSIBILITY (OTHER THAN AS STATED ABOVE) FOR THE COMPLETENESS AND/OR ACCURACY OF THESE DOCUMENTS.
11. THE ADEQUACY OF THIS ESC PLAN LIES WITH THE ORIGINAL DESIGN ENGINEER.
12. ALL MATERIALS AND WORKMANSHIP SHALL BE SUBJECT TO INSPECTION BY THE CITY. COMMERCE CITY RESERVES THE RIGHT TO ACCEPT OR REJECT ANY SUCH MATERIALS AND WORKMANSHIP THAT DOES NOT CONFORM TO THE APPROVED PLANS.
13. THE PLACEMENT OF EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICES (BMP's) SHALL BE IN ACCORDANCE WITH THE CITY APPROVED PLANS.
14. ANY VARIATION IN MATERIAL, TYPE OR LOCATION OF EROSION AND SEDIMENT CONTROL BMP's FROM THE CITY APPROVED PLANS WILL REQUIRE APPROVAL FROM AN ACCOUNTABLE REPRESENTATIVE OF THE CITY OF COMMERCE CITY ENGINEERING DIVISION.
15. AFTER THE ESC PLAN HAS BEEN APPROVED, THE CONTRACTOR MAY INSTALL THE INITIAL-STAGE EROSION AND SEDIMENT CONTROL BMPS INDICATED ON THE ACCEPTED ESC PLAN.
16. THE FIRST BMP TO BE INSTALLED ON THE SITE SHALL BE CONSTRUCTION FENCE, MARKERS, OR OTHER APPROVED MEANS OF DEFINING THE LIMITS OF CONSTRUCTION, INCLUDING CONSTRUCTION LIMITS ADJACENT TO STREAM CORRIDORS AND OTHER AREAS TO BE PRESERVED.
17. AFTER INSTALLATION OF THE INITIAL-STAGE EROSION AND SEDIMENT CONTROL BMPs, THE PERMITTEE SHALL CALL THE PUBLIC WORKS AT 303-289-8150 TO SCHEDULE A PRECONSTRUCTION MEETING AT THE PROJECT SITE. THE REQUEST SHALL BE MADE A MINIMUM OF THREE BUSINESS DAYS PRIOR TO THE REQUESTED MEETING TIME. NO CONSTRUCTION ACTIVITIES SHALL BE PLANNED WITHIN 24 HOURS AFTER THE PRECONSTRUCTION MEETING.
18. THE ESC MANAGER SHALL BE CERTIFIED IN STORMWATER MANAGEMENT AND EROSION CONTROL AND DOCUMENTATION SHALL BE PROVIDED TO THE CITY.
19. THE OWNER OR OWNER'S REPRESENTATIVE, THE ESC MANAGER, THE GENERAL CONTRACTOR, AND THE GRADING SUBCONTRACTOR, IF DIFFERENT FROM THE GENERAL CONTRACTOR, MUST ATTEND THE PRECONSTRUCTION MEETING. IF ANY OF THE REQUIRED PARTICIPANTS FAIL TO ATTEND THE PRECONSTRUCTION MEETING, OR IF THE INSTALLATION OF THE INITIAL BMP's ARE NOT APPROVED BY THE CITY ESC INSPECTOR, THE APPLICANT WILL HAVE TO PAY A REINSPECTION FEE, ADDRESS ANY PROBLEMS WITH BMP INSTALLATION, AND CALL TO RESCHEDULE THE MEETING, WITH A CORRESPONDING DELAY IN THE START OF CONSTRUCTION. THE CITY STRONGLY ENCOURAGES THE APPLICANT TO HAVE THE ENGINEER OF RECORD AT THE PRECONSTRUCTION MEETING.
20. CONSTRUCTION SHALL NOT BEGIN UNTIL THE CITY ESC INSPECTOR APPROVES THE INSTALLATION OF THE INITIAL BMP's AND THE GRADING PERMIT IS OBTAINED FROM PUBLIC WORKS.
21. THE ESC MANAGER SHALL STRICTLY ADHERE TO THE APPROVED LIMITS OF CONSTRUCTION AT ALL TIMES. THE CITY OF COMMERCE CITY ENGINEERING DIVISION MUST APPROVE ANY CHANGES TO THE LIMITS OF CONSTRUCTION AND, AT THE DISCRETION OF THE ENGINEERING DIVISION, ADDITIONAL EROSION/SEDIMENT CONTROLS MAY BE REQUIRED IN ANY ADDITIONAL AREAS OF CONSTRUCTION.
22. NATURAL VEGETATION SHALL BE RETAINED AND PROTECTED WHEREVER POSSIBLE. EXPOSURE OF SOIL TO EROSION BY REMOVAL OR DISTURBANCE OF VEGETATION SHALL BE LIMITED TO THE AREA REQUIRED FOR IMMEDIATE CONSTRUCTION OPERATIONS.
23. A COPY OF THE GRADING PERMIT AND APPROVED PLANS SHALL BE ON SITE AT ALL TIMES.
24. THE ESC MANAGER SHALL BE RESPONSIBLE FOR ENSURING THAT THE SITE REMAINS IN COMPLIANCE AND SHALL BE THE PERMITTEE'S CONTACT PERSON WITH THE CITY FOR ALL MATTERS PERTAINING TO THE GRADING PERMIT. THE ESC MANAGER SHALL BE PRESENT AT THE SITE THE MAJORITY OF THE TIME AND SHALL BE AVAILABLE THROUGH A 24-HOUR CONTACT NUMBER.
25. THE ESC MANAGER IS RESPONSIBLE FOR CLEANUP OF SEDIMENT OR CONSTRUCTION DEBRIS TRACKED ONTO ADJACENT PAVED AREAS. PAVED AREAS, INCLUDING STREETS, ARE TO BE KEPT CLEAN THROUGHOUT BUILD-OUT AND SHALL BE CLEANED WITH A STREET SWEEPER OR SIMILAR DEVICE AT FIRST NOTICE OF ACCIDENTAL TRACKING OR AT THE DISCRETION OF THE CITY'S ESC INSPECTOR. STREET WASHING IS NOT ALLOWED. THE CITY RESERVES THE RIGHT TO REQUIRE ADDITIONAL MEASURES TO ENSURE AREA STREETS ARE KEPT FREE OF SEDIMENT AND/OR CONSTRUCTION DEBRIS.
26. THE APPROVED PLANS MAY REQUIRE CHANGES OR ALTERATIONS AFTER APPROVAL TO MEET CHANGING SITE OR PROJECT CONDITIONS OR TO ADDRESS INEFFICIENCIES IN DESIGN OR INSTALLATION. ALL CONSTRUCTION TRAFFIC MUST ENTER/EXIT THE SITE THROUGH THE CITY APPROVED ACCESS POINTS. A VEHICLE TRACKING CONTROL PAD IS REQUIRED AT ALL ACCESS POINTS ON THE SITE. ADDITIONAL STABILIZED CONSTRUCTION ENTRANCES MAY BE ADDED WITH AUTHORIZATION FROM THE COMMERCE CITY ENGINEERING DIVISION.
27. THE ESC MANAGER SHALL OBTAIN PRIOR APPROVAL FROM THE DESIGN ENGINEER AND COMMERCE CITY ENGINEERING DIVISION FOR ANY PROPOSED CHANGES.
28. NO PERMANENT EARTH SLOPES GREATER THAN 3:1 SHALL BE ALLOWED.
29. ANY SETTLEMENT OR SOIL ACCUMULATIONS BEYOND THE LIMITS OF CONSTRUCTION DUE TO GRADING OR EROSION SHALL BE REPAIRED IMMEDIATELY BY THE ESC MANAGER. THE ESC MANAGER SHALL BE HELD RESPONSIBLE FOR OBTAINING ACCESS RIGHTS TO ADJACENT PROPERTY, IF NEEDED, AND REMEDIATING ANY ADVERSE IMPACTS TO ADJACENT WATERWAYS, WETLANDS, PROPERTIES, ETC. RESULTING FROM WORK DONE AS PART OF THIS PROJECT.
30. SOILS THAT WILL BE STOCKPILED FOR MORE THAN THIRTY (30) DAYS SHALL BE SEEDED AND MULCHED WITHIN FOURTEEN (14) DAYS OF STOCKPILE CONSTRUCTION. NO STOCKPILES SHALL BE PLACED WITHIN ONE HUNDRED (100) FEET OF A DRAINAGE WAY UNLESS APPROVED BY THE COMMERCE CITY ENGINEERING DIVISION.
31. ALL CHEMICAL OR HAZARDOUS MATERIAL SPILLS WHICH MAY ENTER WATERS OF THE STATE OF COLORADO, WHICH INCLUDE BUT ARE NOT LIMITED TO, SURFACE WATER, GROUND WATER AND DRY GULLIES OR STORM SEWER LEADING TO SURFACE WATER, SHALL BE IMMEDIATELY REPORTED TO THE CDPHE PER CRS 25-8-601, AND COMMERCE CITY. RELEASES OF PETROLEUM PRODUCTS AND CERTAIN HAZARDOUS SUBSTANCES LISTED UNDER THE FEDERAL CLEAN WATER ACT (40 CFR PART 116) MUST BE REPORTED TO THE NATIONAL RESPONSE CENTER, SOUTH ADAMS COUNTY WATER AND SANITATION DISTRICT AS WELL AS THE CDPHE. SPILLS THAT POSE AN IMMEDIATE RISK TO HUMAN LIFE SHALL BE REPORTED TO 911. FAILURE TO REPORT AND CLEAN UP ANY SPILL SHALL RESULT IN ISSUANCE OF A STOP WORK ORDER.
32. THE CLEANING OF CONCRETE DELIVERY TRUCK CHUTES IS RESTRICTED TO APPROVED CONCRETE WASH OUT LOCATIONS ON THE JOB SITE. THE DISCHARGE OF WATER CONTAINING WASTE CONCRETE TO THE STORM SEWER SYSTEM IS PROHIBITED. ALL CONCRETE WASTE SHALL BE PROPERLY CLEANED UP AND DISPOSED AT AN APPROPRIATE LOCATION.
33. COMMERCE CITY DOES NOT ALLOW HAY BALES AS A FORM OF EROSION AND SEDIMENT CONTROL.
34. ONCE THE SITE HAS REACHED FINAL STABILIZATION, A FINAL INSPECTION SHALL BE SCHEDULED WITH THE CITY'S ESC INSPECTOR. A CERTIFICATE OF OCCUPANCY WILL NOT BE ISSUED AND/OR THE GRADING BOND WILL NOT BE RELEASED UNTIL THE CITY'S ESC INSPECTOR APPROVES FINAL STABILIZATION.

BMP LEGEND

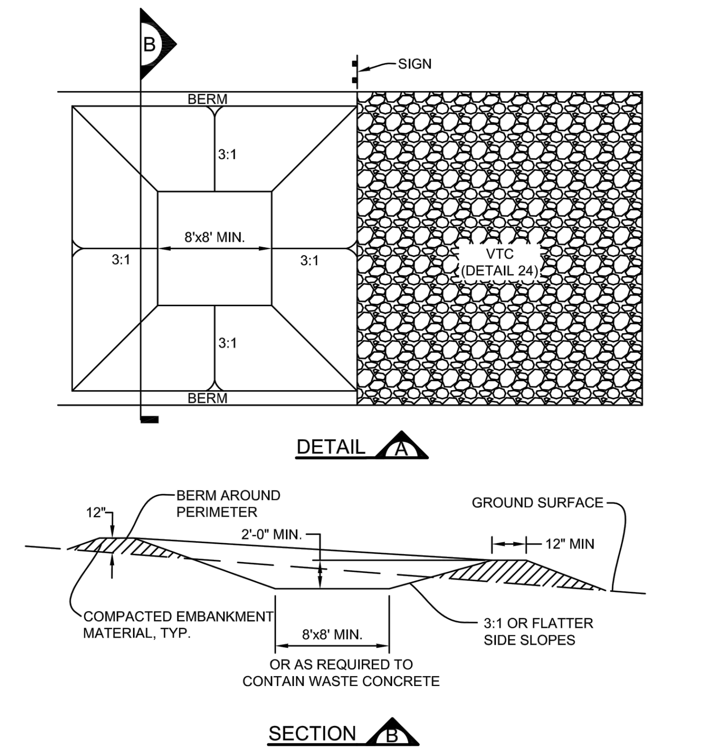
DETAIL NO.	SHEET NO.		BMP LEGEND
1	2	CD	CHECK DAM
2	2	CB	COMPOST BLANKET
3	2	CFB	COMPOST FILTER BERM
4	3	CWA	CONCRETE WASHOUT AREA
5	3	CF	CONSTRUCTION FENCE
6	3	CM	CONSTRUCTION MARKERS
7	4	DW	DEWATERING
8	4	DD	DIVERSION DITCH
9	5	ECB	EROSION CONTROL BLANKET
10	6	IP	INLET PROTECTION
11	7	RCD	REINFORCED CHECK DAM
12	7	RRB	REINFORCED ROCK BERM
13	7	RRC	RRB FOR CULVERT PROTECTION
14	8	SB	SEDIMENT BASIN
15	9	SCL	SEDIMENT CONTROL LOG
16	9	ST	SEDIMENT TRAP
17	10	SM	SEEDING AND MULCHING
18	11	SF	SILT FENCE
19	11	SSA	STABILIZED STAGING AREA
20	11	SR	SURFACE ROUGHENING
21	12	TSD	TEMPORARY SLOPE DRAIN
22	12	TSC	TEMPORARY STREAM CROSSING
23	13	TER	TERRACING
24	13	VTC	VEHICLE TRACKING CONTROL
25	13	WW	VTC WITH WHEEL WASH
	14		ROCK AND RIPRAP GRADATIONS
		LOC	LIMITS OF CONSTRUCTION

COMPUTER FILE INFORMATION	
Creation Date: 03/10/2016	Initials: CJC
Last Modification Date: 5/4/2016	Initials: CJC
Full Path: WWW.C3GOV.COM	
Drawing Name: $FILES$	
Scale: $SCALESHORT$	Units: ENGLISH

APPROVAL — CITY ENGINEER 05-27-16 DATE

CITY OF COMMERCE CITY
Department of Public Works
8602 Rosemary St.
Commerce City, CO 80022
Ph: 303-289-8150

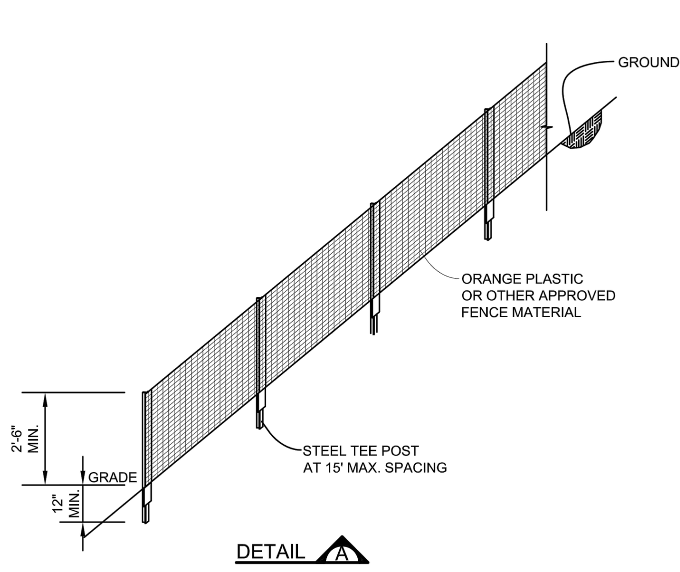
EROSION & SEDIMENT CONTROL
ENGINEERING CONSTRUCTION STANDARDS
DETAIL NO. 800-01
Sheet No. 1 of 14



CONCRETE WASHOUT AREA INSTALLATION NOTES
1. SEE PLAN VIEW FOR:
   - LOCATIONS OF CONCRETE WASHOUT AREA.
2. THE CONCRETE WASHOUT AREA SHALL BE INSTALLED PRIOR TO ANY CONCRETE PLACEMENT ON SITE.
3. VEHICLE TRACKING CONTROL (DETAIL 24) IS REQUIRED AT THE ACCESS POINT.
4. SIGNS SHALL BE PLACED AT THE CONSTRUCTION ENTRANCE, AT THE WASHOUT AREA, AND ELSEWHERE AS NECESSARY TO CLEARLY INDICATE THE LOCATION OF THE CONCRETE WASHOUT AREA TO OPERATORS OF CONCRETE TRUCKS AND PUMP RIGS.
5. EXCAVATED MATERIAL SHALL BE UTILIZED IN PERIMETER BERM CONSTRUCTION.

CONCRETE WASHOUT AREA MAINTENANCE NOTES
1. THE CONCRETE WASHOUT AREA SHALL BE REPAIRED AND ENLARGED OR CLEANED OUT AS NECESSARY TO MAINTAIN CAPACITY FOR WASTED CONCRETE.
2. AT THE END OF CONSTRUCTION, ALL CONCRETE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF AT AN APPROVED WASTE SITE.
3. WHEN THE CONCRETE WASHOUT AREA IS REMOVED, THE DISTURBED AREA SHALL BE DRILL SEEDED AND CRIMP MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE CITY.
4. INSPECT WEEKLY, DURING AND AFTER ANY STORM EVENT.

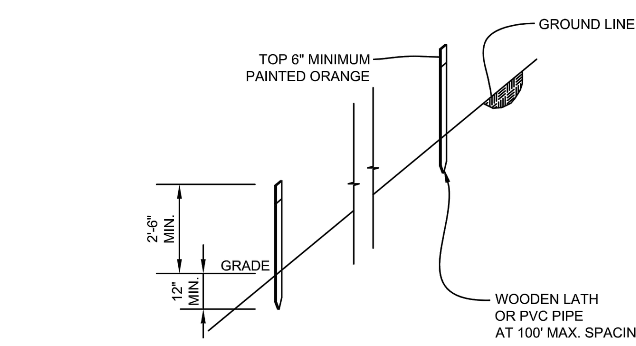
CWA CONCRETE WASHOUT AREA (4)



CONSTRUCTION FENCE INSTALLATION NOTES
1. SEE PLAN VIEW FOR:
   - TYPE OF CONSTRUCTION LIMIT INDICATOR (FENCE OR MARKERS).
   - LOCATION AND LENGTH OF FENCE OR LINE OF MARKERS.
2. CONSTRUCTION FENCE OR MARKERS INDICATED ON INITIAL ESC PLAN SHALL BE INSTALLED PRIOR TO OTHER BMPS AND ANY LAND-DISTURBING ACTIVITIES.
3. STEEL TEE POSTS SHALL BE UTILIZED FOR SUPPORT OF CONSTRUCTION FENCE. MAXIMUM SPACING FOR TEE POSTS SHALL BE 15'.

CONSTRUCTION FENCE MAINTENANCE NOTES
1. ANY DAMAGED FENCE OR MARKERS SHALL BE REPAIRED ON A DAILY BASIS.
2. FENCE OR MARKERS SHALL BE REMOVED AT THE END OF CONSTRUCTION. IF ANY DISTURBED AREA EXISTS AFTER FENCE REMOVAL, IT SHALL BE DRILL SEEDED AND CRIMP MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE CITY.

CF CONSTRUCTION FENCE (5)



(ALTERNATIVE TO CONSTRUCTION FENCE)

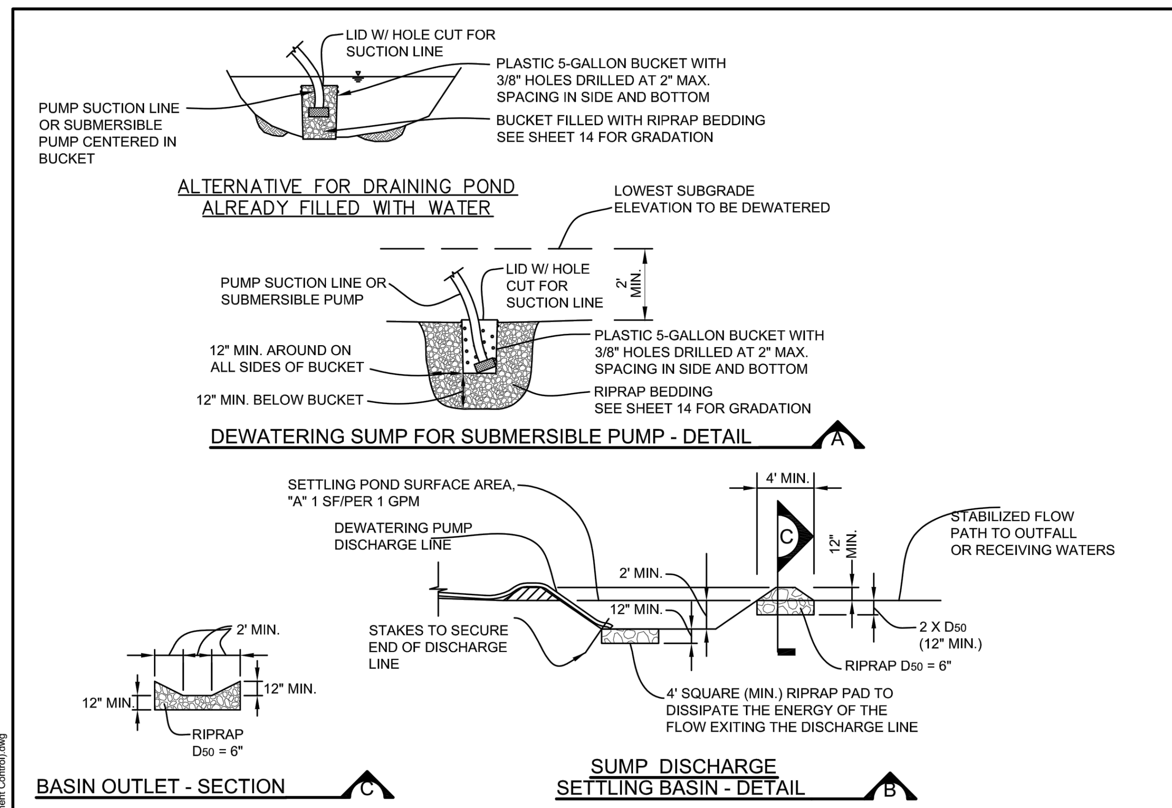
CM CONSTRUCTION MARKERS (6)

COMPUTER FILE INFORMATION	
Creation Date: 03/10/2016	Initials: CJC
Last Modification Date: 5/4/2016	Initials: CJC
Full Path: WWW.C3GOV.COM	
Drawing Name: $FILES$	
Scale: $SCALESHORT$	Units: ENGLISH

APPROVAL — CITY ENGINEER 05-27-16 DATE

CITY OF COMMERCE CITY
Department of Public Works
8602 Rosemary St.
Commerce City, CO 80022
Ph: 303-289-8150

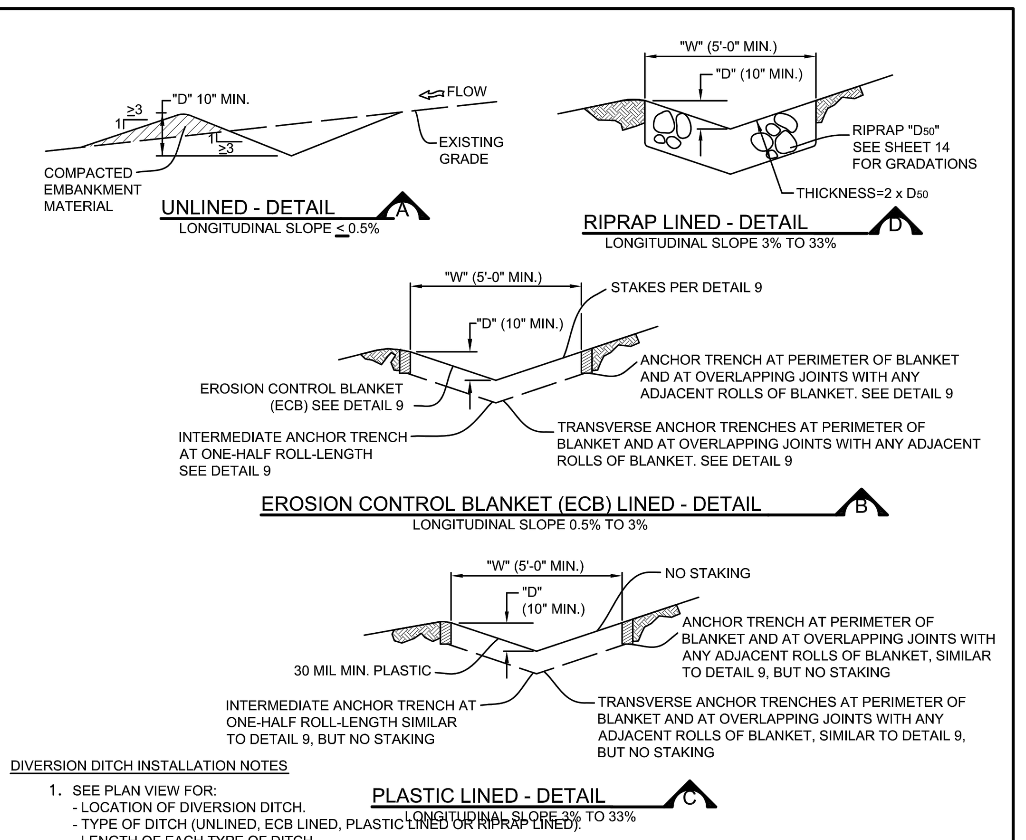
EROSION & SEDIMENT CONTROL
ENGINEERING CONSTRUCTION STANDARDS
DETAIL NO. 800-03
Sheet No. 3 of 14



DEWATERING INSTALLATION NOTES
1. THE ESC MANAGER SHALL OBTAIN A CONSTRUCTION DISCHARGE (DEWATERING) PERMIT FROM THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT PRIOR TO ANY DEWATERING OPERATIONS. ALL DEWATERING SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE DISCHARGE PERMIT AND SHALL BE COORDINATED WITH THE CITY ESC INSPECTOR.
2. THE ESC MANAGER SHALL PROVIDE, OPERATE, AND MAINTAIN DEWATERING SYSTEMS OF SUFFICIENT SIZE AND CAPACITY TO PERMIT EXCAVATION AND SUBSEQUENT CONSTRUCTION IN DRY CONDITIONS AND TO LOWER AND MAINTAIN THE GROUNDWATER LEVEL A MINIMUM OF 2-FEET BELOW THE LOWEST POINT OF EXCAVATION AND CONTINUOUSLY MAINTAIN EXCAVATIONS FREE OF WATER UNTIL BACKFILLED TO FINAL GRADE.
3. DEWATERING OPERATIONS SHALL USE ONE OR MORE OF THE DEWATERING SUMPS SHOWN ABOVE OR OTHER MEANS APPROVED BY THE CITY TO REDUCE THE PUMPING OF SEDIMENT, AND SHALL PROVIDE A TEMPORARY BASIN FOR SETTLING PUMPED DISCHARGES PRIOR TO RELEASE OFF SITE OR TO A RECEIVING WATER. SEDIMENT BASIN PER DETAIL 14 MAY BE USED IN LIEU OF SUMP DISCHARGE SETTLING BASIN SHOWN ABOVE.
4. A 4' SQUARE RIPRAP PAD SHALL BE PLACED AT DISCHARGE POINT.
5. THE DISCHARGE END OF THE LINE SHALL BE STAKED IN PLACES TO PREVENT MOVEMENT OF RIPRAP PAD.

DEWATERING MAINTENANCE NOTES
1. THE ESC MANAGER SHALL INSPECT DEWATERING SYSTEMS AND PERFORM ANY NECESSARY REPAIRS OR MAINTENANCE ON A HOURLY BASIS.
2. TEMPORARY SETTLING BASINS SHALL BE REMOVED WHEN NO LONGER NEEDED FOR DEWATERING OPERATIONS. ANY DISTURBED AREA SHALL BE DRILL SEEDED AND CRIMP MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE CITY.

DW DEWATERING (7)



DIVERSION DITCH INSTALLATION NOTES
1. SEE PLAN VIEW FOR:
   - LOCATION OF DIVERSION DITCH.
   - TYPE OF DITCH (UNLINED, ECB LINED, PLASTIC LINED OR RIPRAP LINED).
   - LENGTH OF EACH TYPE OF DITCH.
   - DEPTH, "D", AND WIDTH, "W" DIMENSIONS.
   - FOR ECB LINED DITCH, EROSION CONTROL BLANKET TYPE (SEE DETAIL 9).
   - FOR RIPRAP LINED DITCH, SIZE OF RIPRAP, "D50".
2. SEE DRAINAGE PLANS FOR DETAILS OF ANY PERMANENT CONVEYANCE FACILITIES OR DIVERSION DITCHES EXCEEDING A 2-YEAR FLOW RATE OF 10 CFS.
3. DIVERSION DITCHES INDICATED ON INITIAL ESC PLAN SHALL BE INSTALLED PRIOR TO ANY LAND-DISTURBING ACTIVITIES.
4. FOR ECB LINED DITCHES, INSTALLATION OF EROSION CONTROL BLANKET SHALL CONFORM TO THE REQUIREMENTS OF DETAIL 9.
5. IN LOCATIONS WHERE CONSTRUCTION TRAFFIC MUST CROSS A DIVERSION DITCH, THE PERMITTEES SHALL INSTALL A TEMPORARY CULVERT WITH A MINIMUM DIAMETER OF 12-INCHES.

DIVERSION DITCH MAINTENANCE NOTES
1. THE ESC MANAGER SHALL INSPECT DIVERSION DITCHES WEEKLY, DURING AND AFTER ANY STORM EVENT AND MAKE REPAIRS OR CLEAN OUT AS NECESSARY.
2. DIVERSION DITCHES ARE TO REMAIN IN PLACE UNTIL THE END OF CONSTRUCTION, OR, IF APPROVED BY THE CITY, LEFT IN PLACE.
3. IF DIVERSION DITCHES ARE REMOVED, THE DISTURBED AREA SHALL BE DRILL SEEDED AND CRIMP MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE CITY.

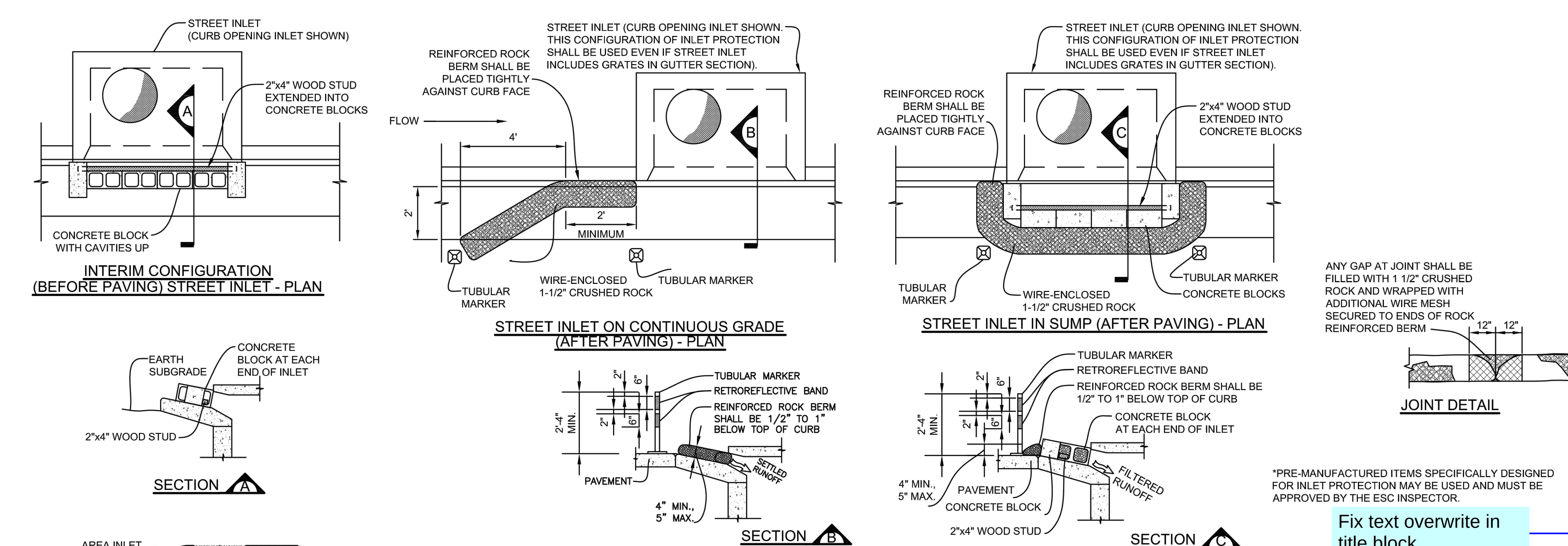
DD DIVERSION DITCH (8)

COMPUTER FILE INFORMATION	
Creation Date: 03/10/2016	Initials: CJC
Last Modification Date: 5/4/2016	Initials: CJC
Full Path: WWW.C3GOV.COM	
Drawing Name: $FILES$	
Scale: $SCALESHORT$	Units: ENGLISH

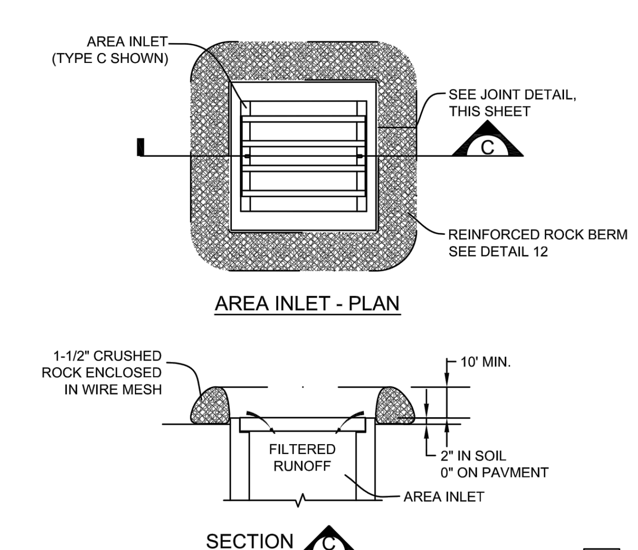
APPROVAL — CITY ENGINEER 05-27-16 DATE

CITY OF COMMERCE CITY
Department of Public Works
8602 Rosemary St.
Commerce City, CO 80022
Ph: 303-289-8150

EROSION & SEDIMENT CONTROL
ENGINEERING CONSTRUCTION STANDARDS
DETAIL NO. 800-04
Sheet No. 4 of 14



*PRE-MANUFACTURED ITEMS SPECIFICALLY DESIGNED FOR INLET PROTECTION MAY BE USED AND MUST BE APPROVED BY THE ESC INSPECTOR.



INLET PROTECTION INSTALLATION NOTES
1. INTERIM CONFIGURATION OF INLET PROTECTION IN STREETS SHALL BE INSTALLED WITHIN 48-HOURS OF POURING INLET. INLET PROTECTION (AFTER PAVEMENT) SHALL BE INSTALLED WITHIN 48 HOURS AFTER PAVING IS PLACED.
2. INLET PROTECTION AT AREA INLETS SHALL BE INSTALLED WITHIN 48-HOURS OF POURING INLET.
3. CRUSHED ROCK SHALL BE FRACTURED FACE (ALL SIDES) AND SHALL COMPLY WITH GRADATION SHOWN ON SHEET 14 (1-1/2" MINUS). RECYCLED CONCRETE MEETING THIS GRADATION MAY BE USED.
4. WIRE MESH SHALL BE FABRICATED OF 10 GAUGE WIRE TWISTED INTO A MESH WITH A MAXIMUM OPENING OF 1.0 INCH (COMMONLY TERMED "CHICKEN WIRE"). ROLL WIDTH SHALL BE 48-INCHES.
5. WIRE MESH SHALL BE SECURED USING "HOG RINGS" OR WIRE TIES AT 6-INCH CENTERS ALONG ALL JOINTS AND AT 2-INCH CENTERS ON ENDS OF BERM.
6. REINFORCED ROCK BERM SHALL BE CONSTRUCTED IN ONE PIECE OR SHALL BE CONSTRUCTED USING JOINT DETAIL.
7. TUBULAR MARKERS SHALL MEET REQUIREMENTS OF MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), AS AMENDED.
8. THE TOP OF REINFORCED ROCK BERM SHALL BE 1/2"-1" BELOW TOP OF CURB.

INLET PROTECTION MAINTENANCE NOTES
1. THE ESC MANAGER SHALL INSPECT INLET PROTECTION WEEKLY, DURING AND AFTER ANY STORM EVENT AND MAKE REPAIRS OR CLEAN OUT AS NECESSARY. MORE FREQUENT INSPECTIONS AND REPAIRS SHALL BE REQUIRED DURING WINTER CONDITIONS DUE TO FREEZE/THAW PROBLEMS.
2. SEDIMENT ACCUMULATED UPSTREAM OF INLET PROTECTION SHALL BE REMOVED WHEN THE SEDIMENT DEPTH UPSTREAM OF ROCK BERM IS WITHIN 2-1/2 INCHES OF THE CREST.
3. INLET PROTECTION IS TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND GRASS COVER IS APPROVED, UNLESS THE CITY APPROVES EARLIER REMOVAL OF INLET PROTECTION IN STREETS.
4. WHEN INLET PROTECTION AT AREA INLETS ARE REMOVED, THE DISTURBED AREA SHALL BE DRILL SEEDED AND CRIMP MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE CITY.

IP INLET PROTECTION (10)

COMPUTER FILE INFORMATION	
Creation Date: 03/10/2016	Initials: CJC
Last Modification Date: 5/4/2016	Initials: CJC
Full Path: WWW.C3GOV.COM	
Drawing Name: $FILES$	
Scale: $SCALESHORT$	Units: ENGLISH

APPROVAL — CITY ENGINEER 05-27-16 DATE

CITY OF COMMERCE CITY
Department of Public Works
8602 Rosemary St.
Commerce City, CO 80022
Ph: 303-289-8150

EROSION & SEDIMENT CONTROL
ENGINEERING CONSTRUCTION STANDARDS
DETAIL NO. 800-06
Sheet No. 6 of 14

Fix text overwrite in title block.

811 Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 SOUTH SYRACUSE WAY, SUITE 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

CLIENT
COHEN DENVER AIRPORT, LLC
LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
GRADING,CONSTRUCTION DOCUMENTS, EROSION CONTROL PLANS
GESC DETAILS

DATE 3/22/2021

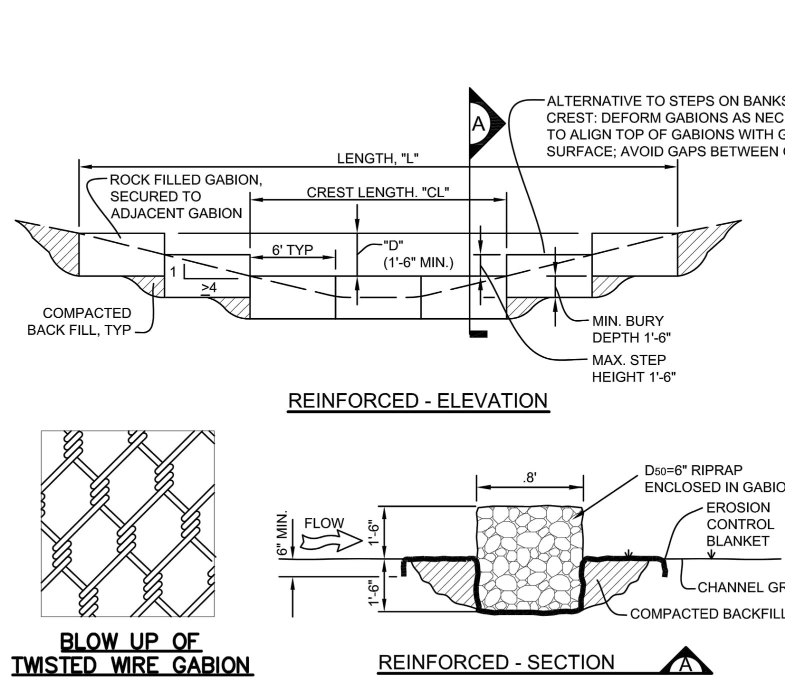
A	1ST SUBMITTAL TO COMMERCE CITY 08/14/2020 - DJM
B	2ND SUBMITTAL TO COMMERCE CITY 03/18/2021 - DJM

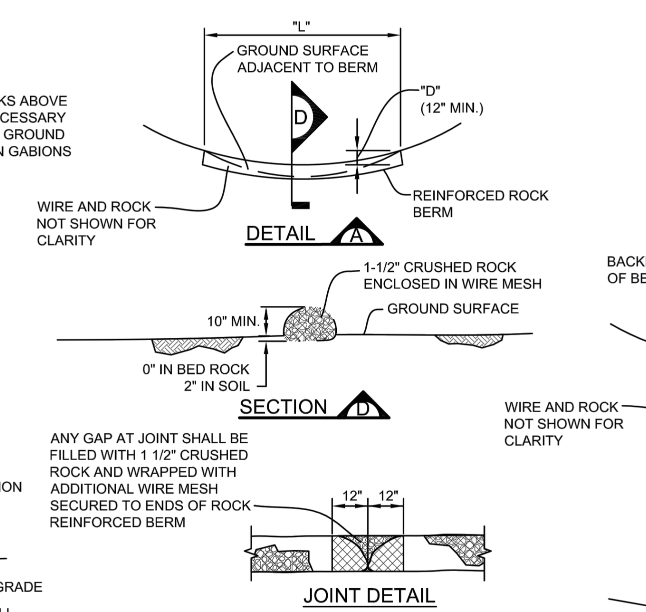
REVISIONS

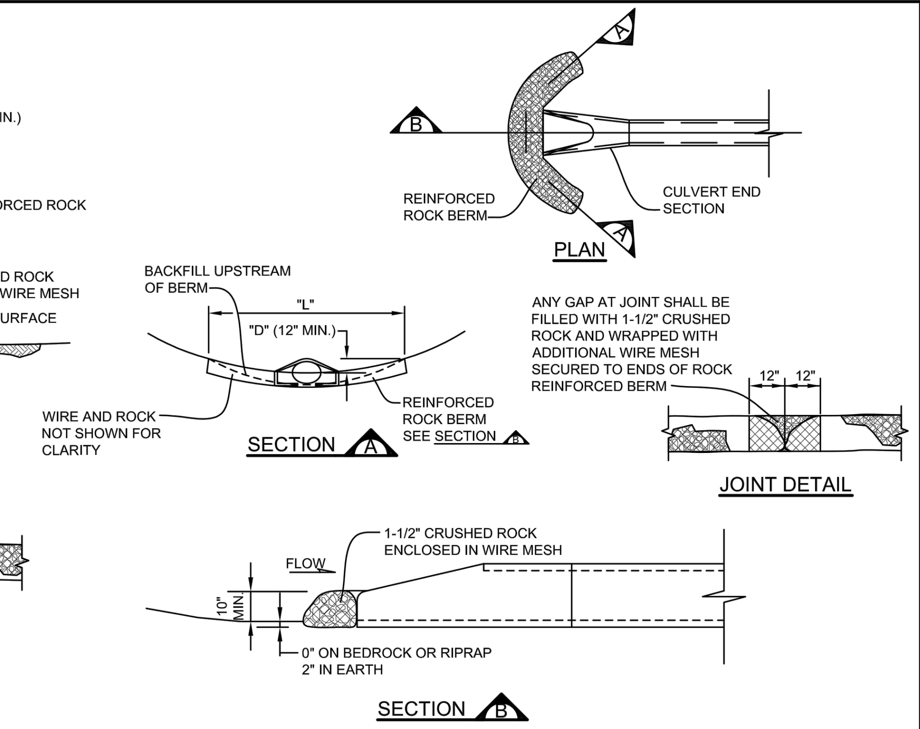
PLANS UNDER REVIEW NOT FOR CONSTRUCTION

DR. JRB | CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 10

CAD FILE: 19002561-GESC-DETAILS.DWG







REINFORCED CHECK DAM INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   - LOCATIONS OF CHECK DAMS.
   - CHECK DAM TYPE (CHECK DAM OR REINFORCED CHECK DAM).
   - LENGTH, "L", CREST LENGTH, "CL", AND DEPTH, "D".
2. CHECK DAMS INDICATED ON INITIAL ESC PLAN SHALL BE INSTALLED AFTER CONSTRUCTION FENCE, BUT PRIOR TO ANY UPSTREAM LAND-DISTURBING ACTIVITIES.
3. REINFORCED CHECK DAMS, GABIONS SHALL HAVE GALVANIZED TWISTED WIRE NETTING WITH A MAXIMUM OPENING DIMENSION OF 4-1/2" AND A MINIMUM WIRE THICKNESS OF 0.10". WIRE "HOG RINGS" AT 4" SPACING OR OTHER APPROVED MEANS SHALL BE USED AT ALL GABION SEAMS AND TO SECURE THE GABION TO THE ADJACENT GABION.
4. RIPRAP UTILIZED FOR CHECK DAMS SHALL HAVE A D MEDIAN STONE SIZE OF 6".
5. THE CHECK DAM SHALL BE TRENCHED INTO THE GROUND A MINIMUM OF 1'-6".
6. EROSION BLANKET SHALL BE PLACED IN THE REINFORCED CHECK DAM TRENCH EXTENDING A MINIMUM OF 1'-6" ON BOTH THE UPSTREAM AND DOWNSTREAM SIDES OF THE REINFORCED CHECK DAM.

REINFORCED CHECK DAM MAINTENANCE NOTES

1. THE ESC MANAGER SHALL INSPECT CHECK DAMS WEEKLY, DURING AND AFTER ANY STORM EVENT AND MAKE REPAIRS OR CLEAN OUT AS NECESSARY.
2. SEDIMENT ACCUMULATED UPSTREAM OF CHECK DAMS SHALL BE REMOVED WHEN THE SEDIMENT DEPTH UPSTREAM OF CHECK DAM IS WITHIN 1/2 OF THE HEIGH OF THE CREST.
3. CHECK DAMS ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND GRASS COVER IS APPROVED BY THE CITY.
4. WHEN CHECK DAMS ARE REMOVED, EXCAVATIONS SHALL BE FILLED WITH SUITABLE COMPACTED BACK FILL. ANY DISTURBED AREA SHALL BE DRILL SEEDED AND CRIMP MULCHED AND COVERED WITH EROSION CONTROL BLANKET OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE CITY.

RCD REINFORCED CHECK DAM 11

REINFORCED ROCK BERM INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   - LOCATIONS OF REINFORCED ROCK BERMS.
   - LENGTH, "L", AND DEPTH, "D" DIMENSIONS.
2. REINFORCED ROCK BERM SECTION APPLIES TO CULVERT INLET FILTER AND INLET PROTECTION.
3. CRUSHED ROCK SHALL BE FRACTURED FACE (ALL SIDES) AND SHALL COMPLY WITH GRADATION SHOWN ON SHEET 14 (1-1/2" MINUS). RECYCLED CONCRETE MEETING THIS GRADATION MAY BE USED.
4. WIRE MESH SHALL BE FABRICATED OF 10 GAUGE WIRE TWISTED INTO A MESH WITH A MAXIMUM OPENING OF 1.0 INCH (COMMONLY TERMED "CHICKEN WIRE"). ROLL WIDTH SHALL BE 48-INCHES.
5. WIRE MESH SHALL BE SECURED USING "HOG RINGS" OR WIRE TIES AT 6-INCH CENTERS ALONG ALL JOINTS AND AT 2-INCH CENTERS ON ENDS OF BERM.
6. FOR CONCENTRATED FLOW AREAS THE ENDS OF THE REINFORCED ROCK BERM SHALL BE 12" HIGHER THAN THE CENTER OF THE BERM.

REINFORCED ROCK BERM MAINTENANCE NOTES

1. THE ESC MANAGER SHALL INSPECT REINFORCED ROCK BERM WEEKLY, DURING AND AFTER ANY STORM EVENT AND MAKE REPAIRS OR CLEAN OUT AS NECESSARY.
2. SEDIMENT ACCUMULATED UPSTREAM OF REINFORCED ROCK BERM SHALL BE REMOVED WHEN THE SEDIMENT DEPTH UPSTREAM OF FILTER IS WITHIN 5 INCHES OF THE CREST.
3. REINFORCED ROCK BERMS ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND GRASS COVER IS APPROVED.
4. WHEN REINFORCED ROCK BERMS ARE REMOVED, ANY DISTURBED AREA SHALL BE DRILL SEEDED AND CRIMP MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE CITY.

RRB REINFORCED ROCK BERM 12

INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   - LOCATIONS OF CULVERT INLET FILTERS.
   - LENGTH, "L", AND DEPTH, "D".
2. CRUSHED ROCK SHALL BE FRACTURED FACE (ALL SIDES) AND SHALL COMPLY WITH GRADATION SHOWN ON SHEET 14 (1-1/2" MINUS). RECYCLED CONCRETE MEETING THIS GRADATION MAY BE USED.
3. WIRE MESH SHALL BE FABRICATED OF 10 GAUGE WIRE TWISTED INTO A MESH WITH A MAXIMUM OPENING OF 1.0 INCH (COMMONLY TERMED "CHICKEN WIRE").
4. WIRE MESH SHALL BE SECURED USING "HOG RINGS" OR WIRE TIES AT 6-INCH CENTERS ALONG ALL JOINTS AND AT 2-INCH CENTERS ON ENDS OF BERM.
5. THE ENDS OF THE REINFORCED ROCK BERM SHALL BE 12" HIGHER THAN THE CENTER OF THE BERM.

MAINTENANCE NOTES

1. THE ESC MANAGER SHALL INSPECT CULVERT INLET FILTER WEEKLY, DURING AND AFTER ANY STORM EVENT AND MAKE REPAIRS OR CLEAN OUT AS NECESSARY.
2. SEDIMENT ACCUMULATED UPSTREAM OF CULVERT INLET FILTER SHALL BE REMOVED WHEN THE SEDIMENT DEPTH UPSTREAM OF FILTER IS 1/2 THE HEITH OF THE REINFORCED ROCK BERM.
3. RRB FOR CULVERT PROTECTION ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND GRASS COVER IS APPROVED BY THE CITY.
4. WHEN CULVERT INLET FILTERS ARE REMOVED, ANY DISTURBED AREA SHALL BE DRILL SEEDED AND CRIMP MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE CITY.

RRC RRB FOR CULVERT PROTECTION 13

S:\Tranproj\100049520 - Commerce City Engineering Standards\Design\Drawings\Reference_Files\CCC DWGs\800-01 thru 800-07 (Erosion & Sediment Control).dwg

COMPUTER FILE INFORMATION		APPROVAL	CITY OF COMMERCE CITY	EROSION & SEDIMENT CONTROL	DETAIL NO.
Creation Date: 03/10/2016	Initials: CJC		Department of Public Works		800-07
Last Modification Date: 5/4/2016	Initials: CJC		8602 Rosemary St.		
Full Path: WWW.C3GOV.COM		05-27-16	Commerce City, CO 80022		
Drawing Name: $FILES$		CITY ENGINEER / DATE	Ph: 303-289-8150	ENGINEERING CONSTRUCTION STANDARDS	Sheet No. 7 of 14
Scale: $SCALESHORT$	Units: ENGLISH				

SEEDING AND MULCHING INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   - AREA OF SEEDING AND MULCHING.
   - TYPE OF SEED MIX (PERMANENT, TEMPORARY, OR LOW-GROWTH).
2. ALL BRANDS FURNISHED SHALL BE FREE FROM SUCH NOXIOUS SEEDS AS RUSSIAN OR CANADIAN THISTLE, COARSE FESCUE, EUROPEAN BINDWEED, JOHNSON GRASS, KNAP WEED AND LEAFY SPURGE.
3. THE SEEDER SHALL FURNISH TO THE CONTRACTOR A SIGNED STATEMENT CERTIFYING THAT THE SEED FURNISHED IS FROM A LOT THAT HAS BEEN TESTED BY A RECOGNIZED LABORATORY. SEED WHICH HAS BECOME WET, MOLDY, OR OTHERWISE DAMAGED IN TRANSIT OR IN STORAGE WILL NOT BE ACCEPTABLE. SEED TICKETS SHALL BE PROVIDED TO THE CITY UPON REQUEST.
4. DRILL SEEDING MIX SHALL CONFORM TO THE TABLE ON THE RIGHT:
5. IF THE SEED AVAILABLE ON THE MARKET DOES NOT MEET THE MINIMUM PURITY AND GERMINATION PERCENTAGES SPECIFIED, THE SUBCONTRACTOR MUST COMPENSATE FOR A LESSER PERCENTAGE OF PURITY OR GERMINATION BY FURNISHING SUFFICIENT ADDITIONAL SEED TO EQUAL THE SPECIFIED PRODUCT. THE TAGS FROM THE SEED MIXES MUST BE SUPPLIED TO CONTRACTOR AND FORWARDED TO THE CITY INSPECTOR.
6. THE FORMULA USED FOR DETERMINING THE QUANTITY OF PURE LIVE SEED (PLS) SHALL BE (POUNDS OF SEED) X (PURITY) X (GERMINATION) = POUNDS OF PURE LIVE SEED (PLS).
7. PERMANENT SEED MIX SHALL BE USED UNLESS OTHERWISE APPROVED BY THE CITY.
8. ALL AREAS TO BE SEEDED AND MULCHED SHALL HAVE NATIVE TOPSOIL OR APPROVED SOIL AMENDMENTS SPREAD TO A DEPTH OF AT LEAST 6 INCHES (LOOSE DEPTH). HAUL ROADS AND OTHER COMPACTED AREAS SHALL BE LOOSENED TO A DEPTH OF 6 INCHES PRIOR TO SPREADING TOPSOIL.
9. SOIL IS TO BE THOROUGHLY LOOSENED (TILLED) TO A DEPTH OF AT LEAST 6 INCHES PRIOR TO SEEDING. THE TOP 6 INCHES OF THE SEED BED SHALL BE FREE OF ROCKS GREATER THAN 4 INCHES AND SOIL CLODS GREATER THAN 2 INCHES. SEEDING OVER ANY COMPACTED AREAS THAT HAVEN'T BEEN THOROUGHLY LOOSENED SHALL BE REJECTED.
10. SEED IS TO BE APPLIED USING A MECHANICAL DRILL TO A DEPTH OF 1/4 INCH. ROW SPACING SHALL BE NO MORE THAN 6 INCHES. MATERIAL USED FOR MULCH SHALL CONSIST OF LONG-STEMMED STRAW. AT LEAST 50 PERCENT OF THE MULCH, BY WEIGHT, SHALL BE 10 INCHES OR MORE IN LENGTH. MULCH SHALL BE APPLIED AND MECHANICALLY ANCHORED TO A DEPTH OF AT LEAST 2 INCHES. MULCH SHALL BE APPLIED AT A RATE OF 4000 LB. OF STRAW PER ACRE.
11. IF THE PERMITTEE DEMONSTRATES TO THE CITY THAT IT IS NOT POSSIBLE TO DRILL SEED, SEED IS TO BE UNIFORMLY BROADCAST AT TWO TIMES THE DRILLED RATE, THEN LIGHTLY HARROWED TO PROVIDE A SEED DEPTH OF APPROXIMATELY 1/4 INCH, THEN ROLLED TO COMPACT, THEN MULCHED AS SPECIFIED ABOVE.
12. SEEDING AND MULCHING SHALL BE COMPLETED WITHIN 30 DAYS OF INITIAL EXPOSURE OR 7 DAYS AFTER GRADING IS SUBSTANTIALLY COMPLETE IN A GIVEN AREA (AS DEFINED BY THE CITY. THIS MAY REQUIRE MULTIPLE MOBILIZATIONS FOR SEEDING AND MULCHING.
13. MULCH SHALL BE APPLIED WITHIN 24-HOURS OF SEEDING.
14. TACKIFIER SHOULD BE UTILIZED TO HELP WITH STRAW DISPLACEMENT.

SEEDING AND MULCHING MAINTENANCE NOTES

1. SEEDED AND MULCHED AREAS SHALL BE INSPECTED FOR REQUIRED COVERAGE MONTHLY FOR A PERIOD OF TWO YEARS FOLLOWING INITIAL SEEDING. REPAIRS AND RE-SEEDING AND MULCHING SHALL BE UNDERTAKEN AFTER THE FIRST GROWING SEASON FOR ANY AREAS FAILING TO MEET THE REQUIRED COVERAGE.
2. REQUIRED COVERAGE FOR STANDARD, OPEN SPACE AND LOW GROWTH SEED MIXES SHALL BE DEFINED AS FOLLOWS:
   1. THREE (3) PLANTS PER SQUARE FOOT WITH A MINIMUM HEIGHT OF 3 INCHES. THE 3 PLANTS PER SQUARE FOOT SHALL BE OF THE VARIETY AND SPECIES FOUND IN THE CITY APPROVED MIX.
   2. NO BARE AREAS LARGER THAN 4 SQUARE FEET (TWO-FEET BY TWO-FEET OR EQUIVALENT).
   3. FREE OF ERODED AREAS.
   4. FREE FROM INFESTATION OF NOXIOUS WEEDS IN ACCORDANCE WITH SECTION 6.4 OF THE GESC CRITERIA MANUAL.
3. REQUIRED COVERAGE FOR TURF GRASS AREAS SHALL BE DEFINED AS FOLLOWS:
   1. AT LEAST 80% VEGETATIVE COVER OF GRASS SPECIES PLANTED.
   2. NO BARE AREAS LARGER THAN 4 SQUARE FEET (TWO-FEET BY TWO-FEET OR EQUIVALENT).
   3. FREE OF ERODED AREAS.
   4. FREE FROM INFESTATION OF NOXIOUS WEEDS IN ACCORDANCE WITH SECTION 6.4 OF THE GESC CRITERIA MANUAL.
4. RILL AND GULLY EROSION SHALL BE FILLED WITH TOPSOIL PRIOR TO RESEEDING. THE RESEEDING METHOD SHALL BE APPROVED BY THE CITY.

PERMANENT DRILL SEEDING MIX

SPECIES	VARIETY	NOTES	% IN MIX	POUNDS OF PLS PER ACRE
BIG BLUESTEM	KAW	PNWS	10	1.1
YELLOW INDIANGRASS	CHEYENNE	PNWS	10	1
SWITCHGRASS	BLACKWELL	PNWS	10	0.4
SIDEOATS GRAMA	VAUGHN	PNWB	10	0.9
WESTERN WHEATGRASS	ARRIBA	PNCS	10	1.6
BLUE GRAMA	HACHITA	PNWB	10	0.3
THICKSPIKE WHEATGRASS	CRITANA	PNCS	10	1
PRAIRIE SANDREED	GOSHEN	PNWS	10	0.7
GREEN NEEDLEGRASS	LODORM	PNCB	10	1
SLENDER WHEATGRASS	PRYOR	PNCB	5	0.6
STREAMBANK WHEATGRASS	SODAR	PNCS	5	0.6
			TOTAL	9.2

TEMPORARY DRILL SEEDING MIX

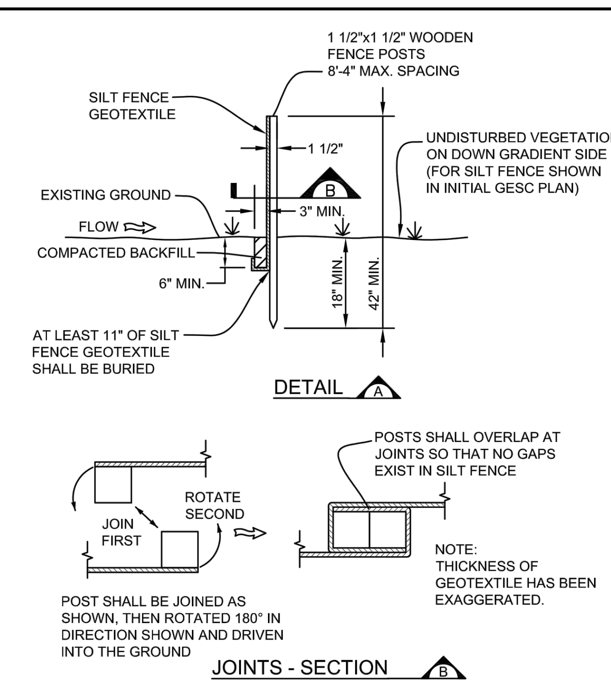
SPECIES	VARIETY	NOTES	% IN MIX	POUNDS OF PLS PER ACRE
SMOOTH BROMEGRASS	LINCOLN	PICS	30	3.9
INTERMEDIATE WHEATGRASS	OAHE	PICS	30	4.5
PUBESCENT WHEATGRASS	LUNA	PICS	30	4.2
ANNUAL RYEGRASS	N/A	AICB	10	0.8
			TOTAL	13.4

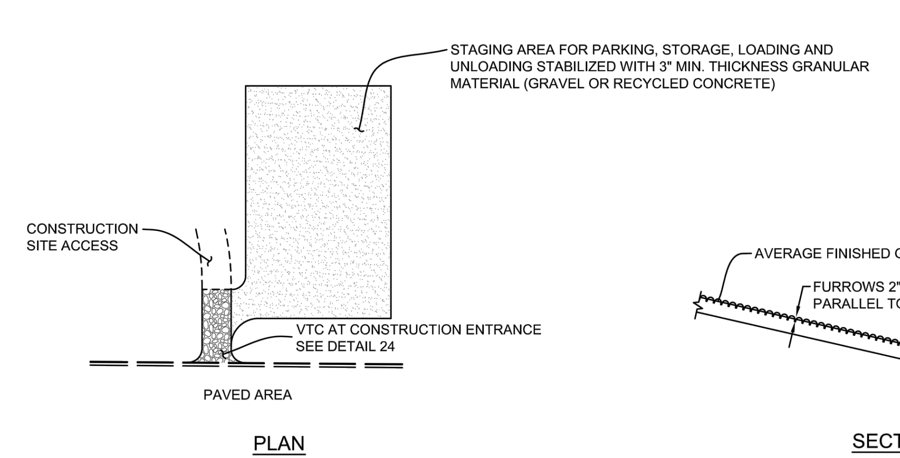
LOW-GROWTH DRILL SEEDING MIX

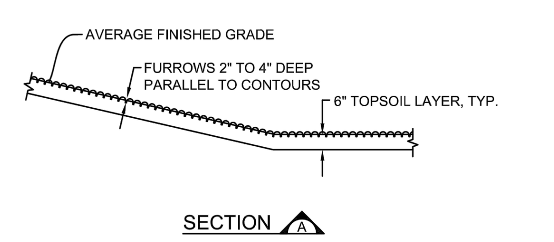
SPECIES	VARIETY	NOTES	% IN MIX	POUNDS OF PLS PER ACRE
BUFFALOGRASS	TEXOKA	PNWS	20	3.2
BLUE GRAMA	HACHITA	PNWB	20	0.6
WESTERN WHEATGRASS	ARRIBA	PNCS	20	3.2
SIDEOATS GRAMA	VAUGHN	PNWB	20	1.8
THICKSPIKE WHEATGRASS	CRITANA	PNCS	10	1
STREAMBANK WHEATGRASS	SODAR	PNCS	10	1.2
			TOTAL	11.0

SM SEEDING AND MULCHING 17

COMPUTER FILE INFORMATION		APPROVAL	CITY OF COMMERCE CITY	EROSION & SEDIMENT CONTROL	DETAIL NO.
Creation Date: 03/10/2016	Initials: CJC		Department of Public Works		800-10
Last Modification Date: 5/4/2016	Initials: CJC		8602 Rosemary St.		
Full Path: WWW.C3GOV.COM		05-27-16	Commerce City, CO 80022		
Drawing Name: $FILES$		CITY ENGINEER / DATE	Ph: 303-289-8150	ENGINEERING CONSTRUCTION STANDARDS	Sheet No. 10 of 14
Scale: $SCALESHORT$	Units: ENGLISH				







SILT FENCE INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   - LOCATION AND LENGTH OF FENCE.
2. ANCHOR TRENCH SHALL BE EXCAVATED WITH TRENCHER, OR WITH SILT FENCE INSTALLATION MACHINE; NO ROAD GRADERS, BACKHOES, ETC. SHALL BE USED. TRENCH SHALL BE COMPACTED BY HAND, WITH "JUMPING JACK", OR BY WHEEL ROLLING. COMPACTION SHALL BE SUCH THAT SILT FENCE RESISTS BEING PULLED OUT OF ANCHOR TRENCH BY HAND.
3. SILT FENCE GEOTEXTILE SHALL MEET THE FOLLOWING REQUIREMENTS:
   - 6-TO 12-GALLONS PER MINUTE PER SQUARE FOOT FLOW CAPACITY.
   - 90 LB. TENSILE STRENGTH PER ASTM D4622.
   - UV DESIGN AT 500 HRS MIN. 70% STRENGTH RETAINED PER ASTM D 4355.
4. SILT FENCE INDICATED ON INITIAL ESC PLAN SHALL BE INSTALLED PRIOR TO ANY LAND-DISTURBING ACTIVITIES.

SILT FENCE MAINTENANCE NOTES

1. THE ESC MANAGER SHALL INSPECT SILT FENCE WEEKLY, DURING AND AFTER ANY STORM EVENT AND MAKE REPAIRS OR CLEAN OUT UPSTREAM SEDIMENT AS NECESSARY.
2. SEDIMENT ACCUMULATED UPSTREAM OF SILT FENCE SHALL BE REMOVED WHEN THE UPSTREAM SEDIMENT REACHES A DEPTH OF 6-INCHES.
3. SILT FENCE SHALL BE REMOVED WHEN THE UPSTREAM DISTURBED AREA IS STABILIZED AND GRASS COVER IS APPROVED BY THE CITY. IF ANY DISTURBED AREA EXISTS AFTER REMOVAL, IT SHALL BE SEEDED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE CITY.

SF SILT FENCE 18

STABILIZED STAGING AREA INSTALLATION NOTES

1. SEE PLAN VIEW FOR GENERAL LOCATION OF STAGING AREA. CONTRACTOR MAY MODIFY LOCATION AND SIZE OF STABILIZED STAGING AREA WITH CITY APPROVAL.
2. STABILIZED STAGING AREA SHALL BE LARGE ENOUGH TO FULLY CONTAIN PARKING, STORAGE, AND UNLOADING AND LOADING OPERATIONS.
3. IF REQUIRED BY THE CITY, SITE ACCESS ROADS SHALL BE STABILIZED IN THE SAME MANNER AS THE STAGING AREA.
4. STAGING AREA SHALL BE STABILIZED PRIOR TO ANY OTHER OPERATIONS ON THE SITE.
5. THE STABILIZED STAGING AREA SHALL CONSIST OF A MINIMUM OF 3" OF GRANULAR MATERIAL (GRAVEL OR RECYCLED CONCRETE).

STABILIZED STAGING AREA MAINTENANCE NOTES

1. THE ESC MANAGER SHALL INSPECT THE STABILIZED STAGING AREA WEEKLY, DURING AND AFTER ANY STORM EVENT AND MAKE REPAIRS OR CLEAN OUT UPSTREAM SEDIMENT AS NECESSARY.
2. ESC MANAGER SHALL PROVIDE ADDITIONAL THICKNESS OF GRANULAR MATERIAL IF ANY RUTTING OCCURS OR UNDERLYING SUBGRADE BECOMES EXPOSED.
3. STABILIZED STAGING AREA SHALL BE ENLARGED IF NECESSARY TO CONTAIN PARKING, STORAGE, AND UNLOADING AND LOADING OPERATIONS.
4. ANY ACCUMULATED DIRT OR MUD SHALL BE REMOVED FROM THE SURFACE OF THE STABILIZED STAGING AREA.
5. THE STABILIZED STAGING AREA SHALL BE REMOVED AT THE END OF CONSTRUCTION. THE GRANULAR MATERIAL SHALL BE REMOVED OR, IF APPROVED BY THE CITY, USED ON SITE, AND THE AREA TOPSOILED, DRILL SEEDED AND CRIMP MULCHED OR OTHERWISE STABILIZED.

SSA STABILIZED STAGING AREA 19

SURFACE ROUGHENING INSTALLATION NOTES

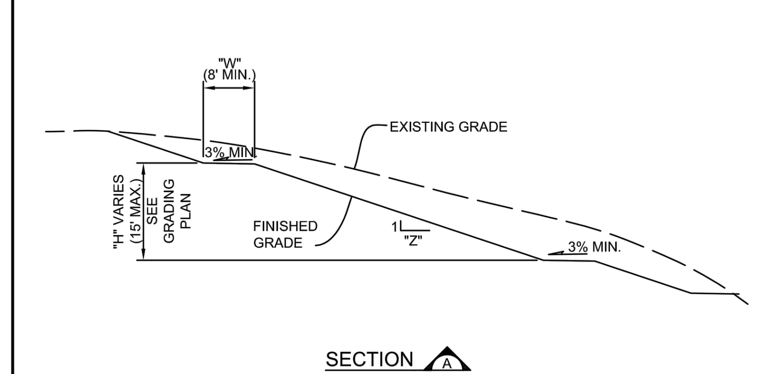
1. SURFACE ROUGHENING SHALL BE PROVIDED ON ALL FINISHED GRADES (SLOPES AND "FLAT" AREAS) WITHIN 2 DAYS OF COMPLETION OF FINISHED GRADE (FOR AREAS NOT RECEIVING TOPSOIL) OR WITHIN 2 DAYS OF TOPSOIL PLACEMENT.
2. AREAS WHERE BUILDING FOUNDATIONS, PAVEMENT, OR SOD IS TO BE PLACED WITHIN 7-DAYS OF FINISHED GRADING DO NOT NEED TO BE SURFACE ROUGHENED.
3. DISTURBED SURFACES SHALL BE ROUGHENED USING RIPPING OR TILLING EQUIPMENT ON THE CONTOUR OR TRACKING UP AND DOWN A SLOPE USING EQUIPMENT TREADS.

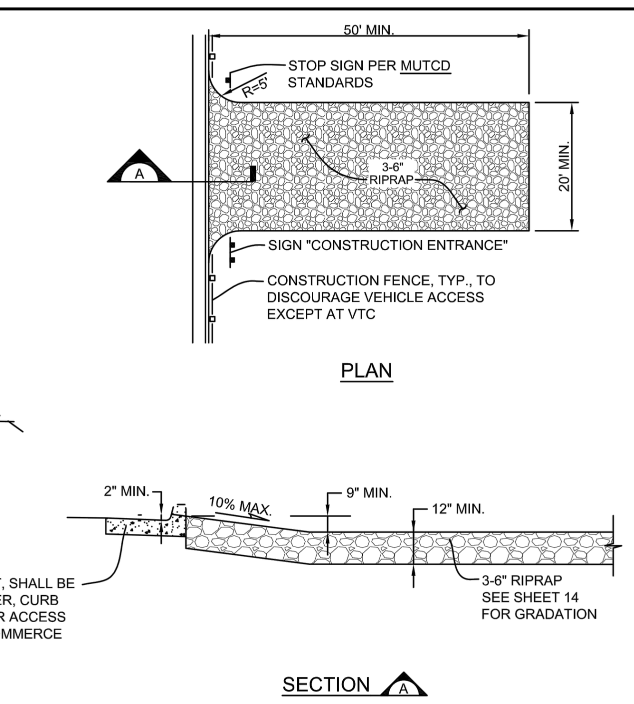
SURFACE ROUGHENING MAINTENANCE NOTES

1. THE ESC MANAGER SHALL INSPECT THE SURFACE ROUGHENING WEEKLY, DURING AND AFTER ANY STORM EVENT AND MAKE REPAIRS OR CLEAN OUT UPSTREAM SEDIMENT AS NECESSARY.
2. VEHICLES AND EQUIPMENT SHALL GENERALLY BE CONFINED TO ACCESS DRIVES AND SHALL NOT BE DRIVEN OVER AREAS THAT HAVE BEEN SURFACE ROUGHENED.
3. IN NON-TURF GRASS FINISHED AREAS, SEEDING AND MULCHING SHALL TAKE PLACE DIRECTLY OVER SURFACE ROUGHENED AREAS WITHOUT FIRST SMOOTHING OUT THE SURFACE.
4. IN AREAS NOT SEEDED AND MULCHED AFTER SURFACE ROUGHENING, SURFACES SHALL BE RE-ROUGHENED AS NECESSARY TO MAINTAIN GROOVE DEPTH AND SMOOTH OVER ANY RILL EROSION.

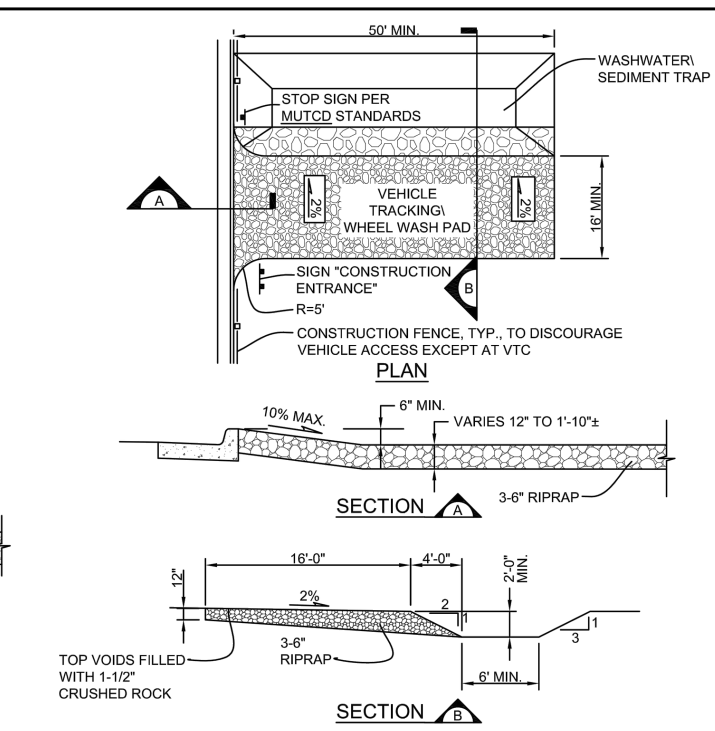
SR SURFACE ROUGHENING 20

COMPUTER FILE INFORMATION		APPROVAL	CITY OF COMMERCE CITY	EROSION & SEDIMENT CONTROL	DETAIL NO.
Creation Date: 03/10/2016	Initials: CJC		Department of Public Works		800-11
Last Modification Date: 5/4/2016	Initials: CJC		8602 Rosemary St.		
Full Path: WWW.C3GOV.COM		05-27-16	Commerce City, CO 80022		
Drawing Name: $FILES$		CITY ENGINEER / DATE	Ph: 303-289-8150	ENGINEERING CONSTRUCTION STANDARDS	Sheet No. 11 of 14
Scale: $SCALESHORT$	Units: ENGLISH				





NO MATERIAL INCLUDING WOOD, PIPES, GRAVEL, OR ASPHALT, SHALL BE PLACED IN GUTTER TO FACILITATE MOUNTING CURB; HOWEVER, CURB MAY BE CUT DOWN TO A HEIGHT OF 2" OR HIGHER FOR EASIER ACCESS AND REPLACED AT PROJECT COMPLETION WITH A CITY OF COMMERCE CITY RIGHT-OF-WAY PERMIT.



TERRACING INSTALLATION NOTES

SEE PLAN VIEW FOR:
- WIDTH, "W", AND SLOPE, "Z".

TERRACING IS NOT REQUIRED FOR SLOPES OF 4 TO 1 OR FLATTER.

EARTH (VEGETATED) SLOPES STEEPER THAN 3 TO 1 ARE NOT ALLOWED ON THE SITE.

TERRACING MAINTENANCE NOTES

THE ESC MANAGER SHALL INSPECT THE SURFACE ROUGHENING WEEKLY, DURING AND AFTER ANY STORM EVENT AND MAKE REPAIRS OR CLEAN OUT UPSTREAM SEDIMENT AS NECESSARY.

ANY RILL EROSION OCCURRING ON SLOPES SHALL BE REPAIRED AND RESEEDED AND MULCHED IN ACCORDANCE WITH DETAIL 17.

TER TERRACING 23

VEHICLE TRACKING CONTROL INSTALLATION NOTES

1. VEHICLE TRACKING CONTROL PADS SHALL BE INSTALLED AT EVERY ACCESS POINT TO SITE.
2. VEHICLE TRACKING CONTROL PADS SHALL CONSIST OF HARD, DENSE, DURABLE STONE, ANGULAR IN SHAPE AND RESISTANT TO WEATHERING. ROUNDED STONE OR BOULDERS WILL NOT BE ACCEPTABLE. THE STONES SHALL BE 3" WITH A MAXIMUM SIZE OF 6". THE STONE SHALL HAVE A SPECIFIC GRAVITY OF AT LEAST 2.6. CONTROL OF GRADATION WILL BE BY VISUAL INSPECTIONS.
3. ANY CRACKED OR DAMAGED CURB AND GUTTER AND SIDEWALK SHALL BE REPLACED BY PERMITTEE.
4. A STOP SIGN INSTALLED IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), AS AMENDED, SHALL BE INSTALLED FOR EXITING TRAFFIC AT THE VTC.

VEHICLE TRACKING CONTROL MAINTENANCE NOTES

1. ESC MANAGER SHALL INSPECT VEHICLE TRACKING CONTROL DAILY. GRAVEL SURFACE SHALL BE CLEAN AND LOOSE ENOUGH TO RUT SLIGHTLY UNDER WHEEL LOADS AND CAUSE LOOSE GRAVEL TO DISLODGE MUD FROM TIRES. WHEN GRAVEL BECOMES COMPACTED OR FILLED WITH SEDIMENT SO THAT THE EFFECTIVENESS OF THE PAD IS DIMINISHED, CONTRACTOR SHALL RIP, TURN OVER, OR OTHERWISE LOOSEN GRAVEL, PLACE ADDITIONAL NEW GRAVEL, OR REPLACE WITH NEW GRAVEL AS NECESSARY TO RESTORE EFFECTIVENESS.
2. VEHICLE TRACKING CONTROL SHALL BE REMOVED AT THE END OF CONSTRUCTION, THE GRAVEL MATERIAL REMOVED OR, IF APPROVED BY THE CITY, USED ON SITE, AND THE AREA TOPSOILED, DRILL SEEDED AND CRIMP MULCHED OR OTHERWISE STABILIZED.

VTC VEHICLE TRACKING CONTROL 24

VEHICLE TRACKING CONTROL WITH WHEEL WASH INSTALLATION NOTES

1. ALTHOUGH NOT NORMALLY USED, THE CITY RESERVES THE RIGHT TO REQUIRE VEHICLE TRACKING CONTROL WITH WHEEL WASH FACILITIES AT SITES WHERE TRACKING ONTO PAVED AREAS BECOMES A SIGNIFICANT PROBLEM.
2. IF VEHICLE TRACKING CONTROL WITH WHEEL WASH FACILITIES ARE REQUIRED, ALL WHEELS ON EVERY VEHICLE LEAVING THE SITE SHALL BE CLEANED OF MUD USING A PRESSURE-WASHER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING A WATER SOURCE.
3. VEHICLE TRACKING CONTROL PADS SHALL CONSIST OF HARD, DENSE, DURABLE STONE, ANGULAR IN SHAPE AND RESISTANT TO WEATHERING. ROUNDED STONE OR BOULDERS WILL NOT BE ACCEPTABLE. THE STONES SHALL BE 3" WITH A MAXIMUM SIZE OF 6". THE STONE SHALL HAVE A SPECIFIC GRAVITY OF AT LEAST 2.6. CONTROL OF GRADATION WILL BE BY VISUAL INSPECTIONS.
4. ANY CRACKED OR DAMAGED CURB AND GUTTER AND SIDEWALK SHALL BE REPLACED BY CONTRACTOR.
5. A STOP SIGN INSTALLED IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), AS AMENDED, SHALL BE INSTALLED FOR EXITING TRAFFIC AT THE VTC.

VEHICLE TRACKING CONTROL WITH WHEEL WASH MAINTENANCE NOTES

1. ESC MANAGER SHALL INSPECT VEHICLE TRACKING CONTROL WITH WHEEL WASH FACILITIES DAILY. ACCUMULATED SEDIMENTS SHALL BE REMOVED FROM PAD SURFACE.
2. ACCUMULATED SEDIMENT IN THE WASHWATER/SEDIMENT TRAP SHALL BE REMOVED WHEN THE SEDIMENT DEPTH REACHES AN AVERAGE OF 12-INCHES.
3. VEHICLE TRACKING CONTROL WITH WHEEL WASH FACILITY SHALL BE REMOVED AT THE END OF CONSTRUCTION, THE RIPRAP MATERIAL REMOVED OR, IF APPROVED BY THE CITY, USED ON SITE, AND THE AREA TOPSOILED, DRILL SEEDED AND CRIMP MULCHED OR OTHERWISE STABILIZED.

WW VTC WITH WHEEL WASH 25

COMPUTER FILE INFORMATION		APPROVAL	CITY OF COMMERCE CITY	EROSION & SEDIMENT CONTROL	DETAIL NO.
Creation Date: 03/10/2016	Initials: CJC		Department of Public Works		800-13
Last Modification Date: 5/4/2016	Initials: CJC		8602 Rosemary St.		
Full Path: WWW.C3GOV.COM		05-27-16	Commerce City, CO 80022		
Drawing Name: $FILES$		CITY ENGINEER / DATE	Ph: 303-289-8150	ENGINEERING CONSTRUCTION STANDARDS	Sheet No. 13 of 14
Scale: $SCALESHORT$	Units: ENGLISH				

811
Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 SOUTH SYRACUSE WAY, SUITE 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

CLIENT
COHEN DENVER AIRPORT, LLC
LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
GRADING, EROSION, & SED. CONTROL PLANS
GESC DETAILS 02

DATE 3/22/2021

	REVISIONS
A	1ST SUBMITTAL TO COMMERCE CITY 08/14/2020 – DJM
B	2ND SUBMITTAL TO COMMERCE CITY 03/18/2021 – DJM

PLANS UNDER REVIEW NOT FOR CONSTRUCTION

DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 11

CAD FILE: 19002561-GESC-DETAILS.DWG

C:\K_DRIVE_PROJECTS\19002561\DWG\PLAN SETS\CONSTRUCTION\GESC\19002561-GESC-DETAILS.DWG 3/22/2021 1:45 AM KYLE BLANK

Rock Sock (RS) SC-5

Description

A rock sock is constructed of gravel that has been wrapped by wire mesh or a geotextile to form an elongated cylindrical filter. Rock socks are typically used either as a perimeter control or as part of inlet protection. When placed at angles in the curb line, rock socks are typically referred to as curb socks. Rock socks are intended to trap sediment from stormwater runoff that flows onto roadways as a result of construction activities.

Photograph RS-1. Rock socks placed at regular intervals in a curb line can help reduce sediment loading to storm sewer inlets. Rock socks can also be used as perimeter controls.

Appropriate Uses

Rock socks can be used at the perimeter of a disturbed area to control localized sediment loading. A benefit of rock socks as opposed to other perimeter controls is that they do not have to be trenched or staked into the ground; therefore, they are often used on roadway construction projects where paved surfaces are present.

Use rock socks in inlet protection applications when the construction of a roadway is substantially complete and the roadway has been directly connected to a receiving storm system.

Design and Installation

When rock socks are used as perimeter controls, the maximum recommended tributary drainage area per 100 lineal feet of rock socks is approximately 0.25 acres with disturbed slope length of up to 150 feet and a tributary slope gradient no steeper than 3:1. A rock sock design detail and notes are provided in Detail RS-1. Also see the Inlet Protection Fact Sheet for design and installation guidance when rock socks are used for inlet protection and in the curb line.

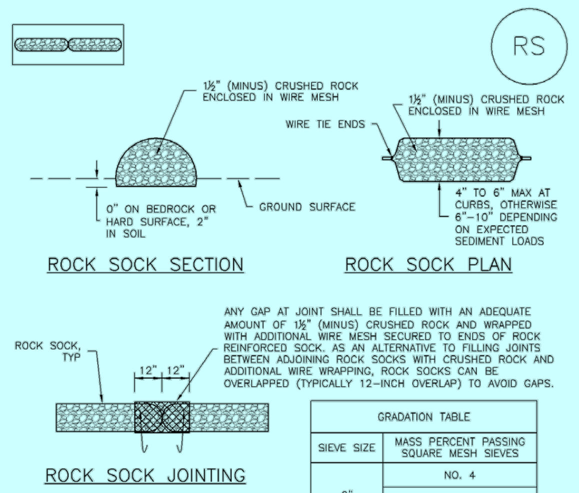
When placed in the gutter adjacent to a curb, rock socks should protrude no more than two feet from the curb in order for traffic to pass safely. If located in a high traffic area, place construction markers to alert drivers and street maintenance workers of their presence.

Maintenance and Removal

Rock socks are susceptible to displacement and breaking due to vehicle traffic. Inspect rock socks for damage and repair or replace as necessary. Remove sediment by sweeping or vacuuming as needed to maintain the functionality of the BMP, typically when sediment has accumulated behind the rock sock to one-half of the sock's height.

Once upstream stabilization is complete, rock socks and accumulated sediment should be removed and properly disposed.

Rock Sock	
Functions	
Erosion Control	No
Sediment Control	Yes
Site/Material Management	No



GRADATION TABLE	
SIEVE SIZE	MASS PERCENT PASSING SQUARE MESH SIEVES
	NO. 4
2"	100
1½"	90 – 100
1"	20 – 55
¾"	0 – 15
⅜"	0 – 5
MATCHES SPECIFICATIONS FOR NO. 4 COARSE AGGREGATE FOR CONCRETE PER AASHTO M43. ALL ROCK SHALL BE FRACTURED FACE, ALL SIDES.	

ROCK SOCK INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   -LOCATION(S) OF ROCK SOCKS.
2. CRUSHED ROCK SHALL BE 1½" (MINUS) IN SIZE WITH A FRACTURED FACE (ALL SIDES) AND SHALL COMPLY WITH GRADATION SHOWN ON THIS SHEET (1½" MINUS).
3. WIRE MESH SHALL BE FABRICATED OF 10 GAGE POULTRY MESH, OR EQUIVALENT, WITH A MAXIMUM OPENING OF ½", RECOMMENDED MINIMUM ROLL WIDTH OF 48"
4. WIRE MESH SHALL BE SECURED USING "HOG RINGS" OR WIRE TIES AT 6" CENTERS ALONG ALL JOINTS AND AT 2" CENTERS ON ENDS OF SOCKS.
5. SOME MUNICIPALITIES MAY ALLOW THE USE OF FILTER FABRIC AS AN ALTERNATIVE TO WIRE MESH FOR THE ROCK ENCLOSURE.

RS-1. ROCK SOCK PERIMETER CONTROL

ROCK SOCK MAINTENANCE NOTES

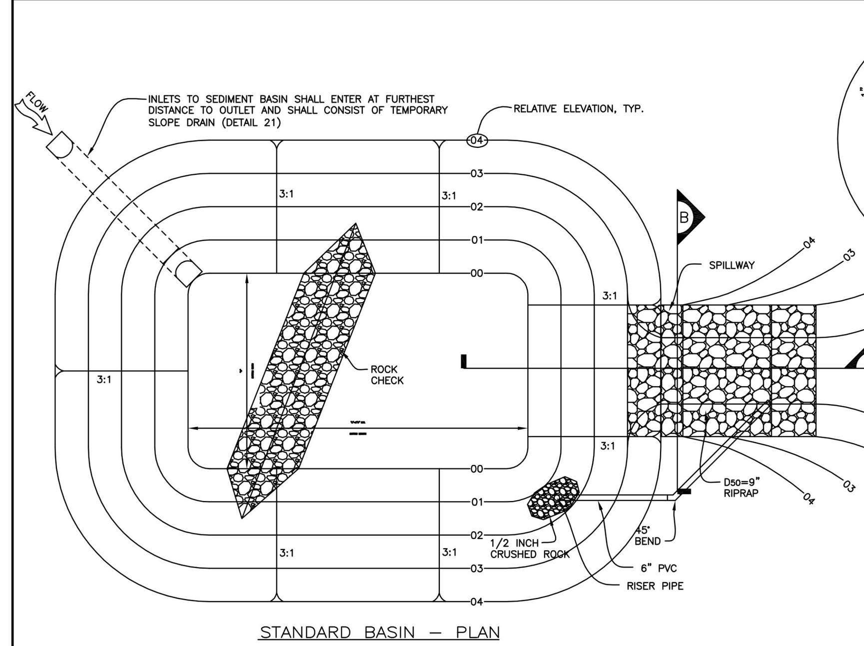
1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
4. ROCK SOCKS SHALL BE REPLACED IF THEY BECOME HEAVILY SOILED, OR DAMAGED BEYOND REPAIR.
5. SEDIMENT ACCUMULATED UPSTREAM OF ROCK SOCKS SHALL BE REMOVED AS NEEDED TO MAINTAIN FUNCTIONALITY OF THE BMP, TYPICALLY WHEN DEPTH OF ACCUMULATED SEDIMENTS IS APPROXIMATELY ½ OF THE HEIGHT OF THE ROCK SOCK.
6. ROCK SOCKS ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION.
7. WHEN ROCK SOCKS ARE REMOVED, ALL DISTURBED AREAS SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.

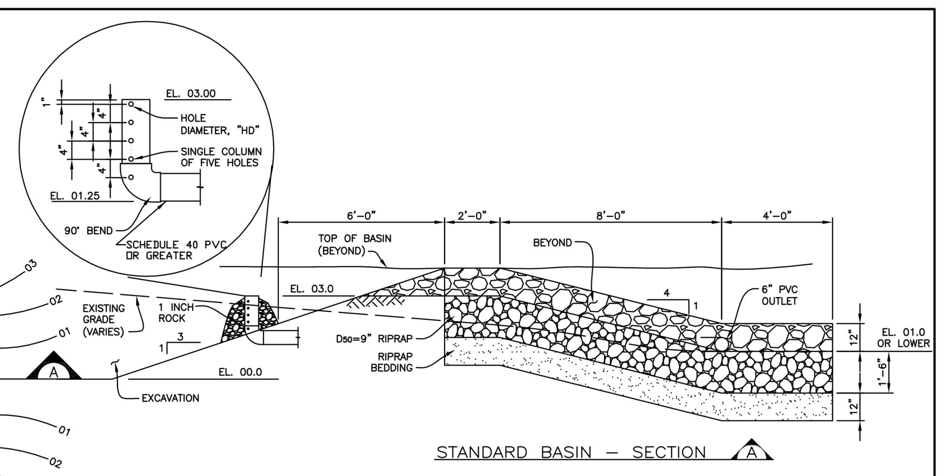
(DETAIL ADAPTED FROM TOWN OF PARKER, COLORADO AND CITY OF AURORA, COLORADO, NOT AVAILABLE IN AUTOCAD)

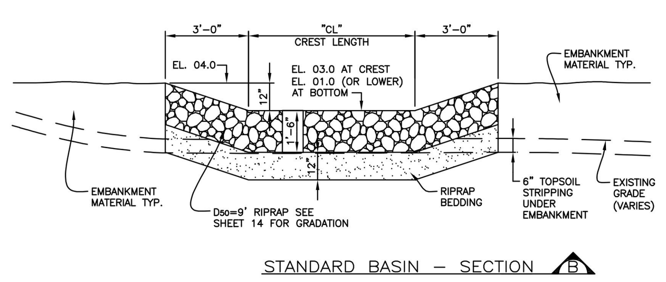
NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

NOTE: THE DETAILS INCLUDED WITH THIS FACT SHEET SHOW COMMONLY USED, CONVENTIONAL METHODS OF ROCK SOCK INSTALLATION IN THE DENVER METROPOLITAN AREA. THERE ARE MANY OTHER SIMILAR PROPRIETARY PRODUCTS ON THE MARKET. UDFCD NEITHER NDORSES NOR DISCOURAGES USE OF PROPRIETARY PROTECTION PRODUCTS; HOWEVER, IN THE EVENT PROPRIETARY METHODS ARE USED, THE APPROPRIATE DETAIL FROM THE MANUFACTURER MUST BE INCLUDED IN THE SWMP AND THE BMP MUST BE INSTALLED AND MAINTAINED AS SHOWN IN THE MANUFACTURER'S DETAILS.

Add Street Sweeping and Cleaning section S-11 from MHFD Vol. III (sheets SWC-1 & SWC-2)







SEDIMENT BASIN INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   – LOCATION OF SEDIMENT BASIN.
   – TYPE OF BASIN (STANDARD BASIN OR NON-STANDARD BASIN).
   – FOR STANDARD BASIN, CREST LENGTH, "CL", BOTTOM WIDTH, "W", AND HOLE DIAMETER, "HD".
   – FOR NON-STANDARD BASIN, SEE CONSTRUCTION DRAWINGS FOR DESIGN OF BASIN INCLUDING RISER HEIGHT, "H", NUMBER OF COLUMNS, "N", HOLE DIAMETER, "HD", AND PIPE DIAMETER "D".
2. FOR STANDARD BASIN, BOTTOM DIMENSION MAY BE MODIFIED AS LONG AS BOTTOM AREA IS NOT REDUCED.
3. SEDIMENT BASINS INDICATED ON INITIAL ESC PLAN SHALL BE INSTALLED PRIOR TO ANY OTHER LAND-DISTURBING ACTIVITY.
4. EMBANKMENT MATERIAL SHALL CONSIST OF SOIL FREE OF DEBRIS, ORGANIC MATERIAL, AND ROCKS OR CONCRETE GREATER THAN 3 INCHES AND SHALL HAVE A MINIMUM OF 15 PERCENT BY WEIGHT PASSING THE NO. 200 SIEVE.
5. EMBANKMENT MATERIAL SHALL BE COMPACTED TO AT LEAST 95 PERCENT OF MAXIMUM DENSITY WITHIN 2 PERCENTAGE POINTS OF OPTIMUM DENSITY IN ACCORDANCE WITH ASTM D698.
6. PIPE SCH 40 OR GREATER SHALL BE USED.
7. THE DETAILS SHOWN ON THIS SHEET PERTAIN TO STANDARD SEDIMENT BASIN(S) IDENTIFIED ON THE ESC PLAN VIEW DRAWINGS USED FOR DRAINAGE AREAS LESS THAN 15 ACRES. SEE CONSTRUCTION DRAWINGS FOR EMBANKMENT, STORAGE VOLUME, SPILLWAY, OUTLET, AND OUTLET PROTECTION DETAILS FOR ANY SEDIMENT BASIN(S) THAT HAVE BEEN INDIVIDUALLY DESIGNED FOR DRAINAGE AREAS LARGER THAN 15 ACRES.

SEDIMENT BASIN MAINTENANCE NOTES

1. THE ESC MANAGER SHALL INSPECT SEDIMENT BASIN WEEKLY, DURING AND AFTER ANY STORM EVENT AND MAKE REPAIRS OR CLEAN OUT AS NECESSARY.
2. SEDIMENT ACCUMULATED IN SEDIMENT BASIN SHALL BE REMOVED WHEN THE SEDIMENT DEPTH IS WITHIN 2.0 FEET OF THE CREST OF THE SPILLWAY.
3. SEDIMENT BASINS ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND GRASS COVER IS APPROVED BY THE CITY.
4. IF SEDIMENT BASINS ARE REMOVED, THE DISTURBED AREA SHALL BE SEEDED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE CITY.

SB SEDIMENT BASIN 14

COMPUTER FILE INFORMATION — Creation Date: 03/10/2016 Initials: CJC; Last Modification Date: 5/4/2016 Initials: CJC; Full Path: WWW.C3GOV.COM; Drawing Name: $FILES$; Scale: $SCALESHORT$ Units: ENGLISH

APPROVAL — CITY ENGINEER 05-27-16 DATE

CITY OF COMMERCE CITY
Department of Public Works
8602 Rosemary St.
Commerce City, CO 80022
Ph: 303-289-8150

EROSION & SEDIMENT CONTROL
ENGINEERING CONSTRUCTION STANDARDS

DETAIL NO. 800-08
Sheet No. 8 of 14

Repeat Comment:
Please remove MHFD Rock Sock sheets. This information is covered in the Commerce City Stanard ESC Reinforced Rock Berm detail 800-07 shown on sheet 11 of this plan set. Use Commerce City designations on plans.

ROCK AND RIPRAP GRADATIONS

TABLE 1. RIPRAP GRADATIONS

D50 MEDIAN STONE SIZE (INCHES)	% OF MATERIAL SMALLER THAN TYPICAL STONE	TYPICAL STONE EQUIVALENT DIAMETER (INCHES)	TYPICAL STONE WEIGHT (POUNDS)
6	70 - 100 50 - 70 35 - 50 2 - 10	12 9 6 2	85 35 10 0.4
9	70 - 100 50 - 70 35 - 50 2 - 10	15 12 9 3	160 85 35 1.3
12	70 - 100 50 - 70 35 - 50 2 - 10	21 18 12 4	440 275 85 3
18	100 50 - 70 35 - 50 2 - 10	30 24 18 6	1280 650 275 10
24	100 50 - 70 35 - 50 2 - 10	42 33 24 9	3500 1700 650 35

TABLE 2. RIPRAP BEDDING

SIEVE SIZE	MASS PERCENT PASSING SQUARE MESH SIEVES
	CLASS A
3"	100
1 1/2"	20 - 90
NO. 4	0 - 20
NO. 200	0 - 3
MATCHES SPECIFICATIONS FOR CDOT CLASS A FILTER MATERIAL AND UDFCD TYPE 1 BEDDING. ALL ROCK SHALL BE FRACTURED FACE, ALL SIDES.	

TABLE 3. 1 1/2" CRUSHED ROCK

SIEVE SIZE	MASS PERCENT PASSING SQUARE MESH SIEVES
	NO. 4
2"	100
1 1/2"	90 - 100
1"	20 - 55
3/4"	0 - 15
3/8"	0 - 5
MATCHES SPECIFICATIONS FOR NO. 4 COARSE AGGREGATE FOR CONCRETE PER AASHTO M43. ALL ROCK SHALL BE FRACTURED FACE, ALL SIDES.	

COMPUTER FILE INFORMATION — Creation Date: 03/10/2016 Initials: CJC; Last Modification Date: 5/4/2016 Initials: CJC; Full Path: WWW.C3GOV.COM; Drawing Name: $FILES$; Scale: $SCALESHORT$ Units: ENGLISH

APPROVAL — CITY ENGINEER 05-27-16 DATE

CITY OF COMMERCE CITY
Department of Public Works
8602 Rosemary St.
Commerce City, CO 80022
Ph: 303-289-8150

EROSION & SEDIMENT CONTROL
ENGINEERING CONSTRUCTION STANDARDS

DETAIL NO. 800-14
Sheet No. 14 of 14

PER SECTION 8.03.1.1 ESC SUBMITTAL REQUIREMENTS OF COMMERCE CITY CODE INCLUDE CHECKLIST ITEM # 14:

14. Re-vegetation – Include details and notes for mulching and re-vegetation. Plans shall also include detailed planting procedures, seed/plant specifications, and plant maintenance specifications.

Fix text overwrite in title block.

Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 SOUTH SYRACUSE WAY, SUITE 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

CLIENT
COHEN DENVER AIRPORT, LLC
LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
GRADING,CONSTRUCTION DOCUMENTS & CONTROL PLANS
GESC DETAILS 03

DATE 3/22/2021

A	1ST SUBMITTAL TO COMMERCE CITY 08/14/2020 – DJM
B	2ND SUBMITTAL TO COMMERCE CITY 03/18/2021 – DJM

REVISIONS

PLANS UNDER REVIEW NOT FOR CONSTRUCTION

DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 12

CAD FILE: 19002561-GESC-DETAILS.DWG

C:\K_DRIVE_PROJECTS\19002561\DWG\PLAN SETS\CONSTRUCTION\GESC\19002561-GESC-DETAILS.DWG 3/22/2021 1:46 AM KYLE BLANK

Stormwater Management Plan

for:

LEGATO FILING 2

SOUTHWEST CORNER OF E. 95TH AVE. AND HIMALAYA PKWY.
COMMERCE CITY, COLORADO

Different submittals use different addresses. Please use the correct address.

Include contact phone #

Prepared for:

COHEN DENVER AIRPORT, LLC
9875 W. LA MANCHA AVENUE
LAS VEGAS, NV 89149
ATTN: BRAD BURNS

Submitted by: Atwell, LLC

DANIEL MADRUGA, P.E.
6200 SOUTH SYRACUSE WAY
GREENWOOD VILLAGE, CO 80111
303.825.7100

PROJECT NO. 19002561

SUBMITTAL DATE: 3/18/21

ENGINEER CERTIFICATION

This report and plan for the grading, erosion, and sediment control design for the Legato Filing 2 Subdivision was prepared by me or under my direct supervision in accordance with the provisions of City of Commerce City Grading, Erosion, and Sediment Control criteria. I understand that Commerce City does not and will not assume liability for grading, erosion, and sediment control facilities designed by others.

_____

Daniel Madruga PE Registered Professional Engineer State of Colorado No. 36834

OWNER/DEVELOPER CERTIFICATION

This Grading, Erosion and Sediment Control Plan has been placed in the Commerce City file for this project and appears to fulfill the applicable City of Commerce City Grading, Erosion and Sediment Control criteria. Additional grading, erosion and sediment control measures may be required of the owner or his/her agents, due to unforeseen erosion problems or if the submitted plan does not function as intended. The requirements of this plan shall run with the land and be the obligation of the landowner, or his/her designated representative(s) until such time as the plan is properly completed, modified or voided.

_____ _____

Owner or Authorized Agent Date

Table of Contents

1. SITE DESCRIPTION 1
   A. PROJECT SITE LOCATION: 1
   B. PROJECT SITE DESCRIPTION: 1
   C. PROPOSED SEQUENCING FOR MAJOR CONSTRUCTION ACTIVITIES: 1
   D. ACRES OF DISTURBANCE: 2
   E. EXISTING SOIL DATA: 2
   F. EXISTING VEGETATION, INCLUDING PERCENT COVER: 2
   G. POTENTIAL POLLUTANTS SOURCES: 3
   H. RECEIVING WATERS: 3
   I. NON-STORMWATER DISCHARGES: 4
2. SITE MAP COMPONENTS: 4
3. QUALIFIED STORMWATER MANAGERS: 5
4. STORMWATER MANAGEMENT CONTROLS FIRST CONSTRUCTION ACTIVITIES 6
5. DURING CONSTRUCTION 7
6. INSPECTIONS 8
7. CONTROL MEASURE MAINTENANCE 10
8. RECORD KEEPING 11
9. INTERIM, PERMANENT STABILIZATION AND LONG-TERM STORMWATER MANAGEMENT 12
10. PRIOR TO PROJECT PARTIAL ACCEPTANCE 15
11. PRIOR TO PROJECT FINAL ACCEPTANCE 15
12. NARRATIVES 16

APPENDICES

A. VICINITY MAP
B. FEMA FIRM MAP
C. SOILS SURVEY
D. INSPECTION REPORT FORM
E. SPILL PREVENTION AND CONTROL PLAN

Add a Appendix section and for calculations.

Include sediment basin calculations

Include an exhibit showing drainage basins and information used in SB calculations

1. SITE DESCRIPTION

Contractor shall comply with all City of Commerce City contractual requirements and all requirements associated with the Colorado Department of Public Health and Environment (CDPHE) on this project. The SWMP Administrator for Construction shall update to reflect current project site conditions, as applicable.

A. PROJECT SITE LOCATION:

The Project Site consists of approximately 33 acres located in Tracts D1 and C1 of the Legato West Plat in Commerce City, Colorado within Section 22, Township 2 South, Range 66 West of the 6th Principal Meridian, Adams County. Tract D1 represents the north half of Filing 2 and sits on the north side of Legato Parkway and bordered to the east by Cathay Court. Tract C1 represents the southern half of Filing 2 and sits on the south side of Legato Parkway and bordered to the northeast by E. 92nd Place. The southern limits of Filing 2 reach E. 90th Avenue. A Vicinity Map is provided in Appendix A.

PROJECT SITE DESCRIPTION:

This Project is part of the larger 600-acre mixed-use PUD (Legato West) that includes commercial and medium-density residential construction, a 10-acre neighborhood park and a 25-acre school. This stormwater management plan is prepared for the second phase of residential development (Filing 2), consisting of 131 single-family residential units. Filing 2 residential construction will start following completion of the pertinent components of the Spine Infrastructure Project (under Case S-751-19), which includes miles of offsite roadway, water, sanitary and storm infrastructure, and stormwater detention facilities serving the PUD development. The infrastructure pertinent to this residential filing includes local roads and water, sanitary, storm and irrigation system connections to the existing infrastructure constructed in Phase 1 of the Legato West project, as well as the associated on-site water, sanitary and storm sewer facilities needed to serve the 131-lot residential development within Filing 2. This narrative is written to account for the onsite improvements specifically within the Filing 2 subdivision.

PROPOSED SEQUENCING FOR MAJOR CONSTRUCTION ACTIVITIES:

Construction Sequence 1: The “preliminary” initial phase BMP’s required for the Grading Permit Acceptance will be installed in the Initial Phase, including construction fencing, silt fence, vehicle tracking control pad, stabilized staging area and exterior inlet protection. Following installation of these initial BMPs, clearing and grubbing operations will begin, along with grading activities, and subsurface utility installations. Sediment basins, as well as other initial BMPs intended to protect the newly constructed improvements, should be installed as quickly as possible including rough cutting streets, diversion ditches, erosion control blankets and outlet protection (where applicable). Sediment basins 6 and 7 and their connective diversion ditches installed with the Legato West infrastructure work will remain in place and utilized to collect runoff from the disturbed areas within the Filing 2 development. These sediment basins and diversion ditches shall remain in place until development within the associated Tract A and Tract B adjacent to Filing 2. A stockpile in Tract A will also be in place from Legato West earth moving activities and available for contractor use as needed.

Construction Sequence 2: The next phase of construction (Interim Phase) will consist of utility installation such water, sanitary storm and irrigation infrastructure as well as roadway construction activities such as subgrade preparation, base course applications, asphalt paving and concrete flatwork placement. The contractor shall also install "secondary" initial phase BMPs such as site inlet protections and reinforced rock berms, where applicable.

Construction Sequence 3: The final phase of construction within this filing, will entail installation of the permanent site stabilization measures such as seeding and mulching, removal of diversion ditches, removal of erosion control blankets once vegetation has been established and approved by the City, removal of reinforced rock berms and reinforced rock culverts and inlet protection measures, removal of concrete washout area and the stabilized staging area and vehicle tracking control once construction activity for the spine infrastructure work associated with this project has been completed.

Discuss surface roughening in the interim phase.

B. ACRES OF DISTURBANCE:

1. The total area of disturbance with the Filing 2 project is approximately 29 acres. This includes clearing and grubbing, grading, installation of local roads and associated utilities within the subdivision.
2. The total area of seeding is approximately 21.3 acres.
3. Total area of new impervious surface associated with building footprints, roads, curb and gutters, sidewalks and ramps is approximately 25 acres.

C. EXISTING SOIL DATA:

NRCS Soils Survey results indicate that the existing soils are primarily (99%) Platner loam with 0 to 5% slopes with some (1%) Wiley-Adena-Renohill complex. These soils are identified as a Group C having a slow infiltration rate when thoroughly wet. They consist of soils that have a layer that impedes downward movement of water or moderately fine texture. The Site is not within any mapped floodplains. The NRCS Soils Survey for the site has been included as Appendix C.

The Site is not within any mapped floodplains. The FEMA FIRM map for this site is provided in Appendix B.

D. EXISTING VEGETATION, INCLUDING PERCENT COVER:

The project site is essentially undeveloped land consisting of natural vegetation, grasses and shrubs. Prior to construction start, the SWMP Administrator for Construction will conduct the Vegetation Transects as outlined in Chapter 4.11.2 of the CDOT's Erosion Control and Stormwater Quality Guide. The observed pre-construction and post construction vegetation descriptions and percent densities shall be noted below.

<u>Pre-Construction</u> (Filled out by the SWMP Administrator for Construction)

Date of survey: _____ %Density: _____

Description of existing vegetation: _____

Post-Construction

Date of survey: _____ %Density: _____

Description of existing vegetation:

Date of CDPS-SCP Closure: _____

E. POTENTIAL POLLUTANTS SOURCES:

See First Construction Activities under Potential Pollutant Sources. The SWMP Administrator for Construction shall prepare a list of all potential pollutants and their locations in accordance with subsection 107.25. The potential pollution sources for this site that would most likely be candidates for contamination include sediment runoff, wood, solvents debris, concrete, concrete curing compound, form oil, asphalt, oil and gasoline for generators, fertilizers and herbicides from landscaping activities.

Potential Pollutants	***Source***
Antifreeze	Vehicle/Equipment
Diesel Fuel	Vehicle/Equipment
Gasoline	Vehicle/Equipment
Hydraulic oils/fuels	Vehicle/Equipment
Grease	Vehicle/Equipment
Paints	Contractor
Glue/Adhesive/Curing Compounds	Contractor
Sanitary Waste	Portable Toilets
Offsite Vehicle Tracking	Construction/transportation equipment
Construction Dust	Construction/transportation equipment
Soil Amendments	Contractor
Landscaping Materials Fertilizer	Contractor
Concrete Mortar	Mobile Mixer
Concrete	Trucks/Washout
Sediment	Exposed soils: Disturbed Areas
Other:	

F. RECEIVING WATERS:

The northern portion of the Site is routed to Detention Pond A for water quality and flood attenuation. Pond A is located northwest of the Site in the northwest corner of E. 94th Avenue and Biscay Street. Pond A discharges to a storm sewer pipe extending to the existing Tower Road Storm Run, which continues south to a culvert from Gramma Gulch, crossing beneath Tower Road and discharges into Second Creek just west of Tower Road.

Runoff from the southern portion of Legato Filing 2 will be conveyed to Detention Pond B, constructed in Tract O of Legato West Final Plat, located at the southeast corner of Argonne Street and E. 90th Avenue. Pond B will provide water quality control and flood attenuation for the entire Legato West Development Major Basin B. Pond B discharges directly to Gramma Gulch, which conveys drainage to the above mentioned culvert beneath Tower Road and, ultimately discharging to Second Creek.

G. NON-STORMWATER DISCHARGES:

SWMP Administrator for Construction shall describe any non-stormwater related discharges, per table below:

Discharge Description	Location	Method Statement (Location)
Dewatering*		
Uncontaminated Spring		
Concrete Wash Water (in-ground washout structure)		
Landscape Irrigation Return Flows		
Emergency Fire Fighting		
Concrete Saw Water		

*ALLOWABLE: Refer to CDPHE Low Risk Discharge Guidance Document of Uncontaminated Groundwater to Land. *https://www.colorado.gov/pacific/sites/default/files/WQ%20LOW%20RISK%20GW.pdf*

*If ground water does not meet water quality standards for receiving water, a separate CDPS Dewatering Permit shall be obtained by the Contractor from CDPHE in accordance with subsections 107.02 and 107.25.

2. SITE MAP COMPONENTS:

Please see the accompanying Erosion and Sediment Control Plans for Legato Filing 2, prepared by Atwell and dated August 14, 2020. These design drawings illustrate the associated stormwater management plan map components listed below:

A. PROJECT CONSTRUCTION SITE BOUNDARIES
B. ALL AREAS OF GROUND SURFACE DISTURBANCE
C. EXISTING AND PROPOSED GRADING CONTOURS
D. LOCATION OF ALL STRUCTURAL CONTROL MEASURES IDENTIFIED IN THE SWMP
E. LOCATION OF NON-STRUCTURAL CONTROL MEASURES AS APPLICABLE
F. STREAMS, SPRINGS, WETLANDS AND OTHER STATE WATERS, INCLUDING AREAS THAT REQUIRE PRE-EXISTING VEGETATION BE MAINTAINED WITHIN 50 FEET OF A RECEIVING WATER
G. PROTECTION OF TREES, SHRUBS AND CULTURAL RESOURCES

H. FLOW ARROWS THAT DEPICT STORMWATER FLOW DIRECTIONS ON-SITE AND RUNOFF DIRECTION
I. AREAS USED FOR STORING AND STOCKPILING OF MATERIALS, STAGING AREAS (FIELD TRAILER, FUELING, ETC.)
J. LOCATIONS OF ALL STREAM CROSSINGS LOCATED WITHIN THE CONSTRUCTION SITE BOUNDARY

3. QUALIFIED STORMWATER MANAGERS:

A. SWMP ADMINISTRATOR FOR DESIGN:

Name/Title	Contact Information
Daniel Madruga, P.E. Civil Engineer/Project Manager	Atwell, LLC 6200 S Syracuse Way, Suite 470 Greenwood Village, CO 80111 303-928-6757 dmadruga@atwell-group.com

B. SWMP Administrator for Construction: (As defined in Subsection 208) The Contractor shall designate a SWMP Administrator for Construction upon co-permittee of the permit. The SWMP Administrator for Construction shall become the operator for the SWMP and assume responsibility for all design changes to the SWMP implementation and maintenance in accordance to 208.03. The SWMP shall remain the property of the City of Commerce City. The SWMP Administrator for Construction shall be responsible for implementing, maintaining and revising SWMP, including the title and contact information as necessary. The activities and responsibilities of the SWMP Administrator for Construction shall address all aspects of the project's SWMP. (Update the information below for each new SWMP Administrator for Construction as appropriate.

Name/Title	Contact Information (phone & email)	Certification #	Start Date	Completion Date
TBD				

C. EROSION CONTROL INSPECTOR: (for City of Commerce City)

Name/Title	Contact Information (phone & email)
TBD	

4. STORMWATER MANAGEMENT CONTROLS FIRST CONSTRUCTION ACTIVITIES

THE CONTRACTOR SHALL PERFORM THE FOLLOWING:

A. POTENTIAL POLLUTANT SOURCES

Evaluate, identify, locate and describe all potential sources of pollutants at the site in accordance with subsection 107.25, CDPS-SCP and place in the SWMP. All control measures related to potential pollutants shall be marked on the SWMP Site Map by the Contractor's SWMP Administrator for Construction.

B. OFFSITE DRAINAGE (RUN ON WATER)

Describe and record control measures on the SWMP Site Map (Erosion and Sediment Control Plans by Atwell, LLC) that have been prepared to address offsite run-on water in accordance with subsection 208.03. Silt fence shall be installed along limits of construction downstream of disturbed areas.

C. VEHICLE TRACKING PAD/VEHICLE TRACKING CONTROL

Vehicle tracking control shall be used at all vehicle and equipment exit points from the site to prevent sediment exiting the Limits of Construction (LOC) of the project site. Access shall be provided only at locations approved by the Engineer. The SWMP Administrator shall record vehicle tracking control pad locations as shown in the accompanying Erosion and Sediment Control Plans prepared by Atwell, LLC and approved by the City of Commerce City.

Vehicle Tracking Pad (VTP). Vehicle tracking pads shall be constructed to the minimum dimensions shown in the Contract, unless otherwise directed by the Engineer. Construction of approved vehicle tracking pads shall be completed before any disturbance of the area.

The Contractor shall maintain each vehicle tracking pad during the entire time that it is in use for the project. The vehicle tracking pad shall be removed at the completion of the project unless otherwise directed by the Engineer.

D. PERIMETER CONTROL

Perimeter control shall be established as the first item on the SWMP to prevent the potential for pollutants leaving the construction site boundaries, entering the stormwater drainage system, or discharging to state waters. Perimeter control shall be in accordance with subsection 208.04 and as shown in the accompanying Erosion and Sediment Control Plans prepared by Atwell, LLC and approved by the City of Commerce City.

Perimeter control may consist of berms, silt fence, erosion logs, existing landforms, or other control measures as shown in the approved Erosion and Sediment Control Plans by Atwell, LLC.

5. DURING CONSTRUCTION

RESPONSIBILITIES OF THE SWMP Administrator for Construction

The SWMP is a living document "living document" that is continuously reviewed and modified throughout the construction phasing. During construction, the following items shall be added, updated, or amended as needed by the SWMP Administrator for Construction in accordance with subsection 208.03:

A. STOCKPILE MANAGEMENT: Material stockpiles shall be located 50 horizontal feet away from State waters and shall be confined so that no potential pollutants will enter State waters and other sensitive areas as defined in the Contract. Locations shall be approved by the Engineer.

   Erodible stockpiles (including topsoil) shall be contained with acceptable BMPs at the toe (or within 20 feet of the toe) throughout construction. BMPs shall be approved by the Engineer. The SWMP Administrator shall describe, detail, and record the sediment control devices on the SWMP.

B. CONCRETE WASHOUT:

   The concrete washout structure shall meet or exceed the dimensions shown on the plans or be used in accordance with manufacturer's recommendations. Work on this structure shall not begin until written acceptance is provided by the Engineer.

   Concrete washout structure shall conform to standard plan M-208-1 and shall meet the following requirements:

   1) Structure shall contain all washout water.
   2) Stormwater shall not carry wastes from washout and disposal locations.
   3) The site shall be located a minimum of 50 horizontal feet from State waters and shall meet all requirements for containment and disposal as defined in subsection 107.25.
   4) The site shall be signed as "Concrete Washout".
   5) The site shall be accessible to appropriate vehicles.
   6) Freeboard capacity shall be included into structure design to reasonably ensure the structure will not overtop during or because of a precipitation events.
   7) The Contractor shall prevent tracking of washout material out of the washout structure.
   8) Solvents, flocculents, and acid shall not be added to wash water.
   9) The structure shall be surrounded on three sides by a compacted berm.
   10) The structure shall be fenced with orange plastic construction fencing to provide a barrier to construction equipment and to aid in identification of the concrete washout area.
   11) Concrete waste, liquid and solid, shall not exceed 2/3 the storage capacity of the washout structure.

   Pre-fabricated concrete washout structures shall meet the following requirements:

   1) Structure shall contain all washout water.

2) Structure shall be located 50 horizontal feet away from State waters, and shall be confined so that no potential pollutants will enter State waters and other sensitive areas are as defined in the Contract. Locations shall be as approved by the Engineer. The site shall signed as "Concrete Washout".
3) The site shall be accessible to appropriate vehicles.
4) Freeboard capacity shall be included into structure design to reasonably ensure the structure will not overtop during or because of a precipitation event.
5) Solvents, flocculants, and acid shall not be added to wash water.
6) Concrete waste, liquid and solid, shall not exceed 2/3 the storage capacity of the washout structure.
7) Prefabricated structures cannot be moved when they contain liquid, unless otherwise approved.
8) The concrete washout structure shall be completed and ready for use prior to concrete placement operations.
9) Washout areas shall be checked and maintained as required. On site permanent disposal of concrete washout waste is not allowed.
10) All liquid and solid wastes, including contaminated sediment and soils generated from concrete washout shall be hauled away from the site and disposed of properly at the Contractor's expense.

C. SAW CUTTING:
1) Material containment and removal will not be paid for separately but shall be included in the work.
2) The Contractor shall protect storm drain facilities adjacent to locations where pavement cutting operations involving wheel cutting, saw cutting, sand blasting, or abrasive water jet blasting are to take place.
3) Material from pavement saw cutting operations shall be cleaned from the roadway surface during operations using a vacuum.

D. STREET SWEEPING:
Whenever sediment collects on the paved surface, the surface shall be cleaned. Street washing will not be allowed. Storm drain inlet protection shall be in place prior to shoveling, sweeping, or vacuuming. Sweeping shall be completed with a pickup broom or equipment capable of collecting sediment. Sweeping with a kick broom will not be allowed. During construction, indicate how items that have not been addressed during design are being handled in construction if applicable.

6. INSPECTIONS

Inspections shall be in accordance with subsection 208.03(c).

One Erosion Control Inspector (ECI) is required for every 40 acres of total disturbed area which is currently receiving temporary and interim stabilization measures as defined in subsection 208.04 (e). An ECI shall not be responsible for more than 40 acres in the project. Accepted permanent stabilization methods as defined in subsection 208.04 (e) will not be included in the 40 acres.

ECI duties shall be as follows:

A. Coordinate with the SWMP Administrator on reporting the results of inspections.

B. Review the construction site for compliance with the Stormwater Construction Permit.

C. Inspect with the Superintendent and the Engineer (or their designated representatives) the stormwater management system at least every seven calendar days. Post storm event inspections shall be conducted within 24 hours after the end of any precipitation or snow melt event that may cause surface erosion. If no construction activities will occur following a storm event, post-storm event inspections shall be conducted prior to commencing construction activities, but no later than 72 hours following the storm event. The occurrence of delay in inspections shall be documented in the inspection report. Form 1176 shall be used for all 7-day inspections and inspections following storm events. The Contractor shall notify the Erosion control inspector when a storm event occurs. Failure to perform inspections on time will result in liquidated damages in accordance with subsection 208.09.

   Inspections are not required at sites when construction activities are temporarily halted, when snow cover exists over the entire site and melting conditions do not pose a risk of surface erosion. This exception shall be applicable only during the period where melting conditions do not exist, and applies to the routine 7-day, Headquarters and Region inspections, as well as the post-storm event inspections. The following information shall be documented on Form 1176 for use of this exclusion: dates when snow cover occurred, date when construction activities ceased, and date melting conditions began.

   The order of precedence for required inspections shall be as follows:

   i. Headquarter water quality inspections
   ii. Region water quality inspections
   iii. Post-storm event inspections
   iv. 7-day inspections

   When one of the listed inspections is performed, the inspections listed below it need not be performed on that day if the required Agency and Contractor personnel participated in the inspection.

   For example: A 7-day inspection is not required on the same day a headquarters or Region inspection is conducted. A sheet shall be placed in the inspections area of the SWMP Notebook to refer to the date inspection performed.

D. Follow all other agency Stormwater requirements and inspections unless a waiver or other agreement has been made.

E. The ECI shall immediately report to the Contractor's Superintendent and the SWMP Administrator the following instances of noncompliance:

   i. Noncompliance which may endanger health or the environment.

ii. Spills or discharge of hazardous substance or oil which may cause pollution of waters of the State.
iii. Discharge of stormwater which may cause an exceedance of a water quality standard.
iv. Upset conditions that occur on site.

F. Spills, leaks, or overflows that result in the discharge of pollutants shall be documented on the Form 1176 by the ECI. The ECI shall record the time and date, weather conditions, reasons for spill, and how it was remediated.

7. CONTROL MEASURE MAINTENANCE

Erosion and sediment control practices and other protective measures identified in the SWMP as BMPs for stormwater pollution prevention shall be maintained in effective operating condition until the final stabilization of the site has been achieved.

A. BMPs shall be continuously maintained in accordance with good engineering, hydrologic and pollution control practices, including removal of collected sediment when silt depth is 50 percent or more of the height of the erosion control device. When possible, the Contractor shall use equipment with an operator rather than labor alone to remove the sediment.
B. Maintenance of erosion and sediment control devices shall include replacement of such devices upon the end of their useful service life as recommended by the Contractor and approved by the Engineer. Maintenance of rock check dams and vehicle tracking pads shall be limited to removal and disposal of sediment or addition of aggregate. Damages resulting from failure to maintain BMPs shall be paid at the contactors expense.
C. Complete site assessment shall be performed as part of comprehensive inspection and maintenance procedures, to assess the adequacy of BMPs at the site and the necessity of changes to those BMPs to ensure continued effective performance. Where site assessment results in the determination that new or replacement BMPs are necessary, the BMPs shall be installed to ensure continuous effectiveness. When identified, BMPs shall be maintained, added, modified or replaced as soon as possible, immediately in most cases.
D. From the time seeding and mulching work begins until the date the Contract work is accepted, the Contractor shall maintain all seeded areas. Damage to seeded areas or to mulch materials shall be immediately restored. Damage to seeded areas or to mulch materials due to Contractor negligence shall be immediately restored at the Contractor's expense. Restoration of other damaged areas will be measured and paid for under the appropriate bid item.
E. Temporary BMPs may be removed upon completion of the project, as determined by the Water Quality Partial Acceptance walk-through. If removed, the area in which these BMPs were constructed shall be returned to a condition similar to that which existed prior to its disturbance. Removed BMPs shall become the property of the Contractor.
F. If a project delay occurs, the Contractor shall be responsible to continue erosion and sediment control operations beyond the original contract time.
G. Sediment removed during maintenance of BMPs and material from street sweeping may be used in or on embankment, provided it is distributed evenly across the embankment.
H. Whenever sediment collects on the paved surface, the surface shall be cleaned. Street washing will not be allowed. Storm drain inlet protection shall be in place prior to shoveling, sweeping, or

vacuuming. Sweeping shall be completed with a pickup broom or equipment capable of collecting sediment. Sweeping with a kick broom will not be allowed.

I. Material from pavement saw cutting operations shall be cleaned from the roadway surface during operations using a vacuum. A BMP, such as a berm, shall be placed to contain slurry from joint flushing operations until the residue can be removed from the soil surface. Aggregate bags, erosion logs or other permeable BMPs shall not be used. Residue shall not flow into driving lanes. It shall be removed and disposed of in a manner that meets all state and local regulations. Material containment and removal will not be paid for separately, but shall be included in the work.

8. RECORD KEEPING

The Contractor will provide a SWMP Notebook at the Preconstruction Conference, The Contractor shall provide the contents required for items A through Q. The notebook shall be stored in the project trailer. The SWMP Administrator shall modify and update the notebook as needed to reflect actual site conditions, prior to or as soon as practicable but in no case more than 72 hours after the change. The following Contract documents and reports shall be kept, maintained, and updated in the notebook under the appropriate items by the SWMP Administrator:

A. SWMP Plan Sheets – Notes, tabulation, sequence of major activities, area of disturbance, existing soil data, existing vegetation percent cover, potential pollutant sources, receiving water, non-stormwater discharges and environmental impacts.
B. SWMP Site Maps and Plan Title Sheet – Construction site boundaries, ground surface disturbance, limits of cut and fill, flow arrows, structural BMPs, non-structural BMPs, Springs, Streams, Wetlands and surface water. Also included on the sheets is the protection of trees, shrubs and cultural resources.
C. Standard Plans M-208-1, M-216-1 and M-615-1
D. BMP Details not in Standard Plan M-208-1 – Non-standard details.
E. Weekly meeting sign in sheet.
F. Calendar of Inspections – Calendar of inspections marking when all inspections take place.
G. Form 1176 – Weekly meeting notes and inspection report.
H. Region and Headquarter Water Quality Reports and Form 105(s) relating to Water Quality.
I. Description of Inspection and Maintenance Methods – Description of inspection and maintenance methods implemented at the site to maintain all BMPs identified in the SWMP and Items not addressed in the design.
J. Spill Response Plan – Reports of reportable spills submitted to CDPHE.
K. List and Evaluation of Potential Pollutants – List of potential pollutants as described in subsection 107.25 and approved Method Statement for Containing Pollutant Byproducts.
L. Other Correspondence – e.g., agreements with other MS4s, approved deferral request, CDPHE audit documentation, Water Quality Permit Transfer to Maintenance Punch List and other miscellaneous documentation.
M. TECS Certifications of the SWMP Administrator and all ECIs – Keep current through the life of the project.
N. Environmental Pre-construction Conference – Conference agenda with a certification of understanding of the terms and conditions of the CDPS-SCP and SWMP. The certification shall be signed by all attendees. A certification shall also be signed by all attendees of meetings held for new subcontractors beginning work on the project that could adversely affect water quality after the Environmental Pre-construction Conference has been held.

O. All Project Environmental Permits - All project environmental permits and associated applications and certifications, including, CDPS-SCP, Senate Bill 40, USACE 404, temporary stream crossings, dewatering, biological opinions and all other permits applicable to the project, including any separate CDPS-SCP obtained by the Contractor for staging area on private property, asphalt or concrete plant, etc.

P. Photographs Documenting Existing Vegetation – Project photographs shall be time stamped on paper with a maximum of four colored images per 8 ½ inch by 11-inch sheet and/or a digital copy of all photographs on CD-ROM/Flash Drive in (JPG format), documenting existing vegetation prior to construction commencing. On the bottom of each photograph shall be a description using Station Number or Mile Post of where the photograph was taken.

Q. Permanent Water Quality Plan Sheets - Plan sheets and specifications for permanent water quality structures, riprap.

The Engineer will incorporate the documents and reports available at the time of award. The Contractor shall provide and insert all other documents and reports as they become available during construction.

9. INTERIM, PERMANENT STABILIZATION AND LONG-TERM STORMWATER MANAGEMENT

Once earthwork has started, the Contractor shall continue erosion BMPs until permanent stabilization of the area has been completed and accepted. Clearing, grubbing and slope stabilization measures shall be performed regularly to ensure final stabilization. Failure to properly maintain erosion control and stabilization methods, either through improper phasing or sequencing will require the Contractor to repair or replace sections of earthwork at his expense. The Contractor shall schedule and implement the following stabilization measures during the course of the project:

A. Temporary Stabilization – At the end of each day, the Contractor shall stabilize disturbed areas by surface roughening, vertical tracking, or a combination thereof. Disturbed areas are locations where actions have been taken to alter the existing vegetation and/or underlying soil of a site, such as clearing, grading, road bed preparation, soil compaction, and movement and stockpiling of top soils. Other stabilization measures may be implemented, as approved. The maximum area of temporary stabilization shall not exceed 20 acres.

B. Interim Stabilization – Stockpiles and disturbed areas, as soon as known with reasonable certainty that work will be temporarily halted for 14 days or more, shall be stabilized using one or more of the specified following methods:

   I. Application of 1.5 tons of mechanically crimped certified weed free hay or straw in combination with an approved organic mulch tackifier.
   II. Placement of bonded fiber matrix in accordance with Section 213.
   III. Placement of mulching (hydraulic) wood cellulose fiber mulch with tackifier, in accordance with Section 213.
   IV. Application of spray-on mulch blanket in accordance with Section 213. Magnesium Chloride, Potassium Chloride and Sodium Chloride, or other salt products, will not be permitted as a stabilization method.

V. Protection of the interim stabilization method is required. Reapplication may be required as approved.

C. Summer and Winter Stabilization – Summer and winter stabilization is defined as months when seeding will not be permitted. As soon as the Contractor knows shutdown is to occur, interim stabilization shall be applied to the disturbed area. Protection of the interim stabilization method is required. Reapplication of interim stabilization may be required as directed.

D. Permanent Stabilization – Permanent stabilization is defined as the covering of disturbed areas with seeding, mulching with tackifier, soil retention coverings, and such non-erodible methods such riprap, road shouldering, etc., or a combination thereof as required by the Contract. Other permanent stabilization techniques may be proposed by the Contractor, in writing, and shall be used when approved in writing by the Engineer. Permanent stabilization shall begin within 48 hours after topsoil placement, soil conditioning, or combination thereof starts and shall be pursued to completion.

E. Final Stabilization – Final stabilization is defined as when all ground disturbing activities at the site have been completed, and uniform vegetative cover has been established with an individual plant density of at least 70 percent of pre-disturbance levels, or equivalent permanent physical erosion reduction methods have been employed.

A. SEEDING PLAN

Seeding will be required for an estimated 27 acres of disturbed area within the limits which are not surfaced in accordance with the Grading and Erosion Control Plans by Atwell, LLC. The following types and rates shall be used:

COMMON NAME	BOTANICAL NAME	LBS. PLS PER ACRE
Low-growth Seed Mix (dry land mix) for upland areas	Buffalograss (20%), Blue Grama (20%), Western Wheatgrass (20%), Sideoats Grama (20%, Thickspike Wheatgrass(10%), Streambank Wheatgrass (10%)	Total 11.0
Permanent Seed Mix (for water quality/detention ponds	Big Bluestem (10%), Yellow Indiangrass (10%), Switchgrass (10%), Sideoats Grama (10%), Wester Wheatgrass (10%), Thickspike Wheatgrass (10%), Praire Sandreed (10%), Green Needlegrass (10%), Slender Wheatgrass (5%), Streambank Wheatgrass (5%)	Total 9.2
Note: See detail 800-10, sheet 48 in GESC plans for further instructions.		

B. SEEDING APPLICATION:

Drill seed 0.25 inch to 0.5 inch into the soil. In small areas not accessible to a drill, hand broadcast or hydroseed at double the rate and rake 0.25 inch to 0.5 inch into the soil per subsection 212. Soil compaction shall be minimized for areas where permanent stabilization will be achieved through vegetative cover.

C. MULCHING APPLICATION:

Apply a minimum of 2 tons of certified weed free hay or 2 1/2 tons of certified weed free straw per acre and in accordance with Section 213, and mechanically crimp it into the soil in combination with an organic mulch tackifier.

Prior to winter shutdown or the summer seeding window closure: Uncompleted slopes shall be mulched with 2 tons of mulching (weed free) per acre, mechanically crimped into the topsoil in combination with an organic mulch tackifier in accordance with subsections 208 and 213.

D. SPECIAL REQUIREMENTS:

Due to high failure rates, hydroseeding will not be allowed for permanent stabilization.

E. SOIL CONDITIONING AND FERTILIZER REQUIREMENTS:

Minimum amendment material requirements for all disturbances to receive seeding (native).

Soil conditioners paid for as Item 212- Soil Conditioning (Acre)		
Biological nutrient* organic based fertilizer (lbs./acre)	Humate (lbs./acre)	Compost (yd3/acre[**] All areas <2:1 [1/2-inch depth]
300	200	65

*Biological nutrient organic based fertilizer shall not exceed 8-8-8 (N-P-K).

**Compost shall be in accordance to 212.02.

*** Humate shall include the following:

(a) A pH of 3 to 5
(b) Maximum 20% inert ingredient
(c) Minimum 80% organic matter with 40% minimum humic acid

F. SOIL RETENTION COVERING:

On slopes and ditches requiring a blanket or turf reinforcement mat (TRM), the blanket/TRM shall be placed in lieu of mulch and mulch tackifier and placed after seeding (native). See SWMP Site Map for blanket/TRM locations.

G. RESEEDING OPERATIONS/CORRECTIVE STABILIZATION:
Prior to partial acceptance.

1. All seeded areas shall be reviewed during the 7-day inspections by the SWMP Administrator for Construction and or Erosion Control Inspector for bare soils caused by surface or wind erosion. Bare areas caused by surface or gully erosion, blown away mulch, etc. shall be re-graded, seeded, and have the designated mulching applied as necessary, at no additional cost to the project.
2. The Contractor shall maintain seeding/mulch/tackifier/blanket/TRM, mow to control weeds or apply herbicide to control weeds in the seeded areas until Partial Acceptance of the stormwater construction work.

10. PRIOR TO PROJECT PARTIAL ACCEPTANCE

A. Reclamation of Washout Areas. After concrete operations are complete, washout areas shall be reclaimed in accordance with subsection 208.05(n) at the Contractor's expense.

B. Survey. When Permanent Water Quality BMPs (Permanent BMP) are required on the project, the Contractor shall survey the BMPs to confirm that they conform to the configuration and grade shown on the Plans. The results of the survey shall be submitted as AutoCad drawing files and PDF files, showing both designed and final elevations and configurations.

The Engineer and the City of Commerce City (COCC) Engineer will perform a walkthrough of the Permanent BMPs to confirm conformance to material requirements, locations and dimensions of the Permanent BMPs. Permanent BMPs not meeting the Contract requirements will be identified in writing by the Engineer and shall be repaired or replaced at the Contractor's expense. Correction surveys shall be performed at the Contractor's expense to confirm the locations and dimensions of each Permanent BMP. Final as-built plans of the Permanent BMPs shall be provided to the Engineer and the COCC for their records.

C. Locations of Temporary BMPs. The Engineer will identify locations where modification, cleaning or removal of temporary BMPs are required, and will provide these in writing to the Contractor. Upon completion of work required, the SWMP Administrator shall modify the SWMP to provide an accurate depiction of BMPS to remain on the project site.

11. PRIOR TO PROJECT FINAL ACCEPTANCE

A. At the Partial Acceptance of the project, it shall be determined by the SWMP Administrator for Construction and the Engineer which temporary control measures shall remain until 70% revegetation is established or which shall be removed.

B. At the end of the project, all ditch checks shall either consist of temporary erosion logs (or equivalent) or permanent riprap.

C. All storm drains shall be cleaned prior to the Final Acceptance of the project. Work shall be included in 202 Clean Culvert.

12. NARRATIVES

Control Measure Matrixes During Construction:

A. Control measure narratives have been included for the COCC Standard Specifications and Plans, along with any non-standard control measures approved during the design process. If a Non-Standard Control Measure not included in the SWMP is proposed and approved by the Engineer the SWMP Administrator for Construction shall do the following: Place an "X" in the column for non-standard and complete a Non-Standard Control Measure Specification and Narrative covering the what, when, where and why the control measure is being used shall be add to the SWMP. The appropriate "X" shall also be added to the implementation phase(s).

B. The SWMP Administrator for Construction shall place an "X" in the column In Use On-Site when the control measure has been installed.

C. A "P" in the Initial Activities Column indicates that the control measure shall be installed before construction activity starts. Locations and quantities will be discussed during the Environmental Pre-construction Conference with the Regional Water Pollution Control Manager.

STRUCTURAL Control Measures that may be potentially used on the project for erosion and sediment control; practices may include, but are not limited to:

APPLICATION, BMP/CONTROL MEASURE	NARRATIVE	M-STANDARD or " X" for NON-STANDARD	IN USE ON SITE	BMP/CONTROL MEASURE TO BE LOCATED BY SWMP ADMINSTRATOR	BMP/CONTROL MEASURE IMPLEMENTATION PHASE		
					INITIAL CONSTRUCTION ACTIVITY (CONTROL MEASURE INSTALEED PRE-CONSTRUCTION)	INTERIM CONSTRUCTION ACTIVITIES	PERMANENT STABILIZATION
PROTECTION OF EXISTING WETLANDS *Fence (plastic) and erosion logs*	Fence (plastic) shall be placed in combination with erosion logs to prevent encroachment of construction traffic and sediment into state waters prior to start of construction disturbances. Fence (plastic) shall be placed adjacent to the wetlands; erosion logs shall be placed between the plastic						

	fence and disturbance area. Logs shall be placed to direct flows away from or filter water running into wetlands from disturbance areas.						
PROTECTION OF EXISTING TREES/LANDSCAPING Fence (plastic)	Fence (plastic) shall be used in areas indicated in the plans to prevent encroachment of construction traffic and sediment for the protection of mature trees and/or existing landscaping prior to start of construction disturbances.						
CHECK DAM/DITCH CHECK Erosion log, silt berm, silt dike, rock check dam	Placed in ditches immediately upon completion of ditch grading to reduce velocity of runoff in ditch. For existing ditches, place prior to start of construction disturbances.	800-07					
Storm Drain Inlet Protection In Paved Roadways (Type 1, 2 and 3 as shown on M-208-1, sheet 5 of 11)	Manufactured storm drain inlet protection placed prior to construction disturbances as detailed in M-208-1, to protect existing inlets or immediately upon completion of new inlets to prevent sediment from entering the inlet throughout construction.	800-06					
Storm Drain Inlet Protection In Native Seed Areas (M-604 Standard Inlets Type C and D)	Erosion logs or aggregate bags placed around inlet grate to prevent sediment from entering inlet. Place prior to construction disturbances to protect existing inlets or immediately upon completion of new inlets.	800-06					
Storm Drain Inlet Protection In Native Seed Areas (Nyoplast)	Erosion logs or aggregate bags placed around inlet grate to prevent sediment from entering inlet. Place prior to construction disturbances to protect existing inlets or immediately upon completion of new inlets.	800-06					
CULVERT INLET/OUTLET PROTECTION Erosion logs, aggregate bags	Placed at mouth of culvert inlets and over top of culvert at inlet and outlet where disturbance may be occurring adjacent to pipe to prevent sediment laden water from entering pipe or drainage. Place prior to start of construction disturbances.	800-07					
TYPE C, TYPE D AND TYPE 13 PROTECTION Erosion logs, aggregate bags, erosion bales	Placed around inlet grate or slope and ditch paving to prevent sediment from entering inlet. Place prior to start of construction disturbances.	800-06					
*STOCKPILE PROTECTION Temporary berm, erosion logs, aggregate bags**	Placed within specified distance, in accordance with subsection 208.06, from toe to contain sediment around stockpile. *Aggregate bags are easily moved and replaced for access during the work day. Place prior to start of stockpile, increase control as stock pile increases size.						
*TOE OF FILL PROTECTION Erosion logs, temporary berm, silt fence, topsoil windrow**	Place prior to slope/embankment work to capture sediment and protect and delineate undisturbed areas. *Can be used to stockpile topsoil for salvage.	M-208					
*PERIMETER CONTROL Erosion logs, silt fence, temporary berm, topsoil windrow**	Placed prior to construction commencing to address potential run-on water from off site, and to divert around disturbed area. *Can be used to stockpile topsoil for salvage.	800-03					
SEDIMENT CONTROL/ SLOPE CONTROL Silt fence, erosion logs	Placed on the contour of a slope to contain and slow down construction runoff. Place prior to start of construction disturbances.	800-11					
TEMPORARY SEDIMENT TRAP	Used to capture sediment laden runoff from disturbed areas < 5 acres during construction. Place prior to start of construction disturbances.	M-208					
EMBANKMENT PROTECTION OR TEMPORARY SLOPE DRAIN	Placed as a conduit or chute to drain runoff down slope and to prevent erosion of slope.	M-208					
CONCRETE WASHOUT In-ground or fabricated	Construction control, used for waste management of concrete and concrete equipment cleaning. Place prior to start of concrete activities.	800-03					
VEHICLE TRACKING PAD	Source control, placed to prevent tracking of sediment from disturbed area to offsite surface. Place prior to start of construction disturbances.	800-13					

SWEEPING	Source control, used to remove sediment tracked onto paved surfaces and to prevent sediment from entering drainage system. Sweep daily and at the end of the construction shift as needed. Kick brooms shall not be permitted.						
Engineered SEDIMENT BASIN	Constructed early in project, prior to storm sewer/ditches and in accordance with 208.05(p) to capture storm flow. Outlet structure and/or outfall shall be modified for temporary sediment control using an approved non-standard detail.						
DEWATERING (Contractor is responsible for obtaining a permit from Colorado Department of Health and Environment.)	Shall be done in such a manner to prevent potential pollutants from entering state waters.						
TEMPORARY STREAM CROSSING	Constructed over stream or drainage to prevent discharge of pollutants from construction equipment into water.						
CLEAN WATER DIVERSION	Placed to divert clean surface or ground water around disturbance area to prevent it from mixing with construction runoff.						
OTHER							

NON-STRUCTURAL BMPs/Control Measures that may be potentially used on the project for erosion and sediment control; practices may include, but are not limited to:

Erosion control devices are used to limit the amount of soil loss on site. Sediment control devices are designed to capture sediment on the project site. Construction controls are BMPs/Control Measures related to construction access and staging. BMP/Control Measure locations are indicated on the SWMP Site Map (Erosion and Sediment Control Plans by Atwell, LLC.).

*** Use of vegetative buffer strip requirements.** The CDPHE Water Quality Control Division Technical Memorandum dated August 27, 2015 clarifies the requirements for utilization of existing vegetation as a buffer type of sediment control measure, while maintaining compliance with the CDPS permit for Stormwater Discharges Associated with Construction Activity – CDPS Permit No. COR0300000. In general, the division does not recommend that vegetated buffers be implemented as a sediment removal control measure for runoff from disturbed areas at construction sites, unless implemented as a "finishing" component of a treatment train comprised of additional, adequate up-gradient control measures. The entire memorandum can be found at: **https://www.colorado.gov/pacific/sites/default/files/Vegetative%20Buffer%20Memo.pdf**

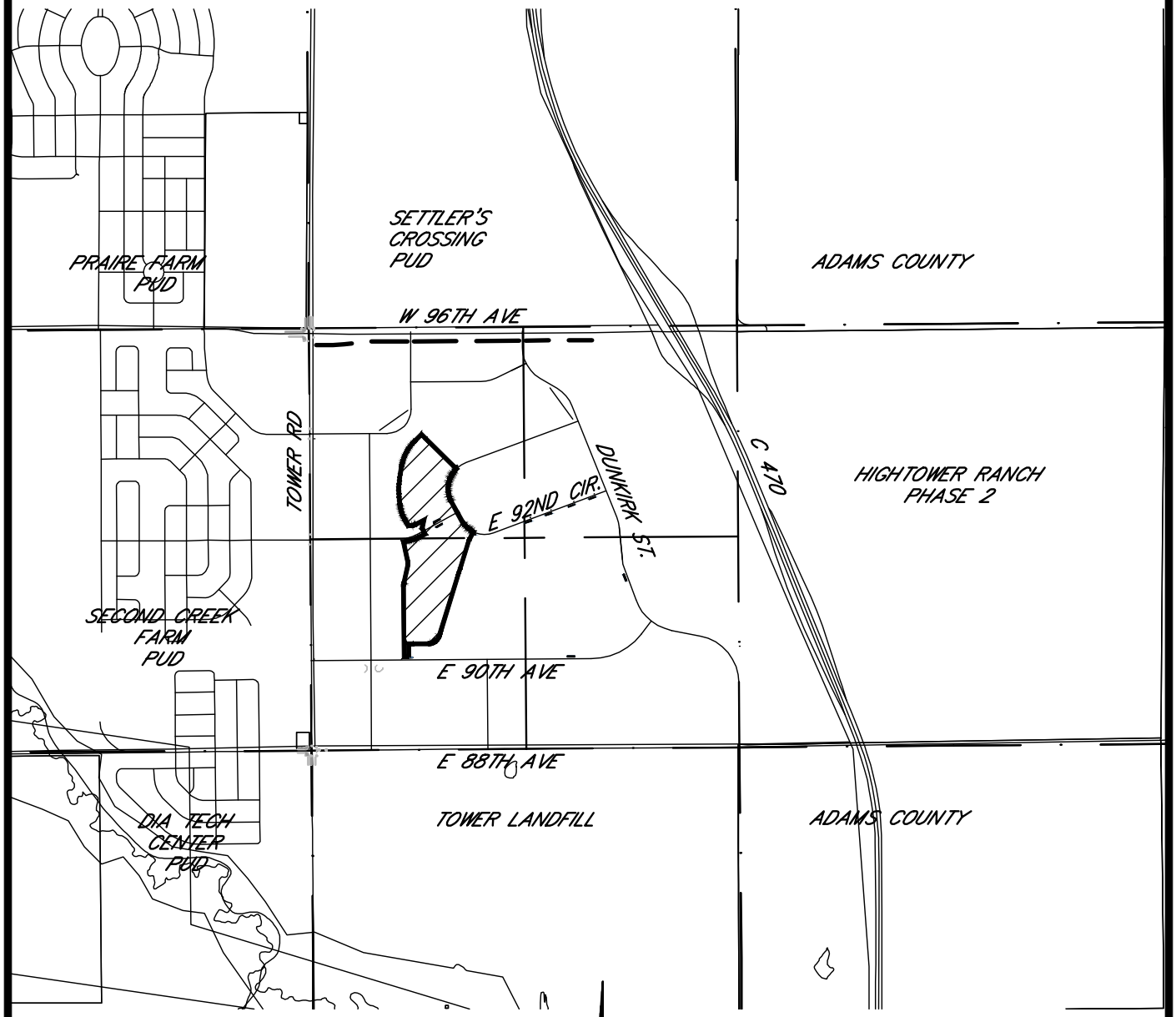
APPLICATION, BMP/CONTROL MEASURE	NARRATIVE	M-STANDARD or " X" for NON-STANDARD	IN USE ON SITE	BMP/CONTROL MEASURE TO BE LOCATED BY SWMP ADMINSTRATOR	BMP/CONTROL MEASURE IMPLEMENTATION PHASE		
					INITIAL CONSTRUCTION ACTIVITY (CONTROL MEASURE INSTALEED PRE-CONSTRUCTION)	INTERIM CONSTRUCTION ACTIVITIES	PERMANENT STABILIZATION
** VEGETATIVE BUFFER STRIP* *Fence (plastic)*	Filter sediment laden runoff from disturbance area. Area to be identified on SWMP prior to construction starting.						
GRADING APPLICATIONS (LANDFORM)	Existing or created landforms may be used as a BMP/Control Measure if they prevent sediment from entering or leaving the disturbance area. If a landform directs flow of water to a concentrated outfall point, the outfall point shall be protected to prevent erosion. Area to be identified on SWMP prior to construction starting.						
TOPSOIL MANAGEMENT STOCKPILE/SALVAGE *Windrow or stockpile*	Prior to any site disturbance work commencing, existing topsoil shall be scraped to a depth of 4 inches, and placed in stockpiles or windrows. Upon completion of slope work/final grading (less 4 inches), topsoil shall be evenly distributed over embankment to a depth of 4 inches.						
SURFACE ROUGHENING / GRADING TECHNIQUES	Temporary stabilization of disturbance and to minimize wind and erosion.						
SEEDING (TEMPORARY)	Temporary stabilization used for over wintering of disturbance or used to control erosion for areas scheduled for future construction.						
BONDED FIBER MATRIX and Spray-on Mulch Blanket (hydraulic applied mulch	Not to be used in areas of concentrated flows, i.e. ditch lines. To be for either Interim or Permanent Stabilization placed as a surface cover for erosion control. May be used as surface cover when work is temporarily halted and as approved by the Engineer for stockpiles.						
Straw or Hay MULCH/MULCH TACKIFIER	Interim or Permanent Stabilization placed as a surface cover for erosion control and or seeding establishment. To be installed as Interim Stabilization as a surface cover when work is temporarily halted and as approved by the Engineer						

SPRAY-ON MULCH BLANKET (Not to be used in areas of concentrated flows, i.e. ditch lines.)	Temporary or Final Stabilization placed as a surface cover for erosion control and or seeding establishment. To be installed as temporary surface cover when work is temporarily halted and as approved by the Engineer						
SEEDING PERMANENT (NATIVE)	Final Stabilization of disturbance and to reduce runoff and control erosion on disturbed areas.						
SOIL RETENTION BLANKET (SRB)	Final Stabilization of disturbance and to reduce runoff and control erosion on disturbed areas.						
TURF REINFORCEMENT MAT (TRM)	Final Stabilization of disturbance and to reduce runoff and control erosion on disturbed areas. Placed in channels or on slopes for erosion control, channel liner and seeding establishment.						
OTHER							

APPENDIX A
VICINITY MAP

Legato - Filing No. 2

A PART OF SECTION 22, TOWNSHIP 2 SOUTH, RANGE 66 WEST
OF THE SIXTH PRINCIPAL MERIDIAN,
COUNTY OF ADAMS, CITY OF COMMERCE CITY,
STATE OF COLORADO



PROJECT NO.: 19002561
DATE: 6/26/2020

SCALE: 1" = 2,000'

ATWELL
866.850.4200 www.atwell-group.com
6200 S. SYRACUSE WAY, SUITE470
GREENWOOD VILLAGE, CO 80111
303.825.7100
CONTACT: DANIEL MADRUGA
DMADRUGA@ATWELL-GROUP.COM

APPENDIX B
FEMA FIRM MAP

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures.** Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was Universal Transverse Mercator (UTM) zone 13. The **horizontal datum** was NAD83, GRS1980 spheroid. Differences in datum, spheroid, projection or UTM zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum.** For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at http://www.ngs.noaa.gov/ or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, N/NGS12
National Geodetic Survey
SSMC- 3, #9202
1315 East- West Highway
Silver Spring, MD 20910- 3282

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at **(301) 713- 3242,** or visit its website at http://www.ngs.noaa.gov/.

Base map information shown on this FIRM was provided by the Adams County and Commerce City GIS departments. The coordinate system used for the production of the digital FIRM is Universe Transverse Mercator, Zone 13N, referenced to North American Datum of 1983 and the GRS 80 spheroid, Western Hemisphere.

This map reflects more detailed and up- to- date **stream channel configurations** than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables *in the Flood Insurance Study report (which contains authoritative hydraulic data)* may reflect stream channel distances that differ from what is shown on this map.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de- annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

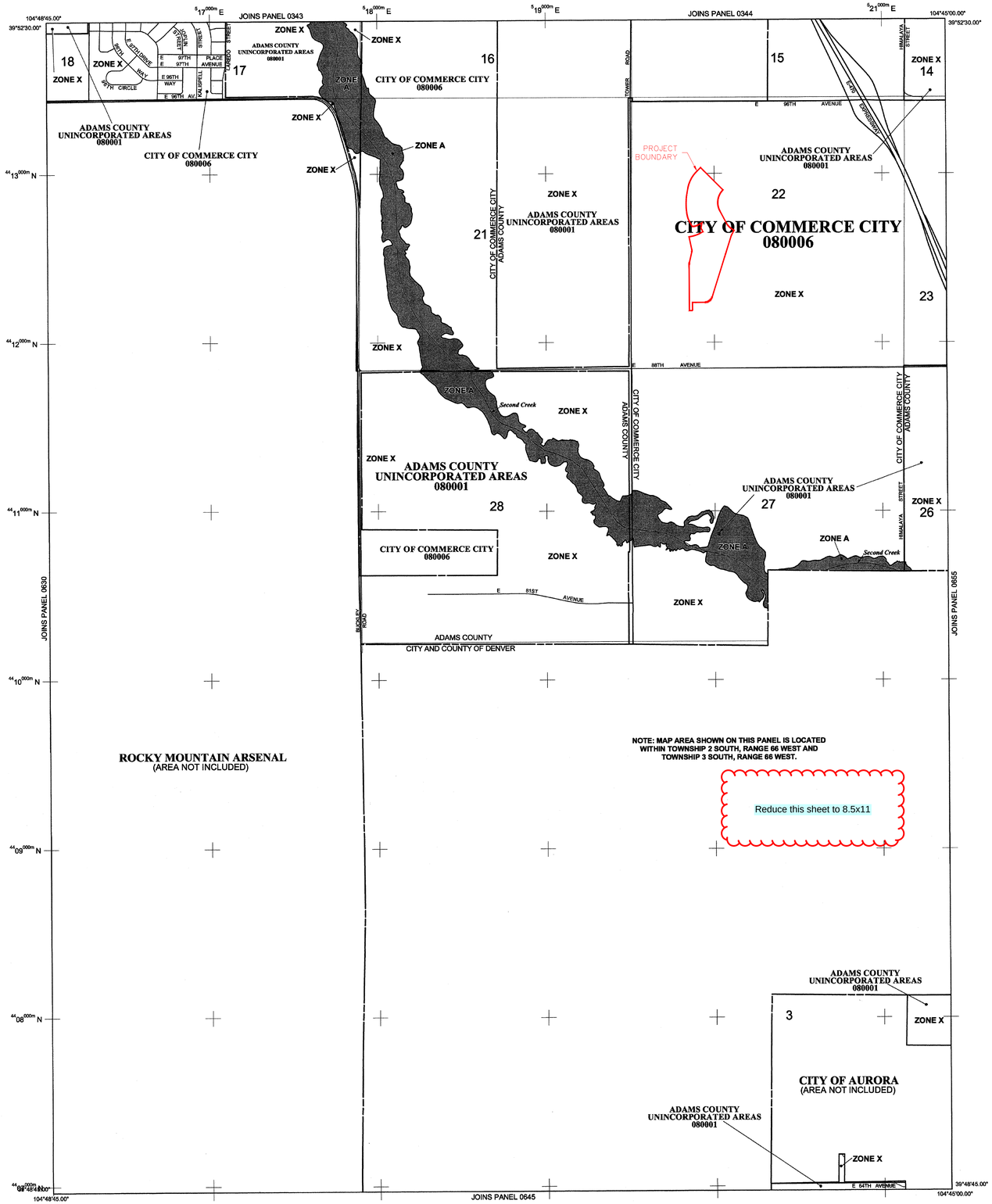
Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

Contact the **FEMA Map Service Center** at 1- 800- 358- 9616 for information on available products associated with this FIRM. Available products may include previously issued Letters of Map Change, *a Flood Insurance Study report,* and/or digital versions of this map. The FEMA Map Service Center may also be reached by Fax at 1- 800- 358- 9620 and its website at http://www.msc.fema.gov/.

If you have **questions about this map** or questions concerning the National Flood Insurance Program in general, please call **1- 877- FEMA MAP** (1- 877- 336- 2627) or visit the FEMA website at http://www.fema.gov/.

