FOREST LAKES FILING NO. 5

COUNTY OF EL PASO, STATE OF COLORADO

CONSTRUCTION DRAWINGS

JANUARY 2020

GENERAL CONSTRUCTION NOTES:

1. THE LOCATION OF EXISTING UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND MAY NOT INCLUDE ALL UTILITIES. THE EXCAVATION CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. THE CONTRACTOR AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY HIS FAILURE TO EXACTLY LOCATED AND PRESERVE ANY AND ALL UTILITIES.
2. BEFORE COMMENCING ANY EXCAVATION, CALL **1-800-922-1987** FOR EXISTING UTILITY LOCATIONS.
3. THE CONTRACTOR WILL TAKE THE NECESSARY PRECAUTIONS TO PROTECT EXISTING UTILITIES FROM DAMAGE DUE TO THIS OPERATION. ANY DAMAGE TO THE UTILITIES WILL BE REPAIRED AT THE CONTRACTOR'S EXPENSE, AND ANY SERVICE DISRUPTION WILL BE SETTLED BY THE CONTRACTOR.
4. ALL BACKFILL, SUB-BASE AND/OR BASE COURSE (CLASS 6) MATERIAL SHALL BE COMPACTED TO THE SOILS ENGINEER'S RECOMMENDATIONS, AND APPROVED BY EL PASO COUNTY PLANNING AND COMMUNITY DEVELOPMENT (PCD).
5. ALL STATIONING IS CENTERLINE UNLESS OTHERWISE INDICATED. ALL ELEVATIONS ARE CENTERLINE UNLESS OTHERWISE INDICATED.
6. THE CONTRACTOR SHALL REVEGETATE ALL DISTURBED AREAS AS SOON AS POSSIBLE AND EROSION CONTROL SHALL BE INSTALLED AND MAINTAINED IN A FUNCTIONAL MANNER AT ALL TIMES. DEVELOPER RESPONSIBLE FOR MAINTAINING DISTURBED AREAS UNTIL REVEGETATION IS COMPLETE.
7. ALL DISTURBED PAVEMENT EDGES SHALL BE CUT TO NEAT LINES. REPAIR SHALL CONFORM TO THE EPC ECM APPENDIX K – 1.2C.
8. ADDITIONAL EROSION CONTROL STRUCTURES MAY BE REQUIRED AT THE TIME OF CONSTRUCTION.
9. BUILDING CONTRACTORS WILL BE RESPONSIBLE FOR CONSTRUCTING POSITIVE DRAINAGE AWAY FROM ALL STRUCTURES.
10. ASPHALT THICKNESS AND BASE COURSE THICKNESS (COMPACTED) FOR ROADS SHALL BE PER DESIGN REPORT BY OWNER'S GEOTECHNICAL ENGINEER. OWNER'S GEOTECHNICAL ENGINEER TO BE ON SITE AT TIME OF ROAD CONSTRUCTION TO EVALUATE SOIL CONDITIONS AND DETERMINE IF ADDITIONAL MEASURES ARE NECESSARY TO ASSURE STABILITY OF THE NEW ROADS. PAVEMENT DESIGN SHALL BE APPROVED BY PLANNING AND COMMUNITY DEVELOPMENT PRIOR TO CONSTRUCTION.
11. THE CONTRACTOR SHALL REVEGETATE ALL DISTURBED AREAS WITHIN 21 DAYS OF SUBSTANTIAL GRADING COMPLETION. EROSION CONTROL SHALL BE INSTALLED AND MAINTAINED IN A FUNCTIONAL MANNER AT ALL TIMES. DEVELOPER IS RESPONSIBLE FOR MAINTAINING DISTURBED AREAS UNTIL REVEGETATION IS COMPLETE.
12. TYPE M RIP-RAP WITH 4" OF TYPE II GRANULAR BEDDING AND MIRAFI 180N OR EQUAL MAY BE SUBSTITUTED WHERE TYPE L RIP-RAP WITH MIRAFI FW 700 OR EQUAL IS SPECIFIED
13. ALL MATERIALS AND INSTALLATION PROCEDURES SHALL BE IN COMPLIANCE WITH ANY AND ALL APPLICABLE EL PASO COUNTY STANDARDS.

STANDARD NOTES FOR EL PASO COUNTY CONSTRUCTION PLANS:

1. ALL DRAINAGE AND ROADWAY CONSTRUCTION SHALL MEET THE STANDARDS AND SPECIFICATIONS OF THE CITY OF COLORADO SPRINGS/EL PASO COUNTY DRAINAGE CRITERIA MANUAL, VOLUMES 1 AND 2, AND THE EL PASO COUNTY ENGINEERING CRITERIA MANUAL.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR THE NOTIFICATION AND FIELD NOTIFICATION OF ALL EXISTING UTILITIES, WHETHER SHOWN ON THE PLANS OR NOT, BEFORE BEGINNING CONSTRUCTION. LOCATION OF EXISTING UTILITIES SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. CALL 811 TO CONTACT THE UTILITY NOTIFICATION CENTER OF COLORADO (UNCC).
3. CONTRACTOR SHALL KEEP A COPY OF THESE APPROVED PLANS, THE GRADING AND EROSION CONTROL PLAN, THE STORMWATER MANAGEMENT PLAN (SWMP), THE SOILS AND GEOTECHNICAL REPORT, AND THE APPROPRIATE DESIGN AND CONSTRUCTION STANDARDS AND SPECIFICATIONS AT THE JOB SITE AT ALL TIMES, INCLUDING THE FOLLOWING:
   a. EL PASO COUNTY ENGINEERING CRITERIA MANUAL (ECM)
   b. CITY OF COLORADO SPRINGS/EL PASO COUNTY DRAINAGE CRITERIA MANUAL, VOLUMES 1 AND 2
   c. COLORADO DEPARTMENT OF TRANSPORTATION (CDOT) STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION
   d. CDOT M & S STANDARDS
4. NOTWITHSTANDING ANYTHING DEPICTED IN THESE PLANS IN WORDS OR GRAPHIC REPRESENTATION, ALL DESIGN AND CONSTRUCTION RELATED TO ROADS, STORM DRAINAGE AND EROSION CONTROL SHALL CONFORM TO THE STANDARDS AND REQUIREMENTS OF THE MOST RECENT VERSION OF THE RELEVANT ADOPTED EL PASO COUNTY STANDARDS, INCLUDING THE LAND DEVELOPMENT CODE, THE ENGINEERING CRITERIA MANUAL, THE DRAINAGE CRITERIA MANUAL, AND THE DRAINAGE CRITERIA MANUAL VOLUME 2. ANY DEVIATIONS FROM REGULATIONS AND STANDARDS MUST BE REQUESTED, AND APPROVED, IN WRITING. ANY MODIFICATIONS NECESSARY TO MEET CRITERIA AFTER-THE-FACT WILL BE ENTIRELY THE DEVELOPER'S RESPONSIBILITY TO RECTIFY.
5. IT IS THE DESIGN ENGINEER'S RESPONSIBILITY TO ACCURATELY SHOW EXISTING CONDITIONS, BOTH ONSITE AND OFFSITE, ON THE CONSTRUCTION PLANS. ANY MODIFICATIONS NECESSARY DUE TO CONFLICTS, OMISSIONS, OR CHANGED CONDITIONS WILL BE ENTIRELY THE DEVELOPER'S RESPONSIBILITY TO RECTIFY.
6. CONTRACTOR SHALL SCHEDULE A PRE-CONSTRUCTION MEETING WITH EL PASO COUNTY PLANNING AND COMMUNITY DEVELOPMENT – INSPECTIONS, PRIOR TO STARTING CONSTRUCTION.
7. IT IS THE CONTRACTOR'S RESPONSIBILITY TO UNDERSTAND THE REQUIREMENTS OF ALL JURISDICTIONAL AGENCIES AND TO OBTAIN ALL REQUIRED PERMITS, INCLUDING BUT NOT LIMITED TO EL PASO COUNTY EROSION AND STORMWATER QUALITY CONTROL PERMIT (ESQCP), REGIONAL BUILDING FLOODPLAIN DEVELOPMENT PERMIT, U.S. ARMY CORPS OF ENGINEERS-ISSUED 401 AND/OR 404 PERMITS, AND COUNTY AND STATE FUGITIVE DUST PERMITS.
8. CONTRACTOR SHALL NOT DEVIATE FROM THE PLANS WITHOUT FIRST OBTAINING WRITTEN APPROVAL FROM THE DESIGN ENGINEER AND PCD. CONTRACTOR SHALL NOTIFY THE DESIGN ENGINEER IMMEDIATELY UPON DISCOVERY OF ANY ERRORS OR INCONSISTENCIES.
9. ALL STORM DRAIN PIPE SHALL BE CLASS III RCP UNLESS OTHERWISE NOTED AND APPROVED BY PCD.
10. CONTRACTOR SHALL COORDINATE GEOTECHNICAL TESTING PER ECM STANDARDS. PAVEMENT DESIGN SHALL BE APPROVED BY EL PASO COUNTY PCD PRIOR TO PLACEMENT OF CURB AND GUTTER AND PAVEMENT.
11. ALL CONSTRUCTION TRAFFIC MUST ENTER/EXIT THE SITE AT APPROVED CONSTRUCTION ACCESS POINTS.
12. SIGHT VISIBILITY TRIANGLES AS IDENTIFIED IN THE PLANS SHALL BE PROVIDED AT ALL INTERSECTIONS. OBSTRUCTIONS GREATER THAN 18 INCHES ABOVE FLOWLINE ARE NOT ALLOWED WITHIN SIGHT TRIANGLES.
13. SIGNING AND STRIPING SHALL COMPLY WITH EL PASO COUNTY DEPARTMENT OF PUBLIC WORKS AND MUTCD CRITERIA.
14. CONTRACTOR SHALL OBTAIN ANY PERMITS REQUIRED BY EL PASO COUNTY DEPARTMENT OF PUBLIC WORKS, INCLUDING WORK WITHIN THE RIGHT-OF-WAY AND SPECIAL TRANSPORT PERMITS.
15. THE LIMITS OF CONSTRUCTION SHALL REMAIN WITHIN THE PROPERTY LINE UNLESS OTHERWISE NOTED. THE OWNER/DEVELOPER SHALL OBTAIN WRITTEN PERMISSION AND EASEMENTS, WHERE REQUIRED, FROM ADJOINING PROPERTY OWNER(S) PRIOR TO ANY OFF-SITE DISTURBANCE, GRADING, OR CONSTRUCTION.

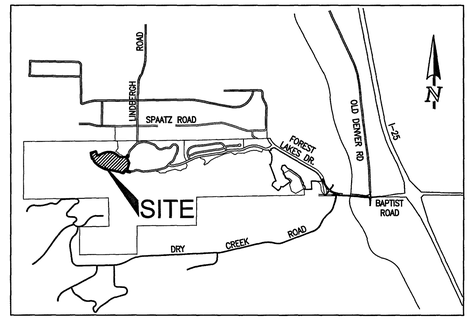
SIGNING AND STRIPING NOTES:

1. ALL SIGNS AND PAVEMENT MARKINGS SHALL BE IN COMPLIANCE WITH THE CURRENT MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
2. REMOVAL OF EXISTING PAVEMENT MARKINGS SHALL BE ACCOMPLISHED BY A METHOD THAT DOES NOT MATERIALLY DAMAGE THE PAVEMENT. THE PAVEMENT MARKINGS SHALL BE REMOVED TO THE EXTENT THAT THEY WILL NOT BE VISIBLE UNDER DAY OR NIGHT CONDITIONS. AT NO TIME WILL IT BE ACCEPTABLE TO PAINT OVER EXISTING PAVEMENT MARKINGS.
3. ANY DEVIATION FROM THE STRIPING AND SIGNING PLAN SHALL BE APPROVED BY EL PASO COUNTY PLANNING AND COMMUNITY DEVELOPMENT.
4. ALL SIGNS SHOWN ON THE SIGNING AND STRIPING PLAN SHALL BE NEW SIGNS. EXISTING SIGNS MAY REMAIN OR BE REUSED IF THEY MEET CURRENT EL PASO COUNTY AND MUTCD STANDARDS.
5. STREET NAME AND REGULATORY STOP SIGNS SHALL BE ON THE SAME POST AT INTERSECTIONS.
6. ALL REMOVED SIGNS SHALL BE DISPOSED OF IN A PROPER MANNER BY THE CONTRACTOR.
7. ALL STREET NAME SIGNS SHALL HAVE "D" SERIES LETTERS, WITH LOCAL ROADWAY SIGNS BEING 4" UPPER-LOWER CASE LETTERING ON 8" BLANK AND NON-LOCAL ROADWAY SIGNS BEING 6" LETTERING, UPPER-LOWER CASE ON 12" BLANK, WITH A WHITE BORDER THAT IS NOT RECESSED. MULTI-LANE ROADWAYS WITH SPEED LIMITS OF 40 MPH OR HIGHER SHALL HAVE 8" UPPER-LOWER CASE LETTERING ON 18" BLANK WITH A WHITE BORDER THAT IS NOT RECESSED. THE WIDTH OF THE NON-RECESSED WHITE BORDERS SHALL MATCH PAGE 255 OF THE 2012 MUTCD "STANDARD HIGHWAY SIGNS."
8. ALL TRAFFIC SIGNS SHALL HAVE A MINIMUM HIGH INTENSITY PRISMATIC GRADE SHEETING.
9. ALL LOCAL RESIDENTIAL STREET SIGNS SHALL BE MOUNTED ON A 1.75" X 1.75" SQUARE TUBE SIGN POST AND STUB POST BASE. FOR OTHER APPLICATIONS, REFER TO THE CDOT STANDARD S-614-8 REGARDING USE OF THE P2 TUBULAR STEEL POST SLIPBASE DESIGN.
10. ALL SIGNS SHALL BE SINGLE SHEET ALUMINUM WITH 0.100" MINIMUM THICKNESS.
11. ALL LIMIT LINES/STOP LINES, CROSSWALK LINES, PAVEMENT LEGENDS, AND ARROWS SHALL BE A MINIMUM 125 MIL THICKNESS PREFORMED THERMOPLASTIC PAVEMENT MARKINGS WITH TAPERED LEADING EDGES PER CDOT STANDARD S-627-1. WORD AND SYMBOL MARKINGS SHALL BE THE NARROW TYPE. STOP BARS SHALL BE 24" IN WIDTH. CROSSWALKS LINES SHALL BE 12" WIDE AND 8' LONG PER CDOT S-627-1.
12. ALL LONGITUDINAL LINES SHALL BE A MINIMUM 15MIL THICKNESS EPOXY PAINT. ALL NON-LOCAL RESIDENTIAL ROADWAYS SHALL INCLUDE BOTH RIGHT AND LEFT EDGE LINE STRIPING AND ANY ADDITIONAL STRIPING AS REQUIRED BY CDOT S-627-1.
13. THE CONTRACTOR SHALL NOTIFY EL PASO COUNTY PLANNING AND COMMUNITY DEVELOPMENT **(719) 520-6819** PRIOR TO AND UPON COMPLETION OF SIGNING AND STRIPING.
14. THE CONTRACTOR SHALL OBTAIN A WORK IN THE RIGHT OF WAY PERMIT FROM THE EL PASO COUNTY DEPARTMENT OF PUBLIC WORKS (DPW) PRIOR TO ANY SIGNAGE OR STRIPING WORK WITHIN AN EXISTING EL PASO COUNTY ROADWAY.

BENCHMARKS:

A. THE SOUTHWESTERLY CORNER OF LOT 15 AS PLATTED IN FOREST LAKES FILING NO. 1 BEING MONUMENTED BY A NO. 4 REBAR AND RED PLASTIC SURVEYORS CAP STAMPED "ROCKWELL PLS 19586" ELEVATION = 7039.42

B. THE NORTHEASTERLY CORNER OF LOT 2 AS PLATTED IN FOREST LAKES FILING NO. 1 BEING MONUMENTED BY A NO. 4 REBAR AND RED PLASTIC SURVEYORS CAP STAMPED "ROCKWELL PLS 19586" ELEVATION = 6966.24



VICINITY MAP
N.T.S.

SHEET INDEX

SHEET 1 OF 32	TITLE SHEET
SHEET 2 OF 32	GRADING AND EROSION CONTROL PLAN
SHEET 3 OF 32	GRADING AND EROSION CONTROL PLAN
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SHEET 5 OF 32	GRADING AND EROSION CONTROL PLAN DETAIL SHEET
SHEET 6 OF 32	GRADING AND EROSION CONTROL PLAN DETAIL SHEET
SHEET 7 OF 32	KEY MAP WITH TYPICAL STREET SECTIONS
SHEET 8 OF 32	STREET IMPROVEMENT PLAN (MESA TOP DRIVE STA: 1+00-15+50
SHEET 9 OF 32	STREET IMPROVEMENT PLAN (MESA TOP DRIVE STA: 15+50-END) & MESA TOP SIGNAGE & STRIPING
SHEET 10 OF 32	STREET IMPROVEMENT PLAN (FOREST LAKES DRIVE STA: 1+00-7+00)
SHEET 11 OF 32	STREET IMPROVEMENT PLAN (FOREST LAKES DRIVE STA: 7+00-END)
SHEET 12 OF 32	STORM SEWER PLAN & PROFILE (MAIN A, MAIN B, & MAIN C)
SHEET 13 OF 32	STORM SEWER PLAN & PROFILE (MAIN D, MAIN E, MAIN G, & MAIN H)
SHEET 14 OF 32	STORM SEWER PLAN & PROFILE (MAIN F STA: 1+00-10+50)
SHEET 15 OF 32	STORM SEWER PLAN & PROFILE (MAIN F STA: 10+50-END & MAIN J)
SHEET 16 OF 32	STORM SEWER PLAN & PROFILE (MAIN K)
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SHEET 19 OF 32	PRIVATE POND 'C'
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SHEET 21 OF 32	FOREBAY STRUCTURES 'A' & 'F' (POND C)
SHEET 22 OF 32	MAIN 'J' IMPACT STRUCTURE W/ REINFORCING (POND C)
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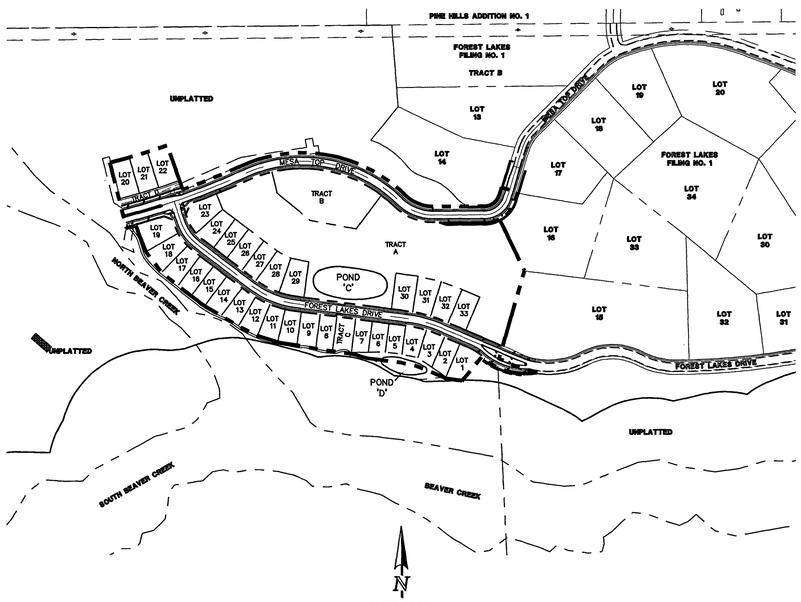
SHEET 24 OF 32	POND OUTLET BOX & PROFILE (POND C)
SHEET 25 OF 32	POND OUTLET BOX AND MICROPOOL STRUCTURE (POND C)
SHEET 26 OF 32	OUTLET BOX DETAILS (POND C)
SHEET 27 OF 32	OUTLET BOX DETAILS (POND C)
SHEET 28 OF 32	POND SPILLWAY DETAILS (POND C)
SHEET 29 OF 32	POND OUTLET BOX & PROFILE (POND D)
SHEET 30 OF 32	DETAIL SHEET
SHEET 31 OF 32	DETAIL SHEET
SHEET 32 OF 32	DETAIL SHEET

AGENCIES:

DEVELOPER:	FOREST LAKES RESIDENTIAL DEVELOPMENT, LLC 6385 CORPORATE DRIVE, SUITE 200 COLORADO SPRINGS, CO 80919 MR. JIM BOULTON (719) 592-3259
CIVIL ENGINEER:	CLASSIC CONSULTING ENGINEERS & SURVEYORS 619 N. CASCADE AVENUE, SUITE 200 COLORADO SPRINGS, CO 80903 MR. KYLE R. CAMPBELL, P.E. (719) 785-2800
COUNTY ENGINEERING:	DEVELOPMENT SERVICES DEPARTMENT 2880 INTERNATIONAL CIRCLE COLORADO SPRINGS, CO 80910 MR. GILBERT LoFORCE, (719) 520-7945
WATER & SANITATION DISTRICT:	FOREST LAKES METROPOLITAN DISTRICT 2 N. CASCADE AVENUE, SUITE 1280 COLORADO SPRINGS, CO 80903 MS. ANN NICHOLS, (719) 633-9500
FIRE DISTRICT:	TRI-LAKES MONUMENT FIRE PROTECTION DISTRICT 166 SECOND STREET MONUMENT, COLORADO 80132 (719) 484-0911
GAS COMPANY:	BLACK HILLS ENERGY 18965 BASE CAMP ROAD, A-7 MONUMENT, CO 80132 (888) 890-5554
ELECTRIC COMPANY:	MOUNTAIN VIEW ELECTRIC 11140 E. WOODMEN ROAD FALCON, COLORADO 80831 (719) 495-2283
TELEPHONE COMPANY:	CENTURY LINK COMMUNICATIONS (LOCATORS) (800)-922-1987 A.T.&T. (LOCATORS) (719) 635-3674



SITE MAP
SCALE: 1" = 300'

APPROVALS:

DESIGN ENGINEER'S STATEMENT:

THESE DETAILED PLANS AND SPECIFICATIONS WERE PREPARED UNDER MY DIRECTION AND SUPERVISION. SAID PLANS AND SPECIFICATIONS HAVE BEEN PREPARED ACCORDING TO THE CRITERIA ESTABLISHED BY THE COUNTY FOR DETAILED ROADWAY, DRAINAGE, GRADING AND EROSION CONTROL PLANS AND SPECIFICATIONS, AND SAID PLANS AND SPECIFICATIONS ARE IN CONFORMITY WITH APPLICABLE MASTER DRAINAGE PLANS AND MASTER TRANSPORTATION PLANS. SAID PLANS AND SPECIFICATIONS MEET THE PURPOSES FOR WHICH THE PARTICULAR ROADWAY AND DRAINAGE FACILITIES ARE DESIGNED AND ARE CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. I ACCEPT RESPONSIBILITY FOR ANY LIABILITY DIRECTLY CAUSED BY THE NEGLIGENT ACTS, ERRORS, OR OMISSIONS ON MY PART IN PREPARATION OF THESE DETAILED PLANS AND SPECIFICATIONS.

COLORADO LICENSED KYLE RAYE CAMPBELL 29794 PROFESSIONAL ENGINEER

KYLE R. CAMPBELL COLORADO P.E. #29794
FOR AND ON THE BEHALF OF CLASSIC CONSULTING ENGINEERS & SURVEYORS

3/26/20
DATE

OWNER/DEVELOPER'S STATEMENT:

I, THE OWNER/DEVELOPER HAVE READ AND WILL COMPLY WITH THE REQUIREMENTS OF THE EROSION CONTROL PLAN AND AS SPECIFIED IN THESE DETAILED PLANS AND SPECIFICATIONS.

JIM BOULTON

3-17-20
DATE

EL PASO COUNTY:

COUNTY PLAN REVIEW IS PROVIDED ONLY FOR GENERAL CONFORMANCE WITH COUNTY DESIGN CRITERIA. THE COUNTY IS NOT RESPONSIBLE FOR THE ACCURACY AND ADEQUACY OF THE DESIGN, DIMENSIONS, AND/OR ELEVATIONS WHICH SHALL BE CONFIRMED AT THE JOB SITE. THE COUNTY THROUGH THE APPROVAL OF THIS DOCUMENT ASSUMES NO RESPONSIBILITY FOR COMPLETENESS AND/OR ACCURACY OF THIS DOCUMENT.

FILED IN ACCORDANCE WITH THE REQUIREMENTS OF THE EL PASO COUNTY LAND DEVELOPMENT CODE, DRAINAGE CRITERIA MANUAL, VOLUMES 1 AND 2 AND ENGINEERING CRITERIA MANUAL AS AMENDED.

IN ACCORDANCE WITH WITH ECM SECTION 1.12, THESE CONSTRUCTION DOCUMENTS WILL BE VALID FOR CONSTRUCTION FOR A PERIOD OF 2 YEARS FROM THE DATE SIGNED BY THE EL PASO COUNTY ENGINEER. IF CONSTRUCTION HAS NOT STARTED WITHIN THOSE 2 YEARS, THE PLANS WILL NEED TO BE RESUBMITTED FOR APPROVAL, INCLUDING PAYMENT OF REVIEW FEES AT THE PLANNING AND COMMUNITY DEVELOPMENT DIRECTOR'S DISCRETION.

JENNIFER IRVINE, P.E.
COUNTY ENGINEER / ECM ADMINISTRATOR

Approved
By: Elizabeth Nijkamp
Date:06/09/2020
El Paso County Planning & Community Development

PCD FILE # SF1915

48 HOURS BEFORE YOU DIG,
CALL UTILITY LOCATORS
811
UTILITY NOTIFICATION CENTER OF COLORADO
IT'S THE LAW

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE CAUSED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NO.	REVISION	DATE

REVIEW:

PREPARED UNDER MY DIRECT SUPERVISION FOR AND ON BEHALF OF CLASSIC CONSULTING ENGINEERS AND SURVEYORS, LLC

COLORADO LICENSED KYLE RAYE CAMPBELL 29794 PROFESSIONAL ENGINEER

KYLE R. CAMPBELL, COLORADO P.E. #29794

3/26/20
DATE

CLASSIC CONSULTING
619 N. Cascade Avenue, Suite 200
Colorado Springs, Colorado 80903
(719)785-0790
(719)785-0799(Fax)

FOREST LAKES FILING NO. 5
CONSTRUCTION DRAWINGS
TITLE SHEET

DESIGNED BY	MAL	SCALE	DATE	06-21-19
DRAWN BY	BB	(H) 1"=VARIES	SHEET	1 OF 32
CHECKED BY		(V) 1"= N/A	JOB NO.	1175.50

N:\117550\DRAWINGS\CONSTRUCTION\STREETS\117550-FILS-CDS-TITLE-01.dwg, 3/4/2020 12:26:49 PM, 1:1

MATCHLINE (SEE SHEET 04)

MATCHLINE (SEE SHEET 03)

NOTE:
OVERLOT GRADING COMPLETED WITH PRE-DEVELOPMENT GRADING PLAN & PERMIT. EROSION CONTROL BLANKETS, TEMPORARY SEDIMENT BASINS, SILT FENCE & STRAW BALE BARRIERS INSTALLED PER THAT PLAN.

BEAVER CREEK

EXISTING TRAIL TO REMAIN

EXISTING SILT FENCE

EXISTING LIMITS OF GRADING/CONSTRUCTION SITE BOUNDARY

EXISTING MOUSE HABITAT LIMITS NO DISTURBANCE BEYOND THIS LINE

PROPOSED 5' CDOT TYPE R SUMP INLET W/18" RCP STORM

PROPOSED 10' CDOT TYPE R SUMP INLET W/ 24" RCP STORM

PROPOSED/ PRIVATE 30" RCP STORM

FOREST LAKES DR. (60' ROW)

MESA TOP DRIVE (60' ROW)

TRACT A

T.O.W. = 30.00
B.O.W. = 30.00
END WALL

T.O.W. = 34.00
B.O.W. = 28.80
(ANGLE POINT)

EXISTING 3:1 SLOPE MAX

T.O.W. = 42.80
B.O.W. = 37.20

T.O.W. = 49.50
B.O.W. = 44.45

T.O.W. = 39.40
B.O.W. = 39.40
END WALL

T.O.W. = 49.00
B.O.W. = 42.00

T.O.W. = 56.55
B.O.W. = 45.09

EXISTING TRAIL TO BE REMOVED

T.O.W. = 61.86
B.O.W. = 49.31

WALL SWALE:
INSTALL 3' BENCH/SWALE ON TOP OF RETAINING WALL TO ROUTE WATER TO THE WEST AND NOT OVER THE WALL.

T.O.W. = 65.00
B.O.W. = 55.23

T.O.W. = 69.25
B.O.W. = 61.56

T.O.W. = 73.40
B.O.W. = 66.06

PROPOSED RETAINING WALL MAX HEIGHT = 12.6' PRIOR TO INSTALLATION A BUILDING PERMIT WILL BE REQUIRED TO BE ISSUED

T.O.W. = 75.50
B.O.W. = 70.00

T.O.W. = 76.00
B.O.W. = 76.00
BEGIN WALL

EXISTING TRAIL TO BE REMOVED

EXISTING VEHICLE TRACKING CONTROL

T.O.W. = 72.00
B.O.W. = 72.00
BEGIN WALL

EXISTING WATER SERVICE

EXISTING LIMITS OF GRADING/CONSTRUCTION SITE BOUNDARY

T.O.W. = 43.80
B.O.W. = 36.00

T.O.W. = 43.25
B.O.W. = 43.25
END WALL

T.O.W. = 44.25
B.O.W. = 33.10

PROPOSED RETAINING WALL MAX HEIGHT = 11.2' PRIOR TO INSTALLATION A BUILDING PERMIT WILL BE REQUIRED TO BE ISSUED

T.O.W. = 45.00
B.O.W. = 36.00

T.O.W. = 45.93
B.O.W. = 45.93
BEGIN WALL

T.O.W. = 55.45
B.O.W. = 49.91
(MATCH EX. GND)

T.O.W. = 59.00
B.O.W. = 49.50
(MATCH EX. GND)

T.O.W. = 61.70
B.O.W. = 52.48
(MATCH EX. GND)

PROPOSED RETAINING WALL MAX HEIGHT = 9.5' PRIOR TO INSTALLATION A BUILDING PERMIT WILL BE REQUIRED TO BE ISSUED

T.O.W. = 67.00
B.O.W. = 60.00
(MATCH EX. GND)

CAUTION!!!
EXISTING SERVICE CROSSING OF PROPOSED RETAINING WALL.

BOUNDARY LINE

LOT 14
FOREST LAKES FILING NO. 1
REC NO. 206712407

LOT 13
FOREST LAKES FILING NO. 1
REC NO. 206712407

TRACT B
FOREST LAKES FILING NO. 1
REC NO. 206712407
FOREST LAKES METROPOLITAN DISTRICT

LOT 15
FOREST LAKES FILING NO. 1
REC NO. 206712407

LOT 16
FOREST LAKES FILING NO. 1
REC NO. 206712407

LOT 17
FOREST LAKES FILING NO. 1
REC NO. 206712407

LOT 18
FOREST LAKES FILING NO. 1
REC NO. 206712407

LOT 19
FOREST LAKES FILING NO. 1
REC NO. 206712407

LOT 33
FOREST LAKES FILING NO. 1
REC NO. 206712407

LOT 34
FOREST LAKES FILING NO. 1
REC NO. 206712407

EXISTING FOREST LAKES DRIVE (EX. 60' ROW)

EXISTING MESA TOP DRIVE (EX. 60' ROW)

EX. HP

50' 25' 0 50' 100'

SCALE: 1" = 50'

NOTE:
SEE SHEET 05 FOR DETAIL ON TYPICAL HOLD-DOWNS IN PROPOSED ROADWAYS

LEGEND

(7700)	EXISTING CONTOUR
7700	PROPOSED CONTOUR
	PROPOSED LIMITS OF GRADING
	BOUNDARY/R.O.W. LINE
	EXISTING FLOW DIRECTION
	PROPOSED FLOW
"A"	A LOT
"B"	B LOT
"W/O"	WALKOUT LOT
"T"	TRANSITION LOT
"G"	GARDEN LOT
	PROPOSED INLET
	PROPOSED STORM SEWER PIPE
HP	PROPOSED HIGH POINT
LP	PROPOSED LOW POINT
TW = XX.XX BW = XX.XX	PROPOSED RETAINING WALL
IP	INLET PROTECTION
EX. TSB	EXISTING TEMPORARY SEDIMENT BASIN
EX. SF	EXISTING SILT FENCE
EX. SBB	EXISTING STRAW BALE CHECK DAM
EX. ECB	EXISTING EROSION CONTROL BLANKET
	EXISTING VEHICLE TRACKING CONTROL
	EXISTING VEGETATION

NOTE:
SEE SHEET 05 FOR LOT TEMPLATES
SEE SHEET 05 FOR EROSION CONTROL DETAILS

PROPOSED RETAINING WALL. MAX HEIGHT = 8' PRIOR TO INSTALLATION A BUILDING PERMIT WILL BE REQUIRED TO BE ISSUED

R.O.W.

8'

RETAINING WALL SECTION A-A

PROPOSED RETAINING WALL. MAX HEIGHT = 8' PRIOR TO INSTALLATION A BUILDING PERMIT WILL BE REQUIRED TO BE ISSUED

R.O.W.

8'

0.50'

R.O.W.

RETAINING WALL SECTION B-B

PROPOSED RETAINING WALL. MAX HEIGHT = 12' PRIOR TO INSTALLATION A BUILDING PERMIT WILL BE REQUIRED TO BE ISSUED

48 HOURS BEFORE YOU DIG, CALL UTILITY LOCATORS
811
UTILITY NOTIFICATION CENTER OF COLORADO
IT'S THE LAW

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE CAUSED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NO.	REVISION	DATE

REVIEW:

PREPARED UNDER MY DIRECT SUPERVISION FOR AND ON BEHALF OF CLASSIC CONSULTING ENGINEERS AND SURVEYORS, LLC

COLORADO LICENSED 29794 KYLE RAYE CAMPBELL

KYLE R. CAMPBELL, COLORADO P.E. #29794

3/24/20
DATE

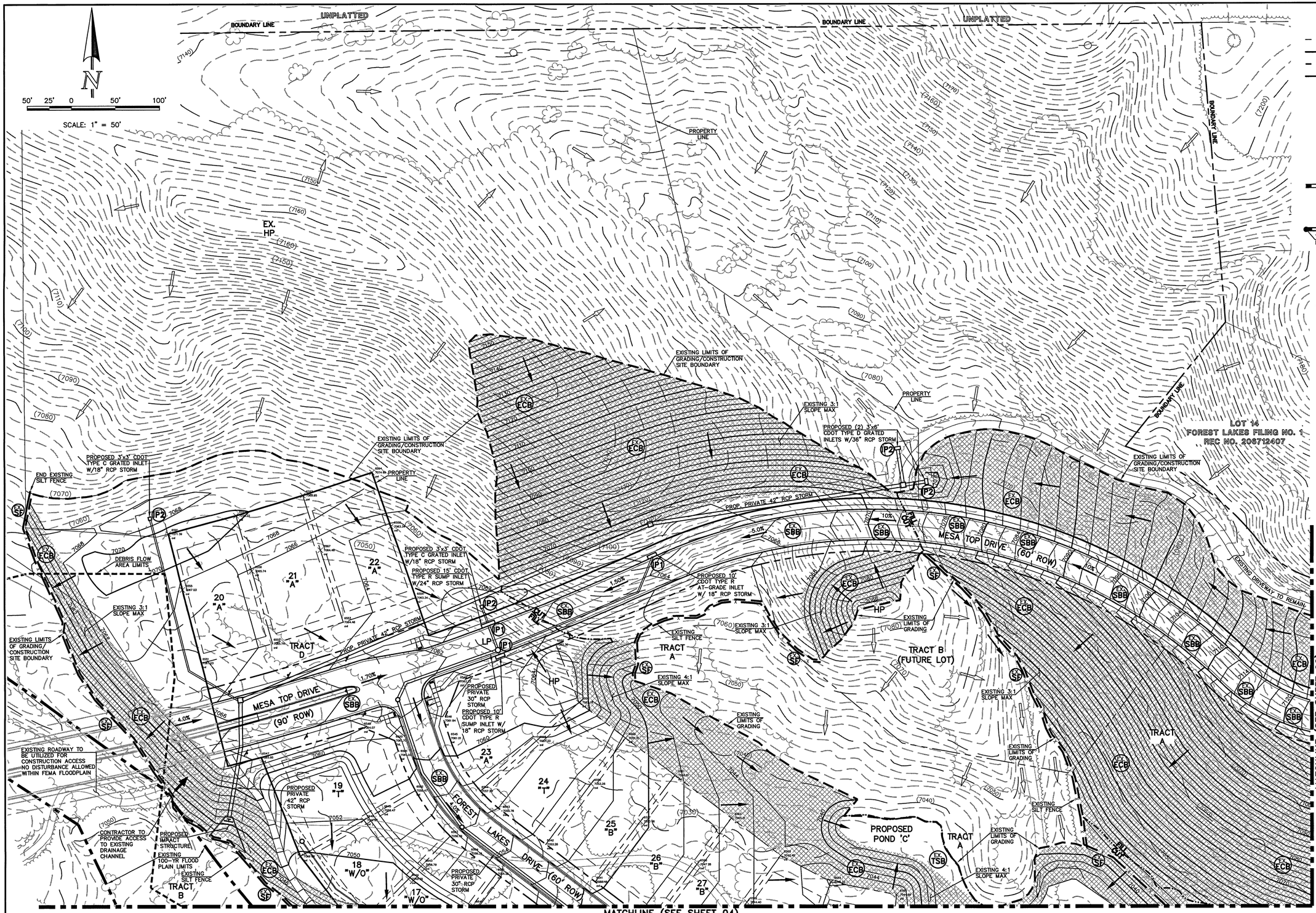
CLASSIC CONSULTING
619 N. Cascade Avenue, Suite 200
Colorado Springs, Colorado 80903
(719)785-0790
(719)785-0799(Fax)

FOREST LAKES FILING NO. 5

GRADING AND EROSION CONTROL PLAN
EPC 6/9/2020

DESIGNED BY	MAL	SCALE	DATE 06/21/19
DRAWN BY	MES	(H) 1"= 50'	SHEET 2 OF 32
CHECKED BY		(V) 1"= N/A	JOB NO. 1175.50

N:\17550\DRAWINGS\CONSTRUCTION\GRADING-EROSION\17550-GR-02.dwg, 3/4/2020 12:13:15 PM, 1:1



LEGEND

(7700)	EXISTING CONTOUR
7700	PROPOSED CONTOUR
	PROPOSED LIMITS OF GRADING
	BOUNDARY/R.O.W. LINE
	EXISTING FLOW DIRECTION
	PROPOSED FLOW
"A"	A LOT
"B"	B LOT
"W/O"	WALKOUT LOT
"I"	TRANSITION LOT
"G"	GARDEN LOT
	PROPOSED INLET
	PROPOSED STORM SEWER PIPE
HP	PROPOSED HIGH POINT
LP	PROPOSED LOW POINT
TW = XX.XX BW = XX.XX (X)	PROPOSED RETAINING WALL
IP	INLET PROTECTION
EX TSB	EXISTING TEMPORARY SEDIMENT BASIN
EX SF	EXISTING SILT FENCE
EX SBB	EXISTING STRAW BALE CHECK DAM
EX ECB	EXISTING EROSION CONTROL BLANKET
	EXISTING VEHICLE TRACKING CONTROL
	EXISTING VEGETATION

NOTE:
SEE SHEET 05 FOR LOT TEMPLATES
SEE SHEET 05 FOR
EROSION CONTROL DETAILS

NOTE:
OVERLOT GRADING COMPLETED WITH PRE-DEVELOPMENT GRADING PLAN & PERMIT. EROSION CONTROL BLANKETS, TEMPORARY SEDIMENT BASINS, SILT FENCE & STRAW BALE BARRIERS INSTALLED PER THAT PLAN.

