

STANDARD NOTES FOR EL PASO COUNTY GRADING & EROSION PLAN:

- 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.
- 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.
- A SEPARATE STORMWATER MANAGEMENT PLAN (SWMP) 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.
- 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.
- 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.
- ALL CONSTRUCTION CONTROL MEASURES SHALL BE MAINTAINED UNTIL PERMANENT STABILIZATION MEASURES ARE IMPLEMENTED. TEMPORARY CONSTRUCTION CONTROL MEASURES MUST BE REMOVED PRIOR TO PERMIT CLOSURE.
- 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.
- 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.
- ALL PERMANENT STORMWATER MANAGEMENT FACILITIES SHALL BE INSTALLED AS DESIGNED IN THE APPROVED PLANS. ANY PROPOSED CHANGES THAT EFFECT THE DESIGN OR FUNCTION OF PERMANENT STORMWATER MANAGEMENT STRUCTURES MUST BE APPROVED BY THE ECM ADMINISTRATOR PRIOR TO IMPLEMENTATION.
- 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.
- COMPACTION OF SOIL MUST BE PREVENTED IN AREAS DESIGNATED FOR INFILTRATION CONTROL MEASURES OR WHERE FINAL STABILIZATION WILL BE ACHIEVED BY THE 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 LOOSENEED PRIOR TO INSTALLATION OF THE CONTROL MEASURE(S).
- 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.
- 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.
- DURING DEWATERING OPERATIONS, UNCONTAMINATED GROUNDWATER 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.
- EROSION CONTROL BLANKETING OR OTHER PROTECTIVE COVERING SHALL BE USED ON SLOPES STEEPER THAN 3:1.
- 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.
- 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.
- TRACKING OF SOILS AND CONSTRUCTION DEBRIS OFF-SITE SHALL BE MINIMIZED. MATERIALS TRACKED OFF-SITE SHALL BE CLEANED UP AND PROPERLY DISPOSED OF IMMEDIATELY.
- 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.
- 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.
- NO CHEMICAL(S) HAVING THE POTENTIAL TO BE RELEASED IN STORMWATER ARE TO BE STORED OR USED ON-SITE 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.
- 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 ON-SITE AND TO PREVENT ANY SPILLED MATERIALS FROM ENTERING STATE WATERS, ANY SURFACE OR SUBSURFACE STORM DRAINAGE SYSTEM OR OTHER FACILITIES.
- NO PERSON SHALL CAUSE THE IMPEDIMENT OF STORMWATER FLOW IN THE CURB AND GUTTER OR DITCH EXCEPT WITH APPROVED SEDIMENT CONTROL MEASURES.
- 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.
- ALL CONSTRUCTION TRAFFIC MUST ENTER/EXIT THE SITE ONLY AT APPROVED CONSTRUCTION ACCESS POINTS.
- PRIOR TO CONSTRUCTION THE PERMITTEE SHALL VERIFY THE LOCATION OF EXISTING UTILITIES.
- 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.
- THE SOILS REPORT FOR THIS SITE HAS BEEN PREPARED BY RMG-ROCKY MOUNTAIN GROUP, DATED OCTOBER 8, 2021 AND SHALL BE CONSIDERED A PART OF THESE PLANS.
- 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
 WOOD-PERMITS
 4300 CHERRY CREEK DRIVE SOUTH
 DENVER, CO 80246-1530
 ATTN: PERMITS UNIT

CHALLENGER HOMES FALCON HIGHLANDS SOUTH

SITUATED IN SECTION 12, TOWNSHIP 13 SOUTH,
 RANGE 65 WEST OF THE SIXTH PRINCIPAL MERIDIAN,
 COUNTY OF EL PASO, STATE OF COLORADO

GRADING & EROSION CONTROL PLANS



LEGAL DESCRIPTION:

A PORTION OF SECTION 12, TOWNSHIP 13 SOUTH, RANGE 65 WEST OF THE SIXTH PRINCIPAL MERIDIAN, COUNTY OF EL PASO, STATE OF COLORADO.

PROJECT DESCRIPTION:

378 SINGLE-FAMILY RESIDENTIAL LOT DEVELOPMENT OVER 125.5 ACRES.

FLOODPLAIN STATEMENT:

THE SUBJECT PROPERTY IS NOT LOCATED IN A DESIGNATED FLOODPLAIN AS SHOWN ON THE FEMA FLOOD INSURANCE RATE MAP 08041C0561G, EFFECTIVE DECEMBER 7, 2018.

NOTE:

DETENTION AND WATER QUALITY ARE PROVIDED IN THE EXISTING DOWNSTREAM WATER QUALITY AND DETENTION POND FACILITIES, POND 1, 2 & WU, LOCATED EAST OF THE PROPOSED DEVELOPMENT, NORTHWEST OF HIGHWAY 24.

DESCRIPTION OF CONSTRUCTION ACTIVITIES:

ANTICIPATED STARTING AND COMPLETION TIME PERIOD OF SITE GRADING:

JANUARY 2023

EXPECTED DATE ON WHICH THE FINAL STABILIZATION WILL BE COMPLETED:

OCTOBER 2023

TOTAL AREA OF THE SITE TO BE CLEARED, EXCAVATED, OR GRADED:

APPROXIMATELY 115 ACRES

RECEIVING WATERS:

ULTIMATE RECEIVING WATER IS SAND CREEK DRAINAGE BASIN AND FALCON DRAINAGE BASIN.

SOIL TYPE:

THE SITE IS UNDERLAIN BY BLAKELAND-FLUVAQUENTIC HAPLAQUOILS, HYDROLOGIC SOIL GROUP A.

OWNER:
 CHALLENGER HOMES
 8605 EXPLORER DRIVE
 STE. 250
 COLORADO SPRINGS, CO 80920
 (719) 598-5192
 CONTACT: JIM BYERS

SURVEYOR:
 ATWELL, LLC.
 143 UNION BLVD.
 SUITE 700
 LAKEWOOD, CO 80228
 (303) 462-1100
 CONTACT: KENNETH SCHRAMM

WOODMEN HILLS METROPOLITAN DISTRICT:

8046 EASTVILLE ROAD
 FALCON, CO 80831
 (719) 495-2500
 CONTACT: RYAN MANGINO
CIVIL ENGINEER:
 ATWELL, LLC.
 143 UNION BLVD.,
 SUITE 700
 LAKEWOOD, CO 80228
 (303) 462-1100
 CONTACT: RICHARD LYON

EL PASO COUNTY:
 3275 AKERS DRIVE
 COLORADO SPRINGS, CO 80922
 (719) 520-6460
 CONTACT: ELIZABETH NIIJKAMP

ENGINEER'S STATEMENT

THIS GRADING AND EROSION CONTROL PLAN WAS PREPARED UNDER MY DIRECT SUPERVISION AND IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. SAID PLAN HAS BEEN PREPARED ACCORDING TO THE CRITERIA ESTABLISHED BY THE COUNTY FOR GRADING AND EROSION CONTROL PLANS. I ACCEPT RESPONSIBILITY FOR ANY LIABILITY CAUSED BY ANY NEGLIGENT ACTS, ERRORS OR OMISSIONS ON MY PART IN PREPARING THIS PLAN.

ENGINEER OF RECORD SIGNATURE _____ DATE _____
 RICHARD D. LYON, PE

OWNER'S STATEMENT

I, THE OWNER/DEVELOPER HAVE READ AND WILL COMPLY WITH THE REQUIREMENTS OF THE GRADING AND EROSION CONTROL PLAN.

OWNER SIGNATURE _____ DATE _____
 JIM BYERS

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 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.

COUNTY ENGINEER / ECM ADMINISTRATOR _____ DATE _____
 JOSHUA PALMER, P.E.

SHEET LIST TABLE	
SHEET NUMBER	SHEET TITLE
1	COVER
2	INITIAL GECF
3	INITIAL GECF
4	INITIAL GECF
5	INITIAL GECF
6	INTERIM GECF
7	INTERIM GECF
8	INTERIM GECF
9	INTERIM GECF
10	FINAL GECF
11	FINAL GECF
12	FINAL GECF
13	FINAL GECF
14	DETAIL GECF
15	DETAIL GECF
16	DETAIL GECF
17	DETAIL GECF

GENERAL NOTES:

- EXISTING VEGETATION OF SITE IS APPROXIMATELY 97.0 PERCENT CONSISTING OF NATIVE GRASSES AND WEEDS.
- CONCLUSIONS FROM SOILS/GEOTECHNICAL REPORT AND GEOLOGIC HAZARDS REPORT INCORPORATED IN GRADING DESIGN (SLOPES, EMBANKMENTS, MATERIALS, MITIGATION, ETC.)
- THERE ARE NO LOCATIONS OF ANY DEDICATED ASPHALT / CONCRETE BATCH PLANTS.
- THE USE OF CONSTRUCTION OFFICE TRAILERS REQUIRE PCD PERMITTING.
- NO DEWATERING OPERATIONS ARE ANTICIPATED AT THIS TIME. IF THE CONTRACTOR DISCOVERS GROUNDWATER, ALL CONSTRUCTION SHALL STOP UNTIL PROPER PROCEDURES APPROVED BY THE ENGINEER OF RECORD AND EL PASO COUNTY ARE PUT IN PLACE.
- THERE IS NO PROPOSED OFFSITE DISTURBANCE AND THERE ARE NO OFFSITE STORMWATER CONTROL MEASURES PROPOSED.
- THERE ARE NO PROPOSED RETAINING WALLS LOCATED WITHIN COUNTY RIGHT-OF-WAY.
- STRUCTURAL CONTROL MEASURES INCLUDE PONDS 1, 2, AND WU AND PROPOSED GRASSLINED SWALE.

BENCHMARK:

ELEVATIONS ARE BASED UPON SW COR SEC. 12, T13S, R65W, 6TH PM, FND, 3.25" ALUM. CAP. (ELEVATION: 6810.43=NAVD88).

BASIS OF BEARINGS:

BEARINGS ARE BASED UPON THE WEST LINE OF THE SOUTHWEST QUARTER OF SECTION 12, TOWNSHIP 13 SOUTH, RANGE 65 WEST OF THE SIXTH PRINCIPAL MERIDIAN, MONUMENTED AT THE SOUTH END BY A FOUND-1/4" ALUMINUM CAP STAMPED "AZTEC CONSULTANTS PLS 38256" AND AT THE NORTH END BY A FOUND 3-1/4" ALUMINUM CAP STAMPED "PLS 4842".

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

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

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

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 JIM BYERS

CHALLENGER HOMES
 FALCON HIGHLANDS SOUTH
 EL PASO COUNTY, COLORADO
 CONSTRUCTION PLANS
 GRADING AND EROSION CONTROL PLAN
 COVER

CLIENT: CHALLENGER HOMES
 DATE: 4/18/2023
 A 1st SUBMITTAL TO EPIC 07/29/2022 - RDL
 REVISIONS

COUNTY FILE NO.: PUDSP-22-005
 DR. JD CH.
 P.M. RDL
 JOB: 21005234
 SHEET NO. 1

CAD FILE: 21005234-GECF-COVER-SHEET.DWG



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GRADING AND EROSION CONTROL PLAN
INITIAL GPCP

CLIENT

DATE 4/18/2023

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REVISIONS

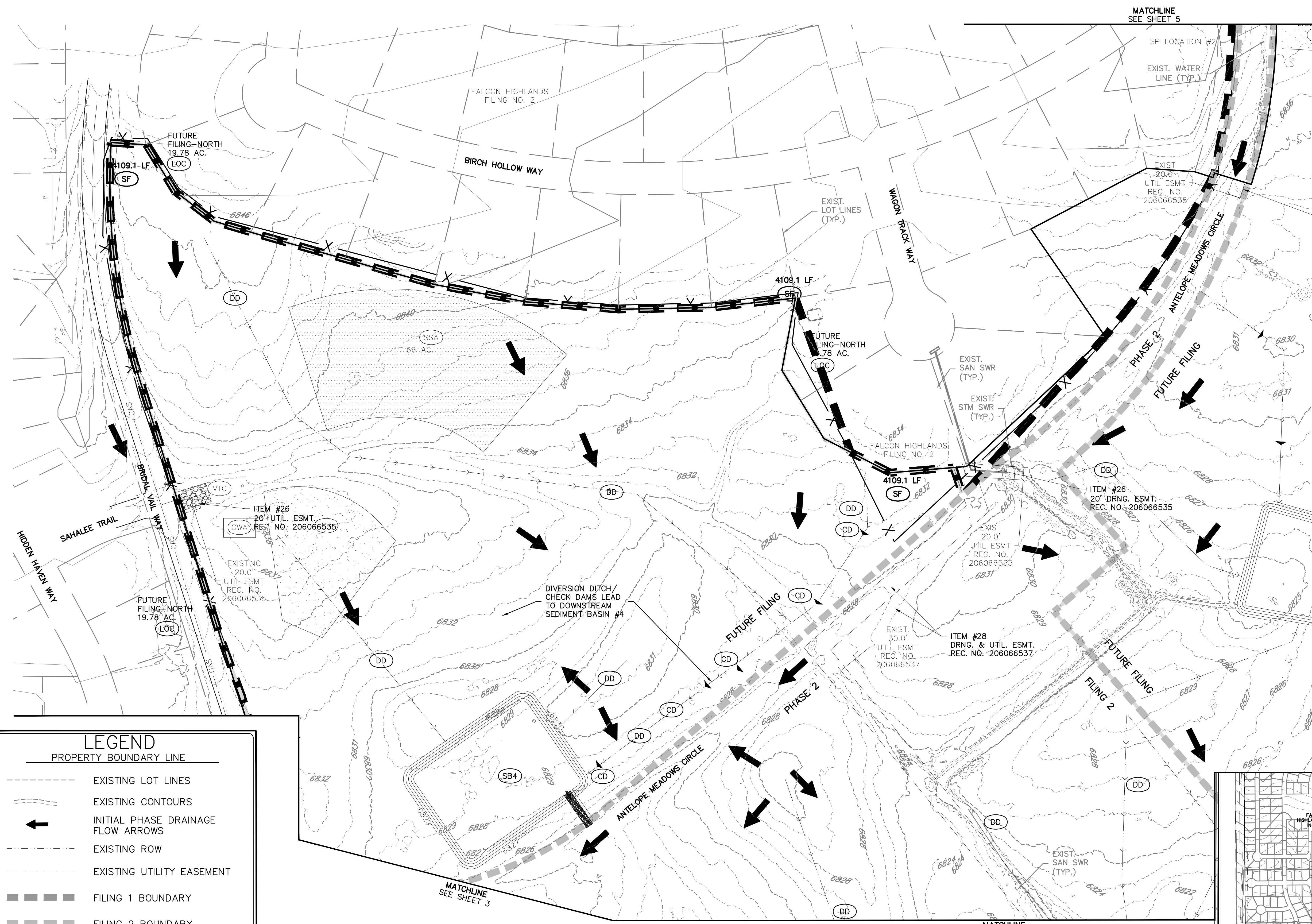
COUNTY FILE NO.: PUDSP-22-005

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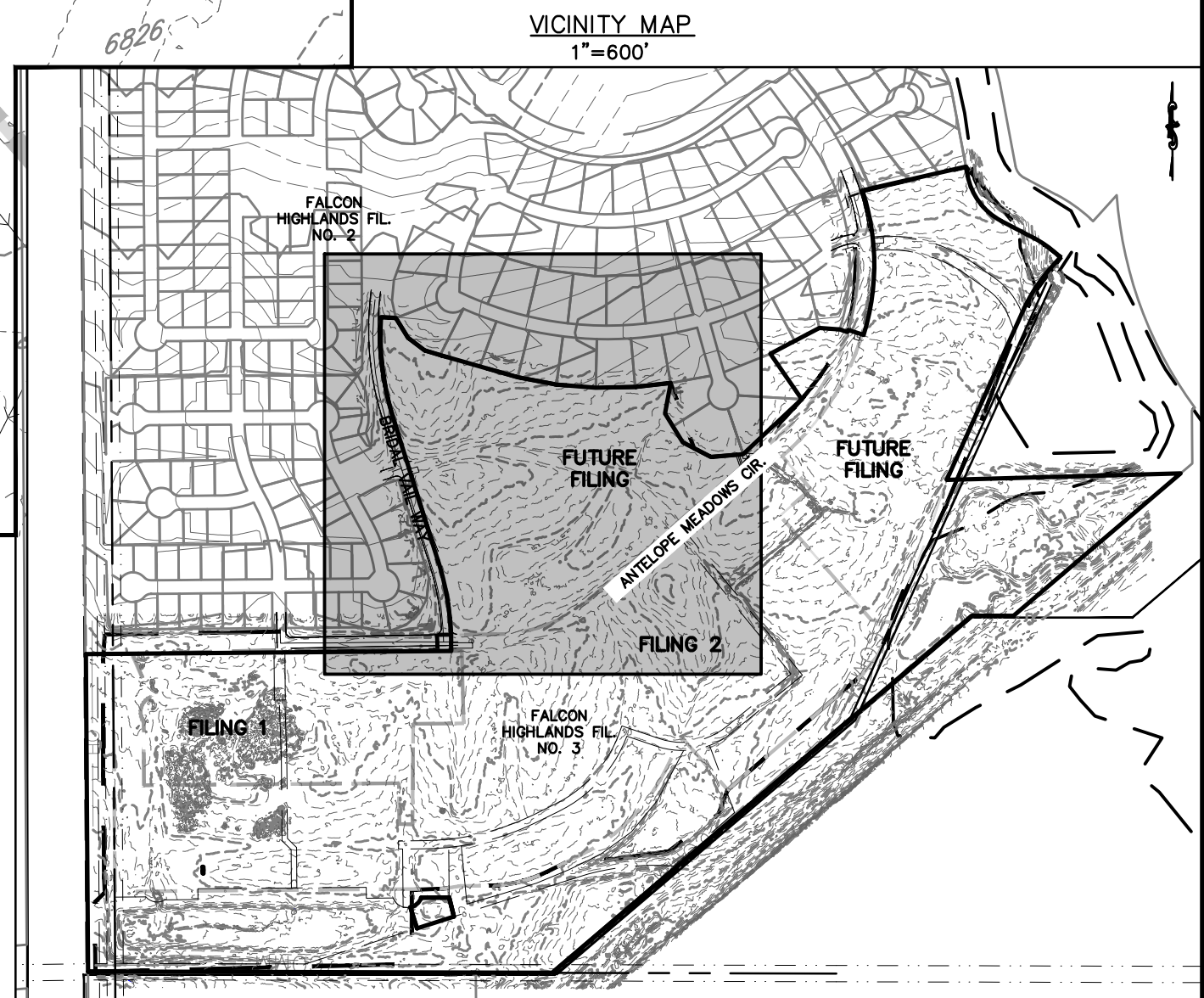
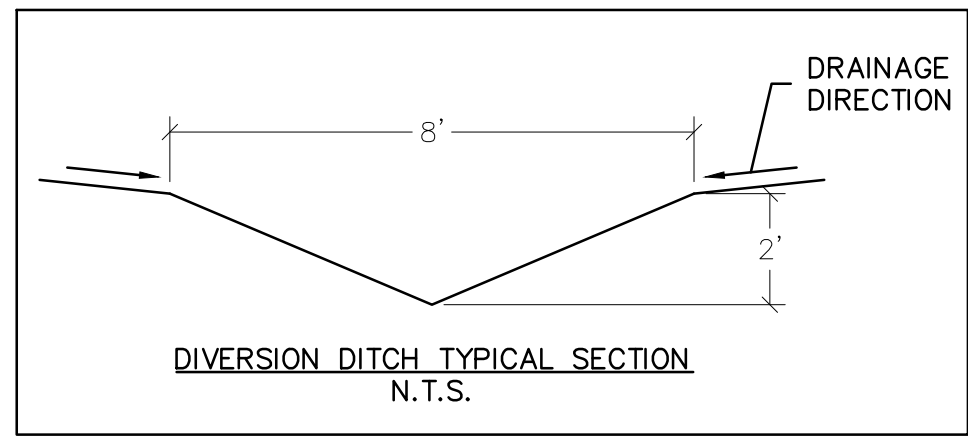
JOB 21005234 SHEET NO. 2

GAD FILE: 21005234-GPCP-INITIAL.DWG

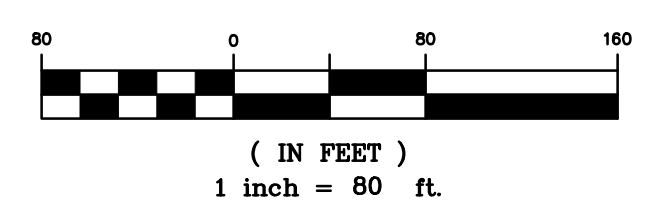
GRADING AND EROSION CONTROL LEGEND	
(SF)	SILT FENCE
(IPO)	ON-GRADE INLET PROTECTION
(IPS)	SUMP INLET PROTECTION
(RRC)	CULVERT PROTECTION
(VTC)	VEHICLE TRACKING CONTROL
(CWA)	CONCRETE WASHOUT AREA
(SSA)	STABILIZED STAGING AREA
(SM)	SEEDING AND MULCHING
(LOC)	LIMITS OF CONSTRUCTION / DISTURBANCE
(DD)	DIVERSION DITCH
(ECB)	EROSION CONTROL BLANKET
(SP)	STOCK PILE
(RS)	ROCK SOCKS
(SB)	SEDIMENT BASIN
(CD)	CHECK DAMS
(IP)	INLET PROTECTION
(RCD)	REINFORCED CHECK DAM
(CF)	CONSTRUCTION FENCE

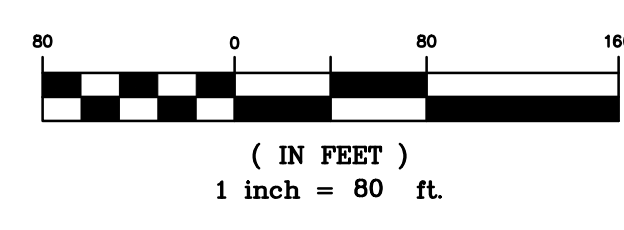


LEGEND	
---	PROPERTY BOUNDARY LINE
---	EXISTING LOT LINES
---	EXISTING CONTOURS
←	INITIAL PHASE DRAINAGE FLOW ARROWS
---	EXISTING ROW
---	EXISTING UTILITY EASEMENT
█	FILING 1 BOUNDARY
█	FILING 2 BOUNDARY
---	FUTURE FILING
---	SECTION LINES



- GRADING AND EROSION CONTROL NOTES:**
- SILT FENCE TO BE REMOVED AFTER PLACEMENT OF ECB OR SEEDING & MULCHING OF LOTS HAS REACH 70% VEGETATION AND BEEN APPROVED BY THE EPIC STORMWATER INSPECTOR.
 - INLET PROTECTION TO BE REMOVED AFTER DEVELOPMENT AND STABILIZATION OF LOTS.
 - VTC TO BE REMOVED UPON COMPLETION OF PAVING OPERATIONS. SEE COVER SHEET FOR EL PASO COUNTY STANDARD GRADING & EROSION PLAN NOTES.
 - SHADED BMP'S WERE INSTALLED IN INITIAL OR INTERIM STAGES AND SHALL BE LEFT IN PLACE UNTIL REVEGETATION ESTABLISHMENT IS APPROVED BY THE COUNTY.
 - THE LIMITS OF CONSTRUCTION / DISTURBANCE SHOWN ARE FOR ALL FILINGS. IT IS THE INTENTION TO PERMANENTLY STABILIZE FUTURE FILINGS 3 AND 4 TO HAVE TEMPORARY BMP'S REMOVED.

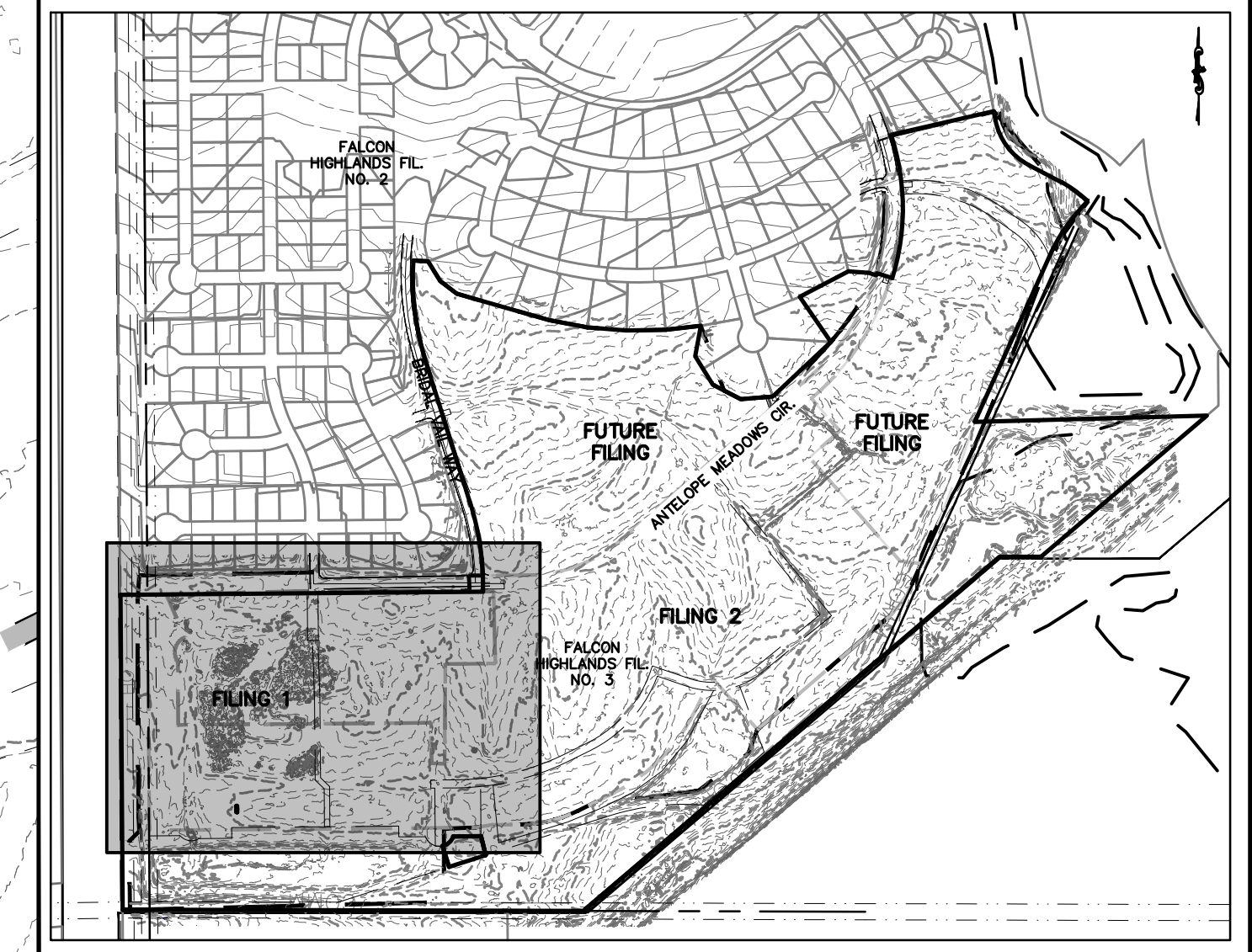




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MATCHLINE
SEE SHEET 4



LEGEND	
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---	EXISTING LOT LINES
---	EXISTING CONTOURS
←	INITIAL PHASE DRAINAGE FLOW ARROWS
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Know what's below. Call before you dig.