This digital Flood Insurance Rate Map (FIRM) was produced through a cooperative partnership between the State of Colorado Water Conservation Board, the Urban Drainage and Flood Control District, and the Federal Emergency Management Agency (FEMA). The State of Colorado Water Conservation Board and the Urban Drainage and Flood Control District have implemented a long-term approach of floodplain management to reduce the costs associated with flooding. As part of this effort, both the State of Colorado and the Urban Drainage and Flood Control District have joined in Cooperating Technical Partner agreements with FEMA to produce this digital FIRM.

Additional flood hazard information and resources are available from local communities, the Colorado Water Conservation Board, and the Urban Drainage and Flood Control District.



LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A	No Base Flood Elevations determined.
ZONE AE	Base Flood Elevations determined.
ZONE AH	Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
ZONE AO	Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
ZONE AR	Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
ZONE A99	Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
ZONE V	Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
ZONE VE	Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X	Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X	Areas determined to be outside the 0.2% annual chance floodplain.
ZONE D	Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

	Floodplain boundary
	Floodway boundary
	Zone D boundary
	CBRS and OPA boundary
	Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
513	Base Flood Elevation line and value; elevation in feet*
(EL 987)	Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the North American Vertical Datum of 1988 (NAVD 88)

A — A	Cross section line
23 - - - - - 23	Transect line
97°07'30", 32°22'30"	Geographic coordinates referenced to the North American Datum of 1983 (NAD 83)
$^{42}75^{000m}$N	1000-meter Universal Transverse Mercator grid ticks, zone 13
6000000 M	5000-foot grid ticks: Alabama State Plane coordinate system, east zone (FIPSZONE 0101), Transverse Mercator
DX5510 ×	Bench mark (see explanation in Notes to Users section of this FIRM panel)
• M1.5	River Mile

MAP REPOSITORIES
Refer to Map Repositories list on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
August 16, 1995
EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL
March 5, 2007 - to update map format.

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1- 800- 638- 6620.

MAP SCALE 1" = 1000'
500 0 1000 2000 FEET
300 0 300 600 METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0635H

FIRM
FLOOD INSURANCE RATE MAP
ADAMS COUNTY, COLORADO
AND INCORPORATED AREAS

PANEL 635 OF 1150
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
ADAMS COUNTY	080001	0635	H
COMMERCE CITY, CITY OF	080006	0635	H

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

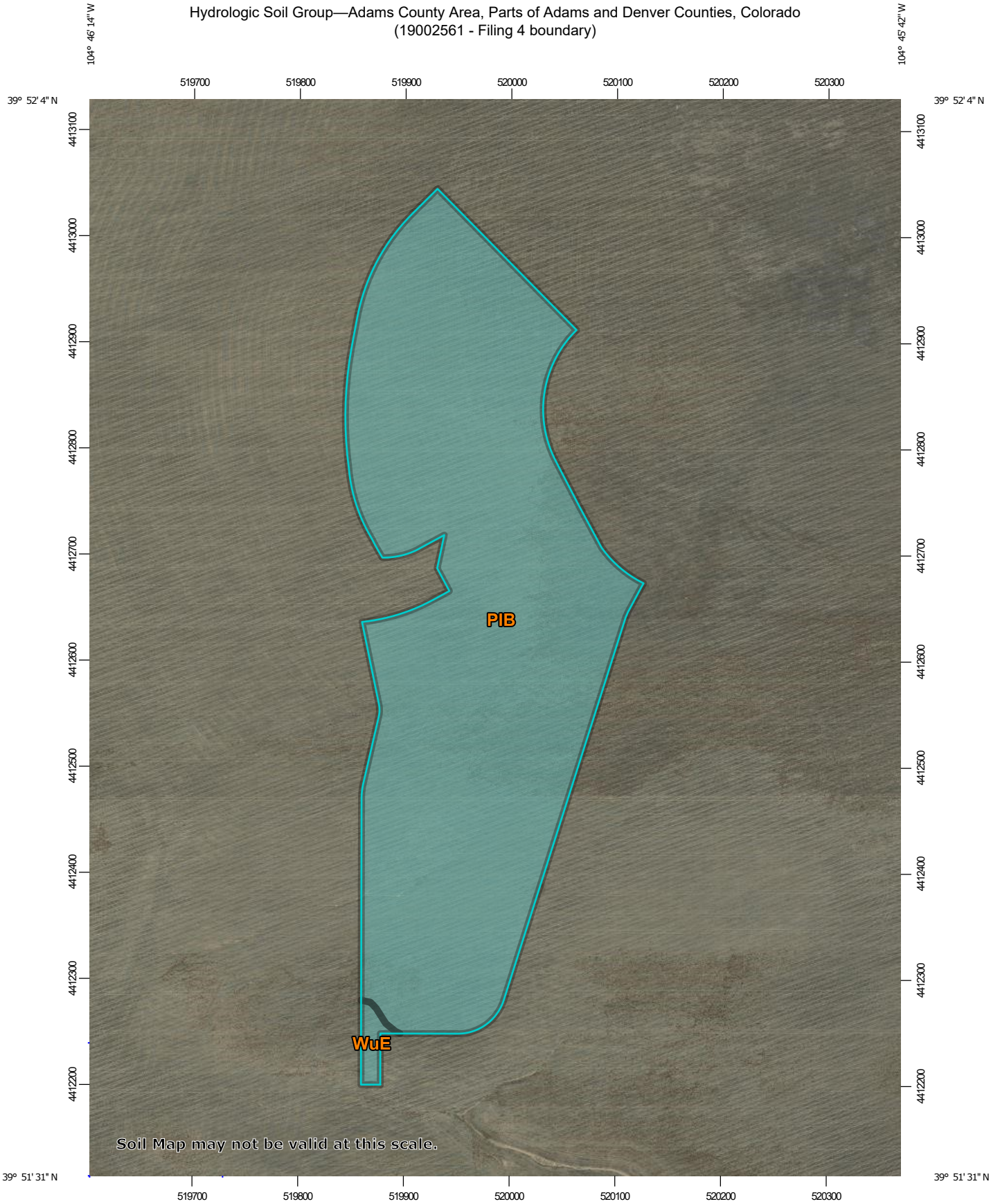
MAP NUMBER
08001C0635H

MAP REVISED
MARCH 5, 2007

Federal Emergency Management Agency

APPENDIX C
SOILS SURVEY

Hydrologic Soil Group—Adams County Area, Parts of Adams and Denver Counties, Colorado
(19002561 - Filing 4 boundary)



Map Scale: 1:4,950 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 50 100 200 300

Feet: 0 200 400 800 1200

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 13N WGS84

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features

Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Adams County Area, Parts of Adams and Denver Counties, Colorado
Survey Area Data: Version 16, Sep 12, 2019

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Oct 3, 2018—Dec 4, 2018

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
PlB	Platner loam, 0 to 3 percent slopes	C	34.6	98.9%
WuE	Wiley-Adena-Renohill complex, 3 to 20 percent slopes	C	0.4	1.1%
Totals for Area of Interest			**35.0**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

APPENDIX D
INSPECTION REPORT

City of Commerce City – Public Works

STORMWATER-Construction Site Inspection Report

(1) Project Name:	(2) Project Location:	(3) Date:
(4) SWMP Current:	(5) Inspection Type:	(6) Inspected By:

(7) **BMPs ON SITE AT TIME OF INSPECTION**

	In SWMP	Used	Not Needed at this time
(a) EROSION CONTROL BMPs ON SITE			
Seeding	❑	❑	❑
Mulching/Mulch Tackifier	❑	❑	❑
Soil Binder	❑	❑	❑
Erosion Control Blankets	❑	❑	❑
Embankment Protector*	❑	❑	❑
Grading Techniques*	❑	❑	❑
Berm/Diversion	❑	❑	❑
Check Dams*	❑	❑	❑
Outlet Protection*	❑	❑	❑
Other:	❑	❑	❑
(c) BMPs FOR SPECIAL CONDITIONS			
Dewatering Structure	❑	❑	❑
Temp. Stream Crossing	❑	❑	❑
Clear Water Diversion	❑	❑	❑
Contaminated Area Fencing	❑	❑	❑
Other:	❑	❑	❑

	In SWMP	Used	Not Needed at this time
(b) SEDIMENT CONTROL BMPs ON SITE			
Vehicle Tracking Pad	❑	❑	❑
Sediment Trap	❑	❑	❑
Inlet Protection*	❑	❑	❑
Sediment Basin	❑	❑	❑
Perimeter Control*	❑	❑	❑
Other:	❑	❑	❑
(d) MATERIALS HANDLING, SPILL PREVENTION, WASTE MANAGEMENT AND GENERAL POLLUTION PREVENTION			
Stockpile Management*	❑	❑	❑
Materials Management*	❑	❑	❑
Concrete Waste Management*	❑	❑	❑
Saw Water Management*	❑	❑	❑
Solid Waste/Trash Management	❑	❑	❑
Street Sweeping	❑	❑	❑
Sanitary Facility*	❑	❑	❑
Vehicle and Equip. Management	❑	❑	❑
Other:	❑	❑	❑

(8) **CONSTRUCTION SITE ASSESSMENT: **Off site Pollutant Discharges are a Violation of the Permit and may result in Formal Enforcement****

(a) Is there evidence of discharge of sediment or other pollutants from the site? ❑ Yes ❑ No
*If yes, explain the discharge and the corrective actions in section 16 (Construction Site Assessment & Corrective Actions) or section 18 (General Notes).
(b) Has sediment or other pollutants discharging from the site reached state waters? ❑ Yes ❑ No
*If yes, see subsection 208.03(c) and Part II A.2 and 3 of the State permit for reporting requirements.

(9) **GENERAL NOTES**

(10) **INSPECTION CERTIFICATION**

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Contractor's Erosion Control Supervisor/SWMP Administrator (Signature Required)	Date:

(11) COMPLIANCE CERTIFICATION

Corrective action(s) has been taken, or where a report does not identify any incidents requiring corrective action, the report shall contain a signed statement indicating the site is in compliance with the permit to the best of the signer's knowledge and belief.

Contractor's Erosion Control Supervisor/SWMP Administrator (Signature Required)	Date:

(12) **CONSTRUCTION SITE ASSESSMENT & CORRECTIVE ACTIONS** ****Off site Pollutant Discharges are a Violation of the Permit and may result in Formal Enforcement****

The construction site perimeter, all disturbed areas, material and/or waste storage areas that are exposed to precipitation, discharge locations, and locations where vehicles access the site shall be inspected for evidence of, or the **potential** for, pollutants leaving the construction site boundaries, entering the stormwater drainage system, or discharging to state waters. If there is evidence of sediment or other pollutants discharging from the site, see section 17 (Construction Site Assessment).

All erosion and sediment control practices identified in the SWMP shall be evaluated to ensure that they are maintained and operating correctly. Identify the condition of the BMP, using more than one letter if necessary: (**I**) Incorrect Installation; (**M**) Maintenance is needed; (**F**) BMP failed to operate; (**A**) Additional BMP is needed; (**R**) Remove BMP. Keep copies of this blank page for additional room if needed.

Continuous maintenance is required on all BMPs. **BMPs that are not operating effectively, have proven to be inadequate, or have failed must be addressed as soon as possible, immediately in most cases.**

Location	BMP	Condition	Comments: Description of Corrective Action and Preventative Measure Taken	Date Completed & Initials

APPENDIX E
SPILL PREVENTION AND CONTROL PLAN

SPILL PREVENTION, CONTROL and COUNTERMEASURE PLAN (SPCC)

Whenever significant quantities of fuels, materials, vehicle fluids, or other pollutants are to be used on site, specific procedures for material containment and spill prevention shall be developed and implemented.

Materials On-Site

Spill control procedures will be implemented when materials are stockpiled or when chemicals and/or fluids are used in the construction area.

Stockpiles of Dry Materials

The following spill prevention procedures shall be implemented:

All materials shall be stockpiled in designated areas, with BMPs used to prevent the runoff of contaminants. BMPs such as silt fence and sediment control logs will be installed according to City and UDFCD criteria using the details shown in the Stormwater Management Plans. Loading and unloading operations shall be performed in a manner to prevent or limit materials from being spilled. Any spilled materials shall be swept up immediately after the operations are performed.

Vehicle Fueling

The following spill prevention procedures shall be implemented:

All vehicle fueling will be done off-site as much as possible. All on-site fueling operations will be performed in designated areas. Measures will be taken where necessary to prevent spills during vehicle fueling operations. These measures may include the placement of a temporary berm around the fueling area, covering the fueling area under a temporary portable structure, and/or the placement of drip pans under valves and tank openings. Berms will be constructed around all fueling areas. An adequate supply of absorbents will also be stockpiled at each fueling area.

Routine Vehicle and Equipment Maintenance

The following spill prevention procedures shall be implemented:

All vehicle maintenance will be performed off-site when possible. However, there may be occasions where construction equipment and vehicles may break down at the site and on-site repairs are more feasible. On-site vehicle and equipment maintenance, if needed, will be performed in designated areas, where practical, and enclosed by earthen berms. All maintenance areas will maintain an adequate supply of drip pans. These pans will be placed underneath vehicles as needed and absorbents will be used in the event of a minor spill or leak.

SPILL RESPONSE

NOTE: IN CASE OF FIRE, EVACUATE ALL PERSONNEL FROM THE IMMEDIATE AREA, RENDER FIRST AID TO ANYONE WHO IS INJURED, AND DIAL 911 IMMEDIATELY. TAKE APPROPRIATE STEPS TO PROTECT HUMAN LIFE AND TO CONTROL FIRES FIRST. SPILL CONTROL IS A SECONDARY CONCERN.

Cleanup and Removal Procedures

- Upon detection of any spill, the first action to be taken is to ensure personal and public safety. All possible ignition sources, including running engines, electrical equipment (including cellular telephones, etc.), or other hazards will be immediately turned off or removed from the area. The extent of the spill and the nature of the spilled material will be evaluated to determine if remedial actions could result in any health hazards, escalation of the spill, or further damage that would intensify the problem. If such conditions exist, a designated employee will oversee the area of the spill and the construction supervisor will be notified immediately.
- The source of the spill will be identified and if possible the flow of pollutants stopped if it can be done safely. However, no employee will attend to the source or begin cleanup of the spill until **ALL** emergency priorities (fire, injuries, etc.) have been addressed.

Small Spills

Small spills (usually <5 gallons) consist of minor quantities of gasoline, oil, anti-freeze, or other materials that can be cleaned up by a single employee using readily available materials.

The following procedures shall be used for clean up of small spills:

1. Ensure personal safety, evaluate the spill, and if possible, stop the flow of pollutants.

2. Contain the spread of the spill using absorbents, portable berms, sandbags, or other available measures.

3. Spread absorbent materials on the area to soak up as much of the liquid as possible and to prevent infiltration into the soil.

4. Once the liquids have been absorbed, remove all absorbents from the spill and place the materials in a suitable storage container. On paved areas, wipe any remaining liquids from the surface and place the materials in a storage container. Do not spray or wash down the area using water. For open soil areas, excavate any contaminated soil as soon as possible and place the soil in a suitable storage container. All materials will then be transported off-site for disposal.

5. If immediate transfer and storage of the contaminated soil is not practical, excavate and place the contaminated soil on a double thickness sheet of 3-mil or higher polyethylene film. In addition, a small berm should be formed around the outer edges of the soil

stockpile, underneath the polyethylene film, to ensure that contaminants are not washed from the site during precipitation events and those materials do not seep through the berm.

6. Record all significant facts and information about the spill, including the following:
    - Type of pollutant
    - Location
    - Apparent source
    - Estimated volume
    - Time of discovery
    - Actions taken to clean up spill

7. Notify the supervisor of the spill and provide the information from Item #6. The supervisor will then contact the City of Westminster and Adams County.

Medium to Large Spills

Medium to large spills consist of larger quantities of materials (usually >5 – 25 gallons) that are used on site that cannot be controlled by a single employee. Generally, a number of facility personnel will be needed to control the spill and a response may require the suspension of other facility activities.

The following procedure shall be used for the cleanup of medium to large spills:

1. Ensure personal and public safety, evaluate the spill, and if possible, stop the flow of pollutants.

2. Immediately dispatch a front-end loader or similar equipment to the spill and construct a berm or berms down gradient of the spill to minimize the spread of potential pollutants. On paved surfaces, portable berms, sandbags, booms, or other measures will be used to control the lateral spread of the pollutants.

3. When the spread of the spill has been laterally contained, contact the supervisor or designated facility employee and provide them information on the location, type, and amount of spilled material, and a briefing on the extent of the spread and measures undertaken to contain the contaminants.

4. Depending on the nature of the spill, mobilize additional resources as needed to contain the contaminants.

5. Cleanup will commence when the lateral spread has been contained and the notification to the supervisor has been made.

6. Freestanding liquid will be bailed or pumped into 55-gallon storage drums, steel tanks, or other suitable storage containers. When all the liquid has been removed from the pavement or soil layer, absorbents will be applied to the surface and transferred to the storage containers when they have soaked up as much of the spill as possible.

7. On paved surfaces, the remaining contaminants will be removed to the extent possible, with rags, sweeping, or similar measures. The area of the spill will not be sprayed or washed down using water. Any contaminant soaked materials will be placed into the storage containers with the other absorbents.

8. The remaining contaminated soils will be excavated and loaded into a dump truck(s) for disposal off-site at a designated facility. If transport off-site is not immediately available, the remaining soils will be stockpiled on a double thickness sheet of 3-mil or higher polyethylene film. In addition, a small berm will be formed around the outer edges of the soil stockpile, underneath the polyethylene film, to ensure that contaminants are not washed from the site during precipitation and do not seep through the berm.

9. Record all significant facts and information about the spill, including the following:
    - Type of pollutant
    - Location
    - Apparent source
    - Estimated volume
    - Time of discovery
    - Actions taken to clean up spill

10. Provide the SWMP Administrator (or designated employee) with the information from Item #9. The SWMP Administrator will then contact the City of Commerce City, and the Colorado Department of Public Health & Environment.

NOTIFICATION

Notification to the Colorado Department of Public Health & Environment (CDPHE) is required if there is any release or suspected release of any substance, including oil or other substances that spill into or threaten State waters. Unless otherwise noted, notifications are to be made by the supervisor and only after emergency responses related to the release have been implemented. This will prevent misinformation and assures that notifications are properly conducted.

The notification requirements are as follows:

1. **Spills into/or Threatens State Waters**: Immediate notification is required for releases that occur beneath the surface of the land or impact or threaten waters of the State of threaten the public health and welfare. Notifications that will be made are:
    a. For any substance, regardless of quantity, contact CDPHE (24-hour spill reporting line) at 1-877-518-5608. State as follows:
        a) Give you name.
        b) Give location of spill (name of city).
        c) Describe the nature of the spill, type of products, and estimate size of spill.
        d) Describe type of action taken thus far, type of assistance or equipment needed.
    b. For any quantity of oil or other fluids, call the National Response Center at 1-800-424-8802. State as follows:
        a) Give your name.
        b) Give location of spill (name of city and state).
        c) Describe the nature of the spill, type of product, and estimate size of

spill.

d) Describe type of action taken thus far, type of assistance or equipment needed.

2. **Reportable Quantity Spill on Land Surface**: Immediate notification is required of a release upon the land surface of an oil in quantity that exceeds 25 gallons, or of a hazardous substance that equals or exceeds 10 pounds or its reportable quantity under Section 101(14) of the Comprehensive Environmental Response, Compensation Liability Act (CERCLA) of 1980 as amended (40 CFR Part 302) and Section 329 (3) of the Emergency Planning and Community Right to Know Act of 1986 (40 CFR Part 355) whichever is less. This requirement does apply at a minimum to the substances listed in Table 1.

TABLE 1
Substances Requiring Notification

SUBSTANCE	REPORTABLE QUANTITY
Motor Oil	25 Gallons
Hydraulic Oil	25 Gallons
Gasoline/Diesel Fuel	25 Gallons

The notification procedures to be followed are:

a) Give your name.
b) Give location of spill (name of city and state).
c) Describe nature of the spill, type of product, and estimate size of spill.
d) Describe type of action taken thus far, type of assistance or equipment needed.

3. Notification is not required for release of oil upon the land surface of 25 gallons or less that will not constitute a threat to public health and welfare, the environmental or a threat of entering the waters of the State.

4. Notification, as required in paragraphs 1 and 2 above, will be made to the CDPHE using the 24-hour telephone number to report environmental spills. All information known about the release at the time of discovery is to be included, such as the time of occurrence, quantity and type of material, location and any corrective or clean-up actions presently being taken. Table 2 lists these phone numbers.

SPILL RESPONSE CONTACTS

TABLE 2
Emergency Notification Contacts

Name/Agency	Number
Fire Department	911
Police Department	911
Ambulance	911
Hospital	911
National Response Center	1-800-424-8802
CDPHE – Report Environmental Spills (24 hrs/day)	1-877-518-5608
Colorado Emergency Planning Committee	303-273-1622

It is the responsibility of the SWMP Administrator for Construction to contact the City of Commerce City SWMP Administrator, CDPHE, and/or the National Response Center.

- **The National Response Center** is to be contacted when a release containing a hazardous substance or oil in an amount equal to or in excess of a reportable quantity established under either 40 CFR 110, 4- DFR 117, or 40 CFR 302 occurs during a 24-hour period.

- Notification to the **CDPHE** is required if there is any release or suspected release of any material, including oil or hazardous substances that spill into or threaten state waters.

August 16, 2021

Daniel Madruga
Atwell
6200 South Syracuse Way
Greenwood Village, CO 80111

Subject: Public Works Engineering Plan Review
Legato Filing No. 2
Case # S-771-20-21, Z-953-D-475-20
Public Works Review #3

Dear Mr. Madruga:

The City of Commerce City Public Works has reviewed the submitted Civil Construction Plans, Final Drainage Report, and Erosion Control Plans/Report for the above reference project and has the following comments:

General:

- A ROW permit will be required for any work within the public ROW.
- A grading permit will be required. Please see attached Grading Permit Information Sheet and Grading Permit Application.

Construction Plans:

1. Please refer to the attached redlined pdf document.

Drainage Report:

1. Please refer to the attached redlined pdf document.

Erosion and Sediment Control Plans:

1. Please refer to the attached redlined pdf document.

Erosion and Sediment Control Report:

1. Public Works has no further comments.

Development Agreement (DA):

1. A Development Agreement (DA) will need to be submitted with this project. Please include an itemized quantity/cost estimate for review.
2. The DA will need to be executed before the Civil Construction Plans can be approved and a building permit issued.

Impact Fees:

1. A Road Impact Fee, per Section 21-9220 of the City of Commerce City's Land Development Code (LDC) will apply to this development. Payment will be due at the time of the first Building Permit issuance.
2. A Drainage Impact Fee, per Section 21-9240 of the City of Commerce City's Land Development Code (LDC) will apply to this development. Payment will be due at the time of the first Building Permit issuance.

Next Steps:

Please include the following information in your next submittal:

- Address all comments on the redlined pdf documents, include a descriptive statement of how the comments have been addressed, or a descriptive reason for not addressing the comment.
- Electronic files with PDF copies of all submittal documents. Please send electronic submittals via email to pwsubmittals@c3gov.com. Please copy me in the email.
- If the resubmittal does not include all documents and address the comments or give compelling reason why the comment was not completed, the plans will be returned without review.

If you have any questions, please feel free to contact me via email at esmith@corecivil.com or by phone at 720-333-3050 to discuss any of these comments.

Sincerely,

Elna Smith
CORE Consultants, Development Review Consultant

ES/ca

Enclosures: Redlined pdf's

ec: Joe Wilson, Director of Public Works
Chris Hodyl, City Development Review Manager
Brent Soderlin, City Engineer
Lee Alverson, City Development Review
Stacy Wasinger, City Planning Review
Julia Friedman, City Planning Review
Kevin Rohrbough, CORE Consultants, Development Review Consultant

e-file: O:\Development\Subdivision\L\Legato\Filing No 2\Construction Documents\210816_CD_DR_GRA_3rd Comments_LegatoF3_PW-Letter_Rev3.docx

LEGATO FILING NO. 2

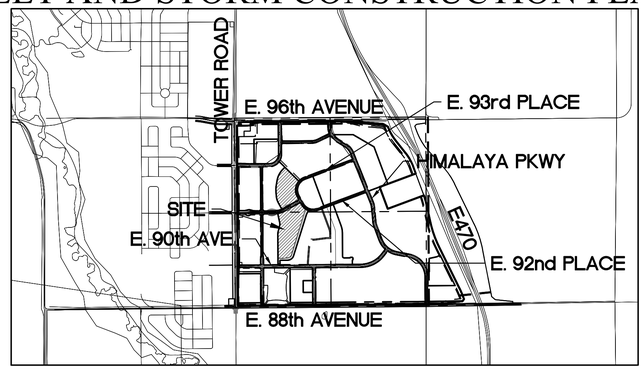
LOCATED IN SECTION 22, TOWNSHIP 2 SOUTH, RANGE 66 WEST OF THE SIXTH PRINCIPAL MERIDIAN, CITY OF COMMERCE CITY, COUNTY OF ADAMS, STATE OF COLORADO

STREET AND STORM CONSTRUCTION PLANS

LEGEND

- PROPERTY LINE
- PROPOSED FIRE HYDRANT
- PROPOSED INLET
- PROPOSED PEDESTRIAN RAMP
- PROPOSED SIDEWALK
- PROPOSED CURB & GUTTER
- PROPOSED RIGHT OF WAY
- PROPOSED LOT LINE
- PROPOSED STREET LIGHT
- PROPOSED GATE VALVE
- EXISTING GATE VALVE
- PROPOSED SANITARY SEWER MANHOLE
- CURB RETURN DESIGNATION
- PROPOSED 8' CROSSPAN
- PROPOSED CONTOURS
- EXISTING CONTOURS

REPEAT COMMENT:
Update all street names throughout the plans and the key maps



VICINITY MAP
SCALE 1"=2000'

OWNER:
COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
CONTACT: BRAD BURNS

CIVIL ENGINEER:
ATWELL, LLC
6200 SOUTH SYRACUSE WAY
SUITE 470
GREENWOOD VILLAGE, CO 80111
(303) 928-6757
CONTACT: DANIEL MADRUGA

SURVEYOR:
ATWELL, LLC
143 UNION BLVD.
SUITE 700
LAKEWOOD, CO 80228
(303) 928-6724
CONTACT: MICHAEL POOL

LANDSCAPE ARCHITECT/PLANNER:

CITY OF COMMERCE CITY:
8602 ROSEMARY ST.
COMMERCE CITY, CO 80228
(303) 227-8782
CONTACT: STACY WASINGER

SOUTH ADAMS COUNTY WATER & SANITATION DISTRICT (SACWSD):
6595 E. 70TH AVE.
COMMERCE CITY, CO 80022
(720) 206-0593
CONTACT: JEFF NELSON

UNITED POWER (ELEC):
500 COOPERATIVE WAY
BRIGHTON, CO 80603
(303) 637-1300

XCEL ENERGY (GAS):
1800 LARIMER ST.
DENVER, CO 80202
(303) 571-7511

QUESITONS FOR ELNA:

ARE SEPARATE FILINGS ALLOWED TO RUNOFF INTO OTHER FILING'S STORM INLETS?
As long as this was the direction in the Infrastructure Drainage Report and the Report per Filing accounted for this runoff. If you are changing basin directions, flows in inlets/storm piping system that did not account for this runoff then it would not be allowed.

IS THE EROSION CONTROL ALONG ANDES CT LEGIT?
Not sure what you are asking. If you are wanting to know if what is proposed in the GESC is acceptable I would refer you to the GESC review comments on that plan.

IS THE INTERSECTOIN GRADING ALONG ANDES CT CURB RETURNS TO FILING 3 LEGIT?
Not sure what you are asking. Please see review comments on that sheet.

SOME INTERSECTIONS HAVE QUESTIONABLE FLOWLINE GRADING AND INLET PLACEMENT
What is the question?

Sheet List Table	
Sheet Number	Sheet Title
1	COVER
2	NOTES
3	OVERALL UTILITY PLAN
4	DEMO PLAN
5	AREA GRADING PLAN
6	AREA GRADING PLAN
7	E 92ND DR – STA 1+00–7+54
8	E 91ST PL – STA 1+00–STA 7+23
9	E 91ST DR – STA. 1+00–5+89
10	E 90TH PL – STA. 1+00–5+50
11	ANDES COURT – STA 1+00–STA 6+00
12	ANDES COURT – STA 6+00–17+00
13	ANDES COURT – STA 17+00–19+00
14	E 93RD AVE – STA 0+50–STA 9+00
15	E 93RD AVE – STA 9+00–STA 16+36
16	ANDES ST – STA. 1+00–9+50
17	ANDES ST – STA. 9+50–17+00
18	E 92ND CT – STA 1+00–5+63
19	E 94TH AVE – STA 1+00–STA 6+00
20	E 94TH AVE – STA 6+00–STA 15+60
21	STREET INTERSECTIONS
22	STREET INTERSECTIONS
23	CURB RETURN PROFILES – 01
24	CURB RETURN PROFILES – 02
25	STORM RUN 1
26	STORM RUN 1A 1B 1C
27	STORM RUN 3
28	STORM RUN 3A 3B
29	STORM RUN 4 4A
30	STORM RUN 6
31	STORM RUN 6B 6C
32	STORM RUN 6D 6A
33	SIGNAGE & STRIPING – SOUTH
34	SIGNAGE & STRIPING – NORTH
35	STREET DETAILS 01
36	STREET DETAILS 02
37	STORM DETAILS 01
38	STORM DETAILS 02

STANDARD STREET NOTES:

1. A CONSTRUCTION (STREET CUT) PERMIT FROM THE CITY OF COMMERCE CITY DEPARTMENT OF PUBLIC WORKS IS REQUIRED PRIOR TO COMMENCING WORK WITHIN THE CITY RIGHT-OF WAY.
2. ANY WORK WITHIN STATE HIGHWAY RIGHT-OF-WAY WILL REQUIRE A CDOT CONSTRUCTION PERMIT IN ADDITION TO A CITY PERMIT.
3. THE CONTRACTOR SHALL NOTIFY THE CITY OF COMMERCE CITY DEPARTMENT OF PUBLIC WORKS AT LEAST 24 HOURS PRIOR TO STARTING CONSTRUCTION WITHIN THE RIGHT-OF-WAY AT TELEPHONE NUMBER (303) 289-8150.
4. THE CONTRACTOR SHALL PROVIDE ALL SIGNS, BARRICADES, FLAG MEN, LIGHTS OR OTHER DEVICES NECESSARY FOR SAFE TRAFFIC CONTROL IN ACCORDANCE WITH THE CURRENT EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES AND AS MODIFIED BY THE COLORADO SUPPLEMENT TO THE MUTCD. A TRAFFIC CONTROL PLAN SHALL BE SUBMITTED TO AND APPROVED BY THE CITY OF COMMERCE CITY DEPARTMENT OF PUBLIC WORKS PRIOR TO THE ISSUANCE OF ANY CONSTRUCTION PERMIT FOR WORK WITHIN CITY RIGHT-OF-WAY.
5. THE CONTRACTOR SHALL CONTACT THE UTILITY NOTIFICATION CENTER OF COLORADO AT LEAST 48 HOURS PRIOR TO CONSTRUCTION. CALL 1-(800) 922-1987 OR 811.
6. CONSTRUCTION SPECIFICATIONS: CURRENT EDITION OF THE COLORADO DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION HEREAFTER REFERRED TO AS STANDARD SPECIFICATIONS. SPECIAL PROVISIONS AND REVISIONS THERETO AND THE CITY OF COMMERCE CITY DEPARTMENT OF PUBLIC WORKS ENGINEERING CONSTRUCTION STANDARDS AND SPECIFICATIONS.
7. THE SUBGRADE MATERIAL SHALL BE SCARIFIED OR REMOVED TO A DEPTH REQUIRED BY THE CITY OF COMMERCE CITY ACCORDING TO INFORMATION OBTAINED FROM LABORATORY TESTS AND/OR AS REQUIRED IN THE PAVEMENT DESIGN REPORT. ADDITIVES OR APPROVED MATERIAL MAY BE REQUIRED IF THE NATIVE MATERIAL IS UNSATISFACTORY. THE SUBGRADE SHALL BE COMPACTED TO A MINIMUM DENSITY DETERMINED IN ACCORDANCE WITH AASHTO DESIGNATION T180 OR T99 AND IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS SECTION 203.07 (1991 EDITION OR NEWER).
8. SERVICE TRENCHES AND UTILITY MAIN TRENCHES SHALL BE COMPACTED THROUGHOUT THE DEPTH OF TRENCH AS SPECIFIED IN ABOVE NOTE. EXACT EXTENT OF NEW PAVEMENT TO BE INSTALLED FOR A STREET CUT PATCH SHALL BE DETERMINED BY THE CITY CONSTRUCTION INSPECTOR UPON COMPLETION OF ROADWAY EXCAVATION. NEW PAVEMENT SHALL CONFORM TO EXISTING SOUND STRUCTURAL SECTION.
9. CLASS 6 AGGREGATE BASE COURSE FOR SHOULDERS SHALL BE PLACED AND COMPACTED TO 100% STANDARD PROCTOR AFTER PLACEMENT OF ASPHALT.
10. EXISTING ASPHALT PAVEMENT SHALL BE STRAIGHT SAW CUT WHEN ADJOINING WITH NEW ASPHALT PAVEMENT. CSS-1H TACK COAT SHALL BE APPLIED TO ALL EXPOSED SURFACES, INCLUDING SAW CUTS, POTHOLES, TRENCHES AND ASPHALT OVERLAY.
11. STRUCTURAL SECTIONS SHALL BE AS APPROVED BY THE CITY OF COMMERCE CITY DEPARTMENT OF PUBLIC WORKS, WITH PAVEMENT DESIGN IN ACCORDANCE WITH THE CITY OF COMMERCE CITY DEPARTMENT OF PUBLIC WORKS ENGINEERING CONSTRUCTION STANDARDS AND SPECIFICATIONS.
12. CONCRETE MAY BE PLACED BY MACHINE METHODS PROVIDED THAT ALL FINISH LINES ARE WITHIN 1/8"± TOLERANCE OF THE LINES SHOWN ON THE PLANS. THE FLOWLINE MUST BE FREE DRAINING.
13. ONE HALF (1/2) INCH EXPANSION JOINT MATERIAL SHALL BE INSTALLED WHEN ABUTTING ANY EXISTING CONCRETE OR A FIXED STRUCTURE.
14. SIDEWALKS AND DRIVEWAYS SHALL HAVE THE NAME OF THE CONTRACTOR AND THE YEAR OF CONSTRUCTION IMPRESSED THEREIN USING BLOCK LETTERS NOT LESS THAN (1) INCH HIGH AND THREE-EIGHTHS (3/8) INCH DEEP IN EACH DRIVEWAY AND EACH END OF CONSTRUCTION, OR A MINIMUM OF EVERY 150 LINEAL FEET OF SIDEWALK.
15. A REFLECTIVE CITY OF COMMERCE CITY LOGO SHALL BE ADDED TO EACH STREET SIGN. STREET NAME SIGN PLATES SHALL BE PROVIDED AND INSTALLED BY THE DEVELOPER PRIOR TO ISSUANCE OF A CERTIFICATE OF OCCUPANCY. COORDINATE WITH CITY OF COMMERCE CITY TRAFFIC ENGINEERING AT (303) 289-8150.
16. THE CONTRACTOR SHALL GUARANTEE ALL WORK FOR A PERIOD OF ONE YEAR AFTER THE DATE OF ACCEPTANCE OF THE WORK BY THE CITY AND SHALL REPAIR OR REPLACE ANY OR ALL SUCH WORK, TOGETHER WITH ANY OTHER WORK WHICH MAY BE DISPLACED IN SO DOING, THAT MAY PROVE DEFECTIVE IN WORKMANSHIP AND/OR MATERIALS WITHIN THE ONE YEAR PERIOD FROM DATE OF ACCEPTANCE WITHOUT EXPENSE WHATSOEVER TO THE CITY, ORDINARY WEAR AND TEAR, UNUSUAL ABUSE OR NEGLECT EXCEPTED. PRIOR TO INITIAL ACCEPTANCE OF PUBLIC IMPROVEMENTS, THE CITY MAY REQUIRE THE APPLICANT OR HIS CONTRACTOR TO FILE A MAINTENANCE BOND WITH THE CITY IN THE AMOUNT OF FIFTEEN (15) PERCENT OF THE ESTIMATED COST OF CONSTRUCTION OR AN AMOUNT ADEQUATE TO ENSURE THE SATISFACTORY MAINTENANCE AND CONDITION OF THE REQUIRED PUBLIC IMPROVEMENTS FOR A PERIOD OF ONE (1) YEAR AFTER THE DATE OF THEIR FINAL ACCEPTANCE AND DEDICATION TO THE CITY.
17. NO PORTION OF ANY STREET SHALL BE PAVED WITH THE FINAL LIFT OF ASPHALT UNTIL ALL UTILITIES HAVE BEEN RELOCATED, INSTALLED OR STUBBED TO THE BACK OF SIDEWALK AND ALL STREET LIGHTS RELOCATED AS NECESSARY.
18. ANGLE POINTS IN THE CURB AND GUTTER AND ALL POINTS OF GRADE CHANGE NOT WITHIN A VERTICAL CURVE SHALL BE ROUNDED IN THE FIELD TO PRODUCE A SMOOTH GRADUAL CURVE FOR PROPER APPEARANCE.

STANDARD STREET NOTES (CONTINUED):

19. SURVEY MONUMENTS. THE STANDARD SURVEY MONUMENT AS SHOWN IN DESIGN STANDARD DETAIL NO. 300-24 OR 300-25 WILL BE INSTALLED AT ALL SECTION AND QUARTER SECTION CORNERS. SURVEY MONUMENTS SHALL BE SET IN ACCORDANCE WITH THE COLORADO REVISED STATUES, AND AS REQUIRED BY THE BYLAWS AND RULES OF PROCEDURE OF THE COLORADO STATE BOARD OF REGISTRATION FOR PROFESSIONAL ENGINEERS AND PROFESSIONAL LAND SURVEYORS. ALL MONUMENTS SHALL BE SET WITHIN 60 DAYS OF COMPLETION OF STREETS. IF THE MONUMENTS ARE NOT INSTALLED, THE CITY SHALL HAVE THE WORK PERFORMED BY A REGISTERED LAND SURVEYOR AND MAKE A CLAIM AGAINST THE COLLATERAL FOR ALL COSTS INCLUDING ADMINISTRATION AND LEGAL FEES.
20. MYLAR COPIES OF "AS BUILT" PLANS SHALL BE SUBMITTED TO THE ENGINEERING DIVISION PRIOR TO INITIAL ACCEPTANCE OF IMPROVEMENTS.
21. NO REVISIONS TO THESE PLANS SHALL BE MADE WITHOUT THE APPROVAL OF BOTH THE CITY ENGINEER AND THE DESIGN ENGINEER. ANY REVISIONS OR CHANGES THERETO SHALL BE APPROVED BY THE CITY ENGINEER PRIOR TO ANY REQUESTS FOR INSPECTION.
22. BENCHMARK. ALL ELEVATIONS SHOWN ON THESE PLANS FOR IMPROVEMENTS OR NOTED ELSEWHERE ARE REFERENCED TO THE BENCHMARK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY MONUMENT OR BENCHMARK WHICH IS DESTROYED OR DISTURBED. DAMAGED MONUMENT SHALL BE RE-ESTABLISHED AND REPLACED BY A LICENSED LAND SURVEYOR AND A MONUMENT RECORD FILED AS REQUIRED.
23. THE CONTRACTOR AGREES THAT HE SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY; THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS; AND THAT THE CONTRACTOR SHALL DEFEND, INDEMNIFY AND HOLD THE OWNER, THE ENGINEER, AND THE CITY OF COMMERCE CITY HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE OWNER, THE ENGINEER, OR THE CITY OF COMMERCE CITY.
24. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE ALL NECESSARY UTILITY RELOCATIONS WITH THE APPROPRIATE UTILITY COMPANY.
25. ADJUST RIM OF ALL CLEAN-OUTS, MANHOLES, VALVE COVERS AND SURVEY MONUMENT COVERS TO FINISH GRADE.
26. THE CONTRACTOR SHALL PROVIDE FOR INGRESS AND EGRESS FOR PRIVATE PROPERTY ADJACENT TO THE WORK THROUGHOUT PERIOD OF CONSTRUCTION.
27. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE DESIGN ENGINEER OF ANY PROBLEM IN CONFORMING TO THE APPROVED LINE AND GRADE FOR ANY ELEMENT OF THE PROPOSED IMPROVEMENTS PRIOR TO ITS CONSTRUCTION.
28. IT SHALL BE THE DESIGN ENGINEER'S RESPONSIBILITY TO RESOLVE CONSTRUCTION PROBLEMS DUE TO CHANGED CONDITIONS OR DESIGN ERRORS ENCOUNTERED BY THE CONTRACTOR DURING THE PROGRESS OF ANY PORTION OF THE PROPOSED WORK. IF, IN THE OPINION OF THE CONSTRUCTION INSPECTOR, PROPOSED ALTERATIONS TO THE APPROVED PLANS INVOLVE SIGNIFICANT CHANGES TO THE CHARACTER OF THE WORK OR TO FUTURE CONTIGUOUS PUBLIC OR PRIVATE IMPROVEMENTS, THE DESIGN ENGINEER SHALL BE RESPONSIBLE FOR SUBMITTING REVISED PLANS TO THE CITY OF COMMERCE CITY FOR APPROVAL PRIOR TO ANY FURTHER CONSTRUCTION RELATED TO THAT PORTION OF THE WORK.
29. LOCATION OF UNDERGROUND UTILITIES WAS TAKEN FROM THE RECORDS OF THE CONTROLLING AGENCIES. NO RESPONSIBILITY FOR THEIR ACCURACY IS ASSUMED BY THE ENGINEER. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE EXISTENCE AND/OR LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.
30. THE CONTRACTOR IS RESPONSIBLE FOR THE PREVENTION OF DAMAGE TO ADJACENT PROPERTY. NO PERSON SHALL EXCAVATE ON LAND SO CLOSE TO THE PROPERTY LINE AS TO ENDANGER ANY ADJOINING IMPROVEMENTS, SIDEWALK, ALLEY OR UTILITY WITHOUT SUPPORTING AND PROTECTING SUCH PROPERTY FROM SETTLING, OR OTHER DAMAGE THAT MIGHT RESULT FROM THE WORK PRESCRIBED ON THIS PLAN. THE LOCAL AGENCY WILL HOLD THE CONTRACTOR RESPONSIBLE FOR CORRECTION OF DAMAGE TO ADJACENT PROPERTY, PUBLIC OR PRIVATE.

STORM SEWER NOTES:

1. ALL STORM SEWER CONSTRUCTION, INCLUDING MANHOLES, INLETS AND PIPE TRENCHES, SHALL BE GOVERNED BY THE COMMERCE CITY STORM DRAINAGE DESIGN AND TECHNICAL CRITERIA MANUAL AND STANDARDS SPECIFICATIONS, AND THE COLORADO DEPARTMENT OF HIGHWAYS STANDARDS SPECIFICATIONS, LATEST EDITION. IN THE EVENT OF CONFLICT THE COMMERCE CITY STANDARDS WILL GOVERN.
2. ALL STORM SEWER PIPE SHALL BE ASTM C76 CLASS III REINFORCED CONCRETE PIPE (RCP) UNLESS OTHERWISE SPECIFIED IN THESE PLANS.
3. ALL STORM SEWER INLETS SHALL HAVE ONE FOOT OF CLEARANCE BELOW INVERT OUT OF PIPE, TO TOP OF BOTTOM SLAB.

REPEAT COMMENT:
The City will require the applicant to follow the checklists
Please complete and include with your submittal

STORM SEWER NOTES (CONTINUED):

4. FOR CONSTRUCTION IN THE CITY OF COMMERCE CITY, THE FOLLOWING MODIFICATIONS HAVE BEEN MADE TO THE CDOT STANDARD TYPE R INLET:
   a. THE 5-FOOT TYPE R INLET SHALL HAVE ONE MANHOLE RING AND LID.
   b. THE 10-FOOT TYPE R INLET SHALL HAVE TWO MANHOLE RINGS AND LIDS.
   c. THE 15-FOOT TYPE R INLET SHALL HAVE THREE MANHOLE RINGS AND LIDS, WITH ON MANHOLE RING AND LID BEING LOCATED AT THE CENTER OF THE INLET.
   d. THE 20-FOOT TYPE R INLET SHALL HAVE FOUR MANHOLE RINGS AND LIDS. A HANGING CENTER WALL SHALL BE BUILT WITH A BOTTOM OPENING DEPTH SUFFICIENT TO HANDLE DESIGN WATER FLOWS. THE CENTER TWO MANHOLES SHALL BE LOCATED ONE EACH, ON BOTH SIDES OF THE CENTER WALL.
5. ALL STORM SEWER MANHOLES SHALL BE 1/4 INCH LOW TO FLUSH WITH FINAL PAVED SURFACE.
6. PRIOR TO INITIAL ACCEPTANCE OF PUBLIC IMPROVEMENTS, THE CITY MAY REQUIRE THE APPLICANT OR HIS CONTRACTOR TO FILE A MAINTENANCE BOND WITH THE CITY IN THE AMOUNT OF FIFTEEN (15) PERCENT OF THE ESTIMATED COST OF CONSTRUCTION OR AN AMOUNT ADEQUATE TO ENSURE THE SATISFACTORY MAINTENANCE AND CONDITION OF THE REQUIRED PUBLIC IMPROVEMENTS FOR A PERIOD OF ONE (1) YEAR AFTER THE DATE OF THEIR FINAL ACCEPTANCE AND DEDICATION TO THE CITY.
7. THE CONTRACTOR SHALL FURNISH AND INSTALL, PER SPECIFICATIONS, THE APPROPRIATE BURIED UTILITY WARNING AND IDENTIFICATION TAPE ABOVE ALL PUBLIC SEWER LINES, INCLUDING SEWER LATERALS LOCATED IN PUBLIC RIGHTS-OF-WAY.
8. AFTER COMPLETION OF PIPE LAYING, ALL MAIN LINE SEWERS, SERVICE LATERALS AND STRUCTURES SHALL BE TESTED IN THE PRESENCE OF THE INSPECTOR. IT WILL BE THE PERMITTEE'S RESPONSIBILITY TO PAY FOR THE COST OF THIS WORK.
9. COMPACTION TESTS SHALL BE SUPPLIED BY CONTRACTOR FOR ALL TRENCHES.
10. BEDDING FOR THE RCP PIPE SHALL BE AG7122 NO. 57/67 CRUSHED ROCK. SQUEEGEE OR MIXTURES CONTAINING SQUEEGEE SHALL NOT BE USED. BEDDING SHALL BE SIX TO EIGHT INCHES DEEP UNDER THE PIPE AND BACKFILLED TO THE SPRING LINE.
11. REQUEST FOR AN INSPECTION OF REINFORCEMENT AND SUBGRADE MUST BE CALLED 24 HOURS PRIOR TO PLACEMENT OF CONCRETE AT MANHOLES AND INLETS. STORM SEWER INSTALLATION SHALL BE SUBJECTED TO ADDITIONAL PERIODIC INSPECTION BY THE ENGINEER. FOR STORM SEWER IN THE ROADWAY AREA, TRENCH COMPACTION SHALL BE IN ACCORDANCE WITH AASHTO T99 OR T180 AS REQUIRED IN SECTION 203.11 OF THE CDOT STANDARD SPECIFICATIONS. COMPACTION TESTS MUST BE PERFORMED BY A GEOTECHNICAL ENGINEER AND SHALL BE A MINIMUM OF EVERY 250 FEET ALONG THE TRENCH. TESTING INTERVALS MAY BE INCREASED AT THE DISCRETION OF THE CITY INSPECTOR.

RECEIVING WATER NOTE:

1. ULTIMATE RECEIVING WATER OF SITE STORMWATER RUNOFF IS SECOND CREEK.

BENCHMARK:
#5 REBAR WITH 2" ALUMINUM CAP.
N=1,194,345.18 E=3,208,552.02 ELEV=5295.09 (NAVD 88)

BASIS OF BEARINGS:
BEARINGS ARE BASED ON THE NORTH LINE OF THE NORTHWEST QUARTER OF SECTION 22, TOWNSHIP 2 SOUTH, RANGE 66 WEST OF THE SIXTH PRINCIPAL MERIDIAN, BEING MONUMENTED AT THE WEST END BY A FOUND 2-1/2" ALUMINUM CAP IN RANGE BOX STAMPED "ISI 2018 LS 29425" AND AT THE EAST END BY A FOUND 2" ALUMINUM CAP STAMPED "WESTERN STATES SURVEYING INC. 1994 PLS 24960". SAID NORTH LINE BEARS N89°35'58" EAST, WITH ALL BEARINGS CONTAINED HEREIN RELATIVE THERETO.

ENGINEER'S STATEMENT

THE EROSION AND SEDIMENT CONTROL PLAN INCLUDED HEREIN HAS BEEN PREPARED UNDER MY DIRECT SUPERVISION IN ACCORDANCE WITH THE REQUIREMENTS OF CHAPTER 8 OF THE CITY OF COMMERCE CITY ENGINEERING CONSTRUCTION STANDARDS AND SPECIFICATIONS MANUAL.

DANIEL J. MADRUGA, P.E.
COLORADO NO. 36834
FOR AND ON BEHALF OF ATWELL, LLC.

DATE

Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 SOUTH SYRACUSE WAY, SUITE 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

CLIENT:
COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

COHEN DENVER AIRPORT, LLC
LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
CONSTRUCTION PLANS
COVER

DATE 6/14/2021

A	1st SUBMITTAL TO COMMERCE CITY	08/17/2020 – DJM
B	2nd SUBMITTAL TO COMMERCE CITY	03/15/2021 – DJM
C	3rd SUBMITTAL TO COMMERCE CITY	06/11/2021 – DJM

REVISIONS

DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 1

CAD FILE: 19002561-COVER.DWG

SWMP PERMIT COVERAGE NOTES:

1. THE OWNER/CONTRACTOR IS RESPONSIBLE FOR OBTAINING A PERMIT FROM CDPHE AT LEAST 10 CALENDAR DAYS PRIOR TO THE COMMENCEMENT OF CONSTRUCTION ACTIVITIES FOR ANY EARTH DISTURBANCE OF ONE (1) OR GREATER THAN ONE (1) ACRE. THE OWNER/CONTRACTOR SHALL PROVIDE THE CITY WITH A COPY OF PERMIT PRIOR TO RECEIVING A GRADING/CONSTRUCTION PERMIT. THE OWNER/CONTRACTOR IS RESPONSIBLE FOR ALL FEES ASSOCIATED WITH THE PERMIT.

2. IF THE OWNER/CONTRACTOR TRANSFERS RESPONSIBILITY FOR STORMWATER DISCHARGES TO ANOTHER ENTITY, A NOTICE OF TRANSFER AND ACCEPTANCE OF TERMS FORM SHALL BE SUBMITTED TO CDPHE AND A COPY TO THE CITY.

3. IF THE OWNER/CONTRACTOR NO LONGER HAS CONTROL OF A SPECIFIC PORTION OF A PERMITTED SITE AND WISHES TO TRANSFER COVERAGE OF THAT PORTION OF SITE TO ANOTHER, THE OWNER/CONTRACTOR SHALL SUBMIT A NOTICE OF REASSIGNMENT OF PERMIT COVERAGE FORM TO THE CDPHE AND A COPY TO THE CITY.

4. THE OWNER/CONTRACTOR IS RESPONSIBLE FOR SUBMITTING AN INACTIVATION NOTICE FORM TO CDPHE WHEN THE SITE HAS BEEN FINALLY STABILIZED IN ACCORDANCE WITH THE A COPY OF THE INACTIVATION NOTICE SHALL ALSO BE SUBMITTED TO THE CITY.

SWMP GENERAL NOTES:

1. BMP'S SHALL BE INSTALLED BEFORE ANY EARTH DISTURBING ACTIVITIES COMMENCE.

2. STORMWATER DISCHARGES FROM CONSTRUCTION ACTIVITIES SHALL NOT CAUSE, HAVE THE REASONABLE POTENTIAL TO CAUSE, OR MEASURABLY CONTRIBUTE TO AN EXCEEDANCE OF ANY WATER QUALITY STANDARD.

3. CONSTRUCTION SHALL BE PHASED IN A MANNER TO LIMIT EARTH DISTURBING ACTIVITIES (I.E. THE ENTIRE PROJECT SITE SHOULD NOT BE DISTURBED IF CONSTRUCTION WILL ONLY BE OCCURRING IN ONE PARTICULAR SECTION).

4. SEDIMENT CAUSED BY ACCELERATED SOIL EROSION SHALL BE REMOVED FROM RUNOFF WATER BEFORE IT LEAVES THE CONSTRUCTION SITE.

5. BULK STORAGE STRUCTURES FOR PETROLEUM PRODUCTS AND ANY OTHER CHEMICALS SHALL HAVE SECONDARY CONTAINMENT OR EQUIVALENT PROTECTION TO CONTAIN ALL SPILLS AND PREVENT ANY SPILLED MATERIAL FROM ENTERING STATE WATERS.

6. A COPY OF THE SWMP AND SITE MAPS MUST BE AVAILABLE AT ALL TIMES ON THE CONSTRUCTION SITE UNLESS OTHERWISE APPROVED BY CDPHE OR THE CITY.

7. THE SWMP AND SITE MAPS SHALL BE CONTINUOUSLY UPDATED TO REFLECT NEW OR REVISED BEST MANAGEMENT PRACTICES (BMP'S) DUE TO CHANGES IN DESIGN, CONSTRUCTION, OPERATION, OR MAINTENANCE OF THE CONSTRUCTION SITE. UPDATES MUST BE MADE WITHIN 72 HOURS FOLLOWING THE CHANGE IN BMP'S.

8. THE OWNER/CONTRACTOR SHALL INSPECT THE CONSTRUCTION SITE (INCLUDING ALL BMP'S, STORAGE CONTAINERS, AND CONSTRUCTION EQUIPMENT) A MINIMUM OF EVERY 14 CALENDAR DAYS AND WITHIN 24 HOURS AFTER A PRECIPITATION EVENT OR SNOW MELT THAT CAUSE SURFACE EROSION. INSPECTIONS SHALL CONTINUE UNTIL AN INACTIVATION NOTICE IS FILED WITH CDPHE.

9. THE OWNER/CONTRACTOR SHALL KEEP A RECORD OF ALL INSPECTIONS ON SITE AND AVAILABLE FOR REVIEW BY CDPHE OR CITY STAFF. INSPECTION REPORTS MUST IDENTIFY ANY INCIDENTS OF NON-COMPLIANCE WITH THE TERMS AND CONDITIONS OF THE PERMIT. BMP'S REQUIRING MAINTENANCE OR ADJUSTMENT SHALL BE REPAIRED IMMEDIATELY AFTER OBSERVATION OF THE FAILING BMP.

10. FOR ALL INSTANCES OF NONCOMPLIANCE BASED ON ENVIRONMENTAL HAZARDS AND CHEMICAL SPILLS AND RELEASES, ALL NEEDED INFORMATION MUST BE PROVIDED ORALLY TO CDPHE SPILL REPORTING LINE (24-HOUR NUMBER FOR ENVIRONMENTAL HAZARDS AND CHEMICAL SPILLS AND RELEASES: 1-877-518-5608) WITHIN 24 HOURS FROM THE TIME THE OWNER/CONTRACTOR COMES AWARE OF THE CIRCUMSTANCES.

11. STRAW BALES SHALL NOT BE USED FOR PRIMARY EROSION OR SEDIMENT CONTROL (I.E. STRAW BALES MAY BE USED FOR REINFORCEMENT BEHIND ANOTHER BMP SUCH AS SILT FENCE).

12. BMP'S INTENDED FOR SHEET FLOW SEDIMENT RUNOFF SHALL BE PLACED PARALLEL TO THE SLOPE.

13. ALL BMP'S SHALL BE CLEANED WHEN SEDIMENT LEVELS ACCUMULATE TO HALF THE DESIGN OF THE BMP UNLESS OTHERWISE SPECIFIED.

14. A VEHICLE TRACKING PAD (VTP) SHALL BE PLACED AT ALL EXITS FROM THE SITE TO PREVENT TRACK-OUT ONTO CITY STREETS. IF TRACK-OUT DOES OCCUR, THE OWNER/CONTRACTOR SHALL IMMEDIATELY SWEEP THE STREET OF DEBRIS. RECYCLED CRUSHED CONCRETE OR ASPHALT SHALL NOT BE USED FOR VEHICLE TRACKING PADS.

16. ALL SEDIMENT COLLECTED IN BMP'S SHALL BE REMOVED UPON INITIAL ACCEPTANCE.

15. PERMANENT EROSION CONTROL MEASURES FOR SLOPES, CHANNELS, DITCHES, OR ANY DISTURBED LAND AREA SHALL BE COMPLETED WITHIN 14 CALENDAR DAYS AFTER FINAL GRADING OR THE FINAL EARTH DISTURBANCE HAS BEEN COMPLETED. WHEN IT IS NOT POSSIBLE TO PERMANENTLY STABILIZE A DISTURBED AREA AFTER AN EARTH DISTURBANCE HAS BEEN COMPLETED OR WHERE SIGNIFICANT EARTH DISTURBANCE ACTIVITY CEASES, TEMPORARY SOIL EROSION CONTROL MEASURES SHALL BE IMPLEMENTED WITHIN 14 CALENDAR DAYS. TEMPORARY EROSION CONTROL MEASURES SHALL BE MAINTAINED UNTIL PERMANENT SOIL EROSION MEASURES ARE IMPLEMENTED.

16. FINAL STABILIZATION HAS BEEN ACHIEVED WHEN ALL EARTH DISTURBING ACTIVITIES AT THE SITE HAVE BEEN COMPLETED, AND UNIFORM VEGETATIVE COVER HAS BEEN ESTABLISHED WITH AN INDIVIDUAL PLANT DENSITY OF AT LEAST 70 PERCENT OF PRE-DISTURBANCE LEVELS, OR EQUIVALENT PERMANENT, PHYSICAL EROSION REDUCTION METHODS HAVE BEEN EMPLOYED.

17. ALL TEMPORARY BMP'S SHALL BE REMOVED FROM THE SITE UPON SUBMITTING THE INACTIVATION NOTICE.

18. ALL SITE WASTES (INCLUDING TRASH AND BUILDING MATERIALS) MUST BE PROPERLY MANAGED TO PREVENT POTENTIAL POLLUTION OF STATE WATERS.

19. STREET REPAIR OPERATIONS SUCH AS ROTOR MILLING, SLURRY SEAL AND CHIP SEAL. THE MINIMUM BMPS REQUIRED ARE; INLET PROTECTION, CURB SOCKS AND STREET SWEEPING.

GENERAL NOTES:

1. ALL MATERIALS AND WORKMANSHIP SHALL BE IN CONFORMANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF THE APPROPRIATE GOVERNING AGENCY. THE CONTRACTOR SHALL HAVE IN HIS POSSESSION AT THE JOB SITE AT ALL TIMES ONE (1) SIGNED COPY OF THE PLANS. STANDARDS, AND SPECIFICATIONS AS APPROVED BY THE APPROPRIATE GOVERNING AGENCY. THE CONTRACTOR SHALL OBTAIN WRITTEN APPROVAL FOR ANY VARIANCE TO THE ABOVE DOCUMENTS.

2. CONTRACTOR SHALL OBTAIN, AT HIS OWN EXPENSE, ALL APPLICABLE CODES, LICENSES. STANDARDS, SPECIFICATIONS. PERMITS, BONDS, ETC., WHICH ARE NECESSARY TO PERFORM THE PROPOSED WORK.

3. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE OWNER/DEVELOPER AND ENGINEER OF ANY PROBLEM IN CONFORMING TO THE APPROVED PLANS FOR ANY ELEMENT OF THE PROPOSED IMPROVEMENTS PRIOR TO ITS CONSTRUCTION.

4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING THE APPROPRIATE GOVERNING AGENCIES AT LEAST 48 HOURS PRIOR TO START OF ANY CONSTRUCTION. IF WORK IS SUSPENDED FOR ANY PERIOD OF TIME AFTER INITIAL START-UP. THE CONTRACTOR SHALL NOTIFY THE APPROPRIATE GOVERNMENT AGENCIES 48 HOURS PRIOR TO RESTART.

5. ALL KNOWN EXISTING UTILITIES ARE SHOWN IN APPROXIMATE LOCATIONS ON THE PLANS. THE ACTUAL LOCATION MAY VARY FROM THE PLANS, ESPECIALLY IN THE CASE OF UNDERGROUND UTILITIES. WHENEVER THE CONTRACTOR DISCOVERS A DISCREPANCY IN LOCATIONS, HE SHALL CONTACT THE ENGINEER IMMEDIATELY.

6. THE CONTRACTOR SHALL REPAIR ANY EXCAVATIONS OR PAVEMENT FAILURES CAUSED BY HIS CONSTRUCTION.

7. PRIOR TO BEGINNING THE WORK, THE CONTRACTOR SHALL OBTAIN ANY WRITTEN AGREEMENTS FOR INGRESS AND EGRESS TO THE WORK FROM ADJACENT PRIVATE PROPERTY OWNERS. ACCESS TO ANY ADJACENT PRIVATE PROPERTY SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD.

8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL AND REPLACEMENT OF ALL MATERIALS WITHIN DEDICATED RIGHT-OF-WAYS AND ALL MATERIALS AND WORKMANSHIP SHALL MEET THE ROADWAY DESIGN AND CONSTRUCTION STANDARDS OF THE APPROPRIATE GOVERNING AGENCY.

GRADING GENERAL NOTES:

1. GRADING PLAN IS FOR ROUGH GRADING ONLY. CHANGES MAY BE NECESSARY TO BRING PLANS INTO CONFORMANCE WITH APPROVED DRAINAGE AND SITE PLAN.

2. A WATER TRUCK SHALL BE KEPT ON-SITE TO CONTROL WIND EROSION AND DUST.

3. ANY SETTLEMENT OR SOIL ACCUMULATIONS BEYOND THE PROPERTY LIMITS DUE TO GRADING OR EROSION SHALL BE REPARIED IMMEDIATELY BY THE CONTRACTOR.

4. NO GRADING SHALL TAKE PLACE IN ANY DELINEATED FLOOD HAZARD AREA UNTIL THE FINAL DRAINAGE PLAN HAS BEEN APPROVED AND ALL APPROPRIATE PERMITS HAVE BEEN OBTAINED.

5. ANY CONSTRUCTION DEBRIS OR MUD TRACKING IN THE PUBLIC RIGHT-OF-WAY RESULTING FROM THIS DEVELOPMENT WILL BE REMOVED IMMEDIATELY BY THE CONTRACTOR. UPON WRITTEN NOTICE BY THE CITY, FAILURE TO REMOVE THE MUD OR DEBRIS BY THE CONTRACTOR WITHIN 24 HOURS SHALL CAUSE THE CITY TO STOP ALL WORK UNTIL THE SITUATION IS RESOLVED.

6. WHEN REQUIRED, A COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT (CDPHE), WATER QUALITY DIVISION, STORMWATER DISCHARGE PERMIT SHALL BE OBTAINED AND A COPY SHALL BE SUBMITTED TO THE CITY OF COMMERCE CITY DEPARTMENT OF PUBLIC WORKS.

7. AREAS DISTURBED BY GRADING SHALL BE MULCHED AND RESEEDED WITH NATIVE VEGETATION OR AS APPROVED ON THE PLAN.

8. THE CONTRACTOR SHALL BE SOLELY AND COMPLETELY RESPONSIBLE FOR SAFETY CONDITIONS ON AND ADJACENT TO THE SITE 24 HOURS A DAY, SEVEN DAYS A WEEK.

9. CONTRACTOR SHALL CONTACT UTILITY NOTIFICATION CENTER FOR THE LOCATION OF UNDERGROUND UTILITIES AT LEAST 48 HOURS PRIOR TO COMMENCEMENT OF CONSTRUCTION. (811 or 1-800-922-1987)

10. THE CITY ENGINEER'S SIGNATURE AFFIXED TO THIS DOCUMENT INDICATES THE CITY OF COMMERCE CITY PUBLIC WORKS DEPARTMENT, ENGINEERING DIVISION, HAS REVIEWED THE DOCUMENT AND FOUND IT IN GENERAL COMPLIANCE WITH THE CITY'S STORMWATER QUALITY CONTROL CRITERIA. THE CITY ENGINEER, THROUGH ACCEPTANCE OF THIS DOCUMENT, ASSUMES NO RESPONSIBILITY (OTHER THAN AS STATED ABOVE) FOR THE COMPLETENESS AND/OR ACCURACY OF THESE DOCUMENTS.

11. THE ADEQUACY OF THIS ESC PLAN LIES WITH THE ORIGINAL DESIGN ENGINEER.

12. ALL MATERIALS AND WORKMANSHIP SHALL BE SUBJECT TO INSPECTION BY THE COMMERCE CITY RESERVES THE RIGHT TO ACCEPT OR REJECT ANY SUCH MATERIALS AND WORKMANSHIP THAT DOES NOT CONFORM TO THE APPROVED PLANS.

13. THE PLACEMENT OF EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICES (BMP'S) SHALL BE IN ACCORDANCE WITH THE CITY APPROVED PLANS.

14. ANY VARIATION IN MATERIAL, TYPE OR LOCATION OF EROSION AND SEDIMENT CONTROL BMP's FROM THE CITY APPROVED PLANS WILL REQUIRE APPROVAL FROM AN ACCOUNTABLE REPRESENTATIVE OF THE CITY OF COMMERCE CITY ENGINEERING DIVISION.

15. AFTER THE ESC PLAN HAS BEEN APPROVED, THE CONTRACTOR MAY INSTALL THE INITIAL-STAGE EROSION AND SEDIMENT CONTROL BMPS INDICATED ON THE ACCEPTED ESC PLAN.

16. THE FIRST BMP TO BE INSTALLED ON THE SITE SHALL BE CONSTRUCTION FENCE, MARKERS, OR OTHER APPROVED MEANS OF DEFINING THE LIMITS OF CONSTRUCTION, INCLUDING CONSTRUCTION LIMITS ADJACENT TO STREAM CORRIDORS AND OTHER AREAS TO BE PRESERVED.

17. AFTER INSTALLATION OF THE INITIAL-STAGE EROSION AND SEDIMENT CONTROL BMP'S, THE PERMITTEE SHALL CALL THE PUBLIC WORKS AT 303-289-8150 TO SCHEDULE A PRECONSTRUCTION MEETING AT THE PROJECT SITE. THE REQUEST SHALL BE MADE A MINIMUM OF THREE BUSINESS DAYS PRIOR TO THE REQUESTED MEETING TIME. NO CONSTRUCTION ACTIVITIES SHALL BE PLANNED WITHIN 24 HOURS AFTER THE PRECONSTRUCTION MEETING.

18. THE ESC MANAGER SHALL BE CERTIFIED IN STORMWATER MANAGEMENT AND EROSION CONTROL AND DOCUMENTATION SHALL BE PROVIDED TO THE CITY.

19. THE OWNER OR OWNER'S REPRESENTATIVE, THE ESC MANAGER, THE GENERAL CONTRACTOR, AND THE GRADING SUBCONTRACTOR, IF DIFFERENT FROM THE GENERAL CONTRACTOR, MUST ATTEND THE PRECONSTRUCTION MEETING. IF ANY OF THE REQUIRED PARTICIPANTS FAIL TO ATTEND THE PRECONSTRUCTION MEETING, OR IF THE INSTALLATION OF THE INITIAL BMP's ARE NOT APPROVED BY THE CITY ESC INSPECTOR, THE APPLICANT WILL HAVE TO PAY A REINSPECTION FEE, ADDRESS ANY PROBLEMS WITH BMP INSTALLATION, AND CALL TO RESCHEDULE THE MEETING, WITH A CORRESPONDING DELAY IN THE START OF CONSTRUCTION. THE CITY STRONGLY ENCOURAGES THE APPLICANT TO HAVE THE ENGINEER OF RECORD AT THE PRECONSTRUCTION MEETING.

GRADING GENERAL NOTES:

20. CONSTRUCTION SHALL NOT BEGIN UNTIL THE CITY ESC INSPECTOR APPROVES THE INSTALLATION OF THE INITIAL BMP'S AND THE GRADING PERMIT IS OBTAINED FROM PUBLIC WORKS.

21. THE ESC MANAGER SHALL STRICTLY ADHERE TO THE APPROVED LIMITS OF CONSTRUCTION AT ALL TIMES. THE CITY OF COMMERCE CITY ENGINEERING DIVISION MUST APPROVE ANY CHANGES TO THE LIMITS OF CONSTRUCTION AND, AT THE DISCRETION OF THE ENGINEERING DIVISION, ADDITIONAL EROSION/SEDIMENT CONTROLS MAY BE REQUIRED IN ANY ADDITIONAL AREAS OF CONSTRUCTION.

22. NATURAL VEGETATION SHALL BE RETAINED AND PROTECTED WHEREVER POSSIBLE. EXPOSURE OF SOIL TO EROSION BY REMOVAL OR DISTURBANCE OF VEGETATION SHALL BE LIMITED TO THE AREA REQUIRED FOR IMMEDIATE CONSTRUCTION OPERATIONS.

23. A COPY OF THE GRADING PERMIT AND APPROVED PLANS SHALL BE ON SITE AT ALL TIMES.

24. THE ESC MANAGER SHALL BE RESPONSIBLE FOR ENSURING THAT THE SITE REMAINS IN COMPLIANCE AND SHALL BE THE PERMITTEE'S CONTACT PERSON WITH THE CITY FOR ALL MATTERS PERTAINING TO THE GRADING PERMIT. THE ESC MANAGER SHALL BE PRESENT AT THE SITE THE MAJORITY OF THE TIME AND SHALL BE AVAILABLE THROUGH A 24-HOUR CONTACT NUMBER.

25. THE ESC MANAGER IS RESPONSIBLE FOR CLEANUP OF SEDIMENT OR CONSTRUCTION DEBRIS TRACKED ONTO ADJACENT PAVED AREAS. PAVED AREAS, INCLUDING STREETS, ARE TO BE KEPT CLEAN THROUGHOUT BUILD-OUT AND SHALL BE CLEANED WITH A STREET SWEEPER OR SIMILAR DEVICE AT FIRST NOTICE OF ACCIDENTAL TRACKING OR AT THE DISCRETION OF THE CITY'S ESC INSPECTOR. STREET WASHING IS NOT ALLOWED. THE CITY RESERVES THE RIGHT TO REQUIRE ADDITIONAL MEASURES TO ENSURE AREA STREETS ARE KEPT FREE OF SEDIMENT AND/OR CONSTRUCTION DEBRIS.

26. THE APPROVED PLANS MAY REQUIRE CHANGES OR ALTERATIONS AFTER APPROVAL TO MEET CHANGING SITE OR PROJECT CONDITIONS OR TO ADDRESS INEFFICIENCIES IN DESIGN OR INSTALLATION. ALL CONSTRUCTION TRAFFIC MUST ENTER/EXIT THE SITE THROUGH THE CITY APPROVED ACCESS POINTS. A VEHICLE TRACKING CONTROL PAD IS REQUIRED AT ALL ACCESS POINTS ON THE ADDITIONAL STABILIZED CONSTRUCTION ENTRANCES MAY BE ADDED WITH AUTHORIZATION FROM THE COMMERCE CITY ENGINEERING DIVISION.

27. THE ESC MANAGER SHALL OBTAIN PRIOR APPROVAL FROM THE DESIGN ENGINEER AND COMMERCE CITY ENGINEERING DIVISION FOR ANY PROPOSED CHANGES.

28. NO PERMANENT EARTH SLOPES GREATER THAN 3:1 SHALL BE ALLOWED.

29. ANY SETTLEMENT OR SOIL ACCUMULATIONS BEYOND THE LIMITS OF CONSTRUCTION DUE TO GRADING OR EROSION SHALL BE REPAIRED IMMEDIATELY BY THE ESC MANAGER. THE ESC MANAGER SHALL BE HELD RESPONSIBLE FOR OBTAINING ACCESS RIGHTS TO ADJACENT PROPERTY, IF NEEDED, AND REMEDIATING ANY ADVERSE IMPACTS TO ADJACENT WATERWAYS, WETLANDS, PROPERTIES, ETC. RESULTING FROM WORK DONE AS PART OF THIS PROJECT.

30. SOILS THAT WILL BE STOCKPILED FOR MORE THAN THIRTY (30) DAYS SHALL BE SEEDED AND MULCHED WITHIN FOURTEEN (14) DAYS OF STOCKPILE CONSTRUCTION. NO STOCKPILES SHALL BE PLACED WITHIN ONE HUNDRED (100) FEET OF A DRAINAGE WAY UNLESS APPROVED BY THE COMMERCE CITY ENGINEERING DIVISION.

31. ALL CHEMICAL OR HAZARDOUS MATERIAL SPILLS WHICH MAY ENTER WATERS OF THE STATE OF COLORADO, WHICH INCLUDE BUT ARE NOT LIMITED TO, SURFACE WATER, GROUND WATER AND DRY GULLIES OR STORM SEWER LEADING TO SURFACE WATER, SHALL BE IMMEDIATELY REPORTED TO THE CDPHE PER CRS 25-8-601, AND COMMERCE CITY. RELEASES OF PETROLEUM PRODUCTS AND CERTAIN HAZARDOUS SUBSTANCES LISTED UNDER THE FEDERAL CLEAN WATER ACT (40 CFR PART 116) MUST BE REPORTED TO THE NATIONAL RESPONSE CENTER, SOUTH ADAMS COUNTY WATER AND SANITATION DISTRICT AS WELL AS THE CDPHE. SPILLS THAT POSE AN IMMEDIATE RISK TO HUMAN LIFE SHALL BE REPORTED TO 911. FAILURE TO REPORT AND CLEAN UP ANY SPILL SHALL RESULT IN ISSUANCE OF A STOP WORK ORDER.

32. THE CLEANING OF CONCRETE DELIVERY TRUCK CHUTES IS RESTRICTED TO APPROVED CONCRETE WASH OUT LOCATIONS ON THE JOB SITE. THE DISCHARGE OF WATER CONTAINING WASTE CONCRETE TO THE STORM SEWER SYSTEM IS PROHIBITED. ALL CONCRETE WASTE SHALL BE PROPERLY CLEANED UP AND DISPOSED AT AN APPROPRIATE LOCATION.

33. COMMERCE CITY DOES NOT ALLOW HAY BALES AS A FORM OF EROSION AND SEDIMENT CONTROL.

34. ONCE THE SITE HAS REACHED FINAL STABILIZATION, A FINAL INSPECTION SHALL BE SCHEDULED WITH THE CITY'S ESC INSPECTOR. A CERTIFICATE OF OCCUPANCY WILL NOT BE ISSUED AND/OR THE GRADING BOND WILL NOT BE RELEASED UNTIL THE CITY'S ESC INSPECTOR APPROVES FINAL STABILIZATION

811 Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-grp.com
6200 S. SYRACUSE WAY, SUITE 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

CLIENT
COHEN DENVER AIRPORT, LLC

LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
CONSTRUCTION PLANS
NOTES

DATE 6/14/2021

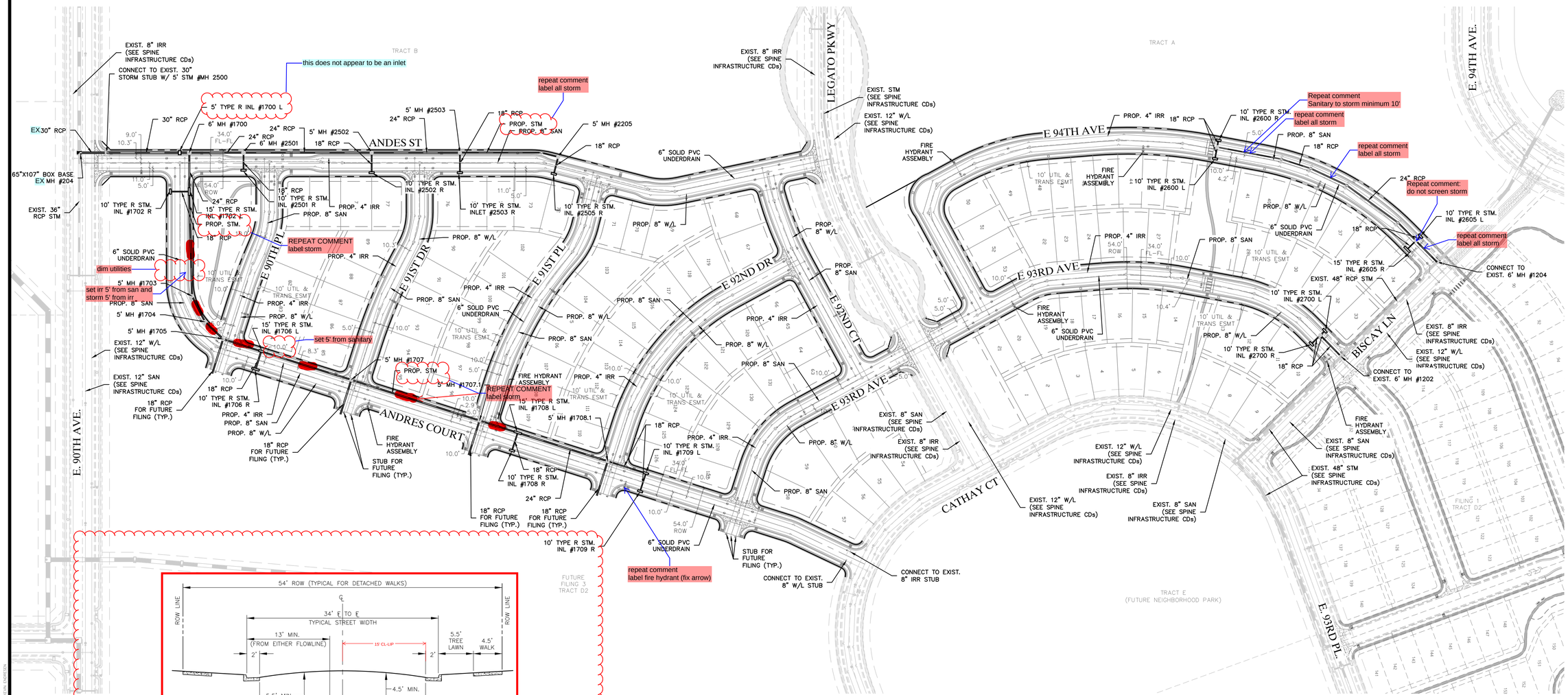
A	1st SUBMITTAL TO COMMERCE CITY 08/17/2020 - DJM
B	2nd SUBMITTAL TO COMMERCE CITY 03/15/2021 - DJM
C	3rd SUBMITTAL TO COMMERCE CITY 06/11/2021 - DJM

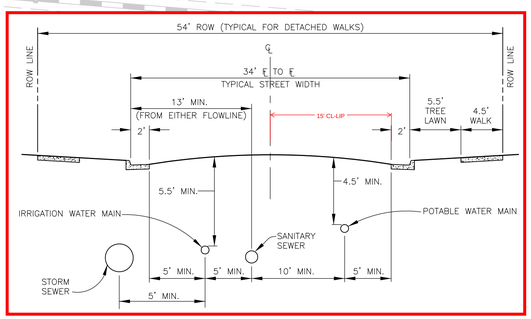
REVISIONS

DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 2

CAD FILE: 19002561-COVER.DWG

Repeat comment
REPEAT COMMENT:
Show underdrain system. Show the outfall connection point to the storm.
Show and label - what is underdrain connecting to?





Repeat comment
The City is requesting that the storm alignment be inside the roadway section
Per the above referenced typical utility layout the sanitary could be on centerline, the irrigation 5' from that and the storm 5' from the irrigation
Aligning the storm into the roadway alleviates the problems with manholes in cross-pans and curb, special detailing of inlet boxes, conflicts with fire hydrants etc.

(IN FEET)
1 inch = 100 ft.

811 Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 S. QUEBEC STREET, SUITE 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

CLIENT
COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
CONSTRUCTION PLANS
OVERALL UTILITY PLAN

DATE 6/14/2021

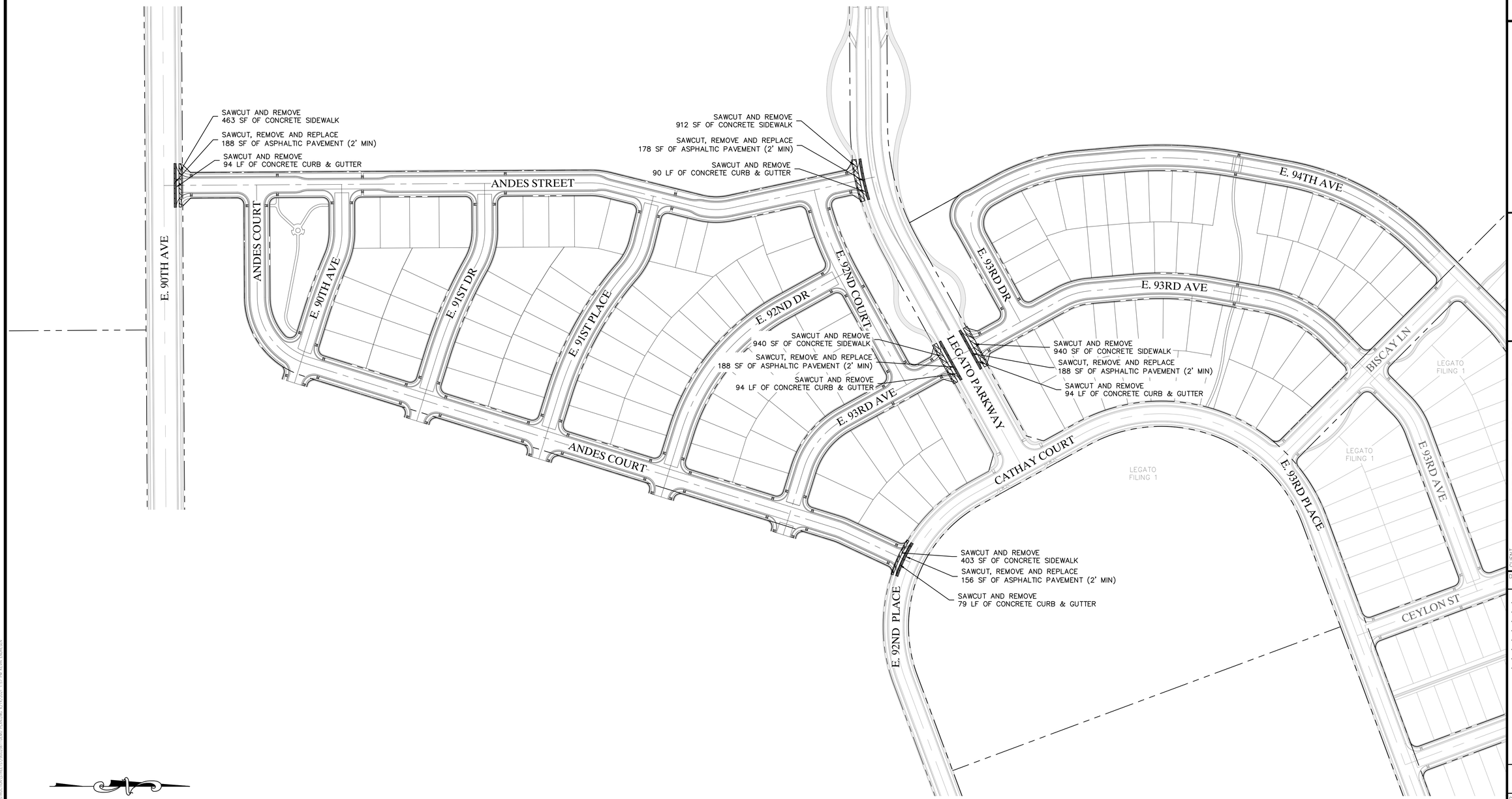
A	1st SUBMITTAL TO COMMERCE CITY	08/17/2020 – DJM
B	2nd SUBMITTAL TO COMMERCE CITY	03/15/2021 – DJM
C	3rd SUBMITTAL TO COMMERCE CITY	06/11/2021 – DJM

REVISIONS

DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 2

CAD FILE: 19002561-OVERALL UTILITY PLAN.DWG

NOTE:
SEE COVER SHEET, NOTES 1, 7, 10, AND 17 REGARDING ASPHALT REMOVAL AND REPLACEMENT AND IMPLEMENT AS APPROPRIATE.



811
Know what's below.
Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-grp.com
6200 SOUTH QUEBEC CIRCLE, SUITE 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

CLIENT
COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

COHEN DENVER AIRPORT, LLC
LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
CONSTRUCTION PLANS
DEMO PLAN

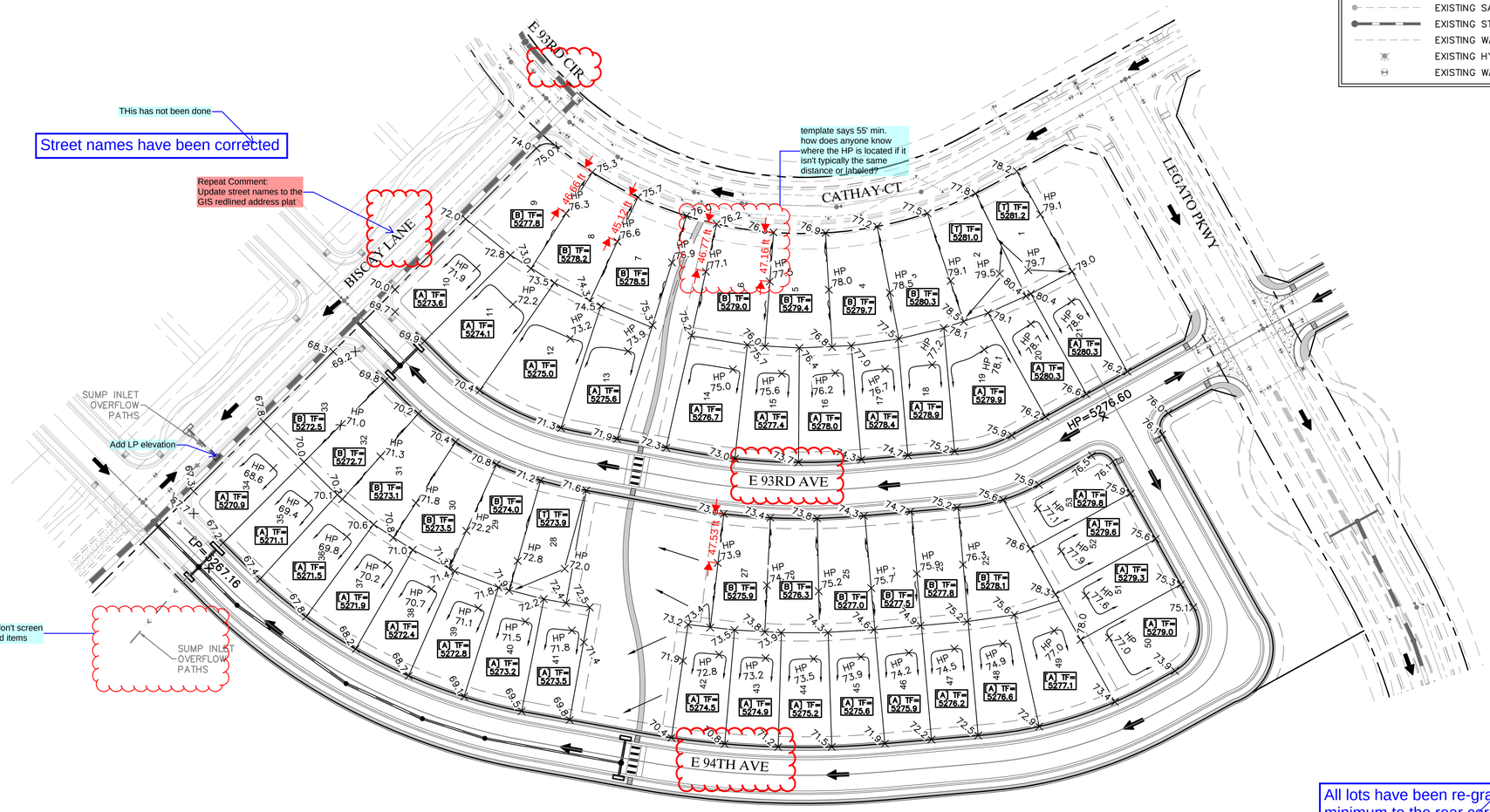
DATE 6/14/2021

A	1st SUBMITTAL TO COMMERCE CITY	08/17/2020 – DJM
B	2nd SUBMITTAL TO COMMERCE CITY	03/15/2021 – DJM
C	3rd SUBMITTAL TO COMMERCE CITY	06/11/2021 – DJM

REVISIONS

DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 4

CAD FILE: 19002561-DEMO PLAN.DWG



THis has not been done

Street names have been corrected

Repeat Comment: Update street names to the GIS redlined address plat

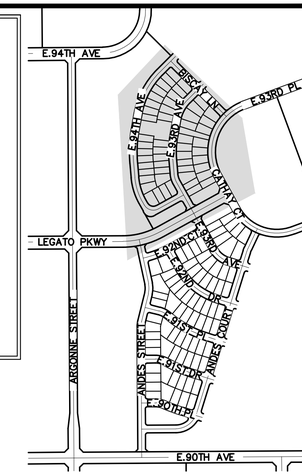
template says 55' min. how does anyone know where the HP is located if it isn't typically the same distance or labeled?

Add LP elevation

please don't screen proposed items

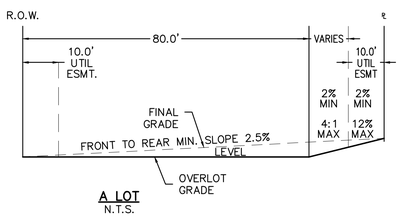
LEGEND

- PROPERTY BOUNDARY LINE
- EXISTING CURB & GUTTER
- PROPOSED CURB & GUTTER
- FLOW DIRECTION
- +12.0 — PROP. FINISHED GRADE SPOT ELEV.
- [?] TF= 5200.0 — LOT TYPE (SEE KEY BELOW); MIN. RECOMMENDED TOP OF FOUNDATION ELEVATION
- [A] "A" DRAINAGE LOT
- [B] "B" DRAINAGE LOT
- [T] TRANSITION LOT
- EXISTING SANITARY
- EXISTING STORM
- EXISTING WATER
- EXISTING HYDRANT
- EXISTING WATER VALVE

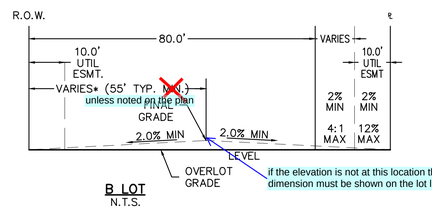


KEY MAP
SCALE: 1"=500'

60 0 60 120
(IN FEET)
1 inch = 60 ft.



A LOT
N.T.S.



if the elevation is not at this location then a dimension must be shown on the lot line

B LOT
N.T.S.

This is not true

All lots have been re-graded such that A lots have 2.5% minimum to the rear corners. All B lots HP's have been moved to the middle of lot line. Any other areas within these private improvements that warrant further attention will be examined when a custom AGP is prepared using Builder criteria and specifications, including preferred overlot template based on house construction type (basements vs PT slab, etc.).

A custom AGP does not get reviewed nor approved by the development review team and isn't relative.

This is the document that the grading permit will be issued from and all grading needs to be part of this document. All lot corners shall be graded as presented herein. Any deviation of the internal lot template is at the owner's risk and is not approved by the city.

Please add a note regarding this issue.

NOTE:
TYPICAL LOT TEMPLATES ARE PROVIDED FOR GENERAL LOT FINE GRADING CONCEPT ONLY. DETAILED PLOT PLANS WILL BE PREPARED BY THE BUILDER FOR SPECIFIC LOT GRADING AND CONSTRUCTION PURPOSES

*TYPICAL DIMENSION ONLY CORRESPONDING TO CONCEPTUAL PLACEMENT OF THE HIGHPOINT ON THE AREA GRADING PLAN. ACTUAL LOCATION MAY DIFFER IN SOME CASES FROM THAT TYPICAL DIMENSION NOTED HERE

811 Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 SOUTH SYRACUSE WAY, SUITE 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

CLIENT
COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
CONSTRUCTION PLANS
AREA GRADING PLAN

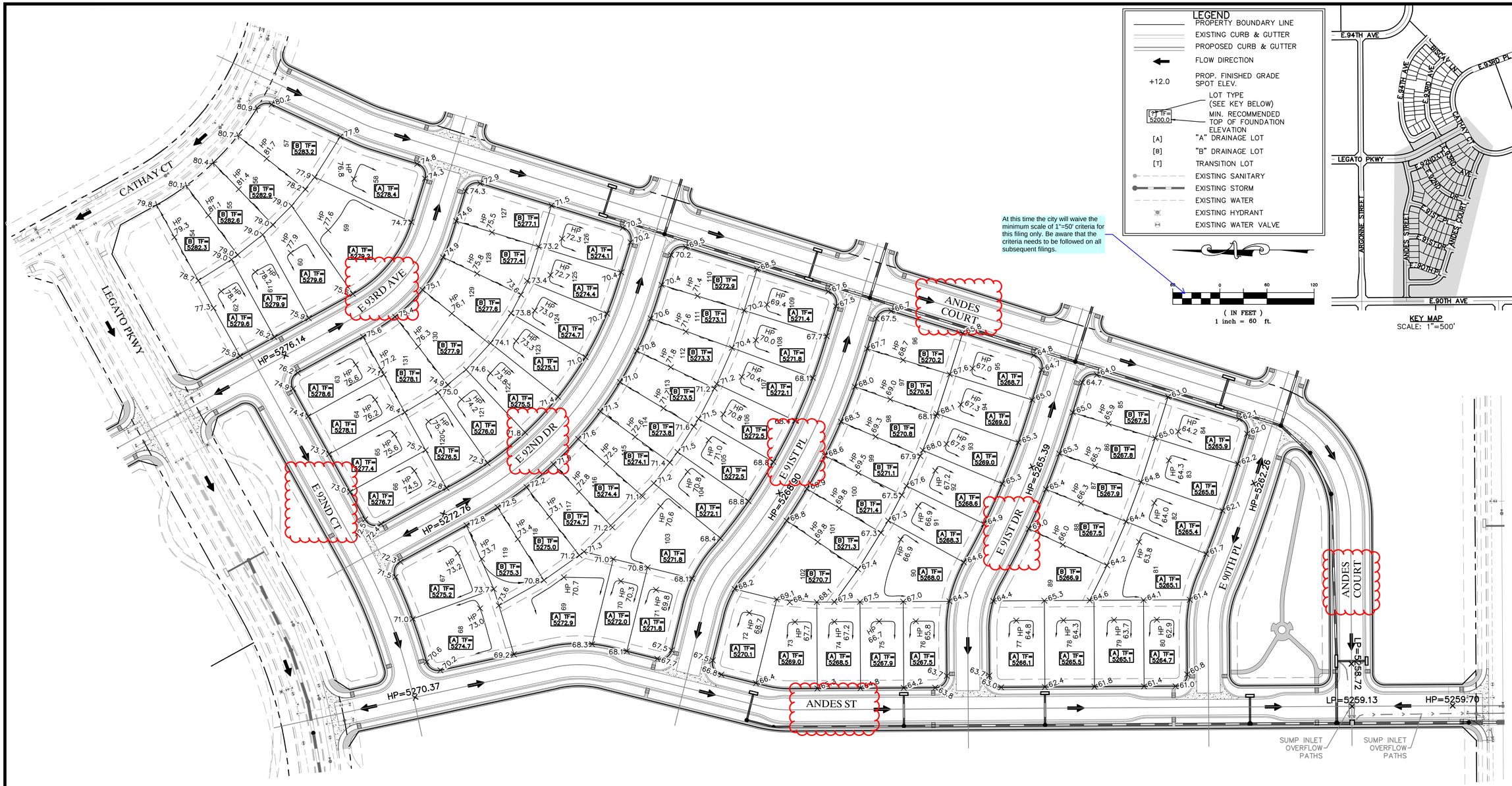
DATE 6/14/2021

A	1st SUBMITTAL TO COMMERCE CITY	08/17/2020 – DJM
B	2nd SUBMITTAL TO COMMERCE CITY	03/15/2021 – DJM
C	3rd SUBMITTAL TO COMMERCE CITY	06/11/2021 – DJM

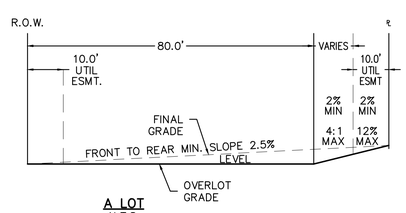
REVISIONS

DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 5

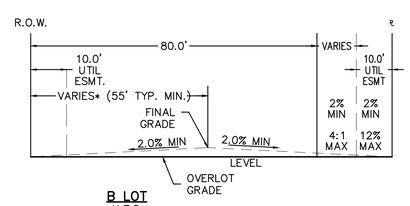
CAD FILE: 19002561-AREA-GRADE.DWG



Repeat Comment:
Street names need to be updated



A LOT
N.T.S.



B LOT
N.T.S.

NOTE:
TYPICAL LOT TEMPLATES ARE PROVIDED FOR GENERAL LOT FINE GRADING CONCEPT ONLY. DETAILED PLOT PLANS WILL BE PREPARED BY THE BUILDER FOR SPECIFIC LOT GRADING AND CONSTRUCTION PURPOSES

*TYPICAL DIMENSION ONLY CORRESPONDING TO CONCEPTUAL PLACEMENT OF THE HIGHPOINT ON THE AREA GRADING PLAN. ACTUAL LOCATION MAY DIFFER IN SOME CASES FROM THAT TYPICAL DIMENSION NOTED HERE

811 Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 SOUTH SYRACUSE WAY, SUITE 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

CLIENT
COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

COHEN DENVER AIRPORT, LLC
LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
CONSTRUCTION PLANS
AREA GRADING PLAN

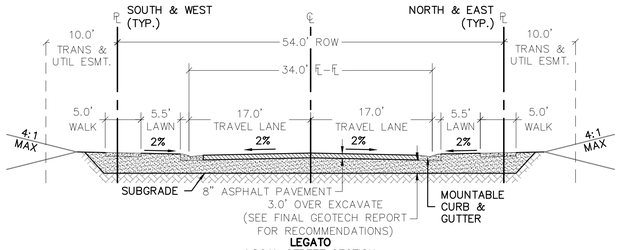
DATE 6/14/2021

A	1st SUBMITTAL TO COMMERCE CITY	08/17/2020 – DJM
B	2nd SUBMITTAL TO COMMERCE CITY	03/15/2021 – DJM
C	3rd SUBMITTAL TO COMMERCE CITY	06/11/2021 – DJM

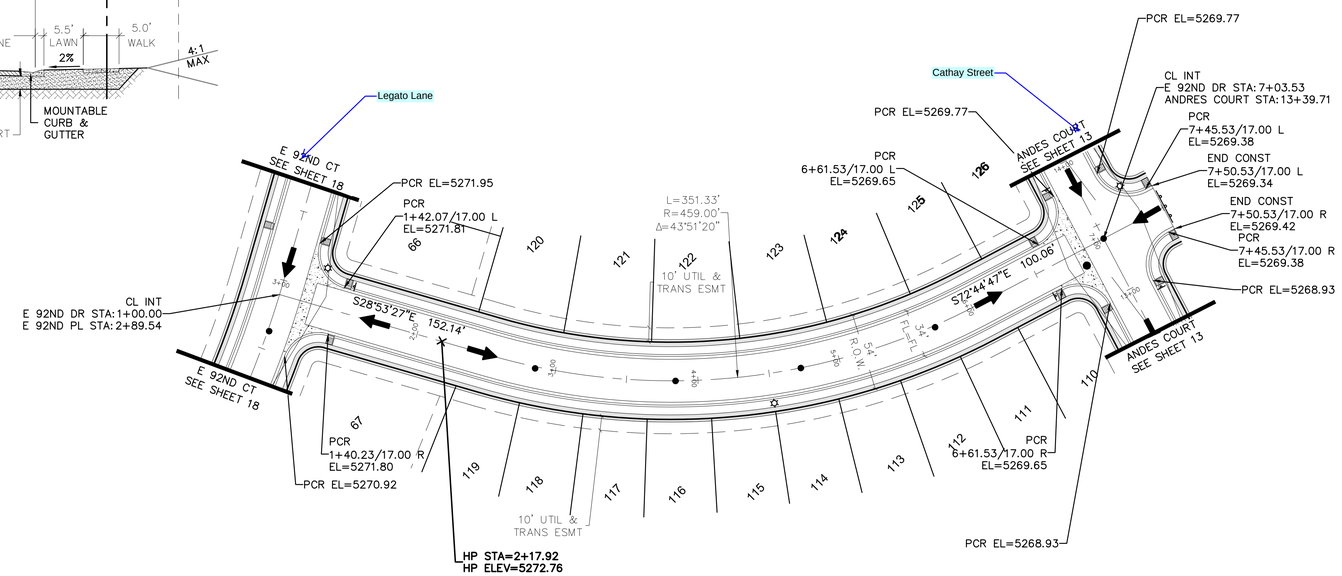
REVISIONS

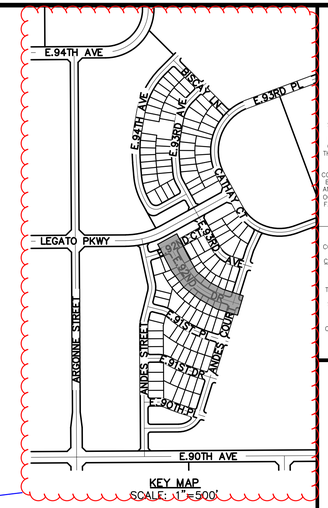
DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 6

CAD FILE: 19002561-AREA-GRADE.DWG



LEGATO
LOCAL STREET SECTION
1:10 HOR.





KEY MAP
SCALE: 1" = 500'

Repeat Comment: Update street names

(IN FEET)
1 inch = 50 ft. (Horz)
1 inch = 5 ft. (Vert)

NOTE:

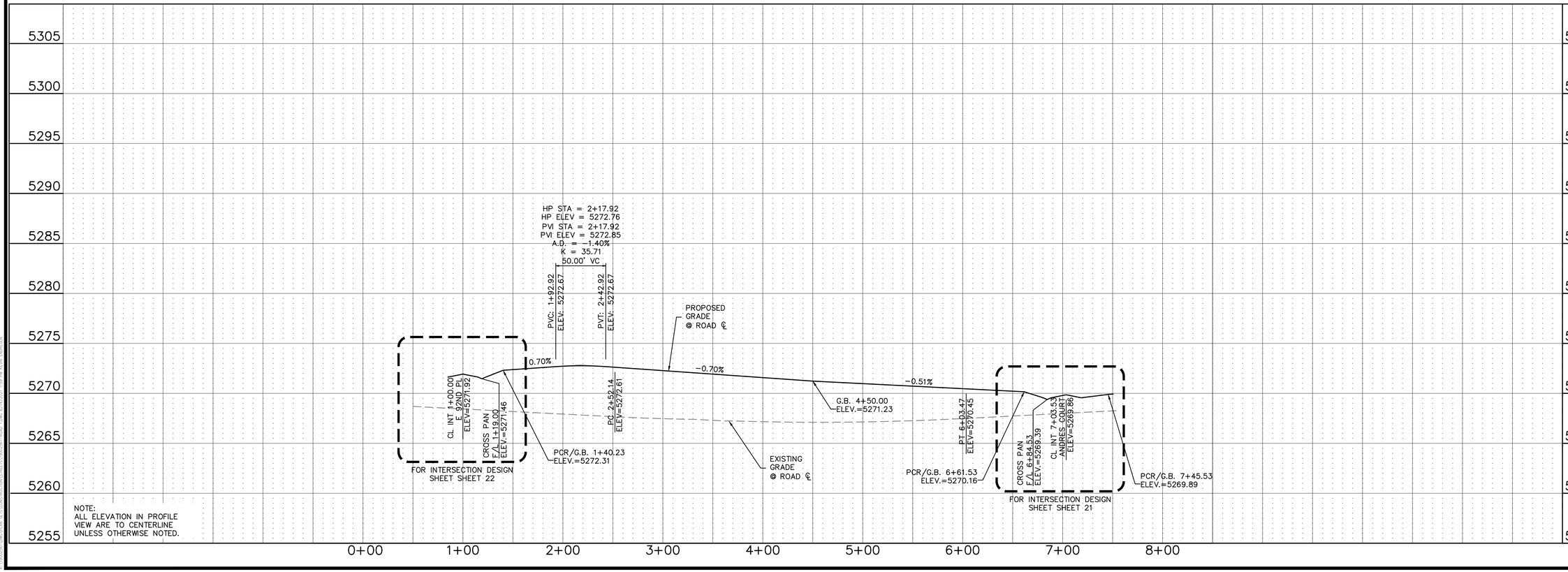
1. ALL ELEVATIONS IN PLAN VIEW TO FLOWLINE UNLESS OTHERWISE NOTED.

2. WITH THE EXCEPTION OF INTERSECTIONS WITH STREETS THAT ARE TO BE CONSTRUCTED WITH THE LEGATO INFRASTRUCTURE PLANS, SIGHT LINE CRITERIA IS ONLY SHOWN AT INTERSECTING STREETS, SO THAT THE ENTIRE SIGHT LINE CAN BE REPRESENTED.

E 91st Place

E 92ND DR - STA 1+00-7+54

Repeat Comment: Update all street names



NOTE:
ALL ELEVATION IN PROFILE VIEW ARE TO CENTERLINE UNLESS OTHERWISE NOTED.

Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 SOUTH QUEBEC STREET, SUITE 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

CLIENT
COHEN DENVER AIRPORT, LLC

LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
CONSTRUCTION PLANS
STREET PLAN & PROFILES
E 92ND DR - STA 1+00-7+54

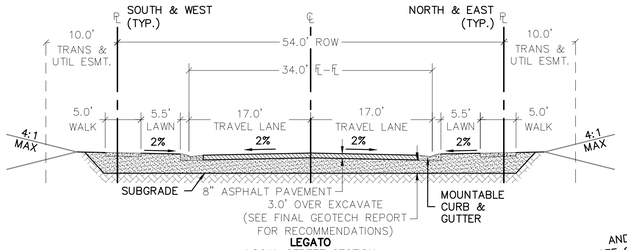
DATE 6/14/2021

A	1st SUBMITTAL TO COMMERCE CITY	08/17/2020 - DJM
B	2ND SUBMITTAL TO COMMERCE CITY	03/15/2021 - DJM
C	3RD SUBMITTAL TO COMMERCE CITY	06/11/2021 - DJM

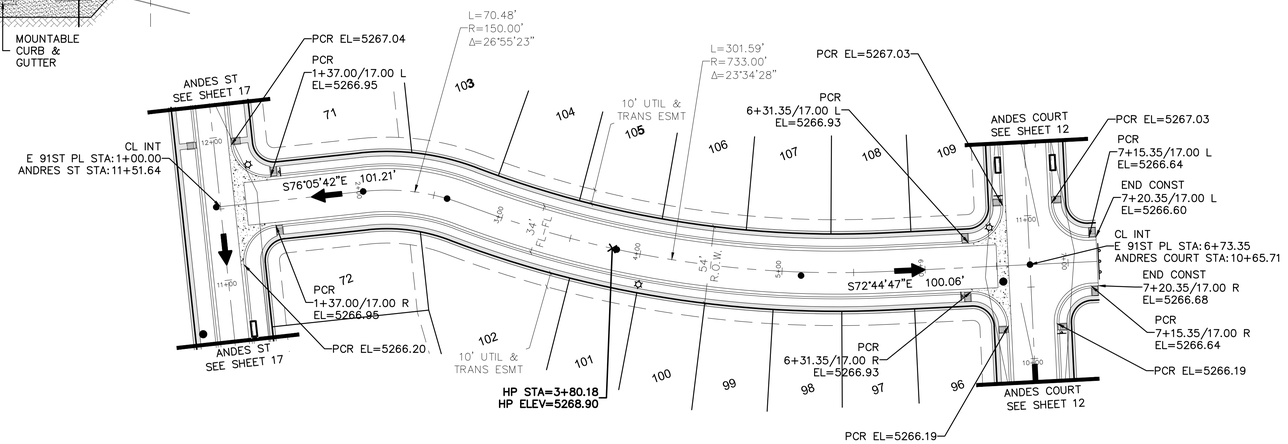
REVISIONS

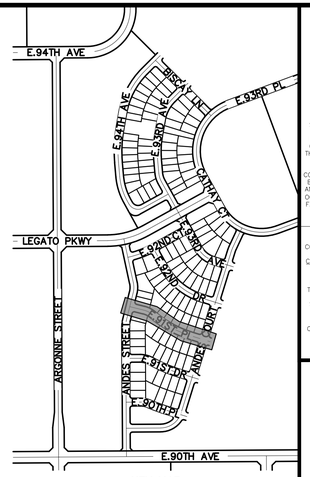
DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 7

CAD FILE: 19002561-ROAD 1.DWG



LEGATO
LOCAL STREET SECTION
1:10 HOR.





KEY MAP
SCALE: 1"=500'

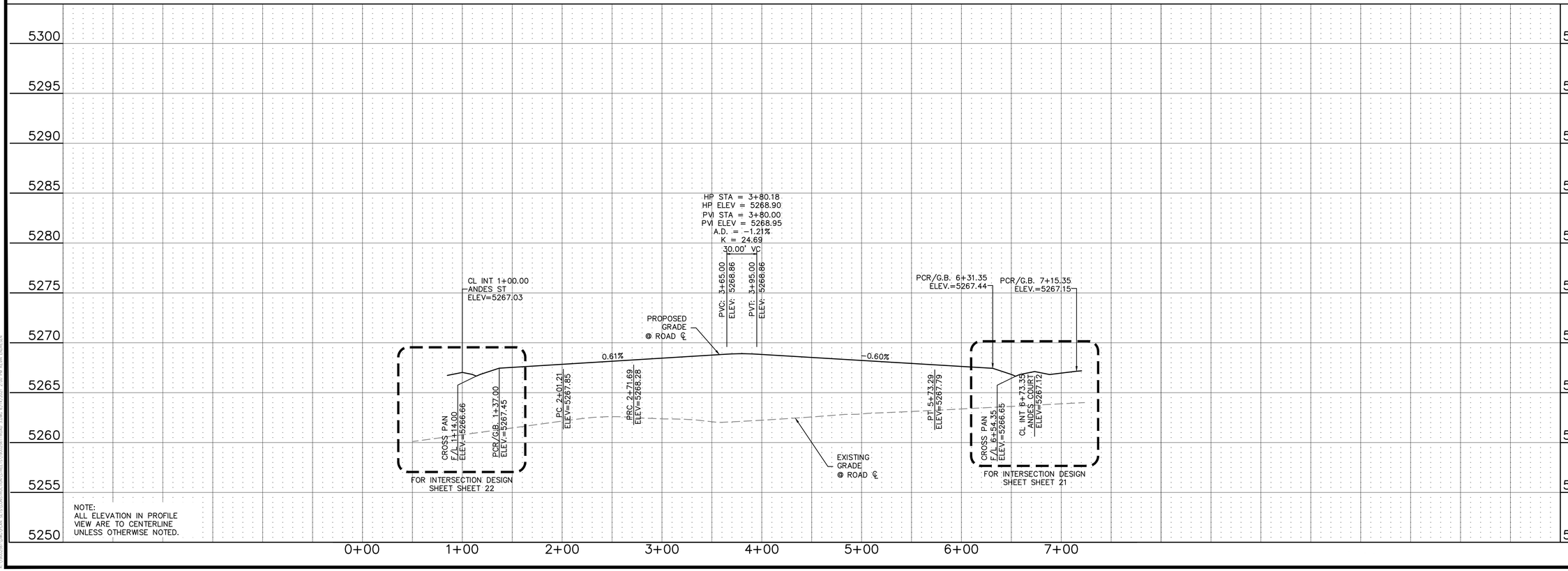
(IN FEET)
1 inch = 50 ft. (Horz)
1 inch = 5 ft. (Vert)

NOTE:

1. ALL ELEVATIONS IN PLAN VIEW TO FLOWLINE UNLESS OTHERWISE NOTED.

2. WITH THE EXCEPTION OF INTERSECTIONS WITH STREETS THAT ARE TO BE CONSTRUCTED WITH THE LEGATO INFRASTRUCTURE PLANS, SIGHT LINE CRITERIA IS ONLY SHOWN AT INTERSECTING STREETS, SO THAT THE ENTIRE SIGHT LINE CAN BE REPRESENTED.

E 91ST PL - STA 1+00-STA 7+23



NOTE:
ALL ELEVATION IN PROFILE VIEW ARE TO CENTERLINE UNLESS OTHERWISE NOTED.

811 Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-grp.com
6200 S. SYRACUSE WAY, SUITE 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

CLIENT
COHEN DENVER AIRPORT, LLC

LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
CONSTRUCTION PLANS
STREET PLAN & PROFILES
E 91ST PL - STA 1+00-STA 7+23

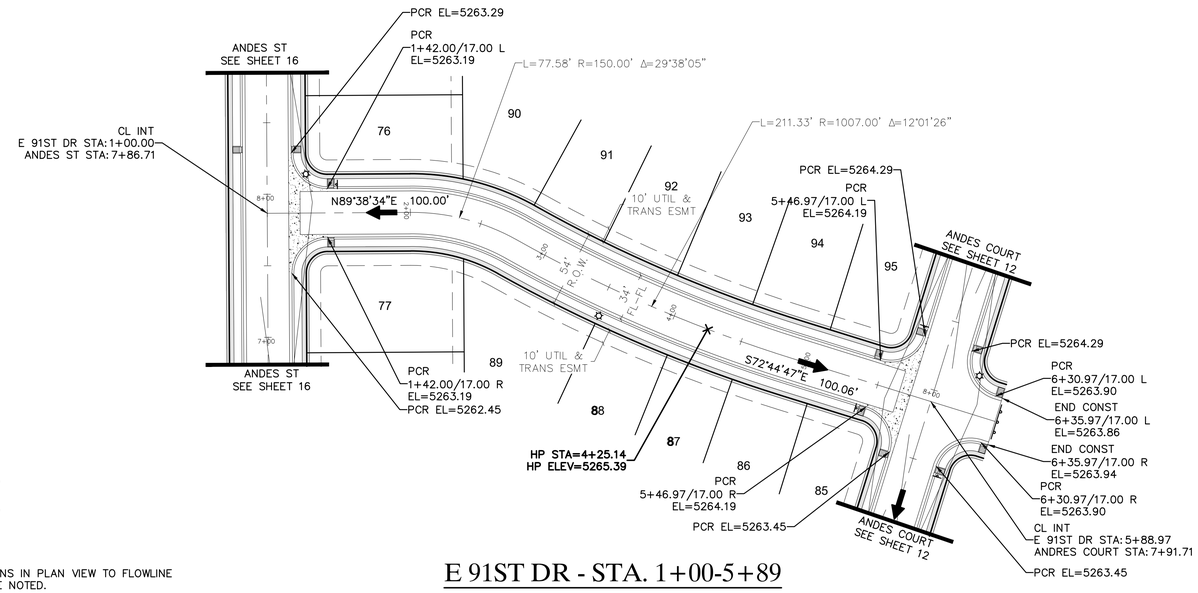
DATE 6/14/2021

A	1st SUBMITTAL TO COMMERCE CITY	08/17/2020 – DJM
B	2ND SUBMITTAL TO COMMERCE CITY	03/15/2021 – DJM
C	3RD SUBMITTAL TO COMMERCE CITY	06/11/2021 – DJM

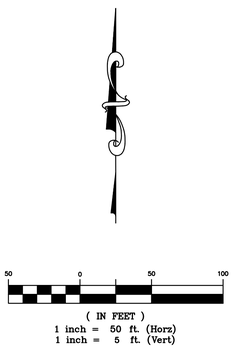
REVISIONS

DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 8

CAD FILE: 19002561-ROAD 3.DWG



E 91ST DR - STA. 1+00-5+89



SIGHT LINES

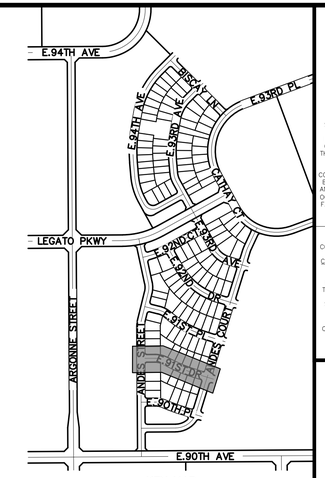
1 25 MPH, 200'

2 25 MPH, 240'

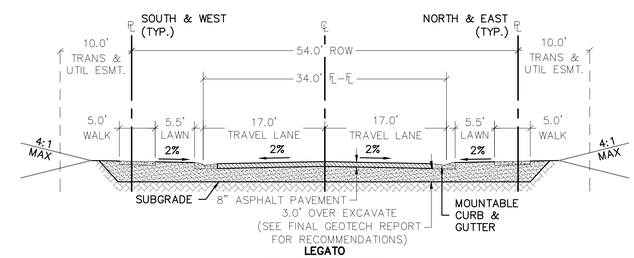
NOTE:

1. ALL ELEVATIONS IN PLAN VIEW TO FLOWLINE UNLESS OTHERWISE NOTED.

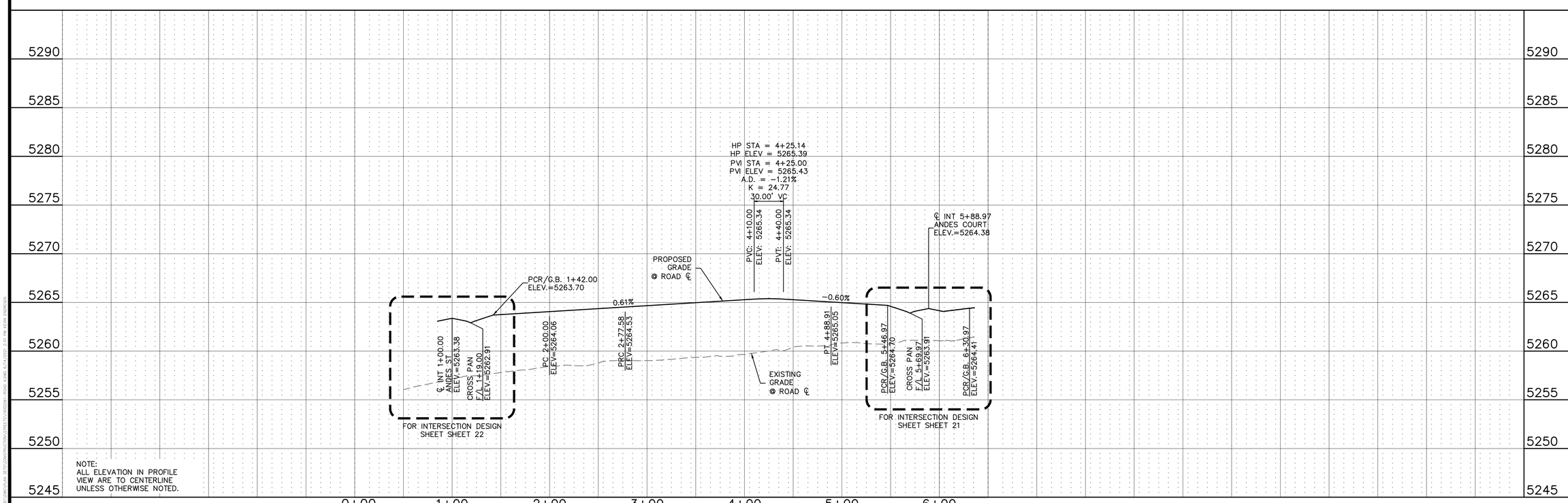
2. WITH THE EXCEPTION OF INTERSECTIONS WITH STREETS THAT ARE TO BE CONSTRUCTED WITH THE LEGATO INFRASTRUCTURE PLANS, SIGHT LINE CRITERIA IS ONLY SHOWN AT INTERSECTING STREETS, SO THAT THE ENTIRE SIGHT LINE CAN BE REPRESENTED.



KEY MAP
SCALE: 1"=500'



LEGATO
LOCAL STREET SECTION
1:10 HOR.



NOTE:
ALL ELEVATION IN PROFILE VIEW ARE TO CENTERLINE UNLESS OTHERWISE NOTED.

811 Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-grp.com
6200 S. QUEBEC STREET, SUITE 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

CLIENT: COHEN DENVER AIRPORT, LLC

LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
CONSTRUCTION PLANS
STREET PLAN & PROFILES
E 91ST DR - STA. 1+00-5+89

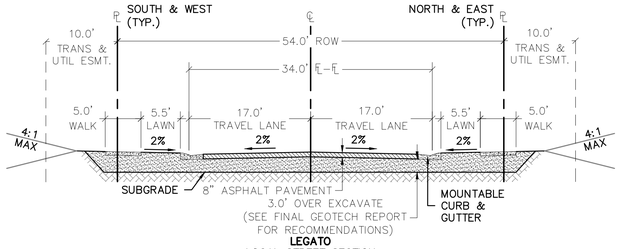
DATE 6/14/2021

A	1st SUBMITTAL TO COMMERCE CITY	08/17/2020 - DJM
B	2nd SUBMITTAL TO COMMERCE CITY	03/15/2021 - DJM
C	3rd SUBMITTAL TO COMMERCE CITY	06/11/2021 - DJM

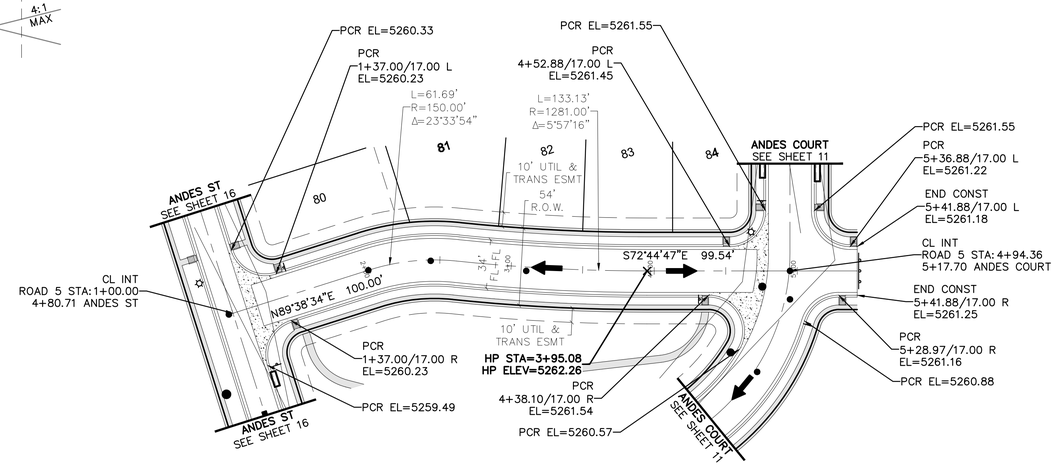
REVISIONS

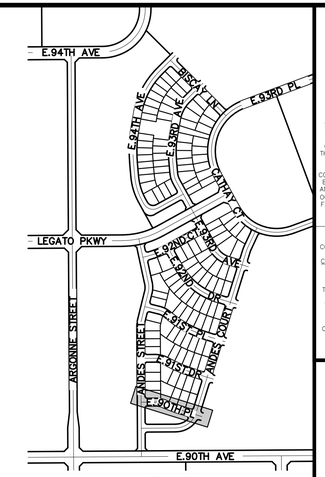
DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 9

CAD FILE: 19002561-ROAD 4.DWG



LEGATO
LOCAL STREET SECTION
1:10 HOR.





KEY MAP
SCALE: 1"=500'

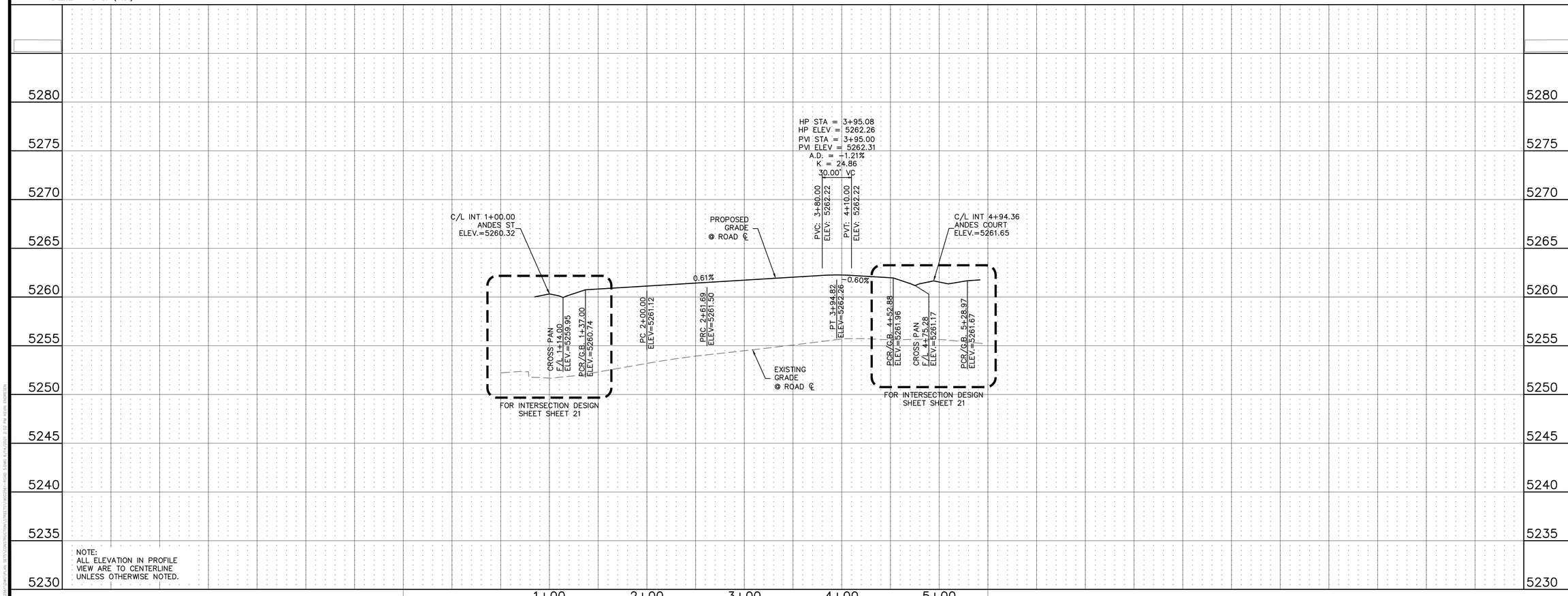
(IN FEET)
1 inch = 50 ft. (Horz)
1 inch = 5 ft. (Vert)

NOTE:

1. ALL ELEVATIONS IN PLAN VIEW TO FLOWLINE UNLESS OTHERWISE NOTED.

2. WITH THE EXCEPTION OF INTERSECTIONS WITH STREETS THAT ARE TO BE CONSTRUCTED WITH THE LEGATO INFRASTRUCTURE PLANS, SIGHT LINE CRITERIA IS ONLY SHOWN AT INTERSECTING STREETS, SO THAT THE ENTIRE SIGHT LINE CAN BE REPRESENTED.

E 90TH PL - STA. 1+00-5+50



NOTE:
ALL ELEVATION IN PROFILE VIEW ARE TO CENTERLINE UNLESS OTHERWISE NOTED.

811 Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 S. QUEBEC STREET, ATLAS, 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

CLIENT
COHEN DENVER AIRPORT, LLC

LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
CONSTRUCTION PLANS
STREET PLAN & PROFILES
E 90TH PL – STA. 1+00-5+50

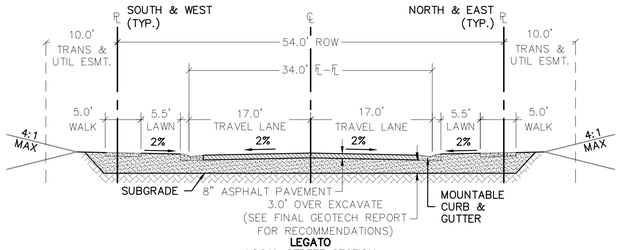
DATE 6/14/2021

A	1st SUBMITTAL TO COMMERCE CITY	08/17/2020 – DJM
B	2nd SUBMITTAL TO COMMERCE CITY	03/15/2021 – DJM
C	3rd SUBMITTAL TO COMMERCE CITY	06/11/2021 – DJM

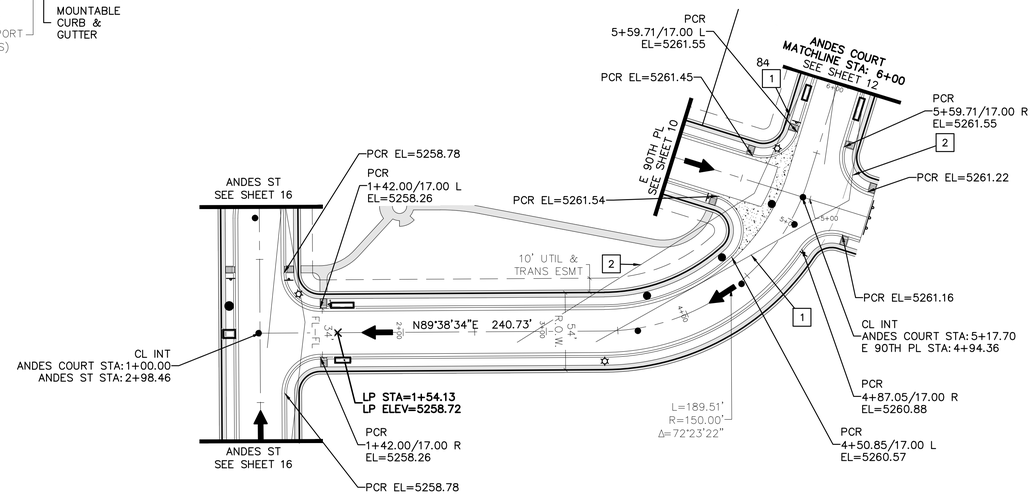
REVISIONS

DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 10

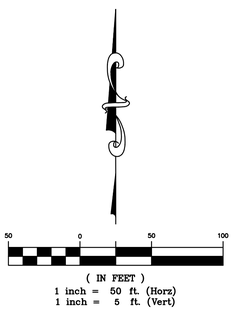
CAD FILE: 19002561-ROAD 5.DWG



LEGATO
LOCAL STREET SECTION
1:10 HOR.



ANDES COURT - STA 1+00-STA 6+00



SIGHT LINES

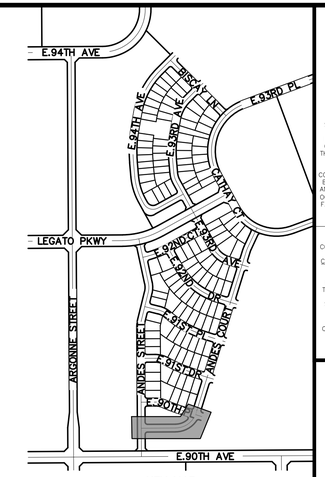
1 25 MPH, 200'

2 25 MPH, 240'

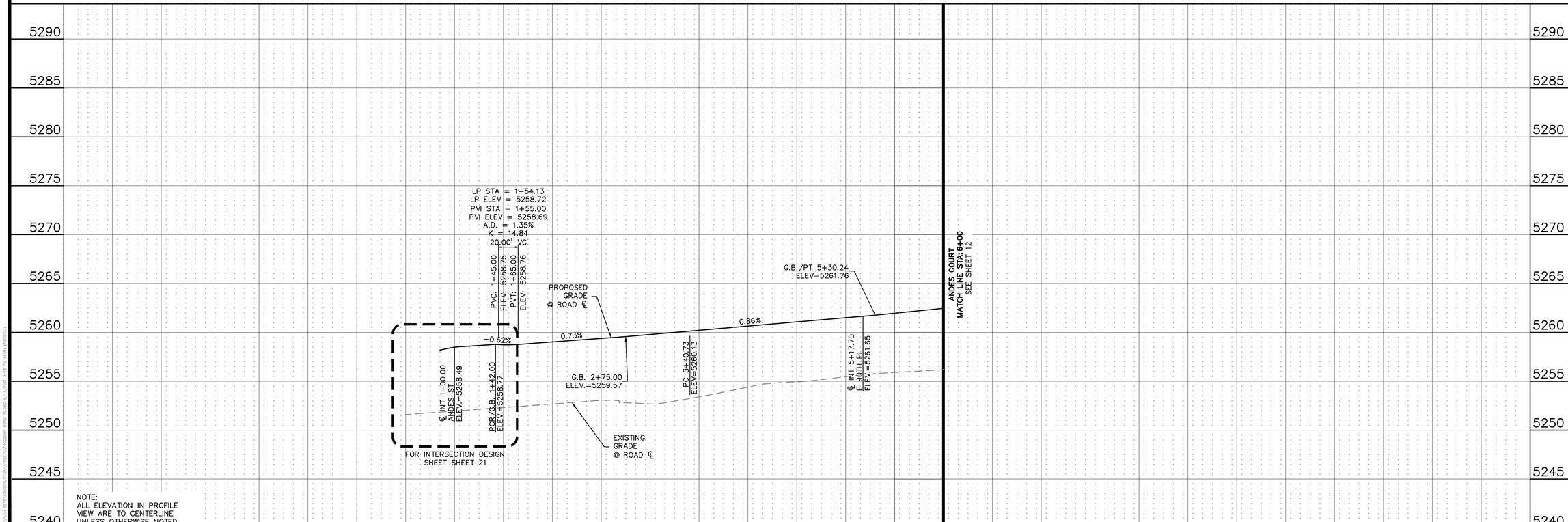
NOTE:

1. ALL ELEVATIONS IN PLAN VIEW TO FLOWLINE UNLESS OTHERWISE NOTED.

2. WITH THE EXCEPTION OF INTERSECTIONS WITH STREETS THAT ARE TO BE CONSTRUCTED WITH THE LEGATO INFRASTRUCTURE PLANS, SIGHT LINE CRITERIA IS ONLY SHOWN AT INTERSECTING STREETS, SO THAT THE ENTIRE SIGHT LINE CAN BE REPRESENTED.



KEY MAP
SCALE: 1"=500'



NOTE:
ALL ELEVATION IN PROFILE VIEW ARE TO CENTERLINE UNLESS OTHERWISE NOTED.

Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 S. QUEBEC STREET, SUITE 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

CLIENT
COHEN DENVER AIRPORT, LLC

LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
CONSTRUCTION PLANS
STREET PLAN & PROFILES
ANDES COURT – STA 1+00–STA 6+00

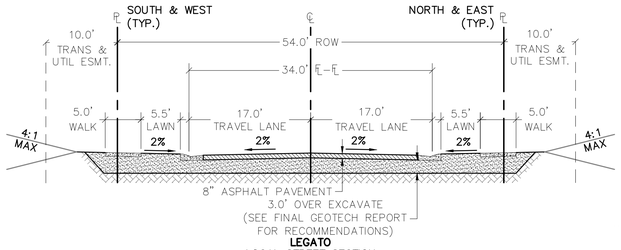
DATE 6/14/2021

A	1st SUBMITTAL TO COMMERCE CITY	08/17/2020 – DJM
B	2nd SUBMITTAL TO COMMERCE CITY	03/15/2021 – DJM
C	3rd SUBMITTAL TO COMMERCE CITY	06/11/2021 – DJM

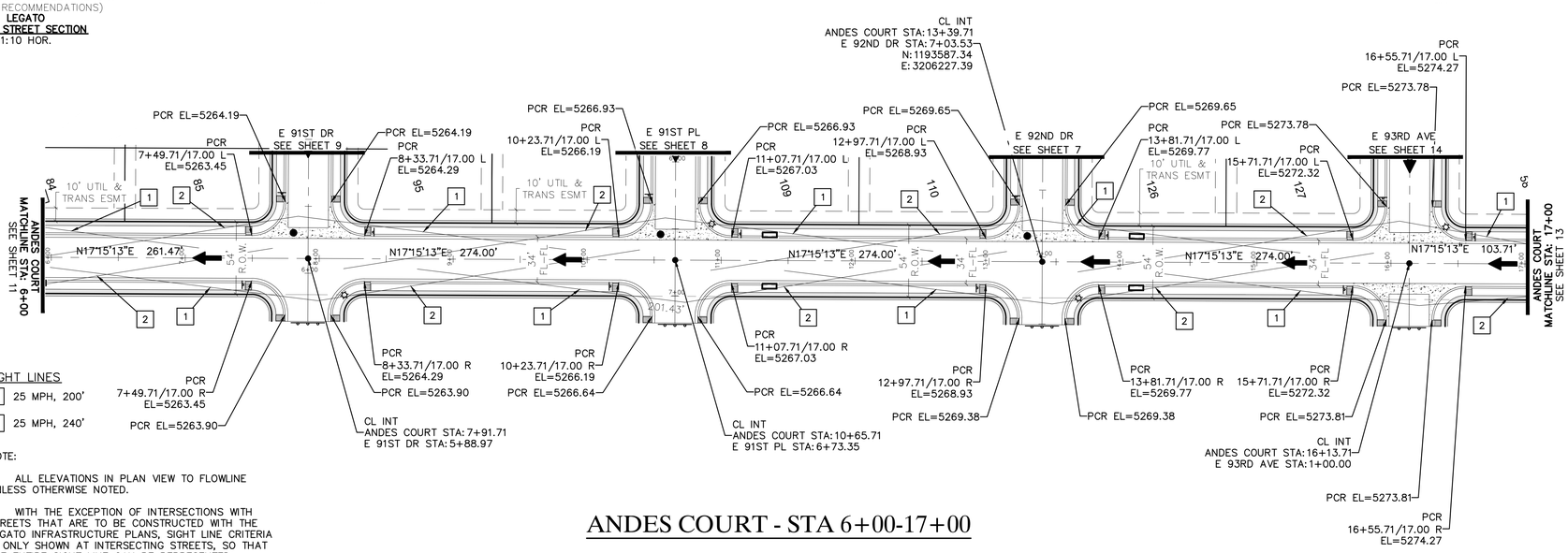
REVISIONS

DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 11

CAD FILE: 19002561-ROAD 10.DWG



LEGATO
LOCAL STREET SECTION
1:10 HOR.



SIGHT LINES

1 25 MPH, 200'

2 25 MPH, 240'

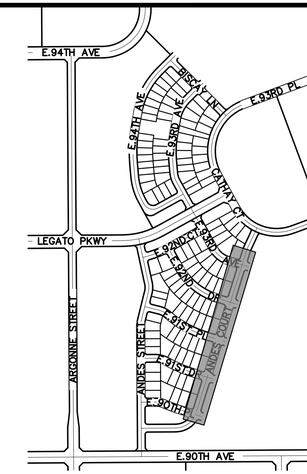
NOTE:

1. ALL ELEVATIONS IN PLAN VIEW TO FLOWLINE UNLESS OTHERWISE NOTED.

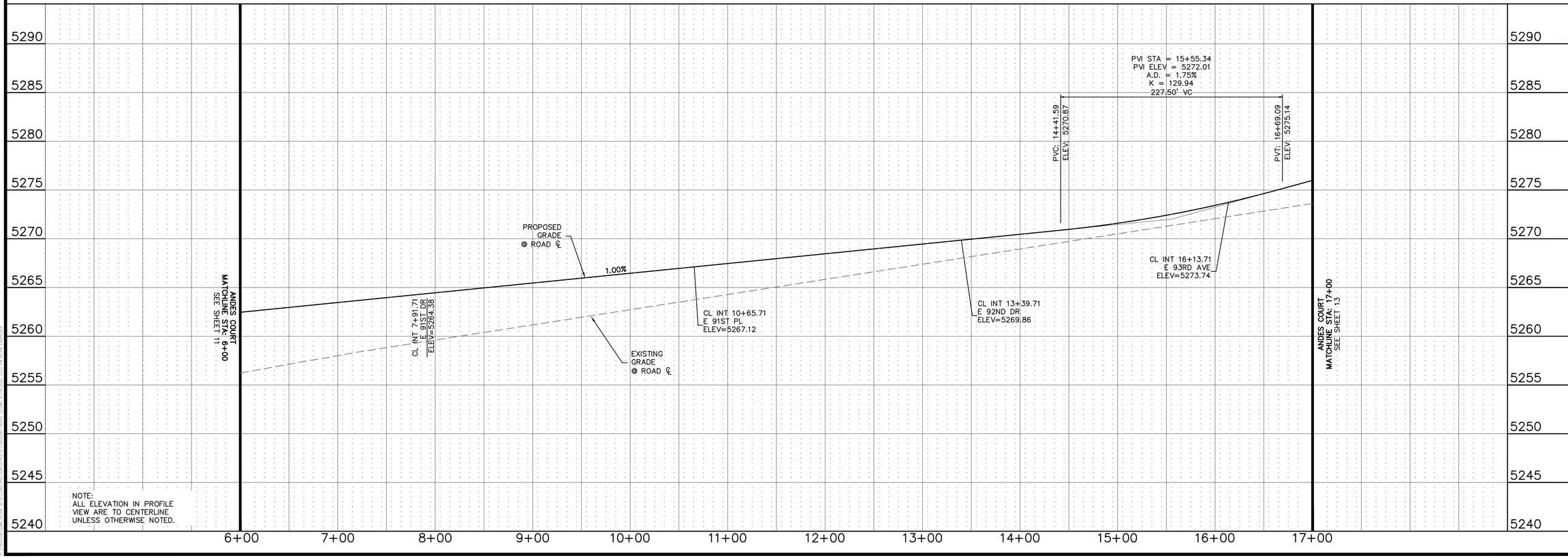
2. WITH THE EXCEPTION OF INTERSECTIONS WITH STREETS THAT ARE TO BE CONSTRUCTED WITH THE LEGATO INFRASTRUCTURE PLANS, SIGHT LINE CRITERIA IS ONLY SHOWN AT INTERSECTING STREETS, SO THAT THE ENTIRE SIGHT LINE CAN BE REPRESENTED.

50 0 50 100
(IN FEET)
1 inch = 50 ft. (Horz)
1 inch = 5 ft. (Vert)

ANDES COURT - STA 6+00-17+00



KEY MAP
SCALE: 1"=500'



NOTE:
ALL ELEVATION IN PROFILE VIEW ARE TO CENTERLINE UNLESS OTHERWISE NOTED.

811 Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 S. QUEBEC STREET, ATLAS, 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

CLIENT
COHEN DENVER AIRPORT, LLC

LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
CONSTRUCTION PLANS
STREET PLAN & PROFILES
ANDES COURT – STA 6+00–17+00

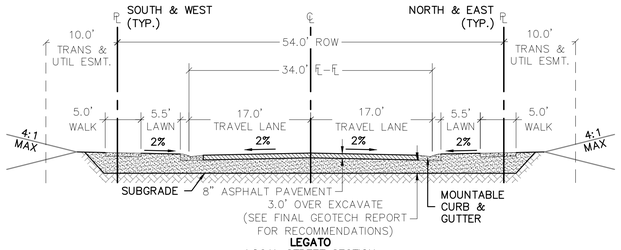
DATE 6/14/2021

A	1st SUBMITTAL TO COMMERCE CITY	08/17/2020 – DJM
B	2nd SUBMITTAL TO COMMERCE CITY	03/15/2021 – DJM
C	3rd SUBMITTAL TO COMMERCE CITY	06/11/2021 – DJM

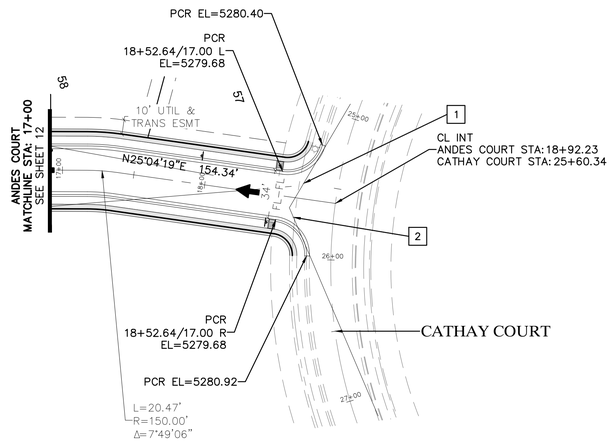
REVISIONS

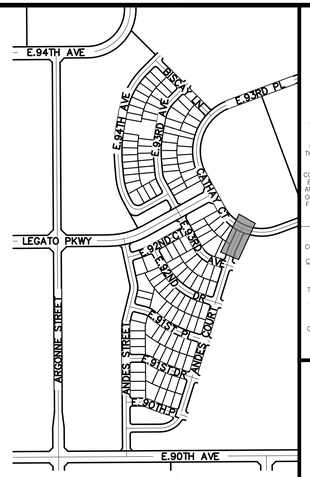
DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 12

CAD FILE: 19002561-ROAD 10.DWG



LEGATO
LOCAL STREET SECTION
1:10 HOR.





KEY MAP
SCALE: 1"=500'

SIGHT LINES

1 25 MPH, 200'

2 25 MPH, 240'

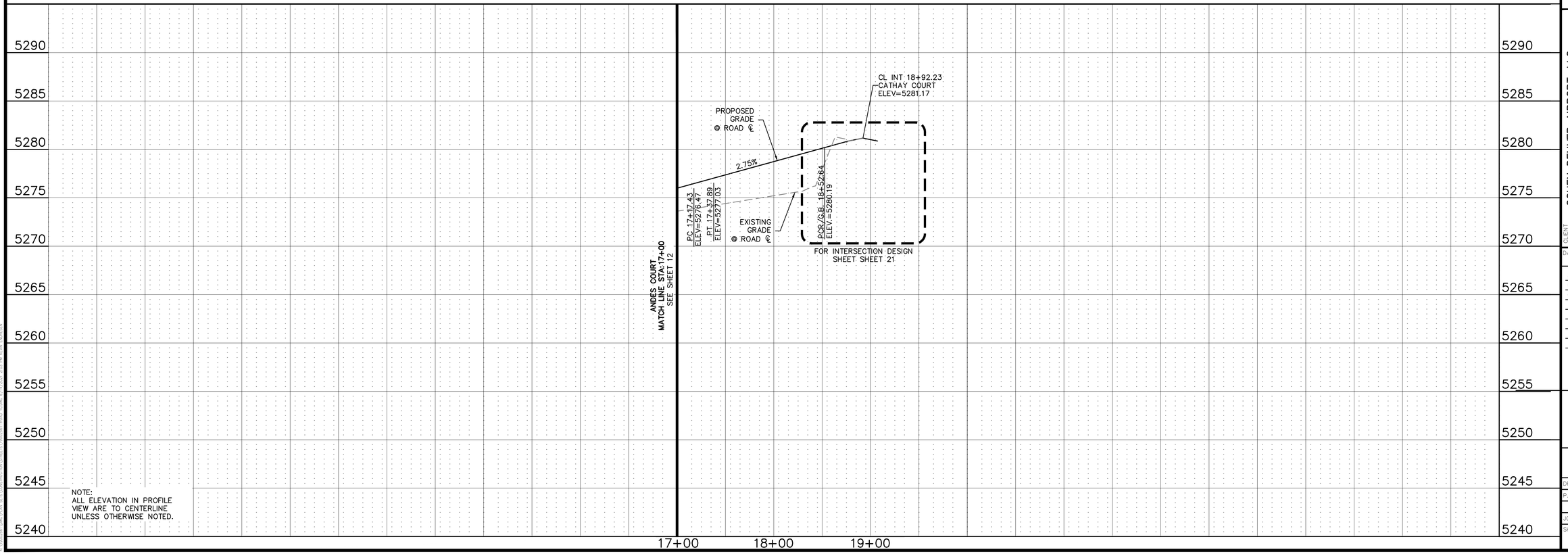
NOTE:

1. ALL ELEVATIONS IN PLAN VIEW TO FLOWLINE UNLESS OTHERWISE NOTED.

2. WITH THE EXCEPTION OF INTERSECTIONS WITH STREETS THAT ARE TO BE CONSTRUCTED WITH THE LEGATO INFRASTRUCTURE PLANS, SIGHT LINE CRITERIA IS ONLY SHOWN AT INTERSECTING STREETS, SO THAT THE ENTIRE SIGHT LINE CAN BE REPRESENTED.

50 0 50 100
(IN FEET)
1 inch = 50 ft. (Horz)
1 inch = 5 ft. (Vert)

ANDES COURT - STA 17+00-19+00



NOTE:
ALL ELEVATION IN PROFILE VIEW ARE TO CENTERLINE UNLESS OTHERWISE NOTED.

811 Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 S. QUEBEC STREET ATLAS, INC. 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

CLIENT
COHEN DENVER AIRPORT, LLC

LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
CONSTRUCTION PLANS
STREET PLAN & PROFILES
ANDES COURT – STA 17+00–19+00

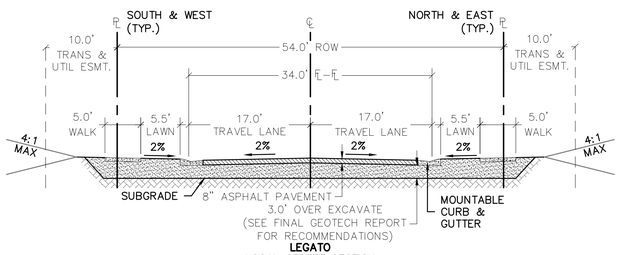
DATE 6/14/2021

A	CITY	1st SUBMITTAL TO COMMERCE CITY 08/17/2020 – DJM
B	CITY	2ND SUBMITTAL TO COMMERCE CITY 03/15/2021 – DJM
C	CITY	3RD SUBMITTAL TO COMMERCE CITY 06/11/2021 – DJM

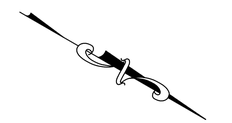
REVISIONS

DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 13

CAD FILE: 19002561-ROAD 10.DWG



LEGATO
LOCAL STREET SECTION
1:10 HOR.



(IN FEET)
1 inch = 50 ft. (Horz)
1 inch = 5 ft. (Vert)

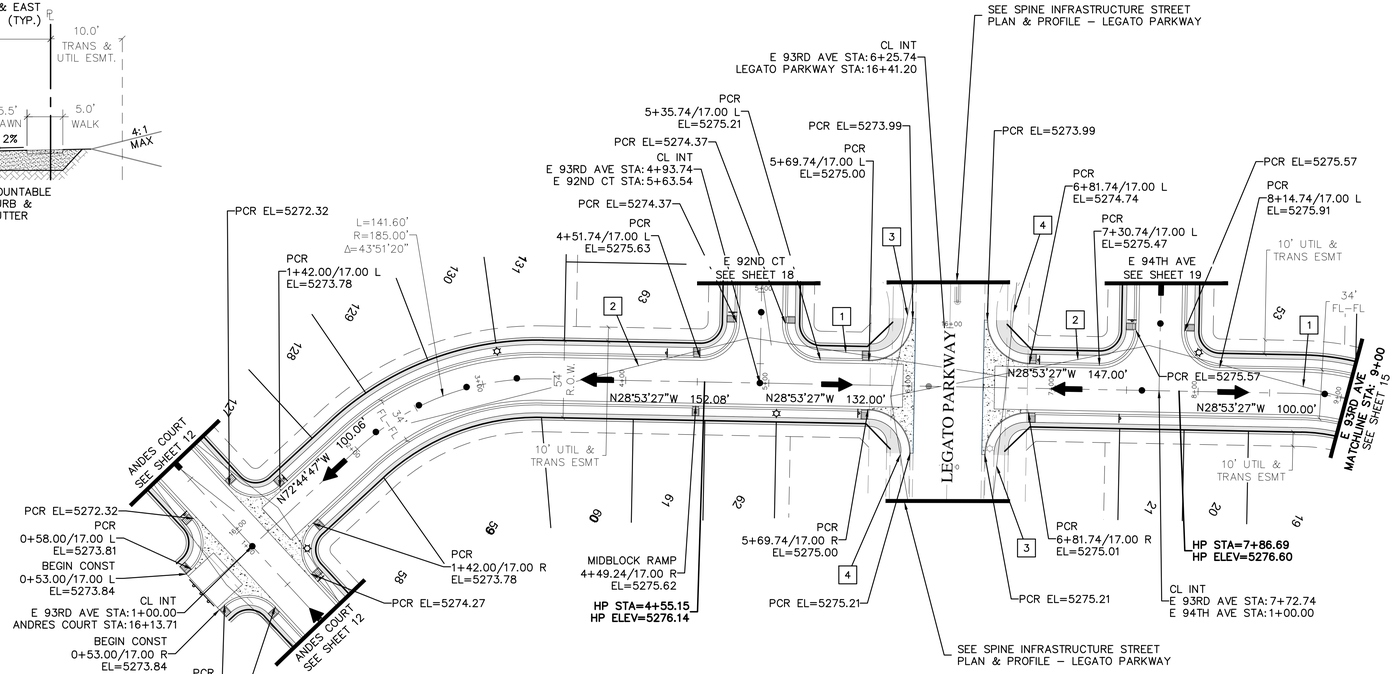
SIGHT LINES

1	25 MPH, 200'
2	25 MPH, 240'
3	45 MPH, 570'
4	45 MPH, 610'

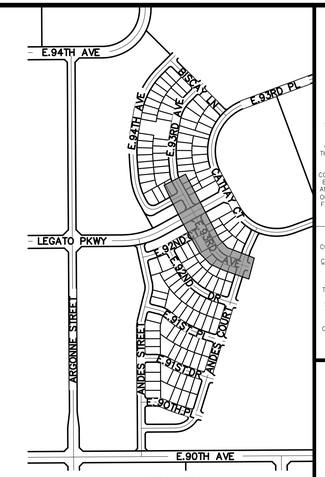
NOTE:

1. ALL ELEVATIONS IN PLAN VIEW TO FLOWLINE UNLESS OTHERWISE NOTED.

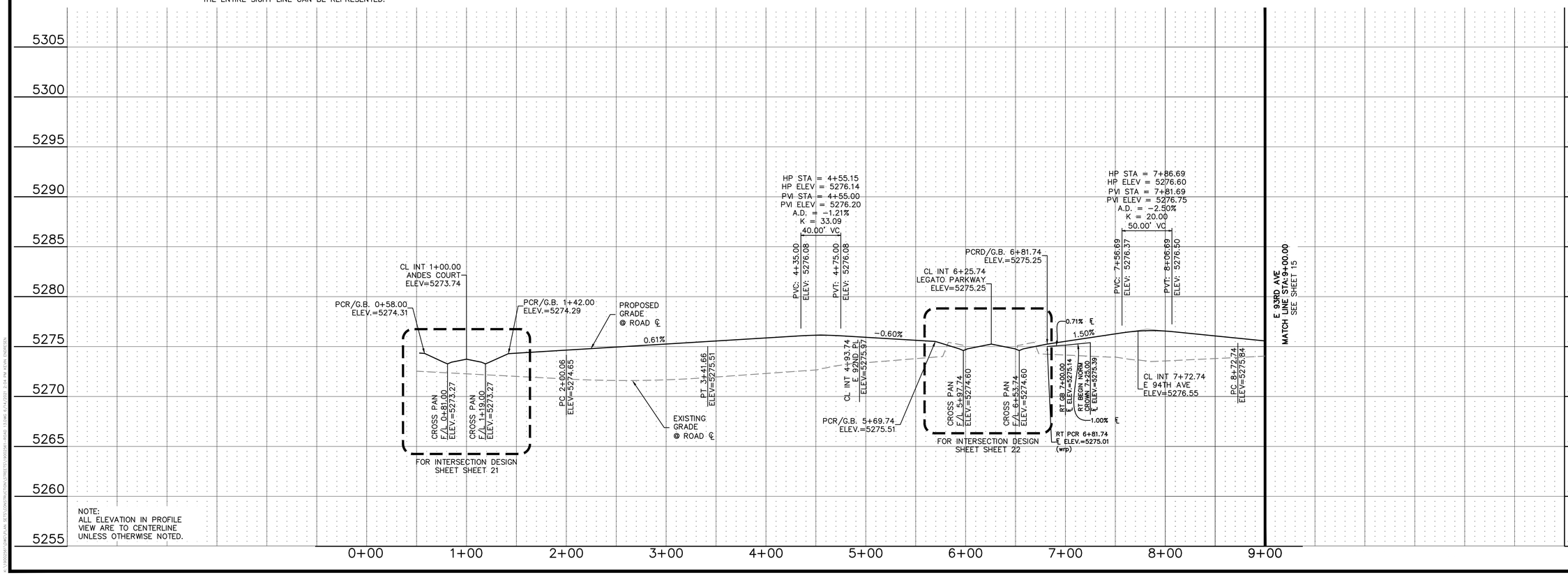
2. WITH THE EXCEPTION OF INTERSECTIONS WITH STREETS THAT ARE TO BE CONSTRUCTED WITH THE LEGATO INFRASTRUCTURE PLANS, SIGHT LINE CRITERIA IS ONLY SHOWN AT INTERSECTING STREETS, SO THAT THE ENTIRE SIGHT LINE CAN BE REPRESENTED.