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NO.	REVISION	DATE

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PREPARED UNDER MY DIRECT SUPERVISION FOR AND ON BEHALF OF CLASSIC CONSULTING ENGINEERS AND SURVEYORS, LLC

KYLE R. CAMPBELL, COLORADO P.E. #29794 — DATE 3/24/20

CLASSIC CONSULTING
619 N. Cascade Avenue, Suite 200
Colorado Springs, Colorado 80903
(719)785-0790
(719)785-0799(Fax)

FOREST LAKES FILING NO. 5
CONSTRUCTION PLANS
GRADING AND EROSION CONTROL PLAN
EPC 6/9/2020

DESIGNED BY	MAL	SCALE		DATE	06/21/19
DRAWN BY	MES	(H) 1"= 50'		SHEET 3	OF 32
CHECKED BY		(V) 1"= N/A		JOB NO.	1175.50

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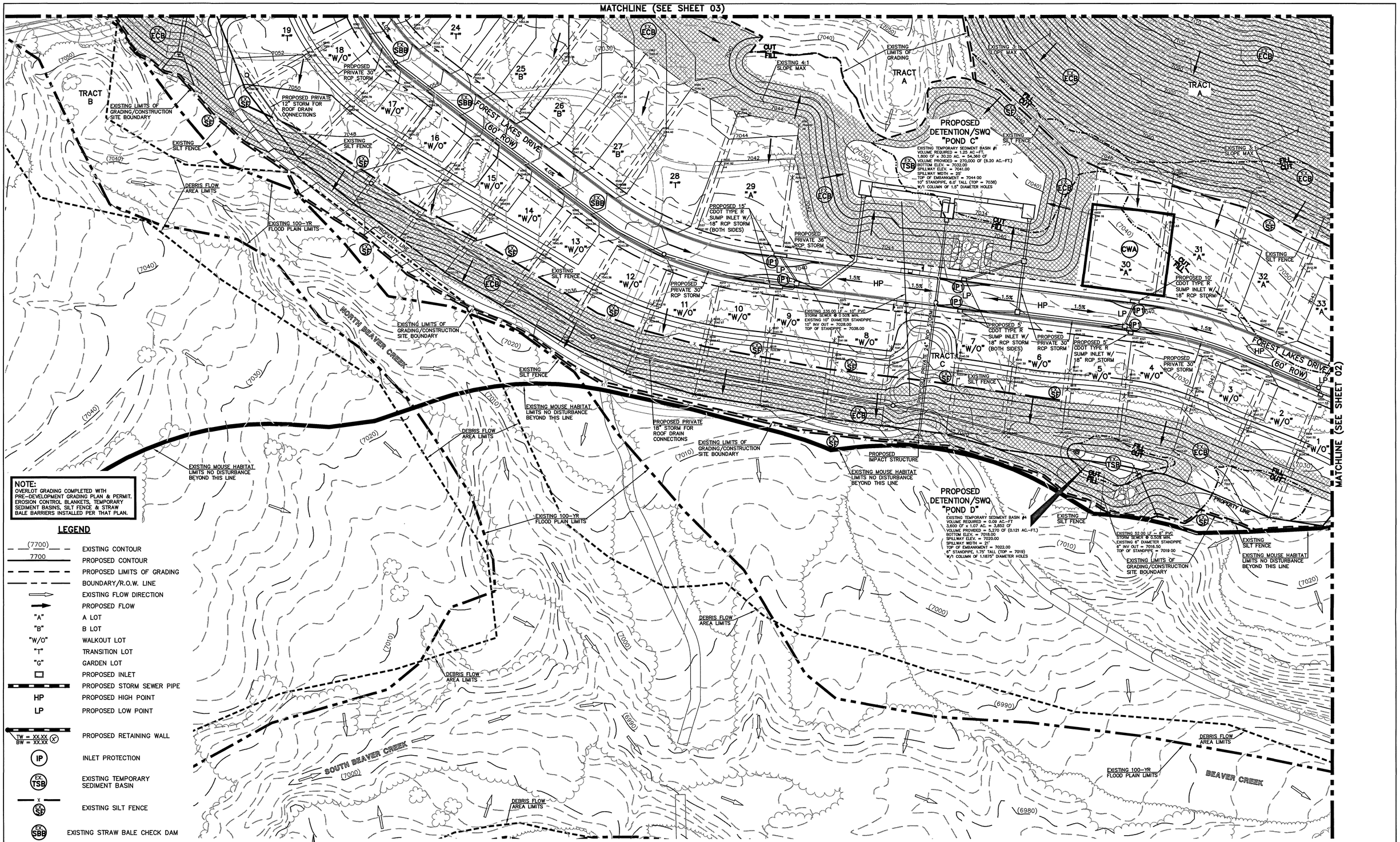

NOTE:
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LEGEND

- (7700) — EXISTING CONTOUR
- 7700 — PROPOSED CONTOUR
- PROPOSED LIMITS OF GRADING
- BOUNDARY/R.O.W. LINE
- EXISTING FLOW DIRECTION
- PROPOSED FLOW
- "A" — A LOT
- "B" — B LOT
- "W/O" — WALKOUT LOT
- "T" — TRANSITION LOT
- "G" — GARDEN LOT
- PROPOSED INLET
- PROPOSED STORM SEWER PIPE
- HP — PROPOSED HIGH POINT
- LP — PROPOSED LOW POINT
- TW = XX.XX, BW = XX.XX — PROPOSED RETAINING WALL
- IP — INLET PROTECTION
- EX TSB — EXISTING TEMPORARY SEDIMENT BASIN
- EX SF — EXISTING SILT FENCE
- EX SBB — EXISTING STRAW BALE CHECK DAM
- EX ECB — EXISTING EROSION CONTROL BLANKET
- EXISTING VEHICLE TRACKING CONTROL
- EXISTING VEGETATION

NOTE:
SEE SHEET 05 FOR LOT TEMPLATES
SEE SHEET 05 FOR EROSION CONTROL DETAILS

N

50' 25' 0 50' 100'

SCALE: 1" = 50'

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811
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FOREST LAKES FILING NO. 5
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GRADING AND EROSION CONTROL PLAN
EPC 6/9/2020

DESIGNED BY	MAL	SCALE	DATE 06/21/19
DRAWN BY	MES	(H) 1"= 50'	SHEET 4 OF 32
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N:\117550\DRAWINGS\CONSTRUCTION\GRADING-EROSION\117550-GR-04.dwg, 3/4/2020 12:16:02 PM, 1:1

NOTES:

AT LEAST TEN DAYS PRIOR TO THE ANTICIPATED START OF CONSTRUCTION, FOR PROJECTS THAT WILL DISTURB 1 ACRE OR MORE, THE OWNER OR OPERATOR OF THE CONSTRUCTION ACTIVITY SHALL SUBMIT A PERMIT APPLICATION FOR STORMWATER DISCHARGE TO THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT, WATER QUALITY DIVISION. THE APPLICATION CONTAINS CERTIFICATION OF COMPLETION OF A STORMWATER MANAGEMENT PLAN (SWMP), OF WHICH THIS GRADING AND EROSION CONTROL PLAN MAY BE A PART. FOR INFORMATION OR APPLICATION MATERIALS CONTACT:

COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT
WATER QUALITY CONTROL DIVISION
WQCD - PERMITS
4300 CHERRY CREEK DRIVE SOUTH
DENVER, CO 80246-1530
ATTN: PERMITS UNIT

A PORTION OF THE OVERALL FOREST LAKES DEVELOPMENT IS LOCATED WITHIN A FLOODPLAIN AS DETERMINED BY THE FLOOD INSURANCE RATE MAPS (F.I.R.M.) MAP NUMBERS 08041 C0267G, C0266G, C0258G & C0259G EFFECTIVE DATE, DECEMBER 7, 2018. HOWEVER, THERE IS NO PORTION OF FILING 5 WITHIN THE FLOODPLAIN LIMITS.

THE AVERAGE SOIL CONDITION REFLECTS HYDROLOGIC SOIL GROUP "B", MOSTLY JARRE-TECOLOTE COMPLEX AND PEYTON-PRING COMPLEX AS DETERMINED BY THE "SOIL SURVEY OF EL PASO COUNTY AREA" PREPARED BY THE U.S. SOIL CONSERVATION SERVICE.

EXISTING VEGETATION CONSISTS OF NATIVE GRASSES.

EMERGENCY OVERFLOW SWALES FOR INLETS IN THE INTERIM UNTIL CURB AND ASPHALT IS INSTALLED WILL BE THE LOTS, FINAL WILL BE TO OVERTOP THE HIGH POINT IN ROADWAY TO THE NEXT AVAILABLE INLET OR TO PROPOSED POND.

STOCKPILE LOCATIONS FOR HOMEBUILDING TO BE ON EACH INDIVIDUAL LOT THAT IS BEING BUILT UPON.

LIMITS OF DISTURBANCE FOR THIS PLAN INCLUDE UTILITY INSTALLATION AND ROADWAY CONSTRUCTION WITHIN THE R.O.W., AND OVERLOT GRADING FOR DEVELOPMENT THEN INDIVIDUAL LOTS FOR HOMEBUILDING ONCE CONSTRUCTION OF THE HOME BEGINS.

GRADING WITHIN THIS PHASE WILL BE FULLY DEVELOPED WITH HOME BUILDING OPERATIONS.

LOCATION OF STORAGE FOR MAINTENANCE EQUIPMENT AND TEMPORARY DISPOSAL AREAS WILL BE ADDED TO THIS PLAN BY SWMP ADMINISTRATOR UPON COORDINATION WITH SELECTED CONTRACTOR.

ALL AREAS ARE TO BE RESEEDED OUTSIDE OF THE FILING NO. 5 AREA. RESEED ALL AREAS AS NEEDED TO PREVENT EROSION AND SEDIMENT RUNOFF ONTO CONSTRUCTION ACTIVITIES.

SCHEDULE OF ANTICIPATED CONSTRUCTION ACTIVITY:

1. INSTALL INITIAL BMP'S
2. INSPECTION OF INTIAL BMP'S BY COUNTY STAFF
3. PRECONSTRUCTION MEETING WITH COUNTY STAFF

BEGIN CONSTRUCTION	ACTIVITY	COMPLETION	EROSION CONTROL
UPON APPROVAL	ALL SITE ROADWAY GRADING AND UTILITY INSTALLATION	6 MONTHS	ALL SHOWN ON GRADING PLAN

EROSION CONTROL CRITERIA:

EROSION CONTROL MEASURES SHALL BE IMPLEMENTED IN A MANNER THAT WILL PROTECT PROPERTIES AND PUBLIC FACILITIES FROM THE ADVERSE EFFECTS OF EROSION AND SEDIMENTATION AS A RESULT OF CONSTRUCTION AND EARTHWORK ACTIVITIES WITHIN THE PROJECT SITE.

1.) THE OMISSION FROM OR THE INCLUSION OF UTILITY LOCATIONS ON THE PLANS IS NOT TO BE CONSIDERED AS THE NON-EXISTENCE OF OR A DEFINITE LOCATION OF EXISTING UNDERGROUND UTILITIES.

2.) DURING GRADING OPERATIONS, LOCATE AND SET THE STRAW BALE CHECK DAMS AND SILT FENCES AS SHOWN ON THE EROSION CONTROL PLAN. AT THIS TIME RESEED ALL DISTURBED AREAS WITH AN EL PASO COUNTY APPROVED SEED MIX.

3.) SEEDING APPLICATION: DRILLED TO A DEPTH OF .25" TO .50" INTO SOIL WHERE POSSIBLE. BROADCAST AND RAKED TO COVER ON STEEPER THAN 3:1 SLOPES WHERE ACCESS IS LIMITED OR UNSAFE FOR EQUIPMENT.

4.) MULCHING REQUIREMENT AND APPLICATION: 1.5 TONS PER ACRE NATIVE HAY MECHANICALLY CRIMPED INTO SOIL.

5.) THE STRAW BALE CHECK DAMS AND SILT FENCES SHALL BE KEPT IN PLACE AND MAINTAINED UNTIL EROSION AND SEDIMENTATION POTENTIAL IS MITIGATED. REMOVAL OF SILT AND SEDIMENT COLLECTED BY THE STRAW BALES IS REQUIRED ONCE IT REACHES HALF THE HEIGHT OF THE STRAW BALES OR SILT FENCE.

6.) DISTURBED SOIL SHALL BE VEGETATED WITHIN 60 DAYS AFTER SUBSTANTIAL FINAL GRADING IS COMPLETE. PROVIDE TEMPORARY VEGETATION TO DISTURBED AREAS THAT WILL HAVE A PERIOD OF EXPOSURE OF 6 MONTHS OR LONGER PRIOR TO FINAL STABILIZATION.

7.) ALL FACILITIES, VEGETATION AND OTHER ITEMS REQUIRED BY THE APPROVED FINAL GRADING, EROSION CONTROL AND RECLAMATION PLAN SHALL BE PROPERLY MAINTAINED BY THE OWNERS OF THE PROPERTY. SUCH MAINTENANCE SHALL INCLUDE, BUT NOT BE LIMITED TO KEEPING ALL EROSION CONTROL FACILITIES IN GOOD ORDER AND FUNCTIONAL, REPAIRING ANY EROSION DAMAGE THAT OCCURS, KEEPING ALL VEGETATION HEALTHY AND IN GROWING CONDITION AND REPLACING ANY DEAD VEGETATION AS SOON AS PRACTICABLE.

8.) ALL SILT FENCES ARE TO BE REGULARLY INSPECTED AND REPAIRED AS NEEDED.

9.) THE CONTRACTOR SHALL PROVIDE VEHICLE TRACKING CONTROL FACILITIES FOR EACH ENTRANCE/EXIT TO THE SITE. THE CONTRACTOR SHALL SUBMIT A PLAN WHICH WILL ASSURE USAGE OF THIS FACILITY BY ALL VEHICLES LEAVING THE SITE.

10.) EROSION CONTROL MEASURES SHALL BE CHECKED AFTER EACH STORM EVENT AND REPAIRED WHEN NECESSARY.

11.) CONTRACTOR SHALL MAINTAIN ALL TEMPORARY EROSION CONTROL FACILITIES IN GOOD WORKING ORDER UNTIL SUCH TIME AS PERMANENT FACILITIES ARE IN PLACE AND THE CONSTRUCTION MANAGER HAS APPROVED THEIR REMOVAL.

12.) ADDITIONAL EROSION CONTROL STRUCTURES MAY BE REQUIRED AT THE TIME OF CONSTRUCTION.

13.) THE EROSION CONTROL MEASURES OUTLINED ON THE PLAN ARE THE RESPONSIBILITY OF THE DEVELOPER TO MONITOR AND REPLACE, REGRADE AND REBUILD AS NECESSARY UNTIL VEGETATION IS ESTABLISHED.

14.) MAXIMUM ACREAGE OPEN AT ANY GIVEN TIME IS TO BE 30 ACRES.

SEEDING GUIDELINES

1. SEEDBED PREPARATION

THE SEEDBED SHOULD BE WELL-SETTLED AND FIRM, BUT FRIABLE ENOUGH THAT THE SEED CAN BE PLACED AT THE SPECIFIED DEPTHS. COMPETITIVE STANDS OF WEEDS THAT ARE PRESENT BEFORE SEEDING MUST BE CONTROLLED BY SHALLOW TILLAGE OR BY APPLICATION OF HERBICIDES. SOILS THAT HAVE BEEN OVER-COMPACTED BY TRAFFIC OR EQUIPMENT, ESPECIALLY WHEN WET, SHOULD BE TILLED TO BREAK UP ROOTING-RESTRICTIVE LAYERS, THAN HARROWED, ROLLED, OR PACKED TO PREPARE THE REQUIRED FIRM SEEDBED.

2. FERTILIZER

FERTILIZER SHOULD BE APPLIED AT A RATE OF 50 POUNDS OF AVAIL-ABLE NITROGEN PER ACRE AND 40 POUNDS OF AVAILABLE PHOSPHATE PER ACRE. THE TIME OF APPLICATION SHOULD BE IMMEDIATELY PRIOR TO SEEDING, AT THE TIME OF SEEDING, OR IMMEDIATELY FOL-LOWING SEEDING, DEPENDING ON THE KIND OF FERTILIZER AND TYPE OF EQUIPMENT USED.

3. SEEDING

SEED SHOULD BE PLANTED WITH A GRASS DRILL ON ALL SLOPES OF 33% (3:1) OR FLATTER. SEED MAY BE BROADCAST BY HAND, BY MECHANICAL SPREADER, OR BY HYDRAULIC EQUIPMENT ON AREAS THAT ARE SMALL, TOO STEEP, OR NOT ACCESSIBLE FOR SEED DRILL OPERATIONS. SEED PLANTED WITH A DRILL SHOULD BE COVERED WITH SOIL TO A DEPTH OF 1/4 TO 3/4 INCH. SEED PLANTED BY THE BROADCAST METHOD SHALL BE INCORPORATED INTO THE SOIL SURFACE, NOT TO EXCEED A DEPTH OF 3/4 INCH, BY RAKING, HARROWING, OR OTHER PROVEN METHOD. THE TIME OF SEEDING IS FROM OCTOBER 15TH - MAY 31ST. SEED PLANTED IN THE LATE FALL WILL REMAIN DORMANT UNTIL SPRING, WHEN IT WILL GERMINATE.

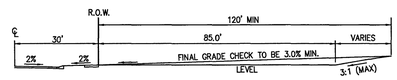
4. MULCHING

SEEDED AREAS SHOULD BE MULCHED TO CONSERVE MOISTURE; PREVENT SURFACE COMPACTION OR CRUSTING; REDUCE RUNOFF AND EROSION; CONTROL INSECTS; AND HELP ESTABLISH PLANT COVER.

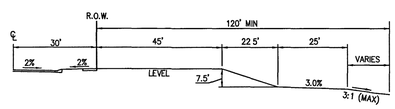
NATIVE HAY OR STRAW SHOULD BE APPLIED AT A RATE OF 4,000 POUNDS PER ACRE AND CRIMPED INTO THE GROUND. ON SLOPES GREATER THAN 3:1, AN AGRONOMY BLANKET SHOULD BE USED.

5. SUPPLEMENTAL WATER

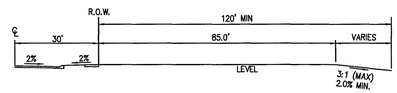
IN LOW RAINFALL AREAS, WHERE WATER IS AVAILABLE AND WHERE RAPID ESTABLISHMENT IS NEEDED, IRRIGATION OF NEW SEEDING SHOULD BE PERFORMED DURING THE FIRST GROWING SEASON. WATER SHOULD BE APPLIED AT APPROXIMATELY ONE WEEK INTERVALS, AT A RATE OF 3/4 TO 1 INCH PER APPLICATION, WHEN RAINFALL IS DEFI-CIENT FOR PLANT DEVELOPMENT.



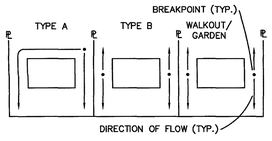
TYPICAL A LOT
NOT TO SCALE



TYPICAL WALKOUT (W/O) LOT
NOT TO SCALE



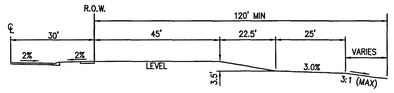
TYPICAL B LOT
NOT TO SCALE



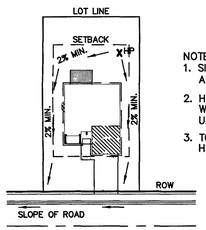
LOT DRAINAGE TYPES

NOTE:
SIDE LOT LINE SWALES ARE REQUIRED FOR ALL LOTS.

NOTE:
"T" LOTS OR "TRANSITION" LOTS OCCUR IN PLACES WHERE BOTH PROPERTY LINES CANNOT BE GRADED AS THE TYPICAL STANDARD LOT TEMPLATES SHOWN. THESE LOTS WILL STILL BE GRADED TO CREATE POSITIVE DRAINAGE AWAY FROM THE STRUCTURE.

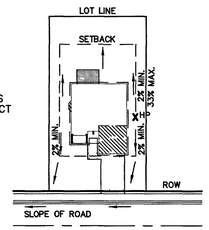


TYPICAL GARDEN (G) LOT
NOT TO SCALE

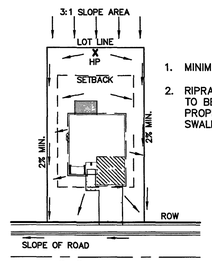


NOTES:
1. SIDEYARD SWALES TO BE CONST. AT 2% MIN. SLOPE.
2. HP LOCATION ON INDIVIDUAL LOTS WILL VARY DEPENDING UPON EXACT UNIT SIZE AND LOCATION.
3. TOF ELEV. MUST BE MIN. 18" HIGHER THAN ESTABLISHED HP.

TYPICAL "A" LOT DRAINAGE PATTERN
N.T.S.

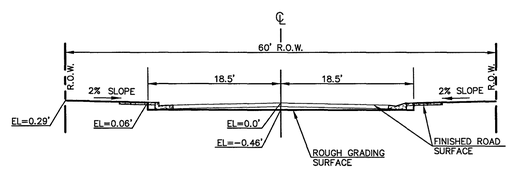


TYPICAL "B", "G," "W/O" LOT DRAINAGE PATTERN
N.T.S.

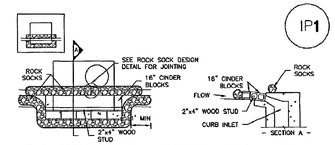


1. MINIMUM LOT WIDTH ALONG SLOPE IS 70'.
2. RIPRAP OR CONCRETE 'V' NOTCH SWALES TO BE INSTALLED ALONG SHARED PROPERTY & WITHIN SIDE LOT EASEMENTS. SWALES TO DISCHARGE ONTO ROADWAY.

"A" LOTS W/SLOPE BEHIND DRAINAGE PATTERN
N.T.S.



60' R.O.W. TYPICAL STREET SECTION
HOLD-DOWN OVERLOT GRADING IN ROADWAYS
SCALE 1" = 10'



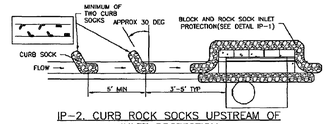
IP-1, BLOCK AND ROCK SOCK SUMP OR ON GRADE INLET PROTECTION

BLOCK AND CURB SOCK INLET PROTECTION INSTALLATION NOTES

1 SEE ROCK SOCK DESIGN DETAIL FOR INSTALLATION REQUIREMENTS

2 CONCRETE "CINDER" BLOCKS SHALL BE LAID ON THEIR SIDES AROUND THE INLET IN A SINGLE ROW, ABUTTING ONE ANOTHER WITH THE OPEN END FACING AWAY FROM THE CURB

3 GRAVEL BAGS SHALL BE PLACED AROUND CONCRETE BLOCKS, CLOSELY ABUTTING ONE ANOTHER AND JOINTED TOGETHER IN ACCORDANCE WITH ROCK SOCK DESIGN DETAIL



IP-2, CURB ROCK SOCKS UPSTREAM OF INLET PROTECTION

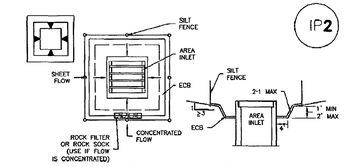
CURB ROCK SOCK INLET PROTECTION INSTALLATION NOTES

1 SEE ROCK SOCK DESIGN DETAIL INSTALLATION REQUIREMENTS

2 PLACEMENT OF THE SOCK SHALL BE APPROXIMATELY 30 DEGREES FROM PERPENDICULAR IN THE OPPOSITE DIRECTION OF FLOW.

3 SOCKS ARE TO BE FLUSH WITH THE CURB AND SPACED A MINIMUM OF 5 FEET APART

4 AT LEAST TWO CURB SOCKS IN SERIES ARE REQUIRED UPSTREAM OF ON-GRADE INLETS



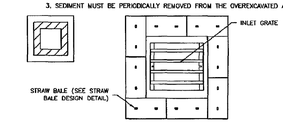
IP-5, OVEREXCAVATION INLET PROTECTION

OVEREXCAVATION INLET PROTECTION INSTALLATION NOTES

1 THIS FORM OF INLET PROTECTION IS PRIMARILY APPLICABLE FOR SITES THAT HAVE NOT YET REACHED FINAL GRADE AND SHOULD BE USED ONLY FOR INLETS WITH A RELATIVELY SMALL CONTRIBUTING DRAINAGE AREA.

2 WHEN USING FOR CONCENTRATED FLOWS, SHAPE BASIN IN 2:1 RATIO WITH LENGTH ORIENTED TOWARDS DIRECTION OF FLOW

3. SEDIMENT MUST BE PERIODICALLY REMOVED FROM THE OVEREXCAVATED AREA

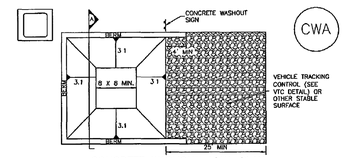


IP-6 STRAW BALE FOR SUMP INLET PROTECTION

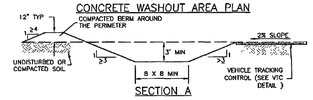
STRAW BALE BARRIER INLET PROTECTION INSTALLATION NOTES

1. SEE STRAW BALE DESIGN DETAIL FOR INSTALLATION REQUIREMENTS.

2. BALES SHALL BE PLACED IN A SINGLE ROW AROUND THE INLET WITH ENDS OF BALES TIGHTLY ABUTTING ONE ANOTHER



CONCRETE WASHOUT AREA PLAN



SECTION A

CWA-1, CONCRETE WASHOUT AREA

CWA INSTALLATION NOTES

1. SEE PLAN VIEW FOR -CWA INSTALLATION LOCATION.

2 DO NOT LOCATE AN UNLINED CWA WITHIN 400' OF ANY NATURAL DRAINAGE PATHWAY OR WATERBODY. DO NOT LOCATE WITHIN 1,000' OF ANY WELLS OR DRINKING WATER SOURCES. IF SITE CONSTRAINTS MAKE THIS INFEASIBLE, OR IF HIGHLY PERMEABLE SOILS EXIST ON SITE, THE CWA MUST BE INSTALLED WITH AN IMPERMEABLE LINER (16 MIL MIN. THICKNESS) OR SURFACE STORAGE ALTERNATIVES USING PREFABRICATED CONCRETE WASHOUT DEVICES OR A LINED ABOVE GROUND STORAGE ARE SHOULD BE USED

3 THE CWA SHALL BE INSTALLED PRIOR TO CONCRETE PLACEMENT ON SITE.

4 CWA SHALL INCLUDE A FLAT SUBSURFACE PIT THAT IS AT LEAST 8' BY 8' SLOPES LEADING OUT OF THE SUBSURFACE PIT SHALL BE 3:1 OR FLATTER THE PIT SHALL BE AT LEAST 2' DEEP

5 BERM SURROUNDING SIDES AND BACK OF THE CWA SHALL HAVE MINIMUM HEIGHT OF 1'

6 VEHICLE TRACKING PAD SHALL BE SLOPED 2% TOWARDS THE CWA.

7 SIGNS SHALL BE PLACED AT THE CONSTRUCTION ENTRANCE, AT THE CWA, AND ELSEWHERE AS NECESSARY TO CLEARLY INDICATE THE LOCATION OF THE CWA TO OPERATORS OF CONCRETE TRUCKS AND PUMP HOS

8 USE EXCAVATED MATERIAL FOR PERIMETER BERM CONSTRUCTION.

CWA 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 THE CWA SHALL BE REPAIRED, CLEANED, OR ENLARGED AS NECESSARY TO MAINTAIN CAPACITY FOR CONCRETE WASTE. CONCRETE MATERIALS, ACCUMULATED IN PIT, SHALL BE REMOVED ONCE THE MATERIALS HAVE REACHED A DEPTH OF 2'.

5 CONCRETE WASHOUT WATER, WASTED PIECES OF CONCRETE AND ALL OTHER DEBRIS IN THE SUBSURFACE PIT SHALL BE TRANSPORTED FROM THE JOB SITE IN A WATER-TIGHT CONTAINER AND DISPOSED OF PROPERLY

6 THE CWA SHALL REMAIN IN PLACE UNTIL ALL CONCRETE FOR THE PROJECT IS PLACED

7 WHEN THE CWA IS REMOVED, COVER THE DISTURBED AREA WITH TOP SOIL, SEED AND MULCH OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION.

(DETAIL ADAPTED FROM DOUGLAS COUNTY, COLORADO AND THE CITY OF PARKER 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

EL PASO COUNTY:

SEE SHEET 6 FOR EL PASO COUNTY STANDARD NOTES AND SITE SPECIFIC CONSTRUCTION CONTROL MEASURES NOTES.

48 HOURS BEFORE YOU DIG, CALL UTILITY LOCATORS
811
UTILITY NOTIFICATION CENTER OF COLORADO
IT'S THE LAW

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE CAUSED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NO.	REVISION	DATE

REVIEW:
PREPARED UNDER MY DIRECT SUPERVISION FOR AND ON BEHALF OF CLASSIC CONSULTING ENGINEERS AND SURVEYORS, LLC

COLORADO REGISTERED KYLE RAYE CAMPBELL 29794 PROFESSIONAL ENGINEER

KYLE R. CAMPBELL, COLORADO P.E.#29794 — DATE 3/4/20

CLASSIC CONSULTING
619 N. Cascade Avenue, Suite 200 (719)785-0790
Colorado Springs, Colorado 80903 (719)785-0799(Fax)

FOREST LAKES FILING NO. 5
CONSTRUCTION PLANS
GRADING AND EROSION CONTROL PLAN
DETAIL SHEET EPC 6/9/2020

DESIGNED BY	MAL	SCALE	DATE	06/21/19
DRAWN BY	MES	(H) 1"= N/A	SHEET 5	OF 32
CHECKED BY		(V) 1"= N/A	JOB NO.	1175.50

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EL PASO COUNTY GRADING AND EROSION CONTROL NOTES:

1. STORMWATER DISCHARGES FROM CONSTRUCTION SITES SHALL NOT CAUSE OR THREATEN TO CAUSE POLLUTION, CONTAMINATION, OR DEGRADATION OF STATE WATERS. ALL WORK AND EARTH DISTURBANCE SHALL BE DONE IN A MANNER THAT MINIMIZES POLLUTION OF ANY ON-SITE OR OFF-SITE WATERS, INCLUDING WETLANDS.

2. NOTWITHSTANDING ANYTHING DEPICTED IN THESE PLANS IN WORDS OR GRAPHIC REPRESENTATION, ALL DESIGN AND CONSTRUCTION RELATED TO ROADS, STORM DRAINAGE AND EROSION CONTROL SHALL CONFORM TO THE STANDARDS AND REQUIREMENTS OF THE MOST RECENT VERSION OF THE RELEVANT ADOPTED EL PASO COUNTY STANDARDS, INCLUDING THE LAND DEVELOPMENT CODE, THE ENGINEERING CRITERIA MANUAL, THE DRAINAGE CRITERIA MANUAL, AND THE DRAINAGE CRITERIA MANUAL VOLUME 2. ANY DEVIATIONS FROM REGULATIONS AND STANDARDS MUST BE REQUESTED, AND APPROVED, IN WRITING.

3. A SEPARATE STORMWATER MANAGEMENT PLAN (SMWP) FOR THIS PROJECT SHALL BE COMPLETED AND AN EROSION AND STORMWATER QUALITY CONTROL PERMIT (ESQCP) ISSUED PRIOR TO COMMENCING CONSTRUCTION. MANAGEMENT OF THE SWMP DURING CONSTRUCTION IS THE RESPONSIBILITY OF THE DESIGNATED QUALIFIED STORMWATER MANAGER OR CERTIFIED EROSION CONTROL INSPECTOR. THE SWMP SHALL BE LOCATED ON SITE AT ALL TIMES DURING CONSTRUCTION AND SHALL BE KEPT UP TO DATE WITH WORK PROGRESS AND CHANGES IN THE FIELD.

4. ONCE THE ESQCP IS APPROVED AND A "NOTICE TO PROCEED" HAS BEEN ISSUED, THE CONTRACTOR MAY INSTALL THE INITIAL STAGE EROSION AND SEDIMENT CONTROL MEASURES AS INDICATED ON THE APPROVED GEC. A PRECONSTRUCTION MEETING BETWEEN THE CONTRACTOR, ENGINEER, AND EL PASO COUNTY WILL BE HELD PRIOR TO ANY CONSTRUCTION. IT IS THE RESPONSIBILITY OF THE APPLICANT TO COORDINATE THE MEETING TIME AND PLACE WITH COUNTY STAFF.

5. CONTROL MEASURES MUST BE INSTALLED PRIOR TO COMMENCEMENT OF ACTIVITIES THAT COULD CONTRIBUTE POLLUTANTS TO STORMWATER. CONTROL MEASURES FOR ALL SLOPES, CHANNELS, DITCHES, AND DISTURBED LAND AREAS SHALL BE INSTALLED IMMEDIATELY UPON COMPLETION OF THE DISTURBANCE.

6. ALL TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES SHALL BE MAINTAINED AND REMAIN IN EFFECTIVE OPERATING CONDITION UNTIL PERMANENT SOIL EROSION CONTROL MEASURES ARE IMPLEMENTED AND FINAL STABILIZATION IS ESTABLISHED. ALL PERSONS ENGAGED IN LAND DISTURBANCE ACTIVITIES SHALL ASSESS THE ADEQUACY OF CONTROL MEASURES AT THE SITE AND IDENTIFY IF CHANGES TO THOSE CONTROL MEASURES ARE NEEDED TO ENSURE THE CONTINUED EFFECTIVE PERFORMANCE OF THE CONTROL MEASURES. ALL CHANGES TO TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES MUST BE INCORPORATED INTO THE STORMWATER MANAGEMENT PLAN.

7. TEMPORARY STABILIZATION SHALL BE IMPLEMENTED ON DISTURBED AREAS AND STOCKPILES WHERE GROUND DISTURBING CONSTRUCTION ACTIVITY HAS PERMANENTLY CEASED OR TEMPORARILY CEASED FOR LONGER THAN 14 DAYS.

8. FINAL STABILIZATION MUST BE IMPLEMENTED AT ALL APPLICABLE CONSTRUCTION SITES. FINAL STABILIZATION IS ACHIEVED WHEN ALL GROUND DISTURBING ACTIVITIES ARE COMPLETE AND ALL DISTURBED AREAS EITHER HAVE A UNIFORM VEGETATIVE COVER WITH INDIVIDUAL PLANT DENSITY OF 70 PERCENT OF PRE-DISTURBANCE LEVELS ESTABLISHED OR EQUIVALENT PERMANENT ALTERNATIVE STABILIZATION METHOD IS IMPLEMENTED. ALL TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES SHALL BE REMOVED UPON FINAL STABILIZATION AND BEFORE PERMIT CLOSURE.

9. ALL PERMANENT STORMWATER MANAGEMENT FACILITIES SHALL BE INSTALLED AS DESIGNED IN THE APPROVED PLANS. ANY PROPOSED CHANGES THAT AFFECT THE DESIGN OR FUNCTION OF PERMANENT STORMWATER MANAGEMENT STRUCTURES MUST BE APPROVED BY THE ECM ADMINISTRATOR PRIOR TO IMPLEMENTATION.

10. EARTH DISTURBANCES SHALL BE CONDUCTED IN SUCH A MANNER SO AS TO EFFECTIVELY MINIMIZE ACCELERATED SOIL EROSION AND RESULTING SEDIMENTATION. ALL DISTURBANCES SHALL BE DESIGNED, CONSTRUCTED, AND COMPLETED SO THAT THE EXPOSED AREA OF ANY DISTURBED LAND SHALL BE LIMITED TO THE SHORTEST PRACTICAL PERIOD OF TIME. PRE-EXISTING VEGETATION SHALL BE PROTECTED AND MAINTAINED WITHIN 50 HORIZONTAL FEET OF A WATERS OF THE STATE UNLESS SHOWN TO BE INFEASIBLE AND SPECIFICALLY REQUESTED AND APPROVED.