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303.462.1100

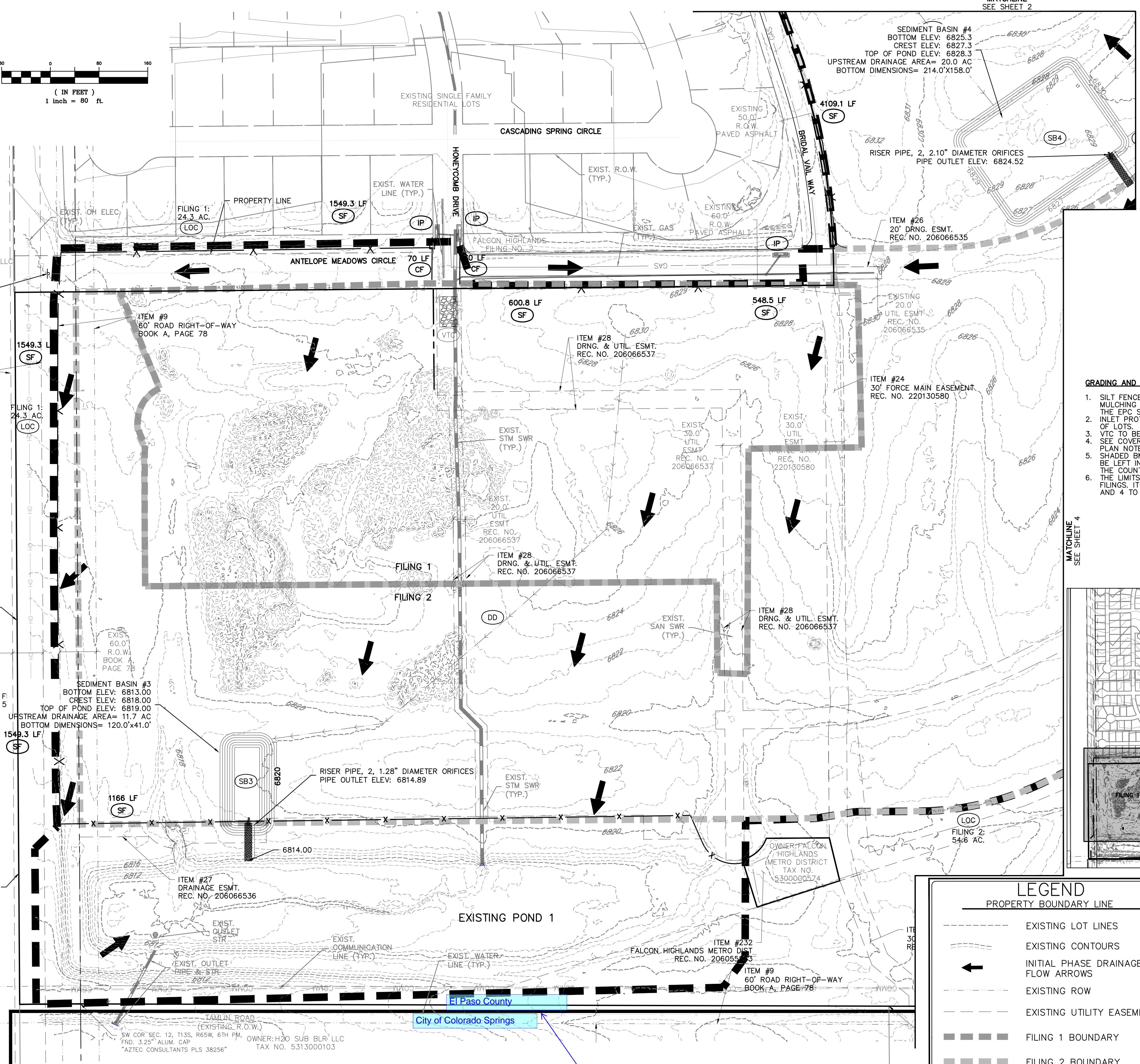
CHALLENGER HOMES
8605 EXPLORER DRIVE
SUITE 250
COLORADO SPRINGS, CO 80920
719-598-5192
JIM BYERS

CHALLENGER HOMES
FALCON HIGHLANDS SOUTH
EL PASO COUNTY, COLORADO
CONSTRUCTION PLANS
GRADING AND EROSION CONTROL PLAN
INITIAL GCEP

CLIENT: CHALLENGER HOMES
DATE: 4/18/2023
SUBMITTAL TO EPIC: 07/29/2022 - RDL

REVISIONS

COUNTY FILE NO.: PUDSP-22-005
DR: JD CH.
P.M. RDL
JOB: 21005234
SHEET NO.: 3



OWNER: WALTON COLORADO LLC
TAX NO. 5300000716
SIGNAGE TO BE INSTALLED PROHIBITING ACCESS FOR CONSTRUCTION

ITEM #11
50' ELECTRIC TRANSMISSION EASEMENT
BOOK 2649, PAGE 17

OWNER: PUBLIC SERVICE CO OF COLORADO
TAX NO. 5300000091

SEDIMENT BASIN #3
BOTTOM ELEV: 6813.00
CREST ELEV: 6818.00
TOP OF POND ELEV: 6819.00
UPSTREAM DRAINAGE AREA= 11.7 AC
BOTTOM DIMENSIONS= 120.0'x41.0'

SEDIMENT BASIN #4
BOTTOM ELEV: 6825.3
CREST ELEV: 6827.3
TOP OF POND ELEV: 6828.3
UPSTREAM DRAINAGE AREA= 20.0 AC
BOTTOM DIMENSIONS= 214.0'x158.0'

SEDIMENT BASIN #3
BOTTOM ELEV: 6813.00
CREST ELEV: 6818.00
TOP OF POND ELEV: 6819.00
UPSTREAM DRAINAGE AREA= 11.7 AC
BOTTOM DIMENSIONS= 120.0'x41.0'

RISER PIPE, 2, 1.28" DIAMETER ORIFICES
PIPE OUTLET ELEV: 6814.89

OWNER: FALCON HIGHLANDS METRO DISTRICT
TAX NO. 5300000574

SW COR SEC. 12, T13S, R65W, 6TH PM, FND. 3.25" ALUM. CAP
"AZTEC CONSULTANTS PLS 38256"
OWNER: H2O SUB BLR LLC
TAX NO. 5313000103

El Paso County
City of Colorado Springs

Label City and County sides

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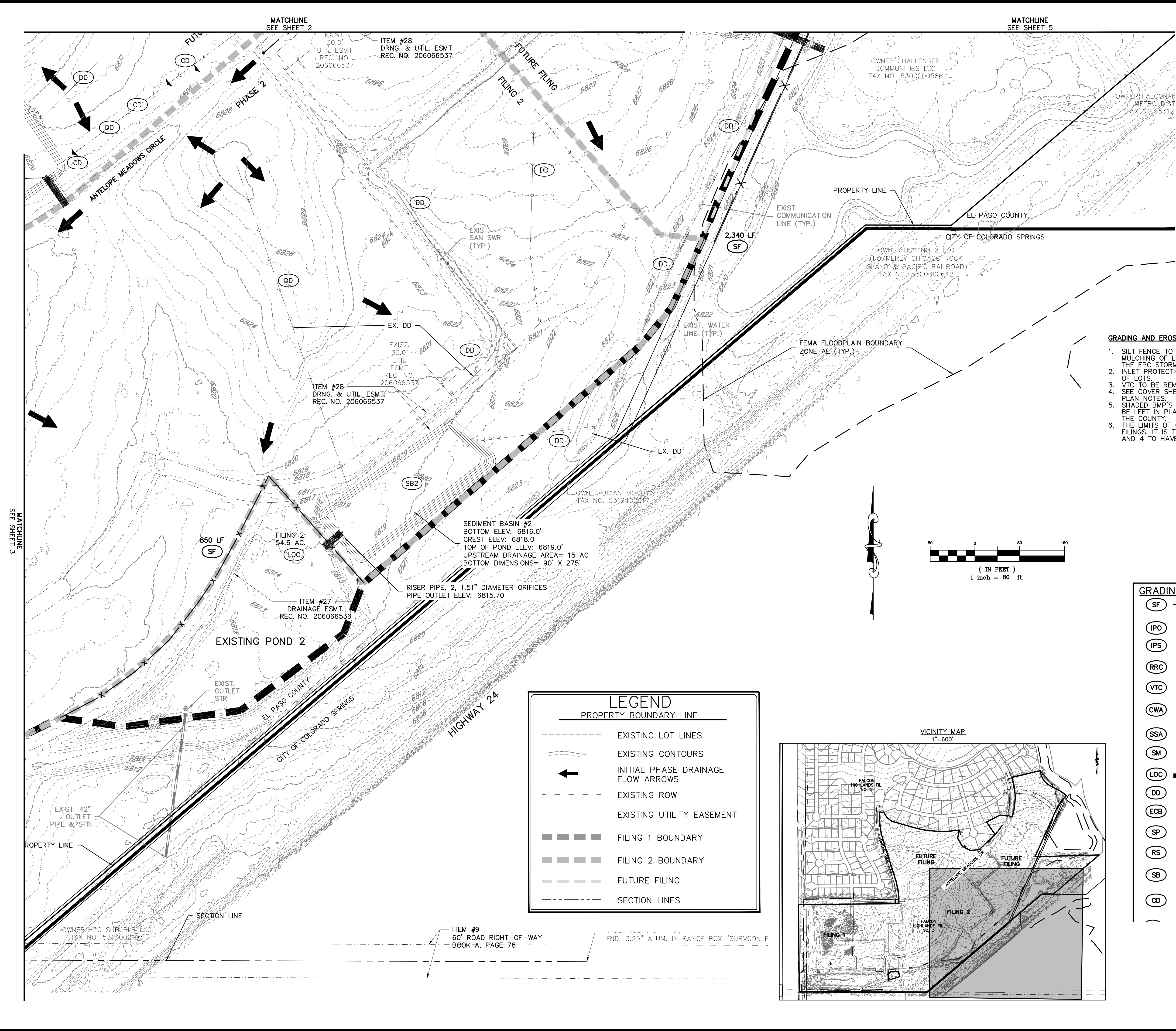
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LAKEWOOD, CO 80428
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CHALLENGER HOMES
8605 EXPLORER DRIVE
SUITE 250
COLORADO SPRINGS, CO 80920
719-598-5192
JIM BYERS

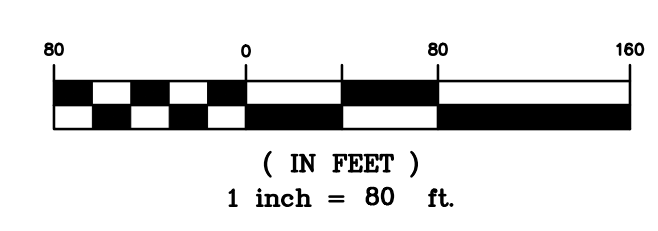
CHALLENGER HOMES
FALCON HIGHLANDS SOUTH
EL PASO COUNTY, COLORADO
CONSTRUCTION PLANS
GRADING AND EROSION CONTROL PLAN
INITIAL GPCP

CLIENT: CHALLENGER HOMES
DATE: 4/18/2023
SUBMITTAL TO EPIC: 07/29/2022 - RDL

REVISIONS:
COUNTY FILE NO.: PUDSP-22-005
DR: JD CH:
P.M. RDL
JOB: 21005234
SHEET NO.: 4



- GRADING AND EROSION CONTROL NOTES:**
- SILT FENCE TO BE REMOVED AFTER PLACEMENT OF ECB OR SEEDING & MULCHING OF LOTS HAS REACHED 70% VEGETATION AND BEEN APPROVED BY THE EPIC STORMWATER INSPECTOR.
 - INLET PROTECTION TO BE REMOVED AFTER DEVELOPMENT AND STABILIZATION OF LOTS.
 - VTC TO BE REMOVED UPON COMPLETION OF PAVING OPERATIONS.
 - SEE COVER SHEET FOR EL PASO COUNTY STANDARD GRADING & EROSION PLAN NOTES.
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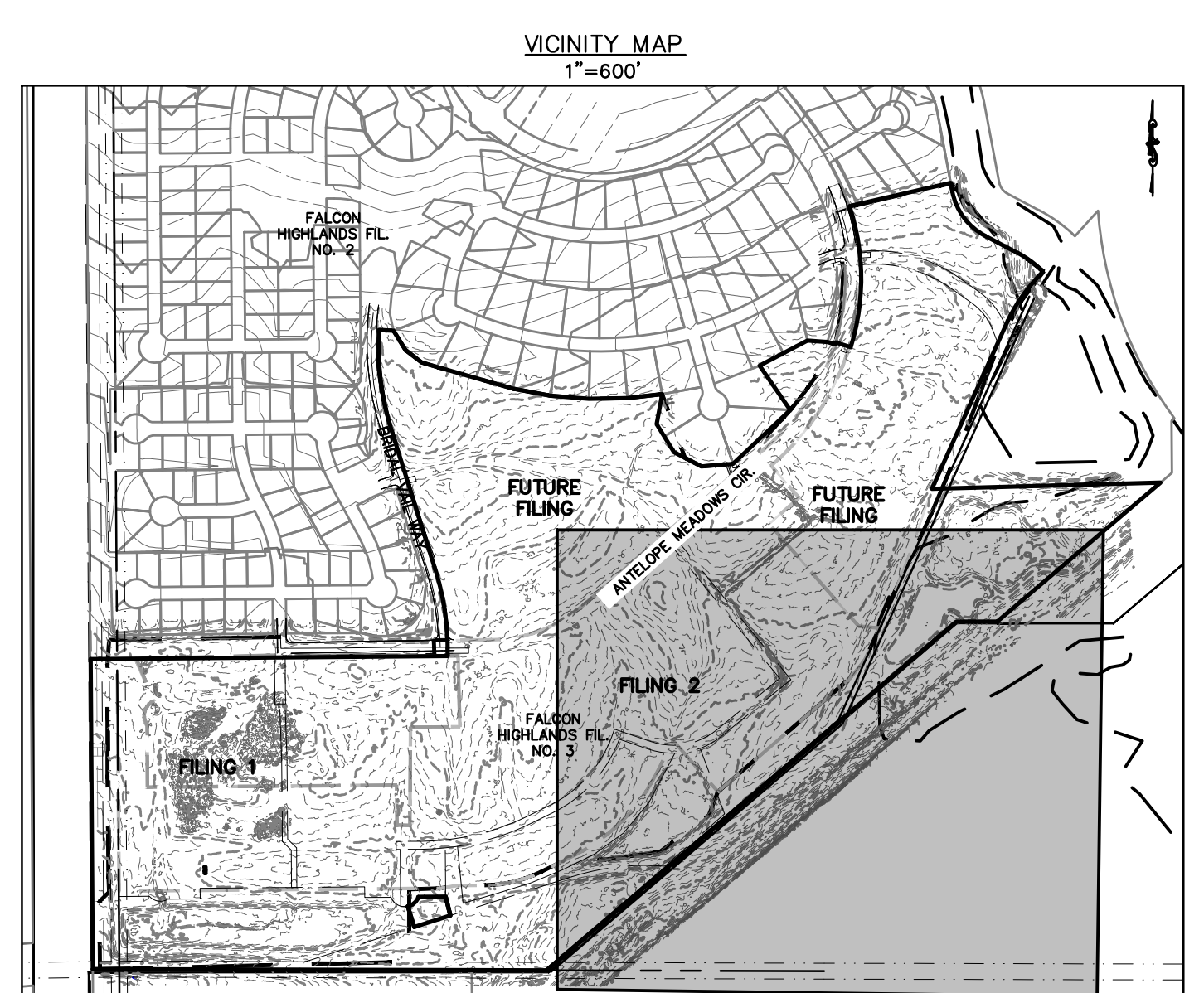


LEGEND
PROPERTY BOUNDARY LINE

---	EXISTING LOT LINES
---	EXISTING CONTOURS
←	INITIAL PHASE DRAINAGE FLOW ARROWS
---	EXISTING ROW
---	EXISTING UTILITY EASEMENT
█	FILING 1 BOUNDARY
█	FILING 2 BOUNDARY
---	FUTURE FILING
---	SECTION LINES

GRADING AND EROSION CONTROL LEGEND

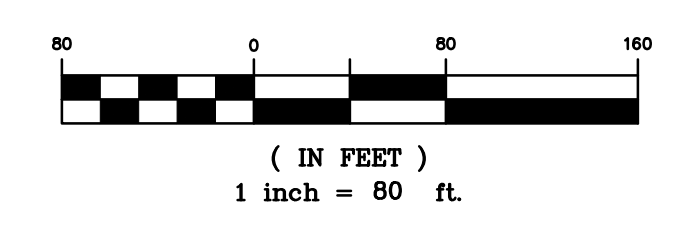
(SF)	SILT FENCE
(IPO)	ON-GRADE INLET PROTECTION
(IPS)	SUMP INLET PROTECTION
(RRC)	CULVERT PROTECTION
(VTC)	VEHICLE TRACKING CONTROL
(CWA)	CONCRETE WASHOUT AREA
(SSA)	STABILIZED STAGING AREA
(SM)	SEEDING AND MULCHING
(LOC)	LIMITS OF CONSTRUCTION/DISTURBANCE
(DD)	DIVERSION DITCH
(ECB)	EROSION CONTROL BLANKET
(SP)	STOCK PILE
(RS)	ROCK SOCKS
(SB)	SEDIMENT BASIN
(CD)	CHECK DAMS



ITEM #9
60" ROAD RIGHT-OF-WAY
BOOK A, PAGE 78

BENCHMARK:
ELEVATIONS ARE BASED UPON SW COR SEC. 12, T13S, R65W, 6TH PM, FND. 3.25" ALUM. CAP. (ELEVATION: 6810.43=NAVD88).

BASIS OF BEARINGS:
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3. VTC TO BE REMOVED UPON COMPLETION OF PAVING OPERATIONS.
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GRADING AND EROSION CONTROL LEGEND

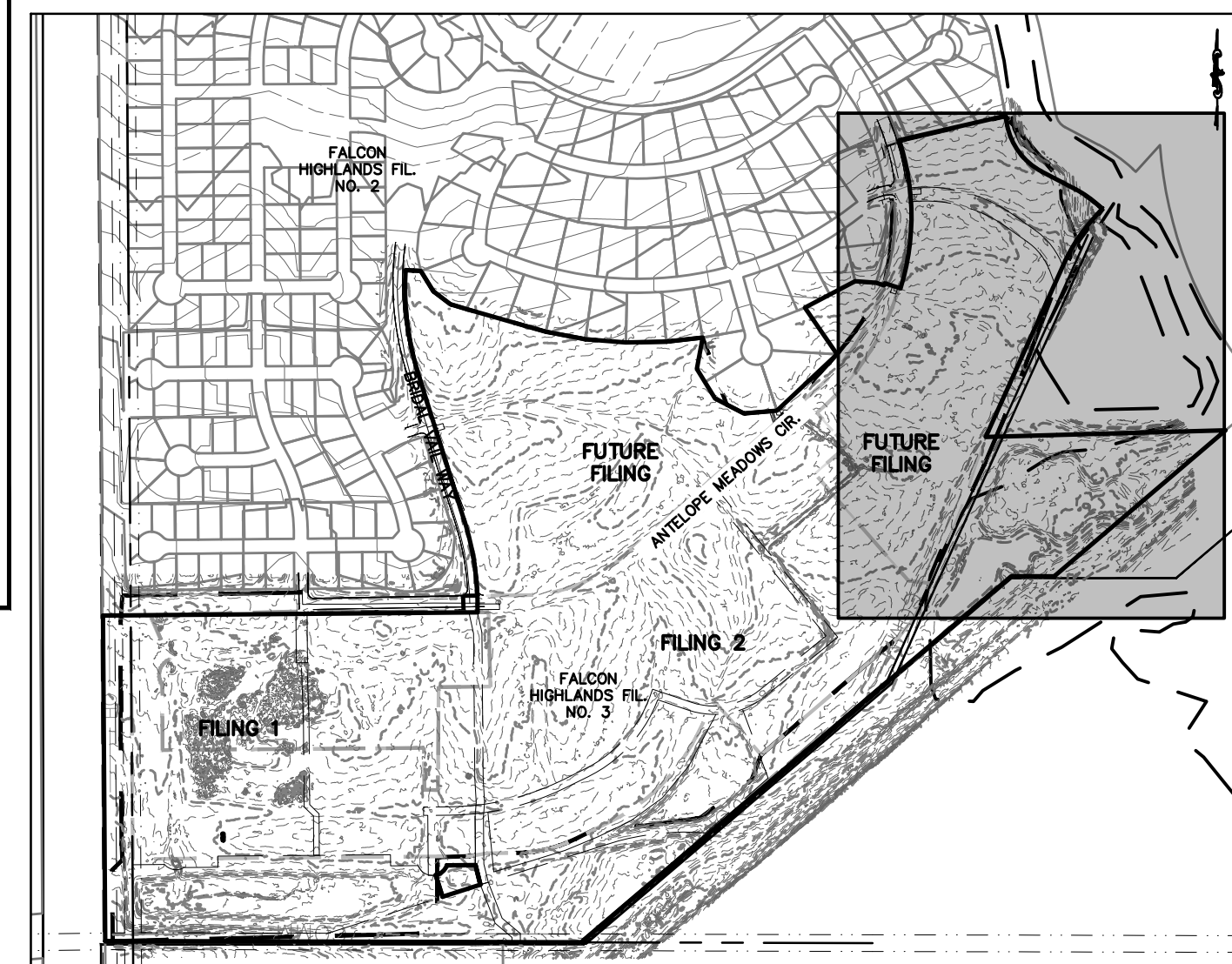
(SF)		SILT FENCE
(IPO)		ON-GRADE INLET PROTECTION
(IPS)		SUMP INLET PROTECTION
(RRC)		CULVERT PROTECTION
(VTC)		VEHICLE TRACKING CONTROL
(CWA)		CONCRETE WASHOUT AREA
(SSA)		STABILIZED STAGING AREA
(SM)		SEEDING AND MULCHING
(LOC)		LIMITS OF CONSTRUCTION/DISTURBANCE
(DD)		DIVERSION DITCH
(ECB)		EROSION CONTROL BLANKET
(SP)		STOCK PILE
(RS)		ROCK SOCKS
(SB)		SEDIMENT BASIN
(CD)		CHECK DAMS

LEGEND

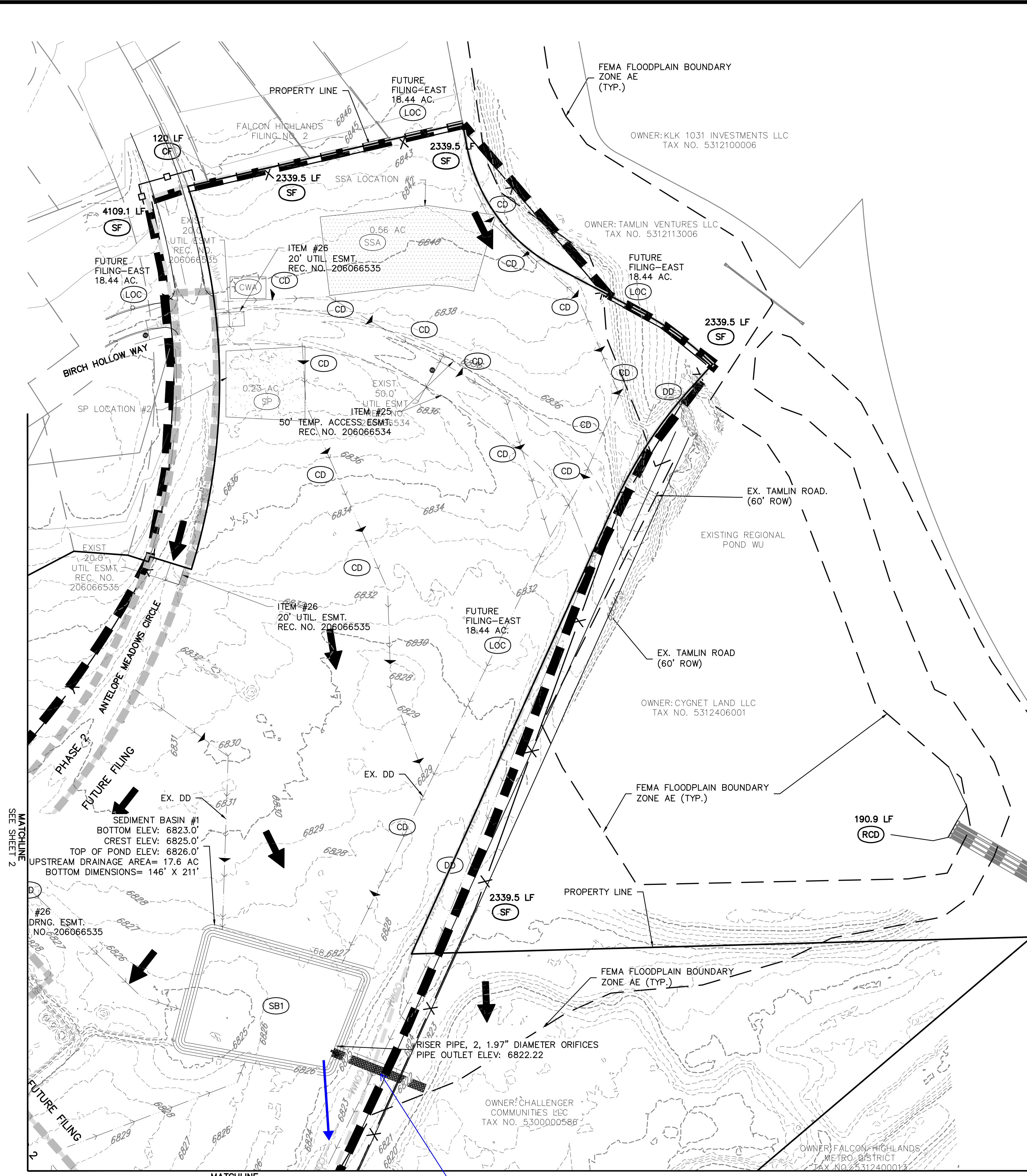
	PROPERTY BOUNDARY LINE
	EXISTING LOT LINES
	EXISTING CONTOURS
	INITIAL PHASE DRAINAGE FLOW ARROWS
	EXISTING ROW
	EXISTING UTILITY EASEMENT
	FILING 1 BOUNDARY
	FILING 2 BOUNDARY
	FUTURE FILING

BENCHMARK:
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VICINITY MAP
1"=600'



Add hatching to legend.
Spillway can't be over road and trail area. Provide a culvert or different outfall - existing roadside ditch?