E 93RD AVE - STA 0+50-STA 9+00



KEY MAP
SCALE: 1"=500'



NOTE:
ALL ELEVATION IN PROFILE VIEW ARE TO CENTERLINE UNLESS OTHERWISE NOTED.

811 Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 SOUTH QUEBEC STREET, SUITE 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

CLIENT
COHEN DENVER AIRPORT, LLC

LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
CONSTRUCTION PLANS
STREET PLAN & PROFILES
E 93RD AVE – STA 0+50–STA 9+00

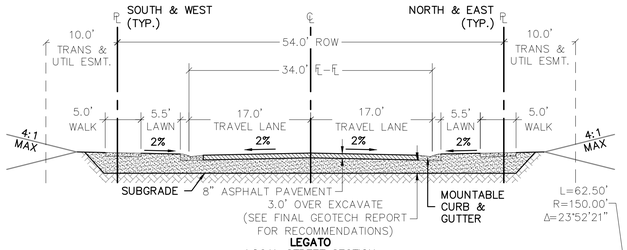
DATE 6/14/2021

A	1st SUBMITTAL TO COMMERCE CITY	08/17/2020 – DJM
B	2nd SUBMITTAL TO COMMERCE CITY	03/15/2021 – DJM
C	3rd SUBMITTAL TO COMMERCE CITY	06/21/2021 – DJM

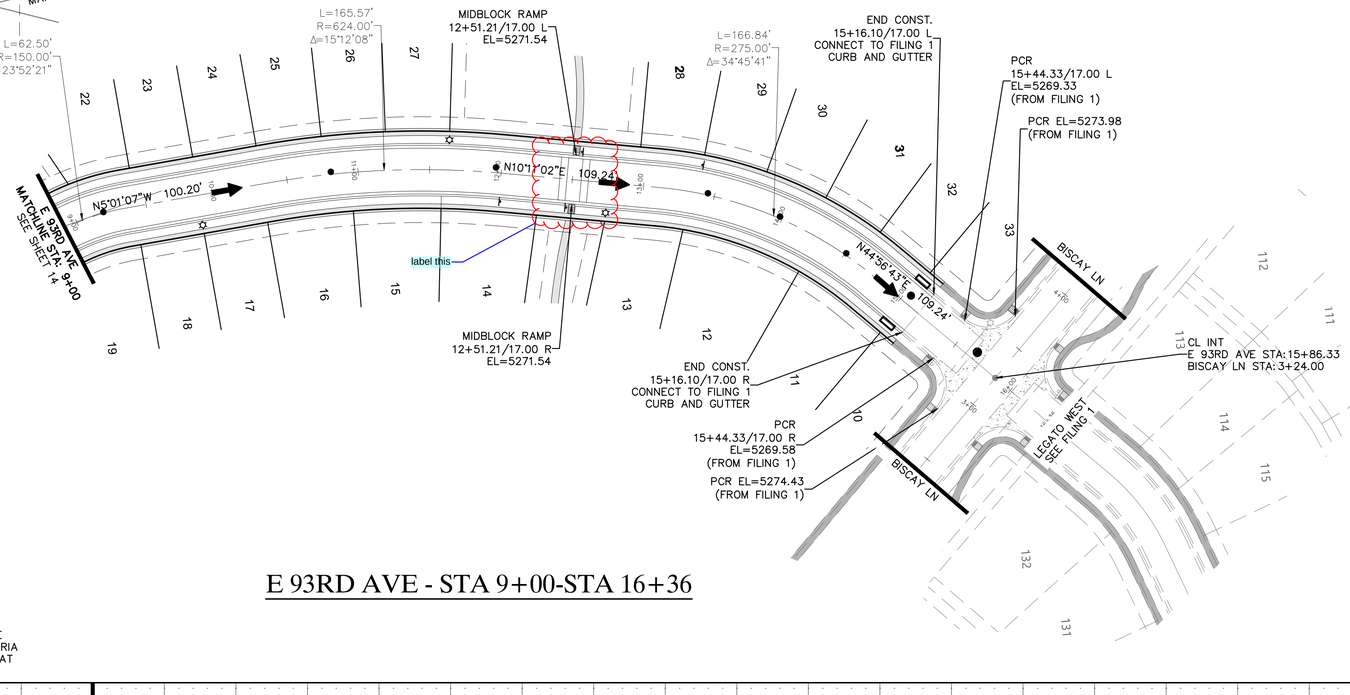
REVISIONS

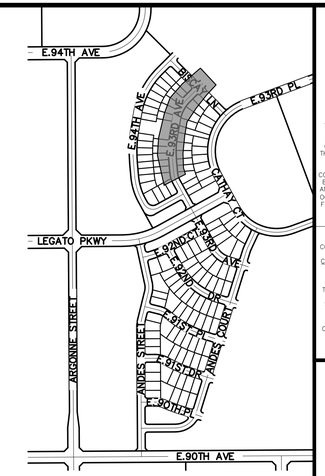
DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 14

CAD FILE: 19002561-ROAD 13.DWG



LEGATO
LOCAL STREET SECTION
1:10 HOR.





KEY MAP
SCALE: 1"=500'

(IN FEET)
1 inch = 50 ft. (Horz)
1 inch = 5 ft. (Vert)

SIGHT LINES

1 25 MPH, 200'

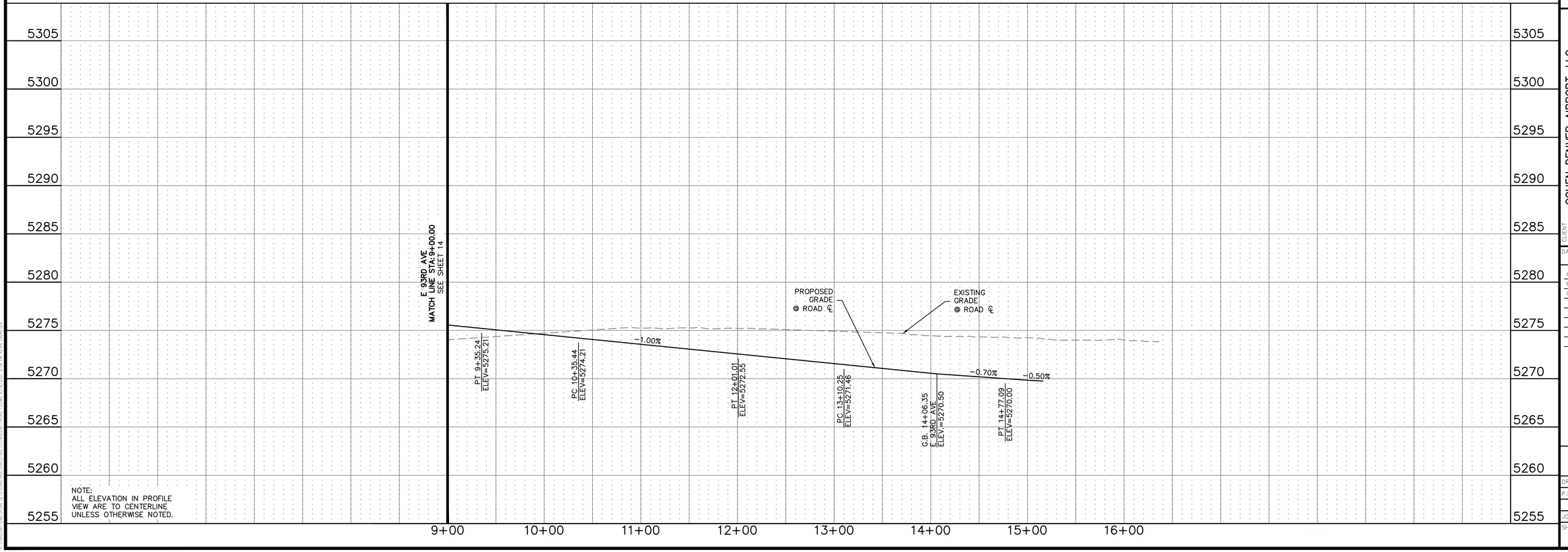
2 25 MPH, 240'

NOTE:

1. ALL ELEVATIONS IN PLAN VIEW TO FLOWLINE UNLESS OTHERWISE NOTED.

2. WITH THE EXCEPTION OF INTERSECTIONS WITH STREETS THAT ARE TO BE CONSTRUCTED WITH THE LEGATO INFRASTRUCTURE PLANS, SIGHT LINE CRITERIA IS ONLY SHOWN AT INTERSECTING STREETS, SO THAT THE ENTIRE SIGHT LINE CAN BE REPRESENTED.

E 93RD AVE - STA 9+00-STA 16+36



NOTE:
ALL ELEVATION IN PROFILE VIEW ARE TO CENTERLINE UNLESS OTHERWISE NOTED.

811 Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 S. QUEBEC STREET, SUITE 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

CLIENT
COHEN DENVER AIRPORT, LLC

LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
CONSTRUCTION PLANS
STREET PLAN & PROFILES
E 93RD AVE – STA 9+00–STA 16+36

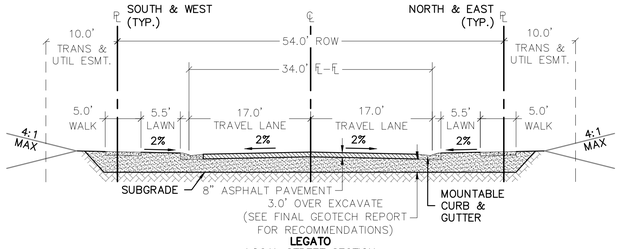
DATE 6/14/2021

A	1st SUBMITTAL TO COMMERCE CITY	08/17/2020 – DJM
B	2nd SUBMITTAL TO COMMERCE CITY	03/15/2021 – DJM
C	3rd SUBMITTAL TO COMMERCE CITY	06/11/2021 – DJM

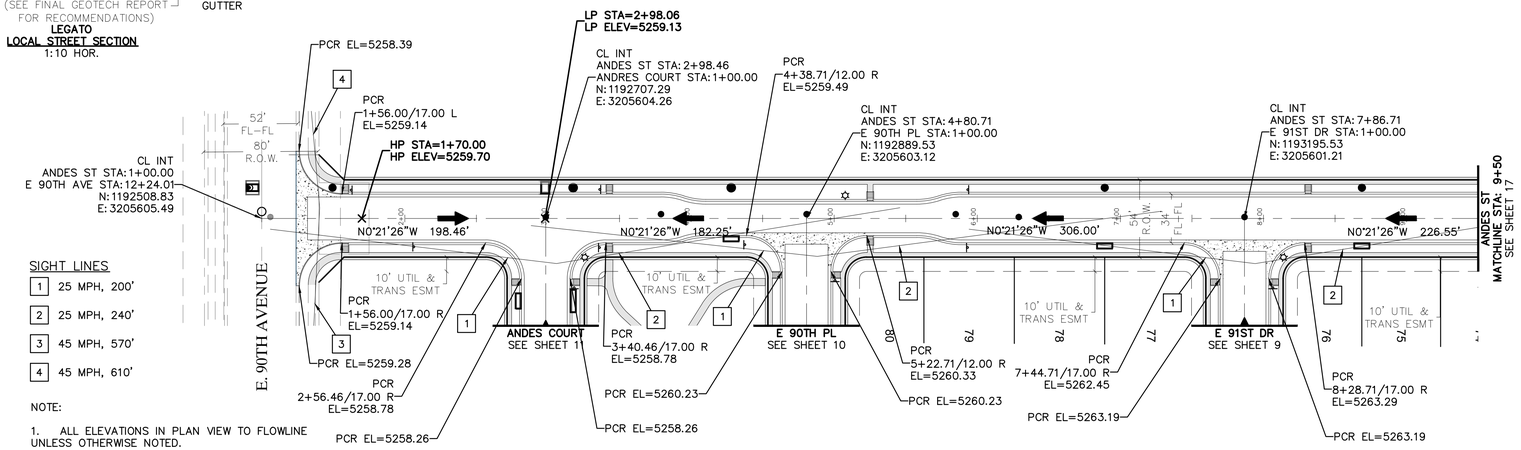
REVISIONS

DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 15

CAD FILE: 19002561-ROAD 13.DWG



LEGATO
LOCAL STREET SECTION
1:10 HOR.



SIGHT LINES

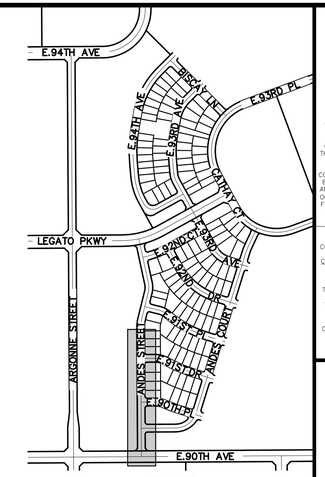
1. 25 MPH, 200'
2. 25 MPH, 240'
3. 45 MPH, 570'
4. 45 MPH, 610'

NOTE:

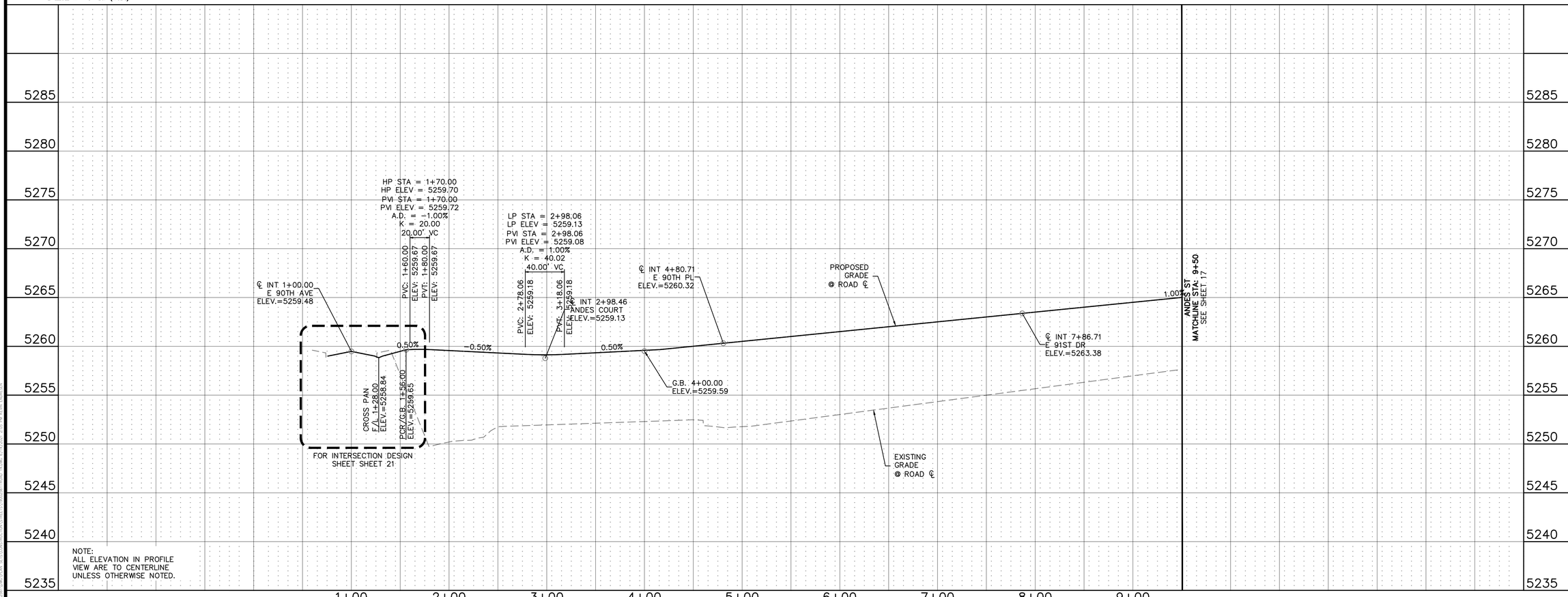
1. ALL ELEVATIONS IN PLAN VIEW TO FLOWLINE UNLESS OTHERWISE NOTED.
2. WITH THE EXCEPTION OF INTERSECTIONS WITH STREETS THAT ARE TO BE CONSTRUCTED WITH THE LEGATO INFRASTRUCTURE PLANS, SIGHT LINE CRITERIA IS ONLY SHOWN AT INTERSECTING STREETS, SO THAT THE ENTIRE SIGHT LINE CAN BE REPRESENTED.

50 0 50 100
(IN FEET)
1 inch = 50 ft. (Horz)
1 inch = 5 ft. (Vert)

ANDES ST - STA. 1+00-9+50



KEY MAP
SCALE: 1"=500'



NOTE:
ALL ELEVATION IN PROFILE VIEW ARE TO CENTERLINE UNLESS OTHERWISE NOTED.

811 Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-grp.com
6200 S. QUEBEC STREET, ATLAS A, SUITE 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

CLIENT
COHEN DENVER AIRPORT, LLC

LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
CONSTRUCTION PLANS
STREET PLAN & PROFILES
ANDES ST – STA. 1+00-9+50

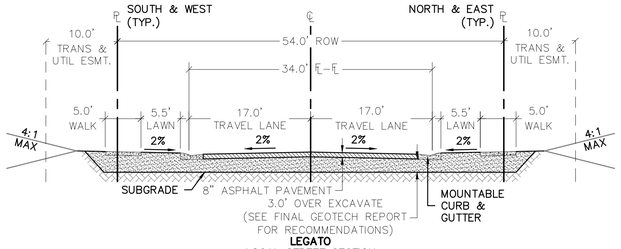
DATE 6/14/2021

A	1st SUBMITTAL TO COMMERCE CITY	08/17/2020 – DJM
B	2nd SUBMITTAL TO COMMERCE CITY	03/15/2021 – DJM
C	3rd SUBMITTAL TO COMMERCE CITY	06/11/2021 – DJM

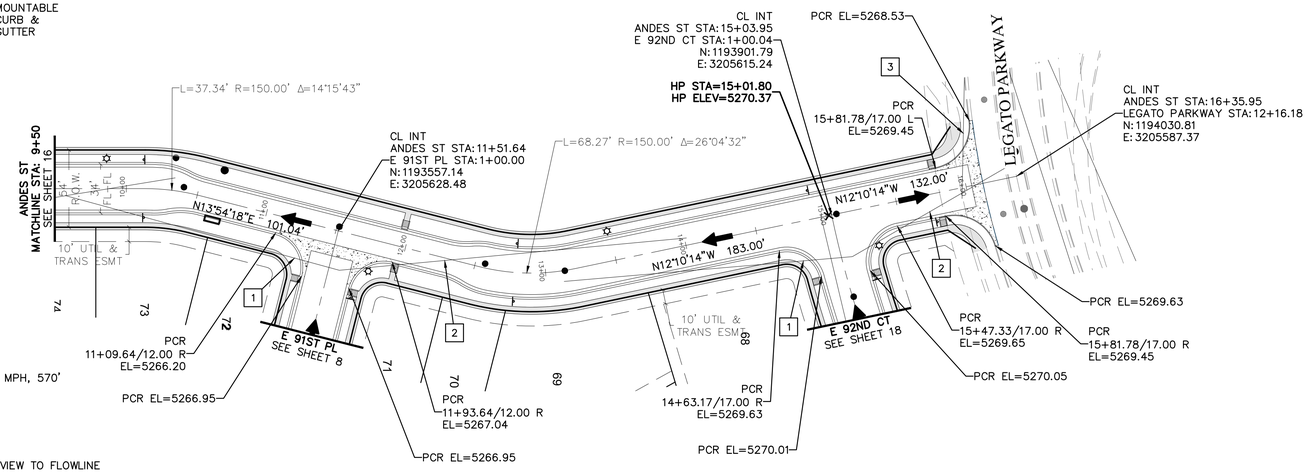
REVISIONS

DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 16

CAD FILE: 19002561-ROAD 14.DWG



LEGATO
LOCAL STREET SECTION
1:10 HOR.



SIGHT LINES

1 25 MPH, 200'
2 25 MPH, 240'
3 45 MPH, 570'

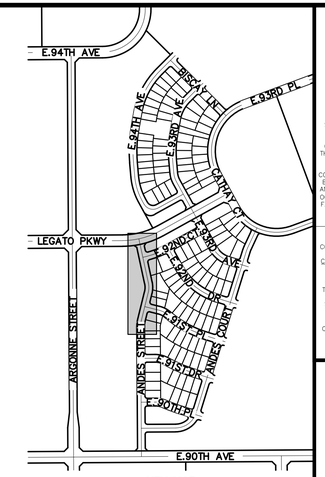
NOTE:

1. ALL ELEVATIONS IN PLAN VIEW TO FLOWLINE UNLESS OTHERWISE NOTED.

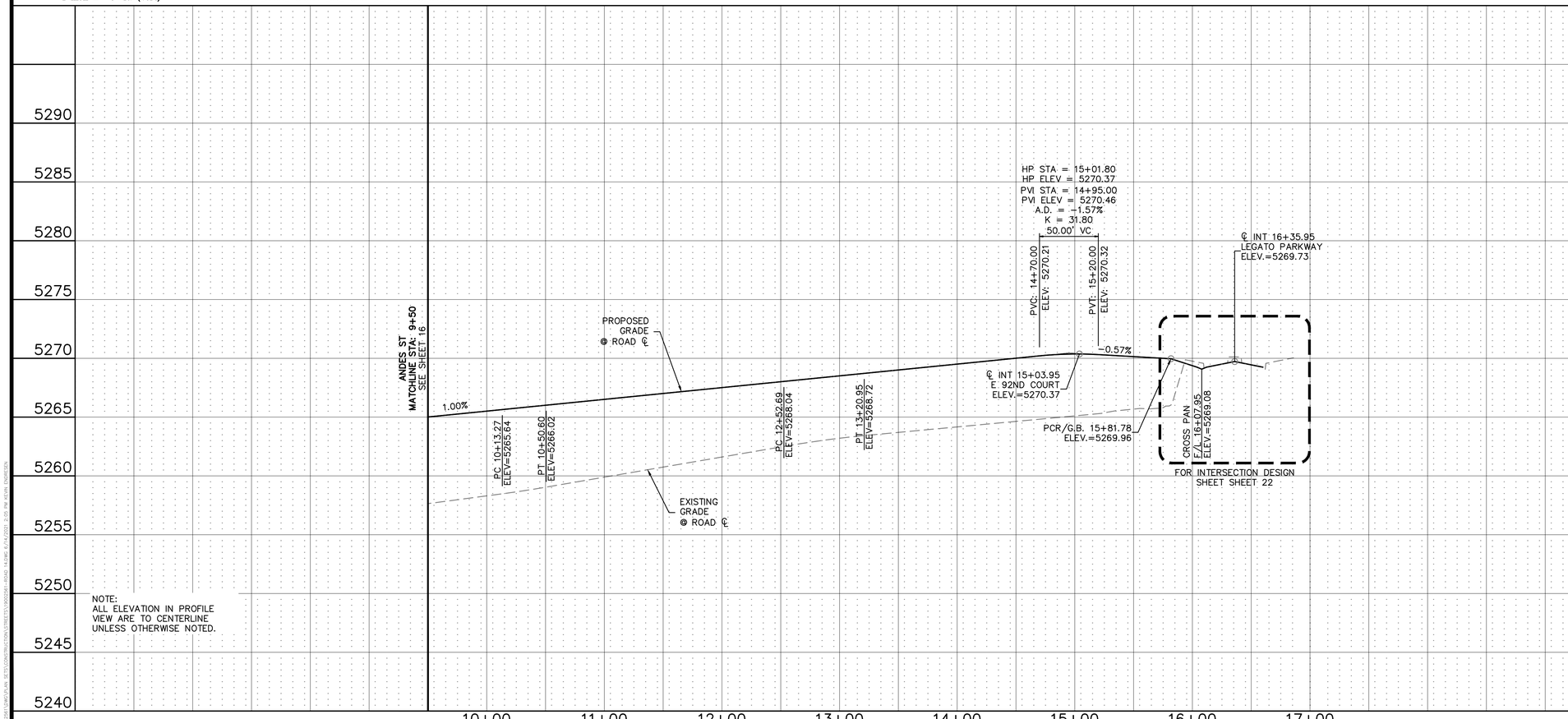
2. WITH THE EXCEPTION OF INTERSECTIONS WITH STREETS THAT ARE TO BE CONSTRUCTED WITH THE LEGATO INFRASTRUCTURE PLANS, SIGHT LINE CRITERIA IS ONLY SHOWN AT INTERSECTING STREETS, SO THAT THE ENTIRE SIGHT LINE CAN BE REPRESENTED.

50 0 50 100
(IN FEET)
1 inch = 50 ft. (Horz)
1 inch = 5 ft. (Vert)

ANDES ST - STA. 9+50-17+00



KEY MAP
SCALE: 1"=500'



NOTE:
ALL ELEVATION IN PROFILE VIEW ARE TO CENTERLINE UNLESS OTHERWISE NOTED.

811 Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-grp.com
6200 SOUTH QUEBEC STREET, SUITE 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

CLIENT
COHEN DENVER AIRPORT, LLC

LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
CONSTRUCTION PLANS
STREET PLAN & PROFILES
ANDES ST – STA. 9+50–17+00

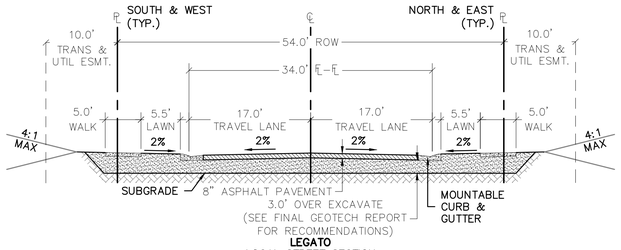
DATE 6/14/2021

A	1st SUBMITTAL TO COMMERCE CITY	08/17/2020 – DJM
B	2nd SUBMITTAL TO COMMERCE CITY	03/15/2021 – DJM
C	3rd SUBMITTAL TO COMMERCE CITY	06/11/2021 – DJM

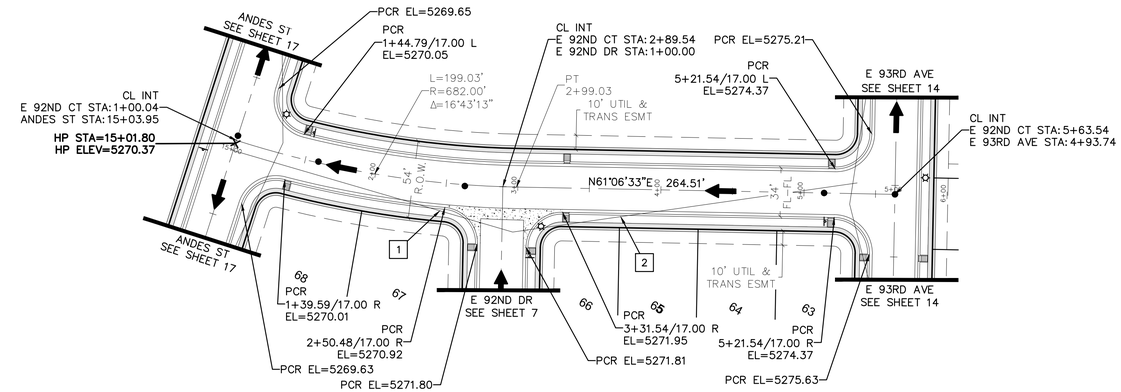
REVISIONS

DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 17

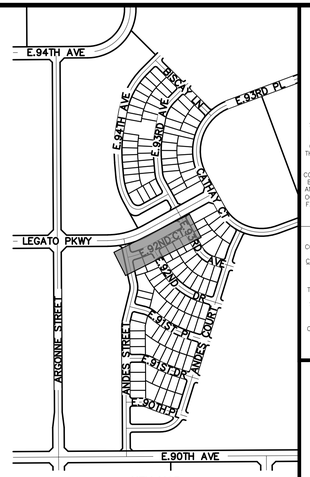
CAD FILE: 19002561-ROAD 14.DWG



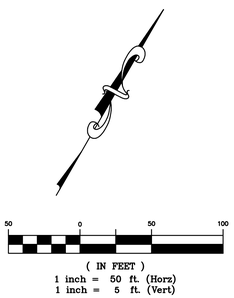
LEGATO
LOCAL STREET SECTION
1:10 HOR.



E 92ND CT - STA 1+00-5+63



KEY MAP
SCALE: 1"=500'



SIGHT LINES

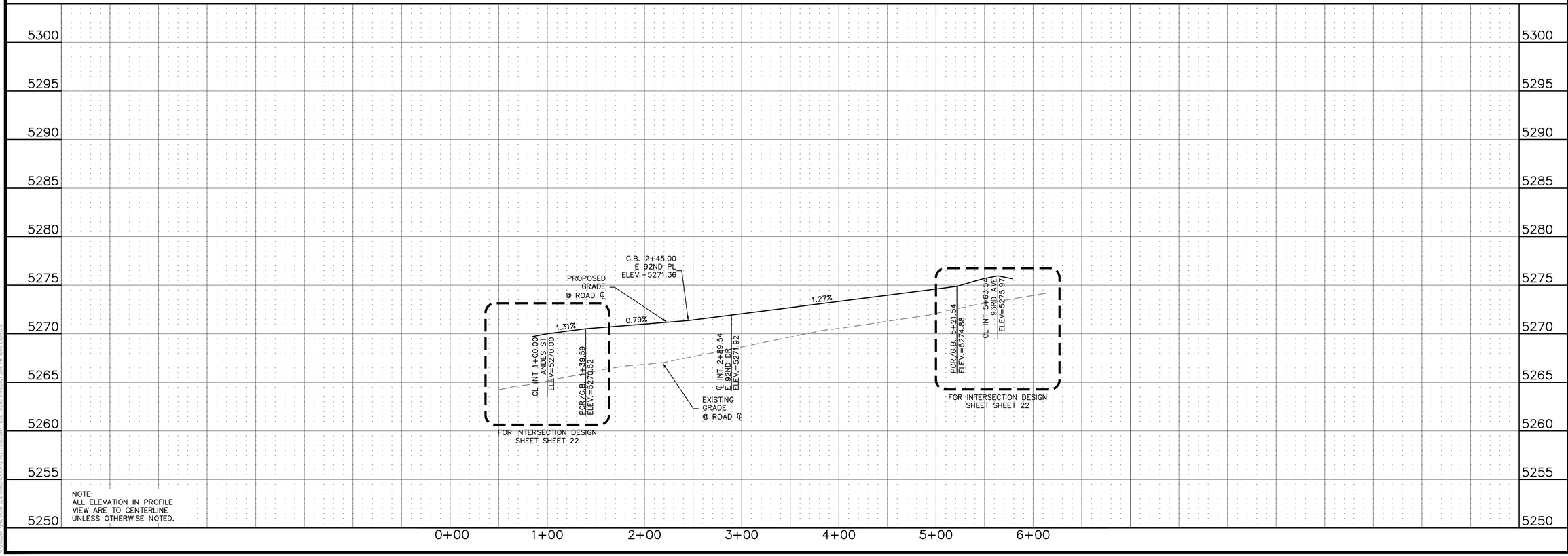
1 25 MPH, 200'

2 25 MPH, 240'

NOTE:

1. ALL ELEVATIONS IN PLAN VIEW TO FLOWLINE UNLESS OTHERWISE NOTED.

2. WITH THE EXCEPTION OF INTERSECTIONS WITH STREETS THAT ARE TO BE CONSTRUCTED WITH THE LEGATO INFRASTRUCTURE PLANS, SIGHT LINE CRITERIA IS ONLY SHOWN AT INTERSECTING STREETS, SO THAT THE ENTIRE SIGHT LINE CAN BE REPRESENTED.



NOTE:
ALL ELEVATION IN PROFILE VIEW ARE TO CENTERLINE UNLESS OTHERWISE NOTED.

811 Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-grp.com
6200 SOUTH QUEBEC STREET, SUITE 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

CLIENT
COHEN DENVER AIRPORT, LLC

LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
CONSTRUCTION PLANS
STREET PLAN & PROFILES
E 92ND CT – STA 1+00–5+63

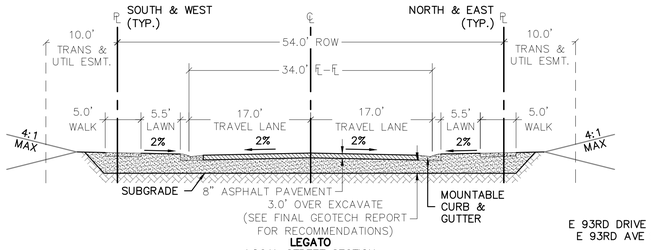
DATE 6/14/2021

A	1st SUBMITTAL TO COMMERCE CITY	08/17/2020 – DJM
B	2nd SUBMITTAL TO COMMERCE CITY	03/15/2021 – DJM
C	3rd SUBMITTAL TO COMMERCE CITY	06/11/2021 – DJM

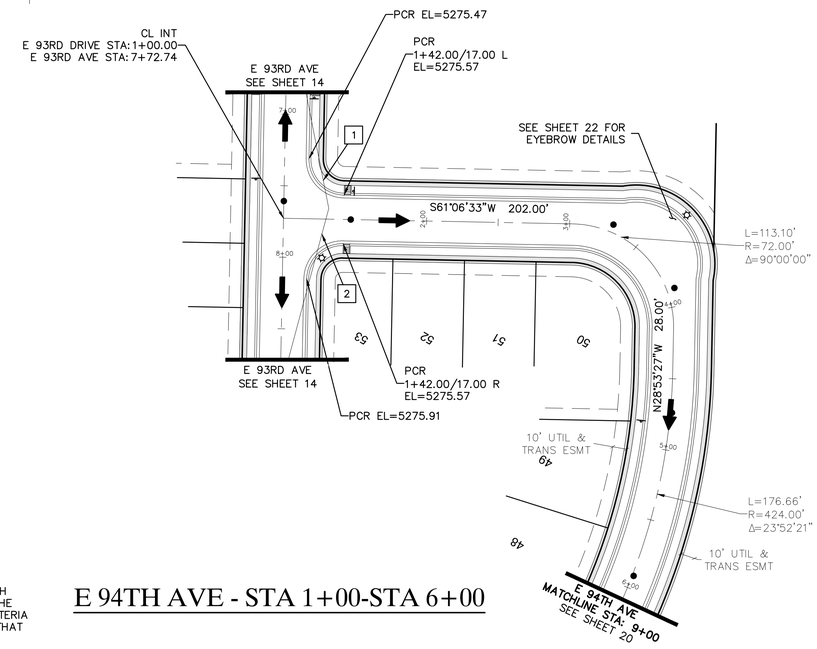
REVISIONS

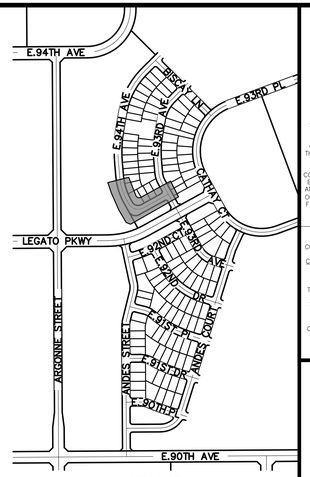
DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 18

CAD FILE: 19002561-ROAD 15.DWG

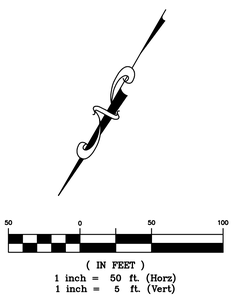


LEGATO
LOCAL STREET SECTION
1:10 HOR.





KEY MAP
SCALE: 1"=500'



SIGHT LINES

1 25 MPH, 200'

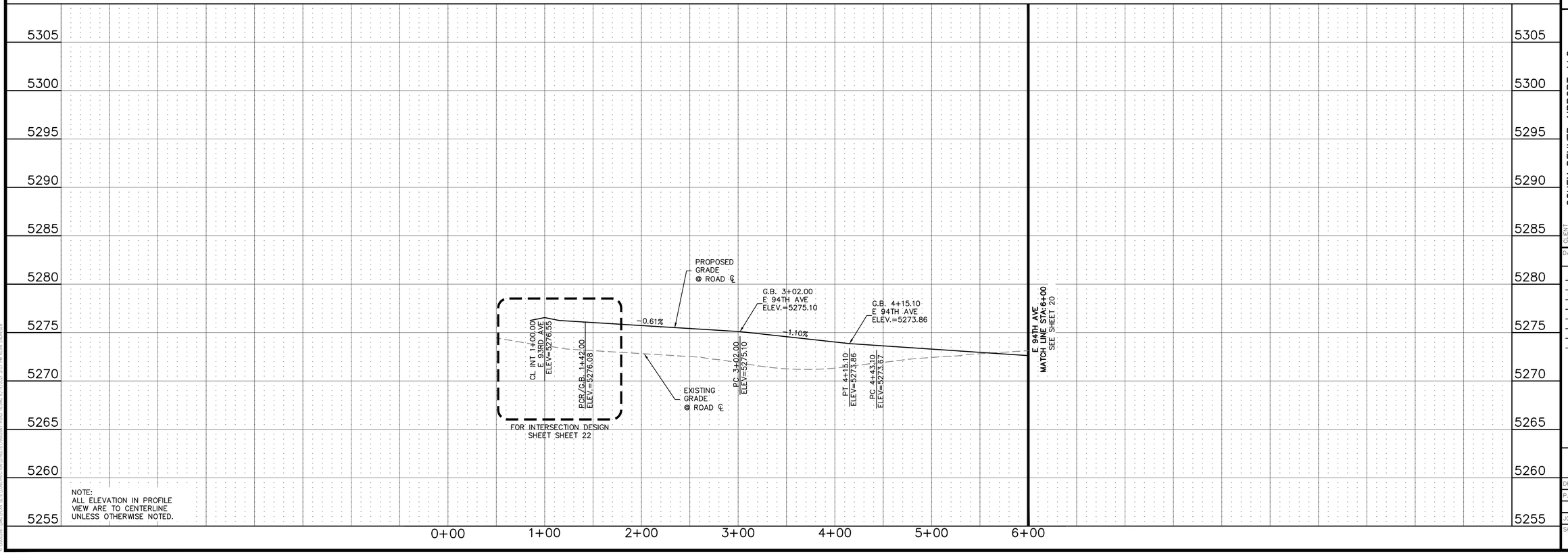
2 25 MPH, 240'

NOTE:

1. ALL ELEVATIONS IN PLAN VIEW TO FLOWLINE UNLESS OTHERWISE NOTED.

2. WITH THE EXCEPTION OF INTERSECTIONS WITH STREETS THAT ARE TO BE CONSTRUCTED WITH THE LEGATO INFRASTRUCTURE PLANS, SIGHT LINE CRITERIA IS ONLY SHOWN AT INTERSECTING STREETS, SO THAT THE ENTIRE SIGHT LINE CAN BE REPRESENTED.

E 94TH AVE - STA 1+00-STA 6+00



NOTE:
ALL ELEVATION IN PROFILE VIEW ARE TO CENTERLINE UNLESS OTHERWISE NOTED.

811 Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 S. QUEBEC STREET, SUITE 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

CLIENT
COHEN DENVER AIRPORT, LLC

LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
CONSTRUCTION PLANS
STREET PLAN & PROFILES
E 94TH AVE – STA 1+00–STA 6+00

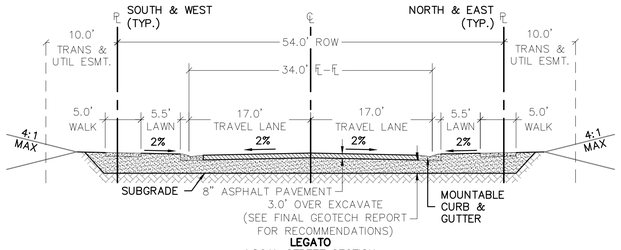
DATE 6/14/2021

A	1st SUBMITTAL TO COMMERCE CITY	08/17/2020 – DJM
B	2ND SUBMITTAL TO COMMERCE CITY	03/15/2021 – DJM
C	3RD SUBMITTAL TO COMMERCE CITY	06/11/2021 – DJM

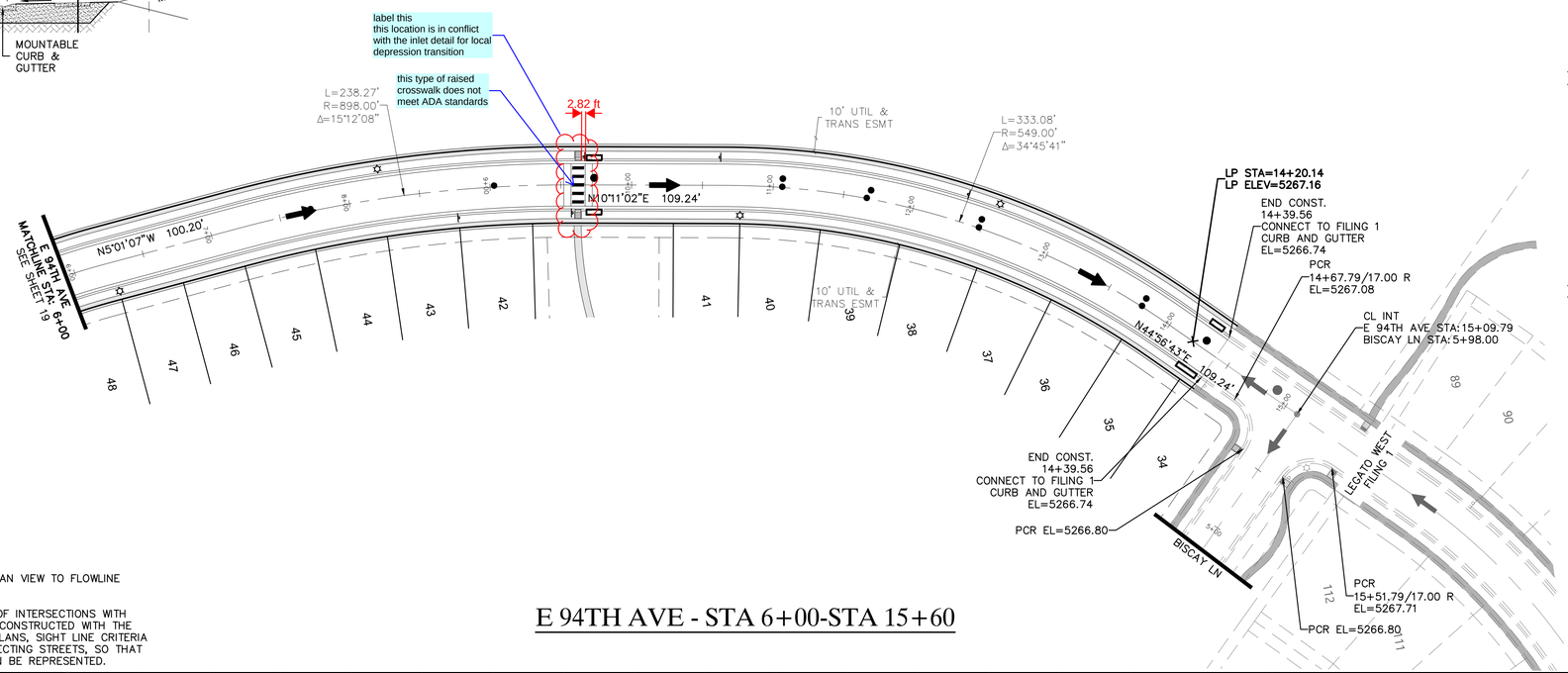
REVISIONS

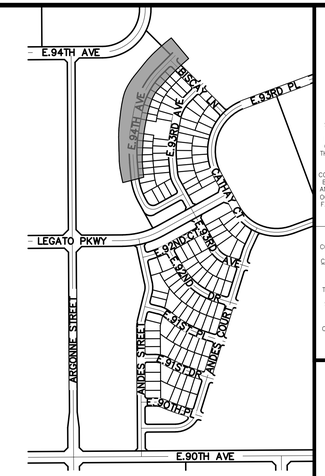
DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 19

CAD FILE: 19002561-ROAD 16.DWG



LEGATO
LOCAL STREET SECTION
1:10 HOR.





KEY MAP
SCALE: 1"=500'

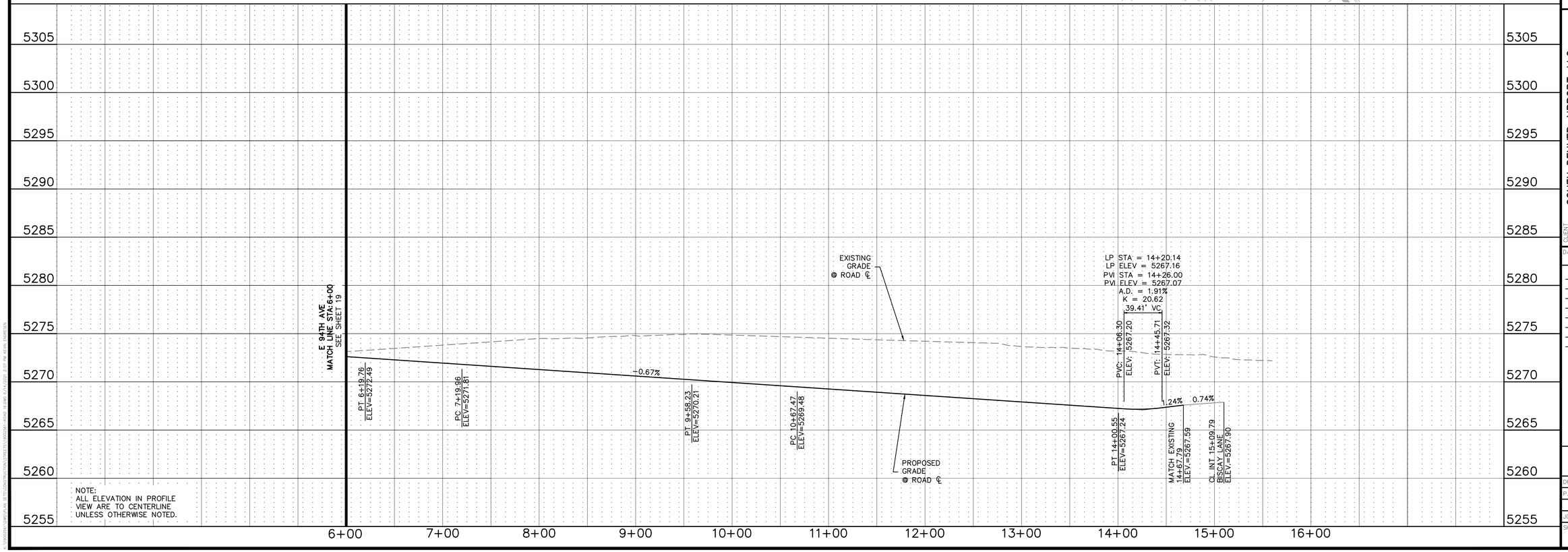
(IN FEET)
1 inch = 50 ft. (Horz)
1 inch = 5 ft. (Vert)

NOTE:

1. ALL ELEVATIONS IN PLAN VIEW TO FLOWLINE UNLESS OTHERWISE NOTED.

2. WITH THE EXCEPTION OF INTERSECTIONS WITH STREETS THAT ARE TO BE CONSTRUCTED WITH THE LEGATO INFRASTRUCTURE PLANS, SIGHT LINE CRITERIA IS ONLY SHOWN AT INTERSECTING STREETS, SO THAT THE ENTIRE SIGHT LINE CAN BE REPRESENTED.

E 94TH AVE - STA 6+00-STA 15+60



NOTE:
ALL ELEVATION IN PROFILE VIEW ARE TO CENTERLINE UNLESS OTHERWISE NOTED.

811 Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 S. QUEBEC STREET, ATLAS, 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

CLIENT
COHEN DENVER AIRPORT, LLC

LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
CONSTRUCTION PLANS
STREET PLAN & PROFILES
E 94TH AVE – STA 6+00–STA 15+60

DATE 6/14/2021

A	1st SUBMITTAL TO COMMERCE CITY	08/17/2020 – DJM
B	2nd SUBMITTAL TO COMMERCE CITY	03/15/2021 – DJM
C	3rd SUBMITTAL TO COMMERCE CITY	06/11/2021 – DJM

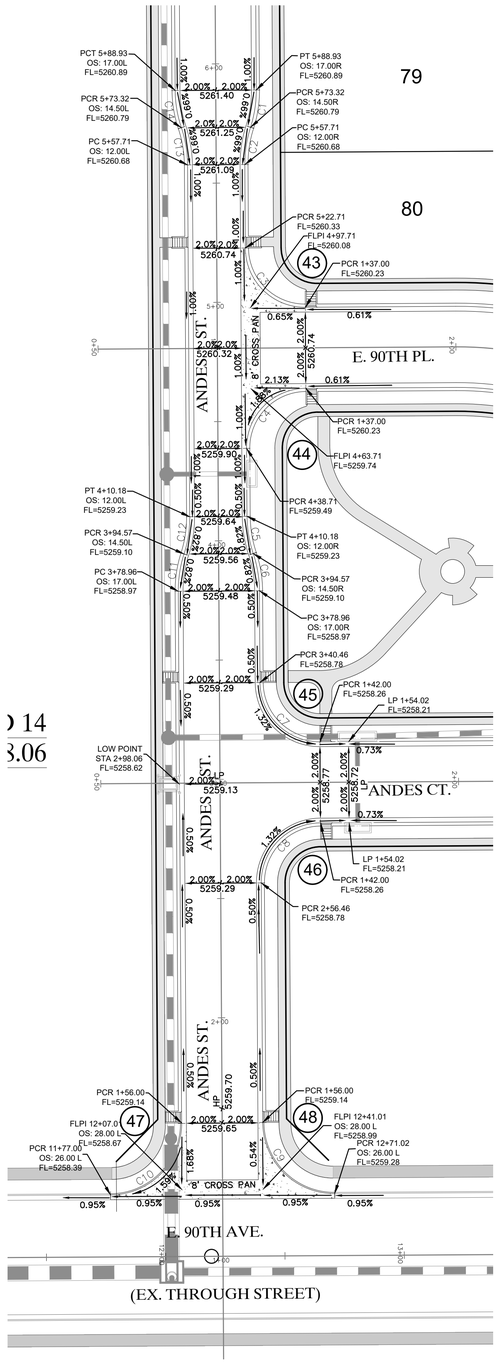
REVISIONS

DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 20

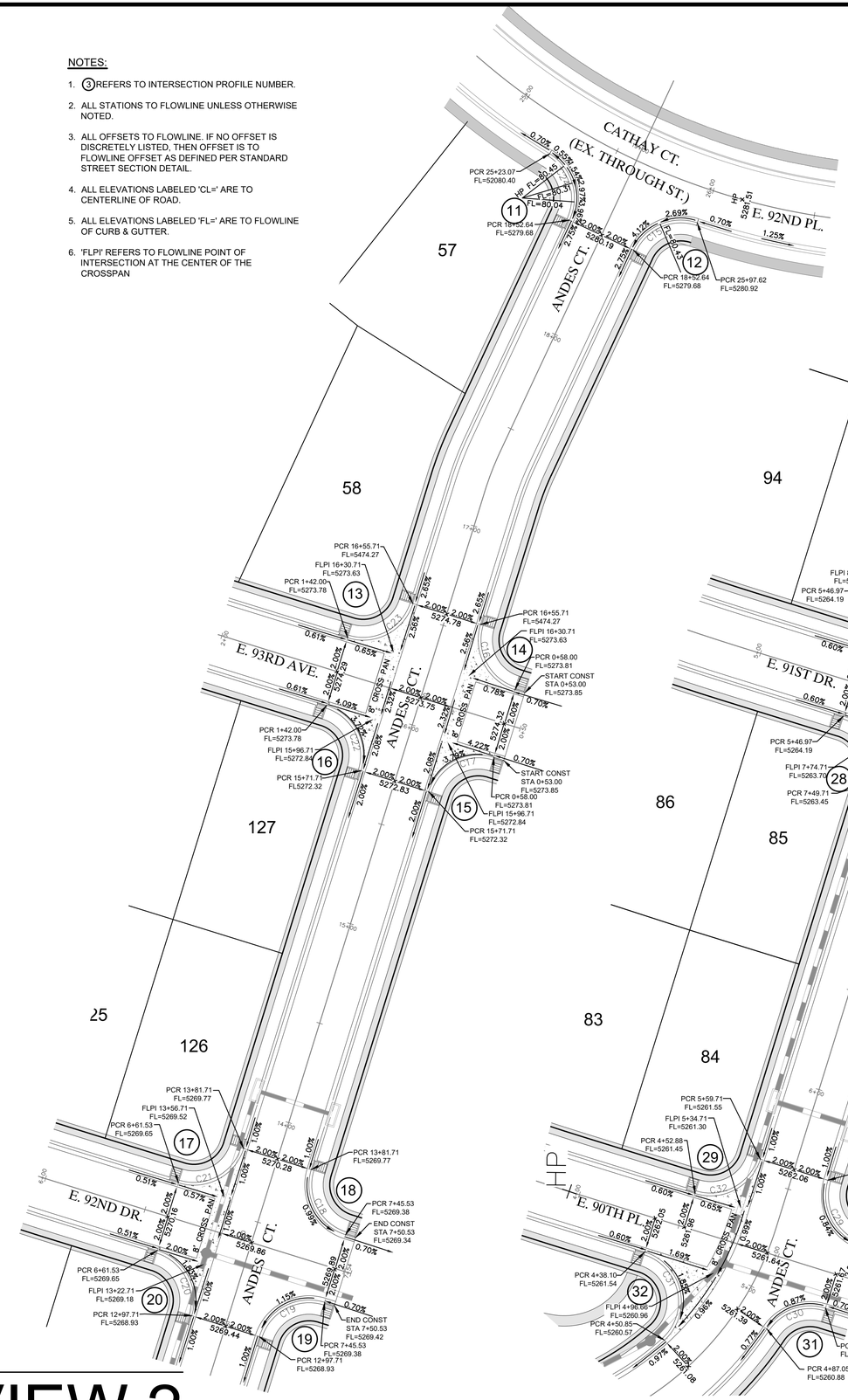
CAD FILE: 19002561-ROAD 16.DWG

NOTES:

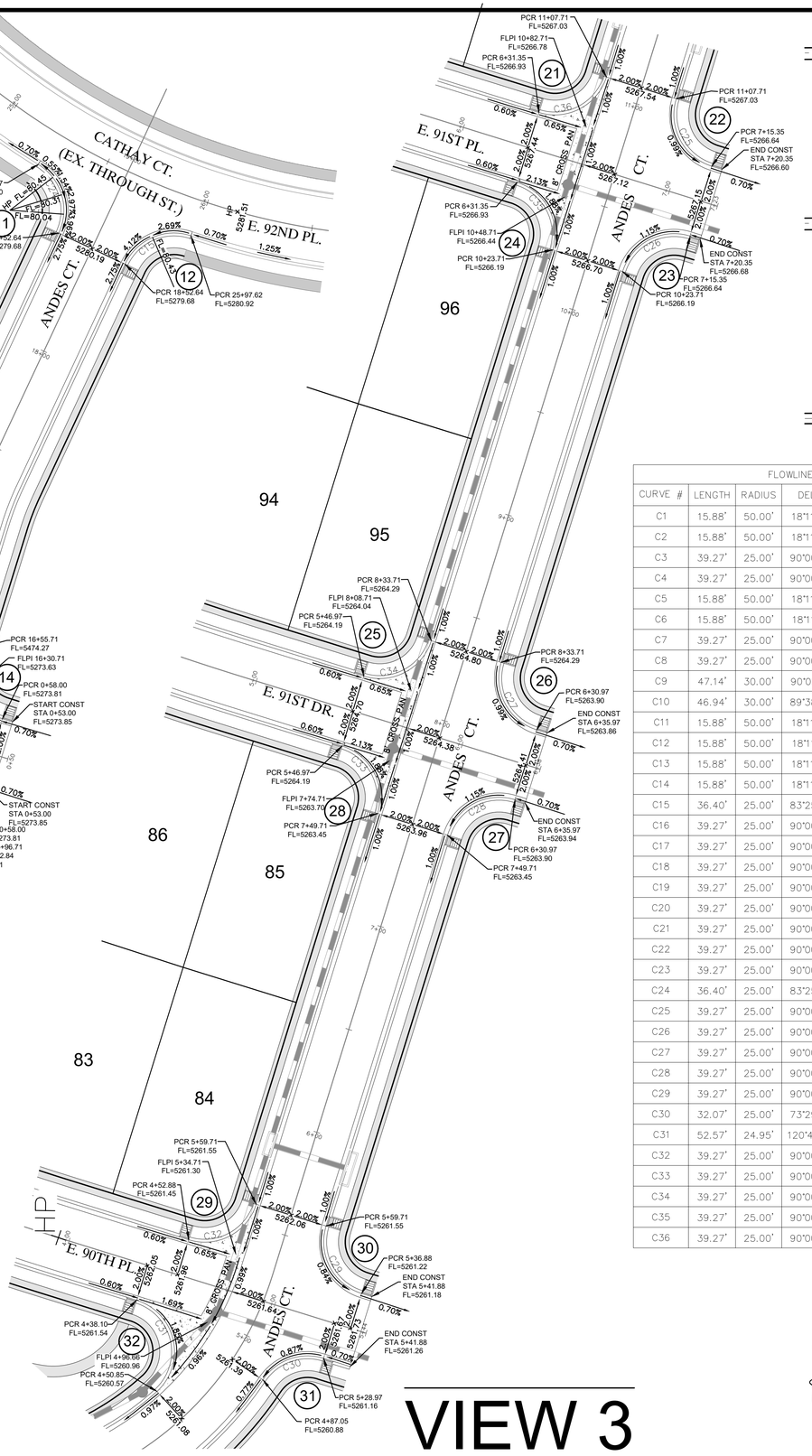
1. (3) REFERS TO INTERSECTION PROFILE NUMBER.
2. ALL STATIONS TO FLOWLINE UNLESS OTHERWISE NOTED.
3. ALL OFFSETS TO FLOWLINE. IF NO OFFSET IS DISCRETELY LISTED, THEN OFFSET IS TO FLOWLINE OFFSET AS DEFINED PER STANDARD STREET SECTION DETAIL.
4. ALL ELEVATIONS LABELED 'CL=' ARE TO CENTERLINE OF ROAD.
5. ALL ELEVATIONS LABELED 'FL=' ARE TO FLOWLINE OF CURB & GUTTER.
6. 'FLPI' REFERS TO FLOWLINE POINT OF INTERSECTION AT THE CENTER OF THE CROSSPAN



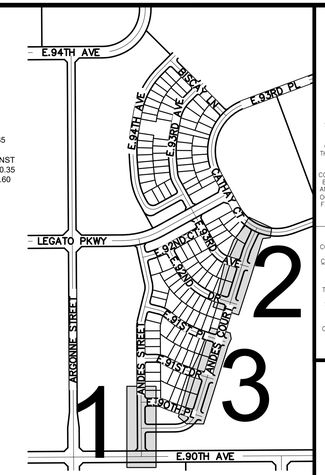
VIEW 1



VIEW 2



VIEW 3



KEY MAP
SCALE: 1"=500'

FLOWLINE CURVE TABLE

CURVE #	LENGTH	RADIUS	DELTA	CHORD BEARING	CHORD LENGTH
C1	15.88'	50.00'	18°11'42"	N8°44'25"E	15.81'
C2	15.88'	50.00'	18°11'42"	S8°44'25"W	15.81'
C3	39.27'	25.00'	90°00'00"	S45°21'26"E	35.36'
C4	39.27'	25.00'	90°00'26"	S44°38'47"W	35.36'
C5	15.88'	50.00'	18°11'42"	S9°27'16"E	15.81'
C6	15.88'	50.00'	18°11'41"	N9°27'16"W	15.81'
C7	39.27'	25.00'	90°00'00"	S45°21'26"E	35.36'
C8	39.27'	25.00'	90°00'00"	S44°38'34"W	35.36'
C9	47.14'	30.00'	90°01'26"	S45°22'08"E	42.44'
C10	46.94'	30.00'	89°38'34"	N44°49'17"E	42.29'
C11	15.88'	50.00'	18°11'42"	S8°44'25"W	15.81'
C12	15.88'	50.00'	18°11'41"	N8°44'25"E	15.81'
C13	15.88'	50.00'	18°11'42"	N9°27'16"W	15.81'
C14	15.88'	50.00'	18°11'42"	S9°27'16"E	15.81'
C15	36.40'	25.00'	83°25'43"	N66°47'10"E	33.27'
C16	39.27'	25.00'	90°00'00"	N27°44'47"W	35.36'
C17	39.27'	25.00'	90°00'00"	N62°15'13"E	35.36'
C18	39.27'	25.00'	90°00'00"	N27°44'47"W	35.36'
C19	39.27'	25.00'	90°00'00"	N62°15'13"E	35.36'
C20	39.27'	25.00'	90°00'00"	S27°44'47"E	35.36'
C21	39.27'	25.00'	90°00'00"	N62°15'13"E	35.36'
C22	39.27'	25.00'	90°00'00"	S27°44'47"E	35.36'
C23	39.27'	25.00'	90°00'00"	N62°15'13"E	35.36'
C24	36.40'	25.00'	83°25'43"	S16°38'33"E	33.27'
C25	39.27'	25.00'	90°00'00"	S27°44'47"E	35.36'
C26	39.27'	25.00'	90°00'00"	S62°15'13"W	35.36'
C27	39.27'	25.00'	90°00'00"	S27°44'47"E	35.36'
C28	39.27'	25.00'	90°00'00"	S62°15'13"W	35.36'
C29	39.27'	25.00'	90°00'00"	S27°44'47"E	35.36'
C30	32.07'	25.00'	73°29'58"	N70°30'14"E	29.92'
C31	52.57'	24.95'	120°44'02"	N12°34'59"W	43.37'
C32	39.27'	25.00'	90°00'00"	N62°15'13"E	35.36'
C33	39.27'	25.00'	90°00'00"	N27°44'47"W	35.36'
C34	39.27'	25.00'	90°00'00"	N62°15'13"E	35.36'
C35	39.27'	25.00'	90°00'00"	N27°44'47"W	35.36'
C36	39.27'	25.00'	90°00'00"	N62°15'13"E	35.36'

(IN FEET)
1 inch = 30 ft.

811 Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 S. QUEBEC STREET, SUITE 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

CLIENT
COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

COHEN DENVER AIRPORT, LLC
LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
CONSTRUCTION PLANS
STREET INTERSECTIONS

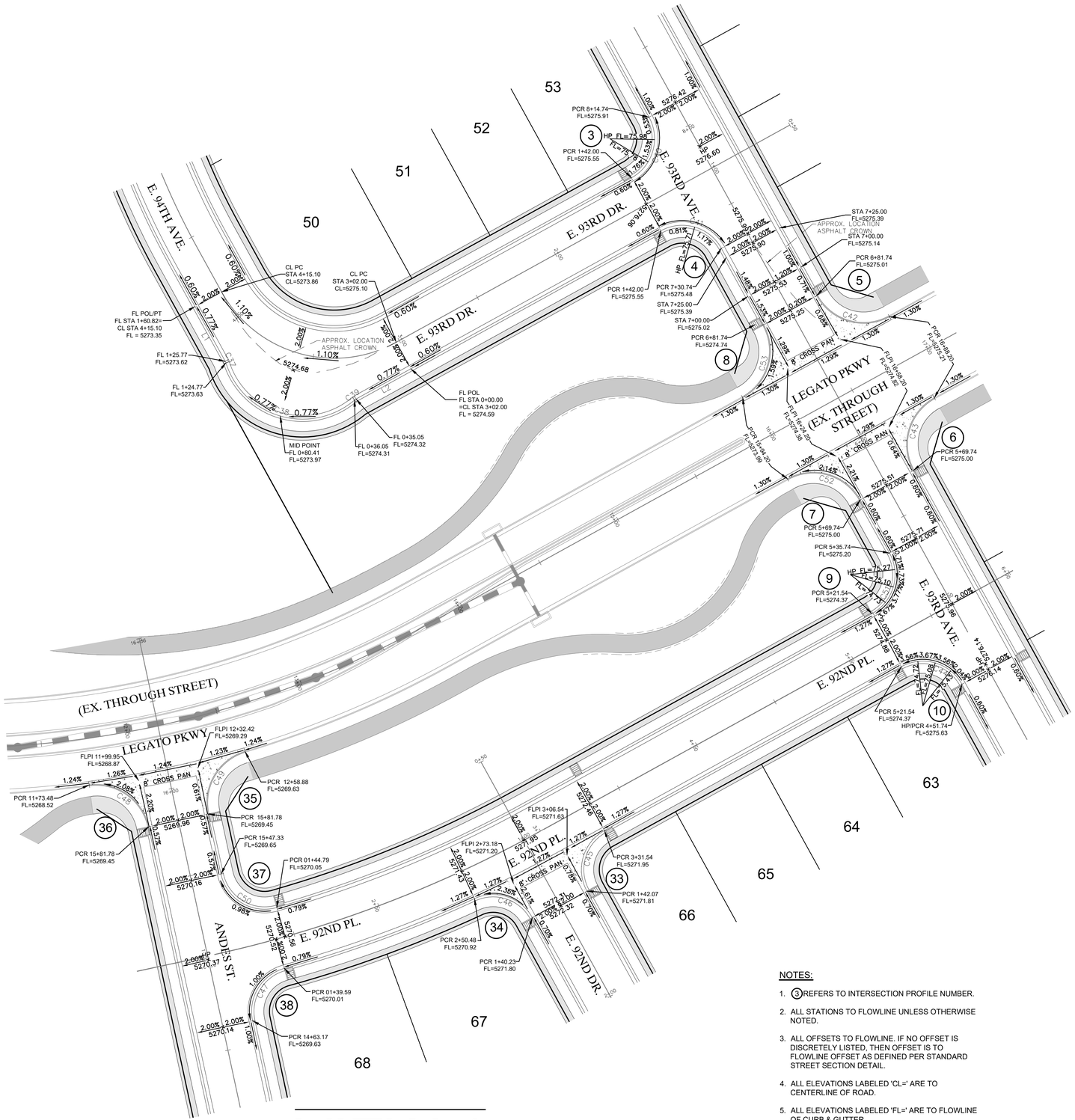
DATE 6/14/2021

A	1st SUBMITTAL TO COMMERCE CITY	08/17/2020 – DJM
B	2nd SUBMITTAL TO COMMERCE CITY	03/15/2021 – DJM
C	3rd SUBMITTAL TO COMMERCE CITY	06/11/2021 – DJM

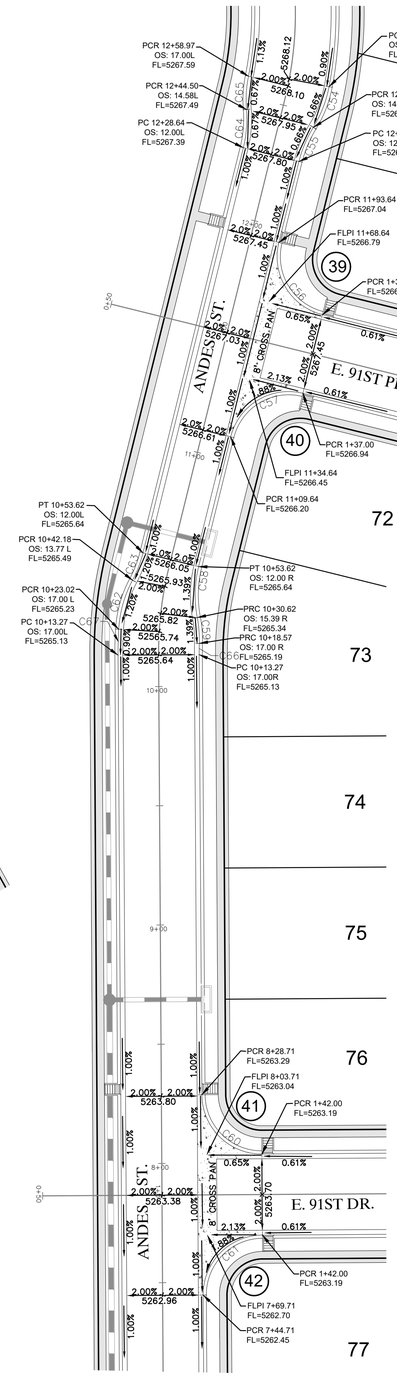
REVISIONS

DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 21

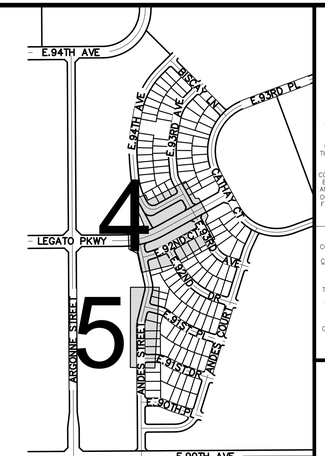
CAD FILE: 19002561-INTERSECTIONS.DWG



VIEW 4



VIEW 5



KEY MAP
SCALE: 1"=500'

NOTES:

1. (3) REFERS TO INTERSECTION PROFILE NUMBER.
2. ALL STATIONS TO FLOWLINE UNLESS OTHERWISE NOTED.
3. ALL OFFSETS TO FLOWLINE. IF NO OFFSET IS DISCRETELY LISTED, THEN OFFSET IS TO FLOWLINE OFFSET AS DEFINED PER STANDARD STREET SECTION DETAIL.
4. ALL ELEVATIONS LABELED 'CL=' ARE TO CENTERLINE OF ROAD.
5. ALL ELEVATIONS LABELED 'FL=' ARE TO FLOWLINE OF CURB & GUTTER.
6. 'FLPI' REFERS TO FLOWLINE POINT OF INTERSECTION AT THE CENTER OF THE CROSSPAN

FLOWLINE CURVE TABLE

CURVE #	LENGTH	RADIUS	DELTA	CHORD BEARING	CHORD LENGTH
C37	1.00'	5.00'	11°28'42"	N23°09'06"W	1.00'
C38	88.72'	45.00'	112°57'24"	S73°53'27"E	75.03'
C39	1.00'	5.00'	11°28'42"	S55°22'12"W	1.00'
C40	39.27'	25.00'	90°00'00"	N16°06'33"E	35.36'
C41	39.27'	25.00'	90°00'00"	N73°53'27"W	35.36'
C42	47.12'	30.00'	90°00'00"	N73°53'27"W	42.43'
C43	47.12'	30.00'	90°00'00"	S16°06'33"W	42.43'
C44	39.27'	25.00'	90°00'00"	N73°53'27"W	35.36'
C45	39.27'	25.00'	90°00'00"	N16°06'33"E	35.36'
C46	37.49'	25.00'	85°55'19"	S71°51'07"E	34.08'
C47	37.82'	25.00'	86°40'28"	S31°10'00"W	34.31'
C48	44.73'	29.98'	85°28'12"	S54°53'31"E	40.69'
C49	44.79'	30.00'	85°33'06"	S30°36'19"W	40.75'
C50	40.91'	25.00'	93°45'46"	S59°03'07"E	36.50'
C51	38.72'	25.74'	86°09'46"	N15°01'19"E	35.17'
C52	47.13'	29.99'	90°01'49"	N73°53'27"W	42.43'
C53	47.12'	30.00'	90°00'00"	N16°06'33"E	42.43'
C54	18.40'	50.00'	21°05'13"	N21°12'37"E	18.30'
C55	15.58'	50.00'	17°50'56"	S22°49'46"W	15.51'
C56	39.27'	25.00'	90°00'00"	S31°05'42"E	35.36'
C57	39.27'	25.00'	90°00'00"	S58°54'18"W	35.36'
C58	21.56'	50.00'	24°42'36"	S1°33'00"W	21.40'
C59	10.89'	50.00'	12°28'30"	N4°34'03"W	10.87'
C60	39.27'	25.00'	90°00'00"	N45°21'26"W	35.36'
C61	39.27'	25.00'	90°00'00"	N44°38'34"E	35.36'
C62	21.53'	50.00'	24°40'14"	S15°42'10"W	21.36'
C63	12.33'	50.00'	14°07'59"	N20°58'18"E	12.30'
C64	16.13'	50.00'	18°29'15"	N4°39'40"E	16.06'
C65	14.04'	50.00'	16°05'10"	S3°27'38"W	13.99'
C66	4.71'	133.00'	2°01'37"	S0°39'23"W	4.71'
C67	10.86'	166.99'	3°43'29"	S1°30'19"W	10.85'

FLOWLINE LINE TABLE

LINE	LENGTH	BEARING
L1	35.05'	N28°53'27"W
L2	35.05'	S61°06'33"W

30 0 30 60
(IN FEET)
1 inch = 30 ft.

811 Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 S. QUEBEC STREET, ATLAS A, SUITE 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

CLIENT
COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

COHEN DENVER AIRPORT, LLC
LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
CONSTRUCTION PLANS
STREET INTERSECTIONS

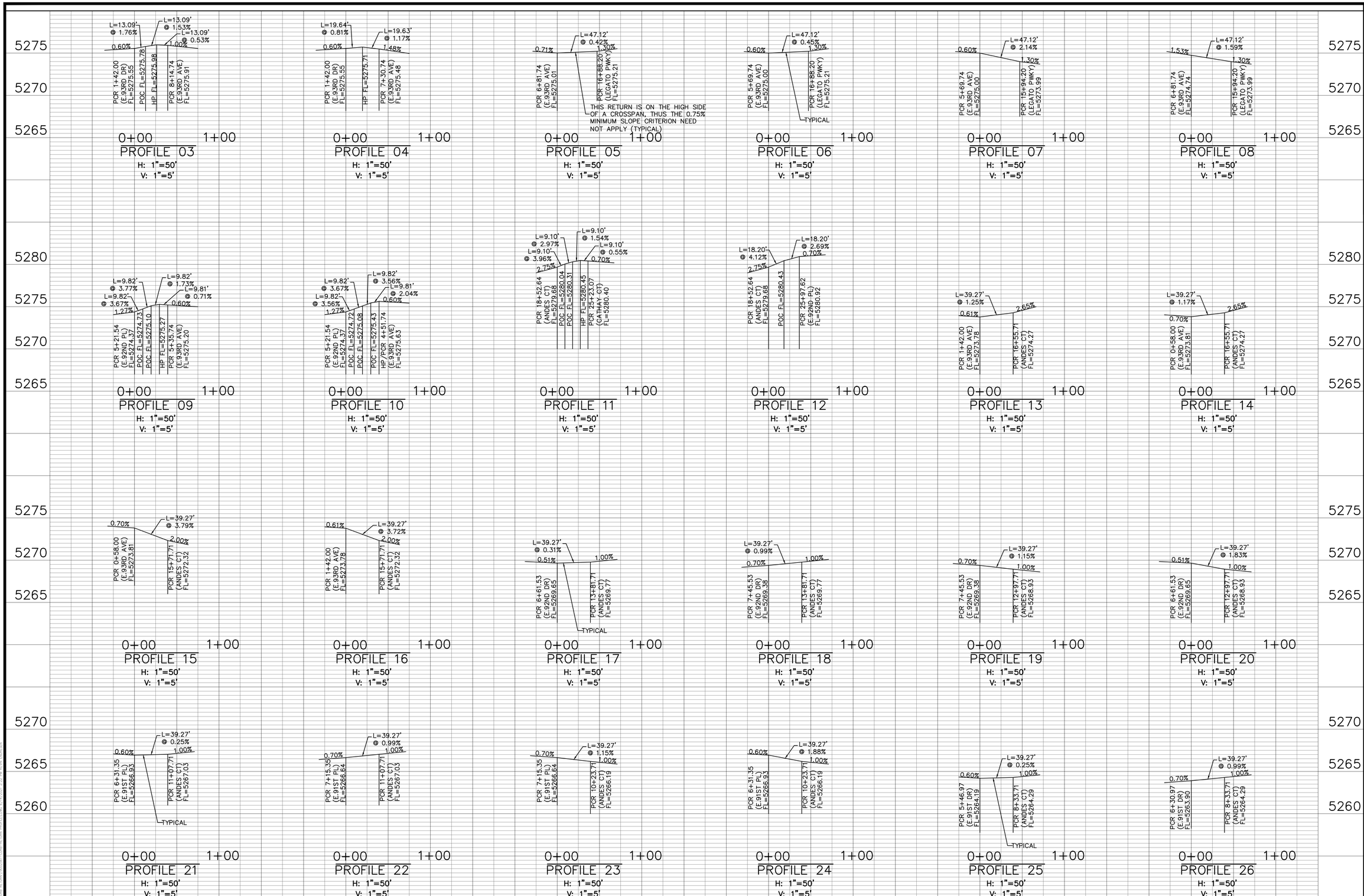
DATE 6/14/2021

A	1st SUBMITTAL TO COMMERCE CITY 08/17/2020 – DJM
B	2nd SUBMITTAL TO COMMERCE CITY 03/15/2021 – DJM
C	3rd SUBMITTAL TO COMMERCE CITY 06/21/2021 – DJM

REVISIONS

DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 22

CAD FILE: 19002561-INTERSECTIONS.DWG



811 Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 S. QUEBEC STREET, SUITE 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

CLIENT
COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

COHEN DENVER AIRPORT, LLC
LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
CONSTRUCTION PLANS
CURB RETURN PROFILES – 01

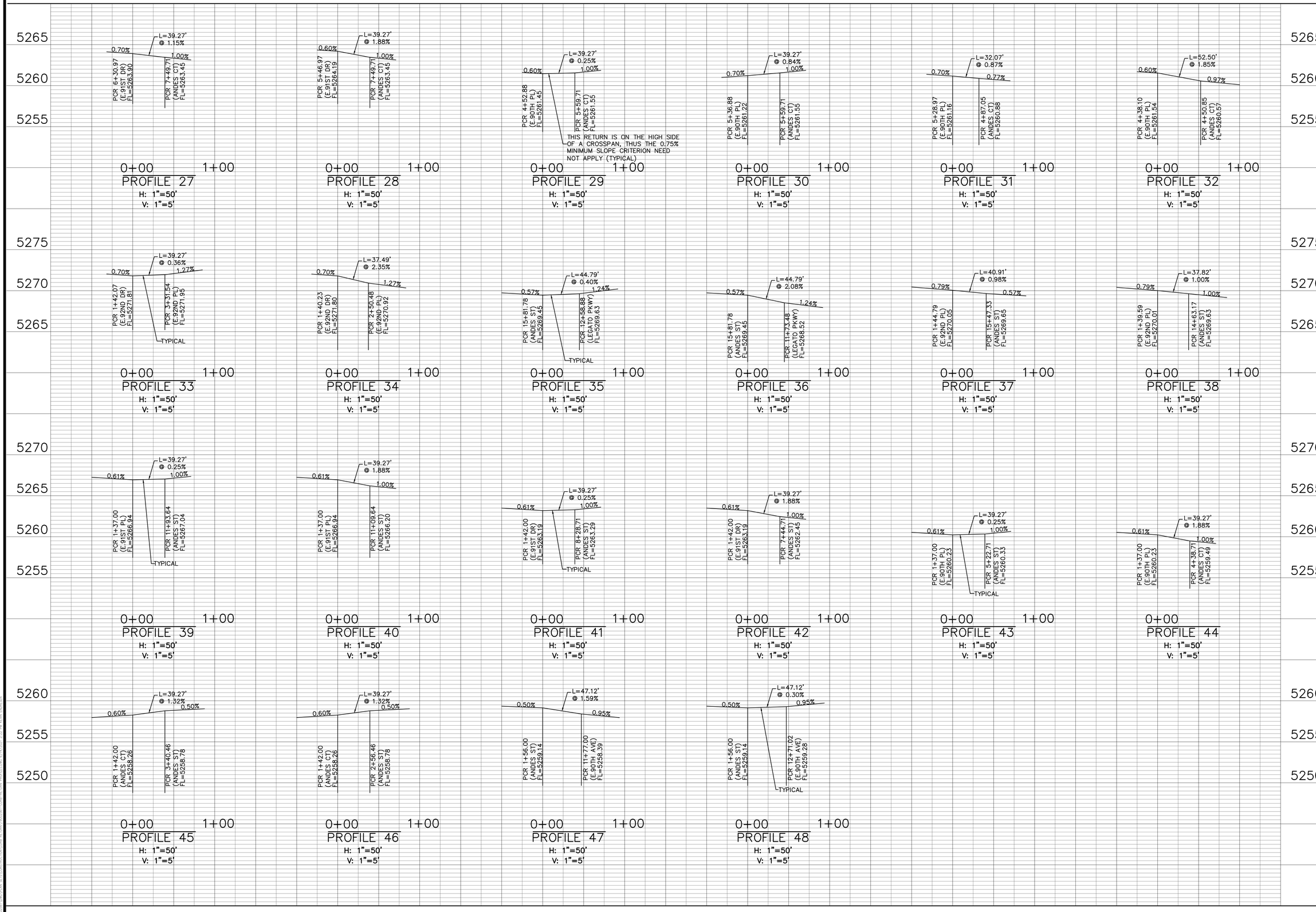
DATE 6/14/2021

A	1st SUBMITTAL TO COMMERCE CITY	08/17/2020 – DJM
B	2nd SUBMITTAL TO COMMERCE CITY	03/15/2021 – DJM
C	3rd SUBMITTAL TO COMMERCE CITY	06/11/2021 – DJM

REVISIONS

DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 23

CAD FILE: 19002561-CURB-RETURN PROFILES.DWG



Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 S. QUEBEC STREET, SUITE 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

CLIENT
COHEN DENVER AIRPORT, LLC

LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
CONSTRUCTION PLANS
CURB RETURN PROFILES – 02

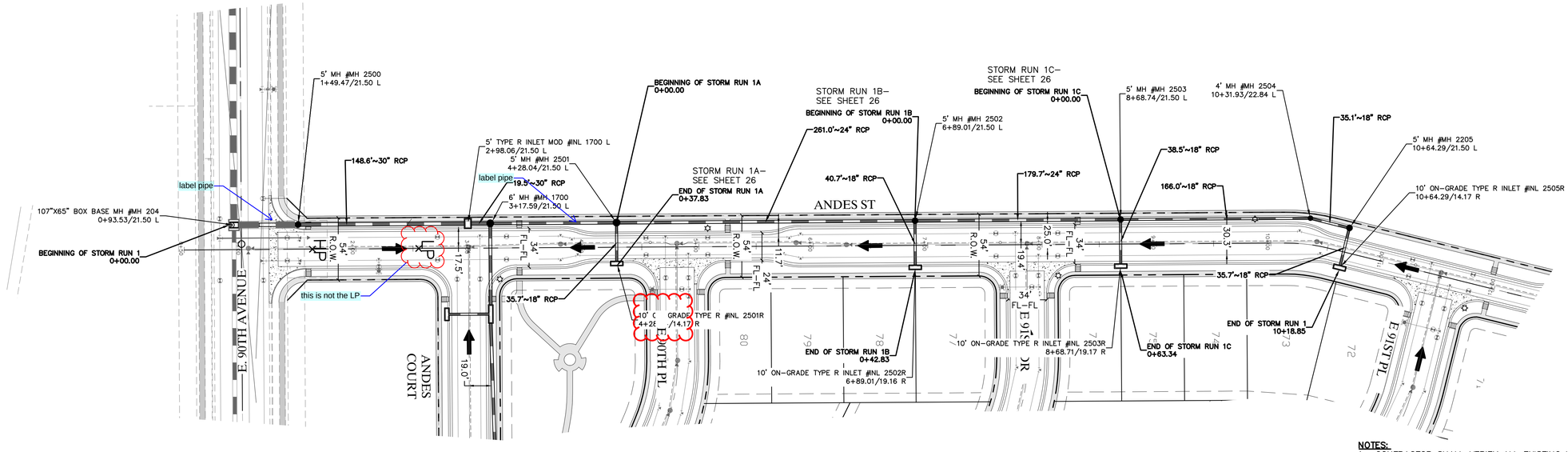
DATE 6/14/2021

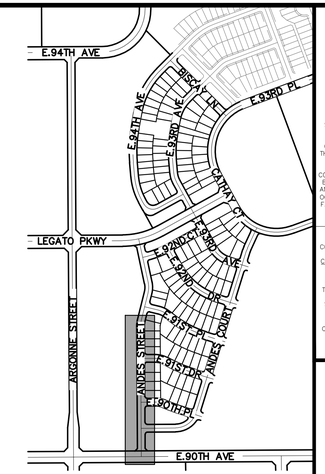
A	1st SUBMITTAL TO COMMERCE CITY	08/17/2020 – DJM
B	2nd SUBMITTAL TO COMMERCE CITY	03/15/2021 – DJM
C	3rd SUBMITTAL TO COMMERCE CITY	06/11/2021 – DJM

REVISIONS

DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 24

CAD FILE: 19002561-CURB-RETURN PROFILES.DWG





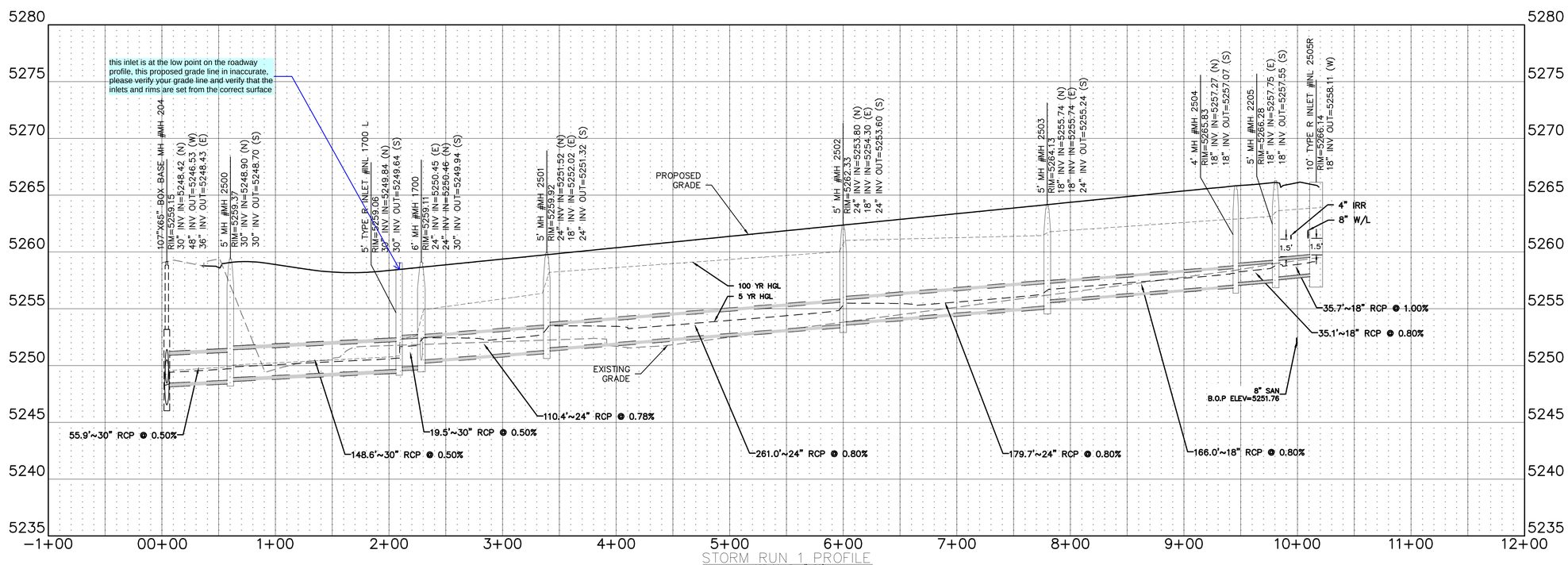
KEY MAP
SCALE: 1"=500'

STORM RUN 1

(IN FEET)
1 inch = 50 ft. (Horz)
1 inch = 5 ft. (Vert)

NOTES:

1. CONTRACTOR SHALL VERIFY ALL EXISTING UTILITY LOCATIONS AND ELEVATIONS AT TIES TO EXISTING INFRASTRUCTURE AND SHALL NOTIFY ENGINEER OF ANY DISCREPANCIES FROM INFORMATION DEPICTED IN THESE PLANS.
2. CONTRACTOR TO MAINTAIN A MINIMUM ELEVATION OF 0.5% LONGITUDINAL GRADE AT FLOWLINE TO ALL SUMP INLETS.
3. STATIONING IS GENERALLY BASED OFF OF STREET CENTERLINE ALIGNMENT WITH STATION OFFSETS PROVIDED FOR STORM INLETS AND MANHOLES IN PLAN VIEW. PROFILES ARE DEPICTED ALONG PIPE CENTERLINE WHERE STORM MANHOLES ARE AT THE SAME STREET CENTERLINE ALIGNMENT (LEFT OR RIGHT) FOR ADDED CLARITY.
4. RIM ELEVATIONS ON INLETS ARE TOP BACK OF CURB UNLESS OTHERWISE NOTED.
5. MANHOLES THAT ARE NOT CONSTRUCTED IN PAVEMENT WILL HAVE A RIM ELEVATION THAT IS 6" ABOVE THE EXISTING GRADE.
6. ALL MANHOLES SHALL BE INSTALLED WITH A CONCRETE COLLAR, PER STANDARD DETAILS.
7. FOR ANY BOX BASE MANHOLES NOT MEETING STANDARDS OF CDOT DETAILS M–604–20 AND STORM INLETS NOT MEETING STANDARD DETAIL M–604–12, CONTRACTOR SHALL PROVIDE PE STAMPED STRUCTURAL DESIGN REQUIREMENTS MEETING PIPE MANUFACTURER RECOMMENDATIONS.
8. IN PLAN VIEW, ALL INLETS ARE BASED ON CENTERLINE STATION AND OFFSET TO CENTER OF STRUCTURE. THE CORRESPONDING INLETS AND MANHOLES ARE PROFILED ALONG AN ALIGNMENT DOWN THE STORM SEWER CENTERLINE.
9. ALL INLETS ARE SUMP INLETS UNLESS OTHERWISE NOTED. CONTINUOUS GRADE INLETS HAVE BEEN SO LABELED.



STORM RUN 1 PROFILE
HORZ SCALE: 1"=50'
VERT SCALE: 1"=5'

811 Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 SOUTH SYRACUSE WAY, STE. 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

CLIENT
COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355–1400
BRAD BURNS

COHEN DENVER AIRPORT, LLC
LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
CONSTRUCTION PLANS
STORM PLAN & PROFILES
STORM RUN 1

DATE 6/14/2021

A	1st SUBMITTAL TO COMMERCE CITY	08/17/2020 – DJM
B	2nd SUBMITTAL TO COMMERCE CITY	03/15/2021 – DJM
C	3rd SUBMITTAL TO COMMERCE CITY	06/11/2021 – DJM

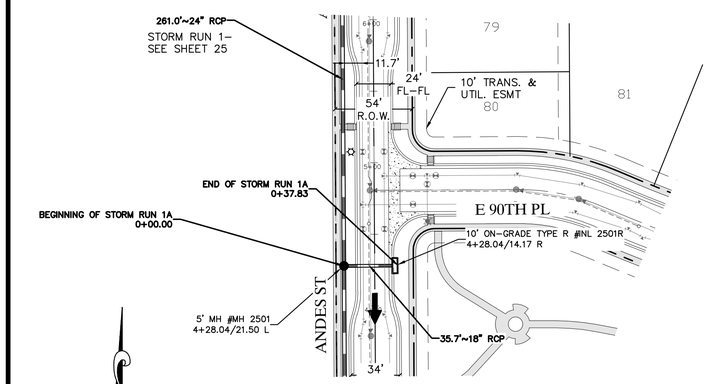
REVISIONS

DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 25

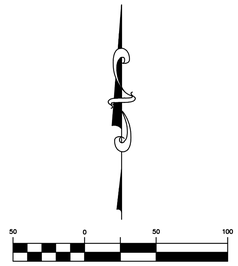
CAD FILE: 19002561-STORM RUN 1.DWG

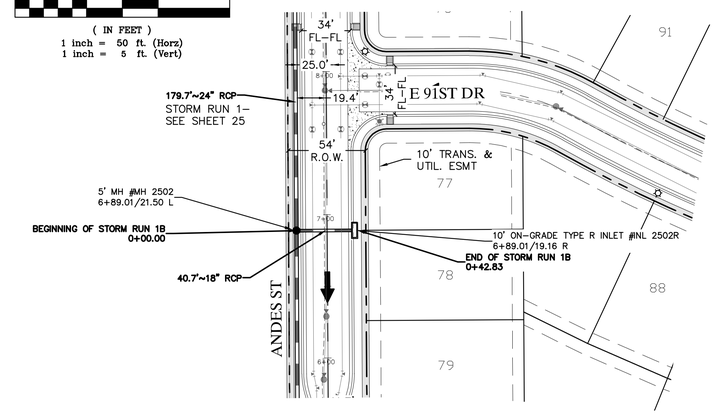
NOTES:

1. CONTRACTOR SHALL VERIFY ALL EXISTING UTILITY LOCATIONS AND ELEVATIONS AT TIES TO EXISTING INFRASTRUCTURE AND SHALL NOTIFY ENGINEER OF ANY DISCREPANCIES FROM INFORMATION DEPICTED IN THESE PLANS.
2. CONTRACTOR TO MAINTAIN A MINIMUM ELEVATION OF 0.5% LONGITUDINAL GRADE AT FLOWLINE TO ALL SUMP INLETS.
3. STATIONING IS GENERALLY BASED OFF OF STREET CENTERLINE ALIGNMENT WITH STATION OFFSETS PROVIDED FOR STORM INLETS AND MANHOLES IN PLAN VIEW. PROFILES ARE DEPICTED ALONG PIPE CENTERLINE WHERE STORM MANHOLES ARE AT THE SAME STREET CENTERLINE ALIGNMENT (LEFT OR RIGHT) FOR ADDED CLARITY.
4. RIM ELEVATIONS ON INLETS ARE TOP BACK OF CURB UNLESS OTHERWISE NOTED.
5. MANHOLES THAT ARE NOT CONSTRUCTED IN PAVEMENT WILL HAVE A RIM ELEVATION THAT IS 6" ABOVE THE EXISTING GRADE.
6. ALL MANHOLES SHALL BE INSTALLED WITH A CONCRETE COLLAR, PER STANDARD DETAILS.
7. FOR ANY BOX BASE MANHOLES NOT MEETING STANDARDS OF CDOT DETAILS M-604-20 AND STORM INLETS NOT MEETING STANDARD DETAIL M-604-12, CONTRACTOR SHALL PROVIDE PE STAMPED STRUCTURAL DESIGN REQUIREMENTS MEETING PIPE MANUFACTURER RECOMMENDATIONS.
8. IN PLAN VIEW, ALL INLETS ARE BASED ON CENTERLINE STATION AND OFFSET TO CENTER OF STRUCTURE. THE CORRESPONDING INLETS AND MANHOLES ARE PROFILED ALONG AN ALIGNMENT DOWN THE STORM SEWER CENTERLINE.
9. ALL INLETS ARE SUMP INLETS UNLESS OTHERWISE NOTED. CONTINUOUS GRADE INLETS HAVE BEEN SO LABELED.

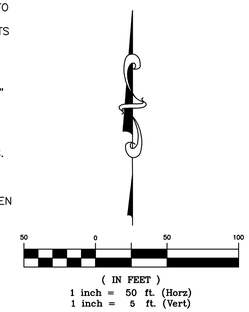


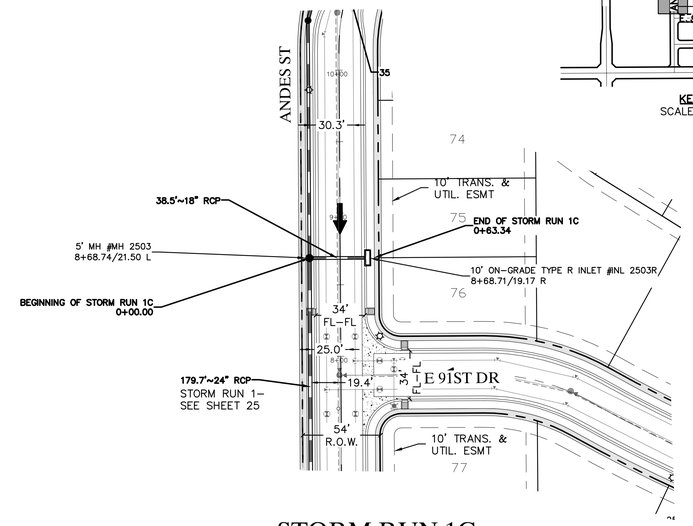
STORM RUN 1A



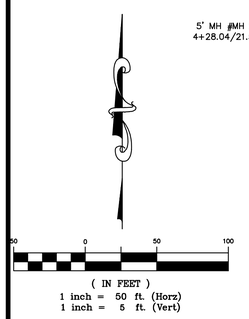


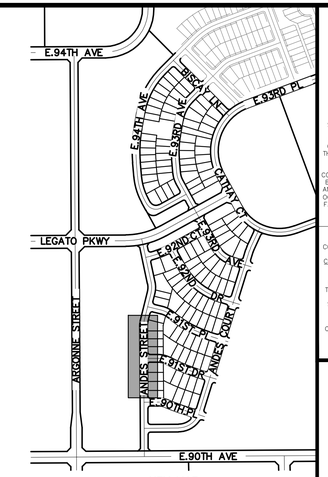
STORM RUN 1B



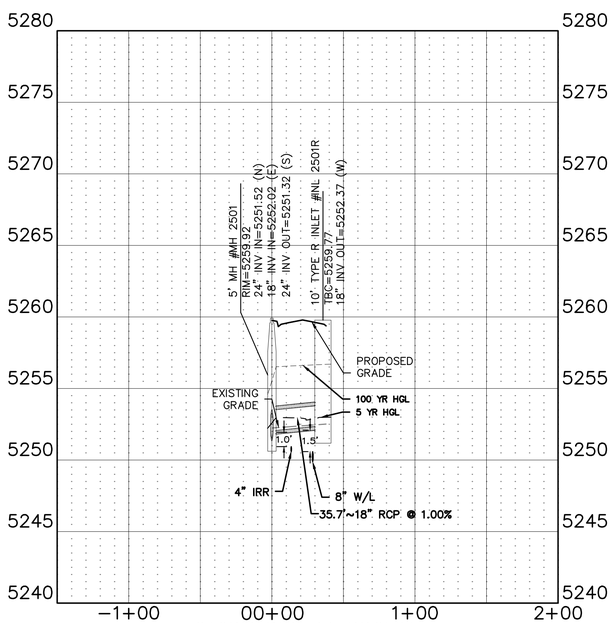


STORM RUN 1C

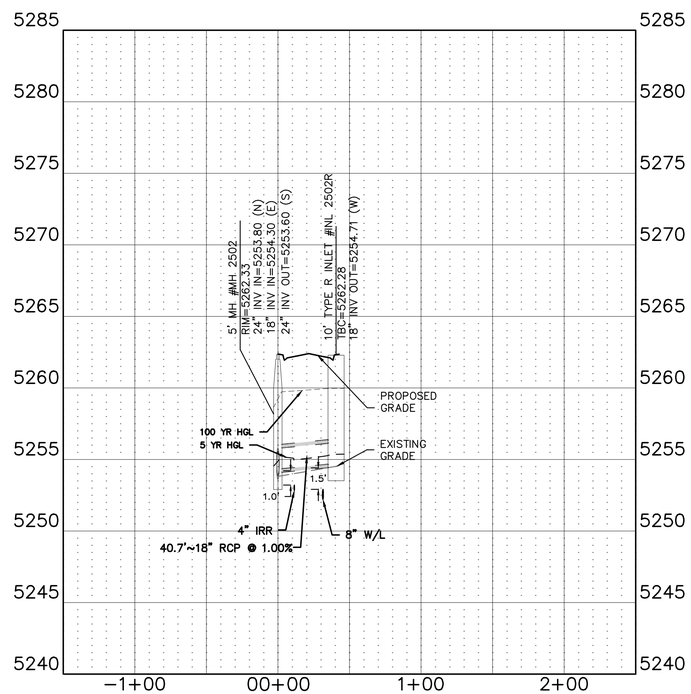




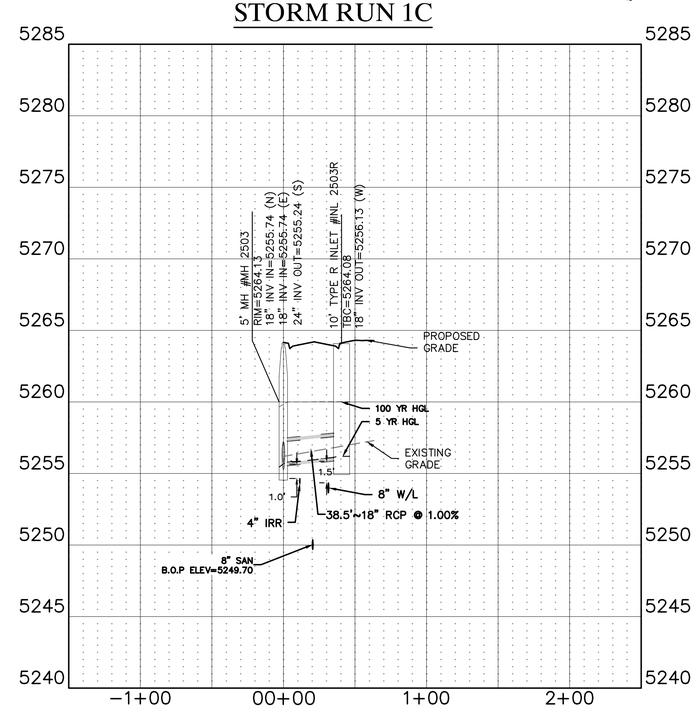
KEY MAP
SCALE: 1"=500'



STORM RUN 1A PROFILE
HORZ SCALE: 1"=50'
VERT SCALE: 1"=5'



STORM RUN 1B PROFILE
HORZ SCALE: 1"=50'
VERT SCALE: 1"=5'



STORM RUN 1C PROFILE
HORZ SCALE: 1"=50'
VERT SCALE: 1"=5'

811 Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 SOUTH SYRACUSE WAY, SUITE 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

CLIENT
COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

COHEN DENVER AIRPORT, LLC
LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
CONSTRUCTION PLANS
STORM PLAN & PROFILES
STORM RUN 1A 1B 1C

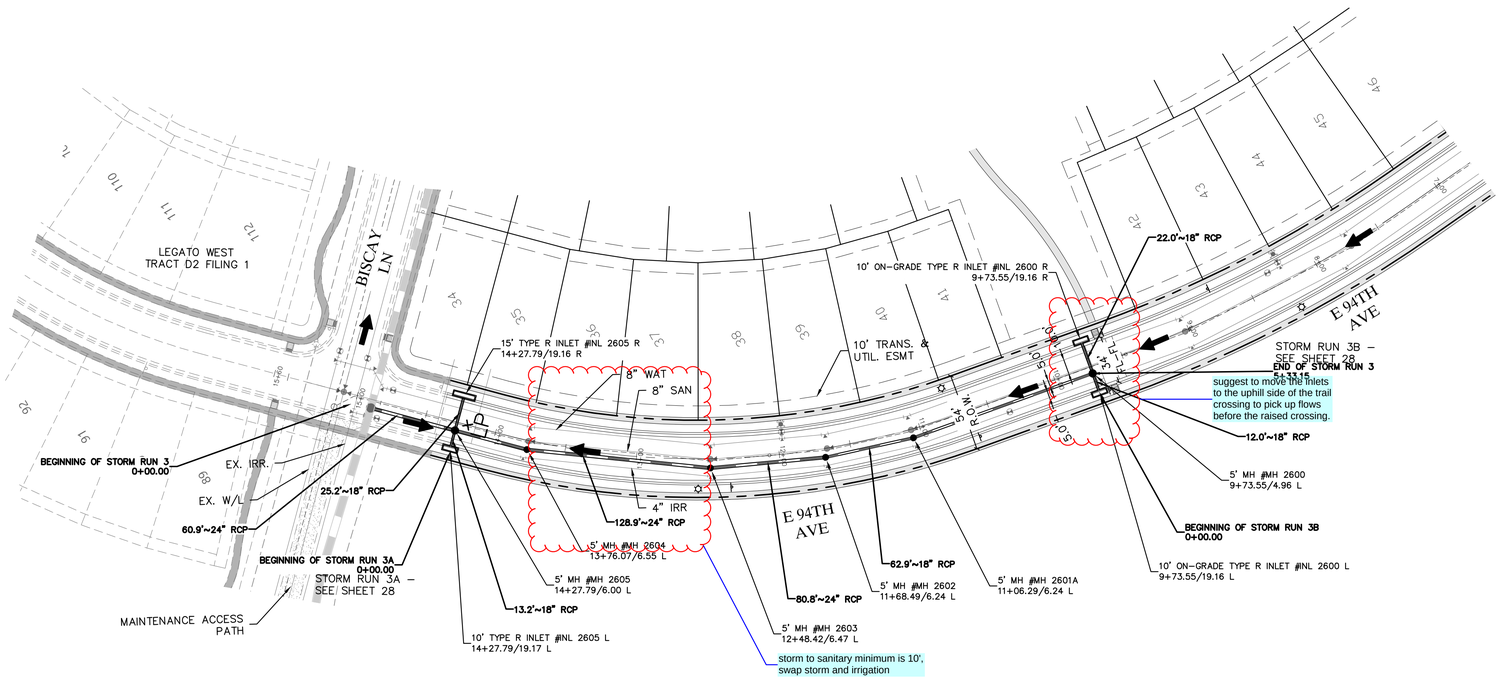
DATE 6/14/2021

A	1st SUBMITTAL TO COMMERCE CITY	08/17/2020 - DJM
B	2nd SUBMITTAL TO COMMERCE CITY	03/15/2021 - DJM
C	3rd SUBMITTAL TO COMMERCE CITY	06/11/2021 - DJM

REVISIONS

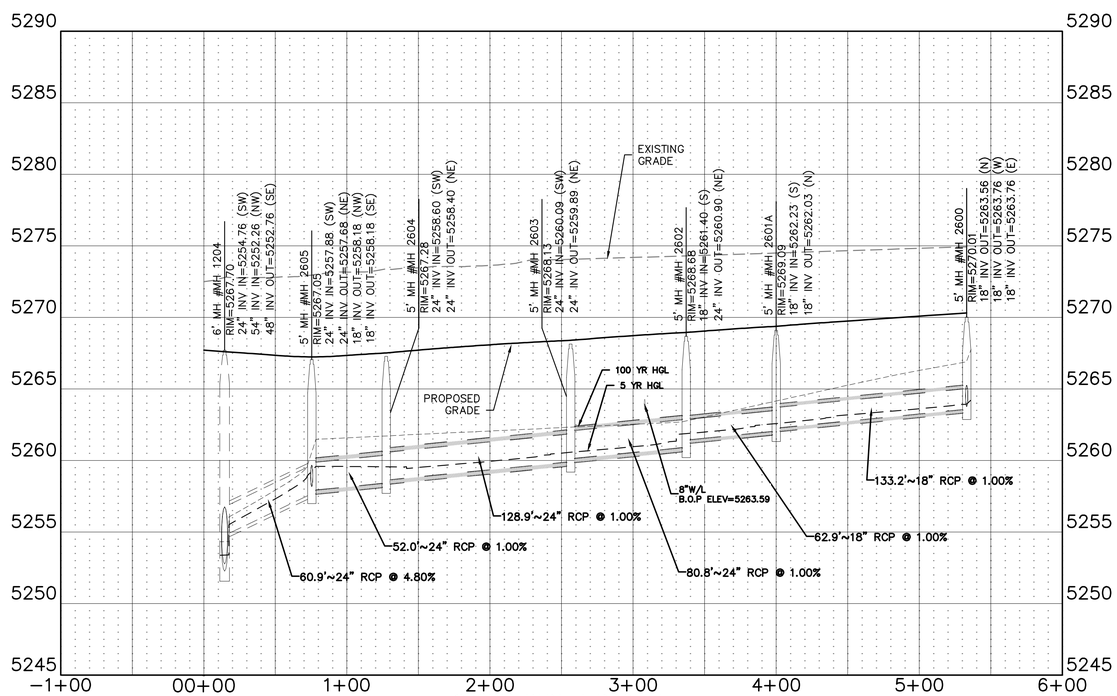
DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 26

CAD FILE: 19002561-STORM RUN 1.DWG

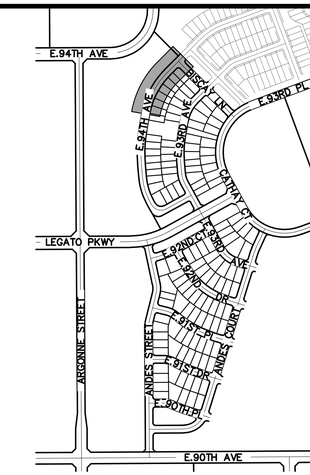


(IN FEET)
1 inch = 50 ft. (Horz)
1 inch = 5 ft. (Vert)

STORM RUN 3



STORM RUN 3 PROFILE
HORZ SCALE: 1"=50'
VERT SCALE: 1"=5'



KEY MAP
SCALE: 1"=500'

NOTES:

1. CONTRACTOR SHALL VERIFY ALL EXISTING UTILITY LOCATIONS AND ELEVATIONS AT TIES TO EXISTING INFRASTRUCTURE AND SHALL NOTIFY ENGINEER OF ANY DISCREPANCIES FROM INFORMATION DEPICTED IN THESE PLANS.
2. CONTRACTOR TO MAINTAIN A MINIMUM ELEVATION OF 0.5% LONGITUDINAL GRADE AT FLOWLINE TO ALL SUMP INLETS.
3. STATIONING IS GENERALLY BASED OFF OF STREET CENTERLINE ALIGNMENT WITH STATION OFFSETS PROVIDED FOR STORM INLETS AND MANHOLES IN PLAN VIEW. PROFILES ARE DEPICTED ALONG PIPE CENTERLINE WHERE STORM MANHOLES ARE AT THE SAME STREET CENTERLINE ALIGNMENT (LEFT OR RIGHT) FOR ADDED CLARITY.
4. RIM ELEVATIONS ON INLETS ARE TOP BACK OF CURB UNLESS OTHERWISE NOTED.
5. MANHOLES THAT ARE NOT CONSTRUCTED IN PAVEMENT WILL HAVE A RIM ELEVATION THAT IS 6" ABOVE THE EXISTING GRADE.
6. ALL MANHOLES SHALL BE INSTALLED WITH A CONCRETE COLLAR, PER STANDARD DETAILS.
7. FOR ANY BOX BASE MANHOLES NOT MEETING STANDARDS OF CDOT DETAILS M-604-20 AND STORM INLETS NOT MEETING STANDARD DETAIL M-604-12, CONTRACTOR SHALL PROVIDE PE STAMPED STRUCTURAL DESIGN REQUIREMENTS MEETING PIPE MANUFACTURER RECOMMENDATIONS.
8. IN PLAN VIEW, ALL INLETS ARE BASED ON CENTERLINE STATION AND OFFSET TO CENTER OF STRUCTURE. THE CORRESPONDING INLETS AND MANHOLES ARE PROFILED ALONG AN ALIGNMENT DOWN THE STORM SEWER CENTERLINE.
9. ALL INLETS ARE SUMP INLETS UNLESS OTHERWISE NOTED. CONTINUOUS GRADE INLETS HAVE BEEN SO LABELED.

811 Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 S. QUEBEC STREET, SUITE 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

CLIENT
COHEN DENVER AIRPORT, LLC

LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
CONSTRUCTION PLANS
STORM PLAN & PROFILES
STORM RUN 3

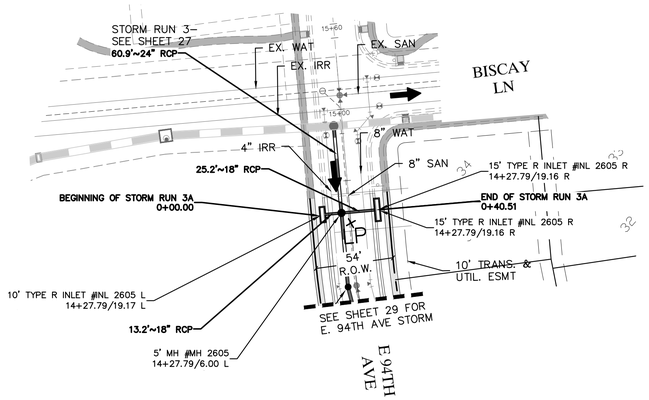
DATE 6/14/2021

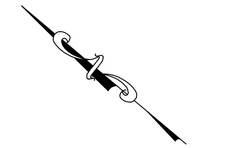
A	1st SUBMITTAL TO COMMERCE CITY	08/17/2020 – DJM
B	2nd SUBMITTAL TO COMMERCE CITY	03/15/2021 – DJM
C	3rd SUBMITTAL TO COMMERCE CITY	06/11/2021 – DJM

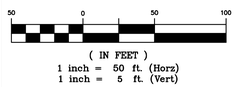
REVISIONS

DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 27

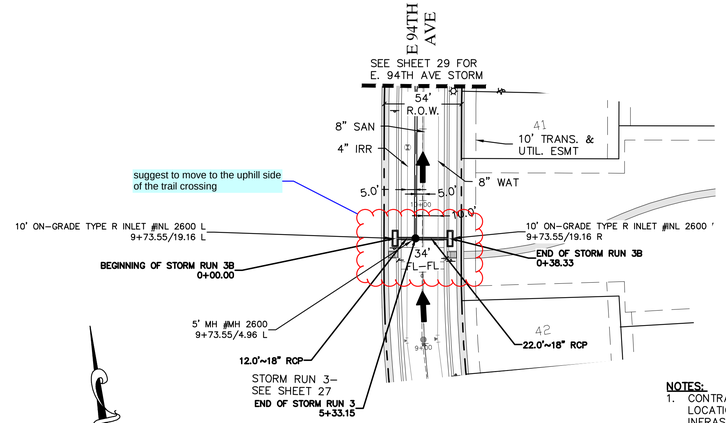
CAD FILE: 19002561-STORM RUN 3.DWG



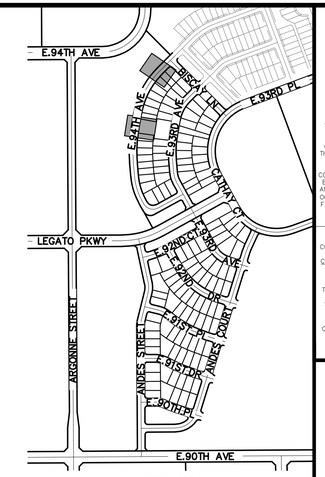




STORM RUN 3A



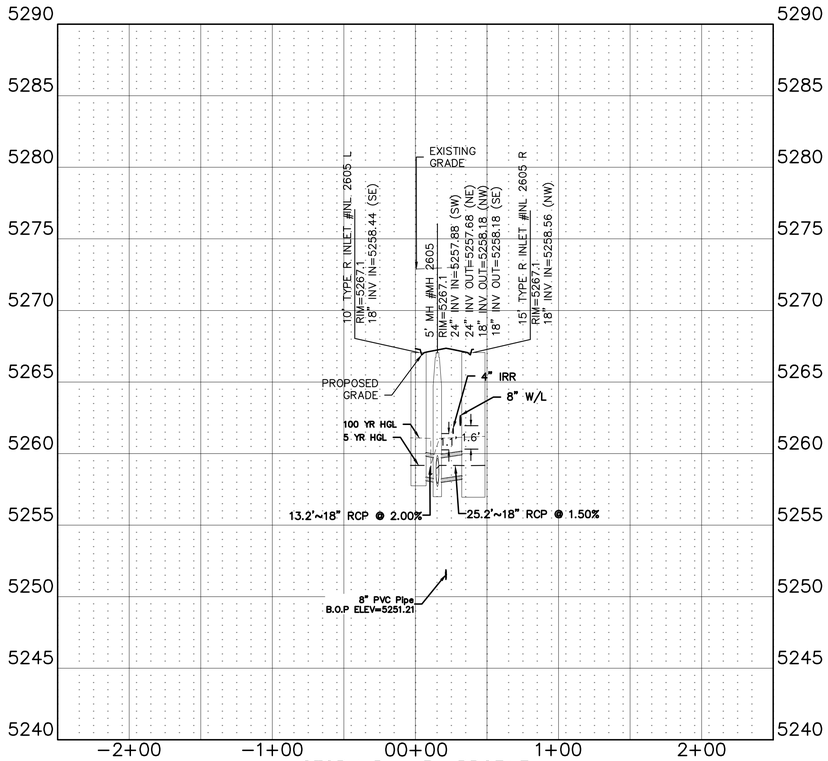
STORM RUN 3B



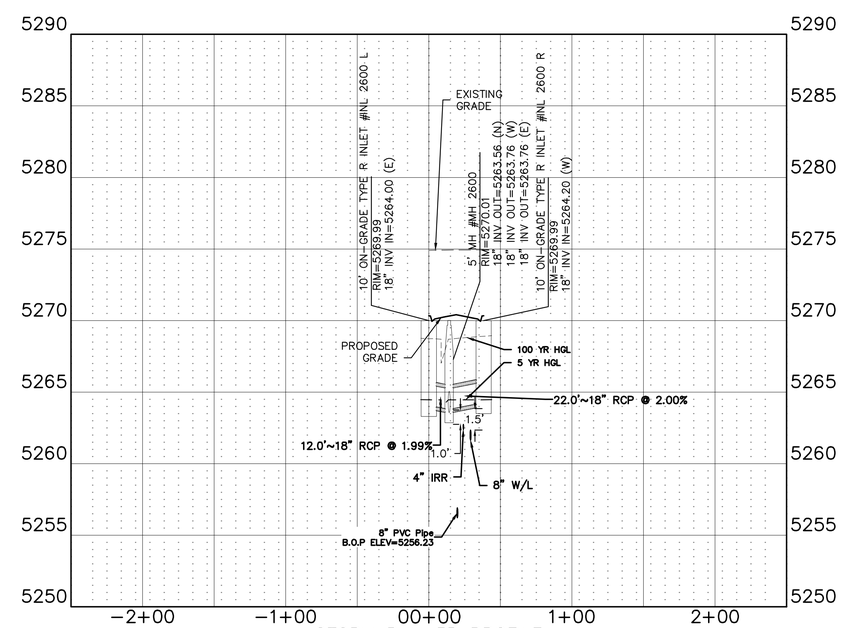
KEY MAP
SCALE: 1"=500'

NOTES:

1. CONTRACTOR SHALL VERIFY ALL EXISTING UTILITY LOCATIONS AND ELEVATIONS AT TIES TO EXISTING INFRASTRUCTURE AND SHALL NOTIFY ENGINEER OF ANY DISCREPANCIES FROM INFORMATION DEPICTED IN THESE PLANS.
2. CONTRACTOR TO MAINTAIN A MINIMUM ELEVATION OF 0.5% LONGITUDINAL GRADE AT FLOWLINE TO ALL SUMP INLETS.
3. STATIONING IS GENERALLY BASED OFF OF STREET CENTERLINE ALIGNMENT WITH STATION OFFSETS PROVIDED FOR STORM INLETS AND MANHOLES IN PLAN VIEW. PROFILES ARE DEPICTED ALONG PIPE CENTERLINE WHERE STORM MANHOLES ARE AT THE SAME STREET CENTERLINE ALIGNMENT (LEFT OR RIGHT) FOR ADDED CLARITY.
4. RIM ELEVATIONS ON INLETS ARE TOP BACK OF CURB UNLESS OTHERWISE NOTED.
5. MANHOLES THAT ARE NOT CONSTRUCTED IN PAVEMENT WILL HAVE A RIM ELEVATION THAT IS 6" ABOVE THE EXISTING GRADE.
6. ALL MANHOLES SHALL BE INSTALLED WITH A CONCRETE COLLAR, PER STANDARD DETAILS.
7. FOR ANY BOX BASE MANHOLES NOT MEETING STANDARDS OF CDOT DETAILS M-604-20 AND STORM INLETS NOT MEETING STANDARD DETAIL M-604-12, CONTRACTOR SHALL PROVIDE PE STAMPED STRUCTURAL DESIGN REQUIREMENTS MEETING PIPE MANUFACTURER RECOMMENDATIONS.
8. IN PLAN VIEW, ALL INLETS ARE BASED ON CENTERLINE STATION AND OFFSET TO CENTER OF STRUCTURE. THE CORRESPONDING INLETS AND MANHOLES ARE PROFILED ALONG AN ALIGNMENT DOWN THE STORM SEWER CENTERLINE.
9. ALL INLETS ARE SUMP INLETS UNLESS OTHERWISE NOTED. CONTINUOUS GRADE INLETS HAVE BEEN SO LABELED.



STORM RUN 3A PROFILE
HORZ SCALE: 1"=50'
VERT SCALE: 1"=5'



STORM RUN 3B PROFILE
HORZ SCALE: 1"=50'
VERT SCALE: 1"=5'

811
Know what's below.
Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 SOUTH SYRACUSE WAY, STE 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

CLIENT
COHEN DENVER AIRPORT, LLC
LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
CONSTRUCTION PLANS
STORM PLAN & PROFILES
STORM RUN 3A 3B

DATE 6/14/2021

A	1st SUBMITTAL TO COMMERCE QTY 08/17/2020 – DJM
B	2nd SUBMITTAL TO COMMERCE QTY 03/15/2021 – DJM
C	3rd SUBMITTAL TO COMMERCE QTY 06/11/2021 – DJM

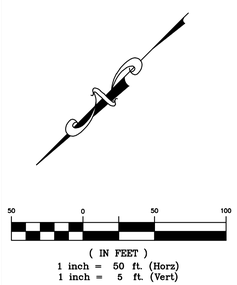
REVISIONS

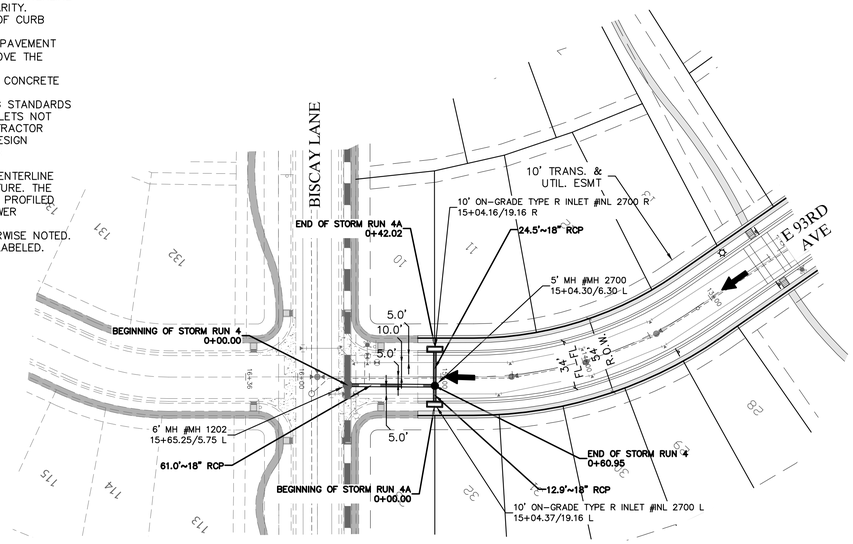
DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 28

CAD FILE: 19002561-STORM RUN 3.DWG

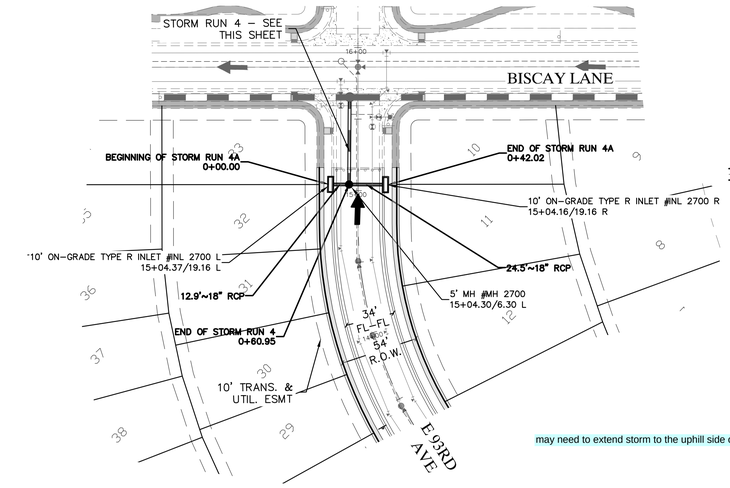
NOTES:

1. CONTRACTOR SHALL VERIFY ALL EXISTING UTILITY LOCATIONS AND ELEVATIONS AT TIES TO EXISTING INFRASTRUCTURE AND SHALL NOTIFY ENGINEER OF ANY DISCREPANCIES FROM INFORMATION DEPICTED IN THESE PLANS.
2. CONTRACTOR TO MAINTAIN A MINIMUM ELEVATION OF 0.5% LONGITUDINAL GRADE AT FLOWLINE TO ALL SUMP INLETS.
3. STATIONING IS GENERALLY BASED OFF OF STREET CENTERLINE ALIGNMENT WITH STATION OFFSETS PROVIDED FOR STORM INLETS AND MANHOLES IN PLAN VIEW. PROFILES ARE DEPICTED ALONG PIPE CENTERLINE WHERE STORM MANHOLES ARE AT THE SAME STREET CENTERLINE ALIGNMENT (LEFT OR RIGHT) FOR ADDED CLARITY.
4. RIM ELEVATIONS ON INLETS ARE TOP BACK OF CURB UNLESS OTHERWISE NOTED.
5. MANHOLES THAT ARE NOT CONSTRUCTED IN PAVEMENT WILL HAVE A RIM ELEVATION THAT IS 6" ABOVE THE EXISTING GRADE.
6. ALL MANHOLES SHALL BE INSTALLED WITH A CONCRETE COLLAR, PER STANDARD DETAILS.
7. FOR ANY BOX BASE MANHOLES NOT MEETING STANDARDS OF CDOT DETAILS M-604-20 AND STORM INLETS NOT MEETING STANDARD DETAIL M-604-12, CONTRACTOR SHALL PROVIDE PE STAMPED STRUCTURAL DESIGN REQUIREMENTS MEETING PIPE MANUFACTURER RECOMMENDATIONS.
8. IN PLAN VIEW, ALL INLETS ARE BASED ON CENTERLINE STATION AND OFFSET TO CENTER OF STRUCTURE. THE CORRESPONDING INLETS AND MANHOLES ARE PROFILED ALONG AN ALIGNMENT DOWN THE STORM SEWER CENTERLINE.
9. ALL INLETS ARE SUMP INLETS UNLESS OTHERWISE NOTED. CONTINUOUS GRADE INLETS HAVE BEEN SO LABELED.

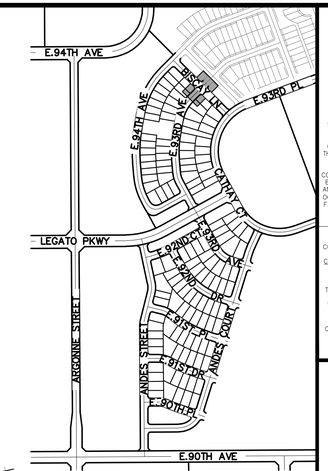




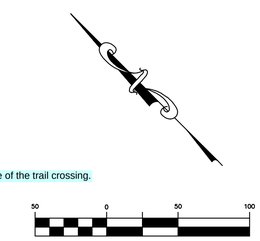
STORM RUN 4



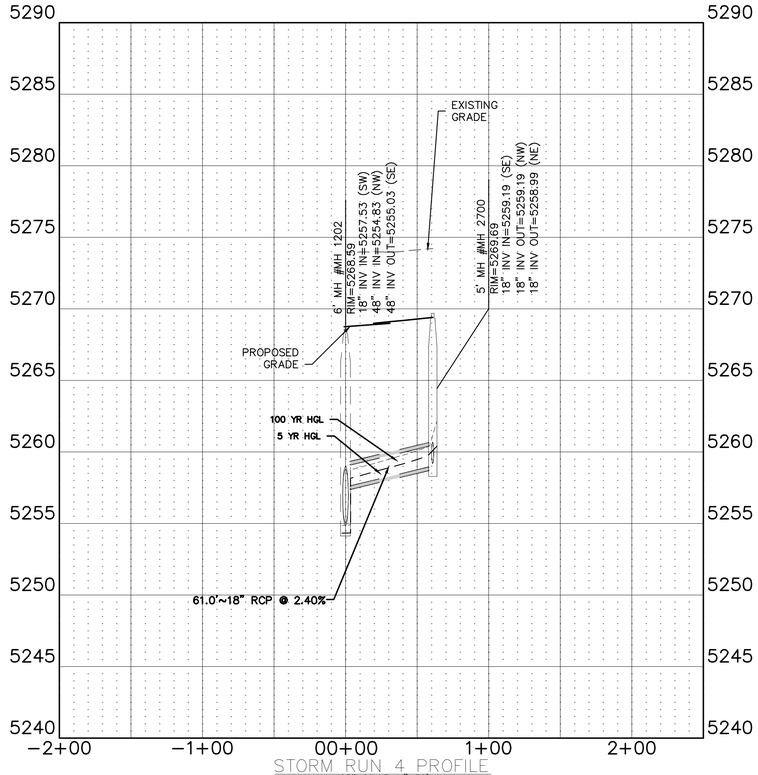
may need to extend storm to the uphill side of the trail crossing.



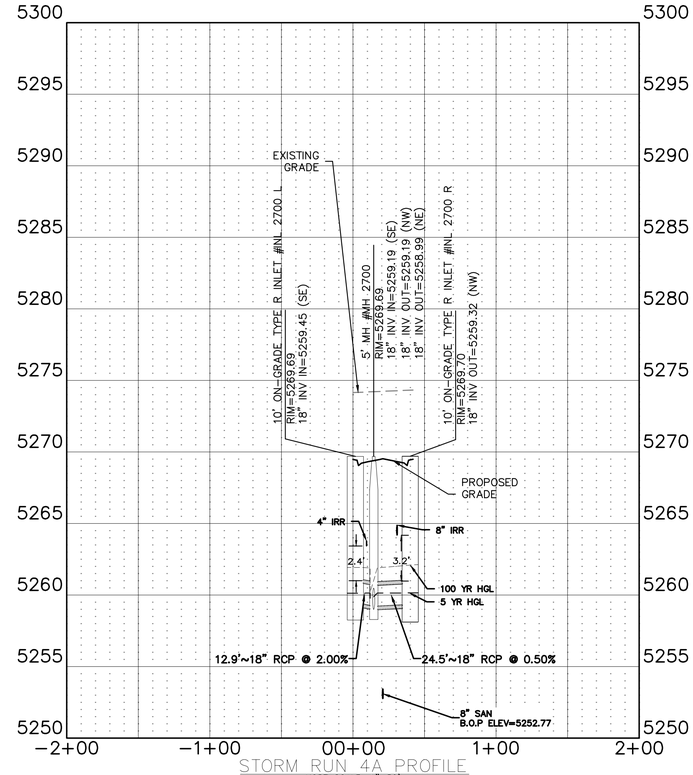
KEY MAP
SCALE: 1"=500'



STORM RUN 4A



STORM RUN 4 PROFILE
HORZ SCALE: 1"=50'
VERT SCALE: 1"=5'



STORM RUN 4A PROFILE
HORZ SCALE: 1"=50'
VERT SCALE: 1"=5'

811
Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 SOUTH SYRACUSE WAY, STE 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

CLIENT: COHEN DENVER AIRPORT, LLC

LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
CONSTRUCTION PLANS
STORM PLAN & PROFILES
STORM RUN 4 4A

DATE 6/14/2021

A	1ST SUBMITTAL TO COMMERCE CITY 08/17/2020 – DJM
B	2ND SUBMITTAL TO COMMERCE CITY 03/15/2021 – DJM
C	3RD SUBMITTAL TO COMMERCE CITY 06/11/2021 – DJM

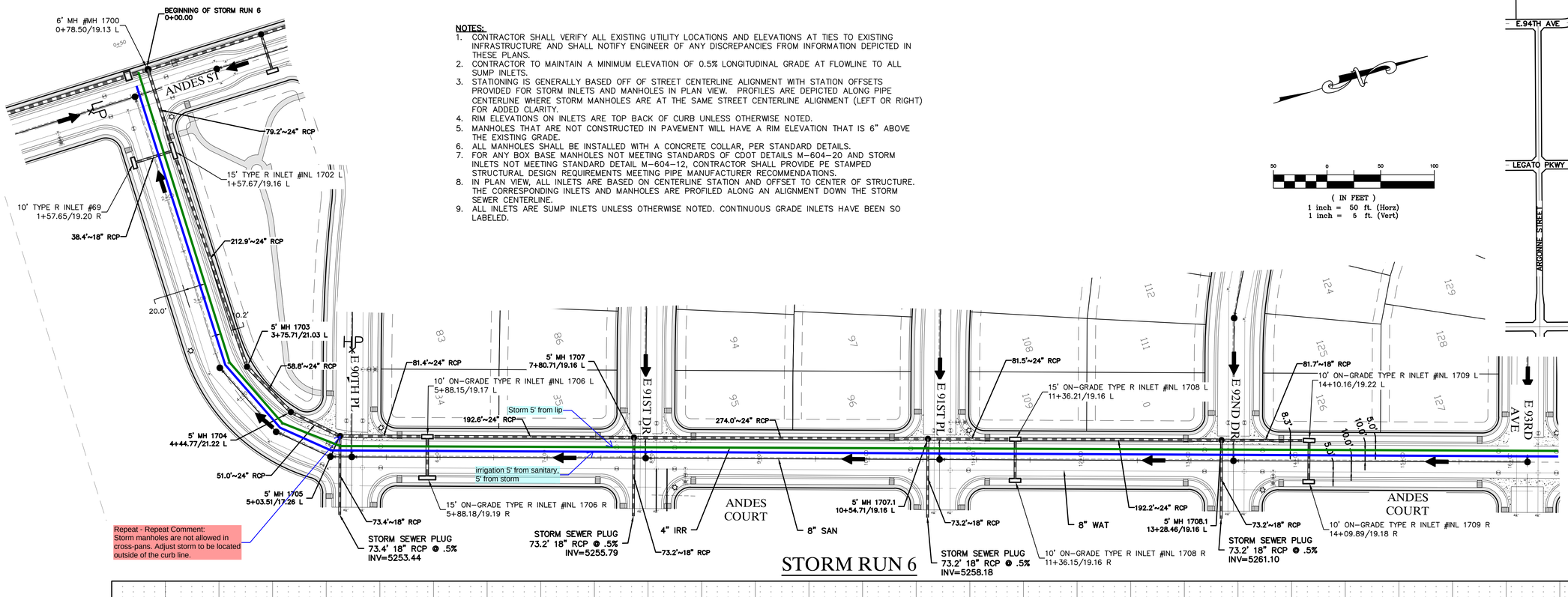
REVISIONS

DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 29

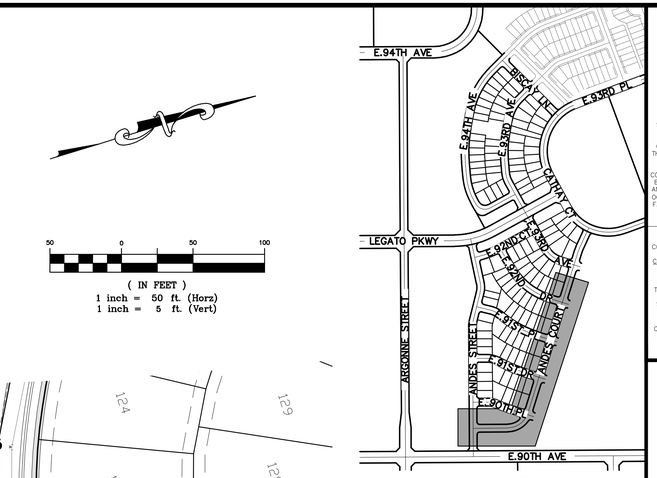
CAD FILE: 19002561-STORM RUN 4.DWG

NOTES:

1. CONTRACTOR SHALL VERIFY ALL EXISTING UTILITY LOCATIONS AND ELEVATIONS AT TIES TO EXISTING INFRASTRUCTURE AND SHALL NOTIFY ENGINEER OF ANY DISCREPANCIES FROM INFORMATION DEPICTED IN THESE PLANS.
2. CONTRACTOR TO MAINTAIN A MINIMUM ELEVATION OF 0.5% LONGITUDINAL GRADE AT FLOWLINE TO ALL SUMP INLETS.
3. STATIONING IS GENERALLY BASED OFF OF STREET CENTERLINE ALIGNMENT WITH STATION OFFSETS PROVIDED FOR STORM INLETS AND MANHOLES IN PLAN VIEW. PROFILES ARE DEPICTED ALONG PIPE CENTERLINE WHERE STORM MANHOLES ARE AT THE SAME STREET CENTERLINE ALIGNMENT (LEFT OR RIGHT) FOR ADDED CLARITY.
4. RIM ELEVATIONS ON INLETS ARE TOP BACK OF CURB UNLESS OTHERWISE NOTED.
5. MANHOLES THAT ARE NOT CONSTRUCTED IN PAVEMENT WILL HAVE A RIM ELEVATION THAT IS 6" ABOVE THE EXISTING GRADE.
6. ALL MANHOLES SHALL BE INSTALLED WITH A CONCRETE COLLAR, PER STANDARD DETAILS.
7. FOR ANY BOX BASE MANHOLES NOT MEETING STANDARDS OF CDOT DETAILS M-604-20 AND STORM INLETS NOT MEETING STANDARD DETAIL M-604-12, CONTRACTOR SHALL PROVIDE PE STAMPED STRUCTURAL DESIGN REQUIREMENTS MEETING PIPE MANUFACTURER RECOMMENDATIONS.
8. IN PLAN VIEW, ALL INLETS ARE BASED ON CENTERLINE STATION AND OFFSET TO CENTER OF STRUCTURE. THE CORRESPONDING INLETS AND MANHOLES ARE PROFILED ALONG AN ALIGNMENT DOWN THE STORM SEWER CENTERLINE.
9. ALL INLETS ARE SUMP INLETS UNLESS OTHERWISE NOTED. CONTINUOUS GRADE INLETS HAVE BEEN SO LABELED.

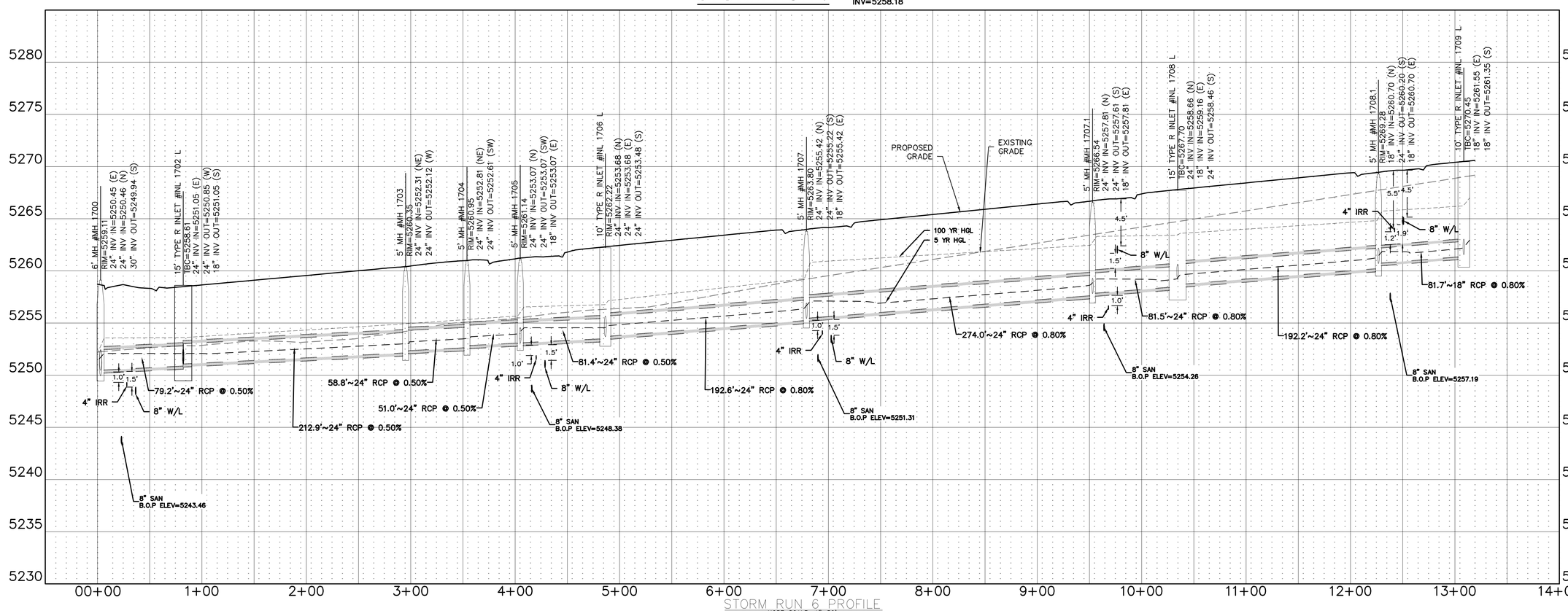


STORM RUN 6



KEY MAP
SCALE: 1"=500'

(IN FEET)
1 inch = 50 ft. (Horz)
1 inch = 5 ft. (Vert)



STORM RUN 6 PROFILE
HORZ SCALE: 1"=50'
VERT SCALE: 1"=5'

811 Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 SOUTH SYRACUSE WAY, STE 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

CLIENT
COHEN DENVER AIRPORT, LLC

LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
CONSTRUCTION PLANS
STORM PLAN & PROFILES
STORM RUN 6

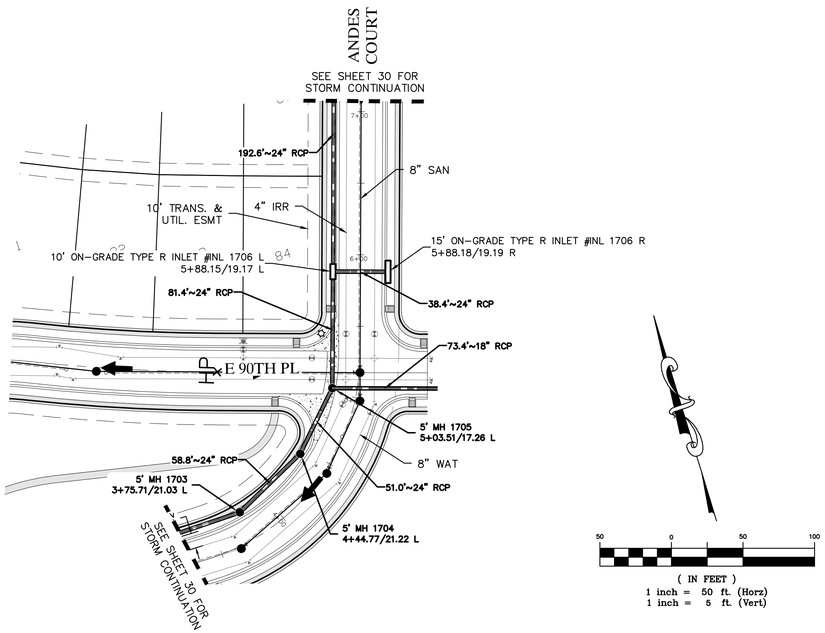
DATE 6/14/2021

A	1st SUBMITTAL TO COMMERCE CITY	08/17/2020 – DJM
B	2nd SUBMITTAL TO COMMERCE CITY	03/15/2021 – DJM
C	3rd SUBMITTAL TO COMMERCE CITY	05/11/2021 – DJM

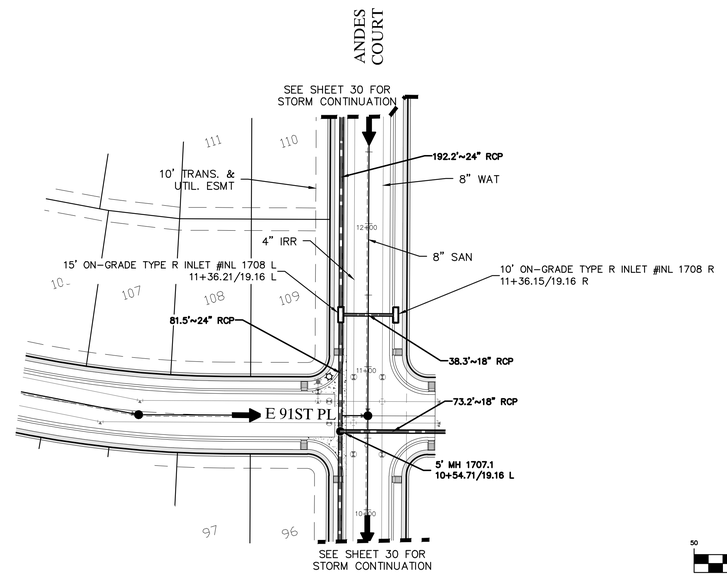
REVISIONS

DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 30

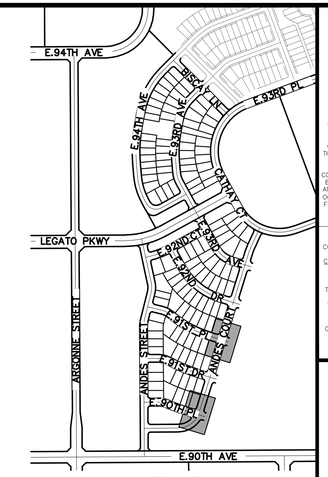
CAD FILE: 19002561-STORM RUN 6.DWG



STORM RUN 6B

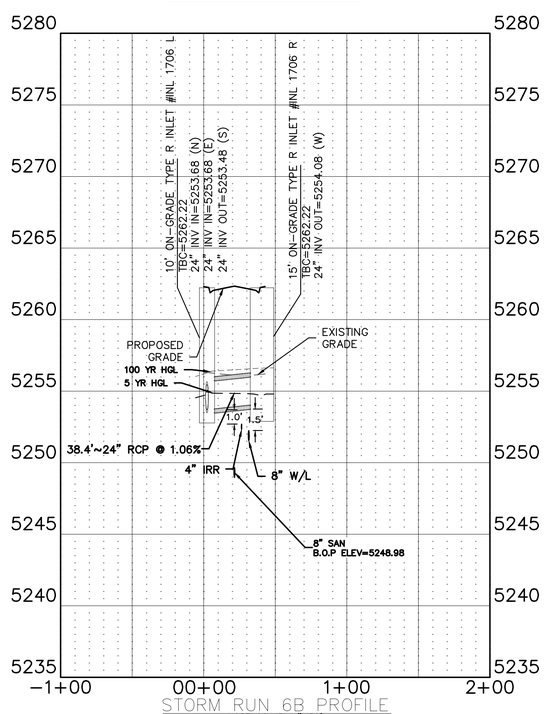


STORM RUN 6C



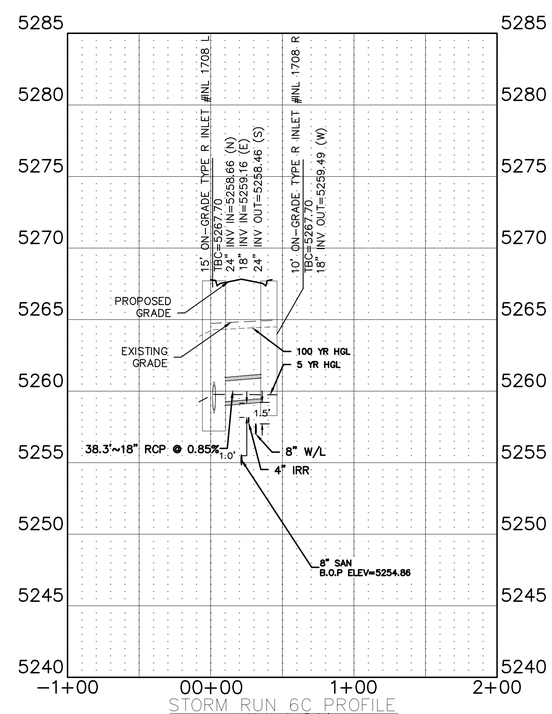
KEY MAP
SCALE: 1"=500'

STORM RUN 6B



STORM RUN 6B PROFILE
HORZ SCALE: 1"=50'
VERT SCALE: 1"=5'

STORM RUN 6C



STORM RUN 6C PROFILE
HORZ SCALE: 1"=50'
VERT SCALE: 1"=5'

NOTES:

1. CONTRACTOR SHALL VERIFY ALL EXISTING UTILITY LOCATIONS AND ELEVATIONS AT TIES TO EXISTING INFRASTRUCTURE AND SHALL NOTIFY ENGINEER OF ANY DISCREPANCIES FROM INFORMATION DEPICTED IN THESE PLANS.
2. CONTRACTOR TO MAINTAIN A MINIMUM ELEVATION OF 0.5% LONGITUDINAL GRADE AT FLOWLINE TO ALL SUMP INLETS.
3. STATIONING IS GENERALLY BASED OFF OF STREET CENTERLINE ALIGNMENT WITH STATION OFFSETS PROVIDED FOR STORM INLETS AND MANHOLES IN PLAN VIEW. PROFILES ARE DEPICTED ALONG PIPE CENTERLINE WHERE STORM MANHOLES ARE AT THE SAME STREET CENTERLINE ALIGNMENT (LEFT OR RIGHT) FOR ADDED CLARITY.
4. RIM ELEVATIONS ON INLETS ARE TOP BACK OF CURB UNLESS OTHERWISE NOTED.
5. MANHOLES THAT ARE NOT CONSTRUCTED IN PAVEMENT WILL HAVE A RIM ELEVATION THAT IS 6" ABOVE THE EXISTING GRADE.
6. ALL MANHOLES SHALL BE INSTALLED WITH A CONCRETE COLLAR, PER STANDARD DETAILS.
7. FOR ANY BOX BASE MANHOLES NOT MEETING STANDARDS OF CDOT DETAILS M-604-20 AND STORM INLETS NOT MEETING STANDARD DETAIL M-604-12, CONTRACTOR SHALL PROVIDE PE STAMPED STRUCTURAL DESIGN REQUIREMENTS MEETING PIPE MANUFACTURER RECOMMENDATIONS.
8. IN PLAN VIEW, ALL INLETS ARE BASED ON CENTERLINE STATION AND OFFSET TO CENTER OF STRUCTURE. THE CORRESPONDING INLETS AND MANHOLES ARE PROFILED ALONG AN ALIGNMENT DOWN THE STORM SEWER CENTERLINE.
9. ALL INLETS ARE SUMP INLETS UNLESS OTHERWISE NOTED. CONTINUOUS GRADE INLETS HAVE BEEN SO LABELED.