11. COMPACTION OF SOIL MUST BE PREVENTED IN AREAS DESIGNATED FOR INFILTRATION CONTROL MEASURES OR WHERE FINAL STABILIZATION WILL BE ACHIEVED BY VEGETATIVE COVER. AREAS DESIGNATED FOR INFILTRATION CONTROL MEASURES SHALL ALSO BE PROTECTED FROM SEDIMENTATION DURING CONSTRUCTION UNTIL FINAL STABILIZATION IS ACHIEVED. IF COMPACTION PREVENTION IS NOT FEASIBLE DUE TO SITE CONSTRAINTS, ALL AREAS DESIGNATED FOR INFILTRATION AND VEGETATION CONTROL MEASURES MUST BE LOOSENED PRIOR TO INSTALLATION OF THE CONTROL MEASURE(S).

12. ANY TEMPORARY OR PERMANENT FACILITY DESIGNED AND CONSTRUCTED FOR THE CONVEYANCE OF STORMWATER AROUND, THROUGH, OR FROM THE EARTH DISTURBANCE AREA SHALL BE A STABILIZED CONVEYANCE DESIGNED TO MINIMIZE EROSION AND THE DISCHARGE OF SEDIMENT OFF SITE.

13. CONCRETE WASH WATER SHALL BE CONTAINED AND DISPOSED OF IN ACCORDANCE WITH THE SWMP. NO WASH WATER SHALL BE DISCHARGED TO OR ALLOWED TO ENTER STATE WATERS, INCLUDING ANY SURFACE OR SUBSURFACE STORM DRAINAGE SYSTEM OR FACILITIES. CONCRETE WASHOUTS SHALL NOT BE LOCATED IN AN AREA WHERE SHALLOW GROUNDWATER MAY BE PRESENT, OR WITHIN 50 FEET OF A SURFACE WATER BODY, CREEK OR STREAM.

14. DURING DEWATERING OPERATIONS OF UNCONTAMINATED GROUND WATER MAY BE DISCHARGED ON SITE, BUT SHALL NOT LEAVE THE SITE IN THE FORM OF SURFACE RUNOFF UNLESS AN APPROVED STATE DEWATERING PERMIT IS IN PLACE.

15. EROSION CONTROL BLANKETING OR OTHER PROTECTIVE COVERING SHALL BE USED ON SLOPES STEEPER THAN 3:1.

16. CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL WASTES FROM THE CONSTRUCTION SITE FOR DISPOSAL IN ACCORDANCE WITH LOCAL AND STATE REGULATORY REQUIREMENTS. NO CONSTRUCTION DEBRIS, TREE SLASH, BUILDING MATERIAL WASTES OR UNUSED BUILDING MATERIALS SHALL BE BURIED, DUMPED, OR DISCHARGED AT THE SITE.

17. WASTE MATERIALS SHALL NOT BE TEMPORARILY PLACED OR STORED IN THE STREET, ALLEY, OR OTHER PUBLIC WAY, UNLESS IN ACCORDANCE WITH AN APPROVED TRAFFIC CONTROL PLAN. CONTROL MEASURES MAY BE REQUIRED BY EL PASO COUNTY ENGINEERING IF DEEMED NECESSARY, BASED ON SPECIFIC CONDITIONS AND CIRCUMSTANCES.

18. TRACKING OF SOILS AND CONSTRUCTION DEBRIS OFF-SITE SHALL BE MINIMIZED. MATERIALS TRACKED OFF-SITE SHALL BE CLEANED UP AND PROPERLY DISPOSED OF IMMEDIATELY.

19. THE OWNER/DEVELOPER SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL CONSTRUCTION DEBRIS, DIRT, TRASH, ROCK, SEDIMENT, SOIL, AND SAND THAT MAY ACCUMULATE IN ROADS, STORM DRAINS AND OTHER DRAINAGE CONVEYANCE SYSTEMS AND STORMWATER APPURTENANCES AS A RESULT OF SITE DEVELOPMENT.

20. THE QUANTITY OF MATERIALS STORED ON THE PROJECT SITE SHALL BE LIMITED, AS MUCH AS PRACTICAL, TO THAT QUANTITY REQUIRED TO PERFORM THE WORK IN AN ORDERLY SEQUENCE. ALL MATERIALS STORED ON-SITE SHALL BE STORED IN A NEAT, ORDERLY MANNER, IN THEIR ORIGINAL CONTAINERS, WITH ORIGINAL MANUFACTURER'S LABELS.

21. NO CHEMICAL(S) HAVING THE POTENTIAL TO BE RELEASED IN STORMWATER ARE TO BE STORED OR USED ONSITE UNLESS PERMISSION FOR THE USE OF SUCH CHEMICAL(S) IS GRANTED IN WRITING BY THE ECM ADMINISTRATOR. IN GRANTING APPROVAL FOR THE USE OF SUCH CHEMICAL(S), SPECIAL CONDITIONS AND MONITORING MAY BE REQUIRED.

22. BULK STORAGE OF ALLOWED PETROLEUM PRODUCTS OR OTHER ALLOWED LIQUID CHEMICALS IN EXCESS OF 55 GALLONS SHALL REQUIRE ADEQUATE SECONDARY CONTAINMENT PROTECTION TO CONTAIN ALL SPILLS ONSITE AND TO PREVENT ANY SPILLED MATERIALS FROM ENTERING STATE WATERS, ANY SURFACE OR SUBSURFACE STORM DRAINAGE SYSTEM OR OTHER FACILITIES.

23. NO PERSON SHALL CAUSE THE IMPEDIMENT OF STORMWATER FLOW IN THE CURB AND GUTTER OR DITCH EXCEPT WITH APPROVED SEDIMENT CONTROL MEASURES.

24. OWNER/DEVELOPER AND THEIR AGENTS SHALL COMPLY WITH THE "COLORADO WATER QUALITY CONTROL ACT" (TITLE 25, ARTICLE 8, CRS), AND THE "CLEAN WATER ACT" (33 USC 1344), IN ADDITION TO THE REQUIREMENTS OF THE LAND DEVELOPMENT CODE, DCM VOLUME II AND THE ECM APPENDIX I. ALL APPROPRIATE PERMITS MUST BE OBTAINED BY THE CONTRACTOR PRIOR TO CONSTRUCTION (1041, NPDES, FLOODPLAIN, 404, FUGITIVE DUST, ETC.). IN THE EVENT OF CONFLICTS BETWEEN THESE REQUIREMENTS AND OTHER LAWS, RULES, OR REGULATIONS OF OTHER FEDERAL, STATE, LOCAL, OR COUNTY AGENCIES, THE MOST RESTRICTIVE LAWS, RULES, OR REGULATIONS SHALL APPLY.

25. ALL CONSTRUCTION TRAFFIC MUST ENTER/EXIT THE SITE ONLY AT APPROVED CONSTRUCTION ACCESS POINTS.

26. PRIOR TO CONSTRUCTION THE PERMITTEE SHALL VERIFY THE LOCATION OF EXISTING UTILITIES.

27. A WATER SOURCE SHALL BE AVAILABLE ON SITE DURING EARTHWORK OPERATIONS AND SHALL BE UTILIZED AS REQUIRED TO MINIMIZE DUST FROM EARTHWORK EQUIPMENT AND WIND.

28. THE SOILS REPORT FOR THIS SITE HAS BEEN PREPARED BY ENTECH ENGINEERING, INC. AND SHALL BE CONSIDERED A PART OF THESE PLANS.

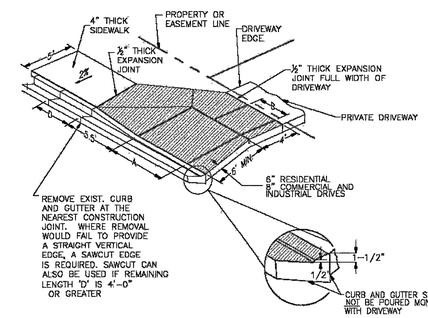
29. AT LEAST TEN (10) DAYS PRIOR TO THE ANTICIPATED START OF CONSTRUCTION, FOR PROJECTS THAT WILL DISTURB ONE (1) ACRE OR MORE, THE OWNER OR OPERATOR OF CONSTRUCTION ACTIVITY SHALL SUBMIT A PERMIT APPLICATION FOR STORMWATER DISCHARGE TO THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT, WATER QUALITY DIVISION. THE APPLICATION CONTAINS CERTIFICATION OF COMPLETION OF A STORMWATER MANAGEMENT PLAN (SWMP), OF WHICH THIS GRADING AND EROSION CONTROL PLAN MAY BE A PART. FOR INFORMATION OR APPLICATION MATERIALS CONTACT:

COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT
WATER QUALITY CONTROL DIVISION
WQCD - PERMITS
4300 CHERRY CREEK DRIVE SOUTH
DENVER, CO 80246-1530
ATTN: PERMITS UNIT

Table B-6. Native Seed Mix for Rain Gardens [2]

Common Name	Scientific Name	Variety	PLS[3] lbs per Acre	Ounces per Acre
Sand bluestem	Andropogon hallii	Garden	3 5	
Sideoats grama	Bouteloua curtipendula	Butte	3	
Prairie sandreed	Calamovilfa longifolia	Goshen	3	
Indian ricegrass	Oryzopsis hymenoides	Paloma	3	
Switchgrass	Panicum virgatum	Blackwell	4	
Western wheatgrass	Pascopyrum smithii	Ariba	3	
Little bluestem	Schizachyrum scoparium	Patura	3	
Alkali sacaton	Sporobolus airoides		3	
Sand dropseed	Sporobolus cryptandrus		3	
Pasture sage[1]	Artemisia frigida			2
Blue aster[1]	Aster laevis			4
Blanket flower[1]	Gaillardia aristata			8
Prairie coneflower[1]	Ratibida columnifera			4
Purple prairieclover[1]	Dalea (Petalostemum) purpurea			4
Sub-Totals·			27 5	22
Total lbs per acre:			28.9	

[1] Wildflower seed (optional) for a more diverse and natural look.
[2] PLS = Pure Live Seed.



NOTES

1. PROVIDE CENTERLINE CONSTRUCTION OR TOOL JOINT WHEN DRIVEWAY WIDTH (EDGE TO EDGE) IS 14' OR GREATER

2. ALL TOOL JOINTS SHALL BE A MINIMUM OF 1-½ DEEP.

3 WHEN REPLACING EXISTING CURB AND GUTTER WITH NEW DRIVEWAY, ENTIRE CURB AND GUTTER SECTION SHALL BE REMOVED AND REPLACED WITH CURB AND GUTTER (VARIABLE-CURB-HEIGHT) AS SHOWN. DO NOT BREAK CURB FROM GUTTER SECTION.

4. FLARED PORTION OF DRIVEWAY SHALL BE POURED MONOLITHIC WITH MAIN RECTANGULAR PORTION OF DRIVEWAY.

5. WHERE THERE IS MORE THAN ONE DRIVEWAY ON A LOT, THE SPACING OF THE DRIVEWAYS SHALL MEET REQUIREMENTS IN ECM.

6. WHERE AN EXISTING SIDEWALK IS IN PLACE, AND ITS THICKNESS IS LESS THAN 6" (RESIDENTIAL) OR 8" (COMMERCIAL AND INDUSTRIAL) THE SIDEWALK THROUGH THE DRIVEWAY SHALL BE REMOVED AND REPLACED WITH PORTLAND CEMENT CONCRETE AT THE REQUIRED THICKNESS.

7. WHEN A DRIVEWAY IS TO BE TAKEN OUT OF SERVICE, THE ENTIRE LENGTH OF CURB AND GUTTER SHALL BE REMOVED AND REPLACED WITH NEW CURB AND GUTTER MATCHING THE ABUTTING SECTIONS.

8 ALL PROVISIONS IN THE LAND DEVELOPMENT CODE SHALL BE MET, WITH REGARD TO MINIMUM SETBACK FROM INTERSECTION AND SIDE PROPERTY LINES, MINIMUM SPACING, MAXIMUM WIDTH, ETC.

TOOLS JOINT SPACING

DRIVEWAY WIDTH	A	B
12'	6'	3'
14'	7'	3'-8"
16'	8'	4'
18'	9'	4'-6"
20'	10'	5'
22'	11'	5'-8"
24'	8'	4'
26'	8'-8"	4'-4"
28'	9'-4"	4'-8"
30'	10'	5'

SCALE: NOT TO SCALE

8/11/11
DATE APPROVED.
André P. Brackin
DEPARTMENT OF TRANSPORTATION

Driveway Detail With Attached Sidewalk
Standard Drawing
REVISION DATE: 11/10/04
FILE NAME: SD_2-24

EL PASO COUNTY DEPARTMENT OF TRANSPORTATION

CONSTRUCTION CONTROL MEASURES NOTES:

1. CONTRACTOR TO DETERMINE AREAS USED FOR STAGING, STORAGE OF MATERIALS, SOILS (STOCKPILES) OR WASTES AND SHALL MARK ON THE SITE SWMP AT ALL TIMES. THE USE OF CONSTRUCTION OFFICE TRAILERS REQUIRES PCD PERMITTING.

2. THE EROSION CONTROL MEASURES SHOWN ON THE APPROVED "FOREST LAKES FILING NO. 5, 6, & 7 PRE-DEVELOPMENT GRADING AND EROSION CONTROL PLAN" SHOW AND CALL-OUT THE 'INITIAL' STAGE OF TEMPORARY CONSTRUCTION CONTROL MEASURES.

3. THE PROPOSED GRADING/EROSION CONTROL PLAN (SHEETS 2-4) SHOW AND CALL-OUT THE 'INTERIM' STAGE OF CONSTRUCTION CONTROL MEASURES.

4. 'FINAL' CONSTRUCTION CONTROL MEASURES ARE STABILIZED/DEVELOPED LOTS, CONSTRUCTED ROADS, RE-SEEDED OPEN SPACE, AND CONSTRUCTED DETENTION PONDS. A PLAN IS NOT NEEDED FOR THE FINAL STAGE.

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NO.	REVISION	DATE

REVIEW:

PREPARED UNDER MY DIRECT SUPERVISION FOR AND ON BEHALF OF CLASSIC CONSULTING ENGINEERS AND SURVEYORS, LLC

COLORADO LICENSED KYLE RAYE CAMPBELL 29794 PROFESSIONAL ENGINEER

KYLE R. CAMPBELL, COLORADO P.E. #29794 — DATE 3/20/20

CLASSIC CONSULTING
619 N. Cascade Avenue, Suite 200 (719)785-0790
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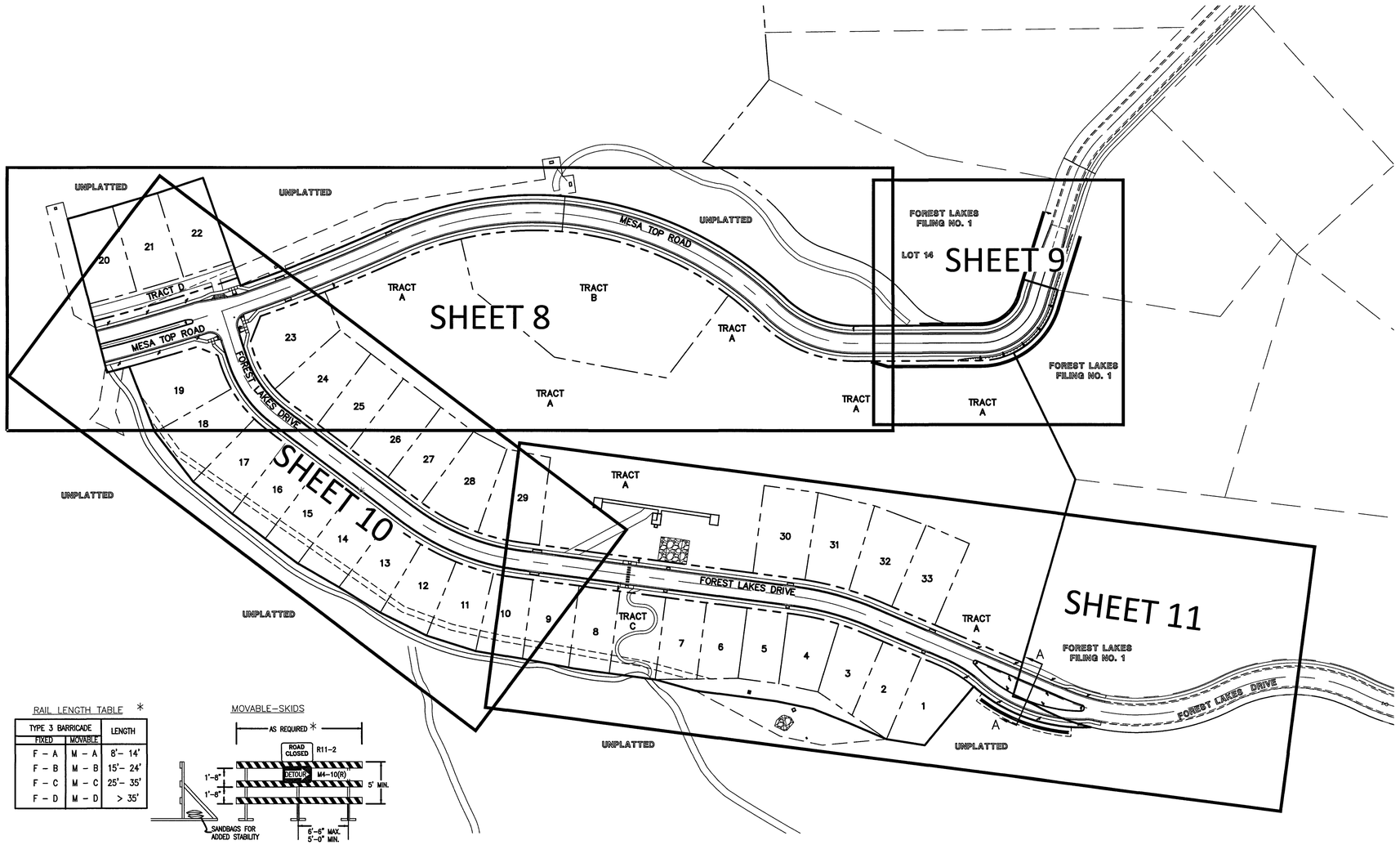
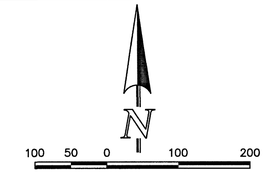
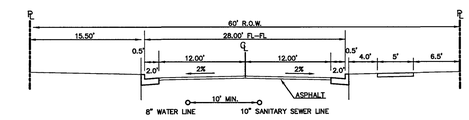
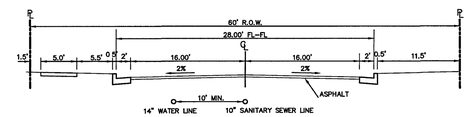


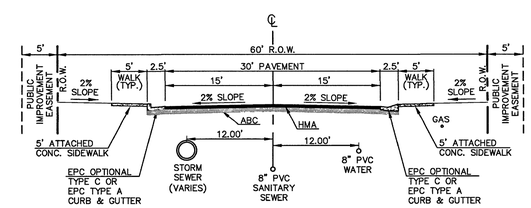




MESA TOP DRIVE
EXISTING STREET SECTION
SCALE 1" = 10'



FOREST LAKES DRIVE
EXISTING STREET SECTION
SCALE 1" = 10'



60' R.O.W. TYPICAL STREET/UTILITY SECTION
URBAN LOCAL ROADWAY
SCALE 1" = 10'

* FOREST LAKES DRIVE
MESA TOP DRIVE

RAIL LENGTH TABLE *

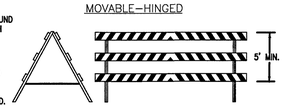
TYPE 3 BARRICADE		LENGTH
FIXED	MOVABLE	
F – A	M – A	8'– 14'
F – B	M – B	15'– 24'
F – C	M – C	25'– 35'
F – D	M – D	> 35'

MOVABLE–SKIDS

NOTES

1. TYPE 3 BARRICADES HAVE 3 REFLECTORIZED RAIL FACES IF FACING TRAFFIC IN ONE DIRECTION AND 6 IF FACING TRAFFIC IN TWO DIRECTIONS.
2. THE PORTION OF THE POST ABOVE THE GROUND LINE SHALL BE PAINTED IN ACCORDANCE WITH THE APPROPRIATE GENERAL NOTE.
3. DETACHABLE EXTENSION WING RAILS FOR BYPASSING OF CONSTRUCTION EQUIPMENT ARE PERMITTED, WHEN NECESSARY, ON FIXED OR MOVABLE TYPE 3 BARRICADES. THE LENGTH SHALL BE ADEQUATE TO CLOSE THE BORROW PIT AND/OR SHOULDER AS REQUIRED.

MOVABLE–HINGED

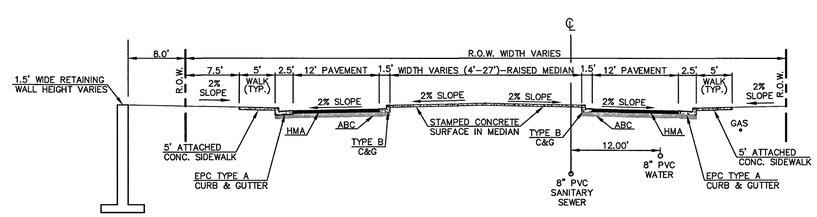


TYPICAL TYPE 3 BARRICADES

PROPOSED "NO PARKING FIRE LANE" SIGNG

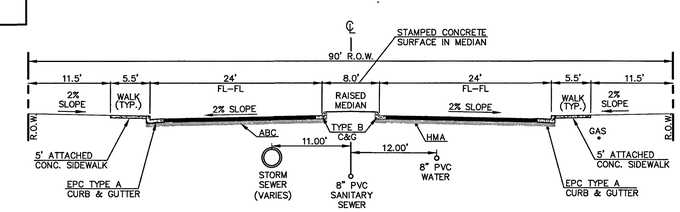
ABBREVIATIONS:

EPC	EL PASO COUNTY
PVC	POLYVINYL CHLORIDE PIPE
R.O.W.	RIGHT–OF–WAY
HMA	HOT MIX ASPHALT
ABC	AGGREGATE BASE COURSE
CONC.	CONCRETE
STA.	STATION
C&G	CURB & GUTTER
MIN.	MINIMUM
FL	FLOWLINE
TYP.	TYPICAL
I.F.O.B.	INSIDE FACE OF BOX



CROSS SECTION 'A–A'
FOREST LAKES DRIVE
SCALE 1" = 10'

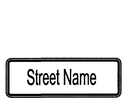
* FOREST LAKES DRIVE



90' R.O.W. TYPICAL STREET/UTILITY SECTION
URBAN LOCAL ROADWAY
SCALE 1" = 10'

* MESA TOP DRIVE
STA: 1+00.00 – STA: 2+72.43

STOP (R1–1)
30"X30"



STREET NAME (D–3)

SPEED LIMIT (R2–1)
24"X30"

KEEP RIGHT (R4–7)
24"X30"

PEDESTRIAN CROSSING (W11–2)
36"X36"

NOTE:
ALL INTERNAL SIGNS SHALL BE 4" FONT LETTER SIZE.

TURN/ADVISORY SIGN – RIGHT (W1–1aR)
30"X30"

TURN/ADVISORY SIGN – LEFT (W1–1aL)
30"X30"

CHEVRON ALIGNMENT – RIGHT (W1–8R)
12"X18"

CHEVRON ALIGNMENT – LEFT (W1–8L)
12"X18"

48 HOURS BEFORE YOU DIG, CALL UTILITY LOCATORS
811
UTILITY NOTIFICATION CENTER OF COLORADO
IT'S THE LAW

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NO.	REVISION	DATE

REVIEW:

PREPARED UNDER MY DIRECT SUPERVISION FOR AND ON BEHALF OF CLASSIC CONSULTING ENGINEERS AND SURVEYORS, LLC

COLORADO LICENSED KYLE RAYE CAMPBELL 29794 PROFESSIONAL ENGINEER

KYLE R. CAMPBELL, COLORADO LICENSED #29794

DATE

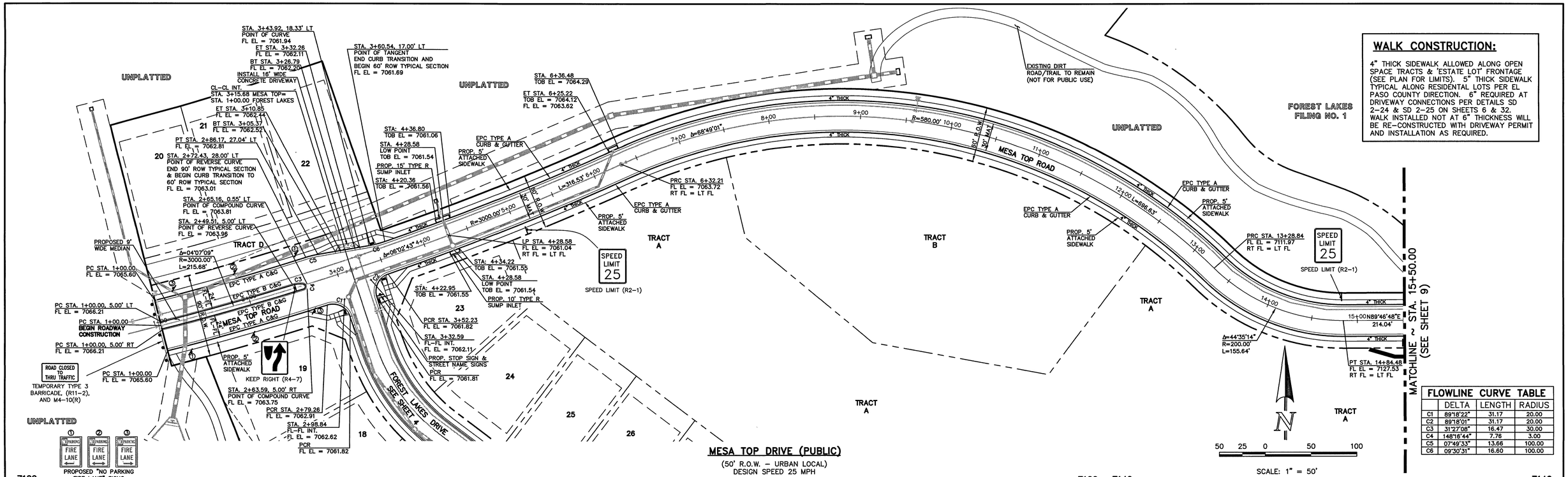
CLASSIC CONSULTING
619 N. Cascade Avenue, Suite 200
Colorado Springs, Colorado 80903
(719)785–0790
(719)785–0799(Fax)

PCD FILE # SF1915

FOREST LAKES FILING NO. 5
PUBLIC STREET IMPROVEMENT PLAN
KEY MAP W/TYPICAL STREET SECTIONS
EPC 6/9/2020

DESIGNED BY	MAL	SCALE		DATE	06–17–19
DRAWN BY	PRA	(H) 1"= 50'		SHEET 7	OF 32
CHECKED BY		(V) 1"= 5'		JOB NO.	1175.50

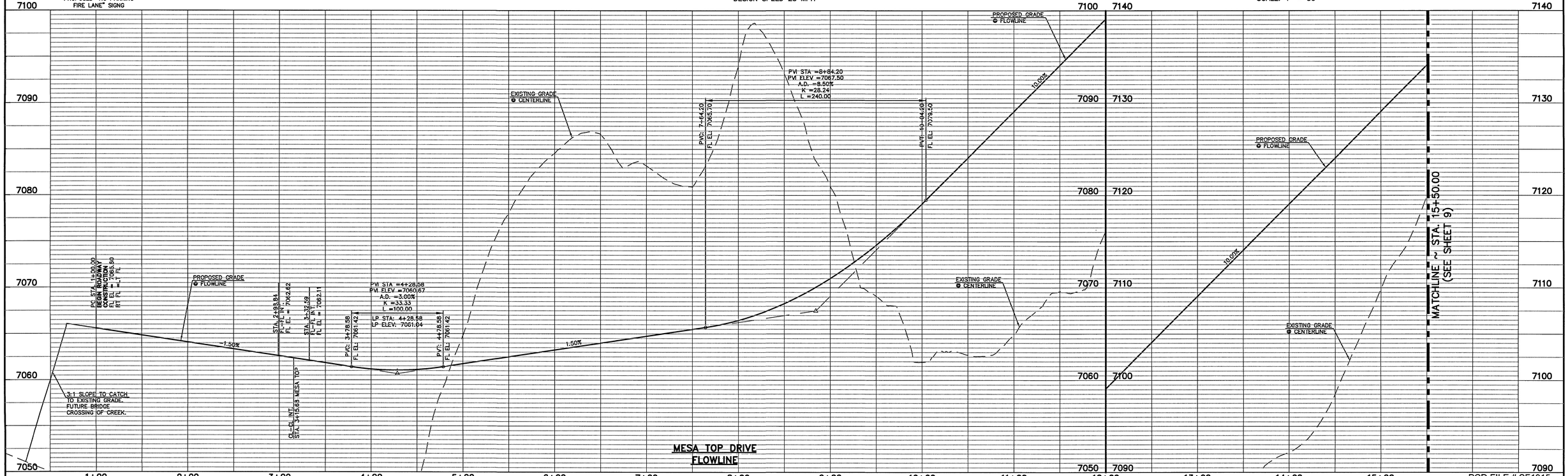
N:\117550\DRAWINGS\CONSTRUCTION\STREETS\117550-FLS-SI-07.dwg, 3/4/2020 4:05:54 PM, 1:1



WALK CONSTRUCTION:

4" THICK SIDEWALK ALLOWED ALONG OPEN SPACE TRACTS & 'ESTATE LOT' FRONTAGE (SEE PLAN FOR LIMITS). 5" THICK SIDEWALK TYPICAL ALONG RESIDENTIAL LOTS PER EL PASO COUNTY DIRECTION. 6" REQUIRED AT DRIVEWAY CONNECTIONS PER DETAILS SD 2-24 & SD 2-25 ON SHEETS 6 & 32. WALK INSTALLED NOT AT 6" THICKNESS WILL BE RE-CONSTRUCTED WITH DRIVEWAY PERMIT AND INSTALLATION AS REQUIRED.

FLOWLINE CURVE TABLE			
	DELTA	LENGTH	RADIUS
C1	89°18'22"	31.17	20.00
C2	89°18'01"	31.17	20.00
C3	31°27'08"	16.47	30.00
C4	148°16'44"	7.78	3.00
C5	07°49'33"	13.66	100.00
C6	09°30'31"	16.60	100.00



MESA TOP DRIVE
FLOWLINE

PCD FILE # SF1915

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NO.	REVISION	DATE
5		

REVIEW:

PREPARED UNDER MY DIRECT SUPERVISION FOR AND ON BEHALF OF CLASSIC CONSULTING ENGINEERS AND SURVEYORS, LLC

COLORADO REGISTERED KYLE RAYE CAMPBELL 29794 PROFESSIONAL ENGINEER

KYLE R. CAMPBELL, COLORADO P.E. #29794 — DATE 3/24/20

CLASSIC CONSULTING

619 N. Cascade Avenue, Suite 200
Colorado Springs, Colorado 80903
(719)785-0790
(719)785-0799(Fax)

FOREST LAKES FILING NO. 5
PUBLIC STREET IMPROVEMENT PLAN

MESA TOP DRIVE – STA. 1+00.00 TO 15+50.00

DESIGNED BY	MAL	SCALE	DATE	06-17-19
DRAWN BY	PRA	(H) 1"= 50'	SHEET 8	OF 32
CHECKED BY		(V) 1"= 5'	JOB NO.	1175.50

EPC 6/9/2020

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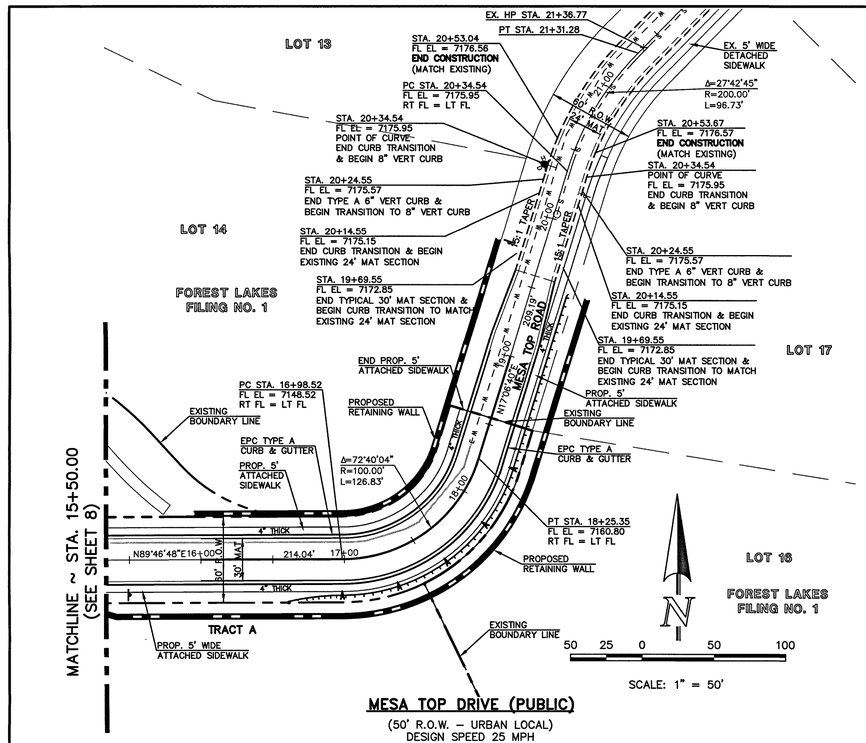
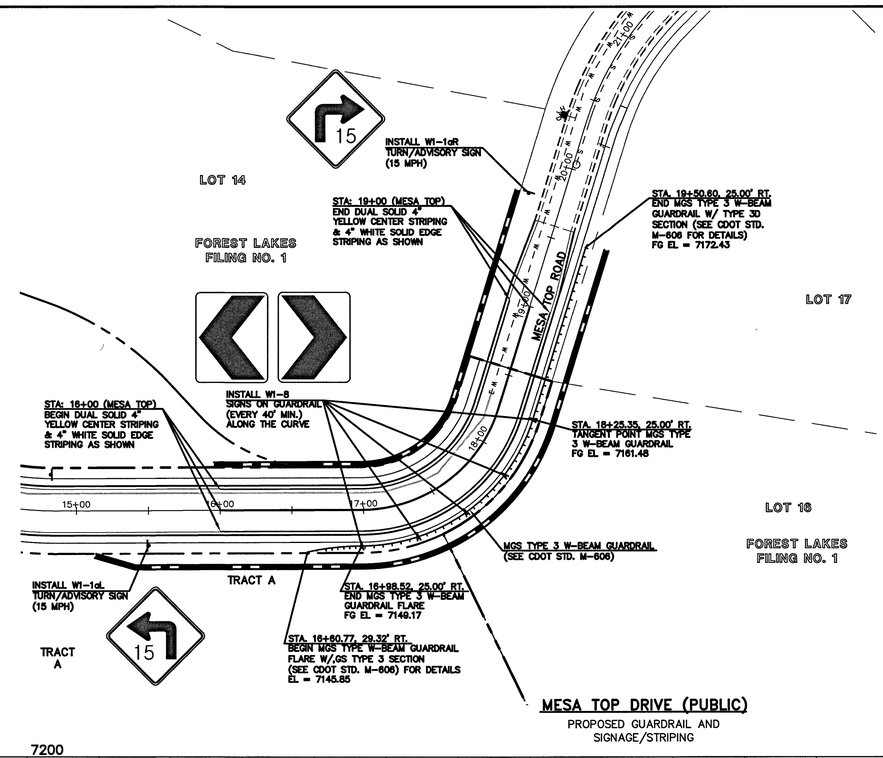
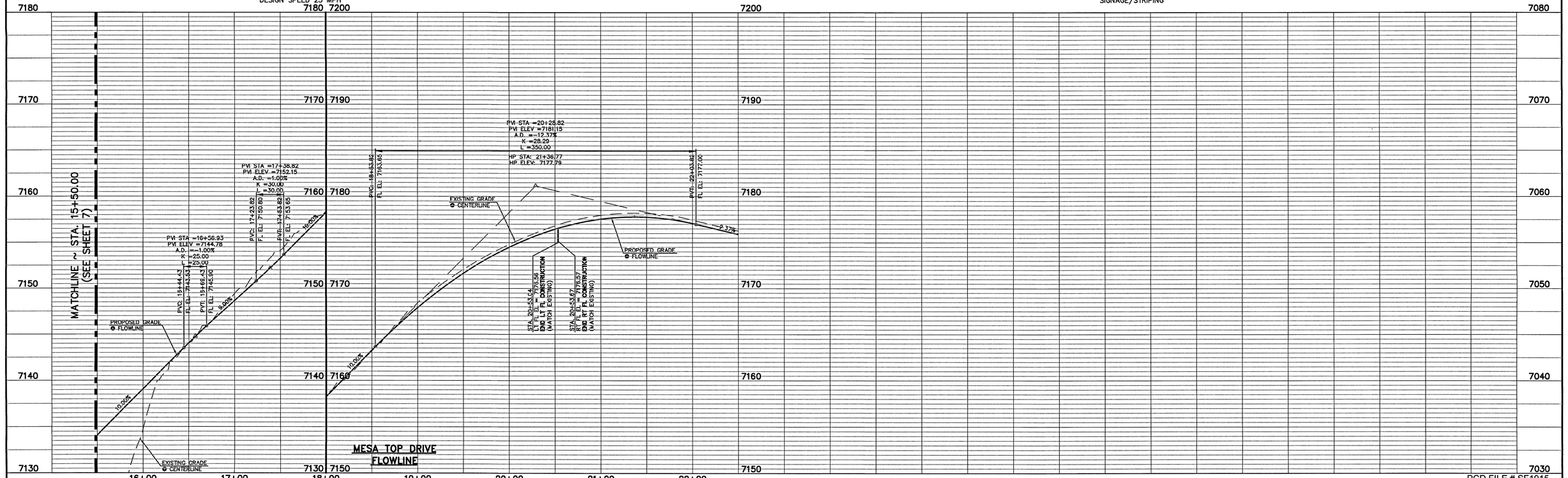