MATCHLINE
SEE SHEET 2

MATCHLINE
SEE SHEET 4

CLIENT: CHALLENGER HOMES
8605 EXPLORER DRIVE
SUITE 250
COLORADO SPRINGS, CO 80920
719-598-5192
JIM BYERS

CHALLENGER HOMES
FALCON HIGHLANDS SOUTH
EL PASO COUNTY, COLORADO
CONSTRUCTION PLANS
GRADING AND EROSION CONTROL PLAN
INITIAL GECP

DATE: 4/18/2023
SUBMITTAL TO EPC: 07/29/2022 - RDL

REVISIONS:

COUNTY FILE NO.: PUDSP-22-005
DR: JD CH.
P.M. RDL
JOB: 21005234
SHEET NO.: 5

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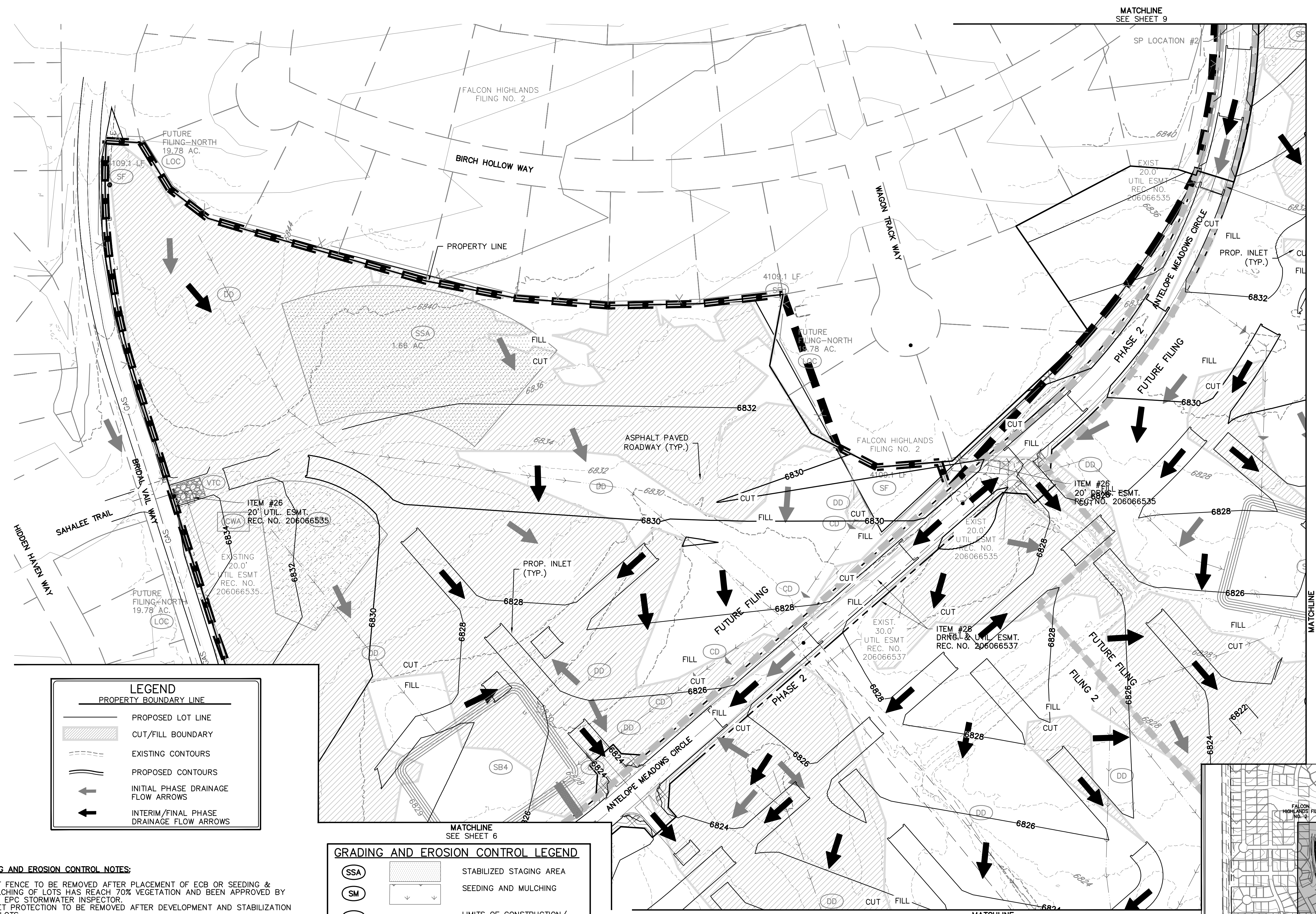
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CONSTRUCTION PLANS
GRADING AND EROSION CONTROL PLAN
INTERIM GEP

CLIENT: CHALLENGER HOMES
DATE: 4/18/2023
SUBMITTAL TO EPIC: 07/29/2022 - RDL

REVISIONS:

COUNTY FILE NO.: PUDSP-22-005
DR: JD CH:
P.M. RDL
JOB: 21005234
SHEET NO.: 6



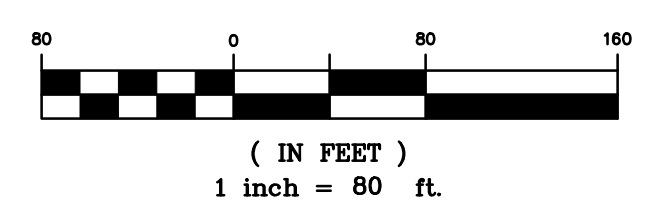
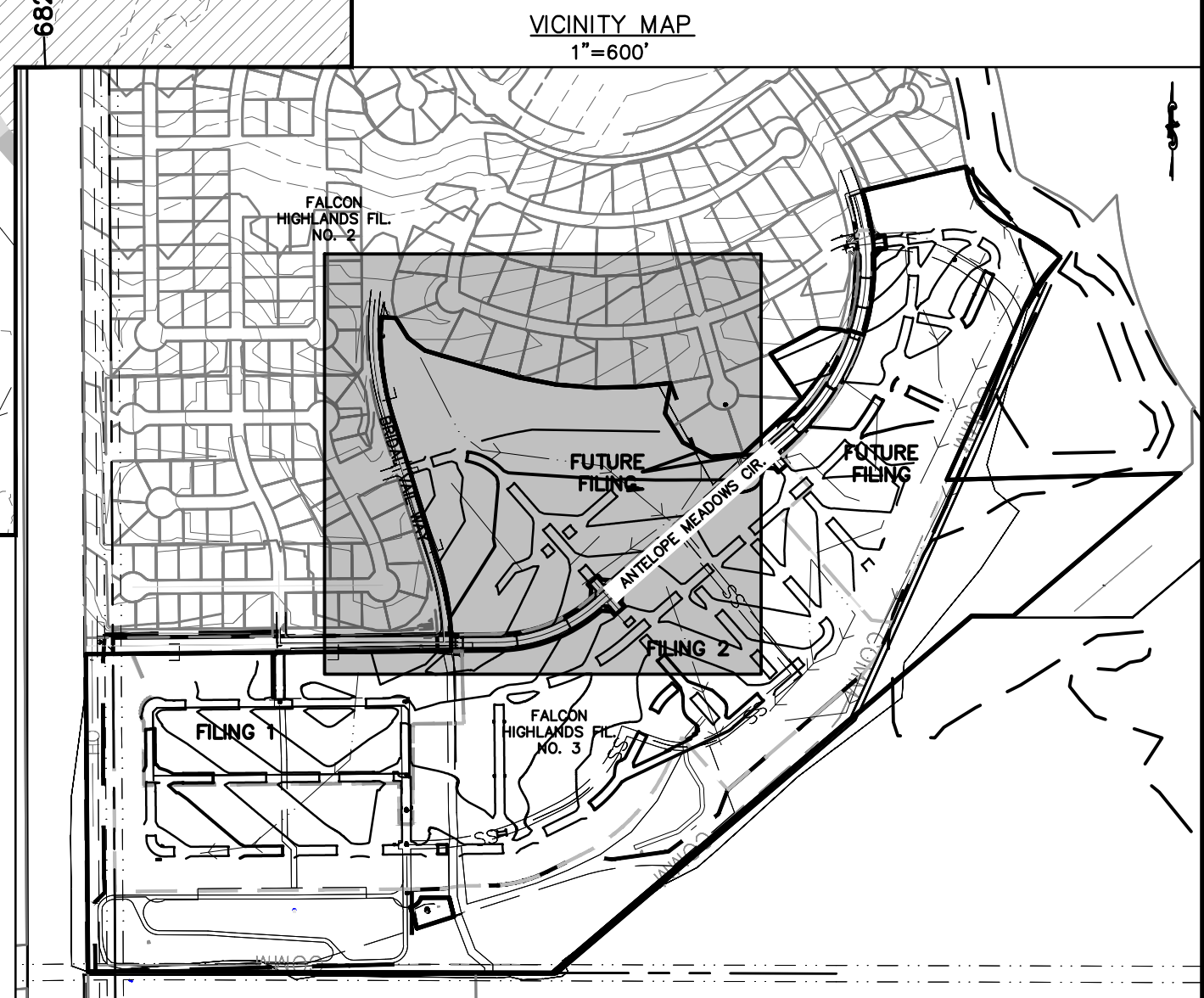
LEGEND
PROPERTY BOUNDARY LINE

- PROPOSED LOT LINE
- CUT/FILL BOUNDARY
- EXISTING CONTOURS
- PROPOSED CONTOURS
- INITIAL PHASE DRAINAGE FLOW ARROWS
- INTERIM/FINAL PHASE DRAINAGE FLOW ARROWS

GRADING AND EROSION CONTROL LEGEND

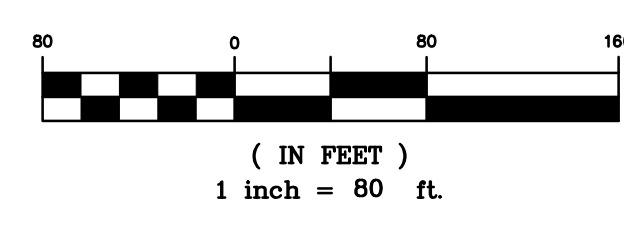
- SSA: STABILIZED STAGING AREA
- SM: SEEDING AND MULCHING
- LOC: LIMITS OF CONSTRUCTION/DISTURBANCE
- DD: DIVERSION DITCH
- ECB: EROSION CONTROL BLANKET
- SP: STOCK PILE
- RS: ROCK SOCKS
- SB: SEDIMENT BASIN
- CD: CHECK DAMS
- SF: SILT FENCE
- RRC: RRB FOR CULVERT PROTECTION
- IPS: SUMP INLET PROTECTION

- GRADING AND EROSION CONTROL NOTES:**
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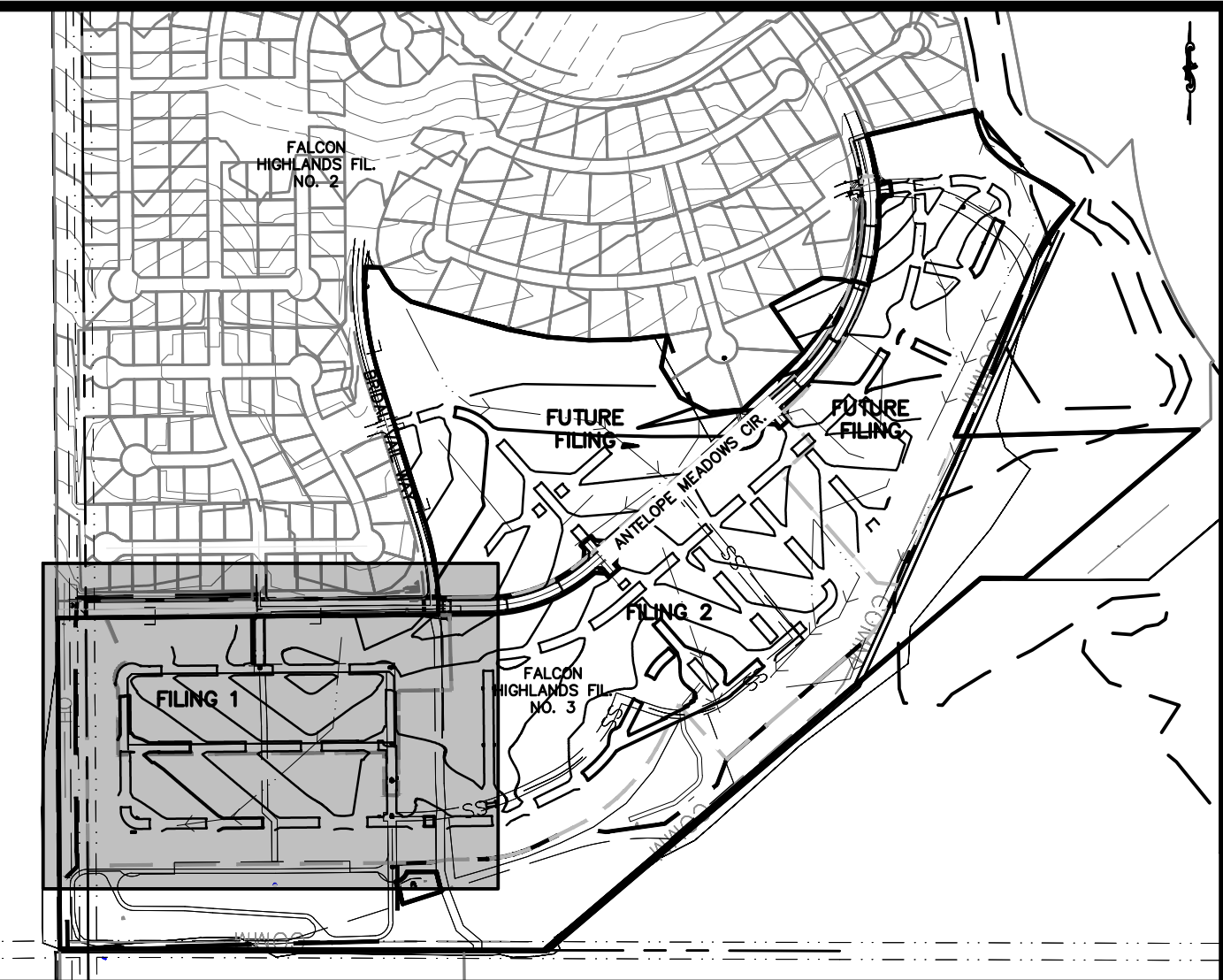


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MATCHLINE
SEE SHEET 7

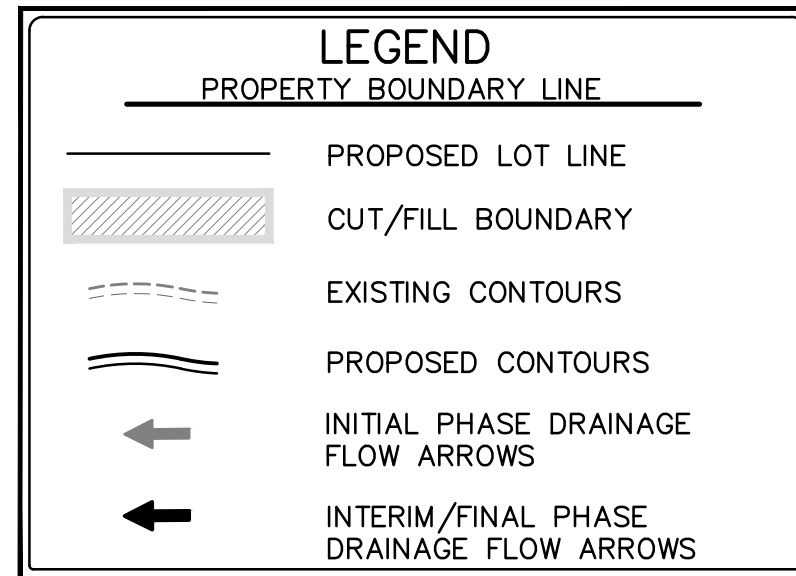


811
Know what's below.
Call before you dig.

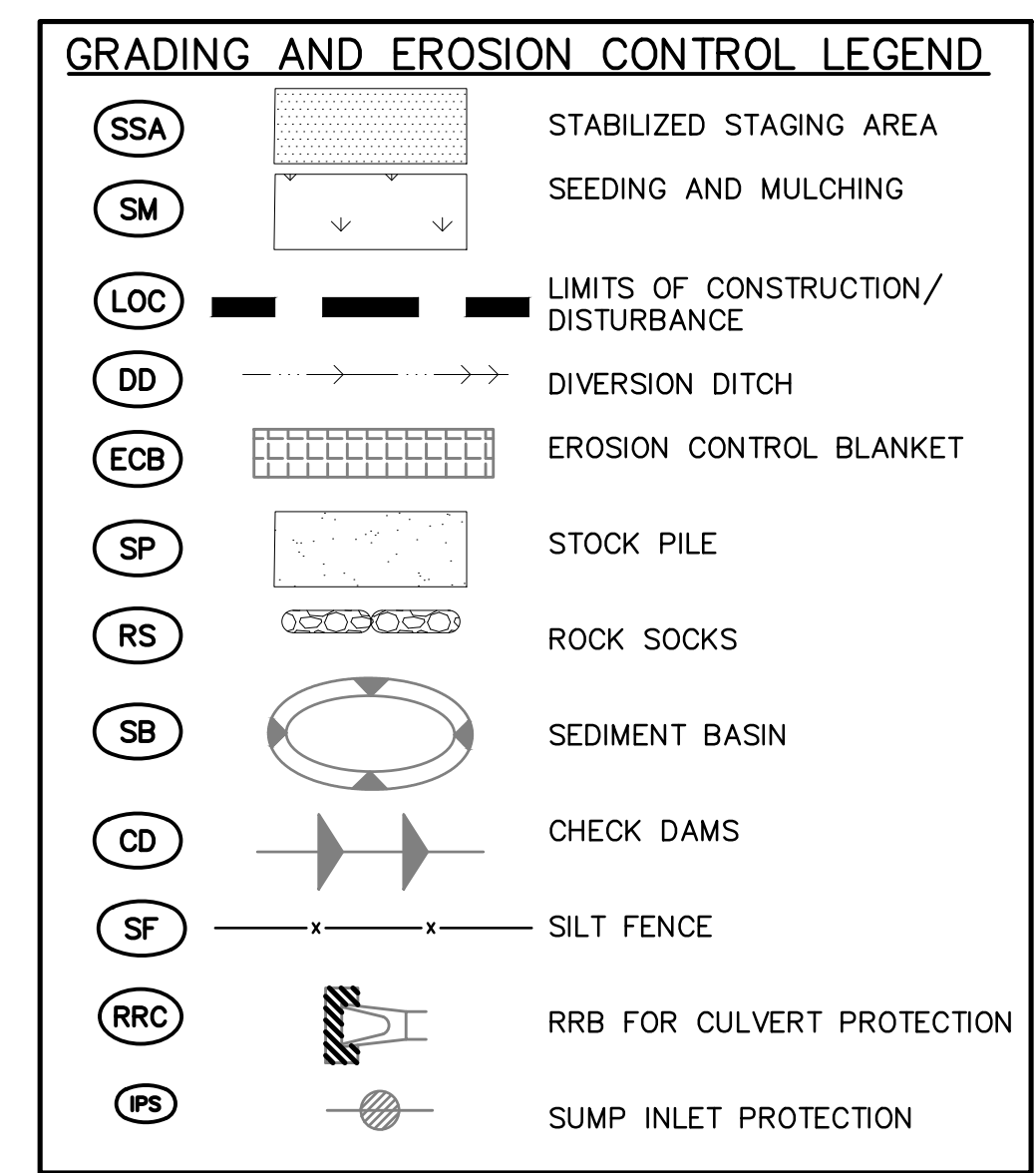
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COLORADO SPRINGS, CO 80920
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JIM BYERS

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FALCON HIGHLANDS SOUTH
EL PASO COUNTY, COLORADO
CONSTRUCTION PLANS
GRADING AND EROSION CONTROL PLAN
INTERIM GEP

CLIENT: CHALLENGER HOMES
DATE: 4/18/2023
SUBMITTAL TO EPC: 07/29/2022 - RDL

REVISIONS

NO.	DESCRIPTION

COUNTY FILE NO.: PUDSP-22-005
DR: JD CH.
P.M. RDL
JOB: 21005234
SHEET NO.: 6

OWNER: WALTON COLORADO LLC
TAX NO. 5300000716
SIGNAGE TO BE INSTALLED PROHIBITING ACCESS FOR CONSTRUCTION

ITEM #11
50' ELECTRIC TRANSMISSION EASEMENT
BOOK 2649, PAGE 17

OWNER: PUBLIC SERVICE CO OF COLORADO
TAX NO. 5300000091

EXIST. 50.0' UTIL ESMT (ELEC.)
BOOK 2649, PAGE 17

CITY OF COLORADO SPRINGS
EL PASO COUNTY

TAMLIN ROAD (EXISTING R.O.W.)
COR. SEC. 12, T13S, R65W, 6TH PM.
OWNER: H2O SUB BLR LLC
TAX NO. 5313001013
AZTEC CONSULTANTS PLS 38256

El Paso County
City of Colorado Springs

Label City and County sides

W 1/16 CORNER SEC. 12 & 13, T13S, R65W, 6TH PM.
FND. #6 REBAR WITH 3 1/4"