811 Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 SOUTH SYRACUSE WAY, SUITE 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

CLIENT: COHEN DENVER AIRPORT, LLC

LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
CONSTRUCTION PLANS
STORM PLAN & PROFILES
STORM RUN 6A 6B

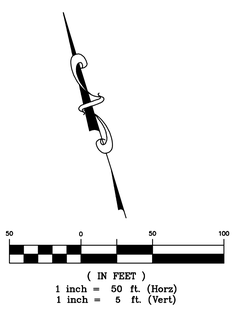
DATE 6/14/2021

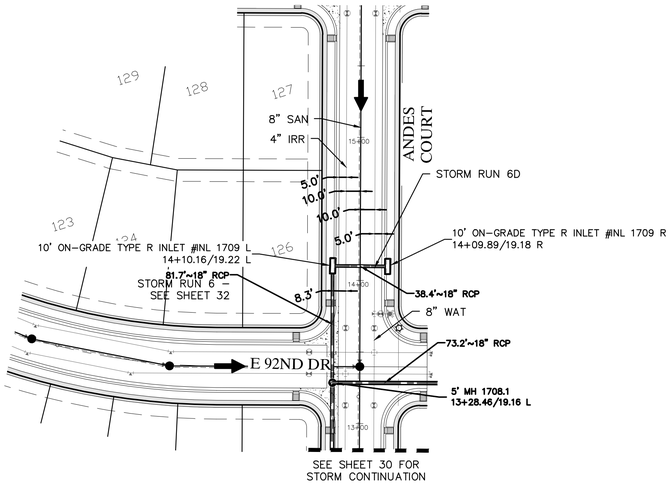
A	1st SUBMITTAL TO COMMERCE CITY	08/17/2020 – DJM
B	2nd SUBMITTAL TO COMMERCE CITY	03/15/2021 – DJM
C	3rd SUBMITTAL TO COMMERCE CITY	06/21/2021 – DJM

REVISIONS

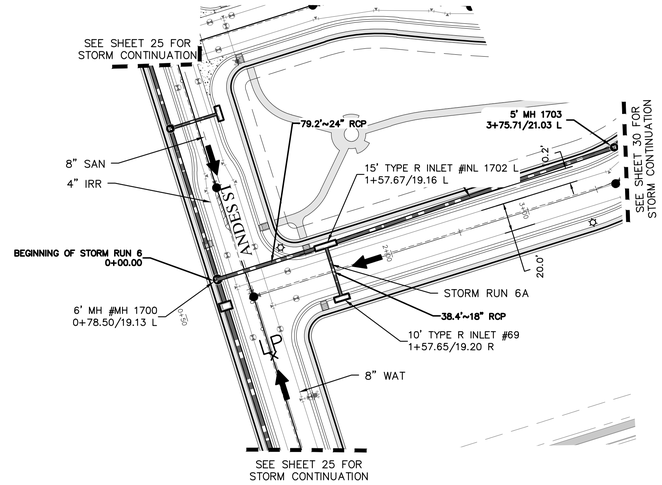
DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 31

CAD FILE: 19002561-STORM RUN 6.DWG

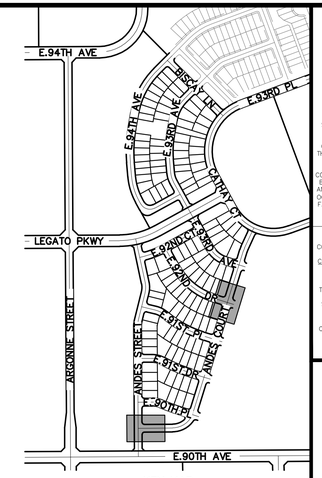




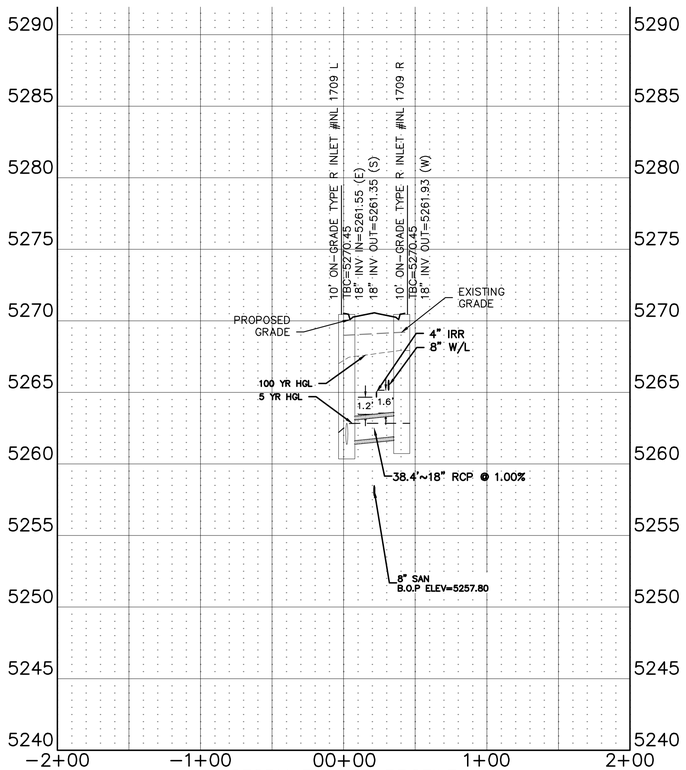
STORM RUN 6D



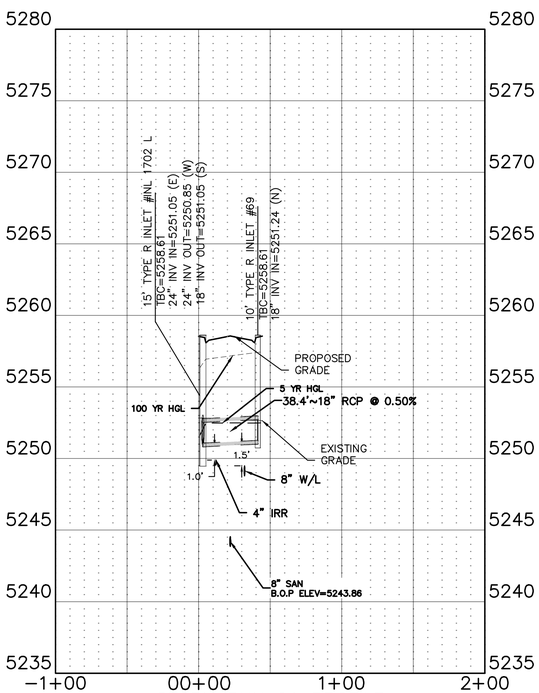
STORM RUN 6A



KEY MAP
SCALE: 1"=500'



STORM RUN 6D PROFILE
HORZ SCALE: 1"=50'
VERT SCALE: 1"=5'



STORM RUN 6A PROFILE
HORZ SCALE: 1"=50'
VERT SCALE: 1"=5'

NOTES:

1. CONTRACTOR SHALL VERIFY ALL EXISTING UTILITY LOCATIONS AND ELEVATIONS AT TIES TO EXISTING INFRASTRUCTURE AND SHALL NOTIFY ENGINEER OF ANY DISCREPANCIES FROM INFORMATION DEPICTED IN THESE PLANS.
2. CONTRACTOR TO MAINTAIN A MINIMUM ELEVATION OF 0.5% LONGITUDINAL GRADE AT FLOWLINE TO ALL SUMP INLETS.
3. STATIONING IS GENERALLY BASED OFF OF STREET CENTERLINE ALIGNMENT WITH STATION OFFSETS PROVIDED FOR STORM INLETS AND MANHOLES IN PLAN VIEW. PROFILES ARE DEPICTED ALONG PIPE CENTERLINE WHERE STORM MANHOLES ARE AT THE SAME STREET CENTERLINE ALIGNMENT (LEFT OR RIGHT) FOR ADDED CLARITY.
4. RIM ELEVATIONS ON INLETS ARE TOP BACK OF CURB UNLESS OTHERWISE NOTED.
5. MANHOLES THAT ARE NOT CONSTRUCTED IN PAVEMENT WILL HAVE A RIM ELEVATION THAT IS 6" ABOVE THE EXISTING GRADE.
6. ALL MANHOLES SHALL BE INSTALLED WITH A CONCRETE COLLAR, PER STANDARD DETAILS.
7. FOR ANY BOX BASE MANHOLES NOT MEETING STANDARDS OF CDOT DETAILS M-604-20 AND STORM INLETS NOT MEETING STANDARD DETAIL M-604-12, CONTRACTOR SHALL PROVIDE PE STAMPED STRUCTURAL DESIGN REQUIREMENTS MEETING PIPE MANUFACTURER RECOMMENDATIONS.
8. IN PLAN VIEW, ALL INLETS ARE BASED ON CENTERLINE STATION AND OFFSET TO CENTER OF STRUCTURE. THE CORRESPONDING INLETS AND MANHOLES ARE PROFILED ALONG AN ALIGNMENT DOWN THE STORM SEWER CENTERLINE.
9. ALL INLETS ARE SUMP INLETS UNLESS OTHERWISE NOTED. CONTINUOUS GRADE INLETS HAVE BEEN SO LABELED.

811
Know what's below.
Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 SOUTH SYRACUSE WAY, STE. 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

CLIENT
COHEN DENVER AIRPORT, LLC

LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
CONSTRUCTION PLANS
STORM PLAN & PROFILES
STORM RUN 6D

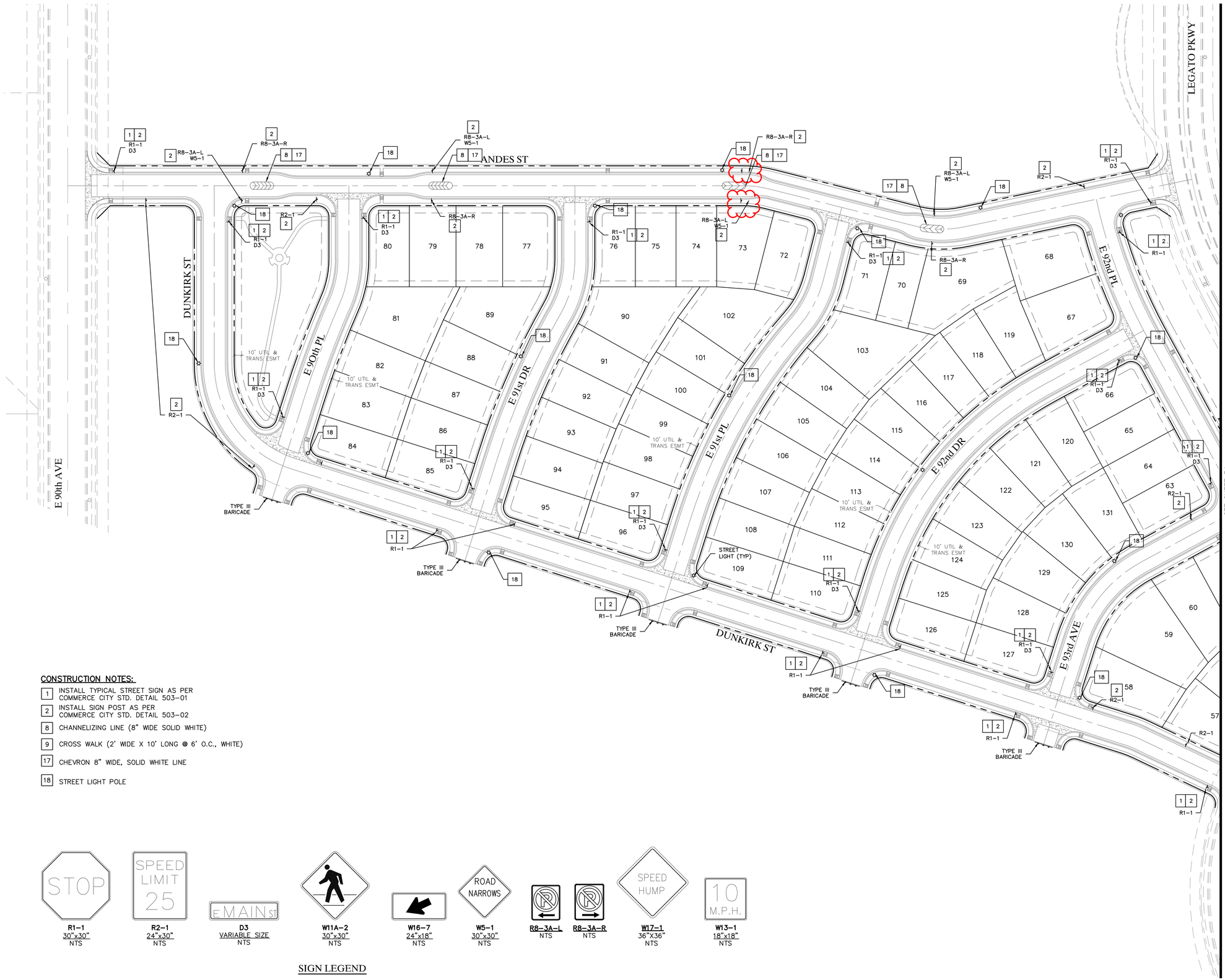
DATE 6/14/2021

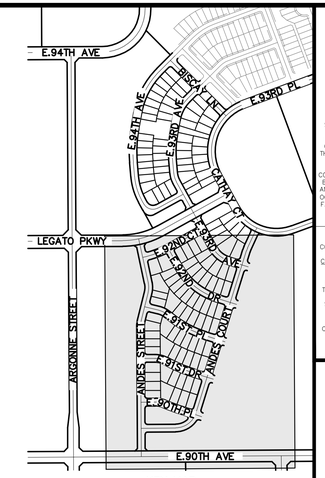
A	1st SUBMITTAL TO COMMERCE CITY	08/17/2020 – DJM
B	2nd SUBMITTAL TO COMMERCE CITY	03/15/2021 – DJM
C	3rd SUBMITTAL TO COMMERCE CITY	06/11/2021 – DJM

REVISIONS

DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO.
32

CAD FILE: 19002561-STORM RUN 6.DWG





KEY MAP
SCALE: 1"=500'

CONSTRUCTION NOTES:

1. INSTALL TYPICAL STREET SIGN AS PER COMMERCE CITY STD. DETAIL 503-01
2. INSTALL SIGN POST AS PER COMMERCE CITY STD. DETAIL 503-02
8. CHANNELIZING LINE (8" WIDE SOLID WHITE)
9. CROSS WALK (2' WIDE X 10' LONG @ 6' O.C., WHITE)
17. CHEVRON 8" WIDE, SOLID WHITE LINE
18. STREET LIGHT POLE

R1-1 30"x30" NTS | R2-1 24"x30" NTS | D3 VARIABLE SIZE NTS | W11A-2 30"x30" NTS | W16-7 24"x18" NTS | W5-1 30"x30" NTS | R8-3A-L NTS | R8-3A-R NTS | W17-1 36"X36" NTS | W13-1 18"x18" NTS

SIGN LEGEND

(IN FEET)
1 inch = 60 ft.

Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 SOUTH SYRACUSE WAY, STE. 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

CLIENT
COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

COHEN DENVER AIRPORT, LLC
LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
CONSTRUCTION PLANS
SIGNAGE & STRIPING - SOUTH

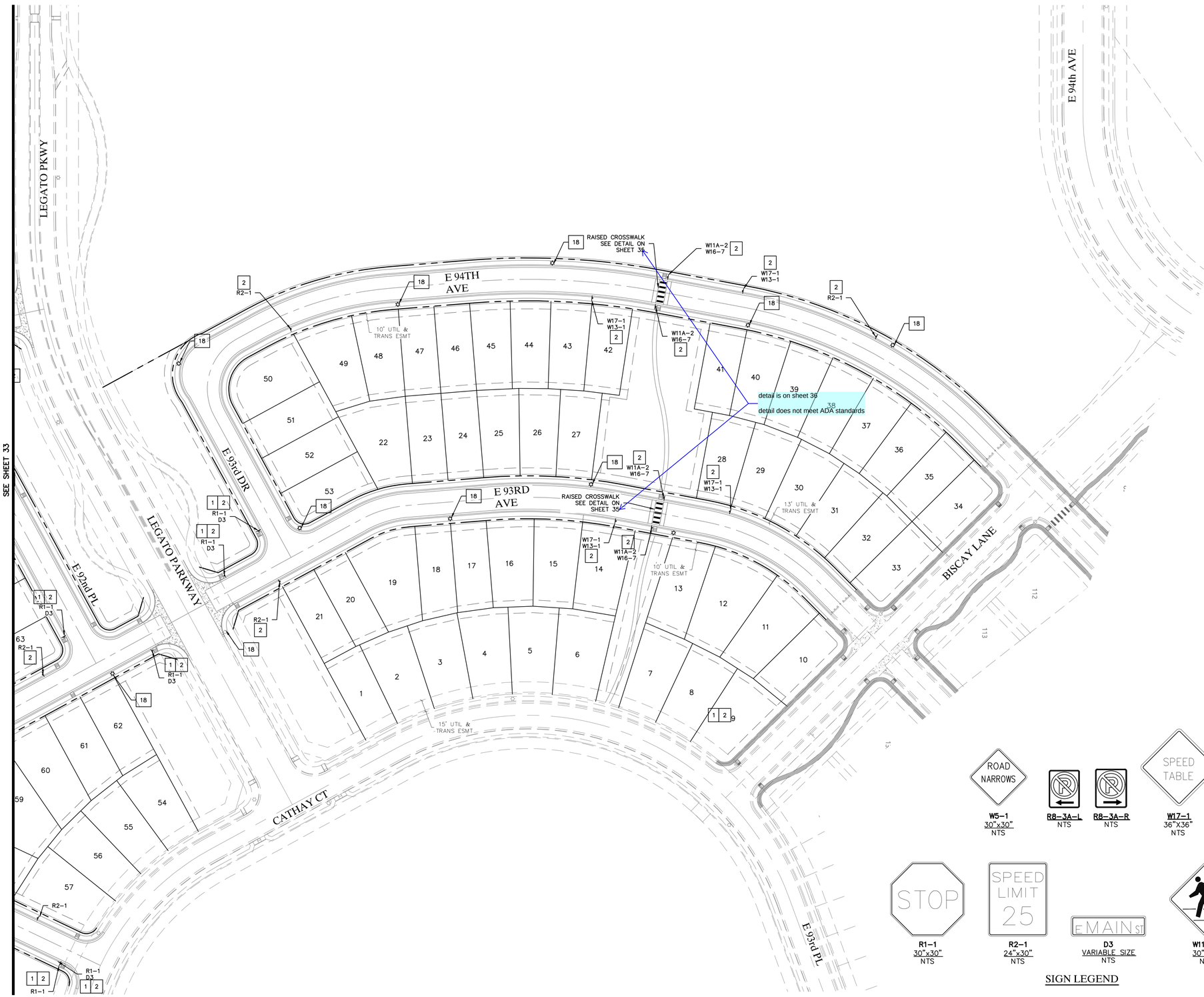
DATE 6/14/2021

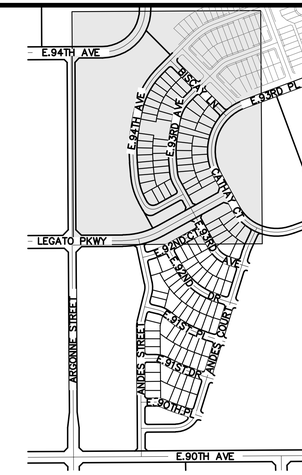
A	1st SUBMITTAL TO COMMERCE CITY	08/17/2020 - DJM
B	2ND SUBMITTAL TO COMMERCE CITY	03/15/2021 - DJM
C	3rd SUBMITTAL TO COMMERCE CITY	06/11/2021 - DJM

REVISIONS

DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 33

CAD FILE: 19002561-SIGNAGE & STRIPING.DWG

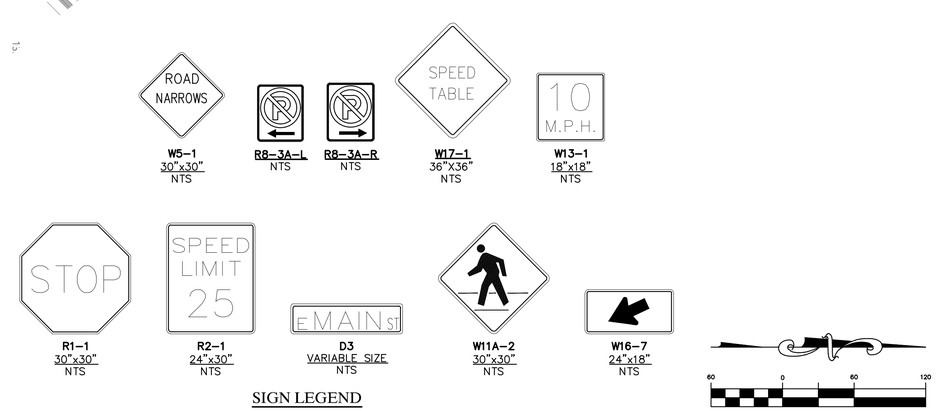




KEY MAP
SCALE: 1"=500'

CONSTRUCTION NOTES:

1. INSTALL TYPICAL STREET SIGN AS PER COMMERCE CITY STD. DETAIL 503-01
2. INSTALL SIGN POST AS PER COMMERCE CITY STD. DETAIL 503-02
8. CHANNELIZING LINE (8" WIDE SOLID WHITE)
9. CROSS WALK (2' WIDE X 10' LONG @ 6' O.C., WHITE)
17. CHEVRON 8" WIDE, SOLID WHITE LINE
18. STREET LIGHT POLE



W5-1 30"x30" NTS
R8-3A-L NTS
R8-3A-R NTS
W17-1 36"X36" NTS
W13-1 18"x18" NTS
R1-1 30"x30" NTS
R2-1 24"x30" NTS
D3 VARIABLE SIZE NTS
W11A-2 30"x30" NTS
W16-7 24"x18" NTS

SIGN LEGEND

(IN FEET)
1 inch = 60 ft.

811 Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 SOUTH SYRACUSE WAY, SUITE 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

CLIENT
COHEN DENVER AIRPORT, LLC

LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
CONSTRUCTION PLANS
SIGNAGE & STRIPING – NORTH

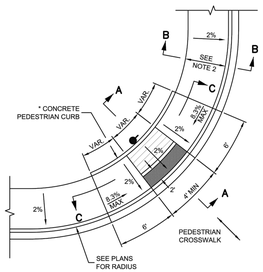
DATE 6/14/2021

A	1st SUBMITTAL TO COMMERCE CITY 08/17/2020 – DJM
B	2nd SUBMITTAL TO COMMERCE CITY 03/15/2021 – DJM
C	3rd SUBMITTAL TO COMMERCE CITY 06/11/2021 – DJM

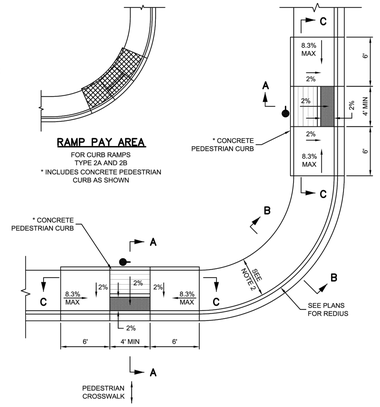
REVISIONS

DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 34

CAD FILE: 19002561-SIGNAGE & STRIPING.DWG



CURB RAMP TYPE 2A
SEE NOTE 3



RAMP PAY AREA
FOR CURB RAMPS
TYPE 2A AND 2B
* INCLUDES CONCRETE PEDESTRIAN CURB AS SHOWN

CURB RAMP TYPE 2B
SEE NOTE 3

GENERAL NOTES

1. CURB RAMP TYPE 2B MAY BE USED IN MID–BLOCK.
2. MINIMUM SIDEWALK WIDTH IS 4 FT.
3. CURB RAMP TYPE 2A DIAGONAL (ON THE APEX) IS UNACCEPTABLE IN NEW CONSTRUCTION. TYPICALLY, TWO CURB RAMPS AS IN TYPE 2B, MUST BE PROVIDED AT EACH STREET CORNER.
   ADA TITLE II 28 C.F.R. SECTION 35.151(B) STATES:
   ALTERATIONS HAVE TO BE MADE READILY ACCESSIBLE, WITHIN THE IMPACTING PROJECT, TO THE MAXIMUM EXTENT FEASIBLE (MEF).

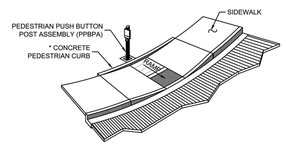
   THEREFORE, A SINGLE, DIAGONAL CURB RAMP TYPE 2A WILL ONLY BE PERMITTED ON ALTERATION PROJECTS WITH MEF JUSTIFICATION DOCUMENTATION.

RAMP SURFACE SHALL BE TEXTURED WITH A COARSE BROOMED FINISH AND SCORED WITH GROOVES (.” BY .”) SPACED 6” INCHES ON CENTER

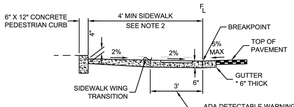
ADA DETECTABLE WARNING DEVICE CAST IRON TRUNCATED DOMES. BRICK AND STAMPED CONCRETE ARE NOT ALLOWED

PEDESTRIAN PUSH BUTTON PUSH ASSEMBLY (PPBPA). SEE NOTE 8. SEE STANDARD PLAN S-614-9 FOR PPBPA DETAILS. SEE PLANS FOR LOCATIONS THE SIGN FACE SHALL BE PARALLEL TO THE CROSSWALK.

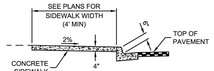
MFG'S:
EAST JORDAN IRON WORKS, INC. 1-800-874-4100
NEENAH FOUNDRY CO. 1-800-694-4660



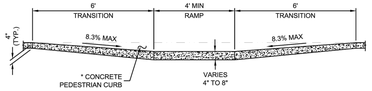
ISOMETRIC VIEW
SHOWN WITH PEDESTRIAN PUSH BUTTON POST ASSEMBLY (PPBPA)



SECTION A–A
* INCREASE TO 8" FOR BRICK PAVERS.

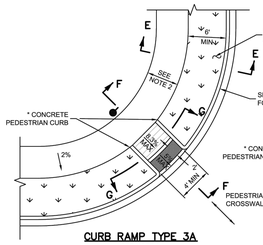


SECTION B–B

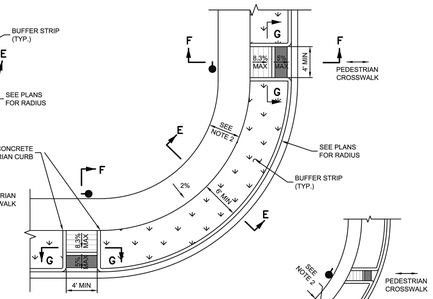


SECTION C–C

COMPUTER FILE INFORMATION		APPROVAL	CITY OF COMMERCE CITY	DETAIL NO.
Creation Date: 03/10/2016 Initials: CJC		12-15-17	Department of Public Works	CURB RAMPS
Last Modification Date: 5/26/2016 Initials: CJC		CITY ENGINEER DATE	8602 Rosemary St.	308-03b
Full Path: WWW.C3GOV.COM			Commerce City, CO 80022	
Drawing Name: $FILES$			Ph: 303-289-8150	ENGINEERING CONSTRUCTION STANDARDS
Scale: $SCALESHORT$	Units: ENGLISH			Sheet No. 2 of 4



CURB RAMP TYPE 3A
SEE NOTE 3



CURB RAMP TYPE 3B
SEE NOTE 3

GENERAL NOTES

1. CURB RAMP TYPE 3B MAY BE USED IN MID–BLOCK.
2. MINIMUM SIDEWALK WIDTH IS 4 FT.
3. CURB RAMP TYPE 3A DIAGONAL (ON THE APEX) IS UNACCEPTABLE IN NEW CONSTRUCTION. TYPICALLY, TWO CURB RAMPS AS IN TYPE 3B, MUST BE PROVIDED AT EACH STREET CORNER.
   ADA TITLE II 28 C.F.R. SECTION 35.151(B) STATES:
   ALTERATIONS HAVE TO BE MADE READILY ACCESSIBLE, WITHIN THE IMPACTING PROJECT, TO THE MAXIMUM EXTENT FEASIBLE (MEF).

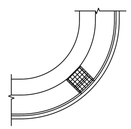
   THEREFORE, A SINGLE, DIAGONAL CURB RAMP TYPE 3A WILL ONLY BE PERMITTED ON ALTERATION PROJECTS WITH MEF JUSTIFICATION DOCUMENTATION.

RAMP SURFACE SHALL BE TEXTURED WITH A COARSE BROOMED FINISH AND SCORED WITH GROOVES (.” BY .”) SPACED 6” INCHES ON CENTER

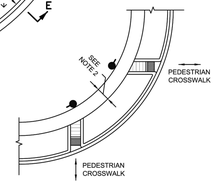
ADA DETECTABLE WARNING DEVICE CAST IRON TRUNCATED DOMES. BRICK AND STAMPED CONCRETE ARE NOT ALLOWED

PEDESTRIAN PUSH BUTTON PUSH ASSEMBLY (PPBPA). SEE NOTE 8. SEE STANDARD PLAN S-614-9 FOR PPBPA DETAILS. SEE PLANS FOR LOCATIONS THE SIGN FACE SHALL BE PARALLEL TO THE CROSSWALK.

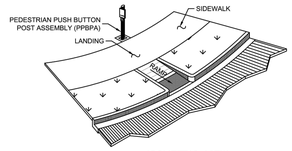
MFG'S:
EAST JORDAN IRON WORKS, INC. 1-800-874-4100
NEENAH FOUNDRY CO. 1-800-694-4660



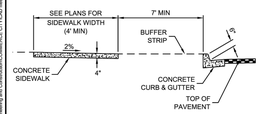
RAMP PAY AREA
FOR CURB RAMPS
TYPE 3A AND 3B
* INCLUDES CONCRETE PEDESTRIAN CURB AS SHOWN



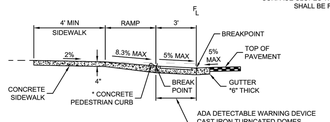
CURB RAMP TYPE 3B MODIFIED
USE ONLY IF EXISTING ROW DICTATES.
GRADE BREAKS SHALL NOT BE PERMITTED ON THE SURFACE OF THE RAMP RUNS AND TURNING SPACES.
SURFACE SLOPES THAT MEET AT GRADE BREAKS SHALL BE FLUSH. SEE NOTE 3.



ISOMETRIC VIEW
SHOWN WITH PEDESTRIAN PUSH BUTTON POST ASSEMBLY (PPBPA)

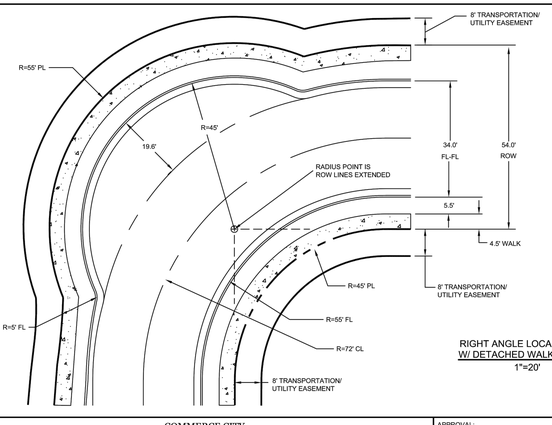


SECTION E–E



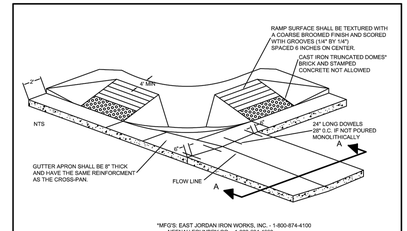
SECTION F–F
* INCREASE TO 8" FOR BRICK PAVERS.

COMPUTER FILE INFORMATION		APPROVAL	CITY OF COMMERCE CITY	DETAIL NO.
Creation Date: 03/10/2016 Initials: CJC		12-15-17	Department of Public Works	CURB RAMPS
Last Modification Date: 5/26/2016 Initials: CJC		CITY ENGINEER DATE	8602 Rosemary St.	308-03c
Full Path: WWW.C3GOV.COM			Commerce City, CO 80022	
Drawing Name: $FILES$			Ph: 303-289-8150	ENGINEERING CONSTRUCTION STANDARDS
Scale: $SCALESHORT$	Units: ENGLISH			Sheet No. 3 of 4

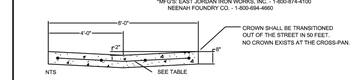


RIGHT ANGLE LOCAL STREET
W/ DETACHED WALK (54'ROW)
1"=20'

COMMERCE CITY DEPARTMENT OF PUBLIC WORKS ENGINEERING CONSTRUCTION STANDARDS	APPROVAL: 05-27-16 CITY ENGINEER DATE	
EYEBROW TREATMENT	DETAIL NO. 307-11	



*MFG'S: EAST JORDAN IRON WORKS, INC. - 1-800-874-4100
NEENAH FOUNDRY CO. - 1-800-694-4660



SECTION A-A

NOTE:
THIS DETAIL IS GENERALIZED. ANY PARTICULAR INSTALLATION MAY INCLUDE ALL OR PART OF THE DETAIL ELEMENTS AS PART OF THE CONSTRUCTION. ANY GIVEN INSTALLATION MAY INCLUDE REQUIREMENTS OF OTHER DETAILS. EXISTING CONDITIONS AND CONFIGURATIONS OF LOCATION WILL AFFECT ACTUAL CONSTRUCTION OF RAMPS.

PAN LENGTH	WIRE MESH CALLED FOR	REPLACE WITH REBAR HAVING END AREA OF
36"	6x6 - 4.4	0.10 SQ IN PER FT
48"	6x6 - 2.2	0.13 SQ IN PER FT
64"	6x6 - 0.0	0.20 SQ IN PER FT
84"	Two 6x6 - 2.2	0.26 SQ IN PER FT

NOTE:
SQUARE RETURNS AND PANS SHALL USE WIRE MESH AS SHOWN IN THE TABLE ABOVE. WHEN WIRE MESH IS NOT AVAILABLE, STEEL REINFORCING BAR MAY BE SUBSTITUTED.

COMMERCE CITY DEPARTMENT OF PUBLIC WORKS ENGINEERING CONSTRUCTION STANDARDS	APPROVAL: 12-15-17 CITY ENGINEER DATE	
CURB RAMP WITH CROSSPAN	DETAIL NO. 308-04	

Know what's **below.** **Call** before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 SOUTH SYRACUSE WAY, STE. 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355–1400
BRAD BURNS

CLIENT: COHEN DENVER AIRPORT, LLC

LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
CONSTRUCTION PLANS
STREET DETAILS 01

DATE 6/14/2021

A	1st SUBMITTAL TO COMMERCE CITY 08/17/2020 – DJM
B	2ND SUBMITTAL TO COMMERCE CITY 12/15/2021 – DJM
C	3RD SUBMITTAL TO COMMERCE CITY 06/11/2021 – DJM

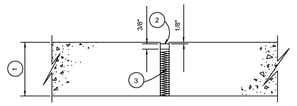
REVISIONS

DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 35

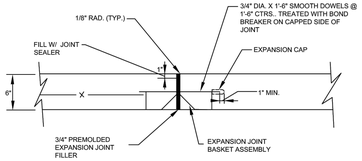
CAD FILE: 19002561-STREET DETAILS.DWG

EXPANSION JOINT

N.T.S.



NOTES:
1. (T) THICKNESS OF PAVEMENT, SEE TYPICAL PAVEMENT SECTION.
2. POURED JOINT MATERIAL.
3. 1/2" PREFORMED JOINT MATERIAL. INSTALL EXPANSION JOINT MATERIAL BETWEEN NEW SIDEWALK AND EXISTING CONCRETE SLABS, POLES, FIRE HYDRANTS, BUILDINGS, ETC. SET EXPANSION JOINT MATERIAL VERTICAL AND WITH THE TOP EDGE BELOW FINISHED SURFACE OF CONCRETE. PROVIDE EXPANSION JOINTS EVERY 100' TO 120'.



SECTION

NOTE:
THIS DETAIL DOES NOT APPLY TO EXPANSION JOINT WHERE PAVEMENT ABUTS A STRUCTURE. USE ONLY JOINT FILLER AGAINST STRUCTURE.

COMMERCE CITY DEPARTMENT OF PUBLIC WORKS ENGINEERING CONSTRUCTION STANDARDS	APPROVAL: CITY ENGINEER — DATE 05-27-16
EXPANSION JOINT DETAILS	DETAIL NO. 308-08

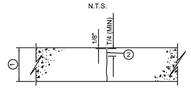
CONTRACTION JOINT

N.T.S.

CONTRACTION JOINTS SHALL BE PLACED EVERY 10 FEET OR AS DIRECTED BY THE ENGINEER.

ALTERNATE TRANSVERSE CONTRACTION JOINT

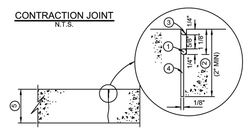
N.T.S.



NOTES:
1. (T) THICKNESS OF PAVEMENT, SEE TYPICAL PAVEMENT SECTION.
2. 20 MILL POLYURETHANE PLASTIC PARTING STRIP. SPLICE WITH ENDS BUTTED.

CONTRACTION JOINT

N.T.S.

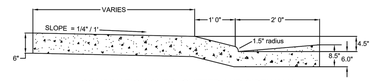


NOTES:
1. BACKER ROD OF OPEN OR CLOSED CELL POLYURETHANE STRAND AS APPROVED.
2. T/4+1/2" LONGITUDINAL, T/4 TRANSVERSE.
   MAY BE 1/4" SAWCUT FOR ITS FULL DEPTH WITH JOINT MATERIAL AND BACKER ROD AT SAME DEPTH.
3. POURED JOINT MATERIAL.
4. AIR.
5. (T) THICKNESS OF PAVEMENT, SEE TYPICAL PAVEMENT SECTION.

COMMERCE CITY DEPARTMENT OF PUBLIC WORKS ENGINEERING CONSTRUCTION STANDARDS	APPROVAL: CITY ENGINEER — DATE 05-27-16
CONTRACTION JOINT DETAILS	DETAIL NO. 308-09

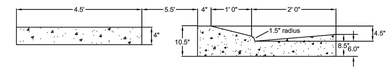
COMBINATION CURB, GUTTER AND SIDEWALK

NOT TO SCALE



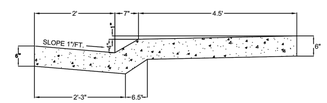
DETACHED CURB, GUTTER AND SIDEWALK

NOT TO SCALE



COMBINATION CURB, GUTTER AND SIDEWALK

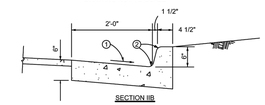
NOT TO SCALE



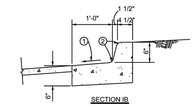
COMMERCE CITY DEPARTMENT OF PUBLIC WORKS ENGINEERING CONSTRUCTION STANDARDS	APPROVAL: CITY ENGINEER — DATE 05-27-16
MOUNTABLE CURB SECTIONS	DETAIL NO. 308-06

6" VERTICAL CURB AND GUTTER (TYPE 2)

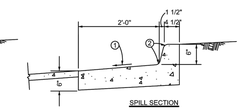
DRAWING NOT TO SCALE



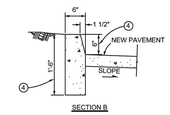
SECTION IIB



SECTION IB



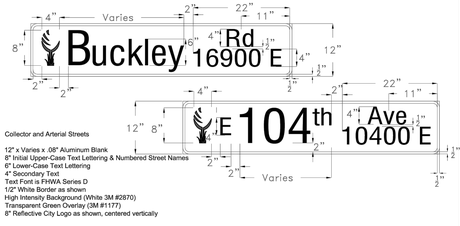
SPILL SECTION



SECTION B

NOTES:
1. GUTTER CROSS SLOPES SHALL BE 1/2" / FT WHEN DRAINING AWAY FROM CURB AND 1" / FT WHEN DRAINING TOWARD CURB
2. 1 1/2" RADIUS TYPICAL
3. 3/4" Ø x 12" DEFORMED REINFORCING BARS AT 6 FT. SPACING. BARS TO BE GROUTED IN 1-1/2" Ø HOLES IN EXISTING CONCRETE. GROUT TO CONSIST OF 2 PARTS CLEAN SAND AND 1 PART CEMENT.
4. 9" CURB HEIGHT, 1'-9" OVERALL HEIGHT FOR MEDIAN.

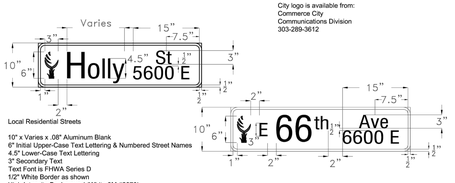
COMMERCE CITY DEPARTMENT OF PUBLIC WORKS ENGINEERING CONSTRUCTION STANDARDS	APPROVAL: CITY ENGINEER — DATE 05-27-16
VERTICAL CURB SECTIONS	DETAIL NO. 308-07



Collector and Arterial Streets

12" x Varies x .08" Aluminum Blank
8" Initial Upper-Case Text Lettering & Numbered Street Names
6" Lower-Case Text Lettering
4" Secondary Text
Text Font is FHWA Series D
1/2" White Border as shown
High Intensity Background (White 3M #2870)
Transparent Green Overlay (3M #1177)
8" Reflective City Logo as shown, centered vertically

City logo is available from:
Commerce City
Communications Division
303-289-3612



Local Residential Streets

10" x Varies x .08" Aluminum Blank
6" Initial Upper-Case Text Lettering & Numbered Street Names
4.5" Lower-Case Text Lettering
3" Secondary Text
Text Font is FHWA Series D
1/2" White Border as shown
High Intensity Background (White 3M #2870)
Transparent Green (3M #1177)
6" Reflective City Logo as shown, centered vertically

LOCAL RESIDENTIAL STREETS REQUIRE 10" SIGNS
COLLECTOR AND ARTERIAL STREETS REQUIRE 12" SIGNS

ALL NUMBERED STREETS MUST HAVE "E" IN FRONT OF THE STREET NAME, CENTERED VERTICALLY

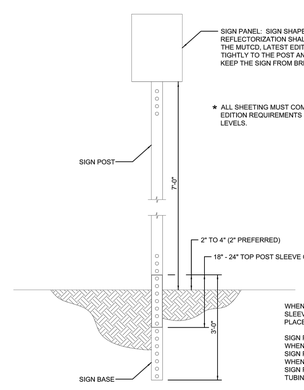
STREET SUFFIXES ARE TO BE CENTERED ABOVE STREET NUMBER AS SHOWN

LOCAL RESIDENTIAL STREETS REQUIRE A CITY LOGO
COLLECTOR AND ARTERIAL STREETS REQUIRE A CITY LOGO

PRIVATE STREETS REQUIRE A BLUE SIGN BACKGROUND WITHOUT A LOGO

SIGNS AT SIGNALS MUST BE ILLUMINATED STREETS NAME SIGNS
SEE DETAIL 900-01

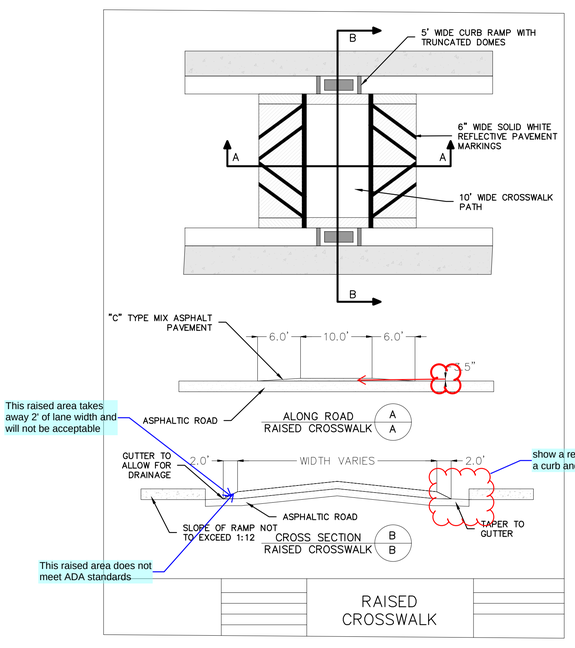
COMMERCE CITY DEPARTMENT OF PUBLIC WORKS ENGINEERING CONSTRUCTION STANDARDS	APPROVAL: CITY ENGINEER — DATE 07-14-17
TYPICAL STREET SIGNS	DETAIL NO. 503-01



WHEN A SIGN BASE FALLS WITHIN A HARDSCAPE AREA, A 3" PVC SLEEVE SHALL BE INSTALLED AT THE SIGN LOCATION PRIOR TO PLACEMENT OF THE CONCRETE.

SIGN POSTS SHALL 1.75" X 1.75". SIGN BASES SHALL BE 2" X 2"
WHEN SIGNS ARE SMALLER THAN 36" X 36".
SIGN POSTS SHALL BE 2" X 2", SIGN BASES SHALL BE 2.25" X 2.25"
WHEN SIGNS ARE 36" X 36" OR BIGGER.
SIGN POSTS AND BASES SHALL BE STEEL PERFORATED SQUARE TUBING AS SUPPLIED BY UNISTRUT, OR APPROVED EQUAL.

COMMERCE CITY DEPARTMENT OF PUBLIC WORKS ENGINEERING CONSTRUCTION STANDARDS	APPROVAL: CITY ENGINEER — DATE 05-27-16
SIGN POST & BASE	DETAIL NO. 503-02



Know what's **below.** **Call** before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 SOUTH SYRACUSE WAY, SUITE 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

CLIENT:
COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

COHEN DENVER AIRPORT, LLC
LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
CONSTRUCTION PLANS
STREET DETAILS 02

DATE 6/14/2021

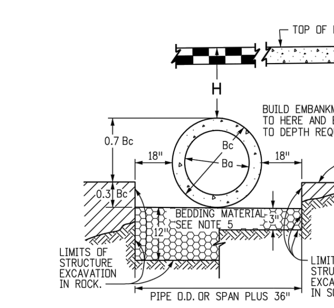
A	1st SUBMITTAL TO COMMERCE CITY	08/17/2020 — DJM
B	2nd SUBMITTAL TO COMMERCE CITY	12/15/2021 — DJM
C	3rd SUBMITTAL TO COMMERCE CITY	06/11/2021 — DJM

REVISIONS

DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 36

CAD FILE: 19002561-STREET DETAILS.DWG

K:\19002561\DWG\PLAN SETS\CONSTRUCTION\STORM\19002561-STORM DETAILS.DWG 6/14/2021 5:09 PM SCOTT ZIMMERMANN



NOTE: Bc IS THE OUTSIDE DIMENSION FOR DIAMETER, SPAN OR RISE.

PIPE INSTALLATION
(WITH 0.7 PROJECTION RATIO)

CIRCULAR (CIR)			VERTICAL ELLIPTICAL (VE)				HORIZONTAL ELLIPTICAL (HE)			
△ PIPE SIZE= Ba (INSIDE DIA)	WALL THICKNESS	0.3 Bc (OUTSIDE DIA)	SPAN	RISE	WALL THICKNESS	0.3 OUTSIDE RISE	SPAN	RISE	WALL THICKNESS	0.3 OUTSIDE RISE
IN.		FT.	IN.			FT.	IN.			FT.
12	2	0.40								
15	2-1/4	0.49								
18	2-1/2	0.58					23	14	2-3/4	0.49
21	2-3/4	0.66								
24	3	0.75					30	19	3-1/4	0.66
27	3-1/4	0.84					34	22	3-1/2	0.73
30	3-1/2	0.92					38	24	3-3/4	0.79
33	3-3/4	1.01								
36	4	1.10	29	45	4-1/2	1.35	45	29	4-1/2	0.95
42	4-1/2	1.28	34	53	5	1.58	53	34	5	1.10
48	5	1.45	38	60	5-1/2	1.78	60	38	5-1/2	1.23
54	5-1/2	1.62	43	68	6	2.00	68	43	6	1.38
60	6	1.80	48	76	6-1/2	2.23	76	48	6-1/2	1.53
66	6-1/2	1.97	53	83	7	2.43	83	53	7	1.68
72	7	2.15	58	91	7-1/2	2.65	91	58	7-1/2	1.83
78	7-1/2	2.32	63	98	8	2.85	98	63	8	1.98
84	8	2.50	68	106	8-1/2	3.08	106	68	8-1/2	2.13
90	8-1/2	2.68	72	113	9	3.28	113	72	9	2.25
96	9	2.85	77	121	9-1/2	3.50	121	77	9-1/2	2.40
102	9-1/2	3.02	82	128	9-3/4	3.69	128	82	9-3/4	2.54
108	10	3.20	87	136	10	3.90	136	87	10	2.68

△ ALSO EQUIVALENT ROUND DIMENSION FOR ELLIPTICAL PIPE.

DIMENSIONS FOR REINFORCED CONCRETE PIPE
(FOR INFORMATION ONLY)

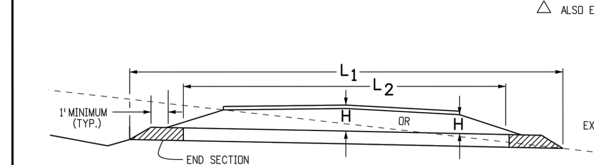
GENERAL NOTES

REINFORCED CONCRETE PIPE

1. FILL HEIGHTS GREATER THAN MAXIMUM ALLOWED IN THE HEIGHTS OF FILL TABLE ON THIS SHEET REQUIRE SPECIAL DESIGN OF STRUCTURE.
2. PIPE DESIGN IS BASED ON SAFETY FACTOR OF 1.33 ON ULTIMATE STRENGTH.
3. THE HEIGHTS OF FILL OVER TOP OF PIPE ARE BASED ON UNIT WEIGHT OF SOIL AT 135 LBS. PER CUBIC FT.
4. PIPE CLASS IS DETERMINED FROM 0.01 IN. CRACK D-LOAD.
5. BEDDING IS CLASS B (MODIFIED) (FROM CONCRETE PIPE DESIGN MANUAL-AMERICAN CONCRETE PIPE ASSOCIATION) WITH SETTLEMENT RATIO R = 0.0 sd (YIELDING BED). BEDDING MATERIAL FOR RIGID PIPE IN SOIL SHALL BE 3 IN. LOOSE THICKNESS STRUCTURE BACKFILL CLASS 2. BEDDING MATERIAL FOR RIGID PIPE IN ROCK SHALL BE 12 IN. LOOSE THICKNESS STRUCTURE BACKFILL CLASS 1.
6. CHANGES IN DESIGN FACTORS REQUIRE COMPENSATING CHANGES IN PIPE DESIGN.
7. MINIMUM WALL THICKNESS DIMENSIONS ARE BASED ON AASHTO M 170 (WALL B) FOR CIRCULAR PIPE, AND AASHTO M 207 FOR ELLIPTICAL PIPE.
8. SPACING FOR MULTIPLE PIPE INSTALLATIONS SHALL CONFORM TO THE DETAILS SHOWN ON STANDARD PLAN M-206-1.
9. WHEN A PIPE IS TO BE EXTENDED, THE SAME PIPE MATERIAL AND SIZE AS IN THE ORIGINAL PIPE INSTALLATION SHALL BE USED.

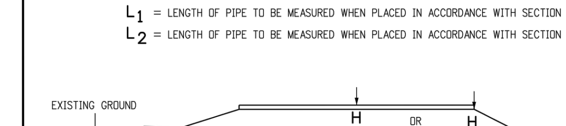
NONREINFORCED CONCRETE PIPE

1. AT THE OPTION OF THE CONTRACTOR, NONREINFORCED CONCRETE PIPE CONFORMING TO AASHTO M 86 MAY BE USED IN LIEU OF REINFORCED CONCRETE PIPE FOR ALL SIZES 36 INCHES IN DIAMETER AND SMALLER. THE NONREINFORCED CONCRETE PIPE SHALL MEET THE SAME D-LOAD TO PRODUCE THE ULTIMATE LOAD UNDER THE THREE-EDGE BEARING METHOD AS SPECIFIED FOR REINFORCED CONCRETE PIPE IN CONFORMANCE WITH AASHTO M 170. THE CONTRACTOR SHALL PROVIDE WRITTEN CERTIFICATION OF CONFORMACE. THE WALL THICKNESS OF THE NONREINFORCED PIPE MAY BE INCREASED AS REQUIRED TO MEET D-LOAD REQUIREMENT.
2. ALL REQUIREMENTS FOR REINFORCED CONCRETE PIPE, EXCEPT THOSE REFERRING TO REINFORCEMENT, SHALL APPLY TO NONREINFORCED CONCRETE PIPE.

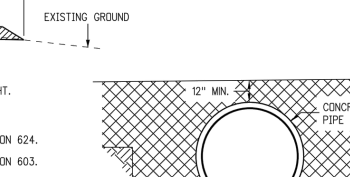


CONCRETE PIPE WITH END SECTIONS
NOTE: USE THE H THAT IS GREATER FOR MAXIMUM ALLOWABLE FILL HEIGHT.

H = HEIGHT OF FILL OVER TOP OF PIPE, INCLUDING PAVEMENT THICKNESS.
L_1 = LENGTH OF PIPE TO BE MEASURED WHEN PLACED IN ACCORDANCE WITH SECTION 624.
L_2 = LENGTH OF PIPE TO BE MEASURED WHEN PLACED IN ACCORDANCE WITH SECTION 603.



CONCRETE PIPE WITHOUT END SECTIONS
NOTE: USE THE H THAT IS GREATER FOR MAXIMUM ALLOWABLE FILL HEIGHT.



CONSTRUCTION
MINIMUM COVER FOR RIGID PIPE

TYPE OF PIPE	HEIGHT OF FILL OVER TOP OF PIPE, H (FEET)				
	CLASS OF PIPE (0.01 IN. CRACK D-LOAD)				
	CLASS CIR II CLASS VE II CLASS HE II 1000 D	CLASS CIR III CLASS VE III CLASS HE III 1350 D	CLASS CIR IV CLASS VE IV CLASS HE IV 2000 D	CLASS CIR V CLASS VE V —— 3000 D	—— CLASS VE VI —— 4000 D
CIRCULAR (CIR)	1 TO 18	1 TO 25	± 25 TO 37	± 37 TO 45	
VERTICAL ELLIPTICAL (VE)	1 TO 18	1 TO 25	± 25 TO 37	± 37 TO 45	± 45 TO 62
HORIZONTAL ELLIPTICAL (HE)	1 TO 18	1 TO 25	± 25 TO 37		

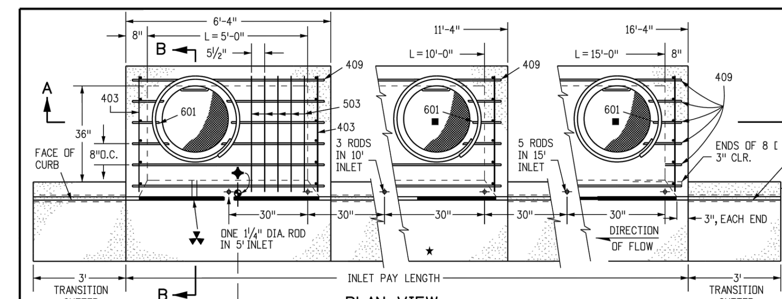
ALLOWABLE RANGE OF HEIGHTS FOR FILL
OVER REINFORCED CONCRETE PIPE
(ALL SIZES)

Computer File Information			Sheet Revisions	
Creation Date: 07/04/12	Initials: DLM	(R-X)	Date:	Comments
Last Modification Date: 10/02/14	Initials: LTA	(R-X)	3/25/14	Made Min. Cover for Rigid Pipe detail like others. Deleted Gen Note 1 & renumbered.
Full Path: www.coloradodot.info/business/designsupport		(R-X)	4/11/14	Changed "Min." to 1 in Heights table.
Drawing File Name: 603020101.dgn		(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English		(R-X)		

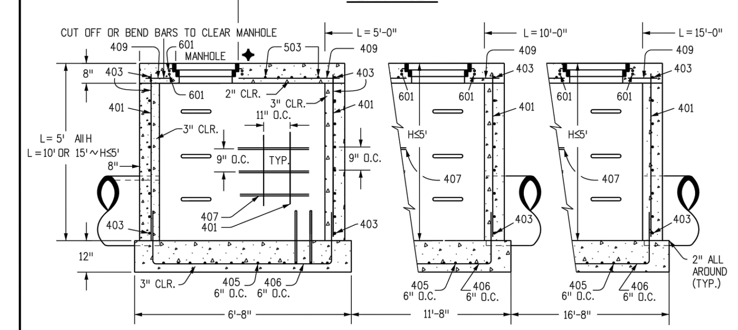
Colorado Department of Transportation
4201 East Arkansas Avenue
CDOT HQ, 4th Floor
Denver, CO 80222
Phone: 303-757-9021 FAX: 303-757-9868
Division of Project Support DLM/LTA

REINFORCED CONCRETE PIPE
Issued By: Project Development Branch on July 4, 2012

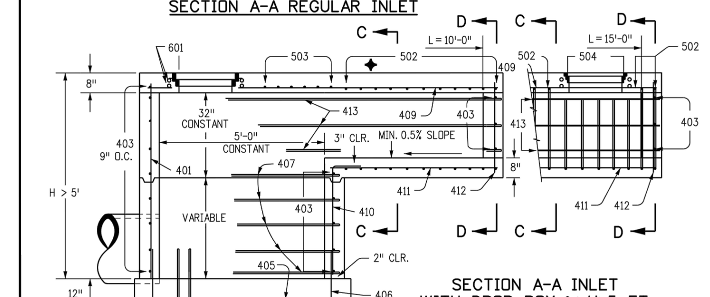
STANDARD PLAN NO.
M-603-2
Sheet No. 1 of 1



PLAN VIEW



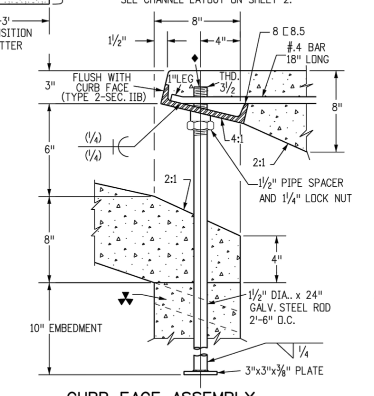
SECTION A-A REGULAR INLET



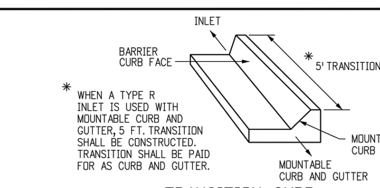
SECTION A-A INLET
WITH DROP BOX ~ H>5 FT.

★ FOR LENGTH (L) 10 FT. OR MORE, PROVIDE MAINTENANCE ACCESS AT BOTH ENDS WITH AN ADDITIONAL MANHOLE RING AND COVER. CUT REINFORCEMENT BAR ACCORDINGLY.

◆ STATION POINT AT MIDPOINT OF INLET ALONG FLOWLINE



CURB FACE ASSEMBLY
◆ PLACE ENTIRE ASSEMBLY BEFORE POURING CONCRETE.

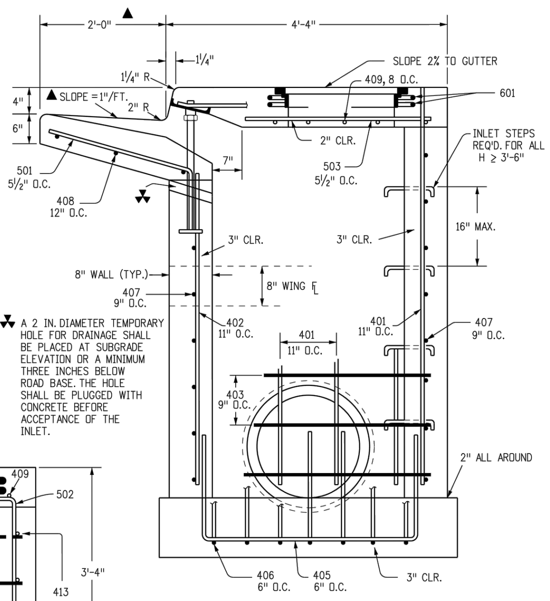


✱ WHEN A TYPE R INLET IS USED WITH MOUNTABLE CURB AND GUTTER, 5 FT. TRANSITION SHALL BE CONSTRUCTED. TRANSITION SHALL BE PAID FOR AS CURB AND GUTTER.

TRANSITION CURB

▲ - FOR A 1'-0" PAN SLOPE 2" PER FT.

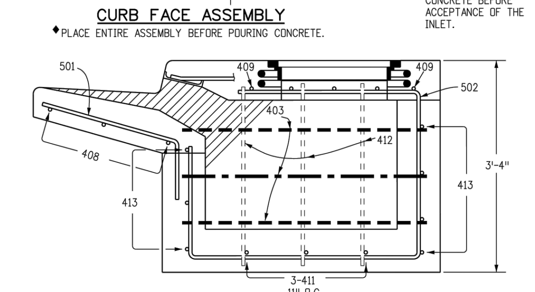
GENERAL NOTES:
SEE SHEET 2.



▲▲ A 2 IN. DIAMETER TEMPORARY HOLE FOR DRAINAGE SHALL BE PLACED AT SUBGRADE ELEVATION OR A MINIMUM THREE INCHES BELOW ROAD BASE. THE HOLE SHALL BE PLUGGED WITH CONCRETE BEFORE ACCEPTANCE OF THE INLET.

SECTION B-B
END VIEW

NOTE: MANHOLE RING AND COVER, STATION POINT AND OUTFLOW PIPE SHALL BE LOCATED AT THE SAME END OF THE INLET.



SECTIONS C-C & D-D (DOTTED BARS ARE IN SECTION D-D)

Computer File Information			Sheet Revisions	
Creation Date: 07/04/12	Initials: DD	(R-X)	Date:	Comments
Last Modification Date: 07/04/12	Initials: LTA	(R-X)		
Full Path: www.coloradodot.info/business/designsupport		(R-X)		
Drawing File Name: 6040120102.dgn		(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English		(R-X)		

Colorado Department of Transportation
4201 East Arkansas Avenue
Denver, Colorado 80222
Phone: (303) 757-9083
Fax: (303) 757-9820
Project Development Branch DD/LTA

CURB INLET TYPE R
Issued By: Project Development Branch July 4, 2012

STANDARD PLAN NO.
M-604-12
Sheet No. 1 of 2

MARK	BAR # OR SIZE	O.C. SPACING	TYPE	ALL INLETS L = 5 FT. NO. REQ'D.	LENGTH	INLETS: H ≤ 5 FT. L = 10 FT. NO. REQ'D.	LENGTH	L = 15 FT. NO. REQ'D.	LENGTH	INLETS: H > 5 FT. L = 10 FT. NO. REQ'D.	LENGTH	L = 15 FT. NO. REQ'D.	LENGTH
401	4	11"	II	15	*	21	*	26	*	11	*	11	*
402	4	11"	II	7	*	13	*	18	*	7	*	7	*
403	4	9"	II	*	4'-0"	*	4'-0"	*	4'-0"	*	4'-0"	*	4'-0"
405	4	6"	VI	11	6'-10"	21	6'-10"	31	6'-10"	11	6'-10"	11	6'-10"
406	4	6"	VIII	7	8'-10"	7	13'-10"	7	18'-10"	7	8'-10"	7	8'-10"
407	4	9"	II	*	5'-10"	*	10'-10"	*	15'-10"	*	5'-10"	*	5'-10"
408	4	12"	II	3	6'-10"	3	11'-10"	3	16'-0"	3	11'-10"	3	16'-0"
409	4	8"	II	6	5'-10"	6	10'-10"	6	15'-10"	6	10'-10"	6	15'-10"
410	4	11"	VII							3		3	*
411	4	11"	II							3	5'-2"	3	10-2"
412	4	11"	II							3	2'-9"	3	2'-9"
413	4	9"	II							7	10'-10"	7	15'-10"
501	5	5½"	IV	11	3'-4"	22	3'-4"	33	3'-4"	22	3'-4"	33	3'-4"
502	5	5½"	III							11	11'-5"	17	11'-5"
503	5	5½"	II	5	3'-6"	16	3'-6"	27	3'-6"	6	3'-6"	6	3'-6"
504	5	5½"	IX									5	8'-4"
601	6	2½"	V	2	8'-10"	2	8'-10"	2	8'-10"	2	8'-10"	4	8'-10"
■8[8.5				1	5'-10"	1	10'-10"	1	15'-10"	1	10'-10"	1	15'-10"
				2 BARS, 1 ROD	——	4 BARS, 3 RODS	——	8 BARS, 5 RODS	——	4 BARS, 3 RODS	——	8 BARS, 5 RODS	——

REGULAR INLETS — DROP BOX INLETS

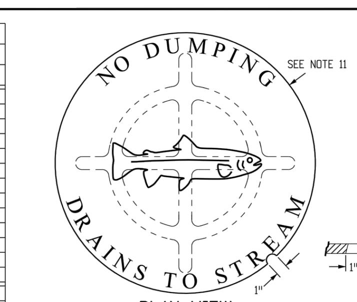
✱ VARIABLE REFER TO TABLE TWO.
■ INCLUDE #4, 18 IN. BARS (SEE CHANNEL LAYOUT).

TABLE ONE ~ BAR LIST FOR CURB INLETS, TYPE "R"

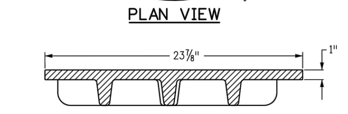
"H"	LENGTH 401	402	410	NO. REQ'D. REGULAR 403	407	NO. REQ'D. DROP BOX 403	407	L = 5 FT. CONC. CU. YDS.	STEEL LBS.	L = 10 FT. CONC. CU. YDS.	STEEL LBS.	L = 15 FT. CONC. CU. YDS.	STEEL LBS.
3'-0"	2'-8"	1'-8"		10	7			3.2	285	5.3	497	7.4	706
3'-6"	3'-2"	2'-2"		10	7			3.4	305	5.7	528	7.9	747
4'-0"	3'-8"	2'-8"		12	9			3.7	326	6.0	559	8.4	786
4'-6"	4'-2"	3'-2"		12	9			3.9	334	6.4	571	8.8	803
5'-0"	4'-8"	3'-8"		14	11			4.1	354	6.7	602	9.3	844
5'-6"	5'-2"	4'-2"	3'-5"	16	13	15	6	4.4	375	6.0	607	7.4	850
6'-0"	5'-8"	4'-8"	3'-11"	16	13	16	6	4.6	382	6.2	616	7.6	860
6'-6"	6'-2"	5'-2"	4'-5"	18	15	18	8	4.8	402	6.4	637	7.8	880
7'-0"	6'-8"	5'-8"	4'-11"	20	17	19	10	5.0	423	6.6	654	8.0	897
7'-6"	7'-2"	6'-2"	5'-5"	20	17	20	10	5.3	430	6.9	664	8.3	907
8'-0"	7'-8"	6'-8"	5'-11"	22	19	22	12	5.5	451	7.1	684	8.5	927
8'-6"	8'-2"	7'-2"	6'-5"	24	21	23	14	5.7	471	7.3	702	8.7	944
9'-0"	8'-8"	7'-8"	6'-11"	24	21	24	14	6.0	479	7.6	711	9.0	954
9'-6"	9'-2"	8'-2"	7'-5"	26	23	26	16	6.2	499	7.8	732	9.2	974
10'-0"	9'-8"	8'-8"	7'-11"	28	25	27	18	6.4	520	8.0	749	9.4	992
10'-6"	10'-2"	9'-2"	8'-5"	28	25	28	18	6.7	527	8.3	759	9.7	1001
11'-0"	10'-8"	9'-8"	8'-11"	30	27	30	20	6.9	547	8.5	779	9.9	1022

NOTES: FOR L = 5 FT., L = 10 FT., AND L = 15 FT.
REGULAR INLETS: TOTAL QUANTITIES NEEDED ARE OUTSIDE THE HEAVY BLACK LINE.
DROP BOX INLETS: TOTAL QUANTITIES NEEDED ARE INSIDE THE HEAVY BLACK LINE.
STEEL WEIGHTS DO NOT INCLUDE STRUCTURAL STEEL CHANNEL.

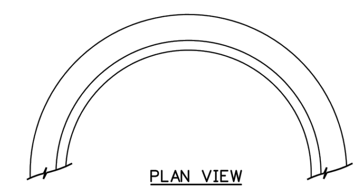
TABLE TWO ~ BARS AND QUANTITIES VARIABLE WITH "H"



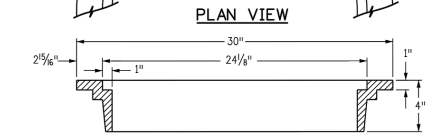
PLAN VIEW



ELEVATION VIEW
MANHOLE COVER (TYP.)



PLAN VIEW

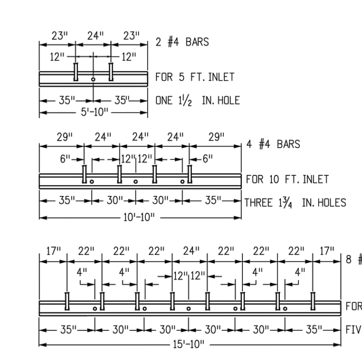


ELEVATION VIEW
MANHOLE RING (TYP.)

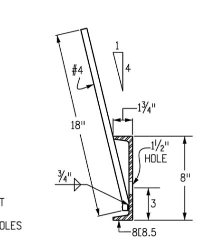
WEIGHTS: COVER = 125 LBS.
+ RING = 135 LBS.
TOTAL = 260 LBS.

GENERAL NOTES

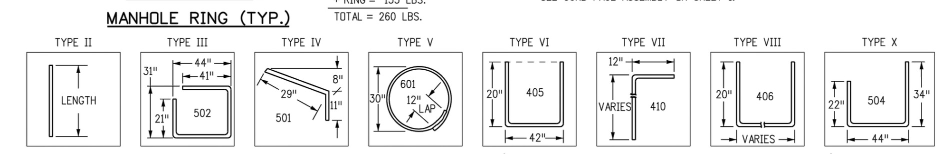
1. CONCRETE SHALL BE CLASS B. INLET MAY BE CAST-IN-PLACE OR PRECAST.
2. CONCRETE WALLS SHALL BE FORMED ON BOTH SIDES AND SHALL BE 8 IN. THICK.
3. INLET STEPS SHALL BE IN CONFORMANCE WITH AASHTO M 199.
4. CURB FACE ASSEMBLY SHALL BE GALVANIZED AFTER WELDING.
5. EXPOSED CONCRETE CORNERS SHALL BE CHAMFERED ¾ IN. CURB AND GUTTER CORNERS SHALL BE FINISHED TO MATCH THE EXISTING CURB AND GUTTER BEYOND THE TRANSITION GUTTER.
6. REINFORCING BARS SHALL BE DEFORMED AND SHALL HAVE A 2 IN. MINIMUM CLEARANCE. ALL REINFORCING BARS SHALL BE EPOXY COATED.
7. DIMENSIONS AND WEIGHTS OF TYPICAL MANHOLE RING AND COVER ARE NOMINAL.
8. MATERIAL FOR MANHOLE RINGS AND COVERS SHALL BE GRAY OR DUCTILE CAST IRON IN ACCORDANCE WITH SUBSECTION 712.06.
9. SINCE PIPE ENTRIES INTO THE INLET ARE VARIABLE, THE DIMENSIONS SHOWN ARE TYPICAL. ACTUAL DIMENSIONS AND QUANTITIES FOR CONCRETE AND REINFORCEMENT SHALL BE AS REQUIRED IN THE WORK. QUANTITIES INCLUDE VOLUMES OCCUPIED BY PIPES.
10. STRUCTURAL STEEL SHALL BE GALVANIZED AND SHALL BE IN ACCORDANCE WITH SUBSECTION 712.06.
11. ALL MANHOLE COVERS SHALL BE CAST WITH A "NO DUMPING DRAINS TO STREAM" MESSAGE AND A FISH SYMBOL. THE SURFACE OF THE MANHOLE COVER SHALL HAVE A NON-SLIP PATTERN.



CHANNEL LAYOUT DETAILS
SEE CURB FACE ASSEMBLY ON SHEET 1.



SECTION AT HOLE (TYP.)



BAR BENDING DIAGRAMS ~ (DIMENSIONS ARE OUT-TO-OUT OF BAR)

Computer File Information			Sheet Revisions	
Creation Date: 07/04/12	Initials: DD	(R-X)	Date:	Comments
Last Modification Date: 07/04/12	Initials: LTA	(R-X)		
Full Path: www.coloradodot.info/business/designsupport		(R-X)		
Drawing File Name: 6040120202.dgn		(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English		(R-X)		

Colorado Department of Transportation
4201 East Arkansas Avenue
Denver, Colorado 80222
Phone: (303) 757-9083
Fax: (303) 757-9820
Project Development Branch DD/LTA

CURB INLET TYPE R
Issued By: Project Development Branch July 4, 2012

STANDARD PLAN NO.
M-604-12
Sheet No. 2 of 2

Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 SOUTH SYRACUSE WAY, SUITE 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

CLIENT
COHEN DENVER AIRPORT, LLC
LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
CONSTRUCTION PLANS
CONSTRUCTION DETAILS
STORM DETAILS 01

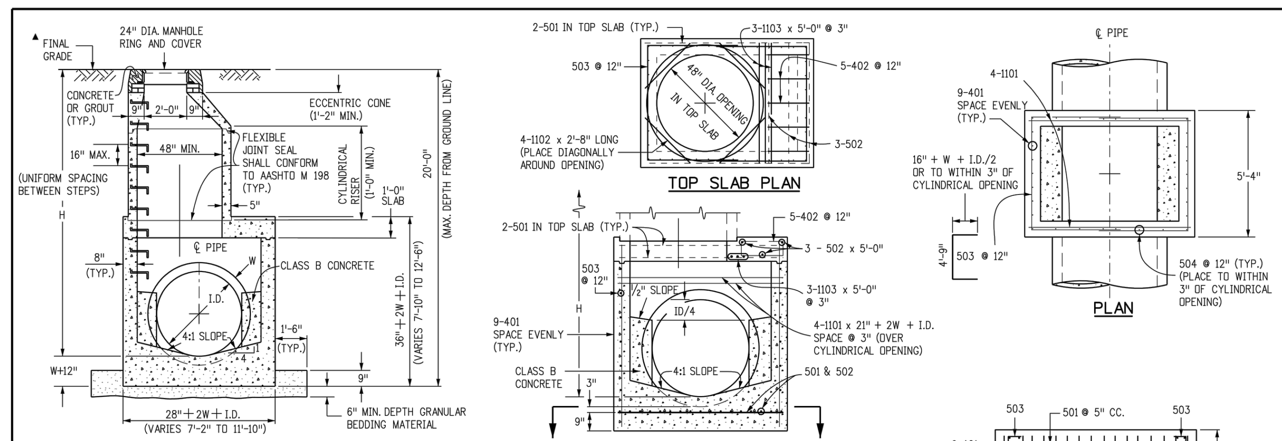
DATE 6/14/2021

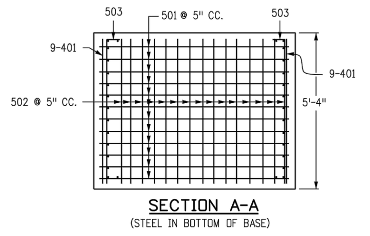
A	1ST SUBMITTAL TO COMMERCE CITY 08/17/2020 – DJM
B	2ND SUBMITTAL TO COMMERCE CITY 03/15/2021 – DJM
C	3RD SUBMITTAL TO COMMERCE CITY 06/11/2021 – DJM

REVISIONS

DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 37

CAD FILE: 19002561-STORM DETAILS.DWG





GENERAL NOTES

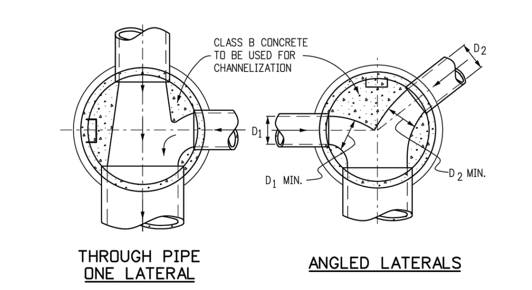
1. SINCE ALL PIPE ENTRIES INTO THE BASE ARE VARIABLE, THE DIMENSIONS SHOWN ARE TYPICAL. ACTUAL DIMENSIONS AND QUANTITIES FOR CONCRETE AND REINFORCEMENT SHALL BE AS REQUIRED IN THE WORK.
2. THE PRECAST FLAT TOP MAY BE USED ON ANY MANHOLE. THE ECCENTRIC CONE MAY BE USED WHEN THE MANHOLE "H" HEIGHT IS AT LEAST 8 FT.
3. THE MANHOLE RING FRAME SHALL BE SET IN A BED OF GROUT. THE FRAME SHALL BE SURROUNDED WITH A CEMENT GROUT IN UNPAVED AREA, OR A CONCRETE COLLAR IN PAVED AREA. SEE DETAILS ON SHEETS 2 AND 3.
4. DESIGN OF BOX BASE IS BASED ON STRAIGHT RUNS OF PIPE OR CHANGE IN DIRECTION OF LESS THAN 45°. SPECIAL DESIGN IS REQUIRED FOR 45° OR GREATER.
5. PRECAST MANHOLES AND REINFORCEMENT SHALL CONFORM TO AASHTO M 199 (ASTM C 478).
6. CAST-IN-PLACE MANHOLES SHALL BE CLASS B CONCRETE.
7. STEPS SHALL BE REQUIRED WHEN THE MANHOLE DEPTH EXCEEDS 3 FT.-6 IN. AND SHALL CONFORM TO AASHTO M 199.
8. ALL REINFORCING STEEL SHALL BE GRADE 60 AND EPOXY COATED. VERTICAL STEEL SHALL BE PLACED AT CENTERLINE OF WALL. ALL BARS SHALL HAVE A 2 IN. MINIMUM CLEARANCE.
9. ALL PIPE ENTRIES INTO THE BASE OF MANHOLE SHALL BE CONNECTED BY OPEN CHANNELIZATION ADJUSTED FOR PIPE SIZE, SHAPE, SLOPE, AND DIRECTION OF FLOW. DETAILS SHOWN ARE TYPICAL FOR INSTALLATIONS WITH ALL INVERTS OF SAME RELATIVE ELEVATION. FOR EXCESSIVE ELEVATION DIFFERENCE BETWEEN INVERTS, SPECIAL BASE/CHANNEL DETAILS WILL BE SHOWN ON THE PLANS.
10. FLOW CHANNELS AND INVERTS SHALL BE FORMED BY SHAPING WITH CLASS B CONCRETE OR APPROVED GROUT.
11. STUB-OUTS SHALL EXTEND 2 FT. MINIMUM BEYOND OUTSIDE WALL SURFACE OF MANHOLE AND BE SATISFACTORILY PLUGGED.
12. THE SLOPE OF THE MANHOLE COVER SHALL MATCH THE ROADWAY PROFILE AND CROSS SLOPE.

▲ WHEN FINAL GRADE IS PAVEMENT SURFACE, RECESS MANHOLE RING AND COVER 1/4" MIN. TO 1/2" MAX.

MARK	SIZE	TYPE	WT. #/FT.	BARS	I.D. 54"	60"	66"	72"	84"	96"	FORMULAS
401	4	I	0.668	NO. REQ'D. LENGTH WEIGHT *	18 8'-1" 97.2	18 8'-8" 104.2	18 9'-3" 111.2	18 9'-10" 118.2	18 11'-0" 132.3	18 12'-2" 146.3	401 BAR LENGTH = 32" + 2W + I.D.
402	4	III	0.668	NO. REQ'D. LENGTH WEIGHT *	5 5'-5" 18.1	5 6'-0" 20.0	5 6'-7" 22.0	5 7'-2" 23.9	5 8'-4" 27.8	5 9'-6" 31.7	402 BAR LENGTH = I.D. + 2W
501	5	I	1.043	NO. REQ'D. LENGTH WEIGHT *	17 7'-5" 131.5	17 8'-0" 141.8	17 8'-7" 152.2	17 9'-2" 162.5	17 10'-4" 183.2	17 11'-6" 203.9	501 BAR LENGTH = 24" + I.D. + 2W
502	5	I	1.043	NO. REQ'D. LENGTH WEIGHT *	22 5'-0" 114.7	23 5'-0" 119.9	25 5'-0" 130.4	26 5'-0" 135.6	29 5'-0" 151.2	32 5'-0" 166.9	502 NUMBER BARS REQ'D. = $3 + \left(\frac{24+I.D.+2W}{@\ 5"}+1\right)$
503	5	II	1.043	NO. REQ'D. LENGTH WEIGHT *	16 12'-10" 214.2	16 13'-5" 223.9	18 14'-0" 262.8	18 14'-7" 273.8	20 15'-9" 328.5	24 16'-11" 423.5	503 NUMBER BARS REQ'D. = $2\left(\frac{13+I.D.+2W}{@\ 12"}+1\right)$ BAR LENGTH = 4'-9"+2(16+W+I.D./2)
504	5	I	1.043	NO. REQ'D. LENGTH WEIGHT *	12 8'-1" 101.2	14 8'-8" 126.6	14 9'-3" 135.1	16 9'-10" 164.1	18 11'-0" 206.5	20 12'-2" 253.8	504 NUMBER BARS REQ'D. = $2\left(\frac{2W+I.D.-4}{@\ 12"}+1\right)$ BAR LENGTH = 32"+2W+I.D.
1101	11	I	5.313	NO. REQ'D. LENGTH WEIGHT *	4 7'-2" 152.3	4 7'-9" 164.7	4 8'-4" 177.1	4 8'-11" 189.5	4 10'-1" 214.3	4 11'-3" 239.1	1101 BAR LENGTH = 21" + I.D. + 2W
1102	11	I	5.313	NO. REQ'D. LENGTH WEIGHT *	4 2'-8" 56.7	4 2'-8" 56.7	4 2'-8" 56.7	4 2'-8" 56.7	4 2'-8" 56.7	4 2'-8" 56.7	BENDING TYPE I STRAIGHT
1103	11	I	5.313	NO. REQ'D. LENGTH WEIGHT *	3 5'-0" 79.7	3 5'-0" 79.7	3 5'-0" 79.7	3 5'-0" 79.7	3 5'-0" 79.7	3 5'-0" 79.7	TYPE II 4'-9" 16"+W+I.D./2
* REINFORCING STEEL TOTAL					965.6	1,037.5	1,127.2	1,204.0	1,380.2	1,601.6	TYPE III 12" 12" 7" I.D.+2W-38"
CONCRETE - CUBIC YARDS - TOTAL					6.0	6.6	7.3	8.0	9.5	11.1	

NOTE: QUANTITIES ARE BASED ON SAME SIZE PIPE ENTRANCE TO AND EXIT FROM, BASE AND A 4 FT. MANHOLE ENTRANCE INTO TOP SLAB OF BASE.

QUANTITIES FOR CONCRETE MANHOLE BOX BASE



TYPICAL CHANNELIZATION DETAILS

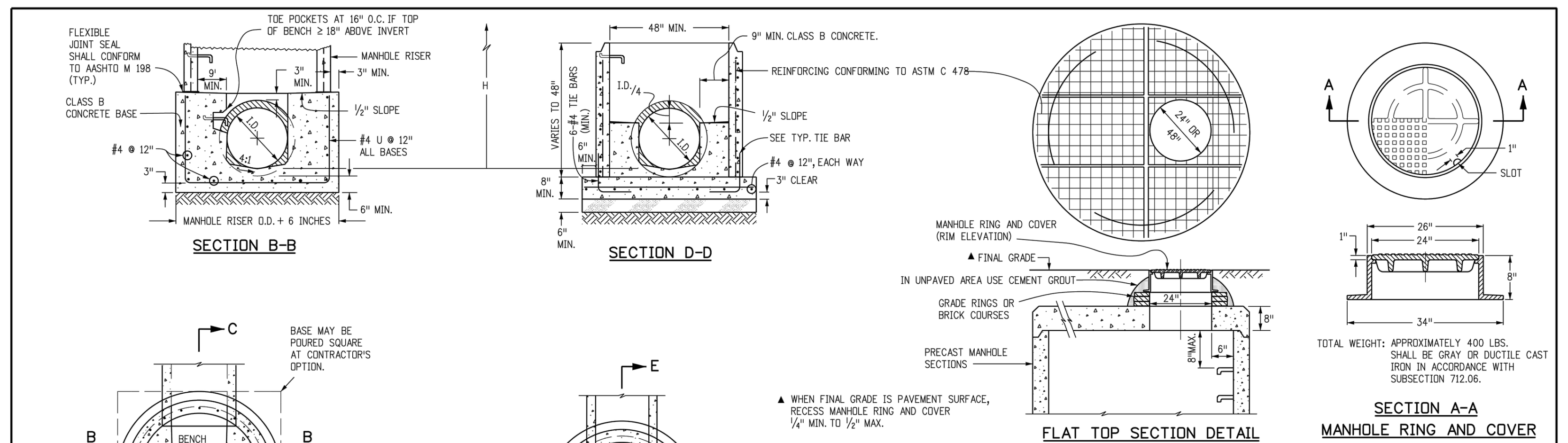
Computer File Information		Sheet Revisions	
Creation Date: 07/04/12	Initials: DD	Date:	Comments
Last Modification Date: 07/04/12	Initials: LTA		
Full Path: www.coloradodot.info/business/designsupport			
Drawing File Name: M06040200103.dgn			
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English			

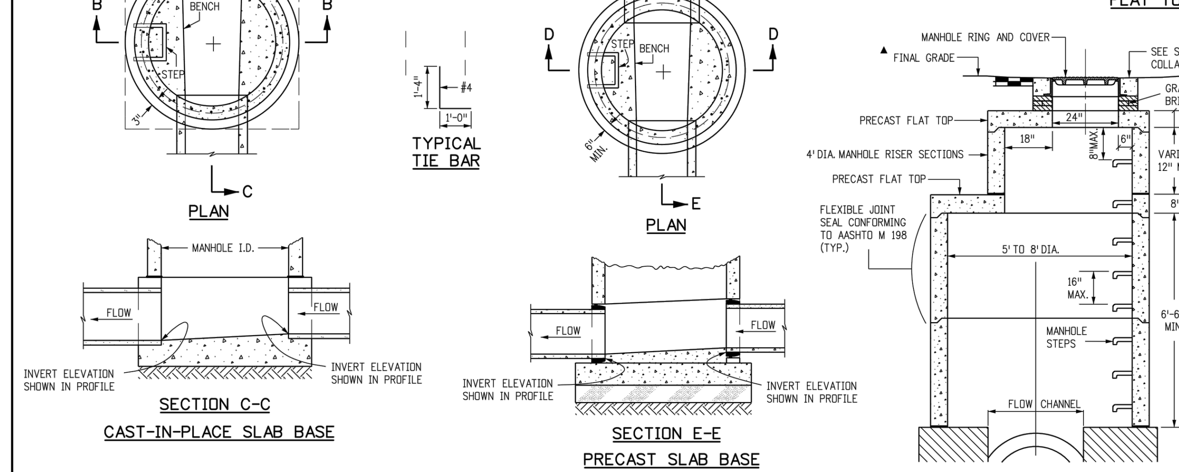
Colorado Department of Transportation
4201 East Arkansas Avenue
Denver, Colorado 80222
Phone: (303) 757-9083
Fax: (303) 757-9820
Project Development Branch DD/LTA

MANHOLES

Issued By: Project Development Branch July 4, 2012

STANDARD PLAN NO. M-604-20 Sheet No. 1 of 3





LEGEND

- SUITABLE SUBGRADE
- GRANULAR BEDDING MATERIAL
- CONCRETE

PRECAST MANHOLE BASES NOTES:

1. THE BASE SLAB SHALL BE POURED MONOLITHICALLY WITH BOTTOM RISER SECTION.
2. PRECAST MANHOLE BASES SHALL FIT THE CONDITIONS AND LOCATIONS FOR WHICH THEY ARE INTENDED WITHOUT ANY FIELD MODIFICATIONS. ANY MANHOLE BASE WHICH REQUIRES FIELD CUTTING OR MODIFICATION IN ORDER TO FIT THE LOCATIONS INTENDED WILL BE REJECTED BY THE ENGINEER AND REMOVED AND REPLACED BY THE CONTRACTOR AT NO COST TO THE DEPARTMENT.
3. PRECAST MANHOLE BASES SHALL BE BEDDED ON AN APPROVED GRANULAR BEDDING MATERIAL AS SHOWN ABOVE.

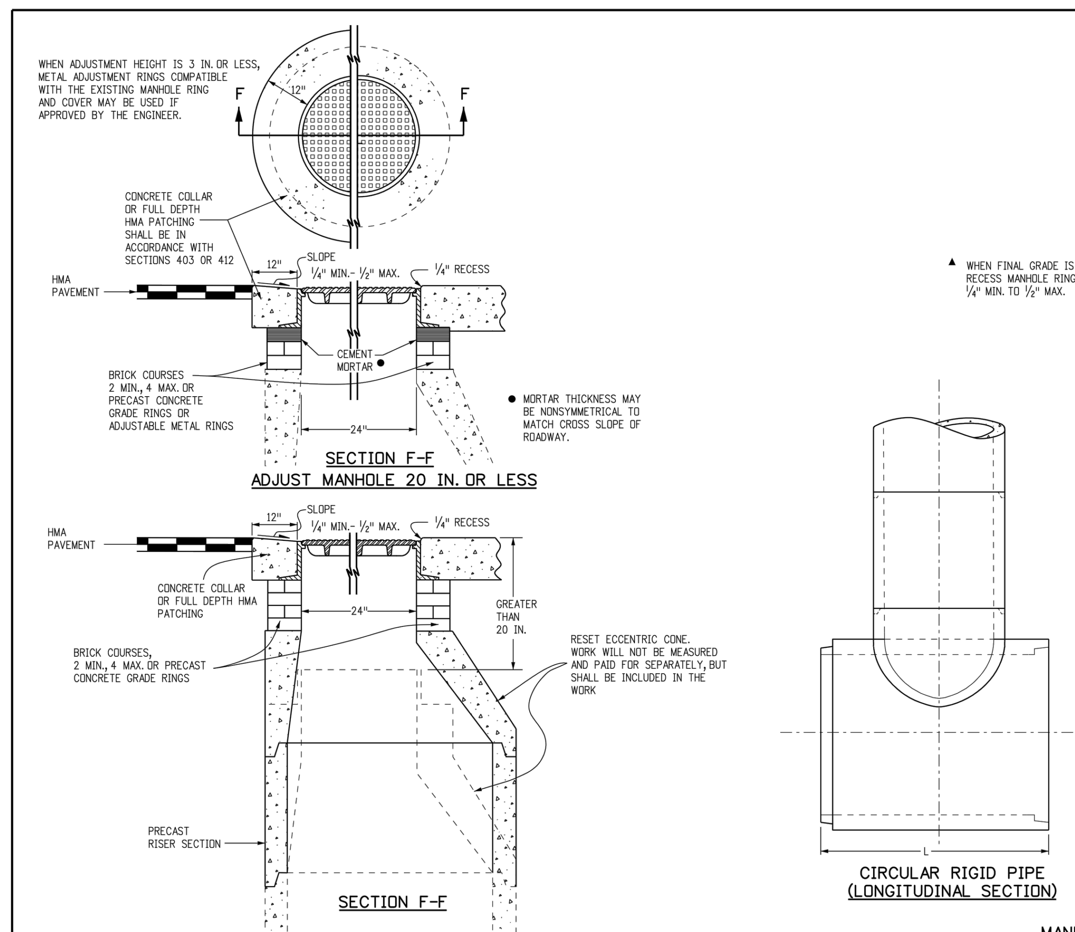
Computer File Information		Sheet Revisions	
Creation Date: 07/04/12	Initials: DD	Date:	Comments
Last Modification Date: 07/04/12	Initials: LTA		
Full Path: www.coloradodot.info/business/designsupport			
Drawing File Name: M06040200203.dgn			
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English			

Colorado Department of Transportation
4201 East Arkansas Avenue
Denver, Colorado 80222
Phone: (303) 757-9083
Fax: (303) 757-9820
Project Development Branch DD/LTA

MANHOLES

Issued By: Project Development Branch July 4, 2012

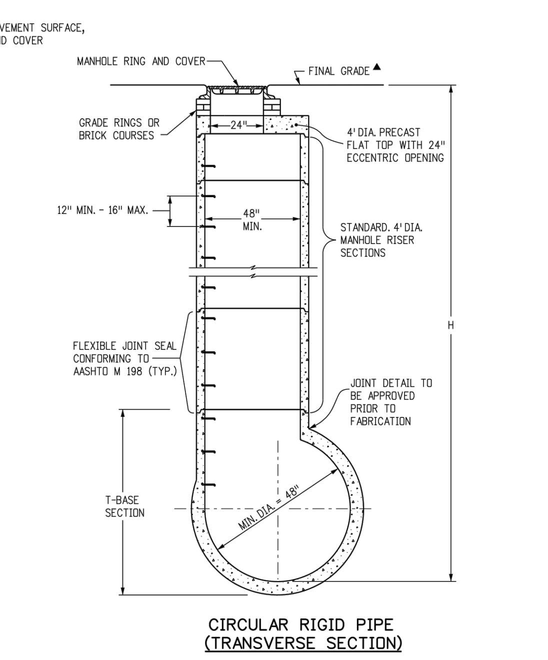
STANDARD PLAN NO. M-604-20 Sheet No. 2 of 3



T-BASE MANHOLES NOTES

1. THE T-BASE SECTION SHALL BE SHOP-FABRICATED FOR DELIVERY TO THE CONSTRUCTION SITE AS A COMPLETE UNIT.
2. THESE DETAILS SHOW ONLY THE CONCEPTUAL AND STANDARD DIMENSIONAL REQUIREMENTS FOR TYPE T-BASE MANHOLES. THE CONTRACTOR SHALL FURNISH DETAILED SHOP DRAWINGS FOR APPROVAL PRIOR TO FABRICATION. THE DETAILS SHOWN HEREIN APPLY ONLY TO 48 IN. AND GREATER DIAMETER PIPES.
3. EXCEPT FOR CLASS OF PIPE, SPECIFICATIONS FOR THE MANHOLE SHALL BE THE SAME AS THOSE REQUIRED FOR THE ADJOINING PIPE.
4. THE T-BASE SECTION SHALL MAINTAIN ITS INTERNAL SHAPE AND FLOW AREA. GROUTING OR FILLING SHALL BE APPLIED SO AS TO NOT DISTURB THE NORMAL FLOW OR REDUCE THE AREA.

▲ WHEN FINAL GRADE IS PAVEMENT SURFACE, RECESS MANHOLE RING AND COVER 1/4" MIN. TO 1/2" MAX.



MANHOLE T-BASE

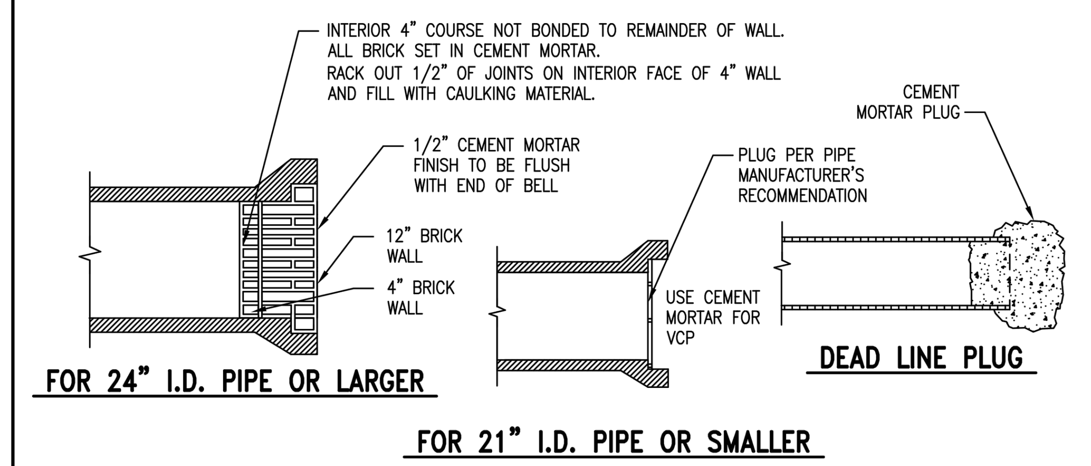
Computer File Information		Sheet Revisions	
Creation Date: 07/04/12	Initials: DD	Date:	Comments
Last Modification Date: 07/04/12	Initials: LTA		
Full Path: www.coloradodot.info/business/designsupport			
Drawing File Name: 6040200303.dgn			
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English			

Colorado Department of Transportation
4201 East Arkansas Avenue
Denver, Colorado 80222
Phone: (303) 757-9083
Fax: (303) 757-9820
Project Development Branch DD/LTA

MANHOLES

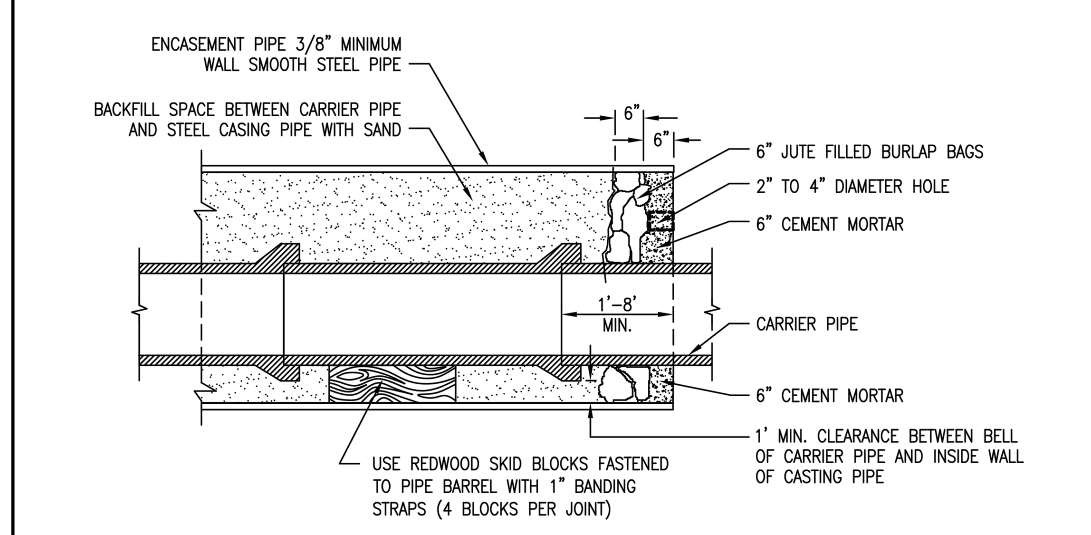
Issued By: Project Development Branch July 4, 2012

STANDARD PLAN NO. M-604-20 Sheet No. 3 of 3



STANDARD PLUGS FOR UNCONNECTED PIPES

NOT TO SCALE



TYPICAL PIPE ENCASEMENT

NOT TO SCALE

APPROVED: /S/ DIRECTOR OF PUBLIC WORKS Aug 28,2006 DATE	CITY OF SIMI VALLEY DEPARTMENT OF PUBLIC WORKS	STANDARD PLUGS AND PIPE ENCASEMENTS	STANDARD PLAN NO. SV 40-90 SHEET 1 OF 1

include special detail for inlets with pipes greater than 18" entering/exiting the sides

Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 SOUTH SYRACUSE WAY, SUITE 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

CLIENT COHEN DENVER AIRPORT, LLC

LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
CONSTRUCTION PLANS
CONSTRUCTION DETAILS
STORM DETAILS 02

DATE 6/14/2021

	REVISIONS
A	1ST SUBMITTAL TO COMMERCE CITY 08/17/2020 – DJM
B	2ND SUBMITTAL TO COMMERCE CITY 03/15/2021 – DJM
C	3RD SUBMITTAL TO COMMERCE CITY 06/11/2021 – DJM

DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 38

CAD FILE: 19002561-STORM DETAILS.DWG

K:\19002561\DWG\PLAN SETS\CONSTRUCTION\STORM\19002561-STORM DETAILS.DWG 6/14/2021 5:12 PM SCOTT ZIMMERMANN

FINAL DRAINAGE STUDY

For:

LEGATO – Filing No. 2

COMMERCE CITY, COLORADO

Prepared for

COHEN DENVER AIRPORT, LLC
2600 Paseo Verde Parkway, Suite 250
Henderson, NV 89074
ATTN: BRAD BURNS
702-355-1400

Submitted by: Atwell, LLC

DANIEL MADRUGA, P.E.
6200 SOUTH SYRACUSE WAY
GREENWOOD VILLAGE, CO 80111
303-825-7100

PROJECT NO. 19002561

SUBMITTAL DATE: 06/13/2021

Table of Contents

GENERAL LOCATION AND DESCRIPTION 1
Soil Conditions 1
DRAINAGE BASINS AND SUB-BASINS 1
Major Drainage Basins 1
Historical Drainage Basins 2
PROPOSED DRAINAGE 3
Onsite Major Drainage Basins 3
DRAINAGE DESIGN CRITERIA 10
Regulations 10
Drainage Studies, Outfall Systems Plans, Site Constraints 10
Hydrologic Criteria 11
Hydraulic Criteria 11
DRAINAGE FACILITY DESIGN 11
General Concept 11
Specific Details 12
Stormwater Conveyance Facilities 12
Stormwater Storage Facilities 13
CONCLUSIONS 14
Compliance with Standards 14
Drainage Concept 14
REFERENCES 16

APPENDICES

A. VICINITY MAP
B. SOILS SURVEY
C. FIRMETTE
D. HYDROLOGICAL CALCULATIONS
E. HYDRAULIC CALCULATIONS
F. REFERENCE MATERIALS
G. DRAINAGE MAPS

CERTIFICATION STATEMENT

"I hereby certify that this Final Drainage Study for the ***Legato Filing 2*** *development was prepared by me (or under my direct supervision) in accordance with the provisions of the* ***City of Commerce City Storm Drainage Design and Technical Criteria Manual*** *for the owners thereof."*

_____

Daniel Madruga*, Registered Professional Engineer*

State of Colorado ***No. LICENSE 36834***

GENERAL LOCATION AND DESCRIPTION

The Legato West Filing No. 2 property (herein after referred to as "Site") is located within the City of Commerce City in Section 22, Township 2 South, Range 66 West of the 6th Meridian. The Site is a proposed single-family development on approximately 32.4 acres located in the west center portion of the Legato West Planned Unit Development (PUD), just east of Argonne Street and north of E. 90th Avenue.

This Site is at located near the intersection of Legato West Parkway and Cathay Court and consists of Tracts C1 and D1 identified in the Legato West Final Plat. Filing 2 is split by Legato Parkway. Tract D1 is on the north and is bordered by Legato Parkway on the south, Cathay Court/E. 93rd Place on the east, Tract A on the west and Filing 1 (Tract D2) on the north. Tract C1 is bordered by Legato Parkway on the north, Tract B on the west, Tract C2 on the east and E. 90th Avenue on the south. Tracts A, B and C2 will be future residential filings, of varying densities, as the project develops. Phase 1 of the Legato West Construction Documents will construct Legato Parkway, E. 90th Avenue (up to the entrance of Filing 2), Argonne St, E. 94th Avenue, Biscay St, Cathay Court and E. 93rd Place. This construction will provide access and the necessary utility infrastructure interconnections for this residential development.

The proposed Filing 2 residential development is designated as Medium-density Residential with a total of 131 single-family detached residential units. The site is located in the west central portion of the Legato West final plat and is surrounded by other planned residential filings. Immediately east of the site (at the end of Legato Parkway) is a 10-acre neighborhood park. See Vicinity Map provided in Appendix A.

Soil Conditions

NRCS Soils Survey results indicate that the existing soils are primarily (99%) Platner loam with 0 to 5% slopes with some (1%) Wiley-Adena-Renohill complex. These soils are identified as a Group C having a slow infiltration rate when thoroughly wet. They consist of soils that have a layer that impedes downward movement of water or moderately fine texture. The Site is not within any mapped floodplains. The NRCS Soils Survey for the site has been included as Appendix B.

DRAINAGE BASINS AND SUB-BASINS

The Site falls within the T88 and Second Creek drainage basins and is directly tributary to Gramma Gulch located southwest of the site. The overall Legato property boundary has been included within a number of drainage studies, the most recent of which is the Hightower Ranch Master Drainage Study, prepared by Atwell, LLC, December 2019 and the Legato West Final Drainage Study, prepared by Atwell, LLC, April 2021.

The property does not include any mapped floodplains. The National Wetland Inventory maps do not indicate any wetlands on site. A FEMA FIRM Map have been included in Appendix C.

Major Drainage Basins

The existing topography of the overall Legato West Development is such that a ridge divides the property from southeast to northwest, creating two major drainage basins. The northern portion, Basin A, lies within the T88

Drainage Basin while the southern portion, Basin B, lies within the Second Creek Basin. The T-88 Drainage Basin is tributary to Gramma Gulch via the Tower Road storm run along the east side of Tower Road, ultimately discharging into Second Creek. Basin B discharges directly into Gramma Gulch and is conveyed under Tower Road through an existing box culvert that discharges into Second Creek. A map showing the T-88 drainage basin and the overall Legato West PUD Drainage Plan is included in Appendix F, Reference Materials.

Historical Drainage Basins

The northern portion of this project site is located within Basin A of Legato West. Basin A generally represents the northern half of the Legato West Property, bisected from the northwest corner to the southeast corner and includes commercial and residential areas. Drainage from the Basin A tracts will be collected in a proposed storm sewer system and routed to Pond A. All storm sewer that is shown in E. 94th Avenue, Biscay Lane, Cathay Court, Argonne St and E. 90rd Place will be built as part of the Legato West Spine Infrastructure Project and is shown as existing in this drainage report. Flows from Drainage Basin A are conveyed to Detention Pond A, north of E. 94th Avenue and west of Biscay Street. Pond A outfalls to the Tower Road storm infrastructure, ultimately discharging to Gramma Gulch at the existing box culvert beneath Tower Road, just south of E. 90th Avenue.

REPEAT COMMENT:
Include Legato parkway

The north half of Filing 2 (Tract D2 in the Legato West Plat) was included Basin A-26 of the Legato West Final Drainage Report. A small portion of A-26 in Legato West, approximately 0.79 acres (now basin B-10 of this filing) at the southern end of Tract D2 will be routed to Legato West's Basin B rather than to Basin A as previously assumed. Basin A-26 within the Legato West Final Drainage Study was designed at 45% impervious, per MHFD criteria for residential development.

Run-off from the north portion of this filing will be conveyed overland, in curb & gutter and through a proposed storm sewer system to the existing storm sewer in Biscay Lane (to be constructed as part of Phase 1 of the Legato West Construction Drawings). Once it enters the Legato West storm sewer system, drainage will be conveyed north to Pond A.

The southern portion of this project site is located within Basin B of Legato West. Basin B generally represents the southern half of the Legato West Property. Drainage from the tracts developed with the Legato West Final Plat will be collected in a storm sewer system and conveyed to detention pond B, at the southeast corner of E. 90th Avenue and Argonne Street. Pond B will outfall directly to Gramma Gulch and conveyed to the existing box culvert beneath Tower Road.

The south half of Filing 2 within Tract C1 of the Legato West Plat was included within two drainage basins, B-16 and a portion of basin B-24, in the Legato West Final Drainage Report. These basins each had a designed imperviousness of 45%.

Run-off from the southern portion of this filing will be conveyed overland, in curb & gutter and through a proposed storm sewer system to the existing storm sewer in either Legato Parkway or E. 90th Avenue. Once it enters the Legato West storm sewer system, drainage will be conveyed west and south to detention Pond B (to be constructed in Phase 1 of Legato West).

PROPOSED DRAINAGE

Onsite Major Drainage Basins

Legato Filing No. 2 lies within both Major Basins A and B, as identified in the Legato West Final Drainage Study. As such, two major basins have been identified and delineated for this Filing 2 Final Drainage Report. Additionally, flow from portions of future, adjacent developments (Legato Filing No. 1 and Tract C2) are also expected to be collected and conveyed by the proposed infrastructure within shared roadways (E. 94th Place & E. 93rd Place) and are accounted for in the storm sewers proposed for this filing. The total drainage area within this filing is approximately 34.5 acres.

See the Proposed Drainage Map for basin boundaries associated with this filing. (Appendix G)

Major Basin A

Major Basin A consists of approximately 12.5 acres of single-family residential area in the central western portion of the site. Runoff is expected to be collected in on-site inlets and conveyed through storm sewer infrastructure and routed to the regional water quality and detention pond (Pond A), via the storm sewer within Biscay Lane.

Seven sub-basins have been delineated within Major Basin A.

Sub-Basin A-1 (0.86 acres) is located along northwest side of E. 94th Avenue. The basin is made up of a small portion of the future, multi-family filing within Legato West Tract A and a portion of E. 94th Avenue. This basin has a composite imperviousness of 85%. Runoff will flow east to the street curb and gutter and be conveyed northeast to a 10-foot, Type-R, sump inlet (Inlet 2605L, Design Point A1) within E. 94th Avenue. There, it will enter the storm sewer and be routed north to detention Pond A via the storm sewer that will be constructed with Phase 1 of the Legato West Construction Drawings. The emergency overflow path for sump inlet 2605L is to the north, overtopping the curb and flowing directly north across the utility easement towards E. 94th Avenue. (Q5=1.97 CFS, Q100=4.77 CFS)

into Detention Pond A.

Sub-Basin A-2 (1.95 acres) is located along the east side of E. 94th Avenue. The basin is made up of a portion of the Biscay Street right-of-way and the adjacent single-family lots. This basin has a composite imperviousness of 49%. Runoff will generally sheet flow across lots to the west, where it will be collected in the street curb and gutter and be conveyed northeast to a 10-foot, Type-R, sump inlet (Inlet 2605R, Design Point A2) within E. 94th Avenue. There, it will enter the storm sewer and be routed north to detention Pond A via the storm sewer that will be constructed with Phase 1 of the Legato West Construction Drawings. The emergency overflow path for sump inlet 2605R is to the north, overtopping the curb and flowing through the utility easement towards E. 94th Avenue. (Q5=1.97 CFS, Q100=6.58 CFS)

overtopping the road crown into the inlet at design point A1.

Sub-Basin A-3 (1.31 acres) is along the west side of E. 93rd Avenue. This basin is made up of the west half of E. 93rd Avenue, a portion of the neighborhood park and the adjacent, single-family residential lots. The basin has a composite imperviousness of 59%. Runoff will flow east across the lots to the street section curb and gutter and be conveyed north to an on-grade, 10-foot Type-R inlet (Inlet 2700L, Design Point A3) within E. 93rd Avenue and routed to the proposed detention Pond A within the existing storm sewer that will be constructed

in Biscay Lane. Inlet 2700L will capture 100% of the minor storm run-off and 94% of the major storm run-off. Overflow from this inlet will continue down E. 93rd Avenue, turn north on Biscay Lane and be captured in the 15' Type R inlet that will be constructed with Legato Filing 1. (Q5=1.86 CFS, Q100=5.54 CFS)

Sub-Basin A-4 (2.76 acres) is along the west side of E. 94th Avenue. This basin is made up of the west half of E. 94th Avenue and the adjacent single-family residential lots and open space tract. The basin has a composite imperviousness of 51%. Runoff will flow west across the proposed lots to the street section curb and gutter and be conveyed north to an on-grade, 10-foot Type-R inlet (Inlet 2700R, Design Point A4) within e. 93rd Avenue and routed to the proposed detention Pond A within the existing storm sewer that will be constructed in Biscay Lane. Inlet 2700R will capture 100% of the minor storm run-off and 78% of the major storm run-off. Flows that bypass this inlet will be continue north in E. 93rd Avenue, turn north at the cross pan of Biscay Lane and will be captured in the 15' Type R inlet, on the west side of Biscay Lane. (Q5=2.78 CFS, Q100=9.07 CFS)

Sub-Basin A-5 (1.77 acres) is located along northwest side of E. 93rd Place and Biscay Lane. The basin is made up of the west half of E. 93rd Place and the south half of Biscay Lane, as well as the adjacent single-family lots and open space tract. This basin has a composite imperviousness of 68%. Runoff will flow across lots, east, to the street curb and gutter of E. 93rd Place and be conveyed north towards Biscay Lane. It will then turn west on Biscay Lane and be collected in an existing 15-foot, Type-R, sump inlet (Inlet 600, Design Point A5) at the west end of E 94th Place. This inlet is proposed to be constructed as part of Legato Filing 1. Drainage run-off from this basin will be conveyed to Pond A via the storm sewer within Biscay Lane. (Q5=2.71 CFS, Q100=7.44 CFS). The emergency overflow from inlet 2600 will overflow northwest along Biscay Lane to E 94th Avenue and into Pond A.

the proposed inlet at Design Point A2.

Sub-Basin A-6 (1.21 acres) is located along west and south side of E. 94th Avenue. The basin is made up of a small portion of the future, multi-family filing within Legato West Tract A and a portion of E. 94th Avenue. This basin has a composite imperviousness of 87%. Runoff will flow north and east to the street curb and gutter and be conveyed west and north to a 10-foot Type-R, on grade inlet (Inlet 2600L, Design Point A6) within E. 94th Avenue. From there, it will enter the storm sewer within E. 94th Avenue and be routed north towards the existing storm sewer in Biscay Lane and, ultimately, to detention Pond A. Inlet 2600L will capture 100% of the minor storm run-off and 92% of the major storm run-off. Flows that bypass this inlet will be continue north in E. 94th Avenue to the sump inlet discussed in Basin A-1. (Q5=2.47 CFS, Q100=5.90 CFS).

Sub-Basin A-7 (2.68 acres) is located along east side of E. 94th Avenue. The basin is made up of a portion of the E. 94th Avenue right-of-way, the neighborhood park and the adjacent single-family lots. This basin has a composite imperviousness of 52%. Runoff will sheet flow south and west across the lots to the street curb and gutter and be conveyed west and north to a 10-foot, Type-R, on-grade inlet (Inlet 2600R, Design Point A7) within E. 94th Avenue. From there, it will enter the storm sewer within E. 94th Avenue and be routed north to the existing storm sewer in Biscay Lane and, ultimately, to detention Pond A. Inlet 2600R will capture 100% of the minor storm run-off and 78% of the major storm run-off. Flows that bypass this inlet will be continue north in E. 94th Avenue to the sump inlet discussed in Basin A-2. (Q5=2.80 CFS, Q100=9.01 CFS)

Major Basin B

Major Basin B consists of approximately 21.3 acres of single-family residential area that is south of Legato Parkway. Runoff is expected to be collected in on-site inlets and conveyed through storm sewer infrastructure and routed to the regional water quality and detention pond (Pond B).

Twelve sub-basins have been delineated within the southern half of the Site within onsite Major Basin B.

Sub-Basin B-1 (0.98 acres) is located adjacent to the south side of Legato Parkway at the intersection with Cathay Court. This basin is primarily made of single-family residential lots along with a portion of E. 93rd Avenue. This basin has a composite imperviousness of 53%. Runoff will sheet flow across the lots to the street curb and gutter where it will be combined with Basin B-11 of the Legato West Final Drainage Study. From there it will be conveyed to the 10-foot, Type-R, on-grade, inlet within Legato Parkway (Inlet 308R). It will enter the storm sewer within Legato Parkway and be routed south to proposed detention Pond B. (Q5=1.24 CFS, Q100=3.95 CFS)

Sub-Basin B-2A (01.84 acres) is located adjacent to the south side of Legato Parkway. This basin consists of single-family residential lots, a portion of E. 92nd Drive and the southern half of E. 92nd Place. This basin has a composite imperviousness of 57%. Runoff will flow to the street curb and gutter and be conveyed to Basin B6 at DPB-2A continuing the east side of Andes St to the downstream inlet at DP B6 (Inlet 2505R, Design Point B6). Run off will be conveyed to the storm sewer system on E. 90th Avenue constructed with the Legato West Spine and be routed to proposed detention Pond B. Inlet 2505R captures 96% of storm water run-off in the minor event and ___% in the major storm events. (Q5=2.39 CFS, Q100=7.27 CFS).

complete

Sub-Basin B-2B (0.82 acres) is located adjacent to the southeast side of Legato Parkway. This basin consists of landscaped open space and the north side of E. 92nd Place. This basin has a composite imperviousness of 35%. Runoff will flow to the street curb and gutter and be conveyed to DP B2b where runoff will continue to flow around the curb and gutter to the existing cross pan at Legato Parkway and further conveyed south to the existing inlet _____ in Legato Parkway. Once entering the spine stormwater system, it will be routed south to proposed detention Pond B. (Q5=0.70CFS, Q100=2.89 CFS).

complete

Sub-Basin B-2C (0.13 acres) is located at Andes St and Legato Parkway. This basin consists of a portion of E. Andes St, small portion of sidewalk and tree lawn and a very small portion of Legato West Tract B (future Single-family attached residential parcel). This basin has a composite imperviousness of 77%. Runoff will flow to the street curb and gutter and conveyed to the existing cross pan at Legato Parkway at DPB2C which drains further south to the next downstream inlet _____ constructed with the Legato Spine Infrastructure. Run off continues within the storm sewer system in Legato Parkway and routed south to Detention Pond B. Inlet 2506L captures 100% of storm water run-off in both the minor and major storm events. (Q5=0.32 CFS, Q100=0.81 CFS).

complete

Sub-Basin B-3 (2.05 acres) is located in the central portion of the Site, adjacent to Andes Court and E. 93rd Avenue. This basin is made up primarily of single-family residential lots and the portions of Andes Court and E.

93rd Place. The basin has a composite imperviousness of 63%. Runoffs is conveyed via street section curb and gutter to a 10–foot, on-grade, Type-R inlet (Inlet 1709L, Design Point B3) within Andes Court, collected in a storm sewer system and routed south to the to an existing storm sewer stub from E. 90th Avenue and, ultimately, to detention Pond B. Inlet 1709L will capture 100% of the minor storm run-off and 82% of the major storm run-off. Flows that bypass this inlet will be continue down Andes Court to the next on-grade inlet (further discussed in the Basin B-4 description). (Q5=2.86 CFS, Q100=8.21 CFS)

Sub-Basin B-4 (2.80 acres) is located in the central portion of the Site, north of E. 92nd Drive and west of Andes Court. This basin is made up primarily of single-family residential lots and the portions of E. 92nd Drive and Andes Court. The basin has a composite imperviousness of 59%. Runoff will sheet flow across lots to the curb and gutter and is conveyed via street section curb and gutter to a 15-foot, on-grade, Type-R inlet (Inlet 1708L, Design Point B4) within Andes Court. Runoff collected in the inlet will be conveyed via storm sewer to the existing stub at the intersection of Andes Street and E. 90th Avenue and routed south to detention Pond B. Inlet 1708L will capture 100% of the minor storm run-off and 96% of the major storm run-off. Flows that bypass this inlet will be continue down Andes Court to the next on-grade inlet (further discussed in the Basin B-7 description). (Q5=2.73 CFS, Q100=8.13 CFS)

Sub-Basin B-5 (1.90 acres) is located along the western portion of the Site, adjacent to Andes Street. This basin is made up of a small portion of the future, multi-family filing within Legato West Tract B and a portion of Andes Street. This basin has a composite imperviousness of 86%. Runoff flows overland to the east and is conveyed south, via street section curb and gutter to sump, 5-foot, Type-R, (Inlet 1701, Design Point B5). There it will enter the proposed storm sewer and be routed south to the existing storm sewer within E. 90th Avenue and, ultimately, to detention Pond B. The emergency overflow path for this sump inlet is south, overtopping the high point near the intersection of Andes Street and E. 90th Avenue and then west within E. 90th Avenue. (Q5=3.61 CFS, Q100=8.69 CFS) .

Sub-Basin B-6 (2.25 acres) is located in southwest-central portion of this filing at the intersection of E 91st Place and Andes Street. The basin is made up of portions of E 91st Place and Andes Street and the adjacent, single-family residential lots. This basin has a composite imperviousness of 59%. Runoff will sheet flow across lot, to the street section curb and gutter and to an on-grade, 10-foot, Type-R, (Inlet 2505R, Design Point B6). There it will enter the proposed storm sewer and be routed south to the existing storm sewer in E. 90th Avenue, then on to detention Pond B. Inlet 2505R will capture 100% of the minor storm run-off and 80% of the major storm run-off. Flows that bypass this inlet will be continue south in Andes Street to the next on-grade inlet (further discussed in the Basin B-10 description). (Q5=2.88 CFS, Q100=8.59 CFS)

Sub-Basin B-7 (2.90 acres) is located along the western portion of this filing and consists of the potions of the E. 91st Place, E. 91st Drive and Andes Court right-of-way and the adjacent single-family lots. This basin has a composite imperviousness of 63%. Runoff will sheet flow across lots to the street curb and gutter and be conveyed to a 10-foot, Type-R, on-grade inlet (Inlet 1706L, Design Point B7) within Andes Court. There it will enter the proposed storm sewer and be routed south to the existing storm sewer in E. 90th Avenue, then on to detention Pond B. Inlet 1706L will capture 100% of the minor storm run-off and 68% of the major storm run-off. Flows that bypass this inlet will be continue south in Andes Street to the sump inlet near the intersection

of Andes Court and Andes Street (further discussed in the Basin B-11 description). (Q5=4.04 CFS, Q100=11.59 CFS)

Sub-Basin B-8 (2.05 acres) is located along the southern portion of this filing near the intersection of E. 91st Drive and Andes Street. This basin consists of the portions of the E. 91st Drive and Andes Street rights-of-way along with the adjacent, single family lots. This basin has a composite imperviousness of 59%. Runoff will flow to the street curb and gutter and be conveyed west and south to a 10-foot, Type-R, on-grade inlet (Inlet 2502R, Design Point B8) within Andes Street. Flows will be conveyed to the storm sewer within Andes Street, south to the existing storm sewer in E. 90th Avenue and, ultimately to detention Pond B. Inlet 2502R will capture 100% of the minor storm run-off and 83% of the major storm run-off. Flows that bypass this inlet will be continue south in Andes Street to the next on-grade inlet (further discussed in the Basin B-9 description). (Q5=2.65 CFS, Q100=7.91 CFS)

Sub-Basin B-9 (1.78 acres) is located at the south end of this filing and consists of the E. 90th Place and Andes Street right-of-way and the adjacent, single family lots. This basin has a composite imperviousness of 60%. Runoff will sheet flow across lots to the street curb and gutter and be conveyed west to a 10-foot, Type-R, on-grade inlet (Inlet 2501R, Design Point B9) within Andes Street. Flows from this inlet will be conveyed to the storm sewer within Andes Street, south to the existing stub at the intersection of Andes Street and E. 90th Avenue and then to detention Pond B. Inlet 2501R will capture 100% of the minor storm run-off and 82% of the major storm run-off. Flows that bypass this inlet will be continue south in Andes Street, turn east at Andes Court and be collected in the sump inlet at Design Point B11. (Q5=2.33 CFS, Q100=6.88 CFS)

Sub-Basin B-10 (0.56 acres) is located in the southwest portion of this filing and consists of a small portion of the Andes Street R.O.W. between E 91st Place and E 91st Drive along with the adjacent, single family lots. This basin was assumed to have a composite imperviousness of 57%. Runoff will flow west to the street curb and gutter and be conveyed south to a 10-foot, Type-R, on-grade inlet (Inlet 2503R, Design Point B10) within Andes Street. There it will enter the proposed storm sewer and be routed south to the existing storm sewer in E. 90th Avenue, then on to detention Pond B. Inlet 2503R will capture 100% of the minor storm run-off and 100% of the major storm run-off. (Q5=0.79 CFS, Q100=2.39 CFS)

Sub-Basin B-11 (1.18 acres) is located along the south end of this filing and consists of portions of Andes Court, E. 90th Place and Andes Street along with an area of green space (neighborhood park). This basin has a composite imperviousness of 36%. Runoff will flow south to the street curb and gutter where it will be collected within a 15-foot, Type-R, sump inlet (Inlet 1702L, Design Point B11) at the south end of Andes Court. From there it will enter the proposed storm sewer and be routed south to the existing storm sewer in E. 90th Avenue, then on to detention Pond B. The emergency overflow path for sump Inlet 2505R be to the west, where it will overtop the high point at the intersection of Andes Court and Andes Street and then be collected in Inlet 1700R, just to the south of the intersection. (Q5=1.23 CFS, Q100=5.00 CFS)

Sub-Basin B-12 (0.79 acres) is located adjacent to the intersection of Legato Parkway and Cathay Court, on the north side of Legato Parkway. This basin has a composite imperviousness of 23%. Runoff will flow to the street curb and gutter where it will be combined with flows from Basin B-10 of the Legato West Final Drainage Study. From there it will be conveyed to the 10-foot, Type-R, on-grade inlet within Legato Parkway (Inlet 308L). There,

it will enter the existing storm sewer (constructed as part of the Legato West Construction Drawings) and be routed south to proposed detention Pond B. (Q5=0.44 CFS, Q100=2.44 CFS)

Off-Site Basins

Eleven sub-basins have been delineated with impacts to inlets and storm sewer proposed for this filing. These include areas of Legato Filing No. 1 and the future single-family development on Legato West Tract C2. While these areas are not to be constructed at the same time (i.e. Filing 1 should be constructed earlier than Filing 2), the analysis has been executed for these areas to ensure proper sizing of the storm sewer pipes and inlets within Filing 2.

Off-Site Basin OS-1 (0.43 acres) is located within Legato Filing No. 1 (designated as Basin B2 in the Legato Filing 1 Final Drainage Study) along the north side of E. 94th Avenue. The basin is made up of the north half of the Biscay Lane right-of-way and the single-family lots adjacent to the road. This basin has a composite imperviousness is 63%. Runoff flows across the lots to the south and then is conveyed to the west via street curb and gutter. A Type C inlet was proposed with Filing 1 at the low point. This Type C inlet will be removed and replaced with the sump inlets outlined in the sub-basin A-1 and A-2 description. Flows from OS-1 will be combined with flows from Basin A-1 and enter the storm sewer system via a 10-foot, Type-R, sump inlet (Inlet 2605R, Design Point A1) within E. 94th Avenue. (Q5=0.69 CFS, Q100=1.97 CFS)

Off-Site Basin OS-2 (2.06 acres) is located within Legato Filing No. 1 (designated as Basin B3 in the Legato Filing 1 Final Drainage Study) along the north side of Biscay Lane. This basin primarily consists of the north half of the Biscay Lane right-of-way, as well as portions of E. 94th Avenue, E 93rd Avenue and the adjacent single-family lots. The basin has a composite imperviousness of 61%. Runoff will flow to the street curb and gutter and be conveyed north to a 10-foot, Type-R, sump inlet (Inlet 598) within Biscay Lane, at Design Point 02. All of this infrastructure will be constructed with either the Legato West Construction Drawings or Filing 1. The basin has been included in this report to provide background flows within the pipes that Filing 2 will directly connect into. (Q5=2.74 CFS, Q100=8.01 CFS). The emergency overflow from inlet 598 will overflow northwest along Biscay Lane to E 94th Avenue and into Pond A.

Sub-Basin O-3 (2.32 acres) is located within Legato West Tract C2 along the east side of Andes Court. This basin is made up primarily of future single-family residential lots and portions of the right-of-way for Andes Court. The basin has an estimated composite imperviousness of 70%. Runoff will be conveyed across the lots to the street curb and gutter where it will combine with flows from Andes Court and will be conveyed to an on-grade inlet (Inlet 1709R, Design Point 03) that will be constructed as part of Filing 2. There it will enter the proposed storm sewer and be routed south to the existing storm sewer in E. 90th Avenue, then on to detention Pond B. Inlet 1709R will capture 100% of the minor storm run-off and 70% of the major storm run-off. Flows that bypass this inlet will continue south in Andes Street and turn east on E. 92nd Drive. It will be collected in the future sump inlet that will be constructed with that future residential filing. Despite the calculations for this basin showing bypass flows in the 100-year and traveling to an inlet that is not yet constructed, it is anticipated that the 10' inlet will capture 100% of flows until the future residential filing is constructed. The reduced impervious area (in the existing condition) will generate much smaller flows until that filing develops. (Q5=4.28 CFS, Q100=11.54 CFS)

Sub-Basin O-4 (2.53 acres) is located within Legato West Tract C2, adjacent to Andes Court along the north side of E. 92nd Drive. This basin is made up primarily of single-family residential lots and a portion of the right-of-way for E. 92nd Drive. The basin has a composite imperviousness of 53%. Runoff is conveyed south across the lots to the street curb and gutter where it will be picked up in a future sump inlet to cut off run-off prior to it leaving the future development. The inlet will convey flows into the storm sewer within Andes Court and will be routed to detention Pond B. (Q5=3.09 CFS, Q100=9.84 CFS)

Sub-Basin O-5 (1.75 acres) is located within Legato West Tract C2, adjacent to Andes Court along the south side of E. 92nd Drive. This basin is made up primarily of single-family residential lots and portions of right-of-way for E. 92nd Drive and Andes Court. The basin has a composite imperviousness of 62%. Runoff will be conveyed via street section curb and gutter to a 10-foot Type-R inlet (Inlet 1708R, Design Point 05) within Andes Court. There it will enter the proposed storm sewer and be routed south to the existing storm sewer in E. 90th Avenue, then on to detention Pond B. Inlet 1708R will capture 100% of the minor storm run-off and 72% of the major storm run-off. Flows that bypass this inlet will continue south in Andes Street and turn east on E. 91st Place. It will be collected in the future sump inlet that will be constructed with that future residential filing. Despite the calculations for this basin showing bypass flows in the 100-year and traveling to an inlet that is not yet constructed, it is anticipated that the 10' inlet will capture 100% of flows until the future residential filing is constructed. The reduced impervious area (in the existing condition) will generate much smaller flows until that filing develops. (Q5=2.46 CFS, Q100=7.13 CFS)

Sub-Basin O-6 (2.43 acres) is located within Legato West Tract C2, adjacent to Andes Court along the north side of E. 91st Place. This basin is made up primarily of single-family residential lots and the northern portion of local E. 91st Place right-of-way. The basin has a composite imperviousness of 51%. Runoff will sheet flow across future lots to curb and gutter and to the future sump inlet (Design Point 06). The future inlet will convey flows to the storm sewer within Andes Court and will be routed to the storm sewer system in Andes Court, ultimately to detention Pond B. (Q5=2.86 CFS, Q100=9.31 CFS)

Sub-Basin O-7 (1.49 acres) is located within Legato West Tract C2, adjacent to Andes Court along the south side of E. 91st Place and Andes Court. This basin is primarily made up of single-family residential lots along with portions of local E. 91st Place and Andes Court. This basin has a composite imperviousness of 72%. Runoff will be collected via curb and gutter and conveyed to an on-grade 15-foot, Type R inlet (Inlet 1706R, Design Point 07) within Andes Court. There it will enter the proposed storm sewer and be routed south to the existing storm sewer in E. 90th Avenue, then on to detention Pond B. Inlet 1706R will capture 100% of the minor storm run-off and 92% of the major storm run-off. Flows that bypass this inlet will continue south in Andes Street and turn east on E. 91st Drive. It will be collected in the future sump inlet that will be constructed with that future residential filing. Despite the calculations for this basin showing bypass flows in the 100-year and traveling to an inlet that is not yet constructed, it is anticipated that the 15' inlet will capture 100% of flows until the future residential filing is constructed. The reduced impervious area (in the existing condition) will generate much smaller flows until that filing develops. (Q5=2.98 CFS, Q100=7.90 CFS)

Sub-Basin O-8 (1.58 acres) is located within Legato West Tract C2, adjacent to Andes Court along the north side of E. 91st Drive and is made of single-family residential lots along with a portion of E. 91st Drive. This basin has a composite imperviousness of 57%. Runoff will sheet flow across future lots to the street curb and gutter

and be conveyed to a future inlet (Design Point 08) within E. 91st Drive. There, it will enter the storm sewer within Andes Court and be routed detention Pond B. (Q5=2.08 CFS, Q100=6.32 CFS)

Sub-Basin O-9 (1.87 acres) is located within Legato West Tract C2, adjacent to Andes Court along the north side of E 90th Place and is primarily made of single-family residential lots along with a portion of right-of-way for local E 90th Place. This basin has a composite imperviousness of 57%. Runoff will flow to the street curb and gutter and be conveyed to a future sump inlet (Design Point 09) within E. 90th Place to cut off flows prior to releasing to Andes Court. From there, flows will enter the storm sewer within Andes Court and be routed south to detention Pond B. (Q5=2.88 CFS, Q100=8.76 CFS)

Sub-Basin O-10 (1.60 acres) is located within Legato West Tract C2, adjacent to Andes Court along the south side of E. 90th Place and is primarily made of single-family residential lots along with a portion of south half of E. 90th Place right-of-way. This basin has a composite imperviousness of 54%. Runoff will sheet flow across future lots to the street curb and gutter and be conveyed to a future sump inlet (Design Point 10) within E. 90th Place where it will cut off flows prior to releasing to Andes Court. Flows captured in this inlet will be conveyed to the storm sewer within Andes Court and be routed south to detention Pond B. (Q5=1.93 CFS, Q100=6.07 CFS)

Sub-Basin O-11 (1.85 acres) is located within Legato West Tract C2 along the south side of Andes Court and is primarily made of single-family residential lots along with a portion of Andes Court. This basin has a composite imperviousness of 56%. Runoff will flow north to the street curb and gutter and be conveyed to a 10-foot, Type-R, sump inlet (Inlet 1700R, Design Point 11) within Andes Street. It will enter the proposed storm sewer and be routed south to the existing storm sewer within E. 90th Avenue and, ultimately, to detention Pond B. The emergency overflow path for this sump inlet is south, overtopping the high point near the intersection of Andes Street and E. 90th Avenue and then west within E. 90th Avenue. (Q5=2.08 CFS, Q100=6.40 CFS)

DRAINAGE DESIGN CRITERIA

Regulations

This drainage report was prepared in accordance with the Commerce City Storm Drainage Design Manual as well as the Mile High Flood District Urban Storm Drainage Criteria Manual.

Drainage Studies, Outfall Systems Plans, Site Constraints

The following studies/reports have been prepared for areas that include the subject property.

- Master Drainage Study for Hightower Ranch, prepared by Atwell, December 2019
- Final Drainage Study for Legato West, prepared by Atwell, January 2021

The reports were referenced for historic drainage flows and conveyance structure characteristics/sizing. Relevant portions of these reports have been included in Appendix F.

Hydrologic Criteria

The rational method was used to determine peak runoff rates from the site. The return periods analyzed are the 5-year and 100-year for storm sewer, inlets, and street capacity as prescribed by Section 2.4.2. of the Commerce City Storm Drainage Design and Technical Criteria Manual.

Rainfall data was obtained from selection of the City of Commerce within the dropdown menu of the MHFD Spreadsheet Workbook. One-hour point rainfalls for the 5-year and 100-year return periods are 1.37 and 2.58 inches, respectively. Imperviousness percentages for the various land uses were taken from the MHFD USDCM workbook. Where a basin was composed of multiple land uses, a composite imperviousness was calculated.

Runoff coefficients were based on soil type and calculated using Table 6-4 of the Urban Storm Drainage Criteria Manual (USDCM) Volume 1. Soil types were derived using the National Resources Conservation Service (NRCS) Web Soil Survey and found to include a mix of type A, B, and C soils; however, the majority of the site is type C soils. The Rational Method Calculations for this filing are included in Appendix D.

Hydraulic Criteria

All hydraulic criteria set forth by the CCSDCM will be observed for street, curb and gutter, open channel, storm sewer, and storm inlet capacities. Allowable capacities for the minor and major storms in street sections and curb and gutter are defined section 2.4.4. in the CCSDCM.

From the information calculated on the MHFD rational method spreadsheets (UD Rational 2.00), the street capacities and inlet sizes and locations were determined. Where street capacities would be exceeded, or a sump location occurs, inlets have been proposed. Inlets have been sized using MHFD spreadsheets (UD-Inlet v4.06) to collect and convey the surface flows to the storm sewer system. A computer simulation, utilizing Bentley StormCAD V8i, was then developed for the storm sewer routing and conduit sizing. The software allows the user to set coefficients and choose calculation methods that are consistent with Commerce City requirements. Loss coefficients, derived from Tables 704 and 705 of the CCSDCM were utilized. From the simulation, flow properties such as velocities and hydraulic grade lines are estimated. See Appendix E for all hydraulic calculations including Inlet Management Summary, Inlet and Street Capacity Calculations and Stormcad data and storm sewer hydraulic grade line profiles.

DRAINAGE FACILITY DESIGN

General Concept

The proposed drainage plan for this project was developed to maintain flow patterns similar to historic flows. Flows from the developed portion of the site will be collected and conveyed through proposed storm sewer infrastructure and routed to regional detention facilities for water quality and flood attenuation. The proposed storm sewer network for this filing will tie into the storm sewer proposed for the Legato West Spine Infrastructure construction drawings. Downstream infrastructure design capacities have been accounted for and will not be exceeded by design flows from the proposed development of this phase. Details included in the following section.

Specific Details

The land will be developed with urban infrastructure typical for Colorado including streets with curb and gutter, grass-lined swales, inlets and storm sewers and detention ponds. Both detention ponds that will be utilized by this filing (Detention Pond A and B) are designed as part of the Legato West Spine Infrastructure and provides full-spectrum extended detention to provide water quality and flood attenuation for the development goal of zero impact.

Stormwater Conveyance Facilities

Within the road network, stormwater runoff from the developed site will be conveyed overland via surface flow of streets until street capacities have been exceeded or where storm sewer inlets have been designed. At sump locations, inlets will be sized to collect 100-year flows. All sump inlets have an emergency overflow path (in case the inlet is clogged), as described in the basin description section of this report. For on-grade inlets, the 5-year runoff is collected while a portion of the 100-year runoff will bypass the inlet and be conveyed in the street to the next downstream inlet. Street capacity and inlet calculations have been run for the entire storm network to verify that storm water conveyance in roads does not exceed capacity, as dictated by the CCSDCM.

Runoff entering the inlets will be conveyed through a proposed storm sewer system to either detention Pond A (the northern portion of Filing 2) or detention Pond B (the southern half of Filing 2). The proposed storm network connects to three existing runs: one in Biscay Lane, the second in Legato Parkway and the third in E. 90th Avenue. These pipe runs were designed as part of the Legato West Construction Drawings. The Legato West Final Drainage Report accounted for drainage from Filing 2 in the StormCAD analysis that was completed along with the design. The StormCAD analysis of Filing 2 is included in see Appendix F.

Based on calculations prepared for Filing 2, the projected flows from Filing 2 are now calculated at 16.56 CFS in the minor event and 48.30 CFS in the 100-year event, versus 14.1 CFS and 50.85 CFS previously estimated during the Legato West Final Drainage Study. Since the design of the conveyance system in Legato West Spine Infrastructure is based on a higher stormwater runoff flow in the major event, the Filing 2 flows contributing to the overall system will not negatively impact the capacity of the Spine Infrastructure.

Similarly, for the Pond B conveyance system, the two basins that cover Filing 2 in the Legato West Final Drainage Report B-16 and B-24), estimated flows at 24.7 CFS in the minor storm and 89.0 CFS in the major storm, where now the calculations from this report for Filing 2 anticipate that the proposed development will have 28.0 CFS in the minor storm and 84.3 in a major event. Therefore, the design of the conveyance system in Legato West Spine Infrastructure having a projected higher stormwater runoff flowrate in the major event, it can be concluded that the Filing 2 flows contributing to the overall system will not negatively impact the capacity of the Spine Infrastructure.

Stormwater Storage Facilities

Two extended detention basins will be constructed as part of the Spine Infrastructure Project as part of the Legato West Development PUD. These detention basins were designed as full spectrum ponds consisting of three stages, designed in accordance with *Commerce City Storm Drainage Criteria Manual and the* MHFD *Urban Storm Drainage Criteria Manual Volumes 1, 2, & 3* and in full compliance with CRS37-92-602(8) for storm water storage facilities withi [illegible] The water quality capture volume (WQCV) is contained within Stage 1, the excess [illegible] ar storage volume is contained within S [illegible] over a period of no less than 40 ho [illegible] pond outlet pipe conveys a controlled rele [illegible] Gulch and Second Creek.

REPEAT COMMENT:
For both ponds: Include tributary areas, imperviousness, and EDB volumes from the site. Discuss the general conformance of these values with the design of the ponds. This needs to be documented because other filings will be using the ponds and will need to know how much volume remains available for future development. Peak flows are important but not directly related to pond volumes. This is standard practice for filings within a master planned development.

Detention/Water Quality Pond A

The northern half of Legato Filing No. 2 is tributary to Detention Pond A, which will provide full spectrum detention and water quality treatment and is located in Tract J of the Legato West Final Plat, at the north end of Argonne Street, northwest of this filing. Pond A will provide water quality control and flood attenuation for the northern portion of Filing 2. It is difficult to quantify an exact quantity of discharge from Filing 2 that was accounted for in the Legato West Final Drainage Report because the basin that includes the northern portion of Filing 2 also includes a portion of Filing 1. Based on calculations prepared as part of this Filing 2 drainage report, the projected flows from Filing 2 are now at 16.56 CFS in the minor event and 48.30 CFS in the 100-year event, versus 14.1 CFS and 50.85 CFS previously estimated during the Legato West Final Drainage Study, respectively. The projected minor storm volume for Filing 2 is increased, likely due to shorter T_c times within the sub-basins for Filing 2 and the increased imperviousness due to the density of the actual subdivision design.

While the flows from Filing 2 for the minor storm are slightly higher than what was projected in the Legato West Final Drainage Report, the additional flows only account for 0.6% of the total minor storm run-off into Pond A. Given that this is one of the first developments in this master planned community, it is likely that the difference will be made up as the project progresses. The projected flows for the major storm are slightly lower than projected, so impacts to the total volume of the pond will not be impacted. Trickle channels and forebays design with the Spine Infrastructure are conservatively designed based on higher projected flows vs. estimated flows herein.

Detention/Water Quality Pond B

The southern half of Legato Filing No. 2 will be conveyed to Detention Pond B constructed in Tract O of the Legato West at the southeast corner of Argonne Street and E. 90th Avenue. Pond B will provide water quality control and flood attenuation for the southern portion of Filing 2. Similar to the northern half of Filing 2, an exact projection of flows that were accounted for in the Legato West Final Drainage Report is difficult to determine because one of the basins (B24) includes portions of future residential filings. However, the two basins that cover Filing 2 in the Legato West Final Drainage Report estimated flows of 24.7 CFS in the minor storm and 89.0 CFS in the major storm. Calculations from this report anticipate that the proposed

development will have 28.0 CFS in the minor storm and 84.3 in a major event. The projected minor storm volume is increased, likely due to shorter T_c times and increased imperviousness associated with a denser development.

Similar to the northern basin of Filing 2, the minor storm slightly exceeds projections and the major storm is smaller than projections. The increase in runoff during the minor storm accounts for 0.8% of the total flows that are contributing to Pond B. The 100-year runoff calculations are lower than what was anticipated in the Legato West Final Drainage Report, so no impact to the total pond volume are expected.

Trickle channels and forebays design with the Spine Infrastructure are conservatively designed based on higher projected flows vs. estimated flows herein.

Water Quality Enhancement Best Management Practices

The ponds discussed in the previous section have been designed in accordance with the Commerce City Drainage Design and Technical Criteria Manual and the Mile High Flood District's UDFCD Urban Storm Drainage Criteria Manual Volumes 1, 2 and 3. The ponds are designed to provide water quality, and detain the Excess Urban Runoff Volume (EURV) and the 100-year Detention Volume. Excess runoff from the upstream tributary area is conveyed to the ponds via storm sewer sized to convey the 100-year storm event. The storm sewer terminates in concrete forebays. The forebays are sized per Table EDB-4, EDB Component Criteria, of the Urban Storm Drainage Criteria Manual Volume 3. Detailed sizing calculations are located in the Forebay Design Worksheet within Appendix C of the Legato West Final Drainage Study. Pre-treated runoff is released at a controlled rate from a notch in the forebay wall into a concrete trickle channel sized to convey at a minimum the maximum release from the notch and terminates at the outlet structure.

CONCLUSIONS

Compliance with Standards

This Final Drainage Report for Filing 2 presents the drainage analysis and the proposed improvements for the Legato Filing No. 1 using the criteria and standards of the Commerce City Storm Drainage Design Manual criteria and the Urban Storm Drainage Criteria Manual.

This report has been prepared in accordance with the Commerce City Storm Drainage Design and Technical Criteria Manual and the Mile High Flood District's Urban Storm Drainage Criteria Manual and is in full compliance with CRS37-92-602(8) for storm water storage facilities within the State of Colorado.

Drainage Concept

This drainage concept was developed to address the proposed development without adversely affecting the existing, downstream infrastructure. The drainage report has analyzed the storm runoff patterns for the Legato Filing No. 2 development and the proposed mitigation measures for the runoff associated with this development. Based on the analysis completed, runoff from Filing 2 and the connections to existing storm sewer systems will not be impacted, as designed in the Legato West Final Drainage Report. Drainage patterns

have been maintained and, while some increase in runoff has been calculated as part of this analysis, the storm sewers were not impacted and the overall volume of the regional detention facilities has not been impacted.

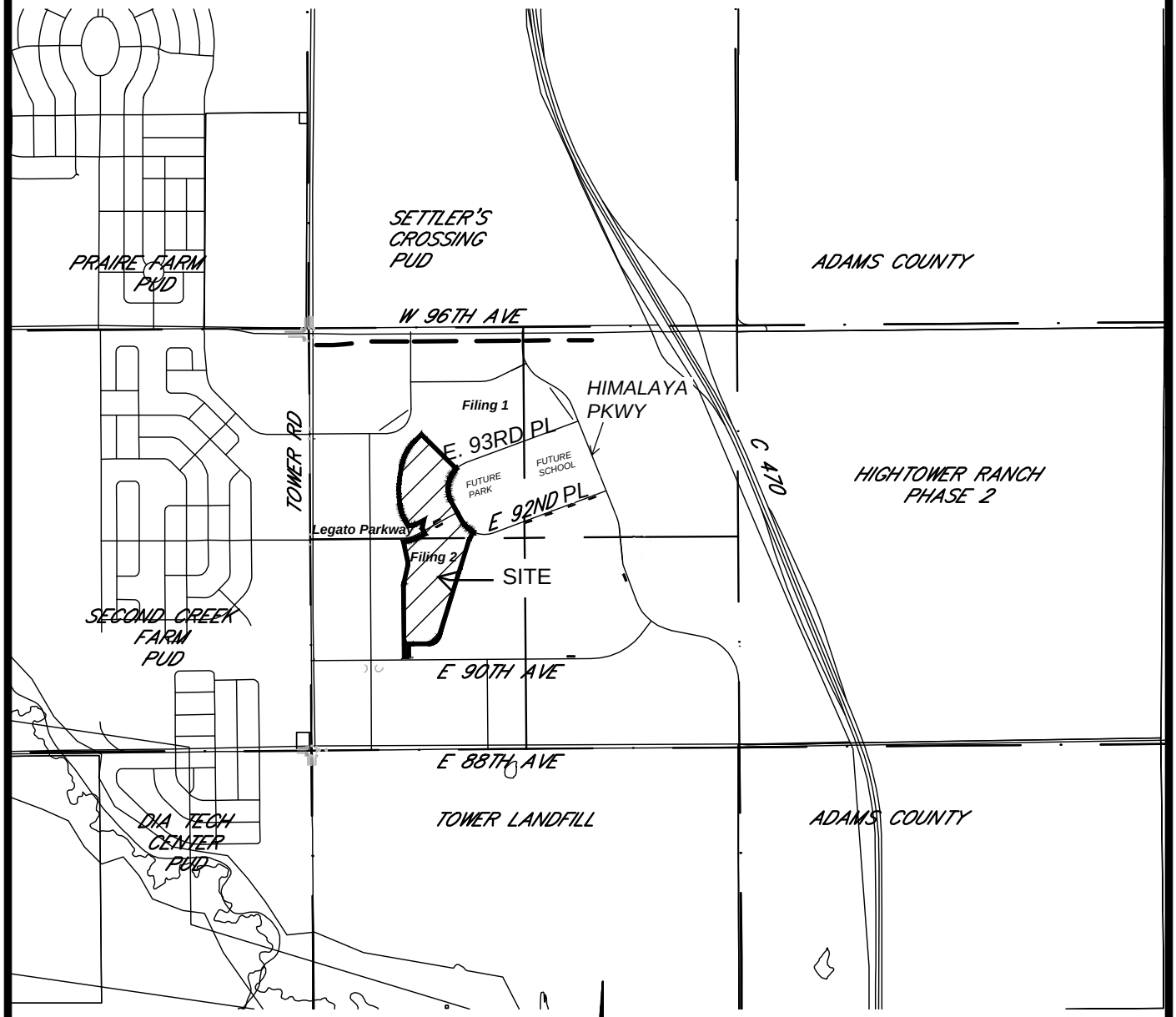
REFERENCES

1. *Urban Storm Drainage Criteria Manual*; Mile High Flood District; latest edition.
2. *Commerce City Storm Drainage Criteria Manual,* 1989 Edition
3. Flood Insurance Rate Map; Federal Emergency Management Agency: December 2006.
4. Final Drainage Study for Hightower Ranch PUD, prepared by Atwell, December 2019
5. Final Drainage Study for Legato West, prepared by Atwell, April 2021
6. The Final Drainage Report for Tower Road Widening, prepared by Huitt-Zollars, March 2016

APPENDIX A
VICINITY MAP

Legato - Filing No. 2

A PART OF SECTION 22, TOWNSHIP 2 SOUTH, RANGE 66 WEST
OF THE SIXTH PRINCIPAL MERIDIAN,
COUNTY OF ADAMS, CITY OF COMMERCE CITY,
STATE OF COLORADO



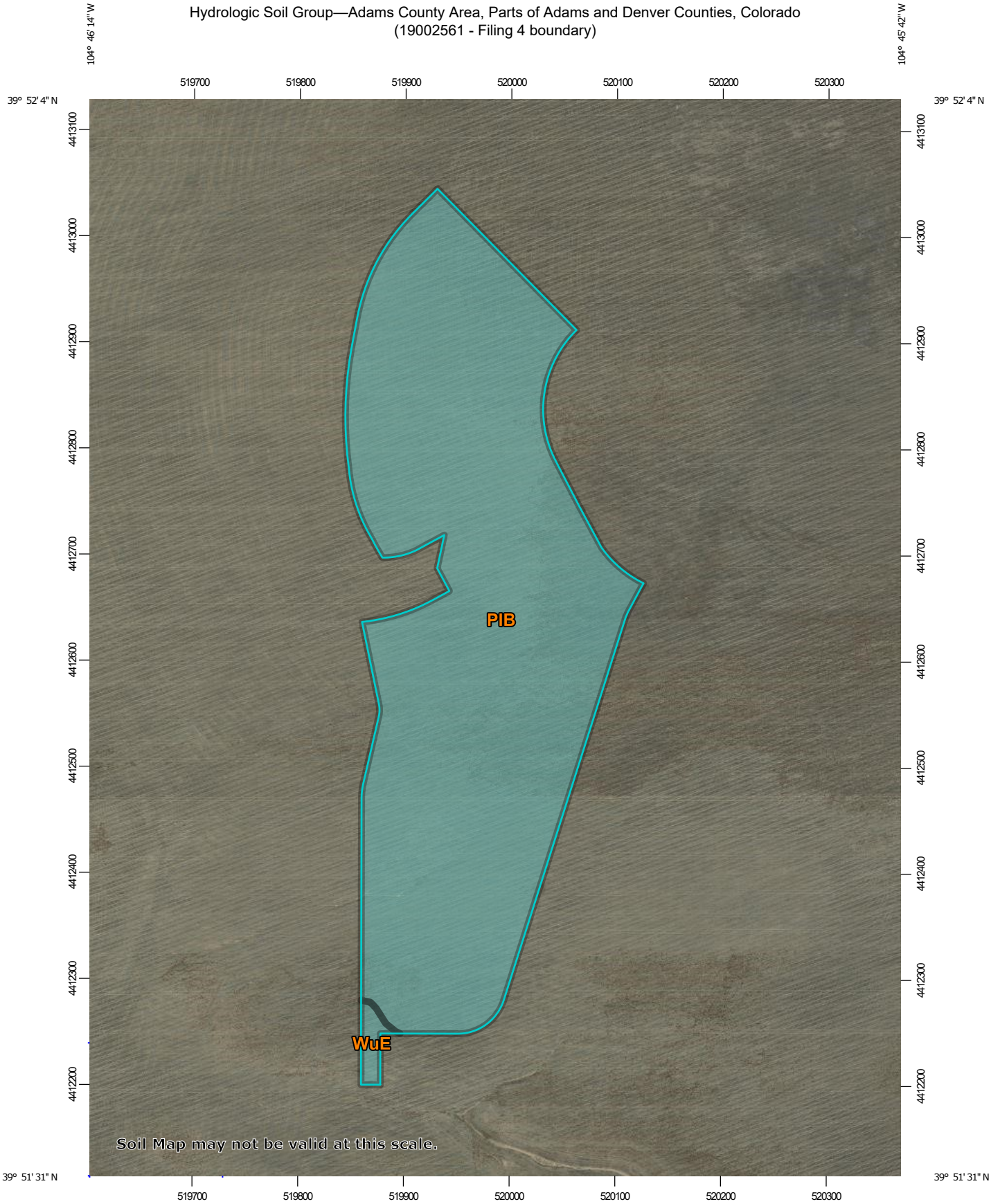
PROJECT NO.: 19002561
DATE: 6/26/2020

SCALE: 1" = 2,000'

ATWELL
866.850.4200 www.atwell-group.com
6200 S. SYRACUSE WAY, SUITE470
GREENWOOD VILLAGE, CO 80111
303.825.7100
CONTACT: DANIEL MADRUGA
DMADRUGA@ATWELL-GROUP.COM

APPENDIX B
SOILS SURVEY

Hydrologic Soil Group—Adams County Area, Parts of Adams and Denver Counties, Colorado
(19002561 - Filing 4 boundary)



Map Scale: 1:4,950 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 50 100 200 300

Feet: 0 200 400 800 1200

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 13N WGS84

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features

Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Adams County Area, Parts of Adams and Denver Counties, Colorado
Survey Area Data: Version 16, Sep 12, 2019

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Oct 3, 2018—Dec 4, 2018

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
PlB	Platner loam, 0 to 3 percent slopes	C	34.6	98.9%
WuE	Wiley-Adena-Renohill complex, 3 to 20 percent slopes	C	0.4	1.1%
Totals for Area of Interest			**35.0**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

APPENDIX C
FIRMette MAP

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures.** Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was Universal Transverse Mercator (UTM) zone 13. The **horizontal datum** was NAD83, GRS1980 spheroid. Differences in datum, spheroid, projection or UTM zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum.** For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at http://www.ngs.noaa.gov/ or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, N/NGS12
National Geodetic Survey
SSMC- 3, #9202
1315 East- West Highway
Silver Spring, MD 20910- 3282

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at **(301) 713- 3242,** or visit its website at http://www.ngs.noaa.gov/.

Base map information shown on this FIRM was provided by the Adams County and Commerce City GIS departments. The coordinate system used for the production of the digital FIRM is Universe Transverse Mercator, Zone 13N, referenced to North American Datum of 1983 and the GRS 80 spheroid, Western Hemisphere.

This map reflects more detailed and up- to- date **stream channel configurations** than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables *in the Flood Insurance Study report (which contains authoritative hydraulic data)* may reflect stream channel distances that differ from what is shown on this map.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de- annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

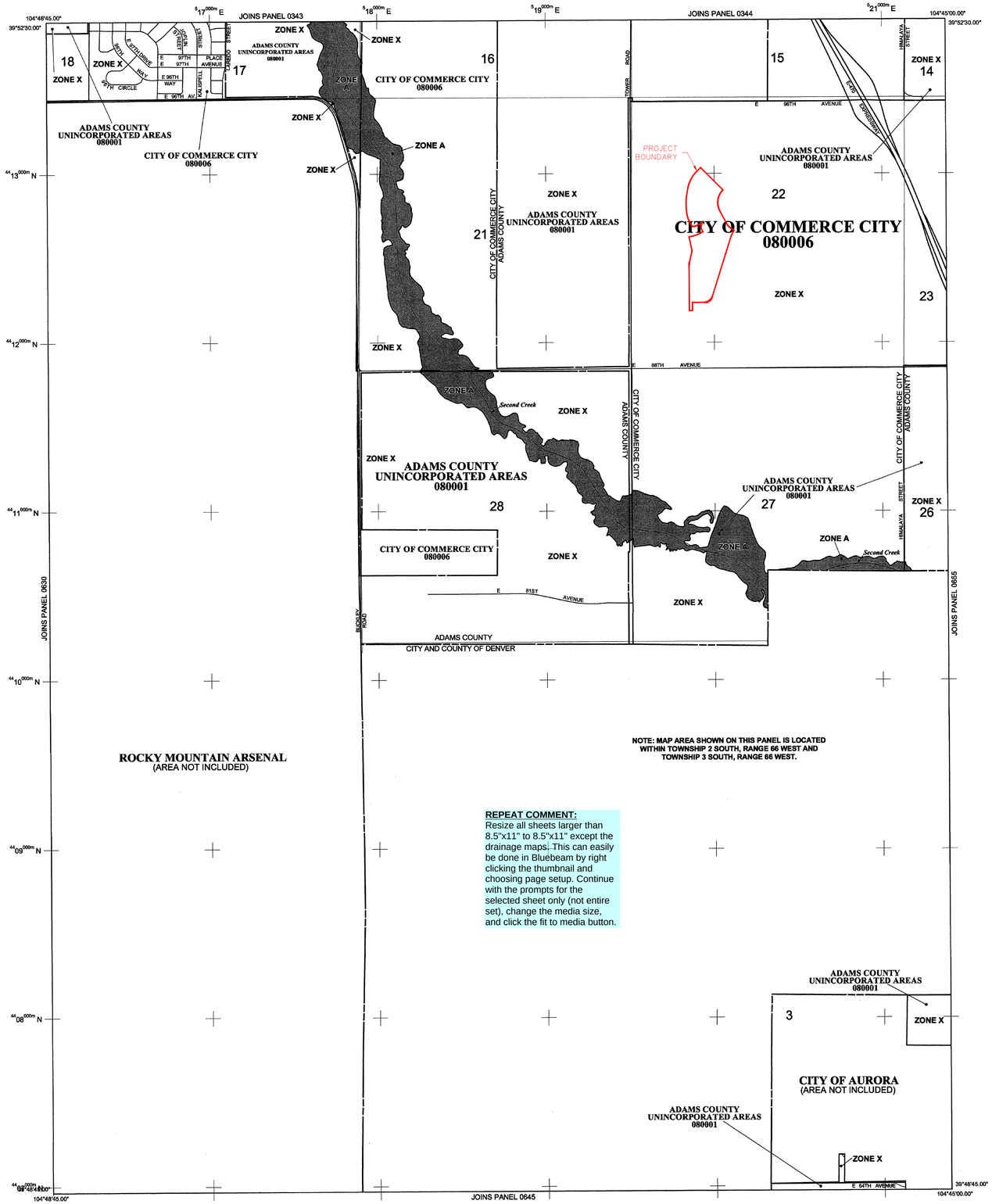
Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

Contact the **FEMA Map Service Center** at 1- 800- 358- 9616 for information on available products associated with this FIRM. Available products may include previously issued Letters of Map Change, *a Flood Insurance Study report,* and/or digital versions of this map. The FEMA Map Service Center may also be reached by Fax at 1- 800- 358- 9620 and its website at http://www.msc.fema.gov/.