FLOWLINE CURVE TABLE			
	DELTA	LENGTH	RADIUS
C1	89°18'22"	31.17	20.00
C2	89°18'01"	31.17	20.00





PCD FILE # SF1915

48 HOURS BEFORE YOU DIG,
CALL UTILITY LOCATORS
811
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IT'S THE LAW

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NO.	REVISION	DATE

REVIEW:

PREPARED UNDER MY DIRECT SUPERVISION FOR AND ON BEHALF OF CLASSIC CONSULTING ENGINEERS & SURVEYORS, LLC

KYLE R. CAMPBELL, COLORADO P.E. #29794 — DATE 3/24/20

CLASSIC CONSULTING
619 N. Cascade Avenue, Suite 200
Colorado Springs, Colorado 80903
(719)785-0790
(719)785-0799(Fax)

FOREST LAKES FILING NO. 5
PUBLIC STREET IMPROVEMENT PLAN
MESA TOP DRIVE – STA. 15+50.00 TO 20+53.67
MESA TOP DRIVE – SIGNAGE & STRIPING

DESIGNED BY	MAL	SCALE	DATE 06-17-19
DRAWN BY	PRA	(H) 1"= 50'	SHEET 9 OF 32
CHECKED BY		(V) 1"= 5'	JOB NO. 1175.50

EPC 6/9/2020

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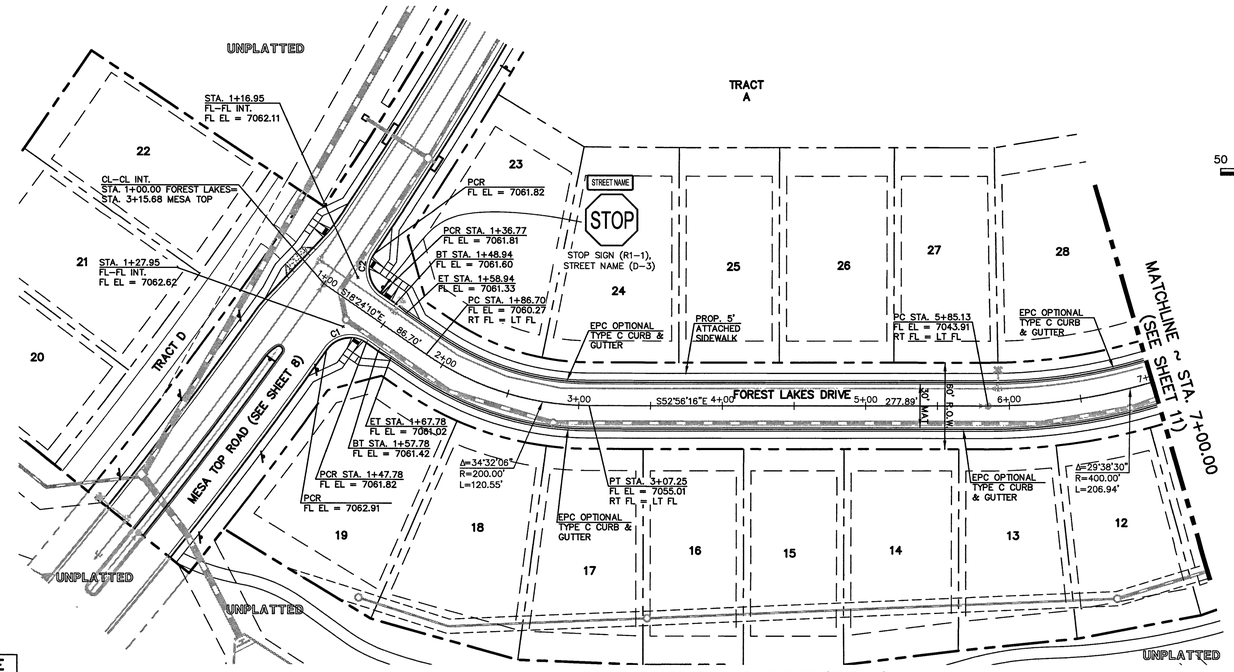
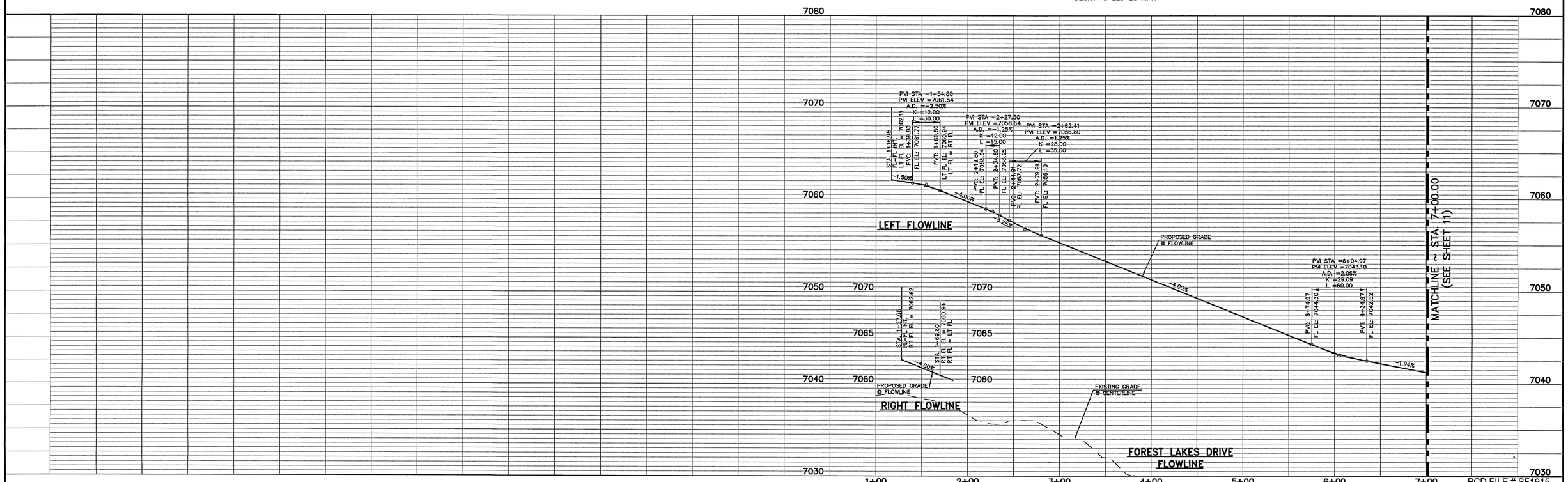


FOREST LAKES DRIVE (PUBLIC)

(50' R.O.W. – URBAN LOCAL)
DESIGN SPEED 25 MPH

FLOWLINE CURVE TABLE			
	DELTA	LENGTH	RADIUS
C1	89°18'22"	31.17	20.00
C2	89°18'01"	31.17	20.00



PCD FILE # SF1915

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NO.	REVISION	DATE

REVIEW:

PREPARED UNDER MY DIRECT SUPERVISION FOR AND ON BEHALF OF CLASSIC CONSULTING ENGINEERS AND SURVEYORS, LLC

KYLE R. CAMPBELL, COLORADO LICENSE NO. 29794 — DATE 3/24/20

CLASSIC CONSULTING
619 N. Cascade Avenue, Suite 200
Colorado Springs, Colorado 80903
(719)785-0790
(719)785-0799(Fax)

FOREST LAKES FILING NO. 5
PUBLIC STREET IMPROVEMENT PLAN
FOREST LAKES DRIVE–STA. 1+00.00 TO 7+00.00
EPC 6/9/2020

DESIGNED BY	MAL	SCALE	DATE 06-17-19
DRAWN BY	PRA	(H) 1"= 50'	SHEET 10 OF 32
CHECKED BY		(V) 1"= 5'	JOB NO. 1175.50

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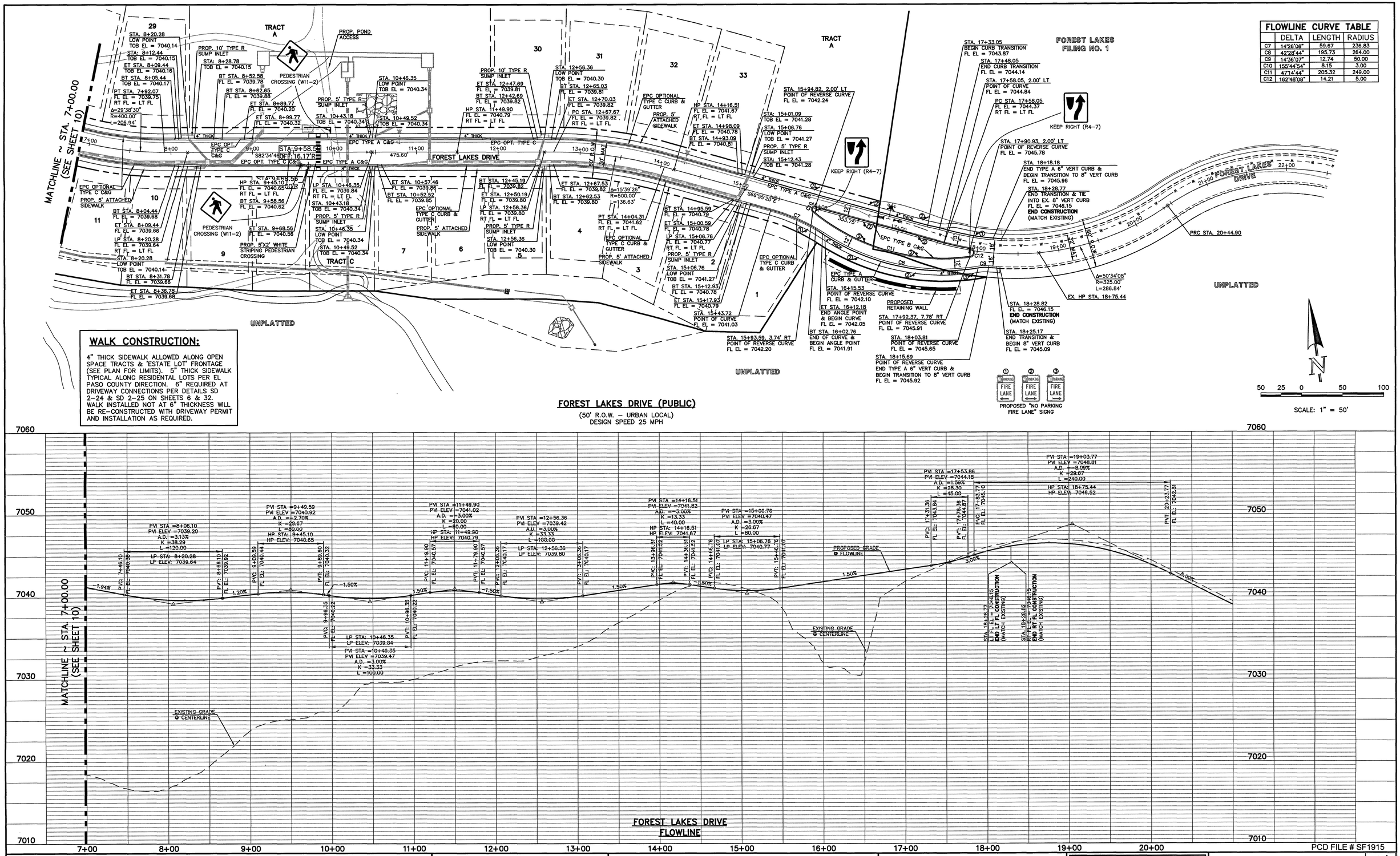

FLOWLINE CURVE TABLE			
	DELTA	LENGTH	RADIUS
C7	14°26'06"	59.67	236.83
C8	42°28'44"	195.73	264.00
C9	14°36'07"	12.74	50.00
C10	155°44'54"	8.15	3.00
C11	47°14'44"	205.32	249.00
C12	162°46'08"	14.21	5.00

WALK CONSTRUCTION:

4" THICK SIDEWALK ALLOWED ALONG OPEN SPACE TRACTS & 'ESTATE LOT' FRONTAGE (SEE PLAN FOR LIMITS). 5" THICK SIDEWALK TYPICAL ALONG RESIDENTAL LOTS PER EL PASO COUNTY DIRECTION. 6" REQUIRED AT DRIVEWAY CONNECTIONS PER DETAILS SD 2-24 & SD 2-25 ON SHEETS 6 & 32. WALK INSTALLED NOT AT 6" THICKNESS WILL BE RE-CONSTRUCTED WITH DRIVEWAY PERMIT AND INSTALLATION AS REQUIRED.

FOREST LAKES DRIVE (PUBLIC)

(50' R.O.W. – URBAN LOCAL)
DESIGN SPEED 25 MPH

FOREST LAKES DRIVE FLOWLINE

PCD FILE # SF1915

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NO.	REVISION	DATE

REVIEW:

PREPARED UNDER MY DIRECT SUPERVISION FOR AND ON BEHALF OF CLASSIC CONSULTING ENGINEERS AND SURVEYORS, LLC

KYLE R. CAMPBELL, COLORADO P.E. #29794 — DATE 3/24/20

CLASSIC CONSULTING
619 N. Cascade Avenue, Suite 200
Colorado Springs, Colorado 80903
(719)785-0790
(719)785-0799(Fax)

FOREST LAKES FILING NO. 5
PUBLIC STREET IMPROVEMENT PLAN
EPC 6/9/2020
FOREST LAKES DRIVE–STA. 7+00.00 TO 18+28.82

DESIGNED BY	MAL	SCALE	DATE 06-17-19
DRAWN BY	PRA	(H) 1"= 50'	SHEET 11 OF 32
CHECKED BY		(V) 1"= 5'	JOB NO. 1175.50

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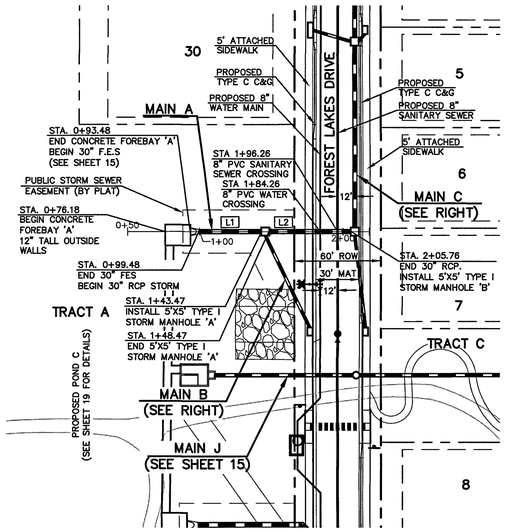
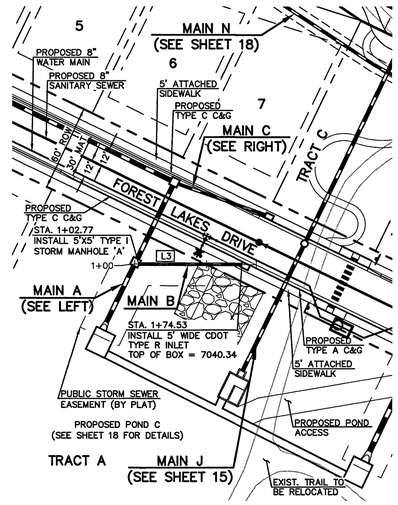
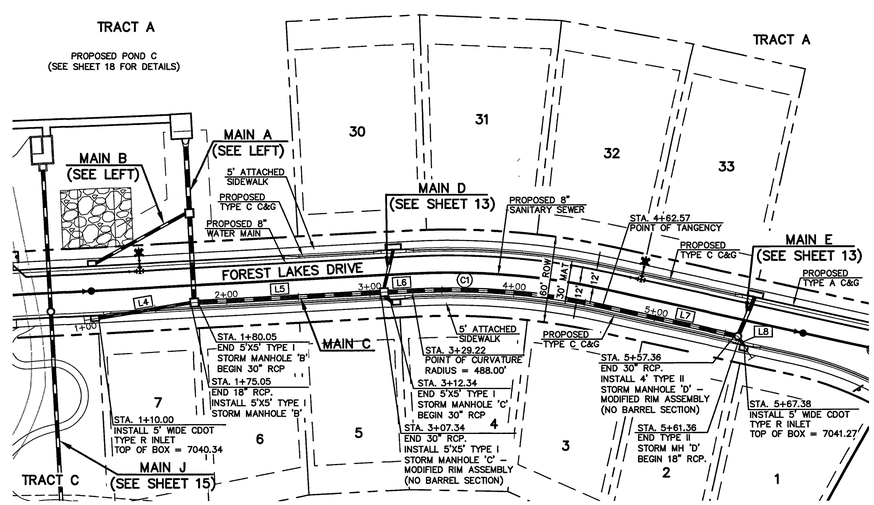


PROPOSED PUBLIC 30" RCP - STORM MAIN A



PROPOSED PUBLIC 18" RCP - STORM MAIN B



PROPOSED PUBLIC 18"/ 30" RCP - STORM MAIN C

LEGEND

- PROPOSED FIRE HYDRANT
- PROPOSED WATER MAIN
- PROPOSED SANITARY SEWER MAIN
- PROPOSED STORM SEWER
- PROPOSED STORM INLET
- ROW/BOUNDARY LINE
- EXISTING FIRE HYDRANT
- EXISTING WATER MAIN
- EXISTING SANITARY SEWER MAIN
- EXISTING STORM SEWER
- EXISTING STORM INLET

50 25 0 50 100

SCALE: 1" = 50' HORIZ./ 1" = 5' VERT.

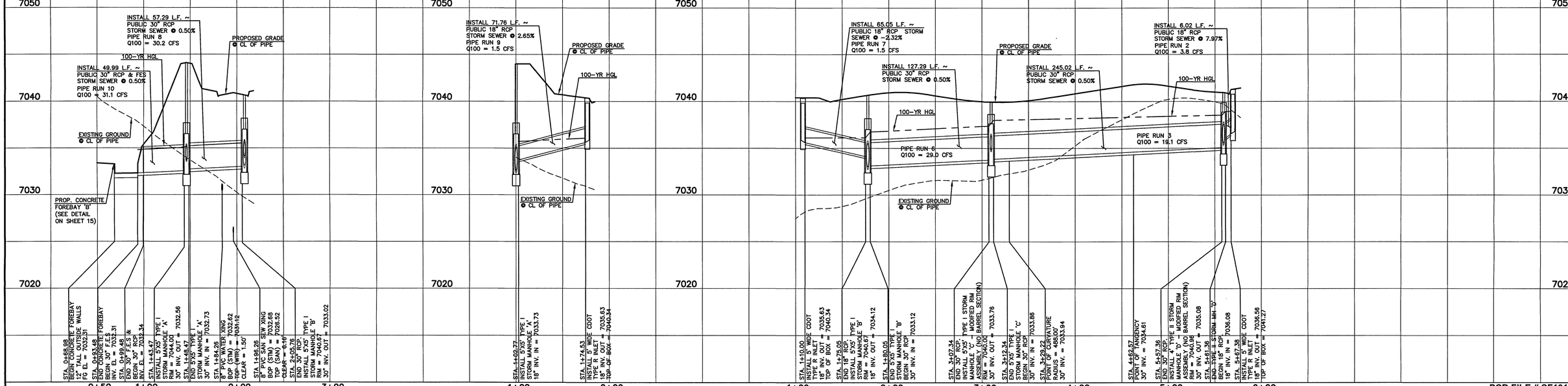
NOTE:
ALL STORM FACILITIES WITHIN R.O.W. ARE PUBLIC, UNLESS OTHERWISE NOTED.

NOTE:
ALL STORM SEWER WITH 100-YR HGL ABOVE THE TOP OF PIPE SHALL BE INSTALLED WITH PRESSURE PIPE AND WATERTIGHT JOINTS WITH A 100-YEAR SERVICE LIFE.

STORM LINE TABLE		
	LENGTH	BEARING
L1	43.99'	S07°25'14"W
L2	57.28'	S07°25'14"W
L3	71.75'	S71°43'24"W
L4	65.05'	S88°54'26"E
L5	127.29'	S82°34'46"E
L6	16.88'	S82°34'46"E
L7	94.78'	S66°55'20"E
L8	6.02'	S21°55'20"E

STORM CURVE TABLE			
◯	LENGTH	RADIUS	DELTA
C1	133.36'	488.00'	15°39'26"

NOTE:
STORM MANHOLE AND INLET DETAILS ARE LOCATED ON SHEETS 30–32.



REVIEW:
STREET DESIGN FOR CITY ENGINEERING:
UTILITY GRADE REVIEW _____ DATE _____
TRAFFIC SIGNAGE & STRIPING _____ DATE _____
CURB & GUTTER REVIEW _____ DATE _____
FINAL REVIEW _____ DATE _____
DRAINAGE DESIGN: _____ DATE _____
THIS IS FILED IN ACCORDANCE WITH SECTION 7.7.906 (DRAINAGE ORDINANCE) OF THE CODE OF THE CITY OF COLORADO SPRINGS 2001, AS AMENDED

DESIGN DATA:
SIDEWALKS: WIDTH: _____ LOCATION: ☐ Attached ☐ Detached
CURB TYPE ☐ 1 ☐ 5 ☐ 3
R/W WIDTH _____ MAT WIDTH _____
STREET TYPE _____ HVEEM _____
PAVEMENT: TYPE: HMA ☐ PCC ☐ THICKNESS _____
COMPOSITE SECTION HMA _____ BASE _____
SUBGRADE STABILIZATION: CHEMICAL: ☐ MECH.: ☐ TYPE: _____ THICKNESS _____

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NO.	REVISION	DATE

REVIEW:
PREPARED UNDER MY DIRECT SUPERVISION FOR AND ON BEHALF OF CLASSIC CONSULTING ENGINEERS & SURVEYORS, LLC
COLORADO PROFESSIONAL ENGINEER KYLE RAYE CAMPBELL 29794
KYLE R. CAMPBELL, COLORADO P.E. #29794 — DATE 3/2/20

CLASSIC CONSULTING
619 N. Cascade Avenue, Suite 200
Colorado Springs, Colorado 80903
(719)785-0790
(719)785-0799(Fax)

FOREST LAKES FILING NO. 5
CONSTRUCTION PLANS
PUBLIC STORM SEWER PLAN
MAIN A/ MAIN B/ MAIN C PLAN & PROFILE

DESIGNED BY	MAL	SCALE	DATE 07/14/19
DRAWN BY	ESO	(H) 1"= 50'	SHEET 12 OF 32
CHECKED BY		(V) 1"= 5'	JOB NO. 1175.50

EPC 6/9/2020

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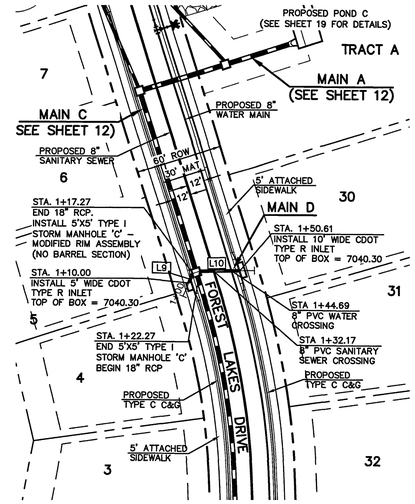
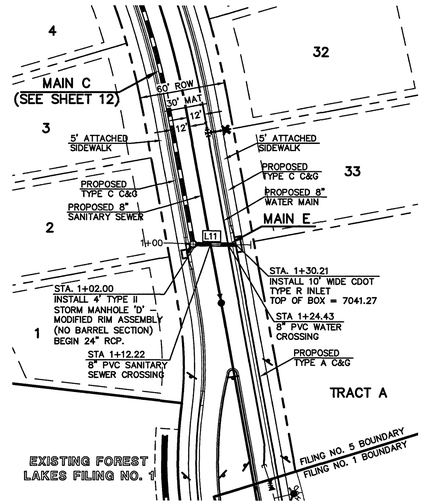
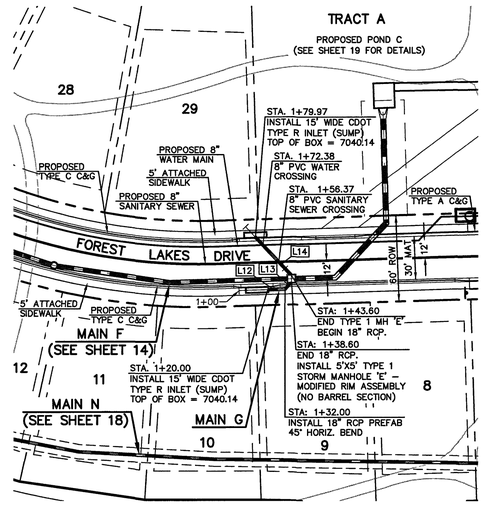
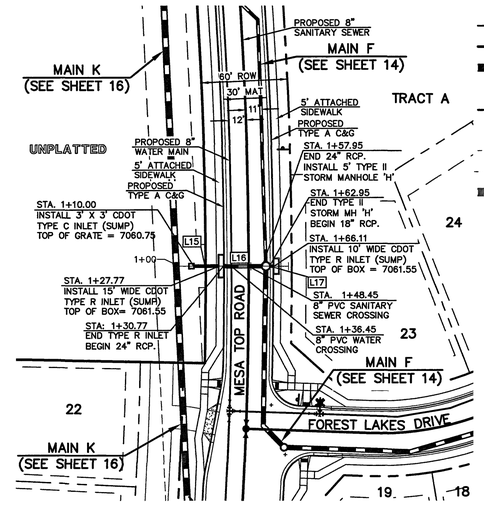








LEGEND

- PROPOSED FIRE HYDRANT
- PROPOSED WATER MAIN
- PROPOSED SANITARY SEWER MAIN
- PROPOSED STORM SEWER
- PROPOSED STORM INLET
- ROW/BOUNDARY LINE
- EXISTING FIRE HYDRANT
- EXISTING WATER MAIN
- EXISTING SANITARY SEWER MAIN
- EXISTING STORM SEWER
- EXISTING STORM INLET

50 25 0 50 100

SCALE: 1" = 50' HORIZ./ 1" = 5' VERT.

NOTE:
ALL STORM FACILITIES WITHIN R.O.W. ARE PUBLIC, UNLESS OTHERWISE NOTED.

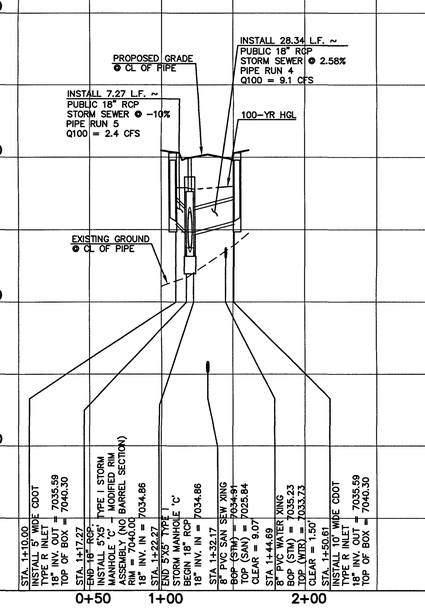
NOTE:
ALL STORM SEWER WITH 100-YR HGL ABOVE THE TOP OF PIPE SHALL BE INSTALLED WITH PRESSURE PIPE AND WATERTIGHT JOINTS WITH A 100-YEAR SERVICE LIFE.

STORM LINE TABLE

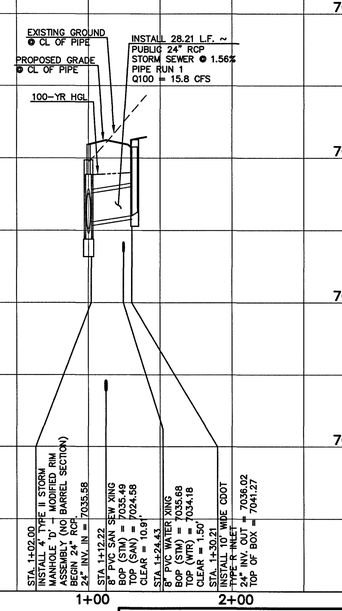
	LENGTH	BEARING
L9	7.27'	N42°34'46"E
L10	28.34'	N23°57'15"E
L11	28.21'	N33°53'48"E
L12	12.00'	S82°34'46"E
L13	6.60'	N52°25'14"E
L14	36.36'	N34°14'07"W
L15	17.77'	S20°23'11"E
L16	27.18'	S20°23'11"E
L17	3.16'	S20°23'11"E

NOTE:
STORM MANHOLE AND INLET DETAILS ARE LOCATED ON SHEETS 30-32.

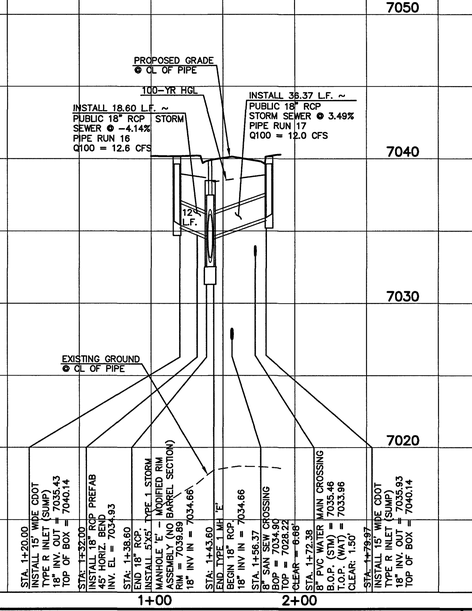
PROPOSED PUBLIC 18" RCP STORM MAIN D



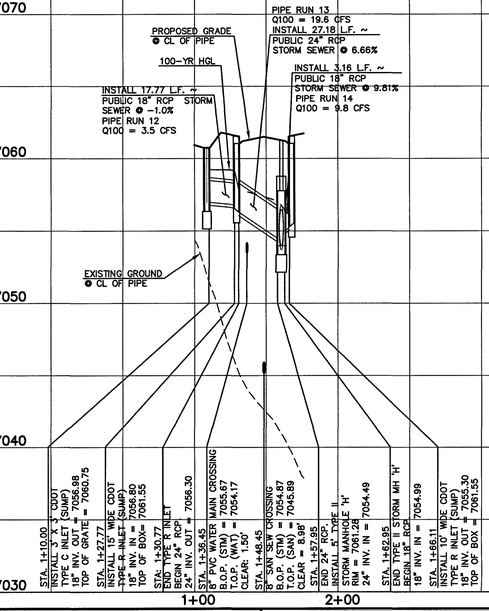
PROPOSED PUBLIC 24" RCP STORM MAIN E



PROPOSED PUBLIC 18" RCP STORM MAIN G



PROPOSED PUBLIC 18"/24" RCP STORM MAIN H



PCD FILE # SF1915

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NO.	REVISION	DATE

REVIEW:
PREPARED UNDER MY DIRECT SUPERVISION FOR AND ON BEHALF OF CLASSIC CONSULTING ENGINEERS AND SURVEYORS, LLC

COLORADO LICENSED KYLE RAY CAMPBELL 29794 PROFESSIONAL ENGINEER

KYLE R. CAMPBELL, COLORADO P.E. #29794 — DATE 3/24/20

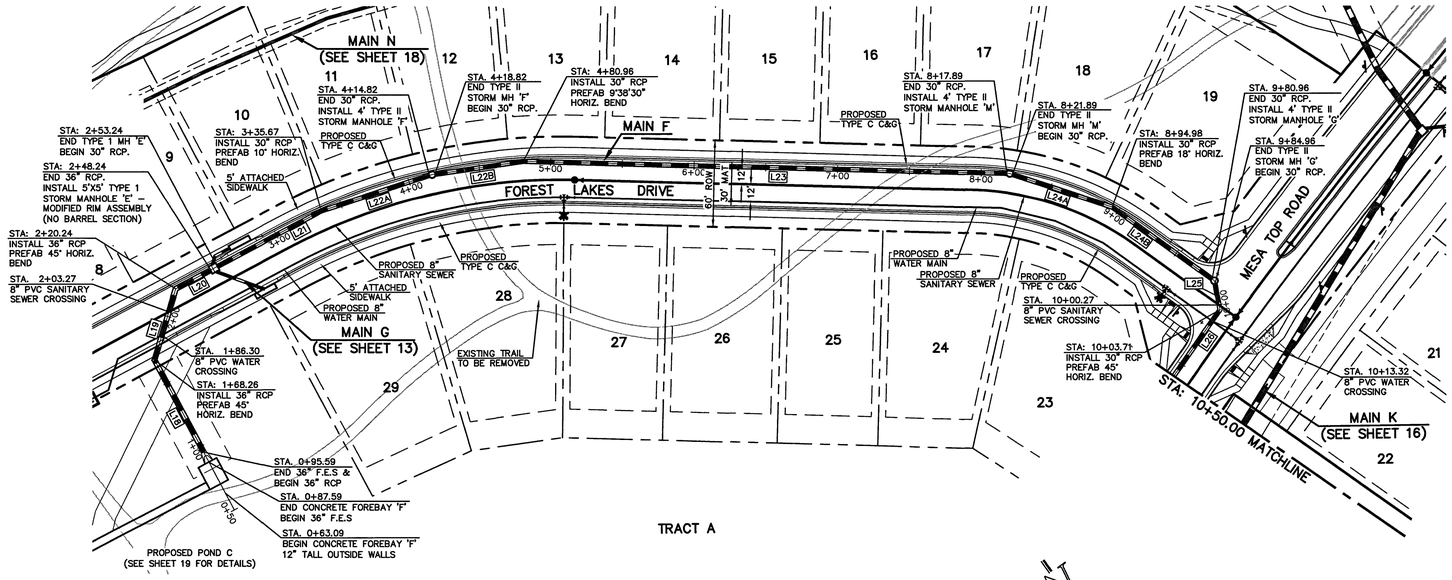
CLASSIC CONSULTING
619 N. Cascade Avenue, Suite 200 (719)785-0790
Colorado Springs, Colorado 80903 (719)785-0799(Fax)

FOREST LAKES FILING NO. 5
CONSTRUCTION PLANS
PUBLIC STORM SEWER PLAN
MAIN D, MAIN E, MAIN G, & H PLAN & PROFILE

DESIGNED BY	MAL	SCALE	DATE	07/14/19
DRAWN BY	ESO	(H) 1"= 50'	SHEET 13	OF 32
CHECKED BY		(V) 1"= 5'	JOB NO.	1175.50

EPC 6/9/2020

N:\117550\DRAWINGS\CONSTRUCTION\STORM\13-117550-STM-13.dwg, 3/16/2020 1:53:06 PM, 1:1



LEGEND

- PROPOSED FIRE HYDRANT
- PROPOSED WATER MAIN
- PROPOSED SANITARY SEWER MAIN
- PROPOSED STORM SEWER
- PROPOSED STORM INLET
- ROW/BOUNDARY LINE
- EXISTING FIRE HYDRANT
- EXISTING WATER MAIN
- EXISTING SANITARY SEWER MAIN
- EXISTING STORM SEWER
- EXISTING STORM INLET

50 25 0 50 100

SCALE: 1" = 50' HORIZ./ 1" = 5' VERT.

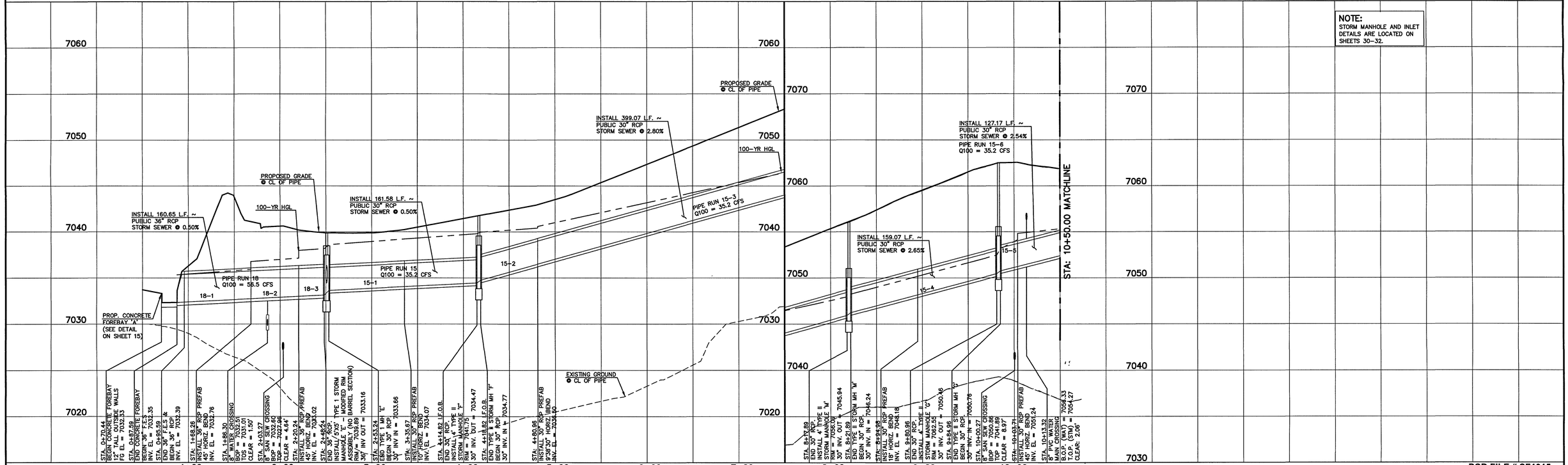
NOTE:
ALL STORM FACILITIES ARE PUBLIC WITHIN R.O.W., UNLESS OTHERWISE NOTED.

NOTE:
ALL STORM SEWER WITH 100-YR HGL ABOVE THE TOP OF PIPE SHALL BE INSTALLED WITH PRESSURE PIPE AND WATERTIGHT JOINTS WITH A 100-YEAR SERVICE LIFE.