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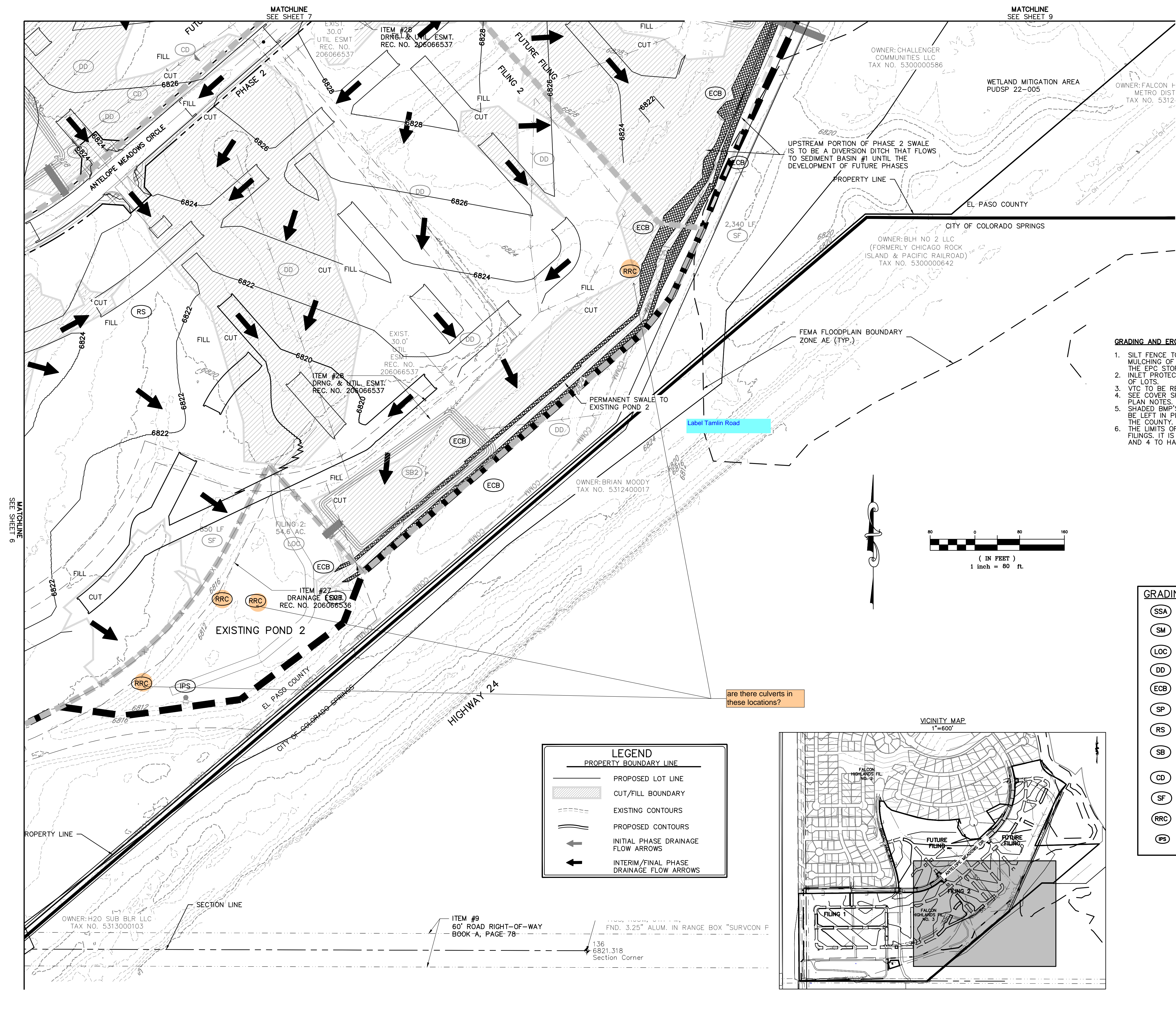
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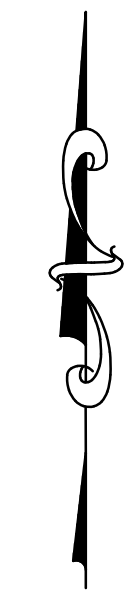
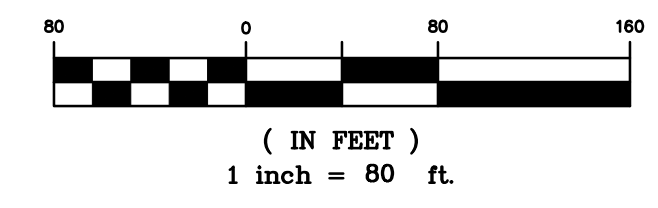
CHALLENGER HOMES
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 EL PASO COUNTY, COLORADO
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 GRADING AND EROSION CONTROL PLAN
 INTERIM GEP

CLIENT: CHALLENGER HOMES
 DATE: 4/18/2023
 A 1st SUBMITTAL TO EPC
 07/29/2022 - RDL

REVISIONS:
 COUNTY FILE NO.: PUDSP-22-005
 DR: JD CH:
 P.M. RDL
 JOB: 21005234
 SHEET NO.: 8



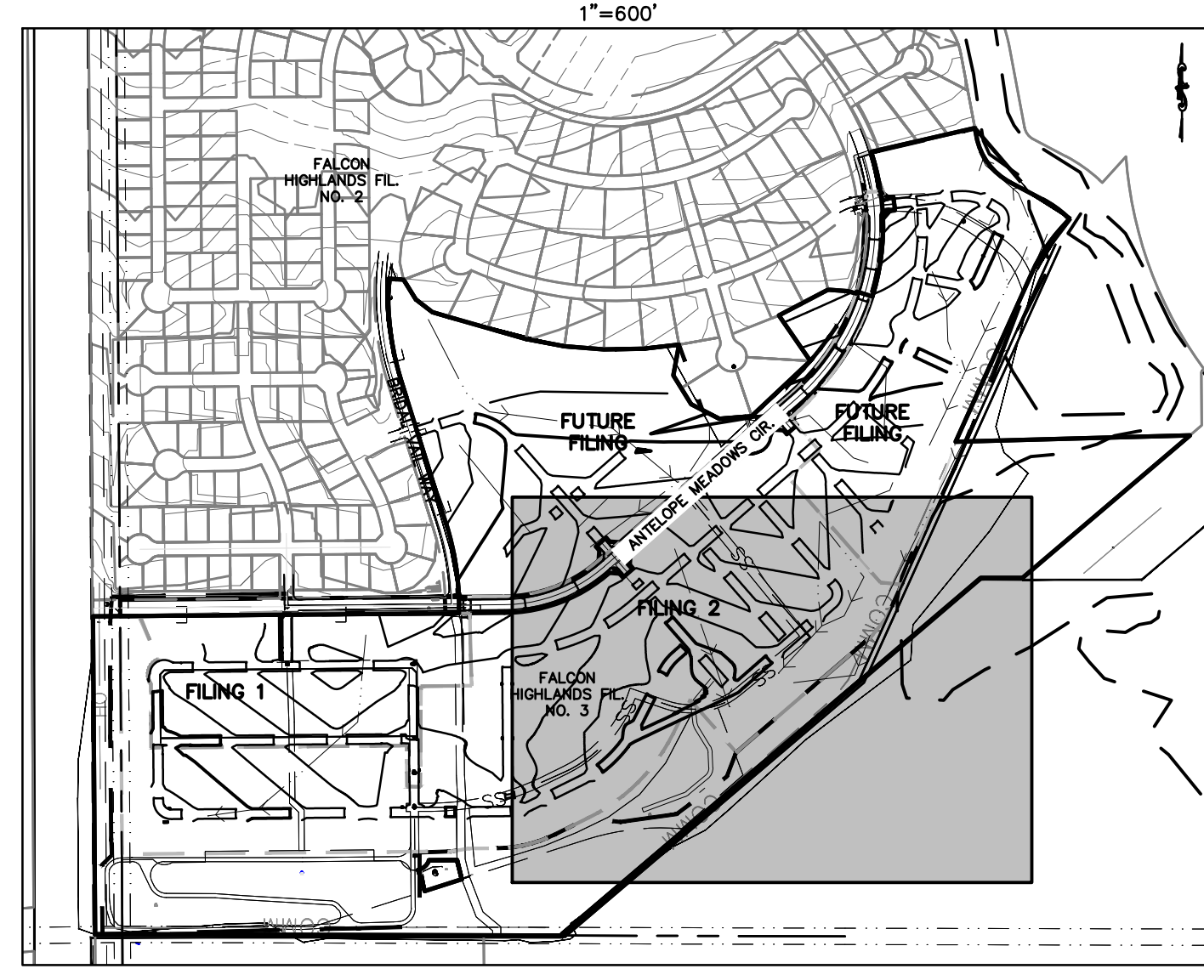
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are there culverts in these locations?

LEGEND

	PROPERTY BOUNDARY LINE
	PROPOSED LOT LINE
	CUT/FILL BOUNDARY
	EXISTING CONTOURS
	PROPOSED CONTOURS
	INITIAL PHASE DRAINAGE FLOW ARROWS
	INTERIM/FINAL PHASE DRAINAGE FLOW ARROWS



GRADING AND EROSION CONTROL LEGEND

	SSA	STABILIZED STAGING AREA
	SM	SEEDING AND MULCHING
	LOC	LIMITS OF CONSTRUCTION/DISTURBANCE
	DD	DIVERSION DITCH
	ECB	EROSION CONTROL BLANKET
	SP	STOCK PILE
	RS	ROCK SOCKS
	SB	SEDIMENT BASIN
	CD	CHECK DAMS
	SF	SILT FENCE
	RRC	RRB FOR CULVERT PROTECTION
	IPS	SUMP INLET PROTECTION

BENCHMARK:
 ELEVATIONS ARE BASED UPON SW COR SEC. 12, T13S, R65W, 6TH PM, FND. 3.25" ALUM. CAP. (ELEVATION: 6810.43=NAVD88).

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MATCHLINE SEE SHEET 6

MATCHLINE SEE SHEET 7

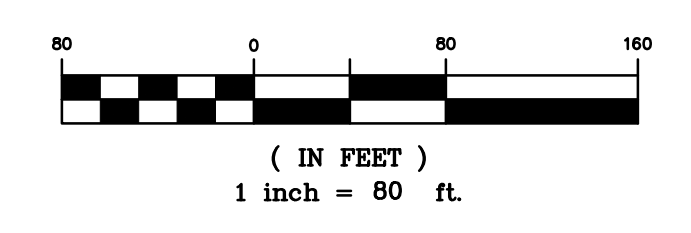
MATCHLINE SEE SHEET 9

OWNER: H2O SUB BLR LLC
 TAX NO. 5313000103

ITEM #9
 60" ROAD RIGHT-OF-WAY
 BOOK A, PAGE 78

136
 6821.318
 Section Corner

CAD FILE: 21005234-GECP-INTERIM.GWG



LEGEND

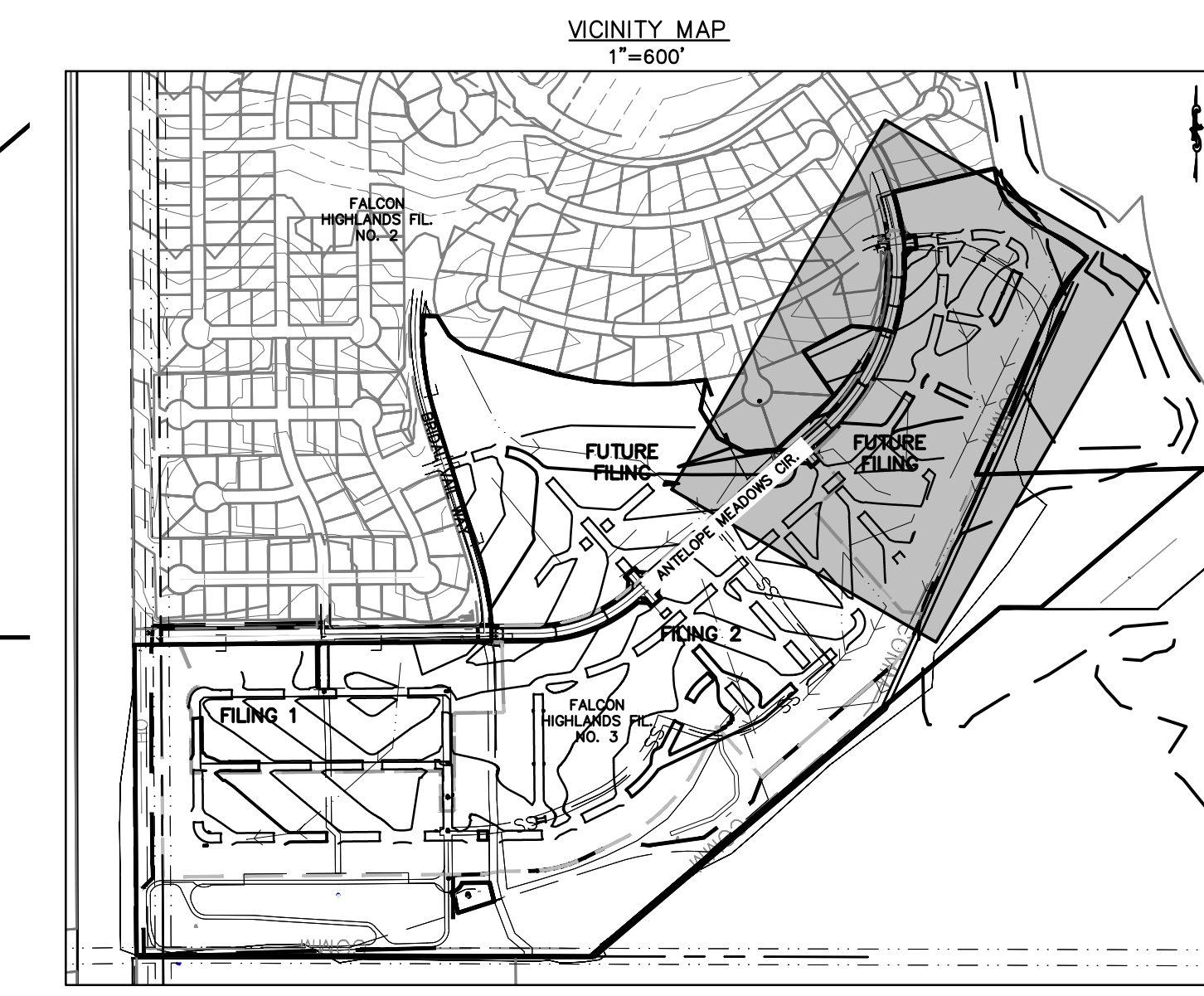
PROPERTY BOUNDARY LINE

	PROPOSED LOT LINE
	CUT/FILL BOUNDARY
	EXISTING CONTOURS
	PROPOSED CONTOURS
	INITIAL PHASE DRAINAGE FLOW ARROWS
	INTERM/FINAL PHASE DRAINAGE FLOW ARROWS

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GRADING AND EROSION CONTROL LEGEND

	SSA	STABILIZED STAGING AREA
	SM	SEEDING AND MULCHING
	LOC	LIMITS OF CONSTRUCTION/DISTURBANCE
	DD	DIVERSION DITCH
	ECB	EROSION CONTROL BLANKET
	SP	STOCK PILE
	RS	ROCK SOCKS
	SB	SEDIMENT BASIN
	CD	CHECK DAMS
	SF	SILT FENCE
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LAKEWOOD, CO 80228
303.462.1100

CHALLENGER HOMES
8605 EXPLORER DRIVE
SUITE 250
COLORADO SPRINGS, CO 80920
719-598-5192
JIM BYERS

CHALLENGER HOMES
FALCON HIGHLANDS SOUTH
EL PASO COUNTY, COLORADO
CONSTRUCTION PLANS
GRADING AND EROSION CONTROL PLAN
INTERIM GEP

CLIENT: CHALLENGER HOMES
DATE: 4/18/2023
SUBMITTAL TO EPIC: 07/29/2022 - RDL

REVISIONS:

COUNTY FILE NO.: PUDSP-22-005
DR: JD CH.
P.M. RDL
JOB: 21005234
SHEET NO. 9

CAD FILE: 21005234-GECP-INTERIM.GWG

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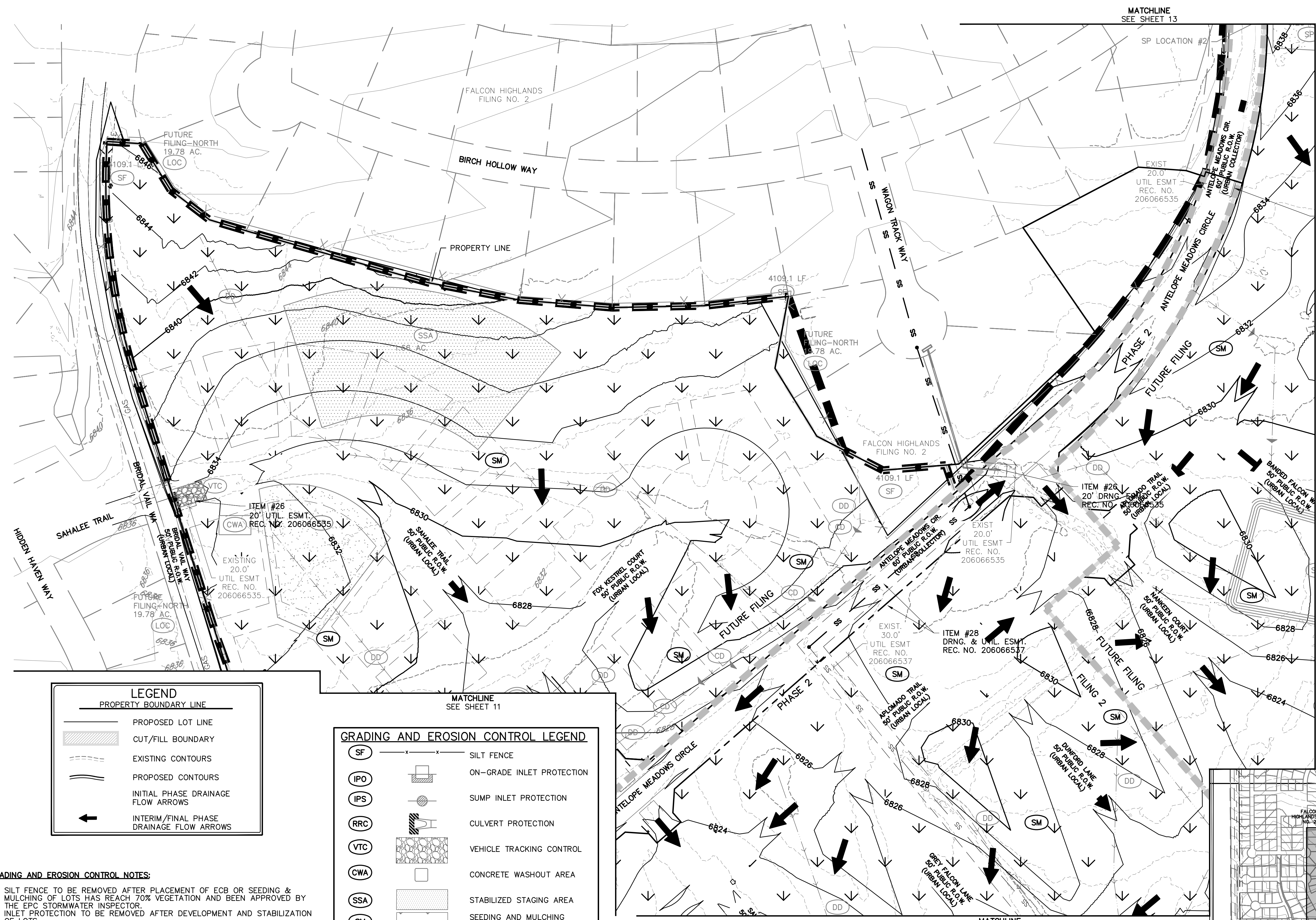
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FINAL GECP

CLIENT: CHALLENGER HOMES
DATE: 4/18/2023
A 1st SUBMITTAL TO EPIC 07/29/2022 - RDL

REVISIONS:
COUNTY FILE NO.: PUDSP-22-005
DR: JD CH:
P.M. RDL
JOB: 21005234
SHEET NO.: 10



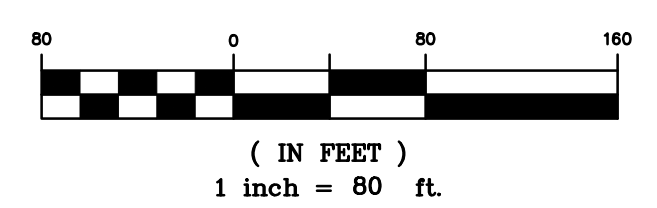
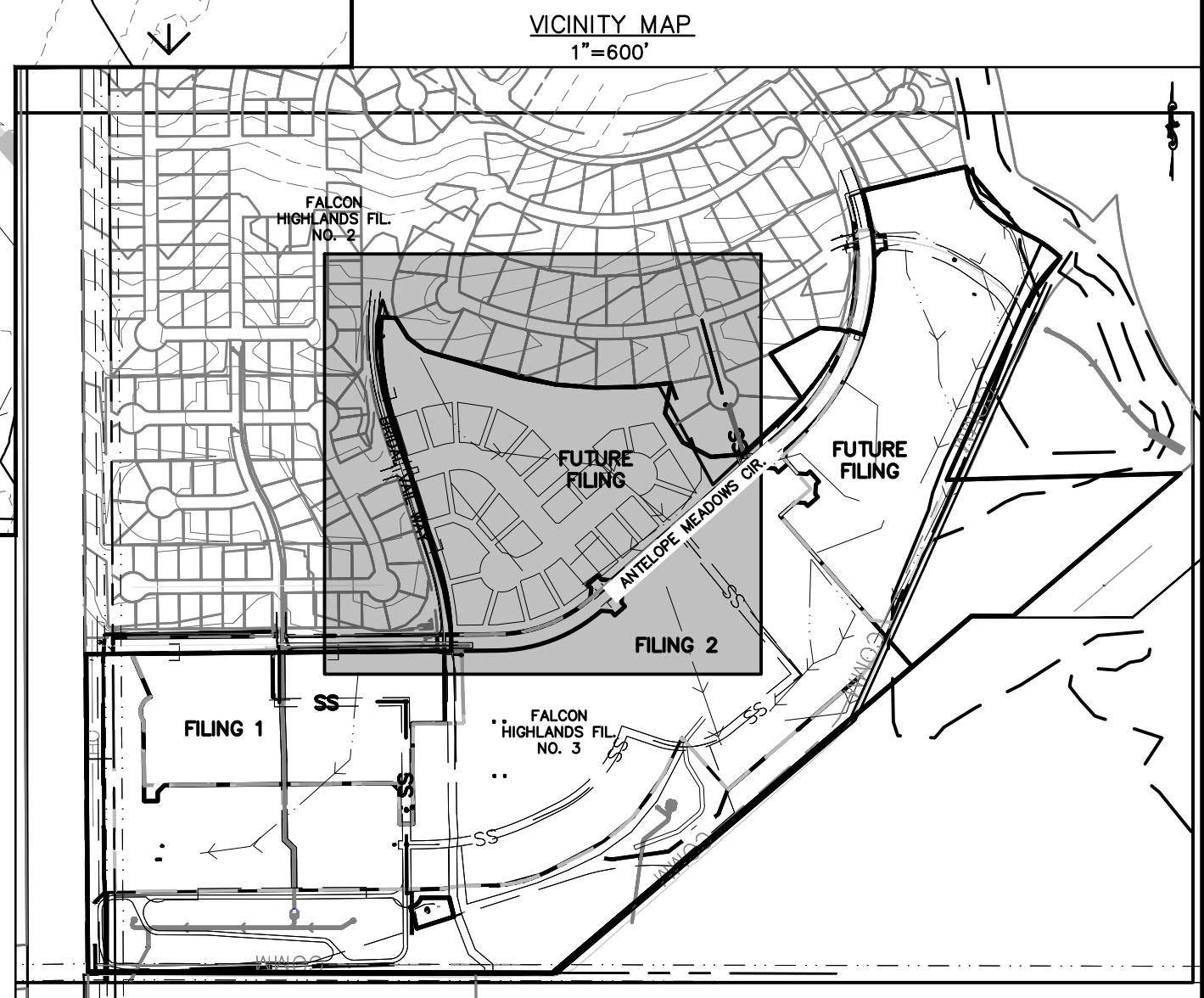
LEGEND

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	PROPOSED LOT LINE
	CUT/FILL BOUNDARY
	EXISTING CONTOURS
	PROPOSED CONTOURS
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GRADING AND EROSION CONTROL LEGEND

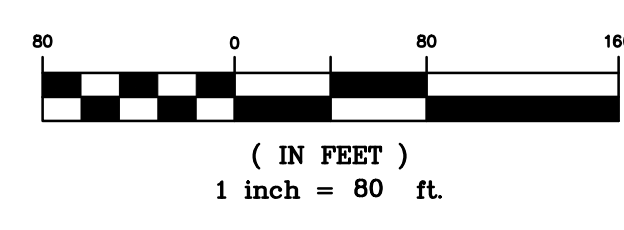
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	ON-GRADE INLET PROTECTION
	SUMP INLET PROTECTION
	CULVERT PROTECTION
	VEHICLE TRACKING CONTROL
	CONCRETE WASHOUT AREA
	STABILIZED STAGING AREA
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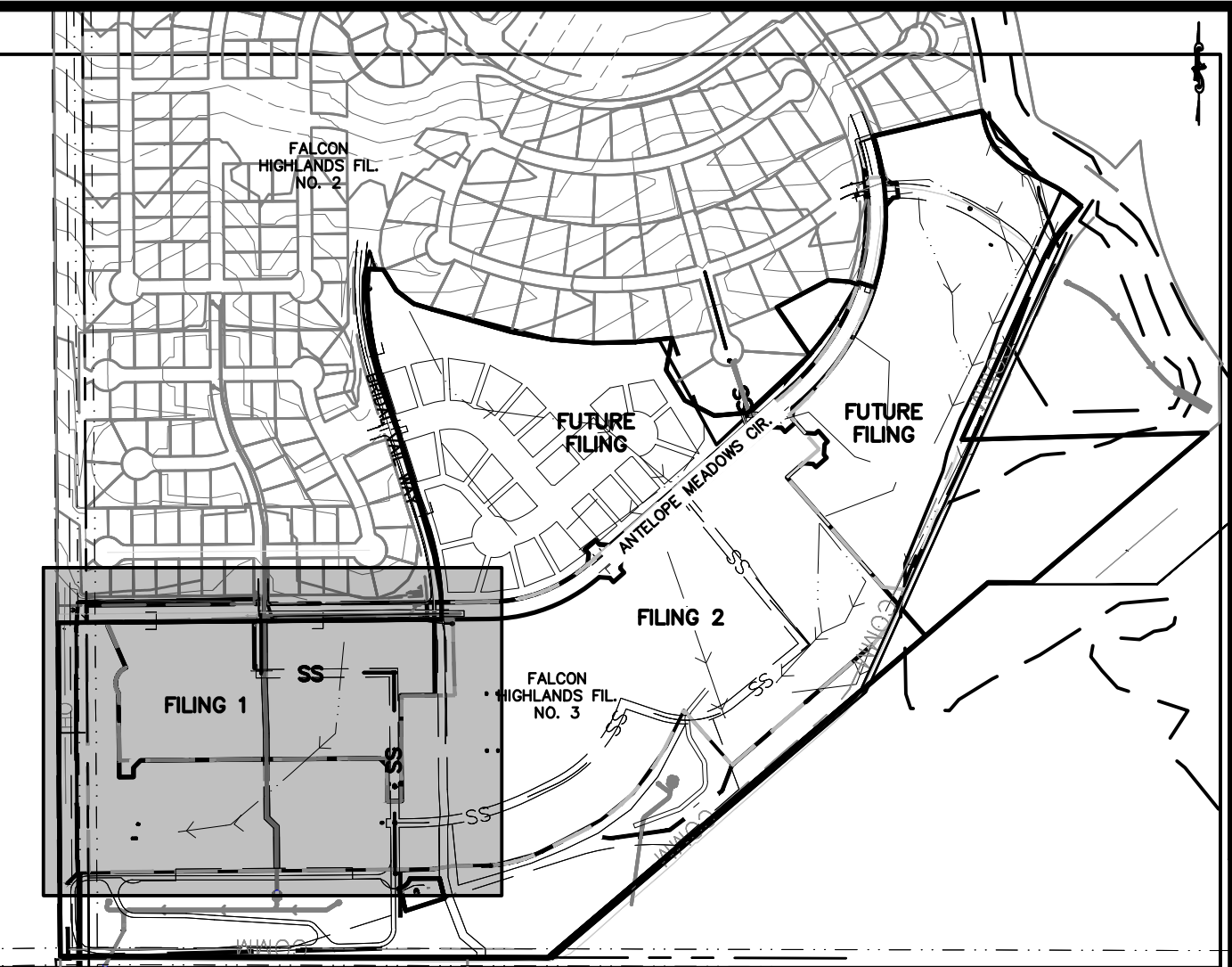


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MATCHLINE
SEE SHEET 10



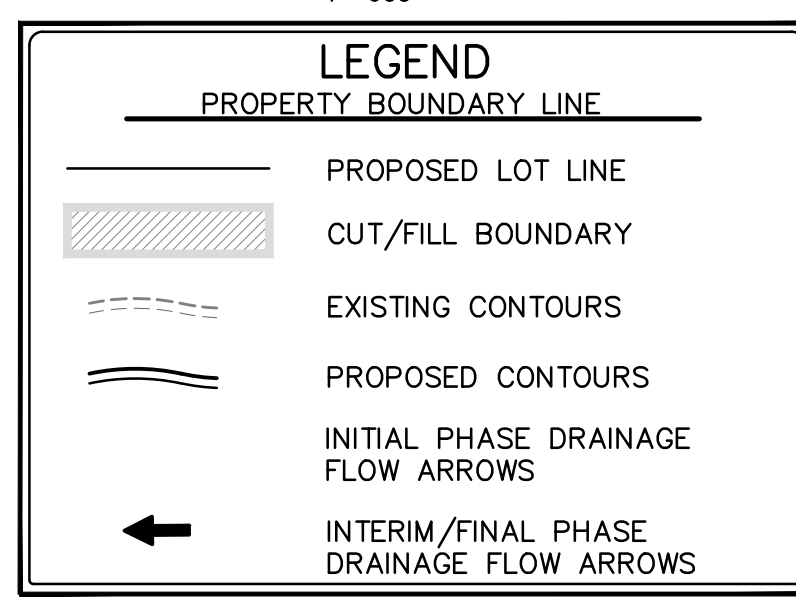
811
Know what's below.
Call before you dig.