If you have **questions about this map** or questions concerning the National Flood Insurance Program in general, please call **1- 877- FEMA MAP** (1- 877- 336- 2627) or visit the FEMA website at http://www.fema.gov/.

This digital Flood Insurance Rate Map (FIRM) was produced through a cooperative partnership between the State of Colorado Water Conservation Board, the Urban Drainage and Flood Control District, and the Federal Emergency Management Agency (FEMA). The State of Colorado Water Conservation Board and the Urban Drainage and Flood Control District have implemented a long-term approach of floodplain management to reduce the costs associated with flooding. As part of this effort, both the State of Colorado and the Urban Drainage and Flood Control District have joined in Cooperating Technical Partner agreements with FEMA to produce this digital FIRM.

Additional flood hazard information and resources are available from local communities, the Colorado Water Conservation Board, and the Urban Drainage and Flood Control District.



NOTE: MAP AREA SHOWN ON THIS PANEL IS LOCATED WITHIN TOWNSHIP 2 SOUTH, RANGE 66 WEST AND TOWNSHIP 3 SOUTH, RANGE 66 WEST.

REPEAT COMMENT:
Resize all sheets larger than 8.5"x11" to 8.5"x11" except the drainage maps. This can easily be done in Bluebeam by right clicking the thumbnail and choosing page setup. Continue with the prompts for the selected sheet only (not entire set), change the media size, and click the fit to media button.

LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A	No Base Flood Elevations determined.
ZONE AE	Base Flood Elevations determined.
ZONE AH	Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
ZONE AO	Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
ZONE AR	Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
ZONE A99	Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
ZONE V	Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
ZONE VE	Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X — Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X — Areas determined to be outside the 0.2% annual chance floodplain.

ZONE D — Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

Floodplain boundary
Floodway boundary
Zone D boundary
CBRS and OPA boundary
Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.

513	Base Flood Elevation line and value; elevation in feet*
(EL 987)	Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the North American Vertical Datum of 1988 (NAVD 88)

A — A	Cross section line
23 - - - - - 23	Transect line
97°07'30", 32°22'30"	Geographic coordinates referenced to the North American Datum of 1983 (NAD 83)
4275000mN	1000-meter Universal Transverse Mercator grid ticks, zone 13
6000000 M	5000-foot grid ticks: Alabama State Plane coordinate system, east zone (FIPSZONE 0101), Transverse Mercator
DX5510 ×	Bench mark (see explanation in Notes to Users section of this FIRM panel)
• M1.5	River Mile

MAP REPOSITORIES
Refer to Map Repositories list on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
August 16, 1995
EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL
March 5, 2007 - to update map format.

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1- 800- 638- 6620.

MAP SCALE 1" = 1000'
500 0 1000 2000 FEET
300 0 300 600 METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0635H

FIRM
FLOOD INSURANCE RATE MAP
ADAMS COUNTY, COLORADO
AND INCORPORATED AREAS

PANEL 635 OF 1150
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
ADAMS COUNTY	080001	0635	H
COMMERCE CITY, CITY OF	080006	0635	H

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
08001C0635H

MAP REVISED
MARCH 5, 2007

Federal Emergency Management Agency

U.S. Fish and Wildlife Service
National Wetlands Inventory

Legato West

March 10, 2021

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

National Wetlands Inventory (NWI)
This page was produced by the NWI mapper

APPENDIX D
HYDROLOGICAL CALCULATION

COMPOSITE C CALCULATION

PROJECT MANE: Legato - Filing No. 2
PROJECT NO: 19002561
LOCATION: Commerce City

ATWELL

*Calculations on this sheet come from UDFCD: Urban Storm Drainage Criteria Manual (Vol.1, 2017) (Ch6, 2018)

NRCS Hydrologic Soil Group: C

0.25 acres or less				45% Impervious			
2 yr =	0.34	5 yr =	0.40	10 yr =	0.47	100 yr =	0.67
Greenbelts, agricultural				2% Impervious			
2 yr =	0.01	5 yr =	0.05	10 yr =	0.15	100 yr =	0.49
Paved				100% Impervious			
2 yr =	0.83	5 yr =	0.86	10 yr =	0.87	100 yr =	0.89
Apartments				75% Impervious			
2 yr =	0.60	5 yr =	0.65	10 yr =	0.69	100 yr =	0.79
Off-site flow analysis				45% Impervious			
2 yr =	0.34	5 yr =	0.40	10 yr =	0.47	100 yr =	0.67

EXISTING DRAINAGE AREA

BASIN ID	A_{total} (ft²)	0.25 acres or less (ft²)	Greenbelts, agricultural (ft²)	Paved (ft²)	Apartments (ft²)	Off-site flow analysis (ft²)	A_{total} (Ac)	COMPOSITE C 2 yr	5 yr	10 yr	100 yr	Percent Impervious
A1	37400			14747	22653		0.86	0.69	0.73	0.76	0.83	85%
A2	84829	61443	9546	13840			1.95	0.38	0.44	0.50	0.69	49%
A3	56917	29635	7401	19881			1.31	0.47	0.52	0.57	0.72	59%
A4	120181	93931	6957	19293			2.76	0.40	0.45	0.52	0.69	51%
A5	76993	41937	1696	33360			1.77	0.55	0.59	0.64	0.76	68%
A6	52514			25524	26990		1.21	0.71	0.75	0.78	0.84	87%
A7	116534	85269	8899	22366			2.68	0.41	0.46	0.52	0.70	52%
B1	42584	36633		5951			0.98	0.41	0.46	0.53	0.70	53%
B2A	80150	54050	6700	19400	0		1.84	0.43	0.48	0.54	0.71	55%
B2B	35719		23869	11850			0.82	0.28	0.32	0.39	0.62	35%
B2C	5663		560	2160	2943		0.13	0.63	0.67	0.71	0.80	77%
B3	89244	59360		29884			2.05	0.50	0.55	0.60	0.74	63%
B4	121962	91893		30069			2.80	0.46	0.51	0.57	0.72	59%
B5	82671			35966	46705		1.90	0.70	0.74	0.77	0.83	86%
B6	98039	72824		25215			2.25	0.47	0.52	0.57	0.73	59%
B7	126350	85068		41282			2.90	0.50	0.55	0.60	0.74	63%
B8	89304	66909		22395			2.05	0.46	0.52	0.57	0.73	59%
B9	77589	55978		21611			1.78	0.48	0.53	0.58	0.73	60%
B10	24444	19314		5130			0.56	0.44	0.50	0.55	0.72	57%
B11	51368		33541	17827			1.18	0.29	0.33	0.40	0.63	36%
B12	34294	4202	24593	5499			0.79	0.18	0.22	0.30	0.58	23%
Subtotals (AC)		19.7	2.8	9.7	2.3	0.0						59%

Drainage Area= 34.57

COMPOSITE C CALCULATION

PROJECT MANE: Legato - Filing No. 2
PROJECT NO: 19002561
LOCATION: Commerce City

ATWELL

*Calculations on this sheet come from UDFCD: Urban Storm Drainage Criteria Manual (Vol.1, 2017) (Ch6, 2018)

NRCS Hydrologic Soil Group: C

0.25 acres or less				45% Impervious			
2 yr =	0.34	5 yr =	0.40	10 yr =	0.47	100 yr =	0.67
Greenbelts, agricultural				2% Impervious			
2 yr =	0.01	5 yr =	0.05	10 yr =	0.15	100 yr =	0.49
Paved				100% Impervious			
2 yr =	0.83	5 yr =	0.86	10 yr =	0.87	100 yr =	0.89
Apartments				75% Impervious			
2 yr =	0.60	5 yr =	0.65	10 yr =	0.69	100 yr =	0.79
Off-site flow analysis				45% Impervious			
2 yr =	0.34	5 yr =	0.40	10 yr =	0.47	100 yr =	0.67

PROPOSED DRAINAGE AREA

BASIN ID	A_{total} (ft²)	0.25 acres or less (ft²)	Greenbelts, agricultural (ft²)	Paved (ft²)	Apartments (ft²)	Off-site flow analysis (ft²)	A_{total} (Ac)	COMPOSITE C 2 yr	5 yr	10 yr	100 yr	Percent Impervious
O-1	18715	12669		6046			0.43	0.50	0.55	0.60	0.74	63%
O-2	89672	63710		25962			2.06	0.48	0.53	0.59	0.73	61%
O-3	101124	54534		46590			2.32	0.57	0.61	0.65	0.77	70%
O-4	110058	93578		16480			2.53	0.41	0.47	0.53	0.70	53%
O-5	76435	47640	2843	25952			1.75	0.49	0.54	0.59	0.74	62%
O-6	105654	83240	6000	16414			2.43	0.40	0.45	0.51	0.69	51%
O-7	64844	33286		31558			1.49	0.58	0.62	0.66	0.78	72%
O-8	69003	53936		15067			1.58	0.45	0.50	0.56	0.72	57%
O-9	81668	64341		17327			1.87	0.44	0.50	0.55	0.72	57%
O-10	69762	57998		11764			1.60	0.42	0.48	0.54	0.71	54%
O-11	80376	64258		16118			1.85	0.44	0.49	0.55	0.71	56%
Subtotals (AC)		14.4	0.2	5.3	0.0	0.0						59%

Drainage Area= 19.91

Calculation of Peak Runoff using Rational Method

Designer: DJM
Company: Atwell
Date: 6/14/2021
Project: Legato Filing 2
Location: Commerce City, CO

Version 2.00 released May 2017

Cells of this color are for required user-input
Cells of this color are for optional override values
Cells of this color are for calculated results based on overrides

$t_i = \frac{0.3}{}$ | Computed $t_c = t_i + t_t$ | $t_{minimum} = 5$ (urban), $t_{minimum} = 10$ (non-urban)

$t_t =$ | Regional $t_c = (26 - 17i) + \frac{L_t}{60(14i + 9)\sqrt{}}$ | Selected $t_c = \max\{t_{minimum}, \min(\text{Computed } t_c, \text{Regional } t_c)\}$

Select UDFCD location for NOAA Atlas 14 Rainfall Depths from the pulldown list OR enter your own depths obtained from the NOAA website (click this link)

	2-yr	5-yr	10-yr	25-yr	50-yr	100-yr	500-yr
1-hour rainfall depth, P1 (in) =	0.83	1.09	1.33	1.69	1.99	2.31	3.14

	a	b	c
ainfall Intensity Equation Coefficients =	28.50	10.00	0.786

$I(in/hr) = \frac{a * P_1}{(b + t_c)^c}$

$Q(cfs) = CIA$

Subcatchment Name	Area (ac)	NRCS Hydrologic Soil Group	Percent Imperviousness	Runoff Coefficient, C							Overland (Initial) Flow Time			Channelized (Travel) Flow Time					Time of Concentration			Rainfall Intensity, I (in/hr)							Peak Flow, Q (cfs)						
				2-yr	5-yr	10-yr	25-yr	50-yr	100-yr	500-yr	Overland Flow Length L_i (ft)	Overland Flow Slope S_i (ft/ft)	Overland Flow Time t_i (min)	Channelized Flow Length L_t (ft)	Channelized Flow Slope S_t (ft/ft)	NRCS Conveyance Factor K	Channelized Flow Velocity V_t (ft/sec)	Channelized Flow Time t_t (min)	Computed t_c (min)	Regional t_c (min)	Selected t_c (min)	2-yr	5-yr	10-yr	25-yr	50-yr	100-yr	500-yr	2-yr	5-yr	10-yr	25-yr	50-yr	100-yr	500-yr
A1	0.86	C	85.0	0.69	0.73	0.76	0.80	0.81	0.83	0.86	50.00	0.020	3.78	465.00	0.007	20	1.67	4.63	8.41	15.98	8.41	2.38	3.15	3.84	4.88	5.75	6.67	9.07	1.42	1.97	2.50	3.34	4.02	4.77	6.67
A2	1.95	C	49.0	0.37	0.43	0.49	0.59	0.64	0.68	0.74	175.00	0.020	12.65	442.00	0.007	20	1.67	4.40	17.05	23.22	17.05	1.76	2.33	2.84	3.61	4.25	4.93	6.70	1.29	1.97	2.72	4.17	5.26	6.58	9.70
A3	1.31	C	59.0	0.46	0.52	0.57	0.65	0.68	0.73	0.77	65.00	0.020	6.76	612.00	0.010	20	2.00	5.10	11.86	21.88	11.86	2.08	2.75	3.35	4.26	5.02	5.83	7.92	1.26	1.86	2.49	3.63	4.50	5.54	8.03
A4	2.76	C	51.0	0.39	0.45	0.51	0.60	0.64	0.69	0.75	175.00	0.020	12.34	728.00	0.010	20	2.00	6.07	18.40	24.85	18.40	1.69	2.24	2.73	3.47	4.09	4.74	6.45	1.83	2.78	3.82	5.79	7.27	9.07	13.32
A5	1.77	C	68.0	0.54	0.59	0.63	0.70	0.73	0.76	0.80	65.00	0.020	5.92	989.00	0.012	20	2.19	7.52	13.44	22.56	13.44	1.97	2.60	3.18	4.04	4.75	5.52	7.50	1.89	2.71	3.55	5.00	6.13	7.44	10.65
A6	1.21	C	87.0	0.71	0.74	0.77	0.81	0.82	0.84	0.86	35.00	0.020	3.02	898.00	0.007	20	1.67	8.94	11.97	19.66	11.97	2.07	2.74	3.34	4.25	5.00	5.80	7.89	1.79	2.47	3.12	4.14	4.98	5.90	8.23
A7	2.68	C	52.0	0.40	0.46	0.51	0.61	0.65	0.70	0.75	115.00	0.020	9.88	796.00	0.007	20	1.67	7.93	17.80	26.90	17.80	1.72	2.28	2.78	3.53	4.16	4.82	6.56	1.85	2.80	3.83	5.77	7.24	9.01	13.21
B1	0.98	C	53.0	0.41	0.47	0.52	0.62	0.65	0.70	0.75	65.00	0.020	7.33	587.00	0.010	20	2.00	4.89	12.22	22.95	12.22	2.05	2.71	3.31	4.21	4.96	5.75	7.82	0.82	1.24	1.69	2.54	3.18	3.95	5.79
B2A	1.84	C	55.0	0.43	0.48	0.54	0.63	0.66	0.71	0.76	120.00	0.020	9.70	530.00	0.011	20	2.10	4.21	13.92	21.69	13.92	1.94	2.56	3.13	3.97	4.68	5.43	7.38	1.52	2.28	3.08	4.58	5.72	7.08	10.34
B2B	0.82	C	35.0	0.26	0.32	0.39	0.52	0.57	0.63	0.70	60.00	0.020	8.68	530.00	0.011	20	2.10	4.21	12.89	26.11	12.89	2.01	2.65	3.24	4.11	4.84	5.62	7.64	0.42	0.70	1.03	1.74	2.25	2.89	4.37
B3	2.05	C	63.0	0.50	0.55	0.60	0.67	0.70	0.74	0.79	168.00	0.020	10.27	542.00	0.014	20	2.37	3.82	14.09	19.57	14.09	1.93	2.55	3.11	3.95	4.65	5.40	7.34	1.96	2.86	3.79	5.44	6.72	8.21	11.83
B4	2.20	C	59.0	0.46	0.52	0.57	0.65	0.68	0.73	0.77	178.00	0.020	11.19	567.00	0.010	20	2.00	4.73	15.92	21.45	15.92	1.82	2.41	2.93	3.73	4.39	5.10	6.93	1.85	2.73	3.65	5.33	6.61	8.13	11.80
B5	1.90	C	86.0	0.70	0.74	0.76	0.80	0.82	0.84	0.86	50.00	0.020	3.70	1135.00	0.009	20	1.90	9.97	13.67	20.86	13.67	1.96	2.58	3.15	4.01	4.72	5.47	7.44	2.62	3.61	4.58	6.09	7.33	8.69	12.14
B6	2.25	C	59.0	0.46	0.52	0.57	0.65	0.68	0.73	0.77	195.00	0.020	11.72	465.00	0.009	20	1.90	4.08	15.80	20.70	15.80	1.83	2.41	2.95	3.74	4.41	5.12	6.95	1.90	2.80	3.75	5.47	6.79	8.35	12.11
B7	2.90	C	63.0	0.50	0.55	0.60	0.67	0.70	0.74	0.79	115.00	0.020	8.50	680.00	0.010	20	2.00	5.67	14.16	21.65	14.16	1.92	2.54	3.10	3.94	4.64	5.39	7.32	2.77	4.04	5.35	7.68	9.48	11.59	16.70
B8	1.93	C	59.0	0.46	0.52	0.57	0.65	0.68	0.73	0.77	115.00	0.020	9.00	425.00	0.009	20	1.90	3.73	12.73	20.30	12.73	2.02	2.67	3.25	4.13	4.87	5.65	7.68	1.80	2.65	3.55	5.18	6.43	7.91	11.47
B9	1.78	C	60.0	0.47	0.52	0.57	0.66	0.69	0.73	0.78	185.00	0.020	11.25	390.00	0.009	20	1.90	3.43	14.68	19.74	14.68	1.89	2.50	3.05	3.88	4.56	5.30	7.20	1.58	2.33	3.11	4.52	5.60	6.88	9.96
B10	0.56	C	57.0	0.44	0.50	0.55	0.64	0.67	0.72	0.77	125.00	0.020	9.64	185.00	0.009	20	1.90	1.63	11.27	18.22	11.27	2.13	2.81	3.43	4.36	5.13	5.95	8.09	0.53	0.79	1.06	1.56	1.94	2.39	3.48
B11	1.18	C	36.0	0.27	0.33	0.40	0.52	0.57	0.63	0.70	17.00	0.020	4.57	443.00	0.010	20	2.00	3.69	8.26	25.14	8.26	2.40	3.17	3.86	4.91	5.78	6.71	9.12	0.75	1.23	1.81	3.02	3.90	5.00	7.55
B12	0.79	C	23.0	0.16	0.22	0.30	0.45	0.51	0.58	0.66	115.00	0.020	13.52	102.00	0.010	20	2.00	0.85	14.37	23.48	14.37	1.91	2.52	3.08	3.91	4.61	5.35	7.27	0.24	0.44	0.73	1.38	1.84	2.44	3.80
B2C	0.13	C	77.0	0.62	0.66	0.70	0.75	0.77	0.80	0.83	31.00	0.020	3.50	50.00	0.020	20	2.83	0.29	3.79	13.21	5.00	2.80	3.70	4.51	5.73	6.75	7.84	10.65	0.23	0.32	0.41	0.56	0.68	0.81	1.15
O-1	0.43	C	63.0	0.50	0.55	0.60	0.67	0.70	0.74	0.79	138.00	0.019	9.47	128.00	0.015	20	2.45	0.87	10.34	16.27	10.34	2.20	2.91	3.55	4.51	5.31	6.17	8.38	0.47	0.69	0.91	1.30	1.61	1.97	2.84
O-2	2.06	C	61.0	0.48	0.53	0.58	0.66	0.69	0.73	0.78	199.00	0.012	13.62	169.00	0.019	20	2.76	1.02	14.64	16.80	14.64	1.89	2.50	3.05	3.88	4.57	5.30	7.21	1.87	2.74	3.65	5.28	6.54	8.01	11.59
O-3	2.32	C	70.0	0.56	0.61	0.65	0.71	0.74	0.77	0.81	60.00	0.020	5.50	657.00	0.022	20	2.97	3.69	9.19	18.03	9.19	2.31	3.05	3.72	4.72	5.56	6.46	8.77	2.99	4.28	5.57	7.79	9.53	11.54	16.46
O-4	2.53	C	53.0	0.41	0.47	0.52	0.62	0.65	0.70	0.75	120.00	0.020	9.96	600.00	0.023	20	3.03	3.30	13.26	21.01	13.26	1.98	2.62	3.20	4.06	4.78	5.55	7.54	2.05	3.09	4.22	6.33	7.92	9.84	14.41
O-5	1.75	C	62.0	0.49	0.54	0.59	0.67	0.70	0.74	0.78	120.00	0.020	8.81	837.00	0.023	20	3.03	4.60	13.41	20.66	13.41	1.97	2.61	3.18	4.04	4.76	5.52	7.51	1.68	2.46	3.27	4.71	5.82	7.13	10.29
O-6	2.43	C	51.0	0.39	0.45	0.51	0.60	0.64	0.69	0.75	120.00	0.020	10.22	595.00	0.025	20	3.16	3.14	13.35	21.22	13.35	1.98	2.61	3.19	4.05	4.77	5.53	7.52	1.88	2.86	3.92	5.95	7.47	9.31	13.68
O-7	1.49	C	72.0	0.58	0.62	0.66	0.72	0.75	0.78	0.81	36.00	0.020	4.12	749.00	0.027	20	3.29	3.80	7.92	17.74	7.92	2.43	3.21	3.92	4.98	5.87	6.81	9.26	2.09	2.98	3.86	5.36	6.55	7.90	11.24
O-8	1.58	C	57.0	0.44	0.50	0.55	0.64	0.67	0.72	0.77	182.00	0.020	11.64	295.00	0.027	20	3.29	1.50	13.13	18.07	13.13	1.99	2.63	3.21	4.08	4.80	5.57	7.58	1.40	2.08	2.79	4.11	5.12	6.32	9.19
O-9	1.87	C	57.0	0.44	0.50	0.55	0.64	0.67	0.72	0.77	36.00	0.020	5.17	615.00	0.019	20	2.76	3.72	8.89	20.69	8.89	2.33	3.08	3.76	4.78	5.63	6.54	8.88	1.94	2.88	3.88	5.71	7.10	8.76	12.75
O-10	1.60	C	54.0	0.42	0.48	0.53	0.62	0.66	0.70	0.76	155.00	0.020	11.17	380.00	0.011	20	2.10	3.02	14.19	20.47	14.19	1.92	2.54	3.10	3.94	4.64	5.38	7.31	1.28	1.93	2.62	3.91	4.89	6.07	8.87
O-11	1.85	C	56.0	0.44	0.49	0.54	0.63	0.67	0.71	0.76	245.00	0.020	13.68	446.00	0.009	20	1.90	3.92	17.60	21.13	17.60	1.73	2.29	2.79	3.55	4.18	4.85	6.59	1.39	2.08	2.81	4.15	5.18	6.40	9.33

LEGATO FILING 2
RUNOFF SUMMARY TABLE

BASIN SUMMARY TABLE					
BASIN ID	DESIGN POINT	C5	C100	Q5	Q100
A1	A1	0.73	0.83	1.97	4.77
A2	A2	0.43	0.68	1.97	6.58
A3	A3	0.52	0.73	1.86	5.54
A4	A4	0.45	0.69	2.78	9.07
A5	A5	0.59	0.76	2.71	7.44
A6	A6	0.74	0.84	2.47	5.90
A7	A7	0.46	0.70	2.80	9.01
B1	B1	0.47	0.70	1.24	3.95
B2A	B2A	0.48	0.71	2.28	7.08
B2B	B2B	0.32	0.63	0.70	2.89
B3	B3	0.55	0.74	2.86	8.21
B4	B4	0.52	0.73	2.73	8.13
B5	B5	0.74	0.84	3.61	8.69
B6	B6	0.52	0.73	2.80	8.35
B7	B7	0.55	0.74	4.04	11.59
B8	B8	0.52	0.73	2.65	7.91
B9	B9	0.52	0.73	2.33	6.88
B10	B10	0.50	0.72	0.79	2.39
B11	B11	0.33	0.63	1.23	5.00
B12	B12	0.22	0.58	0.44	2.44
B2C	B2C	0.66	0.80	0.32	0.81
O-1	O-1	0.55	0.74	0.69	1.97
O-2	O-2	0.53	0.73	2.74	8.01
O-3	O-3	0.61	0.77	4.28	11.54
O-4	O-4	0.47	0.70	3.09	9.84
O-5	O-5	0.54	0.74	2.46	7.13
O-6	O-6	0.45	0.69	2.86	9.31
O-7	O-7	0.62	0.78	2.98	7.90
O-8	O-8	0.50	0.72	2.08	6.32
O-9	O-9	0.50	0.72	2.88	8.76
O-10	O-10	0.48	0.70	1.93	6.07
O-11	O-11	0.49	0.71	2.08	6.40

Flows to Pond A	16.56	48.30
Flows to Pond B	28.03	84.34

APPENDIX E
HYDRAULIC CALCULATIONS

Version 4.06 Released August 2018

INLET MANAGEMENT

Worksheet Protected

INLET NAME	2505R - B6	2503R - B10	2502R - B8	2501R - B9	1709L - B3	1709R - O3	1708L - B4	1708R - O5	1706L - B7
Site Type (Urban or Rural)	URBAN	URBAN	URBAN	URBAN	URBAN	URBAN	URBAN	URBAN	URBAN
Inlet Application (Street or Area)	STREET	STREET	STREET	STREET	STREET	STREET	STREET	STREET	STREET
Hydraulic Condition	On Grade	On Grade	On Grade	On Grade	On Grade	On Grade	On Grade	On Grade	On Grade
Inlet Type	CDOT Type R Curb Opening	CDOT Type R Curb Opening	CDOT Type R Curb Opening	CDOT Type R Curb Opening	CDOT Type R Curb Opening	CDOT Type R Curb Opening	CDOT Type R Curb Opening	CDOT Type R Curb Opening	CDOT Type R Curb Opening

USER-DEFINED INPUT

User-Defined Design Flows

Minor Q_{Known} (cfs)	5.1	0.8	2.7	2.3	2.9	4.3	2.7	2.5	4.0
Major Q_{Known} (cfs)	15.7	2.4	7.9	6.9	8.2	11.5	8.1	7.1	11.6

Bypass (Carry-Over) Flow from Upstream

Receive Bypass Flow from:	No Bypass Flow Received	2505R - B6	2503R - B10	2502R - B8	No Bypass Flow Received	No Bypass Flow Received	1709L - B3	1709R - O3	1708L - B4
Minor Bypass Flow Received, Q_b (cfs)	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Major Bypass Flow Received, Q_b (cfs)	0.0	6.4	1.8	2.4	0.0	0.0	1.5	3.5	0.4

Watershed Characteristics

Subcatchment Area (acres)	4.09	0.57	2.05	2.13	2.07	2.32	2.58	1.75	2.19
Percent Impervious	58	57	59	60	63	70	59	62	63
NRCS Soil Type	C	C	C	C	C	C	C	C	C

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)									
C_1									
C_2									
C_3									
User-defined C									
User-defined 5-yr C_5									
User-defined T_c									

Major Storm Rainfall Input

Design Storm Return Period, T_r (years)									
One-Hour Precipitation, P_1 (inches)									
C_1									
C_2									
C_3									
User-defined C									
User-defined 5-yr C_5									
User-defined T_c									

CALCULATED OUTPUT

Minor Total Design Peak Flow, Q (cfs)	**5.1**	**1.0**	**2.7**	**2.3**	**2.9**	**4.3**	**2.7**	**2.5**	**4.0**
Major Total Design Peak Flow, Q (cfs)	**15.7**	**8.8**	**9.7**	**9.3**	**8.2**	**11.5**	**9.6**	**10.6**	**12.0**
Minor Flow Bypassed Downstream, Q_b (cfs)	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Major Flow Bypassed Downstream, Q_b (cfs)	6.4	1.8	2.4	2.1	1.5	3.5	0.4	2.9	3.8

Minor Storm (Calculated) Analysis of Flow Time

C	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
C_5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Overland Flow Velocity, Vi	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Channel Flow Velocity, Vt	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Overland Flow Time, Ti	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Channel Travel Time, Tt	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Calculated Time of Concentration, T_c	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Regional T_c	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Recommended T_c	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
T_c selected by User	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Design Rainfall Intensity, I	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Calculated Local Peak Flow, Q_p	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Major Storm (Calculated) Analysis of Flow Time

C	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
C_5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Overland Flow Velocity, Vi	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Channel Flow Velocity, Vt	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Overland Flow Time, Ti	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Channel Travel Time, Tt	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Calculated Time of Concentration, T_c	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Regional T_c	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Recommended T_c	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
T_c selected by User	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Design Rainfall Intensity, I	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Calculated Local Peak Flow, Q_p	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Version 4.06 Released August 2018

INLET MANAGEMENT

Worksheet Protected

Where is inlet 1702R?
Include all inlets in calcs.

INLET NAME	1706R - O7	1702L - B11	1701L - B5	1700R - O11	2600L - A6	2600R - A7	2605L - A1	2605R - A2	2700L - A3
Site Type (Urban or Rural)	URBAN	URBAN	URBAN	URBAN	URBAN	URBAN	URBAN	URBAN	URBAN
Inlet Application (Street or Area)	STREET	STREET	STREET	STREET	STREET	STREET	STREET	STREET	STREET
Hydraulic Condition	On Grade	In Sump	In Sump	In Sump	On Grade	On Grade	In Sump	In Sump	On Grade
Inlet Type	CDOT Type R Curb Opening	CDOT Type R Curb Opening	CDOT Type R Curb Opening	CDOT Type R Curb Opening	CDOT Type R Curb Opening	CDOT Type R Curb Opening	CDOT Type R Curb Opening	CDOT Type R Curb Opening	CDOT Type R Curb Opening

USER-DEFINED INPUT

User-Defined Design Flows

Minor Q_{Known} (cfs)	3.0	1.2	3.6	2.1	2.5	2.8	2.0	2.0	1.9
Major Q_{Known} (cfs)	7.9	5.0	8.7	6.4	5.9	9.0	4.8	6.6	5.5

Bypass (Carry-Over) Flow from Upstream

Receive Bypass Flow from:	1708R - O5	User-Defined	No Bypass Flow Received	1706R - O7	No Bypass Flow Received	No Bypass Flow Received	User-Defined	2600R - A7	No Bypass Flow Received
Minor Bypass Flow Received, Q_b (cfs)	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.0
Major Bypass Flow Received, Q_b (cfs)	2.9	5.9	0.0	0.8	0.0	0.0	2.3	2.0	0.0

Watershed Characteristics

Subcatchment Area (acres)	1.49	1.04	0.82	1.85	1.21	2.68	0.86	1.95	1.31
Percent Impervious	72	36	86	56	87	52	85	49	59
NRCS Soil Type	C	C	C	C	C	C	C	C	C

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)									
C_1									
C_2									
C_3									
User-defined C									
User-defined 5-yr C_5									
User-defined T_c									

Major Storm Rainfall Input

Design Storm Return Period, T_r (years)									
One-Hour Precipitation, P_1 (inches)									
C_1									
C_2									
C_3									
User-defined C									
User-defined 5-yr C_5									
User-defined T_c									

CALCULATED OUTPUT

Minor Total Design Peak Flow, Q (cfs)	**3.0**	**1.2**	**3.6**	**2.1**	**2.5**	**2.8**	**2.7**	**2.0**	**1.9**
Major Total Design Peak Flow, Q (cfs)	**10.8**	**10.9**	**8.7**	**7.2**	**5.9**	**9.0**	**7.1**	**8.6**	**5.5**
Minor Flow Bypassed Downstream, Q_b (cfs)	0.0	N/A	N/A	N/A	0.0	0.0	N/A	N/A	0.0
Major Flow Bypassed Downstream, Q_b (cfs)	0.8	N/A	N/A	N/A	0.5	2.0	N/A	N/A	0.3

Minor Storm (Calculated) Analysis of Flow Ti

C	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
C_5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Overland Flow Velocity, Vi	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Channel Flow Velocity, Vt	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Overland Flow Time, Ti	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Channel Travel Time, Tt	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Calculated Time of Concentration, T_c	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Regional T_c	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Recommended T_c	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
T_c selected by User	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Design Rainfall Intensity, I	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Calculated Local Peak Flow, Q_p	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Major Storm (Calculated) Analysis of Flow Ti

C	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
C_5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Overland Flow Velocity, Vi	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Channel Flow Velocity, Vt	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Overland Flow Time, Ti	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Channel Travel Time, Tt	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Calculated Time of Concentration, T_c	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Regional T_c	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Recommended T_c	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
T_c selected by User	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Design Rainfall Intensity, I	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Calculated Local Peak Flow, Q_p	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Version 4.06 Released August 2018

INLET MANAGEMENT

Worksheet Protected

INLET NAME	2700R - A4	600 - A5	598 - O2	2506L-B2	Ex. 308 L w F2 B-12	Ex. 304R w B2B & B2C
Site Type (Urban or Rural)	URBAN	URBAN	URBAN	URBAN	URBAN	URBAN
Inlet Application (Street or Area)	STREET	STREET	STREET	STREET	STREET	STREET
Hydraulic Condition	On Grade	In Sump	In Sump	On Grade	On Grade	On Grade
Inlet Type	CDOT Type R Curb Opening	CDOT Type R Curb Opening	CDOT Type R Curb Opening	CDOT Type R Curb Opening	CDOT Type R Curb Opening	CDOT Type R Curb Opening

USER-DEFINED INPUT

User-Defined Design Flows						
Minor Q_{Known} (cfs)	2.8	2.7	2.7	2.6	1.3	1.6
Major Q_{Known} (cfs)	9.1	7.4	8.0	5.5	3.0	3.8
Bypass (Carry-Over) Flow from Upstream						
Receive Bypass Flow from:	No Bypass Flow Received	User-Defined	No Bypass Flow Received	No Bypass Flow Received	User-Defined	User-Defined
Minor Bypass Flow Received, Q_b (cfs)	0.0	0.0	0.0	0.0	0.4	1.0
Major Bypass Flow Received, Q_b (cfs)	0.0	2.3	0.0	0.0	2.4	3.7
Watershed Characteristics						
Subcatchment Area (acres)	2.76	1.77	2.06	2.79		
Percent Impervious	51	68	61	58		
NRCS Soil Type	C	C	C	C		
Watershed Profile						
Overland Slope (ft/ft)				0.020		
Overland Length (ft)				115		
Channel Slope (ft/ft)				0.010		
Channel Length (ft)				587		
Minor Storm Rainfall Input						
Design Storm Return Period, T_r (years)						
One-Hour Precipitation, P_1 (inches)						
C_1						
C_2						
C_3						
User-defined C						
User-defined 5-yr C_5						
User-defined T_c						
Major Storm Rainfall Input						
Design Storm Return Period, T_r (years)						
One-Hour Precipitation, P_1 (inches)						
C_1						
C_2						
C_3						
User-defined C						
User-defined 5-yr C_5						
User-defined T_c						

CALCULATED OUTPUT

Minor Total Design Peak Flow, Q (cfs)	**2.8**	**2.7**	**2.7**	**2.6**	**1.7**	**2.6**
Major Total Design Peak Flow, Q (cfs)	**9.1**	**9.7**	**8.0**	**5.5**	**5.4**	**7.5**
Minor Flow Bypassed Downstream, Q_b (cfs)	0.0	N/A	N/A	0.0	0.1	0.7
Major Flow Bypassed Downstream, Q_b (cfs)	2.0	N/A	N/A	0.0	2.5	4.4
Minor Storm (Calculated) Analysis of Flow Ti						
C	N/A	N/A	N/A	N/A	N/A	N/A
C_5	N/A	N/A	N/A	N/A	N/A	N/A
Overland Flow Velocity, Vi	N/A	N/A	N/A	N/A	N/A	N/A
Channel Flow Velocity, Vt	N/A	N/A	N/A	N/A	N/A	N/A
Overland Flow Time, Ti	N/A	N/A	N/A	N/A	N/A	N/A
Channel Travel Time, Tt	N/A	N/A	N/A	N/A	N/A	N/A
Calculated Time of Concentration, T_c	N/A	N/A	N/A	N/A	N/A	N/A
Regional T_c	N/A	N/A	N/A	N/A	N/A	N/A
Recommended T_c	N/A	N/A	N/A	N/A	N/A	N/A
T_c selected by User	N/A	N/A	N/A	N/A	N/A	N/A
Design Rainfall Intensity, I	N/A	N/A	N/A	N/A	N/A	N/A
Calculated Local Peak Flow, Q_p	N/A	N/A	N/A	N/A	N/A	N/A
Major Storm (Calculated) Analysis of Flow Ti						
C	N/A	N/A	N/A	N/A	N/A	N/A
C_5	N/A	N/A	N/A	N/A	N/A	N/A
Overland Flow Velocity, Vi	N/A	N/A	N/A	N/A	N/A	N/A
Channel Flow Velocity, Vt	N/A	N/A	N/A	N/A	N/A	N/A
Overland Flow Time, Ti	N/A	N/A	N/A	N/A	N/A	N/A
Channel Travel Time, Tt	N/A	N/A	N/A	N/A	N/A	N/A
Calculated Time of Concentration, T_c	N/A	N/A	N/A	N/A	N/A	N/A
Regional T_c	N/A	N/A	N/A	N/A	N/A	N/A
Recommended T_c	N/A	N/A	N/A	N/A	N/A	N/A
T_c selected by User	N/A	N/A	N/A	N/A	N/A	N/A
Design Rainfall Intensity, I	N/A	N/A	N/A	N/A	N/A	N/A
Calculated Local Peak Flow, Q_p	N/A	N/A	N/A	N/A	N/A	N/A

REPEAT COMMENT:
Provide calculations for all existing inlets receiving flows from the site.

On site basins draining bypassing to existing inlets: A-3, A-4, A-5, B-1, B-2A, B-2B, B-2C, B-12 and an undelineated basin west of B-12.

Calcs need to include all correct caryover flows, direct flows from site, and direct flows from infrastructure basins. These flows need to be provided and presented in a manner that we are able to check them.

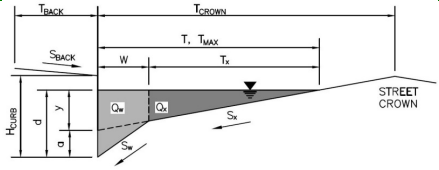
Version 4.06 Released August 2018

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

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

Project: Legato Filing No. 2

Inlet ID: 2505R - B6



Gutter Geometry (Enter data in the blue cells)

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	10.0	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} =	4.50	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	17.0	ft
Gutter Width	W =	2.00	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 =	0.010	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} =	17.0	17.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	4.5	6.9	inches
Allow Flow Depth at Street Crown (leave blank for no)		☐	☑	check = yes

Maximum Capacity for 1/2 Street based On Allowable Spread

		Minor Storm	Major Storm	
Water Depth without Gutter Depression (Eq. ST-2)	y =	4.08	4.08	inches
Vertical Depth between Gutter Lip and Gutter Flowline (usually 2")	d_C =	2.0	2.0	inches
Gutter Depression (d_C - (W * S_x * 12))	a =	1.51	1.51	inches
Water Depth at Gutter Flowline	d =	5.59	5.59	inches
Allowable Spread for Discharge outside the Gutter Section W (T - W)	T_X =	15.0	15.0	ft
Gutter Flow to Design Flow Ratio by FHWA HEC-22 method (Eq. ST-7)	E_O =	0.350	0.350	
Discharge outside the Gutter Section W, carried in Section T_X	Q_X =	7.1	7.1	cfs
Discharge within the Gutter Section W (Q_T - Q_X)	Q_W =	3.8	3.8	cfs
Discharge Behind the Curb (e.g., sidewalk, driveways, & lawns)	Q_{BACK} =	0.2	0.2	cfs
Maximum Flow Based On Allowable Spread	**Q_T =**	**11.1**	**11.1**	**cfs**
Flow Velocity within the Gutter Section	V =	5.0	5.0	fps
V*d Product: Flow Velocity times Gutter Flowline Depth	V*d =	2.3	2.3	

Maximum Capacity for 1/2 Street based on Allowable Depth

		Minor Storm	Major Storm	
Theoretical Water Spread	T_{TH} =	12.5	22.5	ft
Theoretical Spread for Discharge outside the Gutter Section W (T - W)	$T_{X\,TH}$ =	10.5	20.5	ft
Gutter Flow to Design Flow Ratio by FHWA HEC-22 method (Eq. ST-7)	E_O =	0.475	0.263	
Theoretical Discharge outside the Gutter Section W, carried in Section $T_{X\,TH}$	$Q_{X\,TH}$ =	2.7	16.1	cfs
Actual Discharge outside the Gutter Section W, (limited by distance T_{CROWN})	Q_X =	2.7	15.7	cfs
Discharge within the Gutter Section W (Q_d - Q_X)	Q_W =	2.4	5.8	cfs
Discharge Behind the Curb (e.g., sidewalk, driveways, & lawns)	Q_{BACK} =	0.0	1.9	cfs
Total Discharge for Major & Minor Storm (Pre-Safety Factor)	Q =	5.1	23.3	cfs
Average Flow Velocity Within the Gutter Section	V =	4.2	5.8	fps
V*d Product: Flow Velocity Times Gutter Flowline Depth	V*d =	1.6	3.4	
Slope-Based Depth Safety Reduction Factor for Major & Minor (d ≥ 6") Storm	R =	1.00	1.00	
Max Flow Based on Allowable Depth (Safety Factor Applied)	**Q_d =**	**5.1**	**23.3**	**cfs**
Resultant Flow Depth at Gutter Flowline (Safety Factor Applied)	d =	4.50	6.90	inches
Resultant Flow Depth at Street Crown (Safety Factor Applied)	d_{CROWN} =	0.00	1.31	inches

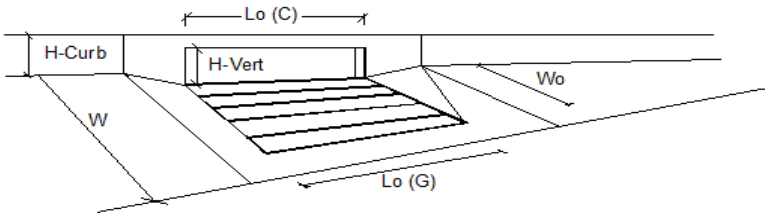
		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is based on Depth Criterion				
MAJOR STORM Allowable Capacity is based on Depth Criterion	**Q_{allow} =**	**5.1**	**23.3**	**cfs**

Minor storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

Major storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

INLET ON A CONTINUOUS GRADE

Version 4.06 Released August 2018



Design Information (Input)		MINOR	MAJOR	
Type of Inlet (CDOT Type R Curb Opening)	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a')	a_{LOCAL} =	4.0	4.0	inches
Total Number of Units in the Inlet (Grate or Curb Opening)	No =	2	2	
Length of a Single Unit Inlet (Grate or Curb Opening)	L_o =	5.00	5.00	ft
Width of a Unit Grate (cannot be greater than W, Gutter Width)	W_o =	N/A	N/A	ft
Clogging Factor for a Single Unit Grate (typical min. value = 0.5)	C_f-G =	N/A	N/A	
Clogging Factor for a Single Unit Curb Opening (typical min. value = 0.1)	C_f-C =	0.10	0.10	
Street Hydraulics: OK - Q < Allowable Street Capacity'		MINOR	MAJOR	
Design Discharge for Half of Street (from Sheet *Inlet Management*)	**Q_o =**	**5.1**	**15.7**	cfs
Water Spread Width	T =	12.4	17.0	ft
Water Depth at Flowline (outside of local depression)	d =	4.5	6.2	inches
Water Depth at Street Crown (or at T_{MAX})	d_{CROWN} =	0.0	0.6	inches
Ratio of Gutter Flow to Design Flow	E_o =	0.477	0.308	
Discharge outside the Gutter Section W, carried in Section T_x	Q_x =	2.7	10.4	cfs
Discharge within the Gutter Section W	Q_w =	2.4	4.6	cfs
Discharge Behind the Curb Face	Q_{BACK} =	0.0	0.7	cfs
Flow Area within the Gutter Section W	A_W =	0.58	0.86	sq ft
Velocity within the Gutter Section W	V_W =	4.2	5.3	fps
Water Depth for Design Condition	d_{LOCAL} =	8.5	10.2	inches
Grate Analysis (Calculated)		MINOR	MAJOR	
Total Length of Inlet Grate Opening	L =	N/A	N/A	ft
Ratio of Grate Flow to Design Flow	$E_{o\text{-}GRATE}$ =	N/A	N/A	
Under No-Clogging Condition		MINOR	MAJOR	
Minimum Velocity Where Grate Splash-Over Begins	V_o =	N/A	N/A	fps
Interception Rate of Frontal Flow	R_f =	N/A	N/A	
Interception Rate of Side Flow	R_x =	N/A	N/A	
Interception Capacity	Q_i =	N/A	N/A	cfs
Under Clogging Condition		MINOR	MAJOR	
Clogging Coefficient for Multiple-unit Grate Inlet	GrateCoef =	N/A	N/A	
Clogging Factor for Multiple-unit Grate Inlet	GrateClog =	N/A	N/A	
Effective (unclogged) Length of Multiple-unit Grate Inlet	L_e =	N/A	N/A	ft
Minimum Velocity Where Grate Splash-Over Begins	V_o =	N/A	N/A	fps
Interception Rate of Frontal Flow	R_f =	N/A	N/A	
Interception Rate of Side Flow	R_x =	N/A	N/A	
Actual Interception Capacity	**Q_a =**	**N/A**	**N/A**	cfs
Carry-Over Flow = Q_o-Q_a (to be applied to curb opening or next d/s inlet)	**Q_b =**	**N/A**	**N/A**	cfs
Curb or Slotted Inlet Opening Analysis (Calculated)		MINOR	MAJOR	
Equivalent Slope S_e (based on grate carry-over)	S_e =	0.129	0.091	ft/ft
Required Length L_T to Have 100% Interception	L_T =	11.44	23.37	ft
Under No-Clogging Condition		MINOR	MAJOR	
Effective Length of Curb Opening or Slotted Inlet (minimum of L, L_T)	L =	10.00	10.00	ft
Interception Capacity	Q_i =	5.0	9.5	cfs
Under Clogging Condition		MINOR	MAJOR	
Clogging Coefficient	CurbCoef =	1.25	1.25	
Clogging Factor for Multiple-unit Curb Opening or Slotted Inlet	CurbClog =	0.06	0.06	
Effective (Unclogged) Length	L_e =	9.37	9.37	ft
Actual Interception Capacity	**Q_a =**	**4.9**	**9.3**	cfs
Carry-Over Flow = $Q_{b(GRATE)}$-Q_a	**Q_b =**	**0.2**	**6.4**	cfs
Summary		MINOR	MAJOR	
Total Inlet Interception Capacity	**Q =**	**4.9**	**9.3**	**cfs**
Total Inlet Carry-Over Flow (flow bypassing inlet)	**Q_b =**	**0.2**	**6.4**	**cfs**
Capture Percentage = Q_a/Q_o =	**C% =**	**97**	**59**	**%**

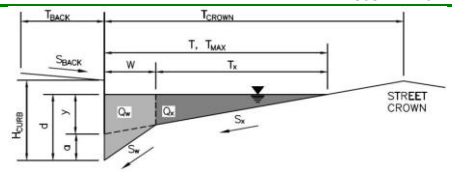
Version 4.06 Released August 2018

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

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

Project: **Legato Filing No. 2**

Inlet ID: **2503R - B10**



Gutter Geometry (Enter data in the blue cells)

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	10.0	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} =	4.50	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	17.0	ft
Gutter Width	W =	2.00	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 =	0.010	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} =	17.0	17.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	4.5	6.9	inches
Allow Flow Depth at Street Crown (leave blank for no)		☐	☑	check = yes

		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is based on Depth Criterion				
MAJOR STORM Allowable Capacity is based on Depth Criterion	Q_{allow} =	**5.1**	**23.3**	**cfs**

Minor storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

Major storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

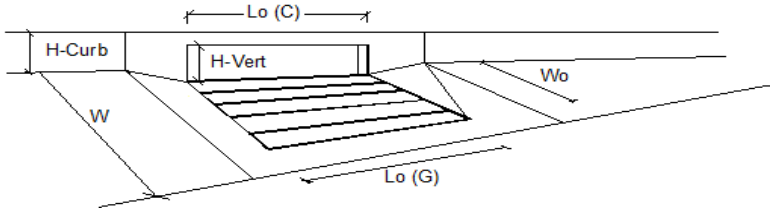
REPEAT COMMENT:

Enable show details on all inlet calculation pages.

This is typical for all comments. They should be addressed throughout the document wherever they apply.

INLET ON A CONTINUOUS GRADE

Version 4.06 Released August 2018



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')		a_{LOCAL} =	4.0	4.0	inches
Total Number of Units in the Inlet (Grate or Curb Opening)		No =	2	2	
Length of a Single Unit Inlet (Grate or Curb Opening)		L_o =	5.00	5.00	ft
Width of a Unit Grate (cannot be greater than W, Gutter Width)		W_o =	N/A	N/A	ft
Clogging Factor for a Single Unit Grate (typical min. value = 0.5)		C_f-G =	N/A	N/A	
Clogging Factor for a Single Unit Curb Opening (typical min. value = 0.1)		C_f-C =	0.10	0.10	

Street Hydraulics: OK - Q < Allowable Street Capacity'		MINOR	MAJOR	
Total Inlet Interception Capacity	**Q =**	**0.8**	**4.1**	**cfs**
Total Inlet Carry-Over Flow (flow bypassing inlet)	**Q_b =**	**0.0**	**0.0**	**cfs**
Capture Percentage = Q_a/Q_o =	**C% =**	**100**	**100**	**%**

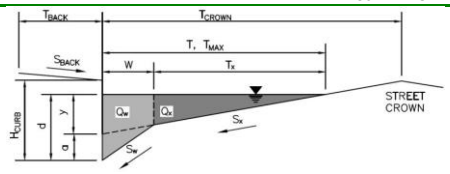
Version 4.06 Released August 2018

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

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

Project: **Legato Filing No. 2**

Inlet ID: **2502R - B8**



Gutter Geometry (Enter data in the blue cells)

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	10.0	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} =	4.50	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	17.0	ft
Gutter Width	W =	2.00	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 =	0.010	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} =	17.0	17.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	4.5	6.9	inches
Allow Flow Depth at Street Crown (leave blank for no)		☐	☑	check = yes

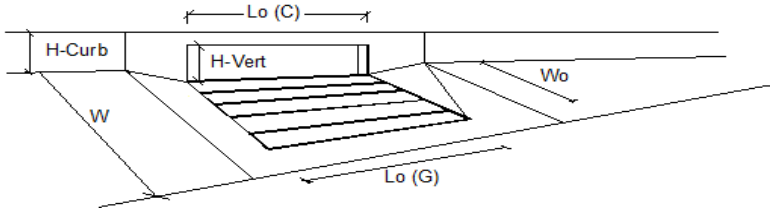
		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is based on Depth Criterion				
MAJOR STORM Allowable Capacity is based on Depth Criterion	**Q_{allow} =**	**5.1**	**23.3**	**cfs**

Minor storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

Major storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

INLET ON A CONTINUOUS GRADE

Version 4.06 Released August 2018



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')		a_{LOCAL} =	4.0	4.0	inches
Total Number of Units in the Inlet (Grate or Curb Opening)		No =	2	2	
Length of a Single Unit Inlet (Grate or Curb Opening)		L_o =	5.00	5.00	ft
Width of a Unit Grate (cannot be greater than W, Gutter Width)		W_o =	N/A	N/A	ft
Clogging Factor for a Single Unit Grate (typical min. value = 0.5)		C_f-G =	N/A	N/A	
Clogging Factor for a Single Unit Curb Opening (typical min. value = 0.1)		C_f-C =	0.10	0.10	
Street Hydraulics: OK - Q < Allowable Street Capacity'			MINOR	MAJOR	
Total Inlet Interception Capacity		**Q =**	**2.6**	**6.6**	**cfs**
Total Inlet Carry-Over Flow (flow bypassing inlet)		**Q_b =**	**0.0**	**1.3**	**cfs**
Capture Percentage = Q_a/Q_o =		**C% =**	**100**	**83**	**%**

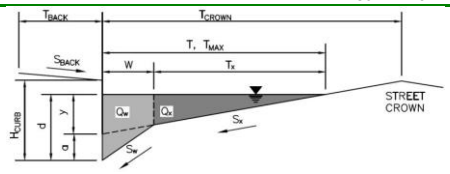
Version 4.06 Released August 2018

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

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

Project: Legato Filing No. 2

Inlet ID: 2501R - B9



Gutter Geometry (Enter data in the blue cells)

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	10.0	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} =	4.50	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	17.0	ft
Gutter Width	W =	2.00	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 =	0.010	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} =	17.0	17.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	4.5	6.9	inches
Allow Flow Depth at Street Crown (leave blank for no)		☐	☑	check = yes

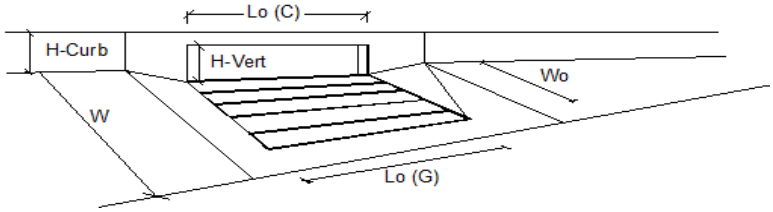
		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is based on Depth Criterion				
MAJOR STORM Allowable Capacity is based on Depth Criterion	**Q_{allow} =**	**5.1**	**23.3**	**cfs**

Minor storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

Major storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

INLET ON A CONTINUOUS GRADE

Version 4.06 Released August 2018



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')		a_{LOCAL} =	4.0	4.0	inches
Total Number of Units in the Inlet (Grate or Curb Opening)		No =	2	2	
Length of a Single Unit Inlet (Grate or Curb Opening)		L_o =	5.00	5.00	ft
Width of a Unit Grate (cannot be greater than W, Gutter Width)		W_o =	N/A	N/A	ft
Clogging Factor for a Single Unit Grate (typical min. value = 0.5)		C_f-G =	N/A	N/A	
Clogging Factor for a Single Unit Curb Opening (typical min. value = 0.1)		C_f-C =	0.10	0.10	

Street Hydraulics: OK - Q < Allowable Street Capacity'		MINOR	MAJOR	
Total Inlet Interception Capacity	**Q =**	**2.3**	**6.7**	**cfs**
Total Inlet Carry-Over Flow (flow bypassing inlet)	**Q_b =**	**0.0**	**1.5**	**cfs**
Capture Percentage = Q_a/Q_o =	**C% =**	**100**	**82**	**%**

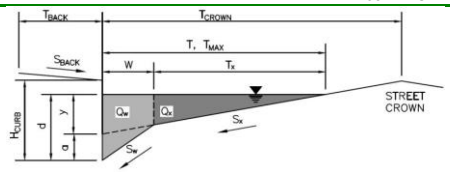
Version 4.06 Released August 2018

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

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

Project: Legato Filing No. 2

Inlet ID: 1709L - B3



Gutter Geometry (Enter data in the blue cells)

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	10.0	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} =	4.50	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	17.0	ft
Gutter Width	W =	2.00	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 =	0.010	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} =	17.0	17.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	4.5	6.9	inches
Allow Flow Depth at Street Crown (leave blank for no)		☐	☑	check = yes

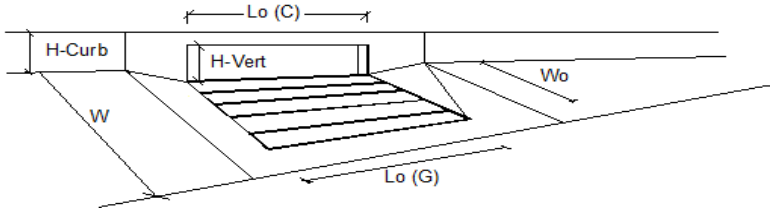
		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is based on Depth Criterion				
MAJOR STORM Allowable Capacity is based on Depth Criterion	Q_{allow} =	**5.1**	**23.3**	**cfs**

Minor storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

Major storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

INLET ON A CONTINUOUS GRADE

Version 4.06 Released August 2018



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')		a_{LOCAL} =	4.0	4.0	inches
Total Number of Units in the Inlet (Grate or Curb Opening)		No =	2	2	
Length of a Single Unit Inlet (Grate or Curb Opening)		L_o =	5.00	5.00	ft
Width of a Unit Grate (cannot be greater than W, Gutter Width)		W_o =	N/A	N/A	ft
Clogging Factor for a Single Unit Grate (typical min. value = 0.5)		C_f-G =	N/A	N/A	
Clogging Factor for a Single Unit Curb Opening (typical min. value = 0.1)		C_f-C =	0.10	0.10	

Street Hydraulics: OK - Q < Allowable Street Capacity'		MINOR	MAJOR	
Total Inlet Interception Capacity	**Q =**	**2.9**	**6.7**	**cfs**
Total Inlet Carry-Over Flow (flow bypassing inlet)	**Q_b =**	**0.0**	**1.5**	**cfs**
Capture Percentage = Q_a/Q_o =	**C% =**	**100**	**82**	**%**

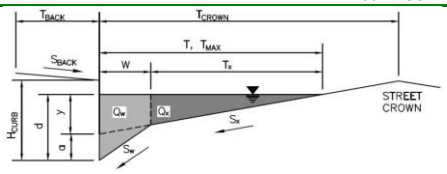
Version 4.06 Released August 2018

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

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

Project: **Legato Filing No. 2**

Inlet ID: **1709R - O3**



Gutter Geometry (Enter data in the blue cells)

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	10.0	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} =	4.50	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	17.0	ft
Gutter Width	W =	2.00	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 =	0.010	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} =	17.0	17.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	4.5	6.9	inches
Allow Flow Depth at Street Crown (leave blank for no)		☐	☑	check = yes

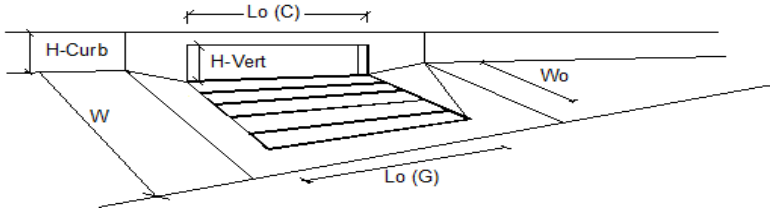
		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is based on Depth Criterion				
MAJOR STORM Allowable Capacity is based on Depth Criterion	**Q_{allow} =**	**5.1**	**23.3**	**cfs**

Minor storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

Major storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

INLET ON A CONTINUOUS GRADE

Version 4.06 Released August 2018



Design Information (Input)		MINOR	MAJOR	
Type of Inlet (CDOT Type R Curb Opening)	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a')	a_{LOCAL} =	4.0	4.0	inches
Total Number of Units in the Inlet (Grate or Curb Opening)	No =	2	2	
Length of a Single Unit Inlet (Grate or Curb Opening)	L_o =	5.00	5.00	ft
Width of a Unit Grate (cannot be greater than W, Gutter Width)	W_o =	N/A	N/A	ft
Clogging Factor for a Single Unit Grate (typical min. value = 0.5)	C_f-G =	N/A	N/A	
Clogging Factor for a Single Unit Curb Opening (typical min. value = 0.1)	C_f-C =	0.10	0.10	

Street Hydraulics: OK - Q < Allowable Street Capacity'		MINOR	MAJOR	
Total Inlet Interception Capacity	**Q =**	**4.3**	**8.0**	**cfs**
Total Inlet Carry-Over Flow (flow bypassing inlet)	**Q_b =**	**0.0**	**3.5**	**cfs**
Capture Percentage = Q_a/Q_o =	**C% =**	**100**	**70**	**%**

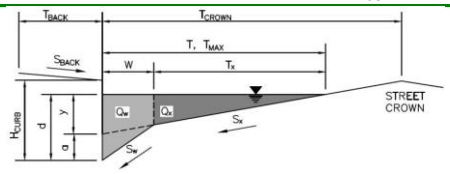
Version 4.06 Released August 2018

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

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

Project: Legato Filing No. 2

Inlet ID: 1708L - B4



Gutter Geometry (Enter data in the blue cells)

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	10.0	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} =	4.50	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	17.0	ft
Gutter Width	W =	2.00	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 =	0.010	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} =	17.0	17.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	4.5	6.9	inches
Allow Flow Depth at Street Crown (leave blank for no)		☐	☑	check = yes

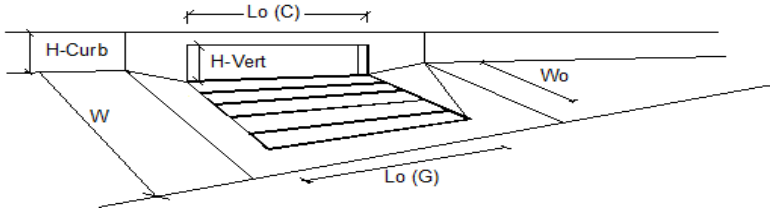
		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is based on Depth Criterion				
MAJOR STORM Allowable Capacity is based on Depth Criterion	Q_{allow} =	**5.1**	**23.3**	**cfs**

Minor storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

Major storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

INLET ON A CONTINUOUS GRADE

Version 4.06 Released August 2018



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')		a_{LOCAL} =	4.0	4.0	inches
Total Number of Units in the Inlet (Grate or Curb Opening)		No =	3	3	
Length of a Single Unit Inlet (Grate or Curb Opening)		L_o =	5.00	5.00	ft
Width of a Unit Grate (cannot be greater than W, Gutter Width)		W_o =	N/A	N/A	ft
Clogging Factor for a Single Unit Grate (typical min. value = 0.5)		C_f-G =	N/A	N/A	
Clogging Factor for a Single Unit Curb Opening (typical min. value = 0.1)		C_f-C =	0.10	0.10	
Street Hydraulics: OK - Q < Allowable Street Capacity'			MINOR	MAJOR	
Total Inlet Interception Capacity		**Q =**	**2.7**	**9.2**	**cfs**
Total Inlet Carry-Over Flow (flow bypassing inlet)		**Q_b =**	**0.0**	**0.4**	**cfs**
Capture Percentage = Q_a/Q_o =		**C% =**	**100**	**96**	**%**

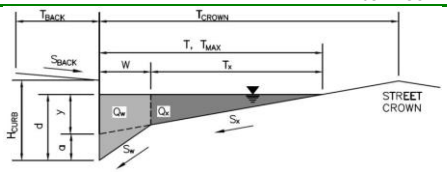
Version 4.06 Released August 2018

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

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

Project: **Legato Filing No. 2**

Inlet ID: **1708R - O5**



Gutter Geometry (Enter data in the blue cells)

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	10.0	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} =	4.50	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	17.0	ft
Gutter Width	W =	2.00	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 =	0.010	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} =	17.0	17.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	4.5	6.9	inches
Allow Flow Depth at Street Crown (leave blank for no)		☐	☑	check = yes

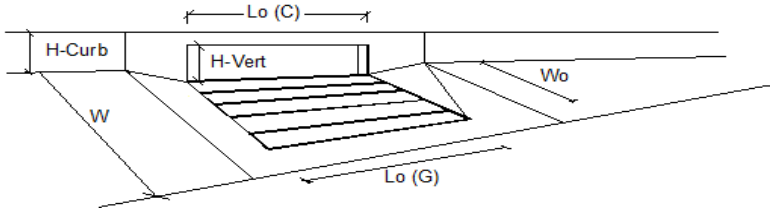
		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is based on Depth Criterion				
MAJOR STORM Allowable Capacity is based on Depth Criterion	Q_{allow} =	**5.1**	**23.3**	**cfs**

Minor storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

Major storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

INLET ON A CONTINUOUS GRADE

Version 4.06 Released August 2018



Design Information (Input)		MINOR	MAJOR	
Type of Inlet (CDOT Type R Curb Opening)	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a')	a_{LOCAL} =	4.0	4.0	inches
Total Number of Units in the Inlet (Grate or Curb Opening)	No =	2	2	
Length of a Single Unit Inlet (Grate or Curb Opening)	L_o =	5.00	5.00	ft
Width of a Unit Grate (cannot be greater than W, Gutter Width)	W_o =	N/A	N/A	ft
Clogging Factor for a Single Unit Grate (typical min. value = 0.5)	C_f-G =	N/A	N/A	
Clogging Factor for a Single Unit Curb Opening (typical min. value = 0.1)	C_f-C =	0.10	0.10	

Street Hydraulics: OK - Q < Allowable Street Capacity'		MINOR	MAJOR	
Total Inlet Interception Capacity	**Q =**	**2.5**	**7.7**	**cfs**
Total Inlet Carry-Over Flow (flow bypassing inlet)	**Q_b =**	**0.0**	**2.9**	**cfs**
Capture Percentage = Q_a/Q_o =	**C% =**	**100**	**72**	**%**

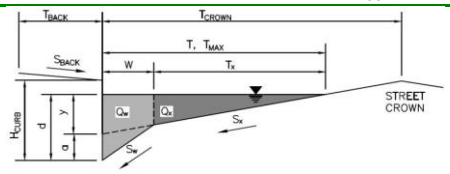
Version 4.06 Released August 2018

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

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

Project: Legato Filing No. 2

Inlet ID: 1706L - B7



Gutter Geometry (Enter data in the blue cells)

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	10.0	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} =	4.50	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	17.0	ft
Gutter Width	W =	2.00	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 =	0.010	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} =	17.0	17.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	4.5	6.9	inches
Allow Flow Depth at Street Crown (leave blank for no)		☐	☑	check = yes

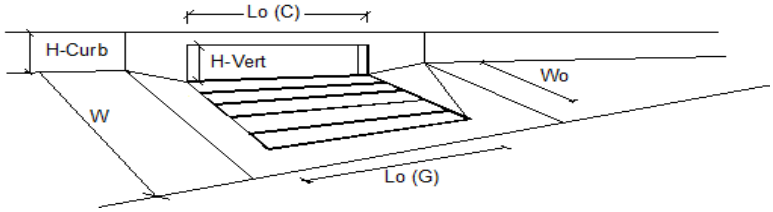
		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is based on Depth Criterion				
MAJOR STORM Allowable Capacity is based on Depth Criterion	**Q_{allow} =**	**5.1**	**23.3**	**cfs**

Minor storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

Major storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

INLET ON A CONTINUOUS GRADE

Version 4.06 Released August 2018



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')		a_{LOCAL} =	4.0	4.0	inches
Total Number of Units in the Inlet (Grate or Curb Opening)		No =	2	2	
Length of a Single Unit Inlet (Grate or Curb Opening)		L_o =	5.00	5.00	ft
Width of a Unit Grate (cannot be greater than W, Gutter Width)		W_o =	N/A	N/A	ft
Clogging Factor for a Single Unit Grate (typical min. value = 0.5)		C_f-G =	N/A	N/A	
Clogging Factor for a Single Unit Curb Opening (typical min. value = 0.1)		C_f-C =	0.10	0.10	
Street Hydraulics: OK - Q < Allowable Street Capacity'			MINOR	MAJOR	
Total Inlet Interception Capacity		**Q =**	**4.0**	**8.2**	**cfs**
Total Inlet Carry-Over Flow (flow bypassing inlet)		**Q_b =**	**0.0**	**3.8**	**cfs**
Capture Percentage = Q_a/Q_o =		**C% =**	**100**	**68**	**%**

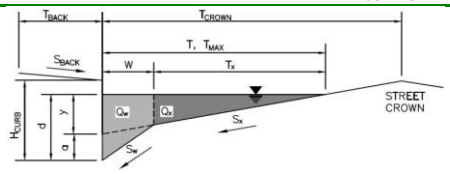
Version 4.06 Released August 2018

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

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

Project: **Legato Filing No. 2**

Inlet ID: **1706R - O7**



Gutter Geometry (Enter data in the blue cells)

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	10.0	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} =	4.50	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	17.0	ft
Gutter Width	W =	2.00	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 =	0.010	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} =	17.0	17.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	4.5	6.9	inches
Allow Flow Depth at Street Crown (leave blank for no)		☐	☑	check = yes

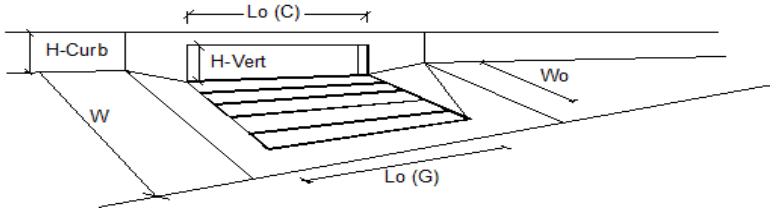
		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is based on Depth Criterion				
MAJOR STORM Allowable Capacity is based on Depth Criterion	**Q_{allow} =**	**5.1**	**23.3**	**cfs**

Minor storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

Major storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

INLET ON A CONTINUOUS GRADE

Version 4.06 Released August 2018



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')		a_{LOCAL} =	4.0	4.0	inches
Total Number of Units in the Inlet (Grate or Curb Opening)		No =	3	3	
Length of a Single Unit Inlet (Grate or Curb Opening)		L_o =	5.00	5.00	ft
Width of a Unit Grate (cannot be greater than W, Gutter Width)		W_o =	N/A	N/A	ft
Clogging Factor for a Single Unit Grate (typical min. value = 0.5)		C_f-G =	N/A	N/A	
Clogging Factor for a Single Unit Curb Opening (typical min. value = 0.1)		C_f-C =	0.10	0.10	
Street Hydraulics: OK - Q < Allowable Street Capacity'			MINOR	MAJOR	
Total Inlet Interception Capacity		**Q =**	**3.0**	**10.0**	**cfs**
Total Inlet Carry-Over Flow (flow bypassing inlet)		**Q_b =**	**0.0**	**0.8**	**cfs**
Capture Percentage = Q_a/Q_o =		**C% =**	**100**	**92**	**%**

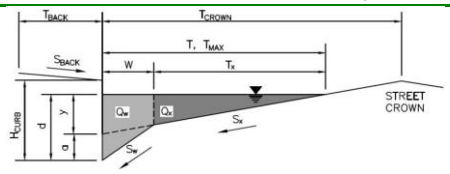
Version 4.06 Released August 2018

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

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

Project: Legato Filing No. 2

Inlet ID: 1702L - B11



Gutter Geometry (Enter data in the blue cells)

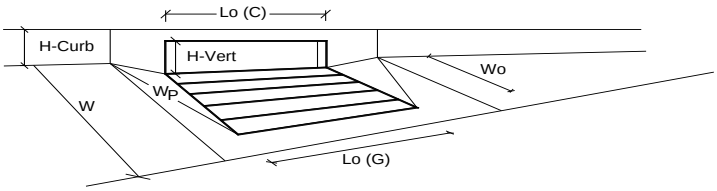
Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	10.0	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.020	
Height of Curb at Gutter Flow Line	H_{CURB} =	4.50	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	17.0	ft
Gutter Width	W =	2.00	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} =	17.0	17.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	4.5	6.9	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

Version 4.06 Released August 2018



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} =	4.50	4.50	inches
Number of Unit Inlets (Grate or Curb Opening)		No =	3	3	
Water Depth at Flowline (outside of local depression)		Ponding Depth =	4.5	5.6	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 =	2.00	2.00	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} =	0.21	0.30	ft
Combination Inlet Performance Reduction Factor for Long Inlets		$RF_{Combination}$ =	0.42	0.53	
Curb Opening Performance Reduction Factor for Long Inlets		RF_{Curb} =	0.68	0.76	
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 =**	**5.8**	**11.1**	**cfs**
Inlet Capacity IS GOOD for Minor and Major Storms(>Q PEAK)		$Q_{PEAK\ REQUIRED}$ =	1.2	10.3	cfs

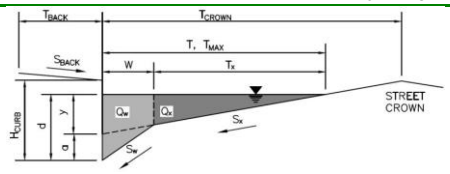
Version 4.06 Released August 2018

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

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

Project: **Legato Filing No. 2**

Inlet ID: **1701L - B5**



Gutter Geometry (Enter data in the blue cells)

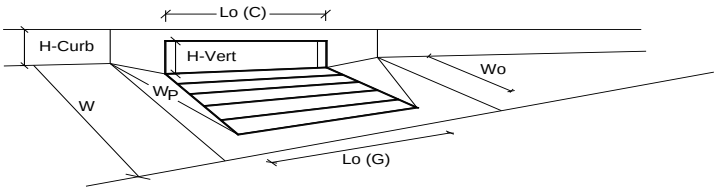
Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	10.0	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.020	
Height of Curb at Gutter Flow Line	H_{CURB} =	4.50	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	17.0	ft
Gutter Width	W =	2.00	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} =	17.0	17.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	4.5	6.9	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

Version 4.06 Released August 2018



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} =	4.50	4.50	inches
Number of Unit Inlets (Grate or Curb Opening)		No =	2	2	
Water Depth at Flowline (outside of local depression)		Ponding Depth =	4.5	5.6	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 =	2.00	2.00	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} =	0.21	0.30	ft
Combination Inlet Performance Reduction Factor for Long Inlets		$RF_{Combination}$ =	0.42	0.53	
Curb Opening Performance Reduction Factor for Long Inlets		RF_{Curb} =	0.83	0.91	
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 =**	**4.6**	**8.7**	**cfs**
WARNING: Inlet Capacity less than Q Peak for Major Storm		$Q_{PEAK\ REQUIRED}$ =	3.6	8.7	cfs

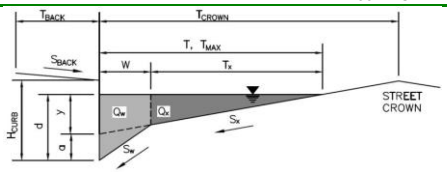
Version 4.06 Released August 2018

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

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

Project: Legato Filing No. 2

Inlet ID: 1700R - O11



Gutter Geometry (Enter data in the blue cells)

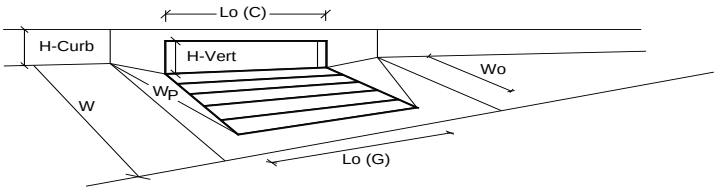
Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	10.0	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.020	
Height of Curb at Gutter Flow Line	H_{CURB} =	4.50	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	17.0	ft
Gutter Width	W =	2.00	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} =	17.0	17.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	4.5	6.9	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

Version 4.06 Released August 2018



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} =	4.50	4.50	inches
Number of Unit Inlets (Grate or Curb Opening)		No =	2	2	
Water Depth at Flowline (outside of local depression)		Ponding Depth =	4.5	5.6	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 =	2.00	2.00	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} =	0.21	0.30	ft
Combination Inlet Performance Reduction Factor for Long Inlets		$RF_{Combination}$ =	0.42	0.53	
Curb Opening Performance Reduction Factor for Long Inlets		RF_{Curb} =	0.83	0.91	
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 =**	**4.6**	**8.7**	**cfs**
Inlet Capacity IS GOOD for Minor and Major Storms(>Q PEAK)		$Q_{PEAK\ REQUIRED}$ =	2.1	7.2	cfs

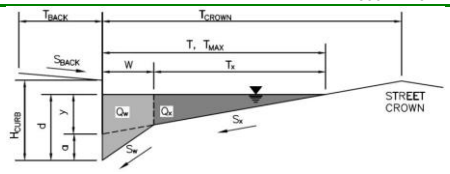
Version 4.06 Released August 2018

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

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

Project: Legato Filing No. 2

Inlet ID: 2600L - A6



Gutter Geometry (Enter data in the blue cells)

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	10.0	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} =	4.50	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	17.0	ft
Gutter Width	W =	2.00	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 =	0.007	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} =	17.0	17.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	4.5	6.9	inches
Allow Flow Depth at Street Crown (leave blank for no)		☐	☑	check = yes

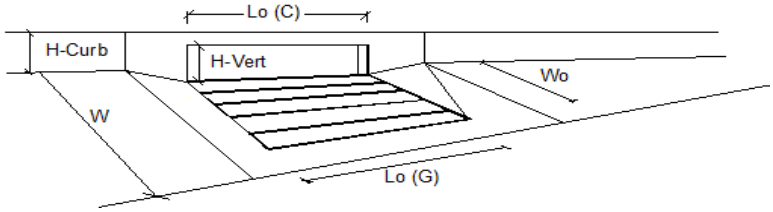
		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is based on Depth Criterion				
MAJOR STORM Allowable Capacity is based on Depth Criterion	**Q_{allow} =**	**4.3**	**19.5**	**cfs**

Minor storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

Major storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

INLET ON A CONTINUOUS GRADE

Version 4.06 Released August 2018



Design Information (Input)		MINOR	MAJOR	
Type of Inlet (CDOT Type R Curb Opening)	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a')	a_{LOCAL} =	4.0	4.0	inches
Total Number of Units in the Inlet (Grate or Curb Opening)	No =	2	2	
Length of a Single Unit Inlet (Grate or Curb Opening)	L_o =	5.00	5.00	ft
Width of a Unit Grate (cannot be greater than W, Gutter Width)	W_o =	N/A	N/A	ft
Clogging Factor for a Single Unit Grate (typical min. value = 0.5)	C_f-G =	N/A	N/A	
Clogging Factor for a Single Unit Curb Opening (typical min. value = 0.1)	C_f-C =	0.10	0.10	

Street Hydraulics: OK - Q < Allowable Street Capacity'		MINOR	MAJOR	
Total Inlet Interception Capacity	**Q =**	**2.5**	**5.4**	**cfs**
Total Inlet Carry-Over Flow (flow bypassing inlet)	**Q_b =**	**0.0**	**0.5**	**cfs**
Capture Percentage = Q_a/Q_o =	**C% =**	**100**	**92**	**%**

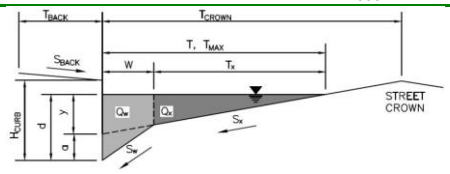
Version 4.06 Released August 2018

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

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

Project: Legato Filing No. 2

Inlet ID: 2600R - A7



Gutter Geometry (Enter data in the blue cells)

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	10.0	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} =	4.50	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	17.0	ft
Gutter Width	W =	2.00	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 =	0.007	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} =	17.0	17.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	4.5	6.9	inches
Allow Flow Depth at Street Crown (leave blank for no)		☐	☑	check = yes

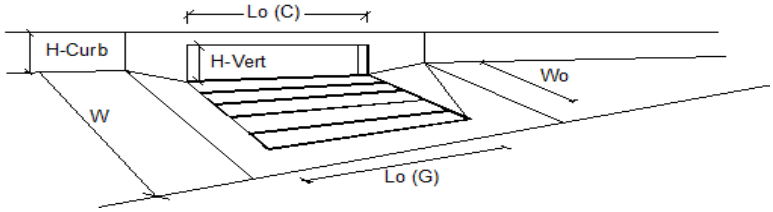
		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is based on Depth Criterion				
MAJOR STORM Allowable Capacity is based on Depth Criterion	**Q_{allow} =**	**4.3**	**19.5**	**cfs**

Minor storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

Major storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

INLET ON A CONTINUOUS GRADE

Version 4.06 Released August 2018



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')		a_{LOCAL} =	4.0	4.0	inches
Total Number of Units in the Inlet (Grate or Curb Opening)		No =	2	2	
Length of a Single Unit Inlet (Grate or Curb Opening)		L_o =	5.00	5.00	ft
Width of a Unit Grate (cannot be greater than W, Gutter Width)		W_o =	N/A	N/A	ft
Clogging Factor for a Single Unit Grate (typical min. value = 0.5)		C_f-G =	N/A	N/A	
Clogging Factor for a Single Unit Curb Opening (typical min. value = 0.1)		C_f-C =	0.10	0.10	
Street Hydraulics: OK - Q < Allowable Street Capacity'			MINOR	MAJOR	
Total Inlet Interception Capacity		**Q =**	**2.8**	**7.0**	**cfs**
Total Inlet Carry-Over Flow (flow bypassing inlet)		**Q_b =**	**0.0**	**2.0**	**cfs**
Capture Percentage = Q_a/Q_o =		**C% =**	**100**	**78**	**%**

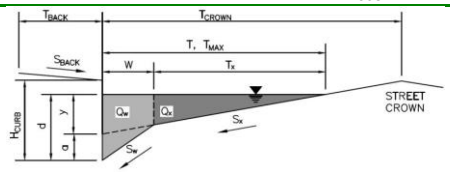
Version 4.06 Released August 2018

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

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

Project: Legato Filing No. 2

Inlet ID: 2605L - A1



Gutter Geometry (Enter data in the blue cells)

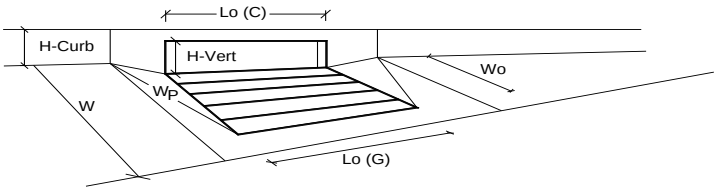
Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	10.0	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.020	
Height of Curb at Gutter Flow Line	H_{CURB} =	4.50	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	17.0	ft
Gutter Width	W =	2.00	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} =	17.0	17.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	4.5	6.9	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

Version 4.06 Released August 2018



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} =	4.50	4.50	inches
Number of Unit Inlets (Grate or Curb Opening)	No =	2	2	
Water Depth at Flowline (outside of local depression)	Ponding Depth =	4.5	5.6	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 =	2.00	2.00	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} =	0.21	0.30	ft
Combination Inlet Performance Reduction Factor for Long Inlets	$RF_{Combination}$ =	0.42	0.53	
Curb Opening Performance Reduction Factor for Long Inlets	RF_{Curb} =	0.83	0.91	
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 =**	**4.6**	**8.7**	**cfs**
Inlet Capacity IS GOOD for Minor and Major Storms(>Q PEAK)	$Q_{PEAK\ REQUIRED}$ =	2.7	7.1	cfs

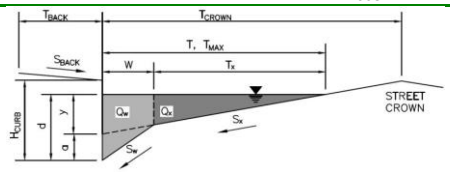
Version 4.06 Released August 2018

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

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

Project: **Legato Filing No. 2**

Inlet ID: **2605R - A2**



Gutter Geometry (Enter data in the blue cells)

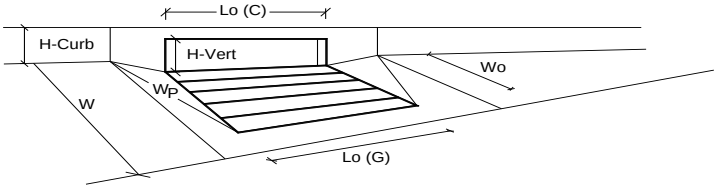
Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	10.0	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.020	
Height of Curb at Gutter Flow Line	H_{CURB} =	4.50	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	17.0	ft
Gutter Width	W =	2.00	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} =	17.0	17.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	4.5	6.9	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

Version 4.06 Released August 2018



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} =	4.50	4.50	inches
Number of Unit Inlets (Grate or Curb Opening)	No =	3	3	
Water Depth at Flowline (outside of local depression)	Ponding Depth =	4.5	5.6	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 =	2.00	2.00	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} =	0.21	0.30	ft
Combination Inlet Performance Reduction Factor for Long Inlets	$RF_{Combination}$ =	0.42	0.53	
Curb Opening Performance Reduction Factor for Long Inlets	RF_{Curb} =	0.68	0.76	
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 =**	**5.8**	**11.1**	**cfs**
Inlet Capacity IS GOOD for Minor and Major Storms(>Q PEAK)	$Q_{PEAK\ REQUIRED}$ =	2.0	8.6	cfs

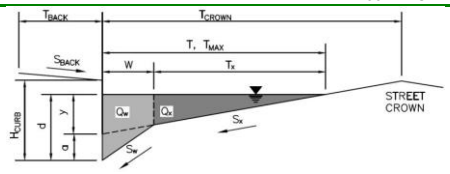
Version 4.06 Released August 2018

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

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

Project: Legato Filing No. 2

Inlet ID: 2700L - A3



Gutter Geometry (Enter data in the blue cells)

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	10.0	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} =	4.50	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	17.0	ft
Gutter Width	W =	2.00	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 =	0.010	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} =	17.0	17.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	4.5	6.9	inches
Allow Flow Depth at Street Crown (leave blank for no)		☐	☑	check = yes

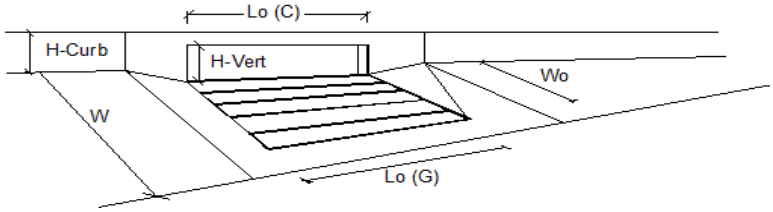
		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is based on Depth Criterion				
MAJOR STORM Allowable Capacity is based on Depth Criterion	Q_{allow} =	**5.1**	**23.3**	**cfs**

Minor storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

Major storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

INLET ON A CONTINUOUS GRADE

Version 4.06 Released August 2018



Design Information (Input)		MINOR	MAJOR	
Type of Inlet (CDOT Type R Curb Opening)	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a')	a_{LOCAL} =	4.0	4.0	inches
Total Number of Units in the Inlet (Grate or Curb Opening)	No =	2	2	
Length of a Single Unit Inlet (Grate or Curb Opening)	L_o =	5.00	5.00	ft
Width of a Unit Grate (cannot be greater than W, Gutter Width)	W_o =	N/A	N/A	ft
Clogging Factor for a Single Unit Grate (typical min. value = 0.5)	C_f-G =	N/A	N/A	
Clogging Factor for a Single Unit Curb Opening (typical min. value = 0.1)	C_f-C =	0.10	0.10	

Street Hydraulics: OK - Q < Allowable Street Capacity'		MINOR	MAJOR	
Total Inlet Interception Capacity	**Q =**	**1.9**	**5.2**	**cfs**
Total Inlet Carry-Over Flow (flow bypassing inlet)	**Q_b =**	**0.0**	**0.3**	**cfs**
Capture Percentage = Q_a/Q_o =	**C% =**	**100**	**94**	**%**

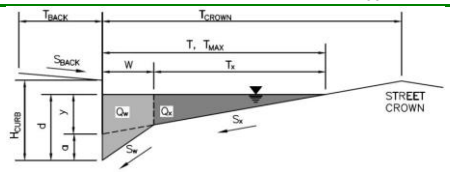
Version 4.06 Released August 2018

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

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

Project: **Legato Filing No. 2**

Inlet ID: **2700R - A4**



Gutter Geometry (Enter data in the blue cells)

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	10.0	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} =	4.50	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	17.0	ft
Gutter Width	W =	2.00	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 =	0.010	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} =	17.0	17.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	4.5	6.9	inches
Allow Flow Depth at Street Crown (leave blank for no)		☐	☑	check = yes

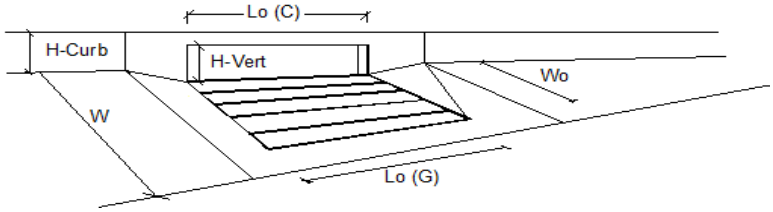
		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is based on Depth Criterion				
MAJOR STORM Allowable Capacity is based on Depth Criterion	**Q_{allow} =**	**5.1**	**23.3**	**cfs**

Minor storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

Major storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

INLET ON A CONTINUOUS GRADE

Version 4.06 Released August 2018



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')		a_{LOCAL} =	4.0	4.0	inches
Total Number of Units in the Inlet (Grate or Curb Opening)		No =	2	2	
Length of a Single Unit Inlet (Grate or Curb Opening)		L_o =	5.00	5.00	ft
Width of a Unit Grate (cannot be greater than W, Gutter Width)		W_o =	N/A	N/A	ft
Clogging Factor for a Single Unit Grate (typical min. value = 0.5)		C_f-G =	N/A	N/A	
Clogging Factor for a Single Unit Curb Opening (typical min. value = 0.1)		C_f-C =	0.10	0.10	

Street Hydraulics: OK - Q < Allowable Street Capacity'		MINOR	MAJOR	
Total Inlet Interception Capacity	**Q =**	**2.8**	**7.1**	**cfs**
Total Inlet Carry-Over Flow (flow bypassing inlet)	**Q_b =**	**0.0**	**2.0**	**cfs**
Capture Percentage = Q_a/Q_o =	**C% =**	**100**	**78**	**%**

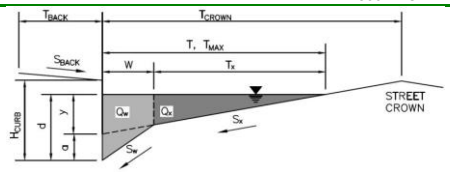
Version 4.06 Released August 2018

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

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

Project: Legato Filing No. 2

Inlet ID: 600 - A5



Gutter Geometry (Enter data in the blue cells)

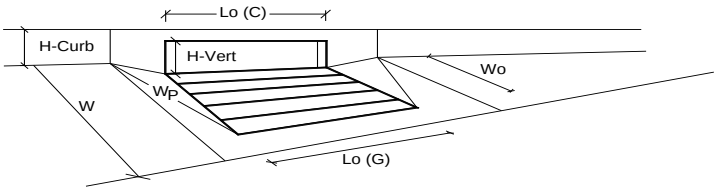
Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	10.0	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.020	
Height of Curb at Gutter Flow Line	H_{CURB} =	4.50	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	17.0	ft
Gutter Width	W =	2.00	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} =	17.0	17.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	4.5	6.9	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

Version 4.06 Released August 2018



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} =	4.50	4.50	inches
Number of Unit Inlets (Grate or Curb Opening)		No =	3	3	
Water Depth at Flowline (outside of local depression)		Ponding Depth =	4.5	5.6	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 =	2.00	2.00	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} =	0.21	0.30	ft
Combination Inlet Performance Reduction Factor for Long Inlets		$RF_{Combination}$ =	0.42	0.53	
Curb Opening Performance Reduction Factor for Long Inlets		RF_{Curb} =	0.68	0.76	
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 =**	**5.8**	**11.1**	**cfs**
Inlet Capacity IS GOOD for Minor and Major Storms(>Q PEAK)		$Q_{PEAK\ REQUIRED}$ =	2.7	9.7	cfs

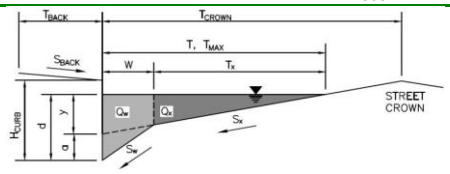
Version 4.06 Released August 2018

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

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

Project: **Legato Filing No. 2**

Inlet ID: **2506L-B2**



Gutter Geometry (Enter data in the blue cells)

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	10.0	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} =	4.50	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	17.0	ft
Gutter Width	W =	2.00	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 =	0.008	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.013	

		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	17.0	17.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	4.5	6.9	inches
Allow Flow Depth at Street Crown (leave blank for no)		☐	☐	check = yes

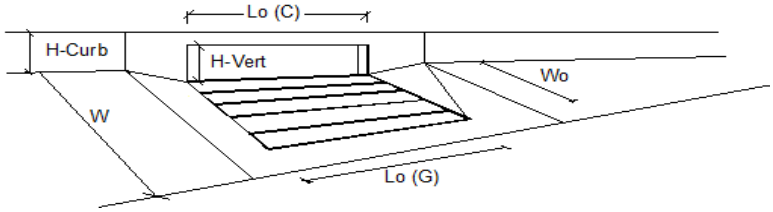
		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is based on Depth Criterion				
MAJOR STORM Allowable Capacity is based on Spread Criterion	**Q_{allow} =**	**5.6**	**12.2**	**cfs**

Minor storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

Major storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

INLET ON A CONTINUOUS GRADE

Version 4.06 Released August 2018



Design Information (Input)		MINOR	MAJOR	
Type of Inlet (CDOT Type R Curb Opening)	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a')	a_{LOCAL} =	4.0	4.0	inches
Total Number of Units in the Inlet (Grate or Curb Opening)	No =	3	3	
Length of a Single Unit Inlet (Grate or Curb Opening)	L_o =	5.00	5.00	ft
Width of a Unit Grate (cannot be greater than W, Gutter Width)	W_o =	N/A	N/A	ft
Clogging Factor for a Single Unit Grate (typical min. value = 0.5)	C_f-G =	N/A	N/A	
Clogging Factor for a Single Unit Curb Opening (typical min. value = 0.1)	C_f-C =	0.10	0.10	

Street Hydraulics: OK - Q < Allowable Street Capacity'		MINOR	MAJOR	
Total Inlet Interception Capacity	**Q =**	**2.6**	**5.5**	**cfs**
Total Inlet Carry-Over Flow (flow bypassing inlet)	**Q_b =**	**0.0**	**0.0**	**cfs**
Capture Percentage = Q_a/Q_o =	**C% =**	**100**	**100**	**%**

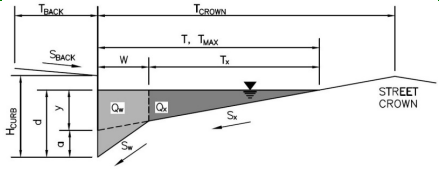
Version 4.06 Released August 2018

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

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

Project: Legato Filing No. 2

Inlet ID: Ex. 308 L w F2 B-12



Gutter Geometry (Enter data in the blue cells)

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	23.5	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} =	20.0	ft
Gutter Width	W =	2.00	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 =	0.013	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} =	9.0	17.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	5.8	8.0	inches
Allow Flow Depth at Street Crown (leave blank for no)		☐	☐	check = yes

Maximum Capacity for 1/2 Street based On Allowable Spread

		Minor Storm	Major Storm	
Water Depth without Gutter Depression (Eq. ST-2)	y =	2.16	4.08	inches
Vertical Depth between Gutter Lip and Gutter Flowline (usually 2")	d_C =	2.0	2.0	inches
Gutter Depression (d_C - (W * S_x * 12))	a =	1.51	1.51	inches
Water Depth at Gutter Flowline	d =	3.67	5.59	inches
Allowable Spread for Discharge outside the Gutter Section W (T - W)	T_X =	7.0	15.0	ft
Gutter Flow to Design Flow Ratio by FHWA HEC-22 method (Eq. ST-7)	E_O =	0.629	0.350	
Discharge outside the Gutter Section W, carried in Section T_X	Q_X =	1.1	8.0	cfs
Discharge within the Gutter Section W (Q_T - Q_X)	Q_W =	1.8	4.3	cfs
Discharge Behind the Curb (e.g., sidewalk, driveways, & lawns)	Q_{BACK} =	0.0	0.0	cfs
Maximum Flow Based On Allowable Spread	**Q_T =**	**2.8**	**12.4**	**cfs**
Flow Velocity within the Gutter Section	V =	4.0	5.7	fps
V*d Product: Flow Velocity times Gutter Flowline Depth	V*d =	1.2	2.6	

Maximum Capacity for 1/2 Street based on Allowable Depth

		Minor Storm	Major Storm	
Theoretical Water Spread	T_{TH} =	17.9	27.0	ft
Theoretical Spread for Discharge outside the Gutter Section W (T - W)	$T_{X\,TH}$ =	15.9	25.0	ft
Gutter Flow to Design Flow Ratio by FHWA HEC-22 method (Eq. ST-7)	E_O =	0.333	0.216	
Theoretical Discharge outside the Gutter Section W, carried in Section $T_{X\,TH}$	$Q_{X\,TH}$ =	9.3	31.5	cfs
Actual Discharge outside the Gutter Section W, (limited by distance T_{CROWN})	Q_X =	9.3	30.5	cfs
Discharge within the Gutter Section W (Q_d - Q_X)	Q_W =	4.7	8.7	cfs
Discharge Behind the Curb (e.g., sidewalk, driveways, & lawns)	Q_{BACK} =	0.0	1.3	cfs
Total Discharge for Major & Minor Storm (Pre-Safety Factor)	Q =	14.0	40.5	cfs
Average Flow Velocity Within the Gutter Section	V =	5.8	7.5	fps
V*d Product: Flow Velocity Times Gutter Flowline Depth	V*d =	2.8	5.0	
Slope-Based Depth Safety Reduction Factor for Major & Minor (d ≥ 6") Storm	R =	1.00	1.00	
Max Flow Based on Allowable Depth (Safety Factor Applied)	**Q_d =**	**14.0**	**40.5**	**cfs**
Resultant Flow Depth at Gutter Flowline (Safety Factor Applied)	d =	5.80	8.00	inches
Resultant Flow Depth at Street Crown (Safety Factor Applied)	d_{CROWN} =	0.00	1.69	inches

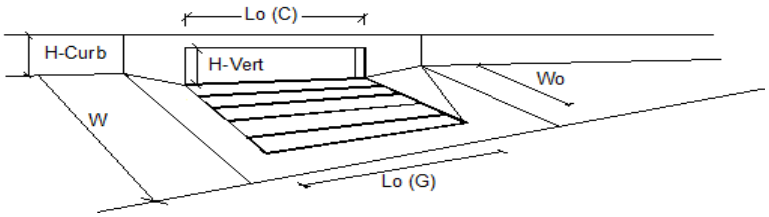
		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is based on Spread Criterion				
MAJOR STORM Allowable Capacity is based on Spread Criterion	**Q_{allow} =**	**2.8**	**12.4**	**cfs**

Minor storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

Major storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

INLET ON A CONTINUOUS GRADE

Version 4.06 Released August 2018



Design Information (Input)		MINOR	MAJOR	
Type of Inlet (CDOT Type R Curb Opening)	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a')	a_{LOCAL} =	3.0	3.0	inches
Total Number of Units in the Inlet (Grate or Curb Opening)	No =	1	1	
Length of a Single Unit Inlet (Grate or Curb Opening)	L_o =	5.00	5.00	ft
Width of a Unit Grate (cannot be greater than W, Gutter Width)	W_o =	N/A	N/A	ft
Clogging Factor for a Single Unit Grate (typical min. value = 0.5)	C_f-G =	N/A	N/A	
Clogging Factor for a Single Unit Curb Opening (typical min. value = 0.1)	C_f-C =	0.10	0.10	
Street Hydraulics: OK - Q < Allowable Street Capacity'		MINOR	MAJOR	
Design Discharge for Half of Street (from Sheet *Inlet Management*)	**Q_o =**	**1.7**	**5.4**	cfs
Water Spread Width	T =	7.0	12.1	ft
Water Depth at Flowline (outside of local depression)	d =	3.2	4.4	inches
Water Depth at Street Crown (or at T_{MAX})	d_{CROWN} =	0.0	0.0	inches
Ratio of Gutter Flow to Design Flow	E_o =	0.755	0.489	
Discharge outside the Gutter Section W, carried in Section T_x	Q_x =	0.4	2.8	cfs
Discharge within the Gutter Section W	Q_w =	1.3	2.7	cfs
Discharge Behind the Curb Face	Q_{BACK} =	0.0	0.0	cfs
Flow Area within the Gutter Section W	A_W =	0.37	0.57	sq ft
Velocity within the Gutter Section W	V_W =	3.6	4.7	fps
Water Depth for Design Condition	d_{LOCAL} =	6.2	7.4	inches
Grate Analysis (Calculated)		MINOR	MAJOR	
Total Length of Inlet Grate Opening	L =	N/A	N/A	ft
Ratio of Grate Flow to Design Flow	$E_{o\text{-}GRATE}$ =	N/A	N/A	
Under No-Clogging Condition		MINOR	MAJOR	
Minimum Velocity Where Grate Splash-Over Begins	V_o =	N/A	N/A	fps
Interception Rate of Frontal Flow	R_f =	N/A	N/A	
Interception Rate of Side Flow	R_x =	N/A	N/A	
Interception Capacity	Q_i =	N/A	N/A	cfs
Under Clogging Condition		MINOR	MAJOR	
Clogging Coefficient for Multiple-unit Grate Inlet	GrateCoef =	N/A	N/A	
Clogging Factor for Multiple-unit Grate Inlet	GrateClog =	N/A	N/A	
Effective (unclogged) Length of Multiple-unit Grate Inlet	L_e =	N/A	N/A	ft
Minimum Velocity Where Grate Splash-Over Begins	V_o =	N/A	N/A	fps
Interception Rate of Frontal Flow	R_f =	N/A	N/A	
Interception Rate of Side Flow	R_x =	N/A	N/A	
Actual Interception Capacity	**Q_a =**	**N/A**	**N/A**	cfs
Carry-Over Flow = Q_o-Q_a (to be applied to curb opening or next d/s inlet)	**Q_b =**	**N/A**	**N/A**	cfs
Curb or Slotted Inlet Opening Analysis (Calculated)		MINOR	MAJOR	
Equivalent Slope S_e (based on grate carry-over)	S_e =	0.162	0.112	ft/ft
Required Length L_T to Have 100% Interception	L_T =	6.04	12.86	ft
Under No-Clogging Condition		MINOR	MAJOR	
Effective Length of Curb Opening or Slotted Inlet (minimum of L, L_T)	L =	5.00	5.00	ft
Interception Capacity	Q_i =	1.6	3.2	cfs
Under Clogging Condition		MINOR	MAJOR	
Clogging Coefficient	CurbCoef =	1.00	1.00	
Clogging Factor for Multiple-unit Curb Opening or Slotted Inlet	CurbClog =	0.10	0.10	
Effective (Unclogged) Length	L_e =	4.50	4.50	ft
Actual Interception Capacity	**Q_a =**	**1.6**	**2.9**	cfs
Carry-Over Flow = $Q_{b(GRATE)}$-Q_a	**Q_b =**	**0.1**	**2.5**	cfs
Summary		MINOR	MAJOR	
Total Inlet Interception Capacity	**Q =**	**1.6**	**2.9**	**cfs**
Total Inlet Carry-Over Flow (flow bypassing inlet)	**Q_b =**	**0.1**	**2.5**	**cfs**
Capture Percentage = Q_a/Q_o =	**C% =**	**91**	**54**	**%**

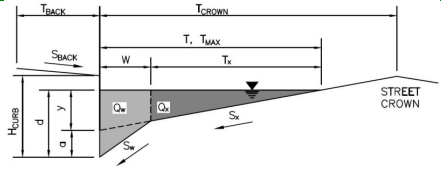
Version 4.06 Released August 2018

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

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

Project: Legato Filing No. 2

Inlet ID: Ex. 304R w B2B & B2C



Gutter Geometry (Enter data in the blue cells)

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	23.5	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} =	20.0	ft
Gutter Width	W =	2.00	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 =	0.013	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.012	

		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	9.0	17.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	5.8	8.0	inches
Allow Flow Depth at Street Crown (leave blank for no)		☐	☐	check = yes

Maximum Capacity for 1/2 Street based On Allowable Spread

		Minor Storm	Major Storm	
Water Depth without Gutter Depression (Eq. ST-2)	y =	2.16	4.08	inches
Vertical Depth between Gutter Lip and Gutter Flowline (usually 2")	d_C =	2.0	2.0	inches
Gutter Depression (d_C - (W * S_x * 12))	a =	1.51	1.51	inches
Water Depth at Gutter Flowline	d =	3.67	5.59	inches
Allowable Spread for Discharge outside the Gutter Section W (T - W)	T_X =	7.0	15.0	ft
Gutter Flow to Design Flow Ratio by FHWA HEC-22 method (Eq. ST-7)	E_O =	0.629	0.350	
Discharge outside the Gutter Section W, carried in Section T_X	Q_X =	1.4	10.7	cfs
Discharge within the Gutter Section W (Q_T - Q_X)	Q_W =	2.4	5.8	cfs
Discharge Behind the Curb (e.g., sidewalk, driveways, & lawns)	Q_{BACK} =	0.0	0.0	cfs
Maximum Flow Based On Allowable Spread	**Q_T =**	**3.8**	**16.5**	**cfs**
Flow Velocity within the Gutter Section	V =	5.4	7.5	fps
V*d Product: Flow Velocity times Gutter Flowline Depth	V*d =	1.6	3.5	

Maximum Capacity for 1/2 Street based on Allowable Depth

		Minor Storm	Major Storm	
Theoretical Water Spread	T_{TH} =	17.9	27.0	ft
Theoretical Spread for Discharge outside the Gutter Section W (T - W)	$T_{X\,TH}$ =	15.9	25.0	ft
Gutter Flow to Design Flow Ratio by FHWA HEC-22 method (Eq. ST-7)	E_O =	0.333	0.216	
Theoretical Discharge outside the Gutter Section W, carried in Section $T_{X\,TH}$	$Q_{X\,TH}$ =	12.5	42.0	cfs
Actual Discharge outside the Gutter Section W, (limited by distance T_{CROWN})	Q_X =	12.5	40.6	cfs
Discharge within the Gutter Section W (Q_d - Q_X)	Q_W =	6.2	11.6	cfs
Discharge Behind the Curb (e.g., sidewalk, driveways, & lawns)	Q_{BACK} =	0.0	1.3	cfs
Total Discharge for Major & Minor Storm (Pre-Safety Factor)	Q =	18.7	53.6	cfs
Average Flow Velocity Within the Gutter Section	V =	7.8	9.9	fps
V*d Product: Flow Velocity Times Gutter Flowline Depth	V*d =	3.8	6.6	
Slope-Based Depth Safety Reduction Factor for Major & Minor (d ≥ 6") Storm	R =	1.00	1.00	
Max Flow Based on Allowable Depth (Safety Factor Applied)	**Q_d =**	**18.7**	**53.6**	**cfs**
Resultant Flow Depth at Gutter Flowline (Safety Factor Applied)	d =	5.80	8.00	inches
Resultant Flow Depth at Street Crown (Safety Factor Applied)	d_{CROWN} =	0.00	1.69	inches

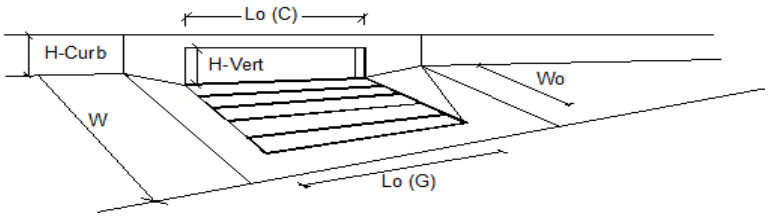
		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is based on Spread Criterion				
MAJOR STORM Allowable Capacity is based on Spread Criterion	**Q_{allow} =**	**3.8**	**16.5**	**cfs**

Minor storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

Major storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

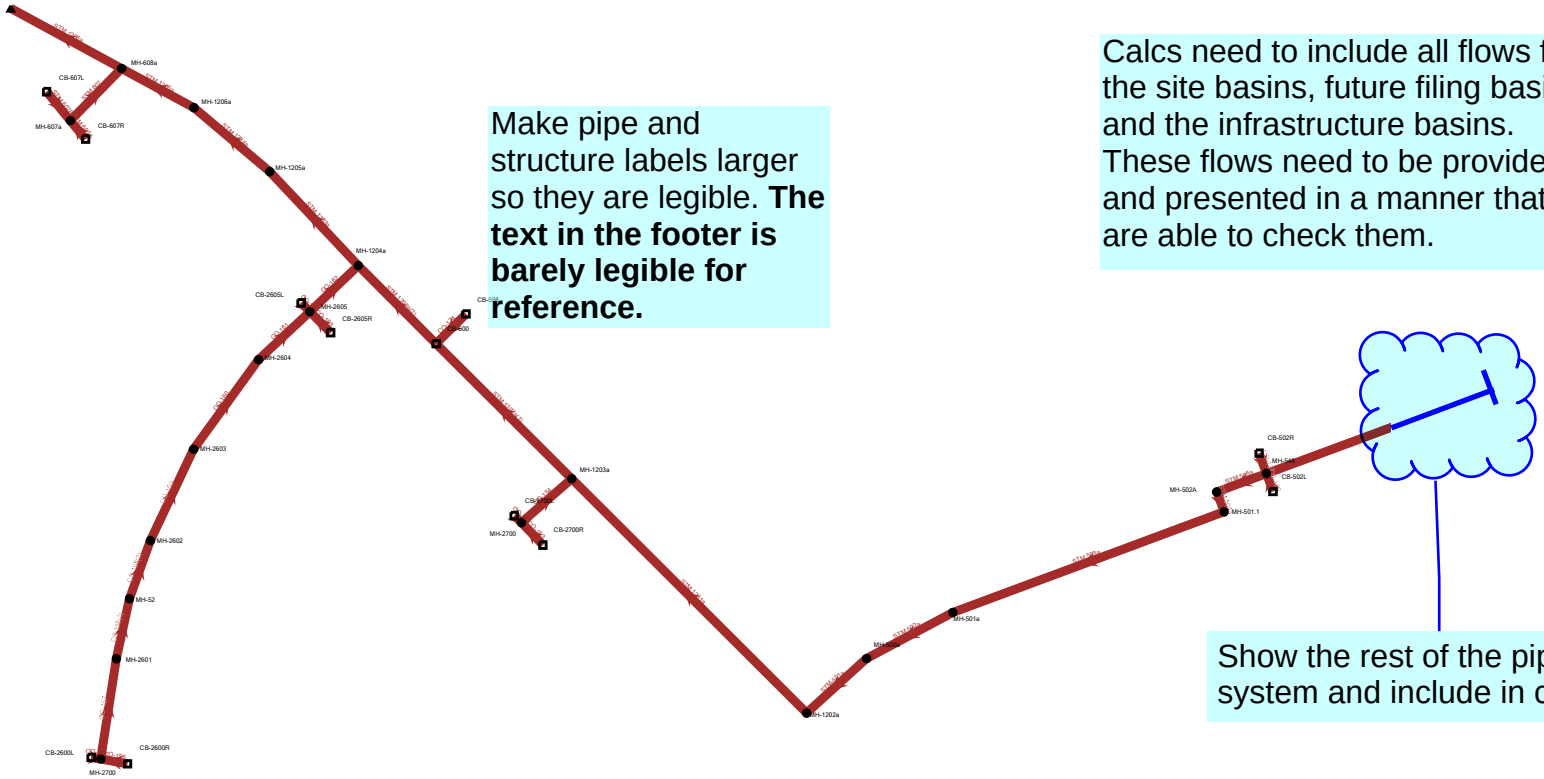
INLET ON A CONTINUOUS GRADE

Version 4.06 Released August 2018



Design Information (Input)		MINOR	MAJOR	
Type of Inlet (CDOT Type R Curb Opening)	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a')	a_{LOCAL} =	3.0	3.0	inches
Total Number of Units in the Inlet (Grate or Curb Opening)	No =	1	1	
Length of a Single Unit Inlet (Grate or Curb Opening)	L_o =	5.00	5.00	ft
Width of a Unit Grate (cannot be greater than W, Gutter Width)	W_o =	N/A	N/A	ft
Clogging Factor for a Single Unit Grate (typical min. value = 0.5)	C_f-G =	N/A	N/A	
Clogging Factor for a Single Unit Curb Opening (typical min. value = 0.1)	C_f-C =	0.10	0.10	
Street Hydraulics: OK - Q < Allowable Street Capacity'		MINOR	MAJOR	
Design Discharge for Half of Street (from Sheet *Inlet Management*)	**Q_o =**	**2.6**	**7.5**	cfs
Water Spread Width	T =	7.5	12.3	ft
Water Depth at Flowline (outside of local depression)	d =	3.3	4.5	inches
Water Depth at Street Crown (or at T_{MAX})	d_{CROWN} =	0.0	0.0	inches
Ratio of Gutter Flow to Design Flow	E_o =	0.721	0.483	
Discharge outside the Gutter Section W, carried in Section T_x	Q_x =	0.7	3.9	cfs
Discharge within the Gutter Section W	Q_w =	1.9	3.6	cfs
Discharge Behind the Curb Face	Q_{BACK} =	0.0	0.0	cfs
Flow Area within the Gutter Section W	A_W =	0.39	0.58	sq ft
Velocity within the Gutter Section W	V_W =	4.9	6.3	fps
Water Depth for Design Condition	d_{LOCAL} =	6.3	7.5	inches
Grate Analysis (Calculated)		MINOR	MAJOR	
Total Length of Inlet Grate Opening	L =	N/A	N/A	ft
Ratio of Grate Flow to Design Flow	$E_{o\text{-}GRATE}$ =	N/A	N/A	
Under No-Clogging Condition		MINOR	MAJOR	
Minimum Velocity Where Grate Splash-Over Begins	V_o =	N/A	N/A	fps
Interception Rate of Frontal Flow	R_f =	N/A	N/A	
Interception Rate of Side Flow	R_x =	N/A	N/A	
Interception Capacity	Q_i =	N/A	N/A	cfs
Under Clogging Condition		MINOR	MAJOR	
Clogging Coefficient for Multiple-unit Grate Inlet	GrateCoef =	N/A	N/A	
Clogging Factor for Multiple-unit Grate Inlet	GrateClog =	N/A	N/A	
Effective (unclogged) Length of Multiple-unit Grate Inlet	L_e =	N/A	N/A	ft
Minimum Velocity Where Grate Splash-Over Begins	V_o =	N/A	N/A	fps
Interception Rate of Frontal Flow	R_f =	N/A	N/A	
Interception Rate of Side Flow	R_x =	N/A	N/A	
Actual Interception Capacity	**Q_a =**	**N/A**	**N/A**	cfs
Carry-Over Flow = Q_o-Q_a (to be applied to curb opening or next d/s inlet)	**Q_b =**	**N/A**	**N/A**	cfs
Curb or Slotted Inlet Opening Analysis (Calculated)		MINOR	MAJOR	
Equivalent Slope S_e (based on grate carry-over)	S_e =	0.155	0.111	ft/ft
Required Length L_T to Have 100% Interception	L_T =	8.70	17.38	ft
Under No-Clogging Condition		MINOR	MAJOR	
Effective Length of Curb Opening or Slotted Inlet (minimum of L, L_T)	L =	5.00	5.00	ft
Interception Capacity	Q_i =	2.1	3.4	cfs
Under Clogging Condition		MINOR	MAJOR	
Clogging Coefficient	CurbCoef =	1.00	1.00	
Clogging Factor for Multiple-unit Curb Opening or Slotted Inlet	CurbClog =	0.10	0.10	
Effective (Unclogged) Length	L_e =	4.50	4.50	ft
Actual Interception Capacity	**Q_a =**	**1.9**	**3.1**	cfs
Carry-Over Flow = $Q_{b(GRATE)}$-Q_a	**Q_b =**	**0.7**	**4.4**	cfs
Summary		MINOR	MAJOR	
Total Inlet Interception Capacity	**Q =**	**1.9**	**3.1**	**cfs**
Total Inlet Carry-Over Flow (flow bypassing inlet)	**Q_b =**	**0.7**	**4.4**	**cfs**
Capture Percentage = Q_a/Q_o =	**C% =**	**73**	**42**	**%**

STORM MODEL SCHEMATIC NORTH



Make pipe and structure labels larger so they are legible. **The text in the footer is barely legible for reference.**

Calcs need to include all flows from the site basins, future filing basins, and the infrastructure basins. These flows need to be provided and presented in a manner that we are able to check them.

Show the rest of the pipe system and include in calcs.

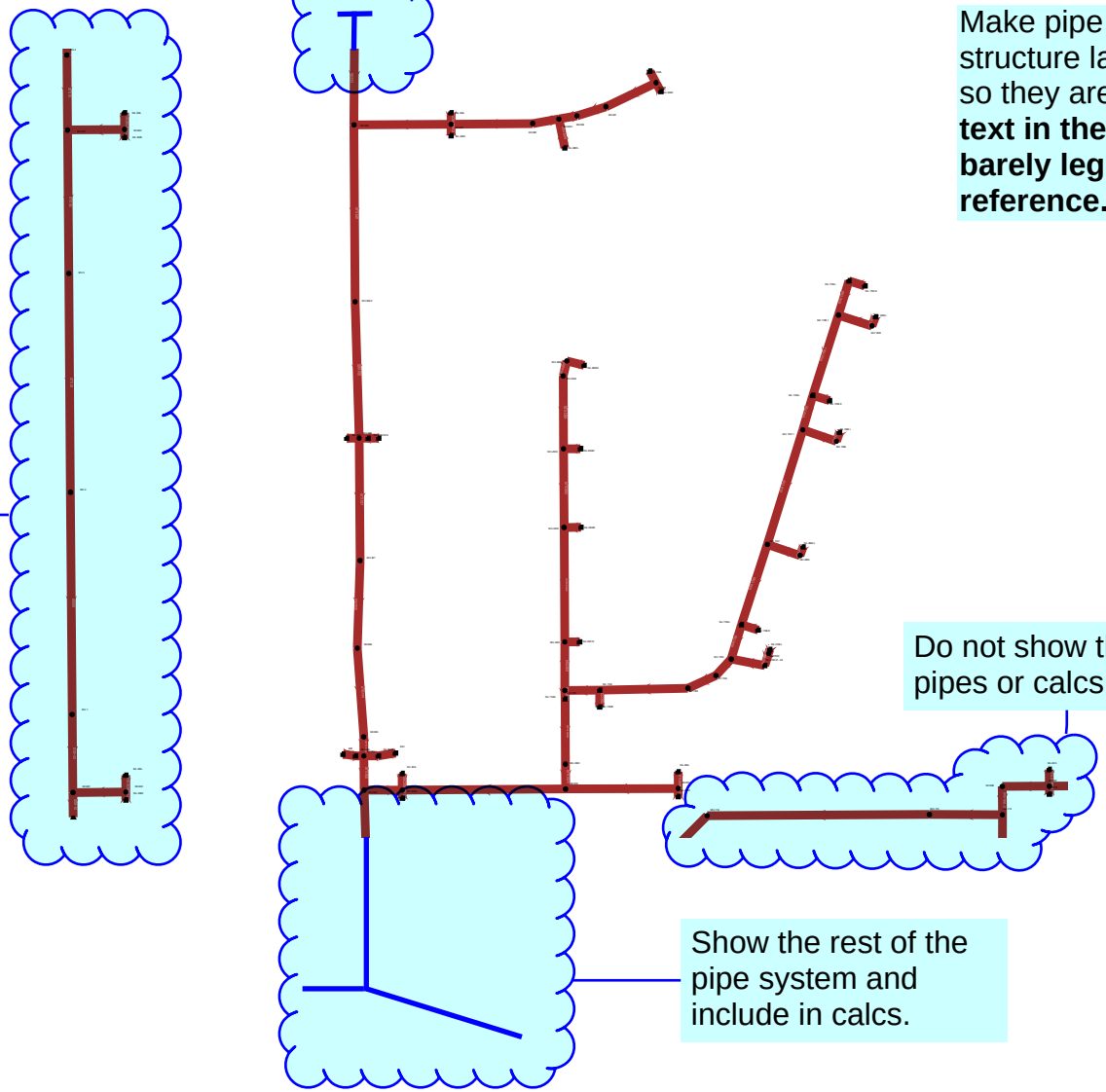
<u>REPEAT COMMENT:</u>
Provide stormcad output tables**.**

Label storm runs

Show the rest of the pipe system and include in calcs.

STORM MODEL SCHEMATIC SOUTH

Make pipe and structure labels larger so they are legible. **The text in the footer is barely legible for reference.**



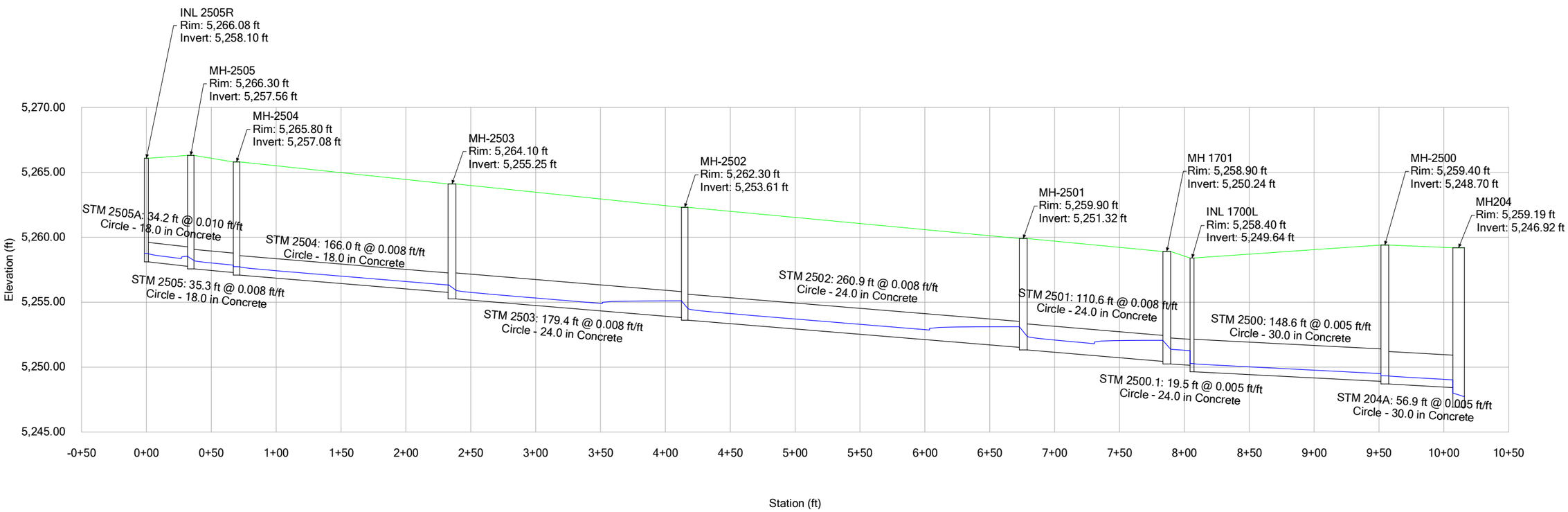
Do not show these pipes or calcs

Do not show these pipes or calcs

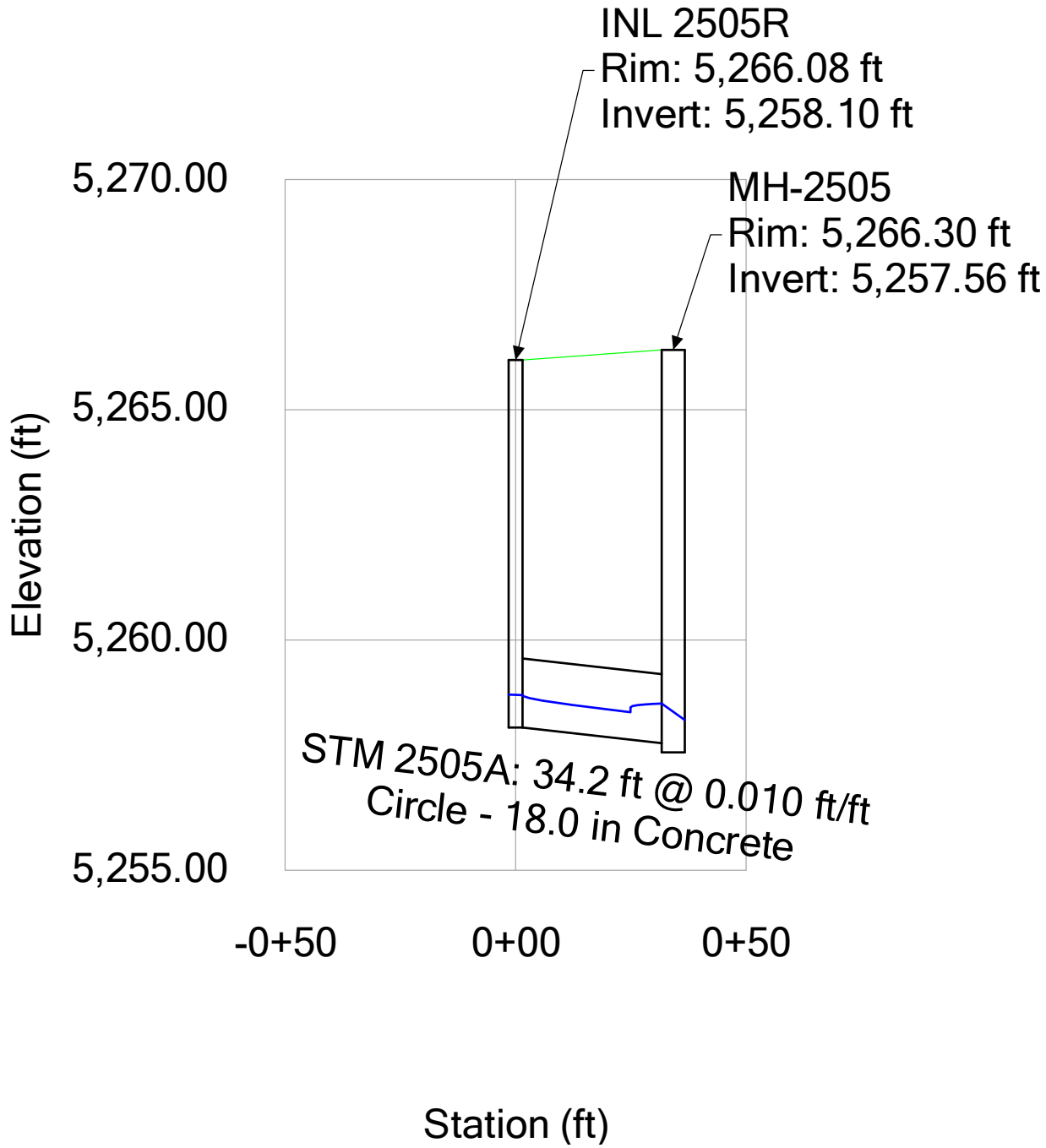
Label storm runs

Show the rest of the pipe system and include in calcs.

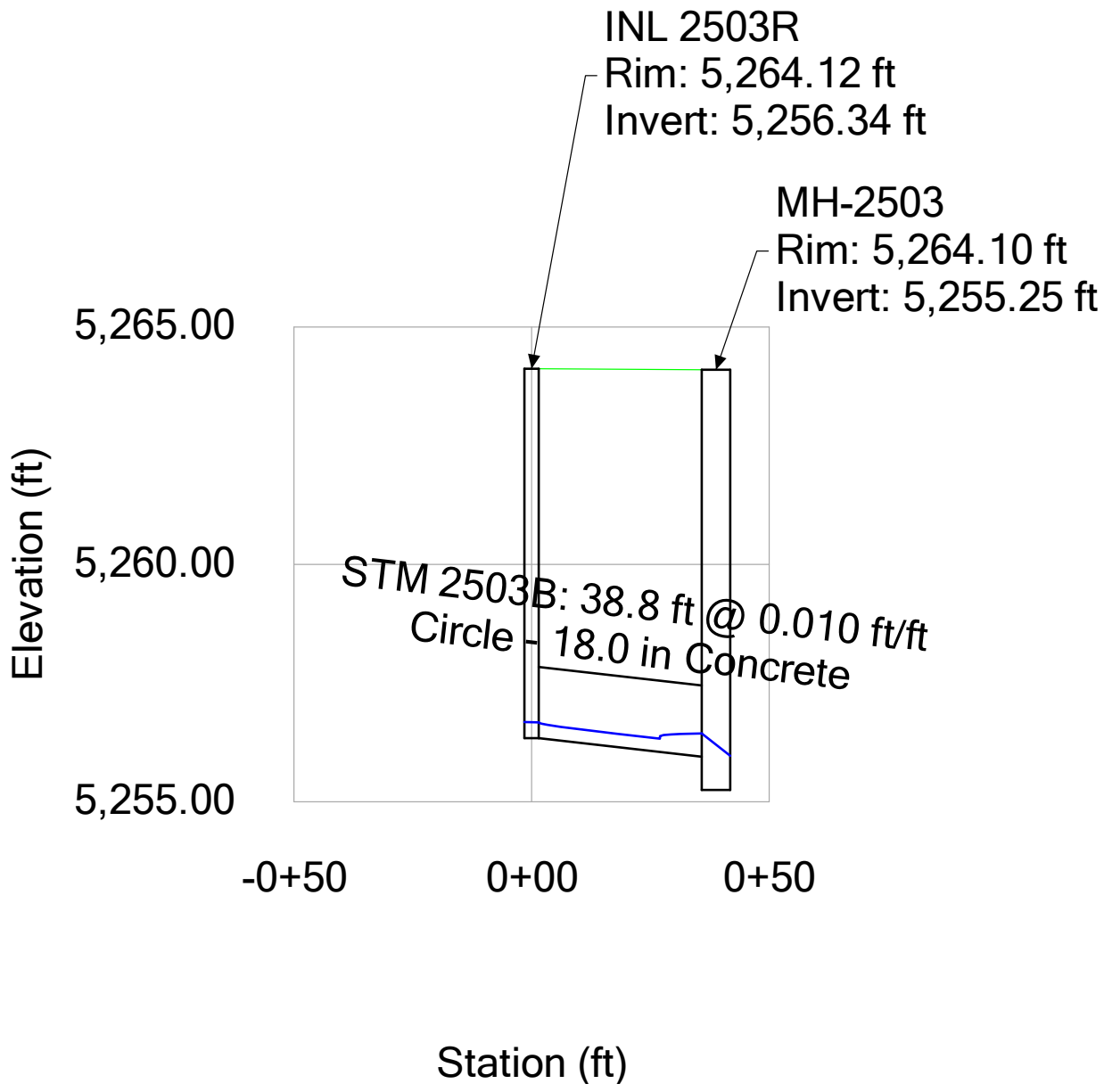
Profile Report
Engineering Profile - F2 - Storm Run 1 (19002220-Legato Restricted Flow.stsw)
5 YR



Profile Report
Engineering Profile - F2 - Storm Lateral 1 (19002220-Legato Restricted Flow.stsw)
5 YR

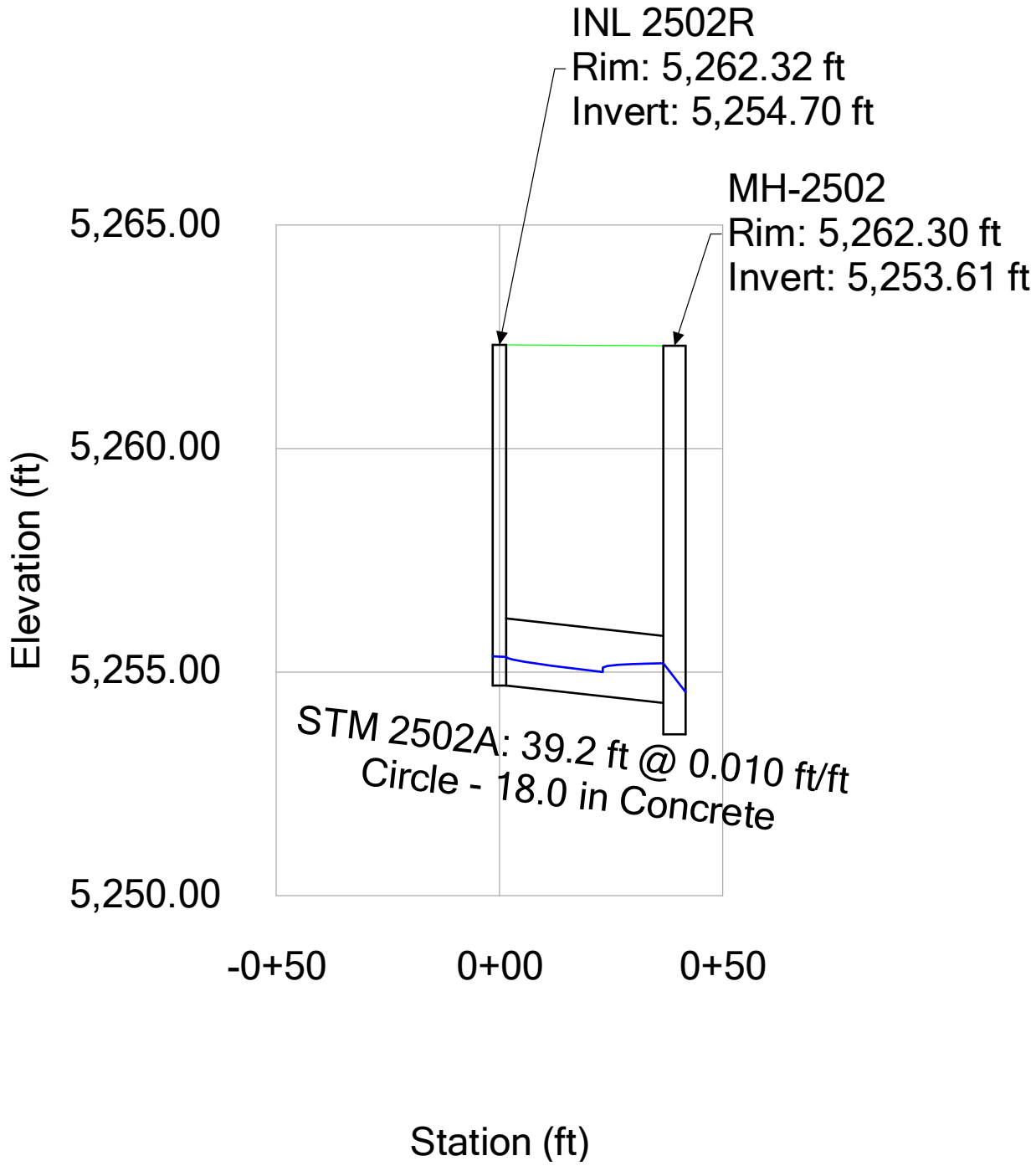


Profile Report
Engineering Profile - F2 - Storm Lateral 1A (19002220-Legato Restricted Flow.stsw)
5 YR

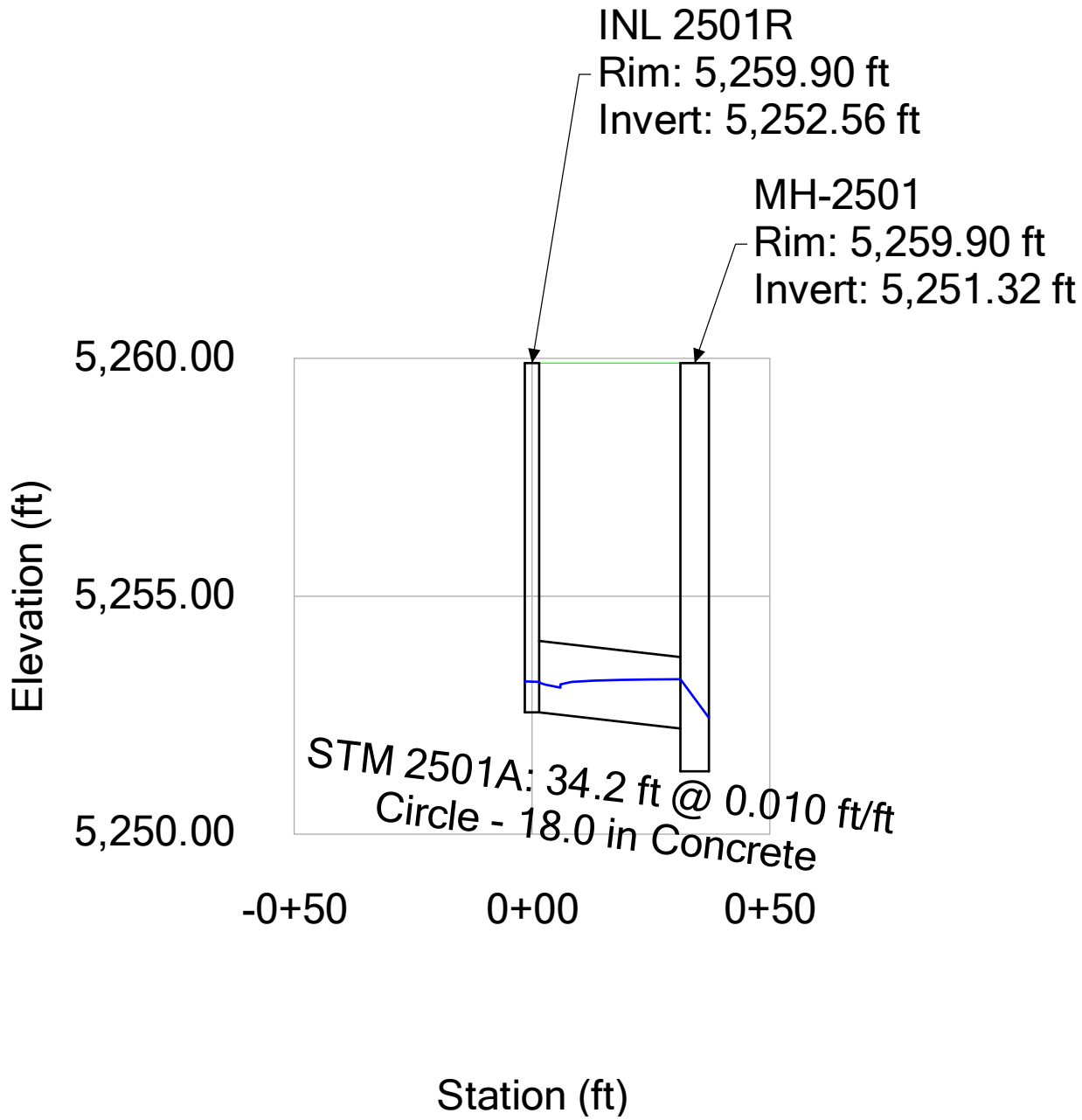


Profile Report
Engineering Profile - F2 - Storm Lateral 1B (19002220-Legato Restricted Flow.stsw)

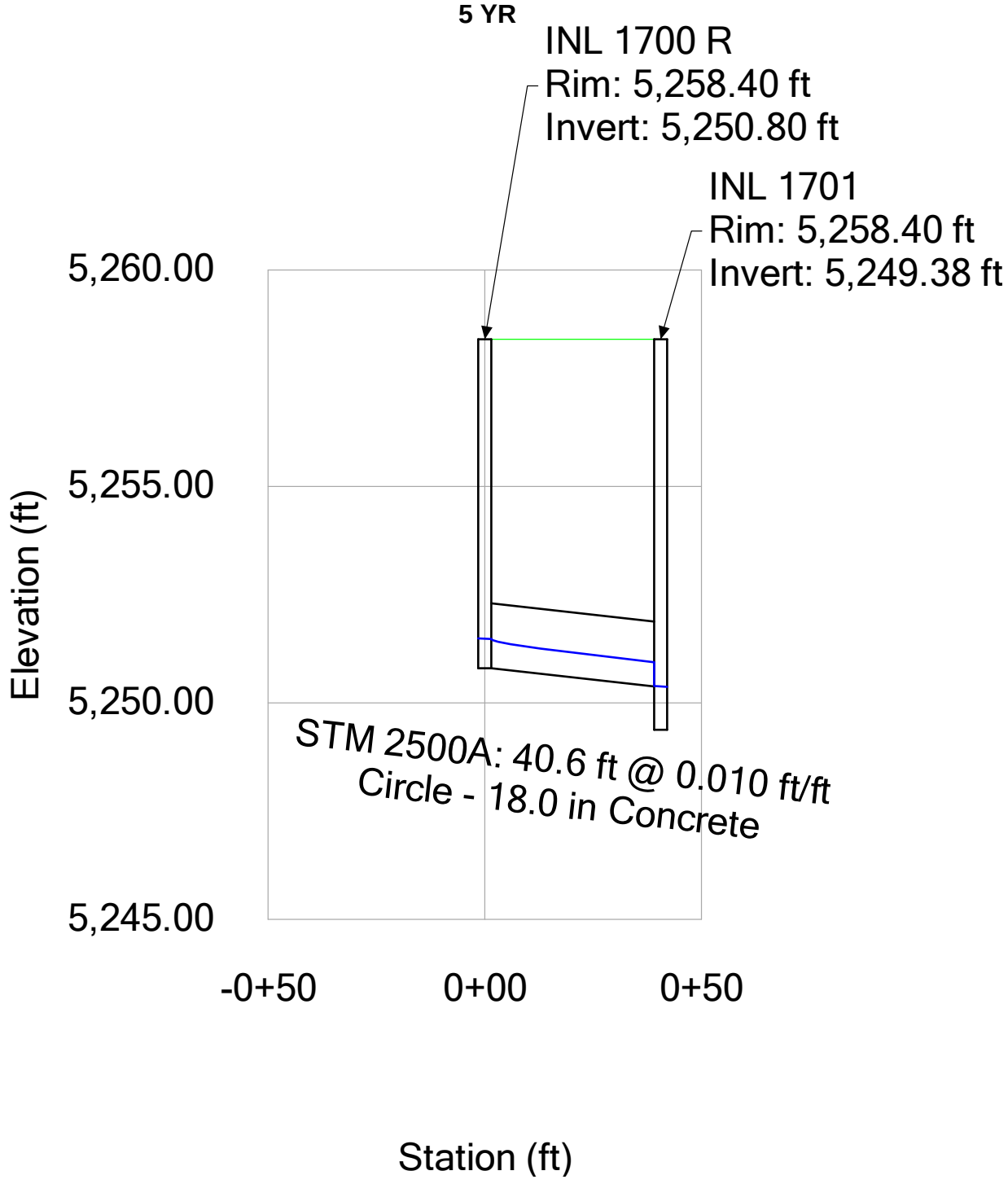
5 YR



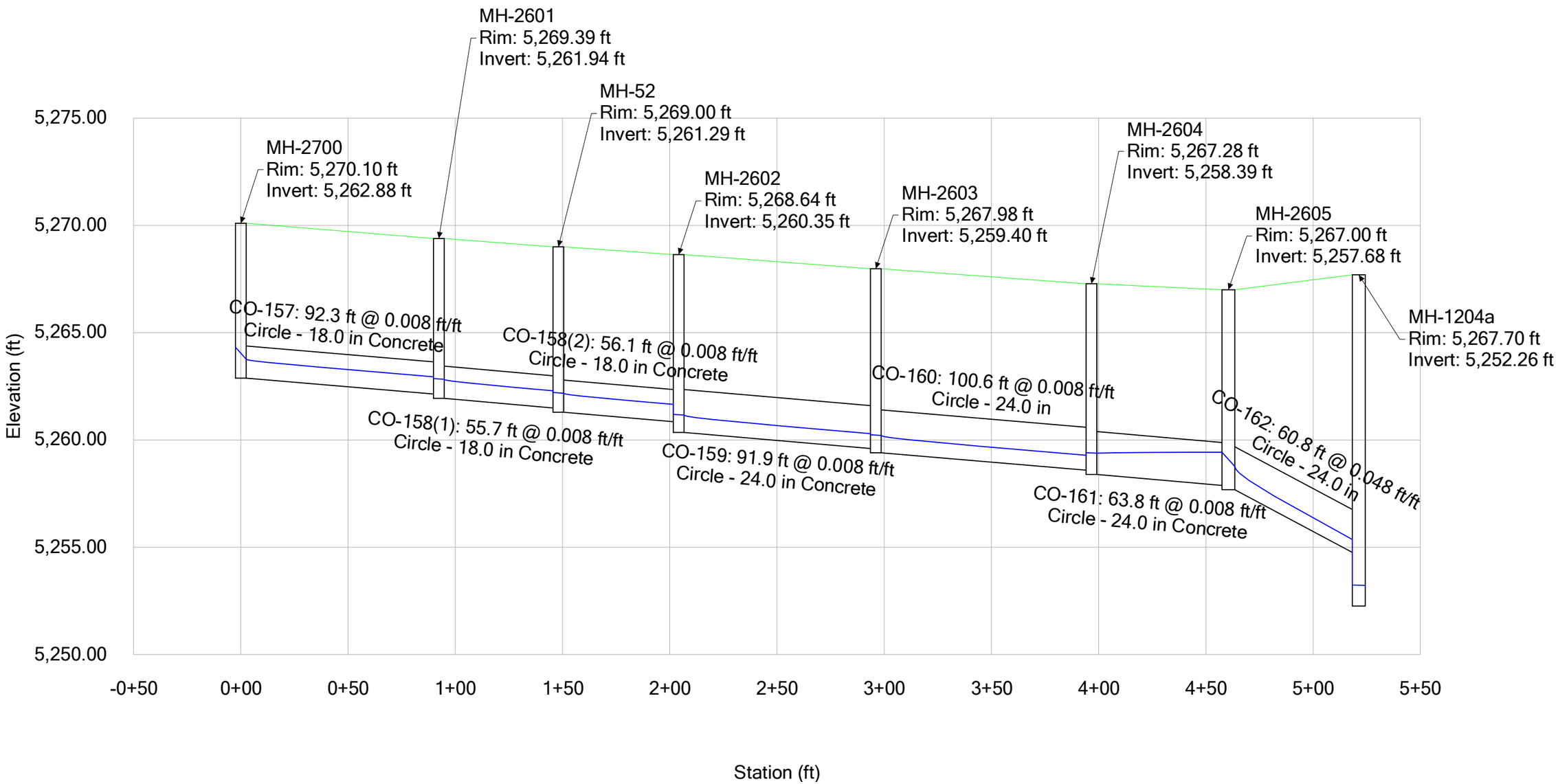
Profile Report
Engineering Profile - F2 - Storm Lateral 1C (19002220-Legato Restricted Flow.stsw)
5 YR



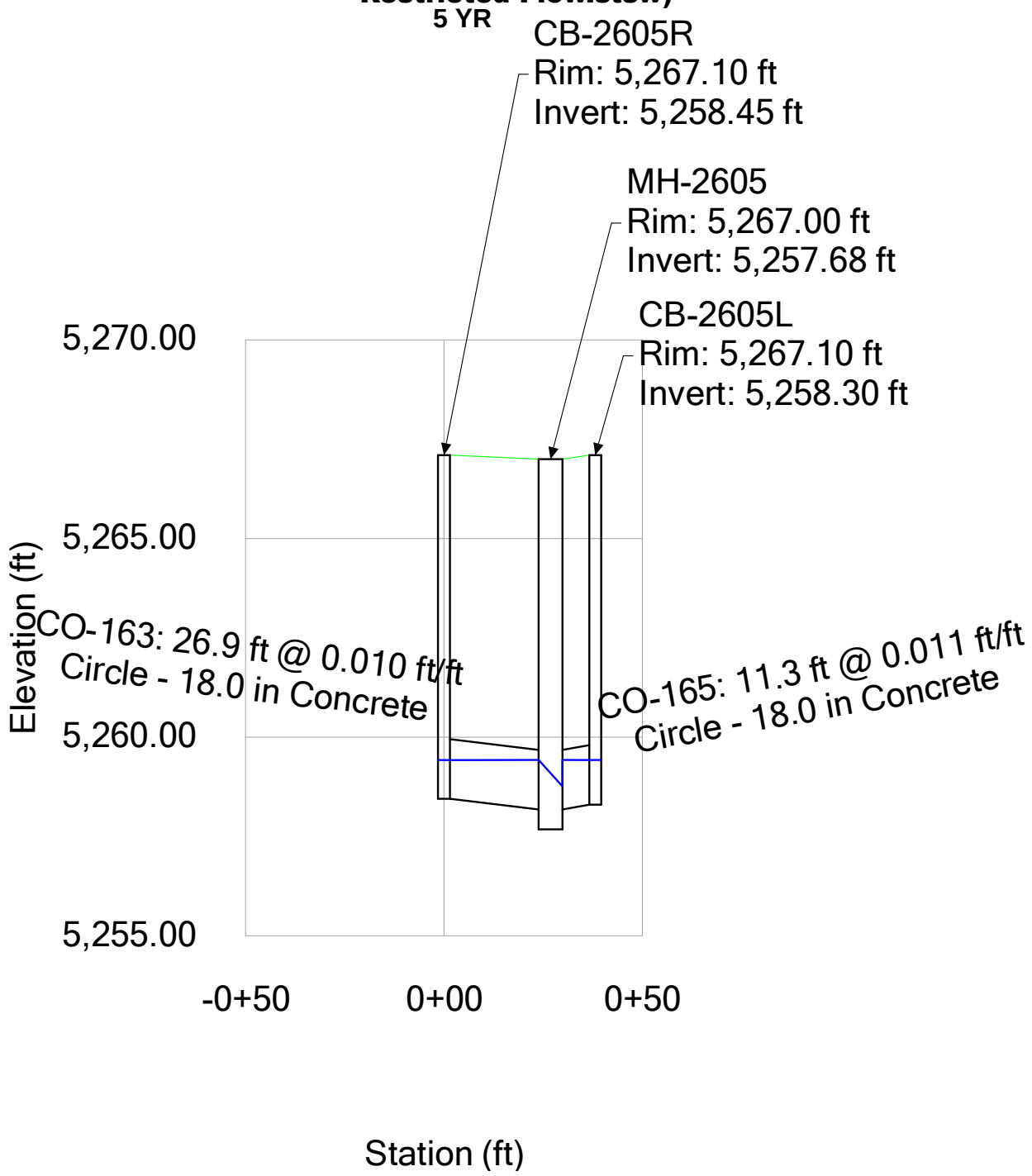
Profile Report
Engineering Profile - F2 - Storm Lateral 1D (19002220-Legato Restricted Flow.stsw)
5 YR



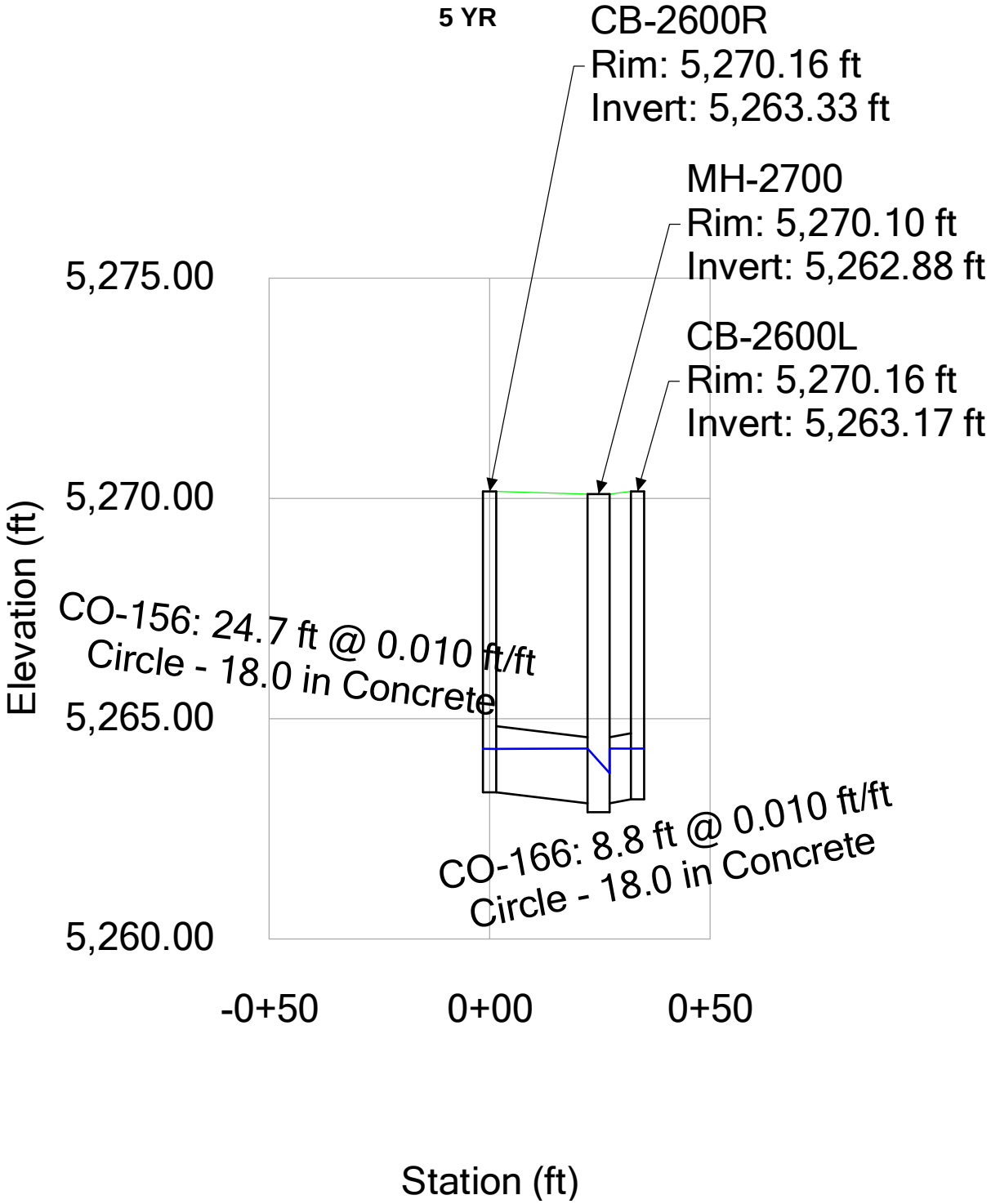
Profile Report
Engineering Profile - F2 - Storm Run 3 (19002220-Legato Restricted Flow.stsw)
5 YR



Profile Report
Engineering Profile - F2 - Storm Lateral 3A (19002220-Legato Restricted Flow.stsw)
5 YR

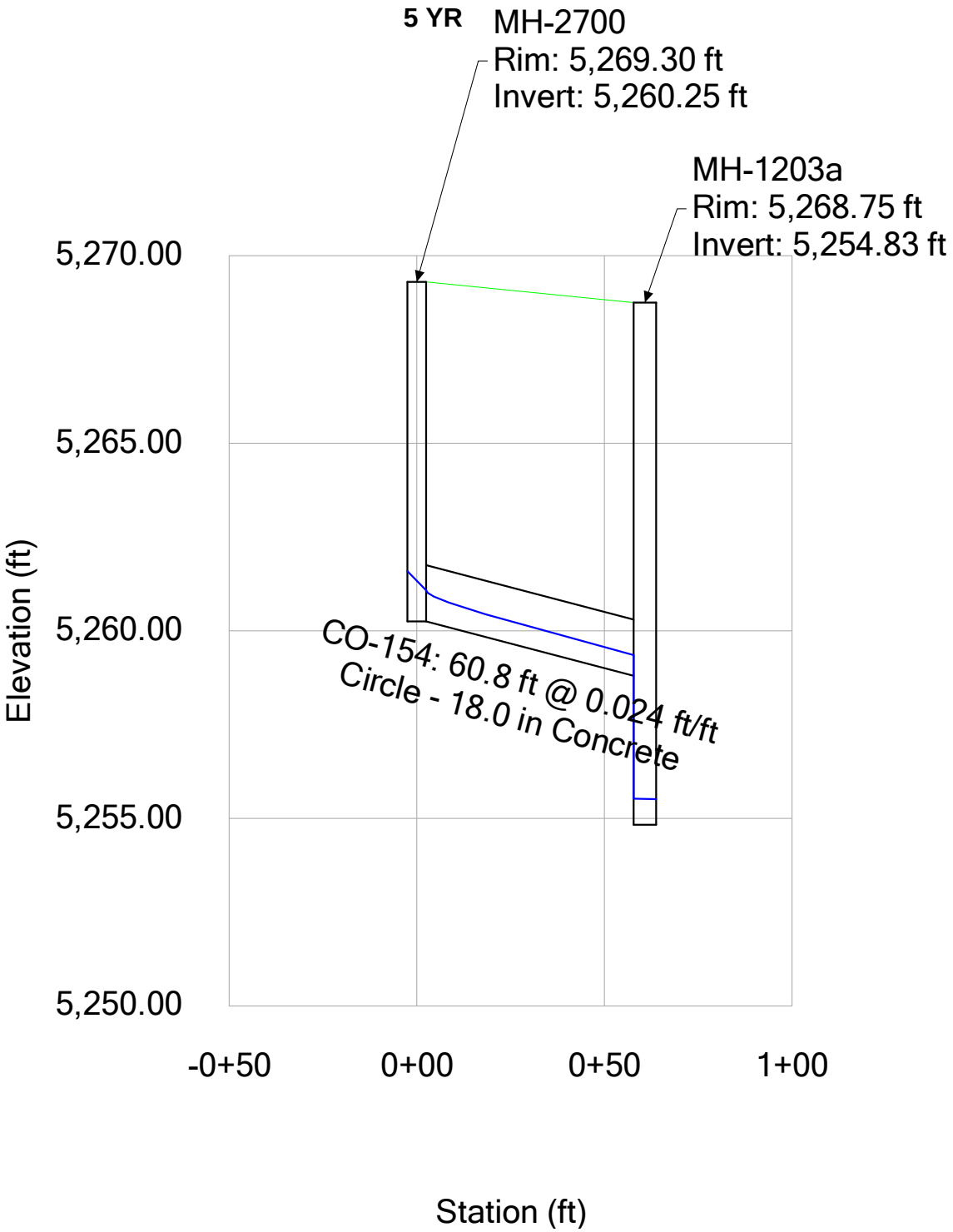


Profile Report
Engineering Profile - F2 - Storm Lateral 3B (19002220-Legato Restricted Flow.stsw)
5 YR