PROPOSED PUBLIC 18"/30"/36" RCP STORM MAIN F

STORM LINE TABLE		
	LENGTH	BEARING
L18	80.67'	S7°25'14"W
L19	51.98'	S52°25'14"W
L20	28.00'	N82°34'46"W
L21	82.43'	N82°34'46"W
L22A	79.15'	N72°32'50"W
L22B	64.14'	N62°34'46"W
L23	336.93'	N52°56'16"W
L24A	73.09'	N36°24'10"W
L24B	85.98'	N18°24'10"W
L25	20.74'	N25°30'29"E
L26	108.43'	N70°30'29"E

NOTE:
STORM MANHOLE AND INLET DETAILS ARE LOCATED ON SHEETS 30-32.



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NO.	REVISION	DATE

REVIEW:

PREPARED UNDER MY DIRECT SUPERVISION FOR AND ON BEHALF OF CLASSIC CONSULTING ENGINEERS AND SURVEYORS, LLC

KYLE R. CAMPBELL, COLORADO PE #29794 — DATE 3/24/20

CLASSIC CONSULTING
619 N. Cascade Avenue, Suite 200
Colorado Springs, Colorado 80903
(719)785-0790
(719)785-0799(Fax)

FOREST LAKES FILING NO. 5
CONSTRUCTION PLANS
PUBLIC STORM SEWER PLAN
MAIN F PLAN & PROFILE

DESIGNED BY	MAL	SCALE	DATE 07/14/19
DRAWN BY	ESO	(H) 1"= 50'	SHEET 14 OF 32
CHECKED BY		(V) 1"= 5'	JOB NO. 1175.50

EPC 6/9/2020

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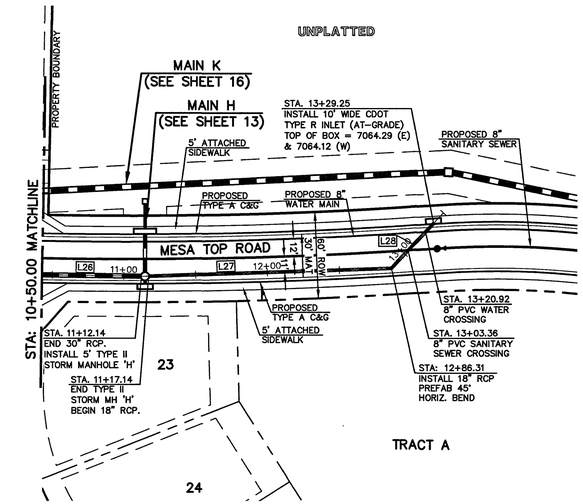
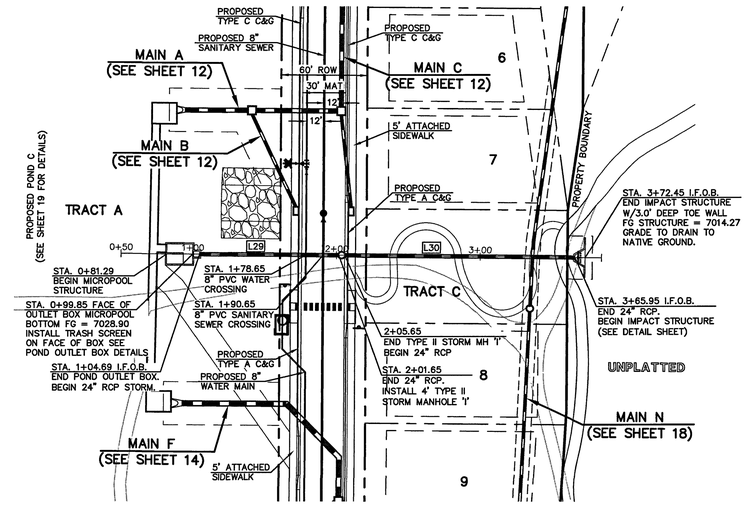




LEGEND

- PROPOSED FIRE HYDRANT
- PROPOSED WATER MAIN
- PROPOSED SANITARY SEWER MAIN
- PROPOSED STORM SEWER
- PROPOSED STORM INLET
- ROW/BOUNDARY LINE
- EXISTING FIRE HYDRANT
- EXISTING WATER MAIN
- EXISTING SANITARY SEWER MAIN
- EXISTING STORM SEWER
- EXISTING STORM INLET

50 25 0 50 100

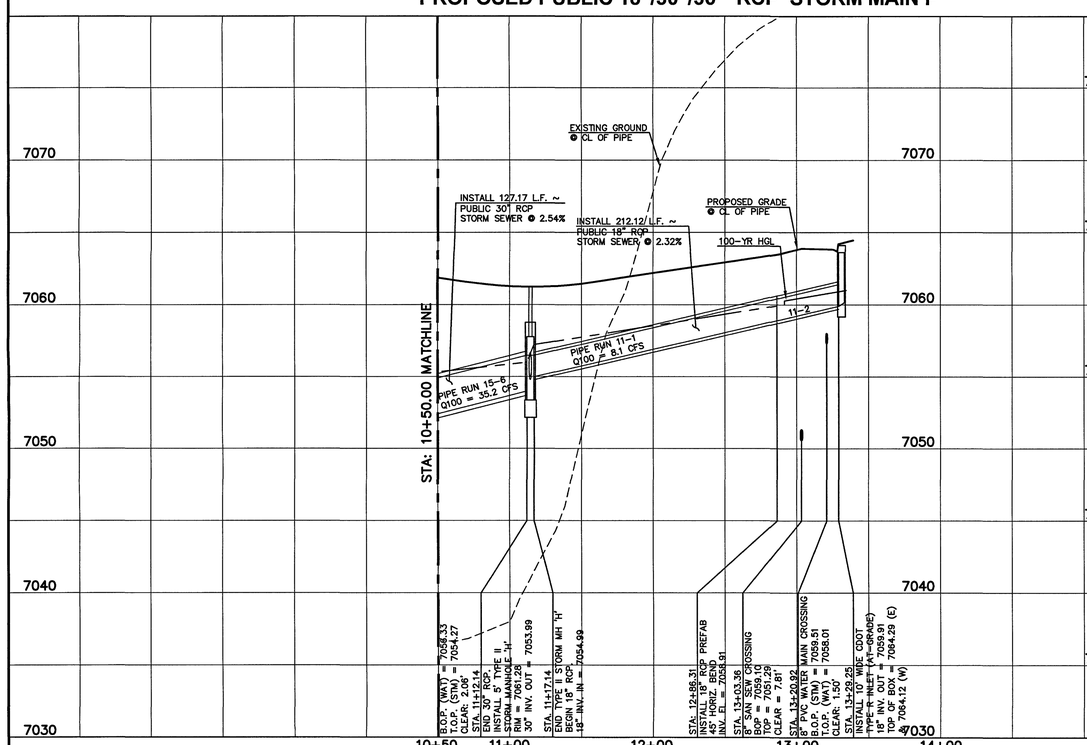
SCALE: 1" = 50' HORIZ./ 1" = 5' VERT.

STORM LINE TABLE		
	LENGTH	BEARING
L26	108.43'	N70°30'29"E
L27	169.17'	N67°42'34"E
L28	42.95'	N22°42'34"E
L29	96.97'	S07°25'14"W
L30	160.29'	S07°25'14"W

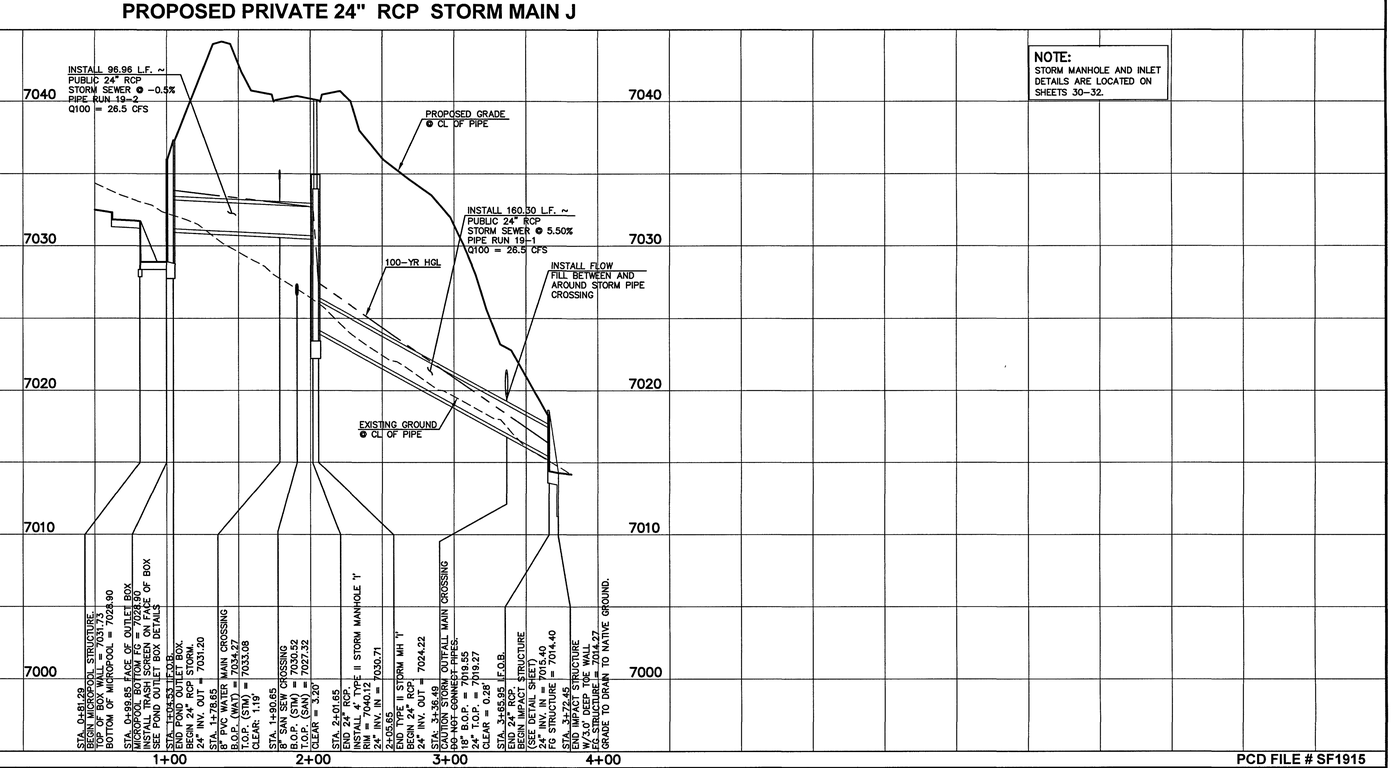
NOTE:
ALL STORM FACILITIES WITHIN R.O.W. ARE PUBLIC, UNLESS OTHERWISE NOTED.

NOTE:
ALL STORM SEWER WITH 100-YR HGL ABOVE THE TOP OF PIPE SHALL BE INSTALLED WITH PRESSURE PIPE AND WATERTIGHT JOINTS WITH A 100-YEAR SERVICE LIFE.

PROPOSED PUBLIC 18"/30"/36" RCP STORM MAIN F



PROPOSED PRIVATE 24" RCP STORM MAIN J



NOTE:
STORM MANHOLE AND INLET DETAILS ARE LOCATED ON SHEETS 30-32.

PCD FILE # SF1915

REVIEW:
STREET DESIGN FOR CITY ENGINEERING:
UTILITY GRADE REVIEW _____ DATE _____
TRAFFIC SIGNAGE & STRIPING _____ DATE _____
CURB & GUTTER REVIEW _____ DATE _____
FINAL REVIEW _____ DATE _____
DRAINAGE DESIGN: _____ DATE _____
THIS IS FILED IN ACCORDANCE WITH SECTION 7.7.906 (DRAINAGE ORDINANCE) OF THE CODE OF THE CITY OF COLORADO SPRINGS 2001, AS AMENDED

DESIGN DATA:
SIDEWALKS: WIDTH: _____
LOCATION: ☐ Attached ☐ Detached
CURB TYPE ☐ 1 ☐ 5 ☐ 3
R/W WIDTH _____ MAT WIDTH _____
STREET TYPE _____ HVEEM _____

PAVEMENT.
TYPE: HMA ☐ PCC ☐
THICKNESS _____
COMPOSITE SECTION
HMA _____
BASE _____
SUBGRADE STABILIZATION:
CHEMICAL: ☐ MECH.: ☐
TYPE: _____
THICKNESS _____

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NO.	REVISION	DATE

REVIEW:
PREPARED UNDER MY DIRECT SUPERVISION FOR AND ON BEHALF OF CLASSIC CONSULTING ENGINEERS & SURVEYORS, LLC
COLORADO REGISTERED KYLE RAYNE CAMPBELL 29794 PROFESSIONAL ENGINEER
KYLE R. CAMPBELL, COLORADO P.E. #29794 — DATE 3/24/20

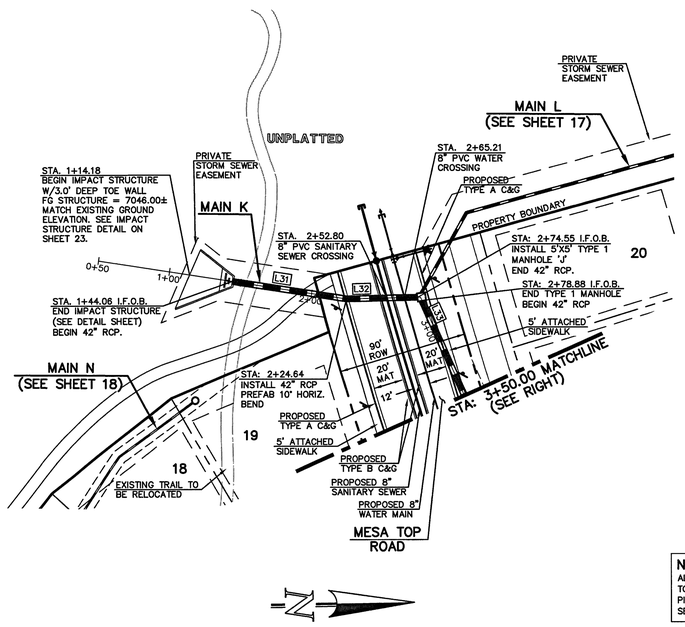
CLASSIC CONSULTING
619 N. Cascade Avenue, Suite 200
Colorado Springs, Colorado 80903
(719)785-0790
(719)785-0799(Fax)

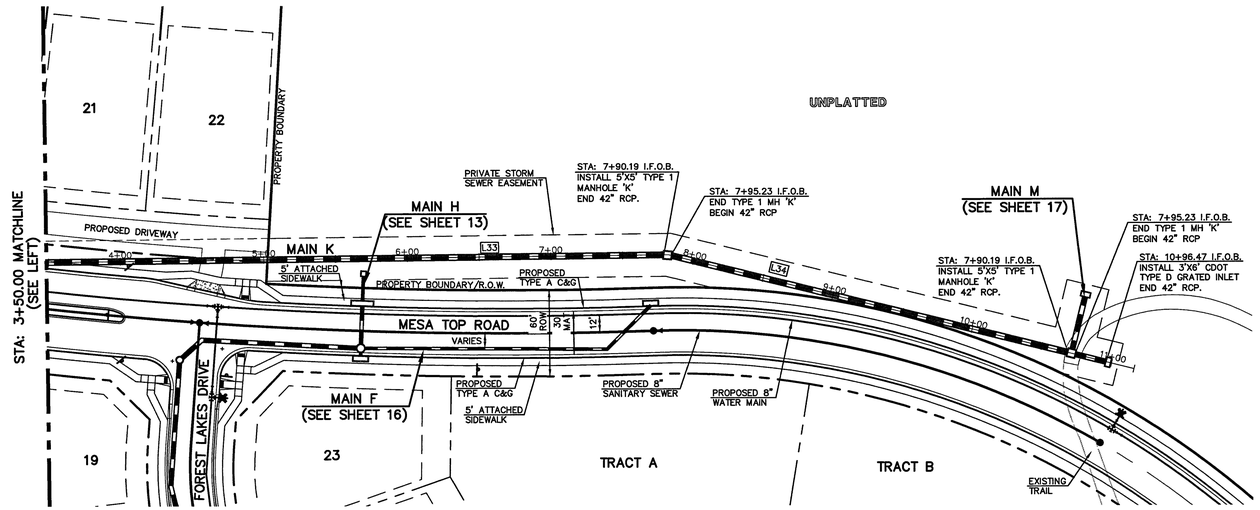
FOREST LAKES FILING NO. 5
CONSTRUCTION PLANS
PUBLIC/PRIVATE STORM SEWER PLAN
MAIN F/ MAIN J PLAN & PROFILE

DESIGNED BY	MAL	SCALE	DATE	07/14/19
DRAWN BY	ESO	(H) 1"= 50'	SHEET 15 OF 32	
CHECKED BY		(V) 1"= 5'	JOB NO. 1175.50	

EPC 6/9/2020

N:\117550\DRAWINGS\CONSTRUCTION\STORM\15-117550-STM-15.dwg, 3/16/2020 1:54:08 PM, 1:1





LEGEND

- PROPOSED FIRE HYDRANT
- PROPOSED WATER MAIN
- PROPOSED SANITARY SEWER MAIN
- PROPOSED STORM SEWER
- PROPOSED STORM INLET
- ROW/BOUNDARY LINE
- EXISTING FIRE HYDRANT
- EXISTING WATER MAIN
- EXISTING SANITARY SEWER MAIN
- EXISTING STORM SEWER
- EXISTING STORM INLET

50 25 0 50 100

SCALE: 1" = 50' HORIZ./ 1" = 5' VERT.

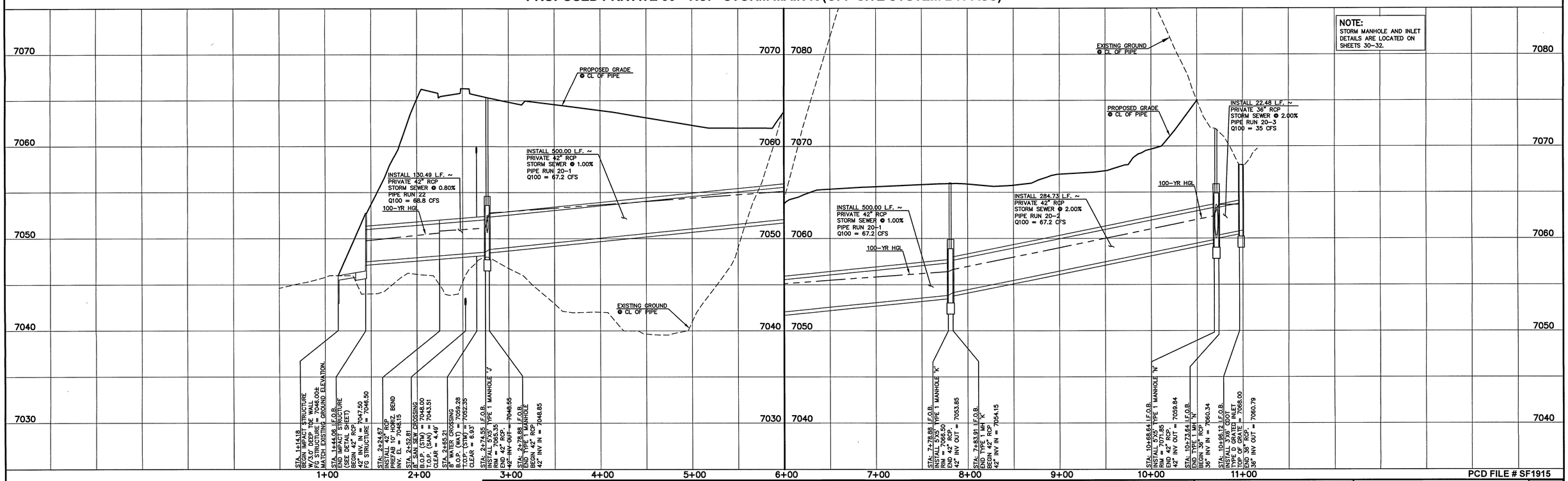
NOTE:
ALL STORM FACILITIES ARE PRIVATE, UNLESS OTHERWISE NOTED.

NOTE:
ALL STORM SEWER WITH 100-YR HGL ABOVE THE TOP OF PIPE SHALL BE INSTALLED WITH PRESSURE PIPE AND WATERTIGHT JOINTS WITH A 100-YEAR SERVICE LIFE.

STORM LINE TABLE		
	LENGTH	BEARING
L31	80.58'	N09°46'44"E
L32	49.91'	N0°11'39"W
L33	516.36'	N66°49'46"E
L34	301.24'	N81°49'46"E

NOTE:
STORM MANHOLE AND INLET DETAILS ARE LOCATED ON SHEETS 30-32.

PROPOSED PRIVATE 30" RCP STORM MAIN K (OFF-SITE SYSTEM BYPASS)



PCD FILE # SF1915

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NO.	REVISION	DATE

REVIEW:
PREPARED UNDER MY DIRECT SUPERVISION FOR AND ON BEHALF OF CLASSIC CONSULTING ENGINEERS AND SURVEYORS, LLC

KYLE R. CAMPBELL, COLORADO P.E. #29794 — DATE 3/24/20

CLASSIC CONSULTING
619 N. Cascade Avenue, Suite 200
Colorado Springs, Colorado 80903
(719)785-0790
(719)785-0799(Fax)

FOREST LAKES FILING NO. 5
CONSTRUCTION PLANS
PRIVATE STORM SEWER PLAN (OFF-SITE BYPASS)
MAIN K PLAN & PROFILE

DESIGNED BY	MAL	SCALE		DATE	07/14/19
DRAWN BY	ESO	(H) 1"=	50'	SHEET 16	OF 32
CHECKED BY		(V) 1"=	5'	JOB NO.	1175.50

EPC 6/9/2020

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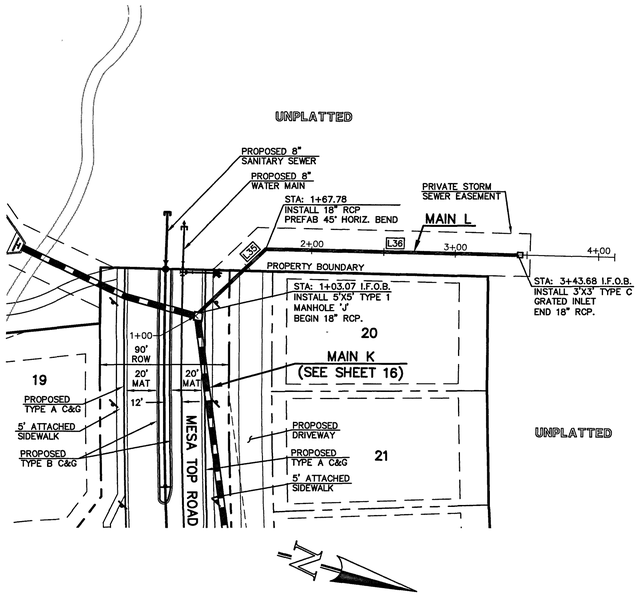
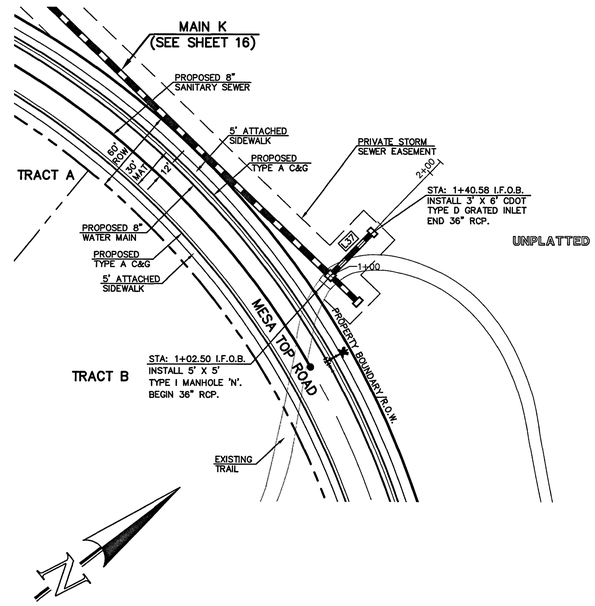


PROPOSED PRIVATE 18" RCP STORM MAIN L (OFF-SITE SYSTEM BYPASS)



PROPOSED PRIVATE 36" RCP STORM MAIN M (OFF-SITE SYSTEM BYPASS)

LEGEND

- PROPOSED FIRE HYDRANT
- PROPOSED WATER MAIN
- PROPOSED SANITARY SEWER MAIN
- PROPOSED STORM SEWER
- PROPOSED STORM INLET
- ROW/BOUNDARY LINE
- EXISTING FIRE HYDRANT
- EXISTING WATER MAIN
- EXISTING SANITARY SEWER MAIN
- EXISTING STORM SEWER
- EXISTING STORM INLET

50 25 0 50 100

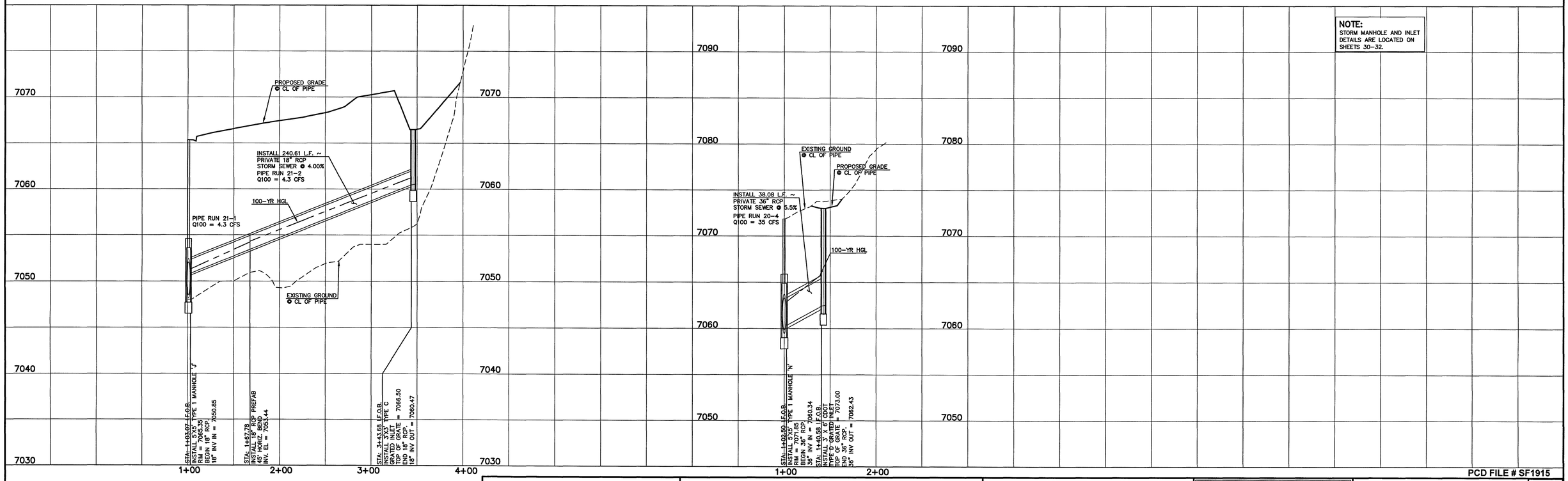
SCALE: 1" = 50' HORIZ./ 1" = 5' VERT.

NOTE:
ALL STORM FACILITIES ARE PRIVATE, UNLESS OTHERWISE NOTED.

NOTE:
ALL STORM SEWER WITH 100-YR HGL ABOVE THE TOP OF PIPE SHALL BE INSTALLED WITH PRESSURE PIPE AND WATERTIGHT JOINTS WITH A 100-YEAR SERVICE LIFE.

STORM LINE TABLE		
	LENGTH	BEARING
L35	67.78'	N59°22'55"W
L36	175.90'	N14°22'55"W
L37	57.08'	N36°49'46"E

NOTE:
STORM MANHOLE AND INLET DETAILS ARE LOCATED ON SHEETS 30-32.



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NO.	REVISION	DATE

REVIEW:

PREPARED UNDER MY DIRECT SUPERVISION FOR AND ON BEHALF OF CLASSIC CONSULTING ENGINEERS AND SURVEYORS, LLC

COLORADO LICENSED KYLE RAY CAMPBELL 29794

KYLE RF CAMPBELL, COLORADO LIC. NO. 29794 — DATE 3/24/20

CLASSIC CONSULTING

619 N. Cascade Avenue, Suite 200
Colorado Springs, Colorado 80903
(719)785-0790
(719)785-0799(Fax)

FOREST LAKES FILING NO. 5
CONSTRUCTION PLANS
PRIVATE STORM SEWER PLAN(OFF-SITE BYPASS)
MAIN L/ MAIN M PLAN & PROFILE

DESIGNED BY	MAL	SCALE		DATE	07/14/19
DRAWN BY	ESO	(H) 1"=	50'	SHEET 17	OF 32
CHECKED BY		(V) 1"=	5'	JOB NO.	1175.50

EPC 6/9/2020

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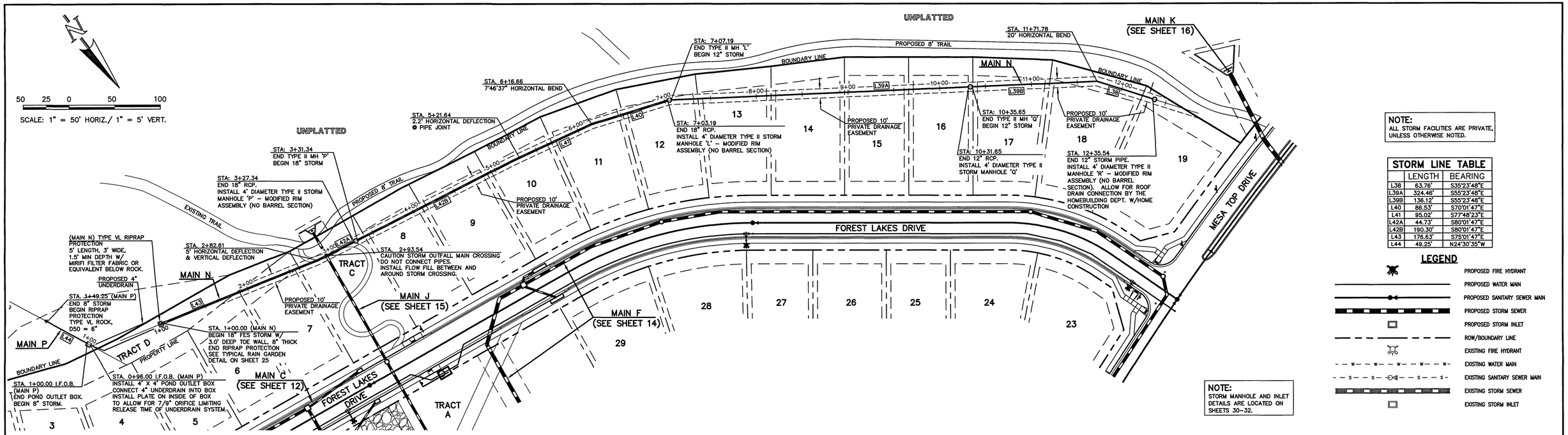


NOTE:
ALL STORM FACILITIES ARE PRIVATE, UNLESS OTHERWISE NOTED.

STORM LINE TABLE

	LENGTH	BEARING
L38	63.76'	S35°23'48"E
L39A	324.46'	S55°23'48"E
L39B	136.12'	S55°23'48"E
L40	86.53'	S70°01'47"E
L41	95.02'	S77°48'23"E
L42A	44.73'	S80°01'47"E
L42B	190.30'	S80°01'47"E
L43	176.63'	S75°01'47"E
L44	49.25'	N24°30'35"W

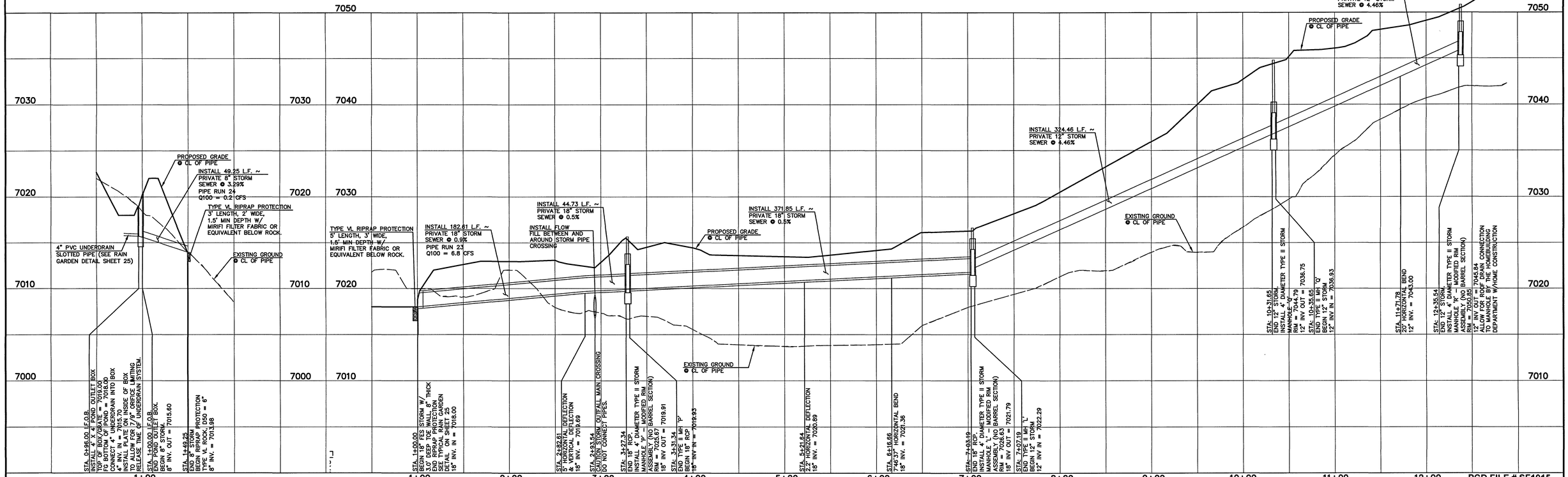
LEGEND

- PROPOSED FIRE HYDRANT
- PROPOSED WATER MAIN
- PROPOSED SANITARY SEWER MAIN
- PROPOSED STORM SEWER
- PROPOSED STORM INLET
- ROW/BOUNDARY LINE
- EXISTING FIRE HYDRANT
- EXISTING WATER MAIN
- EXISTING SANITARY SEWER MAIN
- EXISTING STORM SEWER
- EXISTING STORM INLET

NOTE:
STORM MANHOLE AND INLET DETAILS ARE LOCATED ON SHEETS 30–32.

PROPOSED PRIVATE 8" STORM MAIN P

PROPOSED PRIVATE 12/18" STORM MAIN N



PCD FILE # SF1915

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NO.	REVISION	DATE

REVIEW:
PREPARED UNDER MY DIRECT SUPERVISION FOR AND ON BEHALF OF CLASSIC CONSULTING ENGINEERS AND SURVEYORS, LTD.

KYLE R. CAMPBELL, COLORADO P.E. #29794 DATE 3/24/20

CLASSIC CONSULTING
619 N. Cascade Avenue, Suite 200
Colorado Springs, Colorado 80903
(719)785-0790
(719)785-0799(Fax)

FOREST LAKES FILING NO. 5
CONSTRUCTION PLANS
PRIVATE STORM SEWER PLAN
MAIN P / MAIN N PLAN & PROFILE

DESIGNED BY	MAL	SCALE	DATE 07/14/19
DRAWN BY	ESO	(H) 1"= 50'	SHEET 18 OF 32
CHECKED BY		(V) 1"= 5'	JOB NO. 1175.50

EPC 6/9/2020

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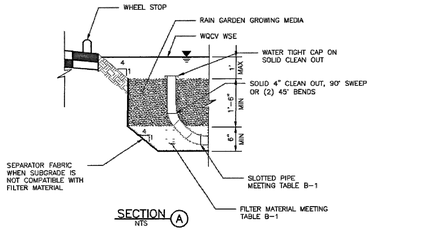


Table B-2. Gradation Specifications for CDOT Class C Filter Material
(Source. CDOT Table 703-7)

Sieve Size	Mass Percent Passing Square Mesh Sieves
19.0 mm (3/4")	100
4.75 mm (No. 4)	60 – 100
300 µm (No. 50)	10 – 30
150 µm (No. 100)	0 – 10
75 µm (No. 200)	0 - 3

Table B-3. Dimensions for Slotted Pipe

Pipe Diameter	Slot Length[1]	Maximum Slot Width	Slot Centers[1]	Open Area[1] (per foot)
4"	1-1/16"	0.032"	0.413"	1.90 in^2
6"	1-3/8"	0.032"	0.516"	1.98 in^2

[1] Some variation in these values is acceptable and is expected from various pipe manufacturers. Be aware that both increased slot length and decreased slot centers will be beneficial to hydraulics but detrimental to the structure of the pipe.

T-3 Bioretention

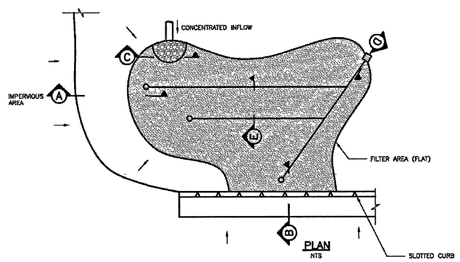
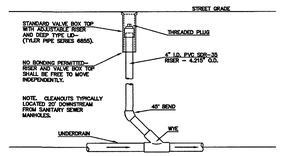


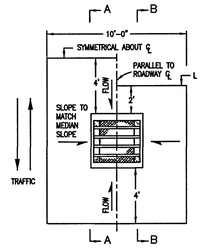
Figure B-1 – Typical rain garden plan and sections

RESEEDING MIX:
SEE SHEET 6 FOR NATIVE SEED MIX FOR RAIN GARDENS



TYPICAL UNDERDRAIN CLEANOUT
N.T.S.