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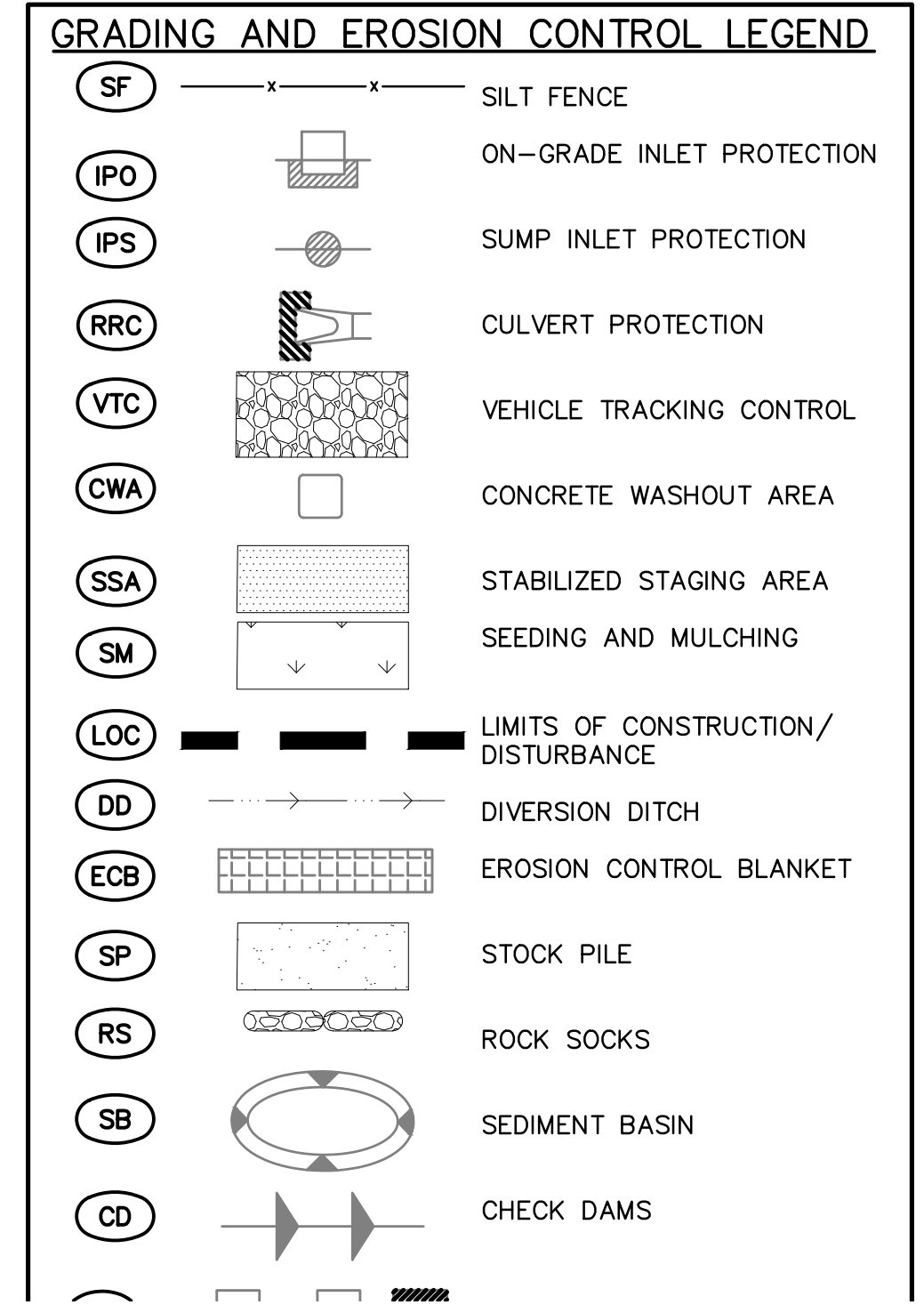
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FALCON HIGHLANDS SOUTH
EL PASO COUNTY, COLORADO
CONSTRUCTION PLANS
GRADING AND EROSION CONTROL PLAN
FINAL GCEP

CLIENT: CHALLENGER HOMES
DATE: 4/18/2023
SUBMITTAL TO EPC: 07/29/2022 - R01

REVISIONS

DR.	JD	CH.
P.M.	RDL	
JOB	21005234	
SHEET NO.	11	

COUNTY FILE NO.: PUDSP-22-005

CAD FILE: 21005234-GCEP-FINAL.DWG



OWNER: WALTON COLORADO LLC
TAX NO. 5300000716
SIGNAGE TO BE INSTALLED PROHIBITING ACCESS FOR CONSTRUCTION

ITEM #11
50' ELECTRIC TRANSMISSION EASEMENT
BOOK 2649, PAGE 17

OWNER: PUBLIC SERVICE CO OF COLORADO
TAX NO. 5300000091

EXIST. 50.0' UTIL ESMT (ELEC.)
BOOK 2649, PAGE 17

CITY OF COLORADO SPRINGS
EL PASO COUNTY

SECTION LINE

PROPOSED FOREBAY

EXISTING OUTLET STRUCTURE
EXIST. OUTLET PIPE & STR

EXIST. WATER LINE (TYP.)

EXIST. COMMUNICATION LINE (TYP.)

EXIST. 60.0' F.E.S. STM SWR

PROPOSED TRICKLE CHANNEL

EXISTING POND 1

ITEM #27 DRAINAGE ESMT. REC. NO. 206066536

ITEM #28 DRNG. & UTIL. ESMT. REC. NO. 206066537

ITEM #24 30' FORCE MAIN EASEMENT REC. NO. 220130580

ITEM #9 60' ROAD RIGHT-OF-WAY BOOK A, PAGE 78

ITEM #232 FALCON HIGHLANDS METRO DIST REC. NO. 206055533

OWNER: H2O SUB BLR LLC
TAX NO. 5313000103

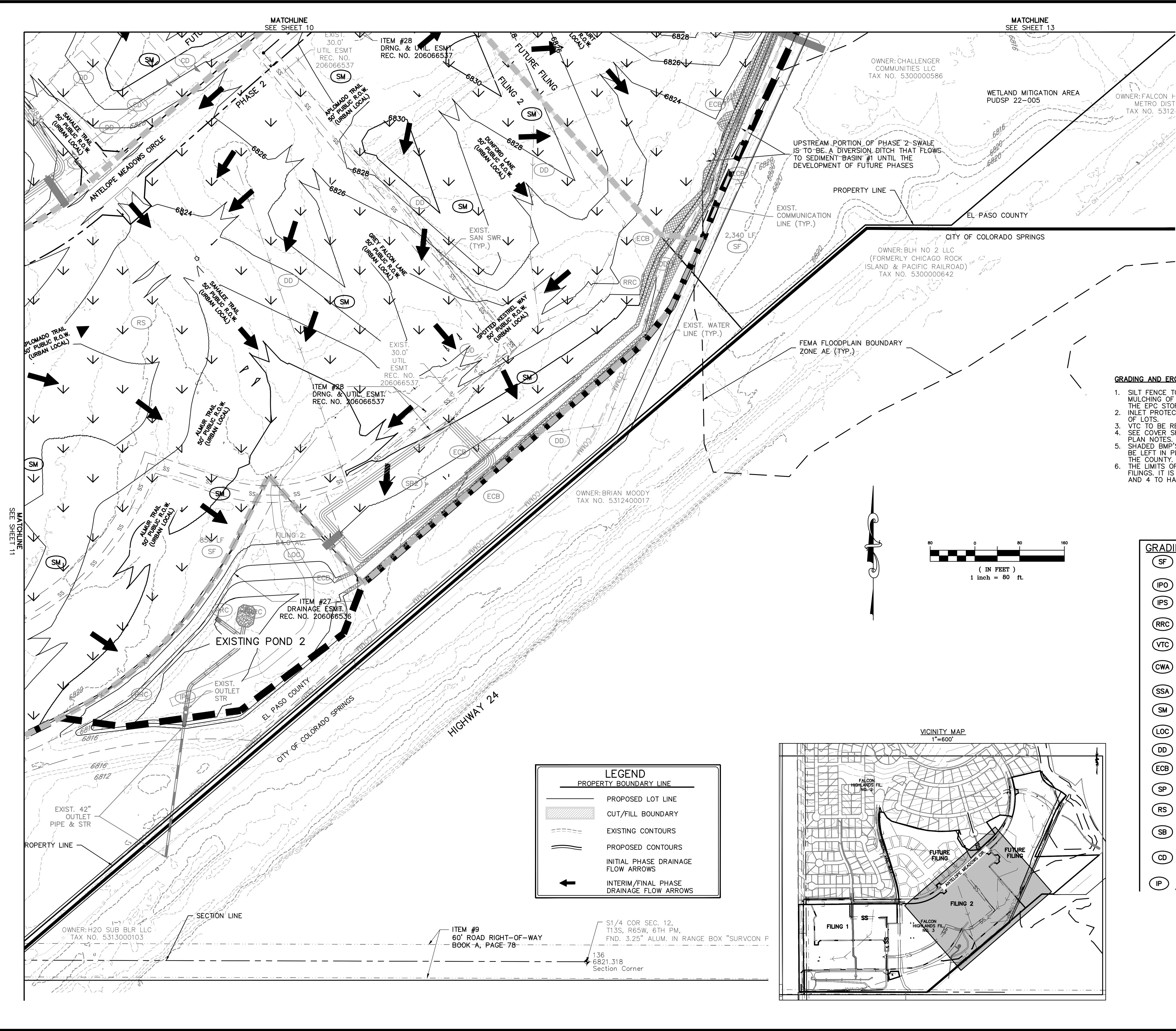
W 1/16 CORNER SEC. 12 & 13, T13S, R65W, 6TH PM, FND. #6 REBAR WITH 3 1/4"

OWNER: H2O SUB BLR LLC
TAX NO. 5313000103

El Paso County
City of Colorado Springs

Label City and County sides

Fix overlapping text



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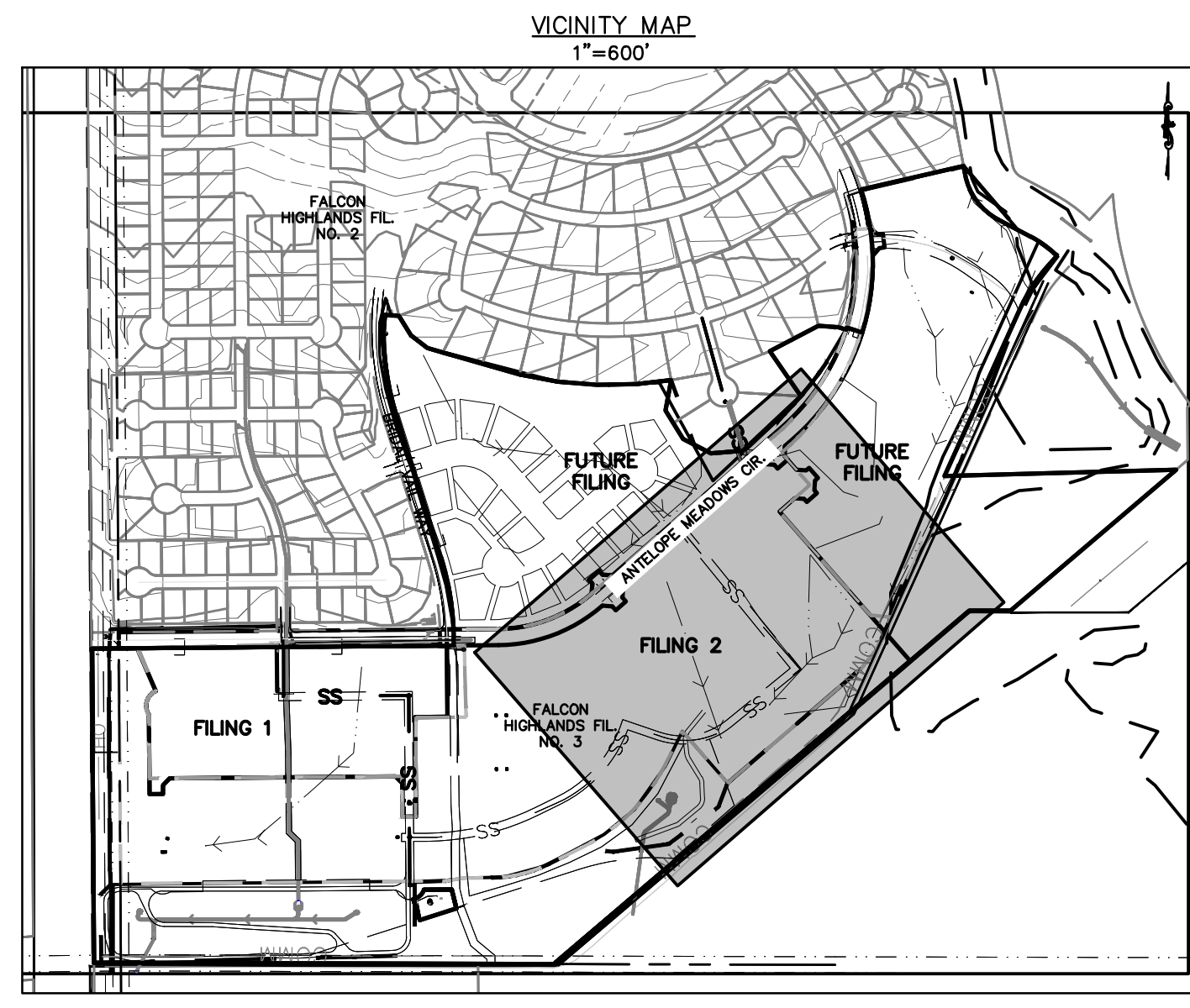
GRADING AND EROSION CONTROL LEGEND

(SF)	SILT FENCE
(IPO)	ON-GRADE INLET PROTECTION
(IPS)	SUMP INLET PROTECTION
(RRC)	CULVERT PROTECTION
(VTC)	VEHICLE TRACKING CONTROL
(CWA)	CONCRETE WASHOUT AREA
(SSA)	STABILIZED STAGING AREA
(SM)	SEEDING AND MULCHING
(LOC)	LIMITS OF CONSTRUCTION/DISTURBANCE
(DD)	DIVERSION DITCH
(ECB)	EROSION CONTROL BLANKET
(SP)	STOCK PILE
(RS)	ROCK SOCKS
(SB)	SEDIMENT BASIN
(CD)	CHECK DAMS
(IP)	INLET PROTECTION

LEGEND

PROPERTY BOUNDARY LINE

(Solid line)	PROPOSED LOT LINE
(Hatched area)	CUT/FILL BOUNDARY
(Dashed line)	EXISTING CONTOURS
(Solid line)	PROPOSED CONTOURS
(Arrow)	INITIAL PHASE DRAINAGE FLOW ARROWS
(Arrow)	INTERIM/FINAL PHASE DRAINAGE FLOW ARROWS



ITEM #9
60" ROAD RIGHT-OF-WAY
BOOK A, PAGE 78

S1/4 COR SEC. 12,
T13S, R65W, 6TH PM,
FND. 3.25" ALUM. IN RANGE BOX "SURVCON F"

136
6821.318
Section Corner

MATCHLINE
SEE SHEET 11

MATCHLINE
SEE SHEET 10

MATCHLINE
SEE SHEET 13

OWNER: H2O SUB BLR LLC
TAX NO. 5313000103

ITEM #28
DRNG. & UTIL. ESMT.
REC. NO. 206066537

ITEM #28
DRNG. & UTIL. ESMT.
REC. NO. 206066537

ITEM #27
DRAINAGE ESMT.
REC. NO. 206066536

OWNER: CHALLENGER
COMMUNITIES LLC
TAX NO. 5300000586

OWNER: FALCON H
METRO DIST
TAX NO. 5312

OWNER: BLH NO 2 LLC
(FORMERLY CHICAGO ROCK
ISLAND & PACIFIC RAILROAD)
TAX NO. 5300000642

OWNER: BRIAN MOODY
TAX NO. 5312400017

WETLAND MITIGATION AREA
PUDSP 22-005

UPSTREAM PORTION OF PHASE 2 SWALE
IS TO BE A DIVERSION DITCH THAT FLOWS
TO SEDIMENT BASIN #1 UNTIL THE
DEVELOPMENT OF FUTURE PHASES

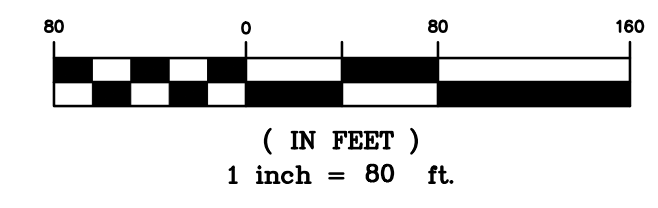
PROPERTY LINE

EXIST. COMMUNICATION
LINE (TYP.)

EL PASO COUNTY

CITY OF COLORADO SPRINGS

FEMA FLOODPLAIN BOUNDARY
ZONE AE (TYP.)



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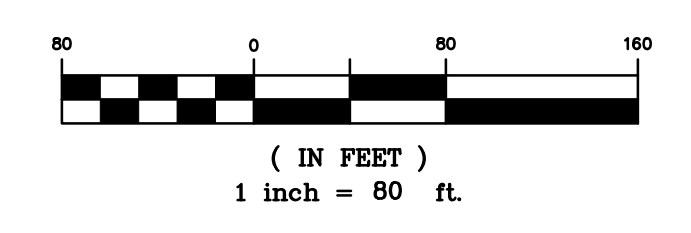


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GRADING AND EROSION CONTROL PLAN
FINAL GECP

CLIENT: CHALLENGER HOMES
DATE: 4/18/2023
SUBMITTAL TO EPC: 07/29/2022 - RDL
REVISIONS:

COUNTY FILE NO.: PUDSP-22-005
DR: JD CH.
P.M. RDL
JOB: 21005234
SHEET NO.: 13



LEGEND	
	PROPERTY BOUNDARY LINE
	PROPOSED LOT LINE
	CUT/FILL BOUNDARY
	EXISTING CONTOURS
	PROPOSED CONTOURS
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	INTERIM/FINAL PHASE DRAINAGE FLOW ARROWS

GRADING AND EROSION CONTROL NOTES:

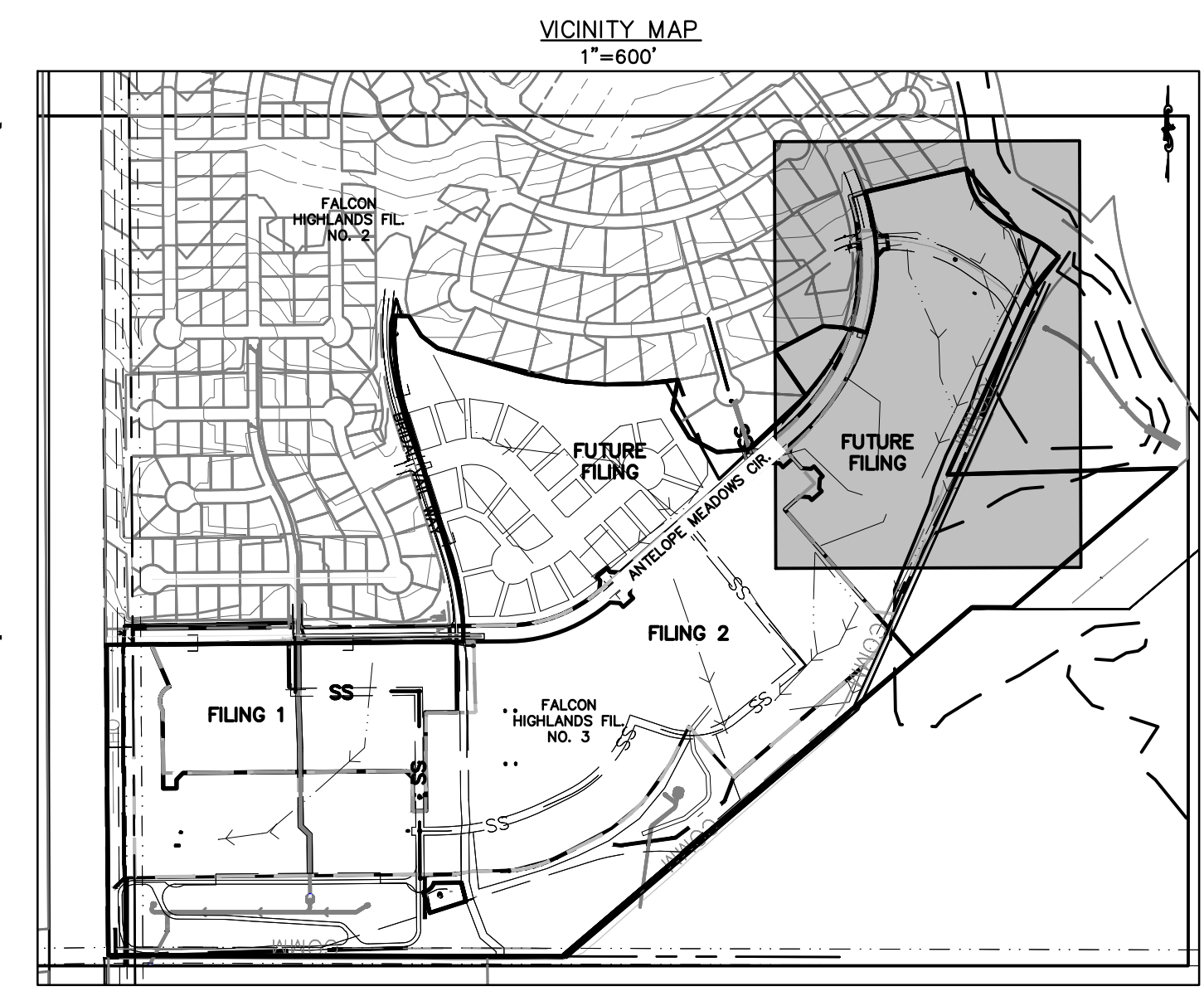
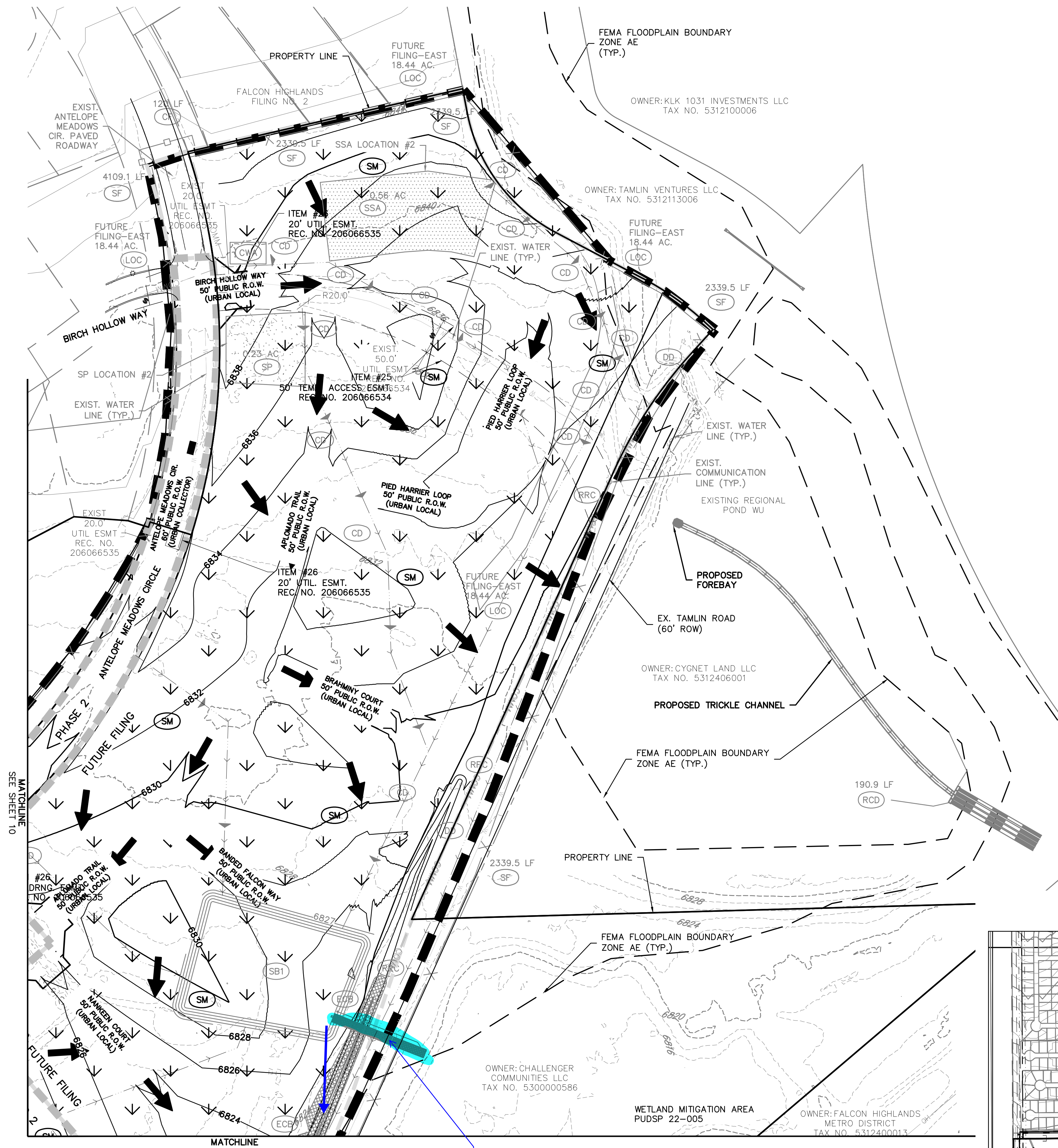
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MATCHLINE SEE SHEET 10
MATCHLINE SEE SHEET 12
See sheet 5 comment