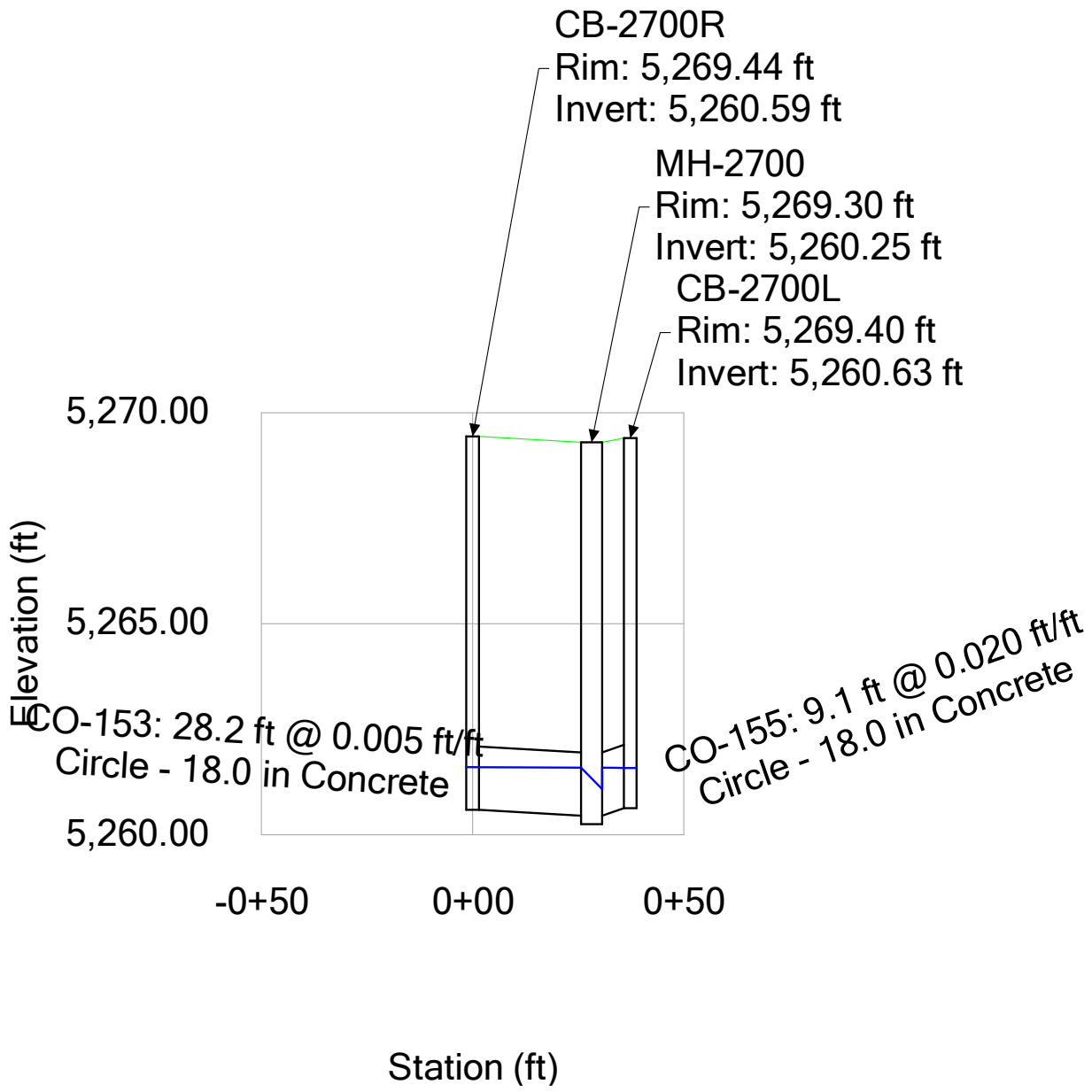


Profile Report
Engineering Profile - F2 - Storm Run 4 (19002220-Legato Restricted Flow.stsw)

5 YR

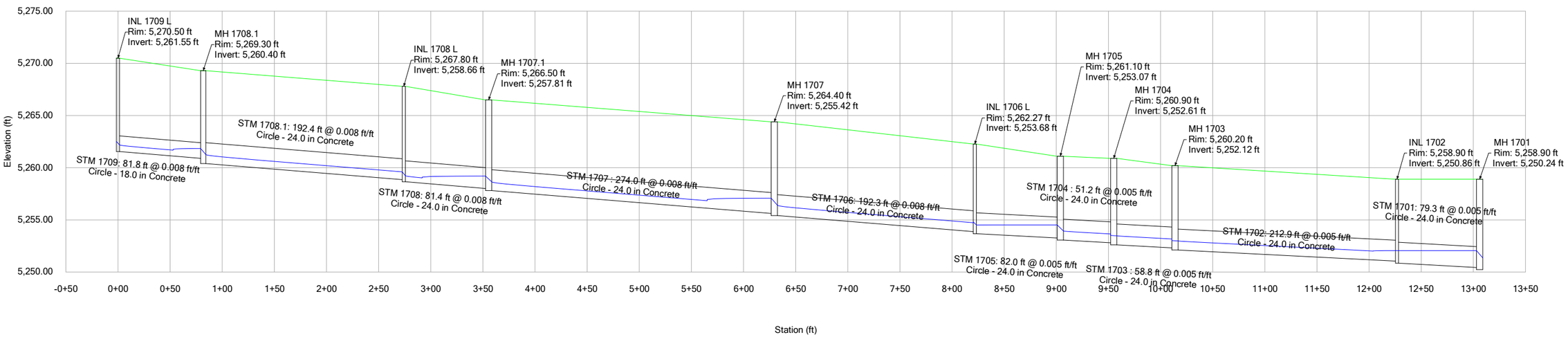


Profile Report
Engineering Profile - F2 - Storm Lateral 4A (19002220-Legato Restricted Flow.stsw)
5 YR

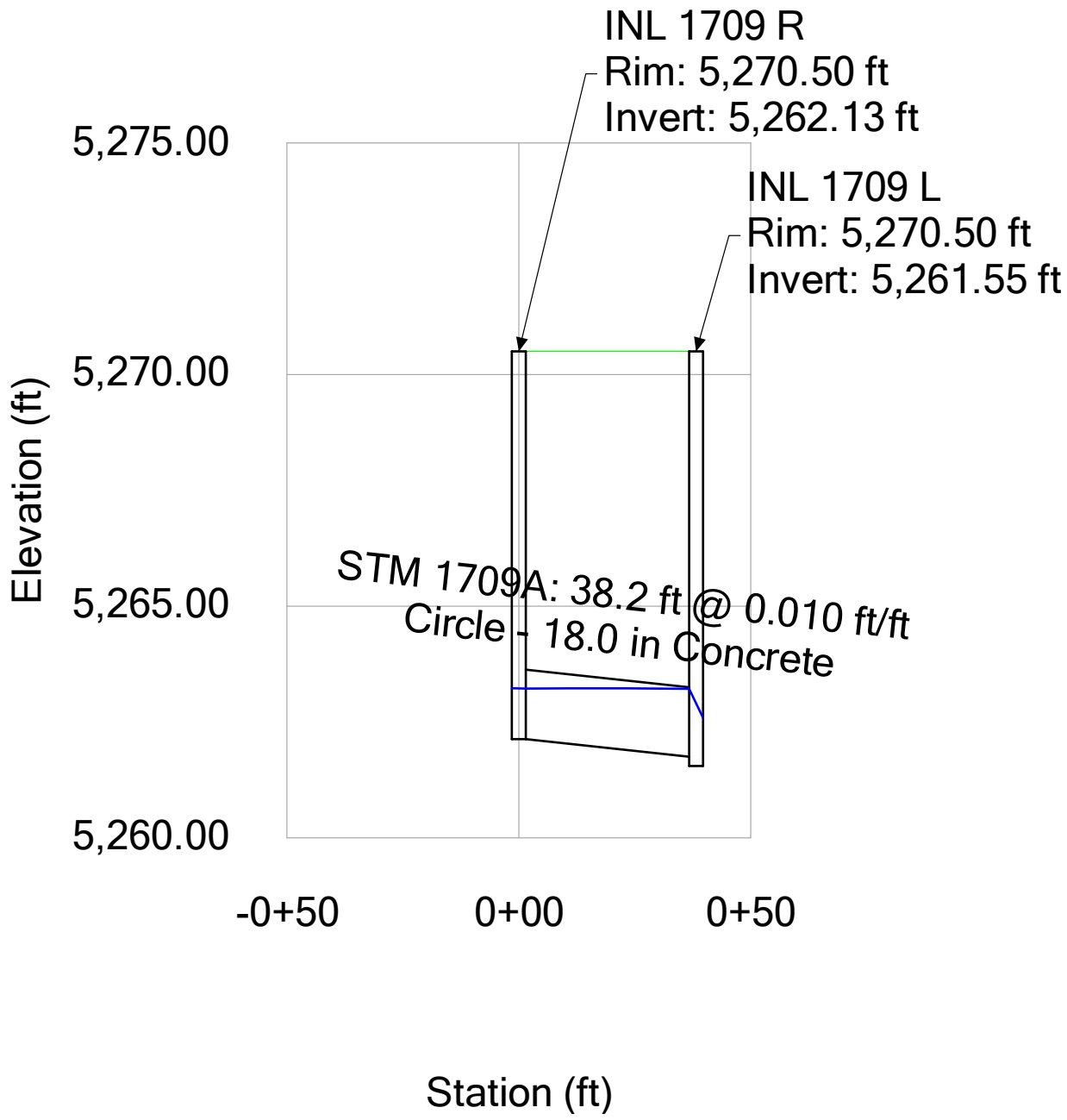


Profile Report
Engineering Profile - F2 - Storm Run 6 (19002220-Legato Restricted Flow.stsw)

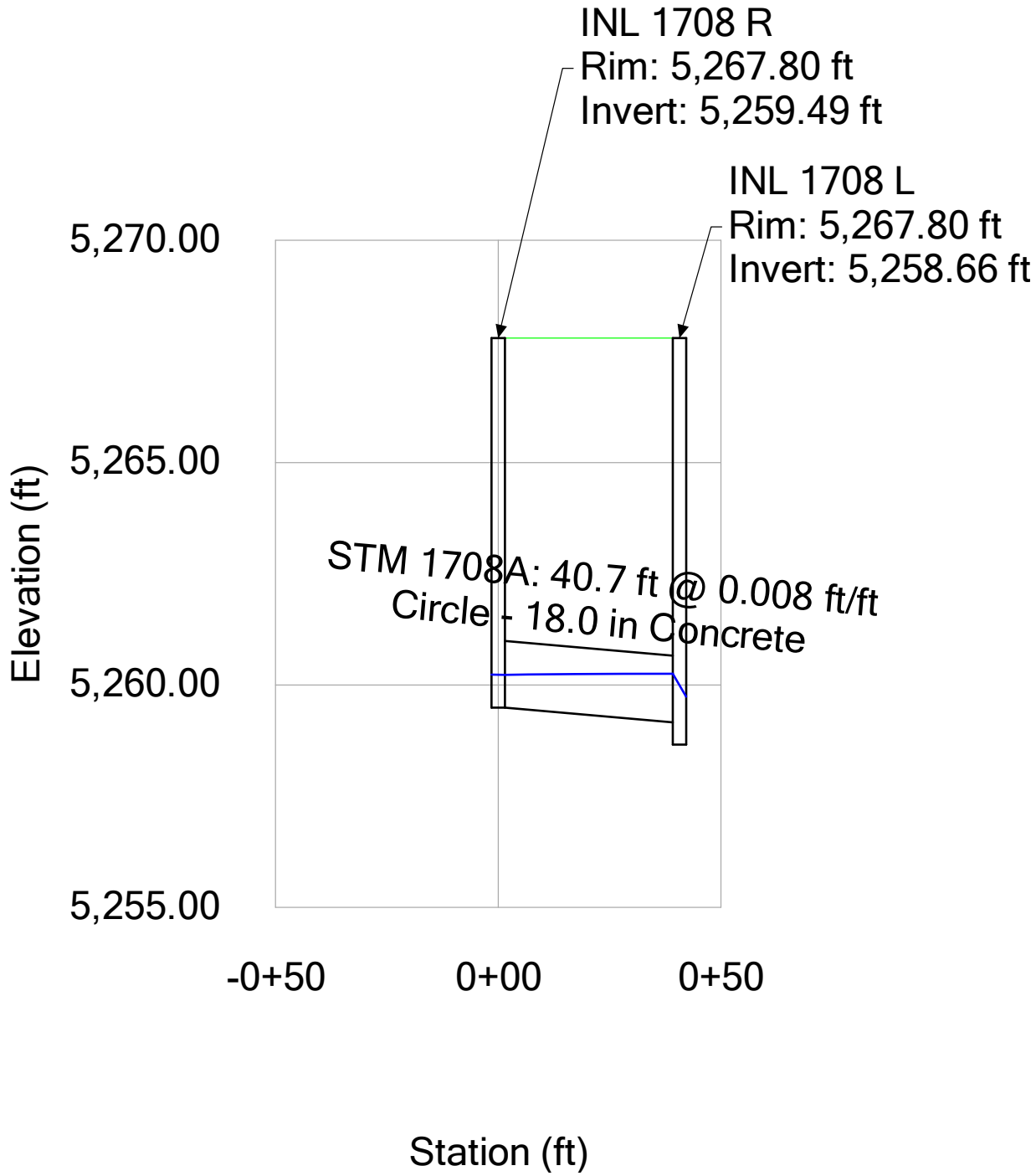
5 YR



Profile Report
Engineering Profile - F2 - Storm Lateral 6A (19002220-Legato Restricted Flow.stsw)
5 YR

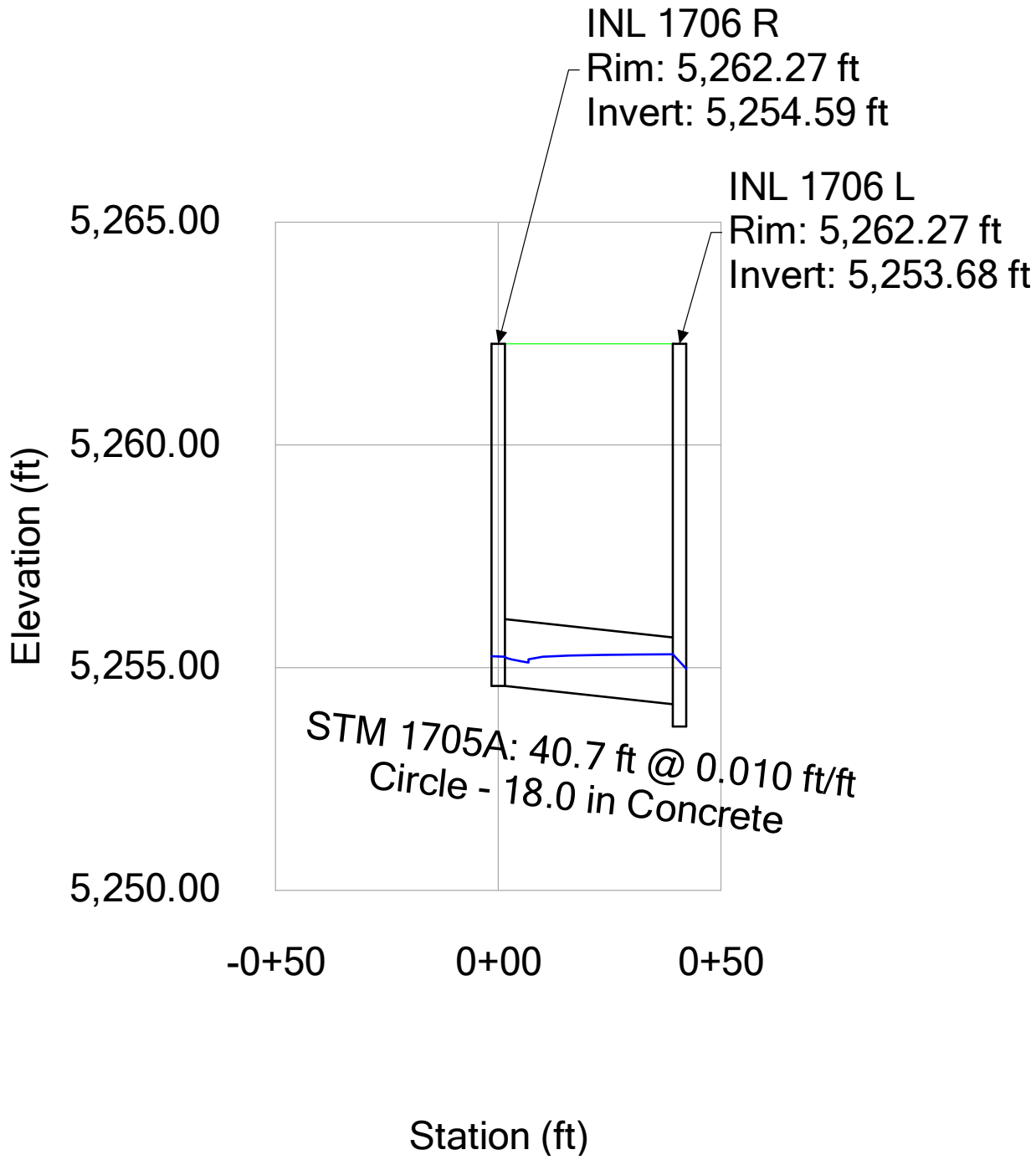


Profile Report
Engineering Profile - F2 - Storm Lateral 6B (19002220-Legato Restricted Flow.stsw)
5 YR



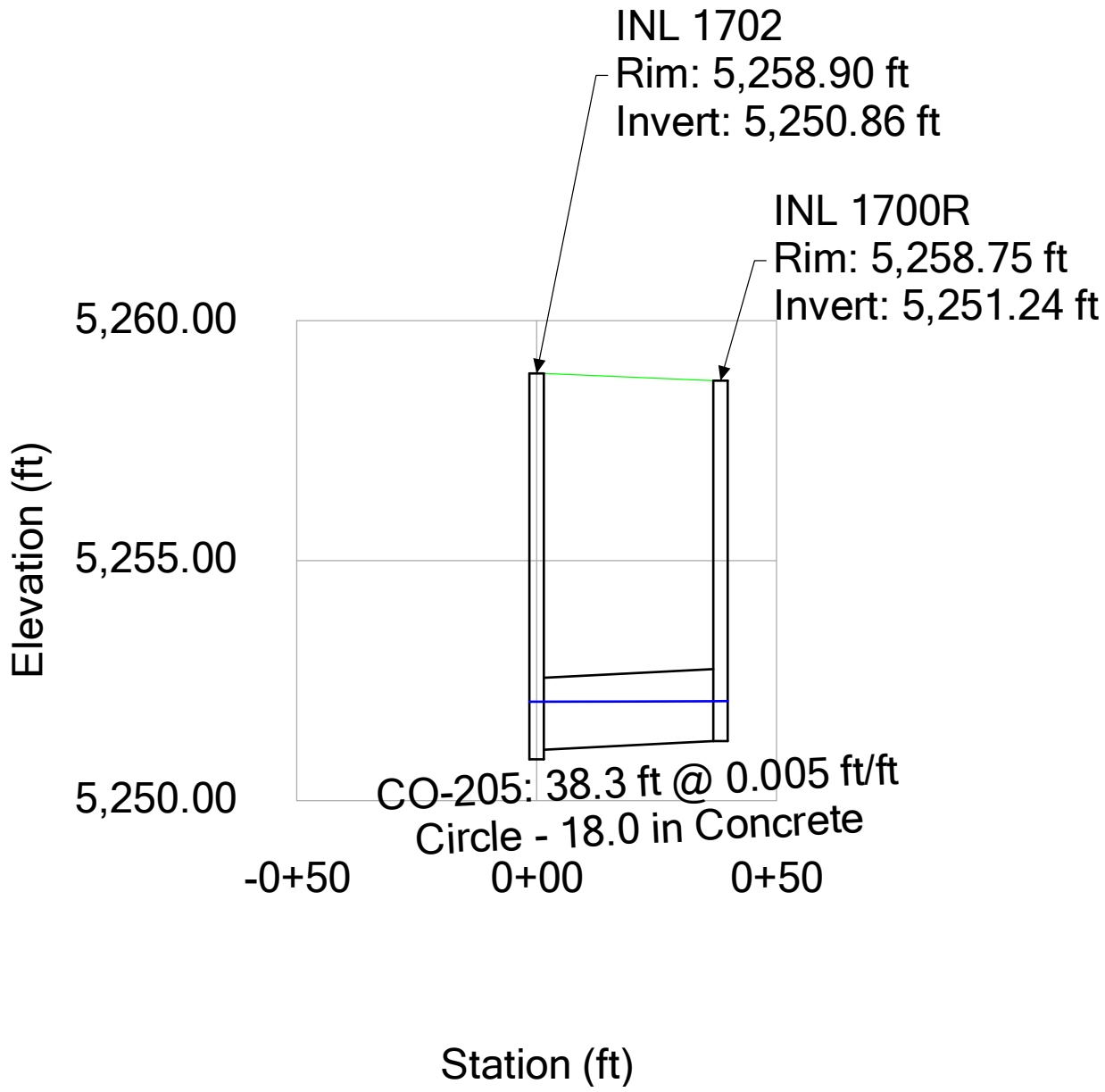
Profile Report
Engineering Profile - F2 - Storm Lateral 6C (19002220-Legato Restricted Flow.stsw)

5 YR

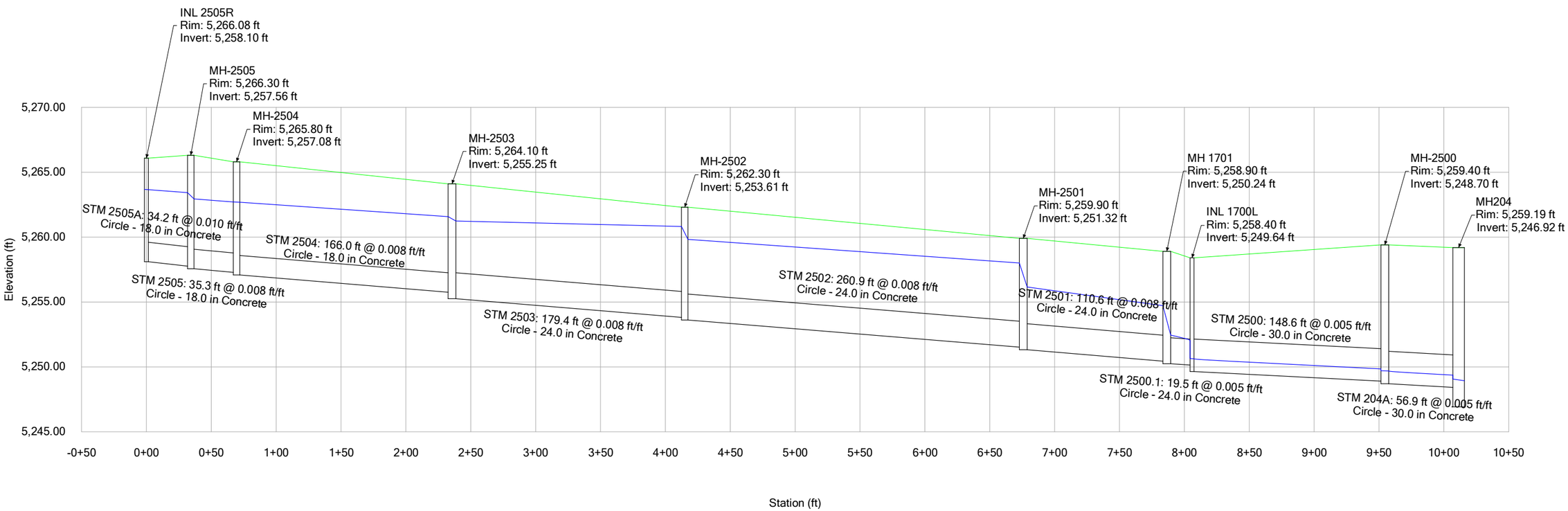


Profile Report
Engineering Profile - F2 - Storm Lateral 6D (19002220-Legato Restricted Flow.stsw)

5 YR



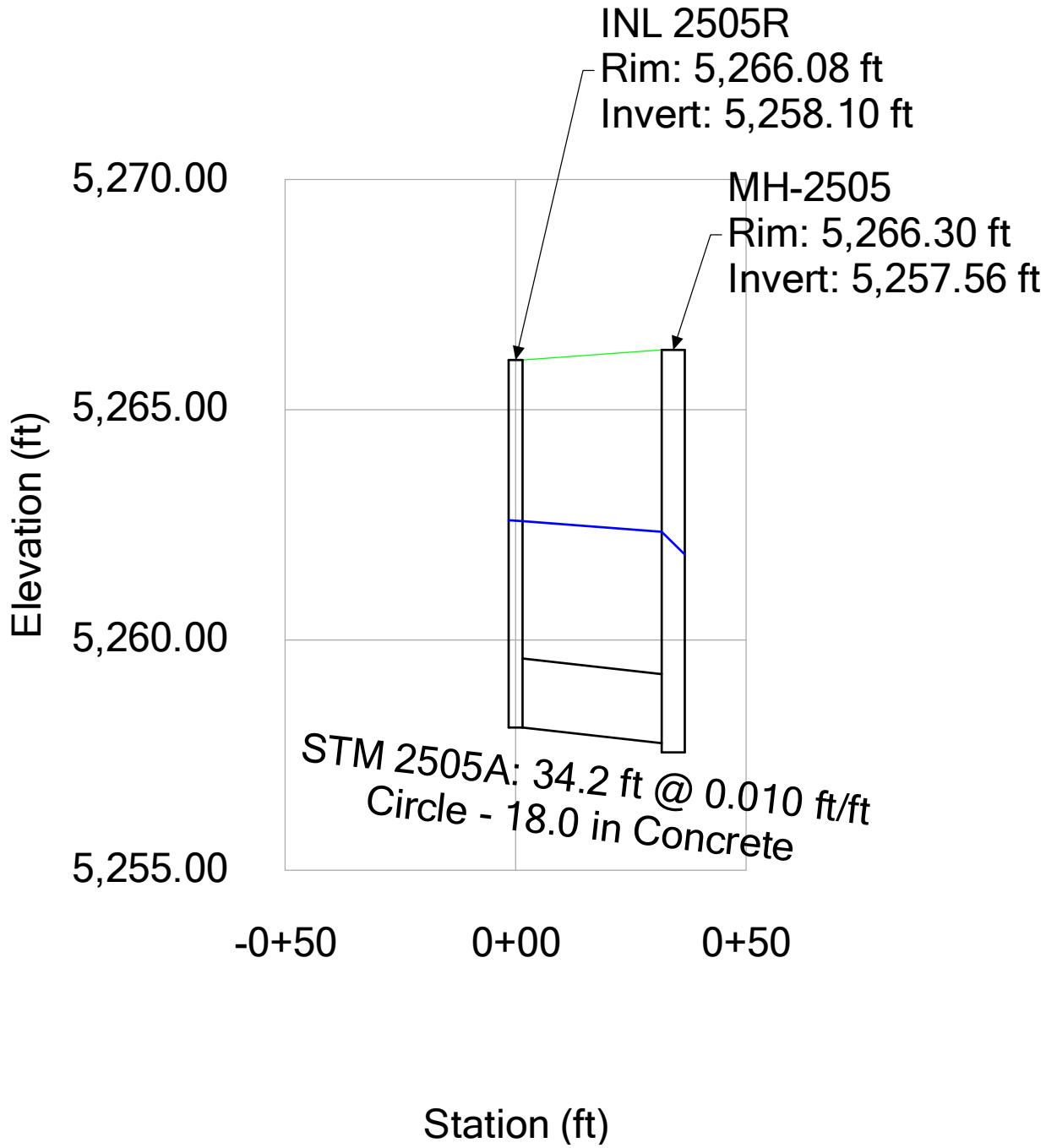
Profile Report
Engineering Profile - F2 - Storm Run 1 (19002220-Legato Restricted Flow.stsw)
100 YR



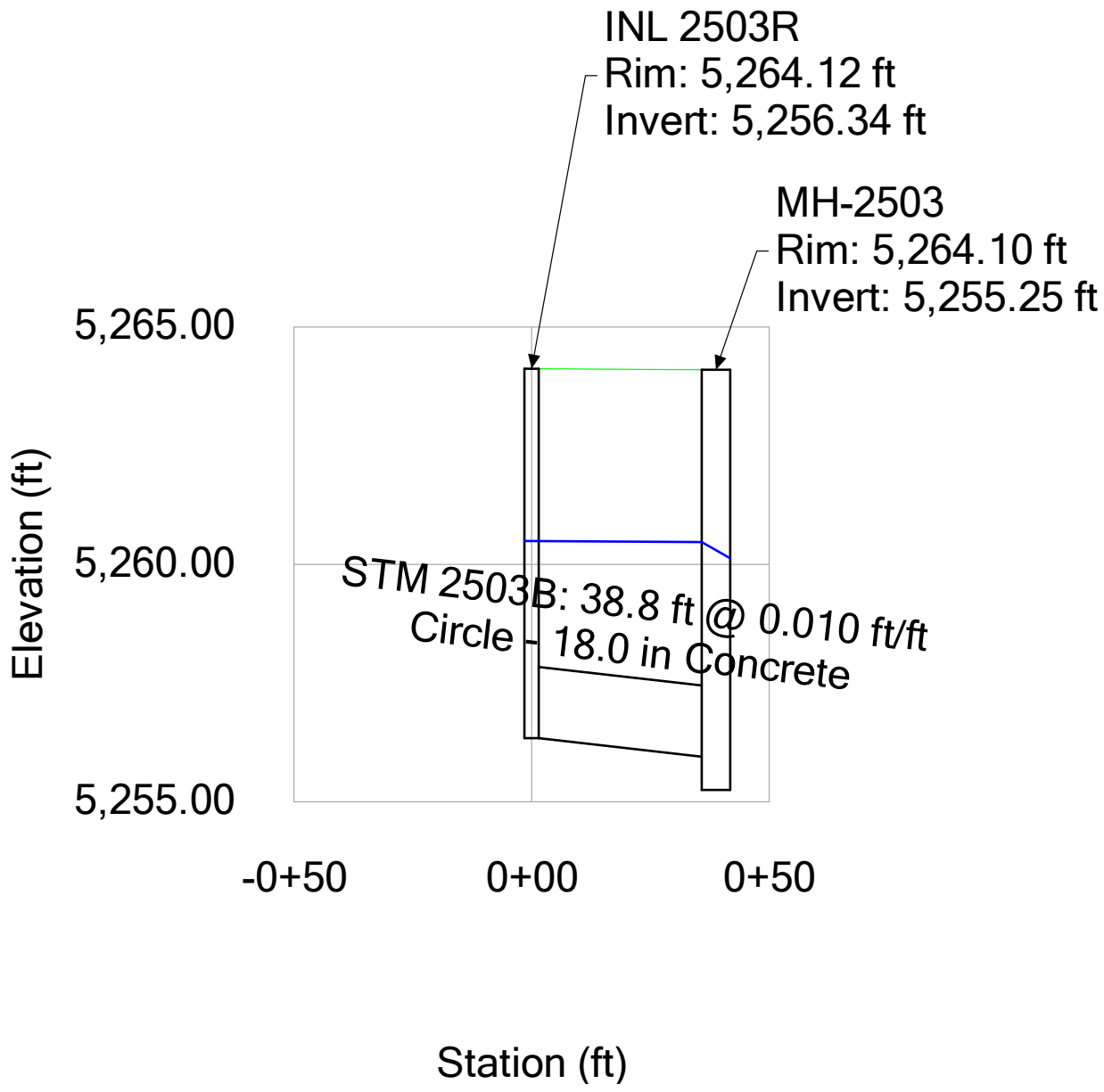
Profile Report

Engineering Profile - F2 - Storm Lateral 1 (19002220-Legato Restricted Flow.stsw)

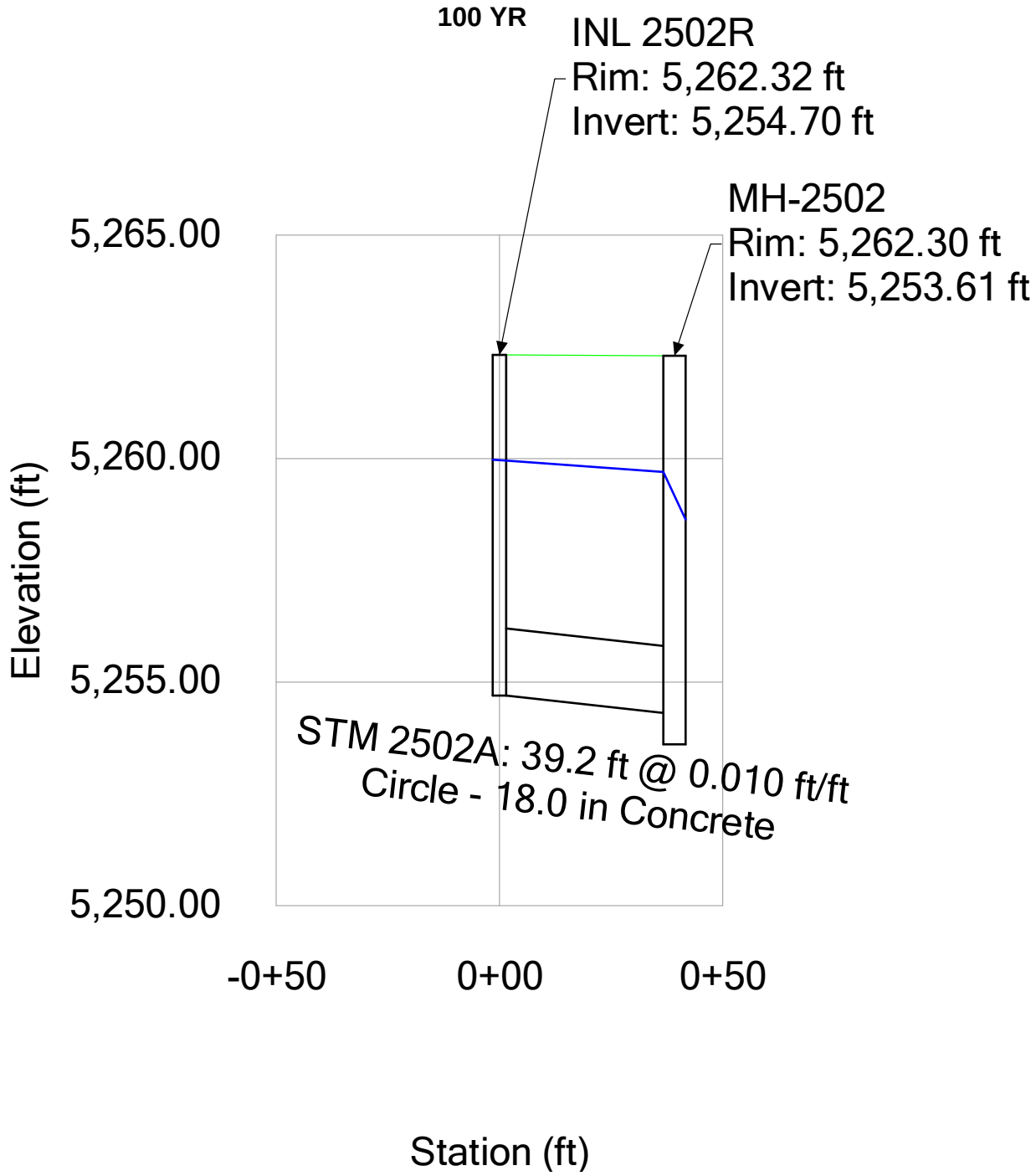
100 YR



Profile Report
Engineering Profile - F2 - Storm Lateral 1A (19002220-Legato Restricted Flow.stsw)
100 YR

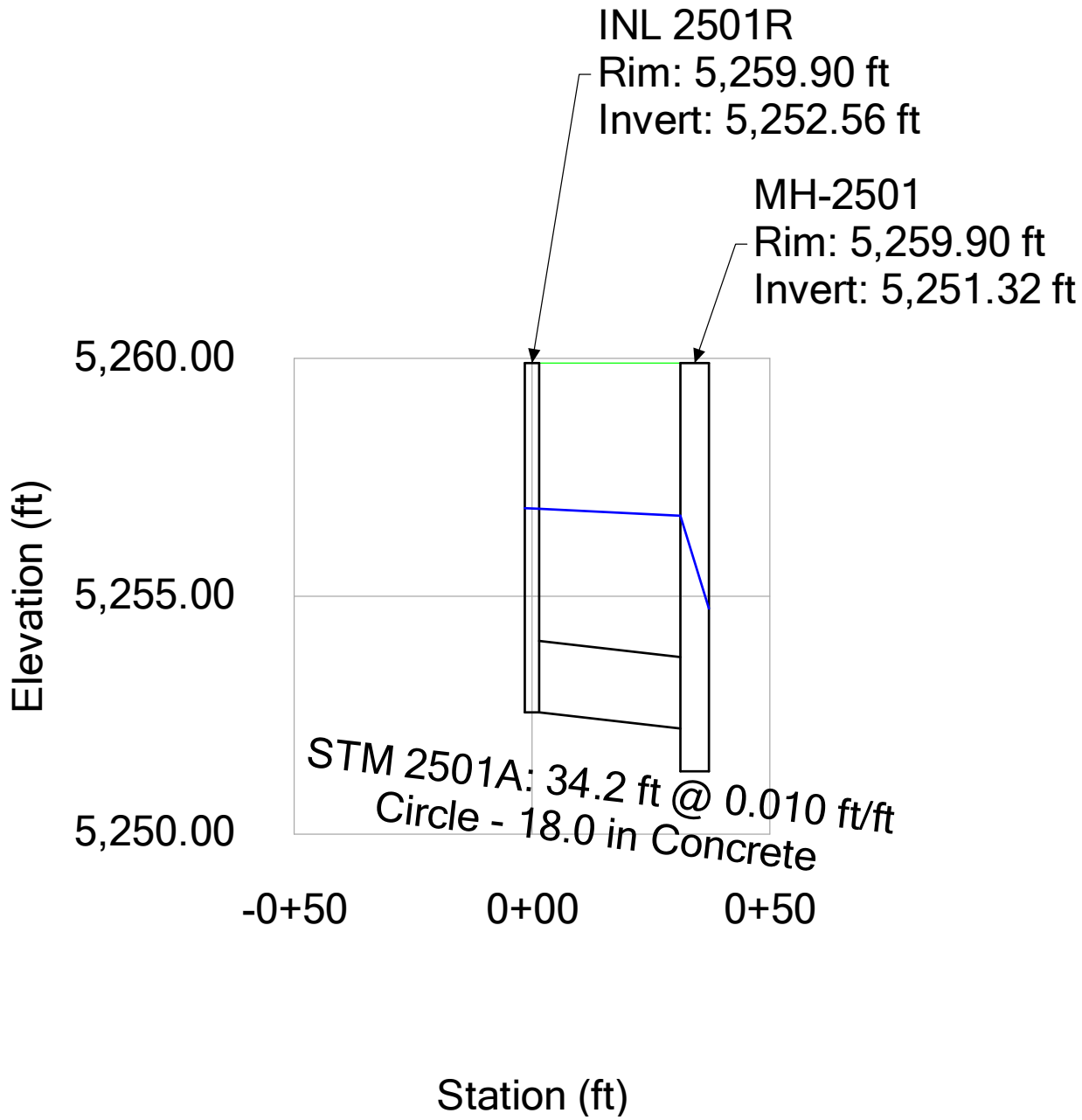


Profile Report
Engineering Profile - F2 - Storm Lateral 1B (19002220-Legato Restricted Flow.stsw)

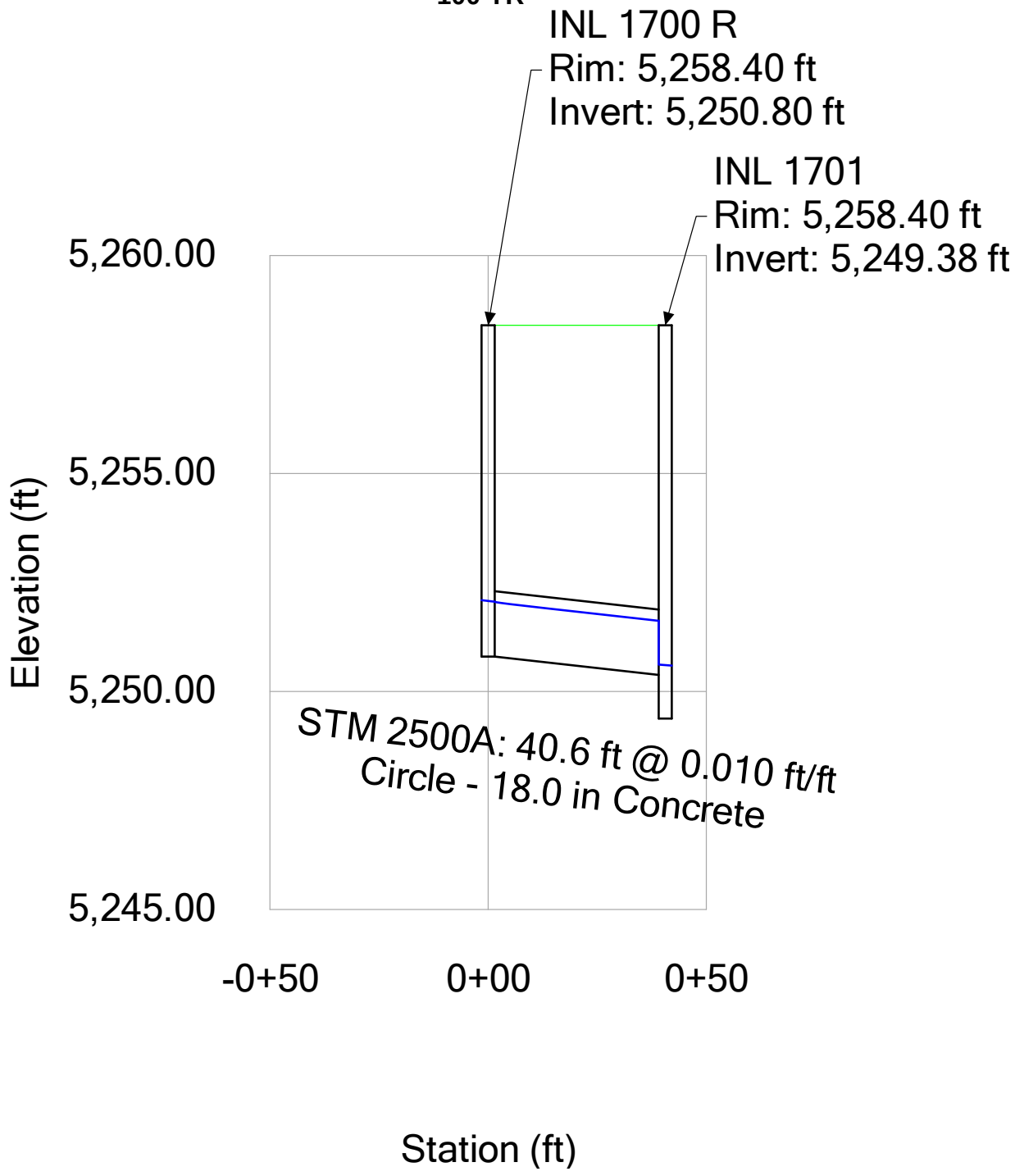


Profile Report
Engineering Profile - F2 - Storm Lateral 1C (19002220-Legato Restricted Flow.stsw)

100 YR



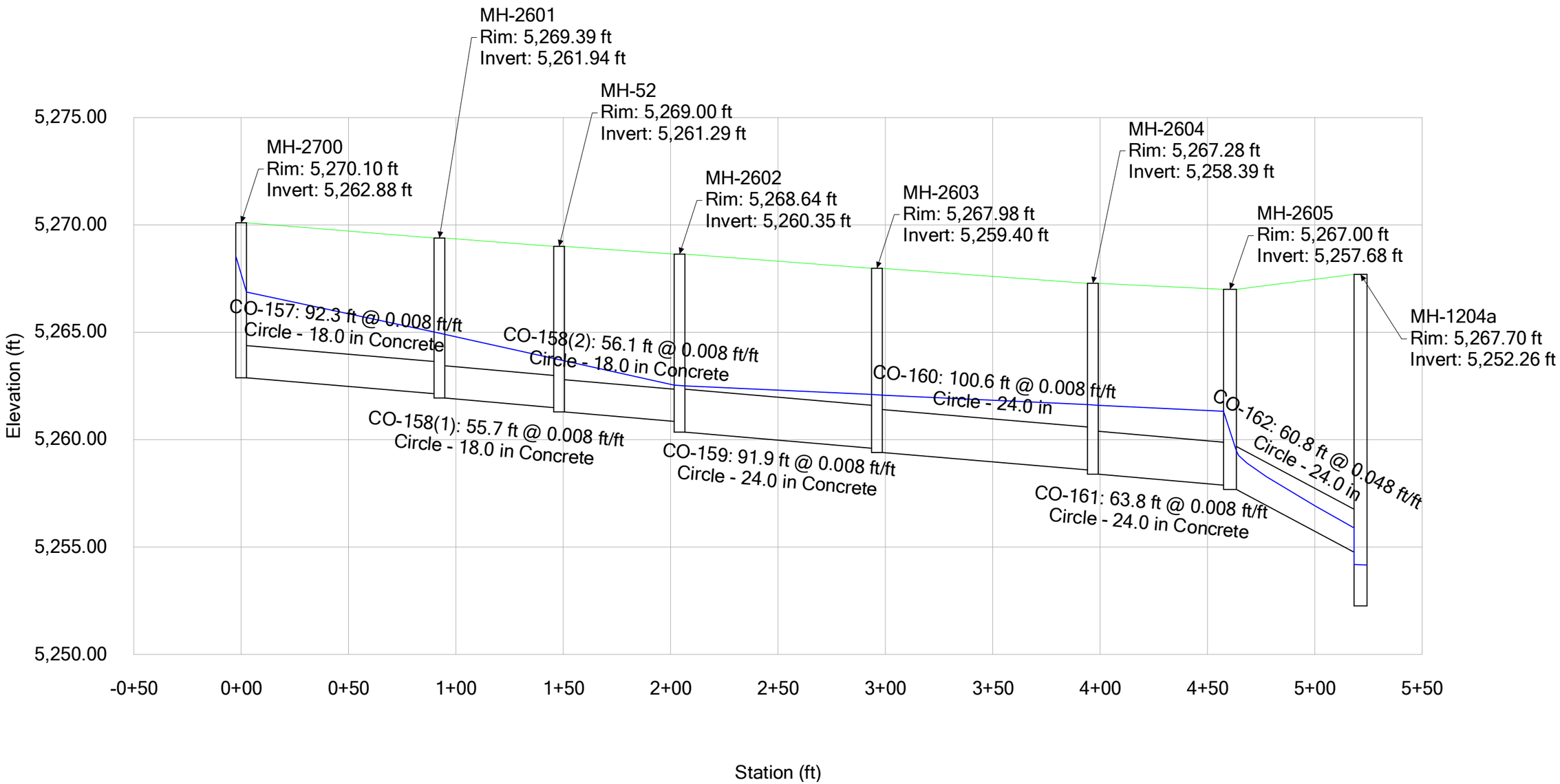
Profile Report
Engineering Profile - F2 - Storm Lateral 1D (19002220-Legato Restricted Flow.stsw)
100 YR



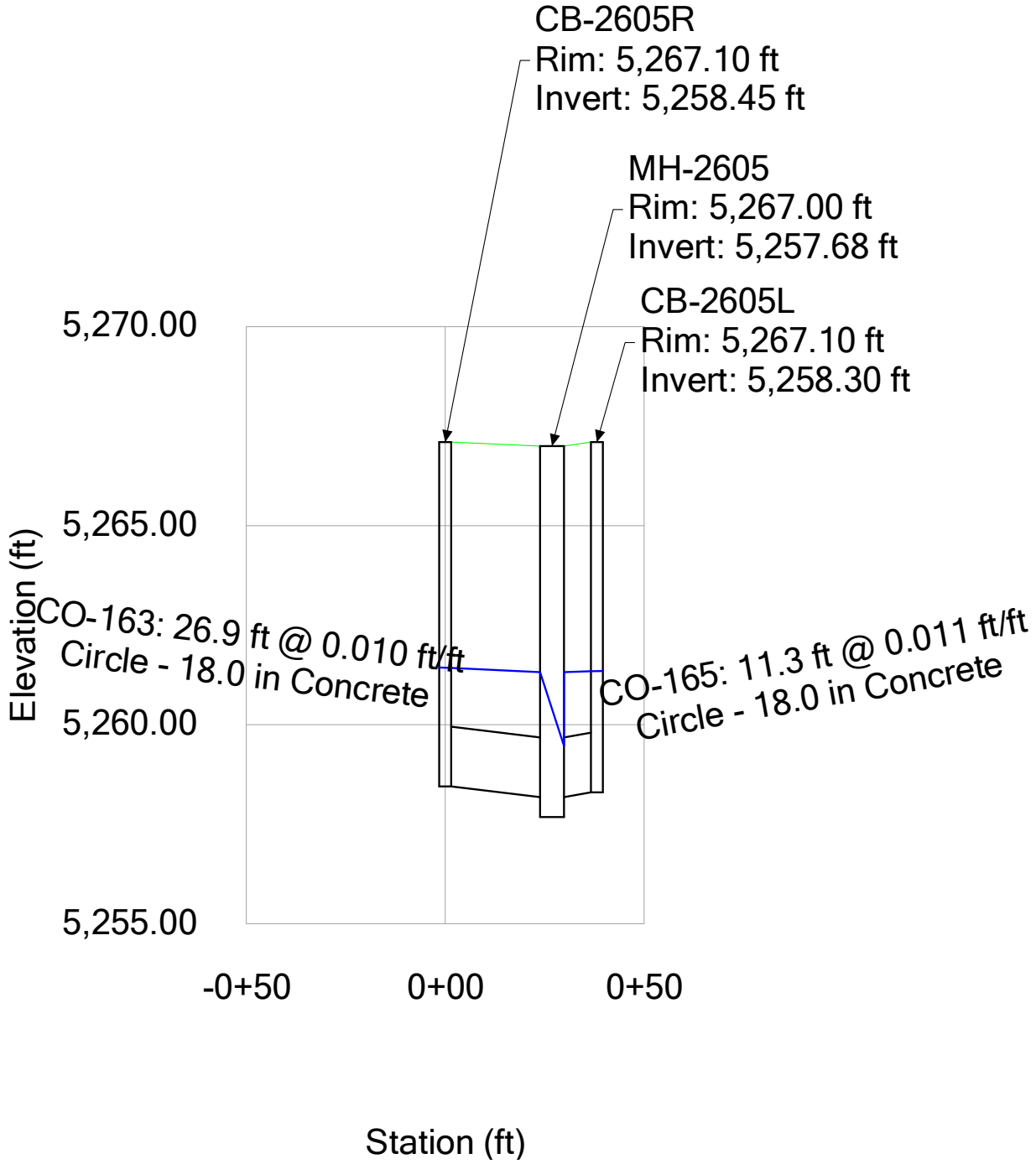
Profile Report

Engineering Profile - F2 - Storm Run 3 (19002220-Legato Restricted Flow.stsw)

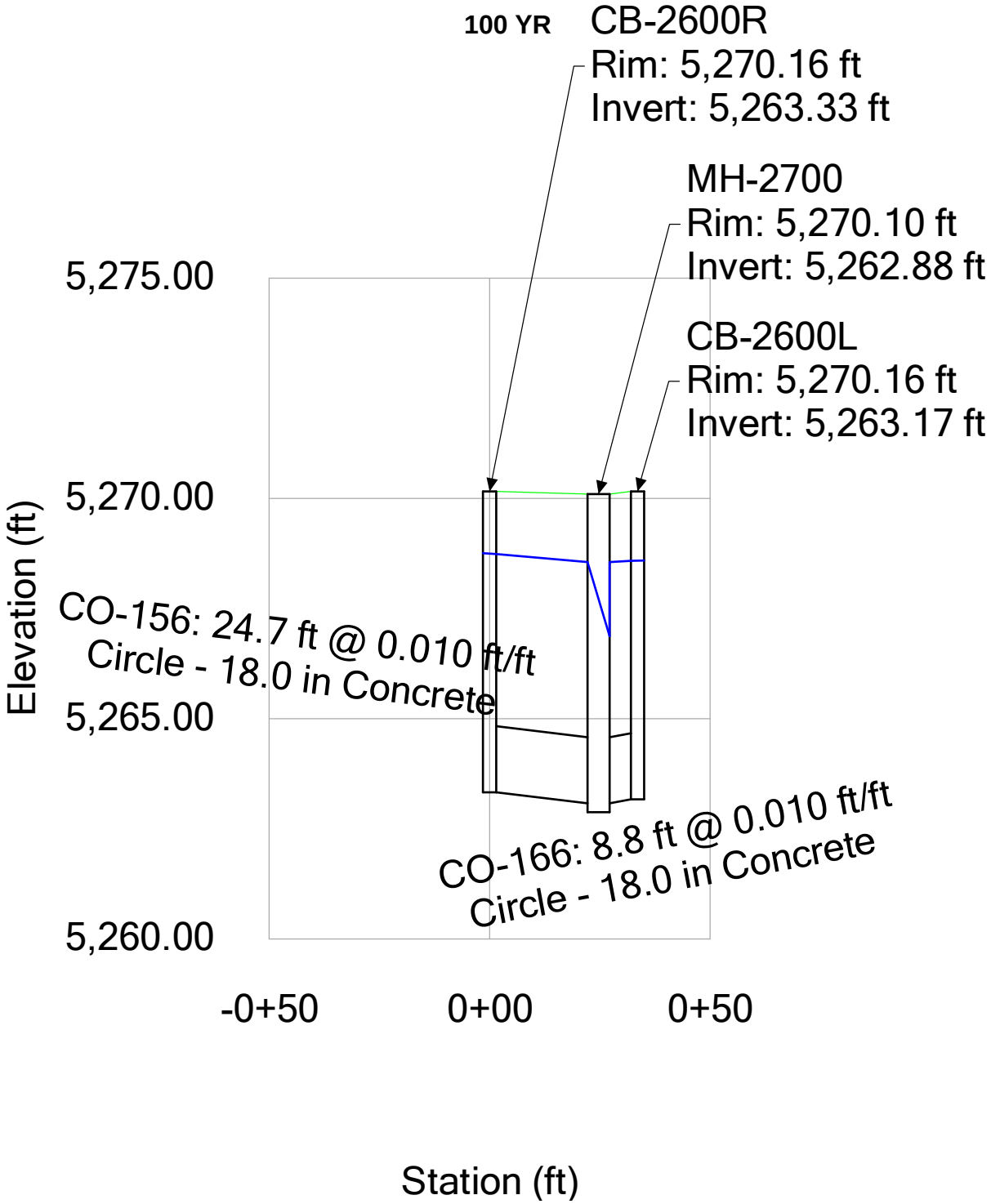
100 YR



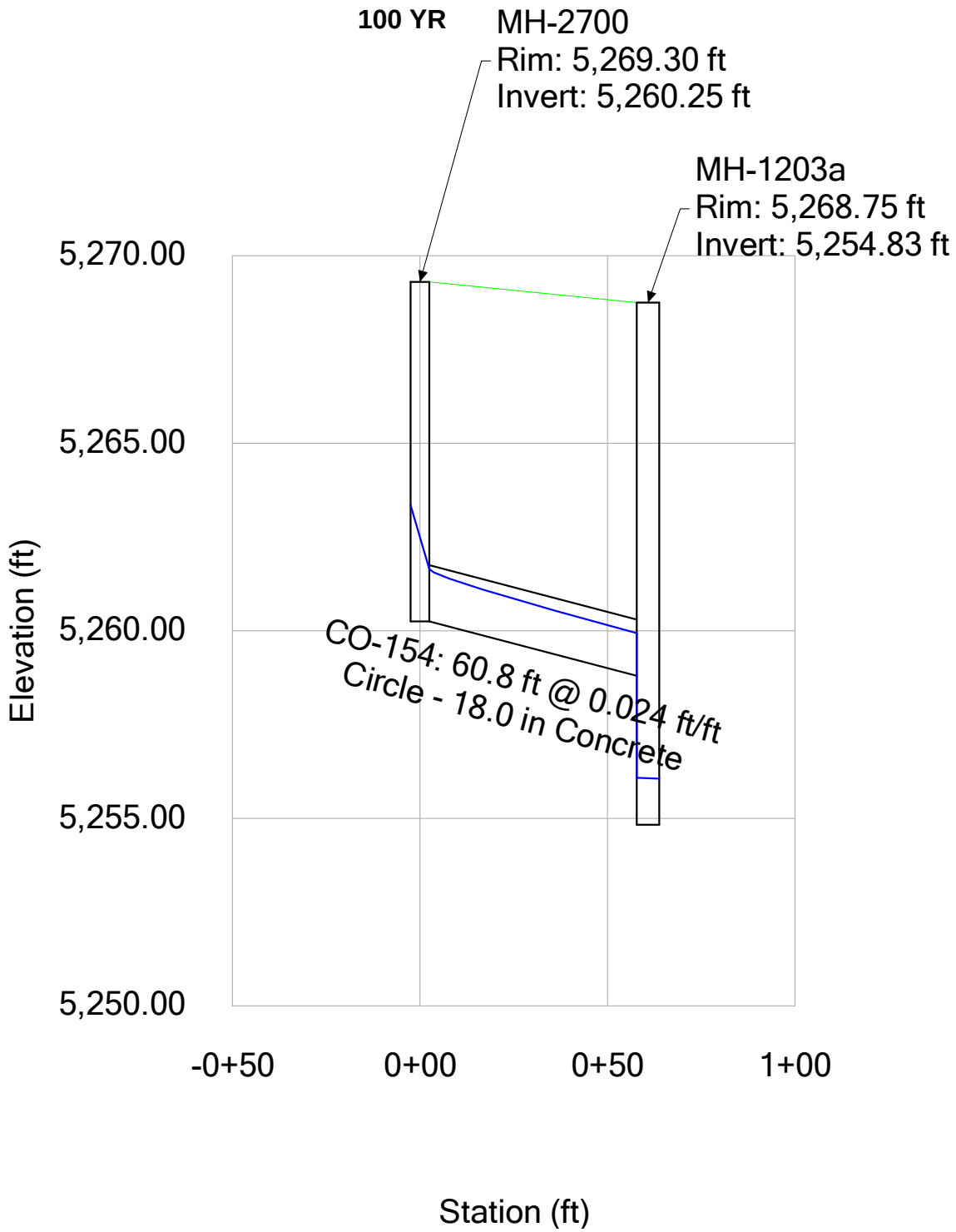
Profile Report
Engineering Profile - F2 - Storm Lateral 3A (19002220-Legato Restricted Flow.stsw)
100 YR



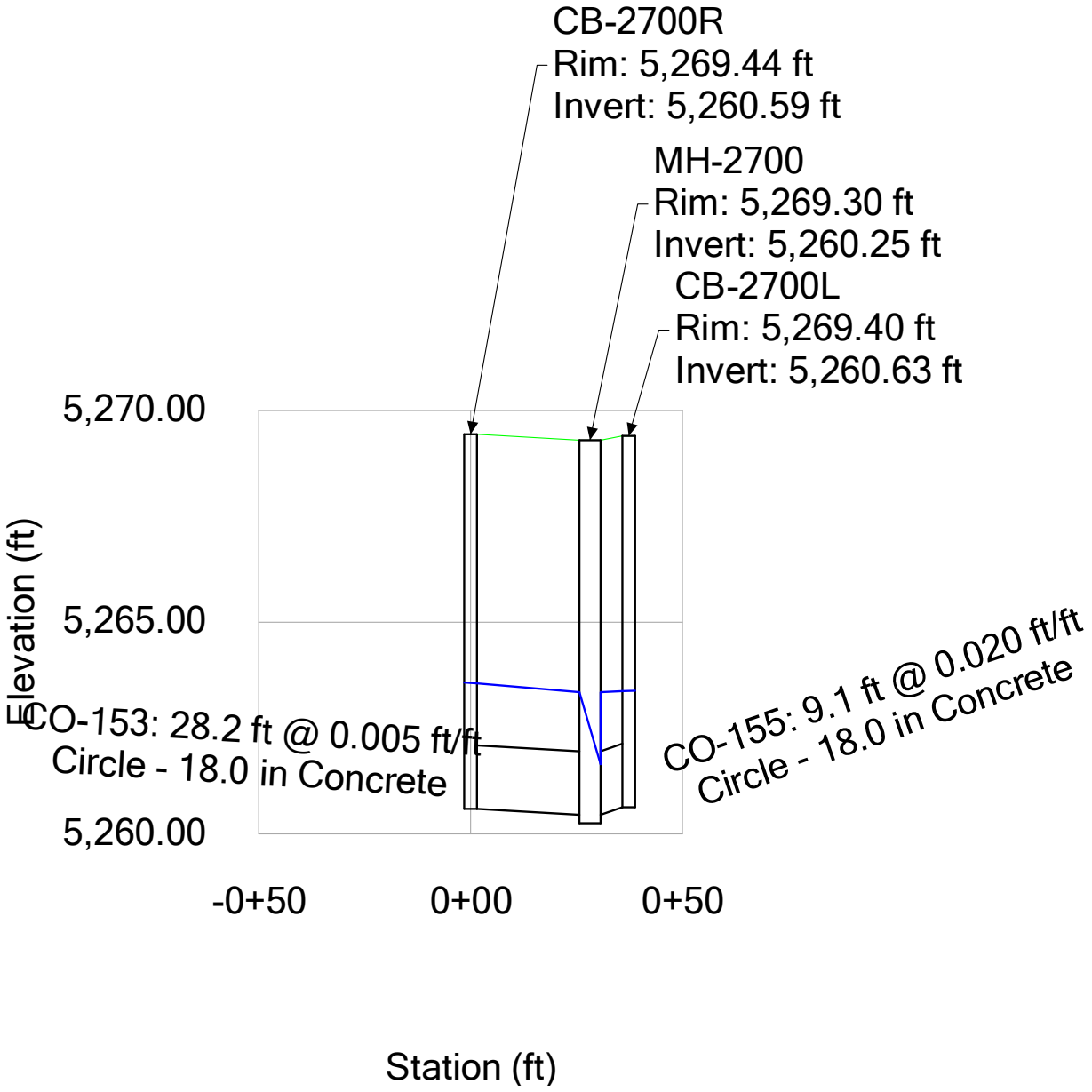
Profile Report
Engineering Profile - F2 - Storm Lateral 3B (19002220-Legato Restricted Flow.stsw)



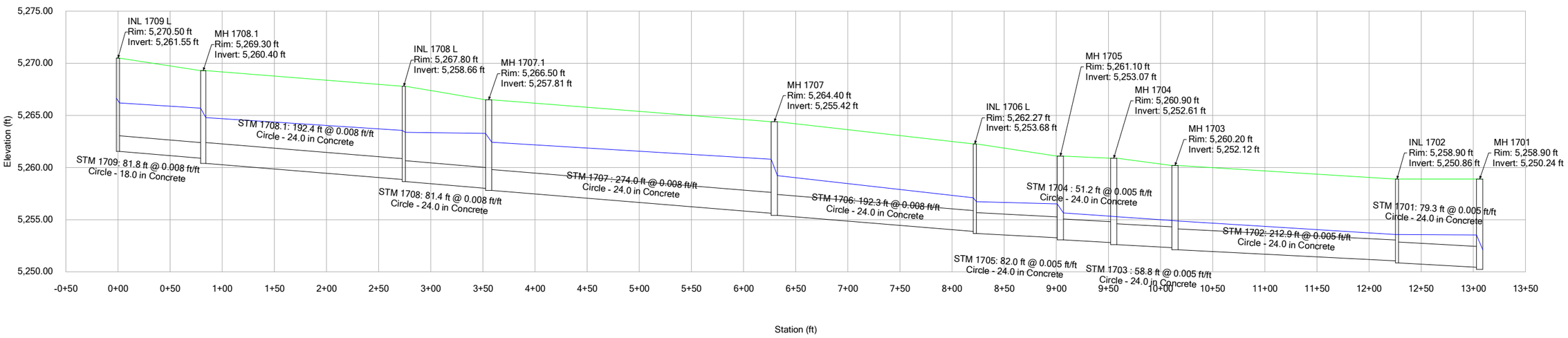
Profile Report
Engineering Profile - F2 - Storm Run 4 (19002220-Legato Restricted Flow.stsw)



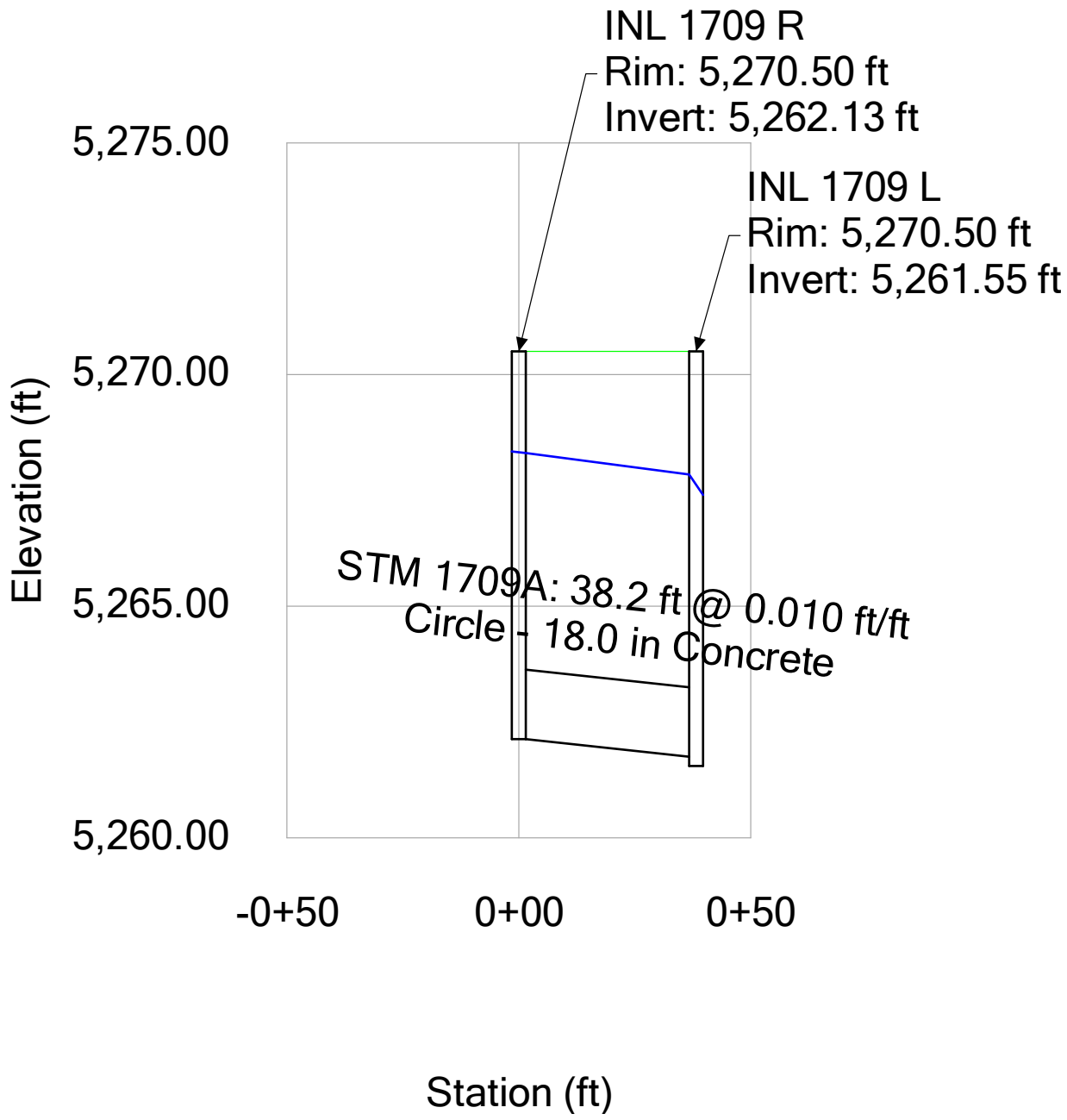
Profile Report
Engineering Profile - F2 - Storm Lateral 4A (19002220-Legato Restricted Flow.stsw)
100 YR



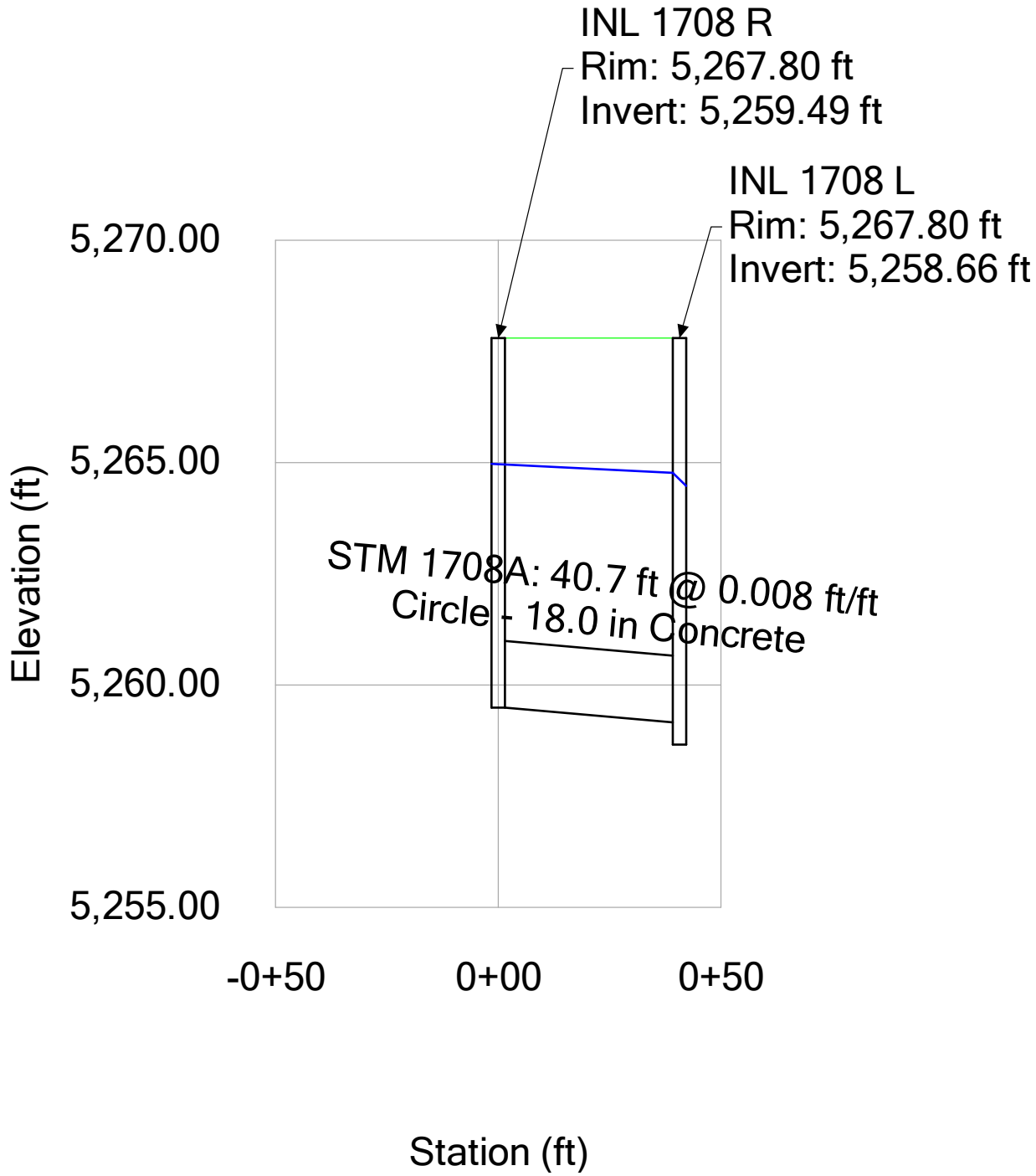
Profile Report
Engineering Profile - F2 - Storm Run 6 (19002220-Legato Restricted Flow.stsw)
100 YR



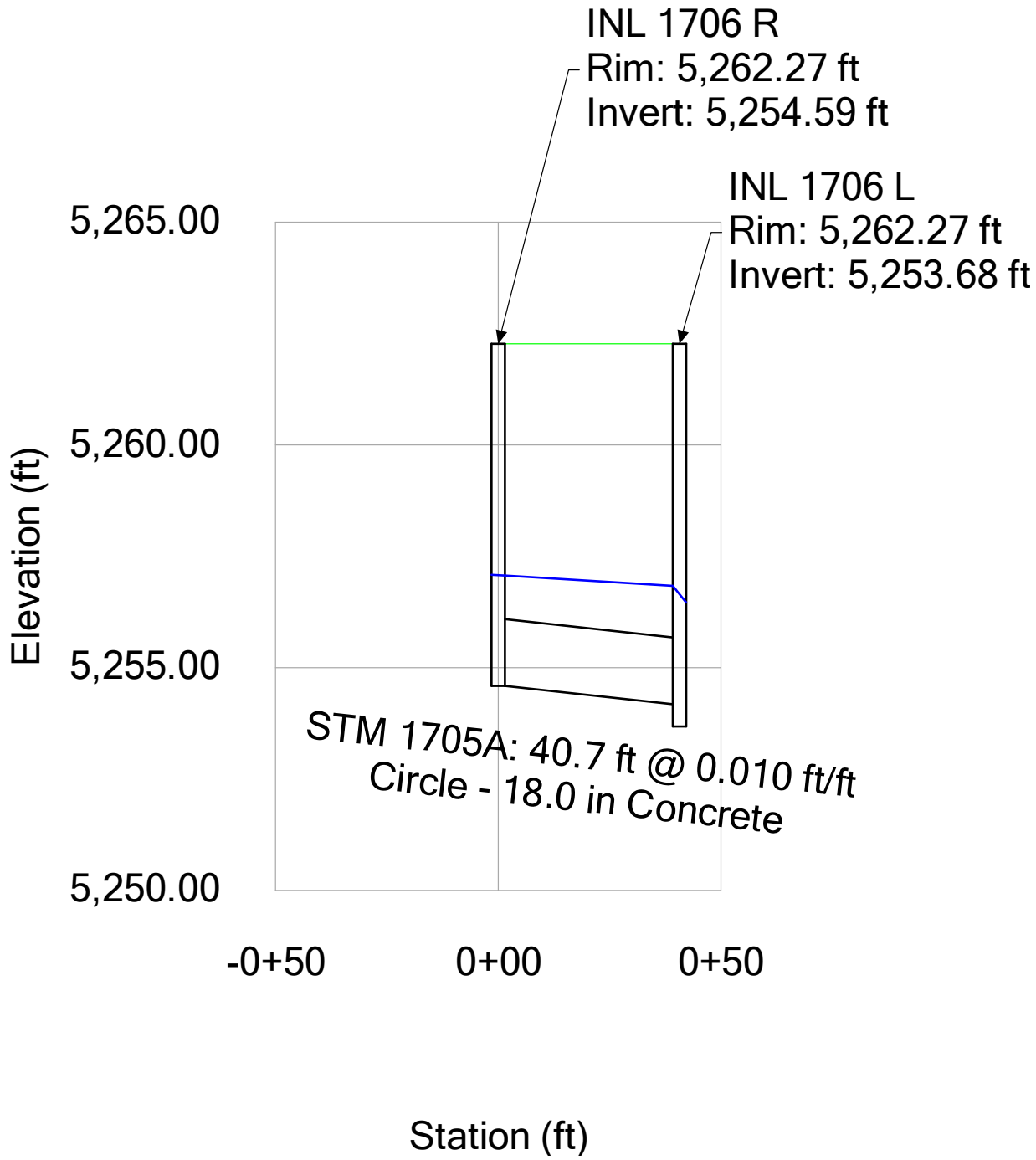
Profile Report
Engineering Profile - F2 - Storm Lateral 6A (19002220-Legato Restricted Flow.stsw)
100 YR



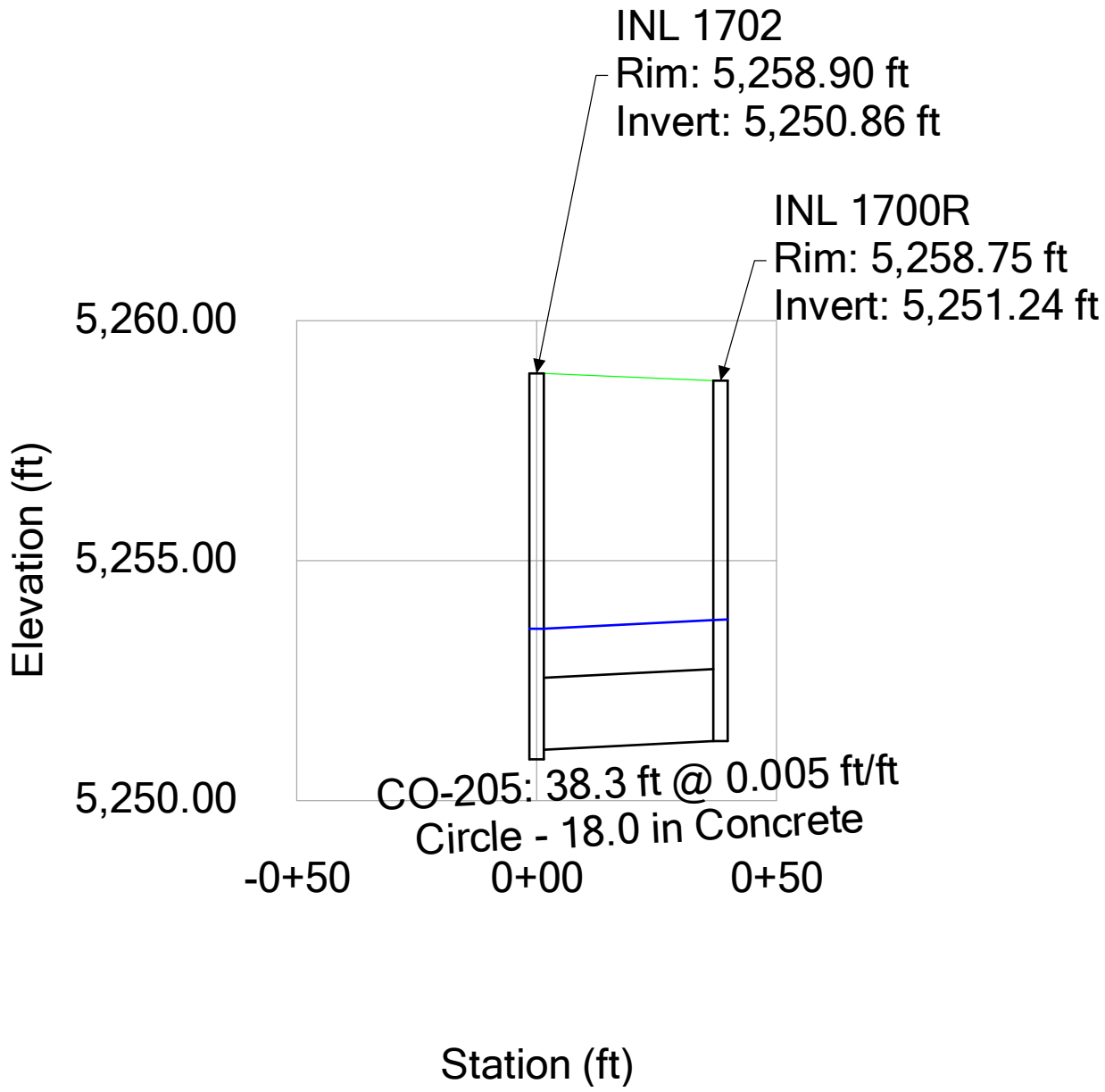
Profile Report
Engineering Profile - F2 - Storm Lateral 6B (19002220-Legato Restricted Flow.stsw)
100 YR



Profile Report
Engineering Profile - F2 - Storm Lateral 6C (19002220-Legato Restricted Flow.stsw)
100 YR



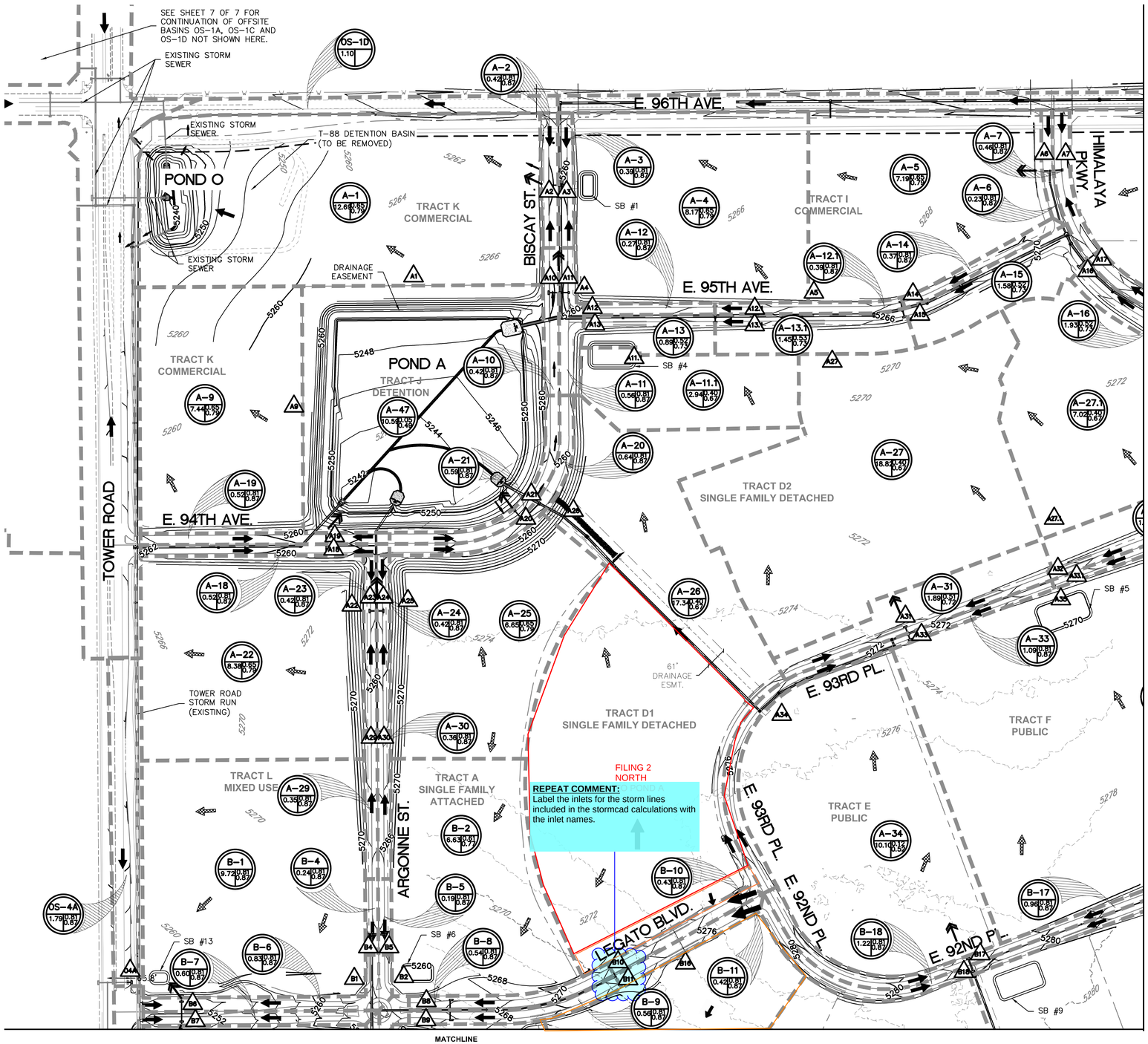
Profile Report
Engineering Profile - Storm Lateral 6D (19002220-Legato Restricted Flow.stsw)
100 YR

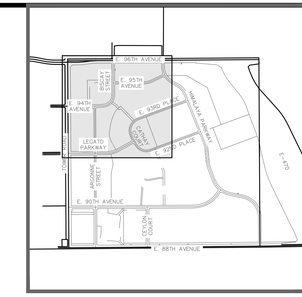


APPENDIX F
REFERENCE MATERIALS

POND SUMMARY TABLE							
POND	TRIBUTARY AREA	EURV WSE	EURV VOLUME	100YR WSE	100YR VOLUME	Q5 OUT	Q100 OUT
	(AC)	(FT)	(AC-FT)	(FT)	(AC-FT)	(CFS)	(CFS)
A	383.32	5248.33	20.70	5252.72	36.43	6.1	166.9
O	13.4	5244.5	1.27	5246.26	1.9	0.4	9.6

NOTES:
ALL PROPOSED STORM SEWER INFRASTRUCTURE IS TO BE PRIVATELY MAINTAINED WITH THE EXCEPTION OF:
- POND B (MHFD)
- GRAMMA GULCH (MHFD)
- TOWER ROAD STORM RUN (CITY OF COMMERCE CITY)





KEY MAP
SCALE: 1"=2000'

LEGEND

- PROPERTY BOUNDARY
- EXISTING LOT LINE
- PROPOSED CURB & GUTTER
- EXISTING CURB & GUTTER
- PROPOSED SIDEWALK
- PROPOSED CONCRETE PAVEMENT
- SECTION LINE
- PROPOSED EASEMENT
- EXISTING EASEMENT
- PROPOSED 2' CONTOURS
- EXISTING 2' CONTOURS

A = BASIN DESIGNATION
B = AREA IN ACRES
C = 5 YR RUNOFF COEFFICIENT
D = 100 YR RUNOFF COEFFICIENT

- DESIGN POINT
- MAJOR DRAINAGE BASIN BOUNDARY
- PROPOSED DRAINAGE FLOW ARROW
- EXISTING DRAINAGE FLOW PATTERN
- EMERGENCY OVER PATH (SUMP INLET)
- EMERGENCY OVER PATH (PONDS)
- HP LP HIGH OR LOW POINT

NOTE:

ALL BASINS SHOWING EXISTING TOPOGRAPHY DRAINING AWAY FROM THIER RESPECTIVE DESIGN POINTS WILL BE DESIGNED AND GRADED WITH FUTURE STORM IMPROVEMENTS TO CONVEY RUNOFF TO THE PROPOSED DESIGN POINTS SHOWN ON THE DRAINAGE MAP. PER FUTURE DEVELOPMENT PLANS FOR EACH TRACT UNDER ASSOCIATED FUTURE FILINGS.

* FUTURE DEVELOPMENT OF THIS SUB-BASIN WILL BE REQUIRED TO DETAIN STORMWATER RUNOFF AND RELEASE FLOWS AT HISTORICAL RATES.

150 0 150 300
(IN FEET)
1 inch = 150 ft.

811 Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 SOUTH SYRACUSE WAY, STE 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

CLIENT
COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

COHEN DENVER AIRPORT, LLC
LEGATO WEST
COMMERCE CITY, COLORADO
DRAINAGE PLAN MAP
PROPOSED

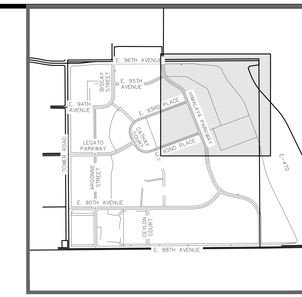
DATE 1/24/2021

1	1st SUBMITTAL TO COMMERCE CITY	12/23/2019 — DJM
2	2nd SUBMITTAL TO COMMERCE CITY	04/03/2020 — DJM
3	3rd SUBMITTAL TO COMMERCE CITY	06/15/2020 — DJM
4	4th SUBMITTAL TO COMMERCE CITY	11/10/2020 — DJM
5	5th SUBMITTAL TO COMMERCE CITY	01/22/2021 — DJM

REVISIONS

DR. MDC CH. DJM
P.M. DJM
JOB 19002220
SHEET NO. 3 OF 7

CAD FILE: 19002220 DRAINAGE MAP-PROPOSED.DWG



KEY MAP
SCALE: 1"=2000'

LEGEND

- PROPERTY BOUNDARY
- EXISTING LOT LINE
- PROPOSED CURB & GUTTER
- EXISTING CURB & GUTTER
- PROPOSED SIDEWALK
- PROPOSED CONCRETE PAVEMENT
- SECTION LINE
- PROPOSED EASEMENT
- EXISTING EASEMENT
- PROPOSED 2' CONTOURS
- EXISTING 2' CONTOURS

A = BASIN DESIGNATION
B = AREA IN ACRES
C = 5 YR RUNOFF COEFFICIENT
D = 100 YR RUNOFF COEFFICIENT

- DESIGN POINT
- MAJOR DRAINAGE BASIN BOUNDARY
- PROPOSED DRAINAGE FLOW ARROW
- EXISTING DRAINAGE FLOW PATTERN
- EMERGENCY OVER PATH (SUMP INLET)
- EMERGENCY OVER PATH (PONDS)
- HP LP HIGH OR LOW POINT

NOTE:

ALL BASINS SHOWING EXISTING TOPOGRAPHY DRAINING AWAY FROM THIER RESPECTIVE DESIGN POINTS WILL BE DESIGNED AND GRADED WITH FUTURE STORM IMPROVEMENTS TO CONVEY RUNOFF TO THE PROPOSED DESIGN POINTS SHOWN ON THE DRAINAGE MAP. PER FUTURE DEVELOPMENT PLANS FOR EACH TRACT UNDER ASSOCIATED FUTURE FILINGS.

* FUTURE DEVELOPMENT OF THIS SUB-BASIN WILL BE REQUIRED TO DETAIN STORMWATER RUNOFF AND RELEASE FLOWS AT HISTORICAL RATES.

150 0 150 300
(IN FEET)
1 inch = 150 ft.

811 Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 SOUTH SYRACUSE WAY, SUITE 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

CLIENT
COHEN DENVER AIRPORT, LLC

LEGATO WEST
COMMERCE CITY, COLORADO
DRAINAGE PLAN MAP
PROPOSED

DATE 1/24/2021

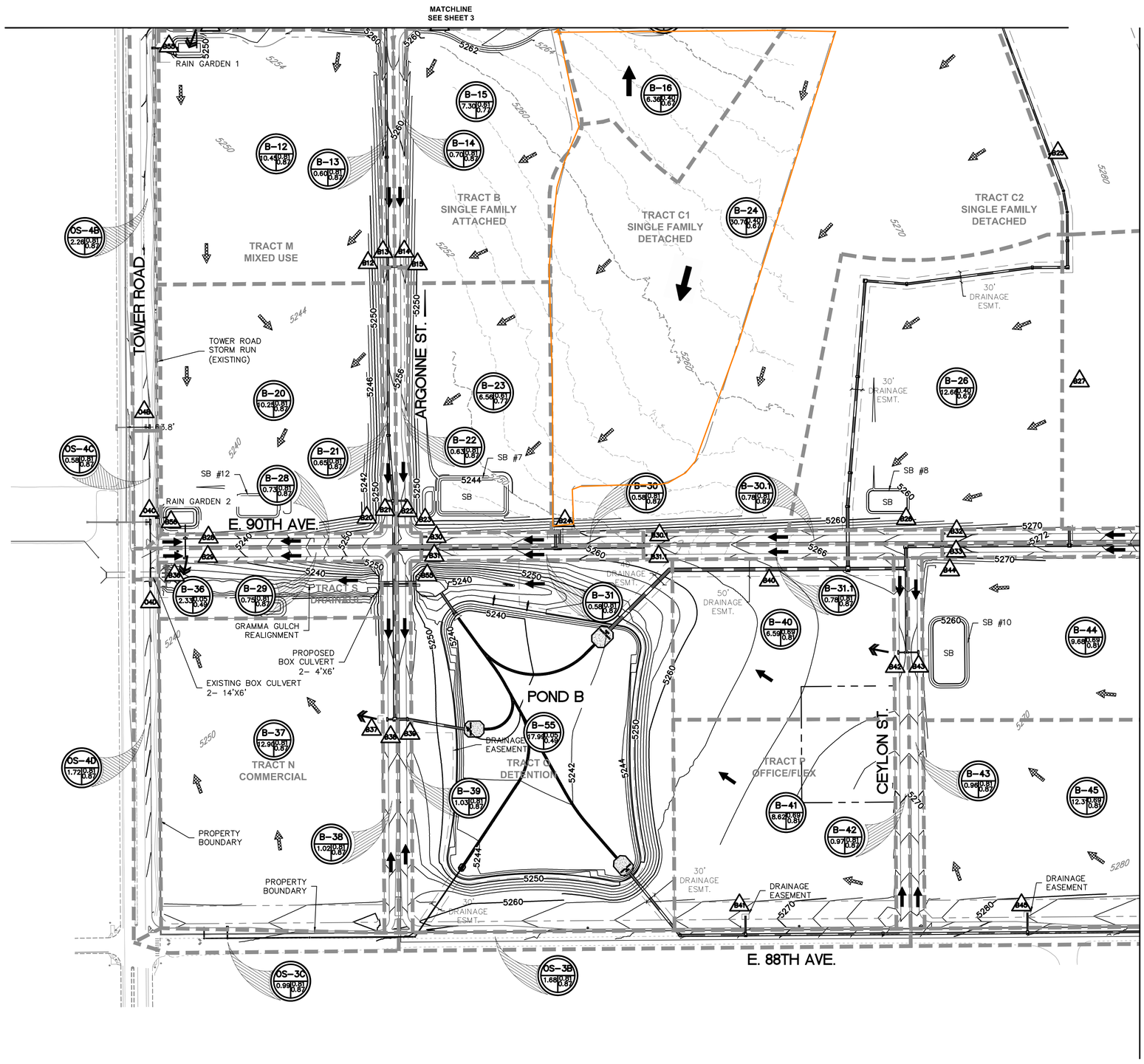
1	1st SUBMITTAL TO COMMERCE CITY	12/23/2019 – DJM
2	2ND SUBMITTAL TO COMMERCE CITY	04/03/2020 – DJM
3	3RD SUBMITTAL TO COMMERCE CITY	08/15/2020 – DJM
4	4TH SUBMITTAL TO COMMERCE CITY	11/10/2020 – DJM
5	5TH SUBMITTAL TO COMMERCE CITY	01/22/2021 – DJM

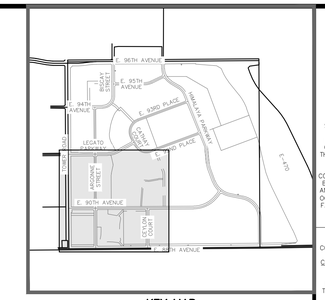
REVISIONS

DR. MDC CH. DJM
P.M. DJM
JOB 19002220
SHEET NO. 4 OF 7

CAD FILE: 19002220 DRAINAGE MAP-PROPOSED.DWG

POND SUMMARY TABLE							
POND	TRIBUTARY AREA	EURV WSE	EURV VOLUME	100YR WSE	100YR VOLUME	Q5 OUT	Q100 OUT
	(AC)	(FT)	(AC-FT)	(FT)	(AC-FT)	(CFS)	(CFS)
B	346.73	5244.56	20.73	5246.97	35.28	5.6	273.7





KEY MAP
SCALE: 1"=2000'

LEGEND

- PROPERTY BOUNDARY
- EXISTING LOT LINE
- PROPOSED CURB & GUTTER
- EXISTING CURB & GUTTER
- PROPOSED SIDEWALK
- PROPOSED CONCRETE PAVEMENT
- SECTION LINE
- PROPOSED EASEMENT
- EXISTING EASEMENT
- PROPOSED 2' CONTOURS
- EXISTING 2' CONTOURS

A = BASIN DESIGNATION
B = AREA IN ACRES
C = 5 YR RUNOFF COEFFICIENT
D = 100 YR RUNOFF COEFFICIENT

- DESIGN POINT
- MAJOR DRAINAGE BASIN BOUNDARY
- PROPOSED DRAINAGE FLOW ARROW
- EXISTING DRAINAGE FLOW PATTERN
- EMERGENCY OVER PATH (SUMP INLET)
- EMERGENCY OVER PATH (PONDS)
- HP LP HIGH OR LOW POINT

NOTE:

ALL BASINS SHOWING EXISTING TOPOGRAPHY DRAINING AWAY FROM THIER RESPECTIVE DESIGN POINTS WILL BE DESIGNED AND GRADED WITH FUTURE STORM IMPROVEMENTS TO CONVEY RUNOFF TO THE PROPOSED DESIGN POINTS SHOWN ON THE DRAINAGE MAP. PER FUTURE DEVELOPMENT PLANS FOR EACH TRACT UNDER ASSOCIATED FUTURE FILINGS.

* FUTURE DEVELOPMENT OF THIS SUB-BASIN WILL BE REQUIRED TO DETAIN STORMWATER RUNOFF AND RELEASE FLOWS AT HISTORICAL RATES.

150 0 150 300
(IN FEET)
1 inch = 150 ft.

811 Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 SOUTH SYRACUSE WAY, SUITE 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

CLIENT
COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

COHEN DENVER AIRPORT, LLC
LEGATO WEST
COMMERCE CITY, COLORADO
DRAINAGE PLAN MAP
PROPOSED

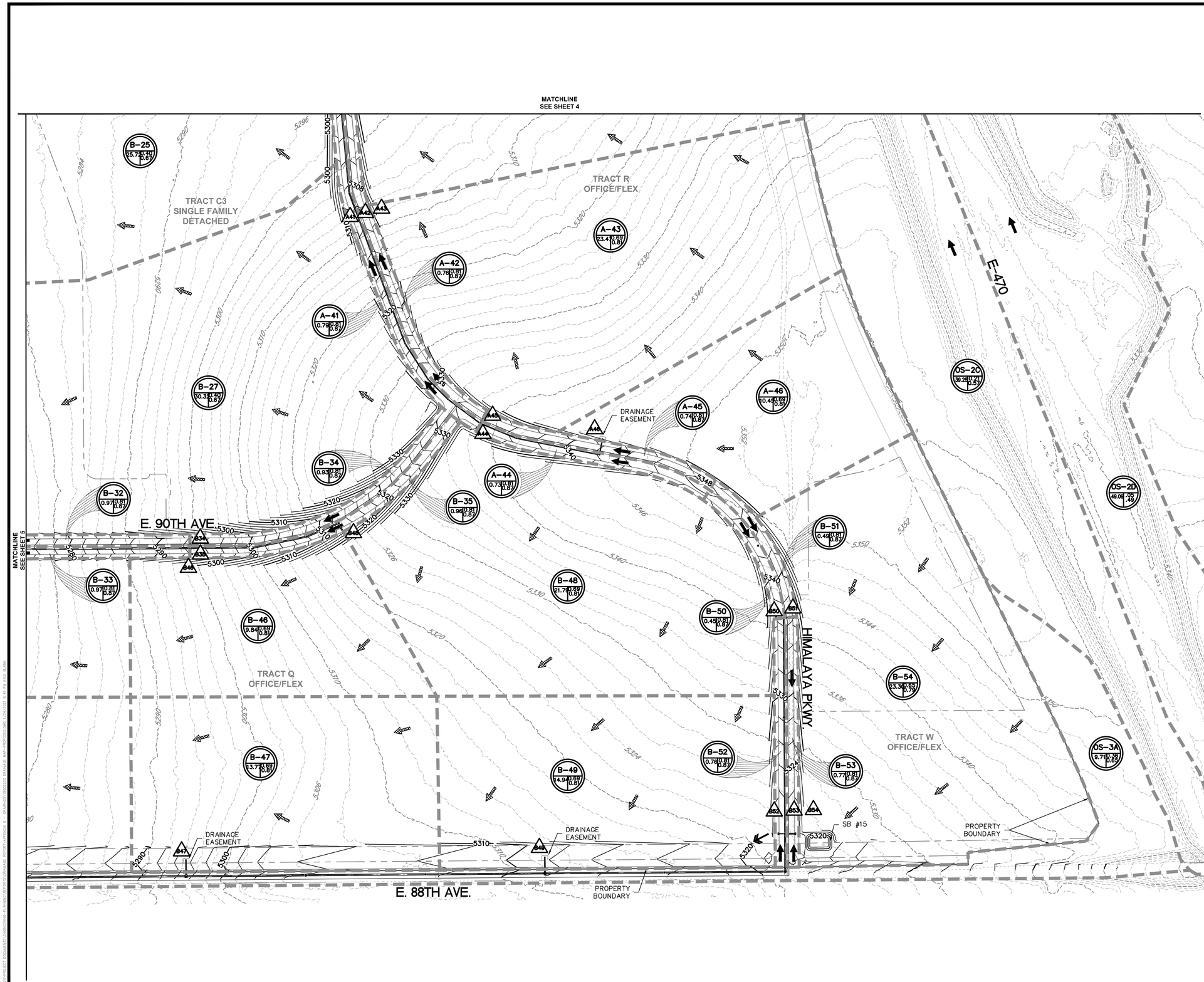
DATE 1/24/2021

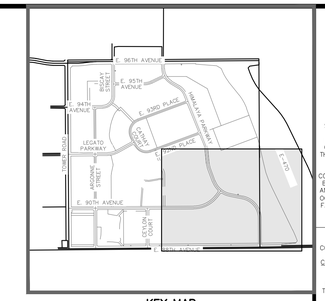
1	1st SUBMITTAL TO COMMERCE CITY 12/23/2019 – DJM
2	2nd SUBMITTAL TO COMMERCE CITY 04/03/2020 – DJM
3	3rd SUBMITTAL TO COMMERCE CITY 06/15/2020 – DJM
4	4th SUBMITTAL TO COMMERCE CITY 11/10/2020 – DJM
5	5th SUBMITTAL TO COMMERCE CITY 01/22/2021 – DJM

REVISIONS

DR. MDC CH. DJM
P.M. DJM
JOB 19002220
SHEET NO. 5 OF 7

CAD FILE: 19002220 DRAINAGE MAP-PROPOSED.DWG





KEY MAP
SCALE: 1"=2000'

LEGEND

- PROPERTY BOUNDARY
- EXISTING LOT LINE
- PROPOSED CURB & GUTTER
- EXISTING CURB & GUTTER
- PROPOSED SIDEWALK
- PROPOSED CONCRETE PAVEMENT
- SECTION LINE
- PROPOSED EASEMENT
- EXISTING EASEMENT
- PROPOSED 2' CONTOURS
- EXISTING 2' CONTOURS

A = BASIN DESIGNATION
B = AREA IN ACRES
C = 5 YR RUNOFF COEFFICIENT
D = 100 YR RUNOFF COEFFICIENT

- DESIGN POINT
- MAJOR DRAINAGE BASIN BOUNDARY
- PROPOSED DRAINAGE FLOW ARROW
- EXISTING DRAINAGE FLOW PATTERN
- EMERGENCY OVER PATH (SUMP INLET)
- EMERGENCY OVER PATH (PONDS)
- HP LP HIGH OR LOW POINT

NOTE:

ALL BASINS SHOWING EXISTING TOPOGRAPHY DRAINING AWAY FROM THIER RESPECTIVE DESIGN POINTS WILL BE DESIGNED AND GRADED WITH FUTURE STORM IMPROVEMENTS TO CONVEY RUNOFF TO THE PROPOSED DESIGN POINTS SHOWN ON THE DRAINAGE MAP. PER FUTURE DEVELOPMENT PLANS FOR EACH TRACT UNDER ASSOCIATED FUTURE FILINGS.

* FUTURE DEVELOPMENT OF THIS SUB-BASIN WILL BE REQUIRED TO DETAIN STORMWATER RUNOFF AND RELEASE FLOWS AT HISTORICAL RATES.

150 0 150 300
(IN FEET)
1 inch = 150 ft.

811 Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 SOUTH SYRACUSE WAY, STE 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

CLIENT
COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

COHEN DENVER AIRPORT, LLC
LEGATO WEST
COMMERCE CITY, COLORADO
DRAINAGE PLAN MAP
PROPOSED

DATE 1/24/2021

1	1ST SUBMITTAL TO COMMERCE CITY 12/23/2019 – DJM
2	2ND SUBMITTAL TO COMMERCE CITY 04/03/2020 – DJM
3	3RD SUBMITTAL TO COMMERCE CITY 06/15/2020 – DJM
4	4TH SUBMITTAL TO COMMERCE CITY 11/10/2020 – DJM
5	5TH SUBMITTAL TO COMMERCE CITY 01/22/2021 – DJM

REVISIONS

DR. MDC CH. DJM
P.M. DJM
JOB 19002220
SHEET NO.
6 OF 7

CAD FILE: 19002220 DRAINAGE MAP-PROPOSED.DWG

Calculation of Peak Runoff using Rational Method

Designer: MDC
Company: Atwell
Date: 1/22/2021
Project: Hightower Ranch
Location: Commerce City

Version 2.00 released May 2017

Cells of this color are for required user-input
Cells of this color are for optional override values
Cells of this color are for calculated results based on overrides

$$t_i = \frac{0.395(1.1 - C_5)\sqrt{L_i}}{S_i^{0.33}}$$

$$t_t = \frac{L_t}{60K\sqrt{S_t}} = \frac{L_t}{60V_t}$$

Computed $t_c = t_i + t_t$

Regional $t_c = (26 - 17i) + \frac{L_t}{60(14i + 9)\sqrt{S_t}}$

$t_{minimum} = 5$ (urban)
$t_{minimum} = 10$ (non-urban)

Selected $t_c = \max\{t_{minimum}, \min(\text{Computed } t_c, \text{Regional } t_c)\}$

Select UDFCD location for NOAA Atlas 14 Rainfall Depths from the pulldown list OR enter your own depths obtained from the NOAA website (click this link)

	2-yr	5-yr	10-yr	25-yr	50-yr	100-yr	500-yr
1-hour rainfall depth, P1 (in) =	0.84	1.12	1.37	1.75	2.08	2.43	3.35

	a	b	c
Rainfall Intensity Equation Coefficients =	28.50	10.00	0.786

$$I(in/hr) = \frac{a * P_1}{(b + t_c)^c}$$

$Q(cfs) = CIA$

Subcatchment Name	Area (ac)	NRCS Hydrologic Soil Group	Percent Imperviousness	Runoff Coefficient, C							Overland (Initial) Flow Time					Channelized (Travel) Flow Time							Time of Concentration			Rainfall Intensity, I (in/hr)							Peak Flow, Q (cfs)						
				2-yr	5-yr	10-yr	25-yr	50-yr	100-yr	500-yr	Overland Flow Length L_i (ft)	U/S Elevation (ft) (Optional)	D/S Elevation (ft) (Optional)	Overland Flow Slope S_i (ft/ft)	Overland Flow Time t_i (min)	Channelized Flow Length L_t (ft)	U/S Elevation (ft) (Optional)	D/S Elevation (ft) (Optional)	Channelized Flow Slope S_t (ft/ft)	NRCS Conveyance Factor K	Channelized Flow Velocity V_t (ft/sec)	Channelized Flow Time t_t (min)	Computed t_c (min)	Regional t_c (min)	Selected t_c (min)	2-yr	5-yr	10-yr	25-yr	50-yr	100-yr	500-yr	2-yr	5-yr	10-yr	25-yr	50-yr	100-yr	500-yr
A1	12.69	C	75.0	0.60	0.65	0.68	0.74	0.76	0.79	0.82	300.00	5260.50	5258.50	0.007	16.22	330.00	5258.50	5253.00	0.017	20	2.58	2.13	18.35	15.43	15.43	1.88	2.51	3.07	3.92	4.66	5.44	7.50	14.43	20.57	26.60	36.75	45.13	54.60	78.46
A2 - INL 611 L	0.42	C	95.0	0.79	0.81	0.83	0.85	0.86	0.87	0.89	26.00	5261.09	5260.57	0.020	2.13	201.00	5260.57	5259.56	0.005	20	1.42	2.36	4.49	11.97	5.00	2.85	3.80	4.65	5.94	7.06	8.24	11.36	0.95	1.29	1.63	2.13	2.56	3.03	4.25
A3 - INL 611 R	0.39	C	95.0	0.79	0.81	0.83	0.85	0.86	0.87	0.89	26.00	5261.09	5260.57	0.020	2.13	201.00	5260.57	5259.56	0.005	20	1.42	2.36	4.49	11.97	5.00	2.85	3.80	4.65	5.94	7.06	8.24	11.36	0.87	1.19	1.49	1.95	2.35	2.78	3.90
A4	8.17	C	75.0	0.60	0.65	0.68	0.74	0.76	0.79	0.82	300.00	5266.50	5260.50	0.020	11.29	580.00	5260.50	5256.20	0.007	20	1.72	5.61	16.90	19.01	16.90	1.80	2.40	2.94	3.75	4.46	5.21	7.18	8.90	12.68	16.40	22.65	27.82	33.66	48.37
A5	7.19	C	75.0	0.60	0.65	0.68	0.74	0.76	0.79	0.82	300.00	5270.00	5264.00	0.020	11.29	620.00	5264.00	5261.00	0.002	20	0.90	11.50	22.78	25.04	22.78	1.54	2.05	2.51	3.21	3.82	4.46	6.15	6.70	9.55	12.35	17.07	20.96	25.36	36.45
A6 - INL 1122 L	0.23	C	95.0	0.79	0.81	0.83	0.85	0.86	0.87	0.89	26.00	5272.20	5271.68	0.020	2.13	150.00	5271.67	5269.94	0.012	20	2.15	1.16	3.29	10.89	5.00	2.85	3.80	4.65	5.94	7.06	8.24	11.36	0.52	0.71	0.89	1.16	1.40	1.65	2.32
A7 - INL 1122 R	0.46	C	95.0	0.79	0.81	0.83	0.85	0.86	0.87	0.89	26.00	5272.72	5272.20	0.020	2.13	260.00	5272.20	5269.94	0.009	20	1.86	2.32	4.45	11.93	5.00	2.85	3.80	4.65	5.94	7.06	8.24	11.36	1.03	1.41	1.77	2.31	2.79	3.29	4.62
A8	22.83	C	75.0	0.60	0.65	0.68	0.74	0.76	0.79	0.82	300.00	5289.00	5283.00	0.020	11.29	1530.00	5283.00	5268.00	0.010	20	1.98	12.88	24.17	26.46	24.17	1.49	1.99	2.43	3.11	3.69	4.32	5.95	20.59	29.34	37.95	52.43	64.38	77.90	111.94
A9	7.44	C	75.0	0.60	0.65	0.68	0.74	0.76	0.79	0.82	300.00	5264.00	5258.00	0.020	11.29	290.00	5258.00	5253.50	0.016	20	2.49	1.94	13.23	15.24	13.23	2.02	2.69	3.30	4.21	5.00	5.84	8.06	9.09	12.96	16.76	23.15	28.43	34.40	49.43
A10 - INL 609 L	0.42	C	95.0	0.79	0.81	0.83	0.85	0.86	0.87	0.89	26.00	5261.66	5261.14	0.020	2.13	290.00	5261.13	5259.81	0.005	20	1.35	3.58	5.71	13.06	5.71	2.75	3.66	4.48	5.72	6.80	7.95	10.96	0.90	1.24	1.55	2.03	2.45	2.89	4.06
A11 - INL 609R	0.56	C	95.0	0.79	0.81	0.83	0.85	0.86	0.87	0.89	121.00	5268.80	5262.16	0.055	3.29	295.00	5261.06	5259.81	0.004	20	1.30	3.78	7.07	13.24	7.07	2.58	3.43	4.20	5.36	6.37	7.45	10.27	1.13	1.54	1.94	2.53	3.05	3.61	5.06
A12 - INL 701 L	0.27	C	95.0	0.79	0.81	0.83	0.85	0.86	0.87	0.89	20.00	5264.00	5263.60	0.020	1.87	350.00	5263.60	5260.00	0.008	20	1.80	3.24	5.11	12.76	5.11	2.84	3.78	4.62	5.90	7.01	8.19	11.30	0.61	0.84	1.05	1.38	1.66	1.96	2.75
A13 - INL 701 R	0.89	C	59.0	0.46	0.52	0.57	0.65	0.68	0.73	0.77	92.00	5268.00	5263.00	0.054	5.79	350.00	5263.00	5260.00	0.009	20	1.88	3.11	8.89	19.57	8.89	2.38	3.17	3.88	4.95	5.89	6.88	9.48	0.98	1.46	1.96	2.87	3.60	4.45	6.55
A14 - INL 703 L	0.37	C	95.0	0.79	0.81	0.83	0.85	0.86	0.87	0.89	26.00	5270.95	5270.43	0.020	2.13	500.00	5270.43	5264.40	0.012	20	2.20	3.79	5.92	13.25	5.92	2.72	3.62	4.43	5.66	6.73	7.86	10.84	0.80	1.10	1.37	1.80	2.17	2.56	3.59
A15 - INL 703 R	1.58	C	60.0	0.47	0.52	0.57	0.66	0.69	0.73	0.78	82.00	5271.00	5269.00	0.024	7.02	574.00	5269.00	5266.00	0.008	20	1.78	5.38	12.40	21.99	12.40	2.08	2.77	3.39	4.33	5.15	6.01	8.29	1.55	2.30	3.07	4.49	5.62	6.94	10.19
A16 - INL 1118 L	1.93	C	59.0	0.46	0.52	0.57	0.65	0.68	0.73	0.77	110.00	5281.68	5280.00	0.015	9.62	826.00	5280.00	5272.72	0.008	20	1.82	7.56	17.18	24.73	17.18	1.79	2.38	2.91	3.72	4.42	5.17	7.12	1.59	2.37	3.18	4.66	5.83	7.22	10.62
A17 - INL 1118 R	1.13	C	95.0	0.79	0.81	0.83	0.85	0.86	0.87	0.89	26.00	5282.54	5282.02	0.020	2.13	990.00	5282.01	5272.72	0.009	20	1.94	8.52	10.65	17.49	10.65	2.22	2.96	3.61	4.62	5.49	6.41	8.84	1.97	2.70	3.38	4.43	5.34	6.31	8.84
A18 - INL 601 R	0.52	C	95.0	0.79	0.81	0.83	0.85	0.86	0.87	0.89	26.00	5262.81	5262.29	0.020	2.13	570.00	5262.29	5260.00	0.004	20	1.27	7.49	9.62	16.57	9.62	2.31	3.08	3.76	4.81	5.71	6.67	9.20	0.95	1.29	1.62	2.13	2.56	3.03	4.25
A19 - INL 601 L	0.52	C	95.0	0.79	0.81	0.83	0.85	0.86	0.87	0.89	26.00	5262.81	5262.29	0.020	2.13	570.00	5262.29	5260.00	0.004	20	1.27	7.49	9.62	16.57	9.62	2.31	3.08	3.76	4.81	5.71	6.67	9.20	0.95	1.30	1.63	2.13	2.56	3.03	4.25
A20 - INL 607 R	0.64	C	95.0	0.79	0.81	0.83	0.85	0.86	0.87	0.89	26.00	5261.00	5260.48	0.020	2.13	360.00	5259.62	5258.00	0.004	20	1.34	4.47	6.60	13.86	6.60	2.63	3.51	4.29	5.48	6.51	7.61	10.49	1.33	1.83	2.29	3.00	3.61	4.27	5.99
A21 - INL 607 L	0.59	C	95.0	0.79	0.81	0.83	0.85	0.86	0.87	0.89	26.00	5261.00	5260.48	0.020	2.13	360.00	5260.48	5257.89	0.007	20	1.70	3.54	5.67	13.02	5.67	2.76	3.67	4.49	5.74	6.82	7.97	10.98	1.27	1.74	2.18	2.86	3.44	4.07	5.71
A22 - INL 911 L	8.38	C	75.0	0.60	0.65	0.68	0.74	0.76	0.79	0.82	300.00	5264.00	5258.00	0.020	11.29	441.00	5258.00	5254.00	0.009	20	1.90	3.86	15.15	17.21	15.15	1.90	2.53	3.10	3.95	4.70	5.49	7.57	9.62	13.70	17.72	24.48	30.06	36.38	52.27
A23 - INL 911 L	0.42	C	95.0	0.79	0.81	0.83	0.85	0.86	0.87	0.89	17.00	5261.83	5261.49	0.020	1.72	348.00	5261.49	5258.20	0.009	20	1.94	2.98	4.70	12.52	5.00	2.85	3.80	4.65	5.94	7.06	8.24	11.36	0.94	1.29	1.62	2.12	2.55	3.02	4.23
A24 - INL 911 R	0.42	C	95.0	0.79	0.81	0.83	0.85	0.86	0.87	0.89	17.00	5261.83	5261.49	0.020	1.72	348.00	5261.41	5258.20	0.009	20	1.92	3.02	4.74	12.56	5.00	2.85	3.80	4.65	5.94	7.06	8.24	11.36	0.95	1.30	1.63	2.14	2.57	3.04	4.26
A25	6.65	C	75.0	0.60	0.65	0.68	0.74	0.76	0.79	0.82	300.00	5266.00	5260.00	0.020	11.29	345.00	5260.00	5256.00	0.012	20	2.15	2.67	13.96	15.99	13.96	1.97	2.63	3.22	4.11	4.88	5.70	7.86	7.93	11.30	14.61	20.18	24.78	29.99	43.09
A26	17.34	C	45.0	0.34	0.40	0.46	0.57	0.62	0.67	0.73	300.00	5272.00	5266.00	0.020	17.37	782.00	5266.00	5257.00	0.012	20	2.15	6.07	23.45	26.29	23.45	1.52	2.02	2.47	3.16	3.76	4.39	6.05	8.97	14.09	19.86	31.30	40.09	50.85	76.58
A27 - MH 1203	12.82	C	45.0	0.34	0.40	0.46	0.57	0.62	0.67	0.73	300.00	5273.00	5271.00	0.007	24.96	575.00	5271.00	5268.00	0.005	20	1.44	6.63	31.60	27.02	27.02	1.40	1.87	2.28	2.92	3.47	4.05	5.59	6.12	9.62	13.55	21.36	27.35	34.69	52.25
A28	35.28	C	75.0	0.60	0.65	0.68	0.74	0.76	0.79	0.82	300.00	5293.50	5287.50	0.020	11.29	1215.00	5287.50	5286.50	0.001	20	0.57	35.29	46.58	49.45	46.58	1.00	1.34	1.64	2.09	2.48	2.90	4.00	21.40	30.50	39.45	54.50	66.93	80.98	116.37
A29 - INL 910 L	0.35	C	95.0	0.79	0.81	0.83	0.85	0.86	0.87	0.89	26.00	5266.62	5266.10	0.020	2.13	418.00	5266.09	5262.00	0.010	20	1.98	3.52	5.65	13.01	5.65	2.76	3.67	4.49	5.74	6.82	7.97	10.99	0.76	1.05	1.31	1.72	2.07	2.45	3.43
A30 - INL 910 R	0.36	C	95.0	0.79	0.81	0.83	0.85	0.86	0.87	0.89	26.00	5266.62	5266.10	0.020	2.13	418.00	5266.09	5262.00	0.010	20	1.98	3.52	5.65	13.01	5.65	2.76	3.67	4.49	5.74	6.82	7.97	10.99	0.78	1.06	1.33	1.75	2.11	2.49	3.49
A31 - INL 502R	1.89	C	58.0	0.45	0.51	0.56	0.64	0.68	0.72	0.77	17.00	5279.02	5278.68	0.020	3.51	648.00	5278.68	5269.00	0.015	20	2.44	4.42	7.93	21.30	7.93	2.48	3.30	4.04	5.16	6.13	7.16	9.88	2.12	3.16	4.26	6.27	7.87	9.75	14.37
A32 - INL 503R	1.68	C	58.0	0.45	0.51	0.56	0.64	0.68	0.72	0.77	17.00	5274.75	5274.41	0.020	3.51	870.00	5274.41	5269.00	0.006	20	1.58	9.19	12.70	26.88	12.70	2.06	2.74	3.36	4.29	5.09	5.95	8.20	1.57	2.34	3.15	4.64	5.83	7.22	10.64
A33 - INL 502L	1.09	C	95.0	0.79	0.81	0.83	0.85	0.86	0.87	0.89	17.00	5274.75	5274.41	0.020	1.72	787.00	5274.41	5268.30	0.008	20	1.76	7.44	9.17	16.53	9.17	2.35	3.13	3.83	4.90	5.82	6.80	9.37	2.03	2.77	3.48	4.56	5.49	6.49	9.10
A34	10.10	C	10.0	0.06	0.12	0.21	0.38	0.44	0.52	0.62	300.00	5277.96	5271.96	0.020	24.47	600.00	5271.96	5269.50	0.004	20	1.28	7.81	32.28	39.32	32.28	1.26	1.68	2.06	2.63	3.12	3.65	5.03	0.80	1.98	4.27	9.96	13.96	19.36	31.50
A35	24.38	C	55.0	0.43	0.48	0.54	0.63	0.66	0.71	0.76	300.00	5297.75	5291.75	0.020	15.34	1461.00	5291.75	5268.50	0.016	20	2.52	9.65	24.99	28.21	24.99	1.47	1.95	2.39	3.05	3.63	4.24	5.84	15.24	23.00	31.21	46.62	58.74	73.20	108.35
A36 - INL 1113 L	1.04	C	95.0	0.79	0.81	0.83	0.85	0.86	0.87	0.89	26.00	5291.83	5291.31	0.020	2.13	930.00	5291.30	5282.54	0.009	20	1.94	7.99	10.11	17.01	10.11	2.27	3.02	3.69	4.71	5.60	6.54	9.02	1.85	2.53	3.17	4.15	5.00	5.91	8.29
A37 - INL 1113 R	1.04	C	95.0	0.79	0.81	0.83	0.85	0.86	0.87	0.89	26.00	5291.83	5291.31	0.020	2.13	930.00	5291.30	5282.54	0.009	20	1.94	7.99	10.11	17.01	10.11	2.27	3.02	3.69	4.71	5.60	6.54	9.02	1.86	2.55	3.20	4.18	5.04	5.96	8.35
A38 - INL 1111 L	0.84	C	95.0	0.79	0.81	0.83	0.85	0.86	0.87	0.89	26.00	5310.24	5309.72	0.020	2.13	929.00	5309.71	5291.83	0.019	20	2.77	5.58	7.71	14.85	7.71	2.50	3.33	4.08	5.21	6.19	7.23	9.97	1.66	2.27	2.85	3.73	4.49	5.31	7.44
A39 - INL 1111 R	0.88	C	95.0	0.79	0.81	0.83	0.85	0.86	0.87	0.89	26.00	5310.24	5309.72	0.020	2.13	929.00	5309.71	5291.83	0.019	20	2.77	5.58	7.71	14.85	7.71	2.50	3.33	4.08	5.21	6.19	7.23	9.97	1.74	2.38	2.99	3.92	4.72	5.58	7.82
A40	19.83	C	80.0	0.65	0.69	0.72	0.77	0.79	0.81	0.84	300.00	5336.00	5331.00	0.017	10.91	1737.00	5331.00	5287.00	0.025	20	3.18	9.09	20.01	21.40	20.01	1.65	2.20	2.69	3.44	4.09	4.78	6.59	21.30	30.01	38.48	52.36	63.95	76.89	109.76
A41 - INL 1108 L	0.79	C	95.0	0.79	0.81	0.83	0.85	0.86	0.87	0.89	26.00	5333.70	5333.18	0.020	2.13	849.00	5333.17	5310.24	0.027	20	3.29	4.31	6.43	13.71	6.43	2.65	3.54	4.32	5.52	6.57	7.67	10.58	1.65	2.26	2.83	3.71	4.46	5.28	7.40
A42 - INL 1108 R	0.76	C	95.0	0.79	0.81	0.83	0.85	0.86	0.87	0.89	26.00	5333.70	5333.18	0.020	2.13	849.00	5333.17	5310.24	0.027	20	3.29	4.31	6.43	13.71	6.43	2.65	3.54	4.32	5.52	6.57	7.67	10.58	1.58	2.17	2.72	3.56	4.29	5.07	7.11
A43	23.47	C	80.0	0.65	0.69	0.72	0.77	0.79	0.81	0.84	300.00	5348.00	5343.00	0.017	10.91	1264.00	5343.00	5317.00	0.021	20	2.87	7.34	18.26	19.67	18.26	1.73	2.31	2.82	3.61	4.29	5.01	6.91	26.43	37.24	47.74	64.97	79.35	95.41	136.21
A44 - INL 1104 L	0.73	C	95.0	0.79	0.81	0.83	0.85	0.86	0.87	0.89	26.00	5349.75	5349.23	0.020	2.13	790.00	5349.23	5333.70	0.020	20	2.80	4.70	6.82	14.06	6.82	2.61	3.47	4.25	5.42	6.45	7.53	10.38	1.51	2.06	2.59	3.39	4.08	4.83	6.77
A45 - INL 1104 R	0.74	C	95.0	0.79	0.81	0.83	0.85	0.86	0.87	0.89	26.00	5349.75	5349.23	0.020	2.13	790.00	5349.23	5333.70	0.020	20	2.80	4.70	6.82	14.06	6.82	2.61	3.47	4.25	5.42	6.45	7.53	10.38	1.51	2.07	2.60	3.40	4.10	4.85	6.80
A46	10.45	C	80.0	0.65	0.69	0.72	0.77	0.79	0.81	0.84	300.00	5350.00	5348.00	0.007	14.76	733.00	5348.00	5344.00	0.005	20	1.48	8.27	23.03	20.59	20.59	1.63	2.17	2.65	3.39	4.03	4.71	6.49	11.05	15.57	19.96	27.16	33.18	39.89	56.95

A33.1 - INL 503 L	0.49	C	95.0	0.79	0.81	0.83	0.85	0.86	0.87	0.89	26.00	5282.50	5281.98	0.020	2.13	787.00	5281.98	5274.50	0.010	20	1.95	6.73	8.86	15.88	8.86	2.38	3.17	3.88	4.96	5.89	6.89	9.49	0.92	1.26	1.59	2.08	2.50	2.96	4.15
OS-2A	3.71	C	95.0	0.79	0.81	0.83	0.85	0.86	0.87	0.89	300.00			0.030	6.33	3850.00			0.006	20	1.55	41.42	47.75	47.00	47.00	1.00	1.33	1.63	2.08	2.47	2.89	3.98	2.92	3.99	5.01	6.56	7.90	9.33	13.09
OS-2B	14.41	C	45.0	0.34	0.40	0.46	0.57	0.62	0.67	0.73	300.00			0.018	17.99	840.00			0.018	10	1.34	10.43	28.42	25.17	25.17	1.46	1.94	2.38	3.04	3.61	4.22	5.82	7.16	11.25	15.86	24.99	32.01	40.60	61.14
OS-2C	39.25	C	22.0	0.15	0.21	0.29	0.44	0.50	0.57	0.66	300.00			0.027	19.96	1700.00			0.027	10	1.64	17.24	37.20	36.53	36.53	1.17	1.56	1.91	2.44	2.90	3.39	4.67	7.01	13.12	22.00	42.32	57.06	76.27	120.41
A13.1	1.45	C	61.0	0.48	0.53	0.58	0.66	0.69	0.73	0.78	92.00	5270.00	5266.00	0.043	6.05	520.00	5266.00	5263.50	0.007	20	1.70	5.09	11.15	21.43	11.15	2.18	2.90	3.55	4.53	5.39	6.29	8.68	1.51	2.24	2.99	4.35	5.43	6.70	9.82
A12.1	0.39	C	95.0	0.79	0.81	0.83	0.85	0.86	0.87	0.89	20.00	5266.50	5266.00	0.025	1.74	520.00	5266.00	5263.50	0.006	20	1.52	5.68	7.42	14.95	7.42	2.54	3.38	4.13	5.28	6.27	7.33	10.10	0.78	1.07	1.35	1.76	2.12	2.51	3.52
A27.1	7.02	C	45.0	0.34	0.40	0.46	0.57	0.62	0.67	0.73	300.00	5279.00	5273.06	0.020	17.43	873.00	5273.06	5270.00	0.004	20	1.18	12.29	29.72	34.41	29.72	1.33	1.77	2.16	2.76	3.28	3.83	5.29	3.17	4.98	7.02	11.06	14.17	17.97	27.07
A11.1	2.94	C	45.0	0.34	0.40	0.46	0.57	0.62	0.67	0.73	110.00	5267.00	5265.00	0.018	10.85	583.00			0.010	20	2.00	4.86	15.71	24.70	15.71	1.87	2.49	3.04	3.89	4.62	5.40	7.44	1.87	2.94	4.14	6.53	8.36	10.61	15.98
OS-2D	52.10	C	37.0	0.27	0.34	0.40	0.53	0.58	0.64	0.70	300.00	5364.00	5336.50	0.092	11.49	4025.00	5336.50	5297.50	0.010	20	1.97	34.07	45.57	67.77	45.57	1.02	1.36	1.66	2.12	2.52	2.94	4.06	14.51	23.79	34.94	58.13	75.60	97.46	149.00
A47	10.59	C	2.0	0.01	0.05	0.15	0.33	0.40	0.49	0.59	100.00			0.020	15.06	0.00			0.020	20	2.83	0.00	15.06	25.66	15.06	1.91	2.54	3.10	3.97	4.71	5.51	7.59	0.21	1.38	4.82	13.86	20.10	28.68	47.75

Calculation of Peak Runoff using Rational Method

Designer: MDC
Company: Atwell
Date: 1/22/2021
Project: Hightower Ranch
Location: Commerce City

Version 2.00 released May 2017

Cells of this color are for required user-input
Cells of this color are for optional override values
Cells of this color are for calculated results based on overrides

$$t_i = \frac{0.395(1.1 - C_5)\sqrt{L_i}}{S_i^{0.33}}$$

$$t_t = \frac{L_t}{60K\sqrt{S_t}} = \frac{L_t}{60V_t}$$

Computed $t_c = t_i + t_t$

Regional $t_c = (26 - 17i) + \frac{L_t}{60(14i + 9)\sqrt{S_t}}$

$t_{minimum}$ = 5 (urban)
$t_{minimum}$ = 10 (non-urban)

Selected $t_c = \max\{t_{minimum}, \min(\text{Computed } t_c, \text{Regional } t_c)\}$

Select UDFCD location for NOAA Atlas 14 Rainfall Depths from the pulldown list OR enter your own depths obtained from the NOAA website (click this link)

	2-yr	5-yr	10-yr	25-yr	50-yr	100-yr	500-yr
1-hour rainfall depth, P1 (in) =	0.84	1.12	1.37	1.75	2.08	2.43	3.35

	a	b	c
Rainfall Intensity Equation Coefficients =	28.50	10.00	0.786

$$I(in/hr) = \frac{a * P_1}{(b + t_c)^c}$$

$$Q(cfs) = CIA$$

Subcatchment Name	Area (ac)	NRCS Hydrologic Soil Group	Percent Imperviousness	Runoff Coefficient, C							Overland (Initial) Flow Time				
				2-yr	5-yr	10-yr	25-yr	50-yr	100-yr	500-yr	Overland Flow Length L_i (ft)	U/S Elevation (ft) (Optional)	D/S Elevation (ft) (Optional)	Overland Flow Slope S_i (ft/ft)	Overland Flow Time t_i (min)
B1	9.72	C	95.0	0.79	0.81	0.83	0.85	0.86	0.87	0.89	300.00	5273.47	5267.47	0.020	7.23
B2	6.63	C	70.0	0.56	0.61	0.65	0.71	0.74	0.77	0.81	300.00	5272.37	5266.37	0.020	12.30
B4 - INL 909 L	0.18	C	95.0	0.79	0.81	0.83	0.85	0.86	0.87	0.89	26.00	5267.00	5266.48	0.020	2.13
B5 - INL 909 R	0.19	C	95.0	0.79	0.81	0.83	0.85	0.86	0.87	0.89	26.00	5267.00	5266.48	0.020	2.13
B6 - INL 302 L	0.83	C	95.0	0.79	0.81	0.83	0.85	0.86	0.87	0.89	21.00	5262.70	5262.28	0.020	1.91
B7 - INL 302 R	0.60	C	95.0	0.79	0.81	0.83	0.85	0.86	0.87	0.89	21.00	5262.70	5262.28	0.020	1.91
B8 - INL 304 L	0.54	C	95.0	0.79	0.81	0.83	0.85	0.86	0.87	0.89	26.00	5272.80	5272.28	0.020	2.13
B9 - INL 304 R	0.56	C	95.0	0.79	0.81	0.83	0.85	0.86	0.87	0.89	26.00	5272.80	5272.28	0.020	2.13
B10 - INL 308 L	0.43	C	95.0	0.79	0.81	0.83	0.85	0.86	0.87	0.89	26.00	5279.31	5278.79	0.020	2.13
B11 - INL 308 R	0.42	C	95.0	0.79	0.81	0.83	0.85	0.86	0.87	0.89	26.00	5279.31	5278.79	0.020	2.13
B12 RG1	10.45	C	95.0	0.79	0.81	0.83	0.85	0.86	0.87	0.89	300.00	5257.17	5251.17	0.020	7.23
B13 - INL 908 L	0.60	C	95.0	0.79	0.81	0.83	0.85	0.86	0.87	0.89	26.00	5264.74	5264.22	0.020	2.13
B14 - INL 908 R	0.70	C	95.0	0.79	0.81	0.83	0.85	0.86	0.87	0.89	26.00	5264.74	5264.22	0.020	2.13
B15	7.30	C	70.0	0.56	0.61	0.65	0.71	0.74	0.77	0.81	300.00	5270.00	5264.85	0.017	12.94
B16 - MH 309	6.36	C	45.0	0.34	0.40	0.46	0.57	0.62	0.67	0.73	300.00	5283.72	5277.72	0.020	17.37
B17 - INL 401 L	0.96	C	95.0	0.79	0.81	0.83	0.85	0.86	0.87	0.89	17.00	5283.81	5283.47	0.020	1.72
B18 - INL 1313 L	0.97	C	95.0	0.79	0.81	0.83	0.85	0.86	0.87	0.89	17.00	5283.81	5283.47	0.020	1.72
B19 - INL 403 R	0.44	C	95.0	0.79	0.81	0.83	0.85	0.86	0.87	0.89	17.00	5291.04	5290.70	0.020	1.72
B20 RG 2	10.25	C	95.0	0.79	0.81	0.83	0.85	0.86	0.87	0.89	300.00	5250.00	5244.00	0.020	7.23
B21 - INL 904 L	0.65	C	95.0	0.79	0.81	0.83	0.85	0.86	0.87	0.89	17.00	5258.13	5257.79	0.020	1.72
B22 - INL 904 R	0.63	C	95.0	0.79	0.81	0.83	0.85	0.86	0.87	0.89	17.00	5258.13	5257.79	0.020	1.72
B23	6.56	C	70.0	0.56	0.61	0.65	0.71	0.74	0.77	0.81	300.00	5261.80	5257.20	0.015	13.43
B24 - MH 204	30.70	C	45.0	0.34	0.40	0.46	0.57	0.62	0.67	0.73	300.00	5274.50	5268.50	0.020	17.37
B25 - MH 1306	25.72	C	45.0	0.34	0.40	0.46	0.57	0.62	0.67	0.73	300.00	5295.00	5289.00	0.020	17.37
B26 - MH 342	12.66	C	45.0	0.34	0.40	0.46	0.57	0.62	0.67	0.73	300.00	5277.80	5271.80	0.020	17.37
B27 - MH 1302	30.32	C	45.0	0.34	0.40	0.46	0.57	0.62	0.67	0.73	300.00	5308.70	5302.70	0.020	17.37
B28 - INL 202 L	0.73	C	95.0	0.79	0.81	0.83	0.85	0.86	0.87	0.89	26.00	5253.18	5252.66	0.020	2.13
B29 - INL 202 R	0.75	C	95.0	0.79	0.81	0.83	0.85	0.86	0.87	0.89	26.00	5253.18	5252.66	0.020	2.13
B30 - INL 203 L	0.58	C	95.0	0.79	0.81	0.83	0.85	0.86	0.87	0.89	26.00	5261.13	5260.61	0.020	2.13

Subcatchment Name	Channelized (Travel) Flow Time							Time of Concentration		
	Channelized Flow Length L_t (ft)	U/S Elevation (ft) (Optional)	D/S Elevation (ft) (Optional)	Channelized Flow Slope S_t (ft/ft)	NRCS Conveyance Factor K	Channelized Flow Velocity V_t (ft/sec)	Channelized Flow Time t_t (min)	Computed t_c (min)	Regional t_c (min)	Selected t_c (min)
B1	576.00	5267.47	5264.59	0.005	20	1.41	6.79	14.02	15.94	14.02
B2	354.00	5266.36	5264.59	0.005	20	1.41	4.17	16.47	18.54	16.47
B4 - INL 909 L	278.00	5266.48	5264.40	0.007	20	1.73	2.68	4.81	12.25	5.00
B5 - INL 909 R	278.00	5266.48	5264.40	0.007	20	1.73	2.68	4.81	12.25	5.00
B6 - INL 302 L	512.00	5262.28	5250.55	0.023	20	3.03	2.82	4.73	12.38	5.00
B7 - INL 302 R	512.00	5262.28	5250.55	0.023	20	3.03	2.82	4.73	12.38	5.00
B8 - INL 304 L	555.00	5272.28	5265.00	0.013	20	2.29	4.04	6.17	13.47	6.17
B9 - INL 304 R	555.00	5272.28	5265.00	0.013	20	2.29	4.04	6.17	13.47	6.17
B10 - INL 308 L	480.00	5278.79	5272.34	0.013	20	2.32	3.45	5.58	12.94	5.58
B11 - INL 308 R	480.00	5278.79	5272.34	0.013	20	2.32	3.45	5.58	12.94	5.58
B12 RG1	341.00	5256.77	5255.00	0.005	20	1.44	3.95	11.18	13.39	11.18
B13 - INL 908 L	615.00	5264.22	5258.12	0.010	20	1.99	5.15	7.28	14.47	7.28
B14 - INL 908 R	615.00	5264.22	5258.12	0.010	20	1.99	5.15	7.28	14.47	7.28
B15	344.00	5264.85	5259.30	0.016	20	2.54	2.26	15.20	16.50	15.20
B16 - MH 309	423.00	5277.72	5275.27	0.006	20	1.52	4.63	22.00	24.40	22.00
B17 - INL 401 L	640.00	5283.47	5275.26	0.013	20	2.27	4.71	6.43	14.07	6.43
B18 - INL 1313 L	710.00	5283.47	5273.50	0.014	20	2.37	4.99	6.71	14.33	6.71
B19 - INL 403 R	700.00	5290.70	5283.50	0.010	20	2.03	5.75	7.47	15.01	7.47
B20 RG 2	603.00	5244.00	5242.00	0.003	20	1.15	8.73	15.96	17.68	15.96
B21 - INL 904 L	720.00	5257.79	5254.80	0.004	20	1.29	9.31	11.03	18.20	11.03
B22 - INL 904 R	720.00	5257.79	5254.80	0.004	20	1.29	9.31	11.03	18.20	11.03
B23	472.00	5257.20	5250.40	0.014	20	2.40	3.28	16.71	17.59	16.71
B24 - MH 204	1912.00	5268.50	5255.00	0.007	20	1.68	18.96	36.33	43.14	36.33
B25 - MH 1306	1326.00	5289.00	5276.50	0.009	20	1.94	11.38	28.75	33.23	28.75
B26 - MH 342	850.00	5271.80	5266.90	0.006	20	1.52	9.33	26.70	30.55	26.70
B27 - MH 1302	1291.50	5302.70	5278.30	0.019	20	2.75	7.83	25.20	28.59	25.20
B28 - INL 202 L	506.00	5252.66	5238.13	0.029	20	3.39	2.49	4.62	12.08	5.00
B29 - INL 202 R	506.00	5252.66	5238.13	0.029	20	3.39	2.49	4.62	12.08	5.00
B30 - INL 203 L	630.00	5260.61	5254.13	0.010	20	2.03	5.18	7.31	14.49	7.31

Subcatchment Name	Rainfall Intensity, I (in/hr)							Peak Flow, Q (cfs)						
	2-yr	5-yr	10-yr	25-yr	50-yr	100-yr	500-yr	2-yr	5-yr	10-yr	25-yr	50-yr	100-yr	500-yr
B1	1.97	2.62	3.21	4.10	4.87	5.69	7.85	15.08	20.64	25.90	33.91	40.84	48.28	67.68
B2	1.83	2.43	2.97	3.80	4.51	5.27	7.27	6.76	9.75	12.73	17.89	22.10	26.91	38.94
B4 - INL 909 L	2.85	3.80	4.65	5.94	7.06	8.24	11.36	0.40	0.55	0.69	0.90	1.09	1.29	1.80
B5 - INL 909 R	2.85	3.80	4.65	5.94	7.06	8.24	11.36	0.42	0.57	0.71	0.94	1.13	1.33	1.87
B6 - INL 302 L	2.85	3.80	4.65	5.94	7.06	8.24	11.36	1.87	2.56	3.21	4.20	5.06	5.98	8.38
B7 - INL 302 R	2.85	3.80	4.65	5.94	7.06	8.24	11.36	1.35	1.84	2.31	3.03	3.64	4.31	6.04
B8 - INL 304 L	2.69	3.58	4.38	5.60	6.65	7.77	10.71	1.14	1.57	1.97	2.57	3.10	3.66	5.14
B9 - INL 304 R	2.69	3.58	4.38	5.60	6.65	7.77	10.71	1.19	1.62	2.04	2.67	3.22	3.80	5.33
B10 - INL 308 L	2.77	3.69	4.51	5.76	6.85	8.00	11.03	0.93	1.27	1.60	2.09	2.52	2.98	4.17
B11 - INL 308 R	2.77	3.69	4.51	5.76	6.85	8.00	11.03	0.92	1.25	1.57	2.06	2.48	2.93	4.11
B12 RG1	2.17	2.90	3.54	4.53	5.38	6.28	8.66	17.89	24.48	30.73	40.23	48.45	57.27	80.29
B13 - INL 908 L	2.55	3.40	4.16	5.31	6.31	7.38	10.17	1.21	1.66	2.08	2.73	3.29	3.88	5.44
B14 - INL 908 R	2.55	3.40	4.16	5.31	6.31	7.38	10.17	1.41	1.93	2.43	3.18	3.82	4.52	6.34
B15	1.90	2.53	3.09	3.95	4.69	5.48	7.56	7.74	11.16	14.58	20.48	25.30	30.82	44.59
B16 - MH 309	1.57	2.09	2.56	3.27	3.89	4.54	6.26	3.41	5.35	7.54	11.89	15.23	19.32	29.09
B17 - INL 401 L	2.66	3.54	4.33	5.53	6.57	7.67	10.58	2.01	2.75	3.45	4.51	5.44	6.43	9.01
B18 - INL 1313 L	2.62	3.49	4.27	5.45	6.48	7.57	10.44	2.00	2.74	3.44	4.50	5.42	6.41	8.98
B19 - INL 403 R	2.53	3.37	4.12	5.26	6.26	7.31	10.08	0.87	1.19	1.49	1.96	2.36	2.79	3.90
B20 RG 2	1.85	2.47	3.02	3.86	4.58	5.36	7.38	14.95	20.47	25.69	33.63	40.51	47.89	67.13
B21 - INL 904 L	2.19	2.91	3.56	4.55	5.41	6.32	8.71	1.12	1.53	1.93	2.52	3.04	3.59	5.03
B22 - INL 904 R	2.19	2.91	3.56	4.55	5.41	6.32	8.71	1.09	1.49	1.87	2.45	2.95	3.49	4.90
B23	1.81	2.41	2.95	3.77	4.48	5.24	7.22	6.64	9.58	12.52	17.58	21.71	26.45	38.27
B24 - MH 204	1.18	1.57	1.92	2.45	2.91	3.40	4.68	12.29	19.31	27.21	42.89	54.93	69.67	104.92
B25 - MH 1306	1.35	1.80	2.20	2.82	3.35	3.91	5.39	11.85	18.61	26.23	41.34	52.94	67.16	101.13
B26 - MH 342	1.41	1.88	2.30	2.94	3.49	4.08	5.62	6.09	9.57	13.48	21.25	27.21	34.51	51.98
B27 - MH 1302	1.46	1.94	2.38	3.04	3.61	4.22	5.81	15.06	23.67	33.35	52.56	67.32	85.40	128.60
B28 - INL 202 L	2.85	3.80	4.65	5.94	7.06	8.24	11.36	1.64	2.24	2.81	3.68	4.43	5.24	7.34
B29 - INL 202 R	2.85	3.80	4.65	5.94	7.06	8.24	11.36	1.68	2.29	2.88	3.77	4.54	5.37	7.52
B30 - INL 203 L	2.55	3.40	4.15	5.30	6.31	7.37	10.15	1.16	1.58	1.99	2.60	3.13	3.70	5.19

B31 - INL 203 R	0.58	C	95.0	0.79	0.81	0.83	0.85	0.86	0.87	0.89	26.00	5261.13	5260.61	0.020	2.13	630.00	5260.61	5254.13	0.010	20	2.03	5.18	7.31	14.49	7.31	2.55	3.40	4.15	5.30	6.31	7.37	10.15	1.17	1.60	2.01	2.63	3.16	3.74	5.24
B32 - INL 207 L	0.97	C	95.0	0.79	0.81	0.83	0.85	0.86	0.87	0.89	26.00	5296.50	5295.98	0.020	2.13	1060.00	5295.98	5269.00	0.025	20	3.19	5.54	7.67	14.82	7.67	2.51	3.34	4.09	5.22	6.20	7.25	9.99	1.91	2.62	3.29	4.30	5.18	6.12	8.58
B33 - INL 207 R	0.97	C	95.0	0.79	0.81	0.83	0.85	0.86	0.87	0.89	26.00	5296.50	5295.98	0.020	2.13	1060.00	5295.98	5269.00	0.025	20	3.19	5.54	7.67	14.82	7.67	2.51	3.34	4.09	5.22	6.20	7.25	9.99	1.91	2.62	3.28	4.30	5.18	6.12	8.58
B34 - INL 211 L	0.93	C	95.0	0.79	0.81	0.83	0.85	0.86	0.87	0.89	26.00	5331.41	5330.89	0.020	2.13	1012.00	5330.88	5296.00	0.034	20	3.71	4.54	6.67	13.92	6.67	2.63	3.50	4.28	5.46	6.49	7.59	10.46	1.93	2.64	3.31	4.33	5.22	6.17	8.64
B35 - INL 211 R	0.96	C	95.0	0.79	0.81	0.83	0.85	0.86	0.87	0.89	26.00	5331.41	5330.89	0.020	2.13	1012.00	5330.88	5296.00	0.034	20	3.71	4.54	6.67	13.92	6.67	2.63	3.50	4.28	5.46	6.49	7.59	10.46	1.99	2.73	3.42	4.48	5.40	6.38	8.95
B36	2.33	C	2.0	0.01	0.05	0.15	0.33	0.40	0.49	0.59	190.00	5247.50	5243.70	0.020	20.76	629.00	5243.70	5229.30	0.023	20	3.03	3.46	24.23	33.13	24.23	1.49	1.99	2.43	3.10	3.69	4.31	5.94	0.04	0.24	0.83	2.38	3.46	4.93	8.21
B37	12.90	C	95.0	0.79	0.81	0.83	0.85	0.86	0.87	0.89	300.00	5260.65	5254.65	0.020	7.23	544.00	5254.65	5252.63	0.004	20	1.22	7.44	14.67	16.52	14.67	1.93	2.57	3.14	4.01	4.77	5.57	7.68	19.59	26.81	33.65	44.05	53.06	62.72	87.92
B38 - INL 901 L	1.02	C	95.0	0.79	0.81	0.83	0.85	0.86	0.87	0.89	26.00	5259.50	5258.98	0.020	2.13	575.00	5258.98	5251.20	0.014	20	2.33	4.12	6.25	13.54	6.25	2.68	3.57	4.36	5.57	6.63	7.74	10.67	2.15	2.94	3.69	4.83	5.82	6.88	9.64
B39 - INL 901 R	1.03	C	95.0	0.79	0.81	0.83	0.85	0.86	0.87	0.89	26.00	5259.50	5258.98	0.020	2.13	575.00	5258.98	5251.20	0.014	20	2.33	4.12	6.25	13.54	6.25	2.68	3.57	4.36	5.57	6.63	7.74	10.67	2.17	2.96	3.72	4.87	5.87	6.94	9.72
B40 - MH 1502	6.59	C	80.0	0.65	0.69	0.72	0.77	0.79	0.81	0.84	300.00	5275.64	5269.64	0.020	10.27	312.00	5269.64	5263.00	0.021	20	2.92	1.78	12.06	14.16	12.06	2.11	2.81	3.43	4.38	5.21	6.09	8.39	9.01	12.70	16.27	22.15	27.05	32.52	46.43
B41 - MH 102	8.62	C	80.0	0.65	0.69	0.72	0.77	0.79	0.81	0.84	300.00	5275.00	5269.00	0.020	10.27	289.00	5269.00	5267.00	0.007	20	1.66	2.90	13.17	15.27	13.17	2.03	2.70	3.30	4.22	5.01	5.86	8.07	11.35	15.99	20.50	27.89	34.07	40.97	58.48
B42 - INL 1001 L	0.97	C	95.0	0.79	0.81	0.83	0.85	0.86	0.87	0.89	26.00	5277.00	5276.48	0.020	2.13	792.00	5276.48	5263.45	0.016	20	2.57	5.15	7.28	14.46	7.28	2.55	3.40	4.16	5.31	6.31	7.38	10.17	1.95	2.67	3.35	4.38	5.28	6.24	8.75
B43 - INL 1001 R	0.96	C	95.0	0.79	0.81	0.83	0.85	0.86	0.87	0.89	26.00	5277.00	5276.48	0.020	2.13	792.00	5276.48	5263.45	0.016	20	2.57	5.15	7.28	14.46	7.28	2.55	3.40	4.16	5.31	6.31	7.38	10.17	1.94	2.65	3.33	4.36	5.25	6.20	8.69
B44 - MH 208	9.68	C	80.0	0.65	0.69	0.72	0.77	0.79	0.81	0.84	300.00	5290.80	5284.80	0.020	10.27	353.00	5284.80	5277.90	0.020	20	2.80	2.10	12.38	14.48	12.38	2.08	2.77	3.39	4.33	5.15	6.02	8.30	13.09	18.45	23.66	32.19	39.32	47.27	67.48
B45 - MH 104	12.31	C	80.0	0.65	0.69	0.72	0.77	0.79	0.81	0.84	300.00	5290.80	5284.80	0.020	10.27	484.00	5284.80	5278.20	0.014	20	2.34	3.45	13.73	15.82	13.73	1.99	2.65	3.24	4.14	4.92	5.75	7.92	15.90	22.41	28.72	39.09	47.74	57.40	81.95
B46	9.84	C	80.0	0.65	0.69	0.72	0.77	0.79	0.81	0.84	300.00	5313.20	5307.20	0.020	10.27	724.50	5307.20	5295.67	0.016	20	2.52	4.79	15.06	17.14	15.06	1.91	2.54	3.10	3.97	4.71	5.51	7.59	12.17	17.15	21.99	29.92	36.55	43.94	62.73
B47 - MH 106	13.77	C	80.0	0.65	0.69	0.72	0.77	0.79	0.81	0.84	300.00	5313.20	5307.20	0.020	10.27	674.00	5307.20	5293.88	0.020	20	2.81	4.00	14.27	16.36	14.27	1.95	2.60	3.18	4.07	4.83	5.65	7.78	17.47	24.61	31.55	42.94	52.45	63.06	90.02
B48 - MH 215	21.79	C	80.0	0.65	0.69	0.72	0.77	0.79	0.81	0.84	300.00	5340.50	5334.50	0.020	10.27	1102.00	5334.50	5314.30	0.018	20	2.71	6.78	17.06	19.12	17.06	1.79	2.39	2.92	3.73	4.44	5.18	7.15	25.38	35.76	45.85	62.39	76.20	91.62	130.80
B49 - MH 109	14.94	C	80.0	0.65	0.69	0.72	0.77	0.79	0.81	0.84	300.00	5329.32	5323.32	0.020	10.27	594.00	5323.32	5314.00	0.016	20	2.51	3.95	14.23	16.31	14.23	1.96	2.61	3.19	4.07	4.84	5.65	7.80	18.98	26.74	34.28	46.65	56.98	68.51	97.80
B50 - INL 1102 L	0.45	C	95.0	0.79	0.81	0.83	0.85	0.86	0.87	0.89	26.00	5348.29	5347.77	0.020	2.13	792.00	5347.76	5336.37	0.014	20	2.40	5.50	7.63	14.79	7.63	2.51	3.35	4.09	5.23	6.21	7.26	10.01	0.90	1.23	1.54	2.02	2.43	2.87	4.03
B51 - INL 1102 R	0.49	C	95.0	0.79	0.81	0.83	0.85	0.86	0.87	0.89	26.00	5348.29	5347.77	0.020	2.13	792.00	5347.76	5336.37	0.014	20	2.40	5.50	7.63	14.79	7.63	2.51	3.35	4.09	5.23	6.21	7.26	10.01	0.96	1.32	1.66	2.17	2.61	3.09	4.33
B52 - INL 1101 L	0.76	C	95.0	0.79	0.81	0.83	0.85	0.86	0.87	0.89	26.00	5336.36	5335.84	0.020	2.13	487.00	5335.83	5320.90	0.031	20	3.50	2.32	4.45	11.93	5.00	2.85	3.80	4.65	5.94	7.06	8.24	11.36	1.72	2.35	2.95	3.86	4.65	5.50	7.71
B53 - INL 1101 R	0.77	C	95.0	0.79	0.81	0.83	0.85	0.86	0.87	0.89	26.00	5336.36	5335.84	0.020	2.13	487.00	5335.83	5320.90	0.031	20	3.50	2.32	4.45	11.93	5.00	2.85	3.80	4.65	5.94	7.06	8.24	11.36	1.72	2.36	2.96	3.88	4.67	5.52	7.74
B54	23.30	C	75.0	0.60	0.65	0.68	0.74	0.76	0.79	0.82	300.00	5342.00	5336.00	0.020	11.29	894.00	5336.00	5321.70	0.016	20	2.53	5.89	17.18	19.29	17.18	1.79	2.38	2.91	3.72	4.42	5.17	7.12	25.16	35.85	46.37	64.06	78.67	95.18	136.78
B17.1 - INL 403 L	0.44	C	95.0	0.79	0.81	0.83	0.85	0.86	0.87	0.89	17.00	5291.04	5290.70	0.020	1.72	700.00	5290.70	5283.50	0.010	20	2.03	5.75	7.47	15.01	7.47	2.53	3.37	4.12	5.26	6.26	7.31	10.08	0.88	1.20	1.51	1.98	2.38	2.81	3.95
B55	17.99	C	2.0	0.01	0.05	0.15	0.33	0.40	0.49	0.59	100.00			0.010	18.93	0.00			0.010	20	2.00	0.00	18.93	25.66	18.93	1.70	2.27	2.77	3.54	4.21	4.92	6.78	0.32	2.09	7.32	21.04	30.51	43.54	72.48
B30.1 - INL 205 L	0.78	C	95.0	0.79	0.81	0.83	0.85	0.86	0.87	0.89	26.00	5269.60	5269.08	0.020	2.13	840.00	5269.08	5261.10	0.009	20	1.95	7.18	9.31	16.29	9.31	2.34	3.11	3.81	4.87	5.78	6.76	9.32	1.43	1.96	2.46	3.23	3.88	4.59	6.44
B31.1 - INL 205 R	0.78	C	95.0	0.79	0.81	0.83	0.85	0.86	0.87	0.89	26.00	5269.60	5269.08	0.020	2.13	840.00	5269.08	5261.10	0.009	20	1.95	7.18	9.31	16.29	9.31	2.34	3.11	3.81	4.87	5.78	6.76	9.32	1.43	1.96	2.46	3.23	3.88	4.59	6.44
OS-3A	9.71	C	40.0	0.30	0.36	0.43	0.54	0.59	0.65	0.71	300.00			0.026	16.86	4000.00			0.016	20	2.53	26.35	43.21	55.30	43.21	1.05	1.40	1.72	2.19	2.61	3.05	4.20	3.06	4.92	7.11	11.57	14.96	19.17	29.13
OS-3B	1.68	C	95.0	0.79	0.81	0.83	0.85	0.86	0.87	0.89	20.00			0.020	1.87	1435.00			0.016	20	2.53	9.45	11.32	18.33	11.32	2.16	2.88	3.52	4.50	5.35	6.25	8.62	2.87	3.93	4.93	6.45	7.77	9.19	12.88
OS-3C	0.99	C	95.0	0.79	0.81	0.83	0.85	0.86	0.87	0.89	20.00			0.020	1.87	545.00			0.016	20	2.53	3.59	5.46	13.07	5.46	2.79	3.71	4.54	5.80	6.89	8.05	11.10	2.18	2.99	3.75	4.91	5.91	6.99	9.80

Calculation of Peak Runoff using Rational Method

Designer: MDC
Company: Atwell
Date: 1/20/2021
Project: Hightower Ranch
Location: Commerce City

Version 2.00 released May 2017

Cells of this color are for required user-input
Cells of this color are for optional override values
Cells of this color are for calculated results based on overrides.

$$t_i = \frac{0.395(1.1 - C_5)\sqrt{L_i}}{S^{0.33}}$$

$$t_t = \frac{L_t}{60K\sqrt{S_t}} = \frac{L_t}{60V_t}$$

$$\text{Computed } t_c = t_i + t_t$$

$$\text{Regional } t_c = (26 - 17i) + \frac{L_t}{60(14i + 9)\sqrt{S_t}}$$

$t_{minimum}$ = 5 (urban)
$t_{minimum}$ = 10 (non-urban)

$$\text{Selected } t_c = \max\{t_{minimum}, \min(\text{Computed } t_c, \text{Regional } t_c)\}$$

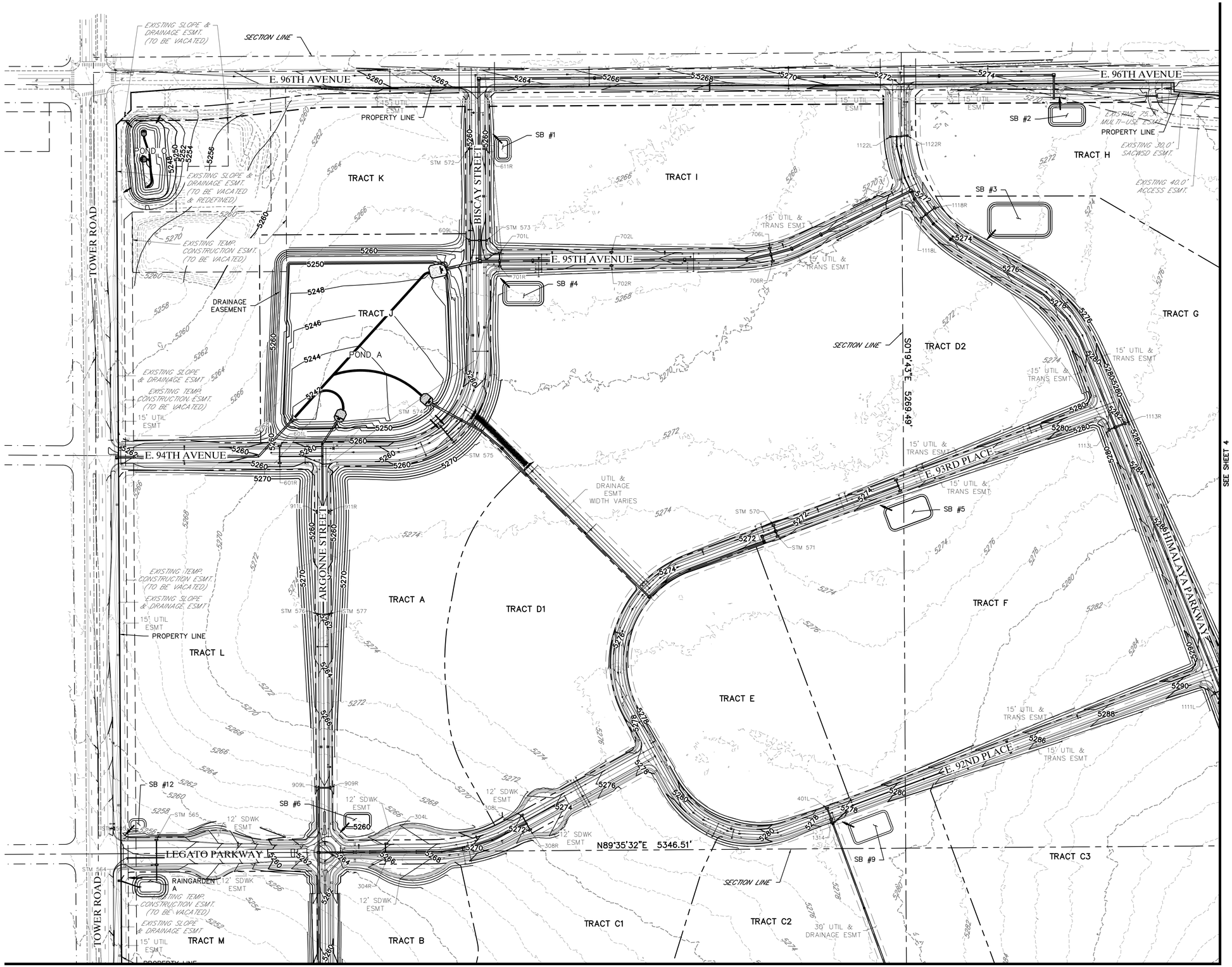
Select UDFCD location for NOAA Atlas 14 Rainfall Depths from the pulldown list OR enter your own depths obtained from the NOAA website (click this link)

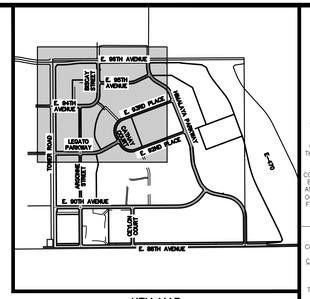
	2-yr	5-yr	10-yr	25-yr	50-yr	100-yr	500-yr
1-hour rainfall depth, P1 (in) =	0.83	1.09	1.33	1.69	1.99	2.31	3.14
	a	b	c				
Rainfall Intensity Equation Coefficients =	28.50	10.00	0.786				

$$I(in/hr) = \frac{a \times P_1}{(b + t_c)^c}$$

$$Q(cfs) = CIA$$

Subcatchment Name	Area (ac)	NRCS Hydrologic Soil Group	Percent Imperviousness	Runoff Coefficient, C							Overland (Initial) Flow Time					Channelized (Travel) Flow Time							Time of Concentration			Rainfall Intensity, I (in/hr)							Peak Flow, Q (cfs)						
				2-yr	5-yr	10-yr	25-yr	50-yr	100-yr	500-yr	Overland Flow Length L_i (ft)	U/S Elevation (ft) (Optional)	D/S Elevation (ft) (Optional)	Overland Flow Slope S_i (ft/ft)	Overland Flow Time t_i (min)	Channelized Flow Length L_t (ft)	U/S Elevation (ft) (Optional)	D/S Elevation (ft) (Optional)	Channelized Flow Slope S_t (ft/ft)	NRCS Conveyance Factor K	Channelized Flow Velocity V_t (ft/sec)	Channelized Flow Time t_t (min)	Computed t_c (min)	Regional t_c (min)	Selected t_c (min)	2-yr	5-yr	10-yr	25-yr	50-yr	100-yr	500-yr	2-yr	5-yr	10-yr	25-yr	50-yr	100-yr	500-yr
OS-4A	1.79	C	95.0	0.79	0.81	0.83	0.85	0.86	0.87	0.89	60.00			0.020	3.23	906.00			0.011	20	2.10	7.20	10.43	16.31	10.43	2.19	2.90	3.54	4.50	5.29	6.15	8.35	3.09	4.19	5.25	6.84	8.16	9.58	13.24
OS-4B	2.26	C	95.0	0.79	0.81	0.83	0.85	0.86	0.87	0.89	60.00			0.020	3.23	1244.00			0.011	20	2.10	9.88	13.12	18.71	13.12	1.99	2.63	3.21	4.08	4.80	5.58	7.58	3.55	4.82	6.03	7.85	9.37	11.00	15.21
OS-4C	0.58	C	95.0	0.79	0.81	0.83	0.85	0.86	0.87	0.89	60.00			0.020	3.23	258.00			0.008	20	1.79	2.40	5.64	12.01	5.64	2.71	3.58	4.37	5.55	6.53	7.58	10.31	1.24	1.69	2.11	2.75	3.28	3.85	5.33
OS-4D	1.72	C	95.0	0.79	0.81	0.83	0.85	0.86	0.87	0.89	69.00			0.020	3.47	987.00			0.024	20	3.10	5.31	8.78	14.61	8.78	2.35	3.10	3.78	4.80	5.66	6.57	8.93	3.18	4.31	5.40	7.03	8.39	9.85	13.62
OS-1B.1	2.62	C	95.0	0.79	0.81	0.83	0.85	0.86	0.87	0.89	60.00			0.020	3.23	1296.00			0.010	20	2.00	10.80	14.03	19.54	14.03	1.93	2.55	3.11	3.96	4.66	5.41	7.35	3.99	5.41	6.77	8.82	10.53	12.37	17.09





KEY MAP
SCALE: 1"=2000'

(IN FEET)
1 inch = 150 ft.