DRIVEWAY DETAIL:
SEE SHEET 6 FOR DRIVEWAY DETAIL WITH ATTACHED SIDEWALK (SD-24)

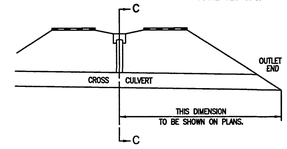


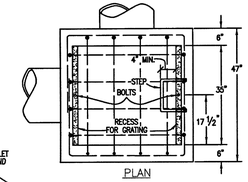
INLET WITH DITCH PAVING

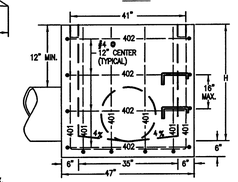
STEEL GRATE QUANTITIES

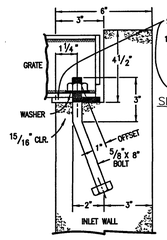
NO. PIECES	DESCRIPTION	LENGTH	LB. PER FT.	WEIGHT (LBS.)
4	S4 x 7.7 BEAM	40"	7.70	103
2	3½" x ¼" FLAT	26⅝"	2.98	13
2	3" x ¼" FLAT	26⅝"	2.55	12

TOTAL 128 LBS.

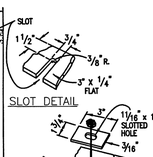


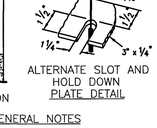






GRATE INSTALLATION DETAIL





ALTERNATE SLOT AND HOLD DOWN PLATE DETAIL

GENERAL NOTES

1. CONCRETE SHALL BE CLASS B. INLET MAY BE CAST-IN-PLACE OR PRECAST.
2. REINFORCING BARS SHALL BE EPOXY COATED AND DEFORMED, AND SHALL HAVE A MINIMUM 2 IN. CLEARANCE.
3. CONCRETE SLOPE AND DITCH PAVING SHALL CONFORM TO 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.
4. STRUCTURAL STEEL FOR GRATES AND GRATE INSTALLATION HARDWARE SHALL BE GALVANIZED AND SHALL BE IN ACCORDANCE WITH 712.08.
5. THE STANDARD INLET GRATES SHALL BE USED ON ALL TYPE C INLETS UNLESS CLOSE MESH GRATES ARE SPECIFIED ON THE PLANS.
6. STEPS SHALL BE PROVIDED WHEN INLET DIMENSION "H" EXCEEDS 3 FT.–6 IN. AND SHALL BE IN ACCORDANCE WITH AASHTO M 199.
7. SEE SHEET M-604-11, INLET, TYPE D, FOR REINFORCEMENT AROUND THE PIPE OPENING.

▼ – CONCRETE SLOPE AND DITCH PAVING WILL BE REQUIRED WHEN SHOWN ON PLANS.

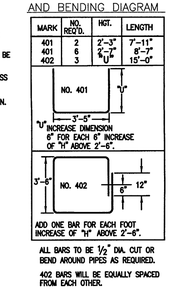
QUANTITIES FOR ONE INLET

H	CONCRETE * (CU. YDS.)	REINF. STEEL (LBS.)	NO. STEPS REQ'D.
2'–6"	0.9	75	0
3'–0"	1.0	80	0
3'–6"	1.2	96	0
4'–0"	1.3	101	1
4'–6"	1.4	116	2
5'–0"	1.5	122	2
5'–6"	1.7	137	2
6'–0"	1.8	142	3
6'–6"	1.9	158	3
7'–0"	2.0	163	3
7'–6"	2.2	179	4
8'–0"	2.3	184	4
8'–6"	2.4	199	4
9'–0"	2.5	205	5
9'–6"	2.7	220	5
10'–0"	3.0	235	6
11'–6"	3.4	251	6

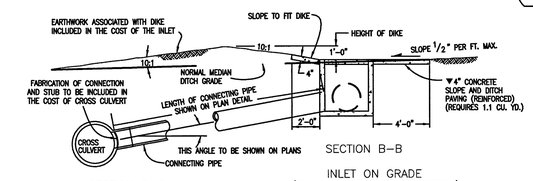
* INCLUDES VOLUME OCCUPIED BY PIPES.

BAR LIST FOR H=2'–6" AND BENDING DIAGRAM

MARK	NO. REQ'D.	HGT.	LENGTH
401	2	2'–3"	7'–11"
401	6	2'–3"	8'–7"
402	3	4½"	15'–0"

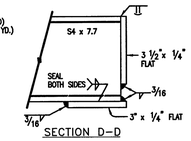


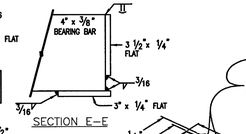
ALL BARS TO BE ½" DIA. CUT OR BEND AROUND PIPES AS REQUIRED.
402 BARS WILL BE EQUALLY SPACED FROM EACH OTHER.

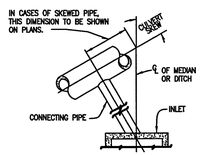


INLET CONNECTED TO A CROSS CULVERT

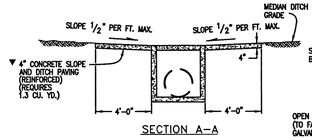
INLET ON GRADE (FLOW FROM ONE DIRECTION)





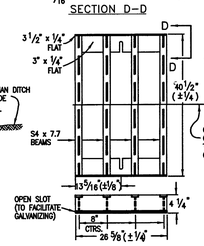


INLET CONNECTED TO A SKEWED CROSS CULVERT

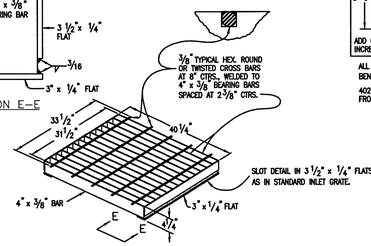


SECTION A–A

INLET AT BOTTOM OF VERTICAL CURVE



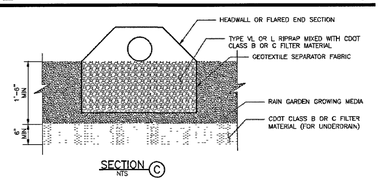
STANDARD INLET GRATE

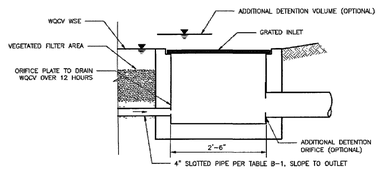


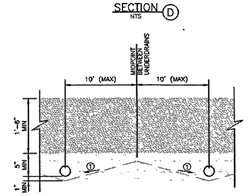
CLOSE MESH GRATE

HYDRAULICALLY INEFFICIENT, POOR TOLERANCE FOR DEBRIS AND ICE. USE FOR PEDESTRIAN AND BICYCLE AREAS.

CDOT TYPE C INLET
STD. PLAN NO: M-604-10

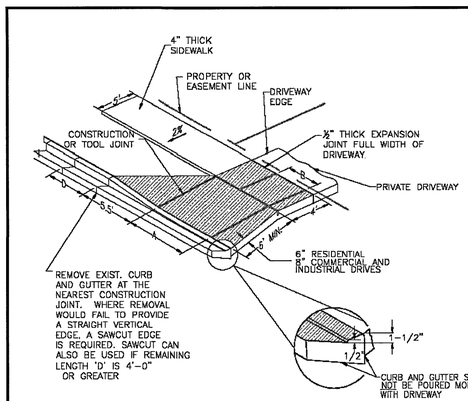






① SLOPE (STRAIGHT GRADE) SUBGRADE (2–10%) TO UNDERDRAIN TO REDUCE SATURATED SOIL CONDITIONS BETWEEN STORM EVENTS (OPTIONAL)

SECTION E
NTS



NOTES

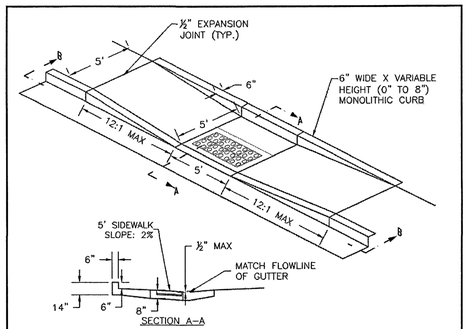
1. PROVIDE CENTERLINE CONSTRUCTION OR TOOL JOINT WHEN DRIVEWAY WIDTH (EDGE TO EDGE) IS 14' OR GREATER.
2. ALL TOOL JOINTS SHALL BE A MINIMUM OF 1–½" DEEP.
3. WHEN REPLACING EXISTING CURB AND GUTTER WITH NEW DRIVEWAY, ENTIRE CURB AND GUTTER SECTION SHALL BE REMOVED AND REPLACED WITH CURB AND GUTTER (VARIABLE–CURB–HEIGHT) AS SHOWN. DO NOT BREAK CURB FROM GUTTER SECTION.
4. FLARED PORTION OF DRIVEWAY SHALL BE POURED MONOLITHIC WITH MAIN RECTANGULAR PORTION OF DRIVEWAY.
5. WHERE THERE IS MORE THAN ONE DRIVEWAY ON A LOT, THE SPACING OF THE DRIVEWAYS SHALL MEET REQUIREMENTS IN ECM.
6. WHERE AN EXISTING SIDEWALK IS IN PLACE, AND ITS THICKNESS IS LESS THAN 6" (RESIDENTIAL) OR 8" (COMMERCIAL AND INDUSTRIAL) THE SIDEWALK THROUGH THE DRIVEWAY SHALL BE REMOVED AND REPLACED WITH PORTLAND CEMENT CONCRETE AT THE REQUIRED THICKNESS.
7. WHEN A DRIVEWAY IS TO BE TAKEN OUT OF SERVICE, THE ENTIRE LENGTH OF CURB AND GUTTER SHALL BE REMOVED AND REPLACED WITH NEW CURB AND GUTTER MATCHING THE ABUTTING SECTIONS.
8. ALL PROVISIONS IN THE LAND DEVELOPMENT CODE SHALL BE MET, WITH REGARD TO MINIMUM SETBACK FROM INTERSECTION AND SIDE PROPERTY LINES, MINIMUM SPACING, MAXIMUM WIDTH, ETC

TOOLS JOINT SPACING

DRIVEWAY WIDTH	A	B
12'	6'	3'
14'	7'	3'–6"
16'	8'	4'
18'	9'	4'–6"
20'	10'	5'
22'	11'	5'–6"
24'	8'	4'
26'	8'–8"	4'–4"
28'	9'–4"	4'–8"
30'	10'	5'

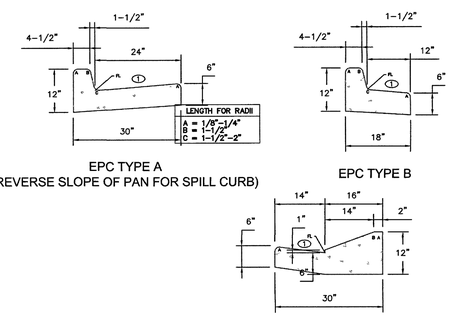
SCALE: NOT TO SCALE

8/11/11 DATE APPROVED. André P. Brackin DEPARTMENT OF TRANSPORTATION	Driveway Detail With Detached Sidewalk Standard Drawing	EL PASO COUNTY DEPARTMENT OF TRANSPORTATION
	REVISION DATE: 11/10/04	FILE NAME: SD_2–25

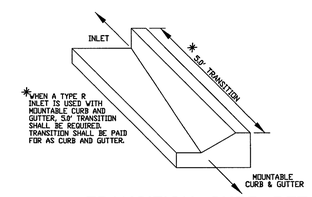


SCALE: NOT TO SCALE

8/11/11 DATE APPROVED André P. Brackin DEPARTMENT OF TRANSPORTATION	Parallel Pedestrian Ramp Detail Standard Drawing	EL PASO COUNTY DEPARTMENT OF TRANSPORTATION
	REVISION DATE 12/8/15	FILE NAME SD_2–50



CURB AND GUTTER DETAIL



TRANSITION CURB DETAIL
N.T.S.

PCD FILE # SF1915

48 HOURS BEFORE YOU DIG, CALL UTILITY LOCATORS
811
UTILITY NOTIFICATION CENTER OF COLORADO
IT'S THE LAW

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE CAUSED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NO.	REVISION	DATE

REVIEW:
PREPARED UNDER MY DIRECT SUPERVISION FOR AND ON BEHALF OF CLASSIC CONSULTING ENGINEERS AND SURVEYORS, LLC
KYLE R. CAMPBELL, COLORADO P.E. #29794 — DATE 3/24/20

CLASSIC CONSULTING
619 N. Cascade Avenue, Suite 200
Colorado Springs, Colorado 80903
(719)785-0790
(719)785-0799(Fax)

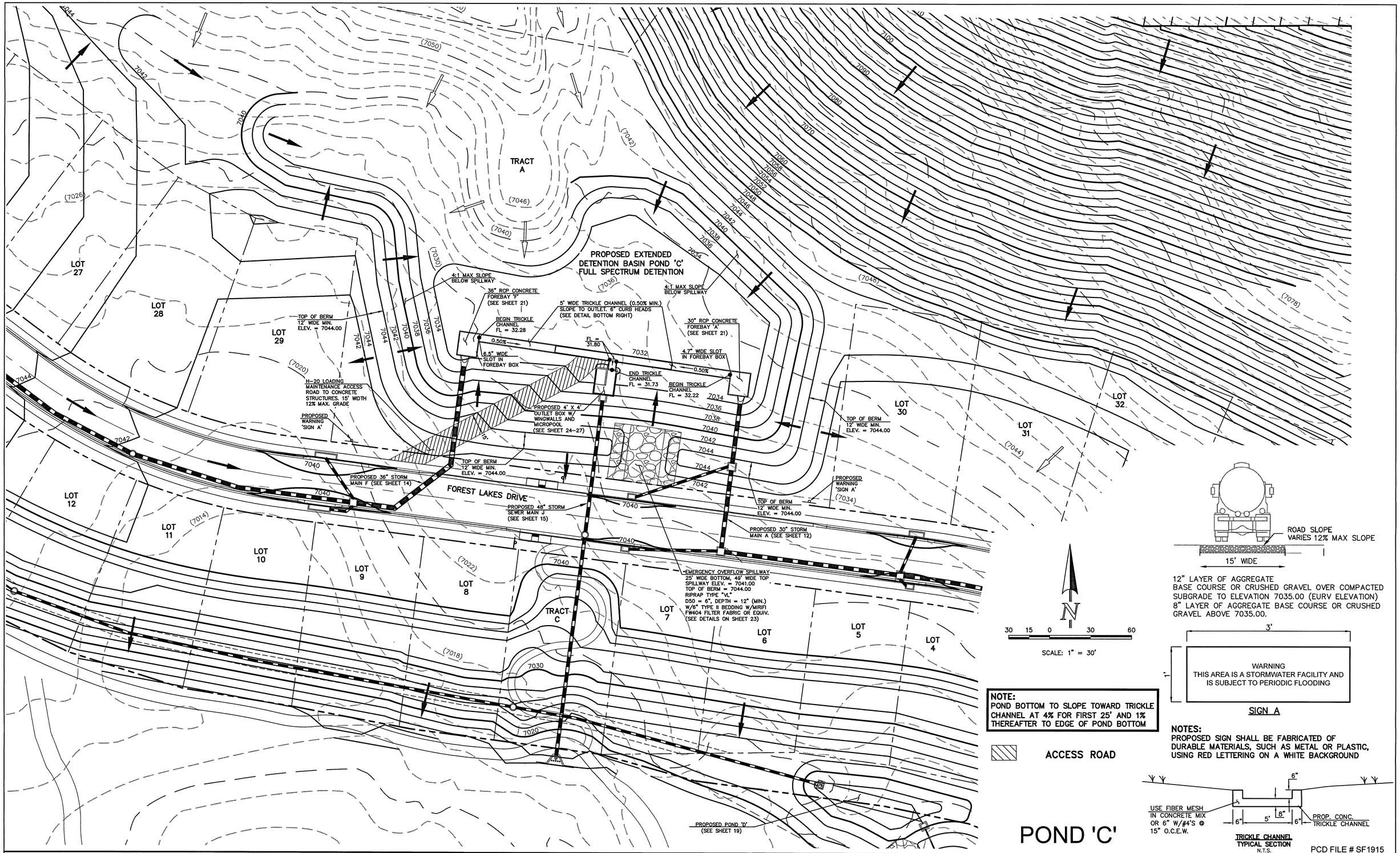
FOREST LAKES FILING NO. 5
CONSTRUCTION DRAWINGS

DETAILS SHEET

DESIGNED BY	MAL	SCALE		DATE	07/14/19
DRAWN BY	BB	(H) 1"= N/A		SHEET 32	OF 32
CHECKED BY		(V) 1"= N/A		JOB NO.	1175.50

EPC 6/9/2020

N:\117550\DRAWINGS\CONSTRUCTION\STORM\31-117550-POND.dwg, 3/4/2020 4:35:31 PM, 1:1



12" LAYER OF AGGREGATE BASE COURSE OR CRUSHED GRAVEL OVER COMPACTED SUBGRADE TO ELEVATION 7035.00 (EURV ELEVATION)
8" LAYER OF AGGREGATE BASE COURSE OR CRUSHED GRAVEL ABOVE 7035.00.

SIGN A

NOTES:
PROPOSED SIGN SHALL BE FABRICATED OF DURABLE MATERIALS, SUCH AS METAL OR PLASTIC, USING RED LETTERING ON A WHITE BACKGROUND

NOTE:
POND BOTTOM TO SLOPE TOWARD TRICKLE CHANNEL AT 4% FOR FIRST 25' AND 1% THEREAFTER TO EDGE OF POND BOTTOM

ACCESS ROAD

TRICKLE CHANNEL TYPICAL SECTION
N.T.S.

POND 'C'

PCD FILE # SF1915

LEGEND

PROPOSED FIRE HYDRANT	EXISTING FIRE HYDRANT
PROPOSED WATER MAIN	EXISTING WATER MAIN
PROPOSED SANITARY SEWER MAIN	EXISTING SANITARY SEWER MAIN
PROPOSED STORM SEWER	EXISTING STORM SEWER
PROPOSED STORM INLET	EXISTING STORM INLET
ROW/BOUNDARY LINE	EXISTING GAS MAIN
	EXISTING ELECTRIC

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UTILITY NOTIFICATION CENTER OF COLORADO
IT'S THE LAW

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NO.	REVISION	DATE

REVIEW:
PREPARED UNDER MY DIRECT SUPERVISION FOR AND ON BEHALF OF CLASSIC CONSULTING ENGINEERS AND SURVEYORS, LLC

COLORADO LICENSED KYLE RAYE CAMPBELL 29794 PROFESSIONAL ENGINEER

KYLE R. CAMPBELL, COLORADO P.E. #29794 DATE 3/24/20

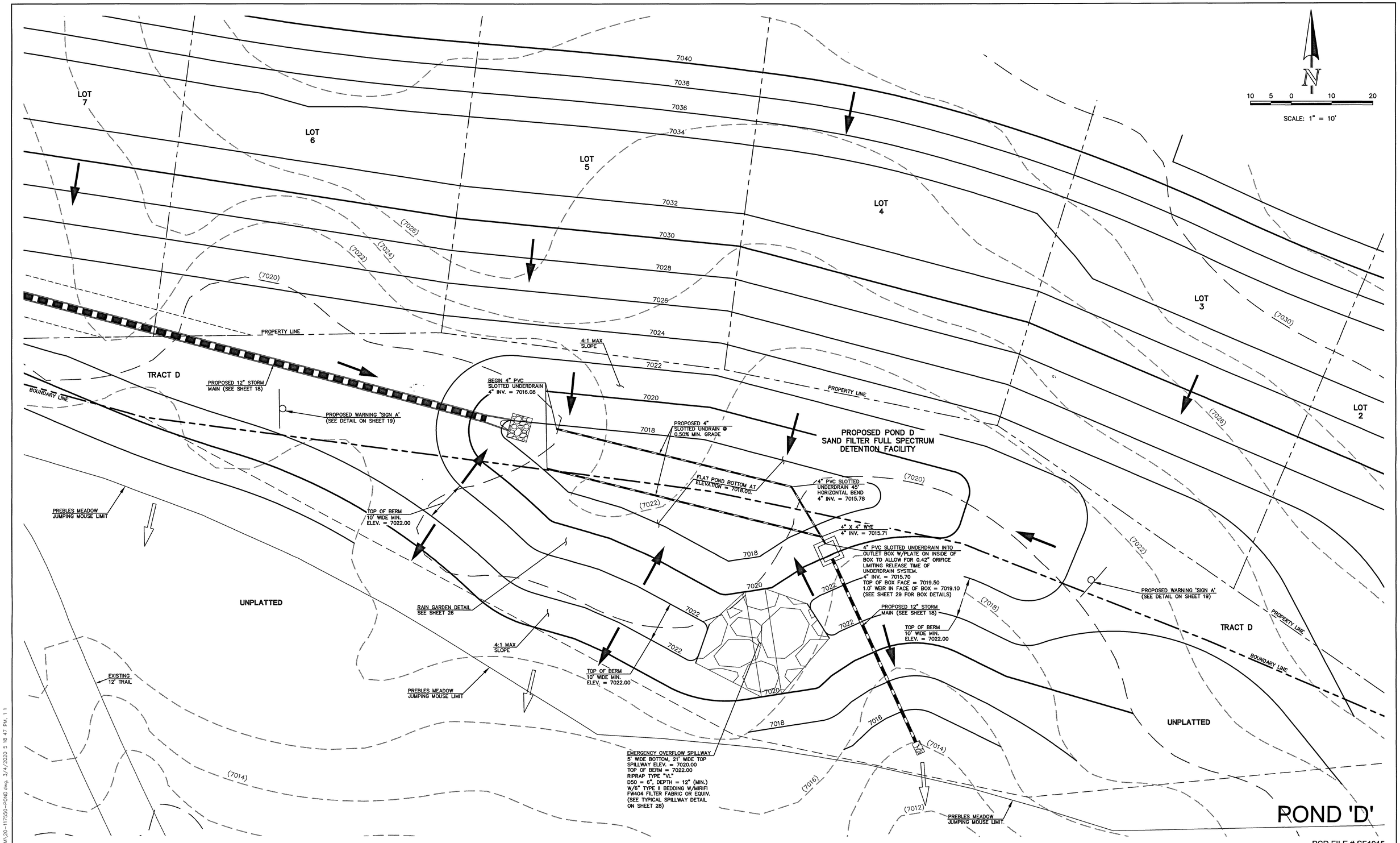
CLASSIC CONSULTING
619 N. Cascade Avenue, Suite 200
Colorado Springs, Colorado 80903
(719)785-0790
(719)785-0799(Fax)

FOREST LAKES FILING NO. 5
CONSTRUCTION DRAWINGS
POND 'C'
EDB – FULL SPECTRUM DETENTION

DESIGNED BY	MAL	SCALE	DATE 07/14/19
DRAWN BY	BB	(H) 1"= 30'	SHEET 19 OF 32
CHECKED BY		(V) 1"=	JOB NO. 1175.50

EPC 6/9/2020

N:\117550\DRAWINGS\CONSTRUCTION\STORM\19-117550-POND.dwg, 3/4/2020 5:16:19 PM, 1:1



PCD FILE # SF1915

LEGEND

PROPOSED FIRE HYDRANT	EXISTING FIRE HYDRANT
PROPOSED WATER MAIN	EXISTING WATER MAIN
PROPOSED SANITARY SEWER MAIN	EXISTING SANITARY SEWER MAIN
PROPOSED STORM SEWER	EXISTING STORM SEWER
PROPOSED STORM INLET	EXISTING STORM INLET
ROW/BOUNDARY LINE	EXISTING GAS MAIN
	EXISTING ELECTRIC

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UTILITY NOTIFICATION CENTER OF COLORADO
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NO.	REVISION	DATE

REVIEW:

PREPARED UNDER MY DIRECT SUPERVISION FOR AND ON BEHALF OF CLASSIC CONSULTING ENGINEERS AND SURVEYORS, INC.

KYLE R. CAMPBELL, COLORADO P.E. #29794 — DATE 2/24/20

CLASSIC CONSULTING
619 N. Cascade Avenue, Suite 200
Colorado Springs, Colorado 80903
(719)785-0790
(719)785-0799(Fax)

FOREST LAKES FILING NO. 5
CONSTRUCTION DRAWINGS
POND 'D'
SAND FILTER FULL SPECTRUM DETENTION

DESIGNED BY	MAL	SCALE	DATE 07/14/19
DRAWN BY	BB	(H) 1"= 10'	SHEET 20 OF 32
CHECKED BY		(V) 1"=	JOB NO. 1175.50

EPC 6/9/2020

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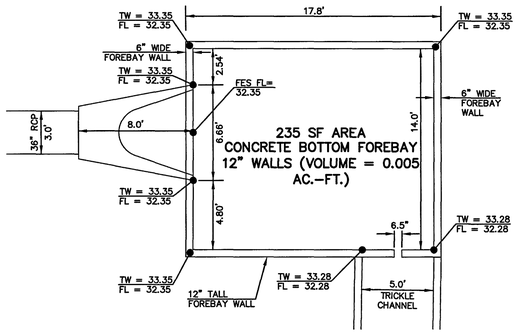
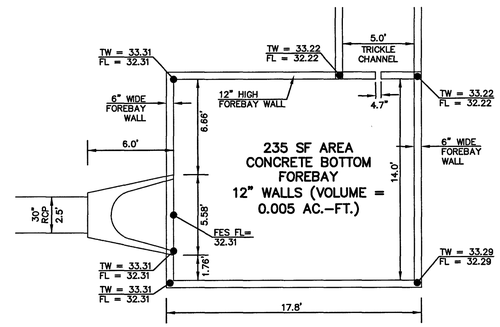
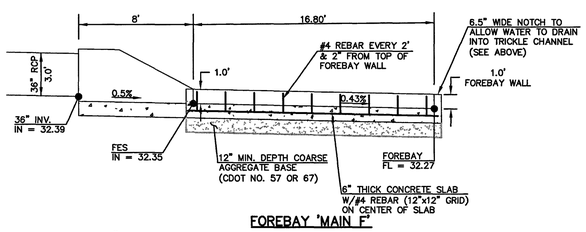


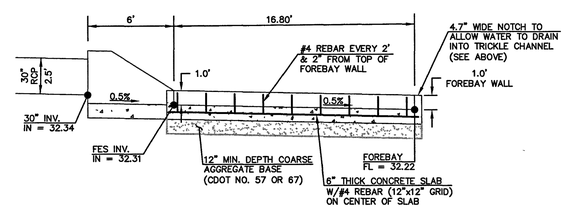
FOREBAY 'MAIN F'
36" RCP FOREBAY & FLARED END STRUCTURE – PLAN VIEW
SCALE 1" = 5'



FOREBAY 'MAIN A'
30" RCP FOREBAY & FLARED END STRUCTURE – PLAN VIEW
SCALE 1" = 5'



FOREBAY 'MAIN F'
36" RCP FOREBAY & FLARED END STRUCTURE – PROFILE VIEW
SCALE 1" = 5'



FOREBAY 'MAIN A'
30" RCP FOREBAY & FLARED END STRUCTURE – PROFILE VIEW
SCALE 1" = 5'

POND 'C'

PCD FILE # SF1915

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NO.	REVISION	DATE

REVIEW:

PREPARED UNDER MY DIRECT SUPERVISION FOR AND ON BEHALF OF CLASSIC CONSULTING ENGINEERS AND SURVEYORS, LLC

COLORADO LICENSED KYLE RAYE CAMPBELL 29794 PROFESSIONAL ENGINEER

KYLE R. CAMPBELL, COLORADO P.E. #29794 — DATE 2/24/20

CLASSIC CONSULTING

619 N. Cascade Avenue, Suite 200
Colorado Springs, Colorado 80903
(719)785-0790
(719)785-0799(Fax)

FOREST LAKES FILING NO. 5
CONSTRUCTION DRAWINGS

FOREBAY 'MAIN A' / 'MAIN F' STRUCTURES

DESIGNED BY	MAL	SCALE		DATE	07/14/19
DRAWN BY	BB	(H) 1"= 5'		SHEET 21	OF 32
CHECKED BY		(V) 1"= N/A		JOB NO.	1175.50

EPC 6/9/2020

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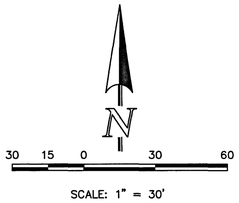
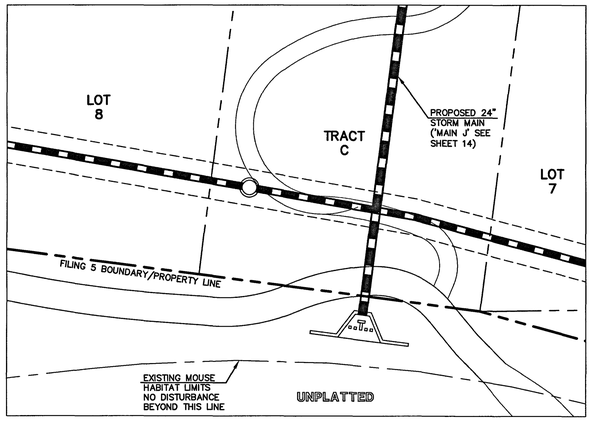
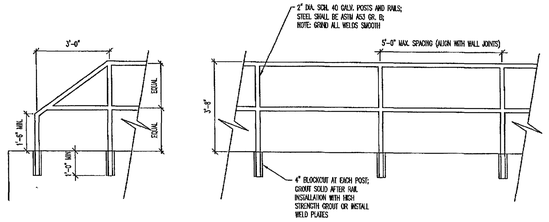




'MAIN J' POND OUTLET IMPACT STRUCTURE–PLAN VIEW

SCALE 1" = 20'



MICROPOOL RAILING

NOTES:

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3. HANDRAIL DESIGN SHALL BE COMPATIBLE WITH THE DESIGN OF THE WINGWALLS AND HEADWALLS.
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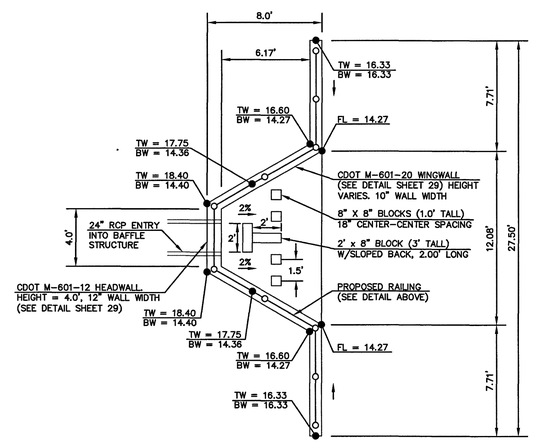
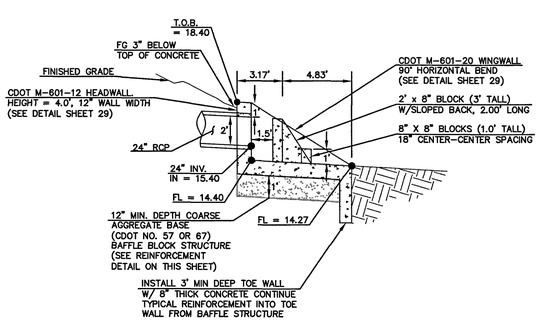
5. ALL RAILS SHALL HAVE EXPANSION JOINTS SPACED AT 40'–0 MAX. JOINT ENDS SHALL BE FREE OF ANY SHARP EDGES OR CORNERS.

OUTLET BOX RAILING

N.T.S.

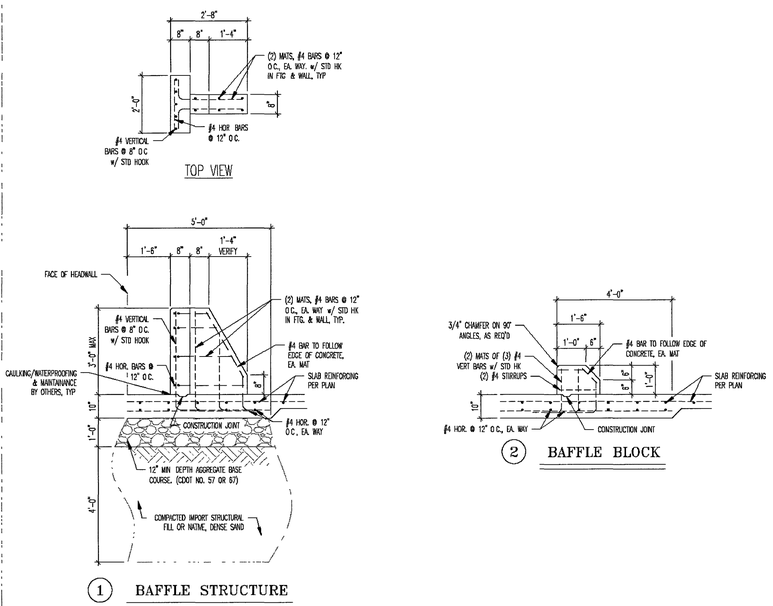




'MAIN J' POND OUTLET IMPACT STRUCTURE

SCALE 1" = 5'

POND "C" OUTLET



BAFFLE REINFORCING

N.T.S.

POND 'C' OUTLET

PCD FILE # SF1915

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NO.	REVISION	DATE

REVIEW:

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COLORADO LICENSED KYLE RAYE CAMPBELL 29794 PROFESSIONAL ENGINEER

KYLE R. CAMPBELL, COLORADO P.E. #29794 — DATE 3/2/20

CLASSIC CONSULTING
619 N. Cascade Avenue, Suite 200
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(719)785-0790
(719)785-0799(Fax)

FOREST LAKES FILING NO. 5
CONSTRUCTION DRAWINGS

'MAIN J' IMPACT STRUCTURE W/ REINFORCING

DESIGNED BY	MAL	SCALE	DATE	07/14/19
DRAWN BY	BB	(H) 1"= 5'	SHEET 22	OF 32
CHECKED BY		(V) 1"= N/A	JOB NO.	1175.50

EPC 6/9/2020

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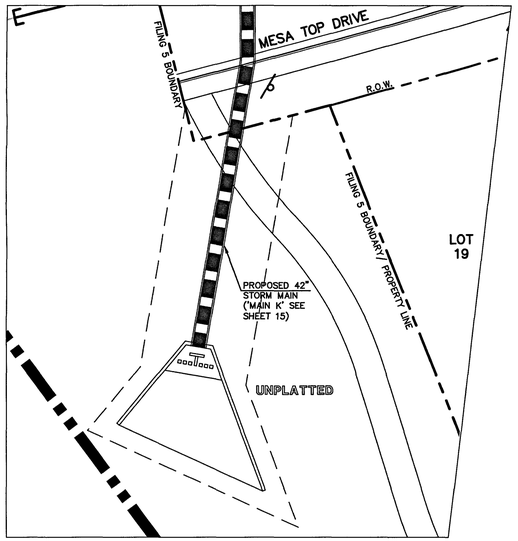
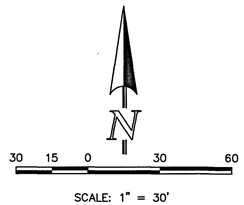
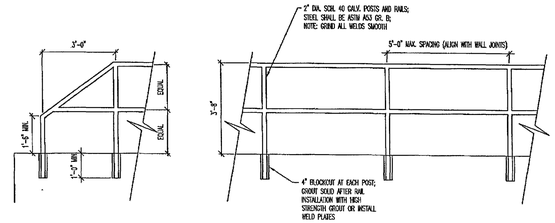


'MAIN K' BYPASS MAIN IMPACT STRUCTURE –PLAN VIEW

SCALE 1" = 20'





MICROPOOL RAILING

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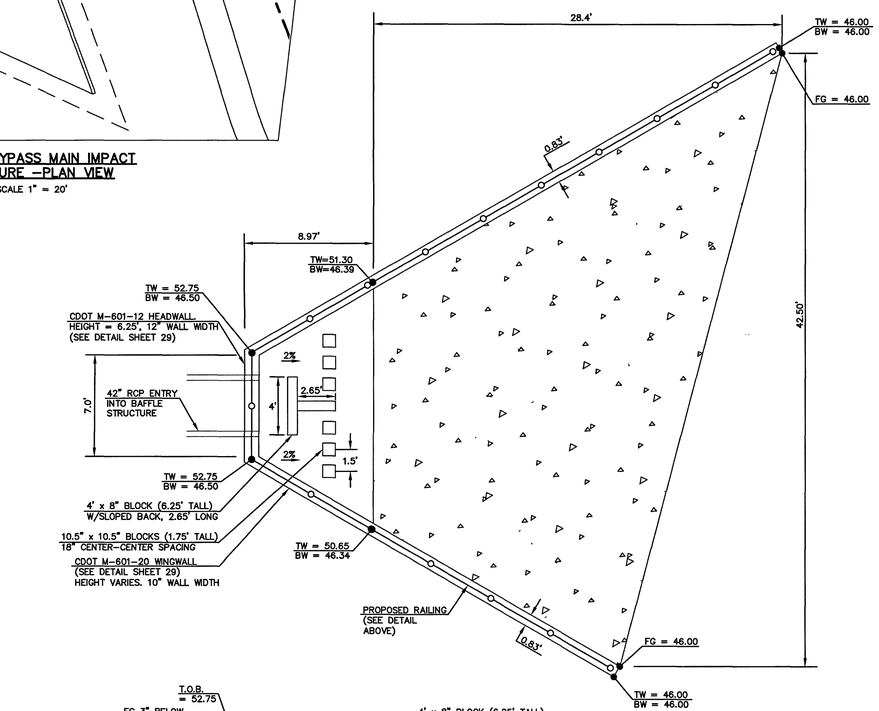
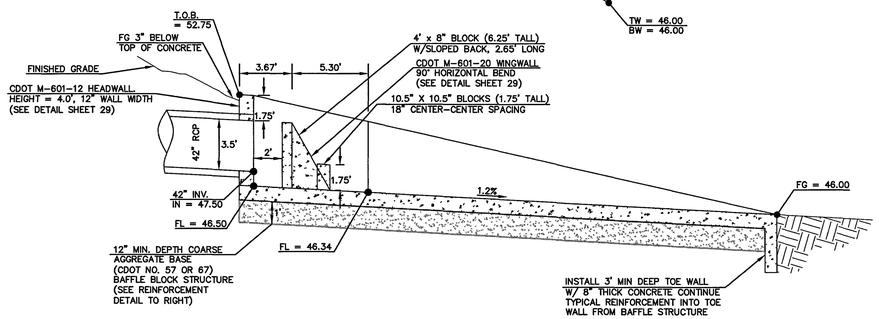
OUTLET BOX RAILING

N.T.S.