3/11/22, 9:39 PM AppF-60.png (987*1314)

STREET GRADE %	INTERVAL (FT)
0-2	500
2-4	200
4-6	120
6-8	90
8-10	70
10-12	50
12-15	35

8/11/11 Typical Check Dam Detail
 DATE APPROVED: André P. Brackin
 DEPARTMENT OF TRANSPORTATION
 REVISION DATE: 11/10/04
 FILE NAME: SD_3-62
 DEPARTMENT OF TRANSPORTATION

EC-6 Rolled Erosion Control Products (RECP)

ECB-1. PIPE OUTLET TO DRAINAGEWAY

ECB-2. SMALL DITCH OR DRAINAGEWAY

ECB-3. OUTSIDE OF DRAINAGEWAY

ANCHOR DETAILS:
 GEOTEXTILE FABRIC OR MAT, TYP. 3" MIN. TYP.
 18" MIN. TYP. SINGLE EDGE STAKE, TYP.
 PERIMETER ANCHOR TRENCH
 TWO EDGES OF TWO ADJACENT ROLLS
 LOOP FROM MIDDLE OF ROLL
 INTERMEDIATE ANCHOR TRENCH
 6" TYP.
 OVERLAPPING JOINT
 12" MIN. TYP.
 WOOD STAKE DETAIL

RECP-6 Urban Drainage and Flood Control District November 2010
 Urban Storm Drainage Criteria Manual Volume 3

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PLAN VIEW

SECTION A-A

SIEVE SIZE	MASS PERCENT PASSING SQUARE MESH SIEVES
NO. 4	100
2"	90 - 100
1 1/2"	20 - 55
1"	0 - 15
3/4"	0 - 5
3/8"	0 - 5

1. SIGN MATERIAL, EXCAVATION, AND RESTORATION ARE INCLUDED IN THE COST OF THE CONCRETE WASHOUT STRUCTURE.
 2. EROSION BALES MAY BE USED AS AN ALTERNATIVE FOR THE BERM.

1/1/08 Concrete Washout Structure
 DATE APPROVED: John A. McCarty
 DEPARTMENT OF TRANSPORTATION
 REVISION DATE: 7/17/07
 FILE NAME: SD_3-84
 DEPARTMENT OF TRANSPORTATION

EC-6 Rolled Erosion Control Products (RECP)

ECB-3. OUTSIDE OF DRAINAGEWAY

STAKING PATTERNS BY ECB TYPE

STAKING PATTERNS BY SLOPE OR CHANNEL TYPE

STRAW
 STRAW-COCOONUT
 COCONUT OR EXCELSIOR

LOW FLOW CHANNEL
 HIGH FLOW CHANNEL

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SC-5 Rock Sock (RS)

ROCK SOCK SECTION

ROCK SOCK PLAN

ROCK SOCK JOINTING

ROCK SOCK INSTALLATION NOTES

1. SEE PLAN VIEW FOR: -LOCATION(S) OF ROCK SOCKS.
 2. CRUSHED ROCK SHALL BE 1/2" (MINUS) IN SIZE WITH A FRACTURED FACE (ALL SIDES) AND SHALL COMPLY WITH GRADATION SHOWN ON THIS SHEET (1/2" MINUS).
 3. WIRE MESH SHALL BE FABRICATED OF 10 GAUGE POULTRY MESH, OR EQUIVALENT, WITH A MAXIMUM OPENING OF 1/2", RECOMMENDED MINIMUM ROLL WIDTH OF 48"
 4. WIRE MESH SHALL BE SECURED USING "HOG RINGS" OR WIRE TIES AT 6" CENTERS ALONG ALL JOINTS AND AT 2" CENTERS ON ENDS OF SOCKS.
 5. SOME MUNICIPALITIES MAY ALLOW THE USE OF FILTER FABRIC AS AN ALTERNATIVE TO WIRE MESH FOR THE ROCK ENCLOSURE.

RS-1. ROCK SOCK PERIMETER CONTROL

RS-2 Urban Drainage and Flood Control District November 2010
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EC-6 Rolled Erosion Control Products (RECP)

EROSION CONTROL BLANKET INSTALLATION NOTES

1. SEE PLAN VIEW FOR: -LOCATION OF ECB. -TYPE OF ECB (STRAW, STRAW-COCOONUT, COCONUT, OR EXCELSIOR). -AREA, A, IN SQUARE YARDS OF EACH TYPE OF ECB.
 2. 100% NATURAL AND BIODEGRADABLE MATERIALS ARE PREFERRED FOR RECPs, ALTHOUGH SOME JURISDICTIONS MAY ALLOW OTHER MATERIALS IN SOME APPLICATIONS.
 3. IN AREAS WHERE ECBs ARE SHOWN ON THE PLANS, THE PERMITTEE SHALL PLACE TOPSOIL AND PERFORM FINAL GRADING, SURFACE PREPARATION, AND SEEDING AND MULCHING. SUBGRADE SHALL BE SMOOTH AND MOIST PRIOR TO ECB INSTALLATION AND THE ECB SHALL BE IN FULL CONTACT WITH SUBGRADE. NO GAPS OR VOIDS SHALL EXIST UNDER THE BLANKET.
 4. PERIMETER ANCHOR TRENCH SHALL BE USED ALONG THE OUTSIDE PERIMETER OF ALL BLANKET AREAS.
 5. JOINT ANCHOR TRENCH SHALL BE USED TO JOIN ROLLS OF ECBs TOGETHER (LONGITUDINALLY AND TRANSVERSELY) FOR ALL ECBs EXCEPT STRAW WHICH MAY USE AN OVERLAPPING JOINT.
 6. INTERMEDIATE ANCHOR TRENCH SHALL BE USED AT SPACING OF ONE-HALF ROLL LENGTH FOR COCONUT AND EXCELSIOR ECBs.
 7. OVERLAPPING JOINT DETAIL SHALL BE USED TO JOIN ROLLS OF ECBs TOGETHER FOR ECBs ON SLOPES.
 8. MATERIAL SPECIFICATIONS OF ECBs SHALL CONFORM TO TABLE ECB-1.
 9. ANY AREAS OF SEEDING AND MULCHING DISTURBED IN THE PROCESS OF INSTALLING ECBs SHALL BE RESEEDED AND MULCHED.
 10. DETAILS ON DESIGN PLANS FOR MAJOR DRAINAGEWAY STABILIZATION WILL GOVERN IF DIFFERENT FROM THOSE SHOWN HERE.

TYPE	COCONUT CONTENT	STRAW CONTENT	EXCELSIOR CONTENT	RECOMMENDED NETTING**
STRAW*	-	100%	-	DOUBLE/NATURAL
STRAW-COCOONUT	30% MIN	70% MAX	-	DOUBLE/NATURAL
COCONUT	100%	-	-	DOUBLE/NATURAL
EXCELSIOR	-	-	100%	DOUBLE/NATURAL

*STRAW ECBs MAY ONLY BE USED OUTSIDE OF STRAWS AND DRAINAGE CHANNEL.
 **ALTERNATE NETTING MAY BE ACCEPTABLE IN SOME JURISDICTIONS.

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Rock Sock (RS) SC-5

ROCK SOCK MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
 2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
 3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
 4. ROCK SOCKS SHALL BE REPLACED IF THEY BECOME HEAVILY SOILED, OR DAMAGED BEYOND REPAIR.
 5. SEDIMENT ACCUMULATED UPSTREAM OF ROCK SOCKS SHALL BE REMOVED AS NEEDED TO MAINTAIN FUNCTIONALITY OF THE BMP. TYPICALLY WHEN DEPTH OF ACCUMULATED SEDIMENTS IS APPROXIMATELY 1/2 OF THE HEIGHT OF THE ROCK SOCK.
 6. ROCK SOCKS ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION.
 7. WHEN ROCK SOCKS ARE REMOVED, ALL DISTURBED AREAS SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.

(DETAILS ADAPTED FROM TOWN OF PARKER, COLORADO AND CITY OF AURORA, COLORADO, NOT AVAILABLE IN AUTOCAD)

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

NOTE: THE DETAILS INCLUDED WITH THIS FACT SHEET SHOW COMMONLY USED, CONVENTIONAL METHODS OF ROCK SOCK INSTALLATION IN THE DENVER METROPOLITAN AREA. THERE ARE MANY OTHER SIMILAR PROPRIETARY PRODUCTS ON THE MARKET. UDFCD NEITHER ENDORSES NOR DISCOURAGES USE OF PROPRIETARY PROTECTION PRODUCTS; HOWEVER, IN THE EVENT PROPRIETARY METHODS ARE USED, THE APPROPRIATE DETAIL FROM THE MANUFACTURER MUST BE INCLUDED IN THE SWMP AND THE BMP MUST BE INSTALLED AND MAINTAINED AS SHOWN IN THE MANUFACTURER'S DETAILS.

RS-3 Urban Drainage and Flood Control District November 2010
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EC-6 Rolled Erosion Control Products (RECP)

EROSION CONTROL BLANKET 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. ECBs SHALL BE LEFT IN PLACE TO EVENTUALLY BIODEGRADE, UNLESS REQUESTED TO BE REMOVED BY THE LOCAL JURISDICTION.
 5. ANY ECB PULLED OUT, TORN, OR OTHERWISE DAMAGED SHALL BE REPAIRED OR REINSTALLED. ANY SUBGRADE AREAS BELOW THE GEOTEXTILE THAT HAVE ERODED TO CREATE A VOID UNDER THE BLANKET, OR THAT REMAIN DEVOID OF GRASS SHALL BE REPAIRED, RESEEDED AND MULCHED AND THE ECB REINSTALLED.

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.

(DETAILS ADAPTED FROM DOUGLAS COUNTY, COLORADO AND TOWN OF PARKER, COLORADO, NOT AVAILABLE IN AUTOCAD)

RECP-9 Urban Drainage and Flood Control District November 2010
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THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

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

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CHALLENGER HOMES
 FALCON HIGHLANDS SOUTH
 EL PASO COUNTY, COLORADO
 CONSTRUCTION PLANS
 GRADING AND EROSION CONTROL PLAN
 DETAIL GECP

DATE: 4/18/2023
 A 1st SUBMITTAL TO EPIC 07/29/2022 - RDL

COUNTY FILE NO.: PUDSP-22-005

DR. JD CH.

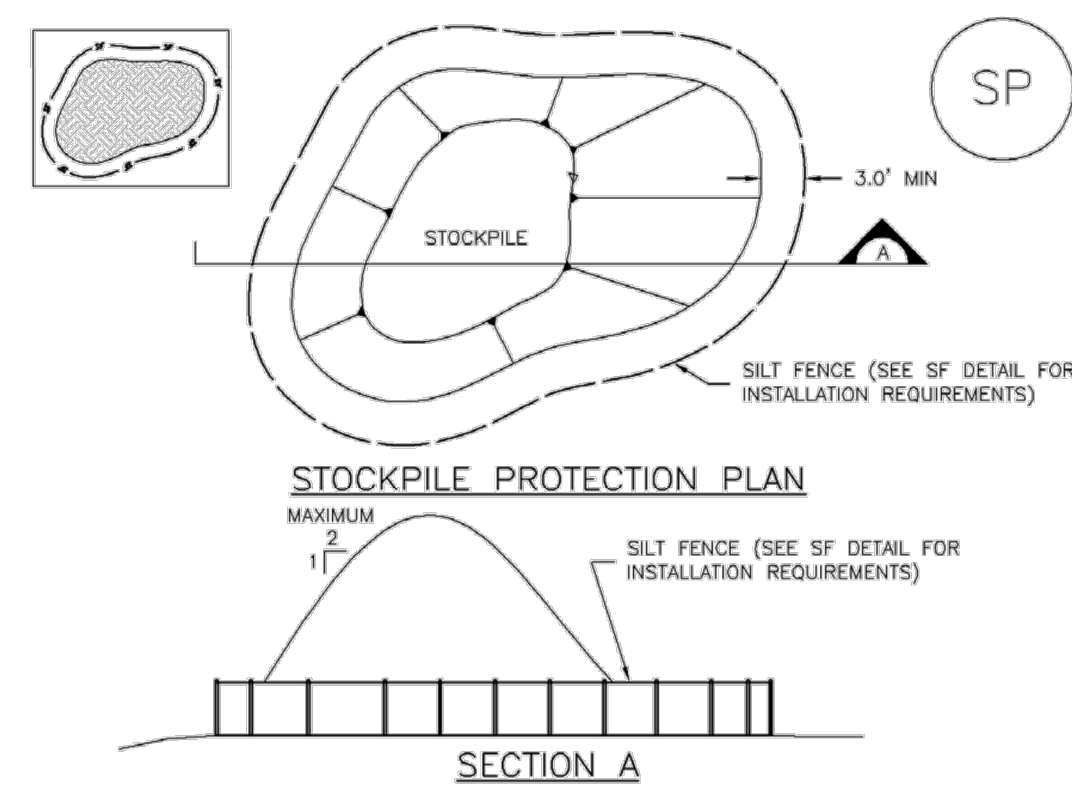
P.M. RDL

JOB: 21005234

SHEET NO.

14

Stockpile Management (SP) MM-2



SP-1. STOCKPILE PROTECTION

- STOCKPILE PROTECTION INSTALLATION NOTES**
- SEE PLAN VIEW FOR:
 - LOCATION OF STOCKPILES.
 - TYPE OF STOCKPILE PROTECTION.
 - INSTALL PERIMETER CONTROLS IN ACCORDANCE WITH THEIR RESPECTIVE DESIGN DETAILS. SILT FENCE IS SHOWN IN THE STOCKPILE PROTECTION DETAILS HOWEVER, OTHER TYPES OF PERIMETER CONTROLS INCLUDING SEDIMENT CONTROL LOGS OR ROCK SOCKS MAY BE SUITABLE IN SOME CIRCUMSTANCES. CONSIDERATIONS FOR DETERMINING THE APPROPRIATE TYPE OF PERIMETER CONTROL FOR A STOCKPILE INCLUDE WHETHER THE STOCKPILE IS LOCATED ON A PERVIOUS OR IMPVIOUS SURFACE, THE RELATIVE HEIGHTS OF THE PERIMETER CONTROL AND STOCKPILE, THE ABILITY OF THE PERIMETER CONTROL TO CONTAIN THE STOCKPILE WITHOUT FAILING IN THE EVENT THAT MATERIAL FROM THE STOCKPILE SHIFTS OR SLUMPS AGAINST THE PERIMETER, AND OTHER FACTORS.
 - STABILIZE THE STOCKPILE SURFACE WITH SURFACE ROUGHENING, TEMPORARY SEEDING AND MULCHING, EROSION CONTROL BLANKETS OR SOIL BINDERS. SOILS STOCKPILED FOR AN EXTENDED PERIOD (TYPICALLY FOR MORE THAN 60 DAYS) SHOULD BE SEEDED AND MULCHED WITH A TEMPORARY GRASS COVER ONCE THE STOCKPILE IS PLACED (TYPICALLY WITHIN 14 DAYS). USE OF MULCH ONLY OR A SOIL BINDER IS ACCEPTABLE IF THE STOCKPILE WILL BE IN PLACE FOR A MORE LIMITED TIME PERIOD (TYPICALLY 30-60 DAYS).
 - FOR TEMPORARY STOCKPILES ON THE INTERIOR PORTION OF A CONSTRUCTION SITE, WHERE OTHER DOWNGRADIENT CONTROLS, INCLUDING PERIMETER CONTROL, ARE IN PLACE, STOCKPILE PERIMETER CONTROLS MAY NOT BE REQUIRED.

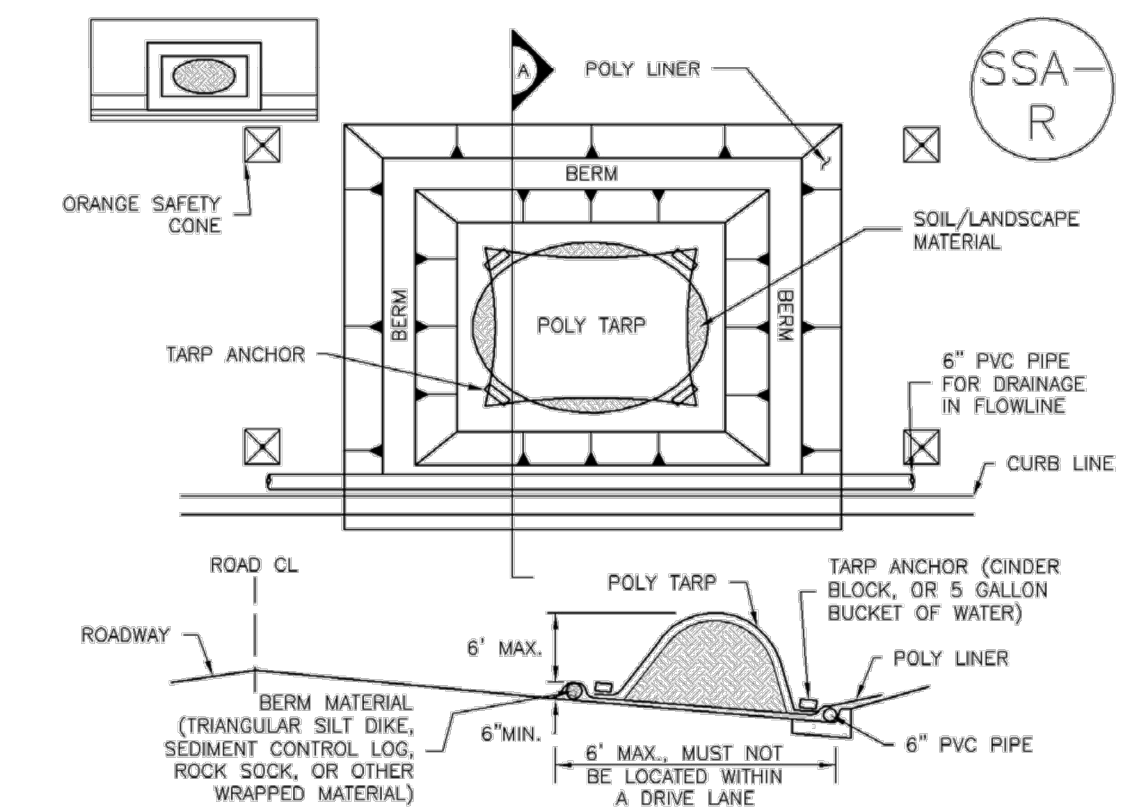
November 2010 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 SP-3

Stockpile Management (SM) MM-2

- STOCKPILE PROTECTION MAINTENANCE NOTES**
- 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.
 - FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
 - WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
- STOCKPILE PROTECTION MAINTENANCE NOTES**
- IF PERIMETER PROTECTION MUST BE MOVED TO ACCESS SOIL STOCKPILE, REPLACE PERIMETER CONTROLS BY THE END OF THE WORKDAY.
 - STOCKPILE PERIMETER CONTROLS CAN BE REMOVED ONCE ALL THE MATERIAL FROM THE STOCKPILE HAS BEEN USED.
- (DETAILS ADAPTED FROM 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.

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Stockpile Management (SP) MM-2



SP-2. MATERIALS STAGING IN ROADWAY

- MATERIALS STAGING IN ROADWAYS INSTALLATION NOTES**
- SEE PLAN VIEW FOR:
 - LOCATION OF MATERIAL STAGING AREA(S).
 - CONTRACTOR MAY ADJUST LOCATION AND SIZE OF STAGING AREA WITH APPROVAL FROM THE LOCAL JURISDICTION.
 - FEATURE MUST BE INSTALLED PRIOR TO EXCAVATION, EARTHWORK OR DELIVERY OF MATERIALS.
 - MATERIALS MUST BE STATIONED ON THE POLY LINER. ANY INCIDENTAL MATERIALS DEPOSITED ON PAVED SECTION OR ALONG CURB LINE MUST BE CLEANED UP PROMPTLY.
 - POLY LINER AND TARP COVER SHOULD BE OF SIGNIFICANT THICKNESS TO PREVENT DAMAGE OR LOSS OF INTEGRITY.
 - SAND BAGS MAY BE SUBSTITUTED TO ANCHOR THE COVER TARP OR PROVIDE BERMING UNDER THE BASE LINER.
 - FEATURE IS NOT INTENDED FOR USE WITH WET MATERIAL THAT WILL BE DRAINING AND/OR SPREADING OUT ON THE POLY LINER OR FOR DEMOLITION MATERIALS.
 - THIS FEATURE CAN BE USED FOR:
 - UTILITY REPAIRS.
 - WHEN OTHER STAGING LOCATIONS AND OPTIONS ARE LIMITED.
 - OTHER LIMITED APPLICATION AND SHORT DURATION STAGING.