Know what's **below.**
Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 S. QUEBEC STREET, SUITE 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

CLIENT
COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

COHEN DENVER AIRPORT, LLC
LEGATO WEST
COMMERCE CITY, COLORADO
CONSTRUCTION PLANS
OVERALL GRADING
OVERALL GRADING 01

DATE 4/13/2021

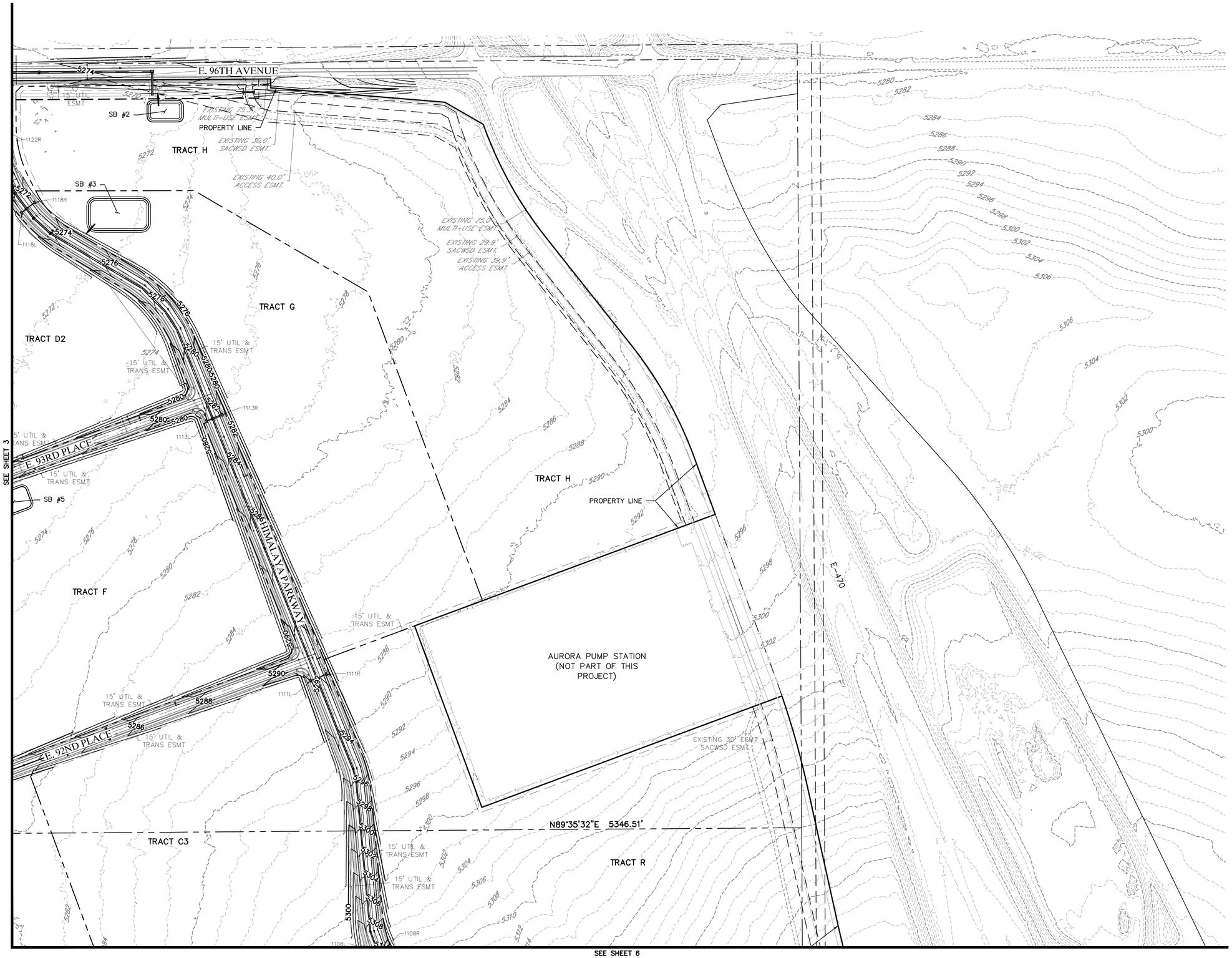
0	FOR APPROVAL 4/13/2021 – DJM

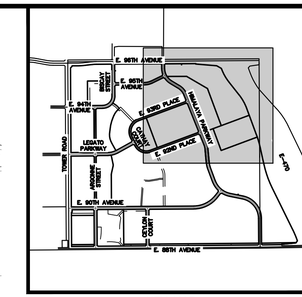
REVISIONS

COLORADO REGISTERED PROFESSIONAL ENGINEER 36834 4/14/21

DR. JRB	CH. DJM
P.M. DJM	
JOB 19002220	
SHEET NO. 3	

CAD FILE: 19002220-OVERALL GRADING.DWG





KEY MAP
SCALE: 1"=2000'

(IN FEET)
1 inch = 150 ft.

811
Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-grp.com
6200 S. QUEBEC STREET, SUITE 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

CLIENT
COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

LEGATO WEST
COMMERCE CITY, COLORADO
CONSTRUCTION PLANS
OVERALL GRADING
OVERALL GRADING 02

DATE 4/13/2021

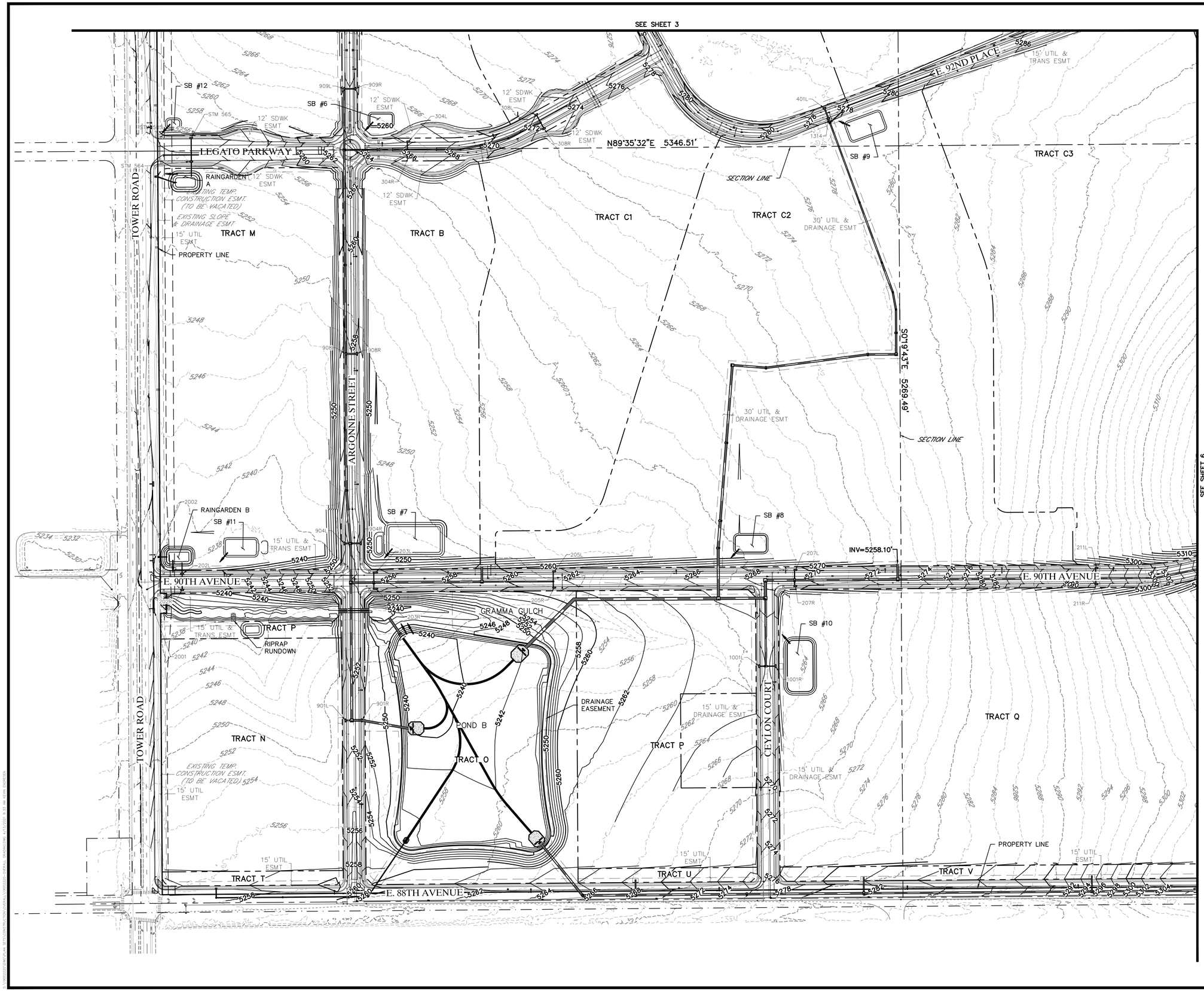
0	FOR APPROVAL 4/13/2021 – DJM

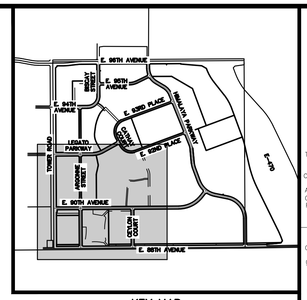
REVISIONS

COLORADO REGISTERED DAVID J. MOORE 36834 4/14/21 PROFESSIONAL ENGINEER

DR. JRB CH. DJM
P.M. DJM
JOB 19002220
SHEET NO. 4

CAD FILE: 19002220-OVERALL GRADING.DWG





KEY MAP
SCALE: 1"=2000'

811 Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 S. SYRACUSE WAY, STE. 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

CLIENT: COHEN DENVER AIRPORT, LLC

LEGATO WEST
COMMERCE CITY, COLORADO
CONSTRUCTION PLANS
OVERALL GRADING
OVERALL GRADING 03

DATE 4/13/2021

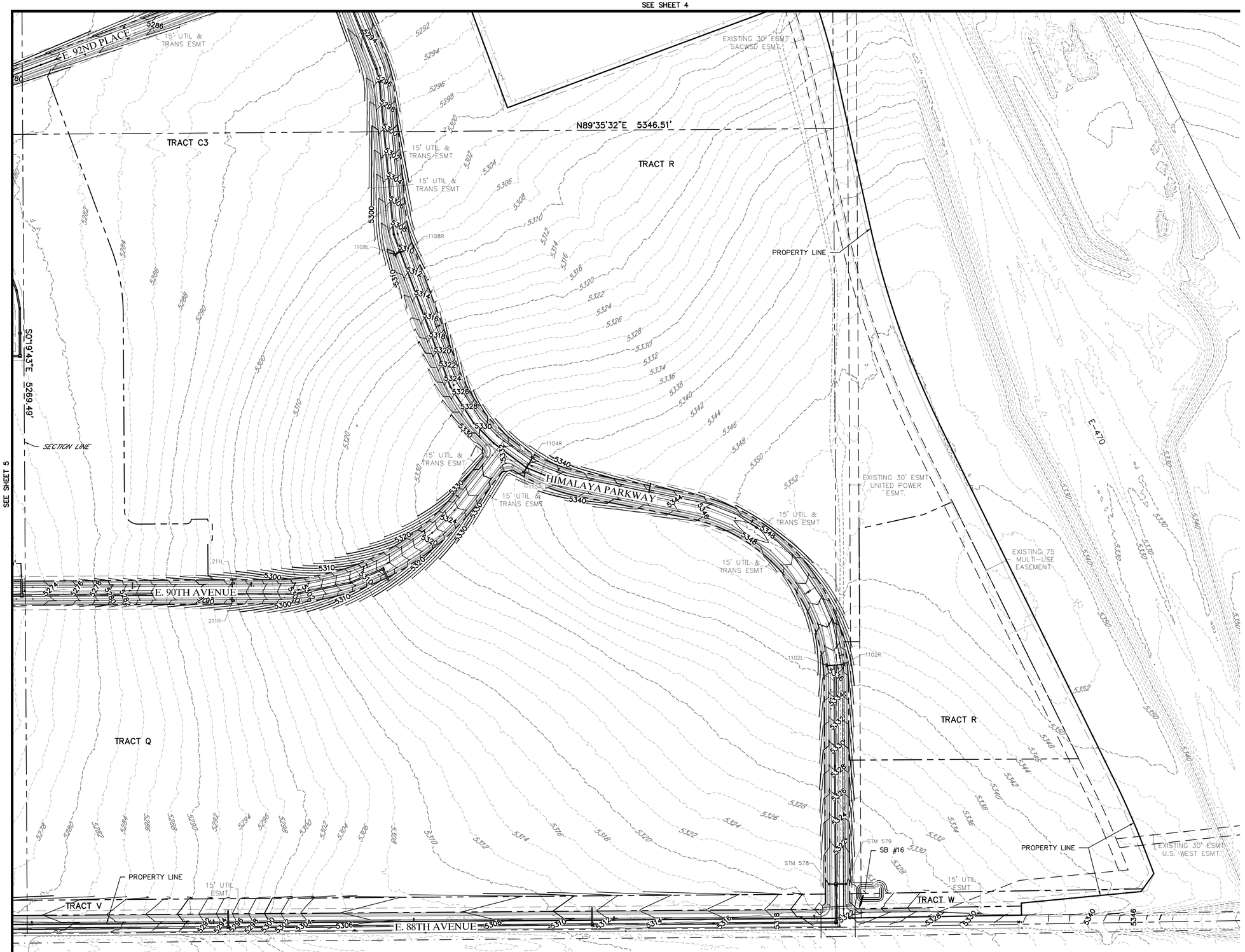
0	FOR APPROVAL 4/13/2021 – DJM

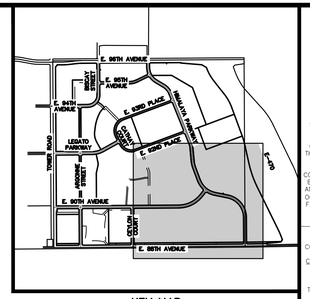
REVISIONS

COLORADO REGISTERED DAVID J. MARTINEZ 36834 4/14/21 PROFESSIONAL ENGINEER

DR. JRB CH. DJM
P.M. DJM
JOB 19002220
SHEET NO. 5

CAD FILE: 19002220-OVERALL GRADING.DWG





KEY MAP
SCALE: 1"=2000'

(IN FEET)
1 inch = 150 ft.

811
Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-grp.com
6200 S. SYRACUSE WAY, SUITE 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

CLIENT
COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

COHEN DENVER AIRPORT, LLC
LEGATO WEST
COMMERCE CITY, COLORADO
CONSTRUCTION PLANS
OVERALL GRADING
OVERALL GRADING 04

DATE 4/13/2021

0	FOR APPROVAL 4/13/2021 – DJM

REVISIONS

REGISTERED PROFESSIONAL ENGINEER 36834 4/14/21

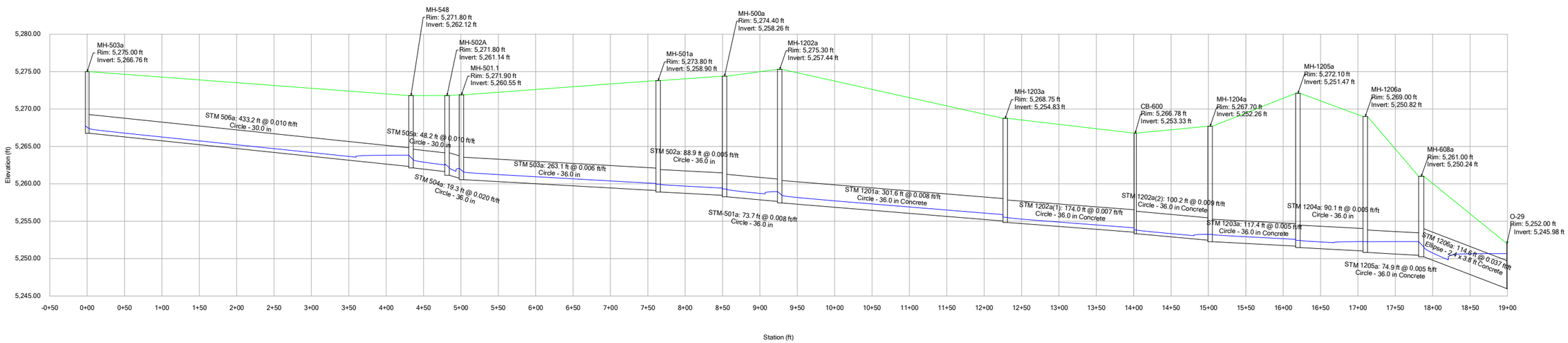
DR. JRB CH. DJM
P.M. DJM
JOB 19002220
SHEET NO. 6

CAD FILE: 19002220-OVERALL GRADING.DWG

BISCAY LANE - 5YR

Profile Report

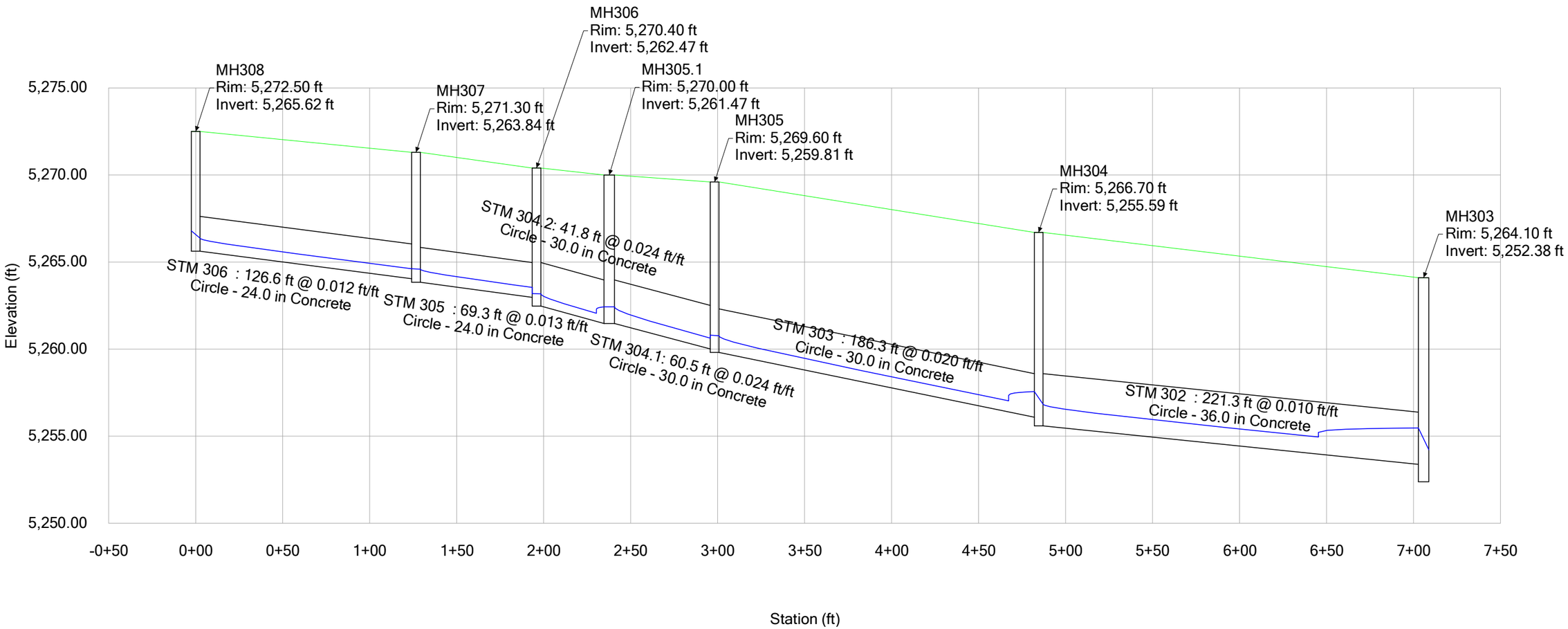
Engineering Profile - LW - Storm Run 5 (19002220-Legato Restricted Flow.stsw)



LEGATO PKWY - 5YR

Profile Report

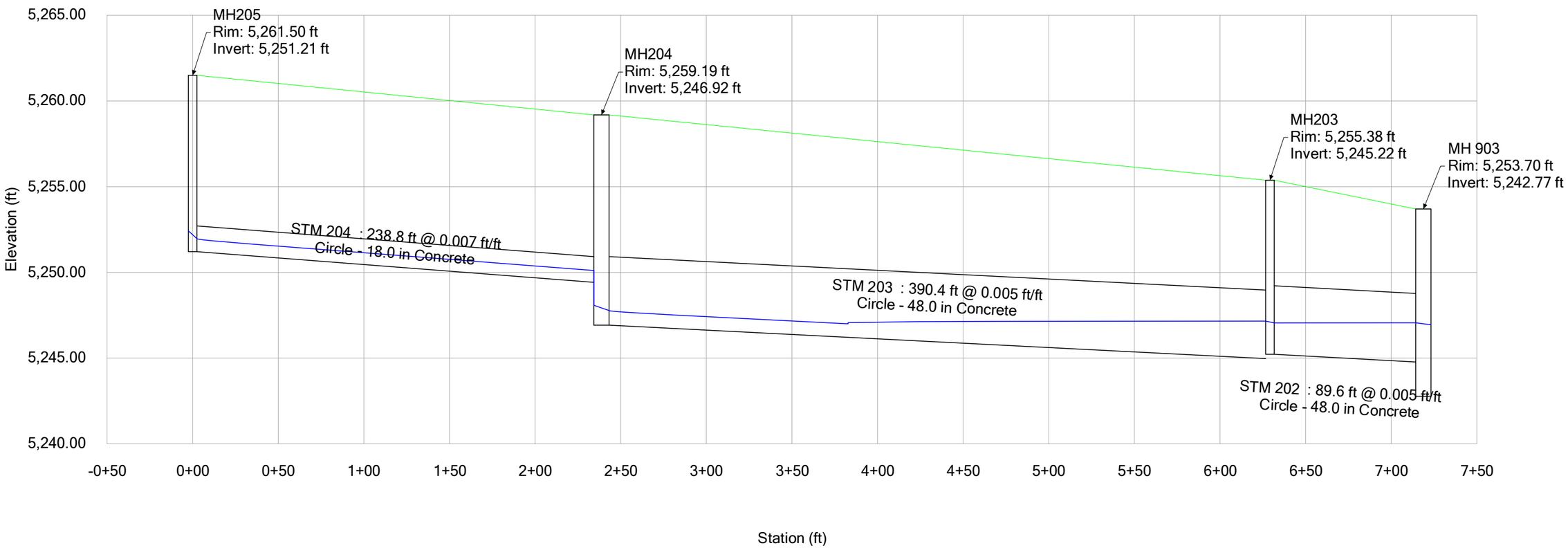
Engineering Profile - LW - Storm Run 3B (19002220-Legato Restricted Flow.stsw)



E. 90TH PLACE - 5YR

Profile Report

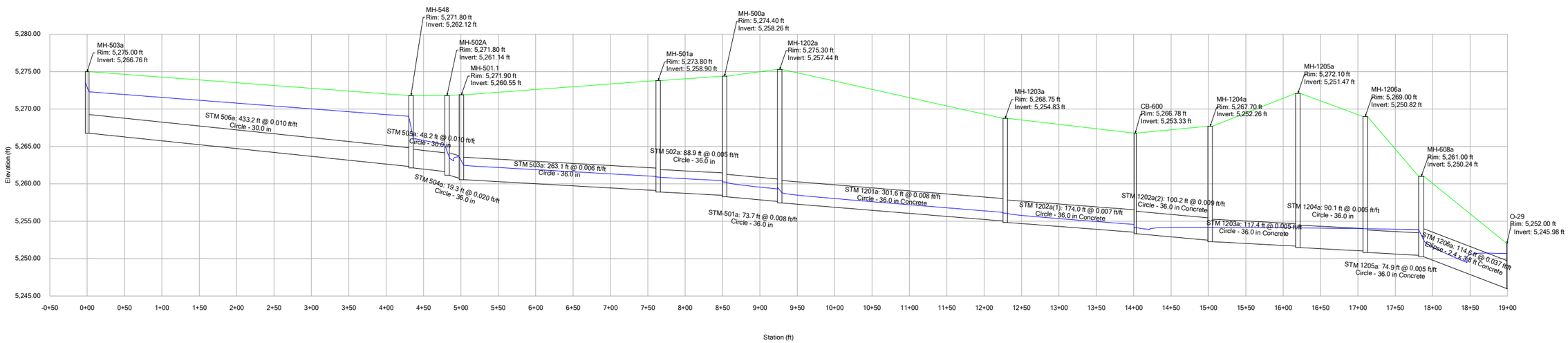
Engineering Profile - LW - Storm Run 2B (19002220-Legato Restricted Flow.stsw)



BISCAY LANE - 100YR

Profile Report

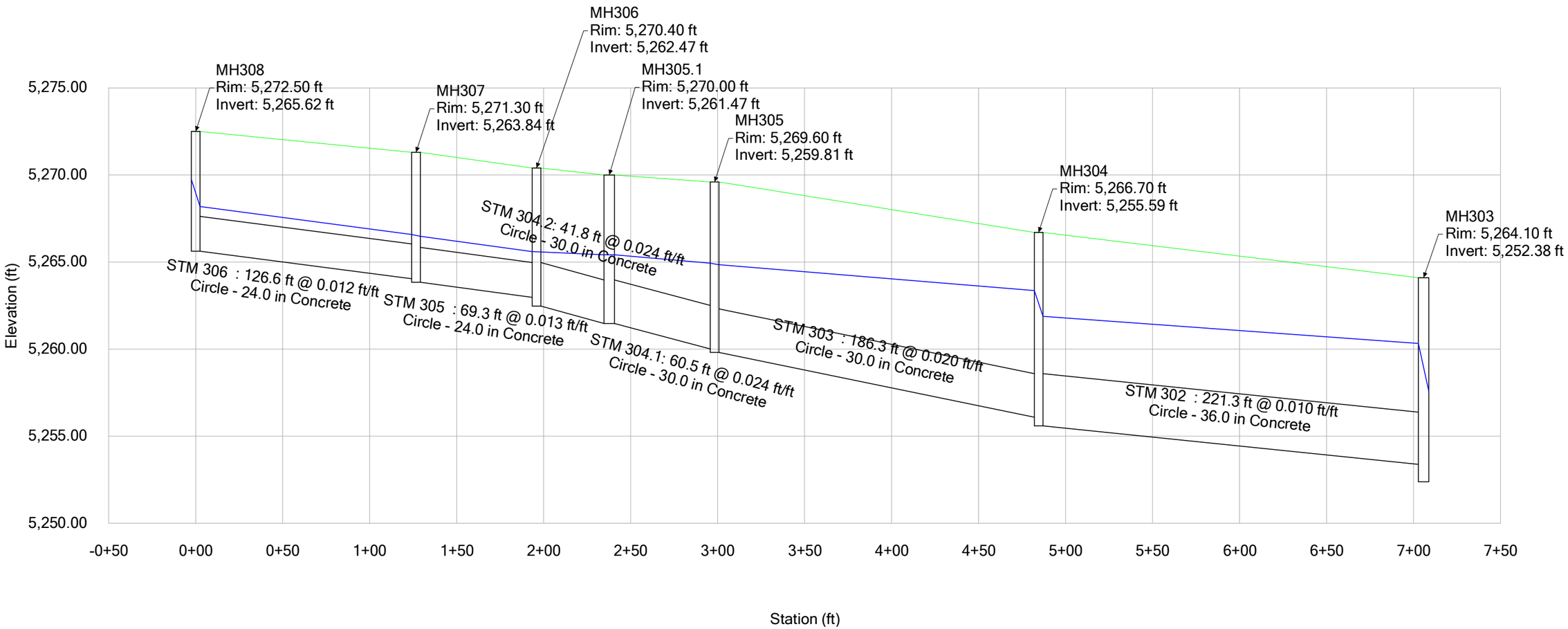
Engineering Profile - LW - Storm Run 5 (19002220-Legato Restricted Flow.stsw)



LEGATO PKWY - 100YR

Profile Report

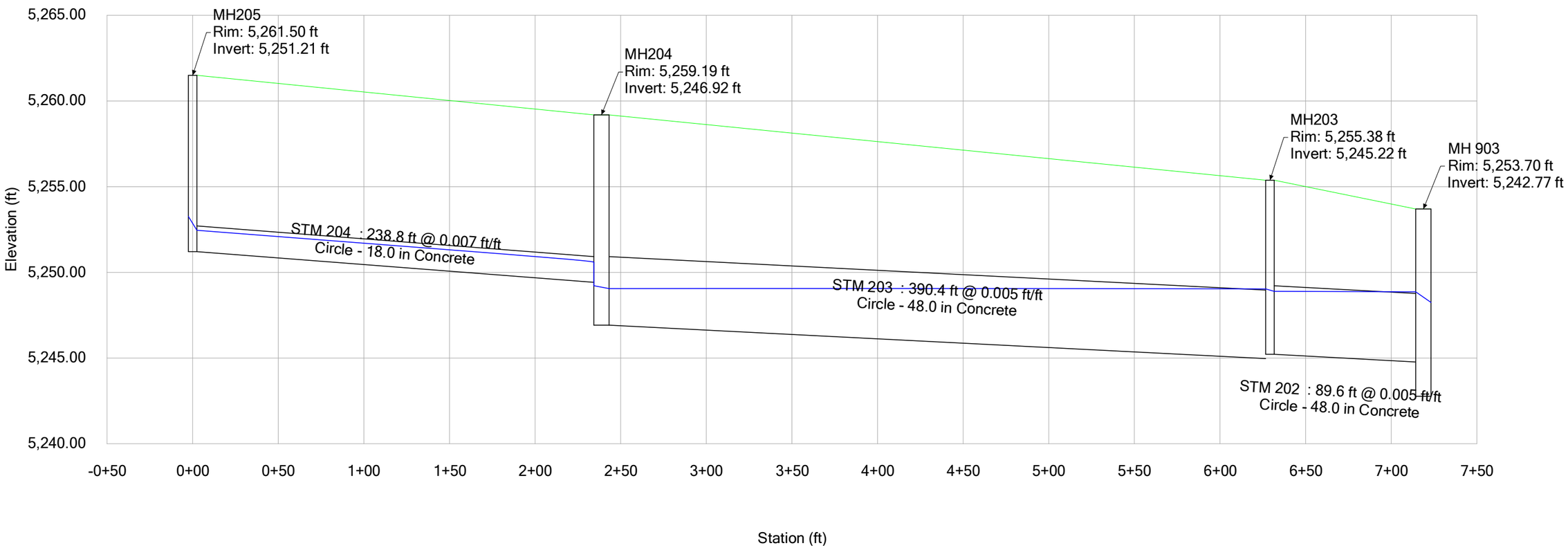
Engineering Profile - LW - Storm Run 3B (19002220-Legato Restricted Flow.stsw)



E. 90TH PLACE - 100YR

Profile Report

Engineering Profile - LW - Storm Run 2B (19002220-Legato Restricted Flow.stsw)



APPENDIX G
DRAINAGE MAPS

BASIN SUMMARY TABLE					
BASIN ID	DESIGN POINT	C5	C100	Q5	Q100
A1	A1	0.73	0.83	1.97	4.77
A2	A2	0.43	0.68	1.97	6.58
A3	A3	0.52	0.73	1.86	5.54
A4	A4	0.45	0.69	2.78	9.07
A5	A5	0.59	0.76	2.71	7.44
A6	A6	0.74	0.84	2.47	5.90
A7	A7	0.46	0.70	2.80	9.01
B1	B1	0.47	0.70	1.24	3.95
B2A	B2A	0.48	0.71	2.28	7.08
B2B	B2B	0.32	0.63	0.70	2.89
B3	B3	0.55	0.74	2.86	8.21
B4	B4	0.52	0.73	2.73	8.13
B5	B5	0.74	0.84	3.61	8.69
B6	B6	0.52	0.73	2.80	8.35
B7	B7	0.55	0.74	4.04	11.59
B8	B8	0.52	0.73	2.65	7.91
B9	B9	0.52	0.73	2.33	6.88
B10	B10	0.50	0.72	0.79	2.39
B11	B11	0.33	0.63	1.23	5.00
B12	B12	0.22	0.58	0.44	2.44
B2C	B2C	0.66	0.80	0.32	0.81
O-1	O-1	0.55	0.74	0.69	1.97
O-2	O-2	0.53	0.73	2.74	8.01
O-3	O-3	0.61	0.77	4.28	11.54
O-4	O-4	0.47	0.70	3.09	9.84
O-5	O-5	0.54	0.74	2.46	7.13
O-6	O-6	0.45	0.69	2.86	9.31
O-7	O-7	0.62	0.78	2.98	7.90
O-8	O-8	0.50	0.72	2.08	6.32
O-9	O-9	0.50	0.72	2.88	8.76
O-10	O-10	0.48	0.70	1.93	6.07
O-11	O-11	0.49	0.71	2.08	6.40

LEGEND

- PROPERTY BOUNDARY
- EXISTING LOT LINE
- PROPOSED CURB & GUTTER
- EXISTING CURB & GUTTER
- PROPOSED SIDEWALK
- PROPOSED CONCRETE PAVEMENT
- SECTION LINE
- PROPOSED EASEMENT
- EXISTING EASEMENT
- PROPOSED 2' CONTOURS
- EXISTING 2' CONTOURS

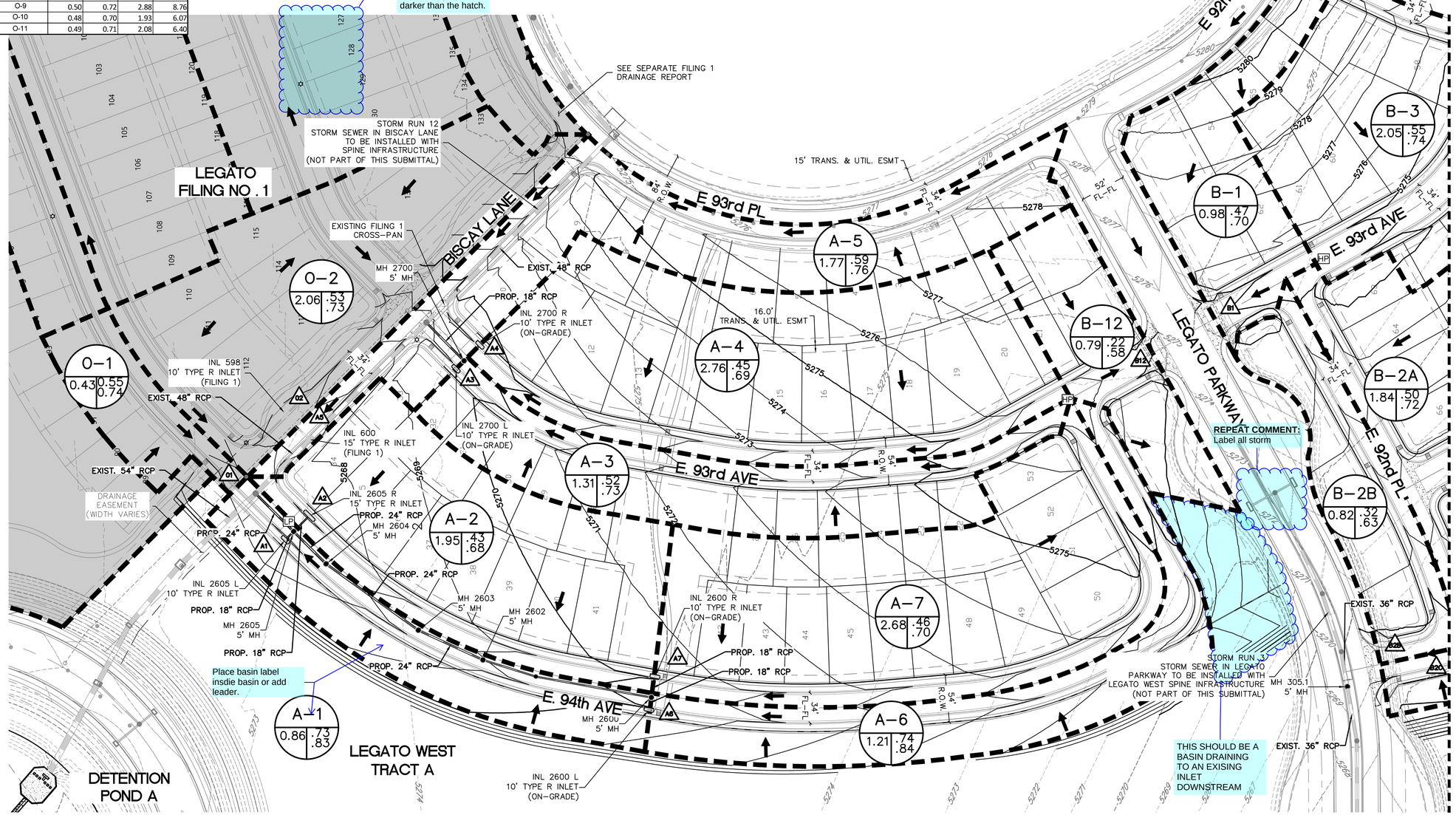
A = BASIN DESIGNATION
B = AREA IN ACRES
C = 5 YR RUNOFF COEFFICIENT
D = 100 YR RUNOFF COEFFICIENT

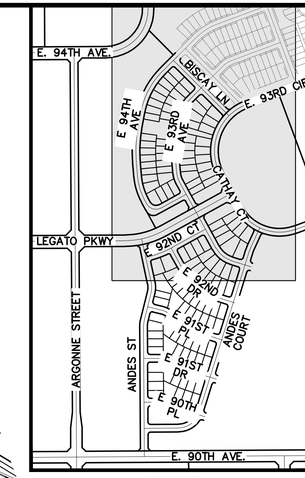
- DESIGN POINT
- MAJOR DRAINAGE BASIN BOUNDARY
- DIVERSION DITCH
- OVERFLOW PATH
- DRAINAGE FLOW ARROW
- HP LP HIGH OR LOW POINT
- PROPOSED CROSSPAN

60 0 60 120
(IN FEET)
1 inch = 60 ft.

REPEAT COMMENT:
Show overflow paths for all sump inlets. Use these arrows to show where flows go in the case the sump inlet is clogged. This is standard practiced on drainage maps.

This hatch and the existing storm are the same shade so the storm is not visible. please adjust the shade so that the storm is slightly darker than the hatch.





KEY MAP
SCALE: 1"=500'

811 Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 SOUTH SYRACUSE WAY, SUITE 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

CLIENT
COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

COHEN DENVER AIRPORT, LLC
LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
DRAINAGE PLAN
PROPOSED CONDITION

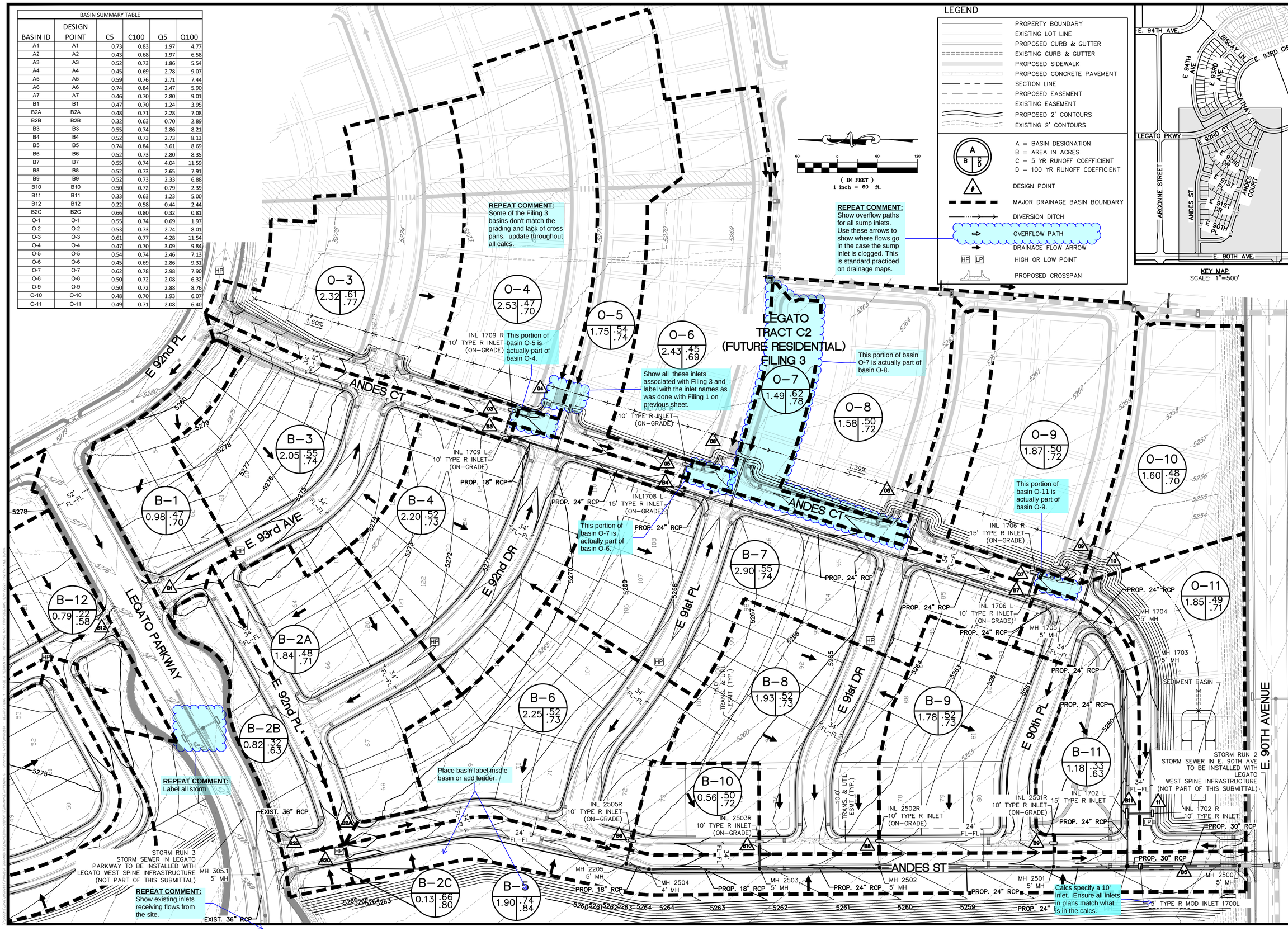
DATE 6/14/2021

REVISIONS		
A	1st SUBMITTAL TO COMMERCE CITY	08/15/2020 – DJM
B	2nd SUBMITTAL TO COMMERCE CITY	03/22/2021 – DJM
C	3rd SUBMITTAL TO COMMERCE CITY	06/11/2021 – DJM

DR. MDC CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 1

CAD FILE: 19002561 – LEGATO FILING 4 –PHASE 3 RESIDENTIAL – DRAINAGE MAP PROPOSED.DWG

BASIN SUMMARY TABLE					
BASIN ID	DESIGN POINT	C5	C100	Q5	Q100
A1	A1	0.73	0.83	1.97	4.77
A2	A2	0.43	0.68	1.97	6.58
A3	A3	0.52	0.73	1.86	5.54
A4	A4	0.45	0.69	2.78	9.07
A5	A5	0.59	0.76	2.71	7.44
A6	A6	0.74	0.84	2.47	5.90
A7	A7	0.46	0.70	2.80	9.01
B1	B1	0.47	0.70	1.24	3.95
B2A	B2A	0.48	0.71	2.28	7.08
B2B	B2B	0.32	0.63	0.70	2.89
B3	B3	0.55	0.74	2.86	8.21
B4	B4	0.52	0.73	2.73	8.13
B5	B5	0.74	0.84	3.61	8.69
B6	B6	0.52	0.73	2.80	8.35
B7	B7	0.55	0.74	4.04	11.59
B8	B8	0.52	0.73	2.65	7.91
B9	B9	0.52	0.73	2.33	6.88
B10	B10	0.50	0.72	0.79	2.39
B11	B11	0.33	0.63	1.23	5.00
B12	B12	0.22	0.58	0.44	2.44
B2C	B2C	0.66	0.80	0.32	0.81
O-1	O-1	0.55	0.74	0.69	1.97
O-2	O-2	0.53	0.73	2.74	8.01
O-3	O-3	0.61	0.77	4.28	11.54
O-4	O-4	0.47	0.70	3.09	9.84
O-5	O-5	0.54	0.74	2.46	7.13
O-6	O-6	0.45	0.69	2.86	9.31
O-7	O-7	0.62	0.78	2.98	7.90
O-8	O-8	0.50	0.72	2.08	6.32
O-9	O-9	0.50	0.72	2.88	8.76
O-10	O-10	0.48	0.70	1.93	6.07
O-11	O-11	0.49	0.71	2.08	6.40



Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL, LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL, LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 S. QUEBEC STREET, SUITE 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

CLIENT
COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

COHEN DENVER AIRPORT, LLC
LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
DRAINAGE PLAN
PROPOSED CONDITION

DATE 6/14/2021

REVISIONS		
A	1st SUBMITTAL TO COMMERCE CITY	08/13/2020 — DJM
B	2nd SUBMITTAL TO COMMERCE CITY	03/22/2021 — DJM
C	3rd SUBMITTAL TO COMMERCE CITY	06/11/2021 — DJM

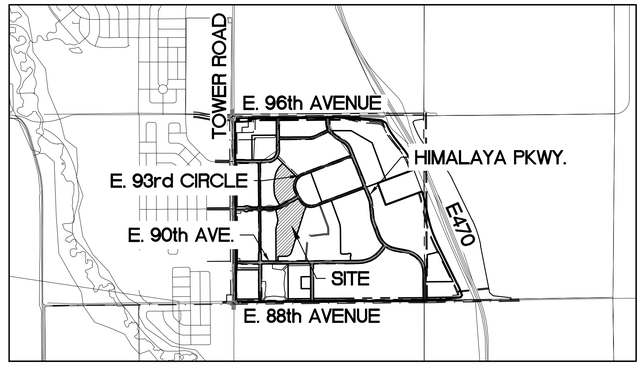
DR. MDC CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 1

CAD FILE: 19002561 – LEGATO FILING 4 –PHASE 3 RESIDENTIAL – DRAINAGE MAP PROPOSED.DWG

LEGATO FILING NO. 2

LOCATED IN SECTION 22, TOWNSHIP 2 SOUTH,
RANGE 66 WEST OF THE SIXTH PRINCIPAL MERIDIAN,
CITY OF COMMERCE CITY, COUNTY OF ADAMS, STATE OF COLORADO

GRADING, EROSION, & SEDIMENT CONTROL PLANS



VICINITY MAP
SCALE 1"=2000'

OWNER:
COHEN DENVER AIRPORT, LLC.
2600 PASEO VERDE PARKWAY.
SUITE 250.
HENDERSON, NV 89074
(720) 355–1400
CONTACT: BRAD BURNS

CIVIL ENGINEER:
ATWELL, LLC.
6200 SOUTH SYRACUSE WAY.
SUITE 470.
GREENWOOD VILLAGE, CO 80111.
(303) 928–6757
CONTACT: DANIEL MADRUGA

SURVEYOR:
ATWELL, LLC.
143 UNION BLVD.
SUITE 700.
LAKEWOOD, CO 80228.
(303) 928–6748
CONTACT: MICHAEL POOL

LANDSCAPE ARCHITECT/PLANNER:
HENRY DESIGN GROUP
1501 WAZEE STREET.
SUITE 1–C.
DENVER, CO 80202
(303) 446–2368
CONTACT: KAREN HENRY

CITY OF COMMERCE CITY:
8602 ROSEMARY ST
COMMERCE CITY, CO 80228
(303) 286–4874
CONTACT: STACY WASINGER

SOUTH ADAMS COUNTY WATER & SANITATION DISTRICT (SACWSD):
6595 E. 70TH AVE.
COMMERCE CITY, CO 80022
(720) 206–0593
CONTACT: JEFF NELSON

UNITED POWER (ELEC):
500 COOPERATIVE WAY.
BRIGHTON, CO 80603
(303) 637–1300

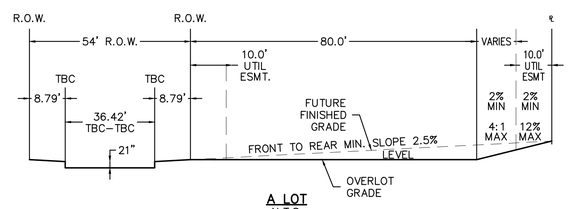
XCEL ENERGY (GAS):
1800 LARIMER ST.
DENVER, CO 80202
(303) 571–7511

LEGEND

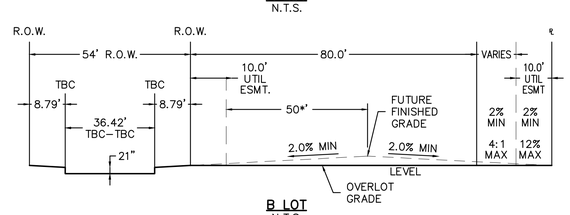
- PROPERTY BOUNDARY LINE
- PROPOSED FIRE HYDRANT
- PROPOSED STORM SEWER AND INLET
- PROPOSED PEDESTRIAN RAMP
- PROPOSED SIDEWALK
- PROPOSED CURB & GUTTER
- PROPOSED RIGHT OF WAY
- PROPOSED 8' CROSSPAN
- EXISTING CONTOURS
- PROPOSED 1' OVERLOT CONTOUR
- PROPOSED 5' OVERLOT CONTOUR
- ×40.15 PROP. FINISH GRADE SPOT ELEV.
- PROPOSED FLOW DIRECTION

GRADING AND EROSION CONTROL LEGEND

- CWA CONCRETE WASHOUT AREA
- CF CONSTRUCTION FENCE
- DD DIVERSION DITCH
- ECB EROSION CONTROL BLANKET
- IP INLET PROTECTION
- RRB REINFORCED ROCK BERM
- RRC RRB FOR CULVERT PROTECTION
- SB SEDIMENT BASIN
- SM SEEDING AND MULCHING
- SF SILT FENCE
- SSA STABILIZED STAGING AREA
- VTC VEHICLE TRACKING CONTROL
- LOC LIMITS OF CONSTRUCTION



A LOT
N.T.S.



B LOT
N.T.S.

TYPICAL LOT TEMPLATES

THESE ARE PROVIDED FOR GENERAL LOT GRADING CONCEPT. DETAILED PLOT PLANS WILL BE PREPARED BY THE BUILDER FOR SPECIFIC LOT GRADING AND CONSTRUCTION PURPOSES.

SHEET INDEX

SHEET NUMBER	SHEET TITLE
1	COVER SHEET
2	NOTES
3	OVERALL SITE PLAN
4	GESC INITIAL PLAN 01
5	GESC INITIAL PLAN 02
6	GESC INTERIM PLAN 01
7	GESC INTERIM PLAN 02
8	GESC FINAL PLAN 01
9	GESC FINAL PLAN 02
10	GESC DETAILS 01
11	GESC DETAILS 02
12	GESC DETAILS 03

BENCHMARK:
#5 REBAR WITH 2" ALUMINUM CAP.
N=1,194,345.18 E=3,208,552.02 ELEV=5295.09 (NAVD 88)

BASIS OF BEARING:
BEARINGS ARE BASED ON THE NORTH LINE OF THE NORTHWEST QUARTER OF SECTION 22, TOWNSHIP 2 SOUTH, RANGE 66 WEST OF THE SIXTH PRINCIPAL MERIDIAN, BEING MONUMENTED AT THE WEST END BY A FOUND 2–1/2" ALUMINUM CAP IN RANGE BOX STAMPED "ISI 2018 PLS 29425" AND AT THE EAST END BY A FOUND 2" ALUMINUM CAP STAMPED "WESTED STATES SURVEYING INC. 1994 PLS 24960". SAID NORTH LINE BEARS N89°35'58" EAST, WITH ALL BEARINGS CONTAINED HEREIN RELATIVE THERETO.

ENGINEER'S STATEMENT

THE EROSION AND SEDIMENT CONTROL PLAN INCLUDED HEREIN HAS BEEN PREPARED UNDER MY DIRECT SUPERVISION IN ACCORDANCE WITH THE REQUIREMENTS OF CHAPTER 8 OF THE CITY OF COMMERCE CITY ENGINEERING CONSTRUCTION STANDARDS AND SPECIFICATIONS MANUAL.

DANIEL J. MADRUGA, P.E.
COLORADO NO. 36834
FOR AND ON BEHALF OF ATWELL, LLC.

DATE

811 Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 SOUTH SYRACUSE WAY, SUITE 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355–1400
BRAD BURNS

CLIENT: COHEN DENVER AIRPORT, LLC

LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
GRADING, EROSION, & SED. CONTROL PLANS
COVER SHEET

DATE 6/14/2021

A	1ST SUBMITTAL TO COMMERCE CITY	08/14/2020 – DJM
B	2ND SUBMITTAL TO COMMERCE CITY	03/18/2021 – DJM
C	3RD SUBMITTAL TO COMMERCE CITY	06/21/2021 – DJM

REVISIONS

PLANS UNDER REVIEW NOT FOR CONSTRUCTION

DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 1

CAD FILE: 19002561-GESC-COVER.DWG

RECEIVING WATER NOTE:

1. RECEIVING WATERS OF STATE ARE SECOND CREEK.

SWMP PERMIT COVERAGE NOTES:

1. THE OWNER/CONTRACTOR IS RESPONSIBLE FOR OBTAINING A PERMIT FROM CDPHE AT LEAST 10 CALENDAR DAYS PRIOR TO THE COMMENCEMENT OF CONSTRUCTION ACTIVITIES FOR ANY EARTH DISTURBANCE OF ONE (1) OR GREATER THAN ONE (1) ACRE. THE OWNER/CONTRACTOR SHALL PROVIDE THE CITY WITH A COPY OF PERMIT PRIOR TO RECEIVING A GRADING/CONSTRUCTION PERMIT. THE OWNER/CONTRACTOR IS RESPONSIBLE FOR ALL FEES ASSOCIATED WITH THE PERMIT.

2. IF THE OWNER/CONTRACTOR TRANSFERS RESPONSIBILITY FOR STORMWATER DISCHARGES TO ANOTHER ENTITY, A NOTICE OF TRANSFER AND ACCEPTANCE OF TERMS FORM SHALL BE SUBMITTED TO CDPHE AND A COPY TO THE CITY.

3. IF THE OWNER/CONTRACTOR NO LONGER HAS CONTROL OF A SPECIFIC PORTION OF A PERMITTED SITE AND WISHES TO TRANSFER COVERAGE OF THAT PORTION OF SITE TO ANOTHER, THE OWNER/CONTRACTOR SHALL SUBMIT A NOTICE OF REASSIGNMENT OF PERMIT COVERAGE FORM TO THE CDPHE AND A COPY TO THE CITY.

4. THE OWNER/CONTRACTOR IS RESPONSIBLE FOR SUBMITTING AN INACTIVATION NOTICE FORM TO CDPHE WHEN THE SITE HAS BEEN FINALLY STABILIZED IN ACCORDANCE WITH THE A COPY OF THE INACTIVATION NOTICE SHALL ALSO BE SUBMITTED TO THE CITY.

SWMP GENERAL NOTES:

1. BMP'S SHALL BE INSTALLED BEFORE ANY EARTH DISTURBING ACTIVITIES COMMENCE.

2. STORMWATER DISCHARGES FROM CONSTRUCTION ACTIVITIES SHALL NOT CAUSE, HAVE THE REASONABLE POTENTIAL TO CAUSE, OR MEASURABLY CONTRIBUTE TO AN EXCEEDANCE OF ANY WATER QUALITY STANDARD.

3. CONSTRUCTION SHALL BE PHASED IN A MANNER TO LIMIT EARTH DISTURBING ACTIVITIES (I.E. THE ENTIRE PROJECT SITE SHOULD NOT BE DISTURBED IF CONSTRUCTION WILL ONLY BE OCCURRING IN ONE PARTICULAR SECTION).

4. SEDIMENT CAUSED BY ACCELERATED SOIL EROSION SHALL BE REMOVED FROM RUNOFF WATER BEFORE IT LEAVES THE CONSTRUCTION SITE.

5. BULK STORAGE STRUCTURES FOR PETROLEUM PRODUCTS AND ANY OTHER CHEMICALS SHALL HAVE SECONDARY CONTAINMENT OR EQUIVALENT PROTECTION TO CONTAIN ALL SPILLS AND PREVENT ANY SPILLED MATERIAL FROM ENTERING STATE WATERS.

6. A COPY OF THE SWMP AND SITE MAPS MUST BE AVAILABLE AT ALL TIMES ON THE CONSTRUCTION SITE UNLESS OTHERWISE APPROVED BY CDPHE OR THE CITY.

7. THE SWMP AND SITE MAPS SHALL BE CONTINUOUSLY UPDATED TO REFLECT NEW OR REVISED BEST MANAGEMENT PRACTICES (BMP'S) DUE TO CHANGES IN DESIGN, CONSTRUCTION, OPERATION, OR MAINTENANCE OF THE CONSTRUCTION SITE. UPDATES MUST BE MADE WITHIN 72 HOURS FOLLOWING THE CHANGE IN BMP'S.

8. THE OWNER/CONTRACTOR SHALL INSPECT THE CONSTRUCTION SITE (INCLUDING ALL BMP'S, STORAGE CONTAINERS, AND CONSTRUCTION EQUIPMENT) A MINIMUM OF EVERY 14 CALENDAR DAYS AND WITHIN 24 HOURS AFTER A PRECIPITATION EVENT OR SNOW MELT THAT CAUSE SURFACE EROSION. INSPECTIONS SHALL CONTINUE UNTIL AN INACTIVATION NOTICE IS FILED WITH CDPHE.

9. THE OWNER/CONTRACTOR SHALL KEEP A RECORD OF ALL INSPECTIONS ON SITE AND AVAILABLE FOR REVIEW BY CDPHE OR CITY STAFF. INSPECTION REPORTS MUST IDENTIFY ANY INCIDENTS OF NON-COMPLIANCE WITH THE TERMS AND CONDITIONS OF THE PERMIT. BMP'S REQUIRING MAINTENANCE OR ADJUSTMENT SHALL BE REPAIRED IMMEDIATELY AFTER OBSERVATION OF THE FAILING BMP.

10. FOR ALL INSTANCES OF NONCOMPLIANCE BASED ON ENVIRONMENTAL HAZARDS AND CHEMICAL SPILLS AND RELEASES, ALL NEEDED INFORMATION MUST BE PROVIDED ORALLY TO CDPHE SPILL REPORTING LINE (24-HOUR NUMBER FOR ENVIRONMENTAL HAZARDS AND CHEMICAL SPILLS AND RELEASES: 1-877-518-5608) WITHIN 24 HOURS FROM THE TIME THE OWNER/CONTRACTOR COMES AWARE OF THE CIRCUMSTANCES.

11. STRAW BALES SHALL NOT BE USED FOR PRIMARY EROSION OR SEDIMENT CONTROL (I.E. STRAW BALES MAY BE USED FOR REINFORCEMENT BEHIND ANOTHER BMP SUCH AS SILT FENCE).

12. BMP'S INTENDED FOR SHEET FLOW SEDIMENT RUNOFF SHALL BE PLACED PARALLEL TO THE SLOPE.

13. ALL BMP'S SHALL BE CLEANED WHEN SEDIMENT LEVELS ACCUMULATE TO HALF THE DESIGN OF THE BMP UNLESS OTHERWISE SPECIFIED.

14. A VEHICLE TRACKING PAD (VTP) SHALL BE PLACED AT ALL EXITS FROM THE SITE TO PREVENT TRACK-OUT ONTO CITY STREETS. IF TRACK-OUT DOES OCCUR, THE OWNER/CONTRACTOR SHALL IMMEDIATELY SWEEP THE STREET OF DEBRIS. RECYCLED CRUSHED CONCRETE OR ASPHALT SHALL NOT BE USED FOR VEHICLE TRACKING PADS.

16. ALL SEDIMENT COLLECTED IN BMP'S SHALL BE REMOVED UPON INITIAL ACCEPTANCE.

15. PERMANENT EROSION CONTROL MEASURES FOR SLOPES, CHANNELS, DITCHES, OR ANY DISTURBED LAND AREA SHALL BE COMPLETED WITHIN 14 CALENDAR DAYS AFTER FINAL GRADING OR THE FINAL EARTH DISTURBANCE HAS BEEN COMPLETED. WHEN IT IS NOT POSSIBLE TO PERMANENTLY STABILIZE A DISTURBED AREA AFTER AN EARTH DISTURBANCE HAS BEEN COMPLETED OR WHERE SIGNIFICANT EARTH DISTURBANCE ACTIVITY CEASES, TEMPORARY SOIL EROSION CONTROL MEASURES SHALL BE IMPLEMENTED WITHIN 14 CALENDAR DAYS. TEMPORARY EROSION CONTROL MEASURES SHALL BE MAINTAINED UNTIL PERMANENT SOIL EROSION MEASURES ARE IMPLEMENTED.

16. FINAL STABILIZATION HAS BEEN ACHIEVED WHEN ALL EARTH DISTURBING ACTIVITIES AT THE SITE HAVE BEEN COMPLETED, AND UNIFORM VEGETATIVE COVER HAS BEEN ESTABLISHED WITH AN INDIVIDUAL PLANT DENSITY OF AT LEAST 70 PERCENT OF PRE-DISTURBANCE LEVELS, OR EQUIVALENT PERMANENT, PHYSICAL EROSION REDUCTION METHODS HAVE BEEN EMPLOYED.

17. ALL TEMPORARY BMP'S SHALL BE REMOVED FROM THE SITE UPON SUBMITTING THE INACTIVATION NOTICE.

18. ALL SITE WASTES (INCLUDING TRASH AND BUILDING MATERIALS) MUST BE PROPERLY MANAGED TO PREVENT POTENTIAL POLLUTION OF STATE WATERS.

19. STREET REPAIR OPERATIONS SUCH AS ROTOR MILLING, SLURRY SEAL AND CHIP SEAL. THE MINIMUM BMPS REQUIRED ARE; INLET PROTECTION, CURB SOCKS AND STREET SWEEPING.

GENERAL NOTES:

1. ALL MATERIALS AND WORKMANSHIP SHALL BE IN CONFORMANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF THE APPROPRIATE GOVERNING AGENCY. THE CONTRACTOR SHALL HAVE IN HIS POSSESSION AT THE JOB SITE AT ALL TIMES ONE (1) SIGNED COPY OF THE PLANS. STANDARDS, AND SPECIFICATIONS AS APPROVED BY THE APPROPRIATE GOVERNING AGENCY. THE CONTRACTOR SHALL OBTAIN WRITTEN APPROVAL FOR ANY VARIANCE TO THE ABOVE DOCUMENTS.

2. CONTRACTOR SHALL OBTAIN, AT HIS OWN EXPENSE, ALL APPLICABLE CODES, LICENSES. STANDARDS, SPECIFICATIONS. PERMITS, BONDS, ETC., WHICH ARE NECESSARY TO PERFORM THE PROPOSED WORK.

3. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE OWNER/DEVELOPER AND ENGINEER OF ANY PROBLEM IN CONFORMING TO THE APPROVED PLANS FOR ANY ELEMENT OF THE PROPOSED IMPROVEMENTS PRIOR TO ITS CONSTRUCTION.

4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING THE APPROPRIATE GOVERNING AGENCIES AT LEAST 48 HOURS PRIOR TO START OF ANY CONSTRUCTION. IF WORK IS SUSPENDED FOR ANY PERIOD OF TIME AFTER INITIAL START-UP. THE CONTRACTOR SHALL NOTIFY THE APPROPRIATE GOVERNMENT AGENCIES 48 HOURS PRIOR TO RESTART.

5. ALL KNOWN EXISTING UTILITIES ARE SHOWN IN APPROXIMATE LOCATIONS ON THE PLANS. THE ACTUAL LOCATION MAY VARY FROM THE PLANS, ESPECIALLY IN THE CASE OF UNDERGROUND UTILITIES. WHENEVER THE CONTRACTOR DISCOVERS A DISCREPANCY IN LOCATIONS, HE SHALL CONTACT THE ENGINEER IMMEDIATELY.

6. THE CONTRACTOR SHALL REPAIR ANY EXCAVATIONS OR PAVEMENT FAILURES CAUSED BY HIS CONSTRUCTION.

7. PRIOR TO BEGINNING THE WORK, THE CONTRACTOR SHALL OBTAIN ANY WRITTEN AGREEMENTS FOR INGRESS AND EGRESS TO THE WORK FROM ADJACENT PRIVATE PROPERTY OWNERS. ACCESS TO ANY ADJACENT PRIVATE PROPERTY SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD.

8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL AND REPLACEMENT OF ALL MATERIALS WITHIN DEDICATED RIGHT-OF-WAYS AND ALL MATERIALS AND WORKMANSHIP SHALL MEET THE ROADWAY DESIGN AND CONSTRUCTION STANDARDS OF THE APPROPRIATE GOVERNING AGENCY.

GRADING GENERAL NOTES:

1. GRADING PLAN IS FOR ROUGH GRADING ONLY. CHANGES MAY BE NECESSARY TO BRING PLANS INTO CONFORMANCE WITH APPROVED DRAINAGE AND SITE PLAN.

2. A WATER TRUCK SHALL BE KEPT ON-SITE TO CONTROL WIND EROSION AND DUST.

3. ANY SETTLEMENT OR SOIL ACCUMULATIONS BEYOND THE PROPERTY LIMITS DUE TO GRADING OR EROSION SHALL BE REPARIED IMMEDIATELY BY THE CONTRACTOR.

4. NO GRADING SHALL TAKE PLACE IN ANY DELINEATED FLOOD HAZARD AREA UNTIL THE FINAL DRAINAGE PLAN HAS BEEN APPROVED AND ALL APPROPRIATE PERMITS HAVE BEEN OBTAINED.

5. ANY CONSTRUCTION DEBRIS OR MUD TRACKING IN THE PUBLIC RIGHT-OF-WAY RESULTING FROM THIS DEVELOPMENT WILL BE REMOVED IMMEDIATELY BY THE CONTRACTOR. UPON WRITTEN NOTICE BY THE CITY, FAILURE TO REMOVE THE MUD OR DEBRIS BY THE CONTRACTOR WITHIN 24 HOURS SHALL CAUSE THE CITY TO STOP ALL WORK UNTIL THE SITUATION IS RESOLVED.

6. WHEN REQUIRED, A COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT (CDPHE), WATER QUALITY DIVISION, STORMWATER DISCHARGE PERMIT SHALL BE OBTAINED AND A COPY SHALL BE SUBMITTED TO THE CITY OF COMMERCE CITY DEPARTMENT OF PUBLIC WORKS.

7. AREAS DISTURBED BY GRADING SHALL BE MULCHED AND RESEEDED WITH NATIVE VEGETATION OR AS APPROVED ON THE PLAN.

8. THE CONTRACTOR SHALL BE SOLELY AND COMPLETELY RESPONSIBLE FOR SAFETY CONDITIONS ON AND ADJACENT TO THE SITE 24 HOURS A DAY, SEVEN DAYS A WEEK.

9. CONTRACTOR SHALL CONTACT UTILITY NOTIFICATION CENTER FOR THE LOCATION OF UNDERGROUND UTILITIES AT LEAST 48 HOURS PRIOR TO COMMENCEMENT OF CONSTRUCTION. (811 or 1-800-922-1987)

10. THE CITY ENGINEER'S SIGNATURE AFFIXED TO THIS DOCUMENT INDICATES THE CITY OF COMMERCE CITY PUBLIC WORKS DEPARTMENT, ENGINEERING DIVISION, HAS REVIEWED THE DOCUMENT AND FOUND IT IN GENERAL COMPLIANCE WITH THE CITY'S STORMWATER QUALITY CONTROL CRITERIA. THE CITY ENGINEER, THROUGH ACCEPTANCE OF THIS DOCUMENT, ASSUMES NO RESPONSIBILITY (OTHER THAN AS STATED ABOVE) FOR THE COMPLETENESS AND/OR ACCURACY OF THESE DOCUMENTS.

11. THE ADEQUACY OF THIS ESC PLAN LIES WITH THE ORIGINAL DESIGN ENGINEER.

12. ALL MATERIALS AND WORKMANSHIP SHALL BE SUBJECT TO INSPECTION BY THE COMMERCE CITY RESERVES THE RIGHT TO ACCEPT OR REJECT ANY SUCH MATERIALS AND WORKMANSHIP THAT DOES NOT CONFORM TO THE APPROVED PLANS.

13. THE PLACEMENT OF EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICES (BMP'S) SHALL BE IN ACCORDANCE WITH THE CITY APPROVED PLANS.

14. ANY VARIATION IN MATERIAL, TYPE OR LOCATION OF EROSION AND SEDIMENT CONTROL BMP's FROM THE CITY APPROVED PLANS WILL REQUIRE APPROVAL FROM AN ACCOUNTABLE REPRESENTATIVE OF THE CITY OF COMMERCE CITY ENGINEERING DIVISION.

15. AFTER THE ESC PLAN HAS BEEN APPROVED, THE CONTRACTOR MAY INSTALL THE INITIAL-STAGE EROSION AND SEDIMENT CONTROL BMPS INDICATED ON THE ACCEPTED ESC PLAN.

16. THE FIRST BMP TO BE INSTALLED ON THE SITE SHALL BE CONSTRUCTION FENCE, MARKERS, OR OTHER APPROVED MEANS OF DEFINING THE LIMITS OF CONSTRUCTION, INCLUDING CONSTRUCTION LIMITS ADJACENT TO STREAM CORRIDORS AND OTHER AREAS TO BE PRESERVED.

17. AFTER INSTALLATION OF THE INITIAL-STAGE EROSION AND SEDIMENT CONTROL BMP'S, THE PERMITTEE SHALL CALL THE PUBLIC WORKS AT 303-289-8150 TO SCHEDULE A PRECONSTRUCTION MEETING AT THE PROJECT SITE. THE REQUEST SHALL BE MADE A MINIMUM OF THREE BUSINESS DAYS PRIOR TO THE REQUESTED MEETING TIME. NO CONSTRUCTION ACTIVITIES SHALL BE PLANNED WITHIN 24 HOURS AFTER THE PRECONSTRUCTION MEETING.

18. THE ESC MANAGER SHALL BE CERTIFIED IN STORMWATER MANAGEMENT AND EROSION CONTROL AND DOCUMENTATION SHALL BE PROVIDED TO THE CITY.

19. THE OWNER OR OWNER'S REPRESENTATIVE, THE ESC MANAGER, THE GENERAL CONTRACTOR, AND THE GRADING SUBCONTRACTOR, IF DIFFERENT FROM THE GENERAL CONTRACTOR, MUST ATTEND THE PRECONSTRUCTION MEETING. IF ANY OF THE REQUIRED PARTICIPANTS FAIL TO ATTEND THE PRECONSTRUCTION MEETING, OR IF THE INSTALLATION OF THE INITIAL BMP's ARE NOT APPROVED BY THE CITY ESC INSPECTOR, THE APPLICANT WILL HAVE TO PAY A REINSPECTION FEE, ADDRESS ANY PROBLEMS WITH BMP INSTALLATION, AND CALL TO RESCHEDULE THE MEETING, WITH A CORRESPONDING DELAY IN THE START OF CONSTRUCTION. THE CITY STRONGLY ENCOURAGES THE APPLICANT TO HAVE THE ENGINEER OF RECORD AT THE PRECONSTRUCTION MEETING.

GRADING GENERAL NOTES:

20. CONSTRUCTION SHALL NOT BEGIN UNTIL THE CITY ESC INSPECTOR APPROVES THE INSTALLATION OF THE INITIAL BMP'S AND THE GRADING PERMIT IS OBTAINED FROM PUBLIC WORKS.

21. THE ESC MANAGER SHALL STRICTLY ADHERE TO THE APPROVED LIMITS OF CONSTRUCTION AT ALL TIMES. THE CITY OF COMMERCE CITY ENGINEERING DIVISION MUST APPROVE ANY CHANGES TO THE LIMITS OF CONSTRUCTION AND, AT THE DISCRETION OF THE ENGINEERING DIVISION, ADDITIONAL EROSION/SEDIMENT CONTROLS MAY BE REQUIRED IN ANY ADDITIONAL AREAS OF CONSTRUCTION.

22. NATURAL VEGETATION SHALL BE RETAINED AND PROTECTED WHEREVER POSSIBLE. EXPOSURE OF SOIL TO EROSION BY REMOVAL OR DISTURBANCE OF VEGETATION SHALL BE LIMITED TO THE AREA REQUIRED FOR IMMEDIATE CONSTRUCTION OPERATIONS.

23. A COPY OF THE GRADING PERMIT AND APPROVED PLANS SHALL BE ON SITE AT ALL TIMES.

24. THE ESC MANAGER SHALL BE RESPONSIBLE FOR ENSURING THAT THE SITE REMAINS IN COMPLIANCE AND SHALL BE THE PERMITTEE'S CONTACT PERSON WITH THE CITY FOR ALL MATTERS PERTAINING TO THE GRADING PERMIT. THE ESC MANAGER SHALL BE PRESENT AT THE SITE THE MAJORITY OF THE TIME AND SHALL BE AVAILABLE THROUGH A 24-HOUR CONTACT NUMBER.

25. THE ESC MANAGER IS RESPONSIBLE FOR CLEANUP OF SEDIMENT OR CONSTRUCTION DEBRIS TRACKED ONTO ADJACENT PAVED AREAS. PAVED AREAS, INCLUDING STREETS, ARE TO BE KEPT CLEAN THROUGHOUT BUILD-OUT AND SHALL BE CLEANED WITH A STREET SWEEPER OR SIMILAR DEVICE AT FIRST NOTICE OF ACCIDENTAL TRACKING OR AT THE DISCRETION OF THE CITY'S ESC INSPECTOR. STREET WASHING IS NOT ALLOWED. THE CITY RESERVES THE RIGHT TO REQUIRE ADDITIONAL MEASURES TO ENSURE AREA STREETS ARE KEPT FREE OF SEDIMENT AND/OR CONSTRUCTION DEBRIS.

26. THE APPROVED PLANS MAY REQUIRE CHANGES OR ALTERATIONS AFTER APPROVAL TO MEET CHANGING SITE OR PROJECT CONDITIONS OR TO ADDRESS INEFFICIENCIES IN DESIGN OR INSTALLATION. ALL CONSTRUCTION TRAFFIC MUST ENTER/EXIT THE SITE THROUGH THE CITY APPROVED ACCESS POINTS. A VEHICLE TRACKING CONTROL PAD IS REQUIRED AT ALL ACCESS POINTS ON THE ADDITIONAL STABILIZED CONSTRUCTION ENTRANCES MAY BE ADDED WITH AUTHORIZATION FROM THE COMMERCE CITY ENGINEERING DIVISION.

27. THE ESC MANAGER SHALL OBTAIN PRIOR APPROVAL FROM THE DESIGN ENGINEER AND COMMERCE CITY ENGINEERING DIVISION FOR ANY PROPOSED CHANGES.

28. NO PERMANENT EARTH SLOPES GREATER THAN 3:1 SHALL BE ALLOWED.

29. ANY SETTLEMENT OR SOIL ACCUMULATIONS BEYOND THE LIMITS OF CONSTRUCTION DUE TO GRADING OR EROSION SHALL BE REPAIRED IMMEDIATELY BY THE ESC MANAGER. THE ESC MANAGER SHALL BE HELD RESPONSIBLE FOR OBTAINING ACCESS RIGHTS TO ADJACENT PROPERTY, IF NEEDED, AND REMEDIATING ANY ADVERSE IMPACTS TO ADJACENT WATERWAYS, WETLANDS, PROPERTIES, ETC. RESULTING FROM WORK DONE AS PART OF THIS PROJECT.

30. SOILS THAT WILL BE STOCKPILED FOR MORE THAN THIRTY (30) DAYS SHALL BE SEEDED AND MULCHED WITHIN FOURTEEN (14) DAYS OF STOCKPILE CONSTRUCTION. NO STOCKPILES SHALL BE PLACED WITHIN ONE HUNDRED (100) FEET OF A DRAINAGE WAY UNLESS APPROVED BY THE COMMERCE CITY ENGINEERING DIVISION.

31. ALL CHEMICAL OR HAZARDOUS MATERIAL SPILLS WHICH MAY ENTER WATERS OF THE STATE OF COLORADO, WHICH INCLUDE BUT ARE NOT LIMITED TO, SURFACE WATER, GROUND WATER AND DRY GULLIES OR STORM SEWER LEADING TO SURFACE WATER, SHALL BE IMMEDIATELY REPORTED TO THE CDPHE PER CRS 25-8-601, AND COMMERCE CITY. RELEASES OF PETROLEUM PRODUCTS AND CERTAIN HAZARDOUS SUBSTANCES LISTED UNDER THE FEDERAL CLEAN WATER ACT (40 CFR PART 116) MUST BE REPORTED TO THE NATIONAL RESPONSE CENTER, SOUTH ADAMS COUNTY WATER AND SANITATION DISTRICT AS WELL AS THE CDPHE. SPILLS THAT POSE AN IMMEDIATE RISK TO HUMAN LIFE SHALL BE REPORTED TO 911. FAILURE TO REPORT AND CLEAN UP ANY SPILL SHALL RESULT IN ISSUANCE OF A STOP WORK ORDER.

32. THE CLEANING OF CONCRETE DELIVERY TRUCK CHUTES IS RESTRICTED TO APPROVED CONCRETE WASH OUT LOCATIONS ON THE JOB SITE. THE DISCHARGE OF WATER CONTAINING WASTE CONCRETE TO THE STORM SEWER SYSTEM IS PROHIBITED. ALL CONCRETE WASTE SHALL BE PROPERLY CLEANED UP AND DISPOSED AT AN APPROPRIATE LOCATION.

33. COMMERCE CITY DOES NOT ALLOW HAY BALES AS A FORM OF EROSION AND SEDIMENT CONTROL.

34. ONCE THE SITE HAS REACHED FINAL STABILIZATION, A FINAL INSPECTION SHALL BE SCHEDULED WITH THE CITY'S ESC INSPECTOR. A CERTIFICATE OF OCCUPANCY WILL NOT BE ISSUED AND/OR THE GRADING BOND WILL NOT BE RELEASED UNTIL THE CITY'S ESC INSPECTOR APPROVES FINAL STABILIZATION

35. AREA OF DISTURBANCE: 37.3 ACRES. LIMITS OF CONSTRUCTION: 49.9 ACRES.

36. SEE EROSION AND SEDIMENT CONTROL (ESC) GENERAL NOTES ON SHEET 10.

37. SEE ESC DETAILS ON SHEETS 10-12.

811 Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 SOUTH QUEBEC STREET, SUITE 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

CLIENT
COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

COHEN DENVER AIRPORT, LLC
LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
GRADING, EROSION, & SED. CONTROL PLANS
GENERAL NOTES

DATE 6/14/2021

A	1st SUBMITTAL TO COMMERCE CITY	08/14/2020 - DJM
B	2ND SUBMITTAL TO COMMERCE CITY	03/18/2021 - DJM
C	3RD SUBMITTAL TO COMMERCE CITY	06/11/2021 - DJM

REVISIONS

PLANS UNDER REVIEW NOT FOR CONSTRUCTION

DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 2

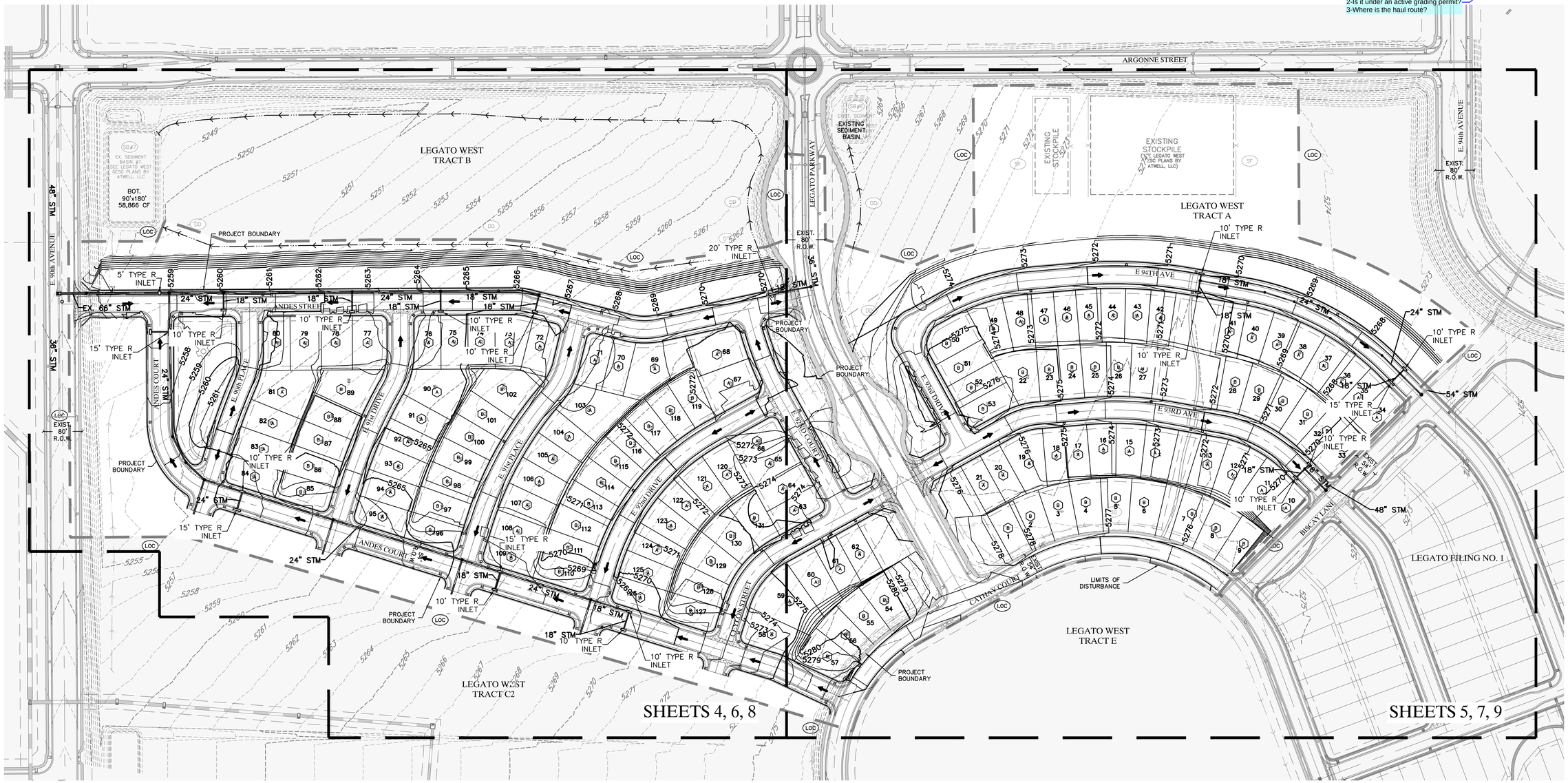
CAD FILE: 19002561-GESC-COVER.DWG

EARTHWORK VOLUMES

DISTURBED AREA	TOPSOIL CUT VOLUME*	CUT VOLUME	FILL VOLUME	NET VOLUME (UNADJUSTED)
1,624,209 S.F.	30,077 Cu.Yd.	48,948 Cu.Yd.	173,390 Cu.Yd.	124,442 Cu.Yd. SHORT

* TOPSOIL VOLUME ASSUMES 6 INCHES OF CLEARING AND GRUBBING WITHIN DISTURBED GRADING AREA

1-Where is this dirt coming from?
2-Is it under an active grading permit?
3-Where is the haul route?



LEGEND

— — — —	PROPERTY BOUNDARY LINE
×40.15	PROP. OVERLOT GRADE SPOT ELEV.
×40.15	EXIST. OVERLOT GRADE SPOT ELEV.
———	PROPOSED LOT LINE
(A)	IDENTIFIES LOT A.
(B)	IDENTIFIES LOT B.
(T)	TRANSITION LOT
	EXISTING CONTOURS
	PROPOSED CONTOURS
	DRAINAGE FLOW ARROWS

CWA	CONCRETE WASHOUT AREA
CF	CONSTRUCTION FENCE
DD	DIVERSION DITCH
ECB	EROSION CONTROL BLANKET
IP	INLET PROTECTION
RRB	REINFORCED ROCK BERM
RRC	RRB FOR CULVERT PROTECTION
SB	SEDIMENT BASIN
SM	SEEDING AND MULCHING
SF	SILT FENCE
SSA	STABILIZED STAGING AREA
VTC	VEHICLE TRACKING CONTROL
LOC	LIMITS OF CONSTRUCTION

(IN FEET)
1 inch = 80 ft.

811 Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 S. QUEBEC STREET, SUITE 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

CLIENT
COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

COHEN DENVER AIRPORT, LLC
LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
GRADING, EROSION, & SED. CONTROL PLANS
OVERALL SITE PLAN

DATE 6/14/2021

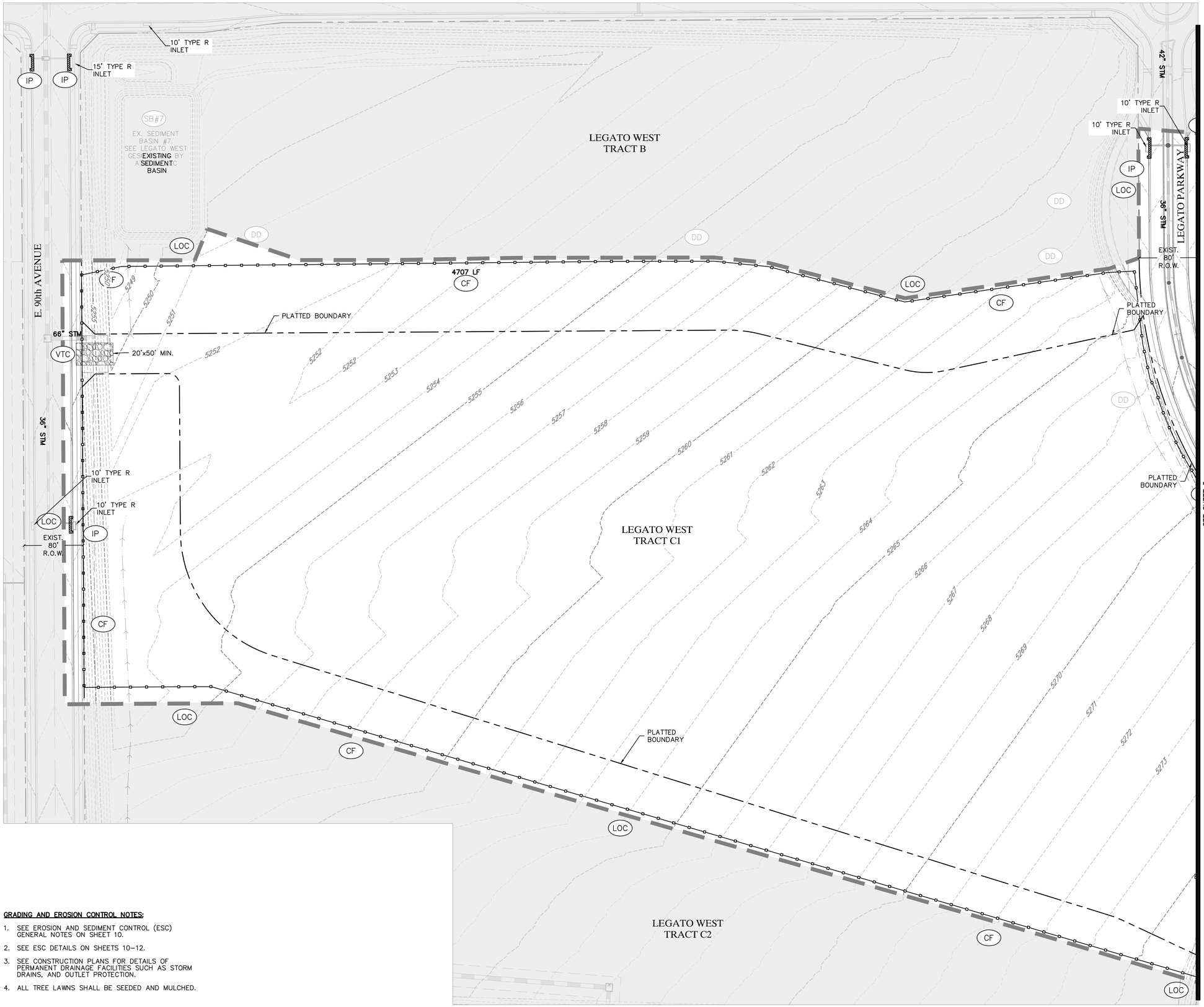
A	1st SUBMITTAL TO COMMERCE CITY	08/14/2020 – DJM
B	2ND SUBMITTAL TO COMMERCE CITY	03/18/2021 – DJM
C	3RD SUBMITTAL TO COMMERCE CITY	06/11/2021 – DJM

REVISIONS

PLANS UNDER REVIEW NOT FOR CONSTRUCTION

DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 3

CAD FILE: 19002561-GESC-OVERALL.DWG



	CWA	CONCRETE WASHOUT AREA
	CF	CONSTRUCTION FENCE
	DD	DIVERSION DITCH
	ECB	EROSION CONTROL BLANKET
	IP	INLET PROTECTION
	RRB	REINFORCED ROCK BERM
	RRC	RRB FOR CULVERT PROTECTION
	SB	SEDIMENT BASIN
	SM	SEEDING AND MULCHING
	SF	SILT FENCE
	SSA	STABILIZED STAGING AREA
	VTC	VEHICLE TRACKING CONTROL
	LOC	LIMITS OF CONSTRUCTION

GRADING AND EROSION CONTROL NOTES:

1. SEE EROSION AND SEDIMENT CONTROL (ESC) GENERAL NOTES ON SHEET 10.
2. SEE ESC DETAILS ON SHEETS 10–12.
3. SEE CONSTRUCTION PLANS FOR DETAILS OF PERMANENT DRAINAGE FACILITIES SUCH AS STORM DRAINS, AND OUTLET PROTECTION.
4. ALL TREE LAWNS SHALL BE SEEDED AND MULCHED.

60 0 60 120

(IN FEET)
1 inch = 60 ft.

811 Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 SOUTH QUEBEC STREET, SUITE 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

CLIENT
COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355–1400
BRAD BURNS

COHEN DENVER AIRPORT, LLC
LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
GRADING, EROSION, & SED. CONTROL PLANS
GESC INITIAL PLAN 01

DATE 6/14/2021

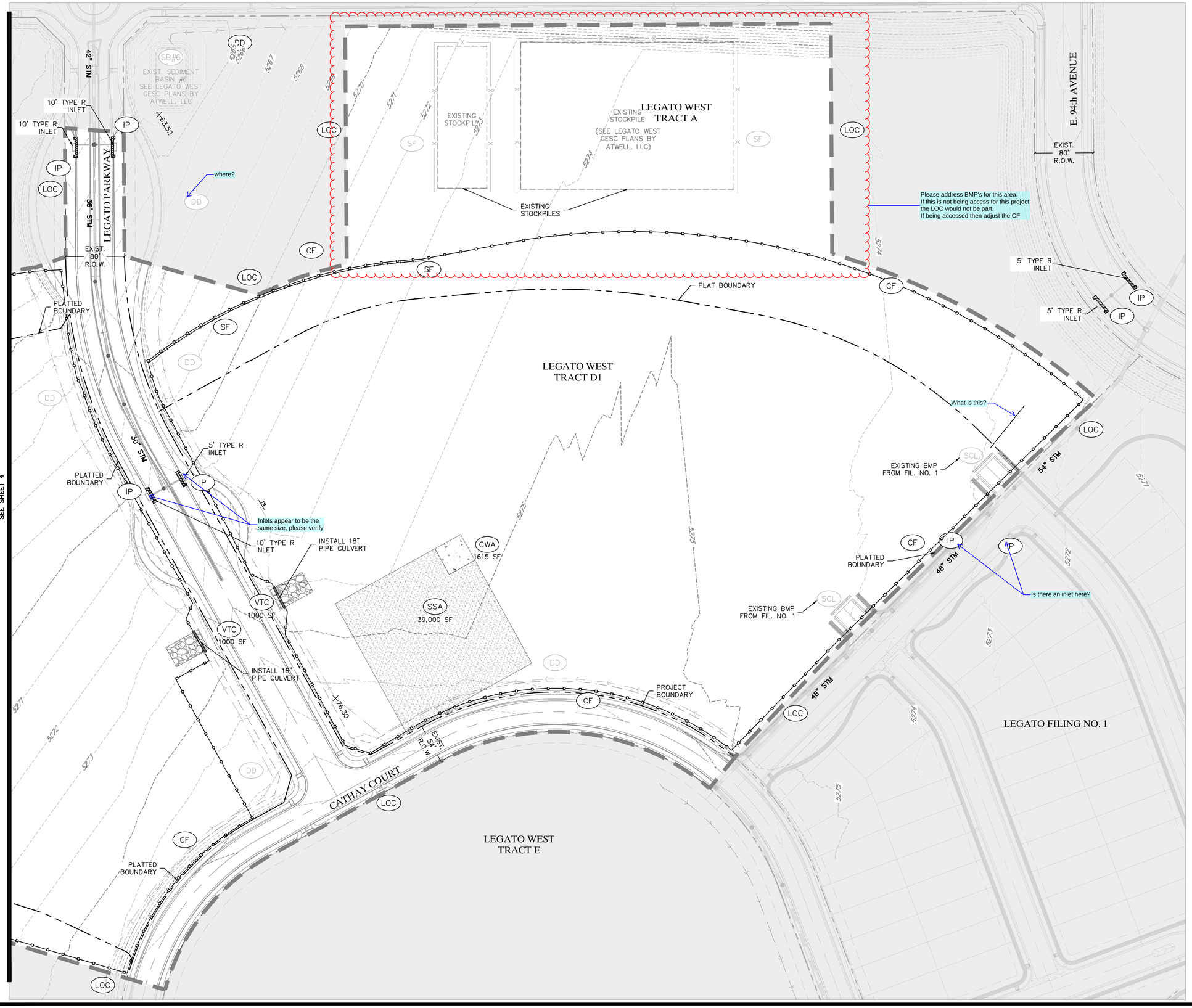
A	1st SUBMITTAL TO COMMERCE CITY	08/14/2020 – DJM
B	2ND SUBMITTAL TO COMMERCE CITY	03/18/2021 – DJM
C	3RD SUBMITTAL TO COMMERCE CITY	06/11/2021 – DJM

REVISIONS

PLANS UNDER REVIEW
NOT FOR CONSTRUCTION

DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 4

CAD FILE: 19002561-GESC-INITIAL-PLAN.DWG



CWA	CONCRETE WASHOUT AREA
CF	CONSTRUCTION FENCE
DD	DIVERSION DITCH
ECB	EROSION CONTROL BLANKET
IP	INLET PROTECTION
RRB	REINFORCED ROCK BERM
RRC	RRB FOR CULVERT PROTECTION
SB	SEDIMENT BASIN
SM	SEEDING AND MULCHING
SF	SILT FENCE
SSA	STABILIZED STAGING AREA
VTC	VEHICLE TRACKING CONTROL
LOC	LIMITS OF CONSTRUCTION

GRADING AND EROSION CONTROL NOTES:

1. SEE EROSION AND SEDIMENT CONTROL (ESC) GENERAL NOTES ON SHEET 10.
2. SEE ESC DETAILS ON SHEETS 10–12.
3. SEE CONSTRUCTION PLANS FOR DETAILS OF PERMANENT DRAINAGE FACILITIES SUCH AS STORM DRAINS, AND OUTLET PROTECTION.
4. ALL TREE LAWNS SHALL BE SEEDED AND MULCHED.

60 0 60 120

(IN FEET)
1 inch = 60 ft.

811 Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 SOUTH ALTON WAY, SUITE 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

CLIENT
COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355–1400
BRAD BURNS

COHEN DENVER AIRPORT, LLC
LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
GRADING, EROSION, & SED. CONTROL PLANS
GESC INITIAL PLAN 02

DATE 6/14/2021

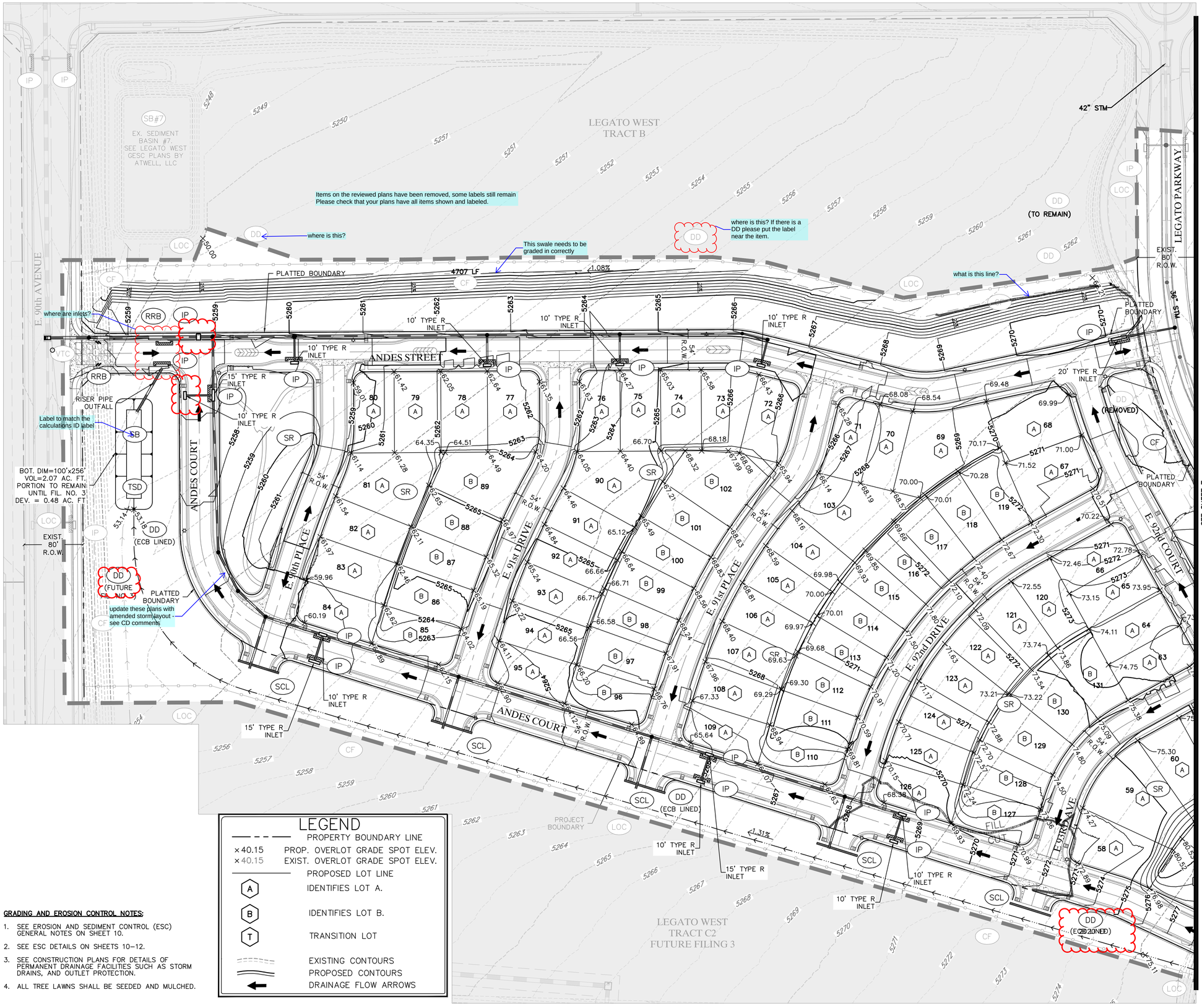
A	1st SUBMITTAL TO COMMERCE CITY	08/14/2020 – DJM
B	2ND SUBMITTAL TO COMMERCE CITY	03/18/2021 – DJM
C	3RD SUBMITTAL TO COMMERCE CITY	06/11/2021 – DJM

REVISIONS

PLANS UNDER REVIEW NOT FOR CONSTRUCTION

DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 5

CAD FILE: 19002561-GESC-INITIAL-PLAN.DWG



LEGEND

	PROPERTY BOUNDARY LINE
×40.15	PROP. OVERLOT GRADE SPOT ELEV.
×40.15	EXIST. OVERLOT GRADE SPOT ELEV.
	PROPOSED LOT LINE
A	IDENTIFIES LOT A.
B	IDENTIFIES LOT B.
T	TRANSITION LOT
	EXISTING CONTOURS
	PROPOSED CONTOURS
	DRAINAGE FLOW ARROWS

GRADING AND EROSION CONTROL NOTES:

1. SEE EROSION AND SEDIMENT CONTROL (ESC) GENERAL NOTES ON SHEET 10.
2. SEE ESC DETAILS ON SHEETS 10–12.
3. SEE CONSTRUCTION PLANS FOR DETAILS OF PERMANENT DRAINAGE FACILITIES SUCH AS STORM DRAINS, AND OUTLET PROTECTION.
4. ALL TREE LAWNS SHALL BE SEEDED AND MULCHED.

CWA	CONCRETE WASHOUT AREA
CF	CONSTRUCTION FENCE
DD	DIVERSION DITCH
ECB	EROSION CONTROL BLANKET
IP	INLET PROTECTION
RRB	REINFORCED ROCK BERM
RRC	RRB FOR CULVERT PROTECTION
SB	SEDIMENT BASIN
SM	SEEDING AND MULCHING
SF	SILT FENCE
SSA	STABILIZED STAGING AREA
VTC	VEHICLE TRACKING CONTROL
LOC	LIMITS OF CONSTRUCTION
SCL	SEDIMENT CONTROL LOG

(IN FEET)
1 inch = 60 ft.

811 Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 S. QUEBEC STREET, SUITE 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

CLIENT
COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355–1400
BRAD BURNS

COHEN DENVER AIRPORT, LLC
LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
GRADING, EROSION, & SED. CONTROL PLANS
GESC INTERIM PLAN 01

DATE 6/14/2021

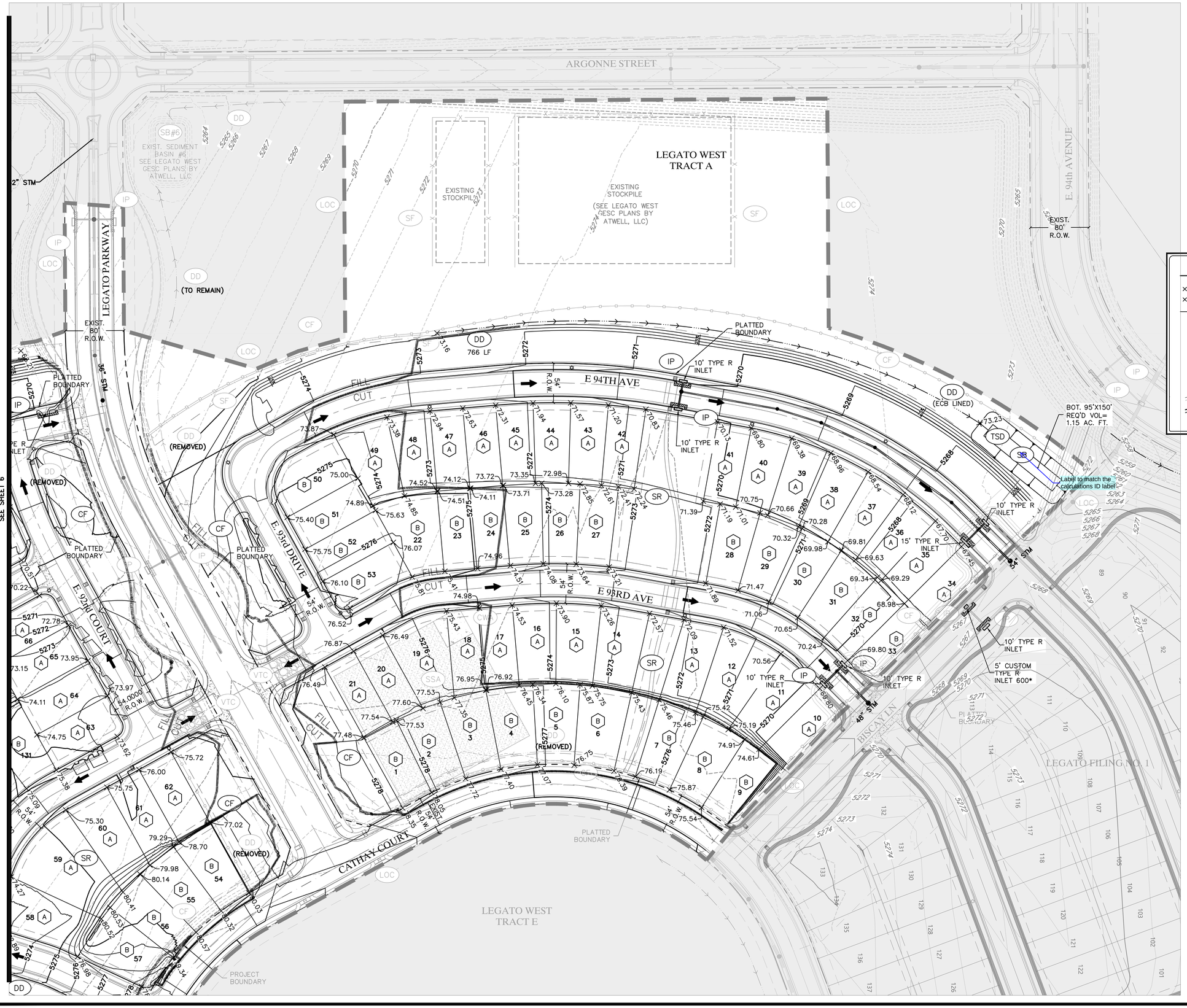
A	1st SUBMITTAL TO COMMERCE CITY	08/14/2020 – DJM
B	2ND SUBMITTAL TO COMMERCE CITY	03/18/2021 – DJM
C	3RD SUBMITTAL TO COMMERCE CITY	06/11/2021 – DJM

REVISIONS

PLANS UNDER REVIEW NOT FOR CONSTRUCTION

DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 6

CAD FILE: 19002561-GESC-INTERIM-PLAN.DWG



	CWA	CONCRETE WASHOUT AREA
	CF	CONSTRUCTION FENCE
	DD	DIVERSION DITCH
	ECB	EROSION CONTROL BLANKET
	IP	INLET PROTECTION
	RRB	REINFORCED ROCK BERM
	RRC	RRB FOR CULVERT PROTECTION
	SB	SEDIMENT BASIN
	SM	SEEDING AND MULCHING
X	SF	SILT FENCE
	SSA	STABILIZED STAGING AREA
	VTC	VEHICLE TRACKING CONTROL
	LOC	LIMITS OF CONSTRUCTION

LEGEND

	PROPERTY BOUNDARY LINE
×40.15	PROP. OVERLOT GRADE SPOT ELEV.
×40.15	EXIST. OVERLOT GRADE SPOT ELEV.
	PROPOSED LOT LINE
A	IDENTIFIES LOT A.
B	IDENTIFIES LOT B.
T	TRANSITION LOT
	EXISTING CONTOURS
	PROPOSED CONTOURS
	DRAINAGE FLOW ARROWS

GRADING AND EROSION CONTROL NOTES:

1. SEE EROSION AND SEDIMENT CONTROL (ESC) GENERAL NOTES ON SHEET 10.
2. SEE ESC DETAILS ON SHEETS 10–12.
3. SEE CONSTRUCTION PLANS FOR DETAILS OF PERMANENT DRAINAGE FACILITIES SUCH AS STORM DRAINS, AND OUTLET PROTECTION.
4. ALL TREE LAWNS SHALL BE SEEDED AND MULCHED.

60 0 60 120

(IN FEET)
1 inch = 60 ft.

811 Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 SOUTH QUEBEC STREET, SUITE 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

CLIENT
COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

COHEN DENVER AIRPORT, LLC
LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
GRADING, EROSION, & SED. CONTROL PLANS
GESC INTERIM PLAN 02

DATE 6/14/2021

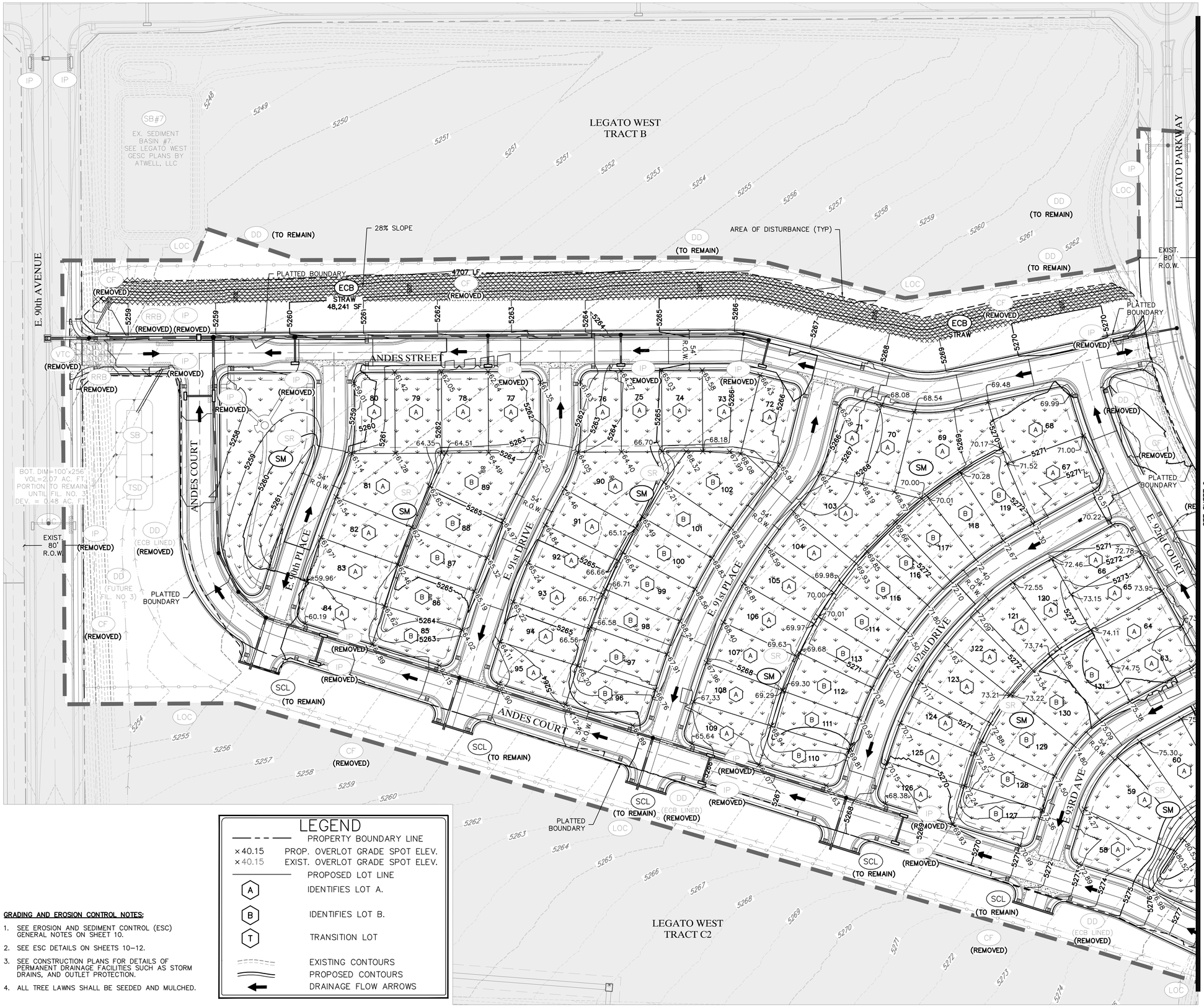
A	1st SUBMITTAL TO COMMERCE CITY	08/14/2020 – DJM
B	2ND SUBMITTAL TO COMMERCE CITY	03/18/2021 – DJM
C	3RD SUBMITTAL TO COMMERCE CITY	06/11/2021 – DJM

REVISIONS

PLANS UNDER REVIEW NOT FOR CONSTRUCTION

DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 7

CAD FILE: 19002561-GESC-INTERIM-PLAN.DWG



CWA	CONCRETE WASHOUT AREA
CF	CONSTRUCTION FENCE
DD	DIVERSION DITCH
ECB	EROSION CONTROL BLANKET
IP	INLET PROTECTION
RRB	REINFORCED ROCK BERM
RRC	RRB FOR CULVERT PROTECTION
SB	SEDIMENT BASIN
SM	SEEDING AND MULCHING
SF	SILT FENCE
SSA	STABILIZED STAGING AREA
VTC	VEHICLE TRACKING CONTROL
LOC	LIMITS OF CONSTRUCTION

LEGEND

	PROPERTY BOUNDARY LINE
×40.15	PROP. OVERLOT GRADE SPOT ELEV.
×40.15	EXIST. OVERLOT GRADE SPOT ELEV.
	PROPOSED LOT LINE
A	IDENTIFIES LOT A.
B	IDENTIFIES LOT B.
T	TRANSITION LOT
	EXISTING CONTOURS
	PROPOSED CONTOURS
	DRAINAGE FLOW ARROWS

GRADING AND EROSION CONTROL NOTES:

1. SEE EROSION AND SEDIMENT CONTROL (ESC) GENERAL NOTES ON SHEET 10.
2. SEE ESC DETAILS ON SHEETS 10–12.
3. SEE CONSTRUCTION PLANS FOR DETAILS OF PERMANENT DRAINAGE FACILITIES SUCH AS STORM DRAINS, AND OUTLET PROTECTION.
4. ALL TREE LAWNS SHALL BE SEEDED AND MULCHED.

(IN FEET)
1 inch = 60 ft.

811 Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 S. QUEBEC STREET, SUITE 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

CLIENT
COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355–1400
BRAD BURNS

COHEN DENVER AIRPORT, LLC
LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
GRADING, EROSION, & SED. CONTROL PLANS
GESC FINAL PLAN 01

DATE 6/14/2021

A	1st SUBMITTAL TO COMMERCE QTY 08/14/2020 – DJM
B	2ND SUBMITTAL TO COMMERCE QTY 03/18/2021 – DJM
C	3RD SUBMITTAL TO COMMERCE QTY 06/11/2021 – DJM

REVISIONS

PLANS UNDER REVIEW NOT FOR CONSTRUCTION

DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 8

CAD FILE: 19002561-GESC-FINAL-PLAN.DWG

	CWA	CONCRETE WASHOUT AREA
	CF	CONSTRUCTION FENCE
	DD	DIVERSION DITCH
	ECB	EROSION CONTROL BLANKET
	IP	INLET PROTECTION
	RRB	REINFORCED ROCK BERM
	RRC	RRB FOR CULVERT PROTECTION
	SB	SEDIMENT BASIN
	SM	SEEDING AND MULCHING
X	SF	SILT FENCE
	SSA	STABILIZED STAGING AREA
	VTC	VEHICLE TRACKING CONTROL
	LOC	LIMITS OF CONSTRUCTION

LEGEND

	PROPERTY BOUNDARY LINE
×40.15	PROP. OVERLOT GRADE SPOT ELEV.
×40.15	EXIST. OVERLOT GRADE SPOT ELEV.
	PROPOSED LOT LINE
A	IDENTIFIES LOT A.
B	IDENTIFIES LOT B.
T	TRANSITION LOT
	EXISTING CONTOURS
	PROPOSED CONTOURS
	DRAINAGE FLOW ARROWS

GRADING AND EROSION CONTROL NOTES:

1. SEE EROSION AND SEDIMENT CONTROL (ESC) GENERAL NOTES ON SHEET 10.
2. SEE ESC DETAILS ON SHEETS 10–12.
3. SEE CONSTRUCTION PLANS FOR DETAILS OF PERMANENT DRAINAGE FACILITIES SUCH AS STORM DRAINS, AND OUTLET PROTECTION.
4. ALL TREE LAWNS SHALL BE SEEDED AND MULCHED.

60 0 60 120

(IN FEET)
1 inch = 60 ft.

811 Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 SOUTH QUEBEC STREET, SUITE 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

CLIENT
COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

COHEN DENVER AIRPORT, LLC
LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
GRADING, EROSION, & SED. CONTROL PLANS
GESC FINAL PLAN 02

DATE 6/14/2021

A	1st SUBMITTAL TO COMMERCE CITY	08/14/2020 – DJM
B	2ND SUBMITTAL TO COMMERCE CITY	03/18/2021 – DJM
C	3RD SUBMITTAL TO COMMERCE CITY	06/11/2021 – DJM

REVISIONS

PLANS UNDER REVIEW NOT FOR CONSTRUCTION

DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 9

CAD FILE: 19002561-GESC-FINAL-PLAN.DWG

EROSION AND SEDIMENT CONTROL (ESC) GENERAL NOTES

1. GRADING PLAN IS FOR ROUGH GRADING ONLY. CHANGES MAY BE NECESSARY TO BRING PLANS INTO CONFORMANCE WITH APPROVED DRAINAGE AND SITE PLAN.
2. A WATER TRUCK SHALL BE KEPT ON-SITE TO CONTROL WIND EROSION AND DUST.
3. ANY SETTLEMENT OR SOIL ACCUMULATIONS BEYOND THE PROPERTY LIMITS DUE TO GRADING OR EROSION SHALL BE REPARIED IMMEDIATELY BY THE CONTRACTOR.
4. NO GRADING SHALL TAKE PLACE IN ANY DELINEATED FLOOD HAZARD AREA UNTIL THE FINAL DRAINAGE PLAN HAS BEEN APPROVED AND ALL APPROPRIATE PERMITS HAVE BEEN OBTAINED.
5. ANY CONSTRUCTION DEBRIS OR MUD TRACKING IN THE PUBLIC RIGHT-OF-WAY RESULTING FROM THIS DEVELOPMENT WILL BE REMOVED IMMEDIATELY BY THE CONTRACTOR. UPON WRITTEN NOTICE BY THE CITY, FAILURE TO REMOVE THE MUD OR DEBRIS BY THE CONTRACTOR WITHIN 24 HOURS SHALL CAUSE THE CITY TO STOP ALL WORK UNTIL THE SITUATION IS RESOLVED.
6. WHEN REQUIRED, A COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT (CDPHE), WATER QUALITY DIVISION, STORMWATER DISCHARGE PERMIT SHALL BE OBTAINED AND A COPY SHALL BE SUBMITTED TO THE CITY OF COMMERCE CITY DEPARTMENT OF PUBLIC WORKS.
7. AREAS DISTURBED BY GRADING SHALL BE MULCHED AND RESEEDED WITH NATIVE VEGETATION OR AS APPROVED ON THE PLAN.
8. THE CONTRACTOR SHALL BE SOLELY AND COMPLETELY RESPONSIBLE FOR SAFETY CONDITIONS ON AND ADJACENT TO THE SITE 24 HOURS A DAY, SEVEN DAYS A WEEK.
9. CONTRACTOR SHALL CONTACT UTILITY NOTIFICATION CENTER FOR THE LOCATION OF UNDERGROUND UTILITIES AT LEAST 48 HOURS PRIOR TO COMMENCEMENT OF CONSTRUCTION. (811 or 1-800-922-1987)
10. THE CITY ENGINEER'S SIGNATURE AFFIXED TO THIS DOCUMENT INDICATES THE CITY OF COMMERCE CITY PUBLIC WORKS DEPARTMENT, ENGINEERING DIVISION, HAS REVIEWED THE DOCUMENT AND FOUND IT IN GENERAL COMPLIANCE WITH THE CITY'S STORMWATER QUALITY CONTROL CRITERIA. THE CITY ENGINEER, THROUGH ACCEPTANCE OF THIS DOCUMENT, ASSUMES NO RESPONSIBILITY (OTHER THAN AS STATED ABOVE) FOR THE COMPLETENESS AND/OR ACCURACY OF THESE DOCUMENTS.
11. THE ADEQUACY OF THIS ESC PLAN LIES WITH THE ORIGINAL DESIGN ENGINEER.
12. ALL MATERIALS AND WORKMANSHIP SHALL BE SUBJECT TO INSPECTION BY THE CITY. COMMERCE CITY RESERVES THE RIGHT TO ACCEPT OR REJECT ANY SUCH MATERIALS AND WORKMANSHIP THAT DOES NOT CONFORM TO THE APPROVED PLANS.
13. THE PLACEMENT OF EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICES (BMP's) SHALL BE IN ACCORDANCE WITH THE CITY APPROVED PLANS.
14. ANY VARIATION IN MATERIAL, TYPE OR LOCATION OF EROSION AND SEDIMENT CONTROL BMP's FROM THE CITY APPROVED PLANS WILL REQUIRE APPROVAL FROM AN ACCOUNTABLE REPRESENTATIVE OF THE CITY OF COMMERCE CITY ENGINEERING DIVISION.
15. AFTER THE ESC PLAN HAS BEEN APPROVED, THE CONTRACTOR MAY INSTALL THE INITIAL-STAGE EROSION AND SEDIMENT CONTROL BMPS INDICATED ON THE ACCEPTED ESC PLAN.
16. THE FIRST BMP TO BE INSTALLED ON THE SITE SHALL BE CONSTRUCTION FENCE, MARKERS, OR OTHER APPROVED MEANS OF DEFINING THE LIMITS OF CONSTRUCTION, INCLUDING CONSTRUCTION LIMITS ADJACENT TO STREAM CORRIDORS AND OTHER AREAS TO BE PRESERVED.
17. AFTER INSTALLATION OF THE INITIAL-STAGE EROSION AND SEDIMENT CONTROL BMPs, THE PERMITTEE SHALL CALL THE PUBLIC WORKS AT 303-289-8150 TO SCHEDULE A PRECONSTRUCTION MEETING AT THE PROJECT SITE. THE REQUEST SHALL BE MADE A MINIMUM OF THREE BUSINESS DAYS PRIOR TO THE REQUESTED MEETING TIME. NO CONSTRUCTION ACTIVITIES SHALL BE PLANNED WITHIN 24 HOURS AFTER THE PRECONSTRUCTION MEETING.
18. THE ESC MANAGER SHALL BE CERTIFIED IN STORMWATER MANAGEMENT AND EROSION CONTROL AND DOCUMENTATION SHALL BE PROVIDED TO THE CITY.
19. THE OWNER OR OWNER'S REPRESENTATIVE, THE ESC MANAGER, THE GENERAL CONTRACTOR, AND THE GRADING SUBCONTRACTOR, IF DIFFERENT FROM THE GENERAL CONTRACTOR, MUST ATTEND THE PRECONSTRUCTION MEETING. IF ANY OF THE REQUIRED PARTICIPANTS FAIL TO ATTEND THE PRECONSTRUCTION MEETING, OR IF THE INSTALLATION OF THE INITIAL BMP's ARE NOT APPROVED BY THE CITY ESC INSPECTOR, THE APPLICANT WILL HAVE TO PAY A REINSPECTION FEE, ADDRESS ANY PROBLEMS WITH BMP INSTALLATION, AND CALL TO RESCHEDULE THE MEETING, WITH A CORRESPONDING DELAY IN THE START OF CONSTRUCTION. THE CITY STRONGLY ENCOURAGES THE APPLICANT TO HAVE THE ENGINEER OF RECORD AT THE PRECONSTRUCTION MEETING.
20. CONSTRUCTION SHALL NOT BEGIN UNTIL THE CITY ESC INSPECTOR APPROVES THE INSTALLATION OF THE INITIAL BMP's AND THE GRADING PERMIT IS OBTAINED FROM PUBLIC WORKS.
21. THE ESC MANAGER SHALL STRICTLY ADHERE TO THE APPROVED LIMITS OF CONSTRUCTION AT ALL TIMES. THE CITY OF COMMERCE CITY ENGINEERING DIVISION MUST APPROVE ANY CHANGES TO THE LIMITS OF CONSTRUCTION AND, AT THE DISCRETION OF THE ENGINEERING DIVISION, ADDITIONAL EROSION/SEDIMENT CONTROLS MAY BE REQUIRED IN ANY ADDITIONAL AREAS OF CONSTRUCTION.
22. NATURAL VEGETATION SHALL BE RETAINED AND PROTECTED WHEREVER POSSIBLE. EXPOSURE OF SOIL TO EROSION BY REMOVAL OR DISTURBANCE OF VEGETATION SHALL BE LIMITED TO THE AREA REQUIRED FOR IMMEDIATE CONSTRUCTION OPERATIONS.
23. A COPY OF THE GRADING PERMIT AND APPROVED PLANS SHALL BE ON SITE AT ALL TIMES.
24. THE ESC MANAGER SHALL BE RESPONSIBLE FOR ENSURING THAT THE SITE REMAINS IN COMPLIANCE AND SHALL BE THE PERMITTEE'S CONTACT PERSON WITH THE CITY FOR ALL MATTERS PERTAINING TO THE GRADING PERMIT. THE ESC MANAGER SHALL BE PRESENT AT THE SITE THE MAJORITY OF THE TIME AND SHALL BE AVAILABLE THROUGH A 24-HOUR CONTACT NUMBER.
25. THE ESC MANAGER IS RESPONSIBLE FOR CLEANUP OF SEDIMENT OR CONSTRUCTION DEBRIS TRACKED ONTO ADJACENT PAVED AREAS. PAVED AREAS, INCLUDING STREETS, ARE TO BE KEPT CLEAN THROUGHOUT BUILD-OUT AND SHALL BE CLEANED WITH A STREET SWEEPER OR SIMILAR DEVICE AT FIRST NOTICE OF ACCIDENTAL TRACKING OR AT THE DISCRETION OF THE CITY'S ESC INSPECTOR. STREET WASHING IS NOT ALLOWED. THE CITY RESERVES THE RIGHT TO REQUIRE ADDITIONAL MEASURES TO ENSURE AREA STREETS ARE KEPT FREE OF SEDIMENT AND/OR CONSTRUCTION DEBRIS.
26. THE APPROVED PLANS MAY REQUIRE CHANGES OR ALTERATIONS AFTER APPROVAL TO MEET CHANGING SITE OR PROJECT CONDITIONS OR TO ADDRESS INEFFICIENCIES IN DESIGN OR INSTALLATION. ALL CONSTRUCTION TRAFFIC MUST ENTER/EXIT THE SITE THROUGH THE CITY APPROVED ACCESS POINTS. A VEHICLE TRACKING CONTROL PAD IS REQUIRED AT ALL ACCESS POINTS ON THE SITE. ADDITIONAL STABILIZED CONSTRUCTION ENTRANCES MAY BE ADDED WITH AUTHORIZATION FROM THE COMMERCE CITY ENGINEERING DIVISION.
27. THE ESC MANAGER SHALL OBTAIN PRIOR APPROVAL FROM THE DESIGN ENGINEER AND COMMERCE CITY ENGINEERING DIVISION FOR ANY PROPOSED CHANGES.
28. NO PERMANENT EARTH SLOPES GREATER THAN 3:1 SHALL BE ALLOWED.
29. ANY SETTLEMENT OR SOIL ACCUMULATIONS BEYOND THE LIMITS OF CONSTRUCTION DUE TO GRADING OR EROSION SHALL BE REPAIRED IMMEDIATELY BY THE ESC MANAGER. THE ESC MANAGER SHALL BE HELD RESPONSIBLE FOR OBTAINING ACCESS RIGHTS TO ADJACENT PROPERTY, IF NEEDED, AND REMEDIATING ANY ADVERSE IMPACTS TO ADJACENT WATERWAYS, WETLANDS, PROPERTIES, ETC. RESULTING FROM WORK DONE AS PART OF THIS PROJECT.
30. SOILS THAT WILL BE STOCKPILED FOR MORE THAN THIRTY (30) DAYS SHALL BE SEEDED AND MULCHED WITHIN FOURTEEN (14) DAYS OF STOCKPILE CONSTRUCTION. NO STOCKPILES SHALL BE PLACED WITHIN ONE HUNDRED (100) FEET OF A DRAINAGE WAY UNLESS APPROVED BY THE COMMERCE CITY ENGINEERING DIVISION.
31. ALL CHEMICAL OR HAZARDOUS MATERIAL SPILLS WHICH MAY ENTER WATERS OF THE STATE OF COLORADO, WHICH INCLUDE BUT ARE NOT LIMITED TO, SURFACE WATER, GROUND WATER AND DRY GULLIES OR STORM SEWER LEADING TO SURFACE WATER, SHALL BE IMMEDIATELY REPORTED TO THE CDPHE PER CRS 25-8-601, AND COMMERCE CITY. RELEASES OF PETROLEUM PRODUCTS AND CERTAIN HAZARDOUS SUBSTANCES LISTED UNDER THE FEDERAL CLEAN WATER ACT (40 CFR PART 116) MUST BE REPORTED TO THE NATIONAL RESPONSE CENTER, SOUTH ADAMS COUNTY WATER AND SANITATION DISTRICT AS WELL AS THE CDPHE. SPILLS THAT POSE AN IMMEDIATE RISK TO HUMAN LIFE SHALL BE REPORTED TO 911. FAILURE TO REPORT AND CLEAN UP ANY SPILL SHALL RESULT IN ISSUANCE OF A STOP WORK ORDER.
32. THE CLEANING OF CONCRETE DELIVERY TRUCK CHUTES IS RESTRICTED TO APPROVED CONCRETE WASH OUT LOCATIONS ON THE JOB SITE. THE DISCHARGE OF WATER CONTAINING WASTE CONCRETE TO THE STORM SEWER SYSTEM IS PROHIBITED. ALL CONCRETE WASTE SHALL BE PROPERLY CLEANED UP AND DISPOSED AT AN APPROPRIATE LOCATION.
33. COMMERCE CITY DOES NOT ALLOW HAY BALES AS A FORM OF EROSION AND SEDIMENT CONTROL.
34. ONCE THE SITE HAS REACHED FINAL STABILIZATION, A FINAL INSPECTION SHALL BE SCHEDULED WITH THE CITY'S ESC INSPECTOR. A CERTIFICATE OF OCCUPANCY WILL NOT BE ISSUED AND/OR THE GRADING BOND WILL NOT BE RELEASED UNTIL THE CITY'S ESC INSPECTOR APPROVES FINAL STABILIZATION.

BMP LEGEND

DETAIL NO.	SHEET NO.		BMP LEGEND
1	2	CD	CHECK DAM
2	2	CB	COMPOST BLANKET
3	2	CFB	COMPOST FILTER BERM
4	3	CWA	CONCRETE WASHOUT AREA
5	3	CF	CONSTRUCTION FENCE
6	3	CM	CONSTRUCTION MARKERS
7	4	DW	DEWATERING
8	4	DD	DIVERSION DITCH
9	5	ECB	EROSION CONTROL BLANKET
10	6	IP	INLET PROTECTION
11	7	RCD	REINFORCED CHECK DAM
12	7	RRB	REINFORCED ROCK BERM
13	7	RRC	RRB FOR CULVERT PROTECTION
14	8	SB	SEDIMENT BASIN
15	9	SCL	SEDIMENT CONTROL LOG
16	9	ST	SEDIMENT TRAP
17	10	SM	SEEDING AND MULCHING
18	11	SF	SILT FENCE
19	11	SSA	STABILIZED STAGING AREA
20	11	SR	SURFACE ROUGHENING
21	12	TSD	TEMPORARY SLOPE DRAIN
22	12	TSC	TEMPORARY STREAM CROSSING
23	13	TER	TERRACING
24	13	VTC	VEHICLE TRACKING CONTROL
25	13	WW	VTC WITH WHEEL WASH
	14		ROCK AND RIPRAP GRADATIONS
		LOC	LIMITS OF CONSTRUCTION

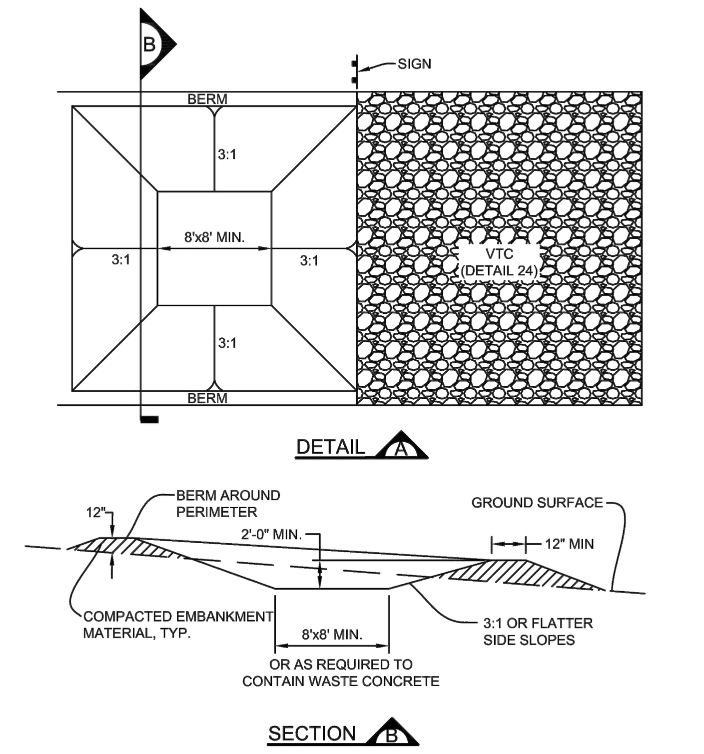
COMPUTER FILE INFORMATION	
Creation Date: 03/10/2016	Initials: CJC
Last Modification Date: 5/4/2016	Initials: CJC
Full Path: WWW.C3GOV.COM	
Drawing Name: $FILES$	
Scale: $SCALESHORT$	Units: ENGLISH

APPROVAL
CITY ENGINEER 05-27-16 DATE

CITY OF COMMERCE CITY
Department of Public Works
8602 Rosemary St.
Commerce City, CO 80022
Ph: 303-289-8150

EROSION & SEDIMENT CONTROL
ENGINEERING CONSTRUCTION STANDARDS
DETAIL NO. 800-01
Sheet No. 1 of 14

S:\Tranproj\100049520 - Commerce City Engineering Standards\Design\Drawings\Reference_Files\CCC DWGs\800-01 thru 800-07 (Erosion & Sediment Control).dwg



DETAIL A

SECTION B

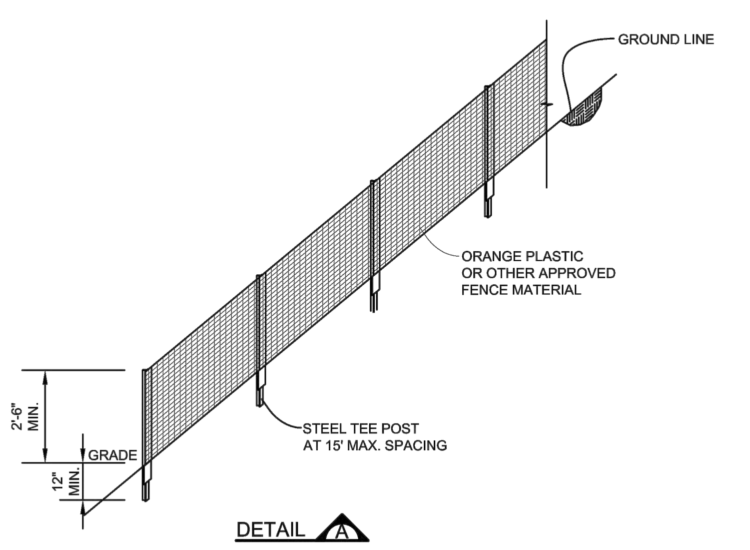
CONCRETE WASHOUT AREA INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   - LOCATIONS OF CONCRETE WASHOUT AREA.
2. THE CONCRETE WASHOUT AREA SHALL BE INSTALLED PRIOR TO ANY CONCRETE PLACEMENT ON SITE.
3. VEHICLE TRACKING CONTROL (DETAIL 24) IS REQUIRED AT THE ACCESS POINT.
4. SIGNS SHALL BE PLACED AT THE CONSTRUCTION ENTRANCE, AT THE WASHOUT AREA, AND ELSEWHERE AS NECESSARY TO CLEARLY INDICATE THE LOCATION OF THE CONCRETE WASHOUT AREA TO OPERATORS OF CONCRETE TRUCKS AND PUMP RIGS.
5. EXCAVATED MATERIAL SHALL BE UTILIZED IN PERIMETER BERM CONSTRUCTION.

CONCRETE WASHOUT AREA MAINTENANCE NOTES

1. THE CONCRETE WASHOUT AREA SHALL BE REPAIRED AND ENLARGED OR CLEANED OUT AS NECESSARY TO MAINTAIN CAPACITY FOR WASTED CONCRETE.
2. AT THE END OF CONSTRUCTION, ALL CONCRETE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF AT AN APPROVED WASTE SITE.
3. WHEN THE CONCRETE WASHOUT AREA IS REMOVED, THE DISTURBED AREA SHALL BE DRILL SEEDED AND CRIMP MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE CITY.
4. INSPECT WEEKLY, DURING AND AFTER ANY STORM EVENT.

CWA CONCRETE WASHOUT AREA 4



DETAIL A

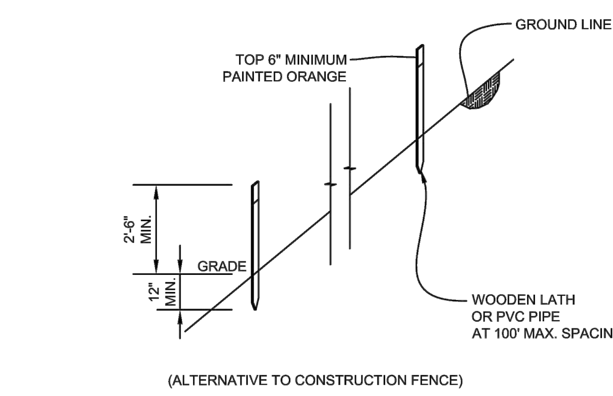
CONSTRUCTION FENCE INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   - TYPE OF CONSTRUCTION LIMIT INDICATOR (FENCE OR MARKERS).
   - LOCATION AND LENGTH OF FENCE OR LINE OF MARKERS.
2. CONSTRUCTION FENCE OR MARKERS INDICATED ON INITIAL ESC PLAN SHALL BE INSTALLED PRIOR TO OTHER BMPS AND ANY LAND-DISTURBING ACTIVITIES.
3. STEEL TEE POSTS SHALL BE UTILIZED FOR SUPPORT OF CONSTRUCTION FENCE. MAXIMUM SPACING FOR TEE POSTS SHALL BE 15'.

CONSTRUCTION FENCE MAINTENANCE NOTES

1. ANY DAMAGED FENCE OR MARKERS SHALL BE REPAIRED ON A DAILY BASIS.
2. FENCE OR MARKERS SHALL BE REMOVED AT THE END OF CONSTRUCTION. IF ANY DISTURBED AREA EXISTS AFTER FENCE REMOVAL, IT SHALL BE DRILL SEEDED AND CRIMP MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE CITY.

CF CONSTRUCTION FENCE 5



(ALTERNATIVE TO CONSTRUCTION FENCE)

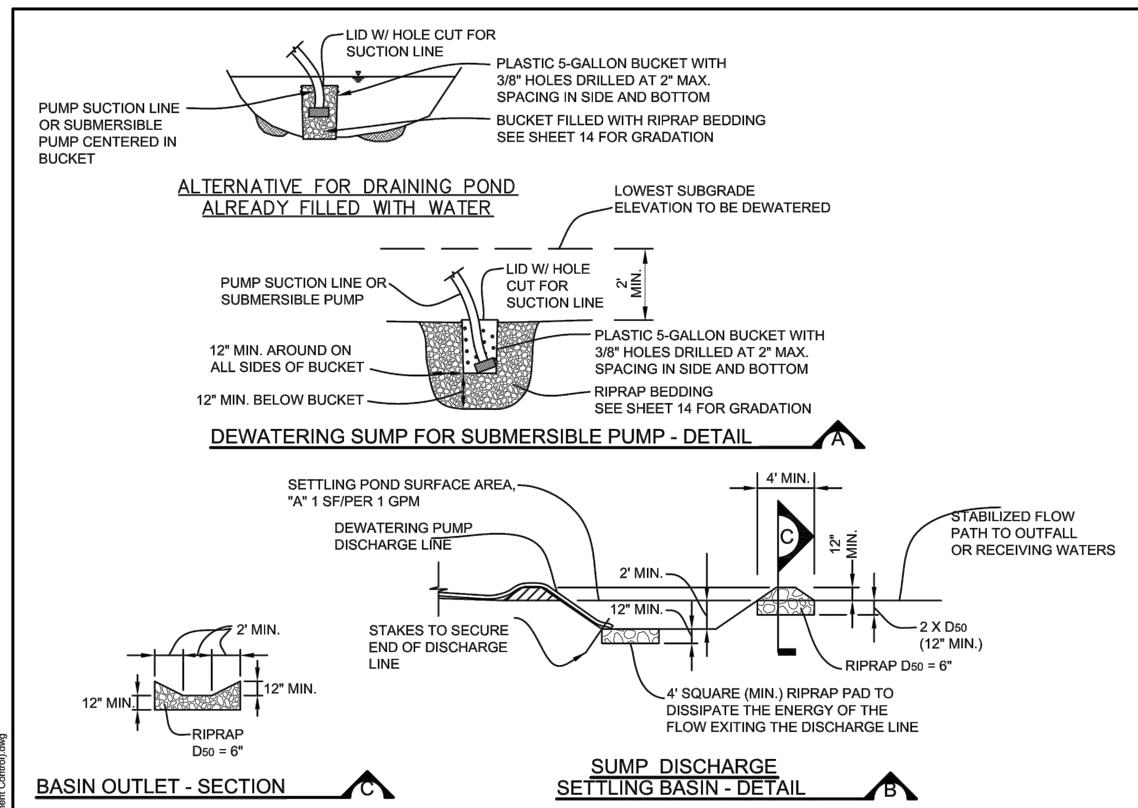
CM CONSTRUCTION MARKERS 6

COMPUTER FILE INFORMATION	
Creation Date: 03/10/2016	Initials: CJC
Last Modification Date: 5/4/2016	Initials: CJC
Full Path: WWW.C3GOV.COM	
Drawing Name: $FILES$	
Scale: $SCALESHORT$	Units: ENGLISH

APPROVAL
CITY ENGINEER 05-27-16 DATE

CITY OF COMMERCE CITY
Department of Public Works
8602 Rosemary St.
Commerce City, CO 80022
Ph: 303-289-8150

EROSION & SEDIMENT CONTROL
ENGINEERING CONSTRUCTION STANDARDS
DETAIL NO. 800-03
Sheet No. 3 of 14



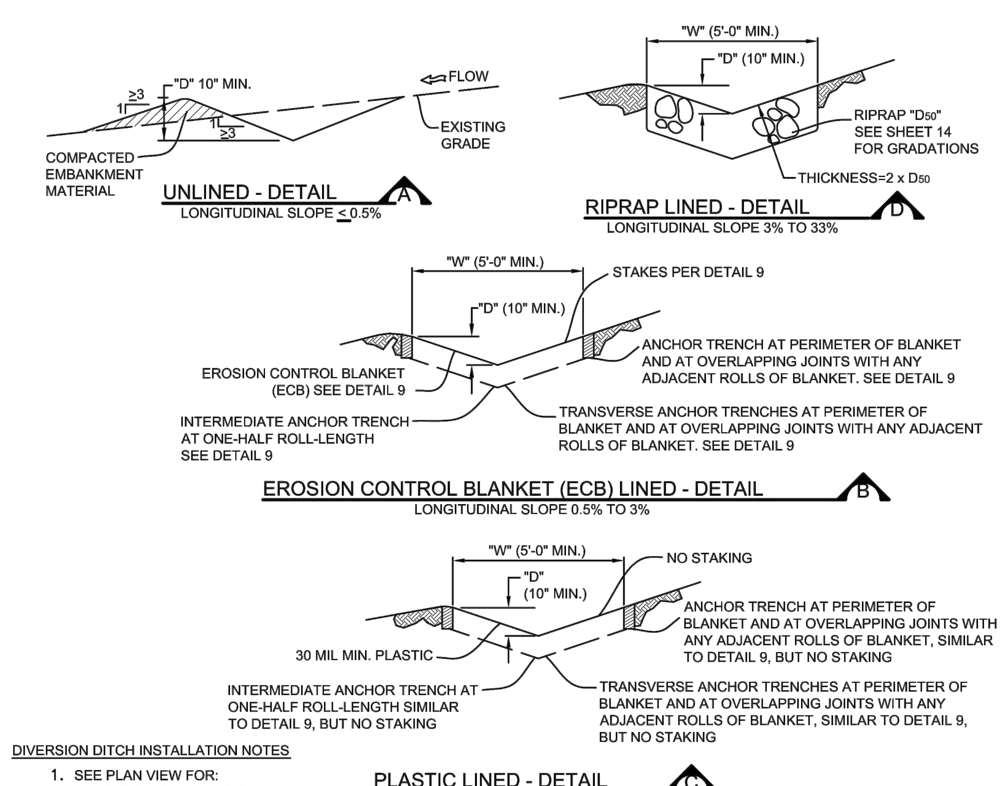
DEWATERING INSTALLATION NOTES

1. THE ESC MANAGER SHALL OBTAIN A CONSTRUCTION DISCHARGE (DEWATERING) PERMIT FROM THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT PRIOR TO ANY DEWATERING OPERATIONS. ALL DEWATERING SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE DISCHARGE PERMIT AND SHALL BE COORDINATED WITH THE CITY ESC INSPECTOR.
2. THE ESC MANAGER SHALL PROVIDE, OPERATE, AND MAINTAIN DEWATERING SYSTEMS OF SUFFICIENT SIZE AND CAPACITY TO PERMIT EXCAVATION AND SUBSEQUENT CONSTRUCTION IN DRY CONDITIONS AND TO LOWER AND MAINTAIN THE GROUNDWATER LEVEL A MINIMUM OF 2-FEET BELOW THE LOWEST POINT OF EXCAVATION AND CONTINUOUSLY MAINTAIN EXCAVATIONS FREE OF WATER UNTIL BACKFILLED TO FINAL GRADE.
3. DEWATERING OPERATIONS SHALL USE ONE OR MORE OF THE DEWATERING SUMPS SHOWN ABOVE OR OTHER MEANS APPROVED BY THE CITY TO REDUCE THE PUMPING OF SEDIMENT, AND SHALL PROVIDE A TEMPORARY BASIN FOR SETTLING PUMPED DISCHARGES PRIOR TO RELEASE OFF SITE OR TO A RECEIVING WATER. SEDIMENT BASIN PER DETAIL 14 MAY BE USED IN LIEU OF SUMP DISCHARGE SETTLING BASIN SHOWN ABOVE.
4. A 4' SQUARE RIPRAP PAD SHALL BE PLACED AT DISCHARGE POINT.
5. THE DISCHARGE END OF THE LINE SHALL BE STAKED IN PLACES TO PREVENT MOVEMENT OF RIPRAP PAD.