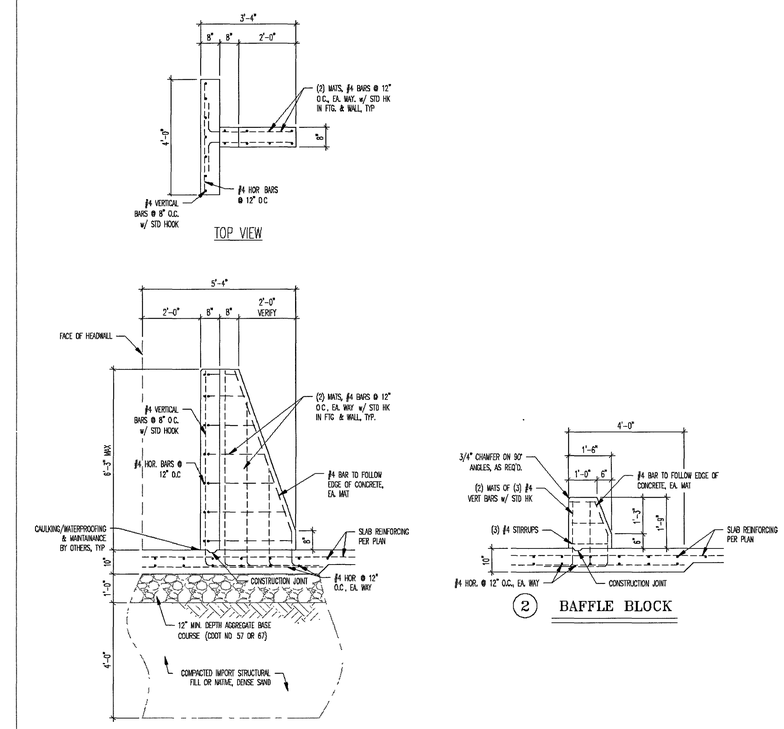




'MAIN K' BYPASS MAIN IMPACT STRUCTURE

SCALE 1" = 5'

BYPASS OUTLET



BAFFLE REINFORCING

N.T.S.

BYPASS OUTLET

PCD FILE # SF1915

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NO.	REVISION	DATE

REVIEW:

PREPARED UNDER MY DIRECT SUPERVISION FOR AND ON BEHALF OF CLASSIC CONSULTING ENGINEERS AND SURVEYORS, LLC

COLORADO REGISTERED PROFESSIONAL ENGINEER KYLE RAYE CAMPBELL 29794

KYLE R. CAMPBELL, COLORADO P.E. #29794 DATE 7/14/19

CLASSIC CONSULTING

619 N. Cascade Avenue, Suite 200
Colorado Springs, Colorado 80903
(719)785-0790
(719)785-0799(Fax)

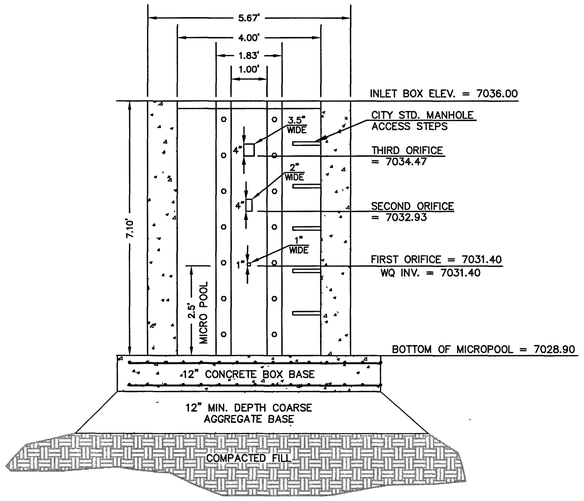
FOREST LAKES FILING NO. 5
CONSTRUCTION DRAWINGS

'MAIN K' IMPACT STRUCTURE W/ REINFORCING

DESIGNED BY	MAL	SCALE	DATE 07/14/19
DRAWN BY	BB	(H) 1"= 5'	SHEET 23 OF 32
CHECKED BY		(V) 1"= N/A	JOB NO. 1175.50

EPC 6/9/2020

N:\117550\DRAWINGS\CONSTRUCTION\STORM\23-117550-POND.dwg, 3/5/2020 11:02:59 AM, 1:1



INSTALL STEPS PER EL PASO COUNTY SPECS.

(ALL MATERIALS PER EL PASO COUNTY SPECIFICATIONS)

ORIFICE PLATE NOTES:

1. INSTALL HOLES AS SHOWN ON DETAIL TO LEFT.
2. PROVIDE GASKET MATERIAL BETWEEN THE ORIFICE PLATE AND CONCRETE

EURV AND WQCV TRASH RACKS:

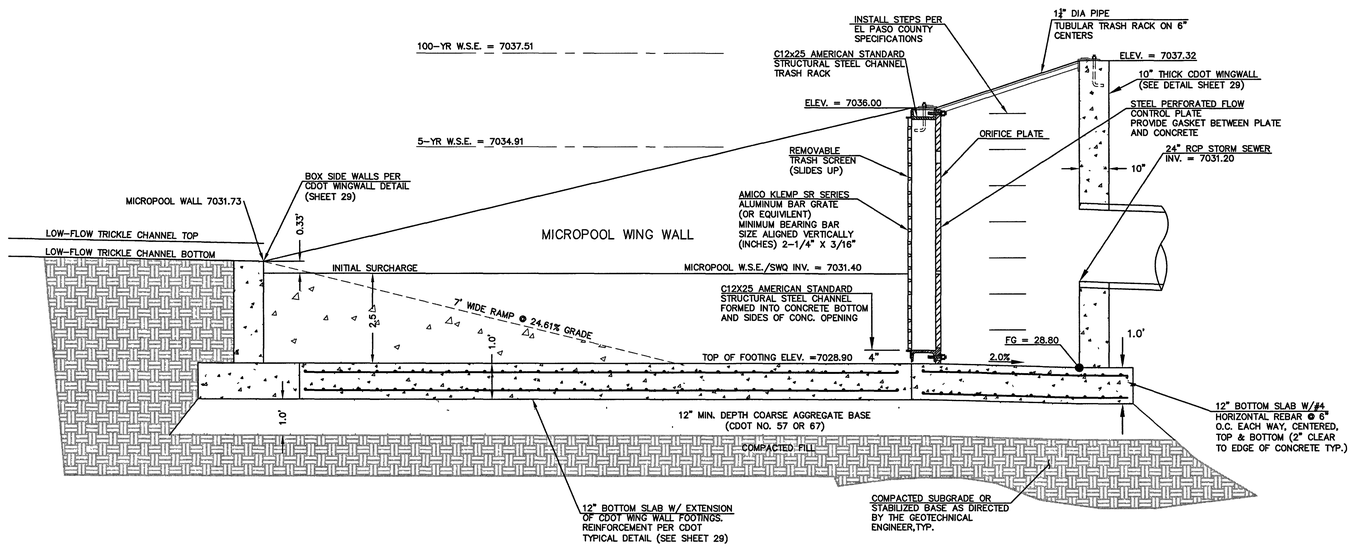
3. WELL-SCREEN TRASH RACKS SHALL BE ATTACHED BY INTERMITTENT WELDS ALONG THE EDGE OF THE MOUNTING FRAME.
4. BAR GRATE TRASH RACKS SHALL BE ALUMINUM AND SHALL BE BOLTED USING STAINLESS STEEL HARDWARE.
5. STRUCTURAL DESIGN OF TRASH RACKS SHALL BE BASED ON FULL HYDROSTATIC HEAD WITH ZERO HEAD DOWNSTREAM OF RACK

OVERFLOW TRASH RACKS:

1. ALL TRASH RACKS SHALL BE MOUNTED USING STAINLESS STEEL HARDWARE AND PROVIDED WITH HINGED AND LOCKABLE OR BOLTABLE ACCESS PANELS
2. TRASH RACKS SHALL BE STAINLESS STEEL, ALUMINUM, OR STEEL. STEEL TRASH RACKS SHALL BE HOT DIP GALVANIZED AND MAY BE HOT POWDER COATED AFTER GALVANIZING.
3. TRASH RACKS SHALL BE DESIGNED SUCH THAT THE DIAGONAL DIMENSION OF EACH OPENING IS SMALLER THAN THE DIAMETER OF THE OUTLET PIPE.
4. STRUCTURAL DESIGN OF THE TRASH RACKS SHALL BE BASED ON FULL HYDROSTATIC HEAD WITH ZERO HEAD DOWNSTREAM OF THE RACK.

4'X4' OUTLET BOX ORIFICE PLATE

SCALE 1" = 2'



SPILLWAY ELEVATION = 7041.00

4'X4' OUTLET BOX MICRO POOL

SCALE 1" = 2'

POND 'C'

PCD FILE # SF1915

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KYLE R. CAMPBELL, COLORADO P.E. #29794 — DATE 7/24/20

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Colorado Springs, Colorado 80903
(719)785-0790
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FOREST LAKES FILING NO. 5
CONSTRUCTION DRAWINGS

POND OUTLET BOX – PROFILE VIEW

DESIGNED BY	MAL	SCALE	DATE	07/14/19
DRAWN BY	BB	(H) 1"= 2'	SHEET	24 OF 32
CHECKED BY		(V) 1"= N/A	JOB NO.	1175.50

EPC 6/9/2020

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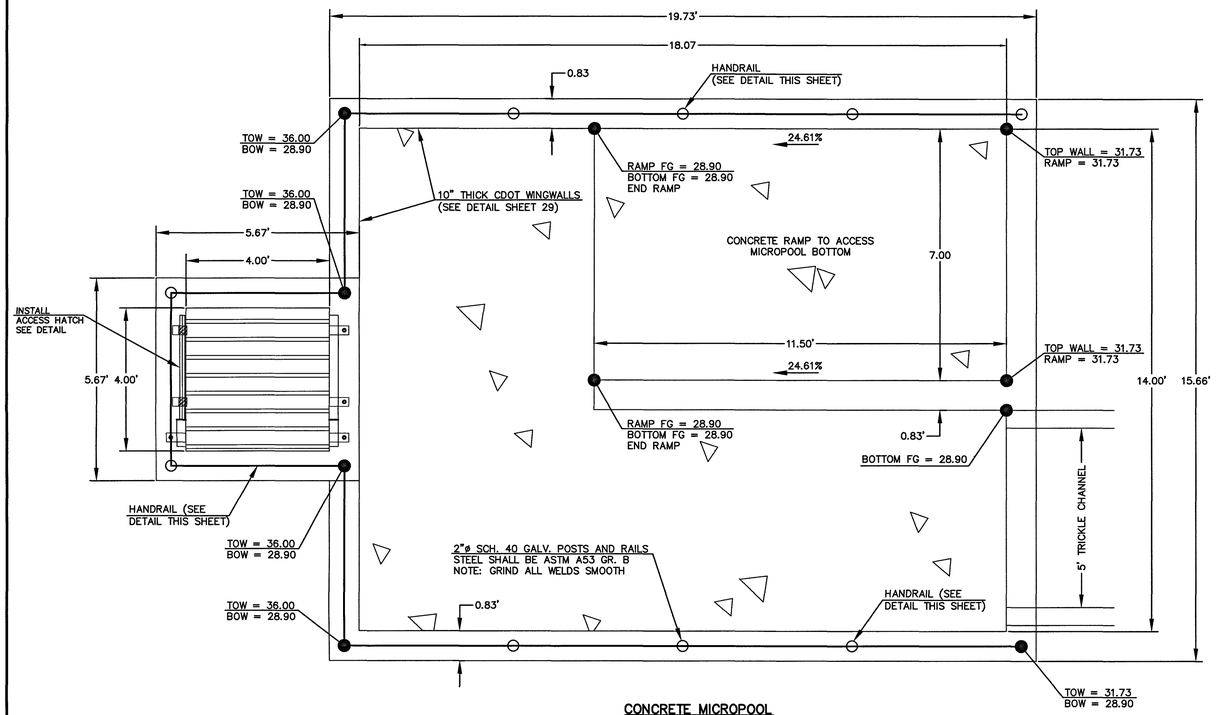
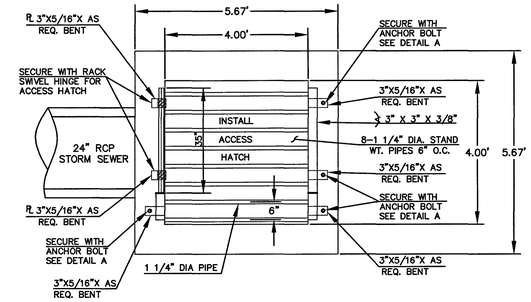


CONCRETE MICROPOOL
SCALE 1" = 2'



4'X4' OUTLET BOX OVERFLOW TRASH RACK
SCALE 1" = 2'

STEEL FABRICATION NOTES:

1. FABRICATED STEEL STRUCTURES SHALL BE CONSTRUCTED IN ACCORDANCE WITH AISC AND AWS SPECIFICATIONS.
2. THE OUTLET STRUCTURE BARGRATE IS DESIGNED FOR A VERTICAL LOAD OF 300 LBS./SQ. FT.
3. ALL STRUCTURAL STEEL SHAPES TO INCLUDE: ANGLE, PLATE, AND BAR SHALL MEET ASTM A36 SPECIFICATIONS, FY = 36 KSI MINIMUM. STRUCTURAL TUBING SHALL MEET ASTM A500 GRADE B SPECIFICATIONS, FY = 46 KSI MINIMUM. STEEL PIPE SHALL BE STANDARD WEIGHT PIPE ASTM A53 GRADE B, FY = 35 KSI MINIMUM.
4. WELDS NOT INDICATED SHALL BE 1/8" MINIMUM FILLET OR GROOVE, CONTINUOUS SO FAR AS POSSIBLE, CONSIDER VANDALISM LOADS, WELD ACCORDINGLY AT CRITICAL LOCATIONS.
5. PRIOR TO PAINTING REMOVE ALL OIL, SCALE, AND SLAG, GRIND OFF BURRS AND SHARP EDGES.
6. PAINT WITH ONE SHOP COAT OF ZINC RICH PRIMER AND TWO COATS OF ALUMINUM PAINT, AASHTO M-69

OVERFLOW TRASH RACKS:

1. ALL TRASH RACKS SHALL BE MOUNTED USING STAINLESS STEEL HARDWARE AND PROVIDED WITH HINGED AND LOCKABLE ACCESS PANELS (AS SHOWN)
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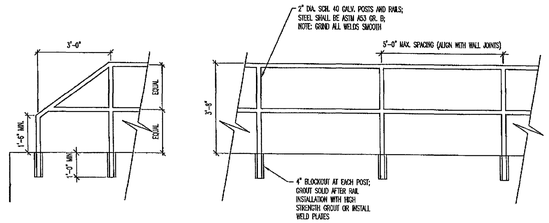

MICROPOOL RAILING

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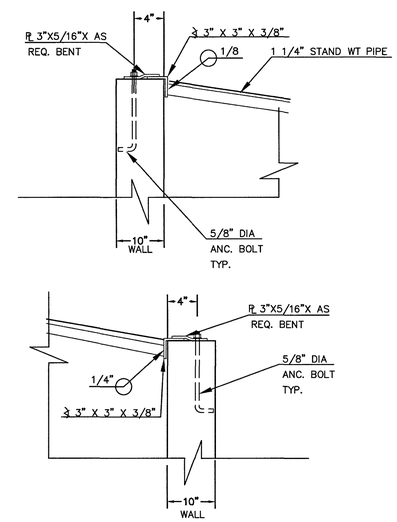
OUTLET BOX RAILING
N.T.S.



ANCHOR BOLT/GRATE DETAIL
N.T.S.

POND 'C'

PCD FILE # SF1915

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COLORADO REGISTERED PROFESSIONAL ENGINEER KYLE KAYE CAMPBELL 29794

KYLE K. CAMPBELL, COLORADO P.E. #29794 — DATE 3/26/20

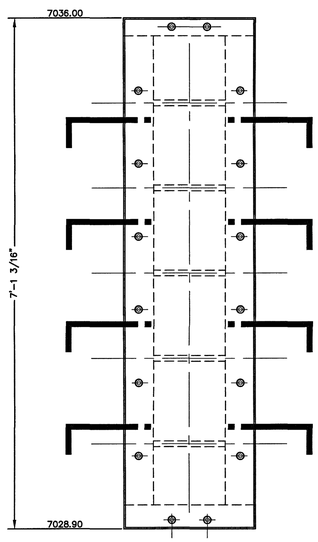
CLASSIC CONSULTING
619 N. Cascade Avenue, Suite 200
Colorado Springs, Colorado 80903
(719)785-0790
(719)785-0799(Fax)

FOREST LAKES FILING NO. 5
CONSTRUCTION DRAWINGS
POND OUTLET BOX AND MICROPOOL DETAILS
POND C

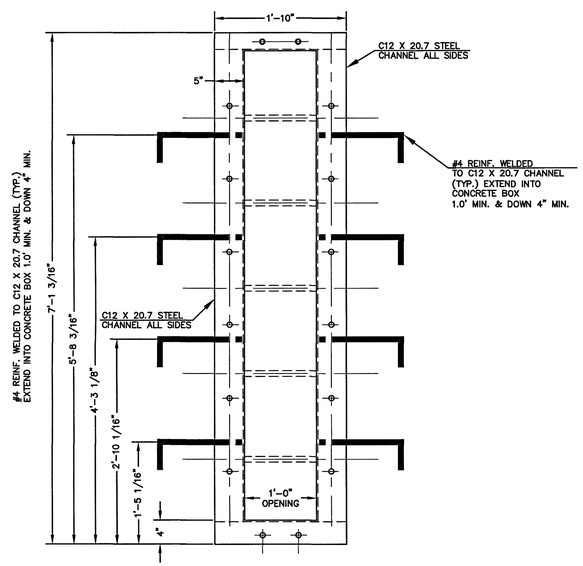
DESIGNED BY	MAL	SCALE	DATE 07/14/19
DRAWN BY	BB	(H) 1"= 2'	SHEET 25 OF 32
CHECKED BY		(V) 1"= N/A	JOB NO. 1175.50

EPC 6/9/2020

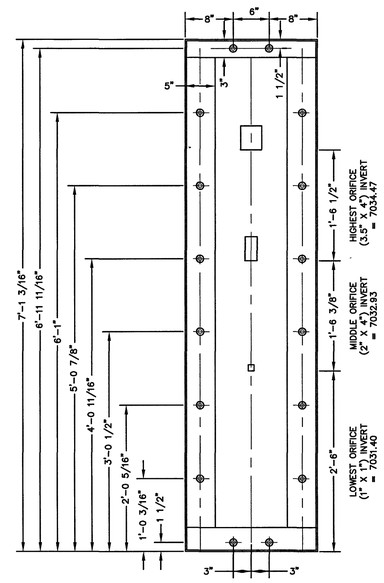
N:\117550\DRAWINGS\CONSTRUCTION\STORM\25-117550-POND.dwg, 3/5/2020 11:04:55 AM, 1:1



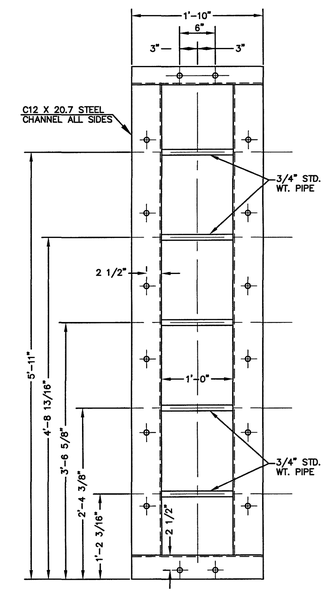
OUTLET CONTROL PLATE AND FRAME
SCALE: 1"=1'



CHANNEL FRAME WITH WALL ANCHORS
SCALE: 1"=1'



1/4" THICK ORIFICE PLATE
SCALE: 1"=1'



CHANNEL FRAME
SCALE: 1"=1'

POND 'C'

PCD FILE # SF1915

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FOREST LAKES FILING NO. 5
CONSTRUCTION DRAWINGS

OUTLET BOX DETAILS

DESIGNED BY	MAL	SCALE		DATE	07/14/19
DRAWN BY	BB	(H) 1"=	1'	SHEET	26 OF 32
CHECKED BY		(V) 1"=	1'	JOB NO.	1175.50

EPC 6/9/2020

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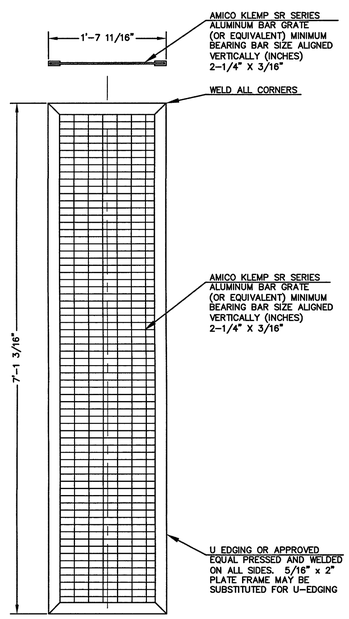
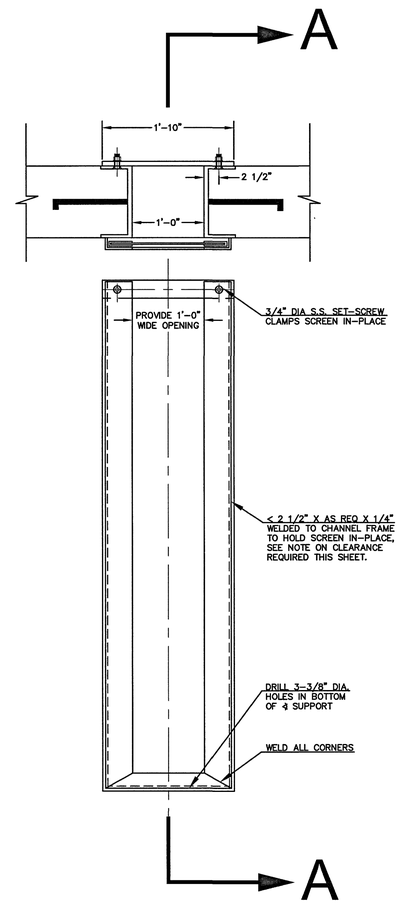
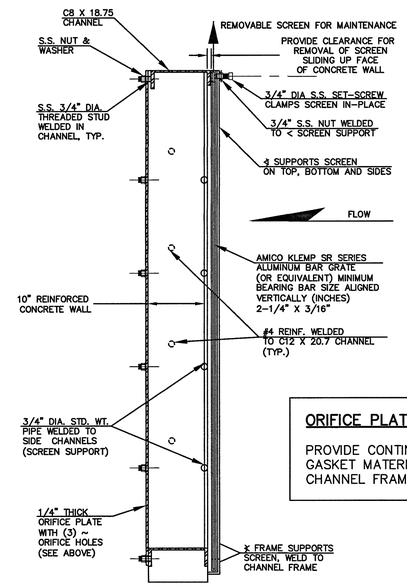


TRASH SCREEN
SCALE: 1"=1'



SCREEN SUPPORT
SCALE: 1"=1'



ORIFICE PLATE NOTE:

PROVIDE CONTINUOUS NEOPRENE GASKET MATERIAL BETWEEN THE CHANNEL FRAME AND CONCRETE

SCREEN SUPPORT SECTION A-A
SCALE: 1"=1'

POND 'C'

PCD FILE # SF1915

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NO.	REVISION	DATE

REVIEW:

PREPARED UNDER MY DIRECT SUPERVISION FOR AND ON BEHALF OF CLASSIC CONSULTING ENGINEERS AND SURVEYORS, LLC

COLORADO LICENSED KYLE RAYE CAMPBELL 29794 PROFESSIONAL ENGINEER

KYLE RAYE CAMPBELL, COLORADO P.E. #29794

3/24/20
DATE

CLASSIC CONSULTING
619 N. Cascade Avenue, Suite 200
Colorado Springs, Colorado 80903
(719)785-0790
(719)785-0799(Fax)

FOREST LAKES FILING NO. 5
CONSTRUCTION DRAWINGS

OUTLET BOX DETAILS

DESIGNED BY	MAL	SCALE	DATE 07/14/19
DRAWN BY	BB	(H) 1"= 1'	SHEET 27 OF 32
CHECKED BY		(V) 1"= 1'	JOB NO. 1175.50

EPC 6/9/2020

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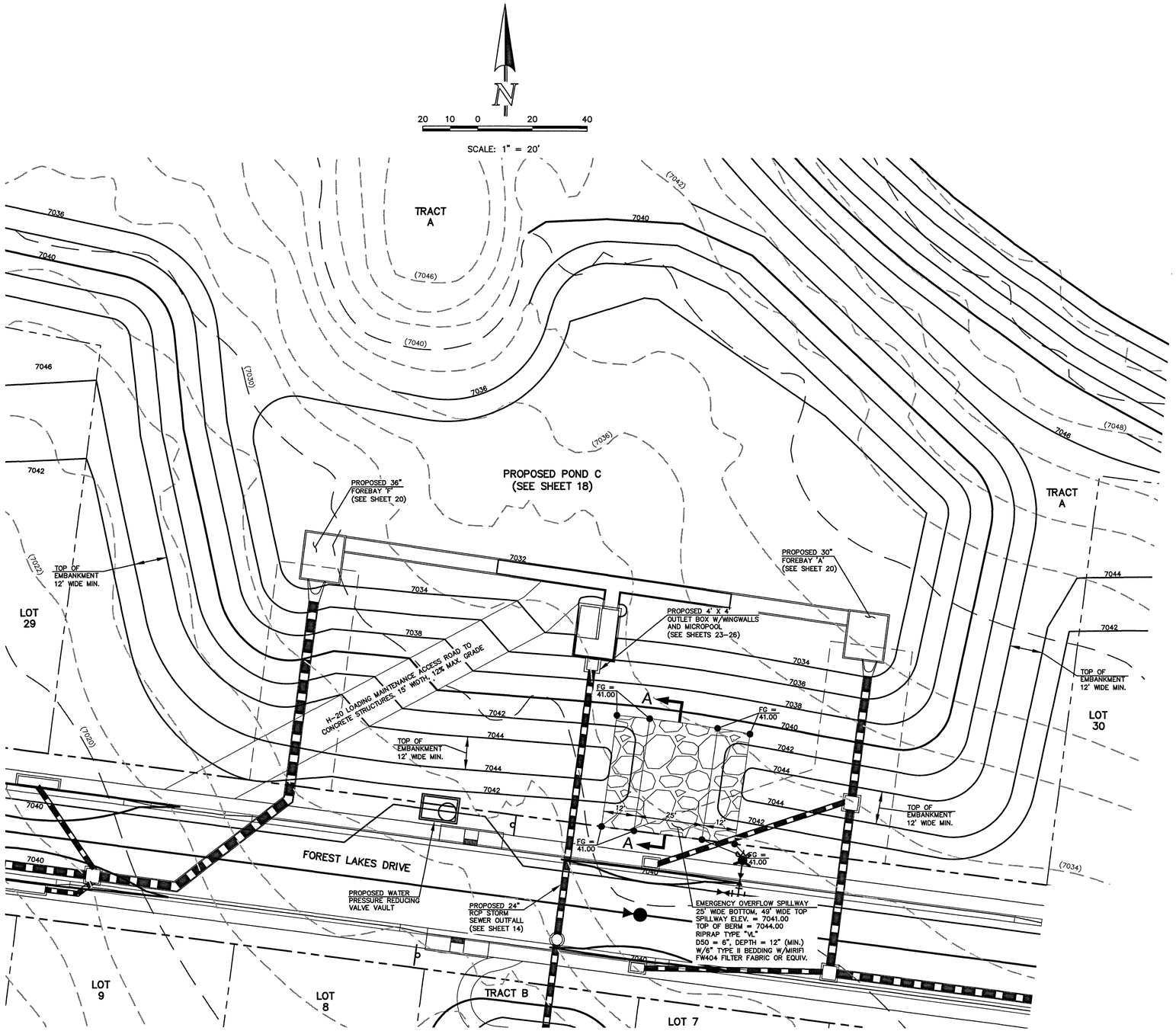
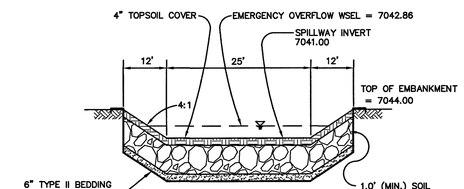


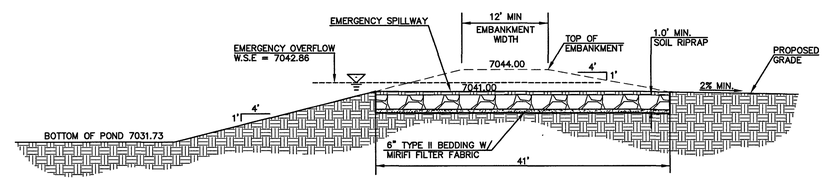
EMERGENCY SPILLWAY, EMBANKMENT, AND RUNDOWN PLAN VIEW

SCALE: 1" = 20'



EMERGENCY SPILLWAY CROSS SECTION

SCALE: N.T.S.



EMERGENCY SPILLWAY PROFILE AT EMBANKMENT SECTION A-A

SCALE: 1" = 10'

POND 'C'

PCD FILE # SF1915

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COLORADO LICENSED KYLE RAYE CAMPBELL 29794 PROFESSIONAL ENGINEER

KYLE R. CAMPBELL, COLORADO P.E. #29794 — DATE 3/24/20

CLASSIC CONSULTING

619 N. Cascade Avenue, Suite 200
Colorado Springs, Colorado 80903
(719)785-0790
(719)785-0799(Fax)

FOREST LAKES FILING NO. 5
CONSTRUCTION DRAWINGS

POND SPILLWAY DETAILS

DESIGNED BY	MAL	SCALE	DATE	07/14/19
DRAWN BY	BB	(H) 1"=VARIES	SHEET	28 OF 32
CHECKED BY		(V) 1"= N/A	JOB NO.	1175.50

EPC 6/9/2020

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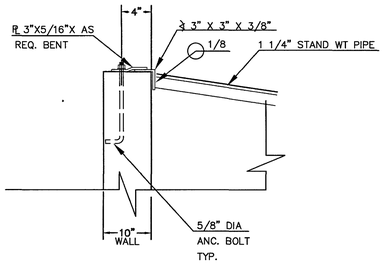
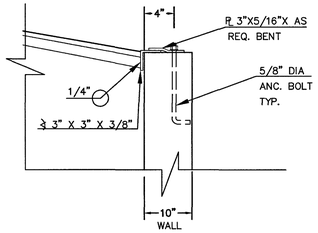
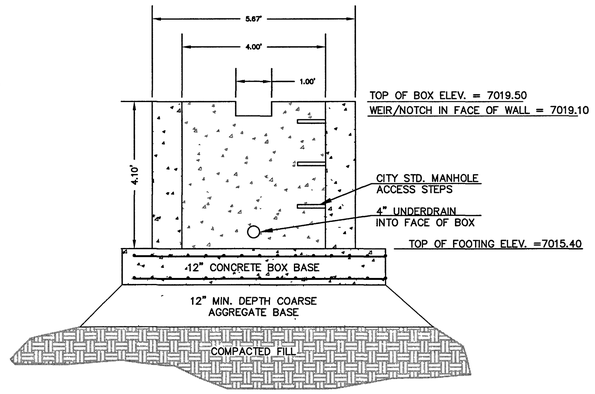




ANCHOR BOLT/GRATE DETAIL

N.T.S.



4'X4' POND D OUTLET BOX – FRONT FACE

SCALE 1" = 2'

INSTALL STEPS PER
EL PASO COUNTY SPECS.

(ALL MATERIALS PER EL PASO COUNTY SPECIFICATIONS)

ORIFICE PLATE NOTES:

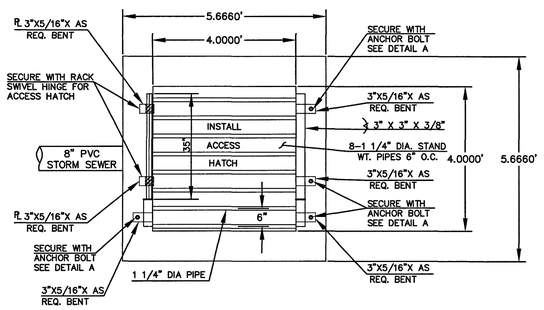
1. INSTALL HOLES AS SHOWN ON DETAIL TO LEFT.
2. PROVIDE GASKET MATERIAL BETWEEN THE ORIFICE PLATE AND CONCRETE

EURV AND WQCV TRASH RACKS:

3. WELL-SCREEN TRASH RACKS SHALL BE ATTACHED BY INTERMITTENT WELDS ALONG THE EDGE OF THE MOUNTING FRAME.
4. BAR GRATE TRASH RACKS SHALL BE ALUMINUM AND SHALL BE BOLTED USING STAINLESS STEEL HARDWARE.
5. STRUCTURAL DESIGN OF TRASH RACKS SHALL BE BASED ON FULL HYDROSTATIC HEAD WITH ZERO HEAD DOWNSTREAM OF RACK

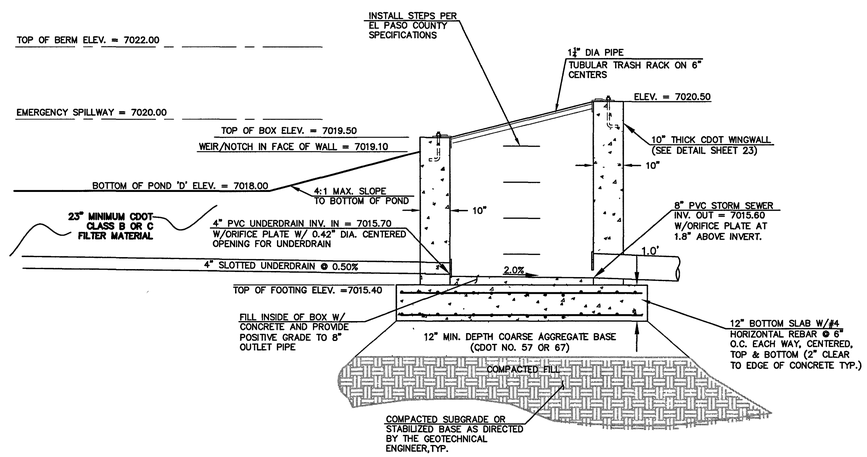
OVERFLOW TRASH RACKS:

1. ALL TRASH RACKS SHALL BE MOUNTED USING STAINLESS STEEL HARDWARE AND PROVIDED WITH HINGED AND LOCKABLE OR BOLTABLE ACCESS PANELS
2. TRASH RACKS SHALL BE STAINLESS STEEL, ALUMINUM, OR STEEL. STEEL TRASH RACKS SHALL BE HOT DIP GALVANIZED AND MAY BE HOT POWDER COATED AFTER GALVANIZING.
3. TRASH RACKS SHALL BE DESIGNED SUCH THAT THE DIAGONAL DIMENSION OF EACH OPENING IS SMALLER THAN THE DIAMETER OF THE OUTLET PIPE.
4. STRUCTURAL DESIGN OF THE TRASH RACKS SHALL BE BASED ON FULL HYDROSTATIC HEAD WITH ZERO HEAD DOWNSTREAM OF THE RACK.



4'X4' POND D OUTLET BOX – OVERFLOW TRASH RACK

SCALE 1" = 2'



4'X4' POND D OUTLET BOX – PROFILE VIEW

SCALE 1" = 2'

POND 'D'

PCD FILE # SF1915

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KYLE R. CAMPBELL, COLORADO P.E. #29794 DATE 6/9/20

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(719)785-0790
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FOREST LAKES FILING NO. 5
CONSTRUCTION DRAWINGS
POND 'D'
POND OUTLET BOX – PROFILE VIEW

DESIGNED BY	MAL	SCALE	DATE	07/14/19
DRAWN BY	BB	(H) 1"= 2'	SHEET 29	OF 32
CHECKED BY		(V) 1"= N/A	JOB NO.	1175.50

EPC 6/9/2020

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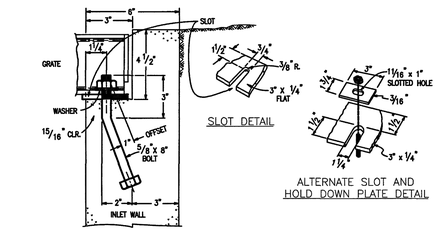
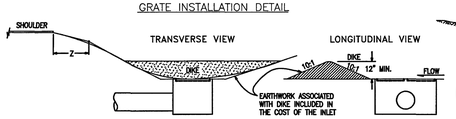
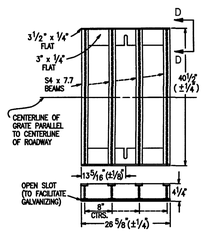


GRATE INSTALLATION DETAIL



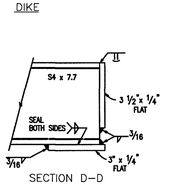
DIKE

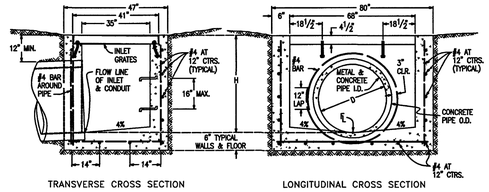


STANDARD INLET GRATE

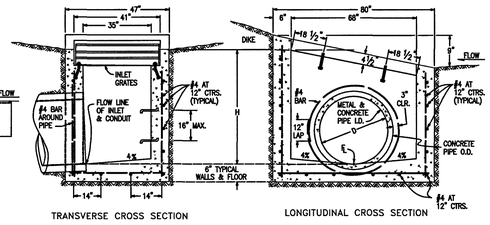
QUANTITIES: 2 STEEL GRATES PER INLET

NO. PIECES	DESCRIPTION	LENGTH	LB. PER FT.	WEIGHT (LBS.)
8	S4x7.7 BEAM	40"	7.70	206
4	3 1/2"x 1/4" FLAT	26 5/16"	2.98	26
4	3"x 1/2" FLAT	26 5/16"	2.55	24
			TOTAL	256 LBS.