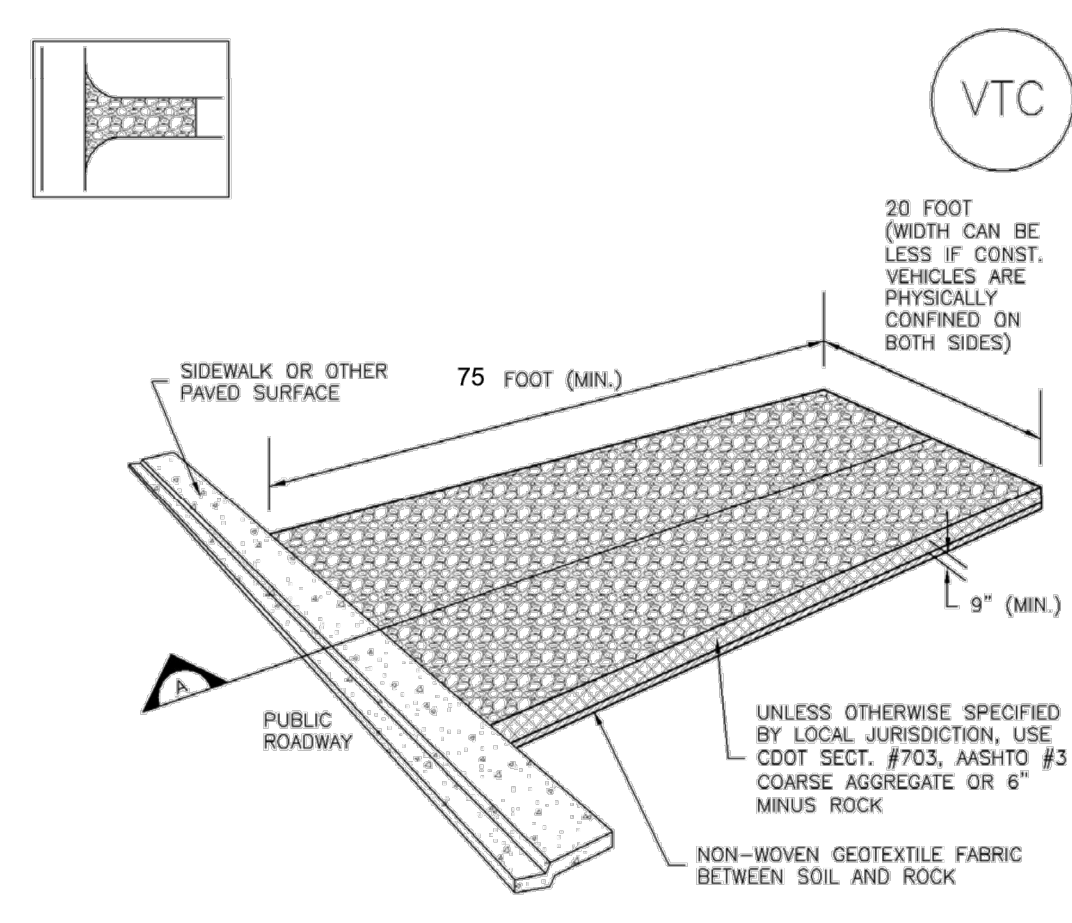
November 2010 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 SP-5

Stockpile Management (SM) MM-2

- MATERIALS STAGING IN ROADWAY MAINTENANCE NOTES**
- 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.
 - FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
 - WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
 - INSPECT PVC PIPE ALONG CURB LINE FOR CLOGGING AND DEBRIS. REMOVE OBSTRUCTIONS PROMPTLY.
 - CLEAN MATERIAL FROM PAVED SURFACES BY SWEEPING OR VACUUMING.
- 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.
- (DETAILS ADAPTED FROM AURORA, COLORADO)

SP-6 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 November 2010

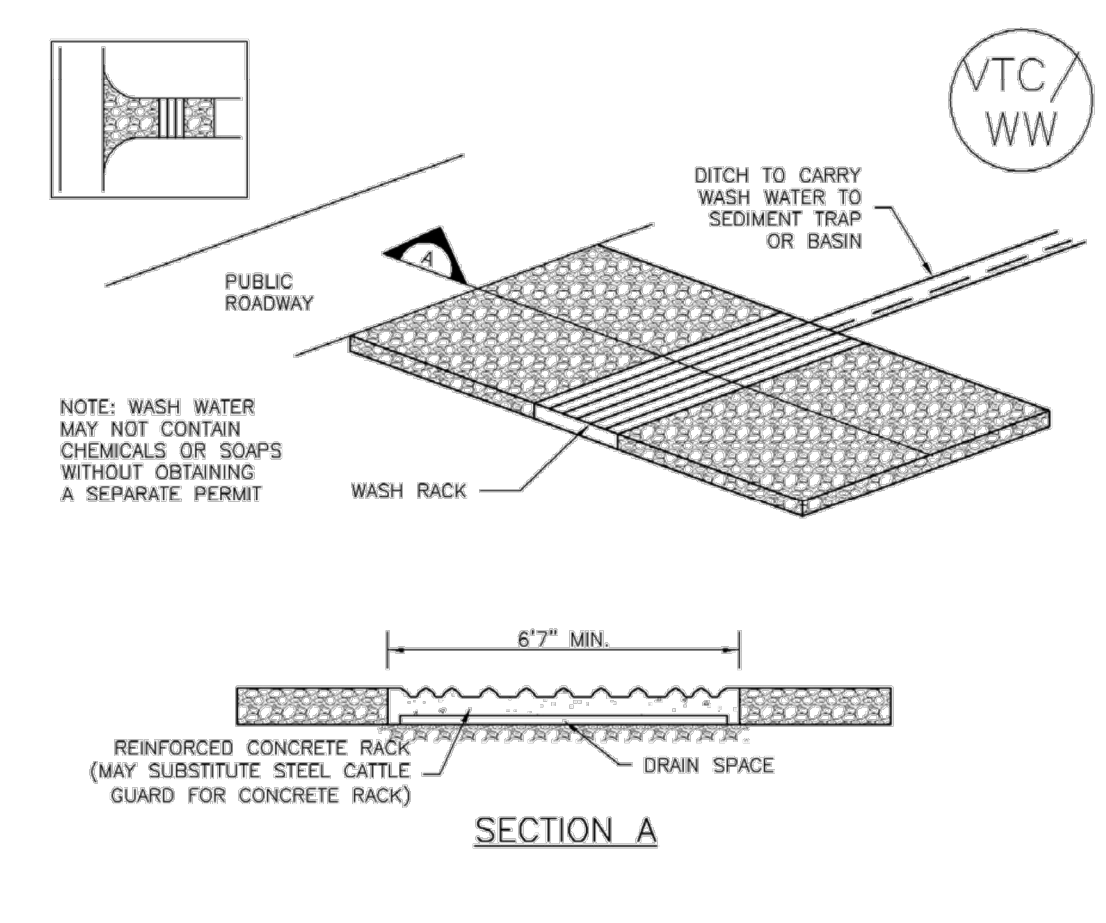
Vehicle Tracking Control (VTC) SM-4



VTC-1. AGGREGATE VEHICLE TRACKING CONTROL

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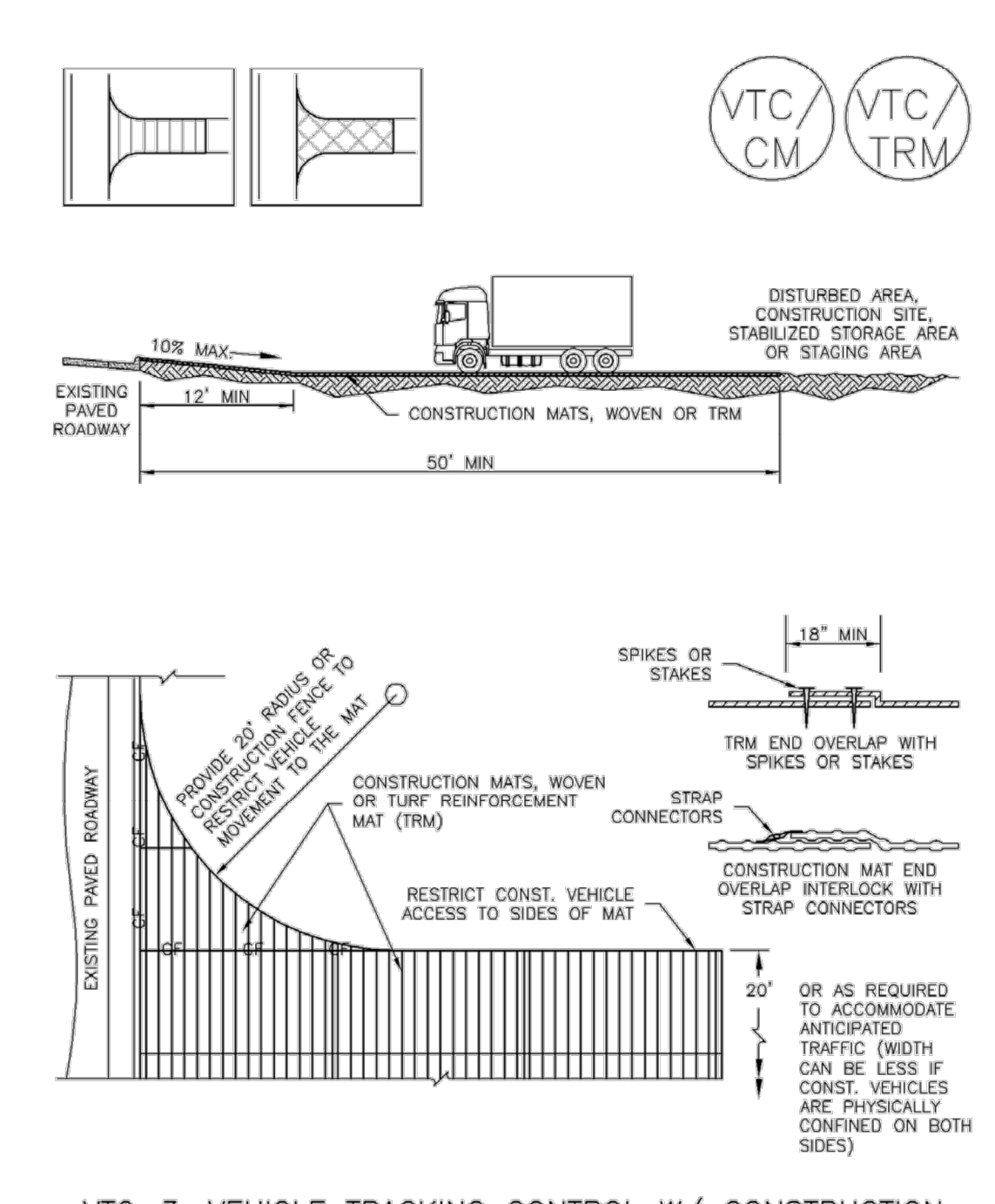
Vehicle Tracking Control (VTC) SM-4



VTC-2. AGGREGATE VEHICLE TRACKING CONTROL WITH WASH RACK

VTC-4 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 November 2010

Vehicle Tracking Control (VTC) SM-4



VTC-3. VEHICLE TRACKING CONTROL W/ CONSTRUCTION MAT OR TURF REINFORCEMENT MAT (TRM)

November 2010 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 VTC-5

Vehicle Tracking Control (VTC) SM-4

- STABILIZED CONSTRUCTION ENTRANCE/EXIT INSTALLATION NOTES**
- SEE PLAN VIEW FOR:
 - LOCATION OF CONSTRUCTION ENTRANCE(S)/EXIT(S).
 - TYPE OF CONSTRUCTION ENTRANCE(S)/EXIT(S) (WITH/WITHOUT WHEEL WASH, CONSTRUCTION MAT OR TRM).
 - CONSTRUCTION MAT OR TRM STABILIZED CONSTRUCTION ENTRANCES ARE ONLY TO BE USED ON SHORT DURATION PROJECTS (TYPICALLY RANGING FROM A WEEK TO A MONTH) WHERE THERE WILL BE LIMITED VEHICULAR ACCESS.
 - A STABILIZED CONSTRUCTION ENTRANCE/EXIT SHALL BE LOCATED AT ALL ACCESS POINTS WHERE VEHICLES ACCESS THE CONSTRUCTION SITE FROM PAVED RIGHT-OF-WAYS.
 - STABILIZED CONSTRUCTION ENTRANCE/EXIT SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.
 - A NON-WOVEN GEOTEXTILE FABRIC SHALL BE PLACED UNDER THE STABILIZED CONSTRUCTION ENTRANCE/EXIT PRIOR TO THE PLACEMENT OF ROCK.
 - UNLESS OTHERWISE SPECIFIED BY LOCAL JURISDICTION, ROCK SHALL CONSIST OF DOT SECT. #703, AASHTO #3 COARSE AGGREGATE OR 6" (MINUS) ROCK.
- STABILIZED CONSTRUCTION ENTRANCE/EXIT MAINTENANCE NOTES**
- 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.
 - FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
 - WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
 - ROCK SHALL BE REAPPLIED OR REGRADED AS NECESSARY TO THE STABILIZED ENTRANCE/EXIT TO MAINTAIN A CONSISTENT DEPTH.
 - SEDIMENT TRACKED ONTO PAVED ROADS IS TO BE REMOVED THROUGHOUT THE DAY AND AT THE END OF THE DAY BY SHOVELING OR SWEEPING. SEDIMENT MAY NOT BE WASHED DOWN STORM SEWER DRAINS.
- 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.
- (DETAILS ADAPTED FROM CITY OF BROOMFIELD, COLORADO, NOT AVAILABLE IN AUTOCAD)

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

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EL PASO COUNTY, COLORADO
CONSTRUCTION PLANS
GRADING AND EROSION CONTROL PLAN
DETAIL GPCP

CLIENT: CHALLENGER HOMES

DATE: 4/18/2023

A 1st SUBMITTAL TO EPC 07/29/2022 - RDL

REVISIONS:

COUNTY FILE NO.: PUDSP-22-005

DR. JD CH.

P.M. RDL

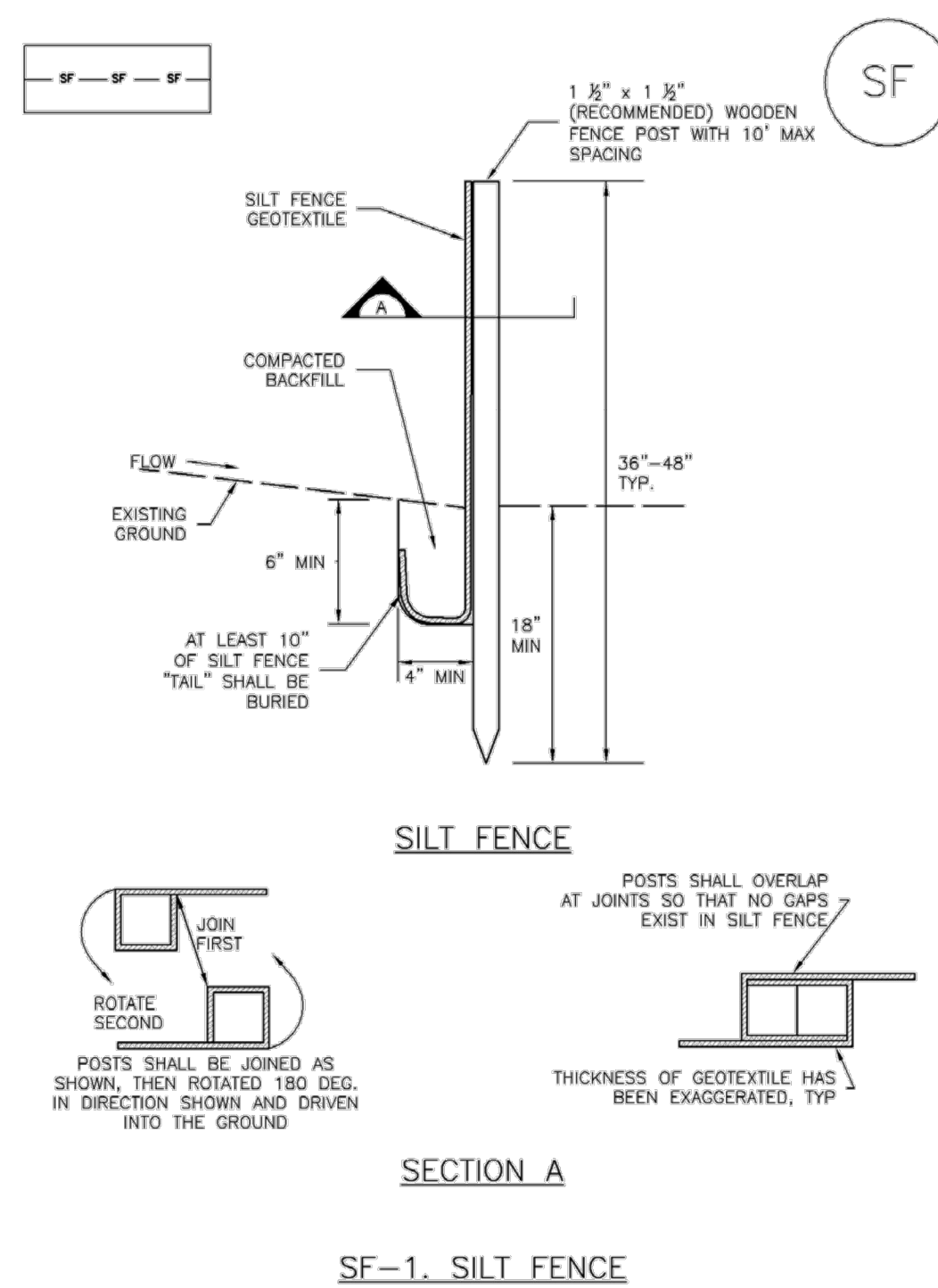
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Silt Fence (SF)

SC-1



November 2010 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 SF-3

SC-1

Silt Fence (SF)

SILT FENCE INSTALLATION NOTES

1. SILT FENCE MUST BE PLACED AWAY FROM THE TOE OF THE SLOPE TO ALLOW FOR WATER PONDING. SILT FENCE AT THE TOE OF A SLOPE SHOULD BE INSTALLED IN A FLAT LOCATION AT LEAST SEVERAL FEET (2-5 FT) FROM THE TOE OF THE SLOPE TO ALLOW ROOM FOR PONDING AND DEPOSITION.
2. A UNIFORM 6" X 4" ANCHOR TRENCH SHALL BE EXCAVATED USING TRENCHER OR SILT FENCE INSTALLATION DEVICE. NO ROAD GRADERS, BACKHOES, OR SIMILAR EQUIPMENT SHALL BE USED.
3. COMPACT ANCHOR TRENCH BY HAND WITH A "JUMPING JACK" OR BY WHEEL ROLLING. COMPACTION SHALL BE SUCH THAT SILT FENCE RESISTS BEING PULLED OUT OF ANCHOR TRENCH BY HAND.
4. SILT FENCE SHALL BE PULLED TIGHT AS IT IS ANCHORED TO THE STAKES. THERE SHOULD BE NO NOTICEABLE SAG BETWEEN STAKES AFTER IT HAS BEEN ANCHORED TO THE STAKES.
5. SILT FENCE FABRIC SHALL BE ANCHORED TO THE STAKES USING 1" HEAVY DUTY STAPLES OR NAILS WITH 1" HEADS. STAPLES AND NAILS SHOULD BE PLACED 3" ALONG THE FABRIC DOWN THE STAKE.
6. AT THE END OF A RUN OF SILT FENCE ALONG A CONTOUR, THE SILT FENCE SHOULD BE TURNED PERPENDICULAR TO THE CONTOUR TO CREATE A "U-HOOK". THE "U-HOOK" EXTENDING PERPENDICULAR TO THE CONTOUR SHOULD BE OF SUFFICIENT LENGTH TO KEEP RUNOFF FROM FLOWING AROUND THE END OF THE SILT FENCE (TYPICALLY 10' - 20').
7. SILT FENCE SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.

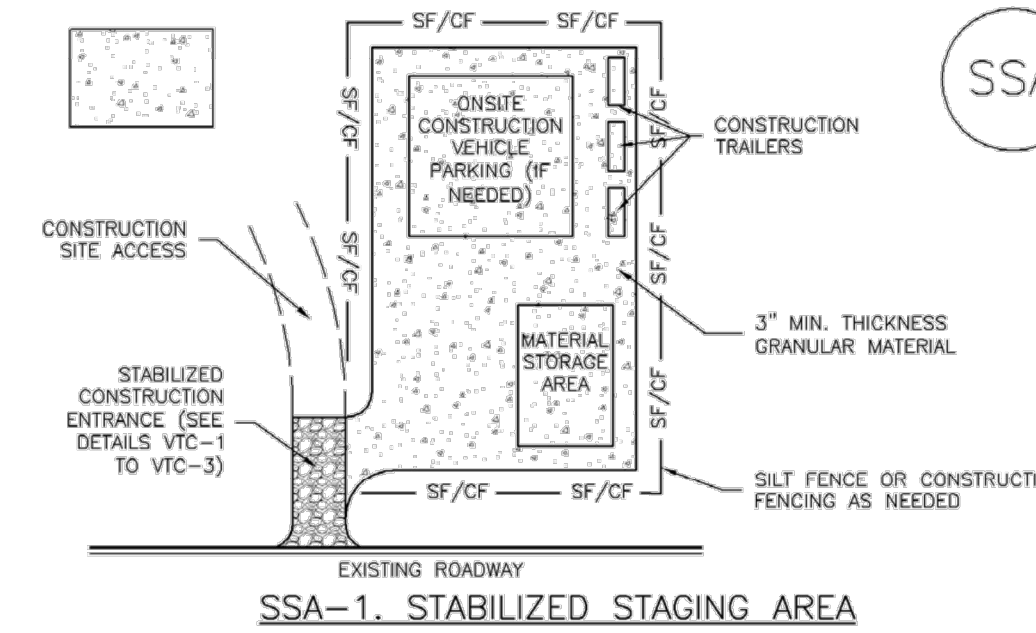
SILT FENCE MAINTENANCE NOTES

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. SEDIMENT ACCUMULATED UPSTREAM OF THE SILT FENCE SHALL BE REMOVED AS NEEDED TO MAINTAIN THE FUNCTIONALITY OF THE BMP, TYPICALLY WHEN DEPTH OF ACCUMULATED SEDIMENTS IS APPROXIMATELY 6".
 5. REPAIR OR REPLACE SILT FENCE WHEN THERE ARE SIGNS OF WEAR, SUCH AS SAGGING, TEARING, OR COLLAPSE.
 6. SILT FENCE IS TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION, OR IS REPLACED BY AN EQUIVALENT PERIMETER SEDIMENT CONTROL BMP.
 7. WHEN SILT FENCE IS REMOVED, ALL DISTURBED AREAS SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.
- (DETAILS ADAPTED FROM TOWN OF PARKER, COLORADO AND CITY OF AURORA, 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.

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Stabilized Staging Area (SSA)

SM-6



- SSA-1. STABILIZED STAGING AREA
- STABILIZED STAGING AREA INSTALLATION NOTES
1. SEE PLAN VIEW FOR:
 - LOCATION OF STAGING AREA(S).
 - CONTRACTOR MAY ADJUST LOCATION AND SIZE OF STAGING AREA WITH APPROVAL FROM THE LOCAL JURISDICTION.
 2. STABILIZED STAGING AREA SHOULD BE APPROPRIATE FOR THE NEEDS OF THE SITE. OVERSIZING RESULTS IN A LARGER AREA TO STABILIZE FOLLOWING CONSTRUCTION.
 3. STAGING AREA SHALL BE STABILIZED PRIOR TO OTHER OPERATIONS ON THE SITE.
 4. THE STABILIZED STAGING AREA SHALL CONSIST OF A MINIMUM 3" THICK GRANULAR MATERIAL.
 5. UNLESS OTHERWISE SPECIFIED BY LOCAL JURISDICTION, ROCK SHALL CONSIST OF DOT SECT. #703, MSHTO #3 COARSE AGGREGATE OR 6" (MINUS) ROCK.
 6. ADDITIONAL PERIMETER BMPs MAY BE REQUIRED INCLUDING BUT NOT LIMITED TO SILT FENCE AND CONSTRUCTION FENCING.
- STABILIZED STAGING AREA MAINTENANCE NOTES
1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
 2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
 3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
 4. ROCK SHALL BE REAPPLIED OR REGRADED AS NECESSARY IF RUTTING OCCURS OR UNDERLYING SUBGRADE BECOMES EXPOSED.