DEWATERING MAINTENANCE NOTES

1. THE ESC MANAGER SHALL INSPECT DEWATERING SYSTEMS AND PERFORM ANY NECESSARY REPAIRS OR MAINTENANCE ON A HOURLY BASIS.
2. TEMPORARY SETTLING BASINS SHALL BE REMOVED WHEN NO LONGER NEEDED FOR DEWATERING OPERATIONS. ANY DISTURBED AREA SHALL BE DRILL SEEDED AND CRIMP MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE CITY.

DW DEWATERING 7



DIVERSION DITCH INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   - LOCATION OF DIVERSION DITCH.
   - TYPE OF DITCH (UNLINED, ECB LINED, PLASTIC LINED OR RIPRAP LINED).
   - LENGTH OF EACH TYPE OF DITCH.
   - DEPTH, "D", AND WIDTH, "W" DIMENSIONS.
   - FOR ECB LINED DITCH, EROSION CONTROL BLANKET TYPE (SEE DETAIL 9).
   - FOR RIPRAP LINED DITCH, SIZE OF RIPRAP, "D50".
2. SEE DRAINAGE PLANS FOR DETAILS OF ANY PERMANENT CONVEYANCE FACILITIES OR DIVERSION DITCHES EXCEEDING A 2-YEAR FLOW RATE OF 10 CFS.
3. DIVERSION DITCHES INDICATED ON INITIAL ESC PLAN SHALL BE INSTALLED PRIOR TO ANY LAND-DISTURBING ACTIVITIES.
4. FOR ECB LINED DITCHES, INSTALLATION OF EROSION CONTROL BLANKET SHALL CONFORM TO THE REQUIREMENTS OF DETAIL 9.
5. IN LOCATIONS WHERE CONSTRUCTION TRAFFIC MUST CROSS A DIVERSION DITCH, THE PERMITTEES SHALL INSTALL A TEMPORARY CULVERT WITH A MINIMUM DIAMETER OF 12-INCHES.

DIVERSION DITCH MAINTENANCE NOTES

1. THE ESC MANAGER SHALL INSPECT DIVERSION DITCHES WEEKLY, DURING AND AFTER ANY STORM EVENT AND MAKE REPAIRS OR CLEAN OUT AS NECESSARY.
2. DIVERSION DITCHES ARE TO REMAIN IN PLACE UNTIL THE END OF CONSTRUCTION, OR, IF APPROVED BY THE CITY, LEFT IN PLACE.
3. IF DIVERSION DITCHES ARE REMOVED, THE DISTURBED AREA SHALL BE DRILL SEEDED AND CRIMP MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE CITY.

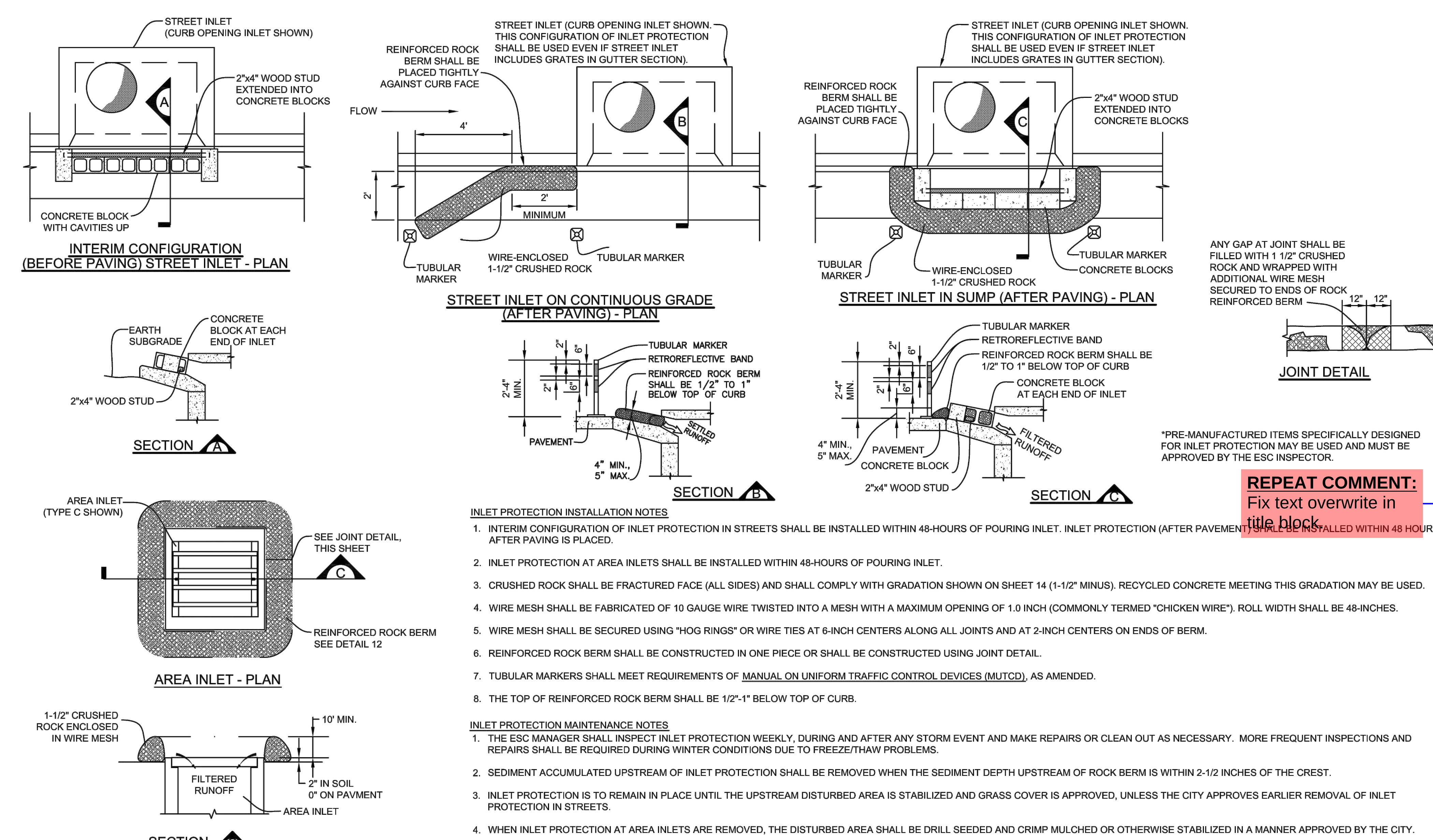
DD DIVERSION DITCH 8

COMPUTER FILE INFORMATION	
Creation Date: 03/10/2016	Initials: CJC
Last Modification Date: 5/4/2016	Initials: CJC
Full Path: WWW.C3GOV.COM	
Drawing Name: $FILES$	
Scale: $SCALESHORT$	Units: ENGLISH

APPROVAL
CITY ENGINEER 05-27-16 DATE

CITY OF COMMERCE CITY
Department of Public Works
8602 Rosemary St.
Commerce City, CO 80022
Ph: 303-289-8150

EROSION & SEDIMENT CONTROL
ENGINEERING CONSTRUCTION STANDARDS
DETAIL NO. 800-04
Sheet No. 4 of 14



REPEAT COMMENT: Fix text overwrite in title block.

INLET PROTECTION INSTALLATION NOTES

1. INTERIM CONFIGURATION OF INLET PROTECTION IN STREETS SHALL BE INSTALLED WITHIN 48-HOURS OF POURING INLET. INLET PROTECTION (AFTER PAVEMENT) SHALL BE INSTALLED WITHIN 48 HOURS AFTER PAVING IS PLACED.
2. INLET PROTECTION AT AREA INLETS SHALL BE INSTALLED WITHIN 48-HOURS OF POURING INLET.
3. CRUSHED ROCK SHALL BE FRACTURED FACE (ALL SIDES) AND SHALL COMPLY WITH GRADATION SHOWN ON SHEET 14 (1-1/2" MINUS). RECYCLED CONCRETE MEETING THIS GRADATION MAY BE USED.
4. WIRE MESH SHALL BE FABRICATED OF 10 GAUGE WIRE TWISTED INTO A MESH WITH A MAXIMUM OPENING OF 1.0 INCH (COMMONLY TERMED "CHICKEN WIRE"). ROLL WIDTH SHALL BE 48-INCHES.
5. WIRE MESH SHALL BE SECURED USING "HOG RINGS" OR WIRE TIES AT 6-INCH CENTERS ALONG ALL JOINTS AND AT 2-INCH CENTERS ON ENDS OF BERM.
6. REINFORCED ROCK BERM SHALL BE CONSTRUCTED IN ONE PIECE OR SHALL BE CONSTRUCTED USING JOINT DETAIL.
7. TUBULAR MARKERS SHALL MEET REQUIREMENTS OF MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), AS AMENDED.
8. THE TOP OF REINFORCED ROCK BERM SHALL BE 1/2"-1" BELOW TOP OF CURB.

INLET PROTECTION MAINTENANCE NOTES

1. THE ESC MANAGER SHALL INSPECT INLET PROTECTION WEEKLY, DURING AND AFTER ANY STORM EVENT AND MAKE REPAIRS OR CLEAN OUT AS NECESSARY. MORE FREQUENT INSPECTIONS AND REPAIRS SHALL BE REQUIRED DURING WINTER CONDITIONS DUE TO FREEZE/THAW PROBLEMS.
2. SEDIMENT ACCUMULATED UPSTREAM OF INLET PROTECTION SHALL BE REMOVED WHEN THE SEDIMENT DEPTH UPSTREAM OF ROCK BERM IS WITHIN 2-1/2 INCHES OF THE CREST.
3. INLET PROTECTION IS TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND GRASS COVER IS APPROVED, UNLESS THE CITY APPROVES EARLIER REMOVAL OF INLET PROTECTION IN STREETS.
4. WHEN INLET PROTECTION AT AREA INLETS ARE REMOVED, THE DISTURBED AREA SHALL BE DRILL SEEDED AND CRIMP MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE CITY.

IP INLET PROTECTION 10

COMPUTER FILE INFORMATION	
Creation Date: 03/10/2016	Initials: CJC
Last Modification Date: 5/4/2016	Initials: CJC
Full Path: WWW.C3GOV.COM	
Drawing Name: $FILES$	
Scale: $SCALESHORT$	Units: ENGLISH

APPROVAL
CITY ENGINEER 05-27-16 DATE

CITY OF COMMERCE CITY
Department of Public Works
8602 Rosemary St.
Commerce City, CO 80022
Ph: 303-289-8150

EROSION & SEDIMENT CONTROL
ENGINEERING CONSTRUCTION STANDARDS
DETAIL NO. 800-06
Sheet No. 6 of 14

811 Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 SOUTH SYRACUSE WAY, SUITE 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

CLIENT
COHEN DENVER AIRPORT, LLC
LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
GRADING,CONSTRUCTION,SEDIMENT CONTROL PLANS
GESC DETAILS

DATE 6/14/2021

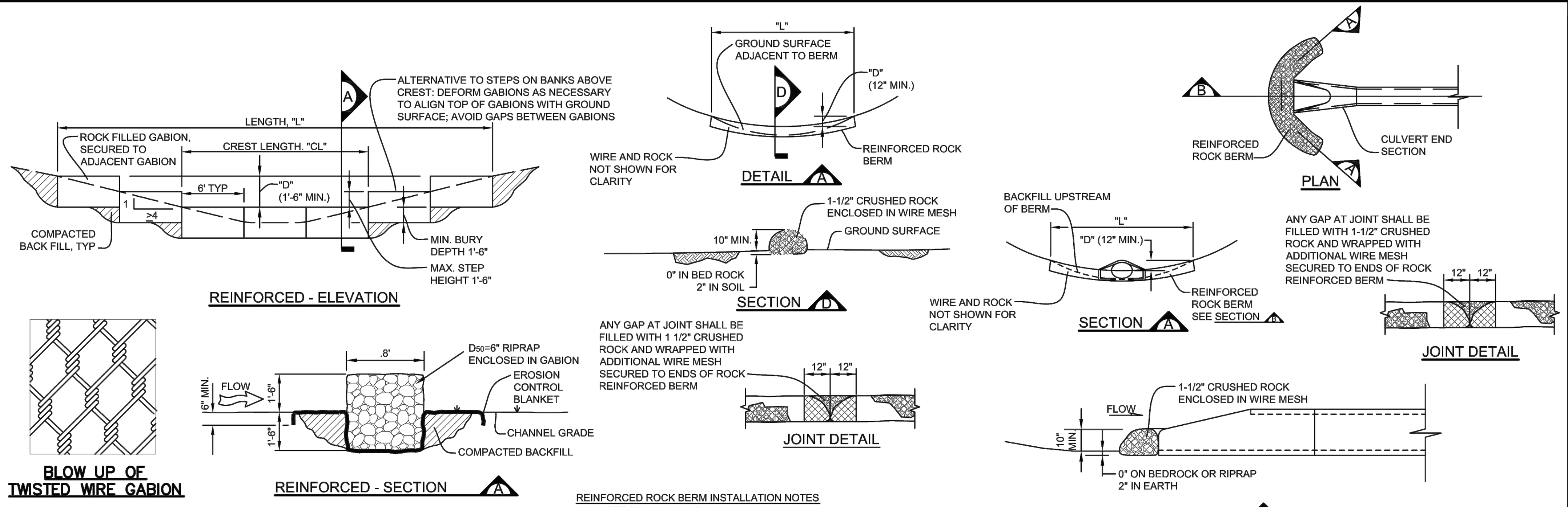
	REVISIONS
A	1st SUBMITTAL TO COMMERCE CITY 08/14/2020 – DJM
B	2ND SUBMITTAL TO COMMERCE CITY 03/18/2021 – DJM
C	3RD SUBMITTAL TO COMMERCE CITY 06/11/2021 – DJM

PLANS UNDER REVIEW NOT FOR CONSTRUCTION

DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 10

CAD FILE: 19002561-GESC-DETAILS.DWG

K:\19002561\DWG\PLAN SETS\CONSTRUCTION\GESC\19002561-GESC-DETAILS.DWG 6/14/2021 10:05 AM KRIS KOHLHOFF



REINFORCED CHECK DAM INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   - LOCATIONS OF CHECK DAMS.
   - CHECK DAM TYPE (CHECK DAM OR REINFORCED CHECK DAM).
   - LENGTH, "L", CREST LENGTH, "CL", AND DEPTH, "D".
2. CHECK DAMS INDICATED ON INITIAL ESC PLAN SHALL BE INSTALLED AFTER CONSTRUCTION FENCE, BUT PRIOR TO ANY UPSTREAM LAND-DISTURBING ACTIVITIES.
3. REINFORCED CHECK DAMS, GABIONS SHALL HAVE GALVANIZED TWISTED WIRE NETTING WITH A MAXIMUM OPENING DIMENSION OF 4-1/2" AND A MINIMUM WIRE THICKNESS OF 0.10". WIRE "HOG RINGS" AT 4" SPACING OR OTHER APPROVED MEANS SHALL BE USED AT ALL GABION SEAMS AND TO SECURE THE GABION TO THE ADJACENT GABION.
4. RIPRAP UTILIZED FOR CHECK DAMS SHALL HAVE A D MEDIAN STONE SIZE OF 6".
5. THE CHECK DAM SHALL BE TRENCHED INTO THE GROUND A MINIMUM OF 1'-6".
6. EROSION BLANKET SHALL BE PLACED IN THE REINFORCED CHECK DAM TRENCH EXTENDING A MINIMUM OF 1'-6" ON BOTH THE UPSTREAM AND DOWNSTREAM SIDES OF THE REINFORCED CHECK DAM.

REINFORCED CHECK DAM MAINTENANCE NOTES

1. THE ESC MANAGER SHALL INSPECT CHECK DAMS WEEKLY, DURING AND AFTER ANY STORM EVENT AND MAKE REPAIRS OR CLEAN OUT AS NECESSARY.
2. SEDIMENT ACCUMULATED UPSTREAM OF CHECK DAMS SHALL BE REMOVED WHEN THE SEDIMENT DEPTH UPSTREAM OF CHECK DAM IS WITHIN 1/2 OF THE HEIGH OF THE CREST.
3. CHECK DAMS ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND GRASS COVER IS APPROVED BY THE CITY.
4. WHEN CHECK DAMS ARE REMOVED, EXCAVATIONS SHALL BE FILLED WITH SUITABLE COMPACTED BACK FILL. ANY DISTURBED AREA SHALL BE DRILL SEEDED AND CRIMP MULCHED AND COVERED WITH EROSION CONTROL BLANKET OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE CITY.

(RCD) REINFORCED CHECK DAM (11)

REINFORCED ROCK BERM INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   - LOCATIONS OF REINFORCED ROCK BERMS.
   - LENGTH, "L", AND DEPTH, "D" DIMENSIONS.
2. REINFORCED ROCK BERM SECTION APPLIES TO CULVERT INLET FILTER AND INLET PROTECTION.
3. CRUSHED ROCK SHALL BE FRACTURED FACE (ALL SIDES) AND SHALL COMPLY WITH GRADATION SHOWN ON SHEET 14 (1-1/2" MINUS). RECYCLED CONCRETE MEETING THIS GRADATION MAY BE USED.
4. WIRE MESH SHALL BE FABRICATED OF 10 GAUGE WIRE TWISTED INTO A MESH WITH A MAXIMUM OPENING OF 1.0 INCH (COMMONLY TERMED "CHICKEN WIRE"). ROLL WIDTH SHALL BE 48-INCHES.
5. WIRE MESH SHALL BE SECURED USING "HOG RINGS" OR WIRE TIES AT 6-INCH CENTERS ALONG ALL JOINTS AND AT 2-INCH CENTERS ON ENDS OF BERM.
6. FOR CONCENTRATED FLOW AREAS THE ENDS OF THE REINFORCED ROCK BERM SHALL BE 12" HIGHER THAN THE CENTER OF THE BERM.

REINFORCED ROCK BERM MAINTENANCE NOTES

1. THE ESC MANAGER SHALL INSPECT REINFORCED ROCK BERM WEEKLY, DURING AND AFTER ANY STORM EVENT AND MAKE REPAIRS OR CLEAN OUT AS NECESSARY.
2. SEDIMENT ACCUMULATED UPSTREAM OF REINFORCED ROCK BERM SHALL BE REMOVED WHEN THE SEDIMENT DEPTH UPSTREAM OF FILTER IS WITHIN 5 INCHES OF THE CREST.
3. REINFORCED ROCK BERMS ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND GRASS COVER IS APPROVED.
4. WHEN REINFORCED ROCK BERMS ARE REMOVED, ANY DISTURBED AREA SHALL BE DRILL SEEDED AND CRIMP MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE CITY.

(RRB) REINFORCED ROCK BERM (12)

INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   - LOCATIONS OF CULVERT INLET FILTERS.
   - LENGTH, "L", AND DEPTH, "D".
2. CRUSHED ROCK SHALL BE FRACTURED FACE (ALL SIDES) AND SHALL COMPLY WITH GRADATION SHOWN ON SHEET 14 (1-1/2" MINUS). RECYCLED CONCRETE MEETING THIS GRADATION MAY BE USED.
3. WIRE MESH SHALL BE FABRICATED OF 10 GAUGE WIRE TWISTED INTO A MESH WITH A MAXIMUM OPENING OF 1.0 INCH (COMMONLY TERMED "CHICKEN WIRE").
4. WIRE MESH SHALL BE SECURED USING "HOG RINGS" OR WIRE TIES AT 6-INCH CENTERS ALONG ALL JOINTS AND AT 2-INCH CENTERS ON ENDS OF BERM.
5. THE ENDS OF THE REINFORCED ROCK BERM SHALL BE 12" HIGHER THAN THE CENTER OF THE BERM.

MAINTENANCE NOTES

1. THE ESC MANAGER SHALL INSPECT CULVERT INLET FILTER WEEKLY, DURING AND AFTER ANY STORM EVENT AND MAKE REPAIRS OR CLEAN OUT AS NECESSARY.
2. SEDIMENT ACCUMULATED UPSTREAM OF CULVERT INLET FILTER SHALL BE REMOVED WHEN THE SEDIMENT DEPTH UPSTREAM OF FILTER IS 1/2 THE HEITH OF THE REINFORCED ROCK BERM.
3. RRB FOR CULVERT PROTECTION ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND GRASS COVER IS APPROVED BY THE CITY.
4. WHEN CULVERT INLET FILTERS ARE REMOVED, ANY DISTURBED AREA SHALL BE DRILL SEEDED AND CRIMP MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE CITY.

(RRC) RRB FOR CULVERT PROTECTION (13)

COMPUTER FILE INFORMATION	
Creation Date: 03/10/2016	Initials: CJC
Last Modification Date: 5/4/2016	Initials: CJC
Full Path: WWW.C3GOV.COM	
Drawing Name: $FILES$	
Scale: $SCALESHORT$	Units: ENGLISH

APPROVAL — CITY ENGINEER 05-27-16 DATE

CITY OF COMMERCE CITY
Department of Public Works
8602 Rosemary St.
Commerce City, CO 80022
Ph: 303-289-8150

EROSION & SEDIMENT CONTROL
ENGINEERING CONSTRUCTION STANDARDS
DETAIL NO. 800-07
Sheet No. 7 of 14

S:\Tranproj\100049520 - Commerce City Engineering Standards\Design\Drawings\Reference_Files\CCC DWGs\800-01 thru 800-07 (Erosion & Sediment Control).dwg

SEEDING AND MULCHING INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   - AREA OF SEEDING AND MULCHING.
   - TYPE OF SEED MIX (PERMANENT, TEMPORARY, OR LOW-GROWTH).
2. ALL BRANDS FURNISHED SHALL BE FREE FROM SUCH NOXIOUS SEEDS AS RUSSIAN OR CANADIAN THISTLE, COARSE FESCUE, EUROPEAN BINDWEED, JOHNSON GRASS, KNAP WEED AND LEAFY SPURGE.
3. THE SEEDER SHALL FURNISH TO THE CONTRACTOR A SIGNED STATEMENT CERTIFYING THAT THE SEED FURNISHED IS FROM A LOT THAT HAS BEEN TESTED BY A RECOGNIZED LABORATORY. SEED WHICH HAS BECOME WET, MOLDY, OR OTHERWISE DAMAGED IN TRANSIT OR IN STORAGE WILL NOT BE ACCEPTABLE. SEED TICKETS SHALL BE PROVIDED TO THE CITY UPON REQUEST.
4. DRILL SEEDING MIX SHALL CONFORM TO THE TABLE ON THE RIGHT:
5. IF THE SEED AVAILABLE ON THE MARKET DOES NOT MEET THE MINIMUM PURITY AND GERMINATION PERCENTAGES SPECIFIED, THE SUBCONTRACTOR MUST COMPENSATE FOR A LESSER PERCENTAGE OF PURITY OR GERMINATION BY FURNISHING SUFFICIENT ADDITIONAL SEED TO EQUAL THE SPECIFIED PRODUCT. THE TAGS FROM THE SEED MIXES MUST BE SUPPLIED TO CONTRACTOR AND FORWARDED TO THE CITY INSPECTOR.
6. THE FORMULA USED FOR DETERMINING THE QUANTITY OF PURE LIVE SEED (PLS) SHALL BE (POUNDS OF SEED) X (PURITY) X (GERMINATION) = POUNDS OF PURE LIVE SEED (PLS).
7. PERMANENT SEED MIX SHALL BE USED UNLESS OTHERWISE APPROVED BY THE CITY.
8. ALL AREAS TO BE SEEDED AND MULCHED SHALL HAVE NATIVE TOPSOIL OR APPROVED SOIL AMENDMENTS SPREAD TO A DEPTH OF AT LEAST 6 INCHES (LOOSE DEPTH). HAUL ROADS AND OTHER COMPACTED AREAS SHALL BE LOOSENED TO A DEPTH OF 6 INCHES PRIOR TO SPREADING TOPSOIL.
9. SOIL IS TO BE THOROUGHLY LOOSENED (TILLED) TO A DEPTH OF AT LEAST 6 INCHES PRIOR TO SEEDING. THE TOP 6 INCHES OF THE SEED BED SHALL BE FREE OF ROCKS GREATER THAN 4 INCHES AND SOIL CLODS GREATER THAN 2 INCHES. SEEDING OVER ANY COMPACTED AREAS THAT HAVEN'T BEEN THOROUGHLY LOOSENED SHALL BE REJECTED.
10. SEED IS TO BE APPLIED USING A MECHANICAL DRILL TO A DEPTH OF 1/4 INCH. ROW SPACING SHALL BE NO MORE THAN 6 INCHES. MATERIAL USED FOR MULCH SHALL CONSIST OF LONG-STEMMED STRAW. AT LEAST 50 PERCENT OF THE MULCH, BY WEIGHT, SHALL BE 10 INCHES OR MORE IN LENGTH. MULCH SHALL BE APPLIED AND MECHANICALLY ANCHORED TO A DEPTH OF AT LEAST 2 INCHES. MULCH SHALL BE APPLIED AT A RATE OF 4000 LB. OF STRAW PER ACRE.
11. IF THE PERMITTEE DEMONSTRATES TO THE CITY THAT IT IS NOT POSSIBLE TO DRILL SEED, SEED IS TO BE UNIFORMLY BROADCAST AT TWO TIMES THE DRILLED RATE, THEN LIGHTLY HARROWED TO PROVIDE A SEED DEPTH OF APPROXIMATELY 1/4 INCH, THEN ROLLED TO COMPACT, THEN MULCHED AS SPECIFIED ABOVE.
12. SEEDING AND MULCHING SHALL BE COMPLETED WITHIN 30 DAYS OF INITIAL EXPOSURE OR 7 DAYS AFTER GRADING IS SUBSTANTIALLY COMPLETE IN A GIVEN AREA (AS DEFINED BY THE CITY. THIS MAY REQUIRE MULTIPLE MOBILIZATIONS FOR SEEDING AND MULCHING.
13. MULCH SHALL BE APPLIED WITHIN 24-HOURS OF SEEDING.
14. TACKIFIER SHOULD BE UTILIZED TO HELP WITH STRAW DISPLACEMENT.

SEEDING AND MULCHING MAINTENANCE NOTES

1. SEEDED AND MULCHED AREAS SHALL BE INSPECTED FOR REQUIRED COVERAGE MONTHLY FOR A PERIOD OF TWO YEARS FOLLOWING INITIAL SEEDING. REPAIRS AND RE-SEEDING AND MULCHING SHALL BE UNDERTAKEN AFTER THE FIRST GROWING SEASON FOR ANY AREAS FAILING TO MEET THE REQUIRED COVERAGE.
2. REQUIRED COVERAGE FOR STANDARD, OPEN SPACE AND LOW GROWTH SEED MIXES SHALL BE DEFINED AS FOLLOWS:
   1. THREE (3) PLANTS PER SQUARE FOOT WITH A MINIMUM HEIGHT OF 3 INCHES. THE 3 PLANTS PER SQUARE FOOT SHALL BE OF THE VARIETY AND SPECIES FOUND IN THE CITY APPROVED MIX.
   2. NO BARE AREAS LARGER THAN 4 SQUARE FEET (TWO-FEET BY TWO-FEET OR EQUIVALENT).
   3. FREE OF ERODED AREAS.
   4. FREE FROM INFESTATION OF NOXIOUS WEEDS IN ACCORDANCE WITH SECTION 6.4 OF THE GESC CRITERIA MANUAL.
3. REQUIRED COVERAGE FOR TURF GRASS AREAS SHALL BE DEFINED AS FOLLOWS:
   1. AT LEAST 80% VEGETATIVE COVER OF GRASS SPECIES PLANTED.
   2. NO BARE AREAS LARGER THAN 4 SQUARE FEET (TWO-FEET BY TWO-FEET OR EQUIVALENT).
   3. FREE OF ERODED AREAS.
   4. FREE FROM INFESTATION OF NOXIOUS WEEDS IN ACCORDANCE WITH SECTION 6.4 OF THE GESC CRITERIA MANUAL.
4. RILL AND GULLY EROSION SHALL BE FILLED WITH TOPSOIL PRIOR TO RESEEDING. THE RESEEDING METHOD SHALL BE APPROVED BY THE CITY.

PERMANENT DRILL SEEDING MIX

SPECIES	VARIETY	NOTES	% IN MIX	POUNDS OF PLS PER ACRE
BIG BLUESTEM	KAW	PNWS	10	1.1
YELLOW INDIANGRASS	CHEYENNE	PNWS	10	1
SWITCHGRASS	BLACKWELL	PNWS	10	0.4
SIDEOATS GRAMA	VAUGHN	PNWB	10	0.9
WESTERN WHEATGRASS	ARRIBA	PNCS	10	1.6
BLUE GRAMA	HACHITA	PNWB	10	0.3
THICKSPIKE WHEATGRASS	CRITANA	PNCS	10	1
PRAIRIE SANDREED	GOSHEN	PNWS	10	0.7
GREEN NEEDLEGRASS	LODORM	PNCB	10	1
SLENDER WHEATGRASS	PRYOR	PNCB	5	0.6
STREAMBANK WHEATGRASS	SODAR	PNCS	5	0.6
			TOTAL	9.2

TEMPORARY DRILL SEEDING MIX

SPECIES	VARIETY	NOTES	% IN MIX	POUNDS OF PLS PER ACRE
SMOOTH BROMEGRASS	LINCOLN	PICS	30	3.9
INTERMEDIATE WHEATGRASS	OAHE	PICS	30	4.5
PUBESCENT WHEATGRASS	LUNA	PICS	30	4.2
ANNUAL RYEGRASS	N/A	AICB	10	0.8
			TOTAL	13.4

LOW-GROWTH DRILL SEEDING MIX

SPECIES	VARIETY	NOTES	% IN MIX	POUNDS OF PLS PER ACRE
BUFFALOGRASS	TEXOKA	PNWS	20	3.2
BLUE GRAMA	HACHITA	PNWB	20	0.6
WESTERN WHEATGRASS	ARRIBA	PNCS	20	3.2
SIDEOATS GRAMA	VAUGHN	PNWB	20	1.8
THICKSPIKE WHEATGRASS	CRITANA	PNCS	10	1
STREAMBANK WHEATGRASS	SODAR	PNCS	10	1.2
			TOTAL	11.0

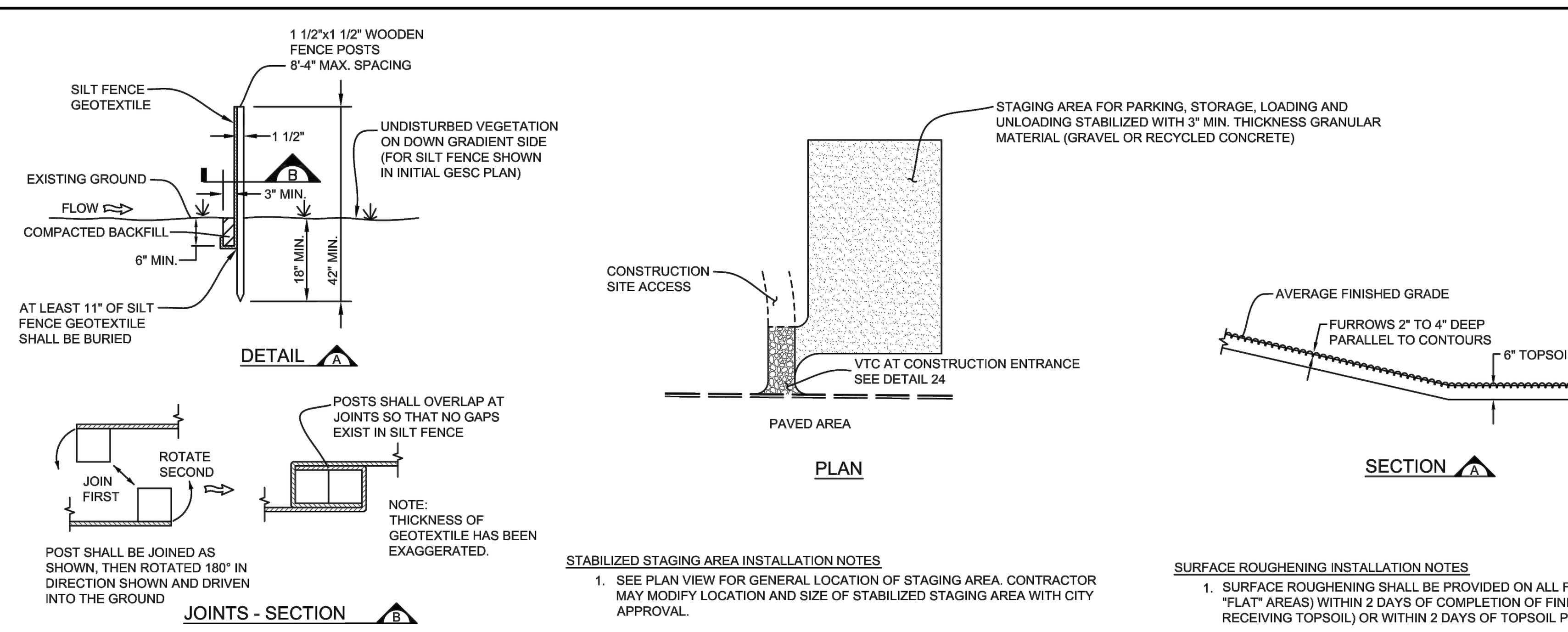
(SM) SEEDING AND MULCHING (17)

COMPUTER FILE INFORMATION	
Creation Date: 03/10/2016	Initials: CJC
Last Modification Date: 5/4/2016	Initials: CJC
Full Path: WWW.C3GOV.COM	
Drawing Name: $FILES$	
Scale: $SCALESHORT$	Units: ENGLISH

APPROVAL — CITY ENGINEER 05-27-16 DATE

CITY OF COMMERCE CITY
Department of Public Works
8602 Rosemary St.
Commerce City, CO 80022
Ph: 303-289-8150

EROSION & SEDIMENT CONTROL
ENGINEERING CONSTRUCTION STANDARDS
DETAIL NO. 800-10
Sheet No. 10 of 14



SILT FENCE INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   - LOCATION AND LENGTH OF FENCE.
2. ANCHOR TRENCH SHALL BE EXCAVATED WITH TRENCHER, OR WITH SILT FENCE INSTALLATION MACHINE; NO ROAD GRADERS, BACKHOES, ETC. SHALL BE USED. TRENCH SHALL BE COMPACTED BY HAND, WITH "JUMPING JACK", OR BY WHEEL ROLLING. COMPACTION SHALL BE SUCH THAT SILT FENCE RESISTS BEING PULLED OUT OF ANCHOR TRENCH BY HAND.
3. SILT FENCE GEOTEXTILE SHALL MEET THE FOLLOWING REQUIREMENTS:
   - 6-TO 12-GALLONS PER MINUTE PER SQUARE FOOT FLOW CAPACITY.
   - 90 LB. TENSILE STRENGTH PER ASTM D4622.
   - UV DESIGN AT 500 HRS MIN. 70% STRENGTH RETAINED PER ASTM D 4355.
4. SILT FENCE INDICATED ON INITIAL ESC PLAN SHALL BE INSTALLED PRIOR TO ANY LAND-DISTURBING ACTIVITIES.

SILT FENCE MAINTENANCE NOTES

1. THE ESC MANAGER SHALL INSPECT SILT FENCE WEEKLY, DURING AND AFTER ANY STORM EVENT AND MAKE REPAIRS OR CLEAN OUT UPSTREAM SEDIMENT AS NECESSARY.
2. SEDIMENT ACCUMULATED UPSTREAM OF SILT FENCE SHALL BE REMOVED WHEN THE UPSTREAM SEDIMENT REACHES A DEPTH OF 6-INCHES.
3. SILT FENCE SHALL BE REMOVED WHEN THE UPSTREAM DISTURBED AREA IS STABILIZED AND GRASS COVER IS APPROVED BY THE CITY. IF ANY DISTURBED AREA EXISTS AFTER REMOVAL, IT SHALL BE SEEDED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE CITY.

(SF) SILT FENCE (18)

STABILIZED STAGING AREA INSTALLATION NOTES

1. SEE PLAN VIEW FOR GENERAL LOCATION OF STAGING AREA. CONTRACTOR MAY MODIFY LOCATION AND SIZE OF STABILIZED STAGING AREA WITH CITY APPROVAL.
2. STABILIZED STAGING AREA SHALL BE LARGE ENOUGH TO FULLY CONTAIN PARKING, STORAGE, AND UNLOADING AND LOADING OPERATIONS.
3. IF REQUIRED BY THE CITY, SITE ACCESS ROADS SHALL BE STABILIZED IN THE SAME MANNER AS THE STAGING AREA.
4. STAGING AREA SHALL BE STABILIZED PRIOR TO ANY OTHER OPERATIONS ON THE SITE.
5. THE STABILIZED STAGING AREA SHALL CONSIST OF A MINIMUM OF 3" OF GRANULAR MATERIAL (GRAVEL OR RECYCLED CONCRETE).

STABILIZED STAGING AREA MAINTENANCE NOTES

1. THE ESC MANAGER SHALL INSPECT THE STABILIZED STAGING AREA WEEKLY, DURING AND AFTER ANY STORM EVENT AND MAKE REPAIRS OR CLEAN OUT UPSTREAM SEDIMENT AS NECESSARY.
2. ESC MANAGER SHALL PROVIDE ADDITIONAL THICKNESS OF GRANULAR MATERIAL IF ANY RUTTING OCCURS OR UNDERLYING SUBGRADE BECOMES EXPOSED.
3. STABILIZED STAGING AREA SHALL BE ENLARGED IF NECESSARY TO CONTAIN PARKING, STORAGE, AND UNLOADING AND LOADING OPERATIONS.
4. ANY ACCUMULATED DIRT OR MUD SHALL BE REMOVED FROM THE SURFACE OF THE STABILIZED STAGING AREA.
5. THE STABILIZED STAGING AREA SHALL BE REMOVED AT THE END OF CONSTRUCTION. THE GRANULAR MATERIAL SHALL BE REMOVED OR, IF APPROVED BY THE CITY, USED ON SITE, AND THE AREA TOPSOILED, DRILL SEEDED AND CRIMP MULCHED OR OTHERWISE STABILIZED.

(SSA) STABILIZED STAGING AREA (19)

SURFACE ROUGHENING INSTALLATION NOTES

1. SURFACE ROUGHENING SHALL BE PROVIDED ON ALL FINISHED GRADES (SLOPES AND "FLAT" AREAS) WITHIN 2 DAYS OF COMPLETION OF FINISHED GRADE (FOR AREAS NOT RECEIVING TOPSOIL) OR WITHIN 2 DAYS OF TOPSOIL PLACEMENT.
2. AREAS WHERE BUILDING FOUNDATIONS, PAVEMENT, OR SOD IS TO BE PLACED WITHIN 7-DAYS OF FINISHED GRADING DO NOT NEED TO BE SURFACE ROUGHENED.
3. DISTURBED SURFACES SHALL BE ROUGHENED USING RIPPING OR TILLING EQUIPMENT ON THE CONTOUR OR TRACKING UP AND DOWN A SLOPE USING EQUIPMENT TREADS.

SURFACE ROUGHENING MAINTENANCE NOTES

1. THE ESC MANAGER SHALL INSPECT THE SURFACE ROUGHENING WEEKLY, DURING AND AFTER ANY STORM EVENT AND MAKE REPAIRS OR CLEAN OUT UPSTREAM SEDIMENT AS NECESSARY.
2. VEHICLES AND EQUIPMENT SHALL GENERALLY BE CONFINED TO ACCESS DRIVES AND SHALL NOT BE DRIVEN OVER AREAS THAT HAVE BEEN SURFACE ROUGHENED.
3. IN NON-TURF GRASS FINISHED AREAS, SEEDING AND MULCHING SHALL TAKE PLACE DIRECTLY OVER SURFACE ROUGHENED AREAS WITHOUT FIRST SMOOTHING OUT THE SURFACE.
4. IN AREAS NOT SEEDED AND MULCHED AFTER SURFACE ROUGHENING, SURFACES SHALL BE RE-ROUGHENED AS NECESSARY TO MAINTAIN GROOVE DEPTH AND SMOOTH OVER ANY RILL EROSION.

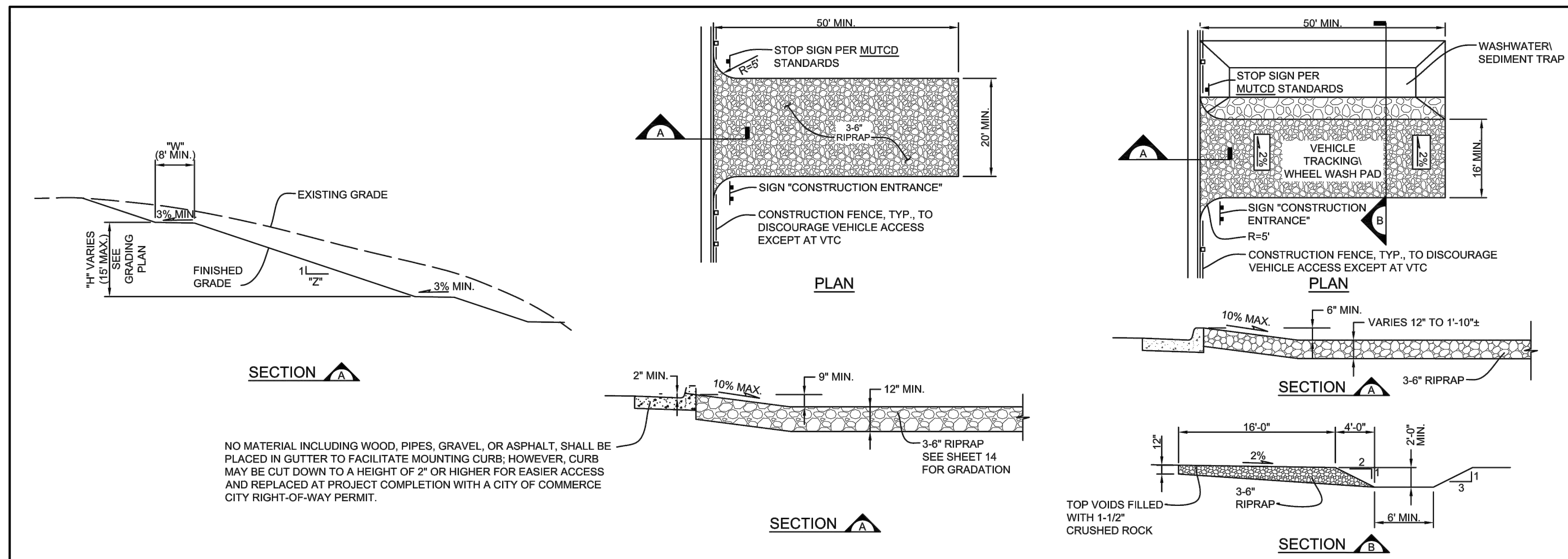
(SR) SURFACE ROUGHENING (20)

COMPUTER FILE INFORMATION	
Creation Date: 03/10/2016	Initials: CJC
Last Modification Date: 5/4/2016	Initials: CJC
Full Path: WWW.C3GOV.COM	
Drawing Name: $FILES$	
Scale: $SCALESHORT$	Units: ENGLISH

APPROVAL — CITY ENGINEER 05-27-16 DATE

CITY OF COMMERCE CITY
Department of Public Works
8602 Rosemary St.
Commerce City, CO 80022
Ph: 303-289-8150

EROSION & SEDIMENT CONTROL
ENGINEERING CONSTRUCTION STANDARDS
DETAIL NO. 800-11
Sheet No. 11 of 14



TERRACING INSTALLATION NOTES

SEE PLAN VIEW FOR:
- WIDTH, "W", AND SLOPE, "Z".

TERRACING IS NOT REQUIRED FOR SLOPES OF 4 TO 1 OR FLATTER.

EARTH (VEGETATED) SLOPES STEEPER THAN 3 TO 1 ARE NOT ALLOWED ON THE SITE.

TERRACING MAINTENANCE NOTES

THE ESC MANAGER SHALL INSPECT THE SURFACE ROUGHENING WEEKLY, DURING AND AFTER ANY STORM EVENT AND MAKE REPAIRS OR CLEAN OUT UPSTREAM SEDIMENT AS NECESSARY.

ANY RILL EROSION OCCURRING ON SLOPES SHALL BE REPAIRED AND RESEEDED AND MULCHED IN ACCORDANCE WITH DETAIL 17.

(TER) TERRACING (23)

VEHICLE TRACKING CONTROL INSTALLATION NOTES

1. VEHICLE TRACKING CONTROL PADS SHALL BE INSTALLED AT EVERY ACCESS POINT TO SITE.
2. VEHICLE TRACKING CONTROL PADS SHALL CONSIST OF HARD, DENSE, DURABLE STONE, ANGULAR IN SHAPE AND RESISTANT TO WEATHERING. ROUNDED STONE OR BOULDERS WILL NOT BE ACCEPTABLE. THE STONES SHALL BE 3" WITH A MAXIMUM SIZE OF 6". THE STONE SHALL HAVE A SPECIFIC GRAVITY OF AT LEAST 2.6. CONTROL OF GRADATION WILL BE BY VISUAL INSPECTIONS.
3. ANY CRACKED OR DAMAGED CURB AND GUTTER AND SIDEWALK SHALL BE REPLACED BY PERMITTEE.
4. A STOP SIGN INSTALLED IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), AS AMENDED, SHALL BE INSTALLED FOR EXITING TRAFFIC AT THE VTC.

VEHICLE TRACKING CONTROL MAINTENANCE NOTES

1. ESC MANAGER SHALL INSPECT VEHICLE TRACKING CONTROL DAILY. GRAVEL SURFACE SHALL BE CLEAN AND LOOSE ENOUGH TO RUT SLIGHTLY UNDER WHEEL LOADS AND CAUSE LOOSE GRAVEL TO DISLODGE MUD FROM TIRES. WHEN GRAVEL BECOMES COMPACTED OR FILLED WITH SEDIMENT SO THAT THE EFFECTIVENESS OF THE PAD IS DIMINISHED, CONTRACTOR SHALL RIP, TURN OVER, OR OTHERWISE LOOSEN GRAVEL, PLACE ADDITIONAL NEW GRAVEL, OR REPLACE WITH NEW GRAVEL AS NECESSARY TO RESTORE EFFECTIVENESS.
2. VEHICLE TRACKING CONTROL SHALL BE REMOVED AT THE END OF CONSTRUCTION, THE GRAVEL MATERIAL REMOVED OR, IF APPROVED BY THE CITY, USED ON SITE, AND THE AREA TOPSOILED, DRILL SEEDED AND CRIMP MULCHED OR OTHERWISE STABILIZED.

(VTC) VEHICLE TRACKING CONTROL (24)

VEHICLE TRACKING CONTROL WITH WHEEL WASH INSTALLATION NOTES

1. ALTHOUGH NOT NORMALLY USED, THE CITY RESERVES THE RIGHT TO REQUIRE VEHICLE TRACKING CONTROL WITH WHEEL WASH FACILITIES AT SITES WHERE TRACKING ONTO PAVED AREAS BECOMES A SIGNIFICANT PROBLEM.
2. IF VEHICLE TRACKING CONTROL WITH WHEEL WASH FACILITIES ARE REQUIRED, ALL WHEELS ON EVERY VEHICLE LEAVING THE SITE SHALL BE CLEANED OF MUD USING A PRESSURE-WASHER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING A WATER SOURCE.
3. VEHICLE TRACKING CONTROL PADS SHALL CONSIST OF HARD, DENSE, DURABLE STONE, ANGULAR IN SHAPE AND RESISTANT TO WEATHERING. ROUNDED STONE OR BOULDERS WILL NOT BE ACCEPTABLE. THE STONES SHALL BE 3" WITH A MAXIMUM SIZE OF 6". THE STONE SHALL HAVE A SPECIFIC GRAVITY OF AT LEAST 2.6. CONTROL OF GRADATION WILL BE BY VISUAL INSPECTIONS.
4. ANY CRACKED OR DAMAGED CURB AND GUTTER AND SIDEWALK SHALL BE REPLACED BY CONTRACTOR.
5. A STOP SIGN INSTALLED IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), AS AMENDED, SHALL BE INSTALLED FOR EXITING TRAFFIC AT THE VTC.

VEHICLE TRACKING CONTROL WITH WHEEL WASH MAINTENANCE NOTES

1. ESC MANAGER SHALL INSPECT VEHICLE TRACKING CONTROL WITH WHEEL WASH FACILITIES DAILY. ACCUMULATED SEDIMENTS SHALL BE REMOVED FROM PAD SURFACE.
2. ACCUMULATED SEDIMENT IN THE WASHWATER/SEDIMENT TRAP SHALL BE REMOVED WHEN THE SEDIMENT DEPTH REACHES AN AVERAGE OF 12-INCHES.
3. VEHICLE TRACKING CONTROL WITH WHEEL WASH FACILITY SHALL BE REMOVED AT THE END OF CONSTRUCTION, THE RIPRAP MATERIAL REMOVED OR, IF APPROVED BY THE CITY, USED ON SITE, AND THE AREA TOPSOILED, DRILL SEEDED AND CRIMP MULCHED OR OTHERWISE STABILIZED.

(WW) VTC WITH WHEEL WASH (25)

COMPUTER FILE INFORMATION	
Creation Date: 03/10/2016	Initials: CJC
Last Modification Date: 5/4/2016	Initials: CJC
Full Path: WWW.C3GOV.COM	
Drawing Name: $FILES$	
Scale: $SCALESHORT$	Units: ENGLISH

APPROVAL — CITY ENGINEER 05-27-16 DATE

CITY OF COMMERCE CITY
Department of Public Works
8602 Rosemary St.
Commerce City, CO 80022
Ph: 303-289-8150

EROSION & SEDIMENT CONTROL
ENGINEERING CONSTRUCTION STANDARDS
DETAIL NO. 800-13
Sheet No. 13 of 14

811 Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 SOUTH SYRACUSE WAY, SUITE 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

CLIENT
COHEN DENVER AIRPORT, LLC
LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
GRADING, EROSION, & SED. CONTROL PLANS
GESC DETAILS 02

DATE 6/14/2021

	REVISIONS
A	1st SUBMITTAL TO COMMERCE CITY 08/14/2020 – DJM
B	2ND SUBMITTAL TO COMMERCE CITY 03/18/2021 – DJM
C	3RD SUBMITTAL TO COMMERCE CITY 06/11/2021 – DJM

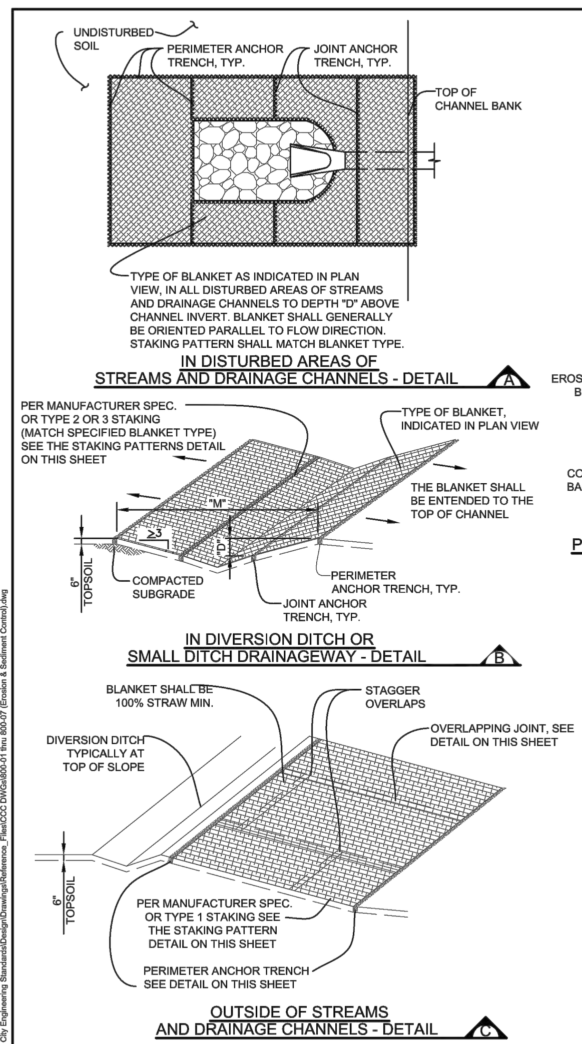
PLANS UNDER REVIEW NOT FOR CONSTRUCTION

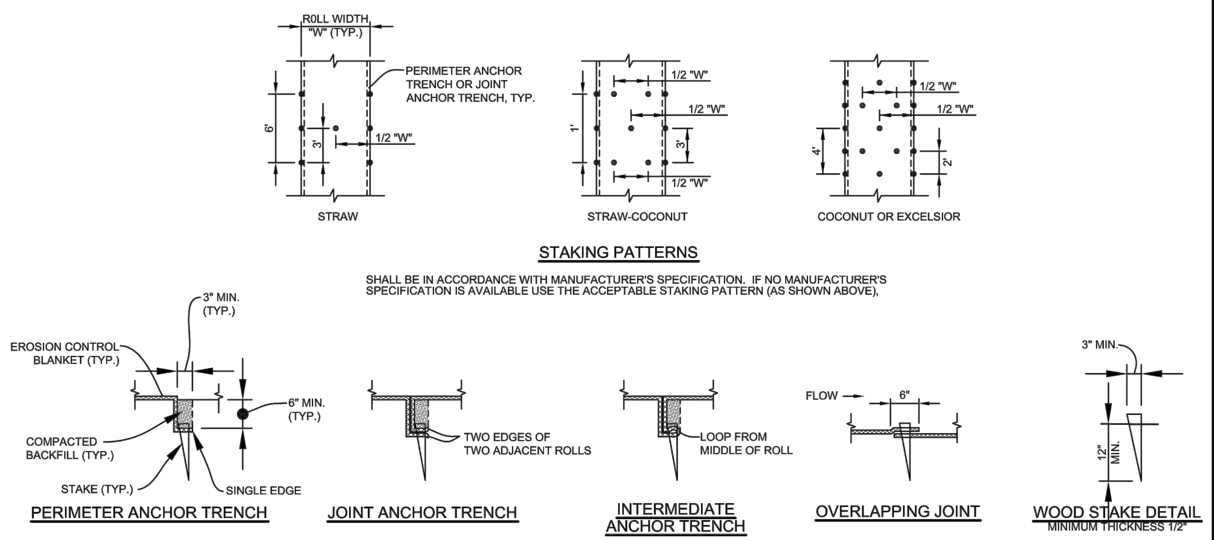
DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 11

CAD FILE: 19002561-GESC-DETAILS.DWG

K:\19002561\DWG\PLAN SETS\CONSTRUCTION\GESC\19002561-GESC-DETAILS.DWG 6/14/2021 10:05 AM KRIS KOHLHOFF

REPEAT COMMENT:
Please remove MHFD Rock Sock sheets. This information is covered in the Commerce City Stanard ESC Reinforced Rock Berm detail 800-07 shown on sheet 11 of this plan set. Use Commerce City designations on plans.





EROSION CONTROL BLANKET INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   - LOCATION OF PERIMETER OF EROSION CONTROL BLANKET.
   - TYPE OF BLANKET (STRAW, STRAW-COCONUT, COCONUT, OR EXCELSIOR).
   - AREA "A" IN SQUARE YARDS OF EACH TYPE OF BLANKET.
2. ALL EROSION CONTROL BLANKETS AND NETTING SHALL BE MADE OF 100% NATURAL AND BIODEGRADABLE MATERIAL; NO PLASTIC OR OTHER SYNTHETIC MATERIAL, EVEN IF PHOTO DEGRADABLE, SHALL BE ALLOWED.
3. IN AREAS WHERE EROSION CONTROL BLANKET IS SHOWN ON THE PLANS, THE PERMITTEE SHALL PLACE TOPSOIL AND PERFORM FINAL GRADING, SURFACE PREPARATION, AND SEEDING BELOW THE BLANKET IN ACCORDANCE WITH THE REQUIREMENTS OF DETAIL 17, SEEDING AND MULCHING. SUBGRADE SHALL BE SMOOTH AND MOIST PRIOR TO BLANKET INSTALLATION AND THE BLANKET SHALL BE IN FULL CONTACT WITH SUBGRADE, NO GAPS OR VOIDS SHALL EXIST UNDER THE BLANKET.
4. PERIMETER ANCHOR TRENCH SHALL BE USED AT OUTSIDE PERIMETER OF ALL BLANKET AREAS.
5. JOINT ANCHOR TRENCH SHALL BE USED TO JOIN ROLLS OF BLANKETS TOGETHER (LONGITUDINALLY AND TRANSVERSELY) FOR ALL BLANKETS EXCEPT STRAW, WHICH MAY USE AN OVERLAPPING JOINT.
6. INTERMEDIATE ANCHOR TRENCH SHALL BE USED AT SPACING OF ONE-HALF THE ROLL LENGTH FOR COCONUT AND EXCELSIOR BLANKETS.
7. THE OVERLAPPING JOINT DETAIL SHALL BE USED TO JOIN ROLLS OF BLANKETS TOGETHER FOR BLANKETS ON SLOPES.
8. MATERIAL SPECIFICATIONS OF EROSION CONTROL BLANKET SHALL CONFORM TO TABLE 7.1.

EROSION CONTROL BLANKET INSTALLATION NOTES - CONTINUED

9. ANY AREAS OF SEEDING AND MULCHING DISTURBED IN THE PROCESS OF INSTALLING EROSION CONTROL BLANKET SHALL BE RESEEDED AND MULCHED IN ACCORDANCE WITH DETAIL 17.
10. SEE DRAINAGE DESIGN PLANS FOR MAJOR DRAINAGEWAY STABILIZATION MEASURES THAT MAY EXCEED THE DESIGN CONDITIONS ASSOCIATED WITH THE DETAILS ABOVE.

TABLE 7.1 - EROSION CONTROL BLANKET TYPE

TYPE	COCONUT CONTENT	STRAW CONTENT	EXCELSIOR CONTENT	NETTING MIN.
STRAW*	–	100%	–	DOUBLE/NATURAL
STRAW-COCONUT	30% MIN.	70% MAX.	–	DOUBLE/NATURAL
COCONUT	100%	–	–	DOUBLE/NATURAL
EXCELSIOR	–	–	100%	DOUBLE/NATURAL

* FOR OUTSIDE OF STREAMS AND DRAINAGE CHANNELS

EROSION CONTROL BLANKET MAINTENANCE NOTES

1. THE ESC MANAGER SHALL INSPECT EROSION CONTROL BLANKETS WEEKLY, DURING AND AFTER ANY STORM EVENT AND MAKE REPAIRS AS NECESSARY.
2. EROSION CONTROL BLANKET IS TO BE LEFT IN PLACE UNLESS REQUESTED TO BE REMOVED BY THE CITY.
3. ANY EROSION CONTROL BLANKET PULLED OUT, TORN, OR OTHERWISE DAMAGED SHALL BE RE-INSTALLED. ANY SUBGRADE AREAS BELOW THE BLANKET THAT HAVE ERODED TO CREATE A VOID UNDER THE BLANKET, OR THAT REMAIN DEVOID OF GRASS SHALL BE REPAIRED, RESEEDED AND MULCHED AND THE EROSION CONTROL BLANKET REINSTALLED.

ECB EROSION CONTROL BLANKET (9)

COMPUTER FILE INFORMATION		APPROVAL	CITY OF COMMERCE CITY	EROSION & SEDIMENT CONTROL	DETAIL NO. 800-05
Creation Date: 03/10/2016	Initials: CJC	CITY ENGINEER 05-27-16 DATE	Department of Public Works, 8602 Rosemary St., Commerce City, CO 80022, Ph: 303-289-8150	ENGINEERING CONSTRUCTION STANDARDS	Sheet No. 5 of 14
Last Modification Date: 5/4/2016	Initials: CJC				
Full Path: WWW.C3GOV.COM					
Drawing Name: $FILES$					
Scale: $SCALESHORT$	Units: ENGLISH				

Rock Sock (RS) SC-5

Description

A rock sock is constructed of gravel that has been wrapped by wire mesh or a geotextile to form an elongated cylindrical filter. Rock socks are typically used either as a perimeter control or as part of inlet protection. When placed at angles in the curb line, rock socks are typically referred to as curb socks. Rock socks are intended to trap sediment from stormwater runoff that flows onto roadways as a result of construction activities.

Photograph RS-1. Rock socks placed at regular intervals in a curb line can help reduce sediment loading to storm sewer inlets. Rock socks can also be used as perimeter controls.

Appropriate Uses

Rock socks can be used at the perimeter of a disturbed area to control localized sediment loading. A benefit of rock socks as opposed to other perimeter controls is that they do not have to be trenched or staked into the ground; therefore, they are often used on roadway construction projects where paved surfaces are present.

Use rock socks in inlet protection applications when the construction of a roadway is substantially complete and the roadway has been directly connected to a receiving storm system.

Design and Installation

When rock socks are used as perimeter controls, the maximum recommended tributary drainage area per 100 lineal feet of rock socks is approximately 0.25 acres with disturbed slope length of up to 150 feet and a tributary slope gradient no steeper than 3:1. A rock sock design detail and notes are provided in Detail RS-1. Also see the Inlet Protection Fact Sheet for design and installation guidance when rock socks are used for inlet protection and in the curb line.

When placed in the gutter adjacent to a curb, rock socks should protrude no more than two feet from the curb in order for traffic to pass safely. If located in a high traffic area, place construction markers to alert drivers and street maintenance workers of their presence.

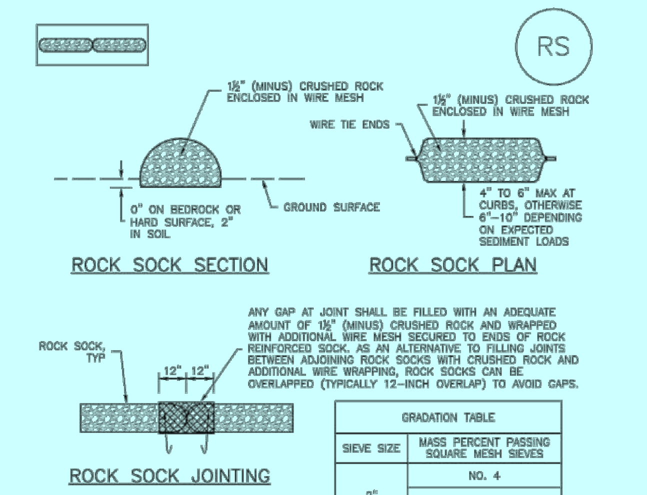
Maintenance and Removal

Rock socks are susceptible to displacement and breaking due to vehicle traffic. Inspect rock socks for damage and repair or replace as necessary. Remove sediment by sweeping or vacuuming as needed to maintain the functionality of the BMP, typically when sediment has accumulated behind the rock sock to one-half of the sock's height.

Once upstream stabilization is complete, rock socks and accumulated sediment should be removed and properly disposed.

Rock Sock	
Functions	
Erosion Control	No
Sediment Control	Yes
Site/Material Management	No

SC-5 Rock Sock (RS)



GRADATION TABLE

SIEVE SIZE	MASS PERCENT PASSING SQUARE MESH SIEVES
	NO. 4
2"	100
1½"	90 – 100
1"	20 – 55
¾"	0 – 15
⅜"	0 – 5

MATCHES SPECIFICATIONS FOR NO. 4 COARSE AGGREGATE FOR CONCRETE PER AASHTO M43. ALL ROCK SHALL BE FRACTURED FACE, ALL SIDES.

ROCK SOCK INSTALLATION NOTES

1. SEE PLAN VIEW FOR: -LOCATION(S) OF ROCK SOCKS.
2. CRUSHED ROCK SHALL BE 1½" (MINUS) IN SIZE WITH A FRACTURED FACE (ALL SIDES) AND SHALL COMPLY WITH GRADATION SHOWN ON THIS SHEET (1½" MINUS).
3. WIRE MESH SHALL BE FABRICATED OF 10 GAGE POULTRY MESH, OR EQUIVALENT, WITH A MAXIMUM OPENING OF ½", RECOMMENDED MINIMUM ROLL WIDTH OF 48".
4. WIRE MESH SHALL BE SECURED USING "HOG RINGS" OR WIRE TIES AT 6" CENTERS ALONG ALL JOINTS AND AT 2" CENTERS ON ENDS OF SOCKS.
5. SOME MUNICIPALITIES MAY ALLOW THE USE OF FILTER FABRIC AS AN ALTERNATIVE TO WIRE MESH FOR THE ROCK ENCLOSURE.

RS-1. ROCK SOCK PERIMETER CONTROL

Rock Sock (RS) SC-5

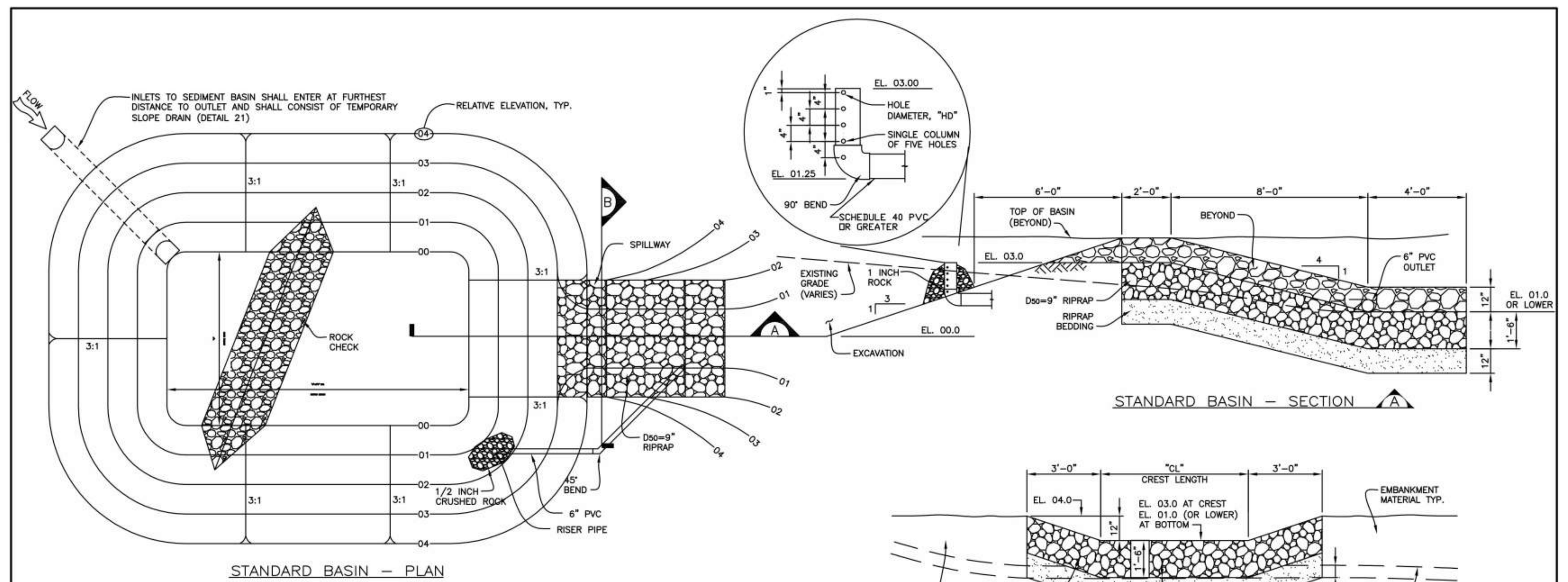
ROCK SOCK MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
4. ROCK SOCKS SHALL BE REPLACED IF THEY BECOME HEAVILY SOILED, OR DAMAGED BEYOND REPAIR.
5. SEDIMENT ACCUMULATED UPSTREAM OF ROCK SOCKS SHALL BE REMOVED AS NEEDED TO MAINTAIN FUNCTIONALITY OF THE BMP, TYPICALLY WHEN DEPTH OF ACCUMULATED SEDIMENTS IS APPROXIMATELY ½ OF THE HEIGHT OF THE ROCK SOCK.
6. ROCK SOCKS ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION.
7. WHEN ROCK SOCKS ARE REMOVED, ALL DISTURBED AREAS SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.

(DETAIL ADAPTED FROM TOWN OF PARKER, COLORADO AND CITY OF AURORA, COLORADO, NOT AVAILABLE IN AUTOCAD)

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

NOTE: THE DETAILS INCLUDED WITH THIS FACT SHEET SHOW COMMONLY USED, CONVENTIONAL METHODS OF ROCK SOCK INSTALLATION IN THE DENVER METROPOLITAN AREA. THERE ARE MANY OTHER SIMILAR PROPRIETARY PRODUCTS ON THE MARKET. UDFCD NEITHER NDORSES NOR DISCOURAGES USE OF PROPRIETARY PROTECTION PRODUCTS; HOWEVER, IN THE EVENT PROPRIETARY METHODS ARE USED, THE APPROPRIATE DETAIL FROM THE MANUFACTURER MUST BE INCLUDED IN THE SWMP AND THE BMP MUST BE INSTALLED AND MAINTAINED AS SHOWN IN THE MANUFACTURER'S DETAILS.



SEDIMENT BASIN INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   – LOCATION OF SEDIMENT BASIN.
   – TYPE OF BASIN (STANDARD BASIN OR NON-STANDARD BASIN).
   – FOR STANDARD BASIN, CREST LENGTH, "CL", BOTTOM WIDTH, "W", AND HOLE DIAMETER, "HD".
   – FOR NON-STANDARD BASIN, SEE CONSTRUCTION DRAWINGS FOR DESIGN OF BASIN INCLUDING RISER HEIGHT, "H", NUMBER OF COLUMNS, "N", HOLE DIAMETER, "HD", AND PIPE DIAMETER "D".
2. FOR STANDARD BASIN, BOTTOM DIMENSION MAY BE MODIFIED AS LONG AS BOTTOM AREA IS NOT REDUCED.
3. SEDIMENT BASINS INDICATED ON INITIAL ESC PLAN SHALL BE INSTALLED PRIOR TO ANY OTHER LAND-DISTURBING ACTIVITY.
4. EMBANKMENT MATERIAL SHALL CONSIST OF SOIL FREE OF DEBRIS, ORGANIC MATERIAL, AND ROCKS OR CONCRETE GREATER THAN 3 INCHES AND SHALL HAVE A MINIMUM OF 15 PERCENT BY WEIGHT PASSING THE NO. 200 SIEVE.
5. EMBANKMENT MATERIAL SHALL BE COMPACTED TO AT LEAST 95 PERCENT OF MAXIMUM DENSITY WITHIN 2 PERCENTAGE POINTS OF OPTIMUM DENSITY IN ACCORDANCE WITH ASTM D698.
6. PIPE SCH 40 OR GREATER SHALL BE USED.
7. THE DETAILS SHOWN ON THIS SHEET PERTAIN TO STANDARD SEDIMENT BASIN(S) IDENTIFIED ON THE ESC PLAN VIEW DRAWINGS USED FOR DRAINAGE AREAS LESS THAN 15 ACRES. SEE CONSTRUCTION DRAWINGS FOR EMBANKMENT, STORAGE VOLUME, SPILLWAY, OUTLET, AND OUTLET PROTECTION DETAILS FOR ANY SEDIMENT BASIN(S) THAT HAVE BEEN INDIVIDUALLY DESIGNED FOR DRAINAGE AREAS LARGER THAN 15 ACRES.

SEDIMENT BASIN MAINTENANCE NOTES

1. THE ESC MANAGER SHALL INSPECT SEDIMENT BASIN WEEKLY, DURING AND AFTER ANY STORM EVENT AND MAKE REPAIRS OR CLEAN OUT AS NECESSARY.
2. SEDIMENT ACCUMULATED IN SEDIMENT BASIN SHALL BE REMOVED WHEN THE SEDIMENT DEPTH IS WITHIN 2.0 FEET OF THE CREST OF THE SPILLWAY.
3. SEDIMENT BASINS ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND GRASS COVER IS APPROVED BY THE CITY.
4. IF SEDIMENT BASINS ARE REMOVED, THE DISTURBED AREA SHALL BE SEEDED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE CITY.

SB SEDIMENT BASIN (14)

COMPUTER FILE INFORMATION		APPROVAL	CITY OF COMMERCE CITY	EROSION & SEDIMENT CONTROL	DETAIL NO. 800-08
Creation Date: 03/10/2016	Initials: CJC	CITY ENGINEER 05-27-16 DATE	Department of Public Works, 8602 Rosemary St., Commerce City, CO 80022, Ph: 303-289-8150	ENGINEERING CONSTRUCTION STANDARDS	Sheet No. 8 of 14
Last Modification Date: 5/4/2016	Initials: CJC				
Full Path: WWW.C3GOV.COM					
Drawing Name: $FILES$					
Scale: $SCALESHORT$	Units: ENGLISH				

ROCK AND RIPRAP GRADATIONS

TABLE 1. RIPRAP GRADATIONS

D50 MEDIAN STONE SIZE (INCHES)	% OF MATERIAL SMALLER THAN TYPICAL STONE	TYPICAL STONE EQUIVALENT DIAMETER (INCHES)	TYPICAL STONE WEIGHT (POUNDS)
6	70 - 100 50 - 70 35 - 50 2 - 10	12 9 6 2	85 35 10 0.4
9	70 - 100 50 - 70 35 - 50 2 - 10	15 12 9 3	160 85 35 1.3
12	70 - 100 50 - 70 35 - 50 2 - 10	21 18 12 4	440 275 85 3
18	100 50 - 70 35 - 50 2 - 10	30 24 18 6	1280 650 275 10
24	100 50 - 70 35 - 50 2 - 10	42 33 24 9	3500 1700 650 35

TABLE 2. RIPRAP BEDDING

SIEVE SIZE	MASS PERCENT PASSING SQUARE MESH SIEVES
	CLASS A
3"	100
1 1/2"	20 - 90
NO. 4	0 - 20
NO. 200	0 - 3

MATCHES SPECIFICATIONS FOR CDOT CLASS A FILTER MATERIAL AND UDFCD TYPE 1 BEDDING. ALL ROCK SHALL BE FRACTURED FACE, ALL SIDES.

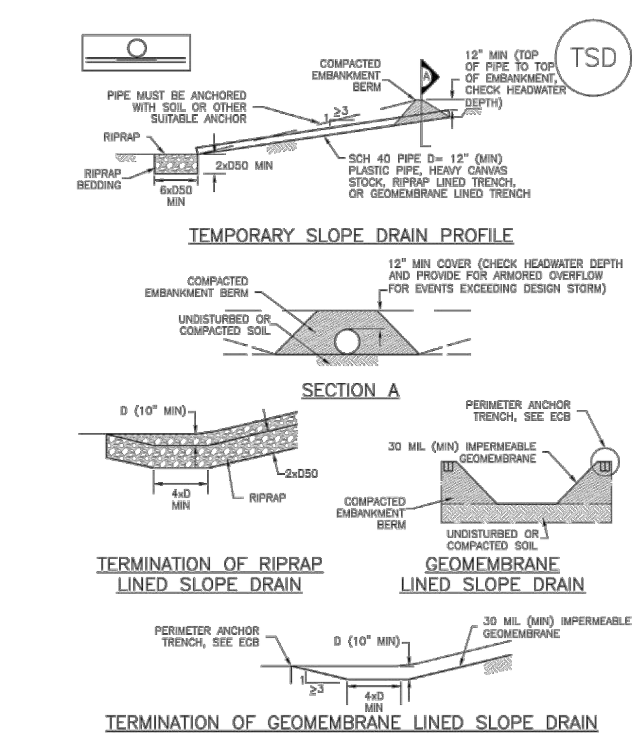
TABLE 3. 1 1/2" CRUSHED ROCK

SIEVE SIZE	MASS PERCENT PASSING SQUARE MESH SIEVES
	NO. 4
2"	100
1 1/2"	90 - 100
1"	20 - 55
3/4"	0 - 15
3/8"	0 - 5

MATCHES SPECIFICATIONS FOR NO. 4 COARSE AGGREGATE FOR CONCRETE PER AASHTO M43. ALL ROCK SHALL BE FRACTURED FACE, ALL SIDES.

COMPUTER FILE INFORMATION		APPROVAL	CITY OF COMMERCE CITY	EROSION & SEDIMENT CONTROL	DETAIL NO. 800-14
Creation Date: 03/10/2016	Initials: CJC	CITY ENGINEER 05-27-16 DATE	Department of Public Works, 8602 Rosemary St., Commerce City, CO 80022, Ph: 303-289-8150	ENGINEERING CONSTRUCTION STANDARDS	Sheet No. 14 of 14
Last Modification Date: 5/4/2016	Initials: CJC				
Full Path: WWW.C3GOV.COM					
Drawing Name: $FILES$					
Scale: $SCALESHORT$	Units: ENGLISH				

Temporary Slope Drains (TSD) EC-7



TSD-1. TEMPORARY SLOPE DRAIN PROFILE

REPEAT COMMENT:
Add Street Sweeping and Cleaning section S-11 from MHFD Vol. III (sheets SWC-1 & SWC-2)

REPEAT COMMENT:
Fix text overwrite in title block.

Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2021 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 SOUTH SYRACUSE WAY, SUITE 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

CLIENT
COHEN DENVER AIRPORT, LLC
LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
GRADING, EROSION & SEDIMENT CONTROL PLANS
CONSTRUCTION DOCUMENTS
GESC DETAILS 03

DATE 6/14/2021

	REVISIONS
A	1ST SUBMITTAL TO COMMERCE CITY 08/14/2020 – DJM
B	2ND SUBMITTAL TO COMMERCE CITY 03/18/2021 – DJM
C	3RD SUBMITTAL TO COMMERCE CITY 06/11/2021 – DJM

PLANS UNDER REVIEW NOT FOR CONSTRUCTION

DR. JRB CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 12

CAD FILE: 19002561-GESC-DETAILS.DWG

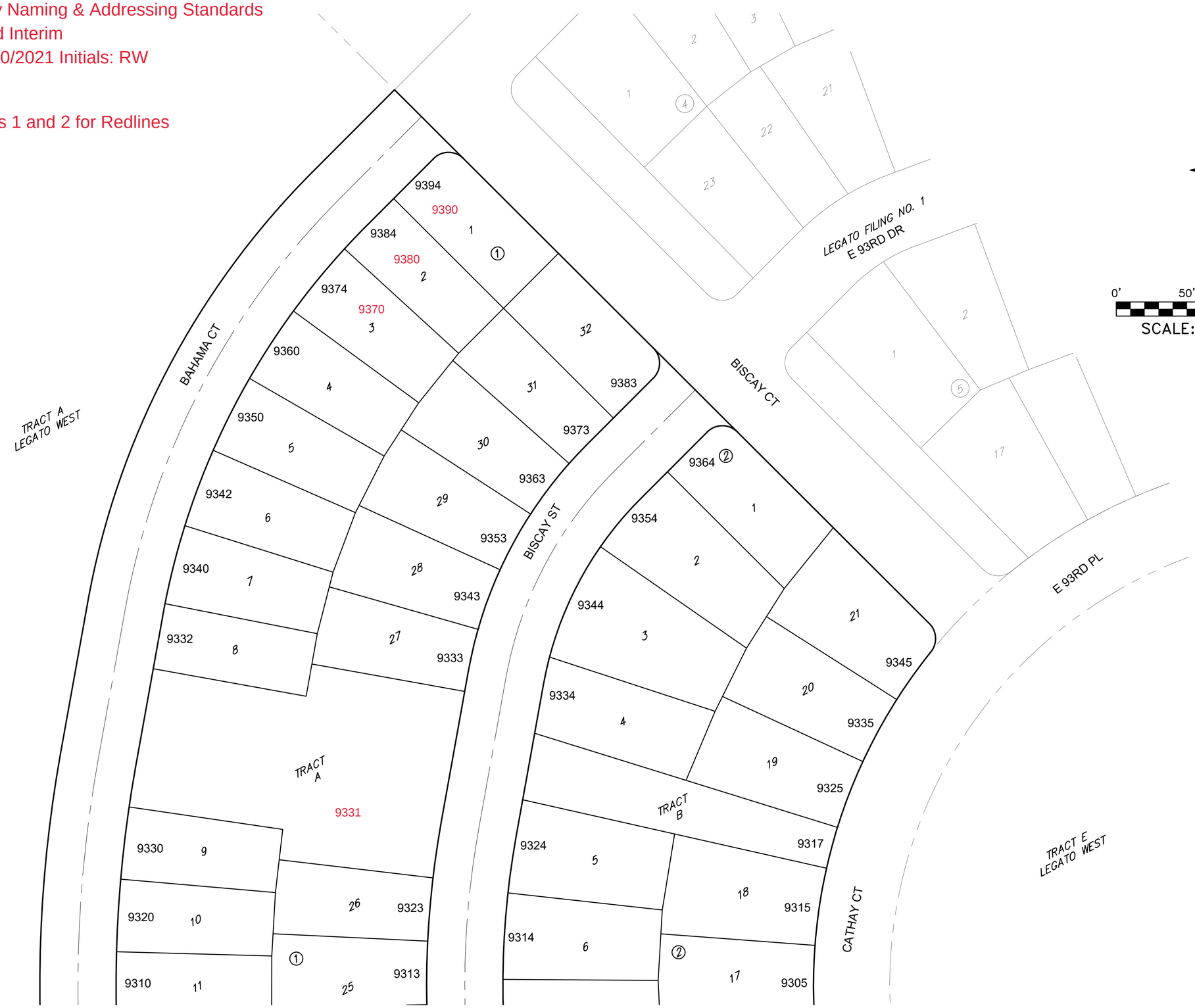
K:\19002561\DWG\PLAN SETS\CONSTRUCTION\GESC\19002561-GESC-DETAILS.DWG 6/14/2021 10:05 AM KRIS KOHLHOFF

LEGATO FILING NO. 2

A REPLAT OF TRACTS C1 & D1, LEGATO WEST
LOCATED IN SECTION 22, TOWNSHIP 2 SOUTH, RANGE 66 WEST, OF THE 6TH PRINCIPAL MERIDIAN,
CITY OF COMMERCE CITY, COUNTY OF ADAMS, STATE OF COLORADO
ADDRESS PLAT

City of Commerce City - GIS
Roadway Naming & Addressing Standards
Approved Interim
Date: 8/10/2021 Initials: RW

See sheets 1 and 2 for Redlines



0' 50' 100' 150'
SCALE: 1" = 50'

SHEET 1 OF 4

FILE NO.	19002561_FINAL PLAT
DATE	07/20/2021
DRAWN BY	TWK
CHECK BY	MLP
JOB NO.	19002561

REVISIONS

ATWELL
866.850.4200 www.atwell-group.com
143 UNION BOULEVARD, SUITE 700
LAKEWOOD, CO 80228
303.462.1100

\\cofen2\Civil\19002561\DWG\Survey\19002561_FLG 2 ADDRESS PLAT.dwg, ADDRESS SHT 1, 8/9/2021 2:42:28 PM

LEGATO FILING NO. 2

A REPLAT OF TRACTS C1 & D1, LEGATO WEST
LOCATED IN SECTION 22, TOWNSHIP 2 SOUTH, RANGE 66 WEST, OF THE 6TH PRINCIPAL MERIDIAN,
CITY OF COMMERCE CITY, COUNTY OF ADAMS, STATE OF COLORADO
ADDRESS PLAT

SHEET 2 OF 4

FILE NO. 19002561_FINAL PLAT
DATE 07/20/2021
DRAWN BY TWK
CHECK BY MLP
JOB NO. 19002561

REVISIONS

ATWELL
866.850.4200 www.atwell-group.com
143 UNION BOULEVARD, SUITE 700
LAKEWOOD, CO 80228
303.462.1100

\\cosdm2\Civil\19002561\DWG\Survey\19002561_FLG 2 ADDRESS PLAT.dwg, ADDRESS SHT 2, 8/9/2021 2:42:49 PM

LEGATO FILING NO. 2

A REPLAT OF TRACTS C1 & D1, LEGATO WEST
LOCATED IN SECTION 22, TOWNSHIP 2 SOUTH, RANGE 66 WEST, OF THE 6TH PRINCIPAL MERIDIAN,
CITY OF COMMERCE CITY, COUNTY OF ADAMS, STATE OF COLORADO
ADDRESS PLAT

SHEET 3 OF 4

FILE NO. 19002561 FINAL PLAT
DATE 07/20/2021
DRAWN BY TWK
CHECK BY MLP
JOB NO. 19002561

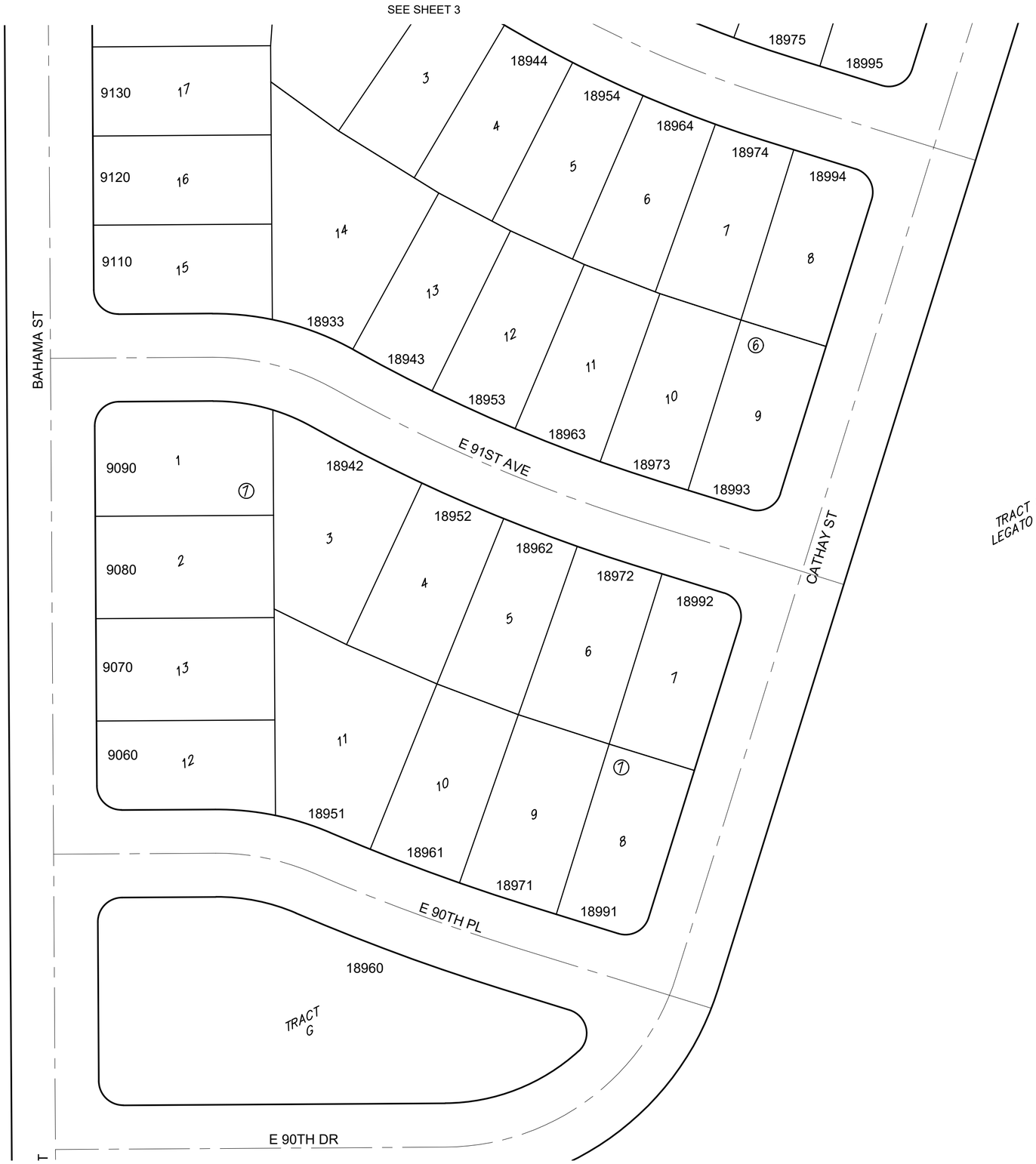
REVISIONS

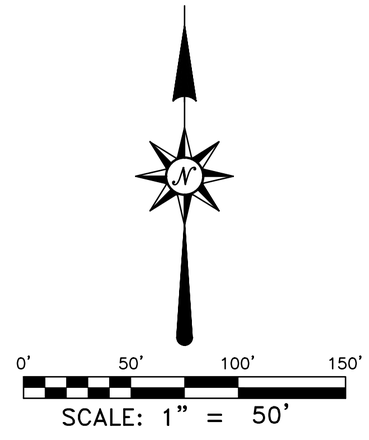
ATWELL
866.850.4200 www.atwell-group.com
143 UNION BOULEVARD, SUITE 700
LAKEWOOD, CO 80228
303.462.1100

\\codenz2\Civil\19002561\DWG\Survey\19002561_FLG 2 ADDRESS PLAT.dwg, ADDRESS SHT 3, 8/9/2021 2:43:06 PM

LEGATO FILING NO. 2

A REPLAT OF TRACTS C1 & D1, LEGATO WEST
LOCATED IN SECTION 22, TOWNSHIP 2 SOUTH, RANGE 66 WEST, OF THE 6TH PRINCIPAL MERIDIAN,
CITY OF COMMERCE CITY, COUNTY OF ADAMS, STATE OF COLORADO
ADDRESS PLAT





SHEET 4 OF 4

FILE NO.	19002561_FINAL PLAT
DATE	07/20/2021
DRAWN BY	TWK
CHECK BY	MLP
JOB NO.	19002561

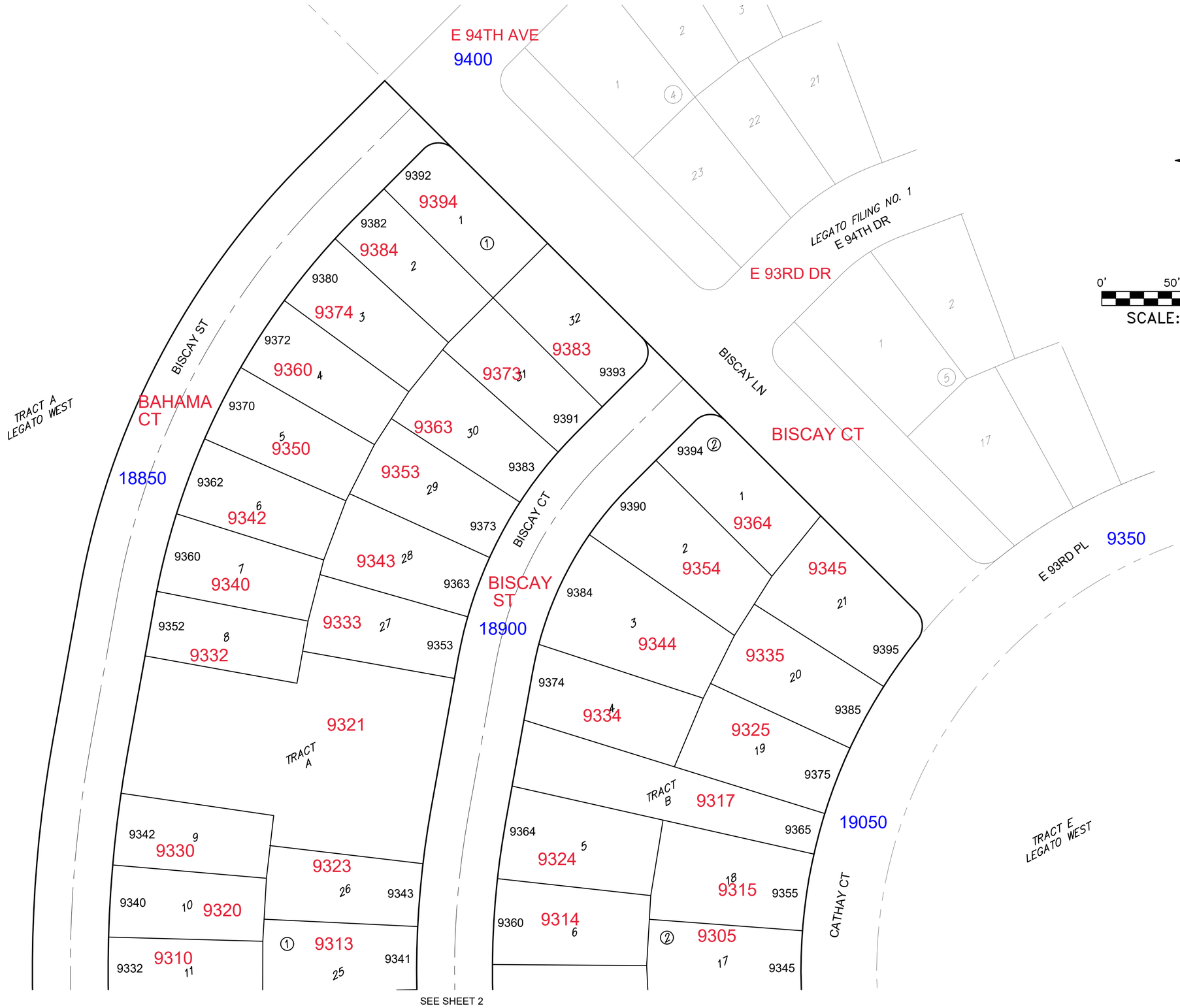
REVISIONS

ATWELL
866.850.4200 www.atwell-group.com
143 UNION BOULEVARD, SUITE 700
LAKEWOOD, CO 80228
303.462.1100

\\cedar2\Civil\19002561\DWG\Survey\19002561_FLG 2 ADDRESS PLAT.dwg, ADDRESS SHT 4, 8/9/2021 2:43:23 PM

LEGATO FILING NO. 2

A REPLAT OF TRACTS C1 & D1, LEGATO WEST
LOCATED IN SECTION 22, TOWNSHIP 2 SOUTH, RANGE 66 WEST, OF THE 6TH PRINCIPAL MERIDIAN,
CITY OF COMMERCE CITY, COUNTY OF ADAMS, STATE OF COLORADO
ADDRESS PLAT



SHEET 1 OF 4

FILE NO. 1900256_FINAL PLAT
DATE 05/04/2021
DRAWN BY TWK
CHECK BY MLP
JOB NO. 19002561

REVISIONS

ATWELL
866.850.4200 www.atwell-group.com
143 UNION BOULEVARD, SUITE 700
LAKEWOOD, CO 80228
303.462.1100

\\cofen2\Civil\19002561\DWG\Survey\19002561_FLG 2 ADDRESS PLAT.dwg, ADDRESS SHT 1, 5/4/2021 7:52:39 AM

LEGATO FILING NO. 2

A REPLAT OF TRACTS C1 & D1, LEGATO WEST
LOCATED IN SECTION 22, TOWNSHIP 2 SOUTH, RANGE 66 WEST, OF THE 6TH PRINCIPAL MERIDIAN,
CITY OF COMMERCE CITY, COUNTY OF ADAMS, STATE OF COLORADO
ADDRESS PLAT

SCALE: 1" = 50'

REVISIONS

SHEET 2 OF 4

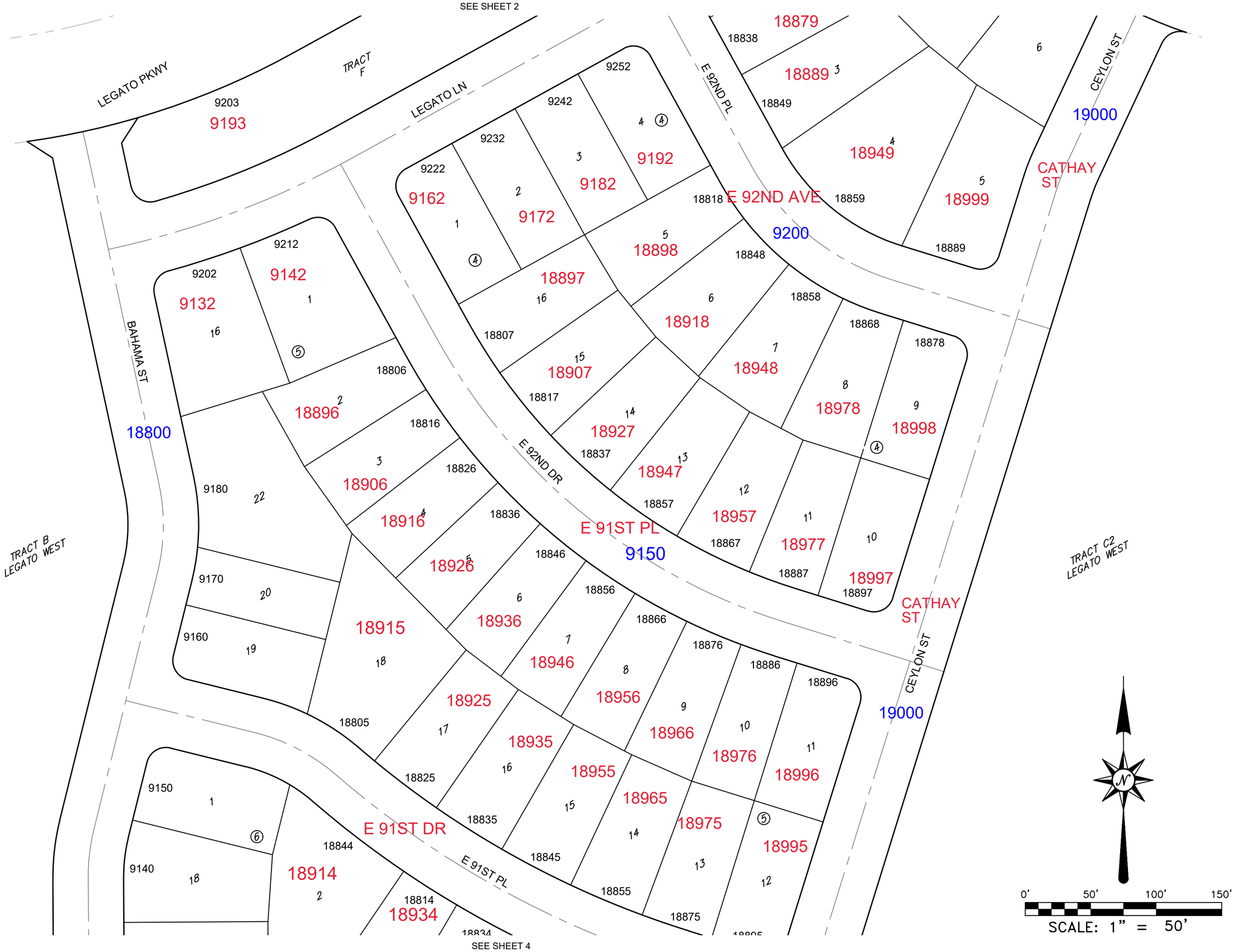
FILE NO.	19002561_FINAL PLAT
DATE	05/04/2021
DRAWN BY	TWK
CHECK BY	MLP
JOB NO.	19002561

ATWELL
866.850.4200 www.atwell-group.com
143 UNION BOULEVARD, SUITE 700
LAKEWOOD, CO 80228
303.462.1100

\\cedenz2\Civil\19002561\DWG\Survey\19002561_FLG 2 ADDRESS PLAT.dwg, ADDRESS SHT 2, 5/4/2021 7:53:12 AM

LEGATO FILING NO. 2

A REPLAT OF TRACTS C1 & D1, LEGATO WEST
LOCATED IN SECTION 22, TOWNSHIP 2 SOUTH, RANGE 66 WEST, OF THE 6TH PRINCIPAL MERIDIAN,
CITY OF COMMERCE CITY, COUNTY OF ADAMS, STATE OF COLORADO
ADDRESS PLAT



SHEET 3 OF 4

FILE NO. 19002561_FINAL PLAT
DATE 05/04/2021
DRAWN BY TWK
CHECK BY MLP
JOB NO. 19002561

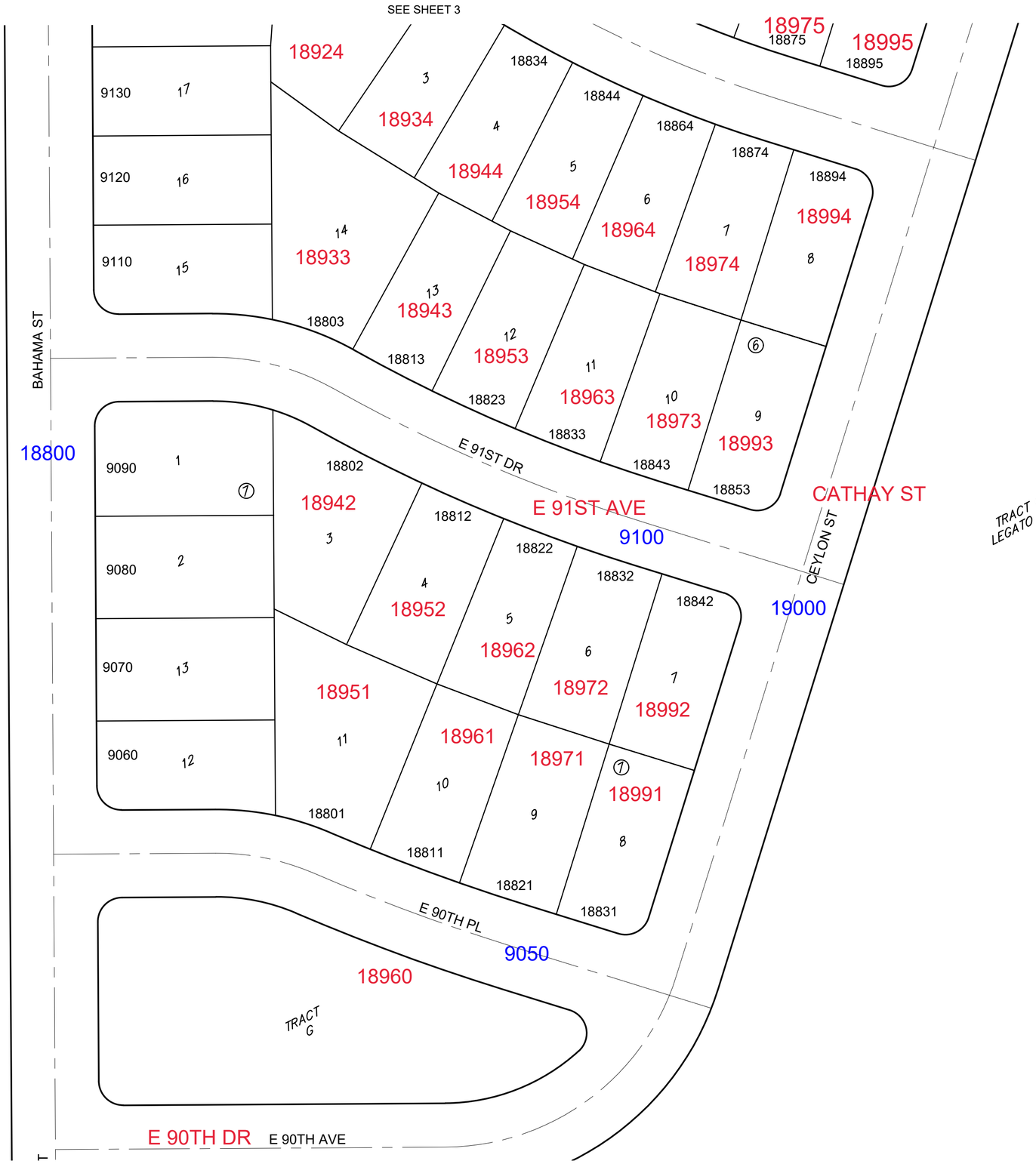
REVISIONS

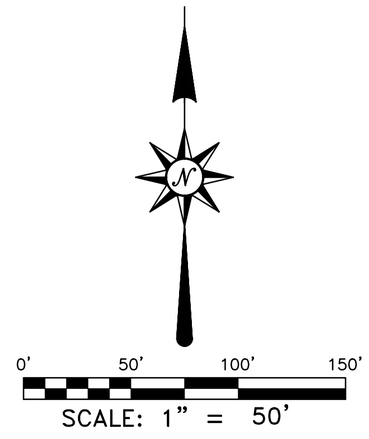
ATWELL
866.850.4200 www.atwell-group.com
143 UNION BOULEVARD, SUITE 700
LAKEWOOD, CO 80228
303.462.1100

\\codenz\Civil\19002561\DWG\Survey\19002561_FLG 2 ADDRESS PLAT.dwg, ADDRESS SHT 3, 5/4/2021 7:53:46 AM

LEGATO FILING NO. 2

A REPLAT OF TRACTS C1 & D1, LEGATO WEST
LOCATED IN SECTION 22, TOWNSHIP 2 SOUTH, RANGE 66 WEST, OF THE 6TH PRINCIPAL MERIDIAN,
CITY OF COMMERCE CITY, COUNTY OF ADAMS, STATE OF COLORADO
ADDRESS PLAT





SHEET 4 OF 4

FILE NO.	19002561_FINAL PLAT
DATE	05/04/2021
DRAWN BY	TWK
CHECK BY	MLP
JOB NO.	19002561

REVISIONS

ATWELL
866.850.4200 www.atwell-group.com
143 UNION BOULEVARD, SUITE 700
LAKEWOOD, CO 80228
303.462.1100

\\cedar2\Civil\19002561\DWG\Survey\19002561_FLG 2 ADDRESS PLAT.dwg, ADDRESS SHT 4, 5/4/2021 7:54:28 AM

August 15, 2021

Daniel Madruga
Atwell
6200 South Syracuse Way
Greenwood Village, CO 80111

Subject: Legato Filing No. 2 – Engineering Documents
Case # S-771-20-21, Z-953-D-475-20
Public Works Review #4

Dear Daniel:

The City of Commerce City Public Works Development Review (PWDR) has reviewed the engineering documents for the above reference project and has the following comments:

General:

- A ROW permit will be required for any work within the public ROW.
- A grading permit will be required.
- A Road Impact Fee, per Section 21-9220 of the City of Commerce City's Land Development Code (LDC) will apply to this development. Payment will be due at the time of the first Building Permit issuance.
- A Drainage Impact Fee, per Section 21-9240 of the City of Commerce City's Land Development Code (LDC) will apply to this development. Payment will be due at the time of the first Building Permit issuance.

Construction Plans:

1. PWDR has no further review comments.

Drainage Report:

1. PWDR has no further review comments.

Erosion and Sediment Control Plans:

1. The detail sheet has some missing pdf file links, please update prior to final printing.

Erosion and Sediment Control Report:

1. PWDR has no further review comments.

Development Agreement (DA):

1. PWDR has no further review comments on Exhibit B.
2. Please coordinate with Lee Alverson on the DA document.

Please send signed electronic files of all submittal documents. to pwsubmittals@c3gov.com.

If you have any questions, please feel free to contact me via email at chodyl@c3gov.com or by phone at (303) 905-6145 to discuss any of these comments.

Sincerely,

Chris Hodyl
Development Review Manager

ec: Joe Wilson, City Public Works Director
Brent Soderlin, City Engineer
Lee Alverson, City Development Review
Julia Freidman, City Planning Review
Manny Nuno, CORE Consultants, Development Review Consultant

INTEROFFICE MEMORANDUM

TO: Julia Friedman, Planner
FROM: Elna L. Smith, Consulting Development Review Engineer
DATE: June 9, 2022
SUBJECT: Legato Filing No. 2 - S-771-20-21; Z-953-D-475-20 - Review 5

Public Works Development Review (PWDR) has no further review comments.

Development Agreement:

1. The DA will must be executed before the Plat, Drainage Study and Civil Construction Plans can be approved.

Final Plat:

2. PWDR has no further review comments. The surveyor must update the Title Commitment information, and any reception numbers for adjacent recorded documents prior to creating the mylar drawings.
3. An updated Title Commitment was not submitted for review. A current linked Title Commitment will be necessary prior to final approval of the Plat. This information was "acknowledged" by the applicant, yet no Title Commitment was provided, the updated information must replace the information in Note 4, the Title that was used is over one year old

If you have any questions, please feel free to contact me via email at *esmith@liveyourcore.com* or by phone at 720-333-3050 to discuss any of these comments.

ec: Joe Wilson; Public Works Director
Chris Hodyl; City Development Review Manager
Lee Alverson; City Development Review
Manny Nuno, P.E., CFM, LEED AP, CPESC; CORE Consultants

MHFD
MILE HIGH FLOOD DISTRICT

2480 W. 26th Ave Suite 156-B | Denver, CO 80211
TEL 303 455 6277 | FAX 303 455 7880

www.mhfd.org

MAINTENANCE ELIGIBILITY PROGRAM (MEP)

MHFD Referral Review Comments

For Internal MHFD Use Only.	
MEP ID:	108003
Submittal ID:	10005163
Partner ID:	S-771-20-20
MEP Phase:	Referral

Date: October 19, 2020

To: **Jennifer Jones**
Via email

RE: MHFD Referral Review Comments

Project Name:	Legato Filing 2
Location:	Commerce City
Drainageway:	NA

This letter is in response to the request for our comments concerning the referenced project. We have reviewed this proposal only as it relates to maintenance eligibility of major drainage features, in this case:

- NA

We have the following comments to offer:

We have no comments on this project as it is not eligible for maintenance. The site is not adjacent to a major drainageway or mapped floodplain and does not include any proposed MHFD master plan improvements. We do not need to review future submittals.

We appreciate the opportunity to review this proposal. Please feel free to contact me with any questions or concerns.

Sincerely,

David Skuodas, PE, CFM, LEED AP
Watershed Manager
Mile High Flood District

South Adams County Fire Department

6050 Syracuse Street Commerce City, CO 80022 Phone: (303) 288-0835
Fax: (303) 288-5977

Project:	S-771-20-20; Z-953-D-475-20
Location:	NEC 88th Ave & Tower Road
Review Type:	Development Review
Fire Code:	2018 International Fire Code with Local Amendments
Planner:	Jenny Jones jones@c3gov.com
Date:	10/19/2020
Reviewer:	Sarah Krzanowsky, Fire Prevention Officer

Comments specific to the Development Review will be in red. These comments require response from the applicant. In addition to submitting a response to Commerce City, South Adams County Fire Department requires responses to be submitted directly to the Reviewer. The 2018 International Fire Code may be referenced at: https://codes.iccsafe.org/content/IFC2018?site_type=public

General

1. South Adams County Fire Department (SACFD) requires an impact fee of $668.00 per single family dwelling of any proposed building. For fees and other information see https://sacfd.org/fireandemergencyservicesimpactfees/
2. The following comments are subject to change as more information is received or if there are changes to the plans during subsequent reviews. The comments/requirements below are not all inclusive but are provided to aid in your site design process.

Fire Department Access

3. New and existing buildings shall have approved address numbers, building numbers or approved building identification placed in a position that is plainly legible and visible from the street or road fronting the property. These numbers shall contrast with their background.
4. Fire department access roads 24-26 feet wide will require NO PARKING-FIRE LANE signs on both sides of the road. Access roads 26-32 feet wide will require NO PARKING-FIRE LANE signs on one side of the road. Where NO PARKING – FIRE LANE signs are located, the curbs shall be painted red.
5. Fire department access roads shall be a minimum of 24 feet wide.
6. If gates are intended to be located across fire department access routes, the gate shall comply with IFC D103.5.
7. Where a fire hydrant is located on a fire apparatus access road, the minimum width of the road shall be 26 feet, exclusive of shoulders.
8. Fire department access roads shall be constructed of all-weather, durable materials

6050 Syracuse Street Commerce City, CO 80022 Phone: (303) 288-0835
Fax: (303) 288-5977

capable of supporting a minimum of 75,000 lbs.

9. Street and roads shall be identified with approved signs (permanent or temporary) at each intersection, when construction of new roadways allows passage by vehicles.
10. During construction two means of fire department access is required.

Water Supply

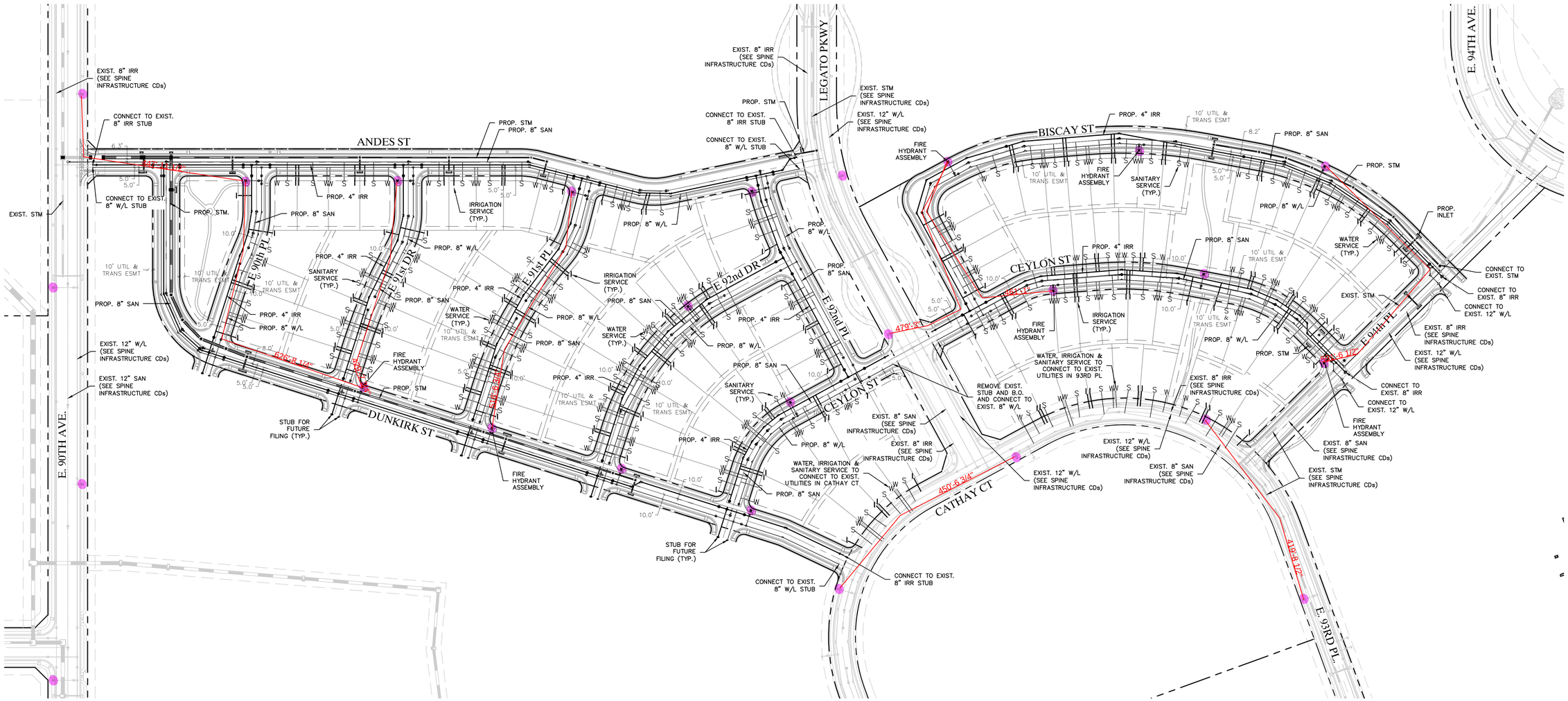
1. Vertical, combustible construction may begin after water supply and fire hydrants are installed and approved.
2. Fire hydrant spacing is required to be no more than 400 feet apart, with all portions of a structure being accessible within 400 feet of a fire hydrant. Some hydrants to do not meet this requirement. See attached Sheet 3 Utility Plan for identification of hydrants that exceed 400 feet spacing.
3. Where fire hydrants are located, they are required to have a minimum 3-foot clear working space all around, this includes to be clear of any landscaping that could obstruct the working space.
4. Fire hydrants shall be installed in accordance with South Adams County Water and Sanitation District's guidelines, and shall be installed, inspected, and operational prior to vertical construction commences.
5. Minimum fire flow: 1,500 gallons per minute for 2 hours. This is subject to change depending on project square foot amounts and type of construction.
6. Fire Service line shall be a minimum of 6 inches.

If/when application for construction/building permits are submitted, SACFD will review related plans at that time, to include any related comments.

Please contact your assigned SACFD plans examiner by phone or e-mail if you have any questions regarding the comments on the following pages or if you would like to set up a meeting.

Sarah Krzanowsky

Sarah Krzanowsky
Fire Prevention Officer II
Colorado Fire Inspector III - Cert. # 206309904
International Code Council – Fire Plans Examiner Cert # 9163298



Know what's **below.** **Call** before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2020 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
6200 SOUTH SYRACUSE WAY, SUITE 470
GREENWOOD VILLAGE, CO 80111
303.825.7100

COHEN DENVER AIRPORT, LLC
2600 PASEO VERDE PARKWAY
SUITE 250
HENDERSON, NV 89074
(720) 355-1400
BRAD BURNS

CLIENT
COHEN DENVER AIRPORT, LLC

LEGATO FILING NO. 2
COMMERCE CITY, COLORADO
CONSTRUCTION PLANS
OVERALL UTILITY PLAN

DATE 8/18/2020

A	1st SUBMITTAL TO COMMERCE CITY	8/17/2020 – DJM

REVISIONS

PLANS UNDER REVIEW NOT FOR CONSTRUCTION

DR. JRB | CH. DJM
P.M. DJM
JOB 19002561
SHEET NO. 3

CAD FILE: 19002561-OVERALL UTILITY PLAN.DWG

South Adams County Water & Sanitation District
Distribution & Collection
10200 E 102nd Ave. · Henderson, CO 80640 · (720) 206 – 0595 · www.sacwsd.org

Re:	**General comments for all projects within the South Adams County Water & Sanitation District**
Reviewer:	Jeff Nelson, Development Review Supervisor

SACWSD Rules & Regulations can be found here:
https://www.sacwsd.org/DocumentCenter/View/776/Rules-and-Regulations?bidId=
SACWSD Design & Construction Standards can be found here:
https://www.sacwsd.org/DocumentCenter/View/773/SACWSD-Design-Standards-and-Specifications?bidId=
SACWSD Service Application can be found here:
https://www.sacwsd.org/DocumentCenter/View/912/Development-Service-Application-2020?bidId=

Comments specific to the referenced review can be found below. Any response from the applicant must be sent to SACWSD Development by emailing Development@sacwsd.org.

General Comments:

1. Determine whether the parcel is included in the District. If not, initiate the inclusion process and become included within the District's service area. This process typically takes between 90-180 days to complete. If the parcel is not included, offsite utility construction may be required to provide adequate fire flow's to this site.
2. Identify the source and amount of water owned in order to serve the entire development as envisioned and present evidence to support ownership of adequate Equivalent Residential Units (ERUs).
3. Complete the District's service application with corresponding design plans including site, potable water, irrigation water, and wastewater utility plans, plumbing plans, and District standard details.
4. Design and construct the District's water and sewer infrastructure in accordance with current approved Design Standards and Construction Specifications.
5. Per SACWSD rules and regulations each building will be required to have individual water meters and sanitary sewer service lines.
6. Pay appropriate connection fees and pass all required inspections.

If you have any questions about the comments given, please contact the SACWSD Development department at **(720) 206 – 0595** or email Development@sacwsd.org.

Sincerely,

Jeff Nelson
Development Review Supervisor

October 13, 2020

Jennifer Jones
City of Commerce City
Community Development Department
7887 East 60th Avenue
Commerce City, CO 80022

RE: Legato (Hightower Ranch/Prime Sites), Filing 2 (formerly Filing 4), S-771-20-20, Z-953-D-475-20
TCHD Case No. 6467

Dear Ms. Jones,

Thank you for the opportunity to review and comment on final plat and PUD permit for the creation of 131 residential lots and 7 tracts located at the northeast corner of 88th Avenue and Tower Road. Tri-County Health Department (TCHD) staff has reviewed the application for compliance with applicable environmental and public health regulations and principles of healthy community design. After reviewing the application, TCHD has the following comments.

Active Oil and Gas Facilities
The Colorado Oil and Gas Conservation Commission (COGCC) regulates the setback requirements of oil and gas wells and production facilities in order to eliminate, minimize, or mitigate potential adverse impacts to public health. A "potential" oil and gas well is located within the development, although not within this filing. TCHD recommends the applicant adhere to current City and COGCC setbacks at a minimum. More information is available here https://cogcc.state.co.us/reg.html#/overview.

The applicant should ensure that the project meets required State and local setbacks from the edge of the proposed oil and gas well pad, rather than the center.

Please feel free to contact me at 720-200-1575 or kboyer@tchd.org if you have any questions about TCHD's comments.

Sincerely,

Kathy Boyer, REHS
Land Use and Built Environment Specialist III

cc: Sheila Lynch, Monte Deatrich, TCHD

MEMO

IT DEPARTMENT
GIS

From: GIS

Subject: GIS Approved Subdivisions

Date: 06/09/2022

The city of Commerce City GIS Division has approved the following subdivision address plats.

S-822-22, AN-265-22, Z-984-22, V-94-22 located at 7001 COLORAD BLVD
S-772-20-21 Legato Filing 1
S-771-20-21 Legato Filing 2

These subdivision cases have satisfied the criteria of the Roadway Naming and Addressing Standards for the city of Commerce City. GIS has no further comments on the addresses for these cases. Final approved address plats have been issued.

GIS Division, Information Technology Department
City of Commerce City | 7887 E. 60th Avenue | Commerce City, CO 80022
gis@c3gov.com | www.c3gov.com

Quality Community for a Lifetime

The Roadway Naming and Addressing Standards Document can be found at: (coming soon)

MEMO CONTINUED

MEMO

IT DEPARTMENT
GIS

To: Jennifer Jones

From: GIS

Subject: Case No. S-771-20-20 Z-953-D-453-20

Status: Not Approved

Date: 08/31/2020

This memo is a response from the GIS Division of the City of Commerce City to a Request for Comment/Review from the Community Development Department of the City of Commerce City for Legato Filing 2.

Are Roadway Names Approved	Y	N	NA
Are Addresses Approved	Y	N	NA
Were Comments from Previous Submittal Acknowledged	Y	N	NA
Are GIS Comments Consistent with PW on this Date	Y	N	NA
Did GIS receive AutoCAD	Y	N	NA

If any items are checked 'N', please see redlines and GIS' memo on: SharePoint ->Address Plats

Review of the plat conformity to the City of Commerce City Roadway Naming and Addressing Standards revealed the plat **IS NOT** compliant with these standards:

ROADWAY NAMING POLICY –

- Please use the Denver 100 grid system to assign roadway names and addresses
- Some roadway choices did not align with Denver grid system
    - Please look at attached picture at the end of the document to see why some roadway names were changed
- Change E 94th PL to **BISCAY LN**
- Change CEYLON ST to **BISCAY CT** ; change in roadway orientation so change the part of CEYLON ST to **E 92nd PL**
- Change E 92nd PL to **LEGATO LN**
- Change ANDES ST **to BAHAMA ST**
- Change DUNKIRK ST to **CEYLON ST** ; change in roadway orientation, so change part of DUNKIRK ST to **E 90TH AVE**

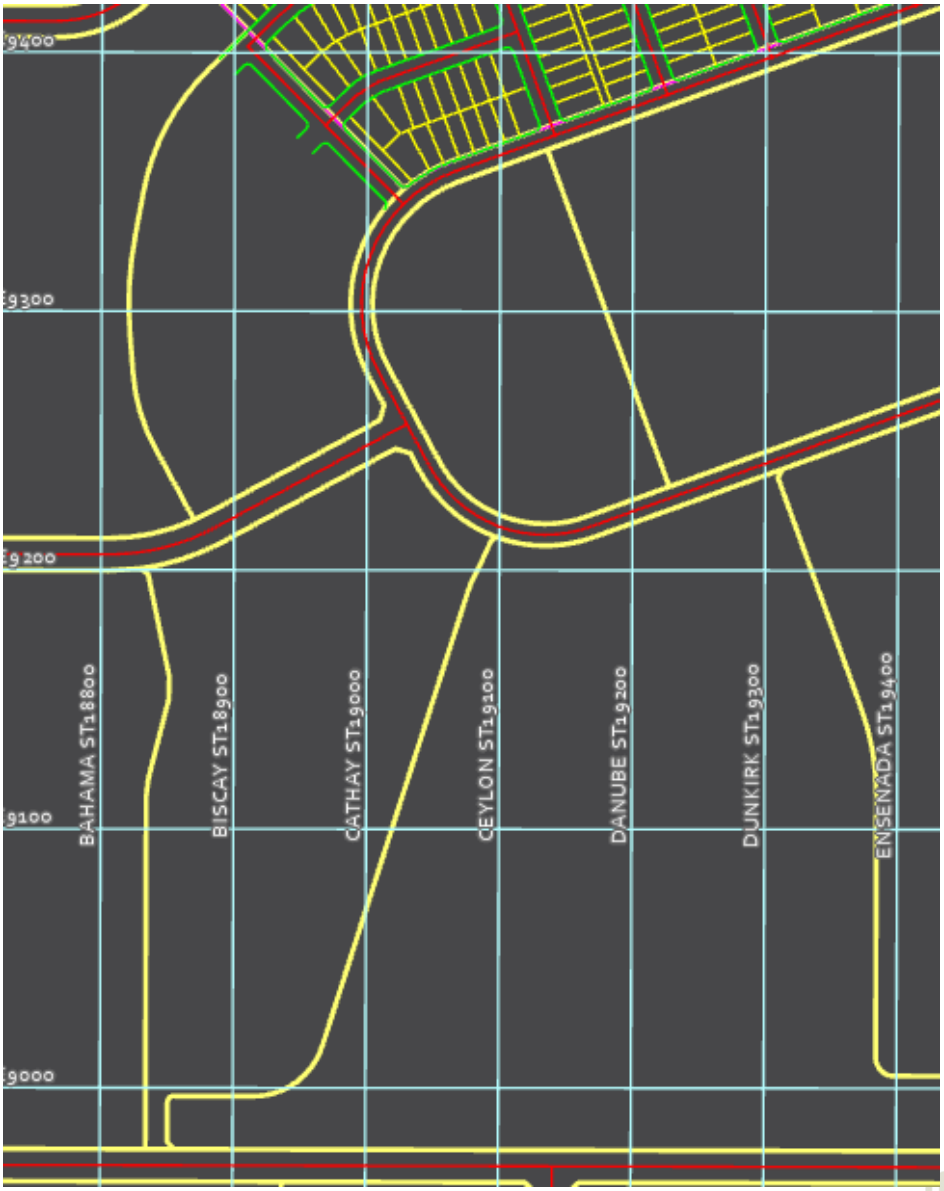
The Roadway Naming and Addressing Standards Document can be found at: (coming soon)

MEMO CONTINUED

ADDRESSING POLICY –

- Please review attached redlines for more accurate addresses
- Each tract needs an address, they are on the address plat in blue
- The address plat was sent in 4 pages, please send future address plats in 1 page. It's easier to review on 1 page.

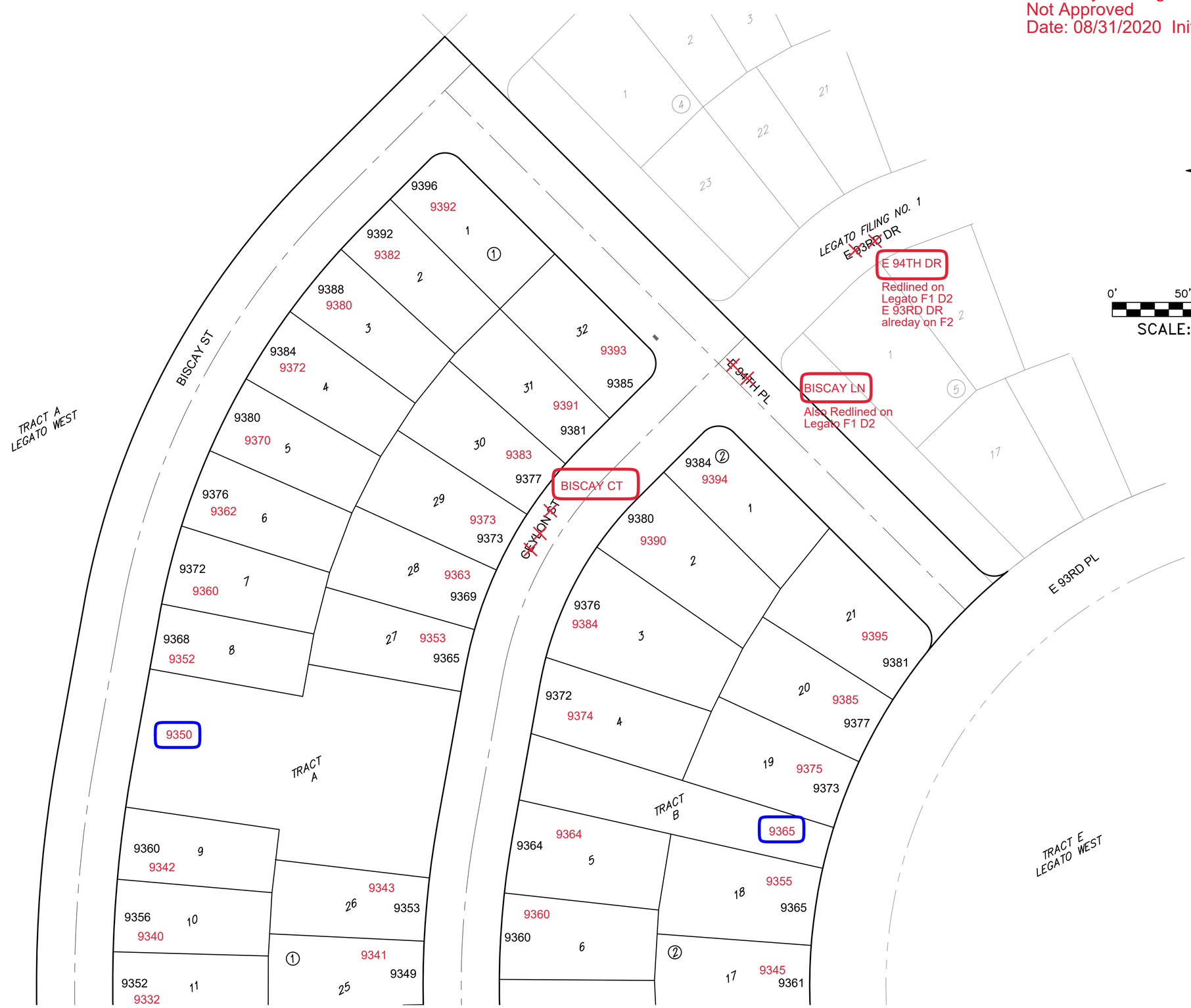
Proposed area:



LEGATO FILING NO. 2

A REPLAT OF TRACTS C1 & D1, LEGATO WEST
LOCATED IN SECTION 22, TOWNSHIP 2 SOUTH, RANGE 66 WEST, OF THE 6TH PRINCIPAL MERIDIAN,
CITY OF COMMERCE CITY, COUNTY OF ADAMS, STATE OF COLORADO
ADDRESS PLAT

City of Commerce City - GIS
Roadway Naming & Addressing Standards
Not Approved
Date: 08/31/2020 Initials: RW



0' 50' 100' 150'
SCALE: 1" = 50'

SHEET 1 OF 4

FILE NO.	19002561_FINAL PLAT
DATE	08/14/2020
DRAWN BY	TWK
CHECK BY	MLP
JOB NO.	19002561

REVISIONS

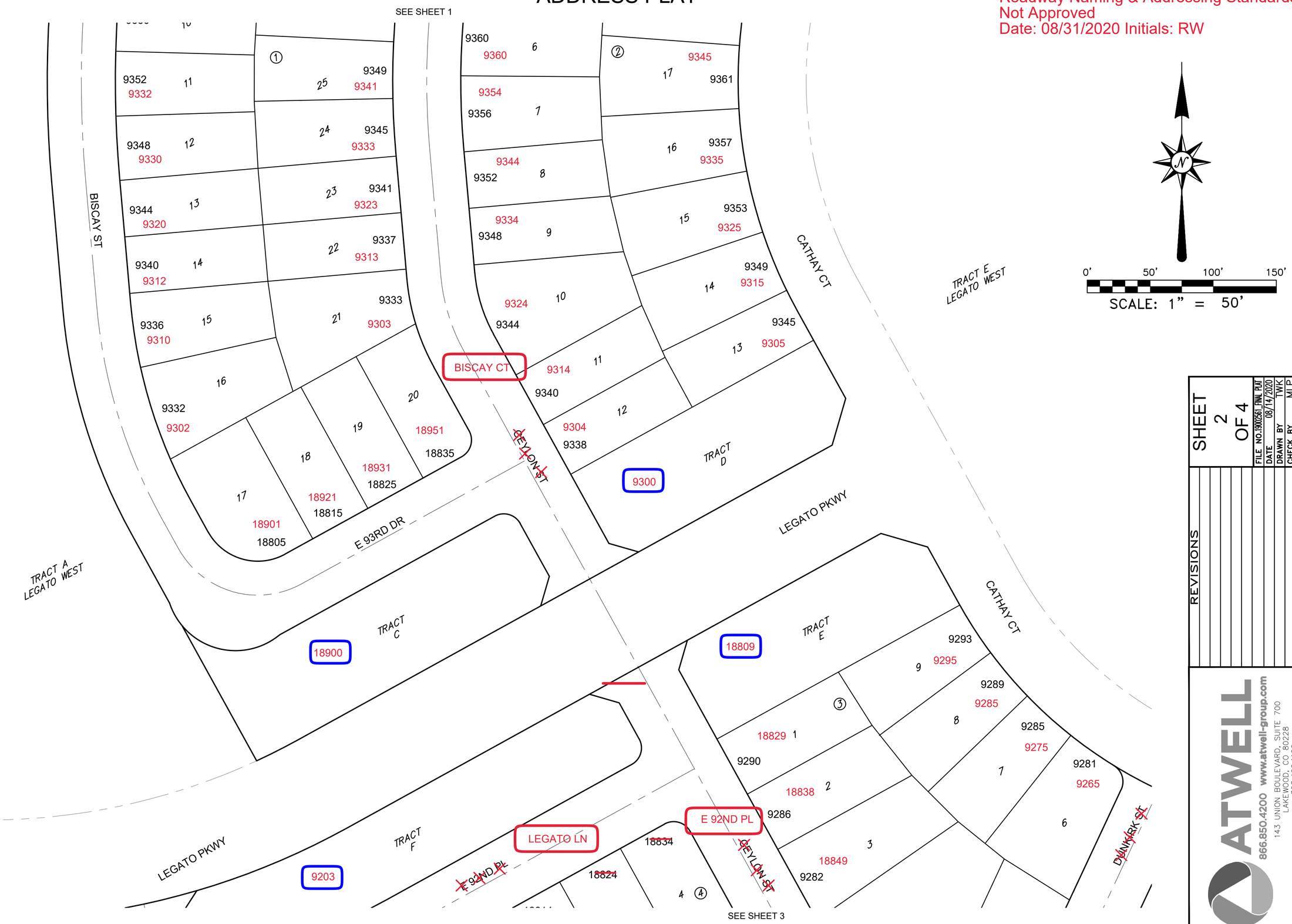
ATWELL
866.850.4200 www.atwell-group.com
143 UNION BOULEVARD, SUITE 700
LAKEWOOD, CO 80228
303.462.1100

K:\19002561\DWG\Survey\19002561_FLG 2 ADDRESS PLAT.dwg, ADDRESS SHT 1, 8/11/2020 10:07:01 AM

LEGATO FILING NO. 2

A REPLAT OF TRACTS C1 & D1, LEGATO WEST
LOCATED IN SECTION 22, TOWNSHIP 2 SOUTH, RANGE 66 WEST, OF THE 6TH PRINCIPAL MERIDIAN,
CITY OF COMMERCE CITY, COUNTY OF ADAMS, STATE OF COLORADO
ADDRESS PLAT

City of Commerce City - GIS
Roadway Naming & Addressing Standards
Not Approved
Date: 08/31/2020 Initials: RW



SHEET 2 OF 4

FILE NO.	19002561_FINAL PLAT
DATE	08/14/2020
DRAWN BY	TWK
CHECK BY	MLP
JOB NO.	19002561

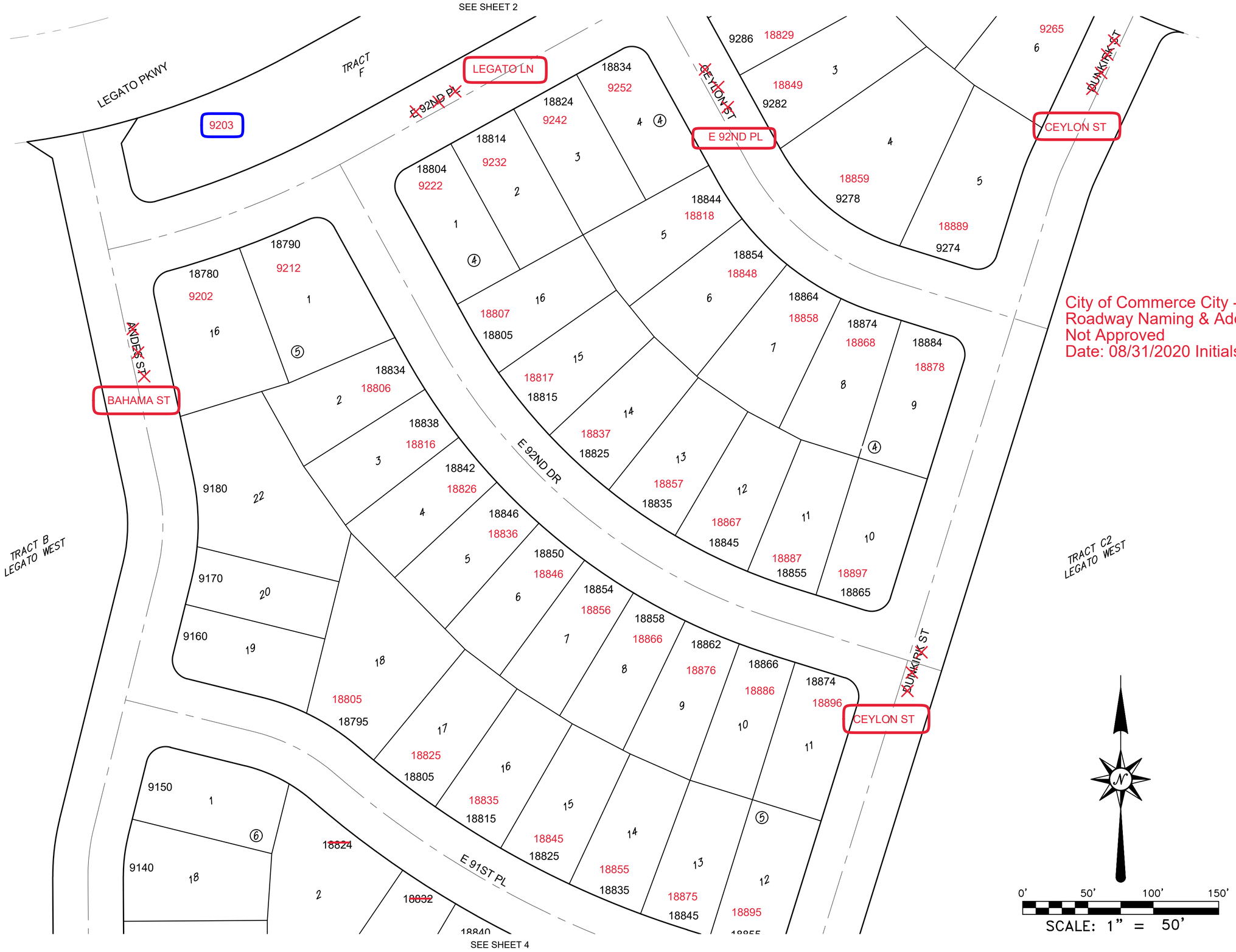
REVISIONS

ATWELL
866.850.4200 www.atwell-group.com
143 UNION BOULEVARD, SUITE 700
LAKEWOOD, CO 80228
303.462.1100

K:\19002561\DWG\Survey\19002561_FLG 2 ADDRESS PLAT.dwg, ADDRESS SHT 2, 8/11/2020 10:07:48 AM

LEGATO FILING NO. 2

A REPLAT OF TRACTS C1 & D1, LEGATO WEST
LOCATED IN SECTION 22, TOWNSHIP 2 SOUTH, RANGE 66 WEST, OF THE 6TH PRINCIPAL MERIDIAN,
CITY OF COMMERCE CITY, COUNTY OF ADAMS, STATE OF COLORADO
ADDRESS PLAT



SHEET 3 OF 4

FILE NO.	19002561_FINAL PLAT
DATE	08/14/2020
DRAWN BY	TWK
CHECK BY	MLP
JOB NO.	19002561

REVISIONS

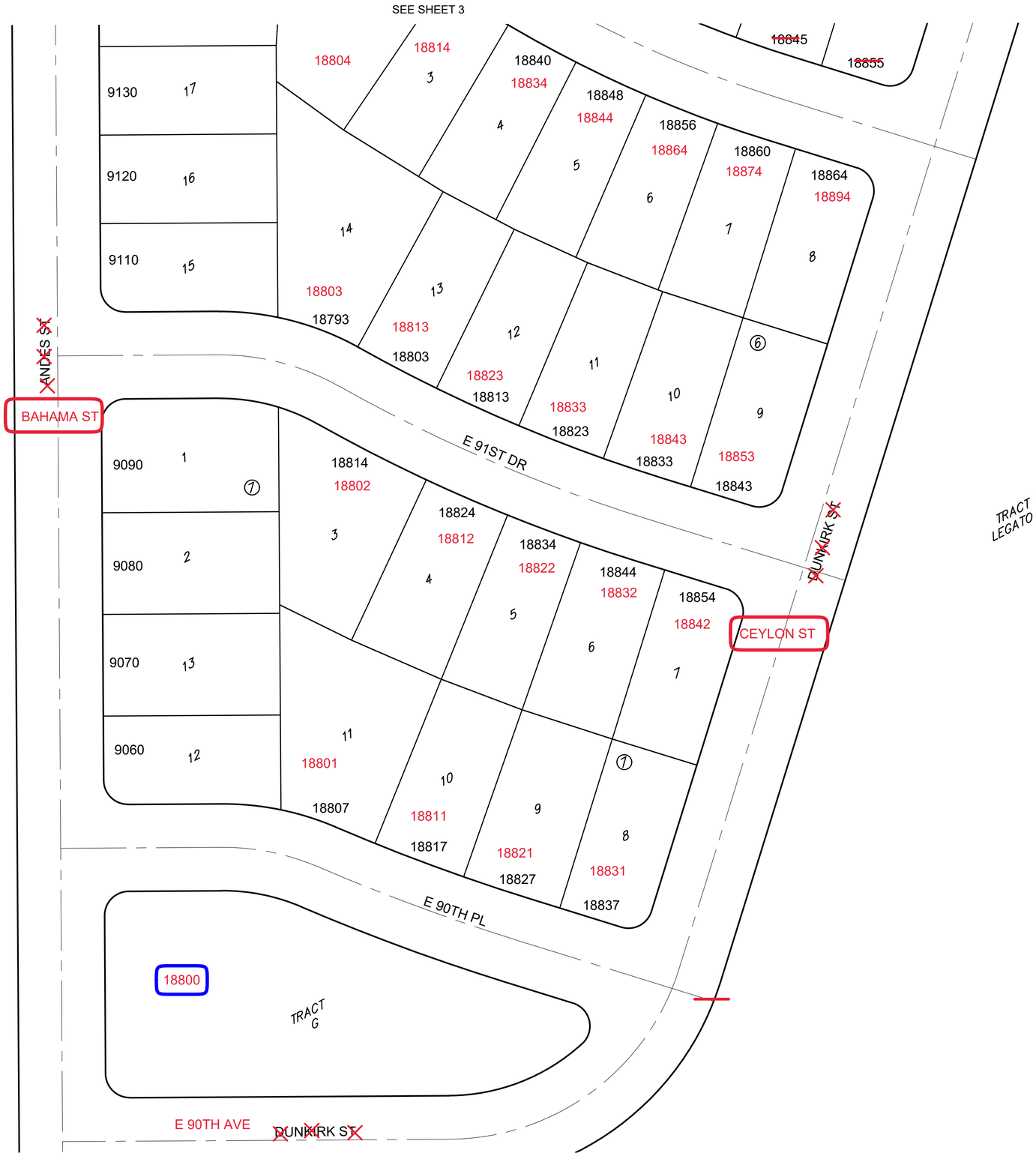
ATWELL
866.850.4200 www.atwell-group.com
143 UNION BOULEVARD, SUITE 700
LAKEWOOD, CO 80228
303.462.1100

K:\19002561\DWG\Survey\19002561_FLG 2 ADDRESS PLAT.dwg, ADDRESS SHT 3, 8/11/2020 10:08:41 AM

LEGATO FILING NO. 2

A REPLAT OF TRACTS C1 & D1, LEGATO WEST
LOCATED IN SECTION 22, TOWNSHIP 2 SOUTH, RANGE 66 WEST, OF THE 6TH PRINCIPAL MERIDIAN,
CITY OF COMMERCE CITY, COUNTY OF ADAMS, STATE OF COLORADO
ADDRESS PLAT

City of Commerce City - GIS
Roadway Naming & Addressing Standards
Not Approved
Date: 08/31/2020 Initials: RW



SHEET	4 OF 4
FILE NO.	19002561_FINAL PLAT
DATE	08/14/2020
DRAWN BY	TWK
CHECK BY	MLP
JOB NO.	19002561

REVISIONS

ATWELL
866.850.4200 www.atwell-group.com
143 UNION BOULEVARD, SUITE 700
LAKEWOOD, CO 80228
303.462.1100

K:\19002561\DWG\Survey\19002561_FLG 2 ADDRESS PLAT.dwg, ADDRESS 4, 8/11/2020 10:09:24 AM

27J Schools
Kerrie Monti – Planning Manager
1850 Egbert Street, Suite 140, Brighton, CO 80601
Superintendent Chris Fiedler, Ed.D.

27J Schools Board of Education
Greg Piotraschke, President
Lloyd Worth, Vice President
Ashley Conn, Director
Tom Green, Director
Mandy Thomas, Director
Leon Thornton, Director
Mary Vigil, Director

Planner: Mercedes Rivas
mrivas@c3gov.com

DATE: April 13, 2022

SUBDIVISION NAME: Legato Filing 2
CASE: S-771-20-22
STATUS:

Dear Mercedes,

A. STUDENT GENERATION (see attached Table 1 for methodology)

Dwelling Units	Total
131 SFD	101.525

(Any discrepancy due to rounding)

B. LAND DEDICATION/CASH-IN-LIEU REQUIREMENTS (See attached Table 1 for methodology)

The land dedication requirement has been satisfied with the dedication of the middle school site.

C. SCHOOL BOUNDARY AREAS

Students from this proposed development would currently attend:

Southlawn ES – 10075 Walden Street, Commerce City
Stuart MS – 15955 E. 101st Way, Commerce City
Prairie View HS – 12909 E. 120th Avenue, Henderson

Southlawn ES – adequate capacity (also possible future charter school in Second Creek Farm)
Stuart MS – adequate capacity - additional capacity available in 2023 due to boundary area changes (also possible future charter school in Second Creek Farm)
Prairie View HS – adequate capacity – additional capacity available in 2023 due to construction of new CTE annex

D. CAPITAL FACILITY FEE FOUNDATION (see attached Table 2 for methodology)

The Capital Facility Fee Foundation is a unique public/private nonprofit organization founded in January 2001 to help fund school expansion or new school construction. This program has been developed in partnership with each of the municipalities in the District, developer and builder representatives, and School District 27J. Funding is provided by builders and developers who have agreed to contribute per residential dwelling unit based on the current fee structure. The current fees negotiated for this program are as follows: $865 per single family residential unit and $494 per multi-family unit.

SCHOOL DISTRICT PLANNING COMMENTS AND RECOMMENDATIONS:

1. **The land dedication requirement has been satisfied with the dedication of the middle school site.**

2. **Prior to the approval of the final subdivision plat, we recommend that the developer enter into an agreement with the Capital Facility Fee Foundation to mitigate the impact of this development on District school facilities. Given the planned 181 residential dwelling units, the voluntary, tax-deductible capital facility fee contribution is projected to be $113,315. Fees may be paid in a lump sum or by lot as permits are pulled. The developer is welcome to assign the agreement to builders as they purchase lots.**

We appreciate your continuing cooperation and the opportunity to comment upon issues of interest to both the City and the School District. We look forward to receiving updated referrals on this subdivision. Please let me know if you have questions about these comments.

Sincerely,

Kerrie Monti

Kerrie Monti
Planning Manager

Attachment

Legato Filing 2

School District Enrollment and Site Implications

Dwelling Unit Type	Est Number of DUs	Student Generation Rate	Total Students	
SFD	131	0.775	101.525	
SFA	0	0.364	0.000	
TH/C	0	0.303	0.000	
Apartment	0	0.195	0.000	
Total	**131**		**101.525**	
			0.02	acres
Land Dedication Requirement			**2.031**	acres
Land Dedication Provided			0	
Remaining Land Needed			**2.031**	acres
Land Cost Per Acre per AC			$101,600	
Cash in Lieu of Land Dedication				

Payable prior to construction

Capital Facility Fee Foundation Contributions

Dwelling Unit Type	Number of DUs	Rate per Unit	Total Contribution
SFD	131	$865.00	$113,315.00
SFA	0	$865.00	$0.00
TH/C	0	$494.00	$0.00
Apartment	0	$494.00	$0.00
Mobile Home	0	$865.00	$0.00
Total	**131**		**$113,315.00**

Payable at time of permit
May be assigned to builders purchasing lots

MEMO

PARKS AND
RECREATION

To: Jennifer Jones, Planner

From: Traci Ferguson, Parks Planner

Subject: S-771-20-20; Z-953-D-475-20 NEC 88th Ave. and Tower Rd. Legato Flg 2

Date: October 23, 2020

I have reviewed the above proposal and have the following comments.

1.) A park fee will be due for this residential development and shall be calculated as follows:

$45,364/$12,000 x $0.09 x 854,647 sq. ft. = **$290,776**

$290,776/131 lots = **$2,219 per lot**

2.) If any tract or lot acreages or number of lots changes before final plat, these calculations will be updated.

3.) The park fee-in-lieu is due when a building permit is obtained.

Please feel free to contact me at 303-227-8788 or tferguson@c3gov.com with any questions.

Commerce CITY

October 16, 2020

City of Commerce City Community Development Department
7887 East 60th Ave.
Commerce City, CO 80022

Re: S-771-20-20 / Z-953-D-475-20 – Legato Filing No. 2

Dear Jennifer Jones:

On behalf of United Power, Inc., thank you for inviting us to review and comment on the S-771-20-20 / Z-953-D-475-20 – Legato Filing No. 2. After review of the information, we have the following comments:

- On sheet 5 – Tract E – We request that the easement type and size be called out in this area.
- Streetlights – When streetlight locations are identified in a subdivision, we need a 5' wide dry utility easement along one side of the lot closest to the streetlight location. All streetlight locations must be approved and signed off by the city/town, etc. Please note, if we do not get these through the platting process, we will have to get individual ones during the design which will slow United Power's ability to start construction significantly.

Please note, the property owner/developer/contractor must submit an application along with CAD data for new electric service via https://www.unitedpower.com/construction. United Power would like to work with these persons early in the construction process on getting an electric design prepared so that we can request any additional easements needed and hopefully have those easements dedicated on the plat rather than obtaining separate document(s). Obtaining easements via a separate document can be time consuming and could cause delays.

As a Reminder: No permanent structures are acceptable within the dry utility easement(s); such as, window wells, wing walls, retaining walls, basement walls, roof overhang, anything affixed to the house like decks, etc. United Power considers any structure that impedes the access, maintenance, and safety of our facilities a permanent structure. No exceptions will be allowed, and any encroachments could result in penalties.

Service will be provided according to the rules, regulations, and policies in effect by United Power at the time service is requested. We look forward to safely and efficiently providing reliable electric power and outstanding service.

Thank you,

Samantha Riblett
United Power, Inc.
Right of Way Administrative Assistant
O: 303-637-1324 | Email: platreferral@unitedpower.com

UNITED POWER, INC. 500 Cooperative Way ▪ Brighton, CO 80603 303-659-0551 ▪ 800-468-8809 ▪ fax 303-659-2172 www.unitedpower.com

Right of Way & Permits

1123 West 3rd Avenue
Denver, Colorado 80223
Telephone: **303.571.3306**
Facsimile: 303. 571. 3284
donna.l.george@xcelenergy.com

October 19, 2020

City of Commerce City Community Development Department
7887 East 60th Avenue
Commerce City, CO 80022

Attn: Jennifer Jones

Re: Legato Filing No. 2, Case #s S-771-20-20 and Z-953-D-475-20

Public Service Company of Colorado's (PSCo) Right of Way & Permits Referral Desk has reviewed the plat for **Legato F2**. The property owner/developer/contractor must complete the application process for any new natural gas service via xcelenergy.com/InstallAndConnect. It is then the responsibility of the developer to contact the Designer assigned to the project for approval of design details. Additional easements may need to be acquired by separate document for new facilities.

Donna George
Right of Way and Permits
Public Service Company of Colorado dba Xcel Energy
Office: 303-571-3306 – Email: donna.l.george@xcelenergy.com

From: Peggy Davenport
To: Jones, Jennifer - CD
Cc: Chuck Weiss
Subject: RE: S-771-20-20; Z-953-D-475-20 LEGATO Filing 2 DUE 10.19.20 jjones
Date: Thursday, October 1, 2020 7:19:58 AM

Thank you for allowing the E-470 Public Highway Authority the opportunity to review and respond to the S-771-20-20; Z-953-D-475-20 LEGATO Filing 2 DUE 10.19.20 jjones.

For any question concerning the comments listed below please contact the reviewing engineer Chuck Weiss at 303.537.3420 or cweiss@E-470.com.

At this time E-470 Public Highway Authority has No Comments.

Please advise if we can be of further assistance

Thank you

Peggy Davenport
Administrative Assistant/Document Control
E-470 Public Highway Authority
22470 E Stephen D Hogan Parkway
O: 303.537.3727
C: 720.765.1276
pdavenp@E-470.com
Please note: In the office M-W working remotely TH-F
Please allow additional time for responses.
Contact my mobile if you need to speak to me directly.

CONFIDENTIALITY NOTICE
This message and any accompanying documents are intended only for the use of the intended addressee, and may contain information that is privileged, confidential and exempt from disclosure under applicable law. If you are not the intended recipient, you are hereby notified that any dissemination, distribution or copying of this communication is prohibited. If you have received this communication in error, please notify the author immediately. Thank you.