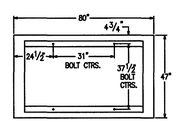




LEVEL GRATE INSTALLATION



SLOPING GRATE INSTALLATION



PLAN VIEW

SHOWING ANCHOR BOLT LAYOUT

OUTLET PIPE D	MIN. H
1.5	3.0
2.0	3.0
2.5	3.5
3.0	4.0
3.5	4.5
4.0	5.0

GENERAL NOTES

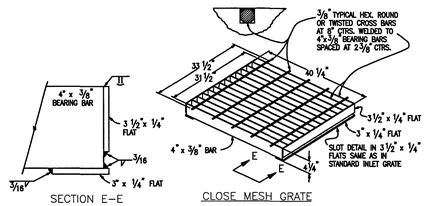
1. CONCRETE SHALL BE CLASS B INLET. MAY BE CAST-IN-PLACE OR PRECAST.

   SEE PLANS FOR SIZE AND LOCATION OF CONDUIT.
2. STRUCTURAL STEEL FOR GRATES AND GRATE INSTALLATION HARDWARE SHALL BE GALVANIZED AND SHALL BE IN ACCORDANCE WITH 712.06.
3. STANDARD INLET GRATES SHALL BE USED ON ALL TYPE D INLETS UNLESS CLOSE MESH GRATES ARE SPECIFIED ON THE PLANS.
4. STEPS SHALL BE PROVIDED WHEN INLET DIMENSION "H" EXCEEDS 2'-6" AND SHALL BE IN ACCORDANCE WITH AASHTO M 199.
5. REINFORCING BARS SHALL BE EPOXY COATED, AND DEFORMED, AND SHALL HAVE A 2" MINIMUM CLEARANCE.

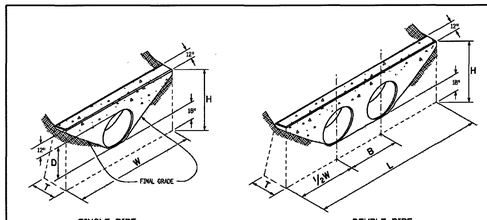
QUANTITIES FOR ONE INLET

H FT.	CONCRETE CU. YD. ▽	STEEL LB.	PIPE RANGE, D IN. CSP	RCP
3.0	1.5	127	18	18
3.5	1.7	149	18–24	18–24
4.0	1.9	157	18–30	18–30
4.5	2.0	179	18–36	18–36
5.0	2.2	187	18–42	18–42
5.5	2.4	208	18– ‡	18– ‡
6.0	2.6	215	18–	18–
6.5	2.8	236	18–	18–
7.0	2.9	243	18–	18–
7.5	3.1	264	18–	18–
8.0	3.3	271	18–	18–
8.5	3.5	292	18–	18–
9.0	3.6	299	18–	18–
9.5	3.8	320	18– ‡	18– ‡
10.0	4.0	327	18–42	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.



CDOT M–604–11– TYPE D INLET DETAIL



CONCRETE HEADWALL INSTALLATIONS

SEE STANDARD PLAN M-601-10 FOR REINFORCING DETAILS.

PIPE		PIPE DIAMETER (AND EQUIVALENT DIAMETER) (IN.)											
		18		24		30		36		42		48	
TYPE	MATERIAL	SINGLE	DOUBLE	SINGLE	DOUBLE	SINGLE	DOUBLE	SINGLE	DOUBLE	SINGLE	DOUBLE	SINGLE	DOUBLE
CIRCULAR	RIGID	1.0	1.3	1.5	2.0	2.0	2.7	2.8	3.6	3.6	4.8	4.6	6.0
	FLEXIBLE	1.1	1.4	1.6	2.1	2.2	3.0	3.0	4.0	3.9	5.3	5.0	6.8
ELLIPTICAL	RIGID	23 x 14		30 x 19		38 x 24		45 x 29		53 x 34		60 x 38	
		0.9	1.2	1.3	1.6	1.7	2.2	2.3	2.9	2.9	3.7	3.5	4.4
ARCH	METAL	22 x 13		29 x 18		36 x 22		43 x 27		50 x 31		58 x 36	
		0.9	1.3	1.4	1.9	1.9	2.4	2.4	3.4	3.2	4.4	3.4	5.0

CONCRETE QUANTITIES FOR ONE CONCRETE HEADWALL (CUBIC YARDS)

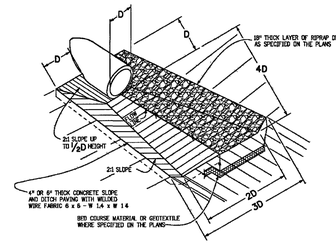
THICKNESS	MATERIAL	PIPE DIAMETER (IN.)					
		18	24	30	36	42	48
4"	CONCRETE	0.4	0.8	1.2			
6"	CONCRETE				2.6	3.6	4.7
18"	RIPRAP	2.0	3.5	5.4	7.6	10.7	13.9

PIPE OUTLET PAVING (CUBIC YARDS)

NOTE: VOLUME OCCUPIED BY PIPE HAS BEEN DEDUCTED.

GENERAL NOTES

1. FOR SIZE AND LOCATION OF PIPES, SEE THE PLANS.
2. ALL CONCRETE SHALL BE CLASS B.
3. FOOTINGS IN ROCK SHALL BE POURED OUT TO ROCK AND NOT FORMED IN ACCORDANCE WITH SUBSECTION 601.09(d).
4. EXPOSED CONCRETE CORNERS SHALL BE CHAMFERED ¾ IN.
5. HEADWALL SHALL HAVE REINFORCING STEEL INSTALLED IN A PATTERN SIMILAR TO STANDARD PLAN M-601-10.
6. THE COST OF REINFORCING STEEL SHALL BE INCLUDED IN THE WORK UNLESS THE STEEL QUANTITIES ARE LISTED IN THE PLANS AND ARE PAID FOR SEPARATELY.



PIPE OUTLET PAVING

MAY BE USED WITH MULTIPLE PIPES

TYPE OF PIPE	HEADWALL DIMENSIONS
CIRCULAR	D = PIPE DIAMETER (INSIDE) H = D + 30" W = 3D + 18" T = 0.4 H (NEAREST INCH) B = 1.5 D (D≤4' MINIMUM) L = W + B
ARCH OR ELLIPTICAL	D = EQUIVALENT CIRCULAR DIAMETER (INSIDE) H = RISE + 30" W = 3D + 18" T = 0.4 H (NEAREST INCH) B = 1.5 D (D≤4' MINIMUM) L = W + B

Computer File Information		Sheet Revisions	
Creation Date: 07/04/12 Initials: DD		Date	Comments
Last Modification Date: 07/04/12 Initials: LTA	(X) (X)		
Full Path: www.coloradodot.info/business/designsupport	(X) (X)		
Drawing File Name: 6001021010.dgn	(X) (X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(X) (X)		

Colorado Department of Transportation
4201 East Arkansas Avenue
Denver, Colorado 80222
Phone: (303) 757-9063
Fax: (303) 757-9820
Project Development Branch DD/LTA

HEADWALLS AND PIPE OUTLET PAVING

Issued By: Project Development Branch July 4, 2012

STANDARD PLAN NO. M-601-12

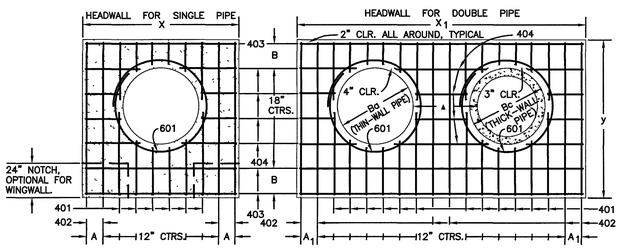
Sheet No. 1 of 1

CDOT M–601–12 HEADWALL DETAIL

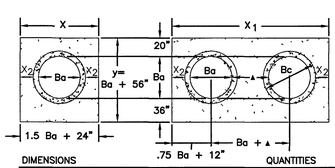
GENERAL NOTES

1. ALL EXPOSED CONCRETE CORNERS SHALL BE CHAMFERED ¾".
2. WINGWALL FOOTINGS AND FLOOR OF BOX CULVERT SHALL BE PLACED MONOLITHICALLY.
3. DIMENSIONS "H", "Ba", "RISE", "X", "Y", "m" AND ANGLES FOR WINGWALLS SHALL BE AS SHOWN ON THE PLANS.
4. REINFORCING STEEL SHALL BE GRADE 60.
5. THE MINIMUM SPLICE LENGTH FOR COMMON BAR SIZES SHALL BE:

BAR	#4	#5	#6
SPLICE LENGTH	1'–3"	1'–7"	2'–0"

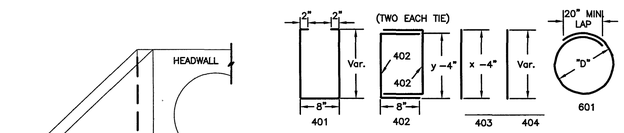


TYPICAL BAR LAYOUT FOR CONCRETE HEADWALLS



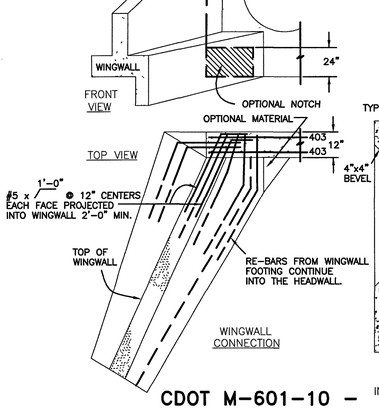
DIMENSIONS									QUANTITIES			
									CONCRETE		STEEL ■	
Ba in.	Bc in.	X ft.–in	A in.	X_1 ft.–in	A_1 in.	y ft.–in	B in.	X_2 in.	SGL cu.yd	DBL cu.yd	SGL lbs.	DBL lbs.
54	65	8–9	8½	15–6	7	9–2	17	20	2.12	3.55	209	364
60	72	9–6	7	17–0	10	9–8	11	21	2.35	3.99	236	414
66	79	10–3	11½	18–6	7	10–2	14	22	2.60	4.44	249	453
72	86	11–0	10	20–0	10	10–8	17	23	2.85	4.91	270	476
78	93	11–9	8½	21–3	11	11–2	11	24	3.11	5.29	306	527
84	100	12–6	7	22–6	7	11–8	14	25	3.38	5.68	333	572
90	107	13–3	11½	23–9	8½	12–2	17	26	3.66	6.08	335	593
96	114	14–0	10	25–0	10	12–8	11	27	3.94	6.48	379	649
102	121	14–9	8½	26–3	11½	13–2	14	28	4.24	6.89	400	664
108	128	15–6	7	27–6	7	13–8	17	29	4.54	7.30	424	707

HEADWALL FOR THICK – WALL ROUND PIPE

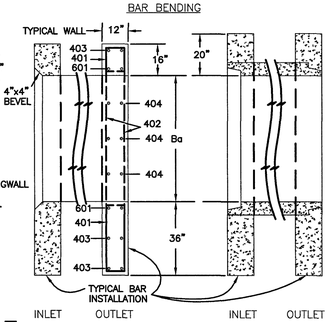


"D" FOR

THICK–WALL PIPE, = Bc + 6"
THIN–WALL PIPE, = Ba + 8"
THIN–WALL PIPE–ARCH = SPAN + 8"
STRUCTURAL PLATE–ARCH = RISE + 8"



BAR BENDING



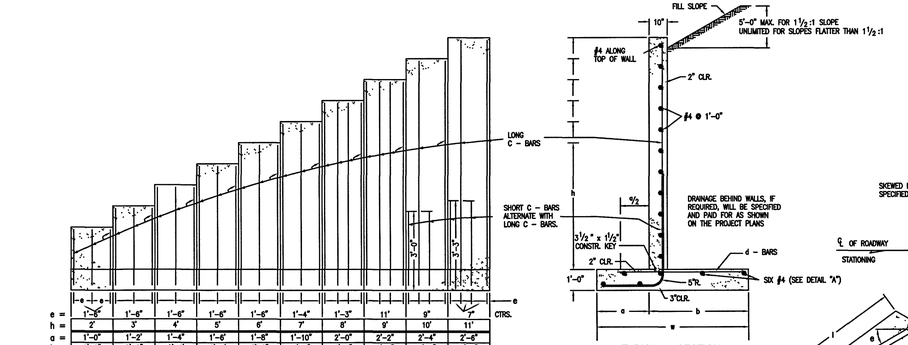
CDOT M–601–10 – HEADWALL DETAIL

GENERAL NOTES

1. CONCRETE SHALL BE CLASS B.
2. HEADWALL SHALL BE PERPENDICULAR TO THE CULVERT ℄ UNLESS OTHERWISE SHOWN ON THE PLANS. TABULATED DIMENSIONS AND QUANTITIES MUST BE ADJUSTED FOR SKEWED INSTALLATIONS.
3. FOR WINGWALL DETAILS, SEE STANDARD M–601–20.
4. VOLUME OCCUPIED BY PIPE HAS BEEN DEDUCTED FROM STEEL AND CONCRETE QUANTITIES.
5. EXPOSED CONCRETE CORNERS SHALL BE CHAMFERED 3/4".
6. ALL BARS SHALL HAVE A 2" MINIMUM CLEARANCE.

▲ WHEN TWO OR MORE CONDUITS ARE LAID SIDE BY SIDE, THEY SHALL BE PLACED SO THAT THE ADJACENT PIPES WILL BE 1/2 INSIDE DIAMETER OR 1/2 INSIDE SPAN OR 3 FEET APART (INCLUDING WALL THICKNESS) WHICHEVER IS LESS.

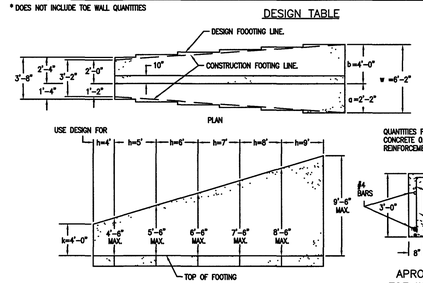
■ ADD 0.89 X (X OR X_1) (LB.) WHEN APRON IS REQUIRED.



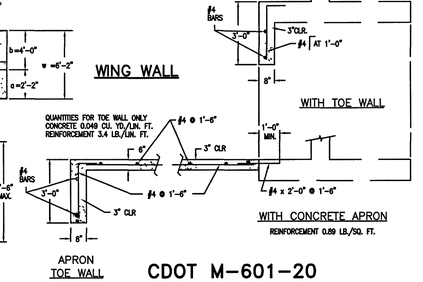
e =	1'–6"	1'–6"	1'–6"	1'–6"	1'–6"	1'–4"	1'–3"	11"	9"	7" CTRS.
h =	2'	3'	4'	5'	6'	7'	8'	9'	10'	11'
a =	1'–0"	1'–2"	1'–4"	1'–6"	1'–8"	1'–10"	2'–0"	2'–2"	2'–4"	2'–6"
b =	1'–8"	2'–0"	2'–4"	2'–8"	3'–0"	3'–4"	3'–8"	4'–0"	4'–4"	4'–8"
w =	2'–8"	3'–2"	3'–8"	4'–2"	4'–8"	5'–2"	5'–8"	6'–2"	6'–8"	7'–2"
c & d BARS	#4@1'–6"	#4@1'–6"	#4@1'–6"	#4@1'–6"	#4@1'–6"	#4@1'–4"	#5@1'–3"	#5@11"	#5@9"	#5@7" CTRS.
* CONC.CU.YD./L.F.	0.161	0.210	0.259	0.308	0.358	0.407	0.457	0.506	0.556	0.604
* REINF. LB./L.F.	8.0	9.3	10.7	12.1	14.3	16.4	23.0	28.6	41.8	54.6

* DOES NOT INCLUDE TOE WALL QUANTITIES

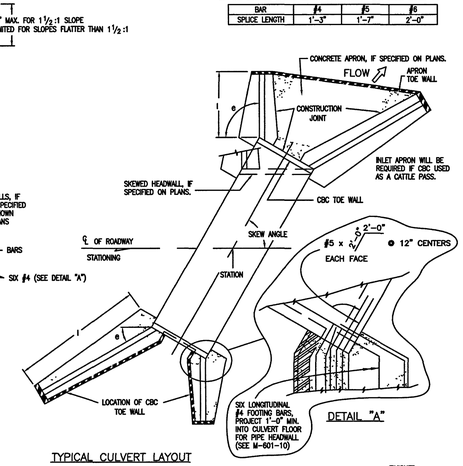
DESIGN TABLE



DESIGN EXAMPLE



CDOT M–601–20 WINGWALL DETAIL



TYPICAL CULVERT LAYOUT

DESIGN DATA:

UNIT STRESSES: f_s = 24,000 PSI
f_c = 1,200 PSI
n = 9

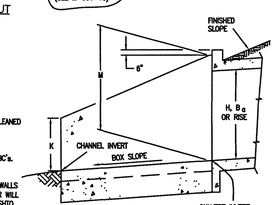
EQUIVALENT FLUID PRESSURE = 36 LBS./CU. FT.
MAXIMUM TOE PRESSURE = 1 TON/SQ. FT.

ALL CONSTRUCTION JOINTS SHALL BE THOROUGHLY CLEANED BEFORE CONCRETE IS POURED.

WINGWALL AND APRON CONCRETE SHALL BE:
CONCRETE CLASS B, OR D (BOX CULVERT) FOR CBC's.
CONCRETE CLASS B, OR D (WALL) FOR PIPES.

LIVE LOAD SURCHARGE HAS NOT BEEN CONSIDERED. WALLS WITHIN ½ OF THE EDGE OF THE ROADWAY SHOULDER WILL REQUIRE A SPECIAL DESIGN IN ACCORDANCE WITH AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES.

APRON REQUIRED AT INLET OF THE CBC, IF USED FOR CATTLE PASSAGE.



BOX ELEVATION

M = H, Ba OR RISE + (1'–4") UNLESS OTHERWISE SHOWN ON PLANS.

PCD FILE # SF1915

48 HOURS BEFORE YOU DIG, CALL UTILITY LOCATORS
811
UTILITY NOTIFICATION CENTER OF COLORADO
IT'S THE LAW

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE CAUSED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NO.	REVISION	DATE

REVIEW:

PREPARED UNDER MY DIRECT SUPERVISION FOR AND ON BEHALF OF CLASSIC CONSULTING ENGINEERS AND SURVEYORS, LLC.

KYLE W. CAMPBELL, COLORADO P.E. #29794 DATE 3/21/20

COLORADO LICENSED PROFESSIONAL ENGINEER KYLE WAYNE CAMPBELL 29794

CLASSIC CONSULTING

619 N. Cascade Avenue, Suite 200
Colorado Springs, Colorado 80903
(719)785-0790
(719)785-0799(Fax)

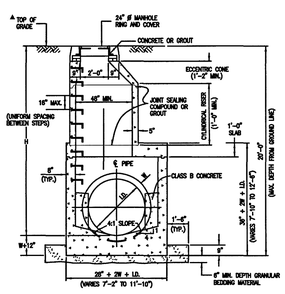
FOREST LAKES FILING NO. 5
CONSTRUCTION DRAWINGS

DETAILS SHEET

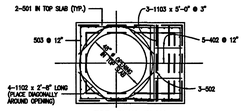
DESIGNED BY	MAL	SCALE	DATE	07/14/19	
DRAWN BY	BB	(H) 1"= N/A	SHEET	30	OF 32
CHECKED BY		(V) 1"= N/A	JOB NO.	1175.50	

EPC 6/9/2020

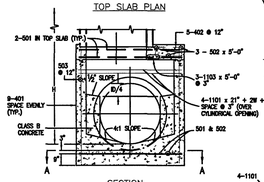
N:\11755\0\DRAWINGS\CONSTRUCTION\STORM\30-117550-POND.dwg, 3/16/2020 2:32:41 PM, 1:1



SECTION

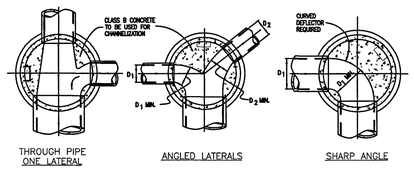


TOP SLAB PLAN

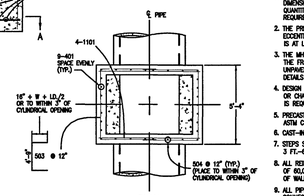


SECTION

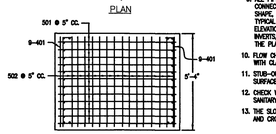
MANHOLE BOX BASE



TYPICAL CHANNELIZATION DETAILS



PLAN



SECTION A–A
(STEEL IN BOTTOM OF BASE)

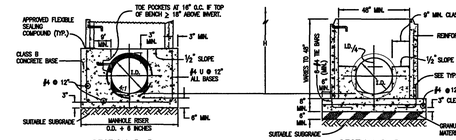
QUANTITIES FOR CONCRETE MANHOLE BOX BASE

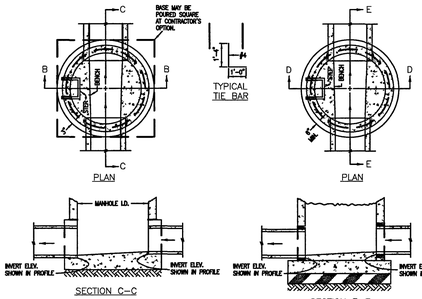
MARK	SIZE	TYPE	WT. #/FT.	BARS	L.D. 54"	L.D. 60"	L.D. 66"	L.D. 72"	L.D. 84"	L.D. 96"	FORMULAS
401	4	I	0.668	NO. REQ'D.	18	18	18	18	18	18	401
				LENGTH	8'-1"	9'-6"	9'-3"	9'-10"	11'-0"	12'-2"	BAR LENGTH = 32"+2W+I.D.
				WEIGHT ♦	97.2	104.2	111.2	118.2	132.3	146.3	
402	4	III	0.668	NO. REQ'D.	5	5	5	5	5	5	402
				LENGTH	5'-5"	5'-0"	5'-7"	7'-0"	8'-4"	9'-6"	BAR LENGTH = I.D. + 2W
				WEIGHT ♦	18.1	20.0	22.0	23.9	27.8	31.7	
501	5	I	1.043	NO. REQ'D.	17	17	17	17	17	17	501
				LENGTH	7'-6"	8'-4"	8'-2"	9'-0"	10'-4"	11'-8"	BAR LENGTH = 24" + I.D. + 2W
				WEIGHT ♦	131.5	141.8	152.2	162.5	183.2	203.9	
502	5	I	1.043	NO. REQ'D.	22	23	25	28	29	32	502
				LENGTH	5'-0"	5'-0"	5'-0"	5'-0"	5'-0"	5'-0"	NUMBER BARS REQ'D. = $3 + \left(\frac{24+I.D.+2W}{6} + 1\right)$
				WEIGHT ♦	114.7	119.9	130.4	135.6	151.2	166.9	
503	5	II	1.043	NO. REQ'D.	18	18	18	18	20	24	503
				LENGTH	12'-10"	13'-9"	14'-0"	14'-7"	15'-9"	16'-11"	NUMBER BARS REQ'D. = $2\left(\frac{134+I.D.+2W}{12} + 1\right)$
				WEIGHT ♦	214.2	223.5	262.8	273.8	328.5	423.5	BAR LENGTH = 4'-9"+2(16+W+I.D./2)
504	5	I	1.043	NO. REQ'D.	12	14	14	16	18	20	504
				LENGTH	8'-1"	8'-8"	9'-3"	9'-10"	11'-0"	12'-2"	NUMBER BARS REQ'D. = $2\left(\frac{2W+I.D.}{12} + 1\right)$
				WEIGHT ♦	101.2	126.8	135.1	164.1	208.5	253.8	BAR LENGTH = 32"+2W+I.D.
1101	11	I	5.313	NO. REQ'D.	4	4	4	4	4	4	1101
				LENGTH	7'-5"	7'-9"	8'-4"	8'-11"	10'-4"	11'-3"	BAR LENGTH = 21" + I.D. + 2W
				WEIGHT ♦	152.3	164.7	177.1	189.5	214.3	239.1	
1102	11	I	5.313	NO. REQ'D.	4	4	4	4	4	4	BENDING
				LENGTH	2'-8"	2'-8"	2'-8"	2'-8"	2'-8"	2'-8"	TYPE I: STRAIGHT
				WEIGHT ♦	56.7	56.7	56.7	56.7	56.7	56.7	
1103	11	I	5.313	NO. REQ'D.	3	3	3	3	3	3	TYPE II: 4'-9" / 16"+W+I.D./2
				LENGTH	5'-0"	5'-0"	5'-0"	5'-0"	5'-0"	5'-0"	
				WEIGHT ♦	79.7	79.7	79.7	79.7	79.7	79.7	
REINFORCING STEEL TOTAL ♦					965.6	1,037.5	1,127.2	1,204.0	1,363.2	1,801.8	TYPE III: 12" / 12" / 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.

GENERAL NOTES

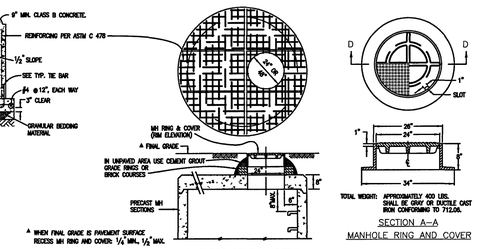
1. SINCE ALL PIPE ENTRIES INTO THE BASE ARE VARIABLE, THE DIMENSIONS SHOWN ARE TYPICAL. ACTUAL DIMENSIONS AND QUANTITIES FOR CONCRETE AND REINFORCEMENT SHALL BE AS REQUIRED IN THE WORK.
2. THE PRECAST FLAT TOP MAY BE USED ON ANY MANHOLE. THE ECCENTRIC CONE MAY BE USED WHEN THE MANHOLE "H" HEIGHT IS AT LEAST 8 FT.
3. THE MH 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 CONDUIT OR CHANGE IN DIRECTION OF LESS THAN 45°. SPECIAL DESIGN IS REQUIRED FOR 45° OR GREATER.
5. PRECAST MANHOLES AND REINFORCEMENT SHALL CONFORM TO ASTM C 478 (AASHTO M 199).
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 BE IN ACCORDANCE WITH AASHTO M 199.
8. 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 IN.MINIMUM CLEARANCE.
9. ALL PIPE ENTRIES INTO THE BASE OF MANHOLE SHALL BE CONNECTED BY OPEN CHANNELIZATION ALIGNED 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. CHECK WITH THE LOCAL GOVERNMENT AUTHORITY FOR ANY ADDITIONAL SANITARY SEWER SPECIFICATIONS, DETAILS, OR REGULATIONS.
13. THE SLOPE OF THE MANHOLE COVER SHALL MATCH THE ROADWAY PROFILE AND CROSS SLOPE.

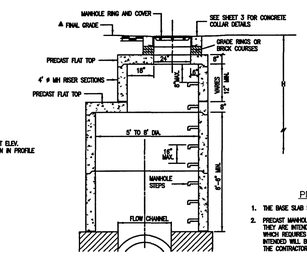




LEGEND

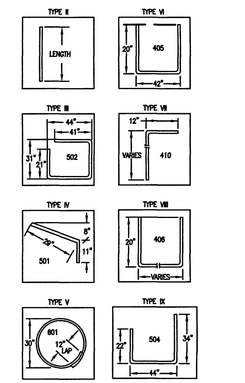
SUITABLE SUBGRADE
GRANULAR BEDDING MATERIAL
CONCRETE





PRECAST MANHOLE BASES:

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.



BAR BENDING DIAGRAMS ~
(Dimensions are Out–to–Out of bar)

CDOT MANHOLES
STD. PLAN NO: M–604–20

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

MARK	DIA IN.	O.C. SPACING	TYPE	ALL INLETS L= 5' NO.REQ'D.	ALL INLETS L= 5' LENGTH	INLETS. H ≥ 5' 10' NO.REQ'D.	INLETS. H ≥ 5' 10' LENGTH	INLETS. H ≥ 5' 15' NO.REQ'D.	INLETS. H ≥ 5' 15' LENGTH	INLETS, H< 5' 10' NO.REQ'D.	INLETS, H< 5' 10' LENGTH	INLETS, H< 5' 15' NO.REQ'D.	INLETS, H< 5' 15' LENGTH
401	1/2"	11"	II	15	*	21	*	26	*	11	*	11	*
402		11"	II	7	*	13	*	18	*	7	*	7	*
403		9 "	II	*	4'-10"	*	4'-0"	*	4'-0"	*	4'-0"	*	4'-10"
405		6 "	VI	11	6'-10"	21	6'-10"	31	6'-10"	11	6'-10"	11	6'-10
406		6 "	VIII	7	8'-10"	7	13'-10"	7	18'-10"	7	8'-10"	7	8'-10"
407		9 "	II	*	5'-10"	*	10'-10	*	15'-10"	*	5'-10"	*	5'-10"
408		12"	II	3	6'-10"	3	11'-0"	3	16'-0"	3	11'-0"	3	16'-0"
409		8 "	II	6	5'-10"	6	10'-10"	6	15'-10"	6	10'-10"	6	15'-10"
410		11"	VII							3	*	3	*
411		11"	II							3	5'-2"	3	10'-2"
412		11"	II							3	2'-9"	3	2'-9"
413		9 "	II							7	10'-10"	7	15'-10"
501	5/8"	51/2"	IV	11	3'-4"	22	3'-4"	33	3'-4"	22	3'-4"	33	3'-4"
502		51/2"	III							11	11'-5"	17	11'-5"
503		51/2"	II	5	3'-6"	16	3'-6"	27	3'-6"	6	3'-6"	6	3'-6"
504		51/2"	IX									5	8'-4"
601	3/4"	21/2"	V	2	8'-10"	2	8'-10"	2	8'-10"	2	8'-10"	4	8'-10"
#6[8.5				1	5'-10"	1	10'-10"	1	15'-10"	1	10'-10"	1	15'-10"
				2BARS,1ROD	—	4BARS,3RODS	—	8BARS,5RODS	—	4BARS,3RODS	—	8BARS,5RODS	—
						REGULAR INLETS				DROP BOX INLETS			

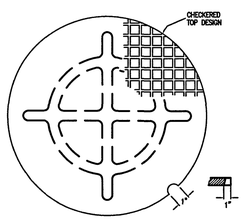
* VARIABLE, REFER TO TABLE TWO.
# INCLUDE 18" NO. 4 BARS (SEE CHANNEL LAYOUT DETAIL).
▼ SEE CURB FACE ASSEMBLY ON SHEET 1 AND CHANNEL LAYOUT DETAILS ON THIS SHEET.

TABLE TWO ~ BARS AND QUANTITIES VARIABLE WITH "H"

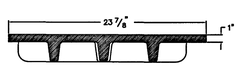
'H'	LENGTH 401	LENGTH 402	LENGTH 410	NO. REQ'D. REGULAR 403	NO. REQ'D. REGULAR 407	NO. REQ'D. DROP BOX 403	NO. REQ'D. DROP BOX 407	L=5' CU.YD.CONC.	L=5' LB.STEEL	L=10' CU.YD.CONC.	L=10' LB.STEEL	L=15' CU.YD.CONC.	L=15' LB.STEEL
3'–0"	2'–8"	1'–8"		10	7			3.2	285	5.3	497	7.4	706
3'–6"	3'–2"	2'–2"		10	7			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	8	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

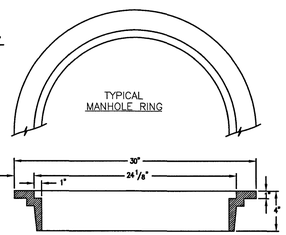
NOTE: FOR L=5', L=10' AND L=15' REGULAR INLETS: TOTAL QUANTITIES NEEDED ARE OUTSIDE OF THE HEAVY BLACK LINE. DROP BOX INLETS: TOTAL QUANTITIES NEEDED ARE INSIDE OF THE HEAVY BLACK LINE

STEEL WEIGHTS DO NOT INCLUDE STRUCTURAL STEEL.



TYPICAL MANHOLE COVER

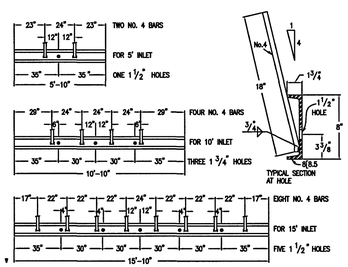




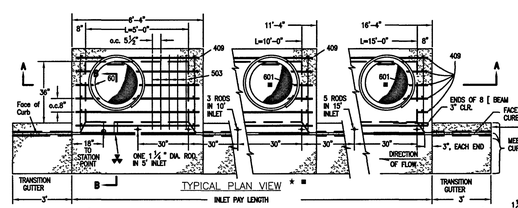
WEIGHTS: COVER = 125 LBS.
RING = 135 LBS.
TOTAL = 260LBS.

GENERAL NOTES

1. ALL CONCRETE SHALL BE CLASS B.
2. CONCRETE WALLS SHALL BE FORMED ON BOTH SIDES AND SHALL BE 8 IN. THICK.
3. INLET STEPS SHALL BE IN ACCORDANCE WITH AASHTO M 199.
4. CURB FACE ASSEMBLY SHALL BE GALVANIZED AFTER WELDING.
5. EXPOSED CONCRETE CORNERS SHALL BE CHAMFERED 3/4 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 CONFORMING TO 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 CONFORM TO THE REQUIREMENTS OF 712.06.

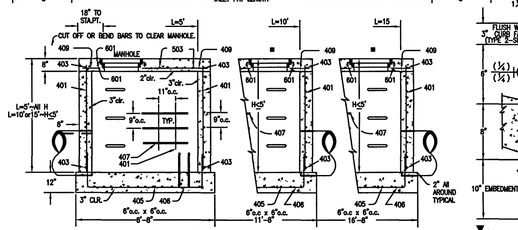


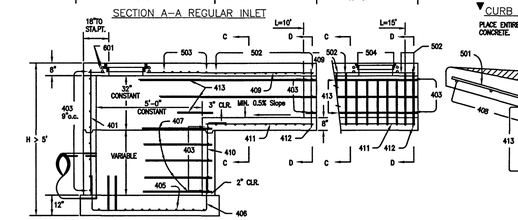
CHANNEL LAYOUT DETAILS

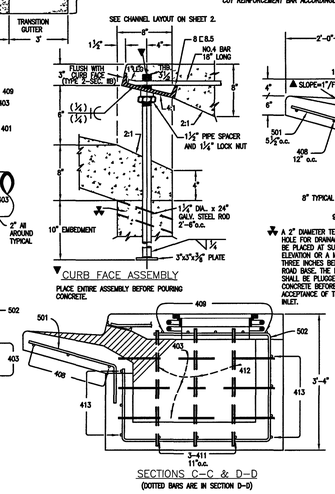


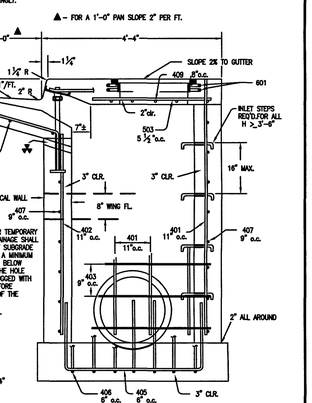
* FOR LENGTH GREATER THEN 5 FT. PROVIDE ACCESS AT BOTH ENDS.

■ ADDITIONAL MANHOLE RING AND COVER REQUIRED WHEN L=10' OR MORE. CUT REINFORCEMENT BAR ACCORDINGLY.









NOTE: MANHOLE RING & COVER, STATION POINT AND OUTFLOW PIPE SHALL BE LOCATED AT THE SAME END OF THE INLET.

CDOT TYPE R INLET
STD. PLAN NO: M–604–12

PCD FILE # SF1915

48 HOURS BEFORE YOU DIG, CALL UTILITY LOCATORS
811
UTILITY NOTIFICATION CENTER OF COLORADO
IT'S THE LAW

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE CAUSED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NO.	REVISION	DATE

REVIEW:

PREPARED UNDER MY DIRECT SUPERVISION FOR AND ON BEHALF OF CLASSIC CONSULTING ENGINEERS AND SURVEYORS, LLC

KYLE R. CAMPBELL, COLORADO P.E. #29794 — DATE 12/11/20

COLORADO LICENSED KYLE RAYE CAMPBELL 29794 PROFESSIONAL ENGINEER

CLASSIC CONSULTING

619 N. Cascade Avenue, Suite 200
Colorado Springs, Colorado 80903
(719)785-0790
(719)785-0799(Fax)

FOREST LAKES FILING NO. 5
CONSTRUCTION DRAWINGS

DETAILS SHEET

DESIGNED BY	MAL	SCALE	DATE 07/14/19
DRAWN BY	BB	(H) 1"= N/A	SHEET 31 OF 32
CHECKED BY		(V) 1"= N/A	JOB NO. 1175.50

EPC 6/9/2020

N:\117550\DRAWINGS\CONSTRUCTION\STORM\31-117550-POND.dwg, 3/16/2020 2:33:13 PM, 1:1