SSA-3 November 2010 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3

SM-6

Stabilized Staging Area (SSA)

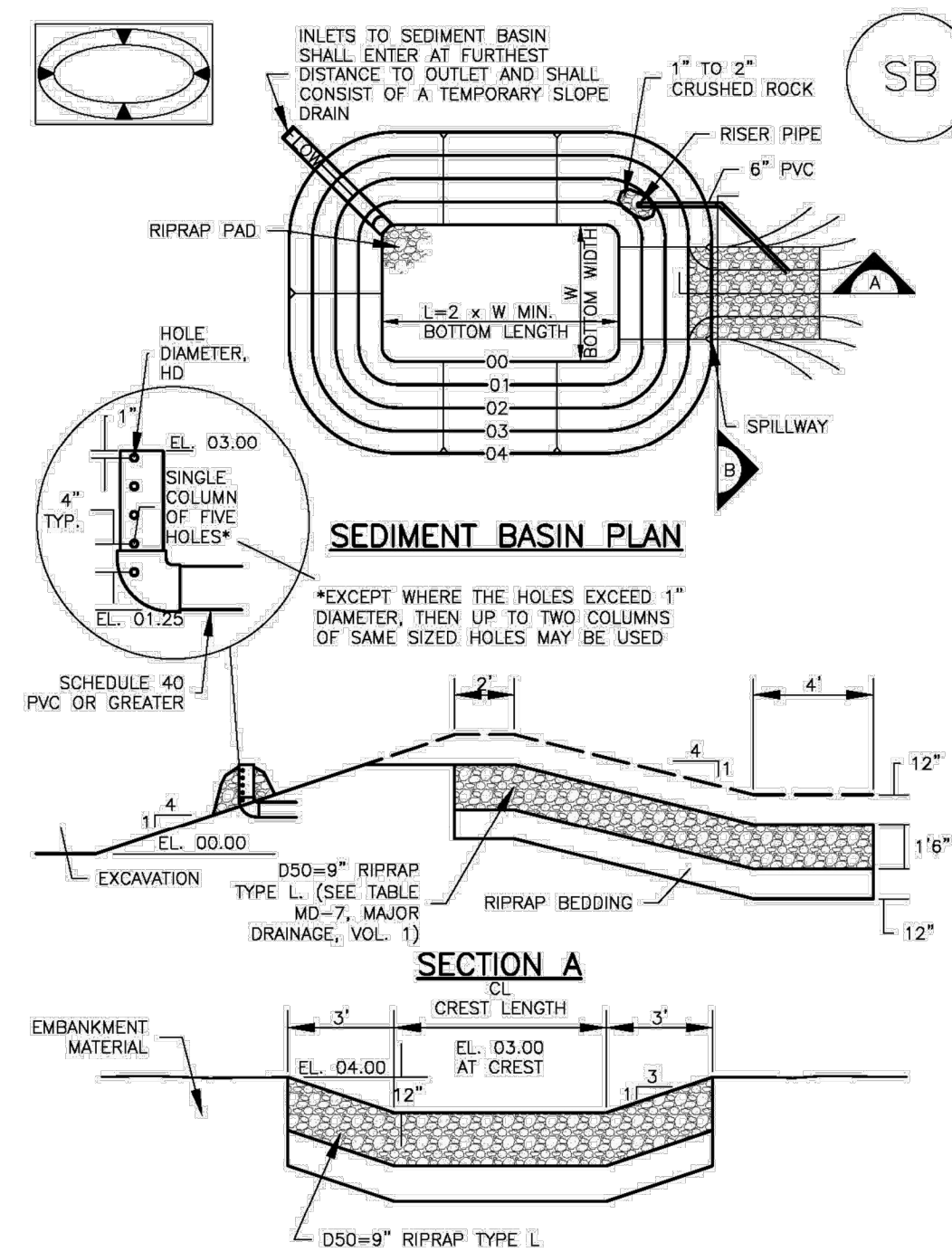
STABILIZED STAGING AREA MAINTENANCE NOTES

5. STABILIZED STAGING AREA SHALL BE ENLARGED IF NECESSARY TO CONTAIN PARKING, STORAGE, AND UNLOADING/LOADING OPERATIONS.
 6. THE STABILIZED STAGING AREA SHALL BE REMOVED AT THE END OF CONSTRUCTION. THE GRANULAR MATERIAL SHALL BE REMOVED OR, IF APPROVED BY THE LOCAL JURISDICTION, USED ON SITE, AND THE AREA COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY LOCAL JURISDICTION.
- NOTE: MANY MUNICIPALITIES PROHIBIT THE USE OF RECYCLED CONCRETE AS GRANULAR MATERIAL FOR STABILIZED STAGING AREAS DUE TO DIFFICULTIES WITH RE-ESTABLISHMENT OF VEGETATION IN AREAS WHERE RECYCLED CONCRETE WAS PLACED.
- 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.
- (DETAILS ADAPTED FROM DOUGLAS COUNTY, COLORADO, NOT AVAILABLE IN AUTOCAD)

SSA-4 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 November 2010

Sediment Basin (SB)

SC-7



August 2013 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 SB-5

SC-7

Sediment Basin (SB)

TABLE SB-1. SIZING INFORMATION FOR STANDARD SEDIMENT BASIN

Upstream Drainage Area (rounded to nearest acre), (ac)	Basin Bottom Width (W), (ft)	Spillway Crest Length (CL), (ft)	Hole Diameter (HD), (in)
1	12 1/2	2	3/4
2	21	3	1 1/4
3	28	5	2
4	33 1/2	6	2 1/4
5	38 1/2	8	2 3/4
6	43	9	2 3/4
7	47 1/2	11	2 3/4
8	51	12	2 3/4
9	55	13	2 3/4
10	58 1/2	15	2 3/4
11	61	16	2 3/4
12	64	18	2 3/4
13	67 1/2	19	2 3/4
14	70 1/2	21	2 3/4
15	73 1/2	22	2 3/4

SEDIMENT BASIN INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
 - LOCATION OF SEDIMENT BASIN.
 - TYPE OF BASIN (STANDARD BASIN OR NONSTANDARD BASIN).
 - FOR STANDARD BASIN, BOTTOM WIDTH W, CREST LENGTH CL, AND HOLE DIAMETER, HD.
 - FOR NONSTANDARD BASIN, SEE CONSTRUCTION DRAWINGS FOR DESIGN OF BASIN INCLUDING RISER HEIGHT H, NUMBER OF COLUMNS N, HOLE DIAMETER HD AND PIPE DIAMETER D.
2. FOR STANDARD BASIN, BOTTOM DIMENSION MAY BE MODIFIED AS LONG AS BOTTOM AREA IS NOT REDUCED.
3. SEDIMENT BASINS SHALL BE INSTALLED PRIOR TO ANY OTHER LAND-DISTURBING ACTIVITY THAT RELIES ON ON BASINS AS A STORMWATER CONTROL.
4. EMBANKMENT MATERIAL SHALL CONSIST OF SOIL FREE OF DEBRIS, ORGANIC MATERIAL, AND ROCKS OR CONCRETE GREATER THAN 3 INCHES AND SHALL HAVE A MINIMUM OF 15 PERCENT BY WEIGHT PASSING THE NO. 200 SIEVE.
5. EMBANKMENT MATERIAL SHALL BE COMPACTED TO AT LEAST 95 PERCENT OF MAXIMUM DENSITY IN ACCORDANCE WITH ASTM D698.
6. PIPE SCH 40 OR GREATER SHALL BE USED.
7. THE DETAILS SHOWN ON THESE SHEETS PERTAIN TO STANDARD SEDIMENT BASIN(S) FOR DRAINAGE AREAS LESS THAN 15 ACRES. SEE CONSTRUCTION DRAWINGS FOR EMBANKMENT, STORAGE VOLUME, SPILLWAY, OUTLET, AND OUTLET PROTECTION DETAILS FOR ANY SEDIMENT BASIN(S) THAT HAVE BEEN INDIVIDUALLY DESIGNED FOR DRAINAGE AREAS LARGER THAN 15 ACRES.

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Sediment Basin (SB)

SC-7

SEDIMENT BASIN 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. SEDIMENT ACCUMULATED IN BASIN SHALL BE REMOVED AS NEEDED TO MAINTAIN BMP EFFECTIVENESS. TYPICALLY WHEN SEDIMENT DEPTH REACHES ONE FOOT (I.E., TWO FEET BELOW THE SPILLWAY CREST).
 5. SEDIMENT BASINS ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND GRASS COVER IS ACCEPTED BY THE LOCAL JURISDICTION.
 6. WHEN SEDIMENT BASINS ARE REMOVED, ALL DISTURBED AREAS SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.
- (DETAILS ADAPTED FROM DOUGLAS COUNTY, COLORADO)
- 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.

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Know what's below. Call before you dig.

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

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

(DETAILS ADAPTED FROM DOUGLAS COUNTY, COLORADO, NOT AVAILABLE IN AUTOCAD)

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 JIM BYERS

CHALLENGER HOMES
 FALCON HIGHLANDS SOUTH
 EL PASO COUNTY, COLORADO
 CONSTRUCTION PLANS
 GRADING AND EROSION CONTROL PLAN
 DETAIL GPCP

CLIENT
 DATE 4/18/2023
 A 1st SUBMITTAL TO EPC 07/29/2022 - RDL

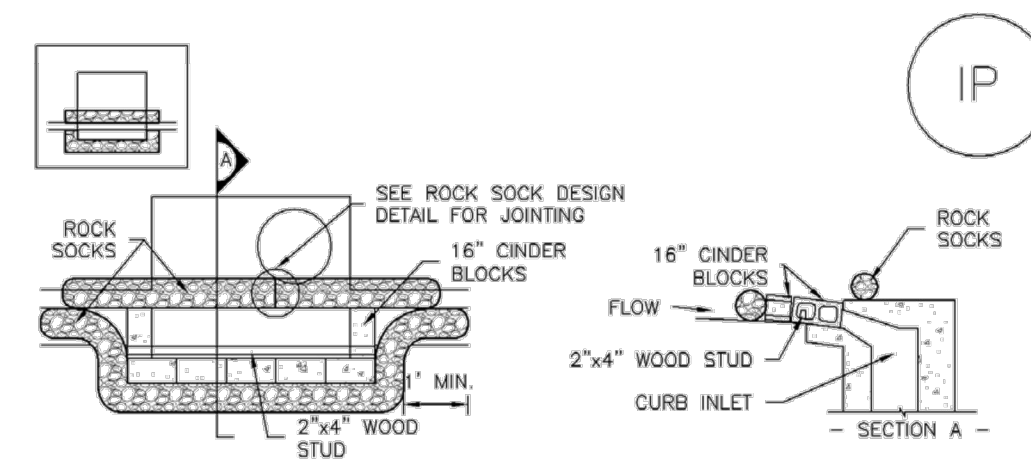
REVISIONS

COUNTY FILE NO.: PUDSP-22-005

DR. JD CH.
 P.M. RDL

JOB 21005234
 SHEET NO. 16

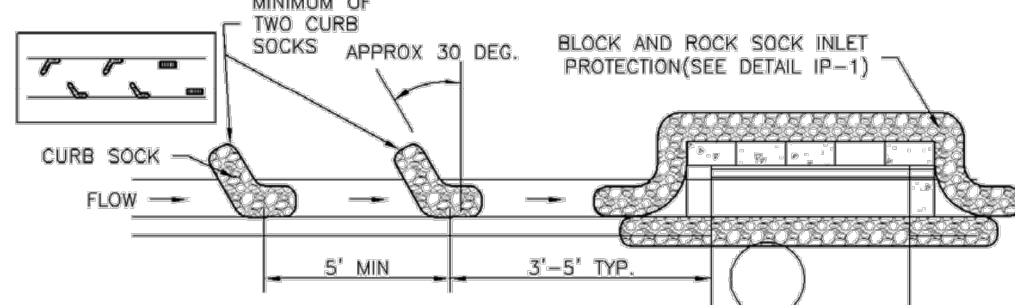
SC-6 Inlet Protection (IP)



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. DRAWL BARS SHALL BE PLACED AROUND CONCRETE BLOCKS, CLOSELY ABUTTING ONE ANOTHER AND JOINED TOGETHER IN ACCORDANCE WITH ROCK SOCK DESIGN DETAIL.



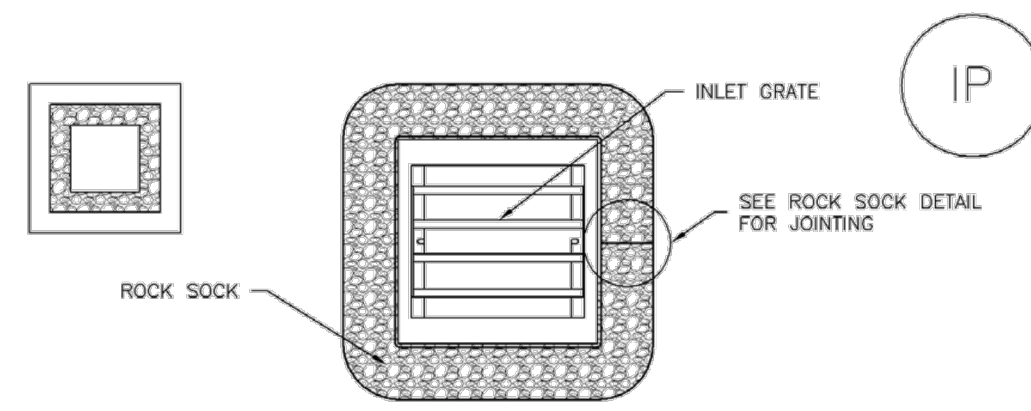
IP-2. CURB ROCK SOCKS UPSTREAM OF INLET PROTECTION

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-4 Urban Drainage and Flood Control District August 2013
Urban Storm Drainage Criteria Manual Volume 3

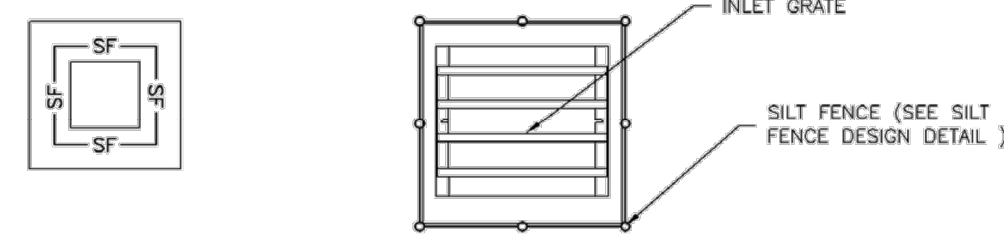
Inlet Protection (IP) SC-6



IP-3. ROCK SOCK SUMP/AREA INLET PROTECTION

ROCK SOCK SUMP/AREA INLET PROTECTION INSTALLATION NOTES

1. SEE ROCK SOCK DESIGN DETAIL FOR INSTALLATION REQUIREMENTS.
2. STRAW WATTLES/SEDIMENT CONTROL LOGS MAY BE USED IN PLACE OF ROCK SOCKS FOR INLETS IN PERVIOUS AREAS. INSTALL PER SEDIMENT CONTROL LOG DETAIL.



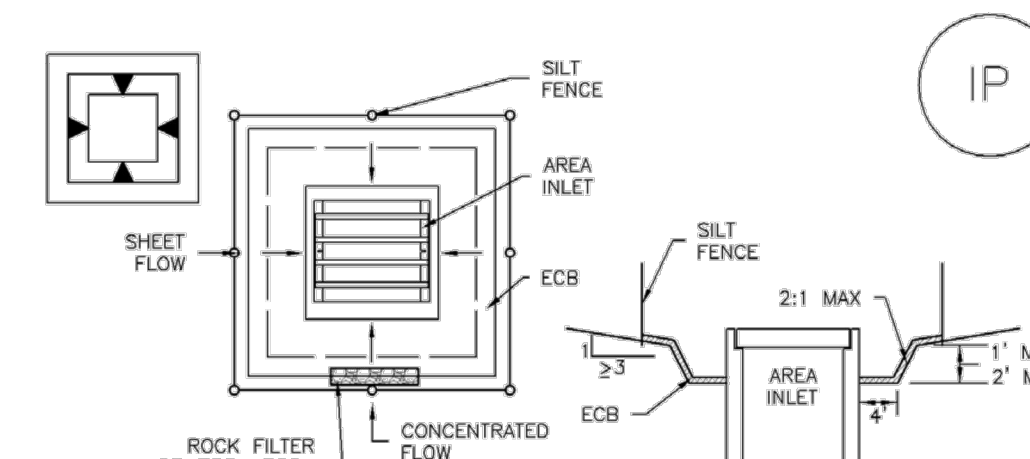
IP-4. SILT FENCE FOR SUMP INLET PROTECTION

SILT FENCE INLET PROTECTION INSTALLATION NOTES

1. SEE SILT FENCE DESIGN DETAIL FOR INSTALLATION REQUIREMENTS.
2. POSTS SHALL BE PLACED AT EACH CORNER OF THE INLET AND AROUND THE EDGES AT A MAXIMUM SPACING OF 3 FEET.
3. STRAW WATTLES/SEDIMENT CONTROL LOGS MAY BE USED IN PLACE OF SILT FENCE FOR INLETS IN PERVIOUS AREAS. INSTALL PER SEDIMENT CONTROL LOG DETAIL.

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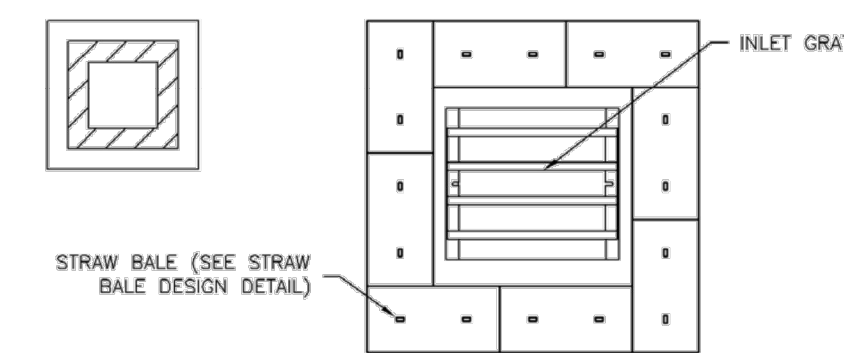
SC-6 Inlet Protection (IP)



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.



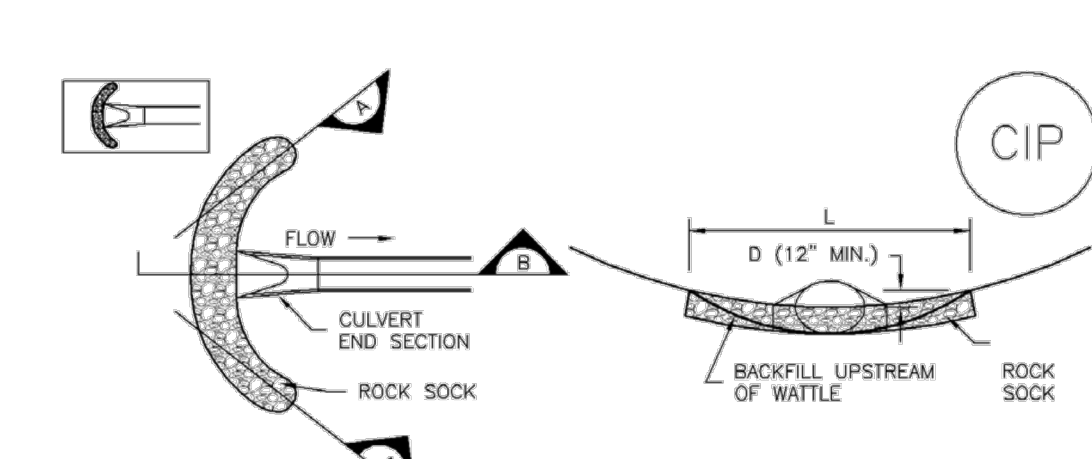
IP-6. STRAW BALE FOR SUMP INLET PROTECTION

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.

IP-6 Urban Drainage and Flood Control District August 2013
Urban Storm Drainage Criteria Manual Volume 3

Inlet Protection (IP) SC-6



CIP-1. CULVERT INLET PROTECTION

CULVERT INLET PROTECTION INSTALLATION NOTES

1. SEE PLAN VIEW FOR LOCATION OF CULVERT INLET PROTECTION.
2. SEE ROCK SOCK DESIGN DETAIL FOR ROCK GRADATION REQUIREMENTS AND JOINTING DETAIL.

CULVERT INLET PROTECTION MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROMPTIVE, 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. SEDIMENT ACCUMULATED UPSTREAM OF THE CULVERT SHALL BE REMOVED WHEN THE SEDIMENT DEPTH IS 1/2 THE HEIGHT OF THE ROCK SOCK.
5. CULVERT INLET PROTECTION SHALL REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS PERMANENTLY STABILIZED AND APPROVED BY THE LOCAL JURISDICTION.

(DETAILS ADAPTED FROM AURORA, COLORADO, NOT AVAILABLE IN AUTOCAD)
NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM USDCM STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

August 2013 Urban Drainage and Flood Control District IP-7
Urban Storm Drainage Criteria Manual Volume 3

Mulching (MU) EC-4

Description

Mulching consists of evenly applying straw, hay, shredded wood mulch, rock, bark or compost to disturbed soils and securing the mulch by crimping, tackifiers, netting or other measures. Mulching helps reduce erosion by protecting bare soil from rainfall impact, increasing infiltration, and reducing runoff. Although often applied in conjunction with temporary or permanent seeding, it can also be used for temporary stabilization of areas that cannot be reseeded due to seasonal constraints.



Photograph MU-1. An area that was recently seeded, mulched, and crimped.

Mulch can be applied either using standard mechanical dry application methods or using hydromulching equipment that hydraulically applies a slurry of water, wood fiber mulch, and often a tackifier.

Appropriate Uses

Use mulch in conjunction with seeding to help protect the seedbed and stabilize the soil. Mulch can also be used as a temporary cover on low to mild slopes to help temporarily stabilize disturbed areas where growing season constraints prevent effective reseeding. Disturbed areas should be properly mulched and tacked, or seeded, mulched and tacked promptly after final grade is reached (typically within no longer than 14 days) on portions of the site not otherwise permanently stabilized.

Standard dry mulching is encouraged in most jurisdictions; however, hydromulching may not be allowed in certain jurisdictions or may not be allowed near waterways.

Do not apply mulch during windy conditions.

Design and Installation

Prior to mulching, surface-roughen areas by rolling with a crimping or punching type roller or by track walking. Track walking should only be used where other methods are impractical because track walking with heavy equipment typically compacts the soil.

A variety of mulches can be used effectively at construction sites. Consider the following:

Mulch	
Functions	
Erosion Control	Yes
Sediment Control	Moderate
Site/Material Management	No

June 2012 Urban Drainage and Flood Control District MU-1
Urban Storm Drainage Criteria Manual Volume 3

Mulching (MU) EC-4

- Clean, weed-free and seed-free cereal grain straw should be applied evenly at a rate of 2 tons per acre and must be tacked or fastened by a method suitable for the condition of the site. Straw mulch must be anchored (and not merely placed) on the surface. This can be accomplished mechanically by crimping or with the aid of tackifiers or nets. Anchoring with a crimping implement is preferred, and is the recommended method for areas flatter than 3:1. Mechanical crimpers must be capable of tucking the long mulch fibers into the soil to a depth of 3 inches without cutting them. An agricultural disk, while not an ideal substitute, may work if the disk blades are dull or blunted and set vertically; however, the frame may have to be weighted to afford proper soil penetration.
- Grass hay may be used in place of straw; however, because hay is comprised of the entire plant including seed, mulching with hay may seed the site with non-native grass species which might in turn out-compete the native seed. Alternatively, native species of grass hay may be purchased, but can be difficult to find and are more expensive than straw. Purchasing and utilizing a certified weed-free straw is an easier and less costly mulching method. When using grass hay, follow the same guidelines as for straw (provided above).
- On small areas sheltered from the wind and heavy runoff, spraying a tackifier on the mulch is satisfactory for holding it in place. For steep slopes and special situations where greater control is needed, erosion control blankets anchored with stakes should be used instead of mulch.
- Hydraulic mulching consists of wood cellulose fibers mixed with water and a tackifying agent and should be applied at a rate of no less than 1,500 pounds per acre (1,425 lbs of fibers mixed with at least 75 lbs of tackifier) with a hydraulic mulcher. For steeper slopes, up to 2000 pounds per acre may be required for effective hydroseeding. Hydromulch typically requires up to 24 hours to dry; therefore, it should not be applied immediately prior to inclement weather. Application to roads, waterways and existing vegetation should be avoided.
- Erosion control mats, blankets, or nets are recommended to help stabilize steep slopes (generally 3:1 and steeper) and waterways. Depending on the product, these may be used alone or in conjunction with grass or straw mulch. Normally, use of these products will be restricted to relatively small areas. Biodegradable mats made of straw and jute, straw-coconut, coconut fiber, or excelsior can be used instead of mulch. (See the ECM/TRM BMP for more information.)
- Some tackifiers or binders may be used to anchor mulch. Check with the local jurisdiction for allowed tackifiers. Manufacturer's recommendations should be followed at all times. (See the Soil Binder BMP for more information on general types of tackifiers.)
- Rock can also be used as mulch. It provides protection of exposed soils to wind and water erosion and allows infiltration of precipitation. An aggregate base course can be spread on disturbed areas for temporary or permanent stabilization. The rock mulch layer should be thick enough to provide full coverage of exposed soil on the area it is applied.

Maintenance and Removal

After mulching, the bare ground surface should not be more than 10 percent exposed. Reapply mulch, as needed, to cover bare areas.

June 2012 Urban Drainage and Flood Control District MU-2
Urban Storm Drainage Criteria Manual Volume 3

EC-2 Temporary and Permanent Seeding (TS/PS)

Table TS/PS-1. Minimum Drill Seeding Rates for Various Temporary Annual Grasses

Species* (Common name)	Growth Season*	Pounds of Pure Live Seed (PLS)/acre ^c	Planting Depth (inches)
1. Oats	Cool	35 - 50	1 - 2
2. Spring wheat	Cool	25 - 35	1 - 2
3. Spring barley	Cool	25 - 35	1 - 2
4. Annual ryegrass	Cool	10 - 15	1/2
5. Millet	Warm	3 - 15	1/2 - 3/4
6. Winter wheat	Cool	20-35	1 - 2
7. Winter barley	Cool	20-35	1 - 2
8. Winter rye	Cool	20-35	1 - 2
9. Triticale	Cool	25-40	1 - 2

* Successful seeding of annual grass resulting in adequate plant growth will usually produce enough dead-plant residue to provide protection from wind and water erosion for an additional year. This assumes that the cover is not disturbed or mowed closer than 8 inches.

Hydraulic seeding may be substituted for drilling only where slopes are steeper than 3:1 or where access limitations exist. When hydraulic seeding is used, hydraulic mulching should be applied as a separate operation, when practical, to prevent the seeds from being encapsulated in the mulch.

^b See Table TS/PS-2 for seeding dates. Irrigation, if consistently applied, may extend the use of cool season species during the summer months.

^c Seeding rates should be doubled if seed is broadcast, or increased by 50 percent if done using a Brillion Drill or by hydraulic seeding.

January 2021 Urban Drainage and Flood Control District TS/PS-4
Urban Storm Drainage Criteria Manual Volume 3

Temporary and Permanent Seeding (TS/PS) EC-2

Table TS/PS-2. Seeding Dates for Annual and Perennial Grasses

Seeding Dates	Annual Grasses (Numbers in table reference species in Table TS/PS-1)		Perennial Grasses	
	Warm	Cool	Warm	Cool
January 1-March 15			✓	✓
March 16-April 30		1,2,3	✓	✓
May 1-May 15			✓	
May 16-June 30	5			
July 1-July 15	5			
July 16-August 31				
September 1-September 30		6, 7, 8, 9		
October 1-December 31			✓	✓

Mulch

Cover seeded areas with mulch or an appropriate rolled erosion control product to promote establishment of vegetation. Anchor mulch by crimping, netting or use of a non-toxic tackifier. See the USDCM Volume 2 *Revegetation* Chapter and Volume 3 *Mulching BMP Fact Sheet (EC-04)* for additional guidance.

Maintenance and Removal

Monitor and observe seeded areas to identify areas of poor growth or areas that fail to germinate. Reseed and mulch these areas, as needed.

If a temporary annual seed was planted, the area should be reseeded with the desired perennial mix when there will be no further work in the area. To minimize competition between annual and perennial species, the annual mix needs time to mature and die before seeding the perennial mix. To increase success of the perennial mix, it should be seeded during the appropriate seeding dates the second year after the temporary annual mix was seeded. Alternatively, if this timeline is not feasible, the annual mix seed heads should be removed and then the area seeded with the perennial mix.

An area that has been permanently seeded should have a good stand of vegetation within one growing season if irrigated and within three growing seasons without irrigation in Colorado. Reseed portions of the site that fail to germinate or remain bare after the first growing season.

Seeded areas may require irrigation, particularly during extended dry periods. Targeted weed control may also be necessary.

Protect seeded areas from construction equipment and vehicle access.

January 2021 Urban Drainage and Flood Control District TS/PS-5
Urban Storm Drainage Criteria Manual Volume 3



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

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

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CLIENT

DATE 4/18/2023

A 1st SUBMITTAL TO EPC 07/29/2022 - RDL

REVISIONS

COUNTY FILE NO.: PUDSP-22-005

DR. JD CH.

P.M. RDL

JOB 21005234

SHEET NO.

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